

High Power Directional Coupler, 690-2700MHz, 40dB, N-Male or Female Input, 50Ω

HIGH DIRECTIVITY... 30dB TYPICAL PERFORMANCE!

WADC-0727-40-XXX



The WADC-0727-40-XXX is a high power 40 dB directional coupler covering 690 to 2700 MHz, supporting key cellular, LTE, and wireless infrastructure bands. Designed using an air dielectric coaxial structure, this coupler delivers low insertion loss, high directivity, and excellent power handling for forward and reverse signal monitoring. Typical applications include RF power monitoring, transmitter protection, VSWR measurement, distributed antenna systems (DAS), base station infrastructure, and general-

purpose RF test setups requiring accurate sampling of high-power signals across broadband frequencies. The model is configurable and may be ordered in single or dual configurations. The input connector is offered with a standard N-Female, or an N-Male may be configured to directly connect to an amplifier output, thereby eliminating the needs for cables and adapters, which may add loss and mismatch to the high-power output.

Electrical

Parameter	Low Band	Mid Band	High Band	Unit
Frequency Range	690-1000	1000-2000	2000-2700	MHz
Impedance	50			Ω
Coupling (Nominal ± Range)	41 +2/-2.5	40 +1/-2	39 +2.5/-3	dB
Coupling (Guaranteed Range)	38.5 - 43.0	38.0 - 41.0	36.0 - 41.5	dB
Mainline Loss ¹	0.15	0.15	0.20	dB, max.
Directivity	25	25	22	dB, min.
Mainline Return Loss	25			dB, min.
Secondary Line Return Loss	20			dB, min.
Isolation	66	65	61	dB, typ.
Forward or Reverse Power, at +25 °C, Sea Level (CW) ²	500	375	300	W, max.
Forward or Reverse Power, at +85 °C, Sea Level (CW) ²	400	300	250	W, max.
Termination Power	1			W, max.
DC Current (Input-Output)	5			A, max.

Mechanical and Environmental

Connector Interface	N Female
Operating Temperature ³	-55 to +85 °C
Storage Temperature	-55 to +100 °C
Nominal Weight	205 g (7.2 oz)
Operating Humidity	10-90% (non-condensing)
Operating Environment	Indoor Use Only
HTSUS Code	8525.50.3035
ECCN	EAR99

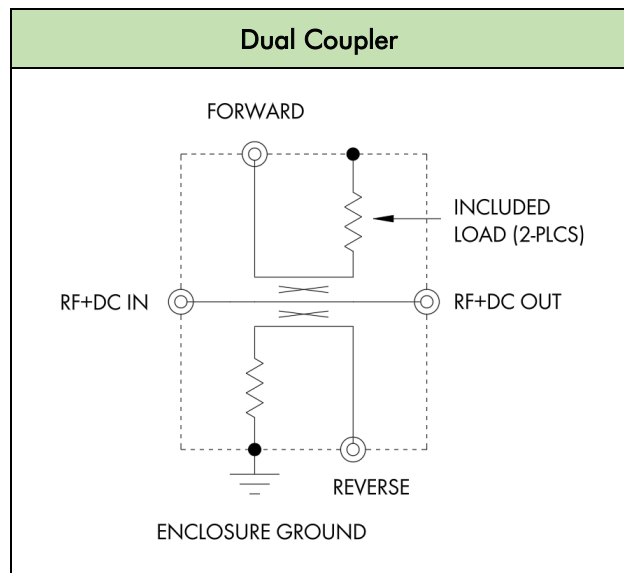
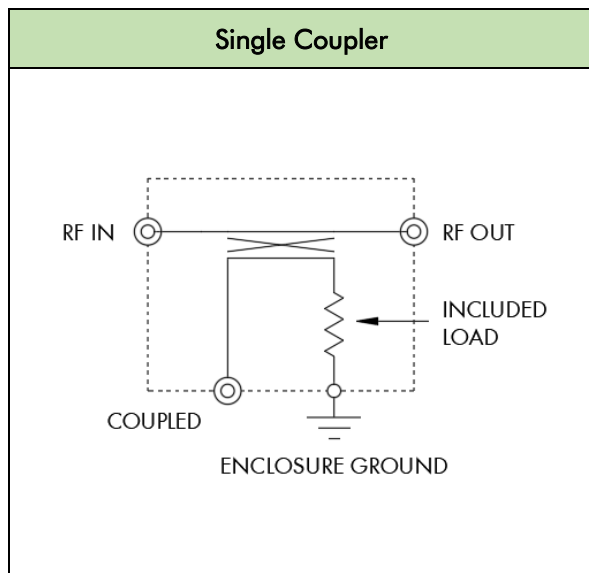
RoHS Status ⁴	RoHS3 Compliant
REACH Status ⁴	REACH Unaffected
Enclosure Material	Aluminum
Connectors Material	Brass, Tri-Alloy or Gold Plated
Contacts Material	Beryllium Copper, Gold Plated
Insulators Material	Virgin PTFE
Finish	Green Paint

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

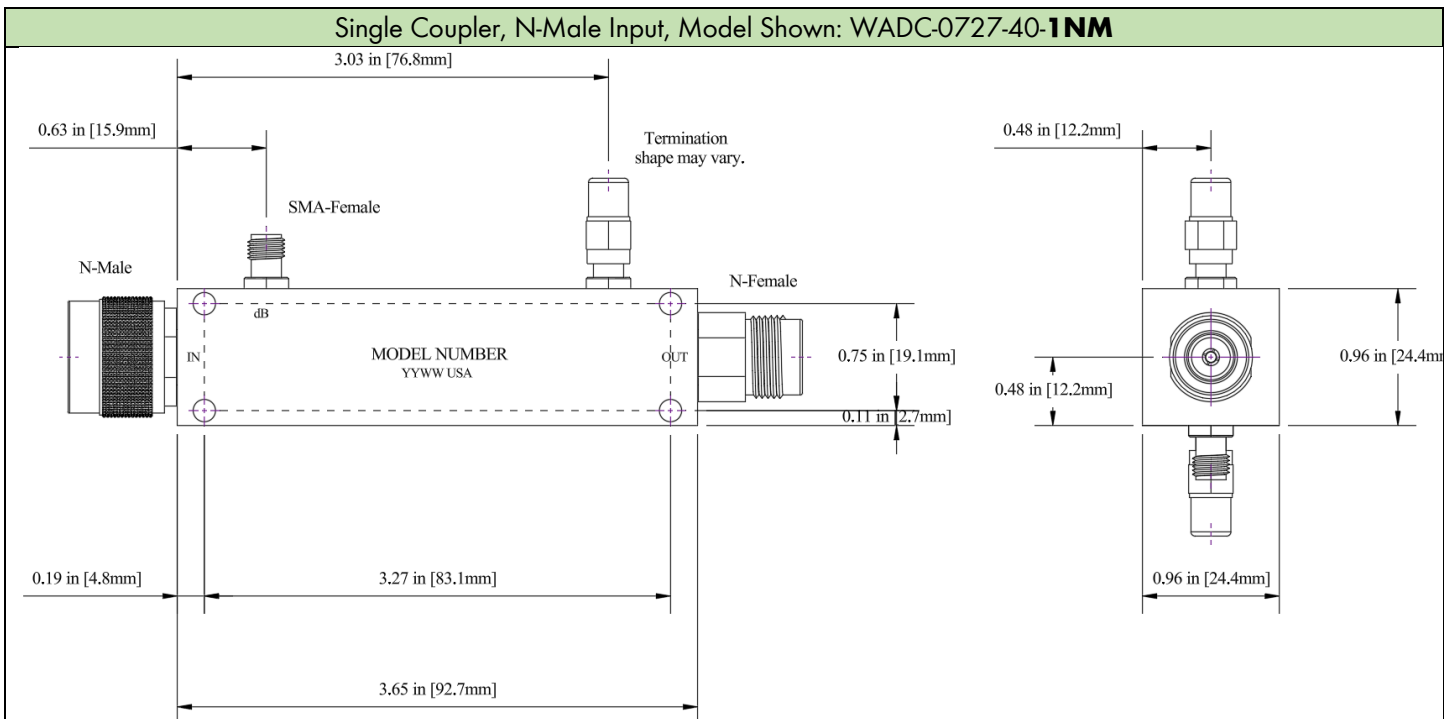
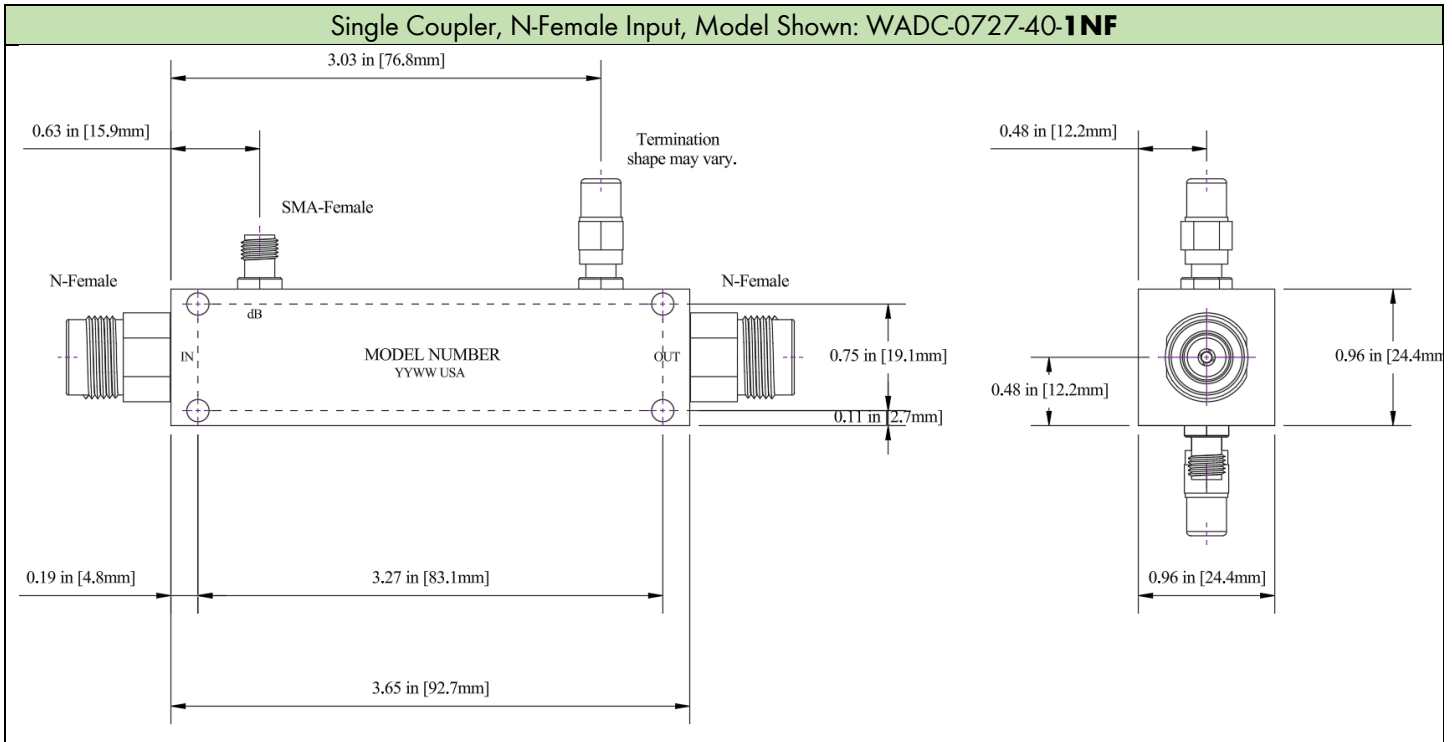
Explanation of Part Numbers

Product Code	Frequency Range Code	Value (dB)	Configuration Code	Input Connector
WADC	0727	40	1	NF
	0430: 400-3000MHz 0727: 690-2700MHz 1040: 1-4GHz		1: Single 2: Dual	NF: N-Female NM: N-Male

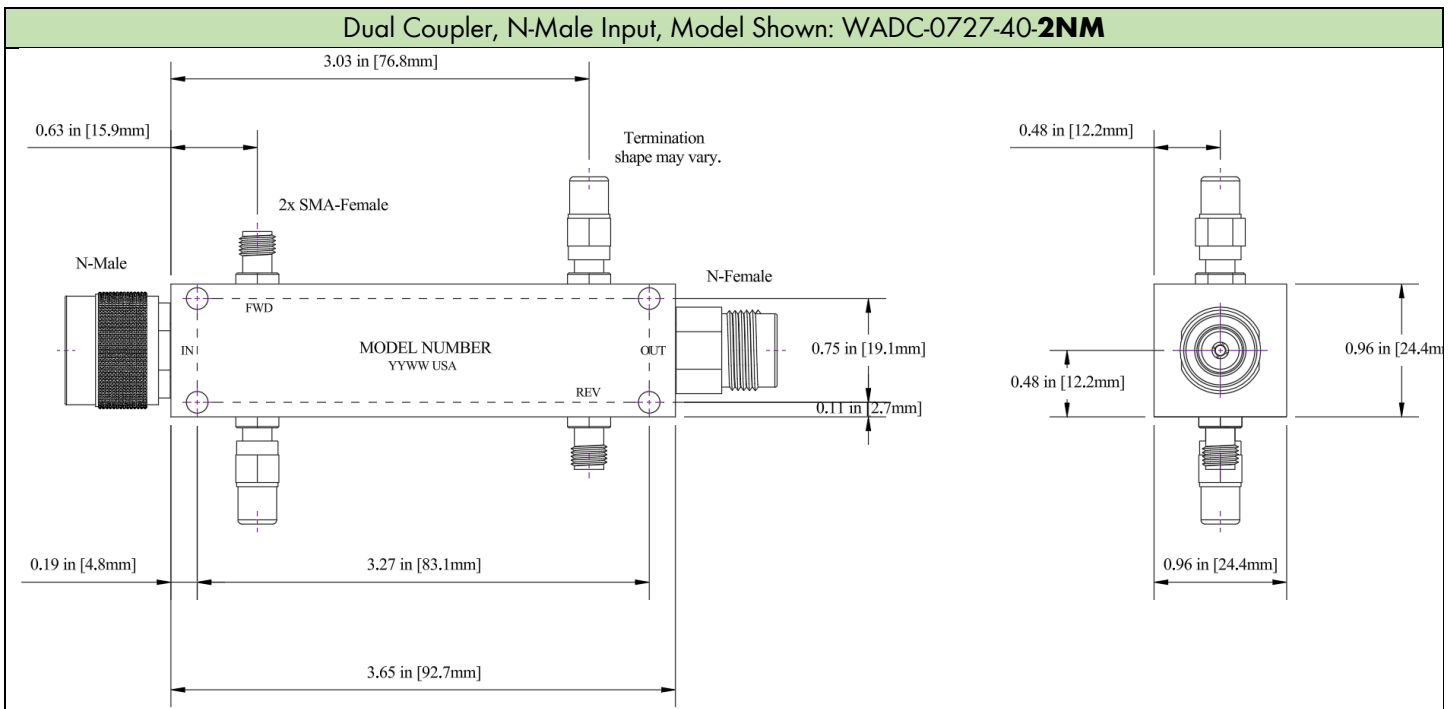
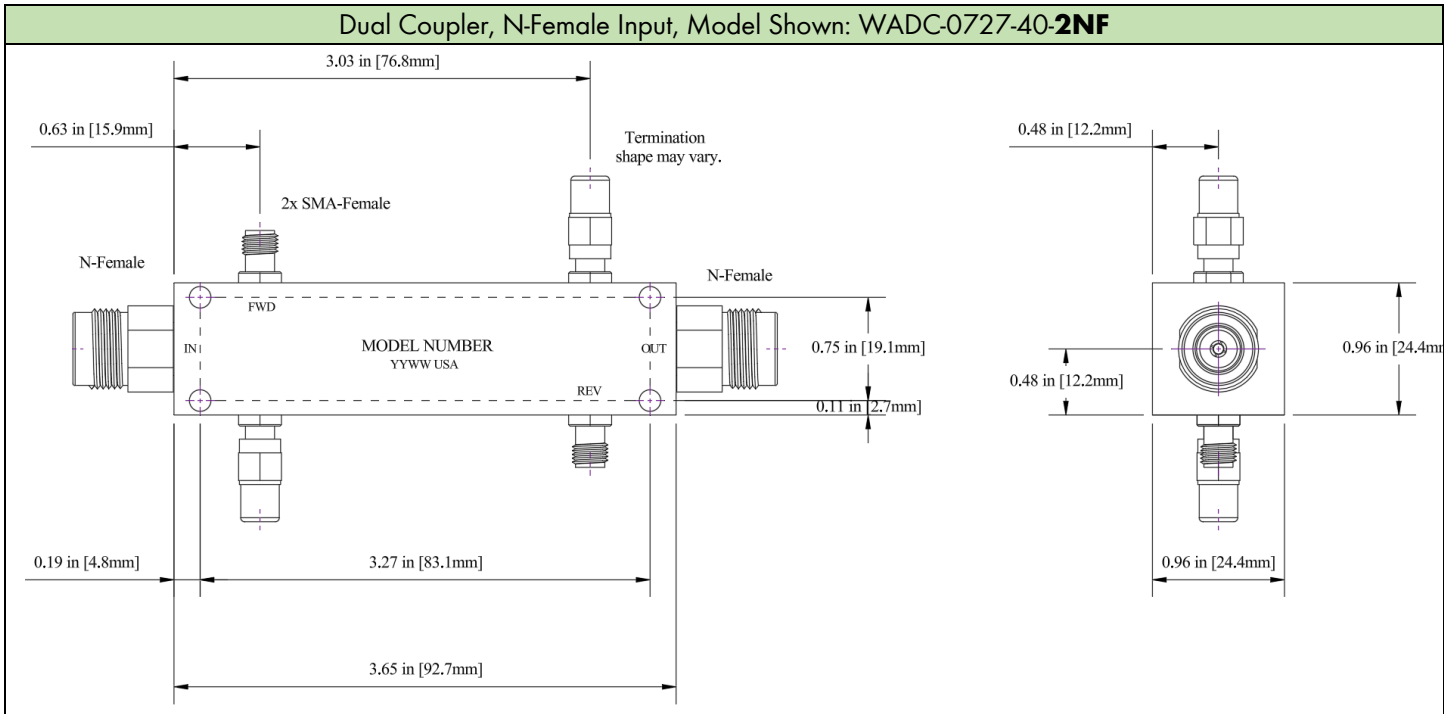
Functional Schematic



Outline Drawings

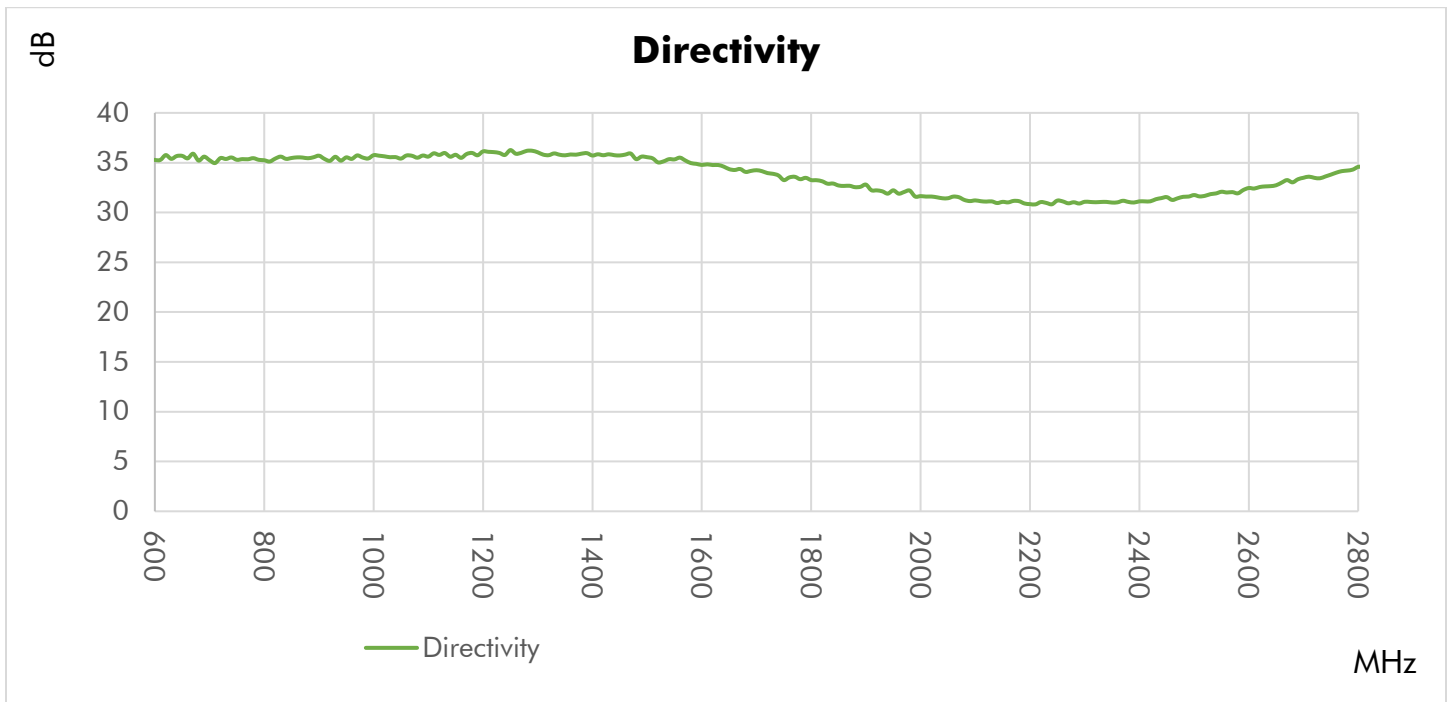
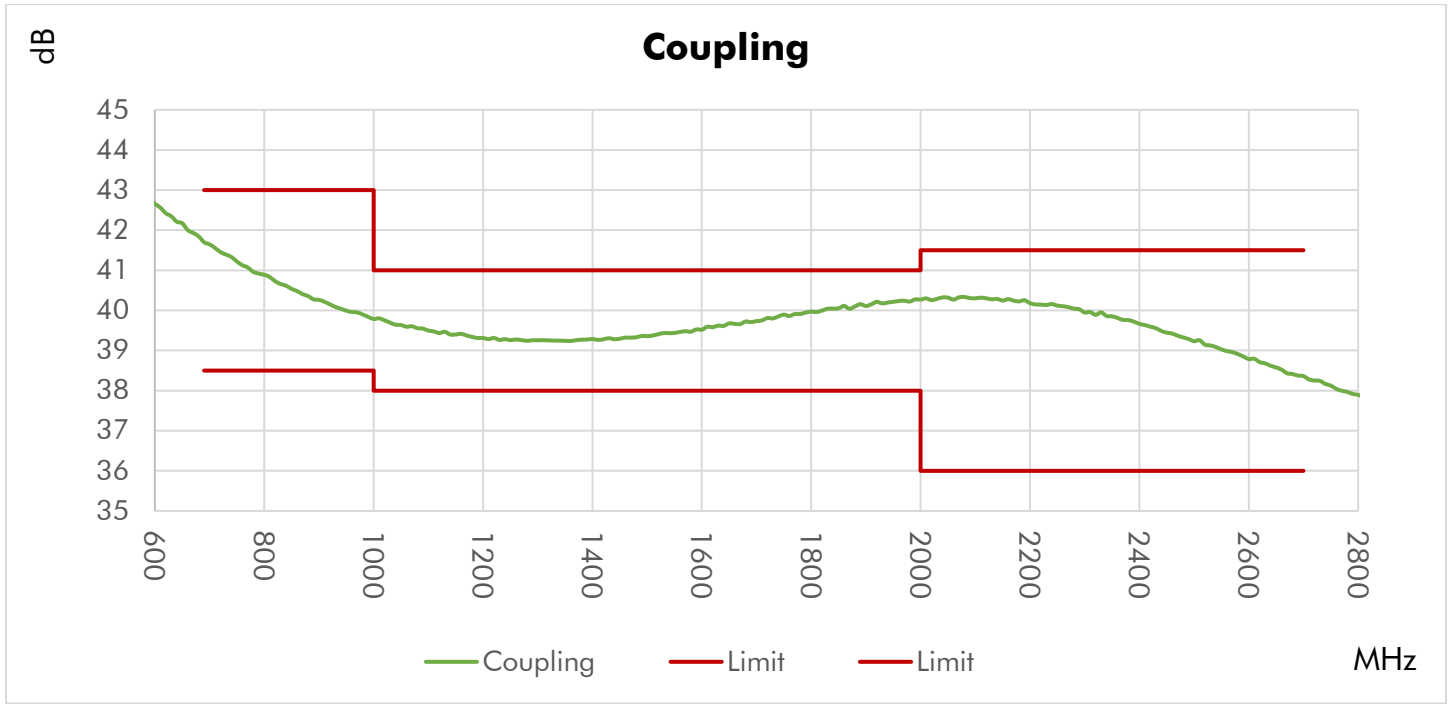


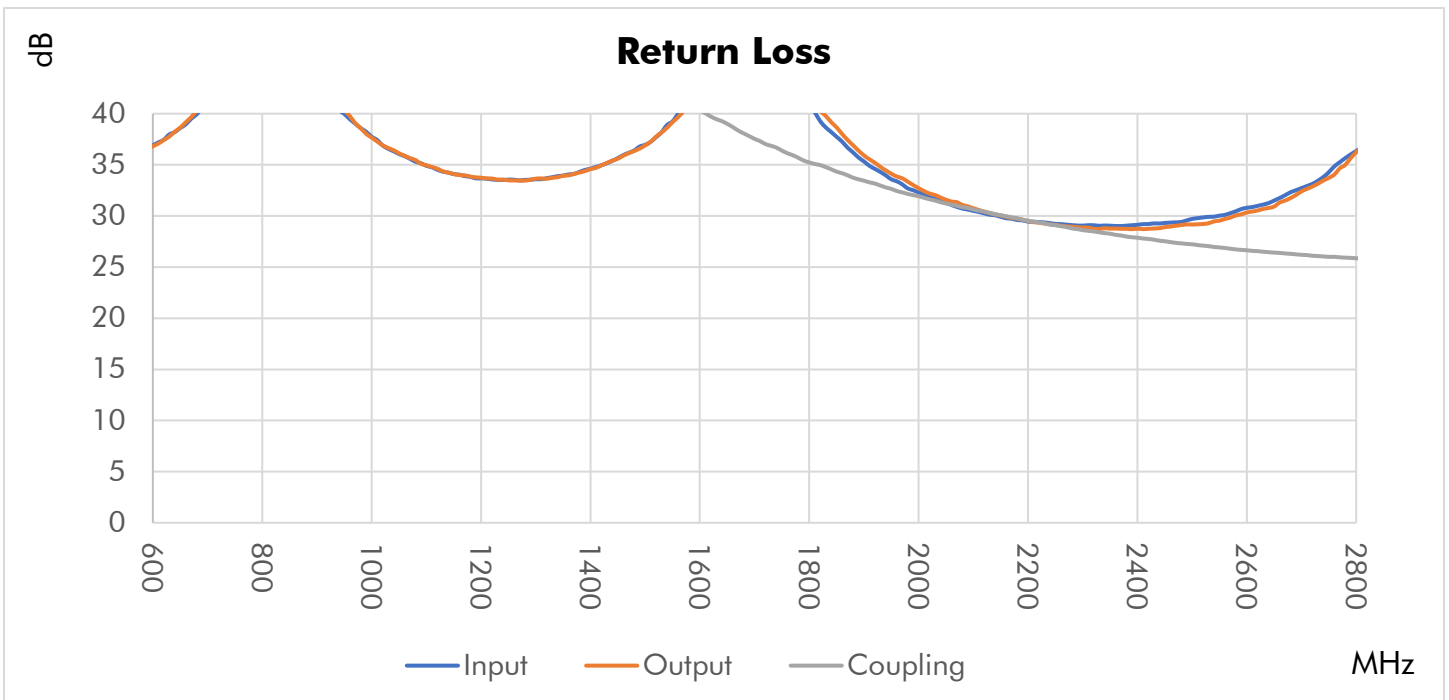
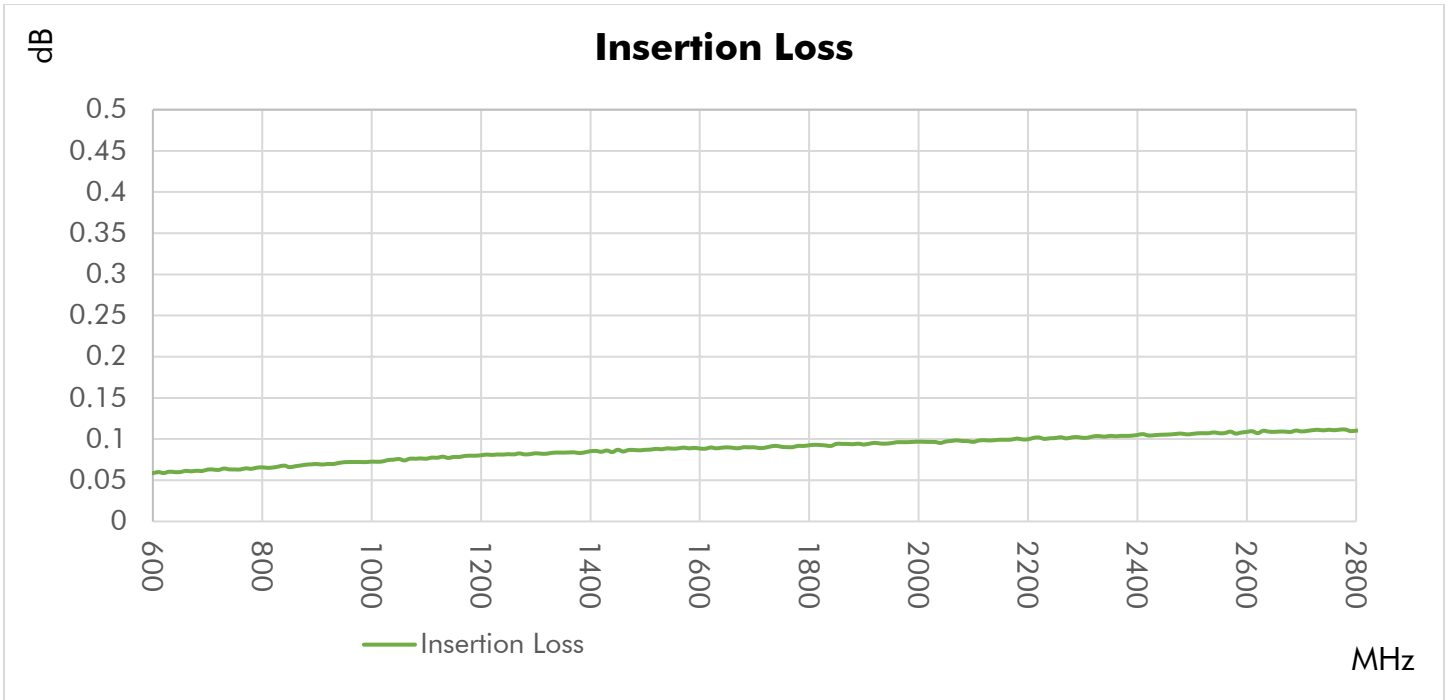
Dimensions are in inches, [mm] shown for convenience. Tolerances on 2-pl decimals: ± 0.03 . 3-pl decimals: ± 0.015 .



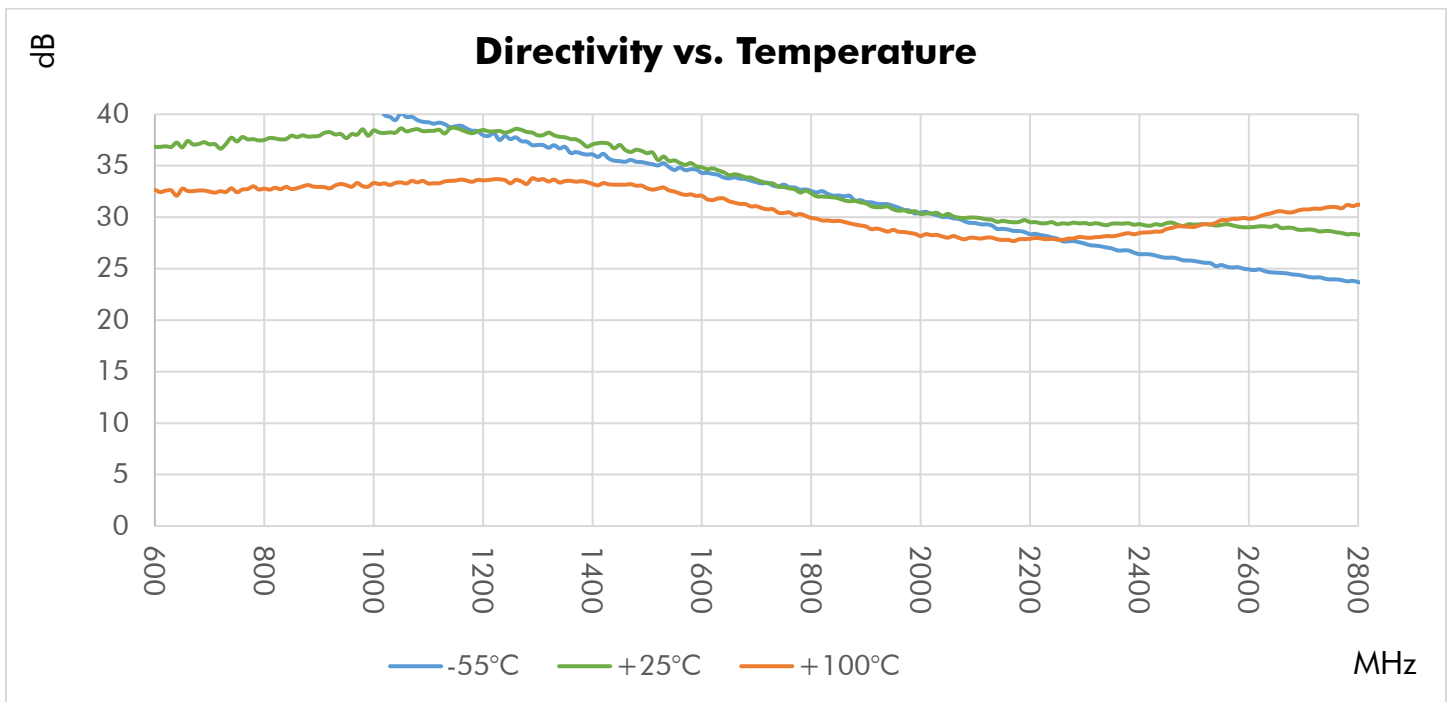
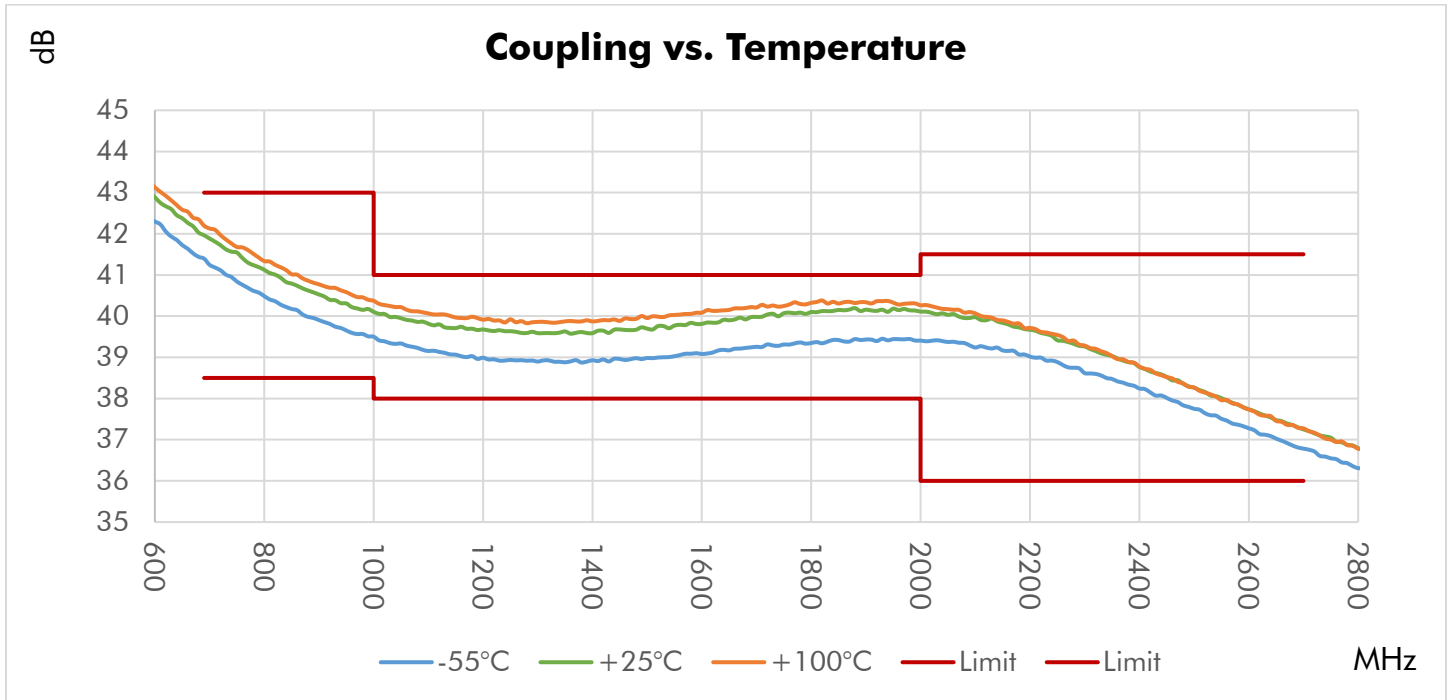
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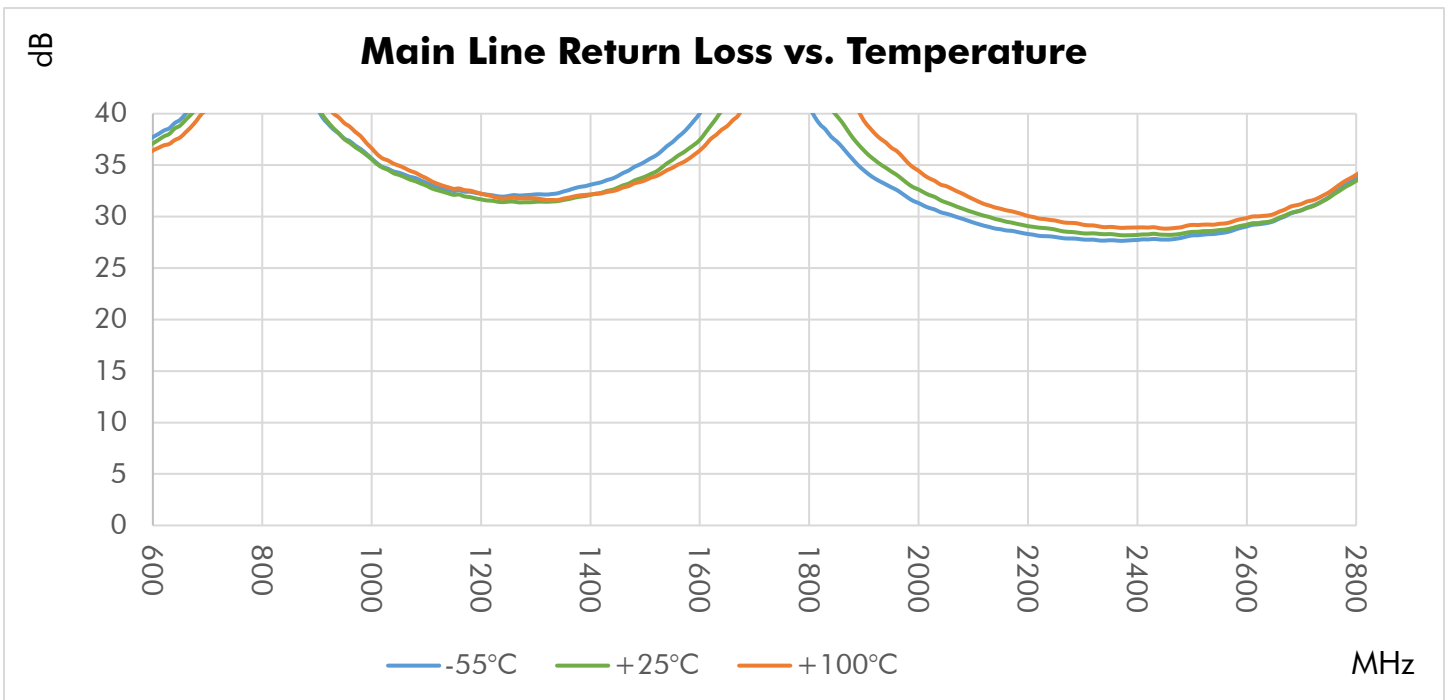
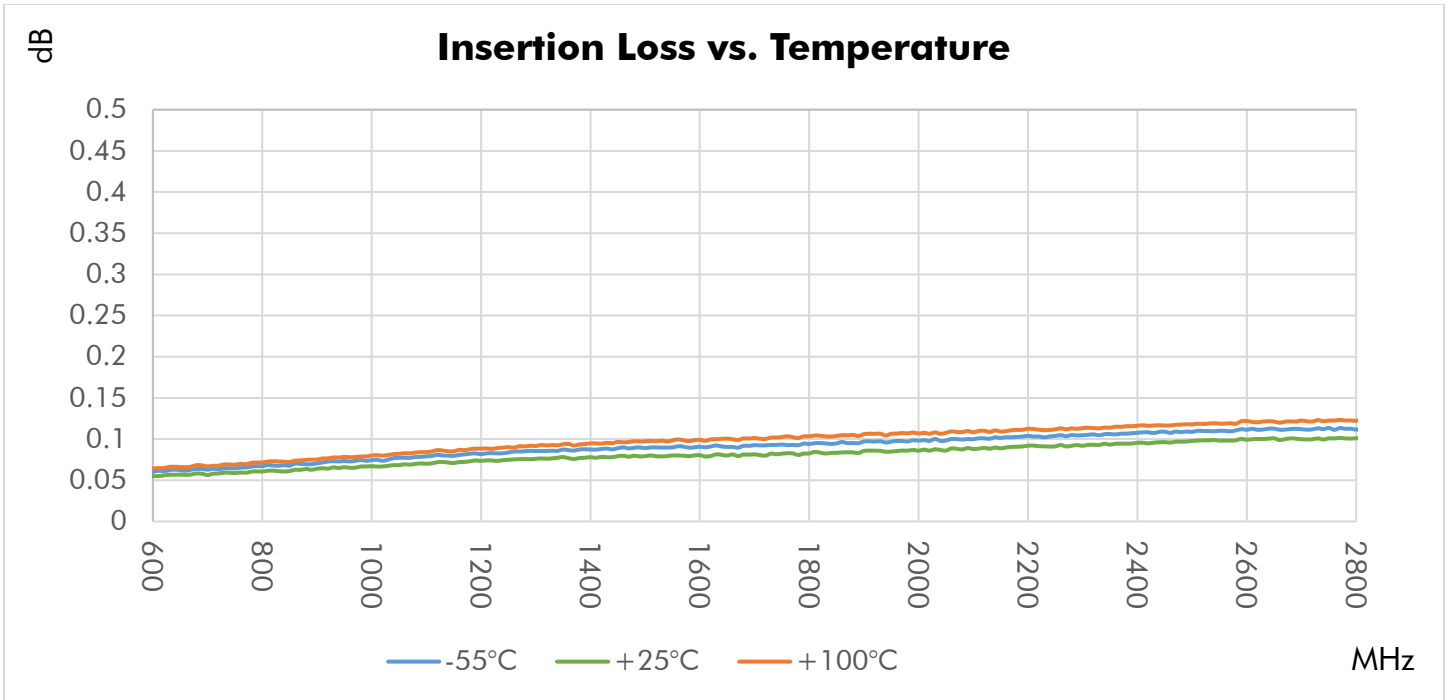
Typical Performance at +25 °C



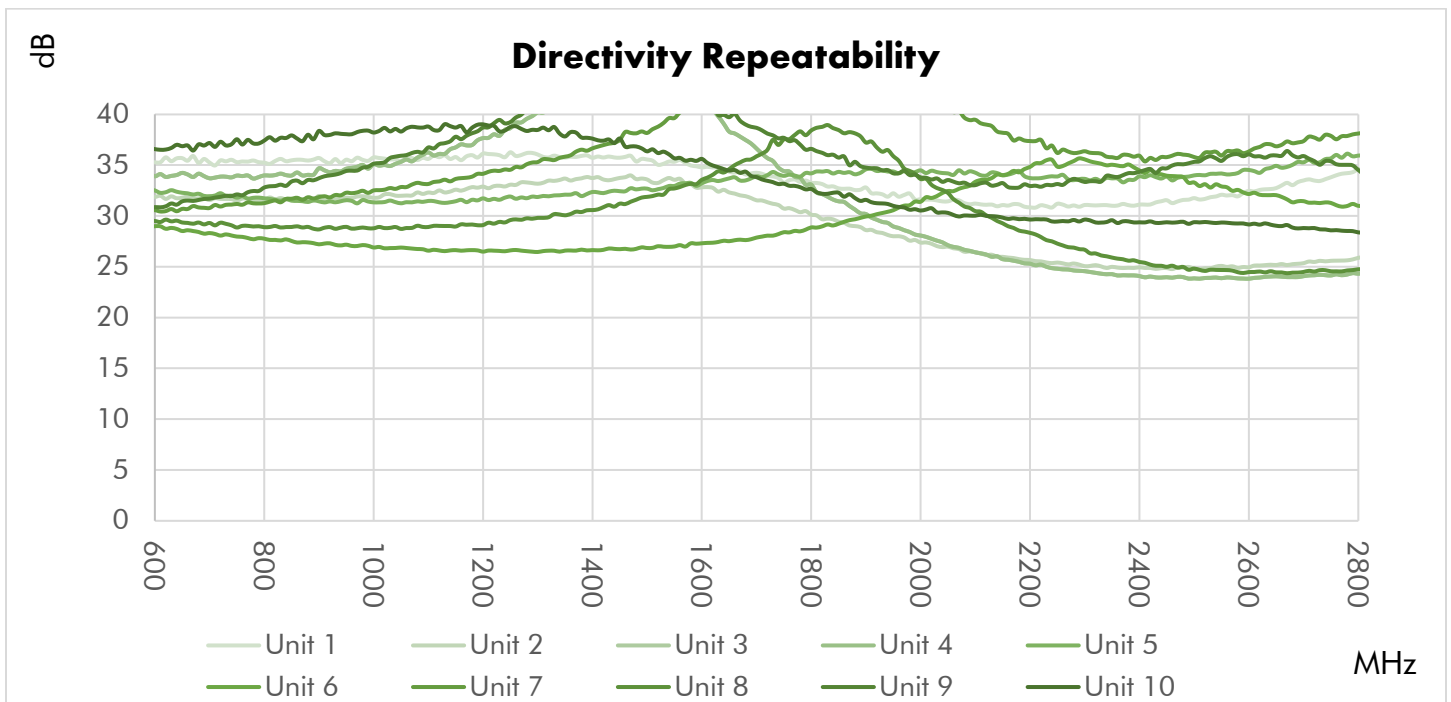
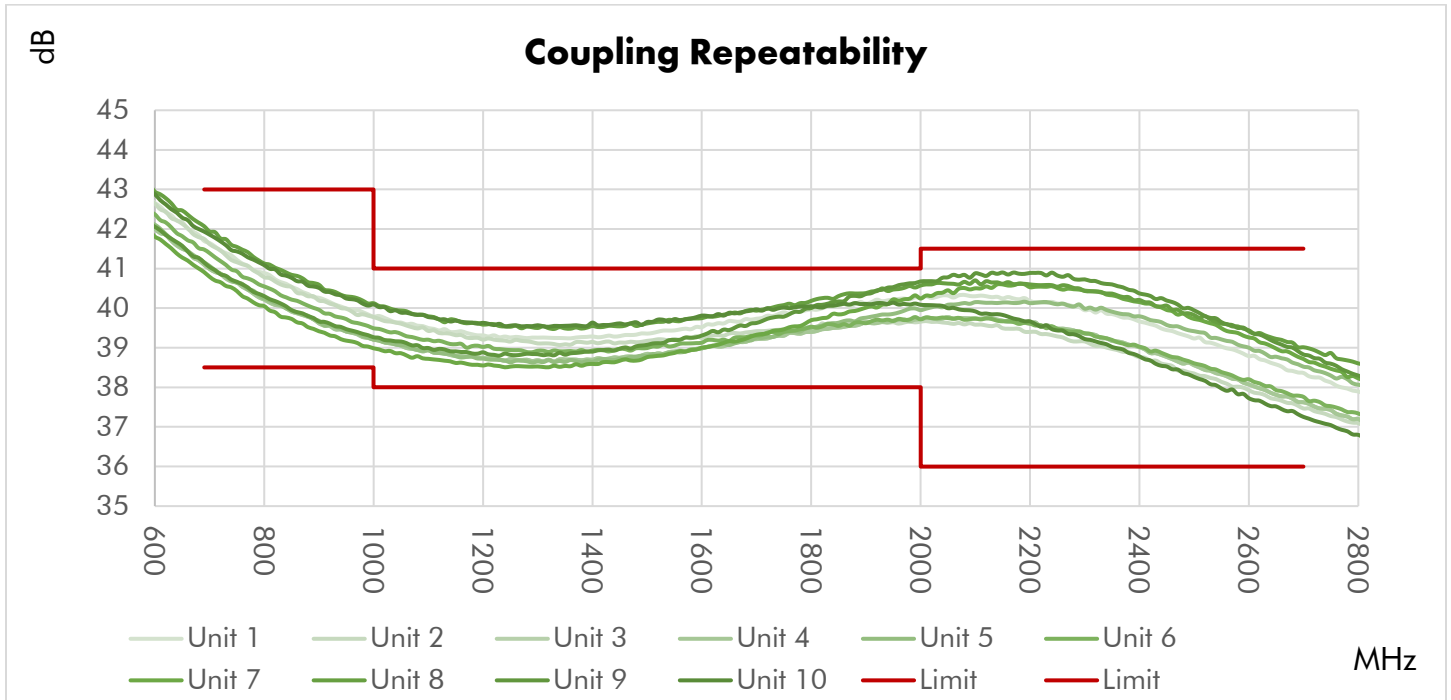


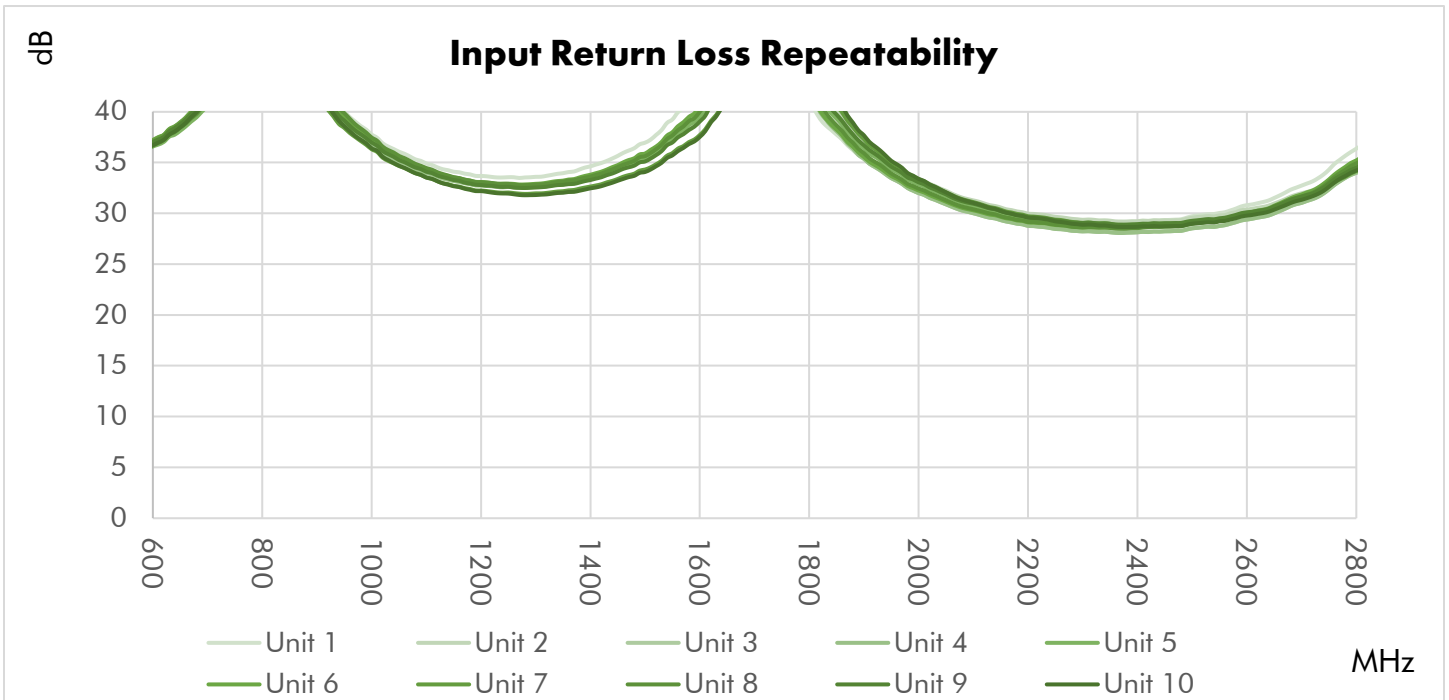
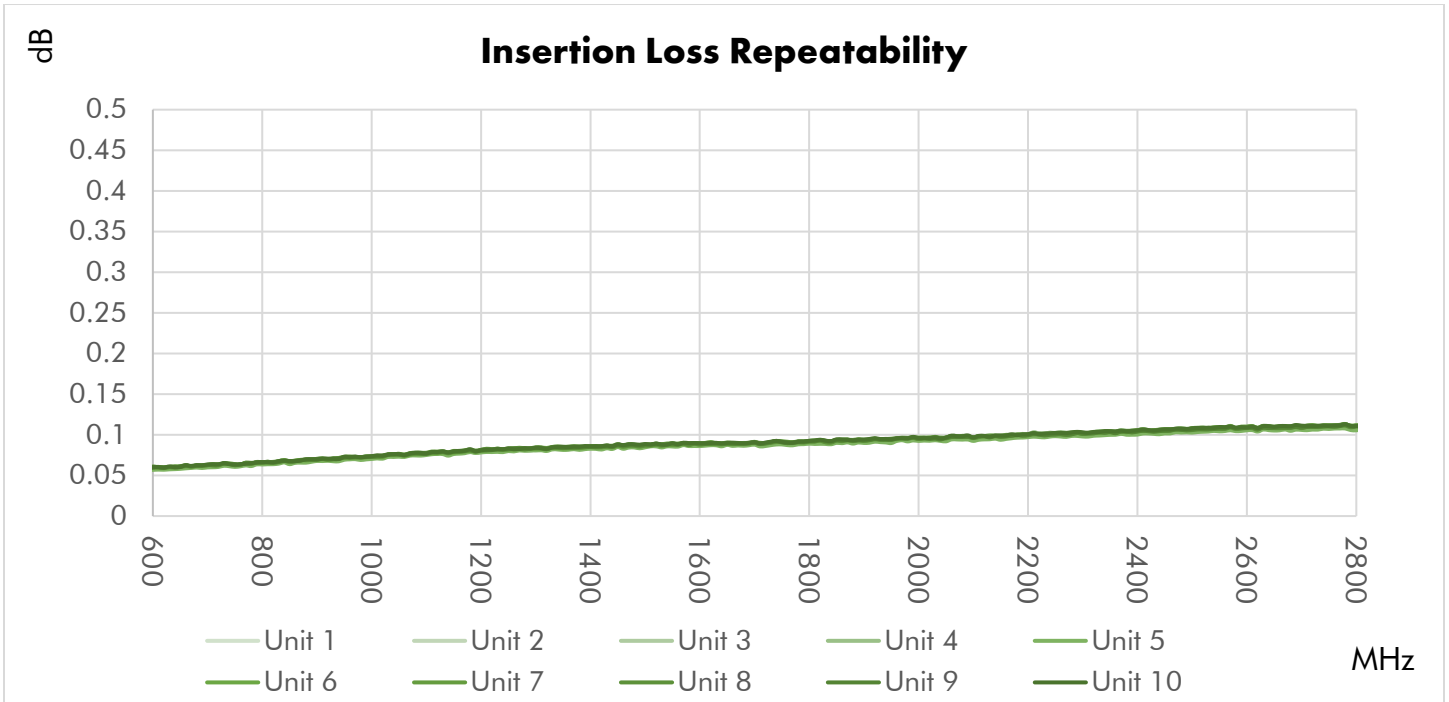
Typical Performance Over Temperature





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.	
100	41.43	41.27	44.24	0.03	57.24	34.39
200	36.82	38.75	42.15	0.01	51.35	35.44
300	34.18	34.52	41.75	0.04	47.98	35.27
400	34.42	34.03	42.53	0.05	45.68	36.07
500	35.02	34.69	43.92	0.06	43.97	35.65
600	36.91	36.81	46.02	0.06	42.66	35.28
700	41.04	41.32	48.81	0.06	41.65	35.25
800	49.53	52.33	52.07	0.07	40.89	35.25
900	43.35	43.64	53.95	0.07	40.26	35.70
1000	37.75	37.67	54.72	0.07	39.79	35.75
1100	34.90	34.97	56.21	0.08	39.50	35.61
1200	33.67	33.74	60.62	0.08	39.31	36.14
1300	33.59	33.65	56.01	0.08	39.26	36.04
1400	34.62	34.58	49.06	0.09	39.29	35.72
1500	36.95	36.90	44.02	0.09	39.36	35.55
1600	42.01	42.12	40.32	0.09	39.52	34.78
1700	54.53	60.94	37.54	0.09	39.73	34.24
1800	40.97	41.67	35.24	0.09	39.97	33.25
1900	35.34	35.92	33.45	0.09	40.11	32.80
2000	32.29	32.72	31.93	0.10	40.27	31.64
2100	30.50	30.75	30.63	0.10	40.30	31.21
2200	29.45	29.52	29.53	0.10	40.18	30.84
2300	29.06	28.87	28.62	0.10	39.95	31.08
2400	29.13	28.76	27.87	0.10	39.66	31.12
2500	29.71	29.16	27.23	0.11	39.23	31.75
2600	30.80	30.34	26.65	0.11	38.79	32.46
2700	32.72	32.41	26.20	0.11	38.36	33.49
2800	36.35	36.23	25.86	0.11	37.90	34.58
2900	46.33	46.77	25.63	0.11	37.49	35.56
3000	42.04	41.68	25.56	0.12	37.15	36.27

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