

TYPICAL CHARACTERISTICS
ON
PS-200M4G-12B-SFF

PMI MODEL PS-200M4G-12B-SFF IS A 12-BIT DIGITAL PHASE SHIFTER THAT OPERATES OVER THE 200 MHz TO 4 GHz FREQUENCY RANGE. THIS MODEL OFFERS 360 DEGREES OF PHASE SHIFT WITH THE LEAST SIGNIFICANT BIT OF 0.09 DEGREES.



REPORTED BY: ANTON L.
TESTED BY: ANTON L.
DATE: 3/18/26

TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

PRODUCT FEATURE

DESCRIPTION:

PMI MODEL PS-200MG-12B-SFF IS A 12-BIT DIGITAL PHASE SHIFTER THAT OPERATES OVER THE 200 MHz TO 4 GHz FREQUENCY RANGE. THIS MODEL OFFERS 360 DEGREES OF PHASE SHIFT WITH THE LEAST SIGNIFICANT BIT OF 0.09 DEGREES.

SPECIFICATIONS @ +25°C:

MEASURED AT -10 dBm INPUT POWER

- FREQUENCY RANGE:.....200 MHz TO 4 GHz
- CONTROL:.....12 BIT TTL
- INSERTION LOSS:.....10 dB MAX.
- PHASE SHIFT:.....360°
- PHASE SHIFT ERROR:.....±5° MAX.
- SWITCHING SPEED:.....500 ns MAX.
- DC SUPPLY:.....+15 V @ 300 mA MAX.
-15 V @ 50 mA MAX.
- CONNECTORS:.....RF: SMA FEMALE
CONTROL: 15 PIN SUBMINIATURE D (MALE)
MATING CONNECTOR SUPPLIED WITH THE UNIT
- SIZE:.....3.25" x 3.25" x 0.84"
[82.55 mm x 82.55 mm x 21.34 mm]
- FINISH:.....PAINTED BLUE



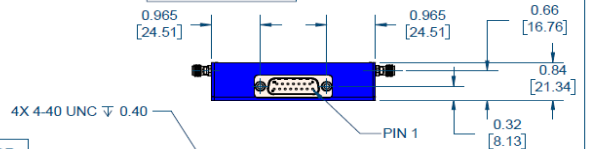
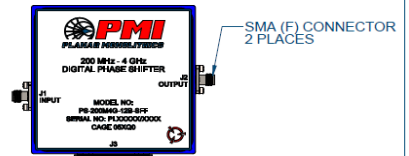
ENVIRONMENTAL RATINGS:

- 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

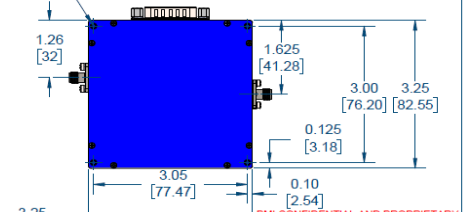
NOTE: SPECIFICATIONS WILL VARY OVER TEMPERATURE
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

CON#	REV.	DESCRIPTION	DATE	APPROVED
A1		ORIGINAL RELEASE	05/16/22	
C1		ECN #26-0030	02/24/26	


ITT CANNON DA-15P OR EQUIV.
WITH D110551 JACKPOSTS
MATING CONNECTORS PROVIDED



PIN	FUNCTION
1	-VDC
2	+VDC
3	GND
4	180° (MSB)
5	90°
6	45°
7	22.5°
8	11.25°
9	5.63°
10	2.81°
11	1.4°
12	0.7°
13	0.35°
14	0.18°
15	0.09° (LSB)



PMI CONFIDENTIAL AND PROPRIETARY



APPROVALS	DATE	TITLE
DESIGN: ANTON L	2/24/26	OUTLINE
REVISED		PS-200MG-12B-SFF

REV. B	FORM NO. 05X/QD	DWG NO. 27044180	REV. C1
SCALE 1:1		SHEET 1 OF 1	

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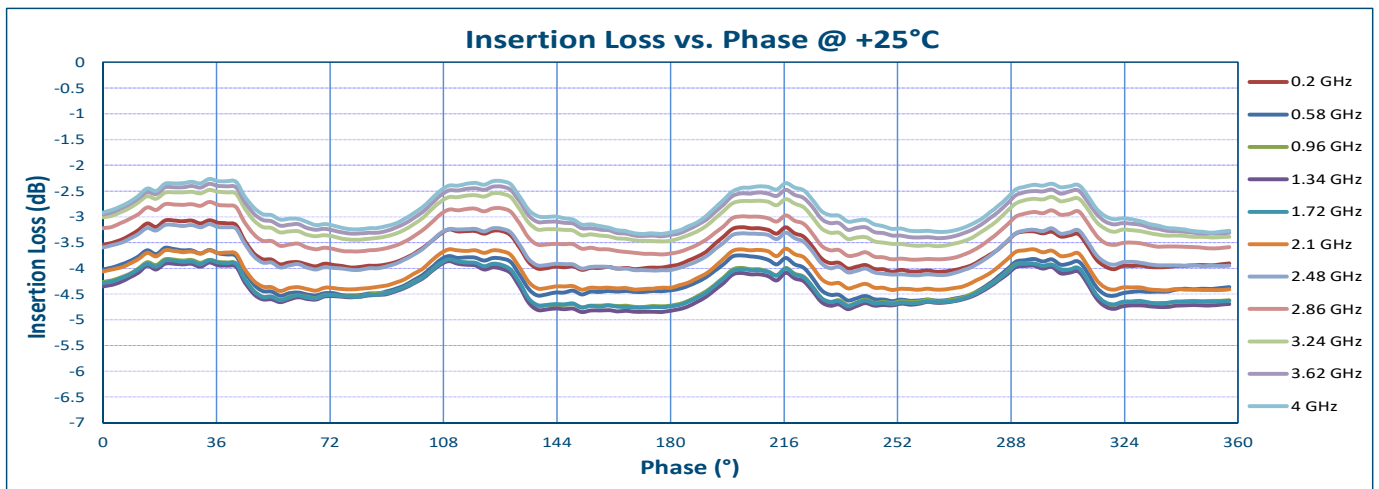
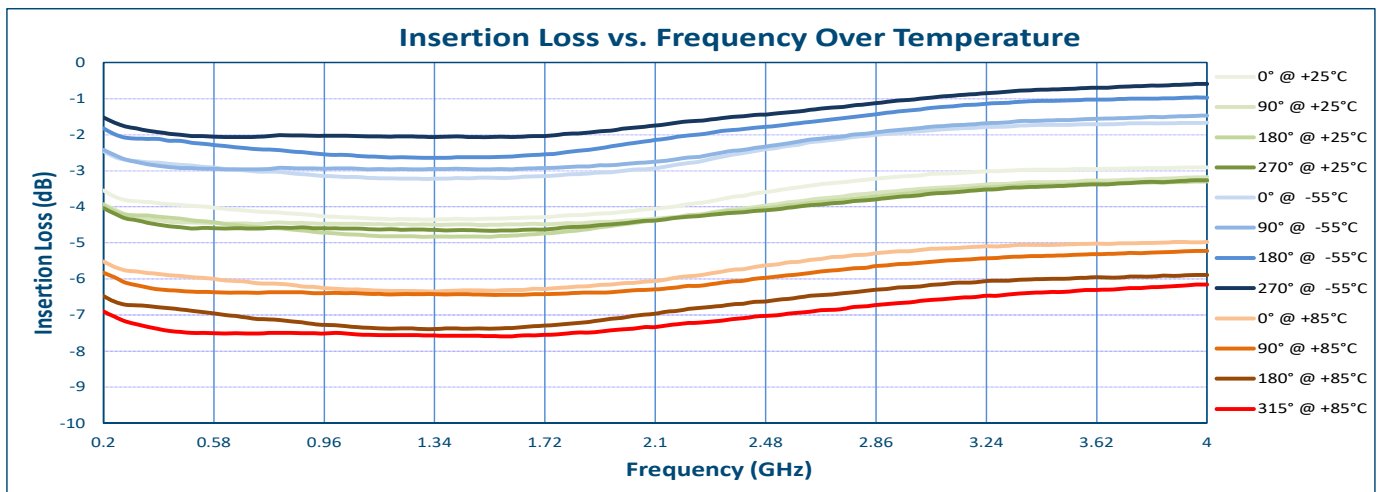
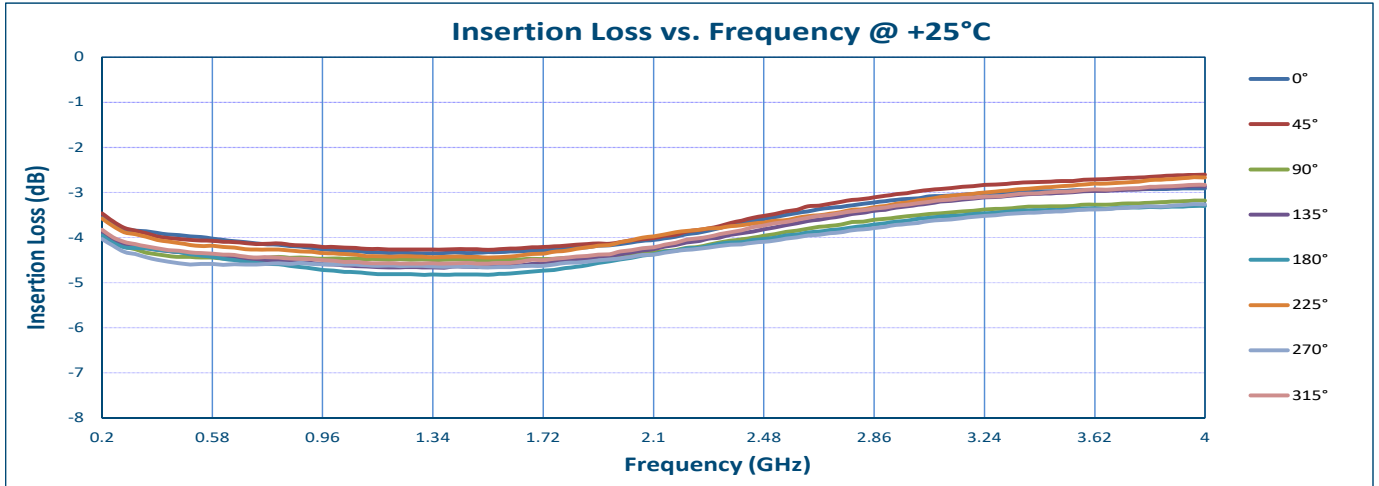
TECHNICAL SPECIFICATIONS

