

4 TURN-UP AND TESTING

4.1 GENERAL

This section describes the procedures required to turn-up and test the DTR-0200-SA-SIRIUS repeater (ALU Part Number 3EM04000AA) after replacement of the Signal Processor Unit (SPU), software upgrading, and/or other maintenance. These procedures consist of repeater provisioning and field testing.

Note

These procedures require GUI software screen access. For screen access procedures, refer to the Operations section of this manual.

4.2 TEST EQUIPMENT REQUIRED

Refer to Table 4-1 for required test equipment. Become familiar with the operation of any test equipment before using it. Operating instructions for test equipment are not included in this manual except for precautionary notes or special instrument settings required for performance of a test procedure. When further information regarding test equipment is required, refer to the equipment manufacturer's instructional data.

Table 4-1 Test Equipment Required

Type
Power Meter
Power Meter Test Sensor
PC/Laptop

4.3 REPEATER PROVISIONING

Provisioning is the process of checking, changing, and/or installing parameter values to allow the repeater to operate from its assigned location. Normally, no parameter changes will be required except after replacement of the SPU.

- 1 Turn on repeater power
- 2 Connect computer to repeater controller Ethernet port
- 3 Access repeater GUI
- 4 Set repeater to Standby mode
- 5 Provision Repeater (check, change, install parameters as indicated by GUI screen readings and consistent with local network engineering requirements)
- 6 Return repeater to Broadcast mode
- 7 Connect repeater to NMC.

4.4 FIELD TESTS

The purpose of the field test is to verify that the repeater meets specifications after on-site repair. The field test will be performed with the Ku-Band Receive Chain of the specific site.

A field test report form is provided to record the operating conditions and critical performance parameters of the repeater after repair. This report should be kept on file and referred to whenever the repeater is retested (after maintenance, etc.).

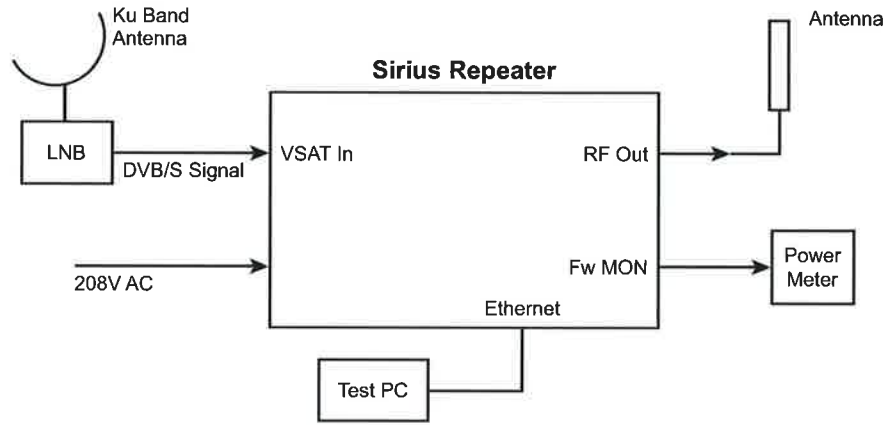
4.4.1 Test Set-Up

- 1 Remove power from repeater by opening repeater main power circuit breaker on the PDU (see Figure 4-1).



Figure 4-1 PDU Circuit Breaker Panel

2 Set up the test system as shown in Figure 4-2.



The input power value can be anywhere from 188 to 250 VAC depending on the available site power.

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Figure 4-2 Field Test Setup For Terrestrial Repeater

- Connect the power meter to the FWD RF MONITOR connector on the junction box panel.
- Enter into the power meter the dB offset value listed at the FWD RF MONITOR connector. See Figure 4-3.



Figure 4-3 RF Monitor Connectors on Junction Box Panel

- The Ethernet connection for the PC is on the back panel of the Main Controller (one of the Ethernet ports in the four port block). See Figure 4-4.



Figure 4-4 Ethernet Ports on Main Controller Back Panel

- The input power value can be anywhere from 188 to 250 VAC depending on the available site power.

4.4.2 Operating Mode

- 1 Power up the repeater.
- 2 Wait 5 minutes (after the Main Controller finishes initialization).
- 3 Start GUI.
- 4 Access the Repeater Operating Mode screen and set repeater to Standby Mode (see Figure 4-5).

