

## 90° Quadrature Hybrid, 0.5-1GHz, SMA-Female

## WMQH-0.5-1-S

### Key Features

- Octave band.
- High isolation.
- Excellent return loss.
- Low unbalance.

The 90-degree hybrid model WMQH-0.5-1-S covers the 500 MHz to 1GHz octave band, providing a 3dB split with tight phase shift of 90 degrees and amplitude unbalance. High isolation 26dB typical. Excellent return loss, 24dB typical, minimizes reflection.



Image is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	500	--	1,000	MHz
Impedance	--	50	--	Ohm
Phase Difference	--	90	--	Degrees
Total Loss <sup>1</sup> (IN-0° and IN-90°)	--	3.14±0.45	--	dB
Isolation	22	26	--	dB
Return Loss (all ports)	20	24	--	dB
Amplitude Balance	--	0.35	1.2	dB
Phase Balance (±)	--	0.75	3.0	Degrees
Input Power (CW) <sup>2</sup>	--	--	50	Watts

### Mechanical

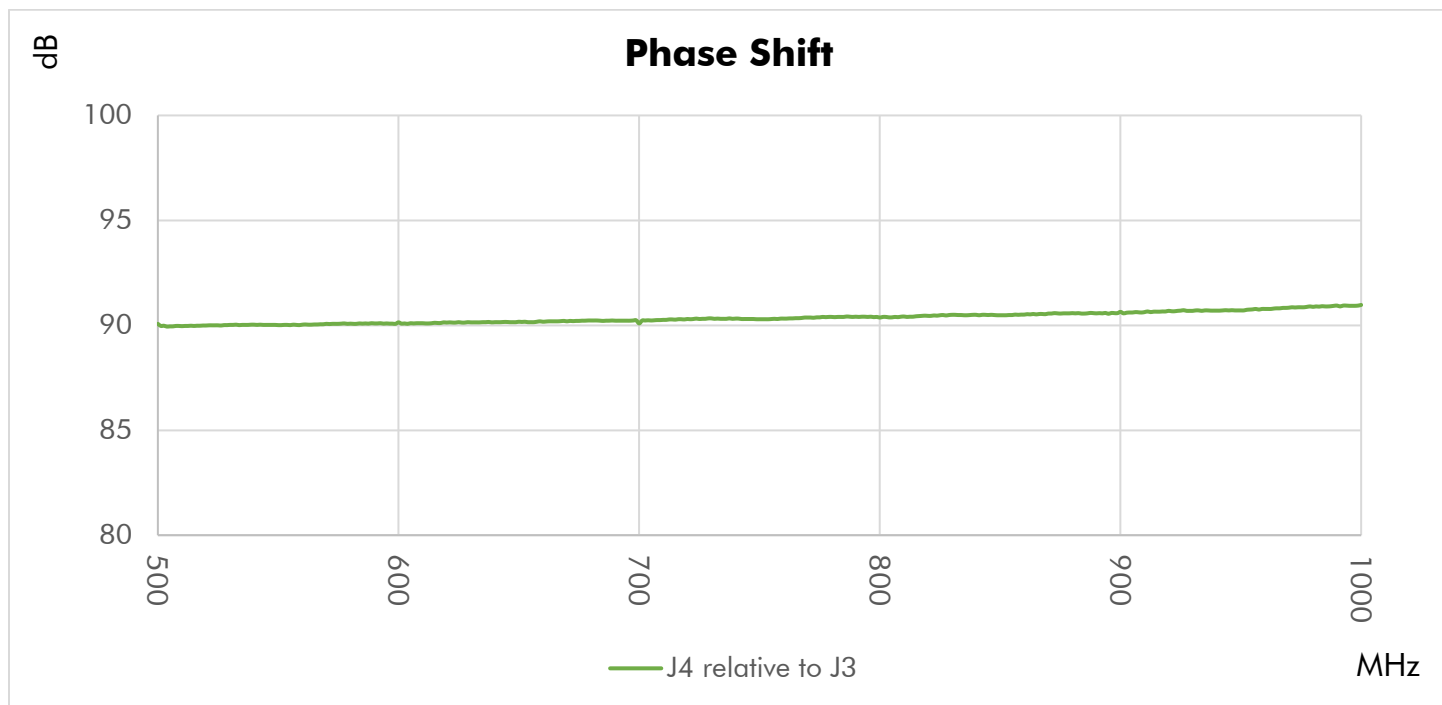
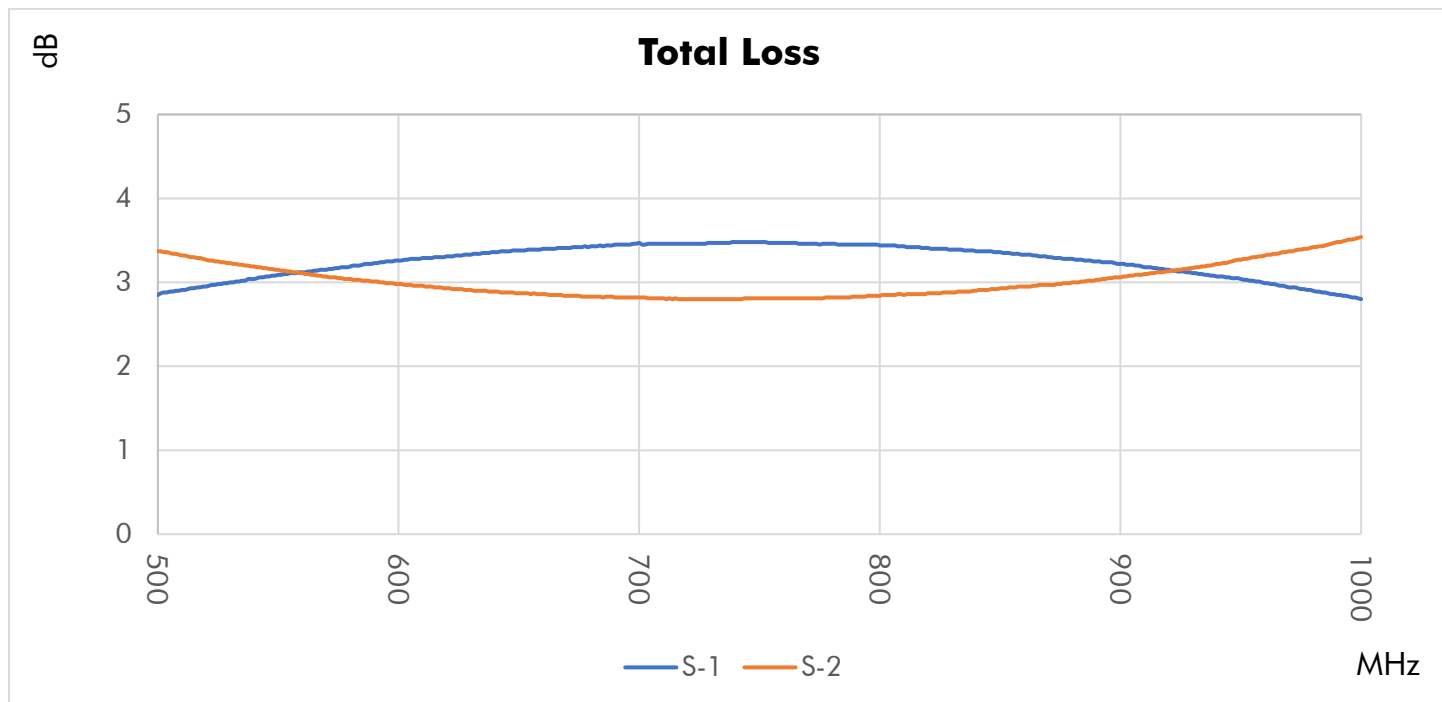
Connector Interface	SMA-Female
Operating Temperature <sup>3</sup>	-40 to +85 °C
Storage Temperature	-55 to +100 °C
Weight	1.2 oz (33.9 g)
Humidity	10-90% non-condensing
Environment	Indoor Use Only

