



**FCC ID: PX8RX-8139**

**RF Exposure Compliance Requirement**

**1. Standard requirement**

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

**(a) Limits for Occupational / Controlled Exposure**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm <sup>2</sup> )	Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100000			5	6

**(b) Limits for General Population / Uncontrolled Exposure**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm <sup>2</sup> )	Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/500	30
1500-100000			1.0	30

Note: f=frequency in MHz; \*Plane-wave equivalent power density

## 2. MPE Calculation Method

$$S \text{ (mW/cm}^2\text{)} = P * G / 4\pi * R^2$$

$$S = \text{Power Density (mW/cm}^2\text{)}$$

$$P = \text{Peak RF conducted output Power (mW)}$$

$$G = \text{EUT Antenna numeric gain (numeric)}$$

$$R = \text{Separation distance between radiator and human body (cm);}$$

$$R = \sqrt{(P * G) / 4\pi * S}$$

From the maximum EUT RF output power, as well as the gain of the used antenna, according to the RF power density limit above, the minimum distance between the antenna and human body will be calculated.

## 3. Calculated Result

For downlink:

CDMA:

Frequency (MHz) F	Maximum Antenna Gain (dBi)	Maximum Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Minimum Distance to human body (cm)
Lowest	21	125	39.61	9140	2.905	176.9539
Middle	21	125	39.72	9380	2.913	179.0158
Highest	21	125	39.81	9570	2.920	180.6029

WCDMA

Frequency (MHz) F	Maximum Antenna Gain (dBi)	Maximum Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Minimum Distance to human body (cm)
Middle	21	125	40.07	10160	2.9333	185.6645



For uplink:

CDMA:

Frequency (MHz) F	Maximum Antenna Gain (dBi)	Maximum Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Minimum Distance to human body (cm)
Lowest	21	125	24.77	300	2.755	32.92001
Middle	21	125	24.56	290	2.763	32.31981
Highest	21	125	24.82	310	2.77	33.37345

WCDMA

Frequency (MHz) F	Maximum Antenna Gain (dBi)	Maximum Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Minimum Distance to human body (cm)
Middle	21	125	24.66	290	2.783	32.20346

**Conclusion:**

So the recommend use distance away from EUT external antenna is larger than 1.9meter.