



## WR-28 Dual Polarized Scalar Feed Horn Antenna, 24 to 42 GHz, 15 dBi

### Description:

**Model SAF-2434231535-358-S1-280-DP** is a dual polarized, WR-28 scalar feed horn antenna assembly that covers several popular 5G bands in the frequency range of 24 to 42 GHz. The antenna 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 more than 30 dB cross polarization rejections. At center frequency, the horn antenna exhibits 15 dBi nominal gain and a typical half power beamwidth of 35 degrees and -25 dB sidelobe levels, respectively. The antenna exhibits 35 dB typical port isolation between the horizontal and vertical ports. The horizontal and vertical ports are WR-28 waveguides with UG-599/U flanges and 4-40 threaded holes. **This product is actively undergoing design improvement and may be obsoleted by 2019. We recommend purchasing the improved version under model number SAF-2434231535-328-S1-280-DP.**



### Features:

- 24 to 42 GHz Operations
- Linear and Circular Polarizations
- High Port Isolation
- High Crosspol Rejection

### Applications:

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

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	24 GHz		42 GHz
Gain		15 dBi	
3 dB Beamwidth, E-plane @ 33 GHz		35°	
3 dB Beamwidth, H-plane @ 33 GHz		35°	
Sidelobe Levels		-25 dB	
V and H Port Isolation		35 dB	
Cross Polarization Rejection		35 dB	
Port Return Loss		25 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

### Mechanical Specifications:

Item	Specification
Horizontal and Vertical Ports	WR-28 Waveguide with UG-599/U Threaded Flange
Material	Aluminum, Brass
Finish	Gold Plated, Black Paint
Weight	5.6 Oz
Size	4.10" (L) x 1.60" (W) x 0.75" (H)
Outline	AF-CA15-358-280-DP

