

Quantic™ PMI TYPICAL CHARACTERISTICS
ON
P2T-18G42G-60-R-55-292FF

PMI MODEL P2T-18G42G-60-R-55-292FF IS A REFLECTIVE SINGLE POLE, TWO THROW PIN DIODE SWITCH THAT OPERATES OVER THE 18 GHz TO 42 GHz FREQUENCY RANGE.



REPORTED BY: V. PRATAP
TESTED BY: S. O'NEILL
DATE: 09/29/2025

Quantic™ PMI PLANAR MONOLITHICS TYPICAL CHARACTERISTICS ON P2T-18G42G-60-R-55-292FF

PRODUCT FEATURE

DESCRIPTION:

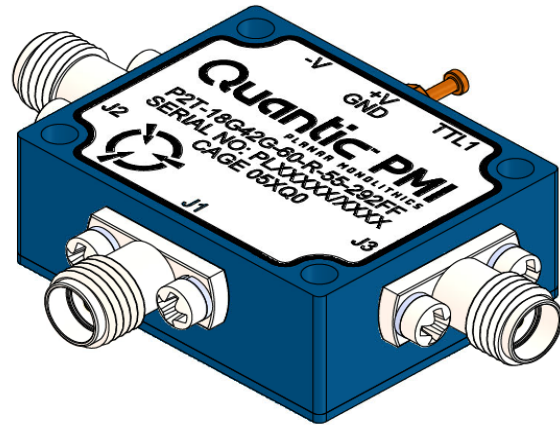
PMI MODEL P2T-18G42G-60-R-55-292FF IS A REFLECTIVE SINGLE POLE, TWO THROW PIN DIODE SWITCH THAT OPERATES OVER THE 18 GHz TO 42 GHz FREQUENCY RANGE.

SPECIFICATIONS:

- FREQUENCY RANGE:.....18-42 GHz
- IMPEDANCE:.....50 Ω
- VSWR (IN/OUT):.....2.5:1 MAX
- INSERTION LOSS:.....4.5 dB GOAL, 5.5 dB MAX
- ISOLATION:.....60 dB MIN
- INPUT POWER HANDLING (SURVIVAL):.....+27 dBm CW MAX
- INPUT POWER HANDLING (NON-DEGRADING):.....+25 dBm CW OR PEAK MAX
- HARMONIC GENERATION (+15 dBm INPUT AT DEVICE CENTER FREQUENCY):.....-30 dBc MAX
- SPURIOUS SIGNALS / AM SIDEBANDS:.....-65 dBc MAX
- SWITCHING SPEED:
(AT +10 dBm INPUT POWER, MEASUREMENT TAKEN WITH CRYSTAL DETECTOR TERMINATED WITH 50 OHMS)
 - DRIVER DELAY AND SWITCH TIME (ON) (50% TTL TO INSERTION LOSS):.....200 nsec MAX
 - DRIVER DELAY AND SWITCH TIME (OFF) (50% TTL TO INSERTION LOSS):.....200 nsec MAX
- VIDEO TRANSIENTS20 mVpp MAX
(MEASURED INTO A 20 MHz BW AT 50 OHMS, ALL RF PORTS)
- VIDEO LEAKAGE-60 dBm MAX
(MEASURED WITH 400 KHz TTL SQUARE WAVE AND SPECTRUM ANALYZER AT RBW = 3.0 MHz, VBW = 3.0 MHz, RF ATTENUATION = 0 dB)
- POWER SUPPLY :.....+5 VDC ±5% @ 175 mA MAX
-5 VDC +5% TO -12 VDC -5% @ 75 mA MAX
- CONTROL:.....TTL LOGIC
0: J2 ENABLED
1: J3 ENABLED
- CONNECTORS:.....2.92 mm FEMALE
- FINISH:.....PAINTED BLUE

ENVIRONMENTAL RATINGS:

- TEMPERATURE:.....0°C TO +60°C (OPERATING)
-55°C TO +75°C (STORAGE)
- HUMIDITY:.....NON-CONDENSING HUMIDITY LEVELS:
BETWEEN 0.0% AND 80.0% RH, INCLUSIVE (OPERATING)
BETWEEN 0.0% AND 90.0% RH, INCLUSIVE (STORAGE)
- VIBRATION AND SHOCK:.....CAN OPERATE WITHIN SPECIFICATIONS AFTER SHIPMENT VIA COMMERCIAL TRANSPORTATION
- ALTITUDE:.....MIL-STD-810
FROM SEA-LEVEL TO 10,000 FT (OPERATING)
FROM SEA-LEVEL TO 40,000 FT (STORAGE)



ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	8/20/2018	

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

PMI CONFIDENTIAL AND PROPRIETARY

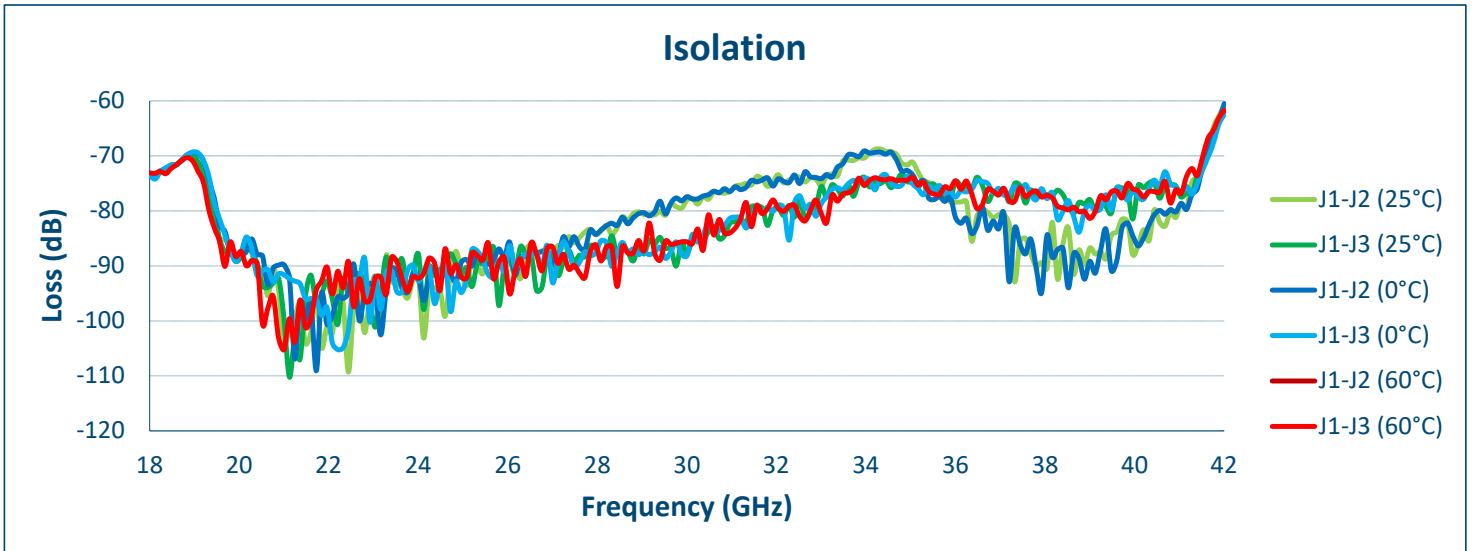
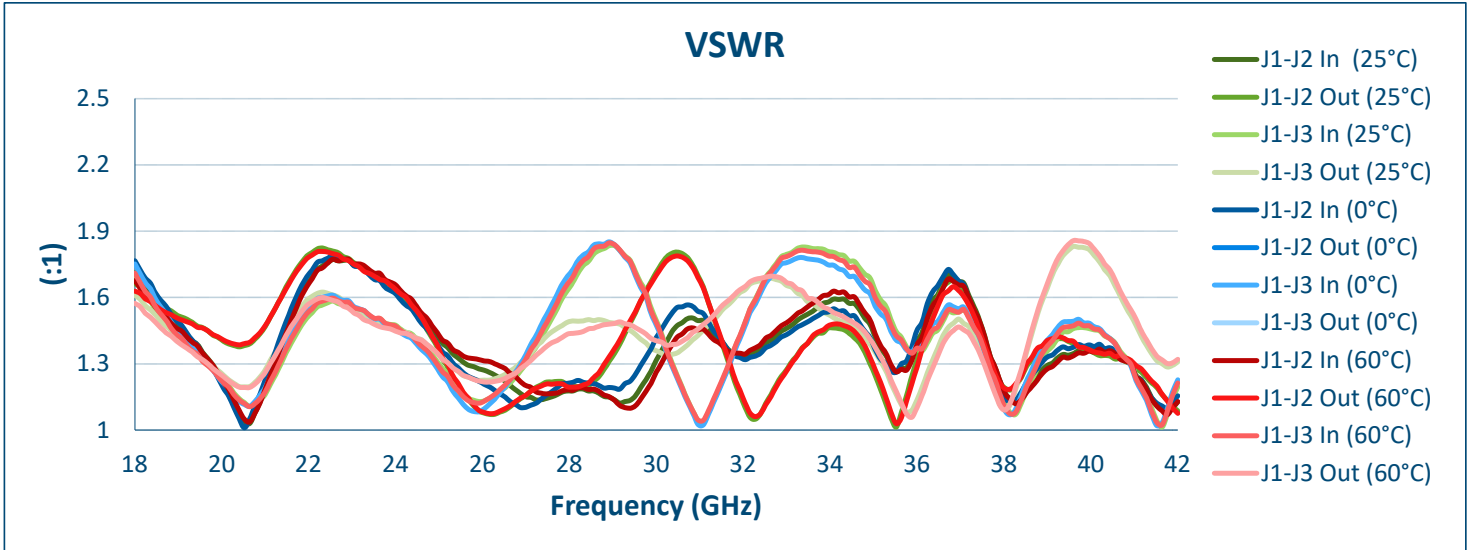
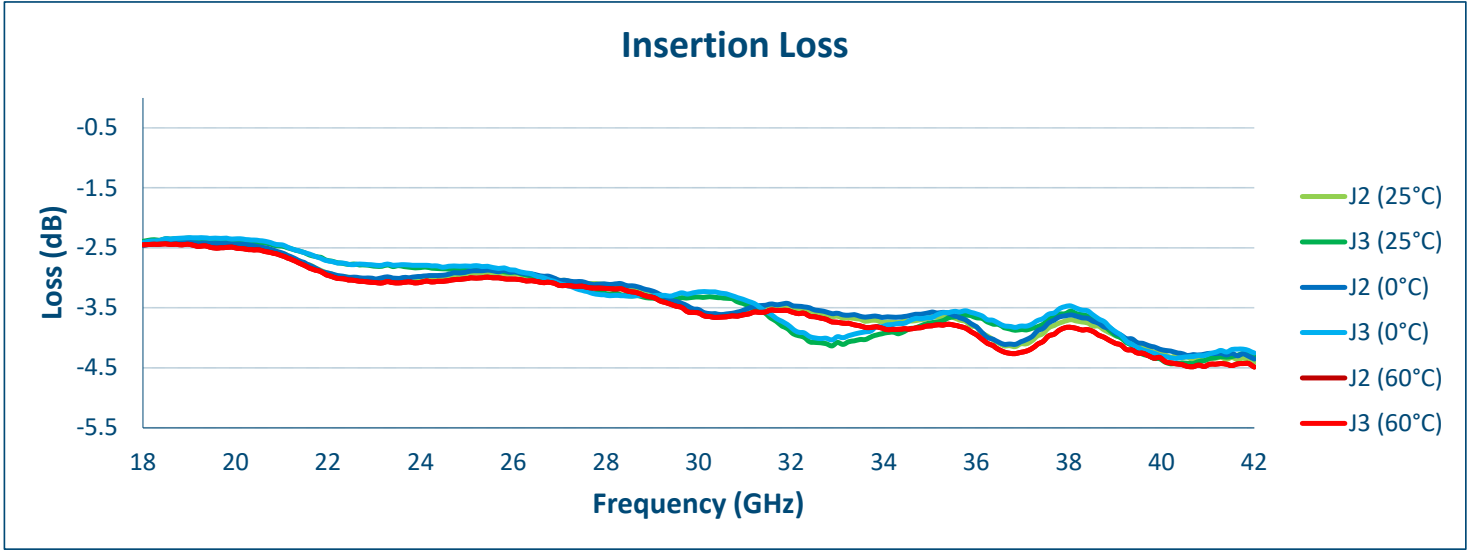
APPROVALS		DATE	TITLE	
DESIGNED BY	V. PRATAP	8/20/2018	OUTLINE	
REVISIONS			P2T-18G42G-60-R-55-292FF	
SIZE	B	FORM NO.	27052480	REV.
				A1
SCALE: 2:1			SHEET 1 OF 2	

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TECHNICAL SPECIFICATIONS

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			0°C	25°C	60°C
1	Frequency Range:	18 GHz TO 42 GHz	18 GHz TO 42 GHz		
2	VSWR: In/Out	2.5:1 Max	In 1.85:1 Out 1.85 :1 See Plot	In 1.83:1 Out 1.83 :1 See Plot	In 1.85:1 Out 1.86 :1 See Plot
3	Insertion Loss:	4.5 dB Goal 5.5 dB Max	4.35 dB See Plot	4.43 dB See Plot	4.51 dB See Plot
4	Isolation:	60 dB Min.	60 dB See Plot	61 dB See Plot	61 dB See Plot
5	Input Power:	+27 dBm CW Max(Survival) +25 dBm CW or Peak (Non-Degrading) Max	27 dBm CW		
6	Harmonic Generation	-30 dBc Max @ +15 dBm Input	-57.22 dBc	-57.02 dBc	-56.08 dBc
7	Spurious Signals/ AM Sidebands	-65 dBc Max	<-70 dBc	<-70 dBc	<-70 dBc
8	Control Signal:	TTL LOGIC 0: J2 ENABLED 1: J3 ENABLED	TTL LOGIC 0: J2 ENABLED 1: J3 ENABLED		
			25°C		
9	Switching Speed:	DRIVER DELAY AND SWITCH TIME (ON) (50% TTL TO INSERTION LOSS): 200 ns Max	159.0 ns		
		DRIVER DELAY AND SWITCH TIME (OFF) (50% TTL TO INSERTION LOSS): 200 ns Max	120.0 ns		
10	Video Transients	20 mVpp Max	18.8mVpp		
11	Video Leakage	-60 dBm Max	-76.95 dBm		
12	DC Supply:	+5 VDC ±5% @ 175 mA Max. -5 VDC +5% TO -12 VDC -5% @ 75 mA Max.	+5 VDC ±5% @ 23mA -5 VDC +5% TO -12 VDC -5% @ 26mA		

