

MPE Calculation : LTE Band 13

Frequency range :	777.00 MHz ~ 784.50 MHz
Target power :	23.00 dBm
Tolerance :	+ 1.50 dB ~ - 1.50 dB
Max Target power :	24.50 dBm
Measured Conducted power :	22.94 dBm
Maximum antenna gain(PK) :	6.49 dBi
Maximum EIRP :	30.99 dBm(1256.637)mW

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE calculation for this exposure is shown below.

▪ Calculation of power density at the specific separation

▪ $S = \text{EIRP} / (4 R^2 \pi)$ = $\frac{1256.637}{(4 \times 20^2 \times \pi)}$ = <u>0.250</u> mW/cm²	- Note S = Maximum power density(mW/cm²) EIRP = Equivalent Isotropic Radiated Power(mW) R = Distance to the center of the radiation of the antenna(20cm)
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▪ Requirement = 0.518 mW/cm²

(FCC Part 1.1310 Table 1 Limits for maximum permissible exposure(MPE))

Conclusion : The exposure condition of this device is compliant with FCC rules.

MPE Calculation : LTE Band 4

Frequency range :	1710.70 MHz ~ 1754.30 MHz
Target power :	23.00 dBm
Tolerance :	+ 1.50 dB ~ - 1.50 dB
Max Target power :	24.50 dBm
Measured Conducted power :	23.95 dBm
Maximum antenna gain(PK) :	5.49 dBi
Maximum EIRP :	29.99 dBm(997.700)mW

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE calculation for this exposure is shown below.

▪ Calculation of power density at the specific separation

▪ $S = \text{EIRP} / (4 R^2 \pi)$ = $\frac{997.700}{(4 \times 20^2 \times \pi)}$ = <u>0.199</u> mW/cm²	- Note S = Maximum power density(mW/cm²) EIRP = Equivalent Isotropic Radiated Power(mW) R = Distance to the center of the radiation of the antenna(20cm)
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▪ Requirement = 1 mW/cm²

(FCC Part 1.1310 Table 1 Limits for maximum permissible exposure(MPE))

Conclusion : The exposure condition of this device is compliant with FCC rules.

MPE Calculation : CDMA 1X (Cellular)

Frequency range :	824.70 MHz ~ 848.31 MHz
Target power :	24.00 dBm
Tolerance :	+ 1.50 dB ~ - 0.99 dB
Max Target power :	25.50 dBm
Measured Conducted power :	24.26 dBm
Maximum antenna gain(PK) :	6.00 dBi
Maximum EIRP :	31.50 dBm(1412.460)mW

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE calculation for this exposure is shown below.

▪ Calculation of power density at the specific separation

▪ $S = \text{EIRP} / (4 R^2 \pi)$ $= \frac{1412.460}{(4 \times 20^2 \times \pi)}$ $= \underline{0.281} \text{ mW/cm}^2$	- Note S = Maximum power density(mW/cm²) EIRP = Equivalent Isotropic Radiated Power(mW) R = Distance to the center of the radiation of the antenna(20cm)
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▪ Requirement = 0.549 mW/cm²

(FCC Part 1.1310 Table 1 Limits for maximum permissible exposure(MPE))

Conclusion : The exposure condition of this device is compliant with FCC rules.

MPE Calculation : CDMA 1X (PCS)

Frequency range :	1851.25 MHz ~ 1908.75 MHz
Target power :	24.00 dBm
Tolerance :	+ 1.50 dB ~ - 0.99 dB
Max Target power :	25.50 dBm
Measured Conducted power :	24.25 dBm
Maximum antenna gain(PK) :	7.50 dBi
Maximum EIRP :	33.00 dBm(1995.262)mW

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE calculation for this exposure is shown below.

