



## V Band Microstrip Patch Array Antenna, 65 GHz, 4 dBi, 50° x 95°

### Description:

**Model SAM-6436630395-15-L1-4W-1** is a linear polarized, 65 GHz microstrip patch 4 x 1 array antenna. The antenna array implements four individual antenna ports so that beamforming can be achieved via various input signal definitions. The individual patch antenna has a typical gain of 4 dBi, a vertical beamwidth of 50 degrees and horizontal beamwidth of 95 degrees, respectively. When all ports are fed with in-phase and equal amplitude signals, the combined gain and beamwidth of the array are 12 dBi and 40 degrees, typically. The antenna is constructed with a high performing, low loss soft microwave substrate to achieve the best performance in the class. The RF interface is four WR-15 waveguides with UG-385/U compatible flanges.



### Features:

- Compact Size
- Beamforming Feasibility
- Low Cost in Volume

### Applications:

- 5G Systems
- Beamforming
- Communication Systems
- Probe Stations

### Electrical Specifications:

| Parameter                           | Minimum   | Typical  | Maximum |
|-------------------------------------|---|----------|---------|
| Frequency Range                     | 64 GHz  |          | 66 GHz  |
| Gain (Individual Patch)             |   | 4.0 dBi  |         |
| 3 dB Beamwidth (Individual Patch)   | 50° (Vertical, E Plane) x 95° (Horizontal, H Plane) |          |         |
| Sidelobe Level (Individual Patch)   |   | -12 dB   |         |
| Array Gain (Fed in Phase)           |   | 12.0 dBi |         |
| Array 3 dB Beamwidth (Fed in Phase) | 40° (Vertical, E Plane) x 50° (Horizontal, H Plane) |          |         |
| Array Sidelobe Level (Fed in Phase) |   | -12 dB   |         |
| Polarization                        | Linear  |          |         |
| Return Loss                         |   | 8 dB     |         |
| Specification Temperature           |   | +25 °C   |         |
| Operating Temperature               | -40 °C  |          | +85 °C  |

### Mechanical Specifications:

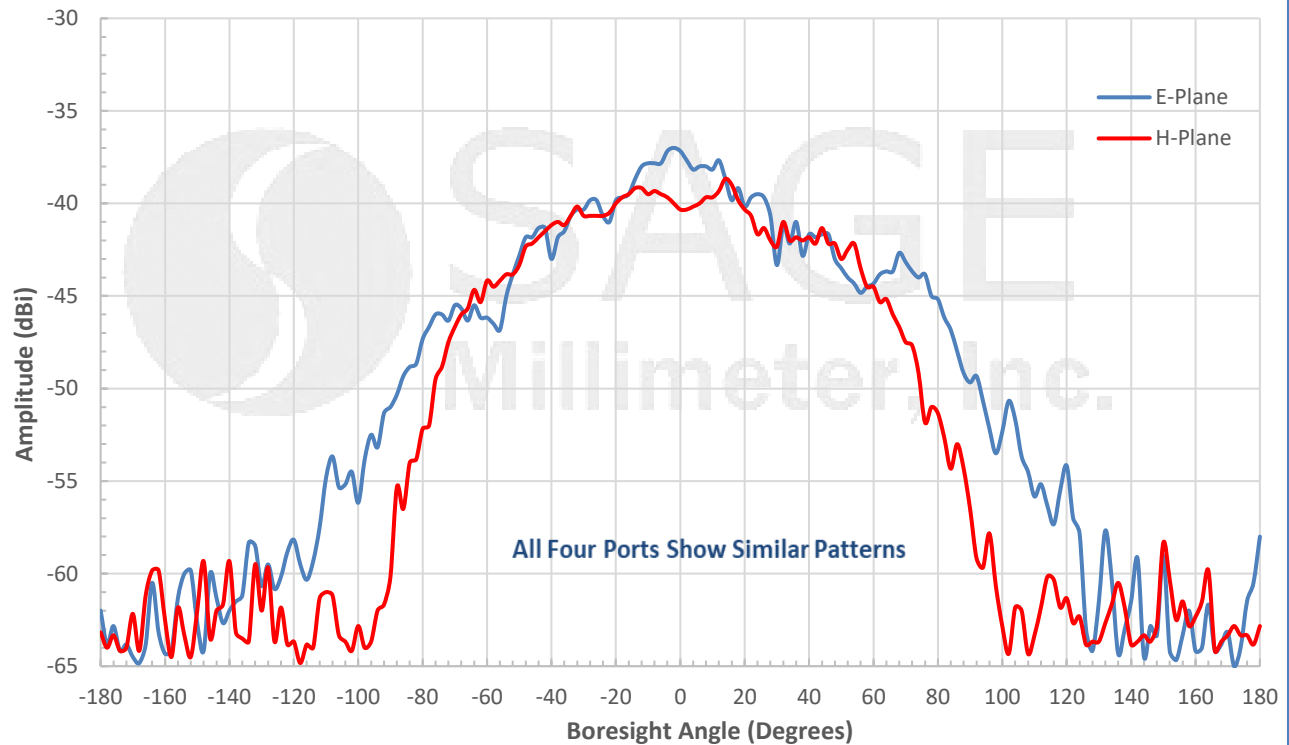
| Item               | Specifications                                      |
|--------------------|---|
| Antenna Port       | 4 x WR-15 Waveguide with UG-385/U Compatible Flange |
| Number of Elements | 4 (H) x 1 (V)                                       |
| Baseplate Material | Aluminum  |
| Patch Finish       | Gold Plated   |
| Weight             | 2.0 Oz  |
| Size               | 1.60" (L) x 1.60" (W) x 0.49" (H)                   |
| Outline            | AM-RV-9550-4W-1                                     |