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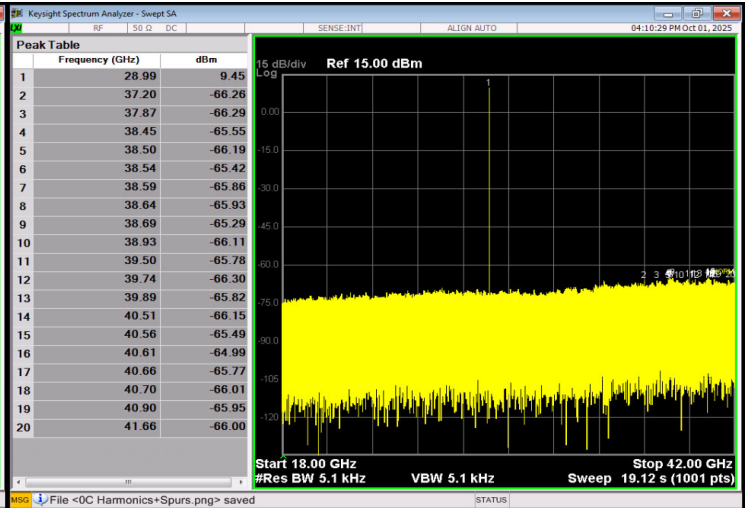
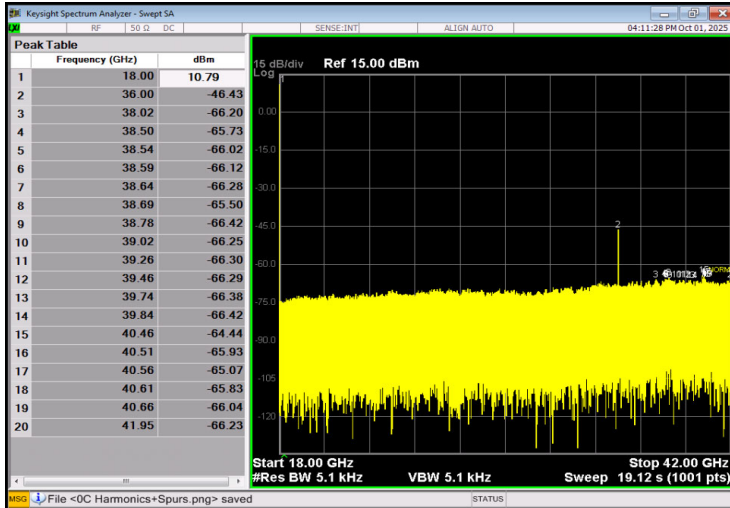
ON

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HARMONIC GENERATION

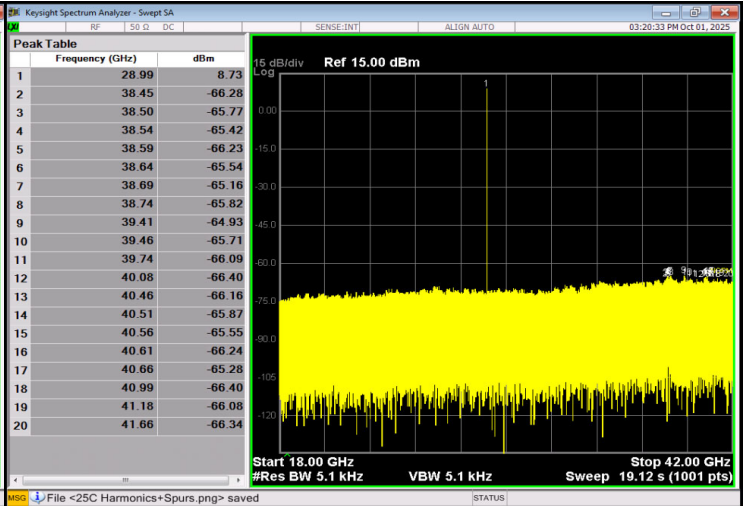
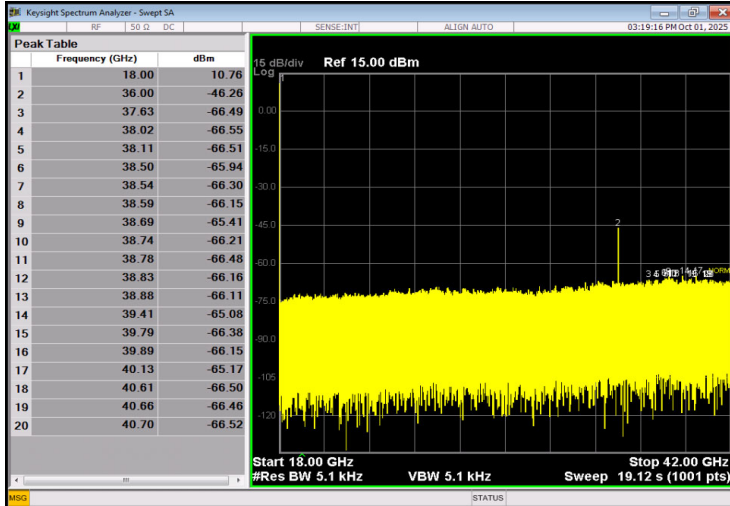
J2 18 GHz
 Harmonics: -57.22 dBc @ 0°C

