

Appendix A: FCC Part 1.1307, 1.1310, 2.1091, 2.1093 RF Exposure

Using FCC 1.1310 Table 1A as guidance, the maximum permissible RF exposure for a controlled environment is $f/300 \text{ mW/cm}^2 = 3 \text{ mW/cm}^2$ for the frequencies used in this device (903.0 to 927.0 MHz).

Using FCC 1.1310 Table 1B as guidance, the maximum permissible RF exposure for an uncontrolled environment is $f/1500 \text{ mW/cm}^2 = 0.6 \text{ mW/cm}^2$ for the frequencies used in this device (903.0 to 927.0 MHz).

Note that the testing presented in this report is for operation outside of mines at a maximum conducted power of 19 mW, testing per 15.247. The RF exposure presented in row one below is for operation outside of mines and uses uncontrolled limits.

Operation within the mine is authorized per FCC 15.211 (tunnel radio systems). RF exposure in this environment is presented for informational purposes in row two below. Note that the output power is system-controlled such that it is allowed to transmit at 1 W peak only when it is being used underground and is within range of an underground infrastructure node.

The worst case power is used for the calculation below.

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 (mW)
- G = antenna numeric gain
- d = distance to radiation center (cm)

Environment	Frequency (MHz)	Yagi Antenna Gain (dBi)	Conducted Power (mW)	Separation Distance (cm)	Calculated Power Density (mW/cm ²)	Power Density Limit (mW/cm ²)
Outside Mine/ Uncontrolled Limit	915	11	19	20	0.05	0.6
Inside Mine/ Controlled Limit	915	11	1,000	20	2.5	3

Notice:

Radiation Exposure Statement

The calculated power density is below the occupational limit. Therefore the minimum separation distance for this equipment, which is a mobile/fixed device, is 20 cm.