

dishNET Powered by HughesNet: SpaceWay

Module Time

15 hours

Agenda

- Opening
- Satellite Internet Basics
- Prepare the Installation
- Install the Equipment
- Point-and-Peak
- Provisioning



Satellite Internet Basics

dishNET includes high-speed Internet supplied by either ViaSat or HughesNet.

Each supplier has two installation solutions:

- dishNET Powered by HughesNet — SpaceWay and Jupiter
- dishNET Powered by ViaSat — SurfBeam1 (SB1) and SurfBeam2 (SB2)

This training will provide instruction for the installation solution(s) required in your area.

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dishNET systems, comprised of a variety of equipment, provide customers with high-speed Internet service.

HughesNet Systems

- Satellite Modem — Makes the Internet connection between the computer and the TRIA
- TRIA — Sends and receives data via the satellite
- Satellites — At the 95°, 105°, 107°, and 111° orbital locations, they handle data transfers between a Network Operations Center (NOC) and the TRIA
- Network Operations Center (NOC) — Processes and translates data between the Internet and the satellite

Service Packages

dishNET offers multiple Internet packages to customers. The download speeds and services available to customers are determined by their geographic locations.

Package	Download Speed	Upload Speed	Monthly Data Caps	Price	Bundled Price	Equipment Fee	Activation Fee (One-Time)
5/10 Plan	5 Mbps	1 Mbps	10 (5/5)	\$49.99/mo	\$39.99/mo	\$10/mo	\$99 / \$0
5/20 Plan	5 Mbps	1 Mbps	20 (10/10)	\$59.99/mo	\$49.99/mo	\$10/mo	\$99 / \$0
10/20 Plan	10 Mbps	1 Mbps	20 (10/10)	\$59.99/mo	\$49.99/mo	\$10/mo	\$99 / \$0
10/30 Plan	10 Mbps	2 Mbps	30 (15/15)	\$79.99/mo	\$69.99/mo	\$10/mo	\$99 / \$0

- Download Speed — How fast data is transferred FROM the Internet, which is the first number in the package name
- Upload Speed — How fast data is transferred TO the Internet
- Monthly Data Caps — How MUCH data can be transferred TO or FROM the Internet each month without restrictions, it is the second number in the package name [e.g., 20 (10/10)]
 - Total data cap — The first number, which is the combination of the Anytime and Bonus data caps
 - Anytime data cap — The first number in the parenthesis
 - Can be used at anytime of the day
 - DISH will send e-mail alerts to customers once they reach 80% of their monthly data cap
 - Customers who use 100% of their data will have their speed throttled back to approximately 128 Kb/s (dial-up speed) until the start of their next billing period
 - When customers reach their monthly data cap, they may purchase a Token to restore their speed and receive additional capacity

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- Bonus data cap — The second number in the parenthesis
 - Can ONLY be used between the hours of 2:00 a.m. and 8:00 a.m. local time
 - If all Bonus data is used for the month, Anytime data is then used
 - This is the perfect time to schedule software updates and downloads
- Token — Provides 3 GB of capacity — \$25 per Token
 - Customers can purchase a Token to restore their speed when they reach their data cap
- Bundled Price — DISH customers can receive a \$10 monthly discount when they subscribe both to dishNET service as well as eligible DISH TV programming — Contact the CSC for details
- Equipment Fee — Customer must lease equipment at a rate of \$10 per month. There is no option to purchase the equipment
- Activation Fee — There is a one-time activation fee of \$99, which is waived if the customer also has DISH TV

Prepare the Installation

The first steps in the SpaceWay installation process are to prepare for the installation by ensuring you have all the necessary equipment and then perform the Site Survey.

Equipment

Modem

Features:

- White plastic case
- Front panel LEDs
 - LAN
 - On – Modem is connected to a computer network card or Ethernet device
 - Off – No device is connected to the LAN port or the connected device is not working
 - Transmit
 - On – Transmit path is operational
 - Blinking – Transmitting data
 - Off – Problem in the transmit path

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- Receive
 - On – Receive path is operational
 - Blinking – Receiving data
 - Off – Problem in the receive path
- System
 - On – Ready to handle user traffic
 - Blinking – In booting or provisioning phase
 - Off – Not ready to service user traffic
- Power
 - On (BLUE) – Modem is functioning normally
 - On (RED) – Modem temperature is too hot
 - If the modem overheats, it will power down
 - When the modem cools, it recovers to operational status
 - Blinking – Modem is not provisioned or has lost configuration data
 - Off – Not receiving power
- Back panel
 - LAN – Standard port to connect to the customer's computer
 - DC IN – Connects to the power supply
 - SAT IN – Connects to the LNB on the TRIA and handles the receive path
 - SAT OUT – Connects to the IFL port on the TRIA and handles the transmit path

Dish Assembly

The same dish assembly is used for Jupiter, SpaceWay, and SurfBeam2 installations. The only difference is the TRIA bracket, which is swapped out for either Jupiter or SpaceWay.

Features:

- 69 x 80 cm reflector
- Two adjustable struts
- 2-inch mast

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TRIA (Transmit and Receive Integrated Assembly)

Features:

- COM – Connects to SAT IN on the modem
- Transmitter – A coax connection is made between the IFL port and SAT OUT on the modem
- Polarizer Waveguide – The "L" or "R" engraving align with the "COM" engraving on the LNB to determine either left or right polarity
- Feed Horn – Filters the high RF satellite signal from the reflector to a lower IF carried by the coax cable to the modem
- Collars – Secures both the Feed Horn and Polarizer Waveguide

DAPT 2 (DiSEqC Antenna Pointing Tool)

The DAPT 2 is necessary to perform installations. The DAPT 2 is inserted inline, near the antenna, and between the modem and the TRIA during pointing and peaking.

Features:

Button 1 – The Back button – Used to return to a previous state or menu.

Button 2 – The Toggle button – Used to toggle between filters, a filter may be used to smooth out the atmospheric effects on Signal Quality Factor (SQF) readings during the pointing and peaking process. Use this if the SQF readings vary significantly during the pointing and peaking process.

Button 3 – The Advance button – Used to enter data, begin a process, proceed to the next state, or respond Yes to prompts.

Squinter

The Squinter is used to fine-point or peak the dish.

The Squinter is placed on the Feed Horn and vertically or horizontally blocks half of the satellite signal. The Squinter is placed in four alternate positions: two for azimuth (vertical) and two for elevation (horizontal).

The drop in signal strength should be the same when the Squinter is used alternately for azimuth and elevation, which ensures the dish is centered in the satellite signal.

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Wireless Router

Connect the modem to a wireless router and then connect wirelessly to the router with your mobile device.

Connecting wirelessly to the router and modem using your mobile device lets you point, peak, and provision the modem without using the customer's computer.

- As a result, you'll have the freedom to move around during the installation
- Having the ability to confirm Internet service through the mobile device helps eliminate the customer's computer, as a potential source of the issue, during troubleshooting

You will connect the modem to the customer's computer once the system is fully pointed and peaked.

