

ATTACHMENT K to RESOLUTION 14-34

Staff's Suggested Changes to the Original Proposal

DISTRIBUTED AT THE OCTOBER 23, 2014 HEARING OF THE AIR RESOURCES BOARD

The following text contains staff's suggested modifications to the originally proposed regulatory language for section 1961.2, title 13 of the California Code of Regulations (CCR); to 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, Light-Duty Trucks, and Medium-Duty Vehicles;" to the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles;" to the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles;" and to the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes." Unless otherwise indicated below, the text of the originally proposed regulatory language is shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. The suggested modifications to the proposed regulation are shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions. Staff is proposing modifications to limited portions of the original proposal; for some portions of the original proposal for which no modifications are proposed, the text has been omitted and the omission indicated by [No change] or "* * *".

There are no additional suggested modifications to the originally proposed amendments to sections 1900, 1956.8, 1962.2, 1965, 1976, and 1978, title 13, CCR or to the incorporated test procedures.

SUGGESTED CHANGES TO PROPOSED REGULATION ORDER

1. Amend title 13, CCR, section 1961.2 to read as follows:

§ 1961.2. Exhaust Emission Standards and Test Procedures - 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

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(a) Exhaust Emission Standards.

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(4) *50°F Exhaust Emission Standards.* All passenger cars, light-duty trucks, and medium-duty vehicles, other than natural gas and diesel-fueled vehicles, must demonstrate compliance with the following 4,000-mile exhaust emission standards for NMOG+NO_x and formaldehyde (HCHO) measured on the FTP (40 CFR, Part 86, Subpart B) conducted at a nominal test temperature of 50°F, as modified by Part II, Section ~~CD~~ of 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, Light-Duty Trucks, and Medium-Duty Vehicles.” A manufacturer may demonstrate compliance with the NMOG+NO_x and HCHO certification standards contained in this subparagraph by measuring NMHC exhaust emissions or issuing a statement of compliance for HCHO in accordance with Section D.10, ~~subparagraph (p)~~ and Section G.3.1.2, respectively, of 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, Light-Duty Trucks, and Medium-Duty Vehicles.” Emissions of CO measured at 50° F at 4,000 miles shall not exceed the standards set forth in subsection (a)(1) applicable to vehicles of the same emission category and vehicle type subject to a cold soak and emission test at 68° to 86° F.

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(6) *Highway NMOG + NO_x Standard.* The maximum emissions of non-methane organic gas plus oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B or 40 CFR §1066.840 ~~600 Subpart B~~), as modified by 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, Light-Duty Trucks, and Medium-Duty Vehicles,” must not be greater than the applicable LEV III NMOG+NO_x standard set forth in subsection (a)(1). Both the sum of

the NMOG+NOx emissions and the HWFET standard must be rounded in accordance with ASTM E29-67 to the nearest 0.001 g/mi before being compared.

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(8) *Interim In-Use Compliance Standards.*

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(C) *SFTP Interim In-Use Compliance Standards.*

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2. ~~Test groups certified prior to the 2021 model year will be allowed an in-use compliance standard for PM for the first five model years that they are certified to the SFTP PM standard. 2020/2023 and prior model year light-duty and medium-duty passenger vehicle test groups may use an in-use compliance standard for SFTP PM regardless of the model year that the test groups first certified to the LEV III SFTP PM standard., and 2022 and prior model year medium-duty vehicle test groups may use an in-use compliance standard for PM for the first two model years that they are certified to the LEV III SFTP PM standard.~~

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(b) *Emission Standards Phase-In Requirements for Manufacturers.*

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(3) *LEV III Phase-In Requirements for Medium-Duty Vehicles, Other than Medium-Duty Passenger Vehicles.*

(A) *Requirement for Manufacturers Other than Small Volume Manufacturers.* A manufacturer of MDVs, other than a small volume manufacturer, shall certify its MDV fleet according to the following phase-in schedule:

Model Year	Vehicles Certified to §1961.2(a)(1) ¹ (%)				Vehicles Certified to §1956.8(c) or (h) (%)
	LEV II LEV; LEV III LEV395 or LEV630	LEV II ULEV; LEV III ULEV340 or ULEV570	LEV III ULEV250 or ULEV400	LEV III SULEV170 or SULEV230	ULEV
2015	40	60	0	0	100
2016	20	60	20	0	100
2017	10	50	40	0	100
2018	0	40	50	10	100
2019	0	30	40	30	100
2020	0	20	30	50	100
2021	0	10	20	70	100
2022 +	0	0	10	90	100

¹ The LEV II LEV, and LEV II ULEV, emission categories are only applicable for the 2015 through 2019 model years. The LEV III LEV395, LEV630, ULEV340, and ULEV570 emission categories are only applicable for the 2015 through 2021 model years.

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(c) Calculation of NMOG + NO_x Credits/Debits

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(2) Calculation of NMOG+NO_x Credits and Debits for Medium-Duty Vehicles Other than MDPVs.

A manufacturer that elects to comply with the phase-in requirements for LEV III medium-duty vehicles other than MDPVs in subsection (b)(3)(A) or subsection (b)(3)(B) shall calculate vehicle-equivalent NMOG+NO_x credits in accordance with subsection (c)(2)(A). A manufacturer that elects to comply with the alternative phase-in schedule for LEV III medium-duty vehicles other than MDPVs in subsection (b)(3)(C) shall calculate fleet average NMOG+NO_x credits in accordance with subsection (c)(2)(B).

