5 FCC §15.247(i) – RF Exposure

5.1 Applicable Standards

According to FCC §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.

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

Limits for General Population/Uncontrolled Exposure

f = frequency in MHz

* = Plane-wave equivalent power density

Before equipment certification is granted, the procedure of IC RSS-102 must be followed concerning the exposure of humans to RF field

5.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from 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

5.3 MPE Results

- Maximum peak output power at antenna input terminal (dBm): 18.59
- Maximum peak output power at antenna input terminal (mW): 72.277
 - Prediction distance (cm): 20
 - Prediction frequency (MHz): 2412
 - Maximum Antenna Gain, typical (dBi): 5
 - Maximum Antenna Gain (numeric): 3.162
- Power density of prediction frequency at 20.0 cm (mW/cm²): 0.0455

FCC MPE limit for uncontrolled exposure at prediction frequency (mW/cm²): 1.0

The device is compliant with the requirement MPE limit for uncontrolled exposure. The maximum power density at the distance of 20 cm is 0.0455 mW/cm^2 . Limit is 1.0 mW/cm^2 . The Percentage is 0.0455/1=4.55%. The total percentage is 29.76% (WWAN) + 4.55% (WLAN) = 34.31%.