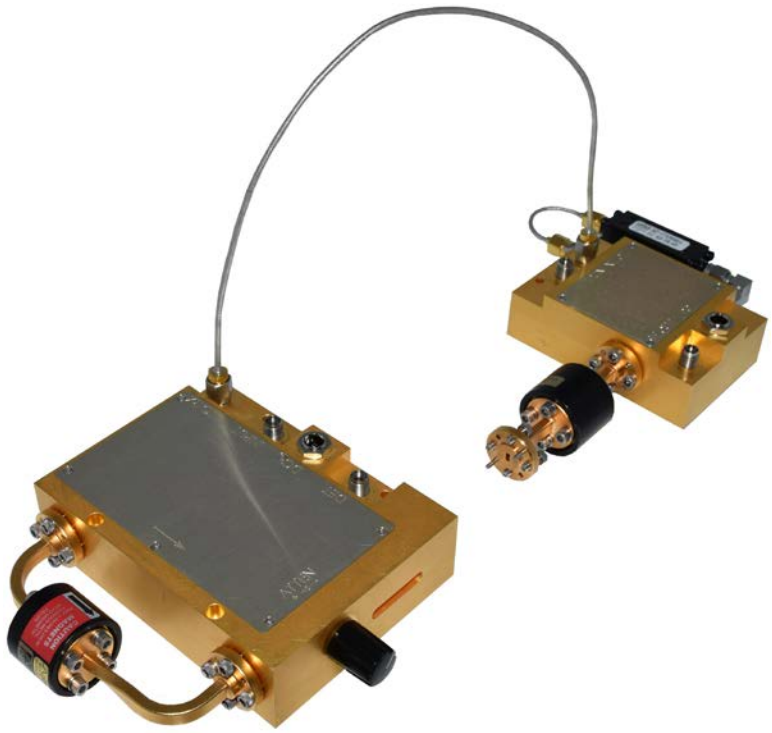
SPARTAN TEST MODULES



Spartan-12 Test Module

FEATURES:

- V/E band multiple test applications
- Works with any make, model, or vintage of Vector Network Analyzer
- Scalar Network Analyzer compatible
- Downconverter for spectrum analyzer testing
- Compact size

APPLICATIONS:

- V/E band test equipment
- Insertion loss, gain, phase measurements
- Ideal for test applications that require high dynamic range (switches, filters, etc.)

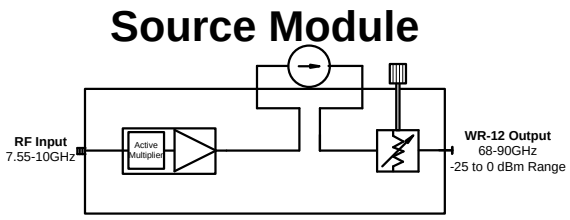
DESCRIPTION

Millitech series STM Spartan Test Modules provide V- and E-Band test sets for extending network analyzer coverage to 54-69 (V) or 68-90 GHz (E). Built in detectors allow compatibility with Scalar Network Analyzers (SNA). The RX module can function as a down-converter for spectrum analyzer testing.

STM Spartan test modules provide a cost effective solution to V and E band measurements for insertion loss, gain, phase, etc.

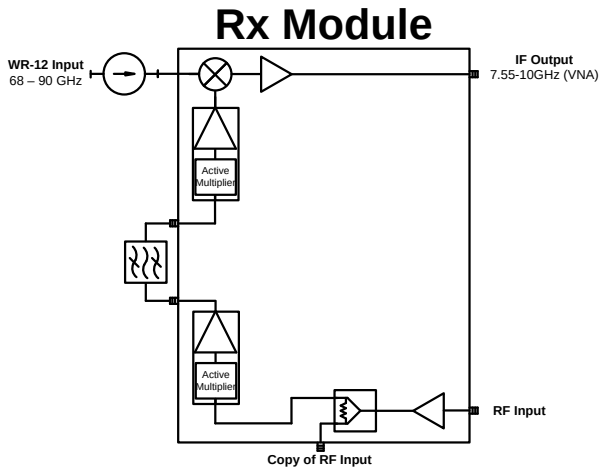
STM-12 Electrical Specifications

E-Band Source Module Specifications



RF Input:	7.55 – 10 GHz @ +10 dBm - SMA Connector
Source Power:	+4 dBm typical at max setting, 71-86 GHz
Adjustable Range:	25 dB
Flatness:	+/- 1.15 dB
Harmonic Spur Levels:	-20 dBc, 71-86 GHz
VSWR:	< 1.3:1
Phase Noise:	19 dB above input source

