

The Radio Hotel—Antenna Measurement Tools & Accs.

by Rick Hiller W5RH

Some of the Radio Hotel column subjects come from members that call me to discuss certain antenna aspects or problems. I enjoy that and here is one that happened recently that stirred the grey matter.

Terry, K5PGF (Pretty Good Fellow) called me today to ask about measuring a balun. What struck me was that Terry had an MFJ 259 analyzer, as do I, and that he had a kit of “things/accessories” to ensure proper connections when he was helping folks with their antennas on site. Me too. I keep mine in a make-up case my daughter threw out. It fits the MFJ analyzer and all of my “accessories”, pictured below.



What I like about the MFJ 259B. It is easily frequency agile -- tunable. Shows me the varying Z, R, jx and SWR numbers so I can see trends, as I tune across the bands. Graphs are great, but numbers are what make up the graphs. I just transpose the numbers displayed in my head. Nice thing about Ham Bands –



they are fairly narrow and our antennas usually have a reasonably wide 3:1 SWR bandwidth (emphasis on “usually”. Well, maybe not 80 or 160 – HI.) By my comments, don’t let me talk you out of your Ukrainian Rig Expert, as it is a great tool. But, it gives graphs and you then have to dig for the numbers. Most Hams are the 95%’ers who just need a graph. That is all good too. See TRH May 2021 Beacon https://bvarc.org/rh/rh_2105.pdf SWR – “Last Gas For Cycle 25 -- A plea for more 5%’ers.

Measuring tools – Reference TRH “Before The Nano VNA” https://bvarc.org/rh/rh_2102.pdf I use the MFJ 259B, The Heathkit GDO-Grid Dip Oscillator for resonance measurement and a VOM for continuity (all pictured above). Then I add to this cadre of gear all of the accessories -- jumpers, connectors, adapters and resistor standards that I need to connect to just about any antenna system no matter where in the system I can connect. When putting your kit together think not of your system, but the possibility of others using their own methods to rig their antenna system as they see fit.

When doing work for others, before you do any work, you will need to confirm proper operation of your antenna analyzer on site. Sometimes rouge RF can cause you problems. Read “Blame it on IZO” on the BVARC Tech Articles page. <http://www.bvarc.org/Tech/BlameItOnIZO.pdf> I have not had extensive experience with the Rig Expert, but you should measure it too, once on site, using fixed SWR loads for 1:1 50 ohms, 2:1 25 and 200 ohms and 4:1 12.5 or 200 ohms. If you are using the Nano VNA it comes with its’ own Short, Open, 50 ohm calibration loads. What I do in some cases, where the RF is quite high, like in the IZO story, I use an OIB – Operating Impedance Bridge -- my high power capable VNA based LP-100A SWR/Watt Impedance meter and a 100 watt transceiver easily overrides this rogue RF.

It is admirable to do antenna work for others. Just pack the appropriate tools and accessories. So, thank you for your lend’ed hand and enjoy the learning experience. It is part of what our great hobby is all about.