J2 29 GHz
 0°C



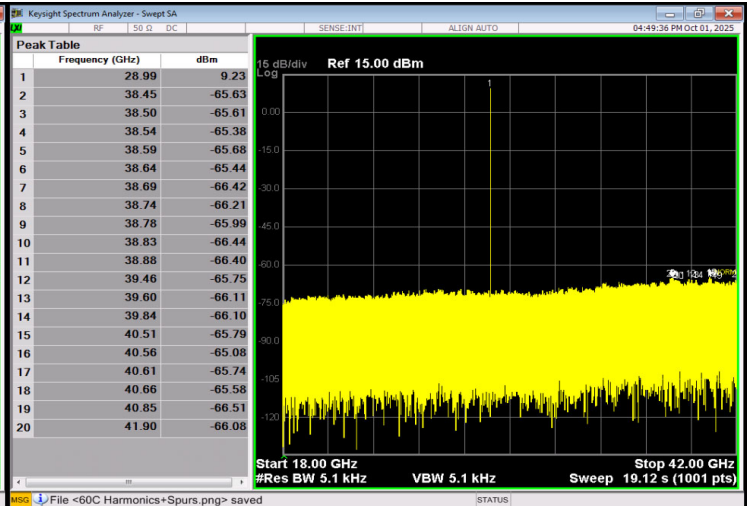
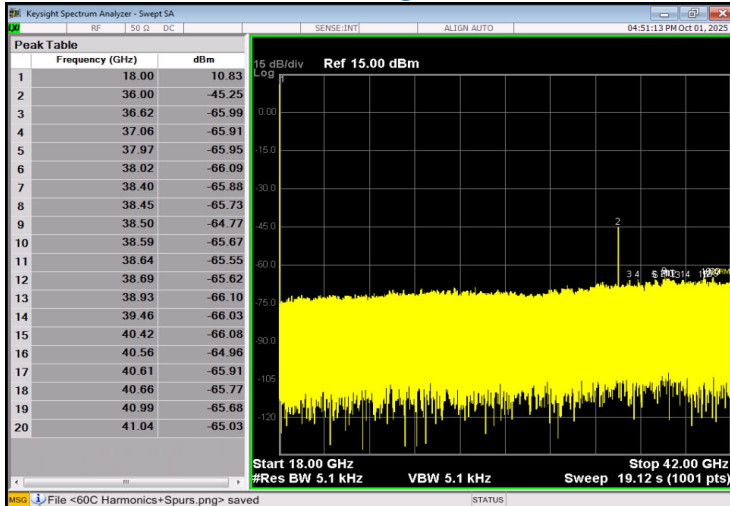
Harmonics: -57.02 dBc @ 25°C

