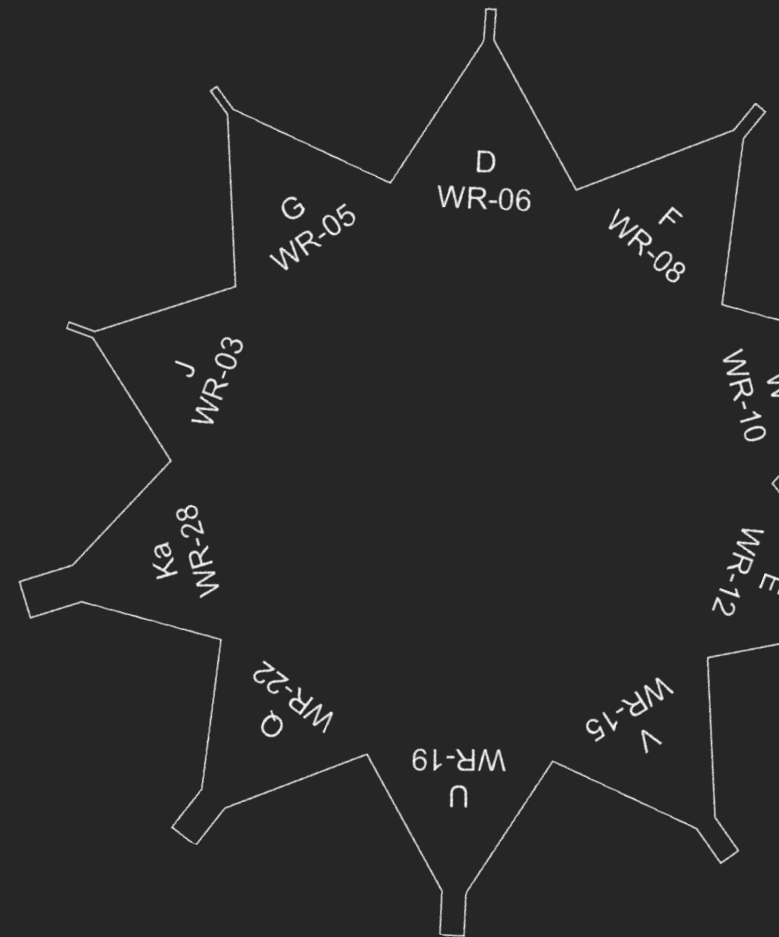


ERA[≡]ANT

MAKING MILLIMETERWAVE ACCESSIBLE

H-BAND UPDATES

June 2025



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INTRODUCTION

ERAVANT designs and manufactures total solutions for microwave and millimeterwave applications covering DC to 330 GHz

- **This presentation introduces a selection of Eravant's standard product offerings in the H-Band (170 to 260 GHz)**
- The entire H-Band product line, including Limited Run models, are listed on the website at www.eravant.com

Additional products and presentations are available upon request.

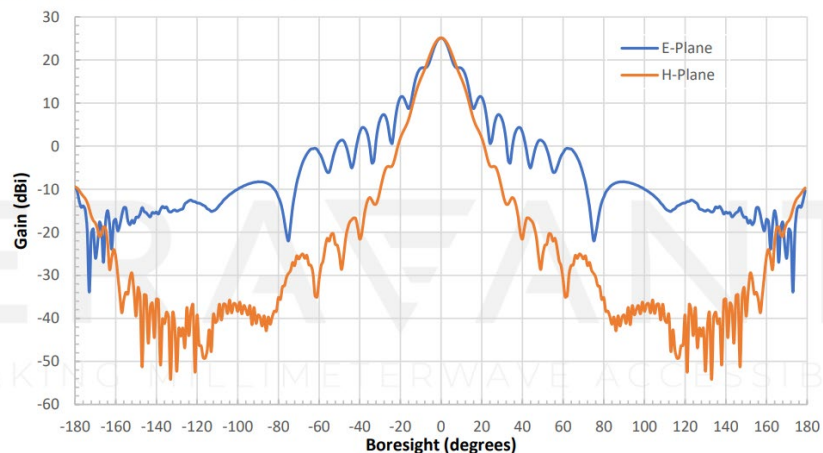
- Custom models for components and subassemblies can be configured to customer specifications
- Presentations for Ka thru J bands are also available
- Presentations for specific applications including 5G/6G, IoT, Space, Test Instrumentation, Communications and Radar are available [here](#)

ANTENNAS

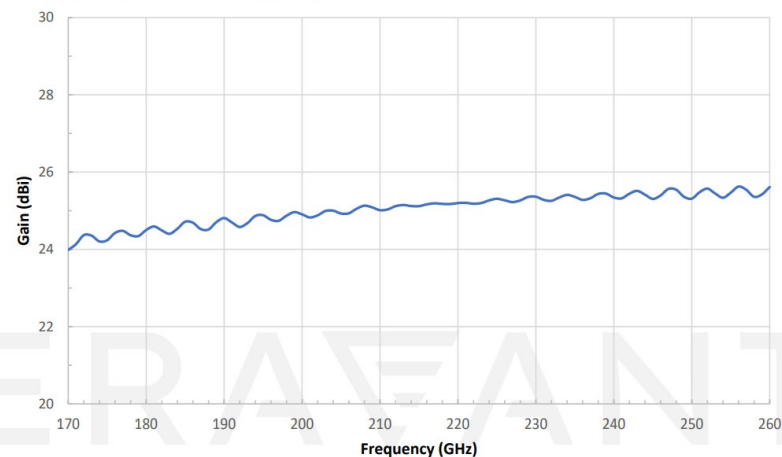
Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Gain		25 dBi	
Polarization	Linear		
3 dB Beamwidth, E-Plane		6.3°	
3 dB Beamwidth, H-Plane		8.4°	
Side Lobes, E -Plane		-17 dB	
Side Lobes, H Plane		-27 dB	
Return Loss		23 dB	