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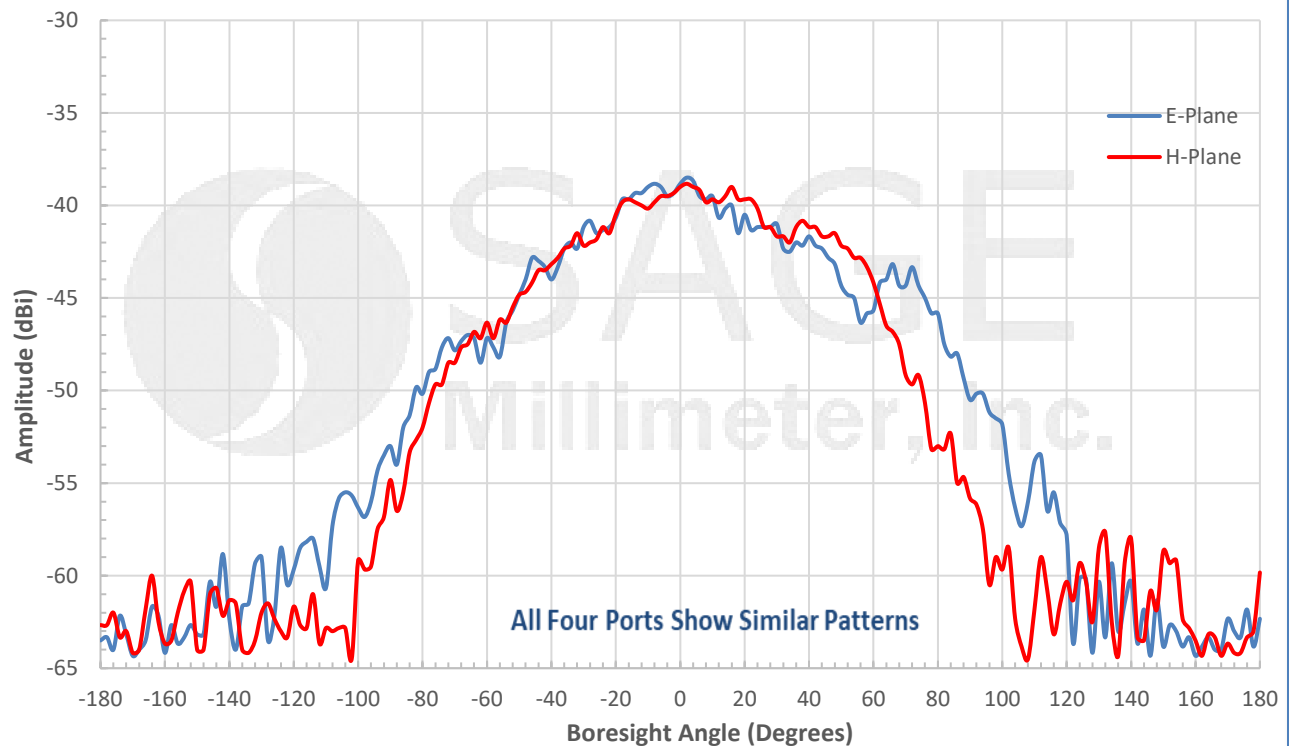


