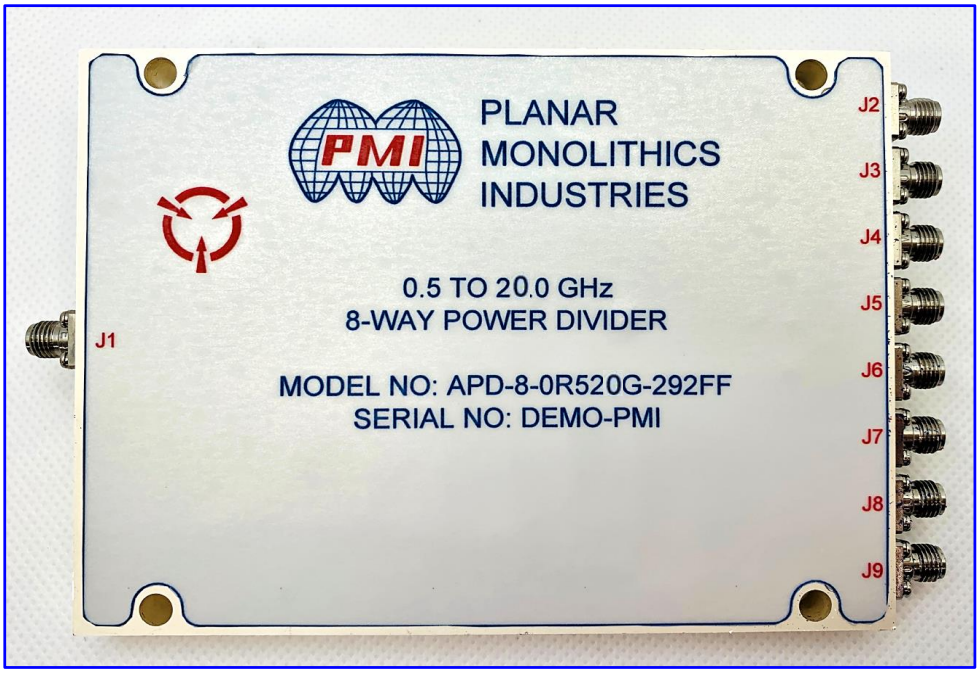
Typical Characteristics ON APD-8-0R520G-292FF

PMI MODEL: APD-8-0R520G-292FF IS AN EIGHT WAY POWER DIVIDER OPERATING OVER THE 0.5 TO 20.0 GHz FREQUENCY RANGE. THIS MODEL HAS A MAXIMUM INSERTION LOSS OF 2.0 dB FROM 0.5 TO 8.0 GHz AND 3.2 dB MAXIMUM BETWEEN 8.0 TO 18.0 GHz. THE COMPACT 5.0" x 3.7" x 0.43" HOUSING IS OUTFITTED WITH 2.92 mm FEMALE CONNECTORS.



October 9, 2020

Designed By:

Dr. Ashok Gorwara and Sean Heraty

Tested and Reported By:

Sean Heraty and A. Lopez

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Typical Characteristics ON APD-8-0R520G-292FF

Technical Sheet

DESCRIPTION

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	09/22/20	

PMI MODEL: APD-8-0R520G-292FF IS AN EIGHT WAY POWER DIVIDER OPERATING OVER THE 0.5 TO 20.0 GHz FREQUENCY RANGE. THIS MODEL HAS A MAXIMUM INSERTION LOSS OF 2.0 dB FROM 0.5 TO 8.0 GHz AND 3.2 dB MAXIMUM BETWEEN 8.0 TO 18.0 GHz. THE COMPACT 5.0" x 3.7" x 0.43" HOUSING IS OUTFITTED WITH 2.92 mm FEMALE CONNECTORS.

SPECIFICATIONS

• FREQUENCY RANGE:	0.5 TO 20.0 GHz
• INSERTION LOSS:	0.5 to 1 GHz – 2.0 dB Max. 1 to 2 GHz – 2.0 dB Max. 2 to 8 GHz - 2.0 dB Max. 8 to 18 GHz - 3.2 dB Max. 18 to 20 GHz - 5.0 dB Max.
• Insertion Loss Flatness (Ref Line of Best Fit)	0.5 to 20 GHz - ± 1 dB Max. 1.0 to 20 GHz - ± 1 dB Max. 2.0 to 20 GHz - ± 1 dB Max. 0.5 to 18 GHz - ± 1 dB Max. 1.0 to 18 GHz - ± 1 dB Max. 2.0 to 18 GHz - ± 1 dB Max.
• VSWR (INPUT):	0.5 to 1 GHz – 2.5:1 Typ. 1 to 2 GHz – 2.6:1 Max. 2 to 8 GHz - 2.1:1 Max. 8 to 18 GHz - 2.0:1 Max. 18 to 20 GHz - 2.0:1 Typ.
• VSWR (OUTPUT):	0.5 to 1 GHz – 1.5:1 Max. 1 to 2 GHz – 1.5:1 Max. 2 to 8 GHz - 1.7:1 Max. 8 to 18 GHz - 1.8:1 Max. 18 to 20 GHz - 2.0:1 Max.

• ISOLATION:	0.5 to 1 GHz – 10 dB Typ. 1 to 2 GHz – 10 dB Typ. 2 to 8 GHz - 20 dB Typ. 8 to 18 GHz - 20 dB Typ. 18 to 20 GHz - 15 dB Typ.
• AMPLITUDE BALANCE:	0.5 to 1 GHz - ± 0.5 dB Max. 1 to 2 GHz - ± 0.5 dB Max. 2 to 8 GHz - ± 0.3 dB Max. 8 to 18 GHz - ± 0.5 dB Max. 18 to 20 GHz - ± 1.2 dB Max.
• PHASE BALANCE:	0.5 to 1 GHz – 5° Max. 1 to 2 GHz – 3° Max. 2 to 8 GHz - 4° Max. 8 to 18 GHz - 10° Max. 18 to 20 GHz - 15° Typ.

• AVERAGE POWER:	25 WATTS (INTO 1.2:1 LOAD VSWR)
• CONNECTORS:	2.92 mm FEMALE REMOVABLE
• SIZE:	5.00" x 3.70" x 0.43" [127.1 x 94.0 x 10.9 mm] EXCLUDING CONNECTORS
• FINISH:	PAINTED BLUE

ENVIRONMENTAL RATINGS

- TEMPERATURE: -55 °C TO +85 °C (OPERATING)
-65 °C TO +125 °C (STORAGE)
- HUMIDITY: MIL-STD-202, METHOD 103B COND. B
- SHOCK: MIL-STD-202, METHOD 213B COND. B
- VIBRATION: MIL-STD-202, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202, METHOD 107D COND. A

NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

PMI CONFIDENTIAL AND PROPRIETARY

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ISO 9001 CERTIFIED

APPROVALS	DATE
DRAWN: SMH	9/22/20
CHECKED	
ISSUED	

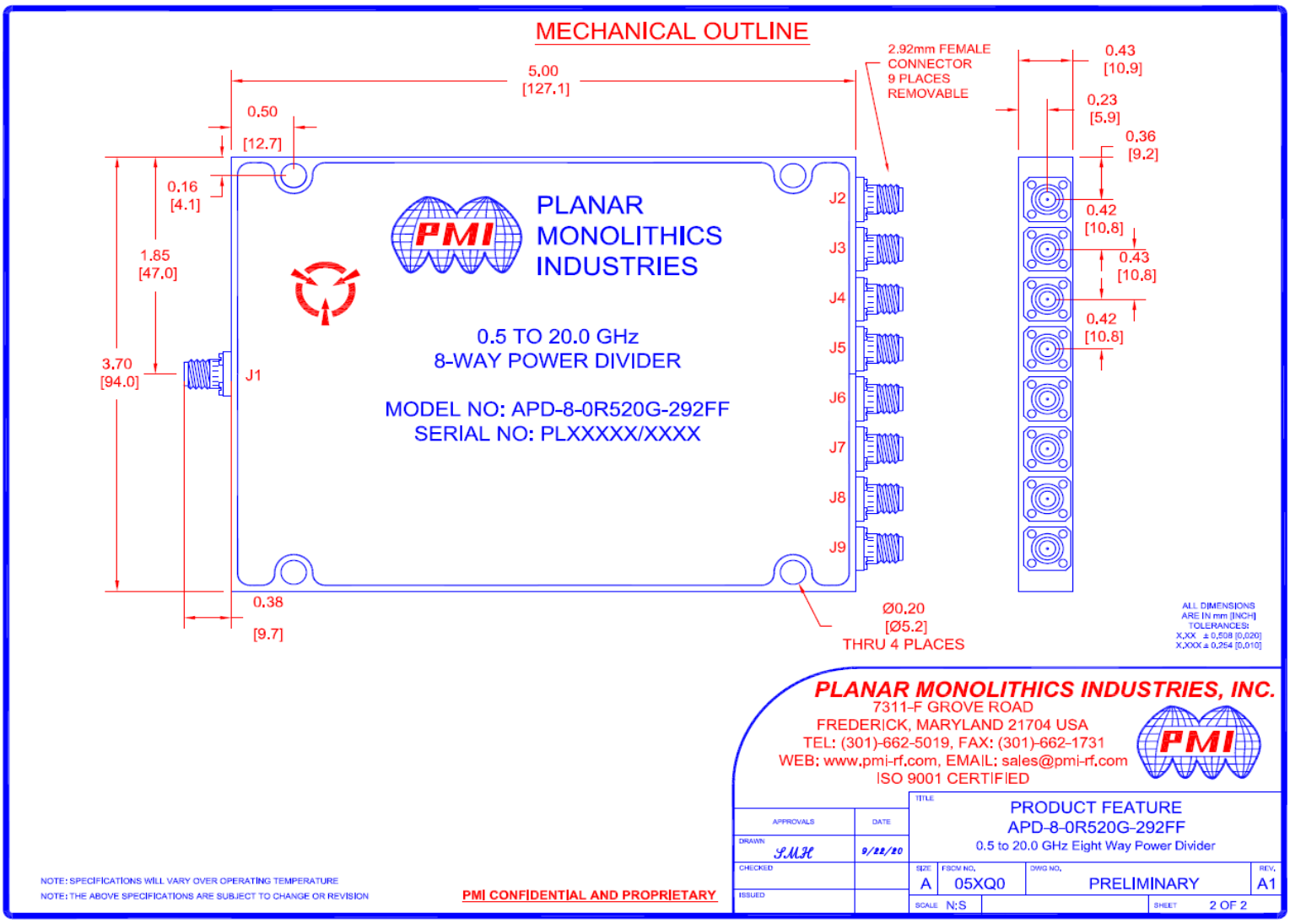
TITLE: PRODUCT FEATURE
APD-8-0R520G-292FF
0.5 to 20.0 GHz Eight Way Power Divider

