ERAVANT

NEXT GENERATION MILLIMETERWAVE COMPONENTS

V BAND UPDATES

Feb. 2021

TABLE OF CONTENTS

INTRODUCTION

ERAVANT designs and manufactures total solutions for microwave and millimeterwave applications covering 10 MHz to 330 GHz.

- **This presentation introduces Eravant's selective standard product offerings in the V-Band (50-75 GHz).**
- Our full product offering, including Limited Run models, are listed on our website at www.eravant.com.

Additional products and presentations are available upon customer request:

- Custom models for components and subassemblies can be configured to customers' specifications.
- Presentations about Ka, Q, U, E, W, F and D-Bands are available.
- Presentations for specific applications like 5G/IoT, Space, Test Instrumentation, Communications, and Radar are also available.

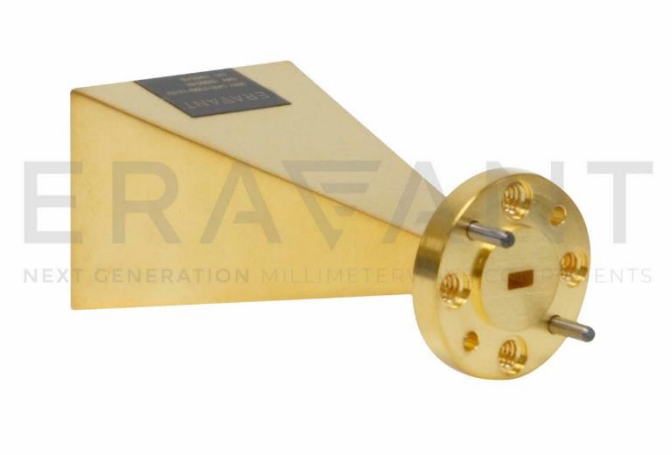
ERAVANT PRODUCT COVERAGE

- ERAVANT offers Total Product Solutions to configure any system applications in the Frequency Range of DC to 330 GHz.
- V Band products are mainly used in
  - Last mile communication systems
  - Automotive Radar systems
  - 5G systems
  - Scientific and industrial systems
  - Test equipment and set ups
- The intent of this presentation is to present the ERAVANT product offerings in **V** Band to help the customers having a quick overview of available product families for their project and system planning. The model selected is for illustration purpose. Many models with various performance in the same product family are available on the website.

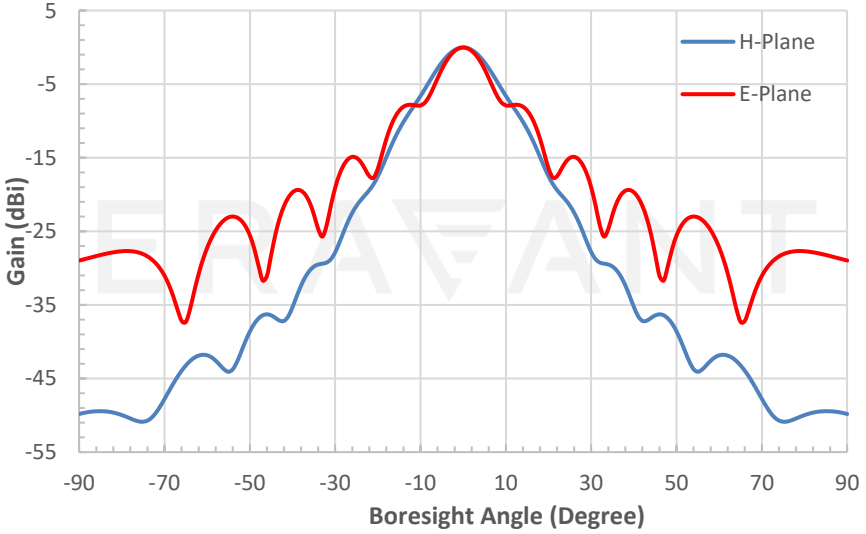
Rectangular Horn Antenna

Model SAR-2309-15-S2

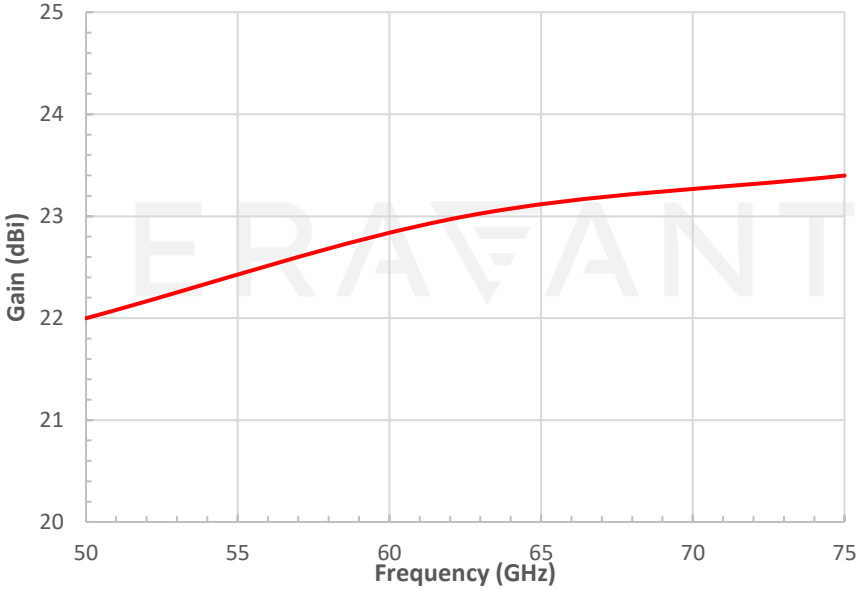
Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain	21.5 dBi	23 dBi	24 dBi
Polarization		Linear	
3 dB Beamwidth, E-Plane		10.5°	
3 dB Beamwidth, H-Plane		12°	
Sidelobes, E-Plane		-9 dB	
Sidelobes, H-Plane		-32 dB	
VSWR		1.15:1	



Typical Antenna Pattern @62.5 GHz



Typical Gain vs. Frequency



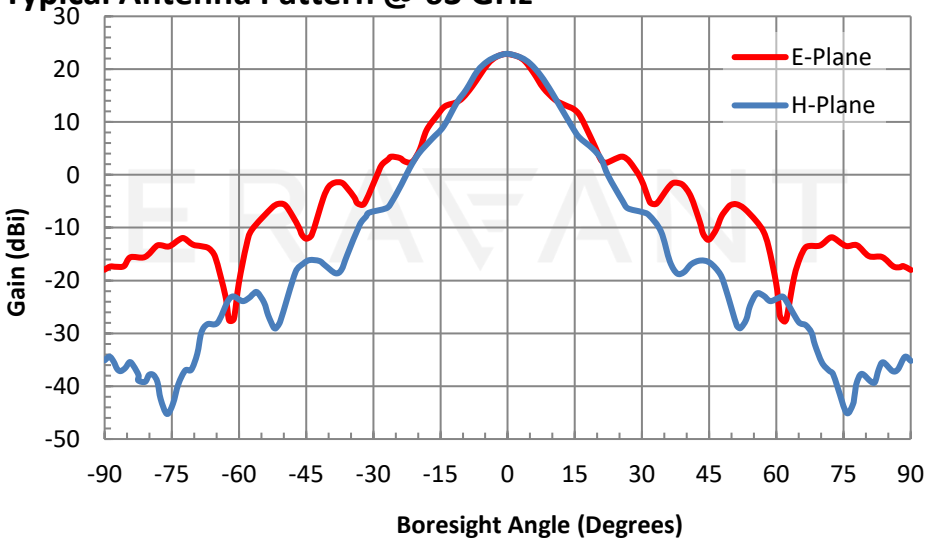
Conical Horn Antenna

Model SAC-2309-141-S2

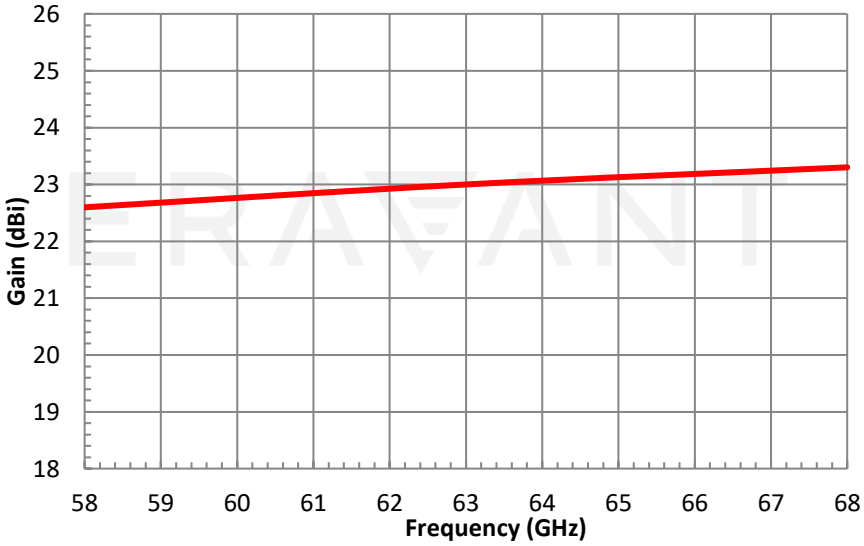
Parameter	Minimum	Typical	Maximum
Frequency*	58 GHz		68 GHz
Gain		23 dBi	
3 dB Beamwidth, E-plane		11°	
3 dB Beamwidth, H-plane		13°	
Sidelobes, E-plane		-20 dB	
Sidelobes, H-plane		-28 dB	
VSWR		1.15:1	

*Note: Can operate from 50 to 75 GHz if the dominant mode is maintained.

Typical Antenna Pattern @ 63 GHz



Typical Gain vs. Frequency

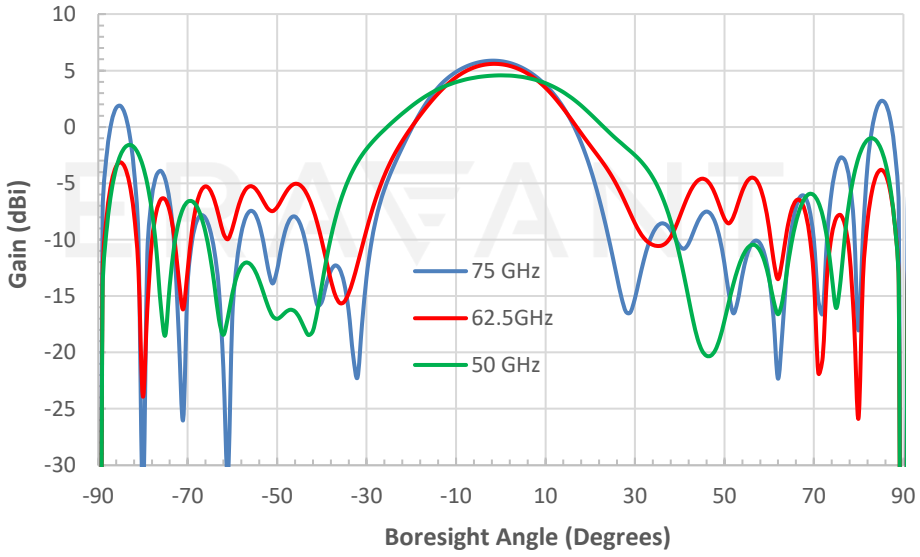


Omni-directional Antenna, 50 to 75 GHz

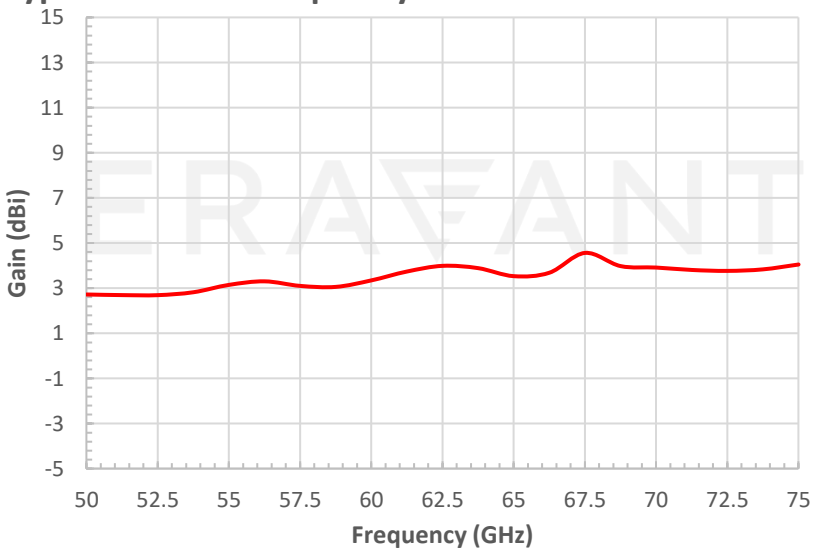
Model: SAO-5037530230-15-S1

Parameter	Minimum	Typical	Maximum
Frequency Range	50 GHz		75 GHz
Gain		2.0 dBi	
Gain Variation		±2.0 dB	
Azimuth		360˚	
3 dB Beamwidth, Vertical		30˚	
VSWR		1.9:1	
RF Connector	WR-15 with UG-385/U Flange		
Weight		0.2 Oz	

Simulated H-Plane Antenna Pattern



Typical Gain vs. Frequency

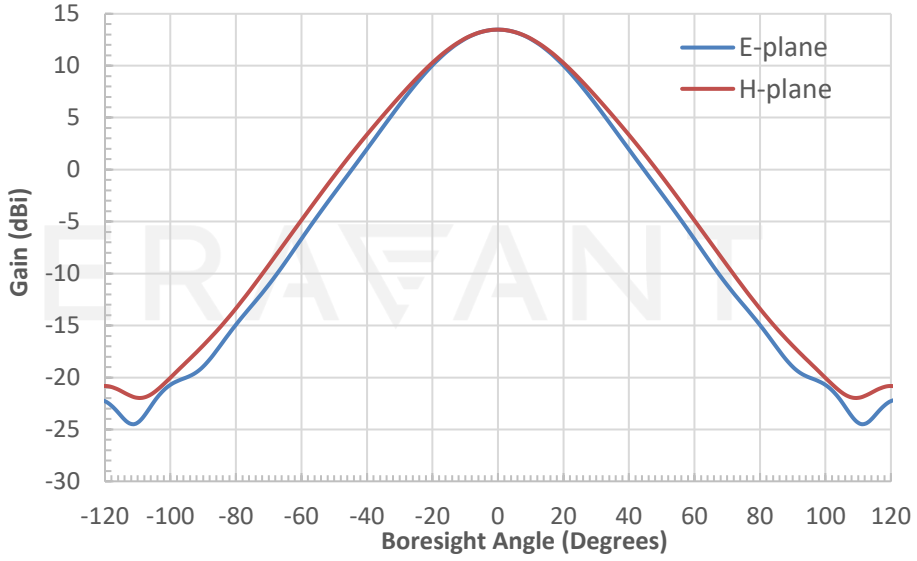


Dual Polarized Antenna, 50 to 75 GHz

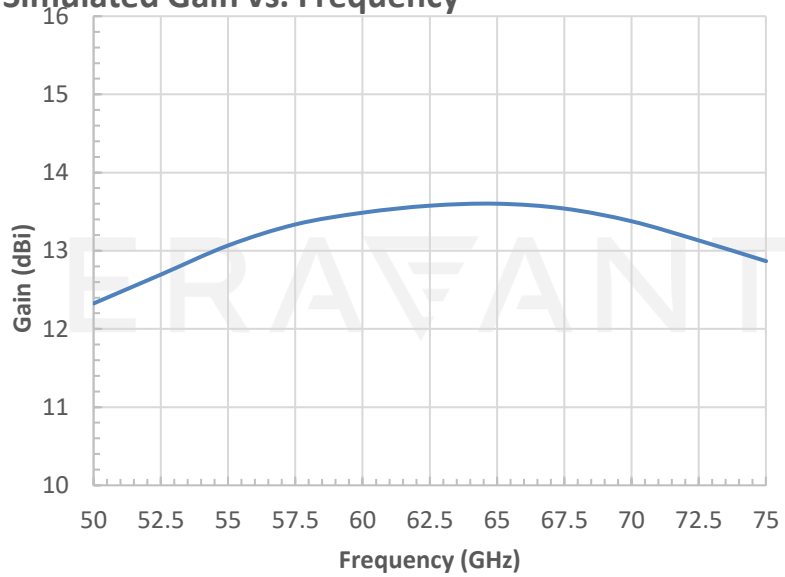
Model SAF-5037531340-165-S1-148-DP

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz	62.5 GHz	75 GHz
Gain		13 dBi	
3 dB Beamwidth, E-plane		40°	
3 dB Beamwidth, H-plane		40°	
Sidelobe Levels		-25 dB	
V and H Port Isolation		30 dB	
RF Connector	WR-15 with UG-385/U Flange		
Weight		0.1 lbs	

