

Application Note of ZVL R&S Vector Network Analyzer

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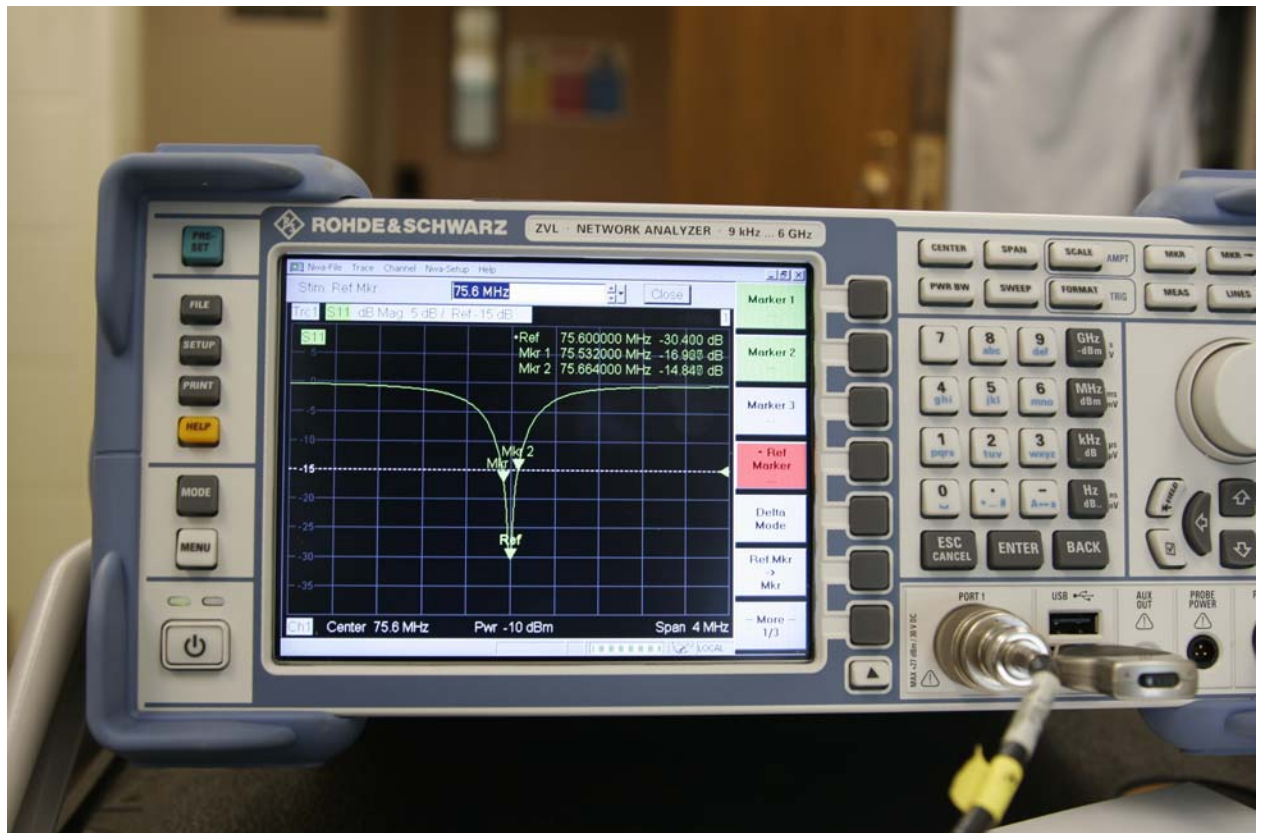
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Tune NMR Probes:

1. After boot up

→press meas → Select S11 (for sweep and check reflect) → press center
→set the center frequency of the tune frequency → press span for 10 Mhz. If the probe frequency is in the range:



Press marker to measure the frequencies. Also Ref. marker could search for the lowest point, it will display for the dB value and frequency at the marker.

