

MPE Calculation : Zigbee

RF function or Mode	Frequency range (MHz)	Max Target Power (dBm)	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm ²)	Requirment (mW/cm ²)
Transceiver1 (Modem#2)	2405.00 ~ 2480.00	6.50	3.90	10.40	10.9648	0.0022	1.0000
Transceiver2 (Modem#4)	2405.00 ~ 2480.00	5.50	3.90	9.40	8.7097	0.0017	1.0000
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Note: Refer to the technical document(operation description) for the 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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 10.9648 / (4 \times 20^2 \times \pi) \\
 &= 0.00219 \text{ mW/cm}^2
 \end{aligned}$$

- Note
- S= Maximum power density(mW/cm²)
- EIRP= Equivalent Isotropic Radiated Power(mW)
- R= Distance to the center of the radiation of the antenna(20cm)

▪ Limits for General Population/Uncontrolled Exposure

Frequency range (MHz)	Electric Field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm ²)	Averageing 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

f = frequency in MHz * = Plane-wave equivalent power density

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