



## WR-22 Pyramidal Horn Antenna, 20 dBi Gain with 2.4 mm Coax Input

### Description:

Models SAR-2013-222F-R2 and SAR-2013-222M-R2 are Q-band pyramidal horn antennas with right angle (90°) 2.4 mm coax connectors to cover the frequency range of 33 GHz to 50 GHz. The antennas offer 20 dBi nominal gain and a typical half power beamwidth of 15 degrees on the E-plane and 16 degrees on the H-plane. The antennas support linear polarized waveforms. End launch (180°) 2.4 mm coax connectors are available under models SAR-2013-222F-E2 and SAR-2013-222M-E2.



### Features:

- Inline Configuration
- Linear Polarization
- DC Open Circuit at Input

### Applications:

- Antenna Ranges
- Antenna Gain Measurements
- System Setups

### Electrical Specifications:

| Parameter                 | Minimum  | Typical | Maximum   |
|---------------------------|----------|---------|-----------|
| Frequency                 | 33 GHz   |         | 50 GHz    |
| Gain                      | 18.5 dBi | 20 dBi  | 21 dBi    |
| Polarization              | Linear   |         |           |
| 3 dB Beamwidth, E-Plane   |          | 15°     |           |
| 3 dB Beamwidth, H-Plane   |          | 16°     |           |
| Sidelobes, E-Plane        |          | -14 dB  |           |
| Sidelobes, H-Plane        |          | -30 dB  |           |
| Return Loss               |          | 18 dB   |           |
| Power Handling            |          |         | 40 W (CW) |
| Specification Temperature |          | +25 °C  |           |
| Operating Temperature     | -45 °C   |         | +85 °C    |

### Mechanical Specifications:

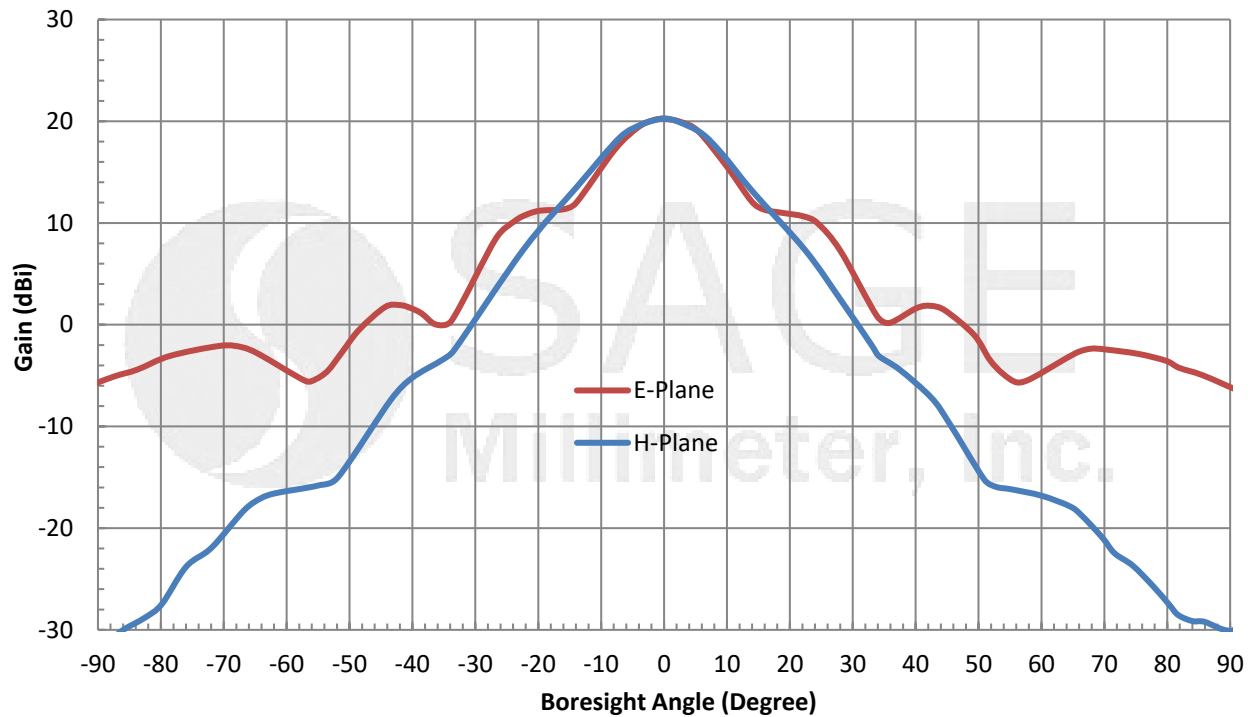
| Item               | Specification                                    |
|--------------------|--|
| Antenna Port (F)   | 2.4 mm Female for Model Number: SAR-2013-222F-R2 |
| Antenna Port (M)   | 2.4 mm Male for Model Number: SAR-2013-222M-R2   |
| Material           | Aluminum   |
| Finish             | Gold Plated                                      |
| Connector Material | Stainless Steel                                  |
| Weight             | 2.1 Oz   |
| Size               | 3.00" (L) X 1.35" (W) X 1.07" (H)                |
| Outline            | AR-QC1-R   |