Data Taken at -10 dBm Input Power

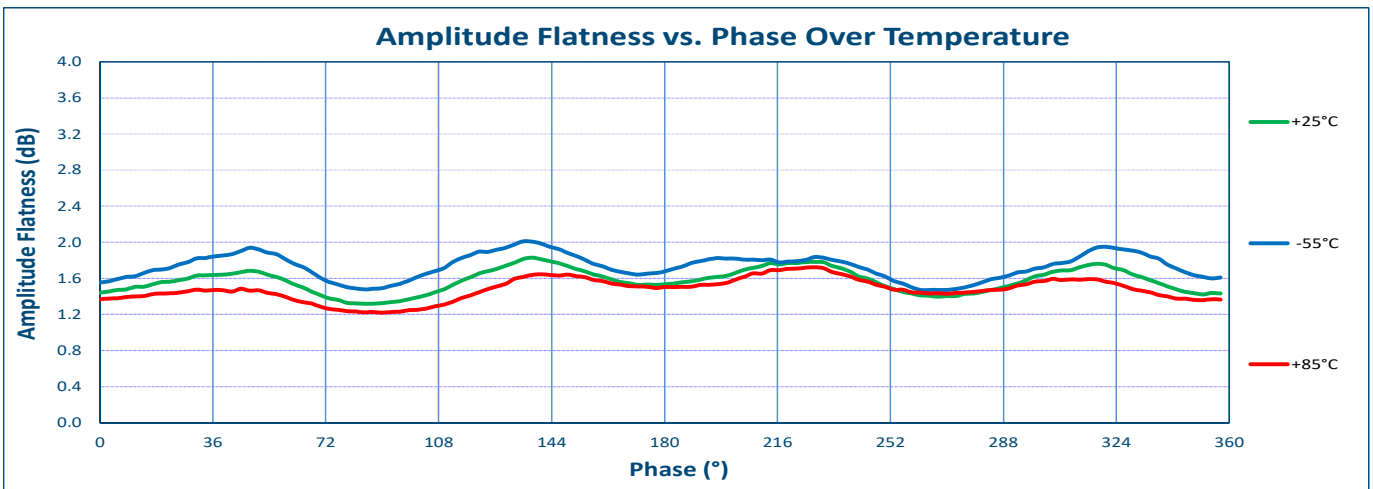
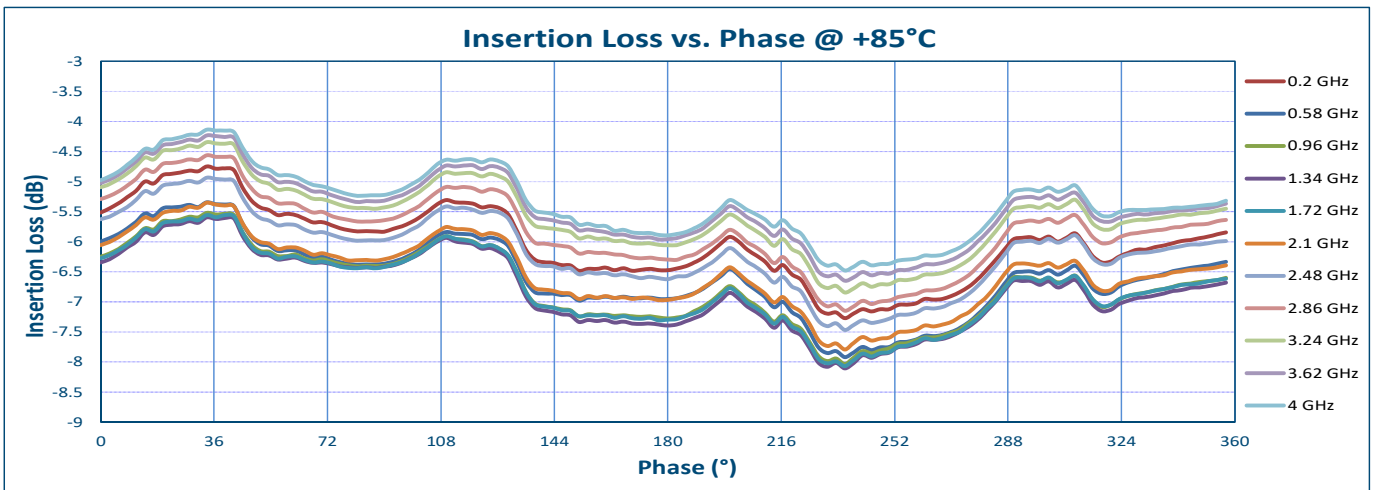
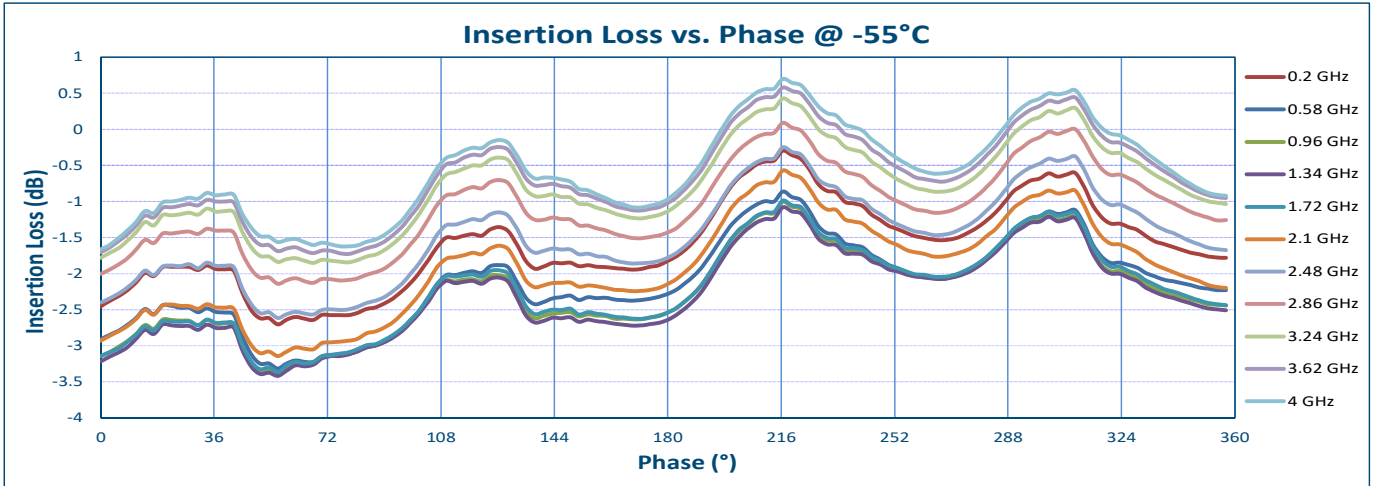
Test Item No.	Parameters	Specified Value @+25°C	Measured Value		
			-55°C	+25°C	+85°C
1	Frequency Range:	0.2 to 4 GHz	0.2 to 4 GHz		
2	Control:	12 Bit TTL	12 Bit TTL		
3	Insertion Loss:	10 dB MAX.	3.4 dB	4.9 dB	8.1 dB
4	VSWR:	-	Input: 1.16:1 Output: 1.46:1	Input: 1.18:1 Output: 1.46:1	Input: 1.2:1 Output: 1.46:1
5	Phase Shift Error:	±5.0° MAX.	±8.71° See Plot	±2.44° See Plot	±9.18° See Plot
6	Phase Flatness:	-	3.12° See Plot	3.85° See Plot	2.29° See Plot
7	Phase Shift:	360°	359.03°	359.52°	359.75°
8	Harmonics:	-	-17.5 dBc	-22.2 dBc	-23.9 dBc
9	Spurious Suppression:	-	-48.9 dBc	-49.5 dBc	-48.7 dBc
10	Switching Speed:	-	332 ns	308 ns	348 ns
11	DC Supply:	+15 V @ 300 mA MAX. -15 V @ 50 mA MAX.	+15 V @ 225 mA -15 V @ 45 mA		

-55°C			+25°C			+85°C		
Programed Phase Shift	Average Phase Shift	Average Signed Phase Shift Error	Programed Phase Shift	Average Phase Shift	Average Signed Phase Shift Error	Programed Phase Shift	Average Phase Shift	Average Signed Phase Shift Error
DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG
0.09	0.07	-0.02	0.09	0.08	-0.01	0.09	0.07	-0.02
0.18	0.15	-0.03	0.18	0.15	-0.03	0.18	0.14	-0.04
0.35	0.29	-0.06	0.35	0.29	-0.06	0.35	0.28	-0.07
0.70	0.56	-0.14	0.70	0.55	-0.15	0.70	0.53	-0.17
1.40	1.28	-0.12	1.40	1.22	-0.18	1.40	1.19	-0.21
2.81	2.97	0.16	2.81	2.82	0.01	2.81	2.77	-0.04
5.62	6.03	0.41	5.62	5.70	0.08	5.62	5.62	0.00
11.25	11.87	0.62	11.25	11.26	0.01	11.25	11.09	-0.16
22.50	23.23	0.73	22.50	22.35	-0.15	22.50	21.95	-0.55
45.00	46.13	1.13	45.00	44.70	-0.30	45.00	42.62	-2.38
90.00	94.36	4.36	90.00	89.65	-0.35	90.00	85.08	-4.92
180.00	185.88	5.88	180.00	179.68	-0.32	180.00	174.14	-5.86

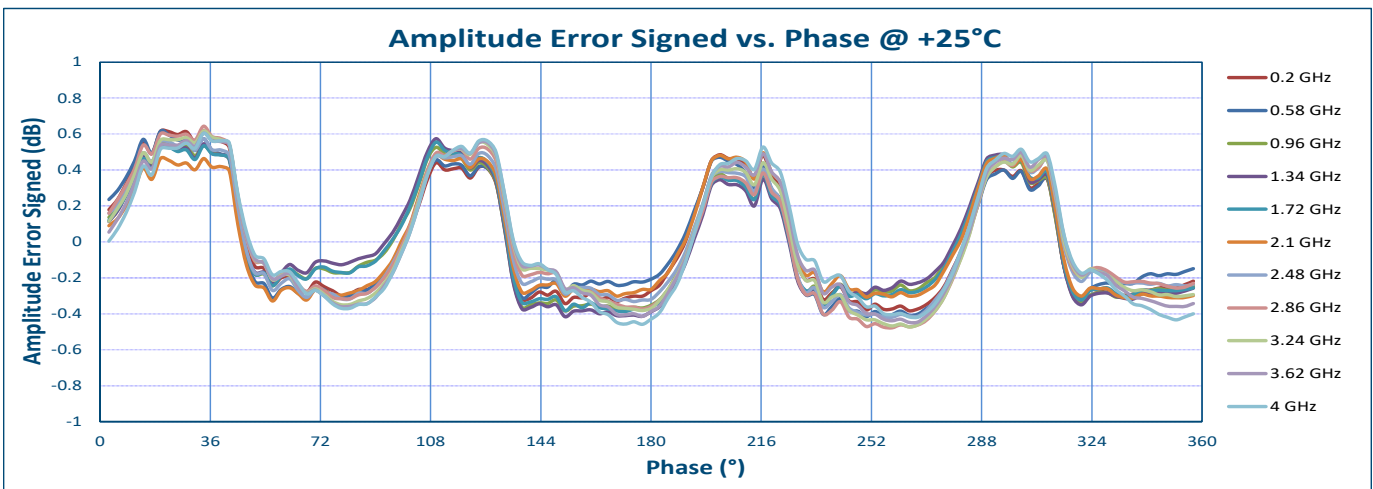
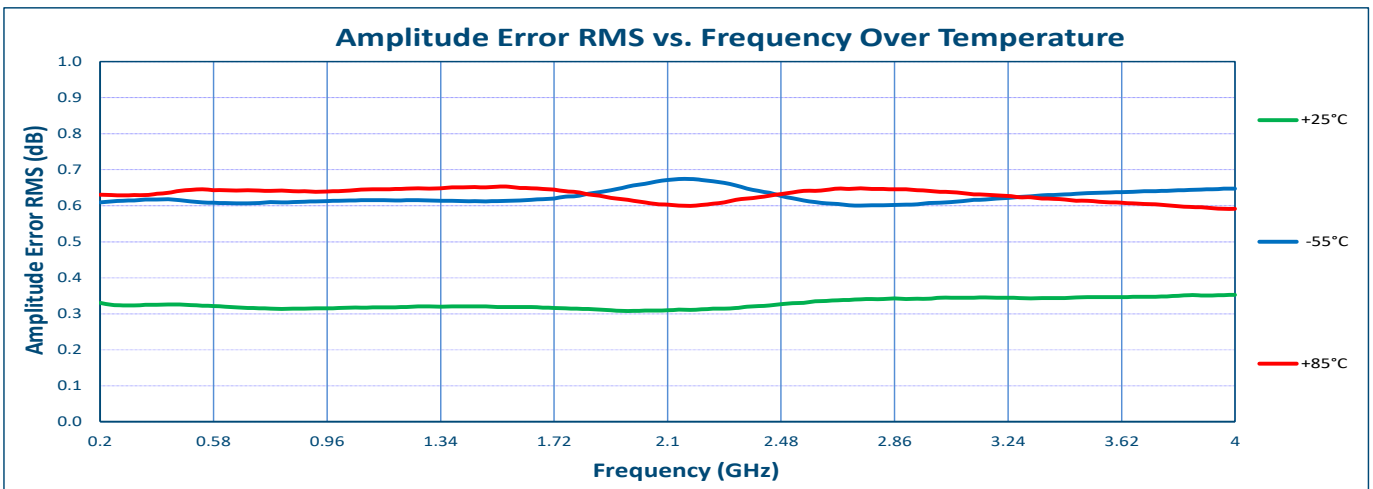
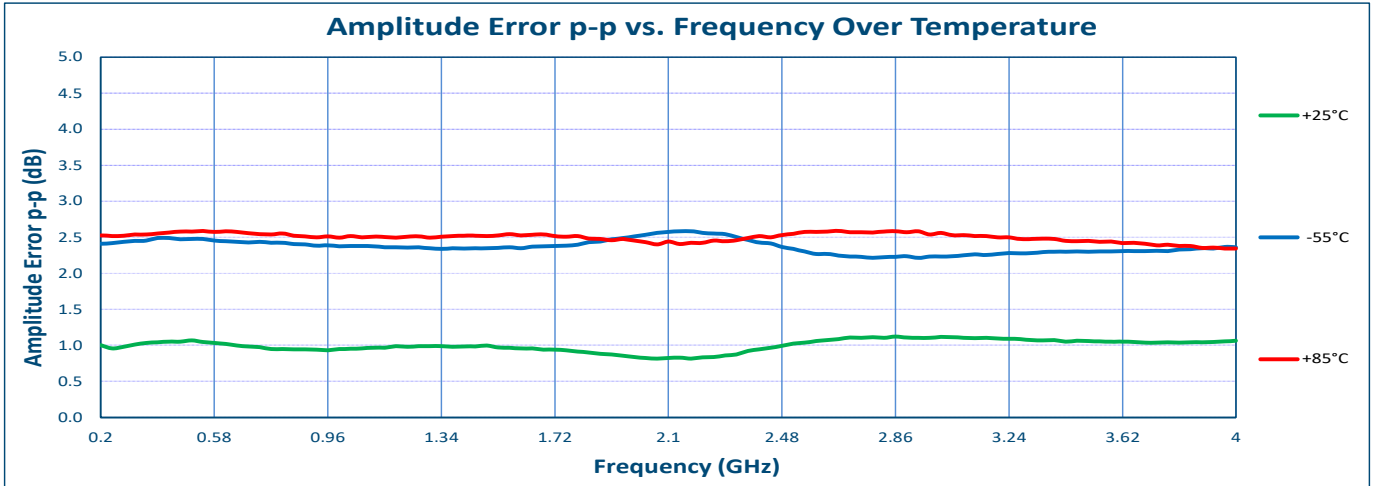
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF



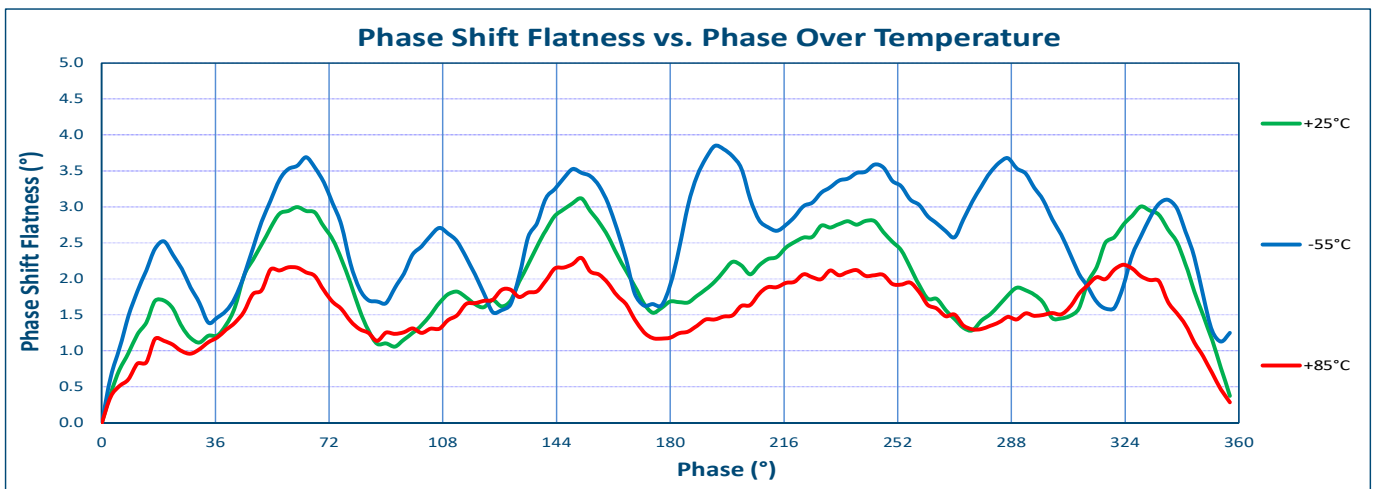
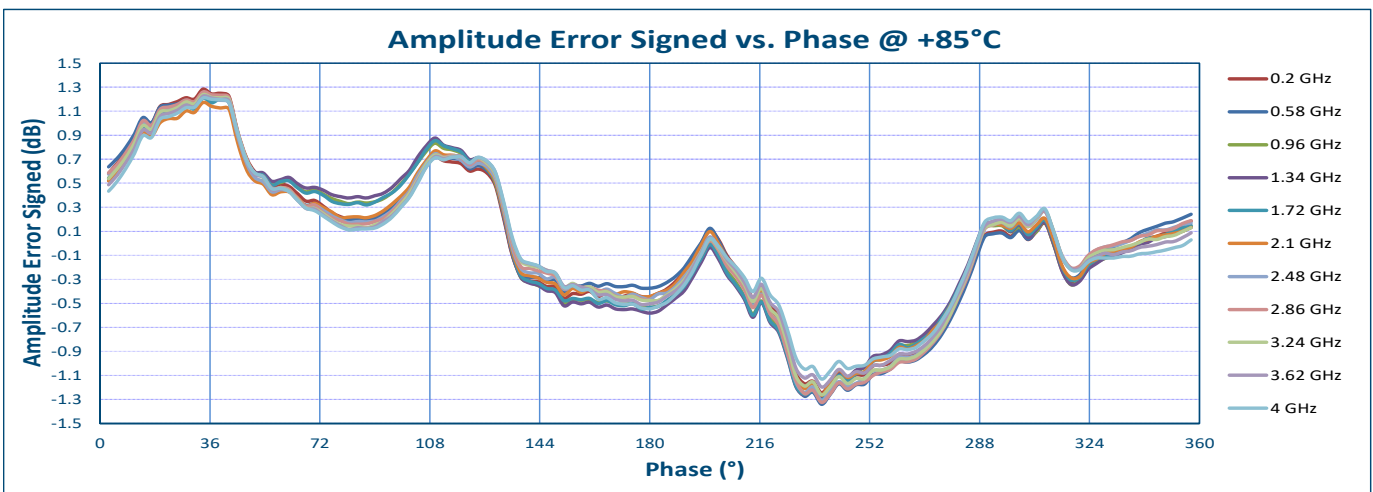
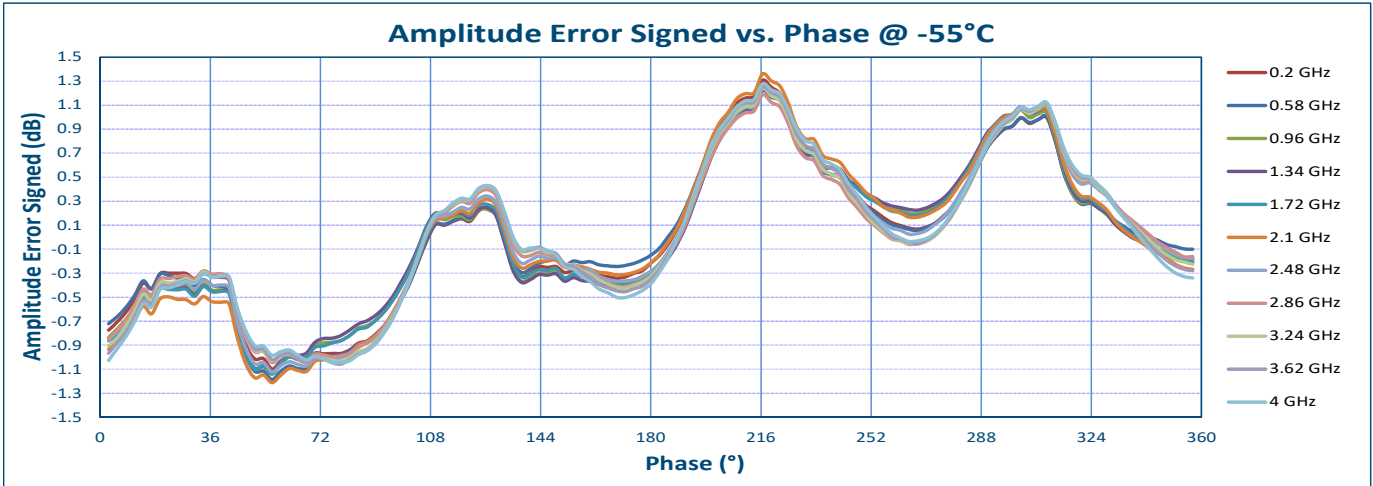
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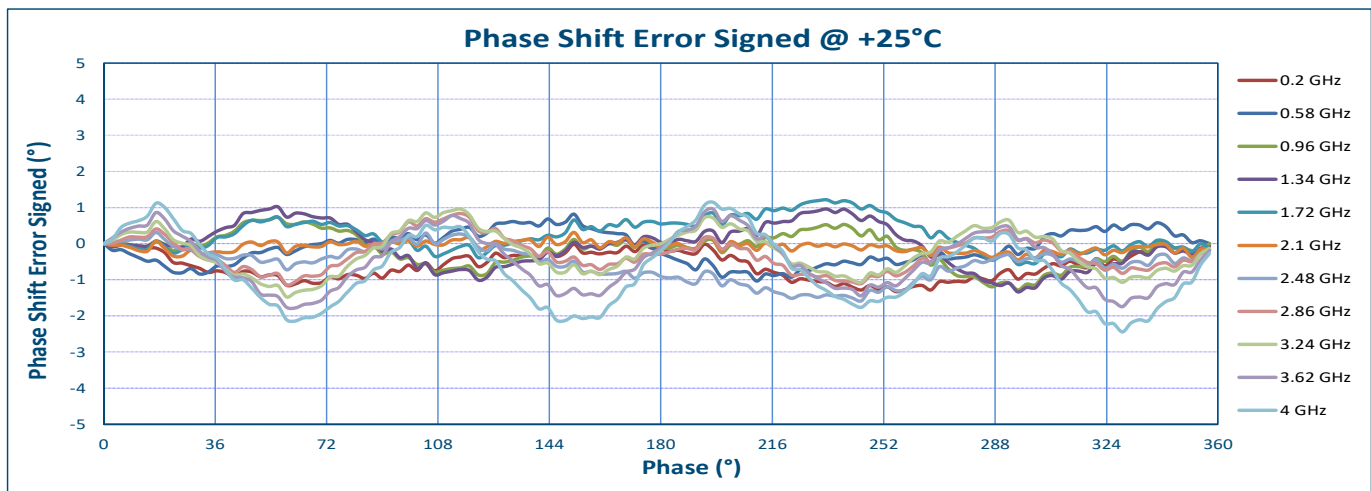
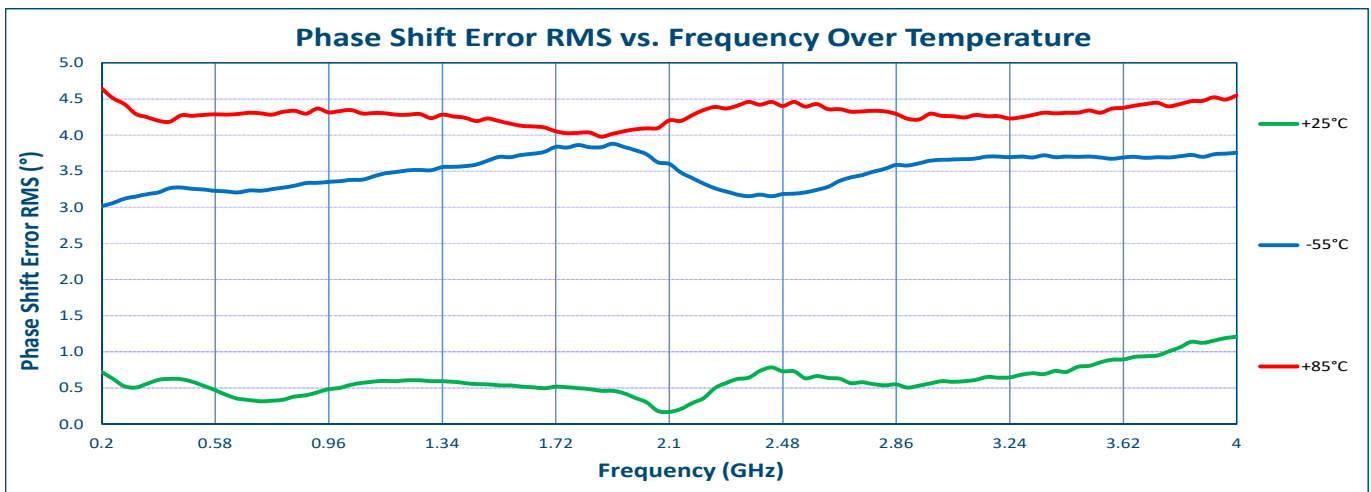
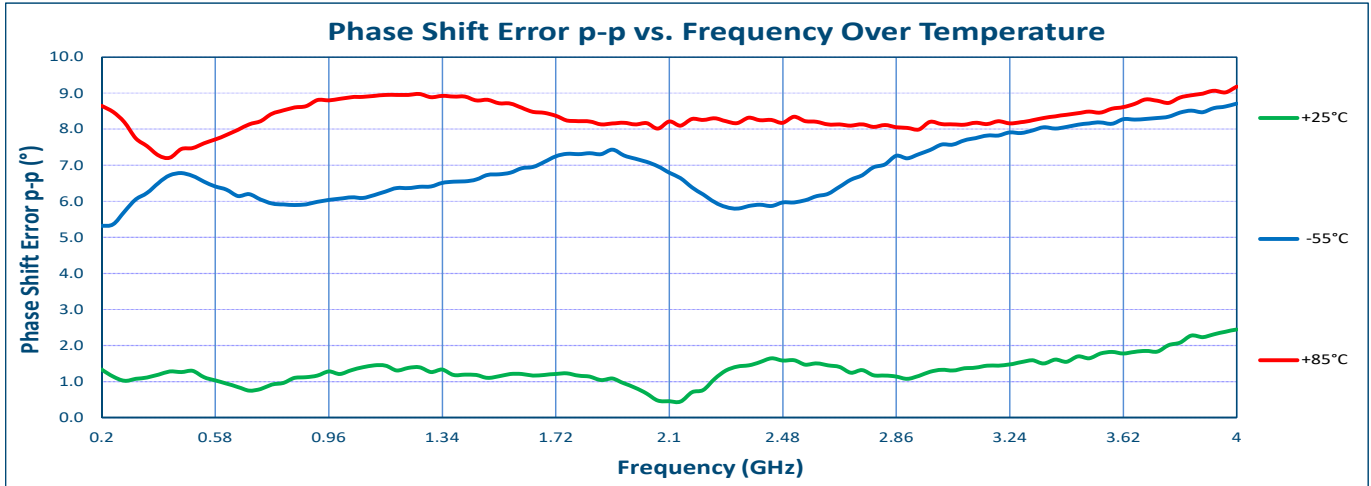
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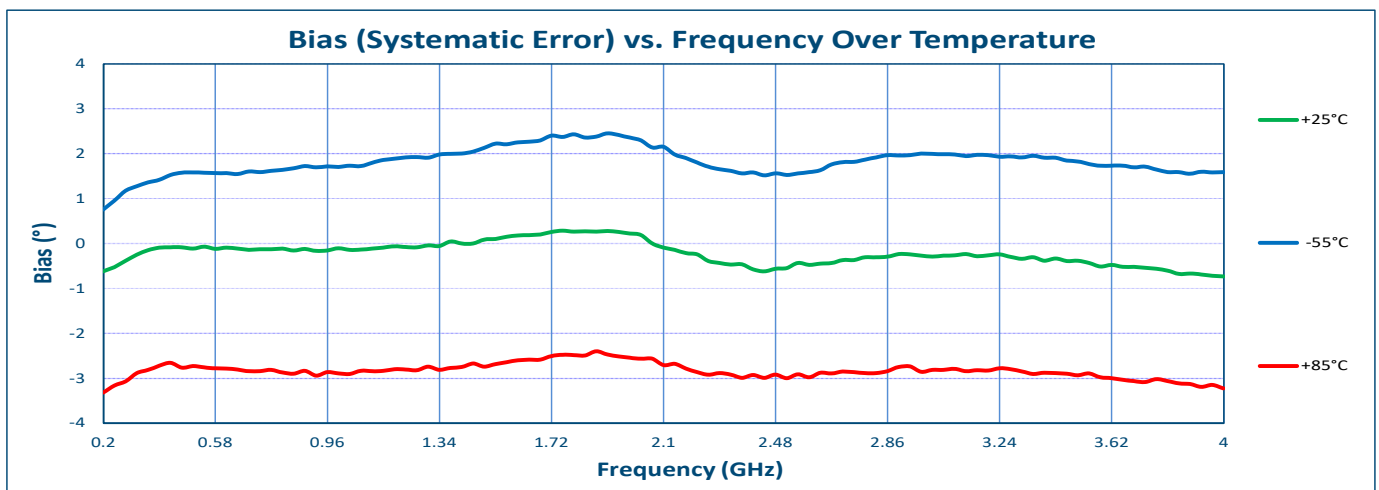
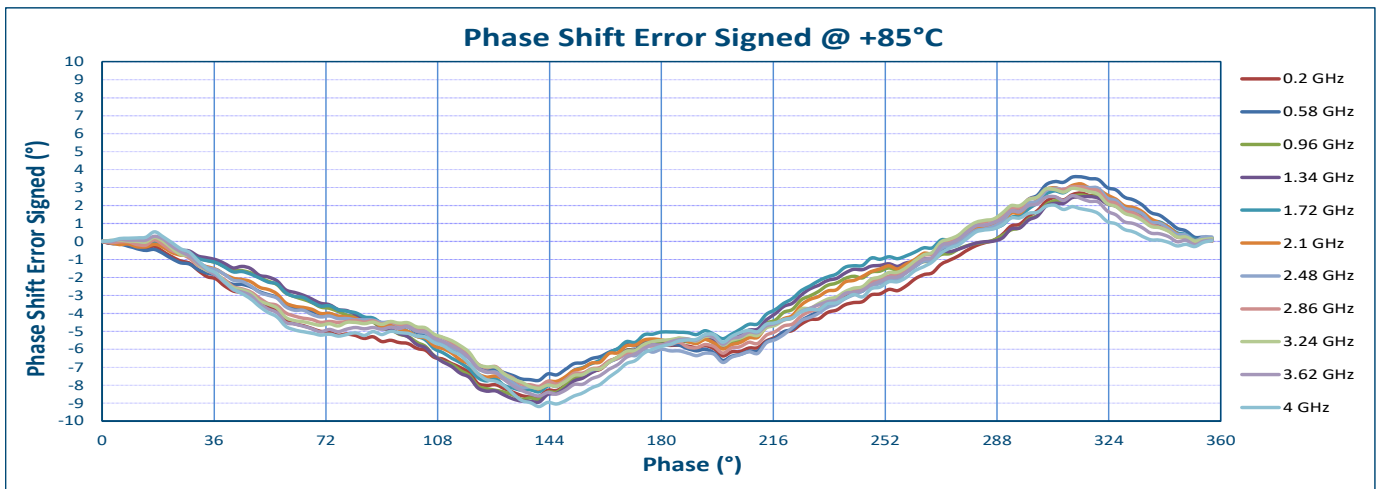
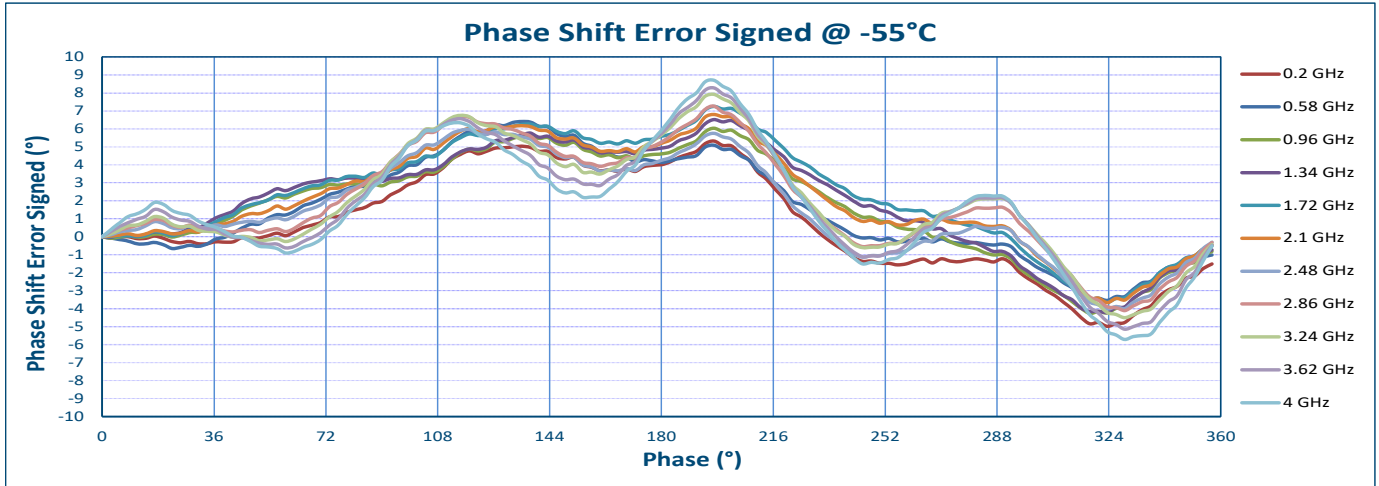
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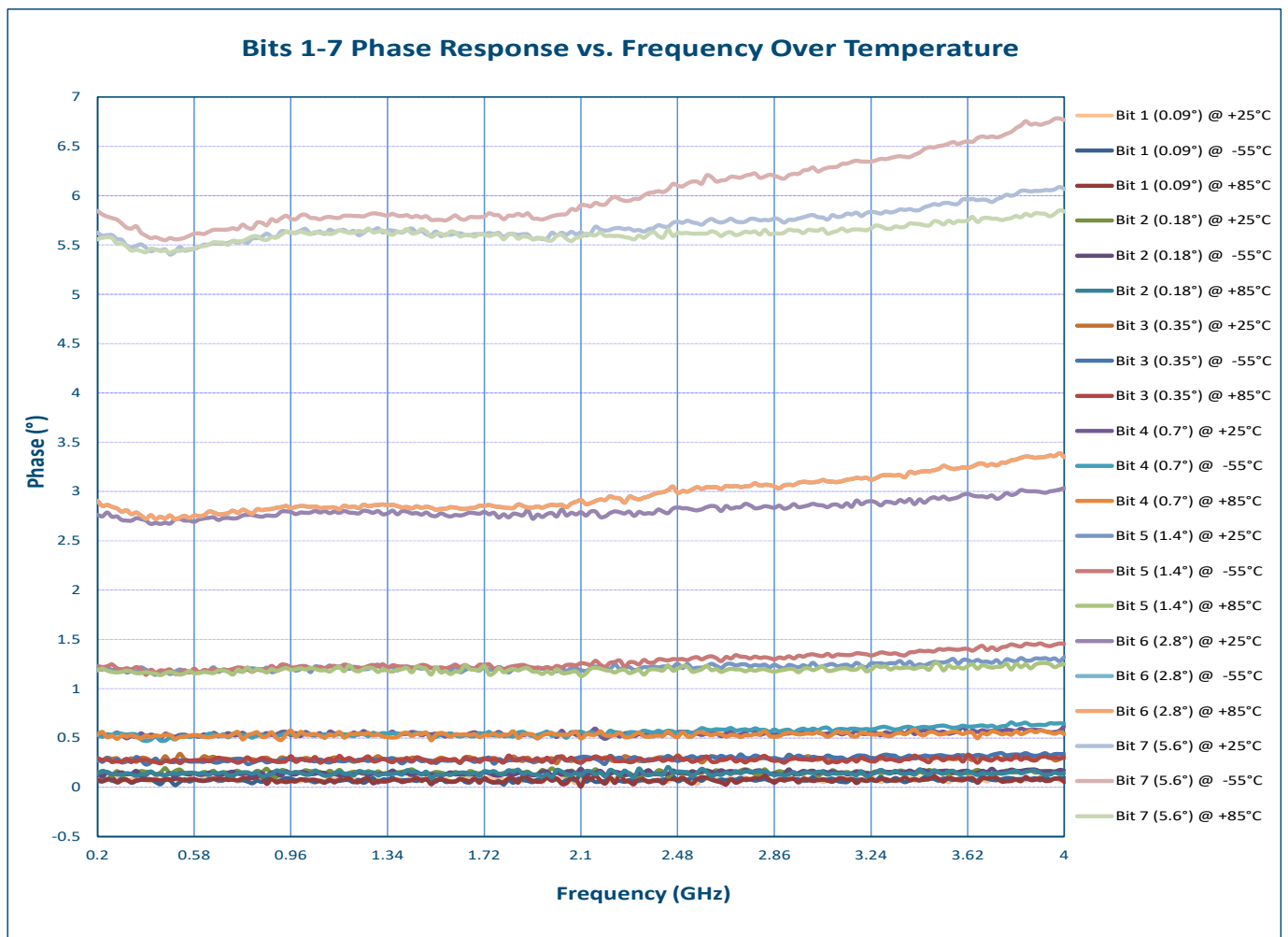
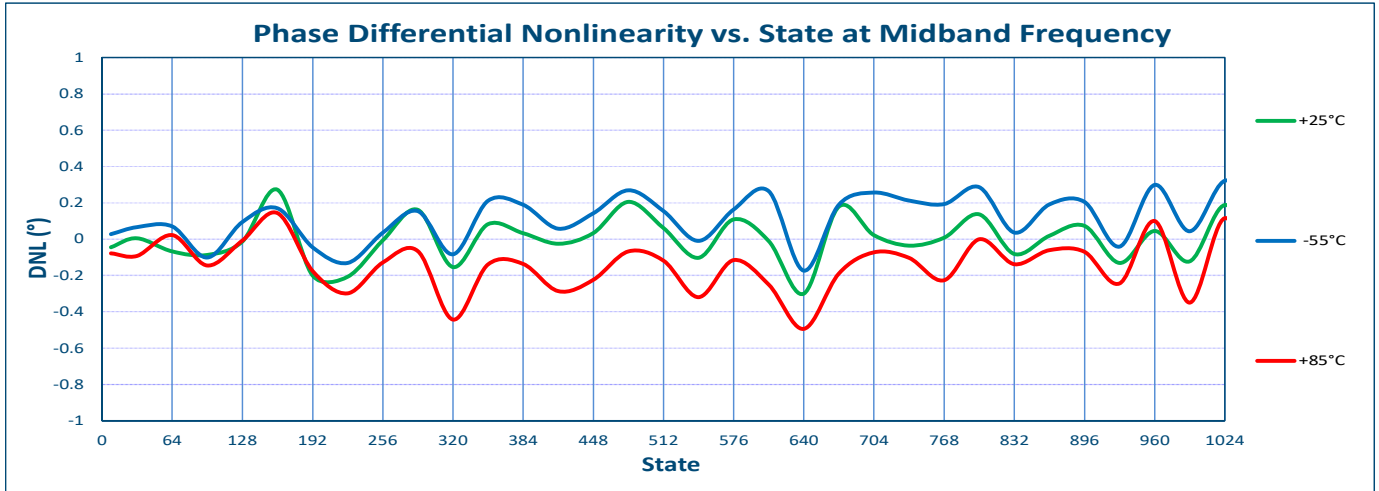
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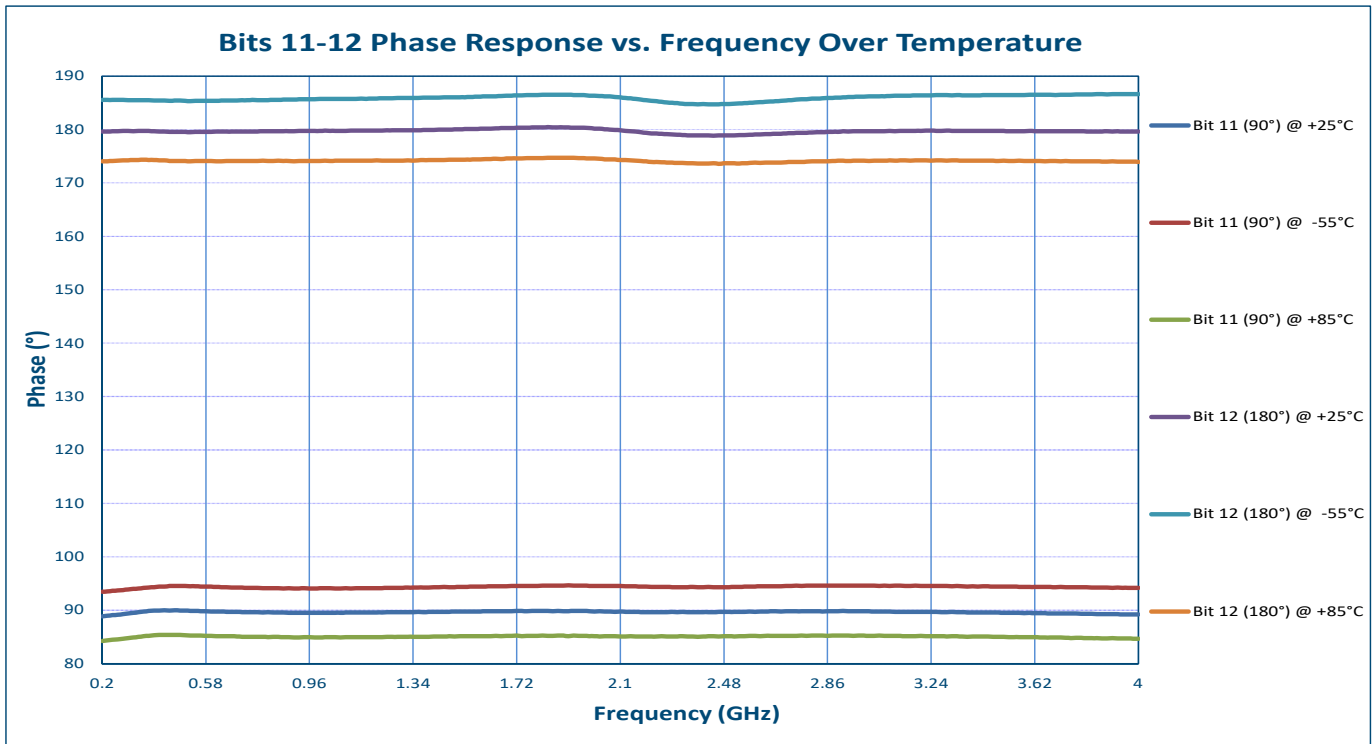
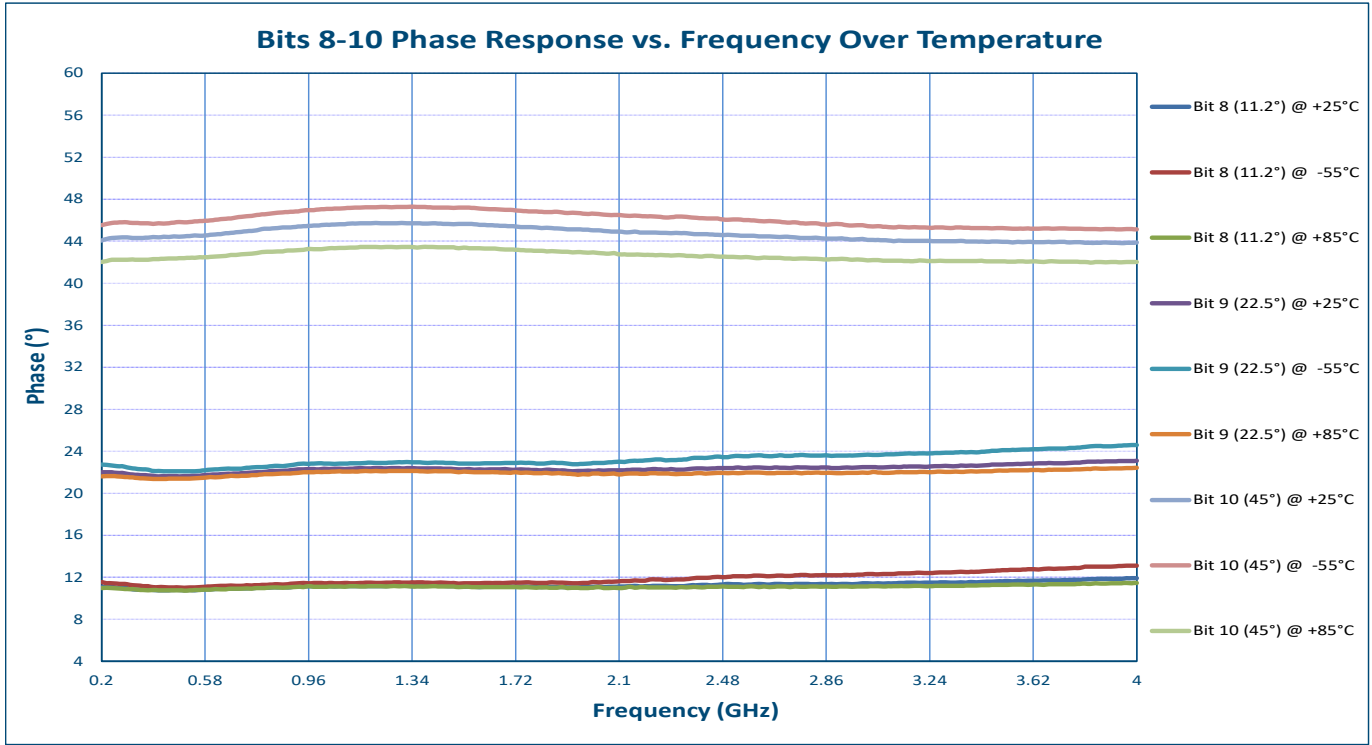
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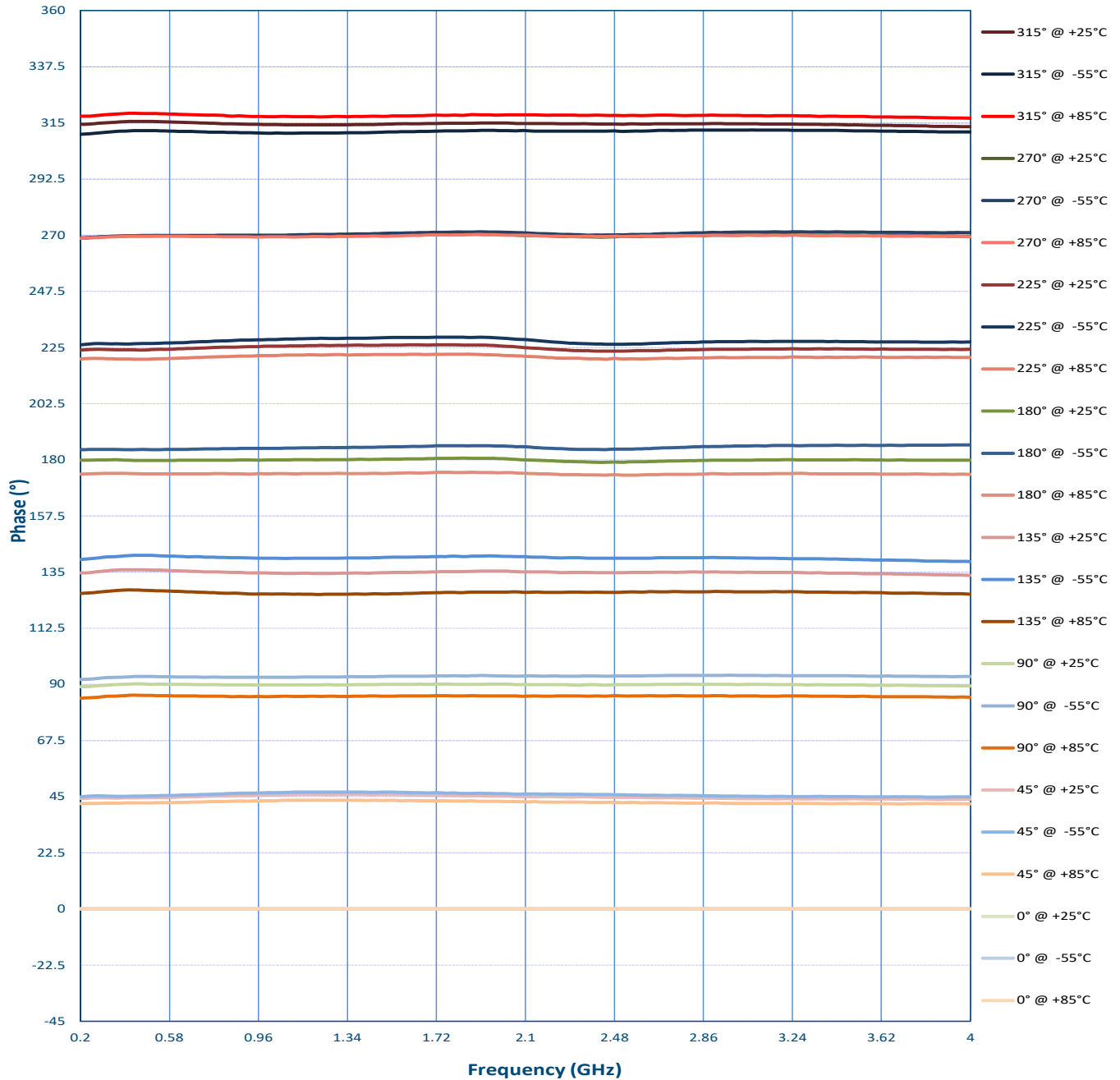


