TYPICAL CHARACTERISTICS ON PFS-1G20G

PLANAR MONOLITHICS INDUSTRIES MODEL NUMBER: PFS-1G20G IS A FREQUENCY SYNTHESIZER THAT OPERATES OVER THE 1.0 GHz TO 20.0 GHz FREQUENCY RANGE. THIS UNIT FEATURES HIGH SPEED, HIGH ACCURACY AND LOW PHASE NOISE.

TESTED BY: DYLAN HOSCHAR
REPORTED BY: DYLAN HOSCHAR
DATE: 4/24/2025

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PRODUCT FEATURE

DESCRIPTION:

PLANAR MONOLITHICS INDUSTRIES MODEL NUMBER: PFS-1G20G IS A FREQUENCY SYNTHESIZER THAT OPERATES OVER THE 1.0 GHz TO 20.0 GHz FREQUENCY RANGE. THIS UNIT FEATURES HIGH SPEED, HIGH ACCURACY AND LOW PHASE NOISE.

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	9/26/2024	
	B1	ECN #24-0333	11/19/2024	
	C1	ECN # 25-0124	4/22/2025	

SPECIFICATIONS:

- FREQUENCY RANGE: ..... 1.0 GHz TO 20.0 GHz
- FREQUENCY STEP SIZE, NOMINAL (LSB): ..... 0.2 Hz
- FREQUENCY SWITCH TIME: ..... 50 ms MAX.
- OUTPUT POWER: ..... 10 dBm MIN.
- FREQUENCY ACCURACY: ..... ±2x10^-7 (OR SAME AS EXTERNAL REF)
- FREQUENCY STABILITY: ..... ±2x10^-7 (OR SAME AS EXTERNAL REF)
- SPURIOUS: ..... -65 dBc TYP., -60 dBc MAX.
- HARMONICS: ..... -5 dBc MAX.
- INPUT REF FREQUENCY: ..... 10 MHz
- PHASE NOISE: .....

	1 GHz	5 GHz	10 GHz	20 GHz
dBc/Hz @ 100 Hz	≤ -105	≤ -91	≤ -85	≤ -79
dBc/Hz @ 1 kHz	≤ -129	≤ -113	≤ -107	≤ -101
dBc/Hz @ 10 kHz	≤ -135	≤ -122	≤ -116	≤ -110
dBc/Hz @ 100 kHz	≤ -135	≤ -122	≤ -116	≤ -110
dBc/Hz @ 1 MHz	≤ -138	≤ -125	≤ -119	≤ -113

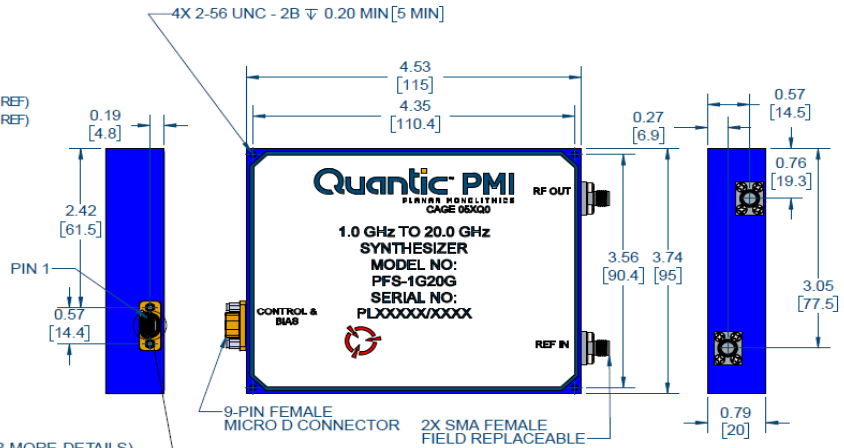
- REF INPUT POWER: ..... 5±3 dBm
- POWER SUPPLY (V/A): ..... +12V @ 1.4A (WARM-UP)
  +12V @ 1.2A (STABLE)
- SIZE: ..... 4.53" X 3.74" X 0.79"
- CONTROL MODE: RS232
- WEIGHT: ..... 33.5 oz MAX.
- FINISH: ..... PAINTED BLUE
- RS232 MODE CONTROL & BIAS DEFINITION: (SEE OPERATING MANUAL FOR MORE DETAILS)

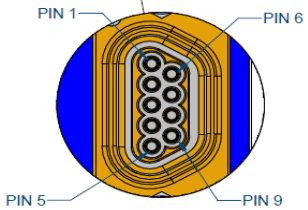
1	+12V
2	+12V
3	GND
4	GND
5	LD
6	NC
7	NC
8	RX
9	TX

ENVIRONMENTAL RATINGS:

- OPERATING TEMP: ..... -40°C TO +70°C
- STORAGE TEMP: ..... -55°C TO +85°C

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





PMI CONFIDENTIAL AND PROPRIETARY

APPROVALS	DATE
DRAWN: D. HOSCHAR	9/26/2024
REVIEWED:	
ISSUED:	

Quantic PMI PLANAR MONOLITHICS
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WEB: WWW.QUANTICPMI.COM SALES@QUANTICPMI.COM
ISO 9001 CERTIFIED

TITLE: OUTLINE
PFS-1G20G

SIZE	FSCM NO.	DWG NO.	REV.
B	05XQ0	27049860	C1

SCALE: 1.25 SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± 0.02 .XXX ± 0.01 ANGLES ±

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Quantic PMI
PLANAR MONOLITHICS

TYPICAL CHARACTERISTICS ON PFS-1G20G

Summary Test Data

TEST ITEM	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			+25°C	-40°C	+70°C
1	Frequency Range:	1.0 GHz to 20.0 GHz	**1.0 GHz to 20.0 GHz**		
2	Frequency Step Size:	0.2 Hz	**0.2 Hz**		
3	Frequency Switch Time:	50 ms Max.	**42.63 ms (See Graphs)**		
4	Output Power:	+10 dBm Min.	**11.1 dBm**	**11.4 dBm**	**10.7 dBm**
5	Frequency Accuracy:	±2x10^-7 (or same as external ref)	**±2x10^-7 (or same as external ref)**		
6	Frequency Stability:	±2x10^-7 (or same as external ref)	**±2x10^-7 (or same as external ref)**		
7	Spurious:	-65 dBc Typ. -60 dBc Max.	**-70.3 dBc See Graphs**		
8	Harmonics:	-5 dBc Max.	**-9.18 dBc (See Graphs)**		
9	Power Supply:	+12V @ 1.4A Max. (Warm-up) +12V @ 1.2A Max. (Stable)	**+12V @ 1.09A +12V @ 0.97A**	**+12V @ 1.19A +12V @ 1.08A**	**+12V @ 1.12A +12V @ 0.99A**
10	Phase Noise:	See Table 1 Below:	**See Table 2 Below**		

