

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 (DTS BAND)

3.1 2.4 GHz BAND

Max Peak output Power at antenna input terminal (dBm)	23.2800
Max Peak output Power at antenna input terminal (mW)	212.814
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	2437.00000
Antenna Gain(typical) (dBi)	11.91000
Antenna Gain(numeric)	15.52387
Power density at prediction frequency (mW/cm ²)	0.105160
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4. RESULTS (UNIT 1 BAND)

4-1 802.11a (5180 ~5240)

Max Peak output Power at antenna input terminal (dBm)	8.9800
Max Peak output Power at antenna input terminal (mW)	7.907
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5240.00000
Antenna Gain(typical) (dBi)	10.48000
Antenna Gain(numeric)	11.16863
Power density at prediction frequency (mW/cm ²)	0.002811
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)	9.4100
Max Peak output Power at antenna input terminal (mW)	8.730
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5240.00000
Antenna Gain(typical) (dBi)	10.48000
Antenna Gain(numeric)	11.16863
Power density at prediction frequency (mW/cm ²)	0.003103
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)	9.9600
Max Peak output Power at antenna input terminal (mW)	9.908
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5190.00000
Antenna Gain(typical) (dBi)	10.48000
Antenna Gain(numeric)	11.16863
Power density at prediction frequency (mW/cm ²)	0.003522
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-4 802.11ac 20 MHz BW (5180 ~ 5240)

Max Peak output Power at antenna input terminal (dBm)	9.4500
Max Peak output Power at antenna input terminal (mW)	8.810
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5240.00000
Antenna Gain(typical) (dBi)	10.48000
Antenna Gain(numeric)	11.16863
Power density at prediction frequency (mW/cm ²)	0.003132
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-5 802.11ac_40MHz BW (5190~5230)

Max Peak output Power at antenna input terminal (dBm)	9.9600
Max Peak output Power at antenna input terminal (mW)	9.908
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5190.00000
Antenna Gain(typical) (dBi)	10.48000
Antenna Gain(numeric)	11.16863
Power density at prediction frequency (mW/cm ²)	0.003522
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-6 802.11ac_80MHz BW (5210)

Max Peak output Power at antenna input terminal (dBm)	9.3900
Max Peak output Power at antenna input terminal (mW)	8.690
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5240.00000
Antenna Gain(typical) (dBi)	10.48000
Antenna Gain(numeric)	11.16863
Power density at prediction frequency (mW/cm ²)	0.003089
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5. RESULTS (UNII 2A, 2C BAND)

5-1 802.11a (5260~5320) UNII 2A

Max Peak output Power at antenna input terminal (dBm)	13.2500
Max Peak output Power at antenna input terminal (mW)	21.135
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5260.00000
Antenna Gain(typical) (dBi)	10.17000
Antenna Gain(numeric)	10.39920
Power density at prediction frequency (mW/cm ²)	0.006996
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-2 802.11a (5500~5720) UNII 2C

Max Peak output Power at antenna input terminal (dBm)	15.4300
Max Peak output Power at antenna input terminal (mW)	34.914
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5260.00000
Antenna Gain(typical) (dBi)	12.57000
Antenna Gain(numeric)	18.07174
Power density at prediction frequency (mW/cm ²)	0.020084
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-3 802.11n 20MHz BW(5260 ~5320) UNII 2A

Max Peak output Power at antenna input terminal (dBm)	14.8900
Max Peak output Power at antenna input terminal (mW)	30.832
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5260.00000
Antenna Gain(typical) (dBi)	10.17000
Antenna Gain(numeric)	10.39920
Power density at prediction frequency (mW/cm ²)	0.010206
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-4 802.11n 20MHz BW(5500~5270) UNII 2C

Max Peak output Power at antenna input terminal (dBm)	15.4400
Max Peak output Power at antenna input terminal (mW)	34.995
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5600.00000
Antenna Gain(typical) (dBi)	12.57000
Antenna Gain(numeric)	18.07174
Power density at prediction frequency (mW/cm ²)	0.020130
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-5 802.11ac_20MHz BW(5260~5320) UNII 2A

Max Peak output Power at antenna input terminal (dBm)	15.0000
Max Peak output Power at antenna input terminal (mW)	31.623
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5260.00000
Antenna Gain(typical) (dBi)	10.17000
Antenna Gain(numeric)	10.39920
Power density at prediction frequency (mW/cm ²)	0.010468
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-6 802.11ac_20MHz BW(5500~5720) UNII 2C

Max Peak output Power at antenna input terminal (dBm)	15.8100
Max Peak output Power at antenna input terminal (mW)	38.107
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5600.00000
Antenna Gain(typical) (dBi)	12.57000
Antenna Gain(numeric)	18.07174
Power density at prediction frequency (mW/cm ²)	0.021920
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-7 802.11n_40MHz BW(5270~5310) UNII 2A

Max Peak output Power at antenna input terminal (dBm)	10.7200
Max Peak output Power at antenna input terminal (mW)	11.803
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5310.00000
Antenna Gain(typical) (dBi)	10.17000
Antenna Gain(numeric)	10.39920
Power density at prediction frequency (mW/cm ²)	0.003907
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-8 802.11n_40MHz BW(5510~5710) UNII 2C

