

MPE Calculation : **Bluetooth**

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)	Requirement (mW/cm ²)
Bluetooth(1Mbps)	2402.00 ~ 2480.00	2.00	-0.18	1.82	1.521	0.0004	1.000
Bluetooth(2,3Mbps)	2402.00 ~ 2480.00	-3.50	-0.18	-3.68	0.429	0.0001	1.000
	~						
	~						
	~						
	~						
	~						
	~						

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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 1.521 / (4 \times 20^2 \times \pi) \\
 &= 0.0004 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenn

▪ Limits for Maximum Permissible Exposure (MPE)

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

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

MPE Calculation : WLAN

Model: ADC20S2FN0

Mode(Worst case)	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)
802.11b	2412.00 ~ 2462.00	10.50	-0.01	10.49	11.195	0.0023	1.000
802.11a	5180.00 ~ 5240.00	9.50	-0.61	8.89	7.745	0.0016	1.000
802.11a	5260.00 ~ 5320.00	9.50	-0.18	9.32	8.551	0.0018	1.000
802.11a	5500.00 ~ 5720.00	8.50	-0.77	7.73	5.930	0.0012	1.000
802.11a	5745.00 ~ 5825.00	7.50	-0.18	7.32	5.396	0.0011	1.000
	~						
	~						
	~						

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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 7.745 / (4 \times 20^2 \times \pi) \\
 &= 0.002 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenn

▪ Limits for Maximum Permissible Exposure (MPE)

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

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

RF Exposure Compliance for simultaneous operations

- Worst case for simultaneous operations
- BT + WLAN(2.4GHz)

RF function or mode(Worst case)	BT	WLAN 2.4GHz	-	-	-	-	-	Σ of MPE ratios
Band(Worst case)	2.4GHz	2.4GHz	-	-	-	-	-	
Power Density (mW/cm ²)	0.0004	0.0023					-	
Requirement (mW/cm ²)	1.0000	1.0000					-	
MPE ratio (Power Density/Requirement)	0.0004	0.0023					-	
Worst case(MPE ratio)	0.0004	0.0023					0.0027	

- Requirement = Σ of MPE ratios ≤ 1

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