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(B) Calculation of Fleet Average NMOG+NOx Credits and Debits for Medium-Duty Vehicles Other than MDPVs.

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2. In 2016 and subsequent model years, a manufacturer that achieves fleet average NMOG+NOx values lower than the fleet average NMOG+NOx requirement for the corresponding model year shall receive credits in units of g/mi NMOG+NOx . A manufacturer with 2016 and subsequent model year fleet average NMOG+NOx values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi NMOG+NOx equal to the amount of negative credits determined by the aforementioned equation. The total g/mi NMOG+NOx credits or debits earned for MDVs 8,501-10,000 lbs. GVWR excluding MDPVs, and for MDVs 10,001-14,000 lbs. GVWR shall be summed together. The resulting amount shall constitute the g/mi NMOG+NOx credits or debits accrued by the manufacturer for the model year. Medium-duty fleet average credits and debits earned in accordance with subsection (c)(2)(B) may not be summed together with fleet average credits and debits earned for passenger cars, light-duty trucks, and medium-duty passenger vehicles in accordance with subsection (c)(1).

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California Environmental Protection Agency
AIR RESOURCES BOARD

PROPOSED 15-DAY MODIFICATIONS

**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, LIGHT-DUTY TRUCKS, AND
MEDIUM-DUTY VEHICLES**

Adopted: March 22, 2012
Amended: December 6, 2012
Amended: [INSERT DATE OF AMENDMENT]

Note: The following text contains staff's suggested modifications to these test procedures as originally proposed September 2, 2014. Unless otherwise indicated below, the text of the originally proposed amendments to this document are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as amended December 6, 2012. The modified language now proposed by staff is shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions. Staff is proposing modifications to limited portions of the original proposal; for some portions of the original proposal for which no modifications are proposed, the text has been omitted and the omission indicated by [No change] or "****." [No change] also indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "****".

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**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, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES**

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**PART I: GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE
VERIFICATION OF EMISSIONS**

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B. Definitions, Acronyms and Abbreviations

1. §86.1803 Definitions.

1.1 §86.1803-01. ~~October 15, 2012~~ ~~April 28, 2014~~ August 8, 2014. [No change, except as otherwise noted below.]

2. California Definitions.

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“**Highway Test Procedures**” means the Federal Test Procedure as set forth in 40 CFR Part 600 Subpart B, or 40 CFR §1066.840 Part 86, as modified in Part II of these test procedures with the migration provisions of §600.111-08 introduction, except that emissions shall be measured using the Highway Driving Schedule as set forth in Part II, Section F.

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D. §86.1810 General standards; increase in emissions; unsafe conditions; waivers

1. §86.1810-09. October 15, 2012. Amend §86.1810-09 as follows:

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1.10 Subparagraph (p) Amend as follows: For gasoline and diesel-fueled LEV II and LEV III vehicles, manufacturers may measure non-methane hydrocarbons (NMHC) in lieu of NMOG. For LEV II vehicles that are certified using

the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.1, manufacturers must multiply NMHC measurements by an adjustment factor of 1.04 before comparing with the NMOG standard to determine compliance with the standard. For LEV III vehicles and LEV II vehicles that are certified using the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.2, manufacturers must multiply NMHC measurements by an adjustment factor of 1.10 before adding it to the measured NOx emissions and comparing with the NMOG+NOx standard in section E.1.1.2 or before comparing it to the NMOG standard in section E.1.1.1, as applicable, to determine compliance with that standard. For LEV III vehicles and LEV II vehicles that are certified to the SFTP Exhaust Emission Standards in section E.1.2 and/or the Highway NMOG+NOx Standard in section E.1.6, using the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.2, manufacturers must multiply NMHC measurements by an adjustment factor of 1.03 before adding it to the measured NOx emissions and comparing with the NMOG+NOx standard to determine compliance with that standard.

For LEV III vehicles and LEV II vehicles that are certified using a gasoline fuel that contains an ethanol content greater than that allowed by the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.2 and less than or equal to 25 percent ethanol, the adjustment factor that must be used to demonstrate compliance with the NMOG+NOx standard in section E.1.1.2 or the NMOG standard in section E.1.1.1, as applicable, this paragraph is calculated using the following formula:

Adjustment factor = $1.0302 + 0.0071 \times \text{volume percent fuel ethanol}$
where the value for the “volume percent fuel ethanol” used in this formula is 15 if the gasoline contains 15 percent ethanol, the “volume percent fuel ethanol” used in this formula is 20 if the gasoline contains 20 percent ethanol, etc. Manufacturers must multiply NMHC measurements by this calculated adjustment factor before adding it to the measured NOx emissions and comparing with the NMOG+NOx standard in section E.1.1.2 or the NMOG standard in section E.1.1.1, as applicable, to determine compliance with that standard. Manufacturers may use other factors to adjust NMHC results to more properly represent NMOG results. Such factors must be based upon comparative testing of NMOG and NMHC emissions and be approved in advance by the ~~Administrator~~Executive Officer. For LEV III vehicles and LEV II vehicles that are certified to the SFTP Exhaust Emission Standards in section E.1.2 and/or the Highway NMOG+NOx Standard in section E.1.6, using a gasoline fuel that contains an ethanol content greater than that allowed by the California Gasoline Fuel Specifications set forth in Part II, section 100.3.1.2 and less than or equal to 25 percent ethanol, manufacturers must multiply NMHC measurements by an adjustment factor of 1.03 before adding it to the measured NOx emissions and comparing with the NMOG+NOx standard to determine compliance with that standard.

