

Directional Coupler, 2-18GHz, 10dB, SMA Female

WMC-2-18-10dB-S

Description

Model WMC-2-18-10dB-S from Werbel Microwave is a directional coupler that covers 2 to 18 GHz with broadband flat coupling response, high directivity, and excellent return loss performance. Frequency sensitivity, or coupling flatness, is very good, with $\pm 0.3\text{dB}$ typical. The aluminum enclosure measures 2.25 x 0.73 x 0.50 inches with threaded mounting holes. Coupling flatness $\pm 0.35\text{dB}$ typical. Insertion loss 0.8dB typical. Directivity 17dB typical. Higher directivity is available on special order. Return loss 19dB typical. SMA Female connectors. The device is RoHS complaint, but Sn/Pb solder is available for military applications on special build to order. The device covers the letter bands S, C, X and Ku band all in one enclosure. Our own unique coupling design allows for excellent flatness, thereby increasing measurement accuracy. Designed, assembled and tested in the USA.



Photo is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	2	--	18	GHz
Impedance	--	50	--	Ohm
Coupling	--	10 ± 1.0	--	dB
Frequency Sensitivity (Flatness)	--	± 0.35	± 1.0	dB
Mainline Loss ¹	--	0.8	1.6	dB
Directivity	15	17	--	dB
Return Loss (In and Out)	14	19	--	dB
Return Loss (Coupling)	14	17	--	dB
Isolation	--	27	--	dB
Input Power (CW) ²	--	--	20	Watts

Mechanical

Connector Interface	SMA-Female
Operating Temperature ³	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight	1.4 oz (40 g)
Humidity	10-90% non-condensing
Environment	Indoor Use Only

Materials

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

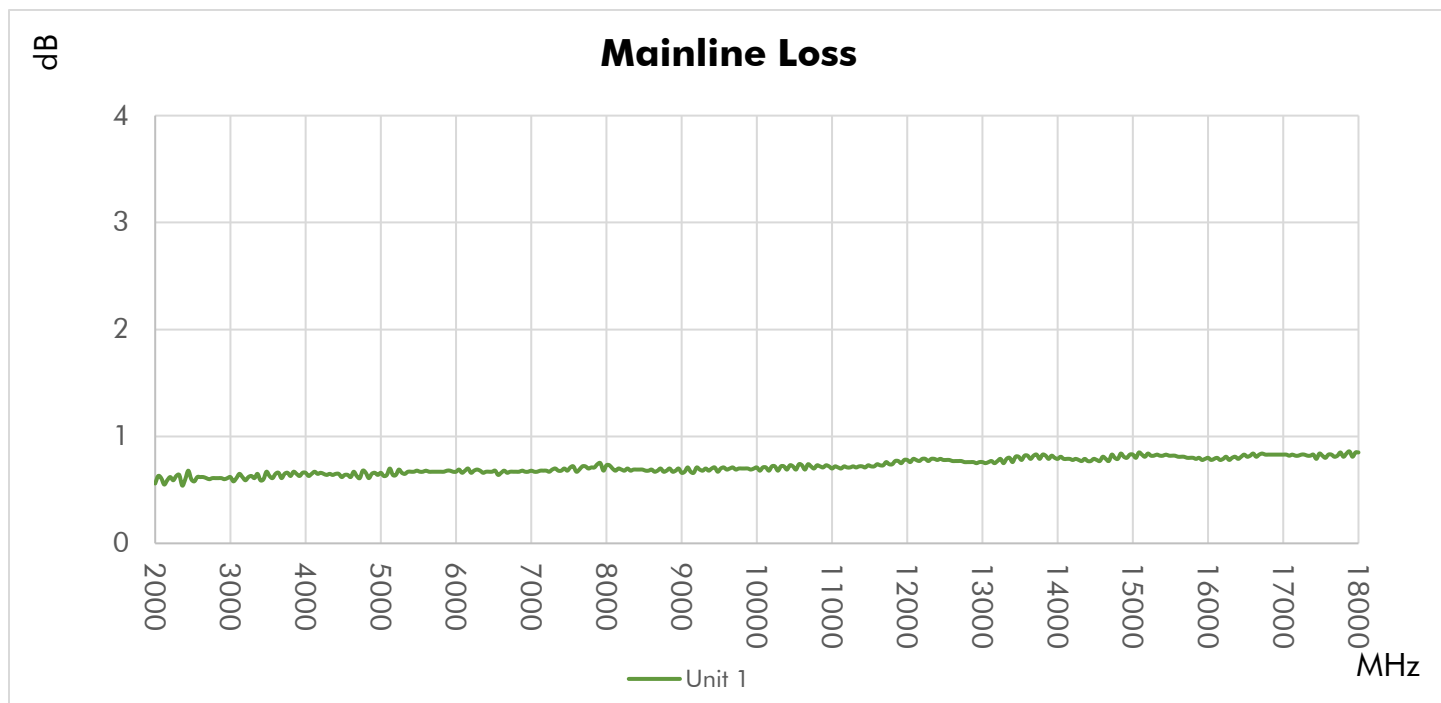
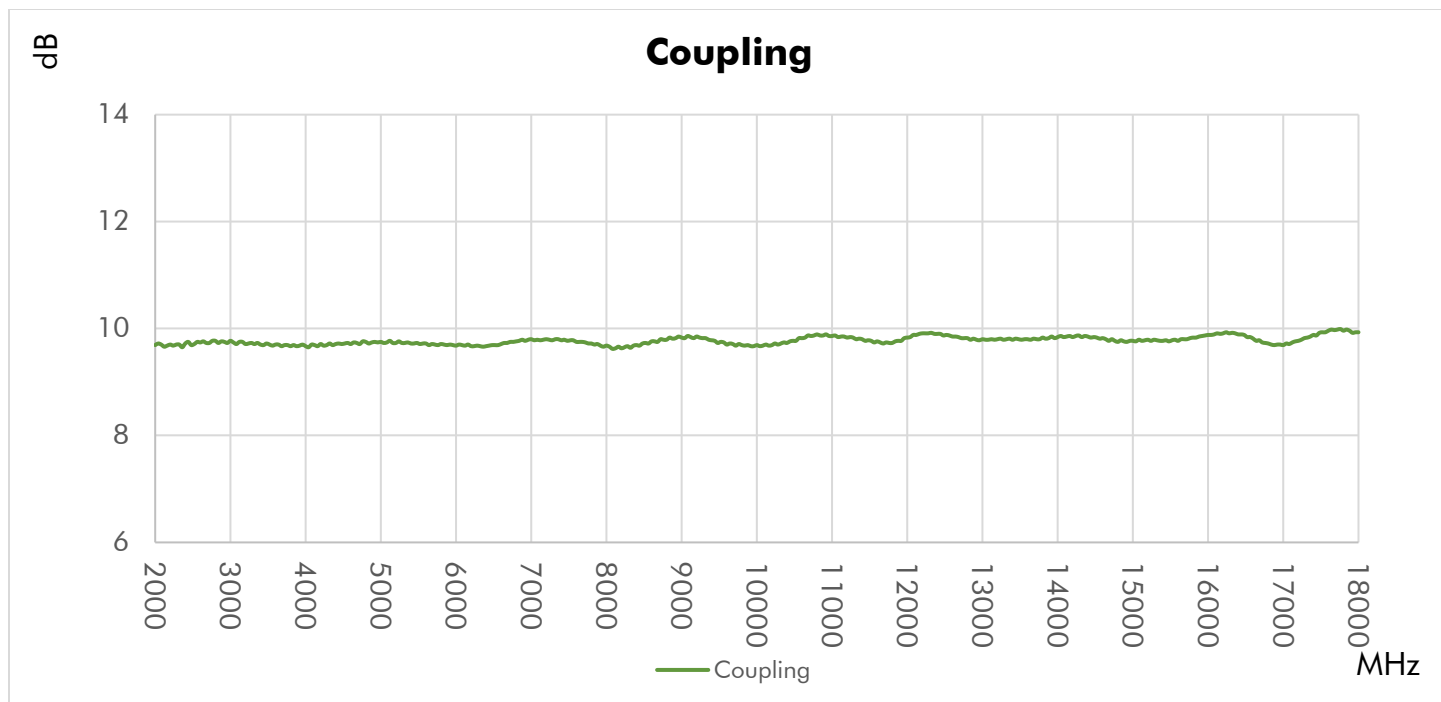
1. Mainline loss includes coupling loss.

