

# 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 <sup>2</sup> )	Averaging time (minutes)
0.3 - 1.34.....	614	1.63	*(100)	30
1.34 - 30.....	824/f	2.19/f	*(180/ f <sup>2</sup> )	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

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

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)	27.1400
Max Peak output Power at antenna input terminal (mW)	517.6068
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	2437.0000
Antenna Gain(typical) (dBi)	5.5300
Antenna Gain(numeric)	3.5727
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.3679
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.0000

#### 3-2. 5.8 GHz BAND

Max Peak output Power at antenna input terminal (dBm)	23.9100
Max Peak output Power at antenna input terminal (mW)	246.0368
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	5755.0000
Antenna Gain(typical) (dBi)	7.4500
Antenna Gain(numeric)	5.5590
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.2721
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.0000

#### 4.RESULTS (UNII 1 BAND)

##### 4-1. 802.11a(5180 ~ 5240)

Max Peak output Power at antenna input terminal (dBm)	12.5100
Max Peak output Power at antenna input terminal (mW)	17.8238
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	5180.0000
Antenna Gain(typical) (dBi)	6.9800
Antenna Gain(numeric)	4.9888
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.0177
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.0000

##### 4-2.802.11n 20MHz BW(5180~5240)

Max Peak output Power at antenna input terminal (dBm)	13.0100
Max Peak output Power at antenna input terminal (mW)	19.9986
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	5180.0000
Antenna Gain(typical) (dBi)	6.9800
Antenna Gain(numeric)	4.9888
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.0198
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.0000

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

Max Peak output Power at antenna input terminal (dBm)	15.5300
Max Peak output Power at antenna input terminal (mW)	35.7273
Prediction distance (cm)	20.0000
Prediction frequency (MHz)	5230.0000
Antenna Gain(typical) (dBi)	6.9800
Antenna Gain(numeric)	4.9888
Power density at prediction frequency (mW/cm <sup>2</sup> )	0.0355
MPE limit for uncontrolled exposure at prediction frequency (mW/cm <sup>2</sup> )	1.0000

## 5. RESULTS

### DTS BAND

1. The power density level at 20 cm is **0.3679mW/cm<sup>2</sup>**, which is below the uncontrolled exposure limit of **1.0 mW/cm<sup>2</sup> at 2.4GHz BAND**
2. The power density level at 20 cm is **0.2721 mW/cm<sup>2</sup>**, which is below the uncontrolled exposure limit of **1.0 mW/cm<sup>2</sup> at 5.8GHz BAND**

->Simultaneous MPE 20cm is  $(0.3679/1.0) + (0.2721/1.0) < 1$

### UNII BAND

1. The power density level at 20 cm is **0.0177 mW/cm<sup>2</sup>**, which is below the uncontrolled exposure limit of **1.0 mW/cm<sup>2</sup> at 802.11a(5180~5240) BAND**
2. The power density level at 20 cm is **0.0198 mW/cm<sup>2</sup>**, which is below the uncontrolled exposure limit of **1.0 mW/cm<sup>2</sup> at 802.11n\_20MHz BW(5180~5240) BAND**
3. The power density level at 20 cm is **0.0355 mW/cm<sup>2</sup>**, which is below the uncontrolled exposure limit of **1.0 mW/cm<sup>2</sup> at at 802.11n\_40MHz BW(5190~5230) BAND**