25°C



Harmonics: -56.08 dBc @ 60°C

60°C

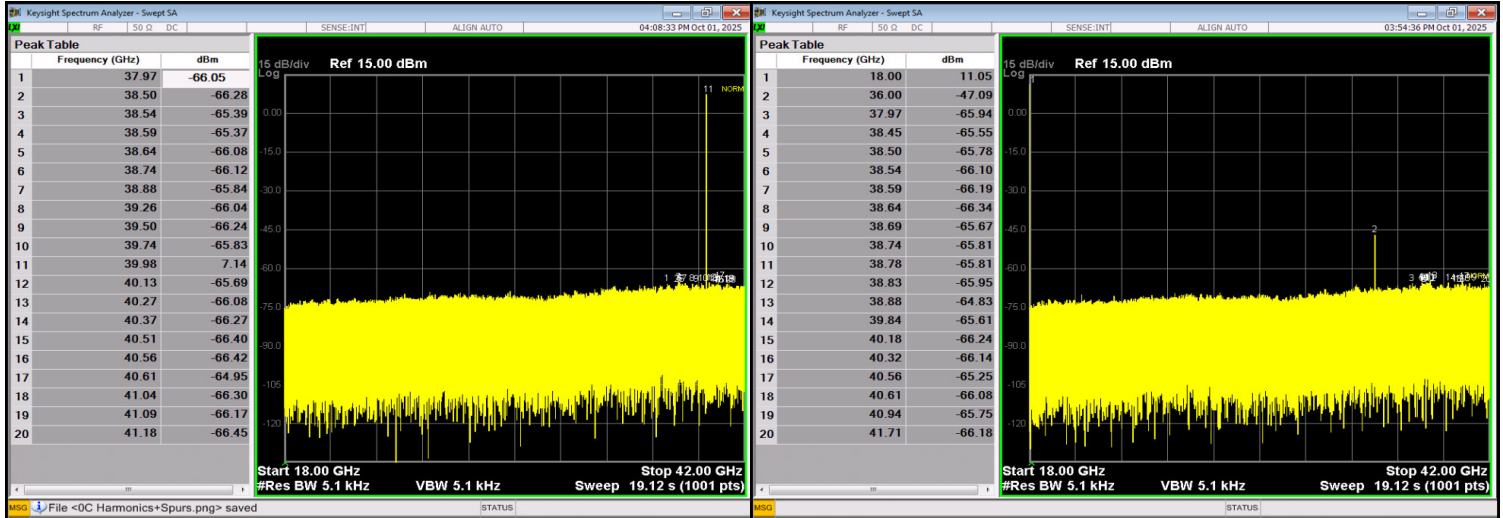


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HARMONIC GENERATION

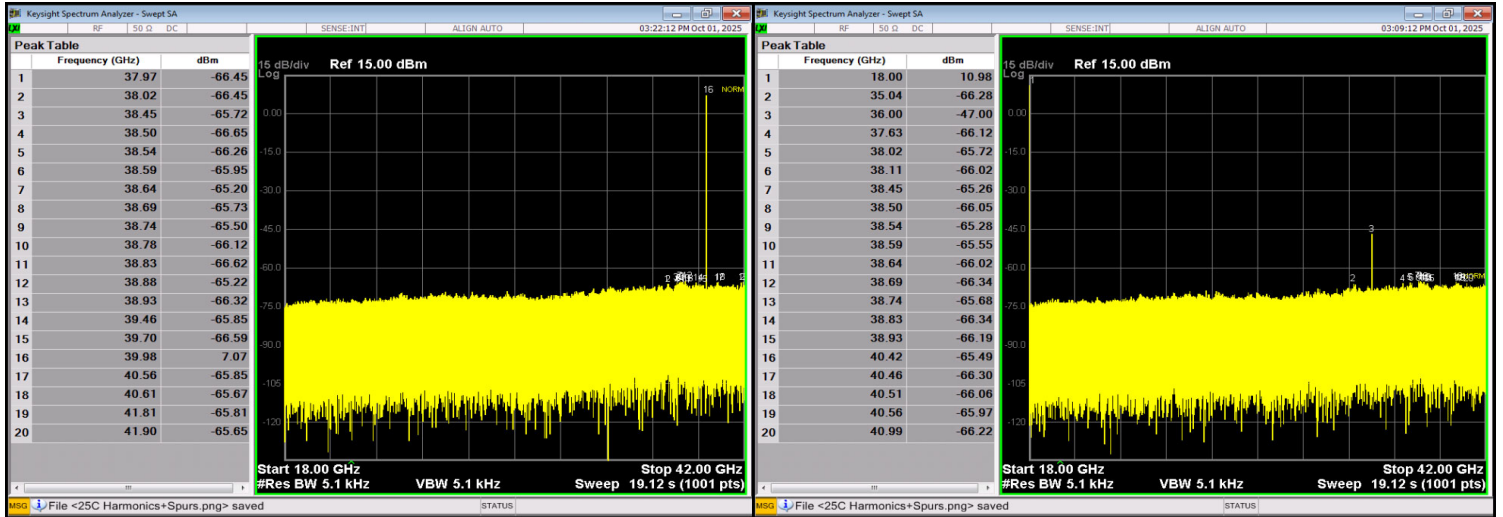
J2 40 GHz
0°C

J3 18 GHz
Harmonics: -58.14 dBc @ 0°C



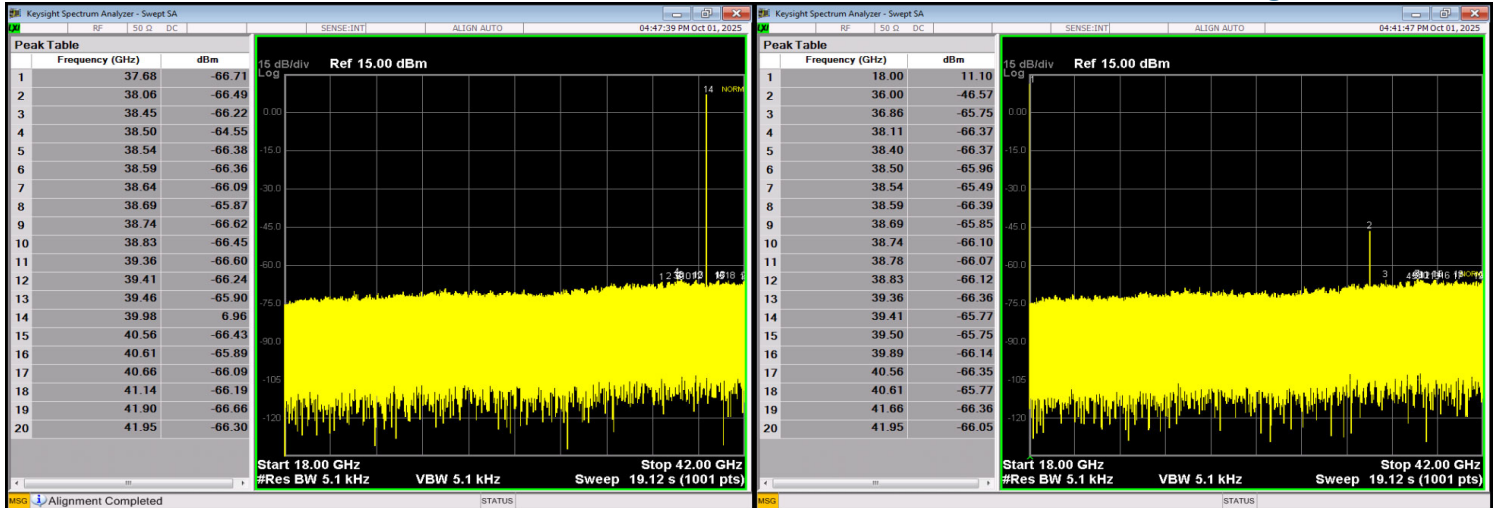
25°C

Harmonics: -57.98 dBc @ 25°C



60°C

Harmonics: -57.57 dBc @ 60°C

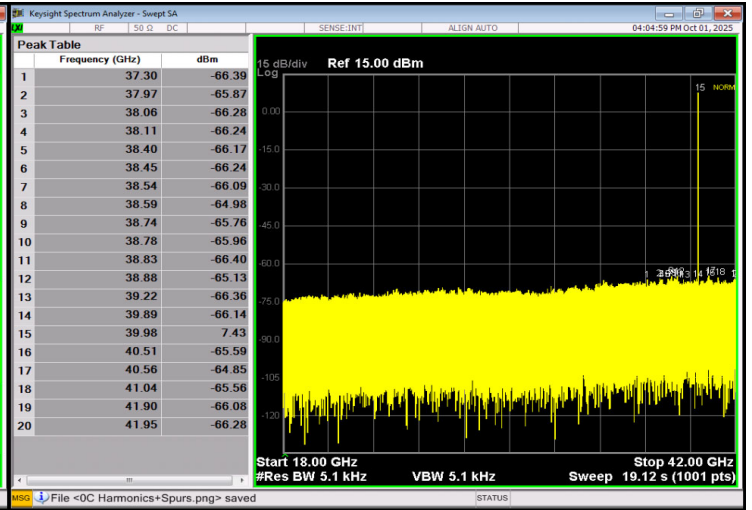
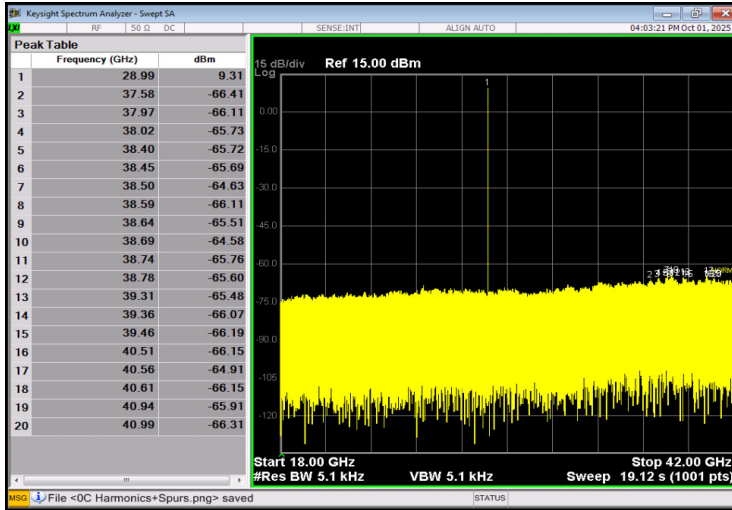


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HARMONIC GENERATION

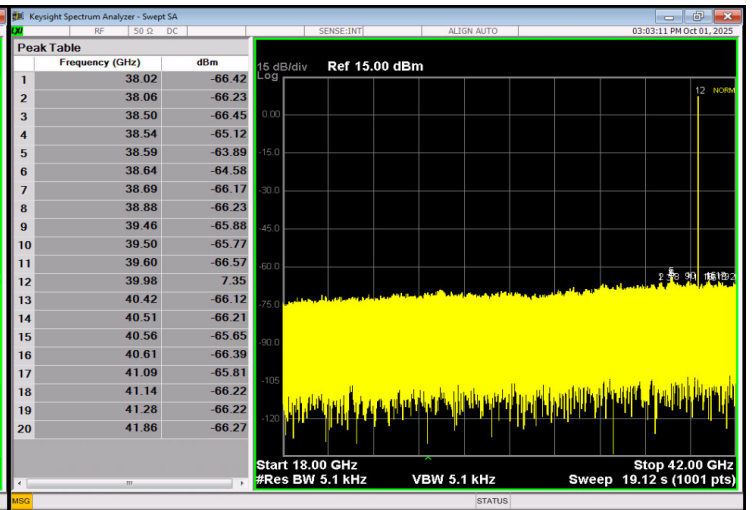
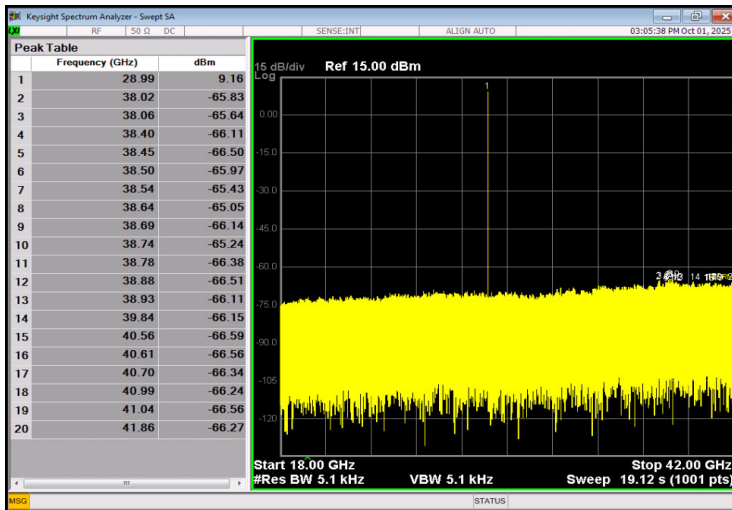
J3 29 GHz
0°C

