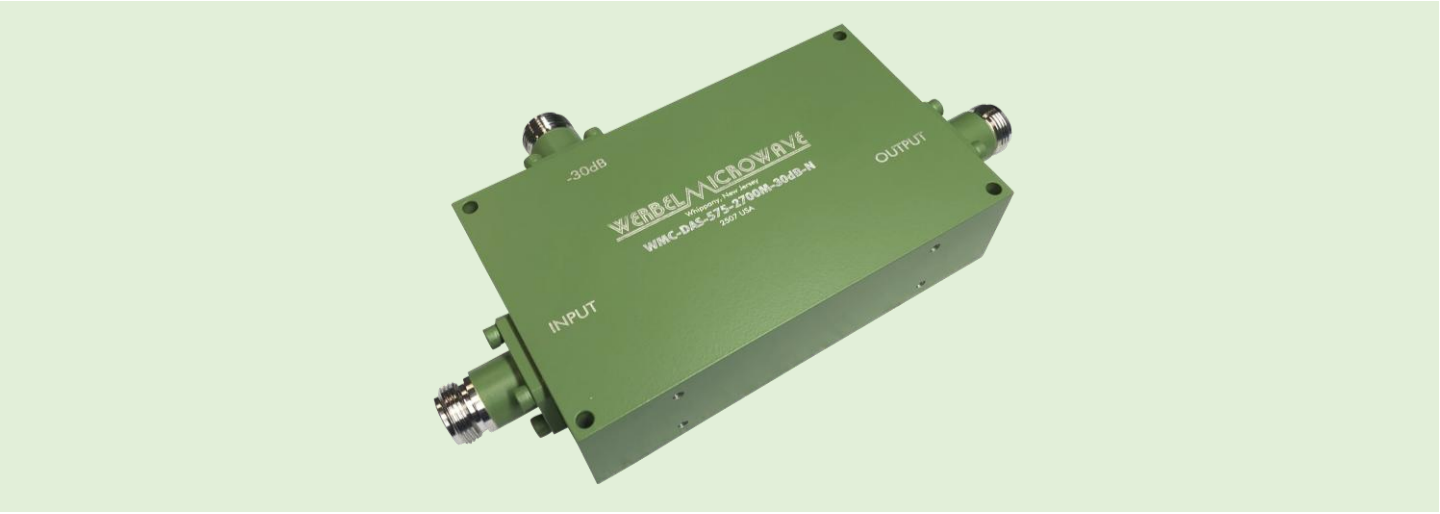
WERBEL MICROWAVE LLC
628 State Route 10, Unit 14
Whippany, New Jersey 07981
Sales@WerbelMicrowave.com - www.WerbelMicrowave.com

Directional Coupler, 698-2700MHz, N Female, IP-65

WMCDAS1800-DB-N



Parameter	Min.	Typ.	Max.	Unit
Frequency Range	698		2700	MHz
Impedance		50		Ω
Coupling		See Table		dB
Frequency Sensitivity (Flatness)		See Table		dB
Mainline Loss[1]		See Table		dB
Directivity	18	24		dB
Mainline Return Loss	20	25		dB
Coupling Port Return Loss	18	23		dB
Forward Power (CW)[2]			See Table	dB
Reverse Power (CW)[2]			See Table	dB
PIM (2 tones at +43 dBm), Cellular and PCS Bands	-97.0 dBm (-140 dBc)			Typ.
DC Current (In-Out)			3	A

Model	Coupling	Flatness	Thru Loss	Fwd. Power	Rev. Power
	dB, nom.	± dB	dB, max.	W, max.	W, max.
WMCDAS1800-06-N	6	0.8	1.8	200	10
WMCDAS1800-08-N	8	1.0	1.3	200	15
WMCDAS1800-10-N	10	1.0	0.7	200	20
WMCDAS1800-13-N	13	1.3	0.4	200	40
WMCDAS1800-15-N	15	1.5	0.3	200	60
WMCDAS1800-20-N	20	2.0	0.2	200	180
WMCDAS1800-30-N	30	3.0	0.2	200	200
WMCDAS1800-40-N	40	4.0	0.2	200	200

Connector Interface	N Female	RoHS Status[4]	RoHS3 Compliant
Operating Temperature[3]	-55 to +85 °C	REACH Status[4]	REACH Unaffected
Storage Temperature	-55 to +100 °C	Enclosure Material	Aluminum
Nominal Weight	404 g (14.2 oz)	Connectors Material	Brass, Tri-Alloy Plate
Operating Humidity	10-90% (non-condensing)	Contacts Material	Beryllium Copper, Gold Plated
Operating Environment	IP65	Insulators Material	Virgin PTFE
HTSUS Code	8525.50.3035	Finish	Green Paint
ECCN	EAR99	Country of Origin	United States of America

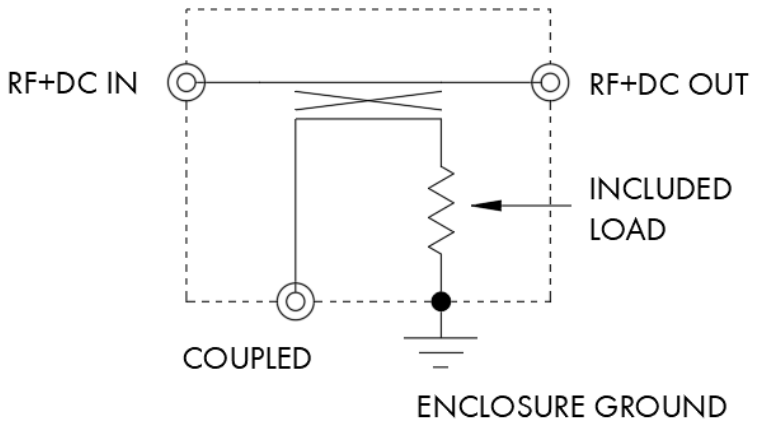
1. Mainline loss includes coupling loss.
2. All output ports should be terminated in a 50-ohm load with 1.2:1 max VSWR.
3. Electrical specifications are tested at +25 °C.
4. To the best of our knowledge at the time of publication.

