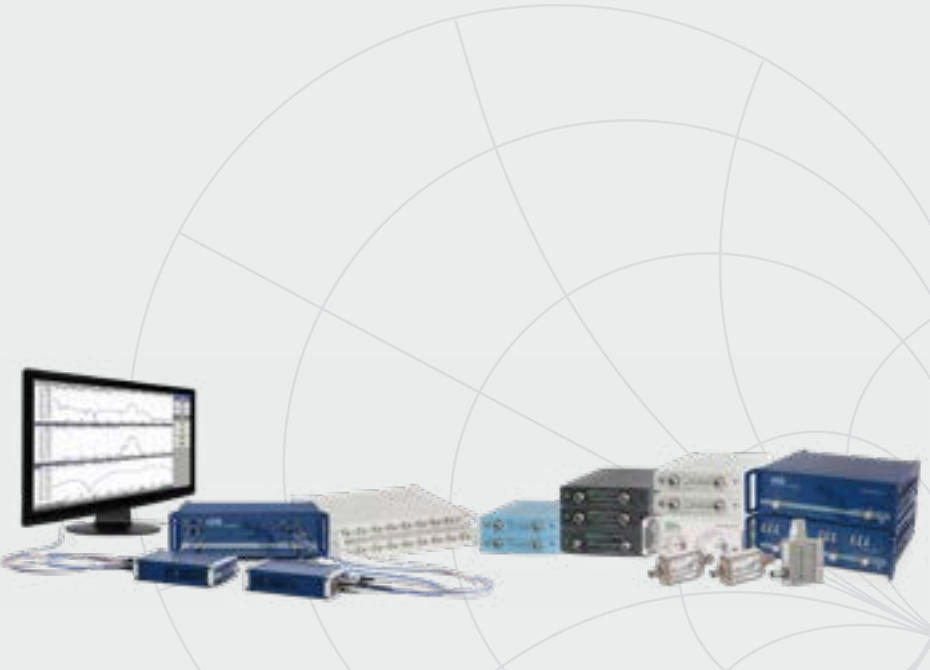


# Copper Mountain Technologies Product Catalog



COPPER MOUNTAIN®  
TECHNOLOGIES



# Copper Mountain Technologies' VNAs



- S-parameter measurement solutions from 9 kHz to 170 GHz
- VNAs compatible with third-party extenders up to 330 GHz
- Measured parameters from  $S_{11}$  to  $S_{1616}$
- Dynamic range as high as 152 dB typ. (10 Hz IF bandwidth)
- Measurement speeds as fast as 10  $\mu$ s per point
- Windows® and Linux® OS

Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

## Copper Mountain Technologies' VNA Product Line

		Maximum Frequency Limit											
CMT VNAs		1.3 GHz	3.2 GHz	4.5 GHz	6 GHz	6.5 GHz	8 GHz	8.5 GHz	9 GHz	14 GHz	18 GHz	20 GHz	44 GHz
1-Port	Standard	●	●	●	●	●	●	●	●	●	●	●	●
	DRA								●			●	●
2-Ports	Fx								●			●	●
	Standard						●		●			●	●
4-Ports	DRA								●			●	●
	Fx								●			●	●
6+ Ports									●				

**Legend:** DRA — Direct Receiver Access; Fx — Frequency Extension Compatible

		Frequency Extension Modules								
		1.85mm NMD	WR15 (V Band)	WR12 (E Band)	WR10 (W Band)	WR8 (F Band)	WR6.5 (D Band)	WR5.1 (G Band)	WR4.3	WR3.4
		18 to 54 GHz	50 to 75 GHz	60 to 90 GHz	75 to 110 GHz	90 to 140 GHz	110 to 170 GHz	140 to 220 GHz	170 to 260 GHz	220 to 330 GHz
9 GHz VNA Compatible		●	●	●	●	●	●			
Third-Party Extenders*			●	●	●	●	●	●	●	●

\*Only compatible with 20 GHz VNAs

# Software Features of CMT VNAs

Our software can be downloaded free from our website, used on an unlimited number of PCs using either Linux or Windows operating systems, and enables easy VNA integration with other software applications and automation.

Included software features:

- Time domain and gating conversion
- Frequency offset mode
- Vector mixer calibration measurements
- Embedding and de-embedding
- Limit testing
- Power scanning
- Compression point recognition



\*M Series VNAs do not include time domain, mixer measurements, or advanced calibration

Learn more about the demo software version you can download on any computer for free at any time from the Copper Mountain Technologies' website

## Software Plug-ins

The VNA software is extended by many plug-ins that increase the functionality. There are a number of plug-ins that you can download for free on the CMT website, like the Amplifier Stability plug-in to plot amplifier stability K factor,  $\mu_1$  and  $\mu_2$  versus frequency by measuring 2-port S-parameters, or Third Order Intercept, to help characterize the linearity of the device under test.

