

SAF-3335031340-250-S1-224-DP

WR-22 Dual Polarized Scalar Feed Horn Antenna, 33 to 50 GHz, 13 dBi Gain

SAF-3335031340-250-S1-224-DP is a dual polarized, WR-22 scalar feed horn antenna assembly that covers several popular 5G bands in the frequency range of 33 to 50 GHz. The antenna features an integrated orthomode transducer (OMT) that provides high port isolation 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. At center frequency, the horn antenna exhibits 13 dBi nominal gain and a typical half power beamwidth of 40 degrees and -25 dB sidelobe levels, respectively. The antenna exhibits 35 dB typical port isolation between the horizontal and vertical ports. All ports have WR-22 waveguides with UG-383/U anti-cocking flanges.



Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	33 GHz		50 GHz
Gain		13 dBi	
3 dB Beamwidth, E-Plane @ 41.5 GHz		40°	
3 dB Beamwidth, H-Plane @ 41.5 GHz		40°	
Sidelobes Levels		-25 dB	
Isolation		40 dB	
Return Loss		15 dB	
Specification Temperature		+25°C	
Operating Temperature	-40°C		+85°C

Mechanical Specifications:

Item	Specification
Horizontal and Vertical Ports	WR-22 Waveguide with UG-383/U Anti-Cocking Flange
Material	Aluminum and Brass
Finish	Gold Plated
Weight	8.0 Oz
Outline	AF-CQ13-250-224-A-DP