J3 40 GHz
0°C



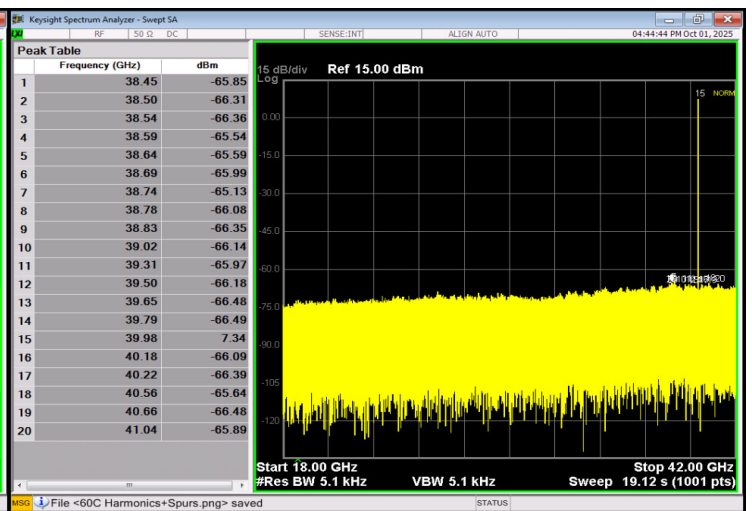
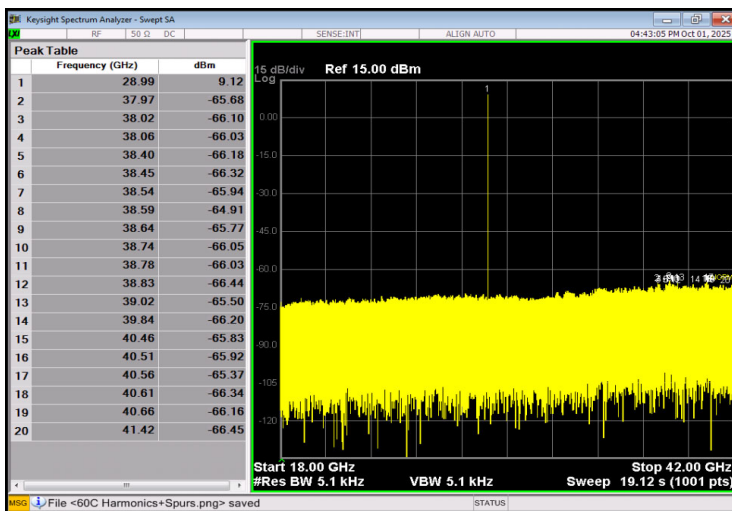
25°C

25°C



60°C

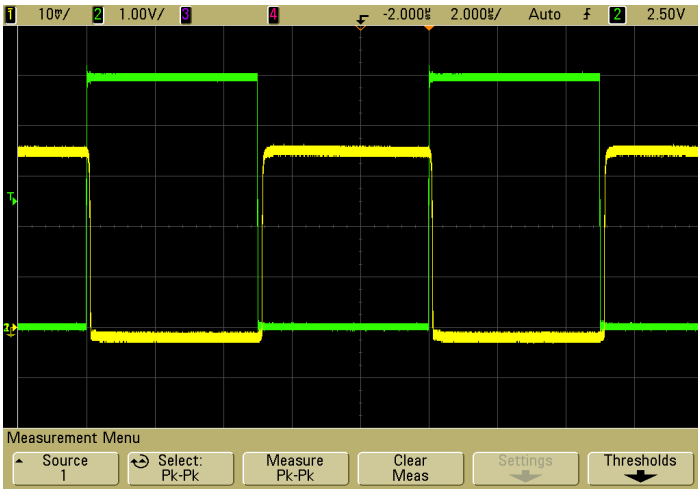
60°C



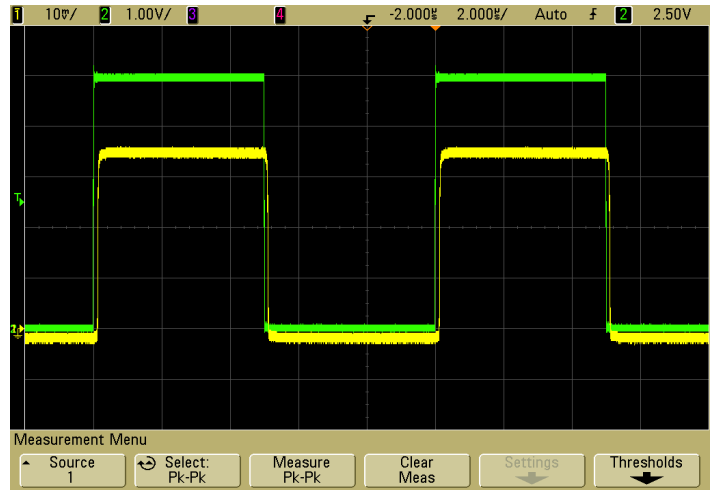
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SWITCHING SPEED

