WERBEL MICROWAVE LLC
628 State Route 10, Unit 14
Whippany, New Jersey 07981
Sales@WerbelMicrowave.com - www.WerbelMicrowave.com

Directional Coupler, 0.5-18.5GHz, 20dB, SMA Female — WMC-0.5-18.5-20dB-S

Description

Model WMC-0.5-18.5-20dB-S from Werbel Microwave is a directional coupler that covers 500 MHz to 18.5 GHz with broadband flat coupling response, high directivity, and excellent return loss performance. Our design delivers super flat coupling passband ripple response with high directivity across several octave bands of military radio use and wireless telecom applications. Useful on the outputs of amplifiers to provide AGC loop feedback. Designed, assembled and tested in USA. The device is RoHS compliant and covers UHF, L, S, C, X, Ku and part of K band.

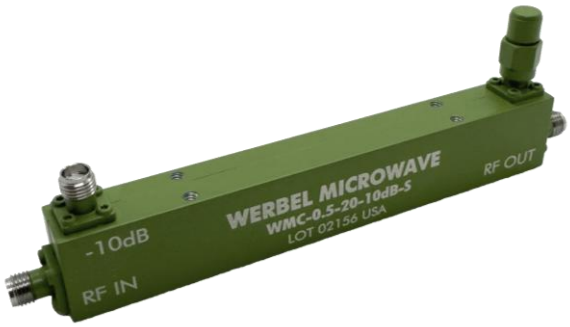


Photo is representative.

Specifications	Min.	Typ.	Max.	Units
Frequency	500	--	18500	MHz
Impedance	--	50	--	Ohm
Coupling (average of all frequency points)	--	20±1.2	--	dB
Frequency Sensitivity (Flatness)	--	± 0.8	±1.5	dB
Mainline Loss[1]	--	1.6	2.0	dB
Directivity	11	16	--	dB
Return Loss (In and Out)	13	16	--	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	Indoors Use Only