Simulated Antenna Patterns @ 215 GHz



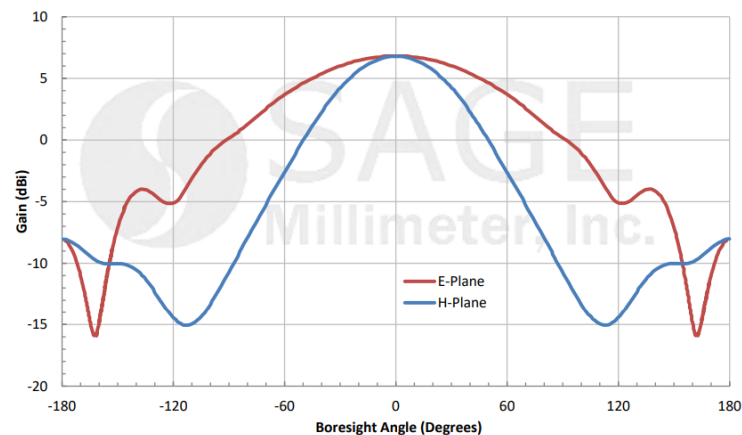
Simulated Gain vs. Frequency



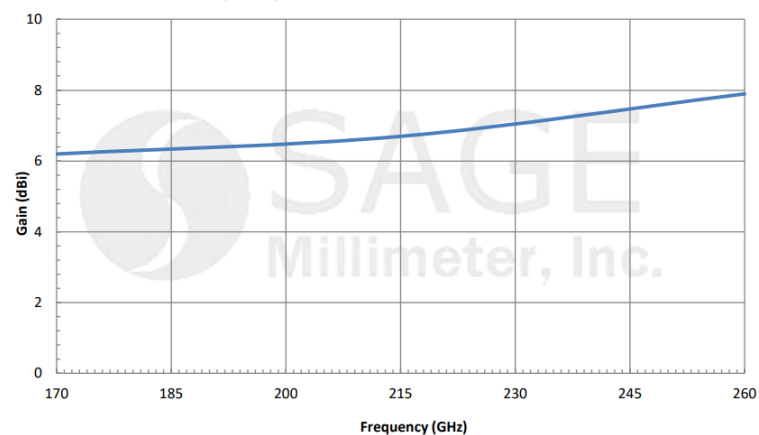
Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Gain		6.5 dBi	
Polarization	Linear		
3 dB Beamwidth, E-Plane		115°	
3 dB Beamwidth, H-Plane		55°	
Side Lobes, E -Plane		-10 Db	
Side Lobes, H Plane		-14 dB	
Return Loss		10 dB	



Simulated Antenna Pattern @ 215 GHz



Simulated Gain vs. Frequency



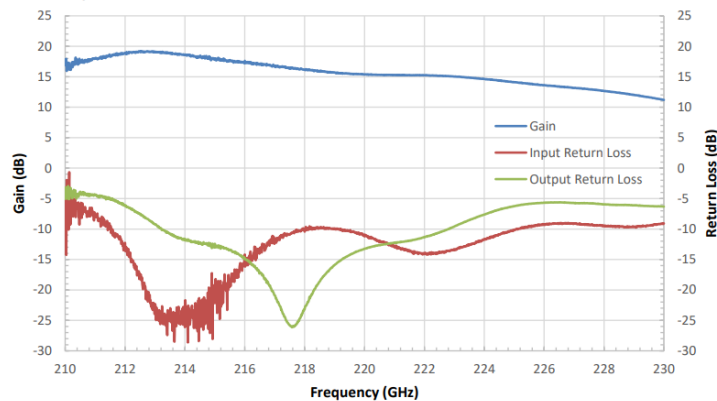
AMPLIFIERS

Parameter	Minimum	Typical	Maximum
Frequency	210 GHz		230 GHz
Gain		15 dB	
P_{1dB}		7 dBm	
P_{sat}		10 dBm	
P_{in}			12 dBm
Input Return Loss		8 dB	
Output Return Loss		5 dB	
DC Voltage		+8 V _{DC}	+12 V _{DC}
DC Supply Current		300 mA	



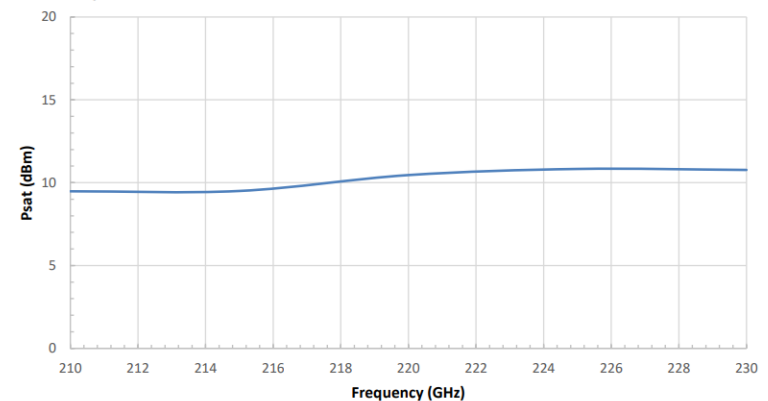
Gain and Return Loss vs. Frequency

Bias: +8 V_{DC}/345 mA



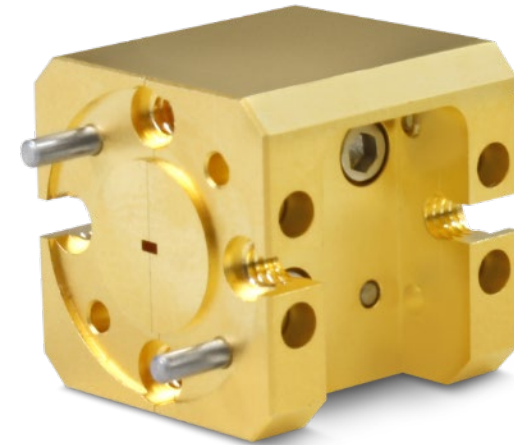
Psat vs. Frequency

Bias: +8 V_{DC}/345 mA



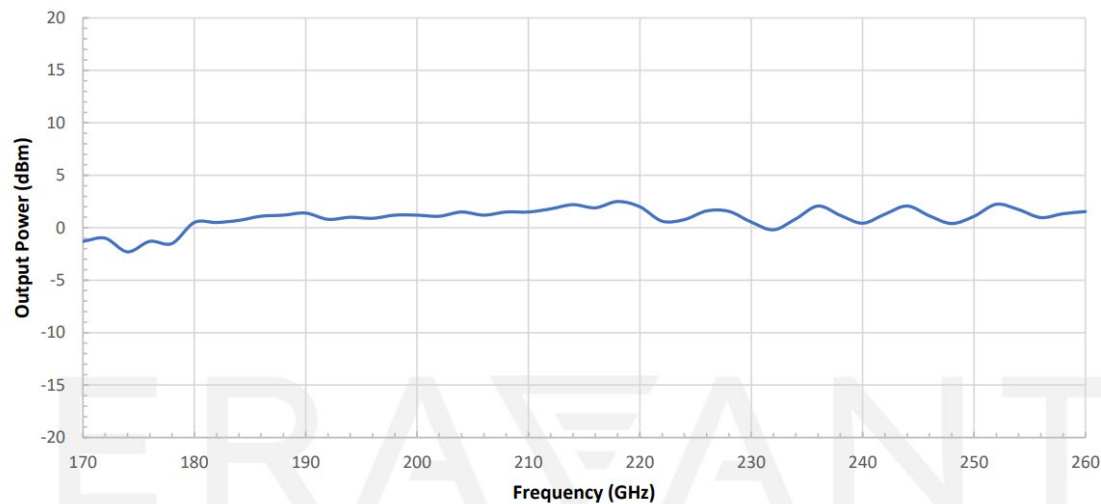
FREQUENCY MULTIPLIERS

Parameter	Minimum	Typical	Maximum
Input Frequency	56.67 GHz		86.67 GHz
Output Frequency	170 GHz		260 GHz
Input Power		+20 dBm	+22 dBm
Output Power		0 dBm	
Conversion Efficiency		1%	
Harmonic Suppression		20 dB	



Typical Output Power vs Frequency

LO: +20 dBm



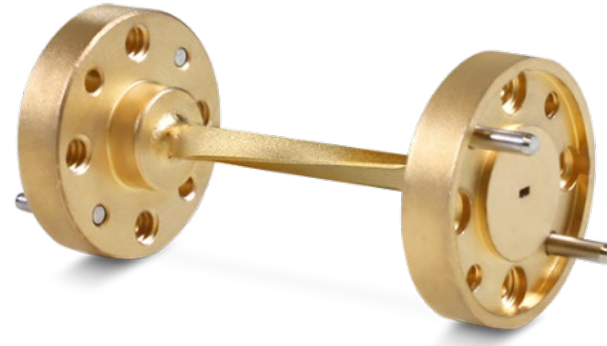
WAVEGUIDE COMPONENTS

Waveguide Straight/Bend/Twist

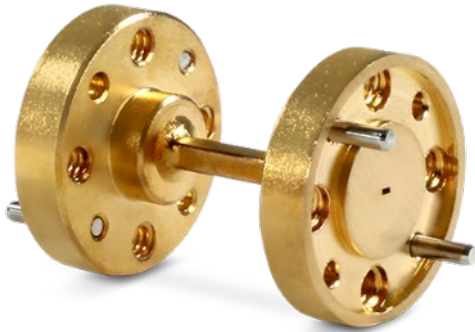
- Straights: 1", 2" etc. and Custom Length
- E-Bends and H-Bends, 90° and Custom Length, Angle
- Twists, 90° and Custom Length, Angle



Waveguide E-Bend: 90°



Waveguide Twist: 90°



Waveguide Straight: 1.25"



Waveguide H-Bend: 90°

Precision Machined Waveguide Straight/Bend/Twist

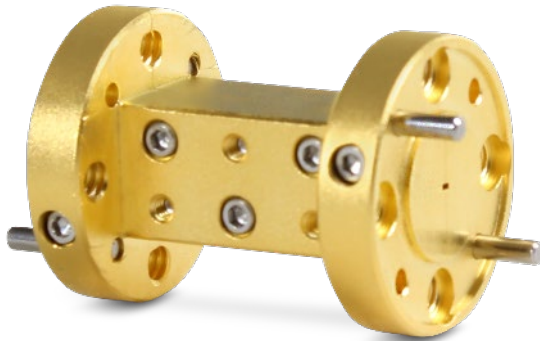
- Straights: 1", 2" etc. and Custom Length
- E-Bends and H-Bends, 90° and Custom Length, Angle
- Twists, 90° and Custom Length, Angle



Precision Machined
Waveguide E-Bend: 90°



Precision Machined
Waveguide Twist: 90°



Precision Machined
Waveguide Straight: 1"



