Quick Start Guide

XStream-PKG-U™ USB RF Modem

Range Test Setup

Range Test Execution

Tips and Suggestions

Contact MaxStream

Create a Long Range Wireless Link in Minutes!

MD0021

Range Test Setup

Requirements for Range Test

- One XStream-PKG-U™ USB RF Modem

- One XStream-PKG-R™ RS-232/485 RF Modem (or an XStream OEM RF Module mounted to a MaxStream XIB-R interface board)

- USB and RS-232 Accessories Packages (Accessories packages are included with RF Modem part numbers ending with "-UA" and "-RA")

- One computer (Windows 98 SE, 2000 or XP) with an available USB port

- X-CTU Software and USB RF modem drivers installed on the computer

Install X-CTU Software

Double-click the 'setup_X-CTU.exe' file then follow the prompts of the installation screens. This file is located on the MaxStream CD and on the following web page: www.maxstream.net/helpdesk/download.php

Install Drivers (Hardware USB Bus & Virtual Com Port drivers)

1. Connect the XStream-PKG-U RF Modem to a PC using a USB cable. A USB cable is included with the USB RF Modem accessories package.

   ► The XStream USB RF Modem is a "plug-and-play" device that should automatically be detected by the PC.

Found New Hardware Wizard (Windows XP)
Windows 2000 and 98 SE use different text to identify these same options.

2. Select "Install from specific list or location" option; then select "Next" button.

3a. [First verify MaxStream CD is inserted] Select the "Search for best driver in these locations" option.

3b. Check "Search removable media (CD-ROM...)" box; then select "Next" button.

4. ["Windows Logo Testing" alert box] Select the "Continue Anyway" button.

5. Select the "Finish" button.

6. Repeat steps 2 through 5 to install the second driver.

Verify Driver Installations and Read Virtual Com Port Number

1. Make sure XStream PKG-U RF Modem "Radio1" is connected to the USB port of the PC. [Figure 1 - Illuminated bottom-left red LED indicates successful USB link.]

2. Launch the X-CTU Software and go to the "PC Settings" tab. [Start --> All Programs --> MaxStream --> X-CTU]

3. Click the "Manage" button located on the "PC Settings" tab.

4. [Manage Com Ports window] Locate 'MaxStream PKG-U' in the "Com Port" list and read the com port number associated with the USB RF Modem.

   The number assigned to the XStream-PKG-U USB RF Modem will be used in the "Perform Range Test" section.

   ►PC com port enumerations can also be read under the "Ports (COM & LPT)" entry of the Microsoft Windows "Device Manager".

Figure 1. LED indication of successful USB link
(Left-bottom Red LED is illuminated.)

Figure 2. Manage Com Ports interface

Virtual Com Port
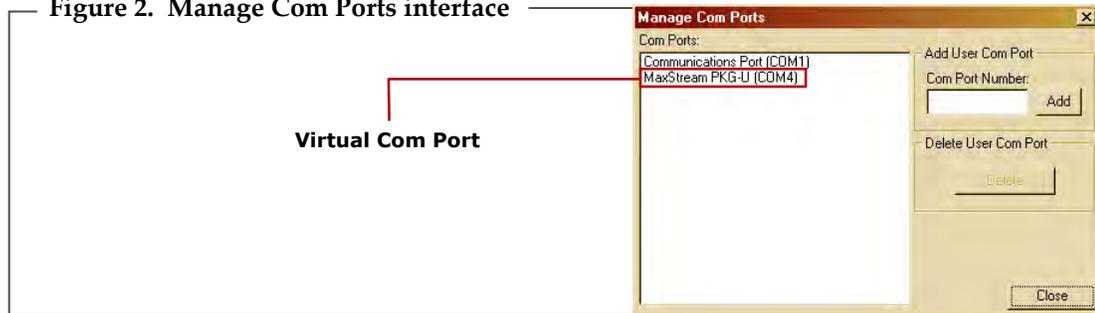
Hardware Setup

1. Verify XStream PKG-U RF Modem ("Radio1") was successfully connected to the USB port of the PC [see Figure 1].

2. Attach the **serial loopback adapter** to the DB-9 serial connector of the XStream PKG-R RS-232 RF Modem (Radio2). [Figure 3]
   The serial loopback adapter configures Radio2 to function as a repeater by looping data back into the module for retransmission.