Table 1
Phase Noise Specifications

	1 GHz	5 GHz	10 GHz	20 GHz
dBc/Hz @ 100 Hz	≤ -105	≤ -91	≤ -85	≤ -79
dBc/Hz @ 1 kHz	≤ -129	≤ -113	≤ -107	≤ -101
dBc/Hz @ 10 kHz	≤ -135	≤ -122	≤ -116	≤ -110
dBc/Hz @ 100 kHz	≤ -135	≤ -122	≤ -116	≤ -110
dBc/Hz @ 1 MHz	≤ -138	≤ -125	≤ -119	≤ -113

Table 2
Phase Noise Measured Data

	1 GHz	5 GHz	10 GHz	20 GHz
dBc/Hz @ 100 Hz	-115	-102	-95	-90
dBc/Hz @ 1 kHz	-131	-118	-112	-106
dBc/Hz @ 10 kHz	-137	-125	-119	-113
dBc/Hz @ 100 kHz	-137	-125	-119	-113
dBc/Hz @ 1 MHz	-139	-128	-122	-116

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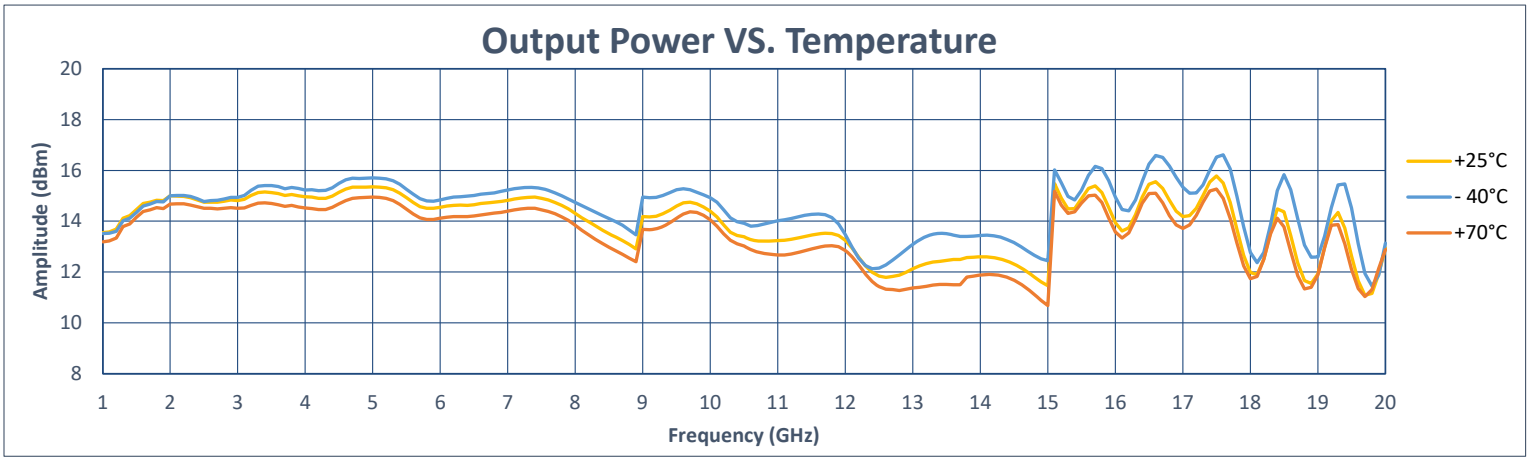

