Summary Data
For
Serial No:PL19885

PMI MODEL PIQ-2G18G-360-16-CD-1 IS A 2.0 TO 18.0 GHz HIGH PERFORMANCE I/Q VECTOR MODULATOR WITH 2 X 12 BIT MONOTONIC TTL COMPATIBLE CHANNELS (I AND Q). THIS MODEL OFFERS A FULL 360 DEGREES OF PHASE SHIFT WITH A MINIMUM OF 16 dB OF AMPLITUDE CONTROL.

For illustration purposes not actual picture

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Serial No:PL19885

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Phase State Legend

Phase 1 (11.25 °)	Phase 2 (22.5 °)	Phase 3 (33.75 °)	Phase 4 (45 °)
Phase 5 (56.25 °)	Phase 6 (67.5 °)	Phase 7 (78.75 °)	Phase 8 (90 °)
Phase 9 (101.25 °)	Phase 10 (112.5 °)	Phase 11 (123.75 °)	Phase 12 (135 °)
Phase 13 (146.25 °)	Phase 14 (157.5 °)	Phase 15 (168.75 °)	Phase 16 (180 °)
Phase 17 (191.25 °)	Phase 18 (202.5 °)	Phase 19 (213.75 °)	Phase 20 (225 °)
Phase 21 (236.25 °)	Phase 22 (247.5 °)	Phase 23 (258.75 °)	Phase 24 (270 °)
Phase 25 (281.25 °)	Phase 26 (292.5 °)	Phase 27 (303.75 °)	Phase 28 (315 °)
Phase 29 (326.25 °)	Phase 30 (337.5 °)	Phase 31 (348.75 °)	Phase 32 (360 °)

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Product Feature (Page 1 of 2)

DESCRIPTION

PMI MODEL PIQ-2G18G-360-16-CD-1 IS A 2.0 TO 18.0 GHz HIGH PERFORMANCE I/Q VECTOR MODULATOR WITH 2 X 12 BIT MONOTONIC TTL COMPATIBLE CHANNELS (I AND Q). THIS MODEL OFFERS A FULL 360 DEGREES OF PHASE SHIFT WITH A MINIMUM OF 16 dB OF AMPLITUDE CONTROL.

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	4-08-13	

SPECIFICATIONS

- FREQUENCY RANGE: 2.0-18.0 GHz
- DYNAMIC RANGE: 16 dB & 360 DEGREES
- RF INPUT POWER: +10 dBm CW, 1.0 Watt MAX
- INSERTION LOSS: 16.0 dB MAX
- VSWR: 2.2:1 MAX (50 OHM SYSTEM)
- ATTENUATION VS FREQUENCY: ± 3.5 dB TYP.
- PHASE VS FREQUENCY: ± 20.0 DEGREES TYP.
- CONTROL LOGIC: 2X12 BITs (I & Q), TTL COMPATIBLE
- CONTROL SLOPES: LINEAR
- SWITCHING SPEED: 500 nSec MAX
- TEMPERATURE COEFFICIENT: ± 0.035 dB/°C & ± 0.17 Deg/°C
- POWER SUPPLY: ± 12V TO ± 15V @ ±100mA MAX
- RF CONNECTORS: SMA FEMALE INPUT AND OUTPUT
- POWER/LOGIC CONNECTIONS: DC-37P, SUB MINIATURE D MULTI-PIN
- SIZE: 4.250" X 3.500" X 1.000"
- FINISH: NICKEL PLATED

37-PIN CONNECTOR PIN-OUT			
PIN	FUNCTION	PIN	FUNCTION
1	I-5	20	I-4
2	I-6	21	I-7
3	I-8	22	I-3
4	I-9	23	I-2
5	I-10	24	I-1 (LSB)
6	I-11	25	I-12 (MSB)
7	NC	26	NC
8	+12 TO +15V	27	NC
9	GND	28	GND
10	GND	29	NC
11	-12 TO -15V	30	NC
12	Q-3	31	NC
13	Q-2	32	Q-4
14	Q-1 (LSB)	33	NC
15	Q-5	34	NC
16	Q-6	35	Q-12 (MSB)
17	Q-7	36	Q-11
18	Q-8	37	Q-10
19	Q-9		

ENVIRONMENTAL RATINGS

- TEMPERATURE RANGE: -10°C TO +60°C (OPERATING)
  -65°C TO +125°C (STORAGE)
- HUMIDITY: MIL-STD-202G, METHOD 103B COND. B
- SHOCK: MIL-STD-202G, METHOD 213B COND. B
- VIBRATION: MIL-STD-202G, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202G, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202G, METHOD 107D COND. A

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

ALL DIMENSIONS ARE IN INCHES TOLERANCES: X.XX ±0.020 X.XXX ±0.010

PMI CONFIDENTIAL AND PROPRIETARY

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E-MAIL: sales@pmi-rf.com
ISO 9001:2008 CERTIFIED

APPROVALS	DATE
DRAWN JGS	4-08-13
MODIFIED	
ISSUED	

TITLE: PRODUCT FEATURE
PIQ-2G18G-360-16-CD-1

SIZE	FSCM NO.	DWG NO.	REV.
A	05XQ0	27019181	A1

SCALE N:S SHEET 1 OF 2

Summary Data
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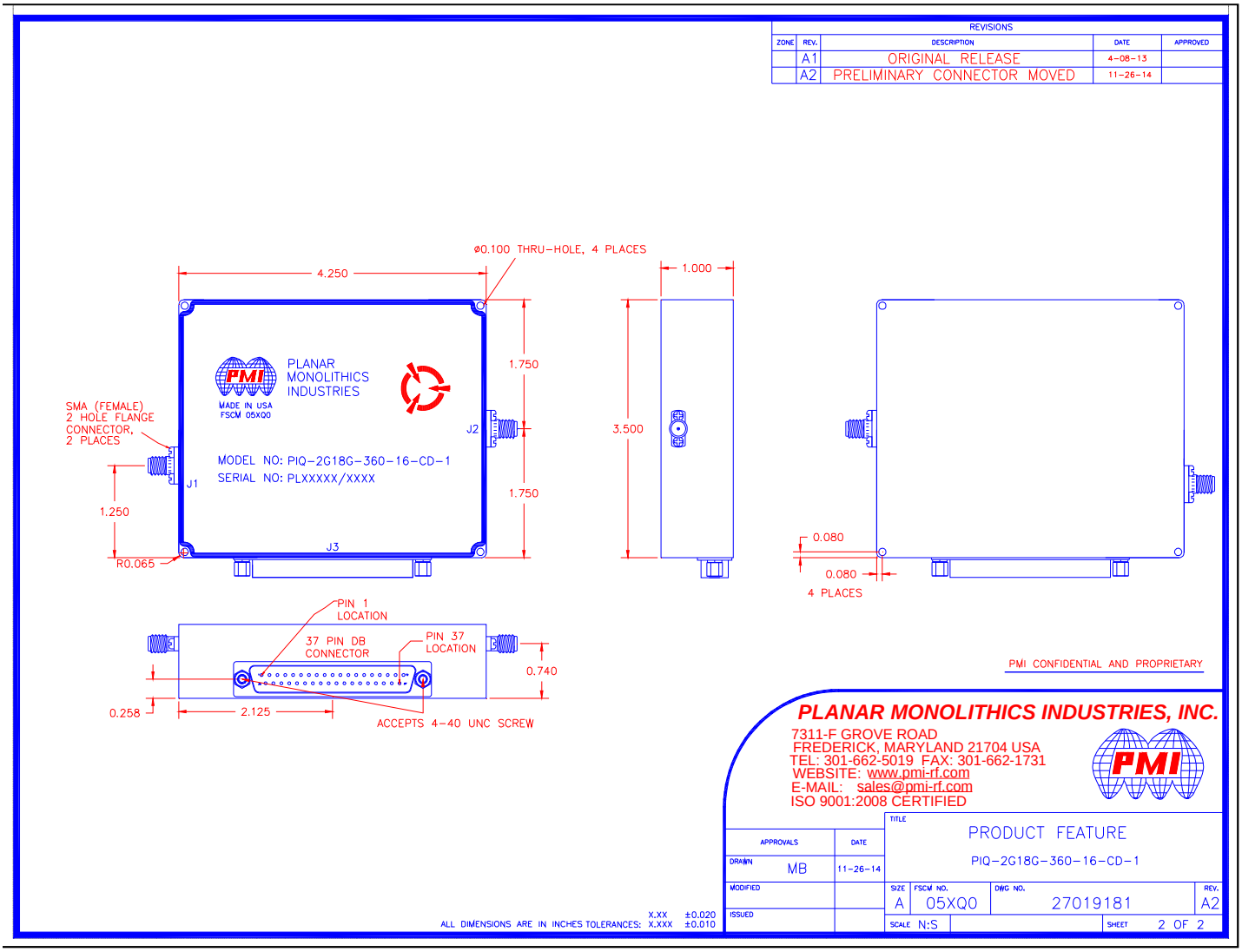
Product Feature (Page 2 of 2)



Summary Data
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Summary Data

TEST ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range	2.0 GHz to 18.0 GHz	**2.0 GHz to 18.0 GHz**	
2	Phase Range	360°	**360°**	
3	Dynamic Range	16 dB	**16 dB**	
4	Insertion Loss	16 dB MAX	**15.6 dB**	
5	VSWR	2.2:1 MAX	**1.85:1**	
6	Attenuation vs. Frequency	±3.5 dB TYP.	**±1.37 dB @ 0 dB Attenuation ±1.89 dB @ 8 dB Attenuation ±3.91 dB @ 16 dB Attenuation**	
7	Phase vs. Frequency (Flatness)	±20.0° TYP.	**±8.30° @ 0 dB Attenuation ±10.91° @ 8 dB Attenuation ±23.12° @ 16 dB Attenuation**	
8	Control Logic	2 x 12 BITs (I and Q) TTL compatible.	**Verified**	
9	Control Slopes	Linear	**Verified**	
10	Switching Speed	500 nSec MAX.	**416nSec**	
11	Power Supply	+12 to +15V @ 100 mA -12 to -15V @ 100 mA	**+15 @ 65 mA -15 @ 76 mA**	

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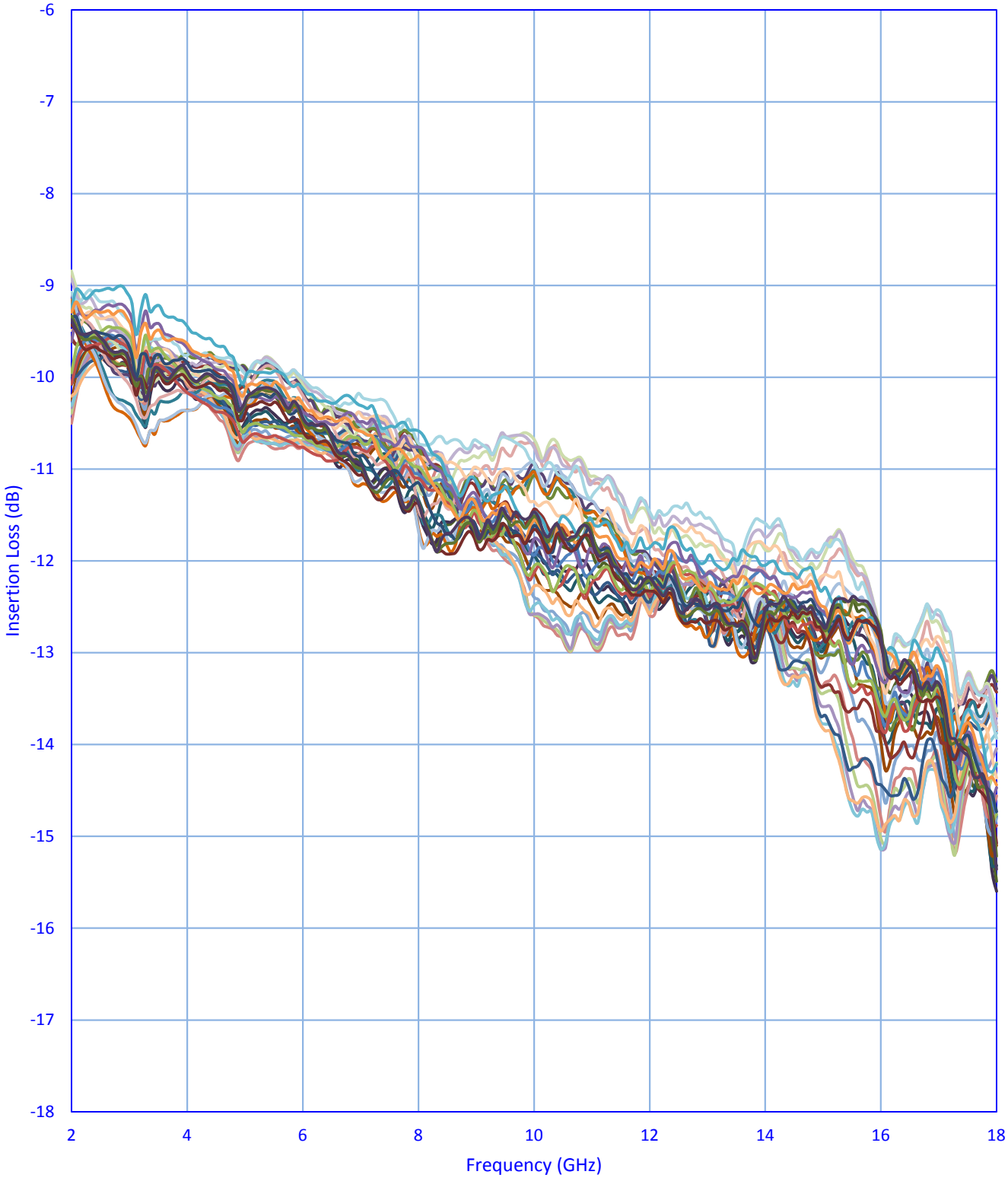
Inserstion Loss Vs. Frequency



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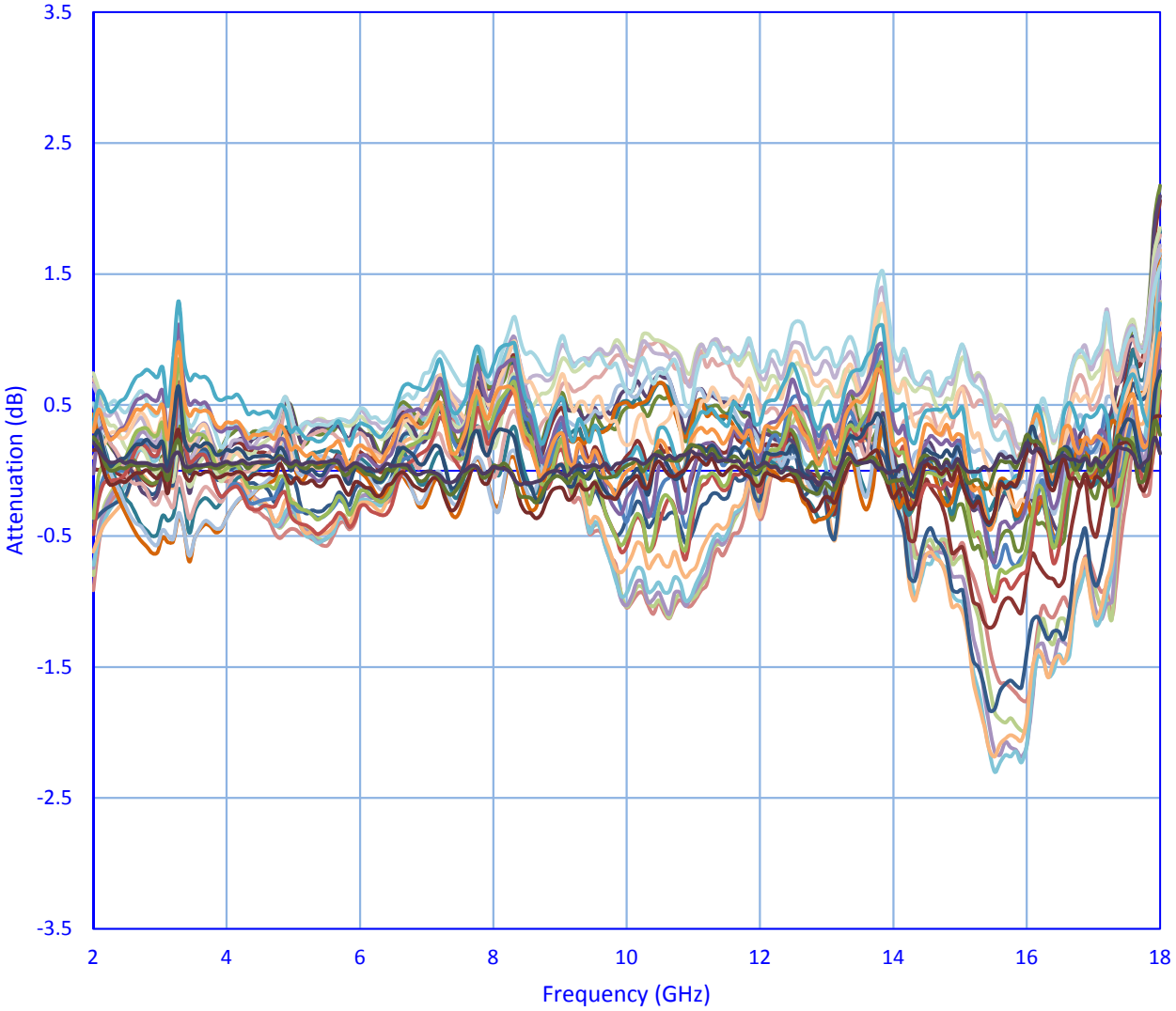
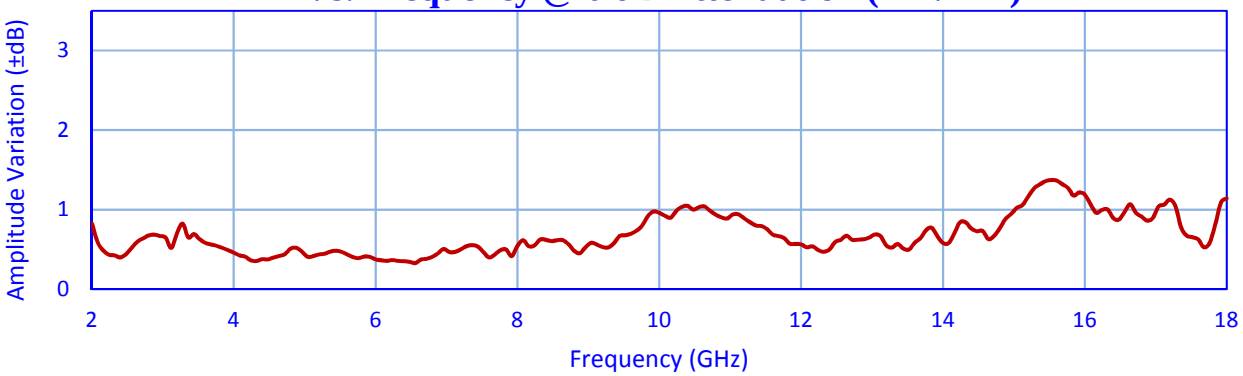
Attenuation Vs. Frequency @ 0 dB Attenuation (PM/AM)



Maximum Amplitude Variation From Center Vs. Frequency @ 0 dB Attenuation (PM/AM)



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Summary Data
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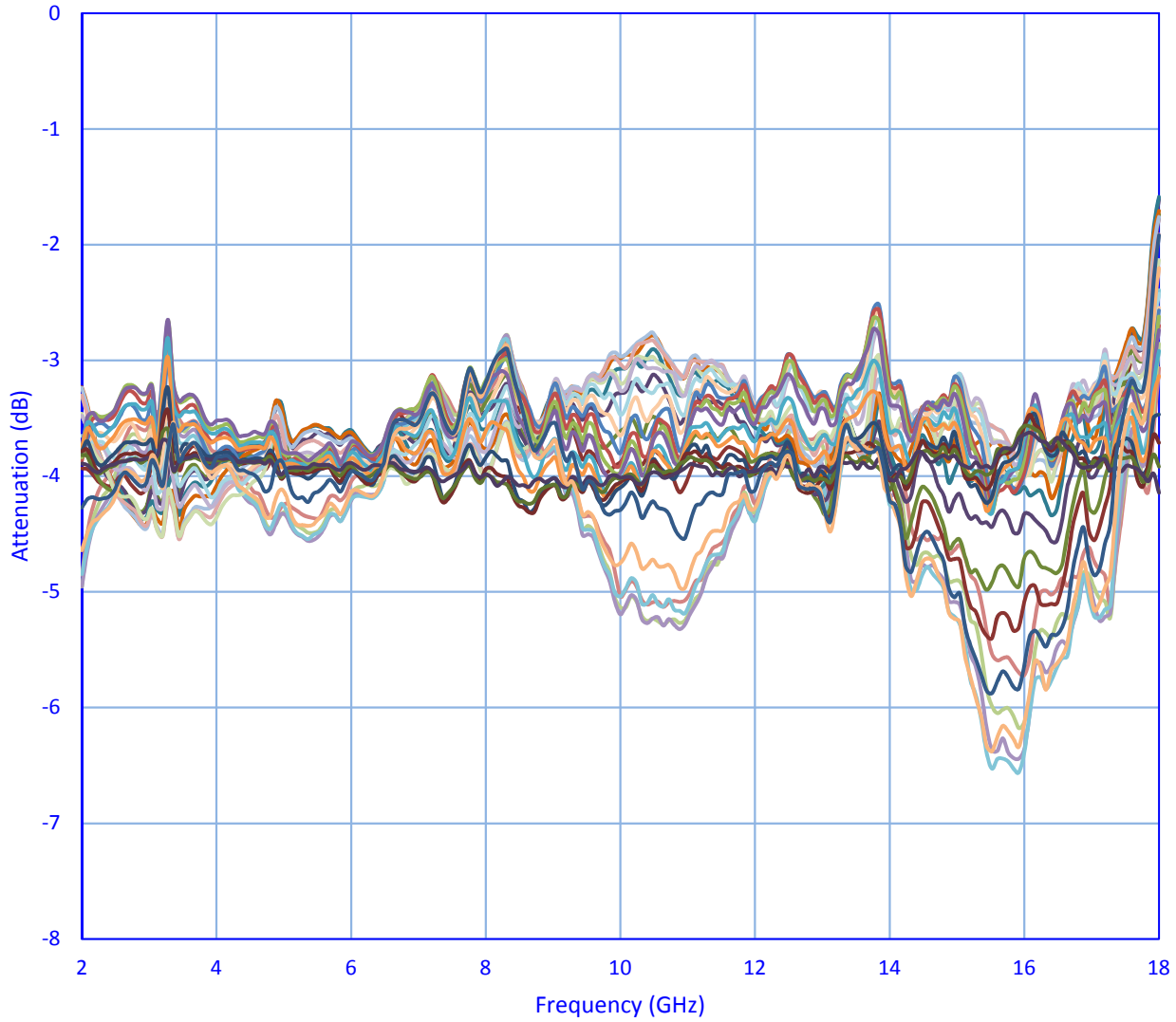
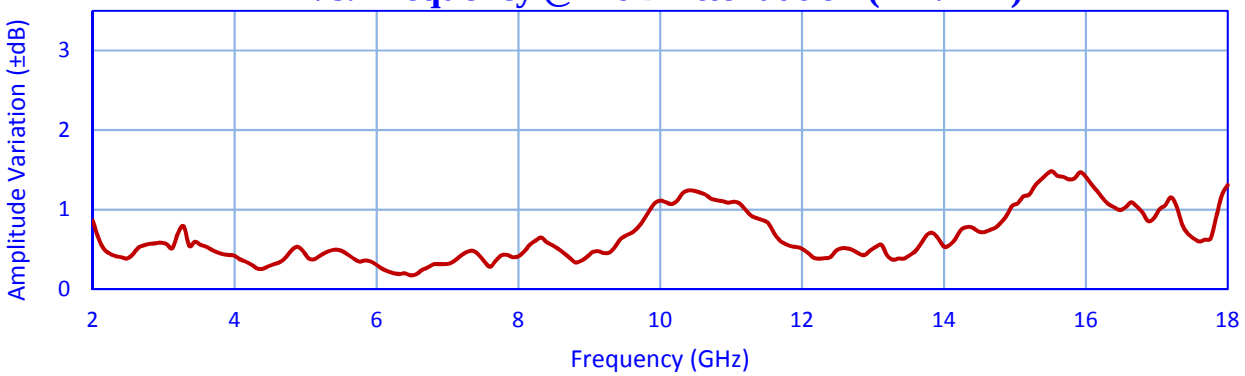
Attenuation Vs. Frequency @ 4 dB Attenuation (PM/AM)



Maximum Amplitude Variation From Center Vs. Frequency @ 4 dB Attenuation (PM/AM)



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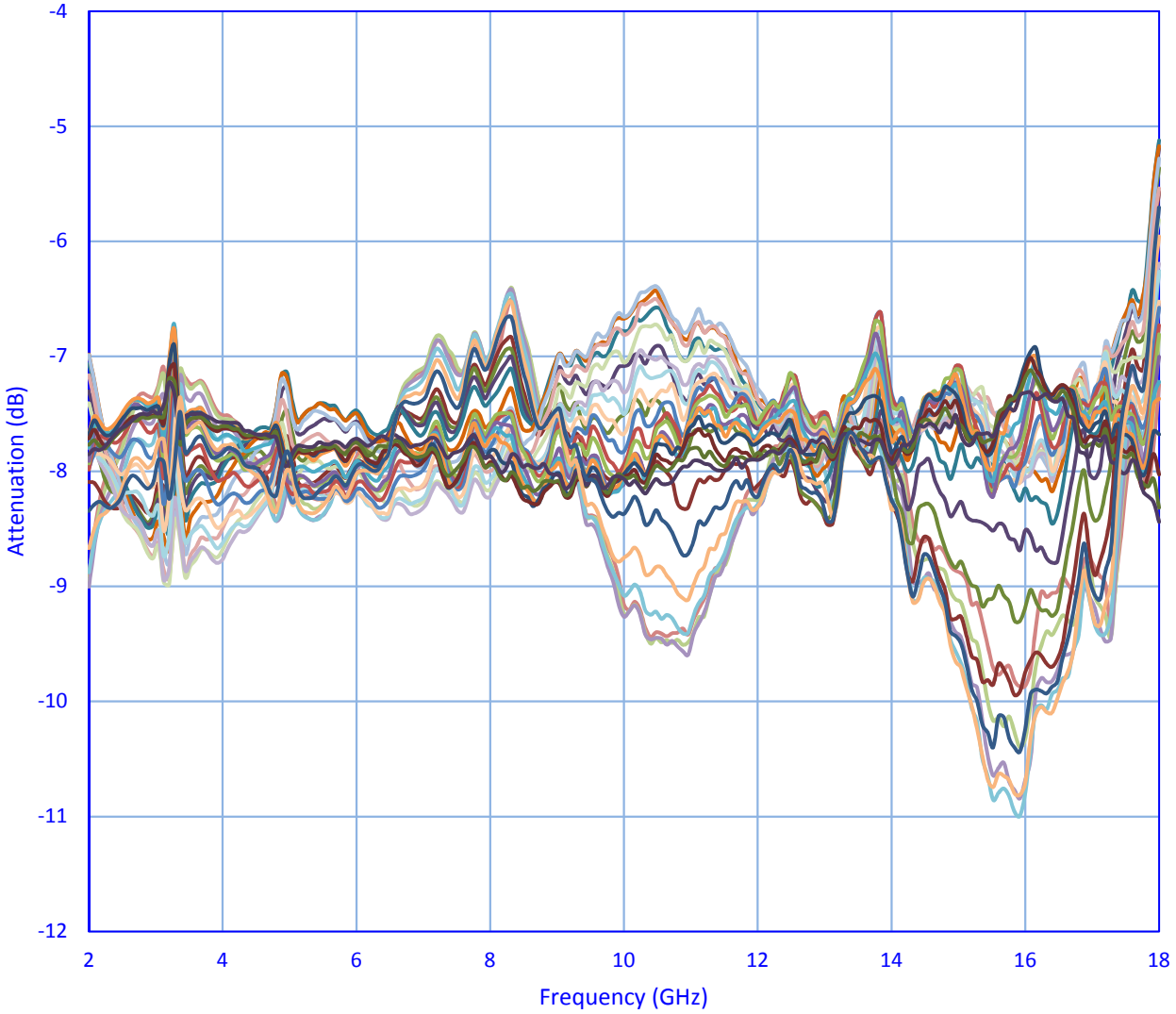
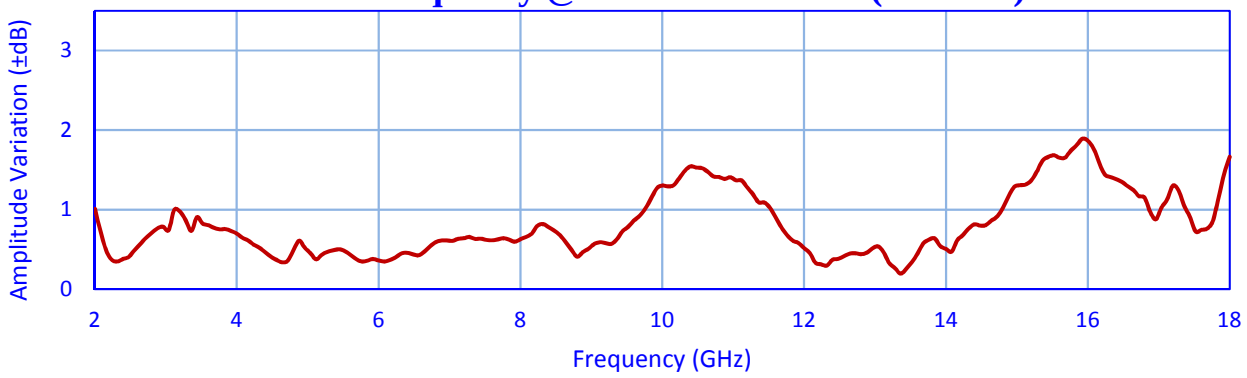
Attenuation Vs. Frequency @ 8 dB Attenuation (PM/AM)