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2. §86.1810-17. April 28, 2014. Amend §86.1810-17 as follows:

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2.3 Subparagraph (f) Altitude Requirements. [No change, except that 50°F standards and SFTP standards shall only apply at low altitude conditions.]

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E. California Exhaust Emission Standards.

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1. Exhaust Emission Standards.

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1.4 50°F Exhaust Emission Standards.

1.4.1 Standards for Vehicles Certified to the LEV II Standards.

All passenger cars, light-duty trucks, and medium-duty vehicles certified to the LEV II exhaust emission standards set forth in subparagraph E.1.1.1 must demonstrate compliance with the following 4,000-mile exhaust emission standards for NMOG and formaldehyde measured on the FTP (40 CFR, Part 86, Subpart B) conducted at a nominal test temperature of 50°F, as modified by Part II, Section ~~CD~~ of these test procedures. A manufacturer may demonstrate compliance with the NMOG and HCHO certification standards contained in this subparagraph 1.4.1 by measuring NMHC exhaust emissions in accordance with section D.1.~~10~~, ~~subparagraph (p)~~ and section G.3.1.2, respectively, of these test procedures. Emissions of CO and NOx measured at 50°F at 4,000 miles shall not exceed the standards set forth in section E.1.1.1 applicable to vehicles of the same emission category and vehicle type subject to a cold soak and emission test at 68° to 86°F. Natural gas and diesel-fueled vehicles are exempt from the 50°F test requirements.

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1.4.2 Standards for Vehicles Certified to the LEV III Standards.

All passenger cars, light-duty trucks, and medium-duty vehicles certified to the LEV III exhaust emission standards set forth in subparagraph E.1.1.2, other than natural gas and diesel fueled vehicles, must demonstrate compliance with the following 4,000-mile exhaust emission standards for NMOG+NOx and

formaldehyde measured on the FTP (40 CFR, Part 86, Subpart B) conducted at a nominal test temperature of 50°F, as modified by Part II, Section ~~CD~~ of these test procedures. A manufacturer may demonstrate compliance with the NMOG+NOx and HCHO certification standards contained in this subparagraph 1.4.2 by measuring NMHC exhaust emissions in accordance with section D.1.10, ~~subparagraph (p)~~ and section G.3.1.2, respectively, of these test procedures. Emissions of CO measured at 50°F at 4,000 miles shall not exceed the standards set forth in section E.1.1.2 applicable to vehicles of the same emission category and vehicle type subject to a cold soak and emission test at 68° to 86°F.

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1.6 Highway NMOG + NOx Standard.

The maximum emissions of NMOG+NOx measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B or 40 CFR §1066.840 600 Subpart B, which ~~is~~ are incorporated herein by reference, as modified in Part II of these test procedures with the migration provisions of §600.111-08 introduction) must not be greater than the applicable LEV III NMOG+NOx standard set forth in section E.1.1.2. Both the sum of the NMOG+NOx emissions and the HWFET standard must be rounded in accordance with ASTM E29-67 to the nearest 0.001 g/mi before being compared.

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2. Emission Standards Phase-In Requirements for Manufacturers.

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2.3 LEV III Phase-In Requirements for Medium-Duty Vehicles Other than Medium-Duty Passenger Vehicles.

2.3.1 (a) **Requirements for Manufacturers Other Than Small Volume Manufacturers.** A manufacturer of MDVs, other than a small volume manufacturer, shall certify its MDV fleet according to the following phase-in schedule:

Model Year	Vehicles Certified to Section E.1.1 ¹ (%)				Vehicles Certified to title 13 CCR Section 1956.8(c) or (h) (%)
	LEV II LEV; LEV III LEV395 or LEV630	LEV II ULEV; LEV III ULEV340 or ULEV570	LEV III ULEV250 or ULEV400	LEV III SULEV170 or SULEV230	ULEV
2015	40	60	0	0	100
2016	20	60	20	0	100
2017	10	50	40	0	100
2018	0	40	50	10	100
2019	0	30	40	30	100
2020	0	20	30	50	100
2021	0	10	20	70	100
2022 +	0	0	10	90	100

¹ The LEV II LEV, and LEV II ULEV, emission categories are only applicable for the 2015 through 2019 model years. The LEV III LEV395, LEV630, ULEV340, and ULEV570 emission categories are only applicable for the 2015 through 2021 model years.

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3. Calculation of Credits/Debits

3.1 Calculation of NMOG+NOx Credits/Debits

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3.1.2 Calculation of NMOG+NOx Credits and Debits for Medium-Duty Vehicles Other than MDPVs.

A manufacturer that elects to comply with the phase-in requirements for LEV III medium-duty vehicles other than MDPVs in section E.2.3.1 or section E.2.3.2 shall calculate vehicle-equivalent NMOG+NOx credits in accordance with section E.3.1.2.1. A manufacturer that elects to comply with the alternative phase-in schedule for LEV III medium-duty vehicles other than MDPVs in section E.2.3.3

shall calculate fleet average NMOG+NOx credits in accordance with section E.3.1.2.2.

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3.1.2.2 Calculation of Fleet Average NMOG+NOx Credits and Debits for Medium-Duty Vehicles Other than MDPVs.