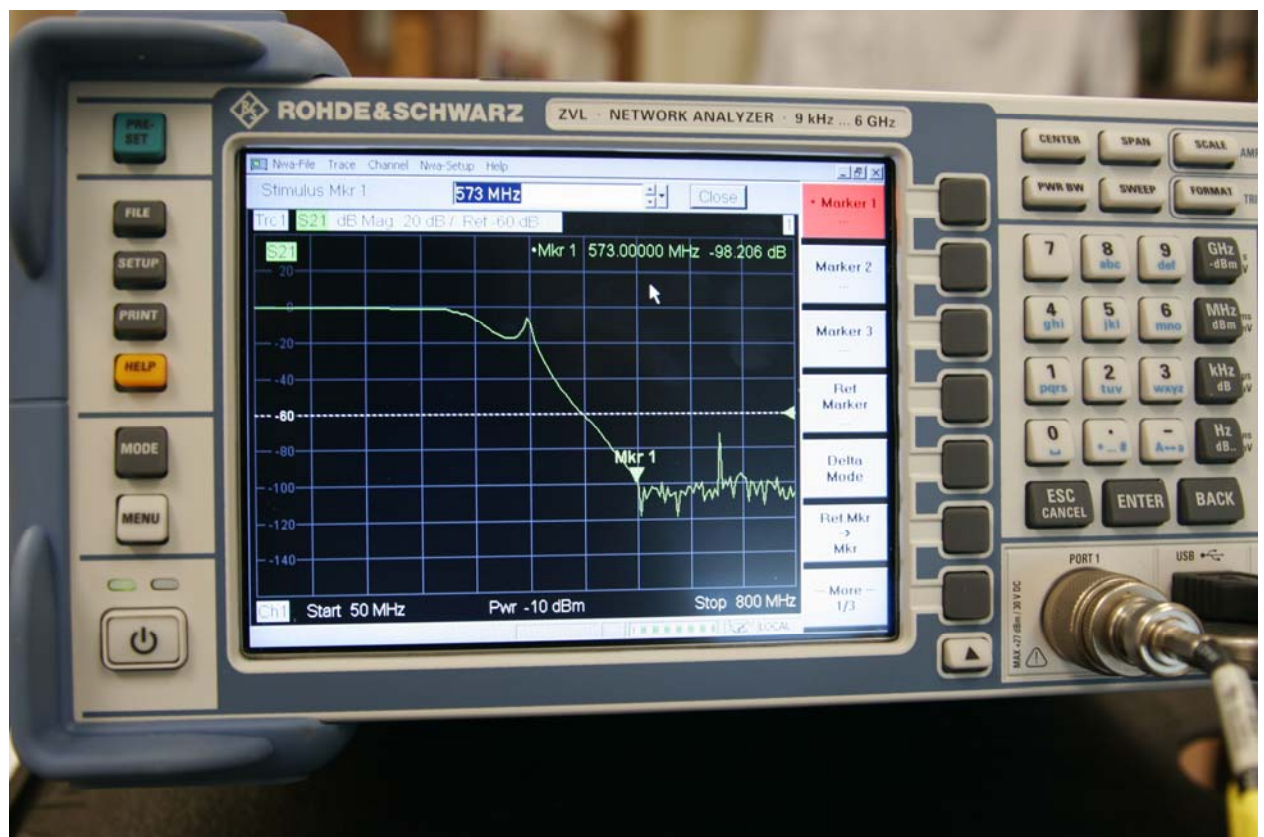
Note: you could save the parameters for future use; the graphic tuned file could be saved for reference as jpg or gif files.

→ Press mkr → mkr search → min search → the marker will be at the dip of the peak.

→ Press pwr BW → meas bandwidth → 1k Hz or smaller, the signal will be more stable (less jumpy).

Check RF filters:

→ Meas → S21 → Center → start frequency 50 Mhz → stop 700 Mhz → pwr bw → meas bw → 10 KHz → scale → scale/div 15dB

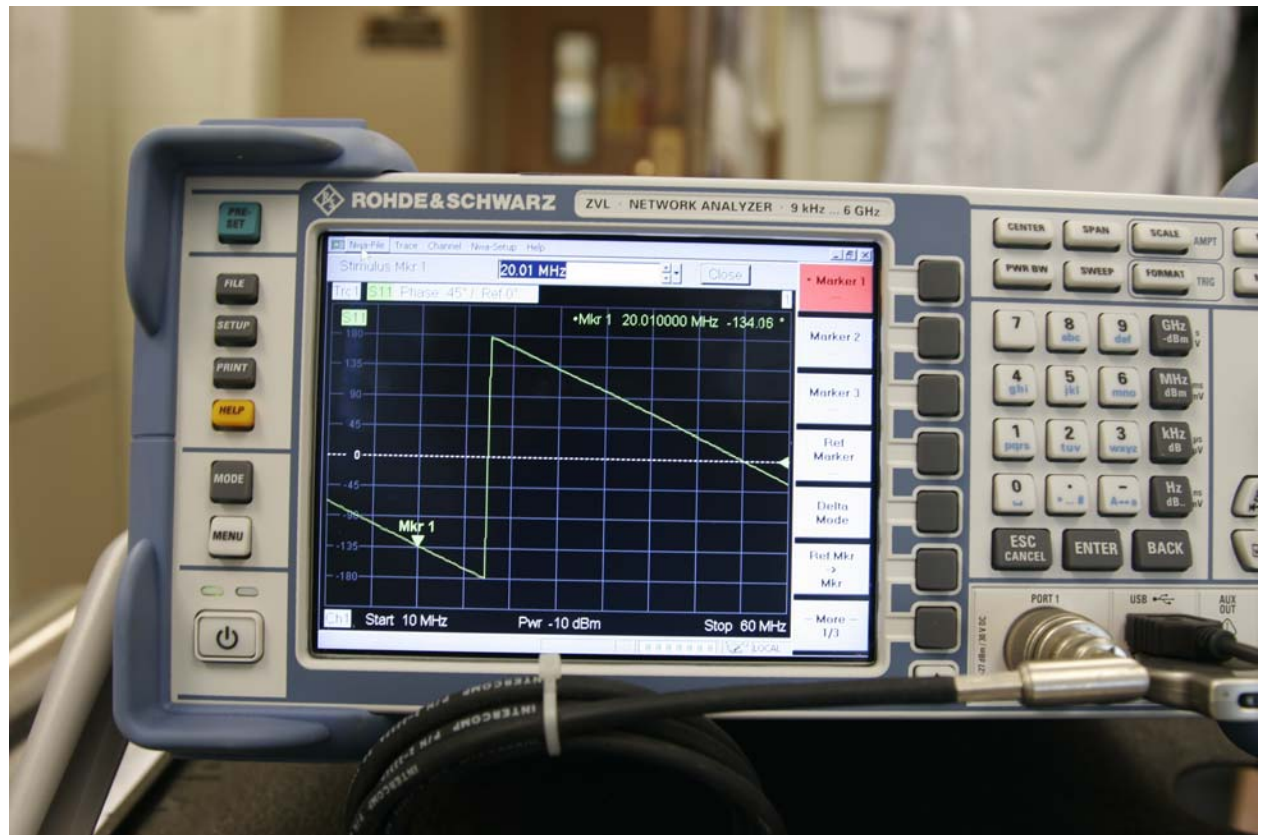


Use the marker to measure filter efficiency:

→ Mkr → marker 1 → move the knob → read -87dB.

Measure $\frac{1}{4}$ wave cable:

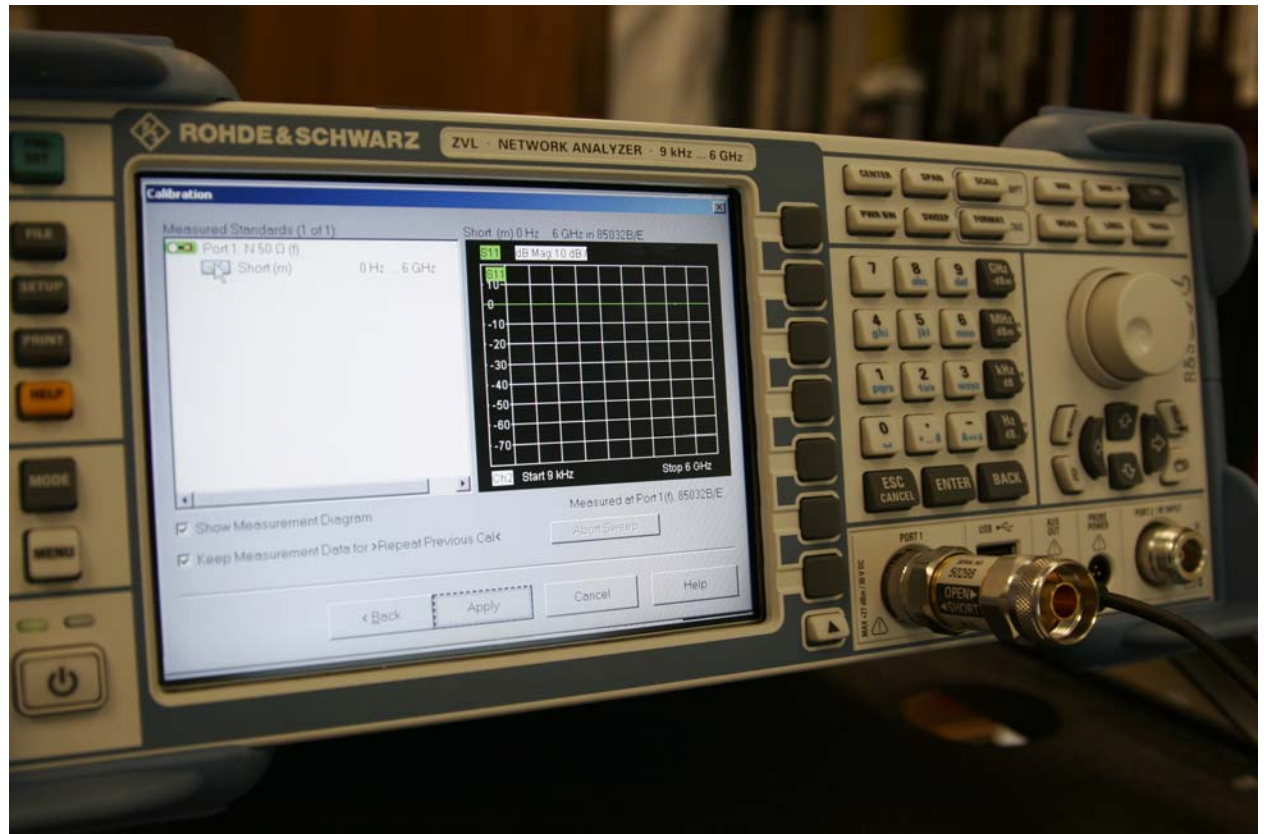
→ Meas → S11 → format → phase → center → start 10 MHz → stop 60 MHz for (1/4 at 20 – 40 MHz):