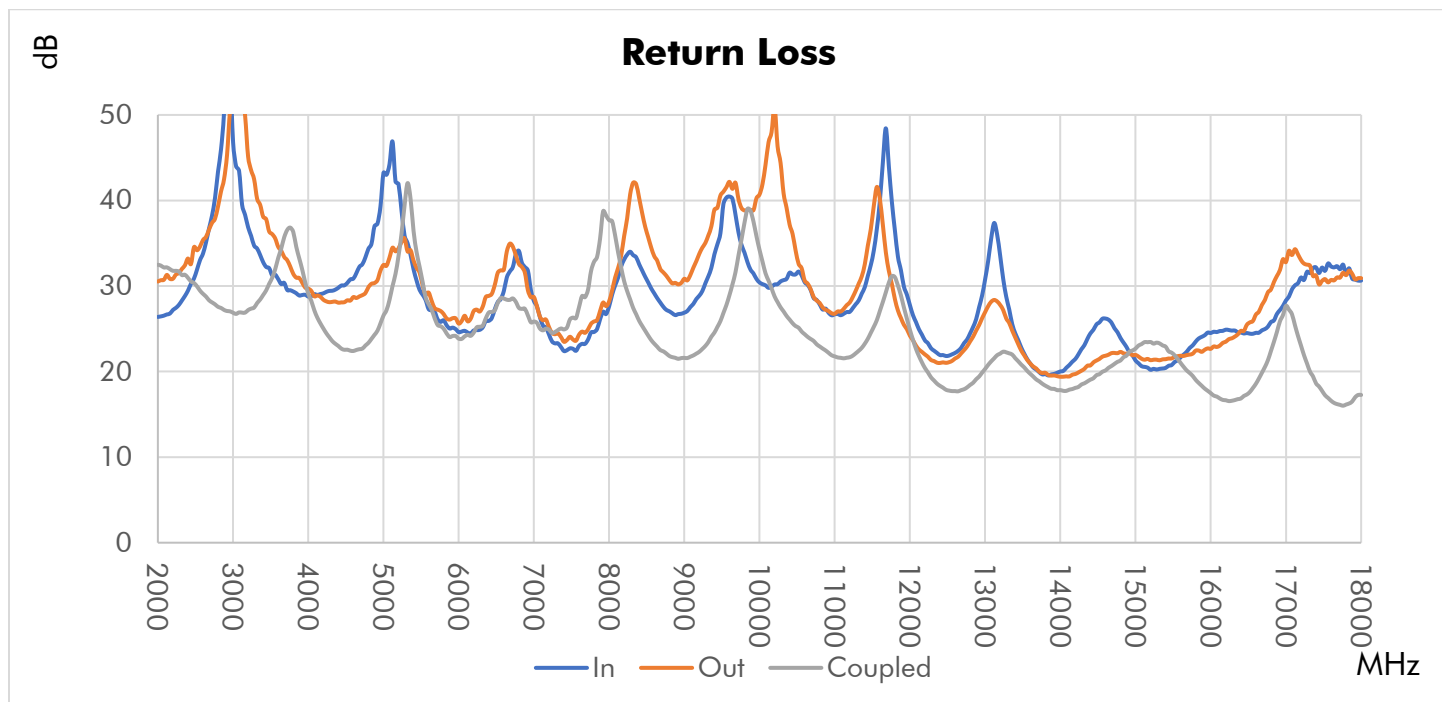
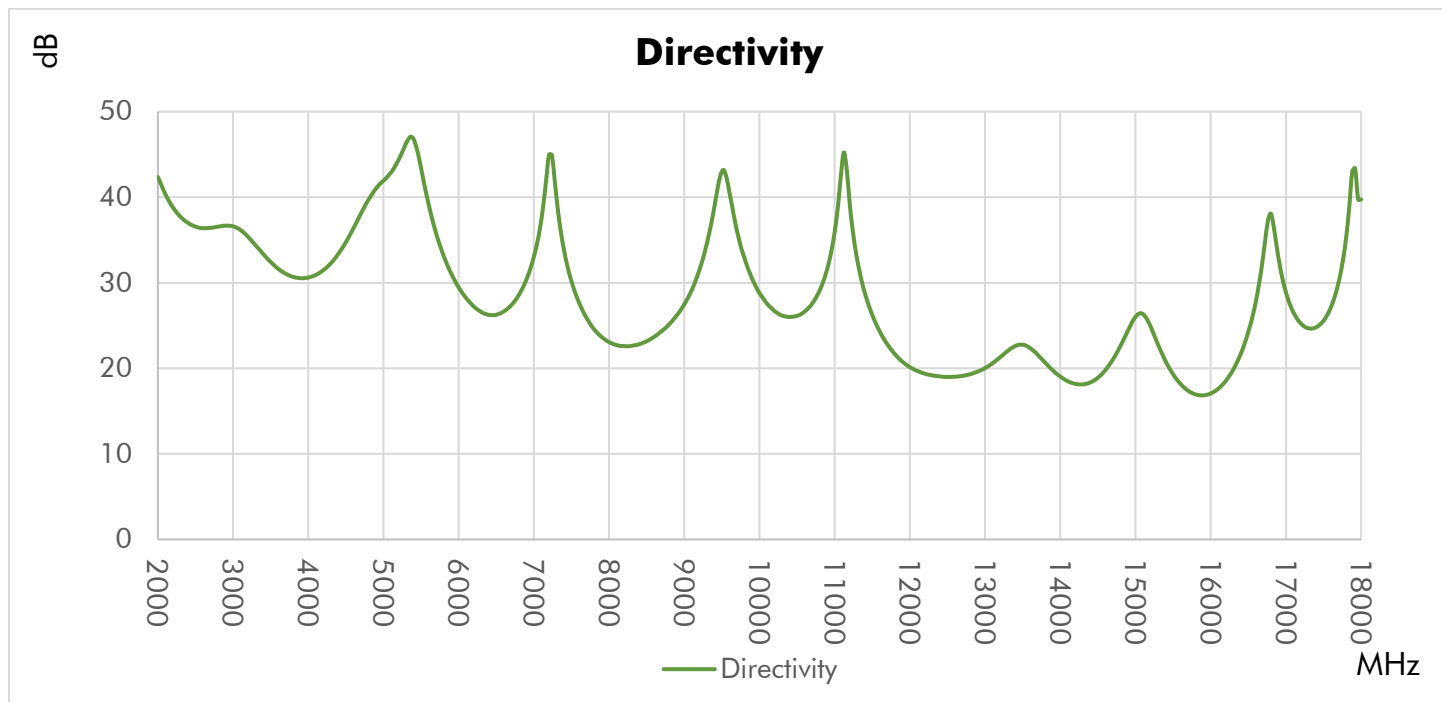
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.

