Typical Characteristics
For
PS-2G18G-360-12D-TS

PMI MODEL PS-2G18G-360-12D-TS IS A 2 TO 18 GHz, 12-BIT, VECTOR PHASE SHIFTER MAKING IT IDEAL FOR FREQUENCY TRANSLATION WHERE CONTINUOUS MONOTONIC PHASE SHIFTING IS REQUIRED. THIS MODEL ALSO FEATURES HIGH SPEED SWITCHING, AND TYPICALLY LOWER THAN 60 dB HARMONIC DISTORTION.

December 6, 2018
Electronics Designed By: PMI Engineering
Report By: E. Kretz

7311-F Grove Road Frederick, MD 21704 USA
Phone: (301)662-5019 Fax: (301)662-1731
Website: www.pmi-rf.com Email: sales@pmi-rf.com

Typical Characteristics For PS-2G18G-360-12D-TS

Table of Contents

Phase State Legend

Phase 0 (0 °)	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 °)

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Typical Characteristics For PS-2G18G-360-12D-TS

Product Feature

DESCRIPTION:

PLANAR MONOLITHICS INDUSTRIES MODEL NUMBER PS-2G18G-360-12D-TS IS A 2 TO 18 GHz, 12-BIT, VECTOR PHASE SHIFTER MAKING IT IDEAL FOR FREQUENCY TRANSLATION WHERE CONTINUOUS MONOTONIC PHASE SHIFTING IS REQUIRED. THIS MODEL ALSO FEATURES HIGH SPEED SWITCHING, AND TYPICALLY LOWER THAN 60dB HARMONIC DISTORTION.

SPECIFICATIONS:

- FREQUENCY RANGE:..... 2.0 TO 18.0 GHz
- PHASE RANGE:..... 360°
- RF INPUT POWER:..... +20 dBm CW, 1.0 WATT MAXIMUM
- INSERTION LOSS:..... 18.0 dB MAXIMUM
- VSWR:..... 2.2:1 MAXIMUM (50 OHM SYSTEM)
- PHASE VS FREQUENCY:..... ±15.0° TYPICAL
- CONTROL LOGIC:..... 12 BIT TTL COMPATIBLE
- CONTROL SLOPES:..... LINEAR
- SWITCHING SPEED:..... 500 ns MAXIMUM
- POWER SUPPLY:..... ±12V TO ±15V @ ±100 mA MAXIMUM
- RF CONNECTORS:..... SMA FEMALE INPUT AND OUTPUT
- POWER/LOGIC CONNECTIONS:..... DB-37P, SUB-D MULTI-PIN
- TEMP SENSOR:..... 10 mV/°C, 3.0V @25 °C
- SIZE:..... 4.25 X 3.50 X 1.00
- FINISH:..... PAINTED BLUE

ENVIRONMENTAL RATINGS:

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

37-PIN CONNECTOR PIN-OUT

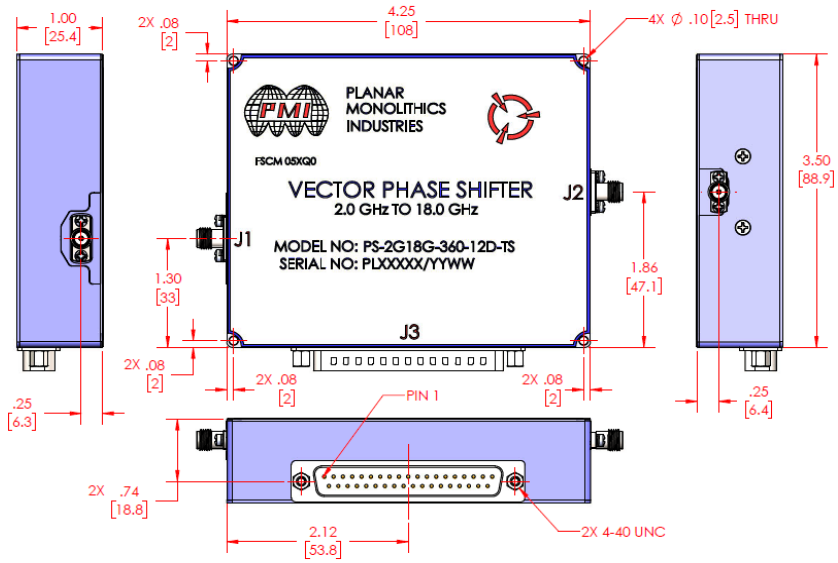
PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	1.41°	14	N/C	27	N/C
2	2.81°	15	N/C	28	GND
3	11.25°	16	N/C	29	N/C
4	22.5°	17	N/C	30	TEMP SENSOR
5	45°	18	N/C	31	TEMP SENSOR RETURN
6	90°	19	N/C	32	N/C
7	N/C	20	0.7°	33	N/C
8	+12V TO +15V	21	5.63°	34	N/C
9	GND	22	0.35°	35	N/C
10	GND	23	0.18°	36	N/C
11	-12V TO -15V	24	0.09° (LSB)	37	N/C
12	N/C	25	180° (MSB)		
13	N/C	26	N/C		