Maximum Amplitude Variation From Center Vs. Frequency @ 8 dB Attenuation (PM/AM)



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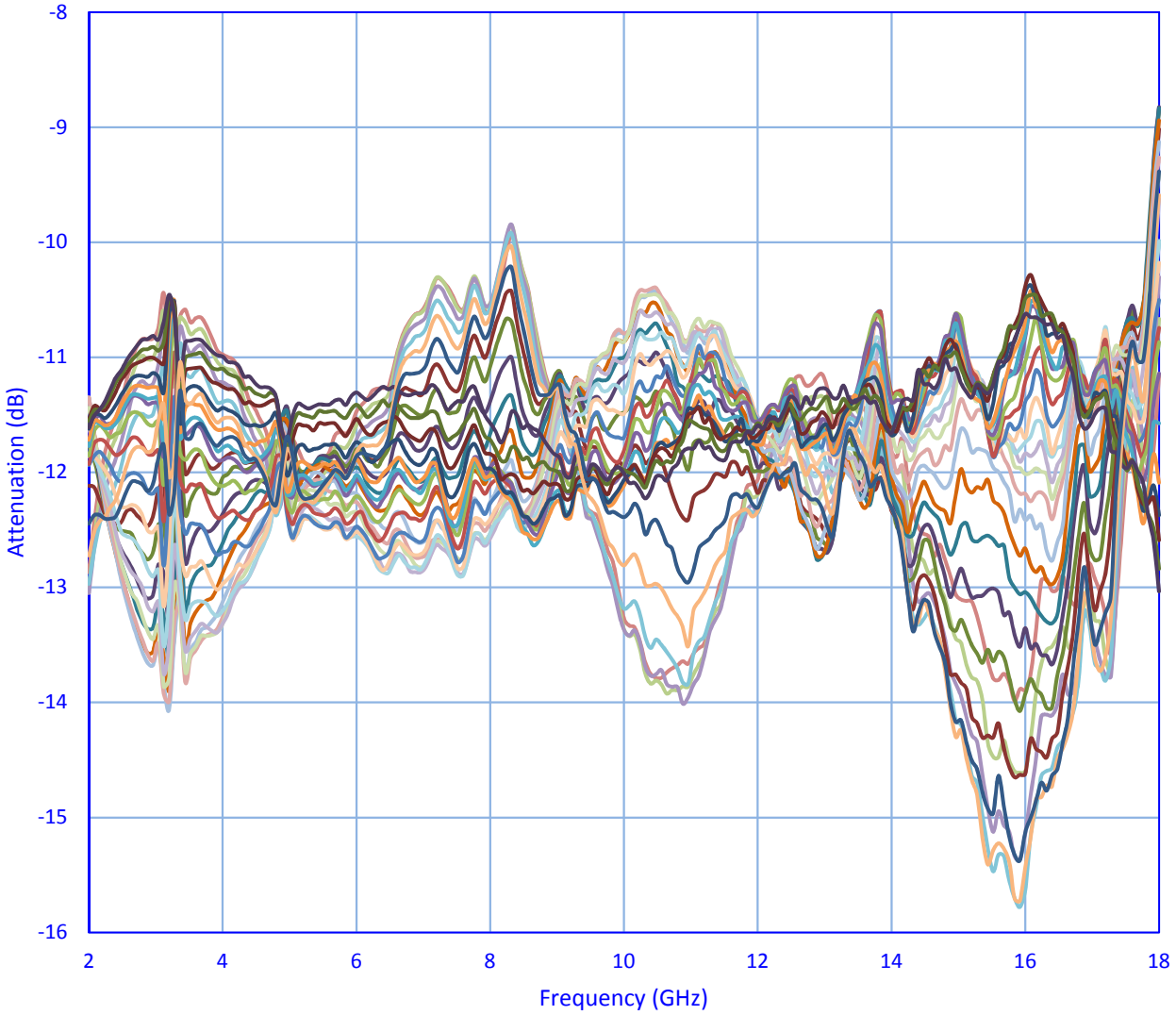
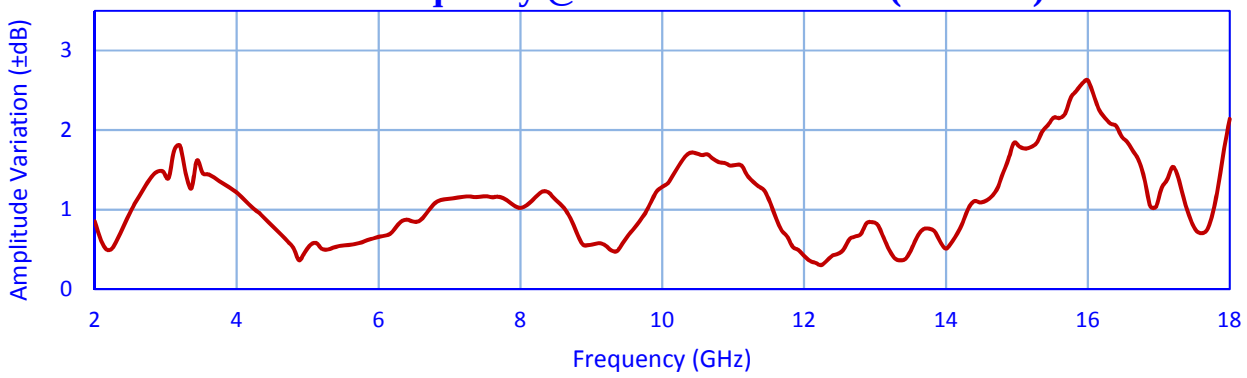
Attenuation Vs. Frequency @ 12 dB Attenuation (PM/AM)



Maximum Amplitude Variation From Center Vs. Frequency @ 12 dB Attenuation (PM/AM)



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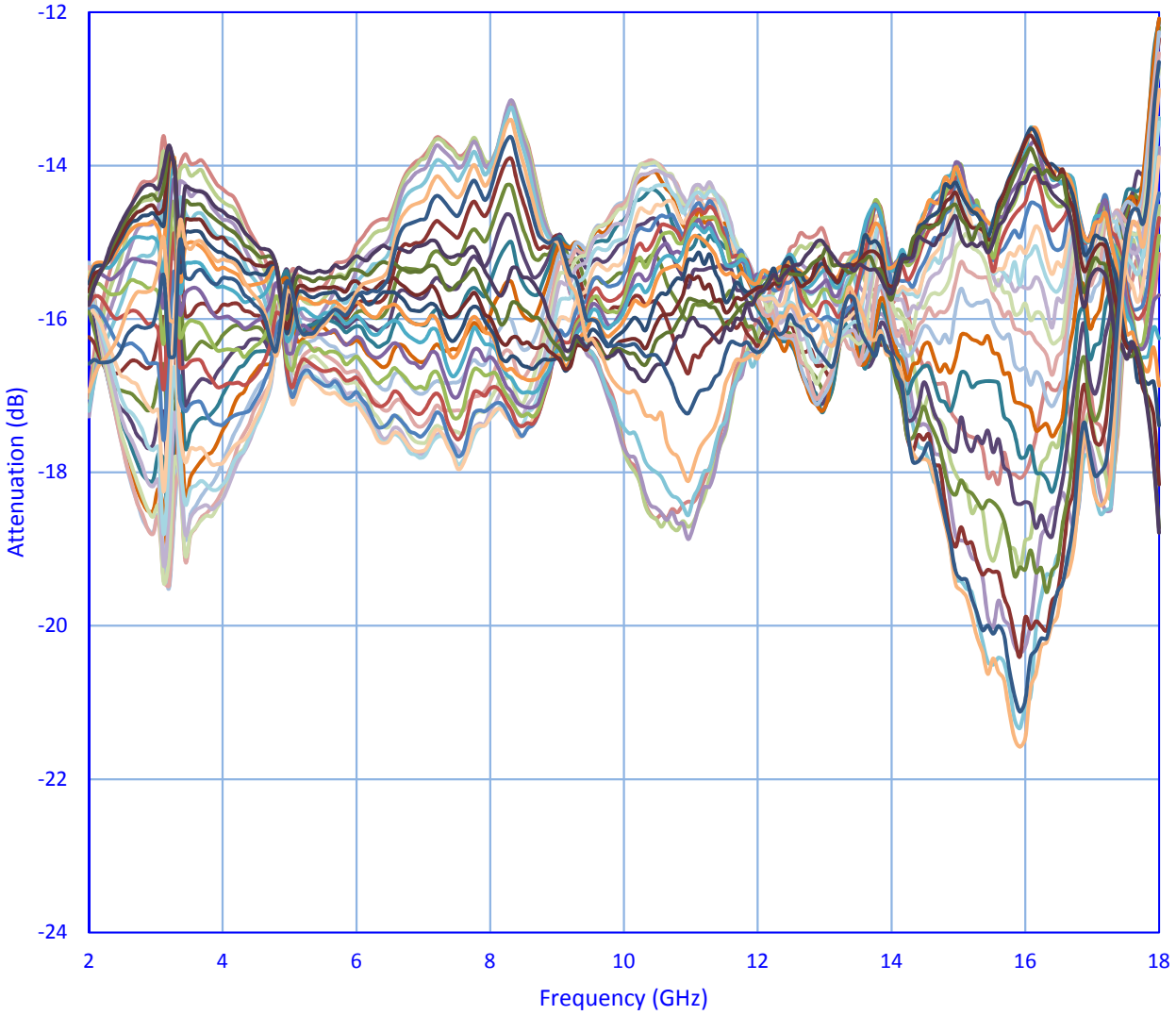
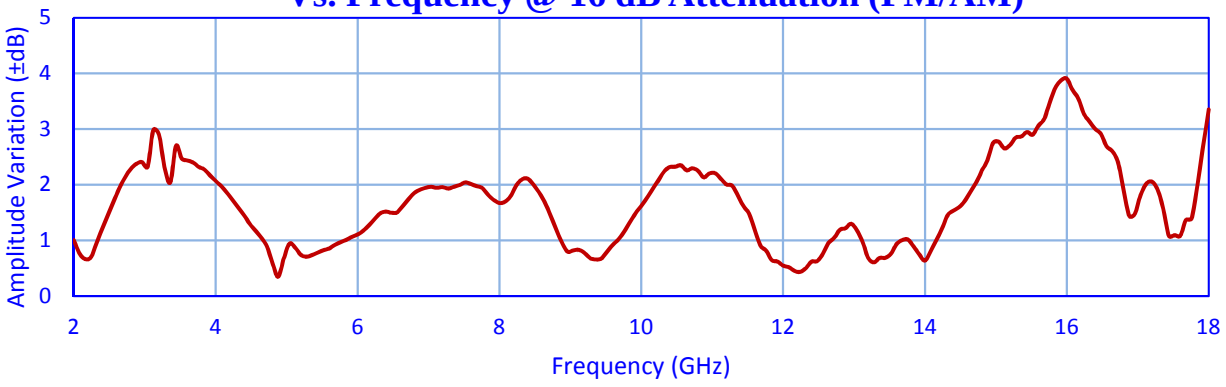
Attenuation Vs. Frequency @ 16 dB Attenuation (PM/AM)



Maximum Amplitude Variation From Center Vs. Frequency @ 16 dB Attenuation (PM/AM)