3. Electrical Specifications at +25 °C.

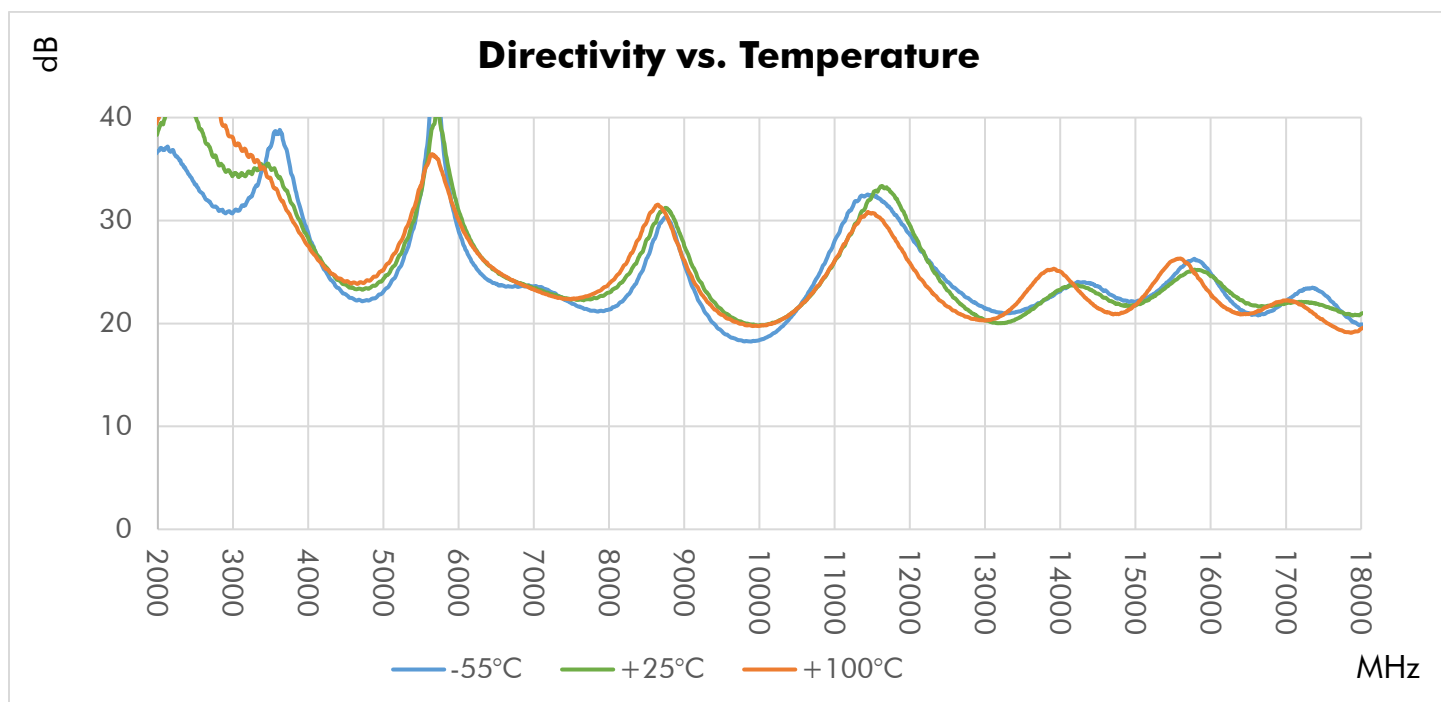