Also available are plug-ins that can be purchased to simplify measurement workflows.

**Automatic Fixture Removal (AFR)** VNA software plug-in enables the measurement of a wide range of components through comprehensive methods tailored to specific fixture properties. It can simplify measurements made on fixtures by de-embedding the fixture effects.

The **Manufacturing Plug-in** provides consistency for test settings and consistency in measurement processes. Automatically archive tests into a network folder for reporting and analysis. The plug-in template can be used, or it is easily and readily customizable.



Learn more about the software plug-ins on page 4 of the catalog or see more information about all of them on our website

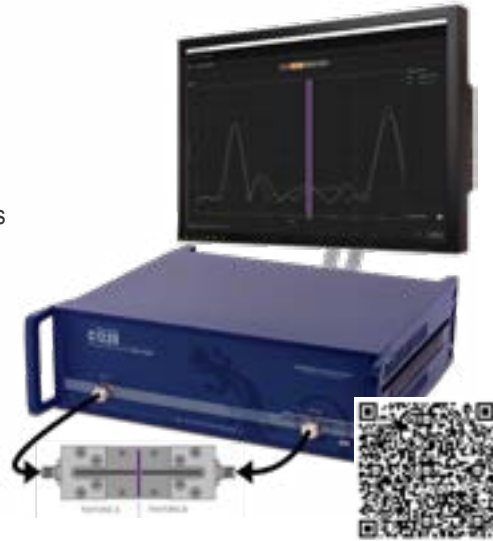
# VNA Software Plug-Ins

## Automatic Fixture Removal Plug-in

Automatic Fixture Removal (AFR) is an intuitive software plug-in that is used to accurately measure hard to access devices, such as SMD sized components mounted on a fixture by de-embedding the fixture effects.

The AFR VNA software plug-in enables the measurement of a wide range of components through comprehensive methods tailored to specific fixture properties.

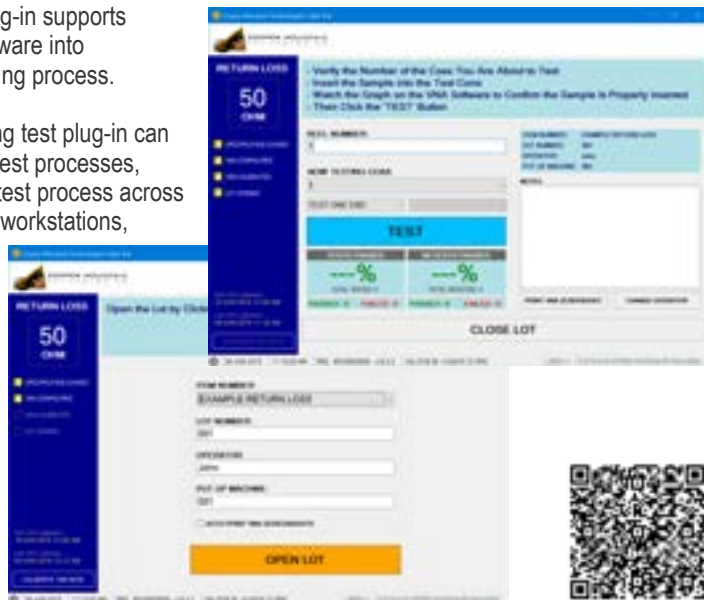
The wizard-like interface is easy to use and is compatible with all CMT 2- and 4-port Cobalt series VNAs up to 20 GHz and Compact series two-port, two-path VNAs up to 44 GHz.



## Manufacturing Test Plug-in

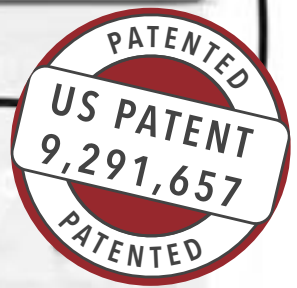
Manufacturing Test Plug-in supports incorporating VNA software into automated manufacturing process.

Using the manufacturing test plug-in can streamline production test processes, ensure consistency of test process across multiple operators and workstations, easily create and manage pass/fail limits across multiple workstations, organize test results for subsequent retrieval and analysis, and adapt to any specific production test process and QMS requirements.