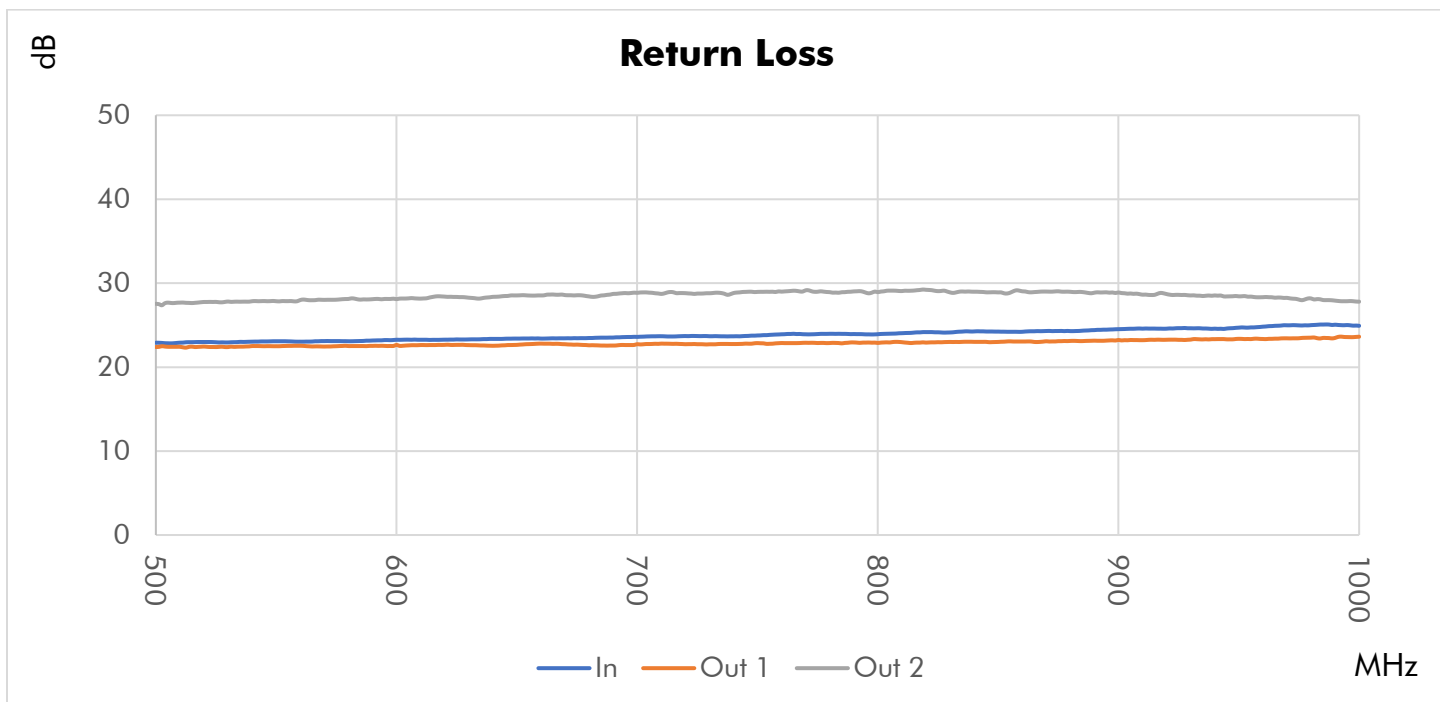
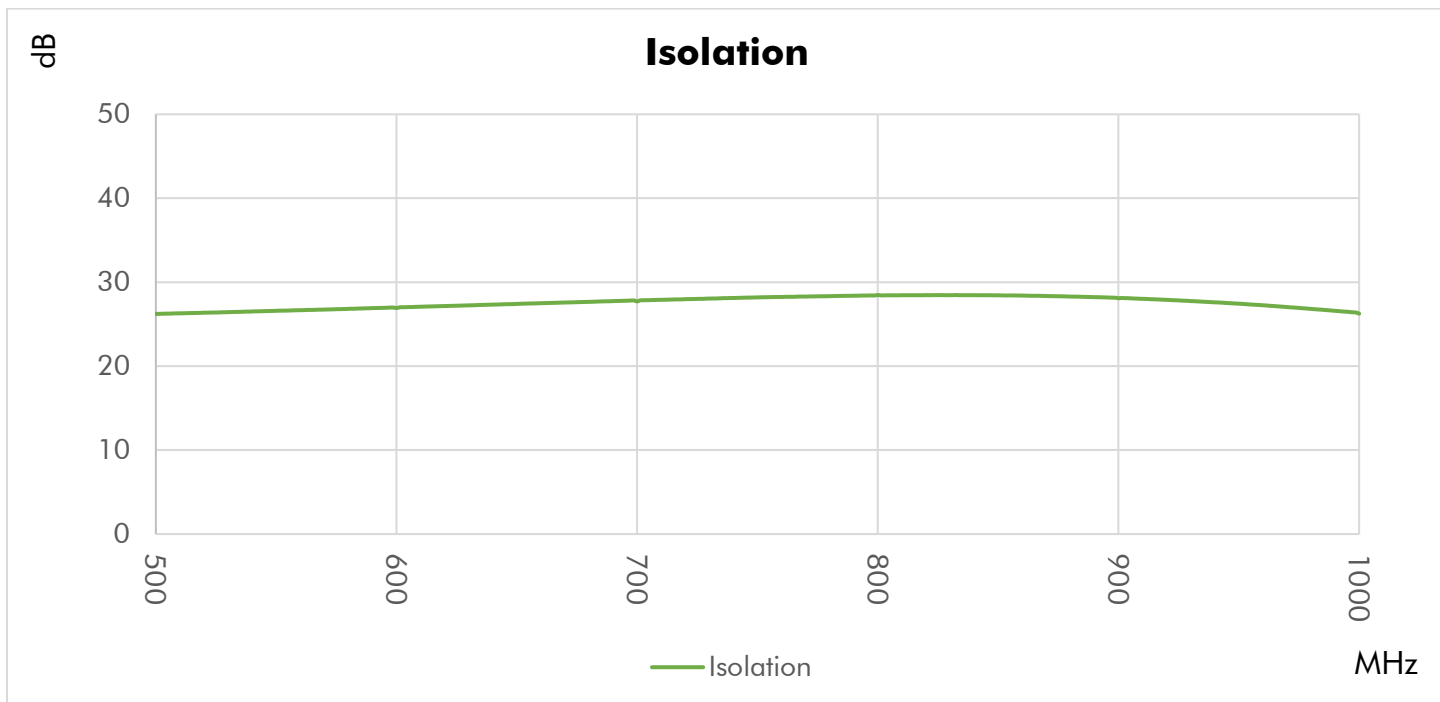
1. Total Loss includes insertion loss and frequency sensitivity.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Specifications are at +25°C.
4. To the best of our knowledge at the time of publication.

