Operating the GLOBETrekker SNG Standard™ in Manual Mode

Peaking the Antenna

The peaking process involves:

1   Setting DVB Carrier
2   Sweeping the Azimuth and Elevation
3   Confirming DVB Lock

To peak the antenna, complete the following steps:

1   Choose a DVB-S carrier. To select the carrier, click on a carrier in the list shown on **Figure 55** below the Spectrum Analyzer graph.

Note: Keep monitoring the Spectrum Analyzer graph which will display the greatest peak when the antenna has been peaked.

2   Reset the frequency span to 10 MHz (if the frequency span is currently set at a level higher than 10 MHz). The reading on the signal level indicator in the Antenna Peaking box (**Figure 55**) should be green.
Hint: If the signal strength indicator is red it cannot be used for peaking, reset your frequency span until it turns green.

3   Click on the **Azimuth** button in the **Motor Control** box and use the nudge left/right arrows (refer to the previous Acquisition Process section for control button functions) to adjust the Azimuth such that the reading on the signal level indicator is the highest that can be achieved (value will vary depending upon the satellite). Click Peak in the **Motor Control** box and wait for the button to turn green and read "Peaked".

4   Similarly, click on **Elevation** button in the **Motor Control** box to activate this control. Use the nudge up/down arrows to adjust Elevation such that the reading on the signal level indicator reaches the highest number that can be achieved. Click **Peak** and wait for the button to turn green and read "Peaked".

Operating the GLOBETrekker SNG Standard™ in Manual Mode
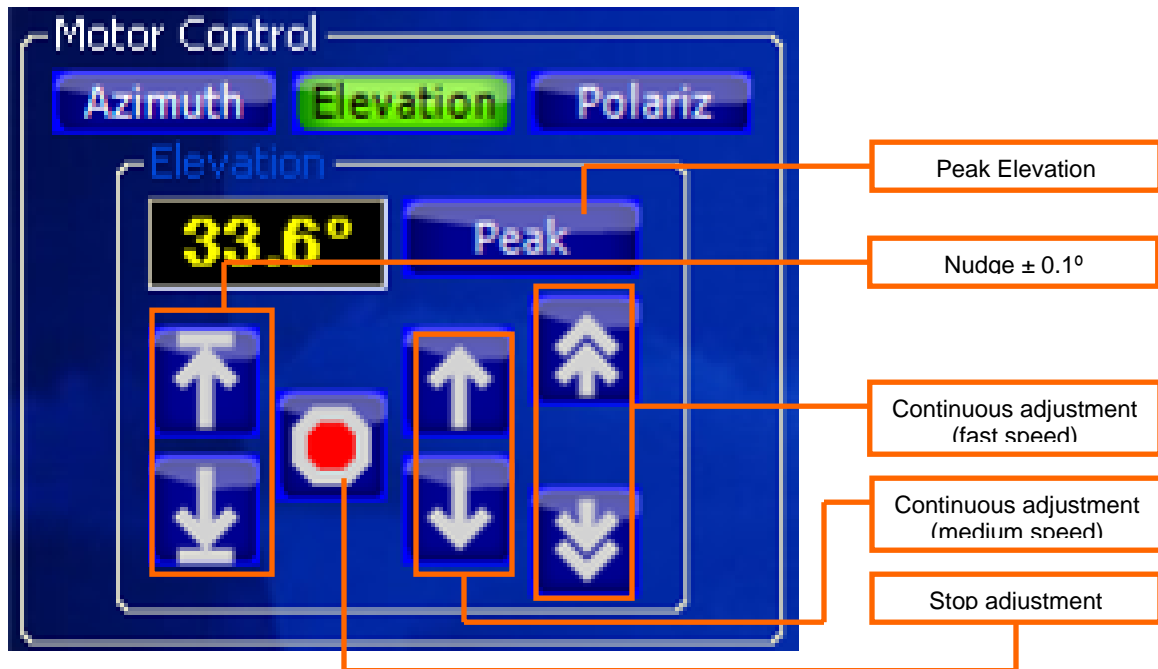
5   If you are locking onto a DVB carrier, verify that you have a DVB Lock, indicated by a green **DVB Lock** button.

6   You are now ready to call the Satellite Operator to gain access to the satellite.

Call Satellite (or Hub) Operator to Access Satellite

1   Go to the **Transmit** tab and click the Current System Transmission Status pull-down tab. This will bring up the screen as seen in **Figure 56**. (Refer to **Table 6** for control button descriptions).

Operating the GLOBETrekker SNG Standard™ in Manual Mode

Figure 56. Current System Transmission Status

Operating the GLOBETrekker SNG Standard™ in Manual Mode

Table 6. Transmission Status Controls	
Controls	**Functions**
Transmit Quick Keys	
1. Transmitter Off	Turns transmitter off.
2. CW Minimum	First CW: Produces the minimum continuous wave that the SO will ask for initially.
3. CW Nominal	Second CW: Produces the nominal continuous wave that the SO will request the CW Minimum.
4. Modulated Nominal	Third CW: Produces the modulated nominal CW that the SO will request after the CW Nominal.
Manual Transmit Control	
Manual Transmit Control	
1. Transmitter: Off	Turns transmitter Off.
2. Transmitter: On	Turns transmitter On.
2. Modulator: CW	Produces an unmodulated CW.
3. Modulator: Modulated	Produces a modulated CW.
Power Control	
1. Output dBm – Up/down control arrows	As instructed by the SO, these controls can be used to increases/decreases the power (1 dBm incrementally).
2. Max dBm	Automatically sets the power to the maximum value.
3. Min dBm	Automatically sets the power to the minimum value.
4. Set current power as nominal power	Sets the current power (in Output dBm reading box) to the nominal power value; saves this value for the subsequent transmissions until reset again.

Operating the GLOBETrekker SNG Standard™ in Manual Mode

Other Controls	
Edit Transmit Settings (button)	Opens **Transmit Details** window allowing user to edit: 1. Encoder settings 2. Modulator settings 3. Audio settings 4. Video settings 5. Multiplexer settings 6. Encryption

2   Click the Paradise Evolution Modem Control pull-down tab. This will bring up the screen as seen in **Figure 56**. (Refer to **Table 6** for the left panel control button descriptions). Here, you can monitor and control the modem. To change or set Tx Frequency, use the up/down arrows in the **Transmit Frequency** box, clicking **Set** when finished adjusting. To edit more settings/parameters, click the **Edit Settings** button. Refer to Appendix C for parameter details.

