



360 Herndon Parkway
Suite 1400
Herndon, VA 20170
<http://www.rheintech.com>

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FCC Part 15 Certification &
Industry Canada RSS-210

APPENDIX A: RF EXPOSURE FCC RULES AND REGULATIONS PART 1.1307, 1.1310, 2.1091, 2.1093:

General Information

FCC ID:	LDK 102042	MAX. RF OUTPUT POWER:	0.1W
FRN Number:	0004-9689-39.	Frequency Tolerance:	N/A
Equipment Type:	Mini-PCI card	Emission Designator:	N/A
Tx Frequency Range:	2412-2462	FCC Classification:	DSS – Spread Spectrum Transmitter
Model(s):	AIR-MPI 352 series		

Calculation.

From FCC 1.1310 table 1A, the maximum permissible RF exposure for an uncontrolled environment is 1mW/cm². The Electric field generated for a 1mW/cm² exposure (S) is calculated as follows:

$$S = E^2/Z$$

where:

S = Power density

E = Electric field

Z = Impedance.

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

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

The impedance of free space is 337 ohms, where E and H fields are perpendicular.
Thus:

$$E = \sqrt{10 \times 337} = 61.4 \text{ V/m which is equivalent to } 1\text{mW/cm}^2$$

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,

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



RF safety notice in Installation Manual:

While installing and operating this transmitter and antenna combination the radio frequency exposure limit of $1\text{mW}/\text{cm}^2$ may be exceeded at distances close to the antennas installed. Therefore, the user must maintain a minimum distance of 20 cm and 2 m, respectively from indoor and outdoor antennas at all time.

The table below identifies the distances where the general population/uncontrolled exposure limits may be exceeded during continuous transmission using the external fixed indoor or outdoor antenna.

TABLE 7-1: RF EXPOSURE SEPARATION DISTANCE FOR OUTDOOR ANTENNA

The antenna(e) (including any radiating structure) used for this transmitter is to be fixed-mounted on outdoor permanent structures providing a separation distance of at least 2 m from all persons during normal operation, and must be not co-located or operating in conjunction with any other antenna or transmitter.

ANTENNA TYPE	EIRP ANTENNA (dBm)	ANTENNA GAIN (dBi)	CALCULATED RF EXPOSURE SEPARATION DISTANCE (cm)	ENVIRONMENT	MINIMUM RF EXPOSURE SEPARATION DISTANCE (cm)
AIR-ANT1949	30.1	13.5	42.7	Outdoors	200
AIR-ANT4121	24.2	12.0	18.2	Outdoors	200
AIR-ANT2506	20.4	5.1	5.3	Outdoors	200

TABLE 7-2: RF EXPOSURE SEPARATION DISTANCE FOR OUTDOOR/INDOOR ANTENNA

The antenna(e) (including any radiating structure) used for this transmitter is to be fixed-mounted on indoor or outdoor permanent structures providing a separation distance of at least 20 cm from all persons during normal operation, and must be not co-located or operating in conjunction with any other antenna or transmitter.

ANTENNA TYPE	EIRP ANTENNA (dBm)	ANTENNA GAIN (dBi)	CALCULATED RF EXPOSURE SEPARATION DISTANCE (cm)	ENVIRONMENT	MINIMUM RF EXPOSURE SEPARATION DISTANCE (cm)
AIR-ANT3549	23.1	8.5	10.7	Indoors/Outdoors	20
AIR-ANT2012	23.9	6.5	9.3	Indoors/Outdoors	20
AIR-ANT1729	23.2	6.0	8.1	Indoors/Outdoors	20
AIR-ANT3213	20.7	5.0	5.4	Indoors/Outdoors	20
AIR-ANT1728	20.7	5.0	5.4	Indoors/Outdoors	20
AIR-ANT5959	17.4	2.0	2.6	Indoors/Outdoors	20