Rescue Tape

Rescue Tape creates a moisture barrier around the TRIA cable connections.

Wrap Rescue Tape around the cable connections by stretching and overlapping onto itself.

- When overlapping, cover half of the width of the previous wrap
- Stretch the tape to at least twice its length
- Remove the plastic liner from the tape as you wrap
- Each cable connection wrap should be three to five layers thick
 - This uses approximately 9 inches of tape

Site Survey

The next step in the SpaceWay installation process is to perform a Site Survey. SpaceWay Site Surveys are performed just as DISH Site Surveys are conducted, although there are a few additional requirements and considerations.

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Requirements

- The GPS must be used to determine the exact latitude and longitude coordinates at the antenna mount location
 - Use the Lat/Long app on your mobile device to find the coordinates
 - GPS information must be displayed in degrees, minutes, and fractional minutes
 - Must display fractional minutes to three significant digits
 - Must display cardinal indicators (N,S,E,W)
 - Required format: DD MM.mmm (e.g., N 39° 32.758' W 77° 51.353')
 - Must be accurate to within 15 meters or better
 - Latitude and longitude are used to:
 - Establish the azimuth, elevation, and skew for the installation
 - Determine TRIA polarity
 - Help program the modem and how it transmits data
- The antenna assembly must be mounted:
 - Greater than a height of 5 feet from the bottom lip of the reflector to the ground or surface
 - Away from windows and doorways
- Use normal grounding rules during Site Surveys
- Mounting options can only be:
 1. Direct to Wall
 2. Direct to Brick
 3. Direct to Overhang
 4. Non-Pen
 - If it's a temporary mount solution, it can be installed at ground level
 - Use the same ballast requirements as with 500+/1000+ dishes
 5. Pole (requires the use of the Pole Adapter)
 6. Direct to Roof (requires management approval)



Install the Equipment

After performing the Site Survey, the next step is to install the equipment.

Install Indoor Equipment

- The modem should be near the customer's computer
 - Requires at least 6 inches of clearance around the modem to keep it cool
- Plug the modem and router in to electrical power
- Use an Ethernet cable to connect a wireless router to the modem

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- Connect to the wireless router with your mobile device
 - Shut off mobile data (Sprint, Verizon, etc.) on the mobile device
 - This forces the device to find the wireless connection made between the router and the modem
 - Turn on Wi-Fi detection on the mobile device
 - This allows it to use the wireless connection
- Open an Internet browser

System Control Center

Each HughesNet modem comes with the System Control Center software already installed, which is used in the installation process to point, peak, and provision the modem.

At this stage in the installation, use only the System Control Center to obtain the pointing information, which includes:

- Azimuth
- Elevation
- Skew
- TRIA polarity

To obtain pointing information, follow this process in the System Control Center.

- Navigate to the URL: 192.168.0.1
- Click on the wizard icon in the upper right of the screen
- Enter the site name found on the work order in the Terminal Site Name field
 - The site name is also known as the Site Account Number or SAN
- Select 0949505 from the A code - Satellite Orbital Location (7 Digits) drop-down menu
- Select 0749 from the B code - Antenna Size (4 Digits) drop-down menu
- Select 000103 from the C code - ODU Power (6 Digits) drop-down menu
- Select A from the U code (Satellite ID) drop-down menu
- Enter the GPS coordinates from the mobility device and then click the Submit Installation Parameters button

Use the Azimuth, Elevation, Tilt Angle (skew), and polarization setting in the upper left of the screen in the pointing and peaking portions of the installation.

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Important: If a negative Tilt Angle (skew) is listed, you will have to subtract the number from 90 and use the resulting figure for the dishNET Universal Antenna skew setting.

Example:

- Tilt Angle: -12
- $90 - 12 = 78$
- The skew on the dishNET Universal Antenna is set to 78
 - This is a counter-clockwise rotation of the skew plate



Important: If a positive Tilt Angle (skew) is listed, you will have to add the number to 90 and use the resulting figure for the dishNET Universal Antenna skew setting.

Example:

- Tilt Angle: 12
- $90 + 12 = 102$
- The skew on the dishNET Universal Antenna is set to 102
 - This is a clockwise rotation of the skew plate

This is because the Tilt Angle (skew) setting listed in the System Control Center is intended for a proprietary HughesNet dish assembly.

Install Outdoor Equipment

Once the indoor equipment is installed, it's time to install the outdoor equipment.

Use the SpaceWay Installation Training Aid for the full installation process.



Ensure the COM port connects to the SAT IN on the modem, if you have the connections reversed, you will destroy the TRIA.

Hint: Place a cable tie at each end of the receive cable. This makes it easier to troubleshoot and verify that the cables are connected correctly.

- Create the cable run between the dish location and the modem
 - Requires dual solid-copper RG-6 coaxial cable
 - Length CANNOT exceed 150 feet
 - Length MUST exceed 25 feet
 - Fully terminate the cable before connecting to any equipment!
 - Receive cable – Between the LNB and the SAT IN on the modem
 - Transmit cable – Between the IFL port on the TRIA and SAT OUT on the modem

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- Ensure all connections have 30-inch pounds of torque
 - Connections on the TRIA must also be weatherized with Rescue Tape
- Install the dish assembly beyond the reasonable reach of children
 - Greater than a height of 5 feet from the bottom lip of the reflector to the ground or surface
- Change the TRIA polarity if necessary
- Use normal grounding rules
 - The messenger wire is attached to the ground screw on the Az/El assembly



dishNET Universal Antenna Assembly: Hands-On

Instructions

In teams of two you will practice the assembly of the dishNET Universal Antenna Assembly. This assembly is very similar to the existing DISH 1000.4.

Considerations

- The boom arm's signal absorption tape OR V-channel should face upward
- When assembled, every bolt should include a lock washer, a washer, and a nut
 - The lock washer is positioned closest to the bolt head

Remember: The same dish assembly is used for both Jupiter and SpaceWay installations. The only difference is the TRIA bracket, which is swapped out for either Jupiter or SpaceWay.



Point-and-Peak

You are now ready to point-and-peak the dish.



Remember: The modem is connected to a router, and you are accessing the router wirelessly with your mobile device. You will connect the customer's computer once the dish is pointed, peaked, and the modem is fully provisioned.

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Point

During the pointing of a SpaceWay system, you'll need to:



- Use the DAPT 2 to measure and maximize the Signal Quality Factor (SQF)
 - Installed inline between the modem and TRIA on the receive cable
 - The average signal levels in the U.S. range from an SQF of 160 to 200
 - Important: The SQF must be greater than 145
- Pay attention to the current state code and respond as necessary

State Codes

A state code is a number that indicates the operational state of the satellite modem. State codes are visible in the System Control Center, near the top of the screen.