SIZE	FSCM NO.	DWG NO.	REV.
A	05XQ0	PRELIMINARY	A1

SCALE N:S SHEET 1 OF 2

Typical Characteristics ON APD-8-0R520G-292FF

Mechanical Outline



Typical Characteristics ON APD-8-0R520G-292FF

Technical Specifications

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS +25°C	TEST RESULTS -55°C	TEST RESULTS +85°C	QA QC
1	Frequency Range	0.5 GHz – 20 GHz	0.5 GHz – 20 GHz	0.5 GHz – 20 GHz	0.5 GHz – 20 GHz	
2	Insertion Loss	0.5 to 1 GHz – 2.0 dB Max.	1.45 dB	1.77 dB	1.45 dB	
		1 to 2 GHz – 2.0 dB Max.	1.62 dB	1.69 dB	1.6 dB	
		2 to 8 GHz - 2.0 dB Max.	1.82 dB	1.69 dB	1.85 dB	
		8 to 18 GHz - 3.2 dB Max.	2.86 dB	2.61 dB	3 dB	
		18 to 20 GHz - 5.0 dB Max.	3.47 dB	3.29 dB	3.63 dB	
			See Graphs	See Graphs	See Graphs	
3	Insertion Loss Flatnness (Ref Line of Best Fit)	0.5 to 20GHz - ± 1 dB Max.	± 0.8 dB	± 0.9 dB	± 0.8 dB	
		1.0 to 20 GHz - ± 1 dB Max	± 0.8 dB	± 0.9 dB	± 0.8 dB	
		2.0 to 20 GHz - ± 1 dB Max	± 0.7 dB	± 0.6 dB	± 0.7 dB	
		0.5 to 18 GHz - ± 1 dB Max	± 0.8 dB	± 0.9 dB	± 0.8 dB	
		1.0 to 18GHz - ± 1 dB Max	± 0.8 dB	± 0.9 dB	± 0.8 dB	
		2 to 18 GHz - ± 1 dB Max	± 0.7 dB	± 0.6 dB	± 0.7 dB	
			See Graphs	See Graphs	See Graphs	
4	VSWR Input	0.5 to 1 GHz – 2.5:1 Typ.	2.32 :1	2.41 :1	2.32 :1	
		1 to 2 GHz – 2.6:1 Max.	2.45 :1	2.5 :1	2.45 :1	
		2 to 8 GHz - 2.1:1 Max.	2.01 :1	2.04 :1	2.01 :1	
		8 to 18 GHz - 2.0:1 Max.	1.88 :1	1.99 :1	1.88 :1	
		18 to 20 GHz - 2.0:1 Typ.	1.9 :1	1.89 :1	1.9 :1	
			See Graphs	See Graphs	See Graphs	
5	VSWR /Output	0.5 to 1 GHz – 1.5:1 Max.	1.37 :1	1.35 :1	1.28 :1	
		1 to 2 GHz – 1.5:1 Max.	1.22 :1	1.24 :1	1.22 :1	
		2 to 8 GHz - 1.7:1 Max.	1.64 :1	1.65 :1	1.64 :1	
		8 to 18 GHz - 1.8:1 Max.	1.69 :1	1.7 :1	1.69 :1	
		18 to 20 GHz - 2.0:1 Max.	1.74 :1	1.76 :1	1.74 :1	
			See Graphs	See Graphs	See Graphs	
6	Isolation	0.5 to 1 GHz – 10 dB Typ.	6.36 dB	6.39 dB	6.42 dB	
		1 to 2 GHz – 10 dB Typ.	11.21 dB	11.25 dB	11.22 dB	
		2 to 8 GHz - 20 dB Typ.	19.84 dB	19.81 dB	19.82 dB	
		8 to 18 GHz - 20 dB Typ.	17.08 dB	17.2 dB	17.03 dB	
		18 to 20 GHz - 15 dB Typ.	13.77 dB	13.55 dB	13.97 dB	
			See Graphs	See Graphs	See Graphs	
7	Amplitude Balance	0.5 to 1 GHz – ± 0.5 dB Max.	0.21 dB (±)	0.31 dB (±)	0.22 dB (±)	
		1 to 2 GHz – ± 0.5 dB Max.	0.18 dB (±)	0.31 dB (±)	0.19 dB (±)	
		2 to 8 GHz - ± 0.3 dB Max.	0.12 dB (±)	0.17 dB (±)	0.11 dB (±)	
		8 to 18 GHz - ± 0.5 dB Max.	0.39 dB (±)	0.4 dB (±)	0.42 dB (±)	
		18 to 20 GHz - ± 1.2 dB Max.	0.51 dB (±)	0.55 dB (±)	0.51 dB (±)	
			See Graphs	See Graphs	See Graphs	
8	Phase Balance	0.5 to 1 GHz – 5° Max.	1.56 °	4.43 °	1.14 °	
		1 to 2 GHz – 3° Max.	0.92°	1.24 °	0.64 °	
		2 to 8 GHz - 4° Max.	3.12°	3.76 °	1.75 °	
		8 to 18 GHz - 10° Max.	8.15°	9.11 °	4.19 °	
		18 to 20 GHz - 15° Typ.	8.63°	15.77 °	5.25 °	
			See Graphs	See Graphs	See Graphs	
9	Average Power	25 Watts (+44dBm) (Into 1.2:1 Load VSWR)	Pass 25 Watts See Graph	Pass 25 Watts See Graph	Pass 25 Watts See Graph	

Note: Amplitude and phase balance are relative to J2 Port.

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ON
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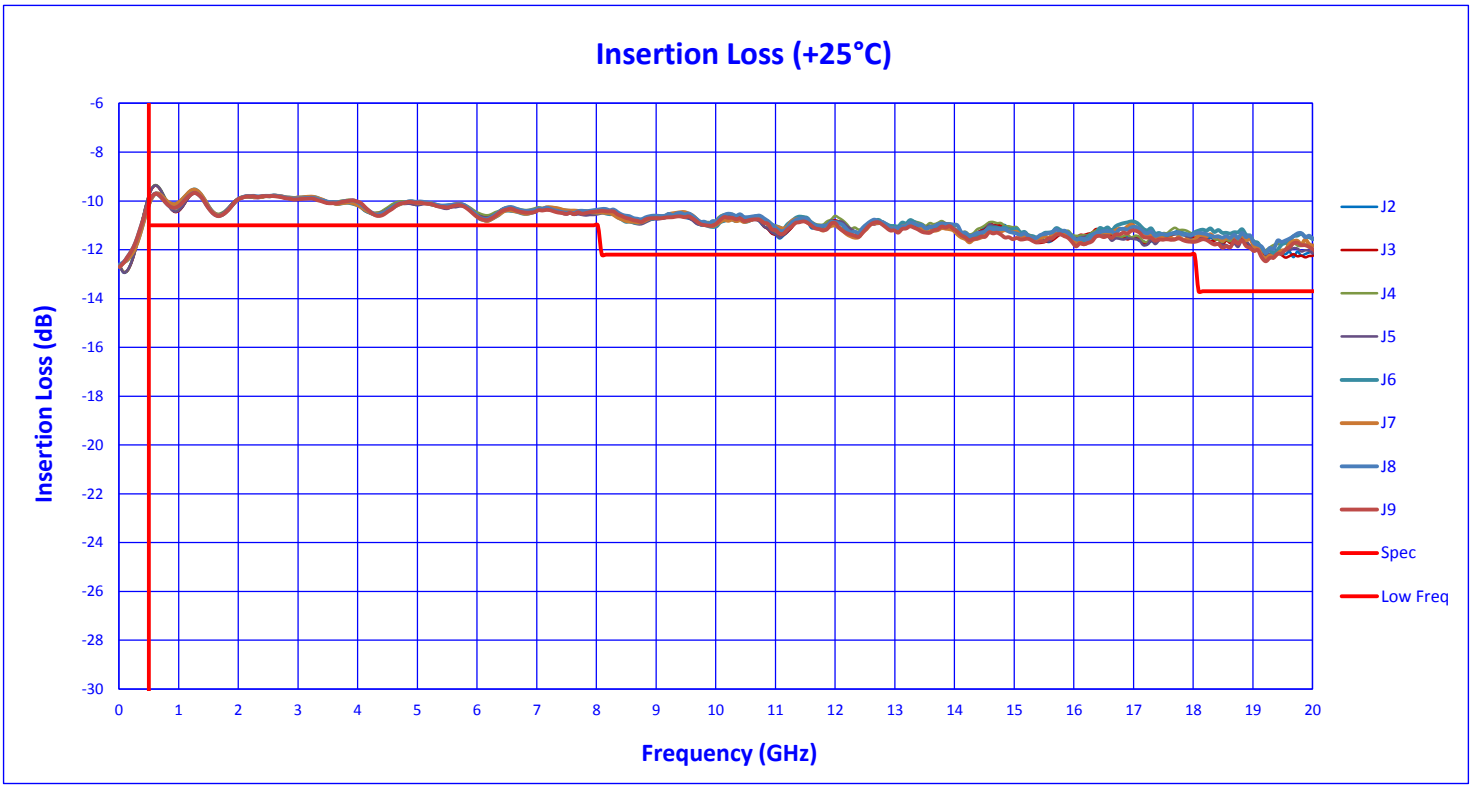

