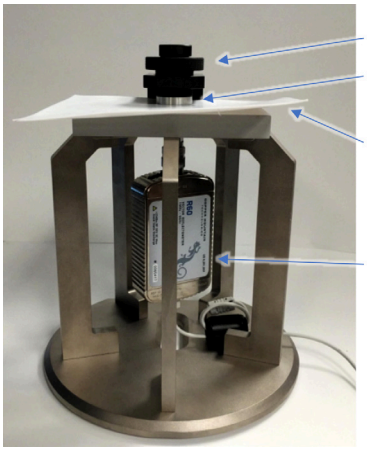
Epsilometer
Dielectric Properties Measurement



Epsilometer Dielectric Materials Measurement solution is a cost-effective, accessible way to measure material properties to enable and optimize RF system performance.

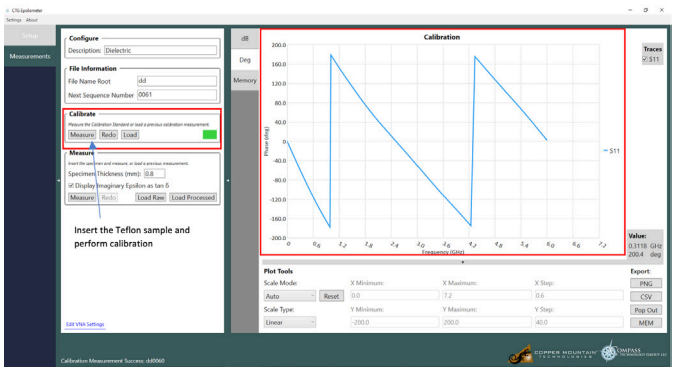
It measures dielectric substrate materials to determine the complex permittivity from 3 MHz up to 6 GHz and can accommodate sheet specimens 0.3 to 3 mm thick. The output includes dielectric permittivity, loss, and/or loss tangent as a function of frequency.

The Epsilometer solution includes R60 VNA with software, measurement fixture, Epsilometer software, and calibration sample.

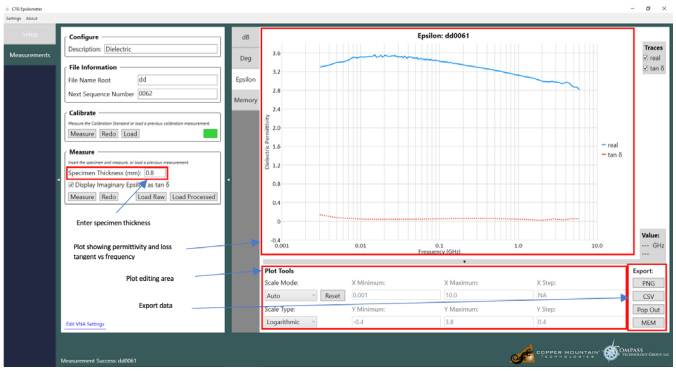
This solution was developed in collaboration with the leading provider of materials measurement solutions and systems, Compass Technology. It represents a new measurement method based on the parallel plate capacitor concept, which determines complex permittivity of dielectric sheets with thicknesses up to about 3 mm. Unlike the conventional capacitive measurement devices, this new method uses a greatly simplified calibration procedure. It solves the parasitic impedance limitations in conventional capacitor methods by explicitly modeling the fixture with a full-wave computational electromagnetic code. Specifically, a finite difference time domain (FDTD) code was used to design the fixture and create a database-based inversion algorithm. The inversion algorithm converts measured fixture reflection (S11) into dielectric properties of the specimen under test.

Epsilometer Software

Epsilometer software measures and plots dielectric permittivity, loss, and/or loss tangent as a function of frequency.



Simple one step calibration using a Teflon sample



View measurements plot

- The measured data and inverted permittivity results are automatically saved as text files (*.s1p and *.epsmu).
- Simple calibration using the Teflon calibration sample supplied with every system.
- Ability to zoom in on a portion of the diagram
- Real and Imaginary or Tan Delta data plot display
- Data can be saved in Memory for future reference and comparison of results from more than one measurement.
- Data can be saved as .png or .csv file for use in reports or spreadsheets.
- User can define frequency range for measurement and number of measurement points within the VNA frequency range and measurement points' specifications
- User can switch between a linear and logarithmic frequency scale.
- User can navigate between different data displays from a single measurement.
- Suitable for testing ceramics (sample surface must be flat).

Compass Technology Group
+1.678.279.5825
www.compasstech.com

Copper Mountain Technologies
+1.317.222.5400
www.coppermountaintech.com