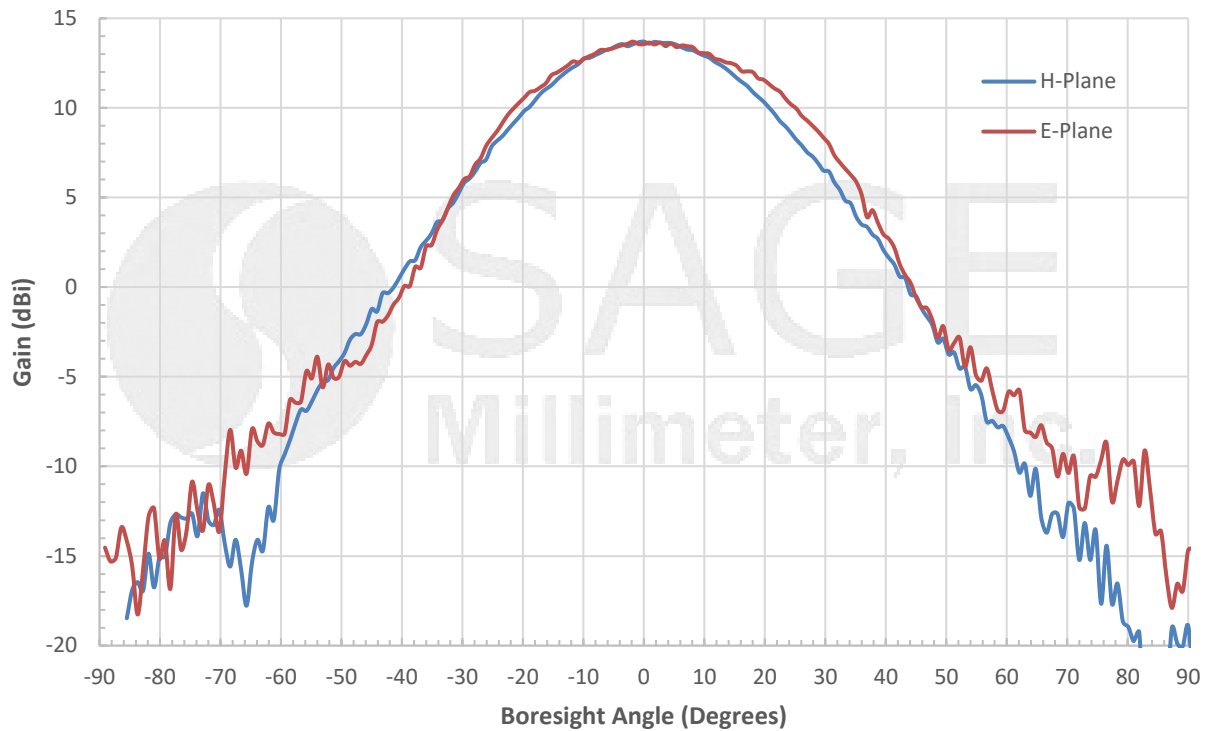


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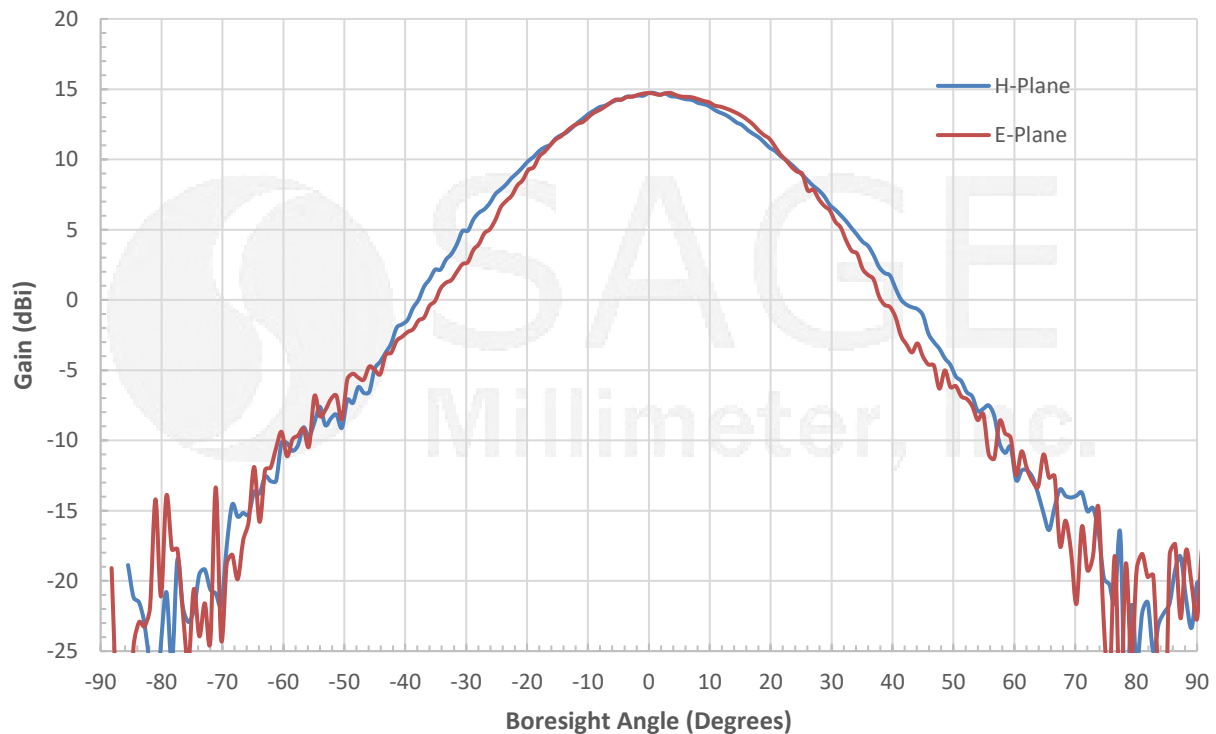


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### Typical Antenna Pattern @ 24 GHz



