

APPENDIX A: RF EXPOSURE

From FCC 1.1310 table 1A, the maximum permissible RF exposure for an uncontrolled environment is $1\text{mW}/\text{cm}^2$. The Electric field generated for a $1\text{mW}/\text{cm}^2$ exposure (S) is calculated as follows:

$$S = E^2/Z$$

where:

S = Power density

E = Electric field

Z = Impedance.

$$E = \sqrt{S \times Z}$$

$$1\text{mW}/\text{cm}^2 = 10\text{ W}/\text{m}^2$$

The impedance of free space is 377 ohms, where E and H fields are perpendicular.

Thus:

$$E = \sqrt{10 \times 377} = 61.4\text{ V}/\text{m} \text{ which is equivalent to } 1\text{mW}/\text{cm}^2$$

Using the relationship between Electric field E, Power in watts P, and distance in meters d, the corresponding Antenna numeric gain G and the transmitter output power and solving for d,

$$d = \sqrt{\frac{P_{\text{peak}} \times 30 \times G}{E}}$$

The Numeric gain G of antenna with a gain specified in dB is determined by: $G = \text{Log}^{-1}(\text{dB gain}/10)$.

The table below identifies the distances where the $1\text{mW}/\text{cm}^2$ exposure limits may be exceeded during continuous transmission using the proposed fixed antennas

Manufacturer	Type	Model	Gain (dBi)	Numeric gain	Operating Frequency (MHz)	Peak Power (mW)	Calculated Distance (m)	Minimum RF Exposure Separation Distance (m)
Gabriel Electronics	PARABOLIC ANTENNA	SSG4-23	27.1	512.9	2412	199.5	0.9	2

WARNING: It is the responsibility of the professional installer to ensure that when using the outdoor antenna kits in the United States (or where FCC rules apply), only the antenna specified above may be used. The use of any other antenna is expressly forbidden in accordance with FCC rules CFR47 part 15.204.

Notice:

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment when installed as directed. This equipment should be installed and operated with the Gabriel Electronics SSG4-23 in a fixed-mount configuration, installed with a minimum of 2 meters of separation distance between the antenna and all persons during normal operation.