E-Cert Data Requirements for Light-Duty Certification

Workshop

On-Road Light-Duty Certification Section
Data Development Services Section

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CALIFORNIA AIR RESOURCES BOARD

Overview

- 2008 workshop: E-Cert with LEV2 only
- 2013 workshop: E-Cert with LEV2, LEV3, ZEV and GHG
- Data requirements
- InfoPath form & XML Schema
- Timeline
- Q & A

Data Requirements

- Certification requirements for LEV2 and LEV3
  - CSI 1: General information of test group
  - CSI 2A: Official exhaust emission standards and cert levels
  - CSI 2B: Official evaporative emission standards and cert levels
  - CSI 3: Test group description
  - CSI 4: Exhaust emissions control system (ECS) information
  - CSI 5A: Exhaust emission data vehicle (EDV) information
  - CSI 5B: Exhaust durability data vehicle (DDV) information
  - CSI 6A: Evaporative family description
  - CSI 6B: Evaporative EDV information
  - CSI 6C: Evaporative DDV information
  - CSI 7: Vehicle model summary
  - CSI 10A: Hybrid electric vehicle (HEV) information
  - CSI 10B: Zero emission vehicle (ZEV) information

- http://www.arb.ca.gov/msprog/arbecert/files/database/ecert_ldv_data_requirements.pdf

* CSI: Certification Summary Information

Data Requirements: Example

- CSI 3 for test group description

Name	Optional	SQL Data Type	SQL Type Qualifiers	Database Comment	Table Name
TG_OPFUEL_TYPE	NO	VARCHAR2	3	Select the operating fuel type for the test group. Applicable values: GAS: GASOLINE, DSL: DIESEL, CNG: COMPRESSED NATRUAL GAS, E85: 85% ETHANOL, H: HYDROGEN, LNG: LIQUEFIED NATURAL GAS, LPG: LIQUEFIED PETROLEUM GAS, OTH: OTHER.	LDV_TEST_GROUP_DESC_FUEL
TG_FUEL_METERING	NO	VARCHAR2	4	Select fuel metering type for this test group. Applicable values: CARB: CARBURETOR, CMIX: CNG MIXER, DFI: DIRECT FUEL INJECTION, IFI: INDIRECT FUEL INJECTION, LMIX: LPG MIXER, MFI: MULTIPORT FUEL INJECTION, SFI: SEQUENTIAL MULTIPORT FUEL INJECTION, TBI: THROTTLE BODY INJECTION, OTH: OTHER.	LDV_TEST_GROUP_DESC_FUEL
TG_FUEL_METERING_OTHER	YES	VARCHAR2	20	Briefly describe the fuel metering type for this test group, if not listed in available fuel metering types.	LDV_TEST_GROUP_DESC_FUEL

Name: data field name
Optional: if no, the field is required field, if yes, the field is optional
SQL data type: type of data field (number, character, variable character)
SQL type qualifiers: length of data field
Database comment: explanation about data field
Table name: name of table where data field is located

Which CSI to fill out?

- Required CSIs for a particular vehicle fuel category and operating fuel type

Vehicle fuel category	Operating fuel	CSI 1	CSI 2A	CSI 2B	CSI 3	CSI 4	CSI 5A	CSI 5B	CSI 6A	CSI 6B	CSI 6C	CSI 7	CSI 10A		CSI 10B
													HEV, PHEV	Others	
Dedicated single fuel vehicle	gasoline, LPG	R	R	R	R	R	R	R	R	R	R	R	R	NA	NA
	diesel	R	R	NA	R	R	R	R	NA	NA	NA	R	R	NA	NA
	CNG	R	R	R	R	R	R	R	NA	NA	NA	R	R	NA	NA
FFV	E85 + gasoline	R	R	R	R	R	R	R	R	R	R	R	R	NA	NA
Dual-fuel vehicle	(CNG, LPG) + gasoline	R	R	R	R	R	R	R	R	R	R	R	R	NA	NA
Bi-fuel vehicle	CNG + diesel	R	R	R	R	R	R	R	NA	NA	NA	R	R	NA	NA
ZEV (battery electric, H2 fuel cell)	NA	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	R

R: required

NA: not applicable

How to create XML files for submittal

Two ways

- **InfoPath Form**: user-friendly form that a manufacturer can use for entering cert data and save it as an XML file (http://www.arb.ca.gov/msprog/arbecert/files/infopath/ldv.xsn)

- **XML Schema**: design for IT department to automate the process for creating an XML file (http://www.arb.ca.gov/msprog/arbecert/files/xml_schema/ldv.xsd)

InfoPath Help Tab

CARB LDV E-Cert Form

Version 2.0.2.1

Please enter all data in UPPERCASE.

Contact Info | General Info | CSI 1 | CSI 2A | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | CSI 10A | CSI 10B | ALL CSIs | **Help**

Help

													HEV, PHEV	Others	
Dedicated Single Fuel Vehicle	Gasoline, LPG	R	R	R	R	R	R	R	R	R	R	R	R	N/A	N/A
	Diesel	R	R	N/A	R	R	R	R	R	N/A	N/A	N/A	R	R	N/A	N/A
	CNG	R	R	R	R	R	R	R	R	N/A	N/A	N/A	R	R	N/A	N/A
FFV	E85 + Gasoline	R	R	R	R	R	R	R	R	R	R	R	R	R	N/A	N/A
Dual-Fuel Vehicle	(CNG, LPG) + Gasoline	R	R	R	R	R	R	R	R	R	R	R	R	R	N/A	N/A
Bi-Fuel Vehicle	CNG + Diesel	R	R	R	R	R	R	R	R	N/A	N/A	N/A	R	R	N/A	N/A
ZEV (Battery Electric, H2 Fuel Cell)	N/A	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	R
R: Required, N/A: Not Applicable																

File Naming Convention

When saving the InfoPath form, please follow the naming convention for all XML file submissions to the California Air Resources Board through the E-Cert Application Loader website.

