

# RF Test Data for 2.4G WiFi (Conducted Measurements)

General Description of EUT	
Product Name:	IPCam
Test Model:	WCM-FWIP4L-BS-V3
Sample ID:	HC-C-202405-0293-01-02#
Environmental Conditions	
Temperature:	25°C
Relative Humidity:	55%
Test Voltage:	AC 120V
Test Engineer:	Jolin Lee
Note: For a more detailed features description, please refer to the report TBR-C-202405-0293-1 The report only show the worst case data.	

## Contents

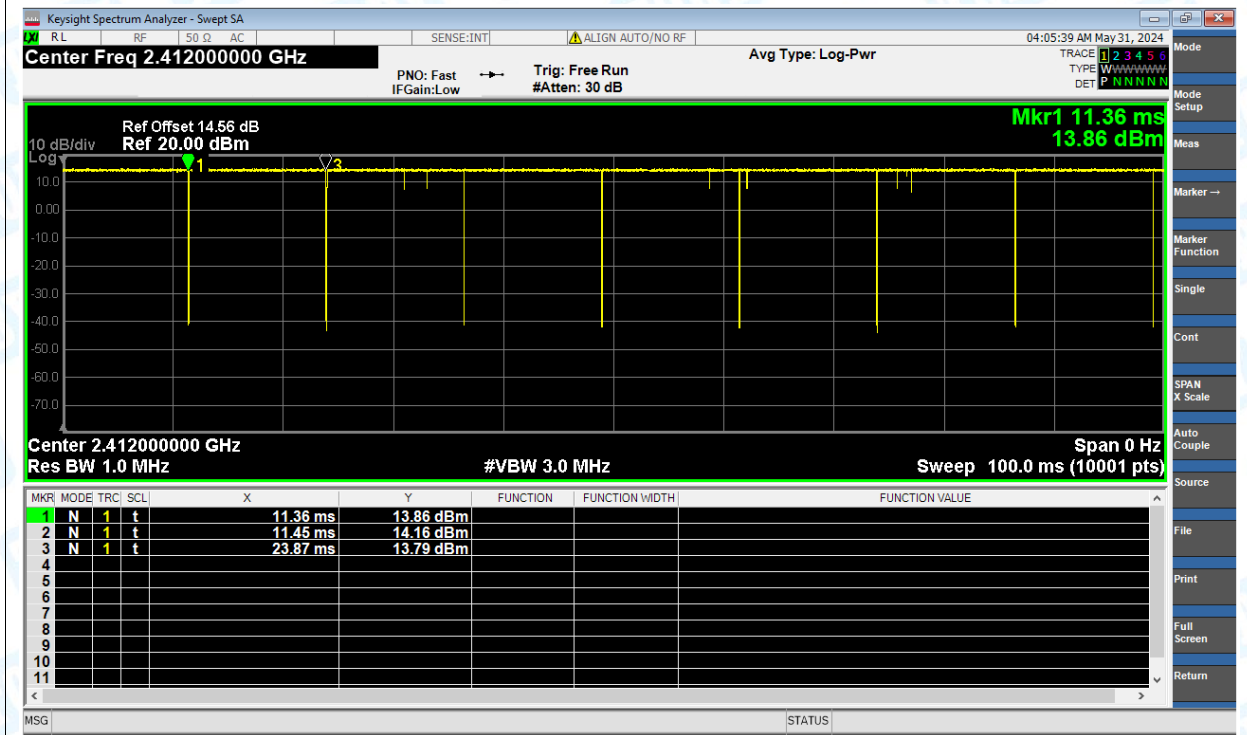
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## 1. Duty Cycle

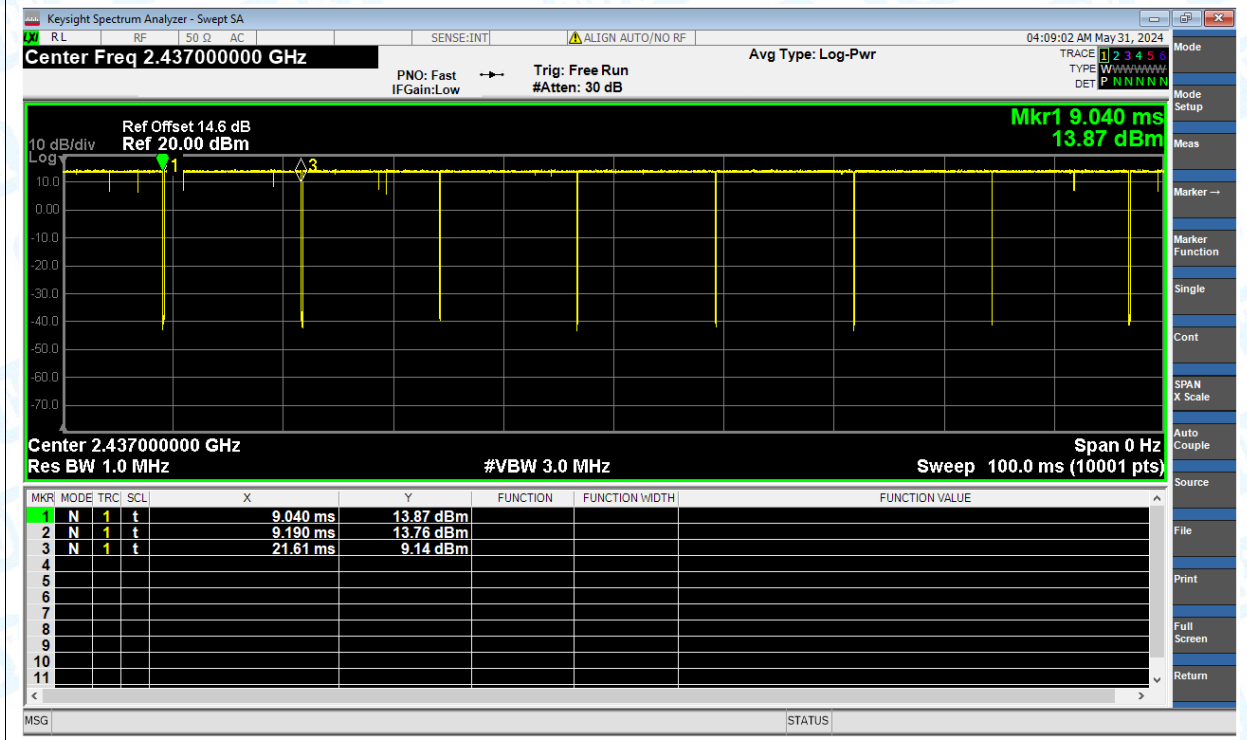
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	99.28	0.03	0.08
NVNT	b	2437	Ant1	98.81	0.05	0.08
NVNT	b	2462	Ant1	99.2	0.03	0.08
NVNT	g	2412	Ant1	94.06	0.27	0.49
NVNT	g	2437	Ant1	97.18	0.12	0.48
NVNT	g	2462	Ant1	96.73	0.14	0.48
NVNT	n(HT20)	2412	Ant1	96	0.18	0.52
NVNT	n(HT20)	2437	Ant1	94.12	0.26	0.52
NVNT	n(HT20)	2462	Ant1	94.12	0.26	0.52
NVNT	n(HT40)	2422	Ant1	87.96	0.56	1.05
NVNT	n(HT40)	2437	Ant1	92.23	0.35	1.05
NVNT	n(HT40)	2452	Ant1	95	0.22	1.05

Test Graphs

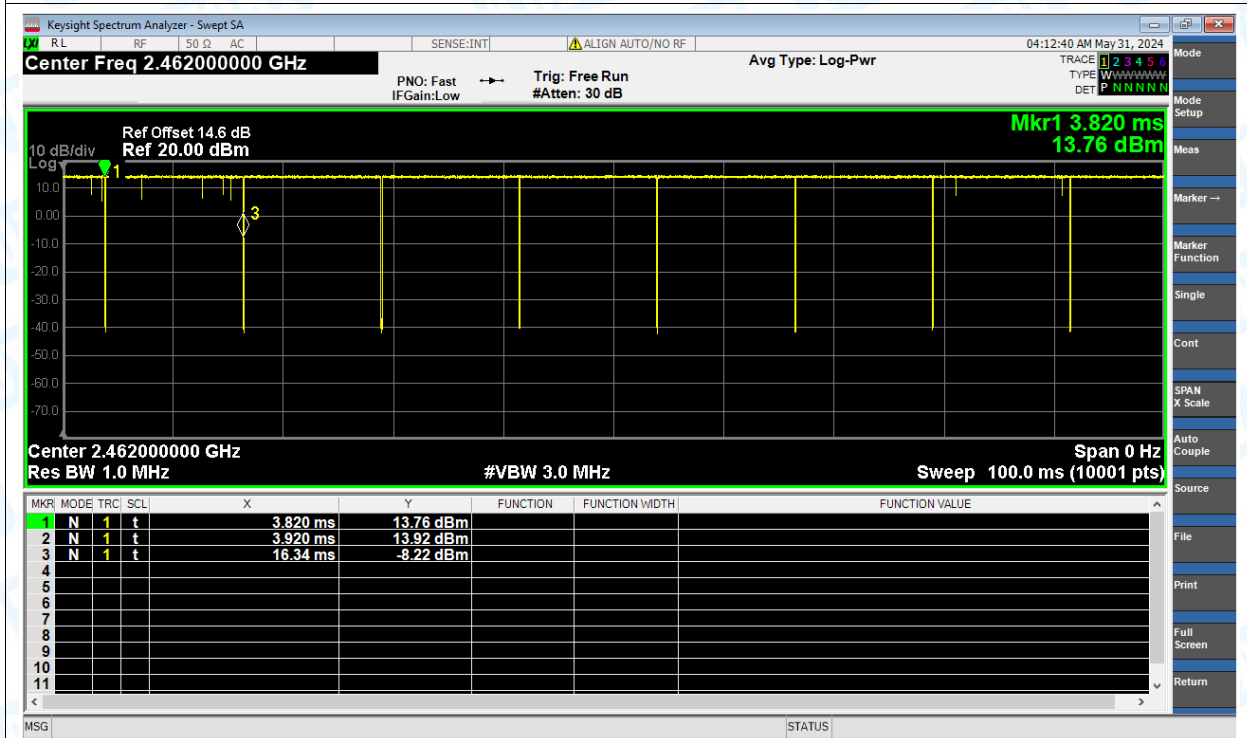
Duty Cycle NVNT b 2412MHz Ant1



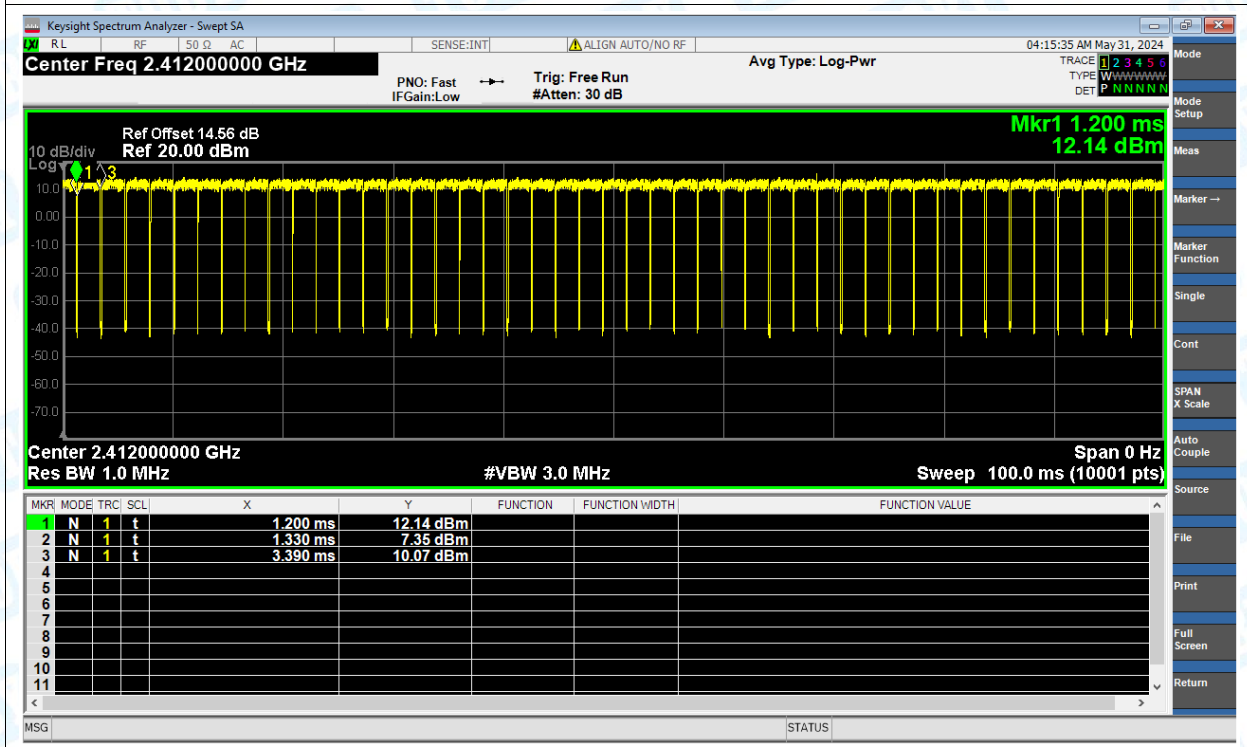
Duty Cycle NVNT b 2437MHz Ant1



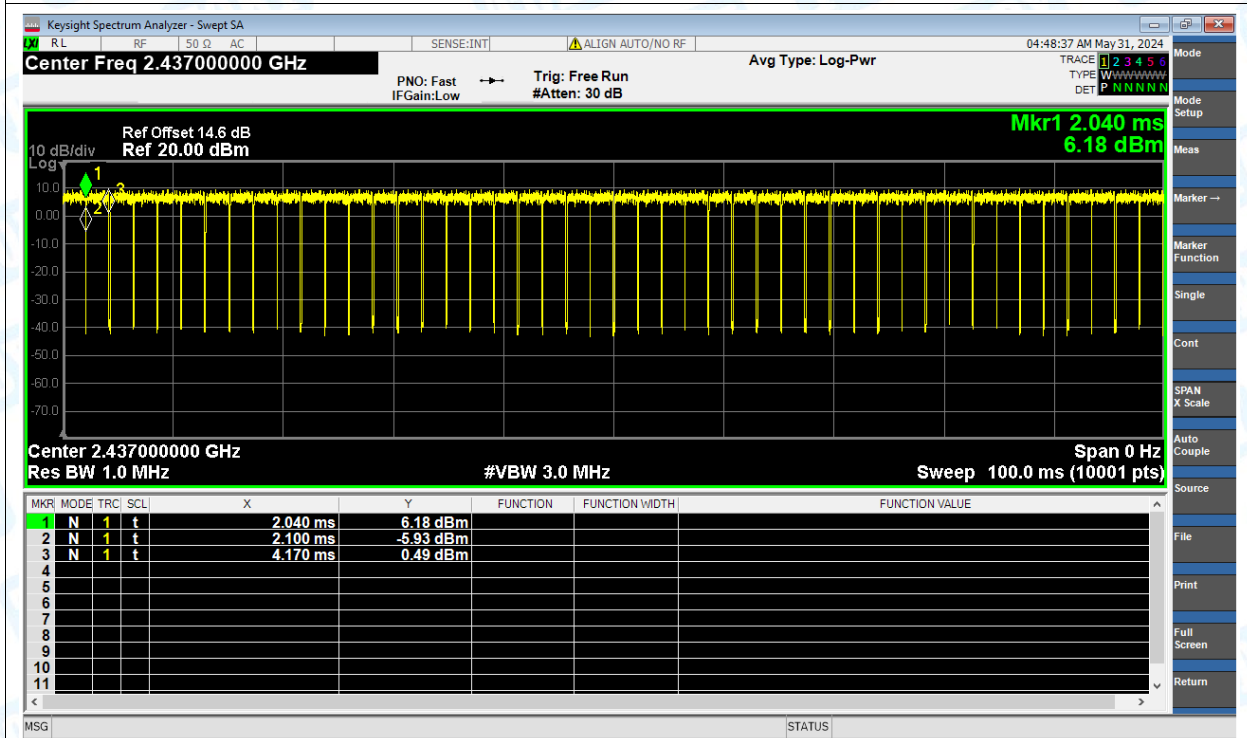
### Duty Cycle NVNT b 2462MHz Ant1



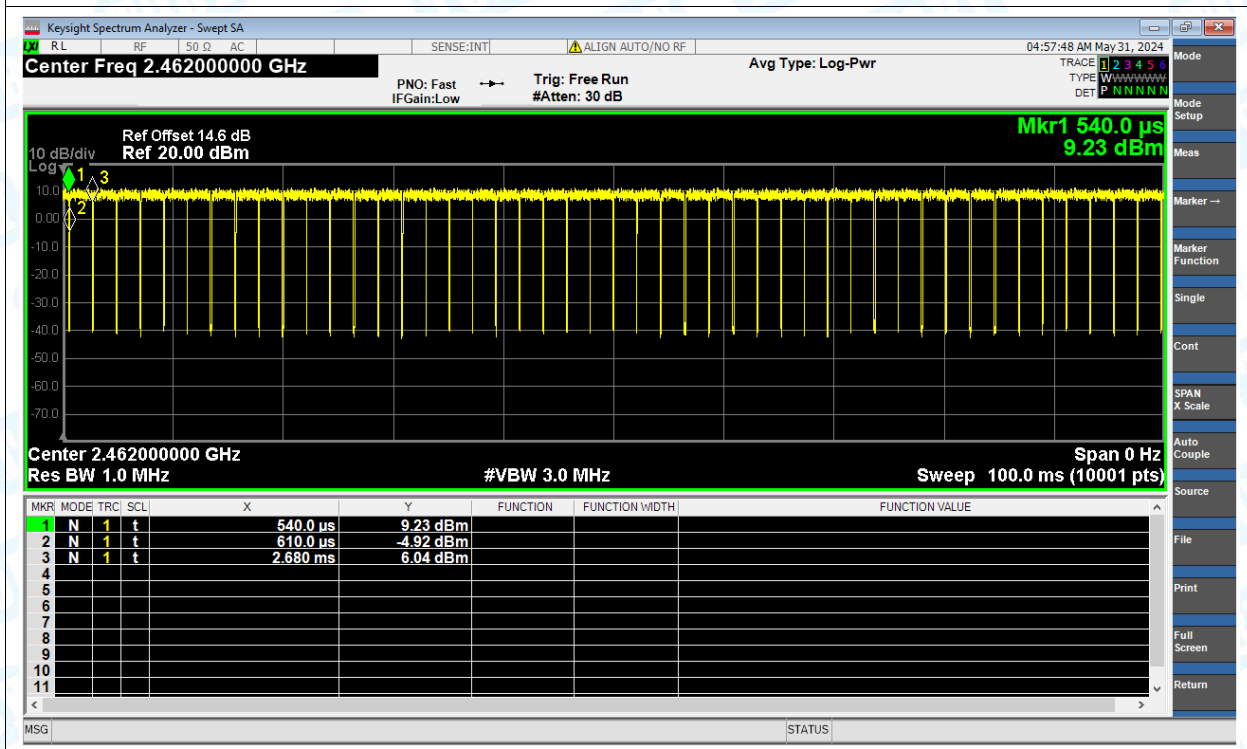
### Duty Cycle NVNT g 2412MHz Ant1



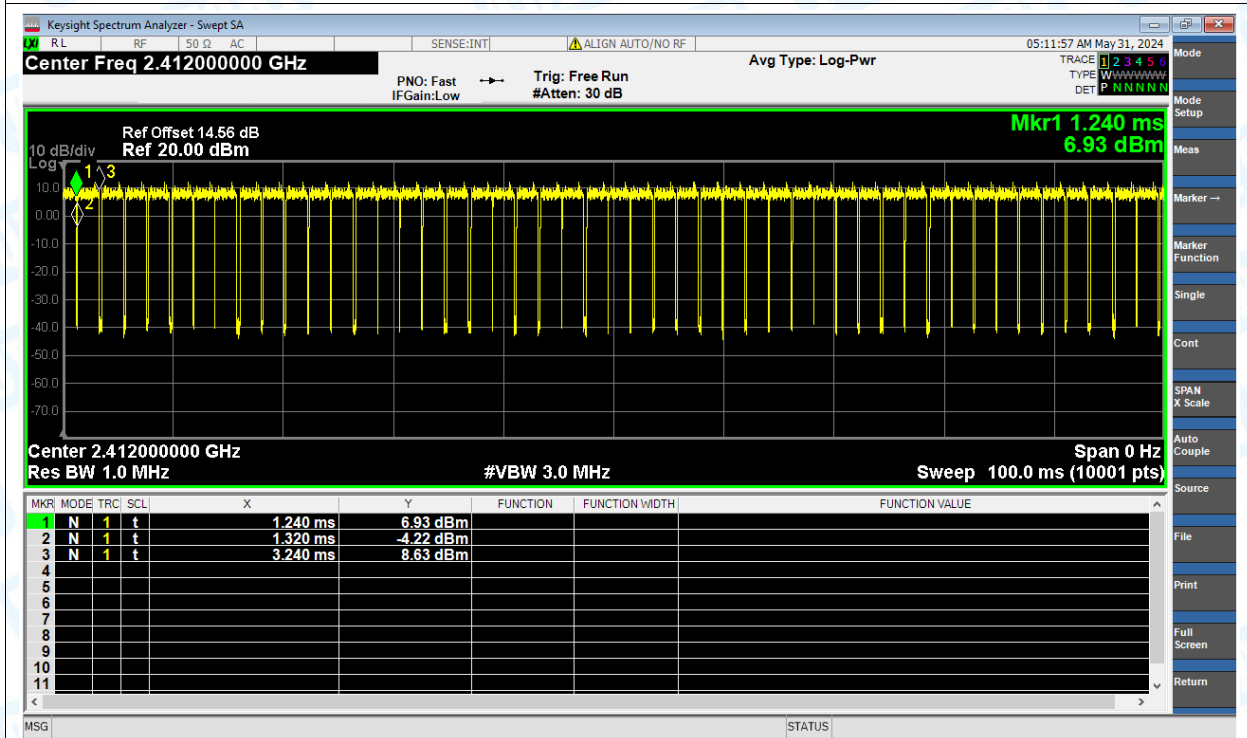
Duty Cycle NVNT g 2437MHz Ant1



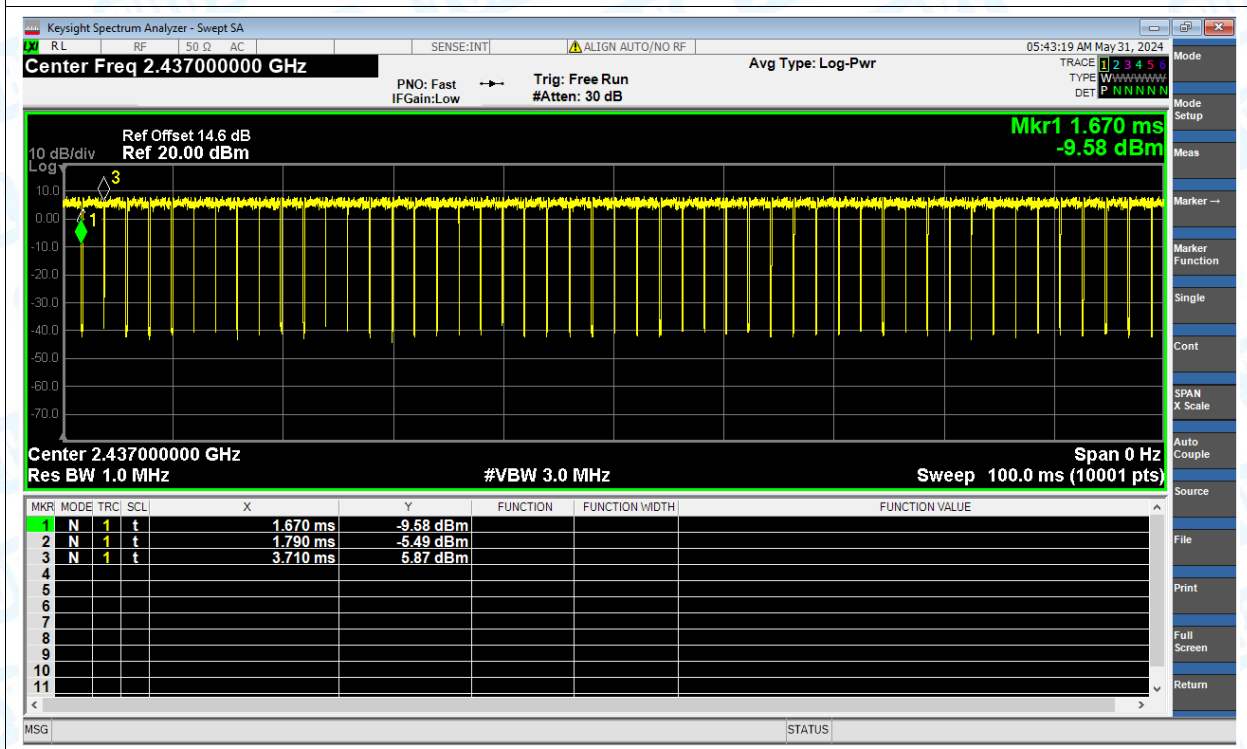
Duty Cycle NVNT g 2462MHz Ant1



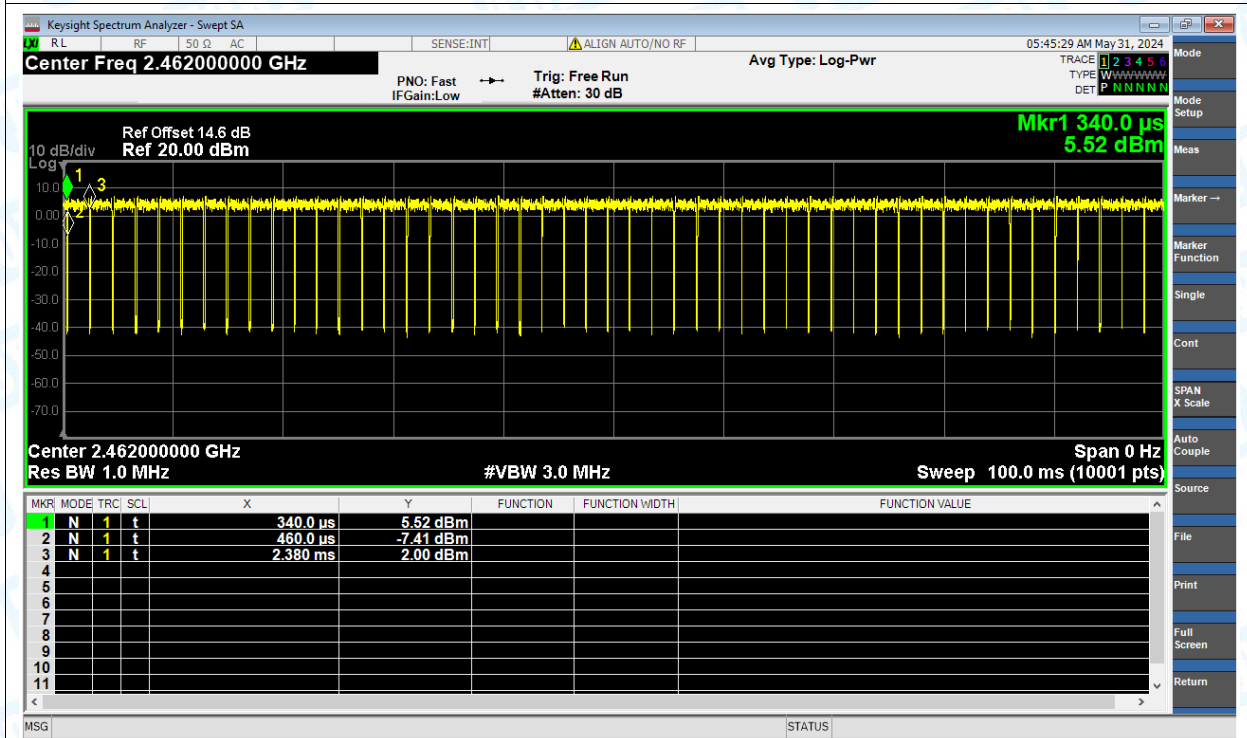
Duty Cycle NVNT n(HT20) 2412MHz Ant1



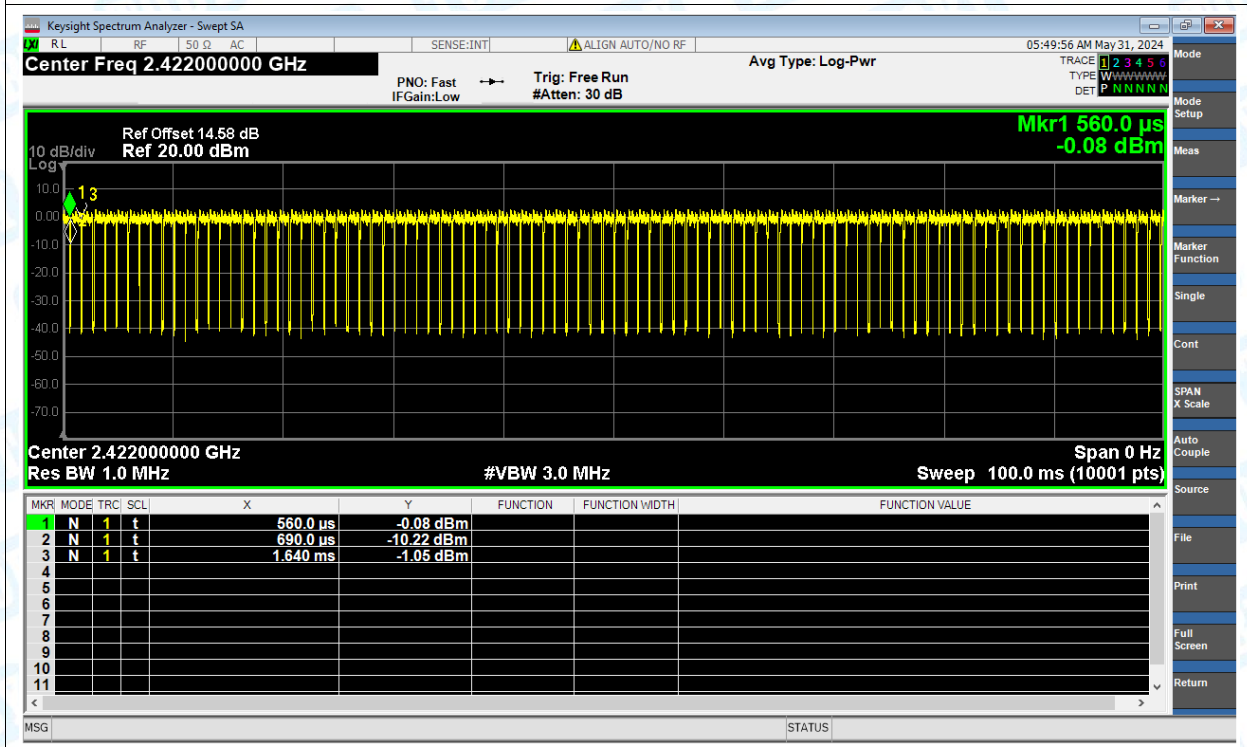
Duty Cycle NVNT n(HT20) 2437MHz Ant1



Duty Cycle NVNT n(HT20) 2462MHz Ant1

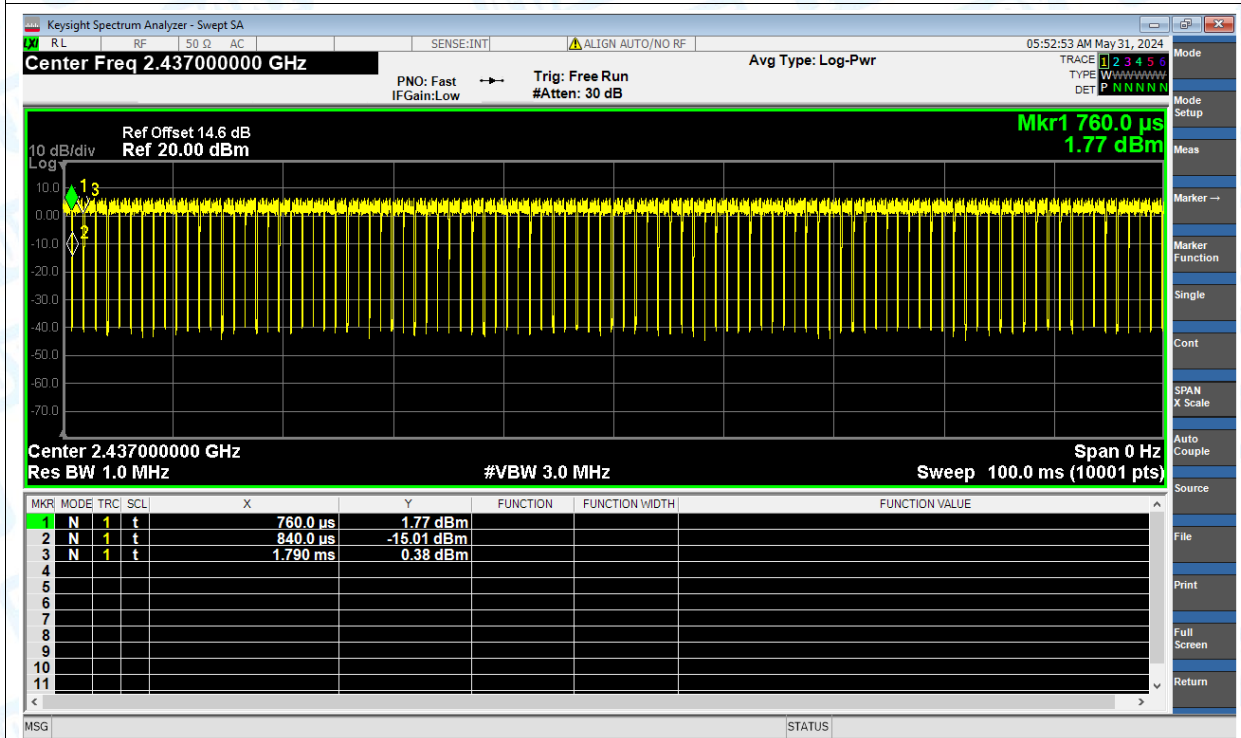


Duty Cycle NVNT n(HT40) 2422MHz Ant1

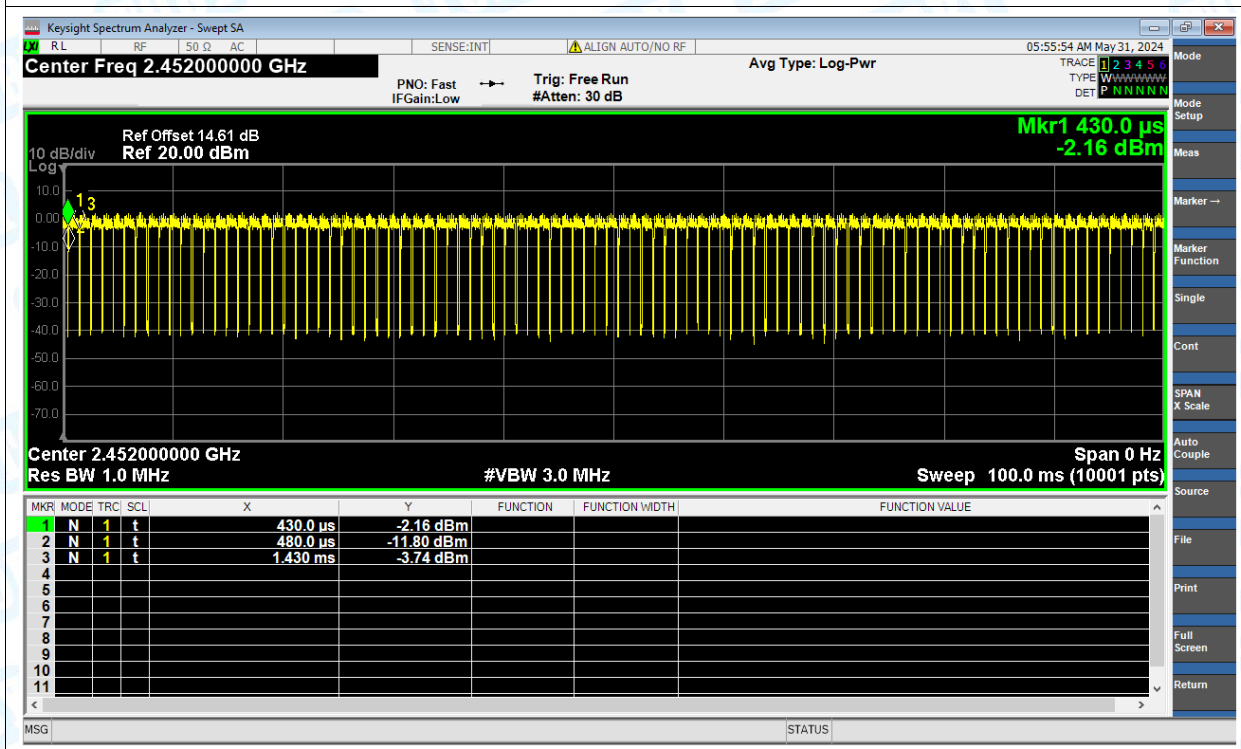




Duty Cycle NVNT n(HT40) 2437MHz Ant1



Duty Cycle NVNT n(HT40) 2452MHz Ant1



## 2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	18.93	30	Pass
NVNT	b	2437	Ant1	18.24	30	Pass
NVNT	b	2462	Ant1	18.38	30	Pass
NVNT	g	2412	Ant1	15.14	30	Pass
NVNT	g	2437	Ant1	14.58	30	Pass
NVNT	g	2462	Ant1	14.97	30	Pass
NVNT	n(HT20)	2412	Ant1	13.45	30	Pass
NVNT	n(HT20)	2437	Ant1	13.07	30	Pass
NVNT	n(HT20)	2462	Ant1	11.22	30	Pass
NVNT	n(HT40)	2422	Ant1	13.28	30	Pass
NVNT	n(HT40)	2437	Ant1	13.62	30	Pass
NVNT	n(HT40)	2452	Ant1	11.88	30	Pass

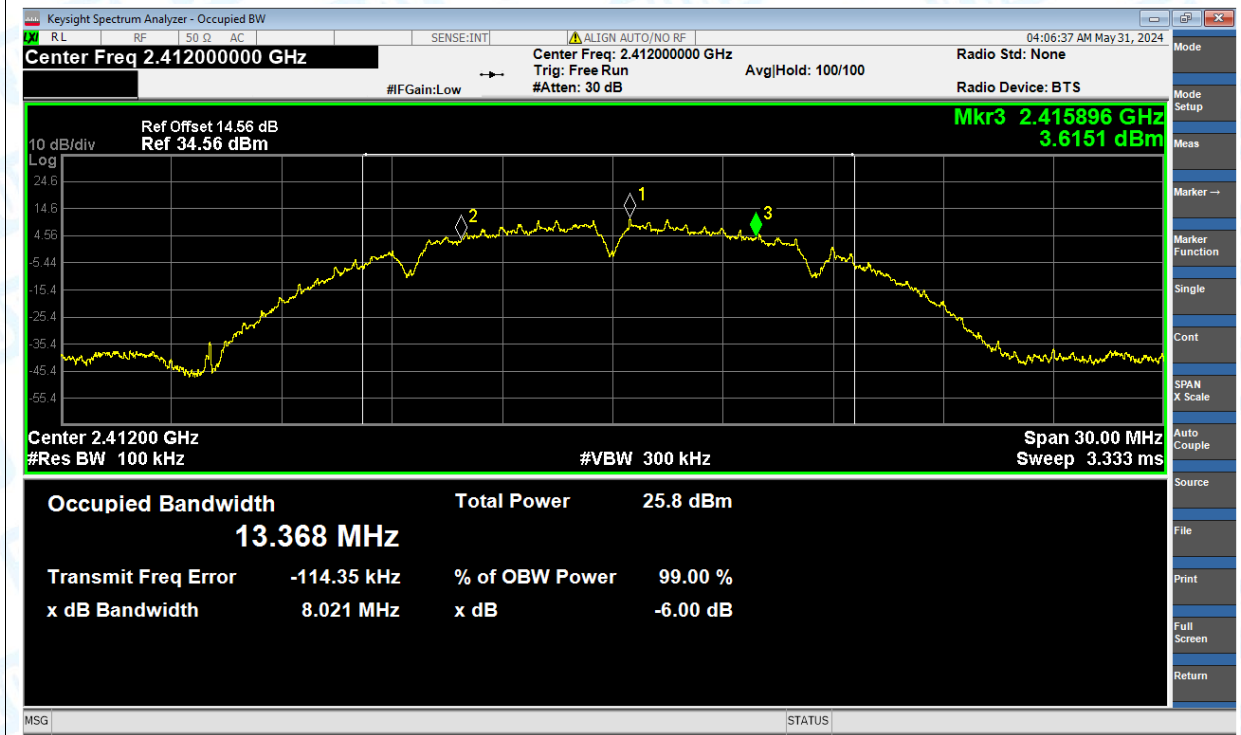
Note: The duty factor has been compensated into the result.