Operating the GLOBETrekker SNG Standard™ in Manual Mode

Figure 57. Paradise Evolution Modem Controls
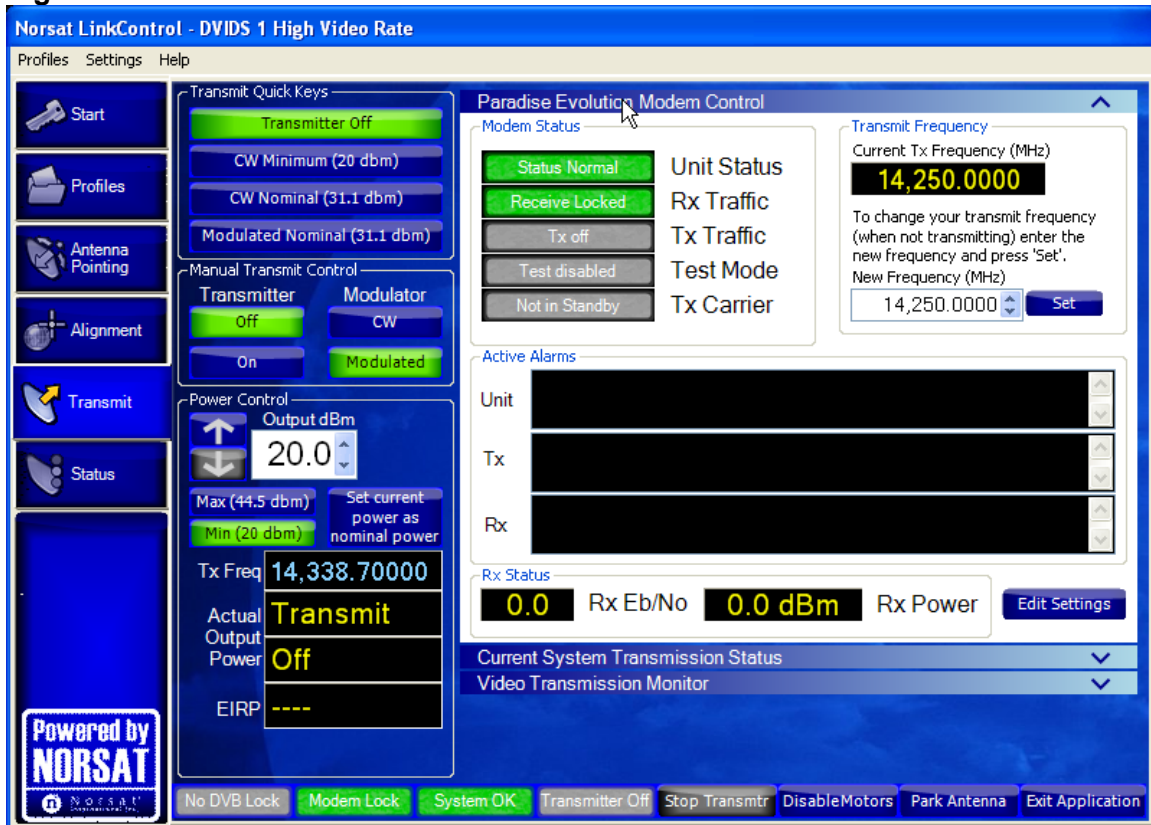
3   The user should call the Satellite (or Hub) Operator to:

   i.   Identify themselves and their location (leave your phone number)

   ii. Indicate that they have scheduled satellite time (leave time, freq.)

   iii. Indicate purpose of the transmission (example: data transfer)

   iv. Indicate that you are ready to start transmitting on satellite, transponder and frequency slot allocation (example: NSS7, Transponder K18, Slot C)

Operating the GLOBETrekker SNG Standard™ in Manual Mode

The Satellite Operator may in turn verify some parameters and ask some questions.
Such parameters/ questions may include:

- Are you aligned and peaked on the satellite?
- Encoder/modulator settings.
- Modem settings
- Confirm Uplink frequency and polarization.

4   When directed by the Satellite Operator to start transmitting at low power, unmodulated carrier (also known as a CW or continuous wave), click on the "CW Minimum" button (**Figure 58**). The transmitter will now be **On** and modulator **CW** button will turn green.

5   Wait for further instructions while the operator checks the cross pol and frequency of the carrier. The operator may instruct you to adjust the transmit power, frequency, polarization, and / or antenna pointing (**Figure 58**).

6   When directed, slowly increase power to operating level and stop.

7   Wait for further instructions while carrier specifications are checked.

8   When directed, modulate the signal and verify the remote end is locked onto the signal.

9   Wait for further instructions while your carrier and bandwidth is checked.

10 At any time, click on the Video Transmission Monitor pull-down tab to monitor your video transmission (**Figure 50**).

Note: Only the Satellite Loopback function has been enabled for the GLOBETrekker SNG Standard™; the Local Loopback function is not available.

Operating the GLOBETrekker SNG Standard™ in Manual Mode

Figure 58. Video Transmission Monitor
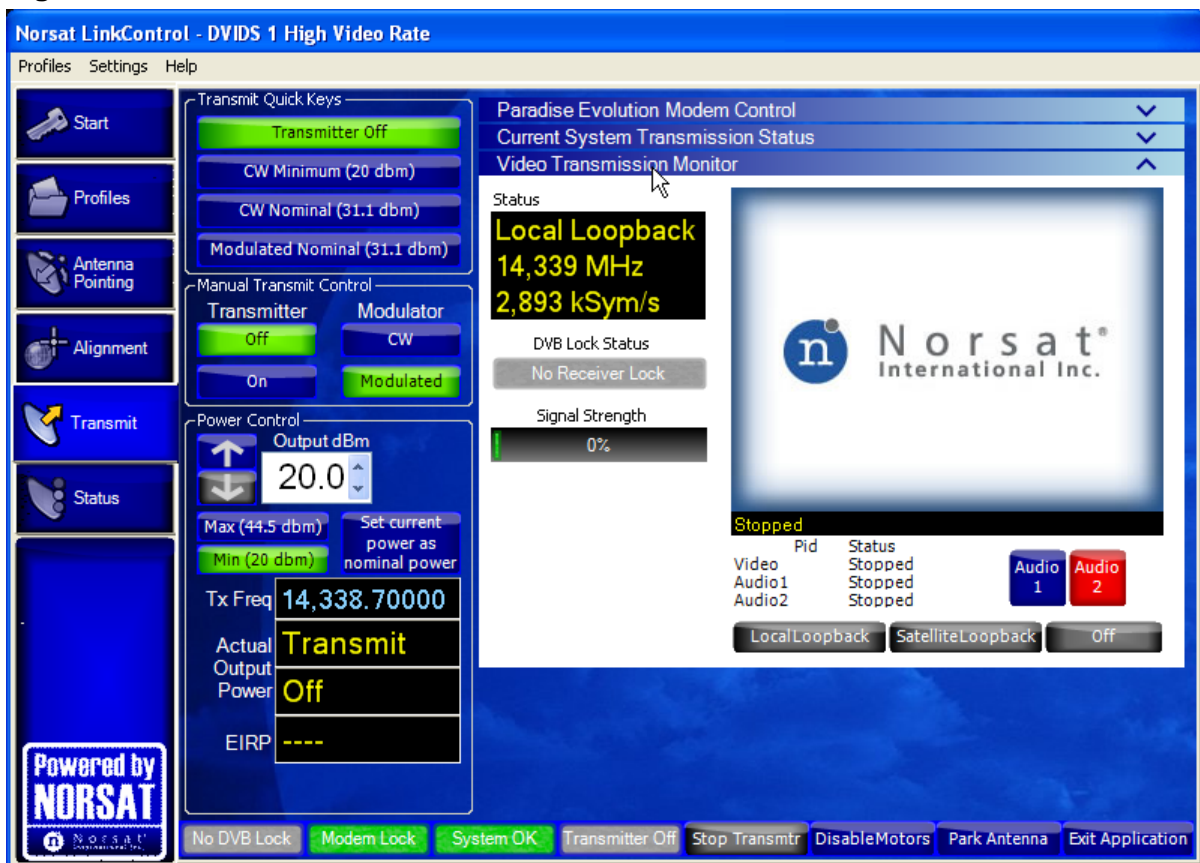
The controller will verify your phone number and the end time for your uplink. The controller will remind you to call the Satellite Operator again just before the end of the uplink (Goodnight call).

Operating the GLOBETrekker SNG Standard™ in Manual Mode

Goodnight Call

The purpose of the Goodnight Call is to inform the Satellite Operator that you have completed your transmission and that you wish to end your transmission.

Note: Use the described buttons at the bottom of the LinkControl screen.

1. When you are finished transmitting, contact the Satellite Operator to confirm the end of your transmission. Then, click the red **Stop Transmtr** button to stop your transmission.