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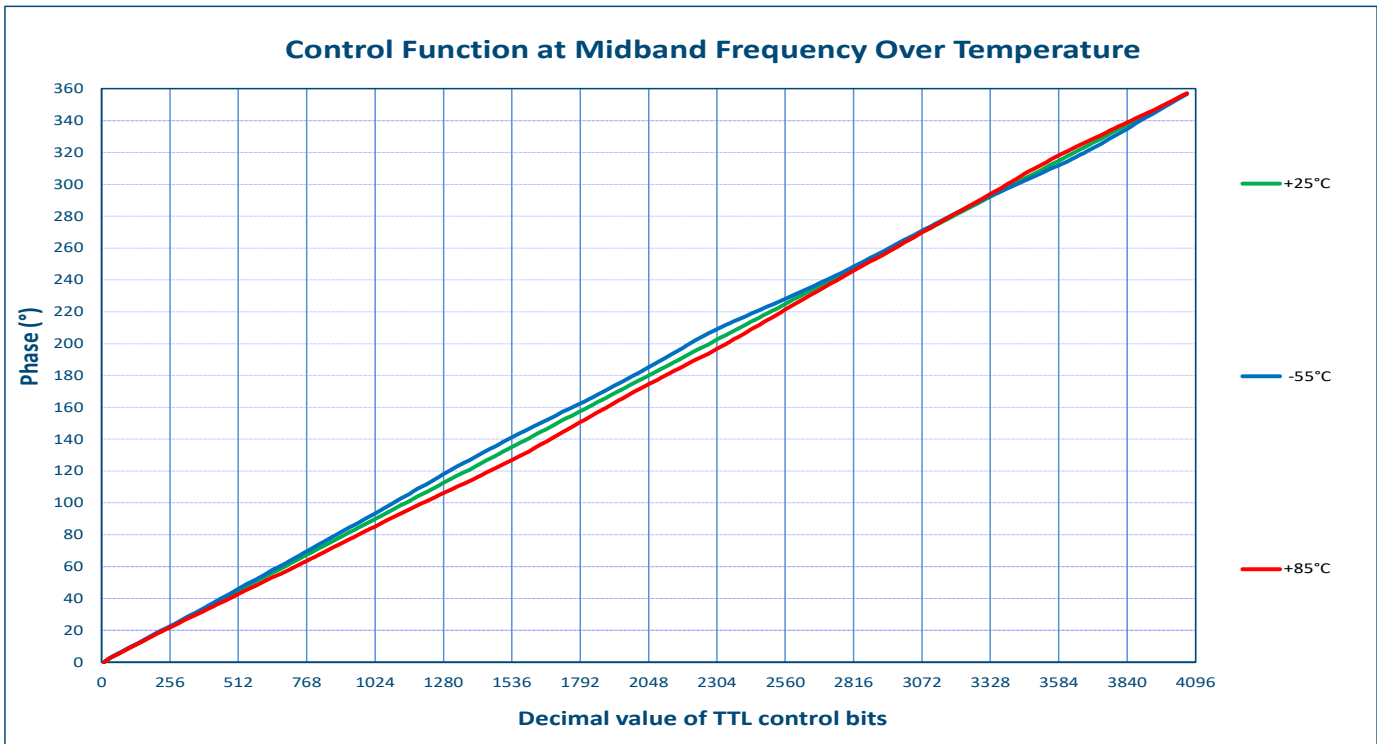
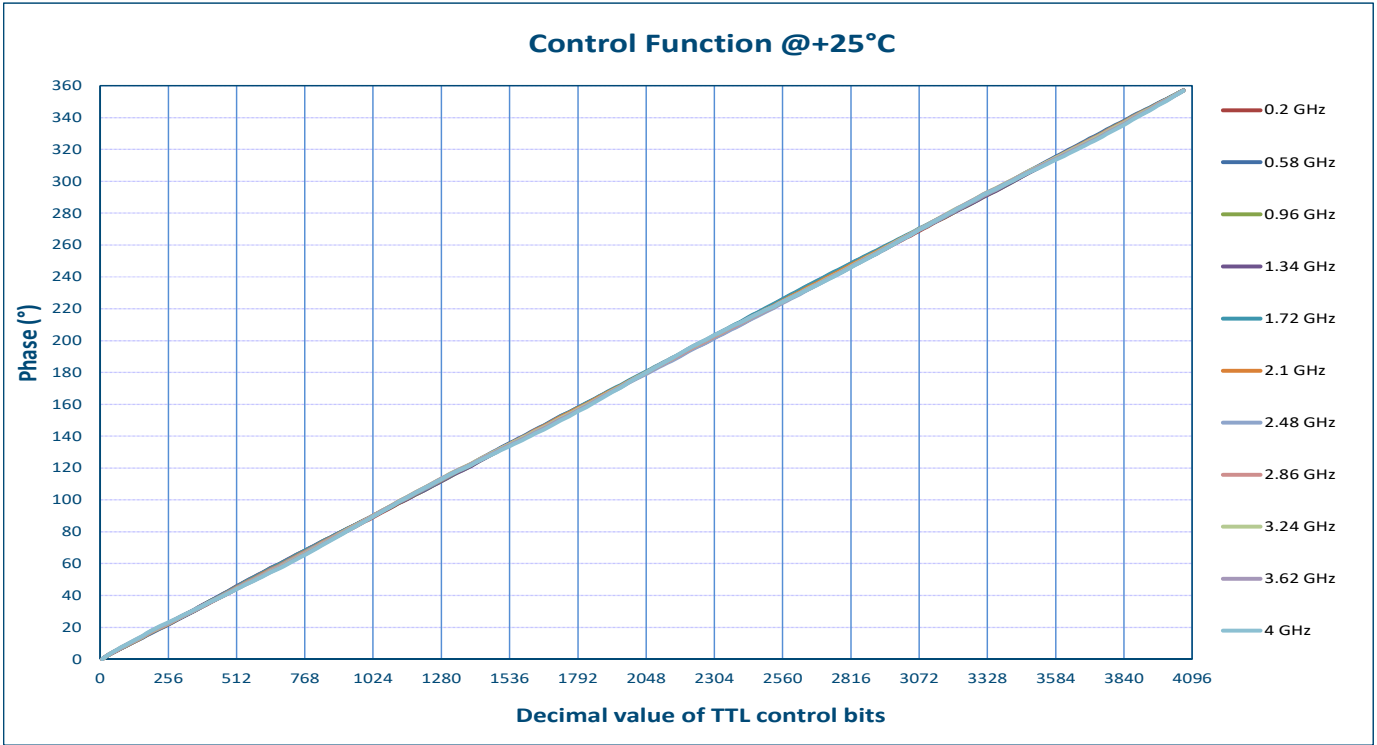