### 3.-6dB Bandwidth

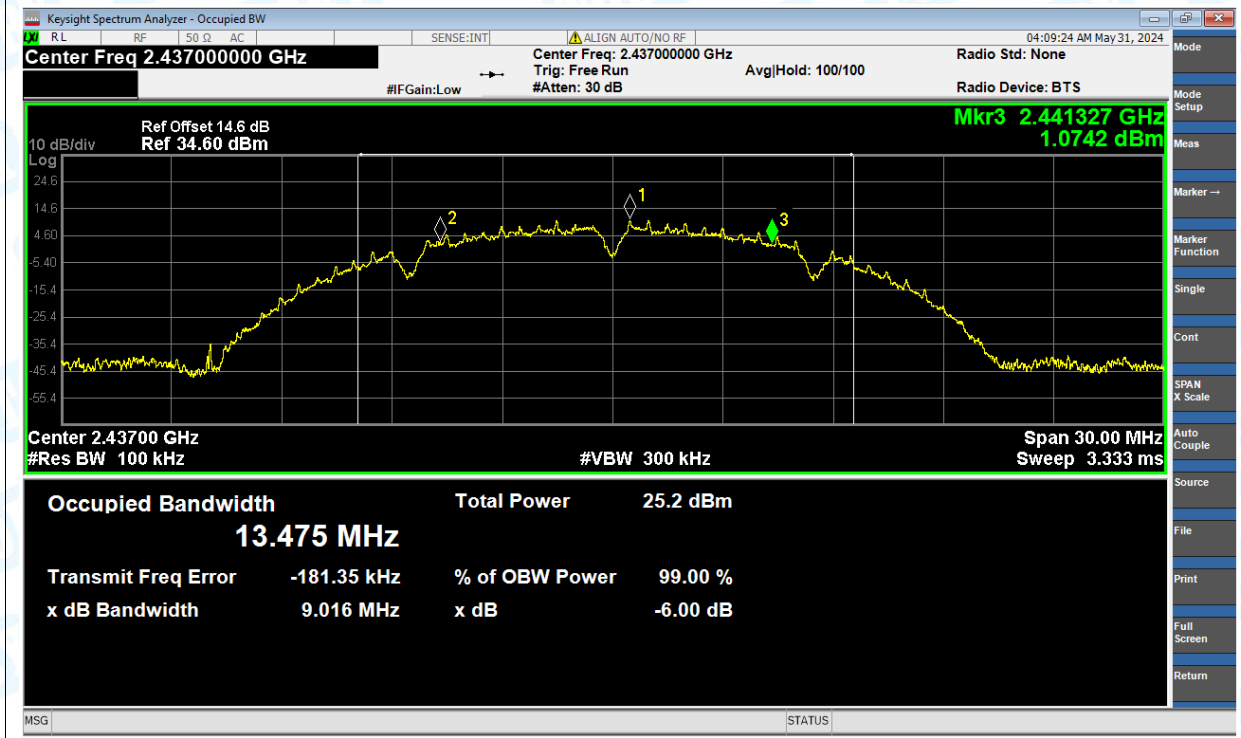
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	8.02	0.5	Pass
NVNT	b	2437	Ant1	9.02	0.5	Pass
NVNT	b	2462	Ant1	8.07	0.5	Pass
NVNT	g	2412	Ant1	16.31	0.5	Pass
NVNT	g	2437	Ant1	16.33	0.5	Pass
NVNT	g	2462	Ant1	16.32	0.5	Pass
NVNT	n(HT20)	2412	Ant1	17.18	0.5	Pass
NVNT	n(HT20)	2437	Ant1	17.32	0.5	Pass
NVNT	n(HT20)	2462	Ant1	17.14	0.5	Pass
NVNT	n(HT40)	2422	Ant1	35.74	0.5	Pass
NVNT	n(HT40)	2437	Ant1	35.69	0.5	Pass
NVNT	n(HT40)	2452	Ant1	35.73	0.5	Pass

Test Graphs

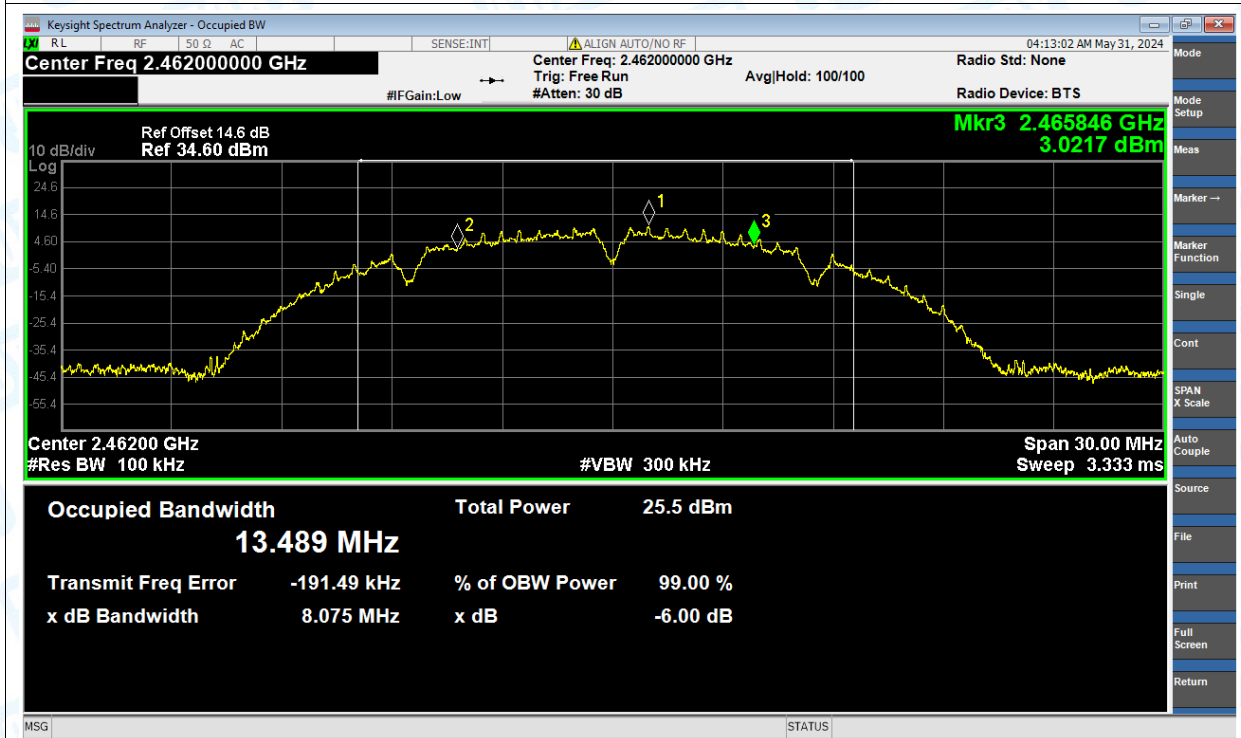
-6dB Bandwidth NVNT b 2412MHz Ant1



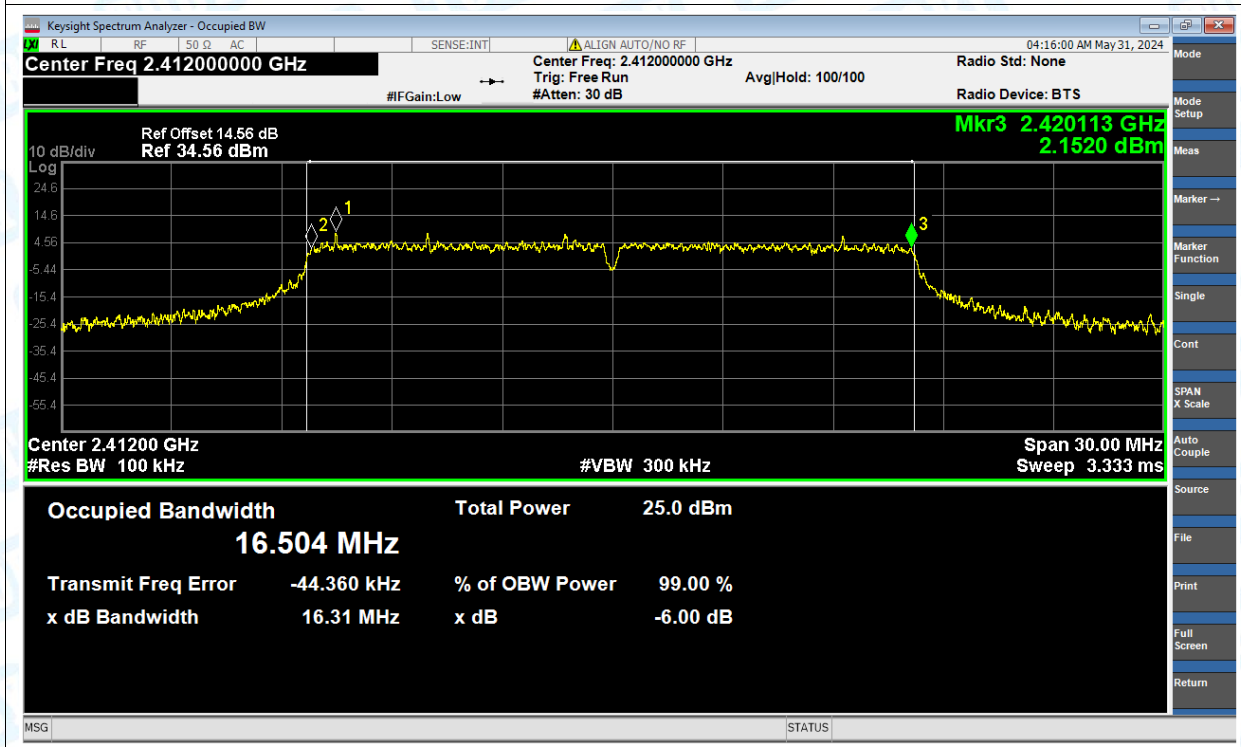
-6dB Bandwidth NVNT b 2437MHz Ant1



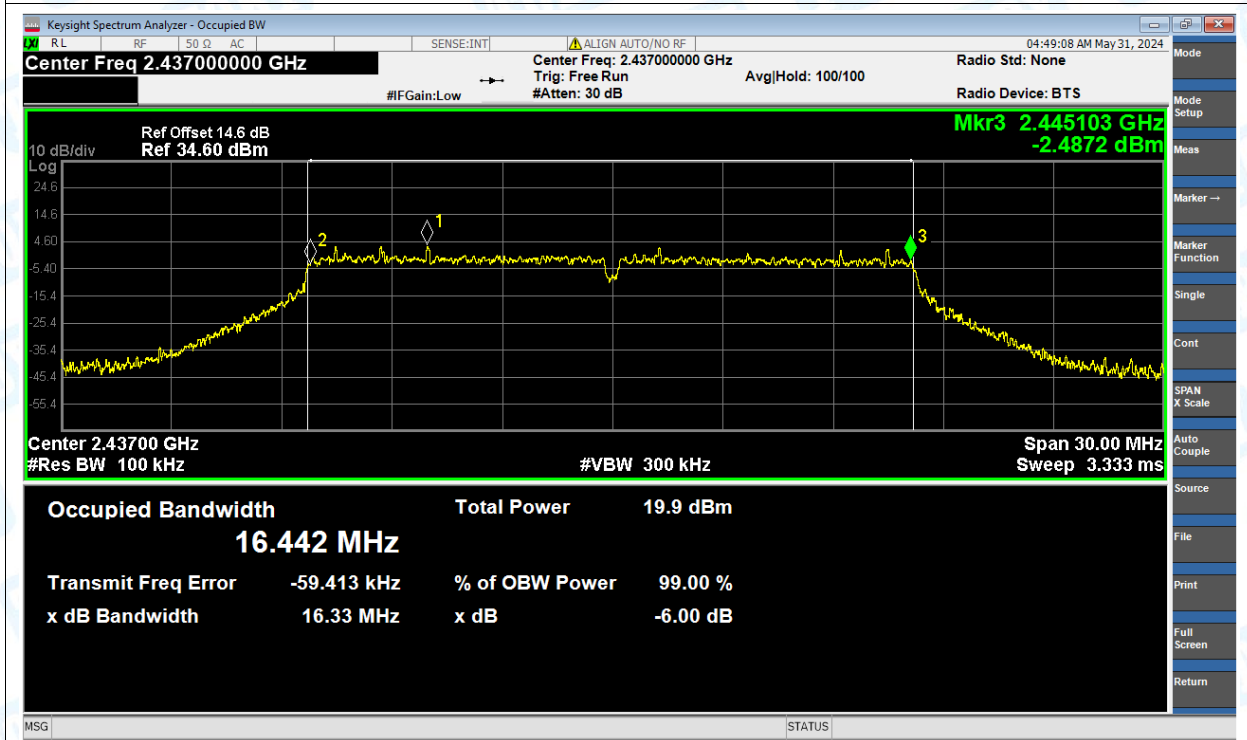
-6dB Bandwidth NVNT b 2462MHz Ant1



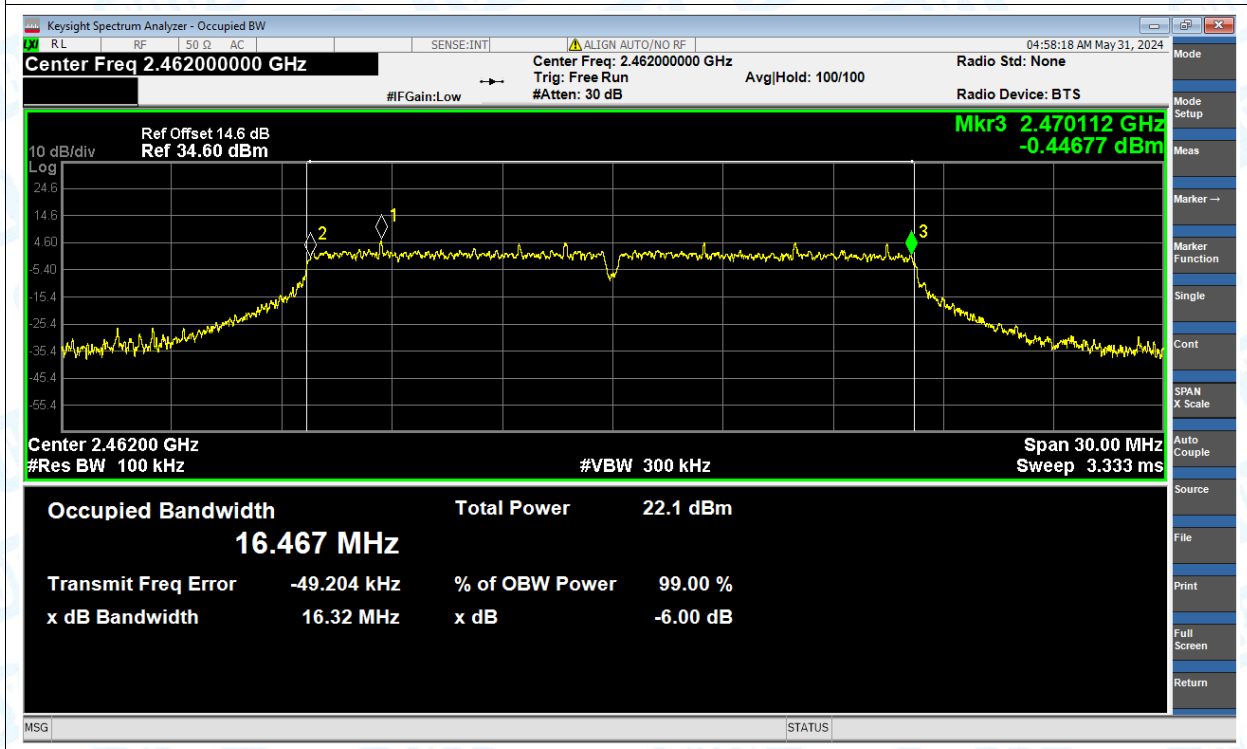
-6dB Bandwidth NVNT g 2412MHz Ant1



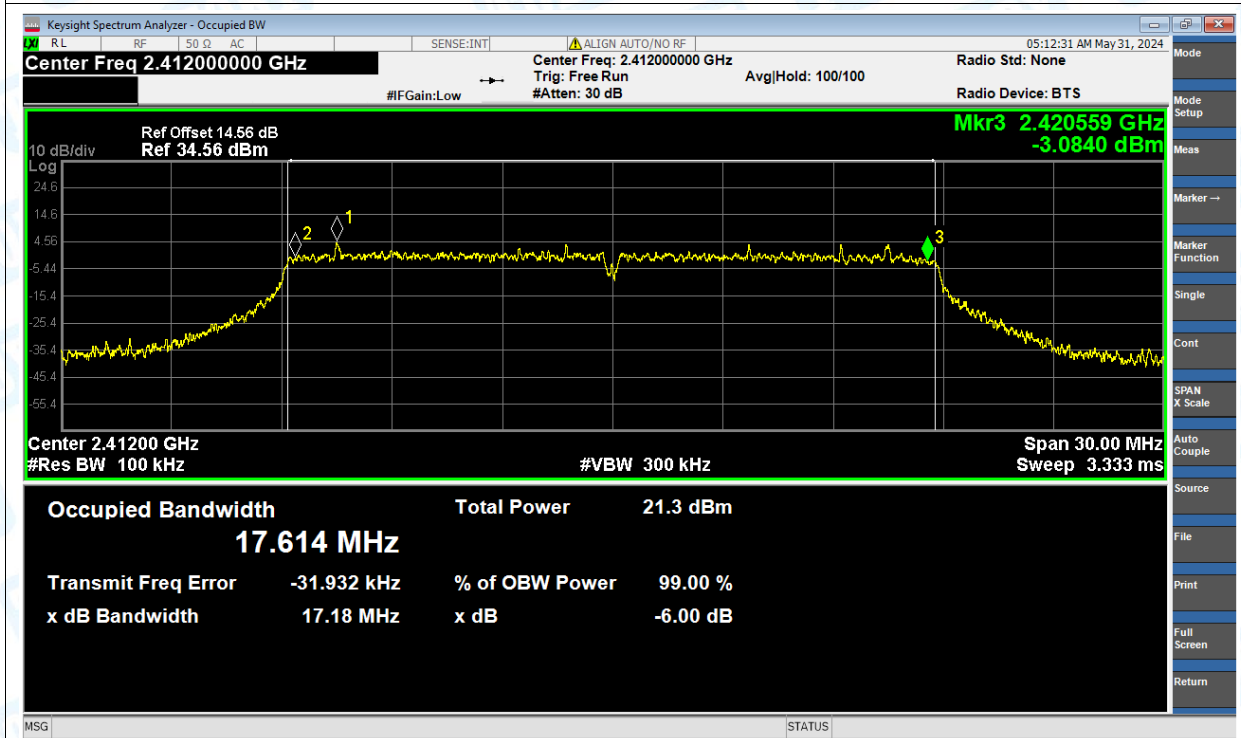
-6dB Bandwidth NVNT g 2437MHz Ant1



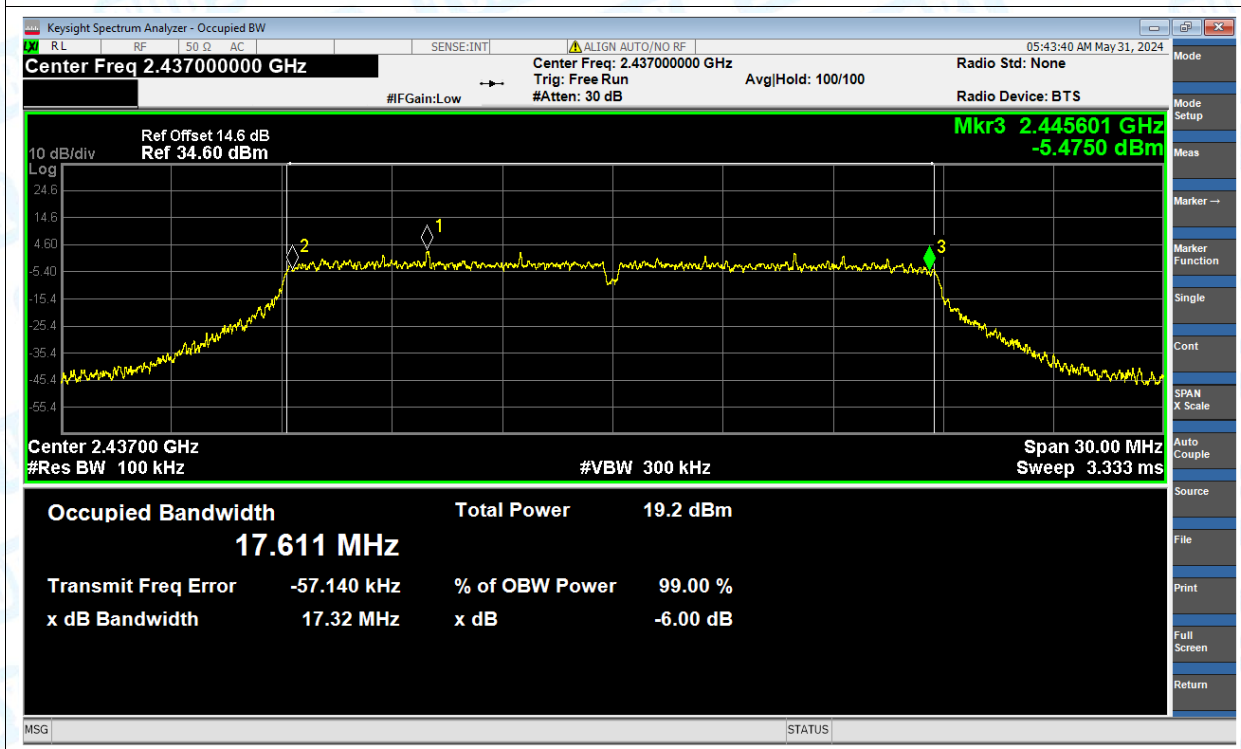
-6dB Bandwidth NVNT g 2462MHz Ant1



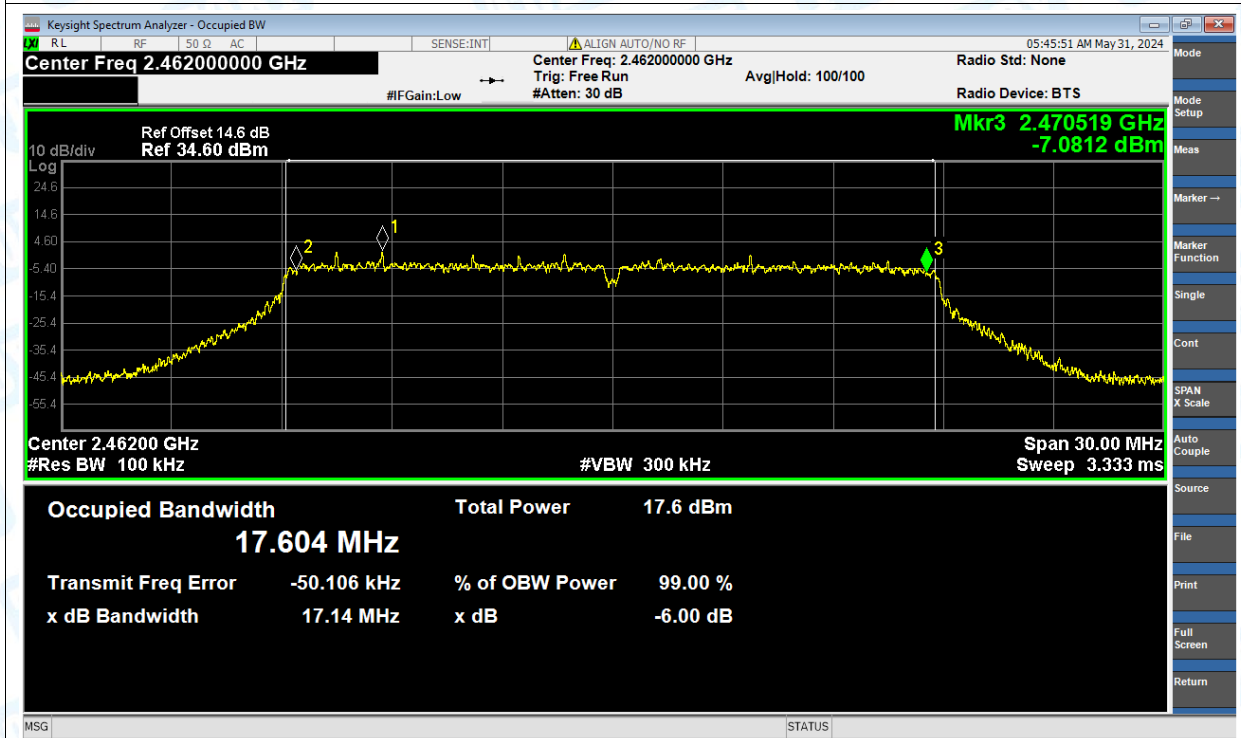
-6dB Bandwidth NVNT n(HT20) 2412MHz Ant1



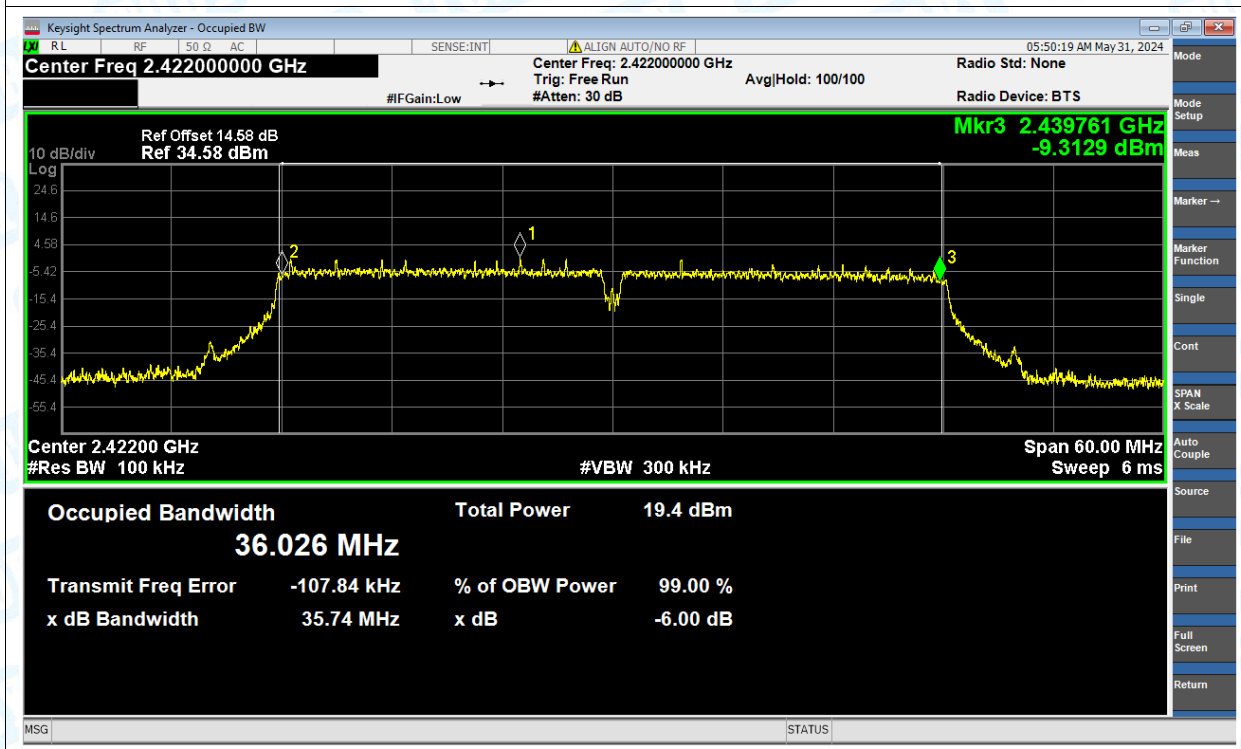
-6dB Bandwidth NVNT n(HT20) 2437MHz Ant1