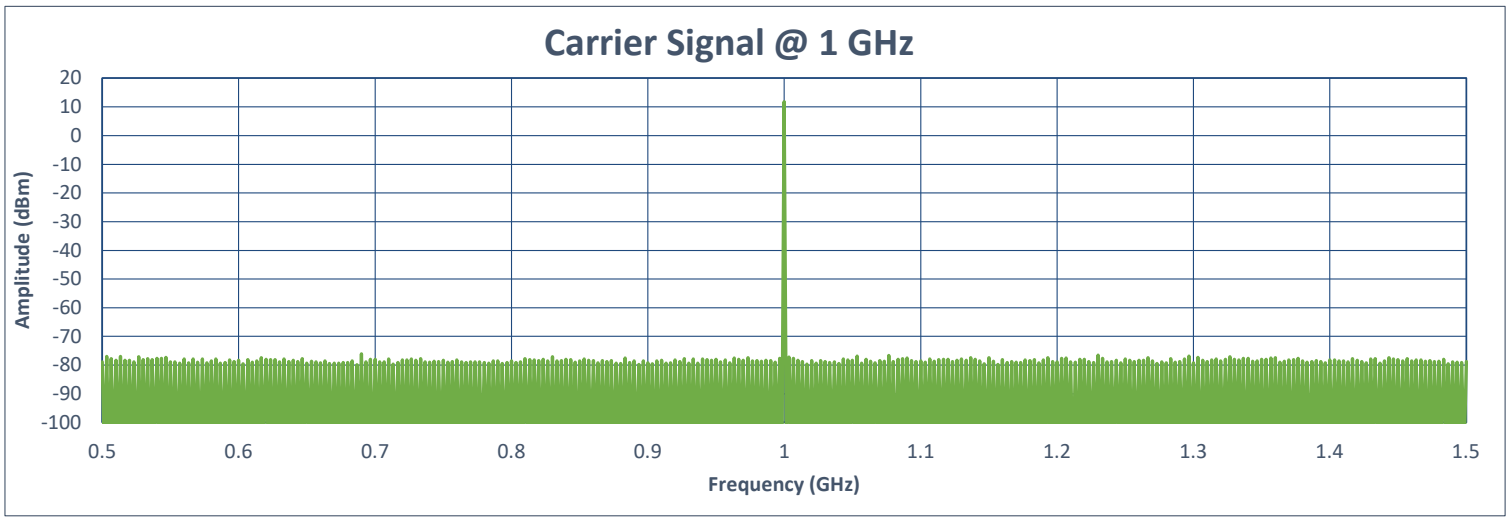

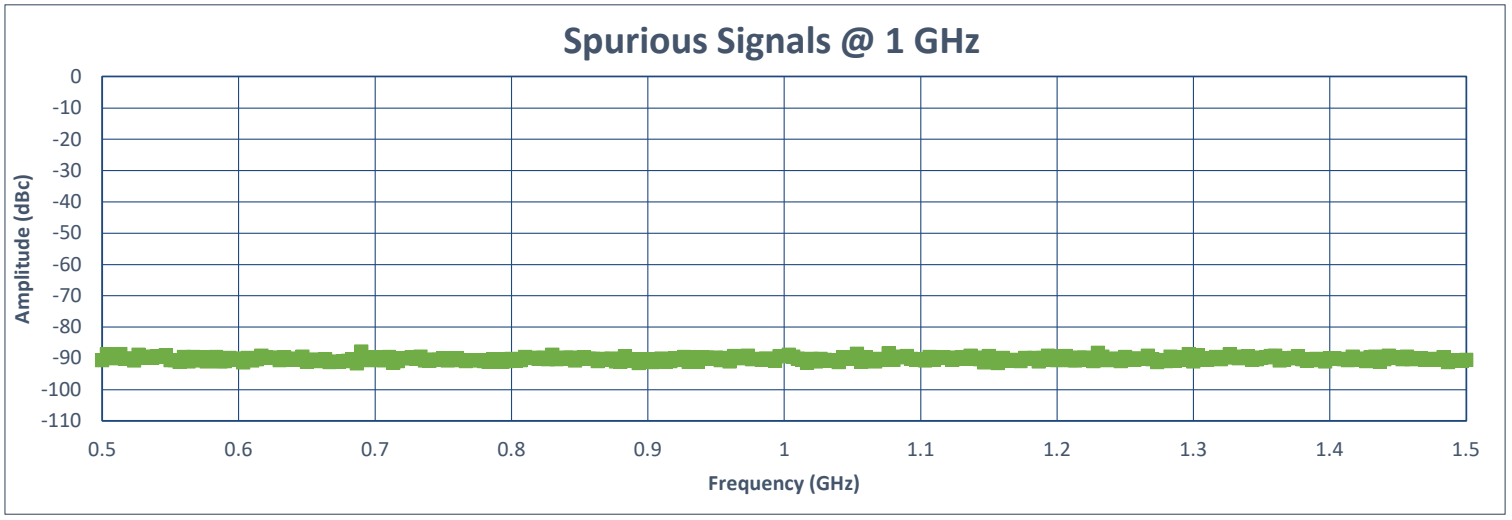

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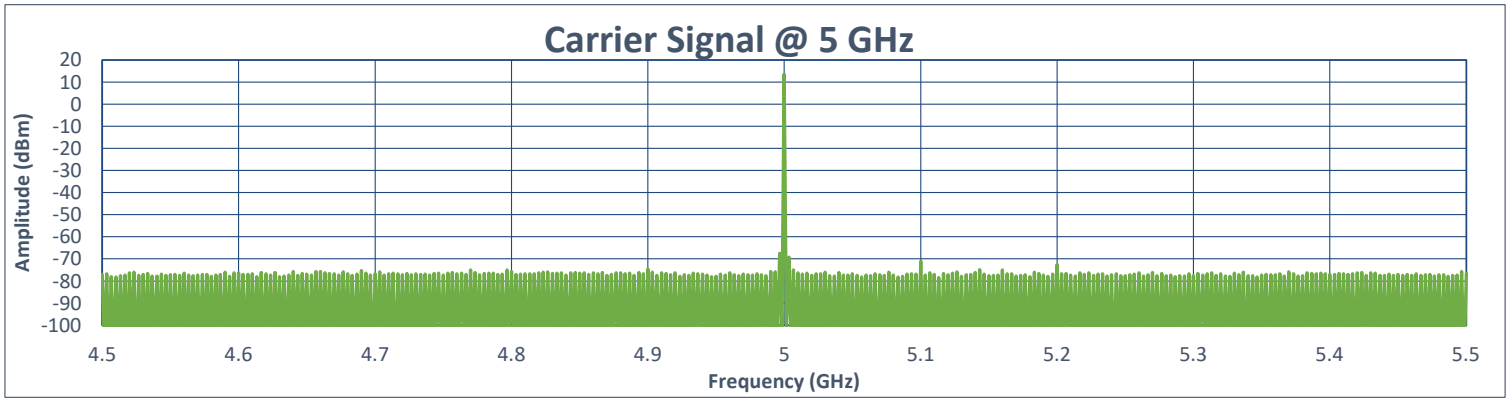

