



## Application Note

### Installing DIRECTV MFH1 with a Super Buddy™

12/28/2006

The DIRECTV MFH1 Distribution System utilizes three dishes, a stacking system, a single cable home run distribution system and customer devices to un-stack the signals.

The three dishes are:

- AT9 for 101, 110, 119 West DBS and 99, 103 West Ka satellites (:Phase 4 AT9 Ka")
- DBS dish for 72.5 West satellite ("Single Sat 972.5")
- FSS dish for 95 West satellite ("Internatnl 95")

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## Antenna Pointing

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### Phase 4 AT9 Antenna Pointing

Preset the antenna and mast hardware per the directions of DIRECTV.

#### ***Meter Set-Up:***

Push the **SYST** System soft-key to select the following:

- REGION                      your geographic region
- SYSTEM                     **DIRECTV**
- LNB MODEL                **Phase 4 AT9 Ka**
- SWITCH TYPE             22 kHz

To make selections, arrow up or down to the item to change and press **Enter**, then arrow up or down to the desired option and press **Enter**.

Press **EXIT** or **DONE** to return to Run Mode

#### ***To find the 101° satellite:***

- Press the LNB button to power the 101° LNB (LNB1)
- Align antenna until a LOCKED status is obtained.
- Optimize the alignment by obtaining the best C/N value.
- Press ID and verify that the 101 satellite has been found

#### ***To find the 119° satellite:***

- Press the LNB button to switch to LNB2 (22 kHz)
- Adjust the skew of the antenna for a LOCKED status and the best C/N value

#### ***To check the Ka High Transponders on 99° Spaceway 2***

- Press the LNB button to switch to LNB3
- Scroll through transponders 1-6 to find one with the strongest signal
- Subtly adjust the antenna alignment for the strongest level and best C/N

#### ***To check the Ka High Transponders on 103° Spaceway 1***

- Press the LNB button to switch to LNB4
- Scroll through transponders 1-6 to find one with the strongest signal
- Subtly adjust the antenna alignment for the strongest level and best C/N

## Single Sat 72.5 Antenna Pointing

Preset the antenna and mast hardware per the directions of DIRECTV.

### ***Meter Set-Up:***

Push the **SYST** System soft-key to select the following:

- REGION                    your geographic region
- SYSTEM                    **DIRECTV**
- LNB MODEL                **Single Sat 72.5**
- SWITCH TYPE             none

To make selections, arrow up or down to the item to change and press **Enter**, then arrow up or down to the desired option and press **Enter**.

Press **EXIT** or **DONE** to return to Run Mode

### ***To find the 72.5° satellite:***

- Press the LNB button to power the LNB
- Align antenna until a LOCKED status is obtained.
- Optimize the alignment by obtaining the best C/N value.
- Press ID and verify that the 101 satellite has been found

## International 95 Antenna Pointing

Preset the antenna and mast hardware per the directions of DIRECTV.

### ***Meter Set-Up:***

Push the **SYST** System soft-key to select the following:

- REGION                    your geographic region
- SYSTEM                    **DIRECTV**
- LNB MODEL                **Internatnl 95**
- SWITCH TYPE             none

To make selections, arrow up or down to the item to change and press **Enter**, then arrow up or down to the desired option and press **Enter**.

Press **EXIT** or **DONE** to return to Run Mode

### ***To find the 95° satellite:***

- Press the LNB button to power the LNB
- Align antenna until a LOCKED status is obtained.
- Optimize the alignment by obtaining the best C/N value.
- Press ID and verify that the 101 satellite has been found

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## Input Verification

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When the antennas are properly aligned, verify and document the quality of the signals at the input to the riser system using the procedure below.

This test is performed at the input to the riser system, specifically at the end of the cables that connect to the PI-6S Power Inserter.

### **Equipment Setup:**

- Disconnect one input cable at a time from PI-6S and connect it to the Super Buddy LNB port.

### **Meter Set-Up:**

Push the **SYST** System soft-key to select the following:

- REGION                    your geographic region
- SYSTEM                 **DIRECTV**
- LNB MODEL             **MFH-1**
- SWITCH TYPE         **Manual**

To make selections, arrow up or down to the item to change and press **Enter**, then arrow up or down to the desired option and press **Enter**.

After selecting the MFH-1 model, you must up arrow to the switch type and select "Manual". If you leave the switch type at the default DTV6x8, your readings may not be optimal because the meter will be sending invalid switch commands to the AT9 dish.

Press **EXIT** or **DONE** to return to Run Mode

### **Verify Port 1**

- Disconnect the cable from the PI-6S Port 1 and connect it to the Super Buddy LNB port.
- Select LNB1 on the meter by pressing the LNB soft-key.

