

Direcway 7000 Satellite Service.

Amended April 7th 2008

These notes are provided as a courtesy and no guarantee is given as to their current accuracy.



Important Info and ancillary equipment that will be required

(Preferably before you leave town, or at the very least having a known method of getting the required info once on site)

- a.** Your Antennae location in Lat and long, in decimal notation, to one or two decimal places.
- b.** The satellite **(satellite is very important)** and service that your system is going to be using e.g. satellite IA8, internet 200 package. This information determines the area of operation for a given dish size. See further notes at the end of this document concerning Satellite vs Modem registration.
- c.** On site you will also require either a Base pole setup or a tripod assembly upon which the satellite dish will sit

d. It is also a very good idea to have a couple spare network cables on hand, both straight thru and cross over (makes sure they are marked).

e. Standard hand tools including one 7/16", one 1/2" and one 9/16" combination wrenches. One multi bit screwdriver. Insulation tape.

Setup Guideline:

1. If the optional tripod mounting (as used and discussed during training) is not being used then a permanently installed base pole will be required.

The base pole needs to be very securely affixed into or onto the ground; it has to be vertical, and needs to be sturdy enough for the dish antennae to sit upon—even under high wind conditions. The pole size is in direct proportion to the dish size, a 1.2m Antennae, requires a 2 7/8" OD min – 3.0" max diameter pipe which extends 4-5 feet above the ground. Ideally the base pole would be cemented in permanently. At the bottom end of the pole anti rotation lugs have to be installed to prevent the pole from rotating once the cement sets and shrinks away from the metal surface. If a permanent pole is not used, an alternative for a short term installation is a tripod (available from supplier) affixed to a 3/4" thick 4' x 4' piece of plywood, using 6 2" long x 5/16" bolts, with 6x nyloc nuts, and 12 3/8" Fender washers. Substantial weight is then piled on top of the plywood.

2. DNS settings. First of all, you'll want to set your computer to automatically pickup IP and DNS settings. To do this:

- open up the Control Panel and select Network Connections
- right-click on Wireless Connection Properties
- left-click on Internet Protocol
- left-click on Properties
- Check boxes setting IP and DNS settings automatically.
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Now, repeat this procedure for the Local Area Connection, i.e.

- open up the Control Panel and select Network Connections
- right-click on Local Area Connection Properties
- left-click on Internet Protocol
- left-click on Properties
- Check boxes setting IP and DNS settings automatically.

3. Unpacking and setup. Take the system out of the shipping crates and physically set-up the Direcway dish. First attach the azimuth/elevation hub to the dish use the supplied pairs (2) of carriage bolts. Note that the pairs are of different lengths to suit the curvature of the dish. At this point in time do not tighten the bolts used for setting the elevation, azimuth and polarization (skew), but leave them free enough to allow for movement; setting the direction of the

dish antennae is done a couple steps later. Now mount the assembled hub and dish on to the Tripod or mounting pole. Next secure the two brace arms to the dish making sure that you attach the arms by using the ends that have the longer tabs – leave the fastenings very loose at this time. Have an assistant support the feedhorn and support assy while you insert a bolt and nut to secure the end to the lower edge of the dish – again leave the fastenings very loose at this time. Now use the long through bolt to fasten the ends of the brace arms to the feedhorn support arm and once everything is in place tighten all nuts and bolts securely. Refer to the picture above for an indication of the correct assembly.

4. Making the Dish to Modem connection.

Note: Initially set up the system using an Ethernet cable to connect the LAN connection of your notebook computer to the LAN connection on the rear of the satellite modem. Note that the wireless router and VOIP telephone interface are not installed at this time.

Make the connections between the satellite Modem and the dish antenna using the two coaxial cables supplied.

Some important items to keep in mind when making connections:

- Modem power off; always have the modem power off when connecting and disconnecting any of the coaxial cables connectors. **Never** use the circular connector at the back of the modem to disconnect power – always use the three pin power lead.
- Be gentle with the coaxial cables; making certain not to kink or twist the cables (they can easily break inside). Route the cables to avoid contact by vehicles and pedestrians, an option is to bury them.
- Make certain of coaxial cable connection polarity before applying power; (Damage to the system will occur if crossed)



Figure 1a- Shows the Back of the Modem and the "Sat. IN" & "Sat. OUT" connection points. Note that the "Red" color coded cable is usually the Transmitter cable and is connected to the "Sat Out" or lower connection. Make sure that the other end of the Red cable is connected to the transmitter connection on the dish assembly. The "Green" cable end is connected to the receiver terminal as shown below and the modem end is connected to the "Sat In" or upper connection on the DW7000 modem. Carefully study the two following pictures and make certain that you get the cables in the correct positions. Note that a transmitter receiver unit with Receive set to vertical polarity is shown. This is the default standard for most installations but depending upon the satellite and beam assigned at commissioning time the receive polarity may be set to horizontal. This configuration is identified by the receiver module (marked in the picture with a red label) being rotated 90 degrees and positioned horizontally on top of the waveguide.



Figure 1b- The receiver. **"Sat. IN"** on the back of the modem connects **to the receiver** on the dish antenna horn; in this picture the black coaxial cable has a green piece of tape wrapped it.



Figure 1c- The transmitter.
"Sat. OUT" on the back of the modem connects **to the transmitter** on the dish antenna horn; in this picture the cable has a red piece of tape wrapped around the black coaxial cable. There is a second connector on the transmitter

that is not used – in this picture it is shown next to the connection that has the coaxial cable connected and it has a black cap fitted.

5. Power up the Direcway 7000 modem: Power up the modem by plugging into a stable 120V power supply. There are 2 WebPages available offline within the Direcway 7000 modem;

1. Direcway setup page: <http://192.168.0.1/fs/registration/setup.html> this page will be used for the setup and re-commissioning of the satellite link (we only use the registration-installation option)
2. Direcway home page: <http://192.168.0.1/> this page can be used for acquiring system info, especially useful if there are any problems.

Open up your browser and type in the Direcway setup page <http://192.168.0.1/fs/registration/setup.html> ; Select Registration-installation and follow the steps;

- Antenna location gets entered in manually so check the “Enter location manually” check box and click “Next”.
- The location of the dish antenna is entered. The format required is Latitude, Longitude in decimal notation, to one or two decimal places, and respective quadrants.

i.e. Surrey location- Lat: 49.1 North 122.9 West.

Make sure that the correct quadrants are selected i.e usually North and West. Click “Next”.

- Select the satellite that the modem is commissioned to use – this information can usually be found on the side of the modem. The DW7000 system usually uses the IA8 satellite so, if this is the case for the modem in use, using “my antenna is point to”, select one of the two IA8xxx satellite transponders.
- You will then be presented with a “Verification of Satellite” parameters page. You might want to make a note of the values. They can be very useful for verifying the modem is correctly set up if there are any problems at the conclusion of the commissioning exercise. Click “Next”.

The setup page will then give you an elevation, Magnetic Azimuth, and polarization (skew) settings. These settings can now be used as the start point for the antenna dish aiming procedure. It is best to set the elevation a few degrees higher than the install web page suggests, as it is easier to lower the dish than to raise it (it is also easier on the poorly-designed cast fitting that supports the dish until it is locked into position). Click Next.

- Select the 2 watt transmitter option. Important:- remember that any time that you use a “Back” button in the following steps it will be necessary to come all the way back to this step and reset the transmitter power to 2 watts! It will

default back to 1 watt the moment that you click a "Back" button and totally screw up the rest of your setup attempt.

- Open the "Display Signal strength" window- You should now see a signal strength window appear and you are ready to aim the dish (an assistant will now be required)

6. Aiming the dish antenna: Dish alignment should only be attempted in reasonably clear weather as excessive atmospheric moisture can reduce the signals and cause erratic cross polarization performance. Aiming the dish is far from an exact science and can be the most frustrating part of the set-up, be patient and take the time to get it right. It is best done as a 2 person job - have one person calling out signal strengths from the computer, and another person moving the dish. Move the dish in slow/ small increments as there is significant lag time between the dish movement and corresponding signal strength update on the computer. Prior to aligning the dish set the specified skew angle into the hub assembly.

Step 1- Azimuth (left and right): Use an instrument such as a Sunto to determine the bearing that the dish should be pointing along in order to align with the satellite. Make sure that the bolts securing the Az/El hub to the mounting mast are loose enough to permit rotation of the complete antenna but not so loose as to cause the dish alignment to change when they are tightened up. Also ensure that the dish elevation axis bolt and nut are slightly slackened and that the two elevation clamping nuts are slackened enough to permit the dish to be moved in elevation. Start with the dish about 20 degrees to one side of this bearing and sweep through the Azimuth until you find a peak in the signal strength. Sweep back to the original position and confirm the direction of any received signals. If you start from an elevation setting that is too high you might not find any signal at all. Lower the elevation about one half of a degree and sweep back and forth again. Keep repeating this process until a signal is located that provides a reading of greater than 30 units and the level indication bar display on the computer screen turns green. The correct satellite is identified by a signal strength reading of greater than 30. You will likely find other signals from other satellites but it will be impossible to get a reading greater than 30 units no matter how much you try to align the dish. This is the manner that the system uses to indicate an incorrect satellite. Once a signal is found that gives an indication greater than 30, try to peak the signal level by making very small movements to each side. Once the maximum is achieved lock a couple of the bolts on the mast so that the dish cannot move from this bearing. Move on to adjusting the elevation to further peak the signal.

Step 2- Elevation (up and down): Loosen the elevation bolts and dish axis bolt. Make sure the dish is free to move up and down, and slowly lower the elevation until the signal level peaks and then starts to decrease a little. As you

do so, make a note of how much you are turning the adjustment nut. Now turn the nut in the opposite direction to raise the dish back to the elevation that gave the maximum signal. Be careful not to place too much stress on the weak supporting fixture!

Step 3- Check the final alignment of the dish by doing a “finger pressure test”. Use one finger on the side of the dish to slightly displace the dish horizontally in one direction – the signal should drop. Now reverse the force and gently push the dish in the other horizontal direction – the signal should drop if the dish was correctly aligned. If it does not then it will be necessary to make a small azimuth adjustment to get the exact center alignment.

Now gently pull the top of the dish with one finger and make sure the signal decreases. Reverse the displacement direction and push the top again making sure that the signal decreases.

If the dish was correctly aligned and small displacement from the center position is made the signal will decrease slightly.

Step 4 – Click “Close” to close the signal strength window and then click “Next” to proceed to the polarization adjustment.

Note: It is important to achieve as high a signal strength reading as possible as it may be compromised or reduced a little in the process of setting the skew or cross polarization. Cross polarization is the more important of the two values.

7. Transmit Antennae pointing (Manual & Auto Cross Pol)

1. Perform a Manual test: It is essential to perform a “Manual Test” prior to performing an “Automatic Test”. Be prepared for this stage with the required tools readily available as you can be timed-out during this process. You may be put in a queue to test the Cross-Polarization. Once you’re at the head of the queue, the system will link up with the satellite and test the Cross-Polarization. If the reading is too low and you initially fail the test, **slowly** rotate the dish (there is a more pronounced lag between movement of the dish and response to this movement) to adjust the skew (or Cross-Polarization) in one direction. If the Cross Pol value decreases then reverse the adjustment direction and try to find a peak value. Take your time and make very small slow adjustments until you get a Pass. Since there are likely many people trying to set up systems at any one time there is a time limit on this test. If you take too long to make a final adjustment you will be dropped from the process and will have to start a manual cross polarization test again – possibly taking a lower position in the line up.

If you don’t progress through the queue, try going back through the menu pages to the satellite selection page and try switching to the another beam on

the same satellite e.g IA8 has as many as three beams to choose from depending upon the modem software version. Once you get a Pass, maintain physical pressure on the dish in exactly the right position to keep the Cross Pol reading at the maximum while the assistant closes the manual test window and quickly clicks the "Automatic" button. The object is to perform an Automatic test as soon as possible while the dish is in the correct position.

2. Perform an Auto test: When you get a Pass this time, lock up the skew bolts and follow the registration prompts. At one point you'll be provided with:

- a Site ID (you'll need this for reference if your system has problems)
- a Terminal IP address, and
- a Terminal Subnet Mask.

Save these items for future reference, in case there are problems.

3. After concluding the registration process the modem will reboot automatically. Make sure that a valid receive light is on and then check the system status at 192.168.0.1 The system will likely download several new operating files and that will takes several minutes to complete. Check the "Software Download Status" in the "System Status" window. Try not to interrupt this process and leave the system alone until this process is complete.

4. Make sure that **all** securing bolts are fastened and locked so that the dish cannot move.

8. Additional Notes:

You may also need the SAN number and Site ID from the webpage at browser address <http://192.168.0.1> . Select System Info and record the numbers for future reference in case of trouble.

7. Depending upon the VOIP interface model you will now install ether a Linksys wireless router or the new VOIP interface unit. Make sure you have all five blue lights lit on the Direcway 7000 modem, then power off the modem.

7.A. New Linksys PAP2 adapters are identified by the four sockets on the rear panel. These units should be installed between the satellite modem and the Linksys wireless router as follows. Satellite modem LAN Ethernet connection to VOIP interface "Internet" socket. VOIP interface unit "Ethernet" connection to Linksys Wireless Router "Internet" socket. Connect a telephone handset to the "Phone 1" socket on the VOIP unit.

Now Power on the satellite modem and wait for the "System" light to illuminate. Once the satellite system is operational, power on the VOIP unit and wait until the "Phone 1" light is illuminated. This indicates that the unit has registered with the system in Vancouver. Correct operation can be verified by lifting the telephone handset and hearing a dial tone. Now power on the Linksys

Wireless Router and wait for the Internet light to come on. The system is now operational for VOIP telephone and Internet web browsing activities.

7.B Original Linksys PAP2 adapters are identified by only three sockets on the rear panel:- Note that this unit is installed **after** the Linksys wireless router as follows:- connect the Satellite Modem LAN Ethernet connection to the Linksys Wireless router "Internet" connection. Connect the VOIP interface unit "Internet" connection to any one of the four Linksys Wireless Router computer or local area network sockets. Connect a telephone handset to the "Phone 1" socket on the VOIP unit. Leave the VOIP interface unit "Ethernet" connection blank.

Power up the complete system in the correct order:- satellite modem first and wait until the "System" light is on, then Linksys wireless router and wait till the "Internet" light is on, then lastly the VOIP unit. It can take 4-5 minutes for the VOIP system to register after power up and the "Phone 1" light to come on. When it is registered, the first, second, and "Phone 1" LED's on the Linksys should be lit and there should be a dial tone when the telephone handset is lifted off hook.

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9. Additional Notes:

A.1. Powering up procedure with original Linksys VOIP interface.

1. Direcway Modem (wait for system light) then
2. Router (wait for WAN / Internet light) then
3. IBUZZ or Linksys. (wait for LED's 1,2 & 4)
4. Computers.

A.2. Powering up procedure with new model Linksys VOIP interface.

1. Direcway Modem (wait for system LED then
2. Linksys VOIP interface unit (wait for Internet LED & Phone 1 LED)
- 3 Linksys wireless router (wait for Internet LED).
4. Computer.

B. Make sure all components of this system (modem, router, VOIP adapter) are connected to the provided UPS, this system is very sensitive to voltage fluctuations. Use only the **Battery** protected outlets on the UPS – not the surge outlets!

C. Keep the system on at all times, the only time you should shut the system down would be for generator servicing.

D. If the system is shut down or goes off for any reason, **do not** repeat the "Registration Installer" commissioning process. Simply turn the power to all components off and then power them up in the order specified in para. 9a.

E. Keep clear of the satellite dish and feed horn assembly, legally you are required to rope off an area at least 3 meters in front of the dish if the bottom edge of the dish is less than 6 feet above the ground.

10. Troubleshooting:

First check where the fault:-

1. Is it in Internet Web Browsing?
2. Is it email related?
3. Is it VOIP only?
4. Is it a combination of all of the above?

Remember that VOIP requires a first class channel for data transmission and will likely be the first function to fail when the system becomes busy with other Internet related functions email, web browsing or large file transfers. It will also be the first service to fail when the satellite channel becomes busy with many other terminals accessing it at the same time. The Galaxy Ku and Xplornet Ku and Ka systems are all "Shared Internet Access systems". This means that there are usually many other terminals and users sharing a channel on a satellite and therefore the bandwidth available to you as an individual user is reduced accordingly. It is very important to note that there is no guaranteed "Quality of Service" in this system and that is the reason it is so cheaply priced! It is also the reason that VOIP telephone performance can be so erratic.

Fault Analysis:-:

- a. If the problem is limited web page browsing only it is likely that the problem is related to the DNS servers settings in the Web Browser being used or experiencing a problem.
- b. If the problem is limited to email functions it is likely to be one of the many settings related to a particular email user account. Check user ID, password, incoming mail server and outgoing mail server settings. It is strongly suggested that you use only web mail services (Hot Mail, MSN mail etc.) for email functions as these are not setting dependant and do not download messages until one is selected and requested.
- c. Is it related to VOIP performance only? Is the telephone totally inoperative or is only the outgoing signal poor? Remove all other users from the network and test the VOIP when there is no other traffic on the system. VOIP is an involved subject and will be discussed in detail at time of training. If a field problem occurs try to call Falcon Research at 604 576 8235 by some other means to get the problem resolved. Use the email (phillip_eldridge@telus.net) if this is all that is available.
- d. If the system fails to operate on all functions the first thing to check is that the satellite modem has power and that the system LED is

- illuminated. If everything appears to be okay then power off the whole system and power it all back on in the correct order.
- e. Remember that this is a **shared satellite system** therefore there is a finite amount of data that you, as one individual user, are allowed to download in a fixed time period. If you exceed this quantity your system will be either slowed to a crawl or shut down for 24 hours altogether! This policy is called the Fair Access Policy and is administered by the satellite operator Hughesnet. It is this sharing function that causes your system to sometimes slow down to a point where VOIP calls are almost impossible and even web browsing is slow. Unfortunately there is nothing that a user can do about this. The system has been oversubscribed and has so many users that at peak periods this can become a real issue. All that can be done is to try the operation again at a time when most other Eastern based users are asleep.
 - f. One of the hidden issues that greatly affects the satellite system speed is that of Automatic Updates. Periodically Microsoft and other software vendors such as Norton, MacAfee etc. issues updates to the Windows operating system and to applications such as Office and Nortons Anti Virus. They are often many MB's in size. When a computer automatically checks for any outstanding updates and starts to download them, without the User being aware of the activity, the satellite system bandwidth is soon consumed in moving the data. All other activity slows down for no apparent reason. If several computers are engaged in this updating process at the same time the system can slow to a crawl! It is no different than a User transferring a very large data file except that no-one is aware that it is taking place. The downloading process can also result in the "Allowable Data Transfer Limit" being exceeded and your terminal being temporarily closed down by the satellite operator for exceeding data transfer limits. This is called "Fair Access Policy" violation.

11. Fair Access Policy.

Threshold limits for the various airtime packages are given below. These Tables are extracted from the Galaxy Broadband website. Exceeding these limits will cause the FAP clause to take effect and the modem speed will be slowed to about dial up for a 24 hour period. To check the terminal usage, please go to <http://www.customercare.myhughesnet.com/> and click on "Check Usage" on the left hand side of the page. Have the Site ID for the modem available.

HOME AND FARM SATELLITE INTERNET SERVICE PLANS

HN7000	Home	Internet Access 100 without IP	Internet Access 100 with IP	Internet Access 200
Recommended for	Personal applications at residential sites	Personal & business applications at residential sites	Small office applications at commercial sites	Small-medium business applications at commercial sites
Monthly Service-24 Month Term*	\$69.99	\$89.99	\$114.99	\$149.99
Monthly Service-12 Month Term*	\$79.99	\$99.99	\$124.99	\$159.99
Upload speed (Up To)	128 Kbps	200 Kbps	200 Kbps	300 Kbps
Upload Threshold (MB)		50	50	75
Download speed (Up To)	700 Kbps	1.0 Mbps	1.0 Mbps	1.5 Mbps
Download Threshold (MB)	200	375	375	500
Network Address Translation (NAT)	Yes	Yes	Yes	Optional
Static Routable IP Address Included	N/A	N/A	1	1
Email Accounts (Includes 10MB of storage per account)	5	5	5	5
HUGHESNET Webmail Access	Yes	Yes	Yes	Yes
HUGHESNET Email Security Included	Yes	Yes	Yes	Yes

Satellite Modem Required	HN7000 Only	HN7000/HN7700	HN7000/HN7700	HN7000/HN7700
Transmit Radio Size (Watts)	1w	1-2w	1-2w	2w
Minimum Antenna Size (meter)	0.74	0.74	0.74	0.98
Satellite and Polarity	Currently 8 different Satellites	Currently 8 different Satellites	Currently 8 different Satellites	Currently 8 different Satellites
<p>* Prices do not include the annual Industry Canada License (\$68.00) and Administration Fee (\$7.00) or the one-time System Access Fee of \$49.95.</p>				

SERVICE PLANS

HN7000/7700	Internet Access 100 with IP	Internet Access 200	Internet Access 300	Internet Access 400
Recommended for	Small office applications at commercial sites	Small-medium business applications at commercial sites	Small-medium business applications at commercial sites	Small-medium business applications at commercial sites
Monthly Service-24 Month Term*	\$114.99	\$149.99	\$249.99	\$479.99
Monthly Service-12 Month Term*	\$124.99	\$159.99	\$259.99	\$499.99
Upload speed (Up To)	200 Kbps	300 Kbps	500 Kbps	1 Mbps
Upload Threshold (MB)	50	75	100	100
Download speed (Up To)	1.0 Mbps	1.5 Mbps	2.0 Mbps	2.0 Mbps
Download Threshold (MB)	350	500	1250	1250
FAP Recovery Rate (Kbps)	56	150	200	200

Network Address Translation (NAT)	Yes	Optional	No	No
Static Routable IP Address Included	1	1	1	1
Email Accounts (Includes 10MB of storage per account)	5	5	10	20
HUGHESNET Webmail Access	Yes	Yes	Yes	Yes
HUGHESNET Email Security Included	Yes	Yes	Yes	Yes
Satellite Modem Required	HN7000 and HN7700	HN7000 and HN7700	HN7000 and HN7700	HN7700
Transmit Radio Size (Watts)	1-2w	2w	2w	2w
Minimum Antenna Size (meter)	0.74	0.98	0.98	0.98

* Prices do not include the annual Industry Canada License (\$68.00) and Administration Fee (\$7.00) or the one-time System Access Fee of \$49.95.

General Notes:-

A. Repairing computer network connections:-

To repair the Computer-Router connection, first repair the connection from the computer to the Local Area Network:

- open up the Control Panel and select Network Connections
- right-click on Local Area Network and select Repair

Next repair the Computer-Router-Modem connection:

open up your web browser and enter the Linksys wireless router's address (typically); <http://192.168.1.1> , leave the User Name blank and enter "admin" as password. Select the correct tab that allows the IP address to be released and renewed.

This should restore your modem to router and to computer connection. Now if you power off your computer and the router and follow the power up procedure, the VOIP telephony system should be operational.

B. Satellite vs. Modem registration issues.

Cautionary note:- be aware that incorrect use of the Telnet commands as described in the following procedures can result in a "dead" modem that will have to be returned for reconfiguration.

It is important to realize that the modem can be commissioned initially through any of the available Hughes satellites and channels thereon. Let us assume that a modem is pre-provisioned by Hughes Satellite on a new account application to use satellite G11 using the 990 channel. Also assume that the installer happened to have requested operation on IA8. Unless told otherwise, the installer would select the IA8 satellite channel 1410 from the drop down list during the "Registration- Installer" process. During the dish alignment process a green signal will be received when the dish is pointed at IA8 and the registration process can be completed to the stage that encryption keys are downloaded, transmitter timing is re-adjusted and the modem configuration files are received and installed. Therein lies the problem. The modem configuration files will include values to tune the dish system to the G11 satellite and, of course, the dish is still pointed at IA8. Thus when the modem reboots after an apparently successful registration the modem will no longer receive a valid signal since the dish is now pointed at the wrong satellite. This very same situation can occur if a configuration file containing incorrect parameters is downloaded

Any time a modem "System" light and "Receive" light fails to come on after an otherwise successful registration process, the values contained in the modem configuration file should be checked. Open a command prompt window by clicking "Start", "Run" and typing "cmd" in the text box then click OK. At the command prompt flashing cursor type "Telnet 192.168.0.1 1953" and press Enter. At the next prompt type "b" and press enter. The contents of the configuration values as loaded into the modem memory will be displayed. Read through the displayed values to make sure that they are the same as those for the satellite on which you commissioned the system. In particular check the satellite longitude, the beam frequency and the DVB program numbers. These values should be the same as those displayed in the data page that follows selecting a satellite in the commissioning process. A forced reset of the modem will sometimes fix this issue and is performed by opening a command prompt as previously described. Once the Telnet command has been entered and you are logged into the modem interface, type "rf" and press Enter. Modem memory contents will be deleted and reset to factory defaults. Now repeat the "Registration – Installer process. If exactly the same situation occurs it indicates that there is a problem with either the commissioning data as setup by the satellite operators and the data as supplied to the installer by Galaxy or Xplornet, or there is an incorrect parameter in the downloaded configuration file. The situation is best resolved by requesting a newly tested and pre-commissioned modem. Technical support At Galaxy Satellite can be contacted at 1 877 463 9728 and at Xplornet at 1866 841 6001. In both cases have the Customer Name and Customer # available. Usually the Customer Name will be Falcon Research

on all rental units and the Customer # is found on a label on the side of the modem.

***Optional: Using the OPI: (these instructions are not complete/ or may not be correct- they need to be added to if to be used.**

The outside Pointing Indicator is a tool that can be used to measure signal strength during the initial setup procedures. This tool may or may not be provided and it is not crucial that it be used. On the setup page select Registration-Installer.

- Enable the OPI Then select Manual Location and then enter in your location coordinates (it need not be in hundredths of a degree)- Next install the OPI filter to the transmit(?) coaxial connection. **Fatal error warning: before disconnecting either of the transmit or receive coaxial cables ensure that the modem is powered off, the system will be irreparably damaged if the power is on when these cables are not both in place.** Install the filter with the LNB (Low Noise Block) end to the transmit portion of the feedhorn.