

## SAT-FK-42042-S1

### WR-42 Orthomode Transducer

**SAT-FK-42042-S1** is a full band, WR-42 orthomode transducer (OMT) that operates between 18 to 26.5 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. The OMT shows high port isolation while maintaining a low insertion loss. The OMT is configured with a 0.420" x 0.420" square waveguide for the antenna port and two WR-42 waveguides for the horizontal and vertical ports. All ports have UG-595/U flanges with 4-40 threaded holes.



### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency Range	18.0 GHz		26.5 GHz
Insertion Loss (A to V Port)		0.5 dB	
Insertion Loss (A to H Port)		0.5 dB	
Isolation (V to H Port)		40 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	0.420" x 0.420" Square Waveguide
Horizontal and Vertical Ports	WR-42 Waveguide
Flange Type	UG-595/U Threaded Flange (on all ports)
Material	Aluminum
Finish	Gold Plated
Weight	5.0 Oz
Dimensions	2.00" (L) x 1.65" (W) x 1.00" (H)
Outline	AT-KS-420-F

### ECCN

EAR99

### FEATURES

- High Port Isolation
- Low Insertion Loss
- Full Band Performance

### APPLICATIONS

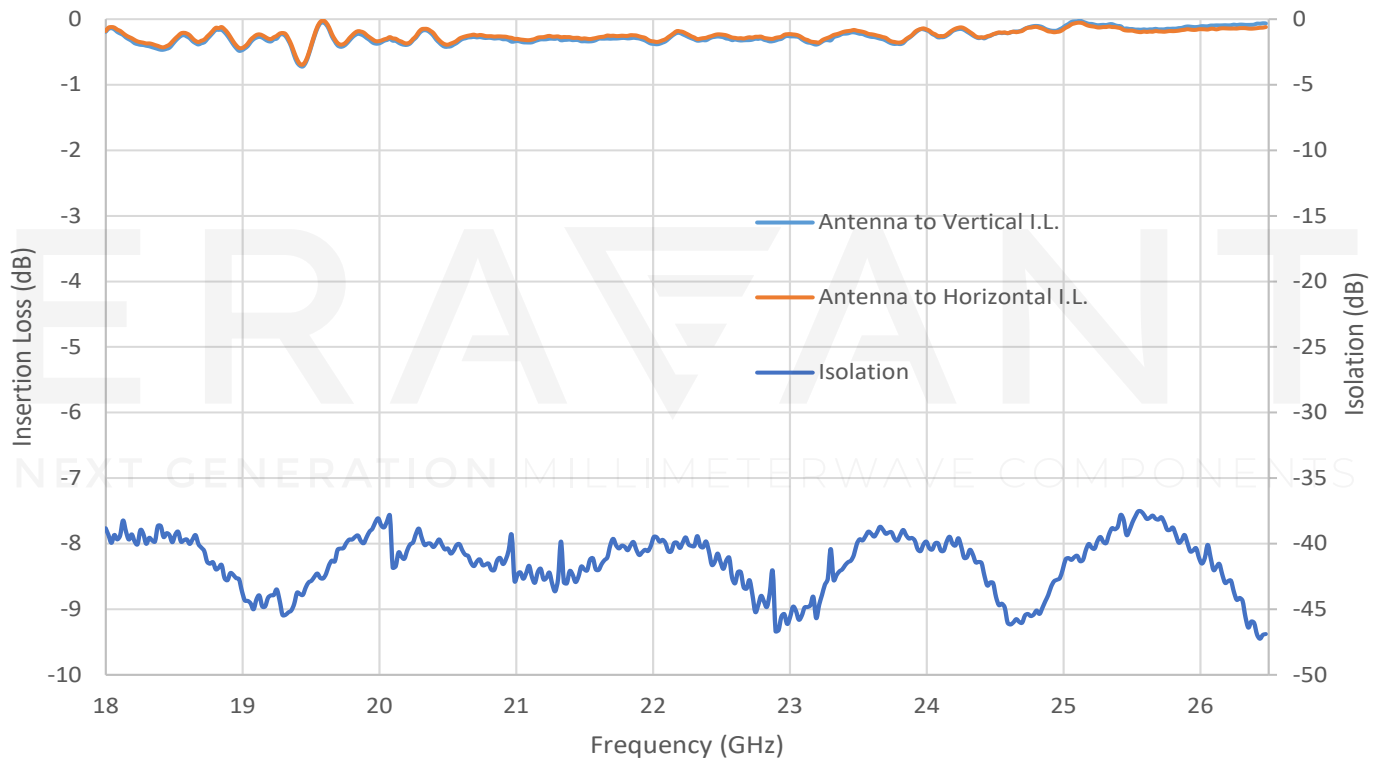
- Radar Systems
- Communication Systems
- Antenna Ranges
- Waveform Polarization Separation and Combination

