4 FCC§15.247 (i), §2.1091 & IC RSS-Gen 5.5, RSS-102 - 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

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)**
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

According to RSS-102 Issue 2, November 2005 §2.5.2 exception from Routine Evaluation Limits- RF Exposure Evaluation:

RF exposure evaluation is required if the separation distance between the user and the device is greater than 20 cm, except when the device operates:

1) below 1.5 GHz and its e.i.r.p. is equal to or less than 2.5 W;
2) at or above 1.5 GHz and the e.i.r.p. of the device is equal to or less than 5 W.

4.2 MPE Prediction

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

W58 Band:

Maximum peak output power at antenna input terminal (dBm):	23.31
Maximum peak output power at antenna input terminal (mW):	214.42
Prediction distance (cm):	20
Prediction frequency (MHz):	5785
Maximum Antenna Gain, typical (dBi):	4.98
Maximum Antenna Gain (numeric):	3.15
Power density of prediction frequency at 20.0 cm (mW/cm^2):	0.134
MPE limit for uncontrolled exposure at prediction frequency (mW/cm^2):	1.0

4.3 Results:

FCC§15.247(i) and §2.1091:

For W58, the power density level at 20 cm is 0.134 mW/cm^2, which is below the uncontrolled exposure limit of 1.0mW/cm^2 at 5785 MHz.

RSS-102 Issue 2:

For W58, the power density level at 20 cm is 1.34 W/m^2, which is below the uncontrolled exposure limit of 10W/m^2 at 5785 MHz.