RF Exposure

Applicable Standard

According to §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 Maximum Permissible 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	842/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

Test Result:

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., mW).
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Maximum peak output power at antenna input terminal (dBm): 20.31
Maximum peak output power at antenna input terminal (mW): 107.40
Prediction distance (cm): 20
Prediction frequency (MHz): 1928.448
Antenna Gain, typical (dBi): 0.5
Maximum Antenna Gain (numeric): 1.122
The worst case is power density at predication frequency at 20 cm (mW/cm^2): 0.024
MPE limit for general population exposure at prediction frequency (mW/cm^2): 1.0

0.024 (mW/cm^2) < 1 (mW/cm^2)

Result: Pass