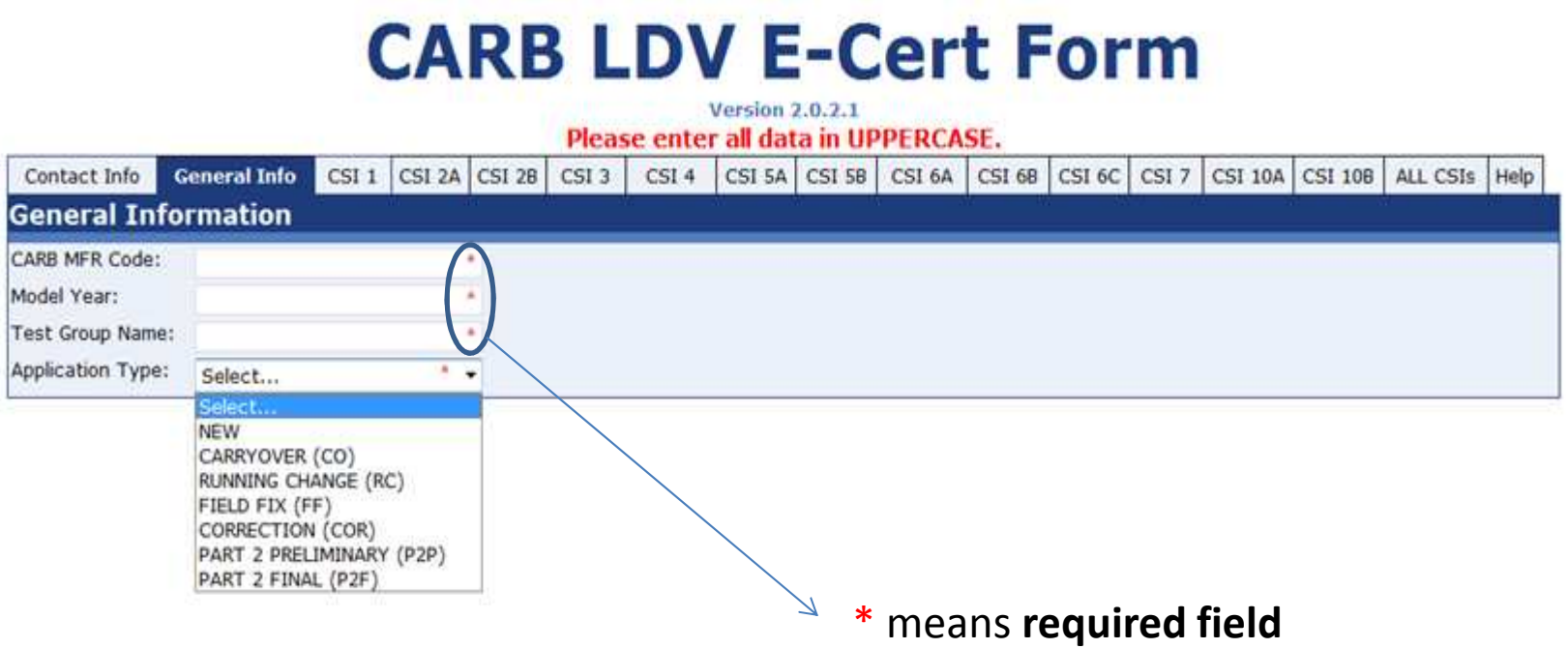
The naming convention for the XML files consists of three parts as shown: *CARBMFRCODE*_LDV_*TESTGROUP*.xml

1. **CARB MFR Code**
   - This is the manufacturer code that was assigned to each manufacturer by the California Air Resources Board.
2. **_LDV_**
   - This will remain the same for each file.
3. **Test Group**
   - This is the name of the test group for the particular application.

The only portions of the file name that change are the ones identified by *red italics*.

An example file name would be MFR_LDV_EMFRV02.0ABC.xml

InfoPath General Info



* means **required field**

Make sure required fields (*) are filled out before saving InfoPath or it will not be loaded into E-Cert

InfoPath CSI 1

General test group information

Contact Info | General Info | **CSI 1** | CSI 2A | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | CSI 10A | CSI 10B | ALL CSIs | Help

CSI 1

Durability Group Name:	EARBDGNA1234
Running Change Reference Number/Name:	
CARB TG Classification:	50 STATES
CARB TG Interim / In-Use FTP Standard:	NMOG+NOx
CARB TG Interim / In-Use SFTP Standard:	NMOG+NOx
Federally-Certified Vehicle (Cleaner Federal Vehicle):	NO, THIS TEST GROUP COMPLIES WITH CA LOW EMISSION VEHICLE STANDARDS
CARB FTP Standard:	LEV3 ULEV125
EPA FTP Standard:	TIER2 BIN5
SFTP Standard:	LEV 3 COMPOSITE
Please select a vehicle class of a TG, or a vehicle class to which the most stringent standard is applied, if multiple vehicle classes are in the TG:	PASSENGER CAR
Does this TG meet optional LEV NOx exhaust emission standard certification for "Work Trucks"?:	NO
TG Fuel Category:	DEDICATED SINGLE FUEL VEHICLE
Light-Duty Specially Constructed Vehicles (SPCNS):	NO, THIS TEST GROUP IS NOT SPCNS

Light-Duty Specially Constructed Vehicles Only	
Weight of Worst Case Vehicle (lbs)	N/V Ratio of Worst Case Vehicle

TG NMOG or NMOG+NOx for Fleet Average Calculation:	0.125
TG VEC Factor for VEC Calculation of MDV:	
OBD Approval Reference Number:	E-14-010
Date this TG will be introduced into commerce?:	1/30/2013
CSI 1 Manufacturer Notes:	

InfoPath CSI 2A

Official exhaust emission standards and cert levels

Contact Info | General Info | CSI 1 | **CSI 2A** | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | CSI 10A | CSI 10B | ALL CSIs

CSI 2A

NMOG Fleet Average Value for PC and LDT (LVW<3751):		Standard:	
NMOG Fleet Average Value for LDT (3751 LVW ~ 8500 GVWR):		Standard:	
NMOG+NOx Fleet Average Value for PC & LDT (LVW<3751): **(LEV3 Only)**	0.094	Standard:	0.100
NMOG+NOx Fleet Average Value for LDT (3751 LVW ~ 8500 GVWR): **(LEV3 Only)**		Standard:	0.119
Exhaust Emissions UL Years:	15	Miles:	150000
Is any model in the TG granted DOR?	NO		
Does NMOG Cert include DOR NMOG Credit?	NO		
Is any model in the TG granted Non-PZEV Zero Evap?	NO		
Does NMOG Cert include Non-PZEV Zero-Evap NMOG Credit?	NO		
Direct measurement of NMOG?	NO		
NMOG/NMHC ratio:	1.1	HCHO/NMHC ratio:	
RAF for NMOG:		RAF for Methane:	