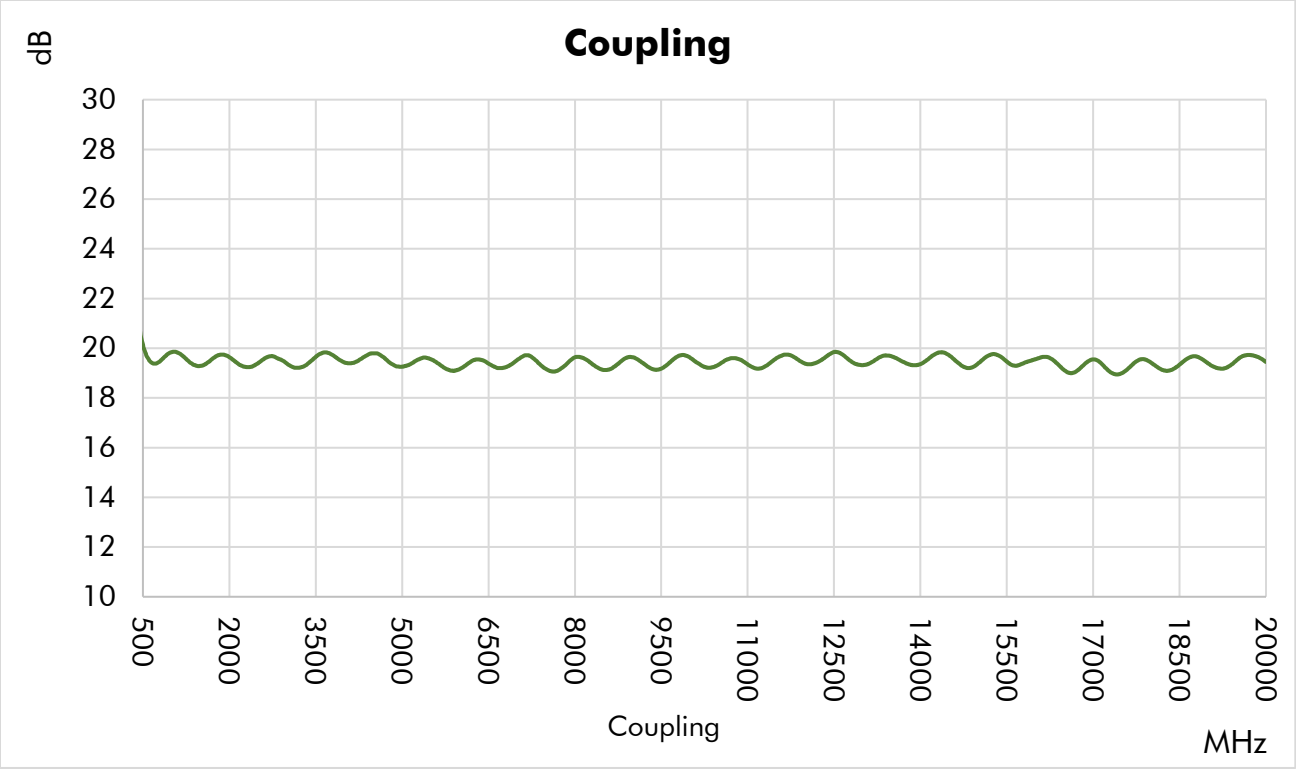
Materials

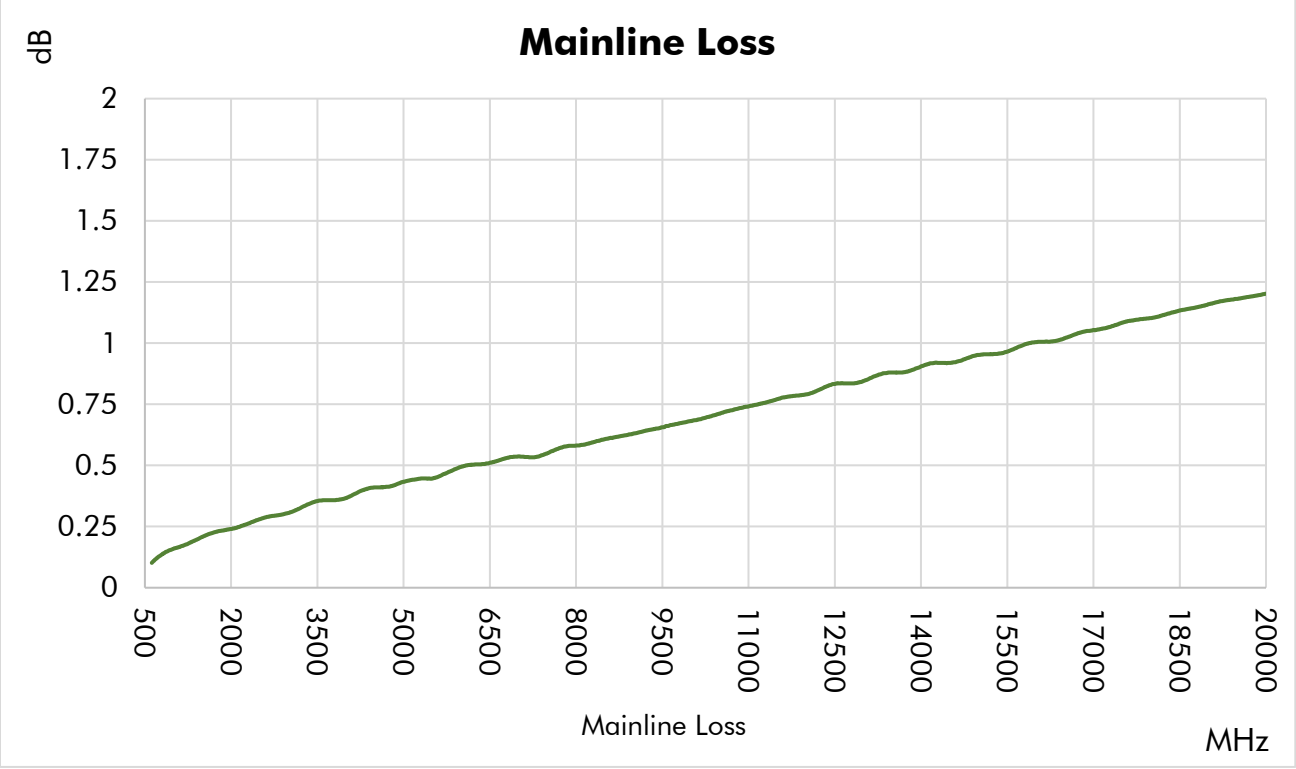
RoHS and REACH Compliant[4]

