Modem Test Manual

1.0   General

The ModemTest application is a PC software tool specifically designed to test

- DF2100 receiver (built-in modem A10-A11 Boards)
- Remote Control/Display Console SCA P/N 400087-42 (built-in modem)
- DF2100 Receiver - Remote Control/Display Console communication link
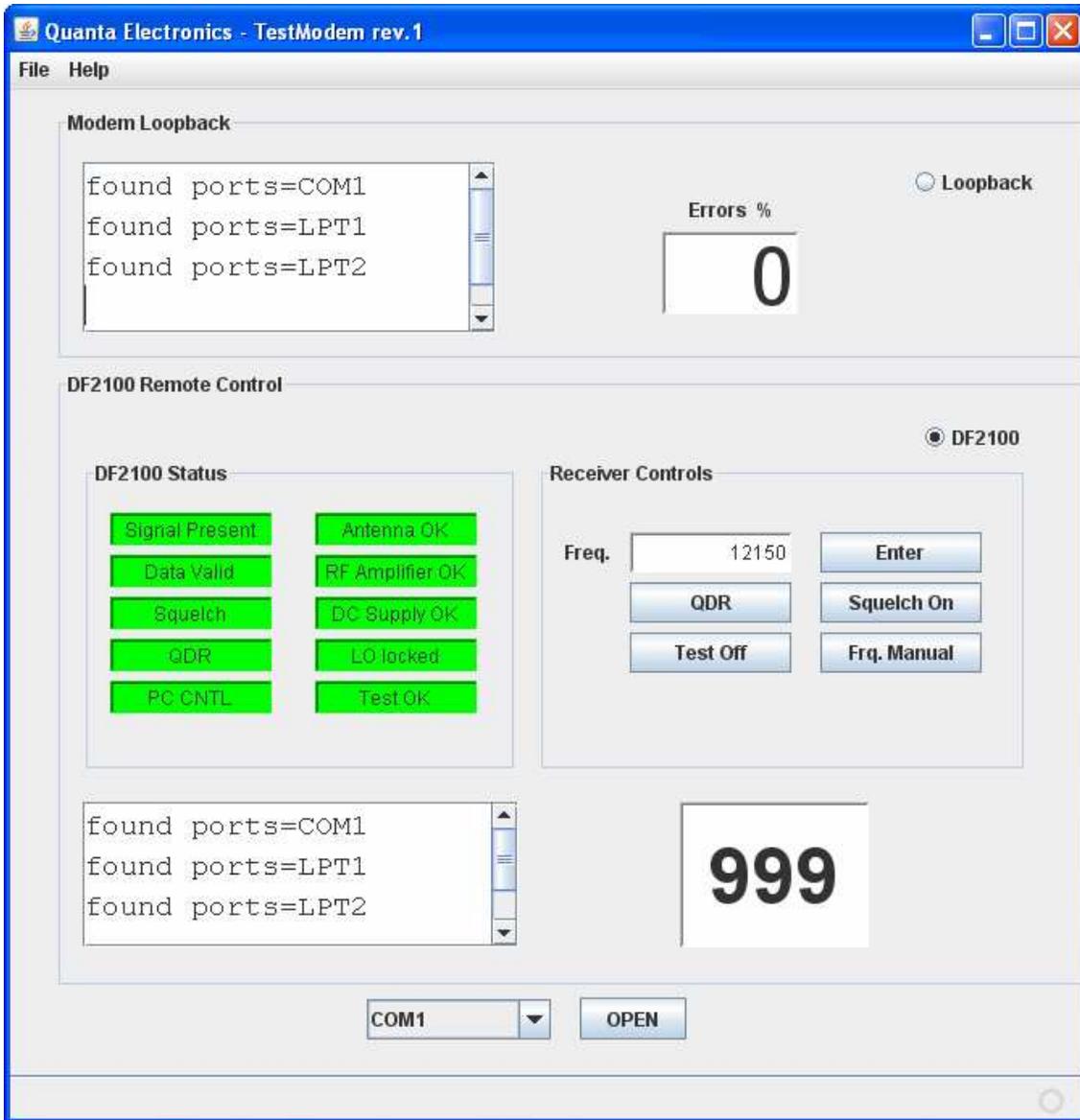
Fig.1 TestModem application screen shot

The need for these tests arises when there is a connection problem between the DF2100 receiver and the Remote Control/Display Console.
This application allows the technicians to quickly locate the fault.

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2. Remote Control Console Loopback Modem Test

This test allows to determine if the modem inside the Remote Control/Display Console operates properly.
During the test the ModemTest application sends a string "12350GZ333" to the Remote Control Console FSK modem. Through a special test cable the FSK signal that normally goes over the phone line to the DF2100 receiver is fed back to the modem's receive path.