2. If you intend to stow away the system, click the **Park Antenna** button to return the antenna back to its optimal tear-down position (0º Azimuth; 0 º Polarization; 10 º Elevation). Finally, click the **Exit Application** button to close LinkControl.

Operating the GLOBETrekker SNG Standard™ in Manual Mode

Sample Script for Telephone Conversation with a Hub or Satellite Operator (Manual operation)

User to SO: Hello, my name is __ and I'm calling from __. My number is __.

I am ready to start transmitting on satellite G-10, Polarization horizontal, frequency 14114MHz.

SO to User: OK, please bring up a clean carrier.

User Action: Press CW Minimum Quick Key

Note: This action automatically turns the transmitter on at the minimum CW power level.

SO to User: OK we see that, please increase power.

User Action: Increase power using the Power Control 1 dBm at a time.

SO to User: Increase carrier to nominal.

User Action: Press CW Nominal Quick Key.

User to SO: Increasing power. It will take a few seconds.

User to SO: We are at nominal power.

SO to User: Looks good. Go ahead and modulate.

*User Action: Press Modulated Nominal Quick Key*

10 Disassembling the GLOBETrekker SNG Standard™

Disassembling the GLOBETrekker SNG Standard™

This chapter explains how to disassemble the GLOBETrekker SNG Standard™ through step by step instructions.

Powering Down the GLOBETrekker SNG Standard™ (Graceful Shutdown)

1. To power down the GLOBETrekker SNG Standard™ properly, first exit the LinkControl application by clicking on the **Exit Application** button located on the bottom right-hand side of the LinkControl screen.

2. Next, shutdown the Windows XP operating system and then turn the power supply OFF. Then, switch off the baseband unit and the audio/data kit.
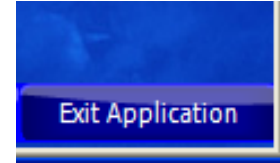
Disconnecting and Stowing Away the Power Supply

To detach the cables from the power supply, perform the following steps:

3. Detach the AC cable from the power source.

4. Detach the AC cable from the five pin male connector on the power supply.

5. Detach one end of the DC cable from the baseband unit front panel.

6. Detach the other end of the DC cable from the five pin female connector on the power supply.

Disassembling the GLOBETrekker SNG Standard™

7. Stow away the power supply and the power supply cables in the bottom compartment of Transit Case C.

   *Note: **Photo to the right shows a different power supply than the model supplied with this system.***

Disconnect and Stow Away the Audio/Data Kit

8. Disconnect all peripheral equipment (e.g. earphones, microphones, speakers, displays, etc.) from the rear and to panels of the audio data kit.

9. Disconnect all four IFL cable connectors from the rear panel of the audio data kit.

10. Stow audio/data kit back into the top compartment of Transit Case C, as shown.

Disassembling the GLOBETrekker SNG Standard™

Disconnect the Cables/Connections to the Baseband Unit

Disconnect All Peripherals

11. Disconnect any peripheral equipment attached to the baseband unit, e.g. laptop, etc.

Disconnect the IFL cable

12. Disconnect the four IFL connections from the front panel of the baseband unit.

13. Stow away the IFL cable in the Accessories Case.
    Note: Stow away is easiest when the IFL cable is the first accessory repackaged in the Accessories Case.

Disassembling the GLOBETrekker SNG Standard™

Disconnect the Baseband Cables

14. Disconnect the 90° red color-coded male N connector, the M&C connector, and the DC connector from the SSPA (on the main antenna unit back plate).

15. Disconnect the female amphenol connector from the elevation assembly.
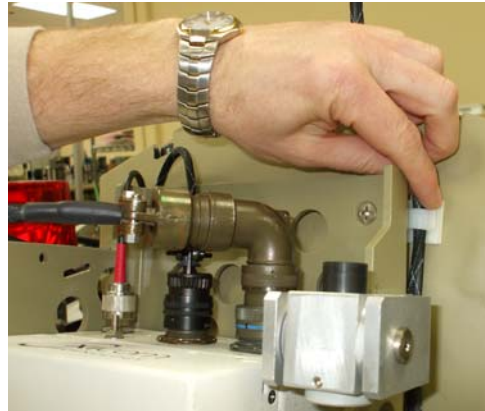
Disassembling the GLOBETrekker SNG Standard™

16. Disconnect the 3-pin male amphenol connector to the baseband unit.

17. Unclip the compass cable from the back of main antenna segment.

18. Disconnect the compass cables from baseband unit.

Disassembling the GLOBETrekker SNG Standard™

19. Detach the compass unit from the mounting hardware on the top of antenna segment 4 (top middle). Stow away in the top compartment of Transit Case A (See Figure 5).

    Note: Mounting hardware is shown in inlayed picture.
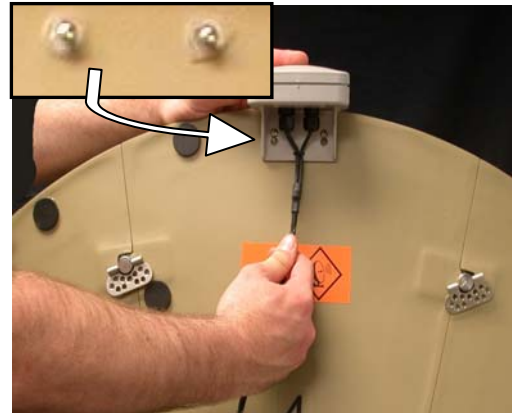
20. Detach the 8 pin amphenol connector from the base of the feed assembly.

21. Detach the male N connector from the LNB.

Disassembling the GLOBETrekker SNG Standard™
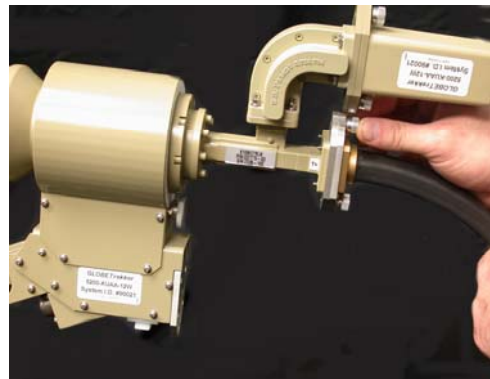
Disconnecting the Waveguide from the Feed Assembly

22. Detach one end of the flexible waveguide from the bottom region of the feed assembly using the thumb screws.

23. Detach the other end from the middle region of the feed assembly.

24. Replace protective plastic caps to the ends of the flexible waveguide. Repackage in the bottom compartment of Transit Case A (see Figure 7).

Disassembling the GLOBETrekker SNG Standard™

Detaching the LNB from the Feed Assembly

25. Detach the LNB from the top of the feed assembly using the thumb screws.
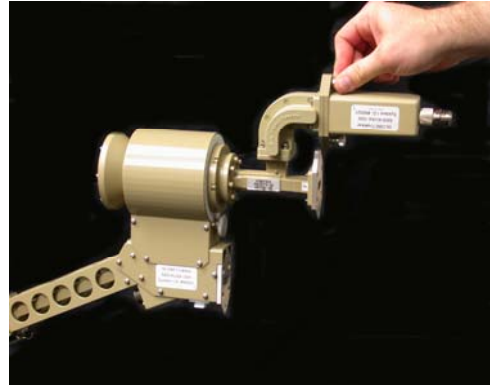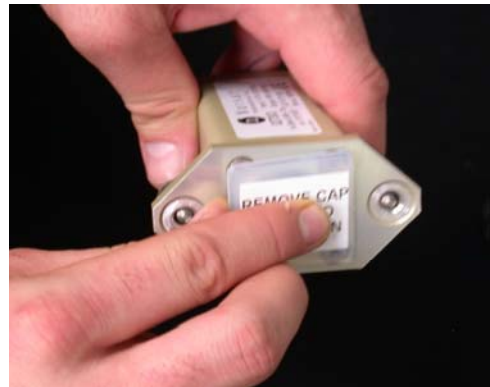

26. Replace protective plastic cap to the end of the LNB. Repackage in top compartment of Transit Case A (see Figure 5).

Disassembling the Boom Arm and Feed Assembly

27. Loosen and remove the upper boom arm segment.

Disassembling the GLOBETrekker SNG Standard™

28. Replace protective plastic caps to the feed assembly. Rotate the polarization so that it is pointing directly down. Repackage in the top compartment of Transit Case A (see Figure 5).
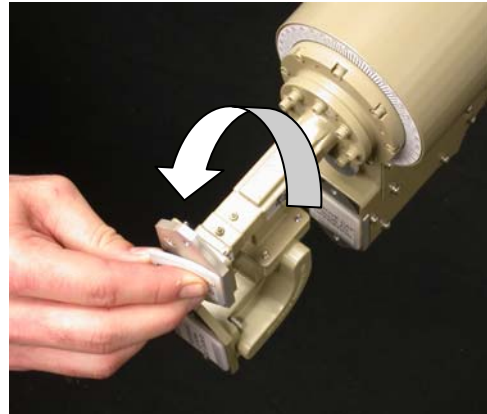
29. Loosen and remove the lower boom arm segment from the main antenna assembly. Repackage in the top compartment of Transit Case A (see Figure 5).

Disassembling the Main Antenna Unit

Note: The following photos illustrate the reflector diassembly for all GLOBETrekker™ product variants. As such, the 40W SSPA for the SNG Standard™ system is not shown.

30. Loosen the latches from each of the five antenna segments.

31. Detach Petal 6 (top right segment).
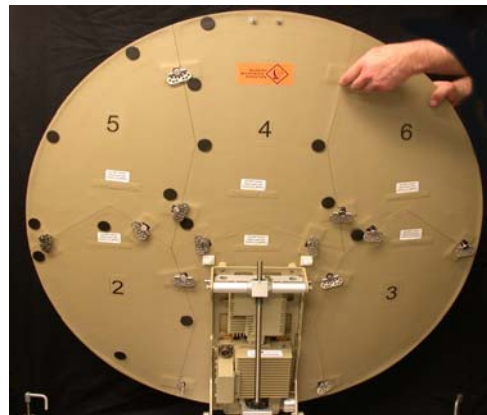
Disassembling the GLOBETrekker SNG Standard™

32. Detach Petal 5 (top left segment).
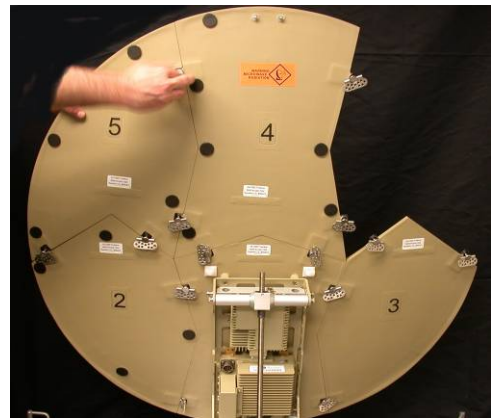
33. Detach Petal 4 (top center segment).
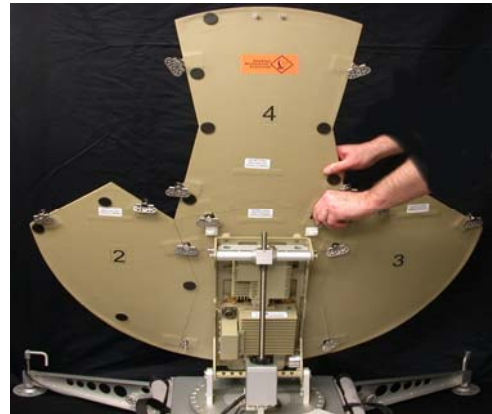
34. Detach Petal 3 (bottom right segment).
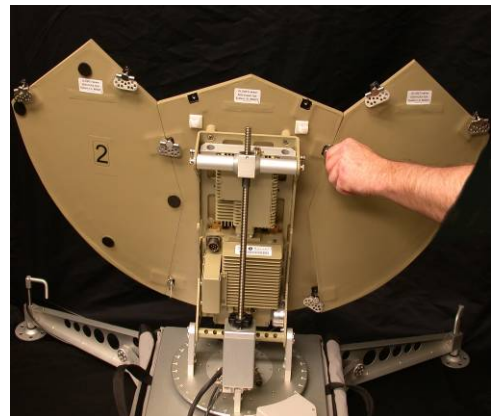
Disassembling the GLOBETrekker SNG Standard™

35. Detach Petal 2 (bottom left segment).
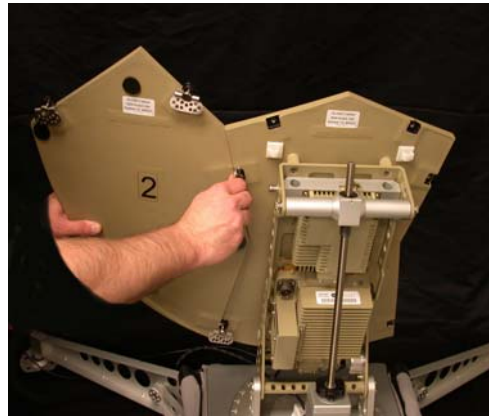
Disassembling the Main Antenna Unit

36. Loosen the thumb screws of the elevation assembly unit to remove it from the azimuth plate.
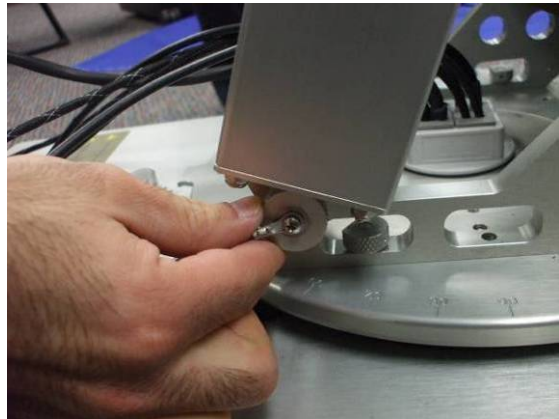
37. Unthread the elevation rod (counter clockwise) from the elevation top axle assembly. Remove from the back plate. Repackage elevation assembly in the bottom compartment of Transit Case A (see Figure 7).
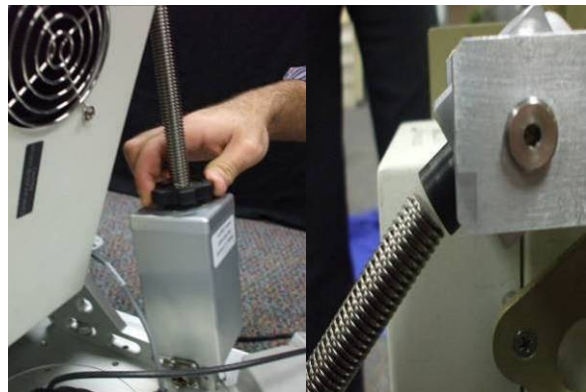
Disassembling the GLOBETrekker SNG Standard™

38. Unscrew the thumb screws on the left and right back plate supports.

39. Remove the main antenna unit from the baseband. Then flip the supporting legs back in to restow. Repackage in bottom compartment of Transit Case A (with elevation assembly and flexible waveguide – see Figure 6).

Disassembling the GLOBETrekker SNG Standard™

Folding the Legs and Leg Supports into the Baseband

40. Turn the handle on the folding legs to move the feet to the up position.

41. To quickly adjust the leg, press the button in.
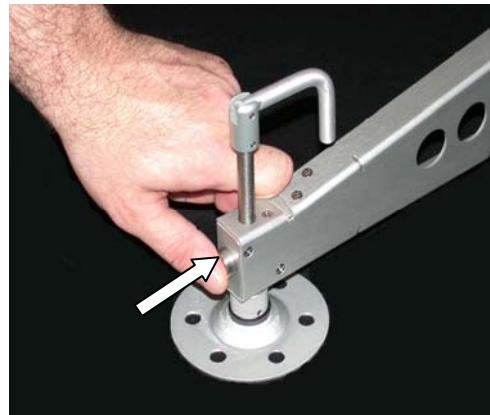
42. Undo the leg support thumb knob.

Disassembling the GLOBETrekker SNG Standard™

43. Remove feet from the end of the leg and from the back of the baseband unit.

44. Screw feet onto the side of the baseband unit.

45. Fold the leg into the baseband unit.

46. Repeat for other leg and supports.

Disassembling the GLOBETrekker SNG Standard™

Repacking the GLOBETrekker SNG Standard™

47. Place the baseband unit cables back into the black, protective case. Place the entire unit back into the bottom of Transit Case B, along with the AC and DC power supply cables.

48. Replace antenna segments 2, 3, 5 to the top compartment of Transit Case B (with baseband), in the configuration shown (petal numbers face away).
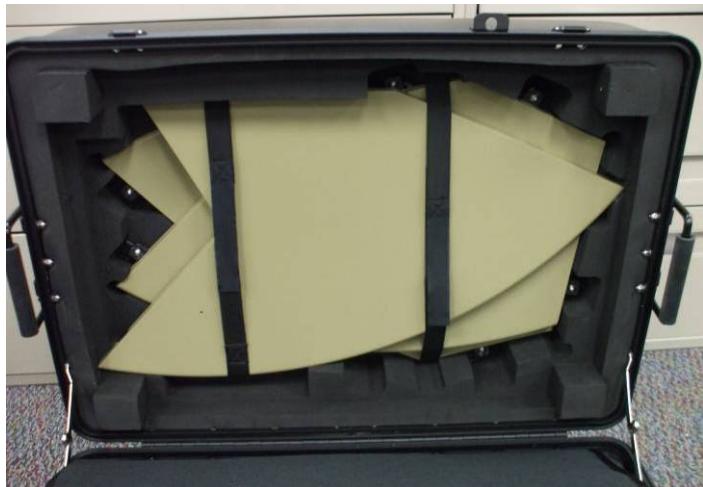
Disassembling the GLOBETrekker SNG Standard™

49. Replace antenna segments 4 and 6 to the top of Transit Case A .

50. Close Transit Cases A, B, and C. Secure the cases by turning each butterfly latch to lock and then flipping them downwards.

Disassembling the GLOBETrekker SNG Standard™

51. Repackage all accessories in the Accessories Case. Then, close and lock the case for transport. The suggested order of repackaging is illustrated below.
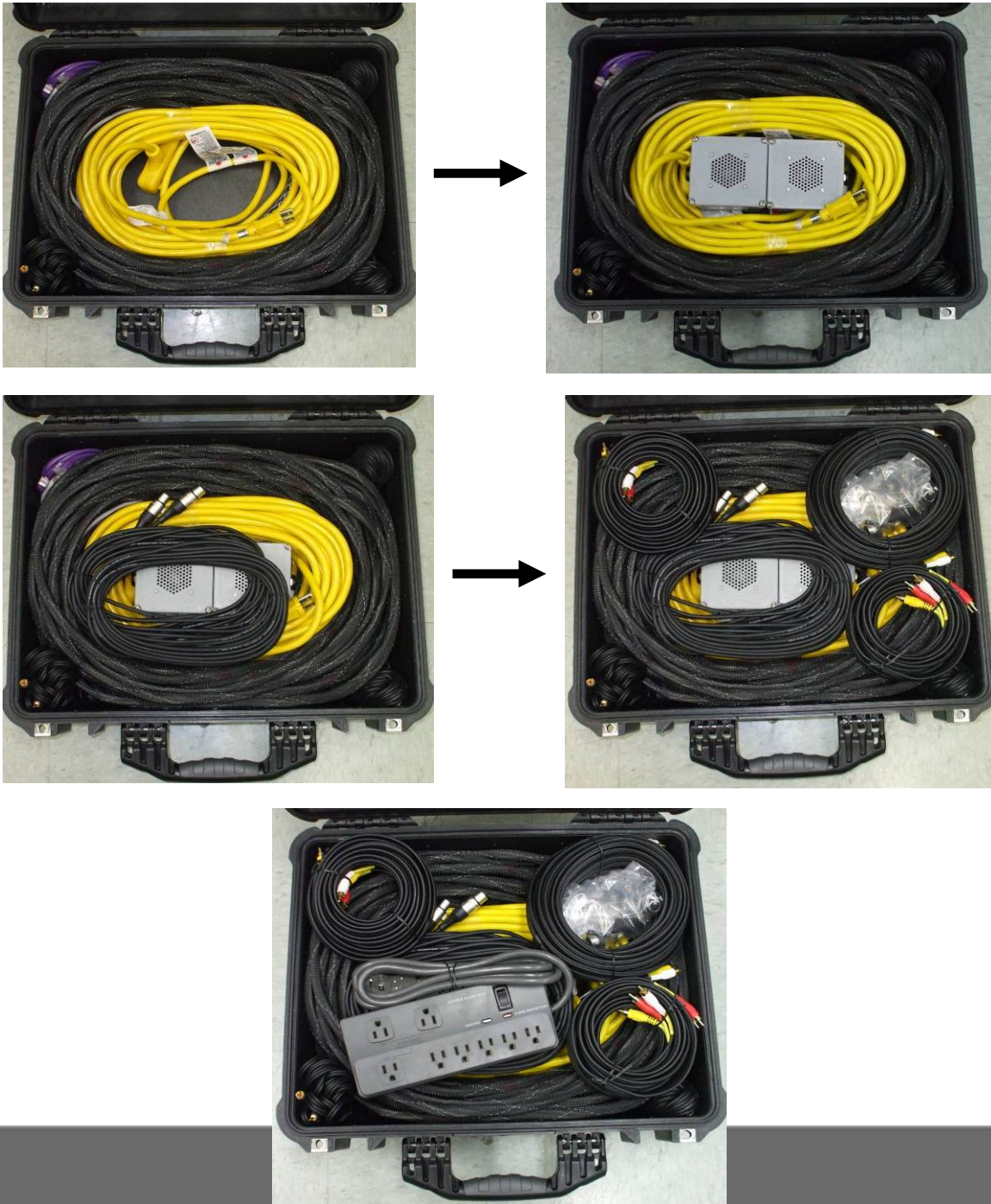
Disassembling the GLOBETrekker SNG Standard™

52. You are now ready to transport the GLOBETrekker SNG Standard™ system.

11

Alarms and Troubleshooting Tips

Alarms and Troubleshooting Tips

The GLOBETrekker SNG Standard™ is a sophisticated communications device. It has been designed to be easy to use even by non-technical users.

Most problems or questions can be answered using the Troubleshooting tips. Should any problems or questions arise use the following Troubleshooting Tips **BEFORE** calling Customer Service.

