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# 40 C.F.R. § 1037.510

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## Duty-cycle exhaust testing.

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This section applies for powertrain testing, cycle-average engine fuel mapping, certain off-cycle testing under § 1037.610, and the advanced-technology provisions of § 1037.615.

(a) Measure emissions by testing the vehicle on a chassis dynamometer or the powertrain on a powertrain dynamometer with the applicable duty cycles. Each duty cycle consists of a series of speed commands over time—variable speeds for the transient test and constant speeds for the highway cruise tests. None of these cycles include vehicle starting or warmup.

(1) Perform testing for Phase 1 vehicles as follows to generate credits or adjustment factors for off-cycle or advanced technologies:

(i) *Transient cycle.* The transient cycle is specified in appendix A of this part. Warm up the vehicle. Start the duty cycle within 30 seconds after concluding the preconditioning procedure. Start sampling emissions at the start of the duty cycle.

(ii) *Cruise cycle.* For the 55 mi/hr and 65 mi/hr highway cruise cycles, warm up the vehicle at the test speed, then sample emissions for 300 seconds while maintaining vehicle speed within  $\pm 1.0$  mi/hr of the speed setpoint; this speed tolerance applies instead of the approach specified in 40 CFR 1066.425(b)(1) and (2).

(2) Perform cycle-average engine fuel mapping as described in 40 CFR 1036.540. For powertrain testing under § 1037.550 or § 1037.555, perform testing as described in this paragraph (a)(2) to generate GEM inputs for each simulated vehicle configuration, and test runs representing different idle conditions. Perform testing as follows:

(i) *Transient cycle.* The transient cycle is specified in appendix A of this part.

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