Fig.2 Remote Control Console modem test setup block diagram

Test Procedure:

- Connect the phone cable to RJ-11 (Remote Control Unit back panel) in such a way that the transmitted FSK signal is fed back to the FSK receive path.
- Run ModemTest application
- Open the PC COM port that is connected to the modem.
- Select the radiobutton Loopback.

The ModemTest application is now sending a string TX=12350GZ333
If the modem is working properly the received string is RX=12350GZ333 (Fig.3)
Any other string received indicates modem problem.
The number of errors should be 0.
(Modem runs: fskmodem_1_4 firmware)

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The screen shot below shows the Remote Console modem operating properly. The transmitted and received strings "12150GZ333" are the same.
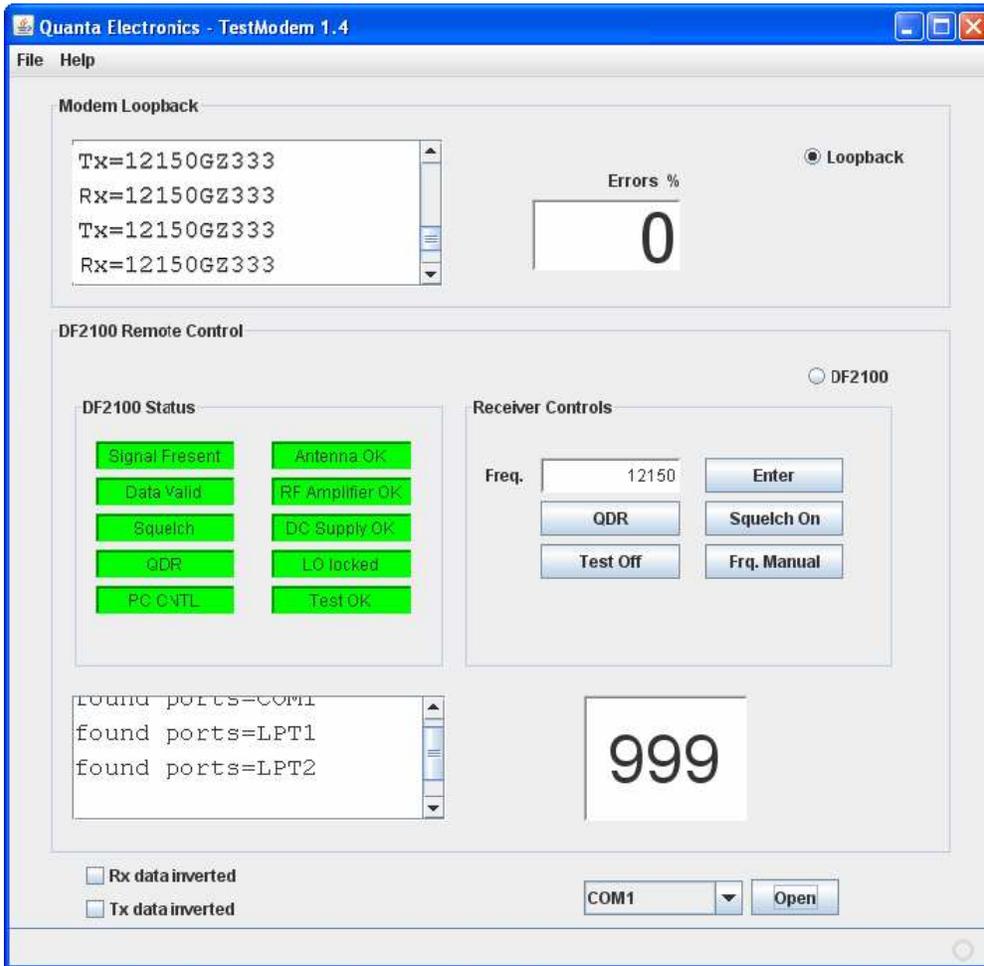
Fig.3 The string "12150GZ333" was sent and received

