Spectrum Master™ MS276xA Software

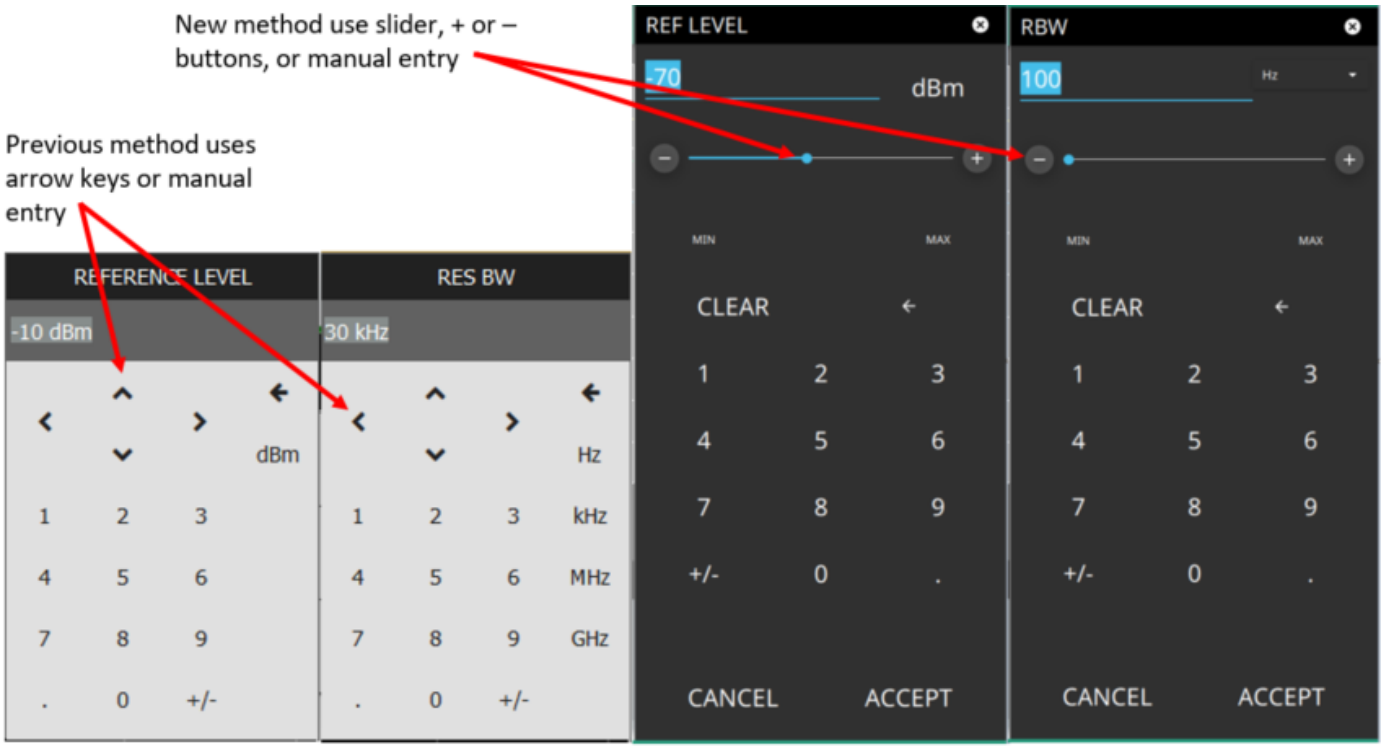
**** Important notice to existing Spectrum Master MS2760A users**

Beginning with release V2019.9.1, the Spectrum Master MS276xA Graphical User Interface (GUI) has been completely revised. The new and more responsive GUI is adopted from our Field Master Pro™ MS2090A instrument. This new software has resolved several issues that existed in the previous version (V2018.5.2) and overall usability has been improved. This new GUI supports the addition of new features much more readily than the previous software versions, thus the previous software will no longer be supported.

The new GUI also adds support for the new Spectrum Master MS2762A family of instruments, thus it supports both the Spectrum Master MS2760A family and the new Spectrum Master MS2762A family and may commonly be referred to as MS276xA software.

This new GUI is more efficiently laid out and is more responsive than the previous GUI. As well as being more efficient, the new GUI brings some improvements to the behavior of the markers and limits. This new GUI is more intuitive than the previous GUI with a logical flow of functions specific to spectrum analyzer usage. Here are a couple of examples of dialog entry panels that are different from the previous GUI as compared to the new GUI.

Figure 1: Comparison of dialog boxes for RBW and reference level. New dialog boxes are larger and easier to read.