Max Peak output Power at antenna input terminal (dBm)	16.8600
Max Peak output Power at antenna input terminal (mW)	48.529
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5710.00000
Antenna Gain(typical) (dBi)	12.57000
Antenna Gain(numeric)	18.07174
Power density at prediction frequency (mW/cm ²)	0.027916
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-9 802.11ac 40MHz BW(5270~5310) UNII 2A

Max Peak output Power at antenna input terminal (dBm)	9.0600
Max Peak output Power at antenna input terminal (mW)	8.054
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5310.00000
Antenna Gain(typical) (dBi)	10.17000
Antenna Gain(numeric)	10.39920
Power density at prediction frequency (mW/cm ²)	0.002666
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-10 802.11ac 40MHz BW(5510~5710) UNII 2C

Max Peak output Power at antenna input terminal (dBm)	16.0600
Max Peak output Power at antenna input terminal (mW)	40.365
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5710.00000
Antenna Gain(typical) (dBi)	12.57000
Antenna Gain(numeric)	18.07174
Power density at prediction frequency (mW/cm ²)	0.023219
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-11 802.11ac 80MHz BW(5290) UNII 2A

Max Peak output Power at antenna input terminal (dBm)	8.8600
Max Peak output Power at antenna input terminal (mW)	7.691
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5290.00000
Antenna Gain(typical) (dBi)	10.17000
Antenna Gain(numeric)	10.39920
Power density at prediction frequency (mW/cm ²)	0.002546
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

5-12 802.11ac 80MHz BW(5530~5690) UNII 2C

Max Peak output Power at antenna input terminal (dBm)	17.2400
Max Peak output Power at antenna input terminal (mW)	52.966
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5610.00000
Antenna Gain(typical) (dBi)	12.57000
Antenna Gain(numeric)	18.07174
Power density at prediction frequency (mW/cm ²)	0.030468
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

6. RESULTS (UNII 3 BAND)

6-1 802.11a (5745 ~5825)

Max Peak output Power at antenna input terminal (dBm)	13.0200
Max Peak output Power at antenna input terminal (mW)	20.045
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5785.00000
Antenna Gain(typical) (dBi)	12.96000
Antenna Gain(numeric)	19.76970
Power density at prediction frequency (mW/cm ²)	0.012614
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

6-2 802.11n 20MHz BW(5745 ~ 5825)

Max Peak output Power at antenna input terminal (dBm)	13.1600
Max Peak output Power at antenna input terminal (mW)	20.701
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5785.00000
Antenna Gain(typical) (dBi)	12.96000
Antenna Gain(numeric)	19.76970
Power density at prediction frequency (mW/cm ²)	0.013027
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

6-3 802.11n_40MHz BW (5755 ~ 5795)

Max Peak output Power at antenna input terminal (dBm)	20.3500
Max Peak output Power at antenna input terminal (mW)	108.393
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5755.00000
Antenna Gain(typical) (dBi)	12.96000
Antenna Gain(numeric)	19.76970
Power density at prediction frequency (mW/cm ²)	0.068210
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-4 802.11ac_20 MHz BW (5745 ~ 5825)

Max Peak output Power at antenna input terminal (dBm)	13.2100
Max Peak output Power at antenna input terminal (mW)	20.941
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5785.00000
Antenna Gain(typical) (dBi)	12.96000
Antenna Gain(numeric)	19.76970
Power density at prediction frequency (mW/cm ²)	0.013178
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-5 802.11ac_40MHz BW (5755~5795)

Max Peak output Power at antenna input terminal (dBm)	16.6800
Max Peak output Power at antenna input terminal (mW)	46.559
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5755.00000
Antenna Gain(typical) (dBi)	12.96000
Antenna Gain(numeric)	19.76970
Power density at prediction frequency (mW/cm ²)	0.029299
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

4-6 802.11ac_80MHz BW (5775)

Max Peak output Power at antenna input terminal (dBm)	9.7800
Max Peak output Power at antenna input terminal (mW)	9.506
Prediction distance (cm)	50.00000
Prediction frequency (MHz)	5775.00000
Antenna Gain(typical) (dBi)	12.96000
Antenna Gain(numeric)	19.76970
Power density at prediction frequency (mW/cm ²)	0.005982
MPE limit for uncontrolled exposure at prediction frequency (mW/cm ²)	1.00000

1. The power density level at 50 cm is **0.105160 mW/cm²**, which is below the uncontrolled exposure limit of **1.0 mW/cm² at WLAN 2GHz BAND**
2. The power density level at 50 cm is **0.068210mW/cm²**, which is below the uncontrolled exposure limit of **1.0 mW/cm² at WLAN 5GHz BAND**

->Simultaneous MPE 50cm is $(0.105160/1.0) + (0.068210/1.0) < 1$

* The Worst case Adapter 2 GHz 3TX MiMO: 23.28 dBi , 5 GHz 3Tx MiMo: 20.35 dBi is
Highest Power