Working with Correction Factors

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Solution: Some applications require adjusting the displayed amplitude to accurately account for losses in cables, gain in amplifiers/antennas, and other circuit elements.

This note presents the steps to create, save, and recall correction factors on a DSA800 Series manually and programmatically.

Create a Correction Factor (manually):

1. Press AMP > Down Arrow > Corrections

2. Select Antenna, Cable, Other, or User. These labels name temporary (volatile) storage of the correction value that you are entering.
3. Press Edit and use the key pad to enter the correction point and amplitude that cover the frequency range of interest. You can enter multiple points to create a correction profile for a particular antenna, cable, other, or user setting.

4. Press the back arrow to go back one menu.
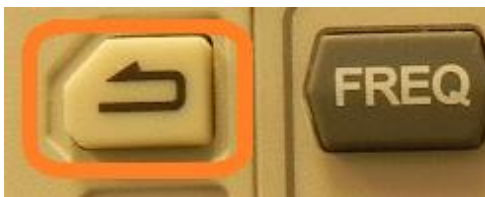
5. Enable the Correction Table by pressing Corr Table ON. Verify the corrections are the proper values entered above.
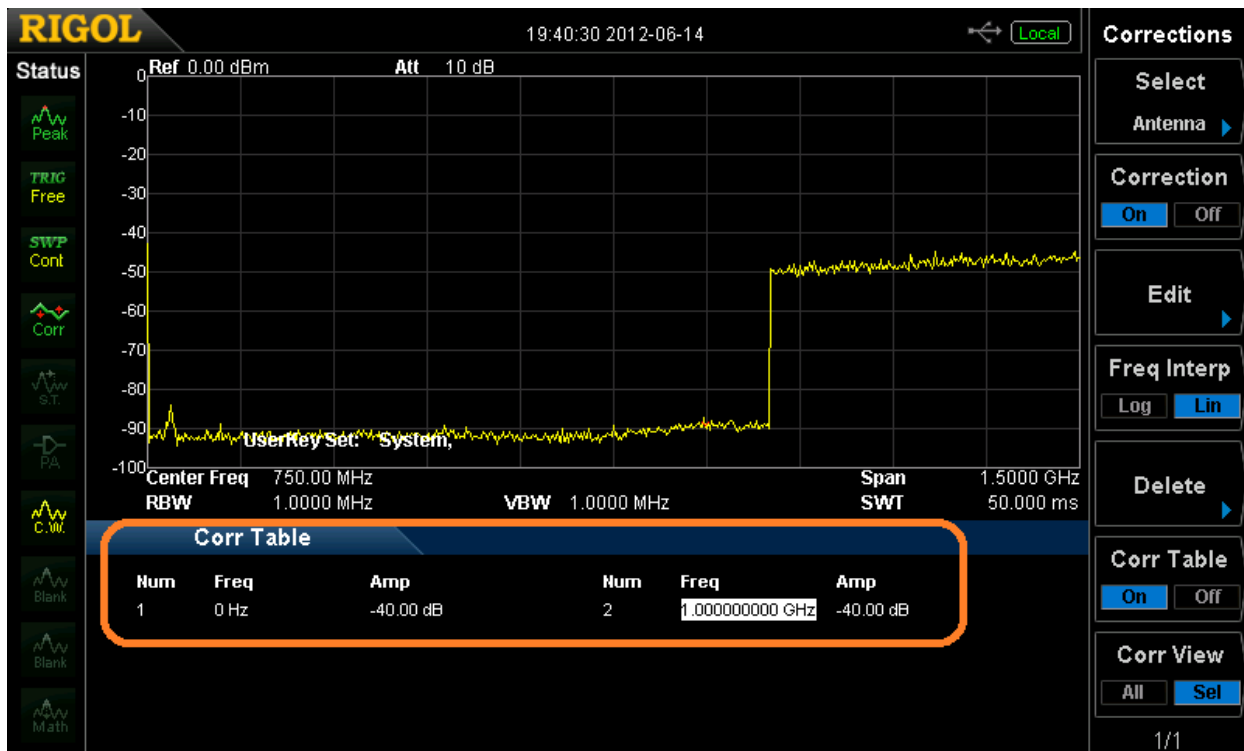

Figure 1: Correction Table enabled. In this example, there are two points set to show a -40dB correction from 0Hz to 1GHz.

