Field Service Spares Replacement Procedure – Coax Switch XX09 MK2 & XX10

Approval:

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Revision History

Rev.	ECO	Description of Change	Date
A	8795	Initial release	08-05-2011
B	9041	Clerical revisions	10-03-2011

Field Service Procedure – Replacement Coax Switch Kit XX09 MK2 & XX10

1. Brief Summary:

Troubleshooting document for diagnosing a fault with and replacing the coax switch on the XX09 MK2 and XX10 series antennas.

2. Checklist:

- Verify DAC Settings
- Measure Voltage

3. Theory of Operation:

Co-Pol (co-polarization) and X-Pol (cross-polarization) VSAT systems have two LNBs fitted as standard. The X-Pol LNB is installed on the feed and is 90 degrees from the transmit path (waveguide), the Co-Pol LNB is installed on the waveguide, in line with the transmit path.

When using X-Pol the transmit and receive carriers are 90 degrees apart from each other, so the system will be receiving in horizontal polarity and transmitting in vertical (or vice versa). When using Co-Pol, the transmit and receive frequencies are on the same polarity, i.e. both in horizontal or both in vertical. A diplexer in the waveguide run is used to isolate the frequencies from each other.

A coax switch is installed on the equipment frame, and is used to route the desired receive path to the Below Decks Equipment. Co-Pol or X-Pol LNBs are selected from the tracking window in the DAC.

4. Measure Voltage:

Should the coax switch fail it's possible that it will default to only one band and won't change. This can be verified by measuring the voltage output on the relevant bands. The ADE Modem will output either 13VDC or 18VDC to power the Swedish Microwave Quad LO LNB and also to switch between its bands.

Select the "Co-Pol, Band 1" option in the tracking window of the DAC (the "Track Disp" setting in the setup menu will need to be set to "0130" for a Co-Pol/X-Pol system with Quad LO LNBs).

Leave the DAC energised, power down the pedestal and disconnect the Co-Pol and X-Pol SMA cables from the coax switch outputs on the PCU assembly using a 5/16" wrench.

Measure on the DC voltage on the centre path of the Co-Pol connection of the coax switch; 13VDC should be be present. Change the tracking option of the DAC to "X-Pol, Band 1" and repeat the above process, 13VDC should now be preset on the X-Pol path.

If the voltage doesn't change from one path to the other when the tracking option of the DAC is switched between Co-Pol and X-Pol remove the cover of the PCU and measure the voltage input to the coax switch.

To verify the internal coax switch you will need to open up the PCU and measure for a switched ground (24VDC). If the voltage is changing from 0 – 24VDC when the tracking settings are toggled between Co-Pol and X-Pol yet there is no switch of the relay, then likely the coax switch is faulty and will need replacing. If no voltage change can be measured at all then likely the PCU motherboard is defective.

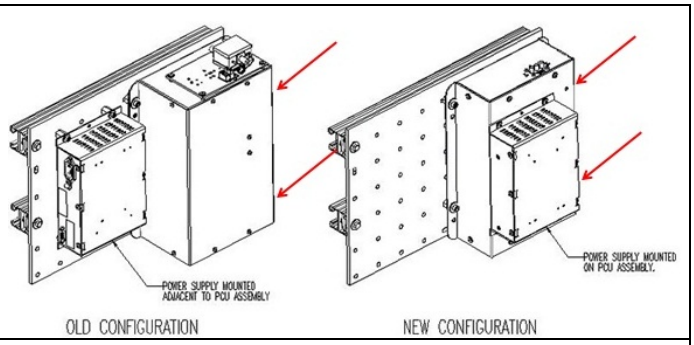
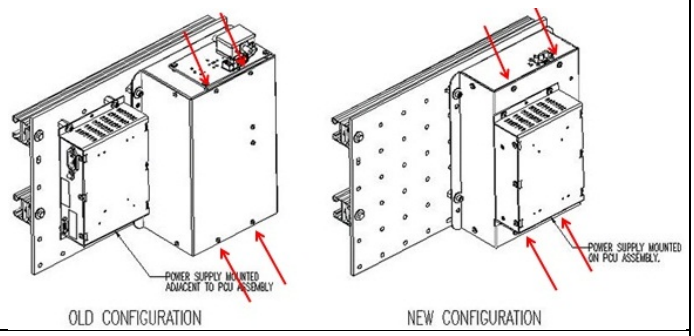
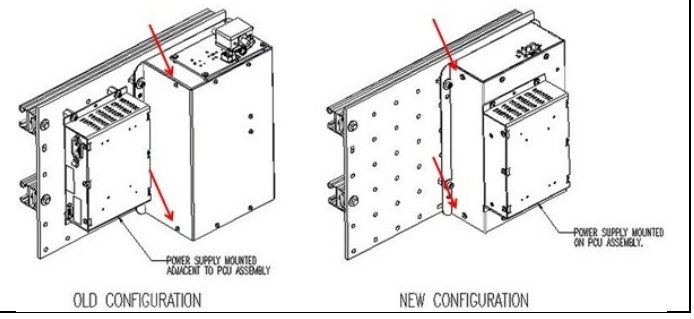
5. Replacing the Coax Switch:

5.1. Tools.

- #1 Phillips Screwdriver
- 5/16" (8mm) Wrench/Spanner
- Loctite 242

5.2. Procedure.

Procedure for replacing the XX09 MK2 and XX10 coax switch, Sea Tel kit part number: 135346 (coax switch assembly part number: 131533-2).

***CAUTION:** Power down the pedestal before following this procedure. 1. Using the #1 Phillips screwdriver, remove the 2 Phillips screws in the lip edge above the connectors.	
2. Remove the 4 Phillips screws on the top of the PCU.	
3. Remove the 2 Phillips screws on the back side of the PCU. 4. Retain all of the screws for later reuse. 5. Remove the cover off of the PCU	

6. Using a 5/16" (8mm) wrench remove the L-Band SMA cables from the ports on the switch. 7. From the outside of the PCU enclosure, remove the 4 Phillips screws that mount the switch in the enclosure.	
8. From inside the PCU enclosure, unplug the Red-Brown twisted pair wire IDC connector (J10). 9. Remove the defective switch from the enclosure. 10. Install the replacement Co-Pol/Cross-Pol switch assembly while assuring that the Normally Open/NO/Co-Pol and Normally Closed/NC/Cross-Pol SMA connectors are in the correct holes as marked on the outside of the PCU enclosure. 11. Apply Loctite 242 to, and re-install, the 4 Phillips screws to secure the switch from the outside of the enclosure. 12. Plug in the Red-Brown twisted pair wire IDC connector. 13. Reconnect the L-Band cable to the "COM" port (center) on the switch. 14. If all repair work is now completed reinstall the PCU cover.