

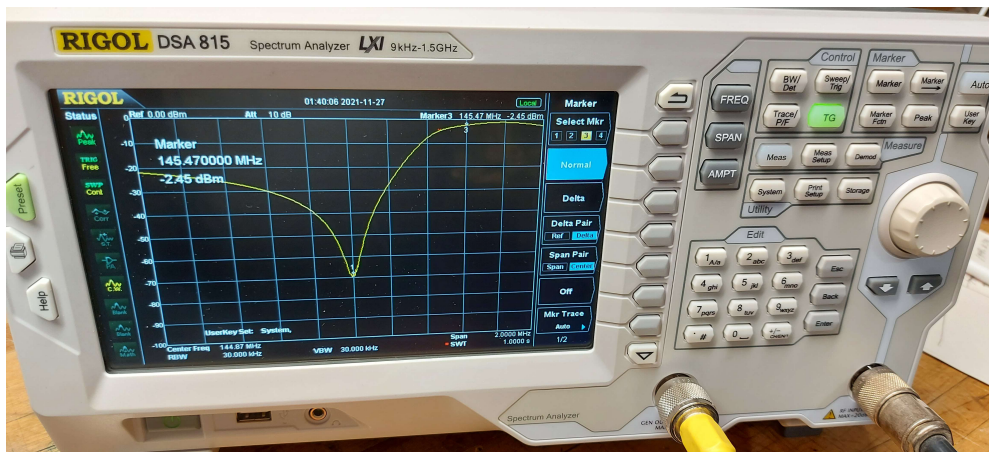
VA3PRA Repeater Tuning and Installation

26 Nov 2021

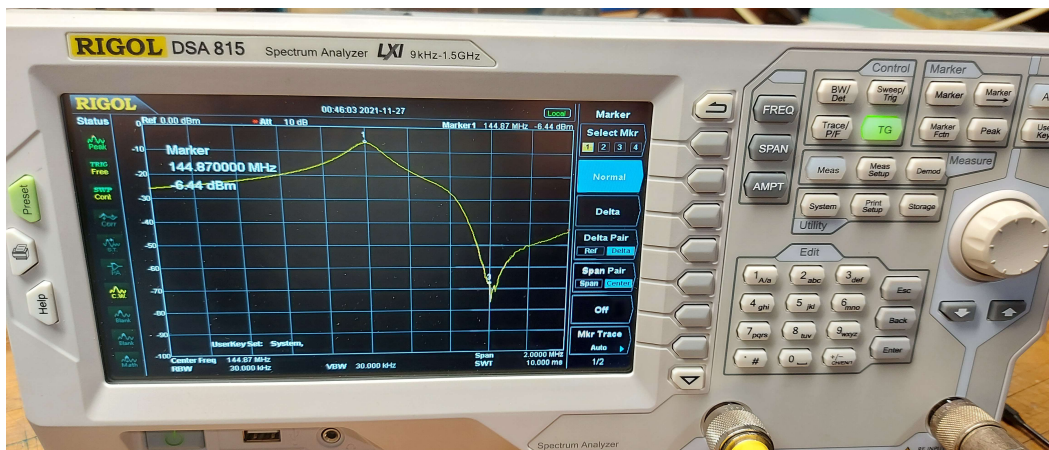
Today, Gilles (VE3NPI) picked up the VA3PRA cavities from Jeff's (VA3ISP) place and brought them here to Lance's (VA3LP) place for tuning. He also brought along the repaired DR1X, just back from Yaesu.

There are two sets of cavities, a standard Reslock 4 can duplexer and a 4 can bandpass filter.

The transmit frequency for the repeater is 145.470 MHz and the receive frequency is 144.870 MHz. On the TX side (Hi Side) the notch was tuned to 144.870 MHz. The notch was measured to be -70 dBm. The pass frequency of 145.470 MHz was measured at -2.45 dBm.