- State codes 1–20 appear only while the modem is being installed or during a hard reboot
- State codes 21–25 indicate the operational phase
- State codes 26–31 indicate error codes and which corresponding corrective action should be followed
- State codes 32–34 are NOT used by dishNET and should be ignored
- State code 35 indicates the account has been suspended by DISH, usually due to lack of payment

Process

IFL
11.7vdc

DAPT
ver1.4

Logging
VoltMeas

Point S
171< >094

Point L
171< >094

1. Ensure the System Control Center displays the Terminal Pointing Info screen.
2. Verify the DAPT 2 is correctly inline on the receive cable.
 - You will need to use a short jumper cable
3. The DAPT 2 will show the voltage (approx. 11.7 VDC), press Advance (3).
4. The DAPT 2 will display the software version, COMM Startup, and Logging VoltMeas followed by Point.
5. Coarse-point the antenna to the highest SQF for both azimuth and elevation.
 - The number on the left is the highest SQF achieved
 - The number on the right is the current SQF being received
 - If the SQF readings vary significantly during the point-and-peak process, use the Toggle button (2) to smooth out the atmospheric effects on SQF

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Considerations

When the TRIA is active, perform pointing from behind or below the dish assembly.

Peak

One of the main differences in peaking versus pointing a SpaceWay installation is the use of the Squinter.

Remember: The Squinter is placed on the Feed Horn and vertically or horizontally blocks half of the satellite signal. The Squinter is placed alternately in four positions: two for azimuth (vertical) and two for elevation (horizontal).

During the peaking of a SpaceWay system, you need to:

- Use the DAPT 2 to measure and maximize the SQF
- Use the Squinter to ensure the dish is centered in the satellite signal
- Pay attention to the current state code and respond as necessary

Process



Point S
171< >094



Point S
171< >091

1. Place the Squinter on the Feed Horn in either of the two azimuth positions and wait for the SQF reading to settle on a value.
 - Placed to block the left or right hemisphere of the Feed Horn
 - Use the bubble levels on the Squinter to assist in placement
 - Note the current SQF reading
2. Rotate the Squinter 180° on the Feed Horn to the opposite azimuth position and note the SQF reading.
3. Compare the two SQF readings.
 - The readings should be within two to three SQF points of each other
 - Adjust the azimuth and repeat Steps 1–3 until the two azimuth numbers are within two to three SQF points of each other

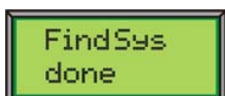


Point S
171< >094



Point S
171< >091

4. Lock down all azimuth bolts.
5. Place the Squinter on the Feed Horn in either of the two elevation positions and wait for the SQF reading to settle on a value.
 - Placed to block the top or bottom hemisphere of the Feed Horn
 - Note the current SQF reading
6. Rotate the Squinter 180° on the Feed Horn to the opposite elevation position and note the SQF reading.
7. Compare the two SQF readings.
 - The readings should be within two to three SQF points of each other
 - Adjust the elevation and repeat Steps 5–7 until the two elevation numbers are within two to three SQF points of each other



FindSys
done

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Center 1 171< > 171
SQNT AZ1 171< >094
WAIT AZ1 171< >094
SQNT AZ2 171< >091
WAIT AZ2 171< >091
AZ Test Pass
SQNT EL1 171< >091
WAIT EL1 171< >094
SQNT EL2 171< >094
WAIT EL2 171< >091
EL Test Pass
STORE Results?
StoreYes Adv=Yes
Pointing Exit?
Pointing done

8. Lock down all elevation bolts and nuts.
9. Remove the Squinter and press Advance (3).
 - Find Sys Status 0 should appear and change to FindSys done within two minutes
10. Press Advance (3) to display Center 1.
 - This records the center SQF value
11. Press Advance (3) to display SQNT AZ1.
12. Place the Squinter on the Feed Horn in either of the two azimuth positions and press Advance (3).
 - The DAPT 2 displays WAIT AZ1 and will then auto-advance to SQNT AZ2
13. Rotate the Squinter 180° on the Feed Horn to the opposite azimuth position and press Advance (3).
 - The DAPT 2 displays WAIT AZ2 and will then auto-advance to AZ Test Pass
14. Press Advance (3) to display SQNT EL1.
15. Place the Squinter on the Feed Horn in either of the two elevation positions and press Advance (3).
 - The DAPT 2 displays WAIT EL1 and will then auto-advance to SQNT EL2
16. Rotate the Squinter 180° on the Feed Horn to the opposite elevation position and press Advance (3).
 - The DAPT 2 displays WAIT EL2 and will then auto-advance to EL Test Pass
17. Remove the Squinter and press Advance (3) to display Center 2.
 - This records the center SQF value
18. Press Advance (3) to display STORE Results.
19. Press Advance (3) to display StoreYes Adv=Yes.
20. Press Advance (3) to display Pointing Exit.
21. Press Advance (3) to indicate Yes and complete the pointing process.
 - Pointing done will display for approximately 10 seconds and then change to show the voltage indicating that the pointing process has finished
22. Wait for the System Control Center to display state code 25.
 - Clean up the work area or start Customer Education while you wait
 - The modem is now ready to be provisioned
 - Leave the DAPT 2 inline on the receive cable at this time

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Considerations

- When the TRIA is active, perform peaking from behind or below the dish assembly
- If the satellite signal is fully blocked for 10 seconds during peaking, you will need to revert to pointing by pressing Back (1) on the DAPT 2



Point-and-Peak Activity

Instructions

In teams of two you will take turns and practice pointing and peaking a SpaceWay system.

Considerations

- Use DISHTraining for the Terminal Site Name
- Use the GPS App on the mobile device to obtain latitude and longitude coordinates



Provisioning

Once the SpaceWay system has been fully pointed and peaked, you are ready to provision — activate — the modem. A provisioned modem indicates that customers are able to access and browse the Internet.

Provisioning Process

To provision the modem, follow this process in the System Control Center.

- Open an Internet browser and navigate to the URL: 192.168.0.1
- Click the "Activate - On customer's computer" link
- Using the information on the work order, enter the SAN and PIN
 - The PIN is the last four digits of the customer's phone number on their account
- Click Continue
- Again, click Continue
- This will redirect you to the www.dish.net landing page

The www.dish.net landing page indicates that the modem has full access to the Internet. Disconnect the wireless router and connect the SpaceWay modem directly to the customer's computer.

Refer the customer to their PC support if their computer does not access the Internet.

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Hint: Since you verified Internet access from the mobile device, if the customer's computer will not connect, the issue is with the computer and not the modem.

