

# Model 8850

RF ATTENUATION MEASUREMENT

- Dynamic range greater than 100 dB
- 10 MHz to 18 GHz frequency can be extended to 40 GHz
- Fast and accurate
- Easy to use manually or with 8850-SureCAL software

## Attenuation Measurement System

The Model 8850 Attenuation Measurement System combines the outstanding accuracy, performance, high sensitivity, and reliability of our Model VM-7 Attenuator and Signal Calibrator with our Model 8852, 0.01 to 18 GHz Frequency Converter.

When combined with a suitable generator, the Model 8850 provides the user with an attenuation calibration system of high accuracy, repeatability and speed. Some other features of this system include:

### Advanced Techniques

Advanced digital detection and processing techniques of the VM-7 means that measurements are available instantaneously, no matter what the dynamic range or resolution.

### Single Band Operation

The system can be converted to a 0.01 to 18 GHz single port converter. This is accomplished by using the

measurement accessory kit (P/N 187-4001) that is supplied as part of the system. The measurement accessory kit includes low SWR masking attenuators and a power divider to provide a measurement system as shown in Figure 1.

### Dual Band Operation

The RF input frequency range is divided into two bands, 0.01 to 2 GHz, and 2 GHz to 18 GHz. This allows the user direct access to the RF port of either the LOW band or HIGH band mixer to make full use of the VM-7 dynamic range.

### IEEE-488 Bus Programmable

Remote programmability over the IEEE-488 bus using an external controller or controlling the system using only the VM-7.

### Auxiliary Output

An auxiliary output of 2 to 18 GHz synthesized continuous wave signal in 2 kHz steps at +7 dBm is available, which can be used as an RF signal source for other applications.

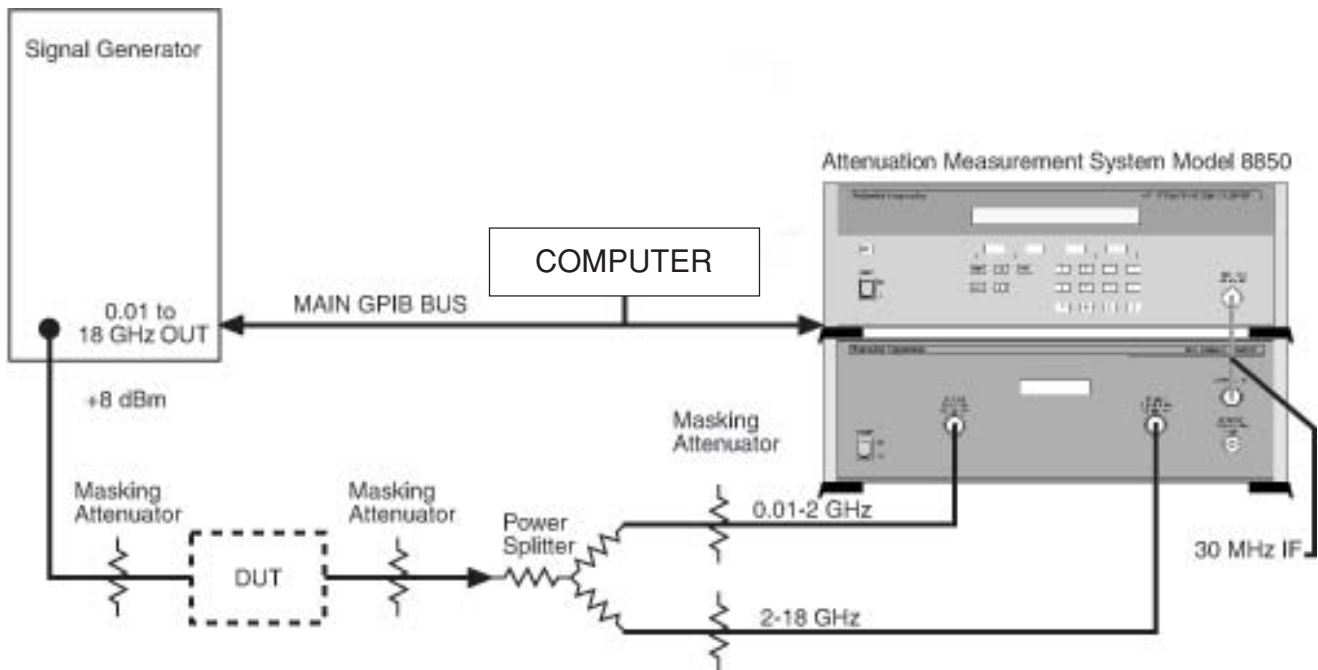
### Versatile and User Friendly

This measurement system will test all types of attenuators such as fixed, manual, motorized, programmable and other coaxial components. Coaxial components can be quickly and accurately tested using the efficient, user-friendly 8850-SureCAL software.



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### APPLICATIONS

#### Attenuation Measurements (0.01-18 GHz, extendible to 40 GHz)

The figure above depicts 8850-18. This system is setup for performing component measurements across the 0.01-18 GHz frequency band without changing any connections on the Model 8850 front panel. This setup gives the user the widest measuring frequency range possible. Removing the Power Splitter and connecting the input signal directly to the the desired frequency input allows the user to increase the measurement systems dynamic range with the lowest possible SWR effects. This configuration can perform measurements in either the 0.01-2 GHz band or the 2-18 GHz band, depending on the Model 8850 front panel connection.

Using the Model 8852 as a CW signal source and adding the TEGAM Model 8853 will allow the Model 8850 to process frequencies up to 40 GHz in coax. Refer to the Model 8853 data sheet for more information and

actual configuration diagram. This configuration is available as a system, Model 8850-40.

#### Return Loss/SWR Measurements

The TEGAM SWR Measurement Kit (P/N 187-4001-1) can be used with the Model 8850 and the 8850-SureCAL Software to perform return loss measurements. The SWR Measurement Kit includes a return loss bridge with an "open" and "short." Because the Model 8850 operates as a single channel receiver, it can be used as a scalar system. The DUT's impedance to 50 ohms can be checked as a scalar quantity by measuring return loss. The actual measured return loss can be readily converted into SWR by the system software.

#### Gain Measurements

Active devices having gain can also be measured by an attenuation measurement system such as the Model 8850. Extra attenuation is required for this application, because the reference level is lower than the measurement level. Depending on the frequency range of the active

device, the system can be used in either single or dual band operation. Extra input attenuation will be required to decrease signal level by at least the value of the amplifiers gain so that the Model 8852 remains in its linear region. If the amplifier is to be tested at a particular level, extra attenuation may be inserted at the output of the device to achieve the correct operating levels. Uncertainty values are similar to those for attenuation measurements. However, the distortion of the active device will make measurements level sensitive, adding to the uncertainty.

#### SureCAL Calibration Software for the 8850 System

SureCAL was developed by calibration engineers and technicians who are determined to cut the high cost of manually calibrating and maintaining your equipment. SureCAL Software for RF Components is very flexible and easy to use and is included with every 8850 System. SureCAL is the complete TEGAM solution for all your automated attenuation testing needs.



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