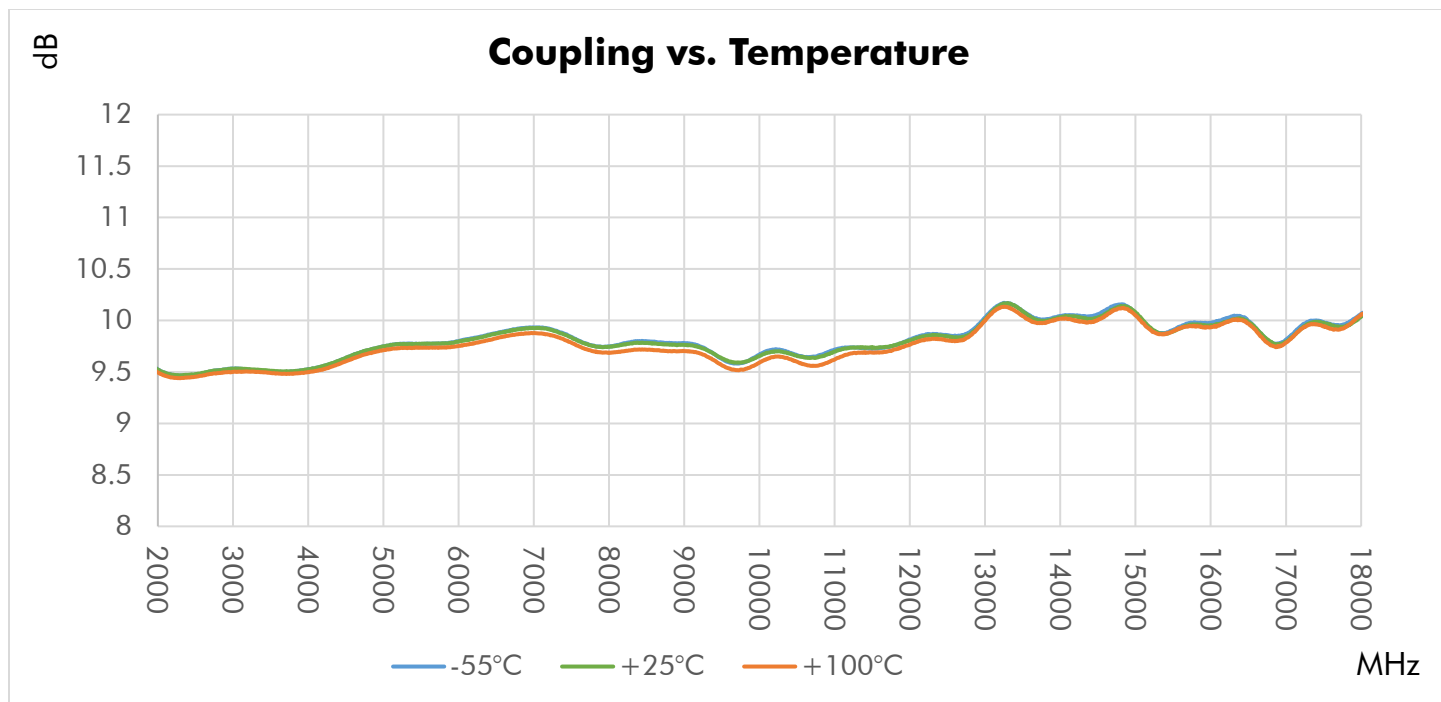
4. To the best of our knowledge at the time of publication.