Store a Correction Factor:

1. Once you have created the correction profile for the element (antenna, cable, etc..) of choice, Press Storage

HINTS: Change file type to CORRECTIONS to see correction files.

- Make sure you have used the Dir (directory) selection to choose either Local (:D) drive or the Mobile Disk (:E) USB drive.

- After you have selected a drive, change Browser to File to select and open file location or choose to overwrite an existing file.

- Put an indication of correction type in the file name. "A1" for antenna 1, "C1" for cabling setup 1, etc... This will make recalling the file easier in the future.
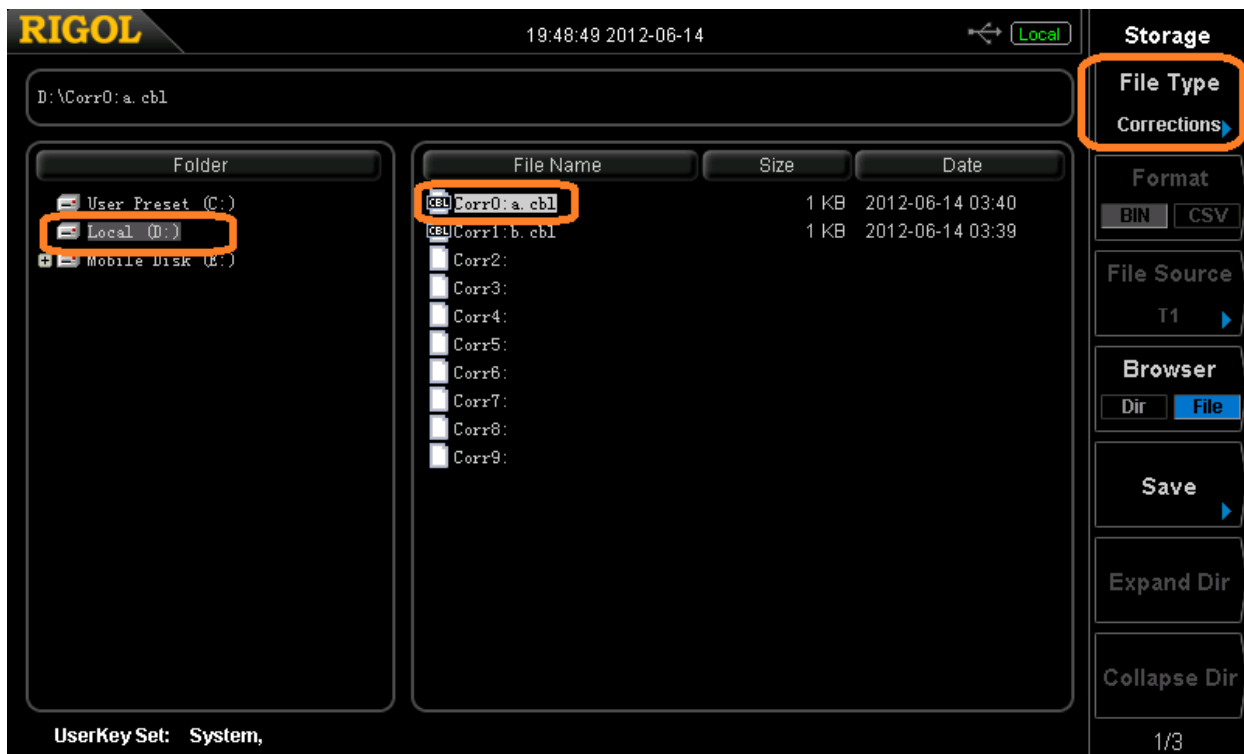
Figure 2: Storage screen for the DSA. Note the Local drive is selected (Left hand side) as is the first corrections file shown. The filter type is set to Corrections. Correction files terminate in *.cbl*.