E-Band RX Module Specifications

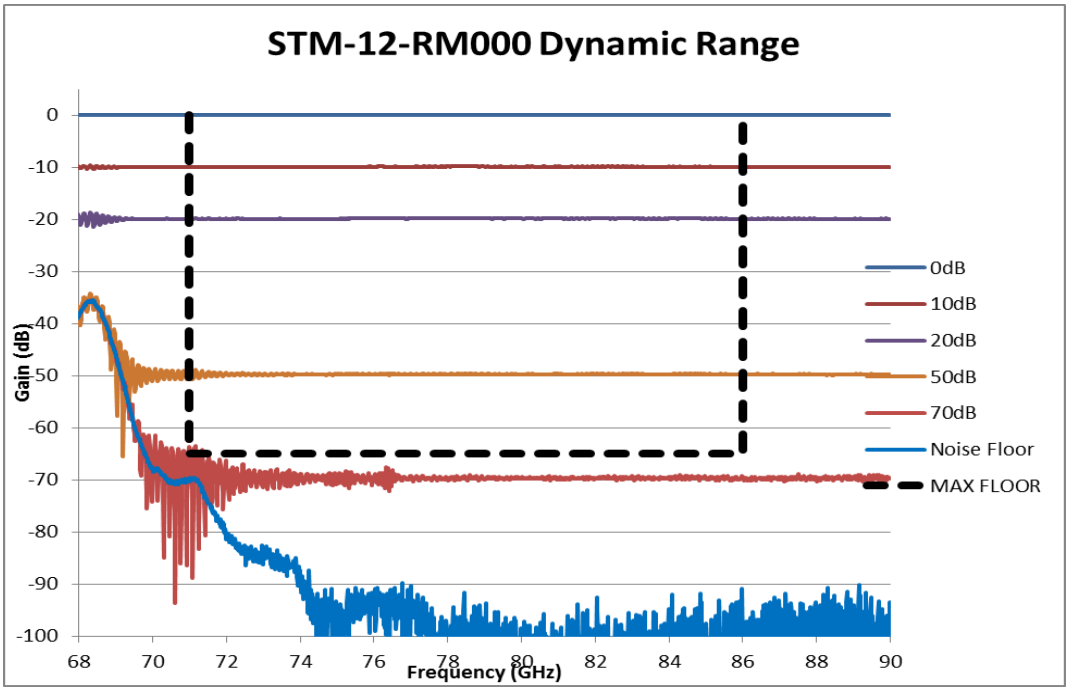


RF Input:	7.55 – 10 GHz @ -2 dBm - SMA Connector
Dynamic Range:	60 dB typical, 71-86 GHz. See plot.
1 dB Compression Point:	0 dBm typical at input
Recommended Linear Range:	-5 dBm max
Noise Floor:	< -65 dBm typical, 71-86 GHz
VSWR:	< 1.4:1

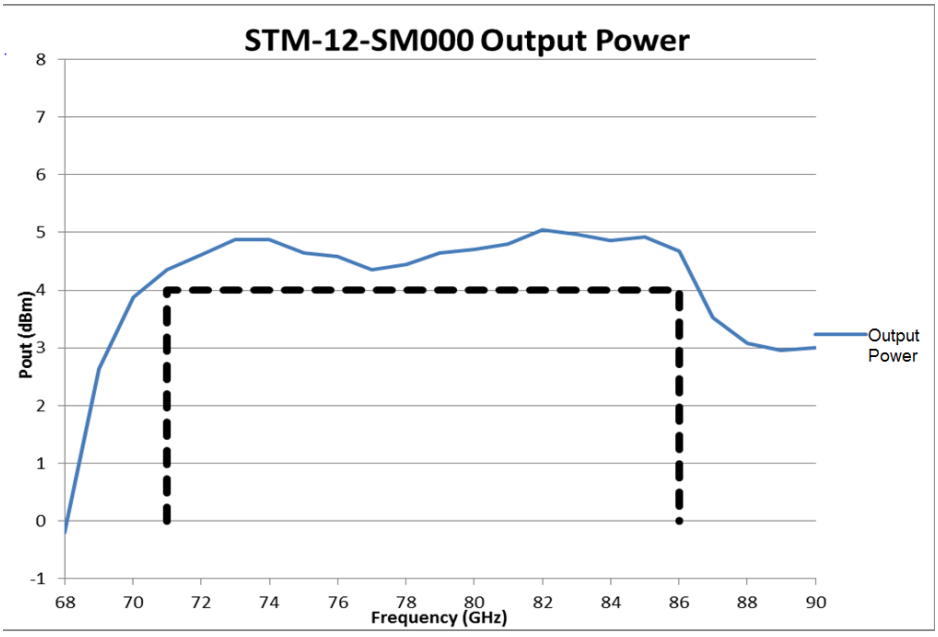
Environmental temperature of 23°C +/- 3° with < 1°C deviation from calibration temperature.
System Temperature Stability: 0.055 dB/°C typical, 71-86 GHz.

MEASUREMENT RESULTS

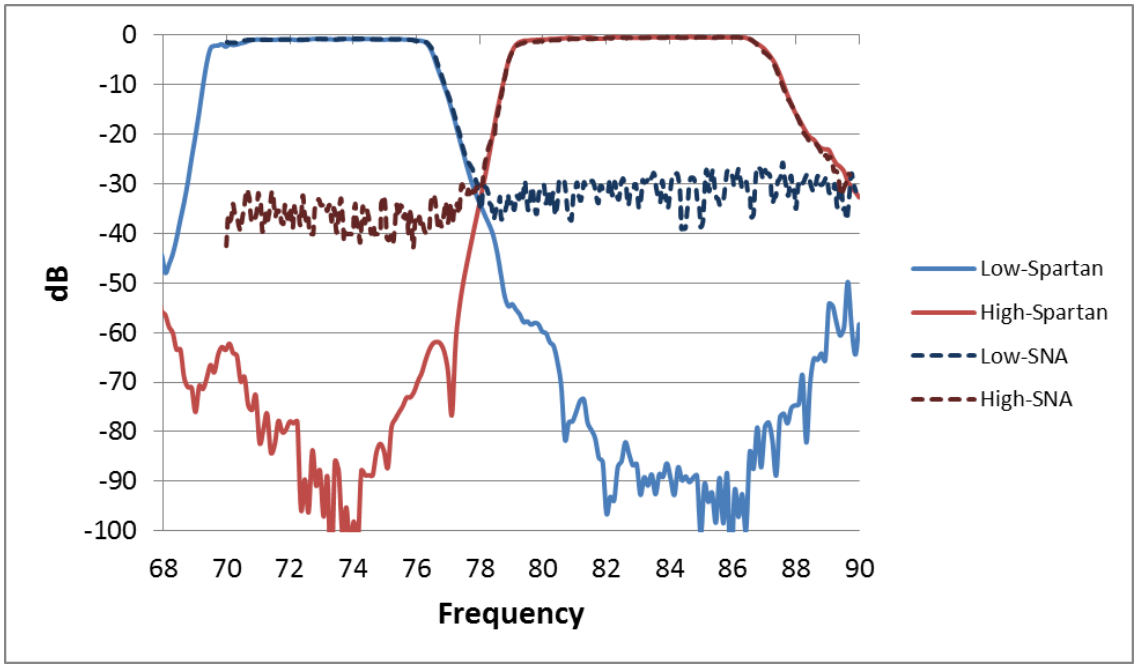
Spartan-12 Vector Network Analyzer Dynamic Range