Precision Machined
Waveguide H-Bend: 90°

Proxi-Flange Contactless Flange Waveguide Straight



Proxi-Flange™ Contactless Flange
Model: STQ-WG-04025-FB-CF

Waveguide Taper Transitions



WR-05 to WR-04
Model: SWT-0504-LB



WR-03 to WR-04
Model: SWT-0403-LB

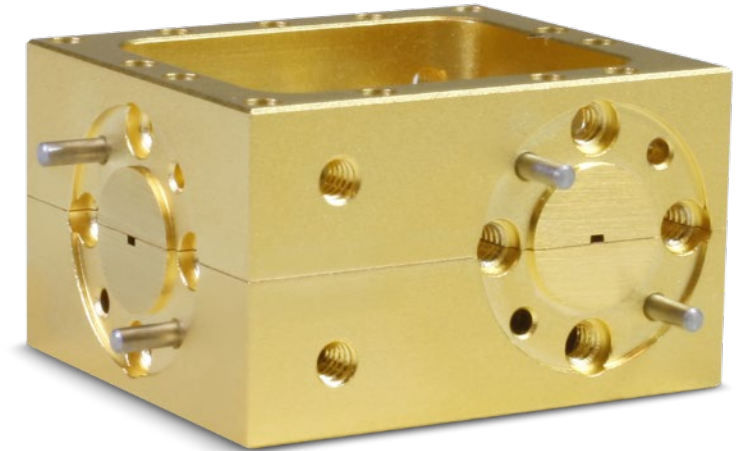
COUPLERS

SWD-XX20H-04-SB

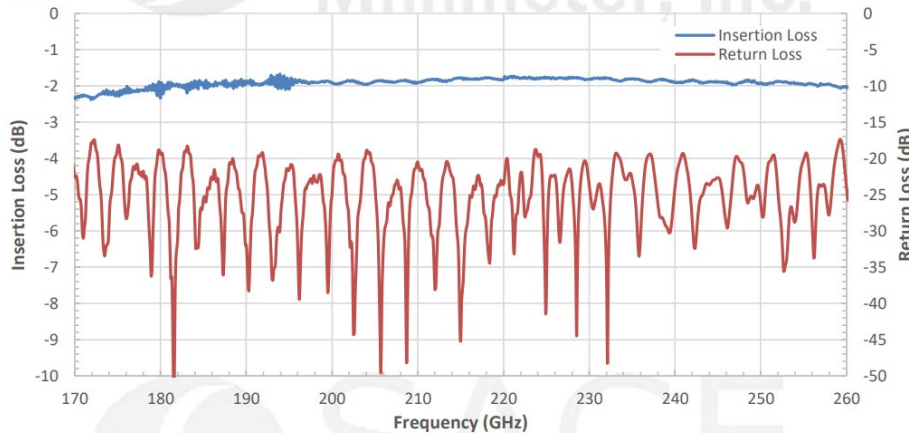
Directional Coupler

XX = COUPLING LEVEL in dB

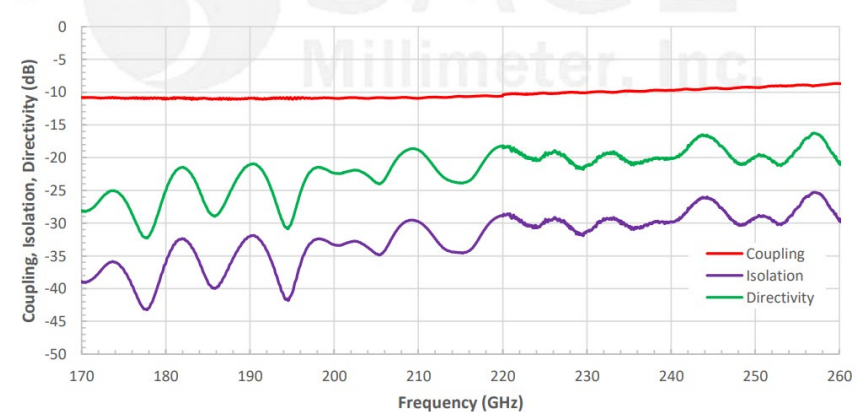
Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Insertion Loss		3.0 dB	
Coupling		10 dB, 20 dB	
Directivity		20 dB	
Return Loss		18 dB	



Typical Measured Performance vs Frequency



Typical Measured Performance vs Frequency



SWD-XX20H-04-DB

Dual-Directional Coupler

XX = COUPLING LEVEL in dB

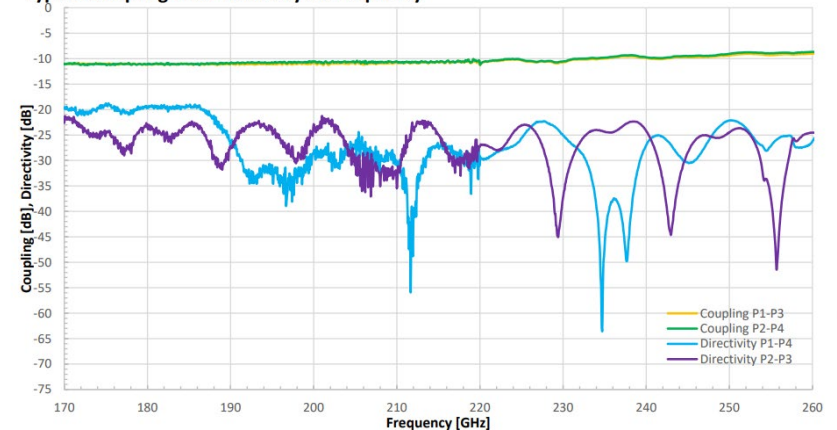
Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Insertion Loss		3.5 dB	
Coupling		10 dB, 20 dB	
Directivity		20 dB	
Return Loss		18 dB	