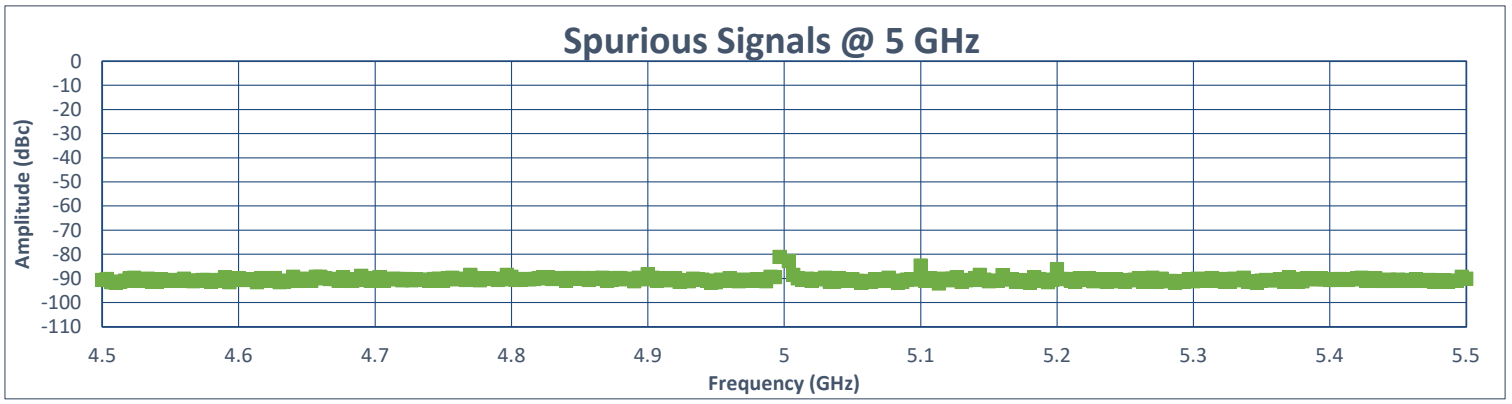

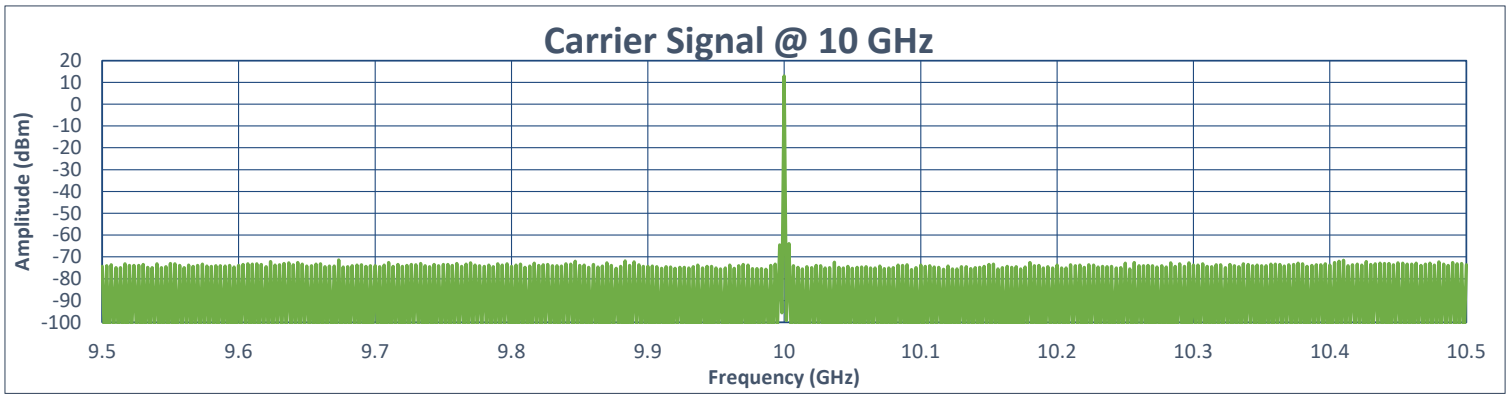

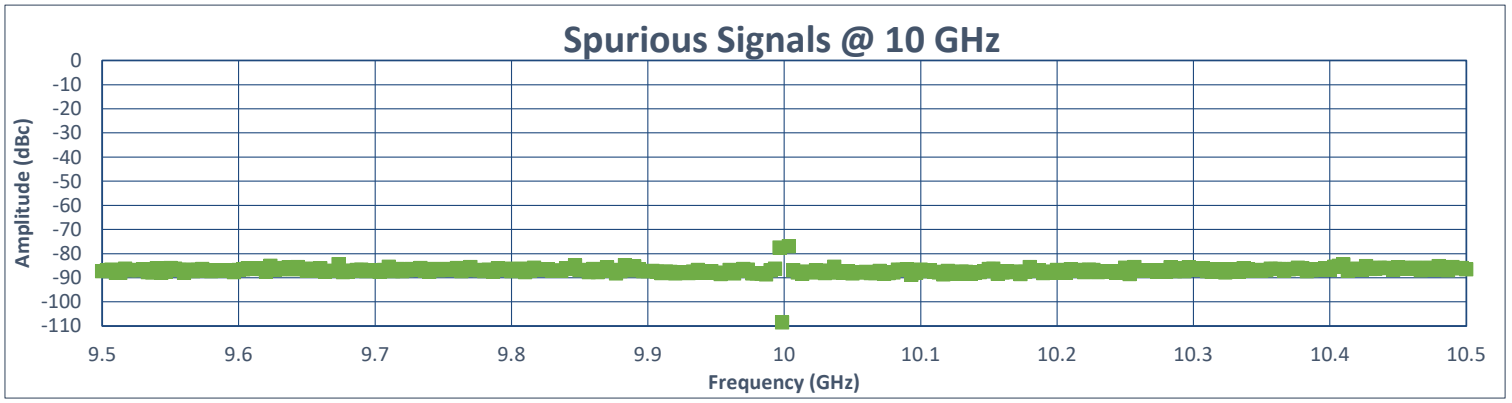

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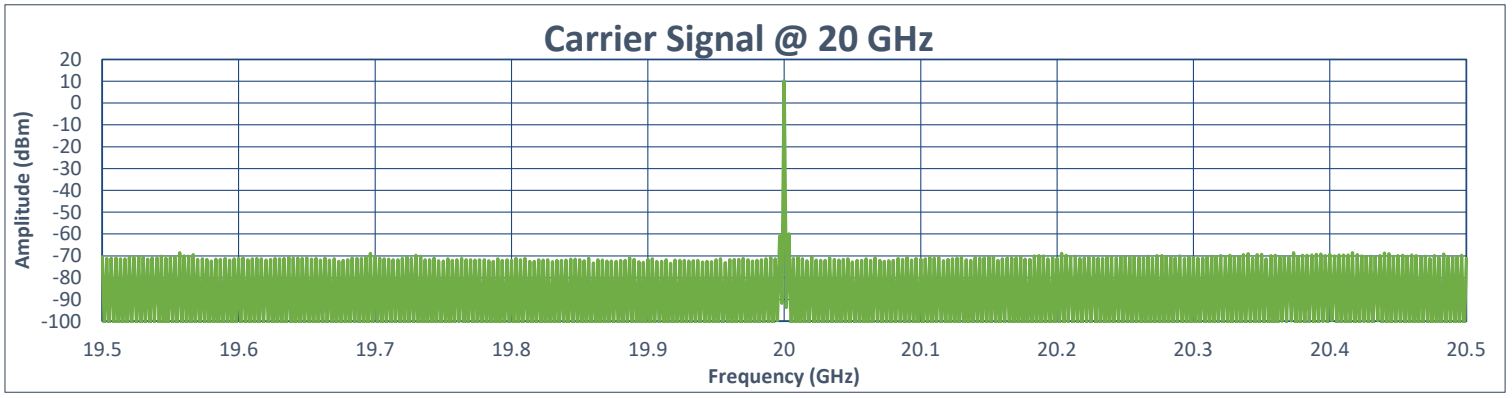

