

Environmental Protection Agency

§ 1037.105

calculate the ADC of a new vehicle from road load force coefficients (F0, F1, F2), axle ratio, and test weight:

$$\text{ADC} = \text{CO}_{2\text{base}} + 2.18 \cdot \Delta\text{F0} + 37.4 \cdot \Delta\text{F1} + 2257 \cdot \Delta\text{F2} + 189 \cdot \Delta\text{AR} + 0.0222 \cdot \Delta\text{ETW}$$

Where:

ADC = Analytically derived combined city/highway CO₂ emission rate (g/mile) for a new vehicle.

CO_{2base} = Combined city/highway CO₂ emission rate (g/mile) of a baseline vehicle.

ΔF0 = F0 of the new vehicle—F0 of the baseline vehicle.

ΔF1 = F1 of the new vehicle—F1 of the baseline vehicle.

ΔF2 = F2 of the new vehicle—F2 of the baseline vehicle.

ΔAR = Axle ratio of the new vehicle—axle ratio of the baseline vehicle.

ΔETW = ETW of the new vehicle—ETW of the baseline vehicle.

(2) The purpose of this section is to accurately estimate CO₂ emission rates.

(i) You must apply the provisions of this section consistent with good engineering judgment. For example, do not use the equation in paragraph (g)(1) of this section where good engineering judgment indicates that it will not accurately estimate emissions. You may ask us to approve alternate equations that allow you to estimate emissions more accurately.

(ii) The analytically derived CO₂ equation in paragraph (g)(1) of this section may be periodically updated through publication of an EPA guidance document to more accurately characterize CO₂ emission levels' for example, changes may be appropriate based on new test data, future technology changes, or to changes in future CO₂ emission levels. Any EPA guidance document will determine the model year that the updated equation takes effect. We will issue guidance no later than eight months before the effective model year. For example, for 2014 models, the model year may start January 2, 2013, so guidance would be issued by May 1, 2012 for model year 2014.

(3) You may select, without our advance approval, baseline test data if they meet all the following criteria:

(i) Vehicles considered for the baseline test must comply with all applicable emission standards in the model year associated with the ADC.

(ii) You must include in the pool of tests considered for baseline selection all official tests of the same or equivalent basic engine, transmission class, engine code, transmission code, engine horsepower, dynamometer drive wheels, and compression ratio as the ADC subconfiguration. Do not include tests in which emissions exceed any applicable standard.

(iii) Where necessary to minimize the CO₂ adjustment, you may supplement the pool with tests associated with worst-case engine or transmission codes and carryover or carry-across engine families. If you do, all the data that qualify for inclusion using the elected worst-case substitution (or carryover or carry-across) must be included in the pool as supplemental data (*i.e.*, individual test vehicles may not be selected for inclusion). You must also include the supplemental data in all subsequent pools, where applicable.

(iv) Except with our advance approval, tests previously used during the subject model year as baseline tests in 20 other ADC subconfigurations must be eliminated from the pool.

(v) Select the tested subconfiguration with the smallest absolute difference between the ADC and the test CO₂ emission rate for combined emissions. Use this as the baseline test for the target ADC subconfiguration.

(4) You may ask us to allow you to use baseline test data not fully meeting the provisions of paragraph (g)(3) of this section.

(5) Calculate the ADC rounded to the nearest 0.1 g/mile. Except with our advance approval, the downward adjustment of ADC from the baseline is limited to ADC values 20 percent below the baseline emission rate. The upward adjustment is not limited.

(6) You may not submit an ADC if an actual test has been run on the target subconfiguration during the certification process or on a development vehicle that is eligible to be declared as an emission-data vehicle.

(7) [Reserved]

(8) Keep the following records for at least five years, and show them to us if we ask to see them:

(i) The pool of tests.

(ii) The vehicle description and tests chosen as the baseline and the basis for the selection.

(iii) The target ADC subconfiguration.

(iv) The calculated emission rates.

(9) We may perform or order a confirmatory test of any subconfiguration covered by an ADC.

