## FINAL

California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles

This Page Intentionally Left Blank

# State of California <br> AIR RESOURCES BOARD 

FINAL

# CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL ENGINES AND VEHICLES 



Note: The proposed regulatory language is shown in strikethrough to indicate deletions and underline to indicate additions. Subsections for which no changes are proposed in this rulemaking are indicated with [No change] or "*

NOTE: This document is incorporated by reference in section 1956.8(edb), title 13, California Code of Regulations ("CCR") and also incorporates by reference various sections of Title 40, Part 86 of the Code of Federal Regulations, with some modifications. It contains the majority of the requirements necessary for certification of heavy-duty diesel engines for sale in California, in addition to containing the exhaust emissions standards and test procedures for these diesel engines. ${ }^{1}$ The section numbering conventions for this document are set forth in subparagraph 4 on page 6. Reference is also made in this document to other California-specific requirements that are necessary to complete an application for certification. These other documents are designed to be used in conjunction with this document. They include:

1. "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," (incorporated by reference in section 1976, title 13, CCR);
2. Warranty requirements (sections 2035, et seq., title 13, CCR);
3. Warranty requirements (sections 2036, et seq., title 13, CCR);
4. OBD II (section 1968, et seq., title 13, CCR, as applicable);
5. HD OBD (sections 1971, et seq., title 13, CCR, as applicable);
6. "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels through 2014," (incorporated by reference in section 2317, title 13, CCR); and
7. "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels in 2015 and Subsequent Years," (incorporated by reference in (section 2317, title 13, CCR).
[^0]
# CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL ENGINES AND VEHICLES 

The following provisions of Subparts A, I, N, S, and T, Part 86, of Subparts A through I, Part 1036, of Subparts A through L, Part 1065, and of Subparts A and E, Part 1068, Title 40, Code of Federal Regulations, as adopted or amended by the U.S. Environmental Protection Agency on the date set forth next to the applicable section listed below, and only to the extent they pertain to the testing and compliance of exhaust emissions from heavy-duty diesel engines and vehicles, are adopted and incorporated herein by this reference as the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," except as altered or replaced by the provisions set forth below.

## PART 86 - CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES

## I. GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS.

§86.1 Incorporation by reference. October 25, 2016.

## Subpart A - General Provisions for Heavy-Duty Engines and Heavy-Duty Vehicles.

1. General Applicability. [§86.xxx-1]

## A. Federal Provisions.

2. Definitions. [§86.xxx-2]

## A. Federal Provisions.

1. §86.004-2 October 25, 2016. [All federal definitions apply, except as otherwise noted below. Definitions specific to other requirements are contained in separate documents.]
1.1 Introductory text and definitions "Ambulance" through "U.S.-directed production." [No change.]
1.2 Amend "Useful Life" definition as follows:
1.2.1 Subparagraphs (1) through (3). [ $\mathrm{n} / \mathrm{a}$ ]
1.2.2 Delete and replace subparagraph (4) as follows:
(4) For a diesel HDE family:
(i) For light heavy-duty engines:
(A) For 2004 through 2026 model-year light heavy-duty diesel engines, excluding 2024 through 2026 model-year engines used in medium-duty vehicles with a GVWR from 10,001 to 14,000 pounds, for carbon monoxide, particulate, oxides of nitrogen, and non-methane hydrocarbons emission standards, a period of use of 10 years or 110,000 miles, whichever first occurs.
(B) For 2027 through 2030 model-year light heavy-duty diesel engines used in heavy-duty vehicles with a GVWR greater than 14,000 pounds, for carbon monoxide, particulate, oxides of nitrogen, and nonmethane hydrocarbons emission standards, a period of use of 12 years or 190,000 miles, whichever first occurs.
(C) For 2031 and subsequent model-year light heavy-duty diesel engines used in heavy-duty vehicles with a GVWR greater than 14,000 pounds, for carbon monoxide, particulate, oxides of nitrogen, and nonmethane hydrocarbons emission standards, a period of use of 15 years or 270,000 miles, whichever first occurs.
(D) For 2024 and subsequent model diesel engines used in medium-duty vehicles with a GVWR from 10,001 to 14,000 pounds, for carbon monoxide, particulate, oxides of nitrogen, and non-methane hydrocarbons emission standards, a period of use of 15 years or 150,000 miles, whichever first occurs.
(ii) For medium heavy-duty engines:
(A) For 2004 through 2026 model-year medium heavy-duty diesel engines, for carbon monoxide, particulate, oxides of nitrogen, and nonmethane hydrocarbons emission standards, a period of use of 10 years or 185,000 miles, whichever first occurs.
(B) For 2027 through 2030 model-year medium heavy-duty diesel engines, for carbon monoxide, particulate, oxides of nitrogen, and nonmethane hydrocarbons emission standards, a period of use of 11 years or 270,000 miles, whichever first occurs.
(C) For 2031 and subsequent model-year medium heavy-duty diesel engines, for carbon monoxide, particulate, oxides of nitrogen, and non-methane hydrocarbons emission standards, a period of use of 12 years or 350,000 miles, whichever first occurs.
(iii) For heavy heavy-duty engines:
(A) For 2004 through 2026 model-year heavy heavy-duty diesel engines, 2004 through 2026 model-year heavy-duty diesel urban buses, 2004 through 2026 model-year heavy-duty diesel engines to be used in urban buses, and 2004 through 2026 model year hybrid-electric urban buses for carbon monoxide, particulate, oxides of nitrogen, and non-methane hydrocarbons emission standards, a period of use of 10 years or 435,000 miles, or 22,000 hours, whichever first occurs, except as provided in paragraphs (4)(iii)(A)(1) and (4)(iii)(A)(2).
(1) The useful life limit of 22,000 hours in paragraph (4)(iii)(A) of this definition is effective as a limit to the useful life only when an accurate hours meter is provided by the manufacturer with the engine and only when such hours meter can reasonably be expected to operate properly over the useful life of the engine.
(2) For an individual engine, if the useful life hours limit of 22,000 hours is reached before the engine reaches 10 years or 100,000 miles, the useful life shall become 10 years or 100,000 miles, whichever first occurs.
(B) For 2027 through 2030 model-year heavy heavy-duty diesel engines, 2027 through 2030 model-year heavy-duty diesel urban buses, 2027 through 2030 model-year heavy-duty diesel engines to be used in urban buses, and 2027 through 2030 model year hybrid-electric urban buses for carbon monoxide, particulate, oxides of nitrogen, and non-methane hydrocarbons emission standards, a period of use of 11 years or 600,000 miles, or 30,000 hours, whichever first occurs, except as provided in paragraphs (4)(iii)(B)(1) and (4)(iii)(B)(2).
(1) The useful life limit of 30,000 hours in paragraph (4)(iii)(B) of this definition is effective as a limit to the useful life only if the manufacturer equips the engine with an hours meter that accurately records and reports the hours that the engine is operated throughout its useful life. The hours meter shall not count standby-idle time (key-on, engine off) as engine operating time for purposes of identifying the end of the useful life period, such as on a vehicle equipped with stop-start technology.
(2) For an individual engine, if the useful life hours limit of 30,000 hours is reached before the engine reaches 11 years or 450,000 miles, the useful life shall become 11 years or 450,000 miles, whichever first occurs.
(C) For 2031 and subsequent model-year heavy heavy-duty diesel engines, 2031 and subsequent model-year heavy-duty diesel urban buses,

2031 and subsequent model-year heavy-duty diesel engines to be used in urban buses, and 2031 and subsequent model year hybrid-electric urban buses for carbon monoxide, particulate, oxides of nitrogen, and non-methane hydrocarbons, a period of use of 12 years or 800,000 miles, or 40,000 hours, whichever first occurs, except as provided in paragraphs (4)(iii)(C)(1) and (4)(iii)(C)(2).
(1) The useful life limit of 40,000 hours in paragraph (4)(iii)(C) of this definition is effective as a limit to the useful life only if the manufacturer equips the engine with an hours meter that accurately records and reports the hours that the engine is operated throughout its useful life. The hours meter shall not count standby-idle time (key-on, engine off) as engine operating time for purposes of identifying the end of the useful life period, such as on a vehicle equipped with stop-start technology.
(2) For an individual engine, if the useful life hours limit of 40,000 hours is reached before the engine reaches 12 years or 600,000 miles, the useful life shall become 12 years or 600,000 miles, whichever first occurs.

### 1.2.3 Subparagraph (5). [No change.]

### 1.2.4 Add Subparagraph (6) as follows:

(6) For 2022 and subsequent model year diesel hybrid powertrain families optionally certified pursuant to title 13, CCR §1956.8:
(i) For 2022 through 2023 model year diesel hybrid powertrains used in incomplete vehicles with a GVWR from 10,001 to 14,000 pounds, the useful life periods and model year implementation schedules for light heavy-duty diesel engines in subparagraph (4)(i)(A) of this section, and for 2024 and subsequent model year diesel hybrid powertrains used in incomplete vehicles with a GVWR from 10,001 to 14,000 pounds, the useful life periods and model year implementation schedules for diesel engines in subparagraph (4)(i)(D) of this section, shall apply to the diesel hybrid powertrains.
(ii) For diesel hybrid powertrains primarily used in vehicles with a GVWR from 14,001 to 19,500 pounds, the useful life periods and model year implementation schedules for light heavy-duty diesel engines in subparagraph (4)(i) of this section shall apply to the diesel hybrid powertrains.
(iii) For diesel hybrid powertrains primarily used in vehicles with a GVWR from 19,501 to 33,000 pounds, the useful life periods and model year
implementation schedules for medium heavy-duty engines in subparagraph (4)(ii) of this section shall apply to the diesel hybrid powertrains.
(iv) For diesel hybrid powertrains primarily used in vehicles with a GVWR greater than 33,000 pounds, the useful life periods and model year implementation schedules for heavy heavy-duty diesel engines in subparagraph (4)(iii) of this section shall apply to the diesel hybrid powertrains.

### 1.3 Delete and replace "Warranty period" definition as follows:

Warranty period [For guidance see title 13, CCR, §2036].
2. $\S 86.010-2$ April 30, 2010. [All federal definitions apply, except as otherwise noted below. Definitions specific to other requirements are contained in separate documents.]
3. §86.012-2 September 15, 2011. [All federal definitions apply, except as otherwise noted below. Definitions specific to other requirements are contained in separate documents.]
3.1 Amend paragraph as follows: The definitions of 40 CFR §86.010-2 continue to apply to model year 2010 and later model year engines and vehicles. The definitions listed in this section apply beginning with model year 2012. "GHG Urban Bus" means a passenger-carrying vehicle with a load capacity of fifteen or more passengers and intended primarily for intracity operation, i.e., within the confines of a city or greater metropolitan area. GHG urban bus operation is characterized by short rides and frequent stops. To facilitate this type of operation, more than one set of quick-operating entrance and exit doors would normally be installed. Since fares are usually paid in cash or tokens, rather than purchased in advance in the form of tickets, GHG urban buses would normally have equipment installed for collection of fares. GHG urban buses are also typically characterized by the absence of equipment and facilities for long distance travel, e.g., rest rooms, large luggage compartments, and facilities for stowing carry-on luggage.

## B. California Provisions.

"Administrator" means the Executive Officer of the Air Resources Board.
"Automatic active regeneration" is an approved AECD that is active during normal operation of the vehicle for the purpose of restoring emissions aftertreatment component efficiency by raising exhaust temperature to manufacturer-specific targets and activating other controls as approved by the Executive Officer. The regeneration is triggered automatically by the ECM without operator or service request based on the conditions of operation, design limits, and other approved parameters specified in AECD description, and is indicated by the ECM as "active" while the event is in progress. Common examples include DPF regeneration to
oxidize accumulated soot, and actions to recover SCR efficiency due to, for example, accumulation of DEF deposits.
"ARB" means Air Resources Board or the Executive Officer of the Air Resources Board.
"Break-in period" means the service accumulation period before an engine and aftertreatment system is stabilized for emissions-data testing.
"California sales volume" means the number of new California certified engines, vehicles or powertrains sold to an ultimate purchaser in the State of California in a given model year.
"Certificate of Conformity" means "Executive Order" certifying vehicles for sale in California.
"Certification" means certification as defined in Section 39018 of the Health and Safety Code.
"Class 3" means a vehicle with a GVWR that is above 10,000 pounds but at or below 14,000 pounds.
"Class 4" means a vehicle with a GVWR that is above 14,000 pounds but at or below 16,000 pounds.
"Class 5" means a vehicle with a GVWR that is above 16,000 pounds but at or below 19,500 pounds.
"Class 6" means a vehicle with a GVWR that is above 19,500 pounds but at or below 26,000 pounds.
"Class 7" means a vehicle with a GVWR that is above 26,000 pounds but at or below 33,000 pounds.
"Class 8" means a vehicle with a GVWR that is above 33,000 pounds.
"Conformity Factor" means a multiplier to the emission standards used for inuse compliance testing with PEMS.
"Designated Compliance Officer" means the Executive Officer of the Air Resources Board or his or her delegate.
"EPA" shall also mean Air Resources Board or Executive Officer of the Air Resources Board
"EPA Enforcement Officer" means the Executive Officer or his or her delegate.
"Family certification level or FCL" means the family certification level as described in section 1036.801 of these test procedures.
"Field fix" means a modification, removal or replacement of an emissionrelated component by a manufacturer or dealer, or revision by a manufacturer for implementation by dealers to specifications or maintenance practices for emissionrelated components on engines that have left the assembly line.
"Greenhouse gas Emissions Model (GEM)" means the Greenhouse gas Emissions Model (GEM) Phase 2, Version 3.5.1, November 2020; incorporated by reference in 40 CFR $\$ 1037.810$ (c)(2), and for powertrain testing specified in 40 CFR § 1037.550(a) means GEM's MATLAB/Simulink Hardware-in-Loop model, version 3.8, December 2020 ("GEM HIL model"), last amended March 10, 2021 (Pre-publication), which is incorporated by reference herein.
"Heavy-Duty Transient Federal Test Procedure or FTP cycle" means the test procedure specified in 40 CFR $\S 86.007-11(\mathrm{a})(2)$, as amended October 25, 2016.
"Intermediate useful life" means the period of use of 435,000 miles or 8 years, whichever first occurs, applicable for the intermediate emission standards for oxides of nitrogen for 2027 and subsequent model year heavy heavy-duty diesel engines.
"Intermediate useful life NOx standard" means the emissions standards for oxides of nitrogen applicable to the intermediate useful life for 2027 and subsequent model year heavy heavy-duty-diesel engines.
"In-use threshold" means the value of the emission standards multiplied by a conformity factor for the respective in-use bins: idle, low load, and medium/high load.
"Legacy engine family" means an engine family certified under the provisions of title 13, CCR, Section 1956.8(a)(2)(C)3.
"Low-hour" means the emission test point after the break-in period.
"Low-load cycle (LLC)" means the supplemental emission test procedure with the low-load cycle according to section I.11.B.8 of these test procedures.
"Manual active regeneration" is an approved AECD that is active only while the vehicle is stationary for the purpose of restoring emissions aftertreatment component efficiency by raising exhaust temperature to manufacturer-specific targets and activating other controls as approved by the Executive Officer. The regeneration is triggered either by operator request (e.g., dash switch) in response to an ECM message, or by service request (e.g., dash switch or service tool), and is indicated by the ECM as "active" while the event is in progress.
"Measurement allowance" means accuracy margin.
"Medium-duty engine" means a heavy-duty engine that is used to propel a medium-duty vehicle.
"Medium-duty vehicle" means 2004 through 2006 model year heavy-duty low-emission vehicle, ultra-low-emission vehicle, super-ultra-low-emission vehicle or zero-emission vehicle certified to the standards in title 13, CCR, section 1960.1(h)(2) having a manufacturer's gross vehicle weight rating of 14,000 pounds or less; and any 2004 and subsequent model heavy-duty low-emission, ultra-low-emission, super-ultra-low-emission or zero-emission vehicle certified to the standards in title 13, CCR section 1956.8(h), having a manufacturer's gross vehicle weight rating between 8,501 and 14,000 pounds.
"NTE standard" means NTE emission limit.
"Optional Low NOx Engine" means a 2015 or subsequent model heavy-duty diesel engine certified to the optional low NOx emission standards in subparagraph I.11.B.7., which are below the $0.20 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$ emission standard for 2007 and subsequent model engines. The optional low NOx emission standards are 0.10, 0.05 , or $0.02 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.
"Optionally certified hybrid powertrain or hybrid powertrain or heavyduty hybrid powertrain" means a group of components that includes an engine, electric motor-generator system, rechargeable energy storage system other than a conventional battery system or conventional flywheel, battery management system,
including charge controller and thermal management systems and associated power electronics. Transmissions, final drives and drive shafts may be included as powertrain components if specified by the hybrid powertrain manufacturer. Supplemental electrical batteries and hydraulic accumulators are examples of hybrid energy storage systems. Note other examples of systems that qualify as hybrid engines or powertrains are systems that recover kinetic energy and use it to power an electric heater in the aftertreatment.
"Optionally certified diesel hybrid powertrain or diesel hybrid powertrain or heavy-duty diesel hybrid powertrain" means a hybrid powertrain that uses a diesel engine.
"Portable emission measurement system (PEMS)" means a measurement system consisting of portable equipment that can be used to generate brake-specific emission measurements during field testing or laboratory testing.
"Ramped Modal Cycle (RMC)" means the engine test cycle as defined in section 86.1362 of these test procedures. For 2024 and subsequent model years, certifying heavy-duty engine manufacturers have the option of using either the engine test cycle in 86.1362 or 1036.505 of these test procedures for demonstrating compliance with the applicable RMC criteria pollutant emissions standards.
"Running change" means a change to a vehicle/engine or addition of a model which occurs after certification but during vehicle/engine production.
"Telematics" means any wireless technology that transmits engine or vehicle operational parameters.
"Test Procedure" means all aspects of engine testing including but not limited to the test cycle, preconditioning procedures, equipment specifications, calibrations, calculations and other protocols and specifications needed to measure emissions.
"Vehicle family" has the same definition as "vehicle family" in 40 CFR §1037.801, last amended on March 10, 2021 (Pre-publication), which is incorporated by reference herein.
"Vehicle-FTP" means the vehicle FTP cycle as defined in Appendix II to part 1036 paragraph (c) of these test procedures.
"Vehicle-LLC" means the vehicle low-load cycle as defined in Appendix to Subpart F, section 1036.501 of these test procedures.
"Vehicle-RMC" means the powertrain test cycle as defined in section 86.1362 of these test procedures. For 2024 and subsequent model years, certifying diesel hybrid powertrain manufacturers have the option of using either the powertrain test cycle in 1036.505 or 86.1362 of these test procedures for demonstrating compliance with the applicable Vehicle-RMC criteria pollutant emissions standards.
"Warranty period" [For guidance see title 13, CCR, §2036]
"Zero-emission vehicle" means an on-road vehicle with a drivetrain that produces zero exhaust emission of any criteria pollutant (or precursor pollutant) or greenhouse gas under any possible operational modes or conditions.
3. Abbreviations. [§86.xxx-3]
A. Federal Provisions.

1. §86.000-3 Abbreviations. October 22, 1996. [All federal abbreviations apply, except as otherwise noted below. Abbreviations specific to other requirements are contained in separate documents.]

## B. California Provisions.

"3B-MAW" means 3-Binned Moving Average Window as described in section 86.1370.B of these test procedures
"55-cruise" means the $55 \mathrm{mi} / \mathrm{hr}$ highway cruise cycle as described in 40 CFR §1037.510(a)(3), last amended on March 10, 2021 (Pre-publication), which is incorporated by reference herein.
"65-cruise" means the $65 \mathrm{mi} / \mathrm{hr}$ highway cruise cycle as described in 40 CFR §1037.510(a)(3), last amended on March 10, 2021 (Pre-publication), which is incorporated by reference herein.
"B-MAW" means Binned Moving Average Window as described in section 86.1370.B of these test procedures
"CA-ABT" means California averaging, banking and trading program as described in Section I.15.B. 3 of these test procedures
"CCR" means "California Code of Regulations
"EAS" means the combination of the engine, aftertreatment system and electronic control unit combined together
"HDTT" means Heavy-Duty Transient Test Cycle as described in Appendix I 40 CFR §1037 and §1037.510(a)(3), last amended on March 10, 2021 (Prepublication), which is incorporated by reference herein
"LEV" means low-emission vehicle
"MDV" means medium-duty vehicle
"OBD" means on-board diagnostics
"ULEV" means ultra-low-emission vehicle
"SULEV" means super-ultra-low-emission vehicle
11. Emission standards for diesel heavy-duty engines and vehicles. [§86.xxx-11]

## A. Federal provisions.

1. §86.004-11 Emission standards for 2004 and later model year diesel heavy-duty engines and vehicles. April 28, 2014.
1.1 Amend subparagraph (a) as follows:
1.1.1 Amend subparagraph (a)(1) Exhaust emissions from new 2004 through 2006 model year diesel HDEs, other than diesel-fueled, dual fuel and bi-fuel urban buses, shall not exceed the following:
1.1.2 Subparagraphs (a)(1)(i) through (a)(iii)(C) [No change.]
1.1.3 Amend subparagraph (a)(2) as follows: The standards set forth in paragraph (a)(1) of this section refer to the exhaust emitted over the operating schedule set forth in paragraph (f)(2) of appendix I to this part, and measured and calculated in accordance with the procedures set forth in
subpart N of this part as amended in part II of these test procedures, except as noted in §86.098-28(c)(2) or superseding sections.
1.2. Subparagraph (b). [No change.]
1.3. Subparagraph (c). [No change.]
1.4 Amend subparagraph (d) as follows: Every manufacturer of new motor vehicle engines subject to the standards prescribed in title 13, CCR, $\S 1956.8(\mathrm{a}), \S 1956.8(\mathrm{~h})$, and this section shall, prior to taking any of the actions prohibited by California Health \& Safety Code section 43211 or as specified in section 203(a)(1) of the Act, test or cause to be tested motor vehicle engines in accordance with applicable procedures in subpart I or N as amended by these test procedures to ascertain that such test engines meet the requirements of paragraphs (a), (b), (c), and (d) of this section.
1.5 Subparagraph (e). [No change.]
2. §86.007-11 Emission standards and supplemental requirements for 2007 and later model year diesel heavy-duty engines and vehicles. October 25, 2016.
2.1 Add the following sentence to the introductory paragraph: Except as otherwise noted, references in this subsection to heavy-duty engines or HDEs shall include medium-duty engines as defined in Section I.2.B of these test procedures.
2.2 Amend subparagraph (a)(1) as follows: Exhaust emissions from new 2007 through 2023 model year diesel HDEs including engines used in urban buses shall not exceed the following. Exhaust emissions from new 2024 and later model year HDEs including engines used in urban buses are specified in subparagraph I.11.B, below.
2.2.1 Subparagraphs (a)(1)(i) through (a)(1)(ii)(A). [No change.]
2.2.24 Amend subparagraph (a)(1)(ii)(B) as follows: Nonmethanehydrocarbon (NMHC) for engines fueled with natural gas or liquefied petroleum gas: 0.14 grams per brake horsepower-hour ( 0.052 grams per megajoule).
2.2.32 Subparagraph (a)(1)(ii)(C) through (a)(iv). [No change.]
2.2.43 Amend subparagraph (a)(2) as follows: The standards set forth in paragraph (a)(1) of this section refer to the exhaust emitted over the operating schedule set forth in paragraph (f)(2) of appendix I to this part, and measured and calculated in accordance with the procedures set forth in subpart N of this part as amended in part II of these test procedures, except as noted in 40 CFR §86.007-23(c)(2) or superseding sections.
2.2.54 Delete subparagraph (a)(3). [For guidance see 40 CFR , Subpart N, §86.1360-2007 of these test procedures].
2.2.65 Delete subparagraph (a)(4)(i) through (a)(4)(vi). [For guidance see 40 CFR, Subpart N, $\S 86.1370-2007$ of these test procedures]
2.3 Subparagraphs (b)(1)(i) through (b)(1)(iii). [No change.]
2.3.1 Delete subparagraph (b)(1)(iv). [For guidance see 40 CFR, Subpart N, §86.1370-2007 of these test procedures]
2.3.2 Subparagraphs (b)(2)(i). [No change.]
2.3.3 Delete subparagraph (b)(2)(ii). [For guidance see 40 CFR, Subpart N, §86.1370-2007 of these test procedures]
2.3.4 Subparagraph (b)(3) and (b)(4). [No change.]
2.4 Subparagraph (c). [No change.]
2.5 Amend subparagraph (d) as follows: Every manufacturer of new motor vehicle engines subject to the standards prescribed in title 13, CCR, §1956.8 (a), §1956.8 (h), and this section shall, prior to taking any of the actions prohibited by California Health \& Safety Code section 43211 or as specified in section 203(a)(1) of the Act, test or cause to be tested motor vehicle engines in accordance with applicable procedures in subpart I or N as amended in part II of these test procedures to ascertain that such test engines meet the requirements of paragraphs (a), (b), (c), and (d) of this section.

### 2.6 Subparagraphs (e) through (i)(i). [No change.]

2.7 Amend subparagraph (i) as follows: Engines installed in new glider vehicles are subject to the standards specified in 40 CFR 1037.635 as modified by the California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles, as amended on December 19, 2018.

## B. California provisions.

1. Urban Bus Standards.
1.1 The exhaust emissions from new 2004 through 2006 model year heavy-duty engines (other than diesel-fueled, dual-fuel and bi-fuel heavy-duty engines) used in urban buses shall not exceed the standards set forth in 40 CFR §86.004-11(a)(1), above.
1.2 The exhaust emissions, as measured under transient operating conditions, from 2004 through 2006 model year diesel-fueled, dual-fuel and bifuel heavy-duty engines used in urban buses shall not exceed:

## 2004 - 2006 Heavy-Duty Diesel-Fuel, Dual Fuel, and Bi-Fuel Urban Bus Engine Exhaust Emission Standards* <br> (grams per brake horsepower-hour or g/bhp-hr)

| NOx $^{1}$ | NMHC or <br> NMHCE | CO $^{3}$ | PM $^{2}$ | $\mathbf{H C H O}^{4}$ |
| :--- | :--- | :--- | :--- | :--- |
| 0.5 (0.2 g/megajoule) $)$ | $0.05(0.02$ g/megajoule $)$ | $5.0(1.9 \mathrm{~g} /$ megajoule $) ;$ <br> $[7.0(2.6 \mathrm{~g} /$ megajoule $)]$ | $0.01(0.004 \mathrm{~g} /$ megajoule $)$ | 0.01 <br> $(0.004 \mathrm{~g} /$ megajoule $)$ |

1 Oxides of Nitrogen (NOx). This standard is for certification testing and selective enforcement audit testing. As an option, manufacturers may choose to meet the NOx standard with a base engine that is certified to the standards in §86.004-11(a)(1), (October 6, 2000), equipped with an aftertreatment system that reduces NOx to $0.5 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$ and PM to $0.01 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$. The NMHC, CO, and formaldehyde standards above shall still apply.

Manufacturers shall be responsible for full certification, durability, testing, and warranty and other requirements for the base engine. For the aftertreatment system, manufacturers shall not be subject to the certification durability requirements, or in-use recall and enforcement provisions, but are subject to warranty provisions for functionality.
2 Particulates. This standard is for certification testing, selective enforcement audit testing, and in-use testing. As an option, manufacturers may choose to meet the PM standard with an aftertreatment system that reduces PM to $0.01 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$. Manufacturers shall be responsible for full certification, durability, testing, and warranty and other requirements for the base engine. For the aftertreatment system, manufacturers shall not be subject to the certification durability requirements, or in-use recall and enforcement provisions, but are subject to warranty provisions for functionality.
3 Carbon monoxide. The $5.0 \mathrm{~g} / \mathrm{bhp}$-hr ( 1.9 grams per megajoule) standard is for certification testing and selective enforcement audit testing, and the $7.0 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$ ( 2.6 grams per megajoule) standard is for in-use testing.
4 Formaldehyde. This standard is for certification testing. selective enforcement audit testing and in-use testing.
1.3 The exhaust emissions from new 2007 and subsequent model year heavy-duty engines used in urban buses shall not exceed the following standards:

## 2007 and Subsequent Heavy-Duty Diesel Urban Bus Engine Exhaust Emission Standards* (grams per brake-horsepower-hour or g/bhp-hr)

| NOx | NMHC Or NMHCE | CO | PM | HCHO |
| :--- | :--- | :--- | :--- | :--- |
| 0.20 | 0.05 | 5.0 | 0.01 | 0.01 |
| $(0.075$ g/megajoule $)$ | $(0.02$ g/megajoule $)$ | $(1.9$ g/megajoule | $(0.004$ g/megajoule $)$ | $(0.004$ g/megajoule $)$ |

2. Optional HDE and Urban Bus Standards. A manufacturer may elect to certify 2004 through 2006 model year heavy-duty diesel engines greater than 14,000 pounds gross vehicle weight rating and heavy-duty engines used in urban buses [excluding diesel-fuel, dual-fuel and bi-fuel heavy-duty diesel engines used in urban bus engines] to the following standards, as measured under transient operating conditions. Engines certified to these standards are not eligible to participate in NOx, NOx plus NMHC, or particulate ABT programs.

OPTIONAL STANDARDS
Heavy-Duty Diesel Engines $\mathbf{> 1 4 , 0 0 0}$ Ibs. GVW
(excluding diesel-fueled, dual fuel, and bi-fuel Urban Buses) (grams per brake-horsepower-hour or g/bhp-hr)

| Model Year | NOx plus NMHC <br> (or NMHCE)* | CO | PM |
| :--- | :--- | :--- | :--- |
| $2004-2006^{*}$ | 0.3 to 1.8, inclusive; <br> (in 0.3 g/bhp-hr <br> increments) | 15.5 | $0.01 ; 0.02 ;$ or 0.03 |

* NOx plus NMHC are measured as the arithmetic sum of the NOx plus NMHC exhaust component certification values.

3. Formaldehyde Standards. Formaldehyde exhaust emissions from new 2004 through 2006 model methanol-fueled diesel engines, shall not exceed 0.05
g/bhp-hr.
4. Requirements for Dual- and Bi-Fuel Engines. For the 2004 through 2006 model years, an engine family whose design allows engine operation in either of two distinct alternative fueling modes, where each fueling mode is characterized by use of one fuel or a combination of two fuels and significantly different emission levels under each mode, may certify to a different NOx plus NMHC (depending on model year) standard for each fueling mode, provided it meets the following requirements:
(1) The NOx plus NMHC certification standard used for certification under the higher emitting fueling mode must be the standard contained in paragraph 11.A. 1 above as appropriate.
(2) The NOx plus NMHC certification standard used for certification under the lower emitting fueling mode must be one of the reduced-emission standards contained in paragraph 11.B. 2 above, as appropriate.
(3) The engine family is not used to participate in any manufacturer's averaging, banking or trading program.
(4) The engine family meets all other applicable emission standards in each fueling mode.
(5) The higher emitting fueling mode must be intended only for fail-safe vehicle operation in the case of a malfunction or inadvertent fuel depletion which precludes normal operation in the lower emitting fueling mode. Evidence of such design intent would be a significantly reduced horsepower versus engine speed curve when operating in the higher emitting fueling mode as compared to the curve while operating in the lower emitting fueling mode.
(6) All applicable exhaust emission testing, data submission, and certification application requirements must be met separately for each of the two fueling modes of operation, but should be submitted for ARB approval in a single package.

## 5. Standards for Medium-Heavy-Duty Engines .

5.1 Requirements Specific to Heavy-Duty Engines Used in Medium-Duty Vehicles 8,501 to 10,000 pounds GVW. For the 2004 through 2019 model years, a manufacturer of heavy-duty engines used in medium-duty vehicles 8,501 to 10,000 pounds GVW may choose to comply with the following standards as an alternative to the primary emission standards and test procedures specified in title 13, CCR, §1961 or §1961.2, as applicable. A manufacturer that chooses to comply with these optional heavy-duty standards and test procedures shall specify, in the application for certification, an in-use compliance test procedure, as provided in title 13, CCR, §2139(c). For the 2020 and subsequent model years, a manufacturer of heavy-duty engines used in medium-duty vehicles 8,501 to 10,000 pounds GVW must comply with the primary emission standards and test procedures specified in title 13, CCR, §1961.2.
5.2 Requirements Specific to Heavy-Duty Engines Used in Medium-Duty Vehicles $\mathbf{1 0 , 0 0 1}$ to $\mathbf{1 4 , 0 0 0}$ pounds GVW. For the 2004 and subsequent model years, a manufacturer of heavy-duty engines used in mediumduty vehicles 10,001 to 14,000 pounds GVW may choose to comply with the following standards as an alternative to the primary emission standards and test procedures specified in title 13, CCR, §1961 or §1961.2, as applicable. A manufacturer that chooses to comply with these optional heavy-duty standards and test procedures shall specify, in the application for certification, an in-use compliance test procedure, as provided in title 13, CCR, §2139(c).
5.3 Exhaust Emission Standards for Medium-Heavy-Duty Engines. 5.3.1 The exhaust emissions from new 2004 through 2019 model heavy-duty diesel engines used in ultra-low emission and super-ultra-low emission medium-duty diesel vehicles 8,501 to 10,000 pounds GVW and 2004 through 2023 and subsequent model heavy-duty diesel engines used in ultra-low emission and super-ultra-low emission medium-duty diesel vehicles 10,001 to 14,000 pounds GVW shall not exceed:

## Exhaust Emission Standards for_2004 through 2006 Model Medium-Duty ULEVs and SULEVs

(g/bhp-hr)

| Vehicle Emission Category | NOx + NMHC | CO | PM | HCHO |
| :---: | :---: | :---: | :---: | :---: |
| ULEV ${ }^{1}$ Option A | 2.5 (with a 0.5 cap on NMHC) | 14.4 | 0.10 | 0.050 |
| ULEV ${ }^{1}$; Option B | 2.4 | 14.4 | 0.10 | 0.050 |

Exhaust Emission Standards for 2007 through 2019 Model Medium-Duty ULEVs and SULEVs 8,501-10,000 Ibs. GVW and 2007 and Subsequent Through 2023 Model Medium-Duty ULEVs and SULEVs 10,001-14,000 lbs. GVW
(g/bhp-hr)

| Vehicle <br> Emission <br> Category | NOx | NMHC or <br> NMHCE | CO | PM | HCHO |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ULEV $^{1}$ | 0.20 | 0.14 | 15.5 | 0.01 | 0.050 |
| SULEV $^{1}$ | 0.10 | 0.07 | 7.7 | 0.005 | 0.025 |

1 Emissions averaging may be used to meet these standards using the requirements for participation averaging, banking and trading programs, as set forth in Section I. 15 of these test procedures.
5.3.2 The exhaust emissions from new 2024 and subsequent model diesel engines used in medium-duty vehicles 10,001 to 14,000 pounds GVWR shall not exceed:

| Exhaust Emission Standards for 2024 through 2026 Model |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Diesel Engines Used in Medium-Duty Vehicles 10,001-14,000 Ibs. GVWR |  |  |  |  |  |
| Test Procedure $\underline{\text { NOx }}$ $\underline{(g / b h p-h r)}$    <br> $\underline{\text { FTP cycle }}$ $\underline{\text { NMHC }}$ $\underline{\text { CO }}$ $\underline{\text { PM }}$ $\underline{\text { HCHO }}$  <br> $\underline{\text { RMC cycle }}$ $\underline{0.050}$ $\underline{0.14}$ $\underline{15.5}$ $\underline{0.005}$ $\underline{0.050}$ <br> $\underline{\text { Low-load cycle }}$ $\underline{0.200}$ $\underline{0.14}$ $\underline{15.5}$ $\underline{0.005}$ $\underline{0.14}$ |  |  |  |  |  |

Exhaust Emission Standards for 2027 and Subsequent Model Diesel Engines Used in Medium-Duty Vehicles 10,001-14,000 Ibs. GVWR (g/bhp-hr) ${ }^{\text {A }}$

| Test Procedure | $\underline{\text { NOx }}$ | $\underline{\text { NMHC }}$ | $\underline{\mathbf{C O}}$ | $\underline{\text { PM }}$ | $\underline{\text { HCHO }}$ |
| :--- | :--- | :---: | :---: | :---: | :---: |
| $\underline{\text { FTP cycle }}$ | $\underline{0.020}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ | $\underline{0.050}$ |
| $\underline{\text { RMC cycle }}$ | $\underline{0.020}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ | $\underline{0.050}$ |
| $\underline{\text { Low-load cycle }}$ | $\underline{0.050}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ | $\underline{0.050}$ |

${ }^{\text {A }}$ A manufacturer of diesel engines used in medium-duty vehicles may choose to comply with these standards as an alternative to the primary emission standards and test procedures for complete vehicles specified in section 1961.2, title 13, CCR. A manufacturer that chooses to comply with these optional heavy-duty engine standards and test procedures shall specify, in the Part I application for certification, an in-use compliance test procedure, as provided in section 2139(c), title 13 CCR. An engine certified for use in a medium-duty vehicle shall not be used in a heavy-duty vehicle over 14,000 pounds GVWR.
5.3.3 Except as provided in subparagraph 5.3.4 below, the exhaust emissions from new 2024 and subsequent model light-heavy duty engines used in vehicles 14,001 to 19,500 pounds GVWR, medium heavy-duty engines, and heavy heavy-duty engines, including urban bus engines, shall not exceed:

Exhaust Emission Standards for 2024 through 2026 Model Diesel
Light Heavy-Duty Engines, Medium Heavy-Duty Engines, and Heavy Heavy-Duty Engines
(g/bhp-hr)

| Test Procedure | $\underline{\text { NOx }}$ | $\underline{\text { NMHC }}$ | $\underline{\text { CO }}$ | $\underline{\text { PM }}$ |
| :--- | :---: | :---: | :---: | :---: |
| $\underline{\text { FTP cycle }}$ | $\underline{0.050}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ |
| $\underline{\text { RMC cycle }}$ | $\underline{0.050}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ |
| $\underline{\text { Low-load cycle }}$ | $\underline{0.200}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ |

Exhaust Emission Standards for 2027 and Subsequent Model Diesel Light Heavy-Duty Engines and Medium Heavy-Duty Engines (g/bhp-hr)

| Test Procedure | $\underline{\text { NOx }}$ | $\underline{\text { NMHC }}$ | $\underline{\text { CO }}$ | $\underline{\text { PM }}$ |
| :--- | :---: | :---: | :---: | :---: |
| $\underline{\text { FTP cycle }}$ | $\underline{0.020}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ |
| $\underline{\text { RMC cycle }}$ | $\underline{0.020}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ |
| $\underline{\text { Low-load cycle }}$ | $\underline{0.050}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ |

## Exhaust Emission Standards for 2027 through 2030 Model Diesel Heavy Heavy-Duty Engines

 (g/bhp-hr)| Test Procedure | $\begin{gathered} \frac{\text { Intermediate }}{\text { Useful Life }} \\ \text { NOx } \end{gathered}$ | NOx | NMHC | $\underline{\mathrm{CO}}$ | PM |
| :---: | :---: | :---: | :---: | :---: | :---: |
| FTP cycle | 0.020 | $\underline{0.035}$ | 0.14 | 15.5 | $\underline{0.005}$ |
| RMC cycle | $\underline{0.020}$ | $\underline{0.035}$ | $\underline{0.14}$ | 15.5 | $\underline{0.005}$ |
| Low-load cycle | 0.050 | 0.090 | 0.14 | 15.5 | 0.005 |


| Heavy Heavy-Duty Engines |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Test Procedure | $\frac{\frac{\text { Intermediate }}{\text { Useful Life }}}{\frac{\mathrm{NOx}}{}}$ | NOx | NMHC | CO | PM |
| FTP cycle | 0.020 | $\underline{0.040}$ | 0.14 | 15.5 | $\underline{0.005}$ |
| RMC cycle | 0.020 | 0.040 | 0.14 | 15.5 | $\underline{0.005}$ |
| Low-load cycle | 0.050 | 0.100 | 0.14 | 15.5 | 0.005 |

5.3.4. 2024 through 2026 model year engines rated at or above 525 bhp maximum power as defined in 40 CFR §1065.510.
5.3.4.1. In lieu of compliance with the requirements specified in subparagraph 5.3 .3 above, a manufacturer may elect to certify a heavy-duty engine family or families rated at or above 525 bhp by
(a) submitting the federal engine family certification approval (e.g., federal certificate of conformity) for the applicable engine family and complying with all federal requirements for heavy-duty engines,
(b) demonstrating compliance with the Heavy-Duty Diesel Engine Idling Requirements for that model year as provided in subparagraph 13 CCR section 1956.8(a)(6), and
(c) providing emission warranty requirements for that model year as specified in 13 CCR section 2036.
5.3.4.2. A manufacturer is only eligible to utilize this option if it meets the criteria identified in subparagraphs (a) through (d), below.
a. The manufacturer must have certified and sold heavy-duty diesel engines rated at or above 525 bhp maximum power in California for either the 2018 or 2019 model year.
b. The maximum number of heavy-duty diesel engines covered by engine families certified under this provision that a manufacturer may sell in California in each applicable model year under this provision must not exceed 1.10 times that manufacturer's 2018 or 2019 model year California sales volume of engines rated at or above 525 bhp , whichever is greater.
c. A manufacturer that selects compliance with this option must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or December 1, 2023, whichever is later;
d. The manufacturer must submit to the Executive Officer all data that it submitted to U.S. Environmental Protection Agency in accordance with the reporting requirements specified in 40 CFR $\$ \S 86.007-15,86.007-$ 21, and 86.007-23. In addition, the manufacturer must submit Californiaspecific data requirements that are necessary to complete an application for certification including data and label requirements as specified in subparagraphs 21.B.4, 35.B.4, and 35.B.7.
5.3.5 For 2024 and 2025 model year heavy-duty diesel engine families rated below 525 bhp maximum power as defined in 40 CFR $\$ 1065.510$, a manufacturer may elect to certify a heavy-duty diesel engine family or families with $0.100<$ FTP NOx FEL $\leq 0.20 \mathrm{~g} / \mathrm{bhp}$-hr, and $0.005<$ FTP PM FEL $\leq 0.01$ $\mathrm{g} / \mathrm{bhp}$-hr if it meets the criteria set forth below in subparagraphs 5.3.5.1 and 5.3.5. 2 below:
5.3.5.1 The engine family meets the applicable regulatory requirements specified in title 13, CCR, Section 1956.8 and these test procedures with the following allowances:
(a) The low-load cycle emission standards in subparagraph I.11.B.5.3.3 of these test procedures would not be applicable,
(b) In lieu of meeting the requirements specified in subparagraph §86.1370.B.6. of these test procedures, the engine family must comply with the requirements for a 2023 model year engine family, as set forth in subparagraphs $\$ 86.1370$.A through $\$ 86.1370$. B. 5 of these test procedures.
(c) In lieu of meeting the requirements specified in subparagraph I.26.B of these test procedures, the engine family must comply with the requirements for a 2023 model year engine family, as set forth in
subparagraph I.26.A of these test procedures.
(d) Comply with the heavy-duty OBD requirements specified in title 13, CCR, Sections 1971.1 and 1971.5. applicable to a 2023 model year engine family.
5.3.5.2. A manufacturer is only eligible to utilize this option if it meets all criteria identified in subparagraphs (a) through (f) below.
(a) The manufacturer must certify the engine family subject to the averaging, trading and banking provisions in subparagraph I.15.B.3. of these test procedures.
(b) The maximum family emission limit for the engine family must not exceed the specified values in subparagraph I.15.B.3.(i) of these test procedures.
(c) The manufacturer must offset its model year NOx and PM deficit balance generated by legacy engines by using credits from the heavy-duty zero-emission averaging set described in subparagraph I.15.B.3.(j) of these test procedures.
(1) If a sufficient quantity of heavy-duty zero-emission NOx or PM credits are not available, or are only available for a cost exceeding $\$ 4,000$ (for enough NOx or PM credits to offset one medium heavyduty legacy engine), the manufacturer may submit a plan for Executive Officer approval to use credits from the same averaging set described in subparagraph I.15.B.3.(a) of these test procedures to offset any remaining model year deficit balance generated by legacy engines. The plan must include information describing the manufacturer's attempts to purchase heavy-duty zero-emission NOx or PM credits from all manufacturers who have certified heavy-duty zero-emission vehicles or powertrains with CARB and that the manufacturer was denied a fair market offer to purchase such credits (i.e., such credits were only available at a cost exceeding $\$ 4,000$ for enough NOx or PM credits to offset one medium heavy-duty legacy engine). The Executive Officer will base his or her determination upon the information included in the plan and the exercise of good engineering judgment that the information substantiates that sufficient heavy-duty zero-emission NOx or PM credits were not available or were only available at a cost exceeding $\$ 4,000$ (for enough NOx or PM credits to offset one medium heavy-duty legacy engine).
(2) If credits from the same averaging set described in subparagraph I.15.B.3.(a) of these test procedures are not available,
the manufacturer may carryover the NOx or PM deficit balance generated by legacy engines until the end of the 2026 model year, provided the manufacturer offsets the remaining legacy engine generated deficit balance times 1.25 with credits from the heavy-duty zero-emission averaging set or the same averaging set described in subparagraph I.15.B.3.(a) of these test procedures by the end of the 2026 model year. In other words, if the deficit carried over is 1 Mg , the manufacturer would need to offset the deficit with 1.25 Mg .
(3) If at the end of the 2026 model year, a sufficient quantity of heavy-duty zero-emission NOx or PM credits are not available for the manufacturer to offset the remaining legacy engine generated deficit balance times 1.25, the manufacturer must do all the following for the remaining NOx or PM balance:
(i) Provide documentation to the Executive Officer substantiating that the manufacturer has attempted to purchase heavy-duty NOx or PM credits from all manufacturers with such credits and was denied a fair market offer: i.e. exceeding \$4,000 for enough NOx or PM credits to offset one medium heavy-duty legacy engine.
(ii) Submit a plan for Executive Officer approval for projects targeted at California disadvantaged communities and that are sufficient to offset the excess emissions within 5 years. The plan must include project descriptions and budgets and a demonstration that the projects will achieve reductions required. The Executive Officer will base his or her determination upon the documentation provided by the manufacturer and the exercise of good engineering judgment that the plan would benefit disadvantaged communities, and would fully offset the excess emissions due to the credit deficit balance within 5 years. The manufacturer may submit contingency plans to be assessed and approved on the same standard as set forth in this subsection.
(iii) At the end of the 5-year period, the manufacturer must submit information documenting that the excess emissions have been offset. Failure to do so means that legacy engines would be subject to the provisions of $\S 86.004-15$.A.(b)(5) of these test procedures.
(d) For each certifying heavy-duty diesel engine manufacturer, the total California sales volume of legacy engines certified under this provision may not exceed 45 percent of the manufacturer's total actual California sales of heavy-duty diesels engines for 2024 model year, and

25 percent of the manufacturer's total actual California sales of heavy-duty diesels engines for 2025 model year.
(e) NOx and PM deficits generated by legacy engines are subject to the provisions of $\S 86.004-15 . A$.(b)(5) of these test procedures.
(f) In order to certify legacy engines in a particular model year, a manufacturer must also certify one or more heavy-duty diesel engine families subject to the standards in title 13, CCR, Section 1956.8(a)(2)(C)1 in the same model year.
5.4 Optional Standards for Complete and Incomplete Heavy-Duty Vehicles up to the 2023 Model Year. Manufacturers may request to group complete and incomplete 2023 and earlier model year heavy-duty vehicles into the same test group as vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete and incomplete heavy-duty diesel vehicles meet the most stringent LEV III standards to which any vehicle within that test group certifies.
6. Heavy-Duty Diesel Engine Idling Requirements. Except as provided in subparagraph I.11.B.6.2, the requirements in this subparagraph apply to 2008 through 2023 model diesel engines used in heavy-duty vehicles over 14,000 pounds GVWR, and 2024 and subsequent model diesel engines used in medium-duty vehicles from 10,001 to 14,000 pounds GVWR or heavy-duty vehicles over 14,000 pounds GVWR. Manufacturers may meet the requirements of this subparagraph by either demonstrating compliance with the Engine Shutdown System requirements of subparagraph 6.1, below or the optional NOx Idling Emission Standard specified in subparagraph 6.3, below.
6.1 Engine Shutdown System. The requirements in this subsection apply to engine manufacturers and original equipment manufacturers, as applicable, that are responsible for the design and control of engine and/or vehicle idle controls.
6.1.1 Requirements. Except as provided in subsections 11.B.6.2 and 3, all new 2008 and subsequent model year heavy-duty diesel engines shall be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged. If the parking brake is not engaged, then the engine shutdown system shall shut down the engine after 900 seconds of continuous idling operation once the vehicle is stopped and the transmission is set to "neutral" or "park." The engine shutdown system must be tamper-resistant and nonprogrammable. A warning signal, such as a light or sound indicator inside the vehicle cabin, may be used to alert the driver 30 seconds prior to engine shutdown. The engine shutdown system must be capable of allowing the
driver to reset the engine shutdown system timer by momentarily changing the position of the accelerator, brake, or clutch pedal, or other mechanism within 30 seconds prior to engine shutdown. Once reset, the engine shutdown system shall restart the engine shutdown sequence described in this paragraph above, and shall continue to do so until the engine shuts down or the vehicle is driven.

### 6.1.2 Engine Shutdown System Override. The engine shutdown

 system may be overridden, to allow the engine to run continuously at idle, only under the following conditions:(1) If the engine is operating in power take-off (PTO) mode. The PTO system shall have a switch or a setting that can be switched "on" to override the engine shutdown system and will reset to the "off" position when the vehicle's engine is turned off or when the PTO equipment is turned off. Subject to advance Executive Officer approval, other methods for detecting or activating PTO operation may be allowed; or,
(2) if the vehicle's engine coolant temperature is below $60^{\circ} \mathrm{F}$. The engine shutdown system shall automatically be activated once the coolant temperature reaches $60^{\circ} \mathrm{F}$ or above. The engine coolant temperature shall be measured with the engine's existing engine coolant temperature sensor used for engine protection, if so equipped. Other methods of measuring engine coolant temperature may be allowed, subject to advance Executive Officer approval.
(3) if an exhaust emission control device is regenerating, and keeping the engine running is necessary to prevent aftertreatment or engine damage, the engine shutdown system may be overridden for the duration necessary to complete the regeneration process up to a maximum of 30 minutes. Determination of what constitutes the need for regeneration will be based on data provided by the manufacturer at time of certification. Regeneration events that may require longer than 30 minutes of engine idling to complete shall require advance Executive Officer approval. At the end of the regeneration process, the engine shutdown system shall automatically be enabled to restart the engine shutdown sequence described in subparagraph 11.B.6.1.1. above. A vehicle that uses a regeneration strategy under engine idling operating conditions shall be equipped with a dashboard indicator light that, when illuminated, indicates that the exhaust emission control device is regenerating. Other methods of indicating that the exhaust emission control device is regenerating may be used with advance Executive Officer approval.
(4) if servicing or maintenance of the engine requires extended idling operation. The engine's electronic control module may be set to temporarily deactivate the engine shutdown system for up to a maximum of 60 minutes. The deactivation of the engine shutdown system shall only be performed with the use of a diagnostic scan tool. At the end of the set deactivation period, the engine's electronic control module shall reset to
restart the engine shutdown system sequence described in subparagraph 11.B.6.1.1 above.

### 6.2 Exempt Vehicles.

6.2.1 2008 through 2023 model Heavy-duty-heavy-duty diesel engines to be used in buses as defined in California Vehicle Code §§ 233, 612 and 642, school buses as defined in California Vehicle Code § 545, recreational vehicles as defined in Health and Safety Code 18010, medium duty vehicles as defined in § 1900(b)(13) of title 13, California Code of Regulations (CCR), military tactical vehicles as defined in §1905 of title 13, CCR, authorized emergency vehicles as defined in California Vehicle Code § 165, armored cars, as defined in California Vehicle Code § 115, and workover rigs, as defined in $\S 2449$ of title 13, CCR are exempted from these requirements.
6.2.2 2024 and subsequent model heavy-duty engines to be used in military tactical vehicles as defined in $\$ 1905$ of title 13, CCR, and authorized emergency vehicles as defined in California Vehicle Code § 165 are exempted from these requirements.

### 6.3 Optional NOx Idling Emission Standard.

### 6.3.1 Emission Standards

6.3.1.1 In lieu of the engine shutdown system requirements specified in subsection 11.B.6.1 above, an engine manufacturer may elect to certify its new 2008 and subsequent through 2023 model year heavy-duty diesel engines and 2024 through 2026 model heavy-duty diesel engines subject to the provisions specified in subparagraph 11.B.5.3.4 and 2024 through 2025 model year heavy-duty diesel engines subject to the provisions specified in subparagraph 11.B.5.3.5 above, to an optional NOx idling emission standard of 30 grams per hour.
6.3.1.2 Except as provided in subparagraph 6.3.1.1.above, in lieu of the engine shutdown system requirements specified in subparagraph 11.B.6.1 above, an engine manufacturer may elect to certify its new 2024 and subsequent model year heavy-duty diesel engines to the following optional NOx idling emission standards. The optional NOx idling emissions shall not exceed:

Optional NOx Idling Emission Standards for 2024 and Subsequent Model Diesel Engines used in Medium-Duty Vehicles 10,001 to 14,000 Pounds GVWR and Heavy-Duty Vehicles with GVWR Greater than 14,000 Pounds (grams per hour)

| $\underline{\text { Model Year }}$ | $\underline{\text { Oxides of Nitrogen }}$ |
| :--- | :---: |
| $\underline{2024-2026}$ | $\underline{10}$ |
| $\underline{2027}$ and subsequent | $\underline{5}$ |

### 6.3.2 Compliance Determination:

6.3.2.1 Compliance with this these optional standards will be determined based on testing conducted pursuant to the supplemental NOx idling test cycle and procedures specified in section 86.1360-2007.B. 4 below. The manufacturer may request an alternative test procedure if the technology used cannot be demonstrated using the procedures in section 86.1360-2007.B.4, subject to advance approval of the Executive Officer.
6.3.2.2 Manufacturers certifying to the optional NOx idling standards must not increase emissions of CO, PM, or NMHC, determined by comparing results from the supplemental NOx idling test cycle and procedures specified in section 86.1360-2007.B. 4 below, to emission results from the idle mode of the supplemental steady state test cycle or emission results from idle portions of the transient test cycle for heavy duty diesel engines, respectively specified in sections 86-1360-2007 and 86.1327-98. With advance Executive Officer approval, a manufacturer may use other methods of ensuring that emissions of CO, PM, and NMHC are not adversely affected in meeting the optional NOx requirement. Also, manufacturers shall state in their application for certification that meeting the optional NOx idling requirement will not adversely affect the associated emissions of CO, PM and NMHC.
6.3.2.3 An engine manufacturer certifying its engine to the optional NOx idling emission standard must also produce a vehicle label, as defined in subsection 35.B.4, below.
6.4 Optional Alternatives to Main Engine Idling. All new 2008 and subsequent model year heavy duty diesel engines may also be equipped with idling emission reduction devices that comply with the compliance requirements specified in title 13, CCR section 2485(c)(3).

## 7. Optional Low NOx Emission Standards for Heavy Duty Engines for 2015 and Subsequent Model Year.

7.1 For 2015 through 2021 model heavy-duty engines used in vehicles over 14,000 pounds GVWR, Mmanufacturers may elect to certify heavy duty engines to the following optional low NOx emission standards in lieu of the primary NOx emissions standard of $0.20 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.

## Optional Low NOx Exhaust Emission Standards for

 2015 through 2021 and Subsequent-Model Year (grams per brake-horsepower-hour or g/bhp-hr)|  | NOx | NMHC or <br> NMHCE | CO | PM |
| :--- | :---: | :---: | :---: | :---: |
| Optional Low <br> NOx 0.10 | 0.10 | 0.14 | 15.5 | 0.01 |
| Optional Low NOx <br> 0.05 | 0.05 | 0.14 | 15.5 | 0.01 |
| Optional Low NOx <br> 0.02 | 0.02 | 0.14 | 15.5 | 0.01 |

7.2 For 2022 and subsequent model light heavy-duty engines, medium-heavy-duty engines, and heavy heavy-duty engines, manufacturers may elect to certify their engines to the following optional low NOx emission standards in lieu of the primary NOx emissions standard applicable for that model year. Engine families that are certified to the optional low NOx emission standards are not eligible for generating any NOx credits in the federal or California ABT programs.

## Optional Low NOx Exhaust Emission Standards for 2022 through 2026 and Subsequent <br> Model Heavy Heavy-Duty Engines, Medium-Heavy Duty Engines, and Light Heavy-Duty Engines

 (g/bhp-hr)| $\underline{\text { Model Year }}$ | Test <br> Procedure | $\underline{\text { NOx }}$ | $\underline{\text { NMHC }}$ | $\underline{\text { CO }}$ | $\underline{\text { PM }}$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| $\underline{2022-2023}$ | $\underline{\text { FTP and RMC }}$ | $\underline{\underline{0.10,0.05,}} \mathbf{\underline { 0 . 0 2 , 0 r 0 . 0 1 }}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.01}$ |
| $\underline{2024-2026}$ | $\frac{\text { FTP and RMC/ }}{\underline{\underline{\text { LLC }}}}$ | $\frac{\underline{0.020 / 0.080}}{\underline{0 r}}$ | $\underline{0.010 / 0.040}$ | $\underline{0.14}$ | $\underline{15.5}$ |
| $\underline{2027 \text { and }}$ <br> $\underline{\text { Subsequent }}$ | $\frac{\text { FTP and RMC/ }}{\underline{\text { LLC }}}$ | $\underline{0.010 / 0.025}$ | $\underline{0.14}$ | $\underline{15.5}$ | $\underline{0.005}$ |

8. Low-Load Cycle Standard for Heavy Duty Engines for 2024 and Subsequent Model Years.

Exhaust emissions from 2024 and subsequent model engines used in medium-duty vehicles 10,001-14,000 pounds GVWR, light heavy-duty engines, medium heavy-duty engines, and heavy-heavy duty engines over the test cycle specified in Appendix I to Part 86 subparagraph B. 1 of these test procedures shall not exceed the emission standards in sections I.11.B.5.3 and I.11.B.7.2 of these test procedures and shall be measured and calculated in accordance with the procedures set forth in subpart $N$ of this part.
9. Exhaust Emission Standards for 2022 and Subsequent Model Diesel Hybrid Powertrains Used In Hybrid Vehicles Over 14,000 pounds GVWR, or Used in Incomplete Vehicles from 10,001 to 14,000 Pounds GVWR.

For 2022 and subsequent model year diesel hybrid powertrains optionally certified pursuant to title 13, CCR, section 1956.8, used in heavy-duty vehicles with a GVWR greater than 14,000 pounds, the exhaust emissions and model year implementation schedules in this section for diesel heavy-duty engines used in vehicles over 14,000 pounds GVWR shall apply to the diesel hybrid powertrains.

For 2022 and subsequent model year diesel hybrid powertrains optionally certified pursuant to title 13, CCR, section 1956.8, used in incomplete vehicles from 10,001 to 14,000 pounds GVWR, the exhaust emission standards and model year implementation schedules applicable to the diesel engines used in incomplete vehicles from 10,001 to 14,000 pounds GVWR shall apply to the diesel hybrid powertrains in such vehicles.
12. Alternative certification procedures. [§86.080-12]. April 17, 1980.
A. Federal provisions. [No change].
B. California provisions.
1.1 Subparagraphs $(a)(1)$ through $(a)(4)$ [No change].
1.2 Add subparagraph (a)(5) as follows:
(a)(5) Optional Powertrain Certification Test Procedure for Diesel Hybrid Powertrains for 2022 and Subsequent Model Year. Manufacturers may elect to optionally certify diesel hybrid powertrains to applicable on-road heavy-duty diesel engine GHG emission standards and criteria pollutants emission standards pursuant to title 13, CCR, section 1956.8, using the powertrain test procedure pursuant to 40 CFR part 1036, subpart F and 40 CFR §1037.550, as amended March 10, 2021 (Pre-publication), which is incorporated by reference herein. A diesel hybrid powertrain certified under this optional powertrain certification test procedure shall be subject to all applicable emission standards, for on-road heavy-duty diesel engines for any given model year. Except as otherwise noted, a diesel hybrid powertrain optionally certified pursuant to this section shall comply with all requirements applicable to on-road heavy-duty engines of this part, other referenced parts of the CFR, and title 13, CCR, section 1956.8, understanding "engine" to mean "diesel hybrid powertrain" and "engine family" to mean "diesel hybrid powertrain family", including requirements for on-board diagnostic system as specified in title 13, CCR, sections 1968.2 and 1971.1 et seq, useful life as specified in section I.2.A of these test procedures, emissions warranty as specified in title 13, CCR section

2036, and durability demonstration as specified in section 1.26 of these test procedures, and title 13, CCR, section 1956.8, as applicable.
15. NOx plus NMHC and particulate averaging, trading, and banking for heavy-duty engines [§86.xxx-15].
A. Federal provisions.

1. §86.004-15 February 6, 2000October 6, 2000. Amend as follows:
1.1 Add the following sentence to subparagraph (a)(1): Except as otherwise noted, references in this subsection to engines, heavy-duty engines, or HDEs shall include medium-duty engines.
1.2 Subparagraphs (a)(2) through (b)(1)(ii)(A) [No change.]
1.3 Subparagraph (b)(1)(ii)(B). Add the following sentence: In the case of medium-duty engines the FEL is subject to the same upper limit as required for heavy-duty engines.
1.4 Subparagraphs (b)(1)(iii) through (b)(1)(iv)(B). [No change.]
1.5 Subparagraph (b)(1)(iv)(C). Add the following sentence: Credits generated before the year 2004 to be used to certify engines in the combined light heavy-duty and medium-duty averaging set, as described in paragraphs (d)(2)(i) and (e)(2), in the year 2004 and later, must have been generated through the sale of engines in California.
1.6 Subparagraph (b)(2)(i). [No change.]
1.7 Subparagraph (b)(2)(ii) Amend as follows: (ii) The source of the credits to be used to comply with the emission standard if the FEL exceeds the standard, or where credits will be applied if the FEL is less than the emission standard. In cases where credits are being obtained, each engine family involved must state specifically the source (manufacturer/engine family) of the credits being used, including the year of generation of the credits being used and whether the credits were generated from engines sold in California or from 49state engines. In cases where credits are being generated/supplied, each engine family involved must state specifically the designated use (manufacturer/engine family or reserved) of the credits involved. All such reports shall include all credits involved in averaging, trading or banking.
1.8 Subparagraphs (b)(3) through (c)(1)(ii). [No change.]
1.9 Subparagraph (c)(1)(iii). Add the following sentence: For mediumduty engines certified in the 2004 and 2005 model years, an additional adjustment to the Std value described in this subparagraph (c)(1)(iii), allowing for certification using Federal certification fuel may be made on an individual engine family basis as determined by the ARB Executive Officer upon application by the engine manufacturer.
1.10 Subparagraphs (c)(2) through (d)(1). [No change.]
1.11 Subparagraph (d)(2). Amend as follows: For NOx plus NMHC credits from diesel-cycle heavy-duty engines:
(i) Heavy heavy-duty engines and medium heavy-duty engines, as defined in §86.004-2, each constitute an averaging set. Light heavy-duty engines, as defined in §86.004-2, for use in vehicles of more than 14,000 pounds gross vehicle weight rating and medium-duty engines, combined constitute an averaging set. Averaging and trading among all diesel-cycle engine families within the same averaging set is allowed.
(ii) Engines intended for use in urban buses constitute a separate averaging set from all other heavy-duty engines. Averaging and trading between diesel cycle bus engine families within the same averaging set is allowed.
1.12 Subparagraphs (e) and (e)(1). [No change.]
1.13 Subparagraph (e)(2) Amend as follows: (e)(2)
(i) For heavy-duty engines, exclusive of urban bus engines, heavy heavy-duty engines and medium heavy-duty engines, as defined in §86.0042, each constitute an averaging set. Light heavy-duty engines, as defined in $\S 86.004-2$, for use in vehicles of more than 14,000 pounds gross vehicle weight rating and medium-duty engines, combined constitute an averaging set. Averaging and trading between diesel-cycle engine families within the same averaging set is allowed.
1.14 Subparagraphs (e)(3) through (f)(3)(ii). [No change.]
1.15 Subparagraph (f)(3)(iii) Add the following sentences: Banked credits generated before the 2004 model year to be applied toward the certification of engines in the combined light heavy-duty and medium-duty averaging set, as described in paragraphs (d)(2)(i) and (e)(2) above, must have been generated through the sale of eligible engines within California. Credits generated before the 2004 model year from engines sold outside of California may not be used to certify light heavy-duty or medium-duty engines for sale in California. Manufacturers subject to the consent decree shall bank and use credits as allowed in their respective consent decrees. ${ }^{2}$
1.16 Subparagraphs (g) through (i). [No change.]
1.17 Subparagraph (j) Credit apportionment. Delete; replace with: At the manufacturer's option, marketable emission reduction credits for NOx plus NMHC, for use in emission reduction credit programs other than ABT, may be generated based upon engine certification to the optional reduced-emission NOx plus NMHC certification standards of section I.11.B. 2 of these test procedures except that medium-duty engines certified under title 13, CCR, §1956.8(h) for use in vehicles of more than 8,500 pounds through 14,000 pounds gross vehicle weight rating may not be used as the basis for generating marketable emission

[^1]reduction credits. Use of any marketable emission reduction credits generated must meet the requirements of the individual emission reduction credit program where the credits will be applied.
(1) For those engine sales used to generate $A B T$ credits, the manufacturer shall report engine sales in the category "ABT-only credits." For those engine sales certified to generate marketable emission reduction credits for NOx, the manufacturer shall report engine sales in the category "non-manufacturer-owned credits."
(i) For engine sales reported as "ABT-only credits," the credits generated must be used solely in the ABT program described in this section.
(ii) The engine manufacturer may declare a portion of engine sales "non-manufacturer-owned credits" and any marketable NOx credits generated based upon such sales would belong to the engine purchaser. For $A B T$, the manufacturer may not generate any credits for the engine sales reported as "non-manufacturer-owned credits."
(2) Only manufacturer-owned credits resulting from engine sales reported as "ABT-only credits" shall be used in the averaging, trading, and banking provisions described in this section.
(3) Credits shall not be double-counted. Credits used in the ABT program may not be provided to an engine purchaser for use in another program.
(4) Manufacturers shall determine and state the number of engines sold as "ABT-only credits" and "non-manufacturer-owned credits" in the end-of-model year reports required under §86.001-23.
1.18 Subparagraphs (k) and (I). [No change.]
2. §86.007-15. January 18, 2001. Amend as follows:
2.1 Introductory paragraph; subparagraphs (a) through (m)(9). [No change.]
2.2 Amend subparagraph (m)(9)(i) through (iv) as follows:
(i) Manufacturers certifying a split diesel engine family to both the pre2007 (phased-out) and post-2007 (phased-in) emission standards with equally sized subfamilies may exclude the engines within that split family from end-of-year NOx (or $\mathrm{NOx}+\mathrm{NMHC}$ ) ABT calculations, provided that neither subfamily generates credits for use by other engine families, or uses banked credits, or uses averaging credits from other engine families. All of the engines in that split family must be excluded from the phase-in calculations of Sec. 86.007-11(g)(1) (both from the number of engines complying with the standards being phased-in and from the total number of U.S.-directed production engines.)
(ii) [n/a; Otto-cycle]
(iii) [No change.]
(iv) Notwithstanding the provisions of paragraph (m)(9)(iii) of this section, for split families, the NOx FEL shall be used to determine applicability
of the provisions of §86.1360-2007 B.1.2 and B.1.3. and Sec.1370-2007
A.1.4.1(iii) and A.1.4.1(iv), as modified by these test procedures.
2.3 Subparagraph (m)(10). [No change.]

## B. California provisions

1. For medium-duty diesel-cycle engines certified under title 13, CCR §1956.8(h):
(a) Credits may be generated by an alternative mechanism proposed by the engine manufacturer and approved by the Executive Officer of the ARB. The alternative credit-generating mechanism shall not include any attribute expressly prohibited under the federal ABT program, such as cross-class or cross-fuel trading.
(b) Manufacturers must annually submit a proposed plan for generating credits to the Executive Officer of the ARB and have it approved prior to sale of engines of that model year in California.
2. A manufacturer may not include an engine family certified to the optional NOx emissions standards in the ABT programs for NOx but may include it for particulates.
3. California-only averaging, banking, and trading (CA-ABT) program for 2022 and subsequent model years - For 2022 and subsequent model year California certified medium-duty engine families, heavy-duty engine families and optionally certified diesel hybrid powertrain families, manufacturers may begin participating in the California NOx and particulate averaging, banking and trading program to show compliance with the full useful life emission standards in Section 1.11 of these test procedures. For 2024 and subsequent model years, all manufacturers that certify products in California must enroll in the CA-ABT program. Heavy-duty zero-emission powertrain families can participate in the CA-ABT program subject to the provisions of subparagraph I.15.B.3.(j) of these test procedures. All CA-ABT calculations must be performed using the California sales volume.
(a) The CA-ABT program only includes the following four averaging sets. Medium-duty vehicles that are chassis certified under title 13, CCR, section 1961.2 are not eligible to participate in the CA-ABT program.
(1) The light heavy-duty diesel averaging set only includes:
(i) Medium-duty diesel engines certified to the standards and test procedures in title 13, CCR, section 1956.8 (h)(2) and (b),
(ii) Light heavy-duty diesel engines certified to the standards and test procedures in title 13, CCR, section 1956.8 (a) and (b), and
(iii) Optionally certified diesel hybrid powertrain families certified to the standards and test procedure in title 13, CCR, sections 1956.8 (a) and (b) used primarily in class 4 and 5 vehicles with diesel engines.
(iv) Optionally certified diesel hybrid powertrain families certified to the standards and test procedure in title 13, CCR, sections 1956.8 (a) and (b) used in incomplete vehicles from 10,001 to 14,000 pounds GVWR.
(2) The medium heavy-duty diesel averaging set only includes:
(i) Medium heavy-duty diesel engines certified to the standards and test procedures in title 13, CCR, section 1956.8 (a) and (b), and
(ii) Optionally certified diesel hybrid powertrain families certified to the standards and test procedure in title 13, CCR, sections 1956.8 (a) and (b) used primarily in class 6 and 7 vehicles with diesel engines.
(3) The heavy heavy-duty diesel averaging set only includes:
(i) Heavy heavy-duty diesel engines certified to the standards and test procedures in title 13, CCR, section 1956.8 (a) and (b), and
(ii) Optionally certified diesel hybrid powertrain families certified to the standards and test procedure in title 13, CCR, sections 1956.8 (a) and (b) used primarily in class 8 vehicles with diesel engines.
(4) The heavy-duty zero-emission averaging set described in subparagraph B.3.(j) of this section.
(b) Transfer of credits between any averaging sets is prohibited with the following exception: credits from the heavy-duty zero-emission averaging set can be transferred into any other averaging set such as the light heavy-duty diesel, medium heavy-duty diesel, or heavy heavy-duty diesel averaging set only to cover deficits generated by any certified engine families.
(c) The averaging set for engines used in urban buses will be determined based on the primary intended service class of the engine used in the urban bus.
(d) Existing federal-ABT program credits generated during 2009 and previous model years cannot be transferred into or used in the CA-ABT program.
(e) As provided in this section, a portion of existing banked credits in the federal-ABT program that were generated from the 2010 through 2021 model years can be transferred into the CA-ABT program for each averaging set during the 2022 model year, subject to the provisions in subparagraph B.3.(f) of this section. Manufacturers cannot otherwise transfer any other existing banked credits in the federal-ABT program to the CA-ABT program. Manufacturers that do not begin enrollment in the CA-ABT program in 2022 model year may not
transfer any federal-ABT credits into the CA-ABT program.
(f) For each averaging set specified in subparagraph B.3.(a) of this section, calculate the maximum allowance for the transfer of federal-ABT credits to the CA-ABT program using the following equation:
$\left(\begin{array}{c}\text { Maximum allowable credit } \\ \text { transfer to CA }- \text { ABT bank } \\ \text { in } 2022 \text { model year for } \\ \text { each heavy }- \text { duty diesel averaging set }\end{array}\right)$

$$
=C R \times\left(\sum_{i=t_{1}}^{t_{2}}(C A)_{i}\right) \div\left(\sum_{i=t_{1}}^{t_{2}}\left({\text { National })_{i}}_{i}\right)\right.
$$

where:
$\underline{t_{1}=2019 \text { model year. }}$
$\mathrm{t}_{2}=2021$ model year.
$\mathrm{CA}_{\mathrm{i}}=$ California sales volume of engines within the corresponding averaging set in model year i.

Nationali $=$ the number of engines produced for U.S. sales within the corresponding averaging set in model year i.

CR = banked federal credits (in Mg) for the corresponding averaging set generated in the 2010 to 2021 model year period.
(g) For determining credit availability or credit needs for engine families or optionally certified diesel hybrid powertrain families in the CA-ABT program:
$\underline{\text { Emission Credits }=\left(S t d-F T P F E L \times \frac{M Y U L}{A U L}\right) \times C F \times A U L \times \text { Sales } \times 10^{-6}}$
where:
Emission credits are calculated for each individual engine family or optionally certified diesel hybrid powertrain family in Megagrams (Mg).

Std = the current model year FTP cycle NOx or particulate emission standard in grams per brake horsepower hour. For example, the current model year FTP cycle NOx emission standard for a 2025 model year engine family is $0.050 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$,

FTP FEL = the FTP cycle NOx or particulate family emission limit for the
engine family or optionally certified diesel hybrid powertrain family in grams per brake horsepower hour,

CF = the transient cycle conversion factor (in bhp-hr/mile) is the total (integrated) cycle brake horsepower-hour for the applicable engine family during the FTP cycle divided by 6.5 miles (or Vehicle-FTP cycle for optionally certified diesel hybrid powertrain family divided by 6.8 miles),

AUL = applicable useful life for the engine family or optionally certified diesel hybrid powertrain family in miles as defined in Section I.2.A of these test procedures. For example, the AUL for a 2027 model year heavy heavy-duty diesel engine family certified to 2031 model year requirements is 800,000 miles,

MYUL = current model year useful life requirement for the engine family or optionally certified diesel hybrid powertrain family in miles as defined in Section I.2.A of these test procedures. For example, the MYUL for a 2027 model year heavy heavy-duty diesel engine family certified to 2031 model year requirements is 600,000 miles,

Sales = California sales volume for the engine family or optionally certified diesel hybrid powertrain family during the model year. Projected model year sales are used for initial certification estimates. Actual sales numbers are used for end-of-year compliance determination.
(h) Credit life. CA-ABT credits may be used only for five model years after the year in which they are generated. For example, credits generated in model year 2024 may be used to demonstrate compliance with emission standards only through model year 2029.
(i) Family Emission Limits (FELs) - The CA-ABT program for medium-duty and heavy-duty diesel engines and optionally certified diesel hybrid powertrain families has separate FELs for each of the following certification emissions test cycles: FTP, RMC and LLC for engine families (Vehicle-FTP, Vehicle-RMC and Vehicle-LLC cycles for optionally certified diesel hybrid powertrain families). The relationships between the respective FELs for these cycles and the maximum allowable FELs are as follows:
(1) FTP FELs - These FELs apply to the FTP cycle for engine families (Vehicle-FTP cycle for optionally certified diesel hybrid powertrain families) NOx and particulate matter emissions, and are selected by the manufacturer for each engine family or optionally certified diesel hybrid powertrain family. These FELs are used in the CA-ABT calculations as shown in subparagraph B.3.(g) of this section. Maximum FEL values (caps) for the FTP (Vehicle-FTP) cycle are as follows:
(A) For 2023 and previous model years, the maximum NOx and particulate matter FELs are specified in Section I. 11 of these test procedures.
(B) For 2024 through 2025 model years, the maximum FTP NOx FEL value is $0.20 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$ for engines certified under title 13, CCR, Section 1956.8(a)(2)(C)3. For all other 2024 through 2025 model year engines, the maximum FTP NOx FEL value is $0.100 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.
(C) For 2026 model year, the maximum FTP NOx FEL value is $0.100 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.
(D) For 2027 and subsequent model year light heavy-duty and medium heavy-duty diesel engines, the maximum FTP NOx FEL value is $0.050 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.
(E) For 2027 through 2030 model year heavy heavy-duty diesel engines, the maximum FTP NOx FEL value is $0.065 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.
(F) For 2031 and subsequent model year heavy heavy-duty diesel engines, the maximum FTP NOx FEL value is $0.070 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.
(G) For 2024 and subsequent model years, the maximum FTP particulate matter FEL value is $0.010 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.
(2) RMC FELs - These FELs apply to the RMC cycle for engine families (Vehicle-RMC for optionally certified diesel hybrid powertrain families) NOx and particulate emissions and have the same numerical value as the FTP cycle FELs for both NOx and particulate matter. Manufacturers cannot choose a different FEL value for the RMC cycle.
(3) LLC FELs - These FELs apply to the LLC cycle for engine families (Vehicle-LLC for optionally certified diesel hybrid powertrain families) NOx and particulate emissions and have the following values:
(A) For 2024 and subsequent model years, the LLC NOx FEL shall be determined as follows:

$$
\underline{L L C ~ N O X ~ F E L ~}=\text { factor } \times F T P \text { NOX FEL }
$$

where:
LLC NOx FEL = calculated value of the LLC NOx FEL for engine families (optionally certified diesel hybrid powertrain families).
factor $=\quad \frac{4 " \text { for } 2024 \text { through } 2026 \text { model years, subject }}{\text { to the following restriction: the maximum LLC }}$
$\frac{\text { NOx FEL value shall not exceed } 0.300 \mathrm{~g} / \mathrm{bhp}-}{\text { Nu }}$ hr.
" 2.5 " for 2027 and subsequent model years.
FTP NOx FEL = NOx FEL assigned by the manufacturer for the FTP cycle for engine families (Vehicle-FTP cycle for optionally certified diesel hybrid powertrain families).

Manufacturers can only use the calculated LLC NOx FEL value for each engine family or optionally certified diesel hybrid powertrain family. If a manufacturer needs a higher LLC NOx FEL value, they must increase the FTP NOx FEL value for the engine family (optionally certified diesel hybrid powertrain family) and then recalculate the corresponding LLC NOx FEL value.
(B) For 2024 and subsequent model years, the maximum LLC particulate matter FEL value is $0.010 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$. The LLC particulate matter FEL must have the same value as the FTP particulate matter FEL,
(4) In lieu of compliance with the intermediate useful life NOx emission standards for 2027 and subsequent model year heavy heavy-duty engines, NOx family emission limits applicable at intermediate useful life (FELIUL) may be used for the FTP, RMC, and LLC duty cycles, where FELIUL values are assigned for all three cycles. The FELIuL may not be used to participate in any ABT program.

For the FTP and RMC duty cycles, the assigned FELIuL is determined by the following formulas:

FTP NOx FELIUL $=0.020+(F T P$ NOx FELFUL $-F T P$ NOx emission standard)
$\underline{R M C ~ N O x ~ F E L I U L ~}=F T P$ NOx FELIUL
where:
FTP NOx FELIuL = the FTP NOx family emission limit of the heavy heavy-duty engine at intermediate useful life in g/bhp-hr, where its minimum value is $0.005 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$.

FTP NOx FELful = the FTP NOx family emission limit of the heavy
heavy-duty engine at full useful life in g/bhp-hr.
FTP NOx emission standard = the applicable NOx emission standard at full useful life for the FTP or RMC duty cycles.

RMC NOx FELIUL = RMC NOx family emission limit at intermediate useful life in g/bhp-hr.

For the LLC duty cycle, the FELIUL is determined by multiplying the FTP FELiul by a factor of 2.5.

For example, if a manufacturer chooses a FTP FELFUL of 0.050 g/bhp-hr for a 2027 model year heavy heavy-duty engine family, then the assigned FELIut values would be:

FTP NOx FELIUL $=0.020+(0.050-0.035)=0.035 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$
$\underline{\text { RMC NOx FELIUL }=0.035 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}}$

$$
\text { LLC NOx FELIUL }=0.035^{*} 2.5=0.088 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}
$$

(i) Heavy-duty zero-emission averaging set - Zero-emission powertrain families with models used in class 4 through 8 vehicles are eligible to generate $\mathrm{NO}_{x}$ and PM credits in the heavy-duty zero-emission averaging set under the CAABT program. Zero-emission powertrain models used in class 3 or lower class vehicles are not eligible for participation in the CA-ABT program.
(1) Credit Life. Zero-emission NOx and PM credits can be banked for use in future model years, only up through model year 2026. For example, credits generated in model year 2024 may be used to demonstrate compliance with emission standards only through model year 2026.
(2) Zero-emission NOx and PM credits for each applicable zeroemission powertrain model within a powertrain family shall be calculated using the following equation:
$\underline{\text { Zero emission Credits }=\text { Std } \times E C F \times U L \times \text { Sales } \times 10^{-6}}$ where:

Zero-emission credits are calculated for each zero-emission powertrain model within the powertrain family in Mg ,

Std = the applicable FTP cycle NOx or PM emission standard in grams per brake horsepower hour for the corresponding model
year as specified in Section 1.11 of these test procedures. For zeroemission powertrain models used in class 4 and 5 zero-emission vehicle families, use the FTP cycle NOx or PM emission standard applicable to light heavy-duty diesel engines. For zero-emission powertrain models used in class 6 and 7 zero-emission vehicle families, use the FTP cycle NOx or PM emission standard applicable to medium heavy-duty diesel engines. For zero-emission powertrain models used in class 8 zero-emission vehicle families, use the FTP cycle NOx or PM emission standard applicable to heavy heavy-duty diesel engines,

ECF = the transient cycle conversion factor (in bhp-hr/mile) is the total (integrated) cycle brake horsepower-hour for the applicable zero-emission powertrain model during the Vehicle-FTP cycle divided by 6.8 miles,
$\underline{U L}=$ applicable useful life for the vehicle family in which the powertrain model would be installed. UL is in miles as defined in 40 CFR §1037.105 last amended on October 25, 2016, and 40 CFR §1037.106 last amended on March 10, 2021 (Pre-publication), which is incorporated by reference herein.

Sales = California sales volume for the zero-emission powertrain model sold within the given powertrain family during the model year. Projected model year sales are used for initial certification. Actual sales numbers are used for end-of-year compliance determination.
(3) The heavy-duty zero-emission averaging set provisions and credits are only available for 2022 through 2026 model years. Any banked zeroemission credits would no longer be available in the CA-ABT program for 2027 and subsequent model years.
(4) In order to participate in the CA-ABT program, the heavy-duty zeroemission powertrain must meet the following requirements:
(A) For 2022 through 2023 model years, the heavy-duty zeroemission powertrain family must be used in a heavy-duty zero-emission vehicle certified under title 17, CCR, section 95663.
(B) For 2024 through 2026 model years, the heavy-duty zeroemission powertrain family must be certified under title 13, CCR, section 1956.8(a)(8).
(k) CA-ABT reporting -A manufacturer must submit end-of-year reports for each engine family, optionally certified diesel hybrid powertrain family, and zeroemission powertrain family participating in the CA-ABT program, as described in subparagraphs B.3.(a) through B.3.(j) of this section.
(1) The end-of-year reports shall be submitted within 180 days of the end of the model year to: Chief, Emissions Certification and Compliance Division, California Air Resources Board, 4001 lowa Ave., Riverside, CA 92507.
(2) These reports shall indicate the engine family name or optionally certified diesel hybrid powertrain family name or zero-emission powertrain family name and model names, the averaging set, the California sales volume, all of the parameters and corresponding values required to calculate credits as given in the applicable CA-ABT section, the resulting type and number of credits generated/required. Manufacturers shall also submit how and where credit surpluses were dispersed (or are to be banked) and how and through what means credit deficits were met. Copies of contracts related to credit trading must also be included or supplied by the broker if applicable. The report shall also include a calculation of credit balances to show that net mass emissions balances are within those allowed by the emission standards (equal to or greater than a zero credit balance).
(3) Errors discovered by ARB or the manufacturer in the end-of-year report, including changes in the production counts, may be corrected up to 90 days subsequent to submission of the end-of-year report. Errors discovered by ARB after 90 days shall be corrected if credits are reduced. Errors in the manufacturer's favor will not be corrected if discovered after the 90 day correction period allowed.
(4) Failure by a manufacturer participating in the CA-ABT programs to submit the end-of-year report (as applicable) in the specified time for all zeroemission powertrains, engines or optionally certified diesel hybrid powertrains that are part of an averaging set shall constitute a violation of title 13, CCR, section 1956.8 for each such powertrain and engine.
4. Early compliance credit multipliers for 2022 through 2030 model year engine families and optionally certified diesel hybrid powertrains - Manufacturers that produce and certify engines and optionally certified hybrid powertrains that comply with future model year requirements in title 13, CCR, sections 1956.8, 1968.2, 1971.1, 2035, 2036, 2112 and 2139 on a voluntary basis will be eligible for early compliance credit multipliers subject to the following limitations:
(a) Early compliance credit multipliers will only be available for 2022 through 2030 model year California certified engine families and optionally certified diesel hybrid powertrains.
(b) Early compliance eligibility criteria for engine families and optionally certified diesel hybrid powertrains - An eligible engine family or optionally certified diesel hybrid powertrain must meet all the applicable numeric emissions standards and requirements of the regulations as set forth in title 13, CCR, sections 1956.8, 1968.2, 1971.1, 2035, 2036, 2112 and 2139 for the specified model years, as specified in subparagraphs B.4.(d) and B.4.(e) below. For example, to get a 1.5 multiplier, an eligible 2025 model year light heavy-duty engine family must certify to at or below an FTP NOx FEL of $0.020 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$ and an FTP PM FEL of $0.005 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$, and demonstrate compliance with the 2027 model year useful life, durability, warranty, in-use testing requirements, on-board diagnostics (OBD) requirements, etc. in order to participate in the program.
(c) Credits for engine families and optionally certified diesel hybrid powertrains that are eligible for early compliance credit multipliers shall be calculated, adjusted, and banked as follows:
$\underline{\text { adjusted }}$ credits $=$ emission credits $\times E C C M$
where:
adjusted credits $=$ Amount of credits that can be banked in the CA-ABT program (in Mg).
emission credits $=$ Amount of credits calculated for each eligible engine family or optionally certified diesel hybrid powertrain as shown in subparagraph B.3.(g) of this section (in Mg ).

ECCM = Early compliance credit multiplier as described in subparagraph B.4.(d) of this section.
(d) Early compliance credit multipliers shall be determined as shown below:

| Engine <br> $\frac{\text { (optionally certified diesel }}{\text { hybrid powertrain) Family }}$ <br> Model Year | Complying with the Regulations for Model Years* | $\frac{\text { Early Compliance Credit }}{\text { Multiplier }}$ |
| :---: | :---: | :---: |
| 2022-2023 | 2024-2026 | 1.5 |
| 2022-2023 | 2027-2030 | 2.0 |
| 2022-2023 | $\underline{2031}$ and subsequent | 2.5 |
| 2024-2026 | 2027-2030 | 1.5 |
| 2024-2026 | 2031 and subsequent | 2.0 |
| 2027-2030 | 2031 and subsequent | 1.5 |

* Compliance with model year regulations means compliance with the requirements of title 13, CCR, sections 1956.8, 1968.2, 1971.1, 2035, 2036, 2112 and 2139 for the specified model years.
(e) Credits generated from zero-emission powertrain families are not eligible for early compliance credit multipliers.

21. Application for certification. [§86.xxx-21]

A Federal provisions.

1. §86.004-21 April 28, 2014. Amend as follows:
1.1 Subparagraphs (a) through (I). [No change.]
1.2 Delete subparagraph (m).
1.2 Subparagraph (n). [No change.]
2. §86.007-21 April 28, 2014. Amend as follows:
2.1 Subparagraphs (a) through (I). [No change.]
2.2 Delete subparagraph (m).
2.3 Subparagraph ( n ). [No change.]
2.4 Amend subparagraph (o) as follows: For 2005 and subsequent model year diesel heavy-duty engines, the manufacturer must provide the following additional information pertaining to the supplemental steady-state test conducted under § 86.1360-2007:
2.4.1 Subparagraph (o)(1). [No change.]
2.4.2 Amend subparagraph (o)(2) as follows: For engines subject to the MAEL (see §86.1360-2007B.1), brake specific gaseous emission data for each of the 12 non-idle test points (identified under §86.1360-2007(b)(1)) and the 3 selected test points (identified under §86.1360-2007(b)(2));
2.4.3 Amend subparagraph (o)(3) as follows: For engines subject to the MAEL (see §86.1360-2007B.1), concentrations and mass flow rates of all regulated gaseous emissions plus carbon dioxide;
2.4.4 Subparagraph (o)(4) and (o)(5). [No change.]
2.4.5 Amend subparagraph (o)(6) as follows: For engines subject to the MAEL (see §86.1360-2007B.1), a statement that the engines will comply with the weighted average emissions cap and interpolated values comply with the emission testing caps specified in §86.1360-2007B. 1 for the useful life of the engine. The manufacturer also must maintain records at the manufacturer's facility which contain a detailed description of all test data, engineering analyses, and other information which provides the basis for this statement, where such information exists. The manufacturer must provide such information to the Executive Officer upon request.

### 2.4.6 Subparagraph (o)(7). [Reserve.]

### 2.5 Amend subparagraph (p) as follows:

2.5.1. (1) The manufacturer must provide a statement in the application for certification that the diesel heavy-duty engine for which certification is being requested will comply with the applicable Not-To-Exceed Limits specified in §86.1370-2007 A.1.4 when operated under all conditions which may reasonably be expected to be encountered in normal vehicle operation and use. The manufacturer also must maintain records at the manufacturer's facility which contain all test data, engineering analyses, and other information which provides the basis for this statement, where such information exists. The manufacturer must provide such information to the Executive Officer upon request.
2.5.2. Subparagraph (p)(2). [No change.]
2.5.3. Amend subparagraph $(p)(3)$ as follows: For each engine model and/or horsepower rating within an engine family for which a manufacturer is applying for a NTE deficiency(ies) under the provisions of §86.1370-2007B.3, the manufacturer's application for an NTE deficiency(ies) must include a complete description of the deficiency, including but not limited to: the specific description of the deficiency; what pollutant the deficiency is being applied for, all engineering efforts the manufacturer has made to overcome the deficiency, what specific operating conditions the deficiency is being requested for (i.e., temperature ranges, humidity ranges, altitude ranges, etc.), a full description of the auxiliary emission control device(s) which will be used to maintain emissions to the lowest practical level; and what the lowest practical emission level will be.

