TYPICAL CHARACTERISTICS ON APD-4-122-292FF

PMI MODEL: APD-4-122-292FF IS A FOUR WAY POWER DIVIDER OPERATING OVER THE 1.0 TO 22.0 GHz FREQUENCY RANGE. THIS MODEL HAS A MAXIMUM INSERTION LOSS OF 3.0 dB FROM 1.0 TO 18.0 GHz AND 3.5 dB MAXIMUM BETWEEN 18.0 TO 22.0 GHz. THE COMPACT 3.00" x 2.00" x 0.40" HOUSING IS OUTFITTED WITH 2.92 mm FEMALE CONNECTORS.

January 9, 2020

Designed By: Dr. Ashok Gorwara

Tested By:
Alfredo Lopez
Garrett Radtke

Reported By:
Garrett Radtke

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TYPICAL CHARACTERISTICS ON APD-4-122-292FF

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TYPICAL CHARACTERISTICS ON APD-4-122-292FF

OUTLINE

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	01/10/19	

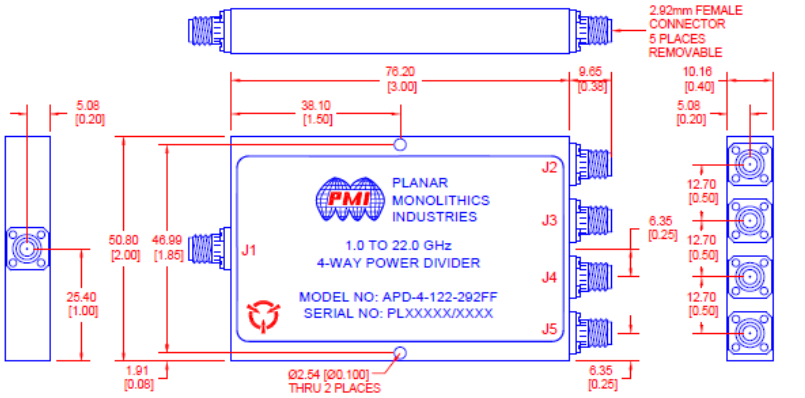
DESCRIPTION

PMI MODEL: APD-4-122-292FF IS A FOUR WAY POWER DIVIDER OPERATING OVER THE 1.0 TO 22.0 GHz FREQUENCY RANGE. THIS MODEL HAS A MAXIMUM INSERTION LOSS OF 3.0 dB FROM 1.0 TO 18.0 GHz AND 3.5 dB MAXIMUM BETWEEN 18.0 TO 22.0 GHz. THE COMPACT 3.00" x 2.00" x 0.40" HOUSING IS OUTFITTED WITH 2.92 mm FEMALE CONNECTORS.

SPECIFICATIONS

- FREQUENCY RANGE: ---- 1.0 TO 22.0 GHz
- INSERTION LOSS: -------- 3.0 dB MAXIMUM (1.0 - 18.0 GHz)
3.5 dB MAXIMUM (18.0 - 22.0 GHz)
- ISOLATION: ---------- 12 dB TYPICAL (1.0 - 2.0 GHz)
18 dB TYPICAL (2.0 - 22.0 GHz)
- VSWR (INPUT): ---------- 2.0:1 MAXIMUM
- VSWR (OUTPUT): --------- 1.85 MAXIMUM
- AMPLITUDE BALANCE: -- ±0.3 dB TYPICAL
±0.7 dB MAXIMUM
- PHASE BALANCE: -------- ±5.0° MAXIMUM (1.0 - 18.0 GHz)
±8.0° MAXIMUM (18.0 - 22.0 GHz)
- AVERAGE POWER: ------- 25 WATTS (INTO 1.2:1 LOAD VSWR)
7.5 WATTS (INTO 2[illegible]1 LOAD VSWR)
0.75 WATTS (INTO :1 LOAD VSWR)
- CONNECTORS: ---------- 2.92 mm FEMALE REMOVABLE
- SIZE: ---------- 76.2 mm x 50.8 mm x 10.2 mm
[3.50" x 2.00" x 0.40"]
EXCLUDING CONNECTORS
- FINISH: ---------- PAINTED BLUE

MECHANICAL OUTLINE



ALL DIMENSIONS ARE IN mm [INCH]
TOLERANCES:
X.XX ± 0.508 [0.020]
X.XXX ± 0.254 [0.010]

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 GJR	01/10/19
CHECKED	
ISSUED	

TITLE: PRODUCT FEATURE
APD-4-122-292FF
1.0 to 22.0 GHz Four Way Power Divider

SIZE	FSCM NO.	DWG NO.	REV.
A	05XQ0	27037980	A1

SCALE N:S SHEET 1 OF 1

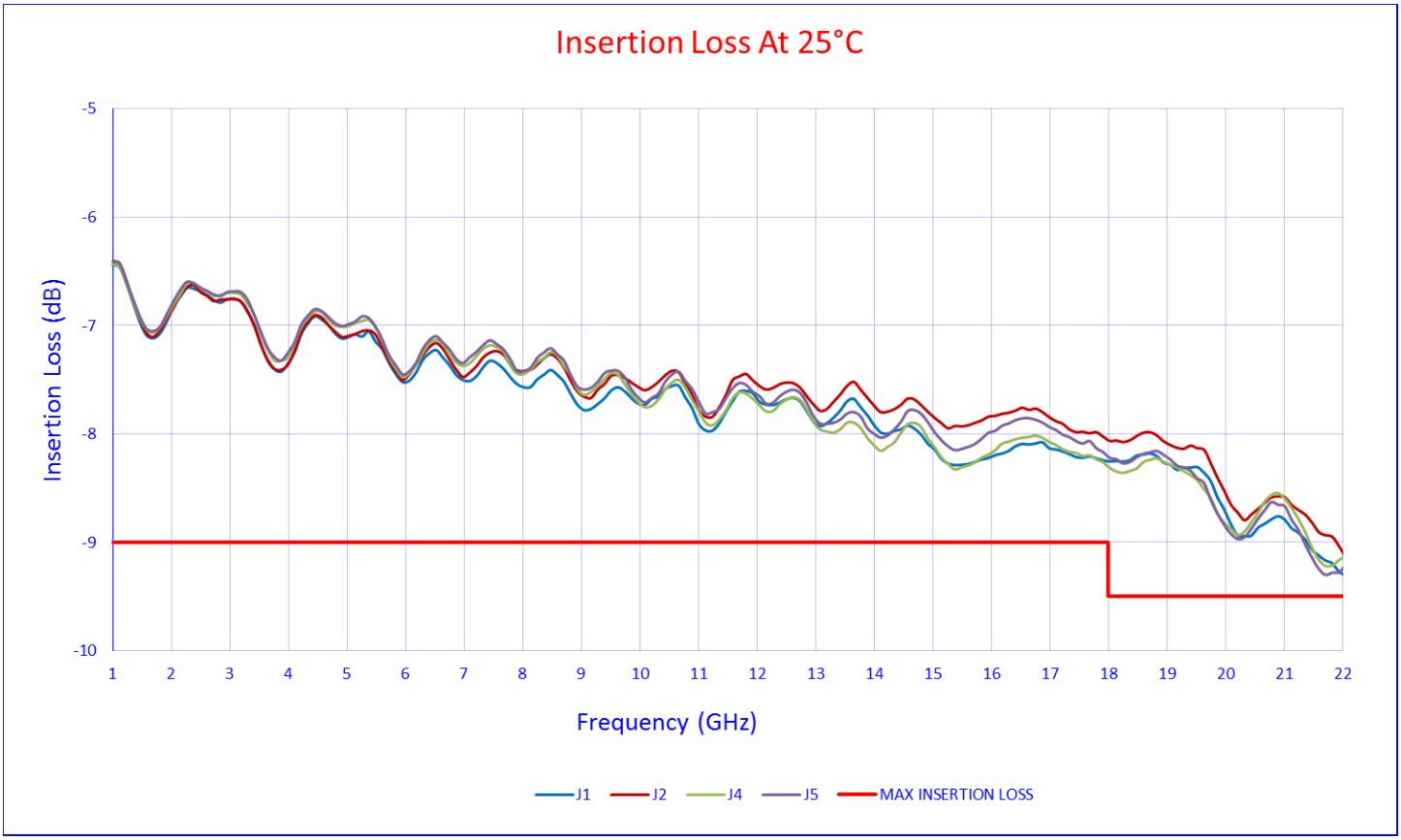
TYPICAL CHARACTERISTICS
ON
APD-4-122-292FF

