

# Tracking Generator (Optional)

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## Overview

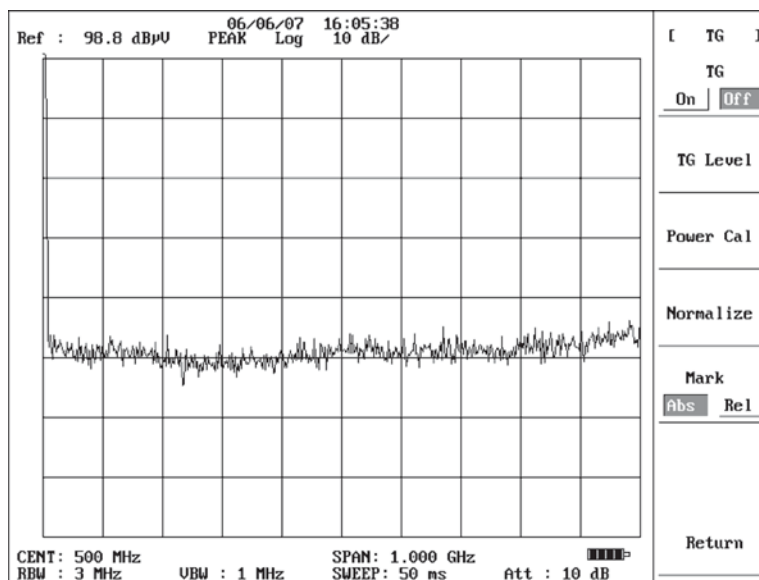
Press the **Tracking Generator** Softbutton from the **Mode** Menu and the sub-menu shown below will appear on the screen.





**Note:** For the 50Ω or 75Ω 8821Q-R Spectrum Analyzer, the Tracking Generator Option will require a software and hardware upgrade. This option must be factory installed at Trilithic. To place an order, please call Trilithic at (800) 344-2412 or (317) 895-3600.



**Note:** If using the tracking generator for the first time or the testing environment has been changed, it is recommended to perform a system calibration before using the tracking generator to test devices.



## Tracking Generator Level Range

The level range of the tracking generator is from +48.8 dBmV to -11.2 dBmV. The default output level is +28.8 dBmV when the tracking generator is first turned ON. Press the **TG Level** Softbutton and then turn the knob, press the  or  Button or directly enter the amplitude level of the tracking generator.

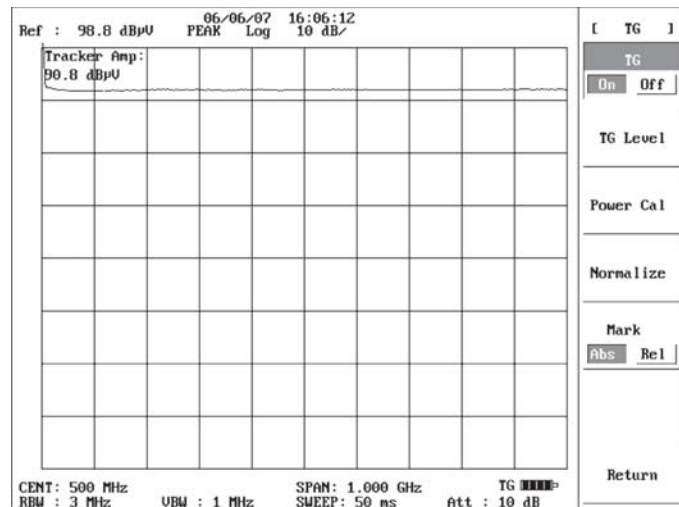
## Power Calibration

To use the perform a power calibration on the tracking generator, you should perform the following steps;

1. Connect the **TG OUT** and **RF IN** Ports on the front panel of the 8821Q-R using the BNC-BNC calibration cable.



2. Press the **TG** Softbutton to set the tracking generator status to **ON**, then the screen that is shown in the figure on the right will be displayed on the screen.
3. Press the **Power Cal** Softbutton to automatically calibrate the tracking generator from -11.2 dBmV to +48.8 dBmV.
4. The instrument will display Calibrate Success if the calibration was performed correctly. Otherwise, If the tracking generator cannot fulfill the requirement that the level flatness in all frequency range is less than 1 dB, the system will give the prompt **Calibrate Failed**.



