

RF Test Data for 2.4G WiFi (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Thermostat and Controller
Test Model:	H001
Sample ID:	202401-0123-1-2#
Environmental Conditions	
Temperature:	25°C
Relative Humidity:	55%
Test Voltage:	DC 5V
Test Engineer:	Zhou zhen
Note: For a more detailed features description, please refer to the report TBR-C-202401-0123-82 The report only show the worst case data.	

Contents

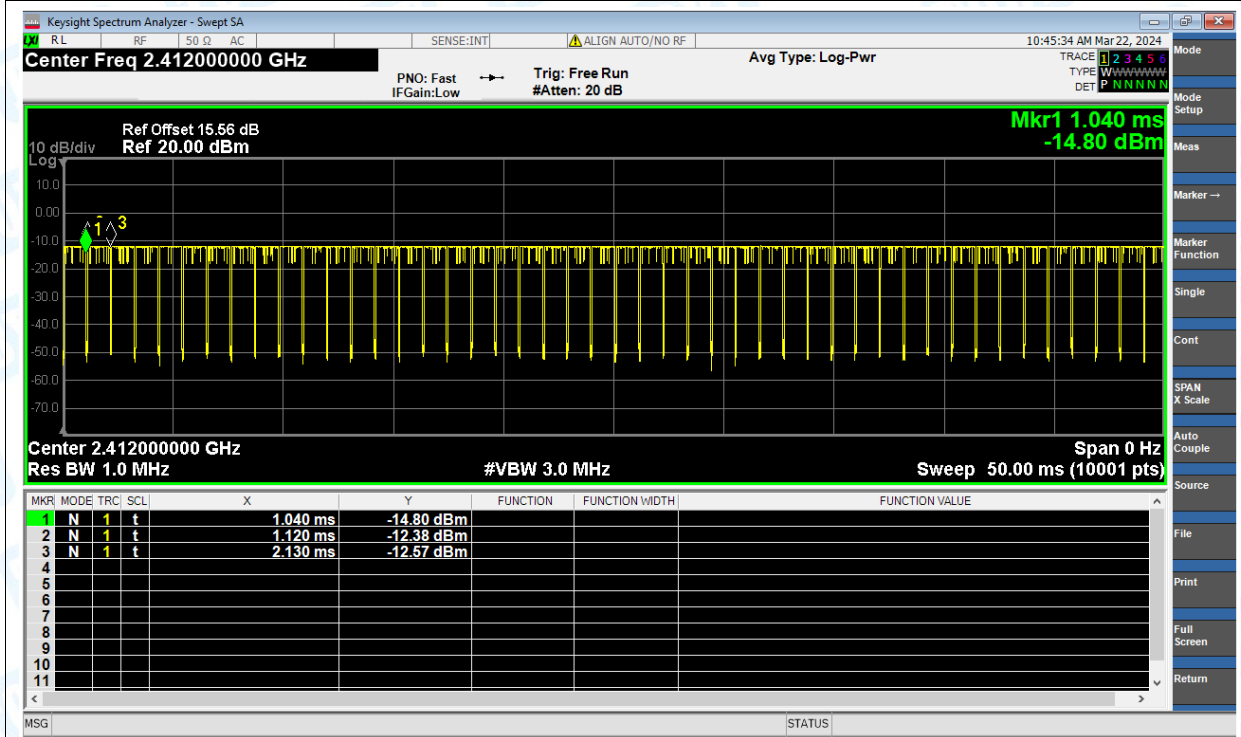
1.Duty Cycle.....	3
2.Maximum Conducted Output Power	10
3.-6dB Bandwidth	11
4.Occupied Channel Bandwidth	18
5.Maximum Power Spectral Density Level	25
6.Band Edge	32
7.Conducted RF Spurious Emission	41
8.Restrict Band	54

1. Duty Cycle

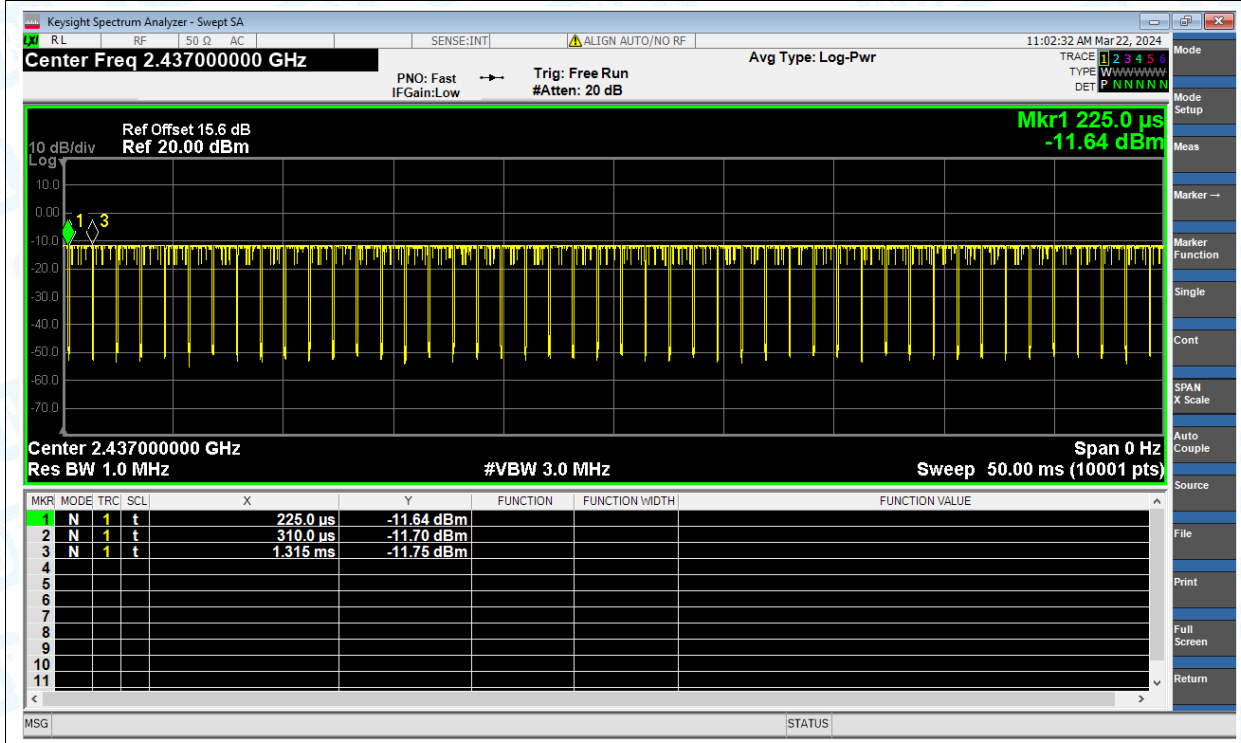
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant2	92.66	0.33	0.99
NVNT	b	2437	Ant2	92.2	0.35	1
NVNT	b	2462	Ant2	92.66	0.33	0.99
NVNT	g	2412	Ant2	93.85	0.28	1.64
NVNT	g	2437	Ant2	93.85	0.28	1.64
NVNT	g	2462	Ant2	93.94	0.27	1.61
NVNT	n(HT20)	2412	Ant2	93.85	0.28	1.64
NVNT	n(HT20)	2437	Ant2	95.38	0.21	1.61
NVNT	n(HT20)	2462	Ant2	93.85	0.28	1.64
NVNT	n(HT40)	2422	Ant2	93.75	0.28	1.67
NVNT	n(HT40)	2437	Ant2	93.85	0.28	1.64
NVNT	n(HT40)	2452	Ant2	92.31	0.35	1.67

