

## Measurement of an Attenuator with the help of RFME Signal Source and Power Detector:

This application note gives a brief overview about the measurement of an Attenuator with the help of the RFME signal source and power detector.

An attenuator is an electronic device that reduces the power of a signal without distorting its waveform. An attenuator works in a very different way to an amplifier. An attenuator decreases the amplitude while as, an amplifier increases it. There are five common attenuator topologies used in microwave circuits, the tee, the pi, the bridged tee, the reflection attenuator and the balanced attenuator.

To do the measurement of any component the user first needs to take the direct reading with the help of two 50 Ohms coaxial cable and an adaptor in between.

For eg. Take the RFME signal source and set its frequency to 2.45GHz and signal level of -1dBm is provided to the RFME power detector with the help of the coaxial cable as shown in the Figure: 1. The user can easily measure the received signal at RFME power detector of -1.6dBm if there is a loss of -0.6dB in the coaxial cable connected in between both the units.

The below setup shows selection of Single mode with the switch position at 'S' on RFME signal source and in the RFME power detector the switch is selected for dBm. Thus RFME signal source will display "2.450" for 2.45GHz and on RFME power detector results will be displayed in dBm as "-01.6" for -1.6 dBm.

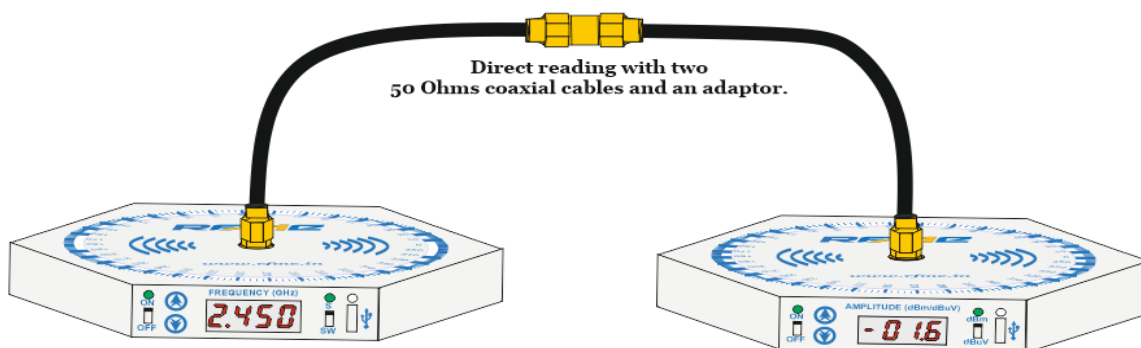
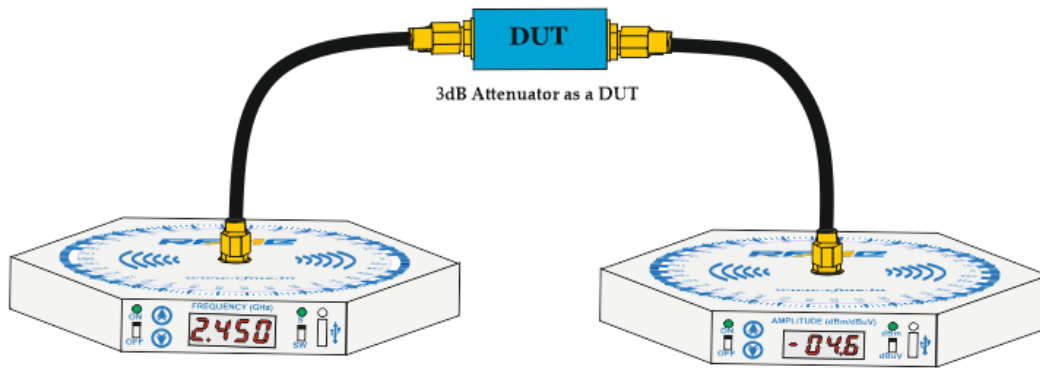


Figure: 1

In Figure: 2 A setup for testing a 3dB attenuator as a device under test (DUT) can be observed. For the same frequency of 2.45 GHz you can see the result on RFME power detector with the dBm selection as “-04.6” (-4.6dBm) for 3dB attenuation. \*1



**Figure: 2**

Now if the user wants to check any other frequency which comes under the band of RFME signal source and attenuator it can be easily checked by following the same procedures. \*2

Note: \*1) 1.6 dB loss in the direct reading is measured.

\*2) Attenuator can be checked in single mode only.

3) The measured data on the RFME power detector can also be displayed in the dBuV when selected for dBuV with the help of the switch on the front panel.

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