

Directional Coupler, 0.1-100MHz, 40dB, N/SMA Female

WMC-0.1-100M-40dB-NS



The WMC-0.1-100M-40DB-NS is a broadband 40 dB directional coupler designed for accurate RF power sampling and monitoring from 100 kHz to 100 MHz. Its flat coupling response and low loss through path make it well suited for transmitter monitoring, RF test systems, feedback and protection circuits, industrial RF equipment, and laboratory instrumentation.

Designed to handle up to 200 W peak and 40 W average input power, the coupler provides 0.4 dB maximum insertion loss, 1.2:1 maximum main-line VSWR, 20 dB minimum

directivity, and coupling accuracy within ± 1 dB. This combination provides reliable measurement performance while minimizing its effect on the primary RF signal.

The compact aluminum enclosure measures approximately 50 x 32 x 22 mm and features N-female connectors on the through line with an SMA-female coupled port. A flat, screw-mountable base supports straightforward installation, while the -15 °C to +55 °C operating temperature range makes the unit suitable for a wide variety of commercial and industrial applications.

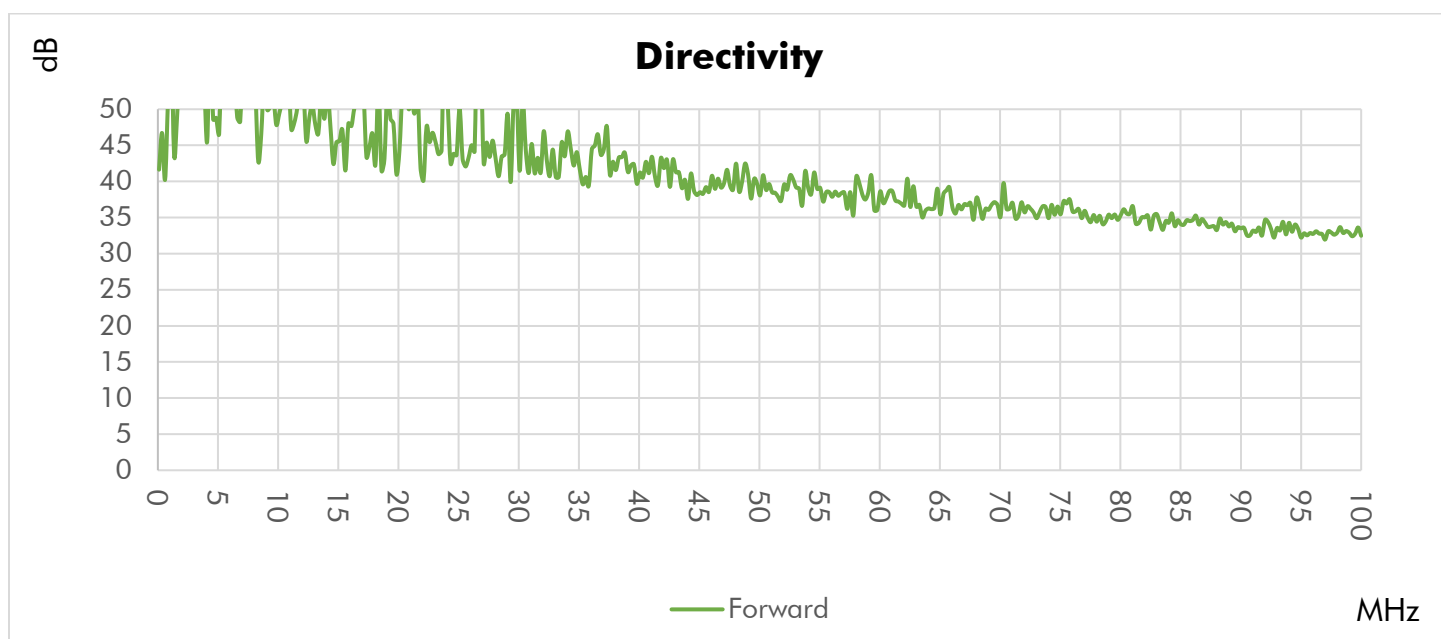
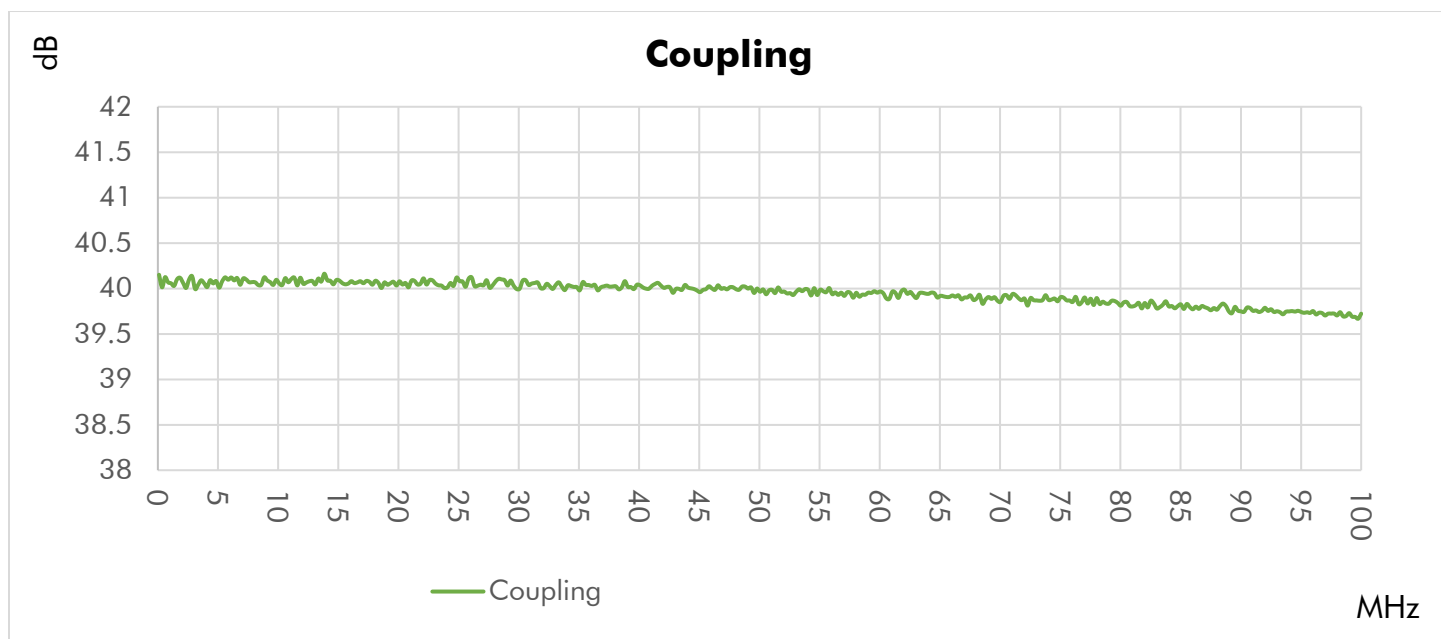
Parameter	Min.	Typ.	Max.	Unit
Frequency Range	0.1	-	100	MHz
Impedance	-	50	-	Ω
Coupling	-	40 $\pm$ 1.0	-	dB
Frequency Sensitivity (Flatness)	-	$\pm$ 0.25	-	dB
Mainline Loss ¹	-	0.1	0.4	dB
Directivity	20	28	-	dB
Mainline Return Loss	20	29	-	dB
Secondary Line Return Loss	20	25	-	dB
Isolation	-	68	-	dB
Average Power ²	-	-	40	W
Peak Power ²	-	-	200	W

