

## Introduction to the new software V230 for the miniVNA

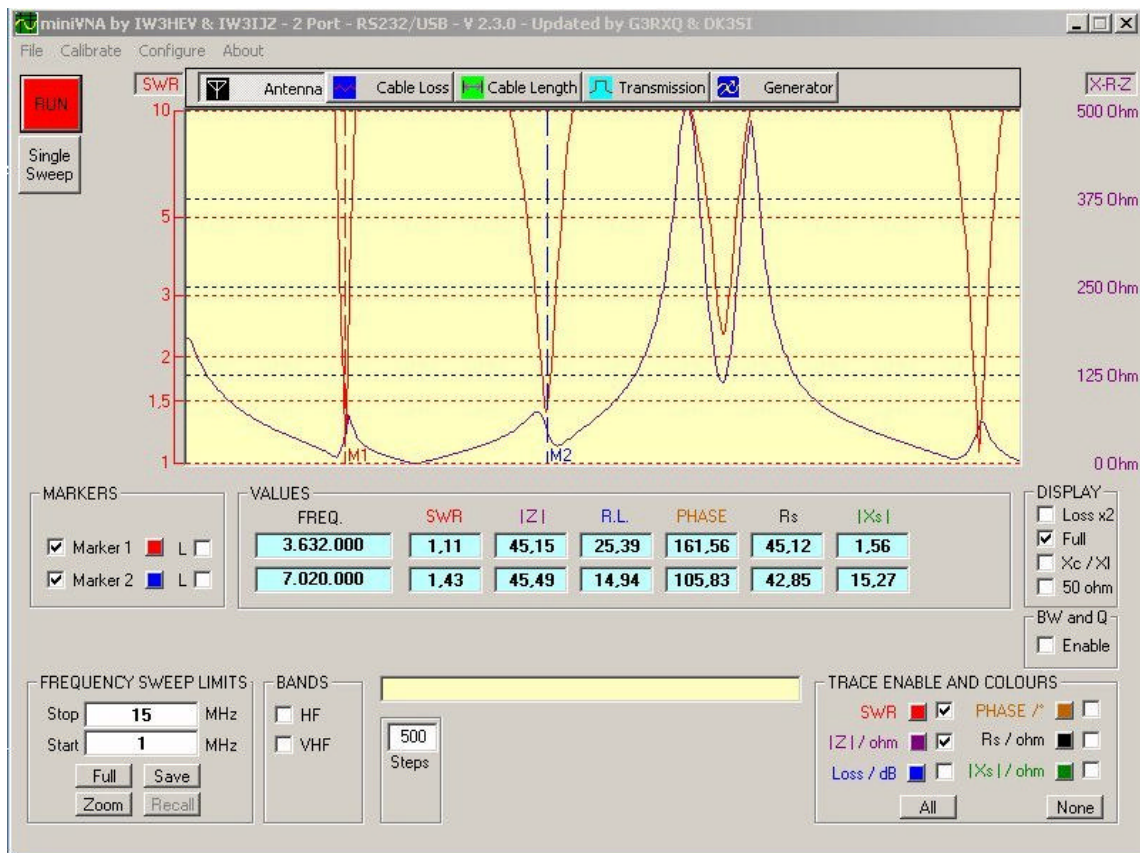
Many thanks go to Harry DK3SI and Stewart G3RXQ for their fast and extensive work, started mid May 2007. Beta-Test early June. Final version released for HamRadio.

Download the V230 Set-up.exe from the Yahoo Group.  
You will still need the FTDI USB driver.

### New Features added

- \* Automatic Port and Regional Setting
- \* Improved Error Handling
- \* Generator Frequency Calibration
- \* Reflection/Transmission Calibration
- \* Built in Configuration
- \* Large Readout Display for SWR and Frequency
- \* Logarithmic Scaling for SWR
- \* Lower CPU-Load
- \* Improved Graphics and GUI
- \* Single Sweep (CPU-Load <10%)
- \* Automated Cable Length Measurement
- \* Screen Foreground/Background Colours User selectable
- \* Selectable Loss Auto-Scale

Let's first have a look to the New Graphics



All vertical axis are function dependant, and are now separated for easier viewing.