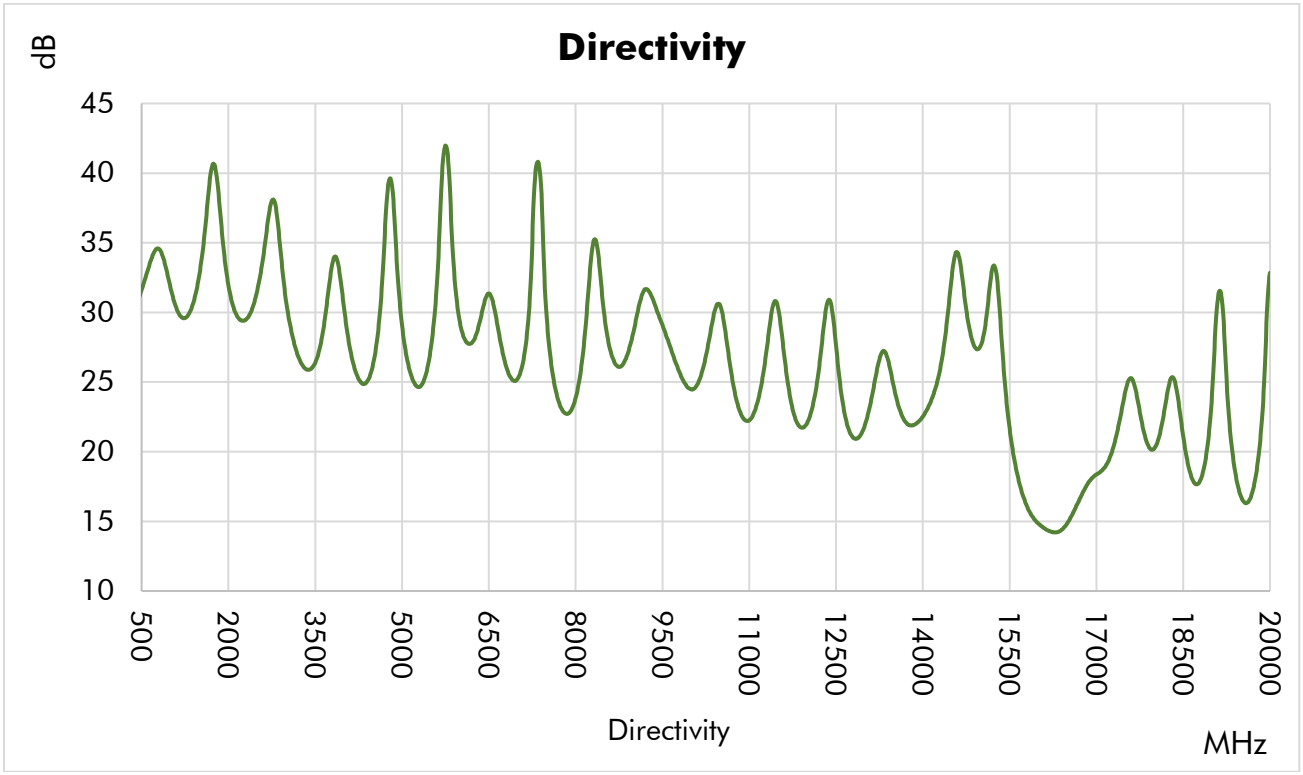
Enclosure	Aluminum
Connectors	Stainless Steel
Contacts	Be Cu, Gold Plated
Insulators	PTFE
Finish	Green Paint

