

Controlling the R&S URVD/NRVD Power Meter by LabView

Matthias, DD1US, April 16th 2024, rev 1.0

I am presently working on automating my measurement setup and decided to use LabView. The first project I worked on was to generate signals with variable frequencies and power levels with my R&S SME03 signal generator to stimulate various amplifiers in order to characterize them. The RF output signal of the amplifiers is measured with a R&S URVD/NRVD power meter and suitable power head.

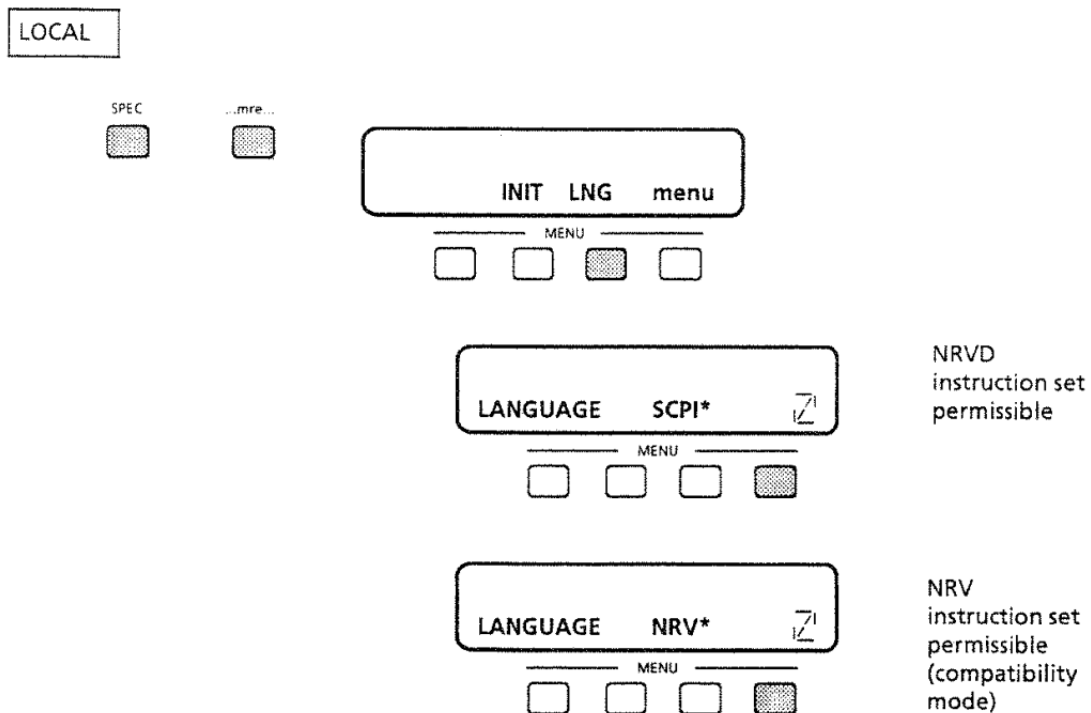
When programming I had problems to address the power meter. In direct mode using LabView MAX I got proper responses on commands like *IDN? but I was not able to setup the power meter or read measured values.

Of course, I first thought that is due to errors I made being an unexperienced user of LabView / GPIB-Programming. When studying the user manual again I finally recognized that the R&S power meters can be switched between SCPI and Compatibility Mode.

My unit was configured to Compatibility Mode. However, the R&S LabView driver for the R&S NRVD power meter is using SCPI commands and thus no communication was possible. After configuring my power meter to SCPI mode all was fine. Here is the instruction on how to configure the power meters in SCPI Mode:

3.8.9.1 Switch-over between SCPI and Compatibility Mode

is possible in the LOCAL as well as in the REMOTE state.