# 1-Port VNA Series

Lab-grade performance in a handheld cable and antenna analyzer



## R60



Frequency range: 1 MHz to 6 GHz  
Measurement Points: 2-100,001  
Time domain with gating standard

## R140B



Frequency range: 85 MHz to 14 GHz  
Measurement Points: 2-100,001  
Time domain with gating standard

## R180



Frequency range: 1 MHz to 18 GHz  
Measurement Points: 2-100,001  
Optional: IP54 Rating



# Compact VNA Comparison

## TR Series

The TR Series Compact VNAs deliver lab grade performance in a compact package and perform 2-port 1-path measurements. The software includes all the features engineers have come to expect: time domain and gating conversion, segmented frequency sweeps, linear/logarithmic sweeps, power sweeps, multiple trace formats, 16 channels max. with up to 16 traces each, marker math, and limit tests.

## M Series

The M Series Compact VNAs deliver metrology-grade performance in a more economical package that excludes a number of advanced features: Vector Mixer Calibration, TRL Calibration, Frequency Offset mode, and Time Domain.

## S Series

The S Series Compact VNAs deliver lab grade performance in a compact package and perform 2-port 2-path measurements. The software includes all the features engineers have come to expect: time domain and gating conversion, segmented frequency sweeps, linear/logarithmic sweeps, power sweeps, multiple trace formats, 16 channels max. with up to 16 traces each, marker math, and limit tests.

## SC Series

The SC Series Compact VNAs deliver lab grade performance with higher speed, more dynamic range, and higher output power in a compact package. These instruments perform 2-port 2-path measurements. The software includes all the features engineers have come to expect: time domain and gating conversion, segmented frequency sweeps, linear/logarithmic sweeps, power sweeps, multiple trace formats, 16 channels max. with up to 16 traces each, marker math, and limit tests.



# Compact VNA – TR Series

Full feature performance in a compact package for 2-port 1-path measurements

## TR1300/1



Frequency range: **300 kHz to 1.3 GHz**  
Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
Measured parameters: **S11, S21**

# Compact VNA – M Series



Economy VNAs  
for 2-port 2-path  
measurements

*\*M Series VNAs do not include time domain, mixer measurements, or advanced calibration*

## M5045



Frequency range: **300 kHz to 4.5 GHz**  
Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
Measurement Time per Point: **70 µs min. typ**

## M5065



Frequency range: **300 kHz to 6.5 GHz**  
Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
Measurement Time per Point: **70 µs min. typ**

## M5090



Frequency range: **300 kHz to 8.5 GHz**  
Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
Measurement Time per Point: **70 µs min. typ**

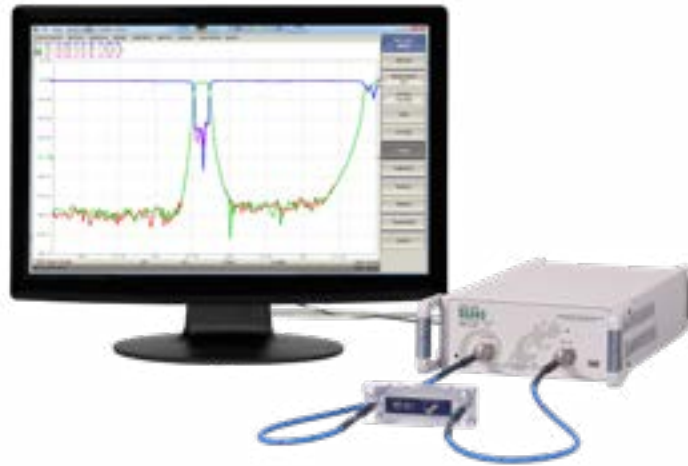
## M5180



Frequency range: **300 kHz to 18 GHz**  
Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
Measurement Time per Point: **30 µs min. typ**

# Compact VNA – S Series

Full feature performance in a compact package for 2-port 2-path measurements



## S5045



Frequency range: **9 kHz to 4.5 GHz**  
 Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **70  $\mu$ s min. typ**

## S5065



Frequency range: **9 kHz to 6.5 GHz**  
 Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **70  $\mu$ s min. typ**

## S5085



Frequency range: **9 kHz to 8.5 GHz**  
 Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **70  $\mu$ s min. typ**

## S5180B



Frequency range: **100 kHz to 18 GHz**  
 Dynamic Range: **133 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **24  $\mu$ s min. typ**

## S5243



Frequency range: **10 MHz to 44 GHz**  
 Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **15  $\mu$ s min. typ**

# Compact VNA – SC Series

Compact lab grade VNA with higher performance



## SC5065



Frequency range: **300 kHz to 6.5 GHz**  
 Dynamic Range: **140 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **16  $\mu$ s min. typ**  
 Power Range: **-45 dBm to +15 dBm**

