

2.7 RF Exposure Compliance

Per FCC 1.1310 Table 1B, the maximum permissible RF exposure for an uncontrolled environment is 1 mW/cm² for the frequencies used in this device. The worst-case power for each 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 the antenna used. As shown, the calculated power density is well below the FCC's limit. The actual power density for the EUT is 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 12.9 dBm – 21.4 dB = -8.5 dBm or 0.141 mW.

-21.4dB is derived from duty cycle = 10*log (PRF*Pulse width) = 10*log (4 ns/559 ns) = -21.4 dB

Where PRF = 1.7889 MHz, and Pulse width = 4 ns.

Frequency (GHz)	Antenna	Antenna Max Gain (dBi)	Numeric Gain	Power (mW)	Separation Distance (cm)	Power Density (mW/cm ²)
25.5	MWLM-PR26H7	25.7	371.5	0.141	20	0.010

Note: The MWLM-PR26H7 Antenna represents the highest antenna gain of all the antennas wrote clause 1.1 of this report. Demonstration of compliance to the FCC's RF Exposure limit using this antenna guarantees that all antennas wrote clause 1.1 meet the FCC's RF Exposure limit.

NOTICE:

Radiation Exposure Statement

This equipment shall only be installed and operated with the antennas listed in clause 1.1 of this report and shall be 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.