

testing is required for both the worst-case cold temperature CO vehicle and the worst-case cold temperature NMHC vehicle.

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§ 86.1829-01 Durability and emission testing requirements; waivers.

(a) *Durability demonstration.* (1) One durability demonstration is required for each durability group.

(2) The configuration of the DDV is determined according to the provisions of § 86.1822-01.

(3) The DDV shall be tested and accumulate service mileage according to the provisions of §§ 86.1831-01, 86.1823, 86.1824 and 86.1825. Small volume manufacturers and small volume test groups may optionally meet the requirements of § 86.1838-01.

(b) *Emissions demonstration*—(1) *FTP and SFTP Exhaust Testing*—(i) *Testing at low altitude.* One EDV shall be tested in each test group for exhaust emissions using the FTP and SFTP test procedures of subpart B of this part. The configuration of the EDV will be determined under the provisions of § 86.1828-01 of this subpart.

(ii) *Testing at high altitude.* For high-altitude exhaust emission compliance for each test group, the manufacturer shall follow one of the following two procedures:

(A) One EDV shall be tested in each test group for exhaust emissions using the FTP test procedures of subpart B of this part. The configuration of the EDV will be determined under the provisions of § 86.1828-01; or

(B) In lieu of testing vehicles according to the provisions of paragraph (b)(1)(ii)(A) of this section, a manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of appropriate high-altitude emission testing, all light-duty vehicles, light-duty trucks, and complete heavy-duty vehicles comply with the emission standards at high altitude.

(iii) *Data submittal waivers.* (A) In lieu of testing a methanol-fueled diesel-cycle light truck for particulate emissions a manufacturer may provide a statement in its application for certification that such light trucks comply

with the applicable standards. Such a statement shall be based on previous emission tests, development tests, or other appropriate information.

(B) In lieu of testing an Otto-cycle light-duty vehicle, light-duty truck, or heavy-duty vehicle for particulate emissions for certification, a manufacturer may provide a statement in its application for certification that such vehicles comply with the applicable standards. Such a statement must be based on previous emission tests, development tests, or other appropriate information.

(C) A manufacturer may petition the Administrator for a waiver of the requirement to submit total hydrocarbon emission data. If the waiver is granted, then in lieu of testing a certification light-duty vehicle or light-duty truck for total hydrocarbon emissions the manufacturer may provide a statement in its application for certification that such vehicles comply with the applicable standards. Such a statement shall be based on previous emission tests, development tests, or other appropriate information.

(D) A manufacturer may petition the Administrator to waive the requirement to measure particulate emissions when conducting Selective Enforcement Audit testing of Otto-cycle vehicles.

(E) In lieu of testing a gasoline or diesel fueled Tier 2 or interim non-Tier 2 vehicle for formaldehyde emissions when such vehicles are certified based upon NMHC emissions, a manufacturer may provide a statement in its application for certification that such vehicles comply with the applicable standards. Such a statement must be based on previous emission tests, development tests, or other appropriate information.

(F) In lieu of testing a petroleum-fueled heavy-duty vehicle for formaldehyde emissions for certification, a manufacturer may provide a statement in its application for certification that such vehicles comply with the applicable standards. Such a statement must be based on previous emission tests, development tests, or other appropriate information.

(2) *Evaporative/Refueling testing.* Vehicles of each evaporative/refueling family will be divided into evaporative/refueling emission control systems. Applicability of the refueling test requirements of this paragraph shall be determined in accordance with the applicability of the refueling loss standards under the provisions of § 86.1810.

(i) *Testing at low altitude.* One EDV in each evaporative/refueling family and evaporative/refueling emission control system combination must be tested in accordance with the evaporative/refueling test procedure requirement of subpart B of this part. The configuration of the EDV will be determined under the provisions of § 86.1828-01. The EDV must also be tested for exhaust emission compliance using the FTP and SFTP procedures of subpart B of this part. In lieu of testing natural gas-fueled or liquefied petroleum gas-fueled vehicles, the manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of such emission testing as the manufacturer deems appropriate, these vehicles will comply with the emission standards.