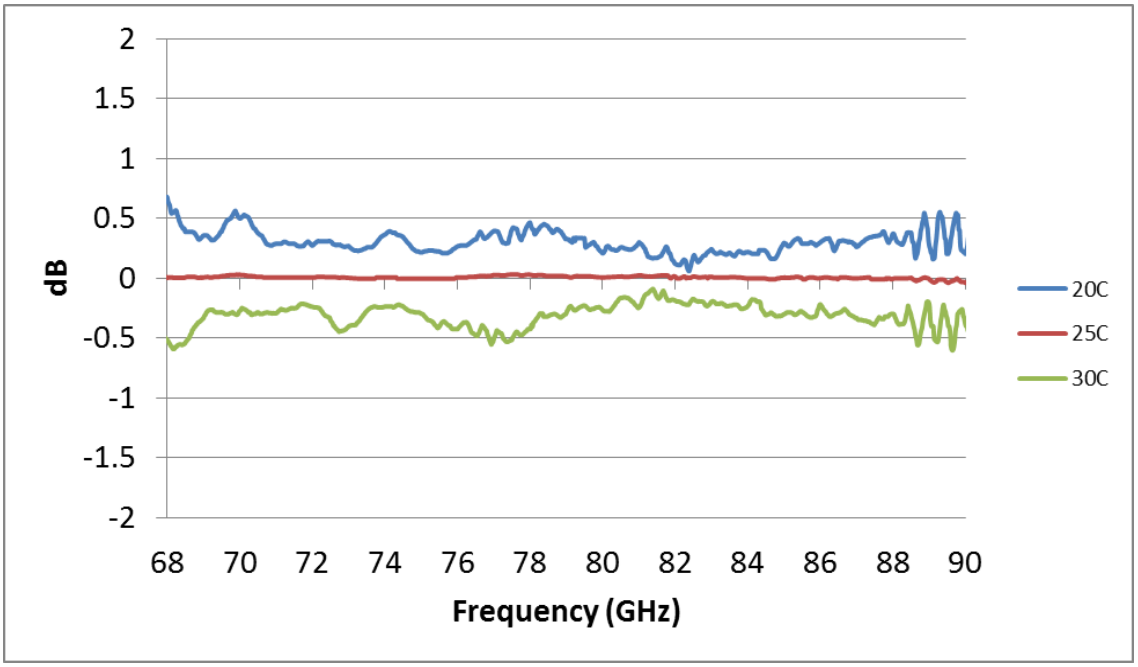
Spartan-12 Source Power



E-Band Diplexer Measurement Comparison: Spartan-12 Network Analyzer vs Millimeter Wave Scalar Network Analyzer

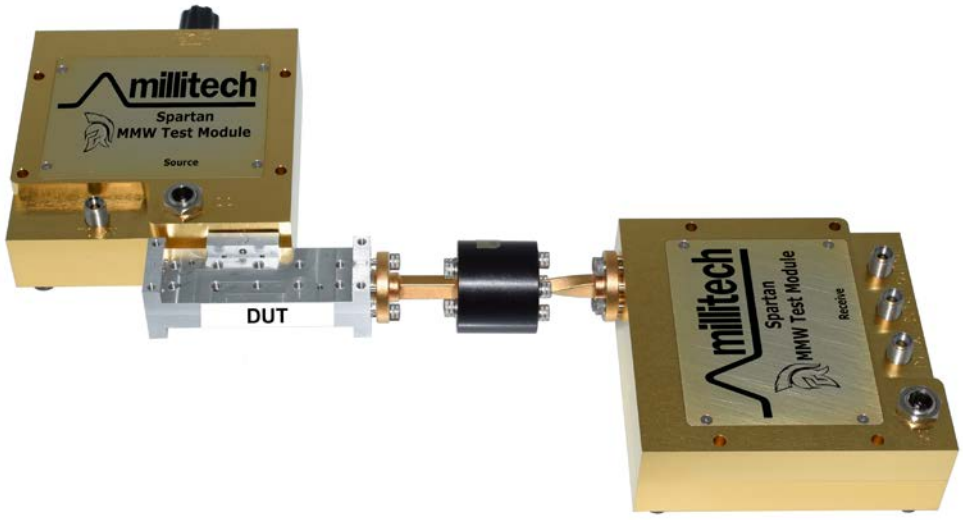


Spartan-12 Temperature Stability



***Normalized at 25°C. Measured at 20°C, 30°C, and then returned to 25°C. Results plotted.

STM-15 Electrical Specifications



Spartan-15 test module, shown with device under test

V-Band Source Module Specifications

RF Input:	6.00 – 7.67 GHz @ +12 dBm SMA Connector
Source Power:	-7 dBm at min attenuation setting
Adjustable Range:	25 dB
Flatness:	+/- 2.5 dB typ.
Harmonic Spur Levels:	-20 dBc
VSWR:	< 1.6:1
Phase Noise:	19 dB above input source

