



## Ka Band Microstrip Patch Array Antenna, 39 GHz, 6 dBi, 50° x 95°

### Description:

**Model SAM-3934030695-2F-L1-4C** is a linear polarized, 39 GHz microstrip patch 1 x 4 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 gain of 6 dBi and a typical vertical beamwidth of 50 degrees and horizontal beamwidth of 95 degrees respectively. The combined gain and beamwidth of the array are 12 dB and when the array is fed with equal amplitude but 180° out-of-phase signals at two sides. 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 2.4mm (F) coaxial connectors. Other interface, such as K(F) connectors are offered under various model numbers.



### 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	38.5 GHz		39.5 GHz
Gain		6.0 dBi	
3 dB Beamwidth	50° (Vertical, E Plane) x 95° (Horizontal, H Plane)		
Sidelobe Level		-12 dB	
Array Gain		12.0 dBi	
Array 3 dB Beamwidth	15° (Vertical, E Plane) x 95° (Horizontal, H Plane)		
Array Sidelobe Level		-12 dB	
Polarization		Linear	
Return Loss		10 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

### Mechanical Specifications:

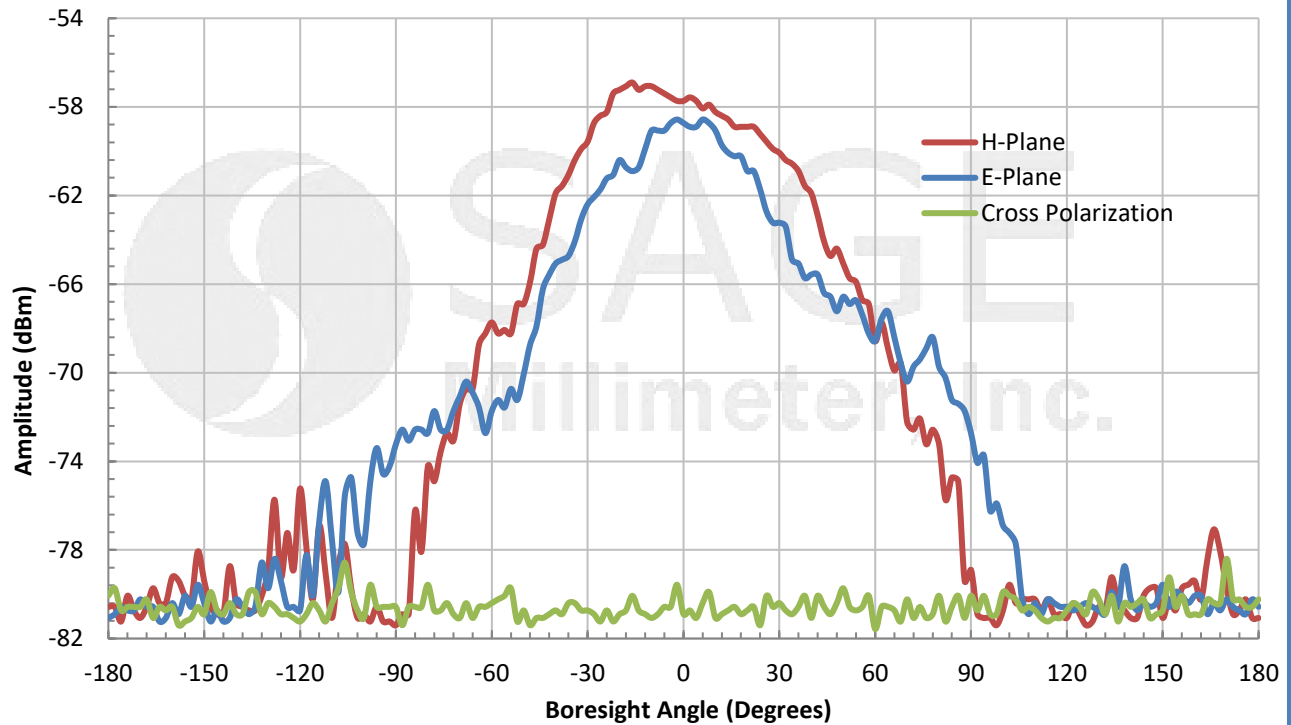
Item	Specifications
Antenna Port	4 x 2.4mm (F) Coaxial Connectors
Number of Elements	4 (H) x 1 (V)
Baseplate Material	Aluminum
Patch Finish	Immersion Tin
Weight	1.5 Oz
Size	1.17" (L) x 0.58" (H) x 0.54" (W)
Outline	AM-CA-9550-4C-1