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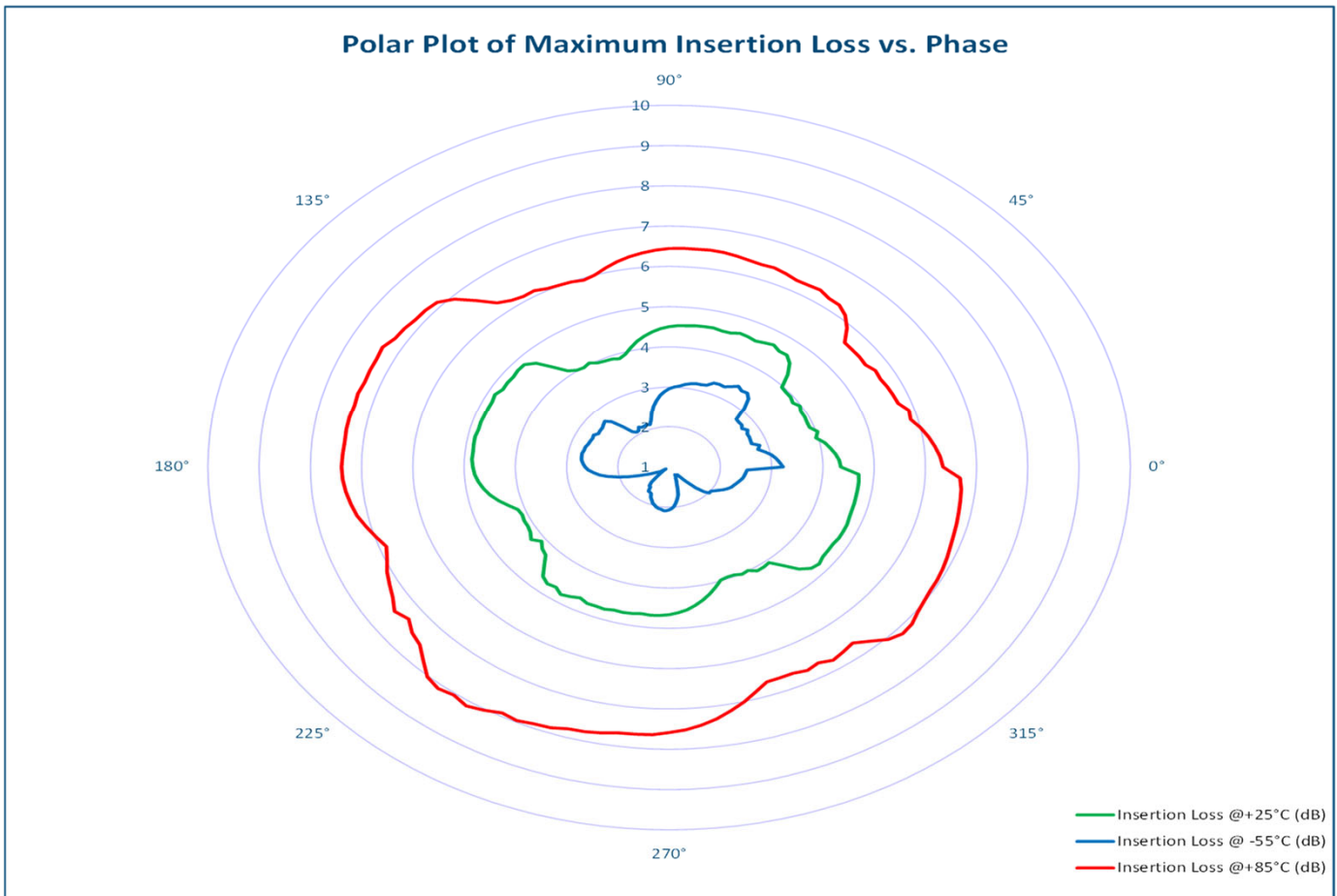
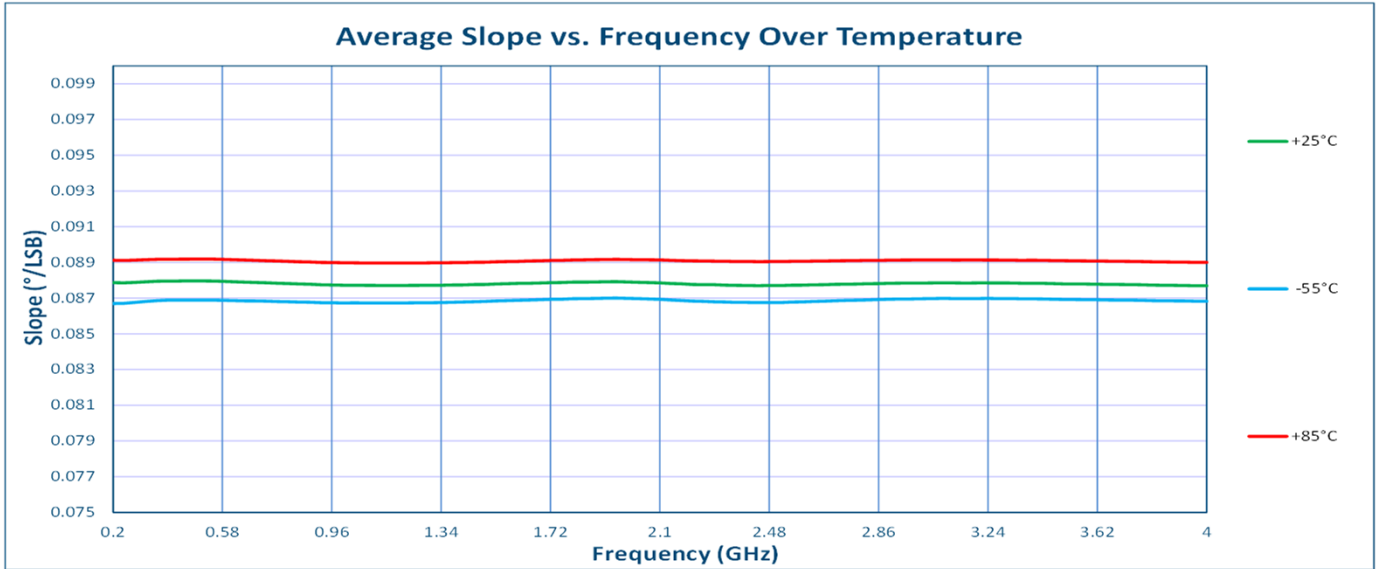
Phase Stability vs. Frequency at Selected Phase States Over Temperature



