

5 FCC §2.1091 – RF EXPOSURE

5.1 Applicable Standards

According to §1.1307(b)(1) and §1.1307(b)(2), systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for General Population/Uncontrolled Exposure

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 (minutes)
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

f = frequency in MHz

* = Plane-wave equivalent power density

5.2 MPE Prediction

Prediction of MPE limit at a given distance, Equation from of 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

GSM/GPRS 850 Band

Maximum peak output power at antenna input terminal (dBm):	<u>31.8</u>
Maximum peak output power at antenna input terminal (mw):	<u>1513.6</u>
Prediction distance (cm):	<u>20</u>
Prediction frequency (MHz):	<u>848.8</u>
Maximum Antenna Gain, typical (dBi):	<u>0</u>
Maximum Antenna Gain (numeric):	<u>1.0</u>
Power density of prediction frequency at 20.0 cm (mW/cm ²):	<u>0.3013</u>
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²):	<u>0.5659</u>

GSM/GPRS 1900 Band

Maximum peak output power at antenna input terminal (dBm):	<u>29.9</u>
Maximum peak output power at antenna input terminal (mw):	<u>977.24</u>
Prediction distance (cm):	<u>20</u>
Prediction frequency (MHz):	<u>1880</u>
Maximum Antenna Gain, typical (dBi):	<u>0</u>
Maximum Antenna Gain (numeric):	<u>1.0</u>
Power density of prediction frequency at 20.0 cm (mW/cm ²):	<u>0.1945</u>
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²):	<u>1.0</u>

Conclusion: EUT meets the MPE at 20 cm distance.