Troubleshooting

Table 7. Troubleshooting the GLOBETrekker SNG Standard™		
Symptom	**Possible Cause**	**Corrective Action**
Power Up		
Baseband chassis fans are not spinning.	No DC power is getting to the baseband from the power supply.	Confirm the 24V/48V DC power cable between the baseband and the power supply is connected and switched on.
Power supply fans not spinning.	No AC power is getting to the power supply unit.	Confirm that AC power cable is connected to AC source and the power supply is switched on.
Windows reports new Serial Mouse installed.	Windows error.	This is a benign error in Windows. Cancel the "auto-hardware detection" and proceed as normal.
LinkControl Errors		
SSPA low temperature alarm / fan alarm.	SSPA M&C not connected.	Make sure the M&C cable is plugged in.
Polarization does not move.	Polarization motor cable not connected.	Make sure Polarization control cable is plugged in.
Receive Signal Strength Indicator is very low and doesn't change (below 030). Or, no reading on spectrum analyzer.	LNB cable problem.	Ensure LNB cable is plugged in and is not damaged.

Alarms and Troubleshooting Tips

Table 7. Troubleshooting the GLOBETrekker SNG Standard™		
Symptom	**Possible Cause**	**Corrective Action**
LNB current alarm.	LNB cable problem.	Ensure LNB cable is plugged in and is not damaged.
Turn on power and the internal computer does not boot (no BIOS boot screen).	Power up error.	Turn off power and turn back on quickly.
Windows user is logged out and you cannot log back in (requires a password at the login screen, and you have no keyboard).	Previous user logged off.	If your Windows user is logged out (either you chose Start->Log Off or another person used Remote Desktop to connect to your system and logged you off) you need a USB keyboard to enter the password (default: "norsat") and log back in. If you don't have a USB keyboard attached to the system, you will need to power cycle the system (turn the power off, wait ten seconds, and turn the power back on). To prevent this from happening, never choose Start->Log Off. Always shut down completely (Start->Shut down). When logged in via Remote Desktop use Windows Security in the start menu and then click the shut down button.
LinkControl Errors		
Windows freezes or hits a blue screen error message.	Windows error	Wait one minute for Windows to unfreeze. Then power cycle the system.
Spectrum Analyzer is slow to update and "jumpy".	Auto scale taking up resources.	If you see this, try turning the auto-leveling off. The auto-leveling switches are two check boxes next to the Reference Level and dB per Division numeric fields. They take CPU cycles, and if the leveling is correct, you don't need auto-leveling

Alarms and Troubleshooting Tips

Table 7. Troubleshooting the GLOBETrekker SNG Standard™		
Symptom	**Possible Cause**	**Corrective Action**
		on.
Cannot set DVB receiver or Spectrum Analyzer to listed carrier.	Wrong LNB type.	Ensure the correct LNB is selected for the carrier you want to select.
The application reports a "Timed Out. Could Not Read GPS" message.	GPS is not connected.	Confirm the GPS is connected (on the azimuth plate).
	GPS signal interference.	Make sure you are in clear sky, not next to a wall.
	Poor GPS location.	Make sure you are not in an area where GPS is degraded or turned off by the government.
Inclinometer could not be found	Inclinometer not connected.	Check that the cable is plugged in (side of the antenna back plate).
Compass could not be found	Compass not connected.	Check that the cable is plugged in (on the azimuth plate).
Antenna Alignment		
Carrier list in Spectrum Analyzer, DVB Receiver, or Antenna Peaking controls is empty, even though you know you have carriers entered for this satellite.	Wrong polarization.	Check the other polarization, to make sure the carriers you are expecting to see aren't all on the other pole. Do this by finding the radio buttons that show Tx Horizontal and Tx Vertical, and clicking the one that is not currently selected. This will show the carriers for the other pole.
	Wrong LNB.	Check to make sure you have the correct LNB selected in your current profile. If you have the wrong LNB selected or installed for the satellite you're looking for, you won't be able to see those carriers.

Alarms and Troubleshooting Tips

Table 7. Troubleshooting the GLOBETrekker SNG Standard™		
Symptom	**Possible Cause**	**Corrective Action**
Unable to get DVB lock or locate signals on the Spectrum Analyzer.	Wrong LNB is connected.	Verify the correct LNB is connected for the receive frequency range desired (A, B, or C type).
	Incorrect or missing carrier information in the database.	Verify carrier frequencies that can be used to align the antenna (i.e. satellite beacon frequencies, DVB carriers). Ensure that for DVB carriers that the correct symbol rate is also entered.
	Antenna pointing error. (Administration mode)	Verify the antenna is level and the elevation and polarization are set correctly. Be aware the compass may be corrupted by local interference and may not be displaying the correct azimuth reading.
Antenna Alignment		
Antenna only moves in one direction or does not move in the desired direction (either for azimuth, elevation or polarization).	Antenna position is out of the software limits.	The antenna has software limits that prevent it from moving "out-of-bounds" for any of the three parameters. If the antenna is currently out-of-bounds, any movement command sent to the antenna will cause the antenna to move in the direction that will take it back in-bounds. Therefore, if you try to move the antenna further out-of-bounds, it will go in the opposite direction.
No carrier detected – no signal seen.	Wrong LNB.	Ensure you have the correct LNB installed for the satellite you're trying to see.
Azimuth plate not moving properly.	Gear broken.	Call for technical support.
Azimuth plate moving abnormally.	Idler gear loose.	Tighten idler gear with two #6 socket head cap screws.

Alarms and Troubleshooting Tips

Table 7. Troubleshooting the GLOBETrekker SNG Standard™		
Symptom	**Possible Cause**	**Corrective Action**
Transmission		
System loses AC power when the transmitter is turned on.	Supply power source is under rated.	Verify your AC power source can deliver a sustained output of at least 1000W.
The satellite operator does not see your transmitted CW signal.	Antenna peaking and pointing. (Administration mode).	Verify the antenna is pointed on the correct satellite and that it is pointing has been fine tuned by going through the peaking procedure.
	Configuration or cabling could be incorrect.	Verify that the correct transmit frequency is selected and that all cables are connected.
Transmitter turns off immediately when you turn it on.	SSPA not functioning correctly.	This is likely due to alarm conditions that exist as soon as you turn on the transmitter. Check that the SSPA is plugged in, that the fan is operating, and that the reported SSPA temperature is accurate. Check History on the Status screen and see if an error was recorded.
Transmitter will not power up.	Water in connection.	Check that the SSPA connection is dry.
Remote Desktop Application		
GLOBETrekker does not recognize presence of a laptop.	Remote Desktop Application is not properly configured on laptop.	Make sure you can ping the single board computer - **192.168.77.3** If laptop LAN connection says cable is not connected, but it is - go to **Start**->**Control Panel**->**Network Connections** on your laptop, right-click your LAN connection and choose **Disable**, wait until it disabled and right-

Alarms and Troubleshooting Tips

Table 7. Troubleshooting the GLOBETrekker SNG Standard™		
Symptom	Possible Cause	Corrective Action
		click again and choose **Enable**.

The GLOBETrekker is a sophisticated satellite system with powerful alarm reporting capabilities. The user will need to log in as an Administrator to access the alarm panel., found under the Status Screen.