Typical Insertion Loss and Return Loss vs Frequency



Typical Coupling and Directivity vs Frequency



ATTENUATORS

STA-XX-04-F1

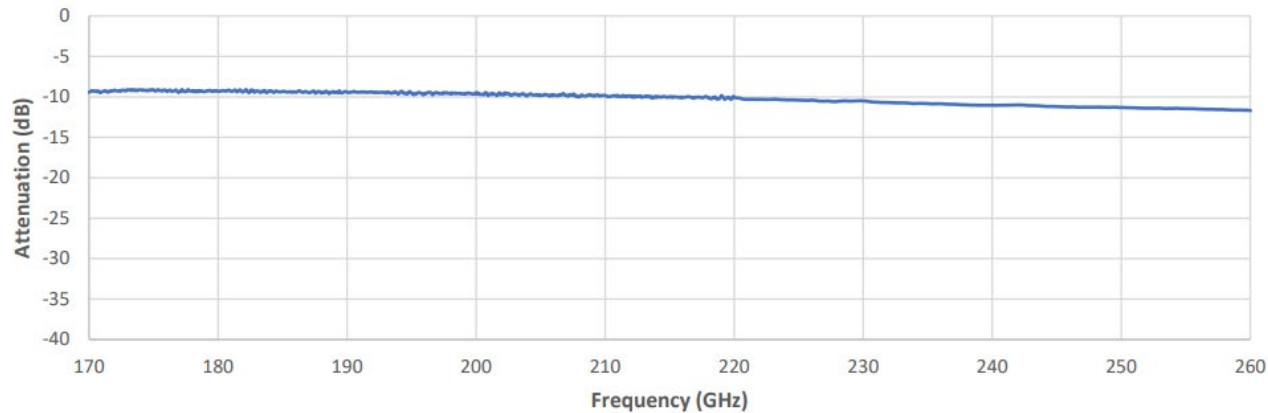
Fixed Tuned Attenuator

XX = ATTENUATION LEVEL in dB

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Attenuation @ 275 GHz		3, 6, 10, 20, 30 dB	
Return Loss		16 dB	



Measured Performance vs Frequency



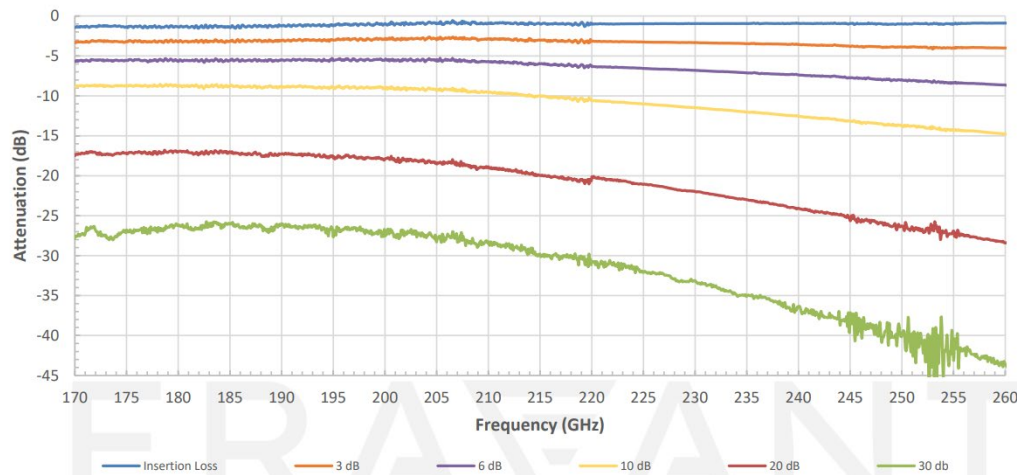
STA-30-04-M1-C-1.2

Compact Level Setting Attenuator

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Insertion Loss		1.6 dB	
Attenuation Range		0 to 30 dB	
Return Loss		20 dB	



Typical Measured Attenuation vs Frequency



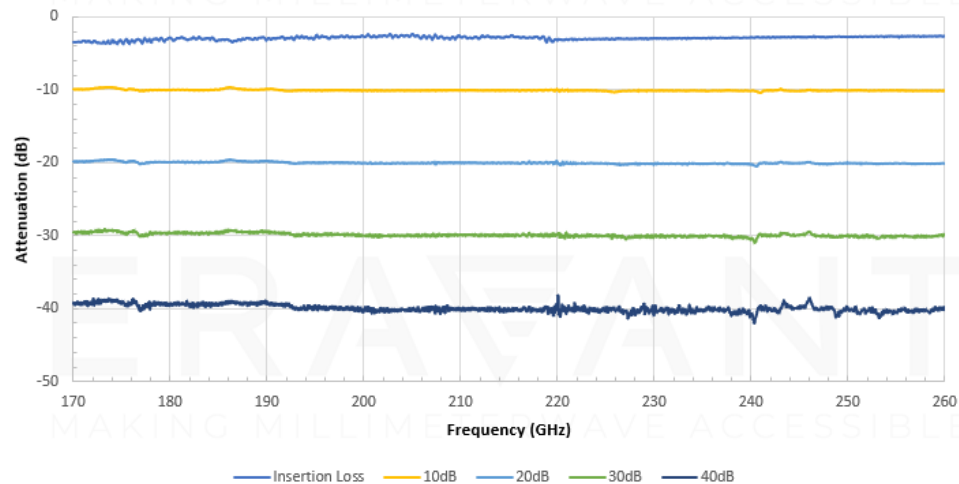
STA-40-04-S1

Hybrid Programmable/Direct Reading
Rotary Vane Attenuator

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Insertion Loss		4.5 dB	
Attenuation Range	0 dB		40 dB
Attenuation Accuracy	0.25 dB or 4.5% of reading, whichever is larger, up to 40 dB		
Return Loss		15 dB	
Operating Voltage	+24 V _{DC} (100 to 240 V _{AC} Adapter is Supplied)		
Communication Port	USB Type-B		
Power Supply Port	2.1 mm DC Jack (AC-to-DC power adapter included)		



