



## WR-10 Orthomode Transducer

### Description

**Model SAT-FW-10010-S1** is a WR-10 orthomode transducer (OMT) that operates between 75 and 110 GHz. The OMT separates a circular or elliptical polarized waveform into two linear, orthogonal waveforms or combines two linear polarized waveforms into one circular or elliptical polarized waveform or vice versa. The OMT also supports either vertical or horizontal polarized waveguide forms with typical 35 dB cross polarization rejections. The OMT shows high port isolation while providing a low insertion loss. The OMT is configured with a 0.100" x 0.100" square waveguide for the antenna port and two WR-10 waveguides for the horizontal and vertical ports. All ports have standard UG-387/U-M anti-cocking flanges and 4-40 threaded holes.



### Features:

- High Isolation
- Low Insertion Loss
- Full Band Performance
- High Crosspol Rejection

### Applications:

- Radar Systems
- Communication Systems
- Antenna Ranges
- Circular and Linear Waveform Separation and Combination

### Electrical Specifications:

| Parameter                        | Minimum | Typical | Maximum |
|----------------------------------|---------|---------|---------|
| Frequency                        | 75 GHz  |         | 110 GHz |
| Insertion Loss (A to V Port)     |         | 1.4 dB  |         |
| Insertion Loss (A to H Port)     |         | 1.4 dB  |         |
| Isolation (V to H Port)          |         | 35 dB   |         |
| Cross Polarization (A to V Port) |         | 35 dB   |         |
| Cross Polarization (A to H Port) |         | 35 dB   |         |
| Return Loss (H Port)             |         | 15 dB   |         |
| Return Loss (V Port)             |         | 15 dB   |         |
| Return Loss (A Port, Vertical)   |         | 15 dB   |         |
| Return Loss (A Port, Horizontal) |         | 15 dB   |         |
| Specification Temperature        |         | +25 °C  |         |
| Operating Temperature            | -40 °C  |         | +85 °C  |

### Mechanical Specifications:

| Item                        | Specification   |
|-----------------------------|---|
| Antenna Port                | 0.100" x 0.100" Sq. Waveguide with UG 387/U-M Anti-Cocking Flange |
| Horizontal & Vertical Ports | WR-10 Waveguide with UG 387/U-M Anti-Cocking Flange               |
| Material                    | Aluminum  |
| Finish                      | Gold Plated   |
| Weight                      | 1.2 Oz  |
| Size                        | 1.30" (L) x 0.80" (W) x 0.80" (H)                                 |
| Outline                     | AT-WS-100-F-A   |