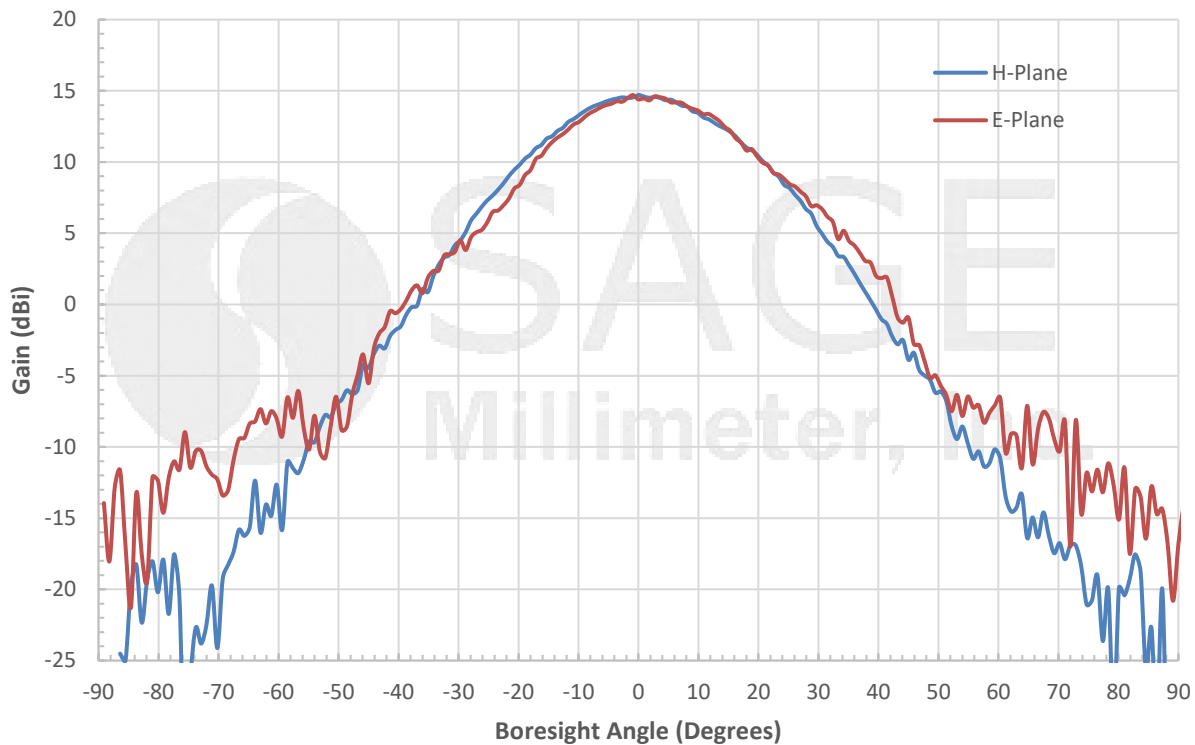
### Typical Antenna Pattern @ 30 GHz



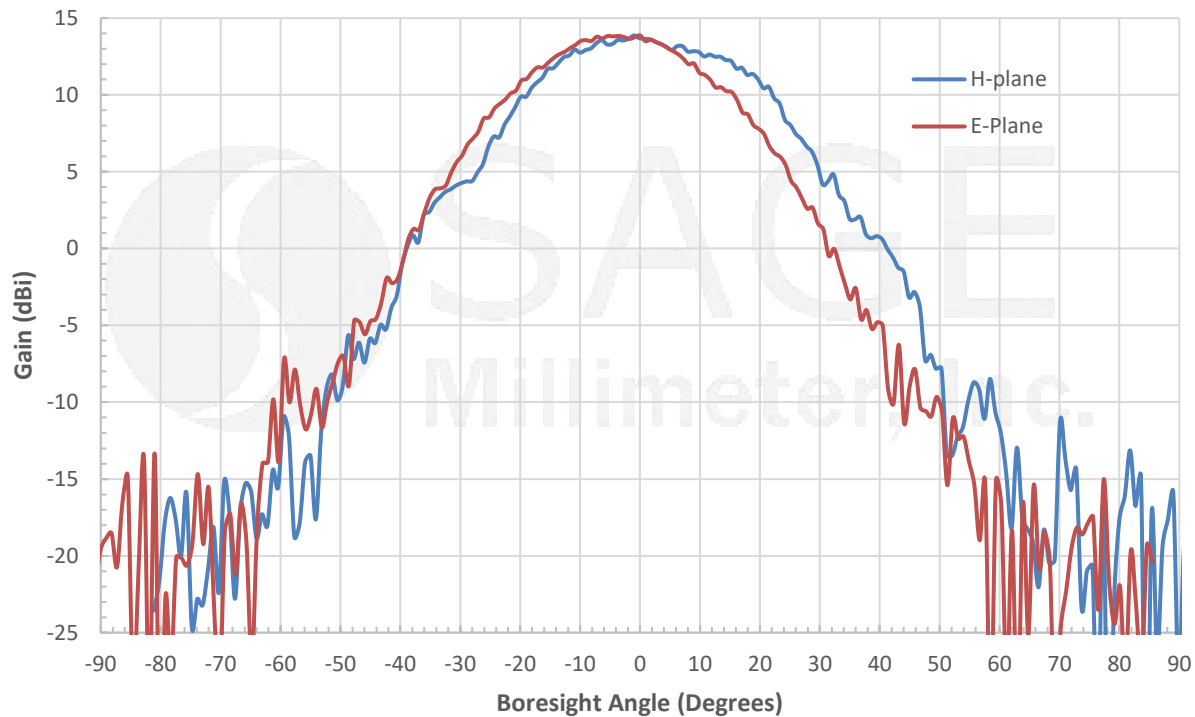


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### Typical Antenna Pattern @ 36 GHz



