§ 1051.315 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 § 1051.320 for the requirements that apply to individual vehicles or engines that fail a production-line test.

(a) Calculate your test results. Round them to the number of decimal places in the emission standard expressed to one more decimal place.

(1) Initial and final test results. Calculate and round the test results for each vehicle or engine. If you do several tests on a vehicle or 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 vehicle or engine.

(2) Final deteriorated test results. Apply the deterioration factor for the engine family to the final test results (see § 1051.240(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\(_X\), (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 vehicle or engine.

\(\text{STD}\) = Emission standard (or family emission limit, if applicable).

\(\sigma\) = 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 § 1051.315(a)).

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

(e) If you test more than the required number of vehicles or engines, include the results from these additional tests in the CumSum Equation.
§ 1051.320 What happens if one of my production-line vehicles or engines fails to meet emission standards?

(a) If you have a production-line vehicle or engine with final deteriorated test results exceeding one or more emission standards (see §1051.315(a)), the certificate of conformity is automatically suspended for that failing vehicle or engine. You must take the following actions before your certificate of conformity can cover that vehicle or engine:

(1) Correct the problem and retest the vehicle or 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 §1051.345.

(b) You may request to amend the application for certification to raise the FEL of the engine family at this point (see §1051.225). We will approve your request if it is clear that you used good engineering judgment in establishing the original FEL.

§ 1051.330 May I sell vehicles from an engine family with a suspended certificate of conformity?

You may sell vehicles that you produce after we suspend the engine family’s certificate of conformity under §1051.315 only if one of the following occurs:

(a) You test each vehicle or engine you produce and show it complies with emission standards that apply.

(b) We conditionally reinstate the certificate for the engine family. We may do so if you agree to recall all the affected vehicles and remedy any noncompliance at no expense to the owner if later testing shows that the engine family still does not comply.