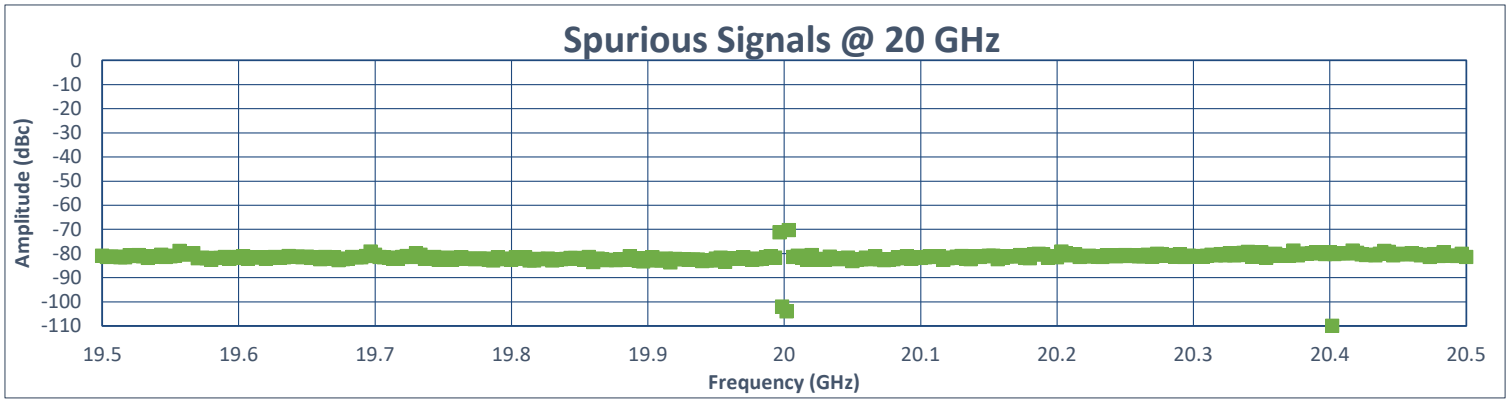

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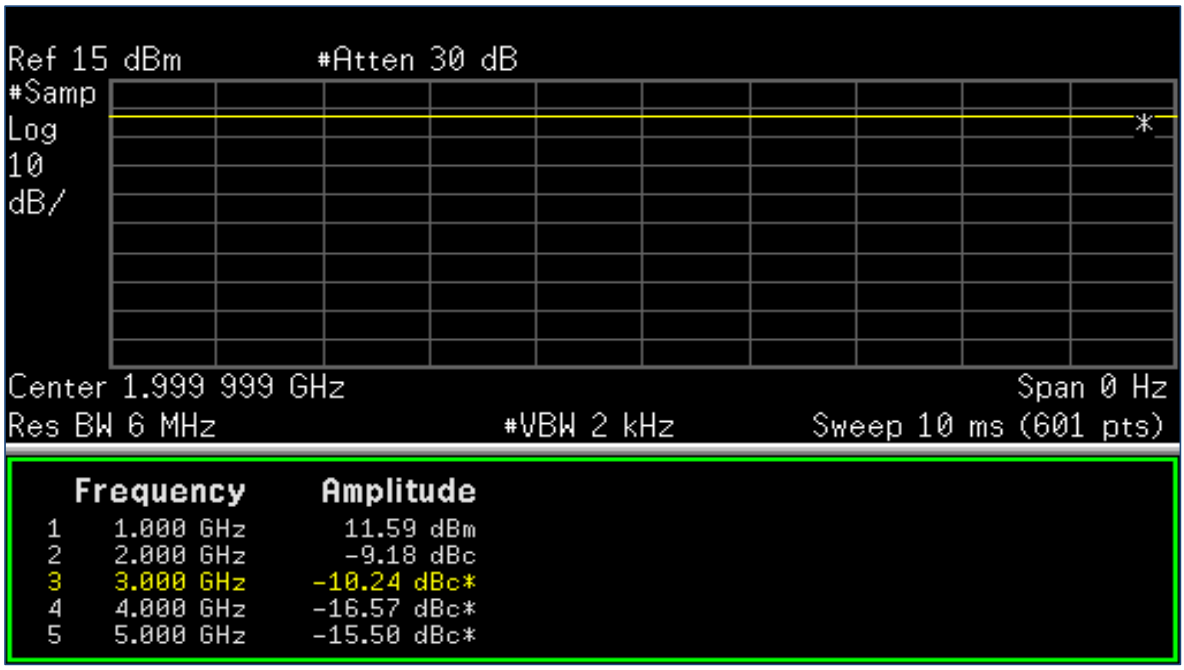
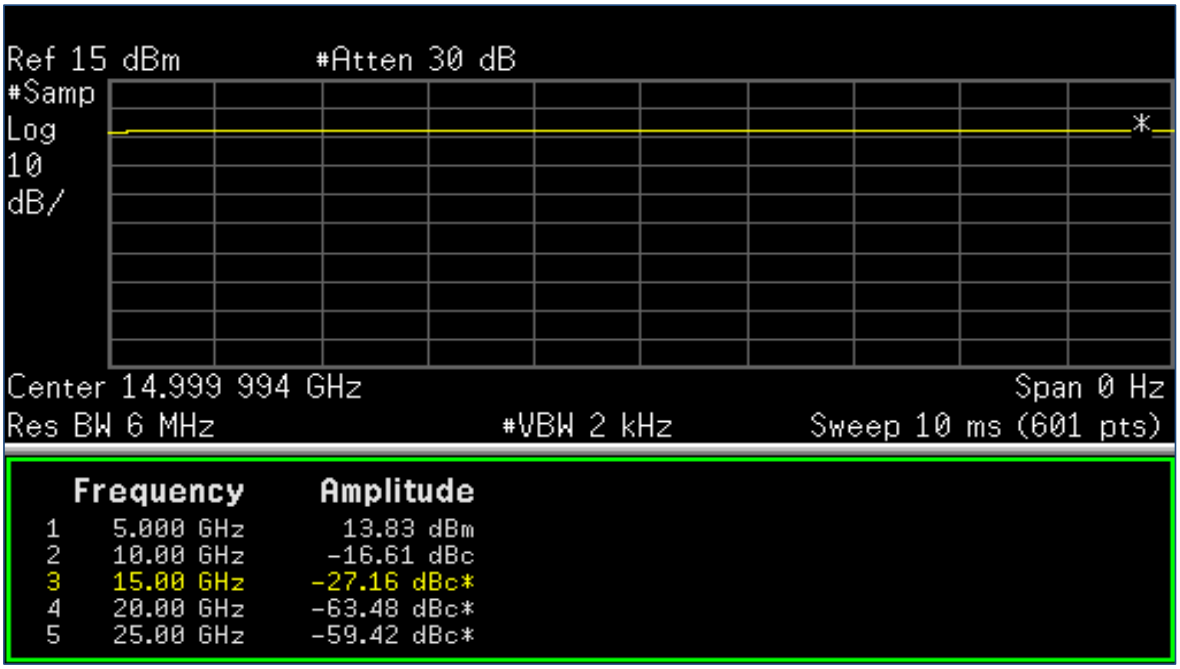
Harmonics

