

STO-1009305-CM-E1

W-Band VNA Frequency Extender

Tx/Rx Module with Attenuator, 6.25 to 9.17 GHz Input

STO-1009305-CM-E1 is a W-Band vector network analyzer (VNA) frequency extender Tx/Rx designed to achieve full 1-port, S-parameter testing at 75 to 110 GHz. The Tx/Rx module includes a precision micrometer adjustable attenuator with 30 dB tuning range. It is compatible with modern vector network analyzers such as the Copper Mountain CobaltFx. The VNA needs dual sources to be extended. The frequency extender can achieve a dynamic range up to 120 dB for certain passive products that require high rejection, isolation, and return loss testing such as directional couplers, orthomode transducers, and filters. An AC to DC Power adapter and two **Proxi-Flange™ Contactless Flanges (STQ-WG-10010-FB-CF and STQ-WG-10025-FB-CF)**, are included. The Eravant calibration kit (**STQ-TO-10-S1-CKIT1**) and **Wave-Glide™ Rail System (STQ-TL-RW-S10-M1)** are highly recommended to complete the W-Band VNA test set. VNA extender is packaged individually in a rugged equipment box with additional hardware and tools.



Electrical Specifications

| Parameter | Minimum | Typical | Maximum |
|---|----------|---------|----------|
| Frequency Range | 75 GHz | | 110 GHz |
| Test Port Output Power (No Attenuation) | | +5 dBm | |
| Test Port Input Power (Damage) | | | +20 dBm |
| Output Power Control Range | | 30 dB | |
| Dynamic Range @ 10 Hz BW | 100 dB | 120 dB | |
| Test Port Match | | 25 dB | |
| Directivity | | 35 dB | |
| RF Source Input Frequency | 6.25 GHz | | 9.17 GHz |
| RF Source Input Power | -6 dBm | -3 dBm | 0 dBm |
| LO Source Input Frequency (RF±IF) | 6.25 GHz | | 9.17 GHz |
| LO Source Input Power | -3 dBm | 0 dBm | +3 dBm |
| IF Frequency Range | 10 MHz | | 1000 MHz |
| Multiplication Factor | | 12 | |
| Magnitude Stability @ 300 Hz BW | | ±0.1 dB | |
| Phase Stability @ 300 Hz BW | | ±2.5° | |
| Specification Temperature | +20 °C | | +30 °C |
| Operating Temperature | 0 °C | | +50 °C |

ECCN

- 3A001.b.7

FEATURES

- Full Band Coverage
- Dynamic Range of 120 dB
- AC Power Input: 100 to 240 VAC

APPLICATIONS

- VNA Frequency Extension
- S-Parameter Characterization
- Test Lab Instrumentation

RECOMMENDED PAIRINGS

- Cal Kit: [STQ-TO-10-S1-CKIT1](#)
- [Wave-Glide™ Rail System](#)
- [Waveguide Quick Connects](#)
- Cable: [SCW-SMSM040-F1-A-PM](#)

RECOMMENDED RESOURCES

- [Contactless WG Flange & mmW-THz Test Setup Applications](#)
- [VNA Extender Configuration Guide](#)
- [VNA Extenders & Cal Kits](#)