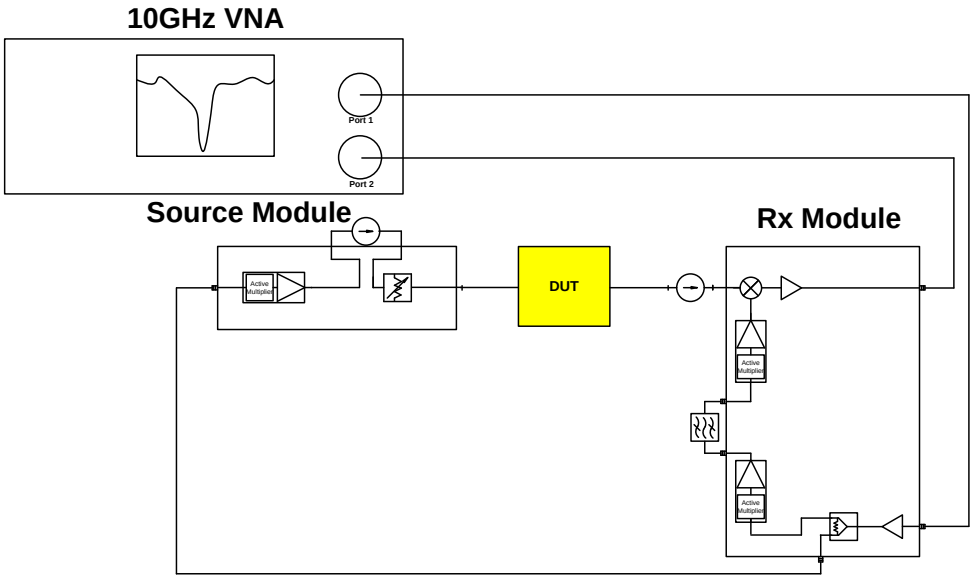
V-Band RX Module Specifications

RF Input:	6.00 – 7.67 GHz @ -1 dBm SMA Connector
Dynamic Range:	60 dB typical, 57-64 GHz.
1 dB Compression Point:	+3 dBm typical at input
Recommended Linear Range:	-3 dBm max
0.1 dB Compression Point:	-3 dBm
Noise Floor:	< -70 dBm typical
VSWR:	< 1.4:1

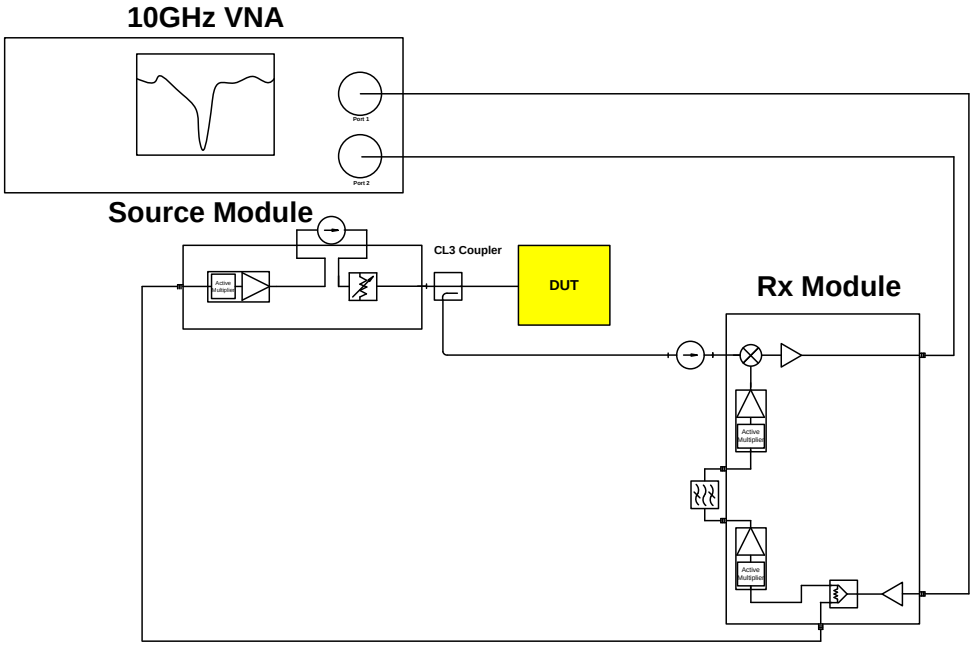
Environmental temperature of 23°C +/- 3° with < 1°C deviation from calibration temperature.
System Temperature Stability: 0.05 dB/°C typical, 57-64 GHz.