**CAUTION:** This calibration will take several minutes. Please do not power OFF the analyzer when it shows **Calibrating** on the screen.



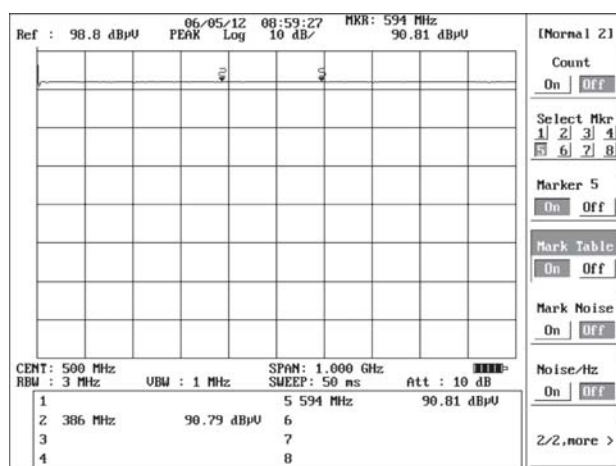
**Note:** When the instrument is powered off, the calibration data will be stored in the internal memory of the 8821Q-R.

## Normalize Function

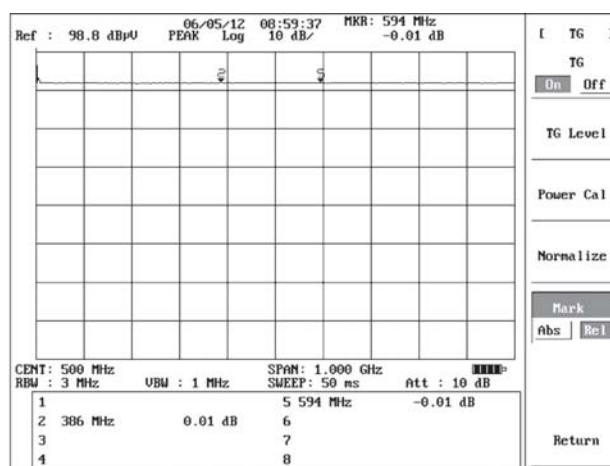
Performing the **Normalize** operation, you should connect the **TG OUT** to the **RF IN** Port.

The actual output of the tracking generator will not be changed. After pressing the **Normalize** Softbutton, the output line is corrected to a straight line. The difference between this straight line and its pre-curve is memorized. This correction data will be used in the future testing, but when frequency, reference level, attenuator or output level is changed, the correction data will be lost and you should normalize again. This correction data will also be lost when the analyzer is powered OFF.

The units of reference level are dBm, dBmV or dB $\mu$ V. The test result of the marker(s) displayed in the information window can be the absolute value or the relative value to the TG ideal output level. This can be changed by pressing the **Mark** Softbutton and changing its status.



(a) Absolute Value Display

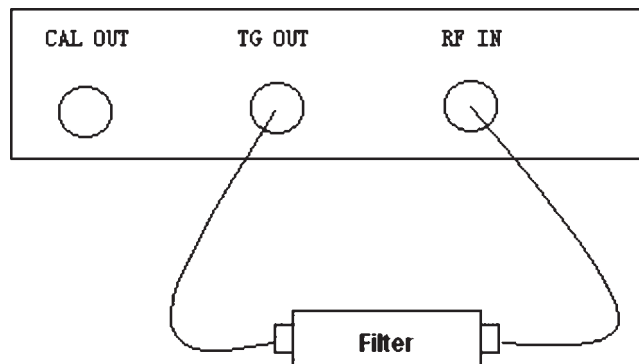


(b) Relative Value Display

## Using the Tracking Generator to Measure a Filter

The following example show you how to use the tracking generator to measure a filter.

1. Press **CAL** on the front-panel and select the **Calibrate Amplitude** Softbutton to perform an analyzer calibration.
2. Turn the **TG** to **ON**, and connect the **TG OUT** to **RF IN**.
3. Calibrate the **TG** power; then press the **Normalize** Softbutton.
4. Connect the **TG OUT**, tested component and **RF IN** well, as shown in the figure below.



5. The testing result will be displayed on the screen.

