

FCC §1.1307 (b) (1) & §2.1091- Maximum Permissible exposure (MPE)

Applicable Standard

According to subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication 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/cm²)	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

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For worst case:

Mode	Frequency (MHz)	Antenna Gain		Tune up Conducted power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
LTE B2	1850-1910	2.8	1.91	22	158.49	20	0.060	1
LTE B4	1710-1755	2.7	1.86	22	158.49	20	0.059	1
LTE B5	824-849	0.8	1.20	22	158.49	20	0.038	0.549
LTE B12	699-716	0.33	1.08	22	158.49	20	0.034	0.466
LTE B13	777-787	0.33	1.08	22	158.49	20	0.034	0.518
LTE B25	1850-1915	2.8	1.91	22	158.49	20	0.060	1
LTE B26 (Part 90)	814-824	0.8	1.20	22	158.49	20	0.038	0.543
LTE B26 (Part 22)	824-849	0.8	1.20	22	158.49	20	0.038	0.549
LTE B66	1710-1780	2.7	1.86	22	158.49	20	0.059	1
LTE B85	698-716	0.33	1.08	22	158.49	20	0.034	0.465

Note 1: The tune up conducted power was declared by the applicant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant.