

13 FCC §27.52, §2.1091 & IC RSS-102 - RF Exposure Information

13.1 Applicable Standard

According to §1.1310 and §2.1091 (Mobile Devices) RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Averaging Time (minute) |
|--|-------------------------------|-------------------------------|-------------------------------------|-------------------------|
| Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 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

Before equipment certification is granted, the procedure of RSS-102 must be followed concerning the exposure of humans to RF fields.

According to RSS-102 Issue 2 section 4.1, RF limits used for general public will be applied to the EUT.

| Frequency Range (MHz) | Electric Field (V/m rms) | Magnetic Field (A/m rms) | Power Density (W/m ²) | Time Averaging (min) |
|-----------------------|--------------------------|--|-----------------------------------|---------------------------|
| 0.003 - 1 | 280 | 2.19 | - | 6 |
| 1-10 | 280 / f | 2.19 / f | - | 6 |
| 10-30 | 28 | 2.19 / f | - | 6 |
| 30-300 | 28 | 0.073 | 2* | 6 |
| 300-1500 | 1.585 f ^{0.5} | 0.0042 f ^{0.5} | f / 150 | 6 |
| 1500-15000 | 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 x 10 ⁻⁴ f ^{0.5} | 6.67 x 10 ⁻⁵ f | 616000 / f ^{1.2} |

Note: f is frequency in MHz

* Power density limit is applicable at frequencies greater than 100 MHz

13.2 MPE Prediction

Predication of MPE limit at a given distance, equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal (dBm): 24.33

Maximum peak output power at antenna input terminal (mW): 271.02

Prediction distance (cm): 25

Prediction frequency (MHz): 2132.4

Antenna Gain, typical (dBi): 14

Maximum Antenna Gain (numeric): 25.11

Power density at predication frequency and distance (mW/cm²): 0.866

Power density at predication frequency and distance (W/m²): 8.66

MPE limit for uncontrolled exposure at predication frequency (mW/cm²): 1

MPE limit for uncontrolled exposure at predication frequency (W/m²): 10

Test Result

For Downlink, the highest power density level at 25 cm is 0.866 mW/cm² (8.66 W/ m²), which is below the uncontrolled exposure limit.