### 2.6 Subparagraph (q). [No change.]

## B. California provisions.

1. For 2004 and subsequent model year medium-duty ultra-low-emission and super-ultra-low emission vehicles and engines not powered exclusively by diesel fuel, the manufacturer shall submit projected California sales and fuel economy data
two years prior to certification.

## 2. Heavy-Duty Diesel Engine Idling Requirements.

2.1 For 2008 and subsequent model year heavy-duty diesel engines, the manufacturer must provide a statement in the application for certification that the heavy-duty diesel engine for which certification is being requested will comply with the automatic engine shutdown requirements to control idle emissions as specified in subsection 11.B.6.1. If the heavy-duty diesel engine for which certification is being requested is explicitly designed for exempt vehicles, per the provisions in 11.B.6.2, then the manufacturer must also provide a statement in its application for certification so stating.
2.2 A manufacturer that elects to certify engines to the optional NOx idling emission standard, specified in subsection 11.B.6.3, must provide in the application for certification information pertaining to the NOx idling emission certification test conducted under 86.1360-2007.B.4, below, including emissions data for total particulate matter, non-methane hydrocarbons or total hydrocarbons, oxides of nitrogen, carbon monoxide, and carbon dioxide in grams per hour, the test load in brake-horsepower, and engine test speeds in revolutions per minute for both mode 1 and mode 2 testing. With advance Executive Officer approval, a manufacturer may use an alternative procedure to show compliance with the optional NOx idling emission standard. Regardless of the procedure used, the manufacturer shall also provide the appropriate labels to be affixed to the vehicle on which the engine is going to be installed as required in subsection 35.B.4, below. The manufacturer must maintain records at the manufacturer's facility that contain all test data, engineering analyses, and other information which provide the basis for the compliance statement, where such information exists. The manufacturer must provide such information to the Executive Officer within 30 days upon request.
2.3 If the heavy-duty diesel engine for which certification is being requested incorporates any of the alternative idle emission control strategies contained in title 13, CCR, section 2485(c)(3), then the manufacturer must provide in its application for certification a description of the alternative strategy or technology including the type, brand name, model identification number, and where applicable emissions data and power rating. In addition, the manufacturer must also provide the appropriate labels to be affixed to the outside of the vehicle as required in subsections 35.B.4. If the alternative technology is a fuel-fired heater, then the manufacturer must provide with the application for certification the information required under subsection H.4.4, Part I of the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," incorporated by reference in title 13, CCR, section 1961, or the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for

Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," incorporated by reference in title 13, CCR, section 1961.2, as applicable.
23. Required data. [§86.xxx-23]
A. Federal Provisions.

1. §86.098-23. April 30, 2010. April 28, 2014.
1.1 Subparagraphs (a) through (b)(1)(i) [No change.]
1.2 Add the following sentence to subparagraph (b)(1)(ii): The data derived from testing to determine the exhaust emission deterioration factors shall be submitted to the Executive Officer for review.
1.2.1 For 2023 and previous model years, lif the durability test method is accepted by EPA, it shall also be accepted by ARB, subject to the following condition. If, after certification for the first model year in which the method is used, the Executive Officer determines that a manufacturer's durability test procedures do not conform with good engineering practices, the Executive Officer may require changes to that manufacturer's durability test procedures for subsequent model years. The manufacturer's revised durability test procedures shall be submitted to the Executive Officer for review and approval.
1.2.2 For 2024 and subsequent model years, the durability test method must follow the provisions in section I.26.B of these test procedures.
1.3 Subparagraphs (b)(2) through (h)(2) [No change.]
1.4 Amend subparagraph (h)(3) as follows:
(h)(3)(i) These reports shall be submitted within 90 days of the end of the model year to: Chief, Emissions Certification and Compliance, Automotive Regulations and Science Division, California Air Resources Board, 9480 Telstar Avenue, Ste. \#4, El Monte, California 917314001 lowa Ave, Riverside, CA 92507.
1.5 Subparagraphs (h)(3)(ii) through (m) [No change.]
2. §86.001-23. April 28, 2014. [No change, except that the amendments indicated for §86.098-23 above still apply.]
3. §86.007-23. April 28, 2014. [No change, except that the amendments indicated for §86.098-23 above still apply.]
4. Test vehicles and engines. [§86.xxx-24]

## A. Federal Provisions.

1. §86.001-24. October 22, 1996. [No change except that the reference in subparagraph (e)(2) to 10,000 light-duty vehicles, light-duty trucks, heavy-duty vehicles and heavy-duty engines shall mean 4,500 units based on the average
number of vehicles or engines sold for the three previous consecutive model years for which a manufacturer seeks certification in California.]
2. §86.096-24. April 28, 2014.
2.1 Subparagraphs (a) through (b)(3)(ii) [No change.]
2.2 Amend subparagraph (b)(3)(iii) by adding the following sentence to the end of the subparagraph:

For 2024 and subsequent model years, the Executive Officer will also consider the aftertreatment conversion efficiency.

### 2.3 Subparagraphs (b)(3)(iv) through (f) [No change.]

25. Maintenance. [§86.xxx-25]]

## A. Federal provisions.

1. §86.004-25. October 25, 2016.
1.1 Amend Subparagraph (a)(1) as follows:

Applicability. This section applies to light-duty vehicles, light-duty trucks, optionally certified diesel hybrid powertrains, and HDEs.
1.2 SubPparagraphs (a)(2) through-subparagraph (b)(3)(v)(H). [No change.]
1.23 Add the following title (plus spacing) to the beginning of subparagraph (b)(4):
(4) Minimum Maintenance Intervals for Diesel-Cycle Heavy-Duty Engines:
1.34 Delete and replace subparagraph (b)(4)(i) as follows:
(i) For 2021 and earlier model-year diesel-cycle heavy-duty engine families, and for 2022 and subsequent model-year diesel-cycle heavy-duty engine families that are certified for use in vehicles with a GVWR less than or equal to 14,000 pounds, and for 2022 through 2026 model year diesel-cycle heavy-duty engine families used in vehicles with a GVWR greater than 14,000 pounds that are certified for use in hybrid vehicles exclusively (except diesel hybrid powertrain optionally certified pursuant to title 13, CCR, section 1956.8), that are certified for use in dual fuel vehicles, or that are not certified on only diesel fuel, the adjustment, cleaning, repair, or replacement of the items listed in paragraphs (b)(4)(i) (A)-(D) of this section shall initially not occur before 50,000 miles (or 1,500 hours) of use and thereafter not more frequently than at intervals of 50,000 -miles (or 1,500-hours).

For 2022 and subsequent model-year diesel hybrid powertrain families optionally certified for use in hybrid vehicles pursuant to title 13, CCR section 1956.8, Ffor 2022-and subsequent through 2026 model-year diesel-cycle
heavy-duty engine families that are certified for use in vehicles with a GVWR greater than 14,000 pounds on only diesel fuel, including engine families that have concurrent applications certified for concurrent use in both dedicated diesel-fueled internal-combustion vehicles-are and hybrid vehicles, and for 2027 and subsequent model-year diesel-cycle heavy-duty engine families certified for use in vehicles with a GVWR greater than 14,000 pounds on diesel or alternative fuels, including engine families certified for use in hybrid vehicles exclusively or concurrently with dedicated internal-combustion vehicles:

- Adjustment or cleaning frequency. The frequency of manufacturer scheduled adjustment or cleaning for the items listed in paragraphs (b)(4)(i) (A)-(D) shall be limited by the same minimum maintenance intervals as for 2021 or earlier model-year diesel-cycle heavy-duty engine families as stated in this paragraph (b)(4)(i).
- Repair or replacement frequency. The frequency of manufacturer scheduled repair or replacement for the emission-related components and systems listed in paragraph (b)(4)(vi) shall be limited by the minimum maintenance intervals stated therein. These maintenance intervals do not apply to parts identified in 1037.120 for heavy-duty vehicles certified to the GHG emission standards of section 95663, title 17, CCR. The maintenance provisions for the GHG-related parts in 1037.120 for heavyduty vehicles certified to the GHG emission standards of section 95663, title 17, CCR, are specified in 1037.125 of that same section.
(A) Exhaust gas recirculation system related filters and coolers.
(B) Crankcase ventilation valves and filters.
(C) Fuel injector tips (cleaning only).
(D) DEF filters.
$1.4 \underline{5}$ Subparagraph (b)(4)(ii). [No change.]
1.56 Delete and replace subparagraph (b)(4)(iii) as follows:
(iii) For 2021 and earlier model-year diesel-cycle heavy-duty engine families exclusively,-and for 2022 and subsequent model-year diesel-cycle heavy-duty engine families that are certified for use in vehicles with a GVWR less than or equal to 14,000 pounds, and for 2022 through 2026 model year diesel-cycle heavy-duty engine families used in vehicles with a GVWR greater than 14,000 pounds that are certified for use in hybrid vehicles exclusively (except diesel hybrid powertrain families optionally certified pursuant to title 13, CCR, section 1956.8), that are certified for use in dual fuel vehicles, or that are not certified on only diesel fuel, the adjustment, cleaning, repair, or replacement of the items listed in paragraphs (b)(4)(iii) (A)-(G) of this section shall initially not occur before 100,000 miles (or 3,000 hours) of use and thereafter not more frequently than at intervals of at least 100,000-miles (or

3,000-hours) for light heavy-duty diesel engines, or, thereafter at intervals of at least 150,000 miles (or 4,500 hours) for medium and heavy heavy-duty diesel engine families.

For 2022 and subsequent model-year diesel hybrid powertrain families optionally certified for use in hybrid vehicles pursuant to title 13, CCR, section 1956.8, Ffor 2022-and subsequent through 2026 model-year diesel-cycle heavy-duty engine families that are certified for use in vehicles with a GVWR greater than 14,000 pounds on only diesel fuel, including engine families that have concurrent applications certified for concurrent use in both dedicated diesel-fueled internal-combustion vehicles and hybrid vehicles, and for 2027 and subsequent model-year diesel-cycle heavy-duty engine families certified for use in vehicles with a GVWR greater than 14,000 pounds on diesel or alternative fuels, including engine families certified for use in hybrid vehicles exclusively or concurrently with dedicated internal-combustion vehicles:

- Adjustment or cleaning frequency. The frequency of manufacturer scheduled adjustment or cleaning for the items listed in paragraphs (b)(4)(iii) (A)-(G) shall be limited by the same minimum maintenance intervals as for 2021 or earlier model-year diesel-cycle heavy-duty engine families as stated in this paragraph (b)(4)(iii).
- Repair or replacement frequency. The frequency of manufacturer scheduled repair or replacement for the emission-related components and systems listed in paragraph (b)(4)(vi) shall be limited by the minimum maintenance intervals stated therein. These maintenance intervals do not apply to parts identified in 1037.120 for heavy-duty vehicles certified to the GHG emission standards of section 95663, title 17, CCR. The maintenance provisions for the GHG-related parts in 1037.120 for heavyduty vehicles certified to the GHG emission standards of section 95663, title 17, CCR, are specified in 1037.125 of that same section.
(A) Fuel injectors.
(B) Turbocharger.
(C) Electronic engine control unit and its associated sensors and actuators.
(D) Particulate trap or trap oxidizer systems including related components (adjustment and cleaning only for filter element, scheduled replacement of the filter element is not allowed during the useful life).
(E) Exhaust gas recirculation system (including all related control valves, and tubing) except as otherwise provided in paragraph (b)(4)(i)(A) of this section.
(F) Catalytic converter (adjustment and cleaning only for catalyst beds, scheduled replacement of the bed is not allowed during the useful life).
(G) Any other add-on emissions-related component (i.e., a component whose sole or primary purpose is to reduce emissions or whose failure will significantly degrade emissions control and whose function is not integral to the design and performance of the engine.)
1.67 Subparagraphs (b)(4)(iv) through (b)(4)(v). [No change.]
1.7.8 Add new subparagraph (b)(4)(vi) as follows:
(vi) For 2022 and subsequent model-year diesel hybrid powertrain families optionally certified for use in hybrid vehicles pursuant to title 13, CCR section 1956.8, (see §86.004-25 (b)(4)(vii) for guidance), Ffor 2022and subsequent through 2026 model-year diesel-cycle heavy-duty engine families certified-on only diesel fuel for use in vehicles with a GVWR greater than 14,000 pounds on only diesel fuel, including engine families certified for concurrent use in both dedicated internal-combustion vehicles and hybrid vehicles, and for 2027 and subsequent model-year diesel-cycle heavy-duty engine families certified for use in vehicles with a GVWR greater than 14,000 pounds on diesel or alternative fuels, including engine families certified for use in hybrid vehicles exclusively or concurrently with dedicated internalcombustion vehicles, repair and replacement for the criteria pollutant emission-related components and systems listed below shall not occur before the mileage-first occurrence of a maintenance intervals specified in the following table, and thereafter not more frequently than at least those that same intervals. Manufacturers may not schedule maintenance based on any other metric (e.g., hours of operation, calendar years, months, etc.) except as specifically provided in the table below:

| Component or System | Minimum Repair / Replacement Interval |  |  |
| :---: | :---: | :---: | :---: |
|  | Light Heavy-Duty Diesel Engine <br> 14,000 lbs. < GVWR $\leq 19,500$ lbs. | Medium Heavy-Duty Diesel Engine <br> $19,500 \mathrm{lbs}$. $<\mathrm{GVWR} \leq 33,000 \mathrm{lbs}$. | Heavy Heavy-Duty Diesel Engine GVWR > 33,000 Ibs. |
| Exhaust Gas Recirculation (EGR) System (valves \& cooler - not including hoses) | Not Replaceable ${ }^{1,2}$ | Not Replaceable ${ }^{1,2}$ | Not Replaceable ${ }^{1,2}$ |
| Exhaust Gas Recirculation (EGR) System (other than valves \& cooler) | 110,000 miles, or 3 years | 185,000 miles | 435,000 miles |
| Crankcase Ventilation System | 50,000 miles | 60,000 miles, or 2,000 hours, or 1 year | 60,000 miles, or 2,000 hours, or 1 year |
| Diesel Exhaust Fluid (DEF) <br> Filter | 110,000 miles, or 2 years | 125,000 miles, or 3,000 hours, or 10 years | 125,000 miles, or 3,000 hours |
| Fuel Injectors | 110,000 miles | 185,000 miles | 435,000 miles |
| Turbochargers | Not Replaceable ${ }^{1,2}$ | Not Replaceable ${ }^{1,2}$ | Not Replaceable ${ }^{1,2}$ |
| Electronic Control Unit, Sensors, and Actuators | 100,000 miles, or 3,000 hours | 150,000 miles, or 4,500 hours | 150,000 miles, or 4,500 hours, or 5 years |
| Diesel Particulate Filter System (element only) | Not Replaceable ${ }^{1}$ | Not Replaceable ${ }^{1}$ | Not Replaceable ${ }^{1}$ |
| Diesel Particulate Filter System (other than element) | 110,000 miles | 185,000 miles, or 3 years | 435,000 miles, or 3 years |
| Catalytic Converter (bed only) | Not Replaceable ${ }^{1}$ | Not Replaceable ${ }^{1}$ | Not Replaceable ${ }^{1}$ |
| Catalytic Converter (other than catalyst bed) | 110,000 miles | 185,000 miles | 435,000 miles |
| Any other add-on or new technology emission-related component or system whose primary purpose is to reduce emissions or whose failure will significantly degrade emissions control | 110,000 miles, or 3,300 hours $^{3}$ | 185,000 miles, or 5,550 hours $^{3}$ | 435,000 miles, or 13,050 hours $^{3}$ |

1. For components or systems designated in the table as "Not Replaceable," manufacturers shall not schedule any repair / replacement maintenance intervals throughout the applicable useful life of the heavy-duty diesel engine, defined in § 86.004-2 of the California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles, last amended April 18, 2019, except as noted in (b)(7)(i) of this section§ 86.004-25 (i).
2. Sensors and actuators are included only if they are integral to these assemblies and cannot be repaired without removing or replacing the assembly. Otherwise sensors and actuators are subject to the maintenance intervals specified in the table for Electronic Control Units, Sensors, and Actuators.
3. Manufacturers may request more frequent repair / replacement maintenance intervals for add-on or new technology emission-related components provided that the manufacturer demonstrates to the Executive Officer's satisfaction that such intervals are technologically necessary and appropriate.

### 1.9 Add new subparagraph (b)(4)(vii) as follows:

(vii) For 2022 and subsequent model year diesel hybrid powertrains optionally certified pursuant to title $13, \mathrm{CCR}$, section 1956.8 , the maintenance
requirements shall be as specified in this section, as applicable, understanding "engine" to mean "optionally certified diesel hybrid powertrain" and "engine family" to mean "optionally certified diesel hybrid powertrain family," and shall be further as specified below:
(A) For diesel hybrid powertrains primarily used in vehicles with a GVWR from 14,001 to 19,500 pounds, the requirements for light heavyduty diesel engines of this section shall apply to the hybrid powertrains.
(B) For diesel hybrid powertrains primarily used in vehicles with a GVWR from 19,501 to 33,000 pounds, the requirements for medium heavy-duty diesel engines of this section shall apply to the hybrid powertrains.
(C) For diesel hybrid powertrains primarily used in vehicles with a GVWR greater than 33,000 pounds, the requirements for heavy heavyduty diesel engines of this section shall apply to the hybrid powertrains.
(D) For diesel hybrid powertrains used in incomplete vehicles with a GVWR from 10,001 to 14,000 pounds, the requirements for dieselcycle heavy-duty engine families that are certified for use in vehicles with a GVWR less than or equal to 14,000 pounds, as set forth in subparagraphs (b)(4)(i) and (b)(4)(iii) of this section shall apply to the hybrid powertrains.
1.810 Subparagraphs (b)(5) through (b)(6)(ii)(F). [No change.]
1.911 Add the following phrase to the last sentence of subparagraph (b)(6)(iii): ... or California Vehicle Code §27156, et seq.
1.102 Subparagraphs (b)(7)(i) and (b)(7)(ii). [No change.]
1.13 Add the following paragraph to subparagraph (b)(7)(ii):

The Executive Officer may approve a request for new scheduled maintenance for:
(A) Beginning with the 2024 model year certification applications (with full carryover to model years 2025 and 2026);
(B) Beginning with the 2027 model year certification applications (with full carryover to model years 2028, 2029, and 2030);
(C) Beginning with the 2031 model year certification applications (with full carryover to model year 2032).

The Executive Officer shall base his or her approval on a determination, derived from good engineering judgment, that a manufacturer has submitted detailed evidence supporting the need for the maintenance requested, and supporting data or other substantiation for the recommended maintenance category and for
the interval suggested for emission-related maintenance. This provision does not apply to the components or systems designated as "Not Replaceable," as specified in § 86.004-25 (b)(4)(vi) of the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," as last amended [Insert Date of Amendment].
1.114 Add the following sentence to subparagraph (b)(7)(iii): The Executive Officer may also provide the manufacturer a hearing in accordance with title 17, CCR, §60055.1, et seq., with respect to such issue.
1.12ㄷ Paragraphs (c) through (h). [No change.]
1.136 Delete and replace paragraph (i) as follows:
(i) Notwithstanding the provisions of paragraphs (b)(4) and (6) of this section, manufacturers may schedule replacement or repair of particulate trap elements (or trap oxidizer elements), catalytic converter beds (including NOx adsorber, diesel oxidation catalyst, and selective catalyst reduction beds), turbochargers, and exhaust gas recirculation systems provided that the manufacturer demonstrates to the Executive Officer's satisfaction that the repair or replacement will be performed according to the schedule and the manufacturer pays for the repair or replacement.
26. Mileage and service accumulation; emission measurements. [§86.004-26]. April 28, 2014.

## A Federal Provisions. [No Change]

B. California Provisions.

1. The following provisions are applicable to 2024 and subsequent model year medium-duty and heavy-duty diesel engines. These provisions also apply to optionally certified diesel hybrid powertrains, where "engine" also means "optionally certified diesel hybrid powertrain", "engine dynamometer" also mean "powertrain dynamometer", "FTP, RMC, LLC" also mean "VehicleFTP, Vehicle-RMC, Vehicle-LLC, respectively", and "engine family" also means "optionally certified diesel hybrid powertrain family".
1.1 The durability service accumulation method used by a manufacturer must be designed to effectively predict the deterioration of emissions in actual use over the full useful life of the candidate in-use engines and must cover the breadth of the manufacturer's product line that will be covered by the durability procedure.
1.1.1 For 2024 through 2026 model year engine families, a manufacturer must demonstrate engine and emission-related component durability, and calculate deterioration factors for each engine family using the following procedures. The service accumulation hours (excluding the time required for engine cooldown periods) must adhere to the specifications in subparagraphs
B.1.1.1.1 through B.1.1.1.4 of this section. Manufacturers must additionally meet the requirements in subparagraphs B.1.1.1.5 through B.1.1.1.7 of this section:
1.1.1.1 Medium-duty diesel engines $-3,400$ hours of service accumulation on an engine dynamometer equivalent to 150,000 miles of useful life.
1.1.1.2 Light heavy-duty diesel engines, excluding medium-duty diesel engines $-2,500$ hours of service accumulation on an engine dynamometer equivalent to 110,000 miles of useful life.
1.1.1.3 Medium heavy-duty diesel engines - Manufacturers must choose from one of the following service accumulation options below:
1.1.1.3.1 Option 1: 4,200 hours of service accumulation on an engine dynamometer equivalent to 185,000 miles of useful life; or
1.1.1.3.2 Option 2: 2,100 hours of service accumulation on an engine dynamometer, followed by accelerated aftertreatment aging for $1 / 2$ of useful life, as shown in Figure CA26-1 below. In order to use this option, manufacturers must submit in-use emission data reports as described in subparagraph B.1.1.3 of this section for $50 \%$ or more of the medium heavy-duty diesel engines used in vehicles sold originally in California each and every year for three consecutive model years.

For example, a manufacturer certifies three engine families A27, B27 and C27 in model year 2024, two engine families A28, B28 in model year 2025, and one engine family A29 in model year 2026. Subsequently, the manufacturer submits in-use emissions reports, as described in subparagraph B.1.1.3 of this section, for $52 \%$ of vehicles using A27, $53 \%$ of vehicles using B27,54\% of vehicles using C27 in each of the calendar years 2024 through 2026. The manufacturer also submits in-use emissions reports for $60 \%$ of vehicles using A28, $52 \%$ of vehicles using B28 in each of the calendar years 2025 and 2026. The manufacturer also submits in-use emissions reports for 58\% of vehicles using A29 in 2026 calendar year. Because the manufacturer in the example submitted data for more than $50 \%$ of all its engines that have been certified using the durability data for three consecutive model years, the manufacturer would be eligible to use this durability demonstration option.
1.1.1.4 Heavy heavy-duty diesel engines - Manufacturers must choose from one of the following service accumulation options below:
1.1.1.4.1 Option 1:9,800 hours of service accumulation on an engine dynamometer equivalent to 435,000 miles of useful life, or
1.1.1.4.2 Option 2: 4,900 hours of service accumulation on an engine dynamometer, followed by accelerated aftertreatment aging for $1 / 2$ of useful life, as shown in Figure CA26-1 below. This alternative durability demonstration program reduces the total hours of durability demonstration by allowing manufacturers to use accelerated aftertreatment aging for 50\% of the useful life. In order to use this option, manufacturers must submit in-use emission data reports for heavy heavy-duty diesel engines for each and every year for three consecutive model years as described in subparagraph B.1.1.3 of this section.
1.1.1.4.3 Option 3: 3,000 hours of service accumulation on an engine dynamometer, followed by accelerated aftertreatment aging for 69\% of useful life, as shown in Figure CA26-1 below. In order to use this option, manufacturers must submit in-use emission data reports as described in subparagraph B.1.1.3 of this section for $50 \%$ or more of the heavy heavy-duty diesel engines used in vehicles sold originally in California each and every year for three consecutive model years.
1.1.1.4.4, Option 4: For 2024 and 2025 model year heavy heavyduty diesel engines only, the durability service accumulation may be accomplished in one process and on one EAS over two model years (2024 and 2025) as described below:
1.1.1.4.4.1. Perform accelerated aftertreatment aging for $69 \%$ of useful life followed by an additional service accumulation of EAS on engine dynamometer for 1,500 hours;
1.1.1.4.4.2. Use all emissions test data and perform a linear regression method to calculate the deterioration factor at full useful life for the 2024 model year engine family certification.
1.1.1.4.4.3. Continue to perform an additional 1,500 hours service accumulation on engine dynamometer for the 2025 model year certification;
1.1.1.4.4.4. Calculate the deterioration factor using the procedure specified in subparagraph B.1.3 of this section.
1.1.1.4.4.5 For 2025 model year, manufacturers must use the deterioration factor with the largest value as calculated in subparagraphs B.1.1.1.4.4.2 and B.1.1.1.4.4.4 of this section.
1.1.1.4.4.6 In order to use this option, manufacturers must submit in-use emission data reports as described in subparagraph
B.1.1.3 of this section for $50 \%$ or more of the heavy heavy-duty diesel engines used in vehicles sold originally in California each and every year for three consecutive model years.
1.1.1.4.4.7 The sequence of engine dynamometer aging, accelerated aftertreatment aging, and the required emissions test points for this option are shown in Figure CA 26-2.

> " $X$ " = Total required engine dynamometer aging hours
> " $Y$ " = Total accelerated aftertreatment aging hours
> Ash Cleaning must be performed at equally spaced equivalent mileage intervals

$\frac{\text { Figure CA26-1: Alternative Durability Demonstration Using }}{\text { Accelerated Aftertreatment Aging }}$


Figure CA26-2: Two-Year Durability Demonstration Using Accelerated Aftertreatment Aging (Heavy Heavy-Duty Engines)
1.1.1.5 Engine dynamometer service accumulation cycle shall be limited to one of the two cycle options below, based on the requirements of subparagraph B.1.1.1.6 of this section, for establishing durability data.
1.1.1.5.1 Cycle-1 - A combination of the FTP, RMC, LLC and extended idle periods as specified in Figure CA26-3.
1.1.1.5.2 Cycle-2 - A combination of HDTT, 55-cruise, 65-cruise, LLC and extended idle periods as specified in Figure CA26-4. The manufacturer must consider all possible greenhouse gas vehicle subcategories as defined in 40 CFR $\$ 1037.230$, last amended March 10, 2021 (Pre-publication), which is incorporated by reference herein. For each engine family, the manufacturer must choose the vehicle subcategory and vehicle configuration that yields the highest load factor using the GEM model. Manufacturers may use a 20 -second ramp-up or ramp-down period in between the HDTT, 55 -cruise and 65 -cruise cycles. Engine manufacturers that do not have access to vehicle configuration parameters for the applicable engine family, may use vehicle design parameters used in the GEM model from previous model year engine families in the same primary intended service class and applications.


Figure CA26-3: Cycle-1 Service Accumulation Cycle


Figure CA26-4: Cycle-2 Service Accumulation Cycle
1.1.1.5.3 Load factor is defined as:

$$
\text { Load Factor }=\frac{\int_{0}^{D} P_{i} \cdot d t}{P_{\max } \cdot D}
$$

where:
$P_{i} \quad=$ Instantaneous engine power (hp)
D = Total duration of the cycle (seconds)
$P_{\max }=$ Maximum engine power rating (hp)
$T$ = time (seconds)
1.1.1.6 For each engine family, manufacturers must calculate the load factor for Cycle-1 and Cycle-2 and use the cycle with the highest calculated load factor.
1.1.1.7 Manufacturers may use the forced cooldown provisions in Section 1065.530(a)(1) of these test procedures for the cooldown period.
1.1.2 For 2027 and subsequent model year engine families, manufacturers shall develop a durability demonstration program using a combination of dynamometer aging, accelerated aftertreatment aging and in-use emissions reporting using the provisions in subparagraph B.1.1.3 of this section and good engineering judgement. Manufacturers must additionally meet the requirements in subparagraphs B.1.1.1.5 through B.1.1.1.7 of this section. For light heavy-duty and medium heavy-duty engines, the sequence of the aging process and the required emission test points are shown in Figure CA26-1. For heavy heavy-duty engines, the sequence of the aging process and the required emission test points are shown in Figure CA26-5. The following schedules establish minimum required service accumulation for each primary intended service class:


Figure CA26-5: Alternative Durability Demonstration Using Accelerated Aftertreatment Aging for 2027 and Subsequent Model Year Heavy Heavy-Duty Engines

### 1.1.2.1 For 2027 through 2030 model years:

1.1.2.1.1 Medium-duty diesel engines $-3,400$ hours ( $100 \%$ of useful life) aging on engine dynamometer. Medium-duty diesel families are not subject to in-use emissions reporting.
1.1.2.1.2 Light heavy-duty diesel engines, excluding medium-duty diesel engines - Minimum 3,000 hours (69\% of useful life) aging on engine dynamometer, with the remaining $31 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.1.3 Medium heavy-duty diesel engines - Minimum 4,200 hours ( $69 \%$ of useful life) aging on engine dynamometer, with the remaining $31 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.1.4 Heavy heavy-duty diesel engines - Minimum 4,900 hours (36\% of useful life) aging on engine dynamometer, with the remaining 64\% of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.1.5 Manufacturers that collect and submit in-use emissions data from $50 \%$ or more of the engines used in vehicles sold originally in California for three consecutive model years can use a reduced service accumulation schedule in the subsequent model year. In order to be eligible, manufacturers must meet the $50 \%$ threshold for all certified engine families in each and every of the three previous model years. A manufacturer that does not submit in-use emissions data from $50 \%$ or more of its engines used in vehicles sold originally in California for three consecutive model years shall not be eligible to use the reduced service accumulation schedule in subsequent model year.

For example, a manufacturer certifies three engine families A27, B27 and C27 in model year 2027, two engine families A28, B28 in model year 2028, and one engine family A29 in model year 2029. Subsequently, the manufacturer submits in-use emissions reports, as described in subparagraph B.1.1.3 of this section, for $52 \%$ of vehicles using A27, $53 \%$ of vehicles using B27,54\% of vehicles using C27 in each of the calendar years 2027 through 2029. The manufacturer also submits in-use emissions reports for $60 \%$ of vehicles using A28, $52 \%$ of vehicles using B28 in each of the calendar years 2028 and 2029. The manufacturer also submits in-use emissions reports for 58\% of vehicles using A29 in 2029 calendar year. Because the manufacturer in the example submitted data for more than $50 \%$ of all its engines that have been certified using the durability data for three consecutive model years, the manufacturer would then be eligible for using reduced service accumulation schedules as shown below for 2030 model year engine families.
1.1.2.1.5.1 Light heavy-duty diesel engines, excluding mediumduty diesel engines - Minimum 2,500 hours ( $58 \%$ of useful life) aging on engine dynamometer, with the remaining $42 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.1.5.2 Medium heavy-duty diesel engines - Minimum 3,500 hours ( $57 \%$ of useful life) aging on engine dynamometer, with the remaining $43 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.1.5.3 Heavy heavy-duty diesel engines - Minimum 3,750 hours ( $28 \%$ of useful life) aging on engine dynamometer, with the remaining $72 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.2 For 2031 and subsequent model years:
1.1.2.2.1 Medium-duty diesel engines $-3,400$ hours ( $100 \%$ of useful life) aging on engine dynamometer. Medium-duty diesel families are not subject to in-use emissions reporting.
1.1.2.2.2 Light heavy-duty diesel engines, excluding medium-duty diesel engines - Minimum 3,180 hours (52\% of useful life) aging on engine dynamometer, with the remaining $48 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.2.3 Medium heavy-duty diesel engines - Minimum 4,200 hours (53\% of useful life) aging on engine dynamometer, with the remaining $47 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.2.4 Heavy heavy-duty diesel engines - Minimum 4,900 hours ( $27 \%$ of useful life) aging on engine dynamometer, with the remaining $73 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.2.5 Manufacturers that collect and submit in-use emissions data from $50 \%$ or more of the engines used in vehicles sold originally in California for five consecutive model years can use a reduced service accumulation schedule in the subsequent model years. In order to be eligible, manufacturers must meet the $50 \%$ threshold for all certified engine families in each and every of the five previous model years. A manufacturer that does not submit in-use emissions data from 50\% or more of its engines used in vehicles sold originally in California for five consecutive model years shall not be eligible to use the reduced service accumulation schedule in subsequent model year.

For example, a manufacturer certifies three engine families A31, B31 and C31 in model year 2031, two engine families A32, B32 in model year 2032, one engine family A33 in model year 2033, two engine families A34, B34 in model year 2034, and one engine family A35 in model year 2035. Subsequently, the manufacturer submits in-use emissions reports, as described in subparagraph B.1.1.3 of this section, for $52 \%$ of vehicles using A31, 53\% of vehicles using B31, 54\% of vehicles using C31 in each of the calendar years 2031 through 2035. The manufacturer also submits in-use emissions reports for $60 \%$ of vehicles using A32, 52\% of vehicles using B32 in each of the calendar years 2032 through 2035. The manufacturer also submits in-use emissions reports for $58 \%$ of vehicles using A33 in each of the calendar years 2033 through 2035. The manufacturer also submits in-use emissions reports for $70 \%$ of vehicles using A34 and B34 in each of the calendar years 2034 and 2035. The
manufacturer also submits in-use emissions reports for $75 \%$ of vehicles using A35 in calendar year 2035. Because the manufacturer in the example submitted data for more than $50 \%$ of all its engines that have been certified using the durability data for five consecutive model years, the manufacturer in the example would then be eligible for using reduced service accumulation schedules as shown below for 2036 model year engine families.
1.1.2.2.5.1 Light heavy-duty diesel engines, excluding mediumduty diesel engines - Minimum 2,500 hours ( $41 \%$ of useful life) aging on engine dynamometer, with the remaining $59 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.2.5.2 Medium heavy-duty diesel engines - Minimum 3,500 hours ( $44 \%$ of useful life) aging on engine dynamometer, with the remaining $56 \%$ of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.2.2.5.3 Heavy heavy-duty diesel engines - Minimum 3,750 hours (21\% of useful life) aging on engine dynamometer, with the remaining 79\% of useful life consisting of accelerated aftertreatment aging, engine dynamometer aging, or any combination of the two.
1.1.3 In-use emissions reporting for California certified, heavy-duty engines (with SCR systems) to the Executive Officer must adhere to the following requirements:
1.1.3.1 In-use emissions reporting can be used by:
1.1.3.1.1 2024 and subsequent model year medium heavy-duty diesel and heavy heavy-duty diesel engines, and
1.1.3.1.2 2027 and subsequent model year light heavy-duty diesel engines.
1.1.3.2 Manufacturers must submit a separate report for each California certified engine family.
1.1.3.3 The initial report must be electronically submitted to: Chief, Emissions Certification and Compliance Division, California Air Resources Board, 4001 Iowa Ave., Riverside, CA 92507 by December 31 of the applicable engine family model year. For example, the initial report for a 2024 model year engine family must be submitted by December 31, 2024.
1.1.3.4 Subsequent annual reports must be electronically submitted to ARB by December 31 of the subsequent model years. For example, the subsequent reports for a 2024 model year engine family must be submitted by December 31, 2025, 2026 and so forth.
1.1.3.5 For each vehicle/engine, data must be recorded at least one time per calendar year. Also, for each annual vehicle/engine data recording throughout its useful life, the interval between valid annual data recordings must be at least six months. For example, a vehicle/engine sampled at August 1, 2025 would require another sample after February 1, 2026.
1.1.3.6 In-use emissions reporting is not required for engines that have passed their applicable useful life period. The percentage of California sales calculations should exclude engines that have passed their applicable useful life period.
1.1.3.7 In-use emissions reports for each vehicle/engine shall at least contain the following information:
(A) Engine family name,
(B) Vehicle family name,
(C) California sales volume of vehicles for each engine family,
(D) Engine model name,
(E) Rated engine model power (hp),
(F) Vehicle identification number (VIN),
(G) Engine serial number,
(H) Odometer reading (miles),
(I) Engine run time/hour-meter reading (hours),
(J) Date when all data was recorded,
(K) All tracking parameters identified in title 13, CCR, section 1971.1(h)(5),
(L) In lieu of parameters in subparagraph B.1.1.3.7.K of this section, manufacturers may submit another set of parameters that identify the in-use emissions characteristics of each vehicle/engine. The format and content of these parameters must be determined based on good engineering judgement and is subject to ARB approval.
1.1.3.8 For each engine family, manufacturers must submit all in-use vehicle/engine emissions data collected by the manufacturer in the reporting year, and at a minimum collect and report data on $20 \%$ of vehicles (using the same engine family) that were originally sold in the California market. If the manufacturer fails to report data for at least 20\% of vehicles sold in California, using the same engine family for three consecutive model years in the 2024 through 2030 model year period, or for five consecutive model years in 2031 and subsequent model years, the manufacturer cannot use accelerated
aftertreatment aging for the subsequent model years engine families. For any engine family that initially fails to meet the minimum percentage, the manufacturer may submit all in-use vehicle/engine emissions data it collected for that family on a nationwide basis, in order to meet the minimum percentage defined by those originally sold in the California market.
1.1.3.9 In-use emission reports must include data from vocational and, if applicable, tractor vehicles as defined in 40 CFR $\$ 1037.801$ last amended March 10, 2021 (Pre-publication), which is incorporated by reference herein.
1.1.3.10 Manufacturers that certify engines with ARB under title 13, CCR, section 1956.8 must submit in-use emissions reports as described in subparagraph B.1.1.3 of this section. Vehicle manufacturers that certify vehicles under title 17, CCR, section 95663 shall not take any actions that will impair or prevent certifying engine manufacturers from complying with this requirement, including, without limitation, prohibiting installation or disabling any hardware or software associated with the telematics systems installed on an engine by the certifying engine manufacturer that is described in the engine application for certification, unless they have obtained authorization from the certifying engine manufacturer. Alternatively, a vehicle manufacturer must provide the certifying engine manufacturer with all of the data needed to comply. No other person shall disconnect, modify, or alter any engine or vehicle telematics systems unless prior authorization has been obtained from the corresponding certifying engine or vehicle manufacturer.
1.2 For 2024 and subsequent model year medium-duty and heavy-duty engines (with SCR systems), the break-in period for emission-data and durabilitydata engines shall adhere to the following guidelines:
1.2.1 The manufacturer shall demonstrate through periodic emissions testing (at least three emissions tests with evenly spaced intervals of 60 hours of service accumulation) using the FTP, RMC and LLC cycles, the number of hours at which the engine and aftertreatment system combination is stabilized for emissions testing. The manufacturer shall maintain, and provide the emissions test data to the Executive Officer at the time of certification. In lieu of emissions testing, the manufacturer may elect to accumulate 300 hours of service on each engine and aftertreatment system combination to demonstrate stabilized emission levels.
1.3 For 2024 and subsequent model year engine families using accelerated aftertreatment aging for a portion of the applicable useful life, exhaust emission deterioration factors shall be determined by calculating additive or multiplicative deterioration factors using a linear regression model which includes results for emission test points $A, B, C$ and $D$ (and any intermediate emissions test points if applicable) as shown in Figures CA26-1, CA26-2, or CA26-5 for each pollutant.
1.4 Sawtooth and other nonlinear deterioration patterns. For 2024 and subsequent model year engine families, the deterioration factor calculations assume that the highest useful life emissions occur either at the end of useful life or at the low-hour test point. The provisions of this subparagraph apply where good engineering judgement indicates that the highest emissions over the useful life will occur between these two points. For example, emissions may increase with service accumulation until a certain maintenance step is performed, then return to the lowhour emission levels and begin increasing again. Base deterioration factors for engines with such emission patterns on the difference between (or ratio of) the point at which the highest emissions occur and the low-hour test point. Note that this applies for maintenance-related deterioration only where we allow such critical emission-related maintenance.
1.5 Manufacturers that use accelerated aftertreatment aging for demonstrating durability must comply with the following requirements.
1.5.1 Perform emissions tests using the applicable certification (FTP, RMC and LLC) cycles to calculate deterioration factors. The emissions test intervals are shown in Figures CA26-1, CA26-2 or CA26-5 as applicable.
1.5.2. Submit periodic in-use emissions reports for each applicable engine family that uses an SCR system to the Executive Officer. In-use emissions reporting shall follow the procedures described in subparagraph B.1.1.3 of this section.
1.5.3 Use good engineering judgement in accounting for thermal and chemical degradation of the aftertreatment system in proposing an accelerated aftertreatment process.
1.5.4 Accelerated aftertreatment aging must be equivalent to the same service accumulation cycles that are specified in subparagraph B.1.1.1.5 of this section.
2. The following provisions apply to optionally certified diesel hybrid powertrains, where "engine" also means "optionally certified diesel hybrid powertrain", "engine dynamometer" also mean "powertrain dynamometer", "FTP, RMC, LLC" also mean "Vehicle-FTP, Vehicle-RMC, Vehicle-LLC, respectively", and "engine family" also means "optionally certified diesel hybrid powertrain family".
2.1 For 2022 and subsequent model year optionally certified diesel hybrid powertrain families optionally certified pursuant to title 13, CCR, section 1956.8, a manufacturer must demonstrate engine and emission-related component durability, including hybrid-related components as defined pursuant to section 1036.801.B of
these test procedures, such as electric motor-generator system, rechargeable energy storage system, battery management system, including charge controller and thermal management systems and associated power electronics, and calculate deterioration factors for each optionally certified diesel hybrid powertrain family in accordance with the procedures in section I. 26 of these test procedures.
2.2 For optionally certified diesel hybrid powertrain families used in incomplete vehicles from 10,001 to 14,000 pounds GVWR, the durability demonstration and model year implementation schedules are identical to the durability demonstration and model year implementation schedules specified for the class of diesel engines used in such powertrains in this section.
2.3 For optionally certified diesel hybrid powertrain families primarily used in class 4 and 5 vehicles, the durability demonstration and model year implementation schedules for light heavy-duty diesel engines in this section shall apply to the diesel hybrid powertrains.
2.4 For optionally certified diesel hybrid powertrain families primarily used in class 6 and 7 vehicles, the durability demonstration and model year implementation schedules for medium heavy-duty diesel engines in this section shall apply to the diesel hybrid powertrains.
2.5 For optionally certified diesel hybrid powertrain families primarily used in class 8 vehicles, the durability demonstration and model year implementation schedules for heavy heavy-duty diesel engines in this section shall apply to the diesel hybrid powertrains.
2.6 For optionally certified diesel hybrid powertrain families using certified onroad medium-duty diesel engines or heavy-duty diesel engines that have demonstrated engine and emission-related durability pursuant to section 1.26 of these test procedures, a manufacturer must provide documentation, including, but not limited to, test data, engineering analysis, to demonstrate to the satisfaction of the Executive Officer that engine and emission-related durability for the certified diesel engine will be similar or substantially similar when integrated in a hybrid powertrain. In addition, a manufacturer must demonstrate durability for hybridrelated components pursuant to paragraph B. 2 of this section.
2.7 For MY2024-2026 optionally certified diesel hybrid powertrain families using on-road heavy-duty engines other than California-certified on-road heavy-duty diesel engines, a manufacturer must demonstrate engine and emission-related component durability pursuant to one of the options described in section
I.26.B.1.1.1. of these test procedures. In addition, a manufacturer must demonstrate durability for hybrid-related components pursuant to paragraph B.2.1 of this section. For optionally certified diesel hybrid powertrain families using engines other than California-certified on-road medium-duty diesel engines or heavy-duty diesel
engines, a manufacturer must demonstrate engine and emission-related component durability, including hybrid-related components pursuant to section 1.26 of these test procedures.
30. Certification. [§86.xxx-30]

## A. Federal provisions

1. §86.004-30. April 28, 2014. Amend as follows:
1.1 Subparagraphs (a) through (a)(2). [No change.]
1.2 Add the following sentence to subparagraph (a)(3)(i). For heavyduty engines certified under the provisions of section I.11.B. 4 of these test procedures two certificates will be issued, one for each fueling mode. [No change to remainder of paragraph.]
1.3 Subparagraphs (a)(3)(ii) through (b)(2). [No change.]
1.4 Subparagraph (b)(3). Add the following sentence: If, after a review of the request and supporting data, the Executive Officer finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with title 17, CCR, §60040, et seq., with respect to such issue.
1.5 Subparagraph (b)(4). [No change.]
1.6 Subparagraph (b)(4)(i). Add the following phrase at the beginning of the paragraph: Request a hearing under title 17, CCR, §60040, et seq.; or...
1.7 Subparagraph (b)(4)(ii) through (b)(5). No change.
1.8 Subparagraph (b)(5)(i). Add the following phrase at the beginning of the paragraph: Request a hearing under title 17, CCR, §60040, et seq.; or...
1.9. Subparagraph (b)(5)(ii) through (c)(5). [No change.]
1.10 Subparagraph (c)(5)(i). Add the following phrase at the beginning of the paragraph: Be made only after the manufacturer concerned has been offered an opportunity for a hearing conducted in accordance with title 17,CCR,
§60040, et seq. hereof; and ...
1.11 Subparagraph (c)(5)(ii). [No change.]
1.12 Subparagraph (c)(6). Add the following sentence: The manufacturer may request in the form and manner specified in paragraph (b)(3) of this section that any determination made by the Executive Officer under paragraph (c)(1) of this section to withhold or deny certification be reviewed in a hearing conducted in accordance with title 17, CCR, §60040, et seq. If the Executive Officer finds, after a review of the request and supporting data, that the request raises a substantial factual issue, he will grant the request with respect to such issue.

### 1.13 Subparagraphs (d) through (e). [No change.]

1.14 Delete subparagraph (f) and replace with the following: All medium- duty diesel cycle engines used in vehicles up to 14,000 pounds GVW must have an on-board diagnostic system as required in title 13, CCR §1968 et
seq, as applicable.
2. §86.007-30. April 28, 2014. Amend as follows:
24.1 Subparagraphs (a) through (a)(2). [No change.]
24.2 Add the following sentence to subparagraph (a)(3)(i). For heavy- duty engines certified under the provisions of section I.11.B. 4 of these test procedures two certificates will be issued, one for each fueling mode. [No change to remainder of paragraph.]
21.3 Subparagraphs (a)(3)(ii) through (b)(2). [No change.]
21.4 Subparagraph (b)(3). Add the following sentence: If, after a review of the request and supporting data, the Executive Officer finds that the request raises a substantial factual issue, he shall provide the manufacturer a hearing in accordance with title 17, CCR, $\S 60040$, et seq., with respect to such issue.
24.5 Subparagraph (b)(4). [No change.]
21.6 Subparagraph (b)(4)(i). Add the following phrase at the beginning of the paragraph: Request a hearing under title 17, CCR, §60040, et seq.; or...
24.7 Subparagraph (b)(4)(ii) through (b)(5). [No change.]
21.8 Subparagraph (b)(5)(i). Add the following phrase at the beginning of the paragraph: Request a hearing under title 17, CCR, §60040, et seq.; or...
24.9 Subparagraph (b)(5)(ii) through (c)(5). [No change.]
24.10 Subparagraph (c)(5)(i). Add the following phrase at the beginning of the paragraph: Be made only after the manufacturer concerned has been offered an opportunity for a hearing conducted in accordance with title 17, CCR, §60040, et seq. hereof; and ...
24.11 Subparagraph (c)(5)(ii). [No change.]
24.12 Subparagraph (c)(6). Add the following sentence: The manufacturer may request in the form and manner specified in paragraph (b)(3) of this section that any determination made by the Executive Officer under paragraph (c)(1) of this section to withhold or deny certification be reviewed in a hearing conducted in accordance with title 17, CCR, §60040, et seq. If the Executive Officer finds, after a review of the request and supporting data, that the request raises a substantial factual issue, he will grant the request with respect to such issue.
24.13 Subparagraphs (d) through (e). [No change.]
24.14 Delete subparagraph (f) and replace with the following: All medium- duty diesel cycle engines used in vehicles up to 14,000 pounds GVW must have an on-board diagnostic system as required in title 13, CCR §1968 et seq, as applicable.

## B. California Provisions

1. If a 2024 or subsequent model year engine family or test group does not comply with the in-use test requirements in title 13, CCR, sections 2111-2140, and

Part II, Subpart T of this test procedure, warranty reporting requirements in title 13, CCR, sections 2141-2149, or is equipped with an emission control component that exceeds the thresholds specified in title 13, CCR, section 2143, and the component was not redesigned, recalibrated, or manufactured in a different manner to address component features identified to result in exceedance of the thresholds in title 13, CCR, section 2143 for the model year for which an application is requested, a manufacturer cannot request a carryover or carry across application based on data from that engine family or test group. If the emission control component has been identified as causing an engine family or test group to exceed the thresholds specified in title 13, CCR, section 2143 has not been redesigned, recalibrated, or manufactured in a different manner to address component features identified to result in exceedance of such thresholds for the model year for which the application is requested, a manufacturer may only use carryover or carry across data if the manufacturer extends the warranty coverage for that emission control component to the full useful life of the engine family or test group.
35. Labeling. [§86.xxx-35].

## A. Federal Provisions.

1. 86.095-35 October $25,2016$.
1.1 Add the following sentence to the introductory paragraph: The labeling requirements of this section shall apply to all new motor vehicle engines certified according to the provisions of California Health and Safety Code Section 43100.
1.2 Subparagraphs (a)(1) through (a)(3)(iii)(G). [No change.]
1.3 Amend subparagraph (a)(3)(iii)(H) as follows:
1.3.1 An unconditional statement of compliance with the appropriate model year California regulations; for example, "This engine conforms to California regulations applicable to XXXX model year new heavyduty diesel engines." It may also state that the engine conforms to any applicable federal or Canadian emission standards for new heavy-duty diesel engines.
1.3.2 For 2004 through 2006 model year heavy heavy-duty dieselfueled, dual-fuel, and bi-fuel engines to be used in urban buses that are certified to the optional reduced emission standards and are sold to any transit agency exempted under paragraphs (c)(8) and (d)(7), title 13, CCR, §1956.2 from the requirements of paragraphs (c)(5) and (d)(4), title 13, CCR §1956.2.
"This engine conforms to California regulations applicable to XXXX model year new urban bus or heavy-duty diesel engines and is certified to a NOx plus NMHC optional reduced-emission standards of $\mathrm{XXX} \mathrm{g} / \mathrm{bhp}-\mathrm{hr}$ (for optional reduced-emission standards specify between 0.3 and 1.8 , inclusive, at $0.3 \mathrm{~b} / \mathrm{bhp}-\mathrm{hr}$ increments, and a particulate matter standards of $0.01 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr})$."
1.3.3 For all other 2004 through 2006 model year heavy-duty diesel cycle engines, including those used in urban buses, that are certified to the optional reduced-emission standards, the label shall contain the following statement:
"This engine conforms to California regulations applicable to XXXX model year new (specify urban bus or heavy-duty diesel) engines and is certified to a NOx plus NMHC optional reducedemission standards of XXX g/bhp-hr (for optional reducedemission standards specify between 0.3 and 1.8 , inclusive, at 0.3 b/bhp-hr increments, and a particulate matter standard of 0.03 g/bhp-hr, $0.02 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$, or $0.01 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr})$."
1.4 Subparagraphs (a)(3)(iii)(I) through (i). [No change.]

## B. California provisions.

1. For 2004 and later model year heavy-duty diesel engines certified under the requirements of title 13, CCR, §1956.8(a)(3), the statement of compliance requirements of this subsection shall be repeated for each of the two fueling modes of operation. Appended to the statement for the lower emitting fueling mode of operation shall be the following sentence:
"This certification is valid only while operating on $\qquad$ (indicate the fuel or fuel combination under which this mode of operation was certified) fuel. Operation using any other fueling mode will result in significant increases in exhaust emissions and significantly reduce engine performance."
2. Manufacturers may elect to use a supplemental label in addition to the original label if there is not sufficient space to include all the required information. The supplemental label must conform to all specifications as the original label. In the case that a supplemental label is used, the original label shall be numbered " 1 of 2 " and the supplemental label shall be numbered " 2 of 2 ."
3. Statements shall not be used on labels placed on engines that, in fact, do not comply with all applicable California regulations.
4. Vehicle Labels for Heavy-Duty Diesel Engine Idling Requirements. For each 2008 and subsequent model year heavy-duty diesel engine certified to the optional NOx idling emission standard pursuant to paragraph 11.B.6.3 or equipped with a certified/verified auxiliary power system (APS) pursuant to title 13, CCR, section $2485(c)(3)(A)$, a single label shall be produced and affixed, as applicable, on each vehicle equipped with such heavy-duty diesel engine.
4.1 The labeling requirements for engine manufacturers, aftermarket APS manufacturers and installers, and original equipment manufacturers are as follows:
4.1.1 Engine manufacturers. The engine manufacture that has certified an engine to the optional NOx idling emission standard pursuant to paragraph 11.B.6.3, or certified/verified an APS pursuant to title 13, CCR, section 2485(c)(3)(A), shall produce the appropriate label for each new engine or APS pursuant to paragraph 35.B.4.2, below. The label shall be affixed on the outside of the vehicle pursuant to paragraph 35.B.4.3 by the original equipment manufacturer.
4.1.2 Aftermarket APS manufacturers and installers. An aftermarket APS manufacturer that has certified/verified an APS pursuant to title 13, CCR, section 2485(c)(3)(A), shall produce the appropriate label for each APS system pursuant to paragraph 35.B.4.2, below. The label shall be affixed on the outside of the vehicle pursuant to paragraph 35.B.4.3 by the party that is responsible for installing the APS on the vehicle.
4.1.3 Original equipment manufacturer. An original equipment manufacturer that has certified an engine to the optional NOx idling emission standard pursuant to paragraph 11.B.6.3, or certified/verified an APS pursuant to title 13, CCR, section 2485(c)(3)(A), shall produce and affix the appropriate label on the outside of the vehicle pursuant to paragraphs 35.B.4.2 or 35.B.4.3, whichever is applicable.
4.2 Label Format. Figure 1 shows a facsimile of the label format for an engine certified to the optional NOx idling emission standard pursuant to paragraph 11.B.6.3. Figure 2 shows a facsimile of the label format for an engine in a certified/verified APS pursuant to title 13, CCR, section 2485(c)(3)(A). The engine manufacturer, APS manufacturer or original equipment manufacturer, whichever is applicable, that produces and affixes the label on the vehicle must ensure that the label has the following characteristics:


Figure 1


Figure 2
4.2.1 Oval shape.
4.2.2 Dimensions of no less than 6 inches wide by 4 inches high.
4.2.3 The color of the outer and inner ellipses shall be dark blue and the stars in red. The background of the label shall be light blue in color. The size of the stars shall be equal to the size of the characters as specified in paragraph 35.B.4.2.4 below.
4.2.4 A vehicle equipped with an engine that is certified pursuant to paragraph 11.B.6.3 shall have a label with the word "CERTIFIED," and below it the phrase "CLEAN IDLE," as shown in Figure 1. A vehicle equipped with an APS certified/verified pursuant to title 13, CCR, section 2485(c)(3)(A) shall have a label with the word "VERIFIED," and below it the phrase "CLEAN APS," as shown in Figure 2. The label information shall be written in the English language with sans serif font, black in color, and in upper case letters. The size of the font shall be at least $7 / 16$ inch (or 32 points) and the spacing of the fonts must be such that the longest phrase (for example, "CLEAN IDLE") extends from the left edge to the right edge of the inner edge of the inner ellipse, without touching the edges. The label information shall be centrally aligned, both vertically and horizontally.
4.2.5 A hologram as shown in Figure 3 shall be embedded within the proposed label. The hologram must cover the entire label. The hologram shall have the phrase "Clean Skies" repeatedly written from edge to edge of the label boundaries and each phrase shall be separated by a circular bullet. The position of the circular bullet in each line shall be exactly above the space between the words "Clean" and "Skies" of the line below. The color of the font shall be orange. The font size" shall be less than or equal to a quarter of the font size of the phrase "CLEAN IDLE" or "CLEAN APS" as specified in subsection 35.B.4.2.4, above. The hologram shall have the map of the State of California, in orange color, overlaid over the text and positioned in the center of the label as shown in Figure 3, below.

4.3 Label Location and Attachment Requirements
4.3.1 The appropriate label shall be permanently affixed to the exterior on the driver's side of the hood, in an area within one foot by one foot
from the top and front edges of the hood. If such an attachment is not feasible, the label may be attached at a different location subject to advance approval by the Executive Officer.
4.3.2 Each label must be affixed in such a manner that it can not be removed without destroying or defacing the label. The label must not be affixed to any vehicle component that can easily be detached from the vehicle.
4.3.3 The label and any adhesives used must be designed to withstand, for a period of 10 years, typical environmental conditions. Typical environmental conditions include, but are not limited to, exposure to extreme heat or cold, moisture, engine fuels, lubricants and coolants.
4.4 The party that certifies/verifies the engine pursuant to paragraph
11.B.6.3 or the APS pursuant to title 13, CCR, section 2485(c)(3)(A) shall be the ultimate party responsible for ensuring that the labels are correctly produced. Samples of labels produced pursuant to this subsection must be submitted to the Executive Officer with the applicable certification or verification application.
4.5 Labels on vehicles may also be applied by original equipment manufacturers, distributors, or dealers. However, the party that certified the engine or the APS and produced the labels remains the ultimate party responsible for ensuring that the labels are correctly administered. If the labels are administered by the original equipment manufacturer, dealer, or distributor, the producer of the label shall include its name and a serial number on the label. The location of the producer's name and serial number on the label shall be written in the lower part of the label, in the space vertically centered between the label wording and the inner ellipses, and the font must contrast the label background. The serial numbers of the labels administered must be recorded by the original equipment manufacturer, distributor, or dealer and reported to the party responsible for producing the labels. This information shall be maintained by the party responsible for producing the labels for a period of 10 years, and shall be made available to the Executive Officer upon request.
4.6 A heavy-duty diesel engine that has been certified pursuant to subsection 11.B.6.3 shall not be modified or altered unless said modification or alteration has been approved by the Executive Officer pursuant to title 13 CCR sections 2220 through 2225.
4.7 An idling emission reduction device or system that has been certified/verified pursuant to title 13, CCR, section 2485(c)(3)(A) shall not be modified or altered unless said modification or alteration has been approved by the Executive Officer pursuant to title 13 CCR sections 2470 through 2476.
5. For 2015 and subsequent model year heavy-duty and medium-duty diesel cycle engines certified to the Optional Low NOx Engine emission standards in subparagraph A.11.B.7., the label shall contain the following statement: "This engine conforms to California regulations applicable to XXXX model year heavy-duty diesel
engines and is certified to the Optional Low NOx Engine emission standard of XXX g/bhp-hr."
6. For 2022 and subsequent model year heavy-duty diesel hybrid powertrains optionally certified pursuant to title 13, CCR, section 1956.8, the label shall contain the following statement: "This diesel hybrid powertrain family conforms to California regulations applicable to XXXX model year hybrid powertrains and is intended for use primarily in Class Y vehicles."
7. For 2024 through 2026 model year heavy-duty diesel engines rated at or above 525 bhp maximum power and certified to the provisions specified in 13 CCR section 1956.8(a)(2)(C)2, the label must contain the following statement: "This engine conforms to the 525 horsepower and above exemption specified in 13 CCR 1956.8(a)(2)(C)2 applicable to XXXX model year".
8. For 2024 through 2025 model year heavy-duty diesel engines certified to the provisions specified in 13 CCR section 1956.8(a)(2)(C)3, the label must contain the following statement: "This legacy engine is certified under the provisions of 13 CCR 1956.8(a)(2)(C)3 applicable to XXXX model year".
38. Maintenance instructions. [§86.xxx-38]

## A. Federal provisions

1. §86.004-38 April 28, 2014.
1.1 Subparagraphs (a) through (f). [No change.]
1.2 Amend subparagraph (g)(1) as follows: (g) Emission control diagnostic service information:
(1) Manufacturers shall furnish or cause to be furnished to any person engaged in the repairing or servicing of motor vehicles or motor vehicle engines, or the Administrator upon request, any and all information needed to make use of the on-board diagnostic system and such other information, including instructions for making emission-related diagnosis and repairs, including, but not limited to, service manuals, technical service bulletins, recall service information, data stream information, bi-directional control information, and training information, unless such information is protected by section 208(c) of the Act or California Government Code Section 6250, as a trade secret. No such information may be withheld under section 208(c) of the Act or California Government Code Section 6250 if that information is provided (directly or indirectly) by the manufacturer to franchised dealers or other persons engaged in the repair, diagnosing, or servicing of motor vehicles or motor vehicle engines.
1.3 Subparagraphs (g)(2) through (i). [No change.]
2. §86.010-38 April 28, 2014.
2.1 Subparagraphs (a) through (fa)(2). [No change.]
2.2 Insert subparagraph (a)(3) as follows:

The maintenance instructions shall not prohibit the use of commercially available diesel and biofuel blends that meet California's fuel specifications in title 4, CCR, section 4148 for 2024 and subsequent model year engines.
2.3 Subparagraph (b) through (f). [No change.]
2.4 Subparagraph (g). Delete; replace with: Manufacturers of heavy-duty diesel engines used in vehicles weighing 14,000 pounds GVW and less must comply with the motor vehicle service information requirements set forth in title 13, CCR §1969.
2.35 Subparagraph (h). [No change.]
2.46 Amend subparagraph (i) as follows: Through model year 2013, for each new diesel-fueled engine subject to the standards prescribed in title 13, CCR §1956.8(a), §1956.8(h), and Sec. 86.007-11, as applicable, the manufacturer shall furnish or cause to be furnished to the ultimate purchaser a statement that "This engine must be operated only with ultra low sulfur diesel fuel (that is, diesel fuel meeting ARB specifications for highway diesel fuel, including a 15 ppm sulfur cap)."
2.57 Subparagraph (j). Delete; replace with: Manufacturers of heavyduty diesel engines used in vehicles over 14,000 pounds GVW must comply with the motor vehicle service information requirements set forth in title 13, CCR §1969.

## II. Test Procedures

86.1333 Transient test cycle generation. April 28, 2014.
A. Federal Provisions. [No change.]

## B. California Provisions.

1. Accessory loads for the low-load cycle - For 2024 and subsequent model year medium-duty and heavy-duty diesel engines, the accessory loads for the lowload cycle were derived from the GEM model:
1.1 Manufacturers have the option to add an accessory load to any idle portion of the low-load cycle. The maximum accessory load allowed is dependent on the primary intended service class of the engine, and may not exceed the following values:

| Primary Intended <br> Service Class | $\frac{\text { Accessory load }}{\text { (kW) }}$ |
| :---: | :---: |
| Medium-duty <br> Light heavy-duty | $\underline{1.5}$ |
| $\underline{\text { Medium heavy-duty }}$ | $\underline{2.5}$ |
| $\underline{\text { Heavy heavy-duty }}$ | $\underline{3.5}$ |

1.2 Continuous idle segments within the low-load cycle that exceed 200 seconds duration are to be run at conditions simulating neutral or park on the transmission.
2. For 2024 and subsequent model year medium-duty and heavy-duty diesel engines, the low-load cycle RPM and torque values are normalized (expressed as a percentage of maximum) in these listings.
2.1 To unnormalize RPM, use the following equation:

Actual $R P M=\frac{\% R P M \times(\text { MaxTest Speed-Curb Ide Speed })}{100}+$ Curb Idle Speed
where:
Max Test Speed = the maximum test speed as calculated in Section 1065 of these test procedures.
2.2 Torque is normalized to the maximum torque at the RPM listed with it. Therefore, to unnormalize the torque values in the cycle, the maximum torque curve for the engine in question must be used. The generation of the maximum torque curve is described in Section 1065 of these test procedures.
2.3 Example of the unnormalization procedure. Unnormalize the following test point, given Maximum Test speed $=3800$ RPM and Curb Idle Speed $=600$ RPM.

Percent RPM $=43$
Percent Torque $=82$
2.3.1 Calculate actual RPM:

$$
\text { Actual } R P M=\frac{43 \times(3,800-600)}{100}+600=1,976 R P M
$$

2.3.2 Determine actual torque: Determine the maximum observed torque at 1,976 RPM from the maximum torque curve. Then multiply this value (e.g., $358 \mathrm{ft}-\mathrm{lbs}$ ) by $82 \%$. This results in an actual torque of $294 \mathrm{ft}-\mathrm{Ibs}$.

86.1362 Steady-state testing with a ramped-modal cycle. October 25, 2016March 10, 2021 (Pre-publication).

## A. Federal provisions.

## 1. Subparagraph (a) [No change.]

2. Subparagraph (b). Amend subparagraph (b) by replacing the table with the following table:

| Engine Testing |  |  |  |  |  |  | ybrid Powertrain Testing - Road Grade Coefficients ${ }^{4}$ |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\frac{\mathrm{RMC}}{\underline{\text { mode }}}$ | $\begin{aligned} & \frac{\text { Time in in }}{\text { (sode }} \\ & \text { (seconds) } \end{aligned}$ | $\underline{\text { Engine }}$ $\underline{\text { speed }^{1,2}}$ | $\begin{gathered} \frac{\text { Torque }}{(\text { percent })^{2,3}} \end{gathered}$ | Vehicle speed $(\mathrm{mph})^{4}$ | $\underline{a}$ | $\underline{\text { b }}$ | ¢ | d | $\underline{\text { e }}$ | f | g | $\underline{h}$ | $\frac{\frac{\mathrm{CO}_{2}}{\text { weighting }}}{\text { (percent) }^{5}}$ |
| 1a Steadystate | 170 | $\frac{\text { Warm }}{\text { idle }}$ | $\underline{0}$ | $\frac{\text { Warm }}{\text { Idle }}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | 0 | $\underline{0}$ | $\underline{0}$ | $\underline{6}$ |
| $\frac{1 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | $\begin{aligned} & \text { Linear } \\ & \underline{\text { Transition }} \end{aligned}$ | $\begin{aligned} & \text { Linear } \\ & \text { Transition } \end{aligned}$ | $\begin{aligned} & \text { Linear } \\ & \text { Transition } \end{aligned}$ | -1.898E-08 | -5.895E-07 | $3.780 \mathrm{E}-05$ | 4.706E-03 | $6.550 \mathrm{E}-04$ | -2.679E-02 | $\underline{-1.027 E+00}$ | $\underline{1.542 E+01}$ | - |
| 2a Steadystate | 173 | A | 100 | $\underline{V}_{\text {reft }}$ | -1.235E-08 | -5.506E-07 | $\underline{3.954 \mathrm{E}-05}$ | $\underline{1.248 \mathrm{E}-03}$ | $\underline{5.287 \mathrm{E}-04}$ | -3.117E-02 | -3.263E-01 | $\underline{1.627 \mathrm{E}+01}$ | $\underline{9}$ |
| $\frac{2 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | $\xrightarrow{\text { Linear }}$ | $\begin{aligned} & \frac{\text { Linear }}{\text { Transition }} \end{aligned}$ | $\xrightarrow{\text { Linear }}$ | -1.640E-09 | -4.899E-07 | $\underline{2.493 E-05}$ | 5.702E-04 | 4.768E-04 | -2.389E-02 | -2.712E-01 | $\underline{1.206 E+01}$ | - |
| 3a Steadystate | $\underline{219}$ | B | $\underline{50}$ | $\underline{V}_{\text {refi }}$ | 8.337E-09 | -4.758E-07 | $\underline{1.291 \mathrm{E}-05}$ | $\underline{2.874 \mathrm{E}-04}$ | $4.528 \mathrm{E}-04$ | -1.803E-02 | -1.830E-01 | $\underline{8.808 \mathrm{E}+00}$ | 10 |
| $\frac{3 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | B | $\begin{aligned} & \frac{\text { Linear }}{\text { Transition }} \end{aligned}$ | $\underline{V}_{\text {refi }}$ | 4.263E-09 | -5.102E-07 | $\underline{2.010 \mathrm{E}-05}$ | 3.703E-04 | 4.852E-04 | -2.242E-02 | -2.068E-01 | $\underline{1.074 \mathrm{E}+01}$ | - |
| 4a Steadystate | $\underline{217}$ | B | 75 | $\underline{V}_{\text {refic }}$ | 1.686E-10 | -5.226E-07 | $\underline{2.579 E-05}$ | 5.521E-04 | $\underline{5.005 E-04}$ | -2.561E-02 | -2.393E-01 | $\underline{1.285 \mathrm{E}+01}$ | 10 |
| $\frac{4 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | $\xrightarrow{\frac{\text { Linear }}{\text { Transition }}}$ | $\begin{aligned} & \frac{\text { Linear }}{\text { Transition }} \end{aligned}$ | $\begin{aligned} & \text { Linear } \\ & \text { Transition } \end{aligned}$ | $6.556 \mathrm{E}-10$ | -4.971E-07 | $\underline{2.226 E-05}$ | 5.293E-04 | 4.629E-04 | -2.185E-02 | -1.819E-01 | $\underline{1.086 \mathrm{E}+01}$ | - |
| 5 a Steadystate | 103 | A | $\underline{50}$ | $\underline{V}_{\text {ref }}$ | 3.833E-09 | -4.343E-07 | 1.369E-05 | $4.755 \mathrm{E}-04$ | 4.146E-04 | -1.605E-02 | -1.899E-01 | $\underline{8.200 E+00}$ | 12 |


| $\frac{5 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | A | $\xrightarrow{\frac{\text { Linear }}{}}$ | $\underline{V}_{\text {refe }}$ | -7.526E-11 | -4.680E-07 | $\underline{2.035 \mathrm{E}-05}$ | 7.214E-04 | $4.478 \mathrm{E}-04$ | -2.012E-02 | -2.306E-01 | $1.043 \mathrm{E}+01$ | - |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \frac{6 \mathrm{aa}}{\text { Steady- }} \\ & \frac{\text { state }}{\text { sta }} \\ & \hline \end{aligned}$ | 100 | A | 75 | $\underline{V}_{\text {refe }}$ | -4.195E-09 | -4.855E-07 | $\underline{2.624 E-05}$ | 8.345E-04 | 4.669E-04 | -2.338E-02 | -2.547E-01 | $\underline{1.215 E+01}$ | 12 |
| $\frac{6 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | A | Linear Transition | $\underline{V}_{\text {refe }}$ | 3.185E-09 | -4.545E-07 | 1.549E-05 | $6.220 \mathrm{E}-04$ | $4.308 \mathrm{E}-04$ | -1.724E-02 | -2.093E-01 | 8.906E+00 | - |
| 7a <br> Steadystate | 103 | A | $\underline{25}$ | $\underline{V}_{\text {refe }}$ | 1.202E-08 | -3.766E-07 | 6.943E-07 | 1.107E-04 | 3.579E-04 | -8.468E-03 | -1.243E-01 | $\underline{4.195 E+00}$ | 12 |
| $\frac{7 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | $\begin{aligned} & \text { Linear } \\ & \text { Transition } \end{aligned}$ | $\begin{aligned} & \text { Linear } \\ & \text { Transition } \end{aligned}$ | Linear <br> Transition | 1.481E-09 | -5.004E-07 | $\underline{2.151 \mathrm{E}-05}$ | $6.028 \mathrm{E}-04$ | $4.765 \mathrm{E}-04$ | -2.197E-02 | -2.669E-01 | $\underline{1.109 E+01}$ | - |
| 8a Steadystate | $\underline{194}$ | B | 100 | $\underline{V}_{\text {refib }}$ | -8.171E-09 | -5.682E-07 | 3.880E-05 | 8.171E-04 | 5.462E-04 | -3.315E-02 | -2.957E-01 | $\underline{1.689 E+01}$ | $\underline{9}$ |
| $\frac{8 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | B | $\xrightarrow{\text { Linear }}$ | $\underline{V}_{\text {refib }}$ | $3.527 \mathrm{E}-09$ | -5.294E-07 | $\underline{2.221 \mathrm{E}-05}$ | 4.955E-04 | 4.976E-04 | -2.363E-02 | -2.253E-01 | $\underline{1.156 E+01}$ | - |
| 9a Steadystate | $\underline{218}$ | B | $\underline{25}$ | $\underline{V}_{\text {refib }}$ | $\underline{1.665 E-08}$ | -4.288E-07 | -1.393E-07 | $\underline{2.170 E-05}$ | 4.062E-04 | -1.045E-02 | -1.266E-01 | $4.762 \mathrm{E}+00$ | $\underline{9}$ |
| $\frac{9 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | $\begin{aligned} & \text { Linear } \\ & \text { Transition } \end{aligned}$ | $\underline{\text { Linear }}$ | Linear <br> Transition | 7.236E-09 | -5.497E-07 | 1.998E-05 | 1.381E-04 | 5.110E-04 | -2.333E-02 | -2.154E-01 | $\underline{1.024 E+01}$ | - |
| 10a <br> Steady- <br> state | 171 | C | 100 | $\underline{V}_{\text {refic }}$ | -7.509E-10 | -5.928E-07 | $3.454 \mathrm{E}-05$ | 5.067E-04 | 5.670E-04 | -3.353E-02 | -2.648E-01 | $\underline{1.649 E+01}$ | $\underline{2}$ |
| $\frac{10 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | C | $\xrightarrow{\text { Linear }}$ | $\underline{V}_{\text {refic }}$ | 1.064E-08 | -5.343E-07 | $\underline{1.678 \mathrm{E}-05}$ | $\underline{2.591 E-04}$ | 5.101E-04 | -2.331E-02 | -2.017E-01 | $\underline{1.119 E+01}$ | - |
| $\begin{array}{\|l} \hline \frac{11 a}{} \\ \text { Steady- } \\ \hline \text { state } \\ \hline \end{array}$ | 102 | C | $\underline{25}$ | $\mathrm{V}_{\text {refc }}$ | $\underline{2.235 E-08}$ | -4.756E-07 | $\underline{-2.078 \mathrm{E}-06}$ | -6.006E-05 | 4.509E-04 | -1.213E-02 | -1.261E-01 | $\underline{5.090 E+00}$ | 1 |
| $\frac{11 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | C | Linear Transition | $\underline{V}_{\text {refic }}$ | 1.550E-08 | -5.417E-07 | 1.114E-05 | 8.438E-05 | 5.051E-04 | -2.005E-02 | -1.679E-01 | $8.734 \mathrm{E}+00$ | - |
| $\begin{aligned} & \frac{12 a}{\frac{12 a}{}} \\ & \frac{\text { Steady- }}{\text { state }} \end{aligned}$ | 100 | C | 75 | $\underline{V}_{\text {refic }}$ | 7.160E-09 | -5.569E-07 | $\underline{2.234 \mathrm{E}-05}$ | 3.107E-04 | 5.301E-04 | -2.644E-02 | -2.177E-01 | $\underline{1.266 E+01}$ | 1 |
| $\frac{12 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | C | $\begin{aligned} & \text { Linear } \\ & \text { Transition } \end{aligned}$ | $\underline{V}_{\text {refic }}$ | 9.906E-09 | -5.292E-07 | 1.694E-05 | $\underline{2.460 E-04}$ | 5.058E-04 | -2.304E-02 | -1.990E-01 | $1.103 \mathrm{E}+01$ | - |
| 13a Steadystate | 102 | C | 50 | $\underline{V}_{\text {refc }}$ | 1.471E-08 | -5.118E-07 | $\underline{9.881 \mathrm{E}-06}$ | 1.002E-04 | 4.864E-04 | -1.904E-02 | -1.678E-01 | $8.738 \mathrm{E}+00$ | 1 |
| $\frac{13 \mathrm{~b}}{\text { Transition }}$ | $\underline{20}$ | $\begin{aligned} & \text { Linear } \\ & \underline{\text { Transition }} \end{aligned}$ | $\begin{aligned} & \frac{\text { Linear }}{\text { Transition }} \end{aligned}$ | $\begin{aligned} & \text { Linear } \\ & \underline{\text { Transition }} \end{aligned}$ | -1.482E-09 | -1.992E-06 | 6.475E-05 | -1.393E-02 | 1.229E-03 | -3.967E-02 | $1.135 \mathrm{E}+00$ | $\underline{-7.267 E+00}$ | - |

Date of Hearing: August 27, 2020

| 14 Steadystate | 168 | $\frac{\text { Warm }}{\text { idle }}$ | $\underline{0}$ | $\frac{\text { Warm }}{\text { idle }}$ | $\underline{0.00 E+00}$ | $\underline{0.00 E+00}$ | $\underline{0.00 E+00}$ | $\underline{0.00 E+00}$ | $\underline{0.00 E+00}$ | $\underline{0.00 E+00}$ | $\underline{0.00 E+00}$ | $\underline{0.00 E+00}$ | $\underline{6}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

${ }^{1}$ Engine speed terms are defined in part 1065 of these test procedures.
${ }^{2}$ Advance from one mode to the next within a 20 second transition phase. During the transition phase, command a linear progression from the settings of the current mode to the settings of the next mode.
${ }^{3}$ The percent torque is relative to maximum torque at the commanded engine speed.
${ }^{4}$ See section 1036.505 of these test procedures for a description of powertrain testing with the ramped-modal cycle, including the equation that uses the road-grade coefficients.
5 Use the specified weighting factors to calculate composite emission results for $\mathrm{CO}_{2}$ as specified in section 1036.501 of these test procedures.
86.1370 Not-To-Exceed. October 25, 2016.

## A. Federal provisions.

1. Amend subparagraph (a) as follows: General. The purpose of this test procedure is to measure in-use emissions of 2005 and subsequent-through 2023 model year heavy-duty diesel engines while operating within a broad range of speed and load points (the Not-To-Exceed Control Area) and under conditions which can reasonably be expected to be encountered in normal vehicle operation and use. For testing in-use emissions of 2024 and subsequent model year engines, use the method outlined in 86.1370.B.6. of these test procedures. Emission results from this test procedure are to be compared to the Not-To-Exceed Limits specified in paragraph $(\mathrm{d})(1)$ of this section. The Not-To-Exceed Limits specified in paragraph (d)(1) of this section do not apply for engine starting conditions. Tests conducted using the procedures specified in this subpart are considered valid Not-to-Exceed tests (Note: duty cycles and limits on ambient conditions do not apply for Not-ToExceed tests).
2. Amend subparagraph (b) as follows:
2.1 Introductory paragraph, subparagraphs (b)(1) through (b)(4): [No change.]
2.2 Amend subparagraph (b)(5) as follows: For particulate matter only from 2005 and 2006 model year engines, speed and load points determined by one of the following methods, whichever is applicable, shall be excluded from the Not-To-Exceed Control Area. B and C engine speeds shall be determined according to the provisions of $\S 86.1360-2007$ (c): [No change to remainder of paragraph.]
2.3 Amend subparagraphs (b)(6) and (b)(7) as follows: [No-change except that $\ddagger$ These requirements will apply for 2007 through 2023 and subsequent-model year engines.]
3. Subparagraph (c) [No change.]
4. Amend subparagraph (d) as follows: Not-to-exceed control area caps.
4.1 Amend subparagraph (d)(1) as follows: Add the following introductory sentence to subparagraph (d)(1): When operated within the Not-ToExceed Control Area defined in paragraph (b) of this section, diesel engine emissions shall not exceed the applicable Not-To-Exceed Limits specified below when averaged over any time period greater than or equal to 30 seconds, except where a longer minimum averaging period is required by paragraph (d)(2) of this section.
(i)The emission caps specified in this section shall be rounded to the same number of significant figures as the applicable standards in Part I. 11 of
these test procedures using ASTM E29-93a.
(ii) For 2005 and 2006 model year engines, when operated within the Not-To-Exceed Control Area defined in paragraph (b) of this section, diesel engine brake-specific exhaust emissions in grams/bhp-hr (as determined under paragraphs (b) and (c) of this section), for each regulated pollutant, shall not exceed 1.25 times the applicable emission standards specified in Part I. 11 of these test procedures during engine and vehicle operation specified in paragraph (e)(1) of this section, except as noted in paragraph (e)(2) of this section, when averaged over any period of time greater than or equal to 30 seconds, except where a longer averaging period is required by paragraph (d)(2) of this section.
(iii) For 2007 through 2023and subsequent-model year engines having a NOx FEL less than $1.50 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$, the brake-specific exhaust NMHC or NOx emissions in g/bhp-hr, as determined under Sec. 86.1370-2007 pertaining to the NTE test procedures, shall not exceed 1.5 times the applicable NMHC or NOx emission standards or FELs specified in Part I. 11 of these test procedures, during engine and vehicle operation specified in subdivisions (b), (e), (f), and B. 1 of this section when averaged over any period of time greater than or equal to 30 seconds, except where a longer averaging period is required by paragraph (d)(2) of this section.
(iv) For 2007 through 2023and subsequent-model year engines not having a NOx FEL less than $1.50 \mathrm{~g} / \mathrm{bhp}$-hr, the brake-specific NOx and NMHC exhaust emissions in g/bhp-hr, as determined under Sec. 86.13702007 pertaining to the not-to-exceed test procedures, shall not exceed 1.25 times the applicable emission standards or FELs specified in Part I. 11 of these test procedures during engine and vehicle operation specified in paragraphs (b), (e), (f), and (g) of this section when averaged over any period of time greater than or equal to 30 seconds, except where a longer averaging period is required by paragraph (d)(2) of this section.
(v) For 2007 through 2023and subsequent-model year engines, the brake-specific exhaust PM emissions in g/bhp-hr, as determined under Sec. 86.1370-2007 pertaining to the not-to-exceed test procedures, shall not exceed 1.5 times the applicable PM emission standards or FEL (for FELs above the standard only) specified in Part I. 11 of these test procedures, during engine and vehicle operation specified in paragraphs (b), (e), (f), and B. 1 of this section when averaged over any period of time greater than or equal to 30 seconds, except where a longer averaging period is required by paragraph (d)(2) of this section.
4.2 Subparagraph (d)(2) [No change.]
4.3 Add the following subparagraph (d)(3): For 2005 through 2023and subsequent-model year heavy-duty engines, operation within the Not-to-Exceed єControl aArea (defined in paragraph (b) of this section) must also comply with the following:
(i) A filter smoke number of 1.0 under steady-state operation, or the following alternate opacity limits:
(A) A 30 second transient test average opacity limit of $4 \%$ for a 5 inch path; and
(B) A 10 second steady state test average opacity limit of $4 \%$ for a 5 inch path.
(ii) The limits set forth in paragraph (d)(3)(i) of this section refer to exhaust smoke emissions generated under the conditions set forth in paragraphs (b) and (e) of this section and calculated in accordance with the procedures set forth in §86.1372-2007.
5. Amend subparagraph (e) as follows: Ambient corrections.
5.1 Introductory paragraph: [No change.]
5.2 Subparagraph (e)(1) For engines operating within the ambient conditions specified in paragraph B.1.1 of this section. [No change to remainder of paragraph.]
5.3 Amend subparagraph (e)(2) as follows: For engines operating within the ambient conditions specified in paragraph B.1.2 of this section; [No change to remainder of section.]
6. Subparagraphs (f) through (j). [No change.]

## B. California provisions.

1. Ambient operating regions. For each engine family, the not-to-exceed emission limits must apply during one of the following two ambient operating regions;
1.1 The not-to-exceed emission limits apply for all altitudes less than or equal to 5,500 feet above sea-level, during all ambient conditions (temperature and humidity). Temperature and humidity ranges for which correction factors are allowed are specified in paragraph (e) of this section; or
1.2 The not-to-exceed emission limits apply at all altitudes less than or equal to 5,500 feet above sea-level, for temperatures less than or equal to the temperature determined by the following equation at the specified altitude;

$$
T=-0.00254 \times A+100
$$

Where:
$\mathrm{T}=$ ambient air temperature in degrees Fahrenheit
$A=$ altitude in feet above sea-level (A is negative for altitudes below sealevel)
Temperature and humidity ranges for which correction factors are allowed are specified in section (e).
2. In-Use Compliance. The procedures for in-use voluntary and influenced recall for heavy-duty diesel engines under this section are described in title 13, CCR §§ 2111 through 2140, except as modified by this paragraph for 2005 and 2006 model year engines. In evaluating the scope of the affected population for the purposes of this section, there shall be a rebuttable presumption that the affected population is the engine family to which the tested engines belong. No engine may
be used to establish the existence of an emissions exceedance if the engine or vehicle in which it was installed was subject to abuse or improper maintenance or operation, or if the engine was improperly installed, and such acts or omissions caused the exceedance.
2.1 For the purposes of this an exceedance of the emission testing caps occurs when the average emissions of the test vehicles or engines, pursuant to title 13, CCR § 2139, for any pollutant exceed the emission threshold. For the purposes of this section, emission threshold is defined as:
(i) for a test using vehicle test equipment (e.g., an over-the-road mobile monitoring device such as "ROVER", or a chassis dynamometer), the applicable maximum NOx emissions limit plus the greater of $0.5 \mathrm{~g} / \mathrm{bhp}-\mathrm{hr}$ or one standard deviation of the data set established pursuant to paragraph B.2(2) of this section; or
(ii) for a test using an engine dynamometer, the applicable maximum NOx emissions limit plus $0.5 \mathrm{~g} / \mathrm{bph}-\mathrm{hr}$.
2.2 Where an engine dynamometer or vehicle test shows an apparent exceedance of the emissions threshold, the party conducting the original test shall repeat such test under the same conditions at least nine times. The mean of the tests shall be used for the averaging of the test vehicle emissions in determining compliance.
2.3 If the average emissions of the test vehicles exceed the emissions threshold, the Executive Officer shall notify the manufacturer in writing of the test results. The manufacturer has the option to submit an influenced recall plan in accordance with title 13 , CCR $\S \S 2113$ through 2121 within 45 days or to proceed with performing the engineering analysis and/or conducting further testing in accordance with paragraphs B.2.4 and/or B.2.5 of this section. Upon the completion of testing conducted in paragraph(s) B.2.2 and/or B.2.5, if the test results indicate that the average emissions of the test vehicles exceeds the emissions threshold, the Executive Officer shall notify the manufacturer in writing of the test results and upon receipt of the notification, the manufacturer shall have 45 days to submit an influenced recall plan in accordance with title 13, CCR §§ 2113 through 2121.
2.4 If the testing conducted under paragraph B.2.1 and title 13, CCR § 2139 was performed using vehicle test equipment, then the engine manufacturer may elect to conduct additional tests of that engine using an engine dynamometer, provided that all environmental and engine operating conditions present during vehicle testing under paragraph B.2.1 and title 13, CCR § 2139 can be reproduced or corrected consistent with paragraph B.2.6 of this section. If the engine manufacturer elects to conduct such additional engine dynamometer tests, it shall provide ARB with at least three business days' notice prior to commencement of such testing. If based on such additional tests the engine exceeds the emission threshold, the engine manufacturer may conduct further testing in accordance with paragraph B.2.5 of this section and/or perform an engineering analysis to determine the percentage of the affected population that exceeds the emissions threshold and the emission levels of the exceeding
engines. However, the manufacturer may not determine the percentage of the affected population or the emission levels solely on the basis of an engineering analysis unless it demonstrates to the Executive Officer's satisfaction that such analysis alone is sufficient under the circumstances.
$2.5 \quad$ Within 60 days of receiving notice of an exceedance under paragraph B.2.3 of this section, the manufacturer may commence testing of not less than ten additional in-service engines. The manufacturer may conduct these tests using vehicle testing equipment, or using an engine dynamometer, at the manufacturer's option.
2.6 The testing of additional engines under paragraphs B.2.4 and B.2.5 of this section shall be conducted under conditions that are no less stringent than the initial test in terms of those parameters that may affect the result, and, at the manufacturer's option, may be limited to those emission limits and conditions for which apparent exceedances have been identified. Such parameters typically, but not necessarily, include relevant ambient conditions, operating conditions, service history, and age of the vehicle. Prior to conducting any testing, the manufacturer shall submit a test plan to ARB for its review and approval. Within 30 days following ARB's proposed modifications, if any, the manufacturer shall incorporate the proposed modifications and implement the test plan as approved. Special conditioning of test engines shall not be permitted. Where the manufacturer elects to conduct the additional testing utilizing an engine dynamometer, it shall reproduce relevant engine operating and environmental conditions associated with the initial exceedance, provided, however, that correction factors may be used to reproduce temperature, humidity or altitude conditions that cannot be simulated in the laboratory. Regardless of the testing equipment utilized, the test results shall be adjusted to reflect documented test systems error and/or variability in accordance with good engineering practices.
3. Deficiencies for NTE requirements.
3.1 For model years 2005 through 2009, upon application by the manufacturer, the Executive Officer may accept a HDDE as compliant with the NTE requirements even though specific requirements are not fully met. Such compliances without meeting specific requirements, or deficiencies, will be granted only if compliance would be infeasible or unreasonable considering such factors as, but not limited to: technical feasibility of the given hardware and lead time and production cycles including phase-in or phase-out of engines or vehicle designs and programmed upgrades of computers. Deficiencies will be approved on a engine model and/or horsepower rating basis within an engine family, and each approval is applicable for a single model year. A manufacturer's application must include a description of the auxiliary emission control device(s) which will be used to maintain emissions to the lowest practical level, considering the deficiency being requested, if applicable. An application for a deficiency must be made during the certification process; no deficiency will be granted to retroactively cover engines already certified.
3.2 Unmet requirements should not be carried over from the previous model year except where unreasonable hardware or software modifications
would be necessary to correct the deficiency, and the manufacturer has demonstrated an acceptable level of effort toward compliance as determined by the Executive Officer. The NTE deficiency should only be seen as an allowance for minor deviations from the NTE requirements. The NTE deficiency provisions allow a manufacturer to apply for relief from the NTE emission requirements under limited conditions. ARB expects that manufacturers should have the necessary functioning emission control hardware in place to comply with the NTE.
3.3 For model years 2010 through 2013, the Executive Officer may allow up to three deficiencies per engine family. The provisions of §86.007-11 (a)(4)(iv)(A) and §86.007-11 (B) apply for deficiencies allowed by §86.007-11 (a)(4)(iv)(C). In determining whether to allow the additional deficiencies, the Executive Officer may consider any relevant factors, including the factors identified in §86.007-11 (a)(4)(iv)(A). If additional deficiencies are approved, the Executive Officer may set any additional conditions that he/she determines to be appropriate.
4. Exemptions.
4.1 The requirements set forth in this section do not apply to "ultrasmall volume manufacturers" for model years 2005 and 2006. For the purposes of this section, an "ultra-small volume manufacturer" means any manufacturer with California sales less than or equal to 300 new passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles, and heavy-duty engines per model year based on the average number of vehicles and engines sold by the manufacturer in the previous three consecutive model years.
4.2 The requirements set forth in this section do not apply to "urban buses", as defined in title 13, CCR, § 1956.2, for model years 2005 and 2006.
5. Submission of NTE deficiencies and limited testing region information. Manufacturers are not required to provide engine information exclusively related to in-use testing as part of initial certification. However, upon request from ARB, the manufacturers must provide the information which clearly identifies parameters defining all NTE deficiencies described under subparagraph B.3. of this section and parameters defining all NTE limited testing regions described under 86.1370$07(b)(6)$ and (7) that are requested. When requested, deficiencies and limited testing regions must be reported for all engine families and power ratings in English with sufficient detail for us to determine if a particular deficiency or limited testing region will be encountered in the emission test data from the portable emission-sampling equipment and field-testing procedures referenced in 86.1375Part 1065, subpart J of these test procedures as applicable. Such information is to be provided within 60 days of the request from ARB.
6. Test Procedures for Three Binned Moving Average Window (3B-MAW) Method for diesel engines.

