



WR-10 Dual Polarized Choke Flange Feed Horn Antenna, 75 to 110 GHz

Description:

Model SAH-7531141060-110-S1-100-DP is a dual polarized, WR-10 choke flange feed horn antenna assembly that operates from 75 to 110 GHz. The assembly features an integrated orthomode transducer (OMT) that provides high port isolation and cross-polarization cancellation and a broad band scalar horn that provides low sidelobe levels. The OMT enables the antenna to separate a circular or elliptical polarized waveform into two linear, orthogonal waveforms or vice versa. The dual polarized horn also supports either vertical or horizontal polarized waveguide forms with 35 dB typical cross polarization rejection and 40 dB typical isolation between the V and H ports. At center frequency, the horn antenna exhibits 10 dBi nominal gain, typical half power beamwidth of 60 degrees and typical sidelobe levels of -30 dB. The horizontal and vertical ports are WR-10 waveguides with UG-387/U-M anti-cocking flanges. Coaxial port configurations are also available under different model numbers. The orthomode transducer (**Model SAT-FW-10010-S1**), compact square to circular transition (**Model SWT-100110-SB-C-QC**), and choke flange feed horn antenna (**Model SAH-7531141060-110-S1**) can be purchased separately.



Features:

- 75 to 110 GHz Operation
- Linear and Circular Polarizations
- High Port Isolation
- High Crosspol Rejection

Applications:

- Radar Systems
- Communication Systems
- Circular and Linear Waveform Separation and Combination

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	75 GHz		110 GHz
Gain		10 dBi	
3 dB Beamwidth, E-plane @ 92.5 GHz		60°	
3 dB Beamwidth, H-plane @ 92.5 GHz		60°	
Sidelobe Levels		-30 dB	
V and H Port Isolation		40 dB	
Cross Polarization Rejection		35 dB	
Port Return Loss		15 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

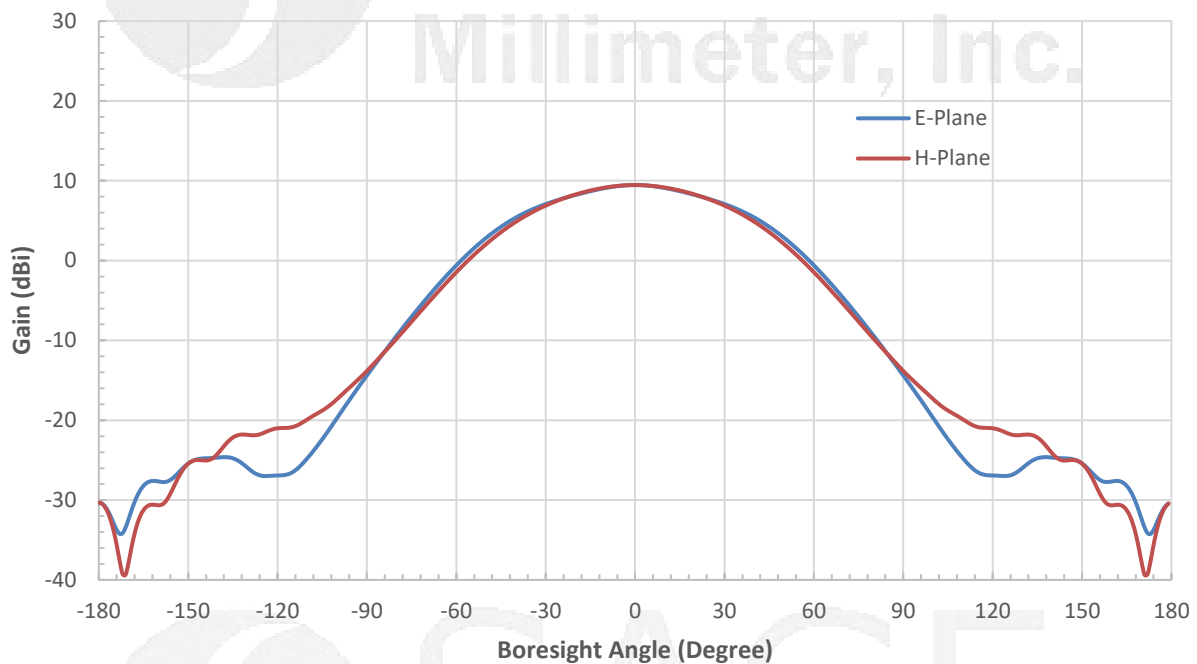


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Mechanical Specifications:

Item	Specification
Horizontal and Vertical Ports	WR-10 Waveguides with UG-387/U-M Anti-Cocking Flanges
Material	Aluminum, Brass
Finish	Gold Plated
Weight	3.0 Oz
Size	2.75" (L) x 0.80" (W) x 0.80" (H)
Outline	AH-RW10-110-100-A-DP

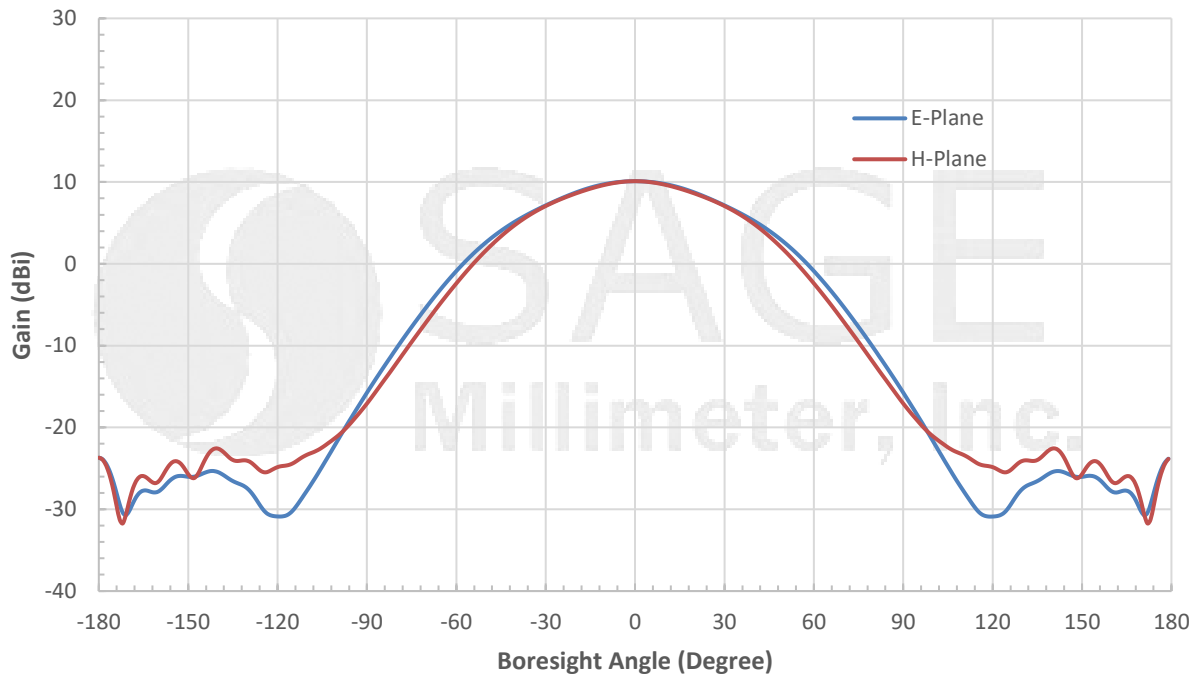
Simulated Antenna Patterns @ 75 GHz



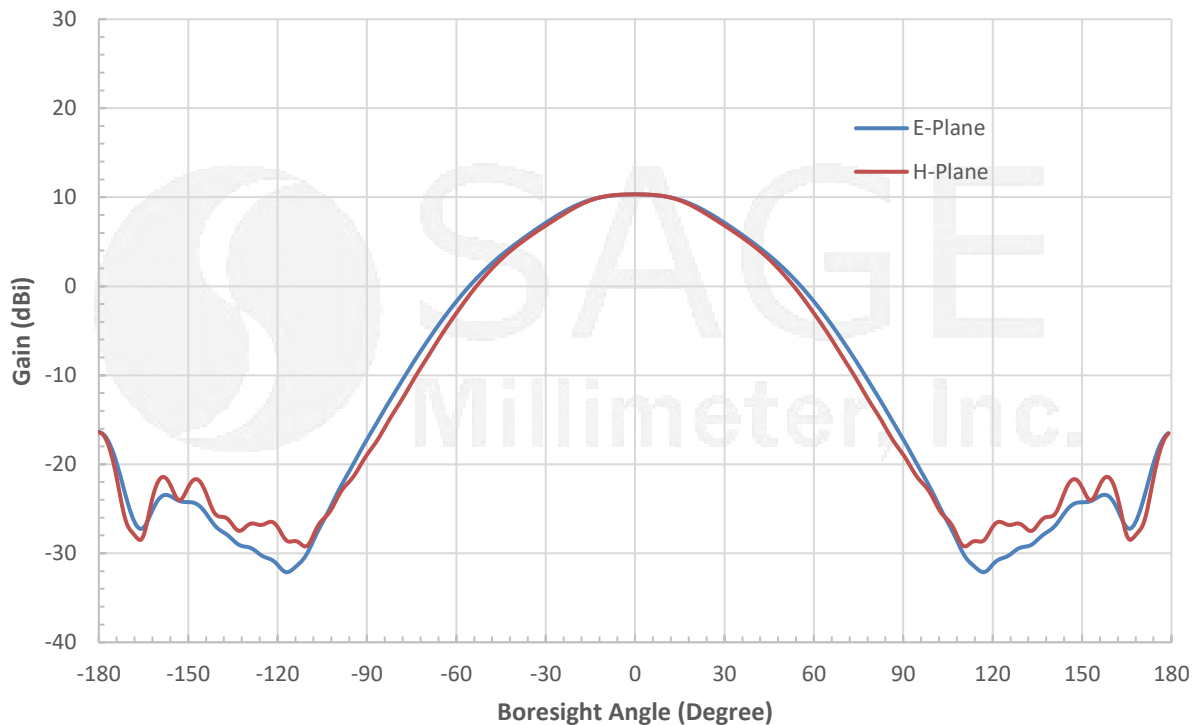


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Simulated Antenna Patterns @ 92.5 GHz