(ii) *Testing at high altitude.* For high-altitude evaporative and/or refueling emission compliance for each evaporative/refueling family, the manufacturer shall follow one of the following two procedures:

(A) One EDV in each evaporative/refueling family and evaporative/refueling emission control system combination shall be tested in accordance with the evaporative/refueling test procedure requirement of subpart B of this part. The configuration of the EDV will be determined under the provisions of § 86.1824-01. The EDV must also be tested for exhaust emissions using the FTP procedures of subpart B of this part while operated at high altitude; or

(B) In lieu of testing vehicles according to the provisions of paragraph (b)(2)(ii)(A) of this section, a manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of such high-altitude emission testing as the manufacturer deems appropriate, all light-duty vehicles, light-duty trucks, and complete

heavy-duty vehicles comply with the emission standards at high altitude.

(iii) Optional waiver of two-diurnal evaporative certification test for gasoline- and ethanol-fueled vehicles. In lieu of testing gasoline-fueled and ethanol-fueled vehicles for the supplemental two-diurnal test sequence according to the provisions of paragraphs (b)(2)(i) and (b)(2)(ii) of this section, a manufacturer may optionally provide a statement of compliance in its application for certification that, based on the manufacturer's good engineering judgement, all light-duty vehicles, light-duty trucks and complete heavy-duty vehicles in the applicable evaporative/refueling emission family comply with the evaporative emission standard for the supplemental two-diurnal test sequence.

(A) The option to provide a statement of compliance in lieu of 2-diurnal evaporative certification test data outlined in paragraph (b)(2)(iii) of this section is limited to vehicles with conventional evaporative emission control systems (as determined by the Administrator). This option may be used for vehicles in evaporative/refueling families which are certified to the applicable two-diurnal, three-diurnal, running loss, and refueling emission standards. EPA may perform confirmatory 2-diurnal evaporative emission testing on certification test vehicles which are certified using this option (even though the manufacturer may not have performed a 2-diurnal evaporative test during the certification process). If data shows noncompliance, noncompliance will be addressed through § 86.1851. As well, if data shows noncompliance, EPA may not normally allow for subsequent waivers for the applicable evaporative family.

(B) Manufacturers shall supply information if requested by EPA in support of the statement of compliance outlined in paragraph (b)(2)(iii) of this section. This information shall include evaporative calibration information for the emission-data test vehicle and for other vehicles in the evaporative/refueling family, including, but not limited to, canister type, canister volume, canister working capacity, fuel tank volume, fuel tank geometry, the type of fuel delivery system (return,

returnless, variable flow fuel pump, etc.), a description of the input parameters and software strategy used to control the evaporative canister purge, the nominal purge flow volume (in bed volumes) when vehicles are driven over the 2-diurnal (FTP) driving cycle, the nominal purge flow volume (in bed volumes) when vehicles are driven over the 3-diurnal (FTP + running loss) driving cycle, and other supporting information as necessary to demonstrate that the purge flow rate calibration on the 2-diurnal test sequence is adequate to comply with the evaporative emission standard for the supplemental two-diurnal test sequence.

(3) *Cold temperature CO and cold temperature NMHC Testing.* The manufacturer must test one EDV in each durability group for cold temperature CO and cold temperature NMHC exhaust emission compliance in accordance with the test procedures in subpart C of this part or with alternative procedures approved in advance by the Administrator. The selection of which EDV and test group within the durability group will be tested for cold temperature CO and cold temperature NMHC compliance will be determined under the provisions of § 86.1828-10(c) and (g).

(4) *Certification Short Test testing.* (i) To determine CST emission compliance for each durability group, the manufacturer shall follow one of the following two procedures:

(A) One EDV in each durability group shall be tested in accordance with the CST procedures set forth in subpart O of this part. The configuration of the EDV will be determined under the provisions of § 86.1828-01(d). The EDV must also be tested for exhaust emissions using the FTP and SFTP procedures of subpart B of this part; or

(B) In lieu of testing vehicles according to the provisions of § 86.1829-01(b)(4)(i)(A), a manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of such CST testing as the manufacturer deems appropriate, all light-duty vehicles and light-duty trucks comply with the CST emission standards.

(ii) For light-duty vehicles and light-duty trucks, a manufacturer with a

test group that cannot be appropriately tested on all Certification Short Test emission test procedures described in § 86.1439 may request an exemption, as described in § 86.1427(d), from the inappropriate test(s) for purposes of demonstrating compliance with the Certification Short Test as described in subpart O of this part.

(iii) For light-duty vehicles and light-duty trucks, a manufacturer with a test group that can be appropriately tested on none of the Certification Short Test emission test procedures described in § 86.1439 may request an alternative procedure as described in § 86.1427(d).