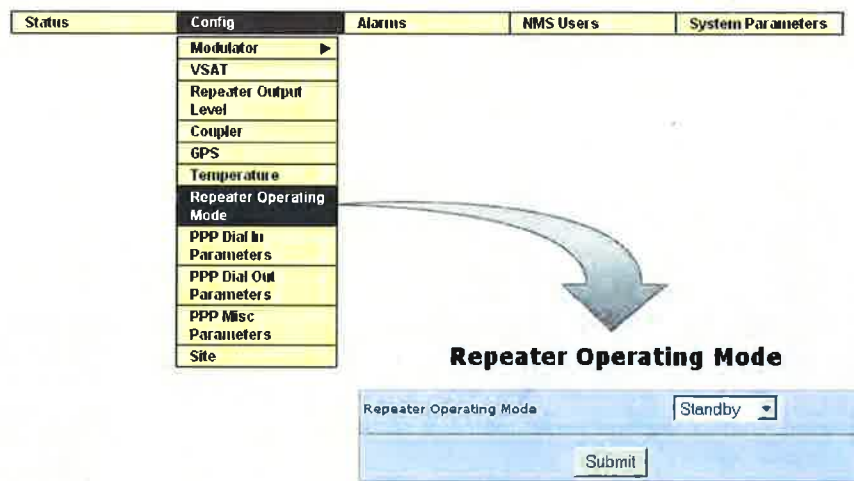
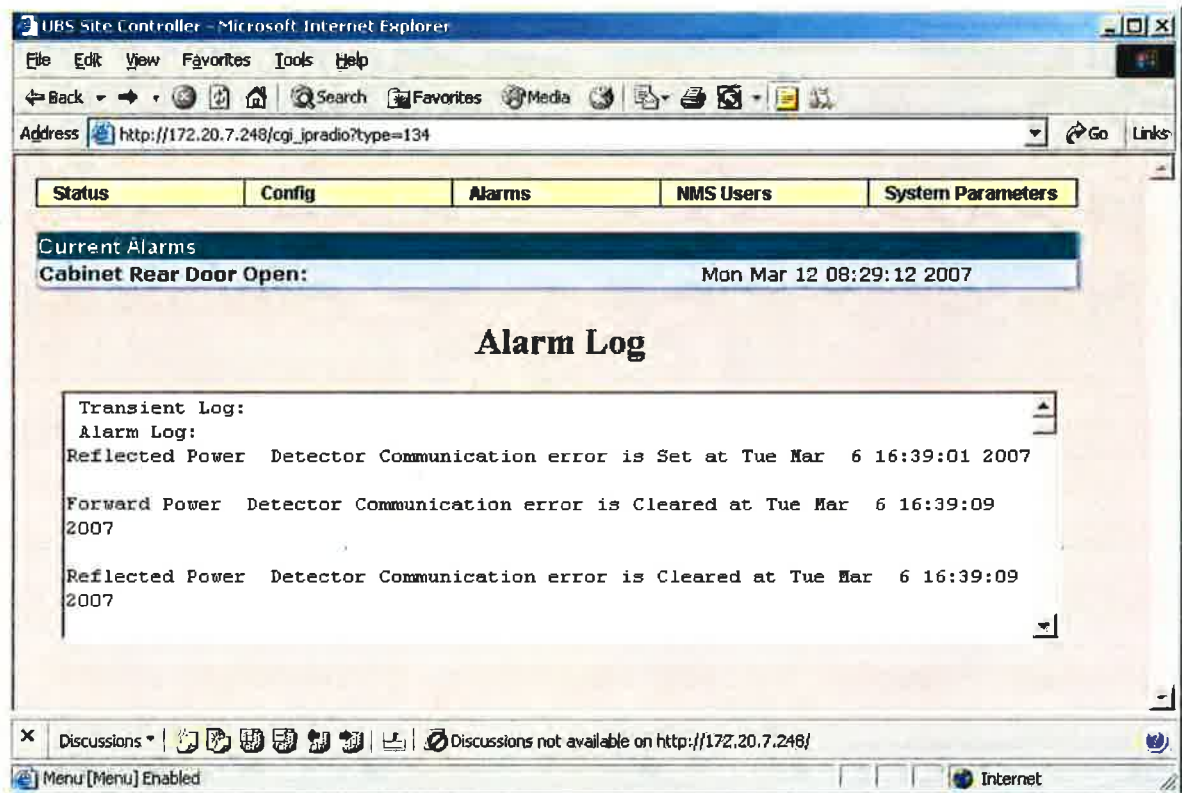