LEV3 SULEV30 gasoline PC (150k UL, E10 test fuel)

In case of FFV, DFV, please enter additional NMOG/NMHC ratio for secondary fuel into manufacturer note

FTP Exhaust Emissions:

FTP Exhaust Emissions Test Fuel:	E10 - 10% ETHANOL + 90% CA PHASE 2 GAS (CA ExTP II A 100.3.4.3)
If Other, Specify:	
Exhaust FTP xxHC Type:	NON-METHANE ORGANIC GAS (NMOG)
If Other, Specify:	
Modified Test Procedure for FTP Test? (If yes, describe modification & approval ref # in FTP Manufacturer Note)	YES
Does this TG have a FFH?	NO
Is the FFH operable above 40°F?	NOT APPLICABLI
Does FTP CERT include FFH exhaust?	NOT APPLICABLI

InfoPath CSI 2A cont'd

Units: (g/mi)									
Air Pollutant	xxHC	NOx	NMOG + NOx	CO	HCHO (mg/mi)	PM	Highway NOx	Highway NMOG + NOx	Cold-CO
4K CERT (50°F)			0.0222	0.86	6.5				
4K STD (50°F)			0.060	1.0	8				
50K CERT									
50K STD									
UL CERT			0.0156	0.22	2.8	0.007		0.001	
UL STD			0.030	1.0	4	0.01		0.03	

Insert additional FTP Exhaust Emissions

CSI 2A Manufacturer Note for FTP Exhaust Emissions: CARB APPROVAL NUMBER FOR MODIFIED TES

SFTP Exhaust Emissions:

SFTP Exhaust Emissions Test Fuel: E10 - 10% ETHANOL + 90% CA PHASE 2 GAS (CA ExTP II A 100.3.4.3)

If Other, Specify:

Modified Test Procedure for SFTP Test? (If yes, describe modification & approval ref # in SFTP Manufacturer Note): YES

Exhaust SFTP xxHC Type: NMOG

SFTP Test Cycle	US06/UC (LA92)			SC03		Composite	
Air Pollutant	xxHC + NOx (g/mi)	CO (g/mi)	PM (mg/mi)	xxHC + NOx (g/mi)	CO (g/mi)	xxHC + NOx (g/mi)	CO (g/mi)
4K CERT:							
4K STD:							
UL CERT:	0.0333	5.47	6.4	0.0144	1.55		
UL BIN:							
UL STD:	0.050	9.6	10	0.020	3.2		

InfoPath CSI 3

Test group description

Contact Info | General Info | CSI 1 | CSI 2A | CSI 2B | **CSI 3** | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | CSI 10A | CSI 10B | ALL CSIs

CSI 3

Test Group Description:

Engine Set Number: 1 (Select a sequential number, starting with 1 for each Set Number.)

Engine Location (relation to the front of the vehicle): FRONT ENGINE

TG Combustion Cycle: 4-STROKE SPARK IGNITION If Other:

Cylinder/Block Arrangement: INLINE If Other:

Number of Cylinders/Rotors: 4

Engine Cooling Medium: LIQUID If Other:

Engine Displacement (L): 1.4

Intake Valves per Cylinder:	Exhaust Valves per Cylinder:
2	2

Insert Additional Cylinders

Engine Valvetrain: DUAL OVERHEAD CAM If Other:

Intake Variable Valve Timing (VVT): VARIABLE (MORE THAN TWO SETTINGS OF VALVE TIMING)

Exhaust Variable Valve Timing (VVT): VARIABLE (MORE THAN TWO SETTINGS OF VALVE TIMING)

Intake Valve Lift: FIXED 1 Exhaust Valve Lift: FIXED 1

Cylinder Deactivation: NO

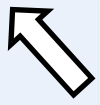
Engine Special Features 1	Engine Special Features 2
NOT APPLICABLE	NOT APPLICABLE

Insert Additional Engine Special Features 1 | Insert Additional Engine Special Features 2

TG Operating Fuel	TG Fuel Metering	TG Fuel Metering (If Other)	Rated Power (hp)	@RPM	Peak Torque (foot-pounds)	@RPM
85% ETHANOL	SEQUENTIAL MULTIPORT FUEL INJECTIOI		83	4,800	92	5,000
GASOLINE	SEQUENTIAL MULTIPORT FUEL INJECTIOI		95	4,800	105	5,000
Select... *	Select... *		*	*	*	*