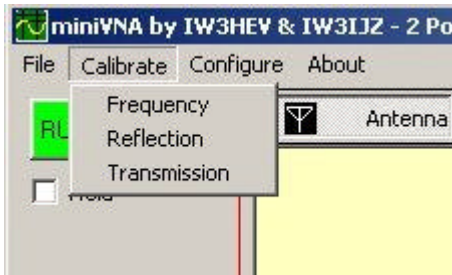
A new feature is the Single Sweep button. This function reduces the CPU-Load to below 10%.

The CPU-Load is dependant on the step rate. For example with 500 steps the Load is reduced to 50%, while with 250 steps the Load is as low as 30%. You can overwrite the current value in the Steps Box without having to open the Configuration menu.

The SWR scaling has been changed to logarithmic for better resolution at low values.

The Menu Line now contains the Calibration and Configuration functions.

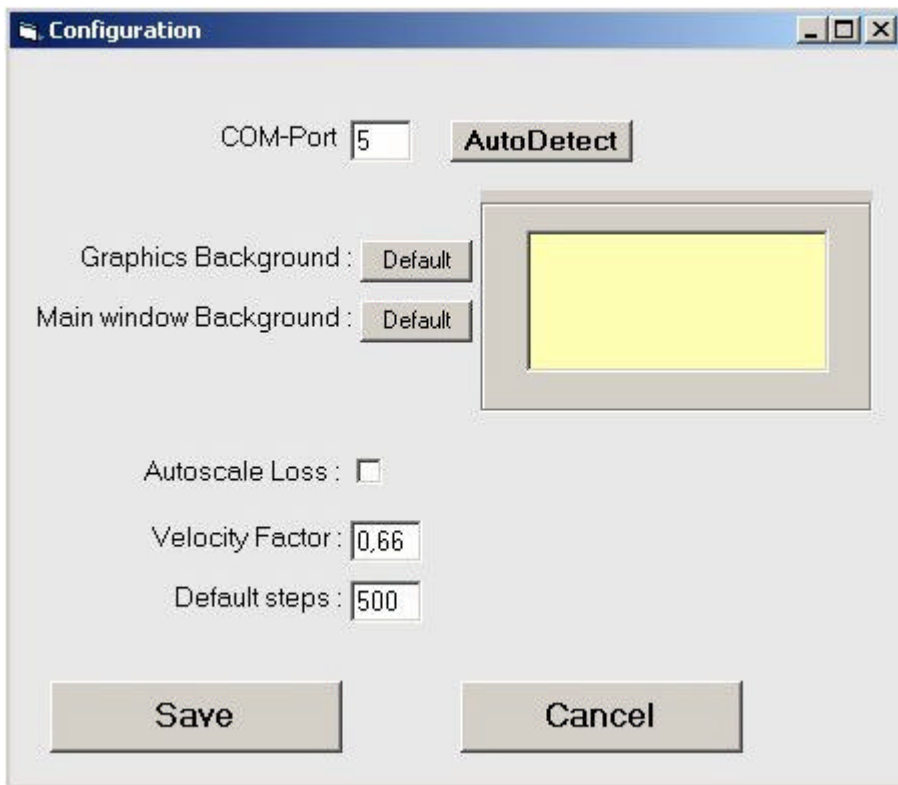
**Note:** Before you start any measurement, configure and calibrate your miniVNA



Use any of the Drop Down Menus for calibration. When you have finished, **close the program**.

Let`s start with the Configuration

Below we see the Configuration frame which is the replacement of the "old" Analyz.ini.