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Summary Data
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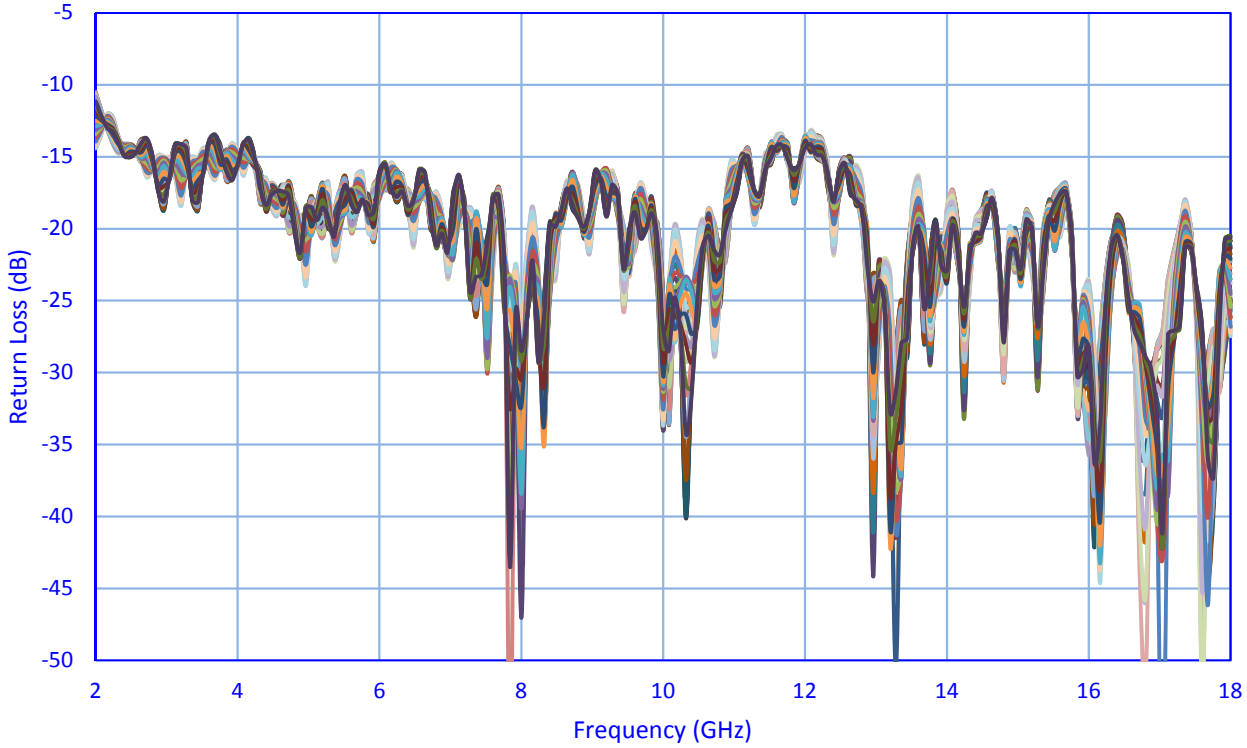
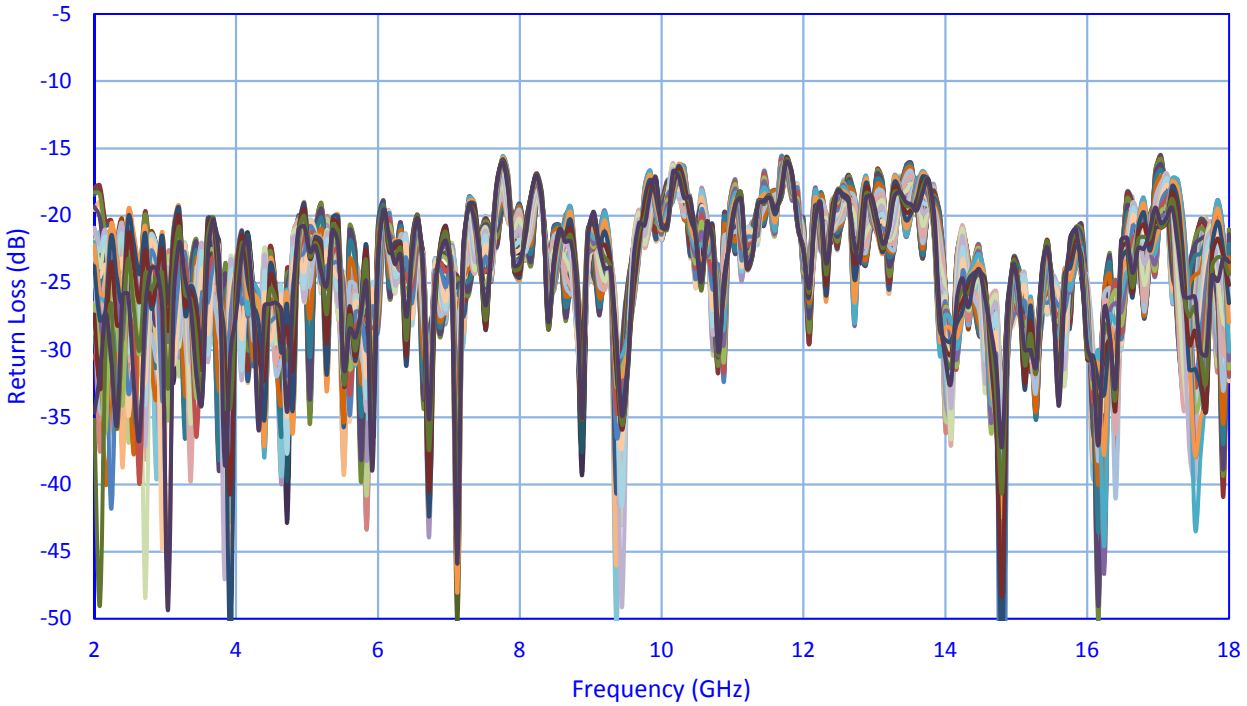
Input Return Loss Vs. Frequency @ 0 dB Attenuation



Output Return Loss Vs. Frequency @ 0 dB Attenuation



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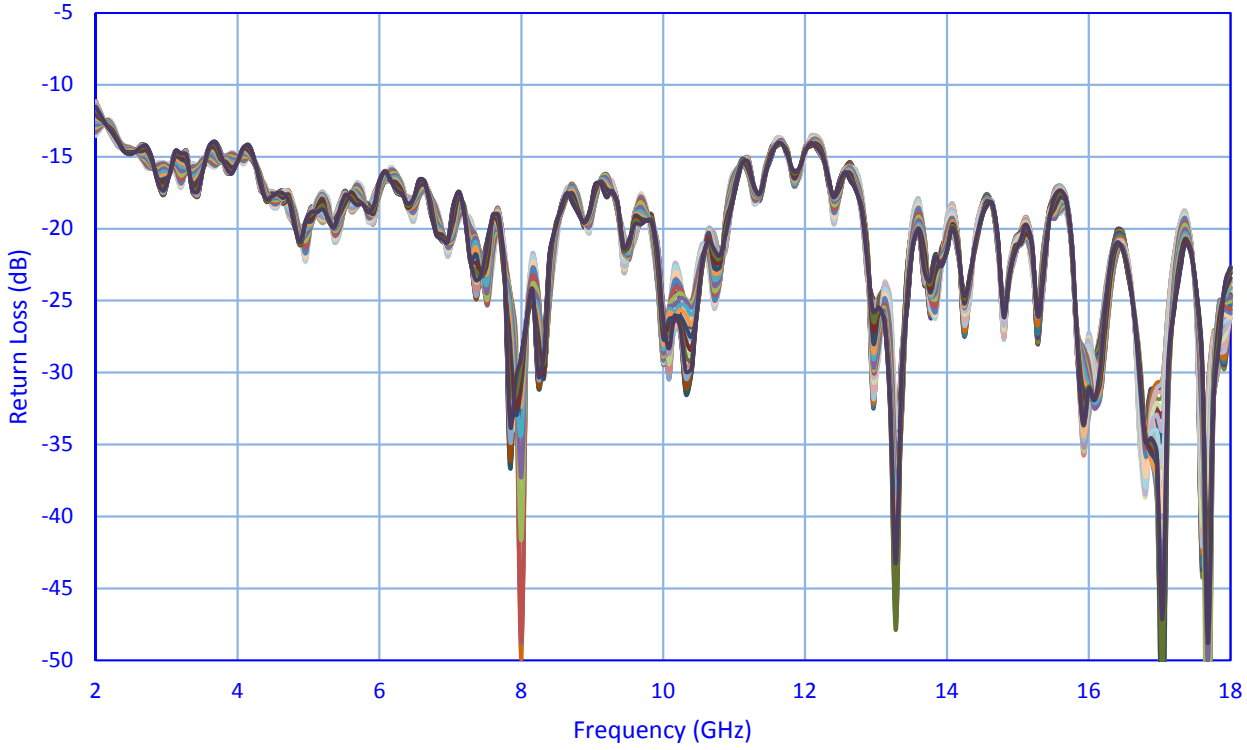
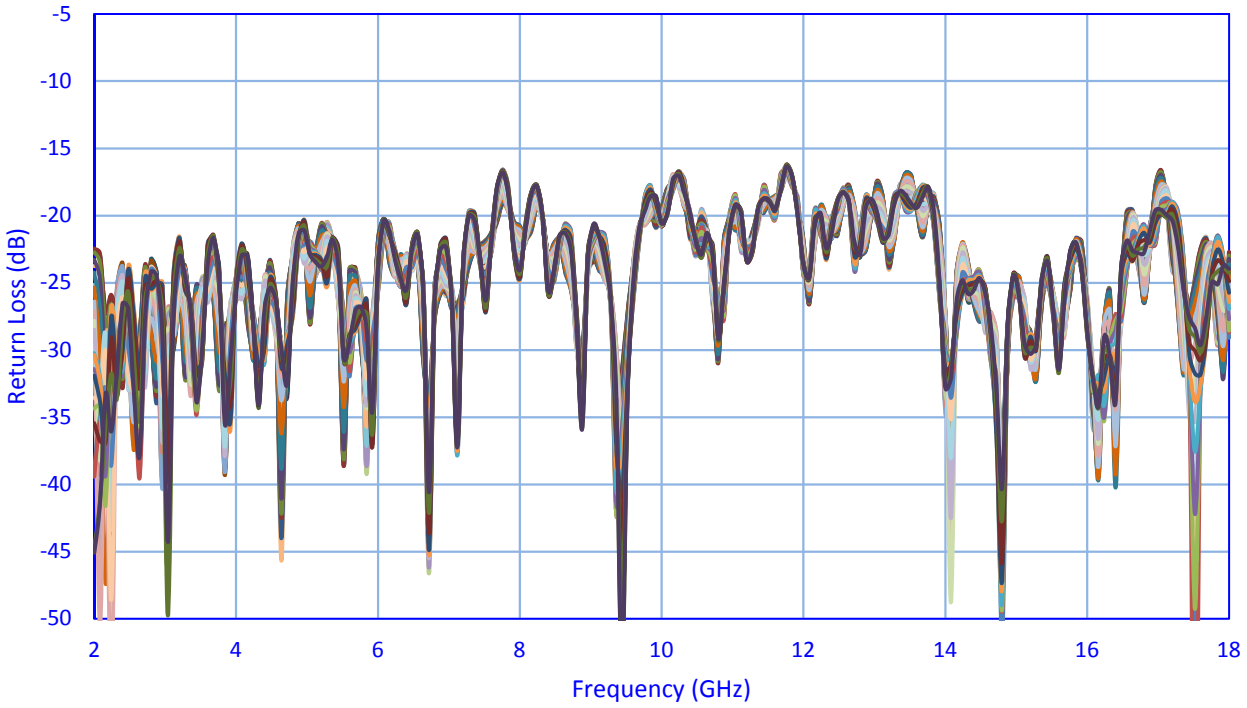
Input Return Loss Vs. Frequency @ 4 dB Attenuation



Output Return Loss Vs. Frequency @ 4 dB Attenuation



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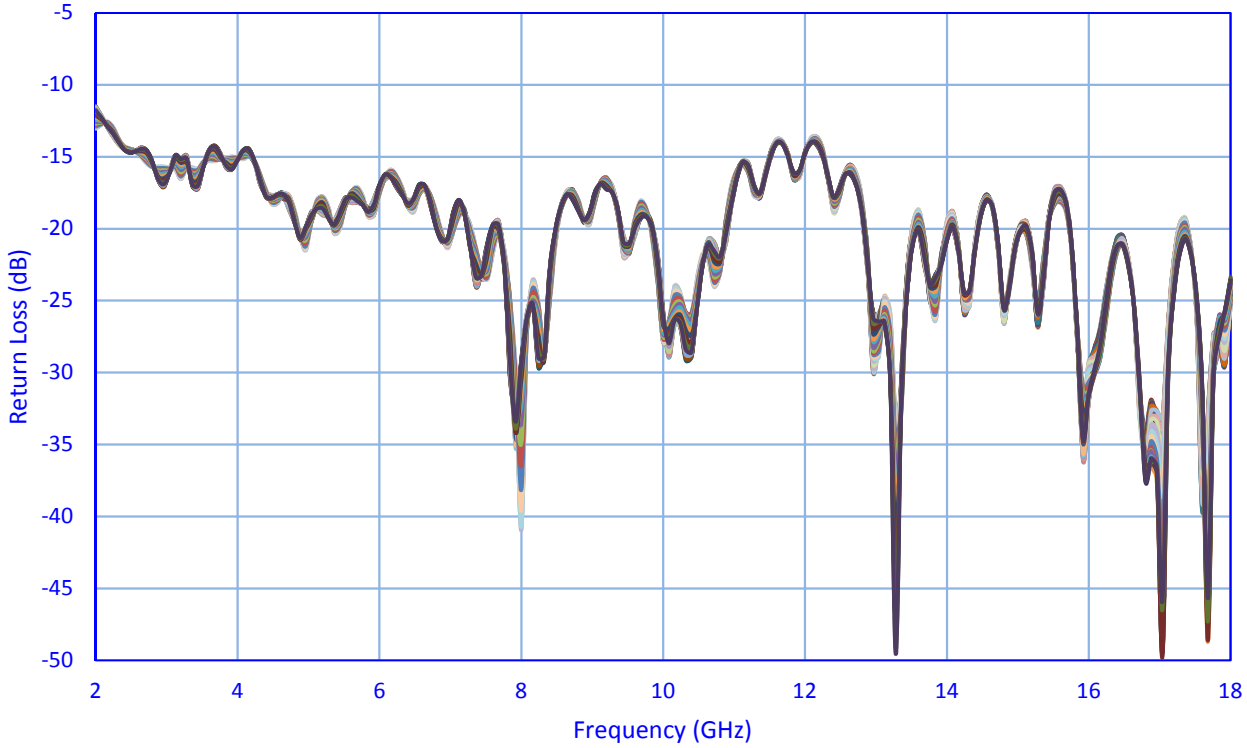
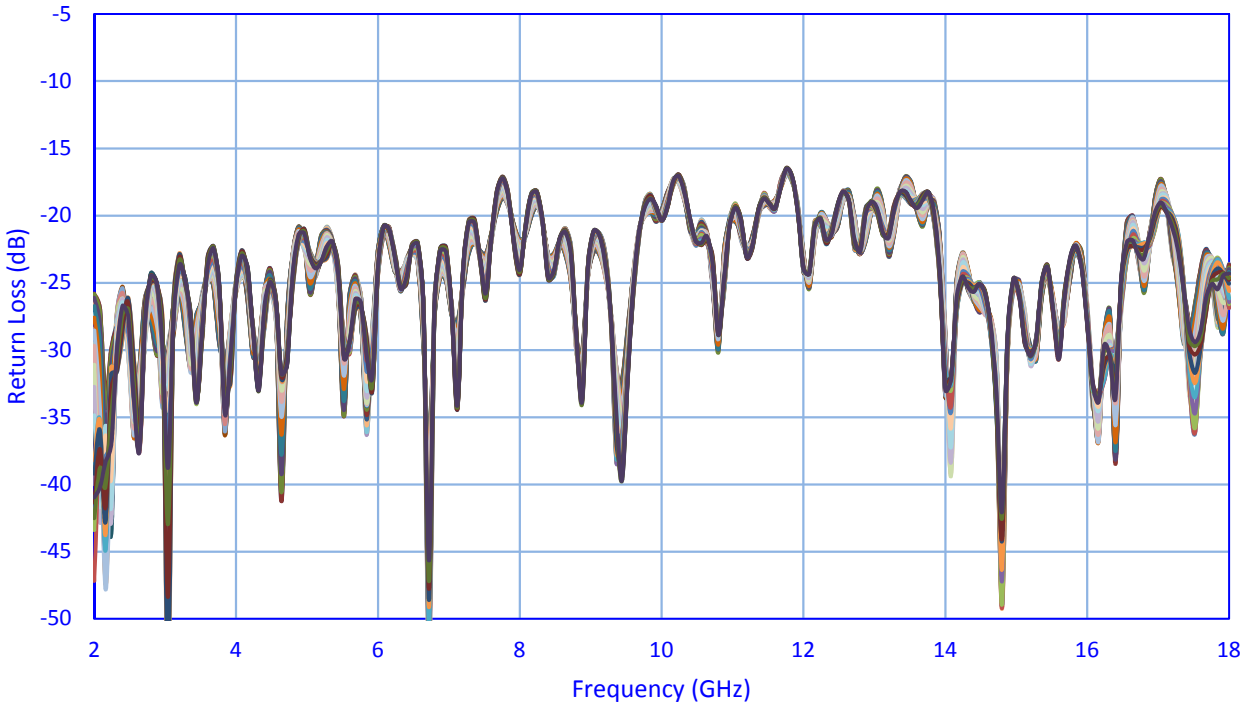
Input Return Loss Vs. Frequency @ 8 dB Attenuation