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The screen shot below shows the Remote Console modem not operating properly.
The modem is not receiving any data.
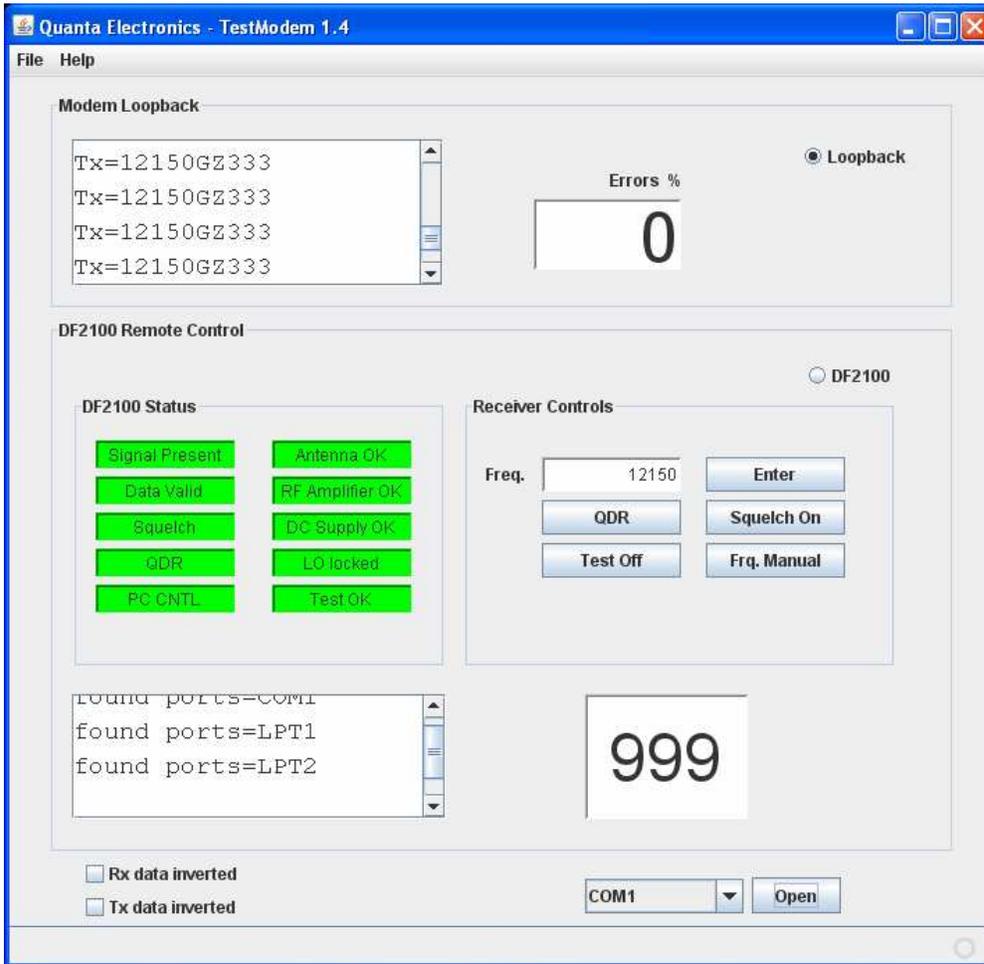
Fig.4 The string "12150GZ333" was sent but not received

3. DF2100 receiver Loopback Modem Test

This test allows determining if the A10 and A11 boards work properly.
During this test the ModemTest application sends a string "12350GZ333" to
FSK modulator (DF2100 receiver A11 board).
Then the FSK signal is fed to A10 which provides all necessary filters and phone line
drivers. The output signal from this board is normally sent to the Remote Console but in
this test it is being fed back to A10 board receive path, and demodulated on A11 board.
This loopback is facilitated by the the phone line cable that connects FSK output to
FSK input.
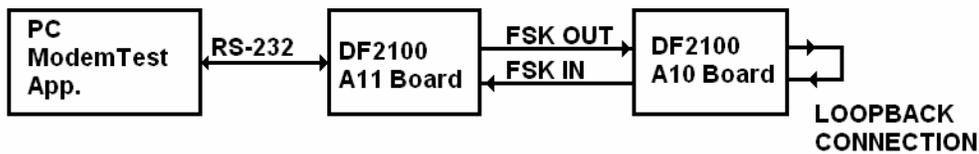
Fig.5 DF2100 Receiver A10-A11 modem test setup block diagram

Test Procedure:

- Pull the Bearing Processor A6 card out.
- Connect the phone cable to RJ-11 in such a way that the transmitted FSK signal is fed back to the FSK receive path.
- Connect the cable to A11-J2 9 pin RS-232 connector and PC RS-232 or USB port .
- Run the ModemTest application on PC.
- Open the PC COM port that is connected to the modem.
- Select the radiobutton Loopback.

If the modem works properly the strings transmitted and received are equal (see Fig.3)
and the number of errors is 0.
Any other string received indicates modem problem (see Fig.4)
(Modem runs: fskmodem_0_4 firmware)

Note: J2 (RS-232 connector) available only on Data Modem boards A11-400060-60-1-RS

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4. DF2100 Receiver Control via the Remote Control/Display Console.

Run ModemTest application.
Select serial communication port / USB.

Set the DF2100 Receiver to Remote Control.

You should be able to do remotely the following:

- Change DF2100 receiver RF channel
- Change QDR/QDM status
- Change Squelch
- Run System Test
- Read Bearing

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