TEST RESULTS

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	ENVIRONMENTAL PARAMETERS	TEST RESULTS
1	Frequency Range:	1 GHz – 22 GHz See Plots	+25°C	1 GHz – 22 GHz
2	Insertion Loss	1-18 GHz – 3.0 dB MAX. 18-22 GHz – 3.5 dB MAX. See Plots	+25°C	2.3 dB @ 1-18 GHz. 3.3 dB @ 18-22 GHz.
			-55°C	2.2 dB @ 1-18 GHz. 3.5 dB @ 18-22 GHz.
			+85°C	2.9 dB @ 1-18 GHz. 3.5 dB @18-22 GHz.
3	Isolation	1-2 GHz – 12 dB TYP. 2-22 GHz –18 dB TYP. See Plots	+25°C	12.1 dB MIN. @ 1-2 GHz. 15.2 dB MIN. @ 2-22 GHz.
			-55°C	12.3 dB MIN. @ 1-2 GHz. 13.6 dB MIN. @ 2-22 GHz.
			+85°C	12.2 dB MIN. @ 1-2 GHz. 15.0 dB MIN. @ 2-22 GHz.
4	VSWR Input	2.0:1 MAX See Plots	+25°C	1.96:1
			-55°C	2.00:1
			+85°C	1.94:1
5	VSWR Output	1.85:1 MAX See Plots	+25°C	1.79:1
			-55°C	1.84:1
			+85°C	1.83:1
6	Amplitude Balance	0.3 dB TYP. 0.7 dB MAX See Plots	+25°C	0.38 dB MAX. -0.22 dB MIN.
			-55°C	0.6 dB MAX. -0.19 dB MIN.
			+85°C	0.38 dB MAX. -0.22 dB MIN.
7	Phase Balance	1-18 GHz – 5.0° MAX. 18-22 GHz – 8.0° MAX. See Plots	+25°C	3.89° MAX @1-18 GHz. -2.21° MIN.@1-18 GHz. 7.08° MAX @18-22 GHz. -2.21° MIN.@18-22 GHz.
			-55°C	1.49° MAX @1-18 GHz. -4.19° MIN.@1-18 GHz. 3.29° MAX @18-22 GHz. -5.49° MIN.@18-22 GHz.
			+85°C	1.86° MAX @1-18 GHz. -4.58° MIN.@1-18 GHz. 4.55° MAX @18-22 GHz. -5.77° MIN.@18-22 GHz.
8	Average Power Into Load VSWR	1.2:1 – 25 Watts 2.0:1 – 7.5 Watts ∞:1 – 0.75 Watts	+25°C	PASS See Plots

TYPICAL CHARACTERISTICS
ON
APD-4-122-292FF

ABSOLUTE INSERTION LOSS WITH THEROETICAL 6 dB POWER SPLIT AT 25°C



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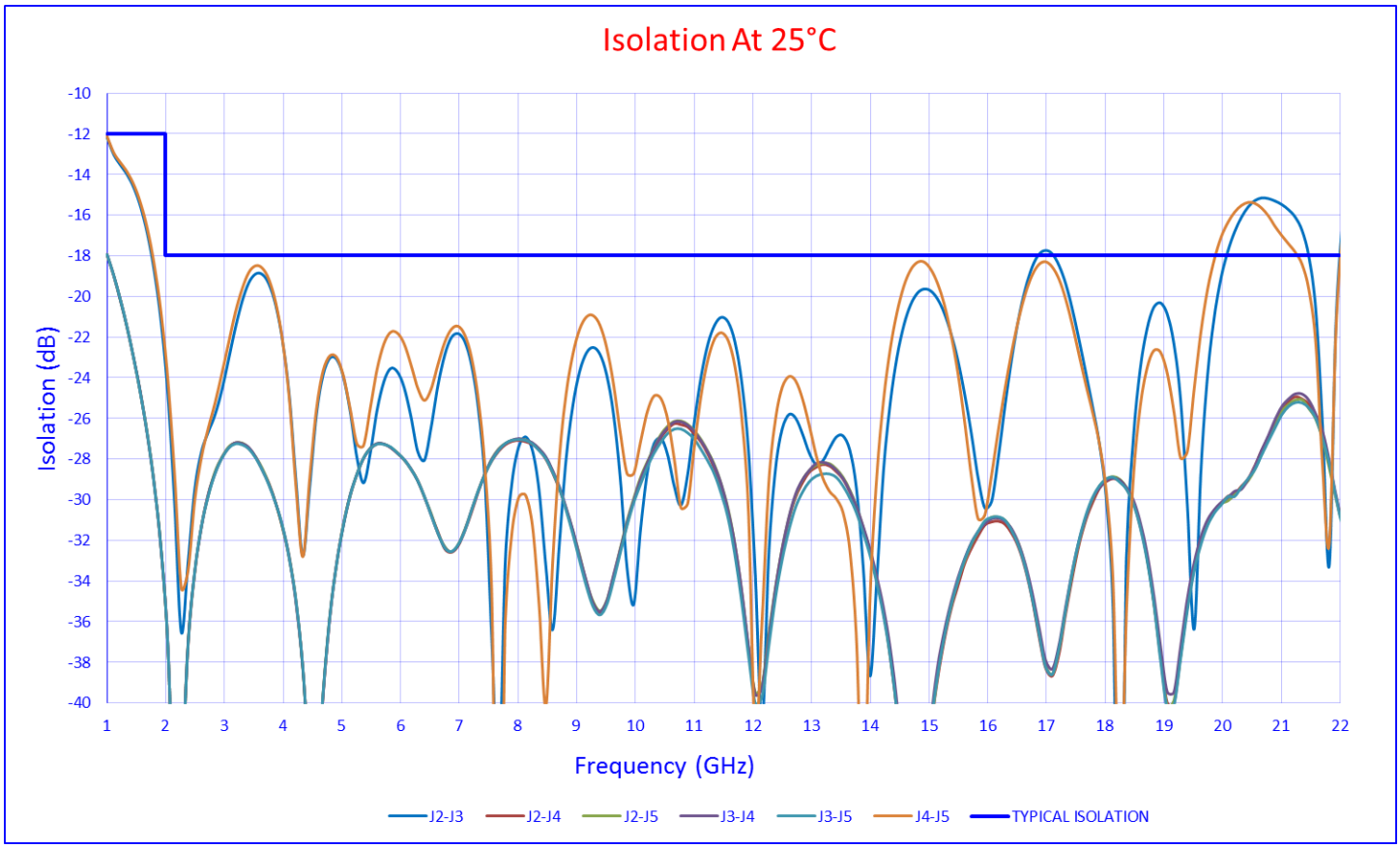
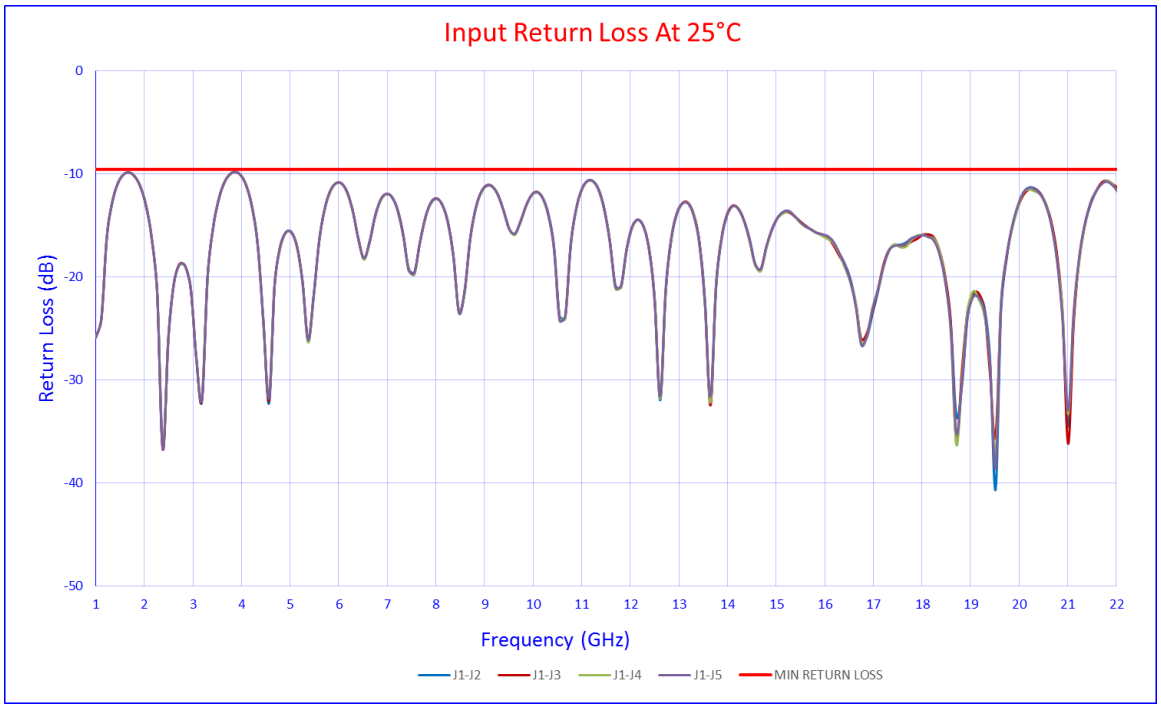
TYPICAL CHARACTERISTICS ON APD-4-122-292FF

