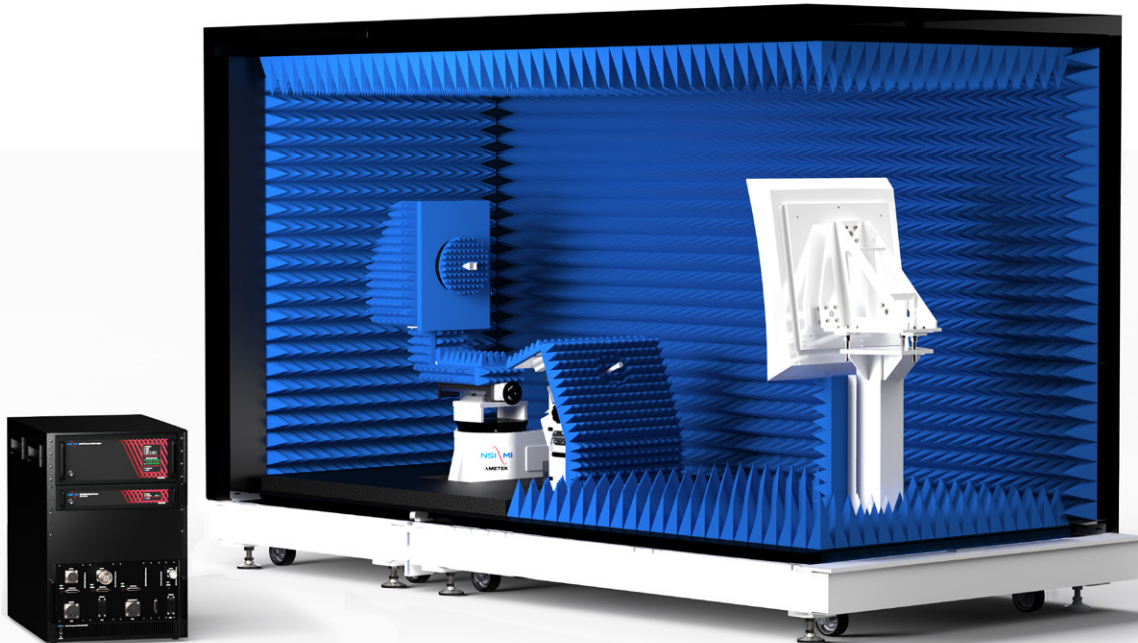# Portable Compact Range Measurement System

CRS-PORT-18-0.5

INTRODUCTION

The CRS-PORT-18-0.5 is a pre-configured portable compact measurement system ideal for measuring medium to high gain antennas from 18.0−110.0 GHz with antenna-under-test (AUT) payloads of up to 0.5 m (19.7 in.) in diameter and 75 kg (165 lb). The base, reflector, and positioning system come pre-assembled, aligned, and integrated with the chamber, for ultimate convenience and cost/time savings.

FEATURES

- **18.0 to 110.0 GHz measurements**
- **Full 3D pattern characterization in real-time**
- **High 75 kg (165 lb) AUT payload capacity**
- **Conveniently swappable transmit/receive modes**
- **Powerful plotting and antenna analysis software**
- **Easily configurable for mmWave measurements**

TYPICAL APPLICATIONS

- **5G FR2 base station antennas**
- **Point-to-point communication antennas**
- **Phased-arrays**
- **Reflector antennas**
- **Radar antennas**
- **General broad pattern antennas**

Test with Confidence™

CAPABILITIES

The CRS-PORT-18-0.5 supports NSI-MI and Keysight RF receivers and is capable of measuring amplitude and phase from 18.0 GHz to 110.0 GHz. The system includes a workstation featuring state-of-the-art NSI-MI antenna test software. Measured data provides direct far-field patterns allowing for complete characterization of the antenna's performance. A single data set provides rapid information on antenna gain, beamwidth, side lobe structure, beam pointing, and cross polarization among other parameters.