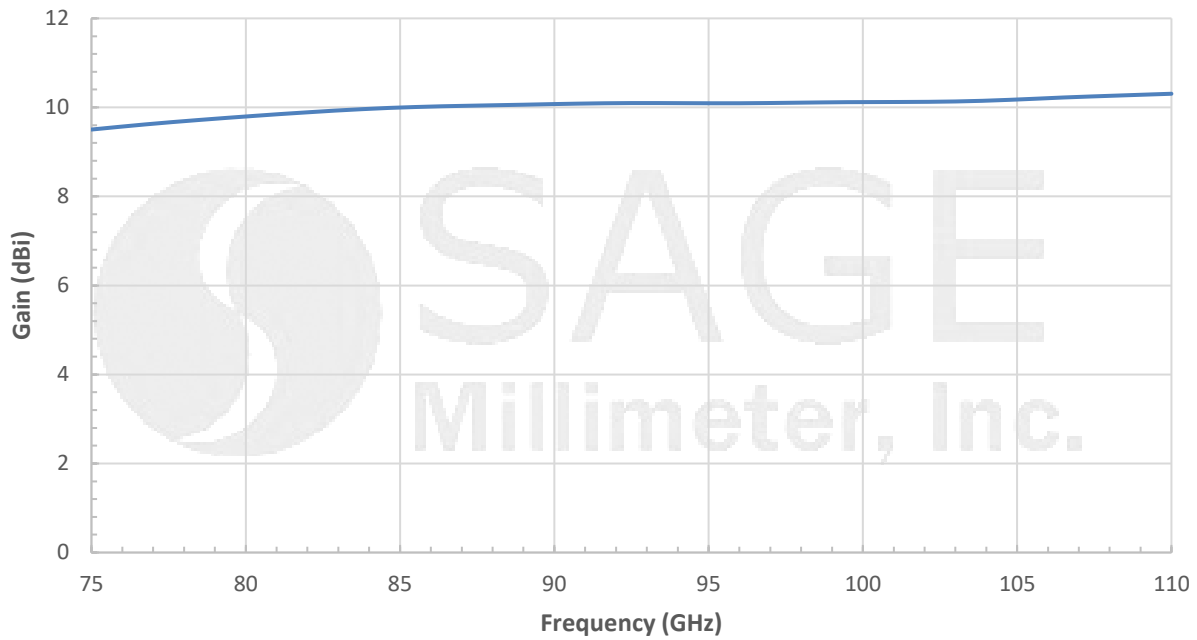
Simulated Antenna Patterns @ 110 GHz



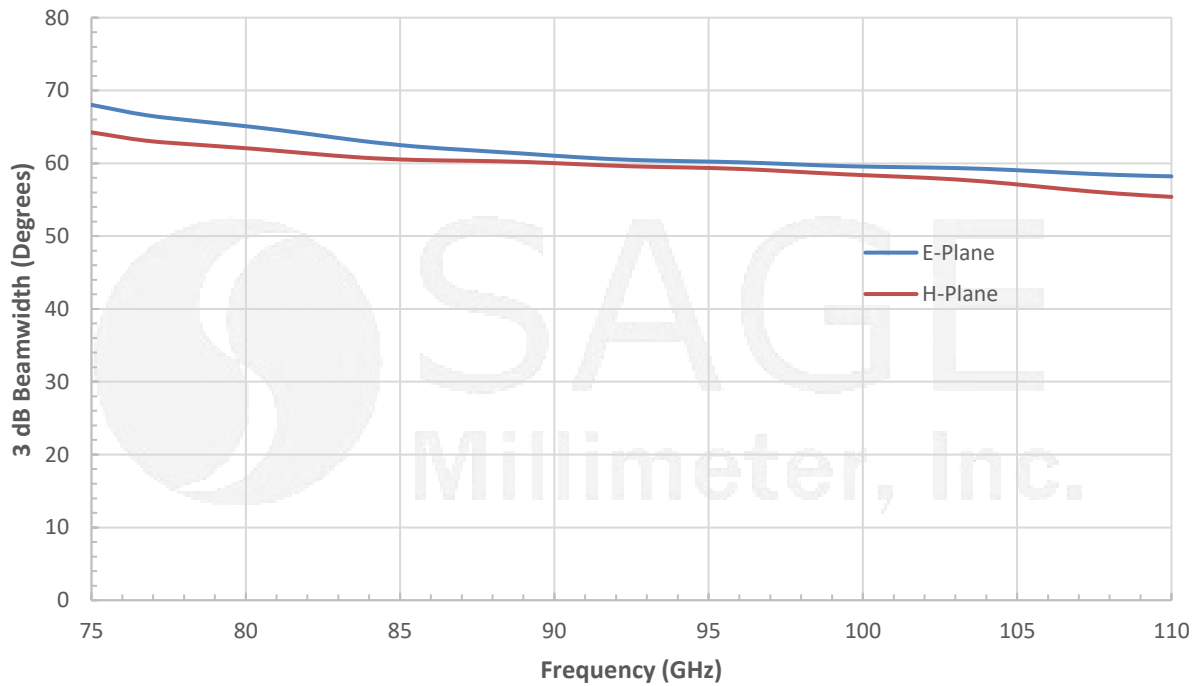


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Simulated Gain vs. Frequency



