

Appendix 8

**RF exposure evaluation: Mobile equipment FCC 47 CFR part 15.247 (i)
/ RSS-102 2.5.1**

Date 2013-06-18	Temperature 22 °C ± 3 °C	Humidity 49 % ± 5 %
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Procedure

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

Results

The following formula was used to calculate the RF exposure,

$$P_d = P_{out} \times G / (4 \times \pi \times r_{cm}^2)$$

where,

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation and center of the radiator in cm

From the peak EUT RF output power, the minimum mobile separation distance, $r=20$ cm, as well as the gain of the used antenna, the RF power density can be obtained.

The maximum conducted peak output power from appendix 5 was used for calculation of MPE.

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak output power (mW)	Power density, P_d [S] (μ W/cm ²)	Limit of power density (μ W/cm ²)
2	1.56	60.2	0.089	1000

Appendix 8

Limits**(A) Limits for Occupational/Controlled Exposure**

Frequency range (MHz)	Electric field strength [E] (V/m)	Magnetic field strength [H] (A/m)	Power density [S] (mW/cm ²)	Averaging time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency range (MHz)	Electric field strength [E] (V/m)	Magnetic field strength [H] (A/m)	Power density [S] (mW/cm ²)	Averaging time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f=frequency in MHz, *Plane-wave equivalent power density

According to RSS-102 2.5.1, SAR evaluation is required if the separation distance between the user and the radiating element of the device is less than or equal to 20 cm, except when the device operates as follows:

- above 2.2 GHz and up to 3 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 20 mW for general public use and 100 mW for controlled use;

Complies?	Yes
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