

How to Field Test SeaSonde Rx filters for Proper Operation

A SeaSonde receiver is equipped with at least one set of band pass filters consisting of four gold colored modules located side-by-side near the back of the receiver on the right-hand side. The filter modules are normally equipped to handle two of the four SeaSonde operational bands. The two bands are selected with the High/Low switch in the Advanced Controller panel in SeaSondeController.

Why test the filter sets?

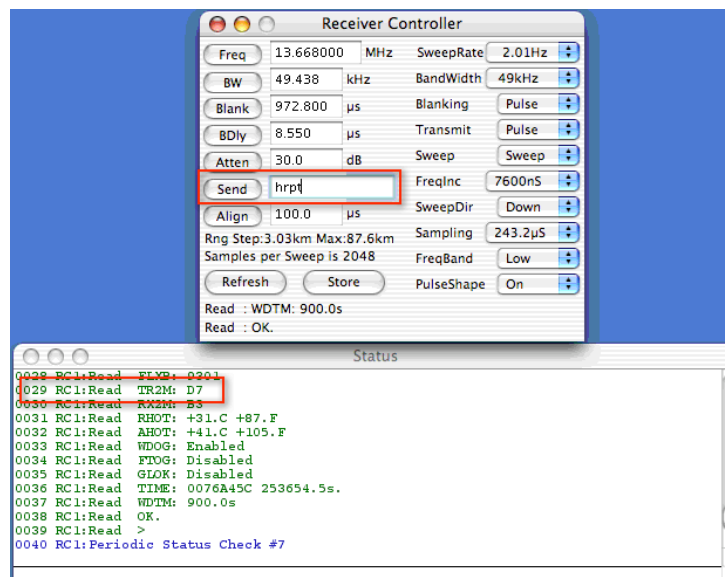
In high humidity environments, the Rx filter components can degrade and fail resulting in the incoming Rx or the outgoing transmit drive signals being severely reduced. This self test is used to assure that the signals passing through them are approximately equal and of sufficient strength to meet factor specifications.

Symptoms:

- A defective transmit drive filter will result in a weak signal being sent to the amplifier and a dramatic drop in the output power of the transmitter.
- A defective receive channel filter will result in a weak signal in one or more channels, resulting in an invalid antenna pattern and reduced range and coverage of surface current vectors.
- A defective receiver filter typically produces a signal 15dB lower than factor specifications. **All channels should be in the 50-60dB range and within +/- 1db of each other in value**

Equipment needed:

- This test works only on receivers that have a T/R module D7 (or higher) chip. To confirm this, send "hrpt" in the Advanced SeaSondeController window and firm the chip ID.



- **A 20dB attenuator** (a.k.a “pad”) with M-F BNC connectors
- Standard **transmit drive cable** with BNC connectors



20dB attenuator

Steps:

- Turn off the transmitter and disconnect it from receiver
- Make a screenshot of your operational settings and save the image (Cmd+Shift+4).
- **Send “default”** in the Advanced SeaSondeController window and re-enter your settings. Click the “Store” button to save them.
- **Send “xw0”** (that’s a zero in xw0) in the Advanced SeaSondeController window. This turns off all of the trip mechanisms in the Transmit Drive Control window of SeaSondeController.

In this order

- **Turn the Tx to “ON”** in the Advanced SeaSondeController window
 - **Turn the Blanking to “OFF”** in the Advanced SeaSondeController window.
 - **Set ATTN to “30” dB** in the Advanced SeaSondeController window
 - **Set b/w to “500” kHz** in the Advanced SeaSondeController window
 - **Send “trctl8”** in the Advanced SeaSondeController window
 - **Send “foff 25”** in the Advanced SeaSondeController window
-
- **Connect the 20db attenuator to the BNC connector** of the Tx Drive output
 - **Connect the transmit drive cable** from the attenuator to the Loop 1 receiver input
 - **Open the “Range Display” window** in SeaSondeAcquisition
 - Note and record the signal strength of **Loop 1**
 - Disconnect the cable from the the Loop 1 receiver input and connect it to Loop 2
 - Note and record the signal strength of **Loop 2**
 - Disconnect the cable from the Loop 2input and connect it to the Monopole input
 - Note and record the signal strength of the **Monopole**

Checking the transmit drive out filter:

- If the receive filters check out okay, swap the SMA connector on the transmit drive filter with the neighboring monopole filter. You are now using the “good” monopole filter for the drive output, and the drive output filter will be connected to the monopole channel

All channels should be in the 50-60dB range and within +/- 1db of each other in value

- Note and record the signal strength of the drive output filter on the **Monopole** channel.

It should be comparable to the other three.

- Restore hardware to its original state

- **Send “default”** in the Advanced SeaSondeController window.

- **Re-enter your operational settings**

If any of the filter values are out of range of factory specifications, contact CODAR at **+1-408-773-8240** or email support@codar.com to obtain an RMA number for repairs.