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3.1.2.2.2 In 2016 and subsequent model years, a manufacturer that achieves fleet average NMOG+NOx values lower than the fleet average NMOG+NOx requirement for the corresponding model year shall receive credits in units of g/mi NMOG+NOx . A manufacturer with 2016 and subsequent model year fleet average NMOG+NOx values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi NMOG+NOx equal to the amount of negative credits determined by the aforementioned equation. The total g/mi NMOG+NOx credits or debits earned for MDVs 8,501-10,000 lbs. GVWR excluding MDPVs, and for MDVs 10,001-14,000 lbs. GVWR shall be summed together. The resulting amount shall constitute the g/mi NMOG+NOx credits or debits accrued by the manufacturer for the model year. Medium-duty fleet average credits and debits earned in accordance with section E.3.1.2.2 may not be summed together with fleet average credits and debits earned for passenger cars, light-duty trucks, and medium-duty passenger vehicles in accordance with section E.3.1.1.

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4. LEV III Criteria Pollutant Interim In-Use Compliance Standards.

The following interim in-use compliance standards shall apply for the first two model years that a test group is certified to the LEV III standards that are more stringent than the standards to which the test group was certified in a prior model year, except as noted in section E.4.3.2.

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4.3 SFTP Interim In-Use Compliance Emission Standards.

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~~4.3.2 Test groups certified prior to the 2021 model year will be allowed an in-use compliance standard for PM for the first five model years that they are certified to the SFTP PM standard. 2020-2023 and prior model year light-duty and~~

medium-duty passenger vehicle test groups may use an in-use compliance standard for SFTP PM regardless of the model year that the test groups first certified to the LEV III SFTP PM standard., and 2022 and prior model year medium-duty vehicle test groups may use an in-use compliance standard for PM for the first two model years that they are certified to the LEV III SFTP PM standard.

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G. Procedures for Demonstration of Compliance with Emission Standards

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3. §86.1829 Durability data and emission data testing requirements; waivers.

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3.2 §86.1829-15. April 28, 2014. Amend as follows:

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3.2.2 Subparagraph (c) ~~Delete and replace with~~Add the following: The manufacturer must demonstrate compliance with emission standards at low altitude conditions as described in paragraph (b) of this section. For Otto-cycle vehicles or hybrid vehicles that use Otto-cycle engines, evidence shall be supplied showing that the air/fuel metering system or secondary air injection system is capable of providing sufficient oxygen to theoretically allow enough oxidation to attain the CO emission standards at barometric pressures equivalent to those expected at altitudes ranging from sea level to an elevation of 6000 feet. For fuel injected vehicles or hybrid electric vehicles that use fuel-injected engines, compliance may be demonstrated upon a showing by the manufacturer that the fuel injection system distributes fuel based on mass air flow, rather than volume flow, and is therefore self-compensating. All submitted test proposals will be evaluated on their acceptability by the Executive Officer. As an alternative to the demonstration described above, a manufacturer may demonstrate compliance by testing California vehicle configurations as part of its federal high altitude certification requirements. Engine families that meet all the applicable California low altitude emission standards when tested at the EPA test elevation are deemed to be in compliance. The SFTP standards do not apply to testing at high altitude.

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3.34 Highway Fuel Economy Test.

The exhaust emissions, including non-methane organic gas emissions, shall be measured from all exhaust emission data vehicles tested in accordance with the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B or 40 CFR

§1066.840, as modified in Part II of these test procedures with the migration provisions of §600.111-08 introduction Part 600, Subpart B). The oxides of nitrogen emissions measured during such tests shall be multiplied by the oxides of nitrogen deterioration factor computed in accordance with 40 CFR §86.1823 and added to the non-methane organic gas emissions. This sum shall be rounded and compared with the NMOG+NOx certification level, as required in section E.1.6. All data obtained pursuant to this paragraph shall be reported in accordance with procedures applicable to other exhaust emissions data required pursuant to these procedures. In the event that one or more of the manufacturer's emission data vehicles fail the HWFET standard listed in section E of these test procedures, the manufacturer may submit to the Executive Officer engineering data or other evidence showing that the system is capable of complying with the standard. If the Executive Officer finds, on the basis of an engineering evaluation, that the system can comply with the HWFET standard, he or she may accept the information supplied by the manufacturer in lieu of vehicle test data.

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H. Certification, Information and Reporting Requirements.

1. §86.1841 Compliance with emission standards for the purpose of certification

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1.4 Certification of a Federal Vehicle in California. Whenever a manufacturer federally-certifies a 2015 or subsequent model-year passenger car, light-duty truck or medium-duty vehicle model to the standards for a particular emissions bin that are more stringent than the standards for an applicable California vehicle emissions category, the equivalent California model may only be certified to (i) the California standards for a vehicle emissions category that are at least as stringent as the standards for the corresponding federal emissions bin, or (ii) the exhaust emission standards to which the federal model is certified. However, where the federal exhaust emission standards for the particular emissions bin and the California standards for a vehicle emissions category are equally stringent, the California model may only be certified to either the California standards for that vehicle emissions category or more stringent California standards. The federal emission bins are those contained Tables S04-1 and S04-2 of 40 CFR section 86.1811-04(c) as adopted February 10, 2000, and in Table 2 of 40 CFR §86.1811.17(b), as adopted April 28, 2014. A California vehicle model is to be treated as equivalent to a federal vehicle model if all of the following characteristics are identical. A federal vehicle may not be substituted as an alternative to a LEV III vehicle.

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I. In-Use Compliance Requirements and Procedures

1. §86.1845 Manufacturer in-use verification testing requirements.