APPLICATIONS

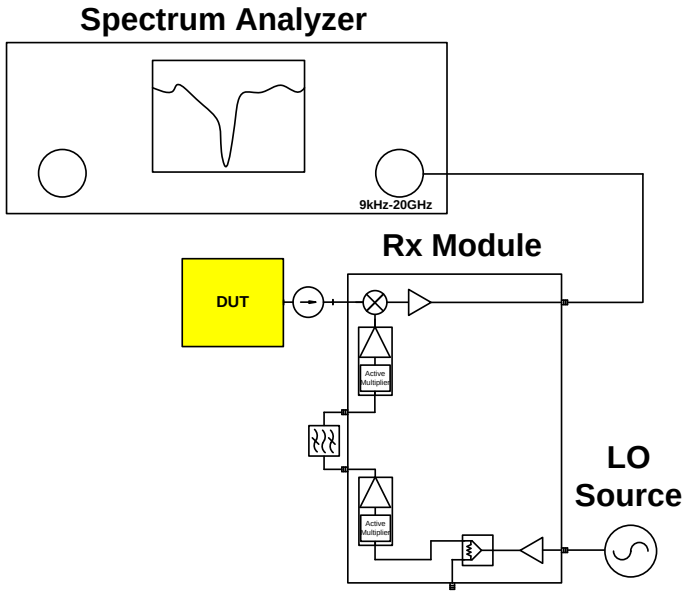
1) V/E-Band Vector S21 Measurement – Gain, Insertion loss, phase measurements