Explanation of Model Numbers

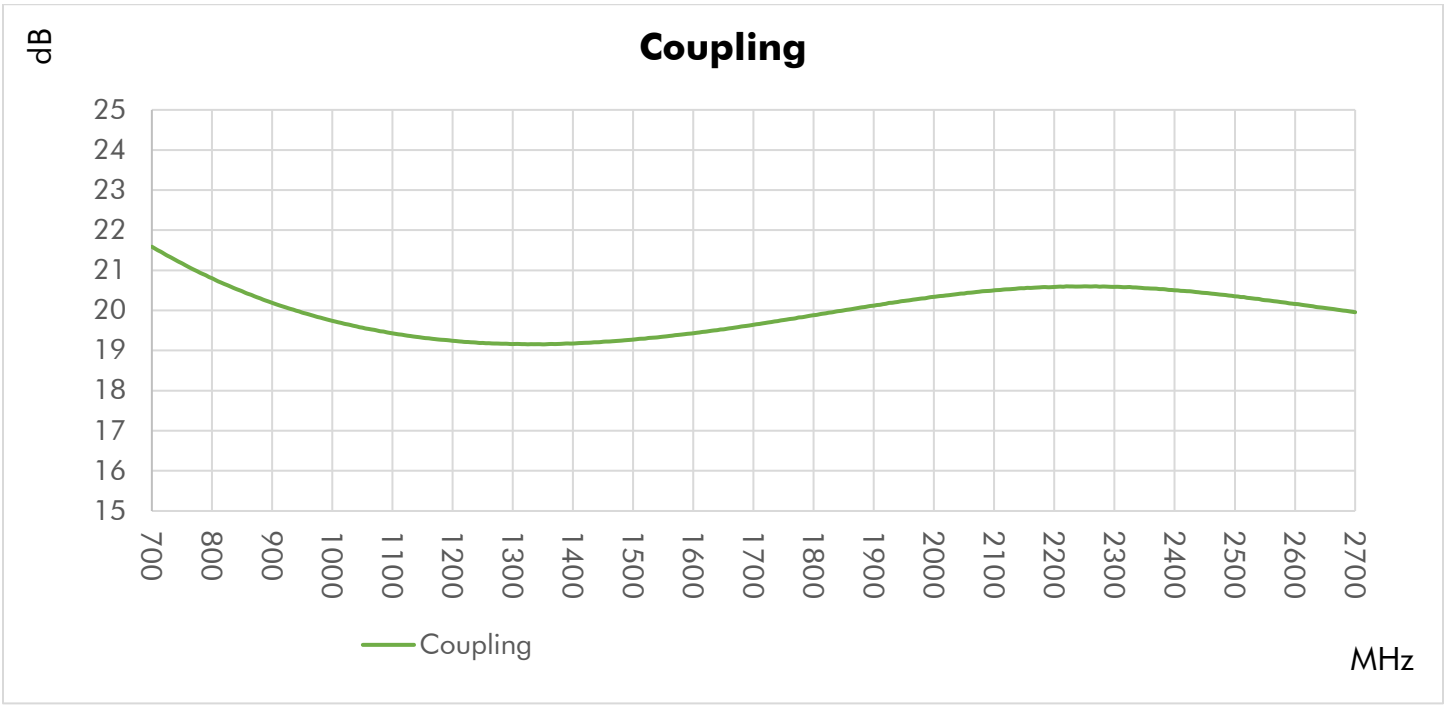
Product Code		Coupling Factor		Connector
WMCDAS1800	-	06	-	N

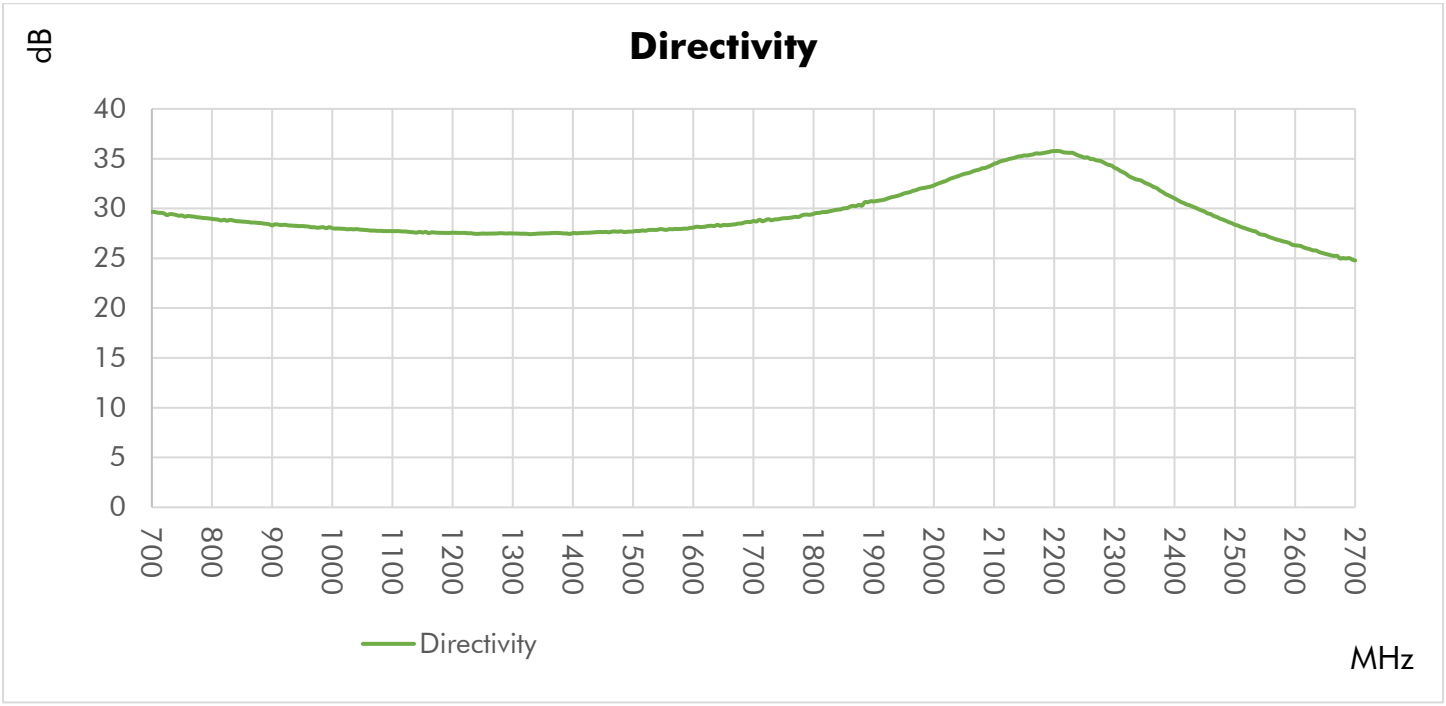
Coupling Factor *Include leading zero.*	06 = 6dB 08 = 8dB 10 = 10dB 13 = 13dB 15 = 15dB 20 = 20dB 30 = 30dB
Connector	N = Type N Female 4.3 = Type 4.3/10 Female

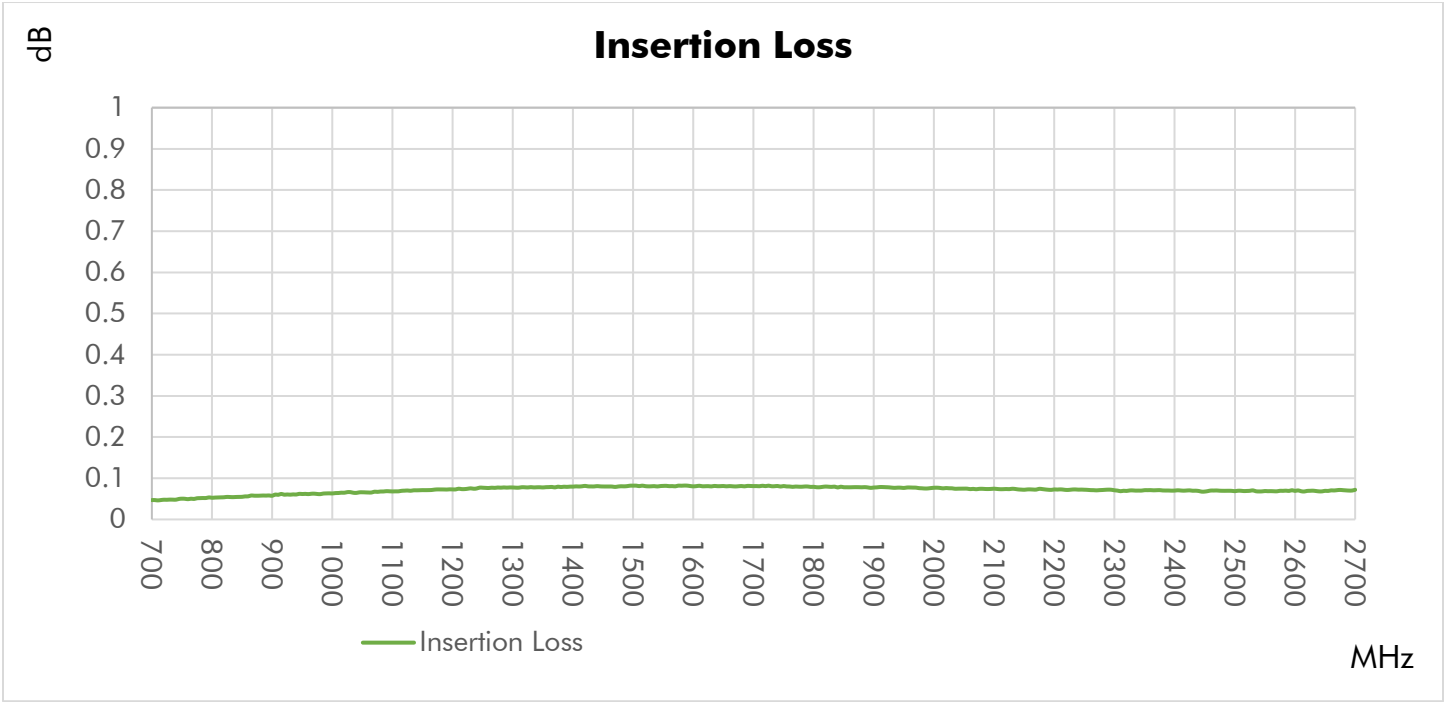
Simplified Electrical Schematic

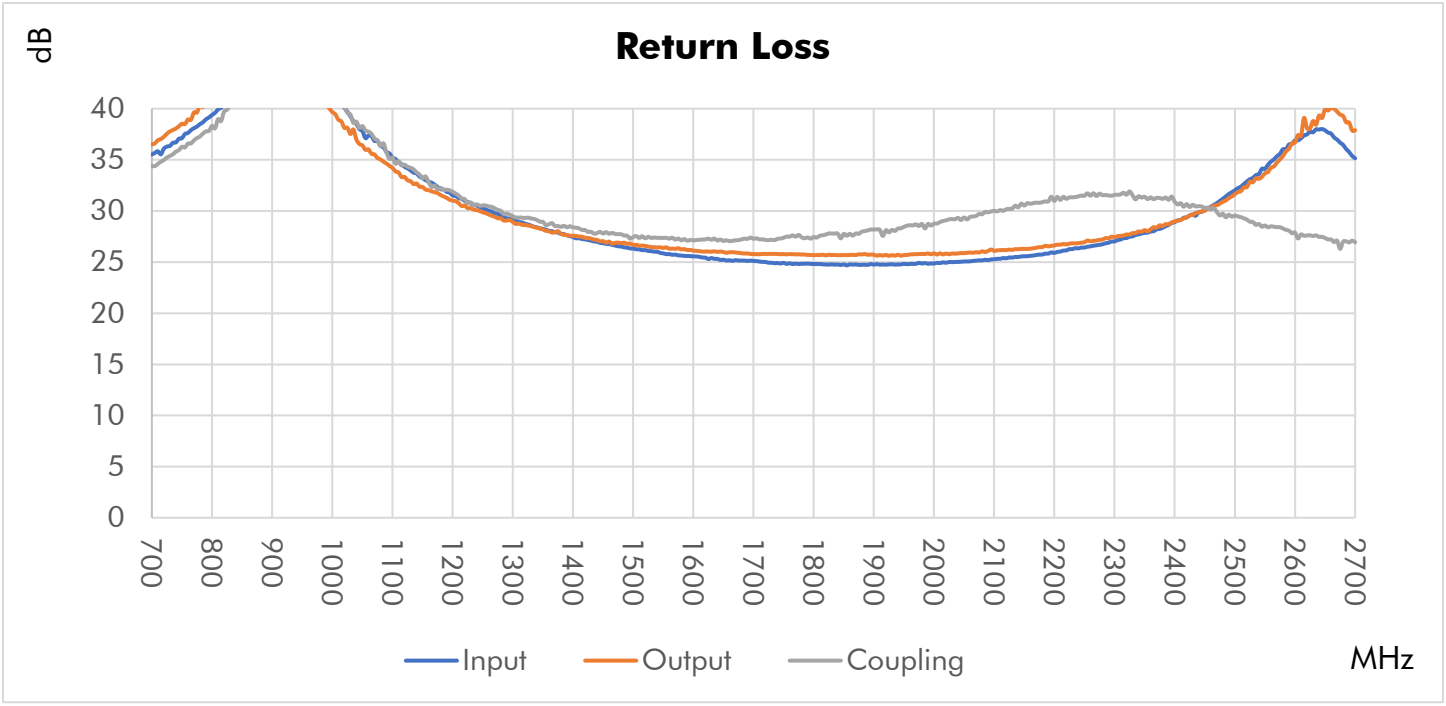


Typical Performance at +25 °C

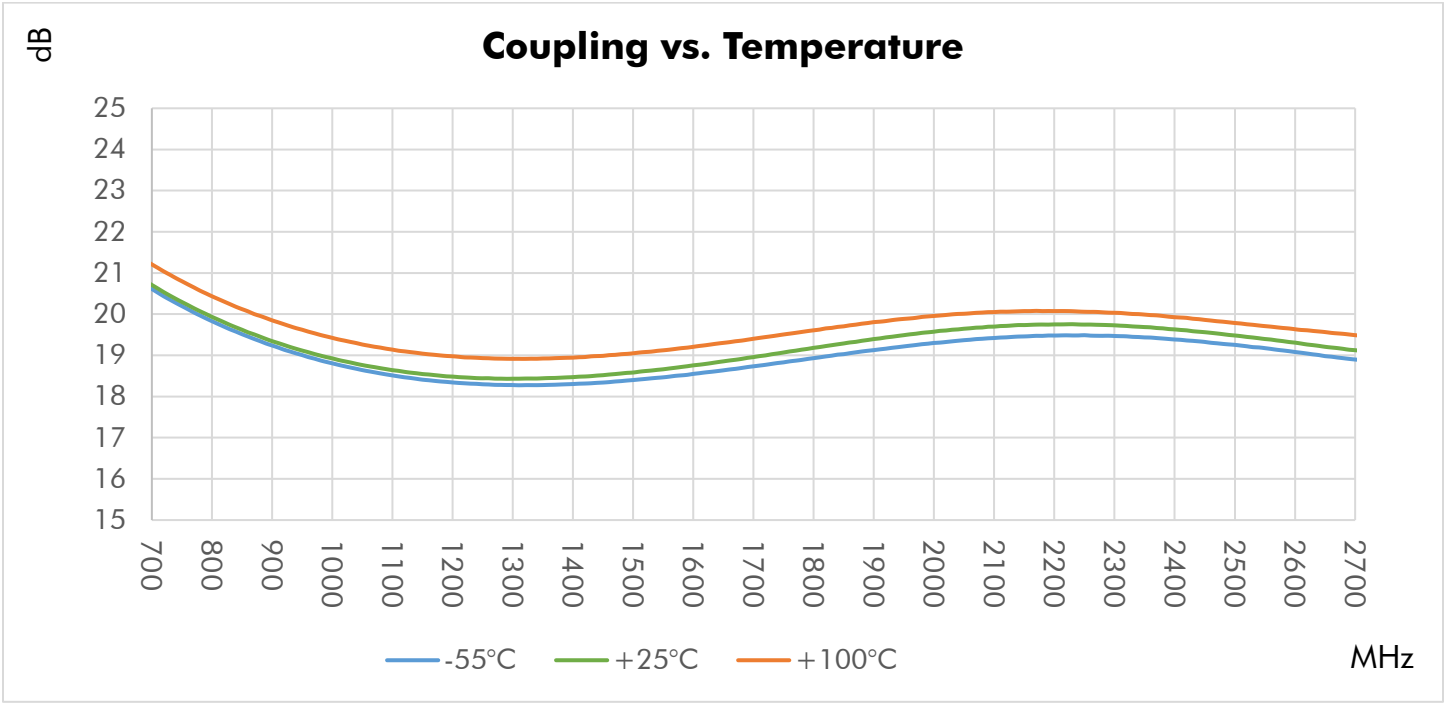


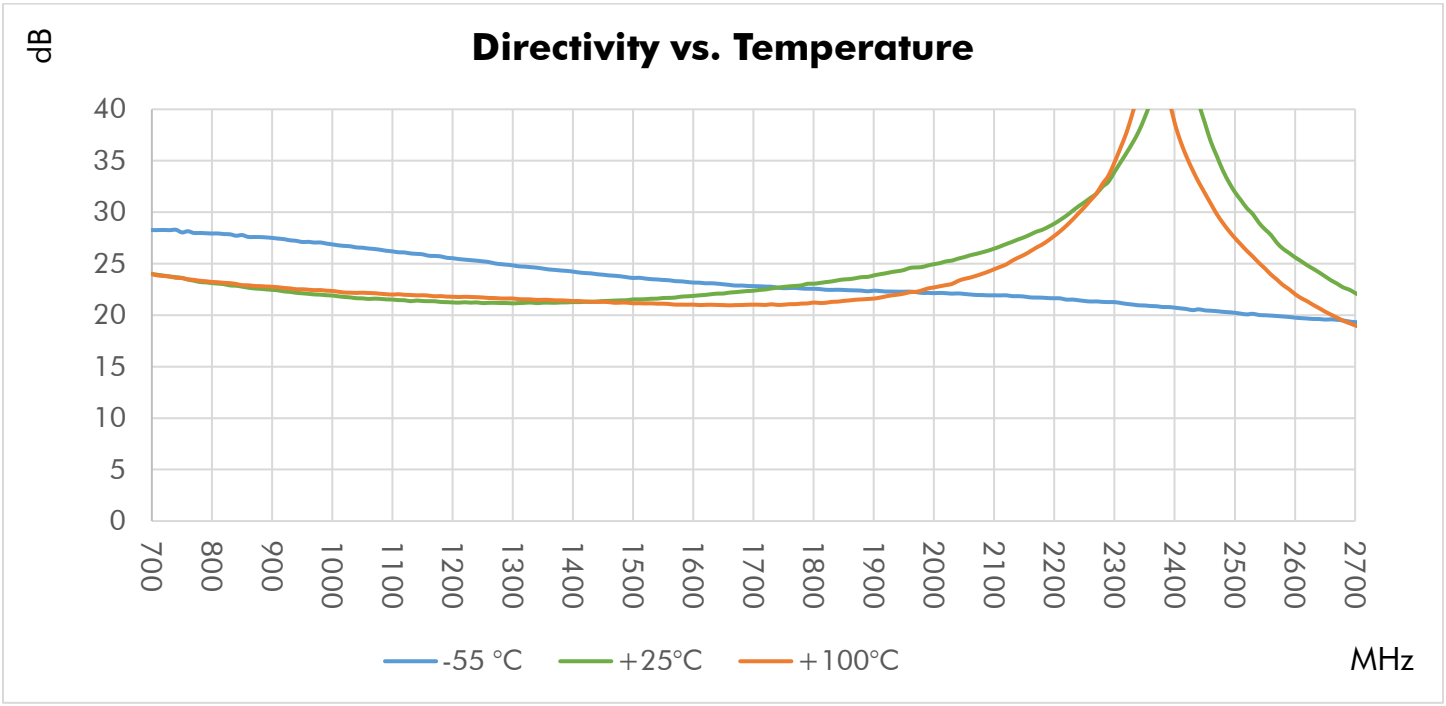


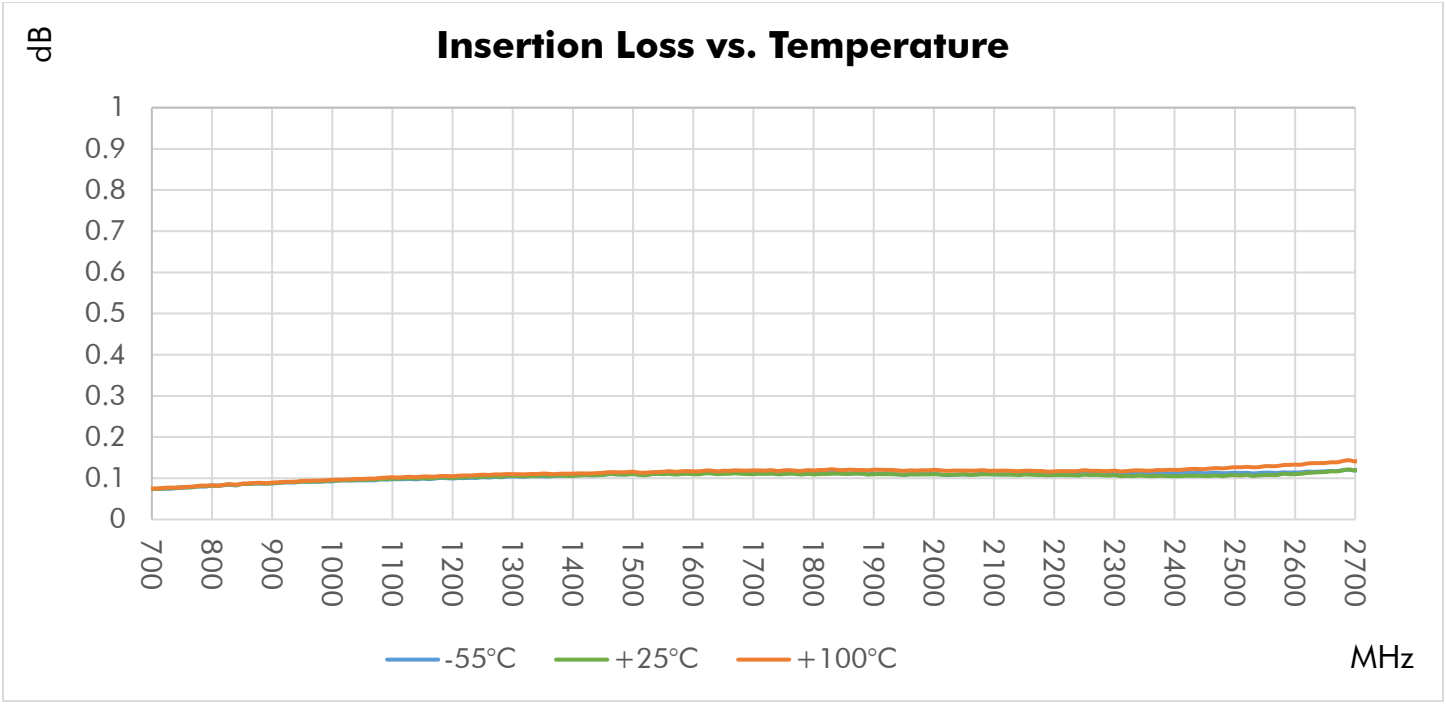

Insertion Loss
dB
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
Insertion Loss
MHz

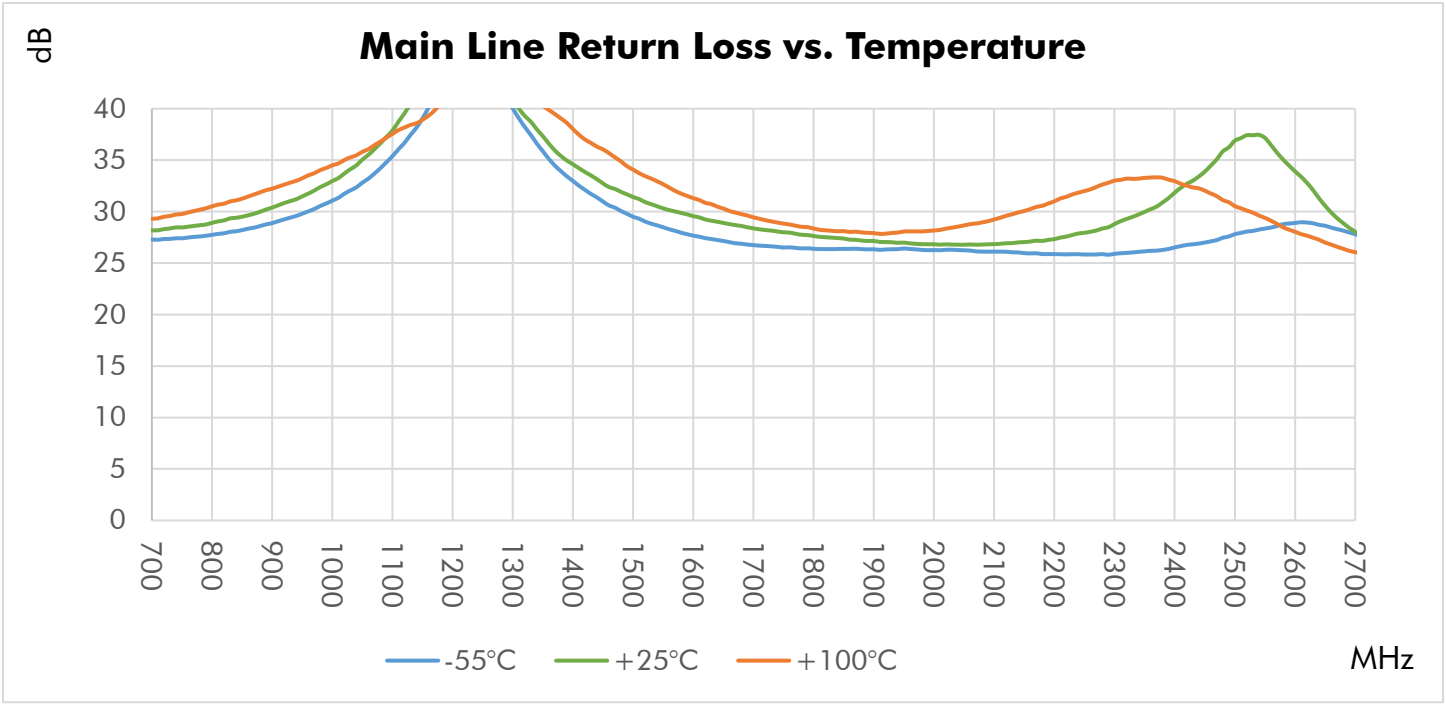

Return Loss
dB
40
35
30
25
20
15
10
5
0
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
Input
Output
Coupling
MHz

Typical Performance Over Temperature

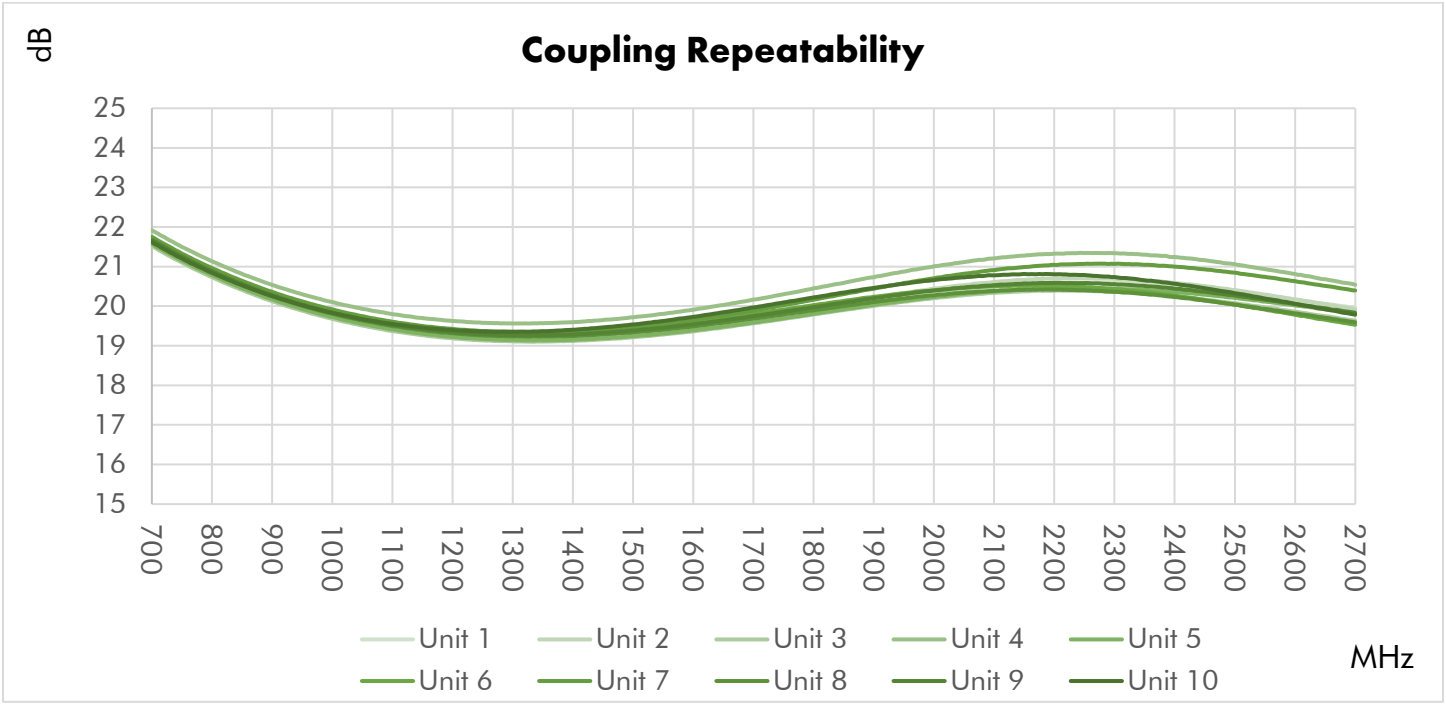


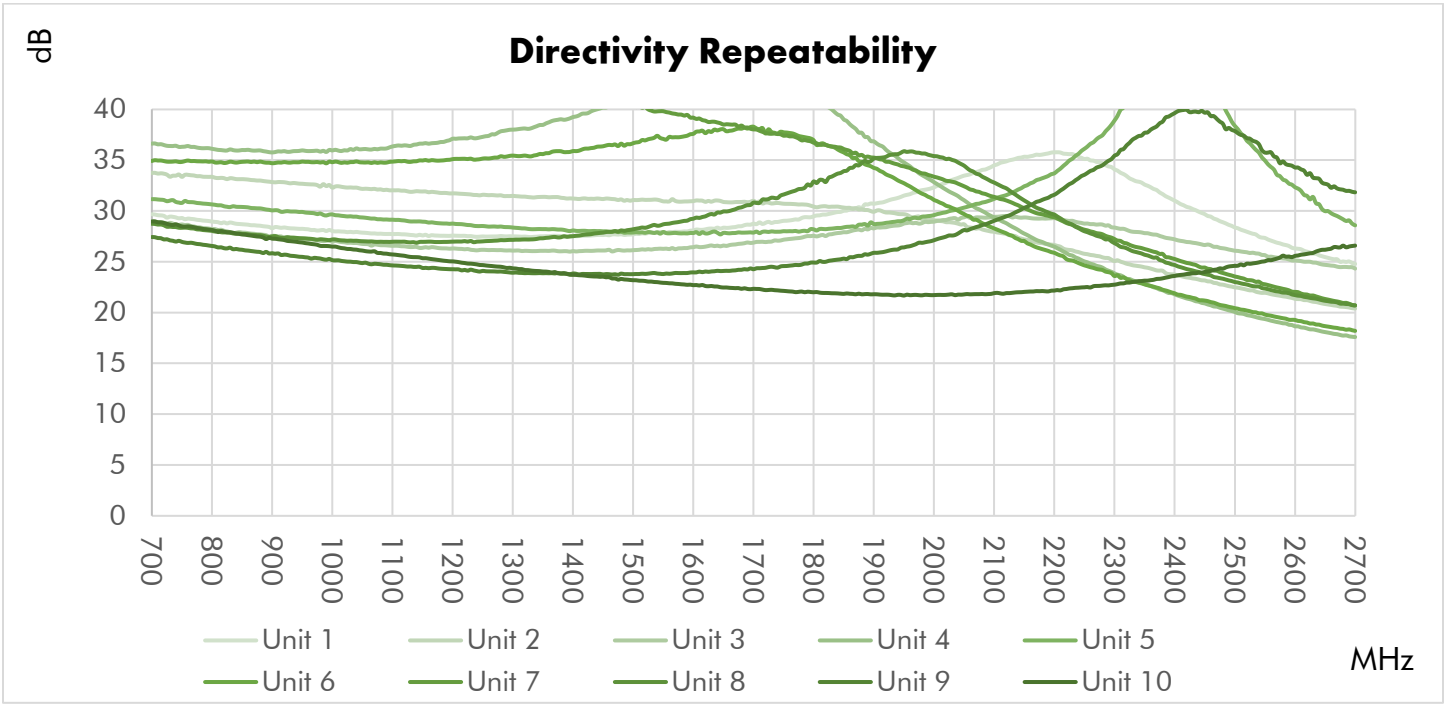


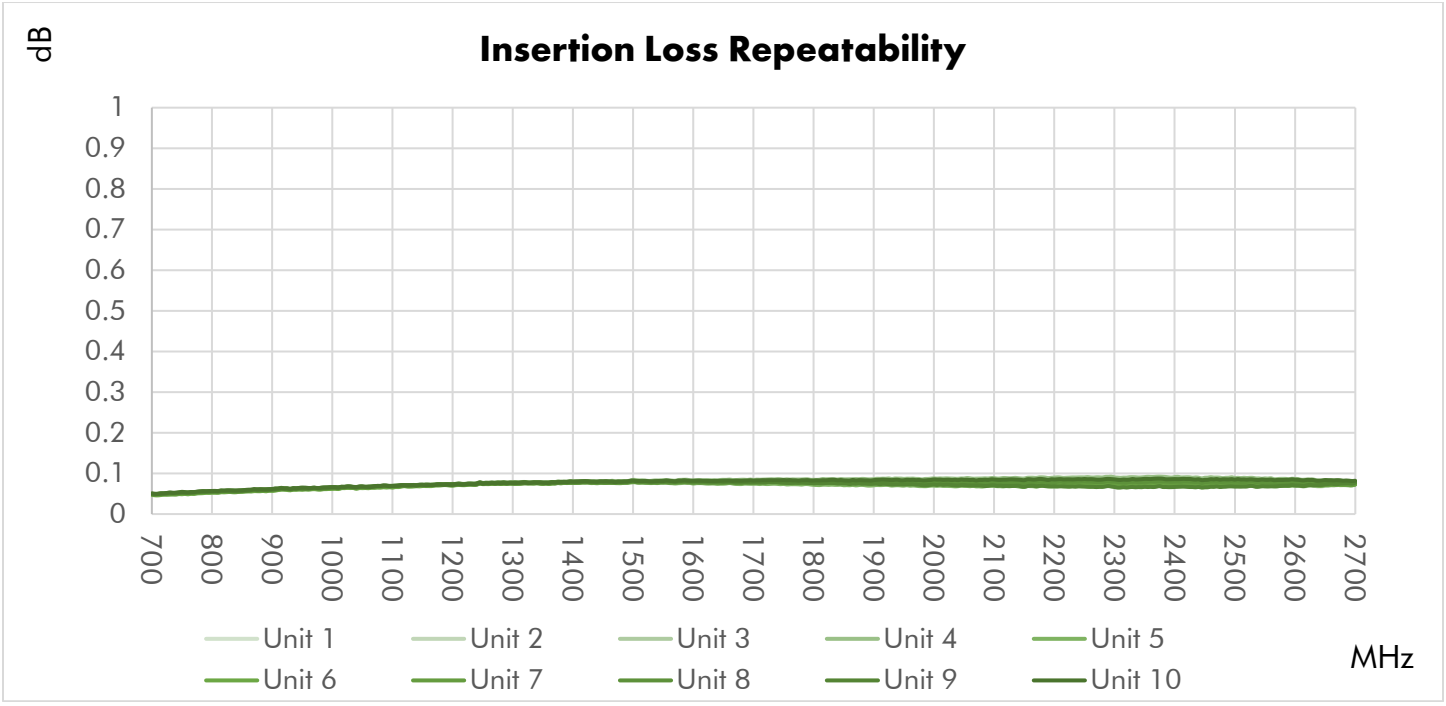

Insertion Loss vs. Temperature
dB
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
-55°C
+25°C
+100°C
MHz

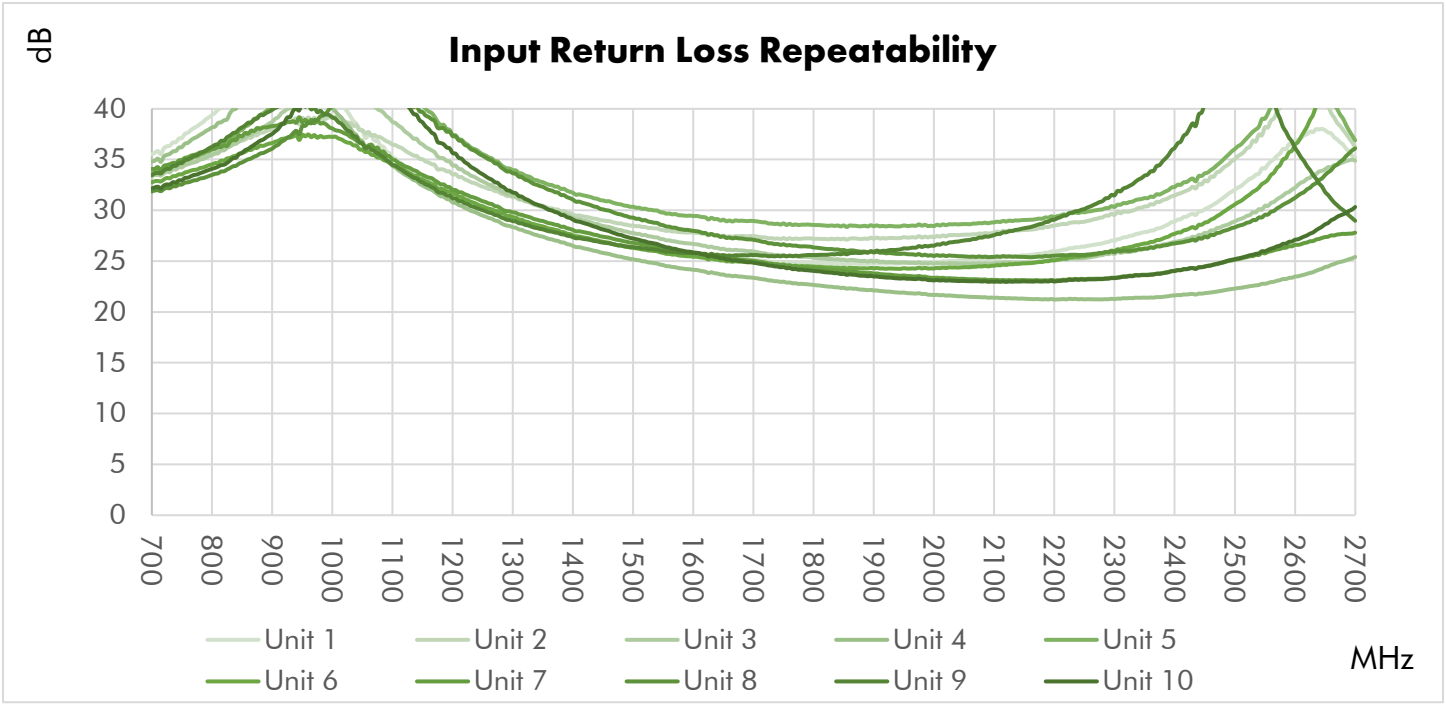

Main Line Return Loss vs. Temperature
dB
40
35
30
25
20
15
10
5
0
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
-55°C
+25°C
+100°C
MHz

Repeatability in Production






Insertion Loss Repeatability
dB
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
Unit 1
Unit 2
Unit 3
Unit 4
Unit 5
Unit 6
Unit 7
Unit 8
Unit 9
Unit 10
MHz


