

# Hot Tips

*Good info for the new ham, and old stuff to refresh your memory*



## Using a NanoVNA to Test SWR

Some who are truly serious about measuring passive ham radio stuff, such as coax impedance, antenna SWR, and continuity, eventually purchase an expensive piece of equipment called a VNA (vector network analyzer). But their multi-thousand-dollar price tags tend to keep them out of the reach of mere mortals.

That is, until the advent of the [NanoVNA](#), a pocket-sized version of a VNA that supposedly has many of the same functions, but for under \$70. Still, many hams prefer the security of using an actual antenna analyzer when they only want to measure SWR and impedances. But even those devices ([RigExpert AA-230 ZOOM](#) and [MFJ MFJ-269D](#), for example) cost upwards of \$350 each. That all changed, however, when *QST* (May 2020, p. 39–43) reviewed the device and declared it a serious and worthy test instrument.

Many do-it-yourself-er hams soon rushed out and purchased one of these little devices, but they quickly discovered that using a NanoVNA is not all that straightforward. I'm hoping this quick-start guide will help, if you've purchased one too. These instructions apply to the original NanoVNA, and not the —F or —H versions. Also, they'll be for the device screen, not the PC user interface screen software. Finally, I'm going to skip the calibration steps, to simplify things, although calibration is a good idea.

### Step 1 — Set the frequency range

Power up the NanoVNA using the slide switch  
Press the rocker control to display the menu  
Tap **STIMULUS**, then tap **START**  
Tap the blank space in the lower right corner  
Tap 4-2-0-M (for 420 MHz)  
Press the rocker control to display the menu  
Tap **STOP**, then tap the blank space again  
Tap 4-5-0-M (for 450 MHz)

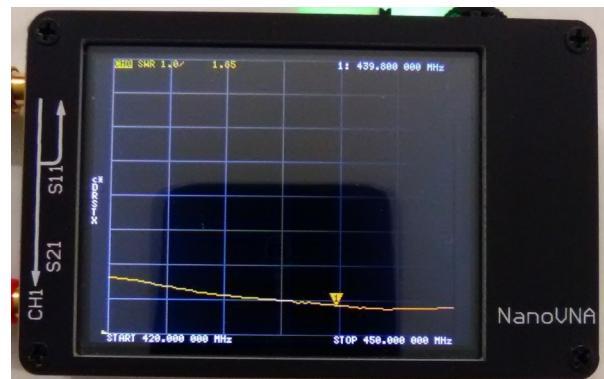


### Step 2 — Display the SWR

Attach your antenna through an appropriate adapter to the **TX** connector, which is SMA-Female, and leave the **RX** connector empty  
Press **DISPLAY**, then **FORMAT**, then **SWR**

Press **DISPLAY | TRACE | TRACE 1 | OFF**  
Then repeat for **TRACE 2** and **TRACE 3**

The NanoVNA will now display the SWR for the entire 70 cm band in yellow (curves and lettering). At this point, to display the SWR at a particular frequency, toggle the rocker control either way, to move the yellow marker to the desired frequency, which shows up white in the upper right of the display. *Voila!*



*SWR is 1.0 / 1.85 at 439.800 MHz*