

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

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1.2 Maximum Permissible Exposure (MPE) Evaluation

Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)
2412	17.98	0.0628	1
2437	17.79	0.0601	1
2462	17.95	0.0624	1

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

Maximum average output power at antenna input terminal:	17.98	(dBm)
Maximum average output power at antenna input terminal:	62.80583588	(mW)
Duty cycle:	100	(%)
Maximum Pav :	62.80583588	(mW)
Antenna gain (Maximum):	2	(dBi)
Antenna gain (linear):	1.584893192	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2412	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm) distance	0.0198130	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.019813 mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2412MHz.

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Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)
2412	14.95	0.0313	1
2437	14.83	0.0304	1
2462	14.82	0.0303	1

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

Maximum average output power at antenna input terminal:	14.95	(dBm)
Maximum average output power at antenna input terminal:	31.26079367	(mW)
Duty cycle:	100	(%)
Maximum Pav :	31.26079367	(mW)
Antenna gain (Maximum):	2	(dBi)
Antenna gain (linear):	1.584893192	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2412	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm ²)
Power density at prediction frequency at 20 (cm) distance	0.0098617	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.0098617 mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2412MHz.

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Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)
2412	13.83	0.0242	1
2437	13.98	0.0250	1
2462	13.96	0.0249	1

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

Maximum average output power at antenna input terminal:	13.98	(dBm)
Maximum average output power at antenna input terminal:	25.00345362	(mW)
Duty cycle:	100	(%)
Maximum Pav :	25.00345362	(mW)
Antenna gain (Maximum):	2	(dBi)
Antenna gain (linear):	1.584893192	(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	0.0078877	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.0078877 mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2437MHz.

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Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)
2422	13.98	0.0250	1
2437	13.76	0.0238	1
2452	13.89	0.0245	1

MPE Prediction (802.11HT40 2422~2452)

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 average output power at antenna input terminal:	13.98	(dBm)
Maximum average output power at antenna input terminal:	25.00345362	(mW)
Duty cycle:	100	(%)
Maximum Pav :	25.00345362	(mW)
Antenna gain (Maximum):	2	(dBi)
Antenna gain (linear):	1.584893192	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2422	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm ²)
Power density at predication frequency at 20 (cm) distance	0.0078877	(mW/cm ²)

Measurement Result

The predicted power density level at 20 cm is 0.0078877 mW/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2422MHz.

~ End of Report ~

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