Bench Testing a HF Voltage BAL_UN: ***01/06/2024***

I decided to experiment on this principle with some tools that I have, and with my *open BALUN*, that I showed as a photograph earlier.

I simply attached a **50 ohm** resistor (wattage doesn't matter) to the output terminals and attached the BALUN to an Anteena Analyzer. Since most folks have something like the ***MFJ-269***, or such, and did a basic SWR check at about 3.6 MHZ, and higher.

Suspecting that my BALUN was a 1:1 Voltage wound BALUN, the SWR would be very low. (see photo)

1. At 3.5MHZ the SWR measured 1.1, Rs=50 ohms, and Xs=8 ohms
2. At 4.0MHZ the SWR measured 1.1, Rs=51 ohms, and Xs=7 ohms
3. At 7.0MHZ the SWR measured 1.0, Rs=52 ohms, and Xs=2 ohms
4. At 7.35MHZ the SWR measured 1.0, Rs=53 ohms, and X=1 ohms

Now, with a **75 ohm** resistor attached to the output terminals, intead of the 50 ohm, as expected, the SWR jumped to 1.5.

1. At 3.5MHZ the SWR measured 1.5, Rs=75 ohms, and Xs=10 ohms
2. At 4.0MHZ the SWR measured 1.5, Rs=75 ohms, and Xs=9 ohms
3. At 7.0MHZ the SWR measured 1.5, Rs=70 ohms, and Xs=15 ohms
4. At 7.35MHZ the SWR measured 1.5, Rs=69 ohms, and Xs=16 ohms

Bear in mind that a carbon resistor would have been best, but this thin metal resistor still proved the point.

As I decreased th frequency down to below 2MHZ, the SWR changed to 1.7, with an apparent Rs=66 ohms and Xs=27 ohms.

This would be because of the small number of windings around the core, with much lower Mutual Coupling between windings at these lower frequencies.

Now repeating this with a **RigExpert AA-600** Antenna Analyzer, shows an expected flat line at SWR=1.5, except at frequencies below 2 MHZ. I'm sure that any of my **AEA Analyzers** would show nearly identical graphing.

Now, with this information, and if you do not have an analyzer, then you could repeat this process, by using a high wattage resistor (preferably carbon) with your XCVR on very low power and simply check the SWR Meter during transmission.