REMOTE

Command:

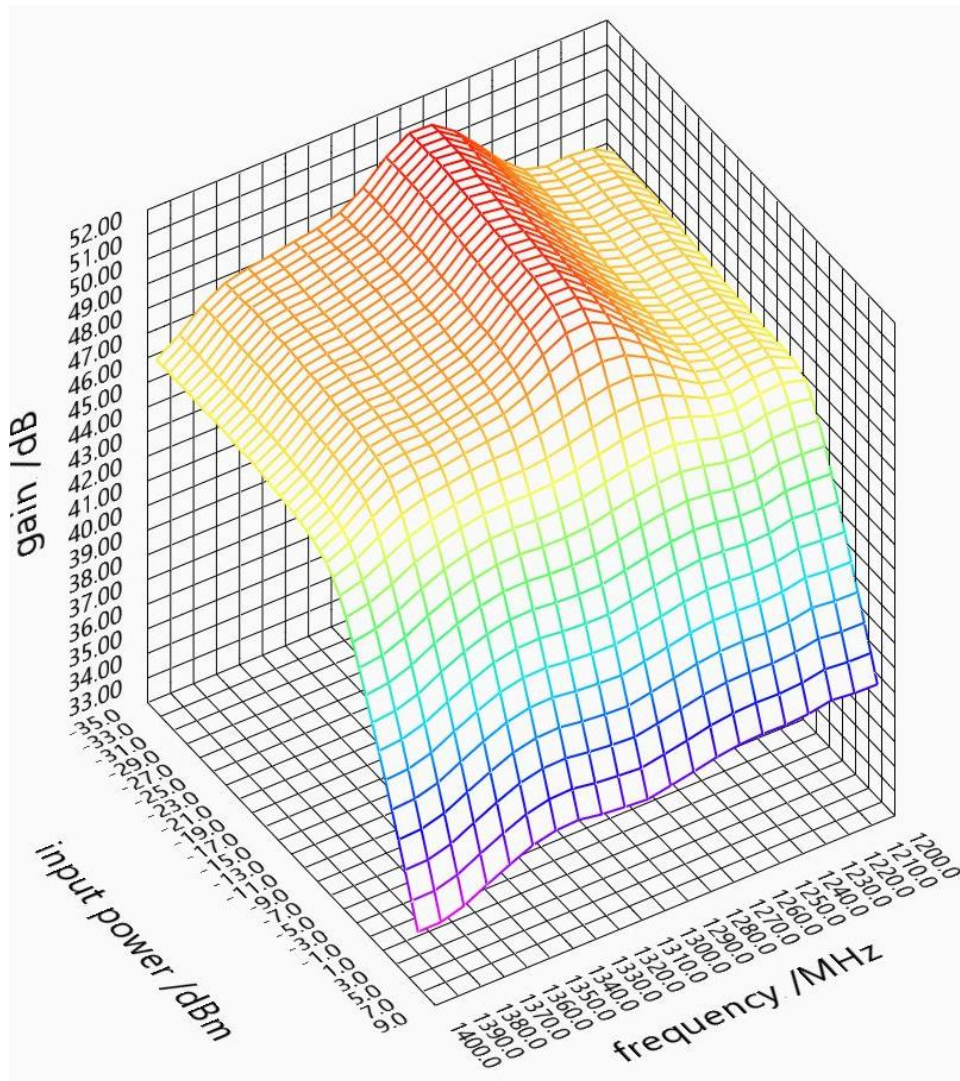
```
SYST:LANG 'COMPatibility' → NRV commands  
or  
SYST:LANG 'NRV' → NRV commands  
and/or  
SYST:LANG 'SCPI' → NRVD commands (SCPI)
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There is another important point to take care of:

When searching for LabView drivers for my R&S NRVD and URVD power meters I got to the same download link. The downloaded driver “rsnrvd” is supposed to support both types of power meters.

However, that driver only worked with my NRVD. I had to edit parts of the driver with a simple editor and exchange “nrvd” by “urvd”.

Finally, the modified driver also works with the URVD and I was able to finish my first little programs to automate some of the tedious measurements. Here is an example output file of the characterization of an amplifier:



I am at the very beginning of my programming exercises but will be happy to get into an exchange about LabView programming especially for RF applications. Please send your feedback and questions to the Email address, which you find below.

Best regards

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