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

1.2 Maximum Permissible Exposure (MPE) Evaluation

802.11b Power

Table Max. Rated Avg. Power + Max. Tolerance (± 1dBm): 9.48 dBm

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	**8.48**	0.00	**8.48**	0.0070	1
2437.00	8.27	0.00	8.27	0.0067	1
2462.00	8.09	0.00	8.09	0.0064	1

MPE Prediction (802.11b)

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:	9.48	(dBm)
Maximum average output power at antenna input terminal:	8.87156012	(mW)
Duty cycle:	97.9	(%)
Maximum Pav :	8.685257358	(mW)
Antenna gain (typical):	2.82	(dBi)
Maximum antenna gain:	1.914255925	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2412	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm2)
Power density at predication frequency at 20 (cm) distance	0.003309	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.003309mW/cm^2. This is below the uncontrolled exposure limit of 1 mW/cm^2 at 2412MHz.

802.11g Power Table
Max. Rated Avg. Power + Max. Tolerance (± 1dBm): 9.99 dBm

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	**8.99**	0.00	8.99	0.0079	1
2437.00	8.93	0.00	8.93	0.0078	1
2462.00	8.76	0.00	8.76	0.0075	1

MPE Prediction (802.11g)

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:	9.99	(dBm)
Maximum average output power at antenna input terminal:	9.977000638	(mW)
Duty cycle:	97.1	(%)
Maximum Pav :	9.68766762	(mW)
Antenna gain (typical):	2.82	(dBi)
Maximum antenna gain:	1.914255925	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2412	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm2)
Power density at predication frequency at 20 (cm) distance	0.003691	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.003691 mW/cm2. This is below the uncontrolled exposure limit of 1 mW/cm2 at 2412.

802.11n_20M (2.4G) Power Table
Max. Rated Avg. Power + Max. Tolerance (± 1dBm): 9.93 dBm

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	**8.93**	0.00	8.93	0.0078	1
2437.00	8.72	0.00	8.72	0.0074	1
2462.00	8.6	0.00	8.6	0.0072	1

MPE Prediction (802.11n_20M (2.4G))

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:	9.93	(dBm)
Maximum average output power at antenna input terminal:	9.840111058	(mW)
Duty cycle:	96.9	(%)
Maximum Pav :	9.535067615	(mW)
Antenna gain (typical):	2.82	(dBi)
Maximum antenna gain:	1.914255925	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2412	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm2)
Power density at predication frequency at 20 (cm) distance	0.003633	(mW/cm^2)

Measurement Result

The predicted power density level at 20 cm is 0.003633 mW/cm2. This is below the uncontrolled exposure limit of 1 mW/cm2 at 2412.

~ End of Report ~