

Please make the following changes to the N2-X Ethernet Extender Manual:

Change antenna gain numbers (dBi) in Table 3.1 to values shown below, and add text between table heading and table as shown:

Table 3.1 - Maximum Transmit Power Level Setting vs. Antenna Type (for compliance with FCC EIRP limits) in the 5.3 GHz band

Per the following table, in the 5.3 GHz band the highest power setting (approximately +12 dBm) can only be installed with the lowest gain antenna which is the 6" Flat Panel Plane Polarized (DFPD.5-52) with 17.5 dBi. Each radio is shipped from the factory with a standard 6' coaxial cable for connection between the radio and the antenna. The cable has a nominal loss of approximately 2.6 dB.

UNII radios are covered under CFR 47 FCC part 15, 15.407 Subpart E. 15.407.a.2 which states $P_{\text{transmit}} = 11 \text{ dBm} + 10 \log B$ where B is the -26 dB BW with a 6 dBi antenna. Above 6 dBi antenna gain there is a 1:1 reduction in P_{transmit} to maintain the same MAXIMUM EIRP. This is accomplished by the changes in output power setting for the alternative antennas.

The FCC EIRP limit for the 5.3 GHz band with our transmitter bandwidth is +28 dBm. With the transmit power set to +12 dBm, the EIRP with the 6" Flat Panel antenna, and standard 6' coaxial cable will be: $12 \text{ dBm} + 17.5 \text{ dBi} - 2.6 \text{ dB} = 26.9 \text{ dBm}$.

Antenna Type	Manufacturer P/N	Maximum Transmit Power Setting (dBm)
2' diameter dish with radome, Plane Polarized, 28.1 dBi	Gabriel SSP2-52ARI	0
2' diameter dish with radome, Dual Polarized, 28.1 dBi	Gabriel SSD2-52ARI	0
6" Flat Panel, Plane Polarized, 17.5 dBi	Gabriel DFPD.5-52	+12
12" Flat Panel, Plane Polarized, 23 dBi	Gabriel DFPD1-52	+4
24" Flat Panel, Plane Polarized, 27.5 dBi	Gabriel DFPD2-52	0

Please insert the following in section 2.3 on page 10 between the last paragraph in the text that describes the “outdoor unit” interfaces and Table 2.4. This is a duplicate of the above statements.

Table X.X - Maximum Transmit Power Level Setting vs. Antenna Type (for compliance with FCC EIRP limits) in the 5.3 GHz band

Per the following table, in the 5.3 GHz band the highest power setting (approximately +12 dBm) can only be installed with the lowest gain antenna which is the 6” Flat Panel Plane Polarized (DFPD.5-52) with 17.5 dBi. Each radio is shipped from the factory with a standard 6’ coaxial cable for connection between the radio and the antenna. The cable has a nominal loss of approximately 2.6 dB.

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The FCC EIRP limit for the 5.3 GHz band with our transmitter bandwidth is +28 dBm. With the transmit power set to +12 dBm, the EIRP with the 6” Flat Panel antenna, and standard 6’ coaxial cable will be:
 $12 \text{ dBm} + 17.5 \text{ dBi} - 2.6 \text{ dB} = 26.9 \text{ dBm}$.

Antenna Type	Manufacturer P/N	Maximum Transmit Power Setting (dBm)
2’ diameter dish with radome, Plane Polarized, 28.1 dBi	Gabriel SSP2-52ARI	0
2’ diameter dish with radome, Dual Polarized, 28.1 dBi	Gabriel SSD2-52ARI	0
6” Flat Panel, Plane Polarized, 17.5 dBi	Gabriel DFPD.5-52	+12
12” Flat Panel, Plane Polarized, 23 dBi	Gabriel DFPD1-52	+4
24” Flat Panel, Plane Polarized, 27.5 dBi	Gabriel DFPD2-52	0

Table X.X - Maximum Transmit Power Level Setting vs. Antenna Type (for compliance with FCC EIRP limits) in the 5.7 GHz band, original and July 31, 1998 rules

Per the following table, in the 5.7 GHz band the highest power setting (approximately +12 dBm) can only be installed with the lowest gain antenna which is the 6" Flat Panel Plane Polarized (DFPD.5-52) with 17.5 dBi. Each radio is shipped from the factory with a standard 6' coaxial cable for connection between the radio and the antenna. The cable has a nominal loss of approximately 2.6 dB.

UNII radios are covered under CFR 47 FCC part 15, 15.407 Subpart E. 15.407.a.3 which states $P_{\text{transmit}} = 17 \text{ dBm} + 10 \log B$ where B is the -26 dB BW with a 6 dBi antenna. Above 6 dBi antenna gain there is a 1:1 reduction in P_{transmit} to maintain the same MAXIMUM EIRP. This is accomplished by the changes in output power setting for the alternative antennas.

The original FCC EIRP limit for the 5.7 GHz band with our transmitter bandwidth is +33 dBm. With the transmit power set to +12 dBm, the EIRP with the 6" Flat Panel antenna, and standard 6' coaxial cable will be: $12 \text{ dBm} + 17.5 \text{ dBi} - 2.6 \text{ dB} = 26.9 \text{ dBm}$. The corresponding settings are included in the following table.

Antenna Type	Manufacturer P/N	Maximum Transmit Power Setting (dBm)
2' diameter dish with radome, Plane Polarized, 28.1 dBi	Gabriel SSP2-52ARI	0
2' diameter dish with radome, Dual Polarized, 28.1 dBi	Gabriel SSD2-52ARI	0
6" Flat Panel, Plane Polarized, 17.5 dBi	Gabriel DFPD.5-52	+12
12" Flat Panel, Plane Polarized, 23 dBi	Gabriel DFPD1-52	+8
24" Flat Panel, Plane Polarized, 27.5 dBi	Gabriel DFPD2-52	+4

The FCC will also allow higher EIRP for point to point links with higher gain antennas. Page 703 of the FCC document, CFR 47 FCC part 15, 15.407 Subpart E, FR 40836, July 31, 1998 has the provisions for these power limits. The path length isn't increased, since the 5.3 GHz transmitter isn't allowed the higher EIRP. **We recommend the higher power settings only when absolutely necessary.**

This rule states " fixed pt-pt U-NII devices operating in this band may employ transmitting antennas with directional gain up to 23 dBi without the corresponding reduction in transmitter peak output power or peak power spectral density". Also above 23 dBi antenna gain there is a 1:1 reduction in P_{out} to maintain the same MAX EIRP.

We are in compliance even at the maximum antenna gain and transmitter power, since the corresponding output power is over +27 dBm in our BW and the resulting EIRP for a 6 dBi antenna is +33 dBm. This EIRP limit is further extended to +44 dBm by a +23 dBi antenna. Our EIRP with a 23 dBi antenna at maximum output power is $12 \text{ dBm} + 23 \text{ dBi} - 2.6 \text{ dB} = +32.4 \text{ dBm}$. With the highest gain antenna and maximum output power the EIRP would be $12 \text{ dBm} + 28.1 \text{ dBi} - 2.6 \text{ dB} = +37.5 \text{ dBm}$.