

1 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 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 Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissive 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

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

Max. output power

802.11a_Aux

CH	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
149	5745	10.68	11.695	30	PASS
157	5785	10.52	11.272	30	PASS
165	5825	11.02	12.647	30	PASS

802.11n_HT20_MIMO

CH	Frequency (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
		CHAIN 0	CHAIN 1				
149	5745	10.26	10.19	13.24	21.064	28.02	PASS
157	5785	10.74	10.46	13.61	22.975	28.02	PASS
165	5825	10.42	10.37	13.41	21.905	28.02	PASS

802.11n_HT40_MIMO

CH	Frequency (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
		CHAIN 0	CHAIN 1				
151	5755	9.34	8.99	12.18	16.515	28.02	PASS
159	5795	9.28	8.6	11.96	15.717	28.02	PASS

MPE Prediction (5745~5825)

Max. output power including tune-up tolerancel:	13.61	(dBm)
Max. output power including tune-up tolerancel:	22.961486	(mW)
Duty cycle:	100	(%)
Maximum Pav :	22.961486	(mW)
Peak Antenna gain (Maximum):	7.98	(dBi)
Peak Antenna gain (linear):	6.2805836	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5785	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.029	(mW/cm ²)
Measurement Result		
The predicted power density level at 20 cm is 0.029 mW/cm ² .		
This is below the uncontrolled exposure limit of 1 mW/cm ² at 5785MHz.		