2) V/E-Band Vector S11 Measurement – Return loss measurements

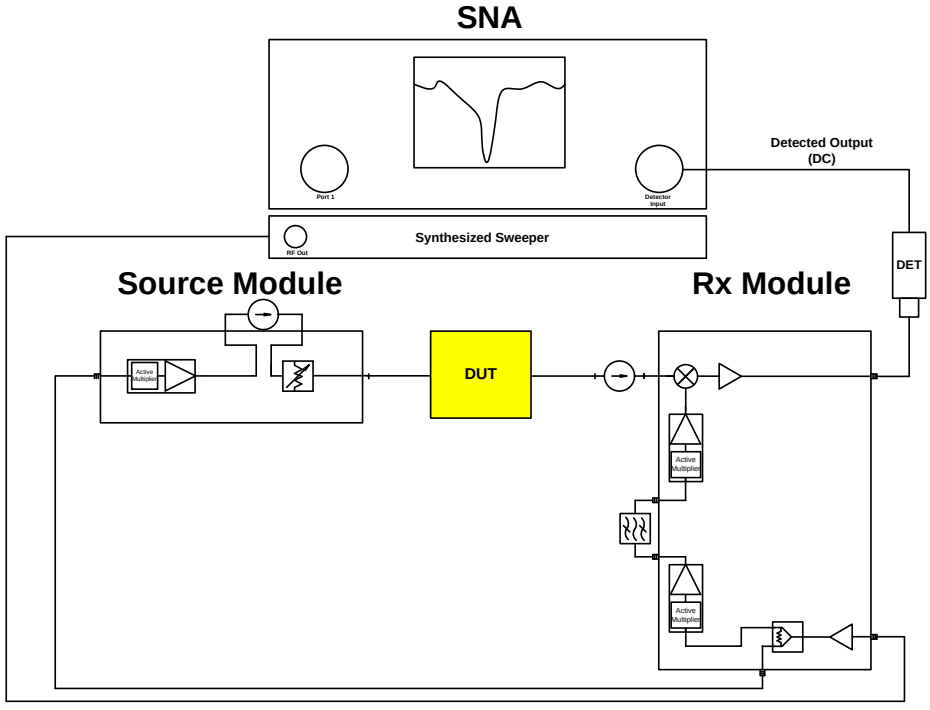


3) V/E-Band Spectrum Analyzer Preselector

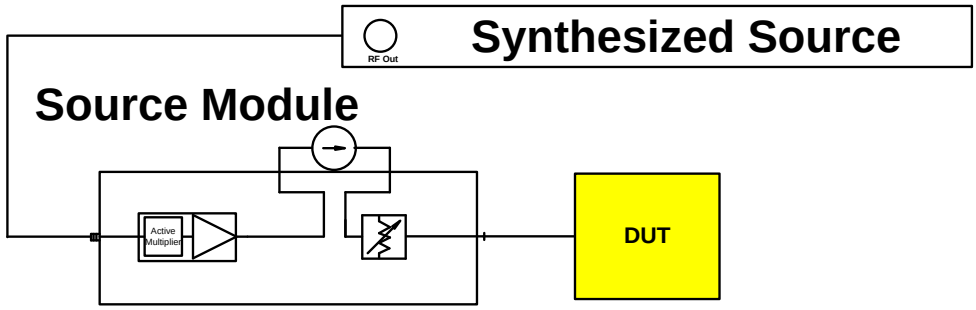


4) V/E-Band Scalar Network Analyzer

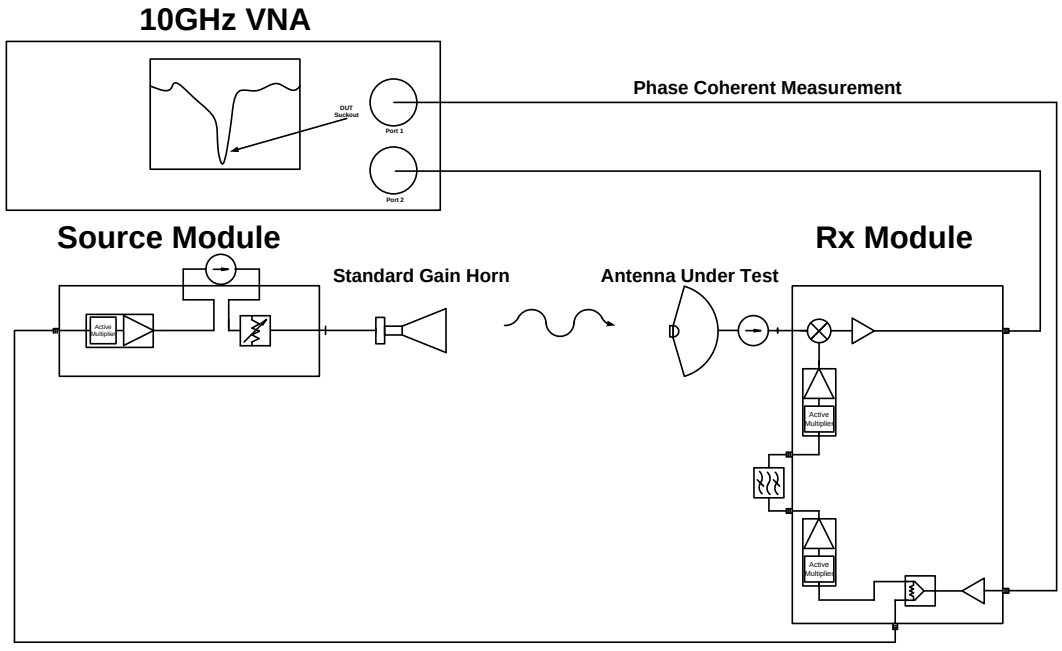
Spartan used as an SNA offers improved dynamic range versus a stand-alone millimeter wave SNA, resulting from frequency down conversion and integrated low noise amplifier.



5) E-Band Source



6) E-Band Antenna Range Measurements



How To Order

E-Band (68-90 GHz)

Spartan-12 Source Module Only:	STM-12-SM000
Spartan-12 Receive Module Only:	STM-12-RM000
Spartan-12 Kit:	STM-12-00000

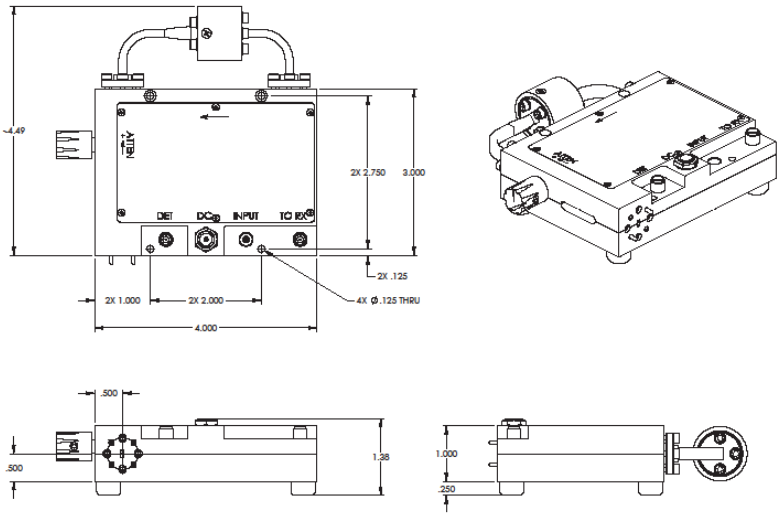
V-Band (54-69 GHz)