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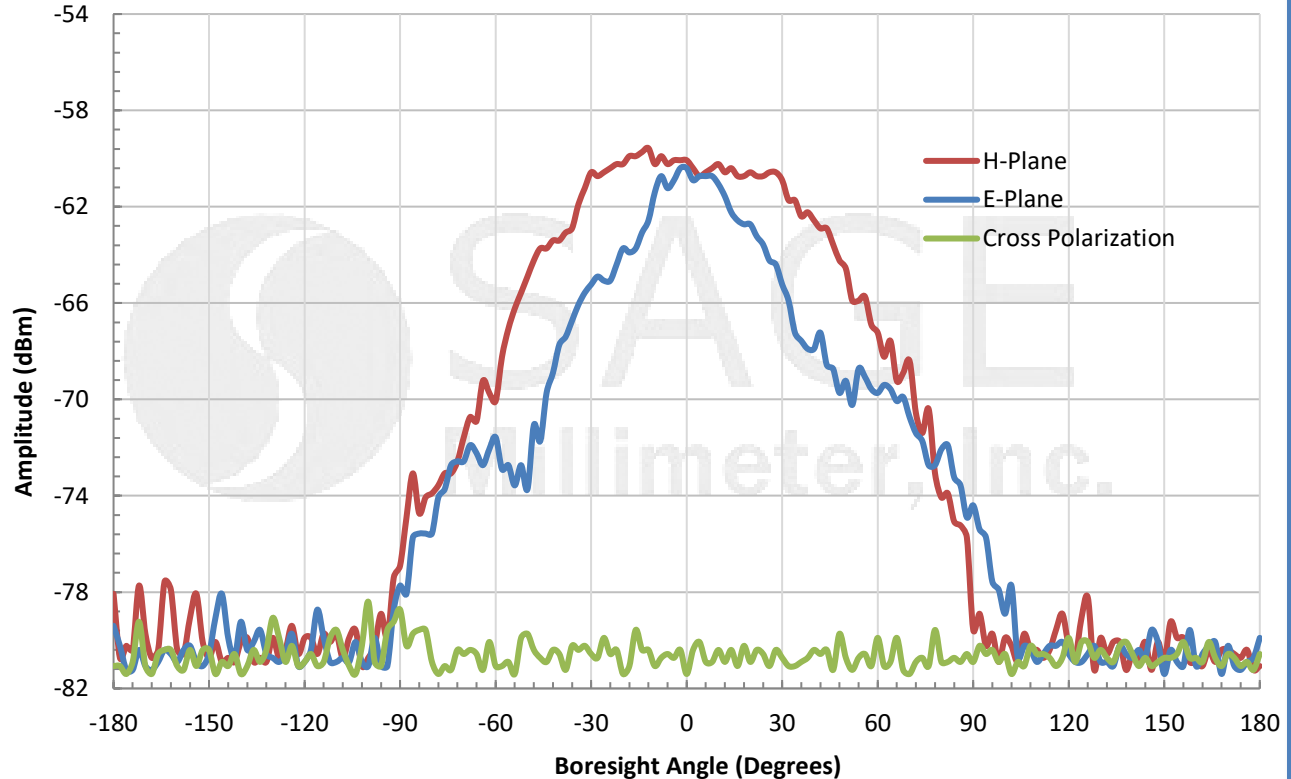


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### Measured Antenna Patterns for Port 1 & 4 @ 39 GHz