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1.1.3 **High Mileage Testing.** Amend subparagraph (c)(2) of 40 CFR §86.1845-04 to read as follows: All test vehicles certified to the emission standards in Part I, section E.1.1.1 of these procedures must have a minimum odometer mileage of 50,000 miles. At least one vehicle of each test group certified to the emission standards in Part I, section E.1.1.1 of these procedures must have a minimum ~~age and~~ odometer mileage of 75,000 for light-duty vehicles and 90,000 miles for medium-duty vehicles. ~~All test~~ At least one vehicles of each test group certified to the emission standards in Part I, section E.1.1.2 of these test procedures must have a minimum ~~age and~~ odometer mileage of 105,000 miles or 75 percent of full useful life mileage. See §86.1838-01(c)(2) for small volume manufacturer mileage requirements.

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J. Procedural Requirements

1. §86.1848-10 Certification. ~~October 15, 2012~~ April 28, 2014. ~~[No change.]~~
Amend as follows:

1.1 Amend (c)(5) as follows: The manufacturer must meet the in-use testing and reporting requirements contained in §§86.1845-04, 86.1846-01, and 86.1847-01, as applicable. Failure to meet the in-use testing or reporting requirements shall be considered a failure to satisfy a condition upon which the certificate was issued. A vehicle or truck is considered to be covered by the certificate only if the manufacturer fulfills this condition upon which the certificate was issued.

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PART II: CALIFORNIA EXHAUST AND PARTICULATE EMISSION TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

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A. 40 CFR Part 86, Subpart B - Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles and New Light-Duty Trucks and New Otto-Cycle Complete Heavy-Duty Vehicles; Test Procedures.

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100.3 Certification Fuel Specifications.

100.3.1 California Certification Gasoline Specification.

100.3.1.1 Certification Gasoline Fuel Specifications for LEV II Light-Duty Vehicles and Medium-Duty Vehicles.

Add the following subparagraph which reads: For light-duty vehicles and medium-duty vehicles certified to the LEV II exhaust emission standards set forth in section E.1.1.1, gasoline having the specifications listed below or gasoline having the specifications listed in section 100.3.1.2 or gasoline having the specifications in 40 CFR §1065.710(b) (April 28, 2014) may be used in exhaust and evaporative emission testing as an option to the specifications referred to in §86.113-04(a)(1). If a manufacturer elects to utilize gasoline having the specifications listed below for LEV II vehicles, exhaust emission testing shall be conducted by the manufacturer with gasoline having the specifications listed below, and the Executive Officer shall conduct exhaust emission testing with gasoline having the specifications listed below. If a manufacturer elects to utilize gasoline having the specifications listed in section 100.3.1.2, exhaust emission testing shall be conducted by the manufacturer with gasoline having the specifications listed in section 100.3.1.2, and the Executive Officer shall conduct exhaust emission testing with gasoline having the specifications listed in section 100.3.1.2. If a manufacturer elects to utilize gasoline having the specifications in 40 CFR §1065.710(b) (April 28, 2014), exhaust emission testing shall be conducted by the manufacturer with gasoline having the specifications in 40 CFR §1065.710(b) (April 28, 2014), and the Executive Officer shall conduct exhaust emission testing with gasoline having the specifications in section 40 CFR §1065.710(b) (April 28, 2014). Use of ~~this~~these fuels for evaporative emission testing shall be required as specified in the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles."

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100.3.1.2 Certification Gasoline Fuel Specifications for LEV III Light-Duty Vehicles and Medium-Duty Vehicles.

Add the following subparagraph which reads: For all light-duty vehicles and medium-duty vehicles certifying to the LEV III standards in section E.1.1.2, gasoline having the specifications listed below may shall be used in exhaust emission testing, as an option to the specifications set forth in 40 CFR §1065.710(b) (April 28, 2014). If a manufacturer elects to utilize gasoline having the specifications listed below, and the Executive Officer shall conduct exhaust emission testing with gasoline having the specifications listed below. If a manufacturer elects to utilize gasoline having the specifications set forth in 40 CFR §1065.710(b) (April 28, 2014), the Executive Officer shall conduct exhaust emission testing with gasoline having the specifications set forth in 40 CFR §1065.710(b) (April 28, 2014). Use of ~~this~~these fuels for evaporative emission testing shall be required as specified in the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles."

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100.3.4 Mixtures of Petroleum and Alcohol Fuels for Flexible Fuel Vehicles.

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100.3.4.1 Exhaust emission test fuel for emission-data and durability-data vehicles. For Otto-cycle or diesel alcohol vehicles and hybrid electric vehicles which use Otto-cycle or diesel alcohol engines, methanol or ethanol fuel used for exhaust emission testing shall meet the applicable specifications set forth in section 2292.2, title 13, CCR, (Specifications for M-85 Fuel Methanol) or section 2292.4 (Specifications for E-85 Fuel Ethanol) as modified by the following: E-85 that meets the specifications in 40 CFR §1065.725 [April 28, 2014] may be used in exhaust and evaporative emission testing as an option to the E-85 Fuel Ethanol specifications in this subparagraph. If a manufacturer elects to utilize E-85 Fuel Ethanol having the specifications listed below, the Executive Officer shall conduct exhaust emission testing with E-85 Fuel Ethanol having the specifications listed below. If a manufacturer elects to utilize E-85 Fuel Ethanol having the specifications set forth in 40 CFR §1065.725 (April 28, 2014), the Executive Officer shall conduct exhaust emission testing with E-85 Fuel Ethanol having the specifications set forth in 40 CFR §1065.725 (April 28, 2014).