## SC5090



Frequency range: **300 kHz to 9 GHz**  
 Dynamic Range: **140 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **16  $\mu$ s min. typ**  
 Power Range: **-45 dBm to +15 dBm**

## SC7540



**75 Ohm Impedance**  
 Frequency range: **100 kHz to 4 GHz**  
 Dynamic Range: **137 dB typ.** (10 Hz IFBW)  
 Measurement Time per Point: **24  $\mu$ s min. typ**  
 Power Range: **-50 dBm to +10 dBm**

# 9 GHz Multiport VNAs



- First true multiport USB VNA
- Organic extension of Compact family without bulky RF switch
- Better calibration, easier automation, and faster measurement speed
- Fits into the standard 19" test bay

## SN5090-6

Frequency range: 300 kHz to 9 GHz  
 Number of Ports: 6  
 Dynamic Range: 140 dB *typ.* (10 Hz IFBW)  
 Measurement Time per Point: 24  $\mu$ s *min. typ*

## SN5090-8

Frequency range: 300 kHz to 9 GHz  
 Number of Ports: 8  
 Dynamic Range: 140 dB *typ.* (10 Hz IFBW)  
 Measurement Time per Point: 24  $\mu$ s *min. typ*

## SN5090-10

Frequency range: 300 kHz to 9 GHz  
 Number of Ports: 10  
 Dynamic Range: 140 dB *typ.* (10 Hz IFBW)  
 Measurement Time per Point: 24  $\mu$ s *min. typ*

## SN5090-12

Frequency range: 300 kHz to 9 GHz  
 Number of Ports: 12  
 Dynamic Range: 140 dB *typ.* (10 Hz IFBW)  
 Measurement Time per Point: 24  $\mu$ s *min. typ*

## SN5090-14

Frequency range: 300 kHz to 9 GHz  
 Number of Ports: 14  
 Dynamic Range: 140 dB *typ.* (10 Hz IFBW)  
 Measurement Time per Point: 24  $\mu$ s *min. typ*

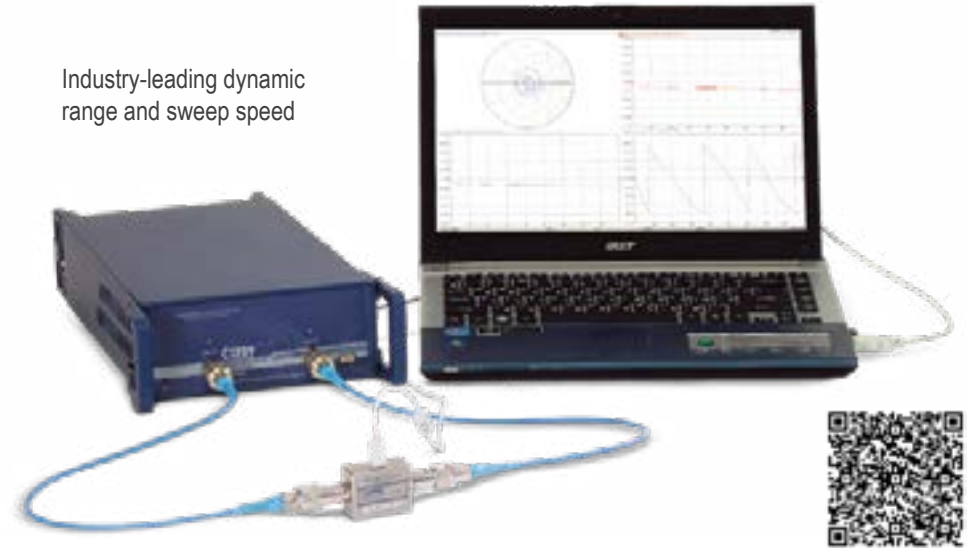
## SN5090-16

Frequency range: 300 kHz to 9 GHz  
 Number of Ports: 16  
 Dynamic Range: 140 dB *typ.* (10 Hz IFBW)  
 Measurement Time per Point: 24  $\mu$ s *min. typ*

*\* Prices are preliminary and are subject to change.*

# Cobalt Series: 9 GHz

Industry-leading dynamic range and sweep speed



## C1209 Base Model



Frequency Range: 100 kHz to 9 GHz  
 Dynamic Range: 152 dB *typ.* (10 Hz IFBW)  
 Measured Parameters: S11, S21, S12, S22  
 Measurement Time per Point: 10  $\mu$ s *min. typ*

