

Directional Coupler, 1-20GHz, 20dB, SMA Female

WMC-1-20-20dB-S

Description

Model WMC-1-20-20dB-S from Werbel Microwave is a directional coupler that covers 1-20 GHz with broadband flat coupling response, high directivity, and excellent return loss performance. Couplers are often used for the amplifier output gain control loops. The modular approach provides rugged, stainless-steel connectors. The device is well suited for electronic warfare test and measurement applications. It covers several bands including L, S, C, X, Ku and the lower portion of K band. The product is RoHS compliant but may be specially ordered with leaded solder. Its aluminum enclosure measures 4.40 x 0.73 x 0.50 inches with blind tapped mounting holes. Designed, assembled, and tested in USA.



Photo is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	1	--	20	GHz
Impedance	--	50	--	Ohm
Coupling (average of all frequency points)	--	20 ± 1.2	--	dB
Frequency Sensitivity (Flatness)	--	± 0.8	± 1.5	dB
Mainline Loss ¹	--	2.1	2.2	dB
Directivity	10	13	--	dB
Return Loss (In and Out)	13	17	--	dB
Return Loss (Coupling)	12	15	--	dB
Input Power (CW) ²	--	--	20	Watts

Mechanical

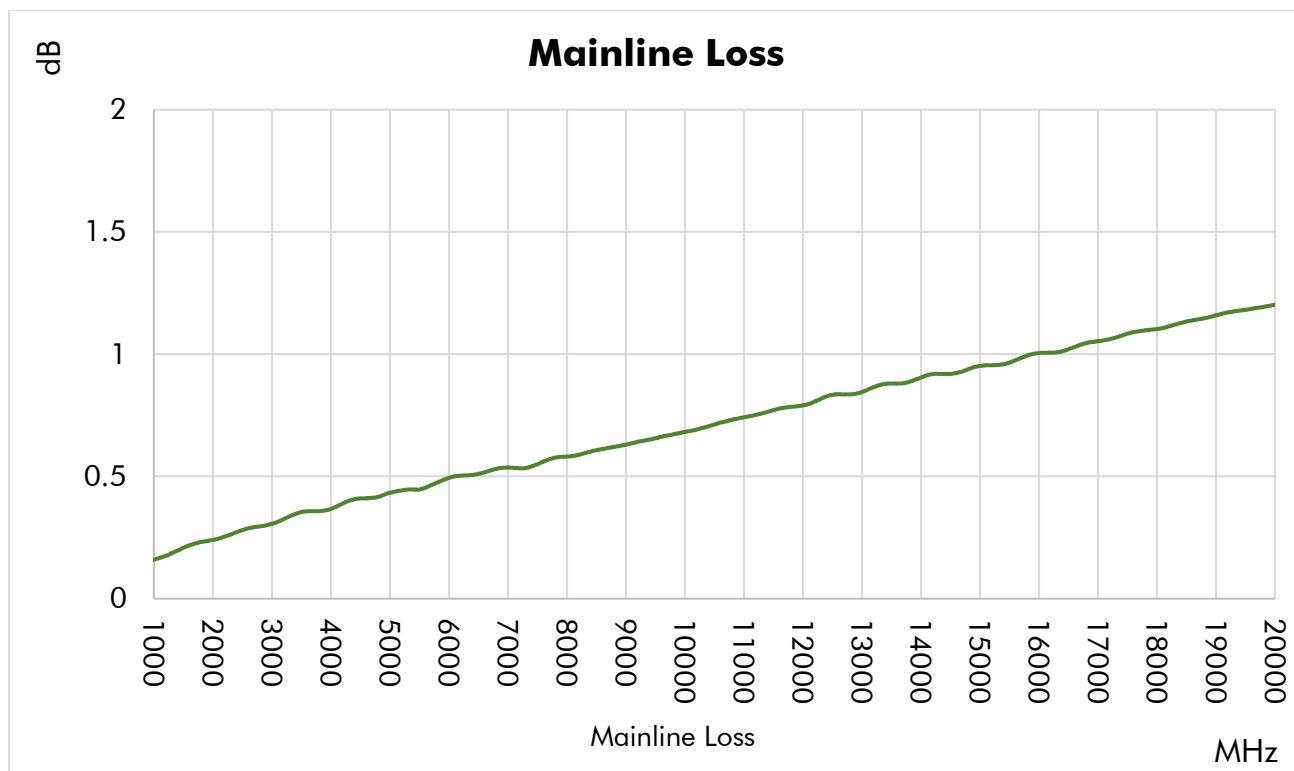
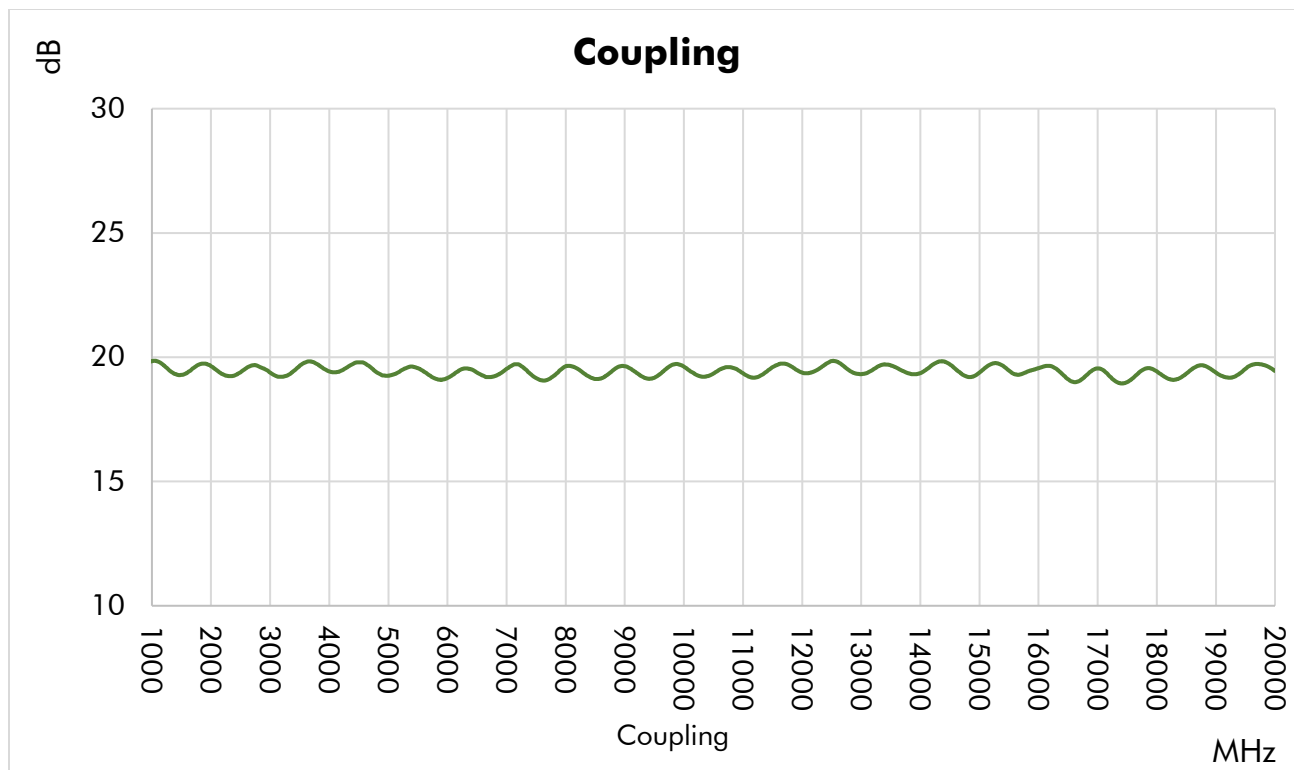
Connector Interface	SMA-Female
Operating Temperature ³	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Weight	3.5 oz (86 g)
Humidity	10-90% non-condensing
Environment	Indoor Use Only