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State of California
AIR RESOURCES BOARD

PROPOSED 15-DAY MODIFICATIONS

**CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR
2004 AND SUBSEQUENT MODEL
HEAVY-DUTY OTTO-CYCLE ENGINES AND VEHICLES**

Adopted:	December 27, 2000
Amended:	December 12, 2002
Amended:	July 26, 2007
Amended:	October 17, 2007
Amended:	September 27, 2010
Amended:	March 22, 2012
Amended:	December 6, 2012
Amended:	April 18, 2013 (Corrected by Section 100)
Amended:.....	<u>[Insert date of HD GHG Phase 1 amendment]</u>
Amended:.....	<u>[Insert date of amendment]</u>

Note: The following text contains staff's suggested modifications to these test procedures as originally proposed September 2, 2014. Unless otherwise indicated below, the text of the originally proposed amendments to this document are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as last amended April 18, 2013. The document in which the amendments are being shown is a version that was initially approved by the Board on December 12, 2013, for adoption as part of the "Rulemaking to Consider the Proposed Greenhouse Gas (GHG) Regulations for Medium- and Heavy-Duty Engines and Vehicles, Optional Reduced Emission Standards for Heavy-Duty Engines, and Amendments to the Tractor-Trailer GHG Regulation, Diesel-Fueled Commercial Motor Vehicle Idling Rule, and the Heavy-Duty Hybrid-Electric Vehicles Certification Procedures." That rulemaking is not yet final. Changes to this document as approved on December 12, 2013, are indicated by dotted underline to indicate additions and ~~*italics double strikeout*~~ to indicate deletions compared to the April 18, 2013 version. The dotted underline and ~~*italics double strikeout*~~ text is presented for context and completeness only and is not subject to comment in this proposal. The modified language now proposed by staff is shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions. Staff is proposing modifications to limited portions of the original proposal; for some portions of

the original proposal for which no modifications are proposed, the text has been omitted and the omission indicated by [No change] or “* * * .” [No change] also indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended is indicated by “* * * *”.

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**CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES
FOR 2004 AND SUBSEQUENT MODEL
HEAVY-DUTY OTTO-CYCLE ENGINES AND VEHICLES**

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

**Subpart A - General Provisions for Emission Regulations for 1977 and Later
Model Year New Light-Duty Vehicles, Light-Duty Trucks and Heavy-Duty Engines,
and for 1985 and Later Model Year New Gasoline-Fueled, Natural Gas-Fueled,
Liquefied Petroleum Gas-Fueled and Methanol-Fueled Heavy Duty Vehicles**

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25. **Maintenance.** [§86.xxx-25]

1. §86.004-25. ~~October 17, 1997, April 28, 2014~~August 8, 2014. [No
change.]

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Part II. OTHER REQUIREMENTS; TEST PROCEDURES

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**Subpart H – Engine Fluids, Test Fuels, Analytical Gases and Other Calibration
Standards.**

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1065.710 Gasoline. ~~June 30, 2008~~April 28, 2014.

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2. Delete subparagraph (b) and replace with the following:

**(b)(1) Certification Gasoline Fuel Specifications for the 2004 through
2019 Model Years.**

For 2004 through 2019 model engines certifying in accordance with these test
procedures, gasoline having the specifications listed below may be used in exhaust and
evaporative emission testing as an option to the specifications referred to in
§1065.710(c). If a manufacturer elects to utilize this option, both exhaust and
evaporative emission testing shall be conducted by the manufacturer with gasoline

having the specifications listed below, and the Executive Officer shall conduct exhaust and evaporative emission testing with gasoline having the specifications listed below. For the 2015 through 2019 model years, gasoline having the specifications listed in the following section (b)(2) or gasoline having the specifications in §1065.710(b), may be used in exhaust and evaporative emission testing as an option to the specifications referred to in §1065.710(c) and this section (b)(1). If a manufacturer elects to certify a 2015 through 2019 model year engine using gasoline having the specifications listed in the following section (b)(2) or gasoline having the specifications in §1065.710(b), both exhaust and evaporative emission testing shall be conducted by the manufacturer with gasoline having the specifications listed in the following section (b)(2) or gasoline having the specifications in §1065.710(b), respectively, and the Executive Officer shall conduct exhaust and evaporative emission testing with gasoline having the specifications listed in the following section (b)(2) or gasoline having the specifications in §1065.710(b), respectively.

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(b)(2) Certification Gasoline Fuel Specifications for the 2020 and Subsequent Model Years.

For 2020 and subsequent model engines, gasoline having the specifications listed below may be used in exhaust and evaporative emission testing as an option to the specifications in CFR §1065.710(b). If a manufacturer elects to utilize this option, shall be used in both exhaust and evaporative emission testing shall be conducted by the manufacturer with gasoline having the specifications listed below, and the Executive Officer shall conduct exhaust and evaporative emission testing with gasoline having the specifications listed below. If a manufacturer elects to utilize gasoline having the specifications in CFR §1065.710(b), both exhaust and evaporative emission testing shall be conducted by the manufacturer with gasoline having the specifications in CFR §1065.710(b), and the Executive Officer shall conduct exhaust and evaporative emission testing with gasoline having the specifications in CFR §1065.710(b).

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1065.725 High-level ethanol-gasoline blends. April 28, 2014.

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B. California provisions.

