

TROUBLESHOOTING X-POL

This whitepaper is concerning the troubleshooting procedures of a DataStorm system that will not pass a successful x-pol attempt.

If DataStorm operates normally, i.e. Search, and Peak routines are acting normally. The system finds the correct satellite and the Signal Quality (SQ) peaks to a level that is consistent with that particular Satellite and Transponder in a specific part of the country.

Example; Satellite G11 has a strong Footprint in the northern states but in New Mexico you may see a SQ value of less than 60. You can use the ACP database to find other DataStorm Users that have been in New Mexico using G11 to compare this value.

After System has finished Peaking it should enter the Isolation Test if in the D2 Configuration Settings the "Isolation Optimization" is NOT set to None.

If the ACP (Cross Pol) Fails then listed below is a series of test to perform. These tests are listed in the order of simplicity and failure probability.

IF ACP [Auto X-pol] Fails

NOTE: Before going through each step with the service tech give him the entire view of issues described below and ask him to give all of these areas a quick look over before going into specific detail.

1> **Check for Voltage at the ODU Transmitter** by disconnecting the RG6 Cable from the Transmitter and measuring between the Cable Connector Case and Center Pin.

A> If there is no voltage a probable cause may be the center pin of the RG6 located under the mount where the RG6 cable connects through a barrel connector has pulled itself back and is no longer making connection to the center pin of the Barrel Connector.

B> Test for proper Voltage on all Power Supply Pins on the Hughes DirecWay Power Supply

C> Check for bad cable crimps on all RG6 connectors or center pins not extending from the RG6 Connector case.

D> Check for cut cable or gashed cable near mounting plate or entrance hole into the vehicle.

E> Possible Bad Barrel Connector.



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- 2> Inspect RG6 Cable and Connectors for proper crimping and sealing for moisture intrusion.
- A> Sometimes Hex Crimpers fail to insure a proper ground for the outer shielding of the coax cable. This has many times been the actual cause of failed Cross Pol and Ranging issues.
 - B> Has the connector been properly coated with a Teflon Lube Gel to prevent moisture intrusion? This coating should be on the inside of the connector. A close inspection of the center pin and inside of the connector can reveal a rusting or other discoloration related to a failure due to moisture.
 - C> Check for cuts, gashes dents, or punctures along the entire run of the RG6 cable. Even the smallest puncture through the braid to the center pin can cause a failure.
- 3> Replace Power Supply (IDU Hughes Power Supply) even if the Power Supply voltages appear to be correct. Without the PS (power supply) being tested under load it is not possible to see if the PS fails when the Transmitter is operating.
- 4> Replace Modem at this point. This is now getting down to something which is harder. If you have a DW6000 modem to run a test with then changing the Modem for a test is quicker. This would be the better choice over swapping out the ODU Transmitter.
- A> If possible take to modem and D2 controller to another vehicle to test before replacing.
- 5> Replace ODU Transmitter. If all other options have been thoroughly examined and double checked this is really the final point. It would be wise to completely review the previous steps before performing this step.
- A> Inspect the Waveguide, be sure it is not cracked, bent, loose or missing screws. This is a place where moisture might be the problem.
 - B> If possible it may be easier to change out the entire LNB arm assembly with the LNB, Waveguide, and Transmitter all attached.



TROUBLESHOOTING X-POL CONT.

6> Check Dish for warping or broken, bent or misaligned LNB arm. This should be done the first time the dealer/customer has to climb on the roof. This also would be a first concern when the system is experiencing low SQ. Replacing a Dish Face can be a difficult task. It is recommended that the customer replaces the entire mount first.

BAD EXAMPLE:

Childress Racing Team Trailer - about 2 weeks of improper TS caused by a miscommunication between a dealer and Tech Support on confirming that the Dealer did replace a bad PS.

Besides 40 or more hours of troubleshooting a Dish was Shipped Overnight to prevent the dealer from losing a customer and sale!

Actual Failure! Bad Hughes IDU Power Supply

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Please call MotoSAT for information on this or any other technical subject
contact MotoSAT at:
1-800-247-7486

