
40 C.F.R. § 1033.520

Alternative ramped modal cycles.

- (a) Locomotive testing over a ramped modal cycle is intended to improve measurement accuracy at low emission levels by allowing the use of batch sampling of PM and gaseous emissions over multiple locomotive notch settings. Ramped modal cycles combine multiple test modes of a discrete-mode steady-state into a single sample period. Time in notch is varied to be proportional to weighting factors. The ramped modal cycle for line-haul locomotives is shown in Table 1 to this section. The ramped modal cycle for switch locomotives is shown in Table 2 to this section. Both ramped modal cycles consist of a warm-up followed by three test intervals that are each weighted in a manner that maintains the duty-cycle weighting of the line-haul and switch locomotive duty cycles in § 1033.530. You may use ramped modal cycle testing for any locomotives certified under this part.
- (b) Ramped modal testing requires continuous gaseous analyzers and three separate PM filters (one for each test interval). You may collect a single batch sample for each test interval, but you must also measure gaseous emissions continuously to allow calculation of notch caps as required under § 1033.101.
- (c) You may operate the engine in any way you choose to warm it up. Then follow the provisions of 40 CFR part 1065, subpart F for general pre-test procedures (including engine and sampling system pre-conditioning).

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