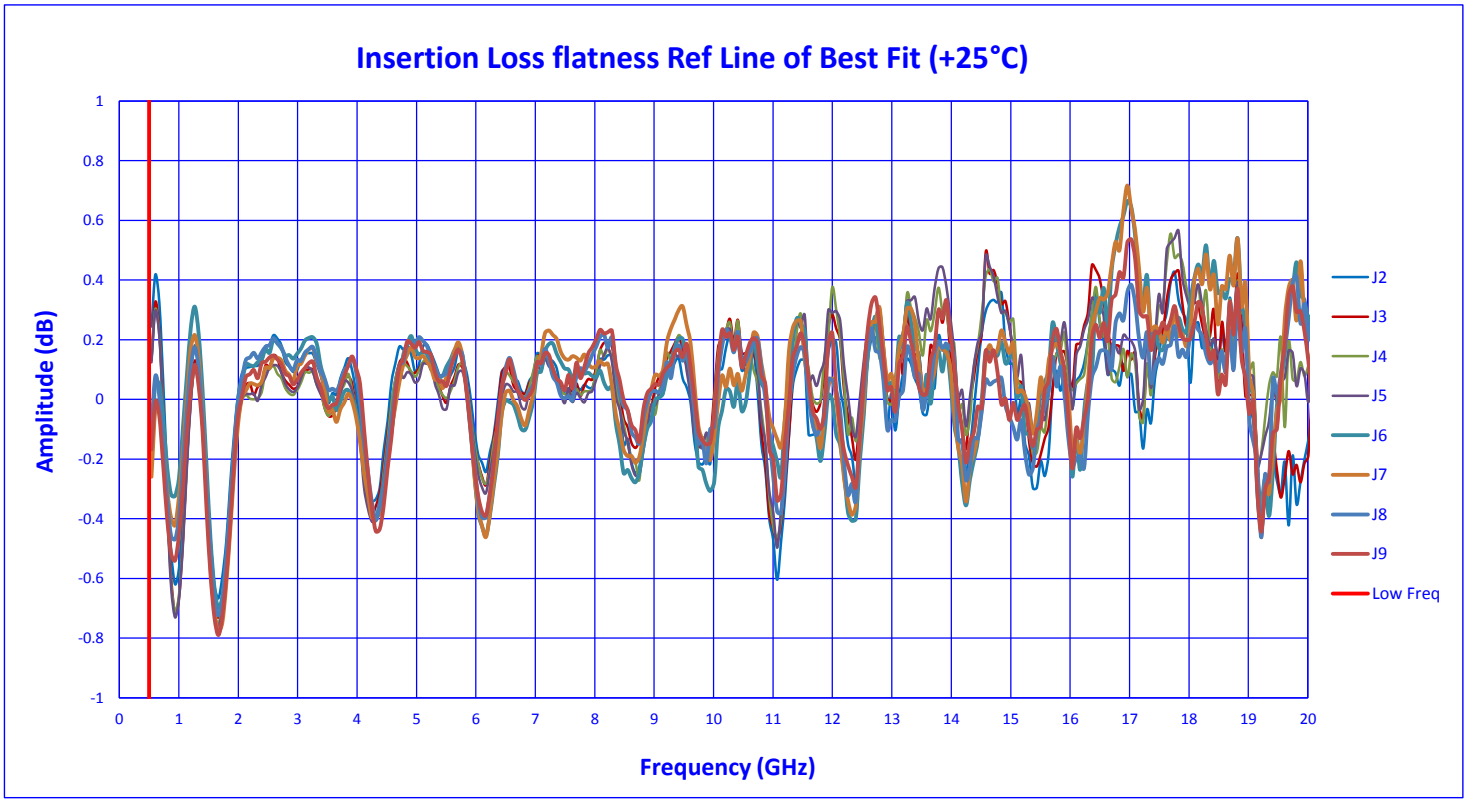

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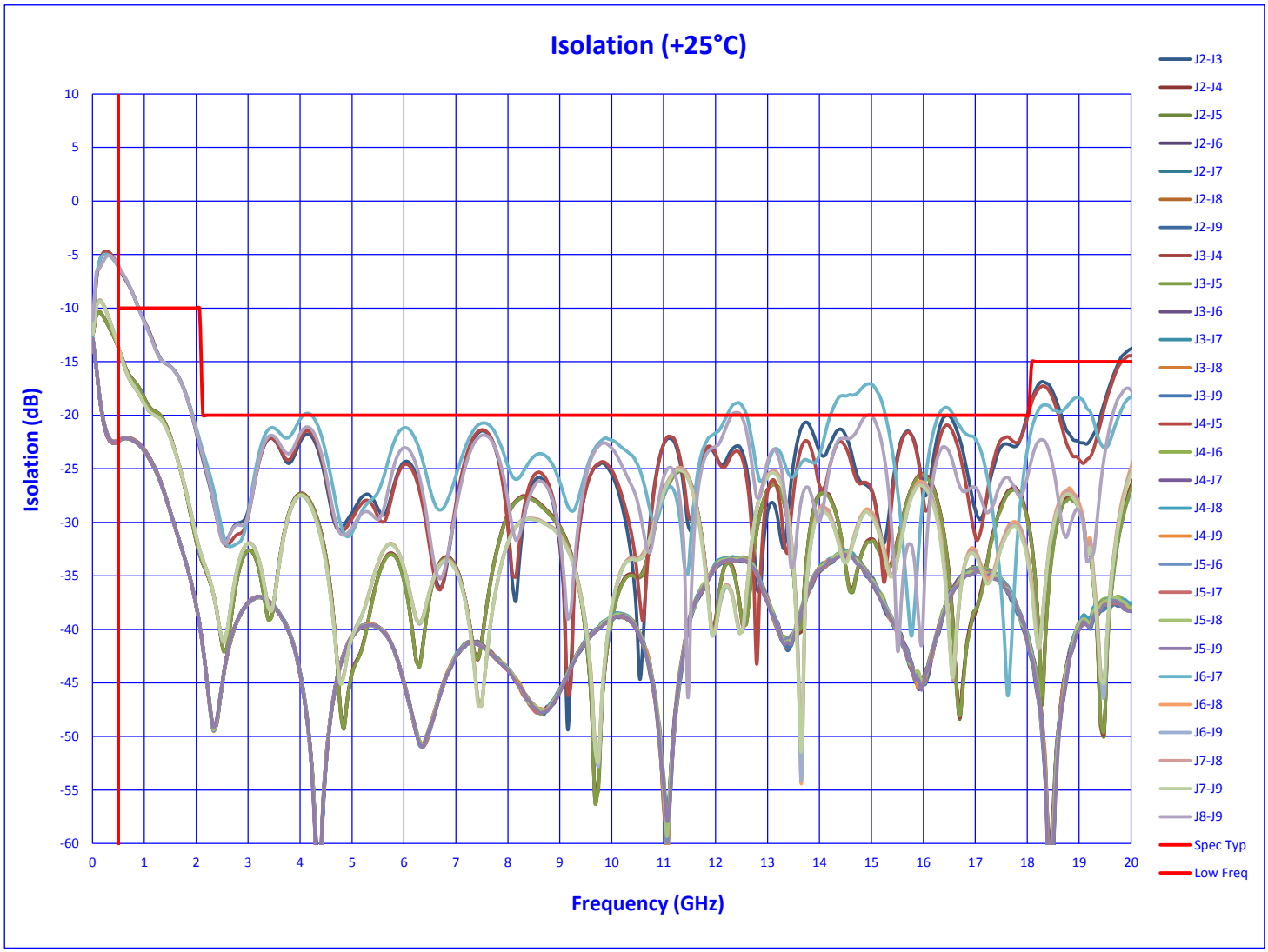

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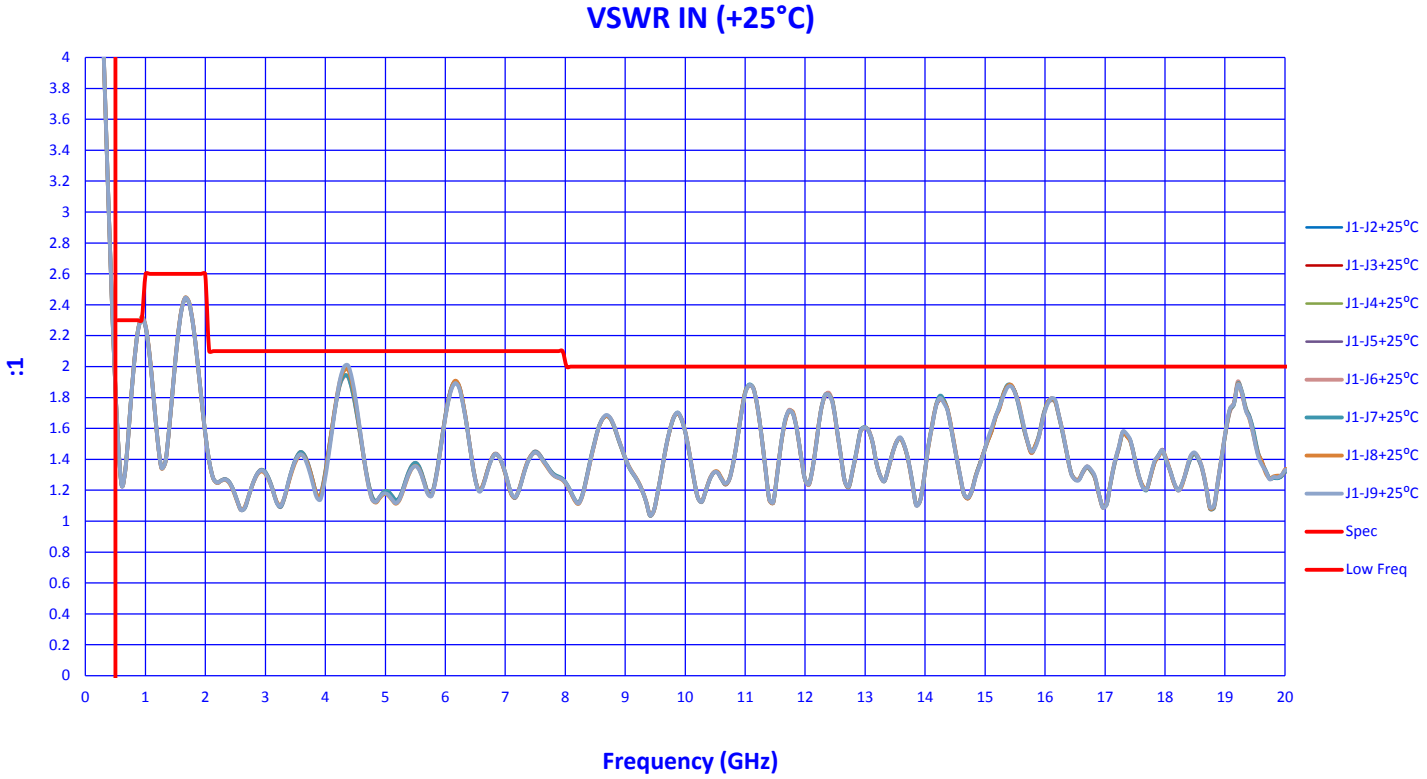

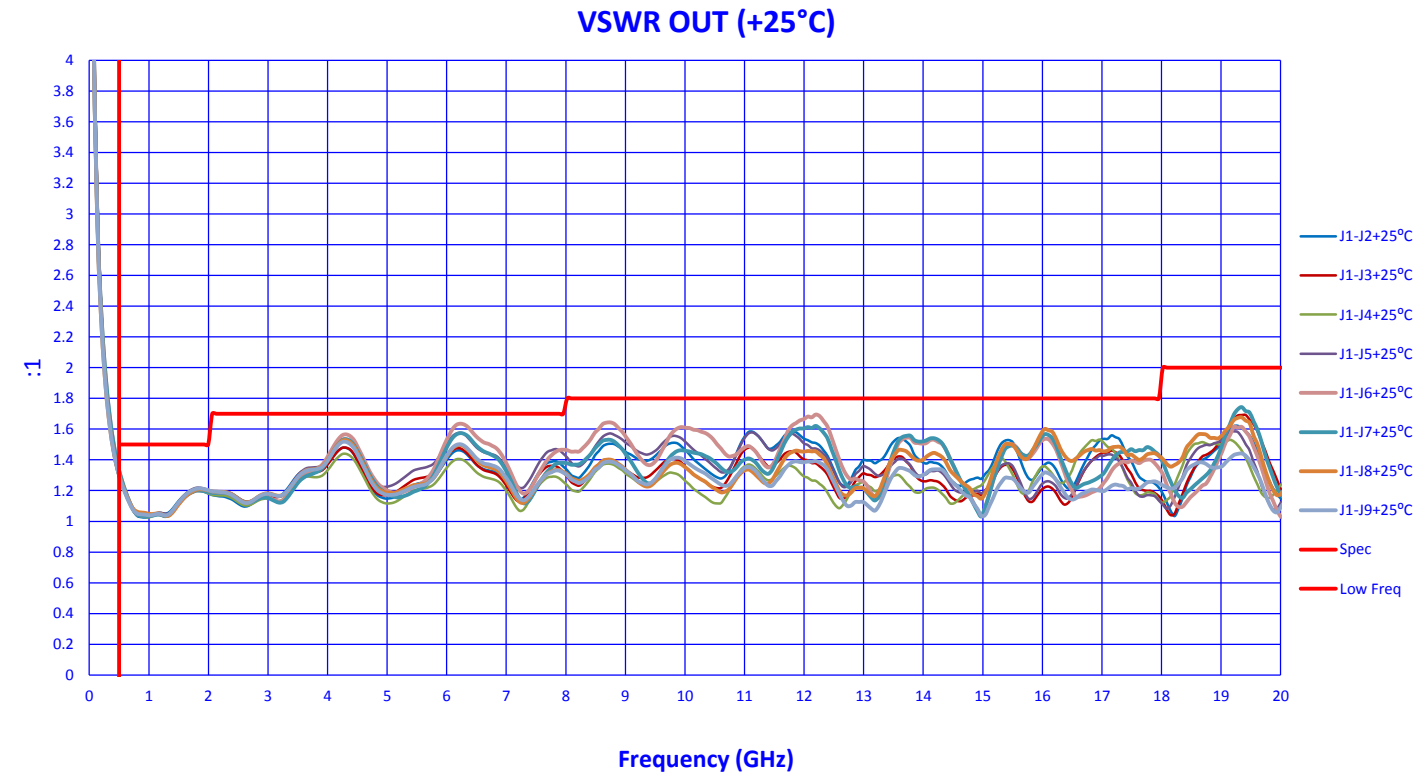

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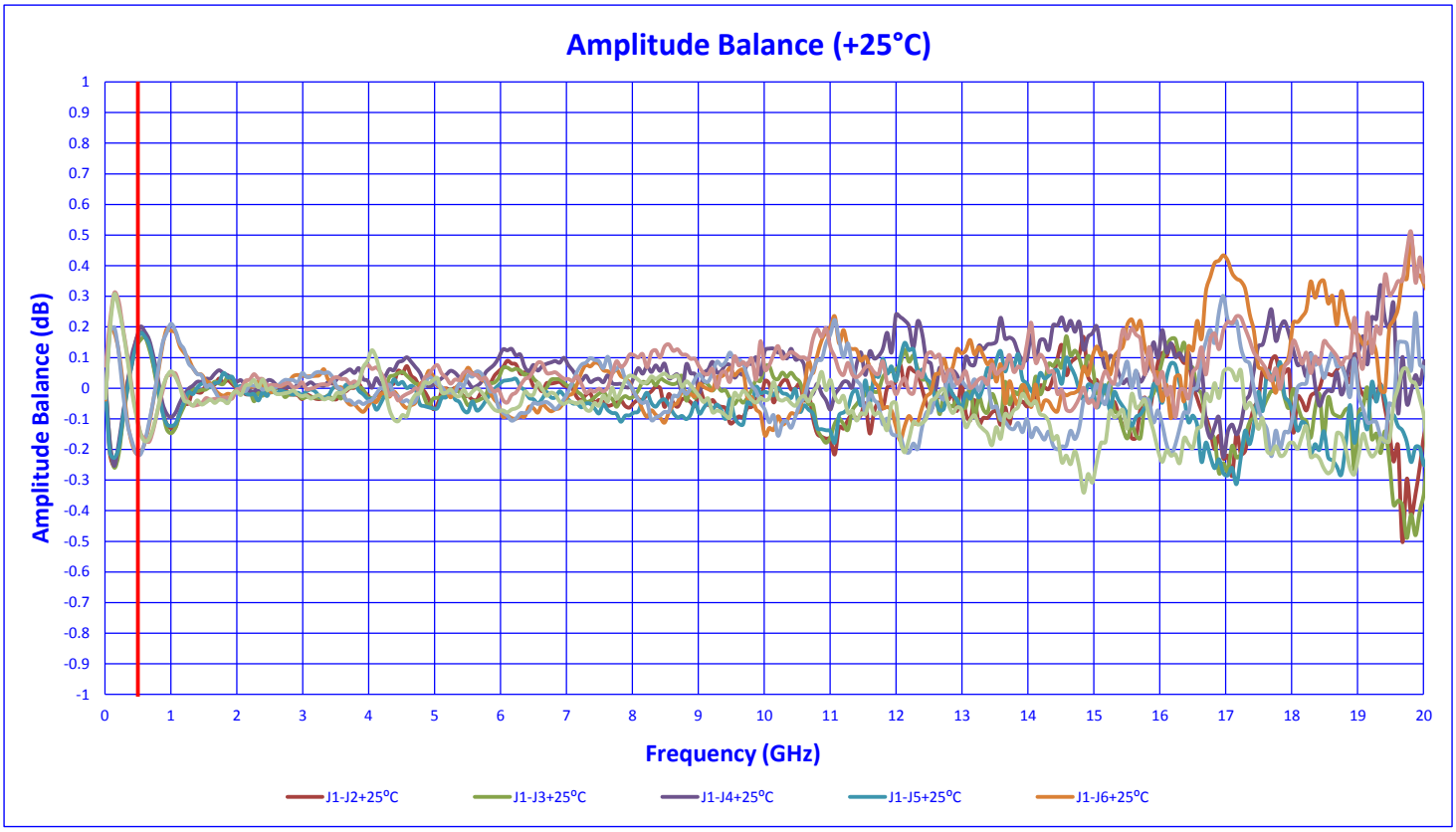