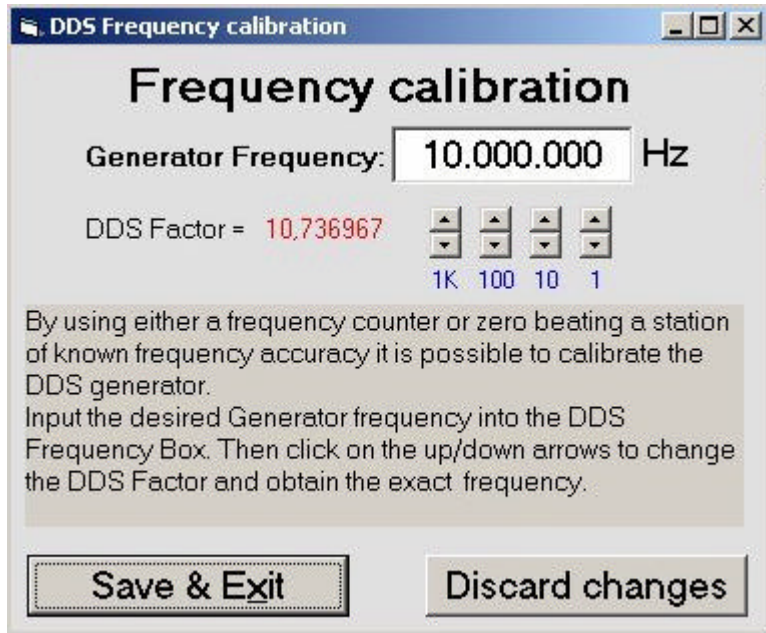


Use Auto Detect to identify and save the virtual Com-Port for the USB connection. If you want different Graphic or Background colours, click on the appropriate part of the frame and make your colour selection.

If the Autoscale Loss box is unchecked then you can manually select x2 for the Loss Display.

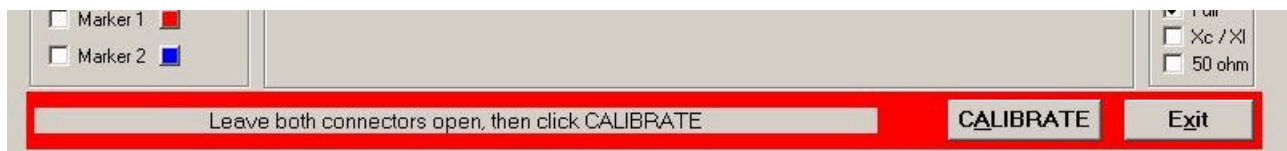
Default Steps (1-1000): the more points the greater the resolution, but the measurement speed will be slower.

## FREQUENCY CALIBRATION



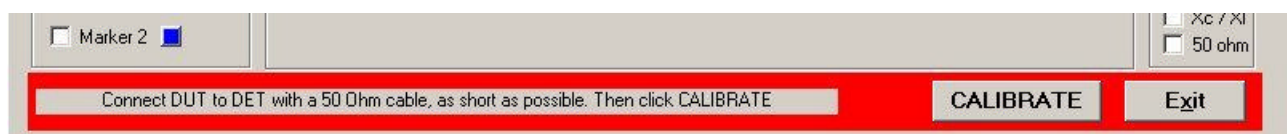
Adjust the DDS Factor with the UP/DOWN arrows to obtain the exact Generator Frequency in real time at the DUT connector. Save & Exit and continue with calibrating the Reflection/Transmission

## REFLECTION CALIBRATION



The Calibration procedure for Open condition takes some seconds. Crosscheck the SWR or Return Loss afterwards with a good 50 Ohm reference on the DUT connector.

