

STO-08203N05-CM-E2

F-Band ACCESS VNA Frequency Extender

Tx/Rx Module with Attenuator

STO-08203N05-CM-E2 is a F-Band vector network analyzer (VNA) frequency extender designed for full 2-port S-parameter measurements from 90 to 140 GHz. The design leverages Eravant's proprietary technology to reduce cost without compromising performance. It is compatible with modern VNA from Rohde & Schwarz, Anritsu, Keysight, and Copper Mountain that operate at 20 GHz or higher frequencies. The extended system typically achieves a dynamic range of 100 dB. The Tx/Rx module includes a precision micrometer adjustable attenuator with 30 dB tuning range.

To enhance the testing experience, the extenders include 1" and 2.5" waveguide straight sections equipped with Eravant's proprietary **Proxi-Flange™ contactless flanges (STQ-WG-08010-FB-CF & STQ-WG-08025-FB-CF)**. For optimal performance, Eravant recommends pairing the system with its **cal-kit (STQ-TO-08-S1-CKIT1)** and the **Wave-Glide™ Rail (STQ-TL-RW-S10-M1)** to complete the VNA test setup.

Each extender is packaged individually in a rugged equipment case and includes additional accessories for setup and operation.

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency Range	90 GHz		140 GHz
Test Port Output Power		-5 dBm	
Test Port Input Power (Damage)			+25 dBm
Output Power Control Range		30 dB	
Dynamic Range (10 Hz BW)		100 dB	
Test Port Match		25 dB	
Directivity		30 dB	
RF Source Input Frequency	11.25 GHz		17.50 GHz
RF Source Input Power	-3 dBm	0 dBm	+6 dBm
LO Source Input Frequency	11.25 GHz		17.50 GHz
LO Source Input Power	0 dBm	+3 dBm	+6 dBm
IF Frequency Range	10 MHz		1000 MHz
Multiplication Factor		8	
Magnitude Stability (300 Hz BW)		±0.15 dB	
Phase Stability (300 Hz BW)		±3°	
Specification Temperature	+20°C		+30°C
Operating Temperature	0°C		+50°C



ECCN

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FEATURES

- 90-140 GHz Coverage
- High Dynamic Range
- Built-in Memory for Cal Data
- Input Voltage: 100 to 240 V_{AC}

APPLICATIONS

- VNA Frequency Extension
- S-Parameter Characterization

RECOMMENDED PAIRINGS

- [Cal-Kit: STQ-TO-08-S1-CKIT1](#)
- [Rail System: Wave-Glide™](#)
- [Waveguide Quick Connects](#)
- [Cable: SCW-SMSM040-F1-A-PM](#)
- [Coax Adapters](#)
- [Waveguide to Coax Adapters](#)

RECOMMENDED RESOURCES

- [User Manual](#)
- [Configuration Guide](#)
- [Contactless Flange, Banded WG Setup & Applications](#)
- [Proxi-Flange: Conference Papers](#)



Mechanical Specifications:

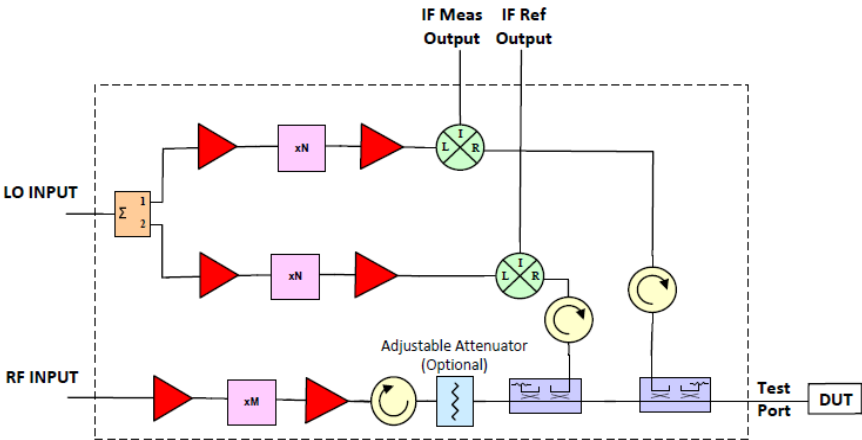
Item	Specification
Test Port	WR-08 Waveguide with UG-387/U-M Precision Anti-Cocking Flange
RF Source Input Port	SMA (F)
LO Source Input Port	SMA (F)
IF Measure Port	SMA (F)
IF Reference Port	SMA (F)
Memory Port	USB-C Socket
DC Power Receptacle	LEMO EGG.0B.304.CLL
Finish	Black Anodized
Weight (Per Module)	2.8 lbs.
Size (Without Adjustable Feet)	8.00" (L) x 3.00" (W) x 1.90" (H)
Outline	TO-SF-A-M-2