Finishing the Installation

- Remove the DAPT 2 and jumper cable from the receive cable
 - Unplug the modem from AC power before doing this
- Close the work order
- Complete Customer Education
- If the customer has DISH video service, ensure that their receiver has connectivity

dishNET Powered by HughesNet: Jupiter

Agenda

- Prepare the Installation
- Install the Equipment
- Point-and-Peak
- Provisioning



Prepare the Installation

The first steps in the Jupiter installation process are to prepare for the installation by ensuring you have all the necessary equipment, and then perform the Site Survey.

dishNET Powered by HughesNet: Jupiter

Equipment

Modem

Features:

- Dark gray plastic case
- Front panel LEDs
 - LAN
 - On – Modem is connected to a computer network card or Ethernet device
 - Blinking – Transmitting and/or receiving data
 - Off – No device is connected to the LAN port or the connected device is not working
 - Transmit
 - On – Transmit path is operational
 - Blinking – Transmitting data
 - Off – Problem in the transmit path
 - Receive
 - On – Receive path is operational
 - Blinking – Receiving data
 - Off – Problem in the receive path
 - System
 - On – Ready to handle user traffic
 - Blinking – Virus protection blocking data
 - Off – Not ready to service user traffic
 - Power
 - On (BLUE) – Modem is functioning normally
 - On (RED) – Modem temperature is too hot
 - If the modem overheats, it will power down
 - When the modem cools, it recovers to operational status
 - Blinking – Modem is not provisioned or has lost configuration data
 - Off – Not receiving power
- Back panel
 - LAN – Standard port to connect to the customer's computer
 - DC IN – Connects to the power supply
 - SAT – Connects to the TRIA and handles the transmit and receive paths

Dish Assembly

The same dish assembly is used for both Jupiter and SpaceWay installations. The only difference is the TRIA bracket, which is swapped out depending on whether it is a Jupiter or SpaceWay installation.

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TRIA

Features:

- The "L" or "R" engravings align with the engraved arrows on the Feed Horn to determine either left or right polarity
- Feed Horn – Filters the high RF satellite signal from the reflector to a lower IF carried by the coax cable to the modem
 - Requires a 3 mm hex-head wrench to change polarity

DAPT 2

The same DAPT 2 is used for both Jupiter and SpaceWay installations. The differences are that with Jupiter, there is no Squinting process and there is only one cable line.

Wireless Router

The same wireless router is used for both Jupiter and SpaceWay installations.

Site Survey

The next step in the Jupiter installation process is to perform a Site Survey. Jupiter Site Surveys are performed just as SpaceWay Site Surveys are conducted.



Install the Equipment

After performing the Site Survey, the next step is to install the equipment.

Install Indoor Equipment

Install the indoor equipment following the same considerations and guidelines as with SpaceWay installations.

System Control Center


Remember, each modem comes with the System Control Center software installed.

dishNET Powered by HughesNet: Jupiter

At this stage in the installation, you only use the System Control Center to obtain the pointing information, which includes:

- Azimuth
- Elevation
- Skew
- TRIA polarity

To obtain pointing information, follow this process in the System Control Center.

- Navigate to the URL: 192.168.0.1
- Click on the  icon in the upper right of the screen
- Expand Installation and click Install, which is on the left side of the screen
- Enter the GPS coordinates from the mobility device
- Select EchoStar-XVII from the Satellite drop-down menu
- Click Submit

Notice that you do not need the SAN as you would on SpaceWay installations to get pointing information.

Use the Azimuth, Elevation, Tilt Angle (skew), and polarization setting displayed in the upper left of the screen during the point-and-peak portion of the installation.



Important: If a negative Tilt Angle (skew) is listed, you will have to subtract the number from 90 and use the resulting figure for the dishNET Universal Antenna skew setting.

Important: If a positive Tilt Angle (skew) is listed, you will have to add the number to 90 and use the resulting figure for the dishNET Universal Antenna skew setting.

This is the same process used with SpaceWay installations.

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Install Outdoor Equipment



Once the indoor equipment is installed, it's time to install the outdoor equipment.

Use the Jupiter Installation Training Aid for the full installation process.

- Create the cable run between the dish location and the modem
 - Requires solid-copper RG-6 coaxial cable
 - Length CANNOT exceed 150 feet
 - Length MUST exceed 25 feet
 - Fully terminate the cable before connecting to any equipment!
 - Ensure all connections have 30-inch pounds of torque
- Install the dish assembly beyond the of reasonable reach of children
 - Greater than a height of 5 feet from the bottom lip of the reflector to the ground or surface
- Change the TRIA polarity if necessary
- Use normal grounding rules
 - The messenger wire is attached to the ground screw on the Az/El assembly



dishNET Universal Antenna Assembly: Hands-On

Instructions

The same dish assembly is used for both Jupiter and SpaceWay installations. The only difference is the TRIA bracket, which is swapped out depending on whether it is a Jupiter or SpaceWay installation.



Point-and-Peak

You are now ready to point-and-peak the dish.



Remember: The modem is connected to a router, and you are accessing the router wirelessly with your mobile device. You will connect the customer's computer once the dish is pointed, peaked, and the modem is fully provisioned.

During the pointing and peaking of a Jupiter system, you need to:

- Use the DAPT 2 to measure and maximize the Signal Quality Factor (SQF)
 - Installed inline between the modem and TRIA
 - The average signal levels in the U.S. range from an SQF of 160–200
 - Important: The SQF must be greater than 120



dishNET Powered by HughesNet: Jupiter

Process



1. Ensure the System Control Center displays the Pointing screen.
2. Verify the DAPT 2 is correctly inline on the cable.
 - You will need to use a short jumper cable
3. The DAPT 2 will show the voltage (48 VDC), press Advance (3).
4. The DAPT 2 will display the software version, COMM Startup, Logging VoltMeas followed by Logging Done, press Advance (3).
5. Coarse-point the antenna to the highest SQF for both azimuth and elevation.
 - The number on the left is the highest SQF achieved
 - The number on the right is the current SQF being received
 - If the SQF readings vary significantly during the point-and-peak process, use the Toggle button (2) to smooth out the atmospheric effects on SQF
6. Fine-point the antenna to the highest SQF for both azimuth and elevation.
 - Tighten the coarse pointing bolts
 - Use the fine adjustment azimuth and elevation bolts and nuts to peak the dish
7. Lock down all azimuth and elevation bolts and nuts.
8. Press Advance (3) to display STORE Results.
9. Press Advance (3) to display StoreYes Adv=Yes.
10. Press Advance (3) to display Pointing Exit.
11. Press Toggle (2) to exit pointing.
12. From the System Control Center, click Next.
 - Wait for Ranging, Registration, Associating with Network, and Configuration to complete
 - Onsite Validation Tool and Terminal Activation links will then appear

Considerations

- When the TRIA is active, perform pointing and peaking from behind or below the dish assembly
- If the satellite signal is fully blocked for 10 seconds during peaking, you will need to revert to pointing by pressing Back (1) on the DAPT 2



dishNET Powered by HughesNet: Jupiter



Point-and-Peak Activity

Instructions

In teams of two you will take turns to practice pointing and peaking a Jupiter system.

Considerations

- Use the GPS App on the mobile device to obtain latitude and longitude coordinates
- The Jupiter Installation Training Aid can be used during this activity



Provisioning

Once the Jupiter system has been fully pointed and peaked, you are ready to provision — or activate — the modem.

Provisioning Process

To provision the modem, follow this process in the System Control Center.