## C2209 Direct Receiver Access



Frequency Range: 100 kHz to 9 GHz  
 Dynamic Range: 152 dB *typ.* (10 Hz IFBW)  
 Measured Parameters: S11, S21, S12, S22  
 Measurement Time per Point: 10  $\mu$ s *min. typ*

## C1409 Base Model



Frequency Range: 100 kHz to 9 GHz  
 Dynamic Range: 152 dB *typ.* (10 Hz IFBW)  
 Measured Parameters: S11,...S44  
 Measurement Time per Point: 10  $\mu$ s *min. typ*

## C2409 Direct Receiver Access



Frequency Range: 100 kHz to 9 GHz  
 Dynamic Range: 152 dB *typ.* (10 Hz IFBW)  
 Measured Parameters: S11,...S44  
 Measurement Time per Point: 10  $\mu$ s *min. typ*

# Cobalt Series: 20 GHz



CMT's 2- and 4-port Cobalt VNAs fit into three categories depending on the functionality you require. Base models for standard capabilities, Direct Receiver Access (DRA) models, and Frequency Extension compatible models designed to anchor your CobaltFx system.

## C1220 Base Model



Frequency Range: **100 kHz to 20 GHz**  
 Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11, S21, S12, S22**  
 Measurement Time per Point: **12 µs min. typ**

## C2220 Direct Receiver Access



Frequency Range: **100 kHz to 20 GHz**  
 Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11, S21, S12, S22**  
 Measurement Time per Point: **12 µs min. typ**

## C1420 Base Model



Frequency Range: **100 kHz to 20 GHz**  
 Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11,...S44**  
 Measurement Time per Point: **12 µs min. typ**

## C2420 Direct Receiver Access



Frequency Range: **100 kHz to 20 GHz**  
 Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11,...S44**  
 Measurement Time per Point: **12 µs min. typ**

# Cobalt Series: Frequency Extension Models

Base VNAs for a cost-effective, scalable frequency extension solution

## C4209



Frequency Range: **100 kHz to 9 GHz**  
 Dynamic Range: **152 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11, S21, S12, S22**  
 Measurement Time per Point: **10 µs min. typ**

## C4220



Frequency Range: **100 kHz to 20 GHz**  
 Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11, S21, S12, S22**  
 Measurement Time per Point: **12 µs min. typ**

## C4409



Frequency Range: **100 kHz to 9 GHz**  
 Dynamic Range: **152 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11,...S44**  
 Measurement Time per Point: **10 µs min. typ**

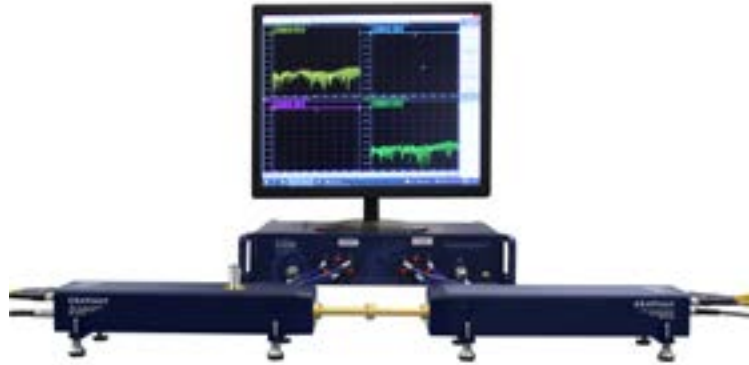
## C4420



Frequency Range: **100 kHz to 20 GHz**  
 Dynamic Range: **135 dB typ.** (10 Hz IFBW)  
 Measured Parameters: **S11,...S44**  
 Measurement Time per Point: **12 µs min. typ**

# CobaltFx Frequency Extenders

Cost-effective millimeter wave frequency extension system



## FET1854



Frequency range: **18 GHz to 54 GHz**  
 Connector: **Coaxial 2.4mm**  
 System Dynamic Range: **130 dB typ.** (10 Hz IFBW)  
 Output power: **+5 dBm**

## FET-WR15



Frequency range: **50 GHz to 75 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **120 dB typ.** (10 Hz IFBW)  
 Output power: **+5 dBm**

## FET-WR12



Frequency range: **60 GHz to 90 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **110 dB typ.** (10 Hz IFBW)  
 Output power: **+5 dBm**

## FET-WR10



Frequency range: **75 GHz to 110 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **110 dB typ.** (10 Hz IFBW)  
 Output power: **+5 dBm**



# CobaltFx Frequency Extenders

Cost-effective millimeter wave frequency extension system

## FET-WR15-HP



Frequency range: **50 GHz to 75 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **120 dB typ.** (10 Hz IFBW)  
 Output power: **+15 dBm**