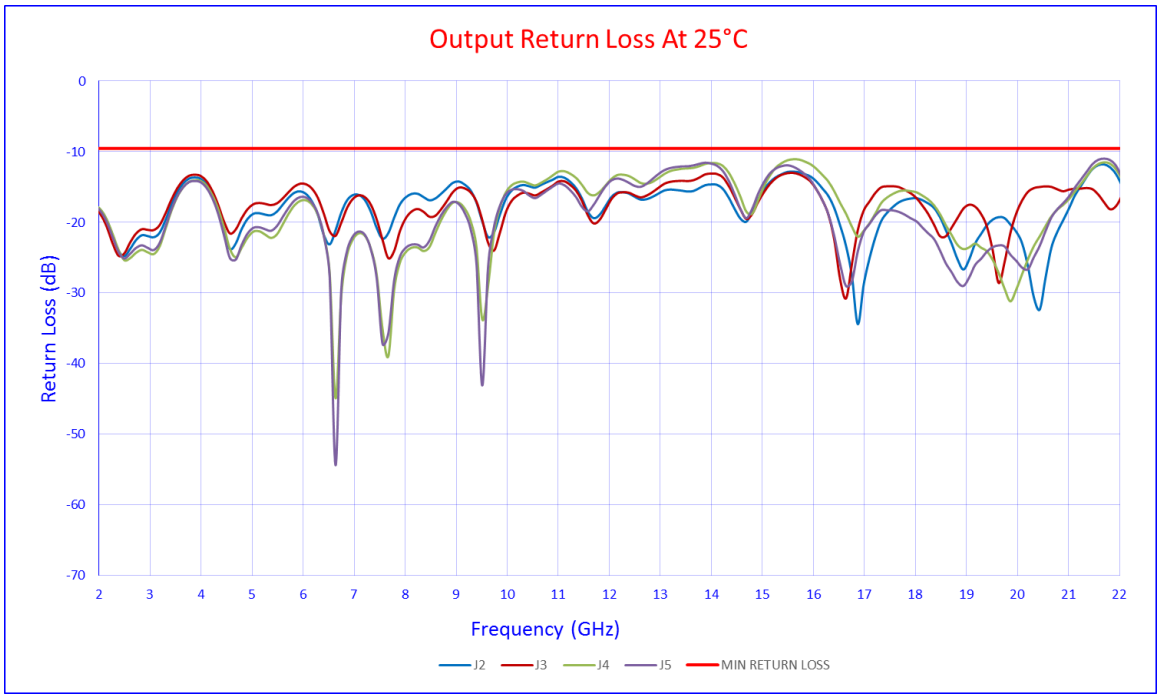
ISOLATION AT 25°C



TYPICAL CHARACTERISTICS ON APD-4-122-292FF

RETURN LOSS AT 25°C





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TYPICAL CHARACTERISTICS
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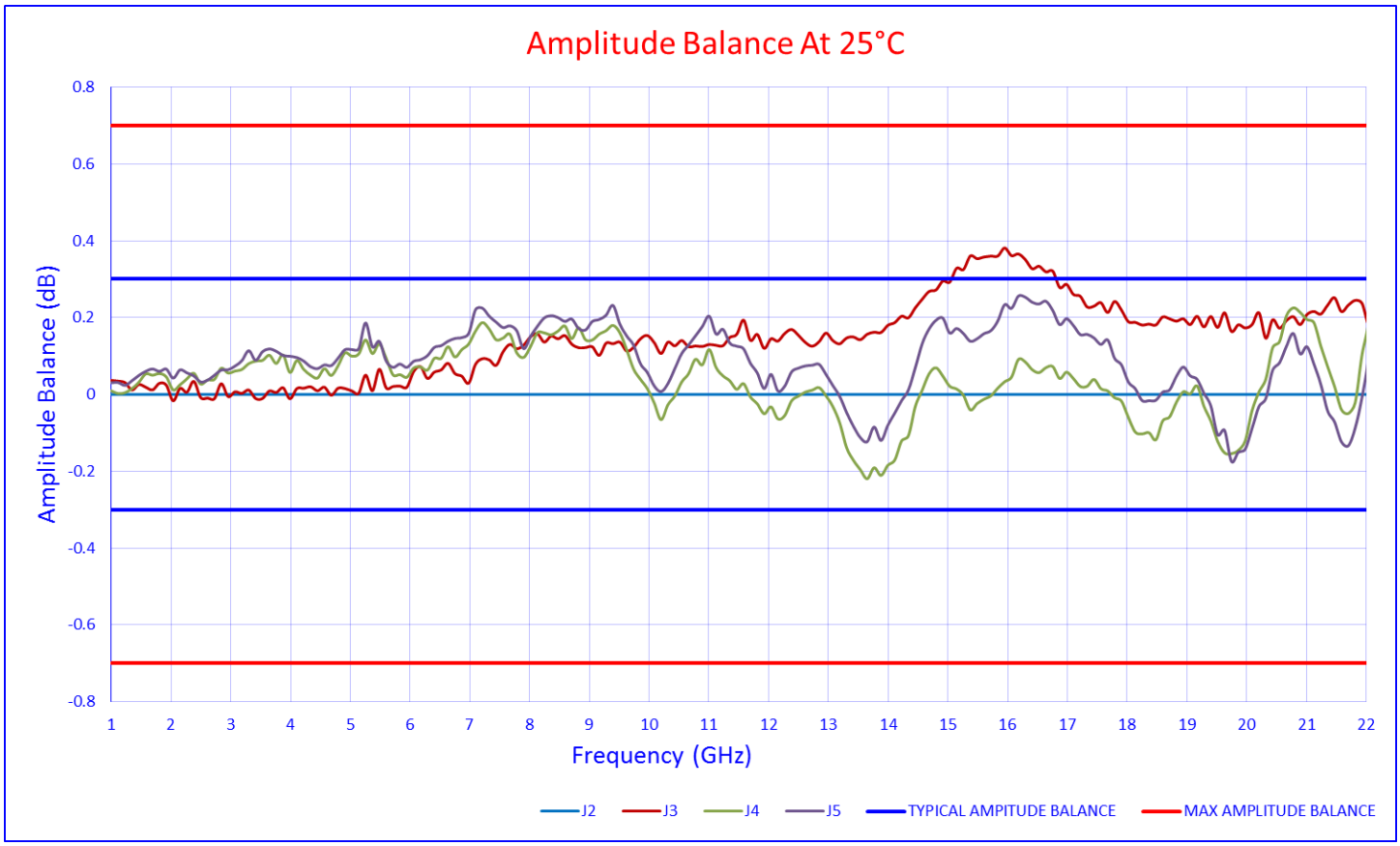
AMPLITUDE BALANCE AT 25°C



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TYPICAL CHARACTERISTICS
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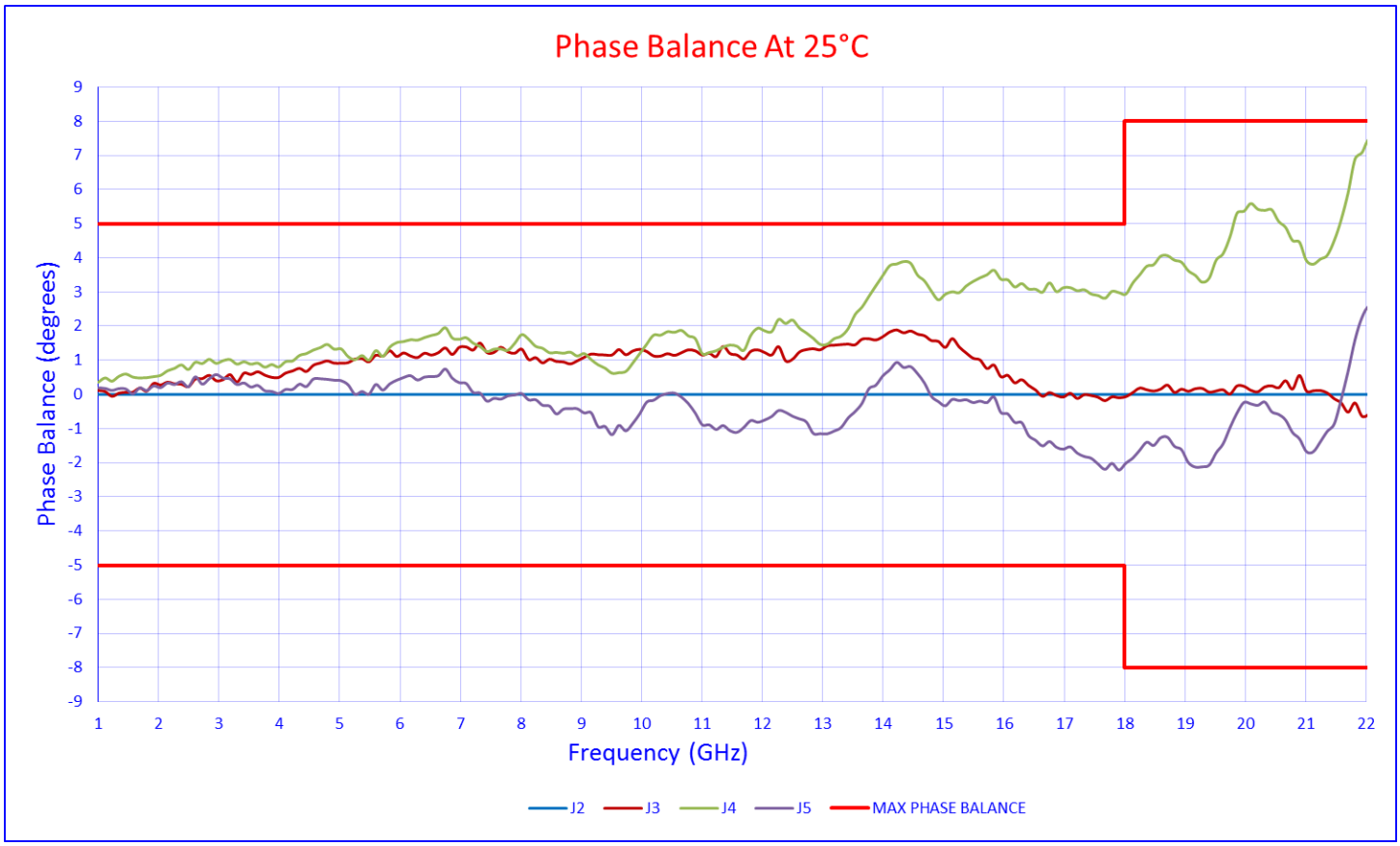
PHASE BALANCE AT 25°C