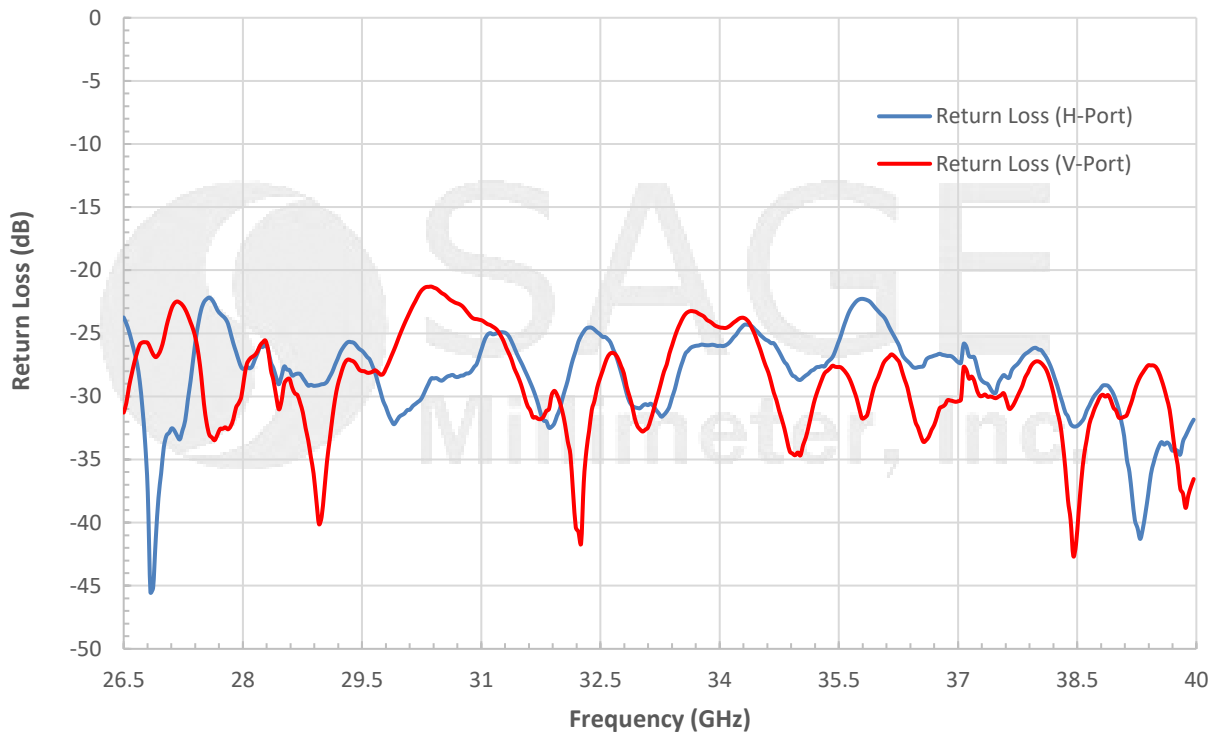
### Typical Antenna Pattern @ 42 GHz



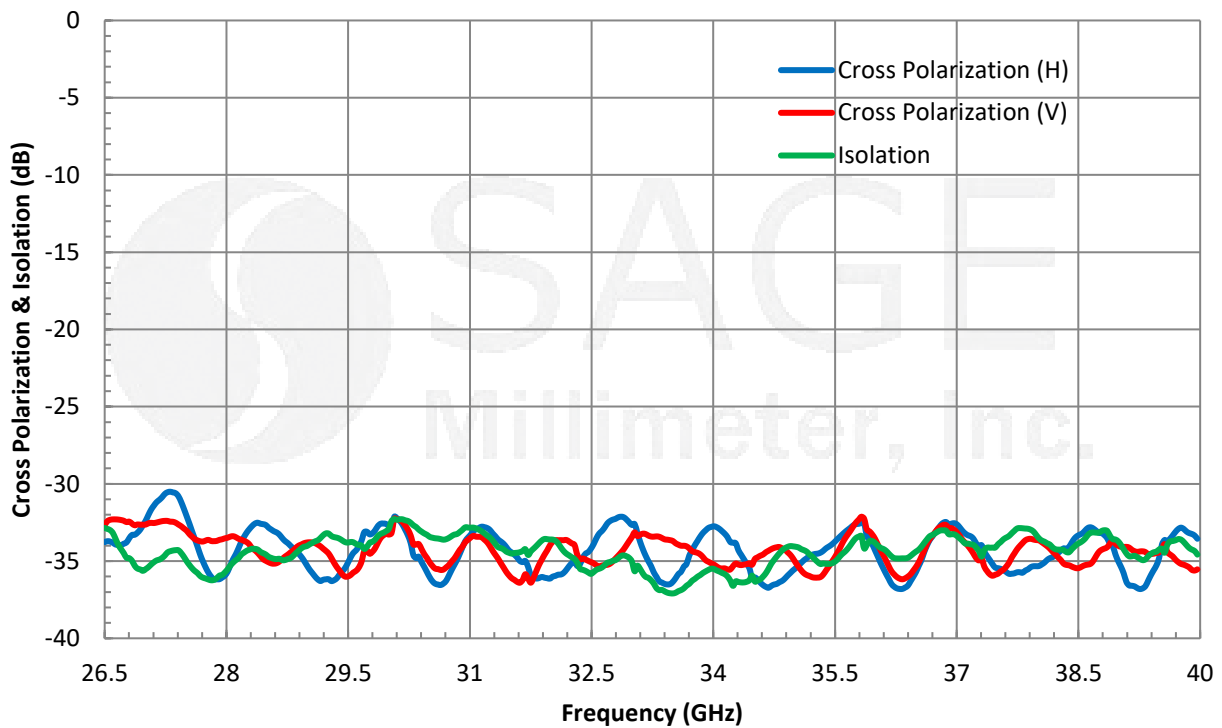


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