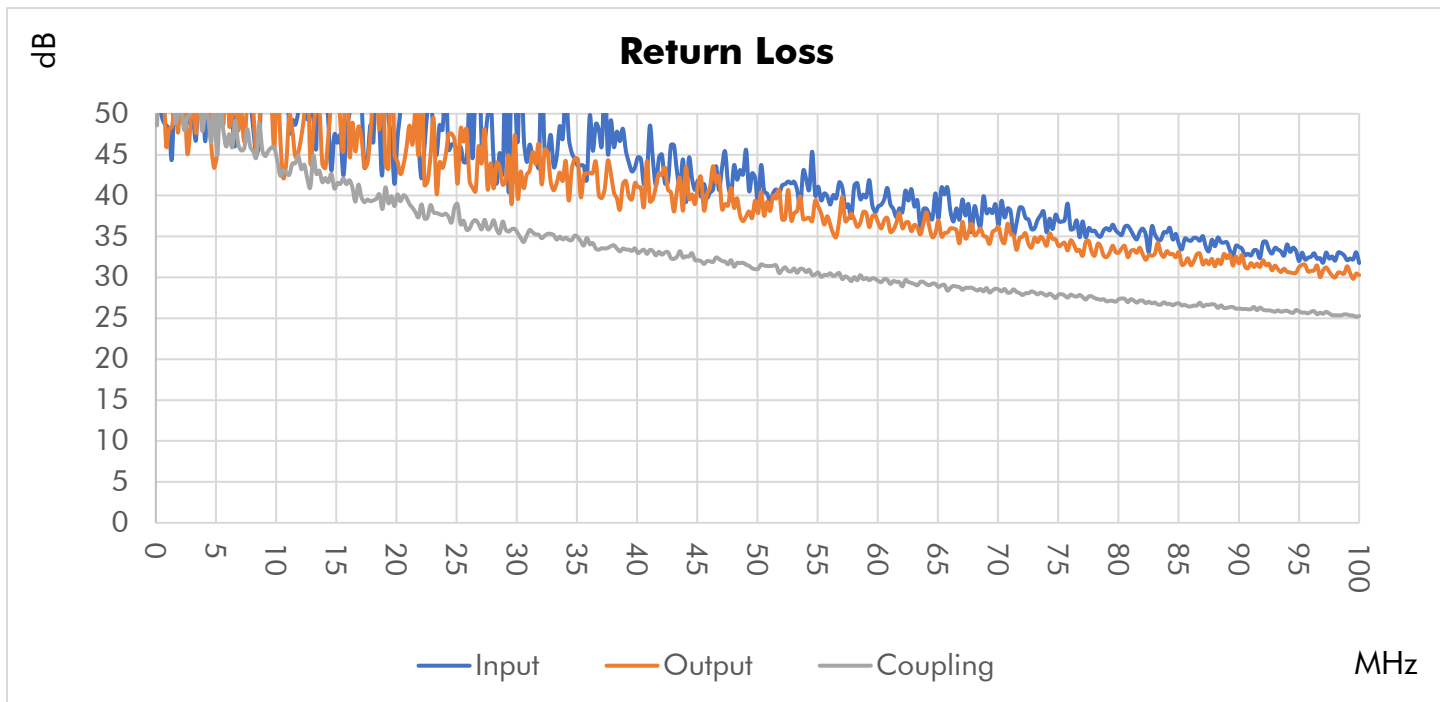
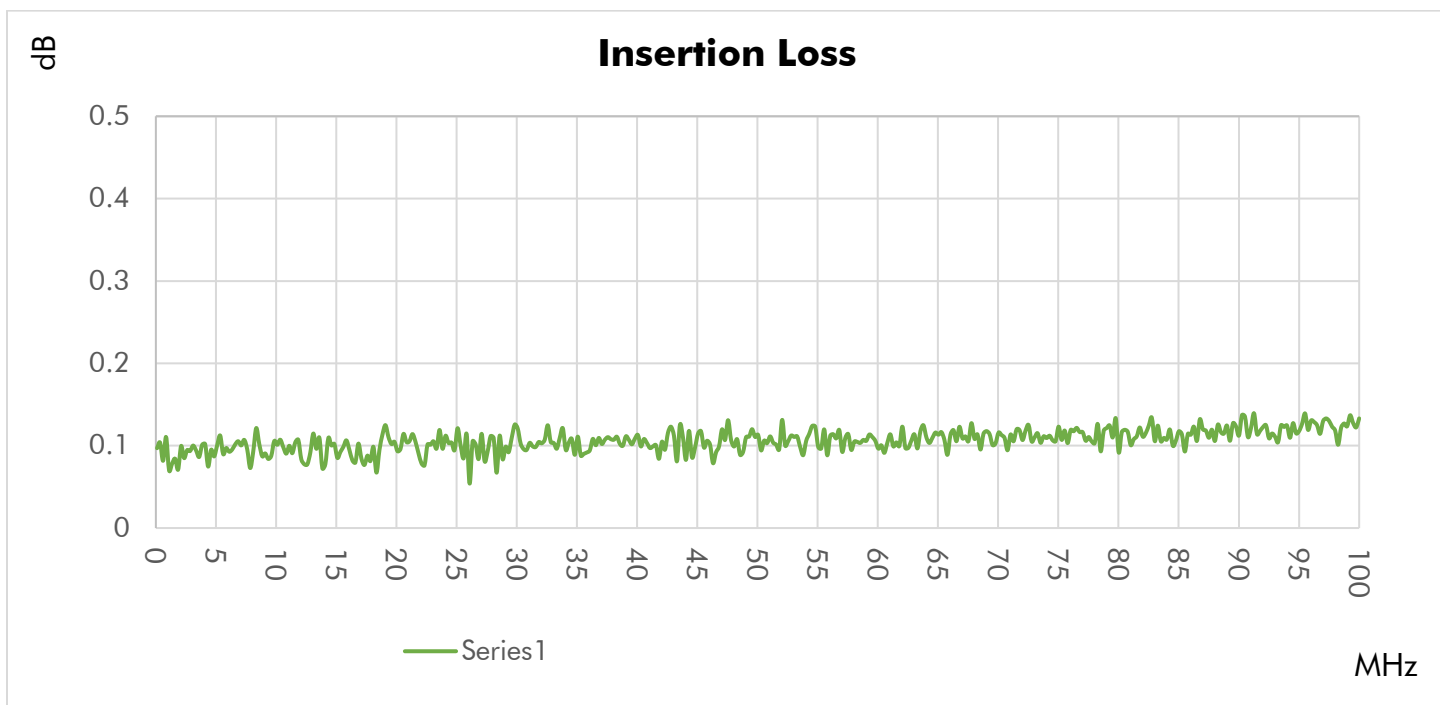
Connector Interface	N Female (In, Out) SMA Female (Coupled)
Operating Temperature ³	-15 to +55 °C
Storage Temperature	-55 to +100 °C
Nominal Weight	102 g (3.6 oz)
Operating Humidity	10-90% (non-condensing)
Operating Environment	Indoor Use Only
HTSUS Code	8525.50.3035
ECCN	EAR99