Typical Measured Performance vs. Frequency



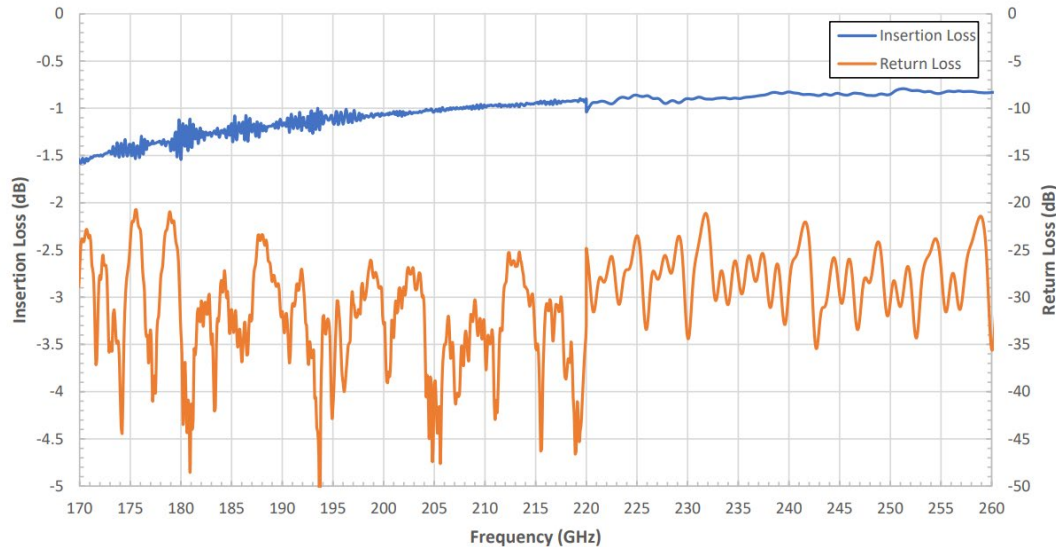
PHASE SHIFTERS

STP-18-04-M1-C-1.2

Compact Mechanical Tunable Phase Shifter

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Insertion Loss		2.3 dB	
Phase Shifting Range	0°		180°
Return Loss		20 dB	

Typical Measured Performance vs Frequency



ISOLATORS

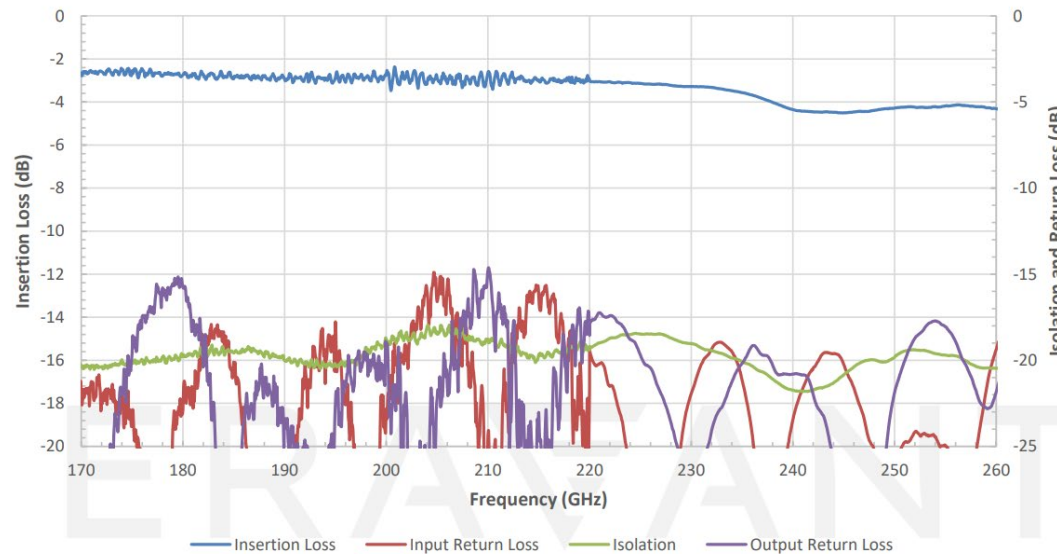
STF-04-S1-M2

Mini Faraday Isolator

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Insertion Loss		4.0 dB	
Isolation	16 dB	20 dB	
Return Loss		13 dB	



Typical Measured Performance vs Frequency



DETECTORS

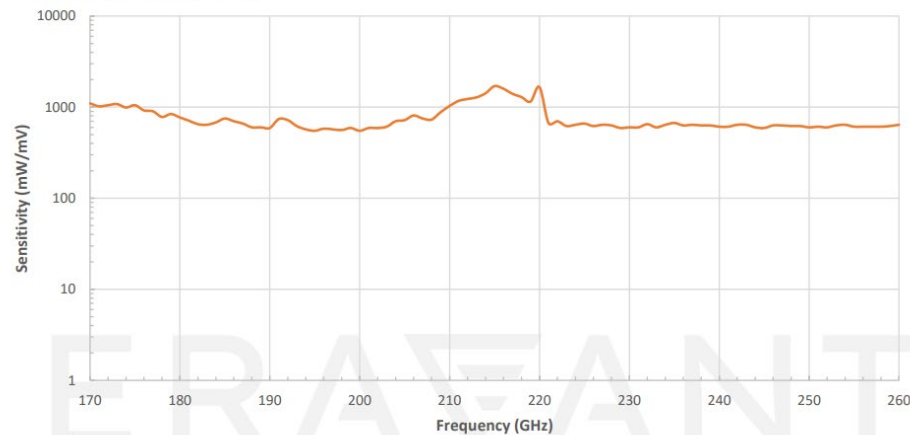
SFD-174264-04SF-P1-M

Positive Amplitude Detector

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Sensitivity*		800 mV/mW	
RF Input Power		-20 dBm	
RF Power Handling			+10 dBm
Video Bandwidth		10 MHz	
Detection Speed, Rise Time (50 Ohm Load)		5 Nano Second	
Output Voltage Polarity		Positive	