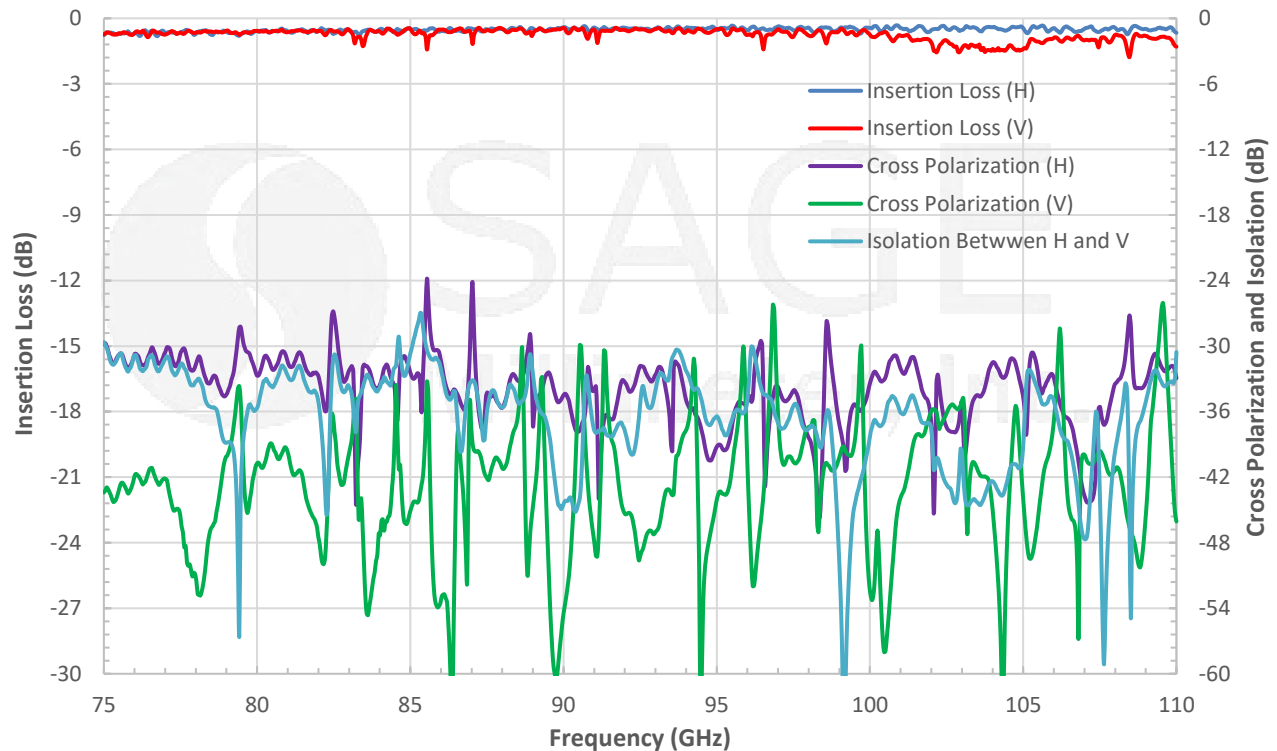


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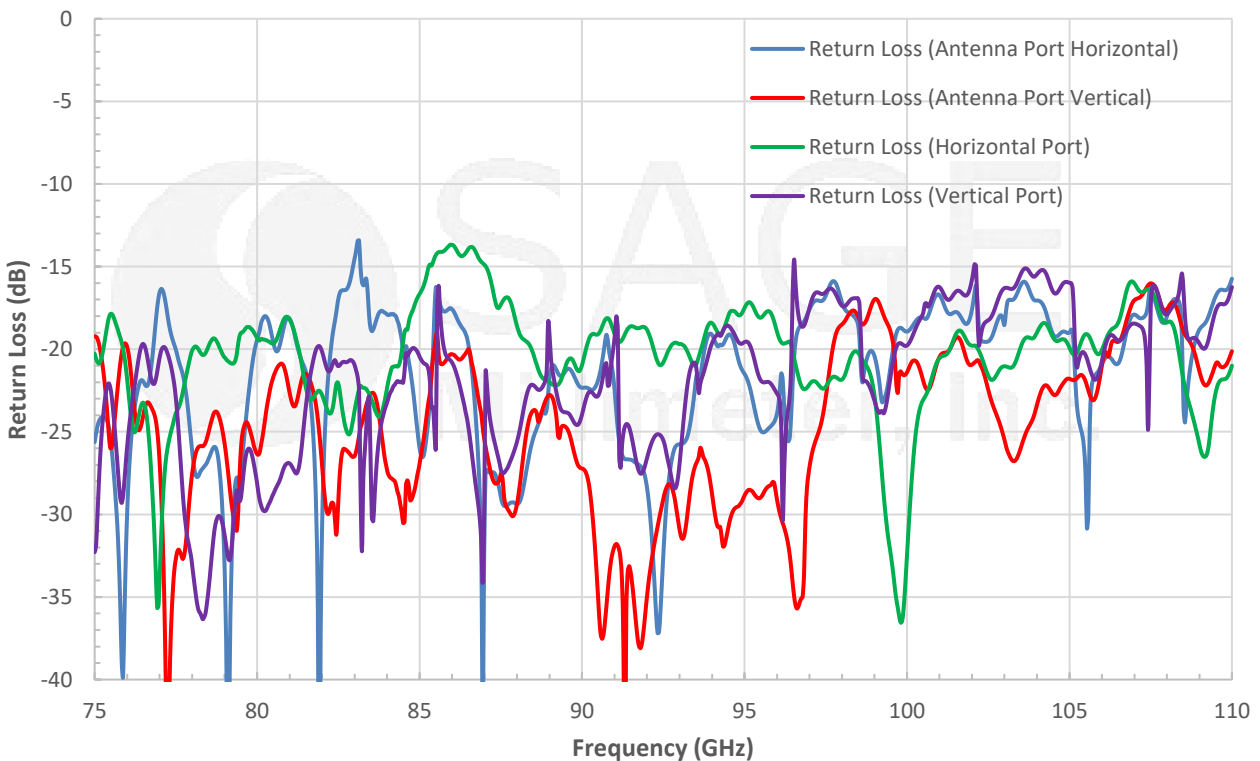