## V Band Microstrip Patch Array Antenna, 65 GHz, 4 dBi, 50° x 95°

Measured Individual Patch Pattern @ 63.9 GHz



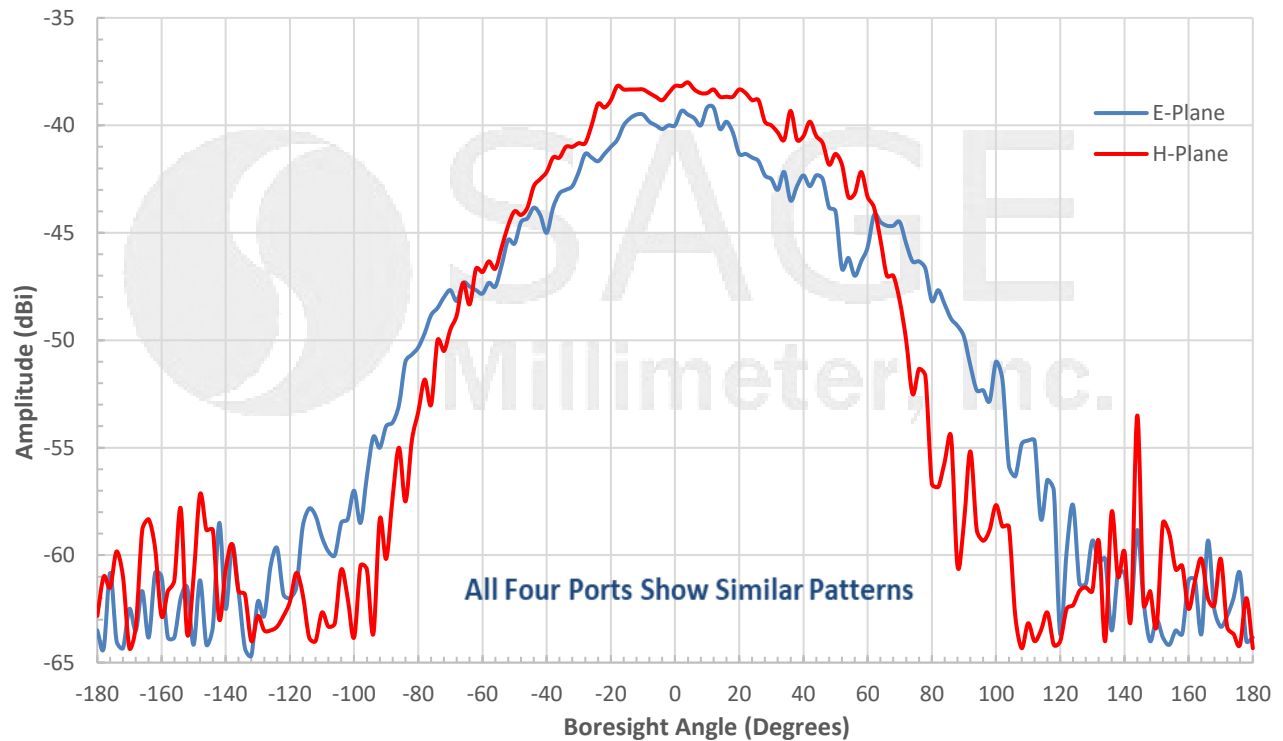
Measured Individual Patch Pattern @ 64.8 GHz