## TRANSMISSION CALIBRATION

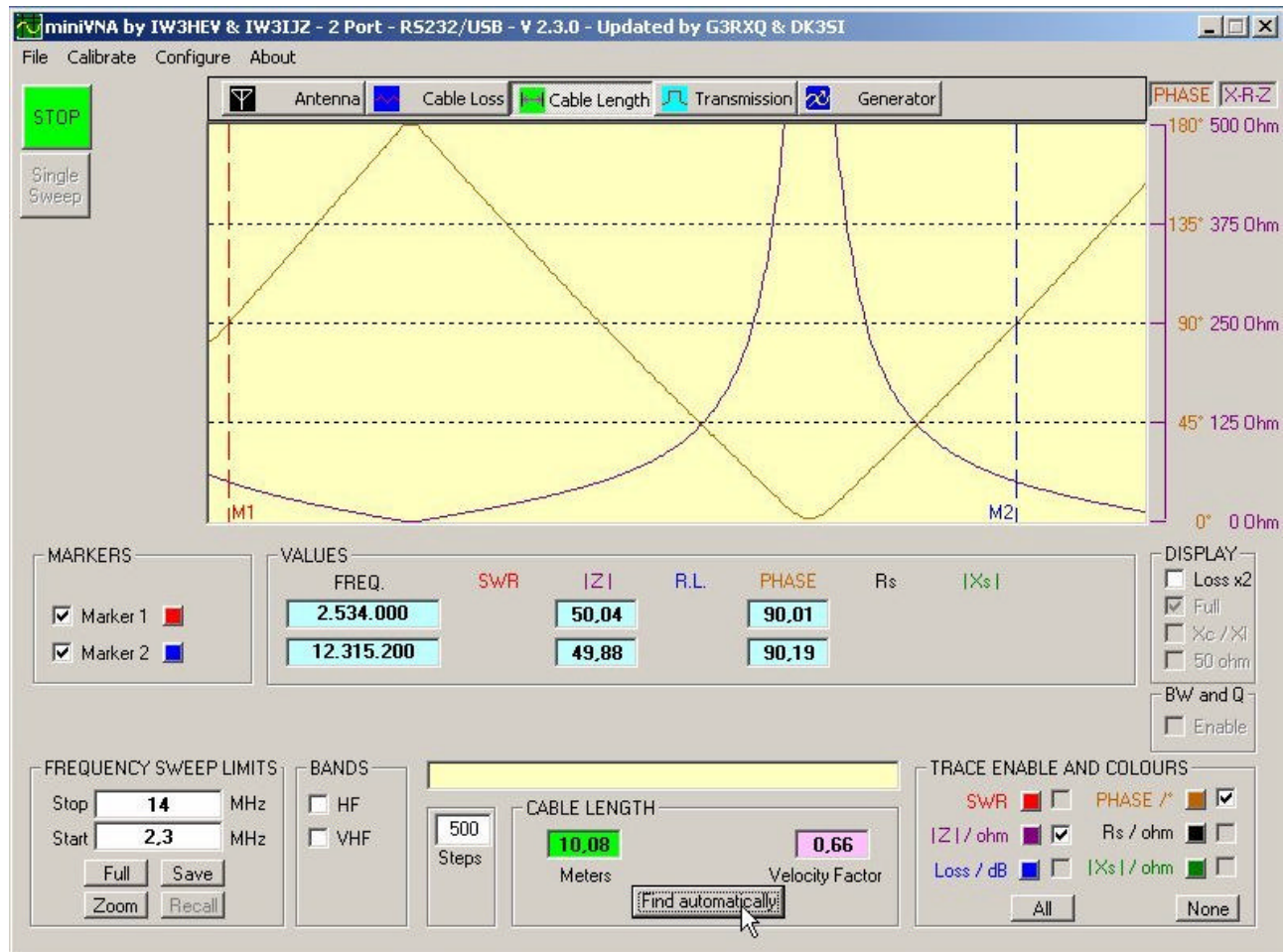


As above, wait some seconds until you see the Save message. The Return Loss should be near to Zero dB in Transmission Mode. Check that with the short cable in Transmission Mode afterwards.

**Note:** The results of the Calibration and Configuration will be saved in the .CFG file until the procedure is repeated. **Close the program now** and restart checking the Antenna Mode with a good 50 Ohm Resistor and the Transmission Mode with the short cable.

## CABLE LENGTH

An automated Cable Length measuring function has also been added.



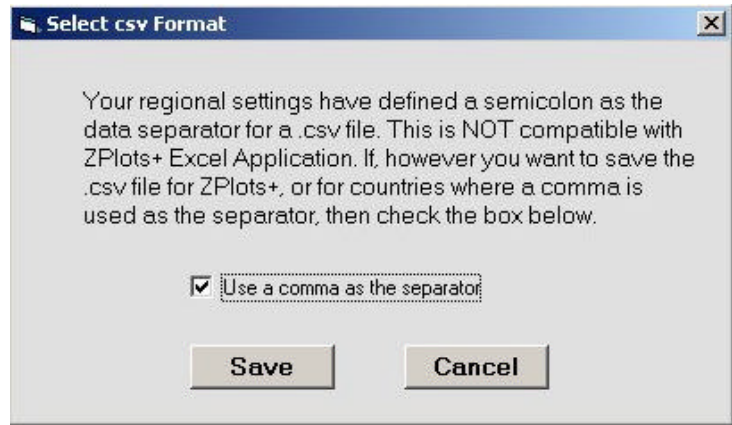
Connect the unknown cable to the DUT connector, then click the “Find Automatically” button.

It will take some seconds until you see the correct length. The cable length is calculated from adjacent Phases at +90° and dependant from production tolerances of the Velocity Factor.