RoHS Status ⁴	RoHS3 Compliant
REACH Status ⁴	REACH Unaffected
Enclosure Material	Aluminum
Connectors Material	Brass
Contacts Material	Beryllium Copper, Gold Plated
Insulators Material	Virgin PTFE
Finish	Green Paint

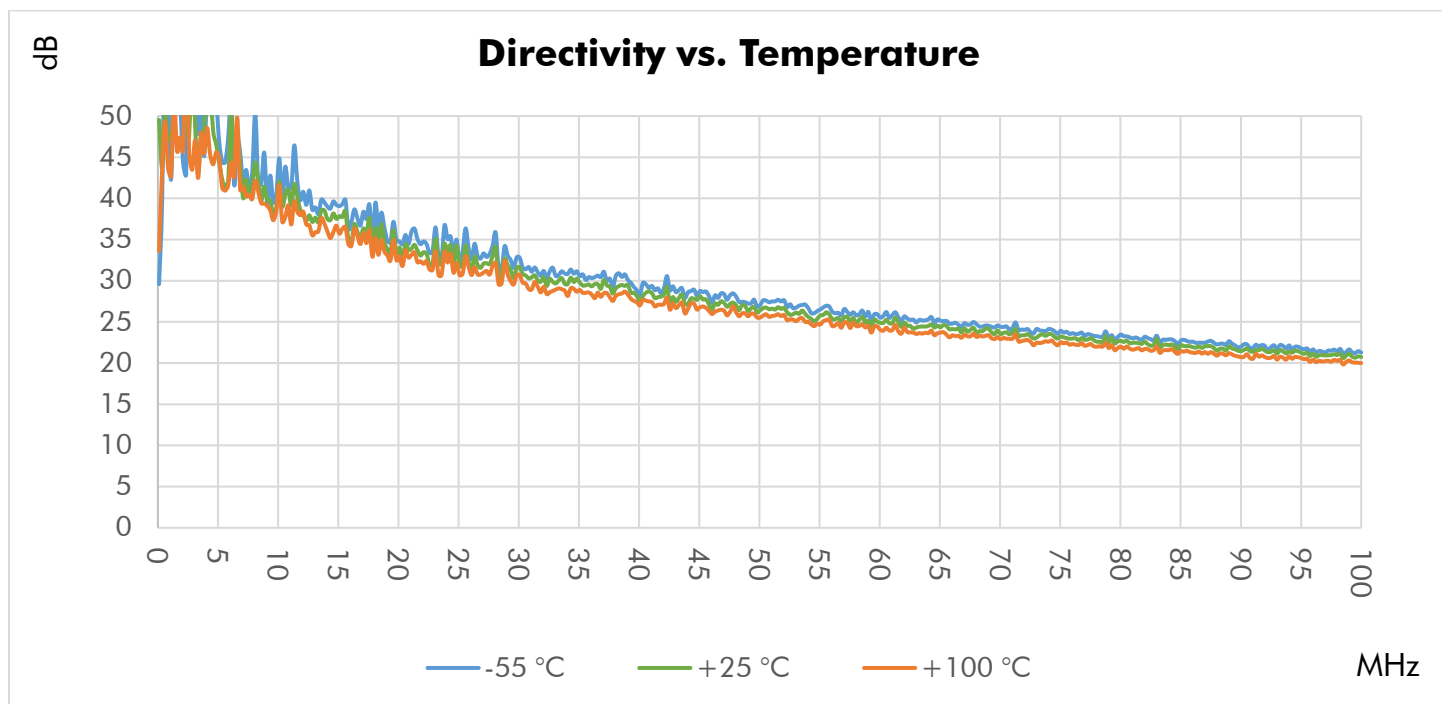
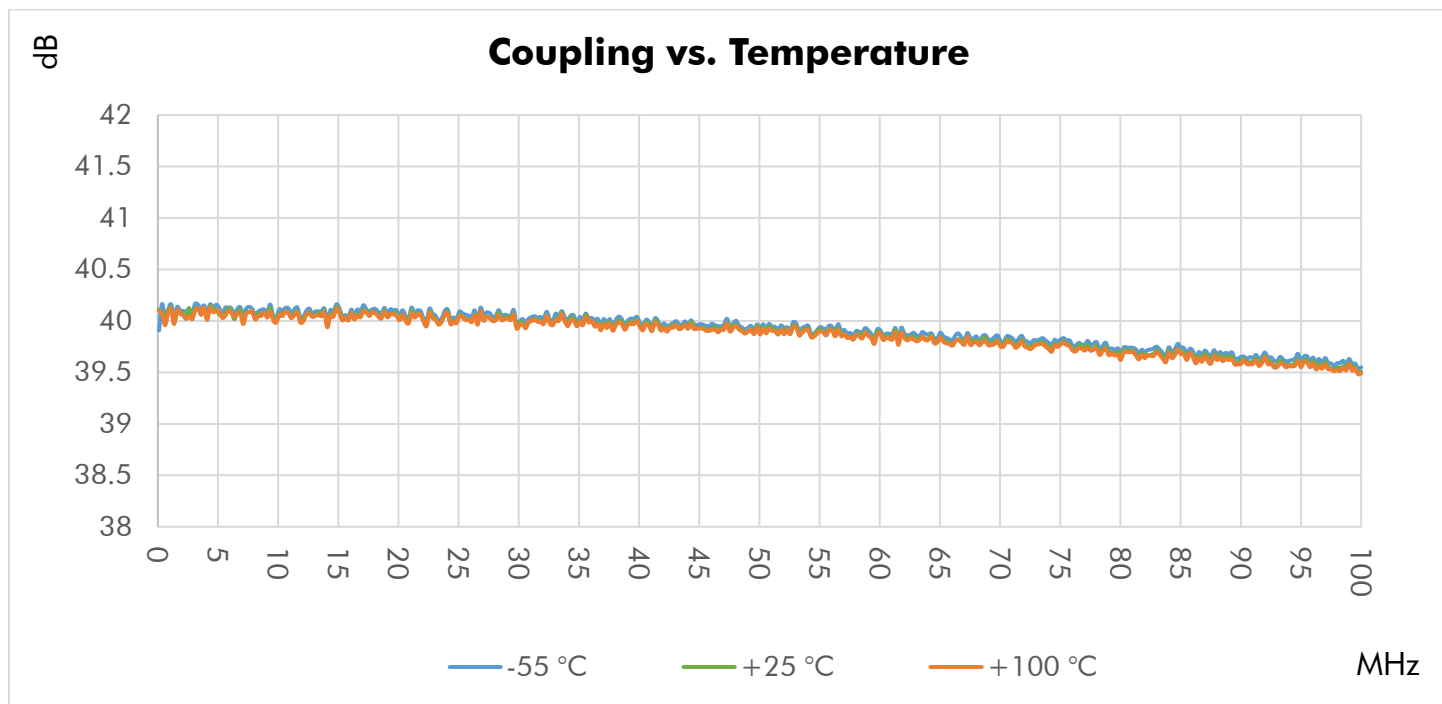
1. Mainline loss includes coupling loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications are tested at +25 °C.
4. To the best of our knowledge at the time of publication.