- Ensure the System Control Center displays Registration
- Click Terminal Activation
- Using the information on the work order, enter the SAN and PIN
 - The PIN is the last four digits of the customer's phone number on their account
- Click Continue
- Click Confirm
- The Terminal Activation Successful screen displays
- Open a new browser and navigate to the HSCC (192.168.0.1)
- Click Service_Activation on the left side of the screen
- After a few minutes the browser will indicate that the service is activated

Browse to the www.dish.net landing page.

The www.dish.net landing page indicates that the modem has full access to the Internet. Disconnect the wireless router and connect the Jupiter modem directly to the customer's computer.

Refer the customer to their PC support if their computer does not access the Internet.



Remember: Since you verified Internet access from the mobile device, if the customer's computer will not connect, the issue is with the computer and not the modem.

dishNET Powered by HughesNet: Jupiter

Finishing the Installation

- Remove the DAPT 2 and jumper cable from the system
 - Unplug the modem from AC power before doing this
- Close the work order
- Complete Customer Education
- If the customer has DISH video service, ensure that their receiver has connectivity

dishNET Powered by ViaSat: SurfBeam2

Remember that dishNET includes high-speed Internet supplied by both HughesNet and ViaSat. This section will cover installation and troubleshooting for ViaSat: SurfBeam2 (SB2) systems. SurfBeam2 may also be referred to as excede and used DOCSIS protocol to transmit data.

After completing all ViaSat sections, you will be required to take and successfully pass the Installer Certification Exam. Once you've passed the exam, you will be issued a ViaSat Installer ID.

Do not lose your Installer ID and NEVER share it with other technicians.

- A valid and current Installer ID is required to complete any ViaSat work
- You could be held liable for others' work or potential errors if you share your ID

Agenda

- Prepare the Installation
- Install the Equipment
- Point-and-Peak
- Provisioning
- Support Portal



Prepare the Installation

The first steps in the SB2 installation process are to prepare for the installation by ensuring you have all the necessary equipment, and then perform the Site Survey.

Equipment

Modem

Features:

- Black plastic case
- Front panel LEDs (Blue)
 - Power
 - On – Modem is functioning normally
 - Off – Not receiving power
 - RX
 - On – Receive path is operational
 - Flashing – Receiving data
 - Off – Problem in the receive path
 - TX
 - On – Transmit path is operational
 - Flashing – Transmitting data
 - Off – Problem in the transmit path
 - LAN
 - On – Modem is connected to a computer network card or Ethernet device
 - Off – No device is connected to the LAN port or the connected device is not working
- Back panel
 - Power connection – Connects to the power supply
 - USB – Used for factory maintenance
 - LAN – Standard port to connect to the customer's computer
 - RX/TX 1 IFL – Connects to the TRIA and handles the transmit and receive paths
- Can be installed vertically or horizontally

dishNET Powered by ViaSat: SurfBeam2

Dish Assembly

There are two dish assemblies available for SB2. The first assembly is the same universal assembly used for Jupiter and SpaceWay. The only difference is the TRIA bracket, which is swapped out with the appropriate TRIA. The second assembly is a proprietary SB2 antenna assembly.

TRIA (Transmit and Receive Integrated Assembly)

Features:

- Tx IFL port – Connects to the RX/TX 1 IFL port on the modem
- Rx IFL port – Connect a 75 Ohm Terminator to this port
 - This may already be capped at the manufacturer
- TRIA Polarity – Filters the high RF satellite signal from the reflector to a lower IF carried by the coax cable to the modem
 - TRIA polarity does NOT need to be set to left or right

Wireless Router

The same wireless router is used for all dishNET installations.

Inclinometer Bracket

The inclinometer bracket is placed over the boom arms to provide a level surface on which to place the inclinometer during the Point Elevation and Skew process.

Site Survey

The next step in the SB2 installation process is to perform a Site Survey. SB2 Site Surveys are performed just as SpaceWay and Jupiter Site Surveys are conducted, with the exception that GPS coordinates are not used.



Install the Equipment

After performing the Site Survey, the next step is to install the equipment. ViaSat installations require a slightly different process than HughesNet installations.

dishNET Powered by ViaSat: SurfBeam2



Install Outdoor Equipment

Use the SB2 Installation Training Aid for the full installation process.

- Assemble the dish
 - Set the Skew to 90
 - Turn the Fine Azimuth adjustment nut until the front-right bolt is centered in its slot
 - Serious damage can occur if the proper bolts are not loosened (reference the SB2 Installation Training Aid)
 - This slot has 3° of adjustment
 - Set the Elevation (reference the work order)
- Create the cable run between the dish location and the modem
 - Requires single solid-copper RG-6 coaxial cable
 - The cable between the modem and the TRIA CANNOT exceed 150 feet!
 - This cable MUST exceed 25 feet
 - Fully terminate the cable before connecting to any equipment
 - Ensure all connections have 30-inch pounds of torque
- Install the dish assembly beyond the reasonable reach of children
 - Greater than a height of 5 feet from the bottom lip of the reflector to the ground or surface
- Use normal grounding rules
 - Do NOT use the ground screw on the TRIA



SB2 Antenna Assembly: Hands-On

Instructions

In teams of two you will practice the assembly of the SB2 Antenna Assembly. Use the SB2 Installation Training Aid to guide you through the activity.

dishNET Powered by ViaSat: SurfBeam2

Install Indoor Equipment

- The modem should be near the customer's computer
 - Requires at least 1 inch of clearance around the modem and power supply to keep them both cool
 - Requires 3-3/4 inch of clearance in the back for proper cabling
- Plug in the modem and router in to electrical power
- Use an Ethernet cable to connect a wireless router to the modem
- Connect to the wireless router with your mobile device
 - Shut off mobile data (Sprint, Verizon, etc.) on the mobile device
 - This forces it to find the wireless connection made between the router and the modem
 - Turn on Wi-Fi detection on the mobile device
 - This allows it to use the wireless connection
- Open an Internet browser

Modem Browser Interface

Each ViaSat modem comes with the Modem Browser Interface (MBI) software already installed, which is used in the installation process to point-and-peak.

To access the MBI, navigate to 192.168.100.1/install.

On the Installation Configuration screen, enter the 16-digit Modem Key found on the work order.

- The Modem Key tells the modem everything it needs to be installed, including orbital location, polarization, and frequency set

Tap the large forward arrow in the lower right corner of the screen.

- Do NOT press Enter, as this makes the modem leave the Installation mode

The Installation Configuration screen changes.

- The RX and LAN LEDs on the modem should be flashing
- The TRIA should be emitting the "heartbeat" tone

dishNET Powered by ViaSat: SurfBeam2



Point-and-Peak

You are now ready to point-and-peak the dish.

The SB2 TRIA uses a series of tones during the point-and-peak process. It is critical that you recognize and interpret what each of these tones indicates, as this is the **ONLY** way to point-and-peak an SB2 dish.



If you connect a SBSM to an SB2 system, you will destroy the SBSM.