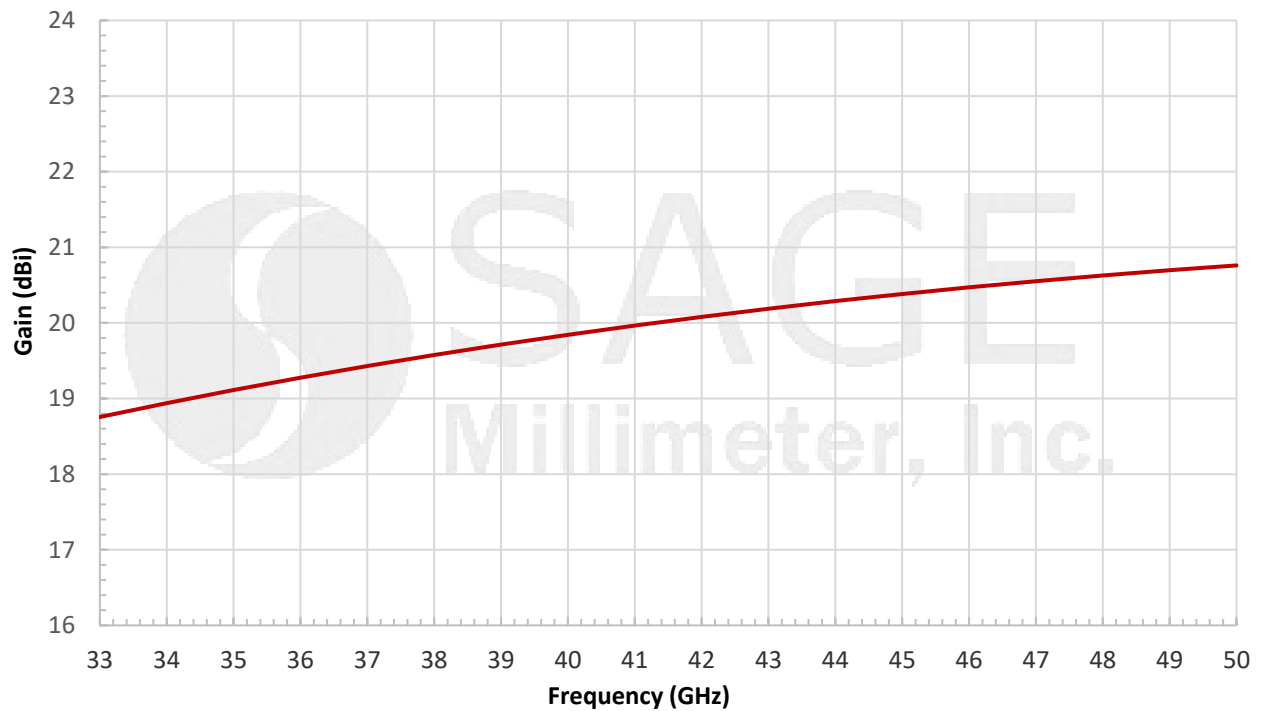


## WR-22 Pyramidal Horn Antenna, 20 dBi Gain with 2.4 mm Coax Input

### Typical Antenna Pattern @ 41.5 GHz



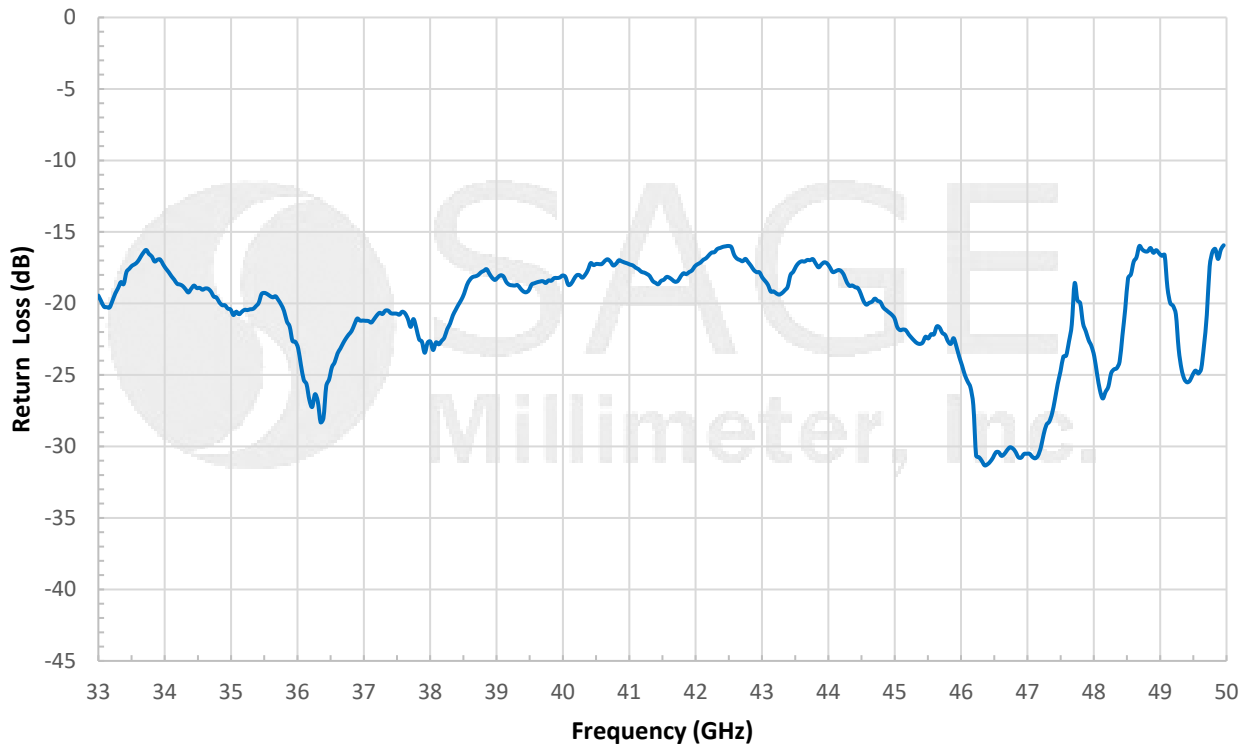
### Typical Gain vs. Frequency



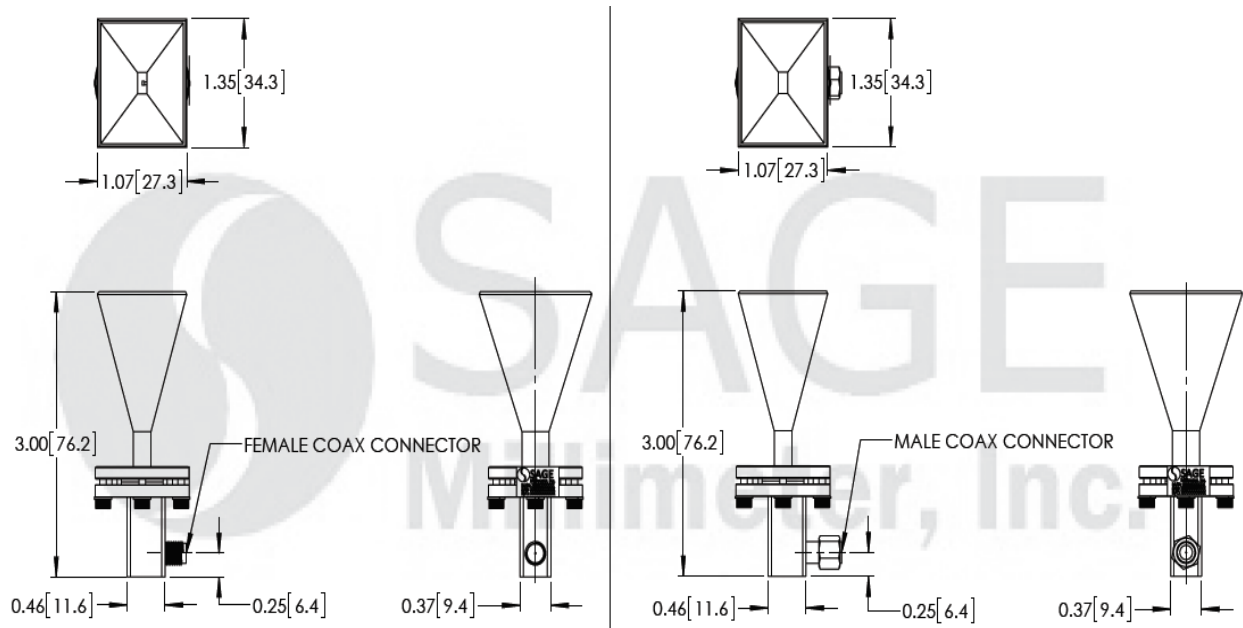


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### Typical Measured Return Loss vs. Frequency



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



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### Note:

- This antenna is a mature product. The reasons for only providing simulated data can be found in the following blog [here](#).
- All testing was performed under +25°C room temperature.
- 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.
- Proper torque,  $8.0 \pm 0.15$  inch-pounds ( $0.92 \pm 0.05$  Nm), should be applied. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**