For 2024 and subsequent model year engines, the 3B-MAW method
described in this paragraph 6 applies to the manufacturer-run program described in Part 86 Subpart T of these test procedures - Manufacturer-Run In-Use Testing Program for Heavy-Duty Diesel Engines and the CARB Heavy Duty In-Use Compliance Testing.

A test with the 3B-MAW consists of one shift-day. To complete a shift-day's worth of testing, start sampling at the beginning of a shift and continue sampling for the whole shift, subject to the calibration requirements of PEMS. A shift-day is the period of a normal workday for an individual employee. A shift-day must begin with a cold start, where the engine coolant is equal to or less than 86 deg. F ( 30 deg . C). The engine may be shut down and keyed on during the shift-day, but the PEMS must remain active and recording throughout the shift-day.

If a manufacturer believes that conditions may be infeasible to meet the cold start requirements (for example, due to ambient temperatures that are too high), the manufacturer may request approval from the Executive Officer to begin the shift-day without a cold start, as part of the test plan approval process in 86.1920.B.3.2.
6.1 Moving Average Window principle: Mass emissions for the pollutants (NMHC, CO, NOx, and PM) shall be evaluated using a moving average window method, based on a reference time of 300 seconds. Mass emissions are not calculated for the complete shift-day, but for subsets equal to 300 seconds in length, and referred to as "windows". Windows will overlap each other with a time increment, $\Delta t$, equal to the data sampling rate of 1 second. Start of windows begins every valid second in the data set.
6.2 Exclusions. Only valid data, as described in this section, shall be considered in calculating window duration, work, $\mathrm{CO}_{2}$ mass, and criteria emissions of the averaging window. If the window encounters invalid data, skip the invalid data, and include seconds of valid data to compensate at the end of the window to a total window of 300 seconds of valid data. For windows using the exclusions in 6.2.1 through 6.2.8, if the invalid data is continuous for a consecutive period greater than 600 seconds, the window ends and a new window would need to be generated once valid data is encountered again. In cases where invalid data is in excess of 600 seconds, a detailed explanation of the cause of invalid data conditions must be documented in the reporting requirements of 86.1920 of these test procedures. Data collected during any of the following conditions shall be considered invalid data and shall be excluded from compliance determination:
6.2.1

Zero drift check or conditioning of the PEMS instrumentation
6.2.2 Atmospheric pressure less than 82.5 kPa
6.2.3 Ambient air temperature less than 19 deg. F ( -7 deg . C)
6.2.4 Altitudes greater than 5,500 feet above sea-level; or
6.2.5 For altitudes less than or equal to 5,500 feet above sea level, temperatures greater than the temperature determined by the following equation at the specified altitude shall be considered invalid data:

$$
T_{\text {invalid }}>-0.00254 \times h+100
$$

$\frac{\text { Where: }}{\frac{T_{\text {invalid }} \text { is the ambient air temperature threshold where above }}{}}$
$\frac{\text { this temperature the data is considered invalid at a specific }}{\text { altitude, in degrees Fahrenheit }}$
$\frac{h \text { is the altitude above sea-level, in feet ( } h \text { is negative for }}{\text { altitudes below sea-level) }}$
6.2.6 For 2024 through 2026 model year engines, engine coolant temperature is less than 158 deg. F ( 70 deg. C) and engine coolant temperature is not stabilized within $\pm 3.6$ deg. $F( \pm 2$ deg. C) over a period of five minutes

### 6.2.7 Vehicle operation during indicated manual active regeneration and automatic active regeneration

6.2.8 Vehicle operation where the engine is shut-off or keyed off while the engine rpm is equivalent to zero
6.3 Valid tests.

Retesting must be conducted if a test is determined to be invalid. A valid test is determined by meeting all of the following conditions:
6.3.1 Test start: emissions sampling (NMHC, CO, NOx, PM and CO2), exhaust flowrate parameters, and sampling of relevant OBD parameters, and ambient temperature and humidity shall commence prior to starting the engine. The coolant temperature shall not exceed 86 deg. $\mathrm{F}(30 \mathrm{deg}$. C) at the beginning of the test. If the ambient temperature and the coolant temperature exceeds 86 deg. $\mathrm{F}(30 \mathrm{deg}$. C) at the start of the test, the test is void and testing shall be rescheduled. If a manufacturer believes that conditions may be infeasible to meet the cold start requirements (for example, due to ambient temperatures that are too high), the manufacturer may request approval from the Executive Officer to begin the shift-day without a cold start as part of the test plan approval process in 86.1920.B.3.2.
6.3.2 Each bin will be required to have a minimum of 2,400 valid windows. If the 2,400 valid windows in any bin is not achieved, continue testing additional days as necessary to achieve the minimum window requirements for each bin. If testing on the first or subsequent shift-day fulfills the valid window requirements for the low load and the medium/high load bins, but does not fulfill the valid window requirements of the idle bin, then the manufacturer may instruct the fleet to idle the test engine at the end of the shift day for a minimum of forty minutes and a maximum of sixty minutes to satisfy the valid window requirement of the idle bin.
6.3.3 For 2024 through 2026 model year engines only, the average engine power over the test must be equal to or greater than $10 \%$ of the engine's peak power for a valid test. In the event of an invalid test, the manufacturer shall retest the vehicle additional days until a valid test is achieved.

### 6.4 Percent engine load:

The percent engine load of a window will be used to bin the data in section 6.5 Window Binning. Window percent engine load is calculated by dividing average $\mathrm{CO}_{2}$ emission rate [g CO2/hour] during the 300 second window by the product of the engine's FTP CO2 family certification level (FCL) value and the maximum power output of the engine defined in section 1065.510 of these test procedures.

$$
\text { Percent Engine Load }{ }_{\text {window }}=\frac{3,600 \mathrm{sec} / \mathrm{hr}}{F C L \times H P_{\max }} \times \frac{\sum_{t=1}^{300}\left(\dot{m}_{C O 2} \times \Delta t\right)}{300 \mathrm{sec}}
$$

> Where,
> Percent Engine Load $_{\text {window }}$ is the percent engine load calculated with the average $\mathrm{CO}_{2}$ emission rate and the FCL
> $\dot{\underline{m}}_{\mathrm{CO}_{2}}$ mass emission rate of $\mathrm{CO}_{2}\left[\mathrm{~g} \mathrm{CO}_{2} / \mathrm{sec}\right]$
> FCL is the family certification level on the FTP cycle [g CO2/bhp-hr]
> $\mathrm{HP}_{\max }$ is the maximum rated engine horsepower [bhp]
> $\Delta t$ is equal to the data sampling rate [1 second]
> 6.5 Window Binning.

> Windows are categorized into one of three bins: idle, low load, and medium/high load, as determined by percent engine load over 300 seconds of operation.
6.5.1 Idle bin

The window's percent engine load is less than or equal to 6\%
6.5.2 Low-load bin

The window's percent engine load is greater than 6\% and less than or equal to $20 \%$.

### 6.5.3 Medium-/high-load bin

The window's percent engine load is greater than 20\%

### 6.6 Emissions testing evaluation and vehicle pass criteria

 Sum-over-Sum (SOS) Evaluation:To determine in-use compliance, the Bin emissions for each criteria pollutant (NMHC, CO, NOx, and PM) shall be calculated for each of the three bins (idle, low, medium/high). For the low-load and medium/high-load bins, SOS emissions are calculated for each pollutant using the equation:

$$
e_{\text {Sos } a, b}=\frac{\sum_{k=1}^{n_{b}} \sum_{t=1}^{300}\left(\dot{m}_{a} \times \Delta t\right)}{\sum_{k=1}^{n_{b}} \sum_{t=1}^{300}\left(\dot{m}_{C O 2} \times \Delta t\right)} \times F C L
$$

## Where:

$\underline{e}_{\text {sos } a, b}$ is the SOS emissions [g/bhp-hr] of a pollutant in a bin, where subscript "a" is the pollutant (NMHC, CO, NOx, and PM) and "b" refers to the low-load bin or medium/high-load bin $\dot{m}_{a}$ is the mass emission rate of pollutant $a[\mathrm{~g} / \mathrm{sec}]$ $\dot{\underline{m}}_{\mathrm{CO}_{2}}$ is the mass emission rate of $\mathrm{CO}_{2}$ emitted [g/sec]
$n_{b}$ is the number of windows in a bin
$\Delta t$ is equal to the data sampling rate [ 1 second]
FCL is the family certification level on the FTP cycle [g CO2/bhp-hr]
For idle bin emissions, the SOS emissions are calculated using the following equation:

$$
e_{\text {sos } a, i d l e}=\frac{\sum_{k=1}^{n_{\text {idle }}} \sum_{t=1}^{300}\left(\dot{m}_{a} \times \Delta t\right)}{\sum_{k=1}^{n_{\text {idle }}} \sum_{t=1}^{300}(\Delta t)} \times \frac{3,600 \mathrm{sec}}{1 \mathrm{hr}}
$$

Where:
$e_{\text {sos } a \text { idle }}$ is the SOS emission for pollutant, $a$, in the idle bin [g/hr]
$\dot{\underline{m}}_{a}$ is the mass emission rate of pollutant $a[\mathrm{~g} / \mathrm{sec}]$
$n_{\text {idle }}$ is the number of windows in the idle bin
$\Delta t$ is equal to the data sampling rate [1 second]
Since NOx is the only pollutant with an idle standard, pollutant " $a$ ", in this equation represents only NOx emissions.

The engine pass criteria is determined by comparing each bin's SOS
criteria emission for each of the three bins to the In-Use thresholds in the table below. The engine passes the test if the SOS emissions are less than the defined threshold for each and every bin and for each and every pollutant. The engine fails the test if any pollutant in any bin's SOS emissions exceeds the applicable threshold.

Table of Bin Structure Definitions, Applicable Standards, and In-Use thresholds

| Bin | Percent Engine Load | The SOS Emissions In-use Threshold |
| :---: | :---: | :---: |
| Idle | Percent Engine Load $_{\text {window }}$ $\leq 6 \%$ | $\underline{\mathrm{e}}_{\text {sos a, ldle }} \leq \mathrm{CF}^{\mathrm{B}} \times$ Idle standard ${ }^{\text {A }}$ |
| Low | $6 \%<$ <br> Percent Engine Load $_{\text {window }}$ $\leq 20 \%$ | $\underline{\mathrm{e}_{\text {sos a }} \text { Low }} \leq \mathrm{CF}^{\mathrm{B}} \times$ LLC standard ${ }^{\text {A }}$ |
| Medium/High | $20 \%<$ <br> Percent Engine Load $_{\text {window }}$ | $\underline{\mathrm{e}}$ sos a,MedHigh $\leq \mathrm{CF}^{\mathrm{B}} \times \mathrm{FTP} /$ RMC standard ${ }^{\text {A }}$ |

${ }^{\text {A }}$ The applicable standards can be found in title 13, CCR, § 1956.8
${ }^{\text {B F For } 2024 \text { through } 2029 \text { model year engines, the conformity factor, CF, is }}$ equal to 2.0. For 2030 and subsequent model year engines, the conformity factor, CF, is equal to 1.5.
7. In-Use Compliance Testing for Idling Emissions:

Except for engines certified in accordance with the provisions specified in 13 CCR section 1956.8(a)(2)(C)2, for 2024 and subsequent model year heavyduty diesel engines used in medium duty vehicles $10,001-14,000$ pounds GVWR and heavy-duty vehicles over 14,000 pounds GVWR that are optionally certified to the idling NOx emission standards specified in subparagraph I.11.B.6, above, the Executive Officer may conduct in-use compliance emissions testing to determine whether the engine complies with the idling NOx emission standard to which the engine is certified. The Executive Officer may follow the following procedure specified in this subparagraph 7 to determine compliance:
7.1 In-use compliance emission testing may be conducted using chassis dynamometer in the laboratory or using an on-board PEMS.
7.2 The engine may be tested to warm engine coolant conditions. If the engine is cold, emissions measurements will begin when either of the following conditions are met:
7.2.1 the engine coolant temperature has reached $70^{\circ} \mathrm{C}$ or $158^{\circ} \mathrm{F}$
for the first time since engine start, or
7.2.2 after the coolant temperature is stabilized within $+/-2^{\circ} \mathrm{C}$ over a period of 5 minutes, whichever occurs first.
7.3 The vehicle will be tested with properly functioning engine and vehicle accessories such as engine cooling fan, alternator, coolant pump, air
compressor, engine oil and fuel pumps and any other accessory needed for a normal operation of the vehicle at idle speed. Additionally, the cab air conditioning system may be set to maximum heating or cooling during the test.
7.4 Emissions will be measured for a minimum of 30 minutes at an engine idle speed equal to the curb idle speed set by the manufacturer or any other elevated idle speed up to 1100 revolutions per minute.
7.5 For compliance, the calculated average NOx emissions from the test shall not exceed the optional NOx idling emission standard applicable for the engine model year specified in section I.11.B.6.

## Subpart T - Manufacturer-Run In-Use Testing Program for Heavy-Duty Diesel Engines.

86.1901 What testing requirements apply to my engines that have gone into service? November 8, 2010.
86.1905 How does this program work? November 8, 2010.

1. Subparagraphs (a) through (f). [No change.]
2. Amend subparagraph $(\mathrm{g})$ as follows: For any communication related to this subpart, contact the On-Road Heavy-Duty Diesel Section Manager, Mobile Source Gontrol Division, Air Resources Board, 9528 Telstar Avenue, El Monte, CA 91731. to the In-Use Programs Chief, Emissions Certification and Compliance Division, California Air Resources Board, 4001 Iowa Ave, Riverside, CA 92507.
86.1908 How must I select and screen my in-use engines? June 14, 2005. 1. Amend subparagraph (a) as follows:
1.1 Subparagraph (a)(1) through (a)(8흐). [No change.]
1.2 Amend subparagraph (a)(6) as follows: The engines have not been misfueled. The use of commercially available diesel and biofuel blends that meets California's fuel specifications in title 4, CCR, section 4148, will not be considered misfueled for 2024 and subsequent model year engines.

### 1.3 Subparagraphs (a)(7) through (a)(8). [No change.]

1.21.4 Amend subparagraph (a)(9) as follows: The vehicles have not exceeded the applicable useful life, in miles or years as defined in title 13 , CCR, section 2112; you may otherwise not exclude engines from testing based on their age ormileage.
1.31.5 Subparagraph (a)(10). [No change.]
2. Subparagraph (b) through (d). [No change.]
86.1910 How must I prepare and test my in-use engines? October 25, 2016.

## A. Federal Provisions

1. Subparagraphs (a) through (b). [No change.]
2. Amend subparagraph (c) as follows:
2.1 Subparagraph (c)(1). [No change.]
2.2 Amend subparagraph (c)(2) as follows:
(i) For 2005 through 2023 model year engines, you may use any biodiesel fuel blend that is either expressly allowed or not otherwise indicated as an unacceptable fuel in the vehicle's owner or operator manual or in the engine manufacturer's published fuel recommendations.
(ii) For 2024 and subsequent model year engines, you may use any commercially available biodiesel fuel blend.
2.3 Amend subparagraph (c)(3) as follows:
(i) For 2005 through 2023 model year engines, you may drain a prospective test vehicle's fuel tank(s) and refill the tank(s) with diesel fuel conforming to ASTM D 975 specifications described in paragraph (c)(1) of this section.
(ii) For 2024 and subsequent model year engines, you may drain a prospective test vehicle's fuel tank(s) and refill the tank(s) with diesel fuel conforming to ASTM D 975 specifications or commercially available biodiesel described in paragraph (c)(1) or (c)(2)(ii) of this section.
2.4 Subparagraphs (c)(4) through (c)(6). [No change.]
3. Subparagraph (d). [No change.]
4. Amend subparagraph (e) as follows: For Phase 1 testing, for 2007 through 2023 model year engines, you must test the engine under conditions reasonably expected to be encountered during normal vehicle operation and use consistent with the general NTE requirements in section 86.1370.A. 1 of these test procedures. For 2024 and subsequent model year engines, for Phase 1 testing you must test the engine under conditions reasonably expected to be encountered and use consistent with 3B-MAW requirements described in sections 86.1370.B.6, 86.1910, and 86.1912 of these test procedures. For the purpose of this subpart, normal operation and use would generally include consideration of the vehicle's normal routes and loads (including auxiliary loads such as air conditioning in the cab), normal ambient conditions, and the normal driver.
5. Subparagraphs (f). [No change.]
6. Amend subparagraph ( g ) as follows:
(g) Once an engine is set up for testing, test the engine for at least one shift-day.

For 2005 to 2023 model year engines, to complete a shift-day's worth of testing, start sampling at the beginning of the shift and continue sampling for the whole shift, subject to the calibration requirements of the portable emissions
measurements systems. For 2024 and subsequent model year engines, to complete a shift-day's worth of testing, start sampling before starting the engine at the beginning of a shift and continue sampling for the whole shift, subject to the calibration requirements of the portable emissions measurement systems. A shift-day is the period of a normal workday for an individual employee. For 2005 to 2023 model year engines, if the first shift-day of testing does not involve at least 3 hours of accumulated non-ide operation, repeat the testing for second shift-day and report the results from both days of testing. If the second shift-day of testing also does not result in at least 3 hours of accumulated non-ide operation, you may choose whether or not to continue testing with that vehicle. For 2024 and subsequent model year engines, if the first shift-day of testing does not achieve 2,400 valid windows for each bin, repeat the testing for an additional shift-day until the valid window requirements per bin are achieved.
(i) For 2005 to 2023 model year engines, if after two shift-days you discontinue testing before accumulating 3 hours of non-idle operation on either day, evaluate the valid NTE samples from both days of testing as described in 86.1912 and include the data in reporting and record keeping requirements specified in 86.1920 and 1925. Count the engine toward meeting your testing requirements under this subpart and use the data for deciding whether addition engines must be tested under the applicable Phase 1 or Phase 2 test plan.

If testing on the first or subsequent shift-day fulfills the valid window requirements for the low load and the medium/high load bins, but does not fulfill the valid window requirements of the idle bin, then the manufacturer may instruct the fleet to idle the test engine at the end of the shift day for a minimum of forty minutes and a maximum of sixty minutes to satisfy the valid window requirement of the idle bin.
7. Subparagraph (h). [No change.]
8. Amend subparagraph (i) as follows:
(i) For 2005 through 2023 model year engines, you may count a vehicle as meeting the vehicle-pass criteria described in $\S 86.1912$ if a shift day of testing or two-shift days of testing (with the requisite non-idle/idle operation time as in paragraph ( g ) of this section), or if the extended testing you elected under paragraph (h) of this section does not generate a single valid NTE sampling event, as described in § 86.1912(b). Count the vehicle towards meeting your testing requirements under this subpart.
9. Subparagraph (j). [No change.]
86.1912 How do I determine whether an engine meets the vehicle-pass criteria? October 25, 2016.

## A. Federal Provisions [No change.]

B. California Provisions

1. For 2024 and subsequent model year engines, use the methods in section 86.1370.B. 6 of these test procedures to determine whether an engine meets the vehicle-pass criteria.
86.1915 What are the requirements for Phase 1 and Phase 2 testing? June 14, 2005.

## A. Federal Provisions

1. Introductory paragraph through (a). [No change.]
2. Amend subparagraph (a)(1) as follows: Start by measuring emissions from five engines using the procedures described in 40 CFR part 1065, subpart J. If all five engines comply fully with the vehicle-pass criteria in section 86.1912 of these test procedures for all pollutants, you may stop testing. This completes your testing requirements under this subpart for the applicable calendar year for that engine family.
3. Subparagraph (a)(2). [No change.]
4. Amend subparagraph $(\mathrm{a})(3)$ as follows: If your testing results under paragraphs $(a)(1)$ and $(a)(2)$ of this section do not satisfy the criteria for completing your testing requirements under those paragraphs for all pollutants, that is, two or more engines do not satisfy the criteria, test four additional engines so you have tested a total of ten engines, unless based on the initial results you declare that the engine family is in non-compliance.
5. Subparagraph $(a)(4)$ to $(b)(3)$. [No change.]
6. Amend subparagraph (b)(4): For 2023 and earlier model years only, you may under any circumstances elect to conduct Phase 2 testing following the completion of Phase 1 testing. All the provisions of paragraph (c) of this section apply to Phase 2 testing.
7. Subparagraph (c), [No change]

## B. California Provisions

1. For 2024 and subsequent model year engines, the provisions for Phase 2 testing will no longer be applicable. If an engine family is found to be in noncompliance as a result of Phase 1 testing under this section, you must notify the CARB Executive Officer within 15 days of the failure with the intent to submit a recall
plan. The recall plan must be submitted within 45 days of notifying the CARB Executive Officer.
2. For 2024 and subsequent model year engines, use the 3B-MAW methods in 86.1370.B. 6 of these test procedures, instead of the methods in section 86.1912.A of these test procedures, to determine compliance with the requirements of this section.
3. For 2024 and subsequent model year engines, the engine family is deemed to be noncompliant if the Phase 1 testing meets any of the following criteria:
3.1 The sum-over-sum emissions of the same pollutant and same bin exceed the in-use threshold (86.1370.B.6) for three or more tests.
3.2 Any of the average SOS values exceed the applicable in-use emission threshold defined in (86.1370.B.6.) The average SOS value is calculated from the arithmetic mean of 10 vehicles from Phase 1 testing for each of pollutants (NMHC, CO, NOx, and PM) and for each of the bins (idle, low, med./high).
4. For 2024 and subsequent model year engines, if your testing results under paragraphs $86.1915 . \mathrm{A}(\mathrm{a})(1)$ and $(\mathrm{a})(2)$ of this section do not satisfy the criteria for completing your testing requirements under those paragraphs for all pollutants, test four additional engines so you have tested a total of ten engines, or you may concede the engine family is in non-compliance based on the initial results.
5. For 2024 and subsequent model year engines, Phase 1 testing is considered complete if any of the following conditions are met:
5.1 A total of five valid engines were tested and analyzed with the methods in section 86.1370.B.6.6. and all five engines completely fulfilled the engine pass criteria.
5.2 A total of six valid engines were tested and analyzed with the methods in section 86.1370.B.6.6. and five of the six engines completely fulfilled the engine pass criteria.
5.3 A total of 10 valid engines were tested and analyzed with the methods in 86.1370.B. 6 and the arithmetic mean of the 10 engine's sum-over-sum values in §86.1370.B.6.6. are less than the in-use thresholds for each bin and pollutant.
5.4 The engine manufacturer declares the engine family is in noncompliance and begins discussions with the Executive Officer for corrective action.
86.1920 What in-use testing information must I report to ARB? October 25, 2016.

## A. Federal Provisions

1. Amend subparagraph (a) as follows: Send us electronic reports using an approved information format to the In-Use Programs Chief, Emissions Certification and Compliance Division, California Air Resources Board, 4001 lowa Ave, Riverside, CA 92507. Chief, Emission Research and Regulatory

Development Branch, Mobile Source Control Division, Air Resources Board, 9528 Telstar Avenue, El Monte, California, 91731. If you want to use a different format, send us a written request with justification.
2. Subparagraphs $(b)(1)$ to $(\epsilon \underline{b})(4)(v i)$. [No change.]
3. Amend subparagraph (b)(4)(vii) as follows:

Ambient temperature, dewpoint, and atmospheric pressure at the start and finish of each valid NTE event for model year 2005 to 2023 engines. For 2024 and subsequent model year engines, ambient temperature, dewpoint, and atmospheric pressure at the start and finish of each valid window.
4. Amend subparagraph (b)(4)(viii) as follows:
(i) For 2005 to 2023 model year engines, the number of valid NTE events (see 86.1912(b) of these test procedures).
(ii) For 2024 and subsequent model year engines, the total number of windows and the number of windows per bin.
5. Amend subparagraph (b)(4)(ix) as follows:

For 2005 to 2023 model year engines, average emissions of each pollutant over each valid NTE event. Describe the method you used to determine NMHC as specified in 40 CFR part 1065, subpart J. See appendix I of this subpart for an example of graphically summarizing NTE emission results. For 2024 and subsequent model year engines, conduct analysis as described in Binned Moving Average Windows in 86.1370.B. 6 of these test procedures.
6. Subparagraph (b)(4)(x). [No change.]
7. Amend subparagraph (b)(4)(xi) as follows:

For 2005 to 2023 model year engines, vehicle-pass ratios (see $\S 86.1912(e)$ ).
8. Subparagraph (b)(4)(xii). [No change.]
9. Amend subparagraph (b)(5) as follows:

For each engine family, identify the applicable requirements as follows:
(i) The applicable in-use thresholds. For 2005 to 2023 model year engines identify the NTE threshold in 86.1912 subparagraph a of these test procedures. For 2024 and subsequent model year engines identify the in-use thresholds for the 3BMAW in 86.1370.B.6.6 of these test procedures.
(ii) Vehicle and engine information needed to identify the limited testing regions under $\S 86.1370-2007(b)(6)$ and (7) for 2005 to 2023 model year engines.
(iii) Vehicle and engine information needed to identify any approved NTE deficiencies under §86.007-11(a)(4)(iv) for 2005 to 2023 model year engines.
10. Subparagraphs (b)(6) to (c). [No Change]
11. Amend subparagraph (d) as follows: Send us an electronic notification at hd-inuse@arb.ca.gov describing any voluntary vehicle/engine emission evaluation test you intend to conduct ... [No change to remainder of paragraph.]
12. Amend subparagraph (e) as follows: Send us an electronic notification at hd-inuse@arb.ca.gov within 15 days after your initial review of the test data for a
selected engine family indicates that three engines in Phase 1 testing have failed to comply with the vehicle-pass criteria. [No change to remainder of paragraph.]
13. Subparagraphs (f) and (g). [No change.]

## B. California Provisions

1. For 2024 and subsequent model year engines, the manufacturer shall collect at a minimum the following data stream values (if the engine is so-equipped) at 1 second intervals (i.e., 1 Hertz ) and submit the data in a comma separated value file for each test.
2. engine speed
3. actual engine torque
4. reference engine maximum torque
5. engine coolant temperature
6. engine oil temperature
7. fuel rate
8. modeled exhaust flow
9. intake air/manifold temperature
10. air flow rate (from mass air flow sensor)
11. fuel injection timing
11.EGR mass flow rate
12. commanded EGR valve duty cycle/position
13. actual EGR valve duty cycle/position
14. EGR error between actual and commanded
15. boost pressure
16. commanded/target boost pressure
17. PM filter inlet temperature
18. PM filter outlet temperature
19. exhaust gas temperature sensor output
20. variable geometry turbo position
21. corrected NOx sensor output
22. DEF dosing mode
23. stability of NOx sensor reading
24. engine friction - percent torque
25. commanded DEF dosing
26. DEF usage for current driving cycle
27. DEF dosing rate
28. charge air cooler outlet temperature
29. SCR intake temperature
30. SCR outlet temperature
31. modeled actual ammonia storage level on SCR
32. target ammonia storage level on SCR
33. NOx mass emission rate - engine out
34. NOx mass emission rate - tailpipe
35. Vehicle speed
36. Engine run time

## 37. Hydrocarbon doser flow rate

2. For 2024 and subsequent model year in-use testing, the manufacturer shall additionally collect an OBD scan (i.e., snapshot of data) of all data stream parameters, all service mode data, and all tracked data (i.e., all data required in title 13, CCR sections 1971.1(h)(4) and (h)(5)) at the beginning of the shift day, at any key-off events, and the end of each shift day during testing.

## 3. HDIUT Test Plan Approval

For 2024 and subsequent model year engines, the manufacturer must send test plans for pre-approval by CARB's Executive Officer a minimum of 30 calendar days prior to testing for each vehicle tested, and must notify CARB's Executive Officer if a subsequent shift day is necessary as described in section $86.1910(\mathrm{~g})$ of this document.

Test plans, notifications, and communications related to this subsection must be sent to: Executive Officer, California Air Resources Board, 1001 I Street, Sacramento, CA 95814 or hd-inuse@arb.ca.gov
3.1 Test plans must include but are not limited to the following vehicle, engine, OBD/MIL, maintenance, and PEMS system information outlined in the table:

| Vehicle Information <br> Manufacturer <br> Model <br> Model year <br> Vehicle identification number (VIN) <br> Vehicle/fleet vocation <br> Percent of operation at highway speeds <br> Percent of operation on surface streets <br> Percent of operation idling <br> Trailer type if applicable <br> Mileage |
| :---: |
| Engine Information <br> Engine family <br> Engine model number <br> Displacement <br> Power rating <br> Model year <br> Engine serial number |
| OBD/Malfunction Indicator Light (MIL) <br> History of OBD/MIL illuminating events <br> History of owner actions for OBD/MIL illumination <br> OBD/MIL codes experienced after accepting for in-use testing |
| Test Day <br> Expected date <br> Expected test time |


| Vehicle Information |
| :--- | :--- |
| Expected duration <br> Test number <br> Number of shift days <br> Location <br> $\frac{\text { Route }}{\text { Expected weather }}$ <br> PEMS <br> Make <br> Model <br> Certification |

Some parameters may not be known exactly at the time of the test plan submission, especially in the Test Day category items. The manufacturer may use forecasted information as necessary and indicate when a parameter is forecasted.
3.2 The manufacturer must identify weather or logistical circumstances making the cold start requirements infeasible for the particular test. If a manufacturer believes that conditions may be infeasible to meet the cold start requirements (for example, due to ambient temperatures that are too high or fleet procedures), the manufacturer may request approval from the Executive Officer to begin the shift-day without a cold start. The Executive Officer will approve said request if he or she determines that the identified circumstances will not allow the manufacturer to meet the cold start test requirements. In assessing the request, the Executive Officer will reply on information provided by the manufacturer and his or her engineering judgment.
3.3 The manufacturer is required to electronically submit the test plans, a contact email and phone number a minimum of 30 calendar days prior to scheduled testing to hd-inuse@arb.ca.gov. CARB's Executive Officer will have 14 calendar days after test plan submission by the manufacturer to review and provide comments. CARB's Executive Officer will approve a submitted test plan if he or she determines the submitted test plan will enable the manufacturer to collect a sufficient number of the data stream values specified in sections 86.1920.B. 1 and B. 2 of these procedures, fulfills the guidelines for testing in 86.1910 needed to determine if an engine meets the vehicle pass criterion in 86.1912.B of these procedures in making that determination, CARB's Executive Officer will consider the information provided by the manufacturer and his or her engineering judgment.

If there are no comments by CARB's Executive Officer within the allotted review time, then the manufacturer may proceed with testing the vehicle.
86.1925 What records must I keep? dune 14, 2005November 8, 2010.

## A. Federal Provisions

1. Paragraph (a). [No change.]
2. Amend subparagraph (b) as follows: Keep the following paper or electronic records of your in-use testing for five years after you complete all testing required for an engine family:
(1) Keep a copy of reports described in section 86.1920 of these test procedures.
(2) Keep any additional records, including forms you create, related to any of the following:
(i) The procurement and vehicle-selection process described in section 86.1908 of these test procedures, including the vehicle owner's name, address, phone number and e-mail address.
(ii) Pre test maintenance and adjustments to the engine performed under section 86.1910 of these test procedures.
(iii) Test results for all void, incomplete, and voluntary testing described in section 86.1920 of these test procedures
(iv) Evaluations to determine why a vehicle failed the vehicle pass criteria described in sections 86.1912 or 86.1370.B of these test procedures.
3. Subparagraph b(3). [No Change.]

## Appendix I to Part 86 - Urban Dynamometer Schedules.

A. Federal Provisions. October 25, 2016.

1. Subparagraphs (a) through (f)(1). [n/a]
2. Subparagraph (f)(2) EPA Engine Dynamometer Schedule for Heavy-Duty

Diesel Engines. December 10, 1984. [No change.]
3. Subparagraphs (f)(3) through (h). [n/a]
B. California Provisions

1. For 2024 and subsequent model year medium-duty and heavy-duty diesel engines, the low-load cycle Engine Dynamometer Schedule is shown below. These second-by-second listings represent torque and RPM maneuvers characteristic of heavy-duty engines. Procedures for unnomalizing the torque and speed values are provided in Section 86.1333.B. 2 of these test procedures.

Engine testing

| $\frac{\text { Record }}{(\text { seconds })}$ | Normalized revolutions per minute (percent) | Normalized torque (percent) |
| :---: | :---: | :---: |
| 1 | $\underline{0}$ | $\underline{0}$ |
| $\underline{2}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3}$ | $\underline{0}$ | $\underline{0}$ |
| 4 | $\underline{0}$ | $\underline{0}$ |
| $\underline{5}$ | $\underline{0}$ | $\underline{0}$ |
| 6 | 0 | 0 |
| 7 | $\underline{0}$ | $\underline{0}$ |
| 8 | $\underline{0}$ | $\underline{0}$ |
| $\underline{9}$ | $\underline{0}$ | $\underline{0}$ |
| 10 | $\underline{0}$ | $\underline{0}$ |
| 11 | $\underline{0}$ | $\underline{0}$ |
| $\underline{12}$ | $\underline{0}$ | $\underline{0}$ |
| 13 | $\underline{0}$ | $\underline{0}$ |
| 14 | $\underline{0}$ | $\underline{0}$ |
| 15 | $\underline{0}$ | $\underline{0}$ |
| 16 | $\underline{0}$ | $\underline{0}$ |
| 17 | $\underline{0}$ | $\underline{0}$ |
| 18 | $\underline{0}$ | $\underline{0}$ |
| 19 | $\underline{0}$ | $\underline{0}$ |
| $\underline{20}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{21}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{22}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{23}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{24}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{\underline{25}}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{26}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{27}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{28}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{\underline{29}}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{30}$ | $\underline{0}$ | $\underline{0}$ |
| 31 | $\underline{0}$ | $\underline{0}$ |
| $\underline{32}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{33}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{34}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{35}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{36}$ | $\underline{0}$ | $\underline{0}$ |


| $\underline{37}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{38}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{39}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{40}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{41}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{42}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{43}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{44}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{45}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{46}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{47}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{48}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{49}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{50}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{51}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{52}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{53}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{54}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{55}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{56}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{57}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{58}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{59}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{60}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{61}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{62}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{63}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{64}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{65}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{66}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{67}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{68}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{69}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{70}$ | $\underline{3}$ | $\underline{5}$ |
| $\underline{71}$ | $\underline{7}$ | $\underline{10}$ |
| $\underline{72}$ | $\underline{15}$ | $\underline{16.1}$ |
| $\underline{73}$ | $\underline{28.3}$ | $\underline{10}$ |
| $\underline{74}$ | $\underline{46}$ | $\underline{11.1}$ |
| $\underline{66}$ | $\underline{12.3}$ |  |
| $\underline{1}$ |  |  |


| $\underline{77}$ | $\underline{54.6}$ | $\underline{20.7}$ |
| :---: | :---: | :---: |
| 78 | 76.6 | 15.9 |
| 79 | 47.9 | $\underline{2}$ |
| 80 | 64.7 | 36.4 |
| 81 | 77.4 | 29.6 |
| 82 | $\underline{28.2}$ | 2.9 |
| 83 | 48.4 | $\underline{54.9}$ |
| 84 | 72.1 | 17.7 |
| 85 | 82.5 | 10.7 |
| 86 | 60.2 | 1.1 |
| 87 | 64.4 | (a) |
| 88 | 67.8 | (a) |
| 89 | 62.7 | 12 |
| 90 | 47 | 28.9 |
| 91 | 52.3 | (a) |
| $\underline{92}$ | 54.5 | (a) |
| 93 | 54.7 | (a) |
| 94 | 53.6 | (a) |
| $\underline{95}$ | 50.4 | (a) |
| 96 | 46 | (a) |
| $\underline{97}$ | 44.1 | (a) |
| $\underline{98}$ | 42.5 | (a) |
| $\underline{99}$ | 42.4 | (a) |
| 100 | $\underline{43}$ | (a) |
| 101 | 42.5 | (a) |
| 102 | 41.4 | (a) |
| 103 | 41.6 | (a) |
| 104 | 42.1 | (a) |
| 105 | 41.4 | (a) |
| 106 | 40.6 | (a) |
| 107 | 38.2 | (a) |
| 108 | 35.4 | 0.8 |
| 109 | $\underline{34}$ | $\underline{2.8}$ |
| 110 | 33 | 4.5 |
| 111 | 32.3 | 5.3 |
| 112 | 31.5 | $\underline{0}$ |
| 113 | $\underline{28.9}$ | (a) |
| 114 | $\underline{28.8}$ | (a) |
| $\underline{115}$ | $\underline{24.9}$ | (a) |


| 116 | 19.1 | (a) |
| :---: | :---: | :---: |
| 117 | $\underline{29.8}$ | (a) |
| 118 | 20.6 | (a) |
| 119 | 14.7 | (a) |
| 120 | 19.7 | 16.8 |
| 121 | $\underline{21.8}$ | (a) |
| 122 | 15.2 | (a) |
| 123 | $\underline{24.8}$ | 10.6 |
| 124 | $\underline{20.5}$ | 9.5 |
| 125 | 19.7 | 15.6 |
| 126 | 8.5 | (a) |
| 127 | $\underline{0}$ | $\underline{0}$ |
| 128 | 0.5 | 5.4 |
| 129 | 0 | $\underline{0}$ |
| 130 | $\underline{0.5}$ | 5.7 |
| 131 | 1.7 | 9.8 |
| 132 | 6.7 | 14.6 |
| 133 | 6.5 | 12 |
| 134 | 6.5 | 9.8 |
| 135 | 6.6 | 8.6 |
| 136 | $\underline{6}$ | 8.1 |
| 137 | 4.5 | 7.3 |
| 138 | 3.4 | 8.2 |
| 139 | 8 | 17 |
| 140 | 17.4 | 8 |
| 141 | $\underline{28.3}$ | 6.2 |
| 142 | 35.4 | 9.6 |
| 143 | 51 | 9.7 |
| 144 | $\underline{62}$ | 10.6 |
| 145 | 32.4 | 1 |
| 146 | 58.1 | 24.4 |
| 147 | 89.1 | $\underline{27.9}$ |
| 148 | 32.4 | $\underline{3}$ |
| 149 | 38.6 | 17.1 |
| 150 | 48.9 | 19.8 |
| 151 | 61.4 | 18.7 |
| 152 | 70.7 | 14.8 |
| 153 | 45.7 | $\underline{0.8}$ |
| 154 | 49 | 20.7 |
| 155 | 57.5 | $\underline{23.4}$ |


| $\underline{156}$ | $\underline{66.7}$ | $\underline{22.1}$ |
| :---: | :---: | :---: |
| $\underline{157}$ | $\underline{48.7}$ | $\underline{5.8}$ |
| $\underline{158}$ | $\underline{44.5}$ | $\underline{14.3}$ |
| $\underline{159}$ | $\underline{45}$ | $\underline{6.9}$ |
| $\underline{160}$ | $\underline{44.3}$ | $\underline{1.5}$ |
| $\underline{161}$ | $\underline{46.4}$ | $\underline{19.2}$ |
| $\underline{162}$ | $\underline{48.3}$ | $\underline{6.9}$ |
| $\underline{163}$ | $\underline{48.2}$ | $\underline{5.8}$ |
| $\underline{164}$ | $\underline{47.6}$ | $\underline{5.8}$ |
| $\underline{165}$ | $\underline{46.6}$ | $\underline{4}$ |
| $\underline{166}$ | $\underline{45.1}$ | $\underline{3.6}$ |
| $\underline{167}$ | $\underline{44}$ | $\underline{2.9}$ |
| $\underline{168}$ | $\underline{42.4}$ | $\underline{3.4}$ |
| $\underline{169}$ | $\underline{41.7}$ | $\underline{1}$ |
| $\underline{170}$ | $\underline{37.9}$ | $\underline{(a)}$ |
| $\underline{171}$ | $\underline{32.7}$ | $\underline{(a)}$ |
| $\underline{172}$ | $\underline{20.8}$ | $\underline{(a}$ |
| $\underline{173}$ | $\underline{18.8}$ | $\underline{13.7}$ |
| $\underline{174}$ | $\underline{16.3}$ | $\underline{3.5}$ |
| $\underline{175}$ | $\underline{14.1}$ | $\underline{5.3}$ |
| $\underline{176}$ | $\underline{6.7}$ | $\underline{1.3}$ |
| $\underline{177}$ | $\underline{0.1}$ | $\underline{5.9}$ |
| $\underline{178}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{179}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{180}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{181}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{182}$ | $\underline{1.2}$ | $\underline{6.3}$ |
| $\underline{183}$ | $\underline{2}$ | $\underline{9.9}$ |
| $\underline{184}$ | $\underline{5.1}$ | $\underline{12}$ |
| $\underline{185}$ | $\underline{4.6}$ | $\underline{8.7}$ |
| $\underline{186}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{187}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{188}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{189}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{190}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{191}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{192}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{193}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{194}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{195}$ | $\underline{0}$ |  |


| $\underline{196}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{197}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{198}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{199}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{200}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{201}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{202}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{203}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{204}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{205}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{206}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{207}$ | $\underline{1.1}$ | $\underline{9.2}$ |
| $\underline{208}$ | $\underline{5.9}$ | $\underline{22}$ |
| $\underline{209}$ | $\underline{6.7}$ | $\underline{24.1}$ |
| $\underline{210}$ | $\underline{\underline{1}}$ | $\underline{18.6}$ |
| $\underline{211}$ | $\underline{14.8}$ | $\underline{11.2}$ |
| $\underline{212}$ | $\underline{24.9}$ | $\underline{10.8}$ |
| $\underline{213}$ | $\underline{37.7}$ | $\underline{8.2}$ |
| $\underline{214}$ | $\underline{50.4}$ | $\underline{7.7}$ |
| $\underline{215}$ | $\underline{62.3}$ | $\underline{8.3}$ |
| $\underline{216}$ | $\underline{30.7}$ | $\underline{4.7}$ |
| $\underline{217}$ | $\underline{34.2}$ | $\underline{19.4}$ |
| $\underline{218}$ | $\underline{52.4}$ | $\underline{12.2}$ |
| $\underline{219}$ | $\underline{63.4}$ | $\underline{7.7}$ |
| $\underline{220}$ | $\underline{46.8}$ | $\underline{0.5}$ |
| $\underline{221}$ | $\underline{41.8}$ | $\underline{2.7}$ |
| $\underline{222}$ | $\underline{38.8}$ | $\underline{3.8}$ |
| $\underline{223}$ | $\underline{36.3}$ | $\underline{4.7}$ |
| $\underline{224}$ | $\underline{36.1}$ | $\underline{3.5}$ |
| $\underline{225}$ | $\underline{35.4}$ | $\underline{1.6}$ |
| $\underline{226}$ | $\underline{34.9}$ | $\underline{(a)}$ |
| $\underline{227}$ | $\underline{29.9}$ | $\underline{(a)}$ |
| $\underline{228}$ | $\underline{24.6}$ | $\underline{(a)}$ |
| $\underline{229}$ | $\underline{17.9}$ | $\underline{(a)}$ |
| $\underline{230}$ | $\underline{17.3}$ | $\underline{16.4}$ |
| $\underline{231}$ | $\underline{22}$ | $\underline{(a}$ |
| $\underline{232}$ | $\underline{14.1}$ | $\underline{(a)}$ |
| $\underline{233}$ | $\underline{5.4}$ | $\underline{1.4}$ |
| $\underline{234}$ | $\underline{0.1}$ | $\underline{5.8}$ |
| $\underline{235}$ | $\underline{0}$ |  |


| $\underline{236}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{237}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{238}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{239}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{240}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{241}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{242}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{243}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{244}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{245}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{246}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{247}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{248}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{249}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{250}$ | $\underline{1}$ | $\underline{5.3}$ |
| $\underline{251}$ | $\underline{1.1}$ | $\underline{9.9}$ |
| $\underline{252}$ | $\underline{3.4}$ | $\underline{9.1}$ |
| $\underline{253}$ | $\underline{1.1}$ | $\underline{7.6}$ |
| $\underline{254}$ | $\underline{2.8}$ | $\underline{9.5}$ |
| $\underline{255}$ | $\underline{7.7}$ | $\underline{11.8}$ |
| $\underline{256}$ | $\underline{11.9}$ | $\underline{14.4}$ |
| $\underline{257}$ | $\underline{19.1}$ | $\underline{14.4}$ |
| $\underline{258}$ | $\underline{34.6}$ | $\underline{10.2}$ |
| $\underline{259}$ | $\underline{48}$ | $\underline{9.5}$ |
| $\underline{260}$ | $\underline{57.2}$ | $\underline{10.1}$ |
| $\underline{261}$ | $\underline{\underline{5}}$ | $\underline{12.7}$ |
| $\underline{262}$ | $\underline{40.4}$ | $\underline{23.7}$ |
| $\underline{263}$ | $\underline{69.3}$ | $\underline{13.6}$ |
| $\underline{264}$ | $\underline{58.9}$ | $\underline{7.7}$ |
| $\underline{265}$ | $\underline{59.1}$ | $\underline{17.7}$ |
| $\underline{266}$ | $\underline{67.1}$ | $\underline{6.2}$ |
| $\underline{267}$ | $\underline{43.5}$ | $\underline{2.9}$ |
| $\underline{268}$ | $\underline{35.8}$ | $\underline{(a})$ |
| $\underline{269}$ | $\underline{24.1}$ | $\underline{(a}$ |
| $\underline{270}$ | $\underline{14}$ | $\underline{12.1}$ |
| $\underline{271}$ | $\underline{18.6}$ | $\underline{9.1}$ |
| $\underline{272}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{273}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{274}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{275}$ | $\underline{0}$ | $\underline{0}$ |
|  |  |  |


| $\underline{276}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{277}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{278}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{279}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{280}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{281}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{282}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{283}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{284}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{285}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{286}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{287}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{288}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{289}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{290}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{291}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{292}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{293}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{294}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{295}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{296}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{297}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{298}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{299}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{300}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{301}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{302}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{303}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{304}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{305}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{306}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{307}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{308}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{309}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{310}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{311}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{312}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{313}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{314}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{315}$ | $\underline{9}$ |  |


| $\underline{316}$ | 7.2 | 32.1 |
| :---: | :---: | :---: |
| 317 | 8.2 | $\underline{21.3}$ |
| 318 | 19.5 | 20.4 |
| 319 | 35.5 | 11 |
| 320 | 54.3 | 10.6 |
| 321 | 59.1 | 13.7 |
| $\underline{322}$ | $\underline{28}$ | 5.9 |
| 323 | 35 | 17.6 |
| 324 | 50.2 | 9.8 |
| 325 | 62.3 | 5.7 |
| 326 | 52.2 | 3.7 |
| $\underline{327}$ | 47.5 | (a) |
| 328 | 43.5 | (a) |
| 329 | 39.8 | 3.7 |
| 330 | 44.2 | 7.2 |
| 331 | 54.1 | 7.2 |
| 332 | 60.4 | 10.3 |
| 333 | 70.3 | 13.2 |
| 334 | 41.7 | 2.3 |
| 335 | 57.1 | 18.5 |
| 336 | 74.6 | $\underline{21.3}$ |
| 337 | 60.4 | 9.2 |
| 338 | 56 | 33.9 |
| 339 | 72.4 | 35.4 |
| 340 | 86.3 | $\underline{23.8}$ |
| 341 | 37 | 0.5 |
| 342 | 38.1 | 32.8 |
| 343 | 44.6 | $\underline{28.9}$ |
| 344 | 49.2 | 17.2 |
| $\underline{345}$ | 50.2 | $\underline{0.1}$ |
| $\underline{346}$ | 48.5 | (a) |
| 347 | 46.7 | (a) |
| $\underline{348}$ | 43.9 | (a) |
| 349 | 41.2 | (a) |
| $\underline{350}$ | $\underline{38}$ | (a) |
| 351 | $\underline{34}$ | (a) |
| 352 | $\underline{28.8}$ | (a) |
| $\underline{353}$ | $\underline{21.2}$ | (a) |
| 354 | 31.1 | 5.3 |
| $\underline{355}$ | 18.6 | (a) |


| $\underline{356}$ | $\underline{13}$ | $\underline{(a})$ |
| :---: | :---: | :---: |
| $\underline{357}$ | $\underline{23.6}$ | $\underline{12.3}$ |
| $\underline{358}$ | $\underline{14.2}$ | $\underline{\underline{a}}$ |
| $\underline{359}$ | $\underline{14.2}$ | $\underline{5.5}$ |
| $\underline{360}$ | $\underline{19.1}$ | $\underline{12.4}$ |
| $\underline{361}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{362}$ | $\underline{0} 1$ | $\underline{5.6}$ |
| $\underline{363}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{364}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{365}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{366}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{367}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{368}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{369}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{370}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{371}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{372}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{373}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{374}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{375}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{376}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{377}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{378}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{379}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{380}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{381}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{382}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{383}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{384}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{385}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{386}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{387}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{388}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{389}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{390}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{391}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{392}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{393}$ | $\underline{\underline{3}}$ | $\underline{0}$ |
| $\underline{394}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{395}$ | $\underline{0}$ |  |
|  |  |  |


| 396 | 0 | $\underline{0}$ |
| :---: | :---: | :---: |
| 397 | $\underline{0}$ | $\underline{0}$ |
| 398 | $\underline{0}$ | $\underline{0}$ |
| 399 | $\underline{0}$ | $\underline{0}$ |
| 400 | $\underline{0}$ | $\underline{0}$ |
| 401 | $\underline{0}$ | $\underline{0}$ |
| 402 | $\underline{0}$ | $\underline{0}$ |
| 403 | $\underline{0}$ | $\underline{0}$ |
| 404 | $\underline{0}$ | $\underline{0}$ |
| 405 | $\underline{0}$ | $\underline{0}$ |
| 406 | $\underline{0}$ | $\underline{0}$ |
| 407 | $\underline{0}$ | $\underline{0}$ |
| 408 | $\underline{0}$ | $\underline{0}$ |
| 409 | $\underline{0}$ | $\underline{0}$ |
| 410 | $\underline{0}$ | $\underline{0}$ |
| 411 | $\underline{0}$ | $\underline{0}$ |
| 412 | $\underline{0}$ | $\underline{0}$ |
| 413 | $\underline{0}$ | $\underline{0}$ |
| 414 | $\underline{0}$ | $\underline{0}$ |
| 415 | $\underline{0}$ | $\underline{0}$ |
| 416 | 0 | 0 |
| 417 | $\underline{0}$ | $\underline{0}$ |
| 418 | $\underline{0}$ | $\underline{0}$ |
| 419 | $\underline{0}$ | $\underline{0}$ |
| 420 | 0 | 0 |
| 421 | $\underline{0}$ | $\underline{0}$ |
| 422 | 0.6 | 9.9 |
| 423 | $\underline{5}$ | 14 |
| 424 | 5.1 | 12.1 |
| $\underline{425}$ | 1.7 | 7.9 |
| 426 | 0.1 | 5.8 |
| 427 | $\underline{0}$ | $\underline{0}$ |
| 428 | $\underline{0}$ | $\underline{0}$ |
| 429 | $\underline{0}$ | $\underline{0}$ |
| 430 | $\underline{0}$ | $\underline{0}$ |
| 431 | $\underline{0}$ | $\underline{0}$ |
| 432 | 0 | 0 |
| 433 | $\underline{0}$ | $\underline{0}$ |
| $\underline{434}$ | $\underline{0}$ | $\underline{0}$ |
| 435 | $\underline{0}$ | 0 |


| $\underline{436}$ | $\underline{4.4}$ | $\underline{15.4}$ |
| :---: | :---: | :---: |
| $\underline{437}$ | $\underline{6}$ | $\underline{20.4}$ |
| $\underline{438}$ | $\underline{6}$ | $\underline{14.1}$ |
| $\underline{439}$ | $\underline{6}$ | $\underline{10.3}$ |
| $\underline{440}$ | $\underline{4.4}$ | $\underline{8.7}$ |
| $\underline{441}$ | $\underline{2.5}$ | $\underline{9.1}$ |
| $\underline{442}$ | $\underline{7.5}$ | $\underline{15.1}$ |
| $\underline{443}$ | $\underline{12}$ | $\underline{13.2}$ |
| $\underline{444}$ | $\underline{24.5}$ | $\underline{12.2}$ |
| $\underline{445}$ | $\underline{45.3}$ | $\underline{9.5}$ |
| $\underline{446}$ | $\underline{68.4}$ | $\underline{11.4}$ |
| $\underline{447}$ | $\underline{45.7}$ | $\underline{1.5}$ |
| $\underline{448}$ | $\underline{72.7}$ | $\underline{23}$ |
| $\underline{449}$ | $\underline{64.8}$ | $\underline{9.8}$ |
| $\underline{450}$ | $\underline{66.2}$ | $\underline{29.8}$ |
| $\underline{451}$ | $\underline{86.5}$ | $\underline{23.4}$ |
| $\underline{452}$ | $\underline{36.8}$ | $\underline{2.3}$ |
| $\underline{453}$ | $\underline{43.3}$ | $\underline{21.8}$ |
| $\underline{454}$ | $\underline{51.4}$ | $\underline{24.5}$ |
| $\underline{455}$ | $\underline{58.2}$ | $\underline{21.2}$ |
| $\underline{456}$ | $\underline{60.8}$ | $\underline{16.9}$ |
| $\underline{457}$ | $\underline{34.8}$ | $\underline{0.7}$ |
| $\underline{458}$ | $\underline{34.4}$ | $\underline{31.3}$ |
| $\underline{459}$ | $\underline{36.8}$ | $\underline{2.8}$ |
| $\underline{460}$ | $\underline{36}$ | $\underline{(a)}$ |
| $\underline{461}$ | $\underline{35.9}$ | $\underline{(a)}$ |
| $\underline{462}$ | $\underline{31.1}$ | $\underline{(a})$ |
| $\underline{463}$ | $\underline{25}$ | $\underline{5.7}$ |
| $\underline{464}$ | $\underline{24.2}$ | $\underline{0.4}$ |
| $\underline{465}$ | $\underline{22.1}$ | $\underline{3.9}$ |
| $\underline{466}$ | $\underline{22.4}$ | $\underline{30.1}$ |
| $\underline{467}$ | $\underline{28.8}$ | $\underline{20.2}$ |
| $\underline{468}$ | $\underline{30.6}$ | $\underline{1.6}$ |
| $\underline{469}$ | $\underline{27.9}$ | $\underline{(a)}$ |
| $\underline{470}$ | $\underline{21.3}$ | $\underline{(a)}$ |
| $\underline{471}$ | $\underline{13.9}$ | $\underline{(a)}$ |
| $\underline{472}$ | $\underline{25.3}$ | $\underline{11.7}$ |
| $\underline{473}$ | $\underline{17.8}$ | $\underline{(a)}$ |
| $\underline{474}$ | $\underline{12.1}$ | $\underline{1.4}$ |
| $\underline{24.1}$ | $\underline{(a)}$ |  |


| $\underline{476}$ | $\underline{16.4}$ | $\underline{(a)}$ |
| :---: | :---: | :---: |
| $\underline{477}$ | $\underline{21.6}$ | $\underline{16.5}$ |
| $\underline{478}$ | $\underline{26.4}$ | $\underline{(a)}$ |
| $\underline{479}$ | $\underline{16.2}$ | $\underline{(a)}$ |
| $\underline{480}$ | $\underline{24.6}$ | $\underline{10.5}$ |
| $\underline{481}$ | $\underline{8.2}$ | $\underline{1.1}$ |
| $\underline{482}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{483}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{484}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{485}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{486}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{487}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{488}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{489}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{490}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{491}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{492}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{493}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{494}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{495}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{496}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{497}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{498}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{499}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{500}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{501}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{502}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{503}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{504}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{505}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{506}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{507}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{508}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{509}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{510}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{511}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{512}$ | $\underline{7.5}$ | $\underline{45.3}$ |
| $\underline{513}$ | $\underline{6.5}$ | $\underline{32.7}$ |
| $\underline{514}$ | $\underline{7.6}$ | $\underline{23.8}$ |
| $\underline{8.8}$ |  |  |


| 516 | 18.8 | 14.4 |
| :---: | :---: | :---: |
| 517 | 30.4 | 12.7 |
| 518 | 44 | 10.6 |
| 519 | 53.2 | 8.3 |
| 520 | 57.7 | 10 |
| 521 | 48.5 | 11.5 |
| 522 | 33.7 | $\underline{25.7}$ |
| 523 | 49.9 | 16 |
| 524 | 68.1 | 20.4 |
| $\underline{525}$ | 50.4 | 5.3 |
| 526 | 51.1 | 21.9 |
| $\underline{527}$ | $\underline{65}$ | $\underline{22.8}$ |
| 528 | 78.1 | 19.5 |
| $\underline{529}$ | 46.8 | 2.9 |
| 530 | 51.1 | 19.3 |
| 531 | 59.7 | 26.7 |
| 532 | 68.8 | 23.9 |
| 533 | $\underline{45}$ | 0.5 |
| 534 | 46.8 | 44.3 |
| 535 | 55.7 | $\underline{25}$ |
| 536 | 58.9 | 11.6 |
| $\underline{537}$ | 45.1 | 8.5 |
| 538 | 35.7 | 39.3 |
| 539 | 43.2 | 34.4 |
| 540 | 46.2 | 16.8 |
| 541 | 46.7 | 9.6 |
| 542 | 45.6 | (a) |
| 543 | 42.7 | (a) |
| 544 | 38.4 | (a) |
| 545 | 33.4 | (a) |
| $\underline{546}$ | $\underline{28}$ | (a) |
| 547 | $\underline{23.9}$ | (a) |
| 548 | 18.9 | (a) |
| $\underline{549}$ | 12.9 | 8.6 |
| 550 | 15.4 | (a) |
| 551 | 25.2 | 8.4 |
| 552 | 11.1 | 2.8 |
| 553 | 15.6 | 6.4 |
| 554 | 0.3 | 13.3 |
| 555 | 3.8 | 31.8 |


| 556 | 16.6 | $\underline{25.5}$ |
| :---: | :---: | :---: |
| 557 | 25.4 | 25.7 |
| 558 | 48.8 | 26.5 |
| 559 | 77.9 | 30.8 |
| 560 | 55.5 | 3.1 |
| 561 | 61 | 36.7 |
| 562 | 78.8 | $\underline{26.1}$ |
| 563 | 65.7 | $\underline{26}$ |
| 564 | 31.5 | 17.9 |
| 565 | 43.2 | 45.2 |
| 566 | 48.7 | 15.9 |
| 567 | 49.3 | 10.9 |
| 568 | 50.1 | 12.6 |
| 569 | 56.6 | $\underline{37.8}$ |
| 570 | 61.9 | 18.7 |
| 571 | 64.6 | 12.8 |
| 572 | 37.2 | 2.8 |
| 573 | 44.1 | 64.1 |
| 574 | 53.1 | 39.7 |
| 575 | 56.8 | 23.5 |
| 576 | 59.2 | 24.4 |
| $\underline{577}$ | $\underline{43.3}$ | $\underline{7.9}$ |
| 578 | 35.4 | 41.4 |
| 579 | 37.7 | $\underline{21.3}$ |
| 580 | 37.9 | 17.9 |
| 581 | 38.4 | 17.3 |
| 582 | 38.8 | 13.3 |
| 583 | 37.4 | 10.8 |
| 584 | 36.6 | 11.5 |
| 585 | 34.8 | 6.5 |
| 586 | 33 | (a) |
| 587 | $\underline{29.9}$ | (a) |
| 588 | $\underline{24}$ | (a) |
| 589 | 29.3 | 13.3 |
| 590 | $\underline{20.2}$ | (a) |
| 591 | 17 | 14.9 |
| 592 | 15.4 | 8.8 |
| 593 | 2.5 | 1.3 |
| 594 | 0.1 | 5.7 |
| 595 | $\underline{0}$ | $\underline{0}$ |


| 596 | 0 | 0 |
| :---: | :---: | :---: |
| 597 | 0 | 0 |
| 598 | $\underline{0}$ | $\underline{0}$ |
| 599 | 6.4 | 30.8 |
| 600 | 6.8 | 38.6 |
| 601 | 6.7 | 31.6 |
| 602 | 12.7 | 18.1 |
| 603 | 25.1 | 8.8 |
| 604 | 31.3 | 14 |
| 605 | 48.5 | 8.2 |
| 606 | 57.3 | 7.4 |
| $\underline{607}$ | 49.5 | 15 |
| 608 | 16.2 | 6.7 |
| 609 | 29.3 | 45.7 |
| 610 | 69.5 | 40.4 |
| 611 | 70.3 | 25.8 |
| 612 | 35.7 | 13.9 |
| 613 | 38 | 4.9 |
| 614 | 37.8 | 4.4 |
| 615 | 37.5 | 4.3 |
| 616 | 37.3 | 4.3 |
| 617 | 37 | 4.4 |
| 618 | 36.7 | 4.4 |
| 619 | 36.5 | 4.5 |
| 620 | 36.9 | 12.3 |
| 621 | 44.6 | 20.6 |
| 622 | 51.4 | 10.4 |
| 623 | 53.7 | (a) |
| 624 | 53.5 | (a) |
| 625 | 54.2 | 16.7 |
| 626 | 62.2 | 18.4 |
| 627 | 65.7 | 8.9 |
| 628 | 43.8 | (a) |
| 629 | 42.4 | 1.5 |
| 630 | 41.8 | 4.6 |
| 631 | 41.6 | 5.1 |
| 632 | 41.4 | 5.1 |
| 633 | 41.3 | 5.2 |
| 634 | 41.2 | 5.2 |
| 635 | 41.1 | 5.2 |


| 636 | 41 | 5.2 |
| :---: | :---: | :---: |
| 637 | 41 | 5.3 |
| 638 | 40.9 | 5.3 |
| 639 | 40.8 | 5.3 |
| 640 | 40.7 | 5.3 |
| 641 | 42.1 | 13.3 |
| 642 | 45.4 | 13.6 |
| 643 | 50.5 | 9.9 |
| 644 | 53.2 | 5.7 |
| 645 | 54.6 | (a) |
| 646 | 53.9 | 0.3 |
| 647 | 53.3 | 4.7 |
| 648 | 53.1 | 5.3 |
| 649 | 53.1 | 5.4 |
| 650 | 53 | 5.4 |
| 651 | 53 | 5.4 |
| 652 | 52.9 | 5.4 |
| 653 | 52.9 | 5.4 |
| 654 | 52.9 | 5.4 |
| 655 | 52.8 | 5.4 |
| 656 | 52.8 | 5.4 |
| 657 | 52.8 | 5.4 |
| 658 | 52.8 | 5.4 |
| 659 | 52.7 | 5.4 |
| 660 | 55.2 | 16.3 |
| 661 | 58.7 | 16.1 |
| 662 | 54 | 10.8 |
| 663 | 38.1 | 35.5 |
| 664 | 44.3 | 23.7 |
| 665 | 46.3 | 1.7 |
| $\underline{666}$ | 46.4 | (a) |
| 667 | 45.8 | 7.8 |
| 668 | 50.4 | 34.7 |
| 669 | 54.7 | 15.2 |
| 670 | 57.6 | (a) |
| 671 | 54.1 | (a) |
| 672 | 52.1 | (a) |
| 673 | $\underline{52}$ | (a) |
| 674 | 51.3 | 5.7 |
| 675 | 51.3 | 6.8 |


| 676 | 51.6 | 11.2 |
| :---: | :---: | :---: |
| 677 | 54.2 | 11.5 |
| 678 | 54.7 | 16.5 |
| 679 | 54.4 | $\underline{22.6}$ |
| 680 | 55.3 | 8.6 |
| 681 | 55.8 | 1.3 |
| 682 | 55.5 | 4.3 |
| 683 | 55.3 | 6.3 |
| 684 | 55.3 | 6.5 |
| 685 | 55.3 | 6.5 |
| 686 | 55.3 | 6.5 |
| 687 | 55.3 | 6.5 |
| 688 | 55.2 | 4.8 |
| 689 | 54.4 | 2.7 |
| 690 | 55.2 | (a) |
| 691 | 54.2 | 13.3 |
| 692 | 54.1 | 11.8 |
| 693 | 54.7 | 5.3 |
| 694 | 55.4 | (a) |
| 695 | 54.9 | 1.9 |
| 696 | 54.5 | 6.2 |
| 697 | 54.5 | 7.2 |
| 698 | 54.5 | 6.3 |
| 699 | $\underline{54}$ | (a) |
| 700 | $\underline{54.8}$ | (a) |
| 701 | 54.1 | (a) |
| 702 | 53.2 | 6.7 |
| 703 | 53.5 | 5.8 |
| 704 | 53 | (a) |
| 705 | 50.9 | 8.6 |
| $\underline{706}$ | 50.7 | 11.7 |
| 707 | 51.1 | 7.8 |
| 708 | 51.2 | 6.6 |
| 709 | 51.2 | 6.5 |
| 710 | 51.2 | 6.5 |
| 711 | 51.2 | 6.5 |
| 712 | 51.3 | 6.5 |
| 713 | 51.3 | 6.5 |
| 714 | 51.3 | 6.5 |
| 715 | 51.3 | 6.5 |


| 716 | 51.3 | 6.5 |
| :---: | :---: | :---: |
| 717 | 51.3 | 6.5 |
| 718 | 51.3 | 6.5 |
| 719 | 51.3 | 6.5 |
| 720 | 51.3 | 6.5 |
| 721 | 51.3 | 6.5 |
| 722 | 51.3 | 6.5 |
| 723 | 51.3 | 6.5 |
| 724 | 51.3 | 6.5 |
| 725 | 51.3 | 6.5 |
| 726 | 51.3 | 6.5 |
| $\underline{727}$ | 51.3 | 6.5 |
| 728 | 51.3 | 6.5 |
| 729 | 51.3 | 6.5 |
| 730 | 51.3 | 6.5 |
| 731 | 51.3 | 6.5 |
| 732 | 51.3 | 6.5 |
| 733 | 51.3 | 6.5 |
| 734 | 51.4 | 10.5 |
| 735 | 53.1 | 11.2 |
| 736 | 52.9 | 5.3 |
| 737 | 53.8 | 2.9 |
| 738 | 55.5 | (a) |
| 739 | 55.1 | $\underline{2}$ |
| 740 | 55.7 | 6.8 |
| 741 | 55.9 | 5.3 |
| 742 | 54.1 | 18 |
| 743 | 53.9 | 14.8 |
| 744 | 55 | 9.5 |
| 745 | 55.4 | 1.9 |
| 746 | 55.7 | 8.4 |
| 747 | 57.4 | (a) |
| 748 | 56.7 | (a) |
| 749 | 32.2 | (a) |
| 750 | 30.2 | 25.4 |
| 751 | 28.9 | 43.8 |
| 752 | $\underline{29.6}$ | 37.9 |
| 753 | 30.5 | 13.4 |
| 754 | 30.6 | (a) |
| 755 | 29.2 | (a) |


| 756 | $\underline{28.7}$ | (a) |
| :---: | :---: | :---: |
| $\underline{757}$ | $\underline{28.2}$ | (a) |
| 758 | $\underline{27.7}$ | 8.5 |
| 759 | $\underline{27.5}$ | (a) |
| 760 | $\underline{24.9}$ | (a) |
| 761 | 23.1 | (a) |
| 762 | $\underline{21}$ | 8.9 |
| 763 | 34.4 | (a) |
| $\underline{764}$ | 30.1 | (a) |
| 765 | $\underline{22.8}$ | (a) |
| 766 | 13.2 | (a) |
| 767 | $\underline{17.9}$ | 7.1 |
| 768 | 21.7 | 10.3 |
| 769 | 15.3 | (a) |
| 770 | $\underline{0.9}$ | (a) |
| 771 | 0.1 | 5.6 |
| $\underline{772}$ | $\underline{0}$ | $\underline{0}$ |
| 773 | $\underline{0}$ | $\underline{0}$ |
| 774 | $\underline{0}$ | $\underline{0}$ |
| $\underline{775}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{776}$ | $\underline{0}$ | $\underline{0}$ |
| 777 | $\underline{0}$ | $\underline{0}$ |
| 778 | $\underline{0}$ | $\underline{0}$ |
| $\underline{779}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{780}$ | $\underline{0}$ | $\underline{0}$ |
| 781 | $\underline{0}$ | $\underline{0}$ |
| $\underline{782}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{783}$ | $\underline{0}$ | $\underline{0}$ |
| 784 | $\underline{0}$ | $\underline{0}$ |
| 785 | $\underline{0}$ | $\underline{0}$ |
| $\underline{786}$ | $\underline{0}$ | $\underline{0}$ |
| 787 | $\underline{0}$ | $\underline{0}$ |
| 788 | $\underline{0}$ | $\underline{0}$ |
| $\underline{789}$ | $\underline{0}$ | $\underline{0}$ |
| 790 | $\underline{0}$ | $\underline{0}$ |
| 791 | $\underline{0}$ | $\underline{0}$ |
| $\underline{792}$ | $\underline{0}$ | $\underline{0}$ |
| 793 | $\underline{0}$ | $\underline{0}$ |
| 794 | $\underline{0}$ | $\underline{0}$ |
| $\underline{795}$ | $\underline{0}$ | $\underline{0}$ |


| $\underline{796}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{797}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{798}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{799}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{800}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{801}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{802}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{803}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{804}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{805}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{806}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{807}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{808}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{809}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{810}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{811}$ | $\underline{7.7}$ | $\underline{34.4}$ |
| $\underline{812}$ | $\underline{16.2}$ | $\underline{15.7}$ |
| $\underline{813}$ | $\underline{37.9}$ | $\underline{5.1}$ |
| $\underline{814}$ | $\underline{51.4}$ | $\underline{10.8}$ |
| $\underline{815}$ | $\underline{71.1}$ | $\underline{18.9}$ |
| $\underline{816}$ | $\underline{49.8}$ | $\underline{\underline{a}}$ |
| $\underline{817}$ | $\underline{65.6}$ | $\underline{18.1}$ |
| $\underline{818}$ | $\underline{43.5}$ | $\underline{4.8}$ |
| $\underline{819}$ | $\underline{47.4}$ | $\underline{35.6}$ |
| $\underline{820}$ | $\underline{73}$ | $\underline{32.8}$ |
| $\underline{821}$ | $\underline{76.2}$ | $\underline{29}$ |
| $\underline{822}$ | $\underline{33.1}$ | $\underline{6.8}$ |
| $\underline{823}$ | $\underline{44.9}$ | $\underline{51}$ |
| $\underline{824}$ | $\underline{60.1}$ | $\underline{44.1}$ |
| $\underline{825}$ | $\underline{67}$ | $\underline{22.5}$ |
| $\underline{826}$ | $\underline{72.5}$ | $\underline{28.6}$ |
| $\underline{827}$ | $\underline{46}$ | $\underline{2.8}$ |
| $\underline{828}$ | $\underline{51}$ | $\underline{60.5}$ |
| $\underline{829}$ | $\underline{63}$ | $\underline{33.5}$ |
| $\underline{830}$ | $\underline{65.5}$ | $\underline{25.2}$ |
| $\underline{831}$ | $\underline{57.8}$ | $\underline{12.7}$ |
| $\underline{832}$ | $\underline{40.4}$ | $\underline{36}$ |
| $\underline{833}$ | $\underline{43.6}$ | $\underline{24.7}$ |
| $\underline{834}$ | $\underline{44.1}$ | $\underline{21.8}$ |
| $\underline{10.9}$ |  |  |


| $\underline{836}$ | $\underline{44.3}$ | $(\underline{a})$ |
| :---: | :---: | :---: |
| $\underline{837}$ | $\underline{42}$ | $(\underline{a})$ |
| $\underline{838}$ | $\underline{38.5}$ | $\underline{(\mathrm{a})}$ |
| $\underline{839}$ | $\underline{35.3}$ | $\underline{(a)}$ |
| $\underline{840}$ | $\underline{31.3}$ | $\underline{(\mathrm{a})}$ |
| $\underline{841}$ | $\underline{24.9}$ | $\underline{(a)}$ |
| $\underline{842}$ | $\underline{29.1}$ | $\underline{12.7}$ |
| $\underline{843}$ | $\underline{20.4}$ | $\underline{(a)}$ |
| $\underline{844}$ | $\underline{14.7}$ | $\underline{12.9}$ |
| $\underline{845}$ | $\underline{14.7}$ | $\underline{(a)}$ |
| $\underline{846}$ | $\underline{17.2}$ | $\underline{6.5}$ |
| $\underline{847}$ | $\underline{16.7}$ | $\underline{12.3}$ |
| $\underline{848}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{849}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{850}$ | $\underline{12.9}$ | $\underline{(a)}$ |
| $\underline{851}$ | $\underline{13.4}$ | $\underline{3}$ |
| $\underline{852}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{853}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{854}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{855}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{856}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{857}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{858}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{859}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{860}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{861}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{862}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{863}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{864}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{865}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{866}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{867}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{868}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{869}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{870}$ | $\underline{3}$ | $\underline{5}$ |
| $\underline{871}$ | $\underline{7}$ | $\underline{10}$ |
| $\underline{872}$ | $\underline{58.6}$ | $\underline{22.6}$ |
| $\underline{873}$ | $\underline{84.8}$ | $\underline{19.9}$ |
| $\underline{36.7}$ | $\underline{3.3}$ |  |
| $\underline{51.2}$ | $\underline{10.4}$ |  |


| $\underline{876}$ | $\underline{56.5}$ | $\underline{10.6}$ |
| :---: | :---: | :---: |
| $\underline{877}$ | $\underline{70.3}$ | $\underline{14.4}$ |
| $\underline{878}$ | $\underline{53.2}$ | $\underline{10.4}$ |
| $\underline{879}$ | $\underline{50.4}$ | $\underline{34.3}$ |
| $\underline{880}$ | $\underline{81.5}$ | $\underline{54.8}$ |
| $\underline{881}$ | $\underline{91.3}$ | $\underline{5.4}$ |
| $\underline{882}$ | $\underline{63.6}$ | $\underline{10.3}$ |
| $\underline{883}$ | $\underline{57.9}$ | $\underline{37.8}$ |
| $\underline{884}$ | $\underline{80.1}$ | $\underline{61.2}$ |
| $\underline{885}$ | $\underline{89.5}$ | $\underline{24}$ |
| $\underline{886}$ | $\underline{60.8}$ | $\underline{7.4}$ |
| $\underline{887}$ | $\underline{57.2}$ | $\underline{41.9}$ |
| $\underline{888}$ | $\underline{65.4}$ | $\underline{8.4}$ |
| $\underline{889}$ | $\underline{65.6}$ | $\underline{5.5}$ |
| $\underline{890}$ | $\underline{35.9}$ | $\underline{0.3}$ |
| $\underline{891}$ | $\underline{35.4}$ | $\underline{31.2}$ |
| $\underline{892}$ | $\underline{37.3}$ | $\underline{19}$ |
| $\underline{893}$ | $\underline{40.5}$ | $\underline{38}$ |
| $\underline{894}$ | $\underline{46.4}$ | $\underline{56.4}$ |
| $\underline{895}$ | $\underline{52.5}$ | $\underline{39.6}$ |
| $\underline{896}$ | $\underline{54.6}$ | $\underline{7.8}$ |
| $\underline{897}$ | $\underline{53.3}$ | $\underline{(a)}$ |
| $\underline{898}$ | $\underline{51.2}$ | $\underline{(a)}$ |
| $\underline{899}$ | $\underline{49.3}$ | $\underline{(a)}$ |
| $\underline{970}$ | $\underline{47.4}$ | $\underline{(a)}$ |
| $\underline{901}$ | $\underline{46}$ | $\underline{6.4}$ |
| $\underline{902}$ | $\underline{45.9}$ | $\underline{7.6}$ |
| $\underline{903}$ | $\underline{46.4}$ | $\underline{18.3}$ |
| $\underline{904}$ | $\underline{48.1}$ | $\underline{23.5}$ |
| $\underline{905}$ | $\underline{50}$ | $\underline{22.5}$ |
| $\underline{906}$ | $\underline{50.5}$ | $\underline{8.6}$ |
| $\underline{907}$ | $\underline{48.9}$ | $\underline{(a)}$ |
| $\underline{908}$ | $\underline{48.2}$ | $\underline{11}$ |
| $\underline{909}$ | $\underline{47.5}$ | $\underline{3.6}$ |
| $\underline{910}$ | $\underline{48.3}$ | $\underline{14.9}$ |
| $\underline{911}$ | $\underline{48.7}$ | $\underline{13}$ |
| $\underline{912}$ | $\underline{47.8}$ | $\underline{(a)}$ |
| $\underline{913}$ | $\underline{47.8}$ | $\underline{14.5}$ |
| $\underline{914}$ | $\underline{48.3}$ | $\underline{10.1}$ |
| $\underline{615}$ |  |  |


| 916 | 48.2 | 7 |
| :---: | :---: | :---: |
| 917 | 48.3 | 12.5 |
| 918 | 48.1 | 6.6 |
| 919 | 48.2 | 12.1 |
| 920 | 49.2 | 17.9 |
| 921 | 50.7 | 11.7 |
| $\underline{922}$ | 49.4 | (a) |
| $\underline{923}$ | $\underline{47.2}$ | (a) |
| 924 | 44.8 | (a) |
| $\underline{925}$ | 42.1 | (a) |
| 926 | 39.1 | (a) |
| 927 | 36.2 | (a) |
| $\underline{928}$ | 33.5 | (a) |
| $\underline{929}$ | $\underline{29.8}$ | (a) |
| $\underline{930}$ | $\underline{25.1}$ | (a) |
| 931 | $\underline{20.4}$ | (a) |
| 932 | $\underline{23.8}$ | 13.5 |
| $\underline{933}$ | $\underline{\underline{29.8}}$ | 1.8 |
| $\underline{934}$ | 15.6 | (a) |
| $\underline{935}$ | 19.4 | 14.3 |
| $\underline{936}$ | 16.1 | (a) |
| $\underline{937}$ | $\underline{16.3}$ | 13.1 |
| $\underline{938}$ | 17.8 | 11.5 |
| $\underline{939}$ | 8.6 | 1.8 |
| $\underline{940}$ | $\underline{0}$ | $\underline{0}$ |
| 941 | $\underline{0}$ | $\underline{0}$ |
| $\underline{942}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{943}$ | 1 | $\underline{5}$ |
| 944 | $\underline{5}$ | 8.7 |
| $\underline{945}$ | 5.4 | 7.6 |
| $\underline{946}$ | $\underline{0}$ | $\underline{0}$ |
| 947 | $\underline{0}$ | $\underline{0}$ |
| 948 | $\underline{0}$ | $\underline{0}$ |
| $\underline{949}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{950}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{951}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{952}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{953}$ | 5.4 | 16.3 |
| 954 | 7.2 | $\underline{26}$ |
| 955 | $\underline{27.1}$ | $\underline{23}$ |


| 956 | 64.4 | 18 |
| :---: | :---: | :---: |
| 957 | 44.8 | 3.7 |
| 958 | 60.6 | 28.7 |
| 959 | 92.5 | $\underline{23.9}$ |
| 960 | 53 | 1.3 |
| 961 | 85.2 | 41.6 |
| $\underline{962}$ | 56.3 | 0.4 |
| 963 | 67.8 | 48.8 |
| 964 | 101.7 | 55.3 |
| $\underline{965}$ | 31.9 | 2.4 |
| 966 | 37.3 | 57.2 |
| $\underline{967}$ | 54.7 | 82.5 |
| 968 | 64.3 | 12.2 |
| 969 | 65.1 | 8.7 |
| 970 | 36.8 | 1 |
| 971 | 35.5 | 20.2 |
| 972 | 36.9 | 14.6 |
| $\underline{973}$ | 38.2 | 14.8 |
| 974 | 38.9 | 8 |
| 975 | 39 | 7.7 |
| 976 | 37.5 | (a) |
| 977 | 35.6 | (a) |
| 978 | 33.1 | (a) |
| 979 | 30 | (a) |
| $\underline{980}$ | $\underline{26.2}$ | (a) |
| 981 | $\underline{21.9}$ | (a) |
| 982 | 18.1 | (a) |
| 983 | 40.7 | 16.1 |
| 984 | $\underline{36}$ | (a) |
| $\underline{985}$ | 33.7 | (a) |
| 986 | $\underline{32}$ | (a) |
| 987 | $\underline{29.3}$ | (a) |
| $\underline{988}$ | $\underline{27}$ | (a) |
| 989 | 24.6 | (a) |
| $\underline{990}$ | $\underline{21.8}$ | (a) |
| 991 | 18.2 | (a) |
| 992 | 9.9 | 6.7 |
| 993 | 16 | 2.1 |
| $\underline{994}$ | 13.4 | 4 |
| $\underline{995}$ | 11.3 | 5.7 |


| $\underline{996}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{997}$ | $\underline{0.3}$ | $\underline{3.9}$ |
| $\underline{998}$ | $\underline{0.2}$ | $\underline{3.5}$ |
| $\underline{\underline{999}}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1000}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1001}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1002}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1003}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1004}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1005}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1006}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1007}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1008}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1009}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1010}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1011}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1012}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1013}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1014}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1015}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1016}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1017}$ | $\underline{1}$ | $\underline{7.6}$ |
| $\underline{1018}$ | $\underline{7.8}$ | $\underline{34.2}$ |
| $\underline{1019}$ | $\underline{27.5}$ | $\underline{19.7}$ |
| $\underline{1020}$ | $\underline{67.8}$ | $\underline{18.4}$ |
| $\underline{1021}$ | $\underline{39.9}$ | $\underline{5.8}$ |
| $\underline{1022}$ | $\underline{39.1}$ | $\underline{27.8}$ |
| $\underline{1023}$ | $\underline{90.5}$ | $\underline{36.7}$ |
| $\underline{1024}$ | $\underline{55.7}$ | $\underline{1.3}$ |
| $\underline{1025}$ | $\underline{81.4}$ | $\underline{46.8}$ |
| $\underline{1026}$ | $\underline{56.6}$ | $\underline{2.7}$ |
| $\underline{1027}$ | $\underline{62.2}$ | $\underline{36.5}$ |
| $\underline{1028}$ | $\underline{81}$ | $\underline{44.1}$ |
| $\underline{1029}$ | $\underline{64.2}$ | $\underline{11}$ |
| $\underline{1030}$ | $\underline{56.2}$ | $\underline{37.2}$ |
| $\underline{1031}$ | $\underline{77.1}$ | $\underline{77.9}$ |
| $\underline{1032}$ | $\underline{103.6}$ | $\underline{47.7}$ |
| $\underline{1033}$ | $\underline{56.1}$ | $\underline{2.9}$ |
| $\underline{1034}$ | $\underline{62.1}$ |  |
| $\underline{1035}$ | $\underline{72.1}$ |  |
|  | $\underline{27.2}$ |  |


| $\underline{1036}$ | $\underline{75}$ | $\underline{19.5}$ |
| :---: | :---: | :---: |
| $\underline{1037}$ | $\underline{42.6}$ | $\underline{1.6}$ |
| $\underline{1038}$ | $\underline{43.4}$ | $\underline{47.9}$ |
| $\underline{1039}$ | $\underline{47.3}$ | $\underline{26.8}$ |
| $\underline{1040}$ | $\underline{49}$ | $\underline{21.4}$ |
| $\underline{1041}$ | $\underline{50.5}$ | $\underline{23.2}$ |
| $\underline{1042}$ | $\underline{51.9}$ | $\underline{\underline{0.3}}$ |
| $\underline{1043}$ | $\underline{53.2}$ | $\underline{19.4}$ |
| $\underline{1044}$ | $\underline{54.1}$ | $\underline{14.5}$ |
| $\underline{1045}$ | $\underline{54}$ | $\underline{6.5}$ |
| $\underline{1046}$ | $\underline{\underline{54.9}}$ | $\underline{\underline{66.4}}$ |
| $\underline{1047}$ | $\underline{58}$ | $\underline{38}$ |
| $\underline{1048}$ | $\underline{60.7}$ | $\underline{25.2}$ |
| $\underline{1049}$ | $\underline{32.4}$ | $\underline{(a)}$ |
| $\underline{1050}$ | $\underline{29.8}$ | $\underline{7.6}$ |
| $\underline{1051}$ | $\underline{28.4}$ | $\underline{(a)}$ |
| $\underline{1052}$ | $\underline{26.2}$ | $\underline{(a}$ |
| $\underline{1053}$ | $\underline{25.2}$ | $\underline{14.1}$ |
| $\underline{1054}$ | $\underline{26.9}$ | $\underline{47.6}$ |
| $\underline{1055}$ | $\underline{30.5}$ | $\underline{70.4}$ |
| $\underline{1056}$ | $\underline{32.1}$ | $\underline{12.2}$ |
| $\underline{1057}$ | $\underline{32.6}$ | $\underline{26.7}$ |
| $\underline{1058}$ | $\underline{34.5}$ | $\underline{44}$ |
| $\underline{1059}$ | $\underline{36.5}$ | $\underline{34.5}$ |
| $\underline{1060}$ | $\underline{37.7}$ | $\underline{26.5}$ |
| $\underline{1061}$ | $\underline{38.6}$ | $\underline{23.3}$ |
| $\underline{1062}$ | $\underline{39.3}$ | $\underline{20.6}$ |
| $\underline{1063}$ | $\underline{39.6}$ | $\underline{19.9}$ |
| $\underline{1064}$ | $\underline{40.1}$ | $\underline{23.2}$ |
| $\underline{1065}$ | $\underline{40.7}$ | $\underline{25.2}$ |
| $\underline{1066}$ | $\underline{41.6}$ | $\underline{27.3}$ |
| $\underline{1067}$ | $\underline{42.4}$ | $\underline{23.5}$ |
| $\underline{1068}$ | $\underline{42.9}$ | $\underline{22.5}$ |
| $\underline{1069}$ | $\underline{43.2}$ | $\underline{15.8}$ |
| $\underline{1070}$ | $\underline{43.1}$ | $\underline{15.6}$ |
| $\underline{1071}$ | $\underline{43.2}$ | $\underline{17.1}$ |
| $\underline{1072}$ | $\underline{43.2}$ | $\underline{13.8}$ |
| $\underline{1073}$ | $\underline{43.2}$ | $\underline{14.7}$ |
| $\underline{1074}$ | $\underline{22.7}$ |  |


| $\underline{1076}$ | $\underline{44.2}$ | $\underline{13.7}$ |
| :---: | :---: | :---: |
| $\underline{1077}$ | $\underline{44}$ | $\underline{6.9}$ |
| $\underline{1078}$ | $\underline{42.9}$ | $\underline{(\mathrm{a})}$ |
| $\underline{1079}$ | $\underline{41.4}$ | $\underline{2.9}$ |
| $\underline{1080}$ | $\underline{41}$ | $\underline{14}$ |
| $\underline{1081}$ | $\underline{41.1}$ | $\underline{17.7}$ |
| $\underline{1082}$ | $\underline{41.7}$ | $\underline{15}$ |
| $\underline{1083}$ | $\underline{42.4}$ | $\underline{19.8}$ |
| $\underline{1084}$ | $\underline{43.5}$ | $\underline{17.4}$ |
| $\underline{1085}$ | $\underline{44}$ | $\underline{10.8}$ |
| $\underline{1086}$ | $\underline{44.3}$ | $\underline{10}$ |
| $\underline{1087}$ | $\underline{44.5}$ | $\underline{6.5}$ |
| $\underline{1088}$ | $\underline{44.1}$ | $\underline{0.4}$ |
| $\underline{1089}$ | $\underline{43.4}$ | $\underline{1.2}$ |
| $\underline{1090}$ | $\underline{43.2}$ | $\underline{7.3}$ |
| $\underline{1091}$ | $\underline{43.1}$ | $\underline{4.7}$ |
| $\underline{1092}$ | $\underline{42.8}$ | $\underline{4.7}$ |
| $\underline{1093}$ | $\underline{42.6}$ | $\underline{5.8}$ |
| $\underline{1094}$ | $\underline{42.6}$ | $\underline{9.8}$ |
| $\underline{1095}$ | $\underline{42.9}$ | $\underline{13.4}$ |
| $\underline{1096}$ | $\underline{43.4}$ | $\underline{19}$ |
| $\underline{1097}$ | $\underline{44.2}$ | $\underline{15}$ |
| $\underline{1098}$ | $\underline{44.6}$ | $\underline{11.5}$ |
| $\underline{1099}$ | $\underline{44.8}$ | $\underline{5.5}$ |
| $\underline{1100}$ | $\underline{44.1}$ | $\underline{(a)}$ |
| $\underline{1101}$ | $\underline{43.1}$ | $\underline{(a)}$ |
| $\underline{1102}$ | $\underline{42.8}$ | $\underline{10.3}$ |
| $\underline{1103}$ | $\underline{43}$ | $\underline{0.7}$ |
| $\underline{1104}$ | $\underline{42}$ | $\underline{(a)}$ |
| $\underline{1105}$ | $\underline{41.3}$ | $\underline{(a)}$ |
| $\underline{1106}$ | $\underline{40.7}$ | $\underline{(a)}$ |
| $\underline{1107}$ | $\underline{1.3}$ |  |
| $\underline{1108}$ | $\underline{39.6}$ | $\underline{6.1}$ |
| $\underline{1109}$ | $\underline{39.4}$ | $\underline{2.4}$ |
| $\underline{1110}$ | $\underline{38.8}$ | $\underline{(a)}$ |
| $\underline{1111}$ | $\underline{38.1}$ | $\underline{0.1}$ |
| $\underline{1112}$ | $\underline{37.4}$ | $\underline{(\mathrm{a})}$ |
| $\underline{1113}$ | $\underline{36.1}$ | $\underline{(\mathrm{a})}$ |
| (a) |  |  |


