Federal Aviation Administration, DOT

§ 34.48 Derivative engines for emissions certification purposes.

(a) General. A derivative engine for emissions certification purposes is an engine configuration that is determined to be similar in design to a previously certified (original) engine for purposes of compliance with exhaust emissions standards (gaseous and smoke). A type certificate holder may request from the FAA a determination that an engine configuration is considered a derivative engine for emissions certification purposes. To be considered a derivative engine for emission purposes under this part, the configuration must have been derived from the original engine that was certified to the requirements of part 33 of this chapter and one of the following:

(1) The FAA has determined that a safety issue exists that requires an engine modification.

(2) Emissions from the derivative engines are determined to be similar. In general, this means the emissions must meet the criteria specified in paragraph (b) of this section. The FAA may amend the criteria of paragraph (b) in unusual circumstances, for individual cases, consistent with good engineering judgment.

(3) All of the regulated emissions from the derivative engine are lower than the original engine.

(b) Emissions similarity. (1) The type certificate holder must demonstrate that the proposed derivative engine model’s emissions meet the applicable standards and differ from the original model’s emission rates only within the following ranges:

(i) ±3.0 g/kN for NOX.

(ii) ±1.0 g/kN for HC.

(iii) ±5.0 g/kN for CO.

(iv) ±2.0 SN for smoke.

(2) If the characteristic level of the original certified engine model (or any other sub-models within the emission type certificate family tested for certification) before modification is at or above 95% of the applicable standard for any pollutant, an applicant must measure the proposed derivative engine model’s emissions for all pollutants to demonstrate that the derivative engine’s resulting characteristic levels will not exceed the applicable emission standards. If the characteristic levels of the originally certified engine model (and all other sub-models within the emission type certificate family tested for certification) are below 95%