### Typical Return Loss vs. Frequency



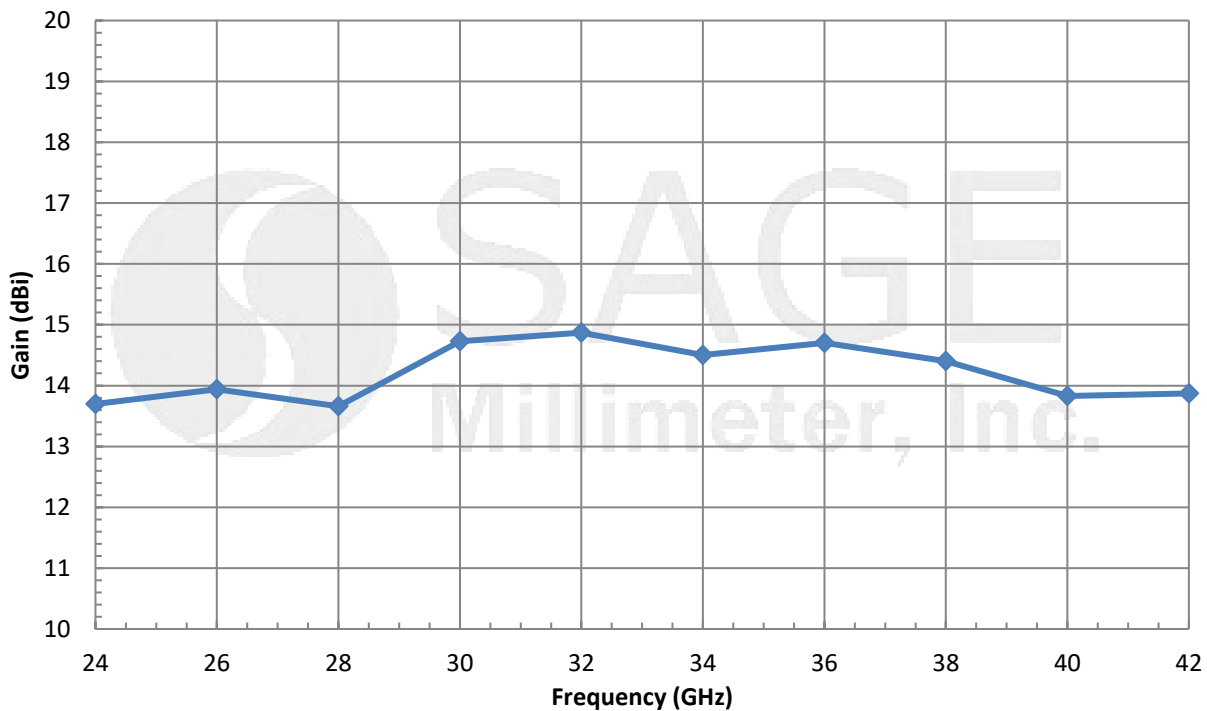
### Typical Cross Polarization & Isolation vs. Frequency