## FET-WR12-HP



Frequency range: **60 GHz to 90 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **110 dB typ.** (10 Hz IFBW)  
 Output power: **+15 dBm**

## FET-WR10-HP



Frequency range: **75 GHz to 110 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **110 dB typ.** (10 Hz IFBW)  
 Output power: **+13 dBm**

## FET-WR08



Frequency range: **90 GHz to 140 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **100 dB typ.** (10 Hz IFBW)  
 Output power: **-5 dBm**

## FET-WR06



Frequency range: **110 GHz to 170 GHz**  
 Connector: **Waveguide**  
 System Dynamic Range: **100 dB typ.** (10 Hz IFBW)  
 Output power: **-5 dBm**



# CobaltFx Tx Frequency Extenders

This frequency extender can be used to measure one-path transmission (S21 or S12) through DUT when paired with compatible receiver.

## FET-WR15-Tx



Frequency range: **50 GHz to 75 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **120 dB typ.** (10 Hz IFBW)  
Output power: **+5 dBm**

## FET-WR12-Tx



Frequency range: **60 GHz to 90 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **110 dB typ.** (10 Hz IFBW)  
Output power: **+5 dBm**

## FET-WR10-Tx



Frequency range: **75 GHz to 110 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **120 dB typ.** (10 Hz IFBW)  
Output power: **+5 dBm**

## FET-WR08-Tx



Frequency range: **90 GHz to 140 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **100 dB typ.** (10 Hz IFBW)  
Output power: **-5 dBm**

## FET-WR06-Tx



Frequency range: **110 GHz to 170 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **100 dB typ.** (10 Hz IFBW)  
Output power: **-5 dBm**

## FET-WR05-Tx



Frequency range: **150 GHz to 220 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **90 dB typ.** (10 Hz IFBW)  
Output power: **-5 dBm**

# CobaltFx Rx Frequency Extenders

This frequency extender can be used to measure one-path transmission (S21 or S12) through DUT when paired with compatible transmitter.

## FET-WR15-Rx



Frequency range: **50 GHz to 75 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **120 dB typ.** (10 Hz IFBW)  
Test Port Input Power: **+5 dBm, typ**

## FET-WR12-Rx



Frequency range: **60 GHz to 90 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **120 dB typ.** (10 Hz IFBW)  
Test Port Input Power: **+5 dBm**

## FET-WR10-Rx



Frequency range: **75 GHz to 110 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **120 dB typ.** (10 Hz IFBW)  
Test Port Input Power: **+10 dBm, max**

## FET-WR08-Rx



Frequency range: **90 GHz to 140 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **100 dB typ.** (10 Hz IFBW)  
Test Port Input Power: **+10 dBm, max**

## FET-WR06-Rx



Frequency range: **110 GHz to 170 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **100 dB typ.** (10 Hz IFBW)  
Test Port Input Power: **+10 dBm, max**

## FET-WR05-Rx



Frequency range: **150 GHz to 220 GHz**  
Connector: **Waveguide**  
System Dynamic Range: **90 dB typ.** (10 Hz IFBW)  
Test Port Input Power: **+10 dBm, max**



# 5G OTA Antenna Test System



## Over-the-Air Antenna Measurement Chamber Solution from 18 to 54 GHz

A new turnkey solution for customers needing to make far-field antenna measurements above 18 GHz. The over-the-air (OTA) antenna measurement chamber solution features a wide array of configurations depending on the user's anechoic chamber requirements, antenna size, desired frequency range, and antenna positioner functionality.

CMT has partnered with MilliBox to offer a complete OTA antenna measurement chamber solution for engineers needing to make measurements from 18 GHz to 54 GHz. Each OTA bundle can be configured with a set of 2,3, or 4 anechoic chamber cubes.

OTA-2S-54 (2 cubes) = 72 cm  
OTA-3S-54 (3 cubes) = 133 cm  
OTA-4S-54 (4 cubes) = 193 cm

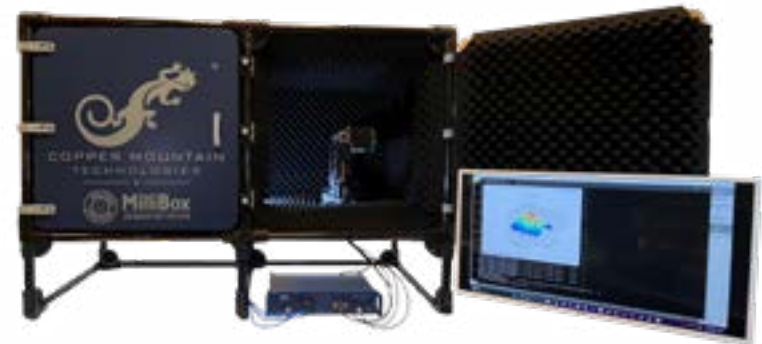
Each system includes a 3D antenna positioner (Gimbal), sophisticated but intuitive measurement software, and other necessary accessories to fully set up a chamber for far field antenna measurements.