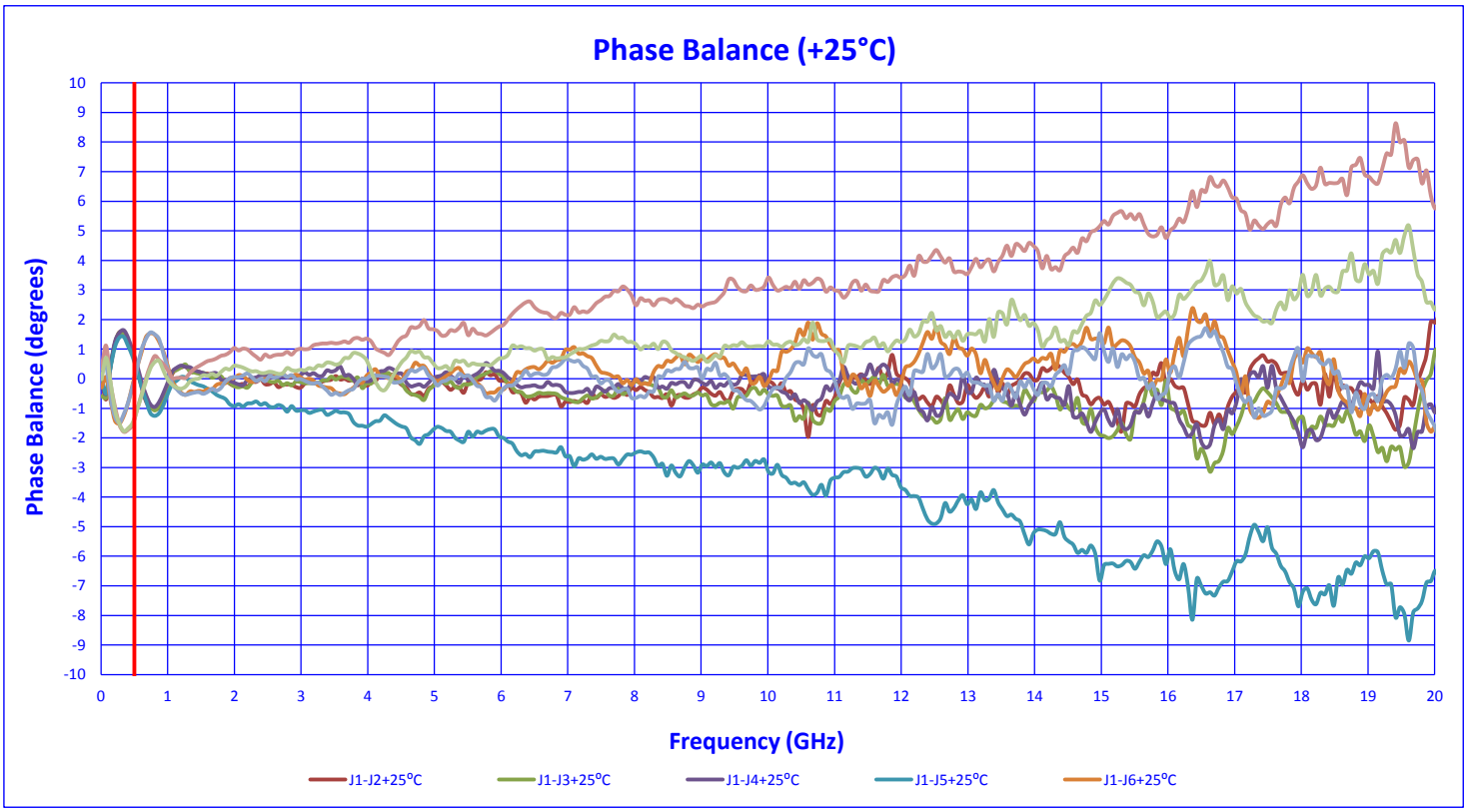

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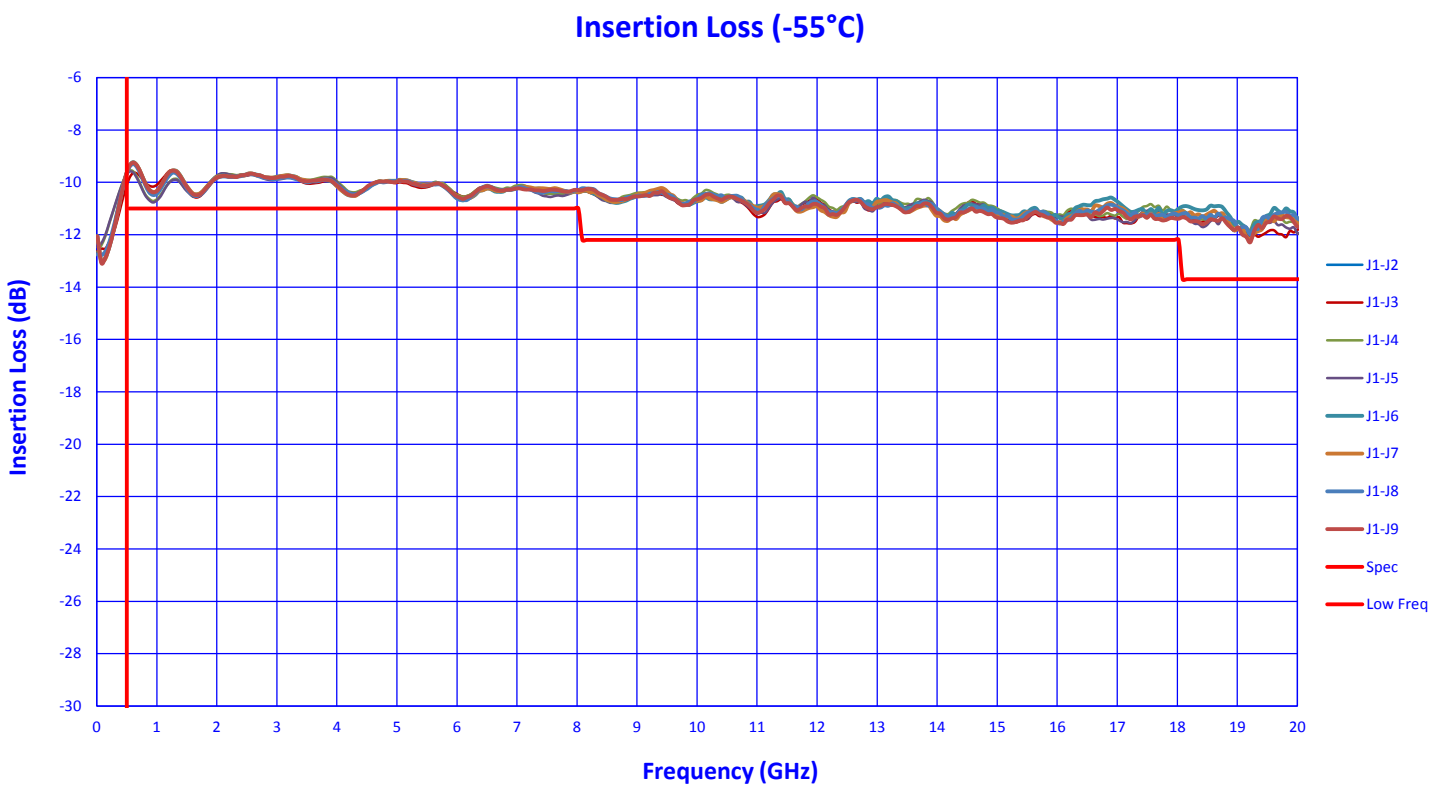