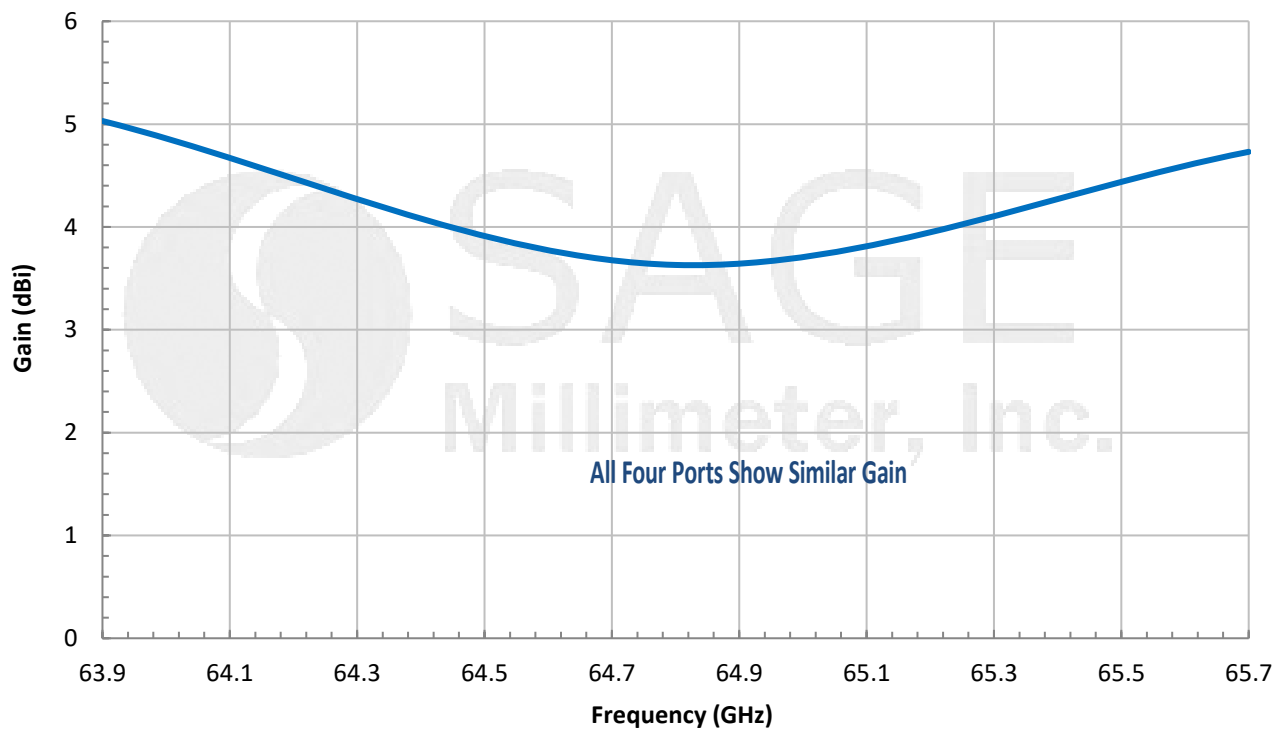


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### Measured Individual Patch Pattern @ 65.7 GHz