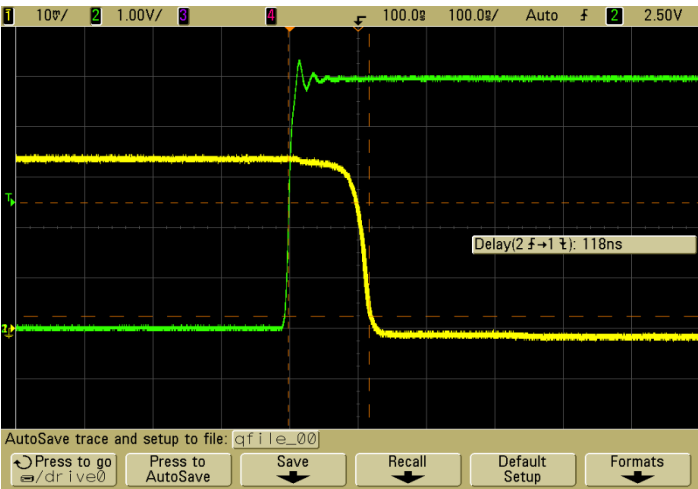
J2 FULL PULSE



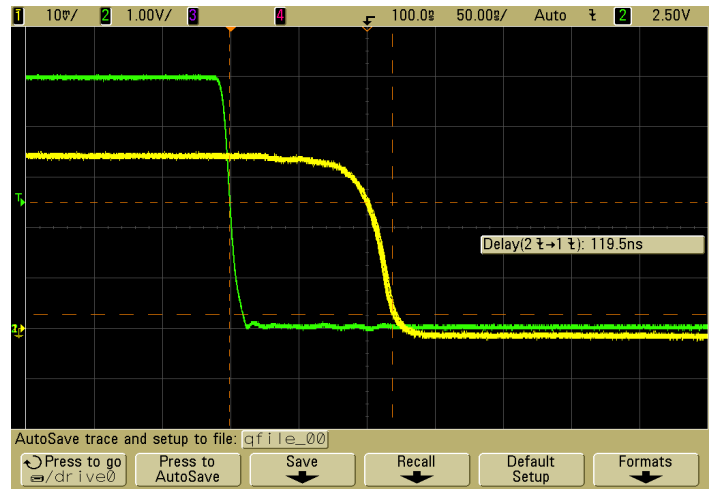
J3 FULL PULSE



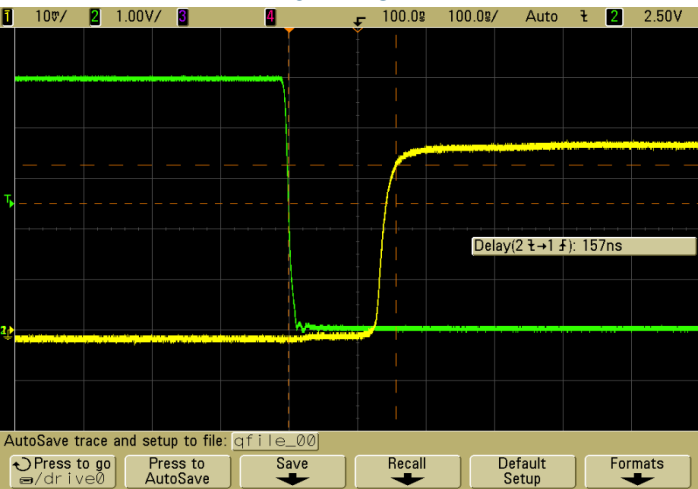
J2 RF OFF



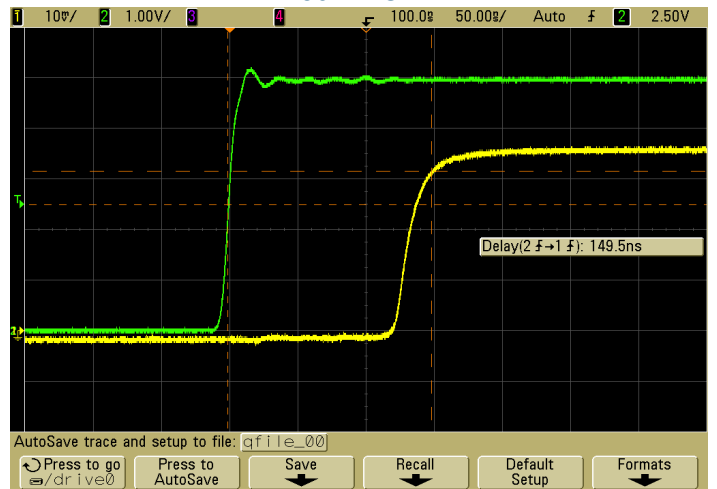
J3 RF OFF



J2 RF ON



J3 RF ON

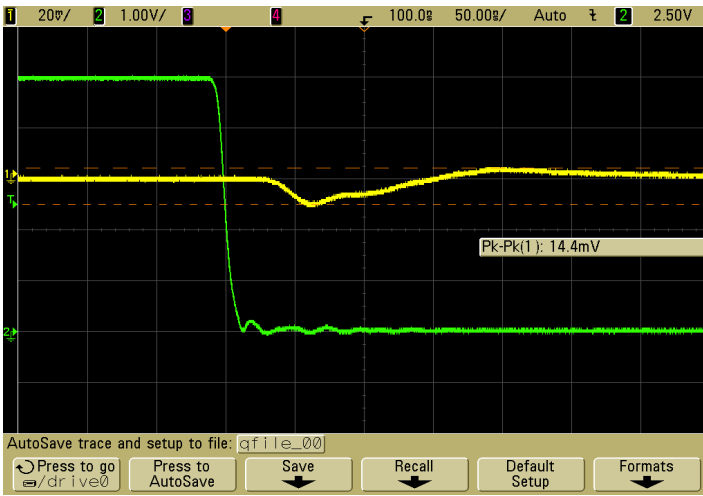


Green: TTL
Yellow: RF

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TRANSIENTS

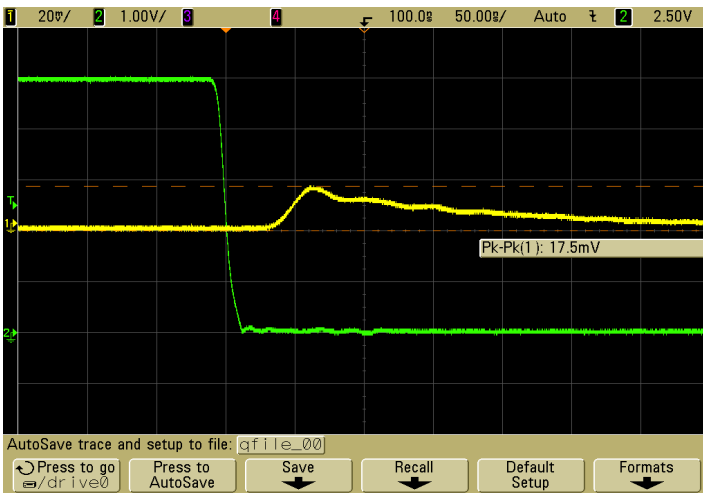
J1 TRANSIENTS TTL 0