| 1116 | 32.7 | (a) |
| :---: | :---: | :---: |
| 1117 | 31 | (a) |
| 1118 | 29.8 | 0.8 |
| 1119 | 30 | 8.2 |
| 1120 | $\underline{29.8}$ | 1.2 |
| 1121 | 29.1 | (a) |
| 1122 | $\underline{28}$ | (a) |
| 1123 | $\underline{26.8}$ | (a) |
| 1124 | $\underline{25.7}$ | (a) |
| 1125 | $\underline{24}$ | (a) |
| 1126 | $\underline{22.3}$ | (a) |
| 1127 | $\underline{21.1}$ | (a) |
| 1128 | $\underline{21}$ | 21.6 |
| 1129 | $\underline{22.6}$ | 36.9 |
| 1130 | $\underline{24.9}$ | 37.1 |
| 1131 | $\underline{26.9}$ | 30.8 |
| 1132 | $\underline{28.5}$ | $\underline{29.6}$ |
| 1133 | 29.8 | 23.4 |
| 1134 | 30.7 | $\underline{21.9}$ |
| $\underline{1135}$ | $\underline{31.8}$ | $\underline{\underline{0}, 3}$ |
| 1136 | 32.2 | (a) |
| 1137 | 30.6 | (a) |
| 1138 | $\underline{27.7}$ | (a) |
| 1139 | $\underline{24.8}$ | (a) |
| 1140 | $\underline{22.1}$ | (a) |
| 1141 | 20.1 | (a) |
| 1142 | $\underline{18.5}$ | (a) |
| 1143 | $\underline{21.2}$ | 11.1 |
| 1144 | 36.3 | (a) |
| 1145 | 33.4 | (a) |
| 1146 | 30.7 | (a) |
| 1147 | $\underline{27.9}$ | (a) |
| 1148 | $\underline{24.4}$ | (a) |
| 1149 | $\underline{21.2}$ | (a) |
| 1150 | 17.9 | (a) |
| 1151 | 38.8 | 9.1 |
| 1152 | 20.3 | (a) |
| 1153 | 15.9 | 12.7 |
| 1154 | 12.6 | (a) |


| $\underline{1155}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{1156}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1157}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1158}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1159}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1160}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1161}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1162}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1163}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1164}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1165}$ | $\underline{2}$ | $\underline{7.7}$ |
| $\underline{1166}$ | $\underline{8.3}$ | $\underline{40.4}$ |
| $\underline{1167}$ | $\underline{34.3}$ | $\underline{17.6}$ |
| $\underline{1168}$ | $\underline{65.7}$ | $\underline{16.8}$ |
| $\underline{1169}$ | $\underline{35.6}$ | $\underline{5.8}$ |
| $\underline{1170}$ | $\underline{13.2}$ | $\underline{5.7}$ |
| $\underline{1171}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1172}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1173}$ | $\underline{57.3}$ | $\underline{38.8}$ |
| $\underline{1174}$ | $\underline{59.1}$ | $\underline{9.7}$ |
| $\underline{1175}$ | $\underline{63.4}$ | $\underline{29.7}$ |
| $\underline{1176}$ | $\underline{76}$ | $\underline{\underline{9.9}}$ |
| $\underline{1177}$ | $\underline{24}$ | $\underline{4.9}$ |
| $\underline{1178}$ | $\underline{42.7}$ | $\underline{53.3}$ |
| $\underline{1179}$ | $\underline{81.2}$ | $\underline{36.8}$ |
| $\underline{1180}$ | $\underline{85.8}$ | $\underline{(a}$ |
| $\underline{1181}$ | $\underline{50.4}$ | $\underline{(a)}$ |
| $\underline{1182}$ | $\underline{45.6}$ | $\underline{9.1}$ |
| $\underline{1183}$ | $\underline{57.4}$ | $\underline{46.7}$ |
| $\underline{1184}$ | $\underline{77.6}$ | $\underline{53.7}$ |
| $\underline{1185}$ | $\underline{89.2}$ | $\underline{19.2}$ |
| $\underline{1186}$ | $\underline{69.4}$ | $\underline{15.3}$ |
| $\underline{1187}$ | $\underline{56.2}$ | $\underline{36.1}$ |
| $\underline{1188}$ | $\underline{67.1}$ | $\underline{29.4}$ |
| $\underline{1189}$ | $\underline{72.5}$ | $\underline{36.6}$ |
| $\underline{1190}$ | $\underline{45.1}$ | $\underline{5.9}$ |
| $\underline{1191}$ | $\underline{41.1}$ | $\underline{43.2}$ |
| $\underline{1192}$ | $\underline{48.2}$ | $\underline{57.4}$ |
| $\underline{1193}$ | $\underline{53.6}$ | $\underline{36.3}$ |
|  | $\underline{56.9}$ |  |


| 1195 | 58.6 | 15.2 |
| :---: | :---: | :---: |
| 1196 | 34 | 4.8 |
| 1197 | $\underline{28.5}$ | (a) |
| 1198 | $\underline{28.6}$ | 16.6 |
| 1199 | 28.3 | 2.3 |
| 1200 | $\underline{29}$ | 25.8 |
| 1201 | $\underline{29.5}$ | $\underline{20.8}$ |
| 1202 | 30.3 | 31.8 |
| 1203 | 31.7 | 29.4 |
| 1204 | 32.7 | 26.6 |
| 1205 | 33.8 | 20.6 |
| 1206 | 34.1 | 14.2 |
| 1207 | 34.3 | 8.5 |
| 1208 | 34.2 | 7.6 |
| 1209 | 34.2 | 15.7 |
| $\underline{1210}$ | $\underline{34.9}$ | 17 |
| 1211 | 35.2 | 14.2 |
| 1212 | 35.2 | 13.2 |
| 1213 | 35.2 | 7.2 |
| 1214 | 34.9 | (a) |
| 1215 | 33.8 | (a) |
| 1216 | 31.6 | (a) |
| 1217 | $\underline{29.2}$ | (a) |
| 1218 | $\underline{26.7}$ | (a) |
| 1219 | $\underline{24.4}$ | (a) |
| 1220 | $\underline{22.1}$ | (a) |
| 1221 | $\underline{20}$ | (a) |
| 1222 | 17.8 | (a) |
| 1223 | 36.2 | 16.7 |
| 1224 | 36.2 | (a) |
| 1225 | $\underline{32.5}$ | (a) |
| 1226 | 28.3 | (a) |
| 1227 | $\underline{22.2}$ | (a) |
| 1228 | $\underline{25.2}$ | 13.9 |
| 1229 | $\underline{25.8}$ | $\underline{\underline{2}}$ |
| 1230 | 14.1 | (a) |
| 1231 | 10.6 | 7.4 |
| 1232 | $\underline{20.8}$ | 0.2 |
| 1233 | 12.3 | (a) |
| 1234 | 10.5 | 3.1 |


| 1235 | 12.8 | 9.3 |
| :---: | :---: | :---: |
| 1236 | 29.4 | 3.1 |
| 1237 | 37.4 | 23.4 |
| 1238 | 53.5 | 32.7 |
| 1239 | 77.8 | 51.3 |
| 1240 | 80.8 | 31 |
| 1241 | 29.1 | 2.8 |
| 1242 | 38.6 | 63.7 |
| 1243 | 56.9 | 37.5 |
| 1244 | 58.8 | (a) |
| 1245 | 55.1 | (a) |
| 1246 | $\underline{51.3}$ | (a) |
| 1247 | $\underline{47.4}$ | (a) |
| 1248 | 43.4 | (a) |
| 1249 | 38.5 | (a) |
| 1250 | 30.4 | (a) |
| 1251 | 19.7 | (a) |
| 1252 | 11.8 | (a) |
| 1253 | 29.1 | 16.9 |
| 1254 | 29.1 | 4.3 |
| 1255 | 34.4 | $\underline{24.4}$ |
| 1256 | 46.4 | 34.7 |
| 1257 | 61.2 | 45.4 |
| 1258 | 79.1 | 53.2 |
| 1259 | 95.4 | 38.8 |
| 1260 | 54.9 | 2.5 |
| 1261 | 56.1 | 5.8 |
| 1262 | 55.1 | 0.8 |
| 1263 | 53.7 | 0.4 |
| 1264 | 52.2 | 0.1 |
| 1265 | 51.4 | 4.3 |
| 1266 | 48.8 | (a) |
| 1267 | 44.2 | (a) |
| 1268 | 35.3 | (a) |
| 1269 | $\underline{23.4}$ | (a) |
| 1270 | 11.3 | (a) |
| 1271 | 24.3 | 5.9 |
| 1272 | 10.1 | (a) |
| 1273 | $\underline{20}$ | 1.1 |
| 1274 | 17.9 | 11.7 |


| 1275 | 6.3 | 0.7 |
| :---: | :---: | :---: |
| 1276 | 9.6 | $\underline{23.3}$ |
| 1277 | 33.1 | 16.3 |
| 1278 | 58.7 | 18.9 |
| 1279 | 87.6 | $\underline{26.5}$ |
| 1280 | 48.5 | 1.8 |
| 1281 | 74.4 | 41.3 |
| 1282 | 64.1 | 12.5 |
| 1283 | 57.1 | 34.6 |
| 1284 | $\underline{91}$ | 78.4 |
| 1285 | 38.6 | 8.5 |
| 1286 | 32.8 | 40 |
| 1287 | 47 | 74.3 |
| 1288 | 64.2 | $\underline{53.9}$ |
| 1289 | 70.4 | 21.4 |
| 1290 | 71.9 | 7.4 |
| 1291 | 39.8 | 2.4 |
| 1292 | 39.6 | $\underline{32}$ |
| 1293 | 42.7 | $\underline{24}$ |
| 1294 | 44.6 | $\underline{20.6}$ |
| 1295 | 47.3 | 31.6 |
| 1296 | 49.9 | $\underline{22.2}$ |
| 1297 | 50.7 | 9.1 |
| 1298 | 50.1 | 0.8 |
| 1299 | 49.4 | 4.5 |
| 1300 | 48 | (a) |
| 1301 | 46.9 | 1.9 |
| 1302 | 45.9 | $\underline{0}$ |
| 1303 | 44.2 | (a) |
| 1304 | 42.2 | (a) |
| 1305 | 39.1 | (a) |
| 1306 | 33.2 | (a) |
| 1307 | $\underline{25.5}$ | (a) |
| 1308 | 16 | 3.5 |
| 1309 | $\underline{27.1}$ | (a) |
| 1310 | 8.7 | (a) |
| 1311 | 11.4 | 5.9 |
| 1312 | 13.8 | 6.7 |
| 1313 | 14.3 | (a) |
| 1314 | $\underline{30}$ | 14.9 |


| $\underline{1315}$ | $\underline{27.8}$ | 0.3 |
| :---: | :---: | :---: |
| 1316 | 41.8 | 16.8 |
| 1317 | 68.8 | 20.7 |
| 1318 | 65.3 | 16.6 |
| 1319 | 50.9 | 30.1 |
| 1320 | 71.4 | 14.2 |
| 1321 | 65.7 | 16.8 |
| 1322 | 41.5 | 12.7 |
| 1323 | 45.3 | $\underline{9}$ |
| 1324 | 47 | (a) |
| 1325 | 41.1 | (a) |
| 1326 | 34.1 | (a) |
| 1327 | $\underline{23.5}$ | (a) |
| 1328 | 8.1 | 1.2 |
| 1329 | 19.1 | 9.4 |
| 1330 | $\underline{0}$ | $\underline{0}$ |
| 1331 | 0.9 | 7.7 |
| 1332 | 0.7 | 3.4 |
| 1333 | $\underline{0}$ | $\underline{0}$ |
| 1334 | 7.5 | 17.5 |
| 1335 | 22.4 | 12 |
| 1336 | 36 | 10.8 |
| 1337 | 48.2 | 6.5 |
| 1338 | 48 | 0.2 |
| 1339 | 39.2 | (a) |
| 1340 | $\underline{27.4}$ | (a) |
| 1341 | 15.9 | (a) |
| 1342 | $\underline{2}$ | 0.2 |
| 1343 | 0.1 | 3.8 |
| 1344 | $\underline{0}$ | $\underline{0}$ |
| 1345 | $\underline{0}$ | $\underline{0}$ |
| 1346 | $\underline{0}$ | $\underline{0}$ |
| 1347 | $\underline{0}$ | $\underline{0}$ |
| 1348 | $\underline{0}$ | $\underline{0}$ |
| 1349 | $\underline{0}$ | $\underline{0}$ |
| 1350 | $\underline{0}$ | $\underline{0}$ |
| 1351 | $\underline{0}$ | $\underline{0}$ |
| 1352 | 1.1 | 6.8 |
| 1353 | 6.1 | $\underline{21.6}$ |
| 1354 | 6.4 | 18.5 |


| $\underline{1355}$ | 17.4 | 10.1 |
| :---: | :---: | :---: |
| 1356 | 30.9 | 7.8 |
| 1357 | 44.5 | 8.4 |
| 1358 | 61.1 | 10.5 |
| 1359 | 35.1 | 0.4 |
| 1360 | 52.5 | 23.7 |
| 1361 | 83.5 | $\underline{20.9}$ |
| 1362 | 50.3 | 0.8 |
| 1363 | 68 | 37.5 |
| 1364 | 85.5 | $\underline{25.2}$ |
| 1365 | 52.7 | 8.2 |
| 1366 | 73.4 | 39.6 |
| 1367 | 89.5 | $\underline{27.4}$ |
| 1368 | $\underline{53}$ | $\underline{6}$ |
| 1369 | 63.6 | 11.9 |
| 1370 | 65.6 | 12.2 |
| 1371 | 37.4 | 1 |
| 1372 | 38.7 | 40 |
| 1373 | 45.5 | 24.5 |
| 1374 | 49 | 17.2 |
| 1375 | 51.4 | 13.6 |
| 1376 | 52.5 | 7.2 |
| 1377 | 51.4 | (a) |
| 1378 | 48.9 | (a) |
| $\underline{1379}$ | $\underline{45.8}$ | (a) |
| 1380 | 42.4 | (a) |
| $\underline{1381}$ | $\underline{38.5}$ | (a) |
| 1382 | 38.6 | 11.6 |
| 1383 | 39.9 | 6.5 |
| 1384 | 39.3 | $\underline{2}$ |
| 1385 | 37.9 | (a) |
| 1386 | 35.1 | (a) |
| 1387 | 32.2 | (a) |
| 1388 | $\underline{27.3}$ | (a) |
| 1389 | 18.7 | (a) |
| 1390 | 10.4 | 8.1 |
| 1391 | 14.8 | 4.6 |
| 1392 | 13.2 | 3.6 |
| 1393 | 13.6 | 8.9 |
| 1394 | $\underline{0}$ | $\underline{0}$ |


| $\underline{1395}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{1396}$ | $\underline{0.5}$ | $\underline{9.5}$ |
| $\underline{1397}$ | $\underline{5.4}$ | $\underline{7.1}$ |
| $\underline{1398}$ | $\underline{8.2}$ | $\underline{9}$ |
| $\underline{1399}$ | $\underline{21.2}$ | $\underline{10.3}$ |
| $\underline{1400}$ | $\underline{43.7}$ | $\underline{13.1}$ |
| $\underline{1401}$ | $\underline{68.2}$ | $\underline{16.2}$ |
| $\underline{1402}$ | $\underline{35.2}$ | $\underline{2}$ |
| $\underline{1403}$ | $\underline{67.5}$ | $\underline{31.5}$ |
| $\underline{1404}$ | $\underline{78.2}$ | $\underline{22.2}$ |
| $\underline{1405}$ | $\underline{54}$ | $\underline{18.5}$ |
| $\underline{1406}$ | $\underline{89.3}$ | $\underline{35.3}$ |
| $\underline{1407}$ | $\underline{54.6}$ | $\underline{0.9}$ |
| $\underline{1408}$ | $\underline{64.4}$ | $\underline{29.5}$ |
| $\underline{1409}$ | $\underline{77.2}$ | $\underline{23.7}$ |
| $\underline{1410}$ | $\underline{49}$ | $\underline{2.1}$ |
| $\underline{1411}$ | $\underline{52.1}$ | $\underline{40.4}$ |
| $\underline{1412}$ | $\underline{63.3}$ | $\underline{18.4}$ |
| $\underline{1413}$ | $\underline{62.3}$ | $\underline{(\mathrm{a})}$ |
| $\underline{1414}$ | $\underline{29.7}$ | $\underline{(a)}$ |
| $\underline{1415}$ | $\underline{24.2}$ | $\underline{(a)}$ |
| $\underline{1416}$ | $\underline{18.8}$ | $\underline{(a)}$ |
| $\underline{1417}$ | $\underline{14.1}$ | $\underline{(a)}$ |
| $\underline{1418}$ | $\underline{10.5}$ | $\underline{(a)}$ |
| $\underline{1419}$ | $\underline{11.3}$ | $\underline{25.6}$ |
| $\underline{1420}$ | $\underline{14.9}$ | $\underline{15.2}$ |
| $\underline{1421}$ | $\underline{12.8}$ | $\underline{(a)}$ |
| $\underline{1422}$ | $\underline{25}$ | $\underline{9.3}$ |
| $\underline{1423}$ | $\underline{18.6}$ | $\underline{9.1}$ |
| $\underline{1424}$ | $\underline{24.5}$ | $\underline{24.4}$ |
| $\underline{1425}$ | $\underline{32.7}$ | $\underline{24.2}$ |
| $\underline{1426}$ | $\underline{41.1}$ | $\underline{24.4}$ |
| $\underline{1427}$ | $\underline{50}$ | $\underline{\underline{26}}$ |
| $\underline{1428}$ | $\underline{58.6}$ | $\underline{18.7}$ |
| $\underline{1429}$ | $\underline{64}$ | $\underline{25.5}$ |
| $\underline{1430}$ | $\underline{37.7}$ | $\underline{1.4}$ |
| $\underline{1431}$ | $\underline{38.4}$ | $\underline{30.5}$ |
| $\underline{1432}$ | $\underline{39.3}$ | $\underline{(a)}$ |
| $\underline{1433}$ | $\underline{36.4}$ | $\underline{(a)}$ |
| $\underline{\text { (a) }}$ |  |  |


| $\underline{1435}$ | $\underline{29.7}$ | $\underline{(a)}$ |
| :---: | :---: | :---: |
| $\underline{1436}$ | $\underline{25.8}$ | $\underline{(a)}$ |
| $\underline{1437}$ | $\underline{21.3}$ | $\underline{(a)}$ |
| $\underline{1438}$ | $\underline{17.5}$ | $\underline{(a)}$ |
| $\underline{1439}$ | $\underline{15.1}$ | $\underline{1.2}$ |
| $\underline{1440}$ | $\underline{14.3}$ | $\underline{2.3}$ |
| $\underline{1441}$ | $\underline{12.6}$ | $\underline{(a)}$ |
| $\underline{1442}$ | $\underline{9.9}$ | $\underline{(a)}$ |
| $\underline{1443}$ | $\underline{27.4}$ | $\underline{13.6}$ |
| $\underline{1444}$ | $\underline{23}$ | $\underline{(a)}$ |
| $\underline{1445}$ | $\underline{20.8}$ | $\underline{3.5}$ |
| $\underline{1446}$ | $\underline{20.5}$ | $\underline{5.3}$ |
| $\underline{1447}$ | $\underline{18.5}$ | $\underline{(a)}$ |
| $\underline{1448}$ | $\underline{11.9}$ | $\underline{a})$ |
| $\underline{1449}$ | $\underline{22.4}$ | $\underline{6.1}$ |
| $\underline{1450}$ | $\underline{10}$ | $\underline{8.7}$ |
| $\underline{1451}$ | $\underline{6.7}$ | $\underline{0.6}$ |
| $\underline{1452}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1453}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1454}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1455}$ | $\underline{0}$ | $\underline{0}$ |
| 1456 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1457}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1458}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1459}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1460}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1461}$ | $\underline{0}$ | $\underline{0}$ |
| 1462 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1463}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1464}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1465}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1466}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1467}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1468}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1469}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1470}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1471}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1472}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1473}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ | $\underline{0}$ |


| 1475 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 1476 | $\underline{0}$ | $\underline{0}$ |
| 1477 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1478}$ | $\underline{0}$ | $\underline{0}$ |
| 1479 | $\underline{0}$ | $\underline{0}$ |
| 1480 | 0 | 0 |
| $\underline{1481}$ | $\underline{0}$ | $\underline{0}$ |
| 1482 | $\underline{0}$ | $\underline{0}$ |
| 1483 | $\underline{0}$ | $\underline{0}$ |
| 1484 | $\underline{0}$ | $\underline{0}$ |
| 1485 | $\underline{0}$ | $\underline{0}$ |
| 1486 | $\underline{0}$ | $\underline{0}$ |
| 1487 | 0 | 0 |
| 1488 | $\underline{0}$ | $\underline{0}$ |
| 1489 | $\underline{0}$ | $\underline{0}$ |
| 1490 | $\underline{0}$ | $\underline{0}$ |
| 1491 | $\underline{0}$ | $\underline{0}$ |
| 1492 | $\underline{0}$ | $\underline{0}$ |
| 1493 | 0 | 0 |
| 1494 | 0 | 0 |
| 1495 | $\underline{0}$ | $\underline{0}$ |
| 1496 | $\underline{0}$ | $\underline{0}$ |
| 1497 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1498}$ | $\underline{0}$ | $\underline{0}$ |
| 1499 | $\underline{0}$ | 0 |
| 1500 | 0 | 0 |
| $\underline{1501}$ | $\underline{0}$ | $\underline{0}$ |
| 1502 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1503}$ | $\underline{0}$ | $\underline{0}$ |
| 1504 | $\underline{0}$ | $\underline{0}$ |
| 1505 | $\underline{0}$ | $\underline{0}$ |
| 1506 | $\underline{0}$ | $\underline{0}$ |
| 1507 | $\underline{0}$ | $\underline{0}$ |
| 1508 | $\underline{0}$ | $\underline{0}$ |
| 1509 | $\underline{0}$ | $\underline{0}$ |
| 1510 | $\underline{0}$ | $\underline{0}$ |
| 1511 | $\underline{0}$ | $\underline{0}$ |
| 1512 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1513}$ | $\underline{0}$ | $\underline{0}$ |
| 1514 | $\underline{0}$ | $\underline{0}$ |


| 1515 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 1516 | $\underline{0}$ | $\underline{0}$ |
| 1517 | $\underline{0}$ | $\underline{0}$ |
| 1518 | $\underline{0}$ | $\underline{0}$ |
| 1519 | 5.1 | 15 |
| 1520 | 7 | 25.8 |
| 1521 | 18.1 | 9.5 |
| 1522 | $\underline{28.4}$ | 7.1 |
| 1523 | 44.9 | 9.8 |
| 1524 | 57.8 | 6.7 |
| 1525 | 33.6 | 4.5 |
| 1526 | 37.9 | 12.1 |
| 1527 | 48.5 | 6.2 |
| 1528 | 49.9 | 1.3 |
| 1529 | 42.5 | (a) |
| 1530 | 30.4 | (a) |
| 1531 | 18.7 | (a) |
| 1532 | 4 | 0.9 |
| 1533 | 0.1 | 3.9 |
| 1534 | $\underline{0}$ | $\underline{0}$ |
| 1535 | $\underline{0}$ | $\underline{0}$ |
| 1536 | $\underline{0}$ | $\underline{0}$ |
| 1537 | $\underline{0}$ | $\underline{0}$ |
| 1538 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1539}$ | $\underline{0}$ | $\underline{0}$ |
| 1540 | $\underline{0}$ | $\underline{0}$ |
| 1541 | $\underline{0}$ | $\underline{0}$ |
| 1542 | $\underline{0}$ | $\underline{0}$ |
| 1543 | $\underline{0}$ | $\underline{0}$ |
| 1544 | $\underline{0}$ | $\underline{0}$ |
| 1545 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1546}$ | $\underline{0}$ | $\underline{0}$ |
| 1547 | $\underline{0}$ | $\underline{0}$ |
| 1548 | $\underline{0}$ | $\underline{0}$ |
| 1549 | 0 | $\underline{0}$ |
| 1550 | $\underline{0}$ | $\underline{0}$ |
| 1551 | 0 | $\underline{0}$ |
| 1552 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1553}$ | $\underline{0}$ | $\underline{0}$ |
| 1554 | $\underline{0}$ | $\underline{0}$ |


| $\underline{1555}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{1556}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1557}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1558}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1559}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1560}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1561}$ | $\underline{3}$ | $\underline{5}$ |
| $\underline{1562}$ | $\underline{7}$ | $\underline{10}$ |
| $\underline{1563}$ | $\underline{4.7}$ | $\underline{8.1}$ |
| $\underline{1564}$ | $\underline{2}$ | $\underline{6.4}$ |
| $\underline{1565}$ | $\underline{6.2}$ | $\underline{11.6}$ |
| $\underline{1566}$ | $\underline{8.6}$ | $\underline{8.9}$ |
| $\underline{1567}$ | $\underline{20.7}$ | $\underline{5.2}$ |
| $\underline{1568}$ | $\underline{28}$ | $\underline{1.9}$ |
| $\underline{1569}$ | $\underline{25.6}$ | $\underline{(a)}$ |
| $\underline{1570}$ | $\underline{14.9}$ | $\underline{(a)}$ |
| $\underline{1571}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1572}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1573}$ | $\underline{1.2}$ | $\underline{6.5}$ |
| $\underline{1574}$ | $\underline{6.8}$ | $\underline{23.2}$ |
| $\underline{1575}$ | $\underline{16.6}$ | $\underline{14.1}$ |
| $\underline{1576}$ | $\underline{52.5}$ | $\underline{14.5}$ |
| $\underline{1577}$ | $\underline{76.9}$ | $\underline{22.6}$ |
| $\underline{1578}$ | $\underline{52.1}$ | $\underline{12.3}$ |
| $\underline{1579}$ | $\underline{94.5}$ | $\underline{27.6}$ |
| $\underline{1580}$ | $\underline{56.4}$ | $\underline{1}$ |
| $\underline{1581}$ | $\underline{66}$ | $\underline{5.3}$ |
| $\underline{1582}$ | $\underline{49.2}$ | $\underline{6.7}$ |
| $\underline{1583}$ | $\underline{31.3}$ | $\underline{(a)}$ |
| $\underline{1584}$ | $\underline{22.1}$ | $\underline{(a)}$ |
| $\underline{1585}$ | $\underline{12.1}$ | $\underline{(a)}$ |
| $\underline{1586}$ | $\underline{27.3}$ | $\underline{8.2}$ |
| $\underline{1587}$ | $\underline{16}$ | $\underline{(a)}$ |
| $\underline{1588}$ | $\underline{17.4}$ | $\underline{10.5}$ |
| $\underline{1589}$ | $\underline{33.7}$ | $\underline{15.4}$ |
| $\underline{1590}$ | $\underline{43.6}$ | $\underline{(a)}$ |
| $\underline{1591}$ | $\underline{37.7}$ | $\underline{(a)}$ |
| $\underline{1592}$ | $\underline{34.8}$ | $\underline{6.5}$ |
| 1593 | $\underline{60.7}$ | $\underline{30.4}$ |
| $\underline{1594}$ | $\underline{90.6}$ | $\underline{21.4}$ |
|  |  |  |


| 1595 | 54.9 | (a) |
| :---: | :---: | :---: |
| $\underline{1596}$ | 48.4 | (a) |
| 1597 | 56.5 | 19.6 |
| 1598 | 72 | $\underline{21.8}$ |
| 1599 | 85.8 | $\underline{26.9}$ |
| 1600 | 32.2 | 2.2 |
| 1601 | 42.2 | 31.8 |
| 1602 | 46.5 | 1.9 |
| 1603 | 57.8 | $\underline{21.7}$ |
| 1604 | 37.1 | 4.8 |
| 1605 | 36.7 | (a) |
| 1606 | 32.8 | (a) |
| 1607 | $\underline{27.8}$ | (a) |
| 1608 | $\underline{22.8}$ | (a) |
| 1609 | 16.5 | (a) |
| 1610 | 10.3 | 7.6 |
| 1611 | 12.8 | 6.4 |
| 1612 | 30.4 | 11.4 |
| 1613 | 12.4 | (a) |
| 1614 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1615}$ | 1.1 | 1.4 |
| 1616 | 43.1 | 4.2 |
| 1617 | 54.9 | 6.5 |
| 1618 | 74.6 | 17.4 |
| 1619 | $\underline{52.3}$ | 1.4 |
| 1620 | 67.1 | $\underline{23.5}$ |
| 1621 | 79.1 | 1.9 |
| 1622 | 46.4 | (a) |
| 1623 | $\underline{39}$ | (a) |
| 1624 | 28.8 | (a) |
| 1625 | 16.6 | (a) |
| 1626 | 20.1 | 14.2 |
| 1627 | 15.4 | (a) |
| 1628 | 17.1 | 10.6 |
| 1629 | 40.8 | $\underline{26.5}$ |
| 1630 | $\underline{69.8}$ | $\underline{18.3}$ |
| 1631 | 85.7 | 13.1 |
| 1632 | 51.9 | 1.7 |
| $\underline{1633}$ | 72.1 | 42.7 |
| 1634 | 84.4 | $\underline{29.2}$ |


| $\underline{1635}$ | $\underline{35.6}$ | $\underline{(a)}$ |
| :---: | :---: | :---: |
| $\underline{1636}$ | $\underline{40.5}$ | $\underline{30.3}$ |
| $\underline{1637}$ | $\underline{52.7}$ | $\underline{44.5}$ |
| $\underline{1638}$ | $\underline{65.4}$ | $\underline{19.1}$ |
| $\underline{1639}$ | $\underline{67.1}$ | $\underline{(a)}$ |
| $\underline{1640}$ | $\underline{34}$ | $\underline{(a)}$ |
| $\underline{1641}$ | $\underline{31.3}$ | $\underline{(a)}$ |
| $\underline{1642}$ | $\underline{29.3}$ | $\underline{(a)}$ |
| $\underline{1643}$ | $\underline{25.4}$ | $\underline{(a)}$ |
| $\underline{1644}$ | $\underline{19.9}$ | $\underline{(a)}$ |
| $\underline{1645}$ | $\underline{23}$ | $\underline{5.7}$ |
| $\underline{1646}$ | $\underline{8.9}$ | $\underline{5.7}$ |
| $\underline{1647}$ | $\underline{12.4}$ | $\underline{7.5}$ |
| $\underline{1648}$ | $\underline{16.5}$ | $\underline{2.7}$ |
| $\underline{1649}$ | $\underline{25}$ | $\underline{10.8}$ |
| $\underline{1650}$ | $\underline{16.3}$ | $\underline{4.1}$ |
| $\underline{1651}$ | $\underline{41.5}$ | $\underline{28.9}$ |
| $\underline{1652}$ | $\underline{82.3}$ | $\underline{43.6}$ |
| $\underline{1653}$ | $\underline{56.9}$ | $\underline{0.2}$ |
| $\underline{1654}$ | $\underline{70.1}$ | $\underline{45.2}$ |
| $\underline{1655}$ | $\underline{72.7}$ | $\underline{29.1}$ |
| $\underline{1656}$ | $\underline{36.9}$ | $\underline{16.9}$ |
| $\underline{1657}$ | $\underline{42.7}$ | $\underline{(a)}$ |
| $\underline{1658}$ | $\underline{41.3}$ | $\underline{(a)}$ |
| $\underline{1659}$ | $\underline{37.7}$ | $\underline{(a)}$ |
| $\underline{1660}$ | $\underline{34.5}$ | $\underline{(a)}$ |
| $\underline{1661}$ | $\underline{27}$ | $\underline{(a)}$ |
| $\underline{1662}$ | $\underline{15}$ | $\underline{(a)}$ |
| $\underline{1663}$ | $\underline{11.6}$ | $\underline{0.1}$ |
| $\underline{1664}$ | $\underline{10}$ | $\underline{(a)}$ |
| $\underline{1665}$ | $\underline{15.6}$ | $\underline{9.8}$ |
| $\underline{1666}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1667}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1668}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1669}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1670}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1671}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1672}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| $\underline{1675}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{1676}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1677}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1678}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1679}$ | $\underline{1.4}$ | $\underline{7.2}$ |
| $\underline{1680}$ | $\underline{6.6}$ | $\underline{22.6}$ |
| $\underline{1681}$ | $\underline{16.2}$ | $\underline{15.4}$ |
| $\underline{1682}$ | $\underline{59.1}$ | $\underline{19.5}$ |
| $\underline{1683}$ | $\underline{67.4}$ | $\underline{17.1}$ |
| $\underline{1684}$ | $\underline{62.3}$ | $\underline{17.7}$ |
| $\underline{1685}$ | $\underline{77.8}$ | $\underline{11.5}$ |
| $\underline{1686}$ | $\underline{41.8}$ | $\underline{\underline{a}}$ |
| $\underline{1687}$ | $\underline{35.9}$ | $\underline{(a})$ |
| $\underline{1688}$ | $\underline{39.3}$ | $\underline{0.2}$ |
| $\underline{1689}$ | $\underline{34.3}$ | $\underline{(a)}$ |
| $\underline{1690}$ | $\underline{9.5}$ | $\underline{3.5}$ |
| $\underline{1691}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1692}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1693}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1694}$ | $\underline{0.5}$ | $\underline{6.5}$ |
| $\underline{1695}$ | $\underline{3.6}$ | $\underline{6.9}$ |
| $\underline{1696}$ | $\underline{5.4}$ | $\underline{9.3}$ |
| $\underline{1697}$ | $\underline{5.5}$ | $\underline{6.2}$ |
| $\underline{1698}$ | $\underline{3.1}$ | $\underline{3.5}$ |
| $\underline{1699}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1700}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1701}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1702}$ | $\underline{3.1}$ | $\underline{7.4}$ |
| $\underline{1703}$ | $\underline{6.8}$ | $\underline{20.3}$ |
| $\underline{1704}$ | $\underline{24.6}$ | $\underline{12.8}$ |
| $\underline{1705}$ | $\underline{64.5}$ | $\underline{18.2}$ |
| $\underline{1706}$ | $\underline{53.8}$ | $\underline{7.7}$ |
| $\underline{1707}$ | $\underline{66.6}$ | $\underline{27.9}$ |
| $\underline{1708}$ | $\underline{72.2}$ | $\underline{18.5}$ |
| $\underline{1709}$ | $\underline{63.5}$ | $\underline{31.1}$ |
| $\underline{1710}$ | $\underline{94.7}$ | $\underline{29.7}$ |
| $\underline{1711}$ | $\underline{55.9}$ | $\underline{2.1}$ |
| $\underline{1712}$ | $\underline{82.9}$ | $\underline{60.8}$ |
| $\underline{1713}$ | $\underline{39.6}$ | $\underline{4.9}$ |
| $\underline{4.2}$ |  |  |


| 1715 | 37.4 | (a) |
| :---: | :---: | :---: |
| 1716 | 32.9 | (a) |
| 1717 | 27.7 | (a) |
| 1718 | $\underline{23.1}$ | (a) |
| 1719 | 17.1 | (a) |
| 1720 | 9.1 | 6.4 |
| 1721 | 10.6 | $\underline{3}$ |
| 1722 | $\underline{37.5}$ | 15.4 |
| 1723 | 73.5 | 38.4 |
| 1724 | 87.7 | $\underline{20.1}$ |
| 1725 | 56.6 | 5.6 |
| 1726 | 85.3 | 41.3 |
| 1727 | 41.9 | 7.1 |
| 1728 | 40.7 | $\underline{38.8}$ |
| 1729 | 51.4 | 13 |
| 1730 | 51.6 | (a) |
| 1731 | 33.9 | (a) |
| 1732 | 34 | (a) |
| 1733 | 35 | 1.8 |
| 1734 | 35.6 | (a) |
| 1735 | 33.9 | (a) |
| 1736 | 30.3 | (a) |
| 1737 | $\underline{25.8}$ | (a) |
| 1738 | $\underline{21}$ | (a) |
| 1739 | 16.3 | (a) |
| $\underline{1740}$ | 11.5 | (a) |
| 1741 | $\underline{18.5}$ | 5.5 |
| 1742 | 12.4 | 8.2 |
| $\underline{1743}$ | $\underline{24.2}$ | 7.3 |
| 1744 | 17 | 6.9 |
| 1745 | $\underline{21.2}$ | 11.5 |
| 1746 | 52.4 | $\underline{26}$ |
| 1747 | 89.6 | $\underline{29.8}$ |
| 1748 | 57.8 | 11.2 |
| 1749 | 97.7 | 41.2 |
| 1750 | 55.9 | (a) |
| 1751 | 80.7 | 31.1 |
| 1752 | 71.6 | 28.9 |
| 1753 | $\underline{37}$ | 17 |
| 1754 | 41.1 | 7.7 |


| 1755 | 44.3 | 7.3 |
| :---: | :---: | :---: |
| 1756 | 46.7 | (a) |
| 1757 | 30.6 | (a) |
| 1758 | $\underline{24.8}$ | (a) |
| 1759 | $\underline{21.2}$ | (a) |
| 1760 | $\underline{21.2}$ | 4.1 |
| 1761 | $\underline{23.4}$ | 2.4 |
| 1762 | $\underline{23.4}$ | (a) |
| 1763 | 19.7 | (a) |
| 1764 | 13.8 | (a) |
| 1765 | 12.6 | 9.7 |
| 1766 | 12.5 | (a) |
| 1767 | 15.5 | 10.3 |
| 1768 | 12.4 | (a) |
| 1769 | $\underline{23.1}$ | 7.5 |
| 1770 | 20.1 | 7.4 |
| 1771 | 17.8 | 5.9 |
| 1772 | $\underline{0}$ | 0 |
| 1773 | 0.3 | 4.2 |
| 1774 | $\underline{4.6}$ | 13.8 |
| 1775 | 30.1 | 18.8 |
| 1776 | 65.5 | 20.4 |
| 1777 | 82.3 | 18 |
| 1778 | 49 | (a) |
| 1779 | 42.4 | (a) |
| 1780 | 34.8 | (a) |
| 1781 | $\underline{29.4}$ | (a) |
| 1782 | $\underline{25.5}$ | (a) |
| 1783 | $\underline{22.5}$ | (a) |
| 1784 | 18.6 | (a) |
| 1785 | 13.6 | (a) |
| 1786 | 12 | 9.3 |
| 1787 | 41.9 | (a) |
| 1788 | 35.6 | (a) |
| 1789 | 37.1 | $\underline{2}$ |
| 1790 | 39.1 | 0.7 |
| 1791 | $\underline{41.4}$ | $\underline{2}$ |
| 1792 | 42.3 | (a) |
| 1793 | 39 | (a) |
| 1794 | 36.5 | 0.4 |


| $\underline{1795}$ | $\underline{40.6}$ | $\underline{4.2}$ |
| :---: | :---: | :---: |
| $\underline{1796}$ | $\underline{49.4}$ | $\underline{4.5}$ |
| $\underline{1797}$ | $\underline{\underline{55}}$ | $\underline{1}$ |
| $\underline{1798}$ | $\underline{53}$ | $\underline{(a)}$ |
| $\underline{1799}$ | $\underline{48.6}$ | $\underline{(a)}$ |
| $\underline{1800}$ | $\underline{49.8}$ | $\underline{3.9}$ |
| $\underline{1801}$ | $\underline{60.1}$ | $\underline{4.3}$ |
| $\underline{1802}$ | $\underline{59.2}$ | $\underline{12.8}$ |
| $\underline{1803}$ | $\underline{35.1}$ | $\underline{(a)}$ |
| $\underline{1804}$ | $\underline{29.4}$ | $\underline{(a)}$ |
| $\underline{1805}$ | $\underline{23.2}$ | $\underline{(a)}$ |
| $\underline{1806}$ | $\underline{13.8}$ | $\underline{(a)}$ |
| $\underline{1807}$ | $\underline{20.3}$ | $\underline{7.8}$ |
| $\underline{1808}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1809}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1810}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1811}$ | $\underline{7.1}$ | $\underline{19.8}$ |
| $\underline{1812}$ | $\underline{19.5}$ | $\underline{10.8}$ |
| $\underline{1813}$ | $\underline{43.5}$ | $\underline{8.5}$ |
| $\underline{1814}$ | $\underline{61.5}$ | $\underline{5.7}$ |
| $\underline{1815}$ | $\underline{39.7}$ | $\underline{5.8}$ |
| $\underline{1816}$ | $\underline{33.9}$ | $\underline{(a)}$ |
| $\underline{1817}$ | $\underline{33}$ | $\underline{1.1}$ |
| $\underline{1818}$ | $\underline{37.8}$ | $\underline{3.2}$ |
| $\underline{1819}$ | $\underline{36.2}$ | $\underline{(a)}$ |
| $\underline{1820}$ | $\underline{36.4}$ | $\underline{2.4}$ |
| $\underline{1821}$ | $\underline{44}$ | $\underline{5.4}$ |
| $\underline{1822}$ | $\underline{49}$ | $\underline{0.9}$ |
| $\underline{1823}$ | $\underline{52.2}$ | $\underline{2.6}$ |
| $\underline{1824}$ | $\underline{55.4}$ | $\underline{1.1}$ |
| $\underline{1825}$ | $\underline{58.4}$ | $\underline{2.2}$ |
| $\underline{1826}$ | $\underline{66.4}$ | $\underline{9.6}$ |
| $\underline{1827}$ | $\underline{37.6}$ | $\underline{1.9}$ |
| $\underline{1828}$ | $\underline{37.6}$ | $\underline{(a)}$ |
| $\underline{1829}$ | $\underline{39.3}$ | $\underline{1.9}$ |
| $\underline{1830}$ | $\underline{42.6}$ | $\underline{2.4}$ |
| $\underline{1831}$ | $\underline{44.4}$ | $\underline{0.2}$ |
| $\underline{1832}$ | $\underline{45.7}$ | $\underline{0.9}$ |
| $\underline{1833}$ | $\underline{183}$ | $\underline{(a)}$ |
|  | $\underline{45}$ |  |


| $\underline{1835}$ | $\underline{38.7}$ | $\underline{(a)}$ |
| :---: | :---: | :---: |
| $\underline{1836}$ | $\underline{32.8}$ | $\underline{(a)}$ |
| $\underline{1837}$ | $\underline{25.6}$ | $\underline{(a)}$ |
| $\underline{1838}$ | $\underline{4.9}$ | $\underline{0.8}$ |
| $\underline{1839}$ | $\underline{0.1}$ | $\underline{3.9}$ |
| $\underline{1840}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1841}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1842}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1843}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1844}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1845}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1846}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1847}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1848}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1849}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1850}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1851}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1852}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1853}$ | $\underline{1}$ | $\underline{6.7}$ |
| $\underline{1854}$ | $\underline{6.8}$ | $\underline{21.9}$ |
| $\underline{1855}$ | $\underline{17.1}$ | $\underline{11.1}$ |
| $\underline{1856}$ | $\underline{35}$ | $\underline{5.6}$ |
| $\underline{1857}$ | $\underline{35.7}$ | $\underline{(a)}$ |
| $\underline{1858}$ | $\underline{21.8}$ | $\underline{(a)}$ |
| $\underline{1859}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1860}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1861}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1862}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1863}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1864}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1865}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1866}$ | $\underline{2.5}$ | $\underline{6.8}$ |
| $\underline{1867}$ | $\underline{5.6}$ | $\underline{12.3}$ |
| $\underline{1868}$ | $\underline{4.4}$ | $\underline{4.8}$ |
| $\underline{1869}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1870}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1871}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1872}$ | $\underline{1.6}$ | $\underline{6.5}$ |
| $\underline{1873}$ | $\underline{5.1}$ | $\underline{9.6}$ |
| $\underline{3874}$ | $\underline{3.4}$ | $\underline{5.8}$ |
|  |  |  |


| $\underline{1875}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{1876}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1877}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1878}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1879}$ | $\underline{1.3}$ | $\underline{6.6}$ |
| $\underline{1880}$ | $\underline{4.8}$ | $\underline{7.7}$ |
| $\underline{1881}$ | $\underline{0} 8$ | $\underline{5.4}$ |
| $\underline{1882}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1883}$ | $\underline{0} 3$ | $\underline{4.4}$ |
| $\underline{1884}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1885}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1886}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1887}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1888}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1889}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1890}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1891}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1892}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1893}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1894}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1895}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1896}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1897}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1898}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1899}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1900}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1901}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1902}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1903}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1904}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1905}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1906}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1907}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1908}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1909}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1910}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1911}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1912}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1913}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1914}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| 1915 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 1916 | $\underline{0}$ | $\underline{0}$ |
| 1917 | $\underline{0}$ | $\underline{0}$ |
| 1918 | $\underline{0}$ | $\underline{0}$ |
| 1919 | $\underline{0}$ | $\underline{0}$ |
| 1920 | 0 | 0 |
| 1921 | $\underline{0}$ | $\underline{0}$ |
| 1922 | $\underline{0}$ | $\underline{0}$ |
| 1923 | $\underline{0}$ | $\underline{0}$ |
| 1924 | $\underline{0}$ | $\underline{0}$ |
| 1925 | $\underline{0}$ | $\underline{0}$ |
| 1926 | $\underline{0}$ | $\underline{0}$ |
| 1927 | $\underline{0}$ | $\underline{0}$ |
| 1928 | $\underline{0}$ | $\underline{0}$ |
| 1929 | $\underline{0}$ | $\underline{0}$ |
| 1930 | $\underline{0}$ | $\underline{0}$ |
| 1931 | $\underline{0}$ | $\underline{0}$ |
| 1932 | $\underline{0}$ | $\underline{0}$ |
| 1933 | $\underline{0}$ | $\underline{0}$ |
| 1934 | $\underline{0}$ | $\underline{0}$ |
| 1935 | $\underline{0}$ | $\underline{0}$ |
| 1936 | $\underline{0}$ | $\underline{0}$ |
| 1937 | $\underline{0}$ | $\underline{0}$ |
| 1938 | $\underline{0}$ | $\underline{0}$ |
| 1939 | $\underline{0}$ | $\underline{0}$ |
| 1940 | $\underline{0}$ | $\underline{0}$ |
| 1941 | $\underline{0}$ | $\underline{0}$ |
| 1942 | $\underline{0}$ | $\underline{0}$ |
| 1943 | $\underline{0}$ | $\underline{0}$ |
| 1944 | $\underline{0}$ | $\underline{0}$ |
| 1945 | $\underline{0}$ | $\underline{0}$ |
| 1946 | $\underline{0}$ | $\underline{0}$ |
| 1947 | $\underline{0}$ | $\underline{0}$ |
| 1948 | 0 | 0 |
| 1949 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1950}$ | $\underline{0}$ | $\underline{0}$ |
| 1951 | $\underline{0}$ | $\underline{0}$ |
| 1952 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1953}$ | $\underline{0}$ | $\underline{0}$ |
| 1954 | $\underline{0}$ | $\underline{0}$ |


| 1955 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 1956 | $\underline{0}$ | $\underline{0}$ |
| 1957 | 0 | $\underline{0}$ |
| $\underline{1958}$ | $\underline{0}$ | $\underline{0}$ |
| 1959 | 0 | $\underline{0}$ |
| 1960 | 0 | $\underline{0}$ |
| 1961 | $\underline{0}$ | $\underline{0}$ |
| 1962 | $\underline{0}$ | $\underline{0}$ |
| 1963 | 0 | $\underline{0}$ |
| 1964 | $\underline{0}$ | $\underline{0}$ |
| 1965 | $\underline{0}$ | $\underline{0}$ |
| 1966 | $\underline{0}$ | $\underline{0}$ |
| 1967 | 0 | $\underline{0}$ |
| 1968 | $\underline{0}$ | $\underline{0}$ |
| 1969 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1970}$ | $\underline{0}$ | $\underline{0}$ |
| 1971 | $\underline{0}$ | $\underline{0}$ |
| 1972 | $\underline{0}$ | $\underline{0}$ |
| 1973 | $\underline{0}$ | $\underline{0}$ |
| 1974 | $\underline{0}$ | $\underline{0}$ |
| 1975 | $\underline{0}$ | $\underline{0}$ |
| 1976 | $\underline{0}$ | $\underline{0}$ |
| 1977 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1978}$ | $\underline{0}$ | $\underline{0}$ |
| 1979 | 0 | 0 |
| 1980 | 0 | 0 |
| 1981 | $\underline{0}$ | $\underline{0}$ |
| 1982 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1983}$ | $\underline{0}$ | $\underline{0}$ |
| 1984 | $\underline{0}$ | $\underline{0}$ |
| 1985 | $\underline{0}$ | $\underline{0}$ |
| 1986 | 0 | 0 |
| 1987 | $\underline{0}$ | $\underline{0}$ |
| 1988 | $\underline{0}$ | $\underline{0}$ |
| 1989 | $\underline{0}$ | $\underline{0}$ |
| 1990 | $\underline{0}$ | $\underline{0}$ |
| 1991 | $\underline{0}$ | $\underline{0}$ |
| 1992 | $\underline{0}$ | $\underline{0}$ |
| $\underline{1993}$ | $\underline{0}$ | $\underline{0}$ |
| 1994 | 0 | $\underline{0}$ |


| $\underline{1995}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{1996}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1997}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{1998}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{1999}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2000}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2001}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2002}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2003}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2004}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2005}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2006}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2007}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2008}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2009}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2010}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2011}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2012}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2013}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2014}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2015}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2016}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2017}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2018}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2019}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2020}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2021}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2022}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2023}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2024}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2025}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2026}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2027}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2028}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2029}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2030}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2031}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2032}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2033}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2034}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| $\underline{2035}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{2036}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2037}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2038}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2039}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2040}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2041}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2042}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2043}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2044}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2045}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2046}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2047}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2048}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2049}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2050}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2051}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2052}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2053}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2054}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2055}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2056}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2057}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2058}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2059}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2060}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2061}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2062}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2063}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2064}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2065}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2066}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2067}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2068}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2069}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2070}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2071}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2072}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2073}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2074}$ | $\underline{0}$ | $\underline{0}$ |
|  |  |  |


| $\underline{2075}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{2076}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2077}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2078}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2079}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2080}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2081}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2082}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2083}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2084}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2085}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2086}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2087}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2088}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2089}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2090}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2091}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2092}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2093}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2094}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2095}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2096}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2097}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2098}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2099}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2100}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2101}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2102}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2103}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2104}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2105}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2106}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2107}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2108}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2109}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2110}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2111}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2112}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2113}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2114}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| $\underline{2115}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{2116}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2117}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2118}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2119}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2120}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2121}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2122}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2123}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2124}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2125}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2126}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2127}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2128}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2129}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2130}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2131}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2132}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2133}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2134}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2135}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2136}$ | $\underline{51.7}$ | $\underline{18.5}$ |
| $\underline{2137}$ | $\underline{10.6}$ | $\underline{6.5}$ |
| $\underline{2138}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2139}$ | $\underline{18.6}$ | $\underline{7} 7$ |
| $\underline{2140}$ | $\underline{6.2}$ | $\underline{0}$ |
| $\underline{2141}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2142}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2143}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2144}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2145}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2146}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2147}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2148}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2149}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2150}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2151}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2152}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2153}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2154}$ | $\underline{0}$ | $\underline{0}$ |
|  |  |  |


| $\underline{2155}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{2156}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2157}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2158}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2159}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2160}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2161}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2162}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2163}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2164}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2165}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2166}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2167}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2168}$ | $\underline{7.1}$ | $\underline{34.5}$ |
| $\underline{2169}$ | $\underline{10.6}$ | $\underline{19.6}$ |
| $\underline{2170}$ | $\underline{29.3}$ | $\underline{11.2}$ |
| $\underline{2171}$ | $\underline{41.5}$ | $\underline{3.5}$ |
| $\underline{2172}$ | $\underline{37}$ | $\underline{(a})$ |
| $\underline{2173}$ | $\underline{22.1}$ | $\underline{(a}$ |
| $\underline{2174}$ | $\underline{2.6}$ | $\underline{0.5}$ |
| $\underline{2175}$ | $\underline{0.1}$ | $\underline{2.5}$ |
| $\underline{2176}$ | $\underline{8.3}$ | $\underline{41.2}$ |
| $\underline{2177}$ | $\underline{27}$ | $\underline{19.8}$ |
| $\underline{2178}$ | $\underline{48.7}$ | $\underline{11.1}$ |
| $\underline{2179}$ | $\underline{61.9}$ | $\underline{9.8}$ |
| $\underline{2180}$ | $\underline{30.5}$ | $\underline{2.3}$ |
| $\underline{2181}$ | $\underline{25.4}$ | $\underline{(a})$ |
| $\underline{2182}$ | $\underline{5.8}$ | $\underline{0.5}$ |
| $\underline{2183}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2184}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2185}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2186}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2187}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2188}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2189}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2190}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2191}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2192}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2193}$ | $\underline{0.9}$ | $\underline{7.1}$ |
| $\underline{2194}$ | $\underline{8.1}$ | $\underline{40.6}$ |
|  |  |  |


| $\underline{2195}$ | $\underline{27.4}$ | $\underline{18.8}$ |
| :---: | :---: | :---: |
| $\underline{2196}$ | $\underline{46.8}$ | $\underline{10}$ |
| $\underline{2197}$ | $\underline{54.8}$ | $\underline{2}$ |
| $\underline{2198}$ | $\underline{54.2}$ | $\underline{1.2}$ |
| $\underline{2199}$ | $\underline{50.7}$ | $\underline{2.7}$ |
| $\underline{2200}$ | $\underline{50.4}$ | $\underline{4.4}$ |
| $\underline{2201}$ | $\underline{53.4}$ | $\underline{4}$ |
| $\underline{2202}$ | $\underline{56.1}$ | $\underline{3.1}$ |
| $\underline{2203}$ | $\underline{34.8}$ | $\underline{6.4}$ |
| $\underline{2204}$ | $\underline{31.5}$ | $\underline{2.3}$ |
| $\underline{2205}$ | $\underline{32.1}$ | $\underline{2.4}$ |
| $\underline{2206}$ | $\underline{31.4}$ | $\underline{2.7}$ |
| $\underline{2207}$ | $\underline{31.4}$ | $\underline{2.4}$ |
| $\underline{2208}$ | $\underline{32.5}$ | $\underline{2.3}$ |
| $\underline{2209}$ | $\underline{31.8}$ | $\underline{1.5}$ |
| $\underline{2210}$ | $\underline{29.8}$ | $\underline{(a)}$ |
| $\underline{2211}$ | $\underline{21.4}$ | $\underline{(a)}$ |
| $\underline{2212}$ | $\underline{8.8}$ | $\underline{0.5}$ |
| $\underline{2213}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2214}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2215}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2216}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2217}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2218}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2219}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2220}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2221}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2222}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2223}$ | $\underline{3.6}$ | $\underline{10.8}$ |
| $\underline{2224}$ | $\underline{6.7}$ | $\underline{25.7}$ |
| $\underline{2225}$ | $\underline{14.1}$ | $\underline{13.6}$ |
| $\underline{2226}$ | $\underline{27.4}$ | $\underline{8}$ |
| $\underline{2227}$ | $\underline{44}$ | $\underline{10.3}$ |
| $\underline{2228}$ | $\underline{59}$ | $\underline{7.6}$ |
| $\underline{2229}$ | $\underline{33.4}$ | $\underline{1.8}$ |
| $\underline{2230}$ | $\underline{39.5}$ | $\underline{11.1}$ |
| $\underline{2231}$ | $\underline{47.5}$ | $\underline{4.3}$ |
| $\underline{2232}$ | $\underline{43.9}$ | $\underline{(a)}$ |
| $\underline{2233}$ | $\underline{33.7}$ | $\underline{(a)}$ |
| $\underline{2234}$ | $\underline{21.6}$ | $\underline{(a}$ |
|  |  |  |


| $\underline{2235}$ | $\underline{10.3}$ | $\underline{( })$ |
| :---: | :---: | :---: |
| $\underline{2236}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2237}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2238}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2239}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2240}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2241}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2242}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2243}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2244}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2245}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2246}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2247}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2248}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2249}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2250}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2251}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2252}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2253}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2254}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2255}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2256}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2257}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2258}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2259}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2260}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2261}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2262}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2263}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2264}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2265}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2266}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2267}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2268}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2269}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2270}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2271}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2272}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2273}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2274}$ | $\underline{0}$ | $\underline{0}$ |
|  |  |  |


| $\underline{2275}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{2276}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2277}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2278}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2279}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2280}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2281}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2282}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2283}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2284}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2285}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2286}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2287}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2288}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2289}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{2290}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2291}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2292}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2293}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2294}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2295}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2296}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2297}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2298}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2299}$ | $\underline{2.1}$ | $\underline{7.2}$ |
| $\underline{2300}$ | $\underline{8.7}$ | $\underline{49.6}$ |
| $\underline{2301}$ | $\underline{51.5}$ | $\underline{35.1}$ |
| $\underline{2302}$ | $\underline{68.4}$ | $\underline{21.2}$ |
| $\underline{2303}$ | $\underline{72.7}$ | $\underline{25.8}$ |
| $\underline{2304}$ | $\underline{57.9}$ | $\underline{7.7}$ |
| $\underline{2305}$ | $\underline{58.4}$ | $\underline{36.2}$ |
| $\underline{2306}$ | $\underline{106.4}$ | $\underline{37.8}$ |
| $\underline{2307}$ | $\underline{32.6}$ | $\underline{2.2}$ |
| $\underline{2308}$ | $\underline{42.1}$ | $\underline{98.8}$ |
| $\underline{2309}$ | $\underline{64.9}$ | $\underline{21}$ |
| $\underline{2310}$ | $\underline{65}$ | $\underline{0.2}$ |
| $\underline{2311}$ | $\underline{36.2}$ | $\underline{a}$ |
| $\underline{2312}$ | $\underline{29.8}$ | $\underline{\text { a }}$ |
| $\underline{2313}$ | $\underline{25.8}$ | $\underline{(a)}$ |
| $\underline{2314}$ | $\underline{22.5}$ | $\underline{a}$ |
|  |  |  |


| 2315 | 19.3 | (a) |
| :---: | :---: | :---: |
| $\underline{2316}$ | 17 | (a) |
| $\underline{2317}$ | 15.4 | 4.1 |
| $\underline{2318}$ | 14.4 | 1.5 |
| $\underline{2319}$ | $\underline{12.9}$ | (a) |
| $\underline{2320}$ | 11.6 | 8.8 |
| $\underline{2321}$ | 24.3 | 1.8 |
| $\underline{2322}$ | 18.2 | (a) |
| $\underline{2323}$ | 14.3 | (a) |
| $\underline{2324}$ | 9.9 | (a) |
| $\underline{2325}$ | 10.9 | $\underline{3}$ |
| $\underline{2326}$ | 5.6 | 0.7 |
| $\underline{2327}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2328}$ | 3.4 | $\underline{7}$ |
| $\underline{2329}$ | 6.3 | 10.9 |
| $\underline{2330}$ | 6.2 | 3.5 |
| $\underline{2331}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2332}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2333}$ | 8.7 | 36.1 |
| $\underline{2334}$ | 47.4 | 34.5 |
| $\underline{2335}$ | 74.6 | 30.1 |
| $\underline{2336}$ | $\underline{38.3}$ | 1.3 |
| $\underline{2337}$ | 88.1 | 38 |
| $\underline{2338}$ | 50.5 | $\underline{0.8}$ |
| $\underline{2339}$ | $\underline{68.9}$ | 46.4 |
| $\underline{2340}$ | 69.6 | 16.4 |
| 2341 | 55.1 | 35.9 |
| $\underline{2342}$ | 83.9 | 29.4 |
| $\underline{2343}$ | 87.2 | 12.3 |
| $\underline{2344}$ | 58.8 | 6.3 |
| $\underline{2345}$ | 59.1 | $\underline{52.5}$ |
| $\underline{2346}$ | 85.8 | 67.1 |
| 2347 | 67.4 | 11.5 |
| $\underline{2348}$ | 56.8 | 47.6 |
| $\underline{2349}$ | 69.9 | 76.1 |
| $\underline{2350}$ | 86.8 | $\underline{76.3}$ |
| $\underline{2351}$ | 49.1 | 0.6 |
| $\underline{2352}$ | 45.4 | 64.4 |
| $\underline{2353}$ | 51.4 | 80.2 |
| $\underline{2354}$ | 60.2 | 89.5 |


| $\underline{2355}$ | 69.5 | 87.4 |
| :---: | :---: | :---: |
| $\underline{2356}$ | 77.8 | 85.8 |
| 2357 | 48.5 | 7.2 |
| $\underline{2358}$ | 40.2 | 50.8 |
| $\underline{2359}$ | 42 | 78.2 |
| $\underline{2360}$ | 45.9 | 91.3 |
| $\underline{2361}$ | 50.4 | $\underline{95.9}$ |
| $\underline{2362}$ | 50.7 | 6.9 |
| $\underline{2363}$ | 48.4 | 11.9 |
| $\underline{2364}$ | 49.2 | (a) |
| $\underline{\underline{2365}}$ | 45.8 | (a) |
| $\underline{2366}$ | 44.2 | (a) |
| $\underline{2367}$ | 41.5 | (a) |
| $\underline{2368}$ | 38.7 | (a) |
| $\underline{2369}$ | 36.4 | (a) |
| $\underline{2370}$ | 34.2 | (a) |
| $\underline{2371}$ | 33.2 | (a) |
| $\underline{2372}$ | 31.5 | (a) |
| $\underline{\underline{2373}}$ | 30.4 | (a) |
| $\underline{2374}$ | $\underline{29.3}$ | 13.2 |
| $\underline{\underline{2375}}$ | $\underline{28.7}$ | (a) |
| $\underline{2376}$ | 23.6 | (a) |
| $\underline{2377}$ | 16.8 | 3.9 |
| $\underline{2378}$ | 36 | (a) |
| $\underline{2379}$ | 36.6 | (a) |
| $\underline{2380}$ | 32.9 | (a) |
| $\underline{2381}$ | $\underline{26.9}$ | (a) |
| $\underline{2382}$ | $\underline{26.4}$ | (a) |
| 2383 | 25.6 | (a) |
| $\underline{2384}$ | 18.1 | (a) |
| 2385 | 33 | 5.8 |
| $\underline{2386}$ | 19.4 | (a) |
| 2387 | 9.8 | 4.3 |
| $\underline{2388}$ | $\underline{20.7}$ | 1.1 |
| $\underline{2389}$ | 18.7 | (a) |
| $\underline{2390}$ | 13.9 | (a) |
| $\underline{2391}$ | 12.8 | (a) |
| $\underline{2392}$ | 14.2 | (a) |
| 2393 | 16.4 | 4.2 |


| 2394 | 21.4 | 9.2 |
| :---: | :---: | :---: |
| 2395 | 23.7 | 4.3 |
| 2396 | 24.9 | 5.7 |
| 2397 | 27.2 | 6.4 |
| $\underline{2398}$ | 29.1 | 10.6 |
| $\underline{2399}$ | 34.4 | 19.3 |
| $\underline{2400}$ | 44.5 | 25.5 |
| 2401 | 55.9 | 22 |
| $\underline{2402}$ | 58 | 4.2 |
| $\underline{2403}$ | 50.3 | 14.9 |
| $\underline{2404}$ | 31.4 | 31.9 |
| $\underline{\underline{2405}}$ | 38.9 | 18.9 |
| $\underline{2406}$ | 39.4 | (a) |
| $\underline{2407}$ | 36.4 | (a) |
| $\underline{2408}$ | 31.3 | (a) |
| $\underline{2409}$ | $\underline{24.5}$ | (a) |
| $\underline{2410}$ | 18.6 | (a) |
| $\underline{2411}$ | 14.9 | (a) |
| $\underline{2412}$ | 8.9 | (a) |
| $\underline{2413}$ | 33 | $\underline{6}$ |
| $\underline{2414}$ | 36.4 | $\underline{28.9}$ |
| $\underline{2415}$ | 45.1 | 24.4 |
| 2416 | 50.9 | 12.1 |
| $\underline{2417}$ | 54.2 | 6.3 |
| $\underline{2418}$ | 53.3 | (a) |
| $\underline{2419}$ | 52.5 | 3.6 |
| $\underline{2420}$ | 53.9 | 6.8 |
| $\underline{2421}$ | 54.2 | 7.5 |
| $\underline{2422}$ | 53 | $\underline{6}$ |
| $\underline{2423}$ | 54.2 | 7.9 |
| $\underline{2424}$ | 57.8 | 8.1 |
| $\underline{2425}$ | 61.4 | 14 |
| $\underline{2426}$ | 34.1 | 1 |
| $\underline{2427}$ | 38.7 | 56.4 |
| 2428 | 57.6 | 68.8 |
| $\underline{2429}$ | 68.9 | 33.9 |
| $\underline{2430}$ | 79.9 | 55.8 |
| $\underline{2431}$ | 72.1 | $\underline{21.5}$ |
| $\underline{2432}$ | 51.1 | 43.7 |
| $\underline{2433}$ | 59.3 | 80.6 |


| $\underline{2434}$ | 71.3 | 82 |
| :---: | :---: | :---: |
| $\underline{2435}$ | 78.4 | $\underline{27.2}$ |
| $\underline{2436}$ | 45.9 | 2.1 |
| $\underline{2437}$ | 46.3 | 70.5 |
| $\underline{2438}$ | 52.4 | 83.4 |
| $\underline{2439}$ | 59.1 | 50.7 |
| $\underline{2440}$ | 59.6 | $\underline{21.4}$ |
| $\underline{2441}$ | 61.4 | $\underline{19}$ |
| $\underline{2442}$ | 30.4 | 2.9 |
| $\underline{2443}$ | 31 | 36.2 |
| $\underline{2444}$ | 31.7 | 30.6 |
| $\underline{2445}$ | 32.1 | $\underline{13}$ |
| $\underline{\underline{2446}}$ | 32.1 | $\underline{22}$ |
| $\underline{2447}$ | 31.8 | (a) |
| $\underline{2448}$ | 31.2 | 17.8 |
| $\underline{2449}$ | 30.8 | (a) |
| $\underline{2450}$ | $\underline{29.5}$ | (a) |
| $\underline{2451}$ | $\underline{28.4}$ | (a) |
| $\underline{2452}$ | $\underline{28.4}$ | $\underline{28.8}$ |
| $\underline{2453}$ | 29.1 | $\underline{23.2}$ |
| $\underline{2454}$ | $\underline{29.8}$ | 21.1 |
| $\underline{2455}$ | 30.6 | 19.6 |
| $\underline{2456}$ | 31.6 | 15 |
| $\underline{2457}$ | 32.4 | 7.4 |
| $\underline{\underline{2458}}$ | 33.4 | 7.3 |
| $\underline{2459}$ | 34.2 | (a) |
| $\underline{2460}$ | $\underline{35}$ | (a) |
| $\underline{2461}$ | 35.8 | (a) |
| $\underline{2462}$ | $\underline{36}$ | (a) |
| $\underline{2463}$ | 35.9 | (a) |
| $\underline{2464}$ | 35.6 | (a) |
| $\underline{2465}$ | 34.9 | (a) |
| $\underline{2466}$ | $\underline{34}$ | (a) |
| $\underline{2467}$ | 33.3 | 16.5 |
| $\underline{2468}$ | 33.2 | 14.2 |
| $\underline{2469}$ | 33.6 | $\underline{38.9}$ |
| $\underline{2470}$ | 34.4 | 47.8 |
| $\underline{2471}$ | 34.9 | 38.6 |
| $\underline{2472}$ | 34.8 | 40.6 |
| $\underline{2473}$ | 34.7 | 45.1 |


| $\underline{2474}$ | $\underline{34.3}$ | $\underline{38.1}$ |
| :---: | :---: | :---: |
| $\underline{2475}$ | $\underline{34.4}$ | $\underline{60.8}$ |
| $\underline{2476}$ | $\underline{33.6}$ | $\underline{(\text { a })}$ |
| $\underline{2477}$ | $\underline{30.3}$ | $\underline{1}$ |
| $\underline{2478}$ | $\underline{28.4}$ | $\underline{(a)}$ |
| $\underline{2479}$ | $\underline{26.7}$ | $\underline{11.3}$ |
| $\underline{2480}$ | $\underline{26.4}$ | $\underline{37.8}$ |
| $\underline{2481}$ | $\underline{27.2}$ | $\underline{60.2}$ |
| $\underline{2482}$ | $\underline{30}$ | $\underline{78.9}$ |
| $\underline{2483}$ | $\underline{32}$ | $\underline{65.3}$ |
| $\underline{2484}$ | $\underline{33.1}$ | $\underline{11.8}$ |
| $\underline{2485}$ | $\underline{33.4}$ | $\underline{25.9}$ |
| $\underline{2486}$ | $\underline{34.1}$ | $\underline{31}$ |
| $\underline{2487}$ | $\underline{34.2}$ | $\underline{\underline{0.5}}$ |
| $\underline{2488}$ | $\underline{34.9}$ | $\underline{47.5}$ |
| $\underline{2489}$ | $\underline{36.9}$ | $\underline{39.9}$ |
| $\underline{2490}$ | $\underline{38.1}$ | $\underline{44.3}$ |
| $\underline{2491}$ | $\underline{40.2}$ | $\underline{62.9}$ |
| $\underline{2492}$ | $\underline{42.4}$ | $\underline{52.1}$ |
| $\underline{2493}$ | $\underline{42.9}$ | $\underline{4.8}$ |
| $\underline{2494}$ | $\underline{42.5}$ | $\underline{12.5}$ |
| $\underline{2495}$ | $\underline{42.5}$ | $\underline{17}$ |
| $\underline{2496}$ | $\underline{42.7}$ | $\underline{28}$ |
| $\underline{2497}$ | $\underline{42.8}$ | $\underline{15}$ |
| $\underline{2498}$ | $\underline{42.9}$ | $\underline{17.8}$ |
| $\underline{2499}$ | $\underline{43}$ | $\underline{21.5}$ |
| $\underline{2500}$ | $\underline{43.2}$ | $\underline{20}$ |
| $\underline{2501}$ | $\underline{43.5}$ | $\underline{24.6}$ |
| $\underline{2502}$ | $\underline{44.2}$ | $\underline{31.9}$ |
| $\underline{2503}$ | $\underline{44.1}$ | $\underline{4.6}$ |
| $\underline{2504}$ | $\underline{44}$ | $\underline{24.5}$ |
| $\underline{2505}$ | $\underline{44}$ | $\underline{8.7}$ |
| $\underline{2506}$ | $\underline{43.4}$ | $\underline{4.4}$ |
| $\underline{2507}$ | $\underline{43.1}$ | $\underline{14}$ |
| $\underline{2508}$ | $\underline{42.6}$ | $\underline{4.2}$ |
| $\underline{2509}$ | $\underline{41.7}$ | $\underline{(a)}$ |
| $\underline{2510}$ | $\underline{41.2}$ | $\underline{13.6}$ |
| $\underline{2511}$ | $\underline{40.8}$ | $\underline{6.5}$ |
| $\underline{2512}$ | $\underline{40.7}$ | $\underline{20.3}$ |
| $\underline{2513}$ | $\underline{39.8}$ | $\underline{\text { a }}$ |


| 2514 | 39 | 14.7 |
| :---: | :---: | :---: |
| 2515 | 39.3 | 24.9 |
| $\underline{2516}$ | 38.9 | (a) |
| $\underline{2517}$ | 38.5 | 15.5 |
| $\underline{2518}$ | 38 | (a) |
| $\underline{2519}$ | 37.3 | 7 |
| $\underline{2520}$ | 36.4 | (a) |
| $\underline{2521}$ | 35.3 | (a) |
| 2522 | 34.1 | (a) |
| $\underline{2523}$ | 32.8 | (a) |
| $\underline{2524}$ | 30.7 | (a) |
| 2525 | 28.9 | (a) |
| $\underline{2526}$ | $\underline{\underline{27.8}}$ | (a) |
| $\underline{2527}$ | $\underline{26.7}$ | (a) |
| $\underline{2528}$ | 26.4 | 20 |
| $\underline{2529}$ | $\underline{26.8}$ | 24.1 |
| $\underline{2530}$ | $\underline{27.1}$ | 15.6 |
| $\underline{2531}$ | $\underline{27.6}$ | $\underline{29.9}$ |
| $\underline{2532}$ | $\underline{28.3}$ | 31.9 |
| $\underline{\underline{2533}}$ | $\underline{28.6}$ | 14.2 |
| $\underline{2534}$ | $\underline{29.3}$ | $\underline{37.8}$ |
| $\underline{2535}$ | 30.6 | 43.6 |
| $\underline{2536}$ | 31.9 | 34.4 |
| $\underline{2537}$ | 31.6 | 0.9 |
| $\underline{2538}$ | 32.1 | 38.6 |
| $\underline{2539}$ | 32.6 | 0.8 |
| $\underline{2540}$ | $\underline{32}$ | (a) |
| $\underline{2541}$ | 32 | $\underline{20}$ |
| 2542 | 32.1 | 2.5 |
| $\underline{2543}$ | 31.3 | (a) |
| $\underline{2544}$ | 30.3 | (a) |
| $\underline{2545}$ | $\underline{29.5}$ | (a) |
| $\underline{2546}$ | $\underline{27.9}$ | (a) |
| $\underline{\underline{547}}$ | $\underline{26.1}$ | (a) |
| $\underline{2548}$ | $\underline{24.8}$ | (a) |
| $\underline{2549}$ | $\underline{23.1}$ | 39.1 |
| $\underline{2550}$ | $\underline{22.3}$ | $\underline{56.9}$ |
| 2551 | 24.3 | 68.3 |
| $\underline{2552}$ | $\underline{25.9}$ | 40.5 |
| $\underline{2553}$ | 26.8 | 24.7 |


| $\underline{2554}$ | $\underline{27.5}$ | $\underline{38.9}$ |
| :---: | :---: | :---: |
| $\underline{2555}$ | $\underline{28.3}$ | $\underline{44.5}$ |
| $\underline{2556}$ | $\underline{29}$ | $\underline{26}$ |
| $\underline{2557}$ | $\underline{29.3}$ | $\underline{28.1}$ |
| $\underline{2558}$ | $\underline{29.8}$ | $\underline{33.5}$ |
| $\underline{2559}$ | $\underline{30.4}$ | $\underline{16.3}$ |
| $\underline{2560}$ | $\underline{30.5}$ | $\underline{17.6}$ |
| $\underline{2561}$ | $\underline{30.4}$ | $\underline{9.3}$ |
| $\underline{2562}$ | $\underline{30}$ | $\underline{1}$ |
| $\underline{2563}$ | $\underline{29.1}$ | $\underline{(a)}$ |
| $\underline{2564}$ | $\underline{28.4}$ | $\underline{11.9}$ |
| $\underline{2565}$ | $\underline{28.1}$ | $\underline{(a)}$ |
| $\underline{2566}$ | $\underline{28.1}$ | $\underline{30.8}$ |
| $\underline{2567}$ | $\underline{29.1}$ | $\underline{37.6}$ |
| $\underline{2568}$ | $\underline{30.3}$ | $\underline{40.6}$ |
| $\underline{2569}$ | $\underline{31.5}$ | $\underline{24.7}$ |
| $\underline{2570}$ | $\underline{32.4}$ | $\underline{37.8}$ |
| $\underline{2571}$ | $\underline{33.7}$ | $\underline{44.2}$ |
| $\underline{2572}$ | $\underline{35.1}$ | $\underline{37.5}$ |
| $\underline{2573}$ | $\underline{36.2}$ | $\underline{38.5}$ |
| $\underline{2574}$ | $\underline{36.2}$ | $\underline{(a)}$ |
| $\underline{2575}$ | $\underline{36.2}$ | $\underline{31}$ |
| $\underline{2576}$ | $\underline{36.8}$ | $\underline{24.9}$ |
| $\underline{2577}$ | $\underline{37.4}$ | $\underline{26.1}$ |
| $\underline{2578}$ | $\underline{37.8}$ | $\underline{25.3}$ |
| $\underline{2579}$ | $\underline{38}$ | $\underline{15.1}$ |
| $\underline{2580}$ | $\underline{38.1}$ | $\underline{20.9}$ |
| $\underline{2581}$ | $\underline{38.2}$ | $\underline{18.4}$ |
| $\underline{2582}$ | $\underline{37.7}$ | $\underline{(a)}$ |
| $\underline{2583}$ | $\underline{37.7}$ | $\underline{29.6}$ |
| $\underline{2584}$ | $\underline{38.4}$ | $\underline{21.6}$ |
| $\underline{2585}$ | $\underline{38.7}$ | $\underline{19.5}$ |
| $\underline{2586}$ | $\underline{39.2}$ | $\underline{28.1}$ |
| $\underline{2587}$ | $\underline{39.8}$ | $\underline{27.4}$ |
| $\underline{2588}$ | $\underline{40.2}$ | $\underline{21.7}$ |
| $\underline{2589}$ | $\underline{40.4}$ | $\underline{21.5}$ |
| $\underline{2590}$ | $\underline{40.9}$ | $\underline{32.8}$ |
| $\underline{2591}$ | $\underline{41.7}$ | $\underline{44.7}$ |
| $\underline{2592}$ | $\underline{41.5}$ | $\underline{(a)}$ |
| $\underline{2593}$ | $\underline{41}$ |  |


| $\underline{2594}$ | $\underline{40.4}$ | $\underline{12.9}$ |
| :---: | :---: | :---: |
| $\underline{2595}$ | $\underline{39.7}$ | $\underline{22.7}$ |
| $\underline{2596}$ | $\underline{39.3}$ | $\underline{22.7}$ |
| $\underline{2597}$ | $\underline{38.8}$ | $\underline{21.6}$ |
| $\underline{2598}$ | $\underline{38.5}$ | $\underline{34.9}$ |
| $\underline{2599}$ | $\underline{38.4}$ | $\underline{21.9}$ |
| $\underline{2600}$ | $\underline{38.6}$ | $\underline{31.5}$ |
| $\underline{\underline{3601}}$ | $\underline{39.1}$ | $\underline{10.7}$ |
| $\underline{\underline{2602}}$ | $\underline{39}$ | $\underline{9.8}$ |
| $\underline{2603}$ | $\underline{38.9}$ | $\underline{4.6}$ |
| $\underline{2604}$ | $\underline{40}$ | $\underline{37.2}$ |
| $\underline{2605}$ | $\underline{40.2}$ | $\underline{(a)}$ |
| $\underline{2606}$ | $\underline{41}$ | $\underline{41.4}$ |
| $\underline{2607}$ | $\underline{42.9}$ | $\underline{36}$ |
| $\underline{2608}$ | $\underline{42.5}$ | $\underline{(a)}$ |
| $\underline{2609}$ | $\underline{41.2}$ | $\underline{(a)}$ |
| $\underline{2610}$ | $\underline{40.9}$ | $\underline{23.2}$ |
| $\underline{2611}$ | $\underline{40.9}$ | $\underline{8.6}$ |
| $\underline{2612}$ | $\underline{40.4}$ | $\underline{7.5}$ |
| $\underline{2613}$ | $\underline{40.2}$ | $\underline{13.8}$ |
| $\underline{2614}$ | $\underline{40.4}$ | $\underline{23.4}$ |
| $\underline{2615}$ | $\underline{40.9}$ | $\underline{31.8}$ |
| $\underline{2616}$ | $\underline{41.1}$ | $\underline{21.4}$ |
| $\underline{2617}$ | $\underline{41.8}$ | $\underline{39}$ |
| $\underline{2618}$ | $\underline{43.1}$ | $\underline{38.6}$ |
| $\underline{2619}$ | $\underline{43.1}$ | $\underline{5.1}$ |
| $\underline{2620}$ | $\underline{43.6}$ | $\underline{42.2}$ |
| $\underline{2621}$ | $\underline{44.9}$ | $\underline{40.6}$ |
| $\underline{2622}$ | $\underline{44.2}$ | $\underline{(a)}$ |
| $\underline{2623}$ | $\underline{42.8}$ | $\underline{(a)}$ |
| $\underline{2624}$ | $\underline{42.2}$ | $\underline{29.3}$ |
| $\underline{2625}$ | $\underline{41.8}$ | $\underline{13.5}$ |
| $\underline{2626}$ | $\underline{41.4}$ | $\underline{30.6}$ |
| $\underline{2627}$ | $\underline{41.2}$ | $\underline{15.3}$ |
| $\underline{2628}$ | $\underline{40.8}$ | $\underline{26.4}$ |
| $\underline{2629}$ | $\underline{40.3}$ | $\underline{21.9}$ |
| $\underline{2630}$ | $\underline{40.2}$ | $\underline{30.7}$ |
| $\underline{2631}$ | $\underline{40.2}$ | $\underline{28.1}$ |
| $\underline{2632}$ | $\underline{26.8}$ |  |
| $\underline{2633}$ | $\underline{40.2}$ |  |


| $\underline{2634}$ | 40.4 | 30.7 |
| :---: | :---: | :---: |
| $\underline{2635}$ | 40.7 | 38.9 |
| 2636 | 41.2 | 36.4 |
| 2637 | 41.5 | 36.5 |
| 2638 | 41.8 | 35.6 |
| 2639 | 42 | 35.8 |
| $\underline{2640}$ | 41.6 | 13.2 |
| $\underline{2641}$ | 41 | $\underline{22.6}$ |
| 2642 | 41.2 | 36.5 |
| $\underline{2643}$ | 41.4 | 29.7 |
| $\underline{2644}$ | 41.5 | 21.1 |
| $\underline{2645}$ | 41.4 | 21.8 |
| $\underline{2646}$ | 41.5 | $\underline{20.2}$ |
| $\underline{2647}$ | 41.6 | $\underline{\underline{24}}$ |
| $\underline{2648}$ | 41.7 | $\underline{21.9}$ |
| $\underline{2649}$ | 41.9 | 25.3 |
| $\underline{2650}$ | 41 | (a) |
| $\underline{2651}$ | 40.9 | 36.6 |
| $\underline{2652}$ | 41.2 | 14.7 |
| $\underline{2653}$ | 41.5 | 32.6 |
| 2654 | 41.8 | $\underline{21.5}$ |
| $\underline{2655}$ | 41.8 | $\underline{24.1}$ |
| $\underline{2656}$ | 42 | $\underline{26.5}$ |
| 2657 | 42 | 16.9 |
| $\underline{2658}$ | 41.6 | 18.7 |
| 2659 | 41.6 | 33.4 |
| 2660 | 42 | 42.5 |
| $\underline{2661}$ | 43.5 | $\underline{72}$ |
| $\underline{2662}$ | 45.9 | 51.3 |
| $\underline{2663}$ | 45.4 | (a) |
| 2664 | 46.1 | 46.3 |
| $\underline{2665}$ | 47.1 | (a) |
| $\underline{2666}$ | 46.7 | 9.4 |
| $\underline{2667}$ | 45.7 | (a) |
| 2668 | 44.4 | 0.1 |
| 2669 | 43.2 | (a) |
| $\underline{2670}$ | 42.5 | 5.9 |
| $\underline{2671}$ | 42.6 | 7 |
| $\underline{2672}$ | 42.8 | 8.9 |
| $\underline{2673}$ | 43.2 | (a) |


| $\underline{2674}$ | 43.4 | (a) |
| :---: | :---: | :---: |
| $\underline{\underline{2675}}$ | 43.7 | (a) |
| $\underline{2676}$ | 44.2 | (a) |
| $\underline{2677}$ | 43.3 | (a) |
| $\underline{\underline{2678}}$ | $\underline{42}$ | (a) |
| $\underline{2679}$ | 40.9 | (a) |
| $\underline{2680}$ | 41 | (a) |
| $\underline{2681}$ | 40.5 | (a) |
| $\underline{2682}$ | 39 | (a) |
| $\underline{2683}$ | 37.6 | (a) |
| $\underline{2684}$ | $\underline{36}$ | (a) |
| $\underline{2685}$ | 33.2 | (a) |
| $\underline{\underline{2686}}$ | 32.2 | (a) |
| $\underline{2687}$ | 29.5 | (a) |
| $\underline{2688}$ | $\underline{27.2}$ | (a) |
| $\underline{2689}$ | $\underline{24.5}$ | (a) |
| $\underline{2690}$ | $\underline{21.5}$ | (a) |
| $\underline{2691}$ | 17.9 | (a) |
| $\underline{2692}$ | 37.6 | 9.6 |
| $\underline{\underline{2693}}$ | $\underline{24.4}$ | (a) |
| $\underline{\underline{2694}}$ | 19.8 | (a) |
| $\underline{\underline{2695}}$ | 16.8 | 15.6 |
| $\underline{2696}$ | 38.2 | 4.6 |
| $\underline{2697}$ | 35.3 | 53.2 |
| $\underline{2698}$ | 34.8 | (a) |
| $\underline{2699}$ | $\underline{28}$ | (a) |
| $\underline{2700}$ | 18.9 | (a) |
| $\underline{2701}$ | 40.1 | 12.9 |
| $\underline{2702}$ | $\underline{28.6}$ | (a) |
| $\underline{2703}$ | 16.4 | (a) |
| $\underline{2704}$ | 10.4 | (a) |
| $\underline{2705}$ | 33.4 | 9.5 |
| $\underline{2706}$ | 28.5 | 3.5 |
| $\underline{2707}$ | $\underline{29.1}$ | 14.7 |
| $\underline{2708}$ | 36.1 | 19.7 |
| $\underline{2709}$ | 43.7 | $\underline{21.1}$ |
| $\underline{2710}$ | 51.1 | 14.7 |
| $\underline{2711}$ | 55.9 | $\underline{21.4}$ |
| $\underline{2712}$ | 66.5 | 34.1 |


| $\underline{2713}$ | $\underline{68.3}$ | $\underline{19.9}$ |
| :---: | :---: | :---: |
| $\underline{2714}$ | $\underline{40.6}$ | $\underline{23.4}$ |
| $\underline{2715}$ | $\underline{53.5}$ | $\underline{75.5}$ |
| $\underline{2716}$ | $\underline{63.9}$ | $\underline{17.2}$ |
| $\underline{2717}$ | $\underline{64.5}$ | $\underline{11.6}$ |
| $\underline{2718}$ | $\underline{36.4}$ | $\underline{2.4}$ |
| $\underline{2719}$ | $\underline{34.5}$ | $\underline{50}$ |
| $\underline{2720}$ | $\underline{39.1}$ | $\underline{24}$ |
| $\underline{2721}$ | $\underline{41.7}$ | $\underline{26.3}$ |
| $\underline{2722}$ | $\underline{43.6}$ | $\underline{20.8}$ |
| $\underline{2723}$ | $\underline{45.5}$ | $\underline{28.8}$ |
| $\underline{2724}$ | $\underline{47.5}$ | $\underline{27.2}$ |
| $\underline{2725}$ | $\underline{47.6}$ | $\underline{20.8}$ |
| $\underline{2726}$ | $\underline{48.4}$ | $\underline{30.2}$ |
| $\underline{2727}$ | $\underline{48.3}$ | $\underline{20.1}$ |
| $\underline{2728}$ | $\underline{50.2}$ | $\underline{(\text { a }})$ |
| $\underline{2729}$ | $\underline{49.6}$ | $\underline{(a)}$ |
| $\underline{2730}$ | $\underline{46.6}$ | $\underline{(a)}$ |
| $\underline{2731}$ | $\underline{44.7}$ | $\underline{(\text { a })}$ |
| $\underline{2732}$ | $\underline{43.1}$ | $\underline{(a)}$ |
| $\underline{2733}$ | $\underline{41.2}$ | $\underline{(a)}$ |
| $\underline{2734}$ | $\underline{40.1}$ | $\underline{1.5}$ |
| $\underline{2735}$ | $\underline{39.5}$ | $\underline{(a)}$ |
| $\underline{2736}$ | $\underline{37.2}$ | $\underline{(a)}$ |
| $\underline{2737}$ | $\underline{34.7}$ | $\underline{(a)}$ |
| $\underline{2738}$ | $\underline{29.9}$ | $\underline{(a)}$ |
| $\underline{2739}$ | $\underline{21.9}$ | $\underline{(a)}$ |
| $\underline{2740}$ | $\underline{27.2}$ | $\underline{14.2}$ |
| $\underline{2741}$ | $\underline{29.7}$ | $\underline{0.3}$ |
| $\underline{2742}$ | $\underline{24.4}$ | $\underline{(a)}$ |
| $\underline{2743}$ | $\underline{10.1}$ | $\underline{(a)}$ |
| $\underline{2744}$ | $\underline{10.4}$ | $\underline{(a)}$ |
| $\underline{2745}$ | $\underline{16.1}$ | $\underline{11.8}$ |
| $\underline{2746}$ | $\underline{16.5}$ | $\underline{9.6}$ |
| $\underline{2747}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2748}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2749}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2750}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{\underline{0}}$ | $\underline{0}$ |  |


| 2753 | 0 | 0 |
| :---: | :---: | :---: |
| 2754 | 0 | 0 |
| 2755 | 5.6 | 23 |
| 2756 | 19.9 | 33.9 |
| $\underline{2757}$ | 74.4 | 32.9 |
| $\underline{2758}$ | 60.9 | 1 |
| 2759 | 97.8 | 33.1 |
| 2760 | 55.9 | 2.2 |
| $\underline{2761}$ | 89.4 | 50.7 |
| $\underline{2762}$ | 54.9 | 1.2 |
| $\underline{2763}$ | 71.2 | 57.1 |
| $\underline{2764}$ | $\underline{90.9}$ | 17.2 |
| $\underline{2765}$ | 55.2 | 0.8 |
| 2766 | 75 | 77.5 |
| $\underline{2767}$ | 85.3 | $\underline{20.8}$ |
| $\underline{2768}$ | 52.8 | 13.4 |
| $\underline{2769}$ | 65.9 | 80.7 |
| $\underline{2770}$ | 85.7 | 74.1 |
| $\underline{2771}$ | 53.9 | 0.2 |
| 2772 | 55.1 | 62.4 |
| $\underline{2773}$ | 65.1 | 77 |
| $\underline{2774}$ | 77.2 | 83 |
| $\underline{2775}$ | 51.1 | 6.5 |
| $\underline{2776}$ | 46.7 | $\underline{52.1}$ |
| $\underline{2777}$ | 51.7 | 78.3 |
| $\underline{2778}$ | 58.5 | 62.4 |
| $\underline{2779}$ | 60.8 | 33.9 |
| 2780 | 62 | 48.1 |
| $\underline{2781}$ | 65.4 | 41.7 |
| 2782 | 67.2 | 23.3 |
| $\underline{2783}$ | 68.2 | 10.3 |
| $\underline{2784}$ | 36.5 | 3.2 |
| $\underline{2785}$ | 36 | 7.7 |
| 2786 | 36 | 27.9 |
| $\underline{2787}$ | 36.5 | 14.5 |
| $\underline{2788}$ | 35.9 | (a) |
| $\underline{2789}$ | 34.7 | (a) |
| 2790 | 33.3 | (a) |
| $\underline{2791}$ | 32 | (a) |
| $\underline{2792}$ | 30.6 | (a) |


