

FCC §1.1310 & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 1.1310 and 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				
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

Calculated Formulary:

Predication of MPE limit at a given distance

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

Calculated Data (worst case):

Mode	Frequency Range (MHz)	Antenna Gain		Target Output Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
WCDMA Band II	1850.0-1910.0	0.0	1.00	22.00	158.49	20	0.0315	1.00
WCDMA Band V	824.0-849.0	0.0	1.00	23.00	199.53	20	0.0397	0.55
FDD (Band 2)	1850.0-1910.0	0.0	1.00	22.00	158.49	20	0.0315	1.00
FDD (Band 4)	1710.0-1755.0	0.0	1.00	22.50	177.83	20	0.0354	1.00
FDD (Band 5)	824.0-849.0	0.0	1.00	23.00	199.53	20	0.0397	0.55
FDD (Band 12)	699.0-716.0	0.0	1.00	23.50	223.87	20	0.0445	0.47
FDD (Band 17)	704.0-716.0	0.0	1.00	23.50	223.87	20	0.0445	0.47

Note1: The target output power was declared by the manufacturer.

Note2: Conclusion: The device meets MPE at distance 20cm.