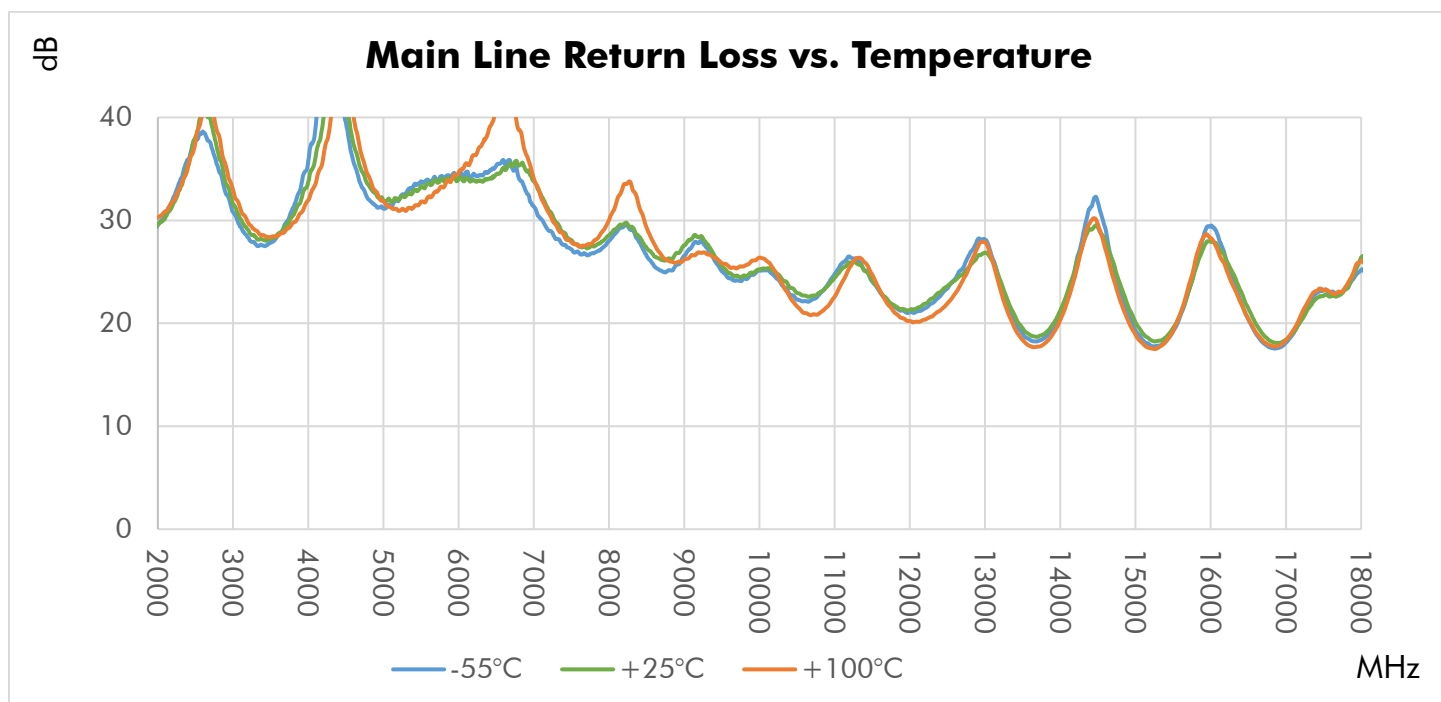
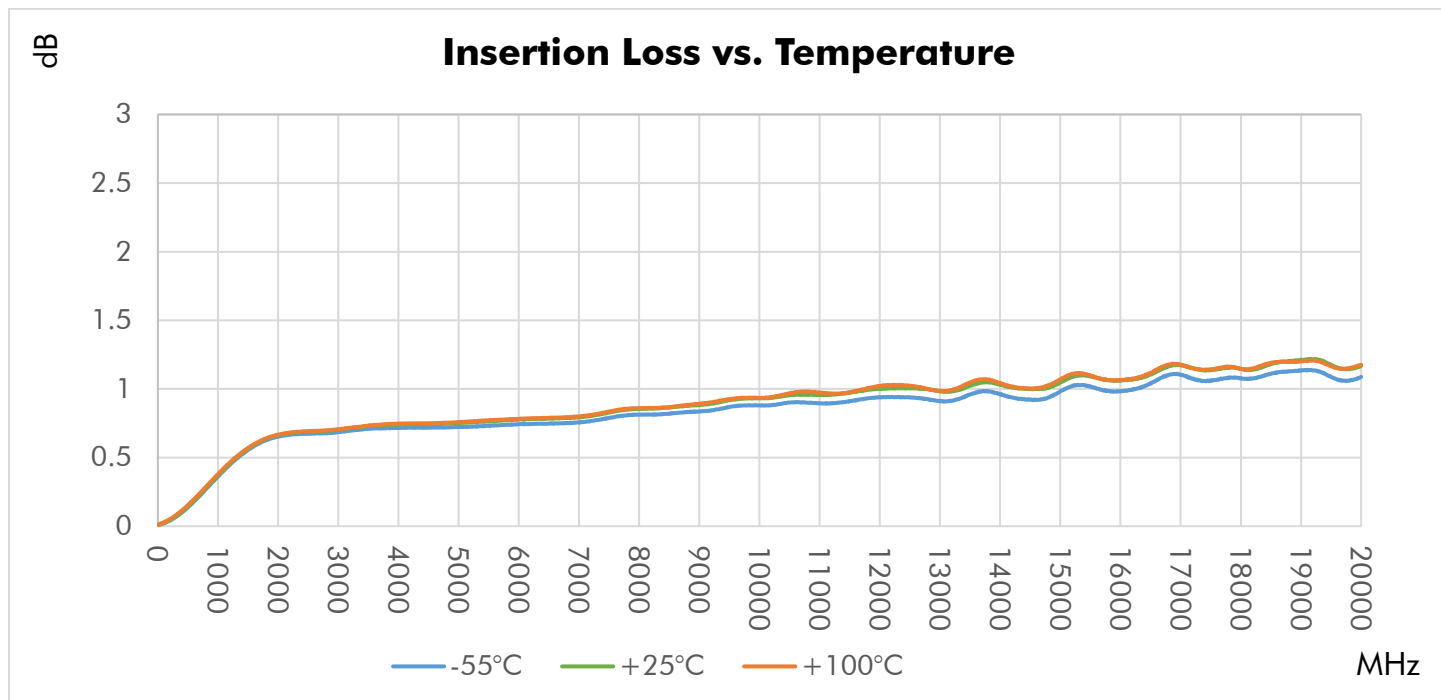
Typical Performance at +25 °C