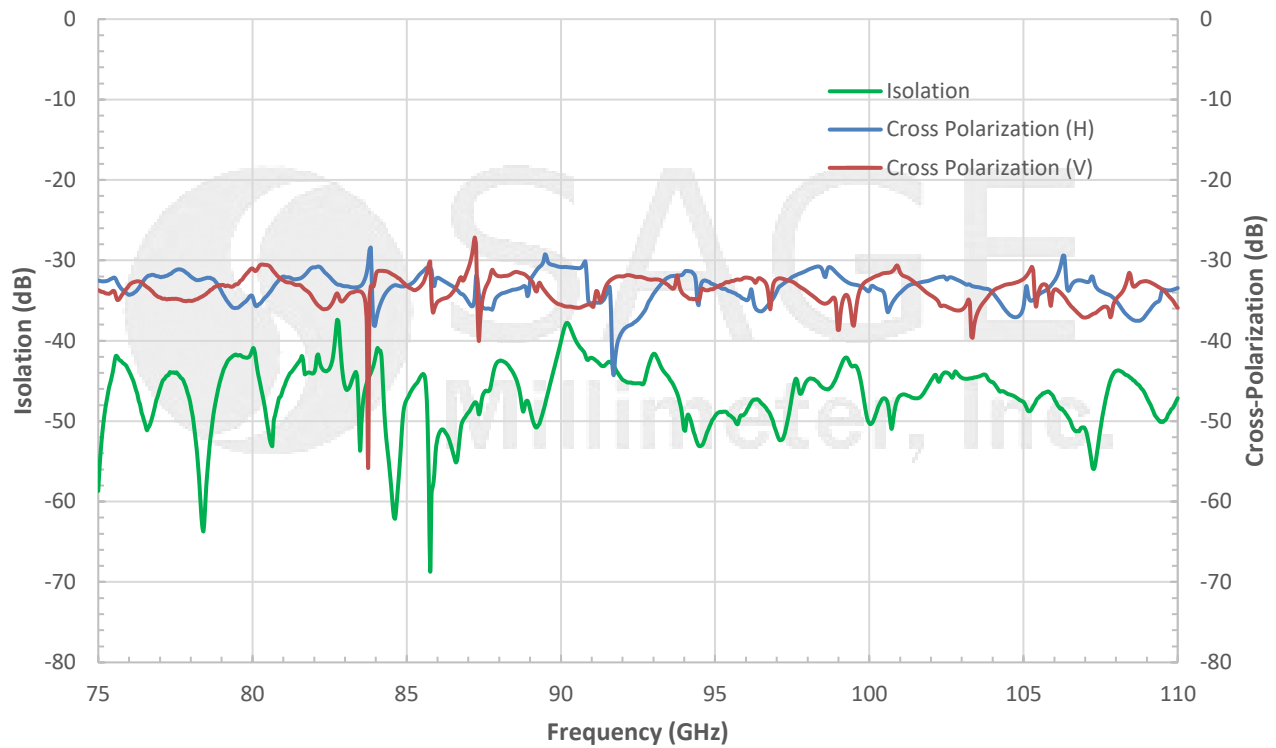
Simulated 3dB Beamwidth vs. Frequency



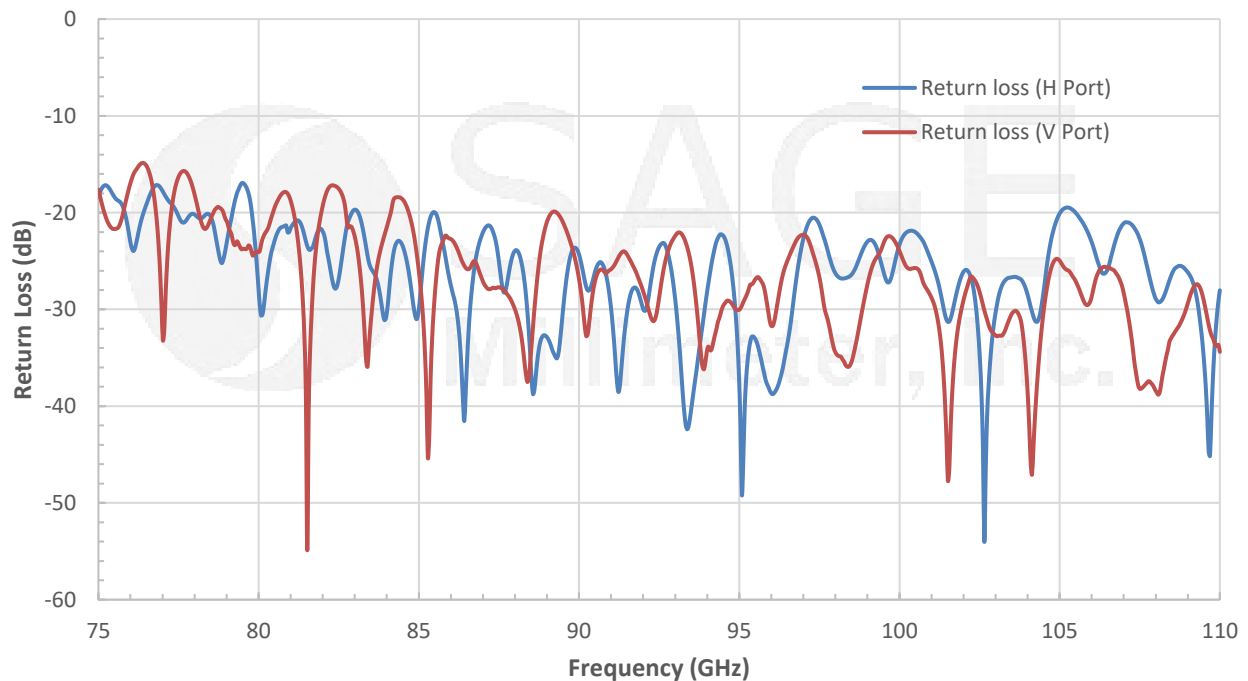


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Typical Isolation and Cross Polarization vs Frequency



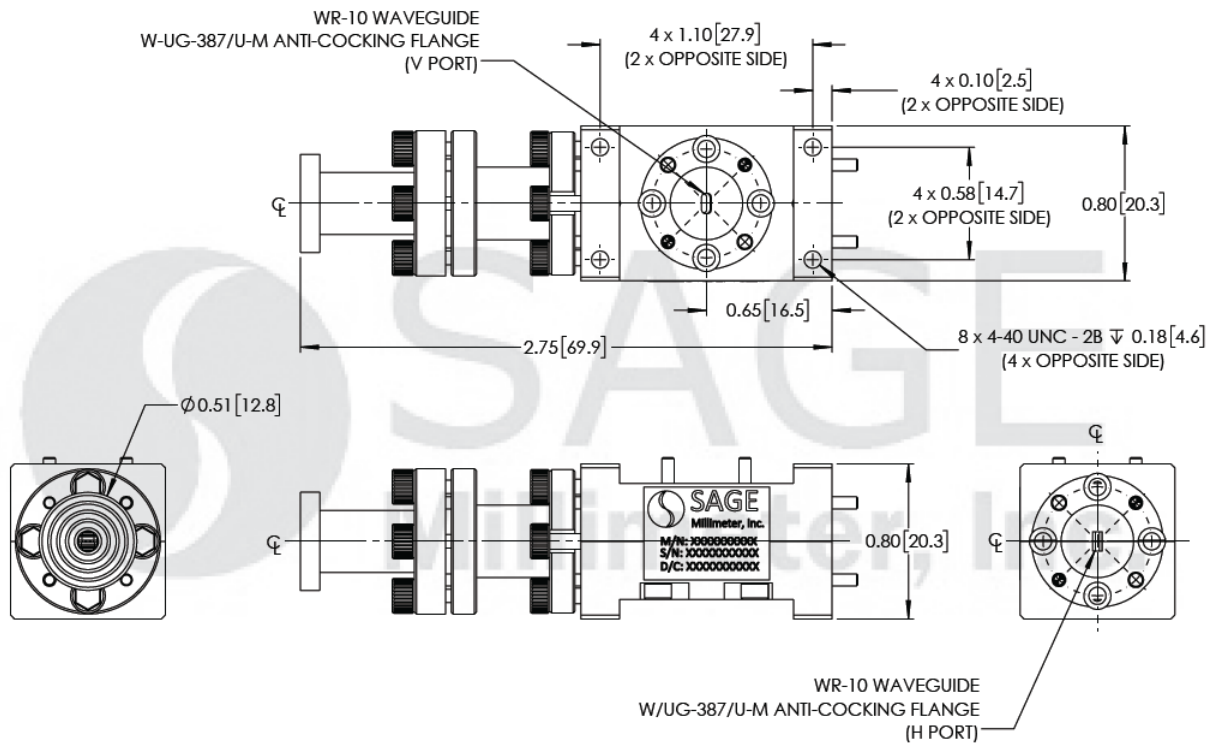
Typical Return Loss vs Frequency





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



Note:

- Antenna Patterns, Gain, & 3 dB Beamwidth data are simulated. Actual data may vary, slightly.
- Return Loss, Cross-polarization and Isolation data are collected from a sample lot. Actual data may vary unit to unit, slightly.
- All testing was performed under +25 °C room temperature.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

Caution:

- Any foreign objects in the antenna or waveguide will cause performance degradation and possible device damage.