Sensitivity vs. Frequency

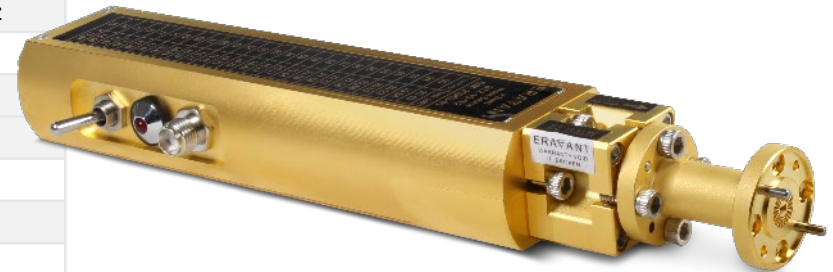


NOISE SOURCES

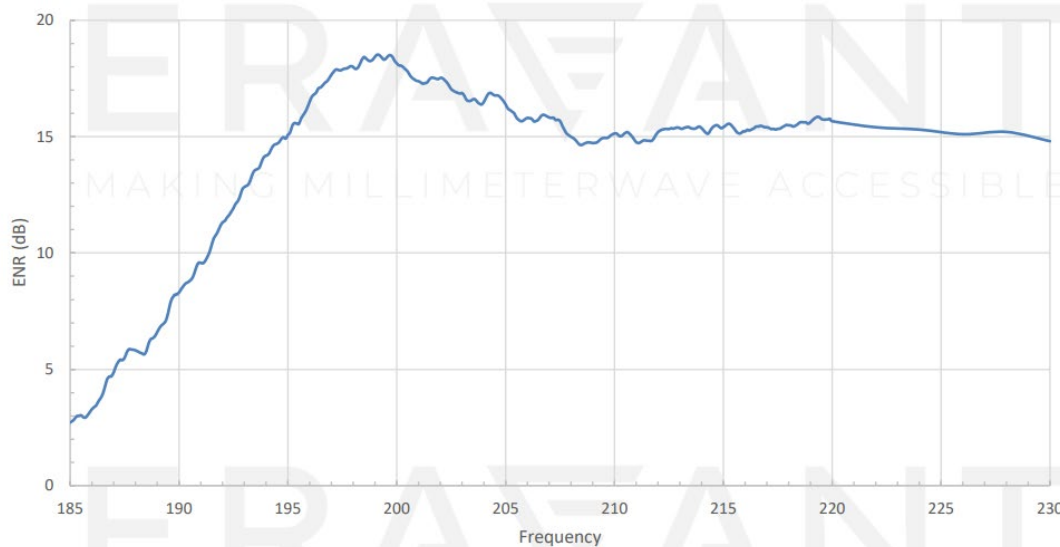
STZ-20423415-04-IT2

Noise Source with TTL

Parameter	Minimum	Typical	Maximum
Input Frequency	195 GHz		230 GHz
ENR		15 dB	
ENR Flatness		± 4 dB	
AM Modulation Rate		1 kHz	
Return Loss		13 dB	
DC Voltage	+15 V _{DC}	+28 V _{DC}	+30 V _{DC}
DC Current		50 mA	



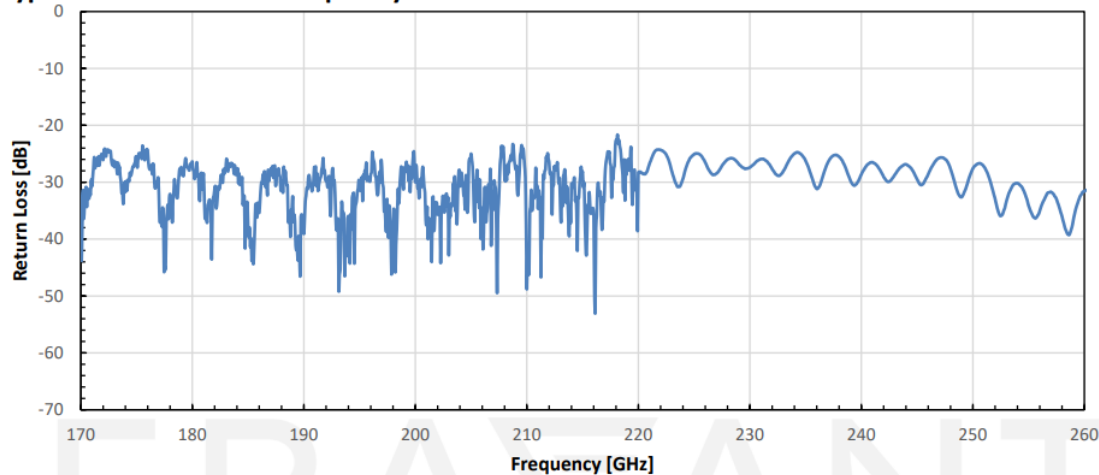
ENR vs. Frequency



TERMINATION LOAD

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Return Loss		25 dB	
Power Handling		0.1 W (CW)	0.2 W (CW)