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2 California Certification Fuel Specifications – Mixtures of Petroleum and Alcohol Fuels for Flexible Fuel Vehicles.

2.1 Exhaust emission test fuel for emission-data and durability-data vehicles. For Otto-cycle or diesel alcohol vehicles and hybrid electric vehicles which use Otto-cycle or diesel alcohol engines, methanol or ethanol fuel used for exhaust emission testing shall meet the applicable specifications set forth in section 2292.2, title 13, CCR, (Specifications for M-85 Fuel Methanol) or section 2292.4 (Specifications for E-85 Fuel Ethanol) as modified by the following. E-85 that meets the specifications in §1065.725 may be used in exhaust and evaporative emission testing as an option to the E-85 Fuel Ethanol specifications in this subparagraph. If a manufacturer elects to utilize E-85 Fuel Ethanol having the specifications listed below, the Executive Officer shall conduct exhaust emission testing with E-85 Fuel Ethanol having the specifications listed below. If a manufacturer elects to utilize E-85 Fuel Ethanol having the specifications set forth in 40 CFR §1065.725, the Executive Officer shall conduct exhaust emission testing with E-85 Fuel Ethanol having the specifications set forth in 40 CFR §1065.725.

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Subpart N - ~~Emission Regulations for New Otto-Cycle and Diesel Heavy-Duty Engines; Gaseous and Particulate Exhaust Test Procedures for Heavy-Duty Engines~~

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86.1305-2010 Introduction; structure of subpart. ~~September 15, 2011 April 28, 2014~~August 8, 2014.

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State of California
AIR RESOURCES BOARD

PROPOSED 15-DAY MODIFICATIONS

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

Adopted: December 12, 2002
Amended: July 24, 2003
Amended: September 1, 2006
Amended: July 26, 2007
Amended: October 17, 2007
Amended: October 14, 2008
Amended: September 27, 2010
Amended: October 12, 2011
Amended: March 22, 2012
Amended: December 6, 2012
Amended: April 18, 2013 (Corrected by Section 100)
Amended: [Insert date of HD GHG Phase 1 amendment]
Amended: [Insert date of amendment]

Note: The following text contains staff's suggested modifications to these test procedures as originally proposed September 2, 2014. Unless otherwise indicated below, the text of the originally proposed amendments to this document are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as last amended April 18, 2013. The document in which the amendments are being shown is a version that was initially approved by the Board on December 12, 2013, for adoption as part of the "Rulemaking to Consider the Proposed Greenhouse Gas (GHG) Regulations for Medium- and Heavy-Duty Engines and Vehicles, Optional Reduced Emission Standards for Heavy-Duty Engines, and Amendments to the Tractor-Trailer GHG Regulation, Diesel-Fueled Commercial Motor Vehicle Idling Rule, and the Heavy-Duty Hybrid-Electric Vehicles Certification Procedures." That rulemaking is not yet final. Changes to this document as approved on December 12, 2013, are indicated by dotted underline to indicate additions and ~~italics double strikeout~~ to indicate deletions compared to the April 18, 2013 version. The dotted underline and ~~italics double strikeout~~ text is presented for context and completeness only and is not subject to comment in this proposal. The modified language now proposed by staff is shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions. Staff is proposing modifications to limited portions of the original proposal; for some portions of

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

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

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**Subpart A - General Provisions for Emission Regulations for 1977 and Later
Model Year New Light-Duty Vehicles, Light-Duty Trucks, and Heavy-Duty Engines,
and for 1985 and Later Model Year New Gasoline-Fueled, Natural Gas-Fueled,
Liquefied Petroleum Gas-Fueled and Methanol-Fueled Heavy-Duty Vehicles.**

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25. Maintenance. [§86.xxx-25]

A. Federal provisions.

1. **§86.004-25.** ~~October 21, 1997~~April 28, 2014~~April 28, 2014~~August 8, 2014.

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**Subpart H – Engine Fluids, Test Fuels, Analytical Gases and Other Calibration
Standards**

* * * *

1065.725 High-level ethanol-gasoline blends. April 28, 2014.

* * * *

B. California provisions.

* * * *

**2 California Certification Fuel Specifications – Mixtures of Petroleum
and Alcohol Fuels for Flexible Fuel Vehicles.**

**2.1 Exhaust emission test fuel for emission-data and durability-
data vehicles.** For Otto-cycle or diesel alcohol vehicles and hybrid electric
vehicles which use Otto-cycle or diesel alcohol engines, methanol or ethanol fuel

used for exhaust emission testing shall meet the applicable specifications set forth in section 2292.2, title 13, CCR, (Specifications for M-85 Fuel Methanol) or section 2292.4 (Specifications for E-85 Fuel Ethanol) as modified by the following. E-85 that meets the specifications in §1065.725 may be used in exhaust and evaporative emission testing as an option to the E-85 Fuel Ethanol specifications in this subparagraph. If a manufacturer elects to utilize E-85 Fuel Ethanol having the specifications listed below, the Executive Officer shall conduct exhaust emission testing with E-85 Fuel Ethanol having the specifications listed below. If a manufacturer elects to utilize E-85 Fuel Ethanol having the specifications set forth in 40 CFR §1065.725, the Executive Officer shall conduct exhaust emission testing with E-85 Fuel Ethanol having the specifications set forth in 40 CFR §1065.725.