Output Return Loss Vs. Frequency @ 8 dB Attenuation



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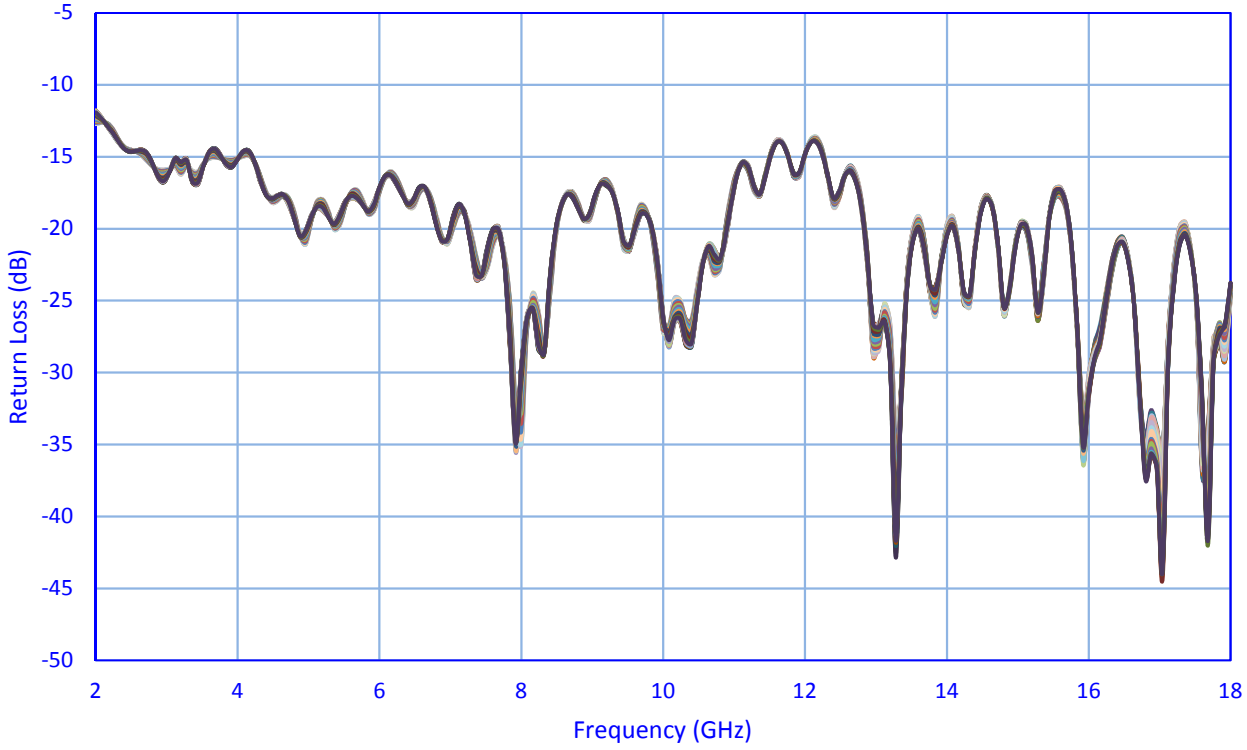
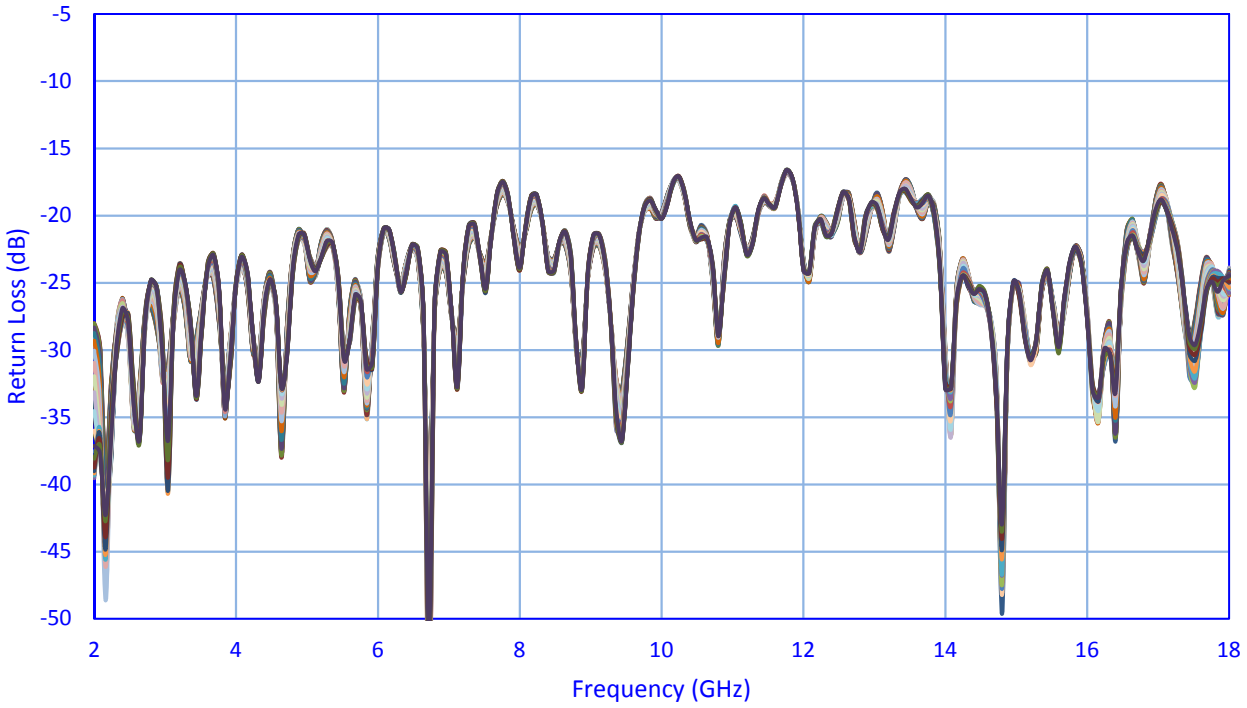
Input Return Loss Vs. Frequency @ 12 dB Attenuation



Output Return Loss Vs. Frequency @ 12 dB Attenuation



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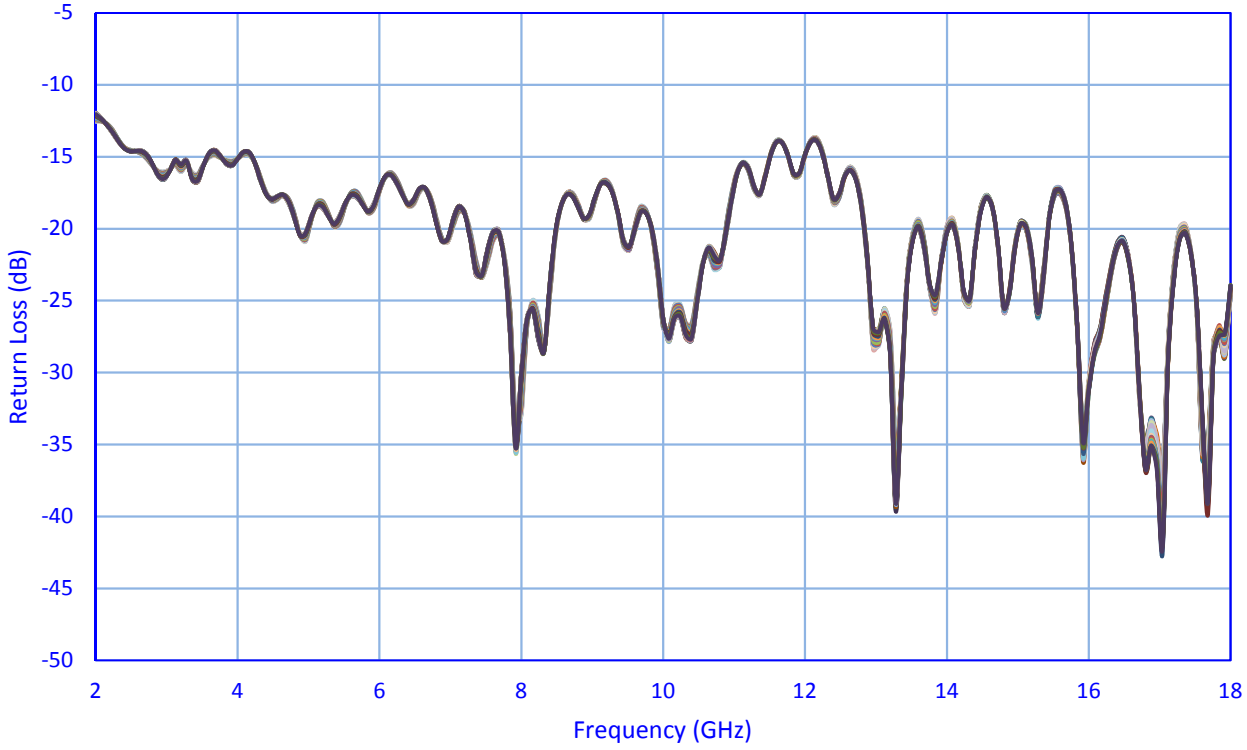
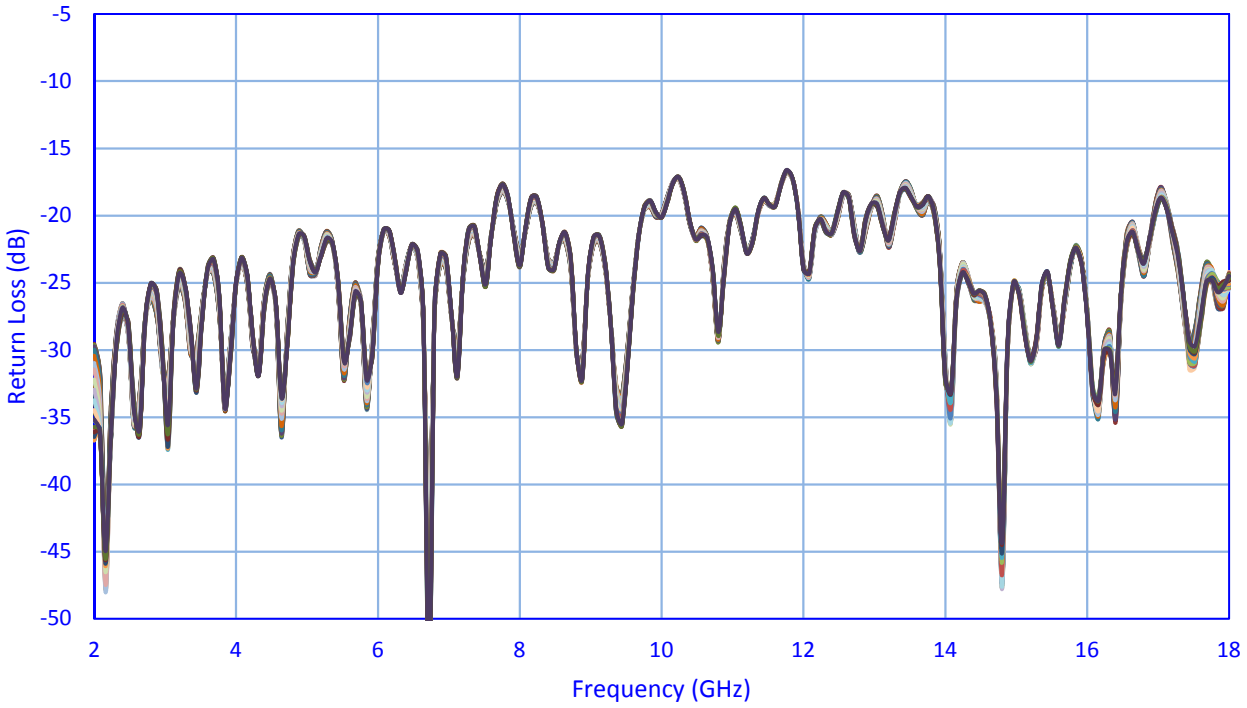
Input Return Loss Vs. Frequency @ 16 dB Attenuation



