



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1710006098CR

Page: 1 of 6

FCC ID: PX8COMFLEX-6800

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 ²)	Averaging Times $ E ^2, H ^2$ 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 ²)	Averaging Times $ E ^2, H ^2$ 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



SGS-CSTC Standards Technical Services Co., Ltd.
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Application No.: GZEM1710006098CR

Page: 2 of 6

FCC ID: PX8COMFLEX-6800

2. MPE Calculation Method

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

S= Power Density (mW/cm^2)

P=Peak RF conducted output Power (mW)

G=EUT Antenna numeric gain (numeric)

R= 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

3.1 For downlink: 728MHz to 746MHz

LTE:

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^2)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	37.2	5248.075	2.443	55.1726
Middle	12.5	17.8	37.2	5248.075	2.457	55.0227
Highest	12.5	17.8	37.4	5495.409	2.507	56.1522

3.1 For downlink: 746MHz to 757MHz

LTE:

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^2)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	37.1	5128.6140	2.503	53.8835
Middle	12.5	17.8	36.9	4897.7788	2.505	52.6394
Highest	12.5	17.8	36.9	4897.7788	2.507	52.6219



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1710006098CR

Page: 3 of 6

FCC ID: PX8COMFLEX-6800

3.2 For downlink: 862MHz to 869MHz:

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	36.1	4073.803	2.877	44.7992
Middle	12.5	17.8	37.3	5370.318	2.885	51.3620
Highest	12.5	17.8	37.4	5495.409	2.893	51.8819

LTE:

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	36.2	4168.694	2.883	45.2708
Middle	12.5	17.8	36.6	4570.882	2.885	47.3852
Highest	12.5	17.8	36.5	4466.836	2.887	46.8238



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1710006098CR

Page: 4 of 6

FCC ID: PX8COMFLEX-6800

3.3 For downlink: 869MHz to 894MHz:

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	37.1	5128.614	2.903	50.0342
Middle	12.5	17.8	37.4	5495.409	2.938	51.4831
Highest	12.5	17.8	36.2	4168.694	2.973	44.5752

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	37.0	5011.872	2.907	49.4331
Middle	12.5	17.8	37.3	5370.318	2.938	50.8938
Highest	12.5	17.8	36.1	4073.803	2.970	44.0897

LTE:

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	36.7	4677.351	2.913	47.7002
Middle	12.5	17.8	36.7	4677.351	2.938	47.4968
Highest	12.5	17.8	36.1	4073.803	2.963	44.1392



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1710006098CR

Page: 5 of 6

FCC ID: PX8COMFLEX-6800

3.4 For downlink: 1930MHz ~ 1995MHz

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	35.8	3801.894	5.0	32.8269
Middle	12.5	17.8	37.4	5495.409	5.0	39.4666
Highest	12.5	17.8	35.5	3548.134	5.0	31.7125

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	35.8	3801.894	5.0	32.8269
Middle	12.5	17.8	37.1	5128.614	5.0	38.1268
Highest	12.5	17.8	35.3	3388.442	5.0	30.9906

LTE:

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	35.0	3162.278	5.0	29.9385
Middle	12.5	17.8	37.0	5011.872	5.0	37.6903
Highest	12.5	17.8	35.3	3388.442	5.0	30.9906



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1710006098CR

Page: 6 of 6

FCC ID: PX8COMFLEX-6800

3.5 For downlink: 2110 MHz to 2180MHz

LTE:

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 ²)	Minimum Distance to human body (cm)
Lowest	12.5	17.8	37.1	5128.614	5.0	38.1268
Middle	12.5	17.8	37.6	5754.399	5.0	40.3859
Highest	12.5	17.8	36.9	4897.788	5.0	37.2589

Conclusion:

So the recommend use distance away from EUT external antenna is larger than 56.1522 meter.