



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
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OFFICE OF
AIR AND RADIATION

September 14, 2015

CD-15-22 (LDV, LDT, SVM, ICI)

SUBJECT: Updated Criteria for Manufacturer-Conducted Confirmatory Testing

Dear Manufacturer:

The purpose of this letter is to provide manufacturers with updated criteria (cut points) for manufacturer-conducted confirmatory testing of emissions and fuel economy vehicles. This letter supersedes previous cut point criteria provided in EPA guidance letter CISC-09-18, December 3, 2009.

Background

Manufacturers are required to perform confirmatory testing if the vehicle meets any of the five criteria outlined in 40 CFR 86.1835-01(b)(1) and 600.008(b)(1). This guidance document updates the criteria for two of the five conditions: High Fuel Economy and Potential Fuel Economy Class Leader. No changes are being made to the other three criteria that were originally established in EPA guidance letter VPCD-99-06 dated April 22, 1999. Enclosure 1 of this letter lists the criteria for all five conditions for your reference purposes.

Policy for Non-hybrid Gasoline and Alternative Fueled Vehicles

Manufacturer confirmatory testing is required if the fuel economy value of the city and/or highway test equals or exceeds the criteria included in Enclosure 2 (High Fuel Economy) or Enclosure 3 (Potential Fuel Economy Class Leader). For alternative-fueled vehicles, including E85, M85, propane, and compressed natural gas (CNG) vehicles, the fuel economy test results must first be converted to an equivalent gasoline fuel economy value using the conversion factors provided in Enclosure 4 so that they can be compared with the cut point criteria outlined in Enclosures 2 and 3.

Policy for Hybrid and Diesel Vehicles

Enclosure 2 (High Fuel Economy) contains ETW-based cut points for conventional gasoline vehicles. Since there is not enough data to determine appropriate ETW-based cut points for hybrid and diesel vehicles, we request that manufacturers use good engineering judgment to determine the need for manufacturer confirmatory testing for those vehicles. Normally EPA would expect manufacturers to perform city or highway confirmatory tests for these vehicles when the fuel economy of the vehicle is higher than expected due to test-to-test variability or other reasons (e.g. when fuel economy is up by 3% or more from expected values). Enclosure 4 provides additional information about this process.

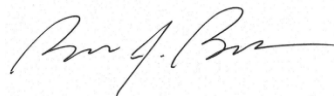
Enclosure 3 (Potential Fuel Economy Class Leader) contains cut points for hybrid and diesel vehicles for some (but not all) vehicle classes. For hybrid and diesel vehicles in vehicle classes which are not shown in Enclosure 3, manufacturers should use the highest unadjusted city/highway mpg values listed on www.fueleconomy.gov for the two most recent model years. Note that fuel economy label data in Excel format are available at <http://www.fueleconomy.gov/feg/download.shtml> for each model year. If there are no comparable vehicles in a vehicle class, manufacturers should use good engineering judgment to determine the need for manufacturer-conducted confirmatory test. Enclosure 4 provides additional information about this process.

Policy for Electric Vehicles (EVs), Plug-in Hybrid Electric Vehicles (PHEVs) and Fuel Cell Vehicles

For EVs, PHEVs (when testing in charge depleting mode) and Fuel Cell Vehicles, manufacturers should use good engineering judgment to determine the need for manufacturer-conducted confirmatory tests. For PHEVs (when tested in charge sustaining mode) manufacturers should follow the guidance for hybrid vehicles outlined above.

We expect that these changes will reduce manufacturers' confirmatory testing burden, with no negative impacts on vehicle compliance. If you have any questions about this letter, please contact your certification team representative.

Sincerely,



Byron Bunker, Director
Compliance Division
Office of Transportation and Air Quality

Enclosures

Enclosure 1 to CD-15-22
Criteria for Confirmatory Test Selection

1. **Failure or Replacement for Failed Vehicle.** The vehicle configuration has previously failed an emission standard or the vehicle is a replacement for a failed vehicle. Both city and highway tests should be run for vehicles selected under this criterion, regardless of the test procedure on which the emission standard failed. An evaporative, refueling, SFTP, cold temperature NMHC/CO test should be conducted (in addition to the city and highway tests) if the vehicle failed any of those emission standards.

2. **High Emission Levels.** Any certification level (test level adjusted by the deterioration factor, or test level with aged components installed) that is more than 90% of the applicable standard. If more than one test was performed for any procedure, only the last test is considered for this criterion. Both city and highway tests should be run for vehicles selected under this criterion, regardless of the test procedure on which the emission certification level was high. An evaporative, refueling, SFTP, cold temperature NMHC/CO test should be conducted (in addition to the city and highway tests) if the certification level was above 90% of the emission standard for that procedure.

3. **High Fuel Economy.** The fuel economy value of the city and/or highway test as measured in accordance with the procedures in 40 CFR Part 600 equals or exceeds the value contained in the cut point table in Enclosure 2. If more than one test was conducted, harmonically average all applicable tests prior to comparing the data to the cut point table. If the tested vehicle operates on a fuel other than gasoline, convert the fuel economy test results to equivalent gasoline fuel economy values using the conversion factors provided in Enclosure 4 and then compare the calculated value with the gasoline cut point tables.

4. **Potential Gas Guzzler.** The combined (unadjusted) fuel economy value as measured in accordance with the procedures in 40 CFR Part 600 is between 22.3 and 22.8 mpg. If more than one test was conducted, harmonically average the fuel economy values prior to calculating the combined fuel economy. Both city and highway tests must be run for vehicles selected under this criterion.