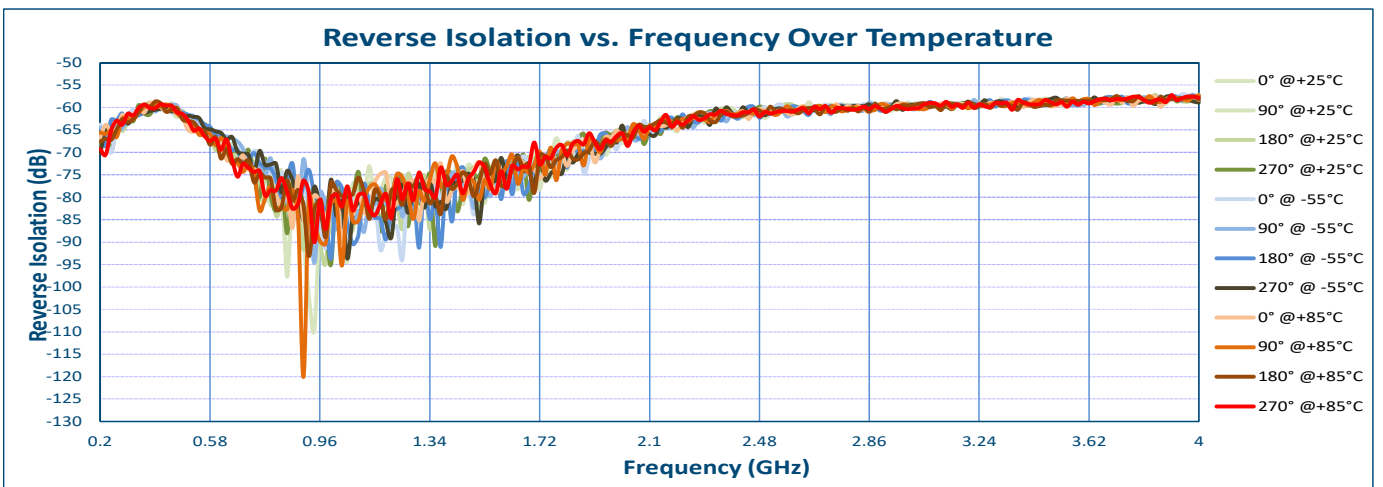
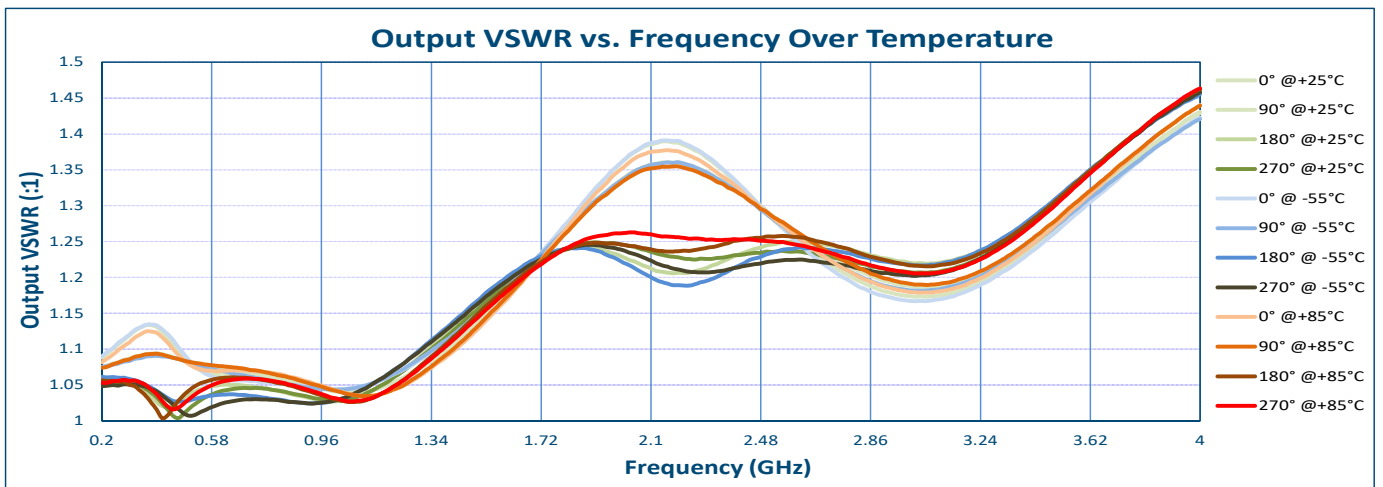
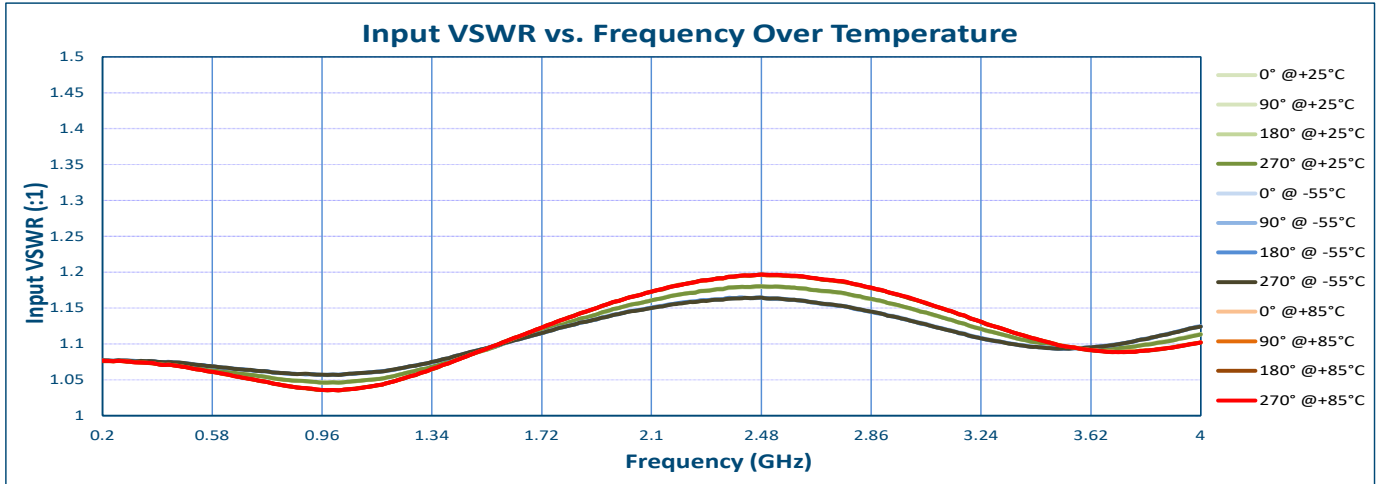
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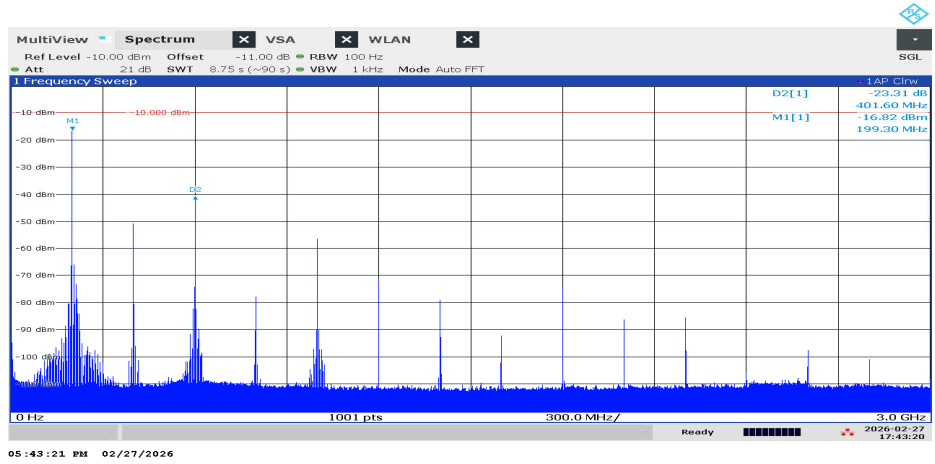
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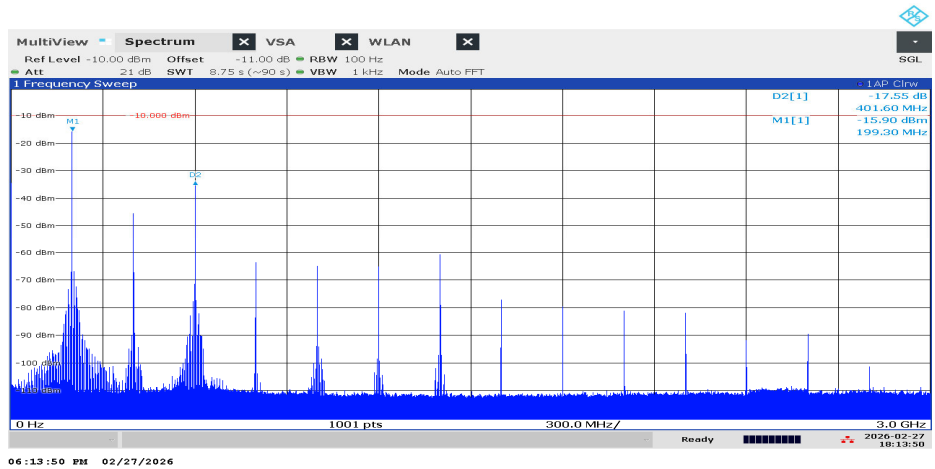
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