3. Attach RPSMA **antennas** to Radio1 & Radio2.

4. **Power** Radio2 through its power connector. (Radio1 is already powered through one of the pins in the USB connection.)

Figure 3. Hardware Setup

Radio1
XStream-PKG-U
(USB)

serial loopback adapter

Radio2
XStream-PKG-R
(RS-232)
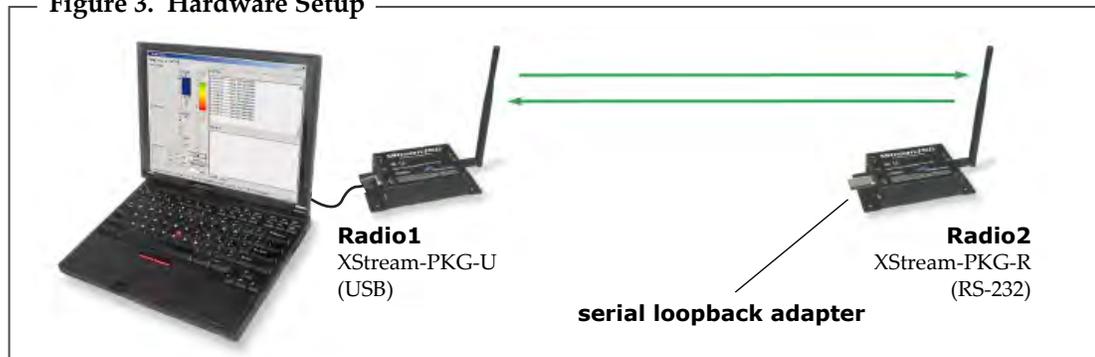
Use the "PC Settings" and "Range Test" tabs of the X-CTU Software to:

- Assign which PC serial com port to use when communicating with XStream RF Modems [step 2 of "Range Test" below]
- Measure XStream RF Modem's range [steps 1-7 shown below]

Range Test

1. Launch X-CTU Software: *(Start --> Programs --> MaxStream --> X-CTU)*

2. Go to the "PC Settings" tab [Figure 4], then select the PC com port from the dropdown list that will be used to connect to Radio1 [See the "Verify Driver Installations and Read Virtual Com Port Number" instructions on opposite page to determine which com port number was assigned.]

   ►If com port is not located in the dropdown list, click the "Add" button and type in the com port number. [Figure 2, opposite page]

3. Select the Baud rate that matches the default RF data rate (over-the-air baud) of Radio1. Use default values for remaining fields. [Figure 4]

4. Click on the "Range Test" tab. [Figure 5]

5. (Optional) Check the check box in the "RSSI" section to enable its display.

6. Click the "Start" button to begin range test.

7. Move Radio2 (with loopback adapter) away from Radio1 to measure the RF Modem's range.
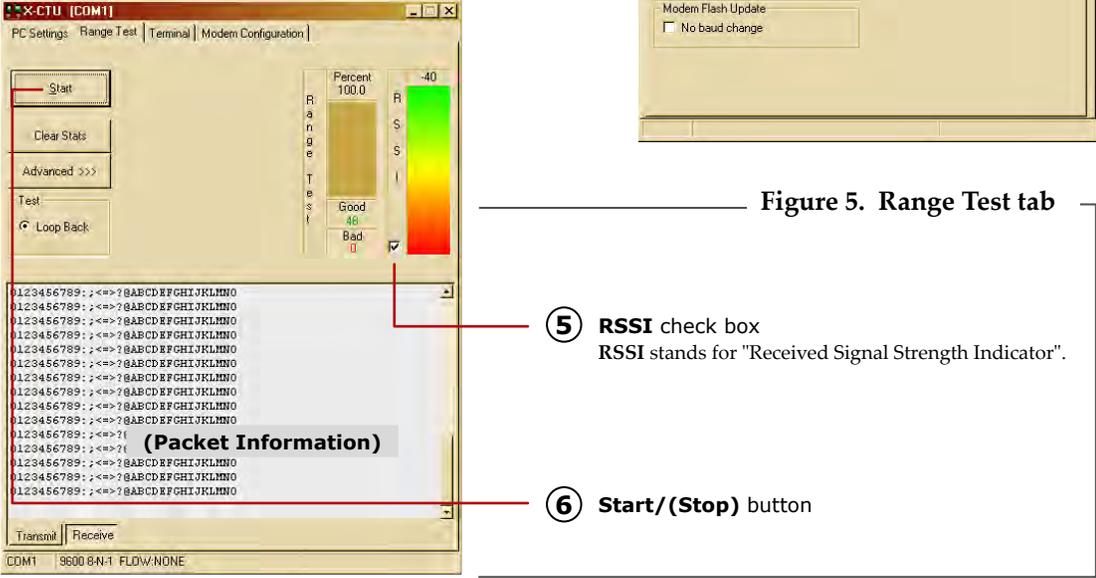

