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# 40 C.F.R. § 1036.510

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## Supplemental Emission Test.

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(a) Measure emissions using the steady-state SET duty cycle as described in this section. Note that the SET duty cycle is operated as a ramped-modal cycle rather than discrete steady-state test points.

(b) Perform SET testing with one of the following procedures:

(1) For testing nonhybrid engines, the SET duty cycle is based on normalized speed and torque values relative to certain maximum values. Denormalize speed as described in 40 CFR 1065.512. Denormalize torque as described in 40 CFR 1065.610(d). Note that idle points are to be run at conditions simulating neutral or park on the transmission.

(2) Test hybrid engines and hybrid powertrains as described in 40 CFR 1037.550, except as specified in this paragraph (b)(2). Do not compensate the duty cycle for the distance driven as described in 40 CFR 1037.550(g)(4). For hybrid engines, select the transmission from Table 1 of § 1036.540, substituting “engine” for “vehicle” and “highway cruise cycle” for “SET”. Disregard duty cycles in 40 CFR 1037.550(j). For cycles that begin with idle, leave the transmission in neutral or park for the full initial idle segment. Place the transmission into drive no earlier than 5 seconds before the first nonzero vehicle speed setpoint. For SET testing only, place the transmission into park or neutral when the cycle reaches the final idle segment. Use the following vehicle parameters instead of those in 40 CFR 1037.550 to define the vehicle model in 40 CFR 1037.550(a)(3):

(i) Determine the vehicle test mass,  $M$ , as follows:

$$M = 15.1 \cdot P_{\text{contrated}}^{1.31}$$

Eq. 1036.510-1

Where:  $P_{\text{contrated}}$  = the continuous rated power of the hybrid system determined in sect; 1036.520.

Example:

$$P_{\text{contrated}} = 350.1 \text{ kW} \quad M = 15.1 \cdot 350.1^{1.31} = 32499 \text{ kg}$$

(ii) Determine the vehicle frontal area,  $A_{\text{front}}$ , as follows:

(A) For  $M \leq 18050 \text{ kg}$ :

$$A_{\text{front}} = -1.69 \cdot 10^{-8} \cdot M^2 + 6.33 \cdot 10^{-4} \cdot M + 1.67$$

Eq. 1036.510-2

Example:

$$M = 16499 \text{ kg} \quad A_{\text{front}} = -1.69 \cdot 10^{-8} \cdot 16499^2 + 6.33 \cdot 10^{-4} \cdot 16499 + 1.67$$

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