5. **Potential Fuel Economy Leader.** The fuel economy value as measured in accordance with the procedures in 40 CFR Part 600 equals or exceeds the value contained in the cut point table in Enclosure 3. If more than one test was conducted, harmonically average all applicable tests prior to comparing the data to the cut point table. If the tested vehicle operates on a fuel other than gasoline, convert the fuel economy test results to an equivalent gasoline fuel economy value using the conversion factors provided in Enclosure 4 and then compare the calculated value with the gasoline cut point tables. Perform only the city and/or highway test procedures identified using this criterion.

Enclosure 2 to CD-15-22

**Unadjusted MPG Cut Points for “High Fuel Economy” for Gasoline-Fueled Vehicles
(based on latest available data from 2014 model year vehicles)**

ETW	City-Cars	Hwy-Cars	City-Trucks	Hwy-Trucks
2000	45.0	63.8	37.9	52.5
2125	43.6	62.2	37.1	51.6
2250	42.2	60.6	36.3	50.6
2375	40.8	59.0	35.5	49.7
2500	39.5	57.5	34.8	48.7
2625	38.2	56.0	34.0	47.8
2750	36.9	54.6	33.3	46.9
2875	35.7	53.2	32.6	46.1
3000	34.6	51.8	31.9	45.2
3125	33.5	50.5	31.2	44.4
3250	32.4	49.2	30.6	43.5
3375	31.3	47.9	29.9	42.7
3500	30.3	46.7	29.3	41.9
3625	29.3	45.5	28.7	41.1
3750	28.4	44.3	28.1	40.4
3875	27.4	43.2	27.5	39.6
4000	26.6	42.1	26.9	38.9
4250	24.9	39.9	25.8	37.4
4500	23.3	37.9	24.7	36.1
4750	21.8	36.0	23.6	34.7
5000	20.4	34.1	22.7	33.4
5250	19.1	32.4	21.7	32.2
5500	17.9	30.7	20.8	31.0
6000	15.7	27.7	19.1	28.8
6500	13.7	25.0	17.5	26.7
7000	12.0	22.5	16.1	24.8

Enclosure 3 to CD-15-22

**Cut Points for “Potential Fuel Economy Class Leaders” for Gasoline-Fueled Vehicles
(based on all available data for 2015 and 2016 model year vehicles as of July 23, 2015)**

Vehicle Class	Gasoline Fuel Economy Leaders				Diesel Fuel Economy Leaders Unadjusted mpg	
	Non-Hybrid Vehicles Unadjusted mpg		Hybrid Vehicles Unadjusted mpg			
	City	Hwy	City	Hwy	City	Hwy
Two-Seater Cars	45.1	58.5	48.0	55.5		
Minicompact Cars	48.0	58.7				
Subcompact Cars	43.5	61.1			41.0	61.6
Compact Cars	49.4	63.4	72.0	69.7	41.6	65.6
Midsize Cars	40.0	59.5	72.0	69.7	39.0	66.3
Large Cars	36.3	53.4	57.3	52.4	29.9	51.4
Small Station Wagons	44.9	58.6			41.0	62.0
Midsize Station Wagons	32.0	50.1	60.0	57.7		
Small Pickup Trucks	26.4	37.2				
Standard Pickup Trucks	24.3	35.9			26.4	41.0
Minivans	27.3	41.0				
Vans	17.5	26.0				
Small SUVs	37.0	53.4	46.3	48.2	35.3	48.1
Standard SUVs	26.0	38.8	39.1	40.1	32.4	46.2
Special Purpose Vehicles	31.1	42.0				

Enclosure 4 to CD-15-8

Guidance/Conversion Factors for Hybrid and Non-Gasoline Vehicles

- Hybrid:** To evaluate hybrid vehicles for “high fuel economy,” manufacturers should use good engineering judgment to determine the need for manufacturer-conducted confirmatory testing for hybrid vehicles on a case-by-case basis at the time the manufacturer submits the corresponding Test Request to EPA’s “Verify” data base. Normally EPA would expect manufacturers to perform city or highway confirmatory tests of hybrid vehicles when the fuel economy of the vehicle is higher than expected due to test-to-test variability or other reasons (e.g. when fuel economy is up by 3% or more from expected values). For hybrid vehicle class leaders, manufacturers should use the table provided in Enclosure 3. If there are no class leader mpg values shown in Enclosure 3 for a particular vehicle class, manufacturers should use the highest unadjusted city/highway mpg values for that vehicle class listed on www.fueleconomy.gov for the two most recent model years. If there are no comparable hybrid vehicles in a vehicle class, manufacturers should use good engineering judgment to determine the need for manufacturer-conducted confirmatory testing.¹
- Diesel:** Manufacturers should use the same approach as outlined above for hybrid vehicles.
- E85:** Multiply the E85 fuel economy values by a conversion factor of 1.384 which is based on current fuel property data to determine the equivalent gasoline fuel economy.
- M85:** Multiply the M85 fuel economy values by a conversion factor of 1.734 which is based on current fuel property data to determine the equivalent gasoline fuel economy.
- Propane:** Multiply the propane fuel economy values by a conversion factor of 1.377 which is the conversion factor found in 49 CFR Part 538.8 to determine the equivalent gasoline fuel economy.
- CNG:** Use the equation found in 40 CFR Part 600.113-93 to determine the equivalent gasoline fuel economy.

¹ In cases where a manufacturer tested two or more vehicle subconfigurations within a model type, manufacturer confirmatory testing should normally be performed on the vehicle subconfiguration with the highest city mpg and the vehicle subconfiguration with the highest highway mpg.