This will set the Super Buddy to use the odd transponders from the 101 satellite and output the proper voltage to the Phase 4 AT9 dish to obtain this signal.

- Verify that a signal lock is obtained.
- Press ID to verify the correct satellite has been obtained.
- Press MENU and select PoP Scan to start collecting data.

The meter will now scan through all the transponders and collect the data for each. When it finishes a summary screen will show the minimum and maximum level and signal quality.

- Press SAVE
- Enter the date
- Enter the location
- Enter your name
- Enter any other comments about the installation (the port number may be useful)
- Press SAVE
- Enter a unique file name (location and port are suggested)
- Press SAVE or ENTER

The meter will save the file in flash storage and reboot.

Remove the LNB cable from the Super Buddy and replace it on Port 1 of the PI-6S.

## Verify Port 2

This procedure verifies the signal quality on Port 2 of the riser system which is used for the even transponders from 101 West.

- Disconnect the cable from Port 2 of the PI-6S and connect it to the Super Buddy LNB port.
- Select LNB2 on the meter by pressing the LNB soft-key.
- Follow the rest of the procedure described above for Port 1.
- Remove the LNB cable from the Super Buddy and replace it on Port 2 of the PI-6S.

NOTE: Port 2 will not pass the ID Verification test because there is no way to distinguish the 101 even transponders from the 72.5 even transponders.

## Verify Port 3

This procedure verifies the signal quality on Port 3 of the riser system which is used for the odd transponders from 119 West.

- Disconnect the cable from Port 3 of the PI-6S and connect it to the Super Buddy LNB port.
- Select LNB3 on the meter by pressing the LNB soft-key.
- Follow the rest of the procedure described above for Port 1.
- Remove the LNB cable from the Super Buddy and replace it on Port 3 of the PI-6S.

## Verify Port 4

This procedure verifies the signal quality on Port 4 of the riser system which is used for the even transponders from 119 and 110 West.

- Disconnect the cable from Port 4 of the PI-6S and connect it to the Super Buddy LNB port.
- Select LNB4 on the meter by pressing the LNB soft-key.
- Follow the rest of the procedure described above for Port 1.
- Remove the LNB cable from the Super Buddy and replace it on Port 4 of the PI-6S.

## Verify Port 5

This procedure verifies the signal quality on Port 5 of the riser system which is used for the even transponders from 72.5 West.

- Disconnect the cable from Port 5 of the PI-6S and connect it to the Super Buddy LNB port.
- Select LNB5 on the meter by pressing the LNB soft-key.
- Follow the rest of the procedure described above for Port 1.
- Remove the LNB cable from the Super Buddy and replace it on Port 5 of the PI-6S.

NOTE: Port 5 will not pass the ID Verification test because there is no way to distinguish the 101 even transponders from the 72.5 even transponders.

## Verify Port 6

This procedure verifies the signal quality on Port 6 of the riser system which is used for the even transponders from 95 West.

- Disconnect the cable from Port 6 of the PI-6S and connect it to the Super Buddy LNB port.
- Select LNB6 on the meter by pressing the LNB soft-key.
- Follow the rest of the procedure described above for Port 1.
- Remove the LNB cable from the Super Buddy and replace it on Port 6 of the PI-6S.

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## Customer Drop Verification

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This test is performed at the customer drop location, at the output from the Customer Unit.

### **Equipment Setup:**

- Connect the Super Buddy LNB port to the Customer Unit receiver port.

### **Meter Set-Up:**

Push the **SYST** System soft-key to select the following:

- REGION                    your geographic region
- SYSTEM                    **DIRECTV**
- LNB MODEL                **MFH-1**
- SWITCH TYPE             **DTV6x8**

Note: You must have the DTV6x8 switch selected for this part of the procedure. This switch type is necessary for the meter to send the proper switch commands to the customer unit. If you leave the meter set to the "Manual" switch type used in the previous section, the 72.5 and 95 West satellites will no be accessible.

The procedure is basically the same as the input verification procedure above except that the cable does change between ports.

### **Verify Port 1**

- Select LNB1 on the meter by pressing the LNB soft-key.
- Verify that a signal lock is obtained.
- Press ID to verify the correct satellite has been obtained.
- Press MENU and select PoP Scan to start collecting data.
- When scan completes, press SAVE
- Enter the date
- Enter the location
- Enter your name
- Enter any other comments about the installation (the port number may be useful)
- Press SAVE
- Enter a unique file name (location and port are suggested)
- Press SAVE or ENTER

### **Verify Other Ports**

Repeat the above except for selecting the desired port with the LNB button.

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## Transferring Data To PC

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Use the SatTransfer program to transfer the files to a PC for viewing, printing and archival. This program is described in the Application Note "Proof of Performance Testing"