Simulated Antenna Patterns @ 60 GHz



Simulated Gain vs. Frequency

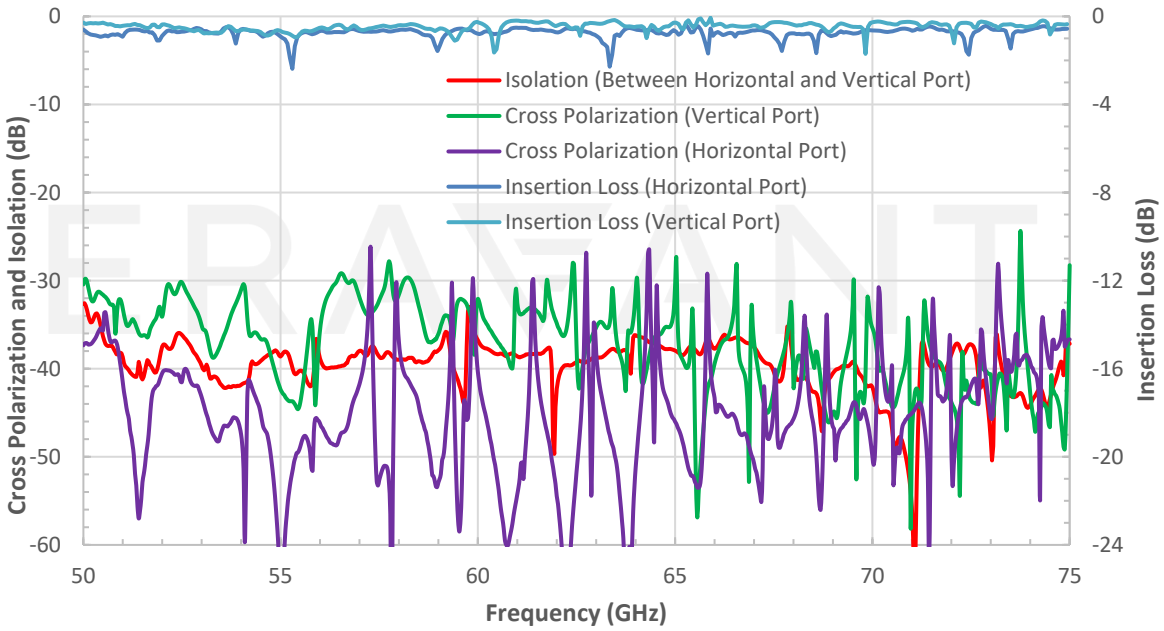


Full Band Orthomode Transducer

Model SAT-FV-14815-S1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss, Vertical		1.0 dB	
Insertion Loss, Horizontal		0.6 dB	
Isolation		40 dB	
Cross Polarization		35 dB	

Typical Performance vs. Frequency



Features

- High Isolation
- Low Insertion Loss
- Full Band Coverage
- High Crosspol Rejection

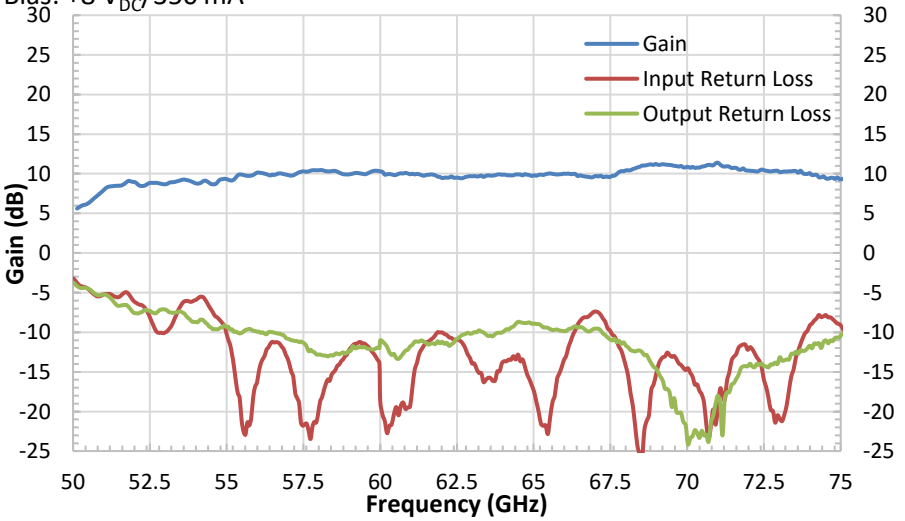
Power Amplifier, 50 to 75 GHz, +16 dBm P_{-1dB}

Model SBP-5037531016-1515-E1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain		10 dB	
P_{1dB}		+16 dBm	
P_{sat}		+20 dBm	
P_{in}			+17 dBm
Input VSWR		1.9:1	
Output VSWR		1.9:1	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		350 mA	

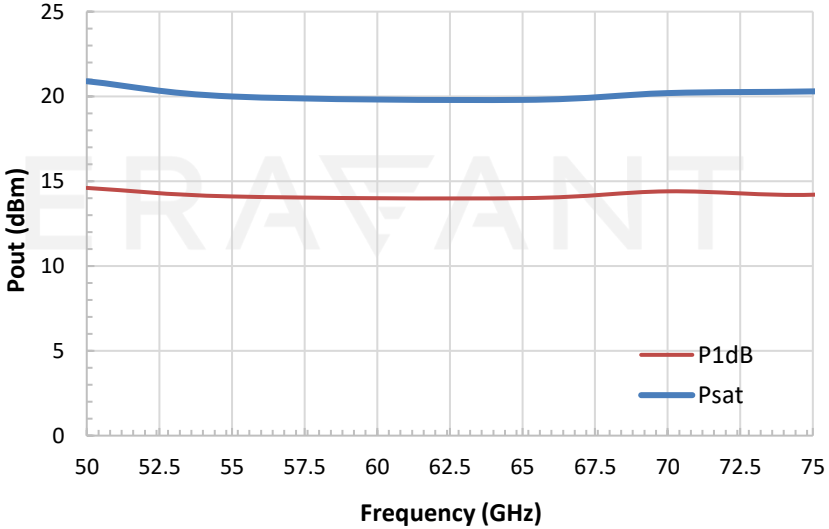
Typical Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/350 mA



Typical Output Power vs. Frequency

Bias: +8 V_{DC}/395 mA



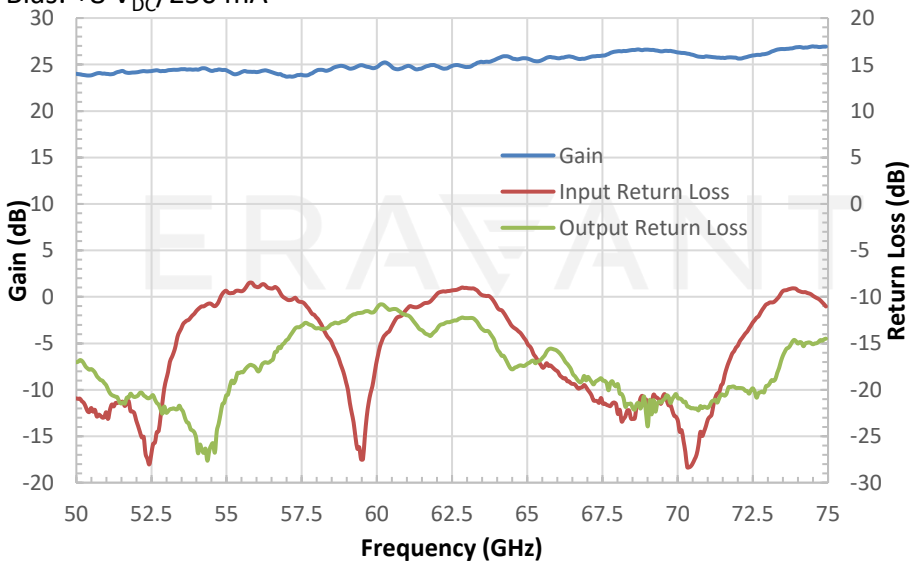
Power Amplifier, 50 to 75 GHz, +12 dBm P_{-1dB}

Model SBP-5037532512-1515-E1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain		25 dB	
P_{1dB}		+12 dBm	
P_{Sat}		+16 dBm	
P_{in}			+15 dBm
Input VSWR		1.9:1	
Output VSWR		1.9:1	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+12 V_{DC}
DC Supply Current		250 mA	

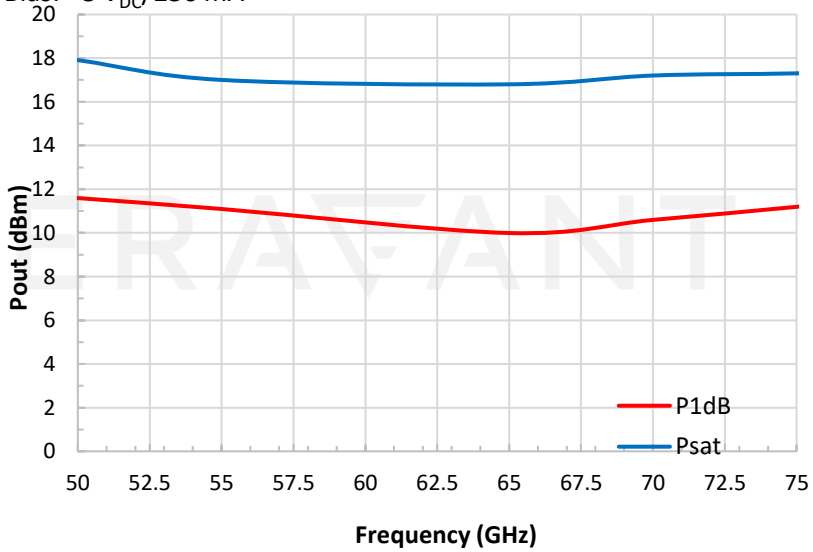
Typical Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/250 mA



Typical Output Power vs. Frequency

Bias: +8 V_{DC}/250 mA



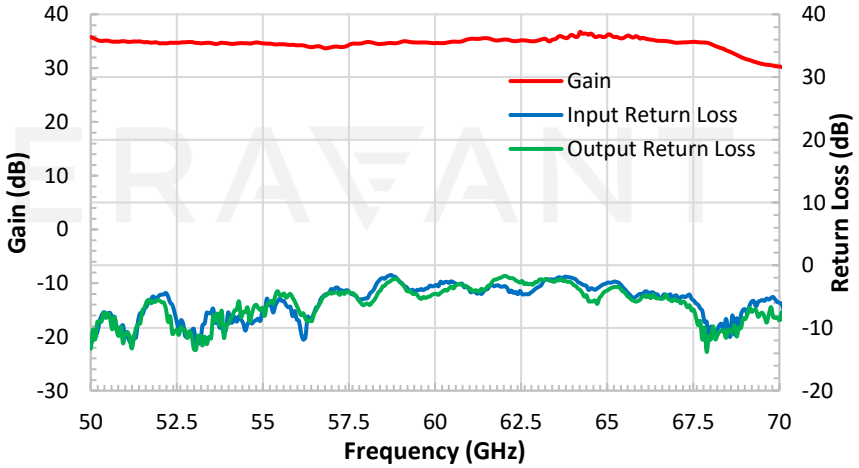
Power Amplifier, 50 to 70 GHz, +18 dBm P-1dB

Model SBP-5037033518-1515-E1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		70 GHz
Gain		35 dB	
P_{1dB}		+18 dBm	
P_{sat}		+20 dBm	
P_{in}			+23 dBm
Input VSWR		1.9:1	
Output VSWR		1.9:1	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		650 mA	

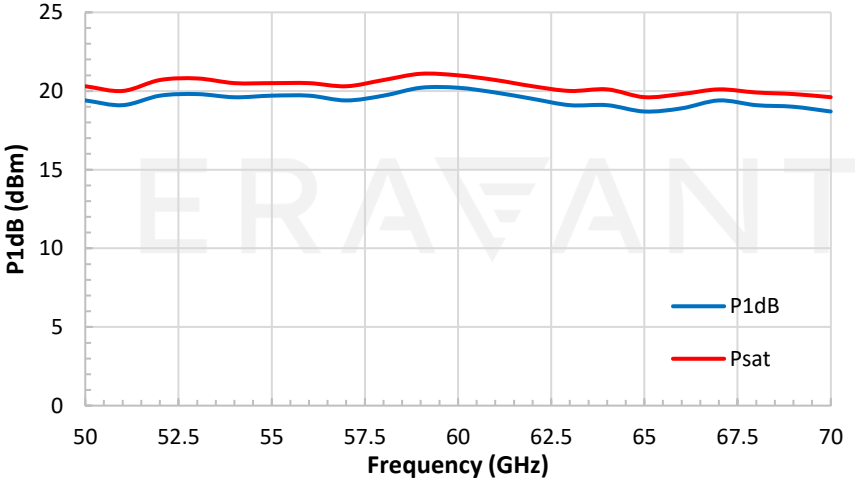
Typical Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/650 mA



Typical Output Power vs. Frequency

Bias: +8 V_{DC}/650 mA



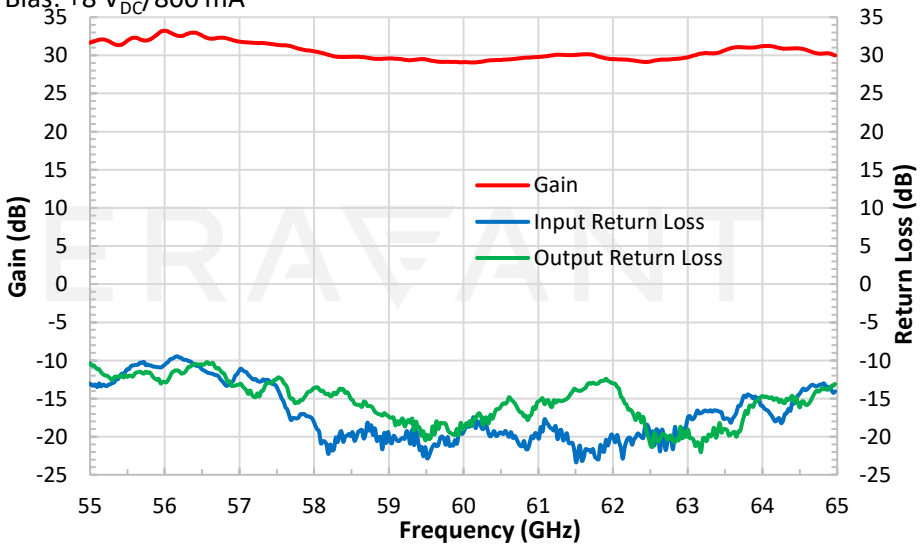
Power Amplifier, 55 to 65 GHz, +22 dBm P1dB

Model SBP-5536533022-1515-E1

Parameter	Minimum	Typical	Maximum
Frequency	55 GHz		65 GHz
Gain		30 dB	
P_{1dB}		+22 dBm	
P_{sat}		+23 dBm	
P_{in}			+0 dBm
Input VSWR		1.9:1	
Output VSWR		1.9:1	
DC Voltage	+7 V_{DC}	+8 V_{DC}	+12 V_{DC}
DC Supply Current		800 mA	

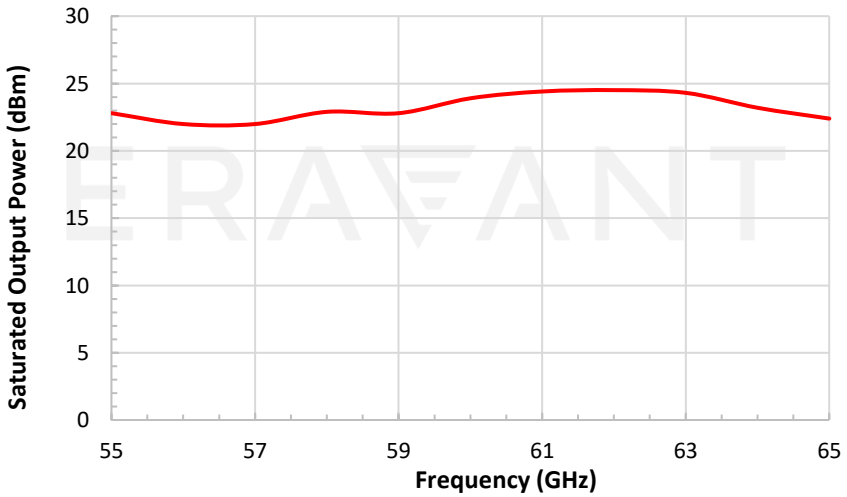
Typical Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/800 mA



