

tel: 650-726-1263 fax: 650-726-1252 internet: trephonc@macconnect.com

the UNII transceiver. Instead, please refer to the WJ draft, with modified page 7 amendment.

5. Please address the following and revise info and/or appropriate manuals and installation guides accordingly (both CISCO and Watkins Johnson if appropriate):

(a) The filing, as indicated on the EAS, is requesting for 316 mW (25 dBm). The highest conducted output indicated in the MPE info is 27.8 dBm (603 mW). The maximum conducted output indicated in the WARNING statement in the CISCO installation manual is 33 dBi (should it be dBm ?), which is higher than those requested and measured.

ANS: Please disregard the Cisco draft manual previously submitted. The Cisco manual currently addresses the MMDS ODU head and will require additional revisions to include the UNII transceiver. The 33 dBm output refers to the MMDS band and is not applicable to this UNII product. Maximum power for the UNII 6 MHz channel is 24.8 dBm, and for 12 MHz channels the maximum allowed power is 27.8 dBm.

Please update the 731 form for NTTSX1115 to state 27.8 dBm, or 603 mW, as the maximum power output from this product.

(b) The antenna gain and separation distance for compliance indicated on the subsequent page (Table 6) of the CISCO manual only goes up to 30 dBi. This filing is proposing to use antennas up to 34 dBi, please revise accordingly.

ANS: Please disregard the Cisco draft manual previously submitted. The Cisco manual currently addresses the MMDS ODU head and will require additional revisions to include the UNII transceiver. The antenna gains shown in Table 6 are for MMDS at an output power of 33 dBm. The corresponding table for this UNII product is found on the revised page 7 of the WJ installation instructions.

The table reflects highest EIRP values allowed by Part 15 and are applicable to 12 MHz channels. Power and EIRP for 6 MHz channels would be 3 dB lower.

This table will be reproduced on revised page 7 of the WJ instruction manual. The revised page 7 is submitted as a separate attachment to this correspondence.

(c) Distances for both uncontrolled and controlled exposures are indicated in Table 6. There is no explanation to the installer or user on which exposure distances are applicable for what conditions. Note: unless professional installers have been specifically trained on RF exposure requirements and know how to satisfy controlled exposure limits, uncontrolled limits should be used.

ANS: Please disregard the Cisco draft manual previously submitted. The Cisco manual currently addresses the MMDS ODU head and will require additional revisions to include the UNII transceiver. The revised page 7 of the WJ draft installation manual will contain Table 2 showing only uncontrolled exposure distances. Controlled exposure limits will not be addressed, only uncontrolled exposure limits will be used.

(d) It is not clear if the minimum distances indicated in Table 6 for controlled and uncontrolled exposure requirements are antenna installation requirements or distances for persons to maintain. The WARNING statement indicates hazard may exist, determine antenna gain and locate minimum acceptable distance; but there is no RF exposure compliance requirements. It should be indicated to users and

installers about their responsibility to install antennas according to requirements in order to comply with FCC RF exposure requirements.

ANS: Revisions have been made to the WJ manual to address these items. Please refer to the revised page 7 for the WJ draft user manual.

5. The proposed antennas must be fix-mounted on permanent structures with an acceptable separation distance from all bystanders to qualify for categorical exclusion from routine MPE compliance with respect to 1.1307 for fixed transmitters; otherwise, they will be handled as mobile transmitters and routine MPE measurement or computational modeling will be needed to demonstrate compliance. If an antenna will be co-located with other antennas, RF exposure compliance for the site must satisfy 1.1307(c) requirements. Please clarify if antennas for this transmitter will be co-located at sites with multiple antennas.

ANS: Revisions have been made to the WJ manual to address these items. Please refer to the revised page 7 for the WJ draft user manual.

Please address above issues with respect to following suggested grant conditions - Antennas used for this transmitter must be professionally installed on permanent structures for outdoor operations to qualify for categorical exclusion from routine MPE evaluation. Appropriate installation instructions, requirements and minimum separation distances, as determined in the filing, must be given to installers to ensure antenna installations satisfy MPE compliance for fixed transmitter operations. If an antenna is co-located with other antennas at a site, RF exposure requirements for the site must be satisfied with respect to 1.1307(c). Separate approval for RF exposure compliance is required for all other non-fixed and indoor operations.

ANS: In summary:

1. Antennas used with the WJ UNII transmitter will be professionally installed on permanent structures for outdoor point-to-point operation only.
2. Installation instructions to antenna installers will be placed in the WJ installation manual. These instructions will include information re minimum separation distances to satisfy MPE compliance.
3. There will be no indoor or non-fixed operation for this product.

Page 7 of the WJ Beta Draft 2 instruction manual will be modified as follows:

BETA DRAFT2 - WJ CONFIDENTIAL

Antenna Installation Instructions: FCC RF Exposure Limits

The WJ SX11xx series of UNII transceivers, used in conjunction with 18 - 34 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 UNII transmitters 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	P 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 reflector	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

*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.