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TYPICAL CHARACTERISTICS
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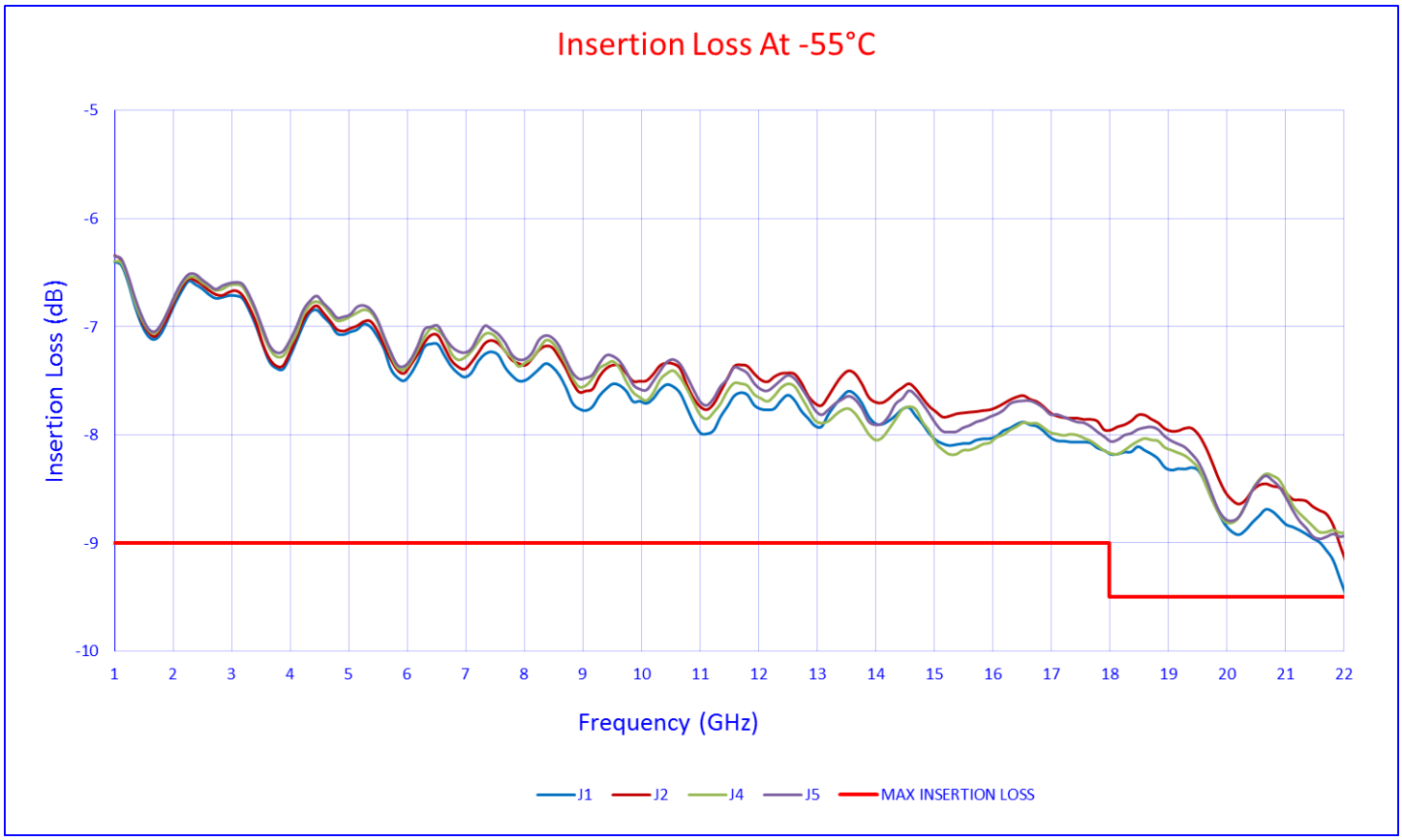
ABSOLUTE INSERTION LOSS WITH THEROETICAL 6 dB POWER SPLIT AT -55°C



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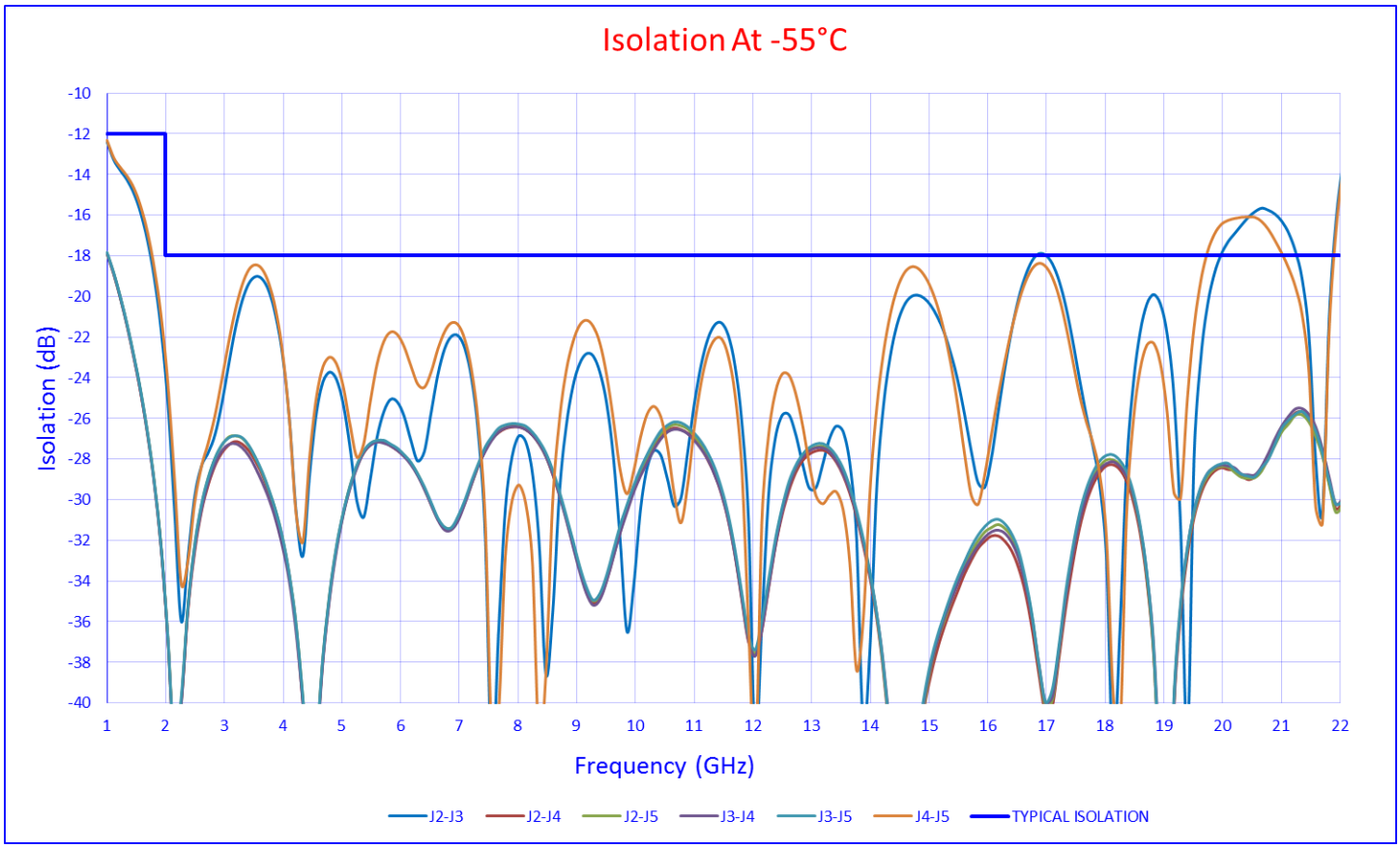
TYPICAL CHARACTERISTICS ON APD-4-122-292FF

ISOLATION AT -55°C



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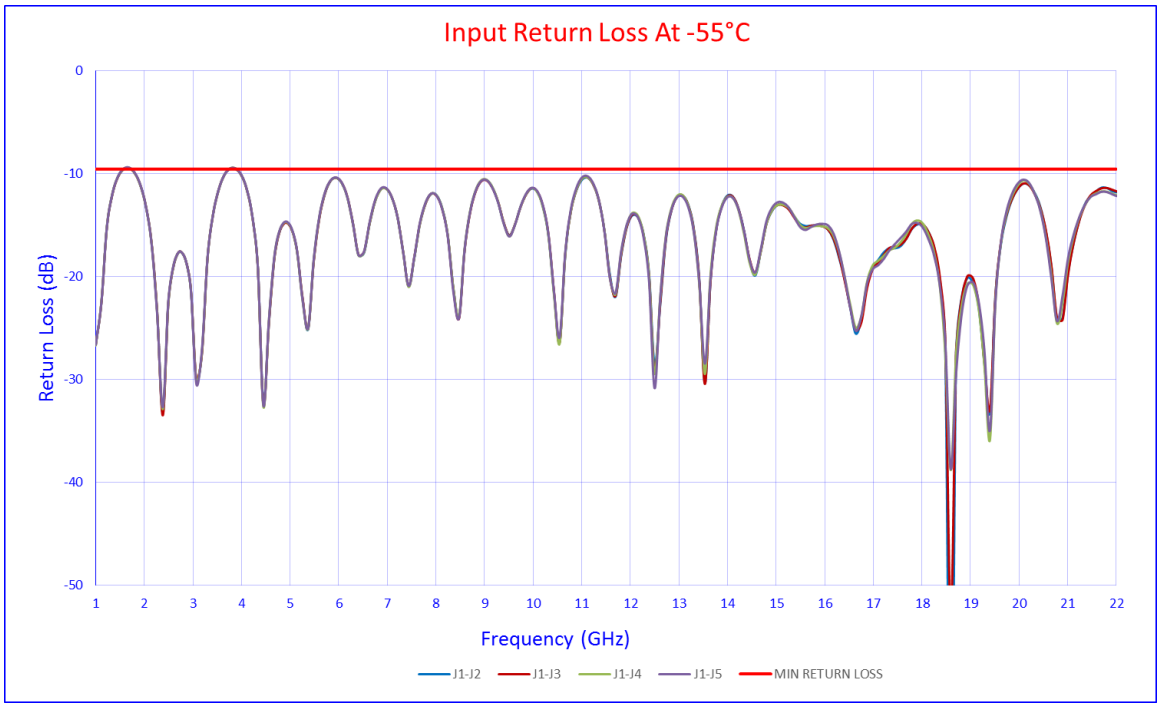
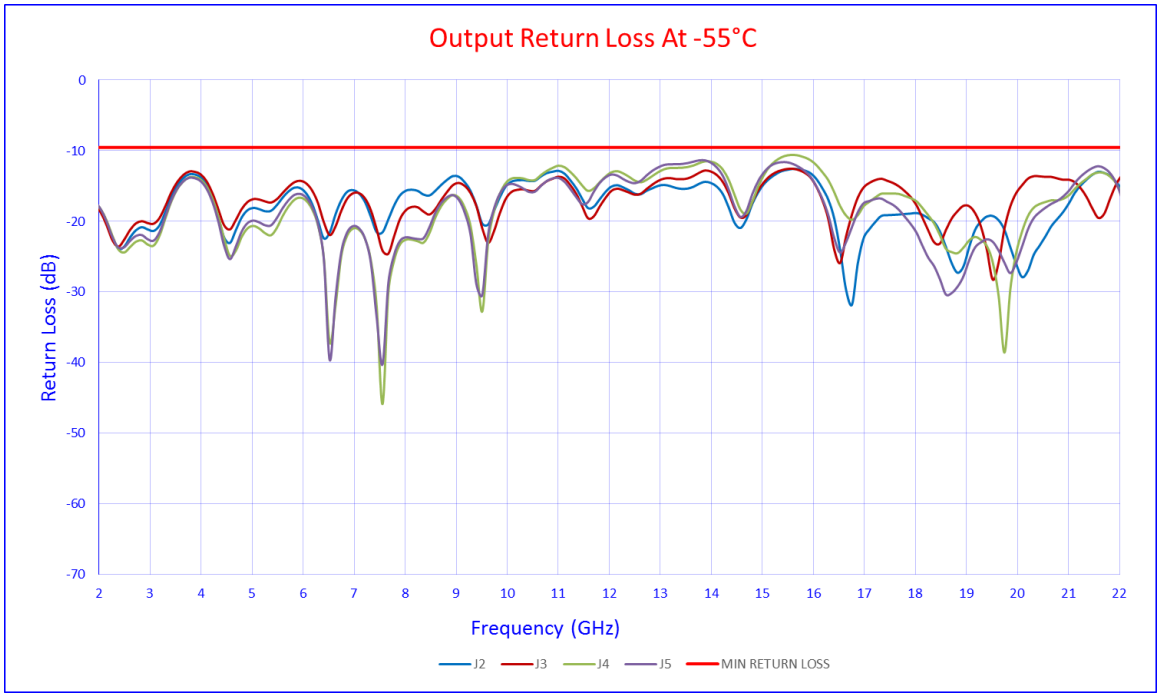
TYPICAL CHARACTERISTICS ON APD-4-122-292FF

