OSL-Cal-Kit from surplus components

Matthias DD1US February 6th2020

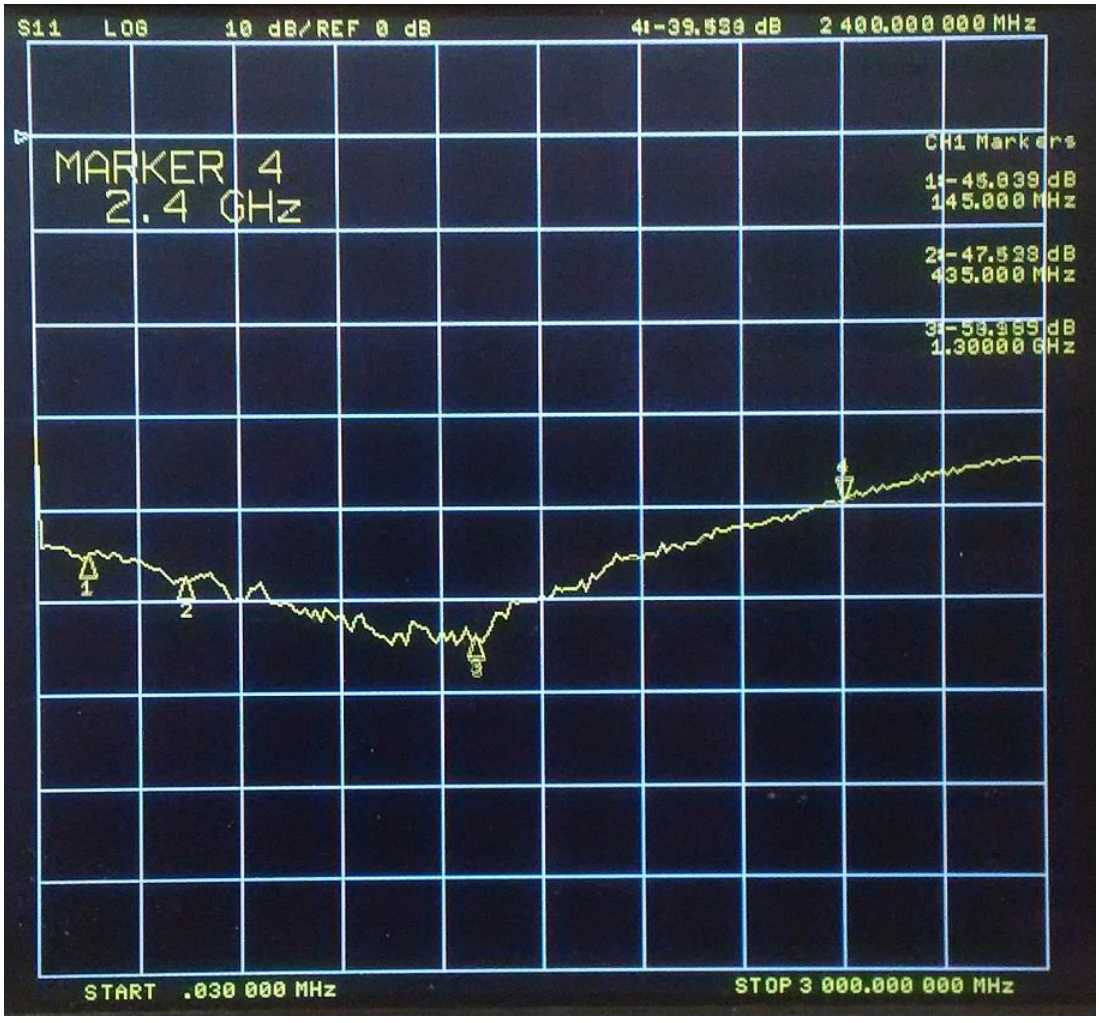
Recently I was able to acquire some surplus components on a flea market in order to use them as an Open-Short-Load Calibration kit for my spectrum analyser with tracking generator in combination with a SWR bridge.

One component is an open/short device with N-plugs from R&S with the part number 831.7030.62. I do not have any specification of it.

