Configuring IC-CAP 2018 for VectorStar™ Operation

The current version of IC-CAP 2018 supports the VectorStar family of VNAs for device characterization. Following is the procedure for configuring the software to add a VectorStar system to the hardware instrument list. *Note: This procedure works with VectorStar version 2.0 software or later. The procedure assumes a National Instruments GPIB interface is used.*

1. Verify the VectorStar system (Utilities/System/Remote Interface) is set to Native mode.

2. If the VectorStar system is an ME7838x broadband system perform the following, otherwise skip to step #3.

    a. Configure VectorStar Preset for SavedSetup.

    b. Setup the ME7838A for broadband 3739A sweep.

    c. Set appropriate configuration (e.g., power, frequency range, IFBW, etc.).

    d. Save setup as a *.cha file.

    e. Go to Utilities/System/Setup/Preset Setup/Select Saved Setup File and select the appropriate *.cha file. Then select Saved Setup.

    f. This ensures that a preset will return VectorStar to a broadband configuration.

3. Activate the National Instruments "Add GPIB Hardware" program. *Note: The GPIB name for your setup (e.g. GPIB0). Select Cancel to exit the program. Alternatively, run NI Max and check under device interface.*

4. From IC-CAP Main window, click the GPIB button.

5. If the GPIB Interface window does not have an interface saved perform the following:

    a. Select "Add Interface"

    b. In the Add HP-IB interface window enter the GPIB Name you recorded from the NI program in step 1 (e.g. GPIB0).

    c. In the GPIB address window in the menu bar, select the address of the VectorStar VNA (e.g. 6)

6. Scroll through the Instrument Library window and locate "Anritsu VectorStar Network Analyzer".

7. Select the "Add to List" button.

8. Verify the dialog box contains the correct information.

9. Verify IC-CAP is connected to the VectorStar system by selecting the magnifier button (Display All Devices Found on the Bus). The status box should confirm it found a device at address 6.

10. Confirm the drop down address box located in the menu bar is set at the proper address for the VNA, then select the instrument icon question mark button (Display the ID of the Device at the set Address). The status box should display the Output Identify string of the VectorStar system.

11. Exit the IC-CAP Hardware Setup panel.

12. To verify measurement connections, open one of the example modules included in IC-CAP. These test modules will give an indication of basic functionality. They may be modified to be appropriate for the VectorStar model being used.

    a. Open the example module by selecting: File / Examples / Model_Files / Misc / sys_test.mdl

    b. Go to the Model Variables panel and set the nwa_addr to the correct address.

    c. Note the other parameter settings. Adjust the freq_start, freq_stop, and points variables to the desired setting. The internal calibration of the VectorStar
    system and this panel must agree.

    d. Calibrate the VectorStar system to these settings.

13. Select the DUTs-Setups panel and click the RF / S_vs_freq selection.

14. Select Instrument Options and enter -10 for the Source Power entry. This will keep the VectorStar system at -10 dBm (or at the calibration power level) at the proper setting rather than change to 0 dBm during the measurement.

15. Select the Measure/Simulate panel. Select Measure. The program will go through a set of measurements.

16. To confirm the measurement, select the Plots panel, select one of the S Parameters and click the Display Plot button. To display the s2p file, select View.

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