Harmonics @ 200 MHz

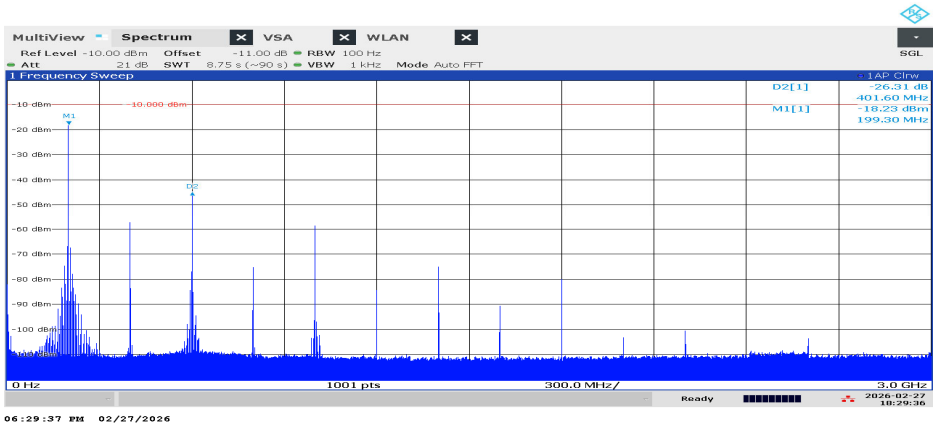
+25°C: -23.3 dBc



-55°C: -17.5 dBc



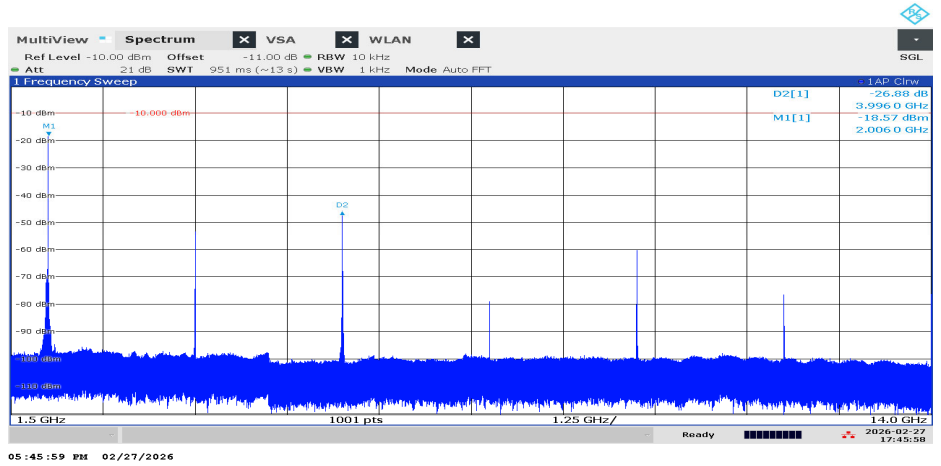
+85°C: -26.3 dBc



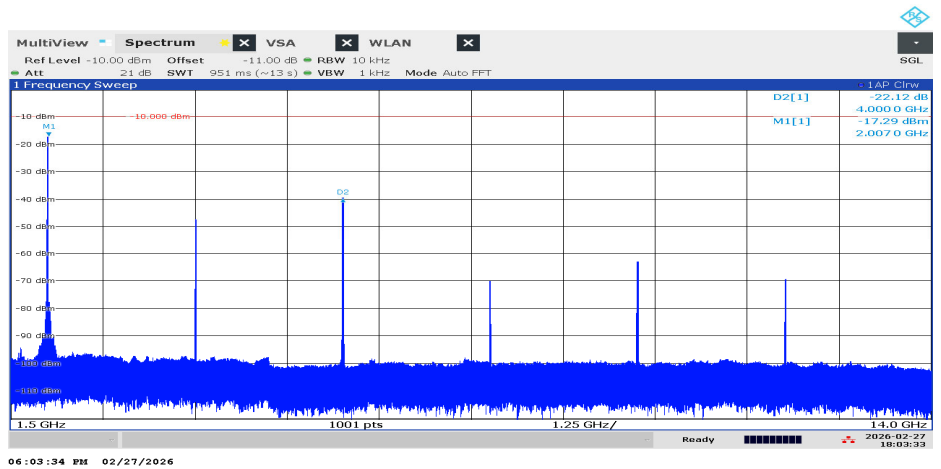
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

Harmonics @ 2 GHz

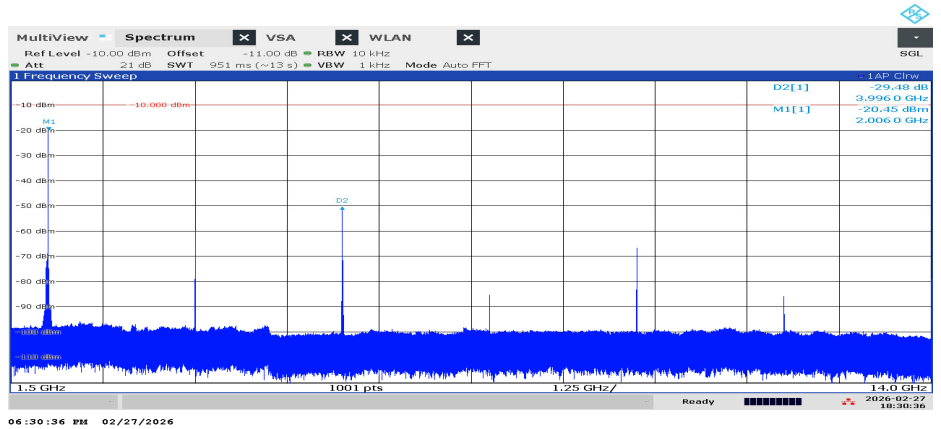
+25°C: -26.8 dBc



-55°C: -22.1 dBc



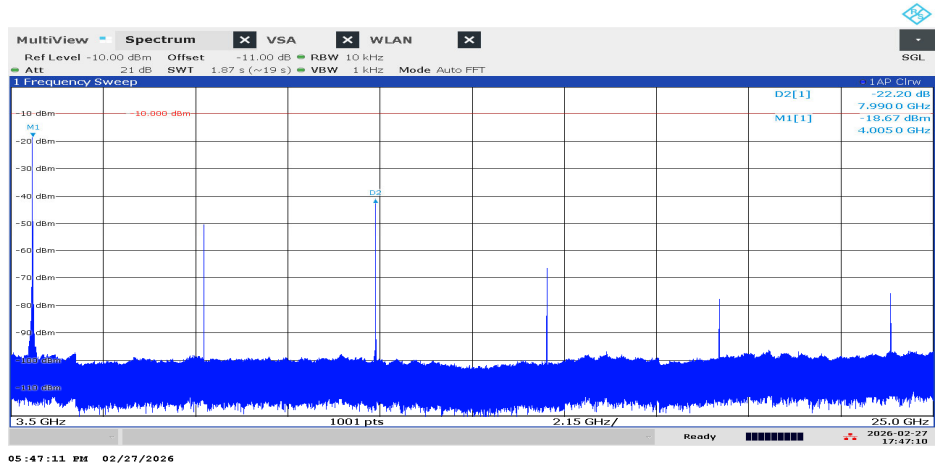
+85°C: -29.4 dBc



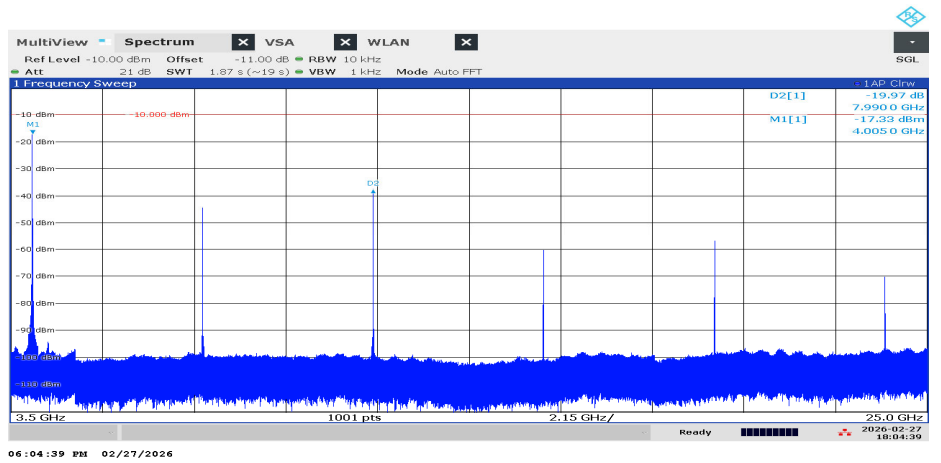
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

Harmonics @ 4 GHz

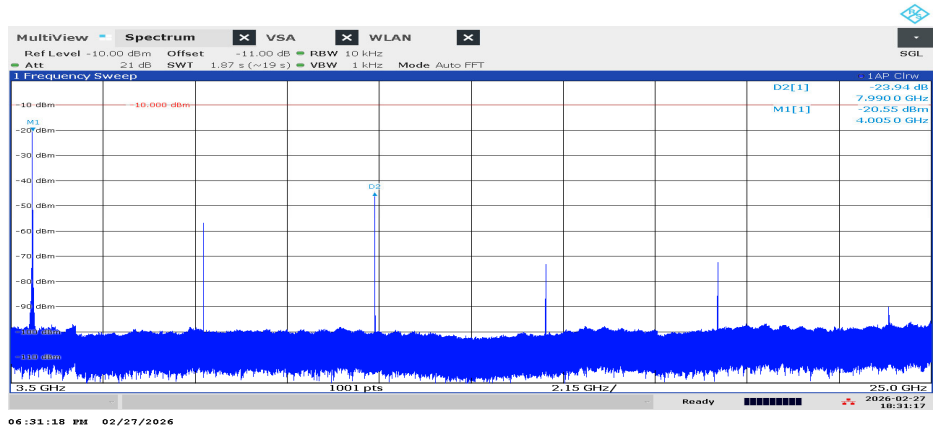
+25°C: -22.2 dBc



-55°C: -19.9 dBc



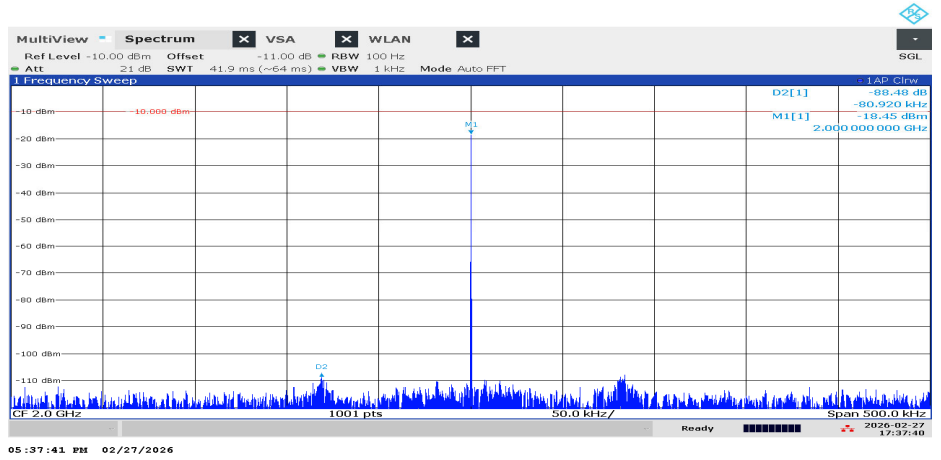
+85°C: -23.9 dBc



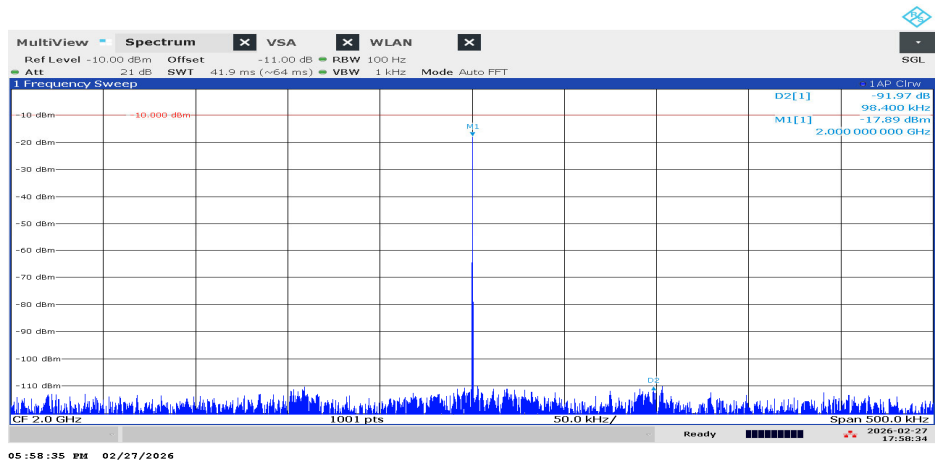
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

Spurious @ 500 kHz span

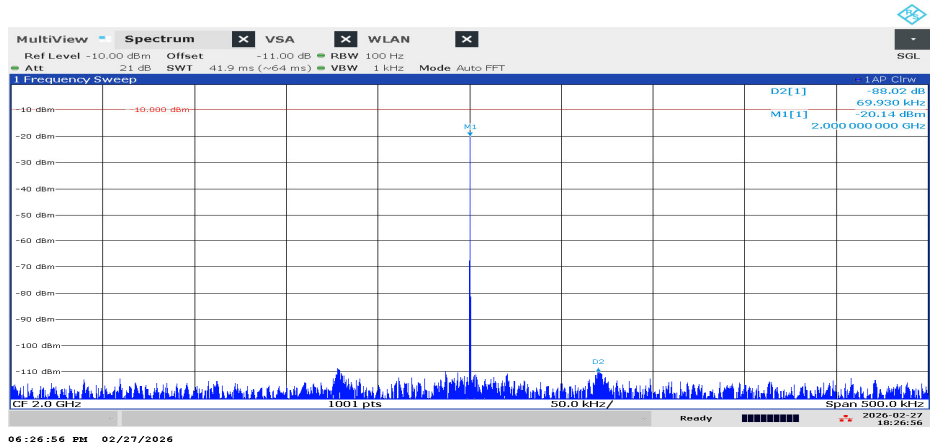
+25°C: -88.4 dBc



-55°C: -91.9 dBc



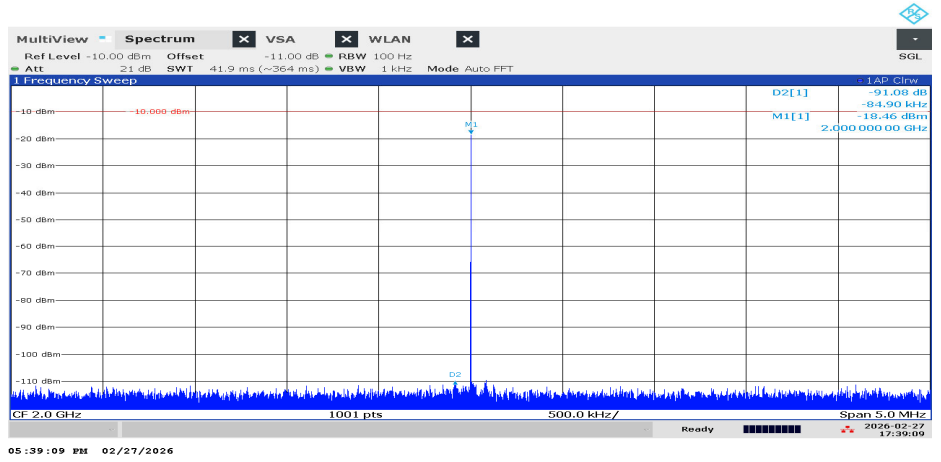
+85°C: -88 dBc



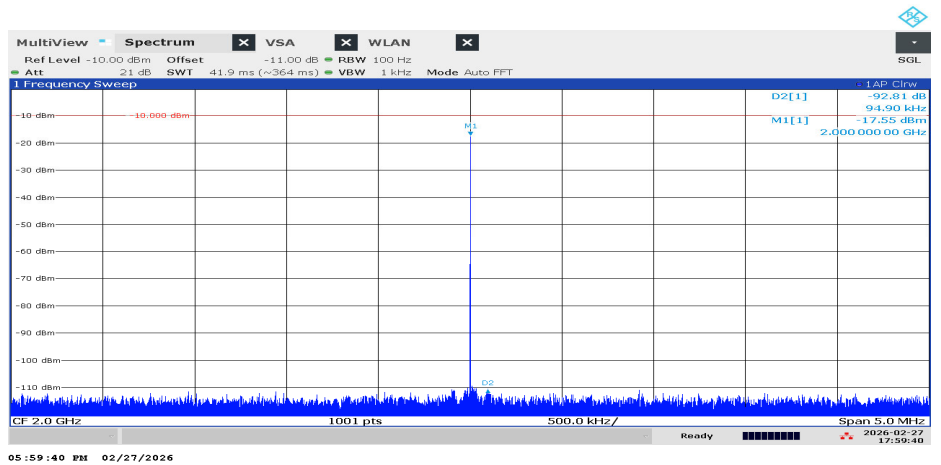
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