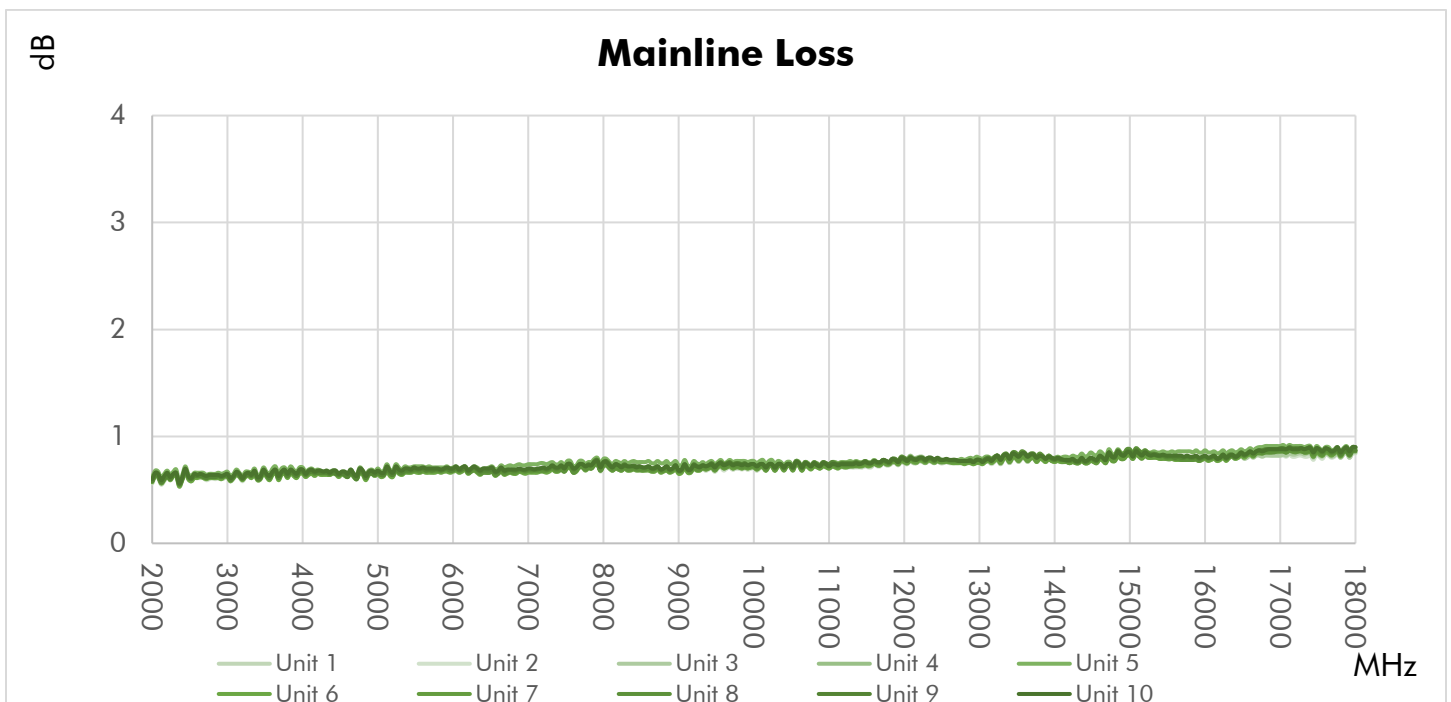
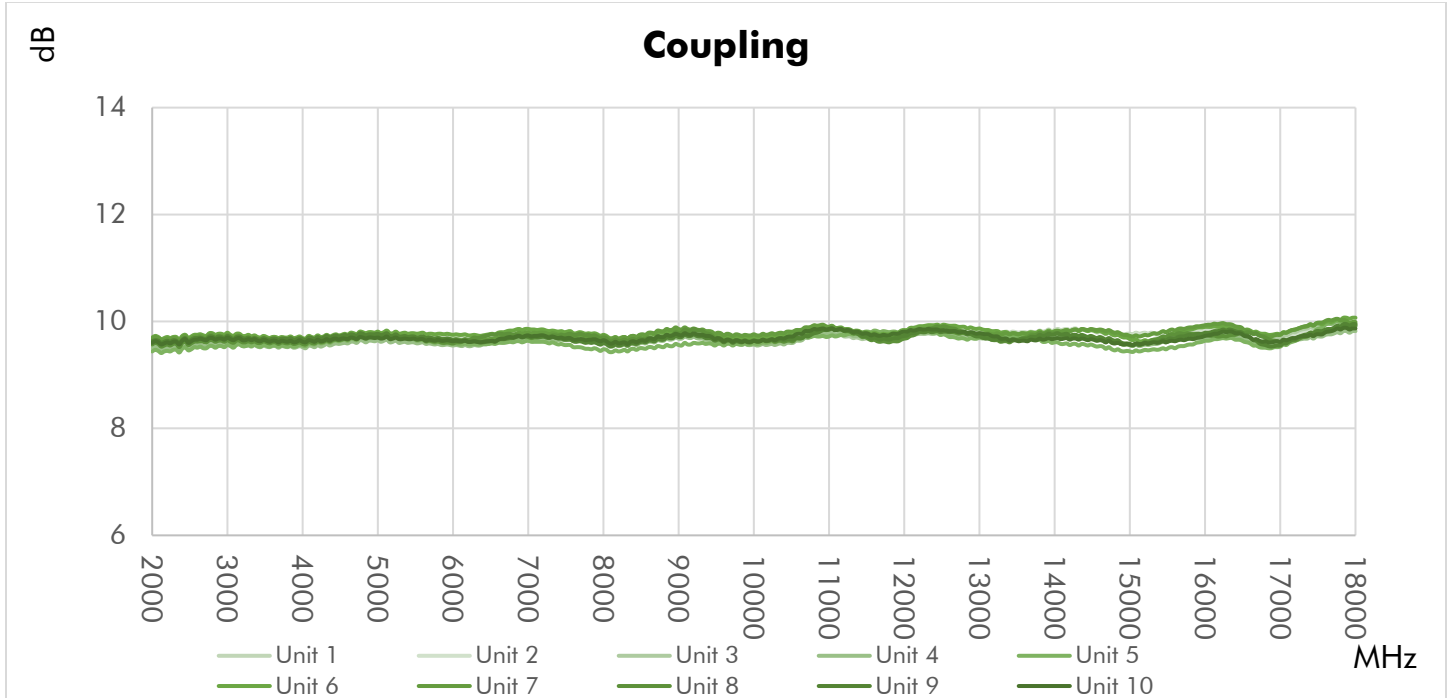