SB2 TRIA Tones

Heartbeat – Indicates the TRIA is receiving power from the modem, but is not pointed at a satellite it recognizes. This sound is emitted when the antenna is pointed outside of the beam's frequency range for the beam assigned by the Modem Key.

Ring-ring/Single short beep – Defines the "edge" of the beam and is emitted when entering the beam from either side. The single short beep tone is a confirmation that the antenna has found the assigned satellite. This tone occurs just after the "ring-ring" tone at the edge of the satellite beam.

Low/slow AND High/fast – This set of tones changes as the modem learns the frequencies. The closer the frequencies are to matching the frequencies assigned by the Modem Key, the higher and faster the tone. This allows you to know that you are approaching the "edge" (low/slow) or the center (high/fast) of the beam.

High/steady – Indicates the center of the currently known frequency set. You should not stop on this tone unless you are on the third required sweep.

Beep-Bop – Indicates two modem states: First, the TRIA located a satellite with Ka-band frequencies that is not recognized, and second, the modem was reset during the point-and-peak process.

dishNET Powered by ViaSat: SurfBeam2

Point Elevation and Skew

- Slightly loosen the elevation bolts in the arched slots
- Loosen the top nut on the elevation rod
- Place the inclinometer bracket over the boom arms
- Set the inclinometer on top of the inclinometer bracket
- Adjust the bottom nut on the elevation rod until the inclinometer reading matches the boom arm angle (reference the work order)
 - Proprietary dish assembly — The boom arm angle can be determined by subtracting 19.4 from the elevation
 - Universal dish assembly — The boom arm angle can be determined by subtracting 21.2 from the elevation
- Set the Skew (reference the work order)

The SB2 modem must learn its frequency set. This happens when you sweep the antenna three times each for Point Azimuth, Peak Azimuth, and Peak Elevation.

Point Azimuth

- Ensure the dish is NOT pointed at the orbital location (TRIA is emitting the "heartbeat" tone)
- Sweep the dish towards the orbital location until the TRIA emits the "ring -ring" tone
 - The "ring-ring" tone will be immediately followed by a single beep
 - This single beep indicates the correct satellite was found
 - The single beep will be followed immediately by the "low/slow" tone
- Continue to sweep the same direction until the TRIA emits the "heartbeat" tone
 - The following pattern of tones indicates the dish is being swept through the satellite signal:
 - Low/slow
 - High/fast (only heard if the sweep is done slowly)
 - High/steady
 - High/fast (only heard if the sweep is done slowly)
 - Low/slow
 - Heartbeat
 - This completes the first of the three required sweeps to lock the modem into the beam

dishNET Powered by ViaSat: SurfBeam2

- Sweep the opposite direction, the following pattern of tones indicates the second of the three required sweeps is complete
 - Ring-ring (followed by a single beep)
 - Low/slow
 - High/fast (only heard if the sweep is done slowly)
 - High/steady
 - High/fast (only heard if the sweep is done slowly)
 - Low/slow
 - Heartbeat
- Reverse the sweep until the TRIA continually emits the "high/steady" tone
 - This completes the third required sweep
- Tighten the three collar nuts on the mast (top to bottom)
 - If the "high/steady" tone is lost, adjust the bottom nut on the elevation rod to regain the "high/steady" tone

Peak Azimuth

- Loosen the three bolts on the bottom of the Az/El Assembly
 - Do NOT loosen the two bolts on the back of the Az/El Assembly, as they support the Fine Azimuth adjustment mechanism
- Using the Fine Azimuth adjustment nut, sweep the dish one direction until the TRIA emits the "low/slow" tone
 - The tone will cycle from "high/steady" to "high/fast" to "low/slow"
- Using the Fine Azimuth adjustment nut, sweep the dish in the opposite direction until the TRIA emits the "low/slow" tone
- The tone will cycle from "low/slow" to "high/fast" to "high/steady" to "high/fast" to "low/slow"
- Using the Fine Azimuth adjustment nut, reverse the sweep until the TRIA continually emits the "high/steady" tone
 - The tone will cycle from "low/slow" to "high/fast" to "high/steady"
- Tighten the three bolts on the bottom of the Az/El Assembly
 - If the "high/steady" tone is lost, re-peak the Azimuth

Peak Elevation

- Using the bottom nut on the elevation rod, sweep the dish in one direction until the TRIA emits the "low/slow" tone
 - The tone will cycle from "high/steady" to "high/fast" to "low/slow"
- Using the bottom nut on the elevation rod, sweep the dish in the opposite direction until the TRIA emits the "low/slow" tone
 - The tone will cycle from "low/slow" to "high/fast" to "high/steady" to "high/fast" to "low/slow"

dishNET Powered by ViaSat: SurfBeam2

- Using the bottom nut on the elevation rod, reverse the sweep until the TRIA continually emits the "high/steady" tone
 - The tone will cycle from "low/slow" to "high/fast" to "high/steady"
- Tighten all hardware on the Az/EI Assembly
 - If the "high/steady" tone is lost, re-peak the Elevation

Push/Pull Test

- From behind the Az/EI Assembly, gently push and pull the top, bottom, left side, and right side of the reflector
 - The "high/steady" tone should drop every time pressure is applied and return once pressure is released
 - If the tone rises, re-peak the dish
 - If the "high/steady" tone does not return when pressure is released, re-point and re-peak the dish

Modem Lock

Modem Lock provides several things:

- It establishes the bidirectional connection with the satellite, the NOC, and, on a provisioned modem, the Internet
- It saves the "last known good frequency" set so the modem connects quickly to the satellite
 - The Satellite Segment frequency that is accepted by the SMTS/NOC becomes the "last known good frequency"
- It downloads any software updates

To perform Modem Lock:

- In the MBI, confirm that a green checkmark appears in the last box
 - If not, return to the antenna and perform the Push/Pull Test
- Click the large forward arrow in the lower right corner of the screen
- Watch the modem LEDs
 - Modem Lock occurs when all four LEDs are solid
 - This is a momentary display of the LEDs and is easy to miss

dishNET Powered by ViaSat: SurfBeam2

Using MBI during Modem Lock

- From the Installation Configuration screen, click the forward arrow
 - This changes the MBI to the Basic Status page, which is used to check if the modem is currently online and monitor Modem Lock progression
 - The Basic Status page can also be seen by navigating to 192.168.100.1
- Click Modem or the modem icon on the left side of the screen
- Four Modem Lock progress indicators appear at the top of the screen



- Forward Link Acquisition



- Return Link Acquisition



- Network Entry / DHCP Acquisition



- Online / Software Download



- If Undefined displays, wait and allow Modem Lock to continue

- The Modem Lock progress indicators will change in color
 - Gray – Pending step
 - Yellow – Incomplete step
 - Green – Complete step
- Rx Power displays in the General section
 - Should exceed 60 dBm – Directly correlates to pointing of the dish
- Cable Resistance displays in the General section
 - CANNOT exceed 4.5 Ohms

Point-and-Peak Reset (If Necessary)

- If you need to restart the point-and-peak process:
 - Block the TRIA for 20 seconds
 - Hold the inclinometer bracket against the Feed Horn to do this
- Ensure the dish is NOT pointed at the orbital location

dishNET Powered by ViaSat: SurfBeam2



Point-and-Peak Activity

Instructions

In teams of two you will take turns to practice pointing and peaking a SB2 system.