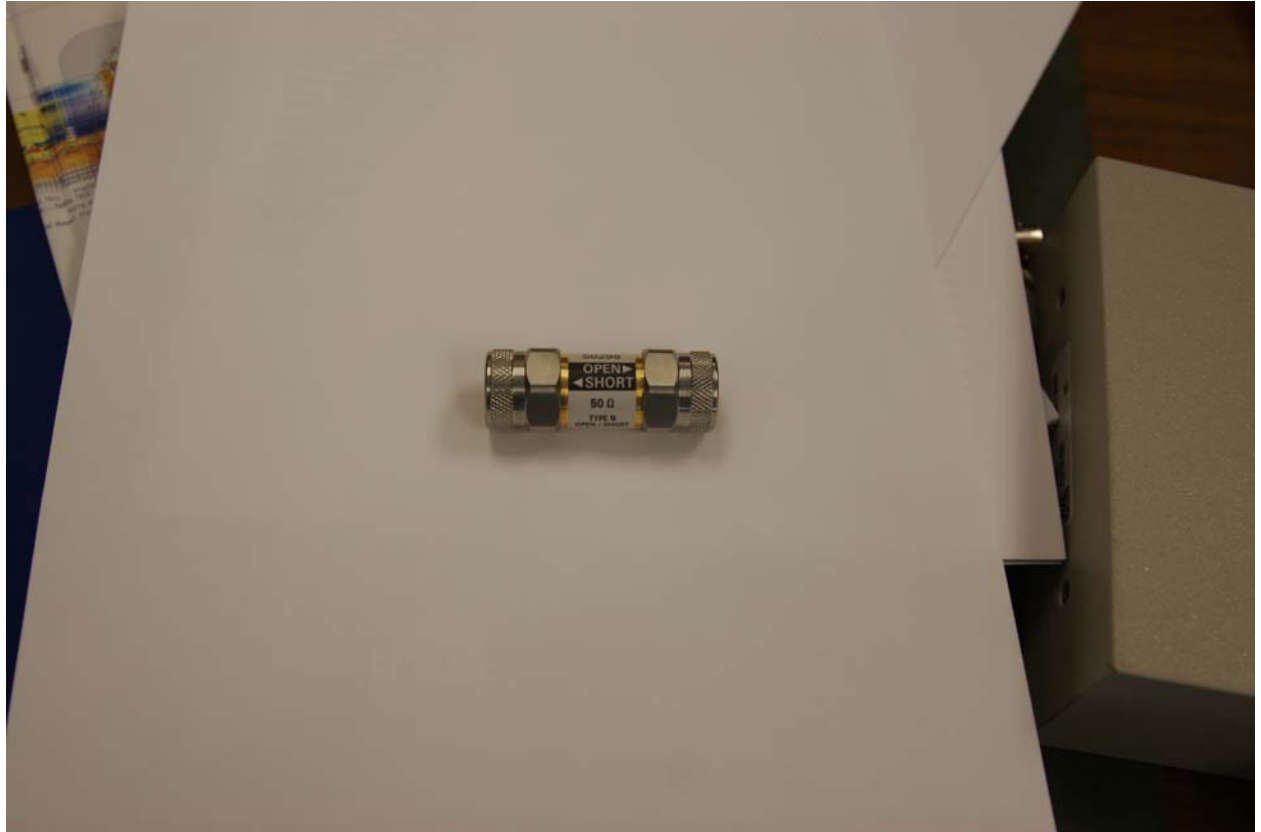
The jump area should be the center of the frequency (30 MHz) at phase 180 degree. Use marker to measure the loss at +/-135 degree at frequency 1 and frequency 2. This will be the range of the $\frac{1}{4}$ cable from frequency 1 to frequency 2.

