

TABLE B3—CERTIFICATION STANDARD ATMOSPHERIC RAIN DROPLET SIZE DISTRIBUTION

Rain droplet diameter (mm)	Contribution total RWC (%)
0-0.49 .....	0
0.50-0.99 .....	2.25
1.00-1.49 .....	8.75
1.50-1.99 .....	16.25
2.00-2.49 .....	19.00
2.50-2.99 .....	17.75
3.00-3.49 .....	13.50
3.50-3.99 .....	9.50
4.00-4.49 .....	6.00
4.50-4.99 .....	3.00
5.00-5.49 .....	2.00
5.50-5.99 .....	1.25
6.00-6.49 .....	0.50
6.50-7.00 .....	0.25
Total .....	100.00

Median diameter of rain droplets is 2.66 mm  
 NOTE: Source of data—Results of the Aerospace Industries Association (AIA Propulsion Committee (PC) Study, Project PC 338-1, June 1990.

TABLE B4—CERTIFICATION STANDARD ATMOSPHERIC HAIL SIZE DISTRIBUTION

Hail diameter (mm)	Contribution total HWC (%)
0-4.9 .....	0
5.0-9.9 .....	17.00
10.0-14.9 .....	25.00
15.0-19.9 .....	22.50
20.0-24.9 .....	16.00
25.0-29.9 .....	9.75
30.0-34.9 .....	4.75
35.0-39.9 .....	2.50
40.0-44.9 .....	1.50
45.0-49.9 .....	0.75
50.0-55.0 .....	0.25
Total .....	100.00

Median diameter of hail is 16 mm  
 NOTE: Source of data—Results of the Aerospace Industries Association (AIA Propulsion Committee (PC) Study, Project PC 338-1, June 1990.

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**PART 34—FUEL VENTING AND EXHAUST EMISSION REQUIREMENTS FOR TURBINE ENGINE POWERED AIRPLANES**

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**Subpart A—General Provisions**

**§ 34.1 Definitions.**

As used in this part, all terms not defined herein shall have the meaning given them in the Clean Air Act, as amended (42 U.S.C. 7401 *et seq.*):  
*Act* means the Clean Air Act, as amended (42 U.S.C. 7401 *et seq.*).

*Administrator* means the Administrator of the Federal Aviation Administration or any person to whom he has delegated his authority in the matter concerned.

*Administrator of the EPA* means the Administrator of the Environmental Protection Agency and any other officer or employee of the Environmental Protection Agency to whom the authority involved may be delegated.

*Aircraft* as used in this part means any airplane as defined in 14 CFR part 1 for which a U.S. standard airworthiness certificate or equivalent foreign airworthiness certificate is issued.

*Aircraft engine* means a propulsion engine which is installed in, or which is manufactured for installation in, an aircraft.

*Aircraft gas turbine engine* means a turboprop, turbofan, or turbojet aircraft engine.

*Class TP* means all aircraft turboprop engines.

*Class TF* means all turbofan or turbojet aircraft engines or aircraft engines designed for applications that otherwise would have been fulfilled by turbojet and turbofan engines except engines of class T3, T8, and TSS.

*Class T3* means all aircraft gas turbine engines of the JT3D model family.

*Class T8* means all aircraft gas turbine engines of the JT8D model family.

*Class TSS* means all aircraft gas turbine engines employed for propulsion of aircraft designed to operate at supersonic flight speeds.

*Commercial aircraft engine* means any aircraft engine used or intended for use by an "air carrier" (including those engaged in "intrastate air transportation") or a "commercial operator" (including those engaged in "intrastate air transportation") as these terms are defined in the Federal Aviation Act and the Federal Aviation Regulations.

*Commercial aircraft gas turbine engine* means a turboprop, turbofan, or turbojet commercial aircraft engine.

*Date of manufacture* of an engine is the date the inspection acceptance records reflect that the engine is complete and meets the FAA approved type design.

*Emission measurement system* means all of the equipment necessary to transport the emission sample and

measure the level of emissions. This includes the sample system and the instrumentation system.

*Engine model* means all commercial aircraft turbine engines which are of the same general series, displacement, and design characteristics and are approved under the same type certificate.

*Exhaust emissions* means substances emitted into the atmosphere from the exhaust discharge nozzle of an aircraft or aircraft engine.

*Fuel venting emissions* means raw fuel, exclusive of hydrocarbons in the exhaust emissions, discharged from aircraft gas turbine engines during all normal ground and flight operations.