Output Return Loss Vs. Frequency @ 16 dB Attenuation



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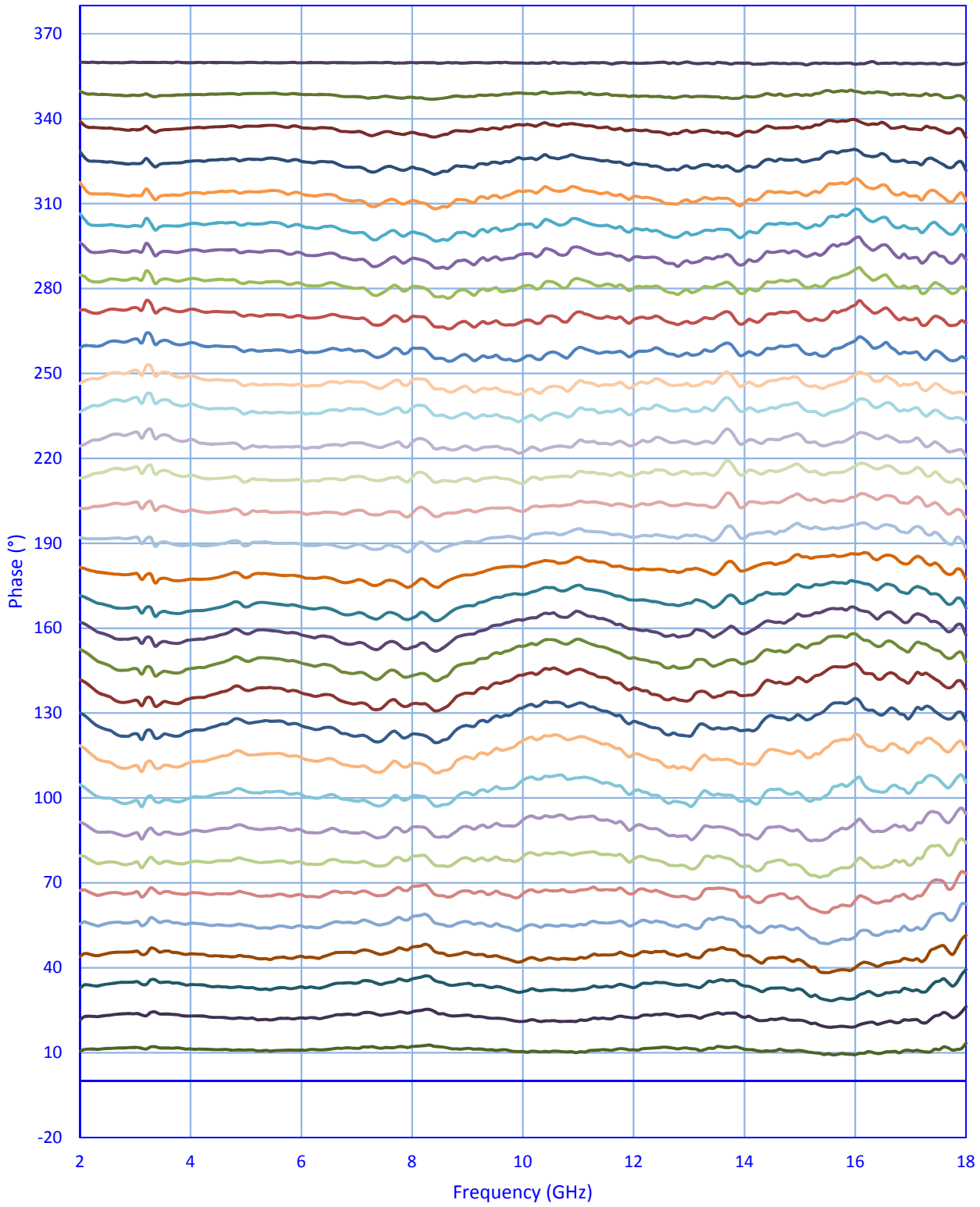
Phase @ 0 dB Attenuation



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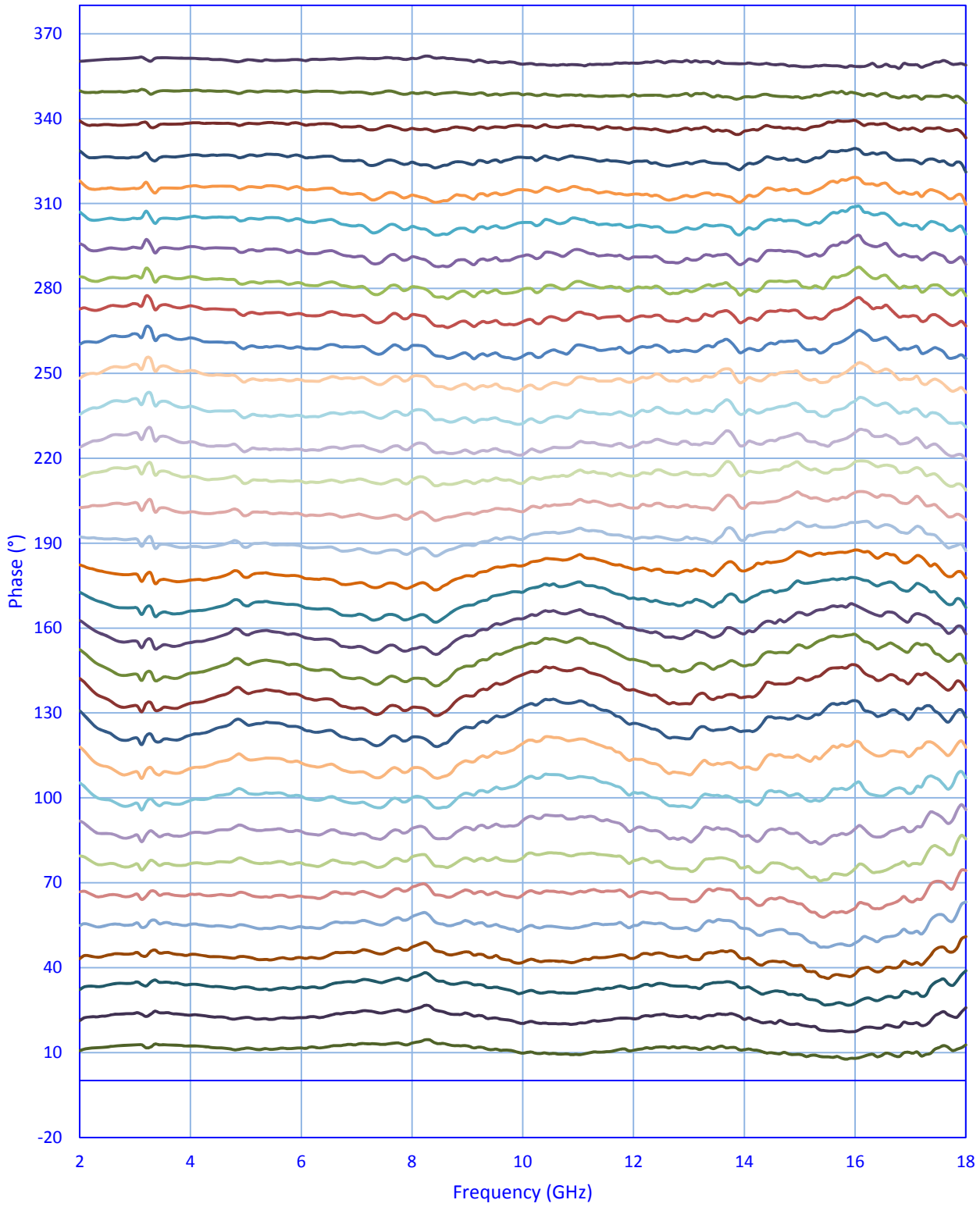
Phase @ 4 dB Attenuation



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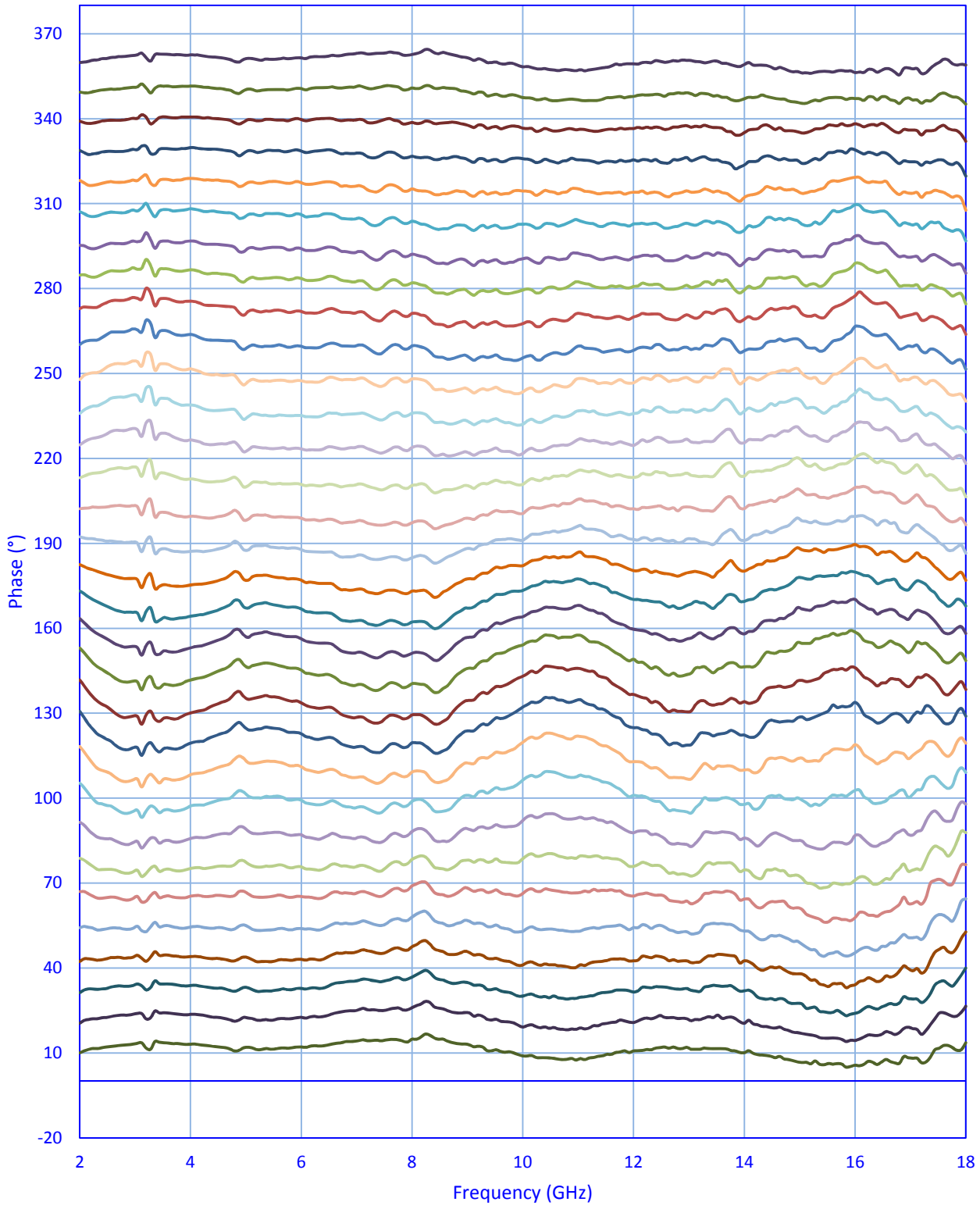
Phase @ 8 dB Attenuation



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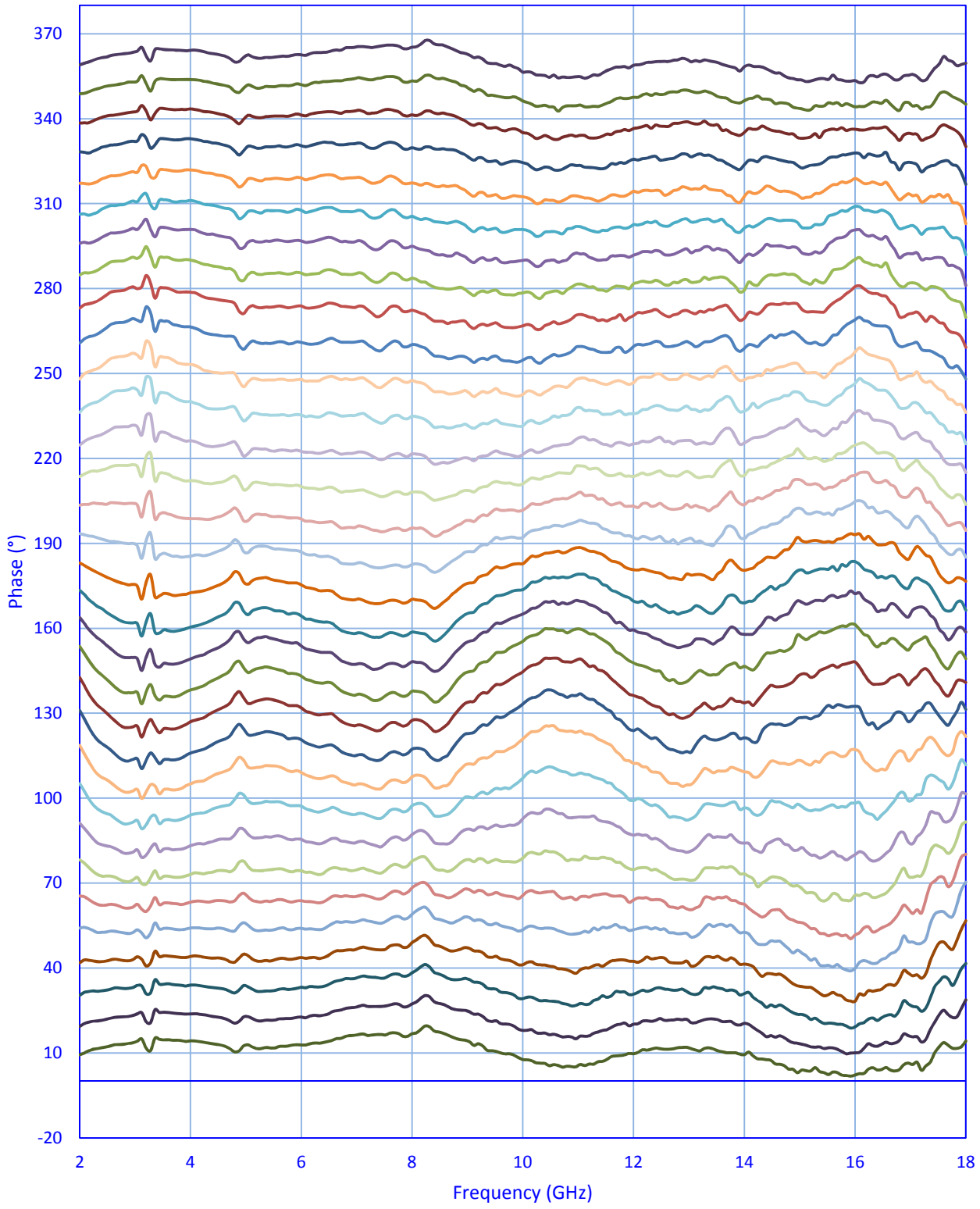
Phase @ 12 dB Attenuation