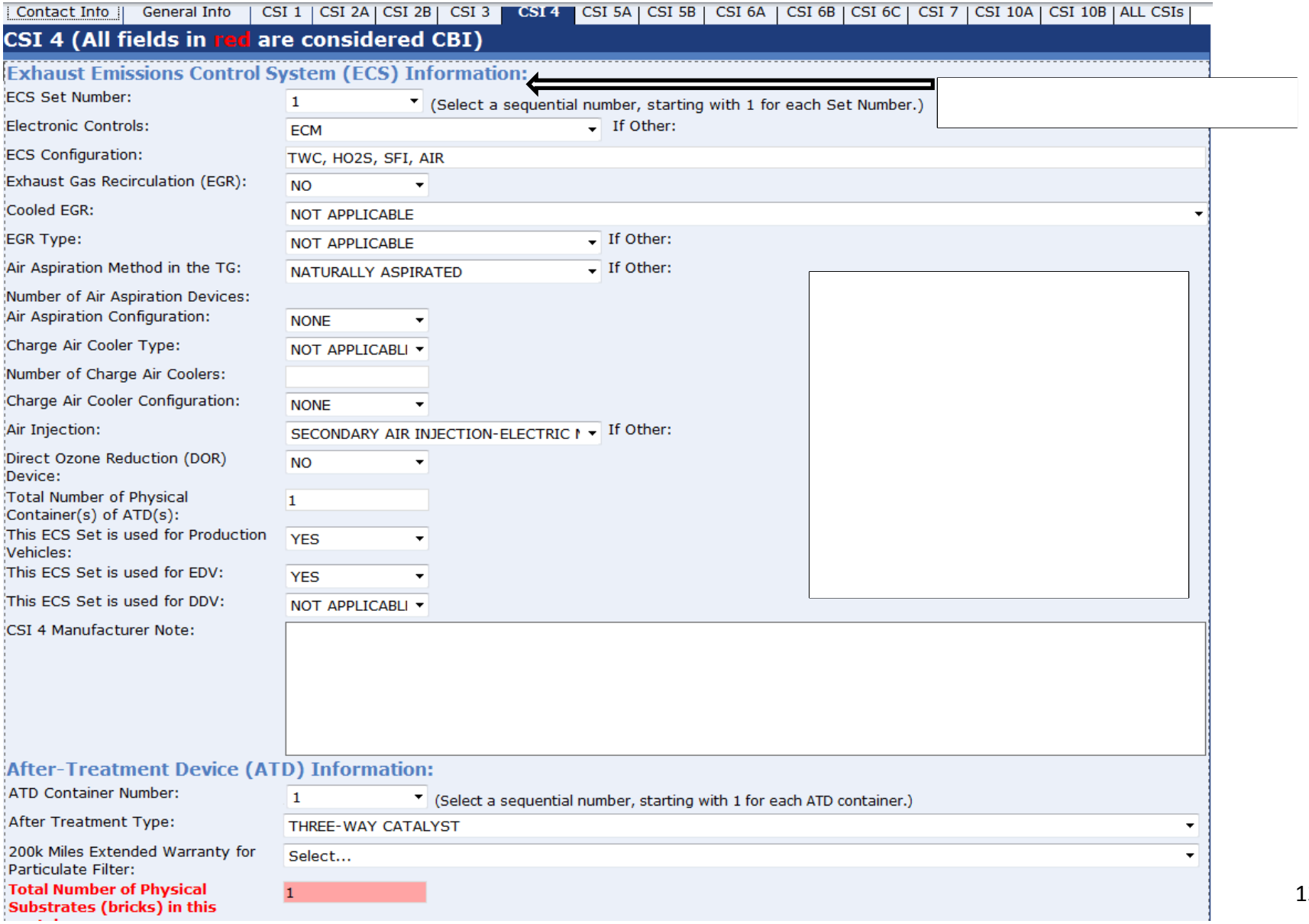
Insert Additional Fuel Information

CSI 3 Manufacturer Note:



InfoPath CSI 4

Exhaust ECS information



InfoPath CSI 4 cont'd

Brick (Substrate) Information:

Size of Substrate (liters):	0.5	
Substrate Precious Metals:	PLATINUM/RHODIUM	**If Other:**
Substrate Material:	CERAMIC	**If Other:**
Substrate Construction:	MONOLITH	**If Other:**
Cell Geometry:	HONEYCOMB	**If Other:**
Substrate Cell Density (# of cell / in^2):	2,000	
Substrate Active Surface Area (m^2):	5,000	
Precious Metal Loading Rate (g/liter):	1	
Precious Metal Composition:	1/1.5	
Uniform Loading of Precious Metals?	YES	

Insert an additional Brick (Substrate)

Insert an additional ATD

Exhaust Feedback Sensor Information:

Sensor Type:	HEATED OXYGEN SENSOR
Sensor Min Distance from Exhaust Manifold (distance from nearest exhaust port to the sensor, inches)	10
Sensor Max Distance from Exhaust Manifold (distance from nearest exhaust port to the sensor, inches)	12

Insert an additional Exhaust Feedback Sensor

Other Sensor Information:

Sensor Type:	KNOCK (DETONATION) SENSOR
If Other, Specify:	
Number of Sensors:	1

Insert an additional Sensor

Insert an additional CSI 4

InfoPath CSI 5A

Exhaust EDV information

Contact Info | General Info | CSI 1 | CSI 2A | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | CSI 10A | CSI 10B | ALL CSIs

CSI 5A (All fields in red are considered CBI)

Exhaust Emission Data Vehicle (EDV) Information:

EDV Set Number:	1 (Select a sequential number, starting with 1 for each Set Number.)
Test Group Name:	EARBV1.55ABC
EDV Division Name:	CARB
EDV Model Name:	MODEL1
EDV Test Vehicle ID:	001
EDV Test Data Type:	CARRYOVER DATA
Original TG of EDV:	DARBV1.55ABC
Original Evap Family of EDV:	AARBR0120600
EDV Engine Code:	2
EDV Displacement (liters):	1.5
EDV Cylinder (Block) Arrangement:	INLINE
If Other, Specify:	
EDV Number of Cylinders:	4
EDV Number of Intake Valves per Cylinder:	2
EDV Number of Exhaust Valves per Cylinder:	2
EDV Drive System:	FRONT WHEEL DRIVE
EDV N/V Ratio:	92.3
EDV Curb Weight (lb):	3715
EDV LVW (lb):	
EDV ALVW (lb):	
EDV ETW (lb):	4000
EDV GVWR (lb):	4539
EDV ECS Set Number:	1 (enter the ECS set number from CSI 4)
EDV Rated Power (hp):	84 @ RPM: 2,500
EDV Transmission Type:	AUTOMATIC
EDV Number of Transmission Gears:	6
Alternate Shift:	NO
Shift Indicator Lamp (SIL):	NO

InfoPath CSI 5A cont'd

Raw Test Results without DF:

Test Type:	FEDERAL TEST PROCEDURE (FTP)
Tested By:	EPA
Test ID:	DARB001
Test Date:	12/20/2011
Exh Test Fuel:	GASOLINE - TIER 2 UNLEADED (40CFR86.113-04(a)(1))
If Other, Specify:	
Tested For:	EPA CONFIRMATORY TEST
Target Coefficient A (lb_f):	26.06
Set Coefficient A (lb_f):	6.48
Target Coefficient B (lb_f/mph):	-0.12
Set Coefficient B (lb_f/mph):	-0.2382
Target Coefficient C (lb_f/mph^2):	0.01821
Set Coefficient C (lb_f/mph^2):	0.01608
PHEV Operating Mode:	NOT APPLICABLE
Is this the official certification test?:	YES

THC (g/mi)	NMHC (g/mi)	NMOG (g/mi)	NOx (g/mi)	CO (g/mi)	HCHO (mg/mi)	PM (g/mi)	CO_2 (g/mi)	MPG	CH4 (g/mi)	N2O (g/mi)
0.0081	0.0065	0.0068	0.009	0.24	0		180.7	49.1	0.005	

Raw Test Results without DF:

Test Type:	COLD-CO (20F)
Tested By:	MANUFACTURER
Test ID:	DARB002
Test Date:	11/21/2011
Exh Test Fuel:	GASOLINE - COLD CO HIGH OCTANE (40CFR 86.213-04)
If Other, Specify:	
Tested For:	EPA CONFIRMATORY TEST
Target Coefficient A (lb_f):	28.67
Set Coefficient A (lb_f):	3.5
Target Coefficient B (lb_f/mph):	-0.0132
Set Coefficient B (lb_f/mph):	-0.2382
Target Coefficient C (lb_f/mph^2):	0.02002
Set Coefficient C (lb_f/mph^2):	0.02121
PHEV Operating Mode:	NOT APPLICABLE
Is this the official certification test?:	YES

THC (g/mi)	NMHC (g/mi)	NMOG (g/mi)	NOx (g/mi)	CO (g/mi)	HCHO (mg/mi)	PM (g/mi)	CO_2 (g/mi)	MPG	CH4 (g/mi)	N2O (g/mi)
0.2729	0.2628	0.2733	0.008	1.37	0		279.3	31.4	0.004	

InfoPath CSI 6C

Evaporative DDV information

Contact Info | General Info | CSI 1 | CSI 2A | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | **CSI 6C** | CSI 7 | CSI 10A | CSI 10B | ALL CSIs

CSI 6C

Evaporative DDV and Durability Test Information:

Evaporative DDV Set Number:	1 (Select a sequential number, starting with 1 for each Set Number.)
Evaporative Family:	EARBR0120600
Evap DF Type:	MANUFACTURER DF
DDV Evap Type:	CARRYOVER AN EXACT APPLICATION FROM A PREVIOUSLY CERTIFIED TEST GROUP (WHERE ALL INFORMATION ARE THE
Evap Family of Evap DDV:	AARBR0120600
TG of Evap DDV:	EARBV1.55ABC
Evap DDV Test Vehicle Model:	MODEL1
Displacement:	1.5
Fuel Tank Set Number (From CSI6A):	1
Evaporative DDV Note:	

Durability Information:

Evaporative Durability Info Number:	1 (Select a sequential number, starting with 1 for each Set Number.)
Durability Information Type:	BENCH INFORMATION
Manufacturer Durability Set (Bench/Vehicle/Rig Test) ID:	1 (Start with 1 and increment to the total number of different evaporative durability test)
Vehicle Test ID:	(Vehicle Evap DF Test Only)
Evaporative Test Type:	2-DAYS + HOT SOAK (WHOLE VEHICLE, G/TEST)
Test ID Number:	BDF01
Test Point (miles):	4,000
Test Date:	1/1/2010
Evap Durability Test Fuel:	GASOLINE - CA PHASE 2 (CA ExTP II A 100.3.1)
If Other, Specify:	

	1st Day	2nd Day	3rd Day	Hot Soak
Raw Evap Test for 3D+HS (g/test)				
Raw Evap Test for 2D+HS (g/test)	0.09	0.07		0.0008

Raw Evap Test for Running Loss (g/mi):

InfoPath CSI 6C cont'd

Manufacturer Durability Set (Bench/Vehicle/Rig Test) ID:	6 (Start with 1 and increment to the total number of different evaporative durability test)
Vehicle Test ID:	(Vehicle Evap DF Test Only)
Evaporative Test Type:	ON-BOARD REFUELING VAPOR RECOVERY (G/GALLON)
Test ID Number:	BDF06
Test Point (miles):	150,000
Test Date:	2/6/2010
Evap Durability Test Fuel:	GASOLINE - TIER 2 UNLEADED (40CFR86.113-04(a)(1))
If Other, Specify:	

	1st Day	2nd Day	3rd Day	Hot Soak
Raw Evap Test for 3D+HS (g/test)				
Raw Evap Test for 2D+HS (g/test)				

Raw Evap Test for Running Loss (g/mi):	
Raw Evap Test for ORVR (g/gallon):	0.12
Used For DF Calculation:	YES

Insert additional durability test data
Insert additional durability information

Deterioration Factors (DF):

	3-Days + Hot Soak (g/test)	2-Days + Hot Soak (g/test)	Running Loss (g/mi)	ORVR (g/gallon)
Overall Bench Evap DF:	0.04	0.04	0.000	0.000
Vehicle Evap DF:				
Overall Certification Evap DF:	0.04	0.04	0.000	0.000

Bench DF Manufacturer Notes:	
Vehicle DF Manufacturer Notes:	NO VEHICLE DF WAS TESTED

InfoPath CSI 7

Vehicle model summary

Contact Info | General Info | CSI 1 | CSI 2A | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | CSI 10A | CSI 10B | ALL CSIs

CSI 7 (All fields in red are considered CBI)

Vehicle Model Summary:

Model Number:	1 (Select a sequential number, starting with 1 for each Model Number.)
Vehicle Make:	CARB
Carline Name:	MODEL1
Badge Name:	MODEL1
Body Style:	SEDAN
MFR Model Code:	
Trim Level (i.e., CE, LE, etc):	
TG Vehicle Class:	PASSENGER CAR
ECS Set Number:	1
Engine Code:	2
Engine Set Number (From CSI 3):	1
Curb Weight (lbs):	3715
LVW (lbs):	
ALVW (lbs):	
ETW (lbs):	4000
GVWR (lbs):	4350
Drive System:	FRONT WHEEL DRIVE