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Subpart N - Emission Regulations for New Otto-Cycle and Diesel Heavy-Duty Engines; Gaseous and Particulate Exhaust Test Procedures for Heavy-duty Engines

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86.1305-2010 Introduction; structure of subpart. ~~September 15, 2011-April 28, 2014~~August 8, 2014.

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California Environmental Protection Agency
AIR RESOURCES BOARD

PROPOSED 15-DAY MODIFICATIONS

**CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR
2018 AND SUBSEQUENT MODEL ZERO-EMISSION VEHICLES AND HYBRID
ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND
MEDIUM-DUTY VEHICLE CLASSES**

Adopted: March 22, 2012
Amended: December 6, 2012
Amended: May 30, 2014
Amended: [Insert Date of Amendment]

Note: The following text contains staff's suggested modifications to these test procedures as originally proposed September 2, 2014. Unless otherwise indicated below, the text of the originally proposed amendments to this document are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as amended May 30, 2014. The modified language now proposed by staff is shown in double underline to indicate additions and ~~double strikeout~~ to indicate deletions. Staff is proposing modifications to limited portions of the original proposal; for some portions of the original proposal for which no modifications are proposed, the text has been omitted and the omission indicated by [No change] or "* * * ." [No change] also indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by "* * * *".

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**CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR
2018 AND SUBSEQUENT MODEL ZERO-EMISSION VEHICLES AND
HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR,
LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES**

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B. Definitions and Terminology.

1. Definitions.

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“Charge-increasing operation” means a type of vehicle operation that occurs when the energy storage SOC may fluctuate but, on average, increases while the vehicle is driven over two or more consecutive UDDS cycles. A driver-selectable mode that activates a charge-increasing operation is included in this definition. When testing in charge-increasing operation or ~~the~~ a driver-selectable charge-increasing mode, the SOC shall be set at the lowest normal level allowed by the vehicle during UDDS driving as the initial SOC level for the test.

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G. Test Procedures for 2018 and Subsequent Model Off-Vehicle Charge Capable Hybrid Electric Vehicles.

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5. Urban Emission Test Provisions for Off-Vehicle Charge Capable Hybrid Electric Vehicles.

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5.12 Urban Vehicle Preconditioning for Off-Vehicle Charge Capable Hybrid Electric Vehicles.

To be conducted pursuant to the “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles” with the following supplemental requirements:

5.12.1 For charge-depleting and charge-sustaining tests, ~~the~~ the vehicle shall be preconditioned in the driver-selectable mode to be tested and with the initial SOC set to ensure in-charge-sustaining operation for the duration of the

preconditioning drive. To precondition a vehicle with charge-increasing operation or a driver-selectable charge-increasing mode, the initial SOC shall be set at the lowest normal level allowed by the vehicle when driving on the UDDS cycle. For vehicles that do not allow manual activation of the auxiliary power unit, battery state-of-charge shall be set at a level that causes the vehicle to operate the auxiliary power unit for the maximum possible cumulative amount of time during the preconditioning drive.

* * * *

5.12.75 For the charge depleting range emission test, and the charge sustaining emission test, and the charge-increasing emission test, the preconditioning cycle shall be the UDDS cycle and performed at this time. The vehicle must be in charge sustaining operation during the preconditioning drive. To determine charge sustaining operation, the vehicle must meet the SOC criterion in section G.10 from the start to the end of the two consecutive UDDSs. As an option, charge sustaining operation can be achieved for a single UDDS if data is provided showing that charge sustaining operation can consistently be maintained over one UDDS. The vehicle must meet the SOC criterion in section G.10 from the start to the end of a single UDDS. Alternative procedures may be used to determine charge sustain operation for the precondition drive if the alternate procedure demonstrates charge sustaining operation based on section G.10 and is approved in advance by the Executive Officer of the Air Resources Board.

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5.12.108 For the uUrban eCharge dDepleting range Emission tTest, the Alternative Urban Charge Depleting Emission Test, the hHighway eCharge dDepleting rRange tTest, and the optional eCold sStart US06 rRange tTest, charge the vehicle to full state-of-charge as specified by the vehicle manufacturer. For the Alternative Urban Charge-Depleting Emission Test, only the initial dynamometer run to determine urban all-electric range as described in G.5.4.2 (ii) would require the vehicle to be charged to full state-of-charge prior to testing. For any subsequent dynamometer run to determine urban charge-depleting emissions for the Alternative Urban Charge-Depleting Emission Test, the initial SOC would be set according to G.5.4.2 (iv). The vehicle must be turned off during charging and charge time shall not exceed soak time.

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5.4 Determination of Urban All-Electric Range, and Urban Equivalent All-Electric Range, and Urban Charge-Depleting Emissions for Off-Vehicle Charge Capable Hybrid Electric Vehicles.

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5.4.5 Alternative Urban Charge-Depleting Emission Test.

A vehicle with an All-Electric Range that is equal to or greater than four UDDS cycles and has an AER/EAER ratio that is equal to or greater than 0.98 may demonstrate compliance with applicable exhaust emission standards using this subparagraph G.5.4.5 in lieu of subparagraph G.5.4.2. Use of the Alternative Urban Charge-Depleting Emission Test must be approved in advance by the Executive Officer of the Air Resources Board.

For the purpose of measuring vehicle emissions, subparagraphs 5.4.5(i) and (ii) must be performed during the initial Alternative Urban Charge-Depleting Emission Test to determine urban all-electric range; these subparagraphs may be omitted during any subsequent Alternative Urban Charge-Depleting Emission Tests to determine urban charge-depleting emissions.

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