Test Graphs

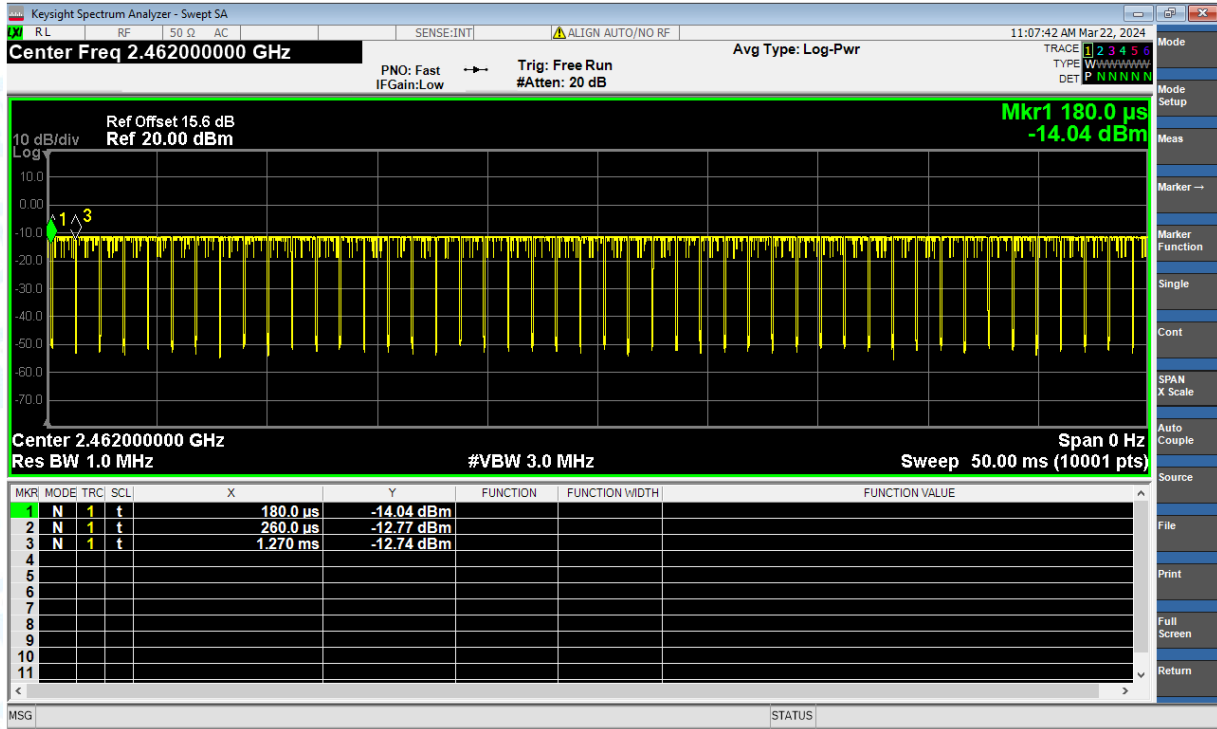
Duty Cycle NVNT b 2412MHz Ant2



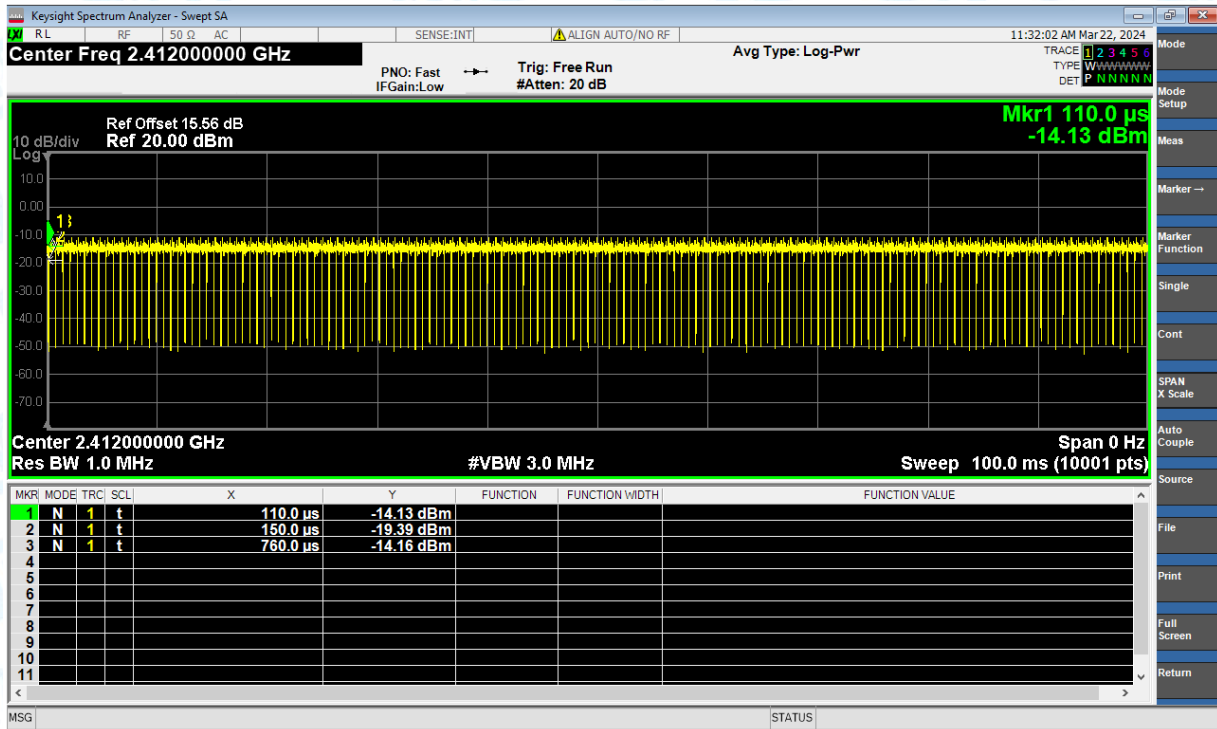
Duty Cycle NVNT b 2437MHz Ant2



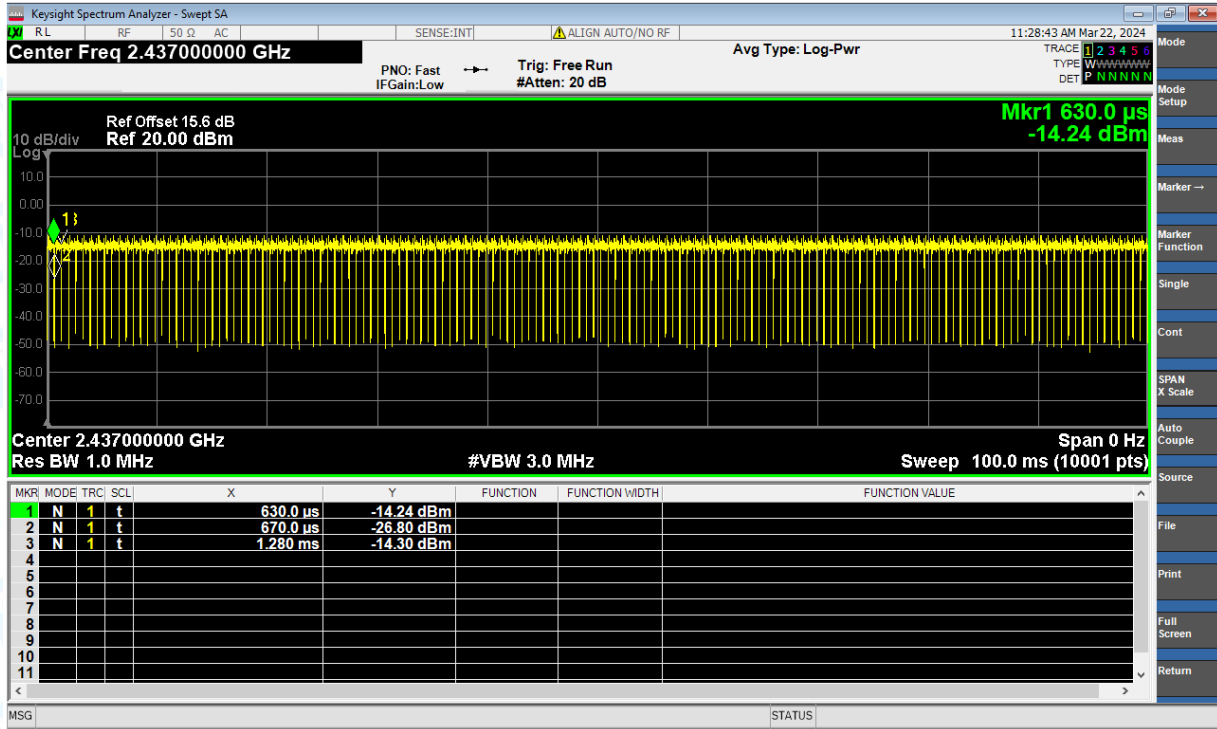
Duty Cycle NVNT b 2462MHz Ant2



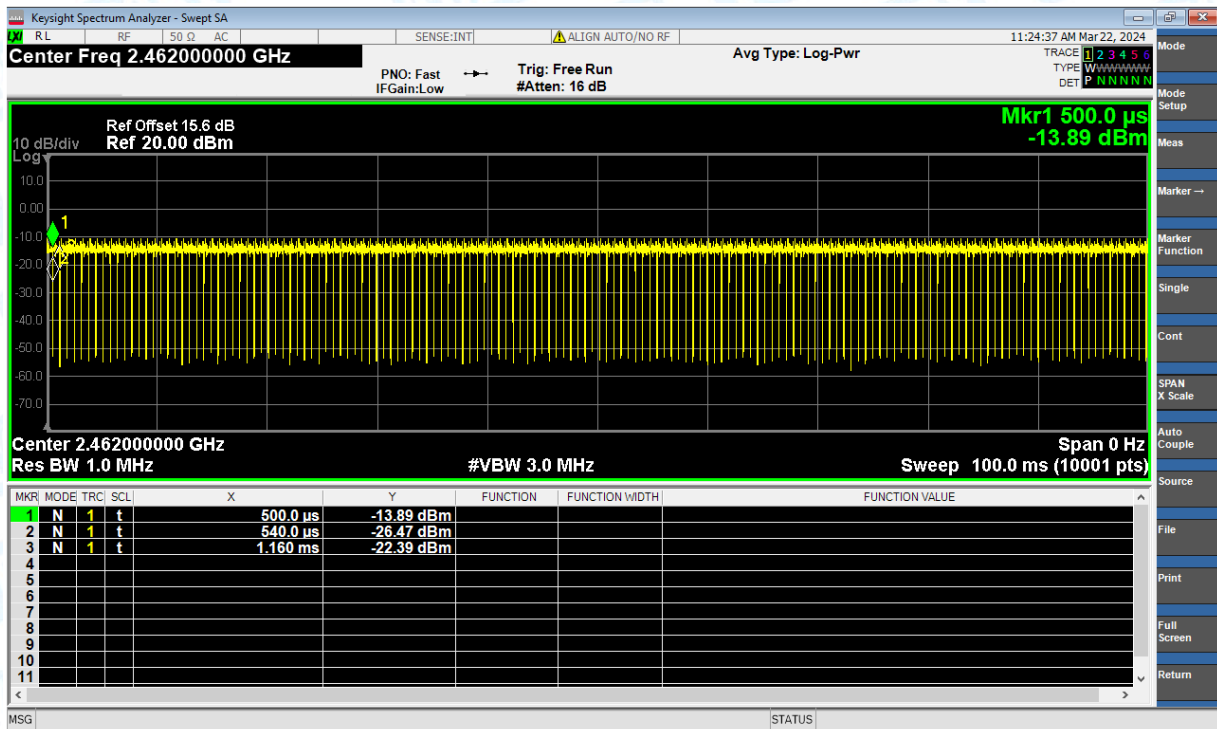