The measurement system is anchored by CMT's 2-port 9 GHz Cobalt VNA and includes a set of CobaltFx FET1854 Frequency Extender Modules for 18 GHz-54 GHz.

These comprehensive OTA solution bundles provide a low-cost, space-saving solution that is ideal for 5G antenna testing applications across automotive radar, aerospace, satellite communication, and similar industries.

The OTA bundle is an all-in-one solution that provides everything needed to accurately test a large number of 5G antennas. The combination of affordability and portability will enable multiple systems in a single lab environment for users to simultaneously test multiple antennas."

# mmWave OTA Antenna Test System



## Over-the-Air Antenna Measurement Chamber Solution from 50 GHz to 220 GHz

A new turnkey solution for customers needing to make far-field antenna measurements for bands from WR-15 to WR-05. The over-the-air (OTA) antenna measurement chamber solution features a wide array of configurations depending on the user's anechoic chamber requirements, antenna size, desired frequency range, and antenna positioner functionality.

CMT has partnered with MilliBox and Eravant to offer a complete OTA antenna measurement chamber solution for engineers needing to make measurements from 50 to 220 GHz. Each OTA bundle can be configured with a set of 2,3, or 4 mmWave anechoic chamber cubes.

OTA-2H-XX (2 cubes) = 80 cm  
OTA-3H-XX (3 cubes) = 158 cm  
OTA-4H-XX (4 cubes) = 235 cm

Each system includes a 3D antenna positioner (Gimbal), sophisticated but intuitive measurement software, and other necessary accessories to fully set up a chamber for far field antenna measurements.

The measurement system is anchored by CMT's 2-port 9 GHz Cobalt VNA and a set of (1) Tx Frequency Extender and (1) Rx Frequency Extender in collaboration with Eravant. The extenders are available in the following frequencies:

- WR-15: 50 to 75 GHz
- WR-12: 60 to 90 GHz
- WR-10: 75 to 110 GHz
- WR-08: 90 to 140 GHz
- WR-06: 110 to 170 GHz
- WR-05: 150 to 220 GHz

These comprehensive mmWave solution bundles provide a low-cost, space-saving solution that is ideal for millimeter wave antenna testing applications across automotive radar, aerospace, satellite communication, and similar industries.

The OTA bundle is an all-in-one solution that provides everything needed to accurately test a large number of mmWave antennas. The combination of affordability and portability will enable multiple systems in a single lab environment for users to simultaneously test multiple antennas."

# Calibration Kits and Accessories

## Automatic Calibration Modules

### ACM2506



50 Ohm  
Frequency range:  
20 kHz to 6.5 GHz

### ACM2520



50 Ohm  
Frequency range:  
100 kHz to 20 GHz

### ACM4509



50 Ohm  
Frequency range:  
100 kHz to 9 GHz

### ACM2708



75 Ohm  
Frequency range:  
20 kHz to 8 GHz

### ACM2509



50 Ohm  
Frequency range:  
20 kHz to 9 GHz

### ACM2543



50 Ohm  
Frequency range:  
10 MHz to 44 GHz

### ACM4520



50 Ohm  
Frequency range:  
100 kHz to 20 GHz

## Mechanical Calibration Kits

CMT Mechanical Calibration Kits are available from DC to 50 GHz in SOL and SOLT models.

## Accessories

Copper Mountain Technologies also offers an extensive range of 50 Ohm and 75 Ohm accessories, including cables, matching pads, adapters, bias tees and other items to complete your test setup.



# Customizable VNAs

When your system includes network analysis and requires a custom VNA, our engineers will work with you to find the right solution:

We have designed our analyzers for ease of customization, so we can deliver a high performing custom VNA solution at a lower cost than any other provider.

- Ultra-compact, rack mountable or special size analyzer that would fit in your system
- Utilizes an external computer for data processing and analysis, storage and software integration with other systems
- Purpose-built software that integrates the VNA with other system components.