The Spectrum Master MS276xA User Guide has been completely revised to reflect the new GUI operation. It is highly recommended that you carefully review the new User Guide.

Delta Marker Behavior Changes

The delta marker behavior has improved in the new GUI. In V2018.5.2 or older, when a marker is set to delta mode, a new reference marker is automatically created and its mode is set to fixed. For instance, setting marker 1 to delta mode causes marker 2 to become an active, fixed reference for marker 1, and setting marker 3 to delta mode causes marker 4 to become an active, fixed reference for marker 3. This behavior causes the screen to become crowded with reference markers that are fixed in amplitude. For measurements requiring many delta markers sharing the same reference, the user has to manually reassign the reference marker number for each delta marker, and turn off the redundant reference markers. In addition, the user has to also change the reference marker mode from fixed to normal to ensure that it tracks amplitude changes at the reference frequency.

In V2019.9.1 and newer, when a marker is set as a delta marker, the next active, lower numbered normal marker will automatically be used as the reference marker. If there is no active, lower numbered normal marker, the next higher numbered marker will be turned on and used as a normal marker for the reference. If the reference marker is disabled, the delta marker will be changed to a normal marker.

In addition, the change to the new GUI from the previous GUI has affected a small number of SCPI commands and delta marker behavior, which may affect existing customers who have written test scripts for their MS2760A instruments. The changes are described below.

The following page(s) contains screenshot examples of the new GUI in comparison to the previous GUI, as well as specific details on the SCPI command changes.

Figure 2: V2018.5.2 GUI example of occupied bandwidth measurement, notice the vertical bars are centered in frequency even when the signal is not centered in frequency.