-6dB Bandwidth NVNT n(HT20) 2462MHz Ant1

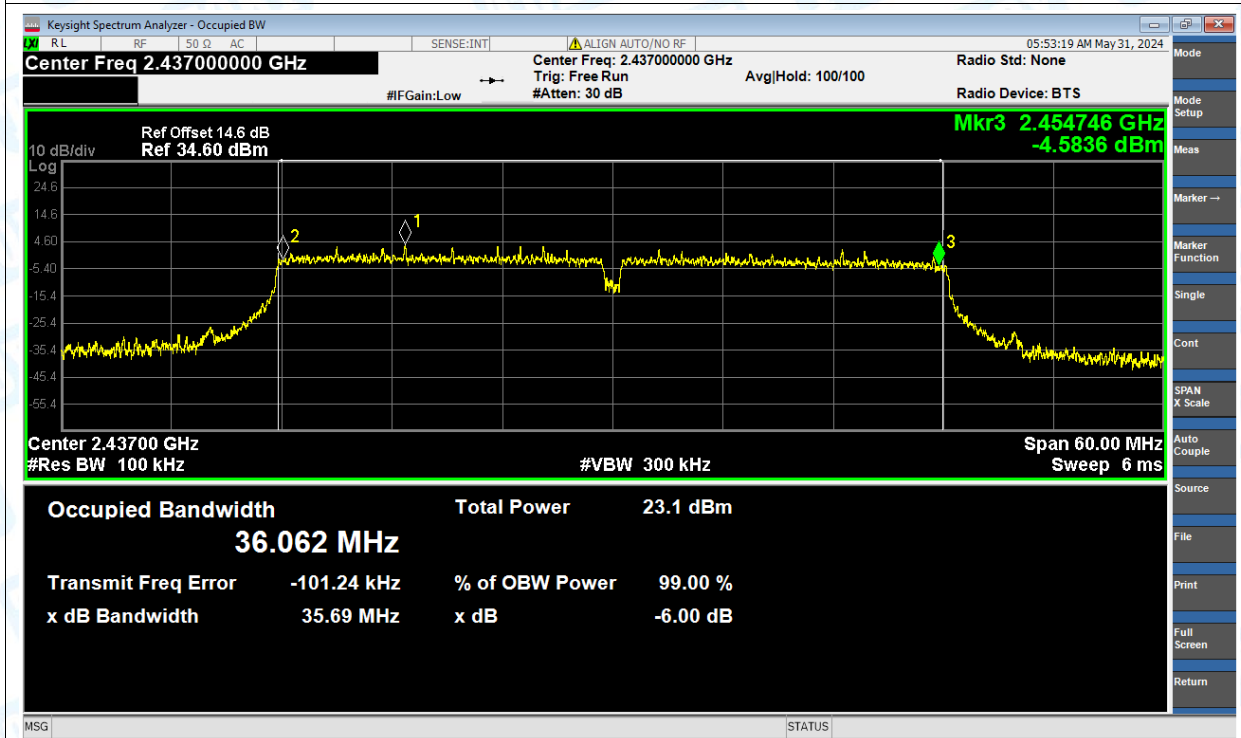


-6dB Bandwidth NVNT n(HT40) 2422MHz Ant1

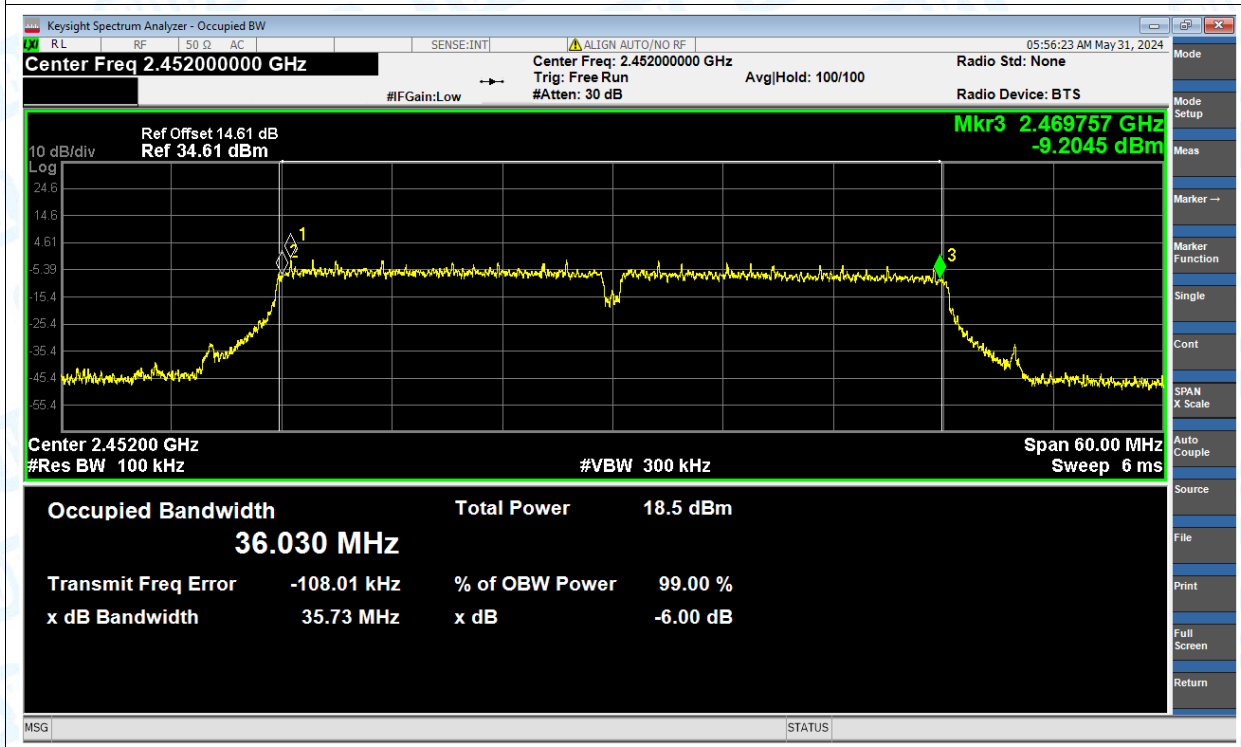




-6dB Bandwidth NVNT n(HT40) 2437MHz Ant1



-6dB Bandwidth NVNT n(HT40) 2452MHz Ant1

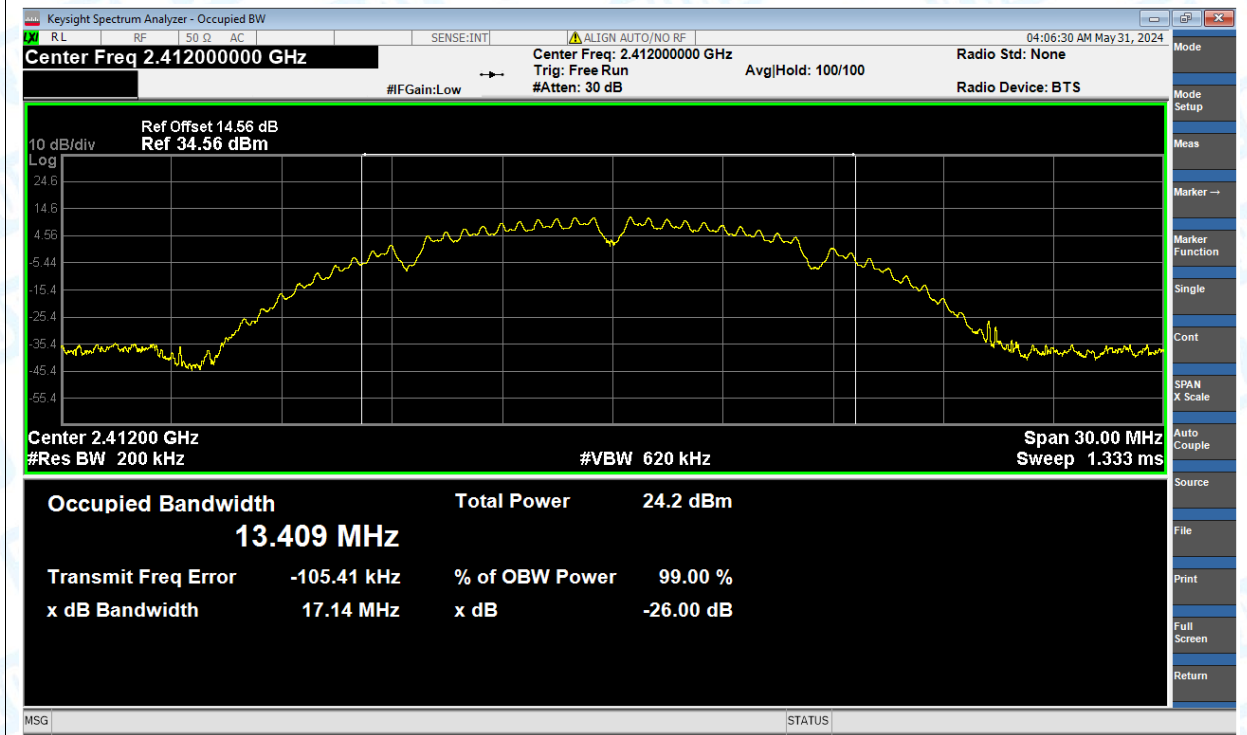


## 4.Occupied Channel Bandwidth

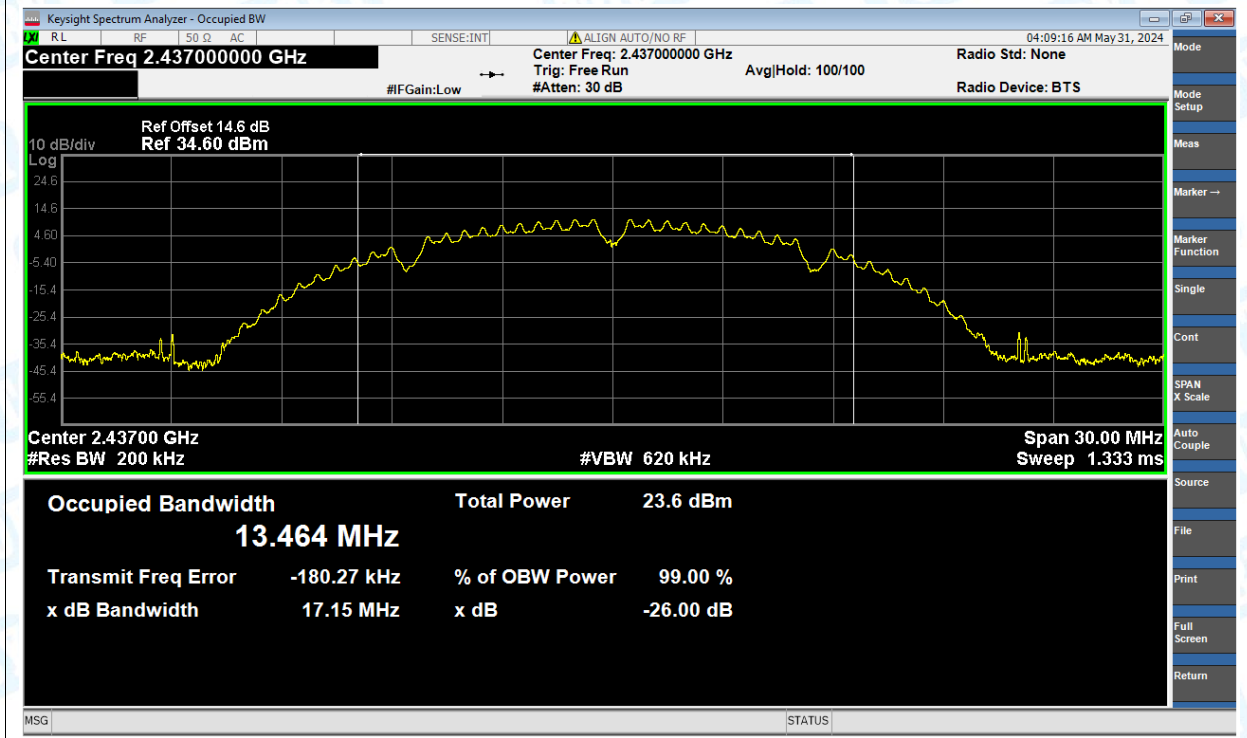
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	13.409
NVNT	b	2437	Ant1	13.464
NVNT	b	2462	Ant1	13.489
NVNT	g	2412	Ant1	16.658
NVNT	g	2437	Ant1	16.555
NVNT	g	2462	Ant1	16.59
NVNT	n(HT20)	2412	Ant1	17.665
NVNT	n(HT20)	2437	Ant1	17.68
NVNT	n(HT20)	2462	Ant1	17.65
NVNT	n(HT40)	2422	Ant1	36.131
NVNT	n(HT40)	2437	Ant1	36.174
NVNT	n(HT40)	2452	Ant1	36.127