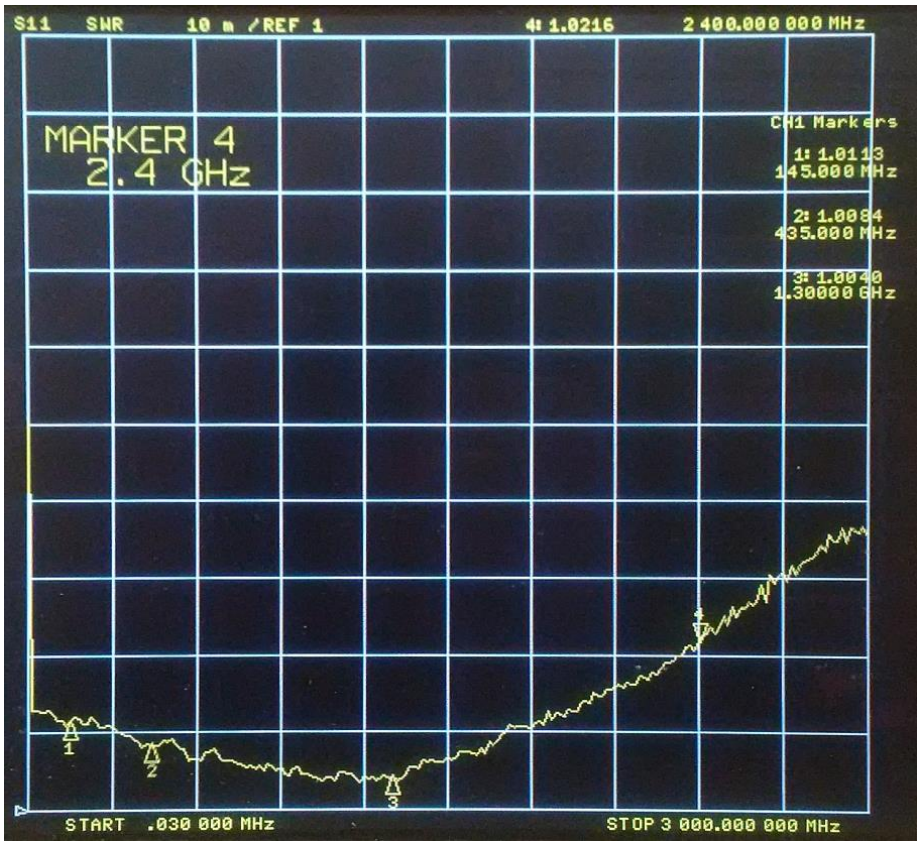
Here are some pictures of the device:

In addition, I acquired a 50 Ohm load with a N-plug, again not knowing any specifications on it. It is marked as Weinschel Model 1424-3.

I characterized both units using a VNA. Here is S11 of the 50 Ohm load measured in the frequency range 30kHz to 3 GHz.

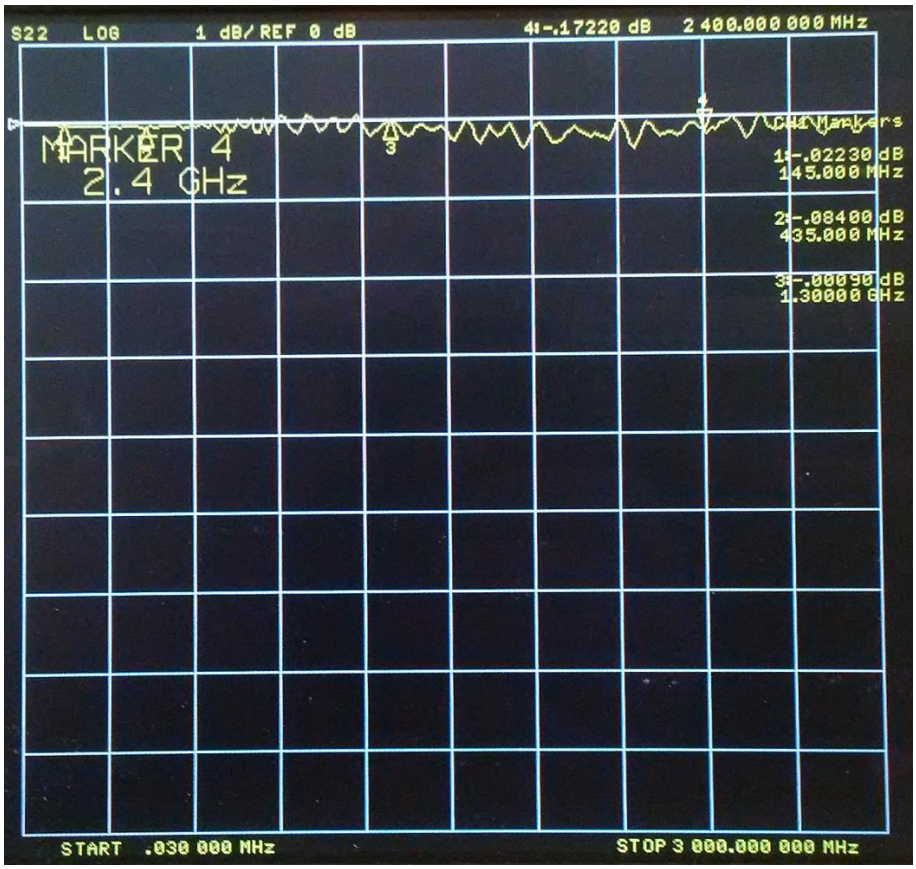


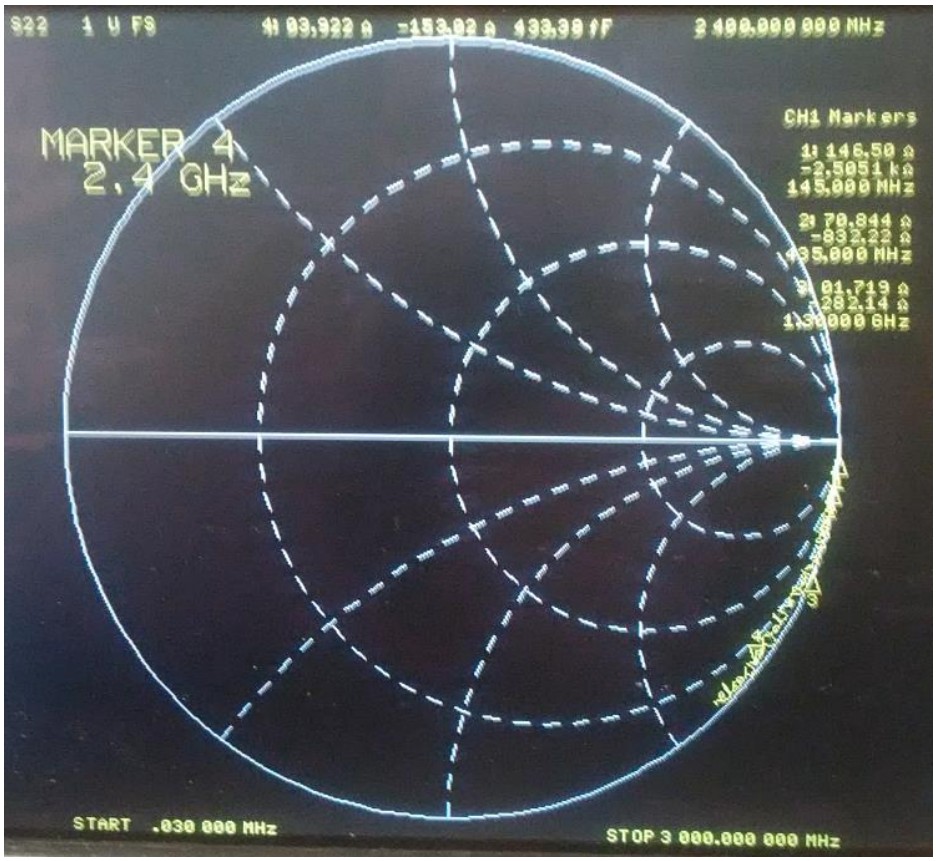
The return loss is 46dB at 145 MHz, 48dB at 435 MHz, 58dB at 1300 MHz and 40dB at 2400 Mhz. So it does serve well as a calibration load in my setup.



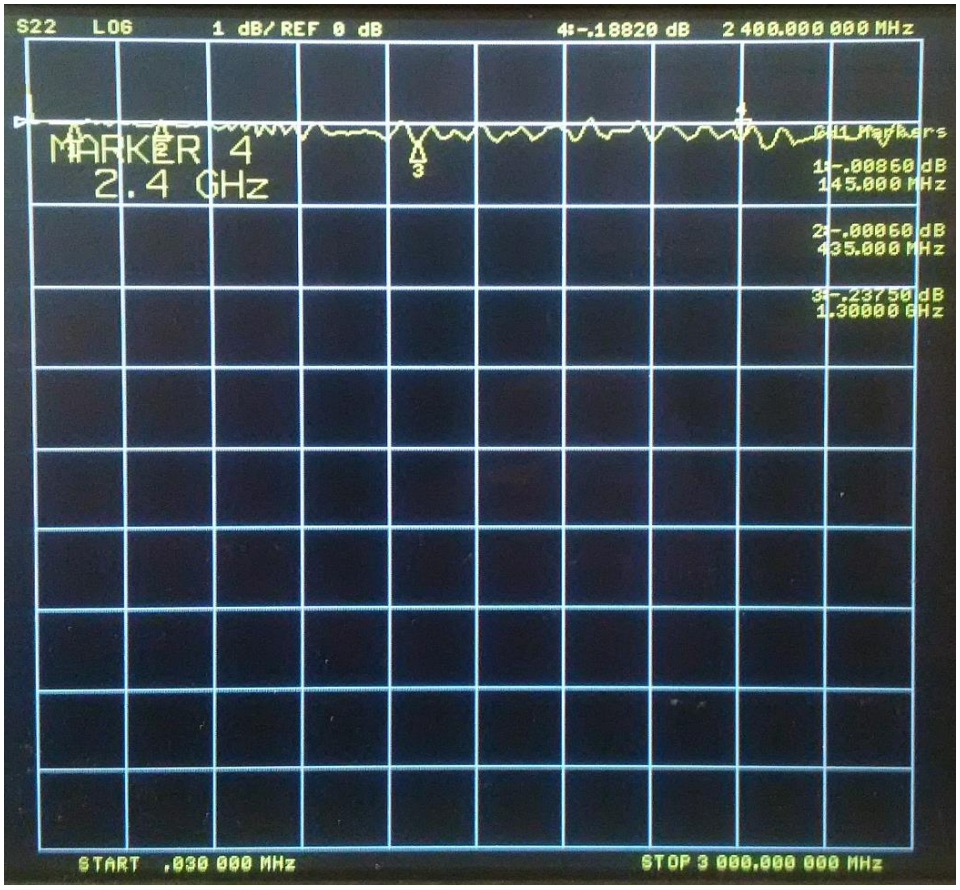
The SWR is 1.01 at 145 MHz, 1.01 at 435 MHz, 1.00dB at 1300 MHz and 1.02 at 2400 Mhz.

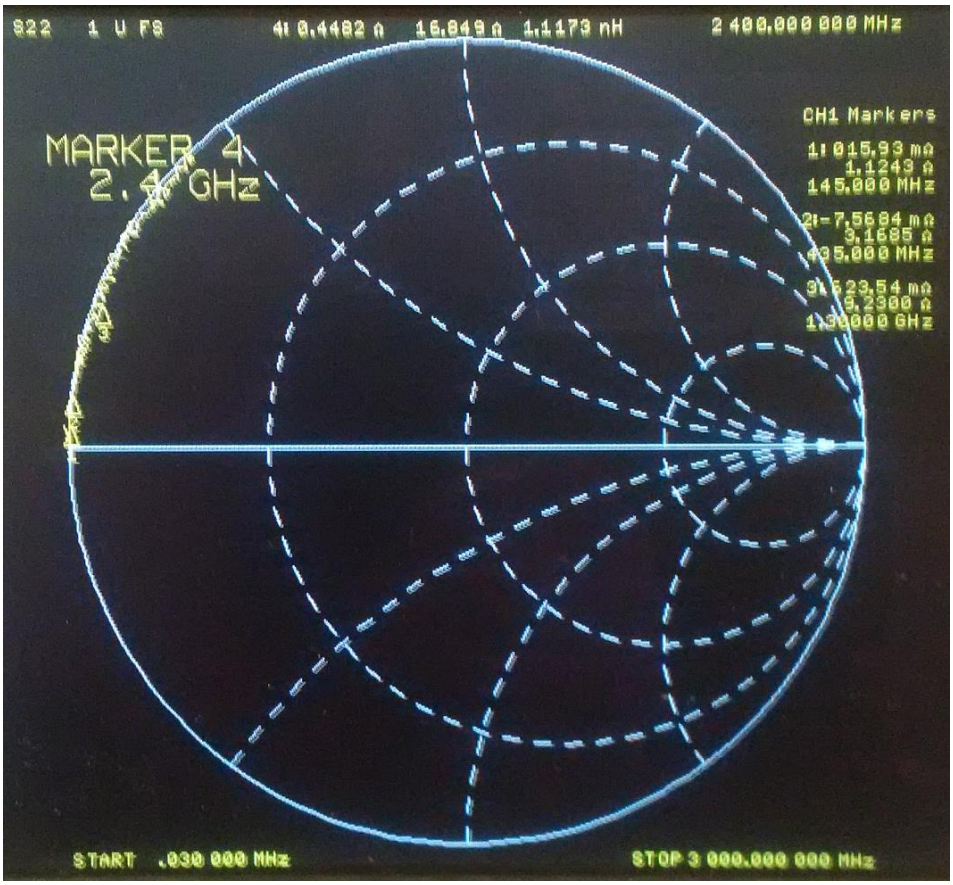
Next I measured the open port of the other device:





Finally, I measured the input impedance of the short port of the R&S device:





The open and the sort are only almost “ideal” at 145 MHz. With increasing frequency, the open and short are no more “ideal”. Frankly I am not sure whether the measured values are good enough for a calibration unit and will have to look more into this.

I appreciate feedback from other on those measurements and how to interpret them.

Also, if you have questions or any comments please send them to the Email address given below.

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Matthias DD1US

Email: dd1us@amsat.org Website: www.dd1us.de