# STO-1209305-R-E1

## E-Band VNA Frequency Extender, Receive (Rx) Module, 5 to 7.5 GHz Input

**STO-1209305-R-E1** is a compact E-Band vector network analyzer (VNA) frequency extender receive (Rx) module that extends lower frequency VNA signals to 60 to 90 GHz. It is compatible with modern vector network analyzers such as Rohde & Schwarz ZNA, Anritsu VectorStar™, Keysight PNA-X Series, and Copper Mountain CobaltFx. The VNA needs dual sources to be extended. This frequency extender can be used to measure one-path transmission (S21 or S12) through DUT when paired with compatible transmitter. When Rx module is paired with Tx/Rx module, the setup can be used to measure reflection at input of DUT and transmission through DUT. An AC to DC Power adapter and **Proxi-Flange™ Contactless Flanges (STQ-WG-12010-FB-CF and STQ-WG-12025-FB-CF)**, are included. The Eravant calibration kit **(STQ-TO-12-S1-CKIT1)** and **Wave-Glide™ Rail System (STQ-TL-RW-S10-M1)** are highly recommended to complete the E-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 | 60 GHz | | 90 GHz |
| Input Attenuation Control Range | | 30 dB | |
| Test Port Input Power (Damage)* | | | +5 dBm |
| Dynamic Range** @ 10 Hz BW | 100 dB | 120 dB | |
| Test Port Match | | 20 dB | |
| LO Source Input Frequency (RF±IF) | 5 GHz | | 7.5 GHz |
| LO Source Input Power | -3 dBm | 0 dBm | +3 dBm |
| IF Frequency Range | 10 MHz | | 1000 MHz |
| Multiplication Factor | | 12 | |
| Specification Temperature | +20°C | | +30°C |
| Operating Temperature | -0°C | | +50°C |

*Max input power is specified when attenuation level is minimum. Increasing attenuation level will increase power handling.
**Measured with compatible Tx/Ref or Tx/Rx module.

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### FEATURES

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

### APPLICATIONS

- VNA Frequency Extension
- OTA Measurements
- Test Lab System

### RECOMMENDED PAIRINGS

- Cal Kit: STQ-TO-12-S1-CKIT1
- Waveguide Quick Connects
- Cable: SCW-SMSM040-F1-A-PM

### RECOMMENDED RESOURCES

- Contactless WG Flange & mmW-THz Test Setup
- VNA Extender Configuration Guide
- VNA Extenders & Cal Kits

## Mechanical Specifications:

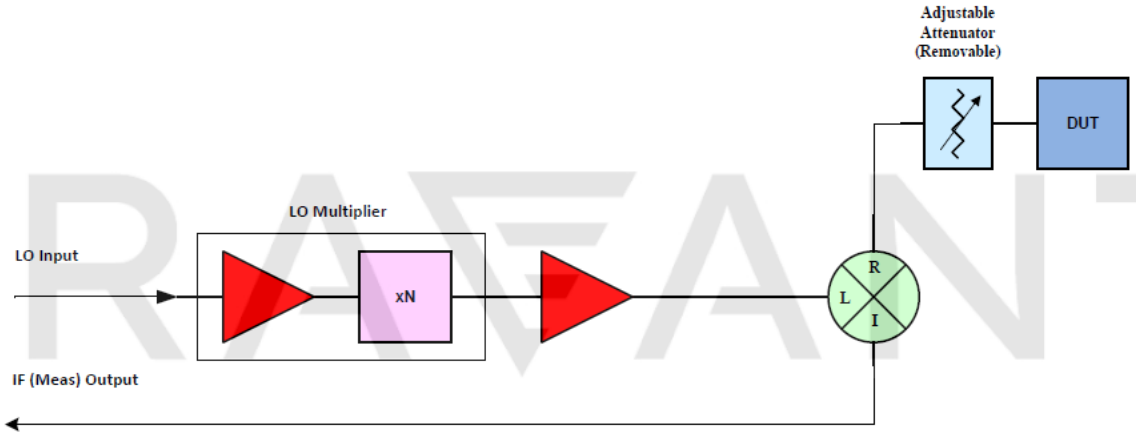
| Item | Specification |
|---|---|
| Test Port | WR-12 Waveguide with UG-387/U Precision Anti-Cocking Flange |
| LO Source Input Port | SMA (F) |
| IF Measure Port | SMA (F) |
| DC Power Receptacle | LEMO EGG.0B.304.CLL |
| Finish | Black Anodized |
| Weight (per Module) | 2.1 lbs. |
| Size (Without Adjustable Feet) | 5.00” (L) x 3.75” (W) x 1.90” (H) [Without Attenuator]<br>6.26” (L) x 3.75” (W) x 1.90” (H) [With Attenuator] |
| Outline | TO-RE-A |