Typical Saturated Output Power vs. Frequency

Bias: +8 V_{DC}/800 mA



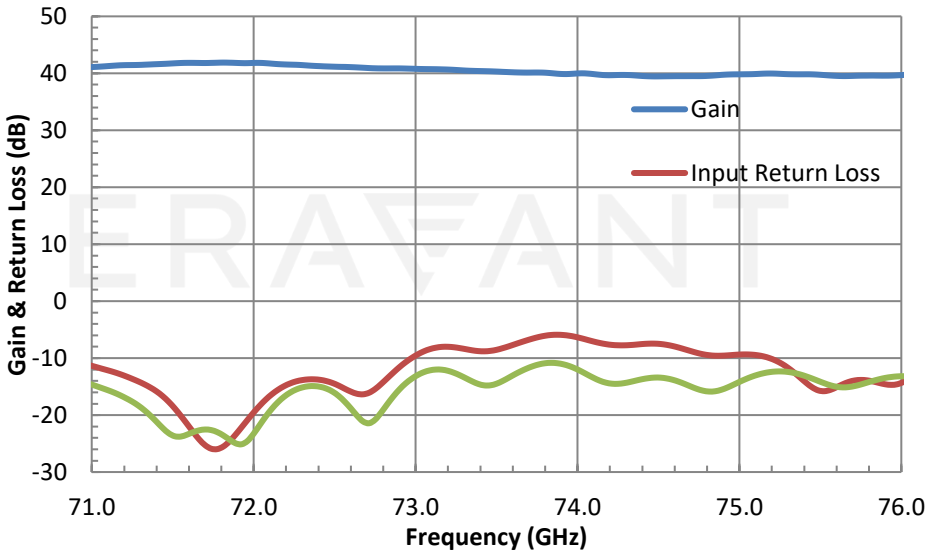
Power Amplifier, 71 to 76 GHz, +27 dBm P-1dB

Model SBP-7137634027-1515-E1

Parameter	Minimum	Typical	Maximum
Frequency	71 GHz		76 GHz
Gain		40 dB	
P_{1dB}		+27 dBm	
P_{sat}		+30 dBm	
P_{in}			+5 dBm
Input VSWR		1.9:1	
Output VSWR		1.9:1	
DC Voltage		+8 V_{DC}	+15 V_{DC}
DC Supply Current		1,100 mA	

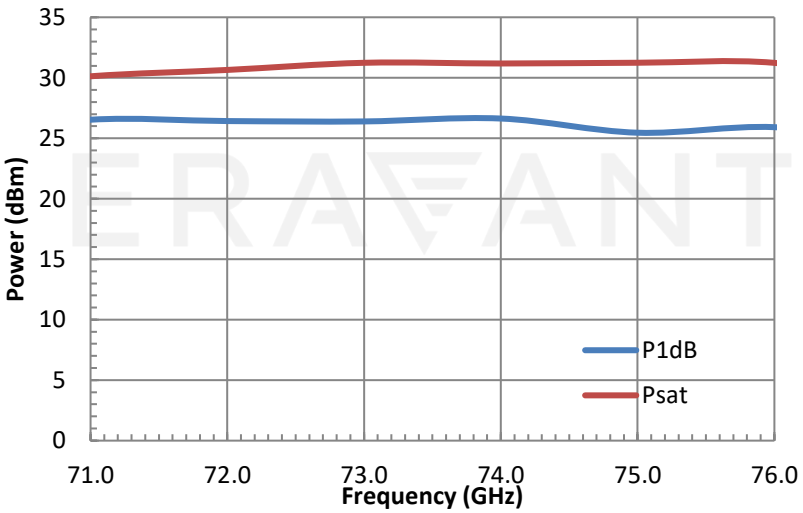
Typical Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/1,750 mA



Typical Output Power vs. Frequency

Bias: +8 V_{DC}/1,750 mA



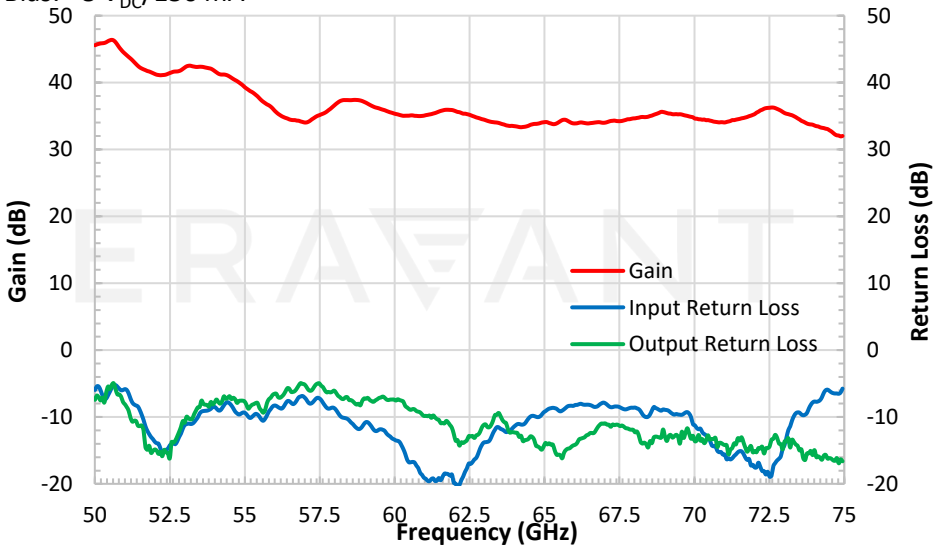
Low Noise Amplifier, 50 to 75 GHz

Model SBL-5037533555-1F15-E1-WC

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain		35 dB	
Noise Figure		5.5 dB	
P_{in}			-20 dBm
Input VSWR		2.3:1	
Output VSWR		2.3:1	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		150 mA	

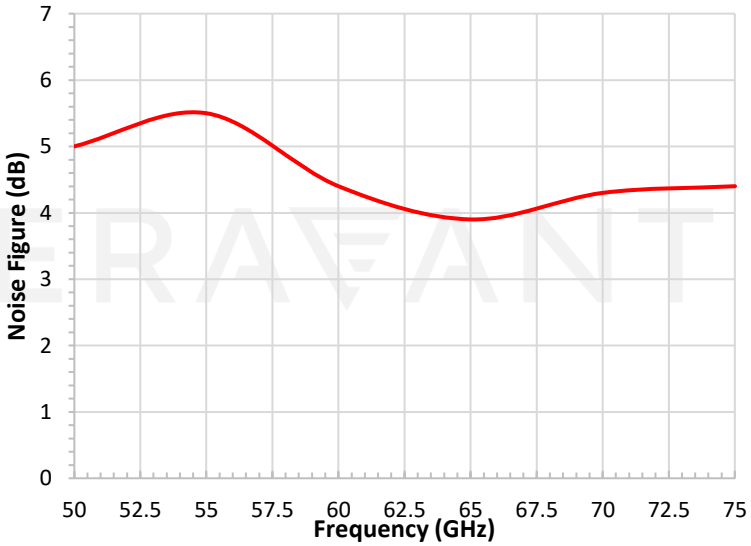
Typical Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/150 mA



Typical Noise Figure vs. Frequency

Bias: +8 V_{DC}/150 mA



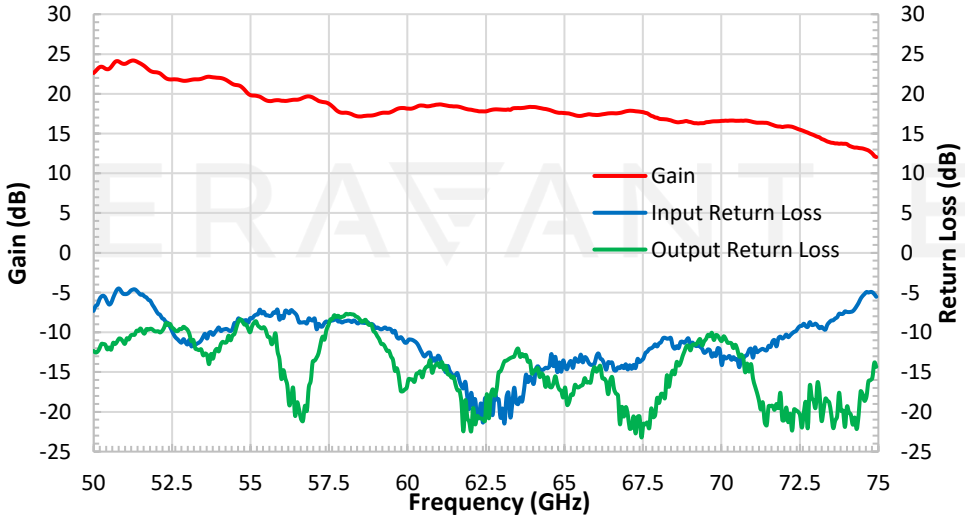
Low Noise Amplifier, 50 to 75 GHz

Model SBL-5037531850-1515-S1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Gain		18 dB	
Noise Figure		5 dB	
P_{in}			-5 dBm
Input VSWR		2.3:1	
Output VSWR		2.3:1	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Current		100 mA	

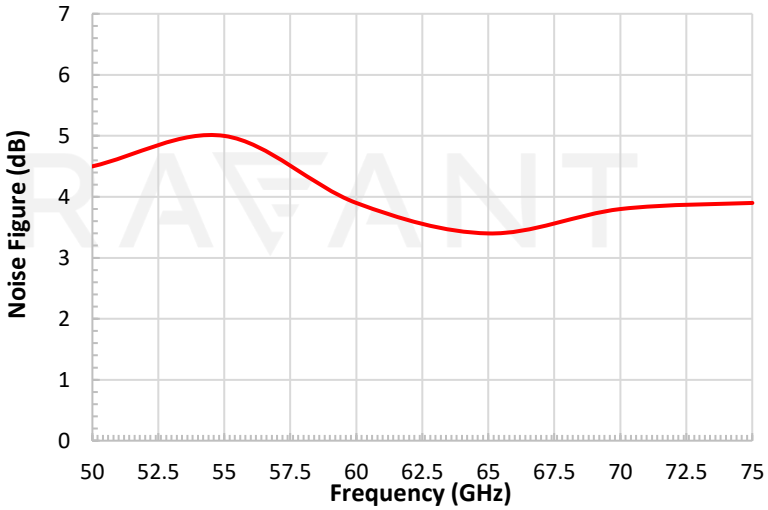
Typical Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/100 mA



Typical Noise Figure vs. Frequency

Bias: +8 V_{DC}/100 mA



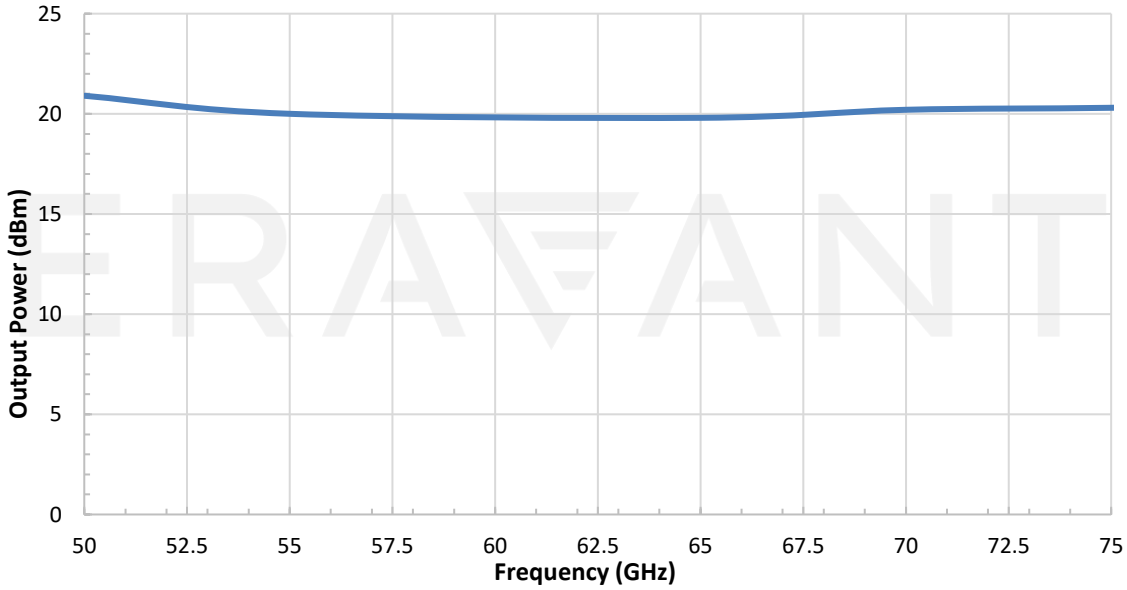
X4 Active Multiplier, +20 dBm Pout

Model SFA-503753420-15SF-E1

Parameter	Minimum	Typical	Maximum
Input Frequency	12.5 GHz		18.75 GHz
Input Power		+3 dBm	+20 dBm
Output Frequency	50.0 GHz		75.0 GHz
Output Power		+20 dBm	
Harmonic Suppression		-15 dBc	
Spurious		-60 dBc	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		770 mA	

Typical Output Power vs. Frequency

Bias: +8 V_{DC}/770 mA



Features

- 50 to 75 GHz Coverage
- High Power Output
- Low Harmonic Emission

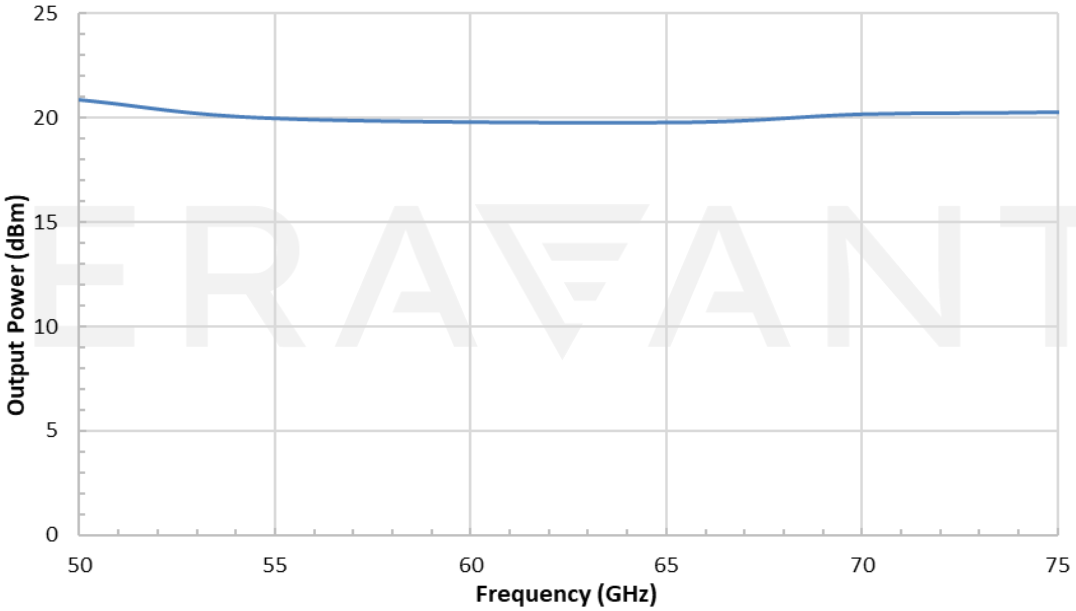
X6 Active Multiplier, +20 dBm Pout

Model SFA-503753620-15SF-E1

Parameter	Minimum	Typical	Maximum
Input Frequency	8.33 GHz		12.5 GHz
Input Power		+3 dBm	+20 dBm
Output Frequency	50.0 GHz		75.0 GHz
Output Power		+20 dBm	
Harmonic Suppression		-15 dBc	
Port VSWR		2:1 dB	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		750 mA	

