

RF Exposure Statement

1. LIMITS

According to §1.1310 and §2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

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 - 1500.....	f/1500	30
1500 - 100.000.....	1.0	30

F = frequency in MHz

* = Plane-wave equivalent power density

2. MAXIMUM PERMISSIBLE EXPOSURE Prediction

Prediction of MPE limit at a given distance

$$S = PG/4\pi R^2$$

S = Power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

3. RESULTS

3-1. BT BAND

Max Average output Power at antenna input terminal (dBm)	11.0000
Max Average output Power at antenna input terminal (mW)	12.589
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	2483.50000
Antenna Gain(Peak) (dBi)	1.74000
Antenna Gain(numeric)	1.49279
Power density at prediction frequency (mW/cm ²)	0.003739
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

3-2. BT LE BAND

Max Average output Power at antenna input terminal (dBm)	11.0000
Max Average output Power at antenna input terminal (mW)	12.589
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	2483.50000
Antenna Gain(Peak) (dBi)	1.74000
Antenna Gain(numeric)	1.49279
Power density at prediction frequency (mW/cm ²)	0.003739
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

3-3-1. DTS (2.4GHz) 802.11 b BAND

Max Average output Power at antenna input terminal (dBm)	20.0000
Max Average output Power at antenna input terminal (mW)	100.000
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	2400.00000
Antenna Gain(Peak) (dBi)	6.37000
Antenna Gain(numeric)	4.33511
Power density at prediction frequency (mW/cm ²)	0.086244
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

3-3-2. DTS (2.4GHz) 802.11 g BAND

Max Average output Power at antenna input terminal (dBm)	18.0000
Max Average output Power at antenna input terminal (mW)	63.096
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	2400.00000
Antenna Gain(Peak) (dBi)	6.37000
Antenna Gain(numeric)	4.33511
Power density at prediction frequency (mW/cm ²)	0.054416
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

3-3-3. DTS (2.4GHz) 802.11 g BAND

Max Average output Power at antenna input terminal (dBm)	18.0000
Max Average output Power at antenna input terminal (mW)	63.096
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	2400.00000
Antenna Gain(Peak) (dBi)	6.37000
Antenna Gain(numeric)	4.33511
Power density at prediction frequency (mW/cm ²)	0.054416
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4. RESULTS (UNII 1 BAND)

4-1 802.11a (5180 ~5240)

Max Peak output Power at antenna input terminal (dBm)	16.0000
Max Peak output Power at antenna input terminal (mW)	39.811
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	5150.00000
Antenna Gain(typical) (dBi)	5.59000
Antenna Gain(numeric)	3.62243
Power density at prediction frequency (mW/cm ²)	0.028690
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-2 802.11n 20MHz BW(5180 ~ 5240)

Max Peak output Power at antenna input terminal (dBm)	16.0000
Max Peak output Power at antenna input terminal (mW)	39.811
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	5150.00000
Antenna Gain(typical) (dBi)	5.59000
Antenna Gain(numeric)	3.62243
Power density at prediction frequency (mW/cm ²)	0.028690
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-3 802.11n 40MHz BW (5190 ~ 5230)

Max Peak output Power at antenna input terminal (dBm)	16.0000
Max Peak output Power at antenna input terminal (mW)	39.811
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	5190.00000
Antenna Gain(typical) (dBi)	5.59000
Antenna Gain(numeric)	3.62243
Power density at prediction frequency (mW/cm ²)	0.028690
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5. RESULTS (UNII 3 BAND)

5-1 802.11a (5745 ~5825)

Max Average output Power at antenna input terminal (dBm)	16.0000
Max Average output Power at antenna input terminal (mW)	39.811
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	5745.00000
Antenna Gain(Peak) (dBi)	6.69000
Antenna Gain(numeric)	4.66659
Power density at prediction frequency (mW/cm ²)	0.036960
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-2 802.11n 20MHz BW(5745 ~ 5825)

Max Average output Power at antenna input terminal (dBm)	16.0000
Max Average output Power at antenna input terminal (mW)	39.811
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	5745.00000
Antenna Gain(Peak) (dBi)	6.69000
Antenna Gain(numeric)	4.66659
Power density at prediction frequency (mW/cm ²)	0.036960
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-3 802.11n 40MHz BW (5755 ~ 5795)

Max Average output Power at antenna input terminal (dBm)	16.0000
Max Average output Power at antenna input terminal (mW)	39.811
Prediction distance (cm)	20.00000
Prediction frequency (MHz)	5745.00000
Antenna Gain(Peak) (dBi)	6.69000
Antenna Gain(numeric)	4.66659
Power density at prediction frequency (mW/cm ²)	0.036960
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

1. The power density level at 20 cm is **0.086244 mW/cm²**, which is below the uncontrolled exposure limit of **1.0 mW/cm² at WLAN 2GHz BAND**
2. The power density level at 20 cm is **0.036960 mW/cm²**, which is below the uncontrolled exposure limit of **1.0 mW/cm² at WLAN 5GHz BAND**

->Simultaneous MPE 20cm is $(0.086244 / 1.0) + (0.036960 / 1.0) < 1$

* The Worst case Adapter 2 GHz 2TX MiMO: 20 dBm , 5 GHz 2Tx MiMo: 16 dBm is Highest Power