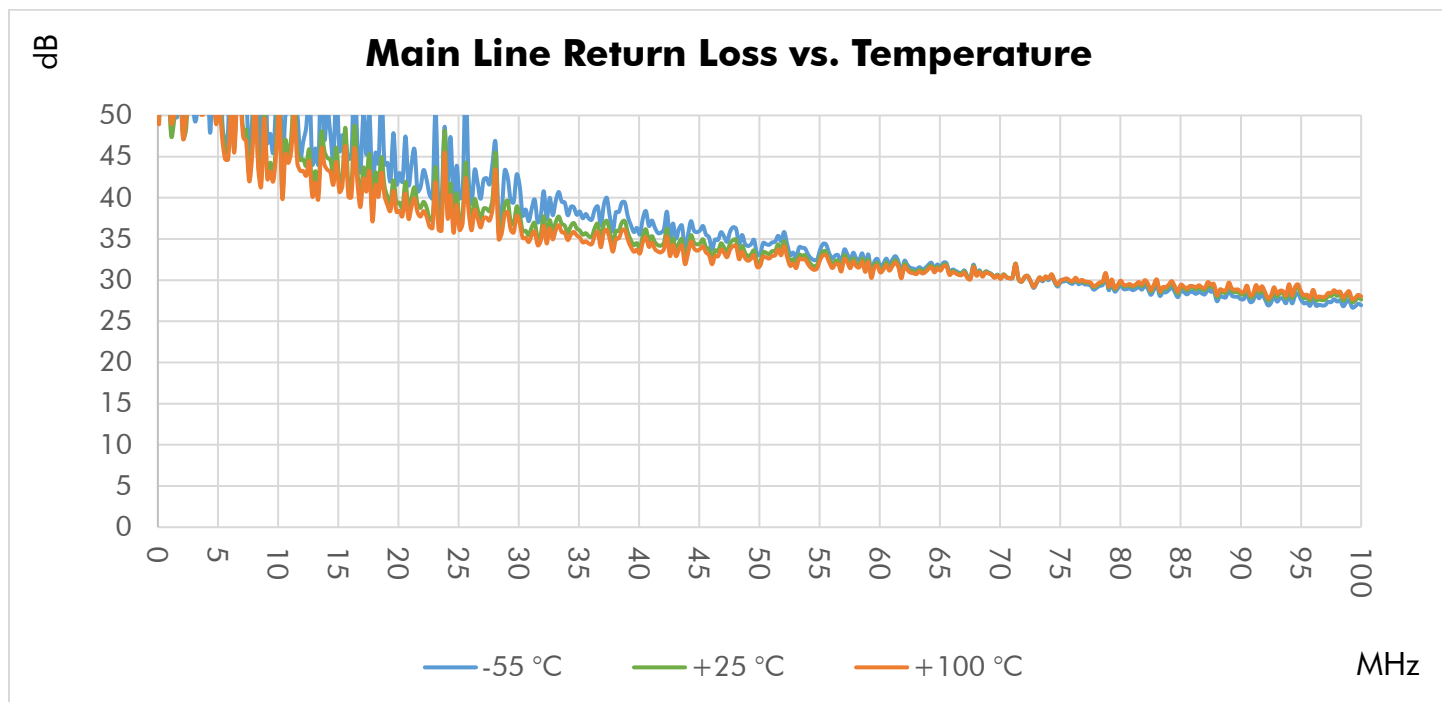
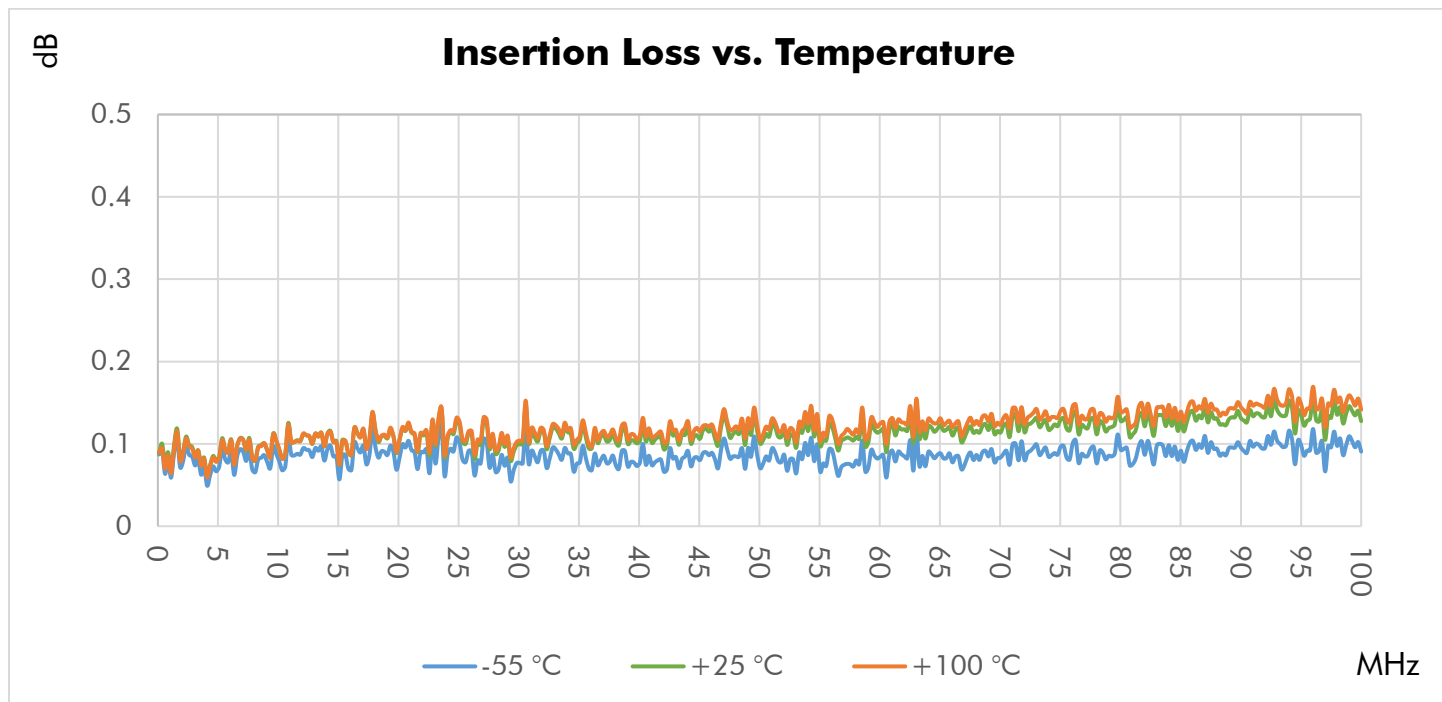
Typical Performance at +25 °C