| 2793 | 29.2 | (a) |
| :---: | :---: | :---: |
| $\underline{2794}$ | $\underline{29.2}$ | 39.4 |
| $\underline{2795}$ | 30 | (a) |
| $\underline{2796}$ | 30 | 36.7 |
| $\underline{2797}$ | 32.3 | $\underline{24.1}$ |
| $\underline{2798}$ | 33.2 | 37.9 |
| $\underline{2799}$ | 33.8 | 53.5 |
| $\underline{2800}$ | 35.7 | 53.5 |
| 2801 | 36.9 | $\underline{29}$ |
| $\underline{2802}$ | 37.2 | $\underline{26.9}$ |
| $\underline{2803}$ | 37.8 | 1.8 |
| $\underline{2804}$ | 37.4 | 17.4 |
| $\underline{\underline{2805}}$ | 37.4 | 9.8 |
| $\underline{2806}$ | 37.6 | 16.8 |
| $\underline{2807}$ | 38.5 | 36.7 |
| $\underline{2808}$ | 38.8 | 0.3 |
| $\underline{2809}$ | 39.5 | (a) |
| $\underline{2810}$ | 40.2 | (a) |
| $\underline{2811}$ | $\underline{41.3}$ | 38.9 |
| $\underline{2812}$ | 42 | 59.2 |
| $\underline{2813}$ | 42.8 | 83.1 |
| $\underline{2814}$ | 44.5 | 93.3 |
| $\underline{2815}$ | 45.6 | 19.9 |
| $\underline{2816}$ | 46.3 | 40.8 |
| $\underline{2817}$ | 45.6 | (a) |
| $\underline{2818}$ | 43.7 | (a) |
| 2819 | 42.4 | 10.3 |
| $\underline{2820}$ | 41.8 | $\underline{20}$ |
| $\underline{2821}$ | 41.6 | 36.9 |
| $\underline{2822}$ | 41 | 30.8 |
| $\underline{2823}$ | 38.3 | (a) |
| $\underline{2824}$ | 35.1 | (a) |
| $\underline{2825}$ | 32.5 | $\underline{5}$ |
| $\underline{2826}$ | 31.5 | (a) |
| $\underline{2827}$ | $\underline{29.4}$ | (a) |
| $\underline{2828}$ | $\underline{27.3}$ | 17.8 |
| $\underline{2829}$ | $\underline{26}$ | (a) |
| $\underline{2830}$ | $\underline{24.1}$ | (a) |
| $\underline{2831}$ | $\underline{21.2}$ | 2.8 |
| $\underline{2832}$ | 18.8 | 18.7 |


| 2833 | 17.5 | (a) |
| :---: | :---: | :---: |
| $\underline{2834}$ | 37.4 | $\underline{20.4}$ |
| $\underline{2835}$ | 36.9 | (a) |
| $\underline{2836}$ | 31.3 | (a) |
| $\underline{2837}$ | $\underline{25.4}$ | (a) |
| $\underline{2838}$ | $\underline{22.2}$ | (a) |
| $\underline{2839}$ | $\underline{20.2}$ | (a) |
| $\underline{2840}$ | 17.8 | (a) |
| $\underline{2841}$ | 39.4 | $\underline{19.9}$ |
| $\underline{2842}$ | 30.1 | (a) |
| $\underline{2843}$ | $\underline{23.8}$ | (a) |
| 2844 | 18 | 0.7 |
| 2845 | 40.1 | 10.2 |
| 2846 | 30.6 | 20.8 |
| $\underline{2847}$ | 26.2 | (a) |
| $\underline{2848}$ | $\underline{22.5}$ | (a) |
| $\underline{2849}$ | 20.6 | (a) |
| $\underline{2850}$ | 18.4 | (a) |
| $\underline{2851}$ | 17.5 | (a) |
| $\underline{2852}$ | 19 | (a) |
| 2853 | 21.8 | 3.9 |
| $\underline{2854}$ | $\underline{28.5}$ | 24.2 |
| $\underline{2855}$ | 36.5 | 10 |
| $\underline{2856}$ | 44.9 | $\underline{26}$ |
| 2857 | 56.8 | $\underline{27.8}$ |
| $\underline{2858}$ | 61.9 | (a) |
| $\underline{2859}$ | $\underline{55.5}$ | $\underline{13.5}$ |
| $\underline{2860}$ | 38.2 | (a) |
| $\underline{2861}$ | 40.9 | (a) |
| $\underline{2862}$ | 43.5 | (a) |
| $\underline{2863}$ | 44.3 | (a) |
| $\underline{2864}$ | 41.6 | (a) |
| $\underline{2865}$ | 39.5 | (a) |
| $\underline{2866}$ | 37.3 | (a) |
| $\underline{2867}$ | 37 | (a) |
| $\underline{2868}$ | 37.4 | (a) |
| $\underline{2869}$ | 37.7 | (a) |
| $\underline{2870}$ | 38.8 | (a) |
| $\underline{2871}$ | 39 | (a) |


| 2872 | 38.5 | (a) |
| :---: | :---: | :---: |
| $\underline{\underline{2873}}$ | 38.5 | (a) |
| $\underline{\underline{2874}}$ | 38.7 | (a) |
| $\underline{2875}$ | 38.6 | (a) |
| $\underline{2876}$ | 41 | 7.9 |
| $\underline{2877}$ | 41.1 | (a) |
| $\underline{\underline{2878}}$ | 42.5 | 18.9 |
| $\underline{2879}$ | 46.9 | 37.1 |
| $\underline{2880}$ | 54 | 59.6 |
| $\underline{2881}$ | 59.1 | 32.2 |
| 2882 | 64.1 | 48.6 |
| $\underline{2883}$ | 71.8 | 61.2 |
| $\underline{2884}$ | 88.5 | 48.4 |
| $\underline{2885}$ | 46.5 | 2.9 |
| $\underline{2886}$ | 47.6 | 80.3 |
| $\underline{\underline{2887}}$ | 53.5 | 84.4 |
| $\underline{2888}$ | 60.7 | 91.2 |
| $\underline{2889}$ | 68 | 89.5 |
| $\underline{\underline{2890}}$ | 83.8 | $\underline{30}$ |
| $\underline{2891}$ | 38.8 | 3.1 |
| $\underline{2892}$ | 40.5 | 84.5 |
| $\underline{2893}$ | 43.8 | 87.5 |
| $\underline{2894}$ | 47.6 | 94.8 |
| $\underline{2895}$ | 51.6 | 97.2 |
| $\underline{\underline{2896}}$ | 55.2 | 89.3 |
| $\underline{\underline{2897}}$ | 57.4 | 71.7 |
| $\underline{2898}$ | 59.1 | 71.9 |
| $\underline{2899}$ | 61 | 85.6 |
| $\underline{\underline{2900}}$ | 62.4 | 77.7 |
| $\underline{2901}$ | 63.3 | 66.2 |
| $\underline{\underline{2902}}$ | 63.7 | $\underline{57.5}$ |
| $\underline{\underline{2903}}$ | 64.8 | 12.5 |
| $\underline{\underline{2904}}$ | 36.2 | 0.2 |
| $\underline{2905}$ | 36.1 | 40.1 |
| $\underline{2906}$ | 36.4 | 53.8 |
| $\underline{\underline{2907}}$ | 37.2 | 62.7 |
| $\underline{\underline{2908}}$ | 38.3 | 67.1 |
| $\underline{\underline{2909}}$ | 39.6 | $\underline{51.8}$ |
| $\underline{\underline{2910}}$ | 40.1 | $\underline{54.1}$ |
| $\underline{2911}$ | 40.1 | 34.6 |


| $\underline{2912}$ | 39.8 | 40.2 |
| :---: | :---: | :---: |
| $\underline{2913}$ | 40.8 | 56.1 |
| $\underline{2914}$ | 40.3 | 37.3 |
| $\underline{2915}$ | 40.6 | 45.8 |
| $\underline{\underline{2916}}$ | $\underline{40.6}$ | (a) |
| $\underline{\underline{2917}}$ | $\underline{40}$ | 11.8 |
| $\underline{2918}$ | 40.1 | 18.5 |
| $\underline{2919}$ | 39.2 | 25.2 |
| 2920 | 38.8 | 40.6 |
| $\underline{2921}$ | 39 | 38.4 |
| $\underline{2922}$ | 39 | 40 |
| $\underline{\underline{2923}}$ | 38.6 | 71.7 |
| $\underline{2924}$ | 38.9 | 89.2 |
| $\underline{2925}$ | 40.1 | 18.1 |
| $\underline{2926}$ | 40.5 | (a) |
| $\underline{2927}$ | 40.5 | (a) |
| $\underline{2928}$ | 40.1 | (a) |
| $\underline{2929}$ | 38.6 | (a) |
| $\underline{2930}$ | 36.9 | (a) |
| $\underline{2931}$ | 35.6 | (a) |
| $\underline{2932}$ | 34.3 | (a) |
| $\underline{2933}$ | 33.2 | (a) |
| $\underline{2934}$ | 32.4 | 7.6 |
| $\underline{2935}$ | 32.2 | (a) |
| $\underline{\underline{2936}}$ | 31.3 | 30.2 |
| 2937 | 31.9 | 21.1 |
| $\underline{2938}$ | 31.2 | 8.6 |
| $\underline{2939}$ | 31.2 | 34.6 |
| $\underline{2940}$ | 31.4 | 5.8 |
| $\underline{2941}$ | 30.6 | (a) |
| $\underline{2942}$ | $\underline{29.8}$ | (a) |
| $\underline{2943}$ | $\underline{29.4}$ | 37.9 |
| $\underline{2944}$ | 30.2 | 66.9 |
| $\underline{\underline{2945}}$ | 30.9 | 44.1 |
| $\underline{2946}$ | 31.1 | 35.5 |
| $\underline{\underline{2947}}$ | 31.1 | 9.2 |
| 2948 | 30.4 | 20.2 |
| $\underline{2949}$ | 30.5 | 38.2 |
| $\underline{\underline{2950}}$ | 31 | 51.1 |
| $\underline{2951}$ | 32.1 | 79.8 |


| $\underline{2952}$ | 32.8 | 30.1 |
| :---: | :---: | :---: |
| $\underline{2953}$ | 32.1 | 0.1 |
| $\underline{2954}$ | 31.2 | (a) |
| $\underline{2955}$ | 30.1 | (a) |
| $\underline{2956}$ | $\underline{\underline{29}}$ | (a) |
| 2957 | 28.1 | 0.8 |
| $\underline{2958}$ | $\underline{28}$ | 19.9 |
| $\underline{2959}$ | $\underline{27.8}$ | $\underline{22}$ |
| 2960 | 27.4 | (a) |
| $\underline{2961}$ | $\underline{26.2}$ | (a) |
| $\underline{2962}$ | $\underline{25.3}$ | (a) |
| $\underline{2963}$ | $\underline{24.7}$ | 14.5 |
| $\underline{2964}$ | $\underline{24.4}$ | 34.1 |
| $\underline{\underline{2965}}$ | $\underline{24.6}$ | 47.9 |
| $\underline{\underline{2966}}$ | $\underline{\underline{25}}$ | 59.8 |
| $\underline{2967}$ | $\underline{25}$ | 57.9 |
| $\underline{2968}$ | 24.6 | 66.1 |
| $\underline{2969}$ | $\underline{24}$ | $\underline{22.9}$ |
| 2970 | 21.8 | 40 |
| $\underline{2971}$ | $\underline{21.7}$ | 68.7 |
| $\underline{2972}$ | $\underline{22.8}$ | (a) |
| $\underline{2973}$ | $\underline{21.1}$ | (a) |
| $\underline{2974}$ | 18.3 | (a) |
| $\underline{2975}$ | 20.6 | 10.1 |
| $\underline{2976}$ | 40.2 | 3.7 |
| $\underline{2977}$ | 39.6 | 62.7 |
| $\underline{2978}$ | 41.5 | 38.1 |
| $\underline{2979}$ | 41.8 | 11.7 |
| $\underline{2980}$ | 41.6 | (a) |
| 2981 | 39.9 | (a) |
| $\underline{2982}$ | 38.9 | (a) |
| $\underline{2983}$ | 38.2 | 12.5 |
| 2984 | 37.8 | 27 |
| 2985 | 38.3 | 25.4 |
| $\underline{2986}$ | 39 | $\underline{21}$ |
| 2987 | 39.9 | 17.6 |
| $\underline{2988}$ | 40.7 | 36.7 |
| $\underline{2989}$ | 41.1 | 47.3 |
| 2990 | 40.5 | 34.5 |
| $\underline{2991}$ | 40.6 | 3.8 |


| 2992 | 40.2 | (a) |
| :---: | :---: | :---: |
| $\underline{2993}$ | 40 | (a) |
| $\underline{2994}$ | 40.4 | 18.4 |
| $\underline{2995}$ | 41.7 | 30.6 |
| $\underline{2996}$ | 42.6 | $\underline{27.8}$ |
| $\underline{2997}$ | 43.4 | 18.8 |
| $\underline{2998}$ | 43.2 | 15.5 |
| $\underline{2999}$ | 43.5 | $\underline{21.1}$ |
| 3000 | 43.9 | 16.5 |
| 3001 | 44.1 | 11 |
| 3002 | 43.6 | 0.9 |
| 3003 | 42.8 | 2.5 |
| 3004 | 42.4 | 31.4 |
| 3005 | 43.2 | 48.8 |
| 3006 | 44.3 | 39.9 |
| $\underline{3007}$ | 44.9 | 41.2 |
| 3008 | 45.2 | 46.6 |
| 3009 | 45.7 | 53.4 |
| $\underline{3010}$ | 46.7 | $\underline{44.3}$ |
| 3011 | 47.4 | 40.7 |
| 3012 | 47.7 | $\underline{21.3}$ |
| $\underline{3013}$ | $\underline{46.5}$ | 10.7 |
| 3014 | 45.9 | 14 |
| 3015 | 45.5 | 12.2 |
| $\underline{3016}$ | 45.4 | 9.7 |
| 3017 | 45 | 8.3 |
| 3018 | 44.3 | 37.6 |
| 3019 | 43.8 | 63.1 |
| 3020 | 44.9 | 85.9 |
| 3021 | 48.1 | 94.1 |
| 3022 | 51 | 50.2 |
| 3023 | 52.9 | 22.7 |
| 3024 | 53.3 | 0.9 |
| 3025 | $\underline{52.8}$ | 3.9 |
| 3026 | 52.1 | (a) |
| 3027 | 51.5 | (a) |
| 3028 | 50.8 | (a) |
| $\underline{3029}$ | $\underline{49.9}$ | (a) |
| 3030 | 48.4 | $\underline{20.6}$ |
| $\underline{3031}$ | 47.7 | 33.2 |


| 3032 | 48.2 | 1.7 |
| :---: | :---: | :---: |
| 3033 | 48.7 | (a) |
| 3034 | 47.7 | (a) |
| 3035 | 45.6 | 38.3 |
| $\underline{3036}$ | 45.8 | 49.5 |
| 3037 | 47 | (a) |
| 3038 | 47.1 | 6.7 |
| 3039 | 46.7 | 12.3 |
| 3040 | 46.4 | 20.6 |
| 3041 | 46.6 | 32.4 |
| 3042 | 47.3 | 11.8 |
| $\underline{3043}$ | 46.3 | (a) |
| 3044 | 44.9 | (a) |
| $\underline{3045}$ | 43.6 | 15.7 |
| 3046 | 44 | $\underline{29.1}$ |
| 3047 | 44.4 | 17.1 |
| 3048 | 44.8 | $\underline{23}$ |
| 3049 | 44.9 | $\underline{21.9}$ |
| 3050 | 45.1 | $\underline{21.5}$ |
| 3051 | 44.8 | 36.8 |
| 3052 | 44.8 | 40 |
| 3053 | 45.4 | 8.4 |
| 3054 | 44.5 | $\underline{22.7}$ |
| $\underline{3055}$ | 44 | $\underline{43}$ |
| $\underline{3056}$ | 45.2 | 16.5 |
| 3057 | 45.5 | (a) |
| 3058 | 45 | 4 |
| 3059 | $\underline{47}$ | 12.5 |
| 3060 | 45.8 | (a) |
| 3061 | 45.6 | (a) |
| 3062 | 45.2 | (a) |
| $\underline{3063}$ | 44.2 | (a) |
| 3064 | 42.6 | (a) |
| 3065 | 41.2 | (a) |
| $\underline{3066}$ | 39.6 | (a) |
| 3067 | 37.3 | (a) |
| 3068 | 35.6 | (a) |
| 3069 | 34.6 | (a) |
| 3070 | 33.4 | (a) |
| 3071 | 31.9 | (a) |


| $\underline{3072}$ | $\underline{29.8}$ | $\underline{(a)}$ |
| :---: | :---: | :---: |
| $\underline{3073}$ | $\underline{28.2}$ | $\underline{2.7}$ |
| $\underline{3074}$ | $\underline{28.7}$ | $\underline{25}$ |
| $\underline{3075}$ | $\underline{28}$ | $\underline{(a)}$ |
| $\underline{3076}$ | $\underline{27.2}$ | $\underline{(a)}$ |
| $\underline{3077}$ | $\underline{24.8}$ | $\underline{(a)}$ |
| $\underline{3078}$ | $\underline{21.8}$ | $\underline{(a)}$ |
| $\underline{3079}$ | $\underline{19.5}$ | $\underline{(a)}$ |
| $\underline{3080}$ | $\underline{17.4}$ | $\underline{(a)}$ |
| $\underline{3081}$ | $\underline{41.9}$ | $\underline{19.2}$ |
| $\underline{3082}$ | $\underline{38}$ | $\underline{(a)}$ |
| $\underline{3083}$ | $\underline{35.2}$ | $\underline{(a)}$ |
| $\underline{3084}$ | $\underline{31.2}$ | $\underline{(a)}$ |
| $\underline{3085}$ | $\underline{27.6}$ | $\underline{3}$ |
| $\underline{3086}$ | $\underline{29.3}$ | $\underline{42.9}$ |
| $\underline{3087}$ | $\underline{29.7}$ | $\underline{38.8}$ |
| $\underline{3088}$ | $\underline{27}$ | $\underline{(a)}$ |
| $\underline{3089}$ | $\underline{25.1}$ | $\underline{(a)}$ |
| $\underline{3090}$ | $\underline{20}$ | $\underline{(a)}$ |
| $\underline{3091}$ | $\underline{34.3}$ | $\underline{15.3}$ |
| $\underline{3092}$ | $\underline{25.8}$ | $\underline{(a)}$ |
| $\underline{3093}$ | $\underline{22.1}$ | $\underline{(a)}$ |
| $\underline{3094}$ | $\underline{20.7}$ | $\underline{(a)}$ |
| $\underline{3095}$ | $\underline{19}$ | $\underline{(a)}$ |
| $\underline{3096}$ | $\underline{34}$ | $\underline{17.2}$ |
| $\underline{3097}$ | $\underline{26.1}$ | $\underline{1.2}$ |
| $\underline{3098}$ | $\underline{11.7}$ | $\underline{7.9}$ |
| $\underline{3099}$ | $\underline{14.6}$ | $\underline{7.5}$ |
| $\underline{3100}$ | $\underline{2.1}$ | $\underline{0.3}$ |
| $\underline{3101}$ | $\underline{0.1}$ | $\underline{2.1}$ |
| $\underline{3102}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3103}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3104}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3105}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3106}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3107}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3108}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3109}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{0}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| $\underline{3112}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{3113}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3114}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3115}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3116}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3117}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3118}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3119}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3120}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3121}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3122}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3123}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3124}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3125}$ | $\underline{0.6}$ | $\underline{10.4}$ |
| $\underline{3126}$ | $\underline{7.6}$ | $\underline{32.5}$ |
| $\underline{3127}$ | $\underline{14.8}$ | $\underline{14.4}$ |
| $\underline{3128}$ | $\underline{33.9}$ | $\underline{8.5}$ |
| $\underline{3129}$ | $\underline{57.6}$ | $\underline{11.5}$ |
| $\underline{3130}$ | $\underline{66.3}$ | $\underline{12.2}$ |
| $\underline{3131}$ | $\underline{71.7}$ | $\underline{30.5}$ |
| $\underline{3132}$ | $\underline{44.1}$ | $\underline{5.8}$ |
| $\underline{3133}$ | $\underline{53.4}$ | $\underline{37.5}$ |
| $\underline{3134}$ | $\underline{106.1}$ | $\underline{78.9}$ |
| $\underline{3135}$ | $\underline{43.8}$ | $\underline{1.9}$ |
| $\underline{3136}$ | $\underline{60}$ | $\underline{59.6}$ |
| $\underline{3137}$ | $\underline{90.4}$ | $\underline{70.2}$ |
| $\underline{3138}$ | $\underline{62.1}$ | $\underline{1.8}$ |
| $\underline{3139}$ | $\underline{71.3}$ | $\underline{61.6}$ |
| $\underline{3140}$ | $\underline{85.2}$ | $\underline{26.5}$ |
| $\underline{3141}$ | $\underline{54.6}$ | $\underline{20.2}$ |
| $\underline{3142}$ | $\underline{64.1}$ | $\underline{71.4}$ |
| $\underline{3143}$ | $\underline{76.1}$ | $\underline{46.3}$ |
| $\underline{3144}$ | $\underline{51.8}$ | $\underline{0.8}$ |
| $\underline{3145}$ | $\underline{50.9}$ | $\underline{(a)}$ |
| $\underline{3146}$ | $\underline{51.3}$ | $\underline{(a)}$ |
| $\underline{3147}$ | $\underline{51.6}$ | $\underline{(a)}$ |
| $\underline{3148}$ | $\underline{51.9}$ | $\underline{(a)}$ |
| $\underline{3149}$ | $\underline{51.9}$ | $\underline{(a}$ |
| $\underline{3150}$ | $\underline{51.4}$ | $\underline{(a)}$ |
| $\underline{\text { a }}$ |  |  |


| 3152 | 48.6 | (a) |
| :---: | :---: | :---: |
| $\underline{3153}$ | $\underline{47.3}$ | (a) |
| 3154 | 47.1 | (a) |
| 3155 | 47.9 | 4.9 |
| 3156 | 49.6 | 14 |
| 3157 | 52.5 | $\underline{26}$ |
| 3158 | 54.8 | 14.1 |
| 3159 | 56.1 | 5.8 |
| $\underline{3160}$ | $\underline{57}$ | 3.4 |
| 3161 | 57.9 | 5.5 |
| $\underline{3162}$ | $\underline{58}$ | 7.5 |
| $\underline{3163}$ | 34.6 | (a) |
| 3164 | 34.3 | (a) |
| $\underline{3165}$ | 34.2 | $\underline{20.5}$ |
| 3166 | 34.8 | 25.1 |
| 3167 | 35.3 | 24.8 |
| 3168 | 36.1 | 30.5 |
| 3169 | 37.2 | 32.4 |
| $\underline{3170}$ | 38.1 | $\underline{28.6}$ |
| 3171 | 38.8 | $\underline{25.7}$ |
| 3172 | 39.5 | 26.4 |
| 3173 | 40.2 | $\underline{27}$ |
| $\underline{3174}$ | 40.9 | $\underline{23.3}$ |
| $\underline{3175}$ | 41.2 | $\underline{21.8}$ |
| $\underline{3176}$ | $\underline{42}$ | $\underline{32.6}$ |
| $\underline{3177}$ | 43.4 | 41.2 |
| $\underline{3178}$ | 46.2 | 74.3 |
| 3179 | 50.5 | 90.2 |
| 3180 | 53.9 | 41.2 |
| 3181 | 54.1 | 13.4 |
| 3182 | 53.5 | (a) |
| $\underline{3183}$ | 51.9 | (a) |
| $\underline{3184}$ | 50.3 | (a) |
| $\underline{3185}$ | 48.4 | (a) |
| 3186 | $\underline{47}$ | (a) |
| $\underline{3187}$ | 46 | (a) |
| 3188 | 44.6 | (a) |
| 3189 | 42.5 | (a) |
| $\underline{3190}$ | 38.1 | (a) |
| 3191 | 35.1 | (a) |


| 3192 | 33 | (a) |
| :---: | :---: | :---: |
| $\underline{3193}$ | 31.5 | (a) |
| 3194 | 30.8 | 11.8 |
| $\underline{3195}$ | 30.8 | 15.6 |
| $\underline{3196}$ | 30.6 | (a) |
| 3197 | $\underline{28}$ | (a) |
| $\underline{3198}$ | $\underline{21.4}$ | (a) |
| 3199 | 33.8 | $\underline{6}$ |
| $\underline{3200}$ | $\underline{20.7}$ | (a) |
| 3201 | $\underline{32}$ | 8.3 |
| 3202 | $\underline{\underline{24}}$ | (a) |
| 3203 | 19.9 | (a) |
| 3204 | 40.2 | 16.1 |
| $\underline{3205}$ | 43.3 | $\underline{26}$ |
| 3206 | 49.5 | $\underline{24.1}$ |
| 3207 | 52.6 | 16.2 |
| $\underline{3208}$ | 56.1 | 16.8 |
| 3209 | 57.4 | 1.5 |
| 3210 | 54.3 | (a) |
| $\underline{3211}$ | 51 | (a) |
| 3212 | 47.8 | (a) |
| 3213 | 44.7 | (a) |
| 3214 | $\underline{41}$ | (a) |
| $\underline{3215}$ | 37.3 | (a) |
| $\underline{3216}$ | 31.4 | (a) |
| $\underline{3217}$ | $\underline{20.8}$ | (a) |
| $\underline{3218}$ | 34.5 | 10.9 |
| 3219 | $\underline{29}$ | (a) |
| 3220 | $\underline{22.3}$ | (a) |
| $\underline{3221}$ | 13.8 | (a) |
| 3222 | $\underline{21.9}$ | 6.8 |
| 3223 | 16.8 | 6.7 |
| 3224 | 18.1 | 12.5 |
| $\underline{3225}$ | 19.5 | 9.6 |
| 3226 | 20.9 | 10.3 |
| 3227 | $\underline{21.1}$ | 4.8 |
| 3228 | 16.2 | (a) |
| $\underline{3229}$ | 19.6 | 9.3 |
| $\underline{3230}$ | 13.5 | 1.1 |
| $\underline{3231}$ | 18.2 | (a) |


| $\underline{3232}$ | $\underline{13.9}$ | $\underline{6.2}$ |
| :---: | :---: | :---: |
| $\underline{3233}$ | $\underline{20.5}$ | $\underline{14.6}$ |
| $\underline{3234}$ | $\underline{33.4}$ | $\underline{9.2}$ |
| $\underline{3235}$ | $\underline{43.5}$ | $\underline{8}$ |
| $\underline{3236}$ | $\underline{54.4}$ | $\underline{8.7}$ |
| $\underline{3237}$ | $\underline{66.2}$ | $\underline{9.2}$ |
| $\underline{3238}$ | $\underline{43.1}$ | $\underline{1}$ |
| $\underline{3239}$ | $\underline{54}$ | $\underline{16.4}$ |
| $\underline{3240}$ | $\underline{69.3}$ | $\underline{13.6}$ |
| $\underline{3241}$ | $\underline{65.5}$ | $\underline{13.2}$ |
| $\underline{3242}$ | $\underline{\underline{50}}$ | $\underline{\underline{96.4}}$ |
| $\underline{3243}$ | $\underline{62.2}$ | $\underline{8.9}$ |
| $\underline{3244}$ | $\underline{60.4}$ | $\underline{4.5}$ |
| $\underline{3245}$ | $\underline{33.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3246}$ | $\underline{27.5}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3247}$ | $\underline{16.4}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3248}$ | $\underline{23.9}$ | $\underline{6.8}$ |
| $\underline{3249}$ | $\underline{13.5}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3250}$ | $\underline{21.9}$ | $\underline{1}$ |
| $\underline{3251}$ | $\underline{15.2}$ | $\underline{8.3}$ |
| $\underline{3252}$ | $\underline{24.2}$ | $\underline{16.5}$ |
| $\underline{3253}$ | $\underline{35.3}$ | $\underline{10.4}$ |
| $\underline{3254}$ | $\underline{41.6}$ | $\underline{5.6}$ |
| $\underline{3255}$ | $\underline{39.6}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3256}$ | $\underline{37.9}$ | $\underline{3.5}$ |
| $\underline{3257}$ | $\underline{40.2}$ | $\underline{5.7}$ |
| $\underline{3258}$ | $\underline{43.8}$ | $\underline{5.7}$ |
| $\underline{3259}$ | $\underline{47}$ | $\underline{5.1}$ |
| $\underline{3260}$ | $\underline{51.7}$ | $\underline{7.4}$ |
| $\underline{3261}$ | $\underline{60.2}$ | $\underline{10.7}$ |
| $\underline{3262}$ | $\underline{69.7}$ | $\underline{10}$ |
| $\underline{3263}$ | $\underline{45}$ | $\underline{0.1}$ |
| $\underline{3264}$ | $\underline{37}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3265}$ | $\underline{29.3}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3266}$ | $\underline{20.4}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3267}$ | $\underline{12.8}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3268}$ | $\underline{30.2}$ | $\underline{4.2}$ |
| $\underline{3269}$ | $\underline{45.6}$ | $\underline{23.4}$ |
| $\underline{3270}$ | $\underline{66.8}$ | $\underline{15.6}$ |
| $\underline{13.6}$ |  |  |


| $\underline{3272}$ | $\underline{48.2}$ | $\underline{2.2}$ |
| :---: | :---: | :---: |
| $\underline{3273}$ | $\underline{41.3}$ | $\underline{(a)}$ |
| $\underline{3274}$ | $\underline{33.5}$ | $\underline{(a)}$ |
| $\underline{3275}$ | $\underline{26}$ | $\underline{(a)}$ |
| $\underline{3276}$ | $\underline{18.7}$ | $\underline{(a)}$ |
| $\underline{3277}$ | $\underline{12.2}$ | $\underline{0.2}$ |
| $\underline{3278}$ | $\underline{20.9}$ | $\underline{(a)}$ |
| $\underline{3279}$ | $\underline{12.8}$ | $\underline{6.5}$ |
| $\underline{3280}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3281}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3282}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3283}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3284}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3285}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3286}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3287}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3288}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3289}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3290}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3291}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3292}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3293}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3294}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3295}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3296}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3297}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3298}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3299}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3300}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3301}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3302}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3303}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3304}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3305}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3306}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3307}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3308}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3309}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3310}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| $\underline{3312}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{3313}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3314}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3315}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3316}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3317}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3318}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3319}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3320}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3321}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3322}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3323}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3324}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3325}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3326}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3327}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3328}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3329}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3330}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3331}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3332}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3333}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3334}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3335}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3336}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3337}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3338}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3339}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3340}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3341}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3342}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3343}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3344}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3345}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3346}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3347}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3348}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3349}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3350}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| $\underline{3352}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{3353}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3354}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3355}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3356}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3357}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3358}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3359}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3360}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3361}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3362}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3363}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3364}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3365}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3366}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3367}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3368}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3369}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3370}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3371}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3372}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3373}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3374}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3375}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3376}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3377}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3378}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3379}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3380}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3381}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3382}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3383}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3384}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3385}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3386}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3387}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3388}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3389}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3390}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| 3392 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 3393 | $\underline{0}$ | $\underline{0}$ |
| 3394 | $\underline{0}$ | $\underline{0}$ |
| 3395 | $\underline{0}$ | $\underline{0}$ |
| 3396 | $\underline{0}$ | $\underline{0}$ |
| 3397 | 0 | $\underline{0}$ |
| 3398 | $\underline{0}$ | $\underline{0}$ |
| 3399 | $\underline{0}$ | $\underline{0}$ |
| 3400 | $\underline{0}$ | $\underline{0}$ |
| 3401 | $\underline{0}$ | $\underline{0}$ |
| 3402 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3403}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3404}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3405}$ | $\underline{0}$ | $\underline{0}$ |
| 3406 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3407}$ | $\underline{0}$ | $\underline{0}$ |
| 3408 | 0 | $\underline{0}$ |
| $\underline{3409}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3410}$ | $\underline{0}$ | $\underline{0}$ |
| 3411 | 0 | $\underline{0}$ |
| 3412 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3413}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3414}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3415}$ | $\underline{0}$ | $\underline{0}$ |
| 3416 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3417}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3418}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3419}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3420}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3421}$ | $\underline{0}$ | $\underline{0}$ |
| 3422 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3423}$ | $\underline{0}$ | $\underline{0}$ |
| 3424 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3425}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3426}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3427}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3428}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3429}$ | $\underline{0}$ | $\underline{0}$ |
| 3430 | $\underline{0}$ | $\underline{0}$ |
| 3431 | $\underline{0}$ | $\underline{0}$ |


| 3432 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{3433}$ | $\underline{0}$ | $\underline{0}$ |
| 3434 | $\underline{0}$ | $\underline{0}$ |
| 3435 | $\underline{0}$ | $\underline{0}$ |
| 3436 | $\underline{0}$ | $\underline{0}$ |
| 3437 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3438}$ | $\underline{0}$ | $\underline{0}$ |
| 3439 | $\underline{0}$ | $\underline{0}$ |
| 3440 | $\underline{0}$ | $\underline{0}$ |
| 3441 | $\underline{0}$ | $\underline{0}$ |
| 3442 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3443}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3444}$ | $\underline{0}$ | $\underline{0}$ |
| 3445 | $\underline{0}$ | $\underline{0}$ |
| 3446 | $\underline{0}$ | $\underline{0}$ |
| 3447 | $\underline{0}$ | $\underline{0}$ |
| 3448 | $\underline{0}$ | $\underline{0}$ |
| 3449 | $\underline{0}$ | $\underline{0}$ |
| 3450 | $\underline{0}$ | $\underline{0}$ |
| 3451 | $\underline{0}$ | $\underline{0}$ |
| 3452 | 0 | 0 |
| 3453 | $\underline{0}$ | $\underline{0}$ |
| 3454 | $\underline{0}$ | $\underline{0}$ |
| 3455 | $\underline{0}$ | $\underline{0}$ |
| 3456 | 0 | 0 |
| 3457 | $\underline{0}$ | $\underline{0}$ |
| 3458 | $\underline{0}$ | $\underline{0}$ |
| 3459 | $\underline{0}$ | $\underline{0}$ |
| 3460 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3461}$ | $\underline{0}$ | $\underline{0}$ |
| 3462 | 0 | 0 |
| 3463 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3464}$ | $\underline{0}$ | $\underline{0}$ |
| 3465 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3466}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3467}$ | $\underline{0}$ | $\underline{0}$ |
| 3468 | 0 | 0 |
| 3469 | $\underline{0}$ | $\underline{0}$ |
| $\underline{3470}$ | $\underline{0}$ | $\underline{0}$ |
| 3471 | $\underline{0}$ | $\underline{0}$ |


| $\underline{3472}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{3473}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3474}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3475}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3476}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3477}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3478}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3479}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3480}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3481}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3482}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3483}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3484}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3485}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3486}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3487}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3488}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3489}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3490}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3491}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3492}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3493}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3494}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3495}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3496}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3497}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3498}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3499}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3500}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3501}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3502}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3503}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3504}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3505}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3506}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3507}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3508}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3509}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3510}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3511}$ | $\underline{0}$ |  |


| $\underline{3512}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{3513}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3514}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3515}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3516}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3517}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3518}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3519}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3520}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3521}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3522}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3523}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3524}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3525}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3526}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3527}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3528}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3529}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3530}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3531}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3532}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3533}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3534}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3535}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3536}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3537}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3538}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3539}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3540}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3541}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3542}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3543}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3544}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3545}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3546}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3547}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3548}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3549}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3550}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| $\underline{3552}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{3553}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3554}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3555}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3556}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3557}$ | $\underline{0.6}$ | $\underline{11.9}$ |
| $\underline{3558}$ | $\underline{6.5}$ | $\underline{28.8}$ |
| $\underline{3559}$ | $\underline{7.2}$ | $\underline{27}$ |
| $\underline{3560}$ | $\underline{15.7}$ | $\underline{15}$ |
| $\underline{3561}$ | $\underline{34.4}$ | $\underline{12.3}$ |
| $\underline{3562}$ | $\underline{64.6}$ | $\underline{16.7}$ |
| $\underline{3563}$ | $\underline{50.3}$ | $\underline{4.6}$ |
| $\underline{3564}$ | $\underline{65.3}$ | $\underline{30.7}$ |
| $\underline{3565}$ | $\underline{47.8}$ | $\underline{14.2}$ |
| $\underline{3566}$ | $\underline{38.7}$ | $\underline{32.5}$ |
| $\underline{3567}$ | $\underline{84.4}$ | $\underline{74.8}$ |
| $\underline{3568}$ | $\underline{42.8}$ | $\underline{4.5}$ |
| $\underline{3569}$ | $\underline{44}$ | $\underline{39.1}$ |
| $\underline{3570}$ | $\underline{45.5}$ | $\underline{(a)}$ |
| $\underline{3571}$ | $\underline{39.2}$ | $\underline{(a)}$ |
| $\underline{3572}$ | $\underline{30.6}$ | $\underline{(a)}$ |
| $\underline{3573}$ | $\underline{13.5}$ | $\underline{0.7}$ |
| $\underline{3574}$ | $\underline{14.7}$ | $\underline{7.9}$ |
| $\underline{3575}$ | $\underline{1.2}$ | $\underline{(a)}$ |
| $\underline{3576}$ | $\underline{0.1}$ | $\underline{5.8}$ |
| $\underline{3577}$ | $\underline{4.1}$ | $\underline{10.8}$ |
| $\underline{3578}$ | $\underline{6.8}$ | $\underline{10.2}$ |
| $\underline{3579}$ | $\underline{5.3}$ | $\underline{4.6}$ |
| $\underline{3580}$ | $\underline{\underline{0.9}}$ | $\underline{5.4}$ |
| $\underline{3581}$ | $\underline{0.3}$ | $\underline{10.6}$ |
| $\underline{3582}$ | $\underline{\underline{3.1}}$ | $\underline{12.3}$ |
| $\underline{3583}$ | $\underline{14.3}$ | $\underline{15.2}$ |
| $\underline{3584}$ | $\underline{27.3}$ | $\underline{8.3}$ |
| $\underline{3585}$ | $\underline{33.1}$ | $\underline{3.6}$ |
| $\underline{3586}$ | $\underline{31.1}$ | $\underline{2.5}$ |
| $\underline{3587}$ | $\underline{33.3}$ | $\underline{5.1}$ |
| $\underline{3588}$ | $\underline{40.7}$ | $\underline{5.2}$ |
| $\underline{3589}$ | $\underline{43.5}$ | $\underline{2.3}$ |
| $\underline{3590}$ | $\underline{38.6}$ | $\underline{1.8}$ |
| $\underline{3591}$ | $\underline{44.8}$ |  |


| $\underline{3592}$ | $\underline{57.6}$ | $\underline{8.2}$ |
| :---: | :---: | :---: |
| $\underline{3593}$ | $\underline{49.5}$ | $\underline{10.2}$ |
| $\underline{3594}$ | $\underline{44.3}$ | $\underline{16.7}$ |
| $\underline{3595}$ | $\underline{73.3}$ | $\underline{20.3}$ |
| $\underline{3596}$ | $\underline{46.1}$ | $\underline{13}$ |
| $\underline{3597}$ | $\underline{38.4}$ | $\underline{32.8}$ |
| $\underline{3598}$ | $\underline{75}$ | $\underline{46}$ |
| $\underline{3599}$ | $\underline{48.3}$ | $\underline{13.8}$ |
| $\underline{3600}$ | $\underline{36.9}$ | $\underline{36.6}$ |
| $\underline{3601}$ | $\underline{59.4}$ | $\underline{72.6}$ |
| $\underline{3602}$ | $\underline{82.2}$ | $\underline{57.1}$ |
| $\underline{3603}$ | $\underline{59.9}$ | $\underline{2.7}$ |
| $\underline{3604}$ | $\underline{60.4}$ | $\underline{43.6}$ |
| $\underline{3605}$ | $\underline{59.8}$ | $\underline{(a)}$ |
| $\underline{3606}$ | $\underline{47.9}$ | $\underline{(a)}$ |
| $\underline{3607}$ | $\underline{35.5}$ | $\underline{(a)}$ |
| $\underline{3608}$ | $\underline{26.5}$ | $\underline{(a)}$ |
| $\underline{3609}$ | $\underline{21.3}$ | $\underline{(a)}$ |
| $\underline{3610}$ | $\underline{33}$ | $\underline{7.2}$ |
| $\underline{3611}$ | $\underline{11.3}$ | $\underline{(a)}$ |
| $\underline{3612}$ | $\underline{19.5}$ | $\underline{12.5}$ |
| $\underline{3613}$ | $\underline{13.9}$ | $\underline{(a)}$ |
| $\underline{3614}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3615}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3616}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3617}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3618}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3619}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3620}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3621}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3622}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3623}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3624}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3625}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3626}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3627}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3628}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3629}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3630}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3631}$ | $\underline{0}$ |  |
|  |  |  |


| $\underline{3632}$ | $\underline{1.1}$ | $\underline{7.1}$ |
| :---: | :---: | :---: |
| $\underline{3633}$ | $\underline{4.3}$ | $\underline{13.6}$ |
| $\underline{3634}$ | $\underline{6.3}$ | $\underline{\underline{62.9}}$ |
| $\underline{3635}$ | $\underline{6.6}$ | $\underline{17}$ |
| $\underline{3636}$ | $\underline{6.4}$ | $\underline{9.9}$ |
| $\underline{3637}$ | $\underline{7.9}$ | $\underline{9.9}$ |
| $\underline{3638}$ | $\underline{15.2}$ | $\underline{14}$ |
| $\underline{3639}$ | $\underline{31.5}$ | $\underline{9.6}$ |
| $\underline{3640}$ | $\underline{46.2}$ | $\underline{8.1}$ |
| $\underline{3641}$ | $\underline{68.3}$ | $\underline{14.2}$ |
| $\underline{3642}$ | $\underline{44.3}$ | $\underline{1.2}$ |
| $\underline{3643}$ | $\underline{75.6}$ | $\underline{38.8}$ |
| $\underline{3644}$ | $\underline{46}$ | $\underline{8.5}$ |
| $\underline{3645}$ | $\underline{45}$ | $\underline{33.7}$ |
| $\underline{3646}$ | $\underline{89.9}$ | $\underline{66.8}$ |
| $\underline{3647}$ | $\underline{40.7}$ | $\underline{0.4}$ |
| $\underline{3648}$ | $\underline{46}$ | $\underline{48}$ |
| $\underline{3649}$ | $\underline{72.2}$ | $\underline{82.4}$ |
| $\underline{3650}$ | $\underline{75.6}$ | $\underline{17.4}$ |
| $\underline{3651}$ | $\underline{58.3}$ | $\underline{36}$ |
| $\underline{3652}$ | $\underline{71.6}$ | $\underline{75}$ |
| $\underline{3653}$ | $\underline{83.1}$ | $\underline{25.7}$ |
| $\underline{3654}$ | $\underline{51.8}$ | $\underline{20.3}$ |
| $\underline{3655}$ | $\underline{59.3}$ | $\underline{70.8}$ |
| $\underline{3656}$ | $\underline{70.7}$ | $\underline{80.1}$ |
| $\underline{3657}$ | $\underline{76.9}$ | $\underline{26.6}$ |
| $\underline{3658}$ | $\underline{49.2}$ | $\underline{2.5}$ |
| $\underline{3659}$ | $\underline{49.7}$ | $\underline{15.4}$ |
| $\underline{3660}$ | $\underline{49.1}$ | $\underline{(a)}$ |
| $\underline{3661}$ | $\underline{47.5}$ | $\underline{(a)}$ |
| $\underline{3662}$ | $\underline{46.3}$ | $\underline{(a)}$ |
| $\underline{3663}$ | $\underline{44}$ | $\underline{(a)}$ |
| $\underline{3664}$ | $\underline{39.4}$ | $\underline{(a)}$ |
| $\underline{3665}$ | $\underline{33.2}$ | $\underline{(a)}$ |
| $\underline{3666}$ | $\underline{28.7}$ | $\underline{(a)}$ |
| $\underline{3667}$ | $\underline{23.1}$ | $\underline{(a)}$ |
| $\underline{3668}$ | $\underline{33.7}$ | $\underline{13.1}$ |
| $\underline{3669}$ | $\underline{30.5}$ | $\underline{(a)}$ |
| $\underline{3670}$ | $\underline{24.9}$ | $\underline{(a)}$ |
| $\underline{3671}$ | $\underline{28.5}$ |  |


| 3672 | $\underline{22.4}$ | 4.6 |
| :---: | :---: | :---: |
| 3673 | 16.2 | 2.1 |
| 3674 | 16.5 | 5.1 |
| 3675 | 14 | 7.2 |
| 3676 | 13.5 | 5.4 |
| 3677 | 0 | 0 |
| 3678 | $\underline{0}$ | $\underline{0}$ |
| 3679 | 0 | 0 |
| 3680 | 0 | $\underline{0}$ |
| 3681 | $\underline{0}$ | $\underline{0}$ |
| 3682 | $\underline{6}$ | 24.4 |
| 3683 | 7.7 | 33.4 |
| 3684 | 25.5 | 15.4 |
| 3685 | 50.1 | 13 |
| 3686 | 77 | 16.7 |
| 3687 | 45.5 | 1.1 |
| 3688 | 96 | 52.9 |
| $\underline{3689}$ | 34.5 | 2.6 |
| 3690 | 59.4 | 53.3 |
| 3691 | 89.5 | 33.2 |
| 3692 | 39.2 | 2 |
| 3693 | 56.1 | 63.8 |
| 3694 | 83.3 | 70 |
| 3695 | 59.2 | 0.3 |
| 3696 | 61.6 | 50.6 |
| 3697 | 77.6 | 83.9 |
| 3698 | 57.3 | $\underline{6}$ |
| 3699 | 53.5 | 43.8 |
| 3700 | 62.9 | 79.6 |
| 3701 | 75 | 95.3 |
| 3702 | 53.6 | 4.6 |
| 3703 | 50.6 | 46.1 |
| 3704 | 56.4 | 79.9 |
| 3705 | 64 | 93.9 |
| 3706 | 69.6 | 37.6 |
| 3707 | 70.6 | 21.5 |
| 3708 | 68 | 11.4 |
| 3709 | 43 | 12.2 |
| 3710 | 44.5 | 29.6 |
| 3711 | 44.4 | 10.1 |


| 3712 | $\underline{44}$ | $\underline{7}$ |
| :---: | :---: | :---: |
| $\underline{3713}$ | 43.1 | $\underline{2}$ |
| 3714 | 42.3 | 1.1 |
| 3715 | 41.2 | (a) |
| 3716 | 40 | (a) |
| 3717 | 38.7 | (a) |
| $\underline{3718}$ | 37.5 | (a) |
| $\underline{3719}$ | $\underline{36}$ | (a) |
| 3720 | 34.9 | (a) |
| 3721 | 32.8 | (a) |
| $\underline{3722}$ | $\underline{\underline{29.5}}$ | (a) |
| $\underline{3723}$ | $\underline{25.9}$ | (a) |
| $\underline{3724}$ | $\underline{22.6}$ | (a) |
| 3725 | 19.9 | (a) |
| $\underline{3726}$ | $\underline{37}$ | 7.2 |
| 3727 | 32.7 | (a) |
| 3728 | $\underline{25.5}$ | (a) |
| 3729 | 19.6 | 4.9 |
| 3730 | 31.1 | (a) |
| $\underline{3731}$ | $\underline{25.9}$ | (a) |
| 3732 | 22.1 | (a) |
| 3733 | 36.9 | 12.8 |
| 3734 | $\underline{23.5}$ | (a) |
| 3735 | 30.2 | 6.8 |
| 3736 | 15.8 | (a) |
| $\underline{3737}$ | $\underline{22.3}$ | 3.5 |
| 3738 | 19.3 | 15.3 |
| $\underline{3739}$ | 15.8 | 9.3 |
| 3740 | 16.9 | 8.5 |
| $\underline{3741}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3742}$ | $\underline{0}$ | $\underline{0}$ |
| 3743 | $\underline{0}$ | $\underline{0}$ |
| 3744 | 1.7 | 9.1 |
| $\underline{3745}$ | 7.1 | $\underline{31.5}$ |
| 3746 | 10.3 | $\underline{21.5}$ |
| 3747 | 43 | 17.4 |
| $\underline{3748}$ | 89.3 | 31.2 |
| 3749 | 52.3 | 1.8 |
| $\underline{3750}$ | 101.6 | $\underline{65.3}$ |
| $\underline{3751}$ | 38 | 1.8 |


| 3752 | 65.1 | 55.2 |
| :---: | :---: | :---: |
| 3753 | 78.5 | $\underline{29.8}$ |
| 3754 | 40.6 | 15.2 |
| 3755 | 60.4 | 67.5 |
| 3756 | $\underline{90}$ | 70.2 |
| 3757 | 60.3 | 2.3 |
| 3758 | 66.9 | $\underline{60.6}$ |
| 3759 | 79.2 | 30 |
| 3760 | 51.3 | 1.2 |
| 3761 | 53.4 | 47.7 |
| 3762 | 55.7 | 8.4 |
| 3763 | 55.4 | (a) |
| 3764 | 54.3 | 1.4 |
| 3765 | 53.9 | 4.1 |
| 3766 | 54.1 | 9.3 |
| 3767 | 55.6 | 18.5 |
| 3768 | 59.3 | 36.6 |
| 3769 | 63.8 | 30.1 |
| 3770 | 66.4 | 18.2 |
| 3771 | 43.1 | 0.4 |
| 3772 | 43 | 51.1 |
| 3773 | 49.6 | 81 |
| 3774 | 55.1 | 49 |
| 3775 | 58.9 | 44.6 |
| 3776 | 62.5 | 46.7 |
| 3777 | 64.9 | 25.7 |
| 3778 | 65.7 | 13.7 |
| 3779 | 41.7 | 0.4 |
| 3780 | 40.5 | 31.8 |
| 3781 | 41.2 | $\underline{21}$ |
| 3782 | 41.2 | 7.1 |
| 3783 | 41.2 | 11.4 |
| 3784 | 41.6 | 20.9 |
| 3785 | 42.2 | 21.1 |
| $\underline{3786}$ | 42.8 | 19.8 |
| 3787 | 43.8 | 30.5 |
| 3788 | 44.4 | 17.7 |
| 3789 | 45.2 | $\underline{27.6}$ |
| 3790 | 45.7 | 16.6 |
| 3791 | 46.7 | 31.9 |


| $\underline{3792}$ | $\underline{47.7}$ | $\underline{27.1}$ |
| :---: | :---: | :---: |
| $\underline{3793}$ | $\underline{49.1}$ | $\underline{37.5}$ |
| $\underline{3794}$ | $\underline{50.8}$ | $\underline{40.8}$ |
| $\underline{3795}$ | $\underline{52.7}$ | $\underline{45.9}$ |
| $\underline{3796}$ | $\underline{54.7}$ | $\underline{44.6}$ |
| $\underline{3797}$ | $\underline{56.7}$ | $\underline{46.3}$ |
| $\underline{3798}$ | $\underline{58.9}$ | $\underline{52.6}$ |
| $\underline{3799}$ | $\underline{60.1}$ | $\underline{16.2}$ |
| $\underline{3800}$ | $\underline{58}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3801}$ | $\underline{34.9}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3802}$ | $\underline{32.8}$ | $\underline{3.8}$ |
| $\underline{3803}$ | $\underline{32.2}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3804}$ | $\underline{31.2}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3805}$ | $\underline{29.8}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3806}$ | $\underline{28.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3807}$ | $\underline{27.3}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3808}$ | $\underline{25.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3809}$ | $\underline{24.9}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3810}$ | $\underline{23.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3811}$ | $\underline{22.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3812}$ | $\underline{21.9}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3813}$ | $\underline{20.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3814}$ | $\underline{19.4}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3815}$ | $\underline{38.2}$ | $\underline{1.1}$ |
| $\underline{3816}$ | $\underline{38.1}$ | $\underline{22.8}$ |
| $\underline{3817}$ | $\underline{39.7}$ | $\underline{39.3}$ |
| $\underline{3818}$ | $\underline{41.4}$ | $\underline{29.7}$ |
| $\underline{3819}$ | $\underline{41.8}$ | $\underline{14.7}$ |
| $\underline{3820}$ | $\underline{41.9}$ | $\underline{12.7}$ |
| $\underline{3821}$ | $\underline{42.2}$ | $\underline{21.3}$ |
| $\underline{3822}$ | $\underline{43.4}$ | $\underline{31.2}$ |
| $\underline{3823}$ | $\underline{44.2}$ | $\underline{\underline{21}}$ |
| $\underline{3824}$ | $\underline{44.7}$ | $\underline{18.6}$ |
| $\underline{3825}$ | $\underline{45.1}$ | $\underline{17.6}$ |
| $\underline{3826}$ | $\underline{45.4}$ | $\underline{16.8}$ |
| $\underline{3827}$ | $\underline{45.9}$ | $\underline{18.5}$ |
| $\underline{3828}$ | $\underline{46}$ | $\underline{14.4}$ |
| $\underline{3829}$ | $\underline{\text { (a) }}$ |  |


| 3832 | 44.4 | (a) |
| :---: | :---: | :---: |
| $\underline{3833}$ | 42.8 | (a) |
| 3834 | 41.1 | (a) |
| 3835 | 39.2 | (a) |
| 3836 | 38.1 | (a) |
| 3837 | 37.9 | 10.9 |
| 3838 | 37.9 | 12.9 |
| 3839 | 38.3 | 17.9 |
| 3840 | 38.7 | 8.5 |
| 3841 | 37.6 | (a) |
| 3842 | 37.6 | 14.5 |
| 3843 | 37.5 | 8.5 |
| 3844 | 37.4 | 7.6 |
| 3845 | 36.9 | 5.2 |
| 3846 | 36.9 | 13.2 |
| 3847 | 37.2 | 13.9 |
| 3848 | 37 | 6.9 |
| 3849 | 36.8 | $\underline{2.4}$ |
| 3850 | 35.8 | (a) |
| $\underline{3851}$ | 35.2 | 3.1 |
| 3852 | $\underline{34.6}$ | $\underline{2.3}$ |
| 3853 | 34.4 | 10.4 |
| 3854 | 34.5 | 10.5 |
| 3855 | 34.3 | 6.5 |
| 3856 | $\underline{34}$ | 4.6 |
| 3857 | 33.5 | $\underline{6}$ |
| 3858 | 33.8 | 20.3 |
| 3859 | 34.7 | $\underline{28.4}$ |
| 3860 | 35.8 | 31.3 |
| 3861 | 37.2 | $\underline{29.8}$ |
| 3862 | 37.8 | 18.2 |
| 3863 | 38.1 | 14.9 |
| 3864 | 38.4 | 11.4 |
| 3865 | 37.6 | (a) |
| 3866 | 37.1 | 1.7 |
| 3867 | 36.2 | (a) |
| 3868 | 35.2 | (a) |
| 3869 | 34.4 | (a) |
| 3870 | 34.1 | 10.8 |
| 3871 | 34.3 | 14.3 |


| $\underline{3872}$ | $\underline{34.5}$ | $\underline{13.3}$ |
| :---: | :---: | :---: |
| $\underline{3873}$ | $\underline{34.6}$ | $\underline{12.7}$ |
| $\underline{3874}$ | $\underline{34.7}$ | $\underline{12.1}$ |
| $\underline{3875}$ | $\underline{34.9}$ | $\underline{19.8}$ |
| $\underline{3876}$ | $\underline{36.2}$ | $\underline{30.9}$ |
| $\underline{3877}$ | $\underline{36.6}$ | $\underline{15.7}$ |
| $\underline{3878}$ | $\underline{37.1}$ | $\underline{13.5}$ |
| $\underline{3879}$ | $\underline{36.2}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3880}$ | $\underline{33.1}$ | $\underline{(a)}$ |
| $\underline{3881}$ | $\underline{29}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3882}$ | $\underline{24.8}$ | $\underline{(a)}$ |
| $\underline{3883}$ | $\underline{21.1}$ | $\underline{(a)}$ |
| $\underline{3884}$ | $\underline{38.5}$ | $\underline{15.7}$ |
| $\underline{3885}$ | $\underline{35.8}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3886}$ | $\underline{33.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3887}$ | $\underline{30.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3888}$ | $\underline{27.3}$ | $\underline{(\mathrm{a})}$ |
| $\underline{3889}$ | $\underline{26.6}$ | $\underline{13.3}$ |
| $\underline{3890}$ | $\underline{27.9}$ | $\underline{30.6}$ |
| $\underline{3891}$ | $\underline{30.7}$ | $\underline{41.6}$ |
| $\underline{3892}$ | $\underline{32.5}$ | $\underline{15.8}$ |
| $\underline{3893}$ | $\underline{31.9}$ | $\underline{(a)}$ |
| $\underline{3894}$ | $\underline{21.8}$ | $\underline{(a)}$ |
| $\underline{3895}$ | $\underline{25.6}$ | $\underline{4.2}$ |
| $\underline{3896}$ | $\underline{26.8}$ | $\underline{3.8}$ |
| $\underline{3897}$ | $\underline{20.2}$ | $\underline{2.5}$ |
| $\underline{3898}$ | $\underline{14.3}$ | $\underline{2.8}$ |
| $\underline{3899}$ | $\underline{11.3}$ | $\underline{6.7}$ |
| $\underline{3900}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3901}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3902}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3903}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3904}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3905}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3906}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3907}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3908}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3909}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3910}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3911}$ | $\underline{0}$ |  |


| $\underline{3912}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{3913}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3914}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3915}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3916}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3917}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3918}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3919}$ | $\underline{3}$ | $\underline{5}$ |
| $\underline{3920}$ | $\underline{7}$ | $\underline{10}$ |
| $\underline{3921}$ | $\underline{6.7}$ | $\underline{32.8}$ |
| $\underline{3922}$ | $\underline{6.3}$ | $\underline{35}$ |
| $\underline{3923}$ | $\underline{5.8}$ | $\underline{25.2}$ |
| $\underline{3924}$ | $\underline{6.1}$ | $\underline{10.4}$ |
| $\underline{3925}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3926}$ | $\underline{0.1}$ | $\underline{5.8}$ |
| $\underline{3927}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3928}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3929}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3930}$ | $\underline{1.3}$ | $\underline{9.6}$ |
| $\underline{3931}$ | $\underline{6.3}$ | $\underline{36.6}$ |
| $\underline{3932}$ | $\underline{6.5}$ | $\underline{48.5}$ |
| $\underline{3933}$ | $\underline{5.9}$ | $\underline{38.4}$ |
| $\underline{3934}$ | $\underline{\underline{2}}$ |  |
| $\underline{3935}$ | $\underline{17.5}$ | $\underline{14.5}$ |
| $\underline{3936}$ | $\underline{22.2}$ | $\underline{9}$ |
| $\underline{3937}$ | $\underline{22.6}$ | $\underline{4.6}$ |
| $\underline{3938}$ | $\underline{17.2}$ | $\underline{3.2}$ |
| $\underline{3939}$ | $\underline{10.7}$ | $\underline{(a}$ |
| $\underline{3940}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3941}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3942}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3943}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3944}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3945}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3946}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3947}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3948}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3949}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3950}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{051}$ | $\underline{0}$ |  |


| $\underline{3952}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{3953}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3954}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3955}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3956}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3957}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3958}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3959}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3960}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3961}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3962}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3963}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3964}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3965}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3966}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3967}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3968}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3969}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3970}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3971}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3972}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3973}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3974}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3975}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3976}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3977}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3978}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3979}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3980}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3981}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3982}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3983}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3984}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3985}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3986}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3987}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{3988}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3989}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3990}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{3991}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| 3992 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 3993 | $\underline{0}$ | $\underline{0}$ |
| 3994 | $\underline{0}$ | $\underline{0}$ |
| 3995 | $\underline{0}$ | $\underline{0}$ |
| 3996 | $\underline{0}$ | $\underline{0}$ |
| 3997 | $\underline{0}$ | 0 |
| 3998 | $\underline{0}$ | $\underline{0}$ |
| 3999 | $\underline{0}$ | $\underline{0}$ |
| 4000 | 0 | 0 |
| 4001 | $\underline{0}$ | $\underline{0}$ |
| 4002 | $\underline{0}$ | 0 |
| 4003 | $\underline{0}$ | $\underline{0}$ |
| 4004 | 0 | 0 |
| 4005 | 0 | 0 |
| 4006 | $\underline{0}$ | $\underline{0}$ |
| 4007 | $\underline{0}$ | $\underline{0}$ |
| 4008 | 0 | 0 |
| 4009 | $\underline{0}$ | $\underline{0}$ |
| 4010 | 0 | 0 |
| 4011 | $\underline{0}$ | $\underline{0}$ |
| 4012 | $\underline{0}$ | $\underline{0}$ |
| 4013 | $\underline{0}$ | 0 |
| 4014 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4015}$ | $\underline{0}$ | $\underline{0}$ |
| 4016 | $\underline{0}$ | $\underline{0}$ |
| 4017 | 0 | 0 |
| 4018 | $\underline{0}$ | $\underline{0}$ |
| 4019 | $\underline{0}$ | $\underline{0}$ |
| 4020 | $\underline{0}$ | $\underline{0}$ |
| 4021 | $\underline{0}$ | $\underline{0}$ |
| 4022 | $\underline{0}$ | $\underline{0}$ |
| 4023 | $\underline{0}$ | 0 |
| 4024 | $\underline{0}$ | $\underline{0}$ |
| 4025 | $\underline{0}$ | $\underline{0}$ |
| 4026 | $\underline{0}$ | $\underline{0}$ |
| 4027 | $\underline{0}$ | $\underline{0}$ |
| 4028 | 0 | $\underline{0}$ |
| 4029 | $\underline{0}$ | $\underline{0}$ |
| 4030 | $\underline{0}$ | $\underline{0}$ |
| 4031 | $\underline{0}$ | $\underline{0}$ |


| 4032 | 0 | 0 |
| :---: | :---: | :---: |
| 4033 | 0 | 0 |
| 4034 | $\underline{0}$ | $\underline{0}$ |
| 4035 | $\underline{0}$ | $\underline{0}$ |
| 4036 | $\underline{0}$ | $\underline{0}$ |
| 4037 | $\underline{0}$ | $\underline{0}$ |
| 4038 | $\underline{0}$ | $\underline{0}$ |
| 4039 | 0 | 0 |
| 4040 | $\underline{0}$ | $\underline{0}$ |
| 4041 | $\underline{0}$ | $\underline{0}$ |
| 4042 | $\underline{0}$ | $\underline{0}$ |
| 4043 | $\underline{0}$ | $\underline{0}$ |
| 4044 | $\underline{0}$ | $\underline{0}$ |
| 4045 | 0 | 0 |
| $\underline{4046}$ | $\underline{0}$ | $\underline{0}$ |
| 4047 | $\underline{0}$ | $\underline{0}$ |
| 4048 | $\underline{0}$ | $\underline{0}$ |
| 4049 | $\underline{0}$ | $\underline{0}$ |
| 4050 | $\underline{0}$ | $\underline{0}$ |
| 4051 | $\underline{0}$ | $\underline{0}$ |
| 4052 | $\underline{0}$ | $\underline{0}$ |
| 4053 | 0 | $\underline{0}$ |
| 4054 | $\underline{0}$ | $\underline{0}$ |
| 4055 | $\underline{0}$ | $\underline{0}$ |
| 4056 | $\underline{0}$ | $\underline{0}$ |
| 4057 | $\underline{0}$ | $\underline{0}$ |
| 4058 | 0 | $\underline{0}$ |
| 4059 | $\underline{0}$ | $\underline{0}$ |
| 4060 | $\underline{0}$ | $\underline{0}$ |
| 4061 | $\underline{0}$ | $\underline{0}$ |
| 4062 | $\underline{0}$ | $\underline{0}$ |
| 4063 | $\underline{0}$ | $\underline{0}$ |
| 4064 | $\underline{0}$ | $\underline{0}$ |
| 4065 | $\underline{0}$ | $\underline{0}$ |
| 4066 | $\underline{0}$ | $\underline{0}$ |
| 4067 | $\underline{0}$ | $\underline{0}$ |
| 4068 | $\underline{0}$ | $\underline{0}$ |
| 4069 | $\underline{0}$ | $\underline{0}$ |
| 4070 | 1.2 | 9.5 |
| 4071 | 5.2 | 20.5 |


| $\underline{4072}$ | $\underline{5}$ | $\underline{20.8}$ |
| :---: | :---: | :---: |
| $\underline{4073}$ | $\underline{5.4}$ | $\underline{23.1}$ |
| $\underline{4074}$ | $\underline{5.1}$ | $\underline{18.1}$ |
| $\underline{4075}$ | $\underline{4.3}$ | $\underline{8.7}$ |
| $\underline{4076}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4077}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4078}$ | $\underline{0.8}$ | $\underline{6.4}$ |
| $\underline{4079}$ | $\underline{5.3}$ | $\underline{18.7}$ |
| $\underline{4080}$ | $\underline{4.8}$ | $\underline{19.6}$ |
| $\underline{4081}$ | $\underline{5.5}$ | $\underline{29.5}$ |
| $\underline{4082}$ | $\underline{6}$ | $\underline{38.2}$ |
| $\underline{4083}$ | $\underline{4.3}$ | $\underline{14.8}$ |
| $\underline{4084}$ | $\underline{4.3}$ | $\underline{8.7}$ |
| $\underline{4085}$ | $\underline{0.1}$ | $\underline{7.5}$ |
| $\underline{4086}$ | $\underline{0.1}$ | $\underline{5.9}$ |
| $\underline{4087}$ | $\underline{0.7}$ | $\underline{5.8}$ |
| $\underline{4088}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4089}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4090}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4091}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4092}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4093}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4094}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4095}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4096}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4097}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4098}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4099}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4100}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4101}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4102}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4103}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4104}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4105}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4106}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4107}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4108}$ | $\underline{0.9}$ | $\underline{5.4}$ |
| $\underline{4109}$ | $\underline{0.5}$ | $\underline{5.7}$ |
| $\underline{4110}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4111}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| $\underline{4112}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{4113}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4114}$ | $\underline{0.3}$ | $\underline{10}$ |
| $\underline{4115}$ | $\underline{1.1}$ | $\underline{\underline{9.9}}$ |
| $\underline{4116}$ | $\underline{1.6}$ | $\underline{9.7}$ |
| $\underline{4117}$ | $\underline{2.8}$ | $\underline{\underline{9.3}}$ |
| $\underline{4118}$ | $\underline{2.3}$ | $\underline{9}$ |
| $\underline{4119}$ | $\underline{0.8}$ | $\underline{9.8}$ |
| $\underline{4120}$ | $\underline{1.4}$ | $\underline{9.6}$ |
| $\underline{4121}$ | $\underline{4.6}$ | $\underline{14}$ |
| $\underline{4122}$ | $\underline{4.5}$ | $\underline{13.1}$ |
| $\underline{4123}$ | $\underline{4.8}$ | $\underline{16}$ |
| $\underline{4124}$ | $\underline{5.1}$ | $\underline{18.8}$ |
| $\underline{4125}$ | $\underline{6}$ | $\underline{31.2}$ |
| $\underline{4126}$ | $\underline{7.1}$ | $\underline{52.5}$ |
| $\underline{4127}$ | $\underline{6}$ | $\underline{46}$ |
| $\underline{4128}$ | $\underline{\underline{9.5}}$ | $\underline{25.5}$ |
| $\underline{4129}$ | $\underline{21.1}$ | $\underline{18.5}$ |
| $\underline{4130}$ | $\underline{32.1}$ | $\underline{12.2}$ |
| $\underline{4131}$ | $\underline{42}$ | $\underline{7.6}$ |
| $\underline{4132}$ | $\underline{48}$ | $\underline{\underline{9.1}}$ |
| $\underline{4133}$ | $\underline{55.9}$ | $\underline{9.4}$ |
| $\underline{4134}$ | $\underline{33.8}$ | $\underline{14.3}$ |
| $\underline{4135}$ | $\underline{21.5}$ | $\underline{25}$ |
| $\underline{4136}$ | $\underline{24.7}$ | $\underline{9.1}$ |
| $\underline{4137}$ | $\underline{25.5}$ | $\underline{4.5}$ |
| $\underline{4138}$ | $\underline{28.7}$ | $\underline{9.9}$ |
| $\underline{4139}$ | $\underline{34.4}$ | $\underline{10.7}$ |
| $\underline{4140}$ | $\underline{40.5}$ | $\underline{4.7}$ |
| $\underline{4141}$ | $\underline{42.8}$ | $\underline{3.3}$ |
| $\underline{4142}$ | $\underline{43.4}$ | $\underline{0}$ |
| $\underline{4143}$ | $\underline{39.5}$ | $\underline{(a)}$ |
| $\underline{4144}$ | $\underline{34.1}$ | $\underline{(a)}$ |
| $\underline{4145}$ | $\underline{22}$ | $\underline{(a)}$ |
| $\underline{4146}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4147}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4148}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4149}$ | $\underline{1.1}$ | $\underline{10.1}$ |
| $\underline{4150}$ | $\underline{7.2}$ | $\underline{38.5}$ |
| $\underline{6.5}$ | $\underline{34.3}$ |  |


| $\underline{4152}$ | $\underline{6.2}$ | $\underline{18}$ |
| :---: | :---: | :---: |
| $\underline{4153}$ | $\underline{13.3}$ | $\underline{\underline{8.5}}$ |
| $\underline{4154}$ | $\underline{21.3}$ | $\underline{13.1}$ |
| $\underline{4155}$ | $\underline{25.8}$ | $\underline{8.2}$ |
| $\underline{4156}$ | $\underline{27.2}$ | $\underline{6.2}$ |
| $\underline{4157}$ | $\underline{29.8}$ | $\underline{3}$ |
| $\underline{4158}$ | $\underline{29.7}$ | $\underline{3.6}$ |
| $\underline{4159}$ | $\underline{31.4}$ | $\underline{4.4}$ |
| $\underline{4160}$ | $\underline{31}$ | $\underline{5.6}$ |
| $\underline{4161}$ | $\underline{29.2}$ | $\underline{4.6}$ |
| $\underline{4162}$ | $\underline{27}$ | $\underline{5.2}$ |
| $\underline{4163}$ | $\underline{24}$ | $\underline{7.4}$ |
| $\underline{4164}$ | $\underline{22.2}$ | $\underline{8.8}$ |
| $\underline{4165}$ | $\underline{21.8}$ | $\underline{9}$ |
| $\underline{4166}$ | $\underline{23.2}$ | $\underline{8.6}$ |
| $\underline{4167}$ | $\underline{23.3}$ | $\underline{8.9}$ |
| $\underline{4168}$ | $\underline{21.2}$ | $\underline{6.4}$ |
| $\underline{4169}$ | $\underline{18.2}$ | $\underline{3.9}$ |
| $\underline{4170}$ | $\underline{13.7}$ | $\underline{7.6}$ |
| $\underline{4171}$ | $\underline{10.5}$ | $\underline{10.9}$ |
| $\underline{4172}$ | $\underline{9.9}$ | $\underline{7.9}$ |
| $\underline{4173}$ | $\underline{5.2}$ | $\underline{0.5}$ |
| $\underline{4174}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4175}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4176}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4177}$ | $\underline{2.7}$ | $\underline{10}$ |
| $\underline{4178}$ | $\underline{5.1}$ | $\underline{19.6}$ |
| $\underline{4179}$ | $\underline{6.8}$ | $\underline{47.4}$ |
| $\underline{4180}$ | $\underline{6.2}$ | $\underline{45.8}$ |
| $\underline{4181}$ | $\underline{5.9}$ | $\underline{29.5}$ |
| $\underline{4182}$ | $\underline{10.2}$ | $\underline{15.6}$ |
| $\underline{4183}$ | $\underline{12.9}$ | $\underline{13.2}$ |
| $\underline{4184}$ | $\underline{13.8}$ | $\underline{17.7}$ |
| $\underline{4185}$ | $\underline{18.1}$ | $\underline{7.9}$ |
| $\underline{4186}$ | $\underline{17.3}$ | $\underline{3.6}$ |
| $\underline{4187}$ | $\underline{13.9}$ | $\underline{2.4}$ |
| $\underline{4188}$ | $\underline{12.6}$ | $\underline{0.6}$ |
| $\underline{4189}$ | $\underline{10.6}$ | $\underline{\underline{a}}$ |
| $\underline{4190}$ | $\underline{8.1}$ | $\underline{4.3}$ |
| $\underline{4191}$ | $\underline{0}$ |  |


| $\underline{4192}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{4193}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4194}$ | $\underline{0.8}$ | $\underline{8.7}$ |
| $\underline{4195}$ | $\underline{6.5}$ | $\underline{\underline{5}}$ |
| $\underline{4196}$ | $\underline{6.3}$ | $\underline{28.5}$ |
| $\underline{4197}$ | $\underline{5.7}$ | $\underline{19.5}$ |
| $\underline{4198}$ | $\underline{5.4}$ | $\underline{10.8}$ |
| $\underline{4199}$ | $\underline{5.7}$ | $\underline{10.2}$ |
| $\underline{4200}$ | $\underline{6.6}$ | $\underline{16.4}$ |
| $\underline{4201}$ | $\underline{6.9}$ | $\underline{13.9}$ |
| $\underline{4202}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4203}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4204}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4205}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4206}$ | $\underline{0.2}$ | $\underline{5.8}$ |
| $\underline{4207}$ | $\underline{0.4}$ | $\underline{5.8}$ |
| $\underline{4208}$ | $\underline{0.7}$ | $\underline{10}$ |
| $\underline{4209}$ | $\underline{0.5}$ | $\underline{9.9}$ |
| $\underline{4210}$ | $\underline{0.1}$ | $\underline{5.9}$ |
| $\underline{4211}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4212}$ | $\underline{0.6}$ | $\underline{8.4}$ |
| $\underline{4213}$ | $\underline{4.5}$ | $\underline{13.9}$ |
| $\underline{4214}$ | $\underline{4.9}$ | $\underline{19.7}$ |
| $\underline{4215}$ | $\underline{4.9}$ | $\underline{23.1}$ |
| $\underline{4216}$ | $\underline{4.7}$ | $\underline{22}$ |
| $\underline{4217}$ | $\underline{4.7}$ | $\underline{20.2}$ |
| $\underline{4218}$ | $\underline{4.4}$ | $\underline{15.3}$ |
| $\underline{4219}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4220}$ | $\underline{1.3}$ | $\underline{9.9}$ |
| $\underline{4221}$ | $\underline{5.6}$ | $\underline{16.9}$ |
| $\underline{4222}$ | $\underline{5.3}$ | $\underline{14.9}$ |
| $\underline{4223}$ | $\underline{0.3}$ | $\underline{8.4}$ |
| $\underline{4224}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4225}$ | $\underline{0.3}$ | $\underline{6.2}$ |
| $\underline{4226}$ | $\underline{0.1}$ | $\underline{5.8}$ |
| $\underline{4227}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4228}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4229}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4230}$ | $\underline{0.6}$ | $\underline{8.3}$ |
| $\underline{4231}$ | $\underline{0}$ |  |


| $\underline{4232}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4233}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4234}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4235}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4236}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4237}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4238}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4239}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4240}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4241}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4242}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4243}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4244}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4245}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4246}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4247}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4248}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4249}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4250}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4251}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4252}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4253}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4254}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4255}$ | $\underline{0}$ | $\underline{0}$ |
| 4256 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4257}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4258}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4259}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4260}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4261}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4262}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4263}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4264}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4265}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4266}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4267}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4268}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4269}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4270}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4271}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| $\underline{4272}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4273}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4274}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4275}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4276}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4277}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4278}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4279}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4280}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4281}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4282}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4283}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4284}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4285}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4286}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4287}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4288}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4289}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4290}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4291}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4292}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4293}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4294}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4295}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4296}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4297}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4298}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4299}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4300}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4301}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4302}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4303}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4304}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4305}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4306}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4307}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4308}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4309}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4310}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4311}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| 4312 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 4313 | $\underline{0}$ | $\underline{0}$ |
| 4314 | 0 | 0 |
| 4315 | $\underline{0}$ | $\underline{0}$ |
| 4316 | 0 | 0 |
| 4317 | 0 | $\underline{0}$ |
| 4318 | $\underline{0}$ | $\underline{0}$ |
| 4319 | $\underline{0}$ | $\underline{0}$ |
| 4320 | $\underline{0}$ | $\underline{0}$ |
| 4321 | $\underline{0}$ | $\underline{0}$ |
| 4322 | $\underline{0}$ | $\underline{0}$ |
| 4323 | $\underline{0}$ | $\underline{0}$ |
| 4324 | 0 | 0 |
| 4325 | $\underline{0}$ | $\underline{0}$ |
| 4326 | $\underline{0}$ | $\underline{0}$ |
| 4327 | $\underline{0}$ | $\underline{0}$ |
| 4328 | $\underline{0}$ | $\underline{0}$ |
| 4329 | $\underline{0}$ | $\underline{0}$ |
| 4330 | 0 | 0 |
| 4331 | 0 | 0 |
| 4332 | $\underline{0}$ | $\underline{0}$ |
| 4333 | 0 | 0 |
| 4334 | $\underline{0}$ | $\underline{0}$ |
| 4335 | $\underline{0}$ | $\underline{0}$ |
| 4336 | 0 | $\underline{0}$ |
| 4337 | 0 | 0 |
| 4338 | $\underline{0}$ | $\underline{0}$ |
| 4339 | 0 | 0 |
| 4340 | $\underline{0}$ | $\underline{0}$ |
| 4341 | $\underline{0}$ | $\underline{0}$ |
| 4342 | $\underline{0}$ | $\underline{0}$ |
| 4343 | 0 | 0 |
| 4344 | $\underline{0}$ | $\underline{0}$ |
| 4345 | $\underline{0}$ | $\underline{0}$ |
| 4346 | $\underline{0}$ | $\underline{0}$ |
| 4347 | $\underline{0}$ | $\underline{0}$ |
| 4348 | 0 | 0 |
| 4349 | $\underline{0}$ | $\underline{0}$ |
| 4350 | $\underline{0}$ | $\underline{0}$ |
| 4351 | $\underline{0}$ | $\underline{0}$ |


| 4352 | 0 | 0 |
| :---: | :---: | :---: |
| 4353 | $\underline{0}$ | $\underline{0}$ |
| 4354 | $\underline{0}$ | $\underline{0}$ |
| 4355 | $\underline{0}$ | $\underline{0}$ |
| 4356 | $\underline{0}$ | $\underline{0}$ |
| 4357 | $\underline{0}$ | $\underline{0}$ |
| 4358 | $\underline{0}$ | $\underline{0}$ |
| 4359 | $\underline{0}$ | $\underline{0}$ |
| 4360 | $\underline{0}$ | $\underline{0}$ |
| 4361 | $\underline{0}$ | $\underline{0}$ |
| 4362 | $\underline{0}$ | $\underline{0}$ |
| 4363 | $\underline{0}$ | $\underline{0}$ |
| 4364 | $\underline{0}$ | $\underline{0}$ |
| 4365 | 0 | 0 |
| 4366 | $\underline{0}$ | $\underline{0}$ |
| 4367 | $\underline{0}$ | $\underline{0}$ |
| 4368 | $\underline{0}$ | $\underline{0}$ |
| 4369 | $\underline{0}$ | $\underline{0}$ |
| 4370 | $\underline{0}$ | $\underline{0}$ |
| 4371 | 0 | 0 |
| $\underline{4372}$ | $\underline{0}$ | $\underline{0}$ |
| 4373 | $\underline{0}$ | $\underline{0}$ |
| 4374 | $\underline{0}$ | $\underline{0}$ |
| 4375 | $\underline{0}$ | $\underline{0}$ |
| 4376 | $\underline{0}$ | $\underline{0}$ |
| 4377 | $\underline{0}$ | $\underline{0}$ |
| 4378 | $\underline{0}$ | $\underline{0}$ |
| 4379 | $\underline{0}$ | $\underline{0}$ |
| 4380 | $\underline{0}$ | $\underline{0}$ |
| 4381 | $\underline{0}$ | $\underline{0}$ |
| 4382 | $\underline{0}$ | $\underline{0}$ |
| 4383 | $\underline{0}$ | $\underline{0}$ |
| 4384 | $\underline{0}$ | $\underline{0}$ |
| 4385 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4386}$ | $\underline{0}$ | $\underline{0}$ |
| 4387 | $\underline{0}$ | $\underline{0}$ |
| 4388 | $\underline{0}$ | $\underline{0}$ |
| 4389 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4390}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4391}$ | $\underline{0}$ | $\underline{0}$ |


| $\underline{4392}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4393}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4394}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4395}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4396}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4397}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4398}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4399}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4400}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4401}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4402}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4403}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4404}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4405}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4406}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4407}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4408}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4409}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4410}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4411}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4412}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4413}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4414}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4415}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4416}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4417}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4418}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4419}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4420}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4421}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4422}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4423}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4424}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4425}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4426}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4427}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4428}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4429}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4430}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4431}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| 4432 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 4433 | $\underline{0}$ | $\underline{0}$ |
| 4434 | 0 | 0 |
| 4435 | $\underline{0}$ | $\underline{0}$ |
| 4436 | $\underline{0}$ | $\underline{0}$ |
| 4437 | $\underline{0}$ | 0 |
| 4438 | $\underline{0}$ | $\underline{0}$ |
| 4439 | $\underline{0}$ | $\underline{0}$ |
| 4440 | $\underline{0}$ | 0 |
| 4441 | $\underline{0}$ | $\underline{0}$ |
| 4442 | $\underline{0}$ | 0 |
| 4443 | $\underline{0}$ | $\underline{0}$ |
| 4444 | 0 | 0 |
| 4445 | $\underline{0}$ | $\underline{0}$ |
| 4446 | $\underline{0}$ | $\underline{0}$ |
| 4447 | $\underline{0}$ | $\underline{0}$ |
| 4448 | $\underline{0}$ | 0 |
| 4449 | $\underline{0}$ | $\underline{0}$ |
| 4450 | $\underline{0}$ | 0 |
| 4451 | $\underline{0}$ | $\underline{0}$ |
| 4452 | $\underline{0}$ | $\underline{0}$ |
| 4453 | $\underline{0}$ | 0 |
| 4454 | $\underline{0}$ | $\underline{0}$ |
| 4455 | $\underline{0}$ | $\underline{0}$ |
| 4456 | $\underline{0}$ | 0 |
| 4457 | 0 | 0 |
| 4458 | $\underline{0}$ | $\underline{0}$ |
| 4459 | $\underline{0}$ | $\underline{0}$ |
| 4460 | $\underline{0}$ | $\underline{0}$ |
| 4461 | $\underline{0}$ | $\underline{0}$ |
| 4462 | $\underline{0}$ | $\underline{0}$ |
| 4463 | 0 | 0 |
| 4464 | $\underline{0}$ | $\underline{0}$ |
| 4465 | $\underline{0}$ | $\underline{0}$ |
| 4466 | $\underline{0}$ | $\underline{0}$ |
| 4467 | $\underline{0}$ | $\underline{0}$ |
| 4468 | $\underline{0}$ | 0 |
| 4469 | $\underline{0}$ | $\underline{0}$ |
| 4470 | $\underline{0}$ | $\underline{0}$ |
| 4471 | $\underline{0}$ | $\underline{0}$ |


| $\underline{4472}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4473}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4474}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4475}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4476}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4477}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4478}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4479}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4480}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4481}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4482}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4483}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4484}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4485}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4486}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4487}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4488}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4489}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4490}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4491}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4492}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4493}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4494}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4495}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4496}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4497}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4498}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4499}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4500}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4501}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4502}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4503}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4504}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4505}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4506}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4507}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4508}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4509}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4510}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4511}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| 4512 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 4513 | $\underline{0}$ | $\underline{0}$ |
| 4514 | 0 | 0 |
| 4515 | $\underline{0}$ | $\underline{0}$ |
| 4516 | $\underline{0}$ | $\underline{0}$ |
| 4517 | 0 | $\underline{0}$ |
| 4518 | $\underline{0}$ | $\underline{0}$ |
| 4519 | $\underline{0}$ | $\underline{0}$ |
| 4520 | $\underline{0}$ | $\underline{0}$ |
| 4521 | $\underline{0}$ | $\underline{0}$ |
| 4522 | $\underline{0}$ | $\underline{0}$ |
| 4523 | $\underline{0}$ | $\underline{0}$ |
| 4524 | 0 | 0 |
| 4525 | $\underline{0}$ | $\underline{0}$ |
| 4526 | $\underline{0}$ | $\underline{0}$ |
| 4527 | $\underline{0}$ | $\underline{0}$ |
| 4528 | $\underline{0}$ | $\underline{0}$ |
| 4529 | $\underline{0}$ | $\underline{0}$ |
| 4530 | 0 | 0 |
| 4531 | 0 | 0 |
| 4532 | $\underline{0}$ | $\underline{0}$ |
| 4533 | $\underline{0}$ | $\underline{0}$ |
| 4534 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4535}$ | $\underline{0}$ | $\underline{0}$ |
| 4536 | 0 | $\underline{0}$ |
| 4537 | 0 | 0 |
| 4538 | $\underline{0}$ | $\underline{0}$ |
| 4539 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4540}$ | $\underline{0}$ | $\underline{0}$ |
| 4541 | $\underline{0}$ | $\underline{0}$ |
| 4542 | $\underline{0}$ | $\underline{0}$ |
| 4543 | 0 | 0 |
| 4544 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4545}$ | $\underline{0}$ | $\underline{0}$ |
| 4546 | $\underline{0}$ | $\underline{0}$ |
| 4547 | $\underline{0}$ | $\underline{0}$ |
| 4548 | 0 | 0 |
| 4549 | $\underline{0}$ | $\underline{0}$ |
| 4550 | $\underline{0}$ | $\underline{0}$ |
| 4551 | $\underline{0}$ | $\underline{0}$ |


| 4552 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 4553 | 0 | 0 |
| 4554 | 0 | $\underline{0}$ |
| 4555 | $\underline{0}$ | $\underline{0}$ |
| 4556 | 0 | $\underline{0}$ |
| 4557 | 0 | $\underline{0}$ |
| 4558 | $\underline{0}$ | $\underline{0}$ |
| 4559 | $\underline{0}$ | $\underline{0}$ |
| 4560 | 0 | $\underline{0}$ |
| 4561 | $\underline{0}$ | $\underline{0}$ |
| 4562 | $\underline{0}$ | $\underline{0}$ |
| 4563 | $\underline{0}$ | $\underline{0}$ |
| 4564 | $\underline{0}$ | $\underline{0}$ |
| 4565 | $\underline{0}$ | $\underline{0}$ |
| 4566 | $\underline{0}$ | $\underline{0}$ |
| 4567 | $\underline{0}$ | $\underline{0}$ |
| 4568 | $\underline{0}$ | $\underline{0}$ |
| 4569 | $\underline{0}$ | $\underline{0}$ |
| 4570 | $\underline{0}$ | $\underline{0}$ |
| 4571 | $\underline{0}$ | $\underline{0}$ |
| 4572 | $\underline{0}$ | $\underline{0}$ |
| 4573 | $\underline{0}$ | $\underline{0}$ |
| 4574 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4575}$ | $\underline{0}$ | $\underline{0}$ |
| 4576 | $\underline{0}$ | $\underline{0}$ |
| 4577 | $\underline{0}$ | $\underline{0}$ |
| 4578 | $\underline{0}$ | $\underline{0}$ |
| 4579 | $\underline{0}$ | $\underline{0}$ |
| 4580 | $\underline{0}$ | $\underline{0}$ |
| 4581 | $\underline{0}$ | $\underline{0}$ |
| 4582 | $\underline{0}$ | $\underline{0}$ |
| 4583 | $\underline{0}$ | $\underline{0}$ |
| 4584 | $\underline{0}$ | $\underline{0}$ |
| 4585 | $\underline{0}$ | $\underline{0}$ |
| 4586 | $\underline{0}$ | $\underline{0}$ |
| 4587 | $\underline{0}$ | $\underline{0}$ |
| 4588 | 0 | $\underline{0}$ |
| 4589 | 0 | $\underline{0}$ |
| 4590 | $\underline{0}$ | $\underline{0}$ |
| 4591 | $\underline{0}$ | $\underline{0}$ |


| 4592 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 4593 | $\underline{0}$ | $\underline{0}$ |
| 4594 | 0 | 0 |
| 4595 | $\underline{0}$ | $\underline{0}$ |
| 4596 | 0 | $\underline{0}$ |
| 4597 | 0 | $\underline{0}$ |
| 4598 | $\underline{0}$ | $\underline{0}$ |
| 4599 | 0 | $\underline{0}$ |
| 4600 | 0 | 0 |
| 4601 | $\underline{0}$ | $\underline{0}$ |
| 4602 | $\underline{0}$ | $\underline{0}$ |
| 4603 | $\underline{0}$ | $\underline{0}$ |
| 4604 | 0 | 0 |
| 4605 | 0 | $\underline{0}$ |
| 4606 | $\underline{0}$ | $\underline{0}$ |
| 4607 | $\underline{0}$ | $\underline{0}$ |
| 4608 | $\underline{0}$ | $\underline{0}$ |
| 4609 | $\underline{0}$ | $\underline{0}$ |
| 4610 | 0 | 0 |
| 4611 | 0 | 0 |
| 4612 | $\underline{0}$ | $\underline{0}$ |
| 4613 | $\underline{0}$ | $\underline{0}$ |
| 4614 | $\underline{0}$ | $\underline{0}$ |
| 4615 | $\underline{0}$ | $\underline{0}$ |
| 4616 | $\underline{0}$ | $\underline{0}$ |
| 4617 | 0 | 0 |
| 4618 | $\underline{0}$ | $\underline{0}$ |
| 4619 | $\underline{0}$ | $\underline{0}$ |
| 4620 | $\underline{0}$ | $\underline{0}$ |
| 4621 | $\underline{0}$ | $\underline{0}$ |
| 4622 | $\underline{0}$ | $\underline{0}$ |
| 4623 | $\underline{0}$ | $\underline{0}$ |
| 4624 | $\underline{0}$ | $\underline{0}$ |
| 4625 | $\underline{0}$ | $\underline{0}$ |
| 4626 | $\underline{0}$ | $\underline{0}$ |
| 4627 | $\underline{0}$ | $\underline{0}$ |
| 4628 | 0 | $\underline{0}$ |
| 4629 | $\underline{0}$ | $\underline{0}$ |
| 4630 | $\underline{0}$ | $\underline{0}$ |
| 4631 | 0 | $\underline{0}$ |


