



Antenna Installation Instructions: FCC RF Exposure Limits

The WJ SX1115 U-NII transceiver, used in conjunction with 18 - 40 dBi gain antennas, are to be employed in point -to- point applications only. Antennas used for these transmitters shall be professionally installed on permanent structures for outdoor operations. The installer is responsible for ensuring that the systems using high-gain, directional antennas are used exclusively for fixed, point-to-point operations.

The installer shall mount all transmit antennas so as to comply with the limits for human exposure to radio frequency (RF) fields per paragraph 1.1307 of the Federal Communications Commission (FCC) Regulations . The FCC requirements incorporate limits for Maximum Permissible Exposure (MPE) in terms of electric field strength, magnetic field strength, and power density.

The WJ U-NII transceivers are intended to be installed in restricted access areas, where access can only be gained by service personnel through the use of a special tool, lock and key, or other means of security. Regardless, antenna installations shall be engineered so that MPE is limited to 1 mW/cm^2 , the more stringent limit for "uncontrolled environments". Table 2 below specifies the **minimum** distance that must be maintained between the antenna and any areas where persons may have access, including rooftop walkways, sidewalks, as well as through windows and other RF-transparent areas behind which persons may be located.

Table 2 Antenna Radiation Hazard

Antenna Gain	Power Max per Rules	MPE Distance, cm	Regulatory Limit
10 dBi	27.8 dBm	21.9	max power, 15.407a3
12 dBi	27.8 dBm	27.5	max power, 15.407a3
14 dBi* corner reflect	27.8 dBm	34.7	max power, 15.407a3
18.5 dBi* flat panel	27.8 dBm	58.2	max power, 15.407a3
20 dBi	27.8 dBm	69.2	max power, 15.407a3
22 dBi* 1ft dish	27.8 dBm	87.1	max power, 15.407a3
24 dBi	26.8 dBm	97.7	max EIRP, 15.407a3
26 dBi* flat panel	24.8 dBm	97.7	max EIRP, 15.407a3
28 dBi	22.8 dBm	97.7	max EIRP, 15.407a3
30 dBi	20.8 dBm	97.7	max EIRP, 15.407a3
32 dBi	18.8 dBm	97.7	max EIRP, 15.407a3
34 dBi* 4ft dish	16.8 dBm	97.7	max EIRP, 15.407a3
40 dBi 8ft dish	7.8 dBm	150	TCB exclusion

*Antennas tested and qualified for FCC certification August - October 1999. Other antenna types may be used, provided applicable requirements in FCC Rule parts 2 and 15 are met.

Antenna manufacturer-supplied installation instructions for specific models generally contain information regarding antenna mounting, aiming, lightning protection, and other relevant factors. In addition to meeting these requirements, the antenna system installer is responsible for installing antennas so that they comply with FCC RF exposure requirements. The FCC RF exposure requirements at a given location are based on the sum total of contributions from all radio sources. For WJ system antennas placed in close proximity to other transmitters (e.g., on a shared rooftop or tower installation), installers shall take steps to insure that MPE guidelines in 1.1307 of the Rules continue to be met with the inclusion of the contribution from the new antenna. Further information and guidance can be found in FCC Bulletin OET 65, available for download at <http://www.fcc.gov/oet/rfsafety/>.