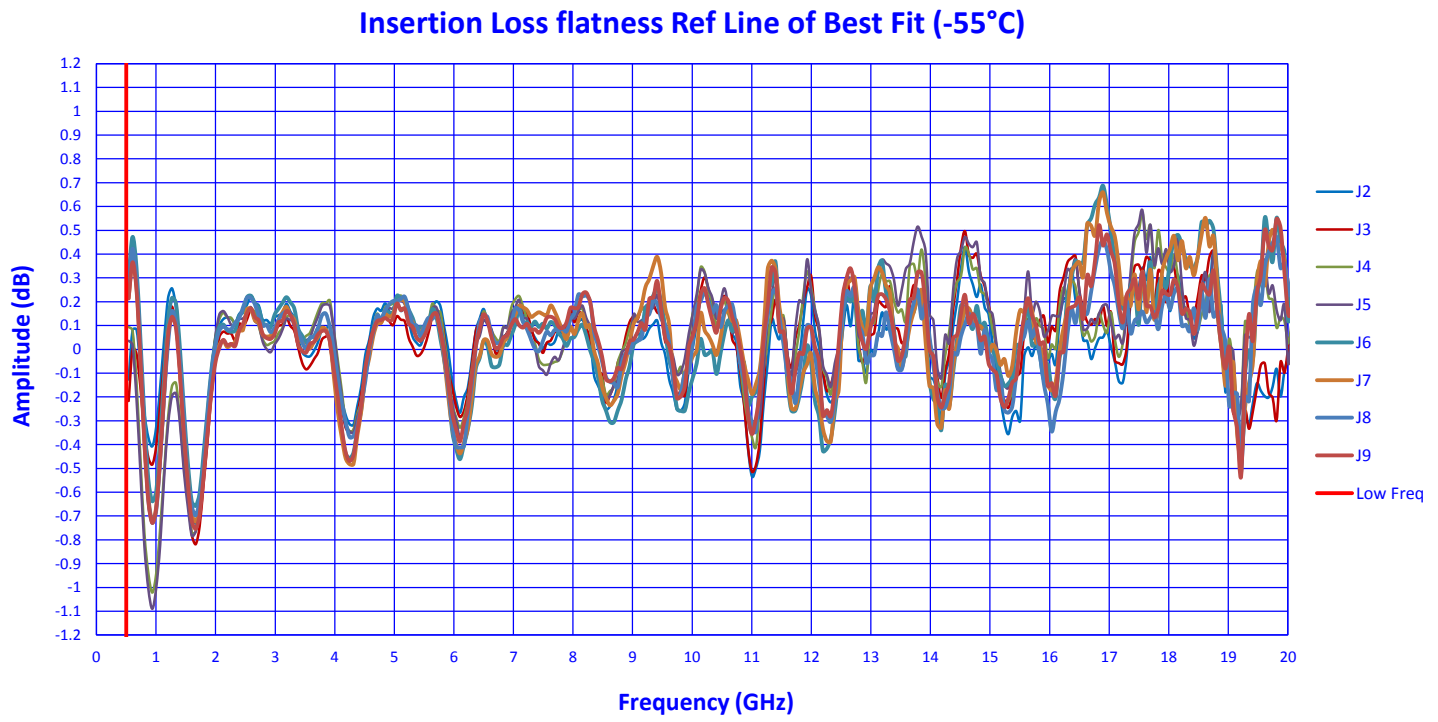

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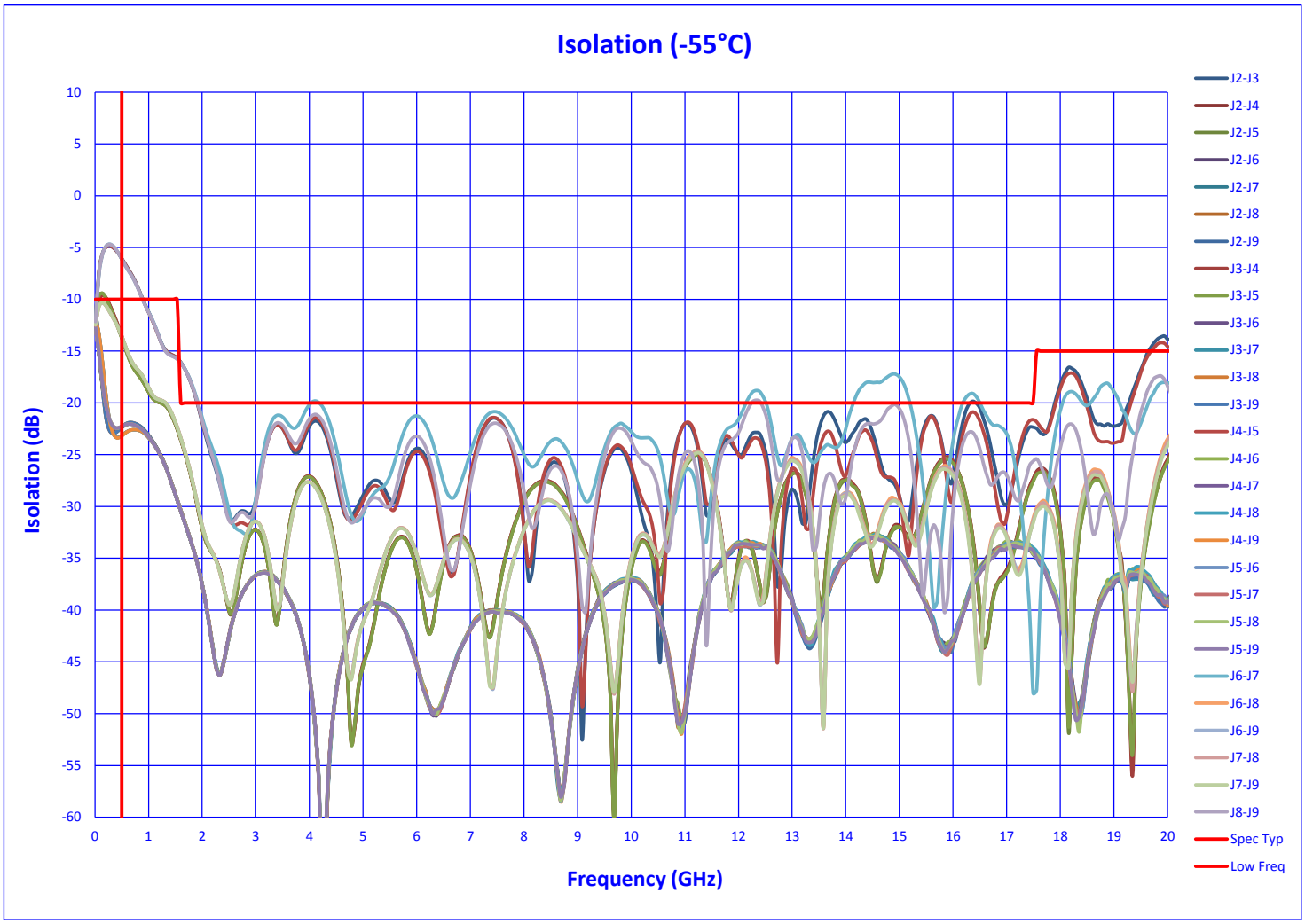

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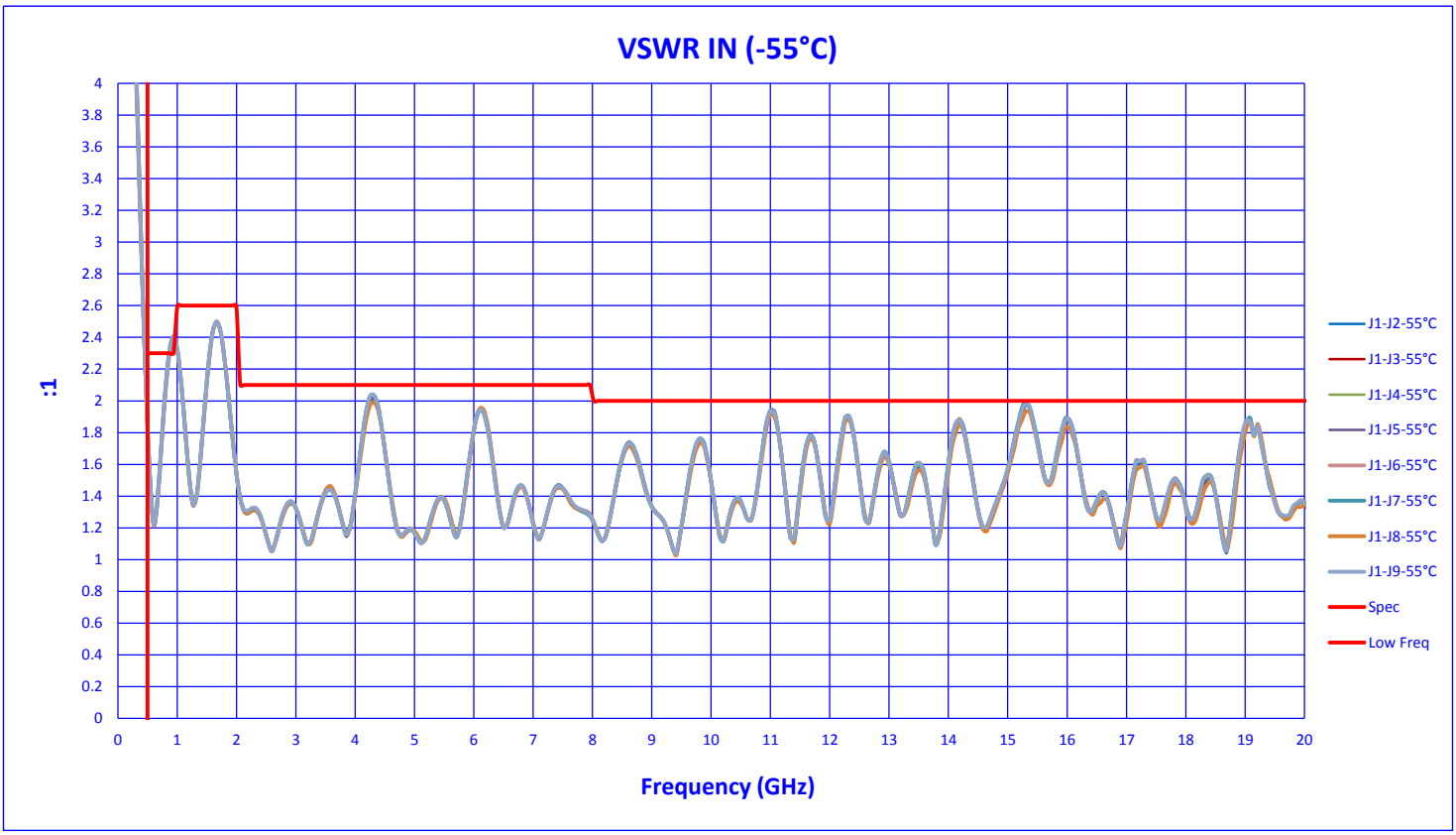

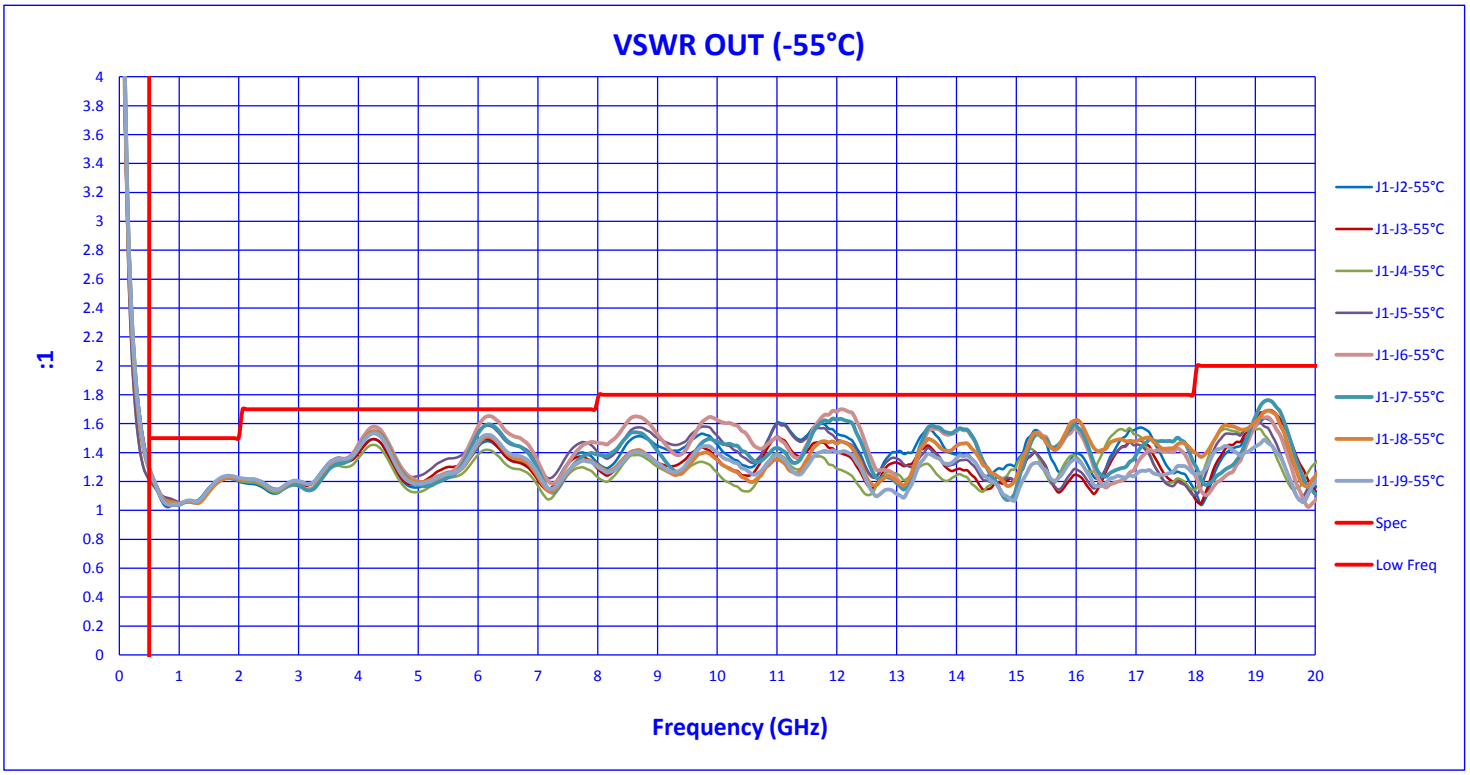

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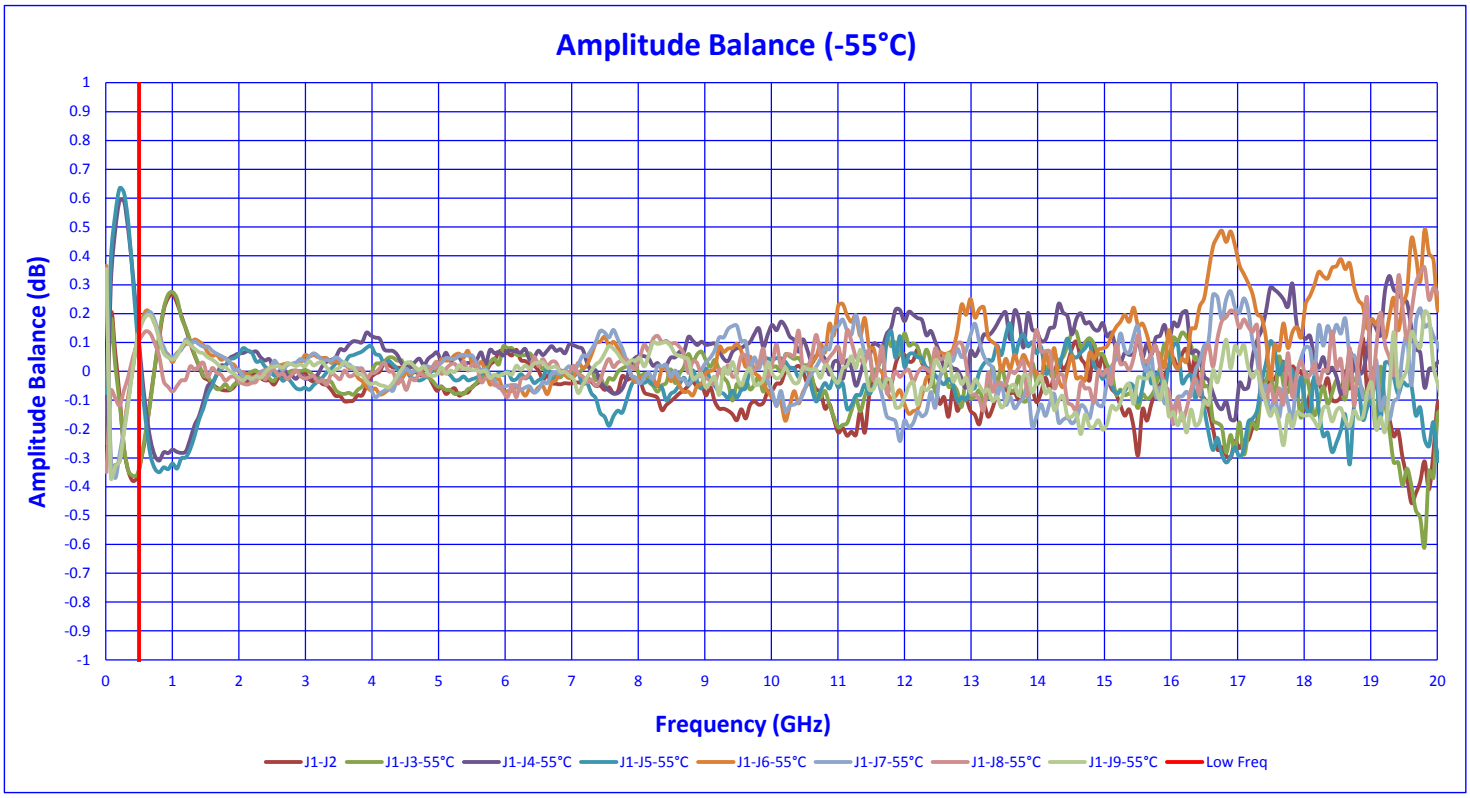

