good engineering judgment. The engineering analysis must address all modifications from the original engine, including those approved for previous derivative engines.

(c) *Continued production allowance.* Where we allow continued production of an engine model after new standards begin to apply, you may also produce engine derivatives if they conform to the specifications of this section.

(d) *Non-derivative engines.* If the FAA determines that an engine model does not meet the requirements for a derivative engine for emissions certification purposes, the type certificate holder is required to demonstrate that the engine complies with the emissions standards applicable to a new engine type.

Subpart F—Exemptions and Exceptions

SOURCE: 77 FR 36384, June 18, 2012, unless otherwise noted.

§ 87.50 Exemptions and exceptions.

This section specifies provisions related to exempting/excepting engines from some or all of the standards and requirements of this part 87. Exempted/excepted engines must conform to regulatory conditions specified for an exemption in this section and other applicable regulations. Exempted/excepted engines are deemed to be ''subject to'' the standards of this part even though they are not required to comply with the otherwise applicable requirements. Engines exempted/excepted with respect to certain standards must comply with other standards. Exemption requests under paragraph (a) of this section must be approved by the FAA, with the written concurrence of EPA, to be effective. Exemption requests under paragraph (b) of this section must be approved only by the FAA to be effective. Exceptions do not require a case-by-case FAA approval.

(a) *Engines installed in new aircraft.* Type certificate holders may request an exemption to produce a limited number of newly manufactured engines through December 31, 2016, to be installed in new aircraft as specified in this paragraph (a). This exemption is limited to NO_X emissions from engines that are covered by a valid type certificate issued by FAA.

(1) Submit your request for an exemption to the FAA before producing the engines to be exempted, who will provide a copy to the Designated EPA Program Officer. Exemption by an authority outside the United States does not satisfy this requirement. Unless EPA and FAA allow otherwise, all requests must include the following:

(i) Your corporate name and an authorized representative's contact information.

(ii) A description of the engines for which you are requesting the exemption including the type certificate number and date it was issued by the FAA. Include in your description the engine model and sub-model names and the types of aircraft in which the engines are expected to be installed. Specify the number of engines that you would produce under the exemption and the period during which you would produce them.

(iii) Information about the aircraft in which the engines will be installed. Specify the airframe models and expected first purchasers/users of the aircraft. Identify all countries in which you expect the aircraft to be registered. Specify how many aircraft will be registered in the United States and how many will be registered in other countries; you may estimate this if it is not known.

(iv) A justification of why the exemption is appropriate. Justifications must include a description of the environmental impact of granting the exemption. Include other relevant information such as the following:

(A) Technical issues, from an environmental and airworthiness perspective, which may have caused a delay in compliance with a production cutoff.

(B) Economic impacts on the manufacturer, operator(s), and aviation industry at large.

(C) Environmental effects. This should consider the amount of additional air pollutant emissions that will result from the exemption. This could include consideration of items such as:

(*1*) The amount that the engine model exceeds the standard, taking into account any other engine models in the engine type certificate family

covered by the same type certificate and their relation to the standard.

(*2*) The amount of the applicable air pollutant that would be emitted by an alternative engine for the same application.

(*3*) The impact of changes to reduce the applicable air pollutant on other environmental factors, including emission rates of other air pollutants, community noise, and fuel consumption.

(*4*) The degree to which the adverse impact would be offset by cleaner engines produced in the same time period (unless we decide to consider earlier engines).

(D) Impact of unforeseen circumstances and hardship due to business circumstances beyond your control (such as an employee strike, supplier disruption, or calamitous events).

(E) Projected future production volumes and plans for producing a compliant version of the engine model in question.

(F) Equity issues in administering the production cutoff among economically competing parties.

(G) List of other certificating authorities from which you have requested (or expect to request) exemptions, and a summary of the request.

(H) Any other relevant factors.

(v) A statement signed by your authorized representative attesting that all information included in the request is accurate.

(2) In consultation with the EPA, the FAA may specify additional conditions for the exemption.

(3) You must submit the annual report specified in paragraph (d) of this section.

(4) The permanent record for each engine exempted under this paragraph (a) must indicate that the engine is an exempted new engine.

(5) Engines exempted under this paragraph (a) must be labeled with the following statement: ''EXEMPT NEW''.

(6) You must notify the FAA if you determine after submitting your request that the information is not accurate, either from an error or from changing circumstances. If you believe the new or changed information could have affected approval of your exemption (including information that could have affected the number of engines we exempt), you must notify the FAA promptly. The FAA will consult with EPA as needed to address any concerns related to this new or corrected information.