▪ Calculation of power density at the specific separation

▪ $S = \text{EIRP} / (4 R^2 \pi)$ = $\frac{1995.262}{(4 \times 20^2 \times \pi)}$ = <u>0.397</u> mW/cm²	- Note S = Maximum power density(mW/cm²) EIRP = Equivalent Isotropic Radiated Power(mW) R = Distance to the center of the radiation of the antenna(20cm)
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▪ Requirement = 1 mW/cm²

(FCC Part 1.1310 Table 1 Limits for maximum permissible exposure(MPE))

Conclusion : The exposure condition of this device is compliant with FCC rules.

MPE Calculation : CDMA 1X EVDO (Cellular)

Frequency range :	824.70 MHz ~ 848.31 MHz
Target power :	24.00 dBm
Tolerance :	+ 1.50 dB ~ - 0.99 dB
Max Target power :	25.50 dBm
Measured Conducted power :	24.28 dBm
Maximum antenna gain(PK) :	6.00 dBi
Maximum EIRP :	31.50 dBm(1412.460)mW

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE calculation for this exposure is shown below.

▪ Calculation of power density at the specific separation

▪ $S = \text{EIRP} / (4 R^2 \pi)$ = $\frac{1412.460}{(4 \times 20^2 \times \pi)}$ = <u>0.281</u> mW/cm²	- Note S = Maximum power density(mW/cm²) EIRP = Equivalent Isotropic Radiated Power(mW) R = Distance to the center of the radiation of the antenna(20cm)
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▪ Requirement = 0.549 mW/cm²

(FCC Part 1.1310 Table 1 Limits for maximum permissible exposure(MPE))

Conclusion : The exposure condition of this device is compliant with FCC rules.

MPE Calculation : CDMA 1X EVDO (PCS)

Frequency range :	1851.25 MHz ~ 1908.75 MHz
Target power :	24.00 dBm
Tolerance :	+ 1.50 dB ~ - 0.99 dB
Max Target power :	25.50 dBm
Measured Conducted power :	24.29 dBm
Maximum antenna gain(PK) :	7.50 dBi
Maximum EIRP :	33.00 dBm(1995.262)mW

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE calculation for this exposure is shown below.

▪ Calculation of power density at the specific separation

▪ $S = \text{EIRP} / (4 R^2 \pi)$ = $\frac{1995.262}{(4 \times 20^2 \times \pi)}$ = <u>0.397</u> mW/cm²	- Note S = Maximum power density(mW/cm²) EIRP = Equivalent Isotropic Radiated Power(mW) R = Distance to the center of the radiation of the antenna(20cm)
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▪ Requirement = 1 mW/cm²

(FCC Part 1.1310 Table 1 Limits for maximum permissible exposure(MPE))

Conclusion : The exposure condition of this device is compliant with FCC rules.

RF Exposure Compliance for simultaneous operations

▪ Configurations for simultaneous operations

- **Configuration 1:** CDMA Cellular or PCS(Voice) + LTE B4 or B13(Data)
- **Configuration 2:** CDMA Cellular(Voice) + EVDO PCS(Data)
- **Configuration 3:** CDMA PCS(Voice) + EVDO Cellular(Data)

Note: Above configuration was declared from applicant.

▪ Configurations for simultaneous operations

RF function	LTE		CDMA 1x		CDMA 1x EVDO		Σ of MPE ratios
Band	Band 13	Band 4	Cellular	PCS	Cellular	PCS	
Power Density (mW/cm ²)	0.25	0.199	0.281	0.397	0.281	0.397	
Requirement (mW/cm ²)	0.518	1.000	0.549	1.000	0.549	1.000	
MPE ratio (Power Density/Requirement)	0.483	0.199	0.512	0.397	0.512	0.397	
Configuration 1 (MPE ratio)	0.483		0.512				0.995
	0.483			0.397			0.880
		0.199	0.512				0.711
		0.199		0.397			0.596
Configuration 2 (MPE ratio)			0.512			0.397	0.909
Configuration 3 (MPE ratio)				0.397	0.512		0.909

Note: The maximum power density in each RF function was used for above table.

- Requirement = $\Sigma \text{ of MPE ratios} \leq 1$

Conclusion : The exposure condition of this device is compliant with FCC rules.