



Application Note

Aligning Echostar's 121° SUPER Dish antenna to 110° 119° and 121° using the SAT 9520 Meter

- 1) Make sure your vertical pole mount is plumb. Grossly align the dish per the service provider's instructions.
 - Vertical angle setting
 - Azimuth angle setting
 - Antenna skew
- 2) Connect a jumper cable from the SAT 9520's input connector to the 121° FSS stacked LNB (for now, let's bypass the DP34 switch).
- 3) SAT 9520 meter setup:
 - Turn on the meter.
 - Press the SET UP button.
 - Press the Down Arrow button so the cursor is flashing on the Channel Plan line.
 - Press the ENTER button to allow a new channel plan selection.
 - Press the Up Arrow button until "Dish Pro" channel plan is displayed.
 - Press the ENTER button to select the "Dish Pro" channel plan.
 - Press the Down Arrow button so the cursor is flashing at the Switch type line.
 - Press the Enter button to allow a new switch type selection.
 - Press the Up Arrow button until "None" is displayed.
 - Press the Enter button to select the "None" switch type.
 - Press the RUN button.
- 4) You are now ready to align the antenna so the FSS LNB is receiving the 121° satellite signal.
 - Press the Dn Arrow button until the upper left corner of the display indicates that you are tuned to TR 5.
 - Press the LNB button once, or until the display (lower left corner) indicates LNB 1. You are now powering the FSS LNB.
 - Look at the SAT 9520's display while making fine adjustments to the dish alignment. Pay careful attention to the signal level (dBm) bargraph, and the C/N number. Try to obtain the strongest RF bargraph reading and the highest C/N value. When the C/N value reaches at least 8 dB, the lock status on the display should indicate "DVB-S" in lieu of "Search" if you are locked on the 121° satellite. Tweak the alignment to maximize the IRD signal quality value and bargraph.

- 5) You are now ready to verify proper alignment and reception of the 110° Satellite.
- Disconnect your jumper cable from the FSS LNB and reconnect it to the 110° DishPro LNB.
 - Using the Arrow buttons make sure that you are tuned to TR 29.
 - Press the LNB button once, or until the display (lower left corner) indicates LNB 1. You are now powering the 110° LNB.
 - Look at the SAT 9520's display. It should indicate a lock status of "DVB-S" while tuned to TR 29 and "DIRECTV" when tuned to TR 30. If it does, then you are receiving the 110° signal. If it indicates "Search", make subtle adjustments until achieving the desired lock status for the appropriate transponder. Remember that any alignment adjustments are affecting the previous work performed to align on the 121° satellite.
- 6) You are now ready to view and compare the signal quality of the 110°, 119° and 121° satellites.
- Connect your LNBS to the DP34 (or DP44) switch. Remember which LNB goes to which port of the switch.
 - Connect your SAT 9520 meter to the switch at one of the "To Receiver" ports.
 - Press the SET Up button on your meter. Go to the Switch Type and select "DiSEqC", then go back to RUN.
 - While tuned to TR 21, you can quickly toggle between the three satellites by pressing the LNB button. When the display (lower left corner) indicates "Dish 1" it corresponds to Port 1 of the switch, "Dish 2" corresponds to Port 2 of the switch, ..etc.
 - Make subtle adjustments to the antenna alignment until achieving the best compromise of signal quality between all three satellites. Maximizing the signal quality value for the FSS satellite should be your primary focus. When maximized it will still be considerably less than the DBS 110°/119° satellites.