2. Press Save and enter the name using the keypad.

- When you press a number, "3" for example, the letters under the number will appear. "3" has d, e, and f. Pressing the 3 again will advance the highlighted cursor from d to e. Press again, and it will go from e to f.

- You can select capitalize letters by pressing the "1" key

- Press "+/-" to toggle between Chinese, English Alphabet, and Numbers.

3. Press OK to save the file.

   NOTE: Correction values are stored under the label used to create them. For example, if you create an antenna correction factor and store it, it will be located under antenna when you go to recall it.

Create a Correction factor (programmatically):

You can also programmatically construct and activate correction files by using the following steps:

1. Build the correction table by sending the command:

    :CORR:CSET<n>:DATA<freq>, <rel_ampl>,{,<freq>, <rel_ampl>}

    Where <n> = Internal memory location (0-9) for the file
    <freq> = Frequency in Hz
    <rel_ampl> = Correction value

2. To enable the correction table, send:
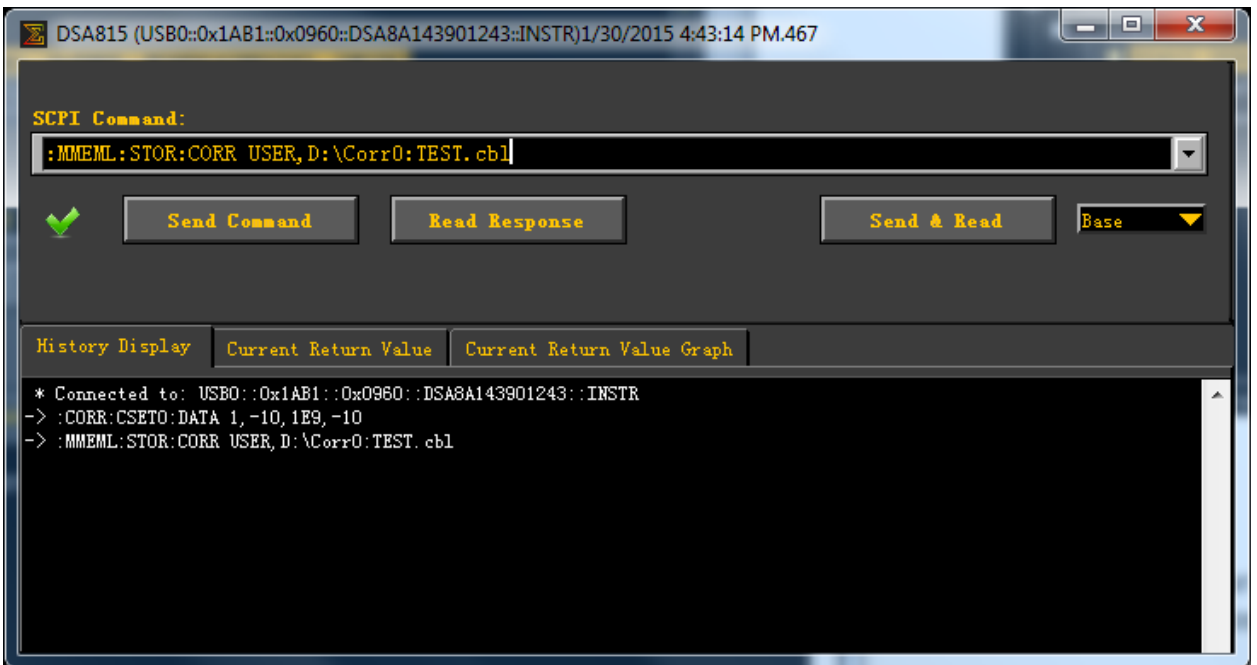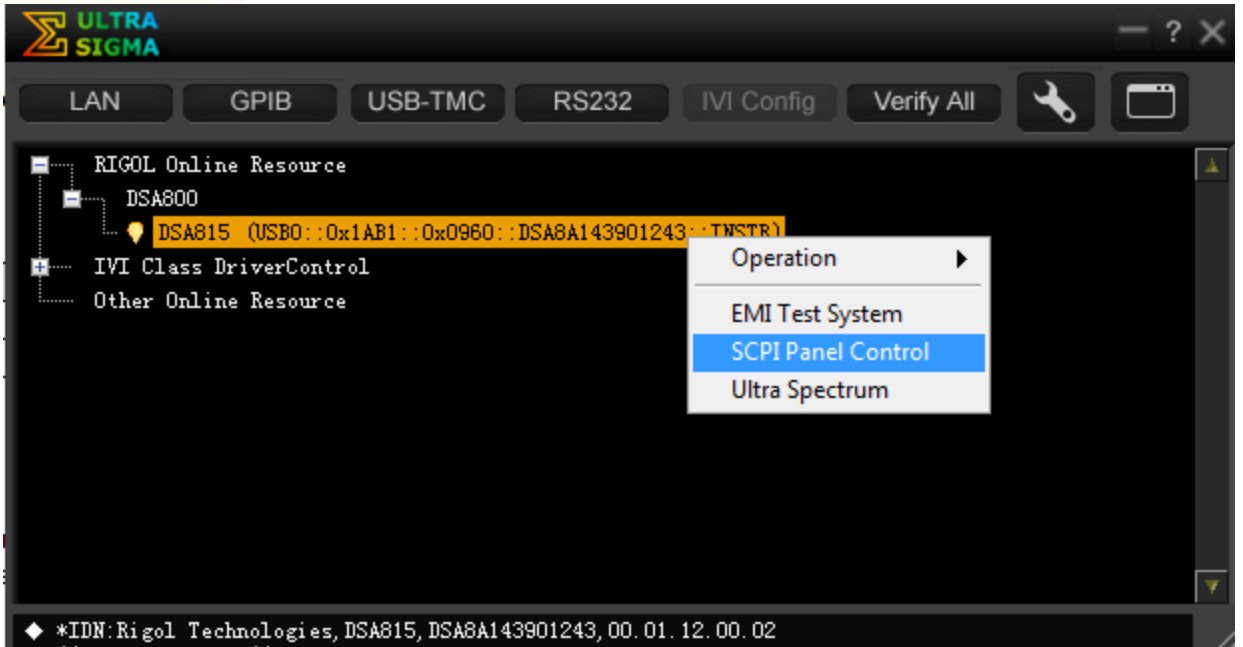
    :CORR:CSET<n> ON