ECCN

EAR99

FEATURES

- 33 to 50 GHz
- Linear and Circular Polarization
- High Port Isolation

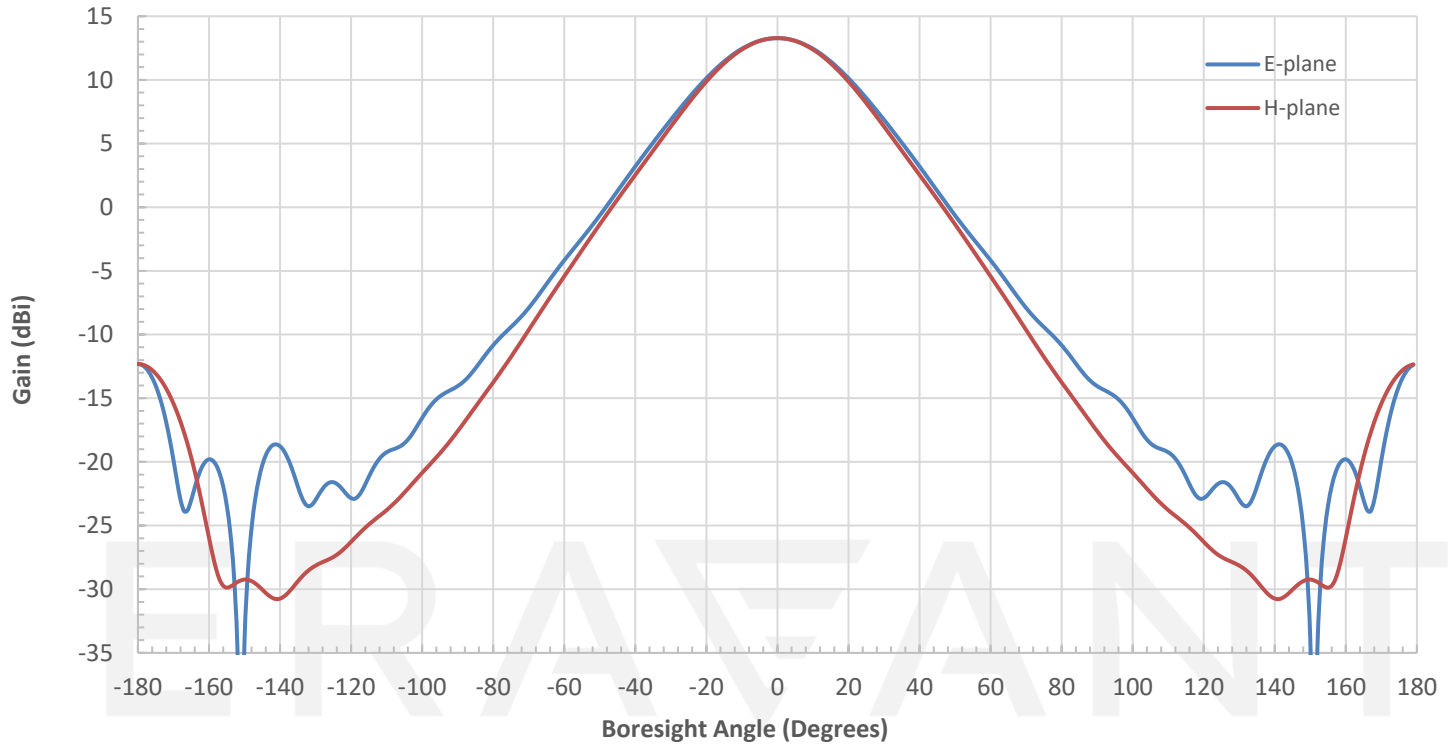
APPLICATIONS

- 5G Systems
- Radar Systems
- Communication Systems
- Circular and Linear Waveform Separation and Combination