Typical Performance Over Temperature





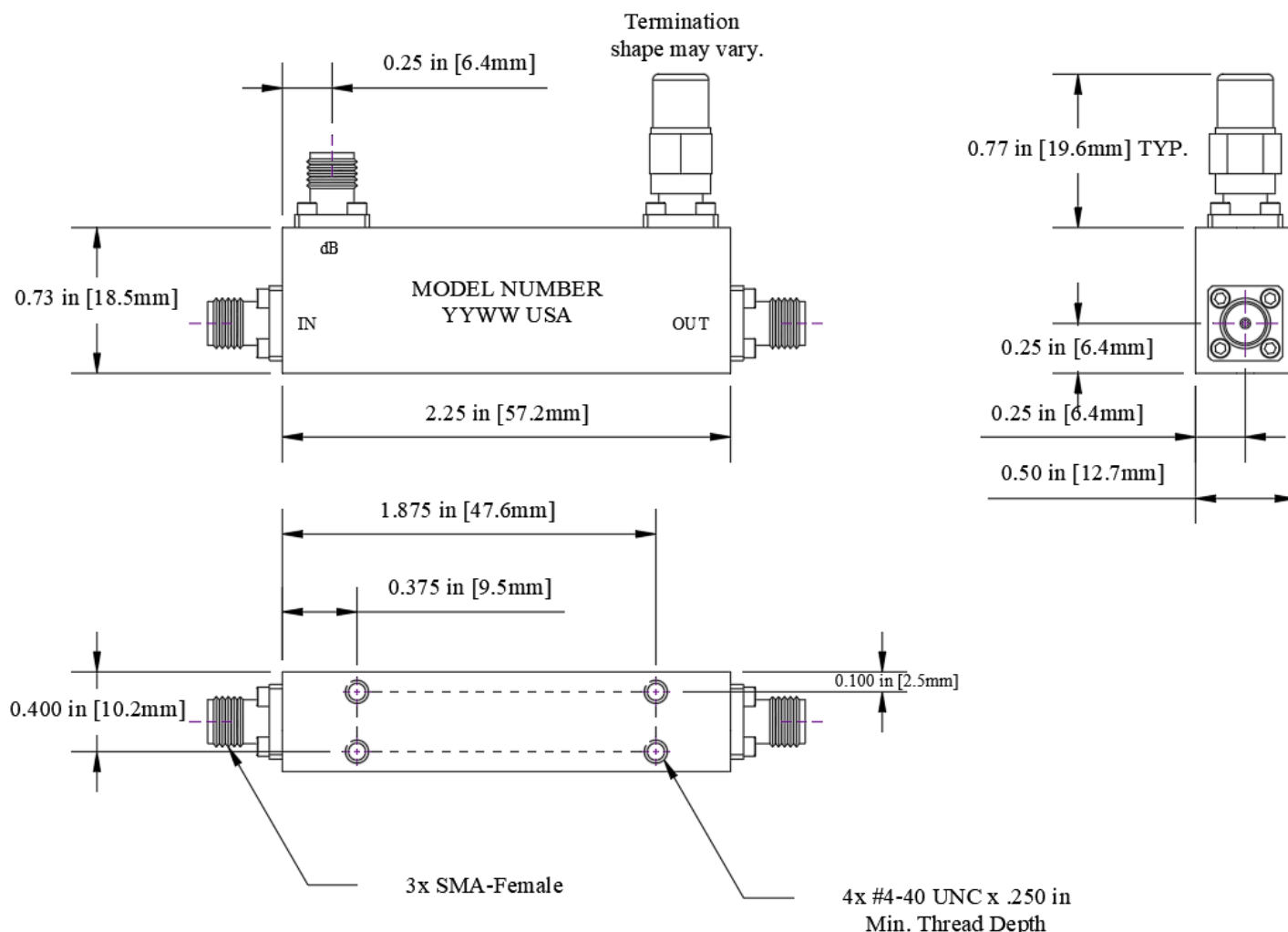
Repeatability in Production



Typical Performance Data

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB)	Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.	
1000	43.8	42.0	46.5	0.3	12.3	42.5
1500	36.0	36.0	48.5	0.5	10.4	40.7
2000	35.8	36.3	36.6	0.6	9.9	44.1
2500	40.4	41.1	35.1	0.6	9.9	40.0
3000	59.7	46.8	28.5	0.6	9.8	33.5
3500	39.2	44.6	31.4	0.7	9.8	40.1
4000	32.0	35.7	29.5	0.6	9.8	34.0
4500	30.0	29.3	23.7	0.6	9.8	27.1
5000	30.3	29.3	29.8	0.6	9.9	25.9
5500	36.6	47.7	29.8	0.7	9.9	25.7
6000	25.4	25.6	23.4	0.6	9.7	24.9
6500	21.3	22.9	27.3	0.9	9.8	26.4
7000	30.5	36.3	30.4	0.7	10.0	38.3
7500	25.3	24.9	23.8	0.8	10.0	25.2
8000	22.2	21.1	26.7	1.0	9.9	19.4
8500	24.8	24.2	28.8	0.7	9.8	18.5
9000	37.8	33.9	20.2	0.8	10.2	23.8
9500	24.0	23.0	21.8	0.6	10.1	30.2
10000	29.0	21.9	39.3	0.8	9.8	20.3
10500	26.4	26.8	20.4	0.9	9.9	21.1
11000	29.3	31.1	19.2	0.8	9.6	36.4
11500	33.5	22.8	26.3	1.0	9.9	22.1
12000	25.0	21.3	22.4	0.8	9.9	17.8
12500	24.7	24.7	19.6	0.7	9.8	18.7
13000	38.8	24.9	21.2	0.8	10.1	23.5
13500	24.4	21.2	25.8	0.8	9.8	29.7
14000	26.5	24.1	24.0	0.9	10.0	26.9
14500	39.4	42.7	22.2	0.8	9.9	33.1
15000	23.9	26.3	26.3	0.9	9.9	21.9
15500	32.9	34.0	33.7	0.9	9.9	14.9
16000	25.4	32.8	19.2	0.8	9.9	16.1
16500	27.6	28.4	17.6	1.0	10.1	19.0
17000	30.7	23.1	29.5	0.9	9.9	16.2
17500	20.2	22.4	16.5	1.0	10.1	18.4
18000	29.1	36.0	16.0	1.0	10.2	29.5
18500	20.1	17.7	22.3	1.1	9.9	17.6
19000	16.6	17.1	17.3	0.8	10.2	18.6
19500	23.9	24.9	20.0	1.1	10.0	19.9
20000	17.9	17.0	26.0	1.0	10.0	15.1

Outline Dimensions



Outline # OL-1182

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

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

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