### SUPPLEMENTAL DETAILS

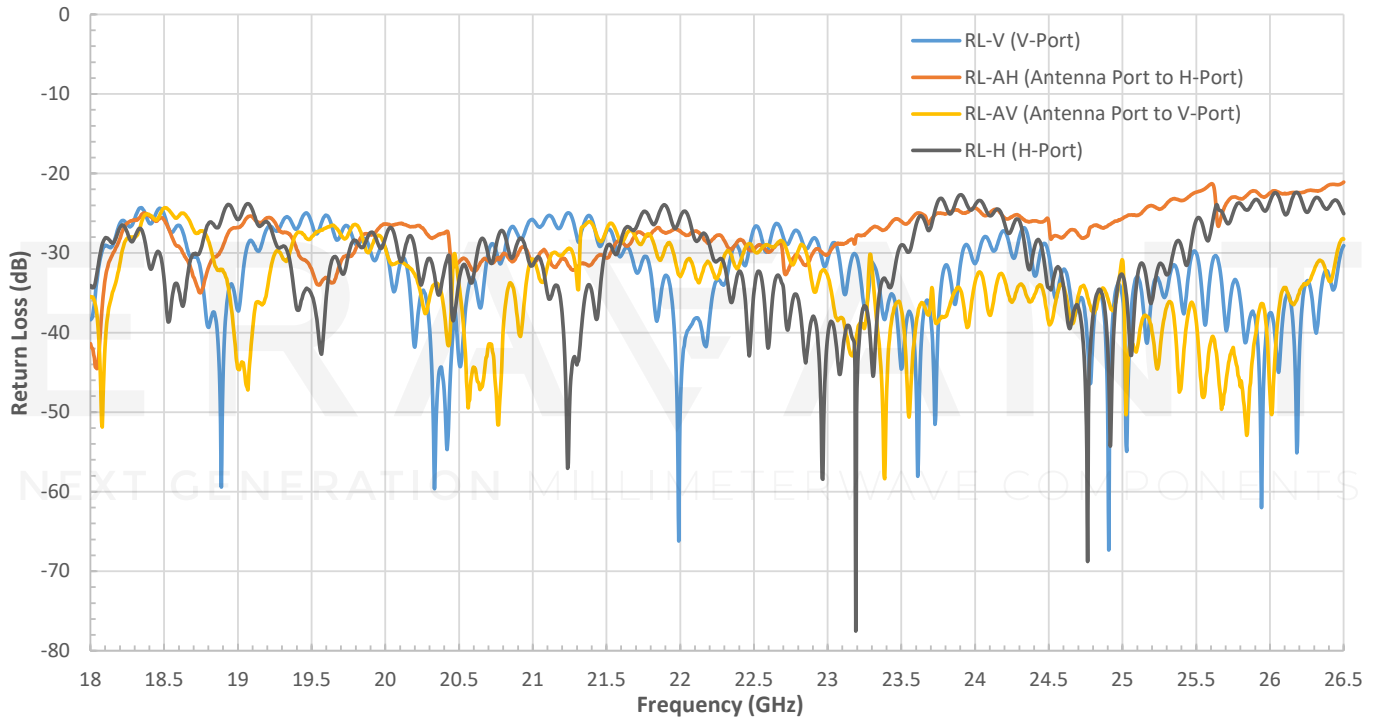


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### Typical Insertion Loss and Isolation vs. Frequency