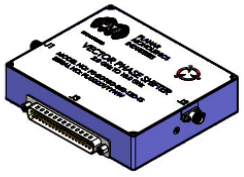
NOTE: SPECIFICATIONS WILL VERY OVER OPERATING TEMPERATURE

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	6/1/2010	
	A2	ECN # 24-0063	3/11/2024	

MECHANICAL OUTLINE





PMI CONFIDENTIAL AND PROPRIETARY

PLANAR MONOLITHICS INDUSTRIES, INC.

APPROVALS	DATE
DRAWN: M. HANKEN	6/1/2010
REDRAWN	
ISSUED	

TITLE: OUTLINE PS-2G18G-360-12D-TS

SIZE B | FSCM NO. 05XQ0 | DWG NO. 27035120 | REV. A2

SCALE 1:1 | SHEET 1 OF 1

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Typical Characteristics For PS-2G18G-360-12D-TS

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	Insertion Loss	18 dB MAX	**17.7 dB**	
4	VSWR	2.2:1 MAX	**1.90:1**	
5	Amplitude Variation Vs. Phase (PM/AM)	±3.5 dB TYP.	**±1.77 dB**	
6	Phase vs. Frequency	±15.0° TYP.	**±12.47°**	
7	Control Logic	12 BIT TTL Compatible.	**Verified**	
8	Control Slopes	Linear	**Verified**	
9	Switching Speed	500 nSec MAX.	**410 nsec TYP (See Plot)**	
10	Power Supply	+12 to +15V @ 100 mA -12 to -15V @ 100 mA	**+15 @ 52 mA** **-15 @ 78 mA**	

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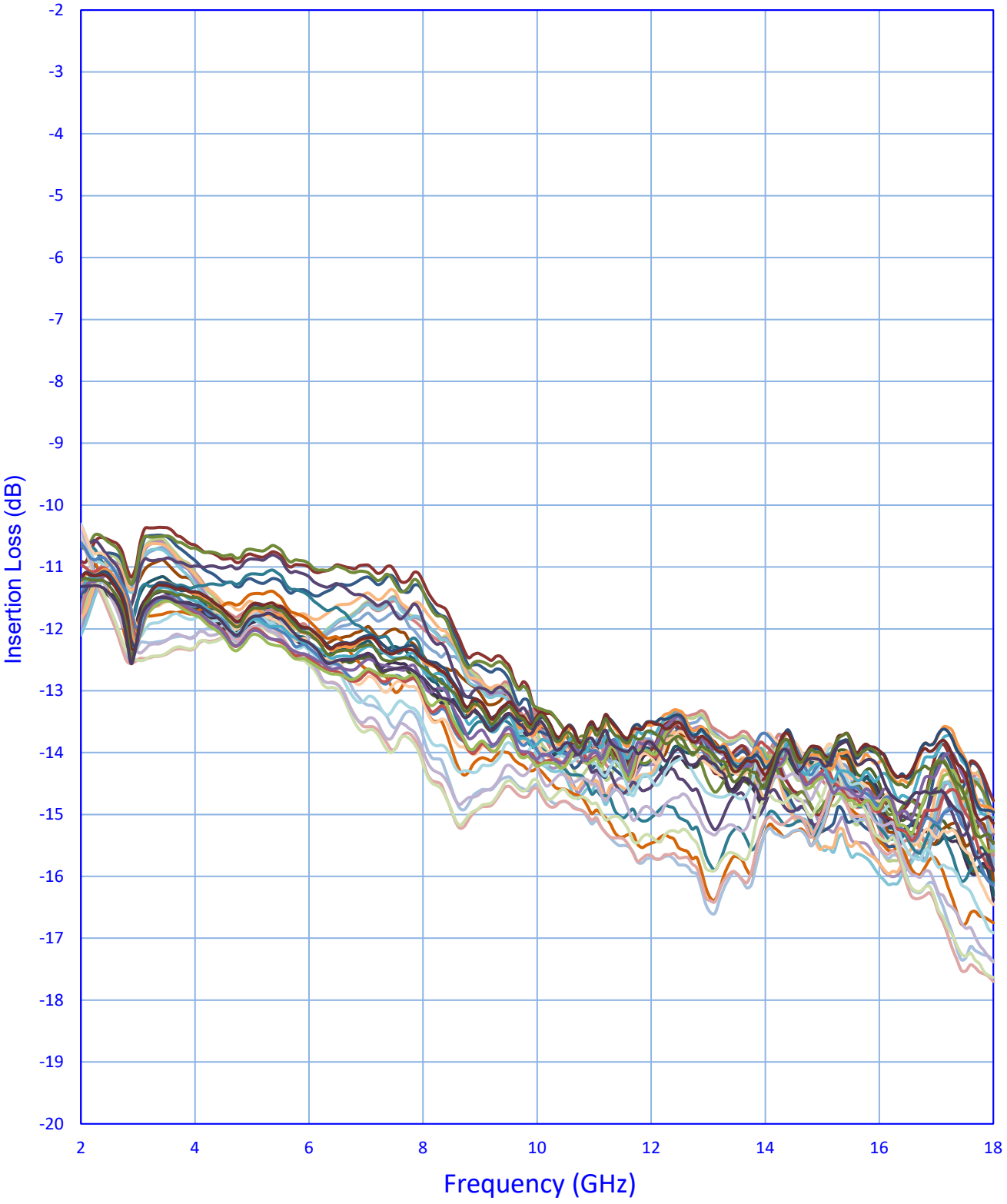
Insertion Loss Vs. Frequency