(10) Where we determine that you did not fully comply with the provisions of this paragraph (g), we may require that you comply based on actual test data and that you recalculate your fleet-average emission rate.

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§ 1037.105 Exhaust emission standards for CO₂ for vocational vehicles.

(a) The standards of this section apply for the following vehicles:

(1) Vehicles above 14,000 pounds GVWR and at or below 26,000 pounds

§ 1037.106

40 CFR Ch. I (7–1–13 Edition)

GVWR, but not certified to the vehicle standards §1037.104.

(2) Vehicles above 26,000 pounds GVWR that are not tractors.

(3) Vocational tractors.

(4) Vehicles at or below 14,000 pounds GVWR that are excluded from the standards in §1037.104 under §1037.104 (f) or use engines certified under §1037.150(m).

(b) The CO₂ standards of this section are given in Table 1 to this section. The provisions of §1037.241 specify how to comply with these standards.

TABLE 1 TO § 1037.105—CO₂ STANDARDS FOR VOCATIONAL VEHICLES

GVWR (pounds)	CO ₂ standard (g/ton-mile) for model years 2014–2016	CO ₂ standard (g/ton-mile) for model year 2017 and later
GVWR ≤ 19,500	388	373
19,500 < GVWR ≤ 33,000	234	225
33,000 < GVWR	226	222

(c) No CH₄ or N₂O standards apply under this section. See 40 CFR part 1036 for CH₄ or N₂O standards that apply to engines used in these vehicles.

(d) You may generate or use emission credits under the ABT program as described in subpart H of this part. This requires that you specify a Family Emission Limit (FEL) for CO₂ for each vehicle subfamily. The FEL may not be less than the result of emission modeling from §1037.520. These FELs serve as the emission standards for the vehicle subfamily instead of the standards specified in paragraph (b) of this section.

(e) Your vehicles must meet the exhaust emission standards of this section throughout their full useful life, expressed in service miles or calendar

years, whichever comes first. The following useful life values apply for the standards of this section:

(1) 110,000 miles or 10 years, whichever comes first, for vehicles at or below 19,500 pounds GVWR.

(2) 185,000 miles or 10 years, whichever comes first, for vehicles above 19,500 pounds GVWR and at or below 33,000 pounds GVWR.

(3) 435,000 miles or 10 years, whichever comes first, for vehicles above 33,000 pounds GVWR.

(f) See §1037.631 for provisions that exempt certain vehicles used in off-road operation from the standards of this section.

(g) You may optionally certify a vocational vehicle to the standards and useful life applicable to a higher vehicle service class (such as medium heavy-duty instead of light heavy-duty), provided you do not generate credits with the vehicle. If you include smaller vehicles in a credit-generating subfamily (with an FEL below the standard), exclude its production volume from the credit calculation.

§ 1037.106 Exhaust emission standards for CO₂ for tractors above 26,000 pounds GVWR.

(a) The CO₂ standards of this section apply for tractors above 26,000 pounds GVWR. Note that the standards of this section do not apply for vehicles classified as “vocational tractors” under §1037.630.

(b) The CO₂ standards for tractors above 26,000 pounds GVWR are given in Table 1 to this section. The provisions of §1037.241 specify how to comply with these standards.

TABLE 1 TO § 1037.106—CO₂ STANDARDS FOR TRACTORS ABOVE 26,000 POUNDS GVWR

GVWR (pounds)	Sub-category	CO ₂ standard (g/ton-mile) for model years 2014–2016	CO ₂ standard (g/ton-mile) for model year 2017 and later
26,000 < GVWR ≤ 33,000	Low-Roof (all cab styles)	107	104
	Mid-Roof (all cab styles)	119	115
	High-Roof (all cab styles)	124	120
GVWR > 33,000	Low-Roof Day Cab	81	80
	Low-Roof Sleeper Cab	68	66
	Mid-Roof Day Cab	88	86
	Mid-Roof Sleeper Cab	76	73
	High-Roof Day Cab	92	89
	High-Roof Sleeper Cab	75	72