Figure 59. Status Screen
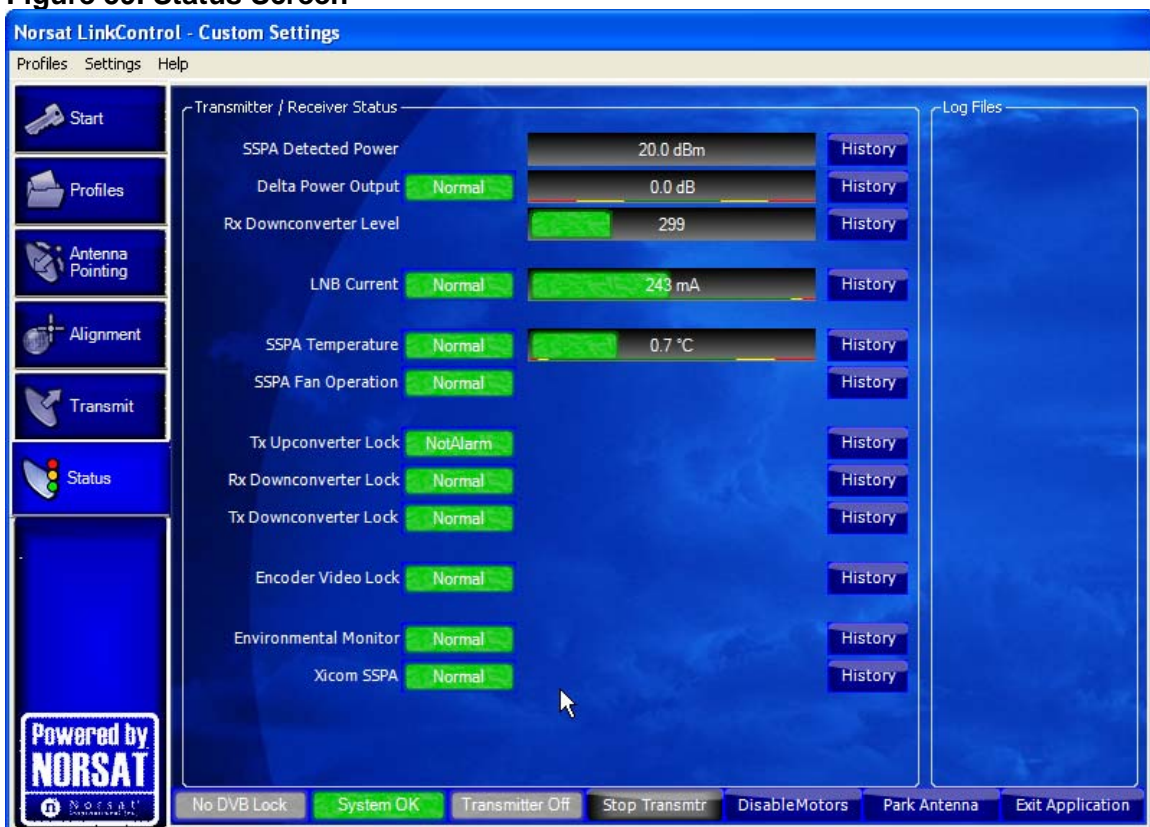
Alarms and Troubleshooting Tips

Status Indicators

The **Status Screen** provides details about the health of the GLOBETrekker system.
To view the **Status Screen**, click **Status**. The **Status Screen** opens as shown in **Figure 59**.

Status indicators shown on the Status Screen in **Figure 59** perform the following functions:

- Indicators update the Tx/Rx in real time.
- Each status indicator provides a history of associated alarm conditions.

To access the history of an indicator, perform the following steps:

1   Click on the **History** button next to the indicator.

2   Click **Refresh** to update with the most recent events.

3   Click **Close**.

The three types of status indicators are:

- Information only: no alarm conditions results from these indicators.

- Binary alarm: the condition is either normal or in alarm.

- Variable range alarms: these values give normal indications, warnings, or alarm indications.

Table 7 lists the type and meaning of each status indicator on the **Status Screen**. Click the History button beside each status indicator for a more detailed description.

Alarms and Troubleshooting Tips

Table 8. Status Screen Indicators		
Status Indicator	**Type of Status Indicator**	**Description**
SSPA Detected Power	information only	the measured output power of the amplifier
Delta Power Output	variable range alarms	difference in the requested power versus the measured output power
Rx Downconverter Level	information only	Rx signal strength indicator
LNB Current	variable range alarms	DC current the LNB consumes
SSPA Temperature	variable range alarms	internal temperature of the amplifier
SSPA Fan Operation	binary alarm	indicates whether the fans in the amplifier are turning
Tx Upconverter Lock	binary alarm	The Local Oscillator PLL lock status for the upconverter in the Tx path must be locked to use the Tx spectrum analyzer.
Rx Downconverter Lock	binary alarm	The Local Oscillator PLL lock status for the downconverter in the Rx path must be locked to use the Rx spectrum analyzer.
Tx Downconverter Lock	binary alarm	The Local Oscillator PLL lock status for the downconverter in the Tx path must be locked to use the Tx spectrum analyzer.
Encoder Video Lock	binary alarm	indicates whether or not the encoder is locked onto the incoming signal
Environmental Monitor	binary alarm	measures the temperature and humidity within the system to determine whether the environmental conditions are satisfactory
XiCom SSPA	binary alarm	default description for the XiCom SSPA

Appendix A: Attaching a Laptop to the GLOBETrekker SNG Standard™

APPENDIX A: Attaching a Laptop to the GLOBETrekker SNG Standard™

Attaching the Laptop

Attach the laptop to the Ethernet connector on either the rear panel of the baseband unit.

Note: The laptop should be powered up right after the GLOBETrekker SNG Standard™ is powered up.

Attaching a Laptop Using Remote Desktop Application

1   Connect an Ethernet crossover cable to the laptop.
2   Connect other end of the Ethernet cable to the Ethernet connectors on the rear panel of the GLOBETrekker SNG Standard ™ (rear panel).
3   Power up the GLOBETrekker and then power up the laptop.
4   Run the Remote Desktop application. On your laptop, running Windows XP, select **Start-> All Programs -> Communications -> Remote Desktop Connection**.

Hint: Create a shortcut to the Remote Desktop Connection onto your desktop.

Remote Desktop setup: Only for Ethernet cable connections using a laptop

1   Note the default IP settings for the GLOBETrekker SNG Standard ™'s internal computer:

IP Address:	192.168.77.3
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.77.1

2   Set the laptop LAN IP Address to **192.68.77.55** and subnet mask to **255.255.255.0** to put it on the same subnet as GLOBETrekker SNG Standard ™.

3   Ensure your laptop computer is connected to the GLOBETrekker SNG Standard ™ as noted above.

4   Launch Remote Desktop or double click the Remote Desktop Application icon on the desktop (shortcut) to launch the application.

Appendix B: Encoder/Modulator Settings

APPENDIX B: Encoder/Modulator Settings

Encoder/Modulator Settings

Each field of LinkControl's Encoder/Modulator Settings screen is explained on the following page in Table 9.

Figure 60. Encoder/Modulator Settings

APPENDIX B: Encoder/Modulator Settings

Table 9. Encoder/Modulator Settings - Field Descriptions		
	Parameter	**Description**
Modulator Settings	Tx Frequency	Transmit frequency in megahertz MHz
	Symbol Rate	The final data rate after all modulation and error corrections. Measured in kilo-symbols per second, up to a maximum of 8,000,000 symbols per second. Governed by power and transponder space. Data Rate = Symbol Rate x 2 x FEC x 188/204 In other words, the Data Rate is equal to the Symbol Rate, multiplied by: • 2: QPSK Modulation is 2 bits per symbol • FEC: the fraction of actual data (i.e. does not include error bits) • 188/204: the fraction of actual bits to total bits in Reed Solomon coding
	FEC Rate	Forward Error Correction Rate. The amount of error correction and recoverable data. E.g. An FEC rate of ¾ means ¼ of the data can be lost and the signal recovered.
	Available Bitrate	The automatically calculated available bitrate when other modulator settings are inputted by the user.
	Required Bitrate	The automatically calculated available bitrate when other modulator settings are inputted by the user.
Multiplexer Settings	Service Name	Default: NewsLink (modifiable) The name of individual video stream; displayed across color bars when no