### Materials

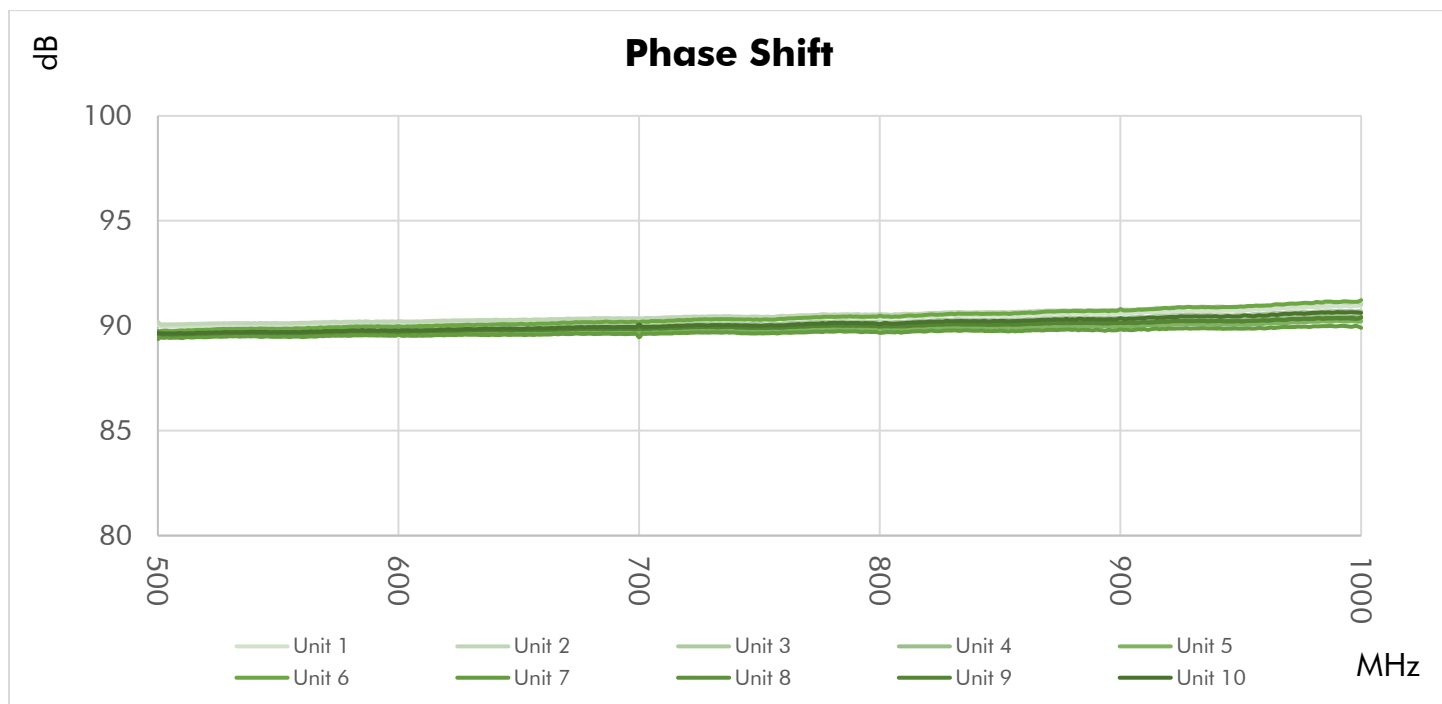
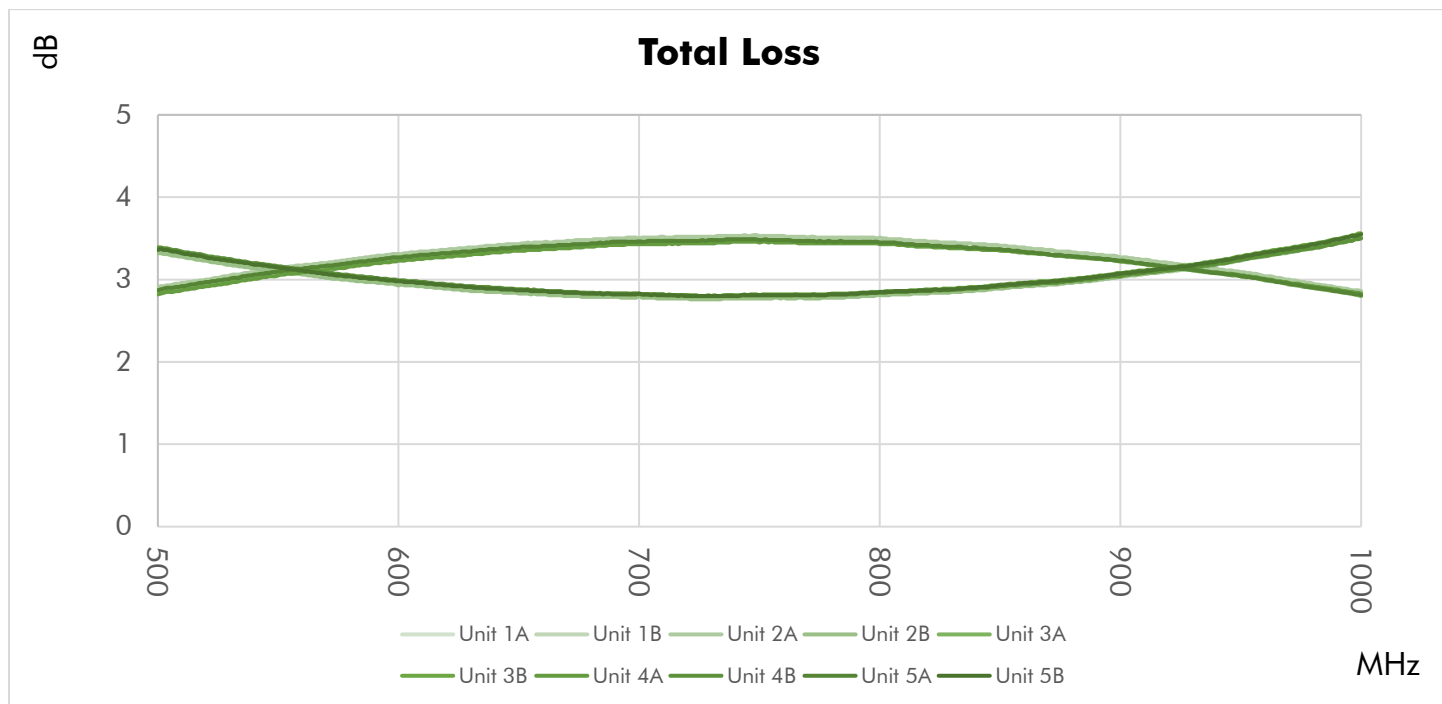
RoHS and REACH Compliant <sup>4</sup>	
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Green Paint