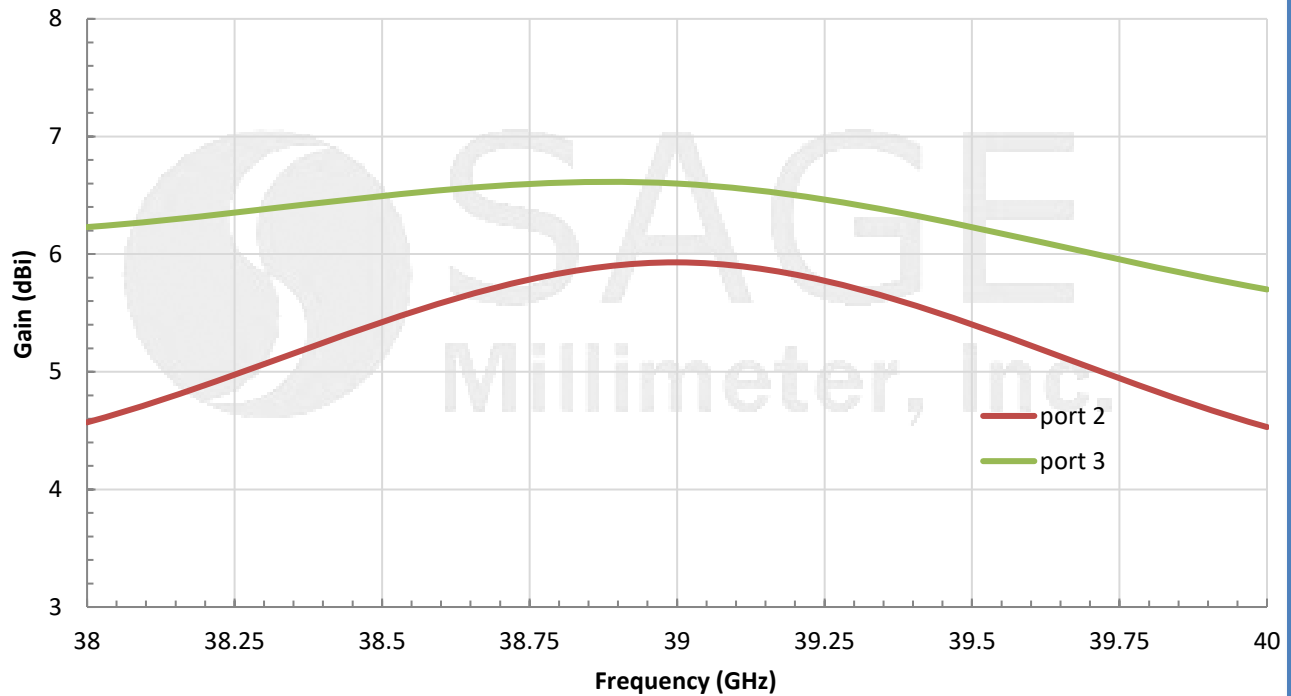
### Measured Antenna Patterns for Port 2 & 3 @ 39 GHz