Test Graphs

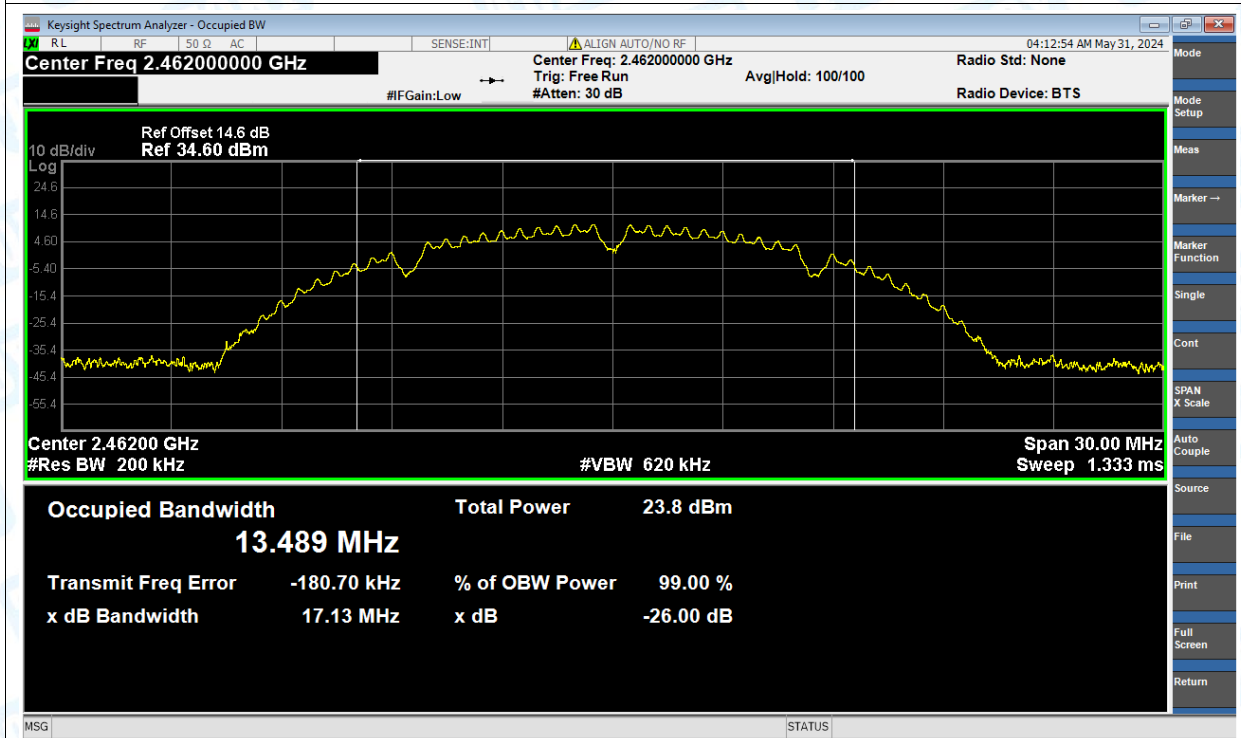
OBW NVNT b 2412MHz Ant1



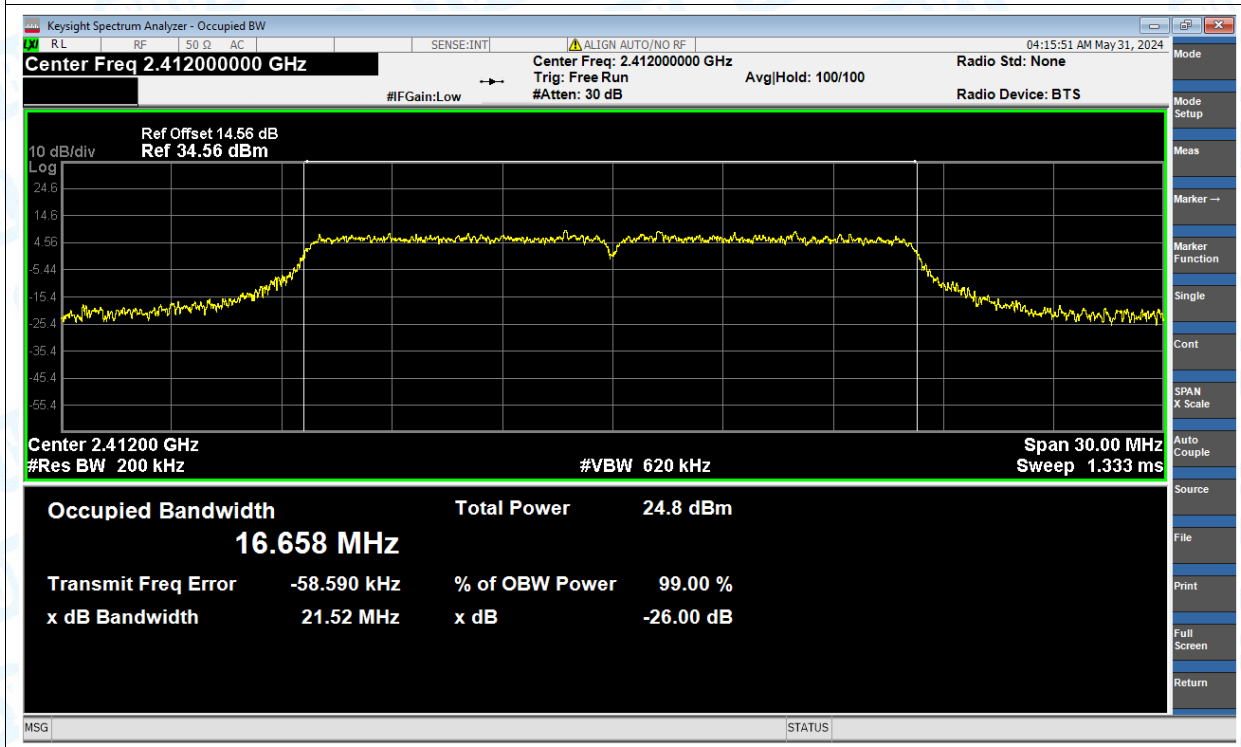
OBW NVNT b 2437MHz Ant1



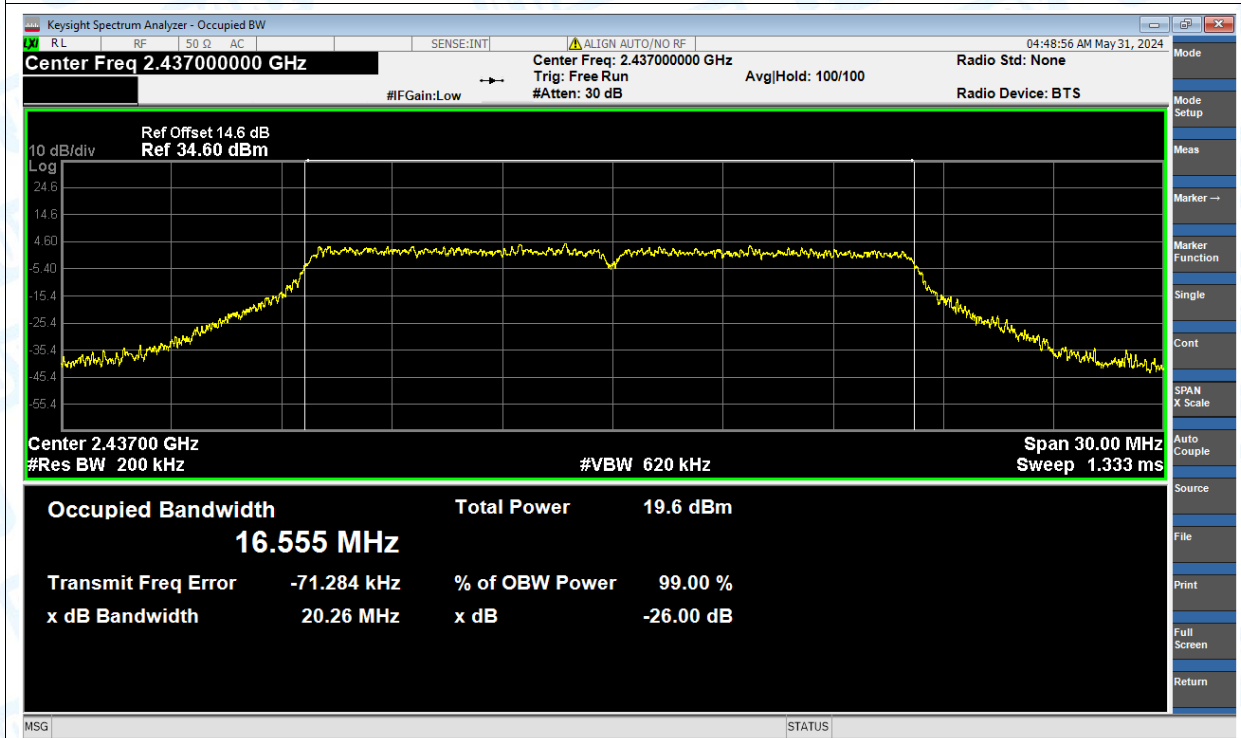
OBW NVNT b 2462MHz Ant1



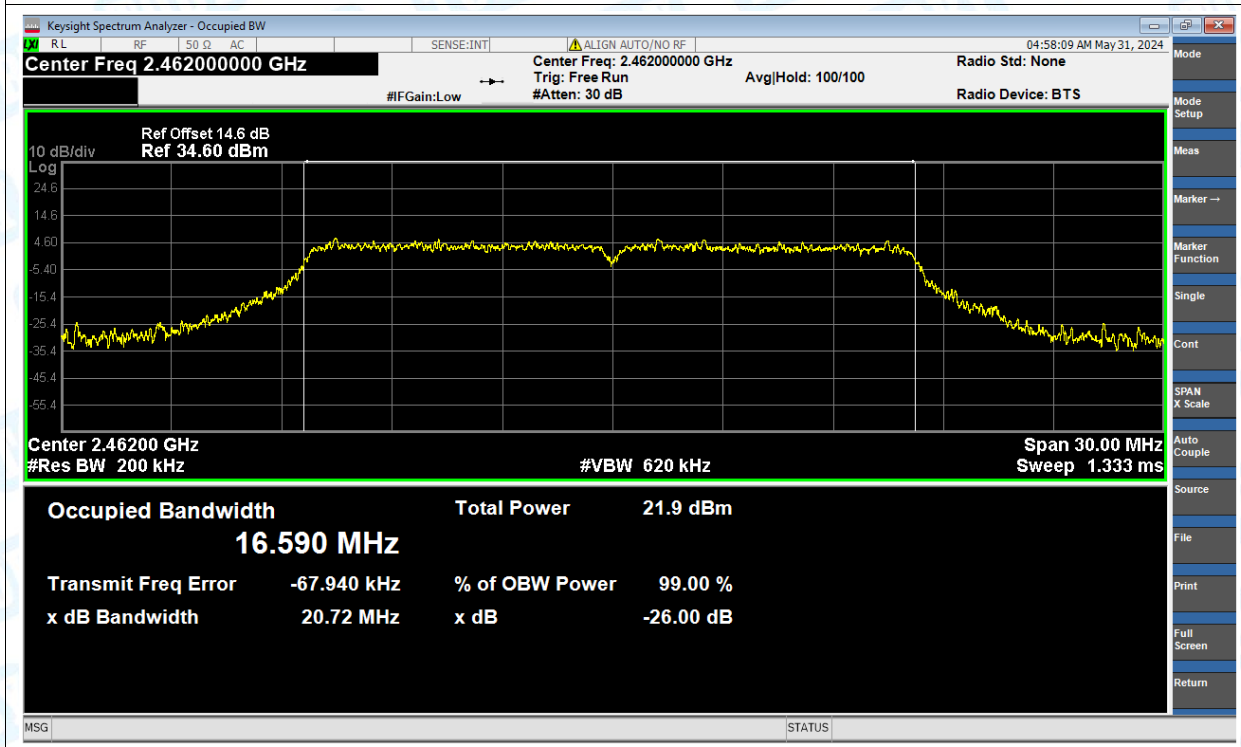
OBW NVNT g 2412MHz Ant1



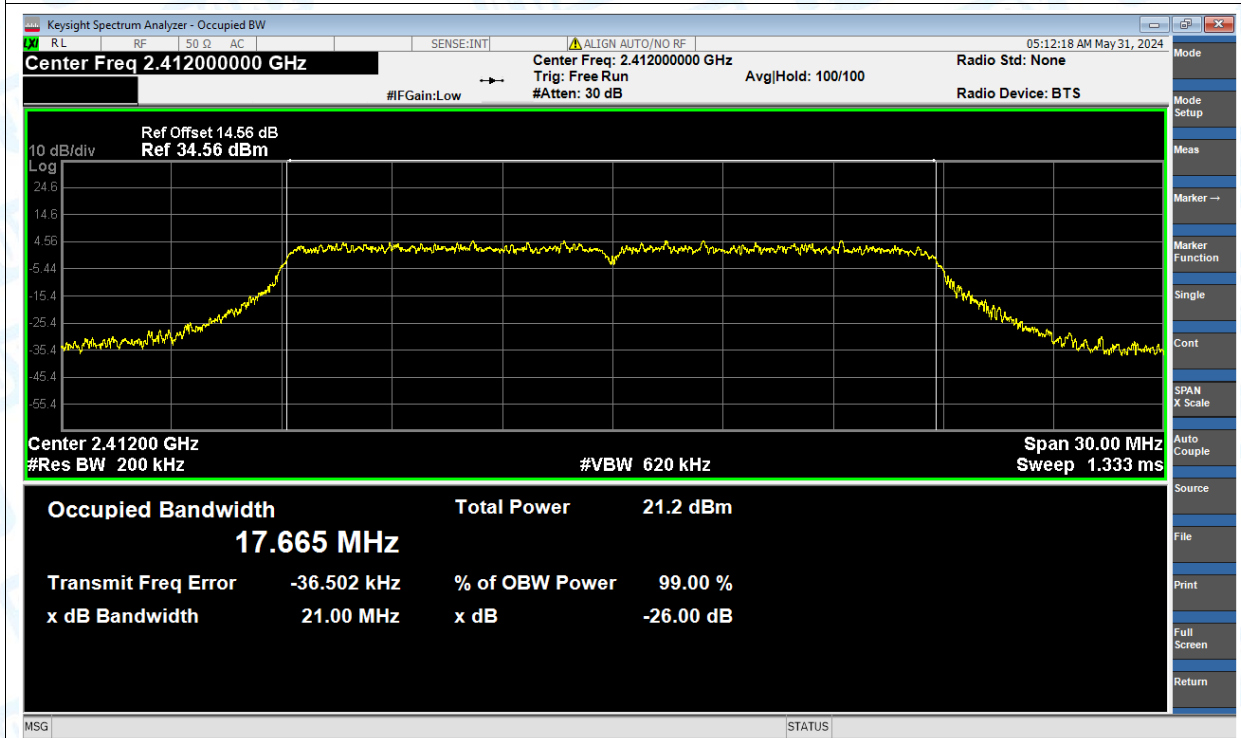
OBW NVNT g 2437MHz Ant1



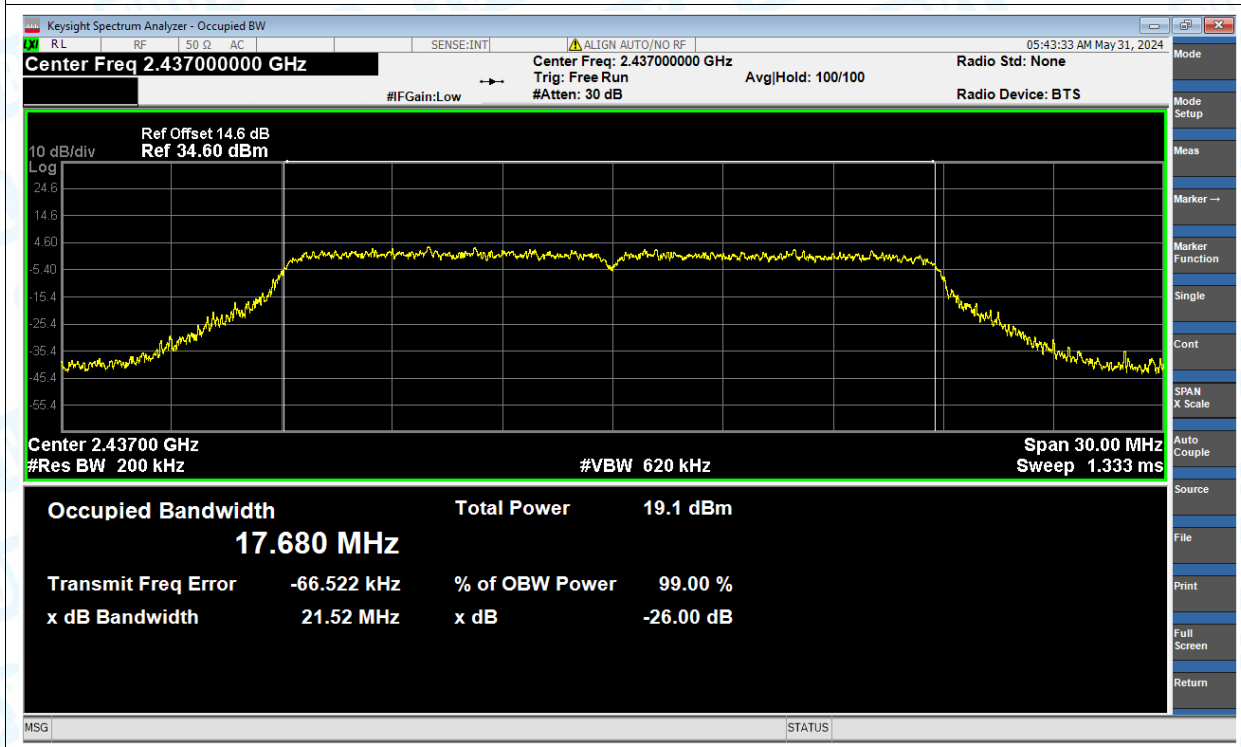
OBW NVNT g 2462MHz Ant1



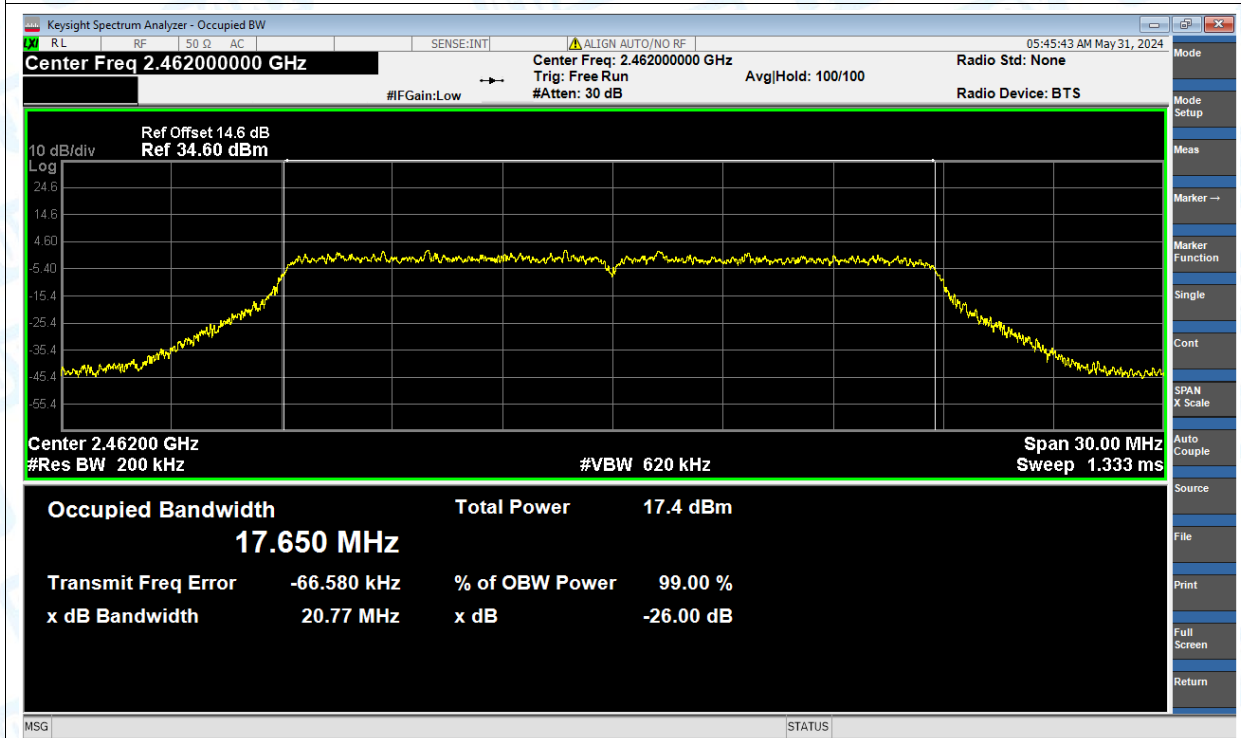
OBW NVNT n(HT20) 2412MHz Ant1



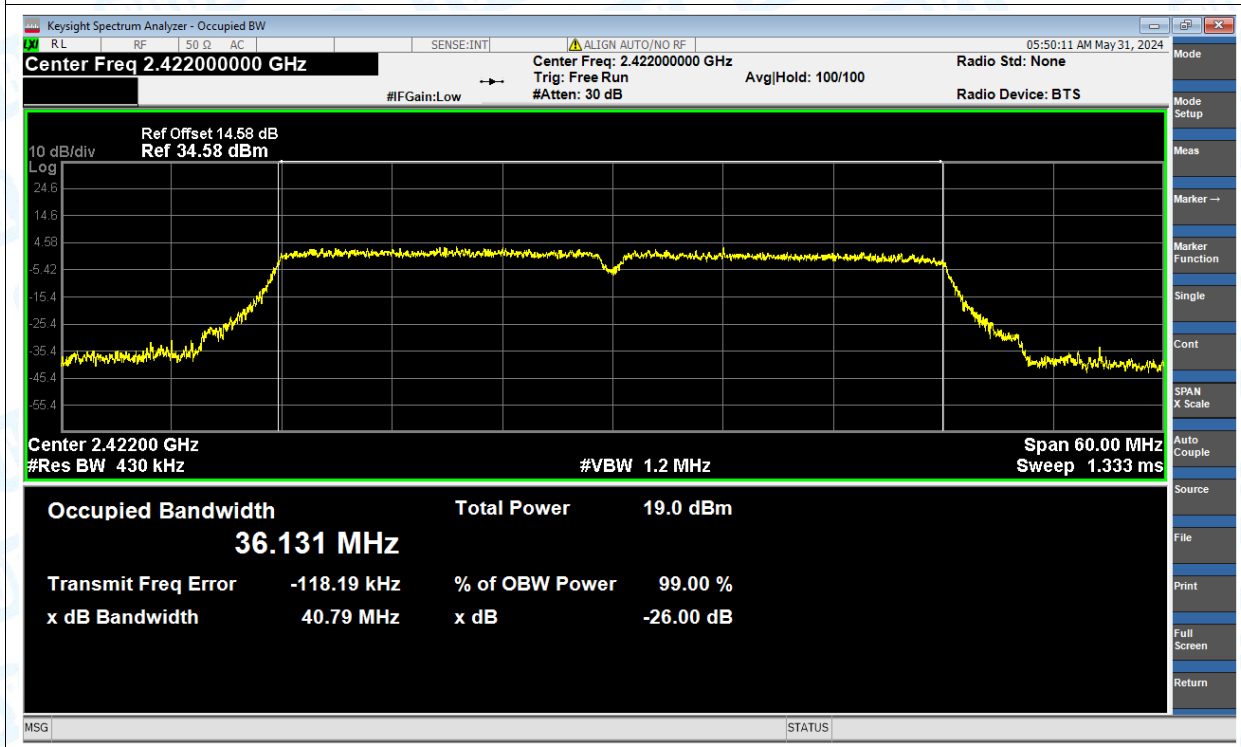
OBW NVNT n(HT20) 2437MHz Ant1



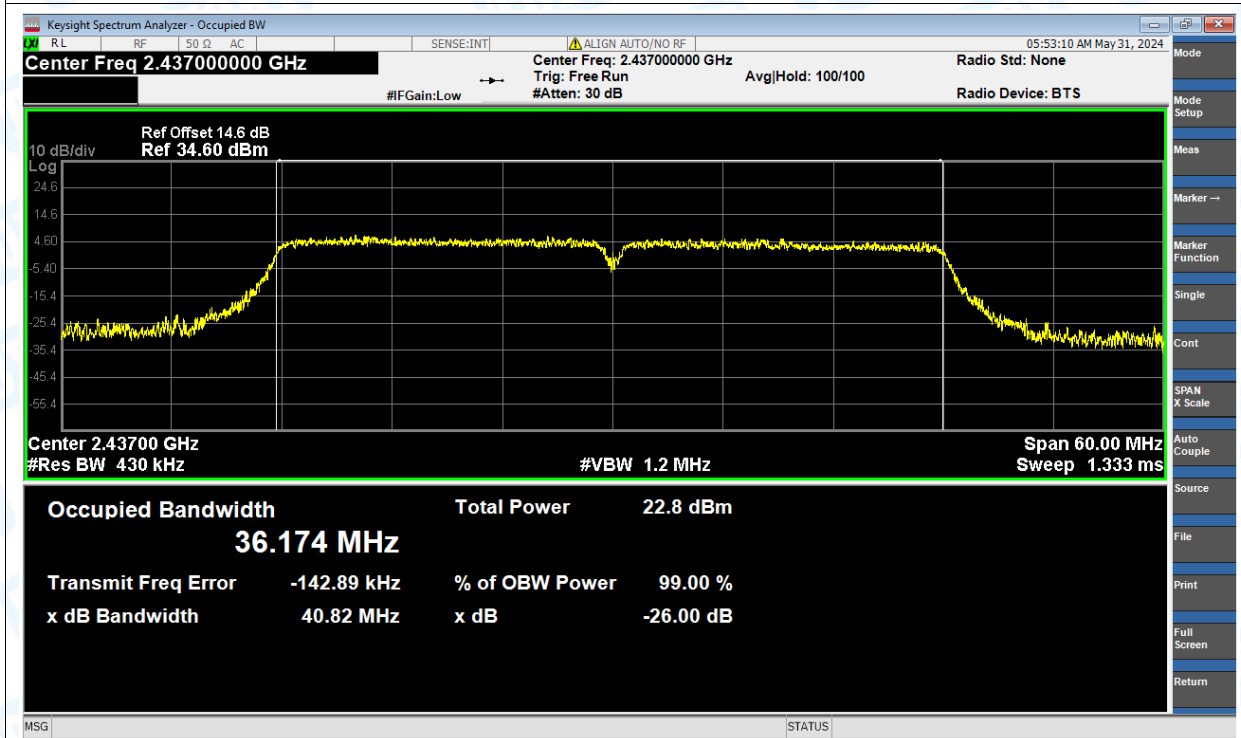
OBW NVNT n(HT20) 2462MHz Ant1



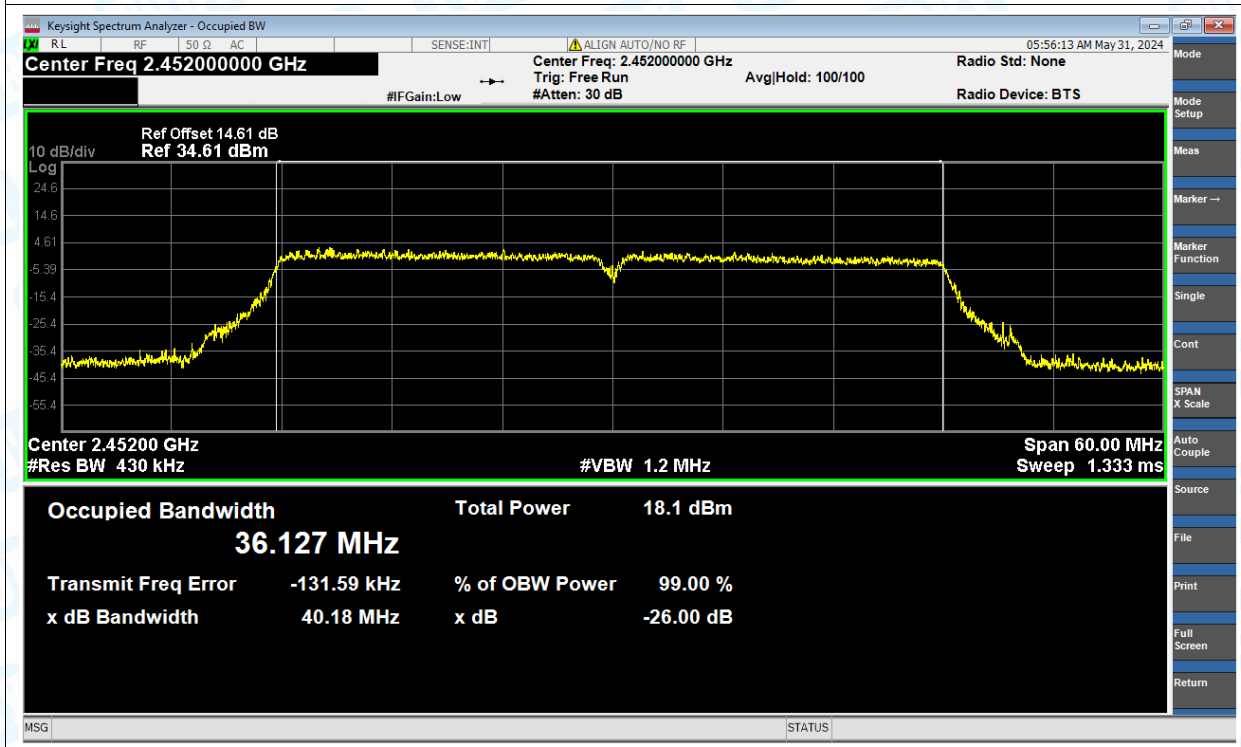
OBW NVNT n(HT40) 2422MHz Ant1



OBW NVNT n(HT40) 2437MHz Ant1



OBW NVNT n(HT40) 2452MHz Ant1





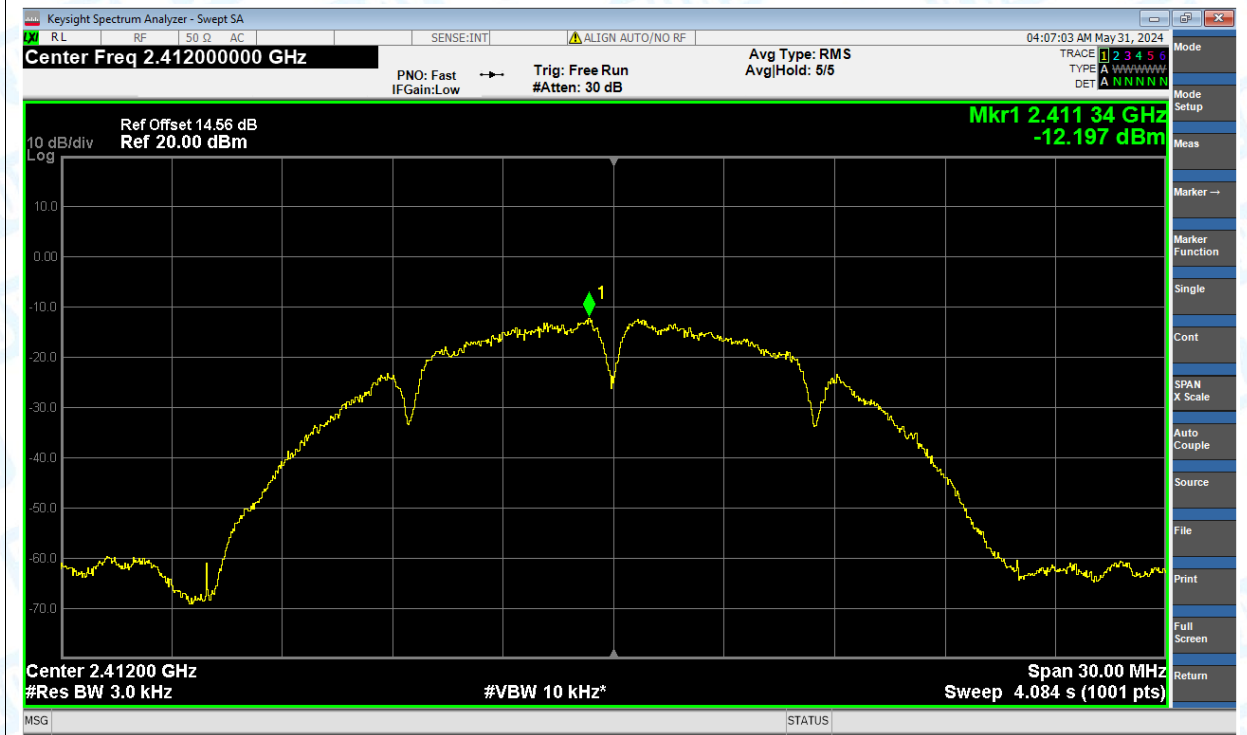
## 5. Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	-12.197	8	Pass
NVNT	b	2437	Ant1	-12.934	8	Pass
NVNT	b	2462	Ant1	-12.504	8	Pass
NVNT	g	2412	Ant1	-18.963	8	Pass
NVNT	g	2437	Ant1	-19.028	8	Pass
NVNT	g	2462	Ant1	-19.042	8	Pass
NVNT	n(HT20)	2412	Ant1	-20.584	8	Pass
NVNT	n(HT20)	2437	Ant1	-20.925	8	Pass
NVNT	n(HT20)	2462	Ant1	-22.816	8	Pass
NVNT	n(HT40)	2422	Ant1	-24.194	8	Pass
NVNT	n(HT40)	2437	Ant1	-23.519	8	Pass
NVNT	n(HT40)	2452	Ant1	-24.45	8	Pass

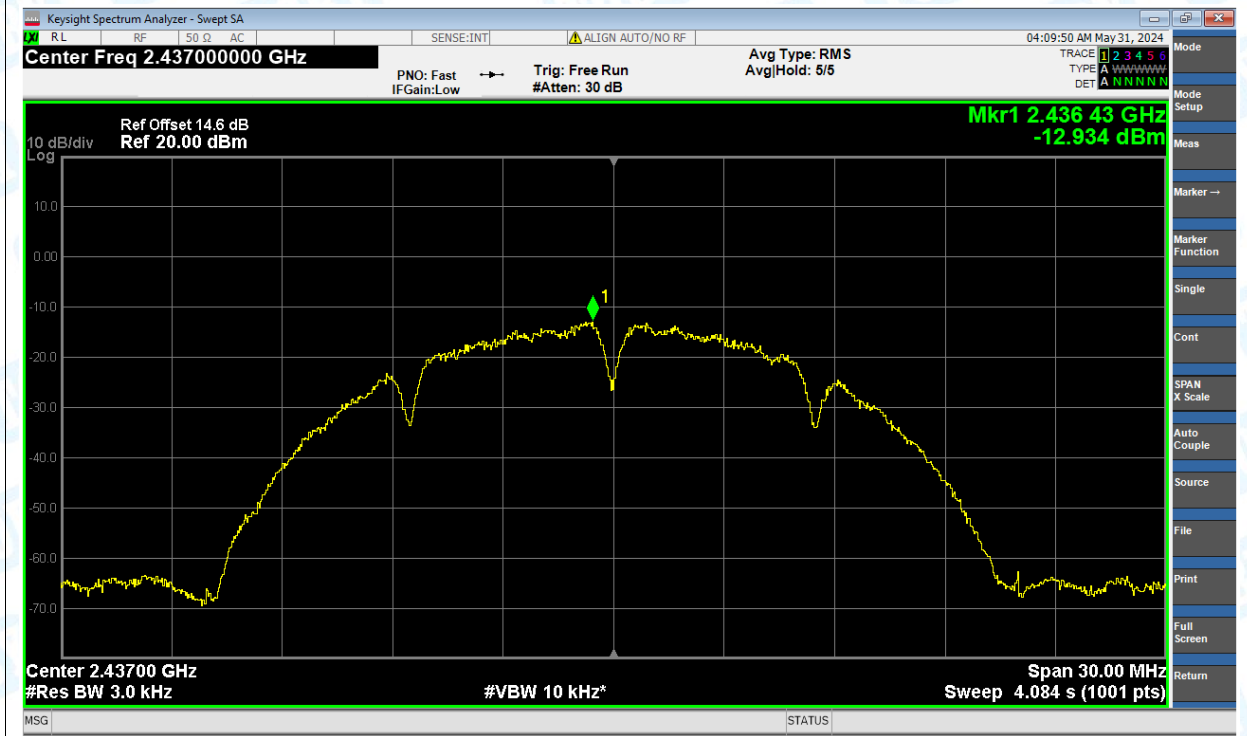
Note: The duty factor has been compensated into the result.

Test Graphs

PSD NVNT b 2412MHz Ant1



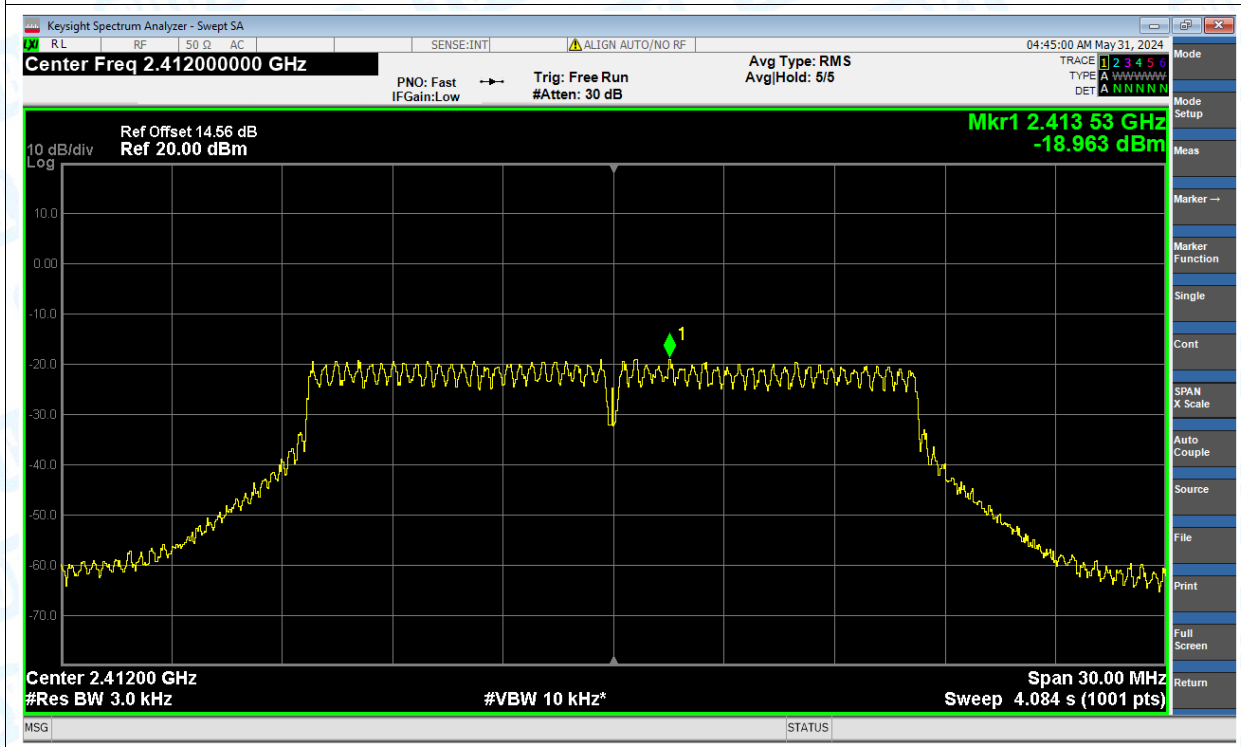
PSD NVNT b 2437MHz Ant1



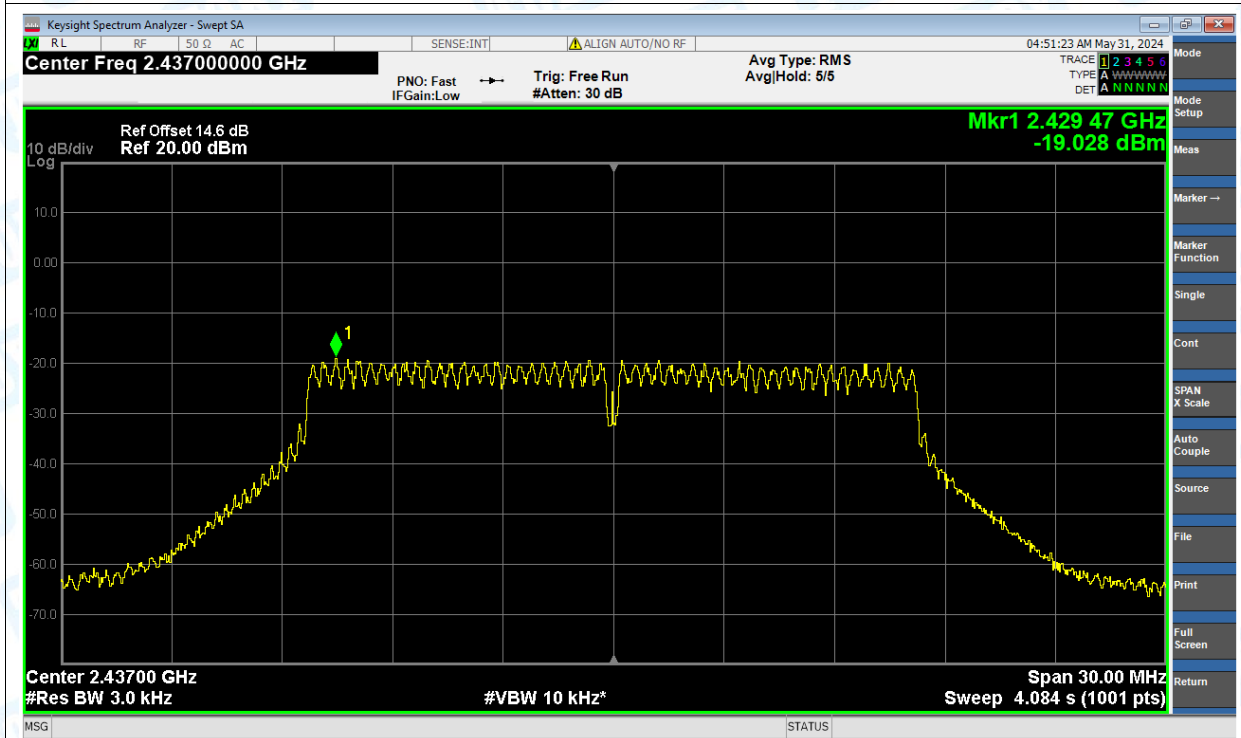
PSD NVNT b 2462MHz Ant1



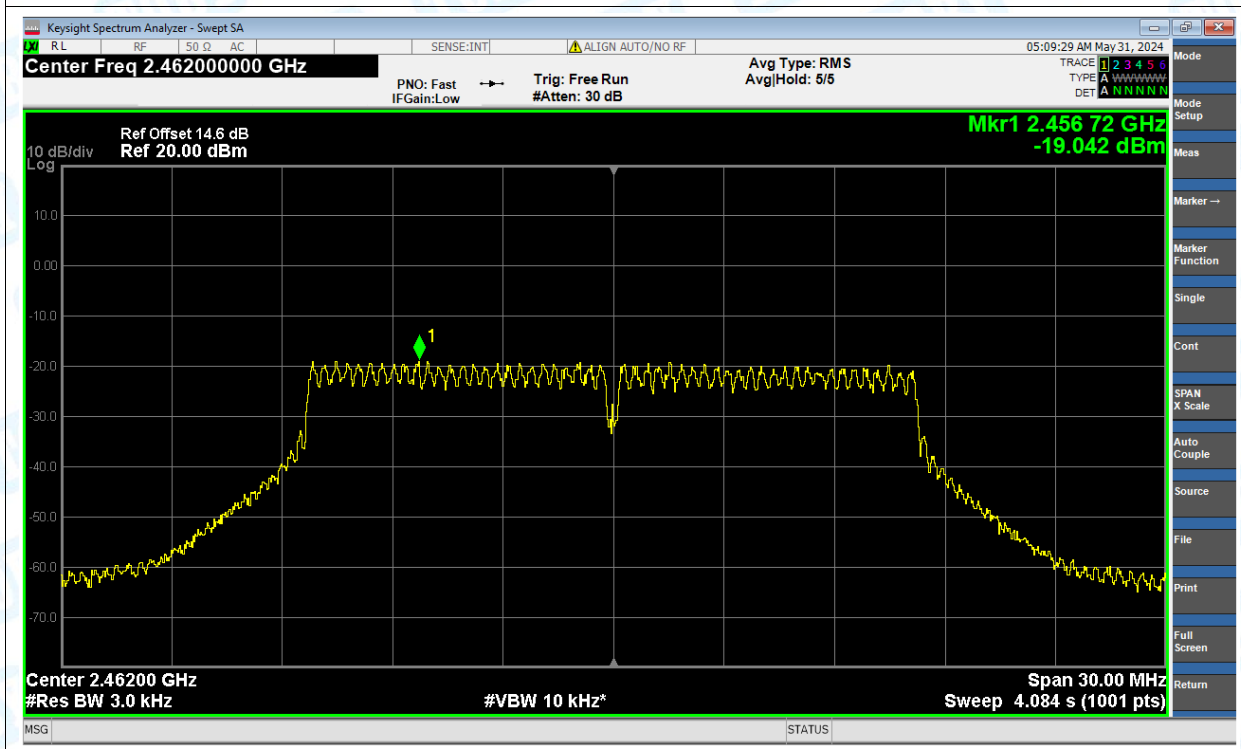
PSD NVNT g 2412MHz Ant1



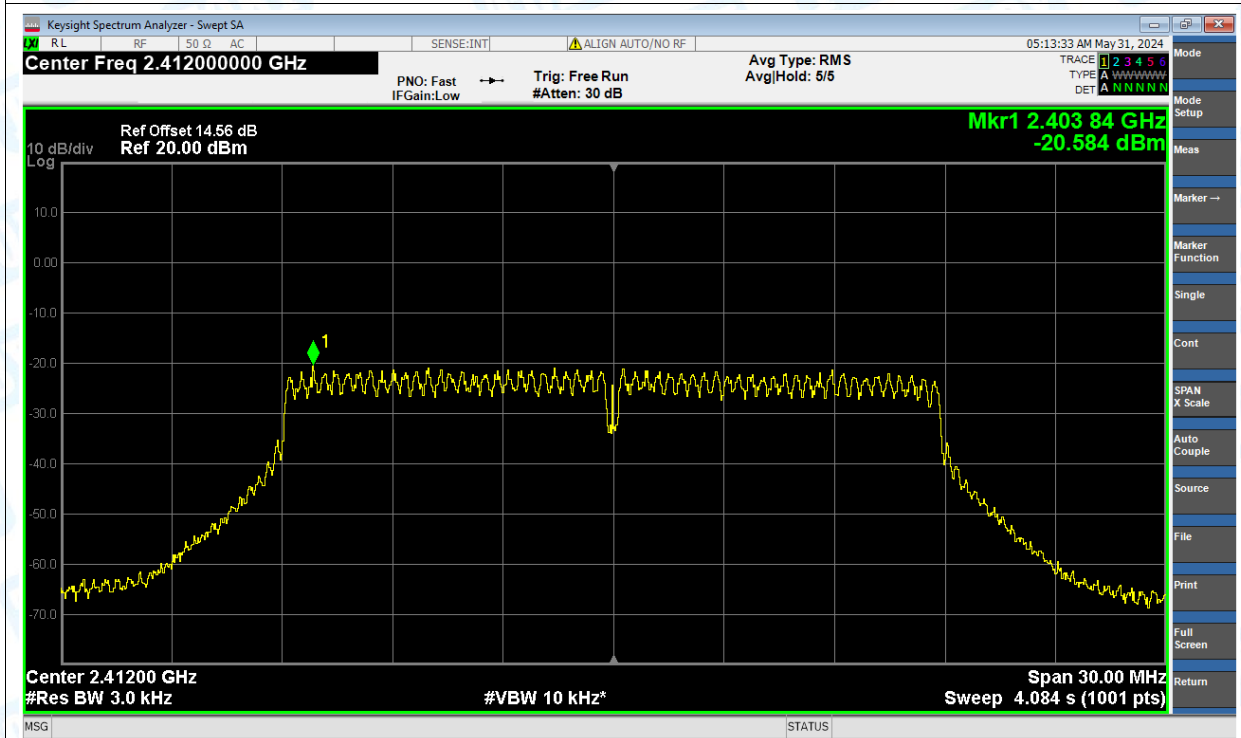
PSD NVNT g 2437MHz Ant1



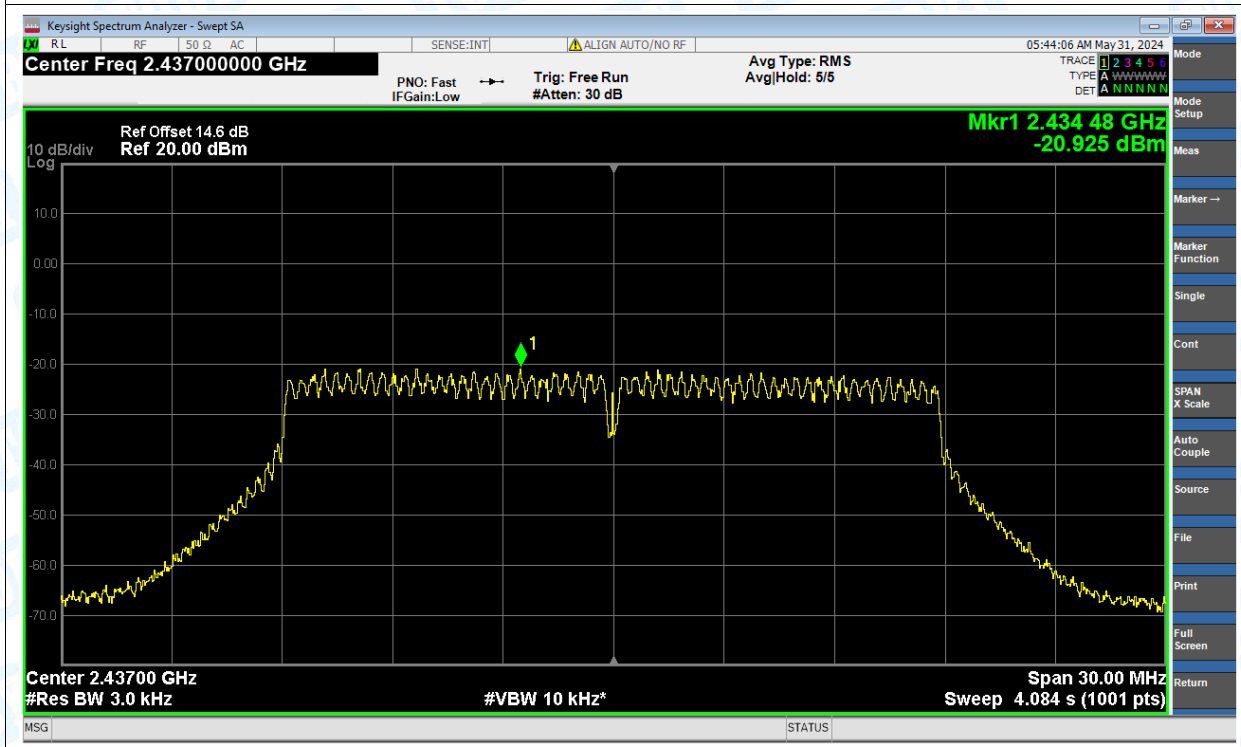
PSD NVNT g 2462MHz Ant1



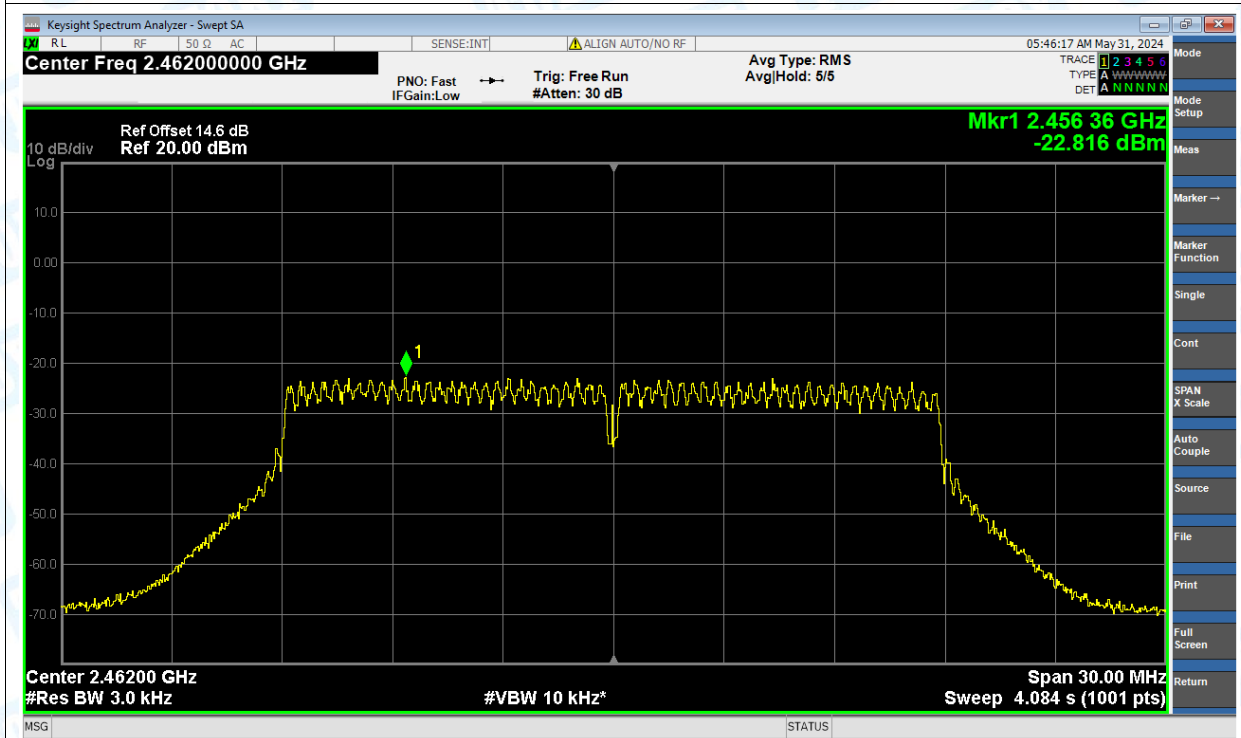
PSD NVNT n(HT20) 2412MHz Ant1



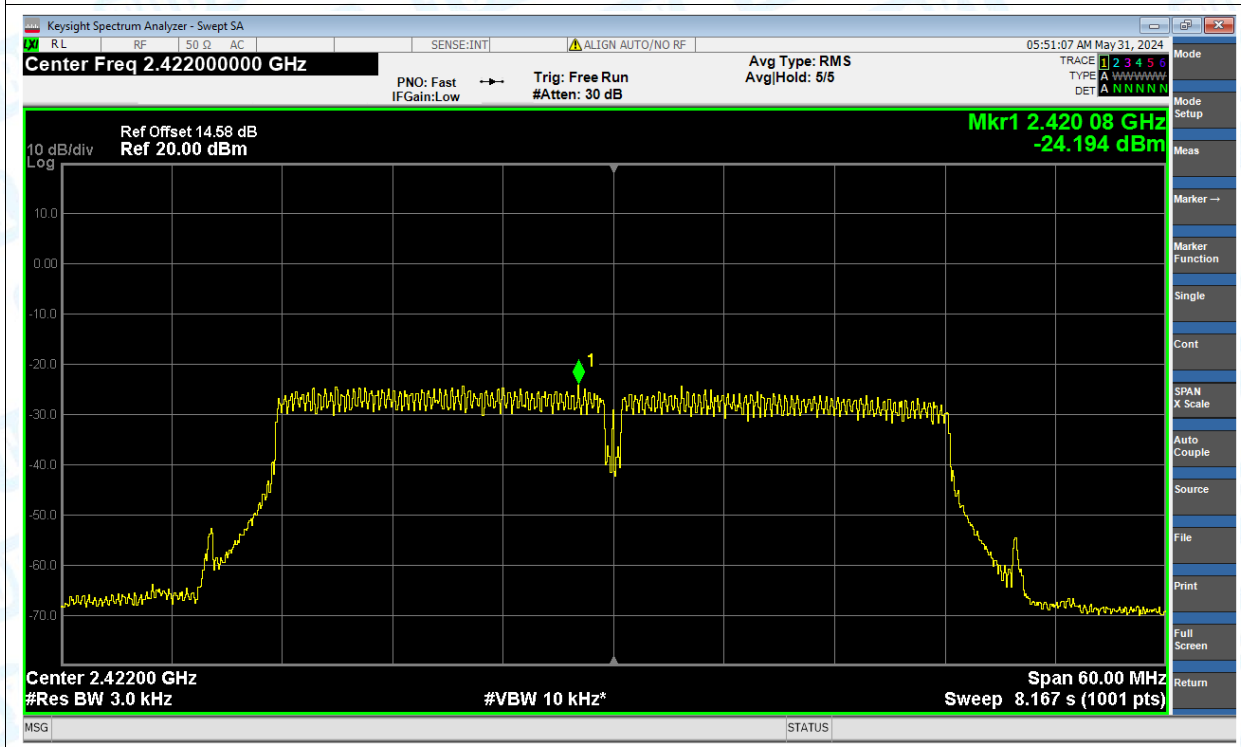
PSD NVNT n(HT20) 2437MHz Ant1



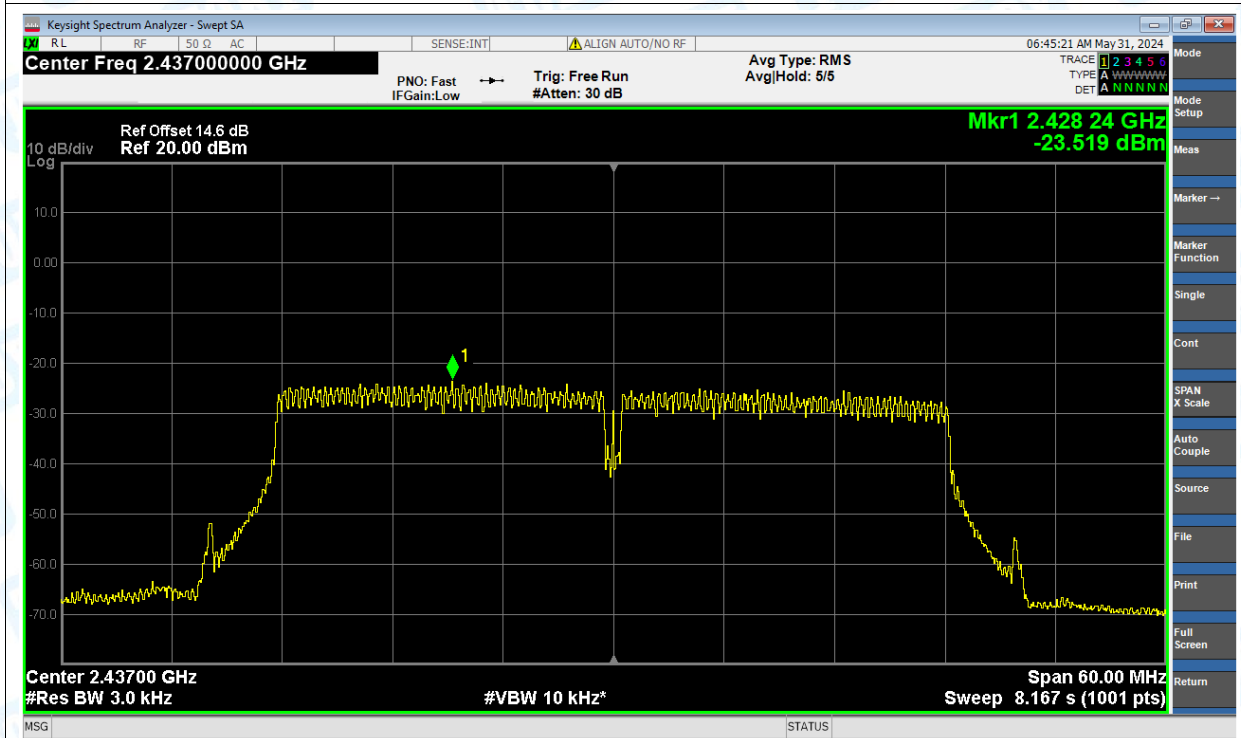
PSD NVNT n(HT20) 2462MHz Ant1



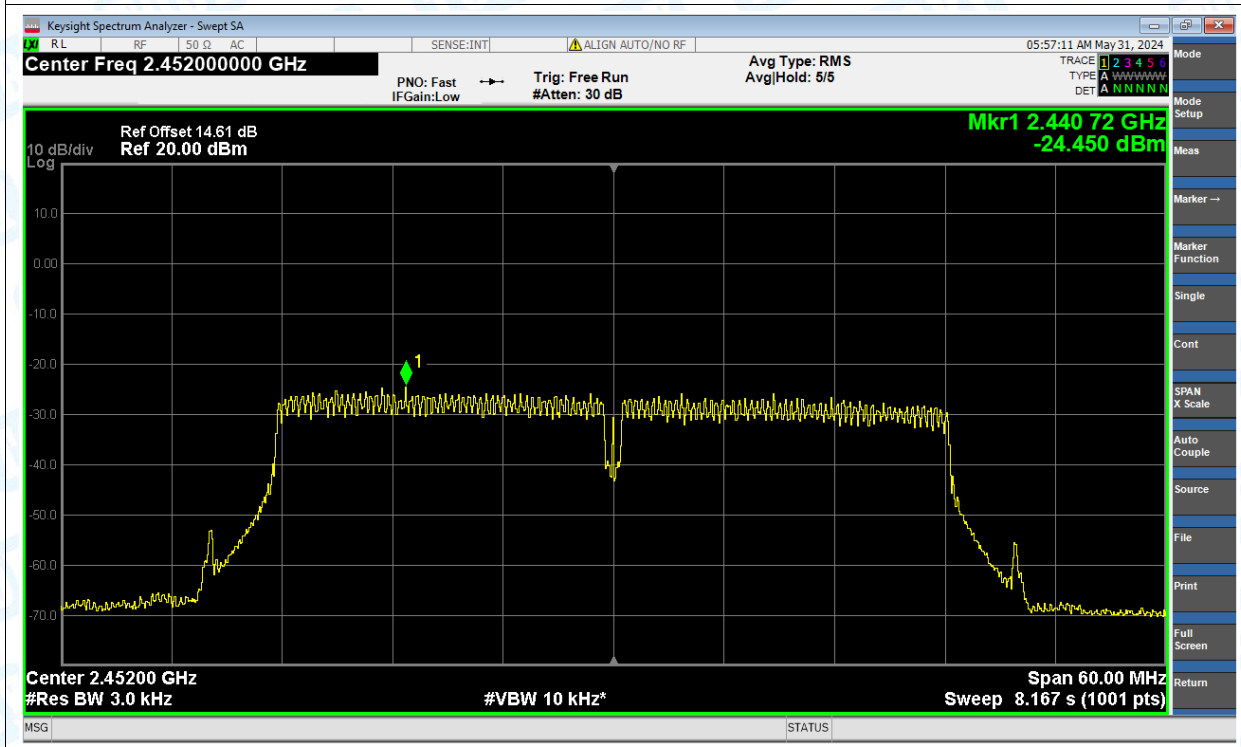
PSD NVNT n(HT40) 2422MHz Ant1



PSD NVNT n(HT40) 2437MHz Ant1



PSD NVNT n(HT40) 2452MHz Ant1



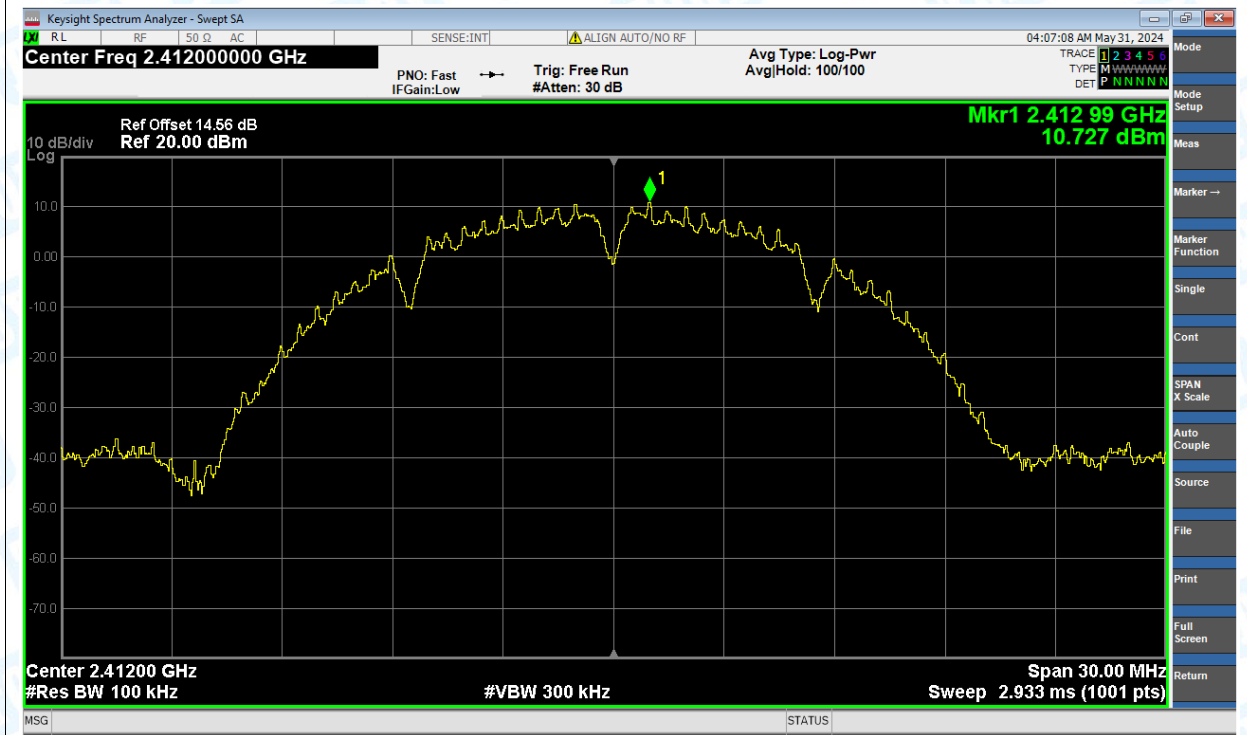
## 6.Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-54.78	-30	Pass
NVNT	b	2462	Ant1	-54.95	-30	Pass
NVNT	g	2412	Ant1	-46.54	-30	Pass
NVNT	g	2462	Ant1	-47.55	-30	Pass
NVNT	n(HT20)	2412	Ant1	-45.63	-30	Pass
NVNT	n(HT20)	2462	Ant1	-45.47	-30	Pass
NVNT	n(HT40)	2422	Ant1	-41.96	-30	Pass
NVNT	n(HT40)	2452	Ant1	-42.84	-30	Pass