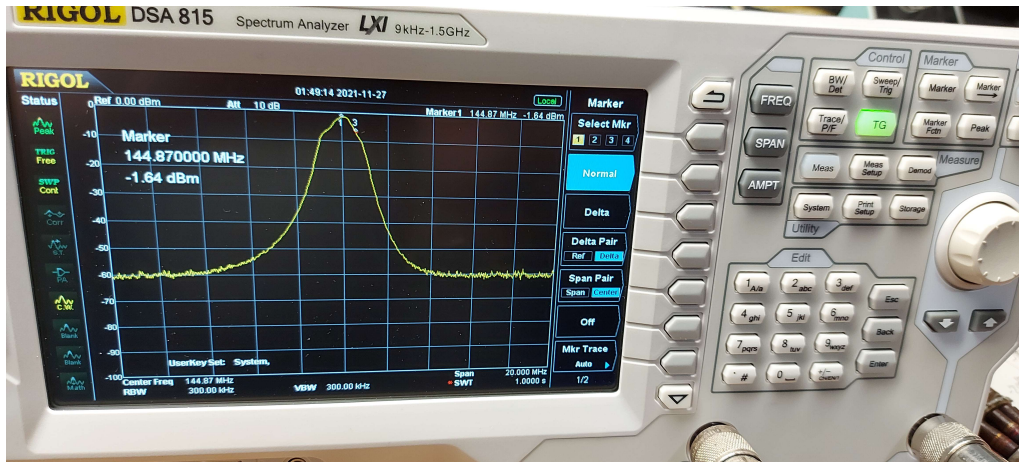


On the receive side (Low Side) the notch was tuned to 145.470 MHz. The notch was measured at -70dBm. The pass frequency of 144.870 MHz was measured at -5dBm.



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The bandpass filter was tuned to 144.870 Mhz with a pass frequency of 144.870 MHz and was measured at -1.68 dBm.



This provides for a total loss on the receive side of nearly 7 dBm.

Harry (VA3ZAK) and Pete (VE3YPD) met Gilles and Lance at the Alfred tower to help with the installation and testing. Prior to installing the repeater, the antenna was checked to ensure it was optimal at the operating frequencies. The antenna was found to be flat across the VHF amateur band.

The repeater and cavities were installed in the rack and turned on. The SWR for the O/P was checked and was 1.2 : 1. A very good number.

Using a handheld, the system was checked for operation without internet connection. In discussions with Mike (VE3IPC) we had good reports on signal quality and strength. The repeater was working great.

Once that was confirmed, the Rpi and Controller interface were plugged into the repeater. When installed and a further transmission via handheld was tried and the repeater would not respond. The front panel indication of RX would turn green only for a part of a second and then turn back white. The TX never came on. The interface and Pi were cycled a few times and this did not fix the problem. The Pi and controller were disconnected from the repeater and the repeater once again worked fine.

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The Pi and controller interface were left connected to the internet but not to the repeater. Then everything was closed up and we left the water tower,

After a brief trip to TH's, we all then headed home. VA3LP tested the repeater with VE3IPC from Alfred all the way to Cumberland. The repeater worked very well all the way. Some drop outs in Rockland and through Cumberland, but still very good reception and transmission.

Further work will be required to investigate the issue with the Pi and controller interface.

I wish to thank Gilles for help in the tuning of the cavities as well as the installation at Alfred. As well, Harry and Pete provided some muscle and their two cents worth of wisdom. It certainly came in handy

I also want to thank Jeff for the use of his Rigol 815 Spectrum Analyzer for tuning the cavities. That is a beautiful piece of test equipment. I wish I knew more about it.

Prior to leaving, Harry connected up his Yeasu 710 and we tested the antenna for UHF. At 432 Mhz the SWR was 1.2 and at 449 Mhz it was just under 2.0. So it appears that the antenna on the existing VHF repeater may be used for UHF.

Lance VA3LP