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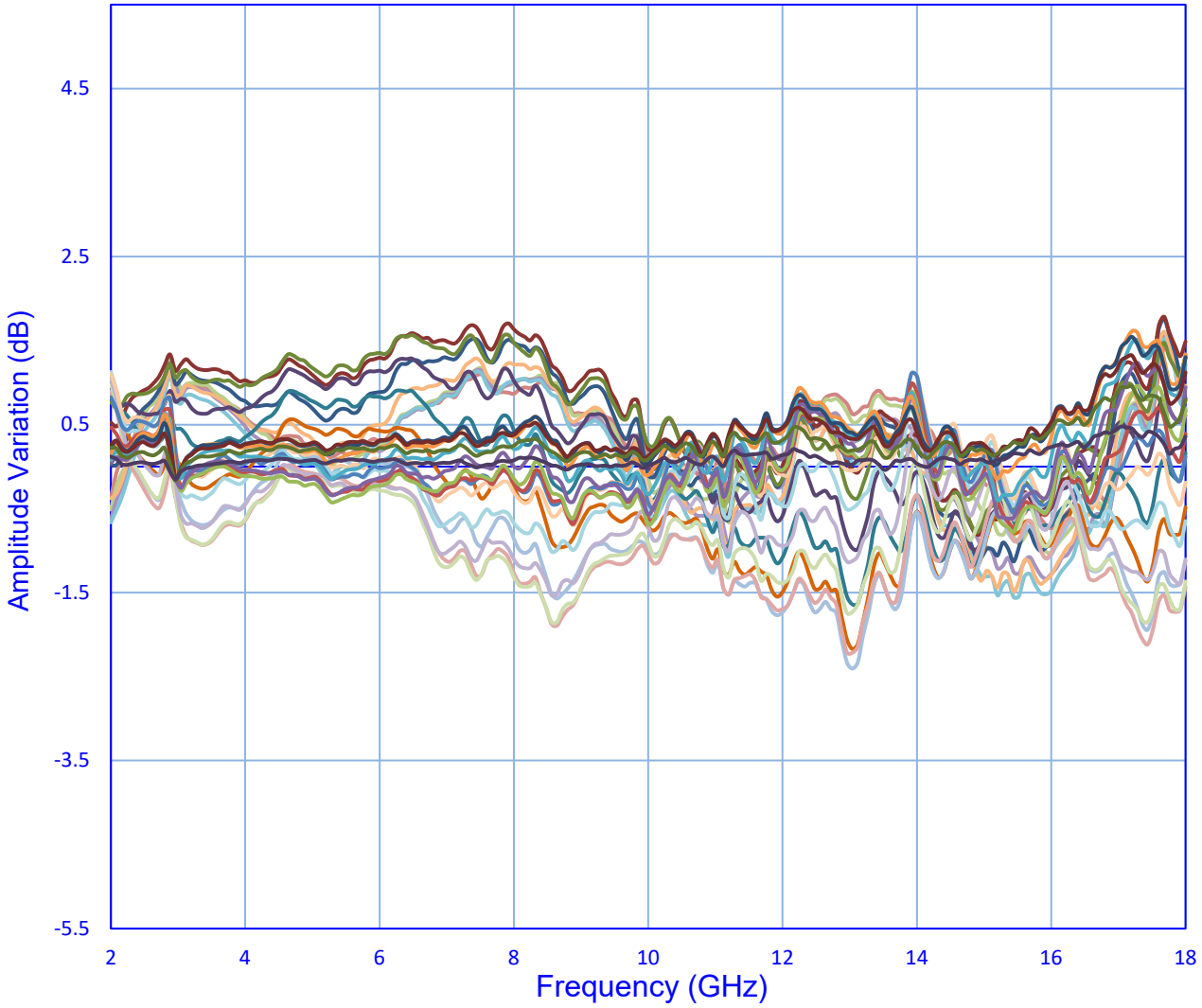
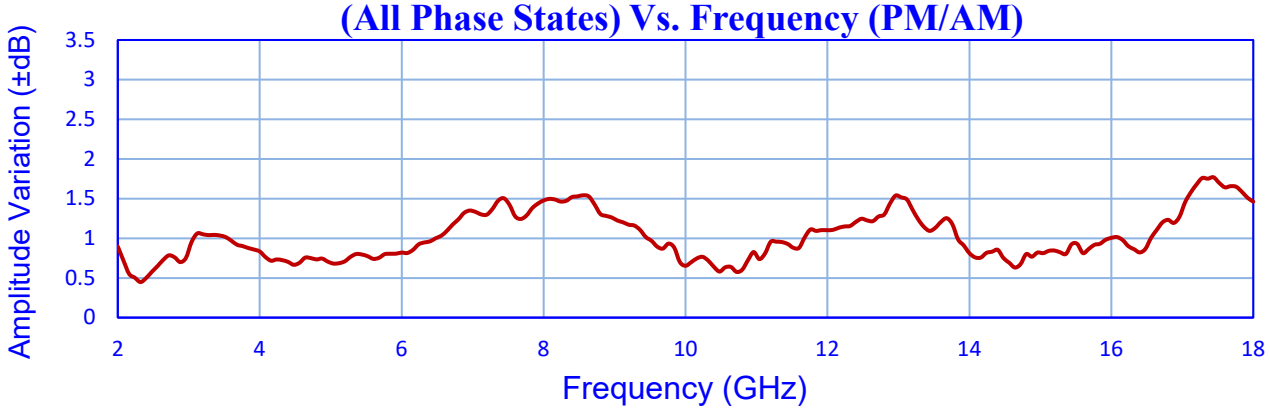
Amplitude Vs. Frequency (PM/AM)



