

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

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Maximum Permissible Exposure (MPE) Evaluation (worst case)

802.11b_MIMO									
CH	Freq. (MHz)	Data Rate	Peak Output Power		Total Peak Output Power (dBm)	Total Peak Output Power (mW)	Limit	RESULT	
			CH 0	CH 1					
1	2412	1	25.21	25.13	28.18	657.73	1 Watt = 30.00 dBm	PASS	
6	2437	1	25.54	25.65	28.61	725.38	1 Watt = 30.00 dBm	PASS	
11	2462	1	25.35	24.78	28.08	643.38	1 Watt = 30.00 dBm	PASS	
802.11b_MIMO									
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)		Avg. Output Power (dBm)	Max. Avg. Output include tune up tolerance Power (mW)	Limit	RESULT	
			CH 0	CH 1					
1	2412	1	22.98	22.78	25.92	388.28	1 Watt = 30.00 dBm	PASS	
6	2437	1	22.98	22.82	25.93	390.04	1 Watt = 30.00 dBm	PASS	
11	2462	1	22.90	22.73	25.85	382.48	1 Watt = 30.00 dBm	PASS	

Note: The MPE was evaluation as 802.11b/g/n20/n40 mode, the worst case 802.11b mode was reported.

MPE Prediction (802.11b 2412~2462)

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 including tune-up tolerancel:	25.93	(dBm)
Max. output power including tune-up tolerancel:	391.7418771	(mW)
Duty cycle:	92.76	(%)
Maximum Pav :	363.3797652	(mW)
Peak Antenna gain (Maximum):	5.59	(dBi)
Peak Antenna gain (linear):	3.622429984	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2437	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm ²)
Power density at predication frequency at 20 (cm) distance	0.262	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.262 mW/cm².

This is below the uncontrolled exposure limit of 1 mW/cm² at 2437MHz.

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