Typical Output Power vs. Frequency

Bias: +8 V_{DC}/770 mA



Features

- Full V-band Coverage
- High Power Output
- Low Harmonic Emission

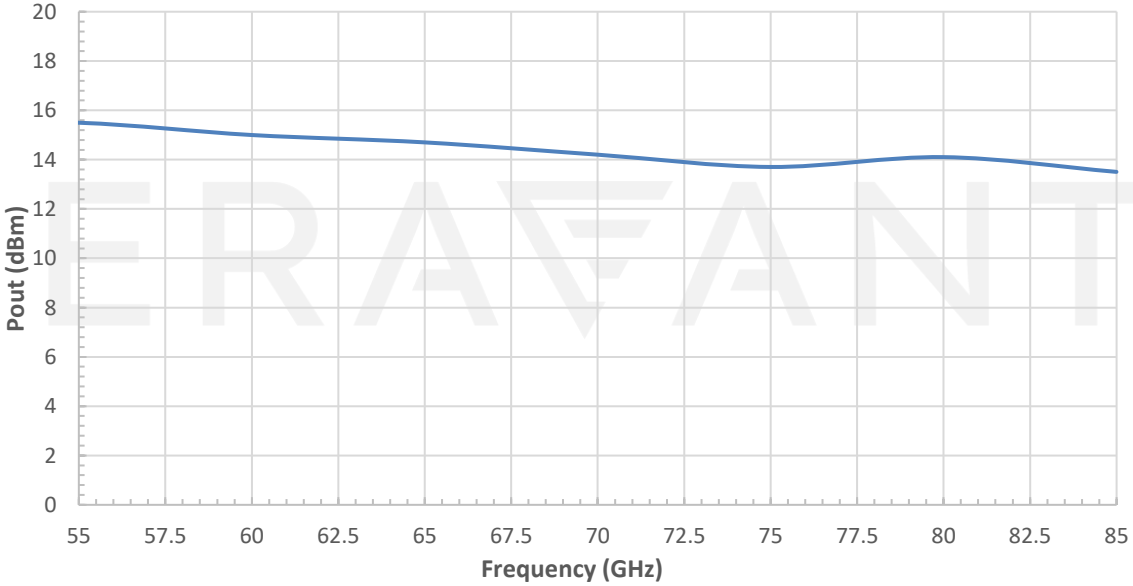
X8 Active Multiplier, +14 dBm Pout

Model SFA-553863814-15SF-E1

Parameter	Minimum	Typical	Maximum
Input Frequency	6.875 GHz		10.75 GHz
Input Power		+3 dBm	+5 dBm
Output Frequency	55.0 GHz		86.0 GHz
Output Power		+14 dBm	
Harmonic Suppression		-15 dBc	
Port VSWR		2.0:1	
DC Voltage	+6 V_{DC}	+8 V_{DC}	+15 V_{DC}
DC Supply Current		400 mA	

Typical Output Power vs. Frequency

Bias: +8 / 400 mA; Input Power: +3 dBm



Features

- Broadband Coverage
- High Power Output
- Low Harmonic Emission

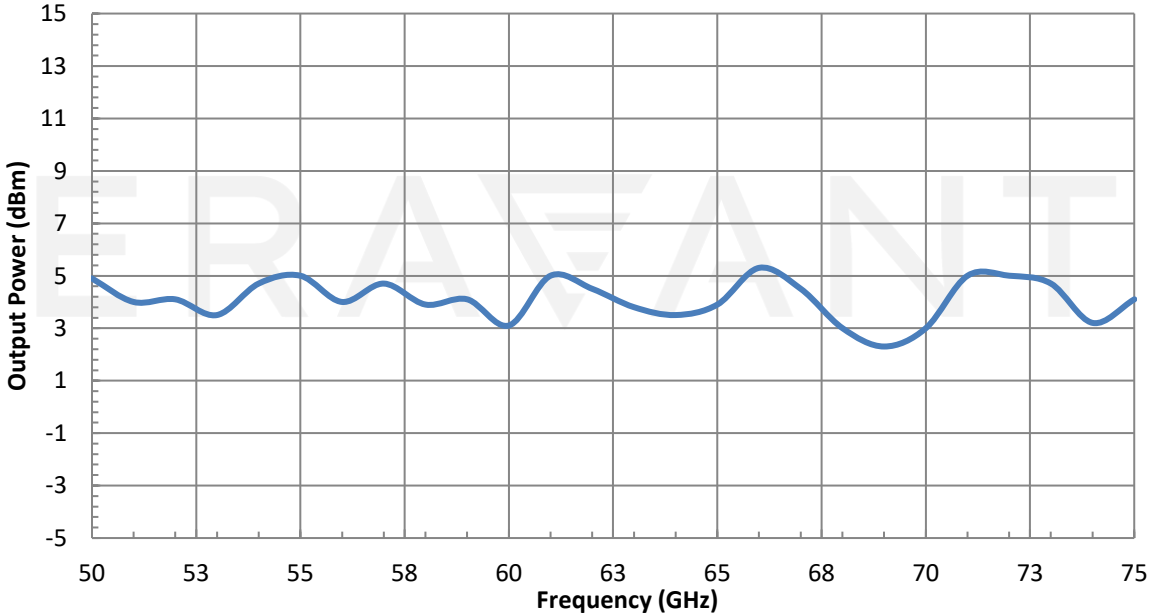
X2 Passive Multiplier

Model SFP-152KF-S2

Parameter	Minimum	Typical	Maximum
Input Frequency	25.0 GHz		37.5 GHz
Output Frequency	50.0 GHz		75.0 GHz
Input Power		+17 dBm	
Output Power		+4 dBm	
Harmonic Suppression		20 dB	

Typical Output Power vs. Frequency

Inpur Power: +17 dBm



Features

- Minimal Conversion Loss
- No External Bias
- Compact Package

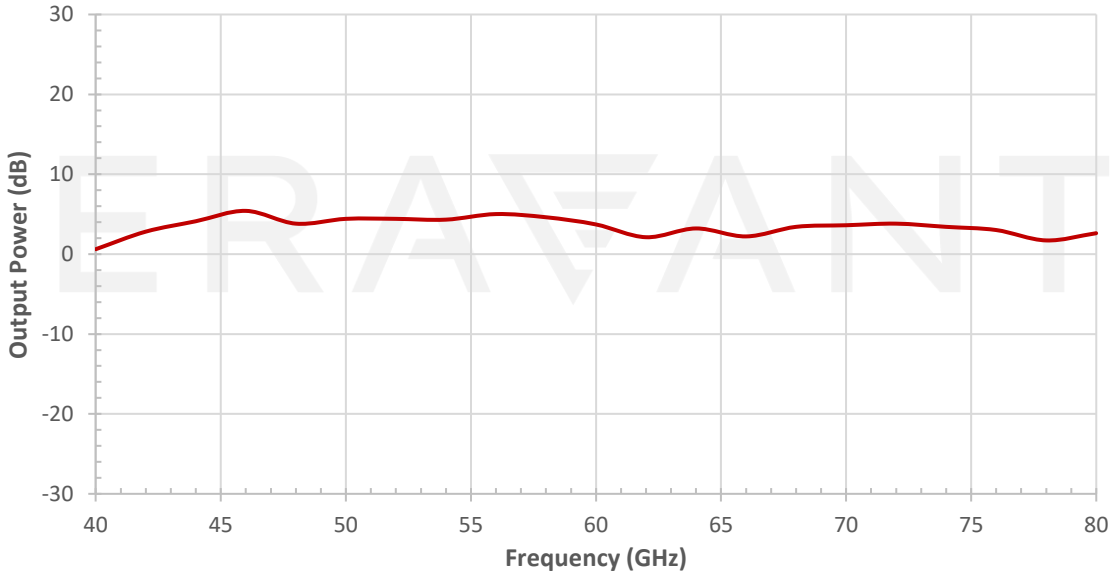
X2 Passive Multiplier

Model SFP-152KF-S1-M

Parameter	Minimum	Typical	Maximum
Input Frequency	20.0 GHz		40.0 GHz
Output Frequency	40 GHz		80 GHz
Input Power		+15 dBm	+20 dBm
Output Power		+3 dBm	
Harmonic Suppression		30 dB	

Output Power vs. Frequency

P_{in}= +15 dBm, Frequency: 20 to 40 GHz



Features

- 40 to 80 GHz Output Frequency
- Minimal Conversion Loss
- No External Bias
- Balanced Configuration for Low Harmonic Emissions

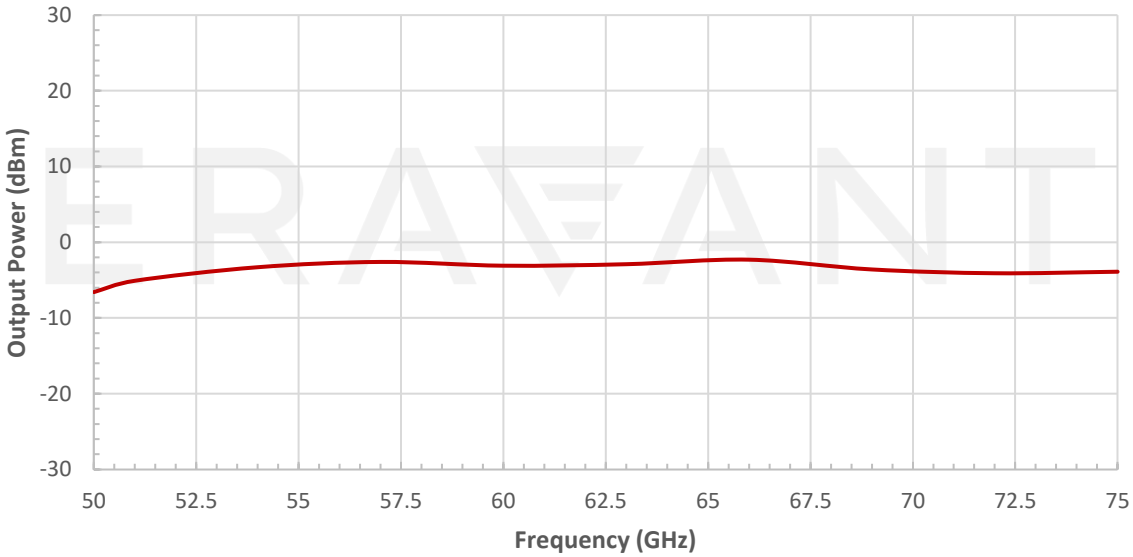
X3 Passive Multiplier

Model SFP-153KF-S1-M

Parameter	Minimum	Typical	Maximum
Input Frequency	16.67 GHz		25 GHz
Output Frequency	50 GHz		75 GHz
Input Power		+16 dBm	+20 dBm
Output Power		-3 dBm	
Harmonic Suppression		30 dB	

Output Power vs. Frequency

P_{in}= +16 dBm, Frequency: 16.67 to 25 GHz



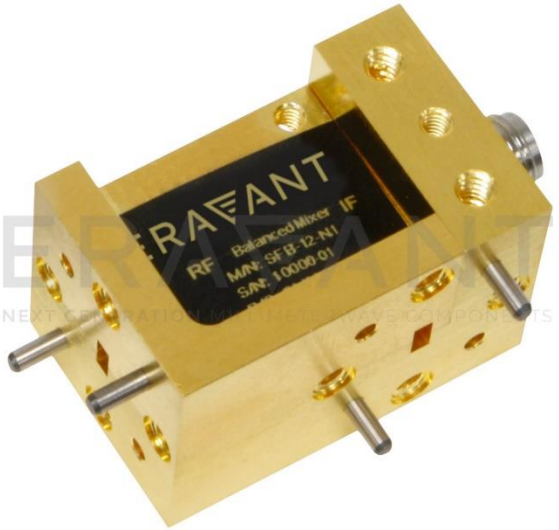
Features

- Broadband Operation
- Minimal Conversion Loss
- No External Bias
- Balanced Configuration for Low Harmonic Emissions

Balanced Mixer

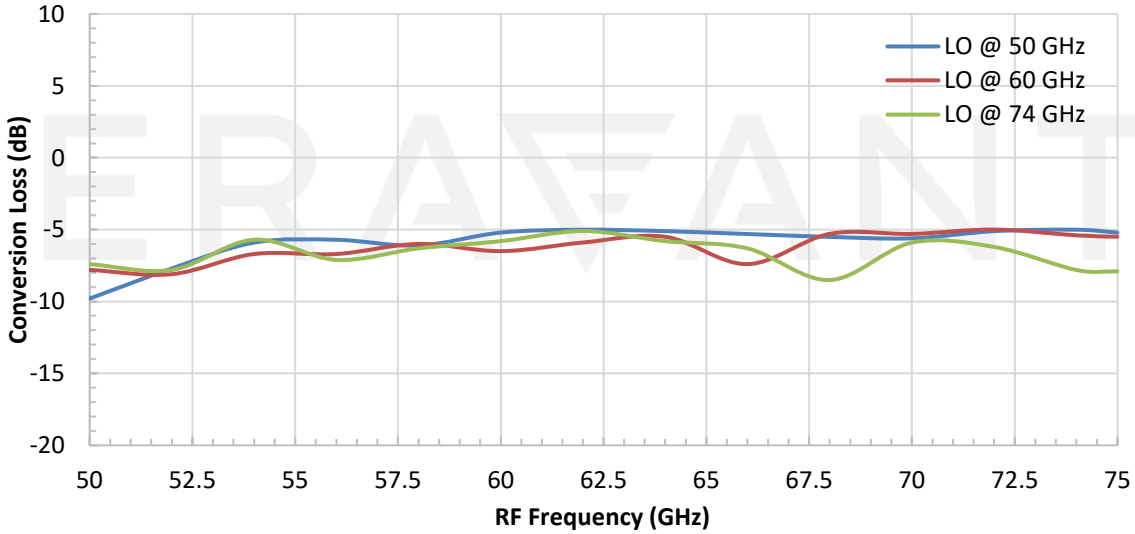
Model SFB-15-N1

Parameter	Minimum	Typical	Maximum
RF Frequency	50 GHz		75 GHz
LO Frequency	50 GHz		75 GHz
IF Frequency	DC		25 GHz
LO Pumping Power	+10 dBm	+13 dBm	+15 dBm
Conversion Loss		9 dB	12 dB
Input P_{1dB}		-3 dBm	
RF to LO Isolation		30 dB	
Combined RF and LO Power			+18 dBm



Typical Conversion Loss vs. Frequency

RF: -20 dBm; LO: +13 dBm



Features

- Full Waveguide Band Coverage
- Low Conversion Loss
- High IF Frequency up to 25 GHz
- Compact Package

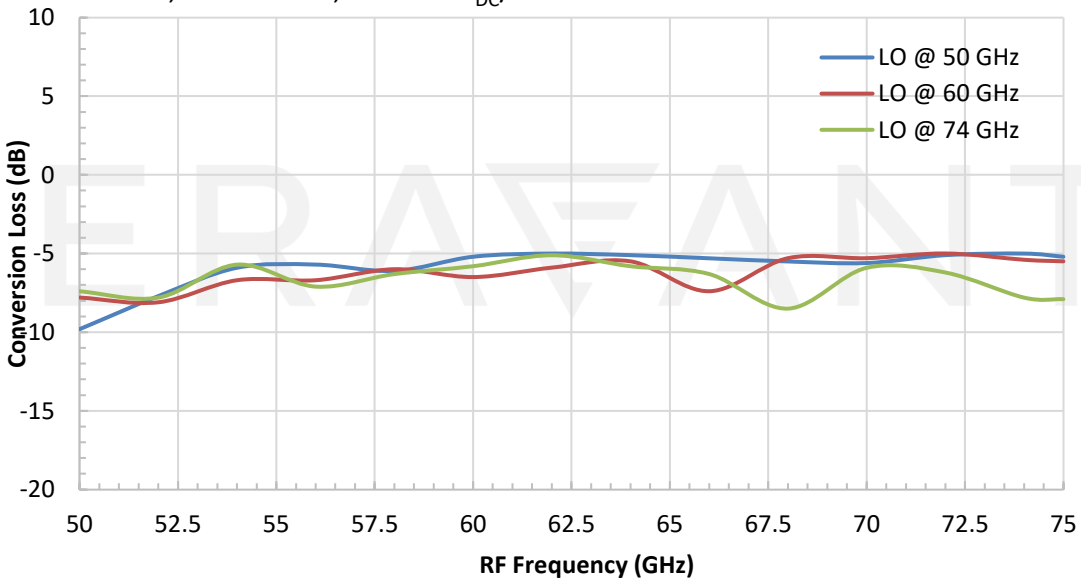
Externally Biased Balanced Mixer

Model SFB-15-E2

Parameter	Minimum	Typical	Maximum
RF Frequency Range	50 GHz		75 GHz
LO Frequency Range	50 GHz		75 GHz
IF Frequency Range	DC		25 GHz
Required LO Pumping Power	+0 dBm	+3 dBm	+10 dBm
Conversion Loss		8 dB	
Input P-1 dB		-10 dBm	
Combined RF and LO Power			+13 dBm
External Bias Voltage		+5 V_{DC}/2mA	+5 V_{DC}/5mA

Typical Conversion Loss vs. Frequency

RF: -20 dBm; LO: +3 dBm; Bias: +5 V_{DC}/1 mA



Features

- Full Waveguide Band Coverage
- Low LO Power Requirement
- Low Conversion Loss
- High IF Frequency up to 25 GHz
- Compact Package