| 4632 | 0 | 0 |
| :---: | :---: | :---: |
| 4633 | $\underline{0}$ | $\underline{0}$ |
| 4634 | $\underline{0}$ | $\underline{0}$ |
| 4635 | $\underline{0}$ | $\underline{0}$ |
| 4636 | $\underline{0}$ | $\underline{0}$ |
| 4637 | $\underline{0}$ | $\underline{0}$ |
| 4638 | $\underline{0}$ | $\underline{0}$ |
| 4639 | $\underline{0}$ | $\underline{0}$ |
| 4640 | $\underline{0}$ | $\underline{0}$ |
| 4641 | $\underline{0}$ | $\underline{0}$ |
| 4642 | $\underline{0}$ | $\underline{0}$ |
| 4643 | $\underline{0}$ | $\underline{0}$ |
| 4644 | $\underline{0}$ | $\underline{0}$ |
| 4645 | 0 | 0 |
| 4646 | $\underline{0}$ | $\underline{0}$ |
| 4647 | $\underline{0}$ | $\underline{0}$ |
| 4648 | $\underline{0}$ | $\underline{0}$ |
| 4649 | $\underline{0}$ | $\underline{0}$ |
| 4650 | $\underline{0}$ | $\underline{0}$ |
| 4651 | 0 | 0 |
| 4652 | $\underline{0}$ | $\underline{0}$ |
| 4653 | $\underline{0}$ | $\underline{0}$ |
| 4654 | $\underline{0}$ | $\underline{0}$ |
| 4655 | $\underline{0}$ | $\underline{0}$ |
| 4656 | $\underline{0}$ | $\underline{0}$ |
| 4657 | $\underline{0}$ | $\underline{0}$ |
| 4658 | $\underline{0}$ | $\underline{0}$ |
| 4659 | $\underline{0}$ | $\underline{0}$ |
| 4660 | $\underline{0}$ | $\underline{0}$ |
| 4661 | $\underline{0}$ | $\underline{0}$ |
| 4662 | $\underline{0}$ | $\underline{0}$ |
| 4663 | $\underline{0}$ | $\underline{0}$ |
| 4664 | $\underline{0}$ | $\underline{0}$ |
| 4665 | $\underline{0}$ | $\underline{0}$ |
| 4666 | $\underline{0}$ | $\underline{0}$ |
| 4667 | $\underline{0}$ | $\underline{0}$ |
| 4668 | $\underline{0}$ | $\underline{0}$ |
| 4669 | $\underline{0}$ | $\underline{0}$ |
| 4670 | $\underline{0}$ | $\underline{0}$ |
| 4671 | $\underline{0}$ | 0 |


| $\underline{4672}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4673}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4674}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4675}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4676}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4677}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4678}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4679}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4680}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4681}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4682}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4683}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4684}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4685}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4686}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4687}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4688}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4689}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4690}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4691}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4692}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{4693}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4694}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4695}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4696}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4697}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4698}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4699}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4700}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4701}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4702}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4703}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4704}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4705}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4706}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4707}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4708}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4709}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4710}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4711}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| $\underline{4712}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4713}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4714}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4715}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4716}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4717}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4718}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4719}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4720}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4721}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4722}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4723}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4724}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4725}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4726}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4727}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4728}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4729}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4730}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4731}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4732}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4733}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4734}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4735}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4736}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4737}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4738}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4739}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4740}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4741}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4742}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4743}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4744}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4745}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4746}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4747}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4748}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4749}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4750}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4751}$ | $\underline{0}$ |  |
|  |  |  |


| $\underline{4752}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 4753 | $\underline{0}$ | $\underline{0}$ |
| 4754 | 0 | 0 |
| $\underline{4755}$ | $\underline{0}$ | $\underline{0}$ |
| 4756 | $\underline{0}$ | $\underline{0}$ |
| 4757 | 0 | $\underline{0}$ |
| $\underline{4758}$ | $\underline{0}$ | $\underline{0}$ |
| 4759 | $\underline{0}$ | $\underline{0}$ |
| 4760 | $\underline{0}$ | $\underline{0}$ |
| 4761 | $\underline{0}$ | $\underline{0}$ |
| 4762 | $\underline{0}$ | $\underline{0}$ |
| 4763 | $\underline{0}$ | $\underline{0}$ |
| 4764 | 0 | 0 |
| $\underline{4765}$ | $\underline{0}$ | $\underline{0}$ |
| 4766 | $\underline{0}$ | $\underline{0}$ |
| 4767 | $\underline{0}$ | $\underline{0}$ |
| 4768 | $\underline{0}$ | $\underline{0}$ |
| 4769 | $\underline{0}$ | $\underline{0}$ |
| 4770 | 0 | 0 |
| 4771 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4772}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4773}$ | $\underline{0}$ | $\underline{0}$ |
| 4774 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4775}$ | $\underline{0}$ | $\underline{0}$ |
| 4776 | 0 | $\underline{0}$ |
| 4777 | 0 | 0 |
| $\underline{4778}$ | $\underline{0}$ | $\underline{0}$ |
| 4779 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4780}$ | $\underline{0}$ | $\underline{0}$ |
| 4781 | $\underline{0}$ | $\underline{0}$ |
| 4782 | $\underline{0}$ | $\underline{0}$ |
| 4783 | 0 | 0 |
| 4784 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4785}$ | $\underline{0}$ | $\underline{0}$ |
| 4786 | $\underline{0}$ | $\underline{0}$ |
| 4787 | $\underline{0}$ | $\underline{0}$ |
| 4788 | 0 | 0 |
| 4789 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4790}$ | $\underline{0}$ | $\underline{0}$ |
| 4791 | $\underline{0}$ | $\underline{0}$ |


| $\underline{4792}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4793}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4794}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4795}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4796}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4797}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4798}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4799}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4800}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4801}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4802}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4803}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4804}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4805}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4806}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4807}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4808}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4809}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4810}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4811}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4812}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4813}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4814}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4815}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4816}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4817}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4818}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4819}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4820}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4821}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4822}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4823}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4824}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4825}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4826}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4827}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4828}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4829}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4830}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4831}$ | $\underline{0}$ |  |
|  |  |  |


| $\underline{4832}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4833}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4834}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4835}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4836}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4837}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4838}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4839}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4840}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4841}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4842}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4843}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4844}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4845}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4846}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4847}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4848}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4849}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4850}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4851}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4852}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4853}$ | $\underline{0}$ | $\underline{0}$ |
| 4854 | $\underline{0}$ | $\underline{0}$ |
| $\underline{4855}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4856}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4857}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4858}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4859}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4860}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4861}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4862}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4863}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4864}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4865}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4866}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4867}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4868}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4869}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4870}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4871}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| $\underline{4872}$ | $\underline{0.9}$ | $\underline{7.3}$ |
| :---: | :---: | :---: |
| $\underline{4873}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4874}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4875}$ | $\underline{1.1}$ | $\underline{6.6}$ |
| $\underline{4876}$ | $\underline{5.1}$ | $\underline{19.6}$ |
| $\underline{4877}$ | $\underline{6.3}$ | $\underline{42.9}$ |
| $\underline{4878}$ | $\underline{5.6}$ | $\underline{42.1}$ |
| $\underline{4879}$ | $\underline{5.1}$ | $\underline{28.9}$ |
| $\underline{4880}$ | $\underline{5.8}$ | $\underline{26.2}$ |
| $\underline{4881}$ | $\underline{6.1}$ | $\underline{23.6}$ |
| $\underline{4882}$ | $\underline{9.3}$ | $\underline{12.8}$ |
| $\underline{4883}$ | $\underline{12.1}$ | $\underline{12.2}$ |
| $\underline{4884}$ | $\underline{16.8}$ | $\underline{15.6}$ |
| $\underline{4885}$ | $\underline{26}$ | $\underline{16.1}$ |
| $\underline{4886}$ | $\underline{39.2}$ | $\underline{15.2}$ |
| $\underline{4887}$ | $\underline{55.7}$ | $\underline{15.4}$ |
| $\underline{4888}$ | $\underline{43.9}$ | $\underline{13.3}$ |
| $\underline{4889}$ | $\underline{36.9}$ | $\underline{23.2}$ |
| $\underline{4890}$ | $\underline{48}$ | $\underline{11.8}$ |
| $\underline{4891}$ | $\underline{55.2}$ | $\underline{13.7}$ |
| $\underline{4892}$ | $\underline{64.8}$ | $\underline{10.6}$ |
| $\underline{4893}$ | $\underline{33.1}$ | $\underline{0.7}$ |
| $\underline{4894}$ | $\underline{34.1}$ | $\underline{6.1}$ |
| $\underline{4895}$ | $\underline{32.1}$ | $\underline{(a)}$ |
| $\underline{4896}$ | $\underline{27.4}$ | $\underline{(a)}$ |
| $\underline{4897}$ | $\underline{18.5}$ | $\underline{(a)}$ |
| $\underline{4898}$ | $\underline{6.8}$ | $\underline{0.8}$ |
| $\underline{4899}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4900}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4901}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4902}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4903}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4904}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4905}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4906}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4907}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4908}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4909}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4910}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4911}$ | $\underline{0}$ |  |


| $\underline{4912}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4913}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4914}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4915}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4916}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4917}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4918}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4919}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4920}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4921}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4922}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4923}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4924}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4925}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4926}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4927}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4928}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4929}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4930}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4931}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4932}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4933}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4934}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4935}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4936}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4937}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4938}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4939}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4940}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4941}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4942}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4943}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4944}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4945}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4946}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4947}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4948}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4949}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4950}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4951}$ | $\underline{0}$ |  |
|  |  |  |


| $\underline{4952}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{4953}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4954}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4955}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4956}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4957}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4958}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4959}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4960}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4961}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4962}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4963}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4964}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4965}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4966}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4967}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4968}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4969}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4970}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4971}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4972}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4973}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4974}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4975}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4976}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4977}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4978}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4979}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4980}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4981}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4982}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4983}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4984}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4985}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4986}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4987}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4988}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4989}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4990}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{4991}$ | $\underline{0}$ |  |
|  | $\underline{0}$ |  |


| 4992 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 4993 | $\underline{0}$ | $\underline{0}$ |
| 4994 | $\underline{0}$ | $\underline{0}$ |
| 4995 | $\underline{0}$ | $\underline{0}$ |
| 4996 | $\underline{0}$ | $\underline{0}$ |
| 4997 | $\underline{0}$ | $\underline{0}$ |
| 4998 | $\underline{0}$ | $\underline{0}$ |
| 4999 | $\underline{0}$ | $\underline{0}$ |
| 5000 | 0 | $\underline{0}$ |
| 5001 | $\underline{0}$ | $\underline{0}$ |
| 5002 | $\underline{0}$ | $\underline{0}$ |
| 5003 | $\underline{0}$ | $\underline{0}$ |
| 5004 | 0 | 0 |
| $\underline{5005}$ | $\underline{0}$ | $\underline{0}$ |
| 5006 | $\underline{0}$ | $\underline{0}$ |
| 5007 | $\underline{0}$ | $\underline{0}$ |
| 5008 | 0 | $\underline{0}$ |
| 5009 | $\underline{0}$ | $\underline{0}$ |
| 5010 | 0 | 0 |
| 5011 | $\underline{0}$ | $\underline{0}$ |
| 5012 | $\underline{0}$ | $\underline{0}$ |
| 5013 | $\underline{0}$ | $\underline{0}$ |
| 5014 | $\underline{0}$ | $\underline{0}$ |
| $\underline{5015}$ | $\underline{0}$ | $\underline{0}$ |
| 5016 | $\underline{0}$ | $\underline{0}$ |
| 5017 | $\underline{0}$ | $\underline{0}$ |
| 5018 | $\underline{0}$ | $\underline{0}$ |
| 5019 | $\underline{0}$ | $\underline{0}$ |
| 5020 | $\underline{0}$ | $\underline{0}$ |
| 5021 | $\underline{0}$ | $\underline{0}$ |
| 5022 | $\underline{0}$ | $\underline{0}$ |
| 5023 | 0 | 0 |
| 5024 | $\underline{0}$ | $\underline{0}$ |
| 5025 | $\underline{0}$ | $\underline{0}$ |
| 5026 | $\underline{0}$ | $\underline{0}$ |
| 5027 | $\underline{0}$ | $\underline{0}$ |
| 5028 | $\underline{0}$ | $\underline{0}$ |
| 5029 | $\underline{0}$ | $\underline{0}$ |
| 5030 | $\underline{0}$ | $\underline{0}$ |
| 5031 | $\underline{0}$ | $\underline{0}$ |


| $\underline{5032}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{5033}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5034}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5035}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5036}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5037}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5038}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5039}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5040}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5041}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5042}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5043}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5044}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5045}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5046}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5047}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5048}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5049}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5050}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5051}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5052}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5053}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5054}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5055}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5056}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5057}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5058}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5059}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5060}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5061}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5062}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5063}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5064}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5065}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5066}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5067}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5068}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5069}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5070}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| 5072 | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| 5073 | $\underline{0}$ | $\underline{0}$ |
| 5074 | $\underline{0}$ | $\underline{0}$ |
| 5075 | $\underline{0}$ | $\underline{0}$ |
| 5076 | $\underline{0}$ | $\underline{0}$ |
| 5077 | $\underline{0}$ | 0 |
| $\underline{5078}$ | $\underline{0}$ | $\underline{0}$ |
| 5079 | $\underline{0}$ | $\underline{0}$ |
| 5080 | 0 | 0 |
| 5081 | $\underline{0}$ | $\underline{0}$ |
| 5082 | $\underline{0}$ | 0 |
| 5083 | $\underline{0}$ | $\underline{0}$ |
| 5084 | 0 | 0 |
| 5085 | $\underline{0}$ | $\underline{0}$ |
| 5086 | $\underline{0}$ | $\underline{0}$ |
| 5087 | $\underline{0}$ | $\underline{0}$ |
| 5088 | 0 | 0 |
| 5089 | $\underline{0}$ | $\underline{0}$ |
| 5090 | $\underline{0}$ | 0 |
| 5091 | $\underline{0}$ | $\underline{0}$ |
| 5092 | $\underline{0}$ | $\underline{0}$ |
| 5093 | $\underline{0}$ | 0 |
| 5094 | $\underline{0}$ | $\underline{0}$ |
| $\underline{5095}$ | $\underline{0}$ | $\underline{0}$ |
| 5096 | $\underline{0}$ | $\underline{0}$ |
| 5097 | $\underline{0}$ | $\underline{0}$ |
| 5098 | $\underline{0}$ | $\underline{0}$ |
| 5099 | $\underline{0}$ | $\underline{0}$ |
| $\underline{5100}$ | $\underline{0}$ | $\underline{0}$ |
| 5101 | $\underline{0}$ | $\underline{0}$ |
| 5102 | $\underline{0}$ | $\underline{0}$ |
| 5103 | 0 | 0 |
| 5104 | $\underline{0}$ | $\underline{0}$ |
| 5105 | $\underline{0}$ | $\underline{0}$ |
| 5106 | $\underline{0}$ | $\underline{0}$ |
| 5107 | $\underline{0}$ | $\underline{0}$ |
| 5108 | 0 | 0 |
| 5109 | $\underline{0}$ | $\underline{0}$ |
| $\underline{5110}$ | $\underline{0}$ | $\underline{0}$ |
| 5111 | $\underline{0}$ | $\underline{0}$ |


| $\underline{5112}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{5113}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5114}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5115}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5116}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5117}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5118}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5119}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5120}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5121}$ | $\underline{1}$ | $\underline{7.5}$ |
| $\underline{5122}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5123}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5124}$ | $\underline{1.2}$ | $\underline{6.9}$ |
| $\underline{5125}$ | $\underline{5.9}$ | $\underline{28.2}$ |
| $\underline{5126}$ | $\underline{6}$ | $\underline{37.9}$ |
| $\underline{5127}$ | $\underline{5.7}$ | $\underline{36.4}$ |
| $\underline{5128}$ | $\underline{6.4}$ | $\underline{40.8}$ |
| $\underline{5129}$ | $\underline{7}$ | $\underline{44.4}$ |
| $\underline{5130}$ | $\underline{17.5}$ | $\underline{30.8}$ |
| $\underline{5131}$ | $\underline{33}$ | $\underline{16.5}$ |
| $\underline{5132}$ | $\underline{43.5}$ | $\underline{15.8}$ |
| $\underline{5133}$ | $\underline{54.5}$ | $\underline{11.2}$ |
| $\underline{5134}$ | $\underline{45.5}$ | $\underline{16.1}$ |
| $\underline{5135}$ | $\underline{23.1}$ | $\underline{31.7}$ |
| $\underline{5136}$ | $\underline{32.4}$ | $\underline{17.3}$ |
| $\underline{5137}$ | $\underline{40.6}$ | $\underline{6.3}$ |
| $\underline{5138}$ | $\underline{47.3}$ | $\underline{(a)}$ |
| $\underline{5139}$ | $\underline{50.3}$ | $\underline{(a)}$ |
| $\underline{5140}$ | $\underline{51}$ | $\underline{(a)}$ |
| $\underline{5141}$ | $\underline{48.1}$ | $\underline{(a)}$ |
| $\underline{5142}$ | $\underline{44.8}$ | $\underline{(a)}$ |
| $\underline{5143}$ | $\underline{40.4}$ | $\underline{(a)}$ |
| $\underline{5144}$ | $\underline{37.8}$ | $\underline{(a)}$ |
| $\underline{5145}$ | $\underline{36.4}$ | $\underline{(a)}$ |
| $\underline{5146}$ | $\underline{36.8}$ | $\underline{3.3}$ |
| $\underline{5147}$ | $\underline{41.2}$ | $\underline{2.4}$ |
| $\underline{5148}$ | $\underline{44.7}$ | $\underline{3.9}$ |
| $\underline{5149}$ | $\underline{50.1}$ | $\underline{5.6}$ |
| $\underline{27.9}$ | $\underline{2.6}$ |  |
| $\underline{5150}$ |  |  |


| 5152 | 24.4 | (a) |
| :---: | :---: | :---: |
| 5153 | 16.9 | 1 |
| 5154 | 10.7 | 0.7 |
| 5155 | 28.2 | 16.1 |
| 5156 | 5.3 | 1 |
| 5157 | 0.1 | 6 |
| 5158 | $\underline{0}$ | $\underline{0}$ |
| 5159 | $\underline{0}$ | $\underline{0}$ |
| 5160 | 0.4 | 5.8 |
| 5161 | 1.4 | 9.5 |
| 5162 | 6.2 | 28.4 |
| 5163 | 6.8 | 41 |
| 5164 | 5.7 | 34.4 |
| 5165 | 5.4 | 23.3 |
| 5166 | 5.9 | 22.2 |
| 5167 | 6.1 | 21.1 |
| 5168 | 6.2 | 19.5 |
| $\underline{5169}$ | 6.4 | $\underline{20.2}$ |
| 5170 | 6.9 | 29.3 |
| 5171 | 6 | 18.2 |
| 5172 | 6.7 | $\underline{26.6}$ |
| 5173 | 5.8 | 13.1 |
| 5174 | 7 | 10.2 |
| 5175 | 7.4 | 9.2 |
| 5176 | 7.5 | $\underline{9}$ |
| 5177 | 7.5 | 8.8 |
| 5178 | 7.5 | 8.8 |
| 5179 | 8.7 | 16.8 |
| 5180 | 20.1 | 20.7 |
| 5181 | 33.4 | 16 |
| 5182 | 49.7 | 13.4 |
| 5183 | 57.2 | 6.8 |
| $\underline{5184}$ | $\underline{26.8}$ | 1 |
| 5185 | $\underline{21.1}$ | $\underline{24.2}$ |
| 5186 | 25.4 | 14 |
| $\underline{5187}$ | $\underline{26.1}$ | 11.9 |
| 5188 | $\underline{28}$ | 7.4 |
| 5189 | 28.5 | $\underline{6}$ |
| $\underline{5190}$ | $\underline{28.5}$ | 5.7 |
| 5191 | $\underline{28.4}$ | 5.6 |


| $\underline{5192}$ | $\underline{28.2}$ | $\underline{5.6}$ |
| :---: | :---: | :---: |
| $\underline{5193}$ | $\underline{28.1}$ | $\underline{5.6}$ |
| $\underline{5194}$ | $\underline{27.9}$ | $\underline{5.7}$ |
| $\underline{5195}$ | $\underline{29.5}$ | $\underline{14.7}$ |
| $\underline{5196}$ | $\underline{40.8}$ | $\underline{21.2}$ |
| $\underline{5197}$ | $\underline{56.3}$ | $\underline{21.8}$ |
| $\underline{5198}$ | $\underline{68.3}$ | $\underline{13.8}$ |
| $\underline{5199}$ | $\underline{33.3}$ | $\underline{2.8}$ |
| $\underline{5200}$ | $\underline{42.1}$ | $\underline{40.5}$ |
| $\underline{5201}$ | $\underline{59.3}$ | $\underline{19.7}$ |
| $\underline{5202}$ | $\underline{67.3}$ | $\underline{9.5}$ |
| $\underline{5203}$ | $\underline{38.3}$ | $\underline{0.5}$ |
| $\underline{5204}$ | $\underline{42.7}$ | $\underline{37}$ |
| $\underline{5205}$ | $\underline{49.4}$ | $\underline{19.3}$ |
| $\underline{5206}$ | $\underline{56.8}$ | $\underline{10.7}$ |
| $\underline{5207}$ | $\underline{63.5}$ | $\underline{24.7}$ |
| $\underline{5208}$ | $\underline{42.4}$ | $\underline{13.5}$ |
| $\underline{5209}$ | $\underline{25.9}$ | $\underline{51.3}$ |
| $\underline{5210}$ | $\underline{30.8}$ | $\underline{72.4}$ |
| $\underline{5211}$ | $\underline{38.7}$ | $\underline{13.4}$ |
| $\underline{5212}$ | $\underline{38}$ | $\underline{(a)}$ |
| $\underline{5213}$ | $\underline{31.1}$ | $\underline{(a)}$ |
| $\underline{5214}$ | $\underline{18.8}$ | $\underline{(a)}$ |
| $\underline{5215}$ | $\underline{9.7}$ | $\underline{17.8}$ |
| $\underline{5216}$ | $\underline{2.1}$ | $\underline{0.2}$ |
| $\underline{5217}$ | $\underline{0.1}$ | $\underline{5.8}$ |
| $\underline{5218}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5219}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5220}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5221}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5222}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5223}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5224}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5225}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5226}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5227}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5228}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5229}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5230}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| $\underline{5232}$ | $\underline{0}$ | $\underline{0}$ |
| :--- | :--- | :--- |
| $\underline{5233}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5234}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5235}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5236}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5237}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5238}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5239}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5240}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5241}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5242}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5243}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5244}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5245}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5246}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5247}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5248}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5249}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5250}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5251}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5252}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5253}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5254}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5255}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5256}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5257}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5258}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5259}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5260}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5261}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5262}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5263}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5264}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5265}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5266}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5267}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5268}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5269}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5270}$ | $\underline{0}$ | $\underline{0}$ |
|  | $\underline{0}$ |  |


| $\underline{5272}$ | $\underline{0}$ | $\underline{0}$ |
| :---: | :---: | :---: |
| $\underline{5273}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5274}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5275}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{5276}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5277}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{5278}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5279}$ | $\underline{\underline{0}}$ | $\underline{0}$ |
| $\underline{5280}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5281}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5282}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5283}$ | $\underline{0.8}$ | $\underline{9.8}$ |
| $\underline{5284}$ | $\underline{6.6}$ | $\underline{37.6}$ |
| $\underline{5285}$ | $\underline{6.5}$ | $\underline{41.8}$ |
| $\underline{5286}$ | $\underline{5.7}$ | $\underline{27.5}$ |
| $\underline{5287}$ | $\underline{5.4}$ | $\underline{14.6}$ |
| $\underline{5288}$ | $\underline{4.3}$ | $\underline{4.8}$ |
| $\underline{5289}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5290}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5291}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5292}$ | $\underline{1.8}$ | $\underline{\underline{9.6}}$ |
| $\underline{5293}$ | $\underline{7.7}$ | $\underline{54.2}$ |
| $\underline{5294}$ | $\underline{7.2}$ | $\underline{74}$ |
| $\underline{5295}$ | $\underline{26.2}$ | $\underline{44}$ |
| $\underline{5296}$ | $\underline{56.6}$ | $\underline{26.2}$ |
| $\underline{5297}$ | $\underline{41.1}$ | $\underline{15.5}$ |
| $\underline{5298}$ | $\underline{15.7}$ | $\underline{3.7}$ |
| $\underline{5299}$ | $\underline{25.6}$ | $\underline{54.8}$ |
| $\underline{5300}$ | $\underline{58.4}$ | $\underline{41.3}$ |
| $\underline{5301}$ | $\underline{79.3}$ | $\underline{27.1}$ |
| $\underline{5302}$ | $\underline{45}$ | $\underline{0.8}$ |
| $\underline{5303}$ | $\underline{52.4}$ | $\underline{49}$ |
| $\underline{5304}$ | $\underline{84.7}$ | $\underline{84.8}$ |
| $\underline{5305}$ | $\underline{85.6}$ | $\underline{30.4}$ |
| $\underline{5306}$ | $\underline{47.3}$ | $\underline{2.8}$ |
| $\underline{5307}$ | $\underline{52.6}$ | $\underline{65.9}$ |
| $\underline{5308}$ | $\underline{67.5}$ | $\underline{87.5}$ |
| $\underline{5309}$ | $\underline{85.6}$ | $\underline{57.5}$ |
| $\underline{5310}$ | $\underline{92.5}$ | $\underline{52}$ |
| $\underline{17.9}$ |  |  |


| 5312 | 50.8 | 39.2 |
| :---: | :---: | :---: |
| 5313 | 54.7 | 74.5 |
| 5314 | 61.2 | 90.7 |
| 5315 | 70.6 | 97 |
| 5316 | 82.2 | 95.2 |
| 5317 | 90.7 | 33.2 |
| $\underline{5318}$ | $\underline{53}$ | $\underline{2.5}$ |
| 5319 | 58.2 | 62 |
| 5320 | 64.7 | 43.3 |
| 5321 | 68.1 | 53.2 |
| 5322 | 70.3 | 80.1 |
| 5323 | 73.6 | $\underline{35}$ |
| 5324 | 74.1 | 26.3 |
| 5325 | 43.6 | 7.6 |
| 5326 | 37.1 | 12.3 |
| 5327 | 35.9 | 8.2 |
| 5328 | 34.1 | (a) |
| 5329 | 30.2 | (a) |
| 5330 | $\underline{23.3}$ | (a) |
| 5331 | 14.2 | (a) |
| 5332 | 30.7 | 1.7 |
| 5333 | 19.7 | (a) |
| 5334 | 15.1 | 12.6 |
| 5335 | 43.1 | 5.7 |
| $\underline{5336}$ | 39.2 | (a) |
| 5337 | 35.7 | (a) |
| 5338 | 30.1 | (a) |
| $\underline{5339}$ | $\underline{24.4}$ | (a) |
| 5340 | $\underline{21.6}$ | (a) |
| 5341 | 21.3 | (a) |
| 5342 | 20.1 | 4.4 |
| $\underline{5343}$ | $\underline{20.1}$ | $\underline{10}$ |
| $\underline{5344}$ | $\underline{20.4}$ | 6.1 |
| 5345 | 19.1 | (a) |
| 5346 | 16 | (a) |
| $\underline{5347}$ | 12.8 | (a) |
| 5348 | 9.4 | (a) |
| 5349 | 8.4 | (a) |
| $\underline{5350}$ | 8.2 | (a) |
| 5351 | 32.6 | 20.1 |


| 5352 | $\underline{27.9}$ | (a) |
| :---: | :---: | :---: |
| 5353 | 26.6 | $\underline{20.9}$ |
| 5354 | 30.9 | 32 |
| 5355 | 33.2 | $\underline{21.5}$ |
| 5356 | 32.4 | 2.7 |
| 5357 | 34.7 | 19.6 |
| 5358 | 46.7 | 35.6 |
| 5359 | 61.8 | 44.7 |
| 5360 | 74.1 | 43.8 |
| 5361 | 79.1 | 27.1 |
| $\underline{5362}$ | $\underline{40}$ | $\underline{3}$ |
| 5363 | 38.7 | 58.8 |
| 5364 | $\underline{47}$ | 81.8 |
| 5365 | 59.3 | 92.7 |
| 5366 | 72.4 | 96.5 |
| 5367 | 80.9 | 50.4 |
| 5368 | 85.8 | 58 |
| 5369 | 47.8 | $\underline{0.5}$ |
| 5370 | 47.6 | $\underline{52.3}$ |
| 5371 | 52.8 | 81.7 |
| $\underline{5372}$ | 59.2 | 93.4 |
| 5373 | 65.5 | 98.3 |
| 5374 | 72.3 | 98.2 |
| 5375 | 75.3 | $\underline{21.6}$ |
| 5376 | 76.1 | 42.7 |
| 5377 | 40 | 1.5 |
| 5378 | 38.4 | 58.3 |
| 5379 | 40.8 | 83.1 |
| 5380 | 43.6 | 92.9 |
| 5381 | 46.7 | 96.7 |
| 5382 | 50.1 | $\underline{98.4}$ |
| 5383 | 53 | 99.3 |
| 5384 | 56.2 | $\underline{99}$ |
| $\underline{5385}$ | $\underline{59.9}$ | 58.3 |
| 5386 | 61.8 | 38.7 |
| 5387 | $\underline{62.9}$ | 41 |
| 5388 | 30.9 | 1.4 |
| 5389 | $\underline{29.2}$ | 64.2 |
| $\underline{5390}$ | $\underline{29.7}$ | 86 |
| 5391 | 30.5 | $\underline{93.5}$ |


| 5392 | 31.4 | $\underline{60}$ |
| :---: | :---: | :---: |
| 5393 | 31.8 | 34.9 |
| 5394 | 31.6 | 45.6 |
| 5395 | 31.8 | 45.8 |
| 5396 | 31.8 | (a) |
| 5397 | 30.6 | (a) |
| 5398 | $\underline{29.4}$ | 4.1 |
| 5399 | $\underline{28.4}$ | (a) |
| 5400 | 27.6 | (a) |
| 5401 | 26.6 | 4.6 |
| $\underline{5402}$ | $\underline{26}$ | (a) |
| $\underline{5403}$ | $\underline{25}$ | 14.2 |
| 5404 | 24.4 | 8.2 |
| $\underline{5405}$ | $\underline{24.1}$ | (a) |
| $\underline{5406}$ | $\underline{23.2}$ | (a) |
| 5407 | $\underline{22.5}$ | (a) |
| 5408 | $\underline{21.8}$ | (a) |
| 5409 | 20.6 | 9.5 |
| 5410 | 19.6 | 4.5 |
| 5411 | 18.7 | (a) |
| 5412 | 18 | (a) |
| $\underline{5413}$ | 16.5 | (a) |
| $\underline{5414}$ | 17.2 | 13.8 |
| $\underline{5415}$ | 40.8 | $\underline{2.2}$ |
| 5416 | 36.4 | (a) |
| 5417 | 34.8 | (a) |
| $\underline{5418}$ | 33.5 | (a) |
| 5419 | 31.7 | (a) |
| 5420 | $\underline{27.1}$ | (a) |
| $\underline{5421}$ | $\underline{\underline{20}}$ | (a) |
| $\underline{5422}$ | $\underline{26.2}$ | $\underline{22.1}$ |
| 5423 | 25.5 | 7.2 |
| 5424 | 33.7 | 15.3 |
| 5425 | 15.9 | (a) |
| 5426 | 10.8 | (a) |
| 5427 | 9.4 | 6.8 |
| 5428 | 11 | 45 |
| 5429 | 15.6 | 61.7 |
| $\underline{5430}$ | $\underline{20.1}$ | 44.6 |
| $\underline{5431}$ | $\underline{23.1}$ | $\underline{47}$ |


| 5432 | $\underline{27}$ | 43 |
| :---: | :---: | :---: |
| 5433 | 31.6 | 43.2 |
| 5434 | 36.1 | 33 |
| 5435 | 38.7 | $\underline{21}$ |
| 5436 | 41.9 | 36.1 |
| 5437 | 47.2 | 48.6 |
| $\underline{5438}$ | 55.4 | 69.9 |
| 5439 | 65.4 | 71.9 |
| 5440 | 72.7 | 55 |
| 5441 | 76.7 | 33.4 |
| 5442 | 41.3 | 1.5 |
| 5443 | 39.1 | 49.6 |
| 5444 | 44 | 79.4 |
| 5445 | 50.2 | 58 |
| 5446 | 53.4 | 43.9 |
| 5447 | 56.3 | 52.2 |
| 5448 | 60.4 | 67.4 |
| 5449 | 64.7 | 61.3 |
| 5450 | 68 | 51.4 |
| 5451 | 70.9 | 50.6 |
| 5452 | 41 | 6.3 |
| 5453 | 36.5 | 46.3 |
| 5454 | 38 | 57.7 |
| $\underline{5455}$ | 39.9 | $\underline{59.5}$ |
| 5456 | 41.9 | 65.2 |
| 5457 | 44.4 | 77.2 |
| 5458 | 46.9 | 69.5 |
| 5459 | 48.7 | 48.9 |
| 5460 | 49.9 | 38.1 |
| 5461 | 50.3 | 19.6 |
| 5462 | 49.5 | (a) |
| 5463 | 48.2 | (a) |
| 5464 | 46.6 | (a) |
| 5465 | 45.3 | (a) |
| 5466 | 43.5 | (a) |
| 5467 | 40.3 | (a) |
| 5468 | 35.8 | (a) |
| 5469 | 32.1 | (a) |
| 5470 | 28.4 | (a) |
| $\underline{5471}$ | $\underline{22.8}$ | (a) |


| $\underline{5472}$ | $\underline{14.5}$ | $\underline{6.3}$ |
| :---: | :---: | :---: |
| $\underline{5473}$ | $\underline{22.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{5474}$ | $\underline{27.5}$ | $\underline{8.8}$ |
| $\underline{5475}$ | $\underline{6.4}$ | $\underline{3.7}$ |
| $\underline{5476}$ | $\underline{20.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{5477}$ | $\underline{13.7}$ | $\underline{(\mathrm{a})}$ |
| $\underline{5478}$ | $\underline{\underline{9.9}}$ | $\underline{(\mathrm{a}})$ |
| $\underline{5479}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5480}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5481}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5482}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5483}$ | $\underline{0.7}$ | $\underline{5.9}$ |
| $\underline{5484}$ | $\underline{36.3}$ | $\underline{46.1}$ |
| $\underline{5485}$ | $\underline{34.1}$ | $\underline{(\mathrm{a}})$ |
| $\underline{5486}$ | $\underline{26.5}$ | $\underline{(\mathrm{a}})$ |
| $\underline{5487}$ | $\underline{20.6}$ | $\underline{2.3}$ |
| $\underline{5488}$ | $\underline{16}$ | $\underline{(\mathrm{a}})$ |
| $\underline{5489}$ | $\underline{10.2}$ | $\underline{(\mathrm{a}})$ |
| $\underline{5490}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5491}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5492}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5493}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5494}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5495}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5496}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5497}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5498}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5499}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5500}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5501}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5502}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5503}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5504}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{5505}$ | $\underline{0}$ | $\underline{0}$ |
|  |  |  |

(a) Closed throttle motoring

PART 1036 - CONTROL OF EMISSIONS FROM NEW AND IN-USE HEAVY-DUTY HIGHWAY ENGINES

## Subpart A - Overview and Applicability

1036.1 Does this part apply for my engines? October 25, 2016March 10, 2021 (Pre-publication).

1. Amend subparagraph (a) as follows: Except as specified in 40 CFR §1036.5, the provisions of this part apply for engines that will be installed in heavyduty vehicles (including glider vehicles) above 14,000 pounds GVWR for propulsion, 2022 and subsequent model year diesel hybrid powertrains optionally certifying to criteria pollutants emission standards pursuant to title 13, CCR, 1956.8 that will be installed in incomplete vehicles from 10,001 to 14,000 pounds GVWR, and 2022 and subsequent model year diesel hybrid powertrains optionally certifying to criteria pollutants emission standards pursuant to title 13, CCR, 1956.8 that will be installed in heavy-duty vehicles above 14,000 pounds GVWR. These provisions also apply for engines that will be installed in 2019 and earlier model year incomplete heavy-duty vehicles from 8,501 to 10,000 pounds GVWR and in incomplete heavy-duty vehicles from 10,001 to 14,000 pounds GVWR, unless the engine is installed in a vehicle that is covered by an Executive Order under 40 CFR part 86, subpart S.
2. Subparagraph (b). [No-change.]Amend subparagraph (b) as follows: This part does not apply with respect to exhaust emission standards for $\mathrm{HC}, \mathrm{CO}, \mathrm{NOx}$, or PM except as follows:
(1) The provisions of $\$ 1036.601$ apply.
(2) 40 CFR parts 85 and 86 may specify that certain provisions apply.
(3) The provisions of $\S 1036.501(\mathrm{~h})(1)$ apply.
(4) Diesel hybrid powertrain optionally certifying to criteria pollutants emission standards pursuant to title 13, CCR, 1956.8 apply.
3. Delete subparagraph (c).
4. Subparagraph (d). [No change.]
1036.2 Who is responsible for compliance? October 25, 2016.
1036.5 Which engines are excluded from this part's requirements? October 25, 2016.
5. Subparagraph (a). [No change.]
6. Amend subparagraph (b) as follows: Engines installed in heavy-duty vehicles that do not provide motive power are nonroad engines, except for diesel engines installed in a hybrid powertrain optionally certifying to criteria pollutants emission standards pursuant to title 13, CCR 1956.8 regardless whether the engine provides motive power or not. The provisions of this part therefore do not apply to these engines. See 40 CFR parts 1039, 1048, or 1054 for other requirements that apply for these auxiliary engines. See 40 CFR part 1037 for requirements that may apply for vehicles using these engines, such as the evaporative emission requirements of 40 CFR 1037.103.
7. Subparagraphs (c) through (e). [No change.]
1036.10 How is this part organized? October 25, 2016.
1036.15 Do any other regulation parts apply to me? October 25, 2016.
1036.30 Submission of information. October 25, 2016.
8. Amend subparagraph as follows: Send all reports and requests for approval to the ARB Designated Compliance Officer, as follows: Chief, Emissions Certification and Compliance Division, Automotive Regulations and Science Division, California Air Resources Board, 9480 Telstar Avenue, Ste. \#4, El Monte, GA 917314001 Iowa Ave., Riverside, CA 92507.

## Subpart B - Emission Standards and Related Requirements

1036.100 Overview of exhaust emission standards. October 25, 2016.
1036.108 Greenhouse gas emission standards. October 25, 2016.

1. Add the following section to the introductory paragraph: Optional

Compliance Via the 2014 MY National Heavy-Duty Engine and Vehicle Greenhouse Gas Program. For the 2014 through 2020 model years, a manufacturer may elect to demonstrate compliance with this section, 40 CFR §1036.108, for all of its applicable heavy-duty engines by demonstrating compliance with the 2014 MY National HeavyDuty Engine and Vehicle Greenhouse Gas Program, if it meets the criteria identified below.
(1) A manufacturer that selects compliance with this option must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or December 1, 2014, whichever is later;
(2) The manufacturer must submit to ARB all data that it submitted to U.S. Environmental Protection Agency in accordance with the reporting requirements as required under 40 CFR §1036.205, §1036.250, and §1036.730, for demonstrating compliance with the 2014 MY National Heavy-Duty Engine and Vehicle Greenhouse Gas Program and the U.S. Environmental Protection Agency determination of compliance. With the exception of the 2014 model year, all such data must be submitted within 30 days of receipt of the U.S.
Environmental Protection Agency Certificate of Conformity or of the date of submission to the U.S. Environmental Protection Agency, whichever is later, for each model year that a manufacturer selects compliance with this option;
(3) The manufacturer must provide to the Executive Officer separate numbers for each engine family of heavy-duty engines produced and delivered for sale in California each model year and all values used in calculating positive or negative emission credits in 40 CFR §1036.730.
2. Subparagraphs (a) through (a)(1)(i). [No change.]
3. Add the following language to subparagraph (a)(1)(ii): As an option, 2017 through 2027 model year heavy-duty diesel engines, except in all cases engines used in medium-duty vehicles, may be certified to the Optional Low-CO Emission

Standards. The $\mathrm{CO}_{2}$ emissions from engines certified to the Optional Low-CO2 Emission Standards may not exceed the following standards:

## Optional Low-CO2 Emission Standards for 2017 through 2027 Model Year Heavy-Duty Diesel Engines (grams per horsepower-hour or g/hp-hr)

| Light <br> heavy-duty <br> - vocational | Medium heavy- <br> duty- <br> vocational | Heavy heavy- <br> duty- <br> vocational | Medium <br> heavy-duty- <br> tractor | Heavy <br> heavy-duty - <br> tractor |
| :---: | :---: | :---: | :---: | :---: |
| 490 | 474 | 446 | 409 | 387 |

Engines certified to the Optional Low-CO2 Emission Standards must also comply with the applicable $\mathrm{CH}_{4}$ and $\mathrm{N}_{2} \mathrm{O}$ emission standards set forth in subparagraphs (a)(2) and (a)(3), respectively. In addition, engines certified to these Optional Low$\mathrm{CO}_{2}$ Emission Standards and participating in the Innovative Technology Regulation set forth in $\S \S 2208$ and 2208.1 of title 13, CCR are not eligible to participate in the averaging, banking, and trading program, or to generate credits for certification.
4. Subparagraphs (a)(2) through (f). [No change.]
1036.115 Other requirements. October 25, 2016.
1036.130 Installation instructions for vehicle manufacturers. October 25, 2016.

1. Subparagraphs (a) through (b)(1). [No change.]
2. Delete and replace subparagraph (b)(2), as follows: State "Failing to follow these instructions when installing a certified engine, or an optionally certified diesel hybrid powertrain, in a heavy-duty motor vehicle violates federal and state law, subject to fines or other penalties as described in the Clean Air Act and California Health and Safety Code."
3. Subparagraphs (b)(3) through (d). [No change.]
1036.135 Labeling. October 25, 2016.
4. Amend the introductory paragraph as follows: Beginning January 1, 2015, label your engines, or optionally certified diesel hybrid powertrains, as described in 40 CFR §86.007-35(a)(3), as modified by these test procedures, with the following additional information:
5. Subparagraph (b) through (d). [No change.]
1036.140 Primary intended service class and engine cycle. October 25, 2016.
6. Amend the introductory paragraph as follows: You must identify a single primary intended service class for each compression-ignition engine family, or for each optionally certified diesel hybrid powertrain family, that best describes vehicles for which you design and market the engine, or the optionally certified diesel hybrid powertrain, as follows:
7. Subparagraphs (a) through (c). [No change.]
1036.150 Interim provisions. October 25, 2016.
8. Amend subparagraph (a) as follows: Credit provisions for 2013 model year compliance. The provisions of this paragraph (a) apply to 2013 model year heavyduty diesel engines that have generated early credits with U.S. Environmental Protection Agency. For each 2013 model year heavy-duty diesel engine that is certified to the greenhouse gas standards of 40 CFR Part 1036, an equal amount of credit as given by the U.S. Environmental Protection Agency will be granted in the California ABT Program. The manufacturer must notify ARB of its intent to use this provision before submitting its application and must submit to ARB all data that the manufacturer submitted to U.S. Environmental Protection Agency in accordance with the reporting requirements as required under 40 CFR §§1036.205, 1036.250, and 1036.730.
9. Subparagraphs (a)(1) through (p). [No change.]

## Subpart C - Certifying Engine Families

1036.205 What must I include in my application? October 25, 2016.

1. Subparagraphs (a) through (h). [No change.]
2. Amend the introductory paragraph as follows: This Subpart $C$ also applies to optionally certifying diesel hybrid powertrain families. Submit an application for certification as described in 40 CFR 86.007-21, with the following additional information:
3. Amend subparagraph (a) as follows: Describe the engine family's, or optionally certified diesel hybrid powertrain family's, specifications and other basic parameters of the engine's or optionally certified diesel hybrid powertrain's, design and emission controls with respect to compliance with the requirements of this part. Describe in detail all system components for controlling greenhouse gas emissions, and criteria pollutants emissions for diesel hybrid powertrains optionally certified pursuant to title 13, CCR 1956.8, including all auxiliary emission control devices (AECDs) and all fuel system components you will install on any production or test engine, or optionally certified diesel hybrid powertrain. Identify the part number of each component you describe. For this paragraph (a), treat as separate AECDs any devices that modulate or activate differently from each other.
4. Subparagraph (b). [No change.]
5. Amend subparagraph (c) as follows: Include the emission-related installation instructions you will provide if someone else installs your engines, or optionally certified diesel hybrid powertrains, in their vehicles (see §1036.130).
6. Subparagraphs (d) through (e). [No change.]
7. Amend subparagraph (f) as follows: Identify the engine family's, or powertrain family's, deterioration factors and describe how you developed them (see §1036.241). Present any test data you used for this.
8. Amend subparagraph (g)(1) as follows: Present exhaust emission data for $\mathrm{CO} 2, \mathrm{CH} 4$, and N 2 O on an emission-data engine to show that your engines meet the applicable emission standards we specify in §1036.108, or, for optionally
certified diesel hybrid powertrains, present exhaust emission data for criteria pollutants on an emission-data diesel hybrid powertrain to show that your optionally certified diesel hybrid powertrains meet the applicable emission standards pursuant to title 13, CCR 1956.8. Show emission figures before and after applying deterioration factors for each engine. In addition to the composite results, show individual measurements for cold-start testing and hot-start testing over the transient test cycle
9. Amend subparagraph (h) as follows: State whether your certification is limited for certain engines, or optionally certified diesel hybrid powertrains. For example, if you certify heavy heavy-duty engines to the $\mathrm{CO}_{2}$ standards using only transient testing, the engines may be installed only in vocational vehicles.
2.9. Amend subparagraph (i) as follows: Unconditionally certify that all the engines in the engine family, or all the diesel hybrid powertrains in the optionally certified diesel hybrid powertrain family, are built as described and comply with the requirements of this part, other referenced parts of the CFR, and title 13, CCR, section 1956.8. Note that 40 CFR $\S 1036.235$ specifies which engines to test to show that engines in the entire family comply with the requirements of this part.
3.10. Subparagraphs (j) through ( n ). [No change.]
1036.210 Preliminary approval before certification. October 25, 2016.
10. Amend the introductory paragraph as follows: If you send us information before you finish the application, we may review it and make any appropriate determinations, especially for questions related to engine family definitions or optionally certified diesel hybrid powertrain family definitions, auxiliary emission control devices, adjustable parameters, deterioration factors, testing for service accumulation, and maintenance. Decisions made under this section are considered to be preliminary approval, subject to final review and approval. We will generally not reverse a decision where we have given you preliminary approval, unless we find new information supporting a different decision. If you request preliminary approval related to the upcoming model year or the model year after that, we will make bestefforts to make the appropriate determinations as soon as practicable. We will generally not provide preliminary approval related to a future model year more than two years ahead of time.
1036.225 Amending my application for certification. October 25, 2016March 10, 2021 (Pre-publication).
11. Amend the introductory paragraph as follows: Before we issue you a certificate of conformity, you may amend your application to include new or modified engine configurations, subject to the provisions of this section. After we have issued your certificate of conformity, but before the end of the model year, you may send us an amended application requesting that we include new or modified engine configurations within the scope of the certificate, subject to the provisions of this section. You must amend your application if any changes occur with respect to any information that is included or should be included in your application. The requirements of this section also apply to optionally certified diesel hybrid
powertrains, as appropriate, understanding "engine" to mean "optionally certified diesel hybrid powertrain" and "engine family" to mean "optionally certified diesel hybrid powertrain family".
12. Subparagraphs (a) through (g). [No change.]
1036.230 Selecting engine families. October 25, 2016March 10, 2021 (Pre-publication).
13. Amend the introductory paragraph as follows: See 40 CFR 86.001-24 for instructions on how to divide your product line into families of engines that are expected to have similar emission characteristics throughout the useful life, or see 40 CFR 1037.231 for instructions on how to divide your product line into families of optionally certified diesel hybrid powertrains that are expected to have similar emission characteristics throughout the useful life. You must certify your engines to the standards of $\$ 1036.108$ using the same engine families you use for criteria pollutants under 40 CFR part 86 . The requirements of this section also apply to optionally certified diesel hybrid powertrains, as appropriate, understanding "engine" to mean "optionally certified diesel hybrid powertrain" and "engine family" to mean "optionally certified diesel hybrid powertrain family". The following provisions also apply:
14. Subparagraphs (a) through (f). [No change.]
1036.235 Testing requirements for certification. October 25, 2016May 12, 2020.
15. Amend the introductory paragraph as follows: This section describes the emission testing you must perform to show compliance with the greenhouse gas emission standards in $\S 1036.108$. This section also describes the emission testing you must perform for diesel hybrid powertrain optionally certifying to the criteria pollutants emission standards pursuant to title 13, CCR 1956.8, understanding "engine" to mean "optionally certified diesel hybrid powertrain" and "engine family" to mean "optionally certified diesel hybrid powertrain family", and comply with the requirements of this part, other referenced parts of the CFR, and title 13, CCR, section 1956.8.
16. Subparagraphs (a) through (f). [No change.]
1036.241 Demonstrating compliance with greenhouse gas emission standards. October 25, 2016.
1036.250 Reporting and recordkeeping for certification. October 25, 2016.
1036.255 What decisions may ARB make regarding my certificate of conformity? October 25, 2016March 10, 2021 (Pre-publication).

## Subpart D - Testing Production Engines and Hybrid Powertrains

1036.301 Measurements related to GEM inputs in a selective enforcement audit. October 25, 2016March 10, 2021 (Pre-publication).

## Subpart E - In-use Testing

1036.401 In-use testing. October 25, 2016.

1. Amend this paragraph as follows: We may perform in-use testing of any engine family subject to the standards of this part, consistent with the provisions of §1036.235, or any optionally certified diesel hybrid powertrain family subject to the standards of this part, other referenced parts of the CFR, and title 13, CCR, section 1956.8, consistent with the provisions of $\$ 1036.235$. Note that this provision does not affect your obligation to test your in-use engines, or optionally certified diesel hybrid powertrains, as described in 40 CFR part 86, subpart T.

## Subpart F - Test Procedures

1036.501 How do I run a valid emission test? October 25, 2016March 10, 2021 (Prepublication).

1. Amend subparagraph (a) as follows: Use the equipment and procedures specified in this subpart and 40 CFR 86.1305 to determine whether engines meet the emission standards in § 1036.108, or for optionally certified diesel hybrid powertrains, the emission standards in title 13, CCR, § 1956.8.
2. Subparagraphs (b) through (g). [No change.]
3. Amend subparagraph (h) as follows: The following additional provisions apply for testing to demonstrate compliance with the emission standards in § 1036.108 for model year 2021 and later engines, or title 13, CCR, § 1956.8 for model year 2022 and later optionally certified diesel hybrid powertrains:
4. Subparagraphs (h)(1) through (h)(2). [No change.]
5. Amend subparagraph (h)(3) as follows: Measure $\mathrm{CO}_{2}, \mathrm{CH}_{4}$, and $\mathrm{N}_{2} \mathrm{O}$ emissions, or for diesel hybrid powertrains optionally certifying pursuant to title 13, CCR, § 1956.8, measure criteria pollutants emissions, over the transient cycle specified in either section 86.1333 or $\S 1036.510$ or appendix II to part 1036 of these test procedures.
6. Subparagraph (h)(4). [No change.]
7. Add new subparagraph (h)(5) as follows: For diesel hybrid powertrains optionally certifying pursuant to title 13, CCR, § 1956.8, measure or calculate emissions of criteria pollutants to demonstrate compliance with the standards of this part, other referenced parts of the CFR, including 40 CFR part 86, subpart A, and title 13, CCR, § 1956.8.
8. Add new subparagraph (h)(6) as follows: For diesel hybrid powertrains optionally certifying pursuant to title 13, CCR, § 1956.8, measure emissions of criteria pollutants to demonstrate compliance with the standards of this part by testing the hybrid powertrain on a dynamometer with the following low-load testing procedures to determine whether it meets the low-load emission standards.

The following provisions are applicable to 2024 and subsequent model year optionally certified diesel hybrid powertrain families:
(a) Measure emissions by testing the diesel hybrid powertrain optionally certified to criteria pollutants emission standards pursuant to title 13, CCR, section 1956.8, on a dynamometer with the Vehicle-LLC described in Appendix to Subpart F, section 1036.501 of these test procedures, to determine whether it meets the low-load cycle emission standards in section I.11.B of these test procedures.
(b) For optionally certified diesel hybrid powertrain testing, follow instructions in section 1036.505 (b)(2) of these test procedures to carry out the test except replace $P_{\text {contrated }}$ with $P_{\text {rated }}$, the peak rated power determined in section 1036.527 of these test procedures and keep the transmission in drive for all idle segments after the initial idle segment.
(c) Precondition the optionally certified diesel hybrid powertrain by running two hot-start Vehicle-FTP cycles. Shut down the diesel hybrid powertrain, and complete a 20 minute soak period. Immediately after completing the soak period, start the Vehicle-LLC. Start sampling emissions immediately after you start the diesel hybrid powertrain and continue sampling until the duty cycle is complete. Calculate the total emission mass of each constituent, $m$, and the total work, $W$, over each test interval according to section 1065.650 of these test procedures.
(d) Calculate cycle statistics and compare with the established criteria as specified in section 1065.514 of these test procedures for engines and 40 CFR 1037.550, last amended March 10, 2021 (Pre-publication), incorporated by reference herein for diesel hybrid powertrains to confirm that the test is valid.
(e) Accessory loads for the Vehicle-LLC - Apply the curb idle transmission torque, CITT, according to section $1037.550(\mathrm{f})(2)$ of these test procedures. The following optional accessory loads were derived from the GEM model:

1. Manufacturers have the option to add an accessory load to any idle portion of the Vehicle-LLC. The maximum accessory load allowed is dependent on the vehicle class, and may not exceed the following values:

| $\underline{\text { Vehicle Class }}$ | $\frac{\text { Accessory load }}{(\mathbf{k W})}$ |
| :---: | :---: |
| $\underline{4 \text { and } 5}$ | $\underline{1.5}$ |
| $\underline{6 \text { and } 7}$ | $\underline{2.5}$ |
| $\underline{8}$ | $\underline{3.5}$ |

2. Continuous idle segments (vehicle speed $=0$ ) within the VehicleLLC that exceed 200 seconds duration are to be run at conditions simulating
neutral or park on the transmission.
1036.503 Engine data and information for vehicle certification. March 10, 2021 (Prepublication).
3. Amend the introductory paragraph as follows: You must give vehicle manufacturers information as follows so they can certify model year 2021 and later vehicles, or for 2022 and subsequent model year optionally certified diesel hybrid powertrains, understanding "engine" to mean "optionally certified diesel hybrid powertrain" and "engine family" to mean "optionally certified diesel hybrid powertrain family", as applicable:
4. Subparagraphs (a) through (d). [No change.]
1036.505 Supplemental emission test Ramped-modal testing procedures. October 25, 2016 March 10, 2021 (Pre-publication).
5. Amend subparagraph (a) as follows: Starting in model year 2021, you must measure CO2 emissions using the SET duty cycle in 86.1362 of these test procedures as described in 1036.501 of these test procedures, or using the SET duty cycle in this section. For 2024 and subsequent model years, you may measure criteria pollutant emissions using either the cycle in 86.1362 of these test procedures or the duty cycle specified in this section.
6. Subparagraphs (b)(1) through (b)(2)(vii). [No change.]
7. Amend subparagraph (b)(2)(ix) as follows: If you are certifying an optionally certified diesel hybrid powertrain system without the transmission, use a default transmission efficiency of 0.95 . If you certify with this configuration, you must use 40 CFR 1037.550(a)(3)(ii) to create the vehicle model along with its default transmission shift strategy. Use the transmission parameters defined in Table 1 of § 1036.540 to determine transmission type and gear ratio. For Light and Medium HDVs, use the Light and Medium HDV parameters for the FTP, LLC, and SET. For Tractors and Heavy HDVs, use the Tractor and Heavy HDV transient cycle parameters for the FTP and LLC and the Tractor and Heavy HDV highway cruise cycle parameters for the SET.
8. Subparagraphs (b)(ix) through (c). [No change.]
1036.510 Engine data and information for vehicle certificationTransient Testing Procedures. October 25, 2016March 10, 2021 (Pre-publication).
1036.525 Hybrid engines. October 25, 2016March 10, 2021 (Pre-publication).
1036.527 Powertrain system rated power determination. March 10, 2021 (Prepublication).
1036.530 Calculating greenhouse gas emission rates. October 25, 2016March 10, 2021 (Pre-publication).
1036.535 Determining steady-state engine fuel maps and fuel consumption at idle. October 25, 2016March 10, 2021 (Pre-publication).
1036.540 Determining cycle-average engine fuel maps. October 25, 2016March 10, 2021 (Pre-publication).
1036.543 Carbon balance error verification. March 10, 2021 (Pre-publication).

## Subpart G - Special Compliance Provisions

1036.601 What compliance provisions apply? October 25, 2016.

1. Subparagraphs (a) through (a)(2). [No change.]
2. Amend subparagraph (a)(3) as follows: The warranty-related prohibitions in title 13, CCR, sections 2035, 2036, 2037, 2039, 2040, 2041, and 2042, apply to manufacturers of new heavy-duty highway engines, and optionally certified diesel hybrid powertrains, in addition to the prohibitions described in 40 CFR 1068.101(b)(6).
3. Subparagraphs (a)(4) through (d). [No change.]
1036.605 GHG exemption for engines used in specialty vehicles. October 25, 2016.
1036.610 Off-cycle technology credits and adjustments for reducing greenhouse gas emissions. October 25, 2016.
4. Subparagraphs (a) through (c). [No change.]
5. Amend subparagraph (d) as follows: We may seek public comment on your request. However, we will generally not seek public comment on credits/adjustments based on $A$ to $B$ engine dynamometer testing, chassis testing, or in-use testing.
6. Subparagraph (e). [No change.]
1036.615 Engines with Rankine cycle waste heat recovery and hybrid powertrains. October 25, 2016.
1036.620 Alternate $\mathrm{CO}_{2}$ standards based on model year 2011 compression-ignition engines. October 25, 2016March 10, 2021 (Pre-publication).
1036.625 In-use compliance with family emission limits (FELs). October 25, 2016.
1036.630 Certification of engine GHG emissions for powertrain testing. October 25, 2016.

## Subpart H - Averaging, Banking, and Trading for Certification

1036.701 General provisions. October 25, 2016.

1. Add the following language to subparagraph (a): Engines certified to the Optional Low-CO2 Emission Standards pursuant to 40 CFR $\S 1036.108$, as amended September 15, 2011, which is hereby incorporated herein, as modified by these test procedures, and participating in the Innovative Technology Regulation set forth in §§2208 and 2208.1 of title 13, CCR may not generate credits or participate in the averaging, banking, and trading provisions of this subpart.
2. Subparagraphs (b) through (j). [No change.]
1036.705 Generating and calculating emission credits. 25, 2016March 10, 2021 (Pre-publication).
1036.710 Averaging. October 25, 2016.
1036.715 Banking. October 25, 2016.
1036.720 Trading. October 25, 2016.
1036.725 What must I include in my application for certification? October 25, 2016.
1036.730 ABT reports. October 25, 2016.
1036.735 Recordkeeping. October 25, 2016.
1036.740 Restrictions for using emission credits. October 25, 2016.
1036.745 End-of-year CO2 credit deficits. October 25, 2016.
1036.750 What can happen if I do not comply with the provisions of this subpart? October 25, 2016.
1036.755 Information provided to the Department of Transportation. [n/a]

## Subpart I - Definitions and Other Reference Information

1036.801 Definitions. October 25, 2016March 10, 2021 (Pre-publication).
A. Federal Provisions. [All federal definitions apply, except as otherwise noted below.]
B. California Provisions.
"2014 MY National Heavy-Duty Engine and Vehicle Greenhouse Gas Program" means the national program that applies to new 2014 through 2020 model mediumand heavy-duty engines and vehicles to control greenhouse gas emissions, as adopted by the U.S. Environmental Protection Agency (76 Fed. Reg. 57106 (September 15, 2011)), and as subsequently amended on June 17, 2013, as incorporated in and amended by these test procedures.
"Certificate of Conformity" means an Executive Order certifying engines, or optionally certified diesel hybrid powertrain, for sale in California.
"Certification" means relating to the process of obtaining an Executive Order for an engine family, or optionally certified diesel hybrid powertrain family, that complies with the emission standards and requirements in this part.
"Designated Compliance Officer" means the Executive Officer of the Air Resources Board or a designee of the Executive Officer.
"Designated Enforcement Officer" means the Executive Officer of the Air Resources Board or a designee of the Executive Officer.
"EPA" shall also mean Air Resources Board or Executive Officer of the Air Resources Board.
"Hybrid powertrain" means a hybrid system that includes energy storage features other than a conventional battery system or conventional flywheel, diesel engine, electric motor-generator system, battery management system, including thermal management systems and associated power electronics. Supplemental electrical batteries and hydraulic accumulators are examples of hybrid energy storage systems. Note other examples of systems that qualify as hybrid engines or powertrains are systems that recover kinetic energy and use it to power an electric heater in the aftertreatment. Note that certain provisions in this part treat hybrid engines and powertrains intended for vehicles that include regenerative braking different than those intended for vehicles that do not include regenerative braking.
"Hybrid vehicle" means a vehicle that includes energy storage features other than a conventional battery system or conventional flywheel in addition to an internal combustion engine or other engine using consumable chemical fuel, including a vehicle installed with a diesel hybrid powertrain optionally certified to the criteria pollutant emission standards pursuant to title 13, CCR 1956.8. Supplemental electrical batteries and hydraulic accumulators are examples of hybrid energy storage systems. Note other examples of systems that qualify as hybrid engines or powertrains are systems that recover kinetic energy and use it to power an electric heater in the aftertreatment. Note that certain provisions in this part treat hybrid
vehicles that include regenerative braking different than those that do not include regenerative braking.
"Manufacturer" means any person who manufactures or assembles an engine, optionally certified diesel hybrid powertrain, vehicle, or piece of equipment for sale in California or otherwise introduces a new engine into commerce in California. This includes importers who import engines, optionally certified diesel hybrid powertrains, or vehicles for resale.
"U.S. Environmental Protection Agency" means the United States Environmental Protection Agency.
"We (us, our)" means the Executive Officer and any authorized representatives.
1036.805 Symbols, acronyms, and abbreviations. June 30, 2017.
A. Federal Provisions. [No change.]
B. California Provisions.

ARB means Air Resources Board.
1036.810 Incorporation by reference. October 25, 2016March 10, 2021 (Prepublication).
1036.815 Confidential information. October 25, 2016.
A. Federal Provisions. [No change.]
B. California Provisions. The provisions of title 17, CCR section 91000 through 91022 apply for information you consider confidential. Note that according to section 91011, emissions data shall not be identified as confidential.
1036.820 Requesting a hearing. October 25, 2016.

1. Delete subparagraph (a) and replace as follows: You may request a hearing under certain circumstances, as described elsewhere in this part.
2. Subparagraph (b). [No change.]
3. Amend subparagraph (c) as follows: If we agree to hold a hearing, we will use the procedures specified in 17 CCR sections 60055.1 through 60055.43.
1036.825 Reporting and recordkeeping requirements. October 25, 2016.
4. Subparagraphs (a) through (d). [No change.]
5. Delete subparagraph (e).

Appendix I to Part 1036 - Default Engine Fuel Maps for 40-CFR § 1036.540. October 25, 2016Summary of Previous Emission Standards. March 10, 2021 (Pre-publication).

Appendix II to Part 1036 - Transient Duty Cycles. March 10, 2021 (Pre-publication).

Appendix III to Part 1036 - Default Engine Fuel Maps for 40 CFR §1036.540. March 10, 2021 (Pre-publication).

Appendix to Subpart F, section 1036.501 - Low-load cycle for optionally certified diesel hybrid powertrain families.

## B. California Provisions

1. The low-load cycle for optionally certified diesel hybrid powertrain families (Vehicle-LLC) involves a schedule of vehicle speeds and road grade. Determine road grade at each point based on the peak rated power of the powertrain system, $P_{\text {rated, }}$ determined in section 1036.527 of these test procedures and road grade coefficients using the following equation: Road Grade $=a .\left(P_{\text {rated }}\right)^{2}+b . P_{\text {rated }}+c$

Vehicle-LLC

Road Grade Coefficients

| $\underline{\text { Record }}$ | Vehicle Speed (mph) | $\underline{a}$ | $\underline{b}$ | $\underline{C}$ |
| :---: | :---: | :---: | :---: | :---: |
| 1 | $\underline{0.00}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| $\underline{2}$ | 0.00 | -4.44E-06 | -1.10E-03 | -8.08E-02 |
| $\underline{3}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 4 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{5}$ | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{6}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 7 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 8 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{9}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 10 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 11 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 12 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 13 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 14 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |


| 15 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 16 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 17 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 18 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 19 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{20}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{21}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{22}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{23}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{24}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{25}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{26}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{27}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{28}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{29}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{30}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 31 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{32}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 33 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{34}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 35 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{36}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{37}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{38}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{39}$ | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 40 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 41 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 42 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 43 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 44 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 45 | $\underline{0.00}$ | -6.66E-06 | $\underline{-1.65 E-03}$ | $\underline{-1.21 \mathrm{E}-01}$ |


| 46 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 47 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 48 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 49 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 50 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 51 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 52 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 53 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 54 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 55 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 56 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 57 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 58 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 59 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 60 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 61 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 62 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 63 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 64 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 65 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 66 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 67 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 68 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 69 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 70 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 71 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 72 | 2.81 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{73}$ | 3.37 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 74 | 4.13 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 75 | 5.01 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 76 | 4.76 | -6.66E-06 | -1.65E-03 | -1.21E-01 |


| 77 | 5.82 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 78 | 7.07 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 79 | 6.80 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 80 | 8.13 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 81 | 9.59 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 82 | 9.12 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 83 | 11.38 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 84 | 14.20 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 85 | 15.43 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 86 | 16.13 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 87 | 16.88 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 88 | 17.38 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 89 | 17.72 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{90}$ | 18.17 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 91 | 19.23 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{92}$ | 19.66 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{93}$ | 19.70 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{94}$ | 19.49 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{95}$ | 18.89 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{96}$ | 18.06 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{97}$ | 17.69 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{98}$ | 17.39 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{99}$ | 17.38 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 100 | 17.50 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 101 | 17.39 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 102 | 17.19 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 103 | 17.21 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 104 | 17.31 | -2.22E-06 | -5.50E-04 | -4.04E-02 |
| 105 | 17.18 | $\underline{2.22 E-06}$ | 5.50E-04 | 4.04E-02 |
| 106 | 17.06 | $6.66 \mathrm{E}-06$ | $1.65 \mathrm{E}-03$ | 1.21E-01 |
| 107 | $\underline{16.57}$ | 6.66E-06 | $\underline{1.65 \mathrm{E}-03}$ | 1.21E-01 |


| 108 | 16.04 | 6.66E-06 | $1.65 \mathrm{E}-03$ | $1.21 \mathrm{E}-01$ |
| :---: | :---: | :---: | :---: | :---: |
| 109 | 15.78 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 110 | 15.59 | $6.66 \mathrm{E}-06$ | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 111 | 15.45 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 112 | 15.31 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 113 | 14.85 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 114 | 14.84 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 115 | 14.10 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 116 | 13.06 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 117 | 11.80 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 118 | 10.43 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 119 | 9.55 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 120 | 9.10 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 121 | 8.39 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 122 | 7.62 | 6.66E-06 | $\underline{1.65 E-03}$ | 1.21E-01 |
| 123 | 6.59 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 124 | $\underline{5.05}$ | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 125 | 4.15 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 126 | 3.29 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 127 | $\underline{2.77}$ | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 128 | $\underline{2.69}$ | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 129 | $\underline{2.45}$ | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 130 | $\underline{2.08}$ | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 131 | 1.69 | 6.66E-06 | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 132 | 1.64 | 2.22E-06 | 5.50E-04 | $4.04 \mathrm{E}-02$ |
| 133 | 1.83 | -2.22E-06 | -5.50E-04 | -4.04E-02 |
| 134 | $\underline{2.02}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 135 | $\underline{2.14}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 136 | $\underline{2.21}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 137 | $\underline{2.21}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 138 | $\underline{2.22}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |


| 139 | 2.44 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 140 | 2.91 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 141 | 3.38 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 142 | 3.68 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 143 | 4.35 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 144 | 4.82 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 145 | 4.49 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 146 | 6.01 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 147 | 7.71 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 148 | 7.32 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 149 | 8.08 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 150 | 9.02 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 151 | 10.16 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 152 | 11.03 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 153 | 10.91 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 154 | 11.51 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 155 | 12.49 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 156 | 13.56 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 157 | 13.80 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 158 | 13.91 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 159 | 14.01 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 160 | 13.91 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 161 | 14.19 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 162 | 14.49 | -2.22E-06 | $\underline{-5.50 E-04}$ | -4.04E-02 |
| 163 | 14.47 | $\underline{2.22 \mathrm{E}-06}$ | 5.50E-04 | 4.04E-02 |
| 164 | 14.38 | $6.66 \mathrm{E}-06$ | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 165 | 14.24 | $6.66 \mathrm{E}-06$ | 1.65E-03 | 1.21E-01 |
| 166 | 14.03 | $6.66 \mathrm{E}-06$ | $1.65 \mathrm{E}-03$ | $1.21 \mathrm{E}-01$ |
| 167 | 13.87 | $6.66 \mathrm{E}-06$ | 1.65E-03 | 1.21E-01 |
| 168 | 13.63 | $6.66 \mathrm{E}-06$ | 1.65E-03 | $1.21 \mathrm{E}-01$ |
| 169 | 13.52 | $6.66 \mathrm{E}-06$ | 1.65E-03 | $\underline{1.21 \mathrm{E}-01}$ |


| 170 | 12.97 | 6.66E-06 | $1.65 \mathrm{E}-03$ | 1.21E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 171 | 12.23 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 172 | 10.49 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 173 | 8.00 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 174 | 5.87 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 175 | 4.27 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 176 | 2.95 | 6.66E-06 | 1.65E-03 | 1.21E-01 |
| 177 | 1.76 | $6.66 \mathrm{E}-06$ | 1.65E-03 | 1.21E-01 |
| 178 | 0.96 | 2.22E-06 | 5.50E-04 | 4.04E-02 |
| 179 | 0.00 | -2.22E-06 | -5.50E-04 | -4.04E-02 |
| 180 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 181 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 182 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 183 | 0.14 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 184 | 0.51 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 185 | 0.72 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 186 | 0.84 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 187 | 0.93 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 188 | 0.71 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 189 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 190 | $\underline{0.00}$ | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 191 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 192 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 193 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 194 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 195 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 196 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 197 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 198 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| 199 | 0.00 | -6.66E-06 | -1.65E-03 | -1.21E-01 |
| $\underline{200}$ | 0.00 | $\underline{-7.61 \mathrm{E}-07}$ | -4.94E-03 | $1.23 \mathrm{E}+00$ |


| 201 | 0.00 | 5.14E-06 | -8.24E-03 | $\underline{2.59 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{202}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{203}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{204}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{205}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{206}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{207}$ | 0.02 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{208}$ | 0.55 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{209}$ | 1.47 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{210}$ | 2.39 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{211}$ | 2.79 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{212}$ | 3.23 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{213}$ | 3.78 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{214}$ | 4.33 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{215}$ | 4.84 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{216}$ | 4.37 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{217}$ | 4.69 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{218}$ | 5.72 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{219}$ | 6.35 | $3.68 \mathrm{E}-06$ | -3.84E-03 | $1.31 \mathrm{E}+00$ |
| $\underline{220}$ | 6.78 | -3.68E-06 | 3.84E-03 | $\underline{-1.31 \mathrm{E}+00}$ |
| $\underline{221}$ | 6.57 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{222}$ | 6.35 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{223}$ | 6.17 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{224}$ | 6.16 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{225}$ | 6.11 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{226}$ | 6.08 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{227}$ | 5.72 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{228}$ | 5.34 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{229}$ | 4.87 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{230}$ | 4.41 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{231}$ | 4.05 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |


| 232 | 3.60 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 233 | 3.26 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 234 | 2.63 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 235 | 2.18 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 236 | 1.93 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 237 | 1.60 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| $\underline{238}$ | 1.23 | $\underline{-3.68 E-06}$ | 3.84E-03 | -1.31E+00 |
| $\underline{239}$ | 0.00 | $3.68 \mathrm{E}-06$ | -3.84E-03 | $1.31 \mathrm{E}+00$ |
| $\underline{240}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{241}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{242}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{243}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{244}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{245}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{246}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{247}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{248}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{249}$ | 0.00 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{250}$ | 0.19 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{251}$ | 0.83 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{252}$ | 1.57 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{253}$ | $\underline{2.11}$ | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{254}$ | 2.28 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{255}$ | 2.49 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| 256 | 2.66 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{257}$ | 2.98 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| 258 | 3.64 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| 259 | 4.22 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| 260 | 4.62 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| 261 | 4.84 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{262}$ | $\underline{5.03}$ | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |


| $\underline{263}$ | 6.67 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 264 | 7.26 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{265}$ | 7.77 | 1.10E-05 | -1.15E-02 | $3.94 \mathrm{E}+00$ |
| $\underline{266}$ | 8.37 | 3.68E-06 | -3.84E-03 | $1.31 \mathrm{E}+00$ |
| $\underline{267}$ | 8.25 | -3.68E-06 | 3.84E-03 | -1.31E+00 |
| $\underline{268}$ | 7.87 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 269 | 6.82 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 270 | 5.29 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 271 | 3.71 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{272}$ | 2.81 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{273}$ | 2.43 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 274 | 1.88 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 275 | 1.27 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 276 | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 277 | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{278}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{279}$ | 0.00 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 280 | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 281 | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 282 | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{283}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 284 | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{285}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{286}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{287}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{288}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{289}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{290}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| 291 | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{292}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |
| $\underline{293}$ | 0.00 | -1.10E-05 | 1.15E-02 | $\underline{-3.94 E+00}$ |


| 294 | 0.00 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 295 | 0.00 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 296 | 0.00 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 297 | 0.00 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 298 | 0.00 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 299 | 0.00 | -1.10E-05 | 1.15E-02 | -3.94E+00 |
| 300 | 0.00 | -5.06E-06 | 5.25E-03 | -2.46E+00 |
| 301 | 0.00 | 9.20E-07 | -1.03E-03 | -9.84E-01 |
| 302 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 303 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 304 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 305 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 306 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 307 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 308 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 309 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 310 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 311 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 312 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 313 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 314 | 0.00 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 315 | 0.08 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 316 | 0.90 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 317 | 2.50 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 318 | $\underline{2.98}$ | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 319 | 3.68 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 320 | 4.49 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 321 | 4.93 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 322 | 4.13 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 323 | 4.75 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 324 | 5.61 | 6.90E-06 | -7.30E-03 | 4.93E-01 |


| 325 | 6.29 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 326 | 6.99 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 327 | 6.98 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 328 | 6.70 | 6.90E-06 | $\underline{-7.30 \mathrm{E}-03}$ | 4.93E-01 |
| 329 | 6.42 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 330 | 6.73 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 331 | 7.44 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 332 | 7.88 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 333 | 8.52 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 334 | 8.39 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 335 | 9.77 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 336 | 11.37 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 337 | 11.80 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 338 | 12.30 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 339 | 14.20 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 340 | 15.85 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 341 | 15.94 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 342 | 16.50 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 343 | 17.72 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 344 | 18.61 | 6.90E-06 | -7.30E-03 | 4.93E-01 |
| 345 | 18.82 | $\underline{2.30 E-06}$ | -2.43E-03 | 1.64E-01 |
| 346 | 18.52 | -2.30E-06 | 2.43E-03 | -1.64E-01 |
| 347 | 18.17 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 348 | 17.66 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 349 | 17.15 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 350 | 16.55 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 351 | 15.80 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 352 | 14.83 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 353 | 13.42 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 354 | 11.61 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 355 | 10.13 | -6.90E-06 | 7.30E-03 | -4.93E-01 |


| 356 | 9.29 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 357 | 8.60 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 358 | 7.51 | -6.90E-06 | $7.30 \mathrm{E}-03$ | -4.93E-01 |
| 359 | 5.49 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 360 | 3.82 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 361 | 2.45 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 362 | 1.45 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 363 | 0.72 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 364 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 365 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 366 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 367 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 368 | 0.00 | -6.90E-06 | $7.30 \mathrm{E}-03$ | -4.93E-01 |
| 369 | 0.00 | -6.90E-06 | $7.30 \mathrm{E}-03$ | -4.93E-01 |
| 370 | 0.00 | -6.90E-06 | $7.30 \mathrm{E}-03$ | -4.93E-01 |
| 371 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 372 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 373 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 374 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 375 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 376 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 377 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 378 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 379 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 380 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 381 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 382 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 383 | 0.00 | -6.90E-06 | $7.30 \mathrm{E}-03$ | -4.93E-01 |
| 384 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| $\underline{385}$ | 0.00 | -6.90E-06 | $\underline{7.30 \mathrm{E}-03}$ | -4.93E-01 |
| 386 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |


| 387 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 388 | 0.00 | -6.90E-06 | $7.30 \mathrm{E}-03$ | -4.93E-01 |
| 389 | 0.00 | -6.90E-06 | $7.30 \mathrm{E}-03$ | -4.93E-01 |
| 390 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 391 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 392 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 393 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 394 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 395 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 396 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 397 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 398 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 399 | 0.00 | -6.90E-06 | 7.30E-03 | -4.93E-01 |
| 400 | 0.00 | -2.72E-06 | 2.69E-03 | 2.99E-01 |
| 401 | 0.00 | 1.45E-06 | -1.93E-03 | $1.09 \mathrm{E}+00$ |
| 402 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 403 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 404 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 405 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 406 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 407 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 408 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 409 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 410 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 411 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 412 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 413 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 414 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 415 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 416 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 417 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |


| 418 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 419 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 420 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 421 | 0.00 | $5.62 \mathrm{E}-06$ | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 422 | 0.03 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 423 | 0.21 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 424 | 0.57 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 425 | 0.71 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 426 | 0.60 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 427 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 428 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 429 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 430 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 431 | 0.00 | $5.62 \mathrm{E}-06$ | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 432 | 0.00 | $5.62 \mathrm{E}-06$ | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 433 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 434 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 435 | 0.00 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 436 | 0.06 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 437 | 0.92 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 438 | 1.52 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 439 | 1.84 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 440 | $\underline{2.03}$ | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 441 | 2.09 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 442 | 2.24 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 443 | $\underline{2.68}$ | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 444 | 3.21 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 445 | 4.10 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 446 | 5.09 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 447 | 5.35 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 448 | 6.84 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |


| 449 | 7.54 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 450 | 8.25 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 451 | 9.88 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 452 | 10.12 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 453 | 10.84 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 454 | 11.78 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 455 | 12.58 | 5.62E-06 | -6.54E-03 | $\underline{1.88 E+00}$ |
| 456 | 12.90 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 457 | 12.15 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 458 | 12.41 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 459 | 12.80 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 460 | 12.70 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 461 | 12.70 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 462 | 11.97 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 463 | 11.05 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 464 | 10.94 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 465 | 10.64 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 466 | 10.65 | 5.62E-06 | -6.54E-03 | $1.88 \mathrm{E}+00$ |
| 467 | 11.59 | 1.87E-06 | -2.18E-03 | 6.28E-01 |
| 468 | 11.89 | -1.87E-06 | 2.18E-03 | -6.28E-01 |
| 469 | 11.51 | -5.62E-06 | 6.54E-03 | $\underline{-1.88 E+00}$ |
| 470 | 10.54 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 471 | 9.43 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 472 | 8.58 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 473 | 7.92 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 474 | 7.29 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 475 | 6.80 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 476 | 6.09 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 477 | 5.65 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 478 | 5.48 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 479 | 4.74 | -5.62E-06 | 6.54E-03 | -1.88E+00 |


| 480 | 4.03 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 481 | 3.27 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 482 | $\underline{2.33}$ | -5.62E-06 | $6.54 \mathrm{E}-03$ | $\underline{-1.88 E+00}$ |
| 483 | 1.15 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 484 | $\underline{0.43}$ | -5.62E-06 | 6.54E-03 | $\underline{-1.88 E+00}$ |
| 485 | 0.00 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 486 | 0.00 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 487 | $\underline{0.00}$ | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 488 | $\underline{0.00}$ | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 489 | $\underline{0.00}$ | -5.62E-06 | 6.54E-03 | $\underline{-1.88 E+00}$ |
| 490 | 0.00 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 491 | 0.00 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 492 | $\underline{0.00}$ | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 493 | 0.00 | -5.62E-06 | $6.54 \mathrm{E}-03$ | -1.88E+00 |
| 494 | 0.00 | -5.62E-06 | 6.54E-03 | $\underline{-1.88 E+00}$ |
| 495 | 0.00 | -5.62E-06 | 6.54E-03 | -1.88E+00 |
| 496 | $\underline{0.00}$ | -5.62E-06 | $6.54 \mathrm{E}-03$ | $\underline{-1.88 E+00}$ |
| 497 | $\underline{0.00}$ | -5.62E-06 | $6.54 \mathrm{E}-03$ | $\underline{-1.88 E+00}$ |
| 498 | $\underline{0.00}$ | -5.62E-06 | $6.54 \mathrm{E}-03$ | $\underline{-1.88 E+00}$ |
| 499 | 0.00 | -5.62E-06 | 6.54E-03 | $\underline{-1.88 E+00}$ |
| 500 | $\underline{0.00}$ | -1.43E-06 | $\underline{1.95 E-03}$ | -4.33E-01 |
| 501 | $\underline{0.00}$ | 2.77E-06 | -2.65E-03 | $1.02 \mathrm{E}+00$ |
| 502 | $\underline{0.00}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 503 | 0.00 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 504 | 0.00 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 505 | $\underline{0.00}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 506 | $\underline{0.00}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 507 | $\underline{0.00}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 508 | 0.00 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 509 | $\underline{0.00}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 510 | $\underline{0.00}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |


| 511 | 0.00 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 512 | 0.58 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 513 | 1.80 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 514 | $\underline{2.49}$ | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 515 | 2.71 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 516 | 2.96 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 517 | 3.47 | 6.97E-06 | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 518 | 4.05 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 519 | 4.46 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 520 | 4.65 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| $\underline{521}$ | 4.82 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 522 | 4.68 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 523 | 5.59 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| $\underline{524}$ | 6.60 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 525 | 6.85 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 526 | 7.21 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 527 | 8.20 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 528 | 9.02 | 6.97E-06 | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 529 | 8.85 | 6.97E-06 | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 530 | $\underline{9.24}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 531 | 10.02 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 532 | 10.86 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 533 | 10.83 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| $\underline{534}$ | 11.24 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 535 | 12.30 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 536 | 12.68 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| $\underline{537}$ | 12.61 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 538 | 12.60 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 539 | 13.71 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 540 | 14.18 | $\underline{2.32 \mathrm{E}-06}$ | -2.41E-03 | 8.22E-01 |
| $\underline{541}$ | 14.25 | -2.32E-06 | $\underline{2.41 \mathrm{E}-03}$ | -8.22E-01 |


| 542 | 14.11 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 543 | 13.67 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 544 | 13.05 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 545 | 12.30 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 546 | 11.51 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 547 | 10.90 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 548 | 10.18 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 549 | 8.96 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 550 | 7.54 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 551 | 6.62 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| $\underline{552}$ | 5.48 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 553 | 3.51 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| $\underline{554}$ | 2.71 | -2.32E-06 | $\underline{2.41 \mathrm{E}-03}$ | -8.22E-01 |
| 555 | 3.01 | 2.32E-06 | -2.41E-03 | 8.22E-01 |
| $\underline{556}$ | 3.73 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 557 | 4.22 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 558 | 5.52 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 559 | 7.14 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 560 | 7.32 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 561 | 7.90 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 562 | 9.19 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 563 | 9.75 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 564 | 9.49 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 565 | 10.82 | $6.97 \mathrm{E}-06$ | $\underline{-7.24 E-03}$ | $\underline{2.47 E+00}$ |
| 566 | 11.50 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 567 | 11.58 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 568 | 11.66 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 569 | 12.39 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 570 | 13.03 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 571 | 13.17 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 572 | 12.85 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |


| 573 | 13.82 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 574 | 15.16 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 575 | 15.73 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 576 | 16.07 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 577 | 16.09 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 578 | 16.02 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 579 | 16.47 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 580 | 16.49 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 581 | 16.59 | 2.32E-06 | -2.41E-03 | 8.22E-01 |
| 582 | 16.67 | -2.32E-06 | $2.41 \mathrm{E}-03$ | -8.22E-01 |
| 583 | 16.41 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 584 | 16.27 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 585 | 15.92 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 586 | 15.59 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 587 | 15.04 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 588 | 13.92 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 589 | 12.46 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 590 | 10.39 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 591 | 8.45 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 592 | 5.03 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 593 | $\underline{2.58}$ | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 594 | 1.52 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 595 | 1.09 | -6.97E-06 | 7.24E-03 | -2.47E+00 |
| 596 | 0.71 | -2.32E-06 | $\underline{2.41 \mathrm{E}-03}$ | -8.22E-01 |
| 597 | 0.00 | 2.32E-06 | -2.41E-03 | 8.22E-01 |
| 598 | 0.00 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 599 | 0.13 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 600 | 1.14 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 601 | 2.17 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 602 | $\underline{2.71}$ | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 603 | 3.25 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |


| 604 | 3.51 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 605 | 4.25 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 606 | 4.63 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 607 | 4.48 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 608 | 3.48 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 609 | 4.42 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 610 | 6.66 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 611 | 7.73 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 612 | 7.84 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 613 | 8.05 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 614 | 8.04 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 615 | 8.01 | 6.97E-06 | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 616 | 7.99 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 617 | 7.96 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 618 | 7.94 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 619 | 7.92 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 620 | 7.95 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 621 | 8.65 | 6.97E-06 | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 622 | 9.28 | 6.97E-06 | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 623 | 9.49 | 6.97E-06 | -7.24E-03 | $2.47 \mathrm{E}+00$ |
| 624 | 9.48 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 625 | 9.52 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 626 | 10.26 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 627 | 10.78 | 6.97E-06 | $\underline{-7.24 E-03}$ | $\underline{2.47 E+00}$ |
| 628 | 10.94 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 629 | 10.77 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 630 | 10.70 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 631 | 10.67 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 632 | 10.66 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 633 | 10.65 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 634 | 10.63 | 6.97E-06 | $\underline{-7.24 E-03}$ | $\underline{2.47 E+00}$ |


| 635 | 10.62 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 636 | 10.61 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 637 | 10.60 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 638 | 10.59 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 639 | 10.59 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 640 | 10.58 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 641 | 10.73 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 642 | 11.11 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 643 | 11.71 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 644 | 12.03 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 645 | 12.20 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 646 | 12.12 | 6.97E-06 | -7.24E-03 | $\underline{2.47 \mathrm{E}+00}$ |
| 647 | 12.04 | 6.97E-06 | -7.24E-03 | $\underline{2.47 E+00}$ |
| 648 | 12.02 | $6.97 \mathrm{E}-06$ | -7.24E-03 | $\underline{2.47 E+00}$ |
| 649 | 12.02 | 4.84E-06 | -5.15E-03 | $1.74 \mathrm{E}+00$ |
| 650 | 12.01 | $\underline{2.70 E-06}$ | -3.05E-03 | $1.01 \mathrm{E}+00$ |
| 651 | 12.01 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 652 | 12.00 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 653 | 12.00 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 654 | 11.99 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 655 | 11.99 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 656 | 11.98 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 657 | 11.98 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 658 | 11.98 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 659 | 11.98 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 660 | 12.25 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 661 | 12.66 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 662 | 12.89 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 663 | 12.97 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 664 | 13.88 | 5.63E-07 | -9.50E-04 | $2.85 \mathrm{E}-01$ |
| 665 | 14.19 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |


| 666 | 14.22 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 667 | 14.11 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 668 | 14.78 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 669 | 15.43 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 670 | 15.88 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 671 | 15.37 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 672 | 15.06 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 673 | 15.04 | 5.63E-07 | -9.50E-04 | $2.85 \mathrm{E}-01$ |
| 674 | 14.94 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 675 | 14.93 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 676 | 14.97 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 677 | 15.36 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 678 | 15.43 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 679 | 15.38 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 680 | 15.52 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 681 | 15.60 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 682 | 15.56 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 683 | 15.53 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 684 | 15.52 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 685 | 15.52 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 686 | 15.52 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 687 | 15.52 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 688 | 15.51 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 689 | 15.39 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 690 | 15.52 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 691 | 15.36 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 692 | 15.34 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| 693 | 15.43 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 694 | 15.54 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 695 | 15.46 | 5.63E-07 | -9.50E-04 | $2.85 \mathrm{E}-01$ |
| 696 | 15.41 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |


| 697 | 15.41 | 5.63E-07 | -9.50E-04 | 2.85E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 698 | 15.41 | 5.63E-07 | -9.50E-04 | $\underline{2.85 E-01}$ |
| 699 | 15.33 | 4.09E-07 | -8.22E-04 | 3.50E-01 |
| 700 | 15.47 | $\underline{2.54 E-07}$ | -6.94E-04 | 4.14E-01 |
| 701 | 15.36 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 702 | 15.21 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 703 | 15.26 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 704 | 15.19 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 705 | 14.88 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 706 | 14.84 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 707 | 14.90 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 708 | 14.92 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 709 | 14.92 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 710 | 14.92 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 711 | 14.92 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 712 | 14.92 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 713 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 714 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 715 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 716 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 717 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 718 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 719 | 14.93 | $9.97 \mathrm{E}-08$ | -5.66E-04 | 4.78E-01 |
| 720 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 721 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 722 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 723 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 724 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 725 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 726 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 727 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |


| 728 | 14.94 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 729 | 14.94 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 730 | 14.94 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 731 | 14.94 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 732 | 14.94 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 733 | 14.94 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 734 | 14.95 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 735 | 15.20 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 736 | 15.18 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 737 | 15.30 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 738 | 15.56 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 739 | 15.50 | $\underline{9.97 E-08}$ | -5.66E-04 | 4.78E-01 |
| 740 | 15.58 | 9.97E-08 | -5.66E-04 | $4.78 \mathrm{E}-01$ |
| 741 | 15.61 | 9.97E-08 | $\underline{-5.66 E-04}$ | $4.78 \mathrm{E}-01$ |
| 742 | 15.33 | 9.97E-08 | -5.66E-04 | $4.78 \mathrm{E}-01$ |
| 743 | 15.30 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 744 | 15.48 | 9.97E-08 | -5.66E-04 | $4.78 \mathrm{E}-01$ |
| 745 | 15.54 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 746 | 15.58 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 747 | 15.85 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 748 | 15.77 | 9.97E-08 | $\underline{-5.66 \mathrm{E}-04}$ | 4.78E-01 |
| 749 | 15.36 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 750 | 15.05 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 751 | 14.80 | 9.97E-08 | $\underline{-5.66 E-04}$ | 4.78E-01 |
| 752 | 14.93 | 9.97E-08 | -5.66E-04 | 4.78E-01 |
| 753 | 15.11 | 3.32E-08 | -1.89E-04 | 1.59E-01 |
| 754 | 15.14 | -3.32E-08 | 1.89E-04 | -1.59E-01 |
| 755 | 14.88 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 756 | 14.79 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 757 | 14.69 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 758 | 14.60 | -9.97E-08 | 5.66E-04 | -4.78E-01 |


| 759 | 14.55 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 760 | 14.09 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 761 | 13.76 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 762 | 12.81 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 763 | 12.32 | -9.97E-08 | $5.66 \mathrm{E}-04$ | -4.78E-01 |
| 764 | 11.83 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 765 | 10.76 | -9.97E-08 | $5.66 \mathrm{E}-04$ | -4.78E-01 |
| 766 | 9.35 | -9.97E-08 | $5.66 \mathrm{E}-04$ | -4.78E-01 |
| 767 | 7.87 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 768 | 6.32 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 769 | 4.47 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 770 | 2.49 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 771 | 1.67 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 772 | 1.55 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 773 | 1.46 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 774 | 0.71 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 775 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 776 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 777 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 778 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 779 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 780 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 781 | 0.00 | $\underline{-9.97 E-08}$ | 5.66E-04 | -4.78E-01 |
| 782 | 0.00 | $\underline{-9.97 E-08}$ | 5.66E-04 | -4.78E-01 |
| 783 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 784 | $\underline{0.00}$ | $\underline{-9.97 E-08}$ | 5.66E-04 | -4.78E-01 |
| 785 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 786 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 787 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 788 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 789 | $\underline{0.00}$ | -9.97E-08 | 5.66E-04 | -4.78E-01 |


| 790 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 791 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 792 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 793 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 794 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 795 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 796 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 797 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 798 | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| $\underline{799}$ | 0.00 | -9.97E-08 | 5.66E-04 | -4.78E-01 |
| 800 | 0.00 | 3.52E-06 | -3.25E-03 | 6.82E-01 |
| 801 | 0.00 | 7.14E-06 | -7.07E-03 | $1.84 \mathrm{E}+00$ |
| 802 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 803 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 804 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 805 | 0.00 | $1.08 \mathrm{E}-05$ | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 806 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 807 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 808 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 809 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 810 | 0.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 811 | 1.28 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 812 | 2.87 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 813 | 3.79 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 814 | 4.37 | $1.08 \mathrm{E}-05$ | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 815 | 5.19 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 816 | 5.60 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 817 | 6.47 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 818 | 6.40 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 819 | 6.93 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 820 | 8.77 | $1.08 \mathrm{E}-05$ | -1.09E-02 | $3.00 \mathrm{E}+00$ |


| 821 | 9.82 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 822 | 9.69 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 823 | 11.02 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 824 | 12.80 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 825 | 13.62 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 826 | 14.25 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 827 | 13.95 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 828 | 14.84 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 829 | 16.62 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 830 | 17.00 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 831 | 17.13 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 832 | 16.96 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 833 | 17.56 | 1.08E-05 | -1.09E-02 | $3.00 \mathrm{E}+00$ |
| 834 | 17.66 | 3.59E-06 | -3.63E-03 | $1.00 \mathrm{E}+00$ |
| 835 | 17.84 | -3.59E-06 | 3.63E-03 | $-1.00 \mathrm{E}+00$ |
| 836 | 17.72 | -1.08E-05 | 1.09E-02 | $\underline{-3.00 E+00}$ |
| 837 | 17.29 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 838 | 16.63 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 839 | 16.03 | -1.08E-05 | 1.09E-02 | $-3.00 \mathrm{E}+00$ |
| 840 | 15.29 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 841 | 14.10 | -1.08E-05 | 1.09E-02 | $\underline{-3.00 E+00}$ |
| 842 | 12.28 | -1.08E-05 | 1.09E-02 | $-3.00 \mathrm{E}+00$ |
| 843 | 10.41 | -1.08E-05 | 1.09E-02 | $-3.00 \mathrm{E}+00$ |
| 844 | 8.82 | -1.08E-05 | 1.09E-02 | $\underline{-3.00 E+00}$ |
| 845 | 7.57 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 846 | 5.93 | -1.08E-05 | 1.09E-02 | $\underline{-3.00 E+00}$ |
| 847 | 3.77 | -1.08E-05 | 1.09E-02 | $\underline{-3.00 E+00}$ |
| 848 | 1.51 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 849 | 0.00 | -1.08E-05 | 1.09E-02 | $\underline{-3.00 E+00}$ |
| 850 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 851 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |


| 852 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 853 | 0.00 | -1.08E-05 | 1.09E-02 | $-3.00 \mathrm{E}+00$ |
| 854 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 855 | 0.00 | -1.08E-05 | 1.09E-02 | $-3.00 \mathrm{E}+00$ |
| 856 | 0.00 | -1.08E-05 | 1.09E-02 | $-3.00 \mathrm{E}+00$ |
| 857 | 0.00 | -1.08E-05 | 1.09E-02 | $-3.00 \mathrm{E}+00$ |
| 858 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 859 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 860 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 861 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 862 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 863 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 864 | 0.00 | -1.08E-05 | 1.09E-02 | -3.00E+00 |
| 865 | 0.00 | -3.20E-06 | $3.17 \mathrm{E}-03$ | -1.70E+00 |
| 866 | 0.00 | 4.37E-06 | -4.55E-03 | -3.93E-01 |
| 867 | 0.00 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 868 | 0.00 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 869 | 0.00 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 870 | 0.00 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 871 | 0.00 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 872 | 5.59 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 873 | 6.92 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 874 | 6.66 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 875 | 7.09 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 876 | 7.46 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 877 | 8.40 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 878 | 8.87 | 1.19E-05 | -1.23E-02 | 9.11E-01 |
| 879 | 9.51 | 9.98E-06 | -1.04E-02 | $\underline{9.26 E-01}$ |
| 880 | 12.38 | 8.02E-06 | -8.59E-03 | 9.42E-01 |
| 881 | 13.39 | 6.07E-06 | -6.76E-03 | 9.58E-01 |
| 882 | 13.29 | 6.07E-06 | -6.76E-03 | $9.58 \mathrm{E}-01$ |


| 883 | 13.65 | 6.07E-06 | -6.76E-03 | 9.58E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 884 | 16.38 | $6.07 \mathrm{E}-06$ | -6.76E-03 | 9.58E-01 |
| 885 | 17.62 | $6.07 \mathrm{E}-06$ | -6.76E-03 | 9.58E-01 |
| 886 | 17.91 | $6.07 \mathrm{E}-06$ | -6.76E-03 | 9.58E-01 |
| 887 | 18.28 | $6.07 \mathrm{E}-06$ | -6.76E-03 | 9.58E-01 |
| 888 | 19.71 | 6.07E-06 | -6.76E-03 | 9.58E-01 |
| 889 | 19.75 | 5.71E-06 | -6.39E-03 | 4.77E-01 |
| 890 | 19.56 | 5.36E-06 | -6.03E-03 | -3.99E-03 |
| 891 | 19.87 | 5.00E-06 | -5.66E-03 | -4.85E-01 |
| 892 | 20.32 | 5.00E-06 | -5.66E-03 | -4.85E-01 |
| 893 | 21.01 | 5.00E-06 | -5.66E-03 | -4.85E-01 |
| 894 | 22.32 | 5.00E-06 | -5.66E-03 | -4.85E-01 |
| 895 | 23.74 | 5.00E-06 | -5.66E-03 | -4.85E-01 |
| 896 | $\underline{24.26}$ | 5.00E-06 | -5.66E-03 | -4.85E-01 |
| 897 | $\underline{23.98}$ | 5.00E-06 | $\underline{-5.66 E-03}$ | -4.85E-01 |
| 898 | 23.51 | 5.00E-06 | $\underline{-5.66 E-03}$ | -4.85E-01 |
| 899 | 23.08 | $3.15 \mathrm{E}-06$ | -3.81E-03 | -3.54E-01 |
| 900 | 22.66 | 1.30E-06 | -1.95E-03 | -2.22E-01 |
| 901 | 22.31 | $\underline{-5.46 E-07}$ | -9.93E-05 | -9.10E-02 |
| 902 | 22.29 | -5.46E-07 | -9.93E-05 | -9.10E-02 |
| $\underline{903}$ | $\underline{22.38}$ | -5.46E-07 | -9.93E-05 | -9.10E-02 |
| 904 | $\underline{22.76}$ | -5.46E-07 | -9.93E-05 | -9.10E-02 |
| 905 | 23.20 | -5.46E-07 | -9.93E-05 | -9.10E-02 |
| 906 | 23.34 | -5.46E-07 | -9.93E-05 | -9.10E-02 |
| $\underline{907}$ | $\underline{23.00}$ | -5.46E-07 | -9.93E-05 | -9.10E-02 |
| $\underline{908}$ | $\underline{22.80}$ | -5.46E-07 | -9.93E-05 | -9.10E-02 |
| $\underline{909}$ | $\underline{22.66}$ | 9.61E-07 | -1.66E-03 | 1.85E-01 |
| 910 | $\underline{22.82}$ | $\underline{2.47 E-06}$ | -3.21E-03 | 4.62E-01 |
| 911 | $\underline{22.92}$ | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 912 | $\underline{22.74}$ | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 913 | $\underline{22.71}$ | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |


| 914 | $\underline{22.83}$ | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 915 | $\underline{22.84}$ | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 916 | $\underline{22.80}$ | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 917 | $\underline{22.83}$ | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 918 | $\underline{22.79}$ | 3.98E-06 | -4.77E-03 | 7.38E-01 |
| 919 | $\underline{22.79}$ | 3.98E-06 | -4.77E-03 | 7.38E-01 |
| 920 | 23.02 | 1.33E-06 | -1.59E-03 | 2.46E-01 |
| 921 | $\underline{23.36}$ | -1.33E-06 | 1.59E-03 | -2.46E-01 |
| $\underline{922}$ | $\underline{23.10}$ | $\underline{-3.98 E-06}$ | 4.77E-03 | -7.38E-01 |
| $\underline{923}$ | $\underline{22.62}$ | $\underline{-3.98 E-06}$ | 4.77E-03 | -7.38E-01 |
| $\underline{924}$ | $\underline{22.06}$ | $\underline{-3.98 E-06}$ | 4.77E-03 | -7.38E-01 |
| $\underline{925}$ | $\underline{21.45}$ | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 926 | 20.76 | $\underline{-3.98 E-06}$ | 4.77E-03 | -7.38E-01 |
| 927 | 20.11 | $\underline{-3.98 E-06}$ | 4.77E-03 | -7.38E-01 |
| 928 | 19.48 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 929 | 18.65 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 930 | 17.59 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 931 | 16.52 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 932 | 15.18 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 933 | 13.26 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 934 | 11.39 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 935 | 9.71 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 936 | 8.52 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 937 | 6.98 | -3.98E-06 | 4.77E-03 | $\underline{-7.38 \mathrm{E}-01}$ |
| 938 | 4.90 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 939 | 2.92 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 940 | 2.39 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 941 | 2.44 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| $\underline{942}$ | 2.37 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 943 | 1.67 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| $\underline{944}$ | 1.17 | -3.98E-06 | 4.77E-03 | -7.38E-01 |


| 945 | 1.34 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 946 | 1.28 | -3.98E-06 | 4.77E-03 | -7.38E-01 |
| 947 | 0.56 | -1.33E-06 | $1.59 \mathrm{E}-03$ | -2.46E-01 |
| 948 | 0.00 | $1.33 \mathrm{E}-06$ | -1.59E-03 | $\underline{2.46 \mathrm{E}-01}$ |
| 949 | 0.00 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 950 | 0.00 | 3.98E-06 | -4.77E-03 | 7.38E-01 |
| 951 | 0.00 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 952 | 0.00 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 953 | 0.27 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 954 | 1.40 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 955 | 2.96 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 956 | 4.35 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 957 | 4.75 | 3.98E-06 | -4.77E-03 | 7.38E-01 |
| 958 | 5.67 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 959 | 7.29 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 960 | 7.23 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 961 | 9.37 | 3.98E-06 | -4.77E-03 | 7.38E-01 |
| 962 | 9.93 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 963 | 11.11 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 964 | 13.96 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| $\underline{965}$ | 13.82 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 966 | 14.93 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 967 | 17.81 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 968 | 19.53 | $3.98 \mathrm{E}-06$ | -4.77E-03 | 7.38E-01 |
| 969 | 19.67 | $3.46 \mathrm{E}-06$ | -4.20E-03 | 7.13E-01 |
| $\underline{970}$ | 19.70 | $\underline{2.95 \mathrm{E}-06}$ | -3.63E-03 | $6.88 \mathrm{E}-01$ |
| 971 | 19.90 | $\underline{2.43 \mathrm{E}-06}$ | -3.06E-03 | $6.63 \mathrm{E}-01$ |
| 972 | $\underline{20.24}$ | $\underline{2.43 \mathrm{E}-06}$ | -3.06E-03 | $6.63 \mathrm{E}-01$ |
| 973 | $\underline{20.52}$ | $\underline{2.43 \mathrm{E}-06}$ | -3.06E-03 | $6.63 \mathrm{E}-01$ |
| 974 | $\underline{20.69}$ | 8.11E-07 | -1.02E-03 | $\underline{2.21 \mathrm{E}-01}$ |
| $\underline{975}$ | $\underline{20.71}$ | -8.11E-07 | $\underline{1.02 \mathrm{E}-03}$ | $\underline{-2.21 E-01}$ |


| 976 | 20.39 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 977 | 19.96 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 978 | 19.40 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 979 | 18.69 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| $\underline{980}$ | 17.83 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 981 | 16.87 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 982 | 15.98 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| $\underline{983}$ | 15.23 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| $\underline{984}$ | 14.81 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| $\underline{985}$ | 14.41 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| $\underline{986}$ | 14.12 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 987 | 13.67 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 988 | 13.29 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| $\underline{989}$ | 12.89 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 990 | 12.41 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 991 | 11.82 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 992 | 9.97 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| $\underline{993}$ | 8.02 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 994 | 5.89 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| $\underline{995}$ | 3.93 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| $\underline{996}$ | 2.50 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| $\underline{997}$ | 2.18 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| $\underline{998}$ | 1.91 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| $\underline{999}$ | 2.01 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1000 | 2.13 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 1001 | 2.04 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 1002 | 0.61 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1003 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1004 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1005 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1006 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |


| 1007 | 0.00 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1008 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1009 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1010 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1011 | 0.00 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 1012 | 0.00 | -2.43E-06 | 3.06E-03 | -6.63E-01 |
| 1013 | 0.00 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 1014 | 0.00 | -2.43E-06 | $3.06 \mathrm{E}-03$ | -6.63E-01 |
| 1015 | 0.00 | -1.41E-06 | 1.62E-03 | -4.82E-01 |
| 1016 | 0.00 | $\underline{-3.87 E-07}$ | 1.85E-04 | -3.00E-01 |
| 1017 | 0.01 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1018 | 0.94 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1019 | $\underline{2.99}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1020 | 4.47 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1021 | 4.45 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1022 | 4.59 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1023 | 7.17 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1024 | 7.32 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1025 | 9.10 | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1026 | 9.86 | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1027 | 10.61 | $\underline{6.35 E-07}$ | -1.25E-03 | -1.19E-01 |
| 1028 | 12.35 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1029 | 13.32 | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1030 | 13.44 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1031 | 15.98 | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1032 | 18.47 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1033 | 18.16 | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1034 | 19.55 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1035 | $\underline{20.81}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1036 | $\underline{21.31}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1037 | $\underline{21.12}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |


| 1038 | $\underline{21.65}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1039 | $\underline{22.58}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1040 | $\underline{22.98}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1041 | $\underline{23.32}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1042 | $\underline{23.63}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1043 | $\underline{23.92}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1044 | 24.14 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1045 | $\underline{24.13}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1046 | $\underline{24.30}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1047 | $\underline{24.99}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1048 | $\underline{25.63}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1049 | $\underline{25.39}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1050 | $\underline{25.07}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1051 | $\underline{24.66}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1052 | $\underline{24.00}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1053 | $\underline{23.64}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1054 | $\underline{24.13}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1055 | $\underline{25.20}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1056 | $\underline{25.77}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1057 | $\underline{25.90}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1058 | $\underline{26.46}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1059 | $\underline{27.06}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1060 | $\underline{27.46}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1061 | $\underline{27.72}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1062 | $\underline{27.95}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1063 | $\underline{28.03}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1064 | 28.20 | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1065 | $\underline{28.38}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1066 | $\underline{28.65}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1067 | $\underline{28.91}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1068 | $\underline{29.05}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |


| 1069 | 29.15 | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1070 | $\underline{29.13}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1071 | $\underline{29.17}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1072 | $\underline{29.17}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1073 | $\underline{29.15}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1074 | $\underline{29.09}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1075 | $\underline{29.31}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1076 | $\underline{29.46}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1077 | $\underline{29.40}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1078 | $\underline{29.08}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1079 | $\underline{28.62}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1080 | $\underline{28.49}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1081 | $\underline{28.50}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1082 | $\underline{28.69}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1083 | $\underline{28.91}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1084 | $\underline{29.24}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1085 | $\underline{29.41}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1086 | $\underline{29.51}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1087 | $\underline{29.55}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1088 | $\underline{29.46}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1089 | $\underline{29.24}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1090 | $\underline{29.17}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1091 | $\underline{29.14}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1092 | $\underline{29.04}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1093 | $\underline{28.98}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1094 | $\underline{28.98}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1095 | $\underline{29.07}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1096 | $\underline{29.22}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1097 | $\underline{29.47}$ | 6.35E-07 | -1.25E-03 | -1.19E-01 |
| 1098 | $\underline{29.60}$ | $6.35 \mathrm{E}-07$ | -1.25E-03 | -1.19E-01 |
| 1099 | $\underline{29.66}$ | $3.90 \mathrm{E}-07$ | $\underline{-1.02 \mathrm{E}-03}$ | -3.48E-01 |


| 1100 | $\underline{29.47}$ | $1.44 \mathrm{E}-07$ | -7.91E-04 | -5.77E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1101 | $\underline{29.15}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1102 | $\underline{29.04}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1103 | $\underline{29.11}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1104 | $\underline{28.82}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1105 | $\underline{28.60}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1106 | $\underline{28.41}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1107 | $\underline{28.19}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1108 | $\underline{28.07}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1109 | $\underline{28.01}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1110 | $\underline{27.84}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1111 | $\underline{27.62}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1112 | $\underline{27.40}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1113 | $\underline{27.01}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1114 | $\underline{26.68}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1115 | $\underline{26.36}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1116 | $\underline{25.98}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1117 | $\underline{25.47}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1118 | $\underline{25.06}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1119 | $\underline{25.12}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1120 | $\underline{25.07}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1121 | $\underline{24.86}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1122 | $\underline{24.51}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1123 | $\underline{24.15}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1124 | $\underline{23.82}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1125 | $\underline{23.30}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1126 | $\underline{22.79}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1127 | $\underline{22.40}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1128 | $\underline{22.35}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1129 | $\underline{22.82}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1130 | $\underline{23.52}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |


| 1131 | $\underline{24.15}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1132 | $\underline{24.65}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1133 | $\underline{25.04}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1134 | 25.31 | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1135 | 25.65 | $\underline{-3.39 E-08}$ | -1.87E-04 | -2.69E-01 |
| 1136 | $\underline{25.81}$ | $3.39 \mathrm{E}-08$ | 1.87E-04 | 2.69E-01 |
| 1137 | $\underline{25.35}$ | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1138 | $\underline{24.45}$ | $1.02 \mathrm{E}-07$ | 5.61E-04 | 8.06E-01 |
| 1139 | $\underline{23.57}$ | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1140 | $\underline{22.73}$ | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1141 | $\underline{22.10}$ | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1142 | $\underline{21.62}$ | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1143 | $\underline{20.87}$ | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1144 | $\underline{20.13}$ | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1145 | 19.46 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1146 | 18.86 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1147 | 18.21 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1148 | 17.42 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1149 | 16.68 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1150 | 15.94 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1151 | 14.61 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1152 | 12.22 | 1.02E-07 | 5.61E-04 | 8.06E-01 |
| 1153 | 8.78 | $1.02 \mathrm{E}-07$ | 5.61E-04 | $8.06 \mathrm{E}-01$ |
| 1154 | 4.16 | 1.02E-07 | 5.61E-04 | $\underline{8.06 \mathrm{E}-01}$ |
| 1155 | 1.53 | 3.39E-08 | 1.87E-04 | $\underline{2.69 E-01}$ |
| 1156 | 0.05 | -3.39E-08 | -1.87E-04 | -2.69E-01 |
| 1157 | $\underline{0.00}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1158 | 0.00 | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1159 | 0.00 | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1160 | 0.00 | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1161 | $\underline{0.00}$ | -1.02E-07 | -5.61E-04 | -8.06E-01 |


| 1162 | 0.00 | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1163 | 0.00 | -1.02E-07 | -5.61E-04 | -8.06E-01 |
| 1164 | 0.00 | 1.96E-06 | -2.70E-03 | -3.88E-01 |
| 1165 | 0.00 | 4.02E-06 | -4.85E-03 | 3.01E-02 |
| 1166 | 1.67 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1167 | 3.22 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1168 | 4.40 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1169 | 4.25 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1170 | 3.19 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1171 | 2.29 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1172 | 1.95 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1173 | 4.02 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1174 | 5.22 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1175 | 5.81 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1176 | 7.71 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1177 | 6.89 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1178 | 8.77 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1179 | 12.38 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1180 | 12.88 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1181 | 12.56 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1182 | 12.17 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1183 | 13.58 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1184 | 16.08 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1185 | 17.59 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1186 | 17.81 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1187 | 18.12 | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1188 | 19.97 | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| 1189 | $\underline{20.86}$ | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1190 | $\underline{20.96}$ | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1191 | $\underline{21.15}$ | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1192 | $\underline{22.74}$ | 6.08E-06 | -6.99E-03 | 4.48E-01 |


| 1193 | $\underline{24.00}$ | $6.08 \mathrm{E}-06$ | -6.99E-03 | 4.48E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1194 | $\underline{24.76}$ | $6.08 \mathrm{E}-06$ | -6.99E-03 | $4.48 \mathrm{E}-01$ |
| 1195 | $\underline{25.16}$ | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1196 | $\underline{25.14}$ | $6.08 \mathrm{E}-06$ | -6.99E-03 | $4.48 \mathrm{E}-01$ |
| 1197 | $\underline{24.67}$ | 6.08E-06 | -6.99E-03 | 4.48E-01 |
| 1198 | $\underline{24.68}$ | 6.08E-06 | -6.99E-03 | $4.48 \mathrm{E}-01$ |
| 1199 | $\underline{24.60}$ | 5.42E-06 | -6.52E-03 | 4.64E-01 |
| 1200 | $\underline{24.79}$ | 4.75E-06 | -6.06E-03 | 4.80E-01 |
| 1201 | $\underline{24.95}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1202 | $\underline{25.18}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1203 | $\underline{25.61}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1204 | $\underline{25.94}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1205 | $\underline{26.27}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1206 | $\underline{26.38}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1207 | $\underline{26.45}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1208 | $\underline{26.41}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1209 | $\underline{26.41}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1210 | $\underline{26.60}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1211 | $\underline{26.70}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1212 | $\underline{26.71}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1213 | $\underline{26.72}$ | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1214 | $\underline{26.63}$ | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1215 | $\underline{26.32}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1216 | $\underline{25.65}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1217 | $\underline{24.90}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1218 | $\underline{24.15}$ | -4.08E-06 | $\underline{5.59 E-03}$ | -4.96E-01 |
| 1219 | $\underline{23.44}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1220 | $\underline{22.74}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1221 | $\underline{22.08}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1222 | $\underline{21.41}$ | -4.08E-06 | $\underline{5.59 E-03}$ | -4.96E-01 |
| 1223 | $\underline{20.77}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |


| 1224 | $\underline{20.12}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1225 | 19.27 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1226 | 18.31 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1227 | 16.95 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1228 | 14.91 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1229 | 12.71 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1230 | 11.12 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1231 | 10.12 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1232 | 8.74 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1233 | 8.03 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1234 | 7.80 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1235 | 7.68 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1236 | 7.48 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1237 | 8.32 | 1.36E-06 | -1.86E-03 | 1.65E-01 |
| 1238 | 9.80 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1239 | 12.04 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1240 | 13.87 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1241 | 13.62 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1242 | 15.13 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1243 | 18.23 | 1.36E-06 | -1.86E-03 | 1.65E-01 |
| 1244 | 18.64 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1245 | 18.02 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1246 | 17.37 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1247 | 16.72 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1248 | 16.04 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1249 | 15.23 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1250 | 13.89 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1251 | 12.09 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1252 | 10.75 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1253 | 10.16 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1254 | 10.12 | 1.36E-06 | -1.86E-03 | 1.65E-01 |


| 1255 | 10.75 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1256 | 12.22 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1257 | 14.05 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1258 | 16.28 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1259 | 17.96 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1260 | 17.77 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1261 | 18.16 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1262 | 18.00 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1263 | 17.76 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1264 | 17.51 | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1265 | 17.38 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1266 | 16.94 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1267 | 16.20 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1268 | 14.72 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1269 | 12.72 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1270 | 10.68 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1271 | 9.21 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1272 | 7.77 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1273 | 6.54 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1274 | 4.66 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1275 | 2.80 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1276 | 3.12 | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1277 | 4.31 | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1278 | 5.60 | 4.08E-06 | $\underline{-5.59 E-03}$ | $4.96 \mathrm{E}-01$ |
| 1279 | 6.99 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1280 | 6.84 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1281 | 8.63 | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1282 | 9.83 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1283 | 10.14 | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1284 | 13.22 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| $\underline{1285}$ | 13.95 | $\underline{4.08 E-06}$ | $\underline{-5.59 E-03}$ | $4.96 \mathrm{E}-01$ |


| 1286 | 14.20 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1287 | 16.52 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1288 | 19.43 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1289 | $\underline{20.55}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1290 | $\underline{20.81}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1291 | $\underline{20.61}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1292 | $\underline{20.81}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1293 | $\underline{21.53}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1294 | $\underline{21.98}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1295 | $\underline{22.58}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1296 | $\underline{23.18}$ | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1297 | $\underline{23.38}$ | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1298 | $\underline{23.25}$ | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1299 | $\underline{23.08}$ | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1300 | $\underline{22.79}$ | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1301 | $\underline{22.53}$ | -1.36E-06 | $1.86 \mathrm{E}-03$ | -1.65E-01 |
| 1302 | $\underline{22.29}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1303 | $\underline{21.93}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1304 | $\underline{21.47}$ | -4.08E-06 | $\underline{5.59 E-03}$ | -4.96E-01 |
| 1305 | $\underline{20.77}$ | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1306 | 19.46 | $\underline{-4.08 \mathrm{E}-06}$ | 5.59E-03 | -4.96E-01 |
| 1307 | 17.72 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1308 | 15.24 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1309 | 12.80 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1310 | 10.27 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1311 | 7.19 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1312 | 5.46 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1313 | 4.52 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1314 | 4.17 | -1.36E-06 | $1.86 \mathrm{E}-03$ | -1.65E-01 |
| 1315 | 4.06 | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1316 | 4.74 | 4.08E-06 | -5.59E-03 | 4.96E-01 |


| 1317 | 6.11 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1318 | 6.88 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1319 | 7.04 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1320 | 8.48 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1321 | 8.79 | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1322 | 8.72 | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1323 | 9.08 | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1324 | 9.26 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1325 | 8.71 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1326 | 8.06 | -4.08E-06 | $\underline{5.59 E-03}$ | -4.96E-01 |
| 1327 | 7.08 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1328 | 5.51 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1329 | 3.49 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1330 | 2.56 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1331 | 2.34 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1332 | 2.54 | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1333 | 2.45 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1334 | 3.02 | 4.08E-06 | -5.59E-03 | $4.96 \mathrm{E}-01$ |
| 1335 | 3.77 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1336 | 4.46 | 4.08E-06 | -5.59E-03 | 4.96E-01 |
| 1337 | 5.09 | 1.36E-06 | -1.86E-03 | $1.65 \mathrm{E}-01$ |
| 1338 | 5.09 | -1.36E-06 | 1.86E-03 | -1.65E-01 |
| 1339 | 4.65 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1340 | 4.05 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1341 | 3.47 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1342 | $\underline{2.89}$ | $\underline{-4.08 \mathrm{E}-06}$ | 5.59E-03 | -4.96E-01 |
| 1343 | 1.88 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1344 | 1.24 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1345 | 0.00 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1346 | 0.00 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1347 | 0.00 | $\underline{-4.08 \mathrm{E}-06}$ | 5.59E-03 | -4.96E-01 |


| 1348 | 0.00 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1349 | 0.00 | -4.08E-06 | 5.59E-03 | -4.96E-01 |
| 1350 | 0.00 | $\underline{2.87 E-07}$ | 7.17E-04 | 1.23E-01 |
| 1351 | 0.00 | 4.66E-06 | -4.16E-03 | 7.42E-01 |
| 1352 | 0.02 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1353 | 0.65 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1354 | 1.96 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1355 | 2.61 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1356 | 3.11 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1357 | 3.62 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1358 | 4.24 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1359 | 4.33 | $\underline{9.03 E-06}$ | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1360 | 5.27 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1361 | 6.86 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1362 | 6.89 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1363 | 8.20 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1364 | 9.89 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1365 | 9.77 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1366 | 11.65 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1367 | 13.24 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1368 | 13.10 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1369 | 14.41 | 9.03E-06 | -9.03E-03 | $1.36 \mathrm{E}+00$ |
| 1370 | 14.66 | 7.30E-06 | -7.44E-03 | $1.06 \mathrm{E}+00$ |
| 1371 | 14.67 | 5.56E-06 | $\underline{-5.85 E-03}$ | 7.53E-01 |
| 1372 | 15.20 | $3.83 \mathrm{E}-06$ | -4.26E-03 | 4.50E-01 |
| 1373 | 16.35 | $3.83 \mathrm{E}-06$ | -4.26E-03 | 4.50E-01 |
| 1374 | 16.95 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| 1375 | 17.35 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| 1376 | 17.56 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| 1377 | 17.38 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| 1378 | 16.97 | 3.83E-06 | -4.26E-03 | 4.50E-01 |


| 1379 | 16.44 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1380 | 15.89 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| 1381 | 15.23 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| 1382 | 15.22 | 3.83E-06 | -4.26E-03 | 4.50E-01 |
| 1383 | 15.45 | 1.28E-06 | -1.42E-03 | 1.50E-01 |
| 1384 | 15.34 | -1.28E-06 | 1.42E-03 | -1.50E-01 |
| 1385 | 15.12 | -3.83E-06 | 4.26E-03 | -4.50E-01 |
| 1386 | 14.65 | -3.83E-06 | 4.26E-03 | -4.50E-01 |
| 1387 | 14.16 | $\underline{-3.83 E-06}$ | 4.26E-03 | -4.50E-01 |
| 1388 | 13.36 | $\underline{-3.83 E-06}$ | 4.26E-03 | -4.50E-01 |
| 1389 | 11.92 | $\underline{-3.83 E-06}$ | 4.26E-03 | -4.50E-01 |
| 1390 | 9.91 | -3.83E-06 | 4.26E-03 | -4.50E-01 |
| 1391 | 7.88 | -3.83E-06 | 4.26E-03 | -4.50E-01 |
| 1392 | 5.88 | -3.83E-06 | 4.26E-03 | -4.50E-01 |
| 1393 | 3.69 | -3.83E-06 | 4.26E-03 | -4.50E-01 |
| 1394 | 2.44 | $\underline{-5.77 \mathrm{E}-06}$ | 6.21E-03 | -9.83E-01 |
| 1395 | $\underline{2.26}$ | -7.72E-06 | 8.17E-03 | -1.52E+00 |
| 1396 | 2.01 | -3.22E-06 | 3.38E-03 | -6.83E-01 |
| 1397 | 1.94 | $3.22 \mathrm{E}-06$ | -3.38E-03 | 6.83E-01 |
| 1398 | 2.27 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1399 | $\underline{2.74}$ | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1400 | 3.58 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1401 | 4.51 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1402 | 4.36 | $\underline{9.66 E-06}$ | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1403 | 6.02 | $\underline{9.66 E-06}$ | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1404 | 7.27 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1405 | 7.27 | $\underline{9.66 E-06}$ | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1406 | 9.67 | $\underline{9.66 E-06}$ | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1407 | $\underline{9.76}$ | $\underline{9.66 E-06}$ | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1408 | 10.83 | $\underline{9.66 E-06}$ | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1409 | 12.04 | $\underline{9.66 E-06}$ | -1.01E-02 | $\underline{2.05 E+00}$ |


| 1410 | 12.27 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 1411 | 12.93 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1412 | 14.36 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1413 | 14.27 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1414 | 13.64 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1415 | 12.82 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1416 | 11.92 | 9.66E-06 | -1.01E-02 | $\underline{2.05 E+00}$ |
| 1417 | 11.12 | 9.66E-06 | -1.01E-02 | $\underline{2.05 \mathrm{E}+00}$ |
| 1418 | 10.50 | 8.53E-06 | -9.27E-03 | $1.71 \mathrm{E}+00$ |
| 1419 | 10.63 | 7.40E-06 | -8.41E-03 | $1.38 \mathrm{E}+00$ |
| 1420 | 11.24 | $6.27 \mathrm{E}-06$ | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1421 | 10.90 | 6.27E-06 | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1422 | 9.25 | $6.27 \mathrm{E}-06$ | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1423 | 8.81 | 6.27E-06 | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1424 | 9.52 | $6.27 \mathrm{E}-06$ | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1425 | 10.54 | 6.27E-06 | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1426 | 11.59 | $6.27 \mathrm{E}-06$ | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1427 | 12.69 | $6.27 \mathrm{E}-06$ | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1428 | 13.77 | $6.27 \mathrm{E}-06$ | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1429 | 14.44 | $6.27 \mathrm{E}-06$ | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1430 | 14.67 | 6.27E-06 | -7.55E-03 | $1.04 \mathrm{E}+00$ |
| 1431 | 15.15 | 2.09E-06 | -2.52E-03 | $3.48 \mathrm{E}-01$ |
| 1432 | 15.34 | -2.09E-06 | 2.52E-03 | -3.48E-01 |
| 1433 | 14.87 | -6.27E-06 | 7.55E-03 | -1.04E+00 |
| 1434 | 14.36 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1435 | 13.74 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1436 | 13.08 | -6.27E-06 | 7.55E-03 | $-1.04 \mathrm{E}+00$ |
| 1437 | 12.34 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1438 | 11.69 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1439 | 11.28 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1440 | 11.14 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |


| 1441 | 10.86 | -6.27E-06 | 7.55E-03 | -1.04E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 1442 | 10.42 | -6.27E-06 | 7.55E-03 | -1.04E+00 |
| 1443 | 9.89 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1444 | 9.37 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1445 | $\underline{9.09}$ | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1446 | 9.05 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1447 | 8.80 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1448 | 8.00 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1449 | 6.71 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1450 | 5.21 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1451 | $\underline{2.72}$ | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1452 | 0.95 | -6.27E-06 | 7.55E-03 | $\underline{-1.04 E+00}$ |
| 1453 | 0.00 | -6.27E-06 | 7.55E-03 | $-1.04 \mathrm{E}+00$ |
| 1454 | 0.00 | -6.27E-06 | 7.55E-03 | $-1.04 \mathrm{E}+00$ |
| 1455 | 0.00 | -1.59E-06 | $\underline{2.19 \mathrm{E}-03}$ | -8.04E-01 |
| 1456 | 0.00 | $3.08 \mathrm{E}-06$ | -3.17E-03 | -5.64E-01 |
| 1457 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1458 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1459 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1460 | 0.00 | 7.76E-06 | -8.53E-03 | $\underline{-3.24 E-01}$ |
| 1461 | $\underline{0.00}$ | $\underline{7.76 \mathrm{E}-06}$ | -8.53E-03 | $\underline{-3.24 E-01}$ |
| 1462 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1463 | 0.00 | 7.76E-06 | -8.53E-03 | $\underline{-3.24 E-01}$ |
| 1464 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1465 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1466 | 0.00 | 7.76E-06 | -8.53E-03 | $\underline{-3.24 E-01}$ |
| 1467 | 0.00 | 7.76E-06 | -8.53E-03 | $\underline{-3.24 E-01}$ |
| 1468 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1469 | 0.00 | 7.76E-06 | -8.53E-03 | $\underline{-3.24 \mathrm{E}-01}$ |
| 1470 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1471 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |


| 1472 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1473 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1474 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1475 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1476 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1477 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1478 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1479 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1480 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1481 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1482 | $\underline{0.00}$ | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1483 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1484 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1485 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1486 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1487 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1488 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1489 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1490 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1491 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1492 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1493 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1494 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1495 | $\underline{0.00}$ | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1496 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1497 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1498 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1499 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1500 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1501 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1502 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |


| 1503 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1504 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1505 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1506 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1507 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1508 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1509 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1510 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1511 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1512 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1513 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1514 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1515 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1516 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1517 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1518 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1519 | 0.14 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1520 | 1.71 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1521 | 2.64 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1522 | 3.02 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1523 | 3.64 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1524 | 4.13 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1525 | 4.18 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1526 | 4.56 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1527 | 5.11 | $\underline{2.59 E-06}$ | -2.84E-03 | -1.08E-01 |
| 1528 | 5.19 | -2.59E-06 | $\underline{2.84 E-03}$ | 1.08E-01 |
| 1529 | 4.82 | -7.76E-06 | 8.53E-03 | 3.24E-01 |
| 1530 | 4.20 | -7.76E-06 | 8.53E-03 | 3.24E-01 |
| 1531 | 3.61 | -7.76E-06 | 8.53E-03 | 3.24E-01 |
| 1532 | 2.85 | -7.76E-06 | 8.53E-03 | 3.24E-01 |
| 1533 | 1.94 | -7.76E-06 | 8.53E-03 | 3.24E-01 |


| 1534 | 1.16 | -2.59E-06 | $\underline{2.84 E-03}$ | 1.08E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1535 | 0.00 | $\underline{2.59 E-06}$ | -2.84E-03 | -1.08E-01 |
| 1536 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1537 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1538 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1539 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1540 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1541 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1542 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1543 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1544 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1545 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1546 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1547 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1548 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1549 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1550 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1551 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1552 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1553 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1554 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1555 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1556 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1557 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1558 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1559 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1560 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1561 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1562 | 0.00 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1563 | 0.62 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1564 | 1.04 | 7.76E-06 | -8.53E-03 | -3.24E-01 |


| 1565 | 1.54 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1566 | 2.49 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1567 | $\underline{2.98}$ | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1568 | 3.28 | 2.59E-06 | -2.84E-03 | -1.08E-01 |
| 1569 | 3.19 | -2.59E-06 | $\underline{2.84 E-03}$ | $1.08 \mathrm{E}-01$ |
| 1570 | 2.75 | -7.76E-06 | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1571 | 1.30 | -2.59E-06 | $\underline{2.84 E-03}$ | 1.08E-01 |
| 1572 | 0.00 | 2.59E-06 | -2.84E-03 | -1.08E-01 |
| 1573 | 0.05 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1574 | 1.12 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1575 | 2.81 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1576 | 4.24 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1577 | 5.60 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1578 | 5.96 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1579 | 8.32 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1580 | 8.63 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1581 | 9.37 | $\underline{2.59 E-06}$ | -2.84E-03 | -1.08E-01 |
| 1582 | 9.62 | -2.59E-06 | $\underline{2.84 \mathrm{E}-03}$ | $1.08 \mathrm{E}-01$ |
| 1583 | 9.11 | $\underline{-7.76 E-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1584 | 8.11 | $\underline{-7.76 E-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1585 | 7.01 | $\underline{-7.76 \mathrm{E}-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1586 | 6.04 | $\underline{-7.76 E-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1587 | 5.42 | -2.59E-06 | $\underline{2.84 E-03}$ | 1.08E-01 |
| 1588 | 5.50 | 2.59E-06 | -2.84E-03 | -1.08E-01 |
| 1589 | 6.79 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1590 | 7.61 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1591 | 7.15 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1592 | 6.89 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1593 | 8.88 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1594 | 11.28 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1595 | 11.48 | 7.76E-06 | -8.53E-03 | -3.24E-01 |


| 1596 | 10.97 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1597 | 11.78 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1598 | 13.47 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1599 | 14.92 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1600 | 15.21 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1601 | 17.04 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1602 | 17.89 | 7.76E-06 | -8.53E-03 | -3.24E-01 |
| 1603 | 19.09 | 2.59E-06 | -2.84E-03 | -1.08E-01 |
| 1604 | 19.38 | -2.59E-06 | $\underline{2.84 E-03}$ | 1.08E-01 |
| 1605 | 19.31 | -7.76E-06 | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1606 | 18.50 | -7.76E-06 | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1607 | 17.40 | $\underline{-7.76 \mathrm{E}-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1608 | 16.33 | $\underline{-7.76 \mathrm{E}-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1609 | 14.97 | $\underline{-7.76 \mathrm{E}-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1610 | 12.74 | $\underline{-7.76 \mathrm{E}-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1611 | 10.27 | $\underline{-7.76 E-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1612 | 8.67 | $\underline{-7.76 \mathrm{E}-06}$ | 8.53E-03 | $3.24 \mathrm{E}-01$ |
| 1613 | 7.07 | -7.99E-06 | 8.66E-03 | $1.24 \mathrm{E}+00$ |
| 1614 | 4.45 | -8.22E-06 | 8.79E-03 | $\underline{2.15 E+00}$ |
| 1615 | 3.71 | -2.82E-06 | $\underline{2.97 E-03}$ | $1.02 \mathrm{E}+00$ |
| 1616 | 5.47 | $\underline{2.82 \mathrm{E}-06}$ | -2.97E-03 | -1.02E+00 |
| 1617 | 6.15 | 8.46E-06 | -8.92E-03 | $-3.06 \mathrm{E}+00$ |
| 1618 | 7.24 | 8.46E-06 | -8.92E-03 | $-3.06 \mathrm{E}+00$ |
| 1619 | 8.08 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1620 | 9.41 | 8.46E-06 | -8.92E-03 | $-3.06 \mathrm{E}+00$ |
| 1621 | 10.43 | $\underline{2.82 \mathrm{E}-06}$ | -2.97E-03 | -1.02E+00 |
| 1622 | 10.52 | -2.82E-06 | $\underline{2.97 E-03}$ | $1.02 \mathrm{E}+00$ |
| 1623 | 9.95 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1624 | 8.85 | $\underline{-8.46 \mathrm{E}-06}$ | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1625 | 7.52 | $\underline{-8.46 \mathrm{E}-06}$ | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1626 | 6.17 | $\underline{-8.46 \mathrm{E}-06}$ | 8.92E-03 | $3.06 \mathrm{E}+00$ |


| 1627 | 5.37 | -2.82E-06 | 2.97E-03 | $1.02 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 1628 | 5.48 | $\underline{2.82 E-06}$ | -2.97E-03 | -1.02E+00 |
| 1629 | 7.31 | $8.46 \mathrm{E}-06$ | -8.92E-03 | $\underline{-3.06 E+00}$ |
| 1630 | 9.64 | $8.46 \mathrm{E}-06$ | -8.92E-03 | -3.06E+00 |
| 1631 | 10.91 | $8.46 \mathrm{E}-06$ | -8.92E-03 | -3.06E+00 |
| 1632 | 11.25 | $8.46 \mathrm{E}-06$ | -8.92E-03 | -3.06E+00 |
| 1633 | 13.42 | $8.46 \mathrm{E}-06$ | -8.92E-03 | -3.06E+00 |
| 1634 | 15.77 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1635 | 15.91 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1636 | 16.74 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1637 | 18.91 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1638 | $\underline{21.27}$ | 2.82E-06 | -2.97E-03 | $-1.02 \mathrm{E}+00$ |
| 1639 | $\underline{21.64}$ | -2.82E-06 | 2.97E-03 | $1.02 \mathrm{E}+00$ |
| 1640 | $\underline{21.56}$ | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1641 | $\underline{21.28}$ | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1642 | $\underline{20.80}$ | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1643 | 19.83 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1644 | 18.43 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1645 | 16.06 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1646 | 12.52 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1647 | 8.98 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1648 | 7.22 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1649 | 5.92 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1650 | $\underline{5.43}$ | -2.82E-06 | $\underline{2.97 E-03}$ | $1.02 \mathrm{E}+00$ |
| 1651 | 7.37 | 2.82E-06 | -2.97E-03 | -1.02E+00 |
| 1652 | 10.55 | 8.46E-06 | -8.92E-03 | $\underline{-3.06 E+00}$ |
| 1653 | 11.67 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1654 | 13.20 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1655 | 15.78 | 8.46E-06 | -8.92E-03 | -3.06E+00 |
| 1656 | 16.11 | 8.46E-06 | -8.92E-03 | $-3.06 \mathrm{E}+00$ |
| 1657 | 17.21 | 2.82E-06 | -2.97E-03 | -1.02E+00 |


| 1658 | 16.96 | -2.82E-06 | $2.97 \mathrm{E}-03$ | $1.02 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 1659 | 16.32 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1660 | 15.73 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1661 | 14.42 | -8.46E-06 | $8.92 \mathrm{E}-03$ | $3.06 \mathrm{E}+00$ |
| 1662 | 12.23 | -8.46E-06 | $8.92 \mathrm{E}-03$ | $3.06 \mathrm{E}+00$ |
| 1663 | 9.56 | -8.46E-06 | $8.92 \mathrm{E}-03$ | $3.06 \mathrm{E}+00$ |
| 1664 | 6.48 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1665 | 3.70 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1666 | 0.19 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1667 | 0.00 | -8.46E-06 | 8.92E-03 | $3.06 \mathrm{E}+00$ |
| 1668 | 0.00 | 1.19E-06 | -1.81E-04 | $2.22 \mathrm{E}+00$ |
| 1669 | 0.00 | 1.08E-05 | -9.28E-03 | $1.38 \mathrm{E}+00$ |
| 1670 | 0.00 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1671 | 0.00 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1672 | 0.00 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1673 | 0.00 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1674 | 0.00 | $2.05 \mathrm{E}-05$ | -1.84E-02 | 5.38E-01 |
| 1675 | 0.00 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1676 | 0.00 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1677 | 0.00 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1678 | 0.00 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1679 | 0.05 | $2.05 \mathrm{E}-05$ | -1.84E-02 | 5.38E-01 |
| 1680 | 0.85 | $2.05 \mathrm{E}-05$ | -1.84E-02 | 5.38E-01 |
| 1681 | 2.80 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1682 | 4.49 | $2.05 \mathrm{E}-05$ | -1.84E-02 | 5.38E-01 |
| 1683 | 5.91 | $2.05 \mathrm{E}-05$ | -1.84E-02 | 5.38E-01 |
| 1684 | 6.54 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1685 | 7.55 | $2.05 \mathrm{E}-05$ | -1.84E-02 | 5.38E-01 |
| 1686 | 7.48 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1687 | 7.00 | 2.05E-05 | -1.84E-02 | $5.38 \mathrm{E}-01$ |
| 1688 | 7.27 | 6.83E-06 | -6.12E-03 | 1.79E-01 |
|  |  |  |  | 08 |


| 1689 | 6.89 | -6.83E-06 | $6.12 \mathrm{E}-03$ | -1.79E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1690 | 4.95 | -6.83E-06 | $6.12 \mathrm{E}-03$ | -1.79E-01 |
| 1691 | 0.00 | $6.83 \mathrm{E}-06$ | -6.12E-03 | $1.79 \mathrm{E}-01$ |
| 1692 | 0.00 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1693 | 0.00 | $\underline{2.05 E-05}$ | -1.84E-02 | $\underline{5.38 \mathrm{E}-01}$ |
| 1694 | 0.15 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1695 | 0.57 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1696 | 1.14 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1697 | 1.71 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1698 | 2.03 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1699 | 2.12 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1700 | 1.59 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1701 | 0.00 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1702 | 0.27 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1703 | 1.79 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1704 | 3.14 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1705 | 4.72 | $\underline{2.05 E-05}$ | -1.84E-02 | 5.38E-01 |
| 1706 | 5.69 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1707 | 6.75 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1708 | 8.42 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1709 | 9.10 | $\underline{2.05 \mathrm{E}-05}$ | -1.84E-02 | 5.38E-01 |
| 1710 | 11.46 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1711 | 11.77 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1712 | 14.55 | 2.05E-05 | -1.84E-02 | 5.38E-01 |
| 1713 | 15.87 | $6.83 \mathrm{E}-06$ | -6.12E-03 | $1.79 \mathrm{E}-01$ |
| 1714 | 16.46 | -6.83E-06 | $6.12 \mathrm{E}-03$ | -1.79E-01 |
| 1715 | 16.26 | -2.05E-05 | 1.84E-02 | -5.38E-01 |
| 1716 | 15.47 | -2.05E-05 | $1.84 \mathrm{E}-02$ | -5.38E-01 |
| 1717 | 14.51 | -2.05E-05 | $1.84 \mathrm{E}-02$ | -5.38E-01 |
| 1718 | 13.67 | -2.05E-05 | $1.84 \mathrm{E}-02$ | -5.38E-01 |
| 1719 | 12.60 | $\underline{-2.05 E-05}$ | $1.84 \mathrm{E}-02$ | -5.38E-01 |


| 1720 | 10.03 | -1.89E-05 | 1.69E-02 | 4.28E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1721 | 6.37 | -6.83E-06 | 6.12E-03 | -1.79E-01 |
| 1722 | 7.09 | 5.25E-06 | -4.60E-03 | -7.86E-01 |
| 1723 | 9.87 | 1.57E-05 | -1.38E-02 | $\underline{-2.36 E+00}$ |
| 1724 | 11.51 | 1.57E-05 | -1.38E-02 | $\underline{-2.36 E+00}$ |
| 1725 | 11.83 | 1.57E-05 | -1.38E-02 | $\underline{-2.36 E+00}$ |
| 1726 | 14.87 | 1.57E-05 | -1.38E-02 | $\underline{-2.36 E+00}$ |
| 1727 | 15.88 | 1.57E-05 | -1.38E-02 | -2.36E+00 |
| 1728 | 16.75 | 1.57E-05 | -1.38E-02 | $-2.36 \mathrm{E}+00$ |
| 1729 | 18.75 | 1.57E-05 | -1.38E-02 | -2.36E+00 |
| 1730 | 18.83 | 1.57E-05 | -1.38E-02 | $\underline{-2.36 \mathrm{E}+00}$ |
| 1731 | 18.78 | 1.57E-05 | -1.38E-02 | -2.36E+00 |
| 1732 | 18.71 | 1.57E-05 | -1.38E-02 | $\underline{-2.36 E+00}$ |
| 1733 | 18.92 | 1.57E-05 | -1.38E-02 | $\underline{-2.36 \mathrm{E}+00}$ |
| 1734 | 19.07 | 5.25E-06 | -4.60E-03 | -7.86E-01 |
| 1735 | 18.71 | $\underline{-5.25 E-06}$ | 4.60E-03 | $7.86 \mathrm{E}-01$ |
| 1736 | 17.95 | -1.57E-05 | 1.38E-02 | $2.36 \mathrm{E}+00$ |
| 1737 | 16.97 | -1.57E-05 | 1.38E-02 | $2.36 \mathrm{E}+00$ |
| 1738 | 15.93 | -1.57E-05 | 1.38E-02 | $2.36 \mathrm{E}+00$ |
| 1739 | 14.90 | -1.57E-05 | 1.38E-02 | $2.36 \mathrm{E}+00$ |
| 1740 | 13.86 | -1.57E-05 | 1.38E-02 | $2.36 \mathrm{E}+00$ |
| 1741 | 12.45 | -1.72E-05 | 1.52E-02 | 1.43E+00 |
| 1742 | 10.28 | -1.87E-05 | 1.66E-02 | $4.98 \mathrm{E}-01$ |
| 1743 | 7.92 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1744 | 5.23 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1745 | 4.36 | -6.73E-06 | $6.00 \mathrm{E}-03$ | -1.44E-01 |
| 1746 | 5.94 | 6.73E-06 | -6.00E-03 | $1.44 \mathrm{E}-01$ |
| 1747 | 8.35 | 2.02E-05 | -1.80E-02 | 4.32E-01 |
| 1748 | 8.70 | 2.02E-05 | -1.80E-02 | $4.32 \mathrm{E}-01$ |
| 1749 | 11.46 | 2.02E-05 | -1.80E-02 | $4.32 \mathrm{E}-01$ |
| 1750 | 11.77 | 2.02E-05 | -1.80E-02 | 4.32E-01 |


| 1751 | 14.39 | 2.02E-05 | -1.80E-02 | 4.32E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1752 | 15.80 | 2.02E-05 | -1.80E-02 | 4.32E-01 |
| 1753 | 16.13 | 2.02E-05 | -1.80E-02 | 4.32E-01 |
| 1754 | 16.88 | 2.02E-05 | -1.80E-02 | 4.32E-01 |
| 1755 | 17.47 | 2.02E-05 | -1.80E-02 | 4.32E-01 |
| 1756 | 17.93 | 2.02E-05 | -1.80E-02 | 4.32E-01 |
| 1757 | 17.61 | $\underline{2.02 \mathrm{E}-05}$ | -1.80E-02 | 4.32E-01 |
| 1758 | 16.74 | $\underline{2.02 \mathrm{E}-05}$ | -1.80E-02 | 4.32E-01 |
| 1759 | 15.93 | $\underline{2.02 \mathrm{E}-05}$ | -1.80E-02 | 4.32E-01 |
| 1760 | 15.91 | $\underline{2.02 \mathrm{E}-05}$ | -1.80E-02 | 4.32E-01 |
| 1761 | 16.39 | 6.73E-06 | -6.00E-03 | 1.44E-01 |
| 1762 | 16.42 | -6.73E-06 | 6.00E-03 | -1.44E-01 |
| 1763 | 15.63 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1764 | 14.36 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1765 | 12.98 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1766 | 11.75 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1767 | 10.96 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1768 | 9.99 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1769 | 7.76 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1770 | 5.51 | -2.02E-05 | 1.80E-02 | -4.32E-01 |
| 1771 | 3.84 | -6.73E-06 | 6.00E-03 | -1.44E-01 |
| 1772 | 2.83 | -3.98E-06 | 4.12E-04 | -8.90E-02 |
| 1773 | 2.60 | -1.23E-06 | $\underline{-5.18 \mathrm{E}-03}$ | -3.41E-02 |
| 1774 | 3.25 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1775 | 4.69 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1776 | 6.71 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1777 | 8.02 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1778 | 8.05 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1779 | 7.53 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1780 | 6.92 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1781 | 6.48 | -1.19E-05 | 1.24E-03 | -2.67E-01 |


| 1782 | 6.17 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1783 | 5.93 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1784 | 5.63 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1785 | 5.22 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1786 | 4.97 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1787 | 5.43 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1788 | 5.06 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1789 | 5.14 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1790 | 5.25 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1791 | 5.38 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1792 | 5.44 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1793 | 5.26 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1794 | 5.11 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1795 | 5.33 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1796 | 5.84 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1797 | 6.17 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1798 | 6.06 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1799 | 5.81 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1800 | 5.86 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1801 | 6.45 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1802 | 6.72 | $\underline{-3.98 \mathrm{E}-06}$ | 4.12E-04 | -8.90E-02 |
| 1803 | 6.94 | 3.98E-06 | -4.12E-04 | 8.90E-02 |
| 1804 | 6.49 | 1.19E-05 | -1.24E-03 | $\underline{2.67 E-01}$ |
| 1805 | 5.99 | 1.19E-05 | -1.24E-03 | $\underline{2.67 E-01}$ |
| 1806 | 5.25 | 1.19E-05 | -1.24E-03 | $\underline{2.67 \mathrm{E}-01}$ |
| 1807 | 3.96 | 1.19E-05 | -1.24E-03 | $\underline{2.67 E-01}$ |
| 1808 | 3.07 | 1.19E-05 | -1.24E-03 | $\underline{2.67 E-01}$ |
| 1809 | 2.21 | 1.19E-05 | -1.24E-03 | $\underline{2.67 E-01}$ |
| 1810 | 0.78 | $3.98 \mathrm{E}-06$ | -4.12E-04 | $8.90 \mathrm{E}-02$ |
| 1811 | 1.71 | $\underline{-3.98 E-06}$ | 4.12E-04 | -8.90E-02 |
| 1812 | $\underline{2.93}$ | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |


| 1813 | 3.89 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1814 | 4.64 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1815 | 4.99 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1816 | 4.96 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1817 | 4.90 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1818 | 5.17 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1819 | 5.10 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1820 | 5.09 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1821 | 5.52 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1822 | 5.82 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1823 | 6.01 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1824 | 6.19 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1825 | 6.36 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1826 | 6.81 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1827 | 7.12 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1828 | 7.13 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1829 | 7.26 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1830 | 7.52 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1831 | 7.67 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1832 | 7.77 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1833 | 7.96 | -3.98E-06 | 4.12E-04 | -8.90E-02 |
| 1834 | 7.73 | 3.98E-06 | -4.12E-04 | 8.90E-02 |
| 1835 | 7.23 | 1.19E-05 | -1.24E-03 | $2.67 \mathrm{E}-01$ |
| 1836 | 6.76 | 1.19E-05 | -1.24E-03 | $\underline{2.67 E-01}$ |
| 1837 | 6.20 | 1.19E-05 | -1.24E-03 | $\underline{2.67 E-01}$ |
| 1838 | 4.18 | 3.98E-06 | -4.12E-04 | 8.90E-02 |
| 1839 | 0.00 | -3.98E-06 | 4.12E-04 | -8.90E-02 |
| 1840 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1841 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1842 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1843 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |


| 1844 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1845 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1846 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1847 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1848 | $\underline{0.00}$ | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1849 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1850 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1851 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1852 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1853 | 0.15 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1854 | 1.30 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1855 | 2.83 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1856 | 3.56 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1857 | 3.61 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1858 | $\underline{3.05}$ | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1859 | 1.16 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1860 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1861 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1862 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1863 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1864 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1865 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1866 | 0.17 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1867 | 1.42 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1868 | 1.97 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1869 | 1.94 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1870 | 0.16 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1871 | 0.00 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1872 | 0.17 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1873 | 1.08 | -1.19E-05 | 1.24E-03 | -2.67E-01 |
| 1874 | 1.54 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 314 |  |  |  |  |


| 1875 | 1.56 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 1876 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1877 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1878 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1879 | 0.18 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1880 | 0.88 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1881 | 1.29 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1882 | 1.67 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1883 | 2.01 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1884 | $\underline{2.09}$ | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1885 | 2.14 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1886 | $\underline{2.12}$ | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1887 | 1.90 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1888 | 0.40 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1889 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1890 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1891 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1892 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1893 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1894 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1895 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1896 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1897 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1898 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1899 | 0.00 | -1.19E-05 | $1.24 \mathrm{E}-03$ | -2.67E-01 |
| 1900 | 0.00 | $\underline{-7.98 \mathrm{E}-06}$ | -5.26E-04 | $6.35 \mathrm{E}-01$ |
| 1901 | 0.00 | -4.03E-06 | -2.29E-03 | $1.54 \mathrm{E}+00$ |
| 1902 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1903 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1904 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1905 | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |


| 1906 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 1907 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1908 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 1909 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 1910 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1911 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 1912 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1913 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1914 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1915 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1916 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1917 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1918 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1919 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1920 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1921 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1922 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1923 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1924 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1925 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1926 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1927 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1928 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1929 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1930 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1931 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1932 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1933 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1934 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 \mathrm{E}+00}$ |
| 1935 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1936 | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |


| 1937 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 1938 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1939 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1940 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1941 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 1942 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1943 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1944 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1945 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1946 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1947 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1948 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1949 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1950 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1951 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1952 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1953 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1954 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1955 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1956 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1957 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1958 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1959 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 \mathrm{E}+00}$ |
| 1960 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 \mathrm{E}+00}$ |
| 1961 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1962 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1963 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1964 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 1965 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1966 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1967 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |


| 1968 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 1969 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1970 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 1971 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1972 | $\underline{0.00}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1973 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1974 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1975 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1976 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1977 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1978 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1979 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1980 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1981 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1982 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1983 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1984 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1985 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1986 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 1987 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1988 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1989 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1990 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1991 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1992 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1993 | $\underline{0.00}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1994 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1995 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1996 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1997 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 1998 | $\underline{0.00}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |


| 1999 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 2000 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2001 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 2002 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2003}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2004 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2005}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2006}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2007}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2008}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2009}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2010}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2011}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2012}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2013}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2014}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2015}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2016}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2017}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2018}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2019}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2020}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2021}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2022}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2023}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2024}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2025}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2026}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2027}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 \mathrm{E}+00}$ |
| $\underline{2028}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2029}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |


| 2030 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2031}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2032}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2033}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2034}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2035}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2036}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2037}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2038}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2039}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2040}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2041}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2042}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2043 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2044}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2045 | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2046}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2047}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2048 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2049}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2050}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2051 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 2052 | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2053}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2054}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2055}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2056 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2057}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2058}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2059}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2060}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |


| 2061 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 2062 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2063}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2064}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2065}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2066}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2067}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2068}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2069}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2070}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2071}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2072}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2073}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2074}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2075}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2076}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2077}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2078}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2079 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2080 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2081}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2082}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2083}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2084}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2085}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2086}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2087 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2088}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2089}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2090}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2091}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |


| 2092 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2093}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2094}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2095 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2096}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2097 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2098 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2099 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2100}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2101 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2102 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2103 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2104 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2105}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2106}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2107}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2108}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2109}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2110}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2111 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2112}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2113}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2114}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2115}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2116}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2117}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2118}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2119}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2120}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2121}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2122}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |


| $\underline{2123}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2124}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2125}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2126}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2127}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2128}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2129}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2130}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2131}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2132}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2133}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2134}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2135}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2136}$ | 4.10 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2137}$ | 3.04 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2138}$ | 2.62 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2139}$ | 3.59 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2140}$ | 2.95 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2141}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2142}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2143}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2144}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2145}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2146}$ | 0.00 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2147}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2148}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2149}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2150}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2151}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2152}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2153}$ | $\underline{0.00}$ | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |


| $\underline{2154}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2155}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2156}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2157}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2158}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2159}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2160}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2161}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2162}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2163}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2164}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2165}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2166}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2167}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2168}$ | 0.61 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2169}$ | 2.34 | -7.34E-08 | -4.05E-03 | $\underline{2.44 \mathrm{E}+00}$ |
| $\underline{2170}$ | 3.07 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2171}$ | 3.52 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2172 | 3.36 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2173}$ | 2.80 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2174}$ | 1.82 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2175}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2176}$ | 1.26 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2177}$ | $\underline{2.97}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2178}$ | 3.78 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2179}$ | 4.28 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2180}$ | 4.11 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2181}$ | 3.95 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2182}$ | 2.82 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2183}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2184}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |


| $\underline{2185}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2186}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2187}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2188}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2189}$ | $\underline{0.00}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2190}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2191}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2192}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2193}$ | $\underline{0.05}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2194}$ | 1.58 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2195}$ | $\underline{2.99}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2196}$ | 3.71 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2197}$ | 4.02 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2198}$ | 4.01 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2199}$ | 3.87 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2200 | 3.85 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{201}$ | 3.97 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2202}$ | 4.07 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2203 | 4.13 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| 2204 | 4.25 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2205}$ | 4.28 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2206}$ | 4.24 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2207 | 4.25 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2208}$ | 4.30 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2209}$ | 4.27 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2210}$ | 4.17 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2111}$ | 3.74 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2212}$ | 3.11 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2213}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{214}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{215}$ | $\underline{0.00}$ | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |


| $\underline{216}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{217}$ | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{218}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{219}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{220}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{221}$ | 0.00 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2222}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2223}$ | 0.05 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2224}$ | 1.52 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2225}$ | 2.48 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2226}$ | 3.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2227}$ | 3.60 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2228}$ | 4.17 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2229}$ | 4.22 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2230}$ | 4.64 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{231}$ | 5.06 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2232}$ | 4.89 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2233}$ | 4.37 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2234 | 3.76 | -7.34E-08 | -4.05E-03 | $2.44 \mathrm{E}+00$ |
| $\underline{2235}$ | 3.18 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2236}$ | 2.52 | $\underline{-7.34 E-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2237}$ | 0.23 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| 2238 | 0.00 | -7.34E-08 | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2239}$ | 0.00 | $\underline{-7.34 \mathrm{E}-08}$ | -4.05E-03 | $\underline{2.44 E+00}$ |
| $\underline{2240}$ | 0.00 | 2.71E-06 | -6.12E-03 | $\underline{2.09 E+00}$ |
| $\underline{241}$ | 0.00 | 5.49E-06 | -8.18E-03 | $1.74 \mathrm{E}+00$ |
| $\underline{242}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2243}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2244}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2245}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2246}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |


| 2247 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 2248 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2249 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2250 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2251 | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2252 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2253}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2254}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2255}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2256}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2257}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2258}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2259}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2260}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{261}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2262}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2263}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2264}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2265}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2266}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2267}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2268}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2269}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2270}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2271 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2272}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2273}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2274 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2275 | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2276}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2277}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |


| $\underline{2278}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2279}$ | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{280}$ | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{281}$ | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{282}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2283}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{284}$ | 0.00 | 8.27E-06 | -1.02E-02 | 1.39E+00 |
| $\underline{2285}$ | 0.00 | 8.27E-06 | -1.02E-02 | 1.39E+00 |
| $\underline{286}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{287}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{288}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2289 | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2290 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{291}$ | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2292 | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{293}$ | 0.00 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2294 | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2295}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2296 | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2297 | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2988}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2299}$ | 0.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2300}$ | 1.87 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2301}$ | 3.84 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2302}$ | 5.23 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2303}$ | 6.27 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2304}$ | 7.16 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2305}$ | 7.53 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2306}$ | 10.53 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2307}$ | 10.28 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2308}$ | 11.65 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |


| $\underline{2309}$ | 14.54 | 2.76E-06 | -3.42E-03 | 4.63E-01 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2310}$ | 14.61 | -2.76E-06 | 3.42E-03 | -4.63E-01 |
| $\underline{2311}$ | 14.29 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2312}$ | 13.76 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2313}$ | 13.08 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2314}$ | 12.52 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2315}$ | 11.99 | -8.27E-06 | 1.02E-02 | $-1.39 \mathrm{E}+00$ |
| $\underline{2316}$ | 11.60 | -8.27E-06 | 1.02E-02 | $-1.39 \mathrm{E}+00$ |
| $\underline{2317}$ | 11.32 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2318}$ | 11.15 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2319}$ | 10.92 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2320}$ | 10.12 | -8.27E-06 | 1.02E-02 | $-1.39 \mathrm{E}+00$ |
| 2321 | 9.30 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| 2322 | 8.77 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2323}$ | 8.28 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2324}$ | 7.75 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| 2325 | 5.41 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| 2326 | 2.62 | -8.27E-06 | 1.02E-02 | $-1.39 \mathrm{E}+00$ |
| 2327 | 1.42 | -8.27E-06 | 1.02E-02 | $-1.39 \mathrm{E}+00$ |
| 2328 | 1.30 | -2.76E-06 | 3.42E-03 | -4.63E-01 |
| $\underline{2329}$ | $\underline{2.04}$ | $\underline{2.76 E-06}$ | -3.42E-03 | 4.63E-01 |
| $\underline{2330}$ | 2.17 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2331 | 1.97 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2332}$ | 1.16 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2333}$ | 1.99 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2334}$ | 3.70 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2335}$ | 4.78 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2336}$ | 4.59 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2337}$ | 7.02 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2338}$ | 6.88 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2339}$ | 8.24 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |


| $\underline{2340}$ | 9.80 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2341}$ | 9.94 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2342}$ | 12.63 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2343}$ | 12.98 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2344}$ | 13.30 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2345}$ | 13.78 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2346}$ | 17.03 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2347 | 18.36 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2348}$ | 18.22 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2349}$ | $\underline{20.33}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2350}$ | $\underline{23.14}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2351 | $\underline{22.57}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2352 | $\underline{22.10}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2353 | 23.40 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2354 | $\underline{25.38}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2355}$ | $\underline{27.48}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2356 | $\underline{29.37}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2357 | $\underline{29.12}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2358 | $\underline{28.20}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2359 | 28.70 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2360}$ | $\underline{29.84}$ | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2361 | 31.20 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2362}$ | 31.45 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2363}$ | 30.76 | $\underline{2.76 E-06}$ | $\underline{-3.42 E-03}$ | $4.63 \mathrm{E}-01$ |
| $\underline{2364}$ | 31.06 | -2.76E-06 | 3.42E-03 | -4.63E-01 |
| $\underline{2365}$ | 30.05 | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2366}$ | $\underline{29.49}$ | -8.27E-06 | 1.02E-02 | $\underline{-1.39 E+00}$ |
| $\underline{2367}$ | $\underline{28.71}$ | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2368}$ | $\underline{27.84}$ | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2369}$ | $\underline{27.13}$ | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2370}$ | $\underline{26.47}$ | -8.27E-06 | 1.02E-02 | -1.39E+00 |


| 2371 | 26.15 | -8.27E-06 | $1.02 \mathrm{E}-02$ | -1.39E+00 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2372}$ | 25.61 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2373}$ | 25.27 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| 2374 | 24.91 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2375}$ | 24.76 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2376}$ | 23.24 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2377}$ | 20.73 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2378}$ | 20.06 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2379}$ | 20.21 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2380}$ | 19.43 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2381}$ | 18.01 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2382}$ | 17.88 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2383}$ | 17.73 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2384}$ | 16.06 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2385}$ | 13.87 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2386}$ | 12.07 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2387}$ | 10.05 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2388}$ | 8.91 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2389}$ | 8.83 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2390}$ | 8.25 | -8.27E-06 | 1.02E-02 | -1.39E+00 |
| $\underline{2391}$ | 8.10 | -2.76E-06 | 3.42E-03 | -4.63E-01 |
| $\underline{2392}$ | 8.27 | 2.76E-06 | -3.42E-03 | 4.63E-01 |
| $\underline{2393}$ | 8.54 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2394}$ | 9.15 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2395 | 9.45 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2396}$ | 9.59 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2397}$ | 9.87 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2398 | 10.11 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2399}$ | 10.75 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2400}$ | 12.00 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2401}$ | 13.43 | 8.27E-06 | $\underline{-1.02 E-02}$ | $1.39 \mathrm{E}+00$ |


| $\underline{2402}$ | 13.72 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2403}$ | 13.98 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2404}$ | 13.97 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2405}$ | 15.25 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2406}$ | 15.36 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2407}$ | 14.87 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2408}$ | 14.03 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2409}$ | 12.87 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2410}$ | 11.89 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2411}$ | 11.27 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2412}$ | 10.30 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2413}$ | 10.60 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2414}$ | 11.01 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2415}$ | 12.08 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2416}$ | 12.82 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2417 | 13.24 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2418}$ | 13.14 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2419}$ | 13.04 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2420}$ | 13.20 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| 2421 | 13.24 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2422}$ | 13.10 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2423}$ | 13.24 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2424}$ | 13.69 | 8.27E-06 | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2425}$ | 14.12 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2426}$ | 14.14 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2427}$ | 15.16 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2428}$ | 18.28 | $8.27 \mathrm{E}-06$ | -1.02E-02 | $1.39 \mathrm{E}+00$ |
| $\underline{2429}$ | $\underline{20.25}$ | 4.87E-06 | -6.43E-03 | 5.91E-01 |
| $\underline{2430}$ | $\underline{22.05}$ | 1.46E-06 | -2.60E-03 | -2.08E-01 |
| $\underline{2431}$ | $\underline{23.50}$ | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2432}$ | $\underline{23.43}$ | -1.94E-06 | 1.22E-03 | -1.01E+00 |


| $\underline{2433}$ | 25.21 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 2434 | $\underline{27.90}$ | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2435}$ | $\underline{29.63}$ | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2436}$ | $\underline{29.48}$ | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2437}$ | 30.04 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2438}$ | 31.83 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2439}$ | 33.94 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2440}$ | 34.17 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2441}$ | 34.46 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2442}$ | 34.15 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2443}$ | 34.54 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2444}$ | 34.83 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2445}$ | 35.02 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2446}$ | 35.01 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2447}$ | 34.93 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2448}$ | 34.65 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2449}$ | 34.52 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2450}$ | 34.00 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| 2451 | 33.51 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2452 | 33.47 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2453}$ | 33.77 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2454 | 34.07 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2455}$ | 34.40 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2456}$ | 34.81 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2457}$ | 35.19 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2458}$ | 35.58 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2459}$ | 35.94 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2460}$ | 36.27 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2461}$ | 36.60 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2462}$ | 36.71 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2463}$ | 36.64 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |


| 2464 | 36.51 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2465}$ | 36.22 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2466}$ | 35.87 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2467}$ | 35.54 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2468}$ | 35.51 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2469}$ | 35.62 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2470}$ | 35.94 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2471}$ | 36.15 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2472}$ | 36.09 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2473}$ | 36.06 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $\underline{-1.01 E+00}$ |
| $\underline{2474}$ | 35.92 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2475}$ | 35.92 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2476}$ | 35.70 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2477}$ | 34.29 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2478}$ | 33.50 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2479}$ | 32.79 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2480}$ | 32.61 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2481}$ | 32.93 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $\underline{-1.01 \mathrm{E}+00}$ |
| 2482 | 34.07 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2483 | 34.93 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2484 | 35.46 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2485}$ | 35.55 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2486}$ | 35.85 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2487}$ | 35.92 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2488}$ | 36.13 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2489}$ | 37.00 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2490}$ | 37.50 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2491}$ | 38.31 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2492}$ | 39.28 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2493}$ | 39.54 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2494}$ | 39.37 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $\underline{-1.01 E+00}$ |


| $\underline{2495}$ | 39.34 | -1.94E-06 | $1.22 \mathrm{E}-03$ | -1.01E+00 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2496}$ | 39.43 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2497}$ | 39.51 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2498}$ | 39.52 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2499}$ | 39.58 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2500}$ | 39.64 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2501}$ | 39.76 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2502}$ | 40.03 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2503}$ | 40.04 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2504}$ | 39.98 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2505}$ | 39.99 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2506}$ | 39.75 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2507}$ | 39.60 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2508}$ | 39.44 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2509}$ | 39.06 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2510}$ | 38.82 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2511}$ | 38.69 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2512}$ | 38.62 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2513}$ | 38.30 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2514}$ | 37.92 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2515}$ | 38.00 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2516}$ | 37.88 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2517}$ | 37.69 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2518}$ | 37.49 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2519}$ | 37.22 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2520}$ | 36.84 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2521}$ | 36.40 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2522}$ | 35.89 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2523}$ | 35.34 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2524}$ | 34.50 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2525}$ | 33.74 | -1.94E-06 | $1.22 \mathrm{E}-03$ | -1.01E+00 |


| 2526 | 33.25 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2527}$ | 32.80 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2528}$ | 32.65 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| 2529 | 32.81 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2530 | 32.95 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2531 | 33.13 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2532 | 33.43 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| 2533 | 33.58 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2534 | 33.83 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2535 | 34.37 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2536 | 34.91 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2537 | 34.86 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2538 | 35.01 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2539}$ | 35.28 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2540}$ | 35.02 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2541}$ | 34.99 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2542}$ | 35.07 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2543}$ | 34.72 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2544}$ | 34.31 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2545}$ | 34.06 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2546}$ | 33.40 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| 2547 | 32.59 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2548}$ | 32.04 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2549}$ | 31.24 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2550}$ | 30.88 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2551}$ | 31.70 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2552}$ | 32.40 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2553 | 32.80 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2554}$ | 33.07 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| 2555 | 33.40 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2556}$ | 33.71 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |


| 2557 | 33.83 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 2558 | 34.06 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2559 | 34.31 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2560 | 34.34 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2561 | 34.35 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2562 | 34.16 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2563}$ | 33.82 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2564}$ | 33.48 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2565}$ | 33.38 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| 2566 | 33.33 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| 2567 | 33.75 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2568}$ | 34.26 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |
| $\underline{2569}$ | 34.77 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2570}$ | 35.11 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2571 | 35.64 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2572 | 36.23 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2573}$ | 36.71 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2574 | 36.77 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2575 | 36.71 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2576 | 36.96 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2577 | 37.21 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2578 | 37.40 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2579 | 37.48 | -1.94E-06 | 1.22E-03 | -1.01E+00 |
| $\underline{2580}$ | 37.51 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2581 | 37.57 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2582 | 37.38 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| 2583 | 37.34 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| 2584 | 37.63 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2585}$ | 37.75 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2586}$ | 37.96 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 \mathrm{E}+00}$ |
| $\underline{2587}$ | 38.21 | -1.94E-06 | 1.22E-03 | $\underline{-1.01 E+00}$ |


| 2588 | 38.41 | -1.94E-06 | $1.22 \mathrm{E}-03$ | -1.01E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 2589 | 38.49 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| 2590 | 38.67 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| 2591 | 39.00 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| 2592 | 38.97 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2593}$ | 38.69 | -1.94E-06 | 1.22E-03 | $-1.01 \mathrm{E}+00$ |
| $\underline{2594}$ | 38.48 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2595}$ | 38.18 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2596}$ | 38.00 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2597}$ | 37.81 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2598}$ | 37.67 | -1.94E-06 | $1.22 \mathrm{E}-03$ | $-1.01 \mathrm{E}+00$ |
| $\underline{2599}$ | 37.65 | -2.27E-06 | 1.52E-03 | -9.08E-01 |
| $\underline{2600}$ | 37.73 | -2.60E-06 | 1.82E-03 | -8.09E-01 |
| $\underline{2601}$ | 37.96 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2602}$ | 37.89 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2603}$ | 37.88 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2604}$ | 38.27 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2605}$ | 38.45 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2606}$ | 38.69 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2607 | 39.48 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2608}$ | 39.39 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2609}$ | 38.87 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2610 | 38.70 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2611}$ | 38.71 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2612 | 38.49 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2613 | 38.42 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2614}$ | 38.48 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2615}$ | 38.66 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2616 | 38.77 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2617 | 39.02 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2618}$ | 39.59 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |


| 2619 | 39.63 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2620}$ | 39.79 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2621}$ | 40.32 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2622 | 40.10 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2623 | 39.52 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2624 | 39.23 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2625 | 39.06 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2626}$ | 38.86 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2627 | 38.80 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2628 | 38.62 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2629 | 38.44 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2630 | 38.39 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2631 | 38.40 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2632}$ | 38.32 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2633}$ | 38.39 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2634 | 38.46 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2635 | 38.59 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2636}$ | 38.79 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2637}$ | 38.93 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2638}$ | 39.02 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2639}$ | 39.10 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2640}$ | 38.99 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2641}$ | 38.73 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2642}$ | 38.78 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2643}$ | 38.88 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2644}$ | 38.93 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2645}$ | 38.91 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2646}$ | 38.93 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2647}$ | 38.96 | $\underline{-2.93 E-06}$ | 2.11E-03 | -7.10E-01 |
| $\underline{2648}$ | 39.03 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2649}$ | 39.08 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | $\underline{-7.10 \mathrm{E}-01}$ |


| $\underline{2650}$ | 38.79 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2651}$ | 38.67 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2652}$ | 38.83 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2653}$ | 38.90 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2654}$ | 39.05 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2655}$ | 39.07 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2656}$ | 39.14 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2657}$ | 39.15 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2658}$ | 38.98 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2659}$ | 38.94 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2660}$ | 39.10 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| 2661 | 39.66 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2662 | 40.71 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2663}$ | 40.61 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2664 | 40.80 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2665 | 41.32 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2666 | 41.12 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2667 | 40.75 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2668 | 40.20 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2669 | 39.70 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2670}$ | 39.39 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| 2671 | 39.41 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2672}$ | 39.52 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2673}$ | 39.69 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2674}$ | 39.79 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2675}$ | 39.91 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2676}$ | 40.11 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2677}$ | 39.81 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2678}$ | 39.25 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2679}$ | 38.78 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2680}$ | 38.78 | -9.77E-07 | 7.05E-04 | -2.37E-01 |


| $\underline{2681}$ | $\underline{38.60}$ | $\underline{9.77 \mathrm{E}-07}$ | $\underline{-7.05 \mathrm{E}-04}$ | $\underline{2.37 \mathrm{E}-01}$ |
| :--- | :--- | :--- | :--- | :--- |
| $\underline{2682}$ | $\underline{37.99}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2683}$ | $\underline{37.38}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2684}$ | $\underline{36.67}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2685}$ | $\underline{35.53}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2686}$ | $\underline{35.18}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2687}$ | $\underline{34.02}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2688}$ | $\underline{33.01}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2689}$ | $\underline{31.93}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2690}$ | $\underline{30.65}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2691}$ | $\underline{29.19}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2692}$ | $\underline{26.34}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2693}$ | $\underline{23.48}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2694}$ | $\underline{22.01}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2695}$ | $\underline{21.07}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2696}$ | $\underline{20.05}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2697}$ | $\underline{19.82}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2698}$ | $\underline{19.79}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2699}$ | $\underline{18.28}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2700}$ | $\underline{16.18}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2701}$ | $\underline{14.96}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2702}$ | $\underline{13.59}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2703}$ | $\underline{11.53}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2704}$ | $\underline{10.49}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2705}$ | $\underline{10.27}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2706}$ | $\underline{10.04}$ | $\underline{2.93 \mathrm{E}-06}$ | $\underline{-2.11 \mathrm{E}-03}$ | $\underline{7.10 \mathrm{E}-01}$ |
| $\underline{2707}$ | $\underline{10.11}$ | $\underline{9.77 \mathrm{E}-07}$ | $\underline{-7.05 \mathrm{E}-04}$ | $\underline{2.37 \mathrm{E}-01}$ |
| $\underline{2708}$ | $\underline{10.96}$ | $\underline{-9.77 \mathrm{E}-07}$ | $\underline{7.05 \mathrm{E}-04}$ | $\underline{-2.37 \mathrm{E}-01}$ |
| $\underline{2709}$ | $\underline{11.91}$ | $\underline{-2.93 \mathrm{E}-06}$ | $\underline{2.11 \mathrm{E}-03}$ | $\underline{-7.10 \mathrm{E}-01}$ |
| $\underline{\underline{2}-03}$ | $\underline{-7.10 \mathrm{E}-01}$ |  |  |  |


| $\underline{2712}$ | 14.71 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2713}$ | 15.86 | -2.93E-06 | $\underline{2.11 \mathrm{E}-03}$ | -7.10E-01 |
| $\underline{2714}$ | 15.53 | -2.93E-06 | $2.11 \mathrm{E}-03$ | -7.10E-01 |
| $\underline{2715}$ | 17.60 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2716}$ | 19.45 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2717}$ | 19.56 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2718}$ | 19.47 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2719}$ | 19.64 | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2720}$ | $\underline{20.72}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2721}$ | $\underline{21.30}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2722}$ | $\underline{21.75}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2723}$ | $\underline{22.16}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2724}$ | $\underline{22.62}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2725}$ | $\underline{22.65}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2726}$ | $\underline{22.80}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2727}$ | $\underline{22.80}$ | -2.93E-06 | 2.11E-03 | -7.10E-01 |
| $\underline{2728}$ | $\underline{23.30}$ | -9.77E-07 | 7.05E-04 | -2.37E-01 |
| $\underline{2729}$ | $\underline{23.19}$ | 9.77E-07 | -7.05E-04 | 2.37E-01 |
| $\underline{2730}$ | $\underline{22.46}$ | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2731}$ | $\underline{22.04}$ | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2732}$ | $\underline{21.67}$ | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2733}$ | $\underline{21.23}$ | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2734}$ | $\underline{20.97}$ | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2735}$ | $\underline{20.86}$ | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2736}$ | $\underline{20.33}$ | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2737}$ | 19.77 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2738}$ | 18.71 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2739}$ | 16.90 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2740}$ | 14.92 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2741}$ | 13.71 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2742}$ | 12.88 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |


| $\underline{2743}$ | 10.50 | 2.93E-06 | -2.11E-03 | 7.10E-01 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2744}$ | 7.51 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2745}$ | 5.02 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| 2746 | 3.25 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| $\underline{2747}$ | 0.16 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| 2748 | 0.00 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| 2749 | 0.00 | $\underline{2.93 E-06}$ | -2.11E-03 | 7.10E-01 |
| 2750 | 0.00 | $\underline{2.54 E-06}$ | -2.53E-03 | -2.96E-02 |
| 2751 | 0.00 | $\underline{2.14 E-06}$ | -2.94E-03 | -7.69E-01 |
| 2752 | 0.00 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| $\underline{2753}$ | 0.00 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2754 | 0.00 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| $\underline{2755}$ | 0.10 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2756}$ | 2.70 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2757}$ | 4.69 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2758}$ | 5.72 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2759 | 7.34 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2760}$ | 7.40 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2761 | 9.63 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |
| 2762 | 9.81 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |
| $\underline{2763}$ | 11.41 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2764 | 13.40 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2765 | 13.38 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2766 | 15.71 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2767 | 17.87 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2768 | 17.59 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| $\underline{2769}$ | 19.67 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |
| $\underline{2770}$ | $\underline{22.96}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2771}$ | $\underline{23.66}$ | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| $\underline{2772}$ | $\underline{24.30}$ | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| $\underline{2773}$ | $\underline{26.52}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |


| $\underline{2774}$ | $\underline{29.24}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| :--- | :--- | :--- | :--- | :--- |
| $\underline{2775}$ | $\underline{29.99}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2776}$ | $\underline{30.18}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2777}$ | $\underline{31.64}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2778}$ | $\underline{33.74}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2779}$ | $\underline{34.51}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2780}$ | $\underline{34.83}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2781}$ | $\underline{35.89}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2782}$ | $\underline{36.47}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2783}$ | $\underline{37.00}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2784}$ | $\underline{36.85}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2785}$ | $\underline{36.65}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2786}$ | $\underline{36.64}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2787}$ | $\underline{36.86}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2788}$ | $\underline{36.65}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2789}$ | $\underline{36.16}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2790}$ | $\underline{35.59}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2791}$ | $\underline{35.04}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2792}$ | $\underline{34.44}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2793}$ | $\underline{33.86}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2794}$ | $\underline{33.79}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2795}$ | $\underline{34.16}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2796}$ | $\underline{34.11}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2797}$ | $\underline{35.11}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2798}$ | $\underline{35.48}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2799}$ | $\underline{35.68}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2800}$ | $\underline{36.45}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2801}$ | $\underline{37.02}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2802}$ | $\underline{37.15}$ | $\underline{1.75 \mathrm{E}-06}$ | $\underline{-3.35 \mathrm{E}-03}$ | $-\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{-3.35 \mathrm{E}-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |  |  |  |
| $-1.51 \mathrm{E}+00$ |  |  |  |  |


| 2805 | 37.26 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 2806 | 37.30 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2807 | 37.66 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2808 | 37.86 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2809 | 38.15 | 1.75E-06 | $\underline{-3.35 E-03}$ | $\underline{-1.51 \mathrm{E}+00}$ |
| 2810 | 38.46 | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| 2811 | 38.82 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2812}$ | 39.10 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2813}$ | 39.38 | 1.75E-06 | $\underline{-3.35 E-03}$ | $\underline{-1.51 E+00}$ |
| $\underline{2814}$ | 40.07 | 1.75E-06 | $\underline{-3.35 E-03}$ | $\underline{-1.51 E+00}$ |
| $\underline{2815}$ | 40.66 | 1.75E-06 | $\underline{-3.35 E-03}$ | $\underline{-1.51 E+00}$ |
| $\underline{2816}$ | 40.90 | 5.83E-07 | -1.12E-03 | -5.03E-01 |
| $\underline{2817}$ | 40.73 | $\underline{-5.83 E-07}$ | 1.12E-03 | 5.03E-01 |
| $\underline{2818}$ | $\underline{39.89}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2819}$ | 39.34 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2820}$ | 39.06 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2821}$ | 38.94 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2822}$ | 38.71 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2823}$ | 37.68 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2824}$ | 36.31 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2825}$ | 35.22 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2826}$ | 34.89 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2827}$ | $\underline{34.01}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2828}$ | 33.02 | $\underline{-1.75 E-06}$ | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2829}$ | $\underline{32.53}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2830}$ | 31.76 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2831}$ | 30.51 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2832}$ | $\underline{29.51}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2833}$ | $\underline{28.98}$ | $\underline{-1.75 E-06}$ | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2834}$ | $\underline{28.34}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2835}$ | $\underline{27.30}$ | $\underline{-1.75 \mathrm{E}-06}$ | 3.35E-03 | $1.51 \mathrm{E}+00$ |