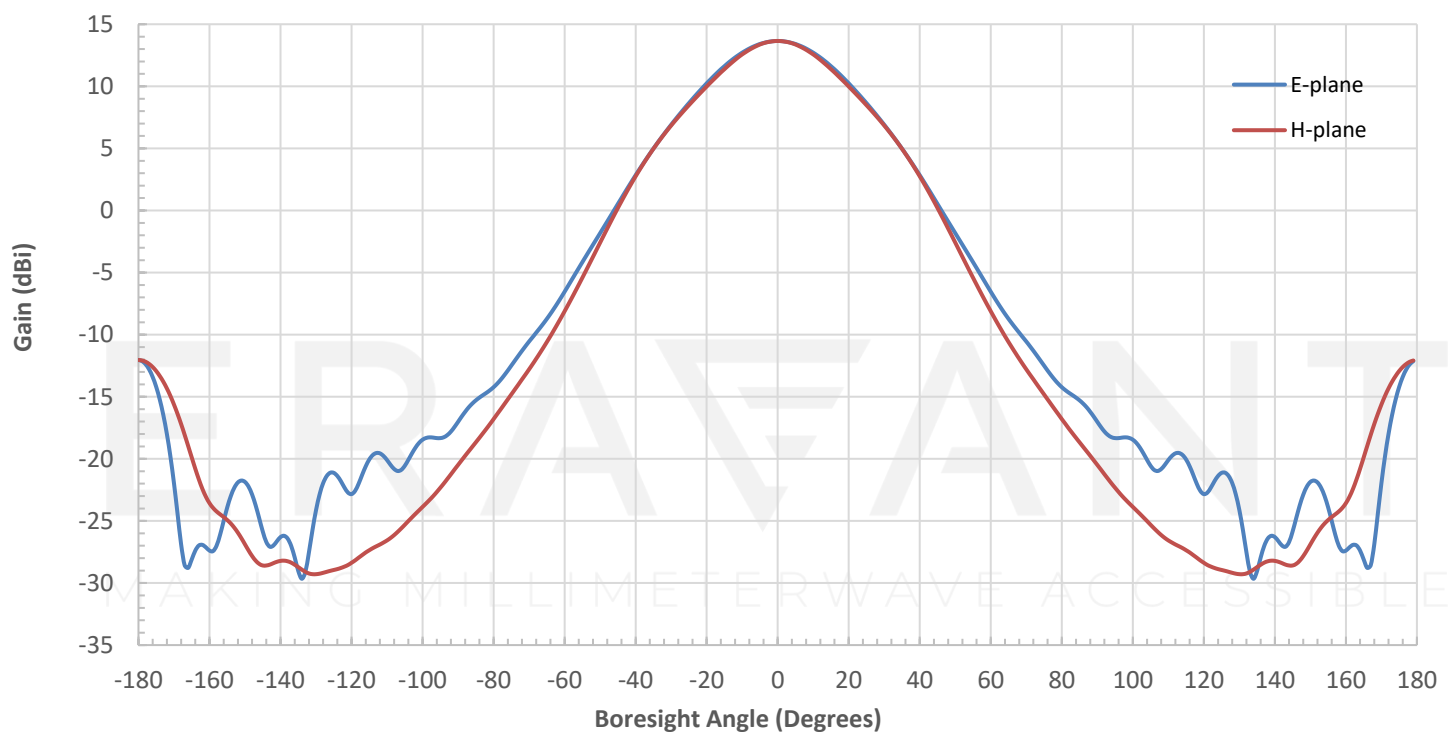
SUPPLEMENTAL DETAILS



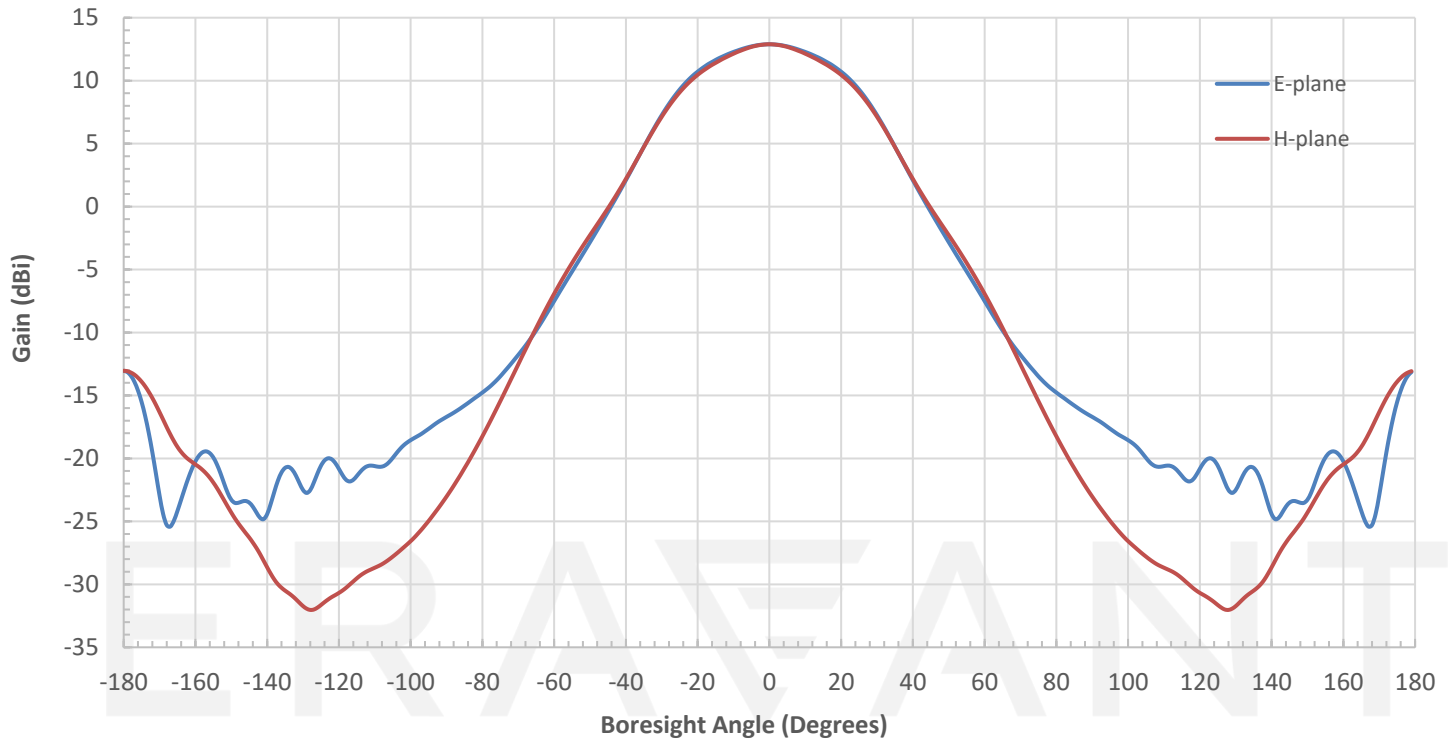
Simulated Antenna Patterns @ 33 GHz



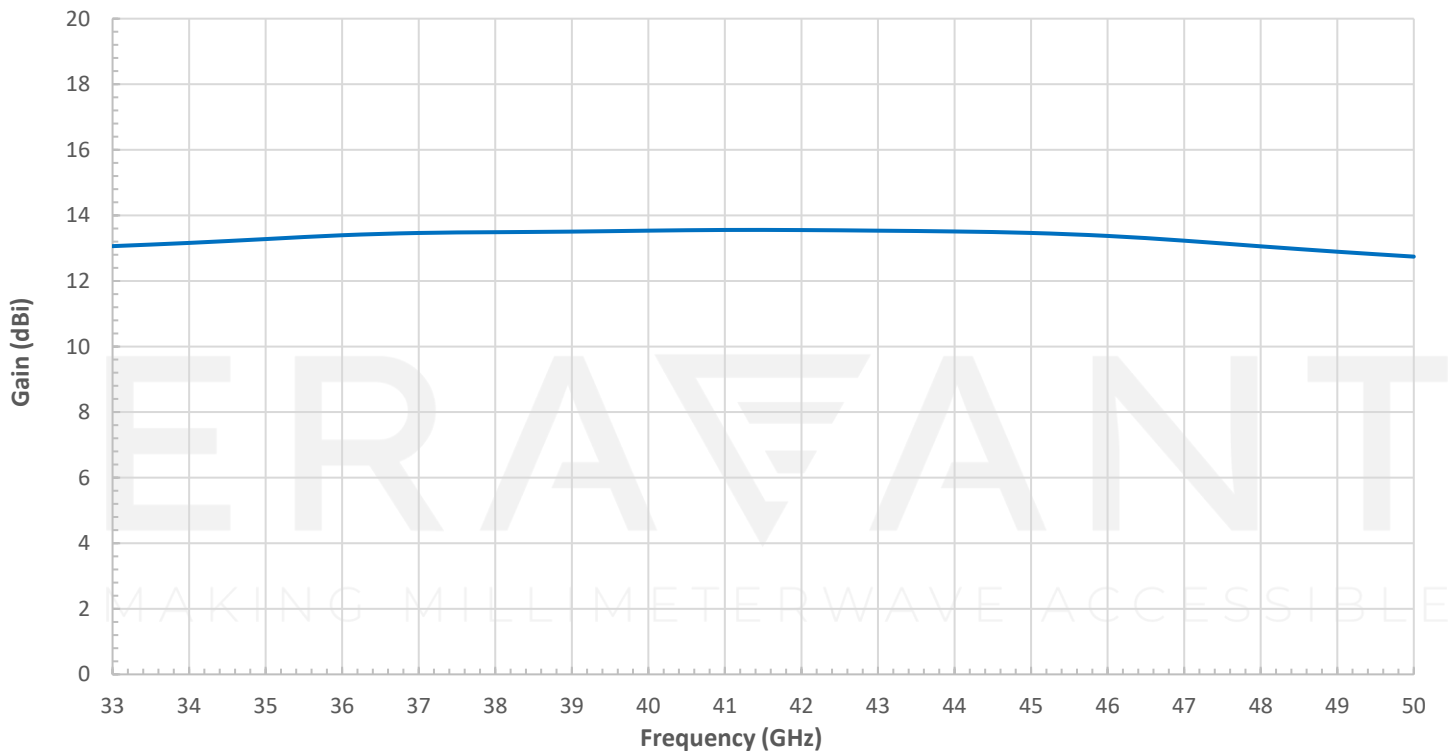
Simulated Antenna Patterns @ 42 GHz



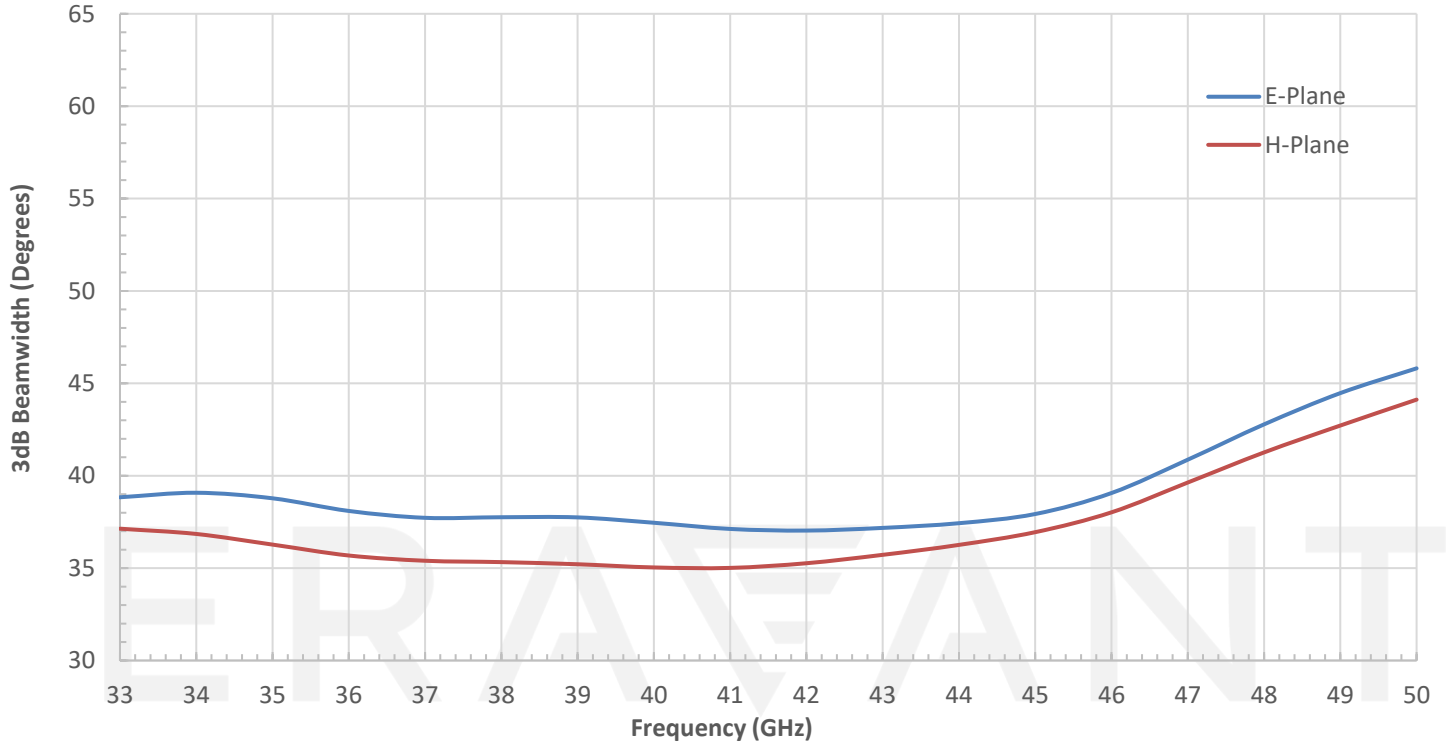