Typical Return Loss vs. Frequency



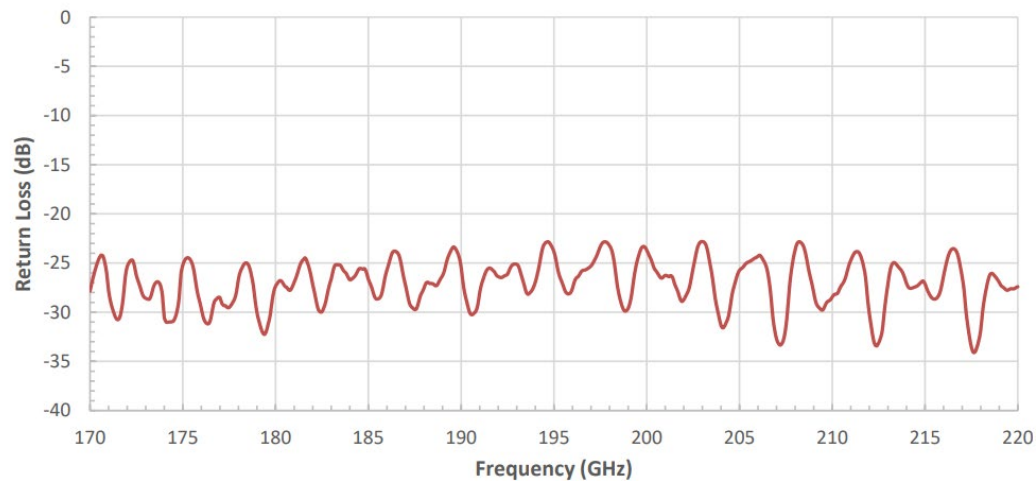
SWL-0447-S1

High Power Termination Load

Parameter	Minimum	Typical	Maximum
Frequency	170 GHz		260 GHz
Return Loss		20 dB	
Power Handling			50 W (CW)



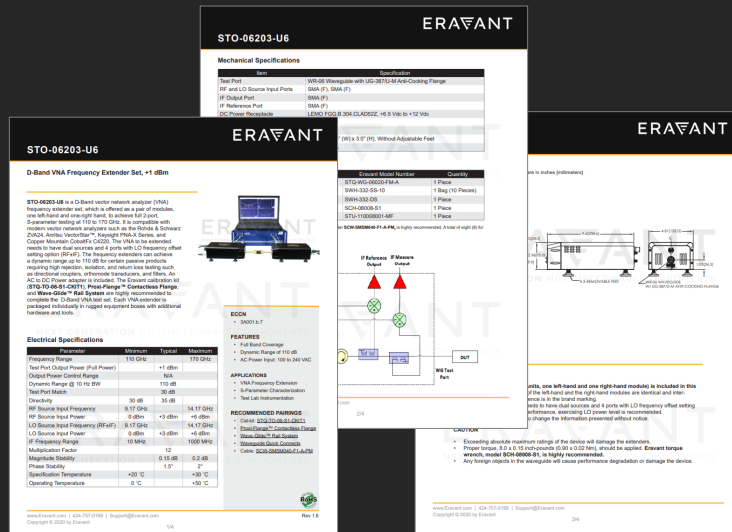
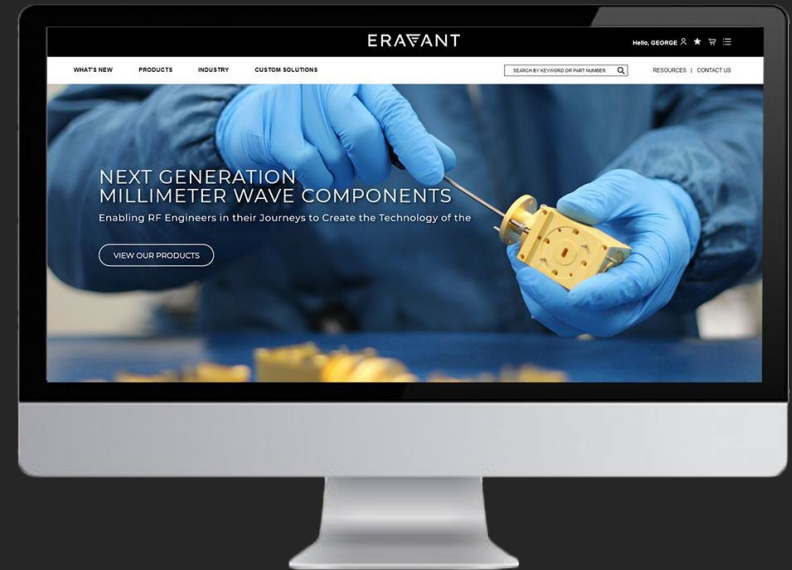
Measured Return Loss Vs Frequency



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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	+10 dBm	WR-08 Waveguide	WR-12 Waveguide	Datasheet	View
SFP-06310-U6	110 GHz	170 GHz	-3 dBm	36.67 GHz	56.67 GHz	+20 dBm	WR-08 Waveguide	WR-10 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-224032025-28SF-S1	22 GHz	40 GHz	+5 dBm	11 GHz	20 GHz	+18 dBm	WR-28 Waveguide	SMA (F)	Datasheet STEP File	View
SFP-243423033-28SF-S1	24 GHz	42 GHz	+3 dBm	8 GHz	14 GHz	+20 dBm	WR-28 Waveguide	SMA (F)	Datasheet STEP File	View
SFP-2835F-U9	20.5 GHz	40.0 GHz	+5 dBm	8.37 GHz	13.33 GHz	+20 dBm	WR-28 Waveguide	SMA (F)	Datasheet	View
SFP-273403205-28SF-S1	20.5 GHz	40 GHz	-5 dBm	8.37 GHz	13.33 GHz	+10 dBm	WR-28 Waveguide	SMA (F)	Datasheet	View
SFP-2235F-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	10.5 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	80 GHz	+0 dBm	20 GHz	30 GHz	+20 dBm	WR-19 Waveguide	2.92 mm (F)	Datasheet STEP File	View