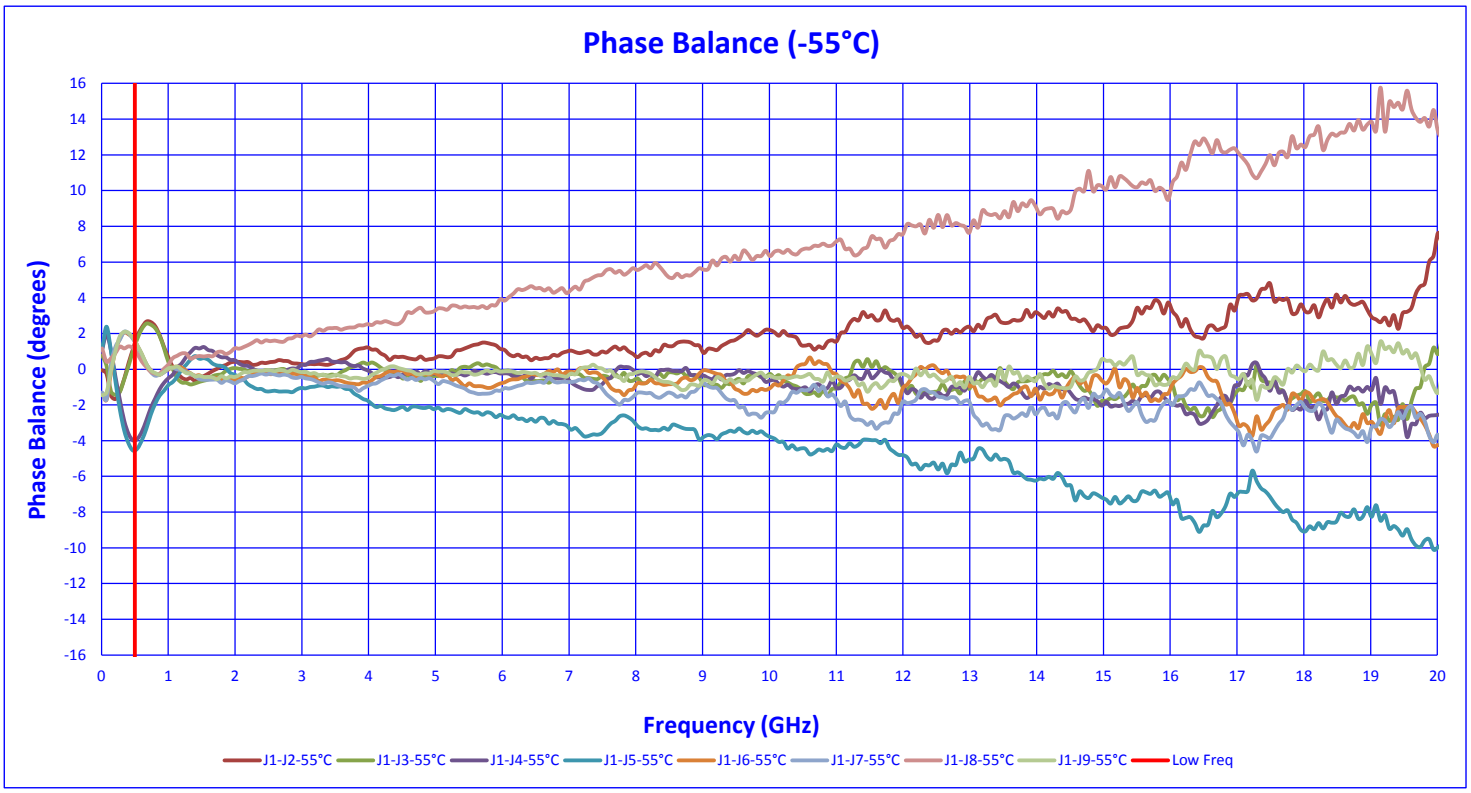

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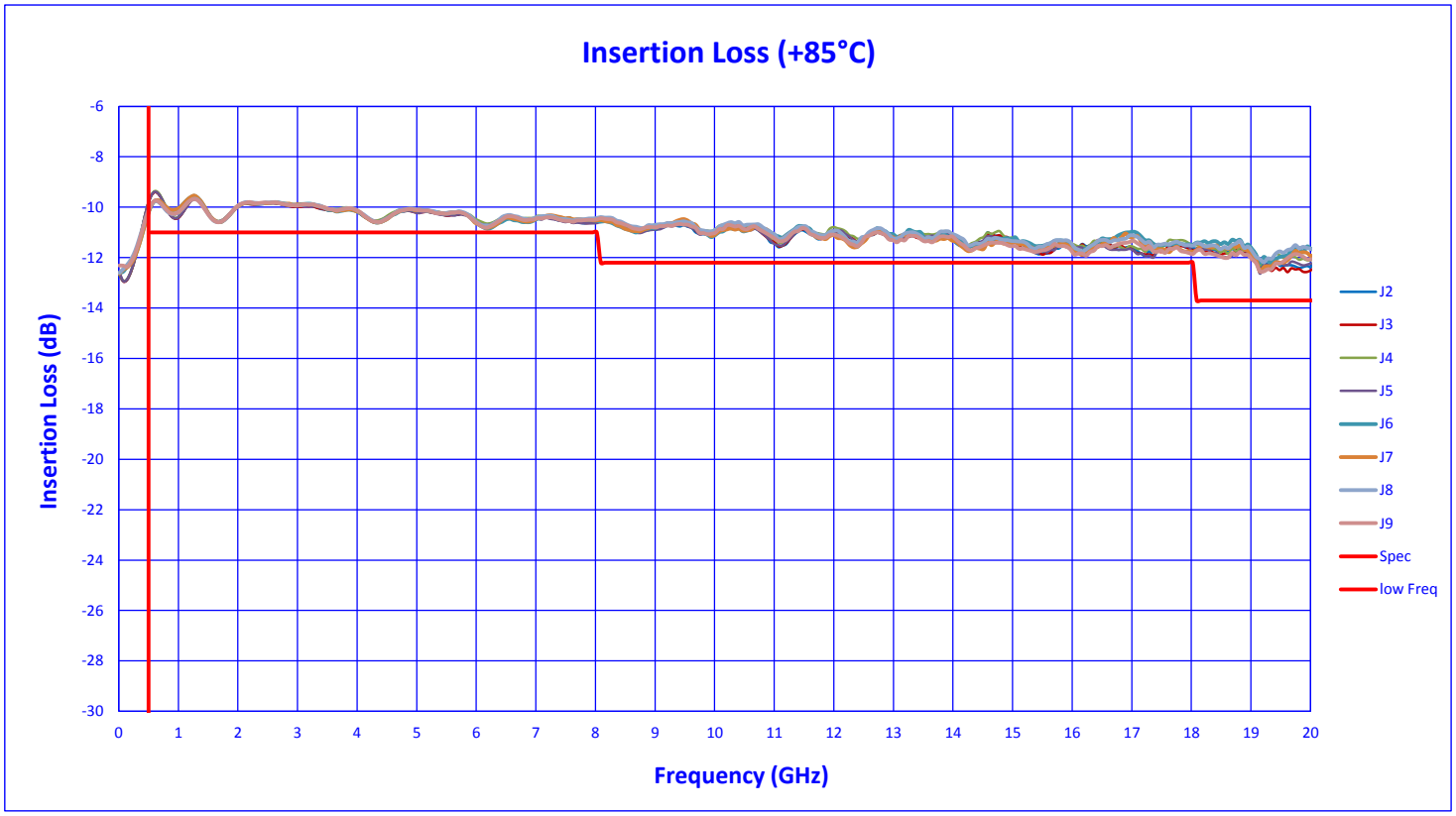