Duty Cycle NVNT g 2412MHz Ant2



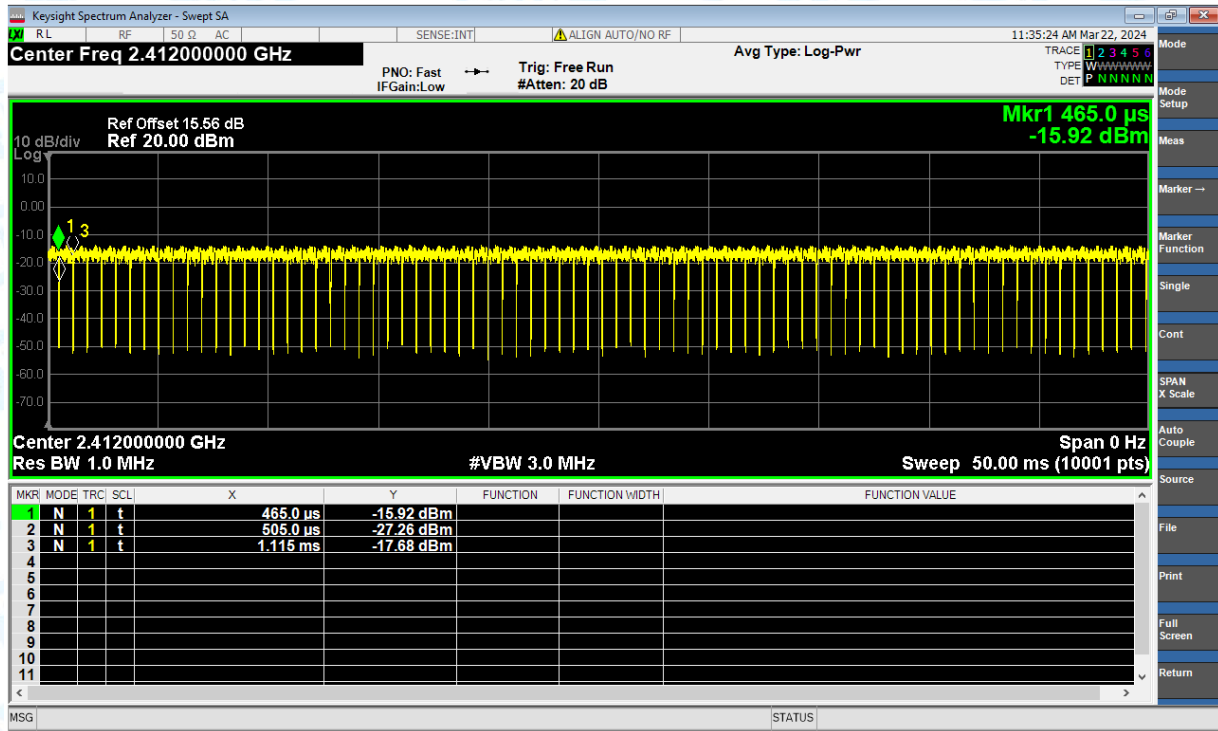
Duty Cycle NVNT g 2437MHz Ant2



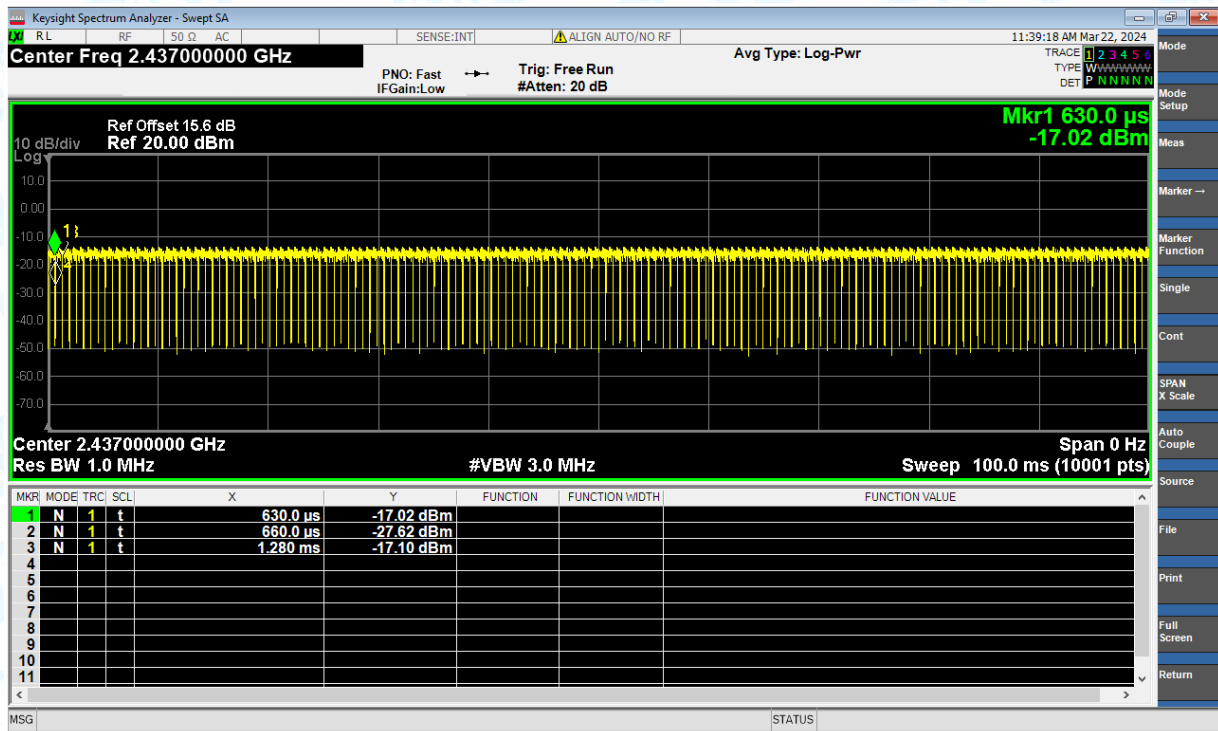
Duty Cycle NVNT g 2462MHz Ant2



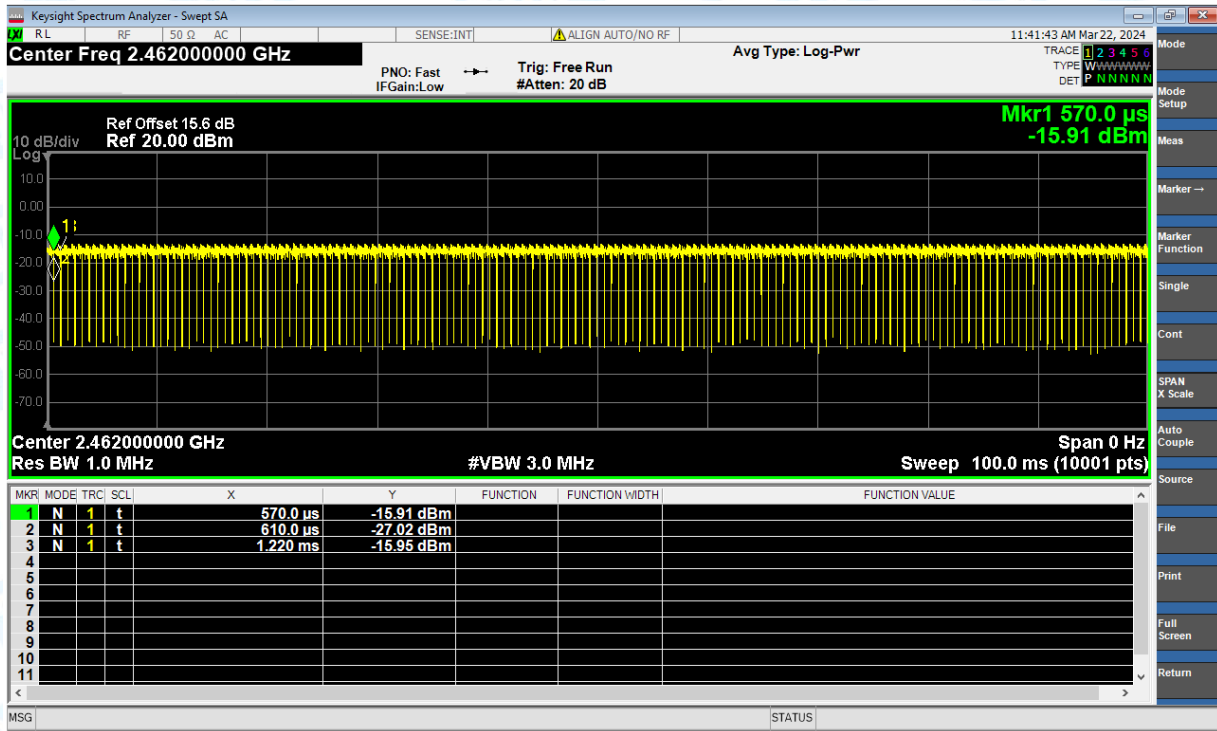
Duty Cycle NVNT n(HT20) 2412MHz Ant2



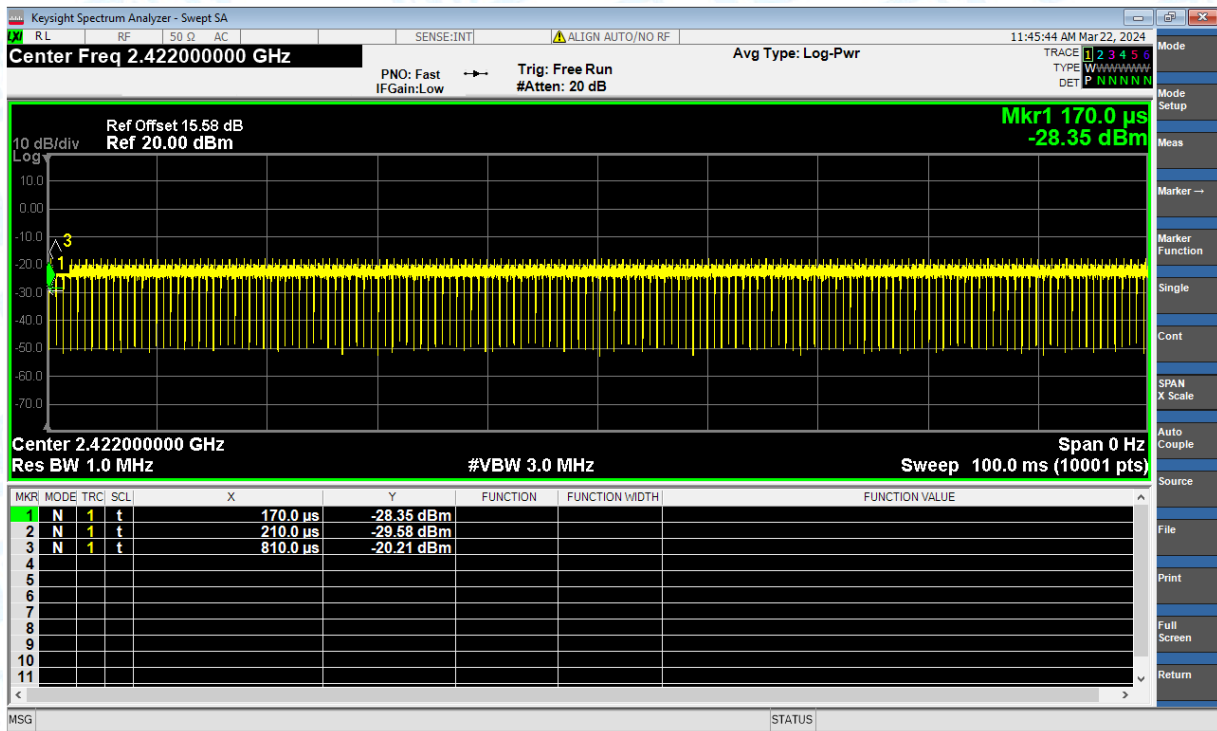
