

**Environmental Protection Agency****§ 86.1362-2010**

after testing over the Federal Test Procedure, consider the engine warm. Otherwise, operate the engine to warm it up as described in 40 CFR part 1065, subpart F.

[70 FR 40439, July 13, 2005]

EFFECTIVE DATE NOTE: At 73 FR 37193, June 30, 2008, § 86.1362-2007 was amended by removing and reserving paragraph (d), effective July 7, 2008.

**§ 86.1362-2010 Steady-state testing with a ramped-modal cycle.**

This section describes how to test engines under steady-state conditions. For model years through 2009, manufacturers may use the mode order described in this section or in § 86.1362-2007. Starting in model year 2010 manu-

facturers must use the mode order described in this section with the following exception: for model year 2010, manufacturers may continue to use the cycle specified in § 86.1362-2007 as long as it does not adversely affect the ability to demonstrate compliance with the standards.

(a) Start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions as described in 40 CFR 1065.650 and cycle statistics as described in 40 CFR 1065.514.

(b) Measure emissions by testing the engine on a dynamometer with the following ramped-modal duty cycle to determine whether it meets the applicable steady-state emission standards:

RMC mode	Time in mode (seconds)	Engine speed <sup>12</sup>	Torque (percent) <sup>23</sup>
1a Steady-state .....	170	Warm Idle .....	0
1b Transition .....	20	Linear Transition .....	Linear Transition.
2a Steady-state .....	173	A .....	100
2b Transition .....	20	Linear Transition .....	Linear Transition.
3a Steady-state .....	219	B .....	50
3b Transition .....	20	B .....	Linear Transition.
4a Steady-state .....	217	B .....	75
4b Transition .....	20	Linear Transition .....	Linear Transition.
5a Steady-state .....	103	A .....	50
5b Transition .....	20	A .....	Linear Transition.
6a Steady-state .....	100	A .....	75
6b Transition .....	20	A .....	Linear Transition.
7a Steady-state .....	103	A .....	25
7b Transition .....	20	Linear Transition .....	Linear Transition.
8a Steady-state .....	194	B .....	100
8b Transition .....	20	B .....	Linear Transition.
9a Steady-state .....	218	B .....	25
9b Transition .....	20	Linear Transition .....	Linear Transition.
10a Steady-state .....	171	C .....	100
10b Transition .....	20	C .....	Linear Transition.
11a Steady-state .....	102	C .....	25
11b Transition .....	20	C .....	Linear Transition.
12a Steady-state .....	100	C .....	75
12b Transition .....	20	C .....	Linear Transition.
13a Steady-state .....	102	C .....	50
13b Transition .....	20	Linear Transition .....	Linear Transition.
14 Steady-state .....	168	Warm Idle .....	0

<sup>1</sup> Speed terms are defined in 40 CFR part 1065.

<sup>2</sup> Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the speed or torque setting of the current mode to the speed or torque setting of the next mode.

<sup>3</sup> The percent torque is relative to maximum torque at the commanded engine speed.

(c) During idle mode, operate the engine at its warm idle as described in 40 CFR part 1065.

(d) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.

(e) Perform the ramped-modal test with a warmed-up engine. If the ramped-modal test follows directly after testing over the Federal Test Pro-

cedure, consider the engine warm. Otherwise, operate the engine to warm it up as described in 40 CFR part 1065, subpart F.

[73 FR 37193, June 30, 2008]

EFFECTIVE DATE NOTE: At 73 FR 37193, June 30, 2008, § 86.1362-2010 was added, effective July 7, 2008.