S5180B Compact VNA



Custom Configuration of the S5180B Compact VNA for Compass Technology Group

# Application Solutions



## RF Teaching Kit

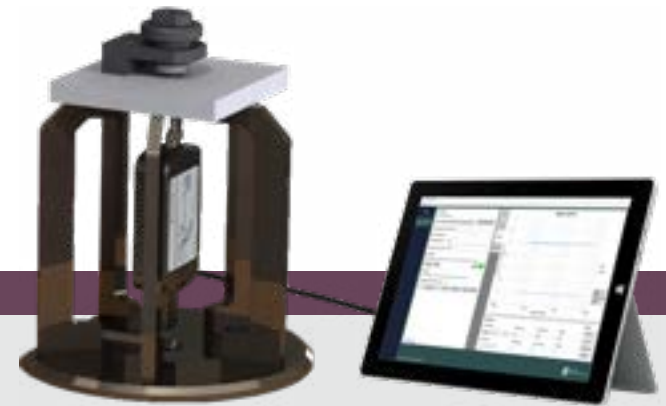
- Complete S-parameters measurement solution that backs RF theory with a robust hands-on VNA experience and sample labs for classes
- Exclusively offered to educational institutions teaching RF
- Practical approach to a variety of measurements that will prepare students for a wide range of industry engineering jobs
- CMT can assist with creating labs designed by applications engineers to walk students through common VNA measurements
- Software is free to download on an unlimited number of PCs
- Students can perform measurement preparations and post-process results on their own computers without the measurement module

Copper Mountain Technologies' RF Teaching Kit is a complete solution designed to teach engineering students RF skills. It can be used with a number of Compact Series VNA options and includes the calibration equipment, device under test (DUT), and accessories necessary for an array of common VNA measurements. CMT's RF Teaching Kit is an affordable way to outfit your lab with RF measurement equipment, providing a practical introduction to vector network analysis, which includes sample labs for RF Engineering classes.

You can also work with CMT to create s-parameter measurement curriculum designed by RF engineers and materials to promote class interest. The RF Teaching Kit is backed by comprehensive support from Copper Mountain Technologies' expert engineers. The hardware included in the RF Teaching Kit will enable users to cover all major VNA measurements such as impedance, VSWR, return loss, and insertion loss.



# Application Solutions



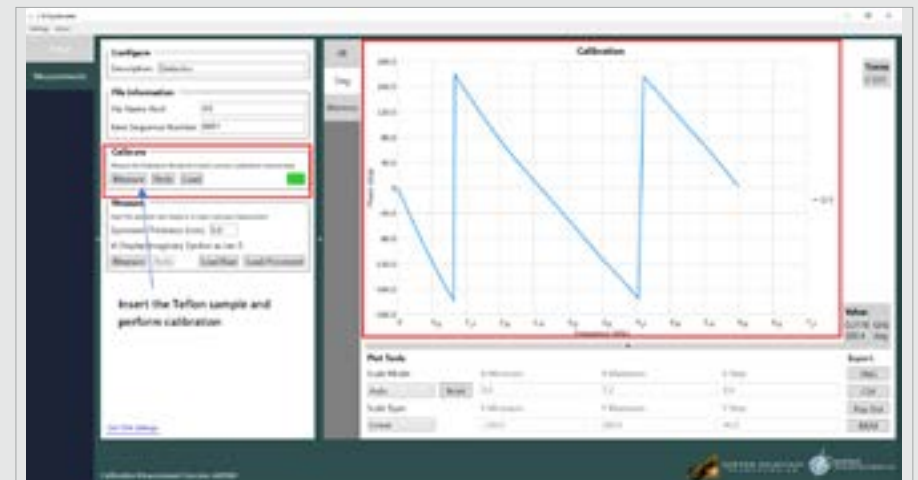
## Epsilon Meter

This solution was developed in collaboration with the leading provider of materials measurement solutions and systems, Compass Technology Group. 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.



In collaboration with





Copper Mountain Technologies develops innovative and robust RF test and measurement solutions for engineers all over the world. The company was created in 2011 and based in Indianapolis, IN with sales offices in Singapore, United Kingdom, and Miami. Copper Mountain Technologies' world-class metrology and engineering resources work as an extension of your team.

Copper Mountain Technologies' VNAs include an RF measurement module and a software application that runs on an external Windows or Linux PC, laptop, or tablet, connecting to the measurement hardware via USB interface. The result is a faster, more effective test process that fits into the modern workspace.

The engineers at Copper Mountain Technologies extend their reach by using the latest available technologies and components, and continuously improving product selection and service. The goal is to help engineers and developers extend their reach by equipping them with cutting-edge test instruments that are small but accurate, lightweight, and affordable.

 ***We're creative. We're problem solvers.***



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