Duty Cycle NVNT n(HT20) 2437MHz Ant2



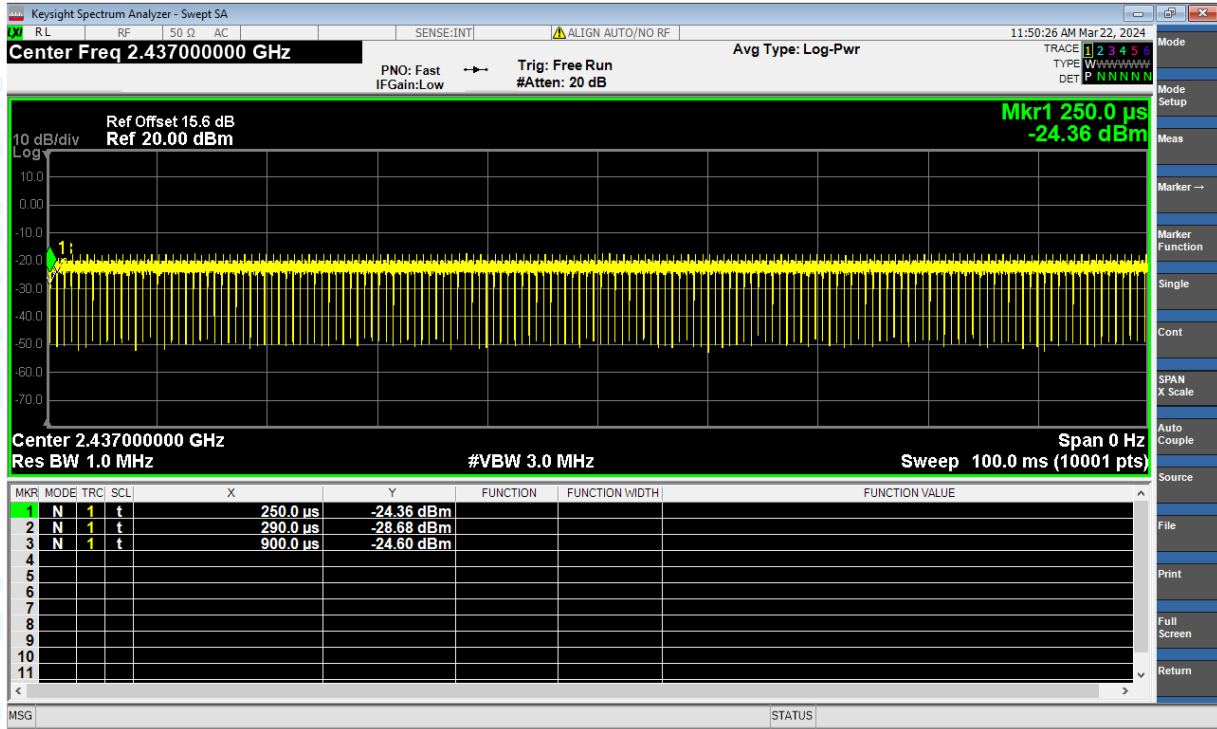
Duty Cycle NVNT n(HT20) 2462MHz Ant2



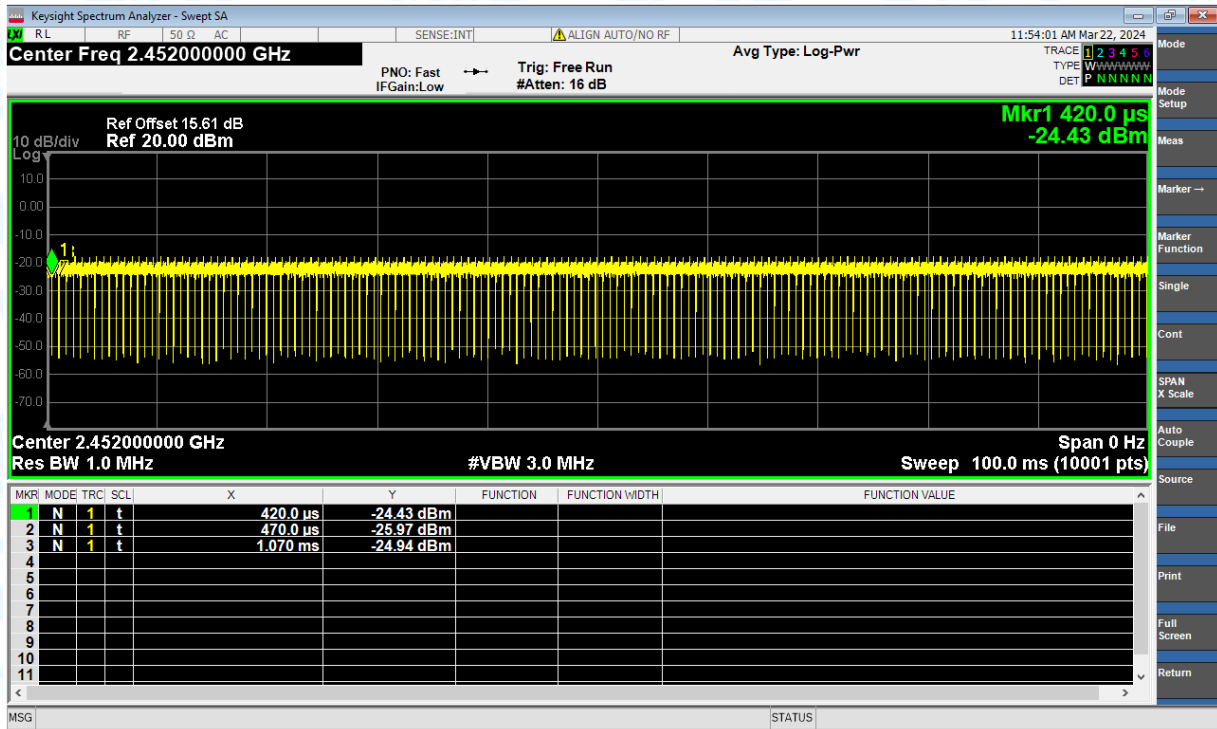
Duty Cycle NVNT n(HT40) 2422MHz Ant2



Duty Cycle NVNT n(HT40) 2437MHz Ant2



Duty Cycle NVNT n(HT40) 2452MHz Ant2



2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant2	-7.26	30	Pass
NVNT	b	2437	Ant2	-7.32	30	Pass
NVNT	b	2462	Ant2	-7.36	30	Pass
NVNT	g	2412	Ant2	-8.34	30	Pass
NVNT	g	2437	Ant2	-8.39	30	Pass
NVNT	g	2462	Ant2	-8.04	30	Pass
NVNT	n(HT20)	2412	Ant2	-9.4	30	Pass
NVNT	n(HT20)	2437	Ant2	-9.5	30	Pass
NVNT	n(HT20)	2462	Ant2	-9.16	30	Pass
NVNT	n(HT40)	2422	Ant2	-10.12	30	Pass
NVNT	n(HT40)	2437	Ant2	-9.95	30	Pass
NVNT	n(HT40)	2452	Ant2	-9.8	30	Pass

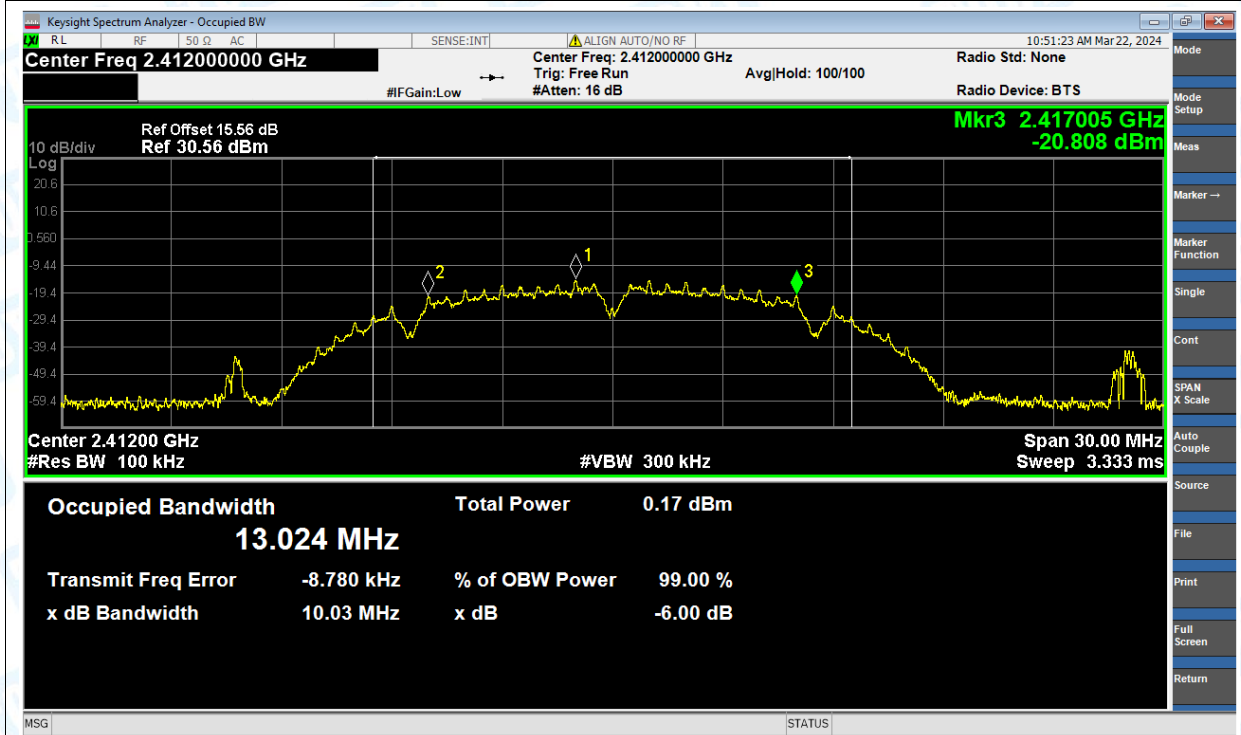
Note: The duty factor has been compensated into the result.