Considerations

- The SB2 Installation Training Aid can be used during this activity
- The TRIA will continually emit the 'high/steady' tone at the end of the activity



Provisioning

Once the SB2 system has been fully pointed and peaked, you are ready to provision — or activate — the modem.

Provisioning Process

To provision the modem, follow this process.

- Restart the SB2 modem
- Open a new Web browser
 - The Provisioning Portal should load automatically
 - If it does not, navigate to 192.168.100.1/install
- Enter the Customer Code and tap Continue (reference the work order)
- On the Customer Confirmation screen, enter your Installer ID and tap Confirm
- The Quality Of Install (QOI) page displays
 - The QOI test can take up to one minute to complete
 - When the QOI test completes:
 - If QOI passes, tap Next
 - If QOI fails, fix anything indicated and run QOI again by tapping Run QOI
 - If QOI is unavailable, advance provisioning by tapping Continue
- The Service Activated page displays
 - The modem will automatically reboot
 - Verify the modem resumes normal operation

Browse to the www.dish.net landing page

The www.dish.net landing page indicates that the modem has full access to the Internet. Disconnect the wireless router and connect the SB2 modem directly to the customer's computer.

dishNET Powered by ViaSat: SurfBeam2

Refer the customer to their PC support if their computer does not access the Internet.



Remember: Since you verified Internet access from the mobile device, if the customer's computer will not connect, the issue is with the computer and not the modem.

Finishing the Installation

- Close the work order
- Complete Customer Education
- If the customer has DISH video service, ensure that their receiver has connectivity



Support Portal

The Support Portal supports all aspects of ViaSat of SB1 and SB2 installations; however, you will primarily use it during Trouble Calls.

Login and Access

To access the Support Portal, navigate to: <https://portal.wildblue.net>

Use your ViaSat Installer ID as the login.

When your first access to the Support Portal is granted, the temporary password is set to *WildBlue1*.

- You will need to change the password
- You will be prompted to update the password every 90 days

Home Tab

The Home tab displays four areas: Outage Board, Notice Portlet, Home Page Search, and Calendar.

Outage Board – Provides notices about outages on the ViaSat network. Until a customer is selected, the portlet displays all network outage information. After a customer is selected, it only displays outages that apply to that customer.

Notice Portlet – Displays messages directed at the group to which the user belongs (e.g. Installers, Customer Care, or Dealers). Messages can include information about new products, updates, or installation procedures.

dishNET Powered by ViaSat: SurfBeam2

Home Page Search – Installers should search using the modem's MAC Address, contact telephone number, or account number. The customer account selected in this search populates the fields on the SVT tab. Always change the System drop-down menu to Partner.

Calendar – Displays important scheduled network events. When the Calendar item is opened, it will show if a certain event will affect ViaSat service and the area to be affected. These messages include Planned Network Outages and Network Testing dates.

SVT Tab

The Service Visibility Tool (SVT) tab of the Support Portal allows access to a customer's account information, along with service and modem status information.

SVT is used to:

- Perform troubleshooting
- Check the service quality of installations
- Provisioning data may be found here
 - SurfBeam2 uses the Conexon Provisioning Info column
 - SurfBeam uses the Volubill Provisioning Info column



Important: After completing ViaSat installations, check the SVT tab to ensure a quality installation.

These four SVT fields are used to troubleshoot poor performing ViaSat systems.

1. Downstream Signal-to-Noise (DSSNR) – Associated with pointing issues
2. Downstream Channel Power (DSRXPWR) – Associated with cable length
3. Upstream Transmit Power (USTXPWR) – Associated with cable issues
4. Upstream Signal-to-Noise (USSNR) – Associated with pointing issues

Installation Quality – Used during Trouble Calls. All other SVT values must be green before troubleshooting this field. It can take up to five days before this field reflects a status change. If this field is blue, the value is unavailable.

QuickFlash Tab

This area contains all the customer account, product, and trouble-ticketing information, and also displays information used for new installations.

dishNET Powered by ViaSat: SurfBeam2

Tools Tab

- Basic Sub-Tab – Enter an address to determine service availability
- Orbital location, point-and-peak information, polarization, Modem Keys, and beam assignments display after searching an address
- LMS Sub-Tab – The ViaSat LMS – Access the certification exam [here](#)

Field Support Tab

The Field Support tab provides access to online information and tools. Be aware that the content on this tab is created solely by ViaSat and will not reflect dishNET processes.

Troubleshooting

To troubleshoot any ViaSat system, use the ViaSat: Trouble Isolation Training Aid.

The ViaSat: Trouble Isolation Training Aid is separated into two sections:

- Modem Offline Matrix
 - Numerical steps and applicable tests to perform in order to resolve issues in which modems are offline or cannot access the Internet at all
- Poor Performing Installation Matrix
 - Prioritized chart (it should be read from left to right, top to bottom) – The four SVT fields that display either a green checkmark or a red X
 - Includes Possible Issues and Repair Tests to perform in order to resolve the issue

Example 1:

The DSSNR is red, and the DSRXPWR, USTXPWR, and USSNR are green – Perform the troubleshooting listed in the first row under Possible Issues with the Repair Tests.

Example 2:

The DSSNR and USTXPWR are red, and the DSRXPWR and USSNR are green – Perform the troubleshooting listed in the first row under Possible Issues with the Repair Tests. If the USTXPWR is still red after resolving the DSSNR, perform the troubleshooting listed in the third row.

dishNET Powered by ViaSat: SurfBeam2

Modem Troubleshooting

- The modem powers on without any IFL cables connected, but not with the IFL cables connected – Indication of a cable short – Replace the cable
- Modem continually reboots without achieving Modem Lock – Customer's computer probably has a virus – Refer the customer to their PC support
- All modem and TRIA swaps should be called into the Broadband Help Desk
 - This is so the serial numbers can be properly captured and recorded

dishNET Powered by ViaSat: SurfBeam1

This section will cover ViaSat: SurfBeam1 (SB1) systems and responsibilities. SurfBeam1 may also be referred to as WildBlue and uses WiMax protocol to transmit data.

Remember, you will be required to take the Installer Certification Exam after completing all ViaSat sections and when you pass the exam you will be issued a ViaSat Installer ID. A valid and current Installer ID is required to complete any ViaSat work.

As DISH installers, we do NOT install new SB1 systems; however, we do service existing installations. This section covers more than what will normally be required for an individual SB1 Service Call.