APPENDIX B: Encoder/Modulator Settings

Table 9. Encoder/Modulator Settings - Field Descriptions		
	Parameter	**Description**
		video input is detected.
	Network Name	Default: Norsat The name of entire network video stream. Defines how the signal is identified on the receive end.
	PMT PID	Video transmission standard. Leave as default value unless change is required to match the receiver.
	PCR PID	Video transmission standard. Leave as default value unless change is required to match the receiver.
	Program ID	Video transmission standard. Leave as default value unless change is required to match the receiver.
	ASI Mode	Interchange format for compressed video streams. This is disabled unless an external encoder in use.
	ASI Bitrate	Defined data rate of the ASI stream when ASI Mode is enabled.
Encoder Settings	Encoder Mode	User should choose On.
	Auto Bitrate	Check Enabled to allow for the maximum available data rate to transmit video.
	Encoder Bitrate	Based on the FEC rate and Symbol Rate. Automatically calculated when Auto Bitrate is enabled.
	DTS Offset 4:2:0	Dolby Transmission Stream. Typically will be left at default values. These ratios are related to how color information is encoded. When Low Latency is Enabled, setting this value will reduce encoder delay to ~70ms with a video quality tradeoff. Requires changes made to DTS offset at receive end.
	DTS Offset 4:2:2	Dolby Transmission Stream. Typically will

APPENDIX B: Encoder/Modulator Settings

Table 9. Encoder/Modulator Settings - Field Descriptions		
	Parameter	**Description**
		be left at default values. These ratios are related to how color information is encoded. When Low Latency is Enabled, setting this value will reduce encoder delay to ~70ms with a video quality tradeoff. Requires changes made to DTS offset at receive end.
	Low Latency	Check only if directed by satellite/hub and/or Rx terminal operator.
Video Settings	Video Input	Sets the video source. NTSC: North American video standard; PAL: European video standard. The choice of SDI will be available if this licensed option has been ordered.
	Video PID	Video Program ID. Should be set to the default value (300).
	Bars On Input Loss	Check Show Bars to display color bars when video input is not detected.
	Horizontal Res	Horizontal Resolution. Use 720 as standard for NTSC.
	Aspect Ratio	The ratio between height and width of the video image. Normal is 4/3 normal for SD television.
	GOP Length	Group of Pictures Length. Use 15 as a good compromise.
	VBI In Picture	Vertical Blanking Interval. This is a video standard typically used for closed captioning.
	AutoLine Detection	Check only if SDI license option has been ordered.
	SDI Audio DID	Defaults to the SDI audio portion of the video stream.
	Color Mode	Choose a color mode. Defines how color signals are sampled and only affects

APPENDIX B: Encoder/Modulator Settings

Table 9. Encoder/Modulator Settings - Field Descriptions		
	Parameter	**Description**
		analogue video. 4:2:2 is a licensable option and must be ordered separately.
Audio 1 Settings	Active	Choose MPEG.
	Input	Typically analogue. Choose SDI-embedded or AES/EBU if options are ordered
	Audio Bitrate	Audio data rate in kilobits per second (kbs) The higher the bitrate, the better the audio quality with video data rate as the tradeoff. Typically, choose 224 (320 is the maximum suggested bitrate).
	Audio Mode	Choose stereo or dual mono. Stereo typically means better audio quality but left and right outputs are not completely independent of one another.
	Language	Audio stream language can be tagged by the receiver.
	Audio PID	Audio Program ID. 200 is the suggested value.
Audio 2 Settings	Active	Keep Off. Audio 2 is not available on the user interface for this system.
	Input	N/A
	Audio Bitrate	N/A
	Audio Mode	N/A
	Language	N/A
	Audio PID	N/A
Encryption	Mode	Encryption Mode. Defines scrambling to prevent others from poaching the feed(s). The keys selected here must match at the receive end to accommodate video input. This is a licensable option and must be ordered separately.
	EBS Key	Enter the agreed upon encryption key.

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APPENDIX B: Encoder/Modulator Settings

Table 9. Encoder/Modulator Settings - Field Descriptions		
	Parameter	**Description**
	BISS-1 Key	Enter the agreed upon encryption key.
	BISS-E Key	Enter the agreed upon encryption key.
	BISS-E Injected ID	Enter the agreed upon encryption key.

Appendix C: Paradise Evolution Modem Settings

APPENDIX C: Paradise Evolution Modem Settings

Paradise Evolution Modem Settings

Each field of LinkControl's Paradise Evolution Modem Settings screen is explained on the following page in Table 10.

Figure 61. Paradise Evolution Modem Settings

APPENDIX C: Paradise Evolution Modem Settings

Table 10. Paradise Evolution Modem Settings - Field Descriptions		
	Parameter	**Description**
Transmit	Tx Frequency	Transmit frequency in megahertz (MHz).
	Tx data rate	Transmit data rate in bits per second (bps).
	FEC type	Forward Error Correction Type. This depends on what type of coding is licensed on the modem, e.g. Virterbi, Turbo product code, etc. This type must match that being run on the hub.
	FEC code rate	Forward Error Correction Rate. The amount of error correction and recoverable data. E.g. An FEC rate of ¾ means ¼ of the date can be recovered after loss.
	RS FEC	Reed Solomon Forward Error Correction.
	Scrambler mode	Typically set to Normal or Turbo Product Coding (TPC).
	Scrambler type	
	Tx service type	Transmit Service Type. Typically set to IDR or closed network. Defined by the hub.
	Baseband mode	Set at Continuous unless otherwise defined by the hub.
	Clock source	Defining # bps;
	Modulation	Modulation of the video signal. Typically, use QPSK (quadrature phase shift keying).
	L-band output power	Modem output power, measured in dBm = decibels (dB) of measured power reference to one milliwatts (mW).
Receive	Receive frequency	Receive frequency in megahertz (MHz)
	Rx data rate	Receive data rate in bits per second (bps)
	FEC code rate	Forward Error Correction Rate. The

APPENDIX C: Paradise Evolution Modem Settings

	Parameter	Description
Table 10. Paradise Evolution Modem Settings - Field Descriptions		
		amount of error correction and recoverable data. E.g. An FEC rate of ¾ means ¼ of the date can be recovered after loss.
	RS FEC	Reed Solomon Forward Error Correction.
	Scrambler mode	Typically set to Normal or Turbo Product Coding (TPC).
	Scrambler type	
	Rx service type	Receive Service Type. Typically set to IDR or closed network. Defined by the hub.
	Baseband mode	Set at Continuous unless otherwise defined by the hub.
	Clock source	Off the satellite; locking the time/timing between the Tx and Rx ends; maintain synchronization
	Modulation	Modulation of the video signal. Typically, use QPSK (quadrature phase shift keying).
	Sweep mode	Receiver frequency tolerance. Value defines how many KHz the Rx frequency must be within to receive the video signal.
	Sweep width	32 is the max; In kilohertz (kHz)
IP Options	Ethernet Traffic Mode	Typically TCP acceleration (if licensed on the modem) or Bridge Mode for point-point.
	Bridge Filtering	Check if you are directly connecting the modem to the large network. This will reduce spurious traffic across the link.
	Address	IP addresses of the modem's management control web interface.
	Subnet Mask	IP addresses of the modem's management control web interface.

APPENDIX C: Paradise Evolution Modem Settings

	Parameter	Description
Table 10. Paradise Evolution Modem Settings - Field Descriptions		
	Gateway Address	IP addresses of the modem's management control web interface.
Unit	**Terrestrial Interface Type**	Defines how the user interfaces with the modem (Which connectors? What configuration?). The selection must be configured to match the customer supplied equipment.
	Loopback	Set to Off unless performing bench testing.

END OF DOCUMENT

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