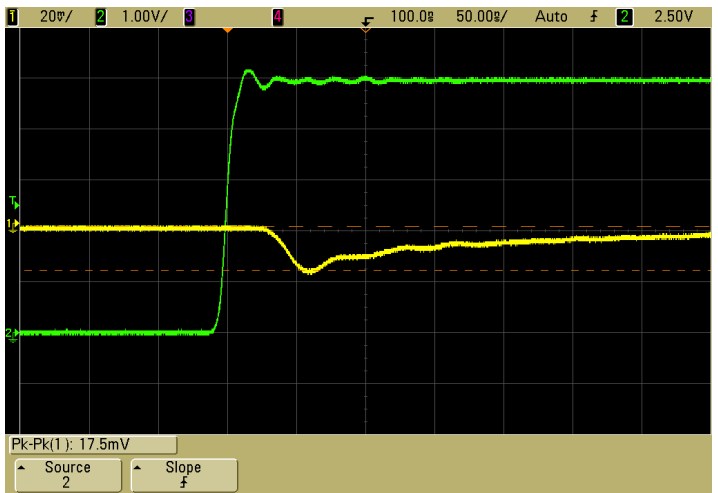
J1 TRANSIENTS TTL 1



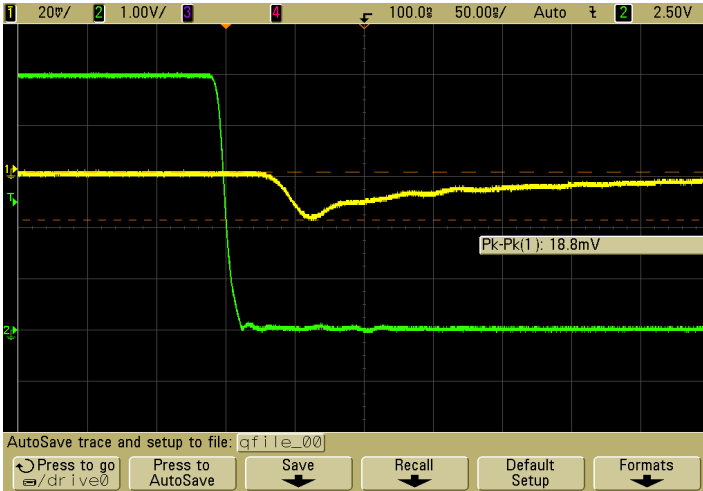
J2 TRANSIENTS TTL 0



J2 TRANSIENTS TTL 1



J3 TRANSIENTS TTL 0



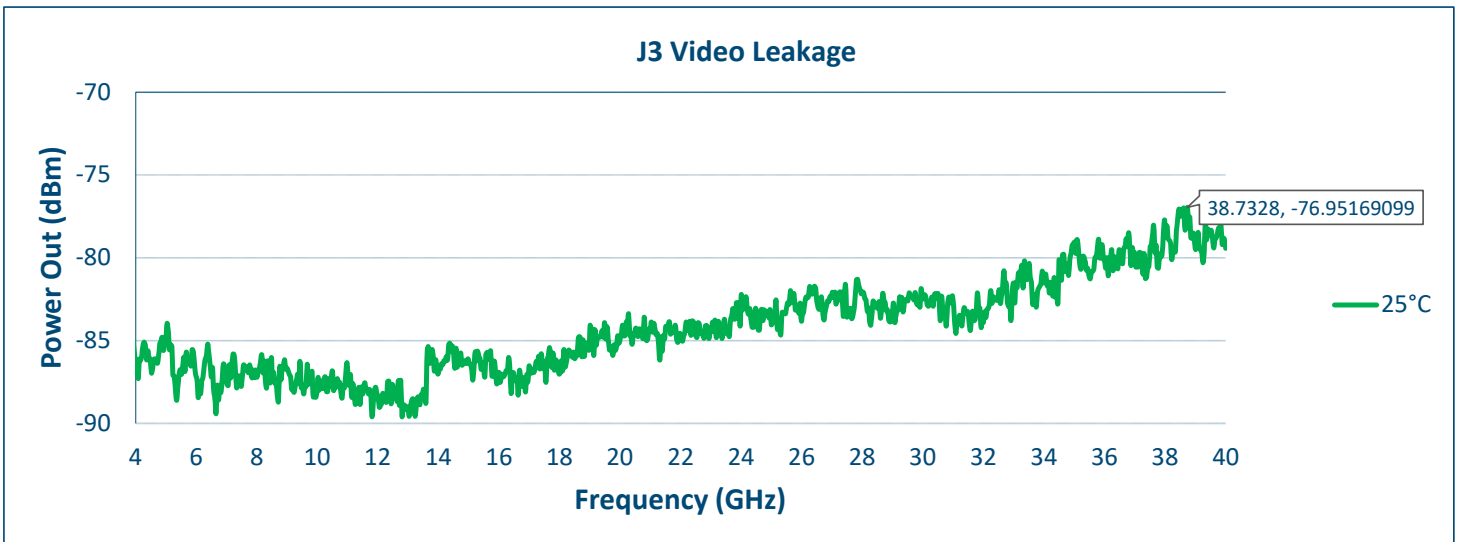
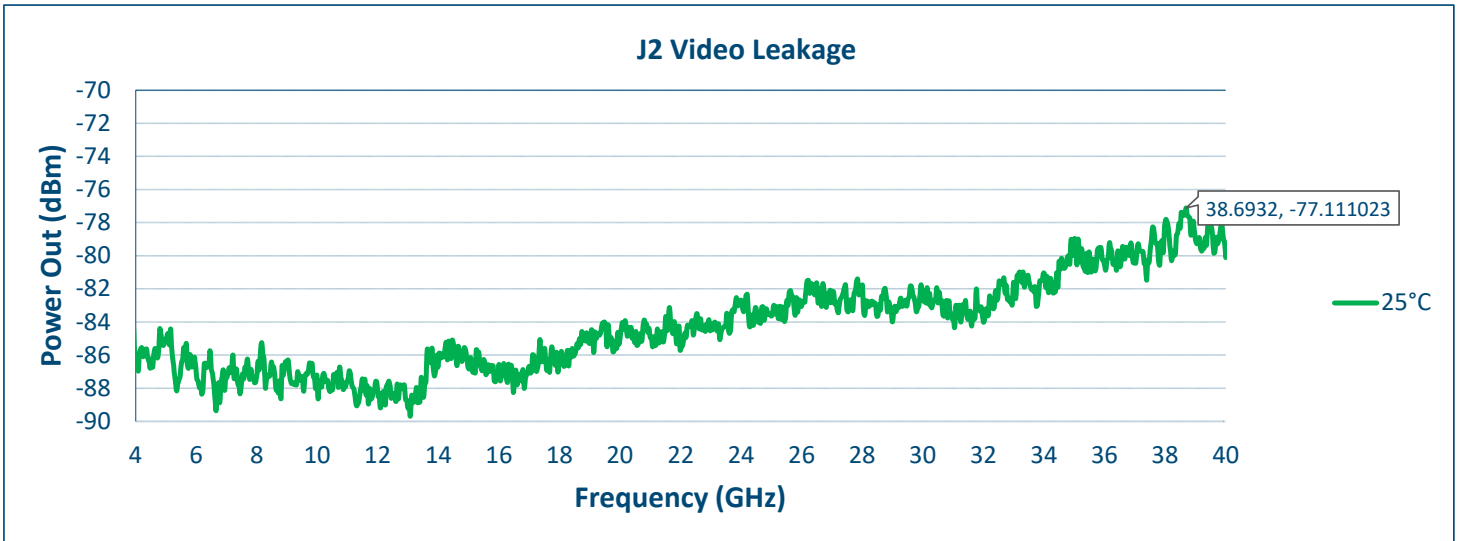
J3 TRANSIENTS TTL 1



Green: TTL
Yellow: RF

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VIDEO LEAKAGE



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