3.-6dB Bandwidth

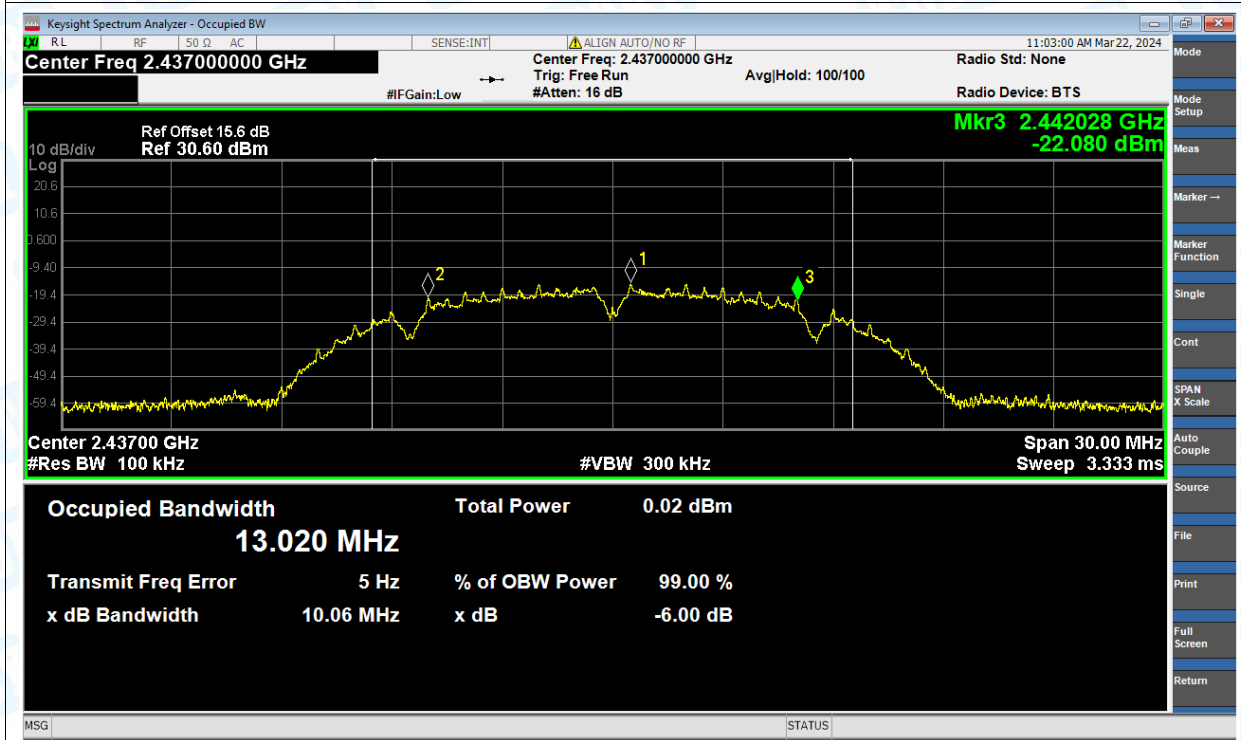
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant2	10.03	0.5	Pass
NVNT	b	2437	Ant2	10.06	0.5	Pass
NVNT	b	2462	Ant2	10.03	0.5	Pass
NVNT	g	2412	Ant2	16.04	0.5	Pass
NVNT	g	2437	Ant2	16.29	0.5	Pass
NVNT	g	2462	Ant2	16.3	0.5	Pass
NVNT	n(HT20)	2412	Ant2	17.53	0.5	Pass
NVNT	n(HT20)	2437	Ant2	17.28	0.5	Pass
NVNT	n(HT20)	2462	Ant2	17.54	0.5	Pass
NVNT	n(HT40)	2422	Ant2	33.91	0.5	Pass
NVNT	n(HT40)	2437	Ant2	35.14	0.5	Pass
NVNT	n(HT40)	2452	Ant2	35.11	0.5	Pass