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Mechanical Specifications

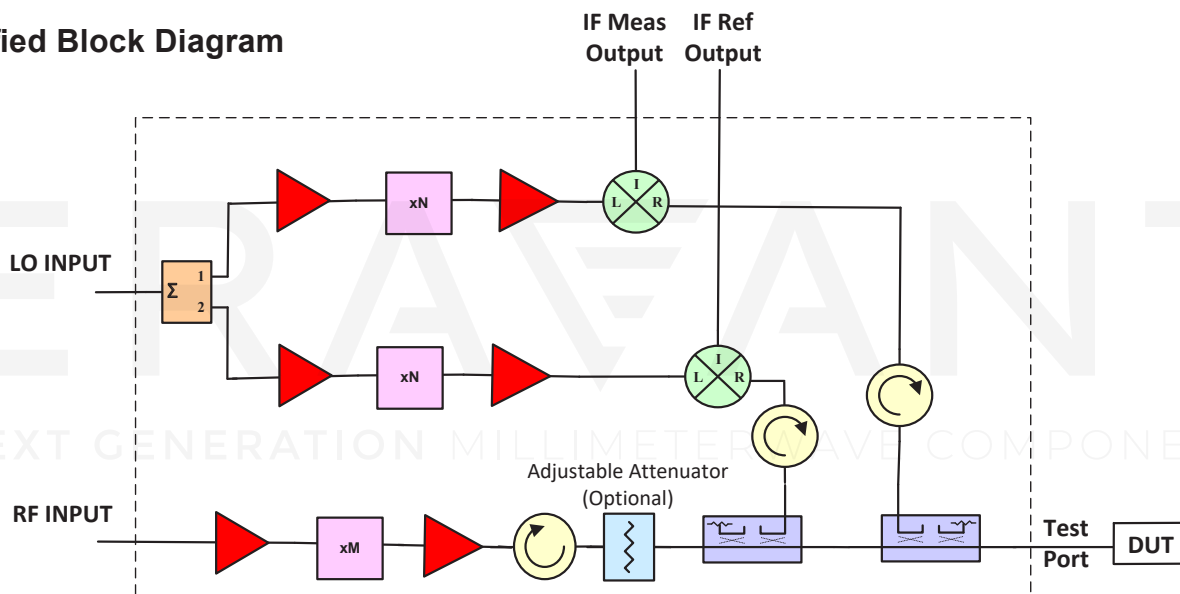
| Item | Specification |
|--------------------------------|---|
| Test Port | WR-10 Waveguide with UG-387/U-M Precision Anti-Cocking Flange |
| RF and LO Source Input Ports | SMA (F), SMA (F) |
| IF Output Port | SMA (F) |
| IF Reference Port | SMA (F) |
| DC Power Receptacle | LEMO EGG.0B.304.CLL |
| Finish | Blue Anodized |
| Weight (per Module) | 4.4 lb |
| Size (Without Adjustable Feet) | 11.50" (L) x 3.00" (W) x 1.90" (H) |
| Outline | TO-SW-A-M (with Attenuator) |

Components Included:

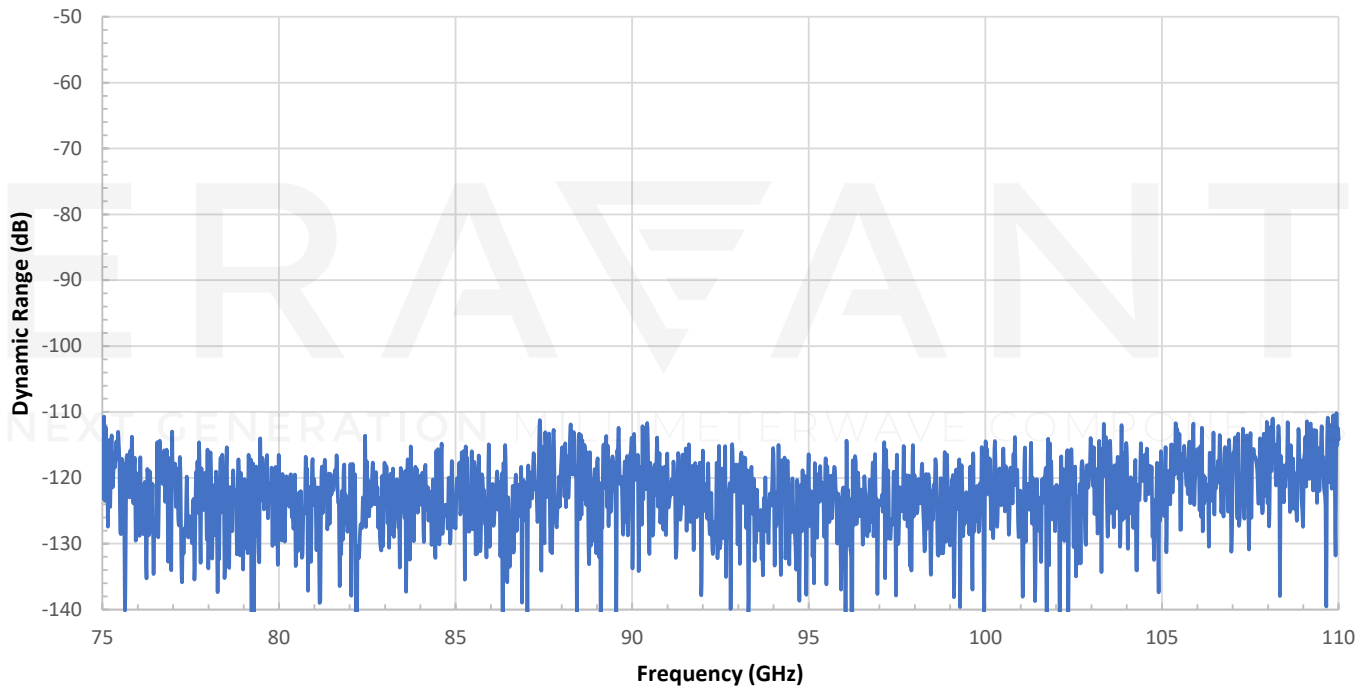
| Item | Eravant Model Number | Quantity |
|---|----------------------|---------------------|
| Proxi-Flange™ Contactless Flange, 1.0" Long | STQ-WG-10010-FB-CF | 1 |
| Proxi-Flange™ Contactless Flange, 2.5" Long | STQ-WG-10025-FB-CF | 1 |
| Waveguide Screws, 3/32 Hex Head | SWH-332-SS-10 | 1 (10 Screws Total) |
| Waveguide Screwdriver, 3/32 Hex Head | SWH-332-DS | 1 |
| SMA Connector Torque Wrench | SCH-08008-S1 | 1 |
| AC-to-DC Power Adapter | STU-110006005-HF | 1 |

Connecting cables are not included. Eravant coaxial cable, model **SCW-SMSM040-F1-A-PM**, is highly recommended. A total of four (4) are required for full operation.

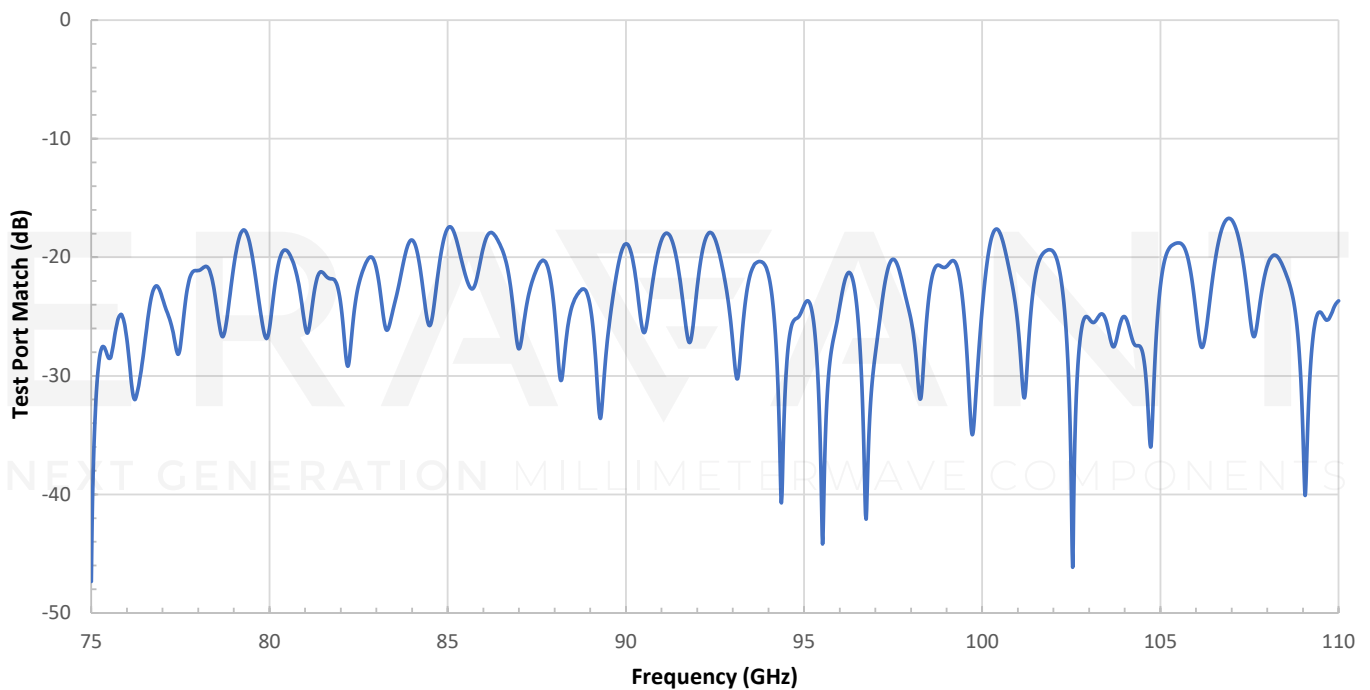
Simplified Block Diagram



Dynamic Range vs. Frequency

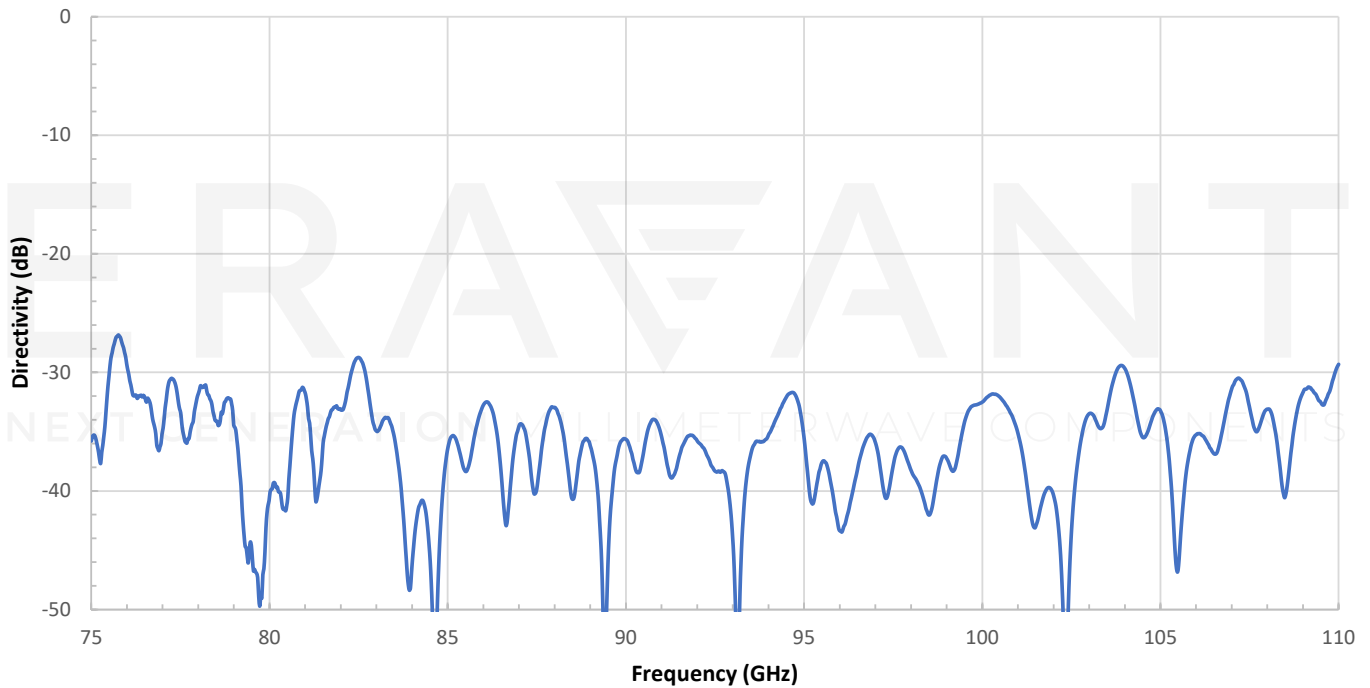


Test Port Match vs. Frequency

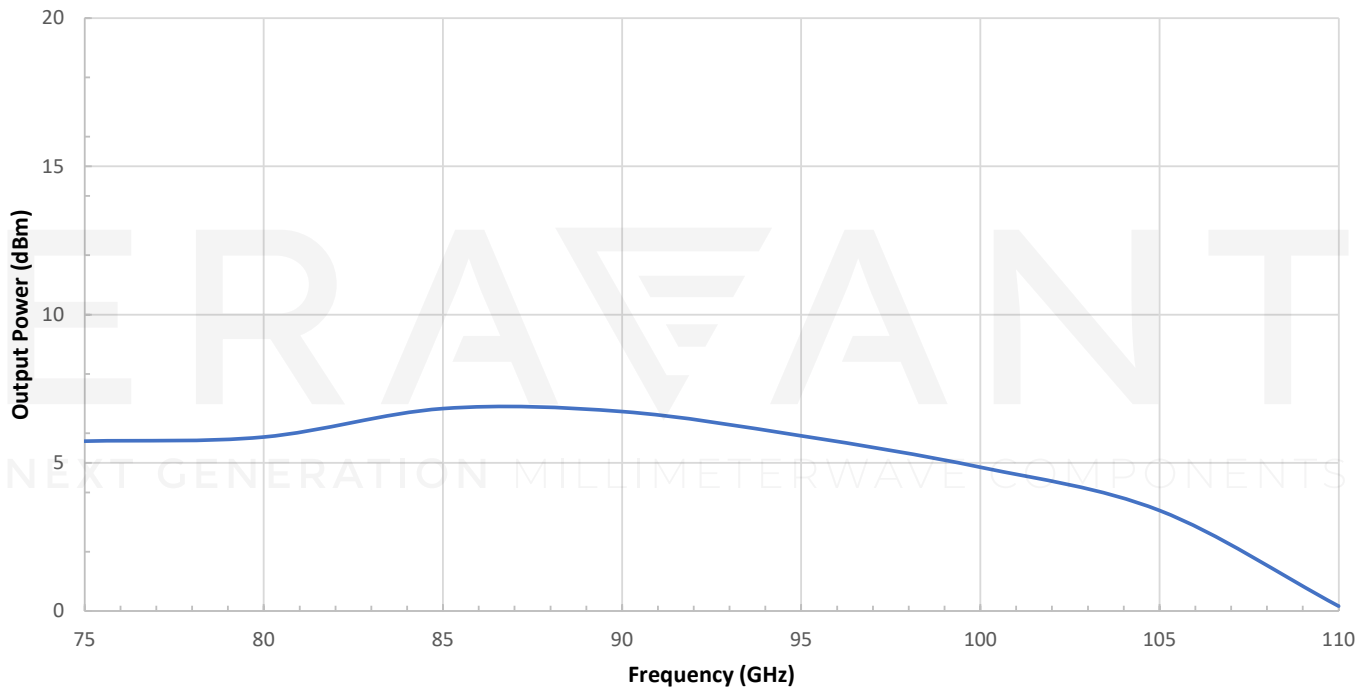


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Directivity vs. Frequency



Output Power vs. Frequency

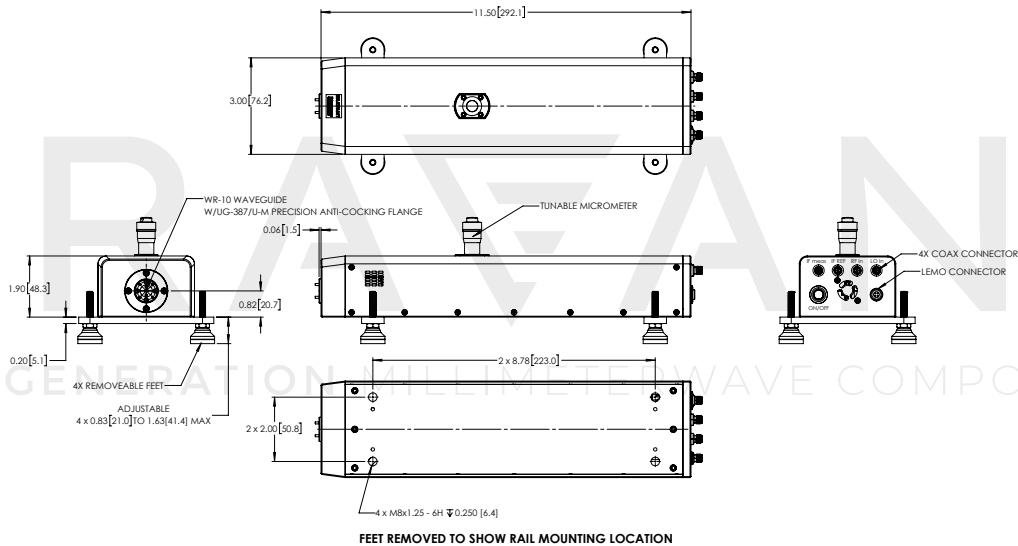


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Mechanical Outline

Unless otherwise specified, all dimensions are in inches [millimeters]

TO-SW-A-M (With Attenuator)



NOTE

- Only one extender module is included in STO-1009305-CM-E1: Tx/Rx module with Attenuator. A pair of extenders is offered under a different model number and can be found on our [VNA Frequency Extenders](#) page.
- Eravant reserves the right to change the information presented without notice.

CAUTION

- Exceeding absolute maximum ratings of the device will damage the extenders.
- Proper torque, 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm), should be applied. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will cause performance degradation or damage the device.

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Appendix: Case View with Included Components

