

## MPE Calculation

RF feature(Mode)	Frequency range (MHz)	Max Target Power (dBm)	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm <sup>2</sup> )	Requirement (mW/cm <sup>2</sup> )
Bluetooth(1 Mbps)	2 402.00 ~ 2 480.00	6.85	1.99	8.84	7.656	0.002	1.000
Bluetooth(2, 3 Mbps)	2 402.00 ~ 2 480.00	6.85	1.99	8.84	7.656	0.002	1.000
Bluetooth LE(1 Mbps)	2 402.00 ~ 2 480.00	7.00	1.99	8.99	7.926	0.002	1.000
WLAN(802.11b)	2 412.00 ~ 2 462.00	16.00	1.99	17.99	62.951	0.013	1.000
WLAN(802.11g)	2 412.00 ~ 2 462.00	14.00	1.99	15.99	39.720	0.008	1.000
WLAN(802.11n-HT20)	2 412.00 ~ 2 462.00	13.50	1.99	15.49	35.400	0.008	1.000
WLAN(802.11n-HT40)	2 422.00 ~ 2 452.00	13.00	1.99	14.99	31.551	0.007	1.000
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Note: Please refer to the operation description for Max tune-up power.

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 sample calculation for this exposure is shown below.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 7.656 / (4 \times 20^2 \times \pi) \\
 &= 0.002 \text{ mW/cm}^2
 \end{aligned}$$

**- Note**

S= Maximum power density(mW/cm<sup>2</sup>)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenna(2

**▪ Limits for Maximum Permissible Exposure (MPE)**

Frequency range (MHz)	Electric Field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averageing time (minutes)
0.3 ~ 1.34	614	1.63	*100	30
1.34 ~ 30	824/f	2.19 / f	*180 / f <sup>2</sup>	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1,500			f / 1500	30
1,500 ~ 100,000			1.0	30

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

## MPE Calculation

RF feature(Mode)	Frequency range (MHz)	Max Target Power (dBm)	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm <sup>2</sup> )	Requirement (mW/cm <sup>2</sup> )
WCDMA Band 5	826.40 ~ 846.60	23.50	0.68	24.18	261.819	0.053	0.550
WCDMA Band 2	1 852.40 ~ 1 907.60	23.50	2.36	25.86	385.479	0.077	1.000
LTE Band 12	699.70 ~ 715.30	24.00	2.68	26.68	465.587	0.093	0.466
LTE Band 4	1 710.70 ~ 1 754.30	24.00	1.59	25.59	362.243	0.073	1.000
LTE Band 2	1 850.70 ~ 1 909.30	24.00	2.36	26.36	432.514	0.087	1.000
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Note: Please refer to the operation description for Max tune-up power.

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The MPE sample calculation for this exposure is shown below.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 261.819 / (4 \times 20^2 \times \pi) \\
 &= 0.053 \text{ mW/cm}^2
 \end{aligned}$$

### - Note

S= Maximum power density(mW/cm<sup>2</sup>)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenna(2

### ▪ Limits for Maximum Permissible Exposure (MPE)

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1,500 ~ 100,000			1.0	30

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

## RF Exposure Compliance for simultaneous operations

- Worst case for simultaneous operations
- WLAN 2.4GHz 802.11b + LTE band 12

RF feature or mode(Worst case)	WLAN(802.11b)	LTE	-	-	-	-	-	Σ of MPE ratios
Band(Worst case)	2.4GHz	Band 12	-	-	-	-	-	
Power Density (mW/cm <sup>2</sup> )	0.013	0.093	-	-	-	-	-	
Requirement (mW/cm <sup>2</sup> )	1.000	0.466	-	-	-	-	-	
MPE ratio (Power Density/Requirement)	0.013	0.200	-	-	-	-	-	
Worst case(MPE ratio)	0.013	0.200	-	-	-	-	-	

- Requirement = Σ of MPE ratios ≤ 1

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