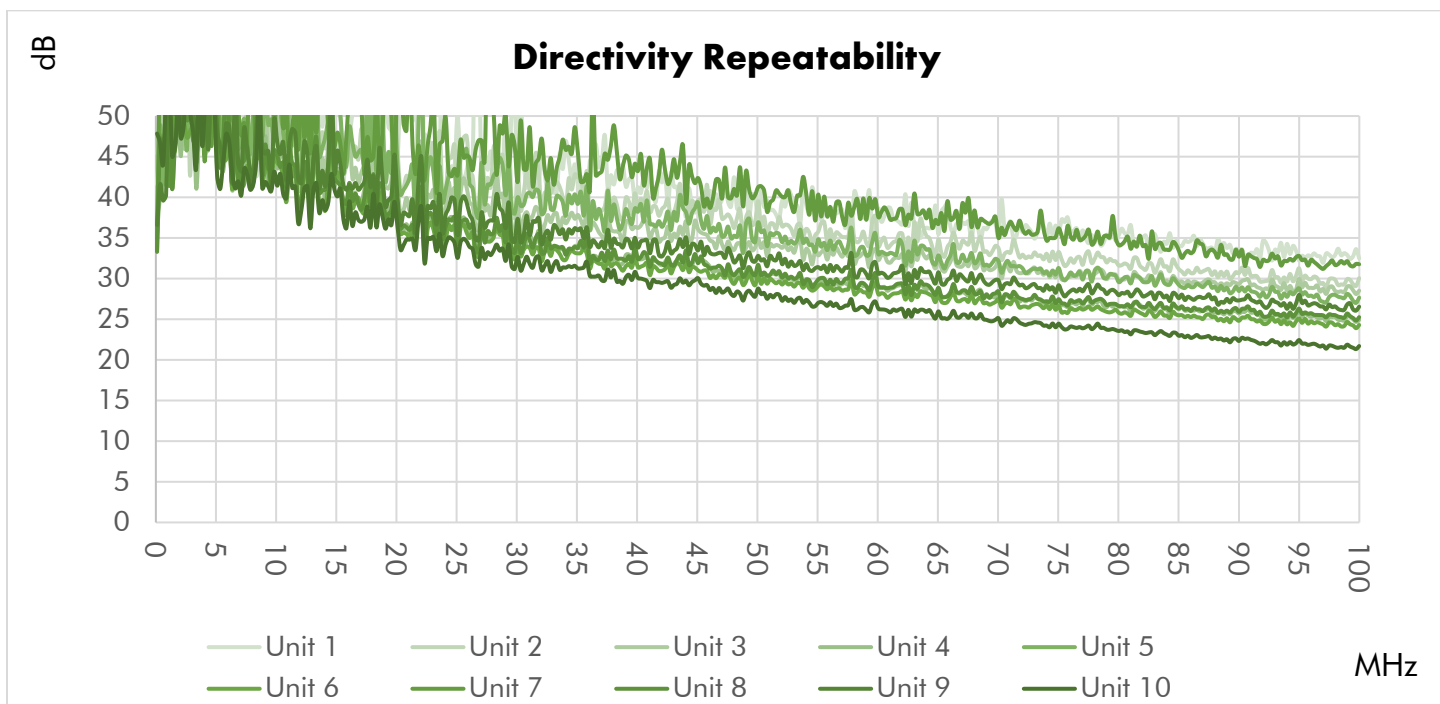
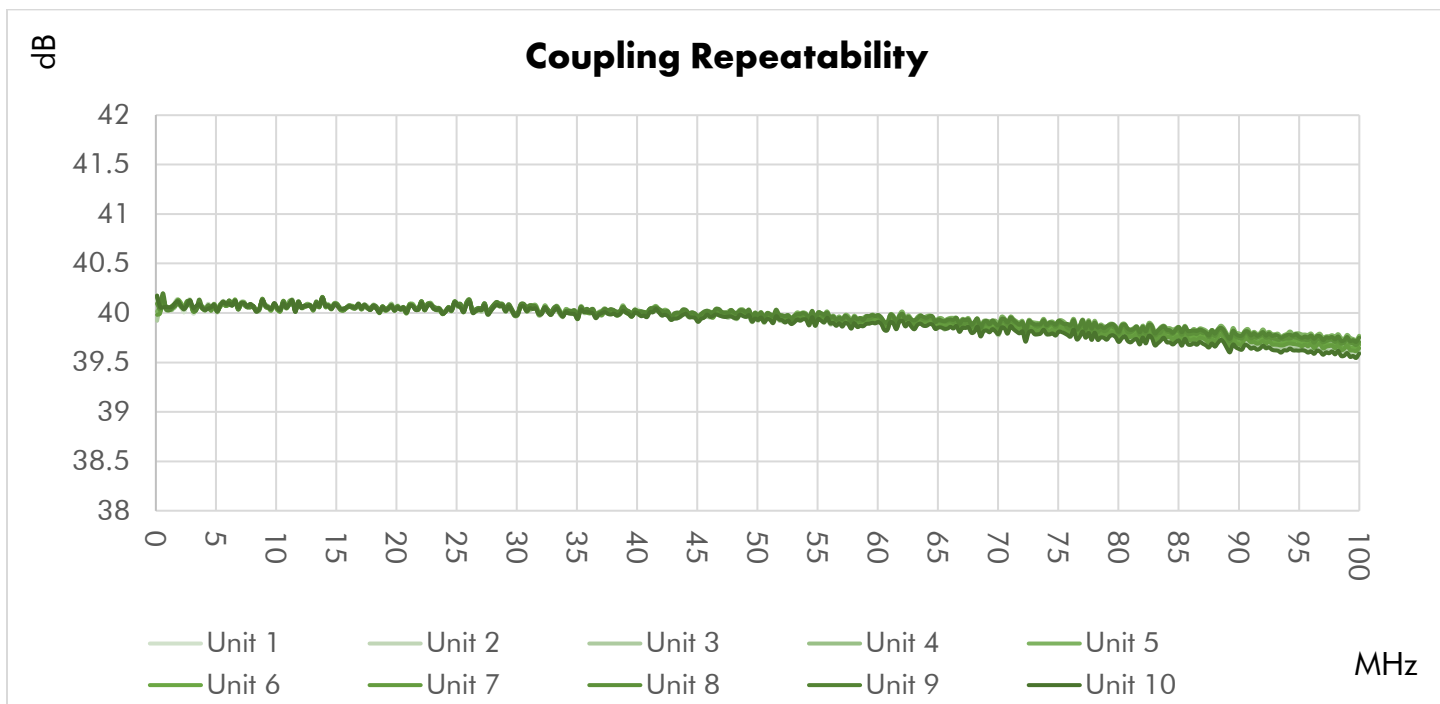