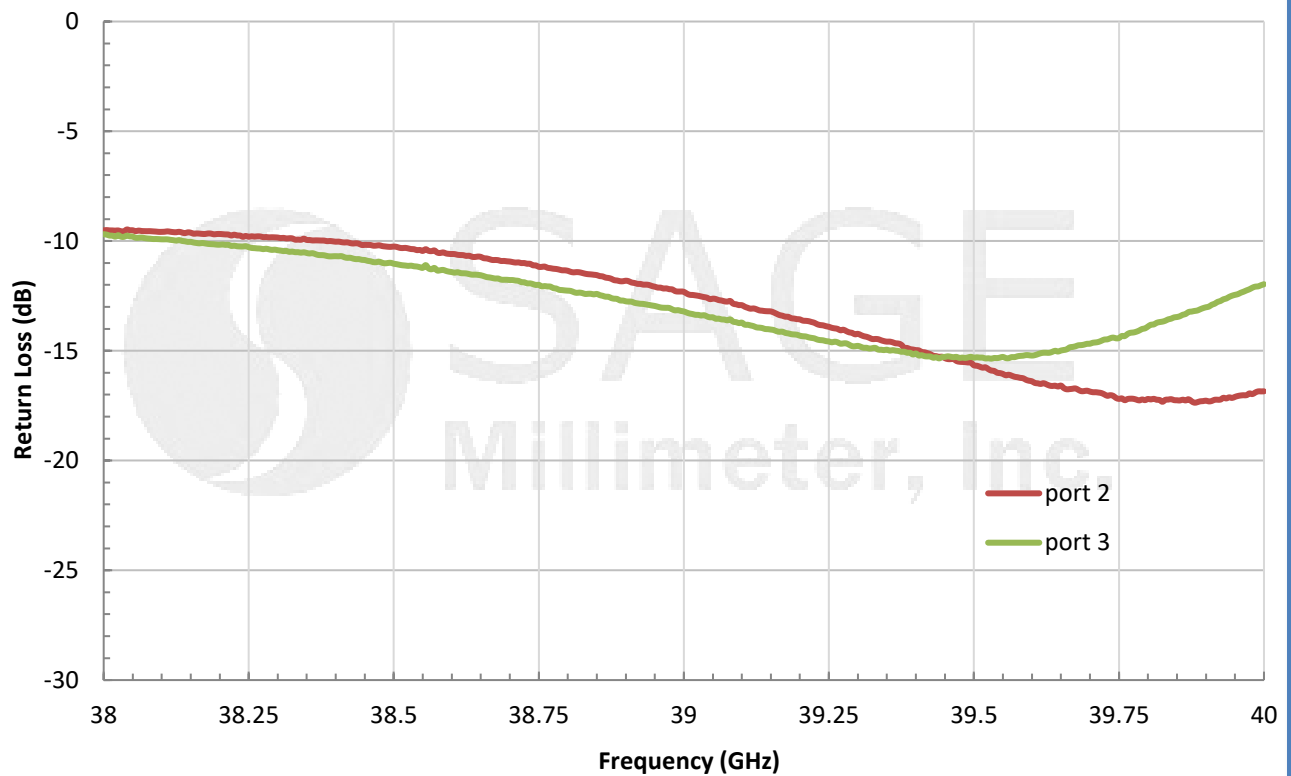


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### Typical Measured Patch Antenna Gain vs. Frequency



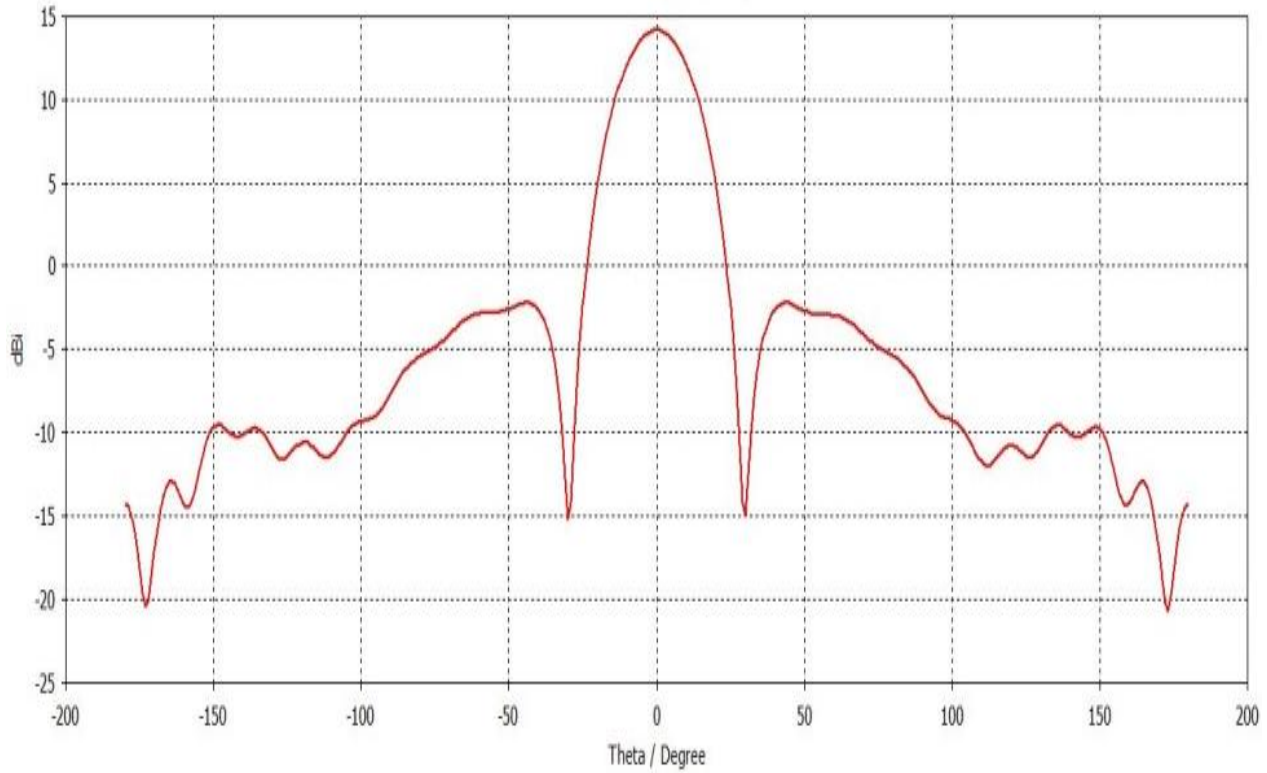
### Typical Measured Patch Antenna Return Loss vs. Frequency