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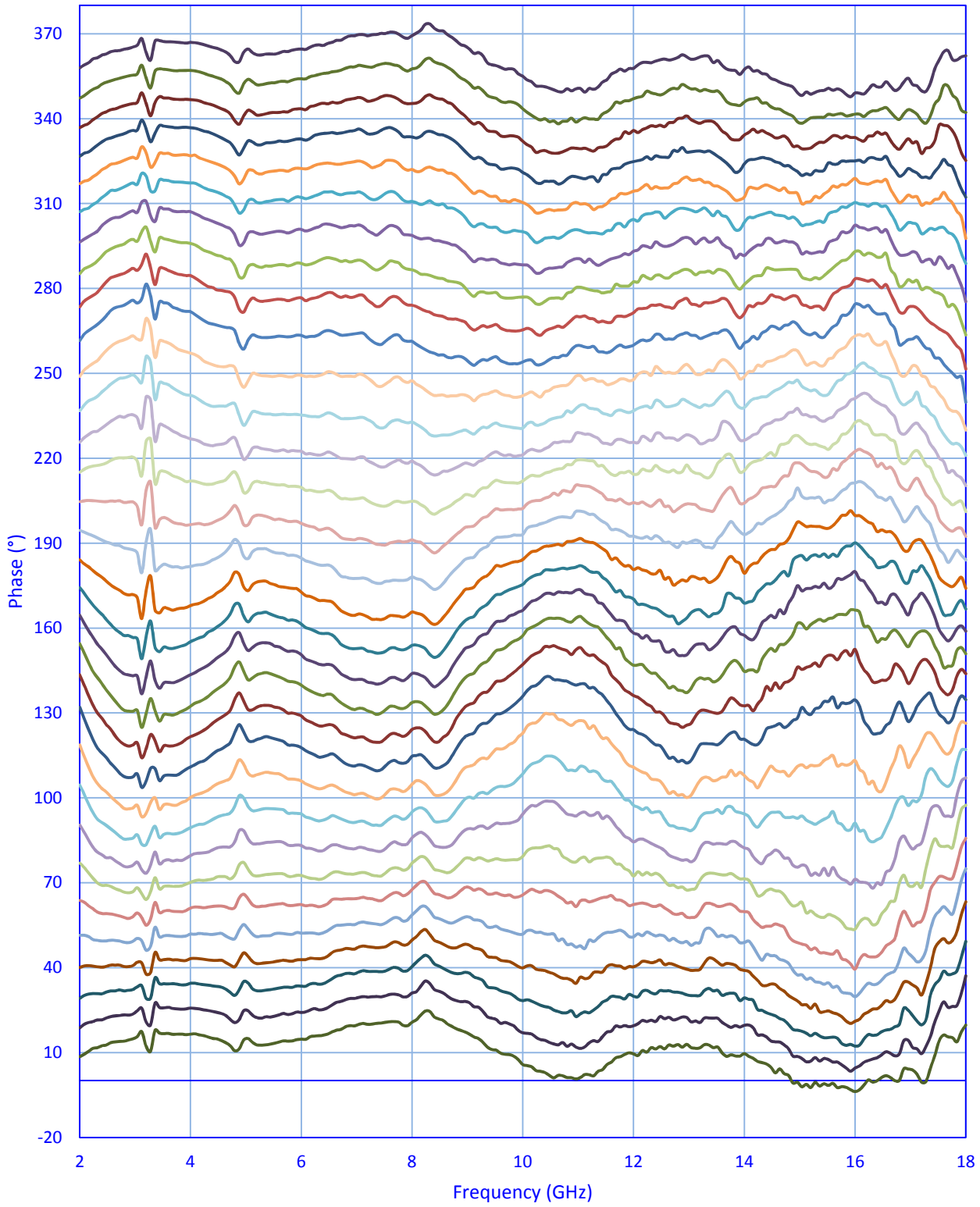
Phase @ 16 dB Attenuation



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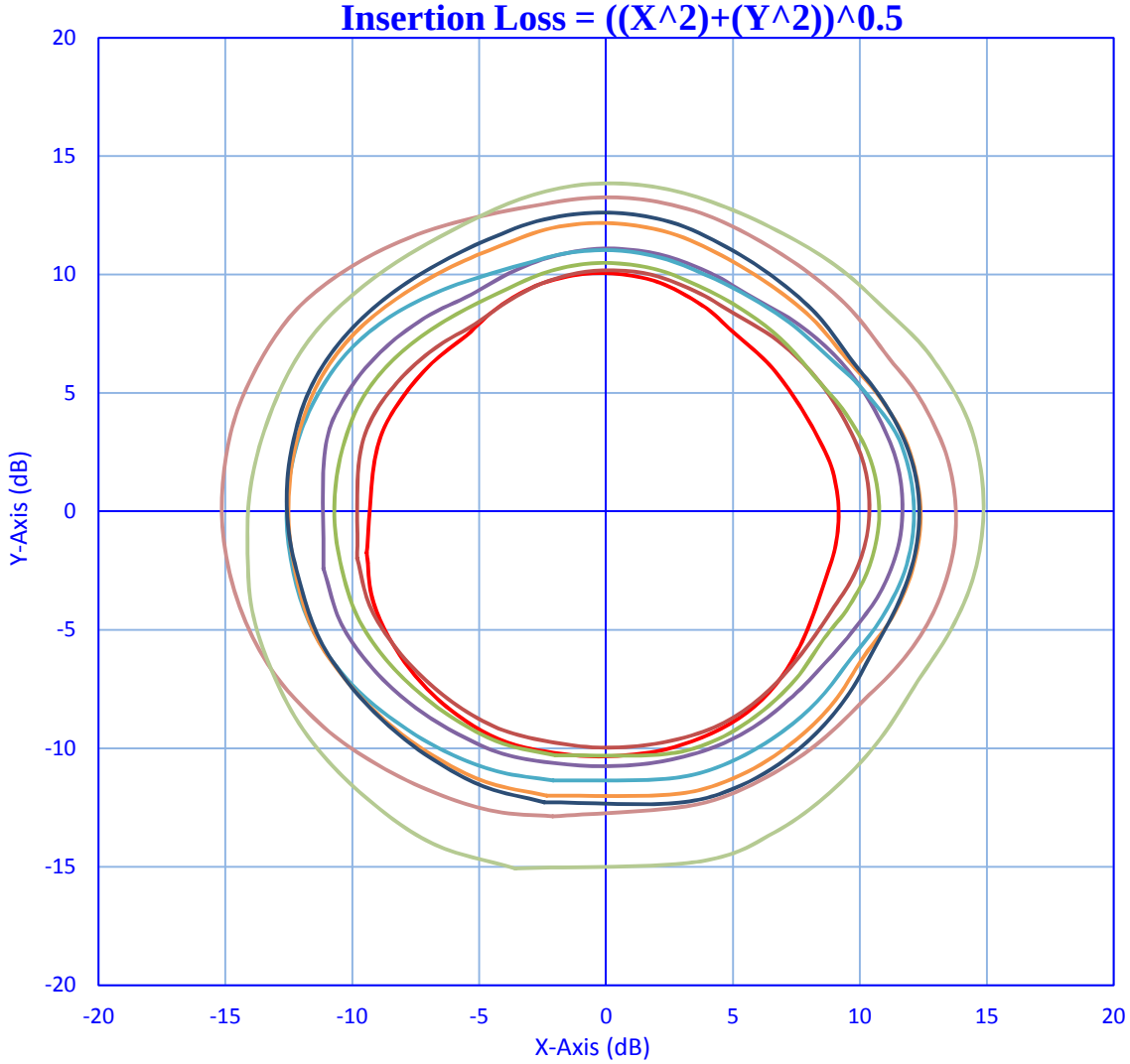
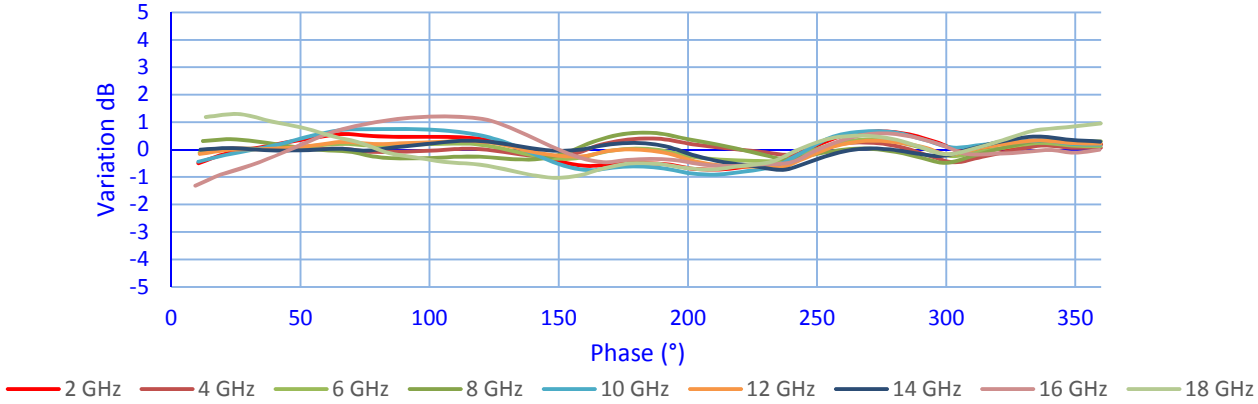
Insertion Loss Vs. Phase @ 0 dB Attenuation
Insertion Loss = ((X^2)+(Y^2))^0.5



Amplitude Linearity Vs. Phase @ 0 dB Attenuation (PM/AM)



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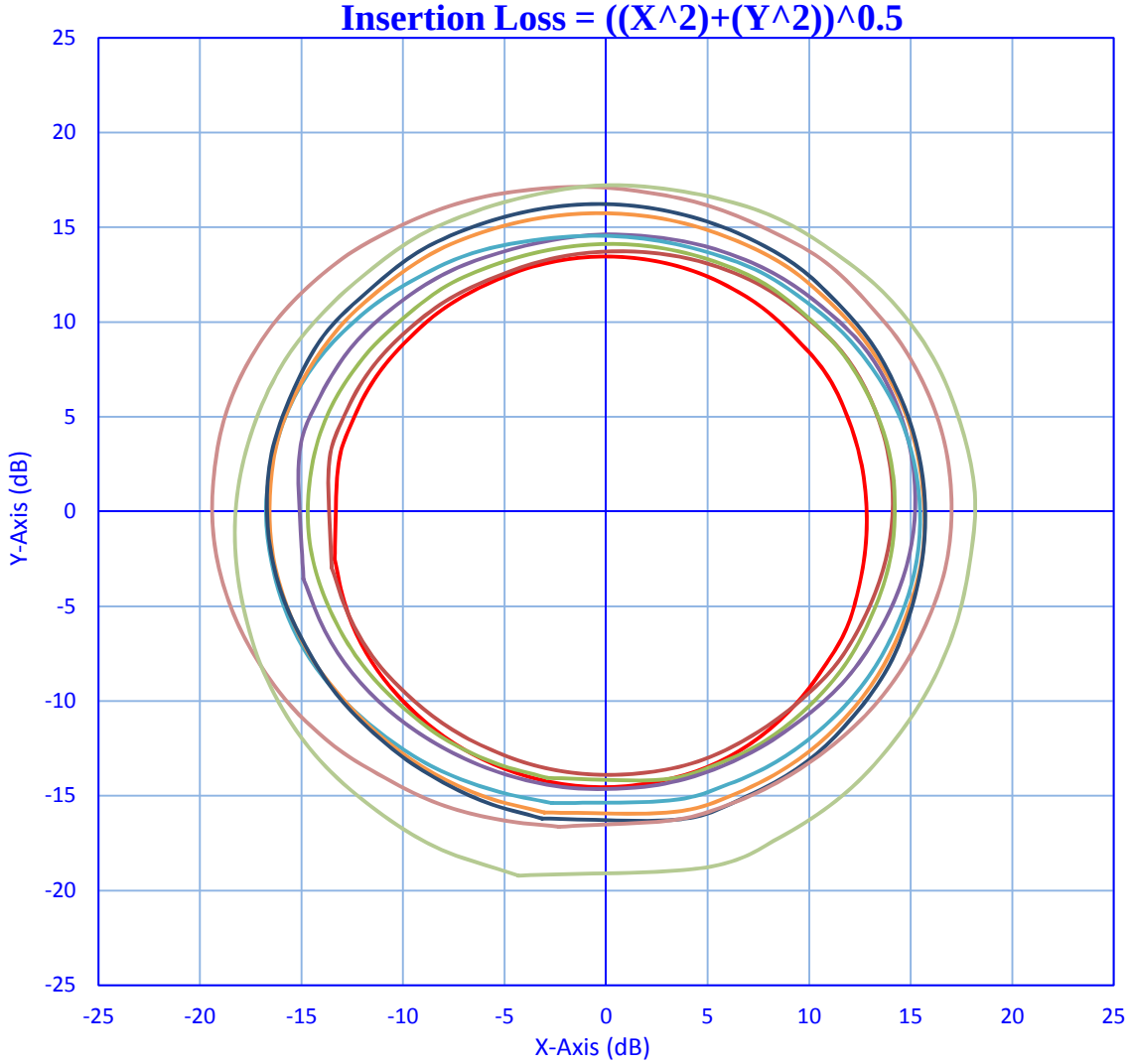
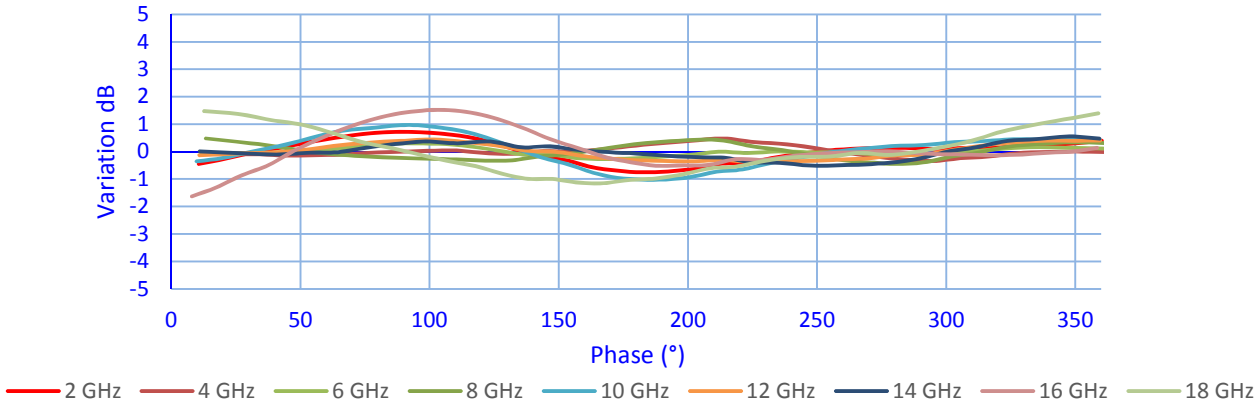
Summary Data
For
Serial No:PL19885

