Field Service Spares Replacement – Tone Generator Kit, XX06RZA

Approval:

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Revision History

Rev.	ECO	Description of Change	Date
X1	8870	Initial release	08-18-2011
A	9059	Clerical revisions	10-30-2011

1. Brief Summary:

Troubleshooting document for diagnosing a fault with and replacing the tone generator on the XX06RZA & XX09 MK1 series antennas.

2. Checklist:

- Verify Tracking Parameters
- Spectrum Switching
- Measure Voltage into Tone Generator

3. Theory of Operation:

A tone generator is installed on the RX path of the system in between the ADE MUX and LNB. A command from the POL AUX relay will activate the tone generator to output a 22KHz tone to switch between bands of the multi-band LNB.

4. Next Main Heading:

If the system is having tracking problems then some diagnostics will need to be carried out.

First, check that the tracking parameters in the DAC are correct and the track display setting is correctly configured for the frequency range of the LNB (as shown in the below table). You should also check the-Co-pol/X-pol band selection and the TX Polarity.

	Frequency Range	LO	Tone	Voltage
Band 1	10.95-11.70GHz	10.00GHz	No Tone	13V
Band 2	11.70-12.25GHz	10.75GHz	22Khz Tone	13V
Band 3	12.25-12.75GHz	11.30GHz	No Tone	18V
Band 4	10.70-11.70GHz	9.75GHz	22Khz Tone	18V

As per the above table the 22KHz tone will be outputted when bands 2 and 4 are selected from the tracking display window of the DAC-2202. If it's suspected that the tone generator isn't selecting these bands, this can be tested by connecting a spectrum analyzer to the system (RX out of the DAC-2202 or satellite modem) to verify if the spectrum changes when switching from band 1 to band 2 or band 3 to band 4.

If there is no change in spectrum, verify the POL AUX relay is outputting the 5 – 12VDC to switch the tone generator. Measure the voltage input on the IDC connector to verify if the voltage is changing from 0 to 5- 12VDC when the band setting is changed from either band 1 to band 2 or band 3 to band 4.

If the tone generator is receiving the DC voltage from the POL AUX relay when the correct band is selected from the DAC, there is a possibility that the LNB could be defective. This can be verified using a spectrum analyzer which outputs tone and voltage to verify if all bands are functional. Connect the spectrum analyzer in line and drive the tone and voltage manually from the analyzer. Alternatively, if the system is an X/Co POL system, swap the LNB's to verify their functionality.

Early models of the tone generator had a switch on them which would permanently output tone if set incorrectly; use the above diagnostics to verify if the switch is set incorrectly.

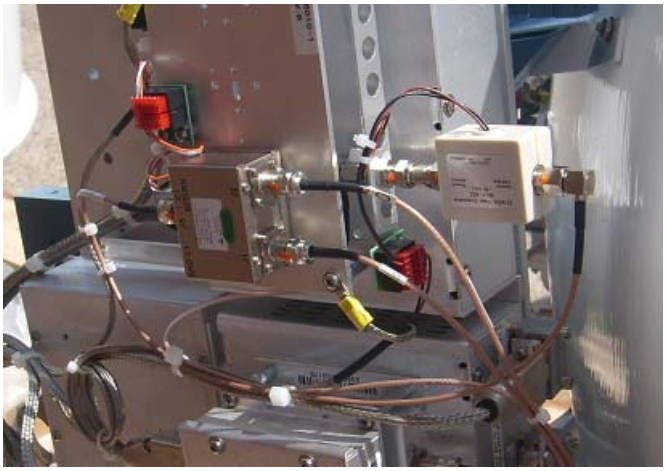
5. Replacing the Tone Generator:

5.1. Tools.

- 7/16" Wrench/Spanner
- #1 Phillips Screwdriver
- 1/4" Wrench/Spanner
- Loctite 242

5.2. Procedure.

Procedure for replacing the tone generator on the XX06RZA antenna, Sea Tel kit part number: 135388 (tone generator assembly part number: 129518-1).

***CAUTION:** Power down the pedestal before following this procedure. 1. Undo the 3 coax connections from the coax switch using a 7/16" wrench (noting X-Pol attaches to J1 and Co-Pol to J2). Disconnect the IDC connector and remove the ground harnesses. 2. Using a #1 Phillips screwdriver undo the 4 screws securing the coax switch assembly and remove it 3. Using a 7/16" wrench undo the 2 coax cables from the tone generator and disconnect the IDC connector. 4. Using a 1/4" wrench undo the 4 standoffs securing the tone generator assembly to the power supply.	
5. Install the replacement tone generator assembly securing the standoffs with Loctite 242. 6. Reconnect the coax cables with the connection from the modem running into the input of the tone generator and the coax that will run into the input of the switch to the output. Reconnect the harness IDC connector. 7. Apply Loctite 242 to the 4 screws and reinstall the coax switch assembly. 8. Reconnect the coax from the tone generator to the input of the coax switch. Connect the X-Pol coax to the J1 connection of the coax switch and the Co-Pol coax to the J2 connection. Reconnect the IDC connector.