



Magnitude of the Impedance of Wide-Spaced Coaxial Chokes

As a follow-up to the work that Kevin, K6TD, and I did on Sunday, I've done several things. First, I tried a few measurements with the TenTec VNA and found a systematic error of about 6 dB when measuring resistors in S21 mode. I set that aside to mull it over, and decided to try a simple setup with an HP8657A RF generator as a signal source, an HP8590D as a voltmeter, and the unknown in the series element of a voltage divider that has the input Z of the 8590D as the load.

I then proceeded to measure some resistors, and found a systematic error similar to what I was seeing with the VNA. The light bulb illuminated – the systematic error is the 50 ohm source no longer being loaded by the 50 ohm voltmeter, but instead seeing the resistor. Thus, no 6 dB drop at the output of the generator. OK. So I measured a 3.3K resistor (3,455 ohms on my Fluke) and found that the generator output varied about 3 dB between 1 MHz and 40 MHz. Solution – measure and log the values of the resistor, then measure the chokes and correct the data for both generator loading and its flaky response.

The data above is for the same chokes measured at Kevin's (although I didn't measure all of the ones I measured there).