Accessories Included:

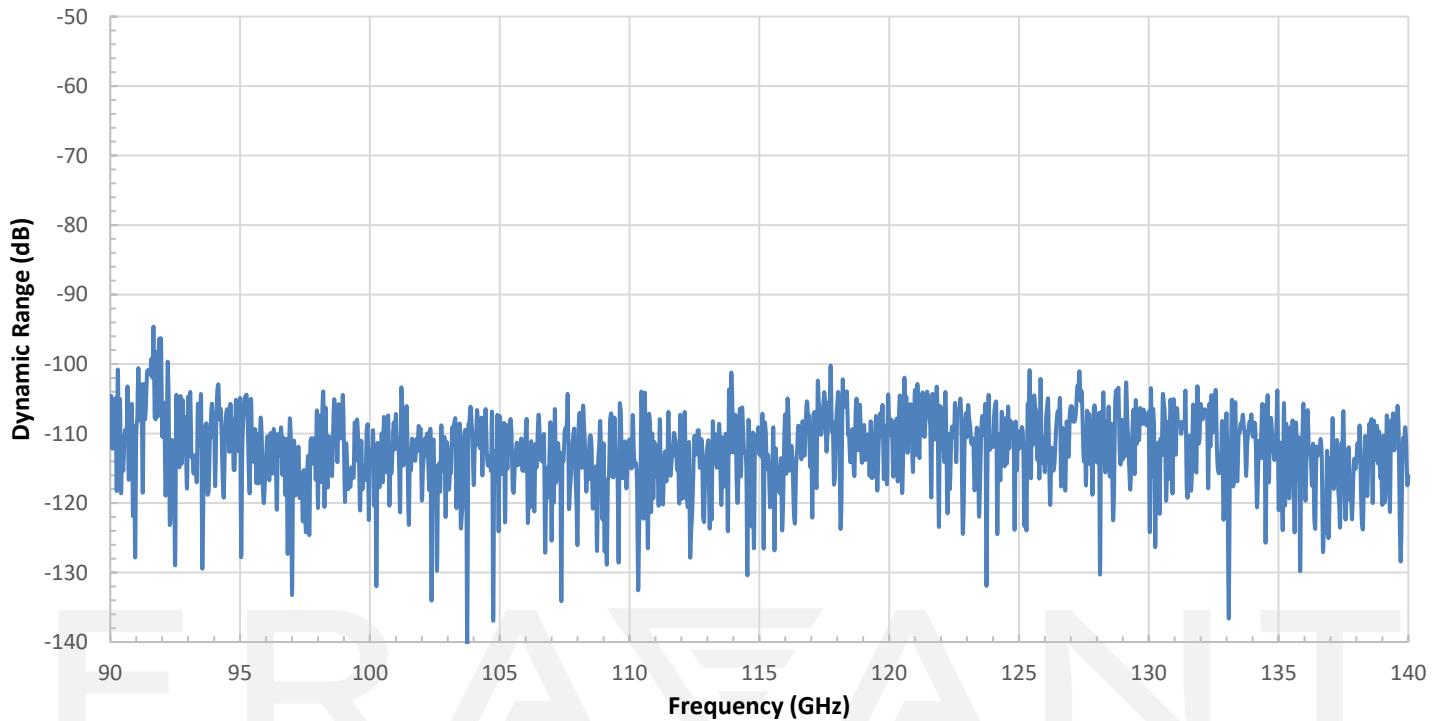
Item	Eravant Model Number	Quantity
Proxi-Flange™ Contactless Flange, 1.0" Long	STQ-WG-08010-FB-CF	1
Proxi-Flange™ Contactless Flange, 2.5" Long	STQ-WG-08025-FB-CF	1
Waveguide Screws, 3/32 Hex Head	SWH-332-SS-10	1 (10 Screws Total)
Waveguide Screwdriver, 3/32 Hex Head	SWH-332-DS	1
Waveguide Screws, 5/64 Hex Head	SWH-564-SS-10	1 (10 Screws Total)
Waveguide Screwdriver, 5/64 Hex Head	SWH-564-DS	1
SMA Connector Torque Wrench	SCH-08008-S1	1
AC-to-DC Power Adapter	STU-110006005-HF	1