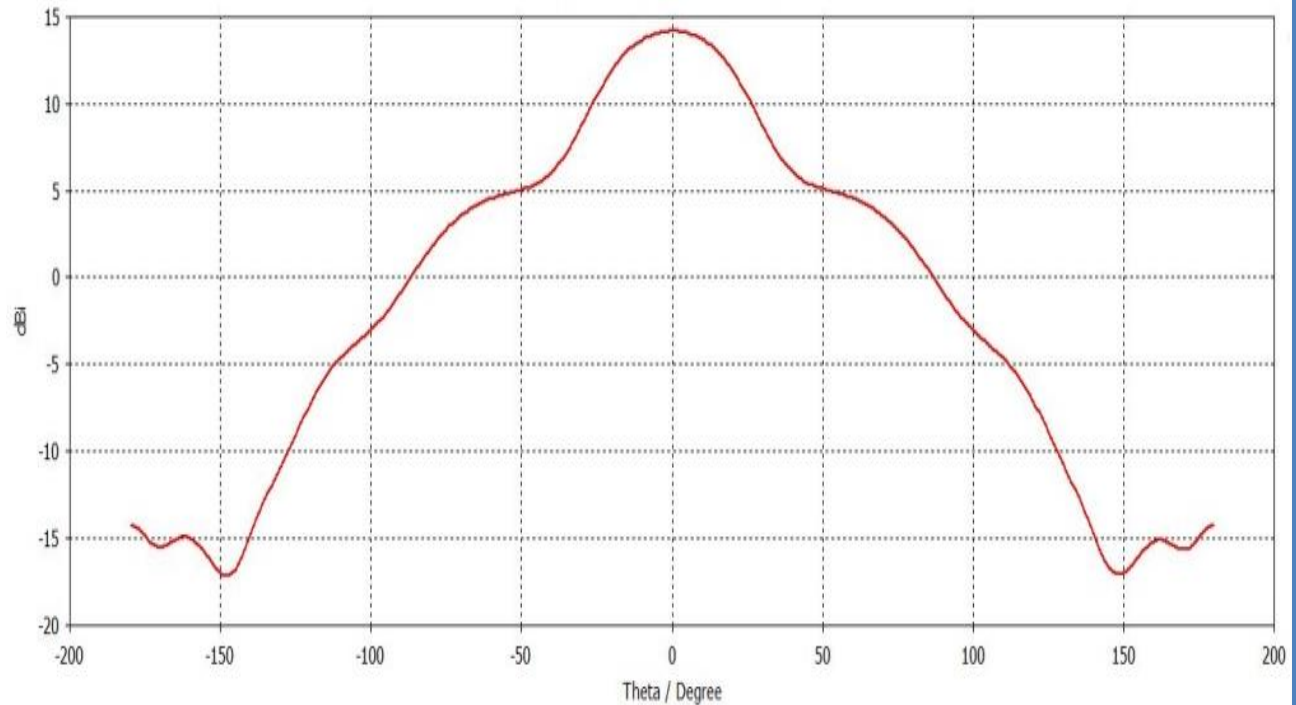


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### Simulated H-Plane Patch Array Antenna Pattern @ 39 GHz