3. To save the correction table, send:

    :MMEM:STOR:CORR <file_type>,<file_name>

    Where <file_type> = ANT|CABL|OTH|USER

4. Here is an example of creating a correction factor of -10dB from 1Hz to 1GHz and storing the file on a DSA815.

    The commands were sent using UltraSigma SCPI Panel Control.

You can enable the table manually by pressing AMPT > Down Arrow to page 2 > Corrections and selecting the proper correction file from memory

Recall a Correction factor:

1. Press Storage

NOTE: Insert USB drive if the correction factors were stored externally.

1. Select File Type filter to Corrections to show only corrections (*.cbl*) files
2. Select the appropriate browser directory (DIR) to locate the file location
3. Change the browser to FILE and select the correction file of interest

NOTE: The File Name will be highlighted when it is selected!

If the file name is not highlighted, you will need to select it using Browser > File.

4. Press the down arrow to go to the Storage Menu page 2/3.
5. Press Recall to recall the file.
6. To confirm the correction, enable the corrections and corrections table

- Press AMPT > Down Arrow > Corrections
- Select the correction factor (antenna, cable, other, user)
- Enable correction factor by pressing Correction > On
- Enable correction table by pressing Corr Table > On

   NOTE: Correction values are stored under the label used to create them. For example, if you create an antenna correction factor and store it, it will be located under antenna when you go to recall it.

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