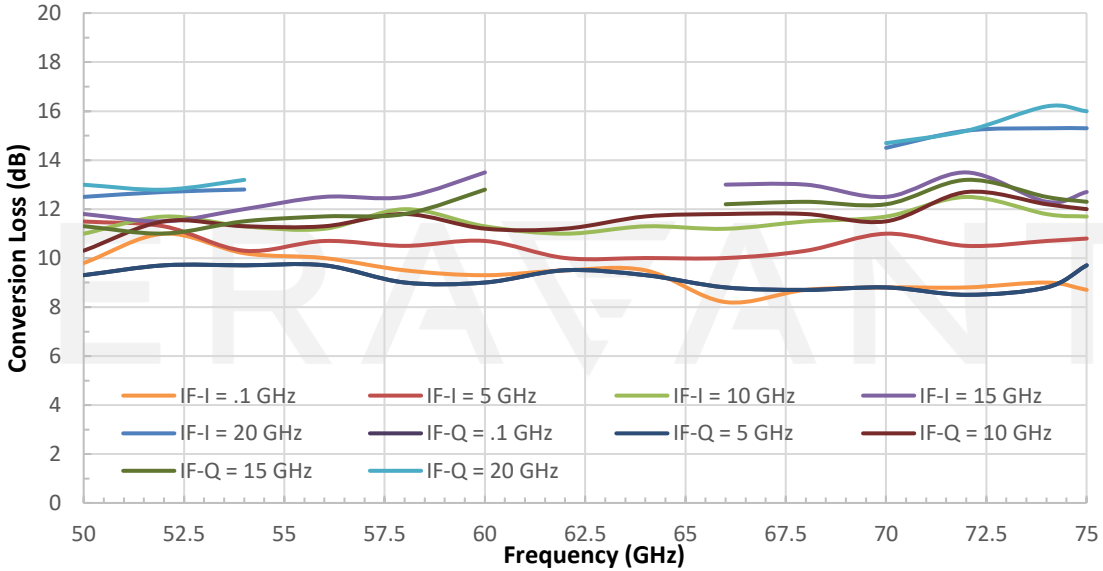
I/Q Mixer, Full Band

Model SFQ-50375313-1515KF-N1-M

Parameter	Minimum	Typical	Maximum
RF Frequency	50 GHz		75 GHz
LO Frequency	50 GHz		75 GHz
LO Pumping Power	+12 dBm	+16 dBm	+20 dBm
IF Frequency	DC		20 GHz
Conversion Loss		13 dB	
I/Q Phase Unbalance		±15°	
Damage Power, Any Port			+25 dBm

Typical Conversion Loss vs. Frequency

LO Power = +16 dBm (typ); RF Power = -20 (typ)



Features

- Full Waveguide Band Coverage
- Low Conversion Loss
- Compact Package
- IF Port DC Coupled for Phase Detection

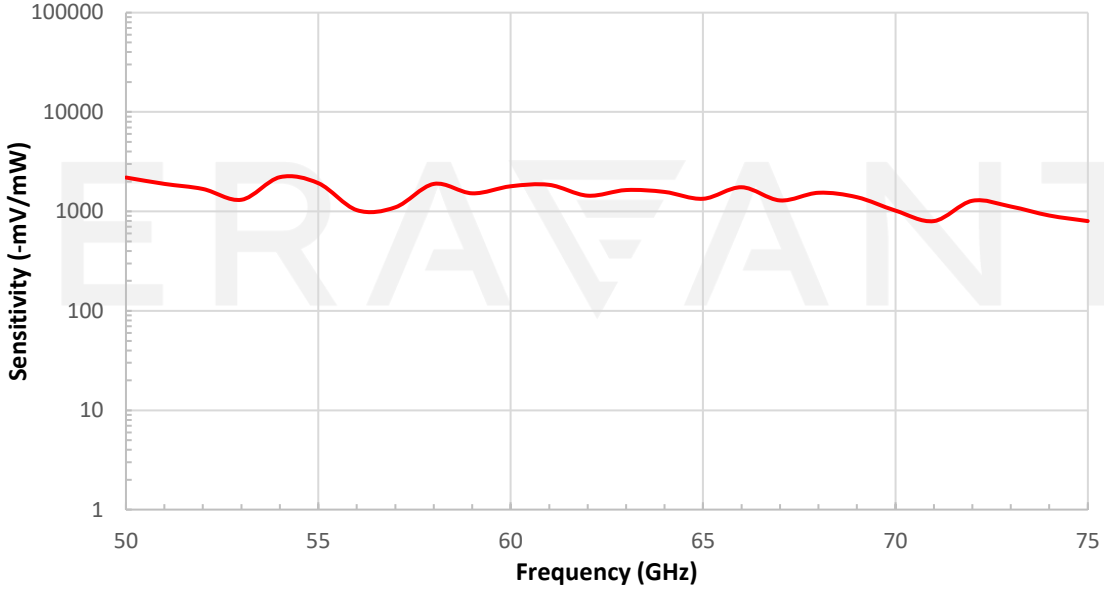
Amplitude Detector

Models SFD-503753-15SF-N1 and SFD-503753-15SF-P1

Parameter	Minimum	Typical	Maximum
Frequency Range	50 GHz		75 GHz
Sensitivity (SFD-753114-10SF-N1)		-1000 mV/mV	
Sensitivity (SFD-753114-10SF-P1)		+1000 mV/mV	
Sensitivity Flatness		± 2.0 dB	
Linear Detection Range	-45 dBm	-10 dBm	0 dBm
RF Input Power		-20 dBm	+17 dBm
Video Bandwidth		10 MHz	

Typical Performance vs. Frequency

P_{in}= -20 dBm



Features

- Full Waveguide Band Operation
- High Sensitivity Without Tuning
- High Sensitivity Stability Over Broad Temperature Range

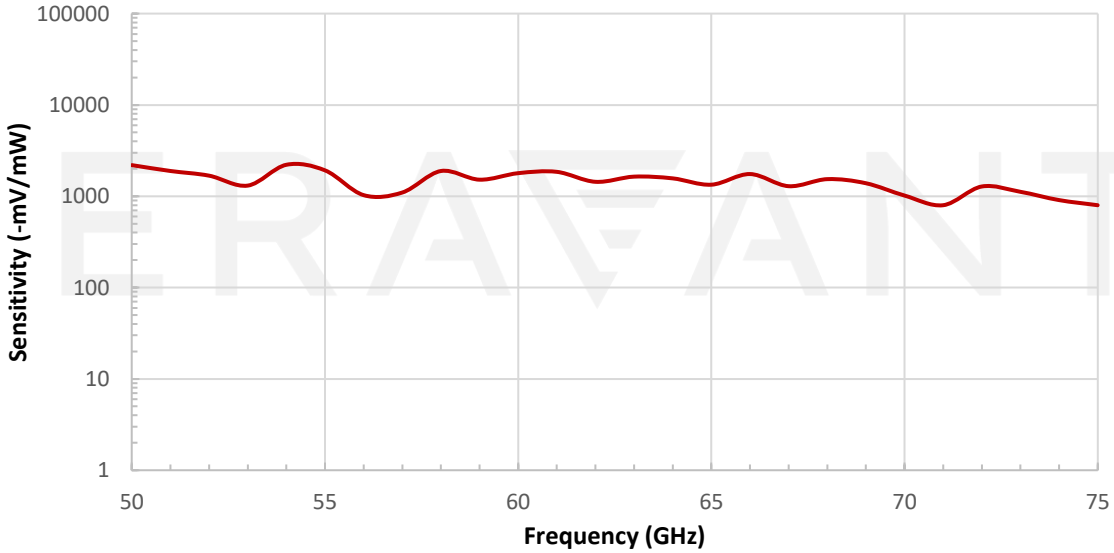
Amplitude Detector with Isolator

Models STD-15SF-NI and STD-15SF-PI

Parameter	Minimum	Typical	Maximum
Frequency Range	50 GHz		75 GHz
Sensitivity (STD-10SF-NI)		-1000 mV/mV	
Sensitivity (STD-10SF-PI)		+1000 mV/mV	
Sensitivity Flatness		± 2.0 dB	
Linear Detection Range	-45 dBm	-10 dBm	0 dBm
RF Input Power		-20 dBm	+17 dBm
Video Bandwidth		10 MHz	

Typical Performance vs. Frequency

P_{in}= -20 dBm



Features

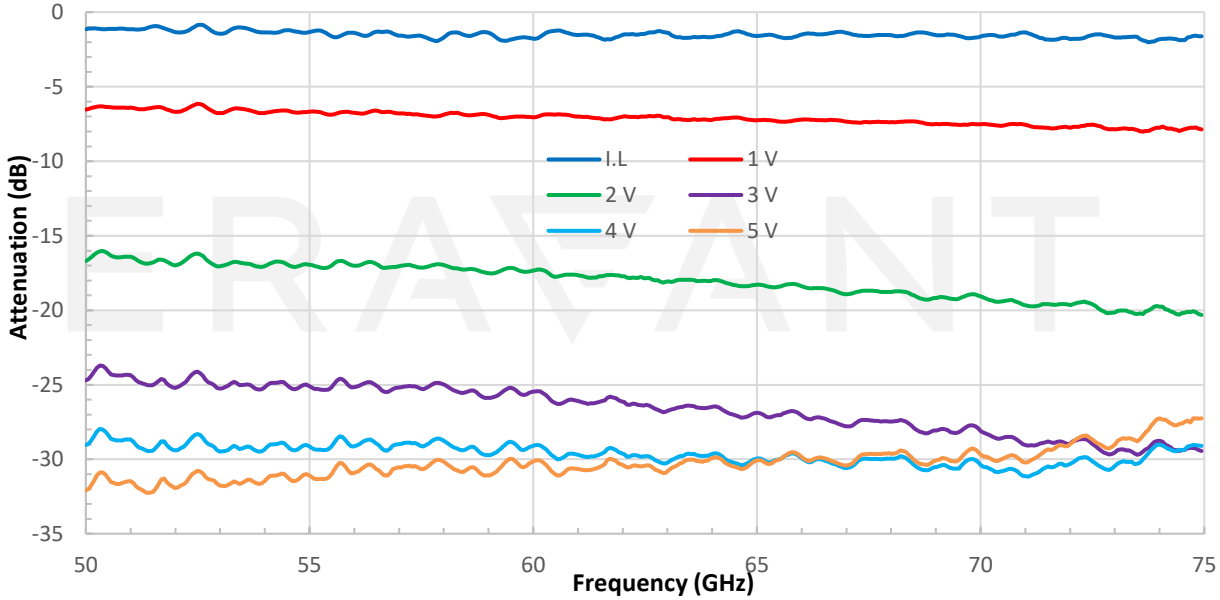
- Full Waveguide Band Operation
- High Sensitivity Without Tuning
- Faraday Isolator Integrated

Electrical Attenuator

Model SKA-5037533030-1515-A1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		2.5 dB	3.0 dB
Attenuation	2.5 dB	30 dB	
Power Handling		+20 dBm	+23 dBm
Control Voltage		0 to -5 V_{DC} /5 mA	0 to -6 V_{DC} /8 mA
Controlling Speed		100 ns	

Typical Attenuation vs. Frequency at Various Control Voltage Value



Features

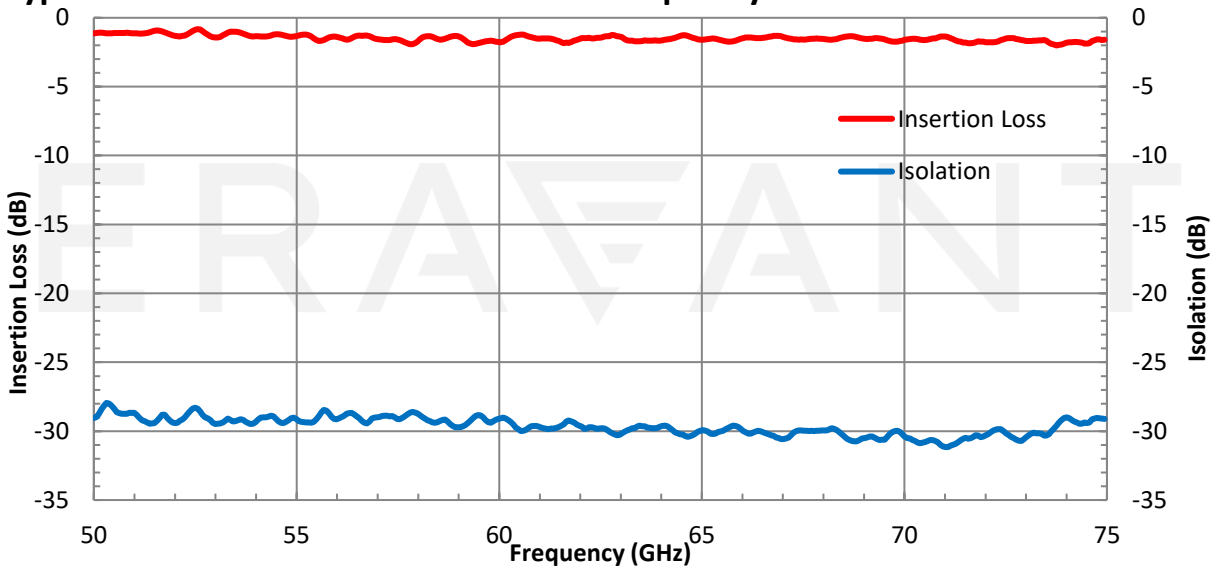
- Low Insertion Loss
- High Dynamic Range
- Fast Control Speed

SPST PIN Diode Switch

Model SKS-5037533030-1515-R1

Parameter	Minimum	Typical	Maximum
RF Frequency	50 GHz		75 GHz
Insertion Loss		2.0 dB	3.0 dB
Isolation	25 dB	30 dB	
Power Handling		+20 dBm	+23 dBm
Bias Voltage		± 5 V_{DC}	
Bias Current		10 mA	
Control Signal		TTL	
Switching Speed		100 ns	

Typical Insertion Loss and Isolation vs. Frequency



Features

- Low Insertion Loss
- High Isolation
- Fast Control Speed

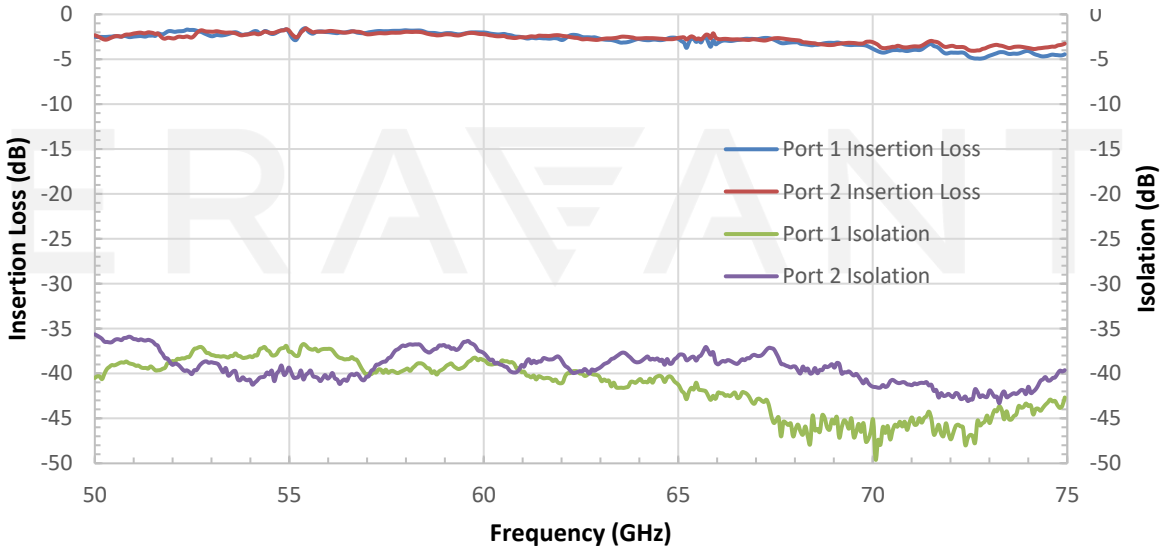
SPDT PIN Diode Switch

Model SKD-5037533035-1515-R1-M

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		3.0 dB	
Isolation		35 dB	
Maximum Input Power		+20 dBm	+23 dBm
Control Signal		TTL	
Switching Speed		100 ns	
Bias Voltage		$\pm 5\ V_{DC}$	
Bias Current		10 mA	