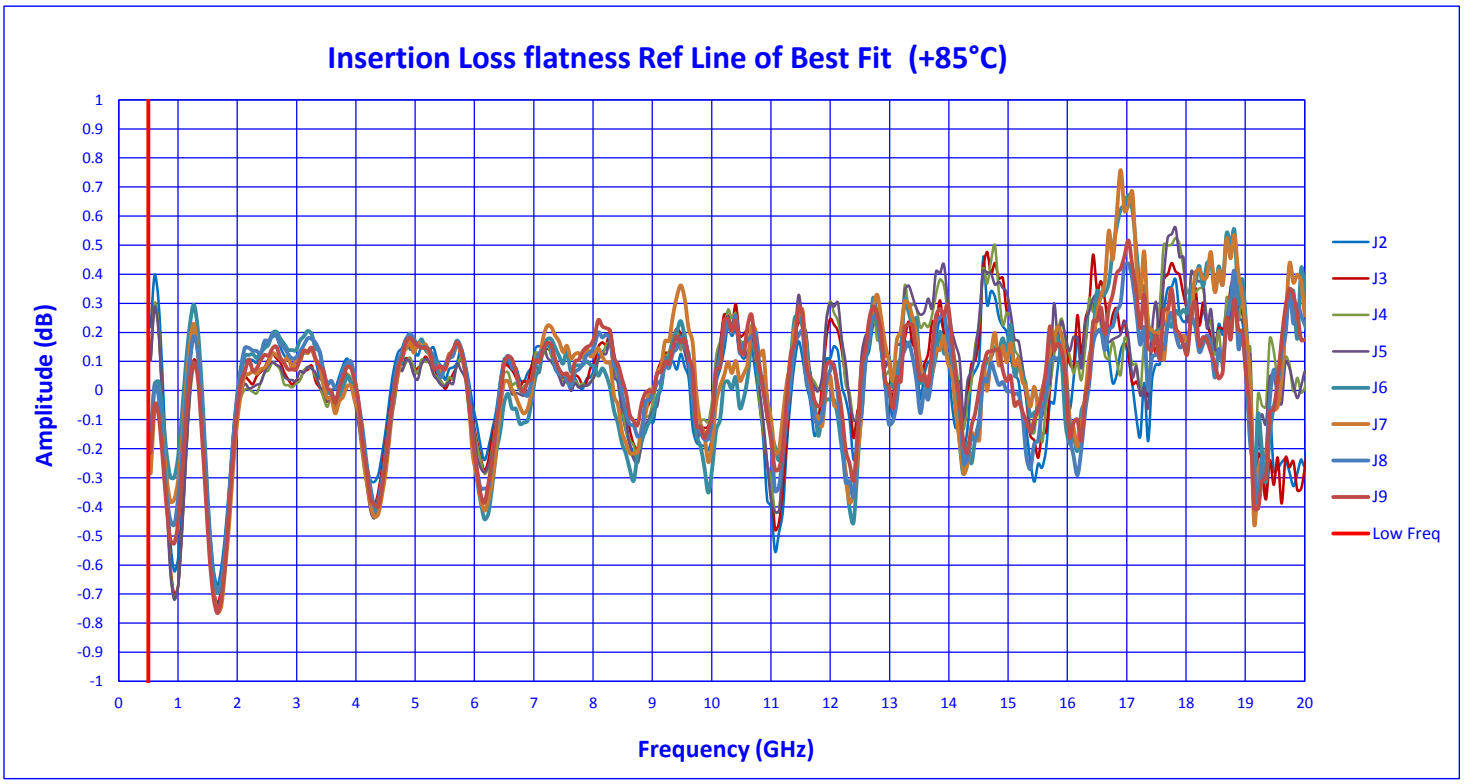

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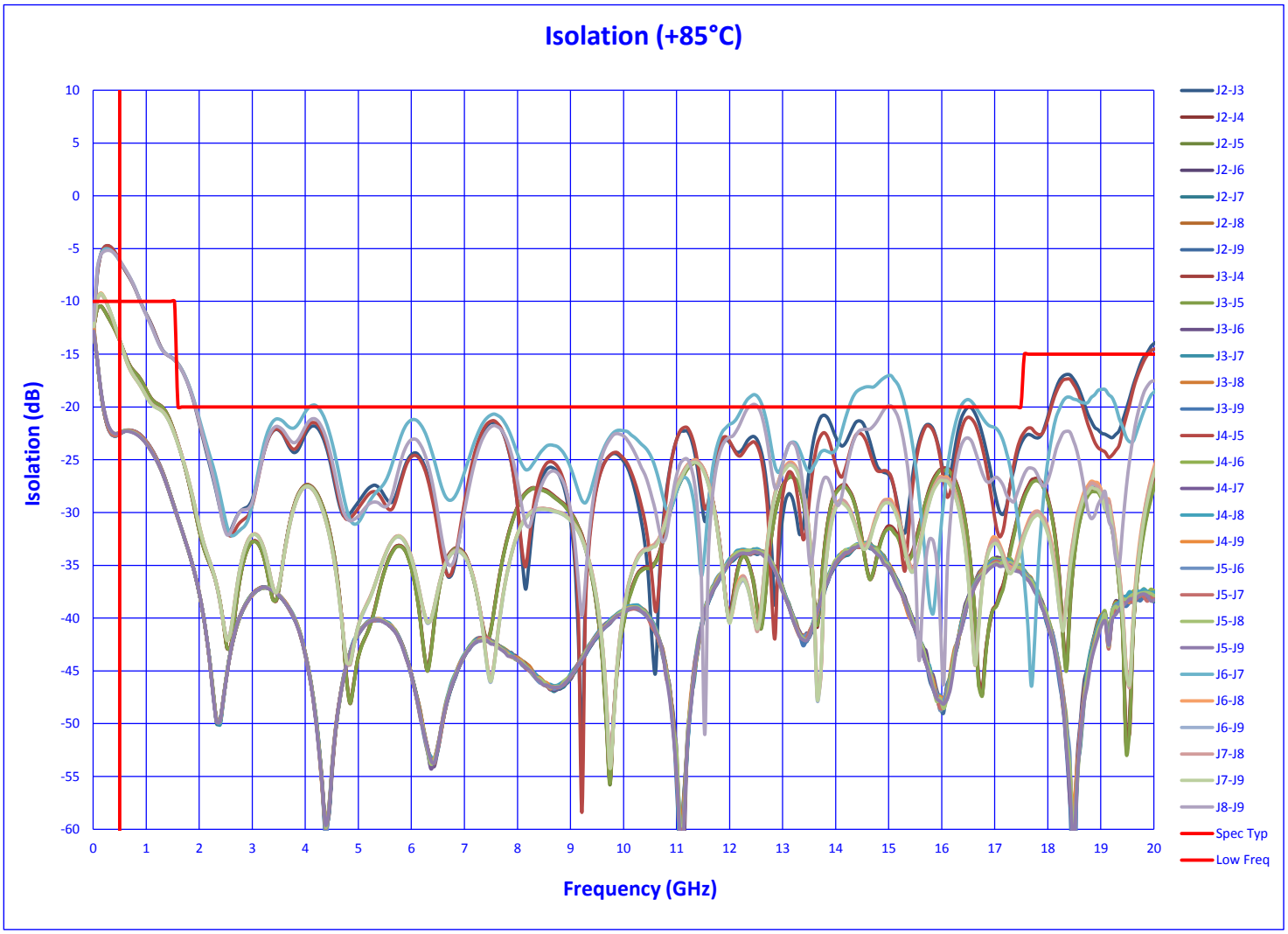

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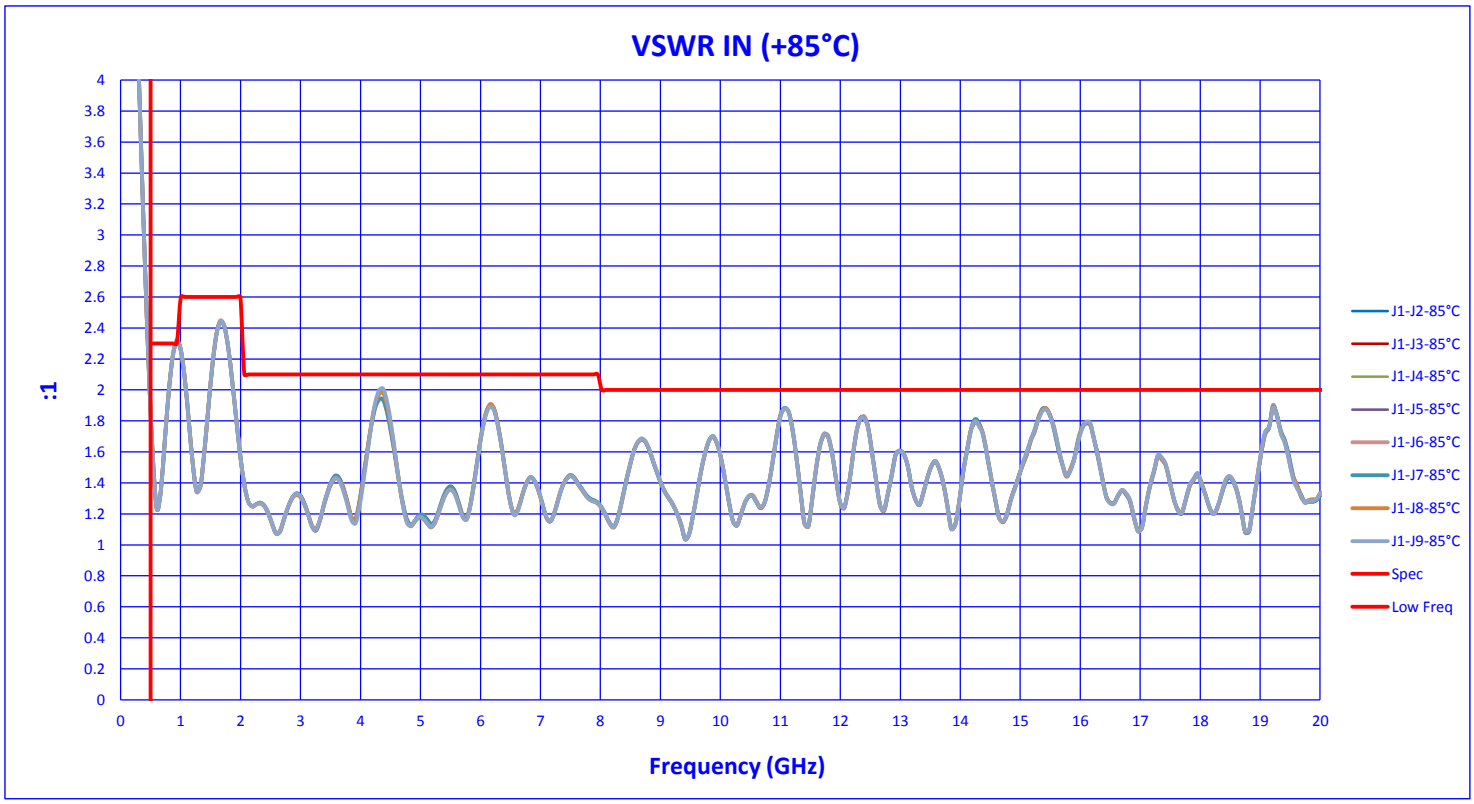

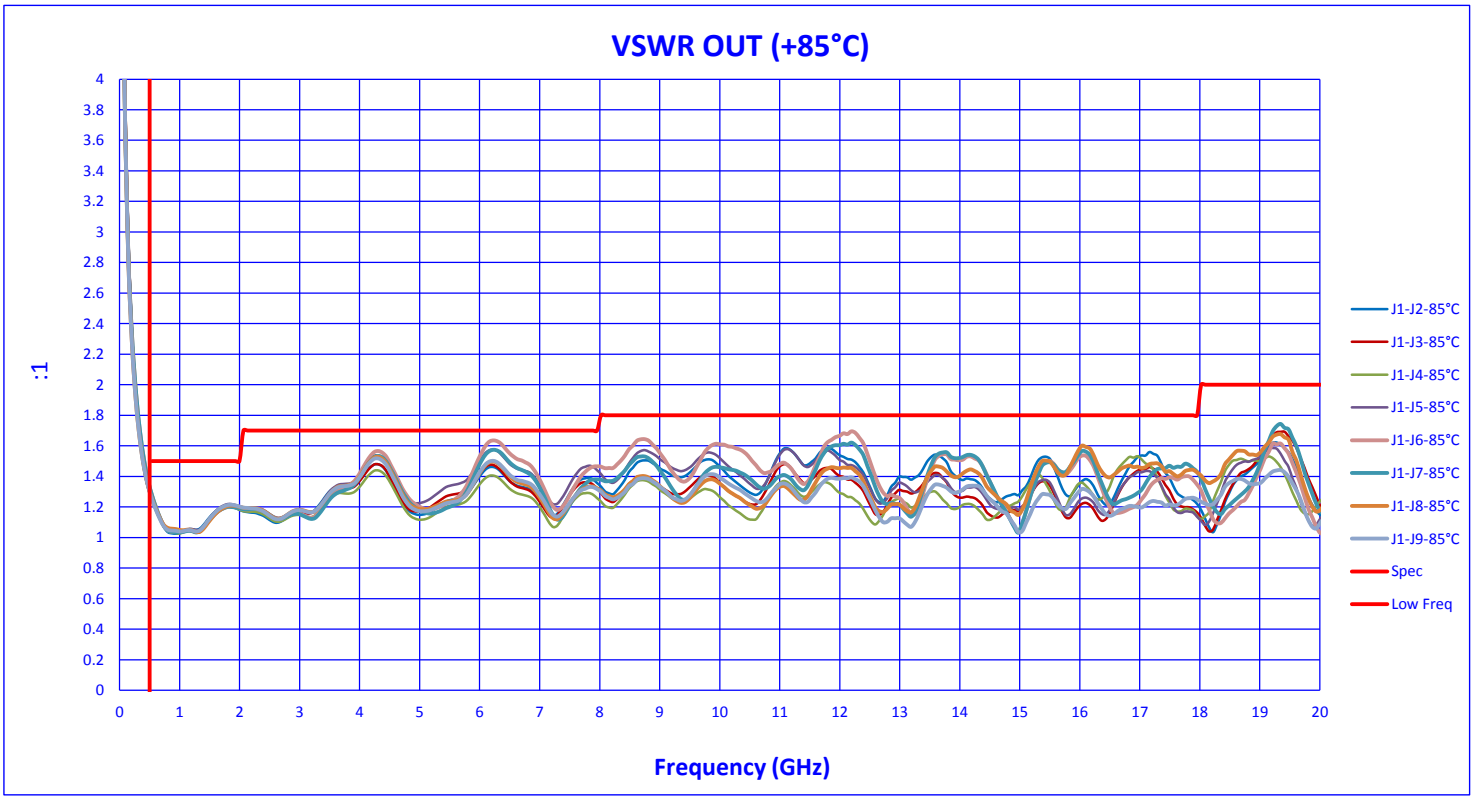

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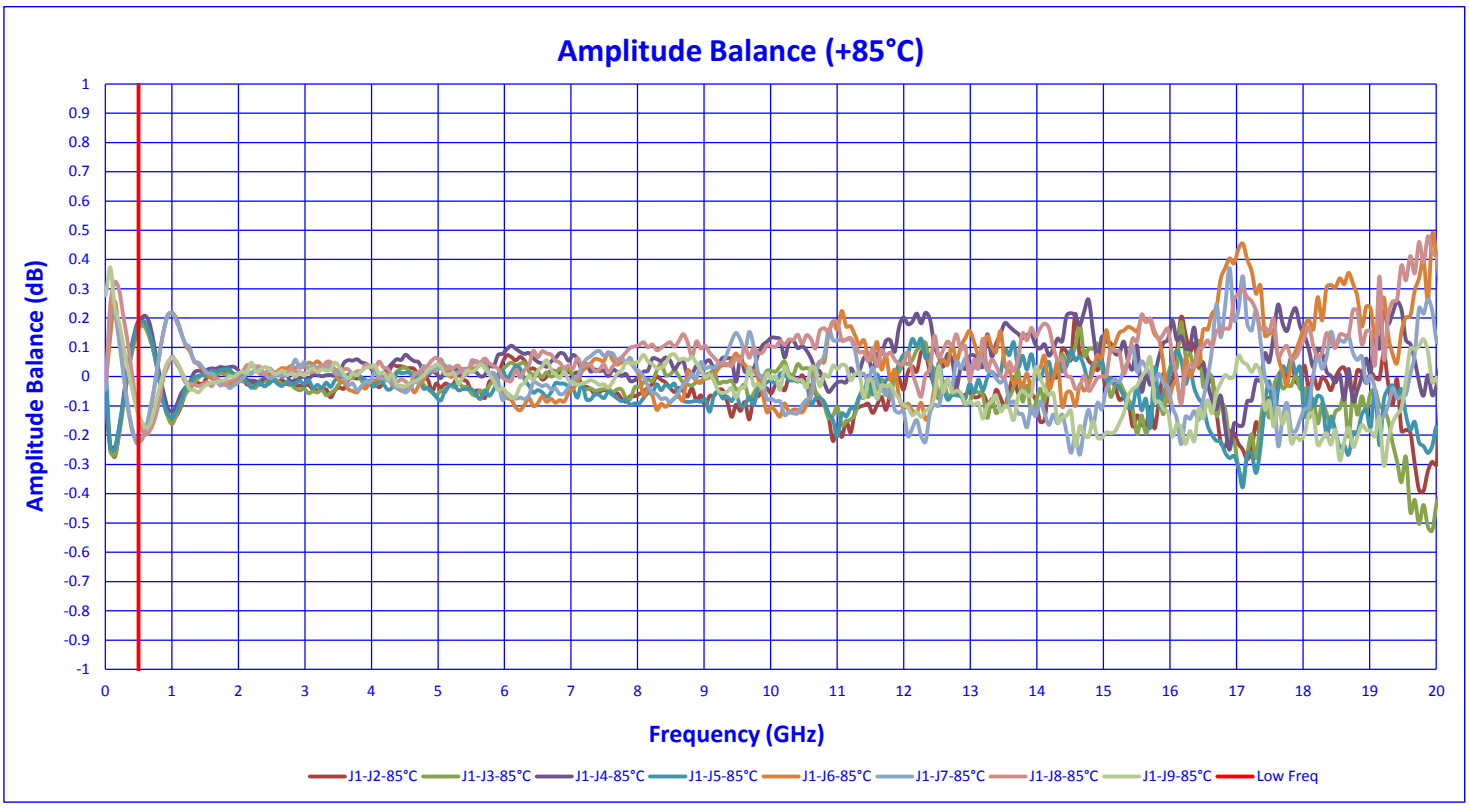

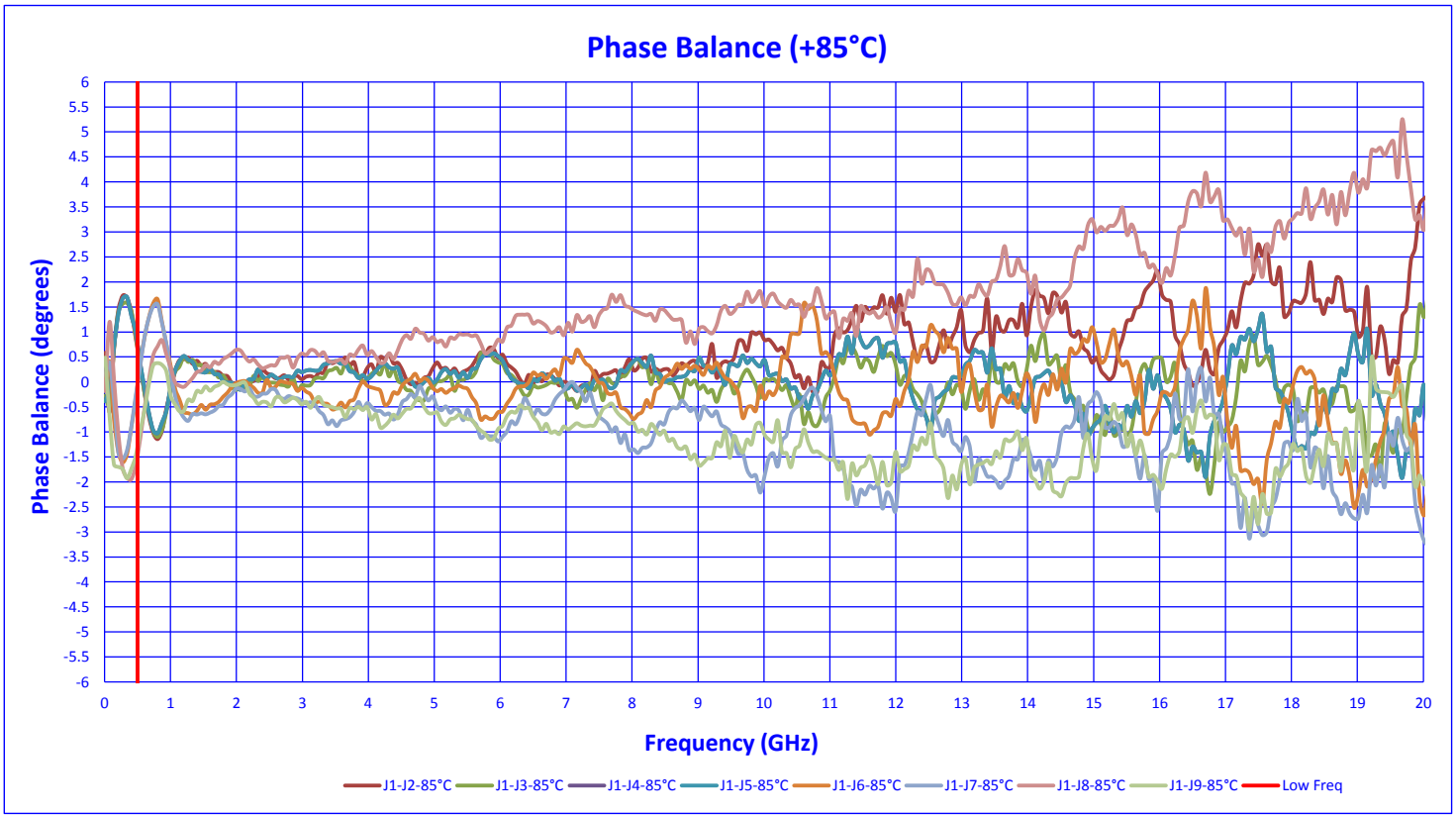

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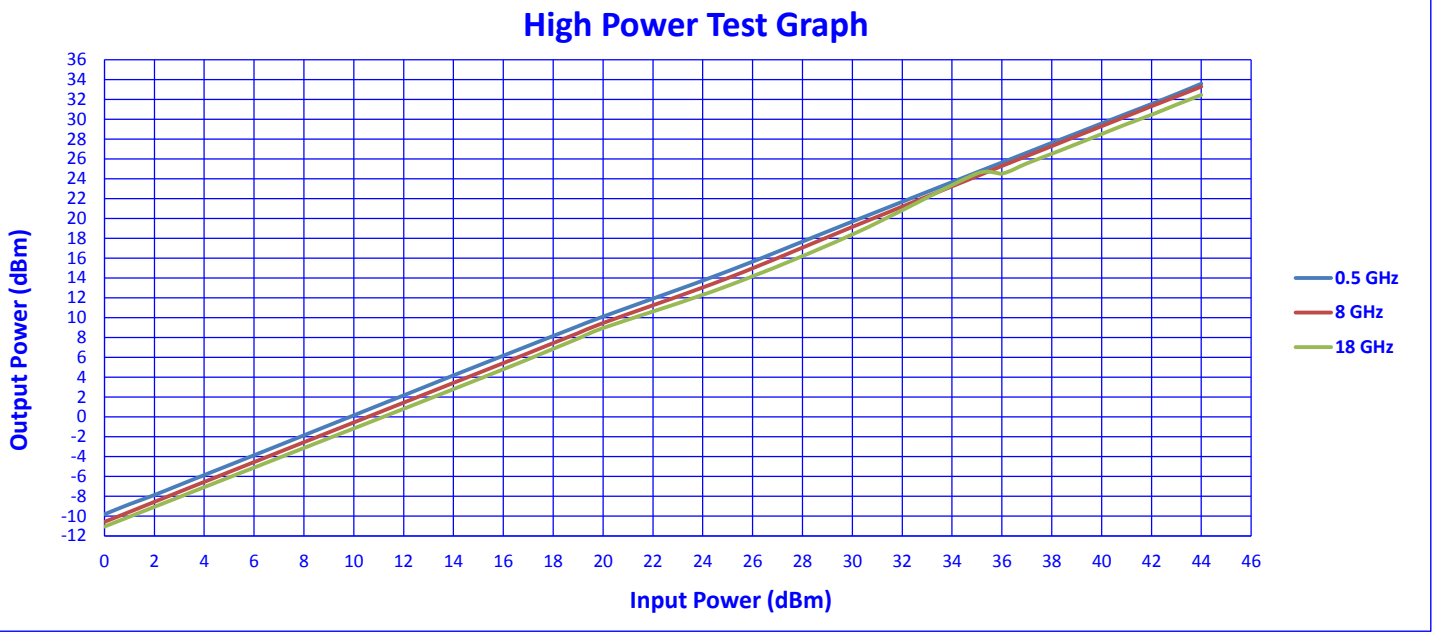

High Power Test									Power Input (Watts)
0.5 GHz			8 GHz			18 GHz			
Power Input (dBm)	Power Output (dBm)	Loss	Power Input (dBm)	Power Output (dBm)	Loss	Power Input (dBm)	Power Output (dBm)	Loss	
0.0	-9.816	9.816	0.0	-10.584	10.584	0.0	-11.056	11.056	
1.0	-8.809	9.809	1.0	-9.582	10.582	1.0	-10.068	11.068	
2.0	-7.878	9.878	2.0	-8.571	10.571	2.0	-9.076	11.076	
3.0	-6.871	9.871	3.0	-7.560	10.560	3.0	-8.085	11.085	
4.0	-5.867	9.867	4.0	-6.559	10.559	4.0	-7.088	11.088	
5.0	-4.869	9.869	5.0	-5.559	10.559	5.0	-6.101	11.101	
6.0	-3.870	9.870	6.0	-4.561	10.561	6.0	-5.115	11.115	
7.0	-2.869	9.869	7.0	-3.558	10.558	7.0	-4.128	11.128	
8.0	-1.862	9.862	8.0	-2.559	10.559	8.0	-3.140	11.140	
9.0	-0.852	9.852	9.0	-1.562	10.562	9.0	-2.154	11.154	
10.0	0.150	9.850	10.0	-0.566	10.566	10.0	-1.171	11.171	
11.0	1.160	9.840	11.0	0.432	10.568	11.0	-0.184	11.184	
12.0	2.165	9.835	12.0	1.432	10.568	12.0	0.806	11.194	
13.0	3.168	9.832	13.0	2.428	10.572	13.0	1.798	11.202	
14.0	4.181	9.819	14.0	3.423	10.577	14.0	2.793	11.207	
15.0	5.174	9.826	15.0	4.419	10.582	15.0	3.790	11.210	
16.0	6.168	9.832	16.0	5.417	10.583	16.0	4.795	11.205	
17.0	7.160	9.840	17.0	6.417	10.583	17.0	5.809	11.191	
18.0	8.150	9.850	18.0	7.435	10.565	18.0	6.853	11.148	
19.0	9.138	9.862	19.0	8.437	10.563	19.0	7.890	11.110	
20.0	10.106	9.894	20.0	9.459	10.541	20.0	8.948	11.052	
25.0	14.670	10.330	25.0	13.980	11.020	25.0	13.200	11.800	
30.0	19.680	10.320	30.0	19.140	10.860	30.0	18.380	11.620	1 Watt
35.0	24.650	10.350	35.0	24.250	10.750	35.0	24.520	10.480	3 Watts
36.0	25.630	10.370	36.0	25.280	10.720	36.0	24.510	11.490	4 Watts
37.0	26.620	10.380	37.0	26.280	10.720	37.0	25.540	11.460	5 watts
38.0	27.610	10.390	38.0	27.280	10.720	38.0	26.510	11.490	6 watts
39.0	28.580	10.420	39.0	28.290	10.710	39.0	27.500	11.500	8 watts
40.0	29.570	10.430	40.0	29.290	10.710	40.0	28.500	11.500	10 Watts
41.0	30.550	10.450	41.0	30.290	10.710	41.0	29.500	11.500	12.5 Watts
42.0	31.530	10.470	42.0	31.300	10.700	42.0	30.440	11.560	16 Watts
43.0	32.530	10.470	43.0	32.280	10.720	43.0	31.460	11.540	20 Watts
44.0	33.570	10.430	44.000	33.280	10.720	44.000	32.440	11.560	25 watts

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