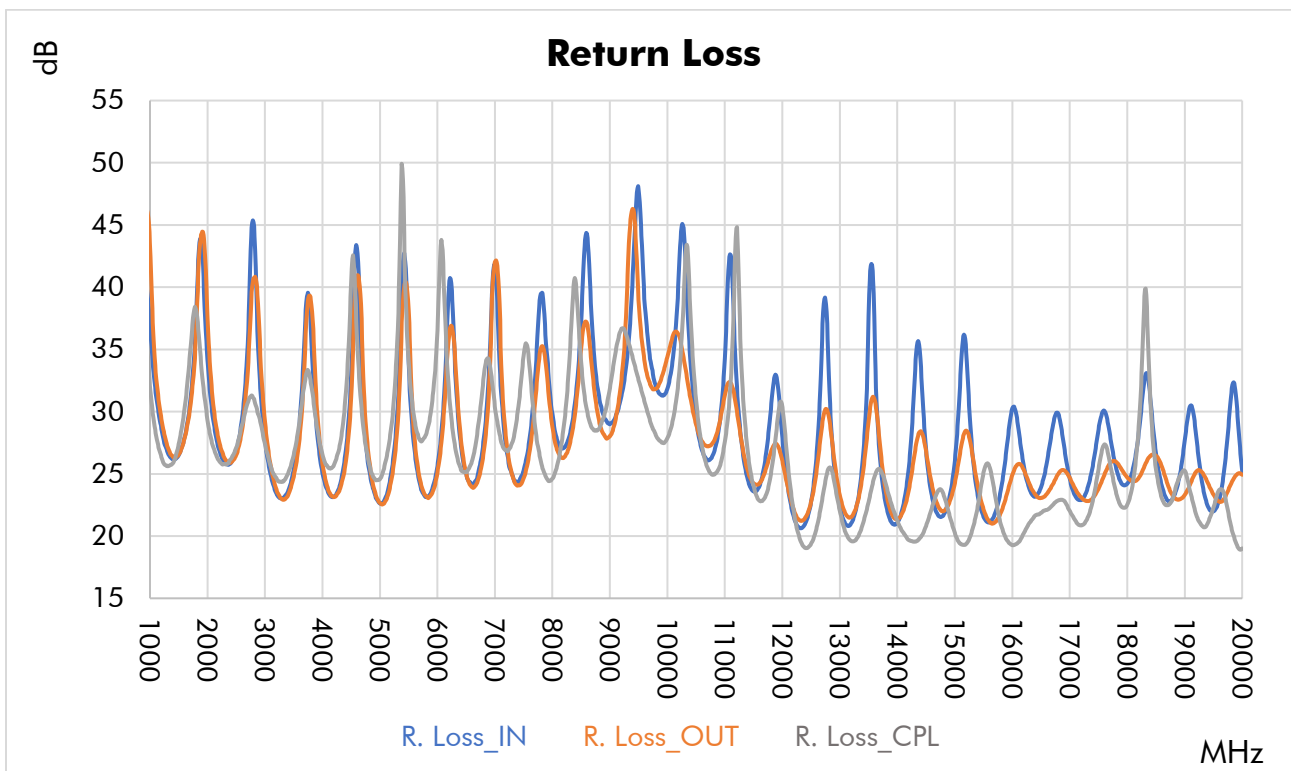
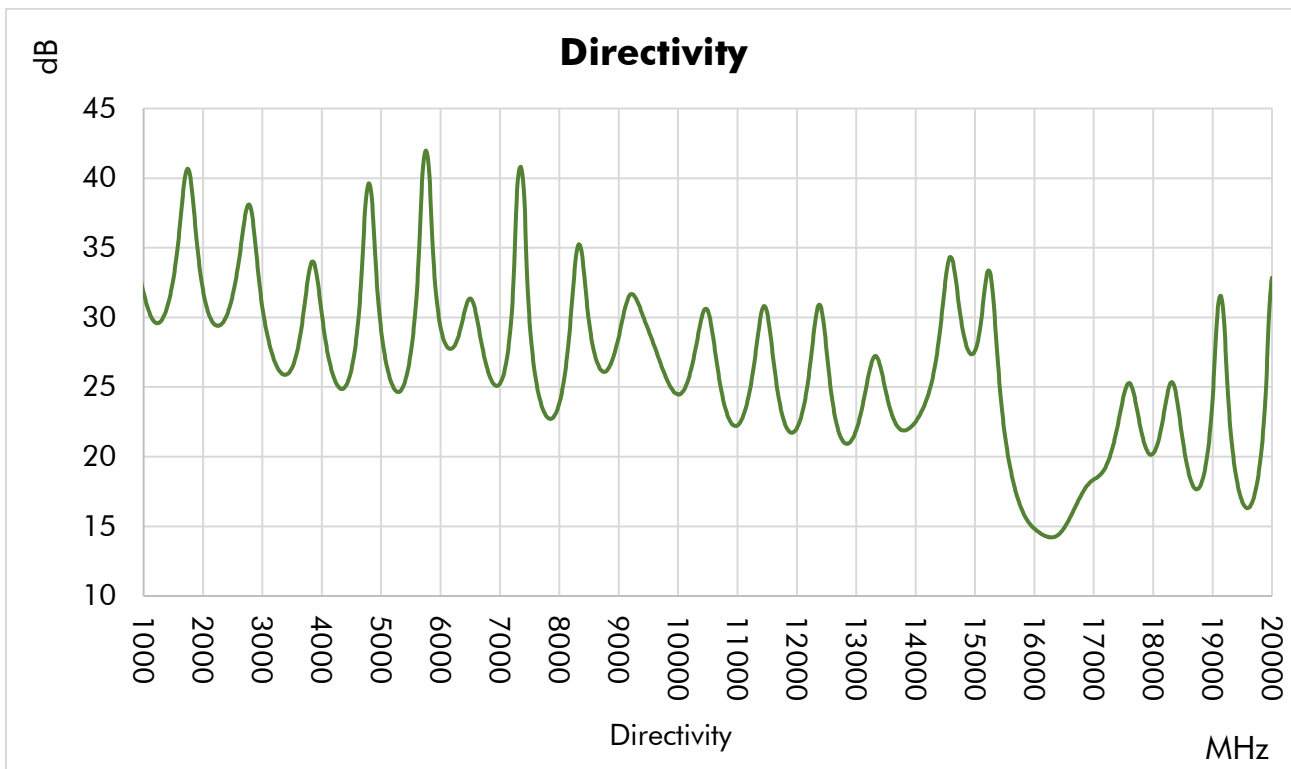
1. Mainline loss includes coupling loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications at +25 °C only.
4. To the best of our knowledge at the time of publication.

