

**Pt. 27, App. D**

appendix in addition to the requirements of this part.

C27.2 Applicable part 29 sections. The following sections of part 29 of this chapter must be met in addition to the requirements of this part:

- 29.45(a) and (b)(2)—General.
- 29.49(a)—Performance at minimum operating speed.
- 29.51—Takeoff data: General.
- 29.53—Takeoff: Category A.
- 29.55—Takeoff decision point: Category A.
- 29.59—Takeoff Path: Category A.
- 29.60—Elevated heliport takeoff path: Category A.
- 29.61—Takeoff distance: Category A.
- 29.62—Rejected takeoff: Category A.
- 29.64—Climb: General.
- 29.65(a)—Climb: AEO.
- 29.67(a)—Climb: OEI.
- 29.75—Landing: General.
- 29.77—Landing decision point: Category A.
- 29.79—Landing: Category A.
- 29.81—Landing distance (Ground level sites): Category A.
- 29.85—Balked landing: Category A.
- 29.87(a)—Height-velocity envelope.
- 29.547(a) and (b)—Main and tail rotor structure.
- 29.861(a)—Fire protection of structure, controls, and other parts.
- 29.901(c)—Powerplant: Installation.
- 29.903(b) (c) and (e)—Engines.
- 29.908(a)—Cooling fans.
- 29.917(b) and (c)(1)—Rotor drive system: Design.
- 29.927(c)(1)—Additional tests.
- 29.953(a)—Fuel system independence.
- 29.1027(a)—Transmission and gearboxes: General.
- 29.1045(a)(1), (b), (c), (d), and (f)—Climb cooling test procedures.
- 29.1047(a)—Takeoff cooling test procedures.
- 29.1181(a)—Designated fire zones: Regions included.
- 29.1187(e)—Drainage and ventilation of fire zones.
- 29.1189(c)—Shutoff means.
- 29.1191(a)(1)—Firewalls.
- 29.1193(e)—Cowling and engine compartment covering.
- 29.1195(a) and (d)—Fire extinguishing systems (one shot).
- 29.1197—Fire extinguishing agents.
- 29.1199—Extinguishing agent containers.
- 29.1201—Fire extinguishing system materials.
- 29.1305(a) (6) and (b)—Powerplant instruments.
- 29.1309(b)(2) (i) and (d)—Equipment, systems, and installations.
- 29.1323(c)(1)—Airspeed indicating system.
- 29.1331(b)—Instruments using a power supply.
- 29.1351(d)(2)—Electrical systems and equipment: General (operation without normal electrical power).
- 29.1587(a)—Performance information.

**14 CFR Ch. I (1–12 Edition)**

NOTE: In complying with the paragraphs listed in paragraph C27.2 above, relevant material in the AC “Certification of Transport Category Rotorcraft” should be used.

[Doc. No. 28008, 61 FR 21907, May 10, 1996]

**APPENDIX D TO PART 27—HIRF ENVIRONMENTS AND EQUIPMENT HIRF TEST LEVELS**

This appendix specifies the HIRF environments and equipment HIRF test levels for electrical and electronic systems under §27.1317. The field strength values for the HIRF environments and laboratory equipment HIRF test levels are expressed in root-mean-square units measured during the peak of the modulation cycle.

(a) HIRF environment I is specified in the following table:

**TABLE I.—HIRF ENVIRONMENT I**

Frequency	Field strength (volts/meter)	
	Peak	Average
10 kHz–2 MHz .....	50	50
2 MHz–30 MHz .....	100	100
30 MHz–100 MHz .....	50	50
100 MHz–400 MHz .....	100	100
400 MHz–700 MHz .....	700	50
700 MHz–1 GHz .....	700	100
1 GHz–2 GHz .....	2,000	200
2 GHz–6 GHz .....	3,000	200
6 GHz–8 GHz .....	1,000	200
8 GHz–12 GHz .....	3,000	300
12 GHz–18 GHz .....	2,000	200
18 GHz–40 GHz .....	600	200

In this table, the higher field strength applies at the frequency band edges.

(b) HIRF environment II is specified in the following table:

**TABLE II.—HIRF ENVIRONMENT II**

Frequency	Field strength (volts/meter)	
	Peak	Average
10 kHz–500 kHz .....	20	20
500 kHz–2 MHz .....	30	30
2 MHz–30 MHz .....	100	100
30 MHz–100 MHz .....	10	10
100 MHz–200 MHz .....	30	10
200 MHz–400 MHz .....	10	10
400 MHz–1 GHz .....	700	40
1 GHz–2 GHz .....	1,300	160
2 GHz–4 GHz .....	3,000	120
4 GHz–6 GHz .....	3,000	160
6 GHz–8 GHz .....	400	170
8 GHz–12 GHz .....	1,230	230
12 GHz–18 GHz .....	730	190
18 GHz–40 GHz .....	600	150

In this table, the higher field strength applies at the frequency band edges.