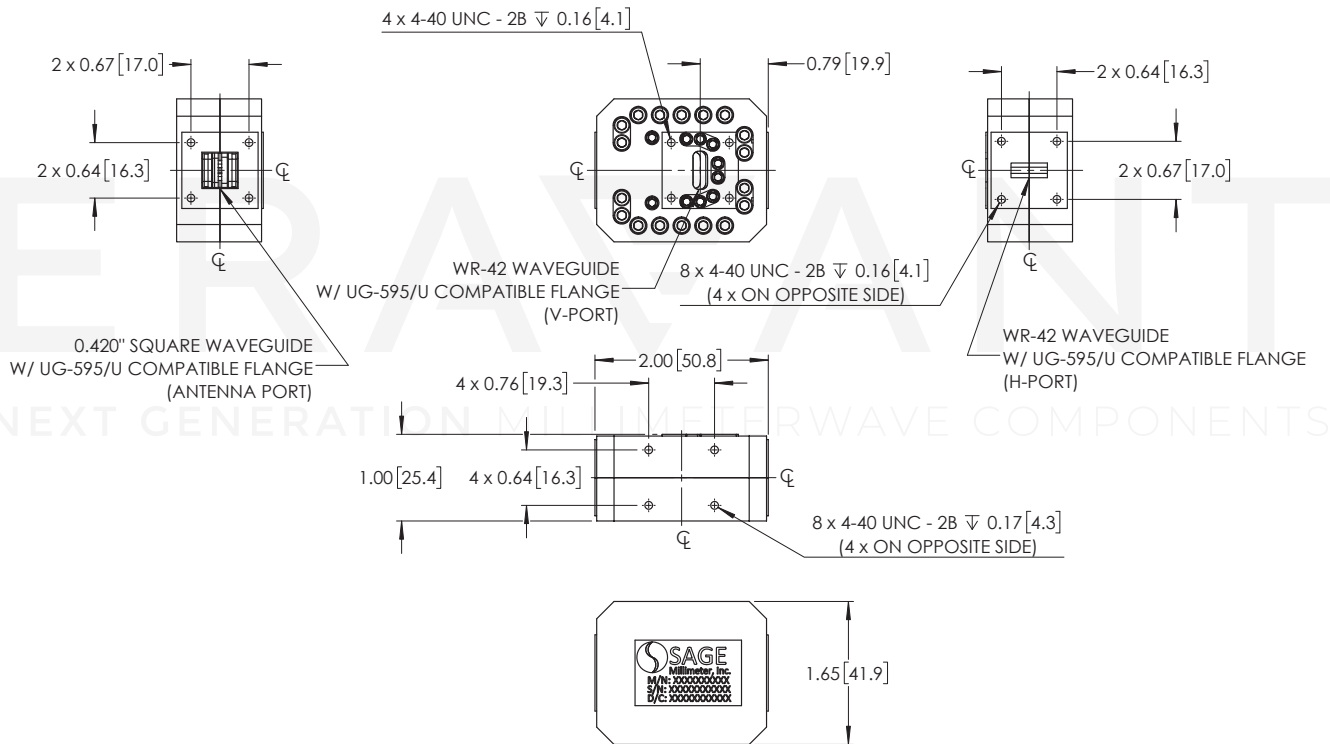
### Typical Return Loss vs Frequency



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### Mechanical Outline:

Unless otherwise specified, all dimensions are in inches [millimeters]



### NOTE:

- On condition that test data is provided it is collected from a sample lot. Actual data may vary slightly from unit to unit. All testing is performed under +25 °C room temperature.
- On condition that simulated test data is provided, actual measured data may slightly vary.
- Eravant reserves the right to change the information presented without notice.

### CAUTION:

- If a waveguide is present, any foreign objects in the waveguide will cause performance degradation and may damage or destroy the unit.
- Any foreign objects in the antenna will cause performance degradation and possible device damage.
- For 1 mm connectors proper torque should be applied:  $4.0 \pm 0.15$  inch-pounds ( $0.45 \pm 0.02$  Nm). Torque wrench model [SCH-06004-S1](#) is highly recommended.
- For 1.35 mm, 1.85 mm, 2.4 mm, 2.92 mm, and SMA connectors proper torque should be applied:  $8.0 \pm 0.15$  inch-pounds ( $0.90 \pm 0.02$  Nm). Torque wrench model [SCH-08008-S1](#) is highly recommended.