Maximum Amplitude Variation From Center (All Phase States) Vs. Frequency (PM/AM)



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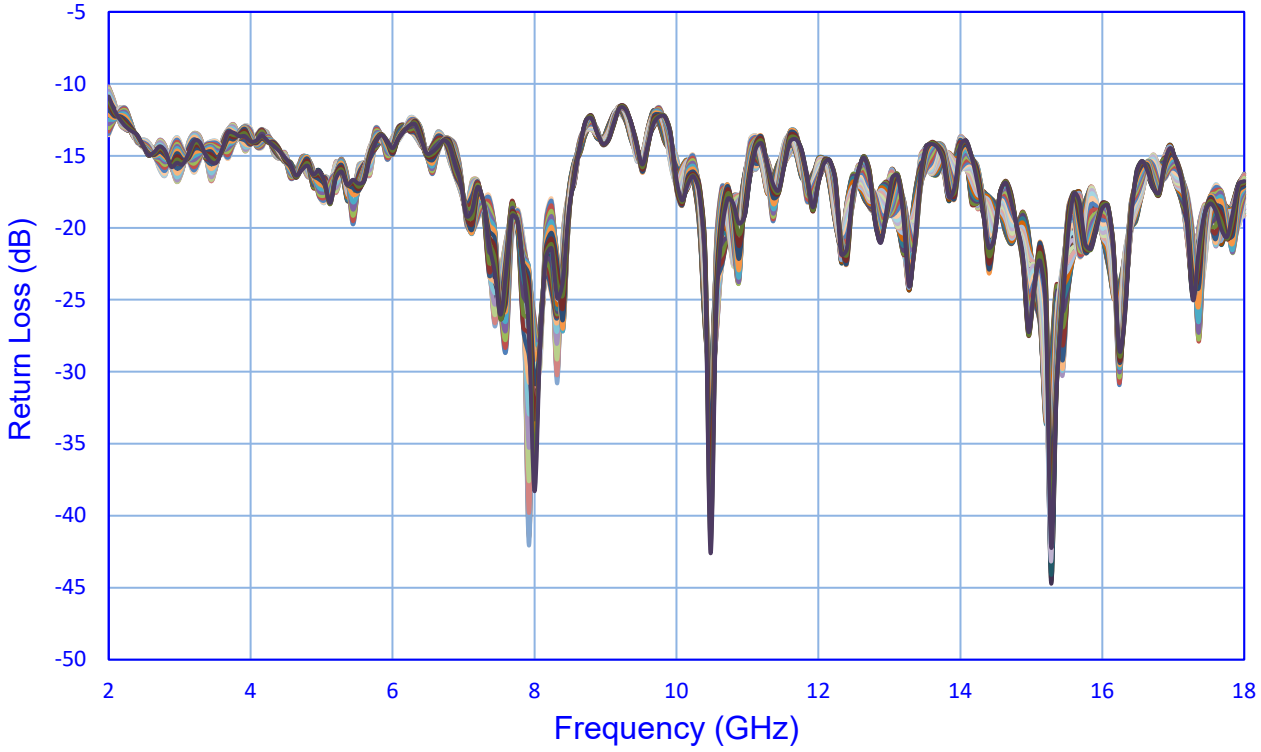
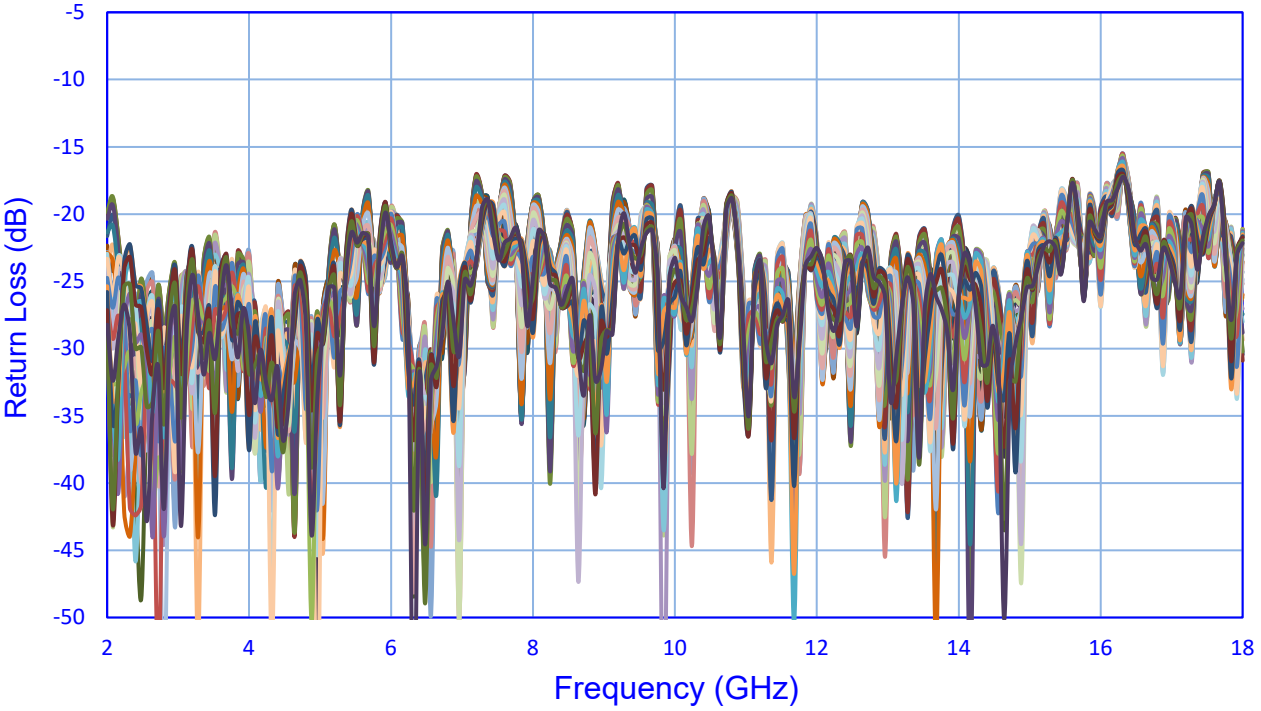
Input Return Loss Vs. Frequency