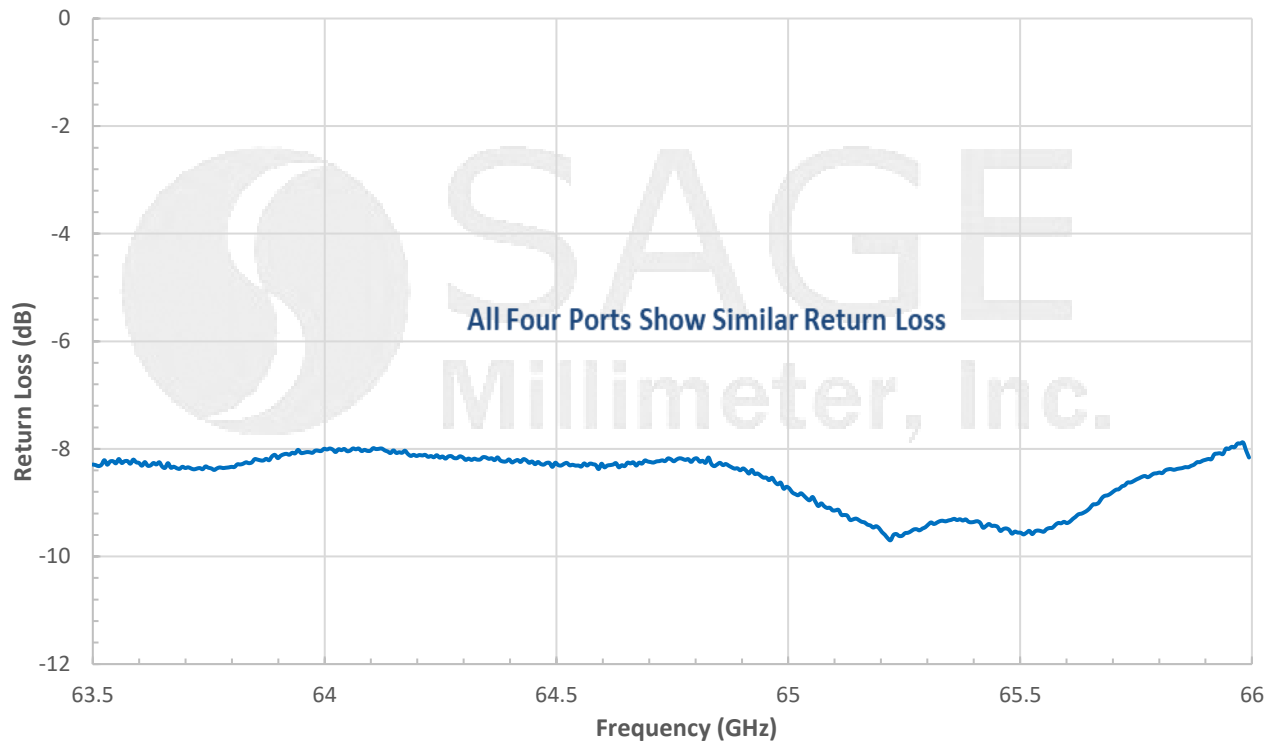
### Measured Individual Patch Gain vs. Frequency





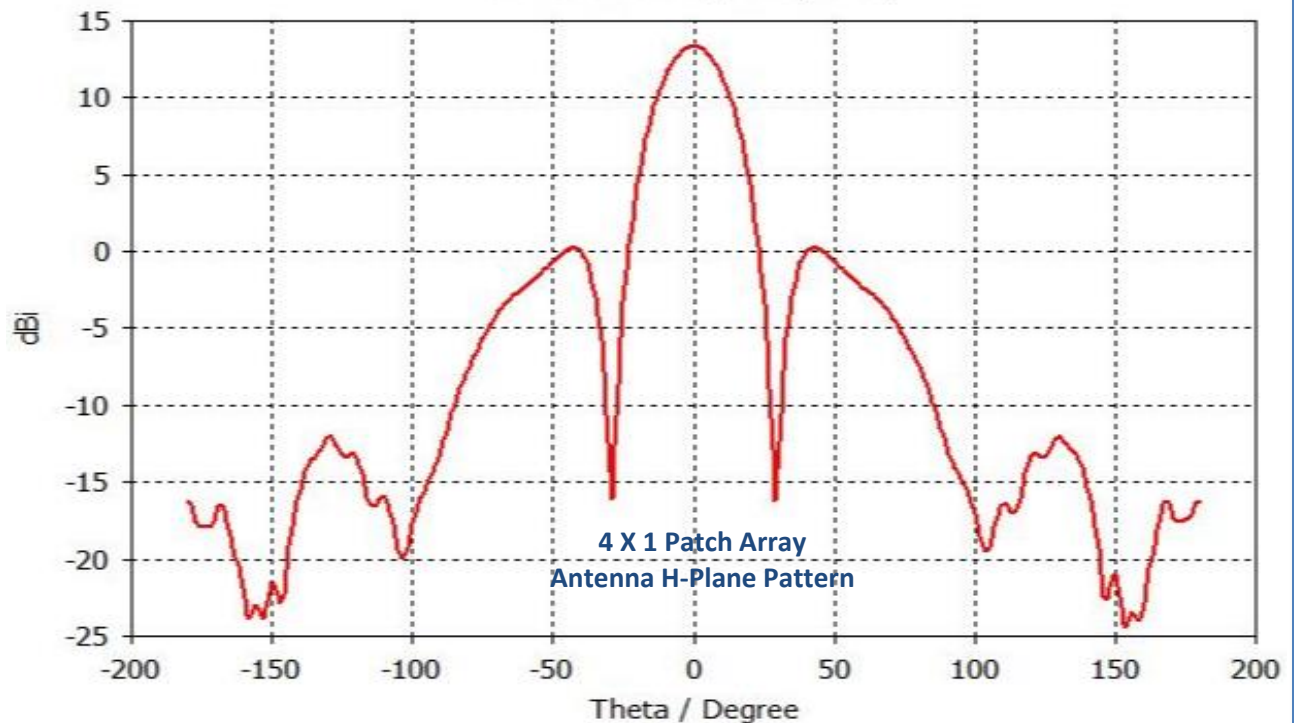
## V Band Microstrip Patch Array Antenna, 65 GHz, 4 dBi, 50° x 95°