## Typical Performance at +25 °C





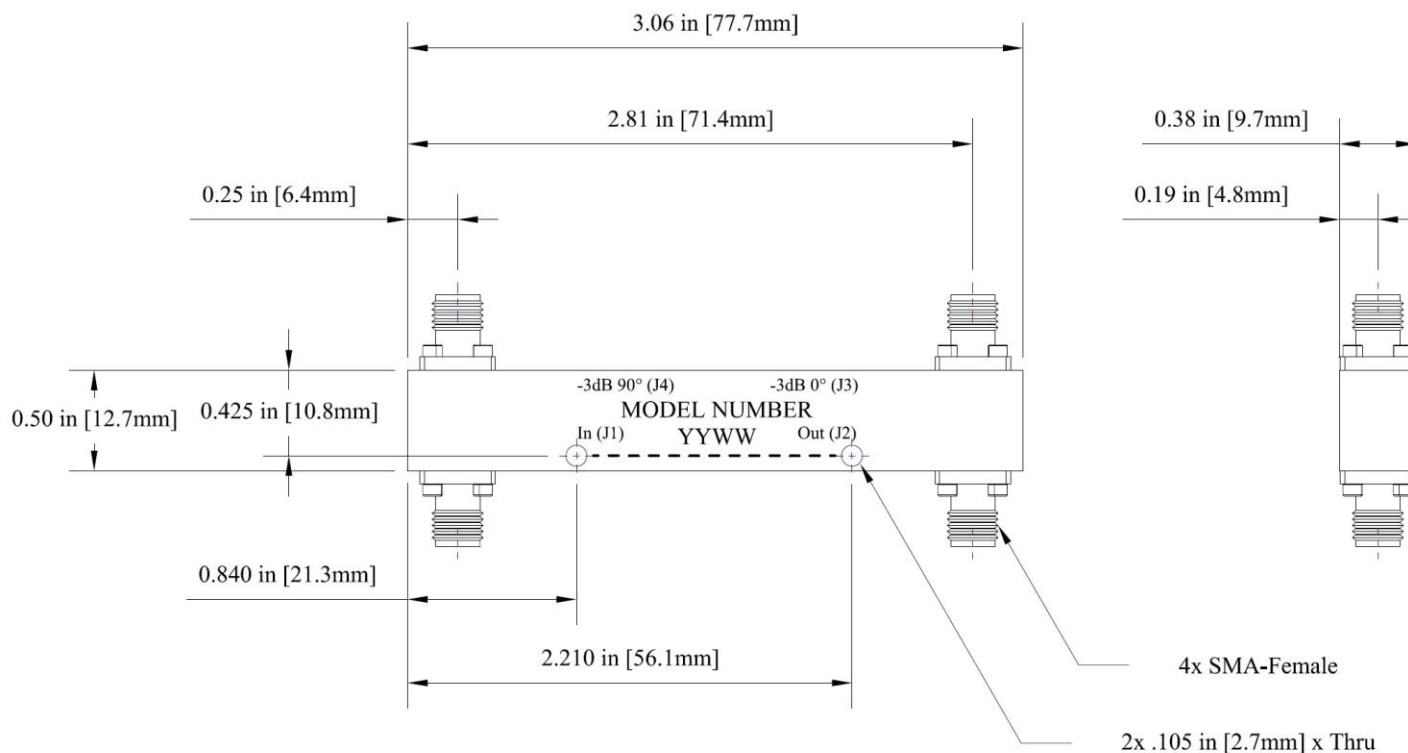
## Repeatability in Production



## Typical Performance at +25 °C

Frequency (MHz)	Insertion Loss (dB) J1-J3	Coupling (dB) J1-J4	Amplitude Unbalance (dB)	Phase Unbalance (deg)	Isolation (dB) J1-J2	Return Loss (dB) J1
500	3.0	3.6	0.6	89.6	23.8	25.8
525	2.9	3.4	0.5	89.5	24.0	22.4
550	2.9	3.1	0.2	89.8	24.1	22.6
575	3.1	3.1	0.0	89.5	24.3	22.1
600	3.2	3.1	0.1	89.7	24.5	22.2
625	3.3	3.0	0.3	90.1	24.7	22.6
650	3.3	2.9	0.4	89.7	25.0	22.8
675	3.3	2.9	0.5	89.7	25.2	22.7
700	3.4	2.9	0.5	89.8	25.4	22.7
725	3.4	2.9	0.5	90.1	25.7	23.3
750	3.5	2.8	0.7	89.9	26.0	23.2
775	3.4	2.8	0.6	90.0	26.2	23.0
800	3.4	2.9	0.5	90.2	26.5	23.3
825	3.3	2.9	0.4	90.2	26.7	24.0
850	3.4	3.0	0.3	90.0	27.0	24.1
875	3.3	3.0	0.3	90.6	27.2	23.2
900	3.3	3.2	0.1	90.3	27.5	23.7
925	3.1	3.1	0.1	90.3	27.5	24.4
950	3.0	3.3	0.3	90.2	27.6	24.4
975	2.8	3.4	0.6	89.9	27.5	24.4
1000	2.8	3.6	0.8	90.6	27.3	25.3

## Outline Dimensions



Outline # OL-QR501

Dimensions are in inches, [mm] shown for convenience.

Tolerances on 2-pl decimals:  $\pm .03$ . 3-pl decimals:  $\pm .015$ .

## Port Configuration

		OUTPUT			
		J1	J2	J3	J4
INPUT	J1	--	ISO	0°	+90°
	J2	ISO	--	+90°	0°
	J3	0°	+90°	--	ISO
	J4	+90°	0°	ISO	--

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