Output Return Loss Vs. Frequency



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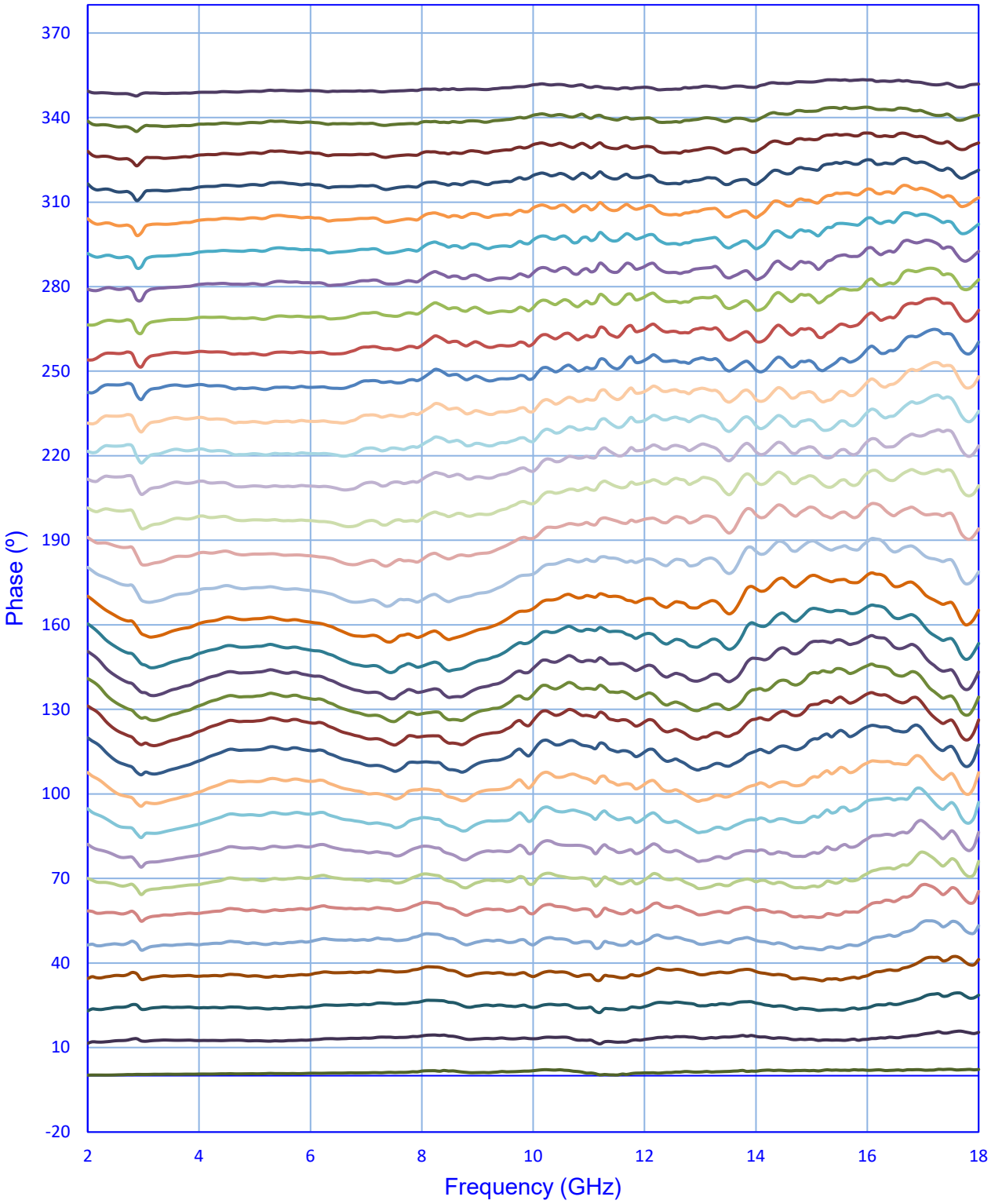
Phase Vs. Frequency