RETURN LOSS AT -55°C





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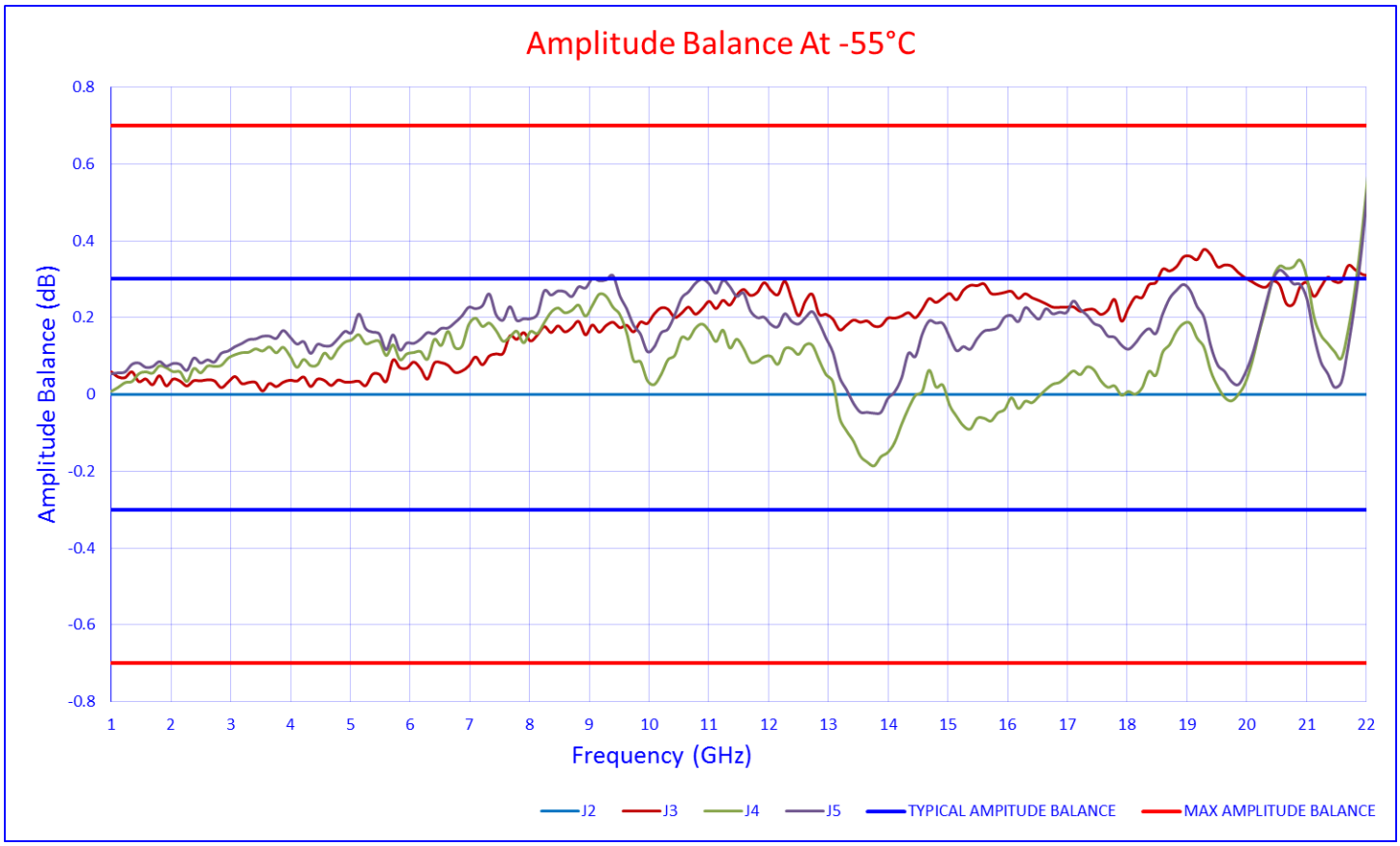
AMPLITUDE BALANCE AT -55°C



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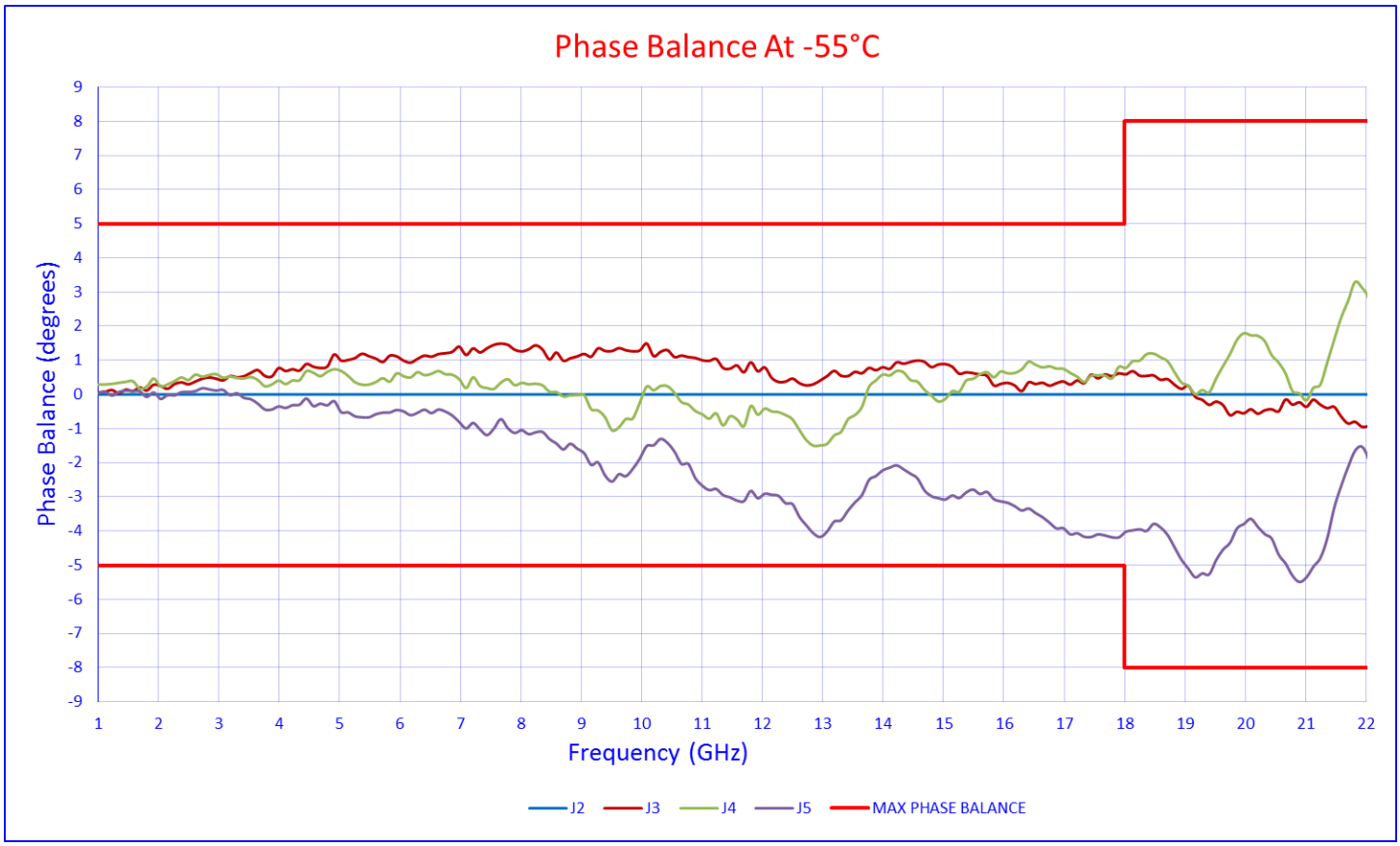
PHASE BALANCE AT -55°C