(b) *Temporary exemptions based on flights for short durations at infrequent intervals.* The emission standards of this part do not apply to engines which power aircraft operated in the United States for short durations at infrequent intervals. Such operations are limited to:

(1) Flights of an aircraft for the purpose of export to a foreign country, including any flights essential to demonstrate the integrity of an aircraft prior to its flight to a point outside the United States.

(2) Flights to a base where repairs, alterations or maintenance are to be performed, or to a point of storage, and flights for the purpose of returning an aircraft to service.

(3) Official visits by representatives of foreign governments.

(4) Other flights the Secretary determines to be for short durations at infrequent intervals. A request for such a determination shall be made before the flight takes place.

(c) *Spare engines.* Newly manufactured engines meeting the definition of ''spare engine'' are excepted as follows:

(1) This exception allows production of a newly manufactured engine for installation on an in-service aircraft. It does not allow for installation of a spare engine on a new aircraft.

(2) Each spare engine must be identical to a sub-model previously certificated to meet all requirements applicable to Tier 4 engines or later requirements.

(3) Spare engines excepted under this paragraph (c) may be used only where the emissions of the spare engines are certificated to equal to or lower emission standards than those of the engines they are replacing, for all regulated pollutants.

(4) No prior approval is required to produce spare engines. Engine manufacturers must include information about their production of spare engines in the annual report specified in paragraph (d) of this section

(5) The permanent record for each engine excepted under this paragraph (c)

must indicate that the engine was produced as an excepted spare engine.

(6) Engines excepted under this paragraph (c) must be labeled with the following statement: ''EXCEPTED SPARE''.

(d) *Annual reports.* If you produce engines with an exemption/exception under this section, you must submit an annual report with respect to such engines.

(1) You must send the Designated EPA Program Officer a report describing your production of exempted/excepted engines for each calendar year in which you produce such engines by February 28 of the following calendar year. You may include this information in the certification report described in § 87.42. Confirm that the information in your initial request is still accurate, or describe any relevant changes.

(2) Provide the information specified in this paragraph (d)(2). For purposes of this paragraph (d), treat spare engine exceptions separate from other new engine exemptions. Include the following for each exemption/exception and each engine model and sub-model:

(i) Engine model and sub-model names.

(ii) Serial number of each engine.

(iii) Use of each engine (for example, spare or new installation).

(iv) Types of aircraft in which the engines were installed (or are intended to be installed for spare engines).

(v) Serial number of the new aircraft in which engines are installed (if known), or the name of the air carriers (or other operators) using spare engines.

(3) Include information in the report only for engines having a date of manufacture within the specific calendar year.

Subpart G—Test Procedures

§ 87.60 Testing engines.

(a) Use the equipment and procedures specified in Appendix 3, Appendix 5, and Appendix 6 of ICAO Annex 16 (incorporated by reference in § 87.8), as applicable, to demonstrate whether engines meet the gaseous emission standards specified in subpart C of this part. Measure the emissions of all regulated gaseous pollutants. Similarly, use the equipment and procedures specified in Appendix 2 and Appendix 6 of ICAO Annex 16 to determine whether engines meet the smoke standard specified in subpart C of this part. The compliance demonstration consists of establishing a mean value from testing some number of engines, then calculating a ''characteristic level'' by applying a set of statistical factors that take into account the number of engines tested. Round each characteristic level to the same number of decimal places as the corresponding emission standard. For turboprop engines, use the procedures specified for turbofan engines, consistent with good engineering judgment.

(b) Use a test fuel meeting the specifications described in Appendix 4 of ICAO Annex 16 (incorporated by reference in § 87.8). The test fuel must not have additives whose purpose is to suppress smoke, such as organometallic compounds.

(c) Prepare test engines by including accessories that are available with production engines if they can reasonably be expected to influence emissions. The test engine may not extract shaft power or bleed service air to provide power to auxiliary gearbox-mounted components required to drive aircraft systems.

(d) Test engines must reach a steady operating temperature before the start of emission measurements.

(e) In consultation with the EPA, the FAA may approve alternate procedures for measuring emissions as specified in this paragraph (e). This might include testing and sampling methods, analytical techniques, and equipment specifications that differ from those specified in this part. Manufacturers and operators may request this approval by sending a written request with supporting justification to the FAA and to the Designated EPA Program Officer. Such a request may be approved only if one of the following conditions is met:

(1) The engine cannot be tested using the specified procedures.

(2) The alternate procedure is shown to be equivalent to or better (e.g., more accurate or precise) than the specified procedure.