

11 FCC §1.1307(b) (1) & §2.1091 - RF EXPOSURE

11.1 Applicable Standard

According to FCC §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

11.2 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

QPSK Modulation:

Maximum peak output power at antenna input terminal (dBm):	<u>24.0</u>
Maximum peak output power at antenna input terminal (mW):	<u>251.188</u>
Prediction distance (cm):	<u>150</u>
Prediction frequency (MHz):	<u>706.6</u>
Antenna Gain, typical (dBi):	<u>10</u>
Maximum Antenna Gain (numeric):	<u>10</u>
Power density at predication frequency and distance (mW/cm ²):	<u>0.0089</u>
MPE limit for uncontrolled exposure at predication frequency (mW/cm ²):	<u>0.4711</u>

16QAM Modulation:

Maximum peak output power at antenna input terminal (dBm):	<u>23.55</u>
Maximum peak output power at antenna input terminal (mW):	<u>226.46</u>
Prediction distance (cm):	<u>150</u>
Prediction frequency (MHz):	<u>707</u>
Antenna Gain, typical (dBi):	<u>10</u>
Maximum Antenna Gain (numeric):	<u>10</u>
Power density at predication frequency and distance (mW/cm ²):	<u>0.008</u>
MPE limit for uncontrolled exposure at predication frequency (mW/cm ²):	<u>0.4713</u>

11.3 MPE Conclusion

The highest power density level at 150 cm is 0.0089 mW/cm², which is below the uncontrolled exposure limit of 0.47 mW/cm², the safety distance to meet the FCC RF exposure requirement has been mentioned in the user manual.