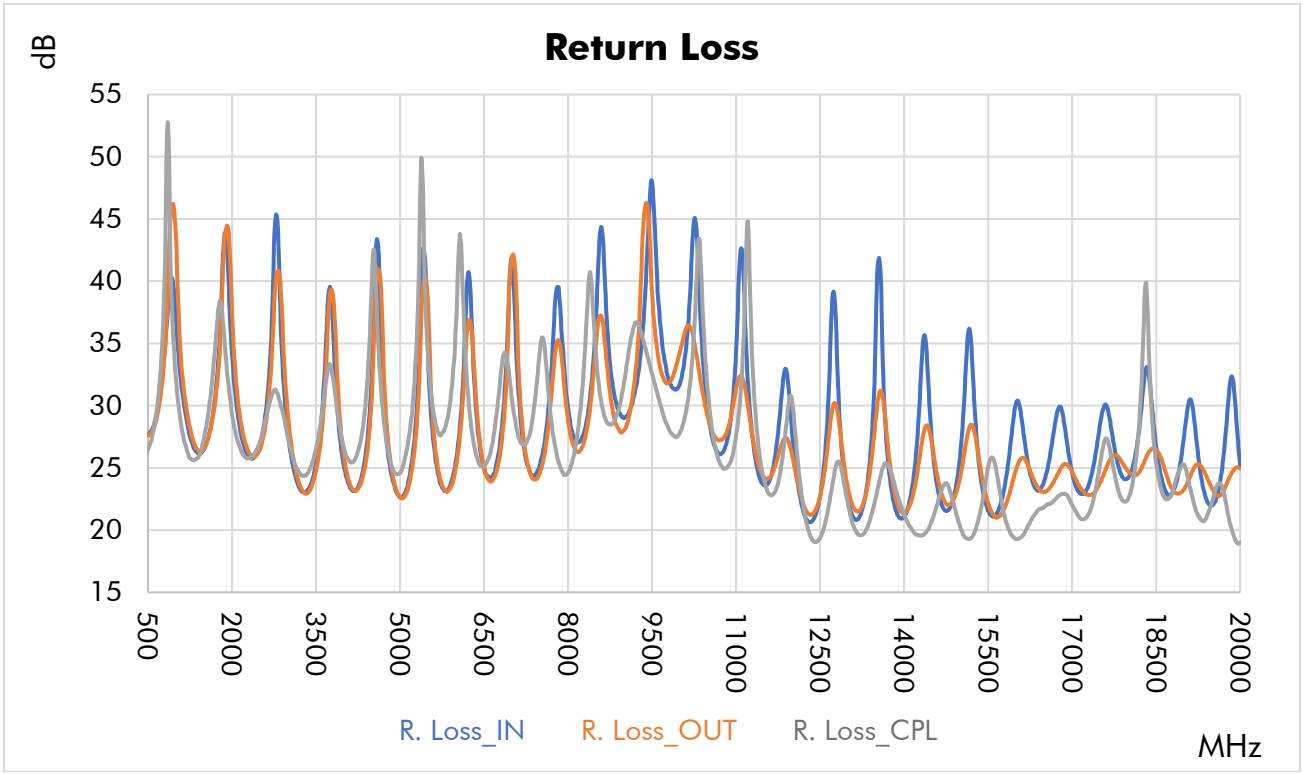
1. Mainline loss includes coupled loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications at +25 °C only.
4. To the best of our knowledge at the time of publication.

Typical Performance at +25 °C






Directivity
dB
45
40
35
30
25
20
15
10
500
2000
3500
5000
6500
8000
9500
11000
12500
14000
15500
17000
18500
20000
Directivity
MHz


Return Loss
dB
55
50
45
40
35
30
25
20
15
500
2000
3500
5000
6500
8000
9500
11000
12500
14000
15500
17000
18500
20000
R. Loss_IN
R. Loss_OUT
R. Loss_CPL
MHz

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Typical Performance Data

Frequency (MHz)	Return Loss (dB)			Mainline Loss (dB)	Coupling (dB)	Directivity (dB)
	In	Out	Cpl.	In-Out	In-Cpl.	
500	27.6	27.9	26.8	0.2	19.8	32.8
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