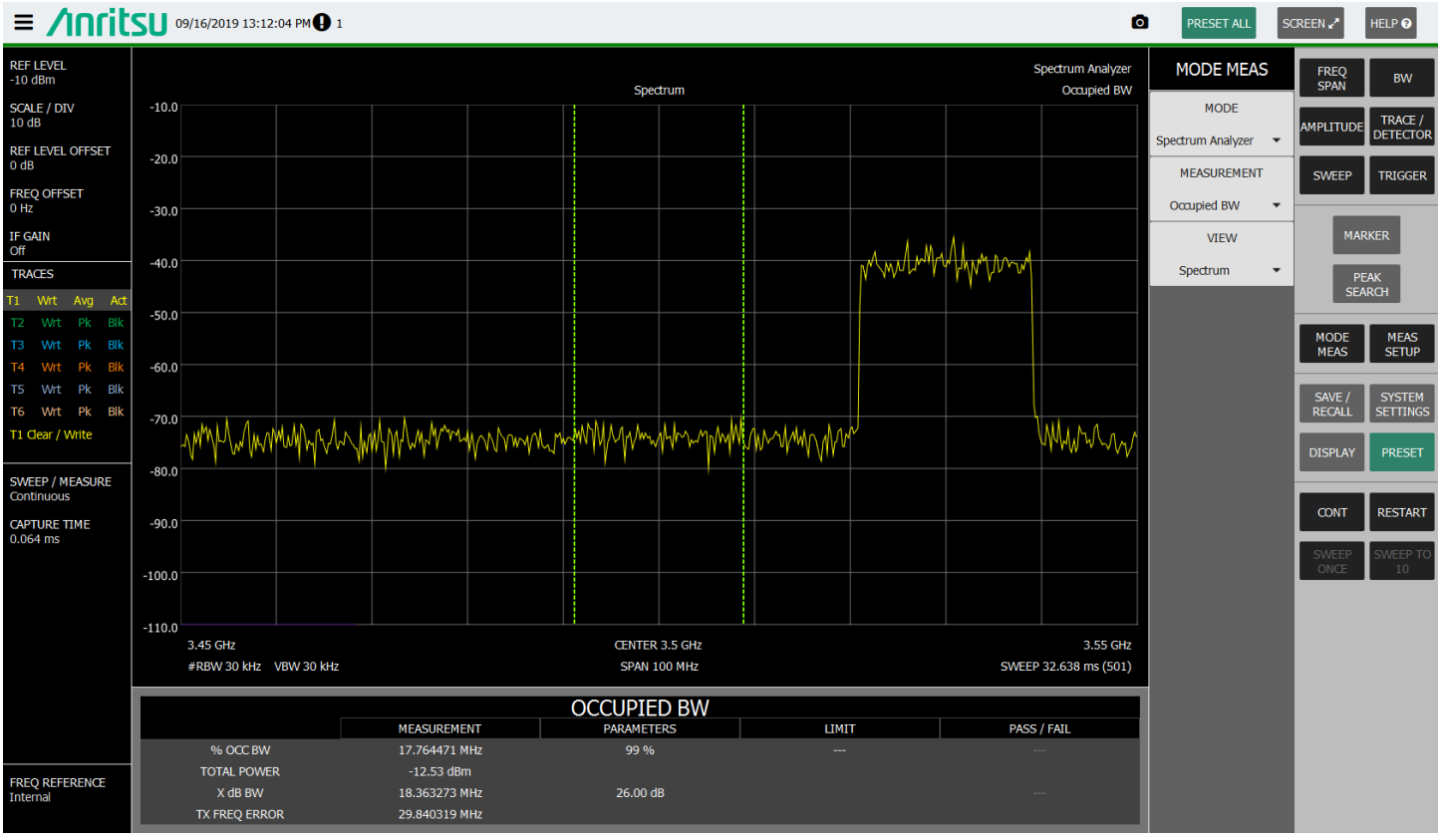


Figure 3: V2019.9.1 GUI example of Occupied Bandwidth measurement, notice that the vertical bars automatically track the signal of interest which is no longer required to be centered in frequency.

SCPI Command Changes

1. A new IF Gain SCPI command is used to turn on and off the IF Gain. The former SCPI command (RF Gain) will no longer be supported by the MS276xA software. The main change is highlighted in yellow.

	Old SCPI Command for V2018.5.2 or older	New SCPI Command for V2019.9.1 and newer
To toggle IF Gain on/off	**[:SENSe]:POWer:RF:GAIN:STATe <0|1|ON|OFF>**	**[:SENSe]:POWer:IF:GAIN:STATe <0|1|ON|OFF>**
To query IF Gain state	**[:SENSe]:POWer:RF:GAIN:STATe?**	**[:SENSe]:POWer:IF:GAIN:STATe?**

2. In V2019.9.1 and newer, the Marker default state is now OFF <0>. The Marker state has to be set to ON <1> before the Marker can be queried and return data. Setting the state to ON <1> can be done either before or after positioning the marker. If the Marker state is OFF <0>, then no data values will be returned when queried. In V2018.5.2 or older, the Marker default state was ON <1>. One immediate benefit of this change is that you no longer have to re-define the Marker(s) position every time you toggle the Marker state to ON<1>, whereas the previous software required you to redefine the Marker(s) position if you had previously set the Marker(s) to the Off<0> state.

Old SCPI Calculate Marker Command for V2018.5.2 or older. The "OFF" state highlighted below no longer exists in V2019.9.1 and newer.
:CALCulate:MARKer{[1]|2|3|4|5|6|7|8|9|10|11|12}:MODE <POSition|DELTa|FIXed|OFF>
New SCPI Calculate Marker for V2019.9.1 and newer. You must now execute the **new** Marker state command shown below.
:CALCulate:MARKer{[1]|2|3|4|5|6|7|8|9|10|11|12}:STATe <0|1|ON|OFF>

3. In V2019.9.1 and newer, the Limit default state is now OFF <0>. The Limit state has to be set to ON <1> before the limit can be queried and return data. Setting the state to ON <1> can be done either before or after positioning the limit. If the Limit state is OFF <0>, then no data values will be returned when queried. In V2018.5.2 or older, the Limit default state was ON <1>. One immediate benefit of this change is that you no longer have to re-define the Limit(s) position and amplitude every time you toggle the Limit state to ON<1>, whereas the previous software required you to redefine the Limit(s) position and amplitude if you had previously set the Limit(s) to the Off<0> state.

Old SCPI Calculate Limit command description for V2018.5.2 or older
:CALCulate{[1]}:LIMit{[1]|2|3|4|5|6|7|8|9|10}:LOWer:STATe <0|1|ON|OFF> **:CALCulate{[1]}:LIMit{[1]|2|3|4|5|6|7|8|9|10}:LOWer:STATe?** Title: Lower Limit State Description: Turns ON or OFF the lower limit. If a limit of the specified number does not already exist, a default limit will be created first (having empty data, with state set to ON). Parameters: <0|1|ON|OFF>
New SCPI Calculate Limit command description for V2019.9.1 and newer
:CALCulate{[1]}:LIMit{[1]|2|3|4|5|6|7|8|9|10}:LOWer:STATe <0|1|ON|OFF> **:CALCulate{[1]}:LIMit{[1]|2|3|4|5|6|7|8|9|10}:LOWer:STATe?** Title: Lower Limit State Description: Turns ON or OFF the lower limit. If a limit of the specified number does not already exist, a default limit will be created first (having empty data, with state set to OFF). Parameters: <0|1|ON|OFF>