

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 ²)	Requirement (mW/cm ²)
Bluetooth(1Mbps)	2 402.00 ~ 2 480.00	2.50	-0.38	2.12	1.630	0.000 4	1.000 0
Bluetooth(2,3Mbps)	2 402.00 ~ 2 480.00	-2.00	-0.38	-2.38	0.579	0.000 2	1.000 0
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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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 1.630 / (4 \times 20^2 \times \pi) \\
 &= 0.000 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenna(20

▪ Limits for Maximum Permissible Exposure (MPE)

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 ~ 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 ²)	Requirement (mW/cm ²)
WLAN(802.11g)	2 412.00 ~ 2 462.00	10.00	-1.19	8.81	7.604	0.001 6	1.000 0
WLAN(802.11a)	5 180.00 ~ 5 240.00	10.50	0.59	11.09	12.853	0.002 6	1.000 0
WLAN(802.11a)	5 260.00 ~ 5 320.00	10.00	2.00	12.00	15.849	0.003 2	1.000 0
WLAN(802.11a)	5 500.00 ~ 5 720.00	9.00	4.58	13.58	22.804	0.004 6	1.000 0
WLAN(802.11a)	5 745.00 ~ 5 825.00	8.50	4.19	12.69	18.579	0.003 7	1.000 0
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The MPE sample calculation for this exposure is shown below.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 7.604 / (4 \times 20^2 \times \pi) \\
 &= 0.002 \text{ mW/cm}^2
 \end{aligned}$$

- Note

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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 ~ 1,500			f / 1500	30
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RF feature(Mode)	Frequency range (MHz)		Max Target Power (dBm)	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm ²)	Requirement (mW/cm ²)
LTE(Band 13)	777.00	~ 787.00	26.20	0.42	26.62	459.199	0.091 4	0.518 0
LTE(Band 5)	824.70	~ 848.30	26.20	0.89	27.09	511.682	0.101 8	0.549 0
LTE(Band 4)	1 710.70	~ 1 754.30	26.20	1.81	28.01	632.412	0.125 9	1.000 0
LTE(Band 2)	1 850.70	~ 1 909.30	26.20	2.92	29.12	816.583	0.162 5	1.000 0
CDMA(Band 850)	824.70	~ 848.31	26.20	0.89	27.09	511.682	0.101 8	0.549 0
CDMA(Band 1900)	1 851.25	~ 1 908.75	26.20	2.92	29.12	816.583	0.162 5	1.000 0
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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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 459.199 / (4 \times 20^2 \times \pi) \\
 &= 0.091 \text{ mW/cm}^2
 \end{aligned}$$

- Note

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▪ Limits for Maximum Permissible Exposure (MPE)

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	~ 1,500			f / 1500	30
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
- BT + W-LAN(5GHz) + LTE (Band 5)

RF feature or mode	BT	WLAN	LTE	-	-	-	-	Σ of MPE ratios
Band(Worst case)	2.4GHz	5GHz	Band 5	-	-	-	-	
Power Density (mW/cm ²)	0.000 4	0.004 6	0.101 8	-	-	-	-	
Requirement (mW/cm ²)	1.000 0	1.000 0	0.549 0	-	-	-	-	
MPE ratio (Power Density/Requirement)	0.000 4	0.004 6	0.185 4	-	-	-	-	
Worst case(MPE ratio)	0.000 4	0.004 6	0.185 4	-	-	-	-	0.190 4

- Requirement = Σ of MPE ratios ≤ 1

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