It is still possible to set the needed 2 Markers and measure manually. Do not try to measure with a Single Sweep.

## SAVE MEASUREMENT

As with the previous Software Versions you can save your measurements in the special .VEC format and the more common .CSV (Comma Separated Variable) format. The .CSV format is Excel based and can be opened and read by Zplots+. If your Regional settings are incompatible with the .CSV format needed by Zplots+, then you will be prompted to change the separator.

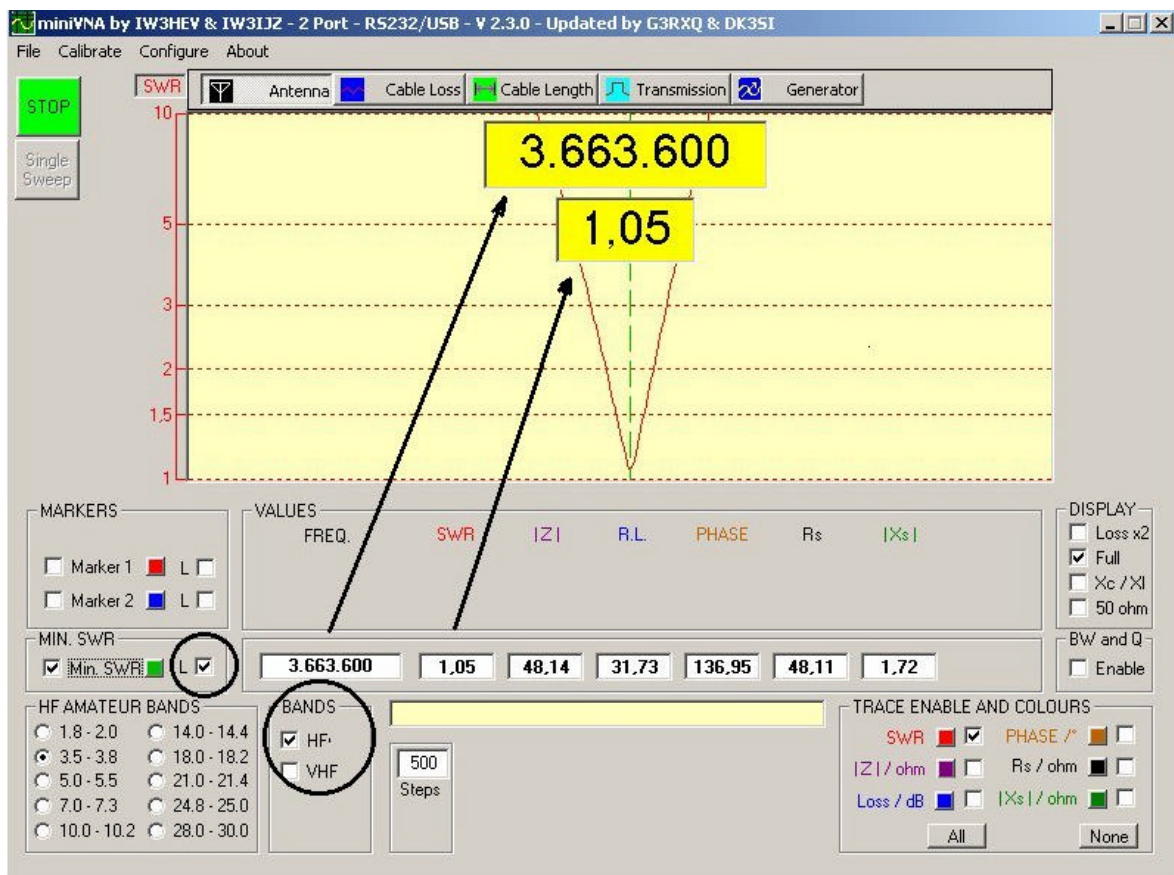


**NOTE:** From V2.3.0 onwards the .VEC files are a completely different format. There is NO forward or backward compatibility with previous versions. If you want to replay previously saved .VEC files then please retain a working copy of the V2.2.9 miniVNA software.