### Measured Individual Patch Return Loss vs. Frequency



### In-Phase Fed Simulated H-Plane Patch Array Antenna Pattern @ 65 GHz

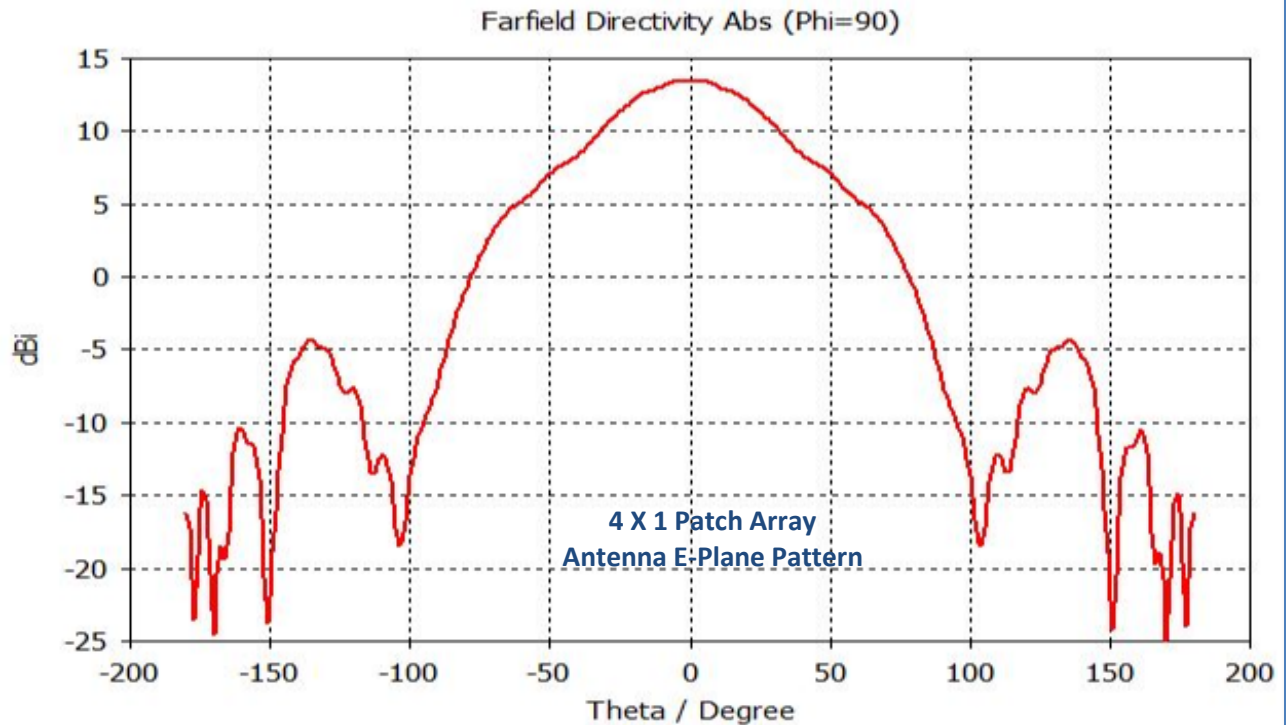
Farfield Directivity Abs (Phi=0)



