

§ 1045.315

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§ 1045.315 How do I know when my engine family fails the production-line testing requirements?

This section describes the pass-fail criteria for the production-line testing requirements. We apply these criteria on an engine-family basis. See §1045.320 for the requirements that apply to individual engines that fail a production-line test.

(a) Calculate your test results as follows:

(1) *Initial and final test results.* Calculate and round the test results for each engine. If you do several tests on an engine, calculate the initial results for each test, then add all the test results together and divide by the number of tests. Round this final calculated value for the final test results on that engine.

(2) *Final deteriorated test results.* Apply the deterioration factor for the engine family to the final test results (see §1045.240(c)).

(3) *Round deteriorated test results.* Round the results to the number of decimal places in the emission standard expressed to one more decimal place.

(b) Construct the following CumSum Equation for each engine family for HC+NO_x and CO emissions:

$$C_i = \text{Max} [0 \text{ or } C_{i-1} + X_i - (\text{STD} + 0.25 \times \sigma)]$$

Where:

C_i = The current CumSum statistic.

C_{i-1} = The previous CumSum statistic. For the first test, the CumSum statistic is 0 (i.e., $C_1 = 0$).

X_i = The current emission test result for an individual engine.

STD = Emission standard (or family emission limit, if applicable).

(c) Use final deteriorated test results to calculate the variables in the equation in paragraph (b) of this section (see §1045.315(a)).

(d) After each new test, recalculate the CumSum statistic.

(e) If you test more than the required number of engines, include the results from these additional tests in the CumSum Equation.

(f) After each test, compare the current CumSum statistic, C_i , to the recalculated Action Limit, H , defined as $H = 5.0 \times \sigma$.

(g) If the CumSum statistic exceeds the Action Limit in two consecutive tests, the engine family fails the production-line testing requirements of this subpart. Tell us within ten working days if this happens. You may request to amend the application for certification to raise the FEL of the entire engine family as described in §1045.225(f).

(h) If you amend the application for certification for an engine family under §1045.225, do not change any previous calculations of sample size or CumSum statistics for the model year.

§ 1045.320 What happens if one of my production-line engines fails to meet emission standards?

(a) If you have a production-line engine with final deteriorated test results exceeding one or more emission standards (see §1045.315(a)), the certificate of conformity is automatically suspended for that failing engine. You must take the following actions before your certificate of conformity can cover that engine:

(1) Correct the problem and retest the engine to show it complies with all emission standards.

(2) Include the test results and describe the remedy for each engine in the written report required under §1045.345.

(b) You may request to amend the application for certification to raise the FEL of the entire engine family at this point (see §1045.225).

[73 FR 59194, Oct. 8, 2008, as amended at 73 FR 73789, Dec. 4, 2008]

§ 1045.325 What happens if an engine family fails the production-line testing requirements?

(a) We may suspend your certificate of conformity for an engine family if it fails under §1045.315. The suspension may apply to all facilities producing engines from an engine family even if you find noncompliant engines only at one facility.

(b) We will tell you in writing if we suspend your certificate in whole or in part. We will not suspend a certificate until at least 15 days after the engine family fails. The suspension is effective when you receive our notice.