

## Microwave Antenna Radiation Warning

Designed for point-to-point operation, a Link AX microwave radio system uses directional antennas to transmit and receive microwave signals. These directional antennas are usually circular or rectangular in shape, and are usually mounted outdoors on a tower or mast, well above ground level.

Referencing OET Bulletin 65 (Edition 97-01, August 1997) from the Federal Communication Commission's Office of Engineering & Technology, limits for maximum permissible exposure (MPE) to microwave signals have been adopted by the FCC for General Population/Uncontrolled environments. This limit is 1.0 mW/cm<sup>2</sup>, with averaging times of thirty-minutes.

The closer you are to the front center-point of a microwave antenna, the greater the power density of its transmitted microwave signal. Unless you are very close, however, microwave exposure levels will fall far below the MPE limits. To determine how close to a microwave antenna you can be and still remain below the MPE limits noted above, "worst case" predictions of the field strength and power density levels in the vicinity of an Link AX™ microwave antenna can be made from the following calculations. The equation is generally accurate in the far-field of an antenna, and will **over-predict** power density in the near-field (i.e. close to the antenna).

$$S = PG/4\pi R^2$$

where:

S = power density (in mW/cm<sup>2</sup>)

P = power input to the antenna (mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (cm)

Note that G, the power gain factor, is usually expressed in logarithmic terms (i.e., dB), and must be converted using the following equation:

$$G = 10^{\frac{dB}{10}}$$

For example, a logarithmic power gain of 17.5 dB is equal to a numeric gain of 56.23.

Assuming (1) maximum output power from the Link AX (+12 dBm [15.8 mW]), (2) no signal loss in the cable connecting the Link AX to the antenna, and (3) the use of a 17.5 dBi gain flat panel antenna, the 1.0 mW/cm<sup>2</sup> MPE power density limit would be reached at a distance of approximately 8.4 cm. The Link AX is classified as a fixed installation product, and per FCC policy guidelines regarding MPE, antennas used for this Wireless Inc. transmitter must be installed to provide a separation distance of 2 meters (6 feet) or more from all persons during normal operation to satisfy FCC RF exposure compliance.

Wireless, Inc. fully supports the FCC's adopted MPE limits, and recommends that personnel maintain appropriate distances from the front of all directional microwave antennas. Should you have questions about Link AX microwave signal radiation, please contact the Wireless, Inc. Customer Service Department.