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TYPICAL CHARACTERISTICS
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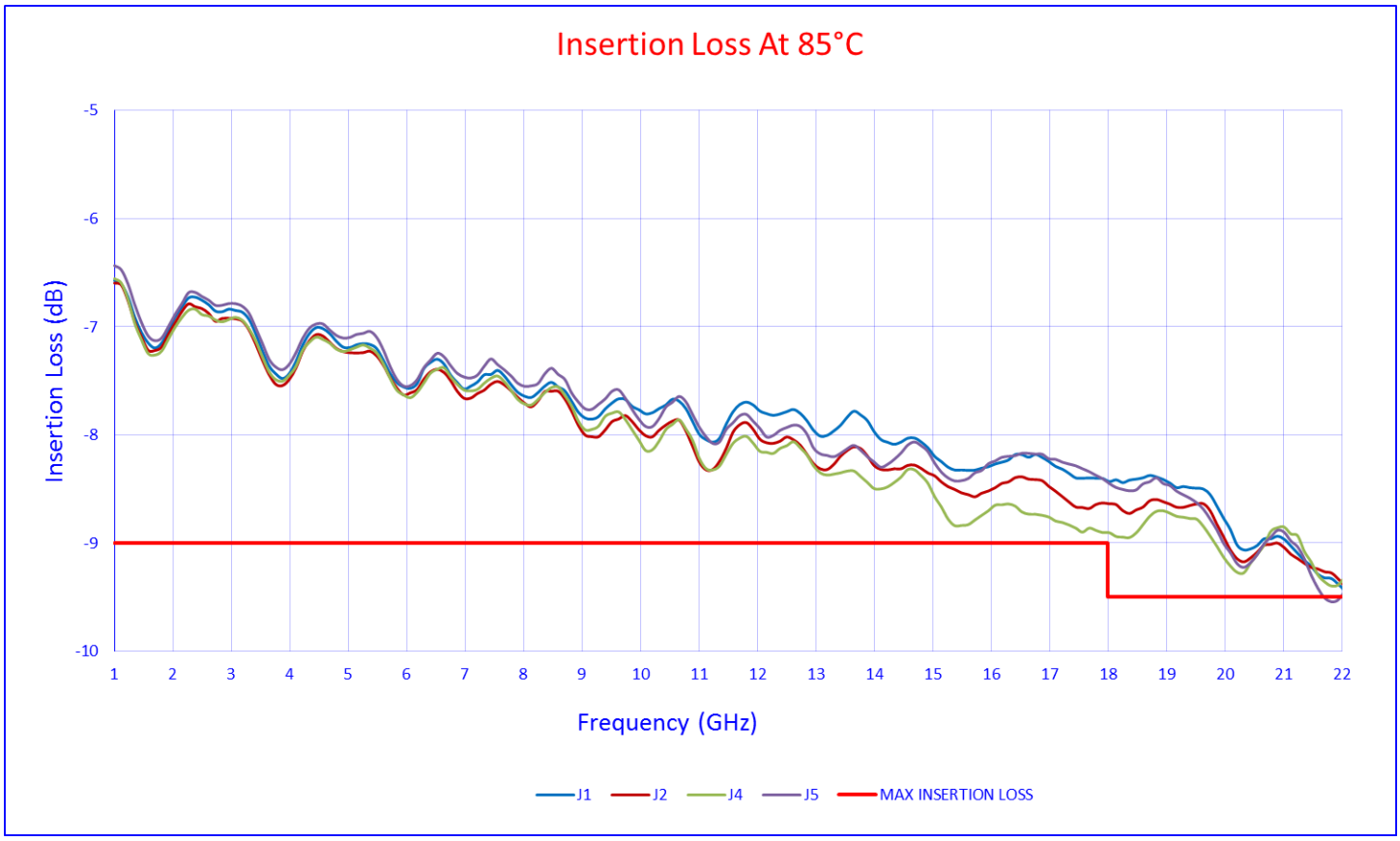
ABSOLUTE INSERTION LOSS WITH THEROETICAL 6 dB POWER SPLIT AT 85°C



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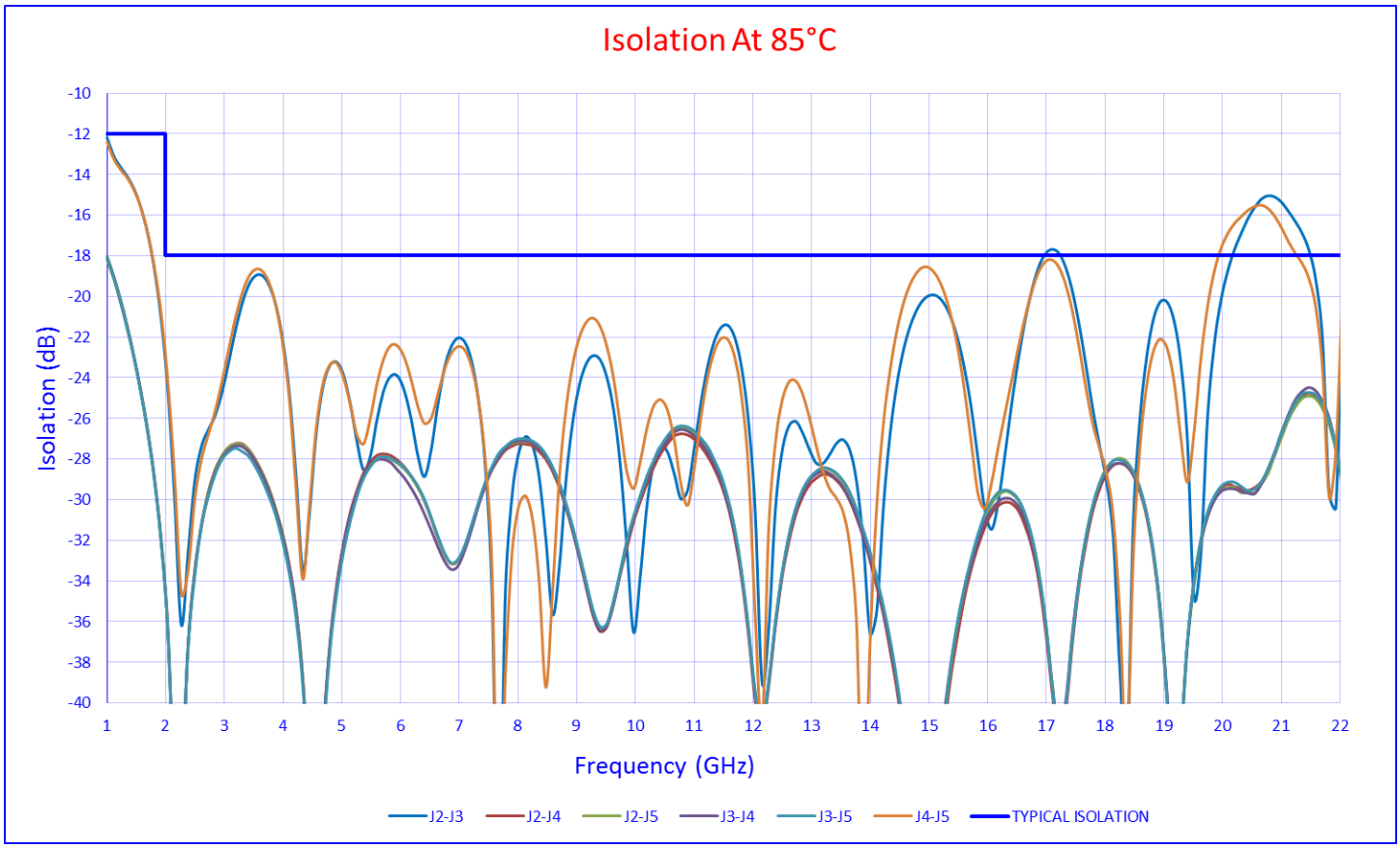
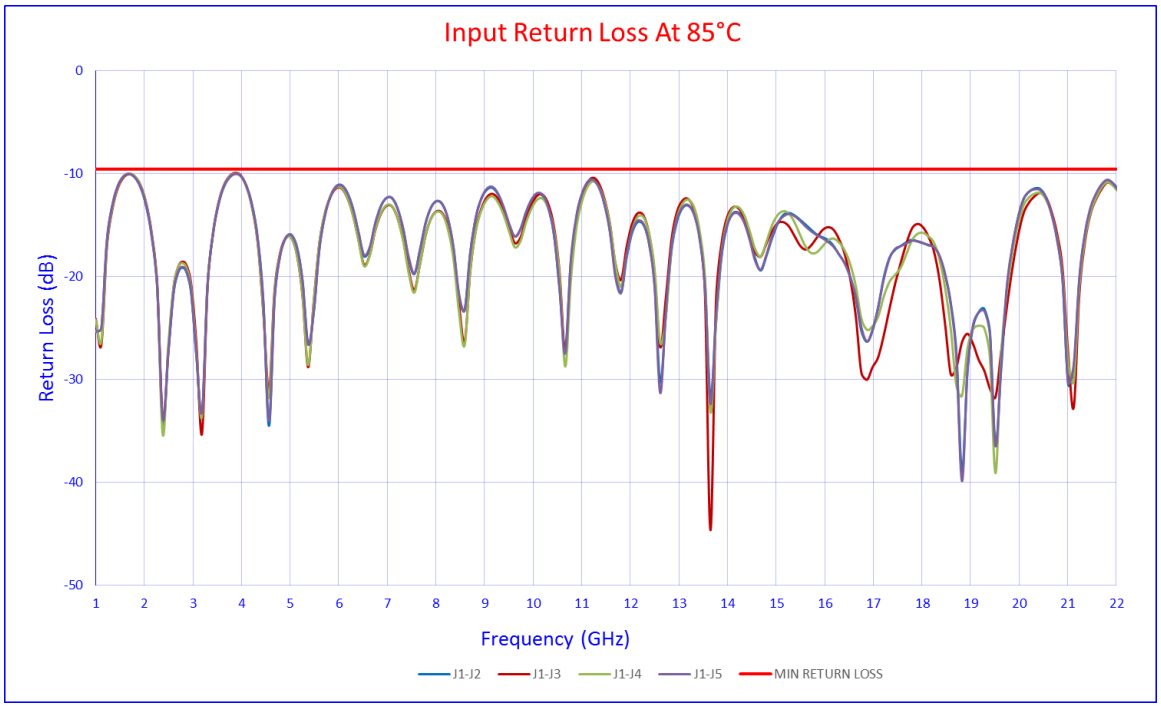
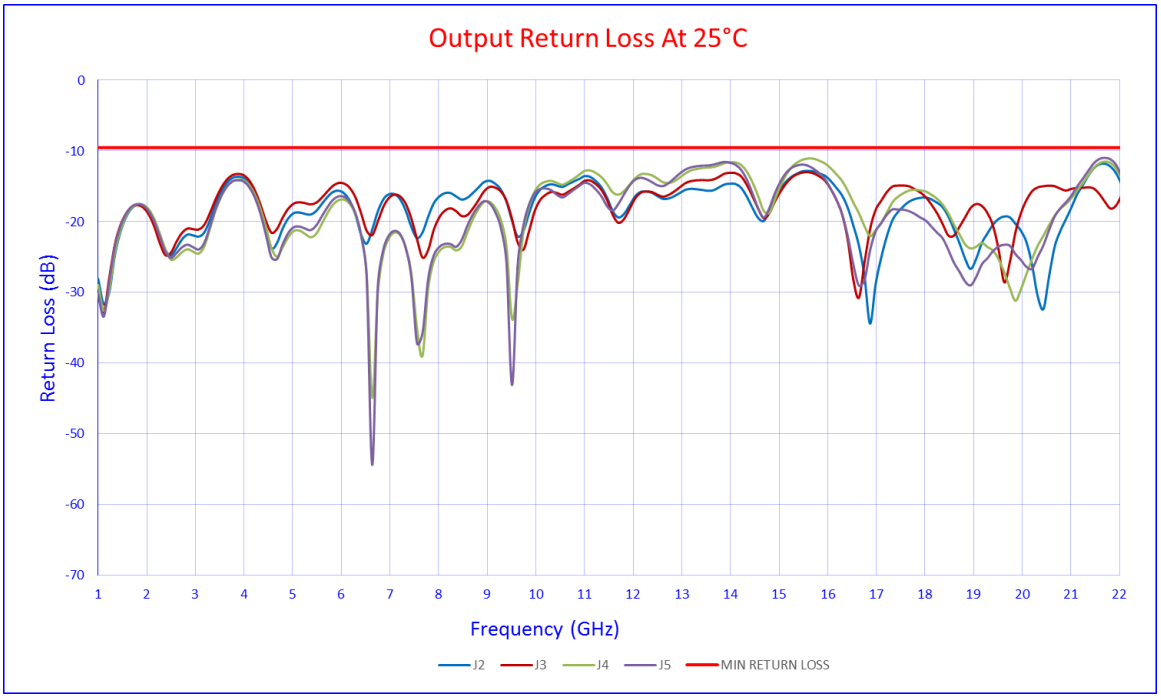
ISOLATION AT 85°C