Simulated Antenna Patterns @ 50 GHz



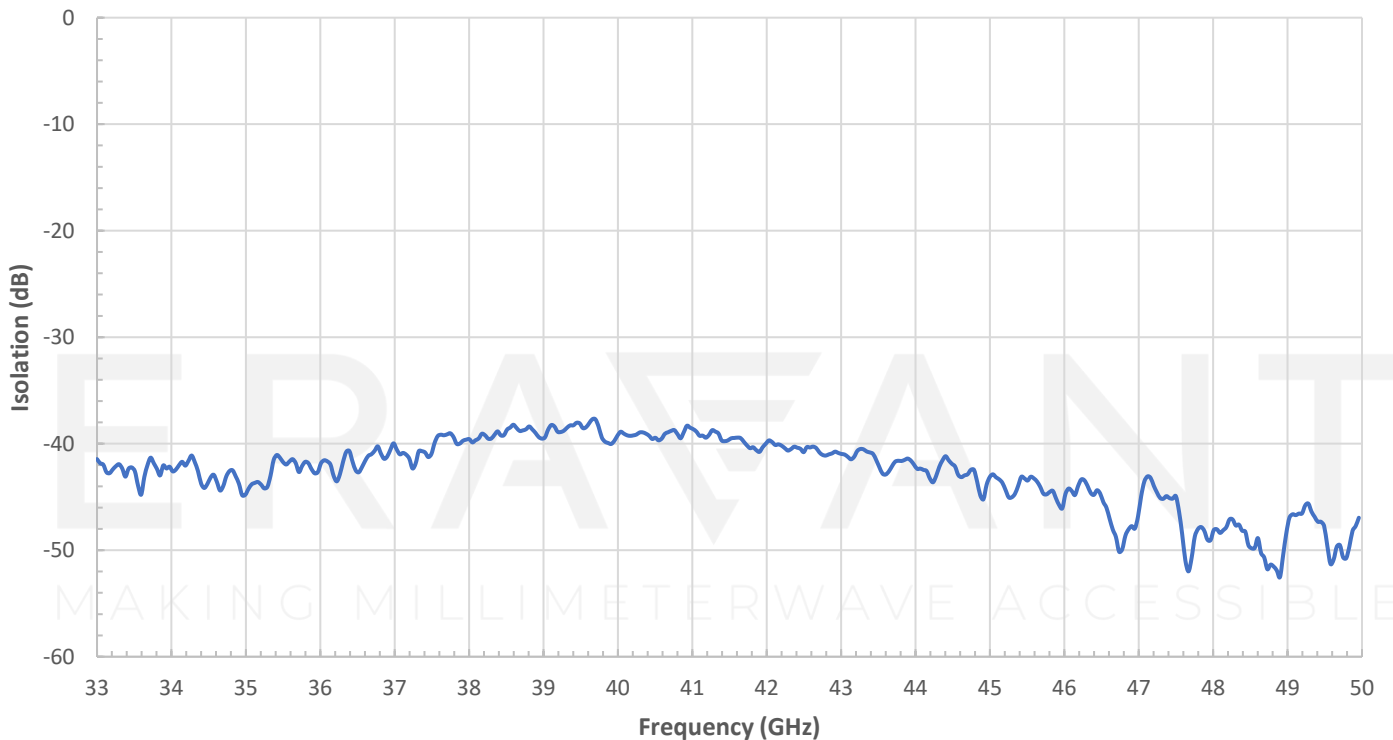
Simulated Gain vs. Frequency



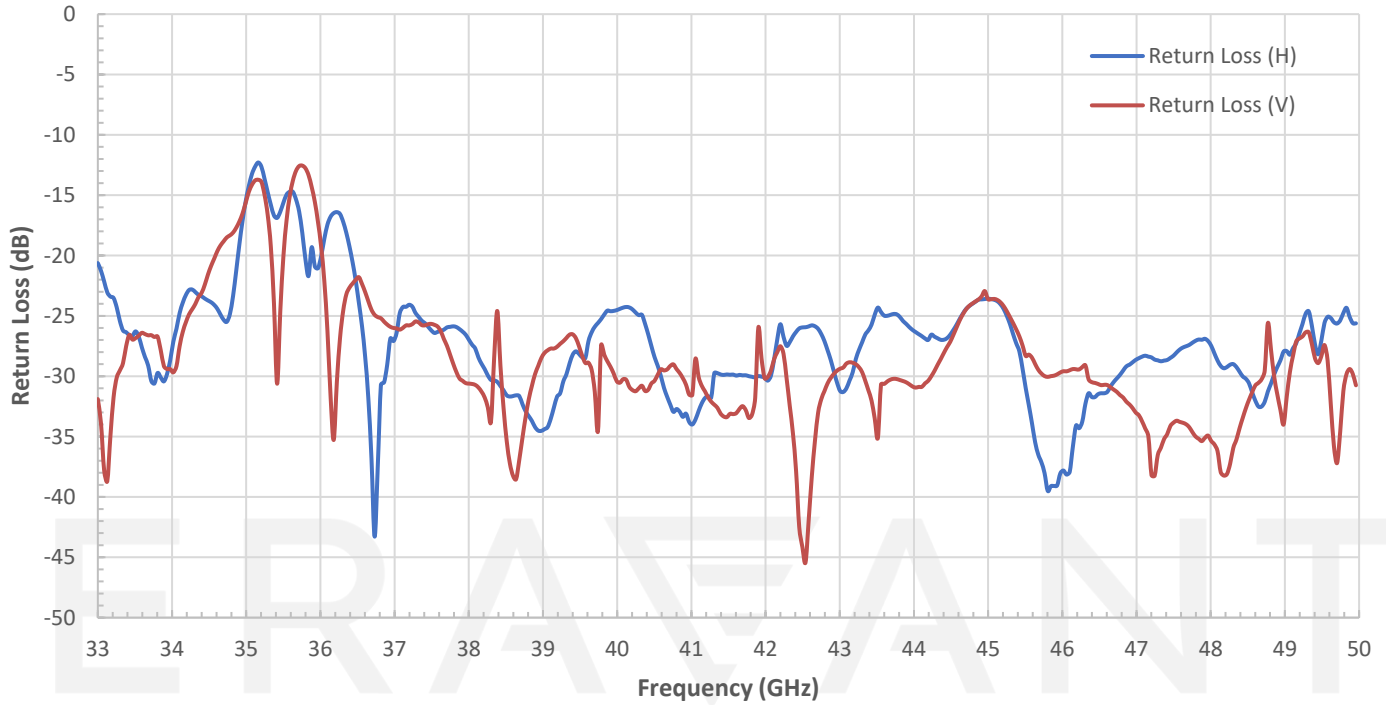
Simulated 3 dB Beamwidth vs. Frequency



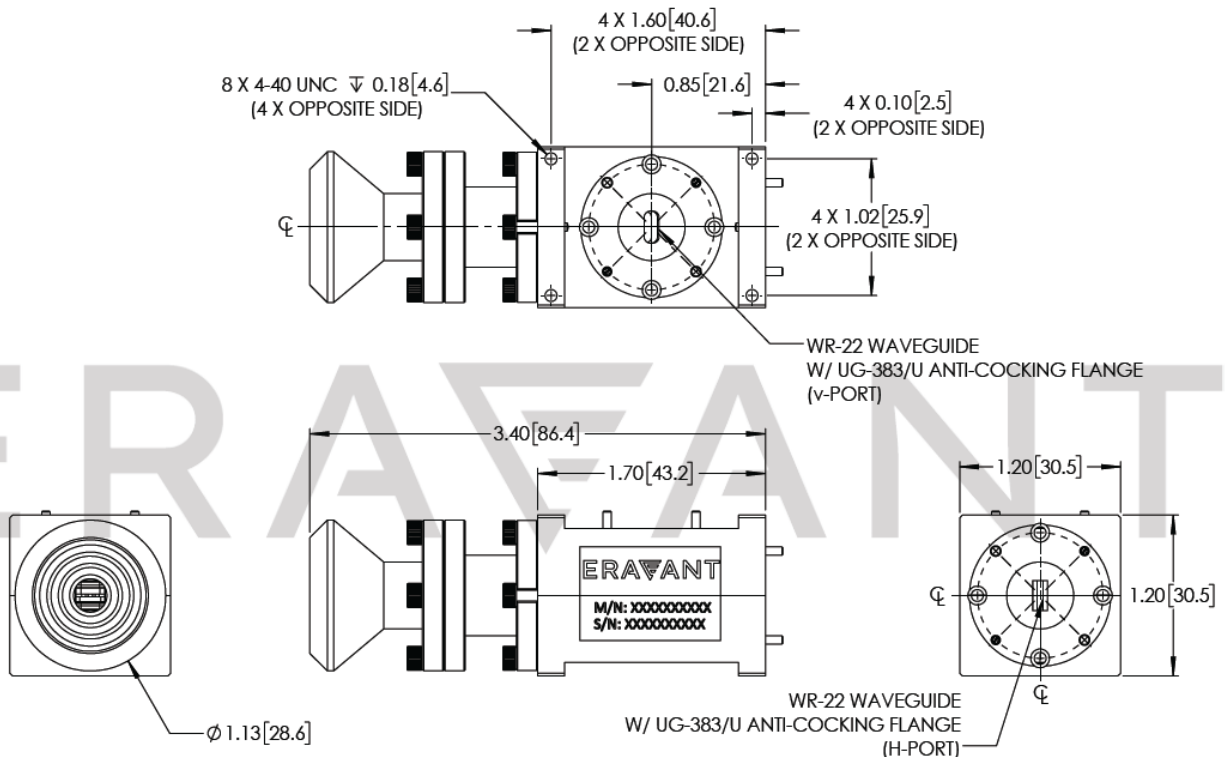