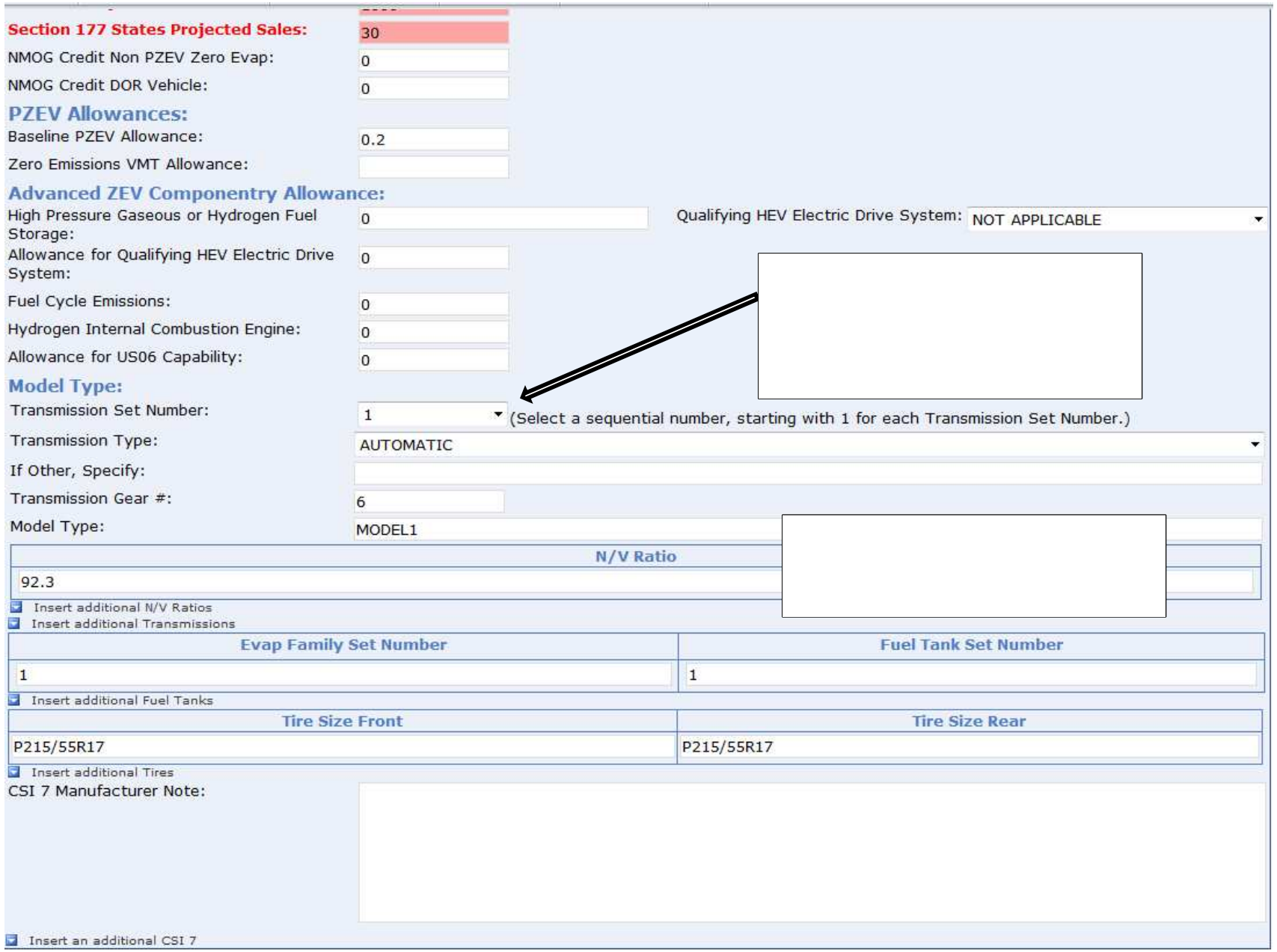
Electric Drive Motor Set # (From CSI 10A):

1

Insert additional drive motors

Regenerative Braking:	BOTH
Modified Test Procedure:	YES
ATD Grouping Statistic:	7.39
Shift Indicator Lamp (SIL):	Select...
Driver Selectable Modes:	NO
If Yes, Describe the Modes:	
Manufacturer Shift Schedule No. (City, Hwy, US06, SC03):	
Label Type:	50 STATES
CA Projected Sales:	100
Total US Projected Sales:	1000

InfoPath CSI 7 cont'd



Section 177 States Projected Sales: 30

NMOG Credit Non PZEV Zero Evap: 0

NMOG Credit DOR Vehicle: 0

PZEV Allowances:

Baseline PZEV Allowance: 0.2

Zero Emissions VMT Allowance:

Advanced ZEV Componentry Allowance:

High Pressure Gaseous or Hydrogen Fuel Storage: 0

Qualifying HEV Electric Drive System: NOT APPLICABLE

Allowance for Qualifying HEV Electric Drive System: 0

Fuel Cycle Emissions: 0

Hydrogen Internal Combustion Engine: 0

Allowance for US06 Capability: 0

Model Type:

Transmission Set Number: 1 (Select a sequential number, starting with 1 for each Transmission Set Number.)

Transmission Type: AUTOMATIC

If Other, Specify:

Transmission Gear #: 6

Model Type: MODEL1

N/V Ratio
92.3

Insert additional N/V Ratios

Insert additional Transmissions

Evap Family Set Number	Fuel Tank Set Number
1	1

Insert additional Fuel Tanks

Tire Size Front	Tire Size Rear
P215/55R17	P215/55R17

Insert additional Tires

CSI 7 Manufacturer Note:

Insert an additional CSI 7

InfoPath CSI 10A

Hybrid electric vehicle (HEV) information

Contact Info | General Info | CSI 1 | CSI 2A | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | **CSI 10A** | CSI 10B | ALL CSIs

CSI 10A

HEV Set Number:	1 (Select a sequential number, starting with 1 for each Set Number.)
HEV Energy Storage Device Category:	BATTERY
If Other, Specify:	
Does the Test Group include a BEVx?	NO
If yes, select the type of BEVx:	Select...

Battery:

Battery Type:	LI+ (LITHIUM ION)
If Other, Specify:	
Number of Batteries (cells):	45
Number of Battery Modules:	9
Number of Battery Packs:	1
Total Weight of Battery Pack (kg):	150
Total Battery Pack(s) Voltage:	
Complete Battery Pack(s) Specific Energy (Whr/Kg):	70.2
Battery Thermal Management:	LIQUID
If Other, Specify:	

Insert an additional battery

Level One Charging Compliant?:	YES
Total Number of Capacitors:	0

Capacitor Rating (Farads)

Insert an additional capacitor

Drive Motor:

Number of Drive Motors:	1
Electric Drive Motor Set Number:	1 (Select a sequential number, starting with 1 for each Set Number.)
Drive Motor Type:	DC PERMANENT MAGNET, BRUSHLESS
If Other, Specify:	
Drive Motor Rated Powers (kW):	60 @RPM: 6,000
Drive Motor Peak Torque (Nm):	120 @RPM: 6,000

Insert an additional drive motor

HEV Test Parameter Information Section:

HEV Test Vehicle ID:	HEV01
HEV Electric Drive System Peak Power Output (kW):	10
HEV Traction Drive System Voltage (V):	5
HEV Traction Drive System Boost:	NO

InfoPath CSI 10A cont'd

HEV Regenerative Braking:	ELECTRICAL REGENERATIVE BRAKING
If Other, Specify:	

Off-Vehicle Charge Capable Hybrid Electric Vehicles:

Urban	
Manufacturer Urban Test #:	
Charge Depleting Cycle Range (R_{cdcu}, mi):	12.3
Charge Depleting Actual Range (R_{cda}, mi):	12.0
Charge Depleting to Charge Sustaining Range (R_{cdcsu}, mi):	15.0
All Electric Range (AER_u, mi):	15.0
Equivalent All Electric Range ($EAER_u$, mi):	17.2
Equivalent Electric Range Fraction (ERF_u, %):	85
Equivalent All-Electric Range Energy Consumption ($EAEREC_u$, kWh/mi):	0.1
Highway	
Manufacturer Highway Test #:	
Charge Depleting Cycle Range (R_{cdch}, mi):	20.4
Charge Depleting Actual Range (R_{cdah}, mi):	18.9
Charge Depleting to Charge Sustaining Range (R_{cdcsh}, mi):	21
All Electric Range (AER_h, mi):	
Equivalent All Electric Range ($EAER_h$, mi):	24.0
Equivalent Electric Range Fraction (ERF_h, %):	87.0
Equivalent All-Electric Range Energy Consumption ($EAEREC_h$, kWh/mi):	0.1

Charge Depleting to Charge Sustaining Range (R_{cdcs}, mi):	20
Charge Depleting Net Energy Consumption (E_{cd}, kWh):	5
Net DC Energy from battery expended during test (kWh):	3
AC energy required to fully charge battery after charge sustaining test (kWh):	12
CSI 10A Manufacturer Note:	

Insert an additional CSI 10A

InfoPath CSI 10B

Zero emission vehicle (ZEV) information

Contact Info | General Info | CSI 1 | CSI 2A | CSI 2B | CSI 3 | CSI 4 | CSI 5A | CSI 5B | CSI 6A | CSI 6B | CSI 6C | CSI 7 | CSI 10A | CSI 10B | ALL CSIs

CSI 10B (All fields in red are considered CBI)

ZEV Set Number: 1 (Select a sequential number, starting with 1 for each Set Number.)

ZEV Energy Storage Device Category: BATTERY

If Other, Specify:

Battery:

Battery Type: LI+ (LITHIUM ION)

If Other, Specify:

Number of Batteries (cells): 10

Number of Battery Modules: 2

Number of Battery Packs: 1

Total Weight of Battery Pack (kg): 500

Total Battery Pack(s) Voltage: 400

Minimum Battery SOC or Voltage: 300

Battery Pack(s) Energy Capacity using C3 Procedure (Ah): 120

Complete Battery Pack(s) Specific Energy (Whr/Kg): 120

Battery Charger Type: ON-BOARD

Battery Charging Method: CONDUCTIVE

If Other, Specify:

Battery Thermal Management: AIR

If Other, Specify:

Insert an additional battery

Level One Charging Compliant? YES

Total Number of Capacitors: 0

Capacitor Rating (Farads)
0

Insert an additional capacitor

Drive Motor:

Number of Drive Motors: 1

ZEV Electric Drive Motor Set Number: 1 (Select a sequential number, starting with 1 for each Set Number.)

Drive Motor Type: AC INDUCTION

If Other, Specify:

Drive Motor Rated Powers (kW): 210 @RPM: 7,000

Drive Motor Peak Torque (Nm): 30 @RPM: 7,000

InfoPath CSI 10B cont'd

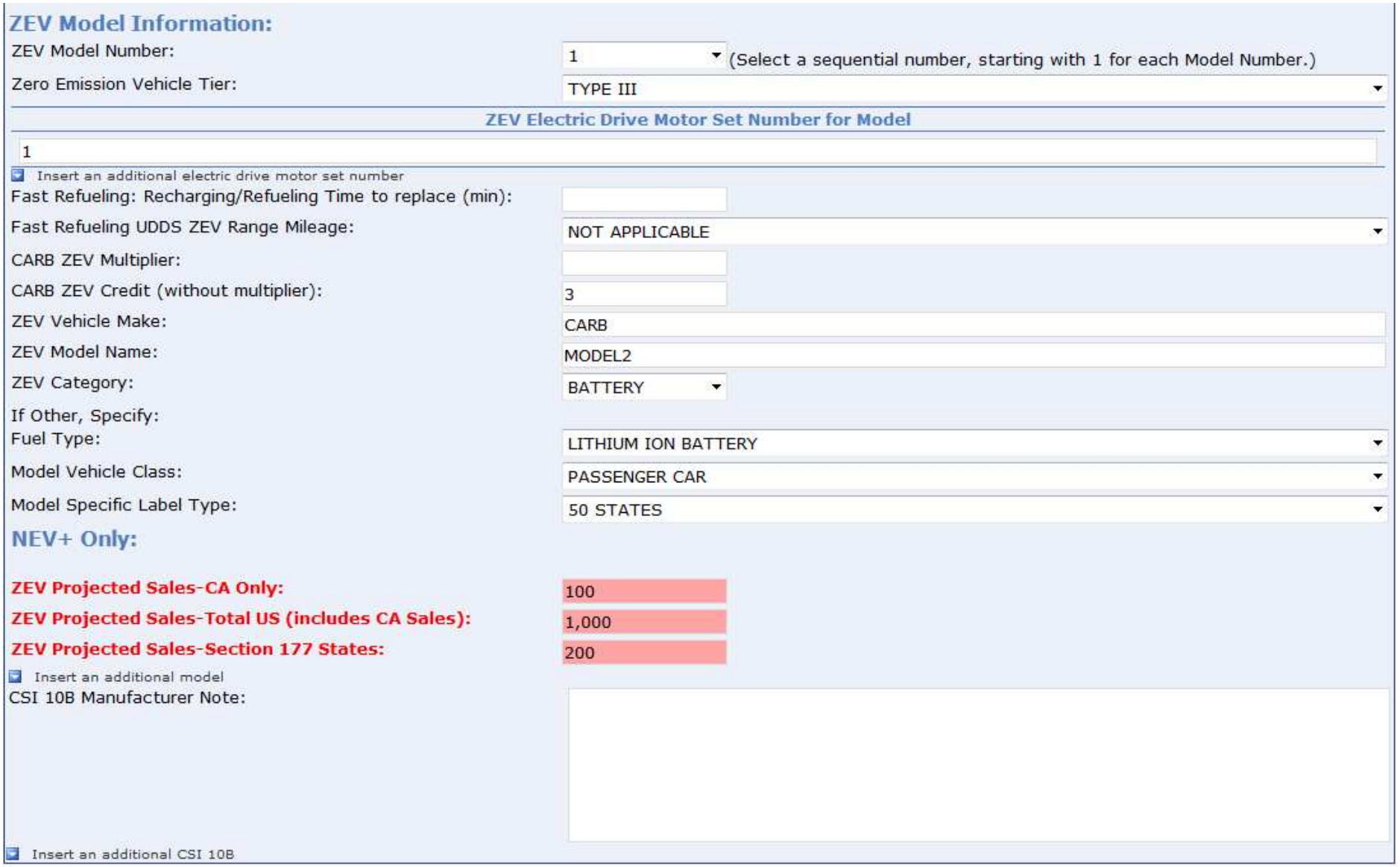
ZEV Test Parameter Information Section:

ZEV Test Vehicle ID:	S3		
ZEV Regenerative Braking:	ELECTRICAL REGENRATIVE BRAKING		
If Other, Specify:			
ZEV Regenerative Braking Source:	REAR WHEELS		
Driver Controlled Regenerative Braking:	NO		
ZEV Vehicle Configuration:	01		
Tire Size:	Front: 245/45R19	Rear:	245/45R19
Curb Weight (lb):	2000		
LVW (lb):	2300		
GVWR (lb):	2500		
ALVW (lb):	2250		
ETW (lb):	2375		
Target Coefficient A (lb_f):	49.45	Set Coefficient A (lb_f):	28.43
Target Coefficient B (lb_f/mph):	0.6234	Set Coefficient B (lb_f/mph):	0.1668
Target Coefficient C (lb_f/mph^2):	0.02636	Set Coefficient C (lb_f/mph^2):	0.02813
Road Load Horsepower (RLHP):	10.42		
Transmission Type:	AUTOMATIC		
If Other, Specify:			
# of Forward Transmission Gears:	1		

All Electric Range Test Information:

Manufacturer Test Number:	1				
	Urban	Highway	Cold CO	SC03	US06
All Electric Range (mi):	200	250			
Net DC Energy Output during Test (kWh/mi):	0.22	0.23			
Total AC Energy required to fully charge Batteries after Test (kWh/mi):	2.5	2.5			
Total DC Energy required to fully charge Batteries after Test (kWh/mi):	0.1	0.1			

InfoPath CSI 10B cont'd



ZEV Model Information:

ZEV Model Number: 1 (Select a sequential number, starting with 1 for each Model Number.)

Zero Emission Vehicle Tier: TYPE III

ZEV Electric Drive Motor Set Number for Model

1

Insert an additional electric drive motor set number

Fast Refueling: Recharging/Refueling Time to replace (min):

Fast Refueling UDDS ZEV Range Mileage: NOT APPLICABLE

CARB ZEV Multiplier:

CARB ZEV Credit (without multiplier): 3

ZEV Vehicle Make: CARB

ZEV Model Name: MODEL2

ZEV Category: BATTERY

If Other, Specify:

Fuel Type: LITHIUM ION BATTERY

Model Vehicle Class: PASSENGER CAR

Model Specific Label Type: 50 STATES

NEV+ Only:

ZEV Projected Sales-CA Only: 100

ZEV Projected Sales-Total US (includes CA Sales): 1,000

ZEV Projected Sales-Section 177 States: 200

Insert an additional model

CSI 10B Manufacturer Note:

Insert an additional CSI 10B

Data Requirements for GHG

Following GHG data requirements will be included in future E-Cert update for 2017MY implementation

	Name	Optional	SQL Data Type	SQL Type Qualifiers	Database Comment
CSI 2A	GHG_FTP_N2O_STD_UL	YES	NUMBER	4,3	Enter N2O standard in g/mi at UL. Do not enter the standard if N2O is included in Fleet Averaging Program.
CSI 2A	GHG_FTP_CH4_STD_UL	YES	NUMBER	4,3	Enter CH4 standard in g/mi at UL. Do not enter the standard if CH4 is included in Fleet Averaging Program.
CSI 2A	GHG_FTP_N2O_CL_UL	YES	NUMBER	5,4	Enter N2O FTP exhaust emission level (g/mi) at UL measured on FTP. Do not enter the emission level if N2O is included in Fleet Averaging Program.
CSI 2A	GHG_FTP_CH4_CL_UL	YES	NUMBER	5,4	Enter CH4 FTP exhaust emission level (g/mi) at UL measured on FTP. Do not enter the emission level if CH4 is included in Fleet Averaging Program.
CSI 7	GHG_CO2_FP	YES	NUMBER	4,1	Enter foot print in ft2 for CO2 determination/calculation.
CSI 7	GHG_CO2_COEF_A	YES	NUMBER	3,2	Enter coefficient a for CO2 calculation.
CSI 7	GHG_CO2_COEF_B	YES	NUMBER	3,1	Enter coefficient b for CO2 calculation.
CSI 7	GHG_CO2_TARGET	YES	NUMBER	4,1	Enter Target CO2 in g/mile. This could be determined value or calculated value.
CSI 7	GHG_FTP_N2O_CL_UL	YES	NUMBER	5,4	Enter N2O FTP exhaust emission level (g/mi) at UL if manufacturer elects to add N2O into the CO2 fleet average calculation. This is the value before applying the GWP (298).
CSI 7	GHG_HWY_N2O_CL_UL	YES	NUMBER	5,4	Enter N2O HWFET exhaust emission level (g/mi) at UL if manufacturer elects to add N2O into the CO2 fleet average calculation. This is the value before applying the GWP (298).
CSI 7	GHG_FTP_CH4_CL_UL	YES	NUMBER	5,4	Enter CH4 FTP exhaust emission level (g/mi) at UL if manufacturer elects to add CH4 into the CO2 fleet average calculation. This is the value before applying the GWP (25).
CSI 7	GHG_HWY_CH4_CL_UL	YES	NUMBER	5,4	Enter CH4 HWFET exhaust emission level (g/mi) at UL if manufacturer elects to add CH4 into the CO2 fleet average calculation. This is the value before applying the GWP (25).

Timeline

- Next workshop July, 2013: how to upload XML file
- Additional testing by ARB: July - September, 2013
  - In 2012, staff successfully tested various scenarios and created XML files
- Voluntary testing by manufacturers: August - September, 2013
- Full production: October, 2013

Contacts

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  - Cert staffs

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Questions and Answers