@ 1 GHz



@ 5 GHz



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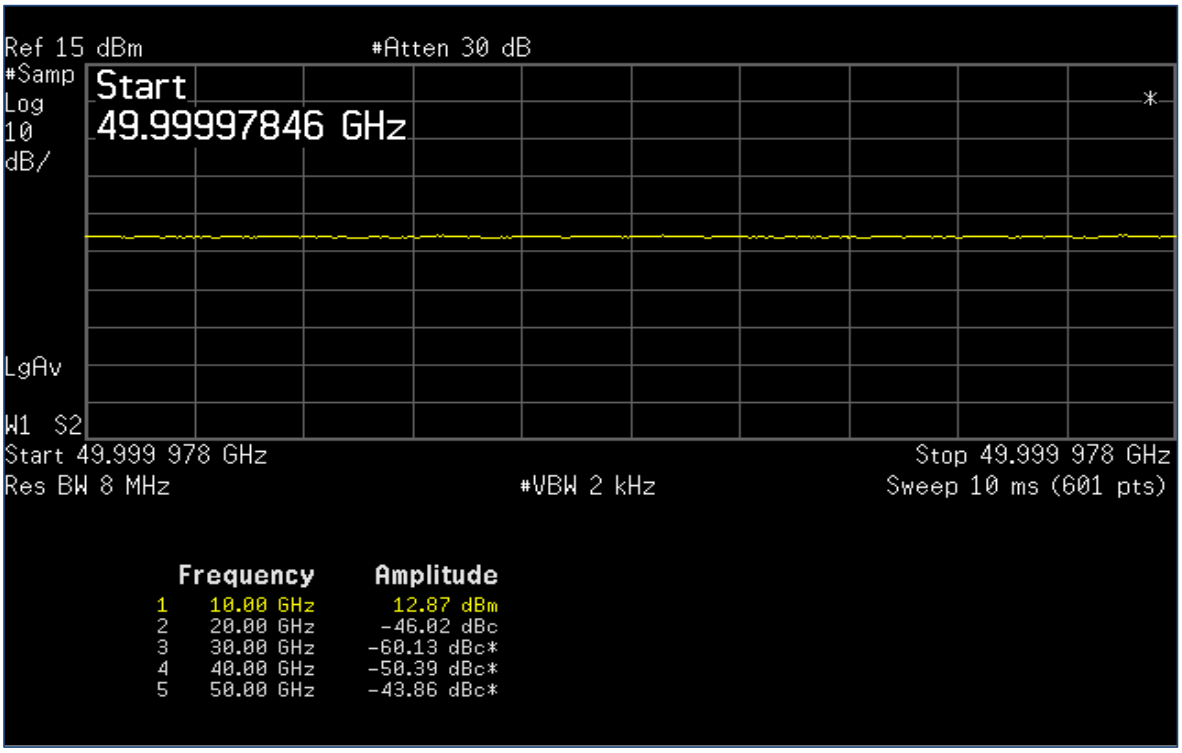
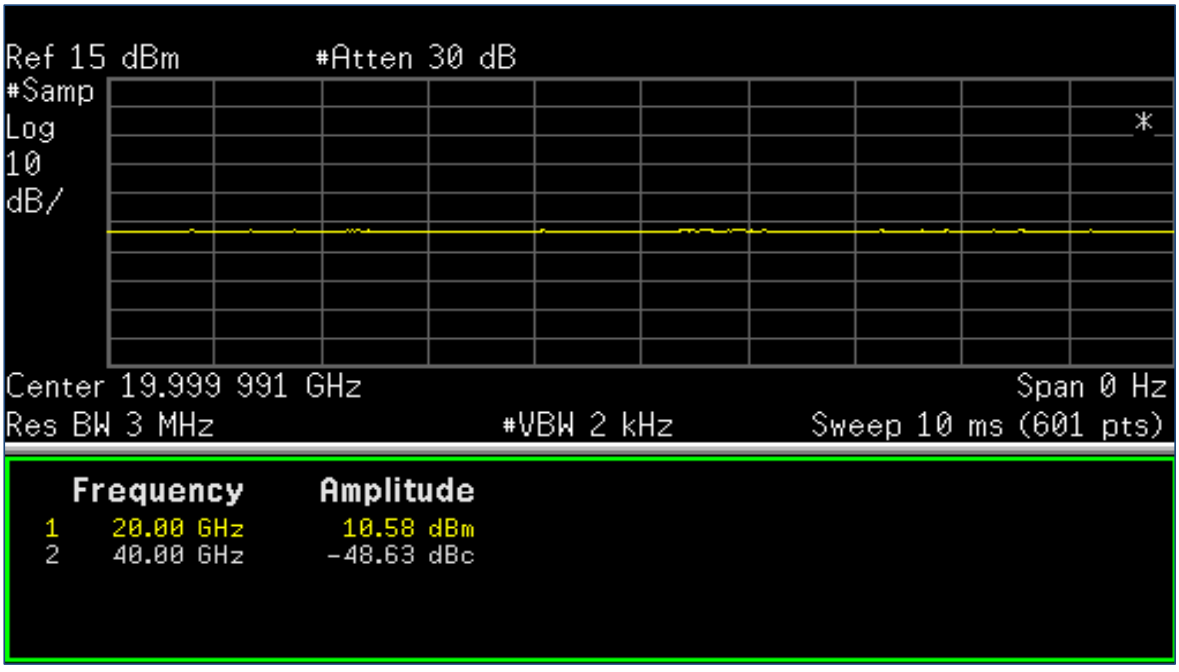
@ 10 GHz