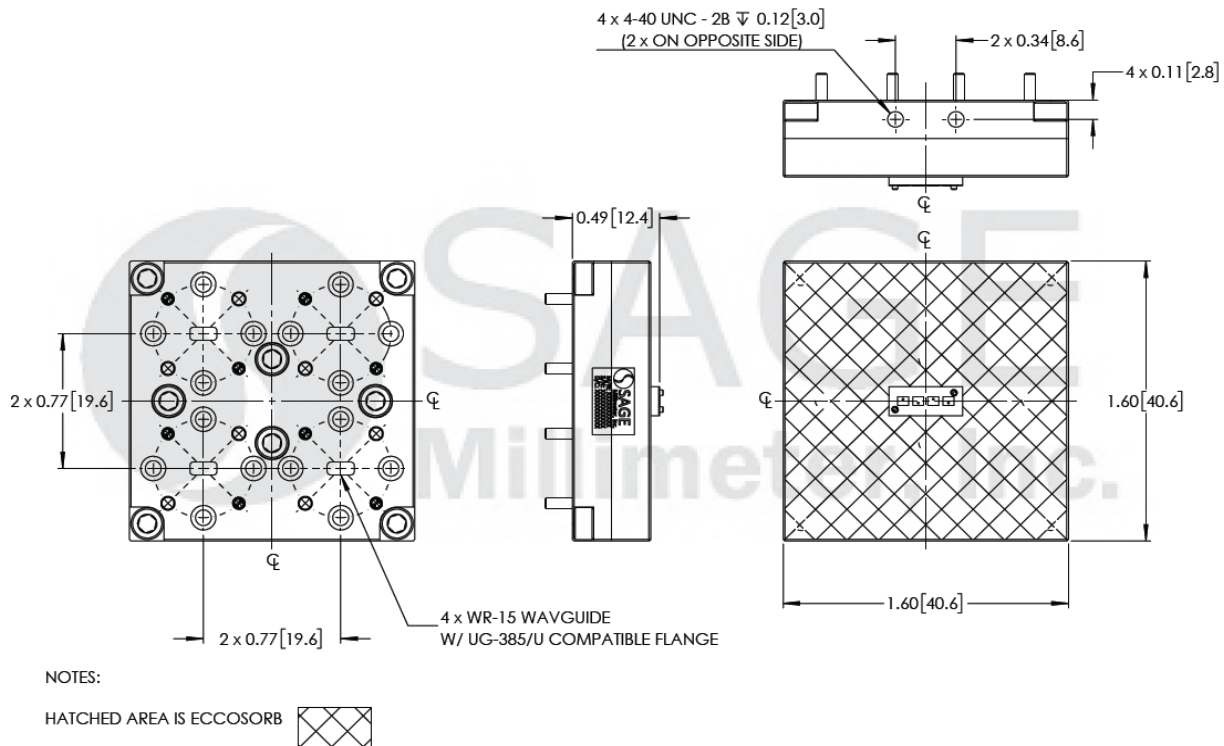


## V Band Microstrip Patch Array Antenna, 65 GHz, 4 dBi, 50° x 95°

### In-Phase Fed Simulated E-Plane Patch Array Antenna Pattern @ 65 GHz



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



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**Note:**

- Antenna Pattern, Gain and Return Loss data presented are for individual patch antennas and collected from a sample lot. Actual data may vary unit to unit, slightly.
- Combined Antenna Pattern data presented is simulated. Actual data may vary 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 waveguide will cause performance degradation and possible device damage.

