# Anritsu and Compass Technology Group Material Measurements Solutions

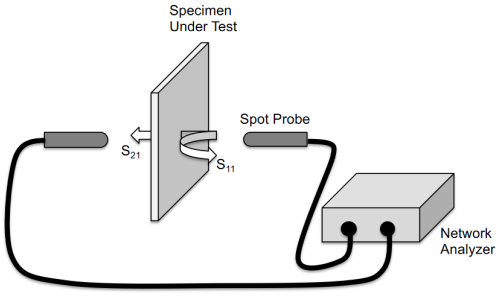
Material measurements are integral when developing solutions in the millimeter-wave (mmWave) frequency range. PCB, antenna, radar measurement, and automotive/aeronautical engineers along with metrology and research institutes must characterize various materials to better understand their effects on how the electromagnetic waves travel through them (dielectric constant, tan delta, etc.). These material measurements are also becoming more critical for the Aerospace and Defense industry as well. Anritsu and Compass Technology Group deliver a comprehensive material measurement solution ideal for lab, manufacturing, and university environments.

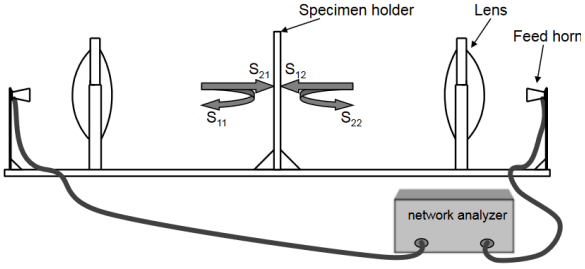
## Anritsu and Compass Technology Group

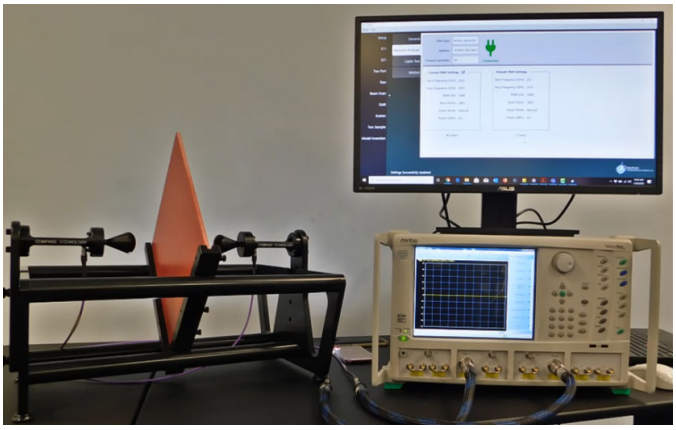
The Anritsu VectorStar™ and ShockLine™ vector network analyzers (VNAs) are compatible with Compass Technology hardware fixtures and CTG software systems, and make an ideal solution for material measurements. Combining Anritsu's VectorStar and ShockLine VNA families frequency coverage to 110 and 43.5 GHz, respectively, with Compass Technology's state-of-the-art off-the-shelf and custom-designed RF material measurement systems, users are able to precisely and accurately measure material properties from 100 MHz to 110 GHz with various methods available.

## Spot Beam Probe and Free Space Material Measurements

An anechoic chamber, used for conducting accurate material measurements and tests, can sometimes be costly. By utilizing a Compass Technology focused beam and free space solutions in conjunction with an Anritsu VectorStar or ShockLine VNA, users can make the same accurate measurements without the need to invest in an anechoic chamber. For more details, please visit www.anritsu.com and compasstech.com.

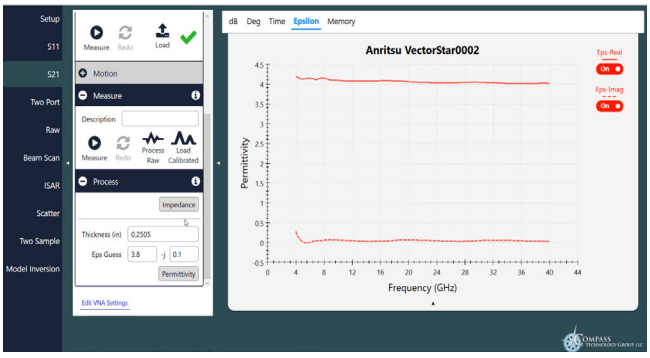


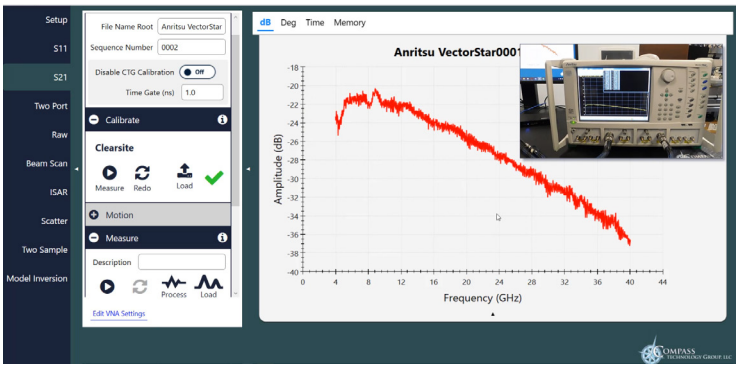



## Software

CTGcalc™ is a Windows application by Compass Technology that sets up microwave network analyzers, acquires measured S-parameter data, and analyzes the acquired data for CTG's various measurement fixtures. This application allows users to extract complex dielectric permittivity, magnetic permeability, or sheet impedance of the measured specimens.




Compass Technology's CTGcalc Software for Making Material Measurement Testing

## Specifications

| | |
|---|---|
| Frequency Range: | < 60 MHz to > 110 GHz, depending on fixture |
| Meaureable Permittivity/Permeability Range: | To > 2000 |
| Measureable Tan Delta: | To < 0.001 |
| Accuracy for Measurable Parameters: | Typically ~ 0.5 to 2% (depends on fixture and properties) |
| Specimen Size and Thickness: | Depends on frequency and fixture |
| Hardware/Software Setups and Algorithms: | Free space (focused beam), waveguide, cavity, specialty probes, in-line measurement devices, etc. |
| Upgrade Kits: | Software and hardware customizations available |
| Measurement Methods Available: | Standard 1 or 2 port methods, computational EM code inversions, etc. |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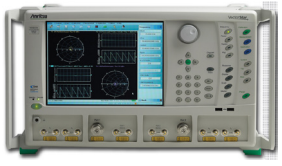

VectorStar VNA Family

ShockLine VNA Family

ShockLine E-Band VNA




11410-01182, Rev. B, 2021-03