Figure 4-5 Repeater Operating Mode

4.4.3 Alarm Checking

- 1 Access to Alarm Log and read system faults/alarms from controller (see Figure 4-6).
- 2 No fault/alarm shall be reported other than Cabinet Rear Door Open. This alarm will appear because of the PC connection to the rear panel of the Main Controller.



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Figure 4-6 GUI Alarm Log

4.4.4 Software/Firmware Configuration Test

- 1 Access the Global Status screen.
- 2 Check and record software/firmware versions used in the repeater.

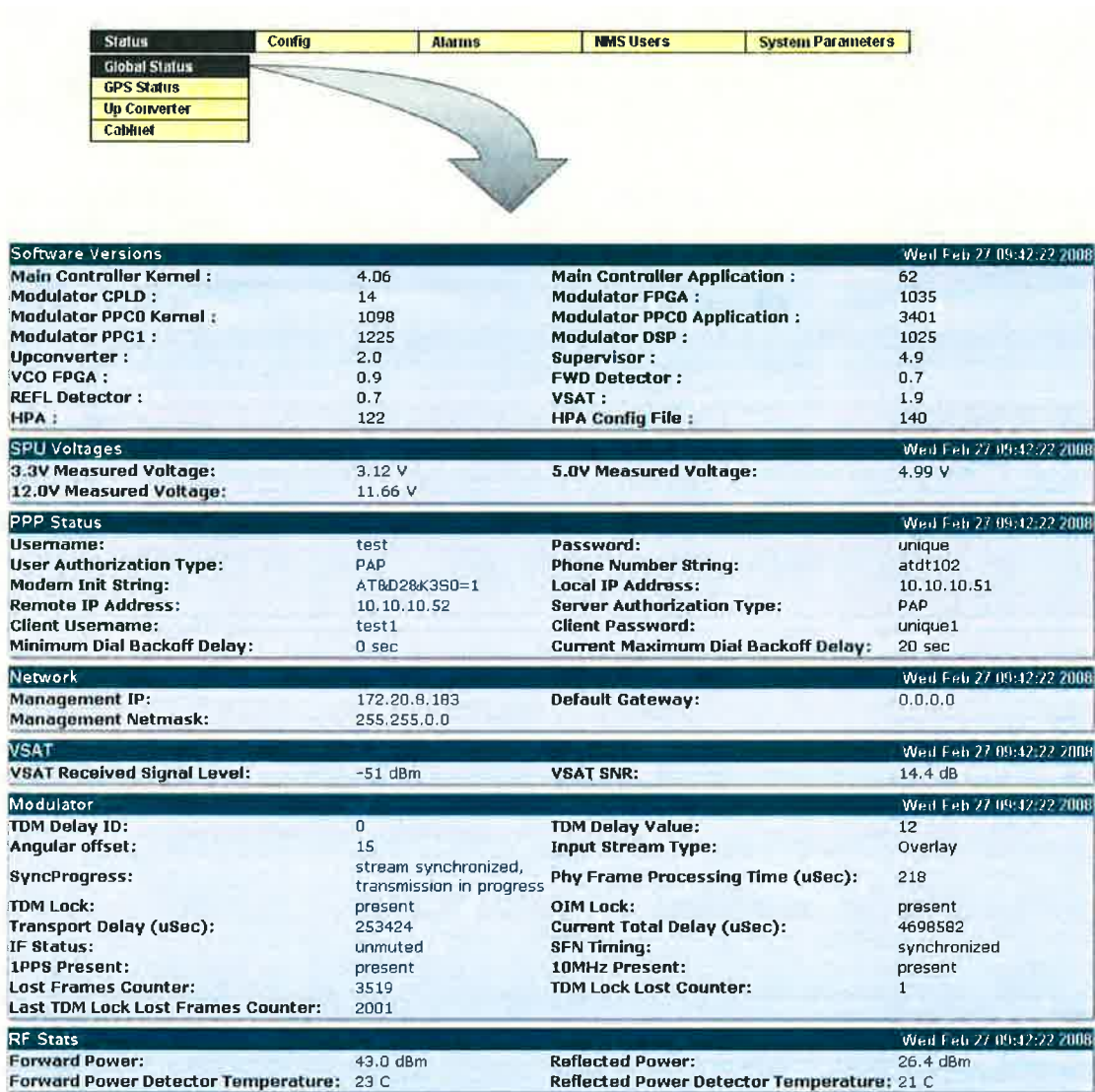


Figure 4-7 Global Status Screen

- 3 The version numbers shall match those defined by the repeater configuration.

4.4.5 VSAT Receiver Test

- 1 View the Global Status screen.
- 2 Confirm that the receive antenna is correctly pointed at the satellite (determined by VSAT Receiver Signal Strength reading on GUI screen).
- 3 Ensure that the receive antennas are correctly pointed at the satellite (determined by signal strength reading on GUI screen).
- 4 If necessary, reconfigure the repeater VSAT receiver to match the satellite signal.

Note