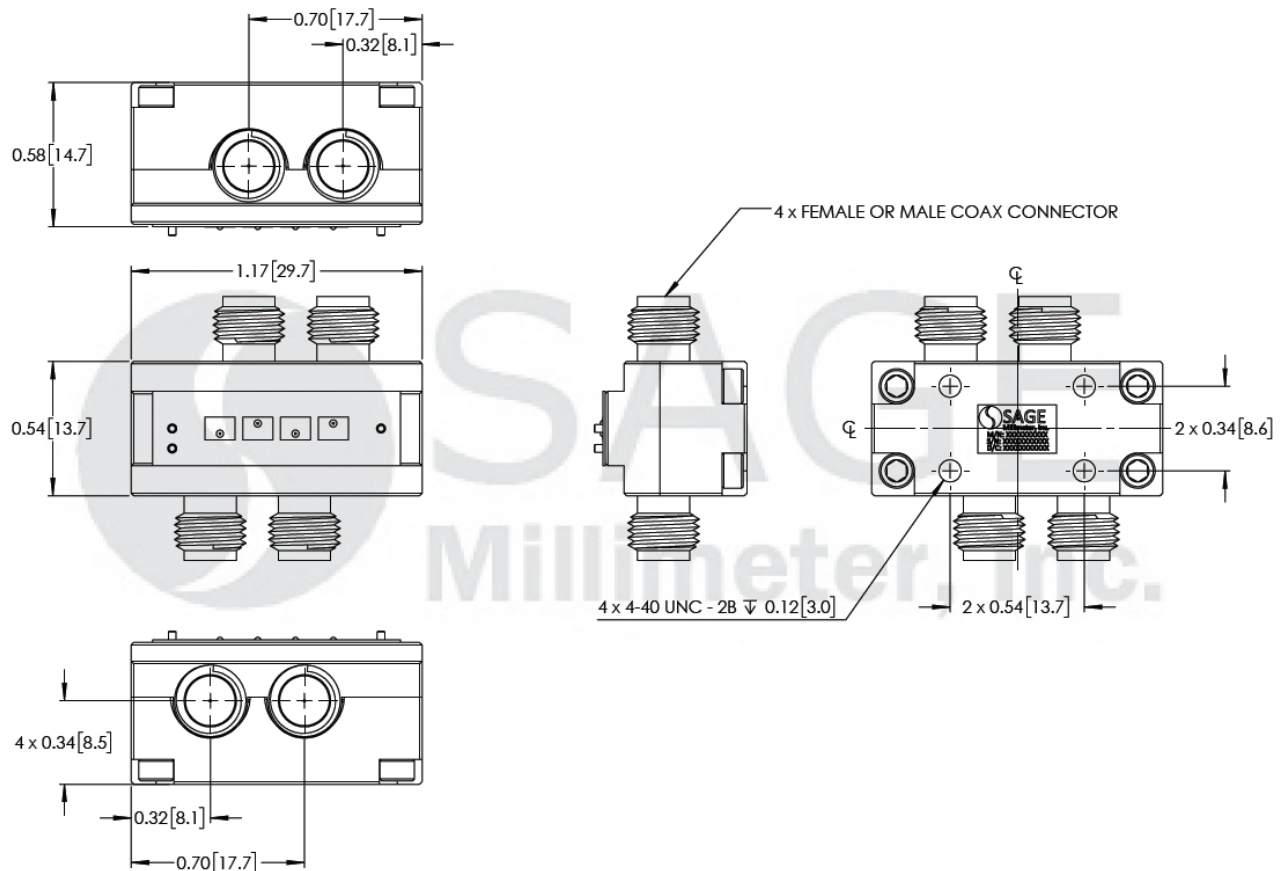
### Simulated E-Plane Patch Array Antenna Pattern @ 39 GHz





## Ka Band Microstrip Patch Array Antenna, 39 GHz, 6 dBi, 50° x 95°

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



**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:**

- Proper torque, 8.0 ± 0.15 inch-pounds (0.92 ± 0.05 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**