Materials

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

Typical Performance at +25 °C

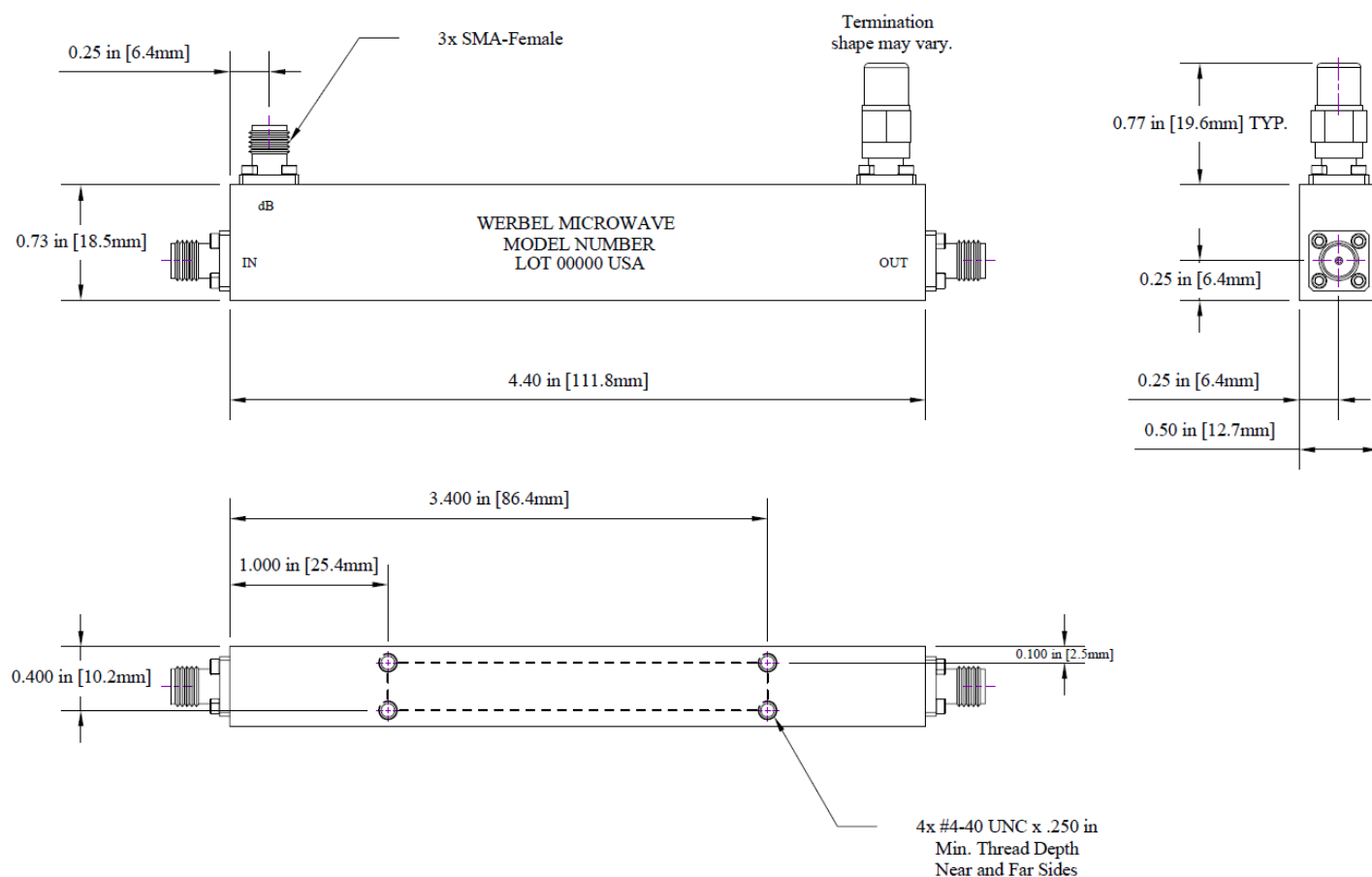




Typical Performance Data

Frequency (MHz)		Return Loss (dB)		Mainline Loss (dB)	Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.	
1000	33.5	34.0	30.7	0.2	19.9	30.4
1500	27.0	27.3	27.9	0.2	19.3	35.3
2000	31.0	31.1	28.5	0.3	19.6	30.3
2500	28.1	27.8	27.4	0.3	19.5	33.4
3000	26.0	26.1	26.9	0.3	19.3	28.6
3500	26.5	26.7	27.0	0.4	19.7	27.4
4000	24.0	23.7	26.2	0.4	19.4	27.7
4500	39.0	39.4	42.7	0.4	19.8	28.2
5000	22.8	22.5	24.7	0.4	19.3	26.6
5500	29.5	29.2	32.8	0.5	19.5	30.5
6000	27.4	27.6	39.5	0.5	19.2	27.9
6500	24.5	23.8	25.3	0.5	19.3	30.7
7000	35.5	36.5	29.5	0.5	19.6	26.1
7500	26.2	25.9	35.0	0.6	19.1	25.9
8000	28.7	26.6	24.7	0.6	19.7	25.5
8500	42.6	38.3	32.6	0.6	19.1	27.5
9000	29.3	28.7	32.6	0.7	19.6	30.2
9500	42.6	35.2	32.1	0.7	19.2	28.0
10000	32.5	35.8	28.1	0.7	19.6	24.7