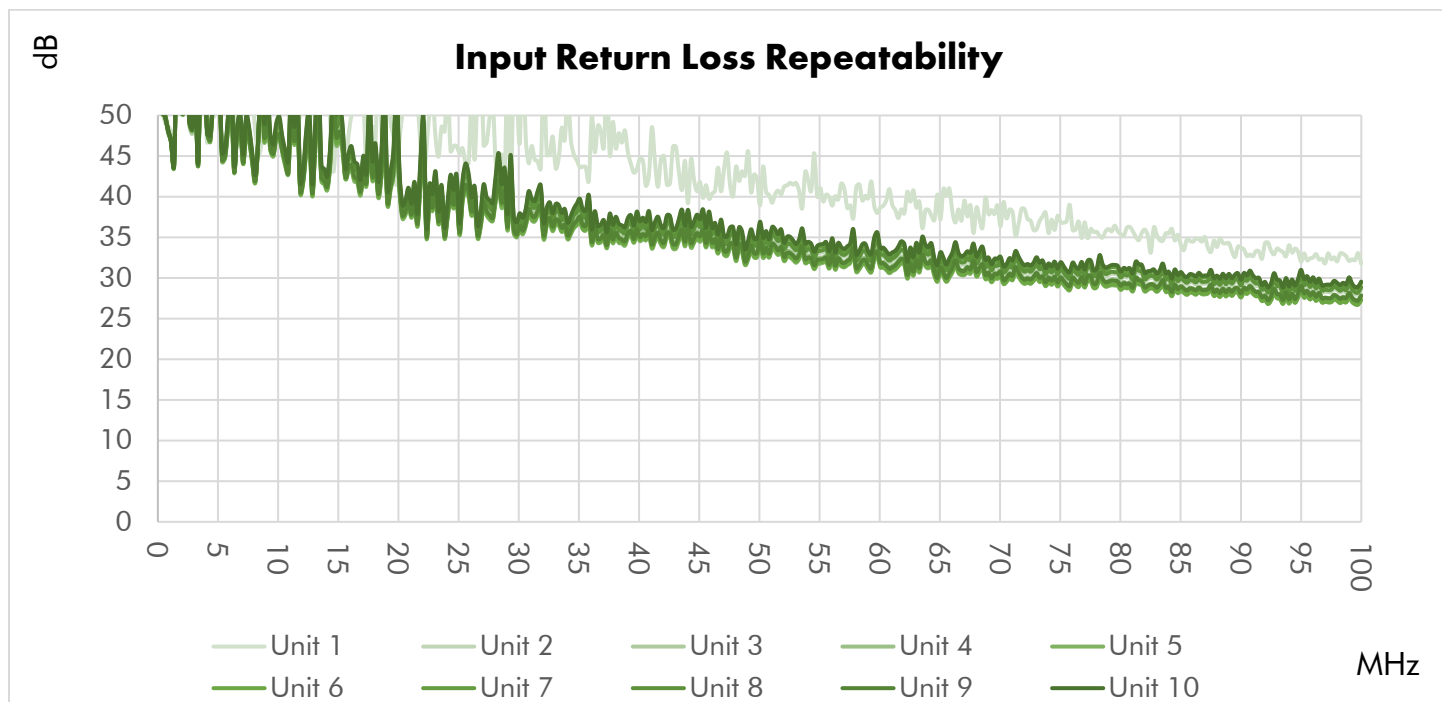
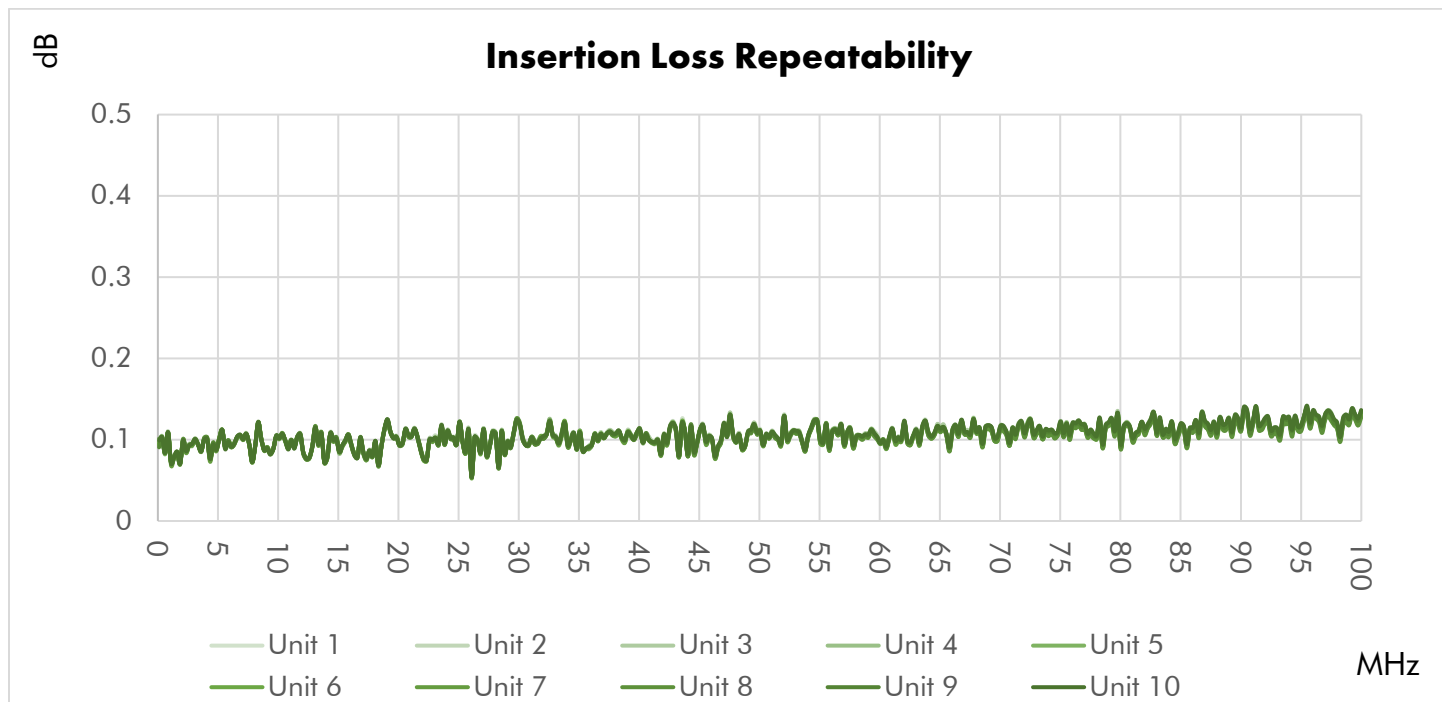
Typical Performance over Temperature