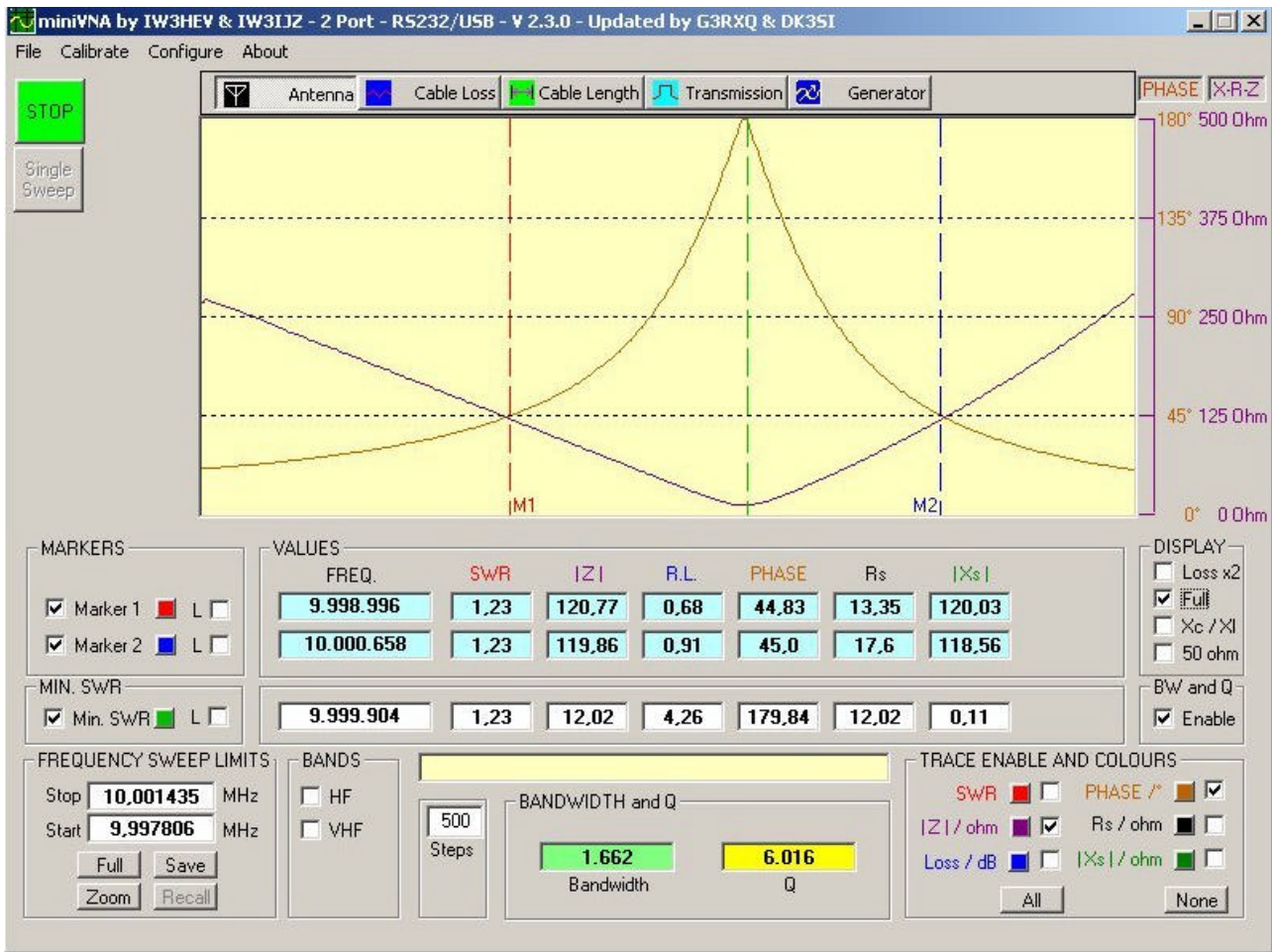
## The Large Read-Out Display

Click simply on "L" and see the large read out for SWR and Frequency. This feature is handy if you are working near the antenna and the display is some distance away.

The Bands selection function has been repositioned and simplified.



