RF Exposure Compliance

3.2 RF Exposure Evaluation of Devices

A device requiring an RF exposure evaluation shall be made in accordance with the latest version of IEEE C95.3. If the device is designed such that more than one antenna can functionally transmit at the same time, the RF exposure evaluation shall be conducted while all antennas are transmitting. The individual exposure level ratios shall be totalled and used for compliance purposes.

If the device has more than one antenna, but is not designed to have more than one antenna functionally transmit at the same time, the RF exposure evaluation of the device shall be performed for each of the individually transmitting antennas. The maximum RF field strength value shall be recorded and used for compliance purposes.

If the device combines groups of simultaneous and non-simultaneous transmitting antennas, the worst-case of the above scenarios applies.

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003-10[21]	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

EIRP = FS- 95.2

EIRP = 61.8 – 95.2

EIRP = -33.4 dBm

EIRP = 0.46 mW

$S=(P\ G) / (4\ \pi\ r^2)$

Where:

S = Power density in mW/cm^2

P = Power in mW

G = Numerical antenna gain

r = Distance in cm

Maximum output power = (.46) mW

Antenna gain (isotropic) = 6.0 dB

Antenna gain (numeric) = 3.98 dB

Distance = 20 cm

S = (0.46 * 3.98) / (12.57 * 400)

S= (1.83) / (5,028)

S= (0.0004) mW / cm^2

Limit at 13.56 MHz = 2.0 W/m^2

Limit = 0.2 mW / cm2

Complies


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