
40 C.F.R. § 86.1811-17

Exhaust emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles.

- (a) *Applicability and general provisions.* This section describes exhaust emission standards that apply for model year 2017 and later light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles. MDPVs are subject to all the same emission standards and certification provisions that apply to LDT4. Some of the provisions of this section also apply to heavy-duty vehicles as specified in § 86.1816. See § 86.1818 for greenhouse gas emission standards. See § 86.1813 for evaporative and refueling emission standards. This section may apply to vehicles from model years earlier than 2017 as specified in paragraph (b)(11) of this section.
- (b) *Tier 3 exhaust emission standards.* Exhaust emissions may not exceed the Tier 3 exhaust emission standards, as follows:
- (1) Measure emissions using the chassis dynamometer procedures of 40 CFR part 1066, as follows:
- (i) Establish appropriate load settings based on loaded vehicle weight (see § 86.1803).
- (ii) Use appropriate driving schedules. Measurements involve testing over multiple driving schedules. The Federal Test Procedure (FTP) is based on testing with the Urban Dynamometer Driving Schedule (UDDS). The Supplemental Federal Test Procedure (SFTP) involves testing with the UDDS, the US06 driving schedule, and the SC03 driving schedule. See 40 CFR 1066.801 for further information on these test cycles.
- (iii) Calculate SFTP emissions as a composite of test results over the driving schedules identified in paragraph (b)(1)(ii) of this section based on the following calculation:
- $$\text{SFTP (g/mi)} = 0.35 \times \text{FTP} + 0.28 \times \text{US06} + 0.37 \times \text{SC03}$$
- (A) For test vehicles that do not have air conditioning, you may omit SC03 testing. To calculate composite SFTP emissions for such vehicles, use FTP emission results to substitute for the SC03 value in the equation.
- (B) You may also use FTP emission results to substitute for the SC03 value in the equation for the types of vehicles identified in 40 CFR 600.115 that automatically qualify for the derived 5-cycle method for determining fuel economy label values. Such vehicles remain subject to the SFTP standard when tested over the SC03 driving schedule. Other vehicles remain subject to the litmus-test provisions in 40 CFR 600.115.
- (iv) Use E10 test fuel as required in § 86.113, except as specified in this section.
- (v) Hydrocarbon emission standards are expressed as NMOG; however, for certain vehicles you may measure exhaust emissions based on nonmethane hydrocarbon instead of NMOG as described in 40 CFR 1066.635.
- (vi) Measure emissions from hybrid electric vehicles (including plug-in hybrid electric vehicles) as described in 40 CFR part 1066, subpart F, except that these procedures do not apply for plug-in hybrid electric vehicles during
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charge-depleting operation.

(2) Table 1 of this section describes fully phased-in Tier 3 standards that apply as specified in this paragraph (b) for the identified driving schedules. The FTP standards for NMOG + NO_x apply on a fleet-average basis using discrete bin standards as described in paragraph (b)(4) of this section. The bin standards include additional emission standards for high-altitude testing and for CO emissions when testing over the FTP driving schedule. The SFTP standards for NMOG + NO_x apply on a fleet-average basis as described in paragraph (b)(5) of this section. Table 1 follows:

Table 1 of § 86.1811-17—Fully Phased-in Tier 3 Exhaust Emission Standards (g/mile)

NMOG + NO _x		PM		CO	Formaldehyde
FTP 1	SFTP	FTP	US06	SFTP	FTP
0.030	0.050	0.003	0.006	4.2	0.004

¹ The fleet-average FTP emission standard for NMOG + NO_x is 0.026 g/mile for LDV and LDT1 test groups certified to standards based on a useful life of 120,000 miles or 10 years in a given model year.

(3) The FTP standards specified in this section apply for testing at low-altitude conditions and high-altitude conditions as specified in paragraph (b)(4) of this section. The SFTP standards specified in paragraph (b) (2) of this section apply only for testing at low-altitude conditions.

(4) The FTP emission standard for NMOG + NO_x is based on a fleet average for a given model year. You must specify a family emission limit (FEL) for each test group. The FEL serves as the emission standard for the test group with respect to all required FTP testing. Calculate your fleet-average emission level as described in § 86.1860 based on the FEL that applies for low-altitude testing to show that you meet the specified standard. For multi-fueled vehicles, calculate fleet-average emission levels based only on emission levels for testing with gasoline or diesel fuel. You may generate emission credits for banking and trading and you may use banked or traded credits as described in § 86.1861 for demonstrating compliance with the FTP emission standard for NMOG + NO_x. You comply with the emission standard for a given model year if you have enough credits to show that your fleet-average emission level is at or below the applicable standard. You may exchange FTP credits between or among any test groups subject to standards under this section. You may not exchange FTP and SFTP credits.

(i) Specify one of the identified values from Table 2 of this section as the FEL for demonstrating that your fleet-average emission level complies with the FTP emission standard for NMOG + NO_x under low-altitude conditions. These FEL values define emission bins that also determine corresponding emission standards for NMOG + NO_x emissions under high-altitude conditions, and for CO emissions, as follows:

Table 2 of § 86.1811-17—Tier 3 FTP Bin Standards

[g/mile]

FEL Name	NMOG + NO _x FELs for low altitude	NMOG + NO _x for high altitude	CO for low and high altitude

Bin 160	0.160	0.160	4.2
Bin 125	0.125	0.160	2.1
Bin 70	0.070	0.105	1.7
Bin 50	0.050	0.070	1.7
Bin 30	0.030	0.050	1.0
Bin 20	0.020	0.030	1.0
Bin 0	0.000	0.000	0.0

(ii) Manufacturers earn a compliance credit of 0.005 g/mile NMOG + NO_x for vehicles that are certified for a useful life of 150,000 miles or 15 years and that are covered by an extended warranty over the same period for all components whose failure triggers MIL illumination. Manufacturers may apply the compliance credit as follows:

(A) You may reduce your official FTP emission result for certification by the amount of the compliance credit if that allows you to certify to a more stringent bin. In that case, you may use the more stringent bin standard for calculating the fleet-average NMOG + NO_x emission level. For any compliance testing with these vehicles, the applicable FTP bin standard for NMOG + NO_x is higher than the specified bin standard by the amount of the compliance credit. For example, if the official FTP emission result for NMOG + NO_x is 0.052 g/mile, this qualifies for an FEL of 0.050 g/mile for calculating the fleet average and the vehicle is subject to an FTP bin standard of 0.055 g/mile.

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