
40 C.F.R. § 86.1816–18

Emission standards for heavy-duty vehicles.

(a) *Applicability and general provisions.* This section describes Tier 3 exhaust emission standards for complete heavy-duty vehicles. These standards are optional for incomplete heavy-duty vehicles and for heavy-duty vehicles above 14,000 pounds GVWR as described in § 86.1801. Greenhouse gas emission standards are specified in § 86.1818 for MDPV and in § 86.1819 for other HDV. See § 86.1813 for evaporative and refueling emission standards. This section starts to apply in model year 2018, except that the provisions may apply to vehicles before model year 2018 as specified in paragraph (b)(11) of this section. This section applies for model year 2027 and later vehicles only as specified in § 86.1811–27. Separate requirements apply for MDPV as specified in § 86.1811. See subpart A of this part for requirements that apply for incomplete heavy-duty vehicles and for heavy-duty engines certified independent of the chassis. The following general provisions apply:

- (1) Test all vehicles as described in this section using a chassis dynamometer; establish appropriate load settings based on adjusted loaded vehicle weight (see § 86.1803).
- (2) Some provisions apply differently depending on the vehicle's power-to-weight ratio. Determine a vehicle's power-to-weight ratio by dividing the engine's rated power by the vehicle's GVWR (in hp/pound). For purposes of this section, if a test group includes multiple configurations, use the vehicle with the highest power-to-weight ratio to characterize the test group.
- (3) Use E10 test fuel as required in § 86.113, except as specified in this section.
- (4) 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 charge-depleting operation.

(b) *Tier 3 exhaust emission standards.* Exhaust emissions may not exceed the Tier 3 exhaust emission standards, as follows:

- (1) Measure emissions using the procedures of subpart B of this part, using specific driving schedules and additional procedures as follows:
 - (i) The Federal Test Procedure (FTP) is based on testing with the Urban Dynamometer Driving Schedule (UDDS) specified in paragraph (a) of Appendix I of this part.
 - (ii) The Heavy-Duty Supplemental Federal Test Procedure (HD-SFTP) involves testing with the UDDS, the SC03 driving schedule specified in paragraph (h) of Appendix I of this part, and one of the following additional driving schedules:
 - (A) For Class 2b vehicles, the US06 driving schedule specified in paragraph (g) of Appendix I of this part.

(B) For Class 2b vehicles with a power-to-weight ratio at or below 0.024 hp/pound that are certified to optional standards under paragraphs (b)(2) and (4) of this section, the highway portion of the US06 driving schedule characterized as the “second bag” in § 86.159-08(a).

(C) For Class 3 vehicles, the Hot LA-92 driving schedule as specified in paragraph (c) of Appendix I of this part.

(iii) HD-SFTP emissions are calculated as a composite of test results over these driving schedules based on the following calculation:

$$\text{HD-SFTP (g/mi)} = 0.35 \cdot \text{FTP} + 0.28 \cdot \text{HDSIM} + 0.37 \cdot \text{SC03}$$

Where:

HDSIM = the appropriate driving schedule specified in paragraph (b)(1)(ii)(A) through (C) of this section.

(iv) You may alternatively use FTP emission results to substitute for the SC03 value in the calculation under paragraph (b)(1)(iii) of this section for a given vehicle for any testing under this section. Such vehicles remain subject to the SFTP standard when tested over the SC03 driving schedule.

(v) Hydrocarbon emission standards are expressed as NMOG; however, you may measure exhaust emissions based on nonmethane hydrocarbon instead of NMOG as described in 40 CFR 1066.635.

(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 CO emissions, and for NMOG + NO_x standards when testing over the HD-SFTP driving schedule. Table 1 follows:

This document is only available to subscribers. Please log in or purchase access.

[Purchase Login](#)