Agenda

- SB1 Equipment
- Point-and-Peak
- Modem Swaps
- Closing

dishNET Powered by ViaSat: SurfBeam1



SB1 Equipment

Modem

Features:

- Blue plastic case
- Front panel LEDs (Green)
 - Power
 - On – Modem is functioning normally
 - Off – Not receiving power
 - Receive
 - On – Receive path is operational
 - Flashing – Receiving data
 - Off – Problem in the receive path
 - Transmit
 - On – Transmit path is operational
 - Flashing – Transmitting data
 - Off – Problem in the transmit path
 - LAN
 - On – Modem is connected to a computer network card or Ethernet device
 - Off – No device is connected to the LAN port or the connected device is not working
- Back panel
 - Power connection – Connects to the power supply
 - USB – Used for factory maintenance
 - LAN – Standard port to connect to the customer's computer
 - Receive (RX) – Connects to the RX port on the TRIA and handles the receive path
 - Transmit (TX) – Connects to the TX port on the TRIA and handles the transmit path
- Can be installed vertically or horizontally

Dish Assembly

Features:

- Two struts
- Sub-reflector
- 2-inch mast

dishNET Powered by ViaSat: SurfBeam1

TRIA (Transmit and Receive Integrated Assembly)

There are both Left- and Right-polarized TRIAs available for SB1 installations, therefore, it is critical that the correctly polarized TRIA is installed.

Features:

- Filters the high RF satellite signal from the reflector to a lower IF carried by the coax cable to the modem
- The "RX" engraving and coax connection where the Receive cable connects from the modem
- The "TX" engraving and coax connection where the Transmit cable connects from the modem



SB1 Antenna Assembly: Hands-On

Instructions

In teams of two you will practice the assembly of the SB1 Antenna Assembly. Use the SB1 Installation Training Aid to guide you through the activity.



Point-and-Peak

When servicing SB1 installations, it may be necessary to point-and-peak the dish.

Pointing and peaking an SB1 system is very similar to video installations, including the use of the Super Buddy Satellite Meter (SBSM).

Pre-Pointing Adjustments

- Loosen the three bolts on the bottom of the Az/EI Assembly
- Align the Fine Azimuth/Fine Adjust cam with the notch on the assembly
- Tighten the three bolts on the bottom of the Az/EI Assembly
- Set the Elevation (reference the work order)

dishNET Powered by ViaSat: SurfBeam1

Super Buddy Satellite Meter (SBSM) Setup

- Push the SYST soft-key
- Arrow up and select the appropriate region of the installation
- Select Other Providers from the Select Service menu
- Select WildBlue from the Select System menu
- Choose the correct satellite from the Select LNB menu (reference the work order)
 - Anik F2
 - WildBlue 1 (WB1)
 - AMC-15
- Ensure SWITCH TYPE is set to None
- Select DONE
- Push the ZIP soft-key
- Enter the Zip Code of the installation
- Select the EXIT soft-key

Point Elevation and Skew

- Slightly loosen the elevation bolts in the arched slots
- Loosen the top nut on the elevation rod
- Set the inclinometer on top of one of the boom arms
- Adjust the bottom nut on the elevation rod until the inclinometer reading matches the boom arm angle (reference the work order)
 - The boom arm angle can also be determined by subtracting 17.6 from the elevation
 - Hand-tighten the nuts on the elevation rod
- Set the Skew (reference the work order)

dishNET Powered by ViaSat: SurfBeam1

Point-and-Peak Azimuth and Elevation

- Connect the Transmit cable to the TX port on the TRIA
 - This provides power to the TRIA
- Connect a solid-copper dual/single messenger RG-6 jumper between the SBSM and the RX port on the TRIA
 - If you connect the SBSM to the TX port on the TRIA, you will destroy the SBSM
- Coarse-point the antenna to the highest signal level for both azimuth and elevation
 - Tighten the three collar nuts on the mast (from top to bottom)
- Fine-point the antenna to the highest signal level for azimuth
 - Loosen the three bolts on the bottom of the Az/EI Assembly
 - Use the Fine Azimuth/Fine Adjust cam on the bottom of the Az/EI Assembly
 - Only rotate the cam clockwise (in a tightening motion);
NEVER counter-clockwise
- Tighten the three bolts on the bottom of the Az/EI Assembly
- Fine-point the antenna to the highest signal level for elevation
 - Slightly loosen the elevation bolts in the arched slots
 - Loosen the top nut on the elevation rod
 - Adjust the bottom nut on the elevation rod
 - Tighten all hardware on the Az/EI Assembly

Push/Pull Test

- From behind the Az/EI Assembly, gently push and pull the top, bottom, left side, and right side of the reflector
- The signal level should drop every time pressure is applied and return when pressure is released
 - If the signal level rises, re-peak the dish
 - If the signal level does not return when pressure is released, re-point and re-peak the dish
 - Remove the solid-copper dual/single messenger RG-6 jumper and SBSM from the system
- Connect the Receive cable to the RX port on the TRIA

dishNET Powered by ViaSat: SurfBeam1



Point-and-Peak Activity

Instructions

In teams of two, you will take turns practicing pointing and peaking an SB1 system.

Considerations

- The SB1 Installation Training Aid can be used during this activity



Modem Swaps

When servicing SB1 installations, it may be necessary to perform a modem swap. When swapping modems, remember to contact the Broadband Help Desk first.

Cabling and Modem Lock

- Shut down (power off) the computer that is connected to the existing modem
- Unplug the existing modem power supply from the power source
- Disconnect the Transmit cable from the TX port on the existing modem
- Disconnect the Receive cable from the RX port on the existing modem
- Connect the Transmit cable to the TX port on the replacement modem
- Connect the Receive cable to the RX port on the replacement modem
- Unplug the Ethernet cable from the existing modem
 - Do NOT connect the Ethernet cable to the replacement modem at this time
- Plug the replacement modem power supply in to the power source
- The replacement modem will boot up and obtain Modem Lock
 - The PWR light will come on and remain solid
 - The RX light will start blinking
 - Modem Lock occurs when the RX light remains solid

Provisioning Replacement Modems

- Connect the Ethernet cable to the replacement modem
- Restart (power on) the computer that is connected to the replacement modem
- Open a new Web browser (from the customer's computer)
 - The Provisioning Portal should automatically load
 - If it does not, navigate to activate.wildblue.com
- On the Service Activation Welcome page, click the Click here to Continue button

dishNET Powered by ViaSat: SurfBeam1

- On the 1. Login page:
 - Enter the account's primary e-mail address in the User ID field (provided by the customer)
 - If the customer cannot provide this, contact Broadband Help Desk
 - Enter the e-mail account password in the Password field (provided by the customer)
 - If the customer cannot provide this, contact Broadband Help Desk
 - Leave the Installer ID field blank and click the Submit button
- On the 2b. Swap Modem page, click the Replace button
- When the 3 of 3. Reset Modem page displays, the modem will automatically reboot
- After the modem reboots, it will obtain Modem Lock
- Restart the computer once the modem obtains Modem Lock
- After restarting the computer, the Web browser should open the default home page



Closing

1. Can you accomplish the objectives of the course?

2. What are some key things you identified regarding dishNET installations?