Use 85032E calibration kit to calibrate the Network Analyzer:

- Press cal → start cal → one port P1 → Select normalize short → N50 Ohm 85032B/E , connect the short site of the kit:



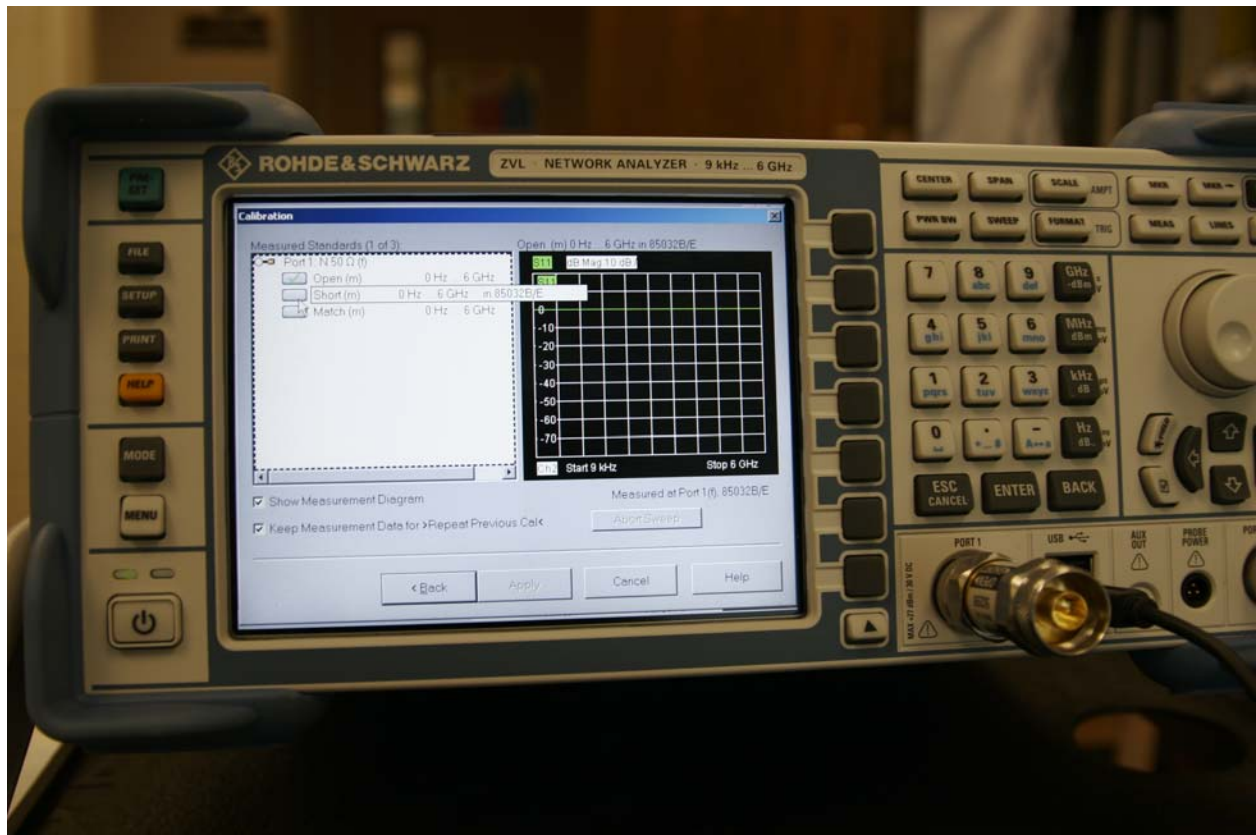
- After press normalize short, this screen will be displayed. Then connect the calibration kit. the short end should connect to the unit. See the picture.



Then click the short icon on the left screen. It will start to calibrate. It takes about 10 to 20 seconds.

Full calibration:

In the calibration kit, there are two N-type calibration kits, one is for "OPEN/SHORT" calibration. One is for 50 Ohm calibration. On the screen will be three icons "OPEN" "SHORT" and "MATCH". Before clicking the icon, the calibration kit should be connected to the port (1 or 2) depending on which port is being calibrated.



Connect the open end of the kit then click the open icon;

Connect the short end of the kit then click the short icon;

Connect the 50 Ohm kit, then click the match icon.