

**RF EXPOSURE EVALUATION****1.1 Limit**

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

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength	Magnetic field Strength	Power density	Averaging time
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

**1.2 MAXIMUM PERMISSIBLE EXPOSURE Prediction**

Prediction of MPE limit at a given distance

**Power density at the specific separation:**

$S = PG/(4R^2 \pi)$	Where,  $S$ = Maximum power density (mW/cm <sup>2</sup> ) $P$ = Power input to the antenna (mW) $G$ = Numeric power gain of the antenna $R$ = Distance to the center of the radiation of the antenna (20 cm = limit for MPE)
$S = (16.37 * 2.51) / (4 * 20^2 * \pi)$	
$S = 13.09 \text{ mW/cm}^2$	

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**1.3 MAXIMUM PERMISSIBLE EXPOSURE Prediction**

3-1. 2.4 GHz Mode

Max Peak output Power at antenna input terminal	6.23	dBm
Max Peak output Power at antenna input terminal	4.20	mW
Prediction distance	20	cm
Prediction frequency	2,410	MHz
Antenna Gain(typical)	2.5	dBi
Antenna Gain(numeric)	1.78	-
Power density at prediction frequency( S)	0.04	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	0.033	mW/cm <sup>2</sup>

3-2. 5 GHz Mode

Max Peak output Power at antenna input terminal	12.14	dBm
Max Peak output Power at antenna input terminal	16.37	mW
Prediction distance	20	cm
Prediction frequency	5,733	MHz
Antenna Gain(typical)	4	dBi
Antenna Gain(numeric)	2.51	-
Power density at prediction frequency( S)	0.10	mW/cm <sup>2</sup>
MPE limit for uncontrolled exposure at prediction frequency	0.196	mW/cm <sup>2</sup>

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Simultaneous transmission operations

1. The power density level at 20 cm is 0.04 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 0.033 mW/cm<sup>2</sup> at 2.4 GHz
2. The power density level at 20 cm is 0.10 mW/cm<sup>2</sup>, which is below the uncontrolled exposure limit of 0.196 mW/cm<sup>2</sup> at 5 GHz