(5) *Idle CO testing.* To determine idle CO emission compliance for light-duty trucks and complete heavy-duty vehicles, the manufacturer shall follow one of the following two procedures:

(i) For test groups containing light-duty trucks and complete heavy-duty vehicles, each EDV shall be tested in accordance with the idle CO testing procedures of subpart B of this part; or

(ii) In lieu of testing light trucks and complete heavy-duty vehicles for idle CO emissions, a manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of such idle CO testing as the manufacturer deems appropriate, all light-duty trucks and complete heavy-duty vehicles comply with the idle CO emission standards.

(c) *Running change testing.* Running change testing shall be conducted as required under the provisions of § 86.1842-01.

(d)(1) Beginning in the 2004 model year, the exhaust emissions must be measured from all LDV/T exhaust emission data vehicles tested in accordance with the federal Highway Fuel Economy Test (HWFET; 40 CFR part 600, subpart B). The oxides of nitrogen emissions measured during such tests must represent the full useful life emissions in accordance with § 86.1823-08(f) and subsequent model year provisions. Those results are then rounded and compared with the applicable emission standard in § 86.1811-04. All data obtained from the testing required

under this paragraph (d) must be reported in accordance with the procedures for reporting other exhaust emission data required under this subpart.

(2) In the event that one or more emission data vehicles fail the applicable HWFET standard in § 86.1811-04, the manufacturer may submit to the Administrator engineering data or other evidence showing that the system is capable of complying with the standard. If the Administrator 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 the test data.

(3) The provisions of paragraphs (d)(1) and (d)(2) of this section do not apply to MDPVs.

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§ 86.1830-01 Acceptance of vehicles for emission testing.

(a) *General test vehicle requirements.* (1) All test vehicles shall be tested in the proper configurations as specified in §§ 86.1822-01, 86.1828-01, or 86.1842-01, as applicable for the type of test conducted.

(2) Components affecting emissions which are used to build test vehicles shall either be randomly selected production parts or parts verified to be in the middle 50 percent of the tolerance range. The manufacturer will determine which components affect emissions using good engineering judgment.

(3) Test vehicles must have air conditioning installed and operational if that configuration is available with air conditioning. Optional equipment must be installed or represented on test vehicles according to the provisions of § 86.1832-01.

(4) Test vehicles must receive proper scheduled maintenance as established by the manufacturer according to the provisions of § 86.1834-01(b) or (c). Unscheduled maintenance must be approved under the provisions of § 86.1834-01(d).

(5) Vehicle mileage shall be accumulated in accordance with § 86.1831-01.

(6) The road load forces and equivalent test weight used during testing will be determined according to the provisions of § 86.129-00.

(7) Test vehicles shall have the appropriate emission testing hardware installed (e.g., exhaust pipe testing flange, fuel tank drain, access ports to evaporative canisters, and fuel tank heat blanket) and shall have tires with appropriate tire wear.

(b) *Special provisions for durability data vehicles.* (1) For DDV's, the mileage at all test points shall be within 250 miles of the scheduled mileage point as required under § 86.1823-08(c)(3). Manufacturers may exceed the 250 mile upper limit if there are logistical reasons for the deviation and the manufacturer determines that the deviation will not affect the representativeness of the durability demonstration.

(2) For DDV's aged using the standard or a customized/alternative whole-vehicle cycle, all emission-related hardware and software must be installed and operational during all mileage accumulation after the 5000-mile test point.

(3) DDV's may be reconfigured before the 5000-mile test point providing that the representativeness of the emission results will not be affected. Manufacturers shall use good engineering judgment in making such determinations.

(c) *Special provisions for emission data vehicles.* (1) All EDV's shall have at least the minimum number of miles accumulated to achieve stabilized emission results according to the provisions of § 86.1831-01(c).

(2) Within a durability group, the manufacturer may alter any emission data vehicle (or other vehicles such as current or previous model year emission data vehicles, running change vehicles, fuel economy data vehicles, and development vehicles) in lieu of building a new test vehicle providing that the modification will not impact the representativeness of the vehicle's test results. Manufacturers shall use good engineering judgment in making such determinations. Development vehicles which were used to develop the calibration selected for emission data testing may not be used as the EDV for that configuration. Vehicles from outside