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>
<thead>
<tr>
<th>Frequency</th>
<th>Field strength (volts/meter)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peak</td>
</tr>
<tr>
<td>10 kHz–2 MHz</td>
<td>50</td>
</tr>
<tr>
<td>2 MHz–30 MHz</td>
<td>100</td>
</tr>
<tr>
<td>30 MHz–100 MHz</td>
<td>50</td>
</tr>
<tr>
<td>100 MHz–400 MHz</td>
<td>100</td>
</tr>
<tr>
<td>400 MHz–700 MHz</td>
<td>700</td>
</tr>
<tr>
<td>700 MHz–1 GHz</td>
<td>700</td>
</tr>
<tr>
<td>1 GHz–2 GHz</td>
<td>2,000</td>
</tr>
<tr>
<td>2 GHz–6 GHz</td>
<td>3,000</td>
</tr>
<tr>
<td>6 GHz–8 GHz</td>
<td>1,000</td>
</tr>
<tr>
<td>8 GHz–12 GHz</td>
<td>3,000</td>
</tr>
<tr>
<td>12 GHz–18 GHz</td>
<td>2,000</td>
</tr>
<tr>
<td>18 GHz–40 GHz</td>
<td>600</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Field strength (volts/meter)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peak</td>
</tr>
<tr>
<td>10 kHz–2 MHz</td>
<td>20</td>
</tr>
<tr>
<td>2 MHz–500 kHz</td>
<td>30</td>
</tr>
<tr>
<td>2 MHz–30 MHz</td>
<td>100</td>
</tr>
<tr>
<td>30 MHz–100 MHz</td>
<td>10</td>
</tr>
<tr>
<td>100 MHz–200 MHz</td>
<td>30</td>
</tr>
<tr>
<td>200 MHz–400 MHz</td>
<td>10</td>
</tr>
<tr>
<td>400 MHz–1 GHz</td>
<td>700</td>
</tr>
<tr>
<td>1 GHz–2 GHz</td>
<td>1,300</td>
</tr>
<tr>
<td>2 GHz–4 GHz</td>
<td>3,000</td>
</tr>
<tr>
<td>4 GHz–6 GHz</td>
<td>3,000</td>
</tr>
<tr>
<td>6 GHz–8 GHz</td>
<td>400</td>
</tr>
<tr>
<td>8 GHz–12 GHz</td>
<td>1,230</td>
</tr>
<tr>
<td>12 GHz–18 GHz</td>
<td>730</td>
</tr>
<tr>
<td>18 GHz–40 GHz</td>
<td>600</td>
</tr>
</tbody>
</table>

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

(c) HIRF environment III is specified in the following table:
Federal Aviation Administration, DOT

TABLE III.—HIRF ENVIRONMENT III

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Field strength (volts/meter)</th>
<th>Peak</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 kHz–100 kHz</td>
<td>150</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>100 kHz–400 MHz</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>400 MHz–700 MHz</td>
<td>730</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>700 MHz–1 GHz</td>
<td>1,400</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>1 GHz–2 GHz</td>
<td>5,000</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>2 GHz–4 GHz</td>
<td>6,000</td>
<td>490</td>
<td></td>
</tr>
<tr>
<td>4 GHz–6 GHz</td>
<td>7,200</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>6 GHz–8 GHz</td>
<td>11,100</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>8 GHz–12 GHz</td>
<td>5,000</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>12 GHz–18 GHz</td>
<td>2,000</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>18 GHz–40 GHz</td>
<td>1,000</td>
<td>420</td>
<td></td>
</tr>
</tbody>
</table>

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 400 MHz to 8 GHz, use radiated susceptibility tests at a minimum of 5 V/m.


PART 29—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY ROTORCRAFT

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29.29 Empty weight and corresponding center of gravity.
29.31 Removable ballast.
29.33 Main rotor speed and pitch limits.

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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.
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29.63 Takeoff: Category B.
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