## WR-10 Orthomode Transducer

### Typical Performance vs. Frequency



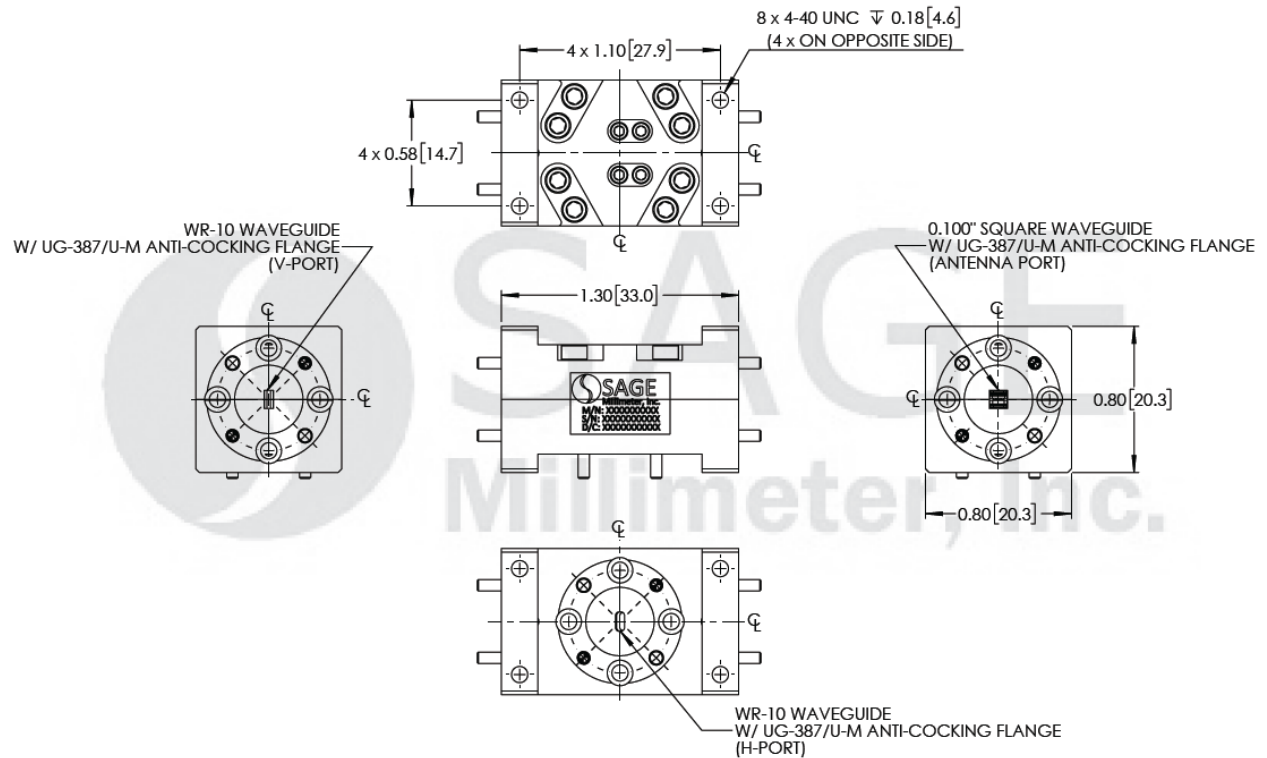
### Typical Return Loss vs. Frequency





## WR-10 Orthomode Transducer

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



**Note:**

- All data presented is collected from a sample lot. Actual data may vary unit to unit.
- 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.