Insertion Loss and Isolation vs. Frequency

Bias: +/-5 V_{DC}



Features

- Low Insertion Loss
- High Isolation
- Fast Control Speed

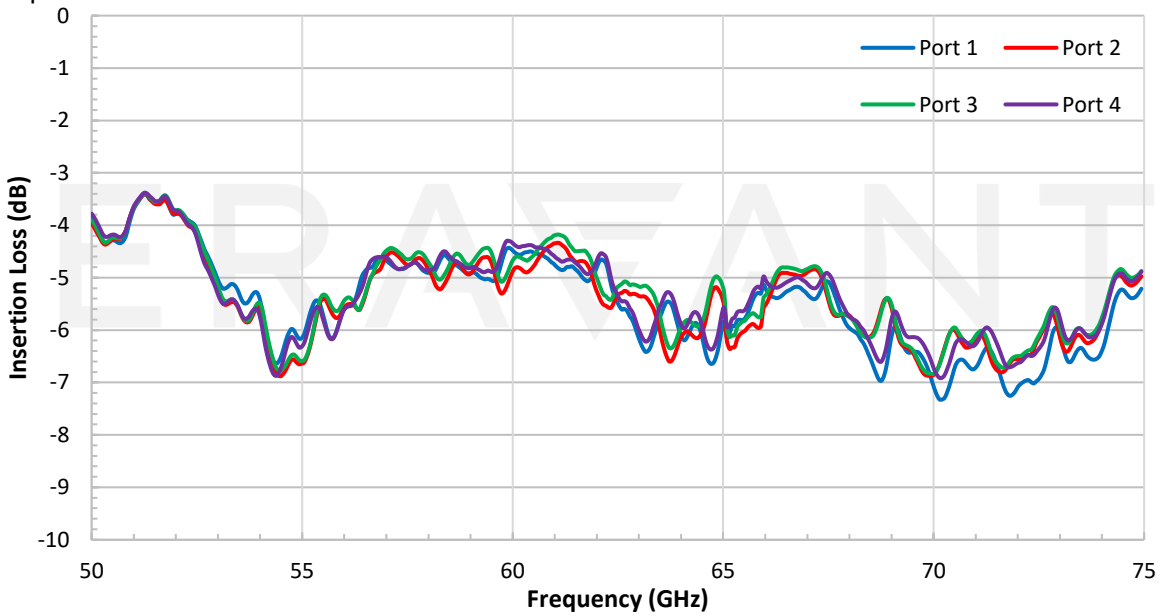
SP4T PIN Diode Switch

Model SK4-5037536535-1515-R1-M

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		6.5 dB	
Isolation		35 dB	
Control Voltage		±5 V_{DC}	
Control Current		100 mA	
Power Handling			+23 dBm
Switching Speed		100 ns	

Typical Insertion Loss vs. Frequency

Input Power: RF -10 dBm



Features

- Broad Band Coverage
- High Isolation
- Compact Size

Waveguide Motorized Switch

Model SWJ-15-TS

Features

- Low Insertion Loss
- High Isolation
- TTL Control

Applications:

- Test Set
- Communication Systems
- Radar Systems

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		0.6 dB	
Isolation		50 dB	
Bias Voltage		±28 V_{DC}	±30 V_{DC}
Bias Current		250 mA	
VSWR			1.2:1
Control Signal		TTL	
Switching Speed		150 ms	300 ms
Power Handling			100 W (CW)

Waveguide to Coax Adapter

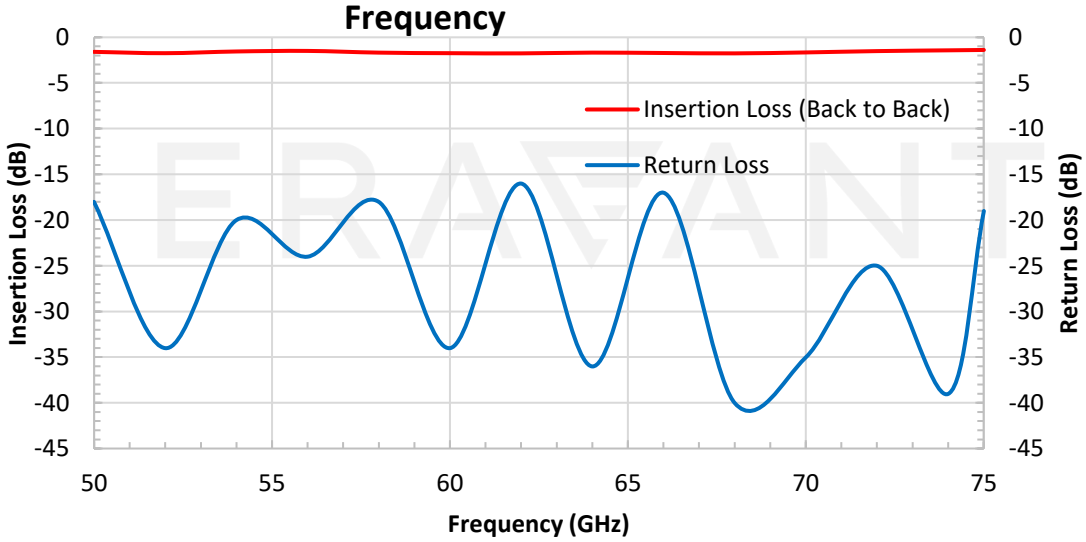
Models SWC-151F-R1 and SWC-151M-R1

Parameter	Minimum	Typical	Maximum
Frequency Range	50 GHz		75 GHz
Insertion Loss		0.7 dB	1 dB
Return Loss	12 dB	15 dB	
Power Handling			10 W (CW)

Features

- Full Waveguide Band Coverage
- Lower Insertion Loss and VSWR
- Instrumentation Grade
- DC Open Circuit

Typical Return Loss and Back to Back Insertion Loss vs. Frequency

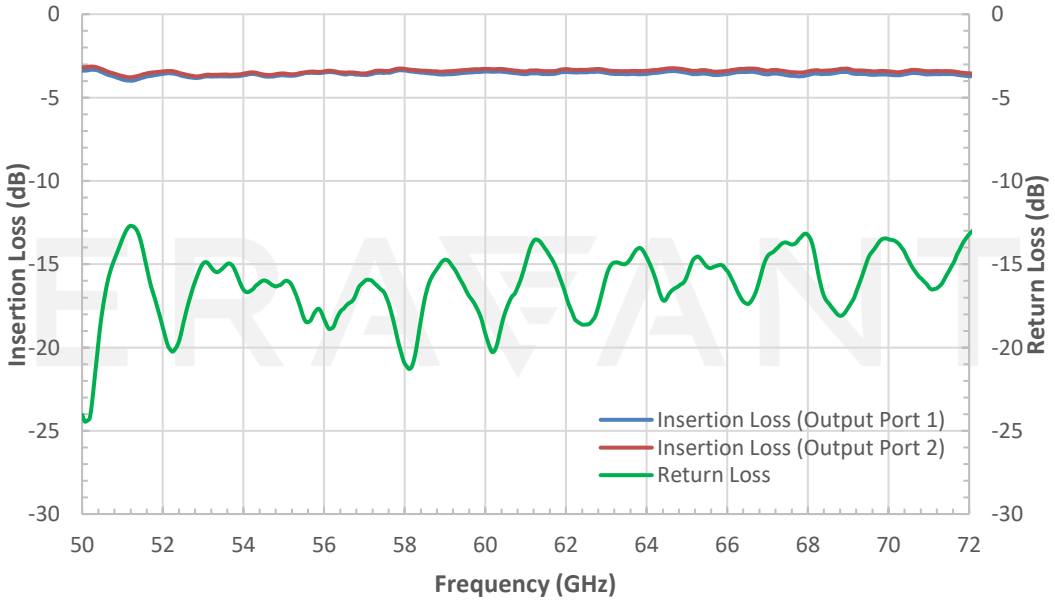


Waveguide 2-Way Power Divider

Model SWP-50375302-15-S1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		72 GHz
Power Unbalance		±0.2 dB	
Insertion Loss		0.5 dB	
Isolation		20 dB	
Input / Output VSWR			1.5:1

Typical Insertion and Return Loss vs Frequency



Features

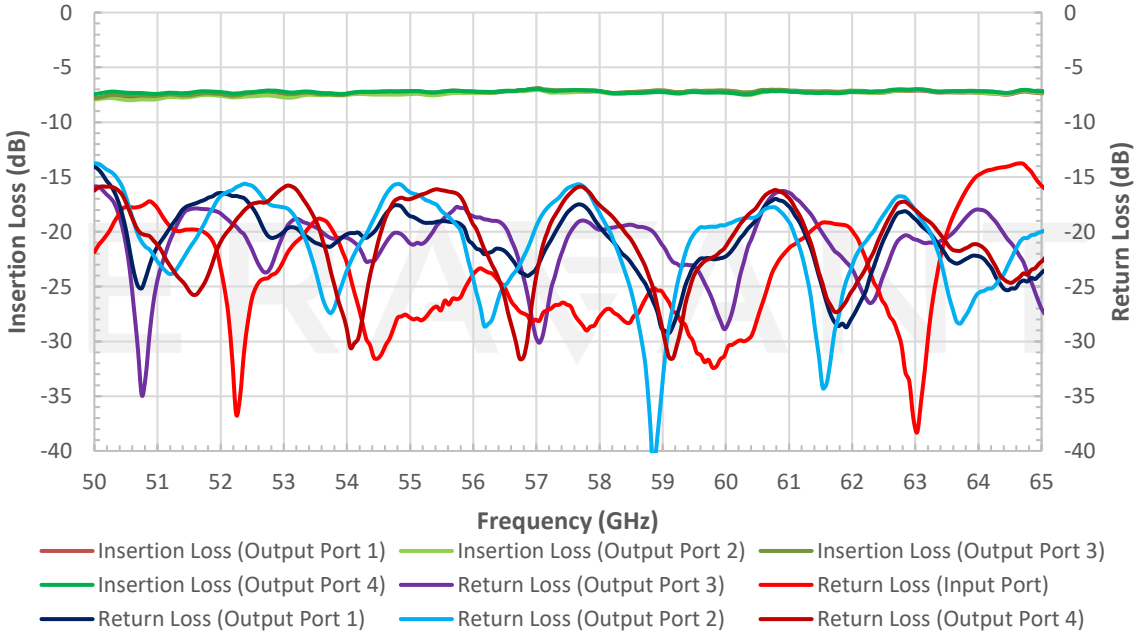
- 2, 4, 8, 16, 32 Ways
- Right Angle and Inline Configuration
- Low Insertion Loss
- High Isolation
- Compact Package

Waveguide 4-Way Power Divider

Model SWP-50375304-15-E1

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		1.0 dB	
Power Imbalance		± 0.2 dB	
Port Isolation (Adjacent Ports)		15 dB	
Port Isolation (Non-Adjacent Ports)		20 dB	
Input / Output VSWR		1.5:1	

Typical Insertion and Return Loss vs Frequency



Features

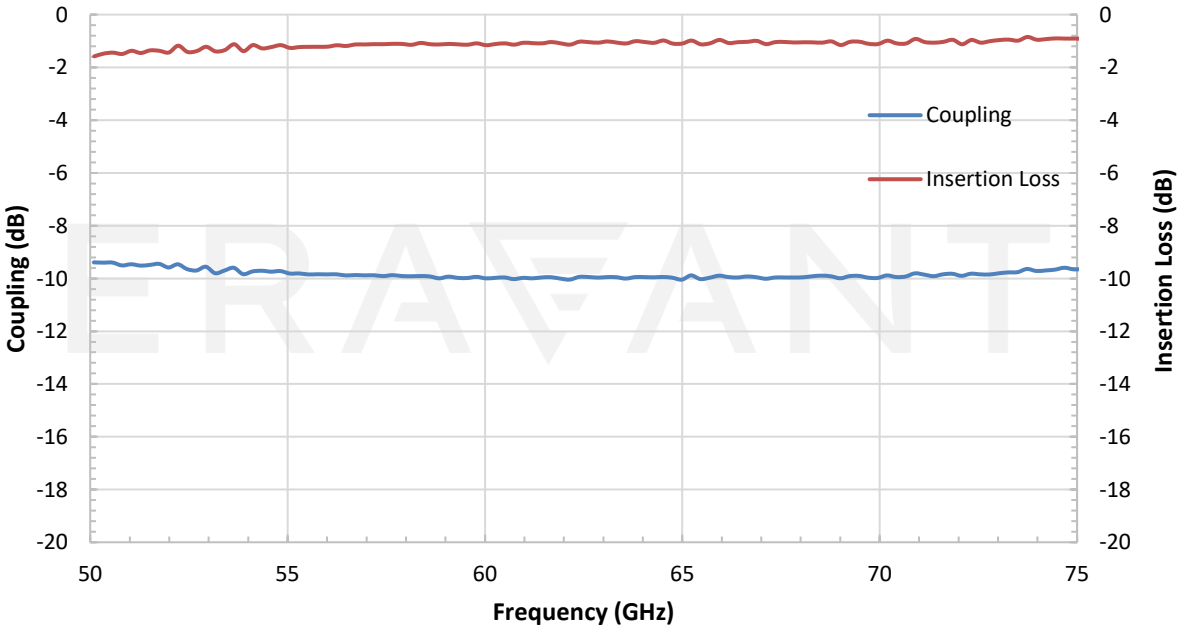
- 2, 4, 8, 16, 32 Ways
- Right Angle and Inline Configuration
- Low Insertion Loss
- High Isolation
- Inline Configuration

Waveguide Directional Coupler

Model SWD-1040H-15-BB

Parameter	Minimum	Typical	Maximum
Frequency	50 GHz		75 GHz
Insertion Loss		0.7 dB	
Coupling		10 dB	
Directivity	30 dB	40 dB	
Main Line VSWR			1.1:1

Typical Coupling and Insertion Loss vs. Frequency



Features

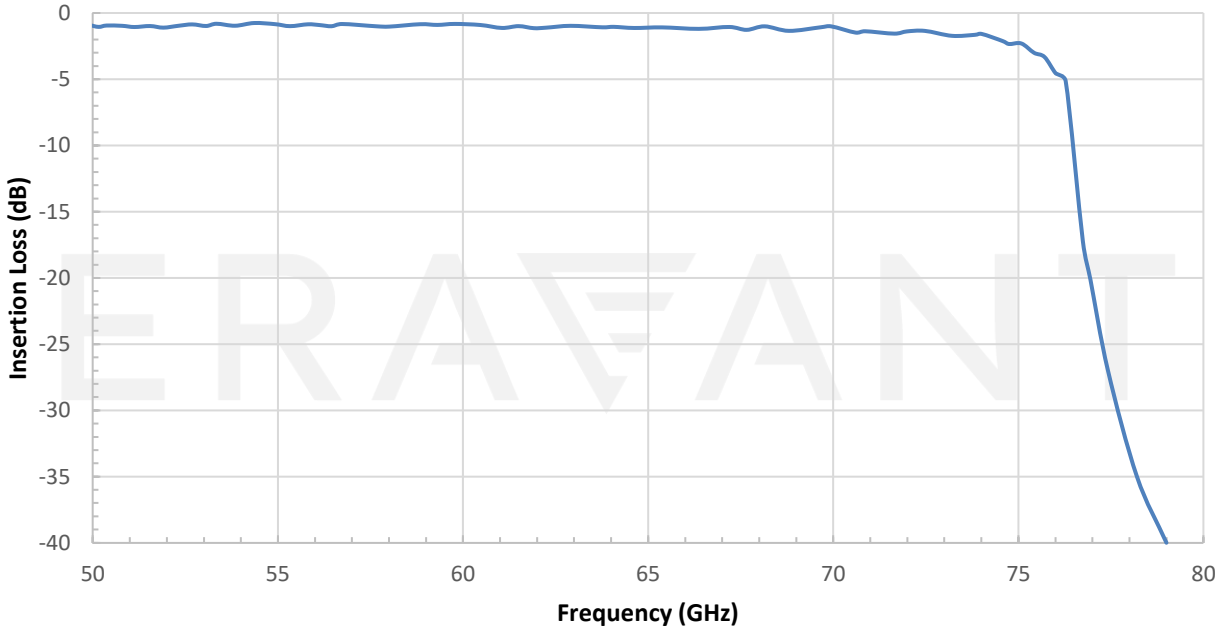
- Full Band Operation
- 3, 6, 10, 20, 30, 40 dB
- Dual Directional
- Bi-Directional
- Waveguide Version
- Low Insertion Loss
- High Directivity

Waveguide Lowpass Filter 50 to 75 GHz

Model SWF-75379340-15-L1

Parameter	Minimum	Typical	Maximum
Passband Frequency	50 GHz		75 GHz
Passband Insertion Loss		1.5 dB	
Rejection Frequency, Low Side	DC		40 GHz
Rejection Frequency, High Side	79 GHz		120 GHz
Rejection		40 dB	
Passband VSWR		1.5:1	

