



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 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

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Maximum Permissible Exposure (MPE) Evaluation

802.11b Main						
CH	Frequency (MHz)	Data Rate	Peak Output Power (dBm)	Peak Output Power (mW)	Limit	RESULT
1	2412	1	5.41	3.48	1 Watt = 30.00 dBm	PASS
6	2437	1	5.60	3.63	1 Watt = 30.00 dBm	PASS
11	2462	1	5.17	3.29	1 Watt = 30.00 dBm	PASS
802.11b Main						
CH	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Max. Output include tune up tolerance Power (mW)	Limit	RESULT
1	2412	1	1.66	1.47	1 Watt = 30.00 dBm	PASS
6	2437	1	1.84	1.53	1 Watt = 30.00 dBm	PASS
11	2462	1	1.4	1.38	1 Watt = 30.00 dBm	PASS

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:	1.84	(dBm)
Max. output power including tune-up tolerancel:	1.5275661	(mW)
Duty cycle:	88.98	(%)
Maximum Pav :	1.3592283	(mW)
Peak Antenna gain (Maximum):	0.5	(dBi)
Peak Antenna gain (linear):	1.1220185	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2437	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.000	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0 mW/cm².

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

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802.11g Main						
CH	Frequency (MHz)	Data Rate	Peak Output Power (dBm)	Peak Output Power (mW)	Limit	RESULT
1	2412	6	10.56	11.38	1 Watt = 30.00 dBm	PASS
6	2437	6	11.02	12.65	1 Watt = 30.00 dBm	PASS
11	2462	6	10.62	11.53	1 Watt = 30.00 dBm	PASS
802.11g Main						
CH	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Max. Output include tune up tolerance Power (mW)	Limit	RESULT
1	2412	6	0.1	1.02	1 Watt = 30.00 dBm	PASS
6	2437	6	0.32	1.08	1 Watt = 30.00 dBm	PASS
11	2462	6	0.01	1.00	1 Watt = 30.00 dBm	PASS

MPE Prediction (802.11g 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:	0.32	(dBm)
Max. output power including tune-up tolerancel:	1.0764652	(mW)
Duty cycle:	57.21	(%)
Maximum Pav :	0.6158457	(mW)
Peak Antenna gain (Maximum):	0.5	(dBi)
Peak Antenna gain (linear):	1.1220185	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2437	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.000	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0 mW/cm².

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

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802.11n_HT20M Main

CH	Frequency (MHz)	Data Rate	Peak Output Power (dBm)	Peak Output Power (mW)	Limit	RESULT
1	2412	MCS0	10.82	12.08	1 Watt = 30.00 dBm	PASS
6	2437	MCS0	11.05	12.74	1 Watt = 30.00 dBm	PASS
11	2462	MCS0	10.7	11.75	1 Watt = 30.00 dBm	PASS

802.11n_HT20M Main

CH	Frequency (MHz)	Data Rate	Avg. Output Power (dBm)	Max. Output include tune up tolerance Power (mW)	Limit	RESULT
1	2412	MCS0	0.11	1.03	1 Watt = 30.00 dBm	PASS
6	2437	MCS0	0.29	1.07	1 Watt = 30.00 dBm	PASS
11	2462	MCS0	0.2	1.05	1 Watt = 30.00 dBm	PASS

MPE Prediction (802.11n_HT20 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:	0.29	(dBm)
Max. output power including tune-up tolerancel:	1.0690549	(mW)
Duty cycle:	55.75	(%)
Maximum Pav :	0.5959981	(mW)
Peak Antenna gain (Maximum):	0.5	(dBi)
Peak Antenna gain (linear):	1.1220185	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2437	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.000	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0 mW/cm².

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

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