Typical Measured Isolation vs Frequency



Typical Measured Return Loss vs Frequency

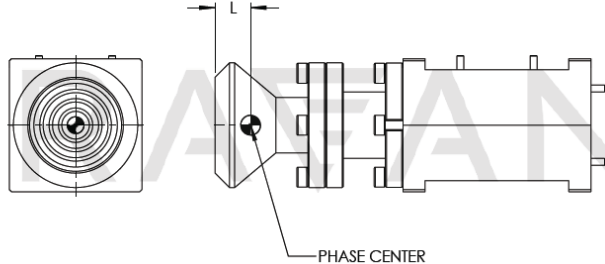


Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



Tabulated Phase Center vs Frequency:

Frequency (GHz)	Phase Center "L" (in)
33	0.237"
34	0.253"
35	0.265"
36	0.279"
37	0.294"
38	0.309"
39	0.321"
40	0.332"
41	0.343"
42	0.354"
43	0.363"
44	0.372"
45	0.379"
46	0.385"
47	0.388"
48	0.388"
49	0.385"
50	0.381"



NOTE:

- Antenna Patterns, Gain, and 3 dB Beamwidth are simulated. Actual data may vary slightly.
- Return Loss and Isolation data is collected from a sample lot. Actual data may vary unit to unit, slightly.
- All testing was performed under +25 °C room temperature.
- For more information about OMT based dual-polarized antennas, an informative blog is available here: <https://www.eravant.com/dual-polarized-antennas-from-eravant>
- Eravant reserves the right to change the information presented without notice.

CAUTION:

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