Typical Insertion Loss vs. Frequency



Features

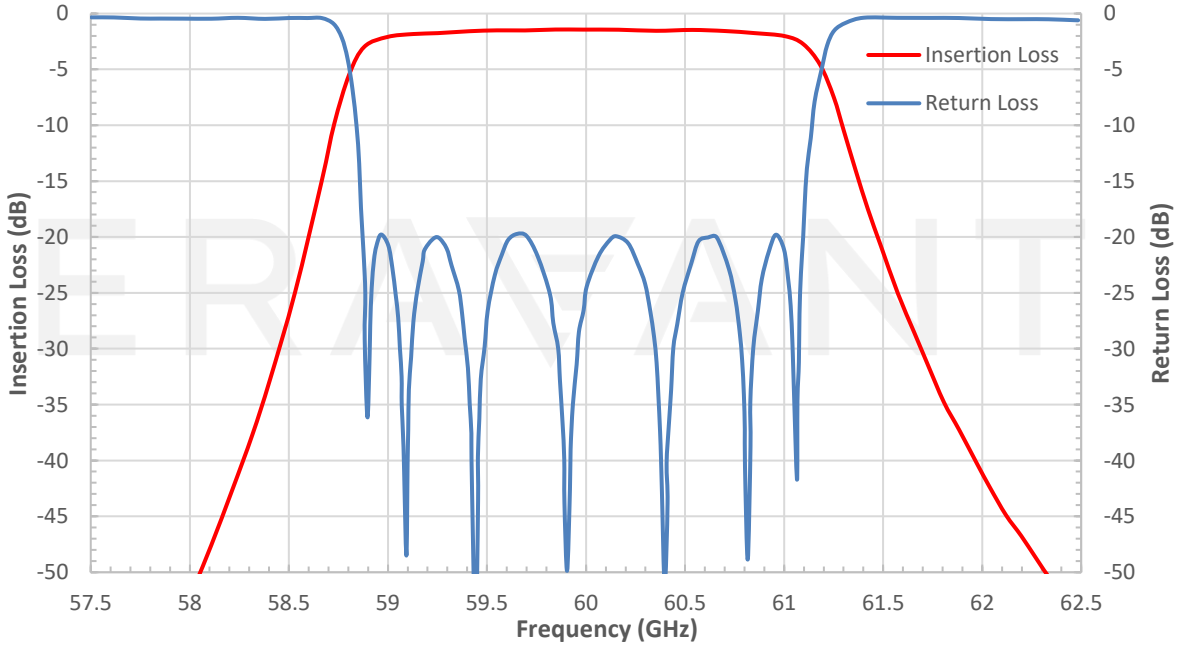
- Lowpass, Highpass and Bandpass
- Narrow and Broadband
- Low Cost
- Low Insertion Loss
- High Rejection

Waveguide Bandpass Filter

Model SWF-60302330-15-B1

Parameter	Minimum	Typical	Maximum
Passband Frequency	59 GHz		61 GHz
Passband Insertion Loss		2.5 dB	
Passband Ripple		±0.5 dB	
Rejection Frequency, Low Side	DC		58 GHz
Rejection Frequency, High Side	62 GHz		78 GHz
Rejection		25 dB	
Passband VSWR		1.5:1	

Typical Performance vs. Frequency



Features

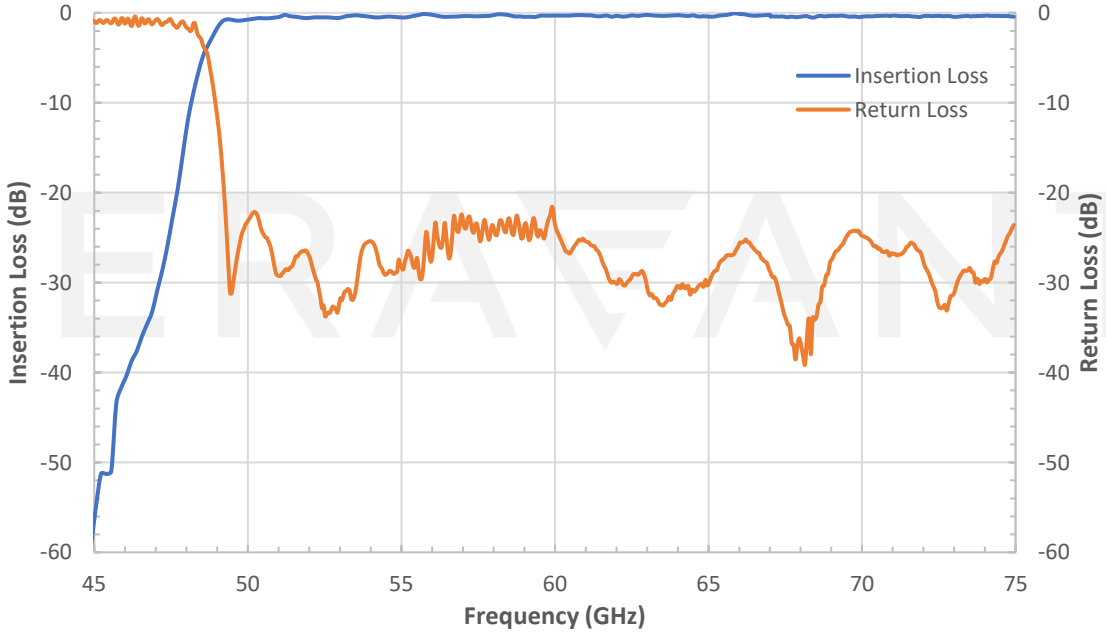
- Lowpass, Highpass and Bandpass
- Narrow and Broadband
- Low Cost
- Low Insertion Loss
- High Rejection

Waveguide Highpass Filter, 50 GHz and Higher

Model SWF-50346340-15-H1

Parameter	Minimum	Typical	Maximum
Passband Frequency	50 GHz		
Passband Insertion Loss		1.0 dB	
Passband Ripple		±0.3 dB	
Passband VSWR		1.4:1	
Rejection Frequency	DC		46 GHz
Rejection		40 dB	
Waveguide	WR-15 with UG-385/U-M Anti-Cocking Flange		

Typical Insertion and Return Loss vs Frequency



Features

- Lowpass, Highpass and Bandpass
- Narrow and Broadband
- Low Cost
- Low Insertion Loss
- High Rejection

Waveguides

- **Straights: 1”, 2” etc. and Custom Length**
- **Bends, 45 °, 90° and Custom Angle**
- **Twists, 45 °, 90° and Custom Angle**
- **Flexible Waveguides, 1”, 2”, 3” and 4”**

Waveguide Straight: 1”

Waveguide E-Bend: 90°

Waveguide H-Bend: 90°

Flexible Waveguide: 2”

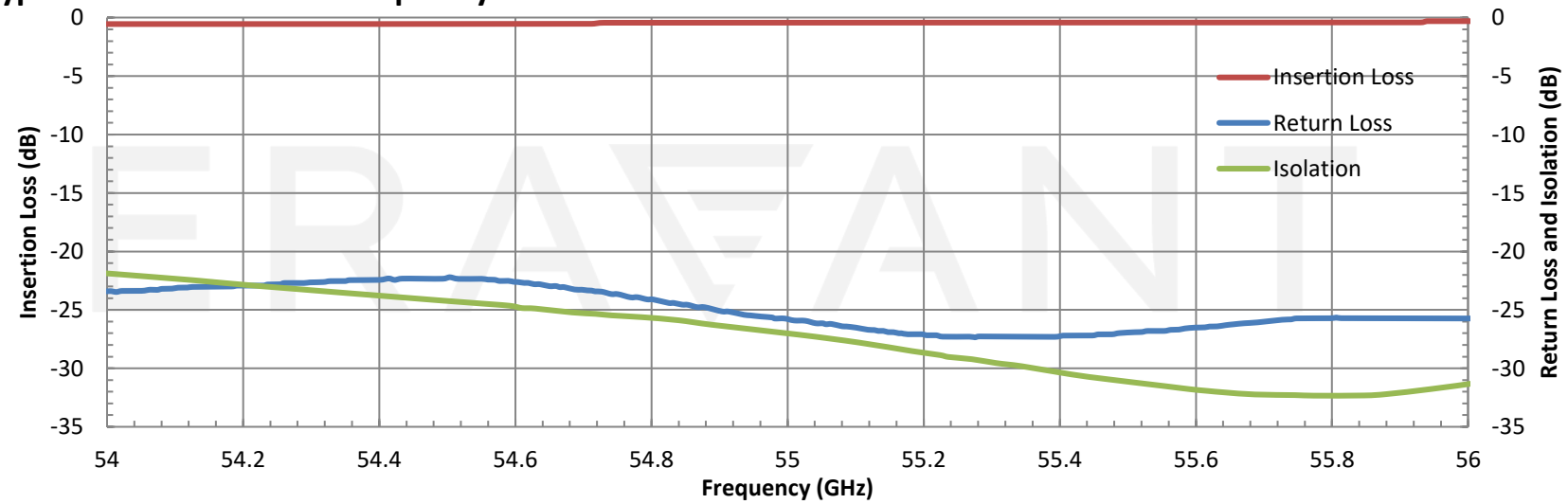
Waveguide Twist: 90°

Junction Isolators and Circulators, 54 to 56 GHz

Model SNW-5435631016-15-I1 and SNW-5435630718-15-C1

Parameter	Minimum	Typical	Maximum
Frequency	54 GHz		56 GHz
Insertion Loss		0.7 dB	
Isolation		18 dB	
Forward Power Handling			3 W (CW)
Reverse Power Handling			1 W (CW)
VSWR		1.3:1	

Typical Performance vs. Frequency

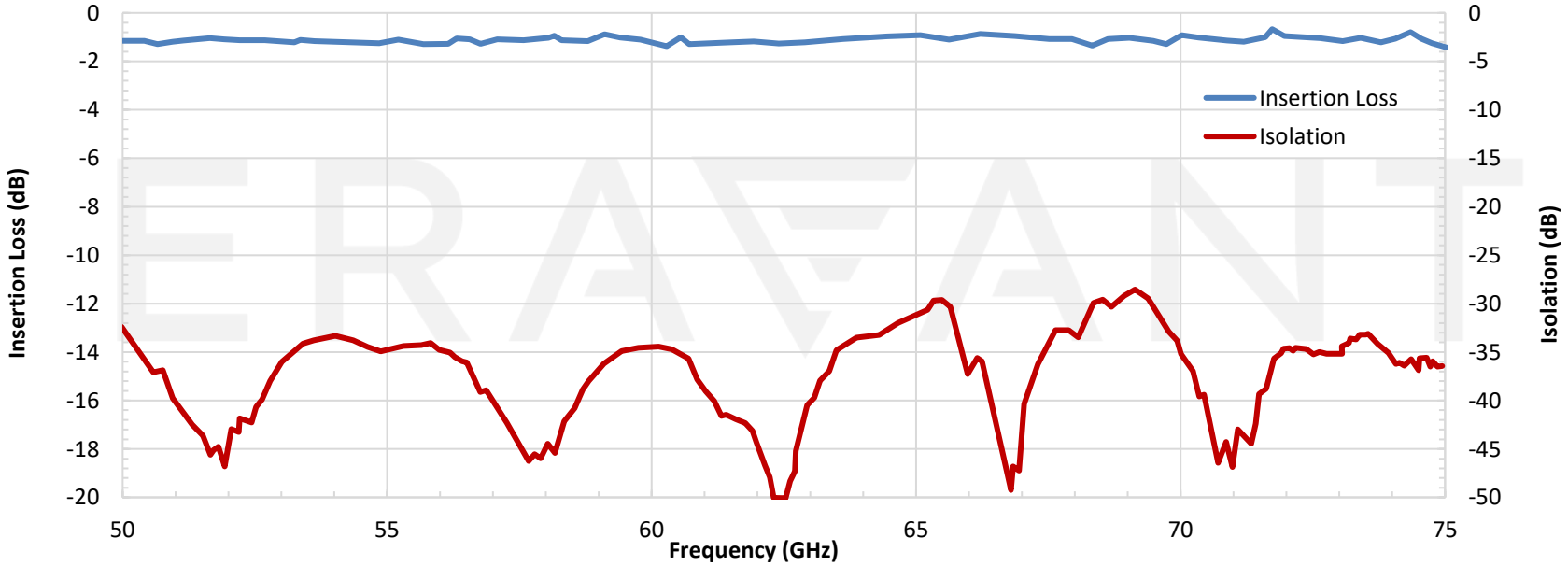


Faraday Isolator, Full Band

Model STF-15-S1

Parameter	Minimum	Typical	Maximum
RF Frequency	50 GHz		75 GHz
Insertion Loss		1.5 dB	1.8 dB
Isolation		28 dB	
VSWR		1.4:1	
Power Handling		1.0 W (CW)	1.2 W (CW)

Typical Performance vs. Frequency



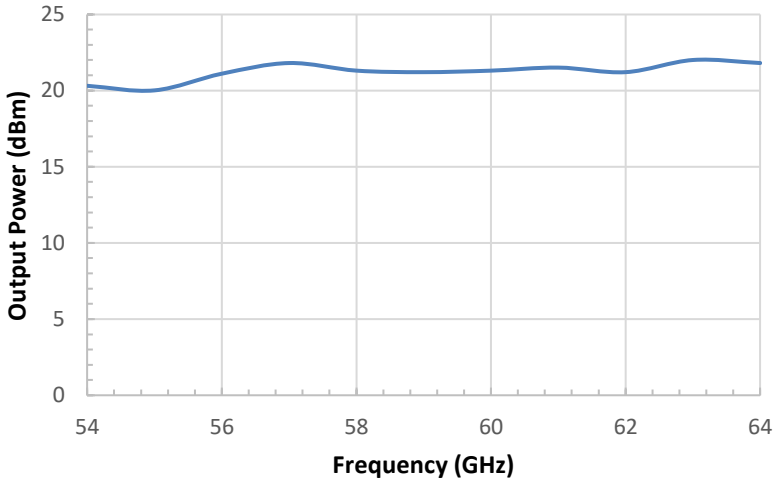
Transmitter Sub-Assembly, 59 to 64 GHz

Model SST-5931031914-15-C1-HU1

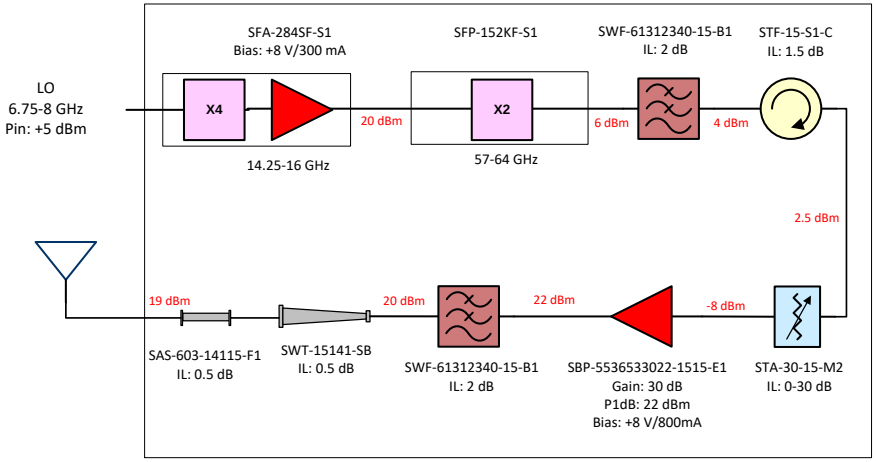
Parameter	Minimum	Typical	Maximum
Output Frequency	54 GHz		64 GHz
TX Output Power		+19 dBm	
TX EIRP		+34 dBm	
LO to TX Linear Gain		14 dB	
Polarization		RHCP	
Horn Antenna Gain		15 dBi	
Amplifier Gain		30 dB	
LO Input Frequency	6.75 GHz		8 GHz
LO Input Power	+2 dBm	+5 dBm	+10 dBm
RF to LO Isolation		28 dB	
Variable Attenuation Range		30 dB	

Typical Output Power vs. Frequency

Bias: +12 V_{DC}/1100 mA



Functional Block Diagram:



Full Band VNA Frequency Extender

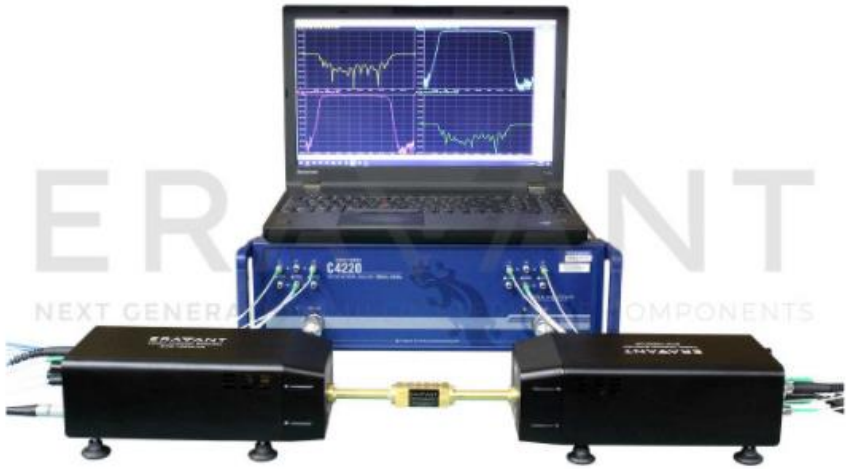
Model STO-15203-U6

Features

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

Applications

- Dual Source and 4 Port VNA Extension
- E band S-Parameter Measurement
- Test Lab Instrumentation



Parameter	Minimum	Typical	Maximum
RF Operating Frequency	50 GHz		75 GHz
Test Port Output Power	0 dBm	+5 dBm	
Output Power Control Range		0 to 20 dB	
Dynamic Range @ 10 Hz Bandwidth	100 dB	110 dB	
Test Port Match		30 dB	
Directivity	35 dB	40 dB	
RF Source Input Frequency	8.33 GHz		12.50 GHz
RF Source Input Power	0 dBm	+3 dBm	+6 dBm
LO Source Input Frequency (RF±IF)	8.33 GHz		12.50 GHz
LO Source Input Power	0 dBm	+3 dBm	+6 dBm