Input Return Loss Repeatability
dB
40
35
30
25
20
15
10
5
0
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
Unit 1
Unit 2
Unit 3
Unit 4
Unit 5
Unit 6
Unit 7
Unit 8
Unit 9
Unit 10
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.	
100	43.61	42.89	41.58	0.01	37.28	35.59
200	37.55	37.10	36.17	0.02	31.37	34.49
300	34.72	34.23	33.29	0.02	27.96	33.42
400	33.21	33.10	32.10	0.03	25.65	32.31
500	32.78	33.03	31.62	0.04	23.93	31.30
600	33.36	34.07	32.60	0.04	22.62	30.47
700	35.14	36.38	34.42	0.05	21.59	29.67
800	38.85	41.34	38.21	0.06	20.81	28.99
900	46.76	54.46	46.33	0.06	20.19	28.45
1000	42.60	40.93	42.49	0.07	19.74	28.01
1100	35.44	34.77	35.25	0.07	19.43	27.66
1200	31.63	31.27	31.95	0.08	19.25	27.49
1300	29.15	28.97	29.66	0.08	19.17	27.37
1400	27.38	27.43	28.44	0.09	19.18	27.40
1500	26.21	26.45	27.44	0.09	19.28	27.59
1600	25.40	25.86	27.14	0.09	19.43	27.98
1700	24.92	25.53	27.22	0.09	19.65	28.52
1800	24.62	25.46	27.39	0.09	19.88	29.40
1900	24.64	25.60	28.01	0.09	20.13	30.69
2000	24.86	25.86	28.70	0.08	20.34	32.28
2100	25.39	26.18	30.08	0.08	20.50	34.35
2200	26.15	26.74	31.15	0.08	20.59	35.56
2300	27.36	27.65	31.76	0.08	20.60	34.13
2400	29.30	29.29	31.17	0.08	20.52	31.38
2500	32.25	31.99	29.53	0.08	20.36	28.82
2600	36.38	36.52	27.85	0.08	20.18	26.77
2700	34.67	36.65	26.83	0.08	19.97	25.21
2800	28.71	29.75	26.69	0.09	19.77	24.00
2900	24.31	24.94	27.83	0.10	19.61	23.14
3000	21.15	21.55	30.93	0.12	19.52	22.55

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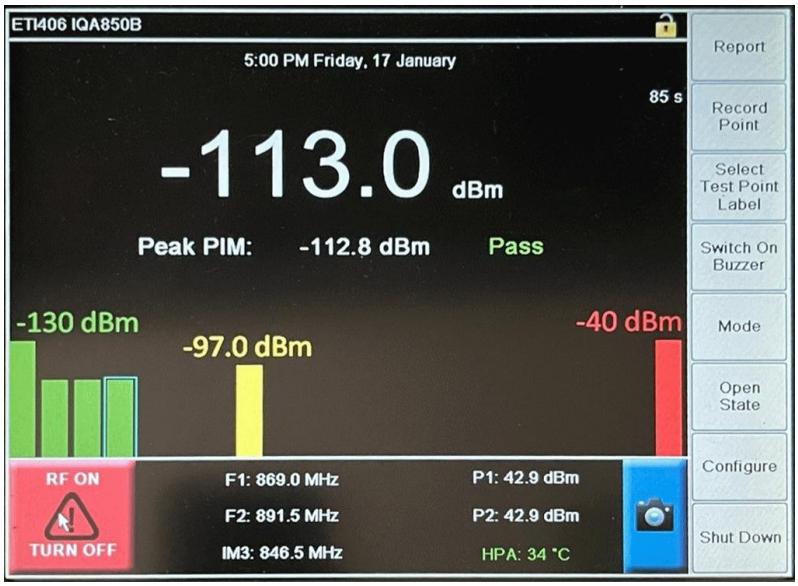
Typical Passive Intermodulation (PIM) Performance

Cellular Band



PCS Band

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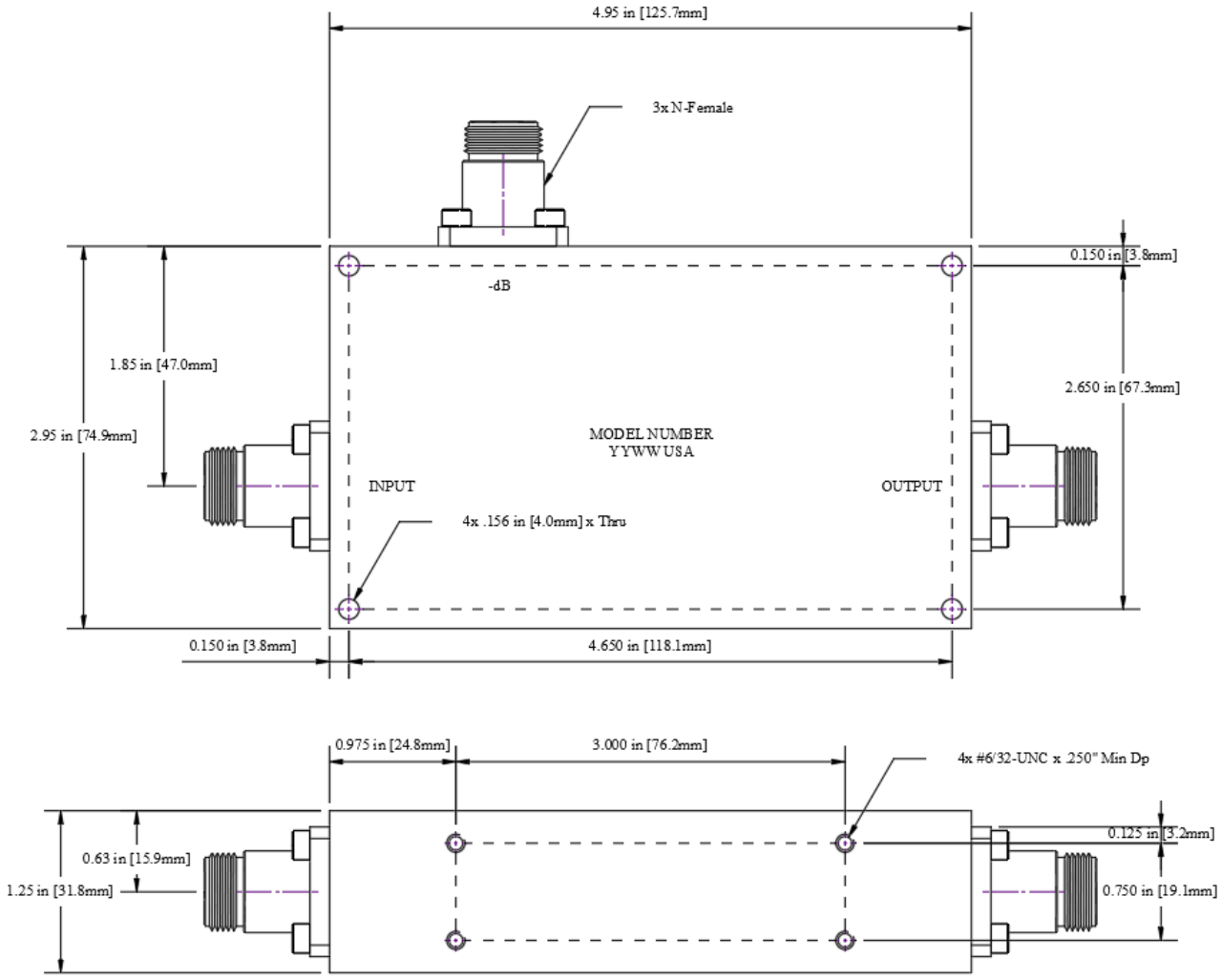
Outline Dimensions



Outline drawing: OL-1800
Dimensions are in inches, [mm] shown for convenience.
Tolerances on 2-pl decimals: ±.03. 3-pl decimals: ± .015.