SPECIFICATIONS

Reflector System	
Reflector	Rolled edge
Frequency Range	18.0–110.0 GHz
Quiet Zone Dimensions	0.5 x 0.5 m (19.7 x 19.7 in.) cylinder
Amplitude Taper[1]	1 dB
Amplitude Ripple[1]	±0.5 dB
Total Phase Variation[1]	±10° (18–40 GHz)
Cross Polarization[2]	-30 dB
Positioning System	
Positioner	Roll-over-azimuth AUT positioner with manual offset and feed stand with pol positioner
Max AUT Diameter	0.5 m (19.7 in.)
Max Torque Load	203 Nm (150 ft-lb)
Max AUT Weight	75 kg (165 lb), Bending moment: 168 Nm (124 ft-lb)
Travel	±200° AUT Roll/AZ, Feed polarization 150 mm (6 in.) AUT offset
Readout Accuracy	±0.05° AUT Roll/AZ ±0.1° Feed polarization
Resolution	0.01° AUT Roll/AZ, Feed polarization
Scan Speed	18°/s AUT Roll/AZ, Feed polarization
Position Controller	ELE-IPC (Integrated Position Controller)
PC Workstation	Computer with LCD monitor
Software	NSI-MI antenna test software
RF System	
RF Receiver	NSI-MI Vector Field Analyzer™ (ELE-VFA), or customer-supplied network analyzer[3]
Distributed RF	1–50 GHz mixers, included as standard
Frequency Range	18–50 GHz using remote mixers 50–110 GHz using mmWave modules (optional)
Chamber Enclosure	
Typical Isolation	60 dB
Weights and Dimensions (with Chamber)	
Installed Envelope W x L x H	1.9 x 3.9 x 2.3 m (74 x 154 x 92 in.)
Installed Weight	1,600 kg (3,527 lb), approximate
Shipping	Typically shipped fully assembled using refrigerated container. Air shipment possible.

[1] Specifications apply to full quiet zone at a 95% statistical confidence level
[2] On-axis only
[3] Currently limited to Keysight PNA only

BASE SYSTEM

Each NSI-MI Portable Compact Range Measurement System includes the following:

- Compact range reflector
- Positioning subsystem including feed and AUT positioner with absorber kit and motion control system
- State-of-the-art RF subsystem utilizing the NSI-MI ELE-VFA or customer-supplied network analyzer[3]
- NSI-MI or customer-supplied RF receiver connection
- Interface kits to easily integrate a wide variety of common RF equipment, antennas and test devices
- Full standard system interface and operations documentation
- NSI-MI Workstation with data acquisition, processing and plotting software

RF Subsystem

- NSI-MI ELE-VFA or customer-supplied network analyzer[3]
- Positioner and range RF cables
- RF components and devices (as needed)
- Software device drivers

RF Components and Devices

Reflector and Positioning Subsystem

- Compact range reflector
- Roll-over-azimuth AUT positioner with manual offset arm
- Feed stand with motorized polarization positioner
- Portable base
- Absorber kit
- Motion controller (ELE-IPC)
- Control and motor cabling
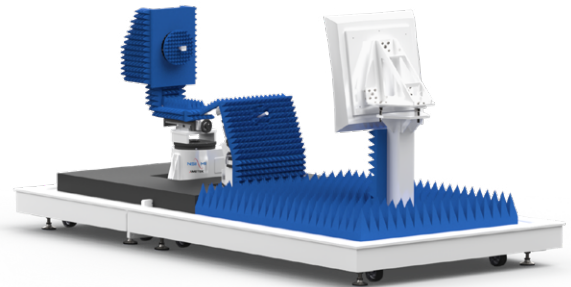
CRS-PORT-18-0.5

Document Deliverables

- System diagram
- RF power budget
- Hardware manuals
- Software manuals

[3] Currently limited to Keysight PNA only

AMETEK®

OPTIONS AND ACCESSORIES

Our pre-configured systems are designed to operate with a wide range of popular accessories and support services to meet budget and test needs. These include:

Chamber Options

- Chamber enclosure with absorber treatment
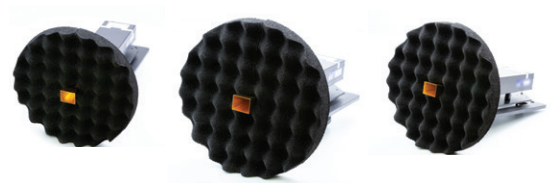- Integrated HVAC system
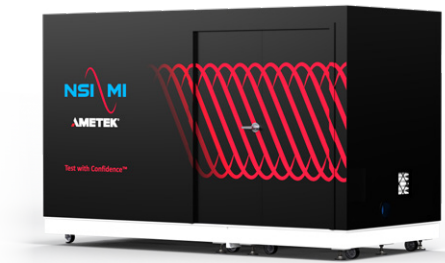
Chamber

Antenna Accessories

- Linear polarized compact range feed assemblies
- Standard gain horn assemblies
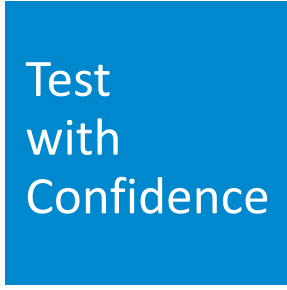- Dual linear polarized compact range feed assemblies

Compact Range Feeds
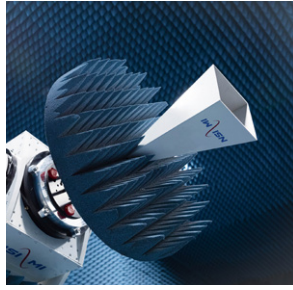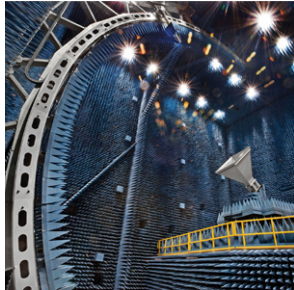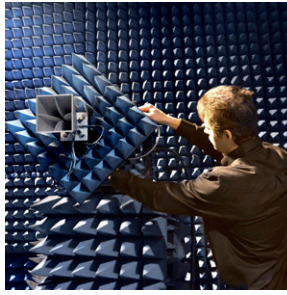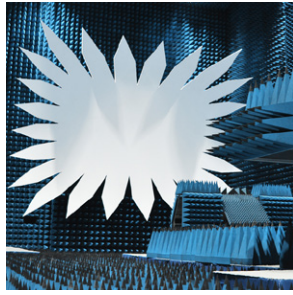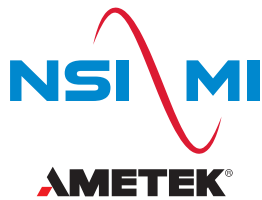
mmWave RF Upgrade Options

- 50.0–75.0 GHz module and Feed-SGH set
- 60.0–90.0 GHz module and Feed-SGH set
- 75.0–110.0 GHz module and Feed-SGH set

mmWave RF Upgrade

Factory and Site Services

- Factory quiet zone probing report
- On-site installation and verification
- Training by NSI-MI experts

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with
Confidence

NSI-MI Technologies introduced the world to microwave antenna measurement systems and is the preferred global supplier of antenna, radar cross section, and radome measurement solutions. Today, our innovative products, systems, and services lead the industry in setting new standards for tomorrow's performance. From world-class in-house testing facilities to delivering industry-leading turnkey systems, we provide the highest quality measurement products on the market.

Our full range of standard products and custom-designed systems are backed by our longstanding commitment to precision-engineered accuracy, reliability, and lasting performance. We provide the right solution for every RF measurement need and our worldwide network of service professionals are always available to offer support.

For more information on ordering NSI-MI Technologies' products, applications or services please contact your nearest NSI-MI office. Our complete sales team information is available at: www.nsi-mi.com/contact-us

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