(c) HIRF environment III is specified in the following table:

TABLE III.—HIRF ENVIRONMENT III

Frequency	Field strength (volts/meter)	
	Peak	Average
10 kHz–100 kHz .....	150	150
100 kHz–400 MHz .....	200	200
400 MHz–700 MHz .....	730	200
700 MHz–1 GHz .....	1,400	240
1 GHz–2 GHz .....	5,000	250
2 GHz–4 GHz .....	6,000	490
4 GHz–6 GHz .....	7,200	400
6 GHz–8 GHz .....	1,100	170
8 GHz–12 GHz .....	5,000	330
12 GHz–18 GHz .....	2,000	330
18 GHz–40 GHz .....	1,000	420

In this table, the higher field strength applies at the frequency band edges.

(d) *Equipment HIRF Test Level 1.*

(1) From 10 kilohertz (kHz) to 400 megahertz (MHz), use conducted susceptibility tests with continuous wave (CW) and 1 kHz square wave modulation with 90 percent depth or greater. The conducted susceptibility current must start at a minimum of 0.6 milliamperes (mA) at 10 kHz, increasing 20 decibels (dB) per frequency decade to a minimum of 30 mA at 500 kHz.

(2) From 500 kHz to 40 MHz, the conducted susceptibility current must be at least 30 mA.

(3) From 40 MHz to 400 MHz, use conducted susceptibility tests, starting at a minimum of 30 mA at 40 MHz, decreasing 20 dB per frequency decade to a minimum of 3 mA at 400 MHz.

(4) From 100 MHz to 400 MHz, use radiated susceptibility tests at a minimum of 20 volts per meter (V/m) peak with CW and 1 kHz square wave modulation with 90 percent depth or greater.

(5) From 400 MHz to 8 gigahertz (GHz), use radiated susceptibility tests at a minimum of 150 V/m peak with pulse modulation of 4 percent duty cycle with a 1 kHz pulse repetition frequency. This signal must be switched on and off at a rate of 1 Hz with a duty cycle of 50 percent.

(e) *Equipment HIRF Test Level 2.* Equipment HIRF test level 2 is HIRF environment II in table II of this appendix reduced by acceptable aircraft transfer function and attenuation curves. Testing must cover the frequency band of 10 kHz to 8 GHz.

(f) *Equipment HIRF Test Level 3.* (1) From 10 kHz to 400 MHz, use conducted susceptibility tests, starting at a minimum of 0.15 mA at 10 kHz, increasing 20 dB per frequency decade to a minimum of 7.5 mA at 500 kHz.

(2) From 500 kHz to 40 MHz, use conducted susceptibility tests at a minimum of 7.5 mA.

(3) From 40 MHz to 400 MHz, use conducted susceptibility tests, starting at a minimum of 7.5 mA at 40 MHz, decreasing 20 dB per frequency decade to a minimum of 0.75 mA at 400 MHz.

(4) From 100 MHz to 8 GHz, use radiated susceptibility tests at a minimum of 5 V/m.

[Doc. No. FAA-2006-23657, 72 FR 44027, Aug. 6, 2007]

**PART 29—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY ROTORCRAFT**

**Subpart A—General**

Sec.

29.1 Applicability.

29.2 Special retroactive requirements.

**Subpart B—Flight**

GENERAL

29.21 Proof of compliance.

29.25 Weight limits.

29.27 Center of gravity limits.

29.29 Empty weight and corresponding center of gravity.

29.31 Removable ballast.

29.33 Main rotor speed and pitch limits.

PERFORMANCE

29.45 General.

29.49 Performance at minimum operating speed.

29.51 Takeoff data: general.

29.53 Takeoff: Category A.

29.55 Takeoff decision point (TDP): Category A.

29.59 Takeoff path: Category A.

29.60 Elevated heliport takeoff path: Category A.

29.61 Takeoff distance: Category A.

29.62 Rejected takeoff: Category A.

29.63 Takeoff: Category B.

29.64 Climb: General.

29.65 Climb: All engines operating.

29.67 Climb: One engine inoperative (OEI).

29.71 Helicopter angle of glide: Category B.

29.75 Landing: General.

29.77 Landing Decision Point (LDP): Category A.

29.79 Landing: Category A.

29.81 Landing distance: Category A.

29.83 Landing: Category B.

29.85 Balked landing: Category A.

29.87 Height-velocity envelope.

FLIGHT CHARACTERISTICS

29.141 General.

29.143 Controllability and maneuverability.

29.151 Flight controls.

29.161 Trim control.

29.171 Stability: general.

29.173 Static longitudinal stability.

29.175 Demonstration of static longitudinal stability.

29.177 Static directional stability.

29.181 Dynamic stability: Category A rotorcraft.