## Included Components:

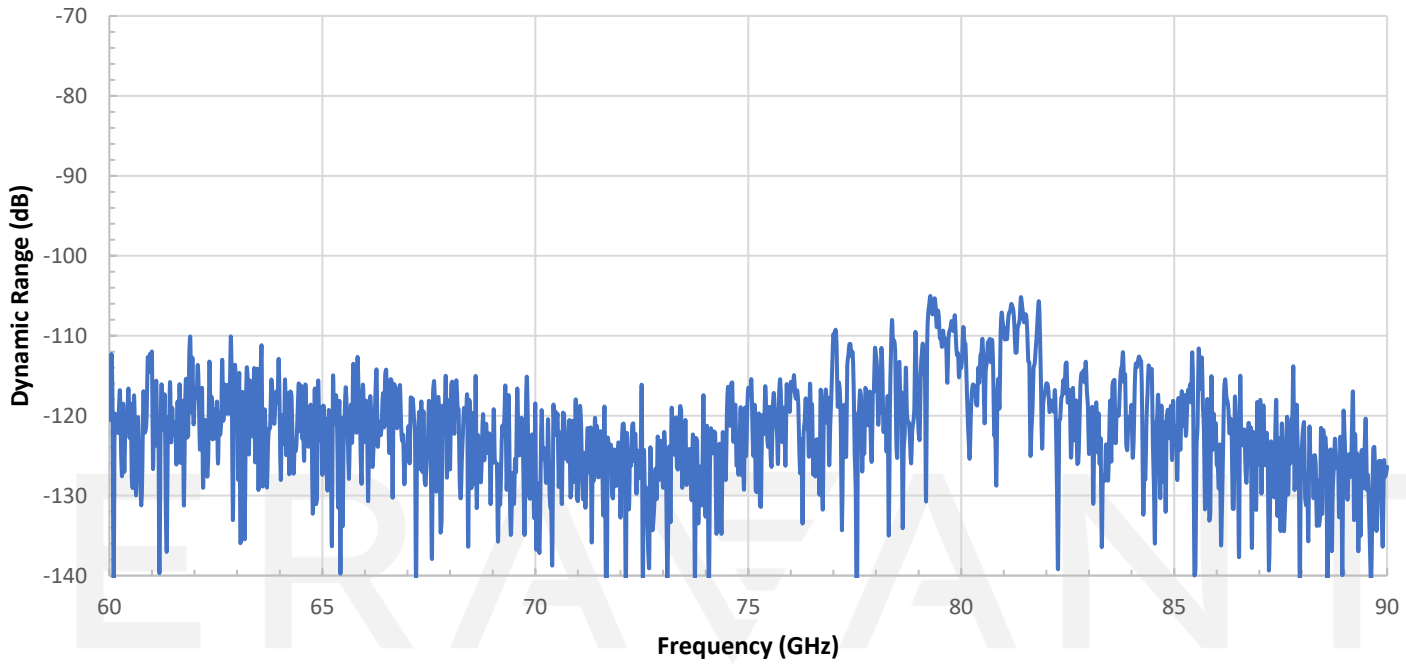
| Item | Eravant Model Number | Quantity |
|---|---|---|
| Proxi-Flange™ Contactless Flange, 1.0” Long | STQ-WG-12010-FB-CF | 1 |
| Proxi-Flange™ Contactless Flange, 2.5” Long | STQ-WG-12025-FB-CF | 1 |
| Waveguide Screws, 3/32 Hex Head | SWH-332-SS-10 | 1 (10 Screws Total) |
| Waveguide Screwdriver, 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.
Two (2) cables are required to connect this module with VNA.

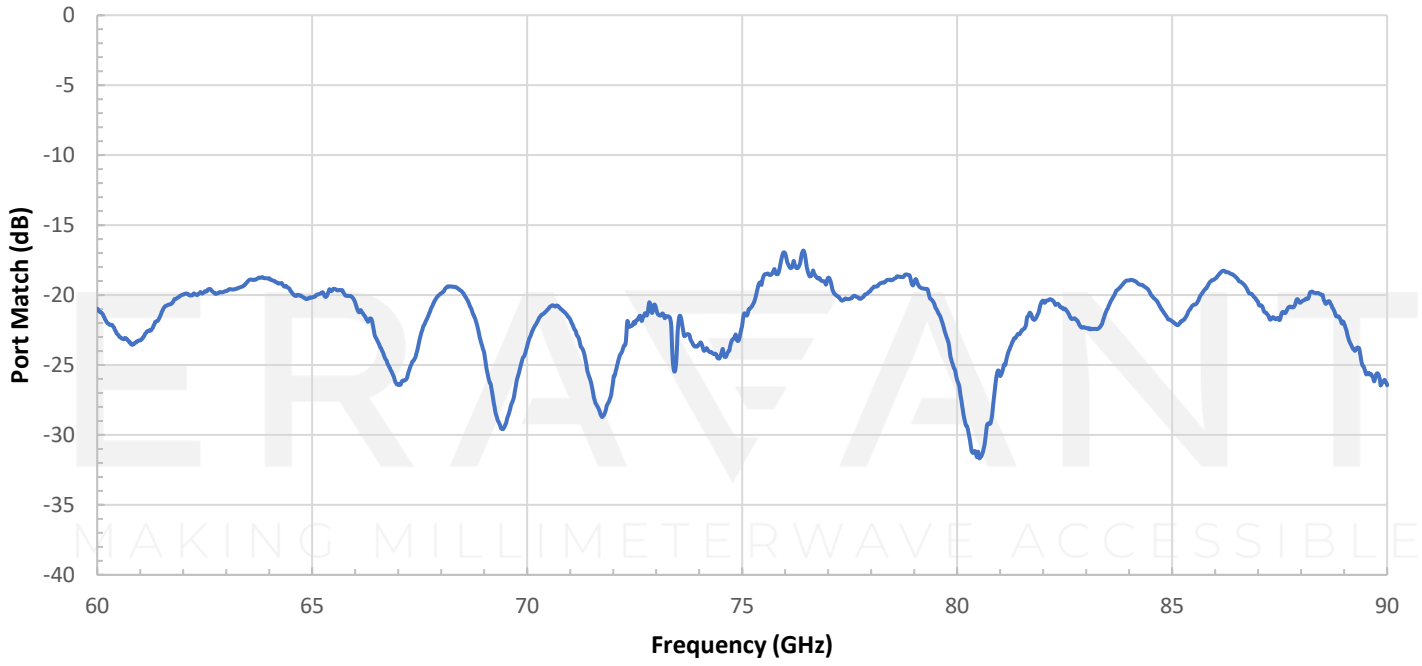
## Simplified Block Diagram



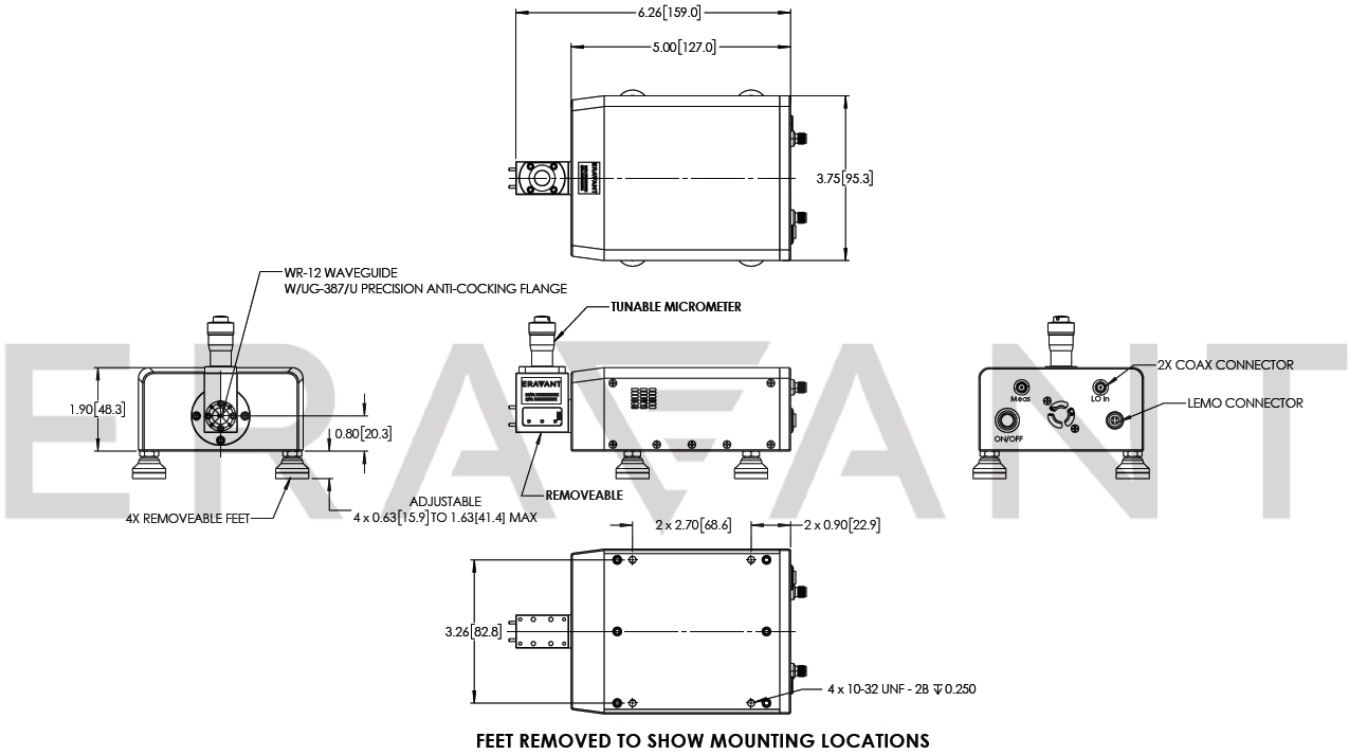
## Dynamic Range vs. Frequency




## Test Port Match vs. Frequency



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




**NOTE:**

- **To complete a frequency extention set, pair this Rx module with a compatible Tx/Ref or Tx/ Rx module listed in VNA Frequency Extenders page.**
- Eravant reserves the right to change the information presented without notice.

**CAUTION:**

- Exceeding absolute maximum ratings will damage the device.
- 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 and may damage the device.