

Maximum Permissible Exposure (MPE)

Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Fixed Point to Point device, the MPE is required.

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

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
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
1500-15000	/	/	1.0	30

F = frequency in MHz

* = Plane-wave equipment power density

Maximum Permissible Exposure (MPE) Evaluation

The worst case of Average power of 5150-5250MHz HT20 mode: refer to FCC test report for detail measurement date.

Power measurement:

2*2 MIMO

Mode	Freq (MHz)	channel	Output Chain (dBm)		Combine Output Power (dBm)	Limit (dBm)	Result
			Chain 0	chain 1			
802.11a	5180	36	6.09	9.25	10.96	30	Pass
	5200	40	6.6	9.33	11.19	30	Pass
	5240	48	7.12	8.88	11.10	30	Pass

Prediction of MPE limit at a given distance

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

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

Where: 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

Maximum peak output power at antenna input terminal:	11.19	(dBm)
Maximum peak output power at antenna input terminal:	13.15224832	(mW)
Duty cycle:	100	(%)
Maximum Pav :	13.15224832	(mW)
Antenna gain (typical):	20	(dBi)
Maximum antenna gain:	100	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5200	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.2617884	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.26179mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 5200MHz.