Appendix A: FCC Part 1.1307, 1.1310, 2.1091, 2.1093; IC RSS-Gen: RF Exposure

RF Exposure Calculation – MPE (DTS Mode)

Using FCC 1.1310 Table 1A as guidance, the maximum permissible RF exposure for an uncontrolled environment is f/1500 of 0.6 mW/cm^2 for the frequencies used in this device. The worst case power is used for the calculation below.

The actual power density for the EUT is calculated as shown below at the mobile distance of 20 cm:

$$S = (P \times G)/(4 \times \pi \times d^2)$$

where:
S = power density
P = transmitter conducted power in (W) (including duty cycle, if applicable)
G = antenna numeric gain
d = distance to radiation center (m)

The power used for this calculation is a source based time averaged power utilizing the duty cycle from section 4 of this report (50%) – note that this device uses a Banner Engineering Corporation proprietary modulation scheme so a source based time average may be used.

Frequency (MHz)	Antenna Gain (dBi)	Conducted Power (W)	Separation Distance (cm)	Power Density (mW/cm^2)
903	8	0.22	20	0.127

NOTICE:

RF Exposure Statement

This equipment has a power density well below that allowed at 20 cm; therefore, this equipment shall be installed and operated with an antenna with gain not more than 8 dBi and installed with a minimum of 20 cm of separation distance between the antenna and all persons during normal operation.

Note that when operated utilizing FHSS modes (see FHSS report), the minimum safe distance with the 8 dBi antenna is 23 cm. If both modes are utilized in a given device, then 23 cm shall be the minimum safe distance.