Appendix A: RF Exposure Compliance

Per FCC 1.1310 Table 1B, the maximum permissible RF exposure for an uncontrolled environment is 1 mW/cm^2 for the frequencies used in this device. The worst-case power for the antenna at the center frequency of the band of operation is used for the calculation below. The power density at a 20 cm distance is shown for each of the antenna options. As shown, the calculated power density is well below the FCC's limit.

The actual power density for the EUT calculated as shown below.

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

where:
S = power density
P = transmitter conducted power in (W)
G = antenna numeric gain
d = distance to radiation center (m)

The EUT power at the input of the antenna is +10dBm-27dB = -17dBm or 0.02mW. -27dB is derived from duty cycle = 10*log (PRF*Pulse width) = 10*log (1.8MHz*1.2nsec) = -27dB where PRF = 1.8MHz, and Pulse width = 1.2nsec.

Frequency (GHz)	Antenna	Antenna Max Gain (dBi)	Numeric Gain	Power (W)	Separation Distance (cm)	Power Density (mW/cm^2)
26	75 mm Plastic Horn	24.8	302	0.02 E^{-3}	20	0.01

NOTICE:

Radiation Exposure Statement

This equipment shall only be installed and operated with the antenna type shown above and installed with a minimum of 20 cm of separation distance between the antenna and all persons during normal operation.

Please note that the installation of the EUT in closed tank applications in which tank diameters are always greater than 20 cm satisfy the 20 cm minimum RF exposure distance requirement.