Repeatability Among Randomly Selected Units

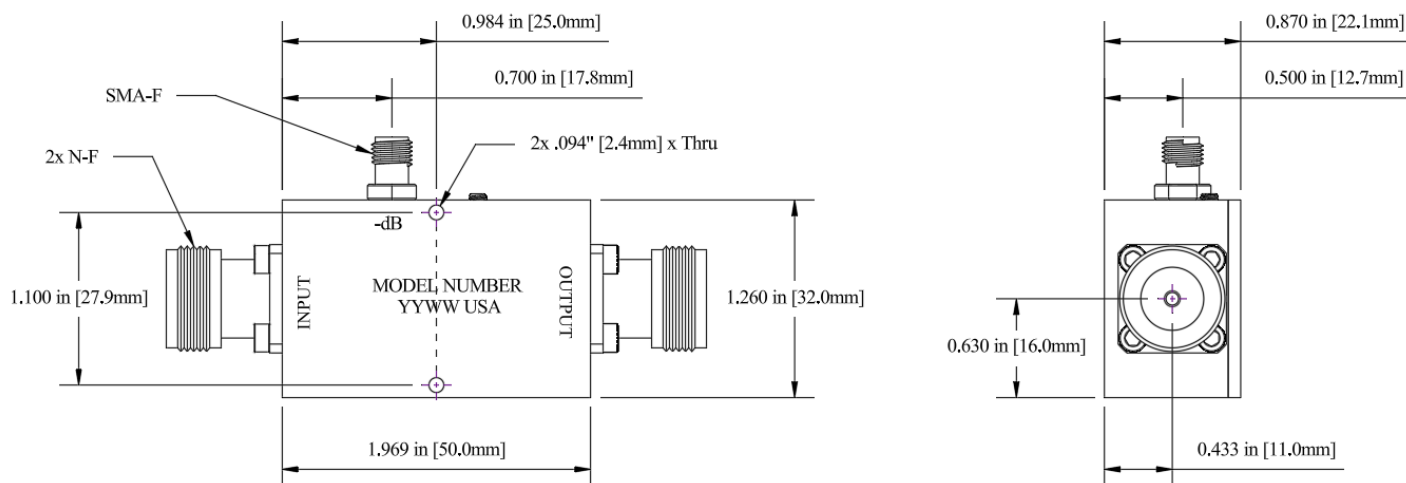




Typical Performance Data

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB)	Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.	
0.1	54.3	51.2	48.6	0.10	40.2	41.6
0.3	50.7	50.7	57.3	0.10	40.0	46.7
0.6	49.1	55.9	54.6	0.08	40.1	40.3
1.1	48.1	48.1	53.1	0.07	40.1	60.9
1.3	44.7	48.5	63.2	0.08	40.0	43.6
1.8	51.2	47.7	49.9	0.07	40.1	56.6
2.3	59.1	54.8	48.0	0.08	40.0	52.2
2.8	48.7	48.0	50.0	0.09	40.1	50.6
3.3	46.9	47.7	50.6	0.09	40.0	51.5
3.8	55.0	49.3	47.9	0.10	40.1	53.1
4.6	49.9	46.5	46.5	0.10	40.1	48.6
5.3	50.6	67.4	51.1	0.11	40.1	61.6
6.1	56.2	48.5	47.5	0.09	40.1	54.2
7.1	53.3	50.5	45.5	0.10	40.1	58.2
7.8	51.9	54.8	46.0	0.07	40.1	57.5
8.8	55.4	60.4	45.6	0.09	40.1	54.6
10.1	54.2	55.9	44.3	0.10	40.1	49.4
11.3	49.2	48.0	43.9	0.09	40.1	48.1
12.6	49.3	57.4	42.1	0.08	40.1	48.8
14.1	55.8	43.4	42.1	0.08	40.1	53.0
15.8	47.4	60.9	41.4	0.11	40.1	48.0
17.6	44.3	44.0	39.5	0.09	40.1	44.8
19.3	49.5	43.3	39.1	0.11	40.1	48.7
21.6	51.6	50.3	37.9	0.10	40.0	52.7
23.8	48.0	43.4	37.6	0.10	40.0	63.9
26.3	44.6	41.0	36.8	0.11	40.0	44.2
29.1	56.5	41.8	35.9	0.10	40.0	49.3
32.1	55.8	41.4	34.8	0.10	40.0	47.0
35.3	43.7	39.8	34.4	0.09	40.1	39.6
39.1	45.5	41.8	33.4	0.11	40.0	41.3
42.8	46.2	40.4	32.4	0.12	40.0	43.1
47.3	45.4	39.0	31.9	0.11	40.0	41.6
52.0	41.2	37.1	30.9	0.13	40.0	39.6
57.0	41.0	39.8	29.8	0.09	39.9	38.5
62.8	40.8	35.6	29.3	0.11	39.9	39.3
69.0	37.9	34.9	28.7	0.12	39.9	36.1
75.8	39.0	33.3	27.5	0.10	39.9	37.5
83.0	35.3	32.9	26.9	0.11	39.8	35.5
91.3	33.3	31.3	26.4	0.14	39.8	33.0
100.0	31.8	30.3	25.3	0.13	39.7	32.5

Outline Dimensions



Outline # OL-5008

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

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

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