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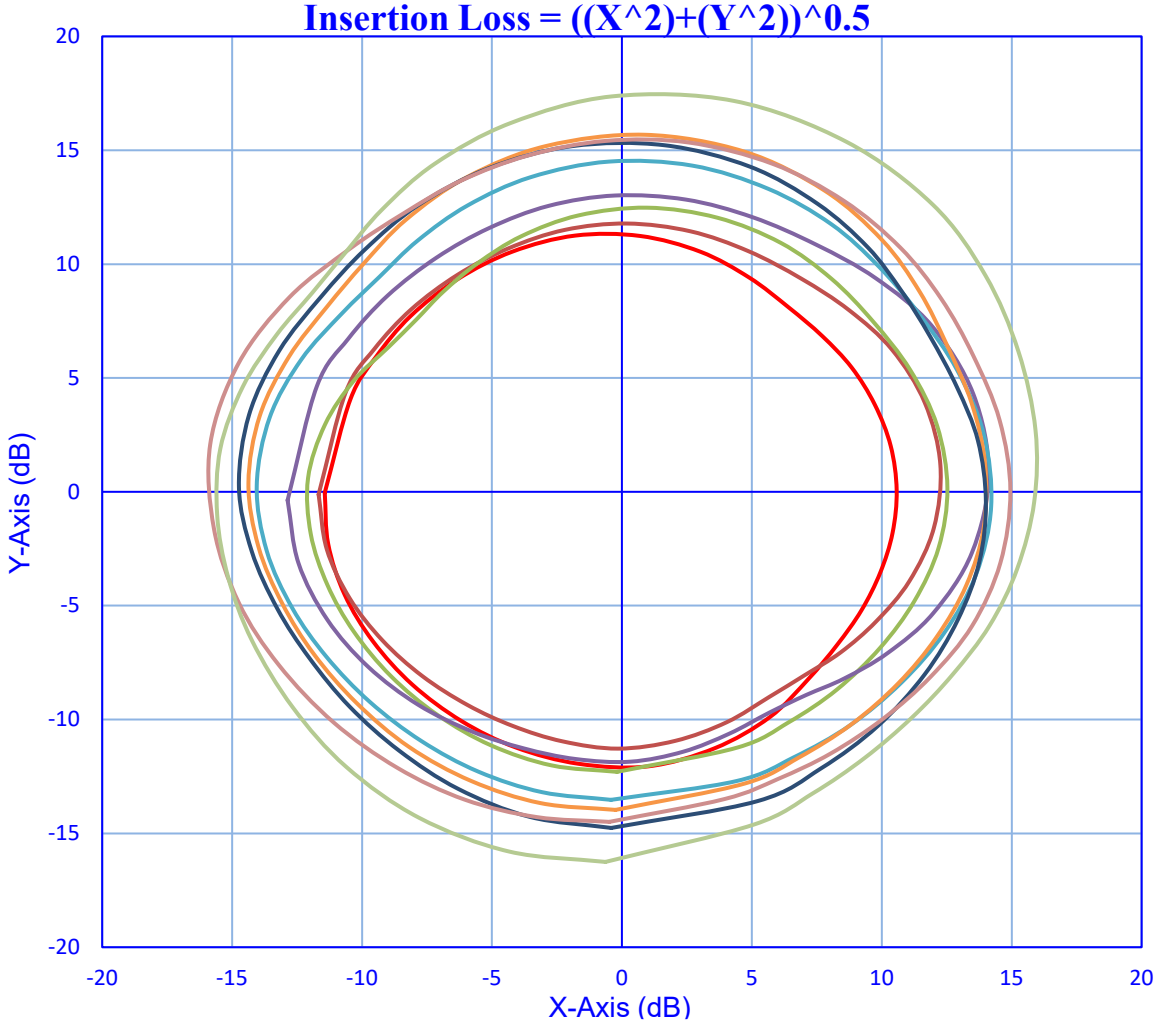
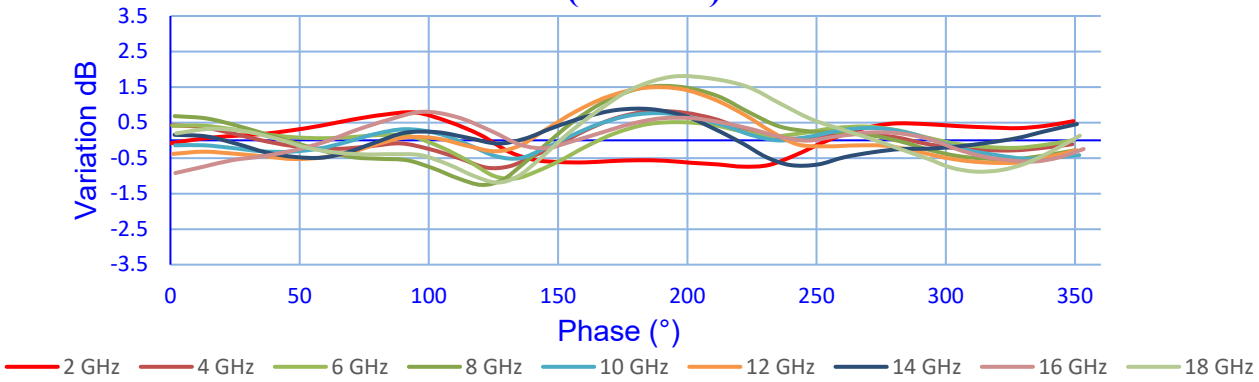
Insertion Loss Vs. Phase

