MPE Calculation

Regulation(s): Part 1.1310, Part 2.1091

Method: KDB447498 D01v06

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(1 Mbps)	2 402.00	~	2 480.00	-0.50	0.95	0.45	1.110	0.000 3	1.000 0
Bluetooth(2, 3 Mbps)	2 402.00	~	2 480.00	-3.00	0.95	-2.05	0.624	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.

▪ **S =** EIRP / (4 R^2 π)

= 1.110 / (4 X 20^2 X π)

= 0.000 mW/cm^2

- Note

S= Maximum power density(mW/cm^2)

EIRP= Equivalent Isotropic Radiated Power(mW)

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

Part 1.1310

▪ 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

Regulation(s): Part 1.1310, Part 2.1091

Method: KDB447498 D01v06

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 (SISO)	2 412.00	~	2 462.00	6.00	0.80	6.80	4.787	0.001 0	1.000 0
WLAN 802.11n(HT20) (2TX)	5 180.00	~	5 240.00	17.00	2.20	19.20	83.177	0.016 6	1.000 0
WLAN 802.11n(HT20) (2TX)	5 745.00	~	5 825.00	16.00	2.52	18.52	71.122	0.014 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.

▪ **S =** EIRP / (4 R^2 π)

= 4.787 / (4 X 20^2 X π)

= 0.001 mW/cm^2

- Note

S= Maximum power density(mW/cm^2)

EIRP= Equivalent Isotropic Radiated Power(mW)

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

Part 1.1310

▪ 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)
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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 + 5GHz WLAN

RF feature	BT	WLAN	-	-	-	-	-	Σ of MPE ratios
Worst case(MPE ratio)	2.4GHz	5GHz	-	-	-	-	-	
Power Density (mW/cm2)	0.000 3	0.014 2	-	-	-	-	-	
Requirement (mW/cm2)	1.000 0	1.000 0	-	-	-	-	-	
MPE ratio (Power Density/Requirement)	0.000 3	0.014 2	-	-	-	-	-	
Worst case(MPE ratio)	0.000 3	0.014 2	-	-	-	-	-	0.014 5

- **Requirment = Σ of MPE ratios ≤ 1**

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