| $\underline{2836}$ | 25.61 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2837}$ | $\underline{23.80}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| 2838 | $\underline{22.77}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2839}$ | $\underline{22.13}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2840}$ | $\underline{21.41}$ | -1.75E-06 | $3.35 \mathrm{E}-03$ | $\underline{1.51 \mathrm{E}+00}$ |
| 2841 | $\underline{20.54}$ | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2842}$ | 18.82 | -1.75E-06 | $3.35 \mathrm{E}-03$ | $1.51 \mathrm{E}+00$ |
| $\underline{2843}$ | 17.32 | -1.75E-06 | $3.35 \mathrm{E}-03$ | $1.51 \mathrm{E}+00$ |
| $\underline{2844}$ | 15.96 | -1.75E-06 | $3.35 \mathrm{E}-03$ | $1.51 \mathrm{E}+00$ |
| $\underline{2845}$ | 14.79 | -1.75E-06 | $3.35 \mathrm{E}-03$ | $1.51 \mathrm{E}+00$ |
| $\underline{2846}$ | 13.86 | -1.75E-06 | $3.35 \mathrm{E}-03$ | $1.51 \mathrm{E}+00$ |
| $\underline{2847}$ | 13.15 | -1.75E-06 | $3.35 \mathrm{E}-03$ | $1.51 \mathrm{E}+00$ |
| $\underline{2848}$ | 12.52 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2849}$ | 12.22 | -1.75E-06 | 3.35E-03 | $1.51 \mathrm{E}+00$ |
| $\underline{2850}$ | 11.84 | -1.75E-06 | $3.35 \mathrm{E}-03$ | $1.51 \mathrm{E}+00$ |
| 2851 | 11.70 | $\underline{-5.83 E-07}$ | 1.12E-03 | 5.03E-01 |
| $\underline{2852}$ | 11.94 | 5.83E-07 | -1.12E-03 | -5.03E-01 |
| $\underline{2853}$ | 12.39 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2854 | 13.50 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2855 | 14.85 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2856 | 16.24 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2857}$ | 18.22 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2858 | 19.16 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2859}$ | 19.76 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2860}$ | $\underline{20.55}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2861}$ | $\underline{21.17}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2862 | $\underline{21.76}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2863}$ | $\underline{21.97}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2864}$ | $\underline{21.39}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2865}$ | $\underline{20.87}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2866}$ | $\underline{20.39}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |


| 2867 | 20.29 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 2868 | 20.38 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2869 | $\underline{20.44}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2870}$ | $\underline{20.69}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2871}$ | $\underline{20.75}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2872}$ | 20.63 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2873}$ | $\underline{20.63}$ | $\underline{1.75 E-06}$ | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2874}$ | $\underline{20.68}$ | $\underline{1.75 E-06}$ | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2875}$ | $\underline{20.64}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |
| $\underline{2876}$ | $\underline{21.18}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |
| $\underline{2877}$ | $\underline{21.21}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |
| $\underline{2878}$ | $\underline{21.50}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2879}$ | $\underline{22.46}$ | 1.75E-06 | -3.35E-03 | $\underline{-1.51 E+00}$ |
| $\underline{2880}$ | $\underline{24.02}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{281}$ | $\underline{25.23}$ | 1.75E-06 | -3.35E-03 | -1.51E+00 |
| $\underline{2882}$ | $\underline{26.34}$ | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2883 | 28.08 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2884}$ | 30.11 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| 2885 | 29.80 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2886 | 30.43 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2887 | 32.18 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2888}$ | 34.35 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2889}$ | 36.57 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2890}$ | 38.17 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2991}$ | 37.86 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2892 | 38.45 | $\underline{1.75 E-06}$ | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2893}$ | 39.76 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| 2894 | 41.36 | 1.75E-06 | -3.35E-03 | $-1.51 \mathrm{E}+00$ |
| $\underline{2895}$ | 43.02 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2896}$ | 44.53 | 1.75E-06 | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| $\underline{2897}$ | 45.47 | $\underline{1.75 E-06}$ | -3.35E-03 | $\underline{-1.51 E+00}$ |


| $\underline{2988}$ | 46.16 | $1.75 \mathrm{E}-06$ | -3.35E-03 | $\underline{-1.51 \mathrm{E}+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2899}$ | 46.91 | 8.19E-08 | -1.40E-03 | $\underline{-1.64 E+00}$ |
| $\underline{2900}$ | 47.54 | -1.59E-06 | 5.53E-04 | -1.77E+00 |
| $\underline{2901}$ | 47.94 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2902}$ | 48.09 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2903}$ | 48.73 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2904}$ | 48.99 | -3.25E-06 | 2.51E-03 | $\underline{-1.90 E+00}$ |
| $\underline{2905}$ | 48.91 | -3.25E-06 | 2.51E-03 | $\underline{-1.90 E+00}$ |
| $\underline{2906}$ | 49.02 | -3.25E-06 | 2.51E-03 | $\underline{-1.90 E+00}$ |
| $\underline{2907}$ | 49.47 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2908}$ | 50.10 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2909}$ | 50.82 | -3.25E-06 | 2.51E-03 | $-1.90 \mathrm{E}+00$ |
| $\underline{2910}$ | 51.10 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2911}$ | 51.13 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2912}$ | $\underline{50.97}$ | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2913}$ | 51.48 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2914}$ | 51.21 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2915}$ | 51.36 | -3.25E-06 | $2.51 \mathrm{E}-03$ | $\underline{-1.90 E+00}$ |
| 2916 | 51.48 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| 2917 | 51.14 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2918}$ | 51.14 | -3.25E-06 | 2.51E-03 | $\underline{-1.90 E+00}$ |
| $\underline{2919}$ | $\underline{50.64}$ | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2920}$ | 50.38 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2921}$ | $\underline{50.51}$ | -3.25E-06 | 2.51E-03 | $-1.90 \mathrm{E}+00$ |
| $\underline{2922}$ | 50.51 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2923}$ | 50.25 | -3.25E-06 | 2.51E-03 | $\underline{-1.90 E+00}$ |
| $\underline{2924}$ | 50.38 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2925}$ | 51.16 | -3.25E-06 | 2.51E-03 | -1.90E+00 |
| $\underline{2926}$ | 51.42 | -3.25E-06 | $2.51 \mathrm{E}-03$ | $\underline{-1.90 E+00}$ |
| $\underline{2927}$ | 51.41 | -1.08E-06 | 8.36E-04 | -6.34E-01 |
| $\underline{2928}$ | $\underline{51.21}$ | $1.08 \mathrm{E}-06$ | -8.36E-04 | $6.34 \mathrm{E}-01$ |


| $\underline{2929}$ | 50.40 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 2930 | 49.47 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2931}$ | 48.70 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2932}$ | 47.98 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2933}$ | 47.36 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2934}$ | 46.88 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2935}$ | 46.79 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2936}$ | 46.25 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2937}$ | 46.58 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2938}$ | 46.21 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2939}$ | 46.21 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2940}$ | 46.34 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2941}$ | 45.91 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2942}$ | 45.44 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2943}$ | 45.20 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2944}$ | 45.56 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2945}$ | 46.01 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2946}$ | 46.15 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| 2947 | 46.18 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| 2948 | 45.75 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2949}$ | 45.80 | 3.25E-06 | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2950}$ | 46.04 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| 2951 | 46.63 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2952}$ | 47.10 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2953}$ | 46.76 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2954}$ | 46.22 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2955}$ | 45.66 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2956}$ | 45.04 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2957}$ | 44.54 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2958}$ | 44.41 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2959}$ | 44.32 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |


| $\underline{2960}$ | 44.13 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2961}$ | 43.49 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2962}$ | 42.96 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2963}$ | 42.59 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2964}$ | 42.43 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2965}$ | 42.52 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2966}$ | 42.69 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2967}$ | 42.70 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2968}$ | 42.51 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2969}$ | 42.22 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2970}$ | 40.99 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2971}$ | 40.87 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2972}$ | 41.60 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2973}$ | 40.72 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2974}$ | 39.16 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2975}$ | 38.09 | $3.25 \mathrm{E}-06$ | -2.51E-03 | $1.90 \mathrm{E}+00$ |
| $\underline{2976}$ | 37.79 | 1.08E-06 | -8.36E-04 | 6.34E-01 |
| $\underline{2977}$ | 38.10 | -1.08E-06 | 8.36E-04 | -6.34E-01 |
| $\underline{2978}$ | 38.92 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | $-1.90 \mathrm{E}+00$ |
| $\underline{2979}$ | 39.06 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2980}$ | $\underline{39.05}$ | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2981}$ | 38.34 | -3.25E-06 | $\underline{2.51 E-03}$ | -1.90E+00 |
| $\underline{2982}$ | 37.88 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2983}$ | 37.58 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2984}$ | 37.40 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2985}$ | 37.61 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2986}$ | 37.90 | -3.25E-06 | $\underline{2.51 E-03}$ | -1.90E+00 |
| $\underline{2987}$ | 38.29 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2988}$ | 38.56 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2989}$ | 38.74 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2990}$ | 38.49 | -3.25E-06 | $\underline{2.51 E-03}$ | -1.90E+00 |


| 2991 | 38.57 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{2992}$ | 38.45 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | -1.90E+00 |
| $\underline{2993}$ | 38.35 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | $-1.90 \mathrm{E}+00$ |
| $\underline{2994}$ | 38.48 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | $-1.90 \mathrm{E}+00$ |
| $\underline{2995}$ | 39.00 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | $-1.90 \mathrm{E}+00$ |
| $\underline{2996}$ | 39.37 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | $-1.90 \mathrm{E}+00$ |
| $\underline{2997}$ | 39.73 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | $-1.90 \mathrm{E}+00$ |
| $\underline{2998}$ | 39.66 | -3.25E-06 | $\underline{2.51 \mathrm{E}-03}$ | $\underline{-1.90 E+00}$ |
| $\underline{2999}$ | 39.77 | -2.59E-06 | $1.70 \mathrm{E}-03$ | $\underline{-2.14 E+00}$ |
| 3000 | 39.95 | -1.94E-06 | 8.87E-04 | $\underline{-2.39 E+00}$ |
| 3001 | 40.03 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3002 | 39.83 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3003 | 39.49 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3004 | 39.29 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3005 | 39.59 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3006 | 40.05 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3007 | 40.32 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3008 | 40.41 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3009 | 40.64 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3010 | 41.06 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3011 | 41.36 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3012 | 41.53 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3013 | 41.02 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3014 | 40.80 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3015 | 40.60 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3016 | 40.58 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3017 | 40.44 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3018 | 40.07 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3019 | 39.82 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3020 | 40.24 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3021 | 41.54 | -1.28E-06 | 7.77E-05 | -2.63E+00 |


| 3022 | 42.86 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3023 | 43.67 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3024 | 43.88 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3025 | 43.67 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3026 | 43.41 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3027 | 43.16 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3028 | 42.87 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3029 | 42.46 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3030 | 41.79 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3031 | 41.51 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3032 | 41.75 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3033 | 42.04 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3034 | 41.58 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3035 | 40.62 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3036 | 40.69 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3037 | 41.29 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3038 | 41.29 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3039 | 41.12 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3040 | 41.00 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3041 | 41.02 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3042 | 41.35 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3043 | 41.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3044 | 40.40 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3045 | 39.84 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3046 | 39.95 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3047 | 40.17 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3048 | 40.30 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3049 | 40.35 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3050 | 40.44 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3051 | 40.28 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3052 | 40.30 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |


| 3053 | 40.57 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3054 | 40.19 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3055 | 39.92 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3056 | 40.49 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3057 | 40.62 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3058 | 40.43 | -4.26E-07 | 2.59E-05 | -8.76E-01 |
| 3059 | 41.25 | 4.26E-07 | -2.59E-05 | 8.76E-01 |
| 3060 | 40.83 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3061 | 40.73 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3062 | 40.57 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3063 | 40.13 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3064 | 39.45 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3065 | 38.89 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3066 | 38.22 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3067 | 37.22 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3068 | 36.54 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3069 | 36.12 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3070 | 35.64 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3071 | 34.99 | $\underline{1.28 \mathrm{E}-06}$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3072 | 34.12 | $\underline{1.28 E-06}$ | -7.77E-05 | $2.63 \mathrm{E}+00$ |
| 3073 | 33.44 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3074 | 33.59 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3075 | 33.37 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3076 | 33.07 | $\underline{1.28 E-06}$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3077 | 32.09 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3078 | 30.80 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3079 | $\underline{29.84}$ | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3080 | $\underline{28.97}$ | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3081 | 28.16 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3082 | $\underline{27.61}$ | 1.28E-06 | -7.77E-05 | $2.63 \mathrm{E}+00$ |
| 3083 | $\underline{26.78}$ | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |


| 3084 | $\underline{25.54}$ | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3085 | 24.41 | 1.28E-06 | -7.77E-05 | $2.63 \mathrm{E}+00$ |
| 3086 | $\underline{24.87}$ | 1.28E-06 | -7.77E-05 | $2.63 \mathrm{E}+00$ |
| 3087 | $\underline{24.99}$ | 1.28E-06 | -7.77E-05 | $2.63 \mathrm{E}+00$ |
| 3088 | $\underline{24.23}$ | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3089 | $\underline{23.70}$ | 1.28E-06 | -7.77E-05 | $2.63 \mathrm{E}+00$ |
| 3090 | $\underline{22.18}$ | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3091 | 19.98 | 1.28E-06 | -7.77E-05 | $2.63 \mathrm{E}+00$ |
| 3092 | 17.80 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3093 | 16.90 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3094 | 16.57 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3095 | 16.19 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3096 | 15.05 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3097 | 13.21 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3098 | 8.67 | $1.28 \mathrm{E}-06$ | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3099 | 4.71 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3100 | 2.23 | 1.28E-06 | -7.77E-05 | $\underline{2.63 E+00}$ |
| 3101 | 0.64 | 4.26E-07 | -2.59E-05 | 8.76E-01 |
| 3102 | 0.00 | -4.26E-07 | 2.59E-05 | -8.76E-01 |
| 3103 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3104 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3105 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3106 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3107 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3108 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3109 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3110 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3111 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3112 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3113 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3114 | $\underline{0.00}$ | $\underline{-1.28 E-06}$ | 7.77E-05 | -2.63E+00 |


| 3115 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3116 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3117 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3118 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3119 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3120 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3121 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3122 | 0.00 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3123 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3124 | 0.00 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3125 | 0.19 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3126 | 1.28 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3127 | 2.80 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3128 | 3.61 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3129 | 4.62 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3130 | 5.82 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3131 | 6.74 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3132 | 8.12 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3133 | 9.38 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3134 | 13.44 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3135 | 13.77 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3136 | 16.09 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3137 | 20.49 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3138 | $\underline{20.87}$ | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3139 | 22.66 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3140 | $\underline{25.16}$ | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3141 | 25.48 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3142 | 27.67 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3143 | 30.66 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3144 | 31.12 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3145 | 31.40 | -1.28E-06 | 7.77E-05 | -2.63E+00 |


| 3146 | 31.52 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3147 | 31.64 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3148 | 31.73 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3149 | 31.71 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3150 | 31.58 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3151 | 31.23 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3152 | 30.73 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3153 | 30.31 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3154 | 30.21 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3155 | 30.46 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3156 | 30.96 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3157 | 31.86 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3158 | 32.60 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3159 | 33.02 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3160 | 33.28 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3161 | 33.58 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3162 | 33.87 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3163 | 33.80 | -1.28E-06 | 7.77E-05 | -2.63E+00 |
| 3164 | 33.67 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3165 | 33.61 | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3166 | 33.83 | -1.28E-06 | 7.77E-05 | $\underline{-2.63 E+00}$ |
| 3167 | 34.04 | -1.28E-06 | 7.77E-05 | $-2.63 E+00$ |
| 3168 | $\underline{34.35}$ | -1.28E-06 | 7.77E-05 | $-2.63 \mathrm{E}+00$ |
| 3169 | $\underline{34.78}$ | $\underline{-3.25 E-07}$ | -6.69E-04 | $\underline{-2.39 E+00}$ |
| 3170 | $\underline{35.16}$ | $6.29 \mathrm{E}-07$ | -1.42E-03 | $-2.16 \mathrm{E}+00$ |
| 3171 | 35.44 | $1.58 \mathrm{E}-06$ | -2.16E-03 | $\underline{-1.92 E+00}$ |
| 3172 | $\underline{35.70}$ | $1.58 \mathrm{E}-06$ | -2.16E-03 | $\underline{-1.92 E+00}$ |
| 3173 | 36.00 | $1.58 \mathrm{E}-06$ | -2.16E-03 | $\underline{-1.92 E+00}$ |
| 3174 | $\underline{36.27}$ | $1.58 \mathrm{E}-06$ | -2.16E-03 | $\underline{-1.92 E+00}$ |
| 3175 | 36.40 | $1.58 \mathrm{E}-06$ | -2.16E-03 | -1.92E+00 |
| 3176 | $\underline{36.67}$ | $1.58 \mathrm{E}-06$ | -2.16E-03 | -1.92E+00 |

356

| 3177 | 37.21 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3178 | 38.28 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3179 | 39.97 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3180 | 41.42 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3181 | 41.56 | 5.28E-07 | -7.21E-04 | -6.40E-01 |
| 3182 | 41.33 | -5.28E-07 | 7.21E-04 | 6.40E-01 |
| 3183 | 40.73 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3184 | 40.08 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3185 | 39.34 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3186 | 38.76 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3187 | 38.35 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3188 | 37.79 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3189 | 37.03 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3190 | 35.29 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3191 | 34.03 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3192 | 33.20 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3193 | 32.55 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3194 | 32.27 | -1.58E-06 | $\underline{2.16 \mathrm{E}-03}$ | $1.92 \mathrm{E}+00$ |
| 3195 | 32.24 | -1.58E-06 | $\underline{2.16 \mathrm{E}-03}$ | $1.92 \mathrm{E}+00$ |
| 3196 | 32.19 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3197 | 31.26 | -1.58E-06 | $\underline{2.16 \mathrm{E}-03}$ | $1.92 \mathrm{E}+00$ |
| 3198 | $\underline{28.69}$ | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3199 | $\underline{25.33}$ | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3200 | $\underline{22.12}$ | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3201 | 19.64 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3202 | 18.09 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3203 | 17.06 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3204 | 16.91 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3205 | 17.48 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3206 | 18.65 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3207 | 19.24 | -1.58E-06 | $\underline{2.16 \mathrm{E}-03}$ | $1.92 \mathrm{E}+00$ |


| 3208 | 19.91 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 3209 | $\underline{20.18}$ | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3210 | 19.61 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3211 | 19.00 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3212 | 18.39 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3213 | 17.80 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3214 | 17.12 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3215 | 16.42 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3216 | 15.33 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3217 | 13.35 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3218 | 12.30 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3219 | 11.67 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3220 | 10.68 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3221 | 9.44 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3222 | 8.17 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3223 | 7.79 | -1.58E-06 | $2.16 \mathrm{E}-03$ | $1.92 \mathrm{E}+00$ |
| 3224 | 7.93 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3225 | 8.10 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3226 | 8.26 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3227 | 8.29 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3228 | 7.74 | -1.58E-06 | $\underline{2.16 E-03}$ | $1.92 \mathrm{E}+00$ |
| 3229 | 6.10 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3230 | 4.38 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3231 | 3.83 | -1.58E-06 | 2.16E-03 | $1.92 \mathrm{E}+00$ |
| 3232 | 3.59 | -5.28E-07 | 7.21E-04 | 6.40E-01 |
| 3233 | 3.94 | 5.28E-07 | -7.21E-04 | -6.40E-01 |
| 3234 | 4.66 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3235 | 5.23 | 1.58E-06 | -2.16E-03 | $\underline{-1.92 E+00}$ |
| 3236 | 5.84 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3237 | 6.50 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3238 | 6.49 | 1.58E-06 | -2.16E-03 | -1.92E+00 |


| 3239 | 7.41 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3240 | 8.51 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3241 | 8.99 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3242 | 9.10 | $1.58 \mathrm{E}-06$ | -2.16E-03 | -1.92E+00 |
| 3243 | 10.26 | $1.58 \mathrm{E}-06$ | -2.16E-03 | -1.92E+00 |
| 3244 | 10.20 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3245 | 9.78 | $1.58 \mathrm{E}-06$ | -2.16E-03 | $-1.92 \mathrm{E}+00$ |
| 3246 | 9.05 | 1.58E-06 | -2.16E-03 | $-1.92 \mathrm{E}+00$ |
| 3247 | 7.78 | 1.58E-06 | -2.16E-03 | -1.92E+00 |
| 3248 | 6.52 | $1.58 \mathrm{E}-06$ | -2.16E-03 | -1.92E+00 |
| 3249 | 5.82 | $\underline{2.10 E-06}$ | $\underline{-3.68 E-03}$ | -1.98E+00 |
| 3250 | 4.99 | $\underline{2.62 E-06}$ | -5.20E-03 | -2.05E+00 |
| 3251 | 4.66 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3252 | 5.29 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3253 | 6.09 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3254 | 6.54 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3255 | 6.42 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3256 | 6.29 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3257 | 6.44 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3258 | 6.70 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3259 | 6.93 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3260 | 7.26 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3261 | 7.86 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3262 | 8.54 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3263 | 8.49 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3264 | 7.97 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3265 | 7.28 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3266 | 6.47 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3267 | 5.76 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3268 | 5.62 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3269 | 6.79 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |


| 3270 | 8.32 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| :---: | :---: | :---: | :---: | :---: |
| 3271 | 9.08 | -1.04E-06 | $\underline{2.24 E-03}$ | 7.03E-01 |
| 3272 | 8.94 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3273 | 8.38 | $\underline{-3.13 E-06}$ | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3274 | 7.66 | -3.13E-06 | 6.72E-03 | $\underline{2.11 E+00}$ |
| 3275 | 6.97 | -3.13E-06 | 6.72E-03 | $\underline{2.11 E+00}$ |
| 3276 | 6.30 | -3.13E-06 | 6.72E-03 | $\underline{2.11 E+00}$ |
| 3277 | 5.74 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3278 | 4.92 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3279 | 3.34 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3280 | 0.54 | -1.04E-06 | 2.24E-03 | 7.03E-01 |
| 3281 | 0.00 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3282 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3283 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3284 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3285 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3286 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3287 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3288 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3289 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3290 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3291 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3292 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3293 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3294 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3295 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3296 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3297 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3298 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3299 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3300 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |


| 3301 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3302 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3303 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3304 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3305 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3306 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3307 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3308 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3309 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3310 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3311 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3312 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3313 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3314 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3315 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3316 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3317 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3318 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3319 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3320 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3321 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3322 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3323 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3324 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3325 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3326 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3327 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3328 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3329 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3330 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3331 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |


| 3332 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3333 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3334 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3335 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3336 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3337 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3338 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3339 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3340 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3341 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3342 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3343 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3344 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3345 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3346 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3347 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3348 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3349 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3350 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3351 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3352 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3353 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3354 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3355 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3356 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3357 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3358 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3359 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3360 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3361 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3362 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |


| 3363 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3364 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3365 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3366 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3367 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3368 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3369 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3370 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3371 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3372 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3373 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3374 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3375 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3376 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3377 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3378 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3379 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3380 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3381 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3382 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3383 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 E+00$ |
| 3384 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3385 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3386 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3387 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3388 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3389 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3390 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3391 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3392 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3393 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |


| 3394 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3395 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3396 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3397 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3398 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3399 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3400 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3401 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3402 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3403 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3404 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3405 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3406 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3407 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3408 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3409 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3410 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3411 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3412 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3413 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3414 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3415 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3416 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3417 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3418 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3419 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3420 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3421 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3422 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3423 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3424 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |


| 3425 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3426 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3427 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3428 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3429 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3430 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3431 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3432 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3433 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3434 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3435 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3436 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3437 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3438 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3439 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3440 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3441 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3442 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3443 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3444 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3445 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3446 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3447 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3448 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3449 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3450 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3451 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3452 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3453 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3454 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3455 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |


| 3456 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3457 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3458 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3459 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3460 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3461 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3462 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3463 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3464 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3465 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3466 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3467 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3468 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3469 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3470 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3471 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3472 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3473 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3474 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3475 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3476 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3477 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3478 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3479 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3480 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3481 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3482 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3483 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3484 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3485 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3486 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |


| 3487 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3488 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3489 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3490 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3491 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3492 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3493 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3494 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3495 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3496 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3497 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3498 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3499 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3500 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3501 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3502 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3503 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3504 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3505 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3506 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3507 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3508 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3509 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3510 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3511 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3512 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3513 | 0.00 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3514 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3515 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3516 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3517 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |


| 3518 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3519 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3520 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3521 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3522 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3523 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3524 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3525 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3526 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3527 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3528 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3529 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3530 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3531 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3532 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3533 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3534 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3535 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3536 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3537 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3538 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3539 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3540 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3541 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3542 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3543 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3544 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3545 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3546 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3547 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3548 | 0.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |


| 3549 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3550 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3551 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3552 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3553 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3554 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3555 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3556 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3557 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3558 | 0.49 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3559 | 2.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3560 | 2.83 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3561 | 3.62 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3562 | 4.91 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3563 | 5.41 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3564 | 6.38 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3565 | 7.69 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3566 | 8.06 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3567 | 12.12 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3568 | 13.12 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3569 | 13.79 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3570 | 14.11 | -1.04E-06 | 2.24E-03 | 7.03E-01 |
| 3571 | 13.18 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3572 | 11.93 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3573 | 9.43 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3574 | 5.10 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3575 | 2.51 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3576 | 1.80 | -1.04E-06 | 2.24E-03 | 7.03E-01 |
| 3577 | 1.74 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3578 | 2.16 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3579 | $\underline{2.17}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |


| 3580 | 2.00 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3581 | 2.03 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3582 | 2.12 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3583 | 2.77 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3584 | 3.33 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3585 | 3.59 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3586 | 3.51 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3587 | 3.59 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3588 | 3.92 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3589 | 4.04 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3590 | 3.83 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3591 | 4.09 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3592 | 4.63 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3593 | 4.96 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3594 | 5.26 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3595 | 6.86 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3596 | 7.63 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3597 | 8.03 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3598 | 11.34 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3599 | 12.50 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3600 | 12.76 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3601 | 15.98 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3602 | 19.37 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3603 | $\underline{20.08}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3604 | 20.65 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3605 | 20.68 | -1.04E-06 | $\underline{2.24 E-03}$ | 7.03E-01 |
| 3606 | 18.48 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3607 | 16.12 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3608 | 14.40 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3609 | 13.41 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3610 | 11.79 | $\underline{-3.13 E-06}$ | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |


| 3611 | 9.06 | -3.13E-06 | 6.72E-03 | $\underline{2.11 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3612 | 6.43 | $\underline{-3.13 E-06}$ | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3613 | 4.35 | $\underline{-3.13 E-06}$ | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3614 | 2.11 | -1.04E-06 | $\underline{2.24 E-03}$ | 7.03E-01 |
| 3615 | 0.00 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3616 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3617 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3618 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3619 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3620 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3621 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3622 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3623 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3624 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3625 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3626 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3627 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3628 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3629 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3630 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3631 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3632 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3633 | 0.11 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3634 | 1.02 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3635 | 1.96 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3636 | 2.33 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3637 | 2.50 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3638 | 2.81 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3639 | 3.51 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3640 | 4.14 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| $\underline{3641}$ | $\underline{5.08}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |


| 3642 | 5.14 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3643 | 6.93 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3644 | 8.06 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3645 | 8.63 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3646 | 12.65 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3647 | 13.06 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3648 | 14.07 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3649 | 17.83 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3650 | $\underline{20.25}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3651 | $\underline{20.28}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3652 | $\underline{22.69}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3653 | $\underline{24.95}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3654 | $\underline{24.78}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3655 | $\underline{26.50}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3656 | $\underline{29.27}$ | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3657 | 30.86 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3658 | 30.59 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3659 | 31.00 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3660 | 30.85 | -1.04E-06 | $\underline{2.24 E-03}$ | 7.03E-01 |
| 3661 | 30.33 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3662 | $\underline{29.98}$ | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3663 | $\underline{29.28}$ | -3.13E-06 | 6.72E-03 | $\underline{2.11 E+00}$ |
| 3664 | $\underline{27.92}$ | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3665 | $\underline{25.96}$ | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3666 | $\underline{24.56}$ | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3667 | $\underline{22.85}$ | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3668 | $\underline{20.96}$ | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3669 | 19.67 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3670 | 18.32 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3671 | 15.79 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3672 | 12.51 | $\underline{-3.13 E-06}$ | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |


| 3673 | 9.73 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 3674 | 7.50 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3675 | 5.34 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3676 | 3.39 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3677 | 2.14 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3678 | 0.73 | -1.04E-06 | $\underline{2.24 E-03}$ | 7.03E-01 |
| 3679 | 0.00 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3680 | 0.00 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3681 | 0.00 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3682 | 0.26 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3683 | 2.05 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3684 | 3.24 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3685 | 4.30 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3686 | 5.45 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3687 | 5.36 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3688 | $\underline{7.76}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3689 | 7.59 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3690 | $\underline{9.89}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3691 | 13.30 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3692 | 13.14 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3693 | 15.50 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3694 | 19.50 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3695 | $\underline{20.13}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3696 | $\underline{20.86}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3697 | $\underline{23.79}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3698 | $\underline{24.88}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3699 | $\underline{25.16}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3700 | $\underline{27.36}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3701 | 30.28 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3702 | 31.05 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3703 | 31.23 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |


| 3704 | 32.96 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3705 | 35.29 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3706 | 37.14 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3707 | 37.50 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3708 | 37.47 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3709 | 37.14 | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3710 | 37.67 | 3.13E-06 | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3711 | 37.68 | 1.04E-06 | -2.24E-03 | -7.03E-01 |
| 3712 | 37.52 | -1.04E-06 | $\underline{2.24 E-03}$ | 7.03E-01 |
| 3713 | 37.20 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3714 | 36.88 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 E+00}$ |
| 3715 | 36.45 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3716 | 35.98 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3717 | 35.45 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3718 | 34.98 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 E+00}$ |
| 3719 | 34.35 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3720 | 33.94 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3721 | 33.13 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3722 | 31.83 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3723 | 30.38 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3724 | $\underline{29.06}$ | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3725 | $\underline{27.94}$ | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 E+00}$ |
| 3726 | $\underline{27.13}$ | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3727 | $\underline{25.82}$ | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3728 | 23.60 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3729 | $\underline{21.48}$ | $\underline{-3.13 E-06}$ | $6.72 \mathrm{E}-03$ | $\underline{2.11 E+00}$ |
| 3730 | 19.84 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3731 | 18.54 | -3.13E-06 | 6.72E-03 | $2.11 \mathrm{E}+00$ |
| 3732 | 17.61 | $\underline{-3.13 E-06}$ | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3733 | 16.17 | -3.13E-06 | $6.72 \mathrm{E}-03$ | $\underline{2.11 \mathrm{E}+00}$ |
| 3734 | 13.88 | $\underline{-3.13 E-06}$ | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |


| 3735 | 11.44 | -3.13E-06 | 6.72E-03 | $\underline{2.11 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3736 | 9.74 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3737 | 8.06 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3738 | 6.77 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3739 | 5.41 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3740 | 4.04 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3741 | 2.53 | -3.13E-06 | 6.72E-03 | $\underline{2.11 \mathrm{E}+00}$ |
| 3742 | 1.29 | -1.04E-06 | 2.24E-03 | 7.03E-01 |
| 3743 | 0.00 | $1.04 \mathrm{E}-06$ | -2.24E-03 | -7.03E-01 |
| 3744 | 0.06 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3745 | 1.17 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3746 | 2.59 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3747 | 3.98 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3748 | 5.76 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3749 | 5.74 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3750 | 8.02 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3751 | 7.95 | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3752 | 10.40 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3753 | 13.35 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3754 | 13.34 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3755 | 16.13 | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3756 | $\underline{20.44}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3757 | $\underline{20.42}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3758 | $\underline{21.82}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3759 | $\underline{24.21}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3760 | $\underline{24.25}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |
| 3761 | $\underline{25.13}$ | 3.13E-06 | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3762 | $\underline{25.76}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3763 | $\underline{25.70}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3764 | $\underline{25.43}$ | 3.13E-06 | -6.72E-03 | -2.11E+00 |
| 3765 | $\underline{25.33}$ | 3.13E-06 | -6.72E-03 | $\underline{-2.11 E+00}$ |


| 3766 | $\underline{25.38}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3767 | $\underline{25.71}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | -2.11E+00 |
| 3768 | $\underline{26.57}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3769 | $\underline{27.69}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3770 | $\underline{28.36}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3771 | $\underline{28.38}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $-2.11 \mathrm{E}+00$ |
| 3772 | $\underline{28.85}$ | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3773 | 30.82 | $3.13 \mathrm{E}-06$ | -6.72E-03 | $\underline{-2.11 \mathrm{E}+00}$ |
| 3774 | 32.62 | -4.06E-06 | -1.60E-03 | $\underline{-2.20 E+00}$ |
| 3775 | 33.79 | -1.13E-05 | $3.53 \mathrm{E}-03$ | $\underline{-2.29 E+00}$ |
| 3776 | 34.91 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3777 | 35.71 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3778 | 35.98 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3779 | 35.85 | -1.84E-05 | 8.65E-03 | -2.39E+00 |
| 3780 | 36.07 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3781 | 36.40 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3782 | 36.43 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3783 | 36.39 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3784 | 36.54 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3785 | 36.79 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3786 | 37.01 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3787 | 37.40 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3788 | 37.66 | -1.84E-05 | 8.65E-03 | -2.39E+00 |
| 3789 | 37.98 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3790 | 38.18 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3791 | 38.56 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3792 | 38.96 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3793 | 39.52 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3794 | 40.19 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3795 | 40.94 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3796 | 41.75 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |


| 3797 | 42.52 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 3798 | 43.37 | -1.84E-05 | 8.65E-03 | -2.39E+00 |
| 3799 | 43.95 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3800 | 43.21 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3801 | 42.38 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3802 | 41.99 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3803 | 41.69 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3804 | 41.20 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3805 | 40.53 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3806 | 39.92 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3807 | 39.26 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3808 | 38.45 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3809 | 37.98 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3810 | 37.42 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3811 | 36.90 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3812 | 36.47 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3813 | 35.88 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3814 | 35.48 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3815 | 35.24 | -1.84E-05 | 8.65E-03 | $-2.39 \mathrm{E}+00$ |
| 3816 | 35.17 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3817 | 35.76 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3818 | 36.44 | -1.84E-05 | 8.65E-03 | $\underline{-2.39 E+00}$ |
| 3819 | 36.66 | -1.34E-05 | 6.65E-03 | -2.03E+00 |
| 3820 | 36.69 | -8.40E-06 | 4.64E-03 | $-1.67 \mathrm{E}+00$ |
| 3821 | 36.77 | -3.39E-06 | 2.64E-03 | $-1.31 \mathrm{E}+00$ |
| 3822 | 37.26 | -3.39E-06 | 2.64E-03 | $\underline{-1.31 \mathrm{E}+00}$ |
| 3823 | 37.60 | -3.39E-06 | 2.64E-03 | $-1.31 \mathrm{E}+00$ |
| 3824 | 37.79 | -3.39E-06 | 2.64E-03 | $-1.31 \mathrm{E}+00$ |
| 3825 | 37.96 | -3.39E-06 | 2.64E-03 | $\underline{-1.31 \mathrm{E}+00}$ |
| 3826 | 38.06 | -3.39E-06 | 2.64E-03 | $\underline{-1.31 \mathrm{E}+00}$ |
| 3827 | 38.25 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |


| 3828 | 38.32 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3829 | 38.34 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3830 | 38.46 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3831 | 38.15 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3832 | 37.72 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3833 | 37.09 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3834 | 36.43 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3835 | 35.67 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3836 | 35.20 | $\underline{-3.39 E-06}$ | $\underline{2.64 E-03}$ | $\underline{-1.31 E+00}$ |
| 3837 | 35.10 | $\underline{-3.39 E-06}$ | $\underline{2.64 E-03}$ | $\underline{-1.31 E+00}$ |
| 3838 | 35.10 | $\underline{-3.39 E-06}$ | $\underline{2.64 E-03}$ | $\underline{-1.31 E+00}$ |
| 3839 | 35.22 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3840 | 35.40 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 E+00}$ |
| 3841 | 35.02 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3842 | 34.96 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3843 | 34.93 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3844 | 34.89 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3845 | 34.72 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3846 | 34.69 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3847 | 34.80 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3848 | 34.76 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3849 | 34.65 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3850 | 34.28 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3851 | 34.02 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3852 | 33.78 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3853 | 33.70 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3854 | 33.72 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3855 | 33.65 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3856 | 33.53 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3857 | 33.35 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3858 | 33.43 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |


| 3859 | 33.78 | -3.39E-06 | $2.64 \mathrm{E}-03$ | -1.31E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3860 | 34.24 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3861 | 34.76 | -3.39E-06 | $\underline{2.64 E-03}$ | $-1.31 \mathrm{E}+00$ |
| 3862 | 35.05 | -3.39E-06 | 2.64E-03 | $-1.31 \mathrm{E}+00$ |
| 3863 | 35.16 | -3.39E-06 | 2.64E-03 | $-1.31 \mathrm{E}+00$ |
| 3864 | 35.28 | -3.39E-06 | 2.64E-03 | $-1.31 \mathrm{E}+00$ |
| 3865 | 35.01 | -3.39E-06 | $2.64 \mathrm{E}-03$ | $-1.31 \mathrm{E}+00$ |
| 3866 | 34.79 | -3.39E-06 | $2.64 \mathrm{E}-03$ | $-1.31 \mathrm{E}+00$ |
| 3867 | 34.42 | -3.39E-06 | $2.64 \mathrm{E}-03$ | $-1.31 \mathrm{E}+00$ |
| 3868 | 34.04 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3869 | 33.70 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3870 | 33.59 | -3.39E-06 | $2.64 \mathrm{E}-03$ | $-1.31 \mathrm{E}+00$ |
| 3871 | 33.65 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3872 | 33.72 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3873 | 33.78 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3874 | 33.80 | -3.39E-06 | $\underline{2.64 E-03}$ | $\underline{-1.31 \mathrm{E}+00}$ |
| 3875 | 33.89 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3876 | 34.36 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3877 | 34.57 | -3.39E-06 | $\underline{2.64 E-03}$ | -1.31E+00 |
| 3878 | 34.77 | -1.13E-06 | 8.80E-04 | -4.36E-01 |
| 3879 | 34.44 | 1.13E-06 | -8.80E-04 | $4.36 \mathrm{E}-01$ |
| 3880 | 33.26 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3881 | 31.65 | $3.39 \mathrm{E}-06$ | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3882 | $\underline{29.97}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3883 | 28.47 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3884 | $\underline{27.48}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3885 | $\underline{26.74}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3886 | $\underline{26.07}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3887 | 25.15 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3888 | $\underline{24.10}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3889 | $\underline{23.83}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |


| 3890 | 24.20 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 3891 | $\underline{25.07}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3892 | 25.66 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3893 | $\underline{25.51}$ | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3894 | $\underline{22.52}$ | $3.39 \mathrm{E}-06$ | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3895 | 17.98 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3896 | 14.07 | $3.39 \mathrm{E}-06$ | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3897 | 10.09 | $3.39 \mathrm{E}-06$ | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3898 | 5.72 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3899 | 3.24 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3900 | 0.61 | $3.39 \mathrm{E}-06$ | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3901 | 0.00 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3902 | 0.00 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3903 | 0.00 | $3.39 \mathrm{E}-06$ | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3904 | 0.00 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3905 | 0.00 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3906 | 0.00 | 3.39E-06 | -2.64E-03 | $1.31 \mathrm{E}+00$ |
| 3907 | 0.00 | $6.56 \mathrm{E}-06$ | -6.28E-03 | $3.32 \mathrm{E}+00$ |
| 3908 | 0.00 | $\underline{9.73 E-06}$ | -9.93E-03 | $5.33 \mathrm{E}+00$ |
| 3909 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3910 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3911 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3912 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3913 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3914 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3915 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3916 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3917 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3918 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3919 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3920 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |


| 3921 | 0.66 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 3922 | 1.59 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3923 | 2.33 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3924 | 2.69 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3925 | 2.52 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3926 | 1.77 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3927 | 0.66 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3928 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3929 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3930 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3931 | 0.32 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3932 | 1.27 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3933 | 2.24 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3934 | 2.84 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3935 | 3.17 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 3936 | 3.37 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3937 | 3.39 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3938 | 3.16 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3939 | 2.89 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3940 | 2.72 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3941 | 2.11 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3942 | 1.33 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3943 | 0.85 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3944 | 0.42 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3945 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3946 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3947 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 3948 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3949 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3950 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3951 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |


| 3952 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 3953 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3954 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3955 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3956 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 3957 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3958 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3959 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3960 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3961 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3962 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3963 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3964 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3965 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3966 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3967 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3968 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3969 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3970 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3971 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3972 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3973 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3974 | 0.00 | $1.29 \mathrm{E}-05$ | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3975 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3976 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3977 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3978 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3979 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3980 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3981 | 0.00 | $1.29 \mathrm{E}-05$ | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3982 | 0.00 | $1.29 \mathrm{E}-05$ | -1.36E-02 | $7.35 \mathrm{E}+00$ |


| 3983 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 3984 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3985 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3986 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3987 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3988 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3989 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3990 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3991 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 3992 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 3993 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3994 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3995 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3996 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3997 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 3998 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 3999 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4000 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4001 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4002 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 4003 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4004 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 4005 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4006 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4007 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4008 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4009 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4010 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4011 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4012 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4013 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |


| 4014 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4015 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4016 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4017 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4018 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 4019 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4020 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4021 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4022 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4023 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 4024 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4025 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |
| 4026 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4027 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4028 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4029 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4030 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4031 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4032 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4033 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4034 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4035 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4036 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4037 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4038 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4039 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 E+00}$ |
| 4040 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4041 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4042 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4043 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4044 | 0.00 | 1.29E-05 | -1.36E-02 | 7.35E+00 |


| $\underline{4045}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| :--- | :--- | :--- | :--- | :--- |
| $\underline{4046}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4047}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4048}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4049}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4050}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4051}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4052}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4053}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4054}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4055}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4056}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4057}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4058}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4059}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4060}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4061}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4062}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4063}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4064}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4065}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4066}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4067}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4068}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4069}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4070}$ | $\underline{0.00}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4071}$ | $\underline{0.02}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4072}$ | $\underline{0.43}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{4073}$ | $\underline{0.80}$ | $\underline{1.29 \mathrm{E}-05}$ | $\underline{-1.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |
| $\underline{7.36 \mathrm{E}-02}$ | $\underline{7.35 \mathrm{E}+00}$ |  |  |  |


| 4076 | 1.34 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4077 | 1.03 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4078 | 0.65 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4079 | 0.30 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4080 | 0.26 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4081 | 0.31 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4082 | 0.92 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4083 | 1.84 | $1.29 \mathrm{E}-05$ | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4084 | 1.92 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4085 | $\underline{2.03}$ | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4086 | 2.46 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4087 | 2.47 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4088 | $\underline{2.68}$ | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4089 | 2.30 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4090 | 1.20 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4091 | 0.41 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4092 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4093 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4094 | 0.00 | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4095 | 0.00 | $1.29 \mathrm{E}-05$ | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4096 | $\underline{0.00}$ | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4097 | 0.00 | 1.29E-05 | -1.36E-02 | $7.35 \mathrm{E}+00$ |
| 4098 | $\underline{0.00}$ | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4099 | $\underline{0.00}$ | 1.29E-05 | -1.36E-02 | $\underline{7.35 \mathrm{E}+00}$ |
| 4100 | $\underline{0.00}$ | 1.17E-05 | -1.23E-02 | $6.55 \mathrm{E}+00$ |
| 4101 | 0.00 | 1.06E-05 | -1.10E-02 | $\underline{5.75 E+00}$ |
| 4102 | $\underline{0.00}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4103 | $\underline{0.00}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4104 | $\underline{0.00}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4105 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4106 | $\underline{0.00}$ | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |


| 4107 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4108 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4109 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4110 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4111 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4112 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4113 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4114 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4115 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4116 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4117 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4118 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4119 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4120 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4121 | $\underline{0.05}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4122 | 0.20 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4123 | 0.38 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4124 | 0.54 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4125 | 0.73 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4126 | 1.23 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4127 | $\underline{2.10}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4128 | $\underline{2.83}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4129 | 3.31 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4130 | 3.78 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4131 | 4.19 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4132 | 4.44 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4133 | 4.77 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4134 | 4.64 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4135 | 4.56 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4136 | 4.75 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4137 | 4.80 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |


| 4138 | 4.98 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4139 | 5.31 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4140 | 5.66 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4141 | 5.79 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4142 | 5.83 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4143 | 5.61 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4144 | 5.30 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4145 | 4.62 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4146 | $\underline{2.84}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4147 | 1.03 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4148 | 0.44 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4149 | 0.44 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4150 | 1.04 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4151 | $\underline{2.07}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4152 | 2.69 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4153 | $\underline{2.99}$ | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4154 | 3.32 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4155 | 3.52 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4156 | 3.57 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4157 | 3.69 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4158 | 3.68 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4159 | 3.75 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4160 | 3.73 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4161 | 3.66 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4162 | 3.57 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4163 | 3.44 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4164 | 3.37 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4165 | 3.35 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4166 | 3.41 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4167 | 3.41 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4168 | 3.33 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |


| 4169 | 3.20 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4170 | 3.01 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4171 | 2.88 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4172 | 2.85 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4173 | 2.66 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4174 | 2.19 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4175 | 1.22 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4176 | 0.53 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4177 | 0.26 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4178 | 0.04 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4179 | 0.82 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4180 | 1.96 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4181 | $\underline{2.65}$ | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4182 | $\underline{2.86}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4183 | $\underline{2.98}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4184 | 3.01 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4185 | 3.20 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4186 | 3.16 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4187 | 3.02 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4188 | $\underline{2.97}$ | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4189 | $\underline{2.89}$ | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4190 | $\underline{2.77}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4191 | $\underline{2.48}$ | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4192 | 1.81 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4193 | 1.27 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4194 | 1.01 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4195 | $\underline{0.93}$ | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4196 | 1.41 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4197 | 2.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4198 | 2.30 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4199 | $\underline{2.32}$ | $\underline{9.39 E-06}$ | $\underline{-9.75 E-03}$ | $4.96 \mathrm{E}+00$ |


| 4200 | 2.40 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4201 | 2.69 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4202 | 2.58 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4203 | 2.18 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4204 | 1.79 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4205 | 1.59 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4206 | 1.44 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4207 | 1.29 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4208 | 1.24 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4209 | 1.21 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4210 | 1.01 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4211 | 0.45 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4212 | 0.07 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4213 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4214 | 0.06 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4215 | 0.24 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4216 | 0.44 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4217 | 0.64 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4218 | 0.78 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4219 | 0.74 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4220 | 0.72 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4221 | 0.81 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4222 | 1.05 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4223 | 1.06 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4224 | 1.04 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4225 | 0.99 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4226 | 0.88 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4227 | 1.12 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4228 | 1.03 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4229 | 0.55 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| $\underline{4230}$ | 0.01 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |


| 4231 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4232 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4233 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4234 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4235 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4236 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4237 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4238 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4239 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4240 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4241 | 0.00 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4242 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4243 | 0.00 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4244 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4245 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4246 | 0.00 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4247 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4248 | 0.00 | 9.39E-06 | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4249 | 0.00 | $\underline{9.39 E-06}$ | -9.75E-03 | $4.96 \mathrm{E}+00$ |
| 4250 | 0.00 | $\underline{9.57 E-06}$ | -9.95E-03 | $4.82 \mathrm{E}+00$ |
| 4251 | 0.00 | $\underline{9.75 E-06}$ | -1.01E-02 | $4.68 \mathrm{E}+00$ |
| 4252 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4253 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4254 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4255 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4256 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4257 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4258 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4259 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4260 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4261 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4262 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4263 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4264 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4265 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4266 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4267 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4268 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4269 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4270 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4271 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4272 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4273 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4274 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4275 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4276 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4277 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4278 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4279 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4280 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4281 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4282 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4283 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4284 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4285 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4286 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4287 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4288 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4289 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4290 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4291 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4292 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4293 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4294 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4295 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4296 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4297 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4298 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4299 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4300 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4301 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4302 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4303 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4304 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4305 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4306 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4307 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4308 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4309 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4310 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4311 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4312 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4313 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4314 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4315 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4316 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4317 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4318 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4319 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4320 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4321 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4322 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4323 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4324 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4325 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4326 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4327 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4328 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4329 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4330 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4331 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4332 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4333 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4334 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4335 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4336 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4337 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4338 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4339 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4340 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4341 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4342 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4343 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4344 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4345 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4346 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4347 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4348 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4349 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4350 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4351 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4352 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4353 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4354 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4355 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4356 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4357 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4358 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4359 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4360 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4361 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4362 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4363 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4364 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4365 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4366 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4367 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4368 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4369 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4370 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4371 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4372 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| $\underline{4373}$ | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4374 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4375 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4376 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4377 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4378 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4379 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4380 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4381 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4382 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4383 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4384 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4385 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| $\underline{4386}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| :--- | :--- | :--- | :--- | :--- |
| $\underline{4387}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4388}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4389}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4390}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4391}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4392}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4393}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4394}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4395}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4396}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4397}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4398}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4399}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4400}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4401}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4402}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4403}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4404}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4405}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4406}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4407}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4408}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4409}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4410}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4411}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4412}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4413}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{4414}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |
| $\underline{-1.03 \mathrm{E}-02}$ | $\underline{4.55 \mathrm{E}+00}$ |  |  |  |
| $\underline{4.55 \mathrm{E}+00}$ |  |  |  |  |


| 4417 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4418 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4419 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4420 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4421 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4422 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4423 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4424 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4425 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4426 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4427 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4428 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4429 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4430 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4431 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4432 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4433 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4434 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4435 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4436 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4437 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4438 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4439 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4440 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4441 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4442 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4443 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4444 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4445 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4446 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4447 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4448 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4449 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4450 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4451 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4452 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4453 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4454 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4455 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4456 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4457 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4458 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4459 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4460 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4461 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4462 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4463 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4464 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4465 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4466 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4467 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4468 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4469 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4470 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4471 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4472 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4473 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4474 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4475 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4476 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4477 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4478 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4479 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4480 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4481 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4482 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4483 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4484 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4485 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4486 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4487 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4488 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4489 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4490 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4491 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4492 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4493 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4494 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4495 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4496 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4497 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4498 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4499 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4500 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4501 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4502 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| $\underline{4503}$ | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4504 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4505 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4506 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4507 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4508 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| $\underline{4509}$ | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4510 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4511 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4512 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4513 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4514 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4515 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4516 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4517 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4518 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4519 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4520 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4521 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4522 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4523 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4524 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4525 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4526 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4527 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4528 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4529 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4530 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4531 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4532 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4533 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4534 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4535 | $\underline{0.00}$ | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4536 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4537 | $\underline{0.00}$ | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4538 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4539 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4540 | $\underline{0.00}$ | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4541 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4542 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4543 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4544 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4545 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4546 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4547 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4548 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4549 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4550 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4551 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4552 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4553 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4554 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4555 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4556 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4557 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4558 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4559 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4560 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4561 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4562 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4563 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4564 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4565 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4566 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4567 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4568 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4569 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4570 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4571 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4572 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4573 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4574 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4575 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4576 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4577 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4578 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4579 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4580 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4581 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4582 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4583 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4584 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4585 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4586 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4587 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4588 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4589 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4590 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4591 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4592 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4593 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4594 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4595 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4596 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4597 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4598 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4599 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4600 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4601 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4602 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4603 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4604 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4605 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4606 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4607 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4608 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4609 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4610 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4611 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4612 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4613 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4614 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4615 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4616 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4617 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4618 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4619 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4620 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4621 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4622 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4623 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4624 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4625 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4626 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4627 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4628 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4629 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4630 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4631 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4632 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4633 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4634 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4635 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4636 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4637 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4638 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4639 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4640 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4641 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4642 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4643 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4644 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4645 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4646 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4647 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4648 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4649 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4650 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4651 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4652 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4653 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4654 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4655 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4656 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4657 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4658 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4659 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4660 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4661 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4662 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4663 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4664 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |


| 4665 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4666 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4667 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4668 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4669 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4670 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4671 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4672 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4673 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4674 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4675 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4676 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4677 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4678 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4679 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4680 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4681 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4682 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4683 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4684 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4685 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4686 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4687 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4688 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4689 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4690 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4691 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4692 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4693 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4694 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4695 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4696 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4697 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4698 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4699 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4700 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4701 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4702 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4703 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4704 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4705 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4706 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4707 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4708 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4709 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4710 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4711 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4712 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4713 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4714 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4715 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4716 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4717 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4718 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4719 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4720 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4721 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4722 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4723 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4724 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4725 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4726 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4727 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4728 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4729 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4730 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4731 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4732 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4733 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4734 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4735 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4736 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4737 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4738 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4739 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4740 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4741 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4742 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4743 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4744 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4745 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4746 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4747 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4748 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4749 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4750 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4751 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4752 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4753 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4754 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4755 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4756 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4757 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4758 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4759 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4760 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4761 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4762 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4763 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4764 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4765 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4766 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4767 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4768 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4769 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4770 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4771 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4772 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4773 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4774 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4775 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4776 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4777 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4778 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4779 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4780 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4781 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4782 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4783 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4784 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4785 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4786 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4787 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4788 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4789 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4790 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4791 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4792 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4793 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4794 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4795 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4796 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4797 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4798 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4799 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4800 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4801 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4802 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4803 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4804 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4805 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4806 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4807 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4808 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4809 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4810 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4811 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4812 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4813 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4814 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4815 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4816 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4817 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4818 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4819 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4820 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4821 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4822 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4823 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4824 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4825 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4826 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4827 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4828 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4829 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4830 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4831 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4832 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4833 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4834 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4835 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4836 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4837 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4838 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4839 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4840 | 0.00 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4841 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4842 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4843 | $\underline{0.00}$ | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4844 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4845 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4846 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4847 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4848 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4849 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4850 | $\underline{0.00}$ | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4851 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4852 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4853 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4854 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4855 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4856 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4857 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4858 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4859 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4860 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4861 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4862 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4863 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4864 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4865 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4866 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4867 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4868 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4869 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4870 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4871 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4872 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4873 | 0.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4874 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4875 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4876 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4877 | 0.40 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4878 | 1.15 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4879 | 1.82 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4880 | 2.12 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4881 | $\underline{2.56}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4882 | 2.83 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4883 | 2.94 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4884 | 3.14 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4885 | 3.52 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4886 | 4.07 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4887 | 4.76 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4888 | 5.16 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4889 | 5.44 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4890 | 6.08 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4891 | 6.49 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4892 | 7.04 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4893 | 7.06 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4894 | 7.30 | $\underline{9.92 E-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4895 | 7.15 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4896 | 6.79 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4897 | 6.08 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4898 | 5.20 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4899 | 4.00 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4900 | 2.69 | 9.92E-06 | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4901 | 1.30 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| $\underline{4902}$ | 0.37 | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $\underline{4.55 E+00}$ |
| 4903 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4904 | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| $\underline{4905}$ | $\underline{0.00}$ | $\underline{9.92 \mathrm{E}-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| $\underline{4906}$ | $\underline{0.00}$ | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4907 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4908 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4909 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4910 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4911 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| $\underline{4912}$ | $\underline{0.00}$ | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |


| 4913 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4914 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4915 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4916 | 0.00 | $\underline{9.92 E-06}$ | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4917 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4918 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4919 | 0.00 | 9.92E-06 | -1.03E-02 | $4.55 \mathrm{E}+00$ |
| 4920 | 0.00 | 9.40E-06 | -9.78E-03 | $4.27 \mathrm{E}+00$ |
| 4921 | 0.00 | 8.88E-06 | -9.20E-03 | $3.99 \mathrm{E}+00$ |
| 4922 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4923 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4924 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4925 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4926 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4927 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4928 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4929 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4930 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4931 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4932 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4933 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4934 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4935 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{4936}$ | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4937 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4938 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{4939}$ | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4940 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4941 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4942 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{4943}$ | 0.00 | $\underline{8.35 \mathrm{E}-06}$ | -8.63E-03 | $\underline{3.71 E+00}$ |


| 4944 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| $\underline{4945}$ | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4946 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{4947}$ | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4948 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4949 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4950 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4951 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4952 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4953 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4954 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |
| $\underline{4955}$ | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |
| 4956 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4957 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4958 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4959 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |
| $\underline{4960}$ | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4961 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4962 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4963 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4964 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |
| $\underline{4965}$ | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 4966 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4967 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4968 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{4969}$ | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |
| $\underline{4970}$ | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 4971 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4972 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4973 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{4974}$ | $\underline{0.00}$ | $8.35 \mathrm{E}-06$ | -8.63E-03 | $\underline{3.71 E+00}$ |


| 4975 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 4976 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4977 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4978 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4979 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4980 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4981 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4982 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4983 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 4984 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4985 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 4986 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4987 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 4988 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |
| 4989 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 4990 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4991 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4992 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4993 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4994 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4995 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |
| 4996 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4997 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 4998 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{4999}$ | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5000 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5001 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5002 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5003 | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5004 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{5005}$ | $\underline{0.00}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |


| 5006 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 5007 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5008 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5009 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5010 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5011 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5012 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5013 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5014 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5015 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5016 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5017 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5018 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5019 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5020 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5021 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5022 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5023 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5024 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5025 | 0.00 | 8.35E-06 | $\underline{-8.63 E-03}$ | $3.71 \mathrm{E}+00$ |
| 5026 | $\underline{0.00}$ | 8.35E-06 | $\underline{-8.63 E-03}$ | $\underline{3.71 E+00}$ |
| 5027 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5028 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5029 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5030 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5031 | 0.00 | 8.35E-06 | $\underline{-8.63 E-03}$ | $3.71 \mathrm{E}+00$ |
| 5032 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5033 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5034 | 0.00 | 8.35E-06 | $\underline{-8.63 E-03}$ | $\underline{3.71 E+00}$ |
| 5035 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5036 | 0.00 | 8.35E-06 | $\underline{-8.63 E-03}$ | $\underline{3.71 \mathrm{E}+00}$ |


| 5037 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 5038 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5039 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5040 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5041 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5042 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5043 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5044 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5045 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 5046 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5047 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5048 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5049 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5050 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5051 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5052 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5053 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5054 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5055 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5056 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5057 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5058 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| $\underline{5059}$ | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5060 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5061 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5062 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5063 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5064 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5065 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5066 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5067 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |


| 5068 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 5069 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5070 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5071 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5072 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5073 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5074 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5075 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5076 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5077 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5078 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5079 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5080 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5081 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5082 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5083 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5084 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5085 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5086 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5087 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5088 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5089 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5090 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5091 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5092 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5093 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5094 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5095 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5096 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5097 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5098 | 0.00 | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |


| 5099 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 5100 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5101 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5102 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5103 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5104 | 0.00 | $8.35 \mathrm{E}-06$ | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5105 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5106 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5107 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5108 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5109 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5110 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5111 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5112 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5113 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5114 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5115 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5116 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5117 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5118 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5119 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5120 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5121 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5122 | 0.00 | 8.35E-06 | $\underline{-8.63 E-03}$ | $3.71 \mathrm{E}+00$ |
| 5123 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5124 | 0.00 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5125 | 0.07 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5126 | 0.65 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5127 | 1.29 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5128 | 1.88 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5129 | $\underline{2.48}$ | 8.35E-06 | -8.63E-03 | $\underline{3.71 E+00}$ |


| 5130 | 3.16 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 5131 | 3.81 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5132 | 4.25 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5133 | 4.71 | 8.35E-06 | -8.63E-03 | $\underline{3.71 \mathrm{E}+00}$ |
| 5134 | 4.87 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5135 | 4.65 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5136 | 5.19 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5137 | 5.66 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5138 | 6.05 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5139 | 6.22 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5140 | 6.26 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5141 | 6.10 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5142 | 5.91 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5143 | 5.66 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5144 | 5.51 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5145 | 5.42 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5146 | 5.44 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5147 | 5.70 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5148 | 5.90 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5149 | 6.21 | 8.35E-06 | -8.63E-03 | $3.71 \mathrm{E}+00$ |
| 5150 | 6.65 | $\underline{2.78 \mathrm{E}-06}$ | -2.88E-03 | $1.24 \mathrm{E}+00$ |
| 5151 | 6.84 | -2.78E-06 | 2.88E-03 | $-1.24 \mathrm{E}+00$ |
| 5152 | 6.54 | -8.35E-06 | 8.63E-03 | -3.71E+00 |
| 5153 | 5.94 | -8.35E-06 | 8.63E-03 | -3.71E+00 |
| 5154 | 5.45 | $\underline{-8.35 \mathrm{E}-06}$ | 8.63E-03 | $\underline{-3.71 E+00}$ |
| 5155 | 4.74 | $\underline{-8.35 \mathrm{E}-06}$ | 8.63E-03 | $\underline{-3.71 E+00}$ |
| 5156 | 3.66 | -8.35E-06 | 8.63E-03 | -3.71E+00 |
| 5157 | 2.44 | -8.35E-06 | 8.63E-03 | $\underline{-3.71 E+00}$ |
| 5158 | 1.55 | -8.35E-06 | 8.63E-03 | $\underline{-3.71 E+00}$ |
| 5159 | 1.16 | -8.35E-06 | 8.63E-03 | $\underline{-3.71 E+00}$ |
| 5160 | 0.82 | -8.35E-06 | 8.63E-03 | -3.71E+00 |


| 5161 | 0.52 | -2.56E-06 | $2.66 \mathrm{E}-03$ | -1.37E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 5162 | 0.59 | $3.24 \mathrm{E}-06$ | -3.31E-03 | 9.69E-01 |
| 5163 | 1.18 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5164 | $\underline{2.06}$ | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5165 | 2.30 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5166 | $\underline{2.34}$ | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5167 | 2.39 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5168 | 2.45 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5169 | 2.42 | 9.03E-06 | $\underline{-9.28 E-03}$ | $3.31 \mathrm{E}+00$ |
| 5170 | 2.28 | 9.03E-06 | $\underline{-9.28 E-03}$ | $3.31 \mathrm{E}+00$ |
| 5171 | 2.49 | 9.03E-06 | $\underline{-9.28 E-03}$ | $3.31 \mathrm{E}+00$ |
| 5172 | 2.37 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5173 | 2.67 | 9.03E-06 | $\underline{-9.28 E-03}$ | $3.31 \mathrm{E}+00$ |
| 5174 | 2.73 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5175 | $\underline{2.75}$ | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5176 | $\underline{2.75}$ | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5177 | $\underline{2.75}$ | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5178 | $\underline{2.75}$ | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5179 | 2.80 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5180 | 3.27 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5181 | 3.83 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5182 | 4.51 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5183 | 4.83 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5184 | 4.73 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5185 | 4.54 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5186 | 4.79 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5187 | 4.83 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5188 | 4.94 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5189 | 4.97 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5190 | 4.97 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5191 | 4.96 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |


| 5192 | 4.95 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| :---: | :---: | :---: | :---: | :---: |
| 5193 | 4.95 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5194 | 4.94 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5195 | 5.02 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5196 | 5.66 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5197 | 6.54 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5198 | 7.24 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5199 | 7.05 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5200 | 7.90 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5201 | 9.27 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5202 | $\underline{9.92}$ | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5203 | 10.23 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5204 | 10.89 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5205 | 11.64 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5206 | 12.44 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5207 | 13.15 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5208 | 13.24 | 9.03E-06 | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5209 | 12.47 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5210 | 13.18 | $\underline{9.03 E-06}$ | -9.28E-03 | $3.31 \mathrm{E}+00$ |
| 5211 | 14.38 | 3.01E-06 | -3.09E-03 | $1.10 \mathrm{E}+00$ |
| $\underline{5212}$ | 14.30 | -3.01E-06 | 3.09E-03 | -1.10E+00 |
| 5213 | 13.30 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| $\underline{5214}$ | 11.48 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| $\underline{5215}$ | $\underline{9.06}$ | -9.03E-06 | 9.28E-03 | $\underline{-3.31 E+00}$ |
| 5216 | 6.13 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5217 | 3.32 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| $\underline{5218}$ | 1.29 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5219 | 0.34 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5220 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5221 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5222 | $\underline{0.00}$ | -9.03E-06 | 9.28E-03 | -3.31E+00 |


| 5223 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 5224 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5225 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5226 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5227 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5228 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5229 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5230 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5231 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5232 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5233 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5234 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5235 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5236 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5237 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5238 | $\underline{0.00}$ | -9.03E-06 | 9.28E-03 | $-3.31 \mathrm{E}+00$ |
| 5239 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5240 | 0.00 | -9.03E-06 | $\underline{9.28 E-03}$ | $\underline{-3.31 E+00}$ |
| 5241 | 0.00 | -9.03E-06 | 9.28E-03 | $\underline{-3.31 E+00}$ |
| 5242 | 0.00 | -9.03E-06 | $\underline{9.28 E-03}$ | $\underline{-3.31 E+00}$ |
| 5243 | 0.00 | -9.03E-06 | $\underline{9.28 E-03}$ | -3.31E+00 |
| 5244 | 0.00 | -9.03E-06 | 9.28E-03 | -3.31E+00 |
| 5245 | 0.00 | -9.03E-06 | $\underline{9.28 E-03}$ | -3.31E+00 |
| 5246 | 0.00 | -9.03E-06 | $\underline{9.28 E-03}$ | $\underline{-3.31 E+00}$ |
| 5247 | 0.00 | -9.03E-06 | $\underline{9.28 \mathrm{E}-03}$ | -3.31E+00 |
| 5248 | 0.00 | -9.03E-06 | $\underline{9.28 \mathrm{E}-03}$ | -3.31E+00 |
| 5249 | 0.00 | -9.03E-06 | $\underline{9.28 \mathrm{E}-03}$ | -3.31E+00 |
| 5250 | 0.00 | -7.32E-07 | 8.21E-04 | -3.59E-01 |
| 5251 | 0.00 | 7.56E-06 | -7.63E-03 | $\underline{2.59 E+00}$ |
| 5252 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| $\underline{5253}$ | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |


| 5254 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 5255 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5256 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5257 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5258 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5259 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5260 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5261 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5262 | 0.00 | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5263 | 0.00 | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5264 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5265 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5266 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5267 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5268 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5269 | 0.00 | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5270 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5271 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5272 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5273 | 0.00 | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5274 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5275 | 0.00 | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5276 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5277 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5278 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5279 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5280 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5281 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5282 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5283 | 0.00 | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5284 | 0.49 | 1.59E-05 | -1.61E-02 | 5.54E+00 |


| 5285 | 1.56 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 5286 | 2.36 | 1.59E-05 | -1.61E-02 | $5.54 \mathrm{E}+00$ |
| 5287 | 2.62 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5288 | 2.35 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5289 | 1.80 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5290 | 0.99 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5291 | 0.20 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5292 | 0.00 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5293 | 0.41 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5294 | $\underline{2.08}$ | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5295 | 3.52 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5296 | 4.78 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5297 | 4.95 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5298 | 4.03 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5299 | 4.78 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5300 | 6.65 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5301 | 7.86 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5302 | 7.98 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5303 | 8.70 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5304 | 11.22 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5305 | 12.14 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5306 | 11.42 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5307 | 11.95 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5308 | 13.53 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5309 | 15.51 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5310 | 16.26 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5311 | 16.50 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5312 | 16.16 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5313 | 16.70 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5314 | 17.65 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |
| 5315 | 19.03 | 1.59E-05 | -1.61E-02 | $\underline{5.54 E+00}$ |


| 5316 | $\underline{20.76}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 5317 | $\underline{22.06}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5318 | $\underline{22.66}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5319 | $\underline{23.82}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5320 | $\underline{25.15}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5321 | $\underline{25.84}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5322 | $\underline{26.27}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5323 | $\underline{26.99}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5324 | $\underline{27.09}$ | 1.59E-05 | -1.61E-02 | 5.54E+00 |
| 5325 | $\underline{26.91}$ | 5.29E-06 | -5.36E-03 | $1.85 \mathrm{E}+00$ |
| 5326 | $\underline{26.76}$ | -5.29E-06 | 5.36E-03 | -1.85E+00 |
| 5327 | $\underline{26.42}$ | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5328 | $\underline{25.95}$ | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5329 | $\underline{24.87}$ | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5330 | $\underline{23.00}$ | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5331 | $\underline{20.44}$ | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5332 | 17.84 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5333 | 16.00 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5334 | 15.03 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5335 | 14.64 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5336 | 14.48 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5337 | 13.98 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5338 | 13.14 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5339 | 12.28 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5340 | 11.86 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5341 | 11.81 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5342 | 11.62 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5343 | 11.63 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5344 | 11.67 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5345 | 11.48 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |
| 5346 | 11.03 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 E+00}$ |


| 5347 | 10.54 | -1.59E-05 | $1.61 \mathrm{E}-02$ | $\underline{-5.54 \mathrm{E}+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 5348 | 10.04 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5349 | 9.90 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5350 | 9.88 | -1.59E-05 | $1.61 \mathrm{E}-02$ | $\underline{-5.54 \mathrm{E}+00}$ |
| 5351 | 9.63 | -1.59E-05 | 1.61E-02 | $\underline{-5.54 \mathrm{E}+00}$ |
| 5352 | 9.33 | -5.29E-06 | 5.36E-03 | -1.85E+00 |
| 5353 | 9.18 | 5.29E-06 | -5.36E-03 | $1.85 \mathrm{E}+00$ |
| 5354 | 9.63 | 1.33E-05 | -1.36E-02 | $4.57 \mathrm{E}+00$ |
| 5355 | 9.89 | 1.07E-05 | -1.10E-02 | $3.60 \mathrm{E}+00$ |
| 5356 | $\underline{9.81}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5357 | 10.04 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5358 | 11.32 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5359 | 12.95 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5360 | 14.28 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5361 | 14.83 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5362 | 14.23 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5363 | 14.35 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5364 | 15.55 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5365 | 17.36 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5366 | 19.31 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5367 | $\underline{20.61}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5368 | $\underline{21.33}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5369 | $\underline{21.32}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5370 | $\underline{21.65}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5371 | $\underline{22.70}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5372 | $\underline{23.99}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| $\underline{5373}$ | $\underline{25.28}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5374 | $\underline{26.67}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5375 | $\underline{27.34}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5376 | $\underline{27.48}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5377 | $\underline{27.03}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |


| 5378 | $\underline{27.10}$ | $8.05 \mathrm{E}-06$ | -8.51E-03 | $\underline{2.62 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 5379 | $\underline{27.75}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5380 | $\underline{28.53}$ | $8.05 \mathrm{E}-06$ | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5381 | $\underline{29.39}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5382 | 30.32 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5383 | 31.15 | $8.05 \mathrm{E}-06$ | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5384 | 32.05 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5385 | 33.11 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5386 | 33.66 | $8.05 \mathrm{E}-06$ | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5387 | 33.96 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5388 | 33.81 | $8.05 \mathrm{E}-06$ | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5389 | 33.85 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5390 | 34.03 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5391 | 34.31 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5392 | 34.70 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5393 | 34.87 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5394 | 34.79 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5395 | 34.84 | 2.68E-06 | -2.84E-03 | 8.74E-01 |
| 5396 | 34.87 | -2.68E-06 | $\underline{2.84 E-03}$ | -8.74E-01 |
| 5397 | 34.44 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5398 | 33.94 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5399 | 33.58 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5400 | 33.26 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5401 | 32.87 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5402 | 32.63 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| $\underline{5403}$ | 32.25 | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| $\underline{5404}$ | 32.02 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| $\underline{5405}$ | 31.93 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5406 | 31.57 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| $\underline{5407}$ | 31.29 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5408 | 31.00 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |


| 5409 | 30.56 | -8.05E-06 | $8.51 \mathrm{E}-03$ | -2.62E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 5410 | 30.16 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5411 | 29.82 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5412 | $\underline{29.56}$ | -8.05E-06 | $8.51 \mathrm{E}-03$ | -2.62E+00 |
| 5413 | $\underline{28.96}$ | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5414 | $\underline{28.19}$ | -8.05E-06 | $8.51 \mathrm{E}-03$ | $-2.62 \mathrm{E}+00$ |
| 5415 | $\underline{27.26}$ | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5416 | $\underline{26.59}$ | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5417 | $\underline{26.13}$ | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5418 | $\underline{25.76}$ | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5419 | $\underline{25.29}$ | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5420 | $\underline{24.01}$ | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5421 | $\underline{22.03}$ | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5422 | 19.60 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5423 | 16.50 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5424 | 13.16 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5425 | 11.03 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5426 | 10.25 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5427 | 10.04 | -2.68E-06 | 2.84E-03 | -8.74E-01 |
| 5428 | 10.27 | $\underline{2.68 \mathrm{E}-06}$ | -2.84E-03 | $8.74 \mathrm{E}-01$ |
| 5429 | 10.94 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5430 | 11.62 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5431 | 12.06 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5432 | 12.63 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5433 | 13.30 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5434 | 13.98 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5435 | 14.38 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5436 | 14.84 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5437 | 15.61 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5438 | 16.80 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| $\underline{5439}$ | 18.29 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |


| 5440 | 19.38 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| :---: | :---: | :---: | :---: | :---: |
| 5441 | 19.99 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5442 | 19.89 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5443 | 19.93 | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5444 | $\underline{20.89}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5445 | $\underline{22.17}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5446 | $\underline{22.85}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5447 | $\underline{23.42}$ | 8.05E-06 | -8.51E-03 | $2.62 \mathrm{E}+00$ |
| 5448 | $\underline{24.25}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5449 | $\underline{25.14}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5450 | $\underline{25.83}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5451 | $\underline{26.43}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5452 | $\underline{26.52}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5453 | $\underline{26.57}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5454 | $\underline{26.99}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5455 | $\underline{27.50}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5456 | $\underline{28.08}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5457 | $\underline{28.75}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5458 | $\underline{29.45}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5459 | $\underline{29.97}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5460 | 30.32 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5461 | 30.44 | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5462 | $\underline{30.26}$ | 8.05E-06 | -8.51E-03 | $\underline{2.62 E+00}$ |
| 5463 | $\underline{29.88}$ | $\underline{2.68 \mathrm{E}-06}$ | $\underline{-2.84 E-03}$ | 8.74E-01 |
| 5464 | $\underline{29.44}$ | -2.68E-06 | 2.84E-03 | -8.74E-01 |
| 5465 | $\underline{29.07}$ | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| $\underline{5466}$ | $\underline{28.59}$ | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5467 | $\underline{27.71}$ | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5468 | $\underline{26.44}$ | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5469 | $\underline{25.39}$ | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| $\underline{5470}$ | $\underline{24.37}$ | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |


| 5471 | $\underline{22.82}$ | -8.05E-06 | $8.51 \mathrm{E}-03$ | -2.62E+00 |
| :---: | :---: | :---: | :---: | :---: |
| 5472 | $\underline{20.10}$ | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5473 | 16.17 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5474 | 12.18 | -8.05E-06 | $8.51 \mathrm{E}-03$ | -2.62E+00 |
| 5475 | 9.50 | -8.05E-06 | $8.51 \mathrm{E}-03$ | $-2.62 \mathrm{E}+00$ |
| 5476 | 8.26 | -8.05E-06 | $8.51 \mathrm{E}-03$ | -2.62E+00 |
| 5477 | 7.79 | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5478 | 7.38 | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5479 | 6.77 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5480 | 6.11 | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5481 | 5.44 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5482 | 5.21 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5483 | 5.25 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5484 | 5.77 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5485 | 5.30 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5486 | 4.86 | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5487 | 4.52 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5488 | 4.26 | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5489 | 3.93 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5490 | 3.43 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5491 | 3.00 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| 5492 | 3.03 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| $\underline{5493}$ | 2.99 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5494 | 2.61 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| $\underline{5495}$ | 2.22 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5496 | 1.85 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| $\underline{5497}$ | 1.69 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5498 | 1.59 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |
| $\underline{5499}$ | 1.57 | -8.05E-06 | 8.51E-03 | $-2.62 \mathrm{E}+00$ |
| 5500 | 1.59 | -8.05E-06 | 8.51E-03 | -2.62E+00 |
| 5501 | 1.45 | -8.05E-06 | 8.51E-03 | $\underline{-2.62 E+00}$ |


| $\underline{5502}$ | $\underline{1.09}$ | $\underline{-8.05 \mathrm{E}-06}$ | $\underline{8.51 \mathrm{E}-03}$ | $\underline{-2.62 \mathrm{E}+00}$ |
| :--- | :--- | :--- | :--- | :--- |
| $\underline{5503}$ | $\underline{0.62}$ | $\underline{-8.05 \mathrm{E}-06}$ | $\underline{8.51 \mathrm{E}-03}$ | $\underline{-2.62 \mathrm{E}+00}$ |
| $\underline{5504}$ | $\underline{0.27}$ | $\underline{-8.05 \mathrm{E}-06}$ | $\underline{8.51 \mathrm{E}-03}$ | $\underline{-2.62 \mathrm{E}+00}$ |
| $\underline{5505}$ | $\underline{0.00}$ | $\underline{-8.05 \mathrm{E}-06}$ | $\underline{8.51 \mathrm{E}-03}$ | $\underline{-2.62 \mathrm{E}+00}$ |

## PART 1065 - ENGINE-TESTING PROCEDURES.

Subpart B - Equipment Specifications
1065.130 Engine exhaust. April 28, 2014March 10, 2021 (Pre-publication).
1065.140 Dilution for gaseous and PM constituents. October 25, 2016March 10, 2021 (Pre-publication).
1065.145 Gaseous and PM probes, transfer lines, and sampling system components.

April 28, 2014 $\frac{\text { March 10, } 2021 \text { (Pre-publication). }}{*}{ }_{*}^{*}$
1065.170 Batch sampling for gaseous and PM constituents. October 25, 2016March 10, 2021 (Pre-publication).

## Subpart C - Measurement Instruments

1065.205 Performance specifications for measurement instruments. April 28, z014March 10, 2021 (Pre-publication).

Flow-Related Measurements
1065.220 Fuel flow meter. October 25, 2016March 10, 2021 (Pre-publication). 1065.225 Intake-air flow meter. October 25, 2016March 10, 2021 (Pre-publication).
1065.247 Diesel exhaust fluid flow rate. October 25, 2016March 10, 2021 (Prepublication).
1065.275 N2O measurement devices. October 25, 2016March 10, 2021 (Prepublication).
$\mathrm{O}_{2}$ Measurements
1065.280 Paramagnetic and magnetopneumatic $\mathrm{O}_{2}$ detection analyzers. April 28, 2014March 10, 2021 (Pre-publication).

## Subpart D - Calibrations and Verifications

1065.303 Summary of required calibration and verifications. October 25, 2016March 10, 2021 (Pre-publication).

*     *         *             * 

1065.307 Linearity verification. Aprill $28, \underset{*}{28} \underset{*}{2014} \underset{*}{\text { March 10, } 2021}$ (Pre-publication).
1065.309 Continuous gas analyzer system-response and updating-recording verification - for gas analyzers continuously compensated for other gas species. April 28, 2014March 10, 2021 (Pre-publication).

Flow-Related Measurements
1065.342 Sample dryer verification. April 30, 2010March 10, 2021 (Pre-publication).

CO and $\mathrm{CO}_{2}$ Measurements
$1065.350 \mathrm{H}_{2} \mathrm{O}$ interference verification for $\mathrm{CO}_{2}$ NDIR analyzers. April 28, 2014March 10, 2021 (Pre-publication).
$1065.355 \mathrm{H}_{2} \mathrm{O}$ and $\mathrm{CO}_{2}$ interference verification for CO NDIR analyzers. April 28, 2014March 10, 2021 (Pre-publication).

Hydrocarbon Measurements
1065.365 Nonmethane cutter penetration fractions. October 25, 2016March 10, 2021 (Pre-publication).

NOx Measurements
1065.370 CLD CO2 and $\mathrm{H}_{2} \mathrm{O}$ quench verification. Octaber 25, 2016March 10, 2021 (Pre-publication).
1065.375 Interference verification for $\mathrm{N}_{2} \mathrm{O}$ analyzers. October 25, 2016March 10, 2021 (Pre-publication).

## Subpart E - Engine Selection, Preparation, and Maintenance

1065.410 Maintenance limits for stabilized test engines. February 19, 2015March 10, 2021 (Pre-publication).

## Subpart F - Performing an Emission Test in the Laboratory

1065.510 Engine mapping. October 25, 2016March 10, 2021 (Pre-publication).
1065.512 Duty cycle generation. April 28, 2014March 10, 2021 (Pre-publication).
1065.514 Cycle-validation criteria for operation over specified duty cycles. September 15, 2011March 10, 2021 (Pre-publication).

## A. Federal Provisions

1. Introductory paragraph [No change.]
2. Subparagraph (a) through (f)(3). [No change.]
3. Add new subparagraph (f)4) as follows:
(4) For variable-speed gaseous-fueled engines with a single-point fuel injection system, apply all of the following statistical criteria to validate the lowload cycle in Appendix I to Part 86 subparagraph B. 1 of these test procedures:

| Parameter | Speed | Torque | Power |
| :---: | :---: | :---: | :---: |
| Slope, $\mathrm{a}_{1}$ | $0.950 \leq \mathrm{a}_{1} \leq 1.030$ | $0.800 \leq \mathrm{a}_{1} \leq 1.030$ | $0.800 \leq \mathrm{a}_{1} \leq 1.030$ |
| Absolute value of intercept, 」a $a_{0}$ | $\leq 10 \%$ of warm idle | $\begin{gathered} \leq 2 \% \text { of maximum } \\ \text { mapped torque } \end{gathered}$ | $\begin{gathered} \leq 2 \% \text { of maximum } \\ \text { mapped power } \end{gathered}$ |
| Standard error of estimate, SEE | $\leq 5 \% \text { of maximum }$ | $\frac{\leq 10 \% \text { of maximum }}{\text { mapped torque }}$ | $\frac{\leq 10 \% \text { of maximum }}{\text { mapped power }}$ |
| Coefficient of determination, $r^{2}$ | $\geq 0.970$ | $\geq 0.650$ | $\geq 0.650$ |

1065.518 Engine preconditioning. April 28, 2014.
A. Federal Provisions. [No change.]

## B California Provisions.

1. This paragraph specifies the engine preconditioning procedures for different types of duty cycles. For 2024 and subsequent model years, you must identify the amount of preconditioning before starting to precondition. You must run the predefined amount of preconditioning. You may measure emissions during preconditioning. You may not abort an emission test sequence based on emissions measured during preconditioning. For confirmatory testing, you may request Executive Officer approval for us to run more than two preconditioning cycles; the Executive Officer shall approve this upon determining that the extra preconditioning cycles are limited to the minimum technically necessary to meet the intent of this section, for example, to restore ammonia in the SCR catalyst due to the effect of DPF regeneration on $\mathrm{NH}_{3}$ storage in the SCR catalyst; that emissions during the operation from the end of the regeneration through the end of the requested extra preconditioning cycles are fully accounted for in the measurement and calculation of emission factors $E F_{L}$ and $E F_{H}$ as specified in section 1065.680 of these test procedures; and that the request for extra preconditioning cycles was made prior to the engine family being certified. Perform preconditioning as follows, noting that the specific cycles for preconditioning are the same ones that apply for emission testing:
2. For 2024 and subsequent model year medium-duty and heavy-duty diesel engine families, preconditioning sequences for the engine and aftertreatment must be designed such that emissions measured during the test are representative of emissions during normal operation and use. A preconditioning sequence that activates or enhances AECDs that bias or otherwise produce unrepresentative emission results during a test may not be approved. Engines are required to be compliant with the emission standards after preconditioning and up to the point the next regeneration event is triggered, regardless of the level of soot loading on the particulate filter, and regardless of operation prior to preconditioning (e.g., particulate filter regeneration, extended non-regeneration cycles, back-to-back cycles without key off). Additionally, emissions performance should not deteriorate, degrade, or decrease upon successive repeats of the certification cycle. The emissions control system should not use different control targets upon successive repeats of the certification cycle given the same or similar test conditions. For example, the emission level from the first Hot FTP following the Cold FTP should be consistent with any emission level from a Hot FTP that was conducted as part of a series of back-to-back Hot FTP cycles up to the point the next regeneration is triggered.
3. Engine preconditioning for the Low-Load Cycle - For 2024 and subsequent
model years, in addition to the requirements in paragraphs B. 1 and B. 2 of this section, use the following procedures to precondition the engine and aftertreatment system prior to emission testing:
3.1 Precondition the engine by running one or two hot-start FTP cycles as identified in paragraph A. 2 of Appendix I to Part 86 of these test procedures.
3.2 Shut down the engine after completion of preconditioning cycle(s) per requirements of paragraphs B. 1 and B. 2 of this section and allow 20 minutes to elapse.
3.3 Perform emission testing using the cycle specified in paragraph B. 1 of Appendix I to Part 86 of these test procedures.
1065.530 Emission test sequence. April 28, 2014March 10, 2021 (Pre-publication).
1065.545 Verification of proportional flow control for batch sampling. April 28, 2014March 10, 2021 (Pre-publication).

## Subpart G - Calculations and Data Requirements

1065.602 Statistics. October 25, 2016March 10, 2021 (Pre-publication).
1065.610 Duty cycle generation. October $25, \underset{*}{2016} \underset{*}{\text { March } 10, ~} 2021$ (Pre-publication).
1065.640 Flow meter calibration calculations. October 25, 2016March 10, 2021 (Prepublication).
1065.642 SSV, CFV, and PDP molar flow rate calculations. October 25, 2016March 10, 2021 (Pre-publication).
1065.665 THCE and NMHCE determination. October 25, 2016March 10, 2021 (Prepublication).
1065.667 Dilution air background emission correction. October 25, 2016March 10, 2021 (Pre-publication).
1065.675 CLD quench verification calculations. October 25, 2016March 10, 2021 (Prepublication).
§1065.680 Adjusting emission levels to account for infrequently regenerating aftertreatment devices. October 25, 2016.
A. Federal Provisions. [No change.]
B. California Provisions

1. For 2024 and subsequent model years, for manufacturers using extra preconditioning cycles, measurement and calculation of regeneration emissions $\left(E F_{H}\right)$ shall be done such that all emissions from the start of the regeneration event to the start of the emission test cycle are included. For the Low-Load Cycle, manufacturers shall propose a calculation for regeneration emissions $\left(E F_{H}\right)$. Executive Officer approval shall be based on the manufacturer's use of good engineering judgment and the representativeness of the proposed IRAF calculations.
1065.695 Data requirements. April 28, 2014March 10, 2021 (Pre-publication).

## Subpart H - Engine Fluids, Test Fuels, Analytical Gases and Other Calibration Standards

1065.701 General requirements for test fuels. April 28, 2014March 10, 2021 (Prepublication).
1065.790 Mass standards. September 15, 2011March 10, 2021 (Pre-publication).

## Subpart J- Field Testing and Portable Emission Measurement Systems

1065.910 PEMS auxiliary equipment for field testing. April 30, 2010March 10, 2021 (Pre-publication).
1065.935 Emission test sequence for field testing. June 30, 2008.

## A. Federal Provisions. [No change.] <br> B. California Provisions

1. For 2024 and subsequent model year engines, take the following steps after in-use emission sampling is complete for test intervals that do not meet the range criteria in $\$ 1065.550$.
1.1 For any test intervals, "3B-MAW" described in 86.1370.B. 6 of this document, that do not meet the range criteria in $\$ 1065.550$, use good engineering judgment to determine emission values of data collected during the test interval and over the range, and include the determined emission values for SOS Evaluation described in 86.1370.B. 6 of this document. For example, twice the range can be used to estimate emission values of such data collected during the test interval and over the range. When $5 \%$ or more of test intervals during the test do not meet the range criteria in $\$ 1065.550$ for a criteria pollutant, the test engine is deemed to be noncompliant for the engine family for the criteria pollutant unless you demonstrate compliance with the applicable emission standards.
2. For 2024 and subsequent model year engines, only for $\mathrm{NO}, \mathrm{NO} 2$, and NOx, do not apply the drift validation criteria in §1065.550(b)(3)(i) or (b)(4), only if the drift value is equal to or within $+/-2.5 \mathrm{ppm}$ criteria. If the zero drift check is equal to or within $+/-2.5 \mathrm{ppm}$, the data is valid and drift correction may be used. If the zero drift check is greater than +/- 2.5 ppm , data is invalidated and drift correction may not be used. In addition, for any windows of the 3B-MAW method containing any drift invalidated data described in this paragraph, these windows are also invalidated. For valid NO, NO2, and NOx data, subject to use drift readings within $+/-2.5 \mathrm{ppm}$ for drift correction, the corrected values calculated from the drift correction equation, Eq. 1065-672-1, must be used for SOS emission calculations described in section 86.1370.B.6.6.

## Subpart K - Definitions and Other Reference Information

1065.1001 Definitions. October 25, 2016
A. Federal Provisions. [No change.]
B. California Provisions

1. Amend the definition of "Designated Compliance Officer" as follows: Designated Compliance Officer means the Executive Officer of the Air Resources Board or a designee of the Executive Officer.
2. Amend the definition of "Hydrocarbon" as follows: Hydrocarbon (HC)
means THC, THCE, NMHC, NMOG, or NMHCE, as applicable. Hydrocarbon generally means the hydrocarbon group on which the emission standards are based for each type of fuel and engine.
3. Delete the definition of "Nonmethane nonethane hydrocarbon (NMNEHC)."
4. Amend the definition of "Test interval" as follows: For 2024 and subsequent model year engines, Test Interval means a duration of time over which you determine brake-specific emissions. For example, the standard-setting part may specify a complete laboratory duty cycle as a cold-start test interval, plus a hot-start test interval. As another example, a standard-setting part may specify a field-test interval, such as a "3B-MAW" described in 86.1370.B. 6 of this document. In cases where multiple test intervals occur over a duty cycle, the standard-setting part may specify additional calculations that weight and combine results to arrive at composite values for comparison against the applicable standards.

## PART 1068 - GENERAL COMPLIANCE PROVISIONS FOR HIGHWAY, STATIONARY, AND NONROAD PROGRAMS

## Subpart A - Applicability and Miscellaneous Provisions

1068.5 How must manufacturers apply good engineering judgement? October 8, 2008.

1. Subparagraph (a) through (d). [No change.]
2. Delete subparagraph (e).

[^0]:    ${ }^{1}$ The requirements for diesel engines used in complete vehicles up to 14,000 pounds GVW are contained in the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, LightDuty Trucks and Medium-Duty Vehicles," (incorporated by reference in §1961(d), title 13, CCR) and the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, LightDuty Trucks and Medium-Duty Vehicles," (incorporated by reference in section 1961.2, title 13, CCR).

[^1]:    ${ }^{2}$ Seven of the largest heavy-duty diesel engine manufacturers will be implementing measures to reduce emissions beginning October 1, 2002, to meet the requirements of the Heavy-Duty Diesel Engines Settlement Agreements reached with the ARB. The Heavy-Duty Diesel Engine Settlements were agreements reached in response to lawsuits brought by the United States Environmental Protection Agency and violations alleged by the ARB pertaining to excess in-use emissions caused by the use of defeat devices and unacceptable algorithms. Navistar signed its Settlement Agreement on October 22, 1998. Cummins, Detroit Diesel Corporation, Caterpillar, Volvo, Mack and Renault signed their Settlement Agreements on December 15, 1998.