*In-use aircraft gas turbine engine* means an aircraft gas turbine engine which is in service.

*New aircraft turbine engine* means an aircraft gas turbine engine which has never been in service.

*Power setting* means the power or thrust output of an engine in terms of kilonewtons thrust for turbojet and turbofan engines or shaft power in terms of kilowatts for turboprop engines.

*Rated output (r0)* means the maximum power/thrust available for take-off at standard day conditions as approved for the engine by the Federal Aviation Administration, including reheat contribution where applicable, but excluding any contribution due to water injection and excluding any emergency power/thrust rating.

*Rated pressure ratio (rPR)* means the ratio between the combustor inlet pressure and the engine inlet pressure achieved by an engine operation at rated output.

*Reference day conditions* means the reference ambient conditions to which the gaseous emissions (HC and smoke) are to be corrected. The reference day conditions are as follows: Temperature=15 °C, specific humidity=0.00629 kg H<sub>2</sub>O/kg of dry air, and pressure=101325 Pa.

*Sample system* means the system which provides for the transportation of the gaseous emission sample from the sample probe to the inlet of the instrumentation system.

*Shaft power* means only the measured shaft power output of a turboprop engine.

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*Smoke* means the matter in exhaust emissions which obscures the transmission of light.

*Smoke number (SN)* means the dimensionless term quantifying smoke emissions.

*Standard day conditions* means standard ambient conditions as described in the United States Standard Atmosphere 1976, (i.e., temperature=15 °C, specific humidity=0.00 kg H<sub>2</sub>O/kg dry air, and pressure=101325 Pa.)

*Taxi/idle (in)* means those aircraft operations involving taxi and idle between the time of landing roll-out and final shutdown of all propulsion engines.

*Taxi/idle (out)* means those aircraft operations involving taxi and idle between the time of initial starting of the propulsion engine(s) used for the taxi and the turn onto the duty runway.

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## § 34.2 Abbreviations.

The abbreviations used in this part have the following meanings in both upper and lower case:

CO Carbon monoxide  
EPA United States Environmental Protection Agency  
FAA Federal Aviation Administration, United States Department of Transportation  
HC Hydrocarbon(s)  
HP Horsepower  
hr Hour(s)  
H<sub>2</sub>O water  
kg Kilogram(s)  
kJ Kilojoule(s)  
LTO Landing and takeoff  
min Minute(s)  
NO<sub>x</sub> Oxides of nitrogen  
Pa Pascal(s)  
rO Rated output  
rPR Rated pressure ratio  
sec Second(s)  
SP Shaft power  
SN Smoke number  
T Temperature, degrees Kelvin  
TIM Time in mode  
W Watt(s)  
°C Degrees Celsius

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% Percent

Doc. No. 25613, 55 FR 32861, Aug. 10, 1990, as amended by Amdt. 34-3, 64 FR 5559, Feb. 3, 1999]

## § 34.3 General requirements.

(a) This part provides for the approval or acceptance by the Administrator or the Administrator of the EPA of testing and sampling methods, analytical techniques, and related equipment not identical to those specified in this part. Before either approves or accepts any such alternate, equivalent, or otherwise nonidentical procedures or equipment, the Administrator or the Administrator of the EPA shall consult with the other in determining whether or not the action requires rulemaking under sections 231 and 232 of the Clean Air Act, as amended, consistent with the responsibilities of the Administrator of the EPA and the Secretary of Transportation under sections 231 and 232 of the Clean Air Act.

(b) Under section 232 of the Act, the Secretary of Transportation issues regulations to ensure compliance with 40 CFR part 87. This authority has been delegated to the Administrator of the FAA (49 CFR 1.47).

(c) *U.S. airplanes.* This Federal Aviation Regulation (FAR) applies to civil airplanes that are powered by aircraft gas turbine engines of the classes specified herein and that have U.S. standard airworthiness certificates.

(d) *Foreign airplanes.* Pursuant to the definition of "aircraft" in 40 CFR 87.1(c), this FAR applies to civil airplanes that are powered by aircraft gas turbine engines of the classes specified herein and that have foreign airworthiness certificates that are equivalent to U.S. standard airworthiness certificates. This FAR applies only to those foreign civil airplanes that, if registered in the United States, would be required by applicable Federal Aviation Regulations to have a U.S. standard airworthiness certificate in order to conduct the operations intended for the airplane. Pursuant to 40 CFR 87.3(c), this FAR does not apply where it would be inconsistent with an obligation assumed by the United States to a foreign country in a treaty, convention, or agreement.