@ 20 GHz



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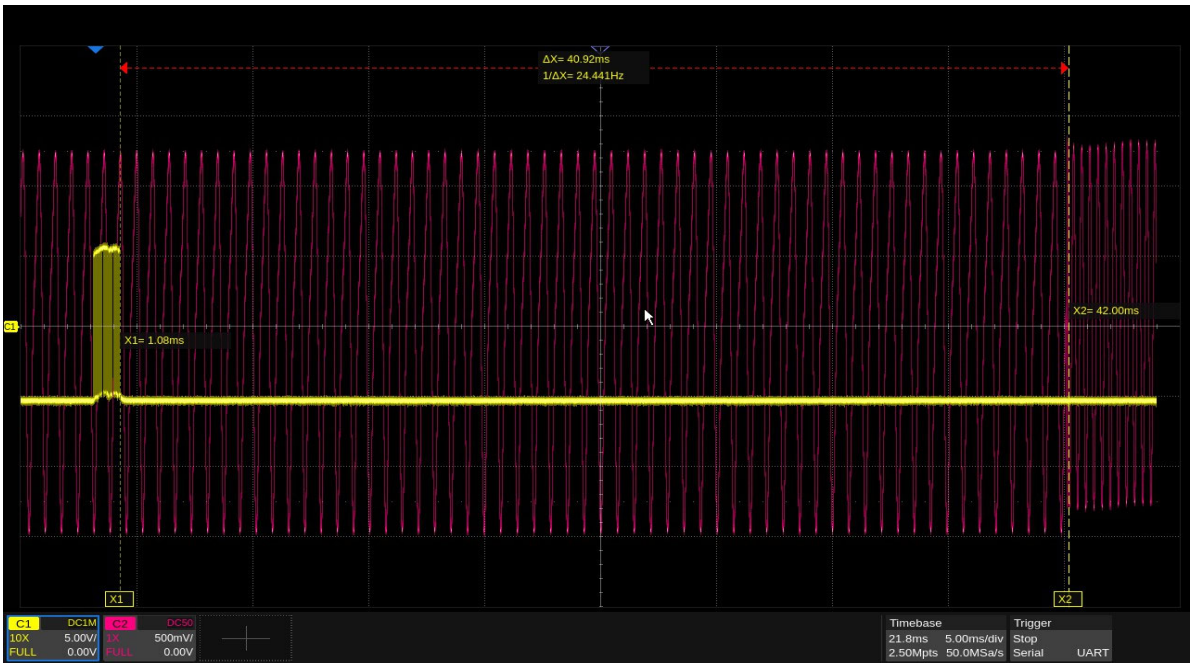
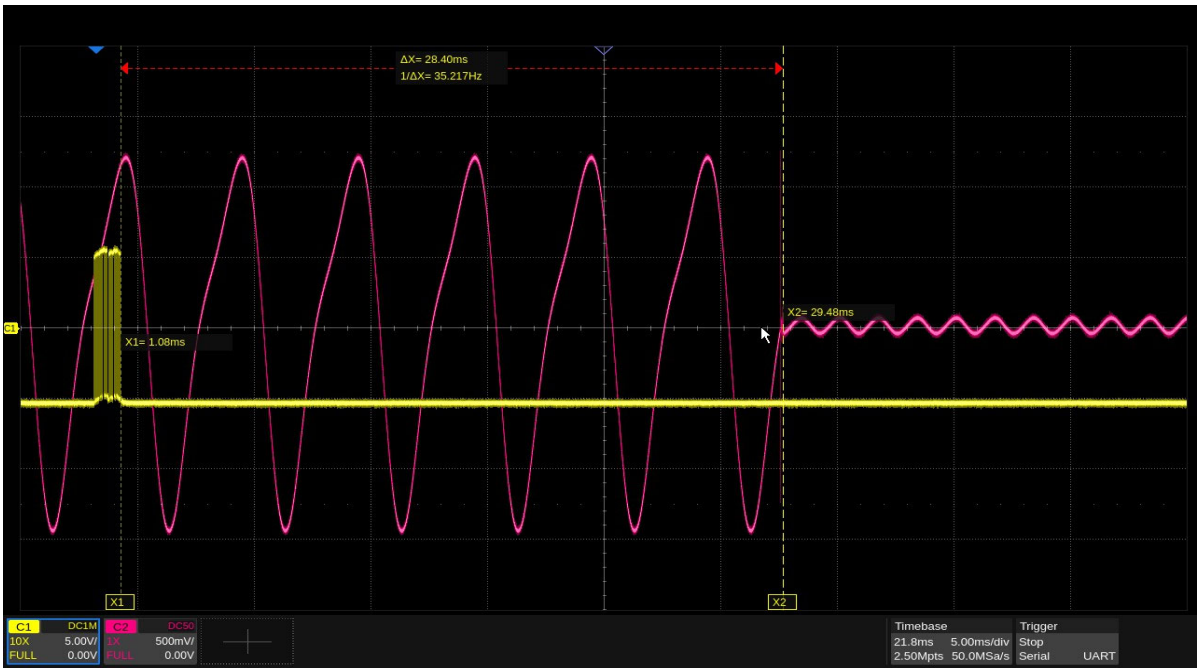
Frequency Switching Time

1 GHz to 2 GHz



1 GHz to 3 GHz



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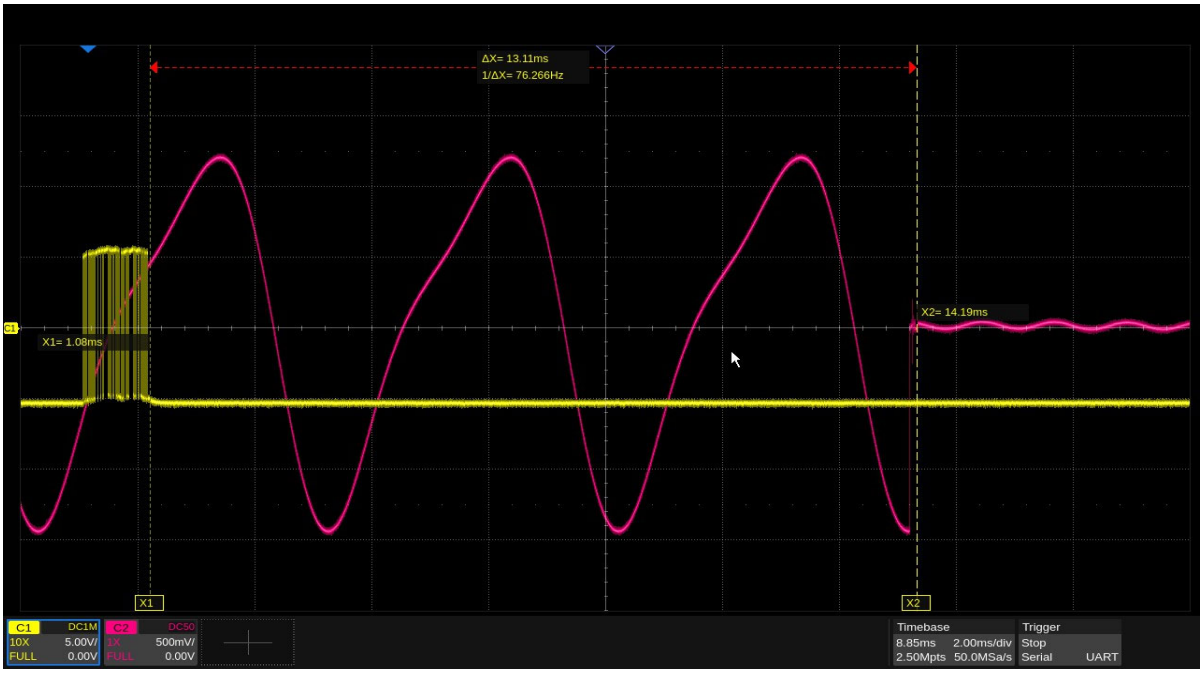
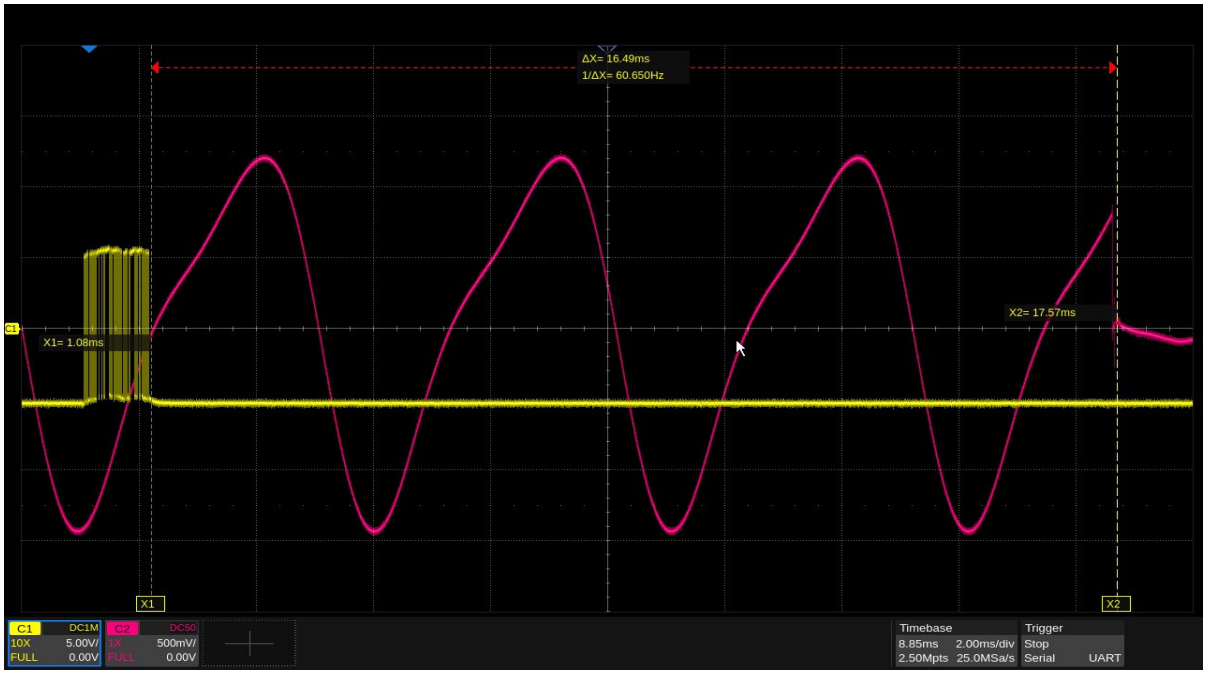
1 GHz to 4 GHz