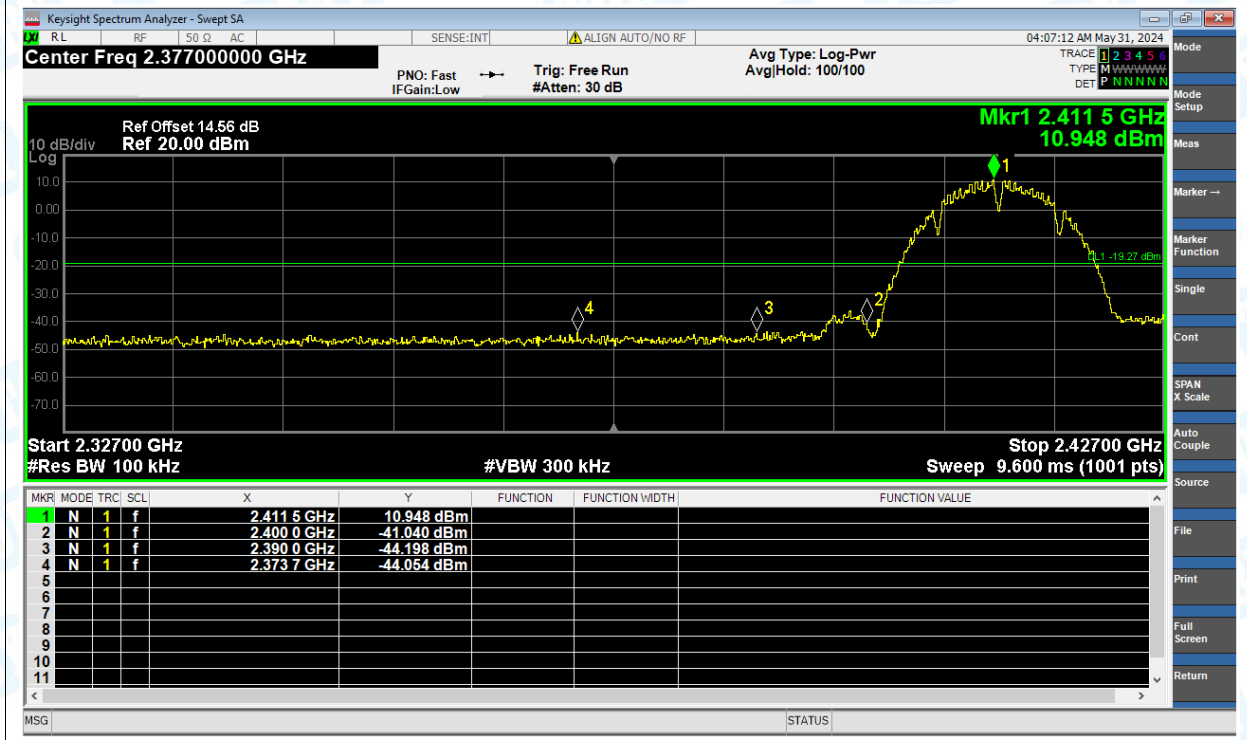


Test Graphs

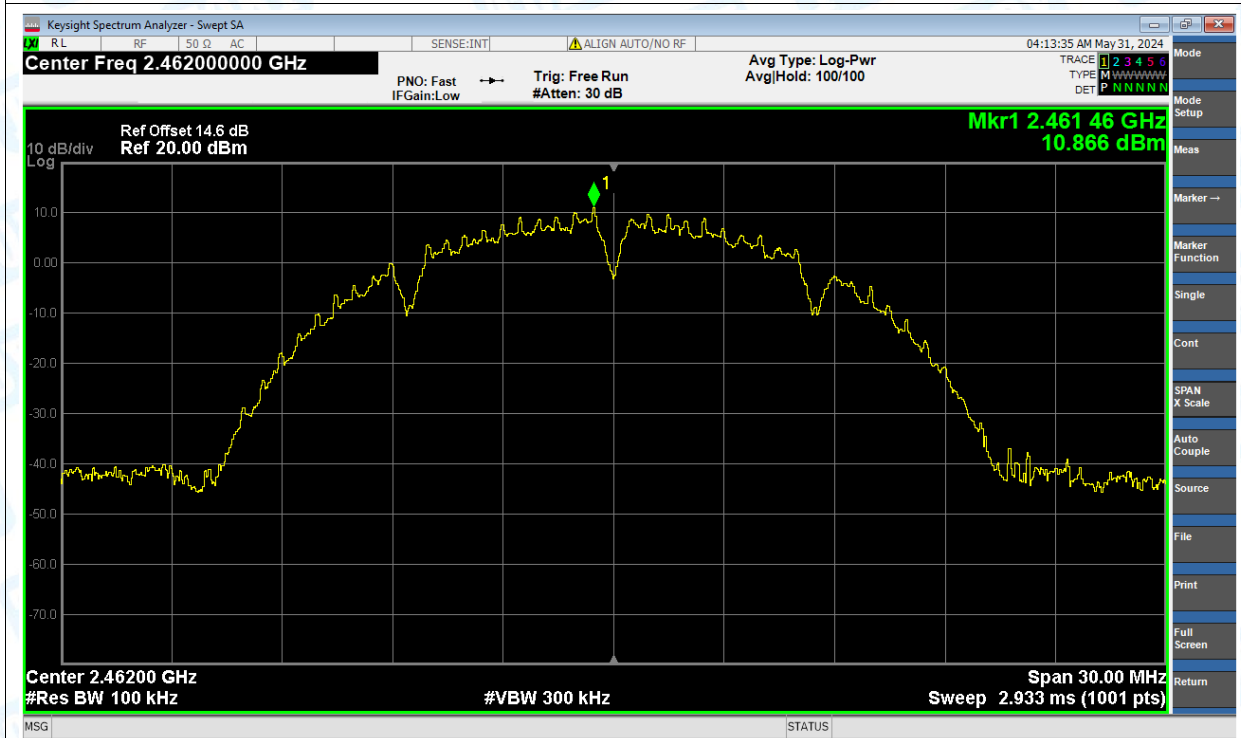
Band Edge NVNT b 2412MHz Ant1 Ref



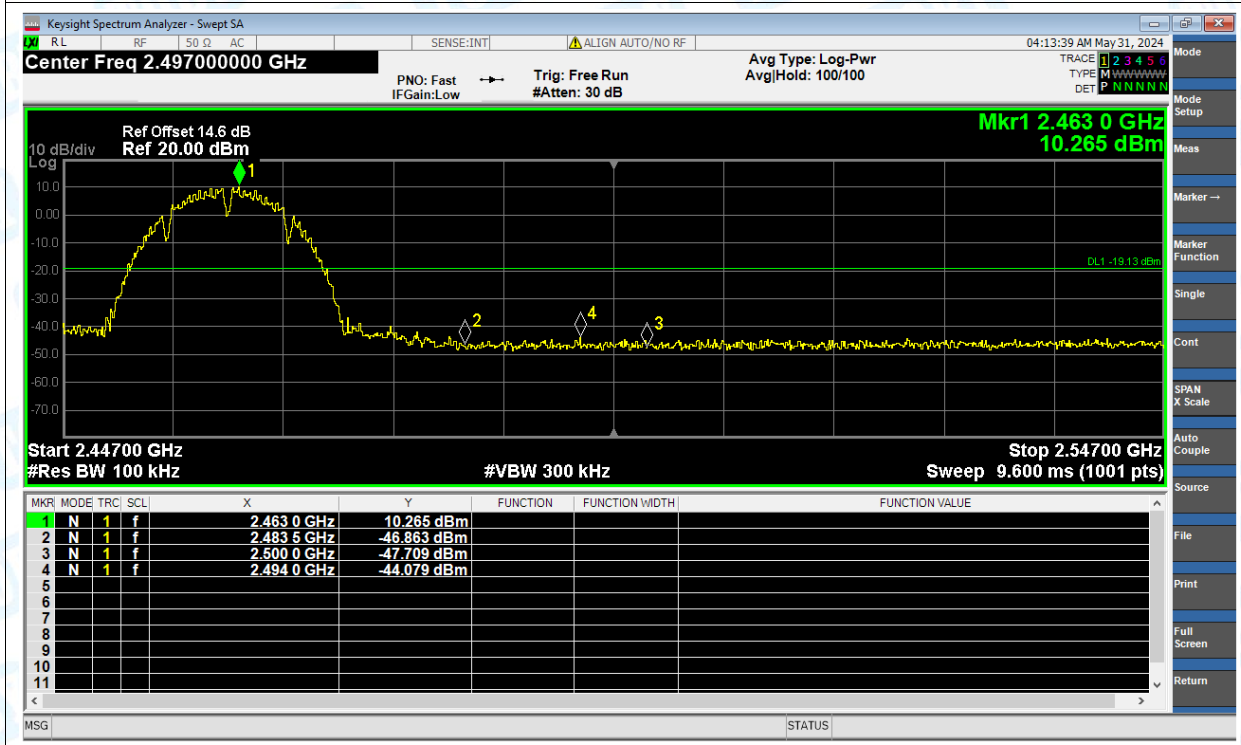
Band Edge NVNT b 2412MHz Ant1 Emission



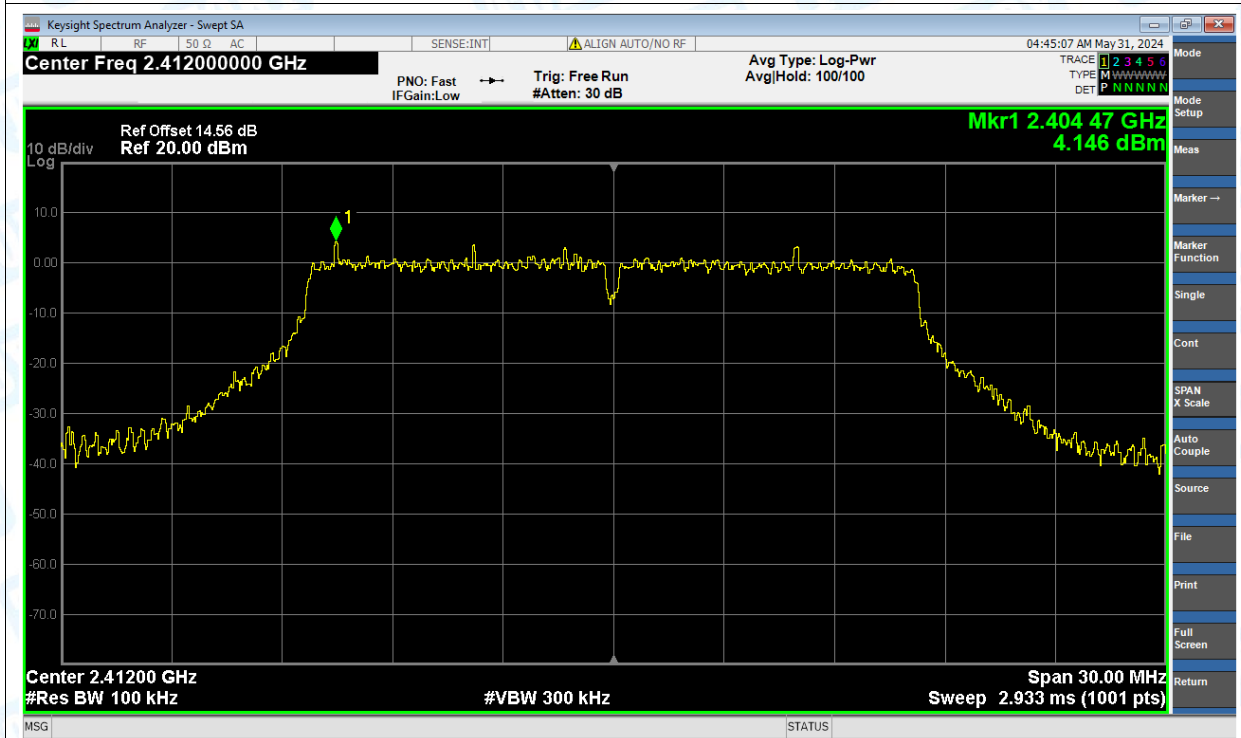
Band Edge NVNT b 2462MHz Ant1 Ref



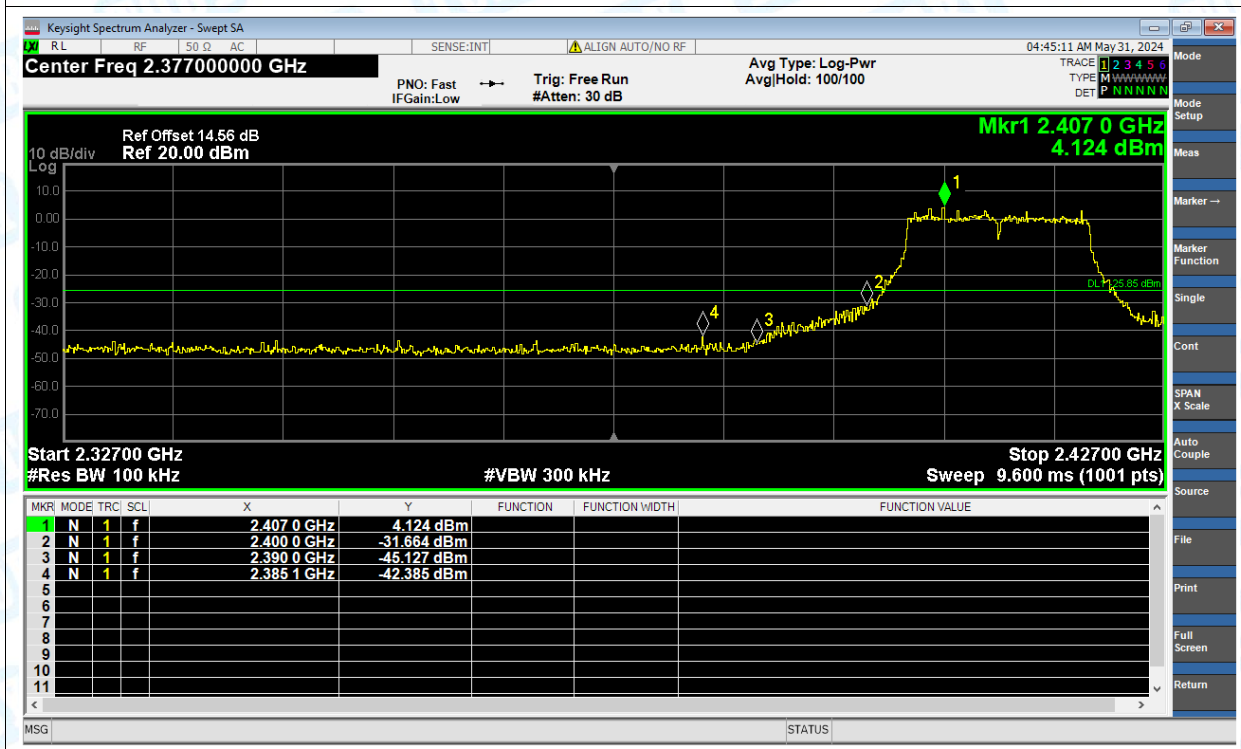
Band Edge NVNT b 2462MHz Ant1 Emission



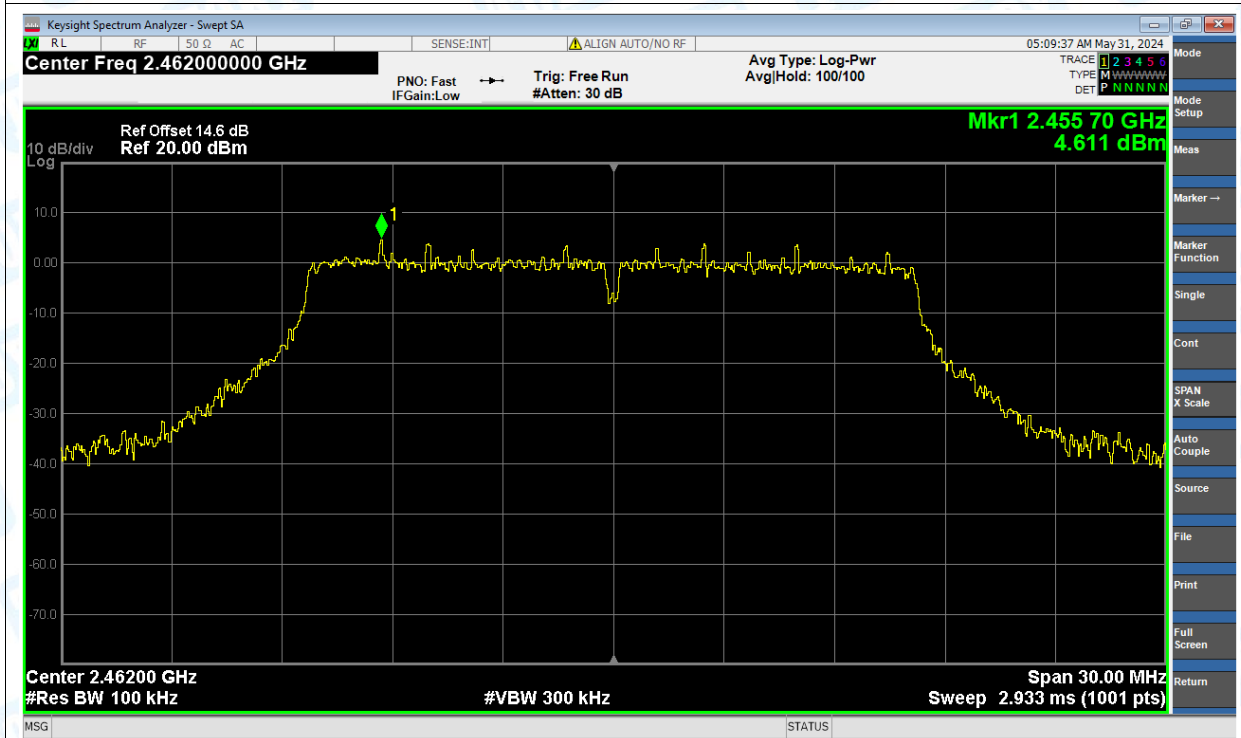
Band Edge NVNT g 2412MHz Ant1 Ref



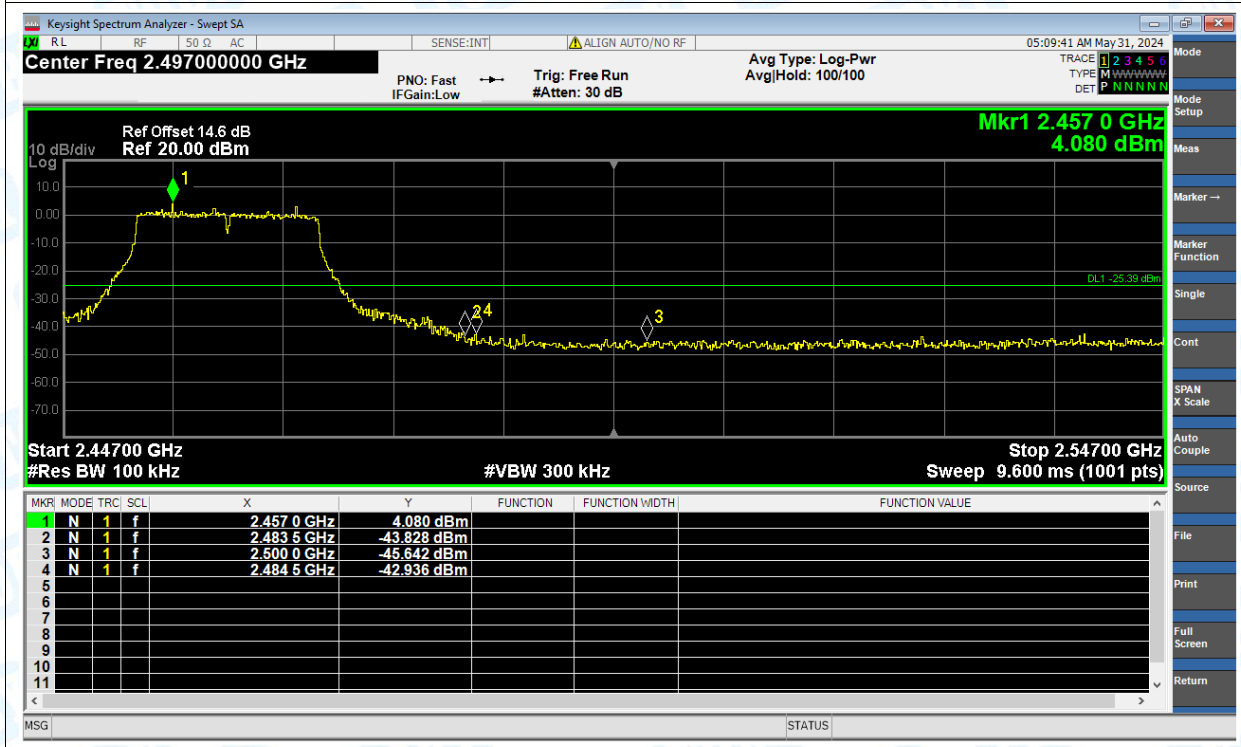
Band Edge NVNT g 2412MHz Ant1 Emission



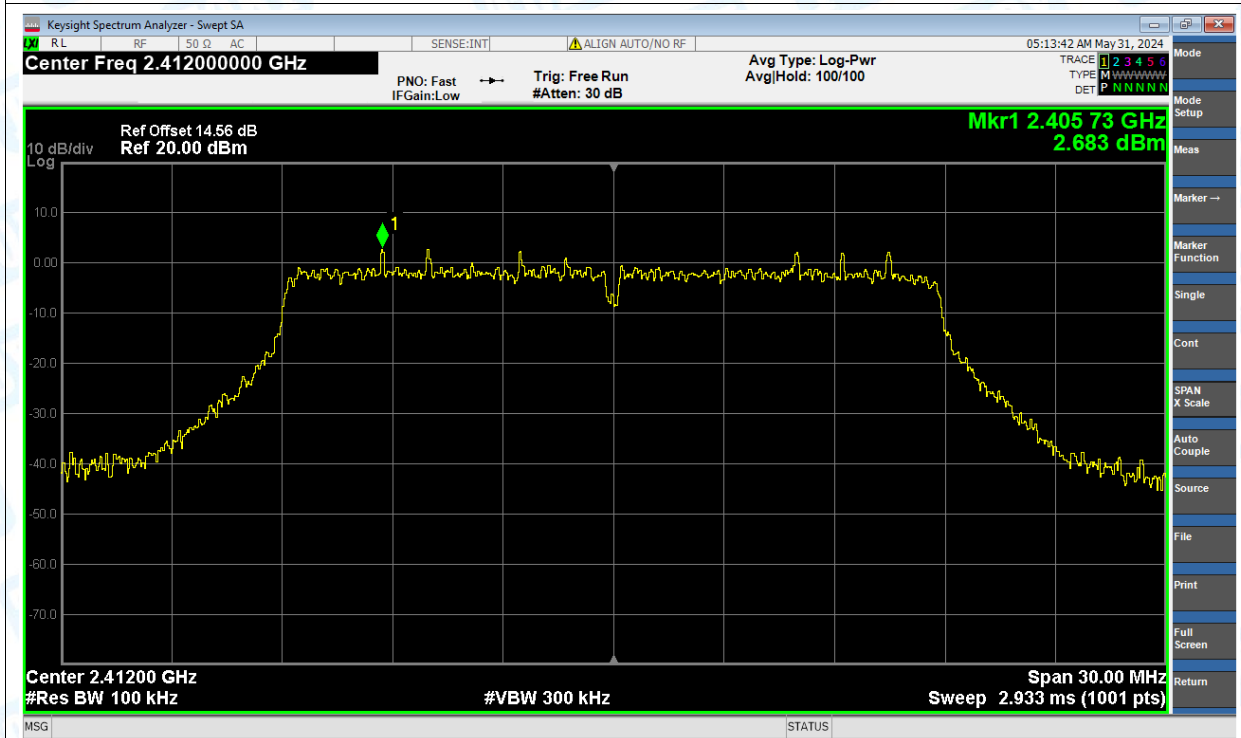
Band Edge NVNT g 2462MHz Ant1 Ref



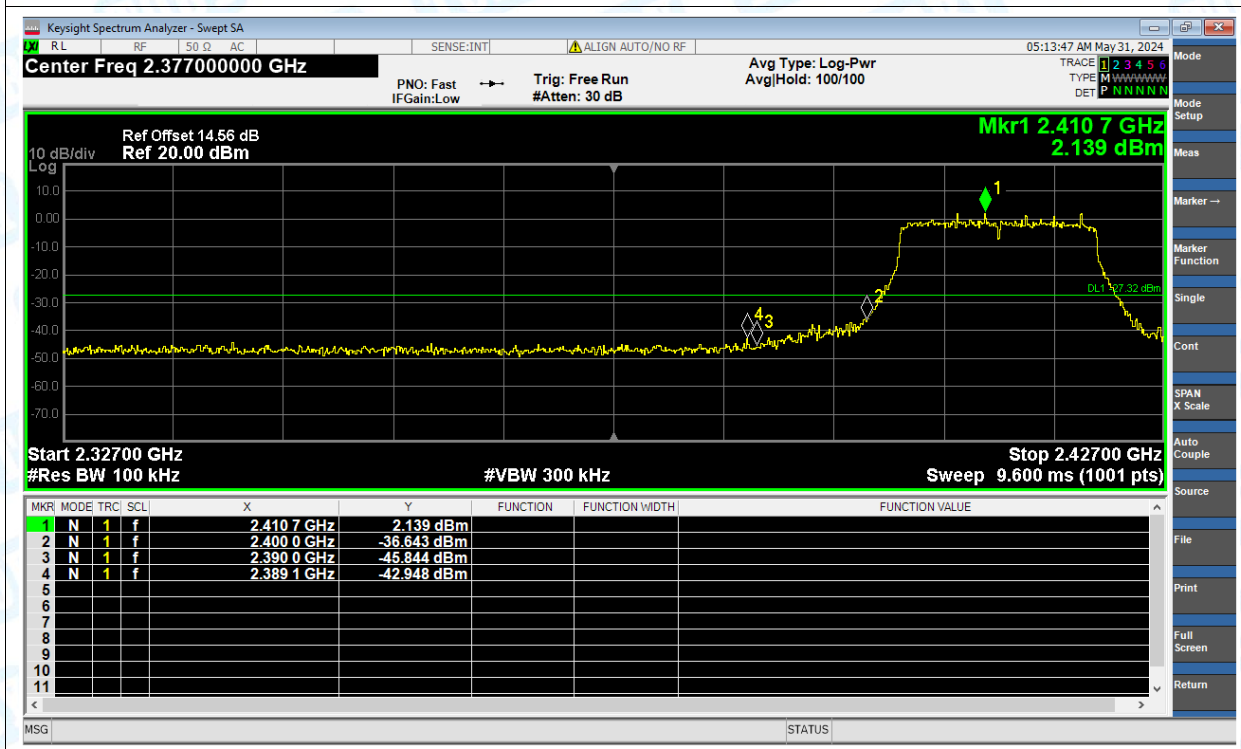
Band Edge NVNT g 2462MHz Ant1 Emission



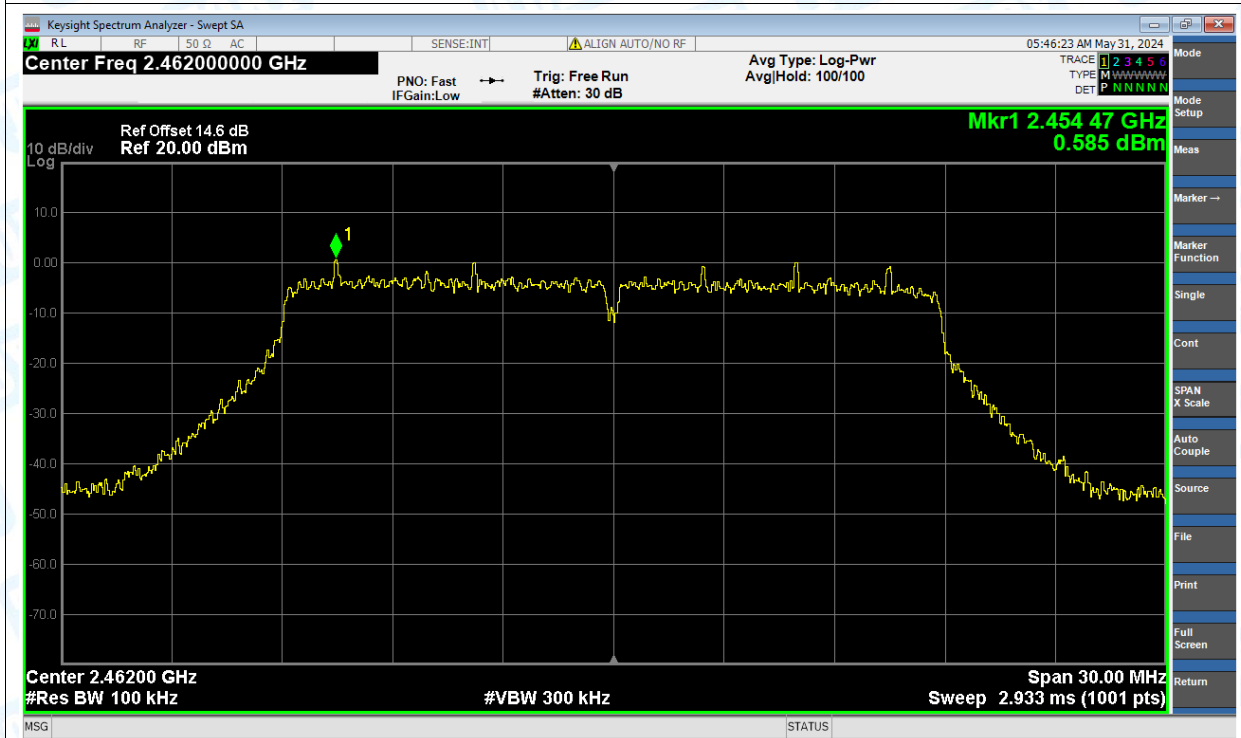
Band Edge NVNT n(HT20) 2412MHz Ant1 Ref



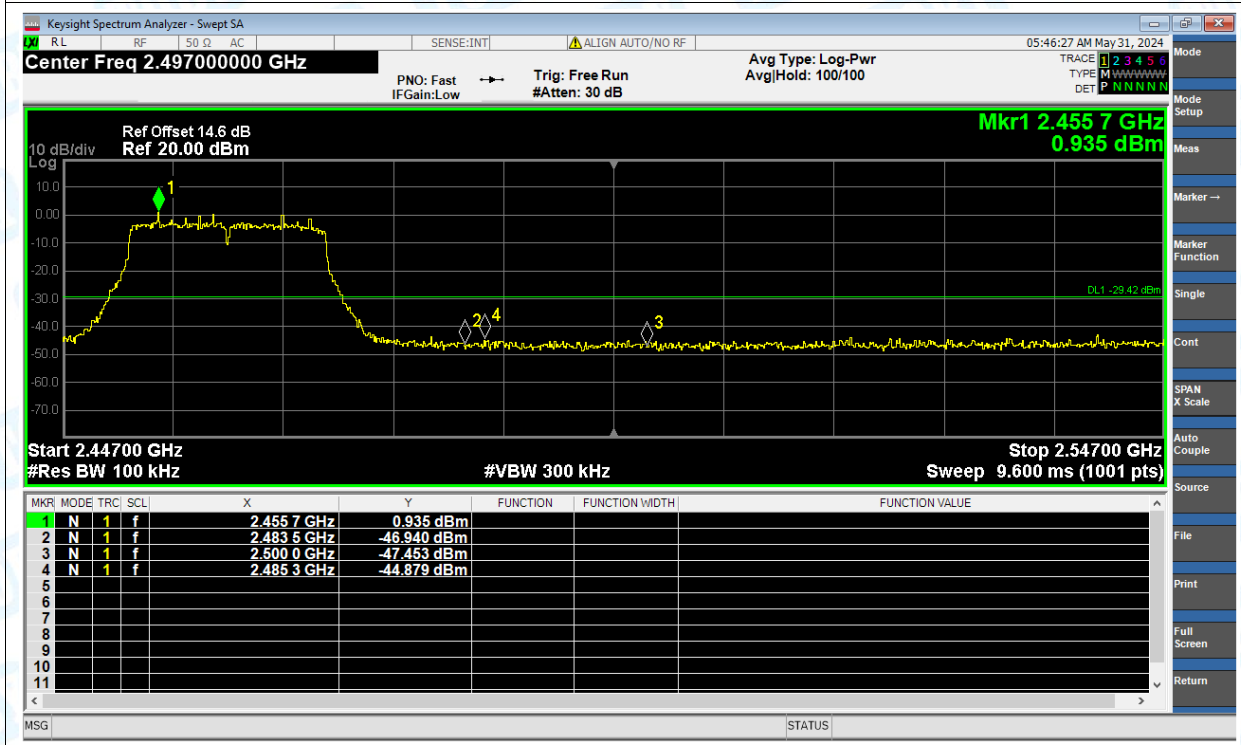
Band Edge NVNT n(HT20) 2412MHz Ant1 Emission