Insertion Loss Vs. Phase @ 4 dB Attenuation
Insertion Loss = ((X^2)+(Y^2))^0.5



Amplitude Linearity Vs. Phase @ 4 dB Attenuation (PM/AM)



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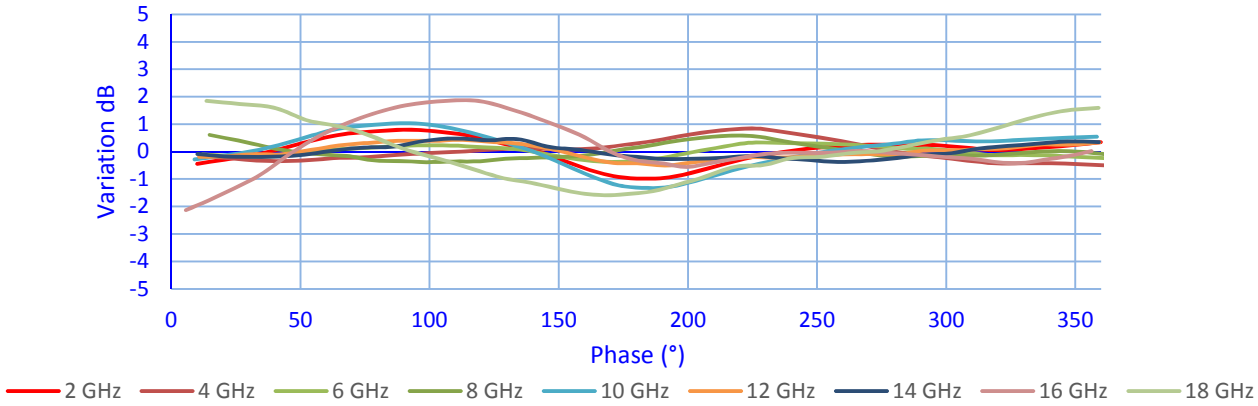
Summary Data
For
Serial No:PL19885

Insertion Loss Vs. Phase @ 8 dB Attenuation
Insertion Loss = ((X^2)+(Y^2))^0.5

Amplitude Linearity Vs. Phase @ 8 dB Attenuation (PM/AM)



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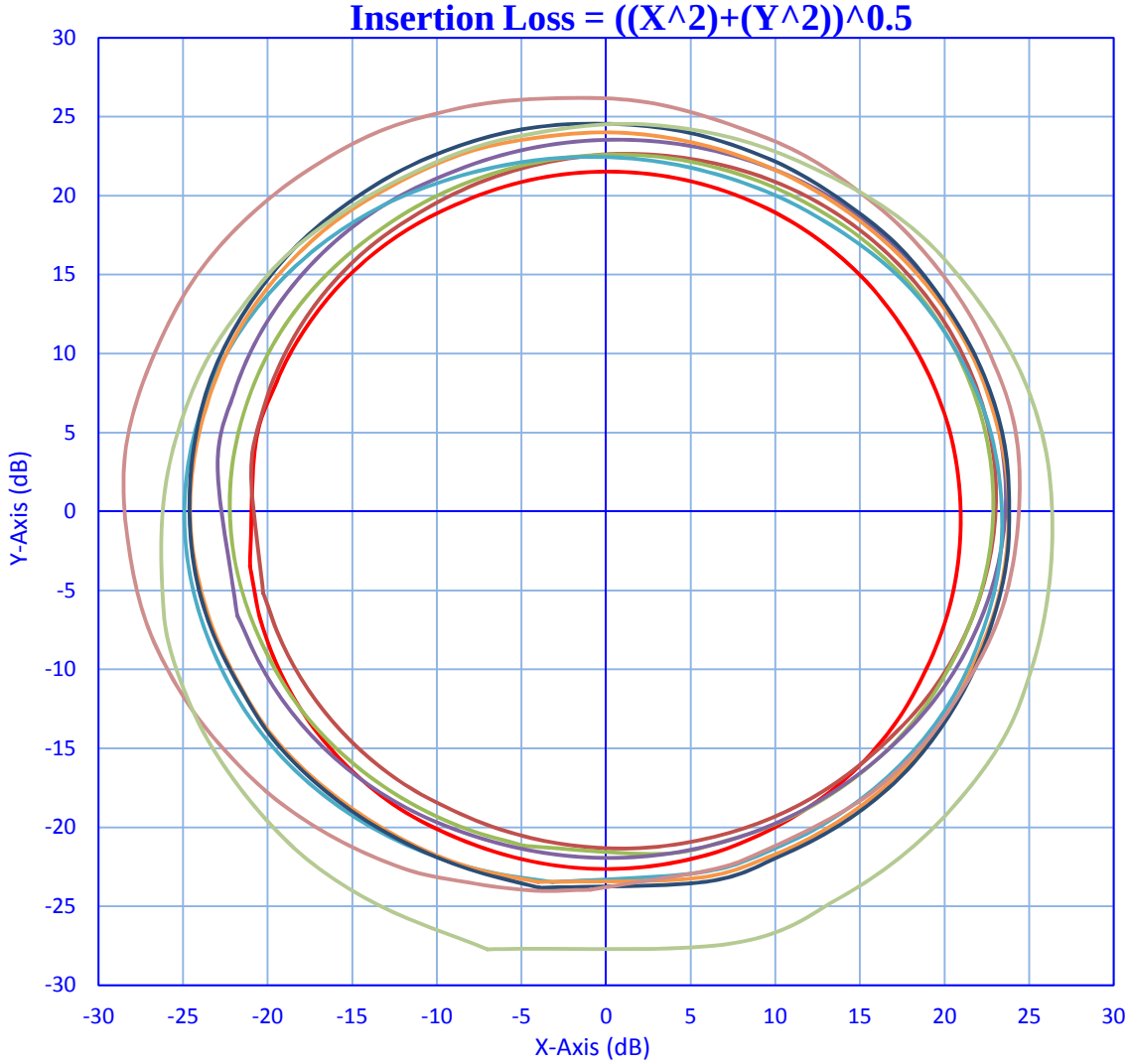
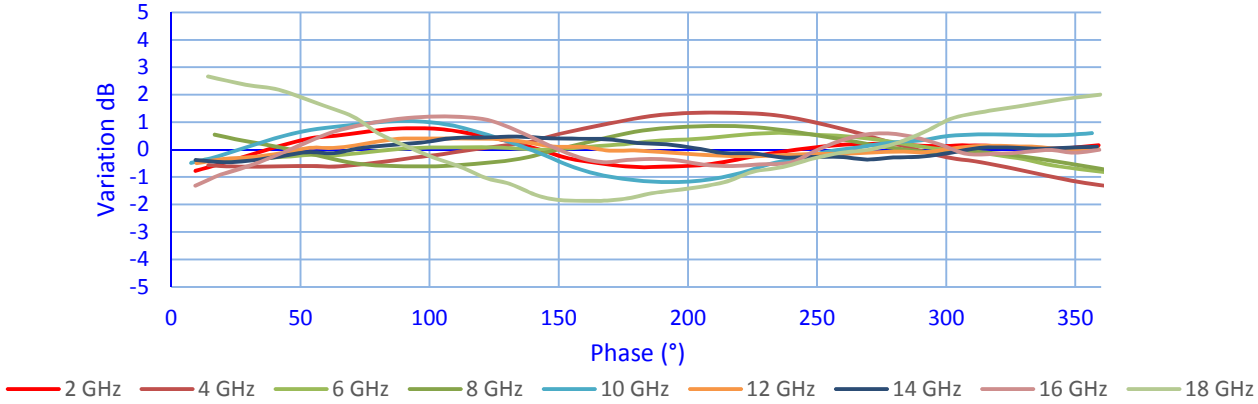
Summary Data
For
Serial No:PL19885

Insertion Loss Vs. Phase @ 12 dB Attenuation
Insertion Loss = ((X^2)+(Y^2))^0.5



Amplitude Linearity Vs. Phase @ 12 dB Attenuation (PM/AM)



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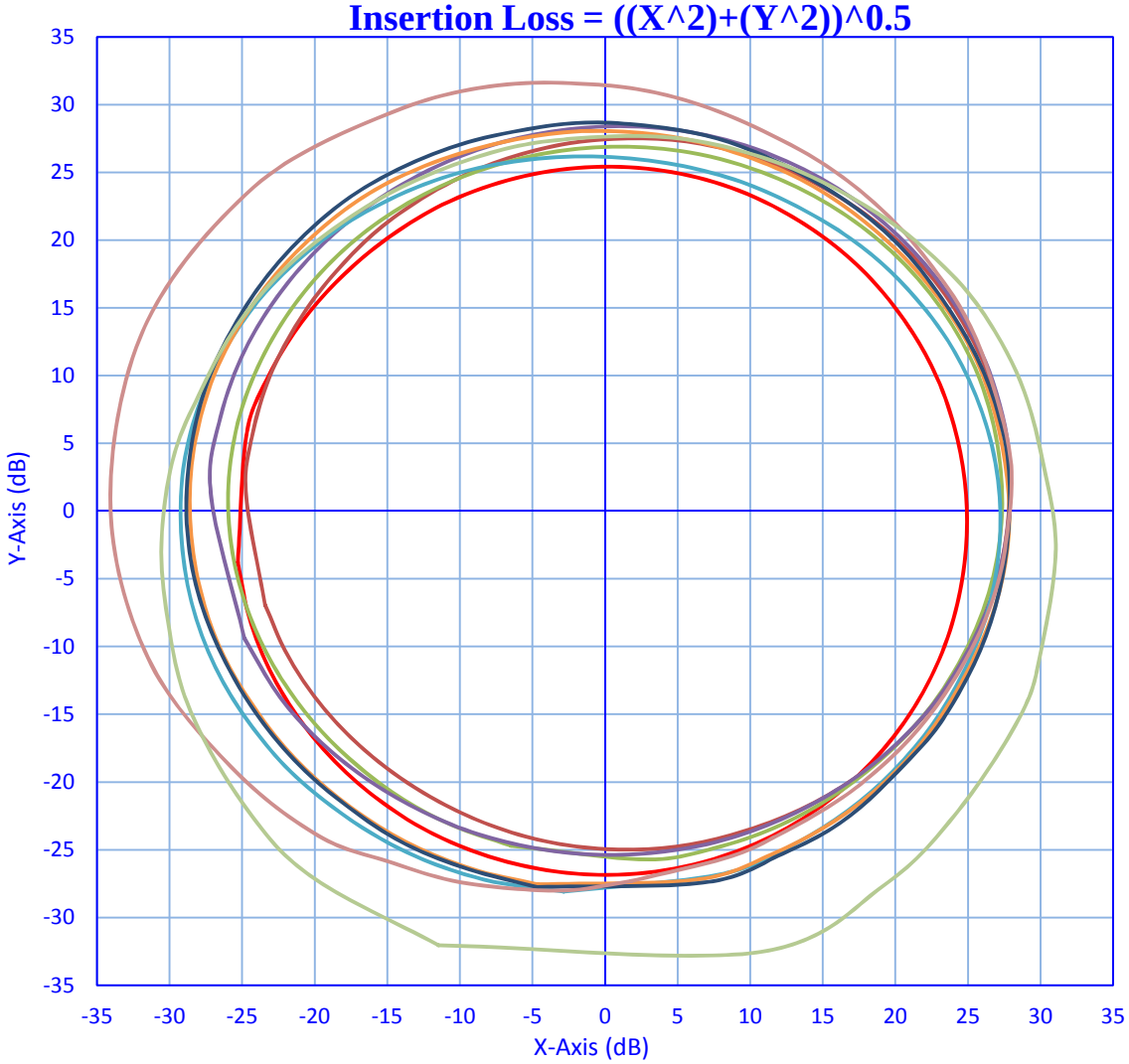
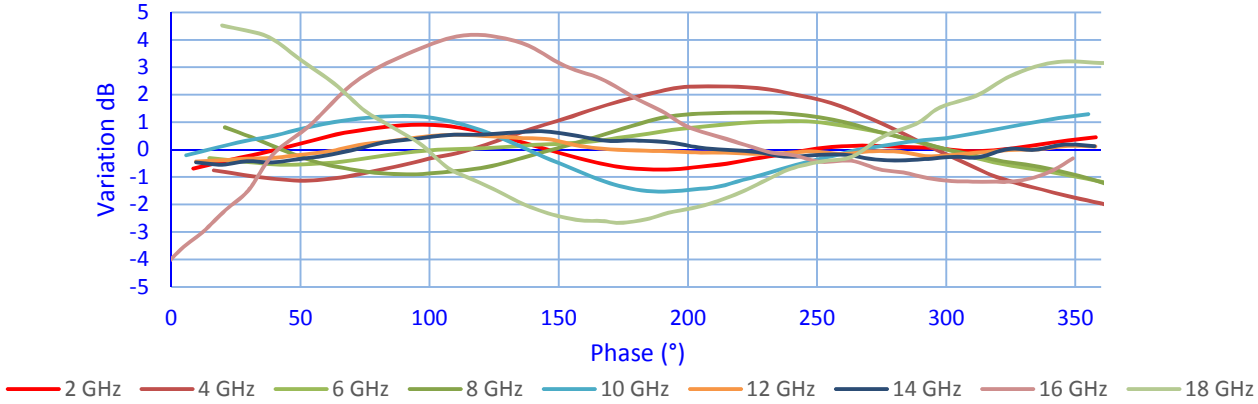
Summary Data
For
Serial No:PL19885

Insertion Loss Vs. Phase @ 16 dB Attenuation
Insertion Loss = ((X^2)+(Y^2))^0.5



Amplitude Linearity Vs. Phase @ 16 dB Attenuation (PM/AM)



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