Insertion Loss = ((X^2)+(Y^2))^0.5



Amplitude Linearity Vs. Phase (PM/AM)



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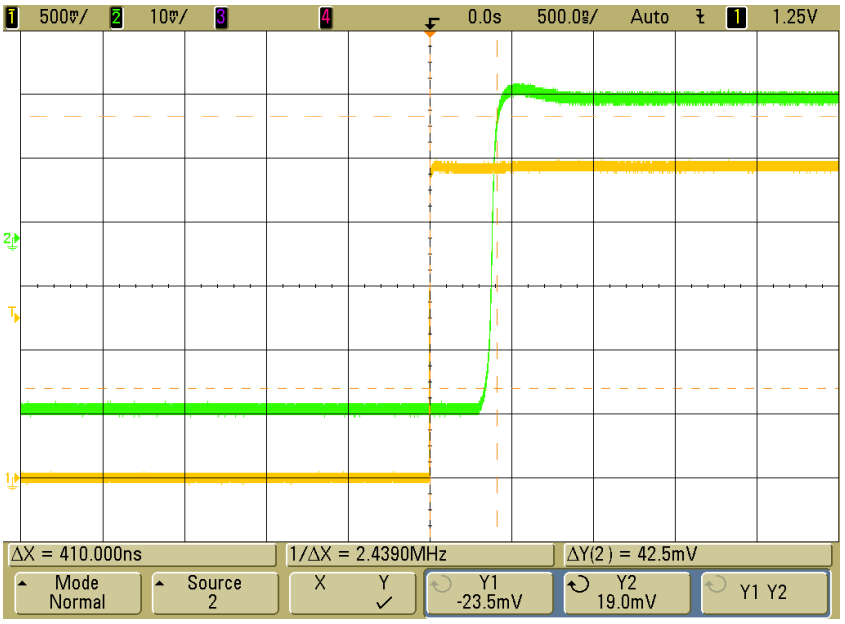
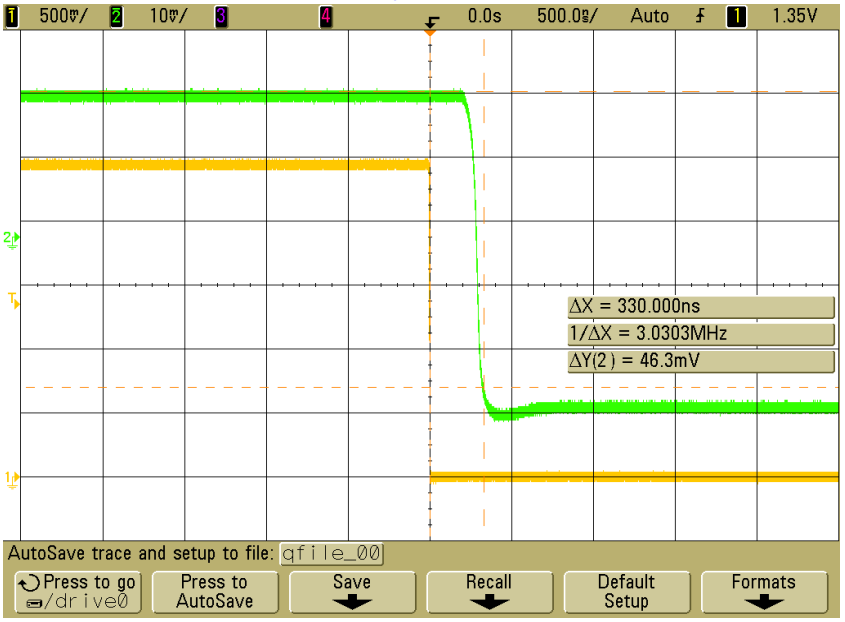
Delay On



Delay Off



Yellow Trace: **Logic Input**

Green Trace: **RF Output (Measured with a Mixer)**

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