Spurious @ 5 MHz span

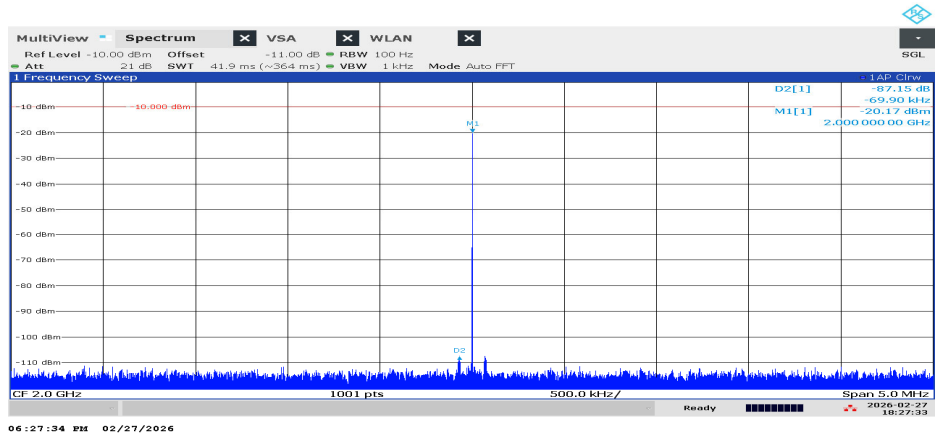
+25°C: -91 dBc



-55°C: -92.8 dBc



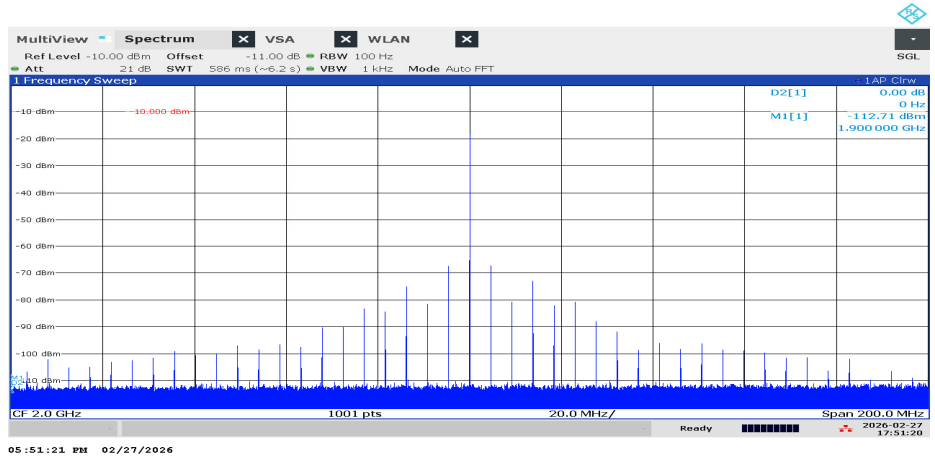
+85°C: -87.1 dBc



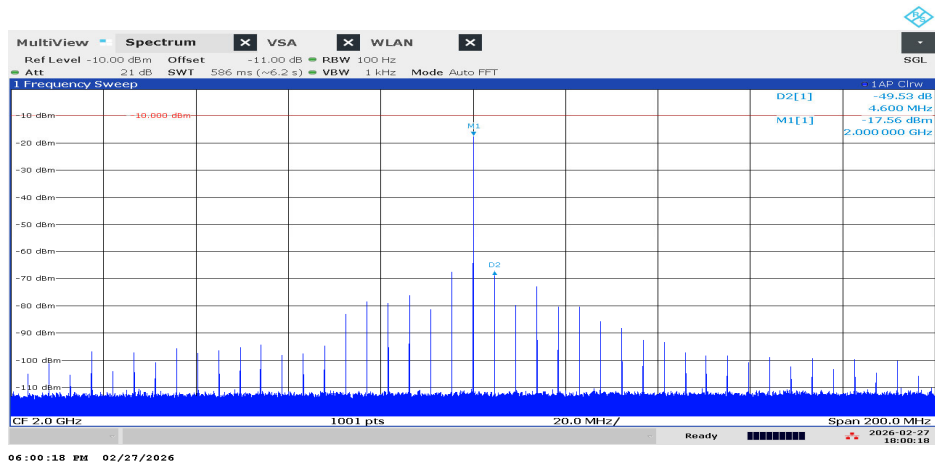
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

Spurious @ 200 MHz span

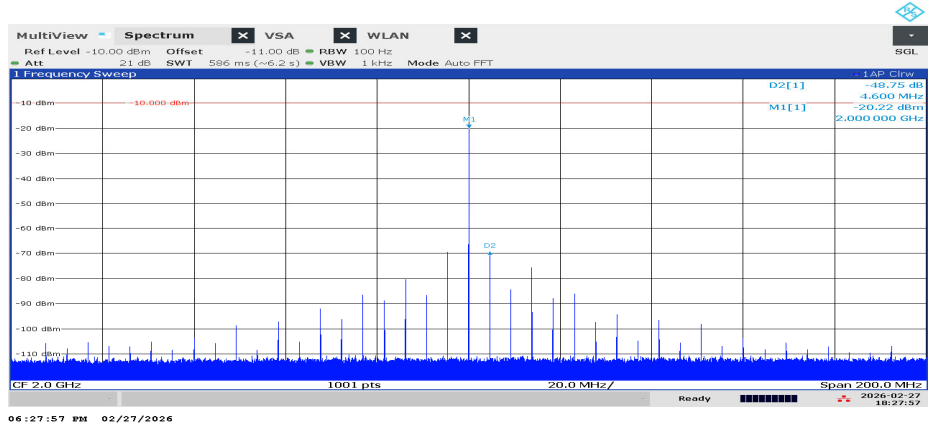
+25°C: -49.0 dBc



-55°C: -49.5 dBc



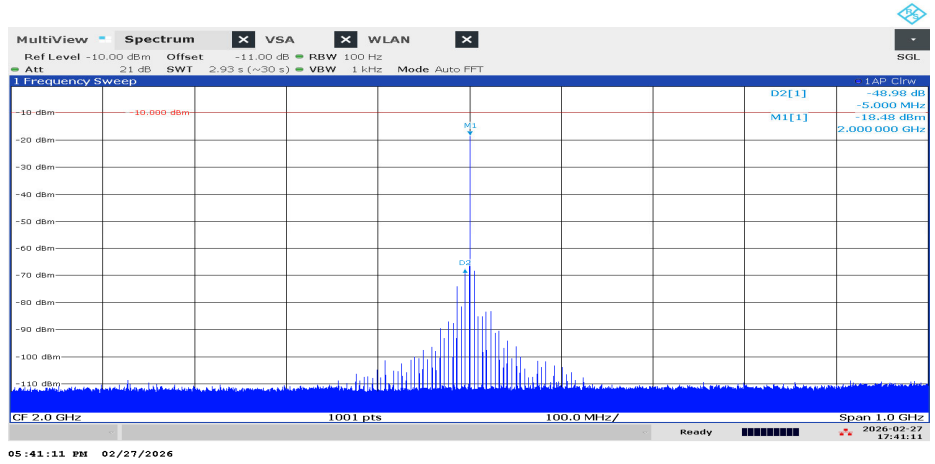
+85°C: -48.7 dBc



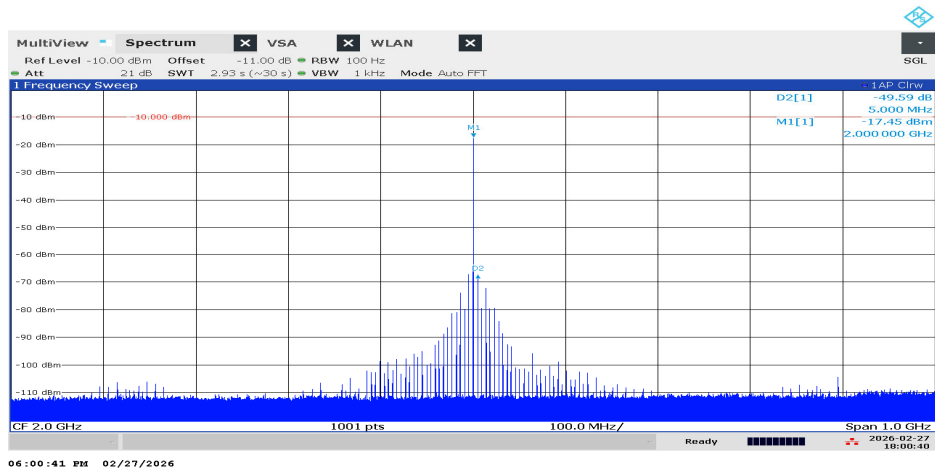
TYPICAL CHARACTERISTICS ON PS-200M4G-12B-SFF

Spurious @ 1 GHz span

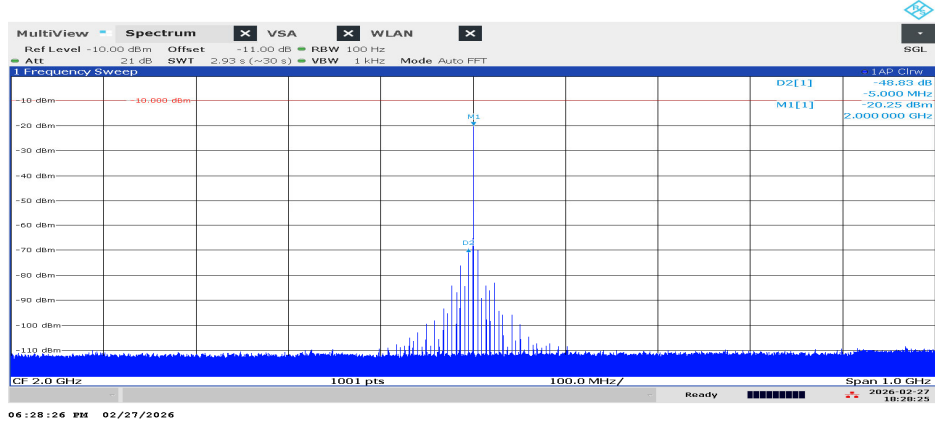
+25°C: -48.9 dBc



-55°C: -49.5 dBc



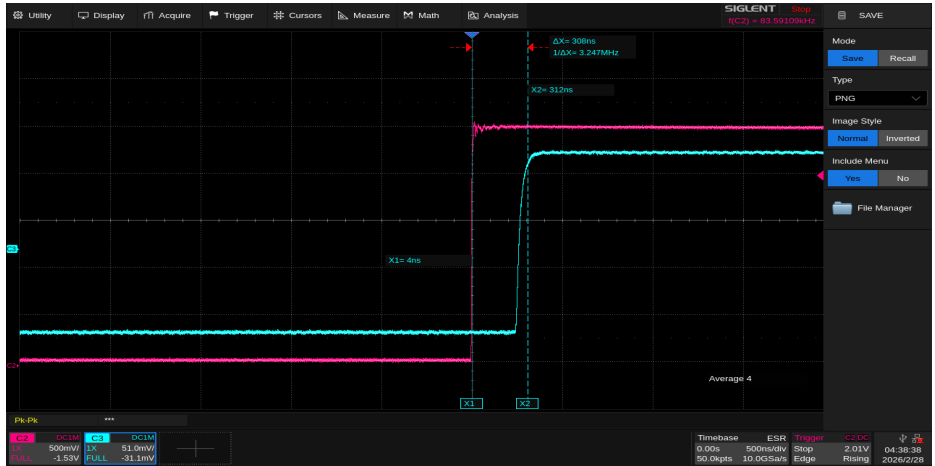
+85°C: -48.8 dBc



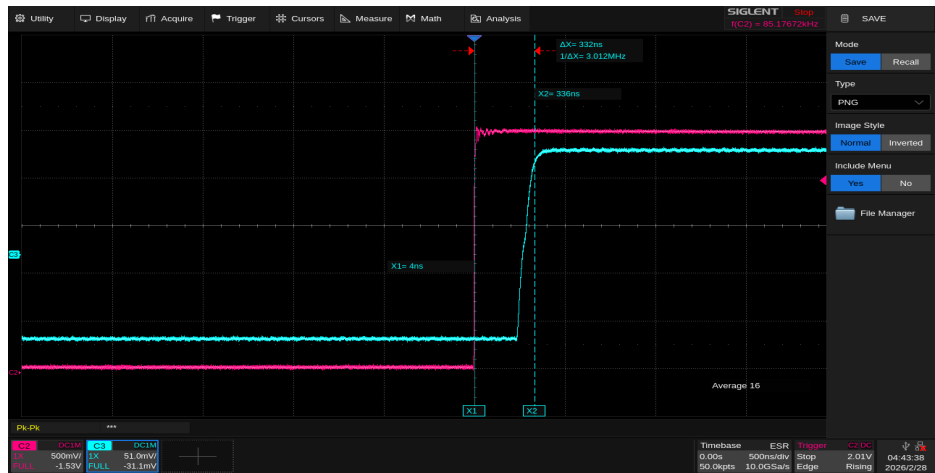
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Switching Speed

+25°C: 308 ns



-55°C: 332 ns



+85°C: 348 ns

