

Environmental Protection Agency

§ 1065.910

(8) Use a fuel meeting the specifications of subpart H of this part, as specified in the standard-setting part.

(9) Use the lubricant and coolant specifications in §1065.740 and §1065.745.

(10) Use the analytical gases and other calibration standards in §1065.750 and §1065.790.

(11) If you are testing with oxygenated fuels, use the procedures

specified for testing with oxygenated fuels in subpart I of this part.

(12) Apply the definitions and reference materials in subpart K of this part.

(f) *Summary.* The following table summarizes the requirements of paragraphs (d) and (e) of this section:

TABLE 1 OF § 1065.905—SUMMARY OF TESTING REQUIREMENTS THAT ARE SPECIFIED OUTSIDE OF THIS SUBPART J¹

Subpart	Applicability for field testing	Applicability for laboratory testing with PEMS
A: Applicability and general provisions	Use all	Use all.
B: Equipment for testing	Use §1065.101 and §1065.140 through the end of subpart B. §1065.910 specifies equipment specific to field testing.	Use all. §1065.910 specifies equipment specific to laboratory testing with PEMS.
C: Measurement instruments	Use all	Use all.
D: Calibrations and verifications	Use all	Use all.
E: Test engine selection, maintenance, and durability.	Do not use	Use all.
F: Running an emission test in the laboratory.	Use standard-setting part	Use all.
G: Calculations and data requirements	Use all	Use all.
H: Fuels, engine fluids, analytical gases, and other calibration materials.	Use fuels specified in §1065.701(d)	Use fuels from subpart H of this part as specified in standard-setting part.
I: Testing with oxygenated fuels	Use lubricant and coolant specifications in §1065.740 and §1065.745.	Use lubricant and coolant specifications in subpart H of this part.
K: Definitions and reference materials	Use analytical gas specifications and other calibration standards in §1065.750 and §1065.790.	Use analytical gas specifications and other calibration standards in §1065.750 and §1065.790.
	Use all	Use all.
	Use all	Use all.

¹ Refer to paragraphs (d) and (e) of this section for complete specifications.

EFFECTIVE DATE NOTE: At 73 FR 37344, June 30, 2008, §1065.905 was amended by revising paragraphs (c)(14) and (e) introductory text, effective July 7, 2008. For the convenience of the user, the revised text is set forth as follows:

§ 1065.905 General provisions.

* * * * *

(c) * * *

(14) Does any special measurement allowance apply to field-test emission results or standards, based on using PEMS for field-testing versus using laboratory equipment and instruments for laboratory testing?

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(e) *Laboratory testing using PEMS.* You may use PEMS for testing in a laboratory as described in §1065.901(b). Use the following procedures and specifications when using PEMS for laboratory testing:

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§1065.910 PEMS auxiliary equipment for field testing.

For field testing you may use various types of auxiliary equipment to attach PEMS to a vehicle or engine and to power PEMS.

(a) When you use PEMS, you will likely route engine exhaust to a raw-exhaust flow meter and sample probes. Route the engine exhaust as follows:

(1) *Flexible connections.* Use short flexible connectors at the end of the engine's exhaust pipe.

(i) You may use flexible connectors to enlarge or reduce the exhaust-pipe diameter to match that of your test equipment.

(ii) Use flexible connectors that do not exceed a length of three times their largest inside diameter.

(iii) Use four-ply silicone-fiberglass fabric with a temperature rating of at least 315 °C for flexible connectors. You may use connectors with a spring-steel wire helix for support and you may use Nomex™ coverings or linings for durability. You may also use any other material with equivalent permeation-resistance and durability, as long as it seals tightly around tailpipes and does not react with exhaust.

(iv) Use stainless-steel hose clamps to seal flexible connectors to the outside diameter of tailpipes, or use clamps that seal equivalently.

(v) You may use additional flexible connectors to connect to flow meters and sample probe locations.

(2) *Raw exhaust tubing.* Use rigid 300 series stainless steel tubing to connect between flexible connectors. Tubing may be straight or bent to accommodate vehicle geometry. You may use "T" or "Y" fittings made of 300 series stainless steel tubing to join exhaust from multiple tailpipes, or you may cap or plug redundant tailpipes if the engine manufacturer recommends it.

(3) *Exhaust back pressure.* Use connectors and tubing that do not increase back pressure so much that it exceeds the manufacturer's maximum specified exhaust restriction. You may verify this at the maximum exhaust flow rate by measuring back pressure at the manufacturer-specified location with your system connected. You may also perform an engineering analysis to verify proper back pressure, taking into account the maximum exhaust flow rate expected, the field test system's flexible connectors, and the tubing's characteristics for pressure drops versus flow.

(b) For vehicles or other motive equipment, we recommend installing PEMS in the same location where passenger might sit. Follow PEMS manufacturer instructions for installing

PEMS in vehicle cargo spaces, vehicle trailers, or externally such that PEMS is directly exposed to the outside environment. Locate PEMS where it will be subject to minimal sources of the following parameters:

(1) Ambient temperature changes.

(2) Ambient pressure changes.

(3) Electromagnetic radiation.

(4) Mechanical shock and vibration.

(5) Ambient hydrocarbons—if using a FID analyzer that uses ambient air as FID burner air.

(c) *Mounting hardware.* Use mounting hardware as required for securing flexible connectors, exhaust tubing, ambient sensors, and other equipment. Use structurally sound mounting points such as vehicle frames, trailer hitch receivers, and payload tie-down fittings. We recommend mounting hardware such as clamps, suction cups, and magnets that are specifically designed for vehicle applications. We also recommend considering mounting hardware such as commercially available bicycle racks, trailer hitches, and luggage racks.

(d) *Electrical power.* Field testing may require portable electrical power to run your test equipment. Power your equipment, as follows:

(1) You may use electrical power from the vehicle, up to the highest power level, such that all the following are true:

(i) The vehicle power system is capable of safely supplying your power, such that your demand does not overload the vehicle's power system.

(ii) The engine emissions do not change significantly when you use vehicle power.

(iii) The power you demand does not increase output from the engine by more than 1% of its maximum power.

(2) You may install your own portable power supply. For example, you may use batteries, fuel cells, a portable generator, or any other power supply to supplement or replace your use of vehicle power. However, you must not supply power to the vehicle's power system under any circumstances.

EFFECTIVE DATE NOTE: At 73 FR 37344, June 30, 2008, §1065.910 was revised, effective July 7, 2008. For the convenience of the user, the revised text is set forth as follows: