STO-12203-U6

E-Band VNA Frequency Extender Set, +5 dBm

STO-12203-U6 is a E-Band vector network analyzer (VNA) frequency extender set, which is offered as a pair of modules, one left-hand and one-right hand, to achieve full 2-port, S-parameter testing at 60 to 90 GHz. It is compatible with modern vector network analyzers such as the Rohde & Schwarz ZVA24, Anritsu VectorStar™, Keysight PNA-X Series, and Copper Mountain CobaltFx C4220. The VNA to be extended needs to have dual sources and 4 ports with LO frequency offset setting option (RF±IF). The frequency extenders can achieve a dynamic range up to 110 dB for certain passive products requiring high rejection, isolation, and return loss testing such as directional couplers, orthomode transducers, and filters. In addition, an RF output power control attenuator with 0 to 20 dB dynamic range is integrated to reduce port output power to prevent saturation of amplifier testing. An AC to DC Power adapter is included. The Eravant calibration kit (**STQ-TO-12-S1-CKIT1**), **Proxi-Flange™ Contactless Flange**, and **Wave-Glide™ Rail System** are highly recommended to complete the E-Band VNA test set. Each VNA extender is packaged individually in rugged equipment boxes with additional hardware and tools.

Electrical Specifications

Parameter	Minimum	Typical	Maximum
Frequency Range	60 GHz		90 GHz
Test Port Output Power (Full Power)	0 dBm	+5 dBm	
Output Power Control Range		0 to 20 dB	
Dynamic Range @ 10 Hz BW		110 dB	
Test Port Match		30 dB	
Directivity		35 dB	
RF Source Input Frequency	10 GHz		15 GHz
RF Source Input Power	0 dBm	+3 dBm	+6 dBm
LO Source Input Frequency (RF±IF)	10 GHz		15 GHz
LO Source Input Power	0 dBm	+3 dBm	+6 dBm
IF Frequency Range	10 MHz		1000 MHz
Multiplication Factor		6	
Magnitude Stability		0.12 dB	0.15 dB
Phase Stability		1.5°	2°
Specification Temperature	+20 ˚C		+30 ˚C
Operating Temperature	0 ˚C		+50 ˚C

ECCN

- EAR99

FEATURES

- Full Band Coverage
- Dynamic Range of 110 dB
- AC Power Input: 100 to 240 VAC

APPLICATIONS

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

RECOMMENDED PAIRINGS

- Cal-kit: STQ-TO-12-S1-CKIT1
- Proxi-Flange™ Contactless Flange
- Wave-Glide™ Rail System
- Waveguide Quick Connects
- Cable: SCW-SMSM040-F1-A-PM

RoHS

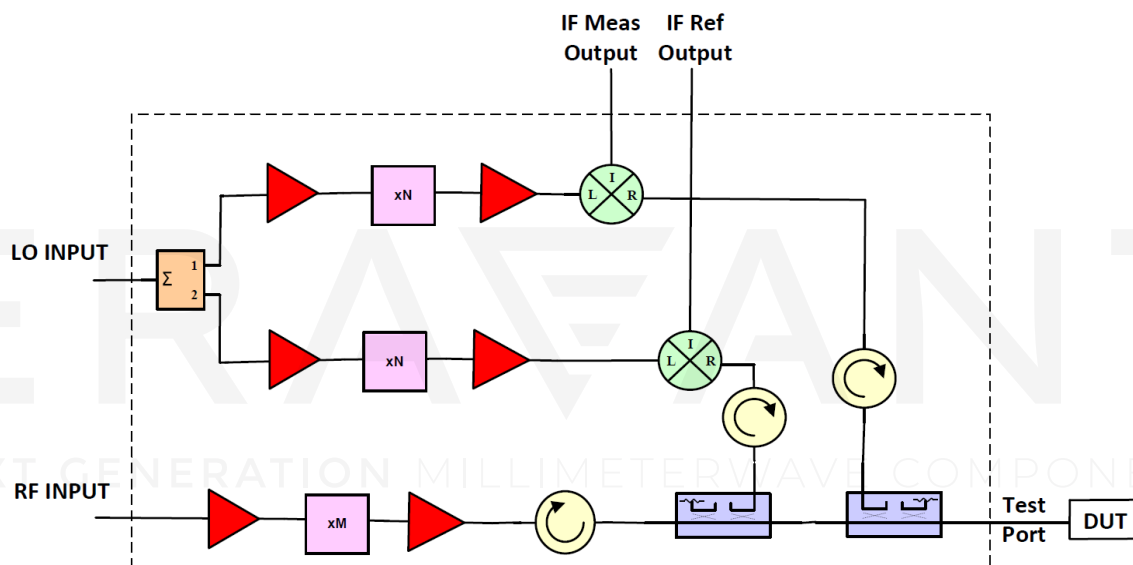## Mechanical Specifications

Item	Specification
Test Port	WR-12 Waveguide with UG-387/U 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 FGG.B.304.CLAD52Z, +6.5 Vdc to +12 Vdc
Finish	Paint, Black
Weight	8 lbs. Each
Size	9.4" (L) x 4.8" (W) x 3.0" (H), Without Adjustable Feet
Outline	TO-SE-U6-A

Components Included in Each Kit

Item	Eravant Model Number	Quantity
Metrology Straight Waveguide Section, 2" Long	STQ-WG-12020-FM-A	1 Piece
Waveguide Screws, 3/32 Hex Head	SWH-332-SS-10	1 Bag (10 Pieces)
Waveguide Screwdriver, 3/32 Hex Head	SWH-332-DS	1 Piece
SMA Connector Torque Wrench	SCH-08008-S1	1 Piece
AC-to-DC Power Adapter	STU-110008001-MF	1 Piece

Connecting cables are not included. Eravant coaxial cable, model **SCW-SMSM040-F1-A-PM**, is highly recommended. A total of eight (8) for the pair are required for full operation.
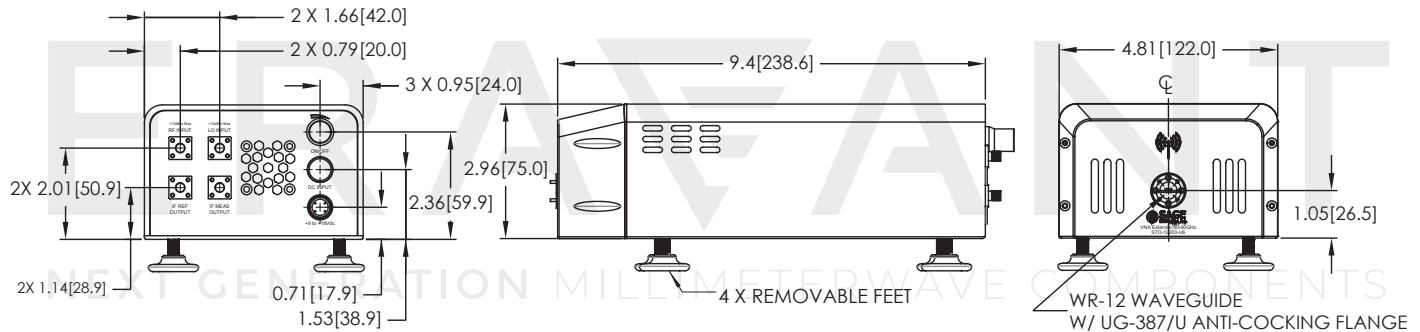
Simplified Block Diagram

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

NOTE

- **One pair of extenders (2 units, one left-hand and one right-hand module) is included in this model.** The functionalities of the left-hand and the right-hand modules are identical and inter-changeable. The only difference is in the brand marking.
- The VNA to be extended needs to have dual sources and 4 ports with LO frequency offset setting option. To obtain the best performance, exercising LO power level is recommended.
- 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.

APPENDIX: SINGLE VNA EXTENDER MODULE VIEWS

STO Front View

STO Back View

STO Case

STO Inside View