

test data from production engines showing that emissions are below the proposed lower FEL. The lower FEL applies only to engines you produce after we approve the new FEL. Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 72 FR 53131, Sept. 18, 2007; 75 FR 22990, Apr. 30, 2010]

§ 1039.230 How do I select engine families?

(a) For purposes of certification, divide your product line into families of engines that are expected to have similar emission characteristics throughout the useful life as described in this section. Your engine family is limited to a single model year.

(b) Group engines in the same engine family if they are the same in all the following aspects:

- (1) The combustion cycle and fuel.
- (2) The cooling system (water-cooled vs. air-cooled).
- (3) Method of air aspiration.
- (4) Method of exhaust aftertreatment (for example, catalytic converter or particulate trap).
- (5) Combustion chamber design.
- (6) Bore and stroke.
- (7) Cylinder arrangement (such as in-line vs. vee configurations). This applies for engines with aftertreatment devices only.
- (8) Method of control for engine operation other than governing (*i.e.*, mechanical or electronic).
- (9) Power category.
- (10) Numerical level of the emission standards that apply to the engine.

(c) You may subdivide a group of engines that is identical under paragraph (b) of this section into different engine families if you show the expected emission characteristics are different during the useful life.

(d) In unusual circumstances, you may group engines that are not identical with respect to the things listed in paragraph (b) of this section in the same engine family if you show that their emission characteristics during the useful life will be similar.

(e) If you combine engines from different power categories into a single

engine family under paragraph (d) of this section, you must certify the engine family to the more stringent set of standards from the two power categories in that model year.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53131, Sept. 18, 2007; 75 FR 22990, Apr. 30, 2010]

§ 1039.235 What testing requirements apply for certification?

This section describes the emission testing you must perform to show compliance with the emission standards in § 1039.101(a) and (b) or § 1039.102(a) and (b). See § 1039.205(p) regarding emission testing related to the NTE standards. See § 1039.240, § 1039.245, and 40 CFR part 1065, subpart E, regarding service accumulation before emission testing.

(a) Test your emission-data engines using the procedures and equipment specified in subpart F of this part.

(b) Select an emission-data engine from each engine family for testing. Select the engine configuration with the highest volume of fuel injected per cylinder per combustion cycle at the point of maximum torque—unless good engineering judgment indicates that a different engine configuration is more likely to exceed (or have emissions nearer to) an applicable emission standard or FEL. If two or more engines have the same fueling rate at maximum torque, select the one with the highest fueling rate at rated speed. In making this selection, consider all factors expected to affect emission-control performance and compliance with the standards, including emission levels of all exhaust constituents, especially NO_x and PM.

(c) We may measure emissions from any of your emission-data engines or other engines from the engine family, as follows:

- (1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the engine to a test facility we designate. The engine you provide must include appropriate manifolds, aftertreatment devices, electronic control units, and other emission-related components not normally attached directly to the engine block. If we do the testing at your plant, you must schedule it as soon as