1 GHz to 5 GHz



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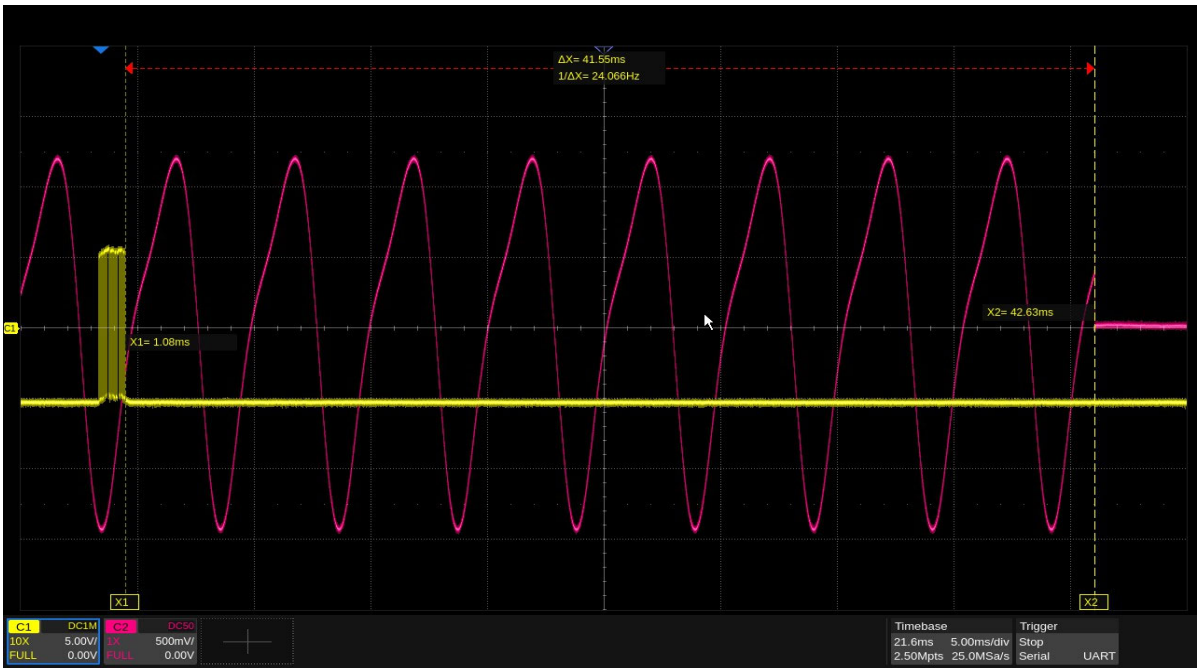
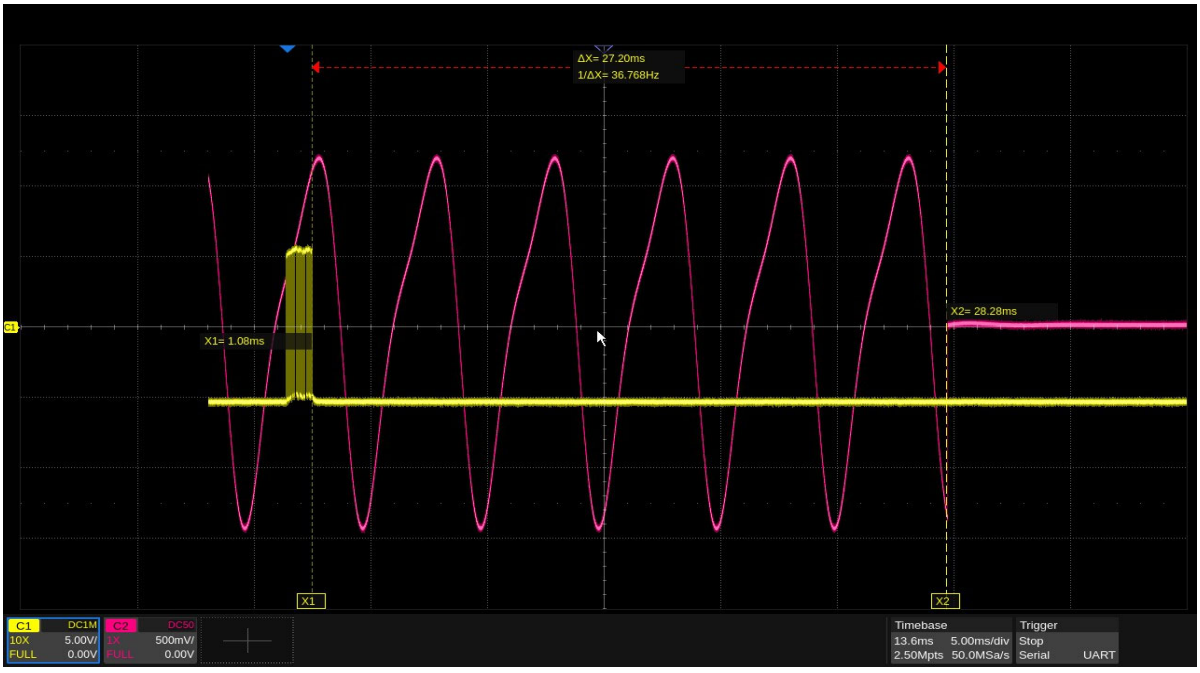
1 GHz to 10 GHz



1 GHz to 20 GHz



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