

Further, all installations of the Model I WLL Trailblazer System will require topographic analysis, site survey and link budget calculation. Therefore, the system will require a CWT trained professional to do the installation.

Marketing and sales channels

CWT DOES NOT sell the Trailblazer PRO direct to end users. I WLL Trailblazer PRO System will be sold only to CWT's Authorized Resellers. Those authorized resellers are technically trained by CWT's Engineers periodically and must follow the rules set by CWT. The Trailblazer PRO system is designed for Long Range (15-35 miles) applications and it involves a complicated mandatory site survey, roof top mast installation, high gain antennas, accurate antenna alignment, etc. Those activities can be done ONLY by professional installers that are familiar with the FCC regulations. CWT does not sell the Trailblazer PRO in the consumer business at all. We have no resellers in this market and we do not advertise in consumers based publications or attend consumer oriented trade shows. The system will be advertised in technical trade shows and magazines.

Conclusion

CWT requires professional installation for the Model I WLL Trailblazer System in-order to provide the highest reliable system possible. We therefore fully support the mandate for professional installation of our complete system.

Rough alignment. This is usually easier than it would seem. Since it is a prerequisite that you have line of sight between the two points, here are several ideas that have worked for installers:

- (1) If you can see the other unit, simply aim the units towards each other.
- (2) During midday, use a mirror or compact disk to create a reflection approximately towards the other site while someone watches for the flash.
- (3) Plot out the path on a topography map and set the antennas using a compass.

How close in alignment do they need to be? +/- 10 degrees will be adequate for most paths using the 14 dB gain antenna. Certain paths that have a low fade margin may require a more accurate setting.

Final alignment. This is usually done by connecting a standard cordless phone to the FXS or FXO end, and then give a best guess to the direction, establish a connection and rotating the antennas both right and left noting the points where the signal disappears, (assuming that it does) and then centering them between those cutoff points.



Using the Trailblazer Pro with the External Antenna

PROFESSIONAL INSTALLATION MANUAL ADDENDUM for Model i-WLL-Trailblazer Pro

Caution! - Please read the sections on Unpacking, Planning, and Installation before installing this equipment



SCOPE OF ADDENDUM

This addendum is designed to support the installation, operation and maintenance of the 24 dBi high gain parabolic grid antenna used in conjunction with the **i-WLL-Trailblazer** All-Digital Remote Wireless Telephone Link. To avoid harm to persons or damage to the product please ensure that you have read through the safety, unpacking and installation sections before proceeding.

R.F. SAFETY HAZARD WARNING

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment when installed as directed. This equipment should be installed and operated with fix-mounted antennas that are installed with a minimum of 2 meters of separation between the antenna and all persons body during normal operation

UNPACKING

Please note any damage to the box and report to shipper before opening. The 24 dBi high gain parabolic grid antenna will arrive in one box approximately 36 x 30 x 8 inches (92 x 76 x 20 cm). Small amounts of feed cable may also be included in this box if ordered.

Upon opening the box one will find a N to N 36 inch long cable taped to the grid reflectors which are face down with corners padded. After removing the reflectors there will be a remaining box taped to the bottom. Inside this box will be the mounting bracket, clamp and hardware, extension tube, and dipole.

LEGAL

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INSTALLATION

Warning: *It is the responsibility of the professional installer to ensure that when using the outdoor antenna kits in the United States (or where FCC rules apply), only the antenna configurations shown in the table below is used. The use of any antenna other than those listed is expressly forbidden in accordance to FCC rules part 15.204.*

Calculating the EIRP of an External antenna

The output of the I-WLL Trailblazer radio is calibrated at the factory to +16 dBm +/- 2 dB. It is not adjustable in the field. The 36 inch LMR 400 "N" to "N" short cable allows the Trailblazer system to be located just behind the antenna with losses totaling approximately 2 dB. The external antenna sold by CWT has a gain throughout the 2.4 ISM band of 24 dBi.

Using this as an example one can calculate the following:

Given a radio maximum output power of 18 dBm - interconnecting cable losses of 2 dB = total power arriving to antenna of 16 dBm. Now adding the 24 dB Antenna gain of 24 dB = A total Effective Rated Power of 40 dBm.

The "3 for 1" FCC rule states that for every 3 dB above 6 dB of antenna gain you must lower the maximum RF power available to the antenna from +30 dBm by 1 dB. In this example the antenna gain is (24 - 6) 18 dB above 6 or (18 / 3) or 6 times 3 dB above 6 dB. Checking to see if the transmit power meets the rule is done by subtracting 6 from +30 dB equaling +24 dBm. Following this guideline ensures compliance with the maximum transmitter ERP allowed with the antenna provided as a system.

"Professional Installers Only :

Detached antennas, should be installed ONLY by experienced antenna installation professionals who are familiar with local building and safety codes and, wherever applicable, are licensed by the appropriate government regulatory authorities. Failure to do so may void the CWT product warranty and may expose the end user to legal and financial liabilities." "Regulations regarding maximum antenna gains vary from country to country. It is the responsibility of the end user to operate within the limits of these regulations and to ensure that the professional installer is aware

Antenna Type	Gain (dBi)	Gain Numeric	Peak output power	RF Exposure distance (m)	Minimum RF exposure dist. (m)
Patch	13.8	24	102.3	0.14	2
Grid	24	251.2	233.9	0.67	2