10500	27.9	27.8	29.9	0.7	19.4	28.9
11000	38.8	32.9	28.4	0.8	19.3	22.7
11500	23.5	24.0	23.6	0.8	19.6	27.5
12000	25.4	24.4	29.4	0.8	19.4	22.9
12500	24.1	24.5	19.6	0.8	19.9	24.0
13000	21.5	22.0	21.5	0.9	19.3	23.1
13500	55.9	32.2	23.2	0.9	19.7	23.2
14000	21.5	21.6	21.0	0.9	19.4	23.0
14500	24.5	24.7	21.1	0.9	19.6	35.3
15000	28.7	26.2	19.9	0.9	19.5	28.7
15500	21.1	21.2	25.6	1.0	19.4	19.3
16000	30.6	25.8	19.3	1.0	19.6	14.5
16500	24.7	23.2	22.0	1.1	19.1	15.5
17000	23.7	23.9	21.8	1.1	19.5	18.6
17500	29.9	24.6	26.1	1.1	19.1	25.7
18000	24.5	24.4	22.8	1.1	19.4	21.0
18500	25.1	26.0	24.6	1.1	19.4	18.9
19000	29.6	23.9	25.0	1.2	19.3	31.0
19500	22.2	22.8	22.7	1.2	19.6	16.1
20000	23.2	24.3	19.2	1.2	19.4	29.7

Outline Dimensions



Outline # OL-1185

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

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

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