4 §15.247 (i) & § 2.1091 - RF Exposure

4.1 Applicable Standard

According to §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
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
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

4.2 MPE Prediction

Predication 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 peak output power at antenna input terminal (dBm):	1.91
Maximum peak output power at antenna input terminal (mW):	1.55
Prediction distance (cm):	20
Prediction frequency (MHz):	2405
Maximum Antenna Gain, typical (dBi):	3.5
Maximum Antenna Gain (numeric):	2.24
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.00069
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1

4.3 Test Result

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.00069 mW/cm^2. Limit is 1 mW/cm^2.