Spartan-15 Source Module Only:	STM-15-SM000
Spartan-15 Receive Module Only:	STM-15-RM000
Spartan-15 Kit:	STM-15-00000

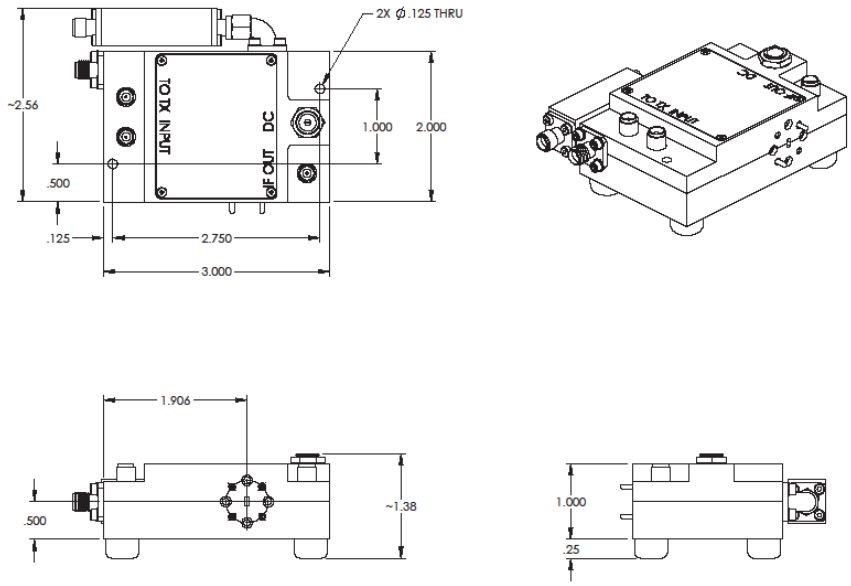
Specify Model Number **STM-XX-AABBB**
XX = Waveguide Band **WR** – number
AA = SM or RM **SM – Source Module, RM – Receive Module**
BBB = Special Options - **000 for standard** - **Contact Millitech for custom requests**

OUTLINE DRAWINGS

Spartan-12 Source Module

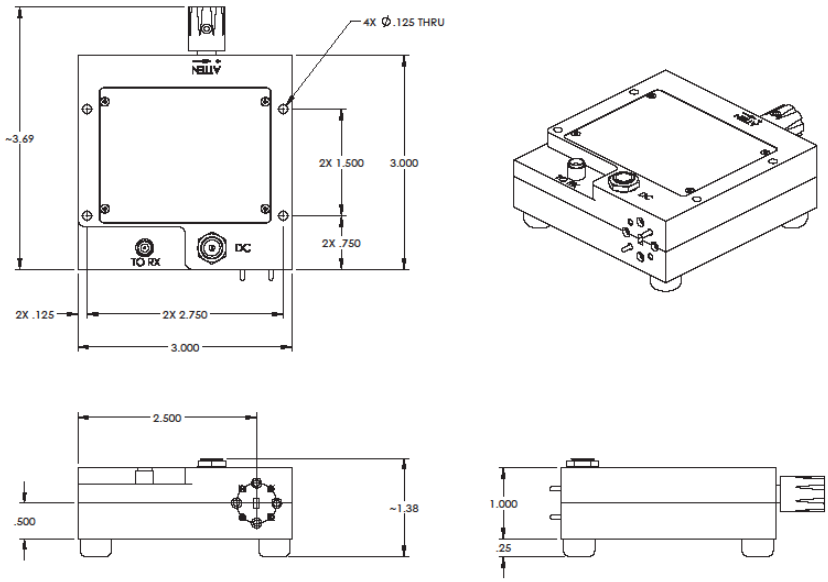


Spartan-12 Receive Module



OUTLINE DRAWINGS

Spartan-15 Source Module



Spartan-15 Receive Module