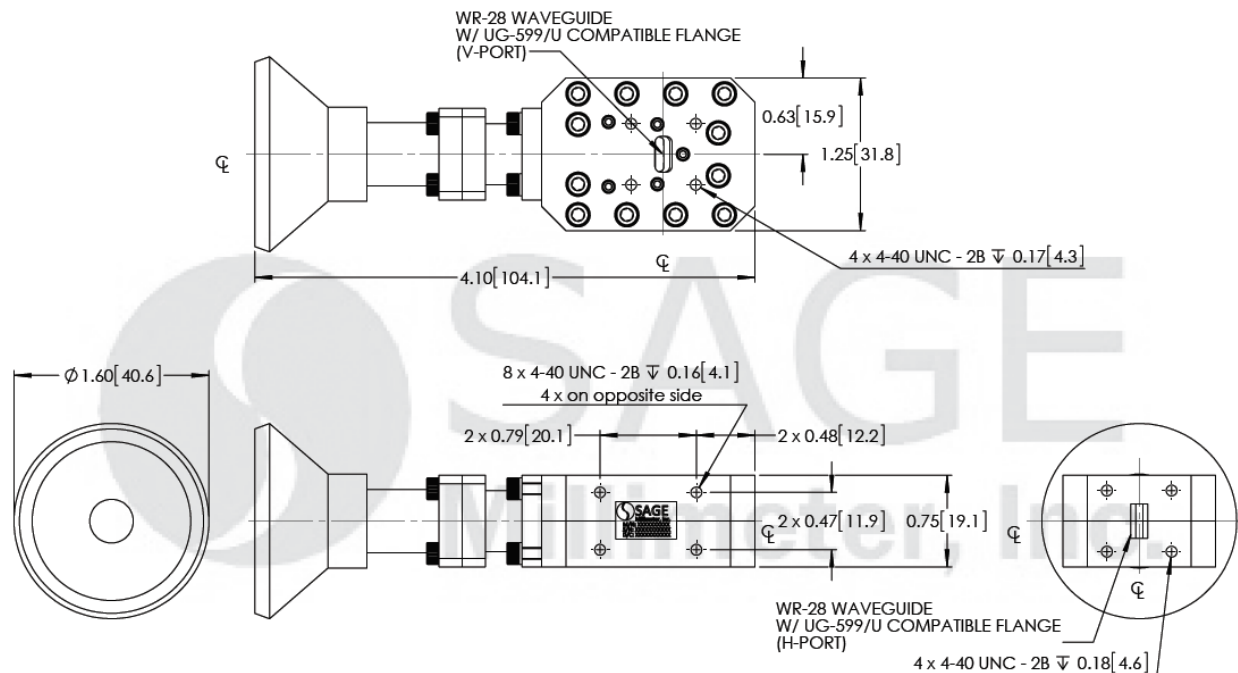


## WR-28 Dual Polarized Scalar Feed Horn Antenna, 24 to 42 GHz, 15 dBi

### Typical Gain vs. Frequency



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



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**Note:**

- All data presented is 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 will cause performance degradation and possible device damage.