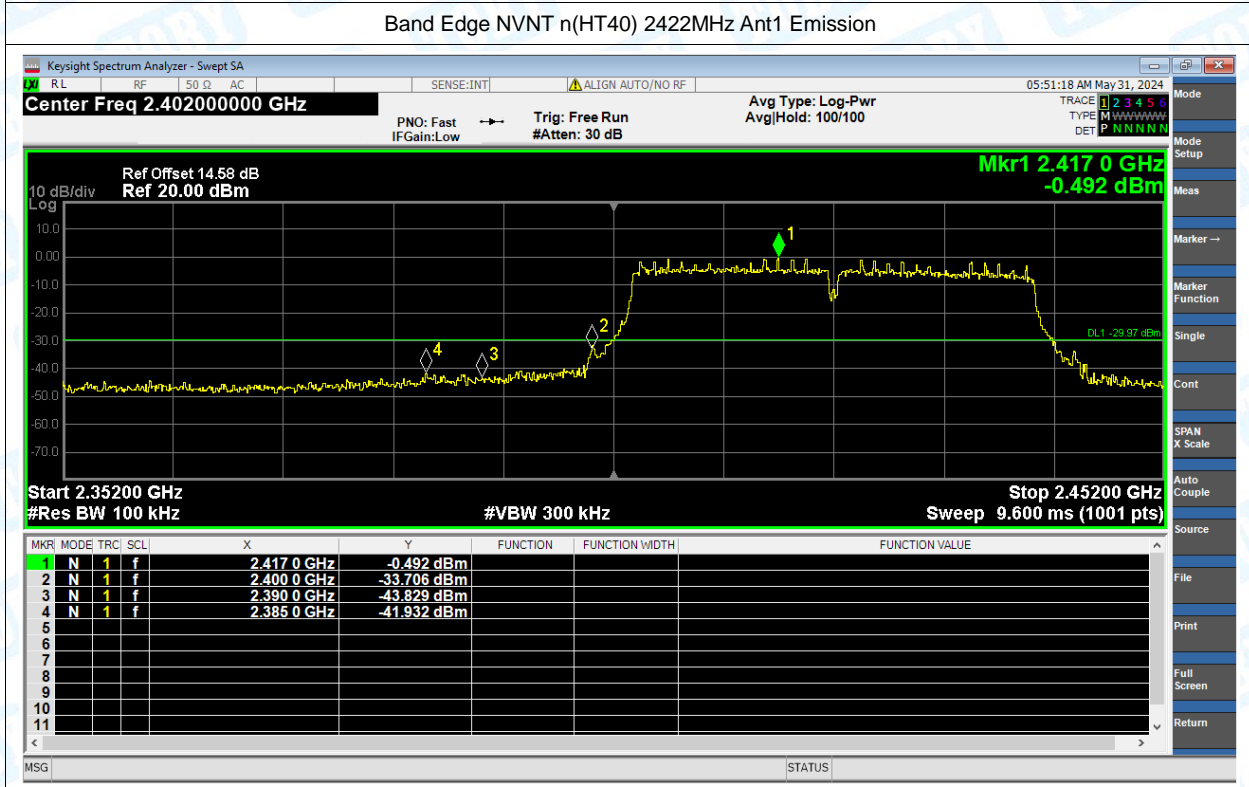
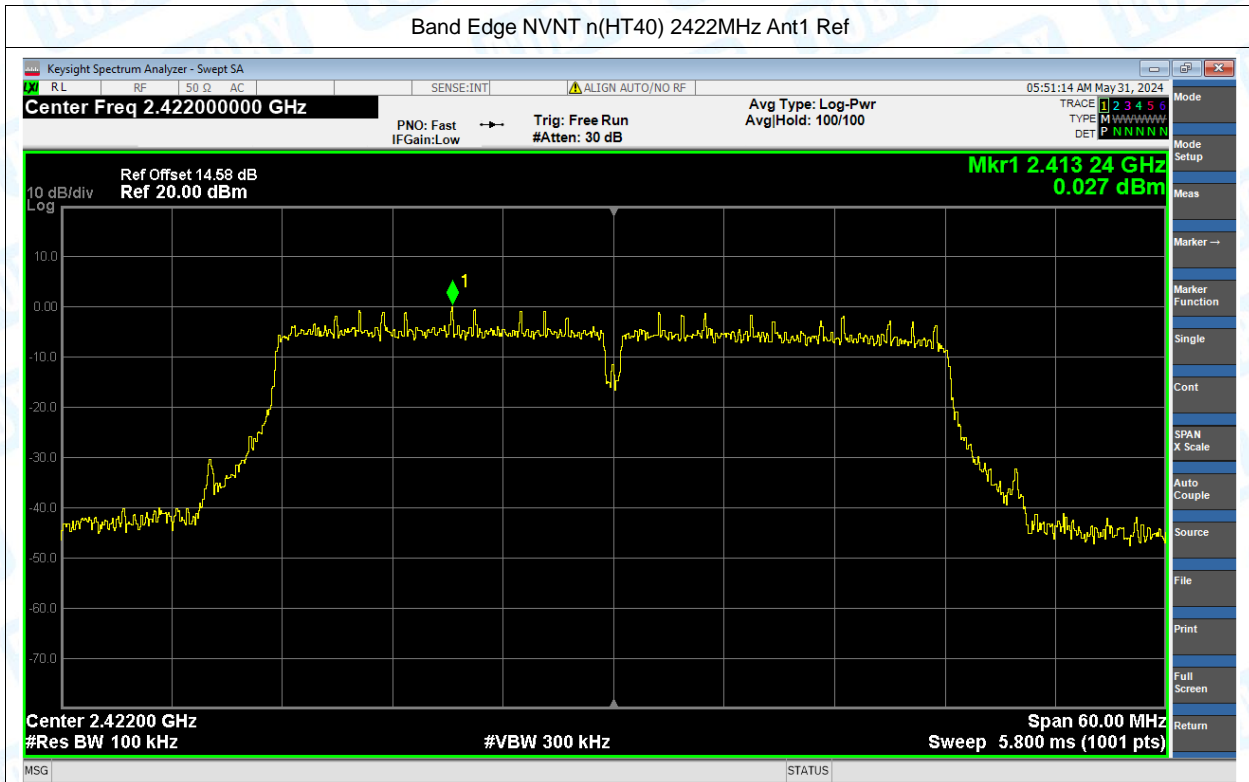


Band Edge NVNT n(HT20) 2462MHz Ant1 Ref

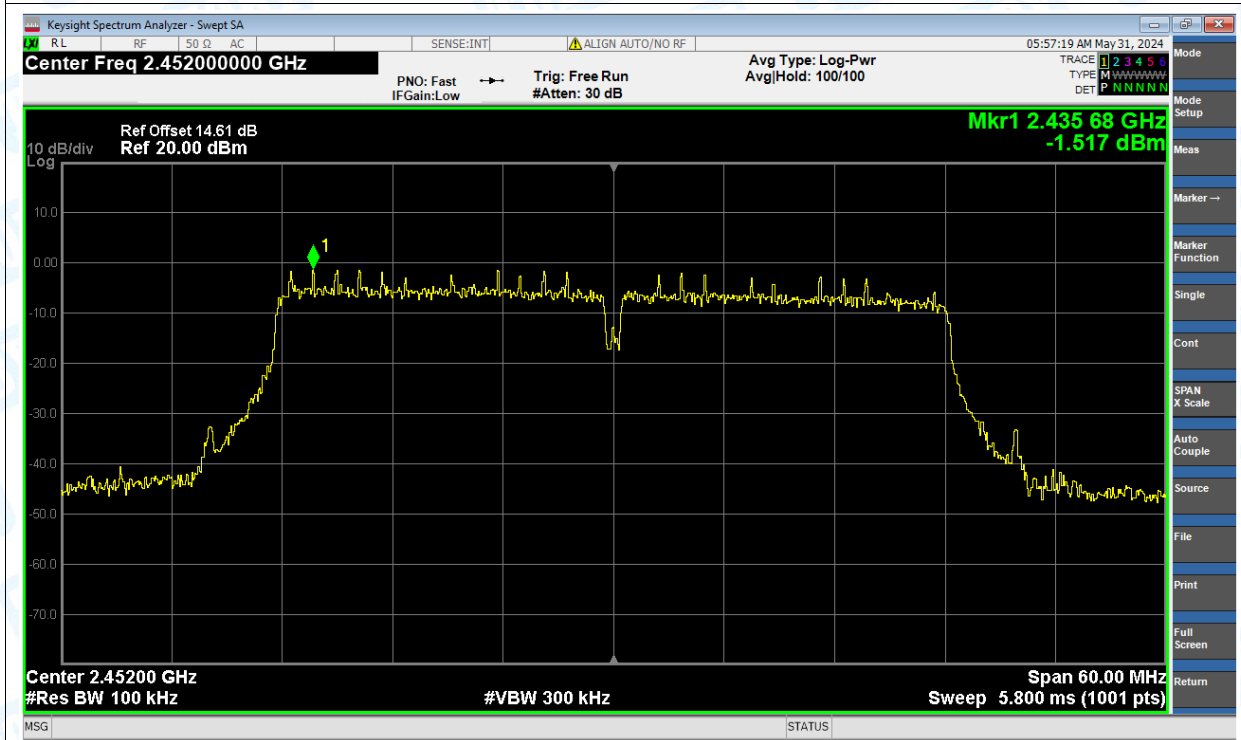


Band Edge NVNT n(HT20) 2462MHz Ant1 Emission





Band Edge NVNT n(HT40) 2452MHz Ant1 Ref



Band Edge NVNT n(HT40) 2452MHz Ant1 Emission



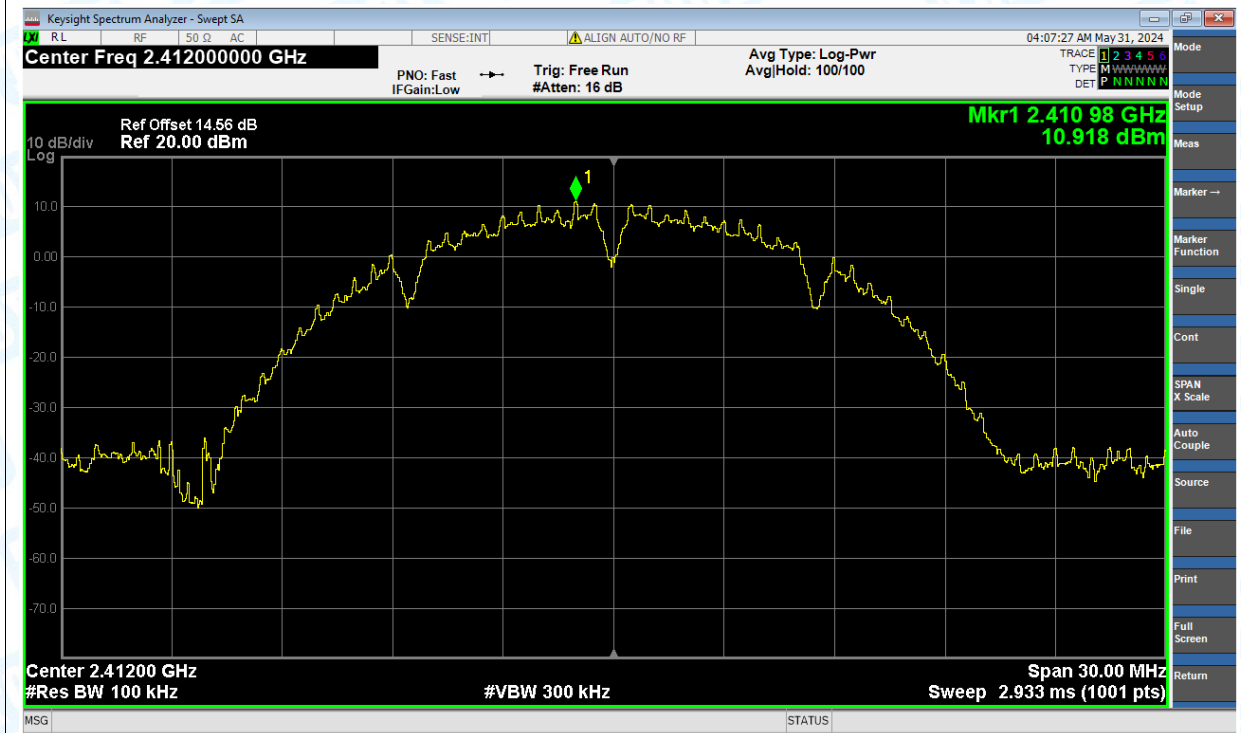


## 7. Conducted RF Spurious Emission

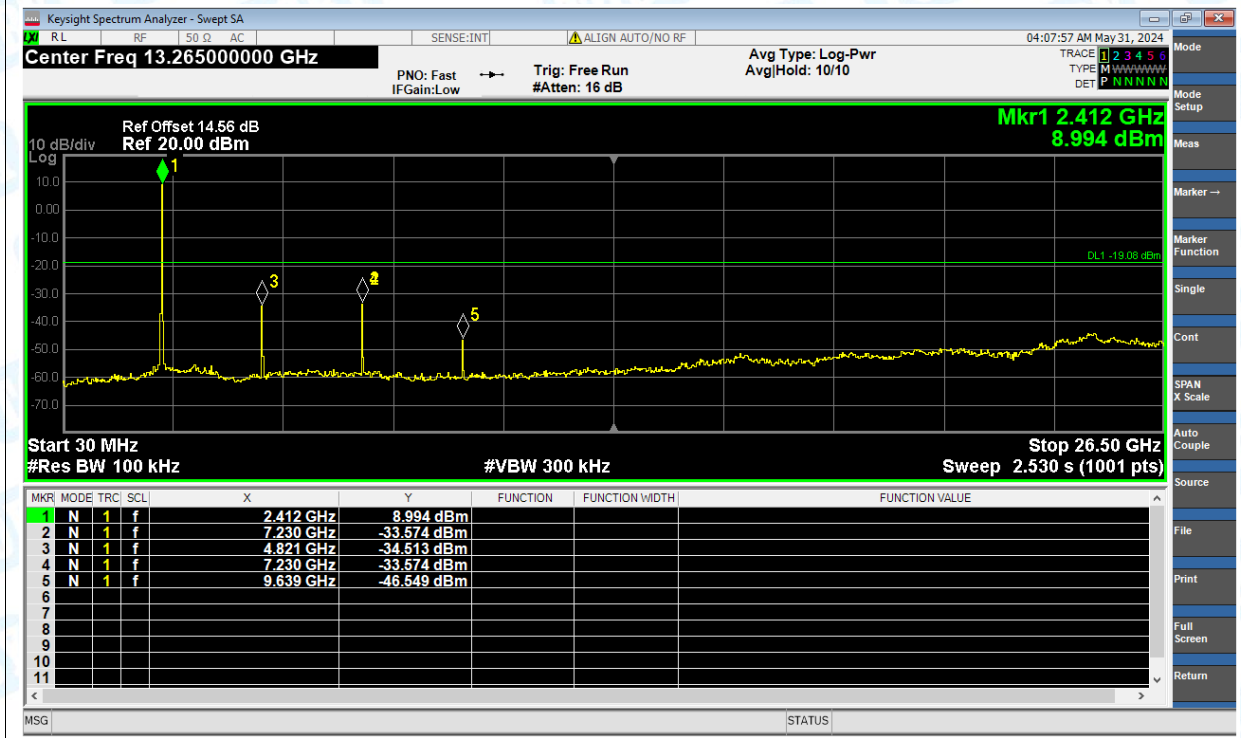
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-44.49	-30	Pass
NVNT	b	2437	Ant1	-42.46	-30	Pass
NVNT	b	2462	Ant1	-42.23	-30	Pass
NVNT	g	2412	Ant1	-47.21	-30	Pass
NVNT	g	2437	Ant1	-46.7	-30	Pass
NVNT	g	2462	Ant1	-44.4	-30	Pass
NVNT	n(HT20)	2412	Ant1	-46.07	-30	Pass
NVNT	n(HT20)	2437	Ant1	-45.37	-30	Pass
NVNT	n(HT20)	2462	Ant1	-44.74	-30	Pass
NVNT	n(HT40)	2422	Ant1	-43.55	-30	Pass
NVNT	n(HT40)	2437	Ant1	-43.32	-30	Pass
NVNT	n(HT40)	2452	Ant1	-42.08	-30	Pass

Test Graphs

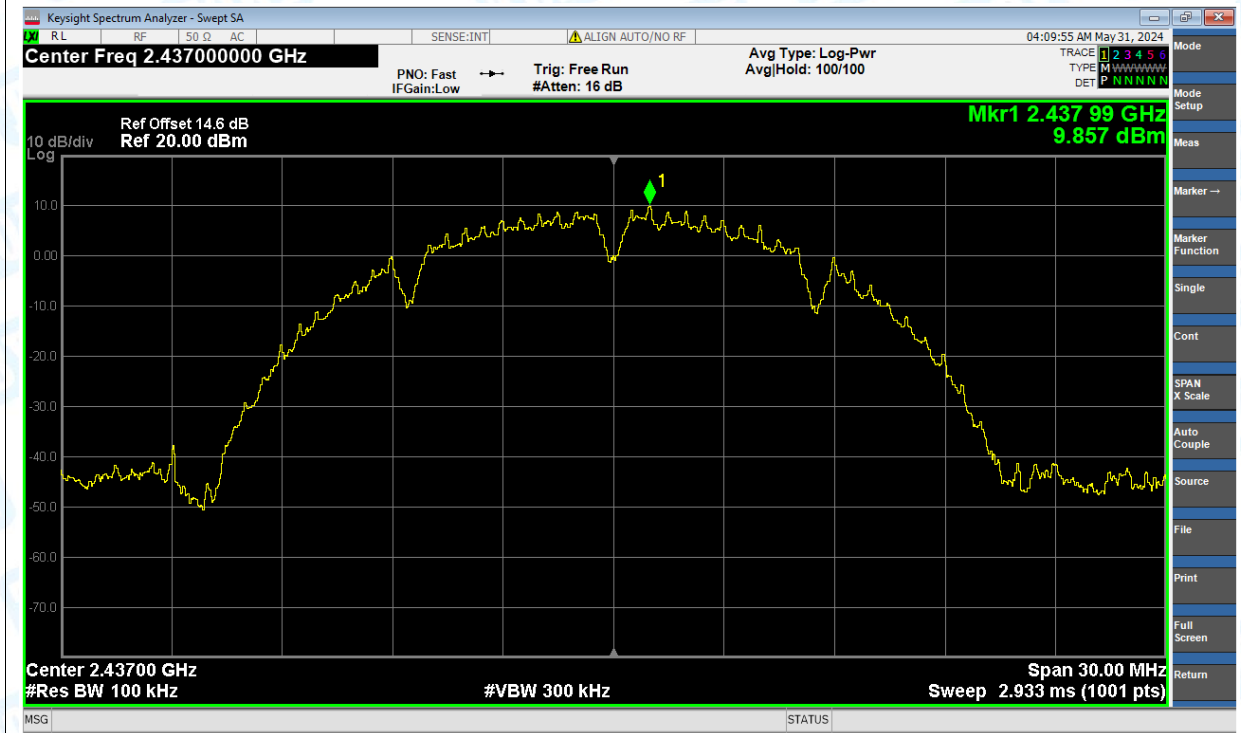
Tx. Spurious NVNT b 2412MHz Ant1 Ref



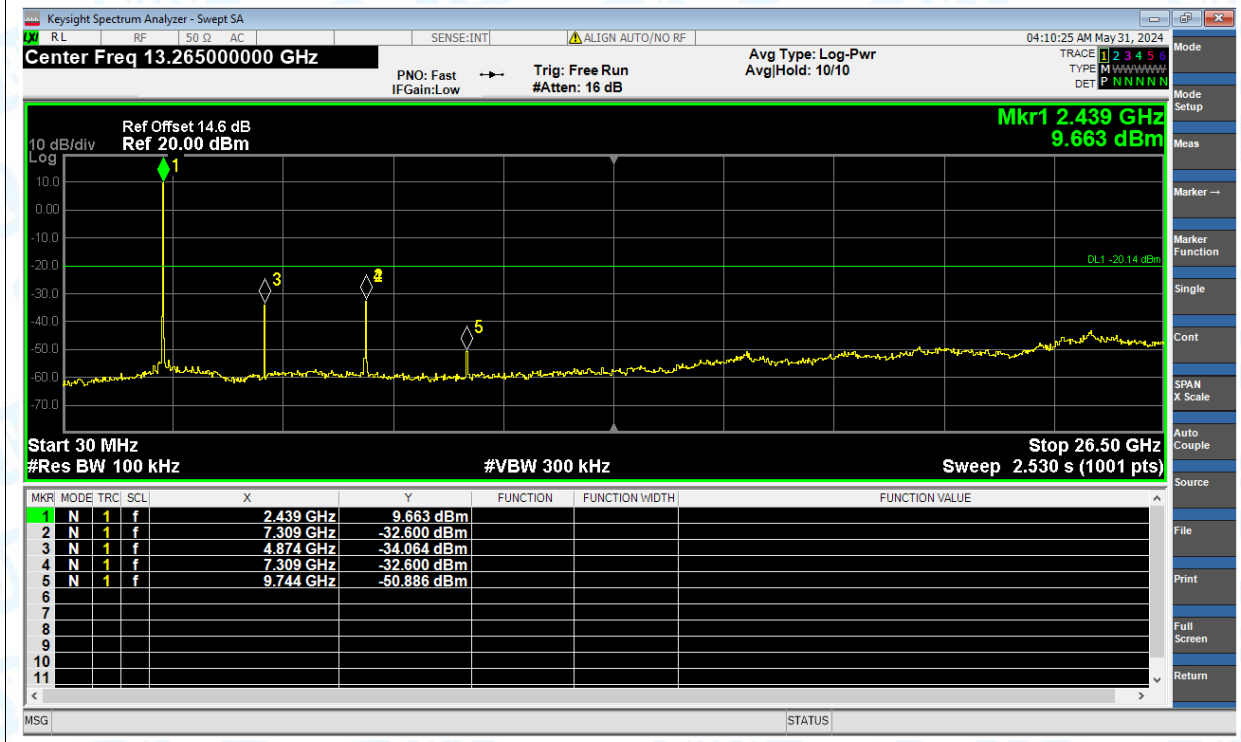
Tx. Spurious NVNT b 2412MHz Ant1 Emission



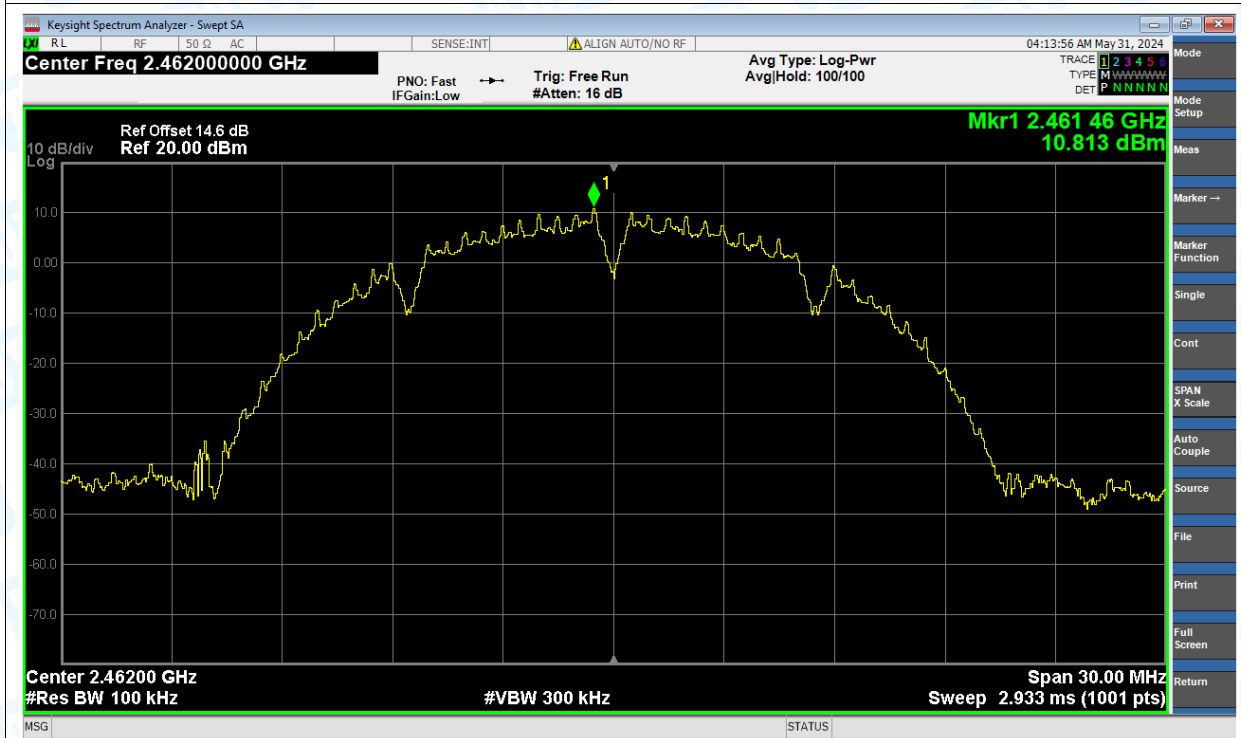
Tx. Spurious NVNT b 2437MHz Ant1 Ref



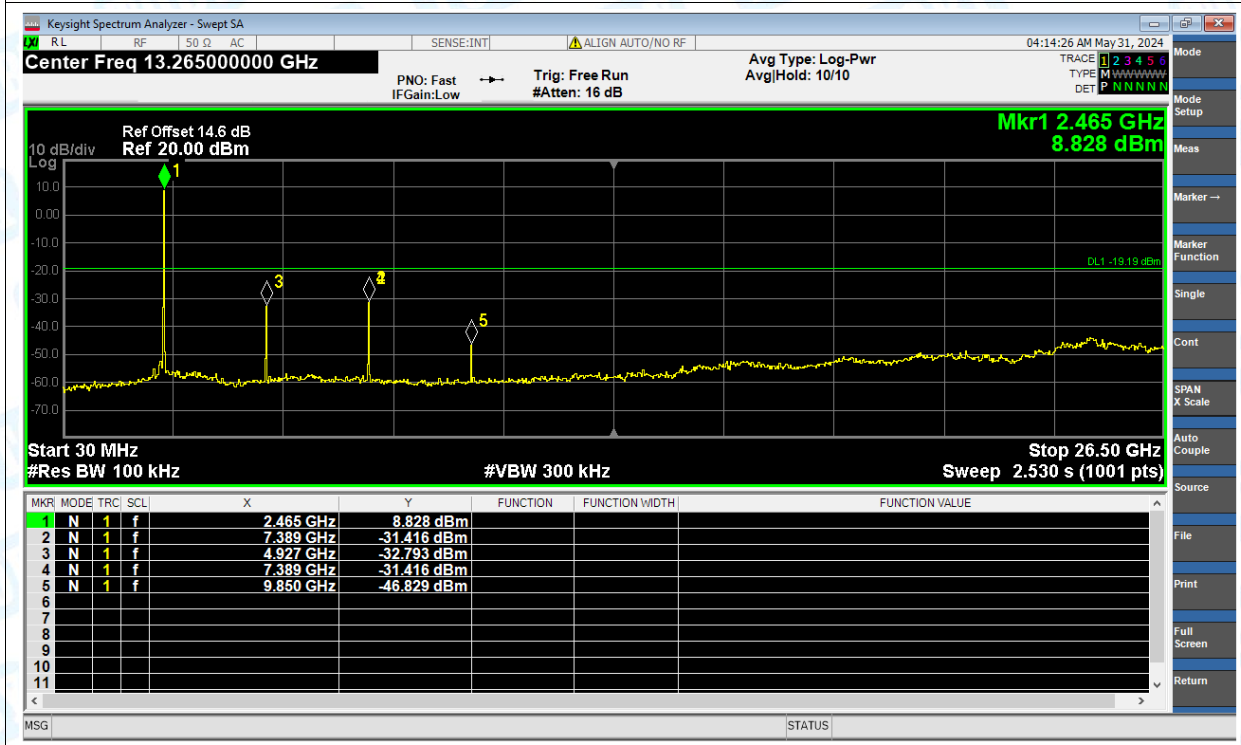
Tx. Spurious NVNT b 2437MHz Ant1 Emission



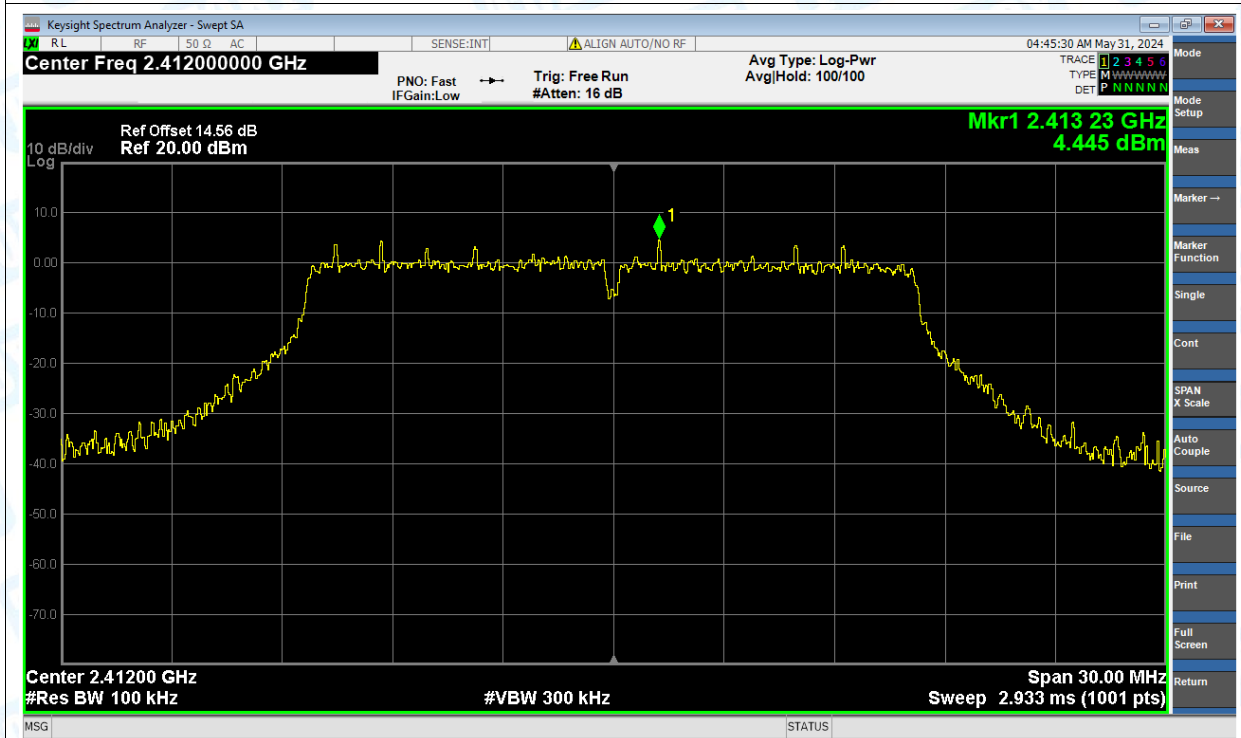
Tx. Spurious NVNT b 2462MHz Ant1 Ref



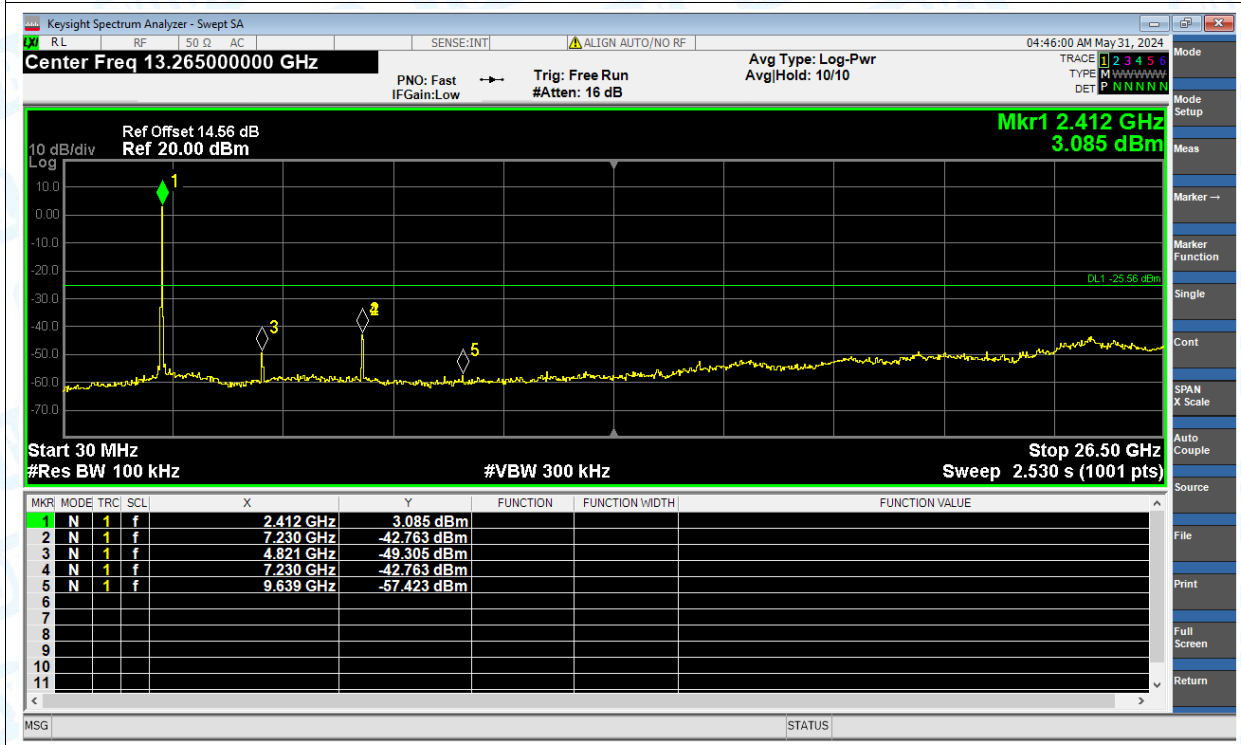
Tx. Spurious NVNT b 2462MHz Ant1 Emission



