

through a specified driving cycle (see paragraph (g), US06 Dynamometer Driving Schedule, of appendix I to this part). A proportional part of the diluted exhaust is collected continuously for subsequent analysis, using a constant volume (variable dilution) sampler or critical flow venturi sampler.

(g)(1) The element of the SFTP related to the increased exhaust emissions caused by air conditioning operation (SC03) is designed to determine gaseous THC, NMHC, CO, CO₂, CH₄, and NO_x emissions from gasoline-fueled or diesel fueled vehicles related to air conditioning use (see § 86.158-00 Supplemental federal test procedures; overview and § 86.160-00 Exhaust emission test procedure for SC03 emissions). The test cycle simulates urban driving behavior with the air conditioner operating. The test consists of engine startups and vehicle operation on a chassis dynamometer through specified driving cycles (see paragraph (h), SC03 Dynamometer Driving Schedule, of appendix I to this part). A proportional part of the diluted exhaust is collected continuously for subsequent analysis, using a constant volume (variable dilution) sampler or critical flow venturi sampler. The testing sequence includes an approved preconditioning cycle, a 10 minute soak with the engine turned off, and the SC03 cycle with measured exhaust emissions.

(2) The SC03 air conditioning test is conducted with the air conditioner operating at specified settings and the ambient test conditions of:

- (i) Air temperature of 95 °F;
- (ii) 100 grains of water/pound of dry air (approximately 40 percent relative humidity);
- (iii) Simulated solar heat intensity of 850 W/m² (see § 86.161-00(d)); and
- (iv) air flow directed at the vehicle that will provide representative air conditioner system condenser cooling at all vehicle speeds (see § 86.161-00(e)).

(3) Manufacturers have the option of simulating air conditioning operation during testing at other ambient test conditions provided they can demonstrate that the vehicle tail pipe exhaust emissions are representative of the emissions that would result from the SC03 cycle test procedure and the ambient conditions of paragraph (g)(2)

of this section. The Administrator has approved two optional air conditioning test simulation procedures AC1 and AC2 (see § 86.162-00) for only the model years of 2000 through 2002. If a manufacturer desires to conduct simulation SC03 testing for model year 2003 and beyond, the simulation test procedure must be approved in advance by the Administrator (see §§ 86.162-00 and 86.163-00).

(h) Except in cases of component malfunction or failure, all emission control systems installed on or incorporated in a new motor vehicle shall be functioning during all procedures in this subpart. Maintenance to correct component malfunction or failure shall be authorized in accordance with § 86.098-25 or § 86.1834-01 as applicable.

(i) Background concentrations are measured for all species for which emissions measurements are made. For exhaust testing, this requires sampling and analysis of the dilution air. For evaporative testing, this requires measuring initial concentrations. (When testing methanol-fueled vehicles, manufacturers may choose not to measure background concentrations of methanol and/or formaldehyde, and then assume that the concentrations are zero during calculations.)

[61 FR 54891, Oct. 22, 1996, as amended at 64 FR 23921, May 4, 1999]

§ 86.127-96 Test procedures; overview.

The procedures described in this and subsequent sections are used to determine the conformity of vehicles with the standards set forth in subpart A of this part for light-duty vehicles and light-duty trucks.

(a) The overall test consists of prescribed sequences of fueling, parking, and operating conditions. Vehicles are tested for any or all of the following emissions:

(1) Gaseous exhaust THC, CO, NO_x, CO₂ (for petroleum-fueled and gaseous-fueled vehicles), plus CH₃OH and HCHO for methanol-fueled vehicles, plus CH₄ (for vehicles subject to the NMHC and NMHCE standards).

(2) Particulates.

(3) Evaporative HC (for gasoline-fueled, methanol-fueled and gaseous-fueled vehicles) and CH₃OH (for methanol-fueled vehicles). The evaporative

testing portion of the procedure occurs after the exhaust emission test; however, exhaust emissions need not be sampled to complete a test for evaporative emissions.

(4) Fuel spitback (this test is not required for gaseous-fueled vehicles).

(b) The Otto-cycle exhaust emission test is designed to determine gaseous THC, CO, CO₂, CH₄, NO_x, and particulate mass emissions from gasoline-fueled, methanol-fueled and gaseous-fueled Otto-cycle vehicles as well as methanol and formaldehyde from methanol-fueled Otto-cycle vehicles, while simulating an average trip in an urban area of 11 miles (18 kilometers). The test consists of engine start-ups and vehicle operation on a chassis dynamometer through a specified driving schedule. A proportional part of the diluted exhaust is collected continuously for subsequent analysis, using a constant volume (variable dilution) sampler or critical flow venturi sampler.

(c) The diesel-cycle exhaust emission test is designed to determine particulate and gaseous mass emissions during a test similar to the test in § 86.127(b). For petroleum-fueled diesel-cycle vehicles, diluted exhaust is continuously analyzed for THC using a heated sample line and analyzer; the other gaseous emissions (CH₄, CO, CO₂, and NO_x) are collected continuously for analysis as in § 86.127(b). For methanol-fueled vehicles, THC, methanol, formaldehyde, CO, CO₂, CH₄, and NO_x are collected continuously for analysis as in § 86.127(b). THC, methanol, and formaldehyde are collected using heated sample lines, and a heated FID is used for THC analyses. Simultaneous with the gaseous exhaust collection and analysis, particulates from a proportional part of the diluted exhaust are collected continuously on a filter. The mass of particulate is determined by the procedure described in § 86.139. This testing requires a dilution tunnel as well as the constant volume sampler.

(d) The evaporative emission test (gasoline-fueled vehicles, methanol-fueled and gaseous-fueled vehicles) is designed to determine hydrocarbon and methanol evaporative emissions as a consequence of diurnal temperature fluctuation, urban driving and hot soaks following drives. It is associated

with a series of events that a vehicle may experience and that may result in hydrocarbon and/or methanol vapor losses. The test procedure is designed to measure:

(1) Diurnal emissions resulting from daily temperature changes (as well as relatively constant resting losses), measured by the enclosure technique (see § 86.133);

(2) Running losses resulting from a simulated trip performed on a chassis dynamometer, measured by the enclosure or point-source technique (see § 86.134; this test is not required for gaseous-fueled vehicles); and

(3) Hot soak emissions, which result when the vehicle is parked and the hot engine is turned off, measured by the enclosure technique (see § 86.138).

(e) Fuel spitback emissions occur when a vehicle's fuel fill neck cannot accommodate dispensing rates. The vehicle test for spitback consists of a short drive followed immediately by a complete refueling event. This test is not required for gaseous-fueled vehicles.

(f) Except in cases of component malfunction or failure, all emission control systems installed on or incorporated in a new motor vehicle shall be functioning during all procedures in this subpart. Maintenance to correct component malfunction or failure shall be authorized in accordance with § 86.090-25.

(g) Background concentrations are measured for all species for which emissions measurements are made. For exhaust testing, this requires sampling and analysis of the dilution air. For evaporative testing, this requires measuring initial concentrations. (When testing methanol-fueled vehicles, manufacturers may choose not to measure background concentrations of methanol and/or formaldehyde, and then assume that the concentrations are zero during calculations.)

[58 FR 16032, Mar. 24, 1993, as amended at 59 FR 48508, Sept. 21, 1994; 60 FR 34347, June 30, 1995]

§ 86.128-00 Transmissions.

Section 86.128-00 includes text that specifies requirements that differ from § 86.128-79. Where a paragraph in § 86.128-79 is identical and applicable to