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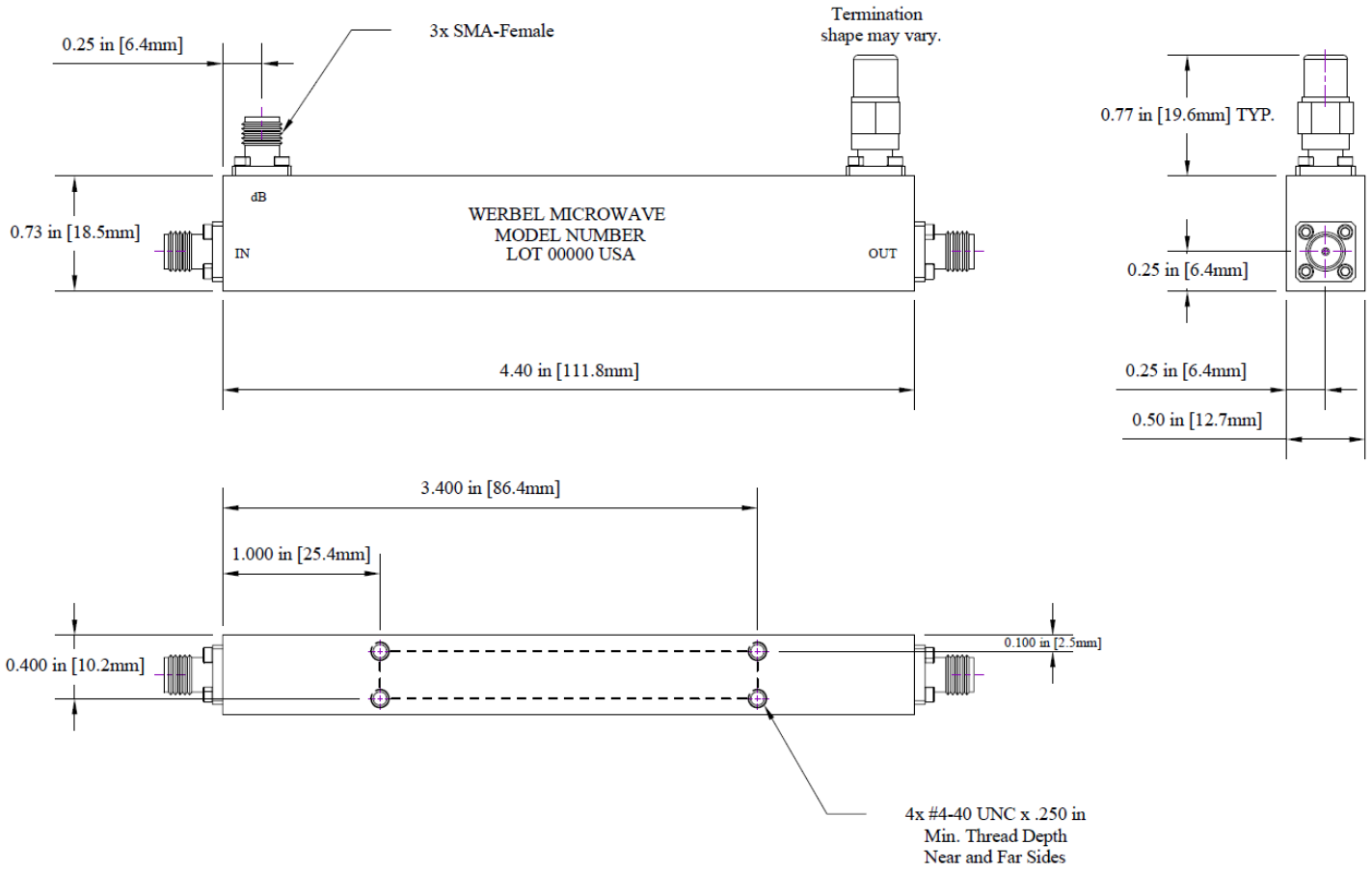
Outline Dimensions



Outline # OL-1185
Dimensions are in inches, [mm] shown for convenience.
Tolerances on 2-pl decimals: ±.03. 3-pl decimals: ± .015.