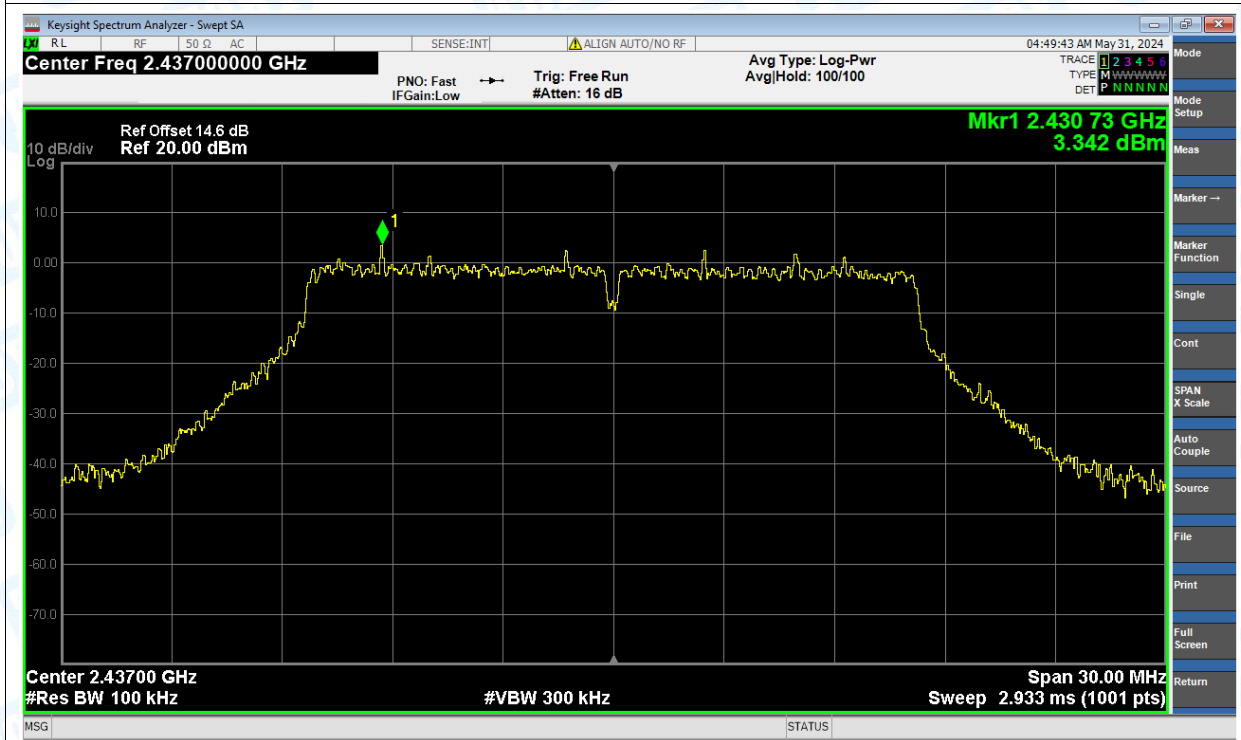
Tx. Spurious NVNT g 2412MHz Ant1 Ref



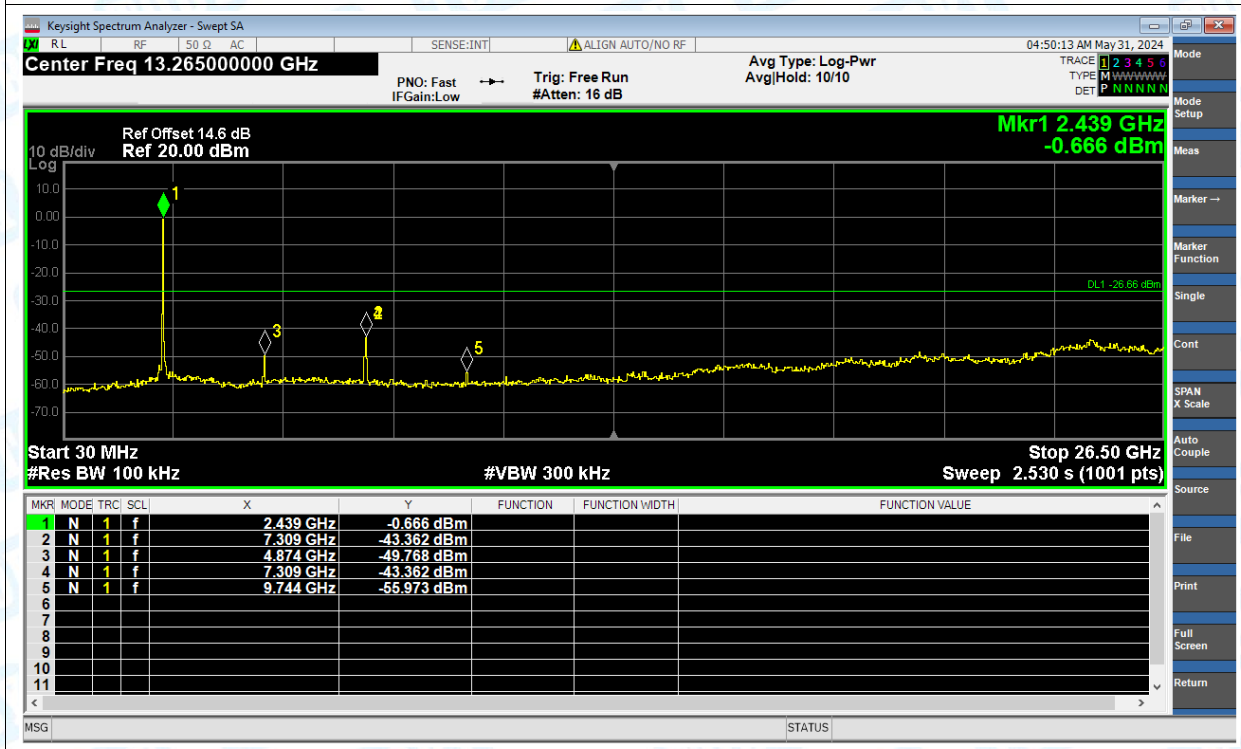
Tx. Spurious NVNT g 2412MHz Ant1 Emission



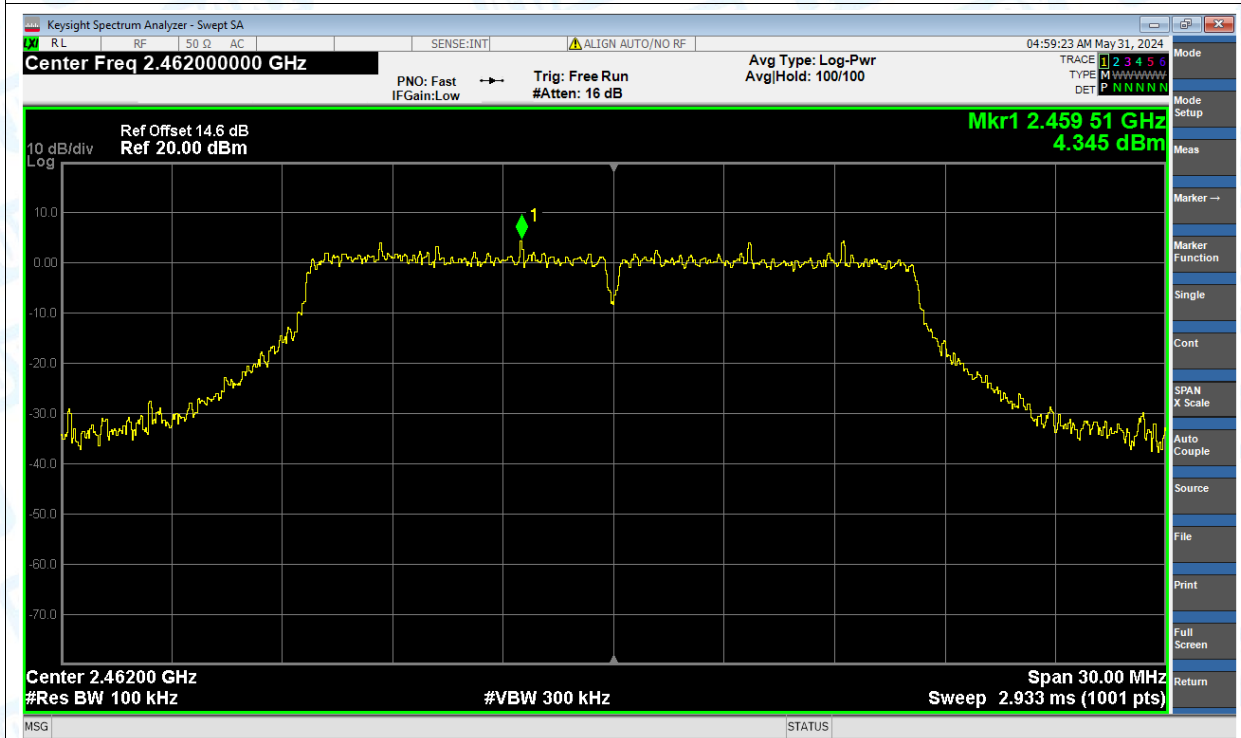
Tx. Spurious NVNT g 2437MHz Ant1 Ref



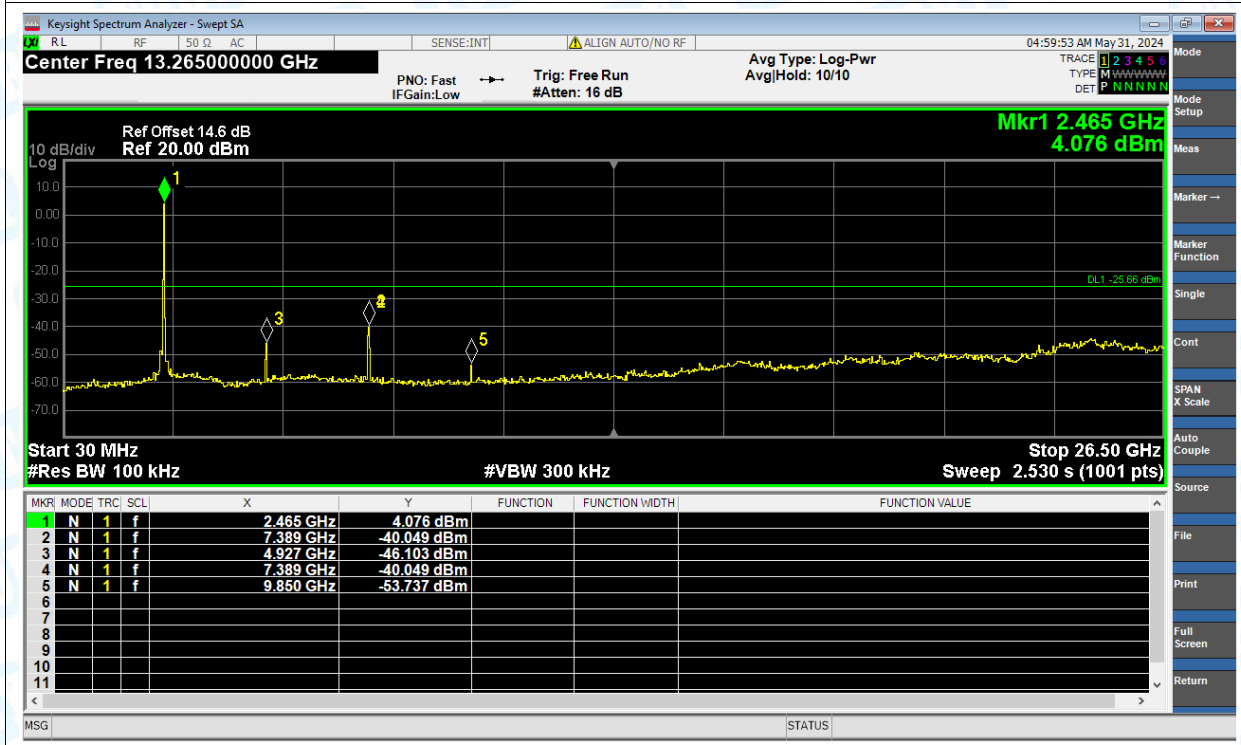
Tx. Spurious NVNT g 2437MHz Ant1 Emission



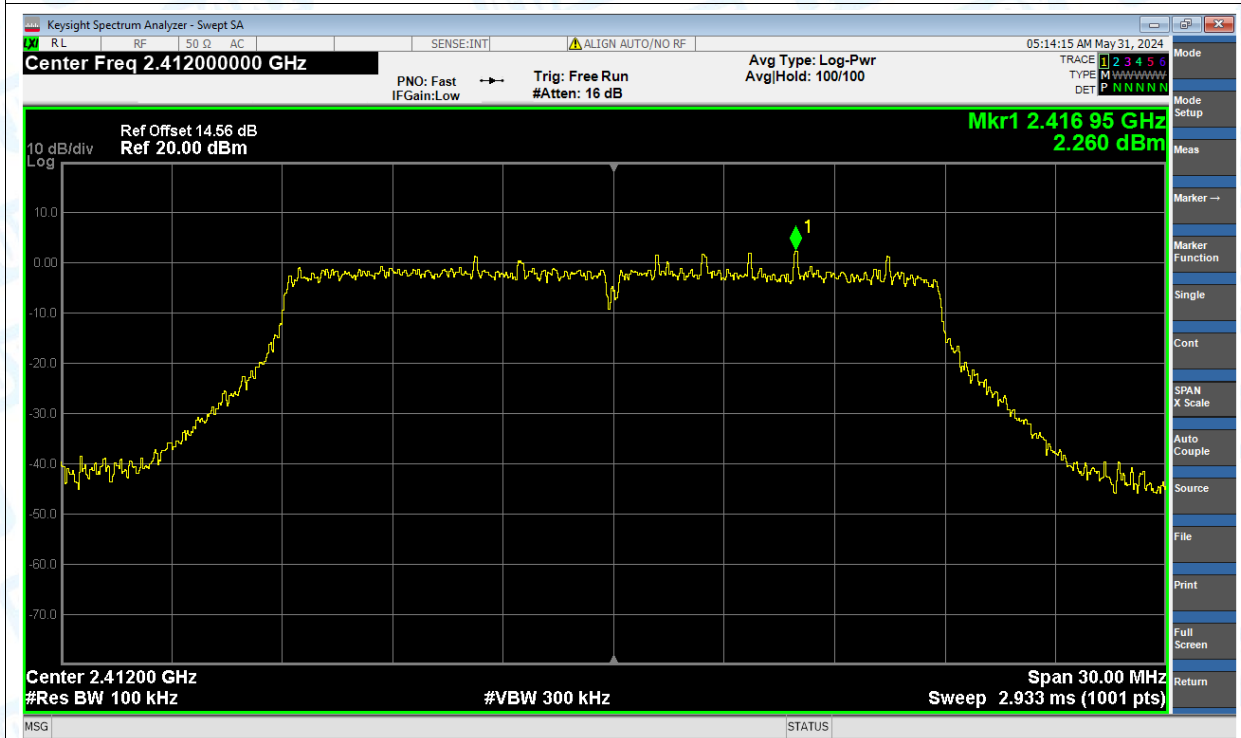
Tx. Spurious NVNT g 2462MHz Ant1 Ref



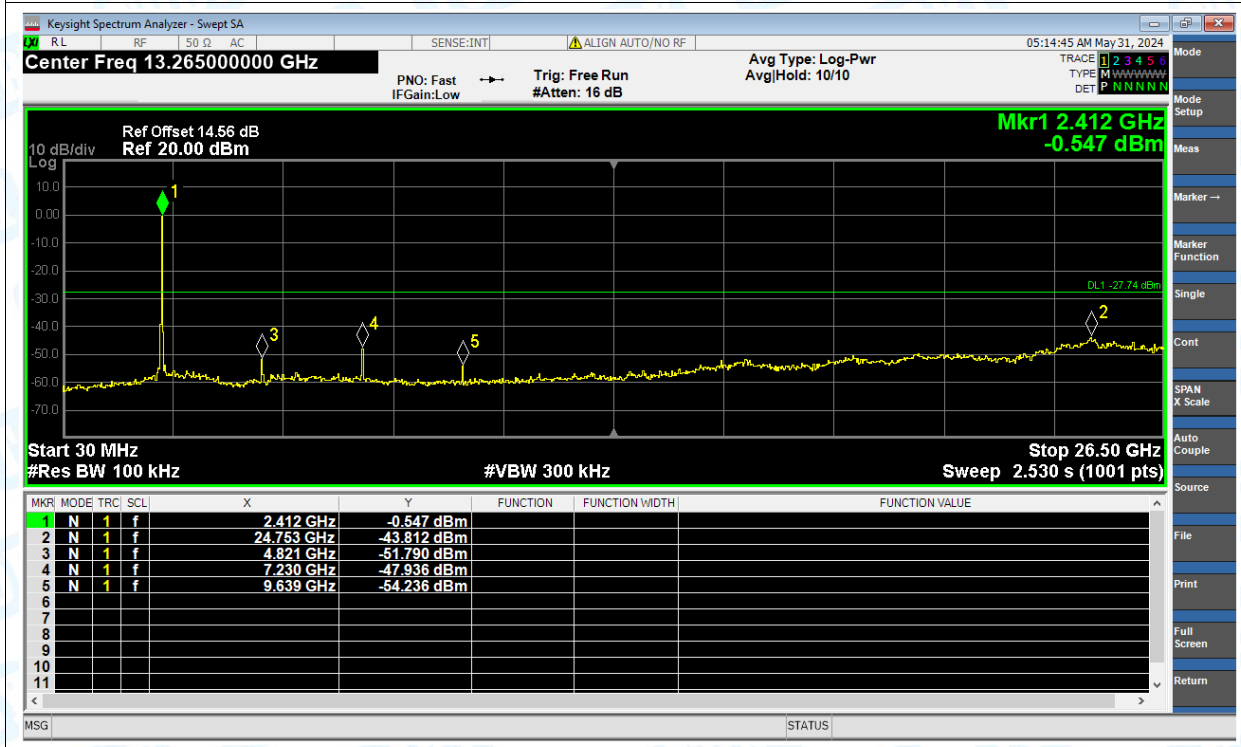
Tx. Spurious NVNT g 2462MHz Ant1 Emission



Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Ref

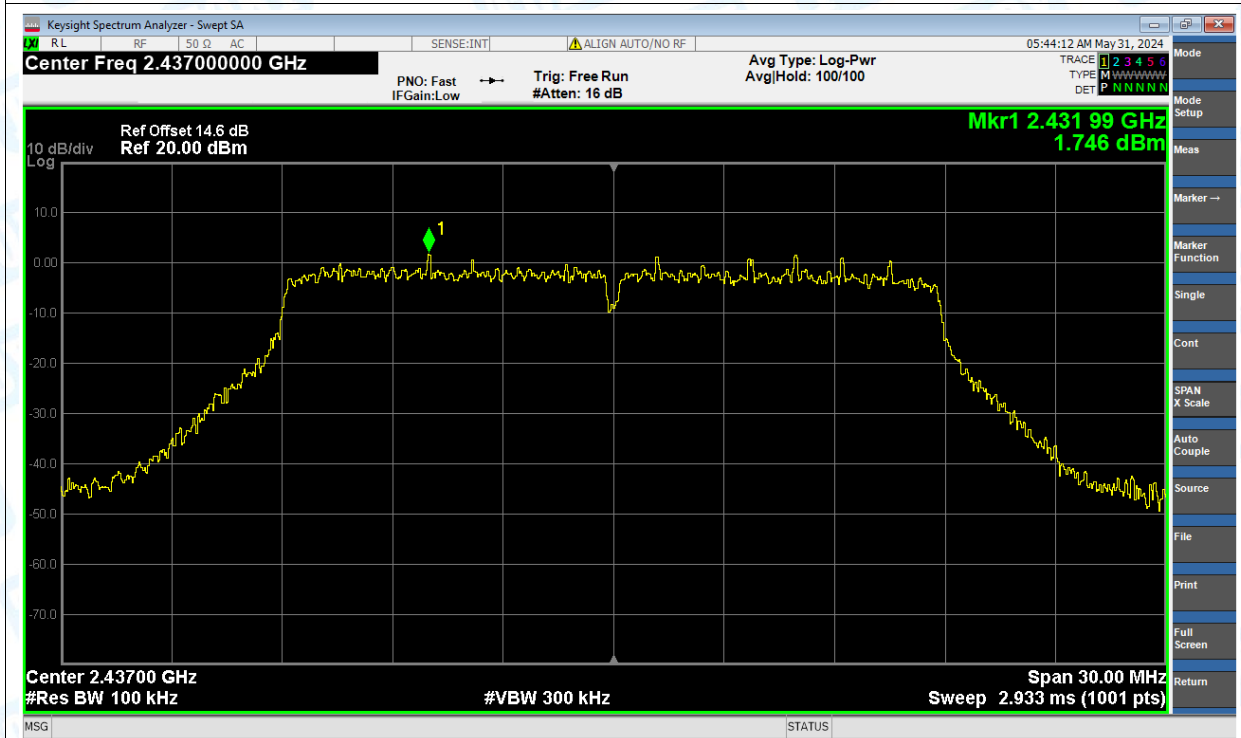


Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Emission

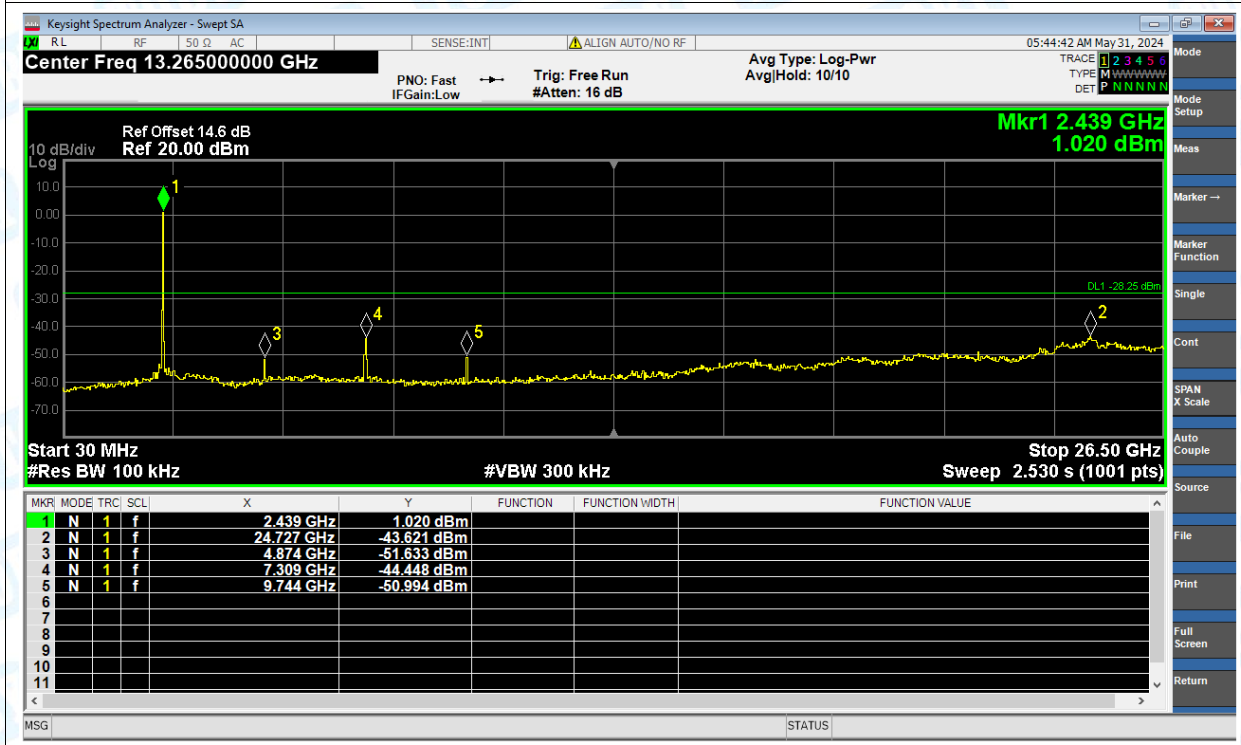




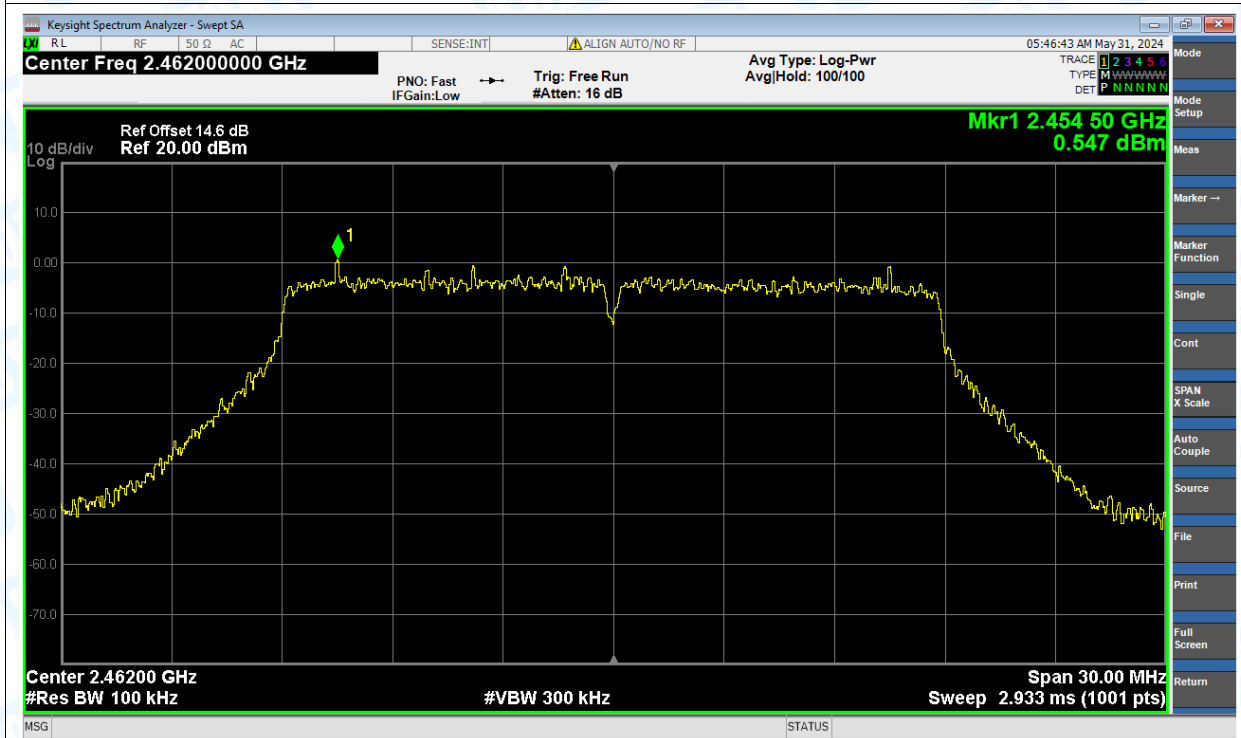
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Ref



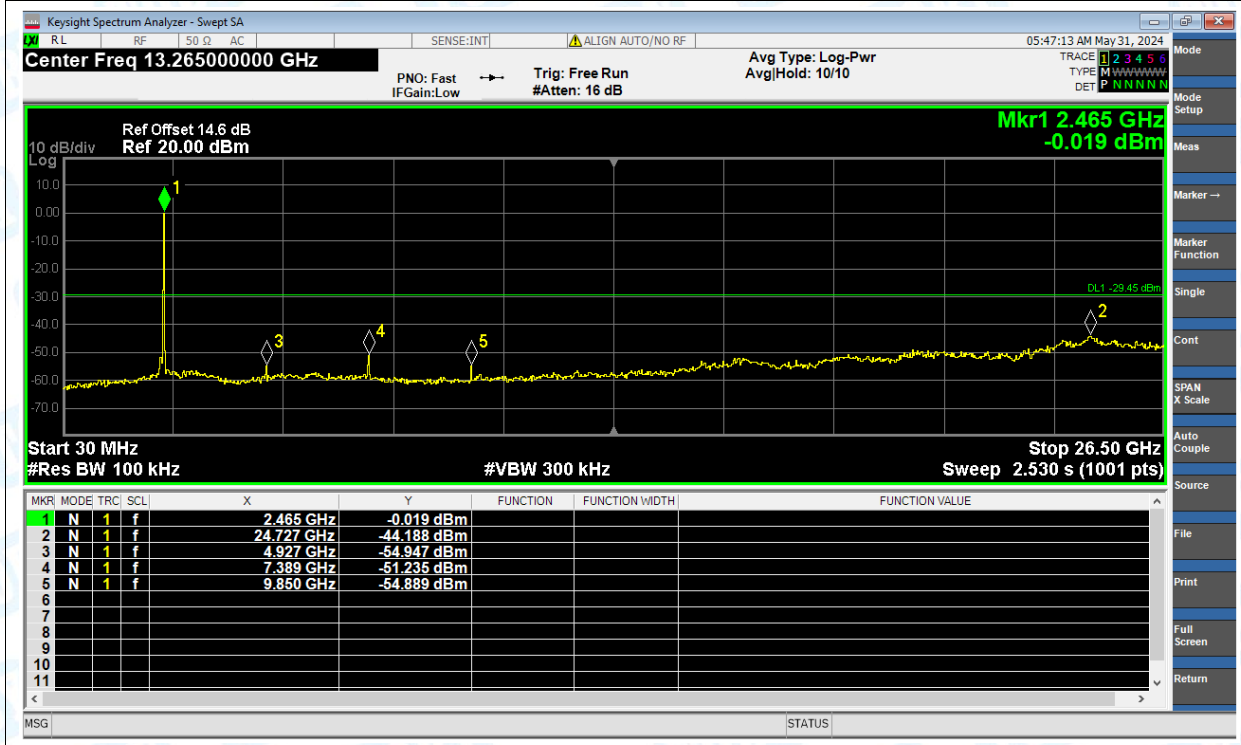
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Emission



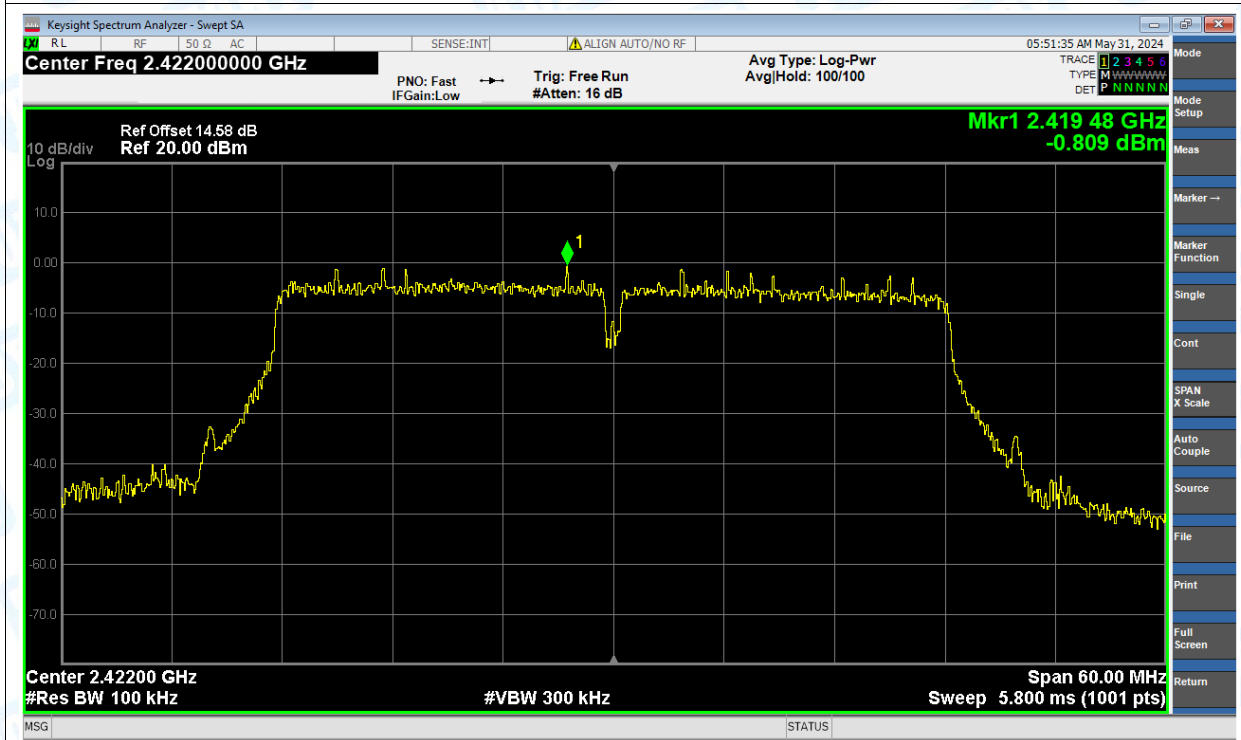
Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Ref



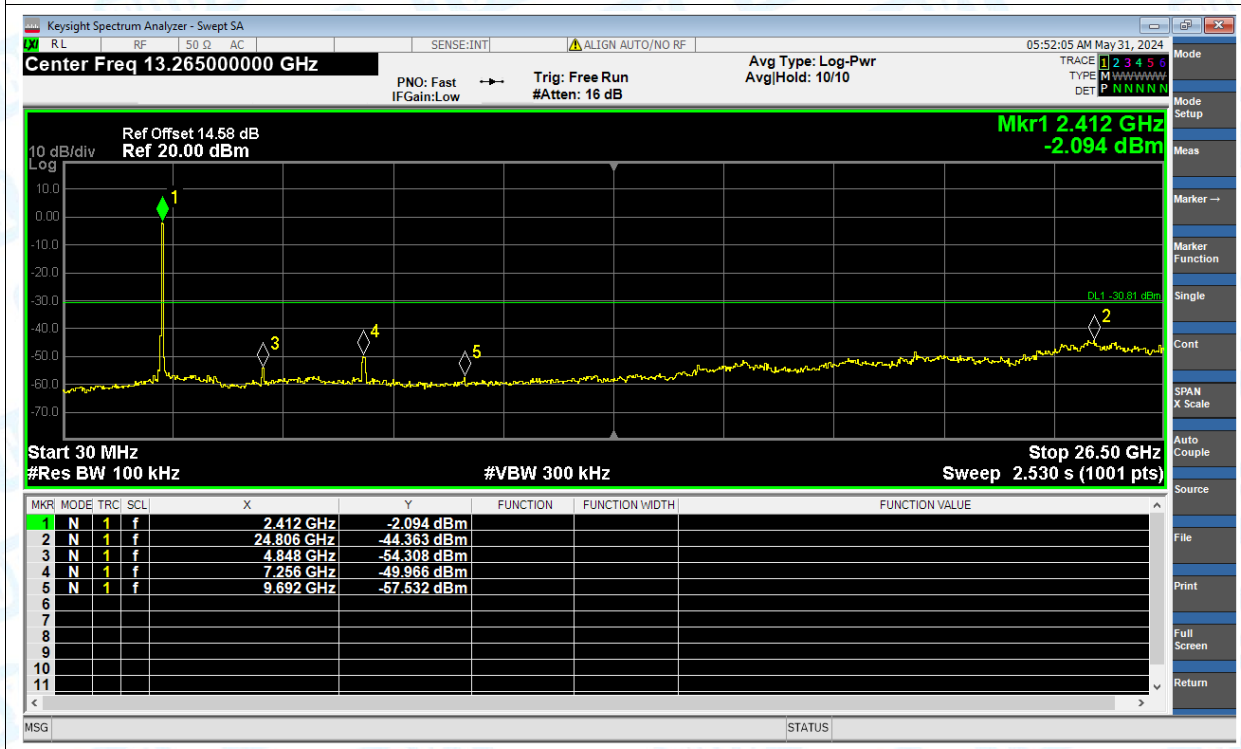
Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Emission