TYPICAL CHARACTERISTICS ON APD-4-122-292FF

RETURN LOSS AT 85°C





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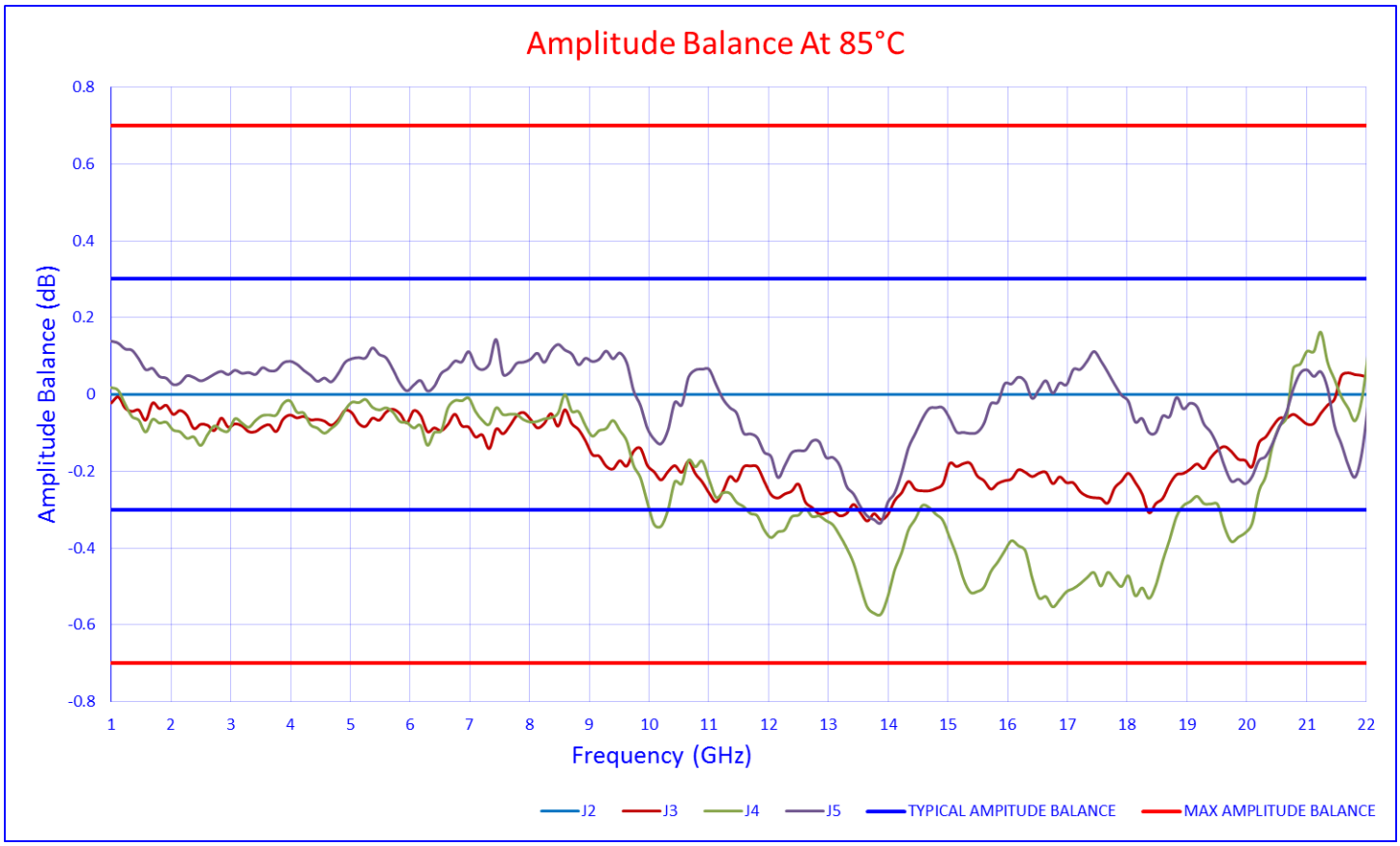
AMPLITUDE BALANCE AT 85°C



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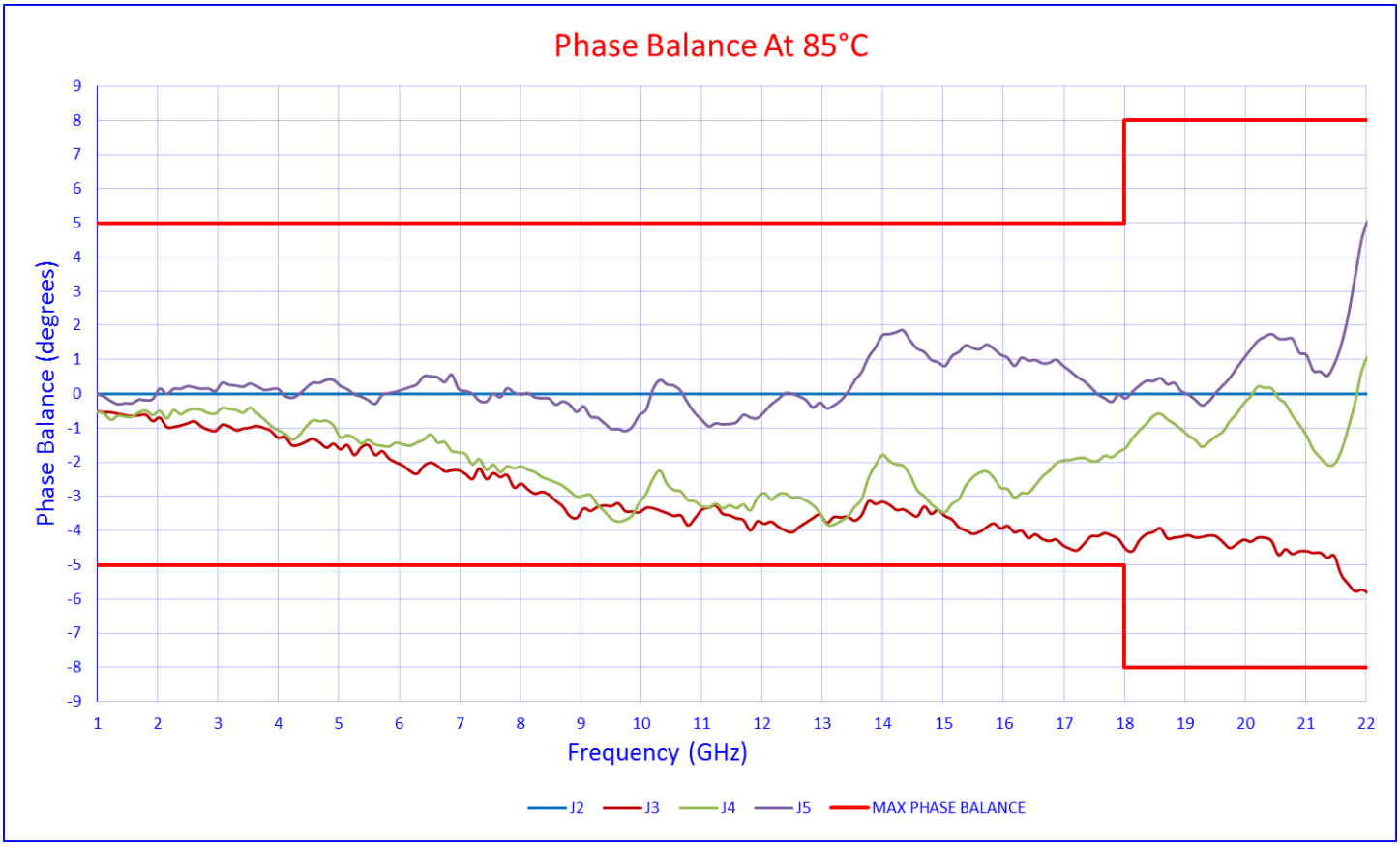
PHASE BALANCE AT 85°C



TYPICAL CHARACTERISTICS
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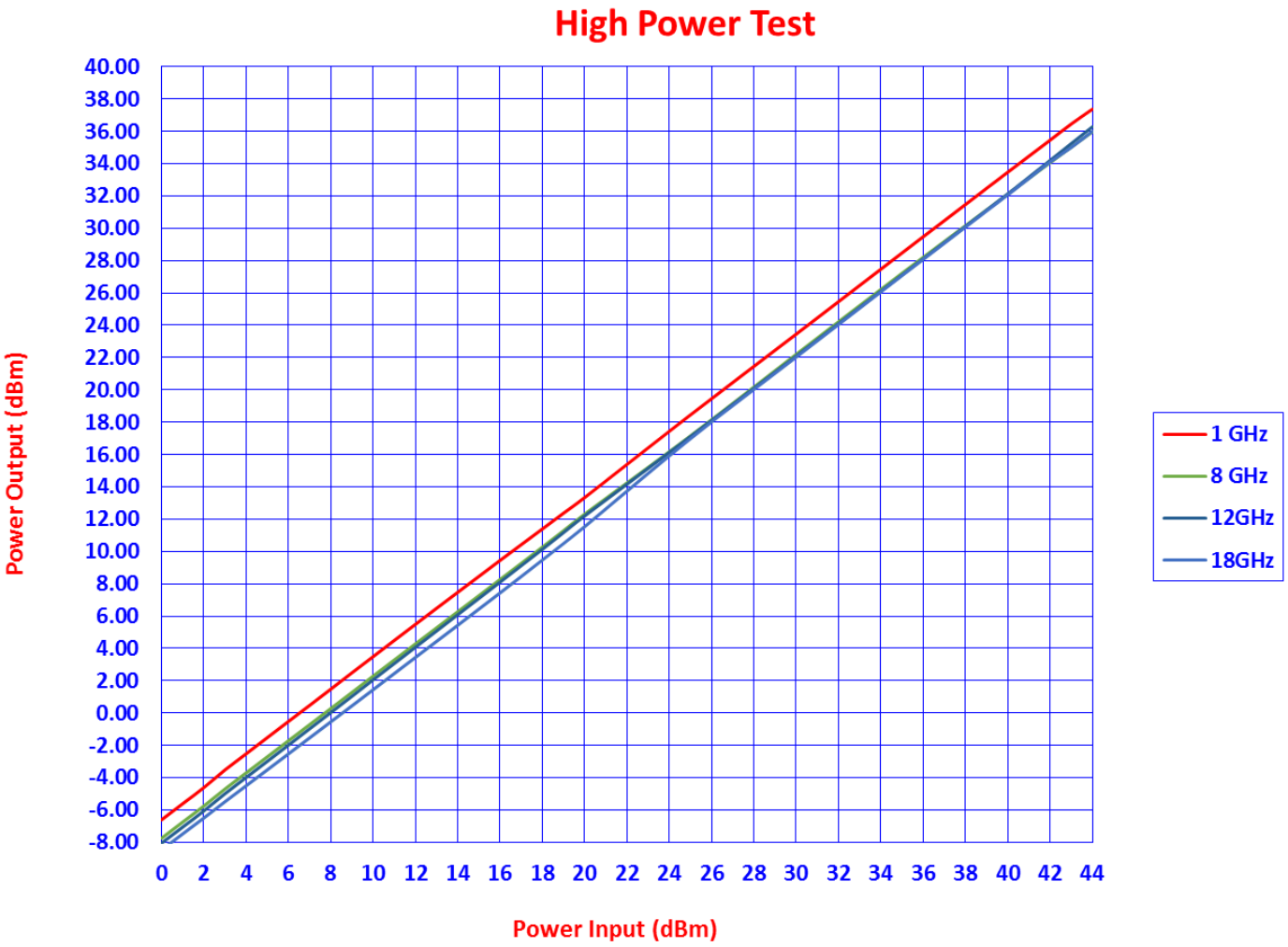
APD-4-122-292FF

AVERAGE POWER TESTING GRAPH(INTO 1.2:1 LOAD VSWR)



TYPICAL CHARACTERISTICS ON APD-4-122-292FF

AVERAGE POWER TESTING DATA (INTO 1.2:1 LOAD VSWR)

1 GHz			8GHz			12GHz			18GHz		
POWER INPUT (dBm)	POWER OUTPUT (dBm)	LOSS	POWER INPUT (dBm)	POWER OUTPUT (dBm)	LOSS	POWER INPUT (dBm)	POWER OUTPUT (dBm)	LOSS	POWER INPUT (dBm)	POWER OUTPUT (dBm)	LOSS
0	-6.61	6.61	0	-7.75	7.75	0	-8.06	8.06	0	-8.47	8.47
1	-5.61	6.61	1	-6.75	7.75	1	-7.06	8.06	1	-7.48	8.48
2	-4.62	6.62	2	-5.75	7.75	2	-6.06	8.06	2	-6.49	8.49
3	-3.52	6.52	3	-4.70	7.70	3	-4.99	7.99	3	-5.49	8.49
4	-2.52	6.52	4	-3.70	7.70	4	-3.99	7.99	4	-4.50	8.50
5	-1.52	6.52	5	-2.71	7.71	5	-2.99	7.99	5	-3.52	8.52
6	-0.52	6.52	6	-1.71	7.71	6	-1.99	7.99	6	-2.53	8.53
7	0.47	6.53	7	-0.72	7.72	7	-0.98	7.98	7	-1.54	8.54
8	1.48	6.52	8	0.28	7.72	8	0.02	7.98	8	-0.55	8.55
9	2.49	6.51	9	1.28	7.72	9	1.03	7.97	9	0.45	8.55
10	3.49	6.51	10	2.28	7.72	10	2.05	7.95	10	1.44	8.56
11	4.49	6.51	11	3.28	7.72	11	3.06	7.94	11	2.44	8.56
12	5.49	6.51	12	4.28	7.72	12	4.07	7.93	12	3.44	8.56
13	6.48	6.52	13	5.27	7.73	13	5.07	7.93	13	4.43	8.57
14	7.47	6.53	14	6.27	7.73	14	6.08	7.92	14	5.43	8.57
15	8.46	6.54	15	7.26	7.74	15	7.09	7.91	15	6.43	8.57
16	9.44	6.56	16	8.26	7.74	16	8.09	7.91	16	7.43	8.57
17	10.42	6.58	17	9.26	7.74	17	9.12	7.88	17	8.45	8.55
18	11.39	6.61	18	10.26	7.74	18	10.13	7.87	18	9.47	8.53
19	12.37	6.63	19	11.28	7.72	19	11.16	7.84	19	10.49	8.51
20	13.34	6.66	20	12.31	7.69	20	12.20	7.80	20	11.54	8.46
25	18.45	6.55	25	17.15	7.85	25	17.11	7.89	25	16.98	8.02
30	23.45	6.55	30	22.20	7.80	30	22.09	7.91	30	22.03	7.97
35	28.47	6.53	35	27.21	7.79	35	27.1	7.90	35	27.07	7.93
40	33.47	6.53	40	32.11	7.89	40	32.13	7.87	40	32.07	7.93
41	34.46	6.54	41	33.09	7.91	41	33.16	7.84	41	33.08	7.92
42	35.45	6.55	42	34.06	7.94	42	34.20	7.80	42	34.10	7.90
43	36.45	6.55	43	35.02	7.98	43	35.24	7.76	43	35.00	8.00
44	37.37	6.63	44	35.97	8.03	44	36.28	7.72	44	36.00	8.00

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