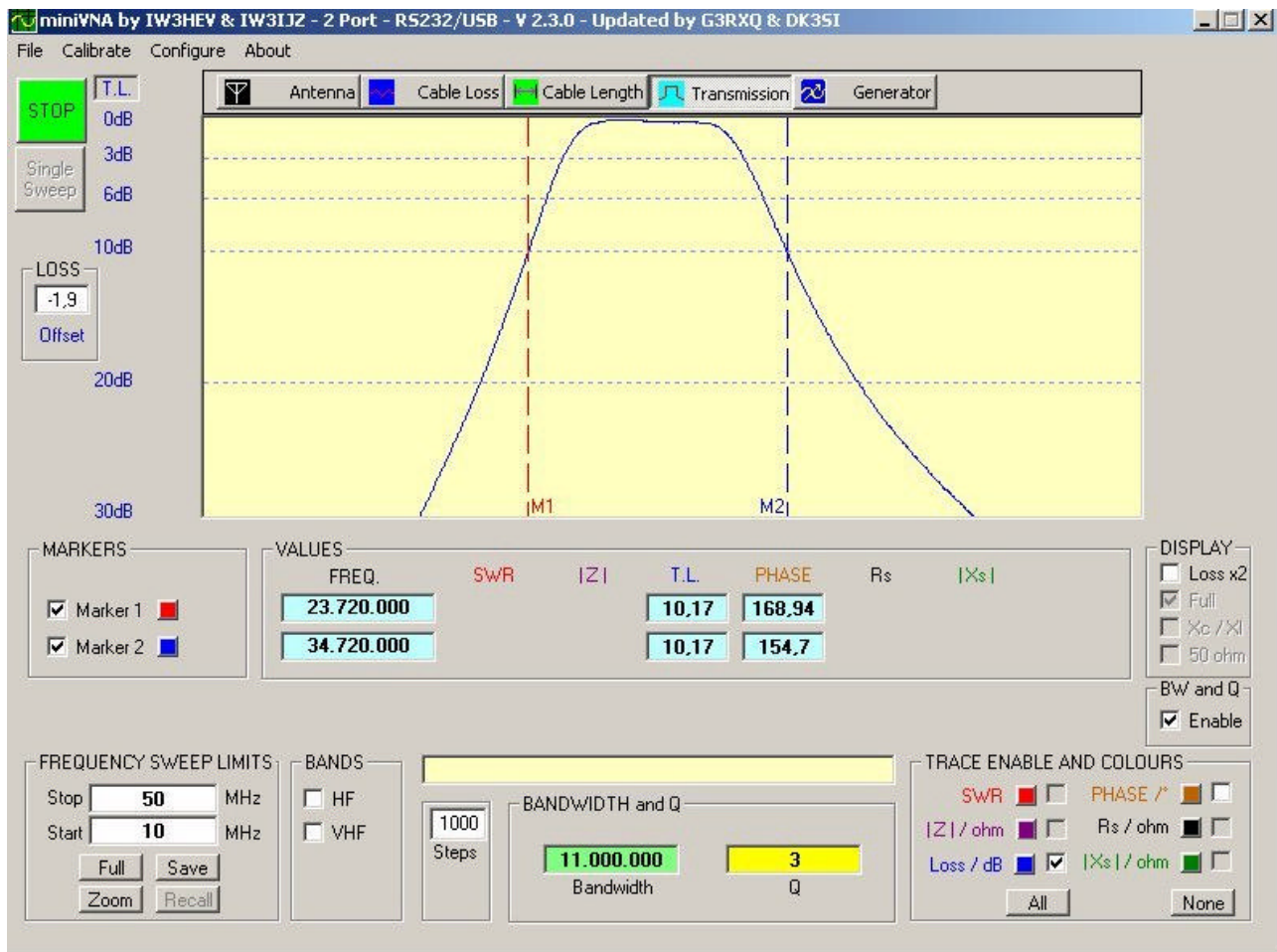
## Let`s measure a 10MHz XTAL



Connect the XTAL to the DUT connector and find at what frequency it has the lowest impedance.

You may need to Zoom the frequency range a couple of times. The Q and Bandwidth can be found where the Phase is 45°

## Finally let's look at a 28MHz Band Pass in Transmission Mode



Connect the filter between DUT and DET. If it has an Insertion Loss you can compensate it in the Loss Offset box. To view the 3/6/10dB Bandwidth, just set both markers and enable the BW&Q.

GERD 16.6.07  
STEWART 12.6.07

mini-VNA distributed by:

# WiMo Antennen und Elektronik GmbH

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