Full Band Frequency Extender

Model STE-SF415-15-S1

Features

- Full Waveguide Band Operation
- High Output Power
- Low Harmonics and Spurious Emission
- Cost Effective
- Instrumentation Grade
- Adjustable/Removable Legs

Applications

- Network Analyzer Systems
- Frequency Sources
- Test Instrumentations
- Antenna Range

Parameter	Minimum	Typical	Maximum
Output Frequency Range	50 GHz		75 GHz
Input Frequency Range	12.50 GHz		18.75 GHz
Output Power		+15 dBm	
Input Power	+1 dBm	+5 dBm	+20 dBm
Harmonic Suppression		20 dBc	
Spurious Suppression		60 dBc	
DC Voltage	+6 V	+8 V	+15 V
DC Current		650 mA	

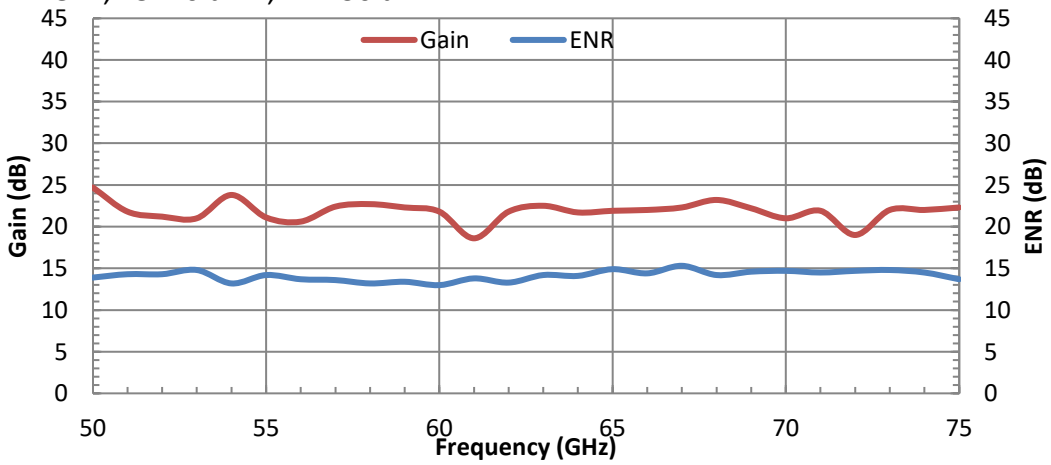
Full Band Noise Figure and Gain Test Extender

Model STG-15-S1

Parameter	Minimum	Typical	Maximum
RF Frequency Range	50 GHz		75 GHz
Noise Source: ENR		13 dB	
Noise Source: Bias	+18 V_{DC}/50mA	+28 V_{DC}/60mA	+30 V_{DC}/75mA
IF Frequency Range	10 MHz		1.6 GHz
LO Frequency Range	12.5 GHz		18.7 GHz
LO Power			+20 dBm
N.F. Dynamic Range	0 dB		20 dB
Conversion Gain	15 dB	20 dB	
Down-Converter: Bias		+12 V_{DC}/450mA	+15 V_{DC}/550mA

Typical Performance vs. Frequency

IF: 1 GHz, LO: +0 dBm, RF: -50 dBm



Features

- Full Band Coverage
- Precisely Calibrated ENR
- Great ENR and Gain Flatness

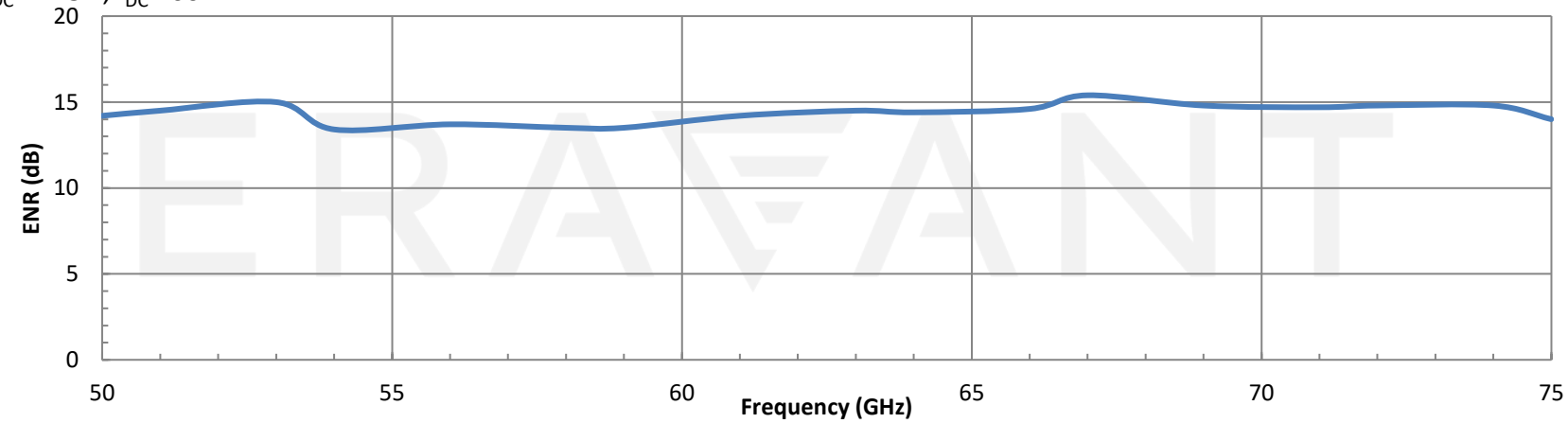
Calibrated Noise Source with Isolator

Model STZ-15-I1

Parameter	Minimum	Typical	Maximum
RF Frequency Range	50.0 GHz		75.0 GHz
ENR	10.0 dB	13.5 dB	
ENR Flatness		±1.4 dB	
Temperature Stability		0.01 dB/°C	
Long Term Temperature Stability		0.05 dB/day	
AM Modulation Trigger		TTL	
AM Modulation Rate		1.0 kHz	
DC Bias	+15 V_{DC}/35 mA	+28 V_{DC}/60 mA	+30 V_{DC}/75 mA

Typical ENR vs. Frequency

V_{DC}= +28 V, I_{DC}= 60 mA



Direct Reading Attenuator

Model STA-60-15-D1

Features

- Full Band Coverage
- High Attenuation Accuracy
- Large Scaled Dial

Applications:

- Test Lab
- Instrumentations
- Manual Test Set

Parameter	Minimum	Typical	Maximum
RF Frequency Range	50 GHz		75 GHz
Insertion Loss		0.8 dB	
Attenuation Range	0 dB		60 dB
Attenuation Accuracy	0.1 dB or 3% of reading, whichever is larger, up to 40 dB		
VSWR			1.2:1
Power Handling (CW)		50 mW	100 mW

Digital Direct Reading Attenuator

Model STA-60-15-D5

Features

- Full Band Coverage
- High Attenuation Accuracy
- Digital Screen with Back Light

Applications:

- Test Lab
- Instrumentations
- Manual Test Set

Parameter	Minimum	Typical	Maximum
RF Frequency Range	50 GHz		75 GHz
Insertion Loss		1.0 dB	1.5 dB
Attenuation Range	0 dB		60 dB
Attenuation Accuracy	0.1 dB or 2% of Setting, whichever is larger, up to 40 dB		
VSWR		1.2:1	
Power Handling (CW)		150 mW	750 mW

Programmable Attenuator

Model STA-60-15-P1

Features

- Full Band Coverage
- High Attenuation Accuracy
- IEEE-488 and USB Control Ports

Applications:

- Test Lab
- Instrumentations
- Auto Test Set

Parameter	Minimum	Typical	Maximum
RF Frequency Range	50 GHz		75 GHz
Insertion Loss		1.6 dB	
Attenuation Range	0 dB		70 dB
Attenuation Accuracy	0.1 dB or 3% of the reading, whichever is larger, up to 40 dB		
VSWR		1.2:1	
Power Handling (CW)		500 mW	1000 mW

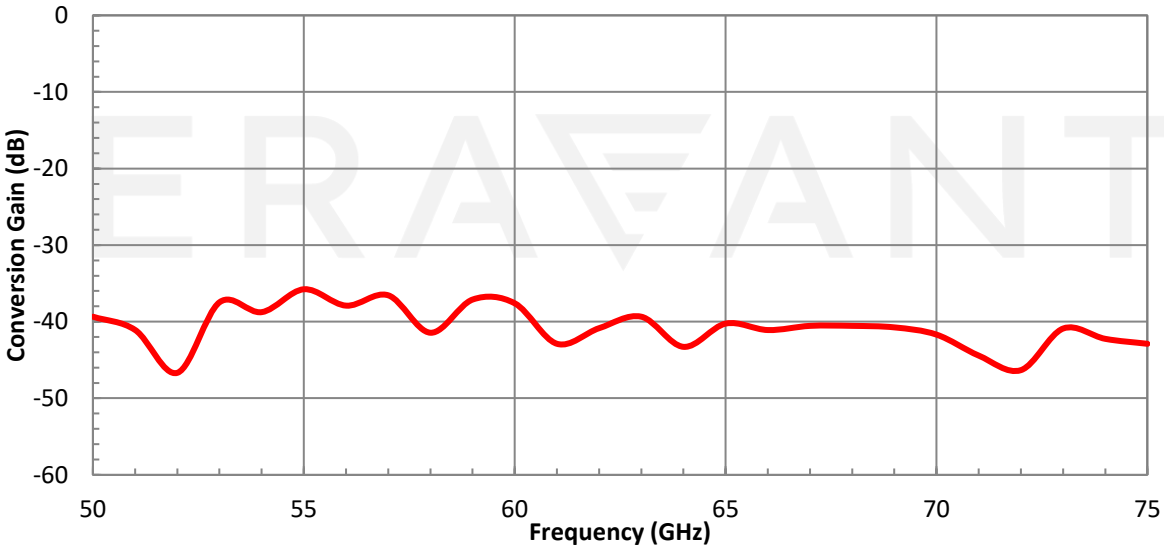
Harmonic Mixer for Keysight Spectrum Analyzer

Model SFH-15SFSF-A3

Parameter	Minimum	Typical	Maximum
RF Range	50 GHz		75 GHz
LO Frequency	3.0 GHz		6.1 GHz
IF Range	DC		1.3 GHz
Input Power		+16 dBm	+19 dBm
Harmonic Number		14	
Conversion Loss		40 dB	

Typical Conversion Gain vs. Frequency

P_{RF}= -20 dBm



Features

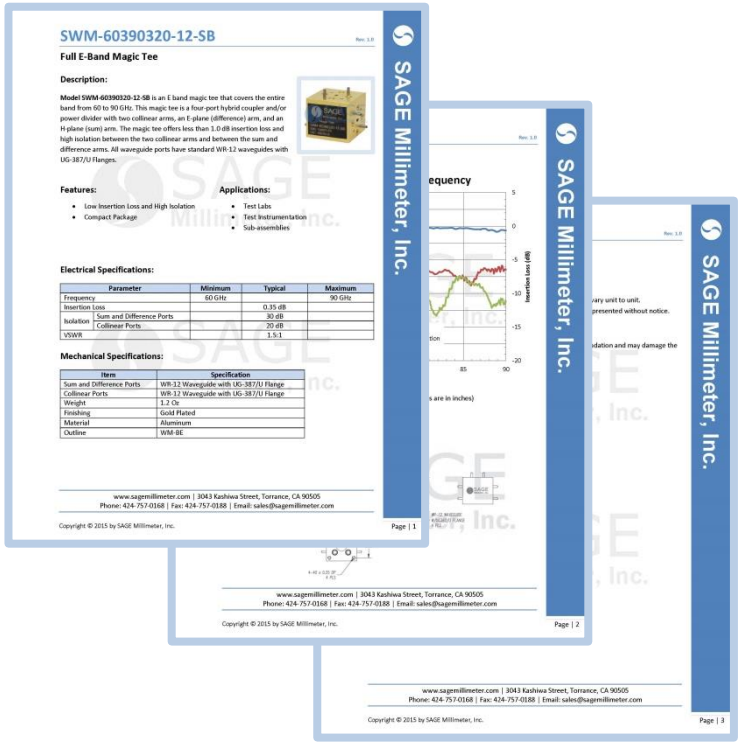
- Full Waveguide Band Operation
- No External Bias Required
- 14th Harmonic Detection

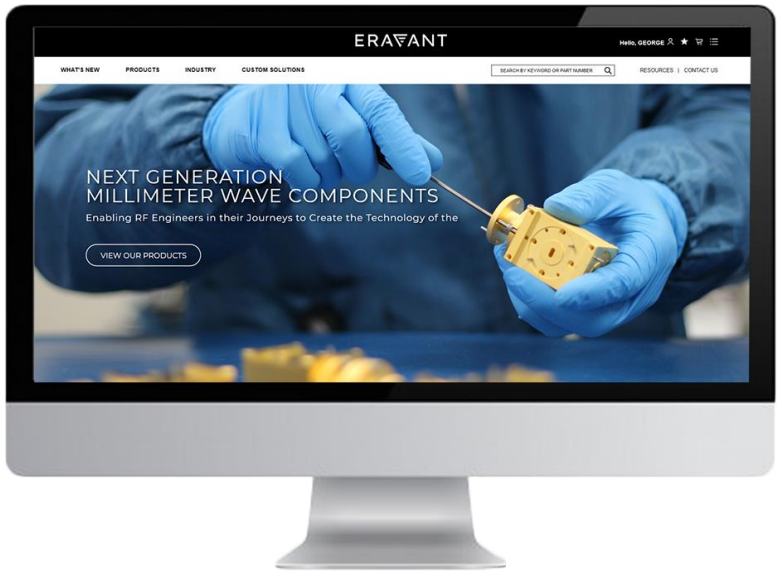
Check out our website for more!

www.eravant.com

Featuring

- 3,000+ Products with Full Datasheets
- Price and Delivery Available Online
- Product Categorization Filters
- Blogs, Calculators and Publications





PASSIVE FREQUENCY MULTIPLIERS

GRID TABLE 28 RESULTS

MODEL	MINIMUM OUTPUT FREQUENCY	MAXIMUM OUTPUT FREQUENCY	OUTPUT POWER	MINIMUM INPUT FREQUENCY	MAXIMUM INPUT FREQUENCY	INPUT POWER	OUTPUT PORT	INPUT PORT	DOWNLOADS	VIEW
SFP-06212-S2	110 GHz	170 GHz	0 dBm	55 GHz	85 GHz	+16 dBm	WR-06 Waveguide	WR-12 Waveguide	Datasheet	View
SFP-06319-U6	110 GHz	170 GHz	-3 dBm	36.67 GHz	56.67 GHz	+20 dBm	WR-06 Waveguide	WR-19 Waveguide	Datasheet	View
SFP-06210-S2	140 GHz	220 GHz	-3 dBm	70 GHz	110 GHz	+17 dBm	WR-05 Waveguide	WR-10 Waveguide	Datasheet	View
SFP-223403205-28SF-S1	22 GHz	40 GHz	+5 dBm	11 GHz	20 GHz	+18 dBm	WR-28 Waveguide	SMA (F)	Datasheet STEP File	View
SFP-243423303-28SF-S1	24 GHz	42 GHz	+3 dBm	8 GHz	14 GHz	+20 dBm	WR-28 Waveguide	SMA (F)	Datasheet STEP File	View
SFP-283SF-U9	26.5 GHz	40.0 GHz	+5 dBm	8.37 GHz	13.33 GHz	+20 dBm	WR-28 Waveguide	SMA (F)	Datasheet	View
SFP-2734033N05-28SF-S1	26.5 GHz	40 GHz	-5 dBm	8.37 GHz	13.33 GHz	+10 dBm	WR-28 Waveguide	SMA (F)	Datasheet STEP File	View
SFP-223SF-S1	33 GHz	50 GHz	+3 dBm	11 GHz	16.67 GHz	+20 dBm	WR-22 Waveguide	SMA (F)	Datasheet STEP File	View
SFP-222KF-S1	33 GHz	50 GHz	+7 dBm	16.5 GHz	25 GHz	+20 dBm	WR-22 Waveguide	2.92 mm (F)	Datasheet STEP File	View
SFP-363573303-19SF-N1	57 GHz	36 GHz	+3 dBm	12 GHz	19 GHz	+20 dBm	WR-19 Waveguide	SMA (F)	Datasheet STEP File	View
SFP-192KF-S1	40 GHz	60 GHz	+6 dBm	20 GHz	30 GHz	+20 dBm	WR-19 Waveguide	2.92 mm (F)	Datasheet STEP File	View