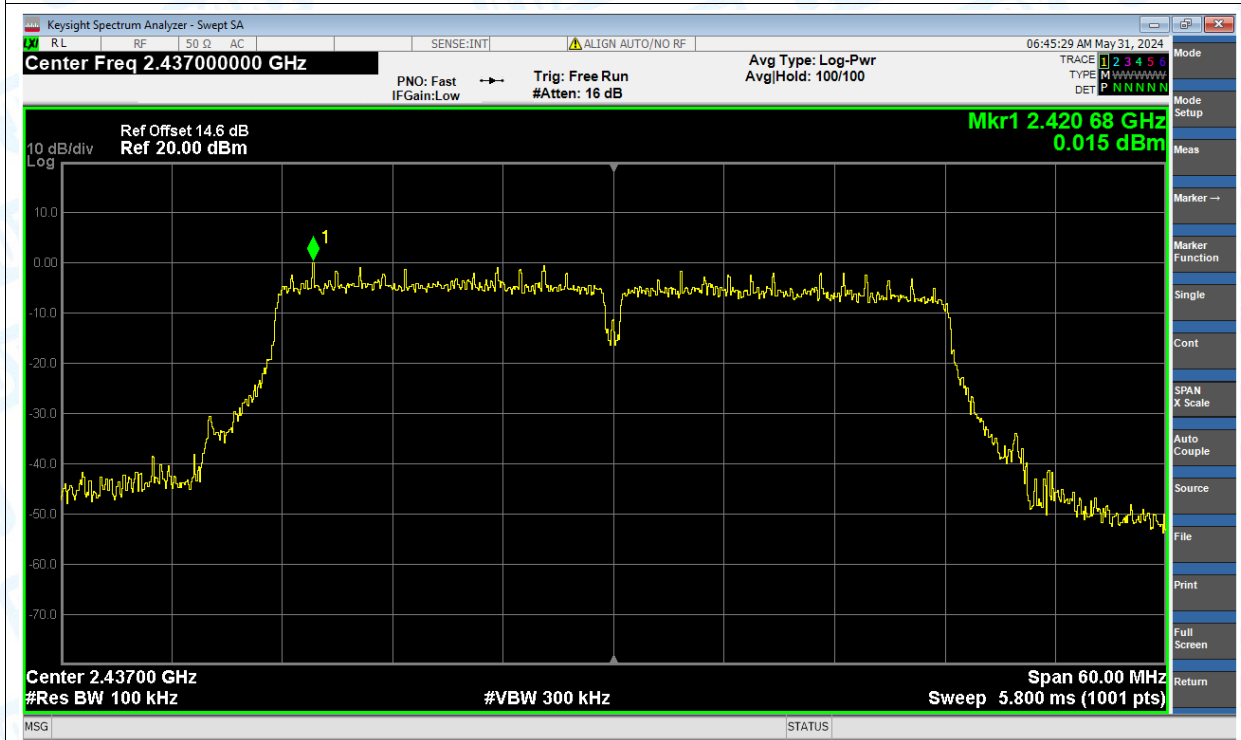
Tx. Spurious NVNT n(HT40) 2422MHz Ant1 Ref



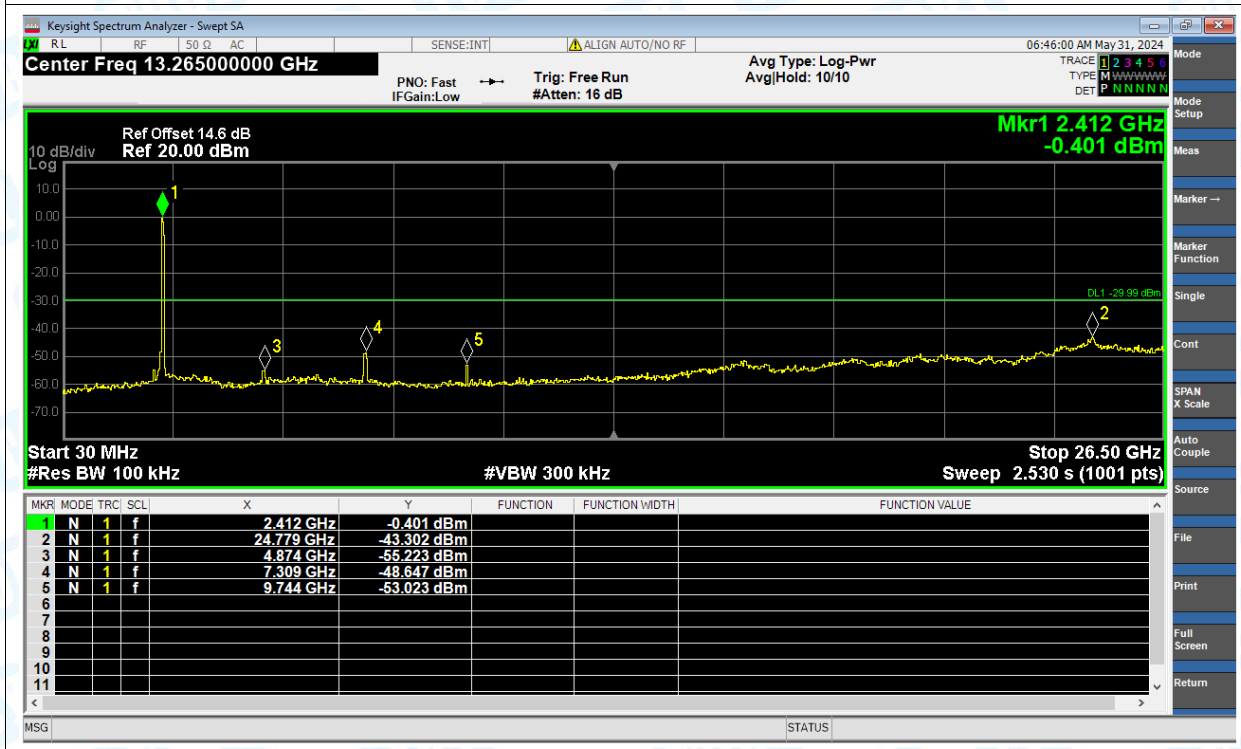
Tx. Spurious NVNT n(HT40) 2422MHz Ant1 Emission



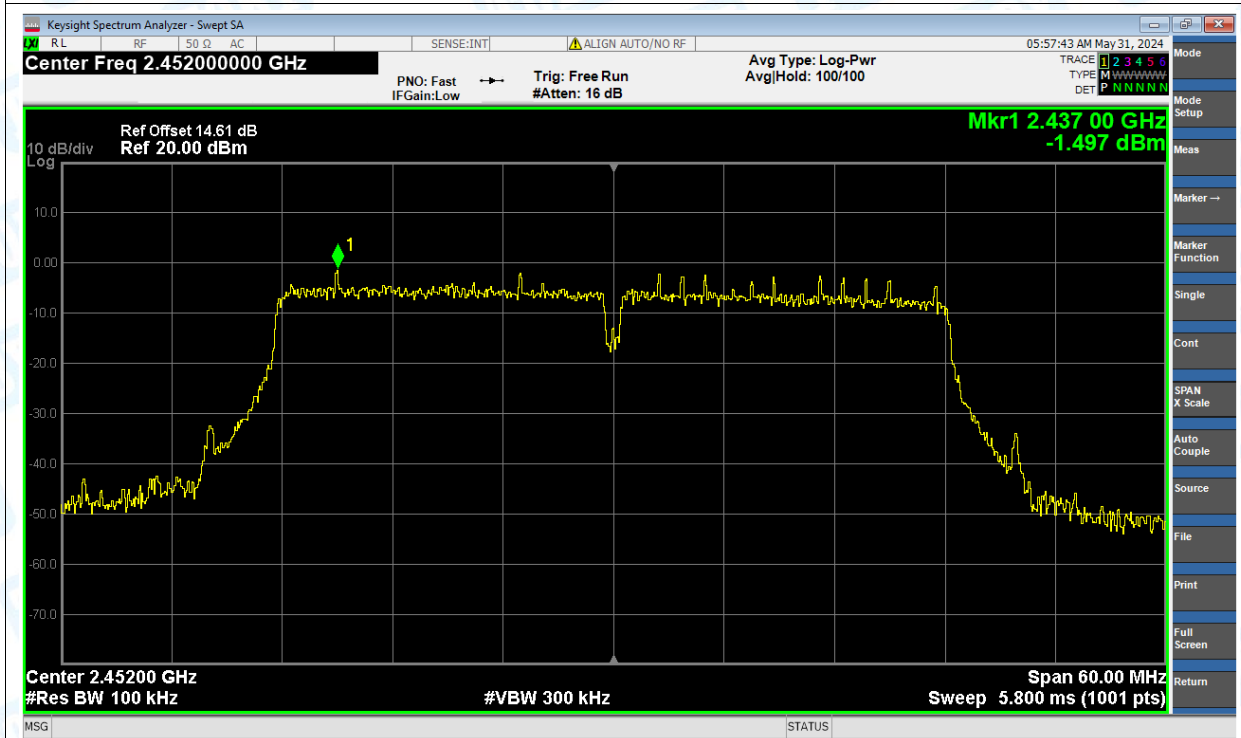
Tx. Spurious NVNT n(HT40) 2437MHz Ant1 Ref



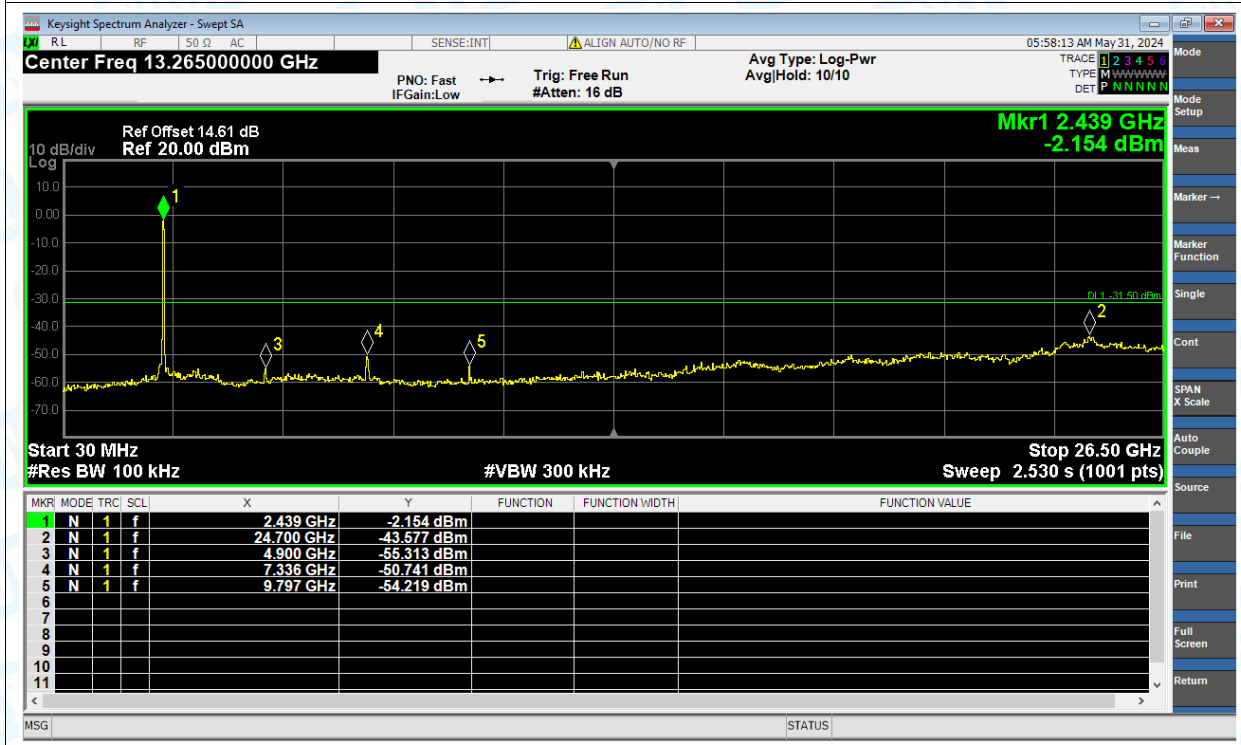
Tx. Spurious NVNT n(HT40) 2437MHz Ant1 Emission



Tx. Spurious NVNT n(HT40) 2452MHz Ant1 Ref



Tx. Spurious NVNT n(HT40) 2452MHz Ant1 Emission



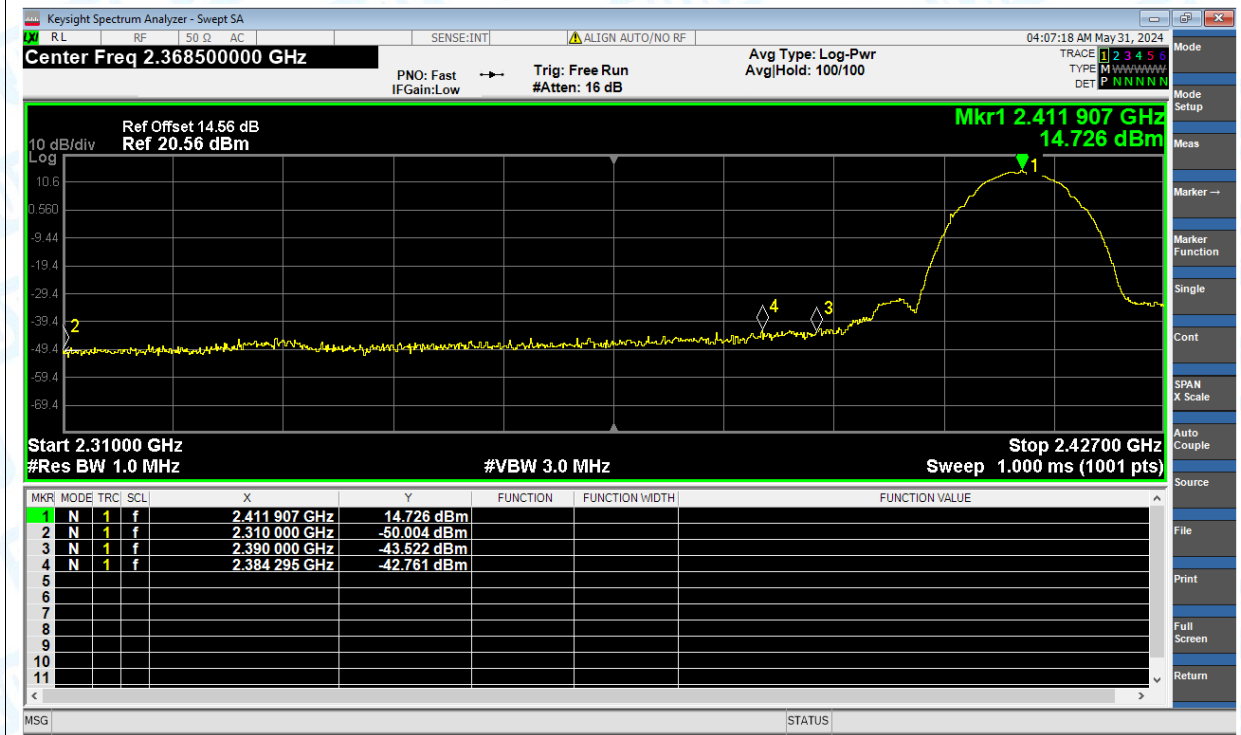
## 8.Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	b	2412	Ant1	2310	-50	3.66	-	48.92	Peak	74	Pass
NVNT	b	2412	Ant1	2310	-58	3.66	0.03	40.95	Average	54	Pass
NVNT	b	2412	Ant1	2384.295	-42.76	3.66	-	56.16	Peak	74	Pass
NVNT	b	2412	Ant1	2386.401	-51.37	3.66	0.03	47.58	Average	54	Pass
NVNT	b	2412	Ant1	2390	-43.52	3.66	-	55.4	Peak	74	Pass
NVNT	b	2412	Ant1	2390	-51.89	3.66	0.03	47.06	Average	54	Pass
NVNT	b	2462	Ant1	2483.5	-46.43	3.66	-	52.49	Peak	74	Pass
NVNT	b	2462	Ant1	2483.5	-54.03	3.66	0.03	44.92	Average	54	Pass
NVNT	b	2462	Ant1	2485.425	-43.85	3.66	-	55.07	Peak	74	Pass
NVNT	b	2462	Ant1	2483.888	-54	3.66	0.03	44.95	Average	54	Pass
NVNT	b	2462	Ant1	2500	-48.44	3.66	-	50.48	Peak	74	Pass
NVNT	b	2462	Ant1	2500	-56.39	3.66	0.03	42.56	Average	54	Pass
NVNT	g	2412	Ant1	2310	-50.12	3.66	-	48.8	Peak	74	Pass
NVNT	g	2412	Ant1	2310	-59.12	3.66	0.27	40.07	Average	54	Pass
NVNT	g	2412	Ant1	2389.443	-29.87	3.66	-	69.05	Peak	74	Pass
NVNT	g	2412	Ant1	2389.911	-47.05	3.66	0.27	52.14	Average	54	Pass
NVNT	g	2412	Ant1	2390	-33.2	3.66	-	65.72	Peak	74	Pass
NVNT	g	2412	Ant1	2390	-46.19	3.66	0.27	53	Average	54	Pass
NVNT	g	2462	Ant1	2483.5	-36.26	3.66	-	62.66	Peak	74	Pass
NVNT	g	2462	Ant1	2483.5	-47.64	3.66	0.14	51.42	Average	54	Pass
NVNT	g	2462	Ant1	2483.623	-28.92	3.66	-	70	Peak	74	Pass
NVNT	g	2462	Ant1	2483.57	-46.25	3.66	0.14	52.81	Average	54	Pass
NVNT	g	2462	Ant1	2500	-39.13	3.66	-	59.79	Peak	74	Pass
NVNT	g	2462	Ant1	2500	-54.65	3.66	0.14	44.41	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2310	-49.84	3.66	-	49.08	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2310	-59.6	3.66	0.18	39.5	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2389.209	-31.97	3.66	-	66.95	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2389.677	-47.78	3.66	0.18	51.32	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2390	-33.86	3.66	-	65.06	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2390	-47.86	3.66	0.18	51.24	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2483.5	-46.42	3.66	-	52.5	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2483.5	-54.65	3.66	0.26	44.53	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2484.259	-43.23	3.66	-	55.69	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2484.1	-54.56	3.66	0.26	44.62	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2500	-49.16	3.66	-	49.76	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2500	-58.09	3.66	0.26	41.09	Average	54	Pass
NVNT	n(HT40)	2422	Ant1	2310	-51.59	3.66	-	47.33	Peak	74	Pass
NVNT	n(HT40)	2422	Ant1	2310	-58.97	3.66	0.56	40.51	Average	54	Pass
NVNT	n(HT40)	2422	Ant1	2388.384	-32.41	3.66	-	66.51	Peak	74	Pass
NVNT	n(HT40)	2422	Ant1	2388.952	-45.98	3.66	0.56	53.5	Average	54	Pass
NVNT	n(HT40)	2422	Ant1	2390	-37.13	3.66	-	61.79	Peak	74	Pass

NVNT	n(HT40)	2422	Ant1	2390	-46.86	3.66	0.56	52.62	Average	54	Pass
NVNT	n(HT40)	2452	Ant1	2483.5	-44.13	3.66	-	54.79	Peak	74	Pass
NVNT	n(HT40)	2452	Ant1	2483.5	-53.11	3.66	0.22	46.03	Average	54	Pass
NVNT	n(HT40)	2452	Ant1	2485.882	-37.41	3.66	-	61.51	Peak	74	Pass
NVNT	n(HT40)	2452	Ant1	2483.932	-52.33	3.66	0.22	46.81	Average	54	Pass
NVNT	n(HT40)	2452	Ant1	2500	-49.61	3.66	-	49.31	Peak	74	Pass
NVNT	n(HT40)	2452	Ant1	2500	-56.57	3.66	0.22	42.57	Average	54	Pass

Test Graphs

Restrict Band NVNT b 2412MHz Ant1 Peak



Restrict Band NVNT b 2412MHz Ant1 Average

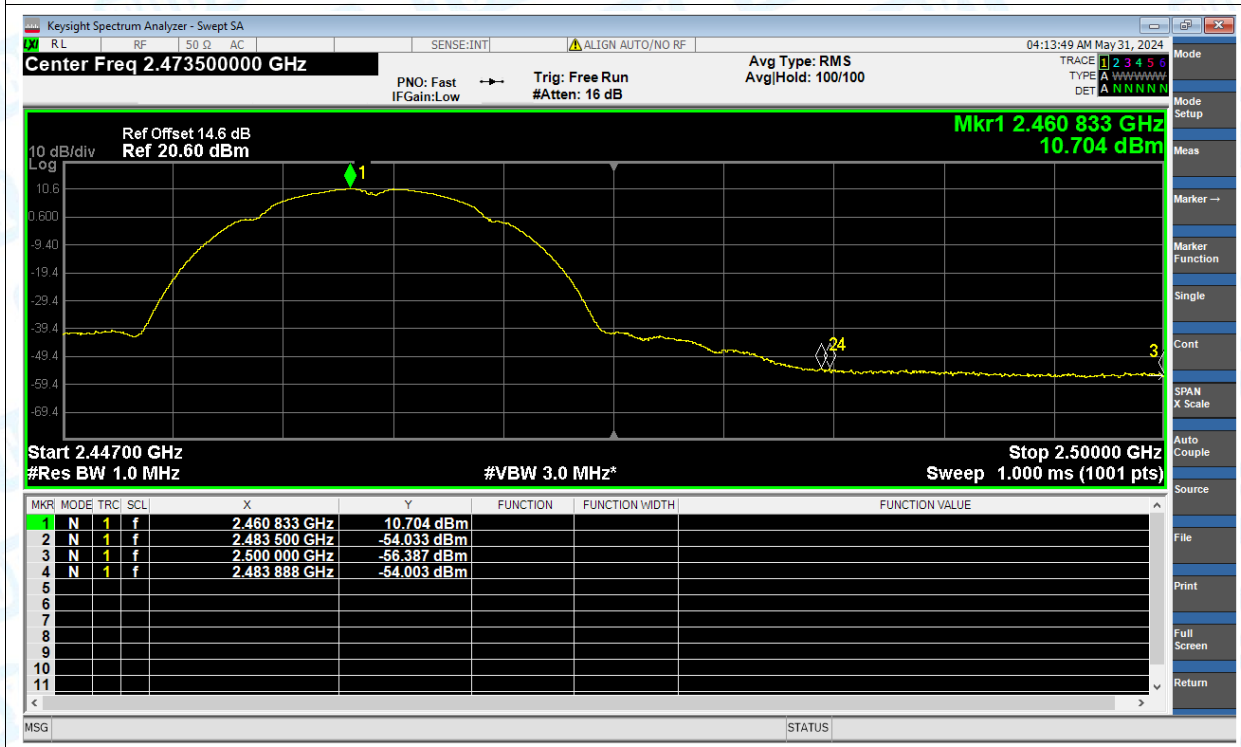




Restrict Band NVNT b 2462MHz Ant1 Peak



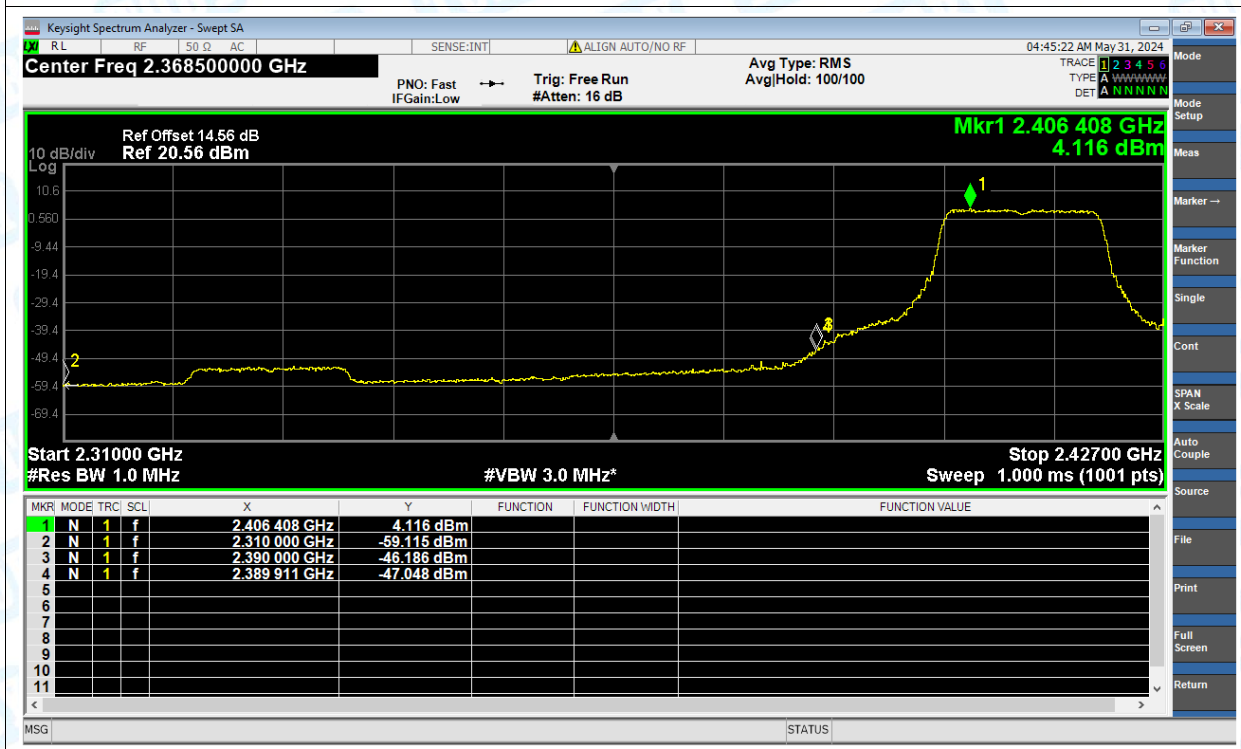
Restrict Band NVNT b 2462MHz Ant1 Average



Restrict Band NVNT g 2412MHz Ant1 Peak



Restrict Band NVNT g 2412MHz Ant1 Average



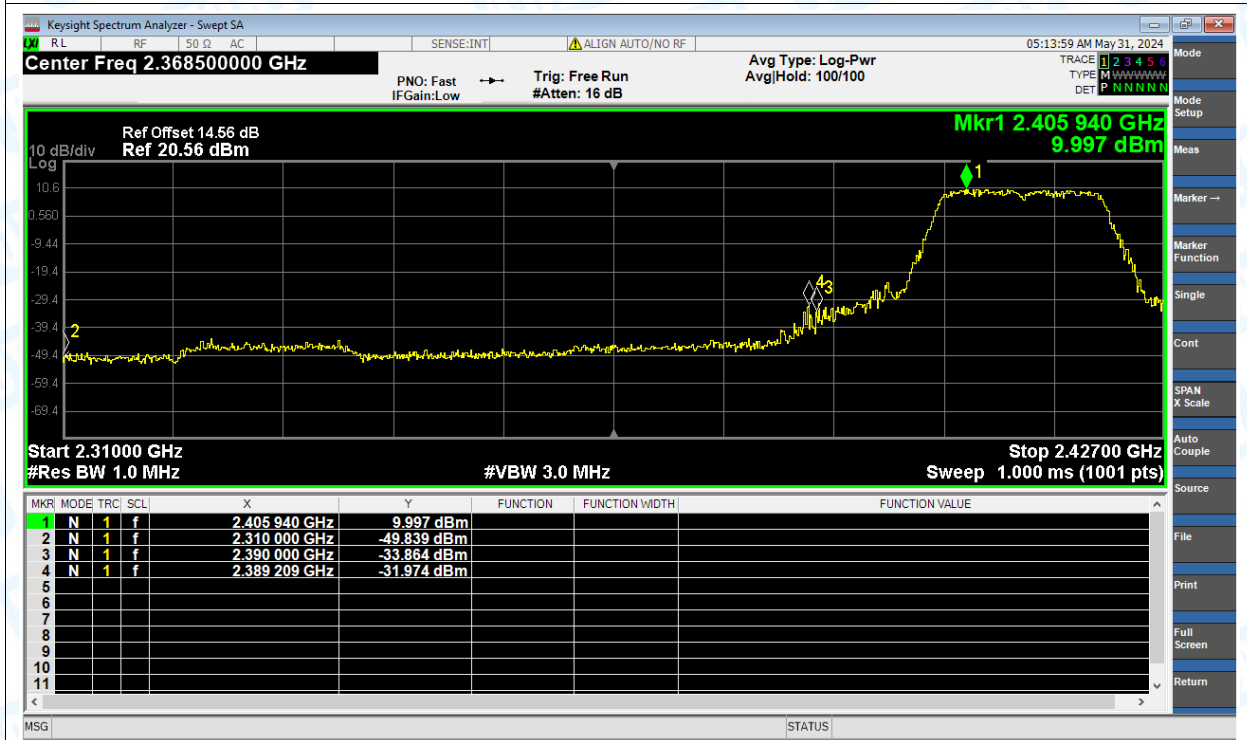
Restrict Band NVNT g 2462MHz Ant1 Peak



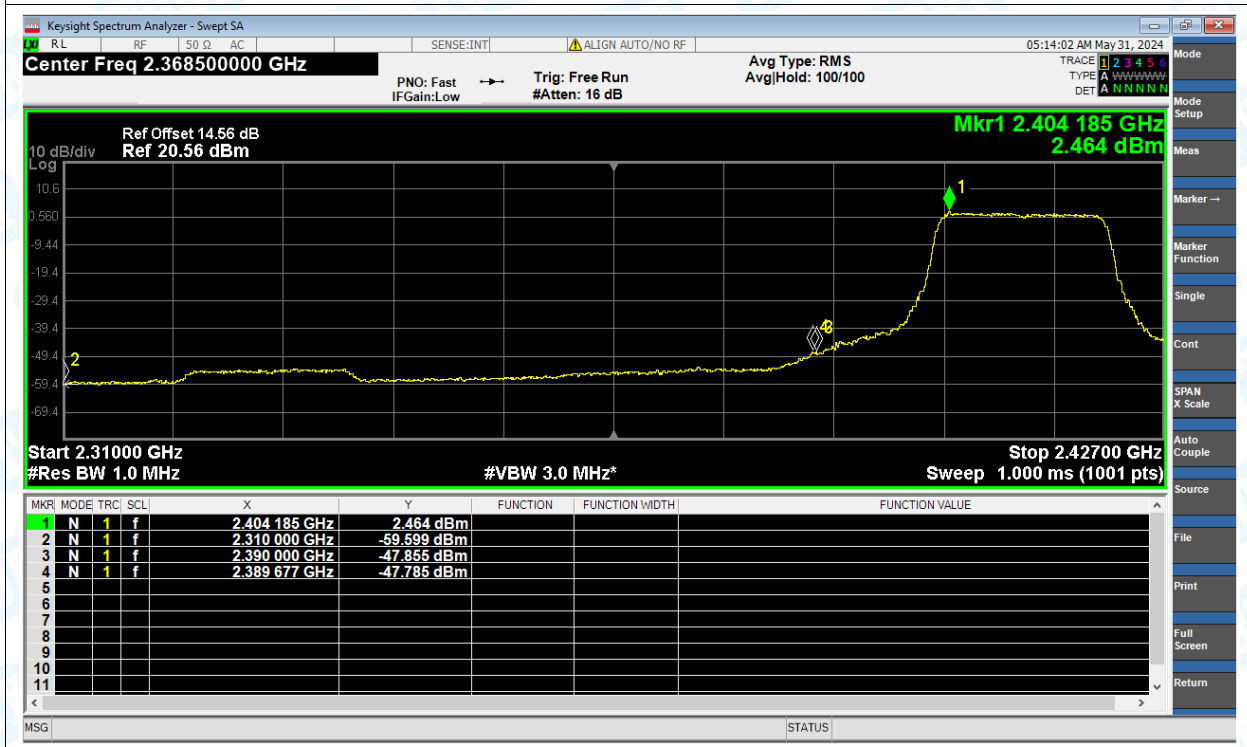
Restrict Band NVNT g 2462MHz Ant1 Average



Restrict Band NVNT n(HT20) 2412MHz Ant1 Peak



Restrict Band NVNT n(HT20) 2412MHz Ant1 Average



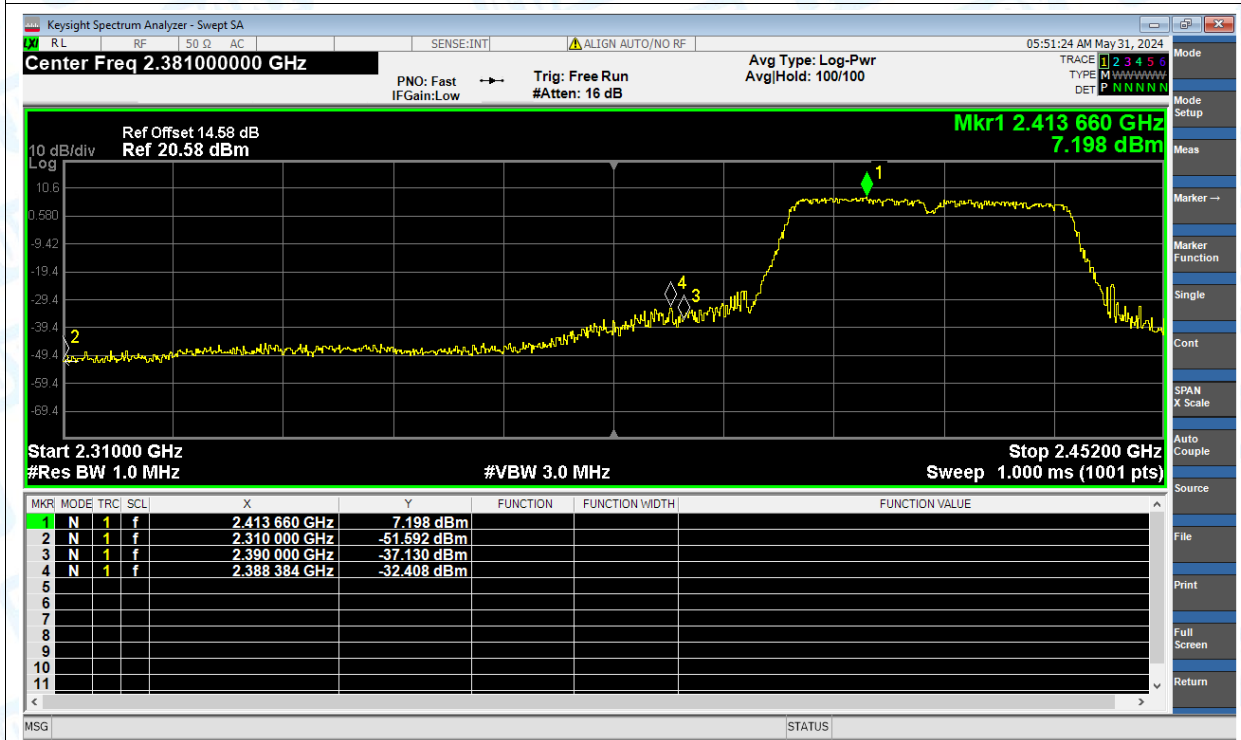
Restrict Band NVNT n(HT20) 2462MHz Ant1 Peak



Restrict Band NVNT n(HT20) 2462MHz Ant1 Average



Restrict Band NVNT n(HT40) 2422MHz Ant1 Peak



Restrict Band NVNT n(HT40) 2422MHz Ant1 Average



Restrict Band NVNT n(HT40) 2452MHz Ant1 Peak



Restrict Band NVNT n(HT40) 2452MHz Ant1 Average