Figure 4. PC Settings tab
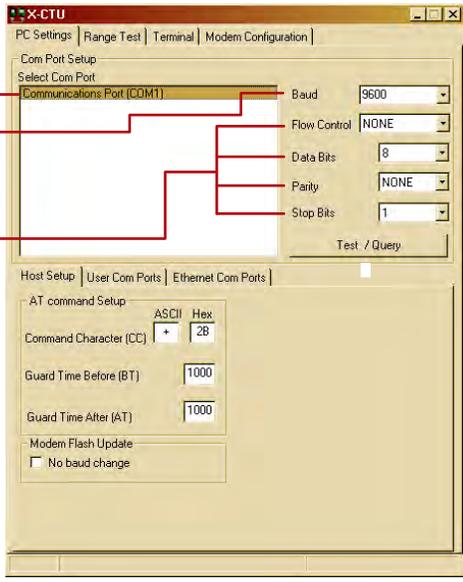
② **PC Com Port**

③ **Default Values**
Refer to XStream RF Modem part number to determine its default RF data rate:

X09-009...	=	9600 bps
X09-019...	=	19200
X24-009...	=	9600
X24-019...	=	19200

Remaining Default Values:
Flow Control = NONE
Data Bits = 8
Parity = NONE
Stop Bits = 1

Figure 5. Range Test tab

⑤ **RSSI** check box
RSSI stands for "Received Signal Strength Indicator".

⑥ **Start/(Stop)** button

(Packet Information)

Tips and Suggestions

Change Interface Baud Rate of RF Modem (Optional)

OEMs and integrators can interface with XStream RF Modems at different baud rates than the modem defaults (though actual RF data rate is fixed). To change the modem's serial interfacing rate, first select the PC com port baud rate that matches the modem's default [steps 1-2]. Then change the baud rate of the modem itself [steps 3-7]. Then lastly, select the baud rate of the PC com port to match the newly set baud rate of the Module [step 8].

Change Baud Rate (Optional)

1. Setup connection to a PC by following the steps of the "Install Drivers" instructions on page 1 of this guide.

2. Select the PC Com port baud rate that matches the RF Modem's fixed RF data rate by following steps 1, 2 and 3 of the "Range Test". [on page 3]

3. Select the "Modem Configuration" tab of the X-CTU Software.

4. Select the "Read" button to view current parameter values.

5. In the Command & Parameter hierarchical tree, open the "Serial Interfacing Options" folder by selecting its plus (+) sign.

6. Select the "Baud Rate" entry, then select a desired baud rate from the dropdown list.

7. Select "Write" button to save new settings to the RF Modem.

8. Select the "PC Settings" tab [Figure 4] then select the value from the "Baud" dropdown list that matches the newly set baud rate. This configures the PC Com Port to communicate at the new baud rate.

Create a Wireless Link between Devices

A pair of RF Modems can be used in lieu of a serial cable to create a wireless link between devices. The topology below illustrates a basic wireless strategy that can be used when connecting to target devices such as automatic meter readers, fleet management devices, remote weather stations and a host of other applications. When connecting devices, consider the following:

- Use the **male-to-male NULL modem adapter** to connect Radio2 to a target serial device. [Figure 6] Signals crossover inside the adapter.

- To verify serial cabling is functioning properly, insert a **female-to-female NULL modem adapter** in place of Radio1 and Radio2, then test communications without radios in the link.

Figure 6. Wireless Link between Devices

Host PC

Radio1
XStream-PKG-U

USB cable

RPSMA antennas

Radio2
XStream-PKG-R

serial cable

male-to-male
NULL modem adapter

Target
Serial
Device