Note: Connecting cables are not included. Eravant coaxial cable, model **SCW-SMSM040-F1-A-PM**, is highly recommended. A total of four (4) cables per extender module are required.

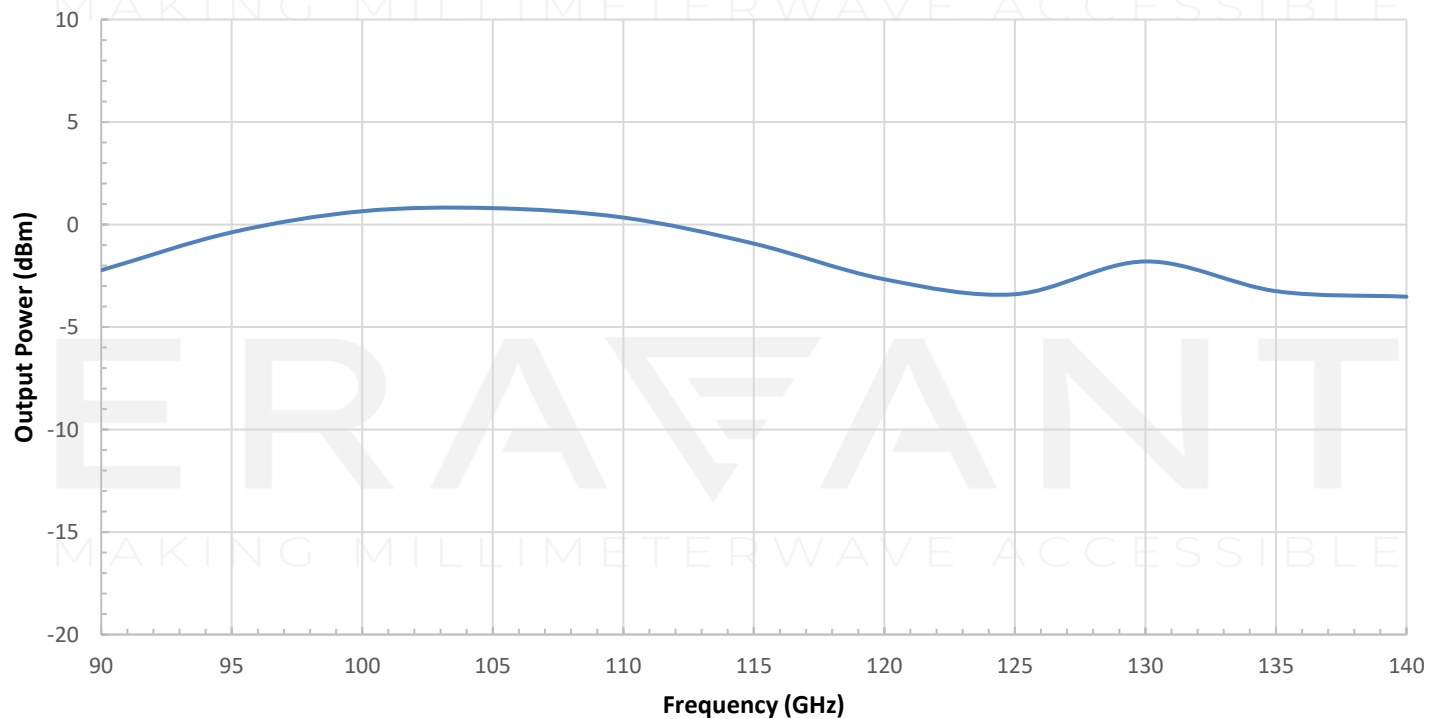
Simplified Block Diagram:

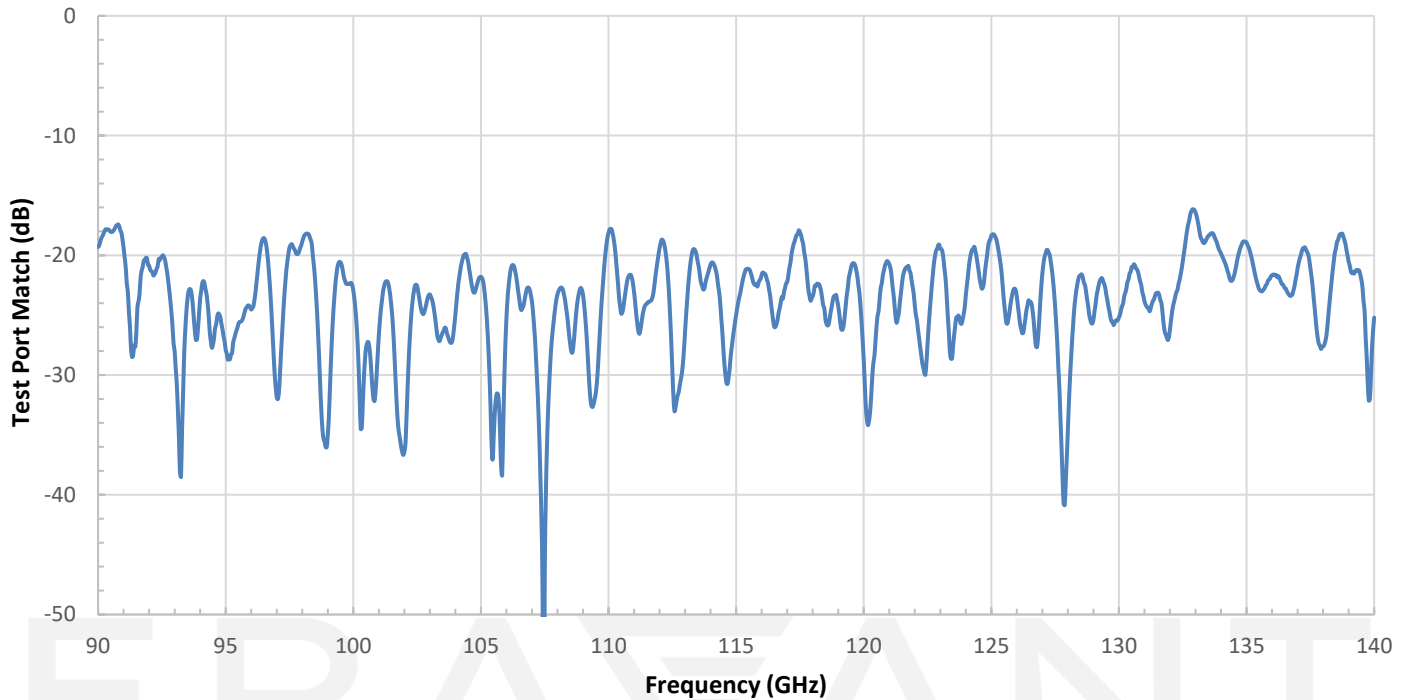
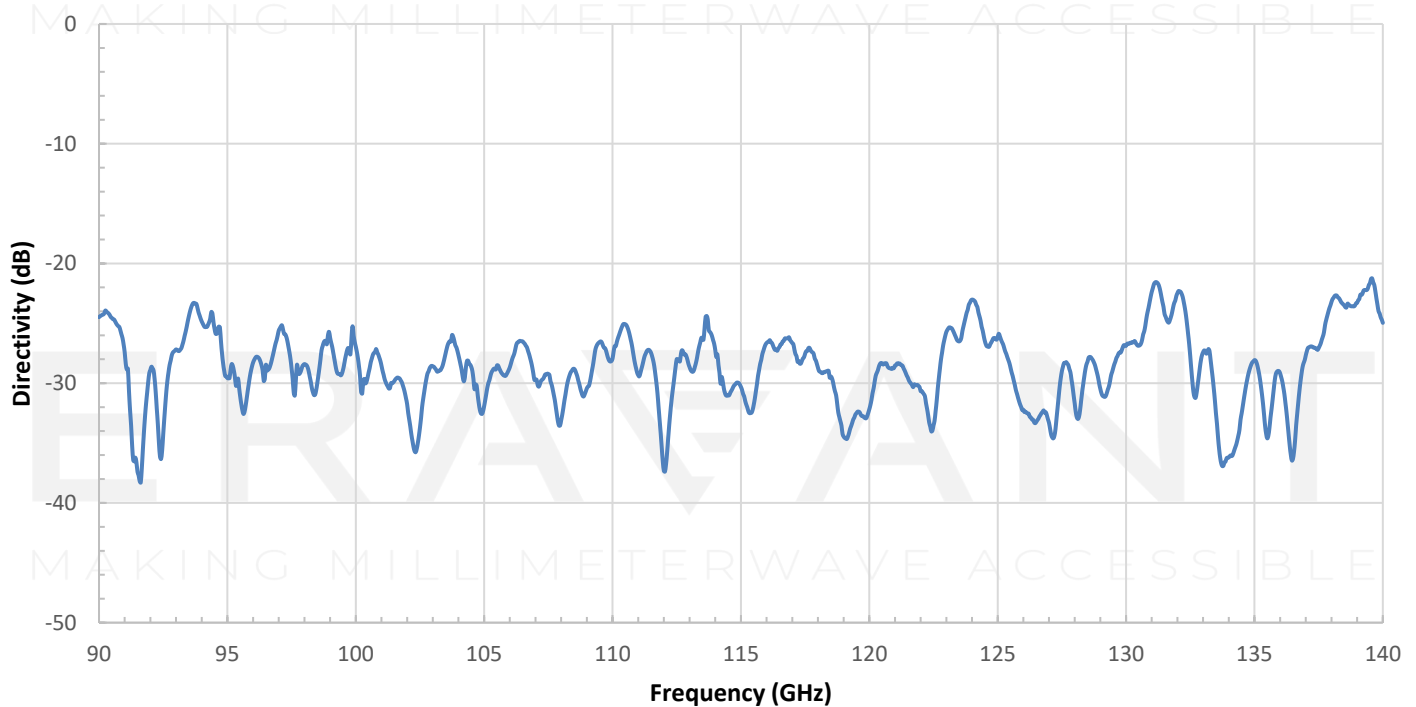


Dynamic Range vs. Frequency

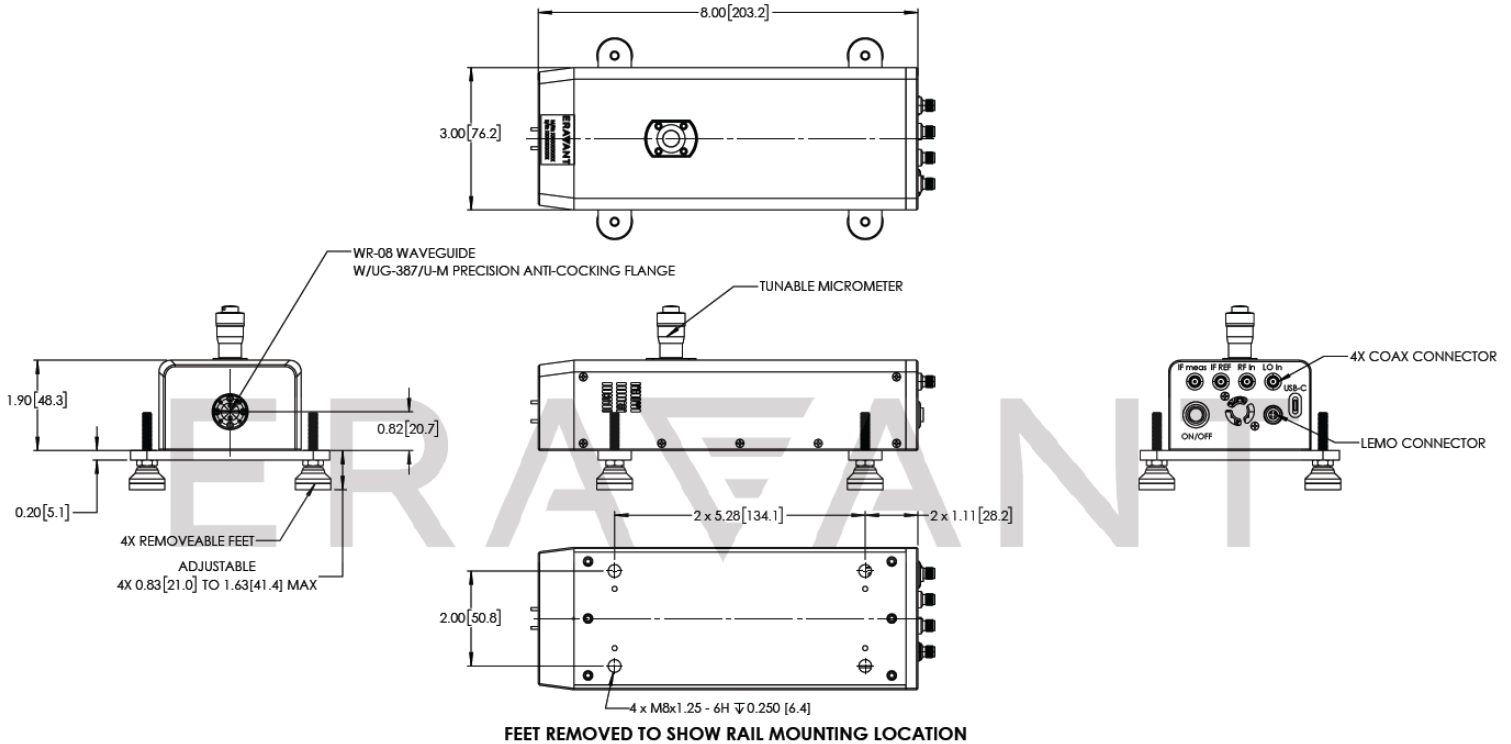


Output Power vs. Frequency



Test Port Match vs. Frequency**Directivity vs. Frequency**

Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



NOTE:

- Performance plots shown above represent a sample lot performance. Actual data may show some unit-to-unit variation.
- The **STO-08203N05-CM-E2** includes only one Tx/Rx extender module with a micrometer-adjustable attenuator. For a version without attenuator, refer to model **STO-08203N05-C-E2**.
- Eravant offers calibration services. It is recommended that calibration be performed every 12 months to ensure equipment compliance.
- Connecting cables are not included. The use of Eravant coaxial cables (model **SCW-SMSM040-F1-A-PM**) is highly recommended. A total of four (4) cables per extender head are required.
- Coaxial adapters may be necessary, depending on the connector types on the VNA front panel. Appropriate Eravant adapters are recommended.
- To test a DUT with a coaxial interface, use suitable Eravant waveguide-to-coaxial adapters.
- Operation outside the specified frequency range may result in degraded performance.
- Eravant reserves the right to modify product information without prior notice.

CAUTION:

- Exceeding absolute maximum ratings of the device will damage the extenders.
- If a waveguide is present, any foreign objects in the waveguide will cause performance degradation and may damage or destroy the unit.
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied: 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm). Torque wrench model **SCH-08008-S1** is highly recommended.