Default settings are in place for the repeater for DVBS Standard (DVBS1), Polarization (Horizontal), Band (Low) and Symbol Rate (8417361). In the factory VSAT Frequency is set to 1222.000 MHz. All of the settings are based on the SIRIUS satellite broadcast signal and are made in the factory. The only settings that could need to be changed in the field based on a change in the SIRIUS satellite broadcast signal would be Frequency and Symbol Rate.

- 5 Verify that the TDM lock is present, and that the VSAT SNR is better than 10 dB.

4.4.6 GPS Receiver Test

Verify from the GUI Global Status screen that 1 PPS and 10 MHz signals are present.

4.4.7 Output Power Test

- 1 Access the Repeater Operating Mode screen (see Figure 4-5).
- 2 Set the Repeater Operating Mode to Broadcast.
- 3 Access the Modulator Mode screen (Figure 4-8).
- 4 Set the Modulator Operating Mode to CW.

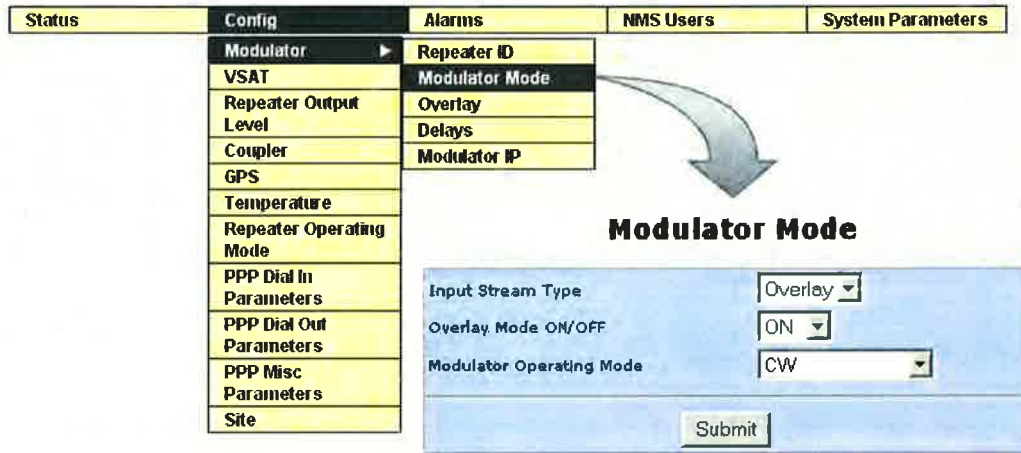


Figure 4-8 Modulator Mode Screen

- 5 Set RF output power to +53.0 dBm, and measure the RF output power at the junction box forward coupled jack, CPL FWR, with power meter. The measured RF power level shall be within ± 0.5 dB from the set RF power level indicated on the GUI Global Status screen.
- 6 Remove the power meter from the FWD RF MONITOR connector.

No alarm shall be reported other than door(s) open.

4.5 CONNECT REPEATER SYSTEM TO NMC

Coordinate with NMC and place repeater in remote operating condition.