Test Graphs

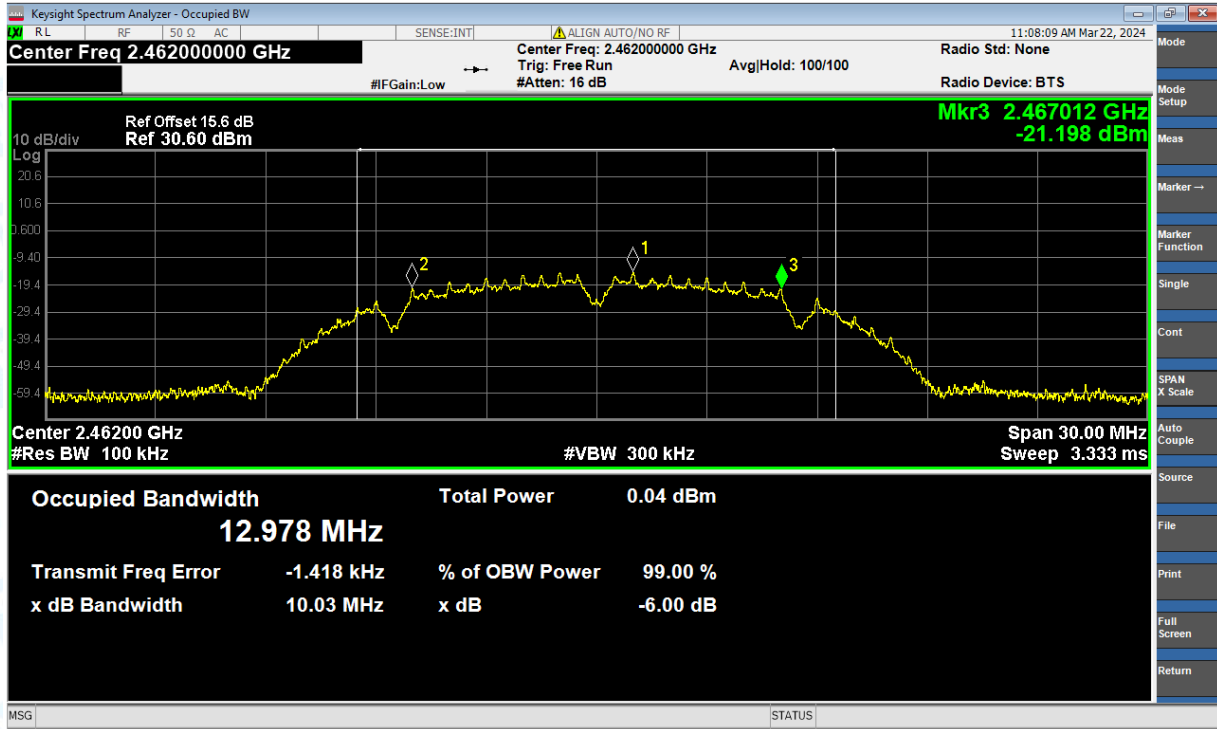
-6dB Bandwidth NVNT b 2412MHz Ant2



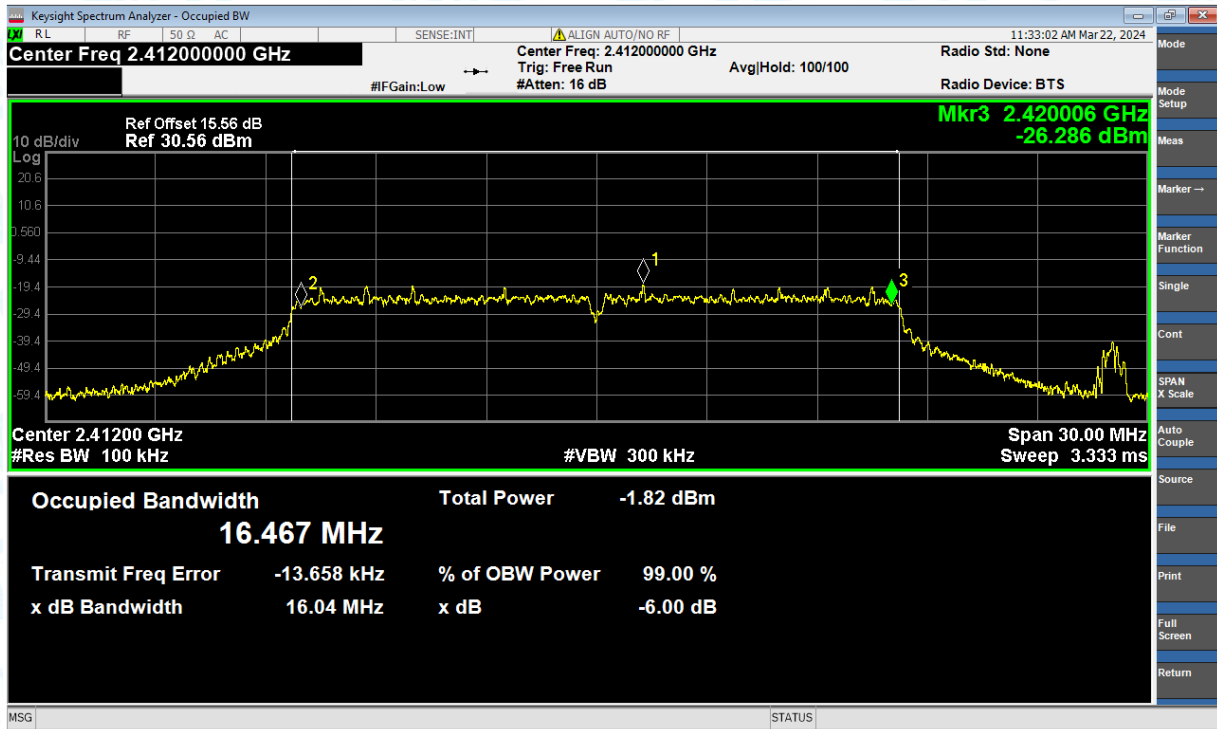
-6dB Bandwidth NVNT b 2437MHz Ant2



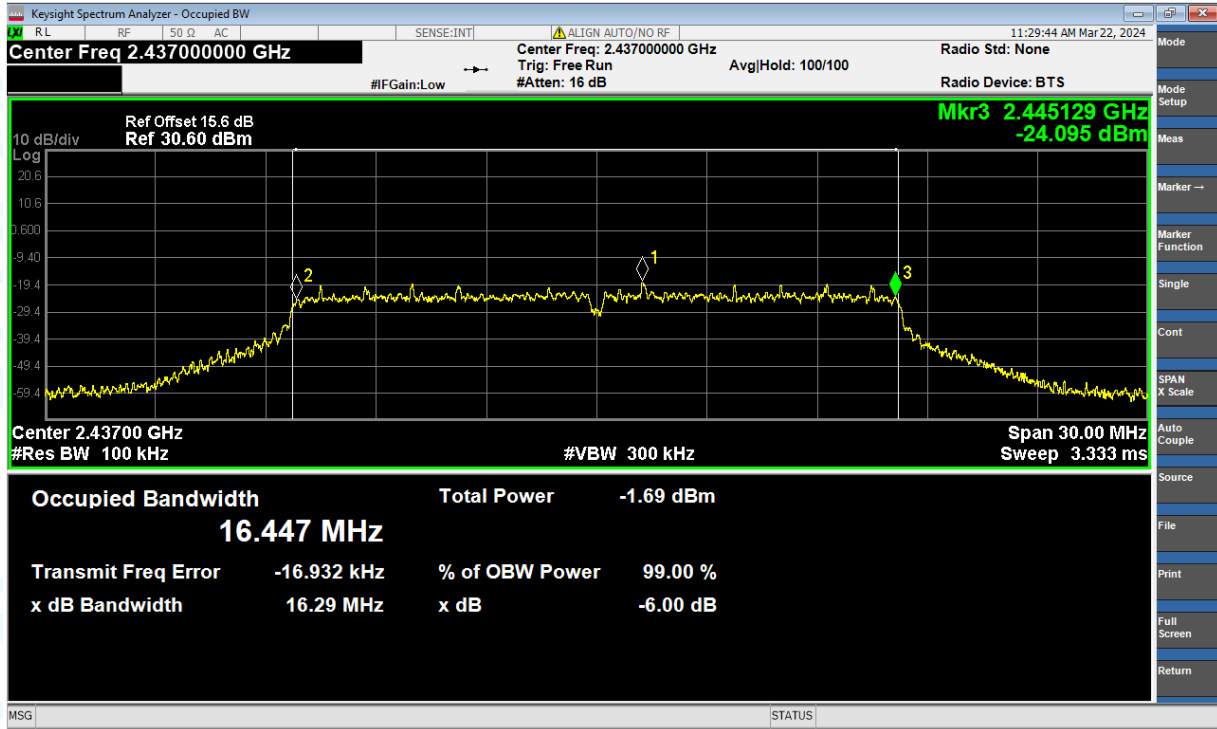
-6dB Bandwidth NVNT b 2462MHz Ant2



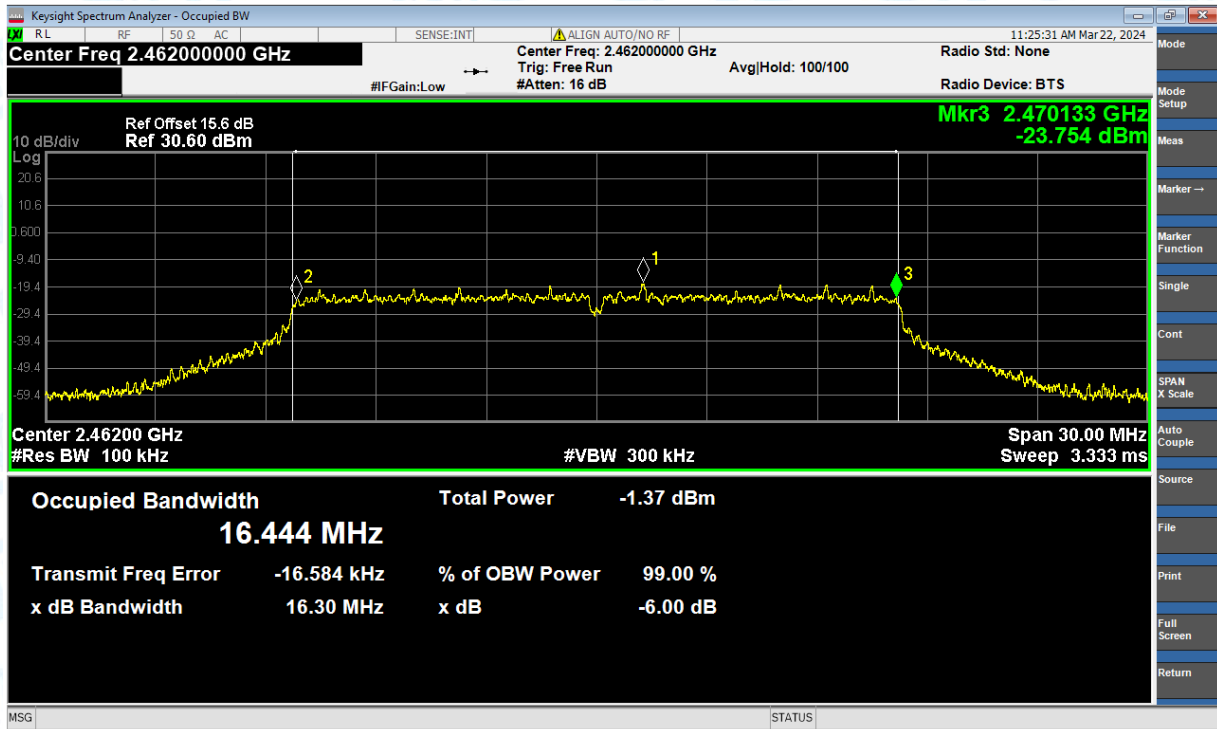
-6dB Bandwidth NVNT g 2412MHz Ant2



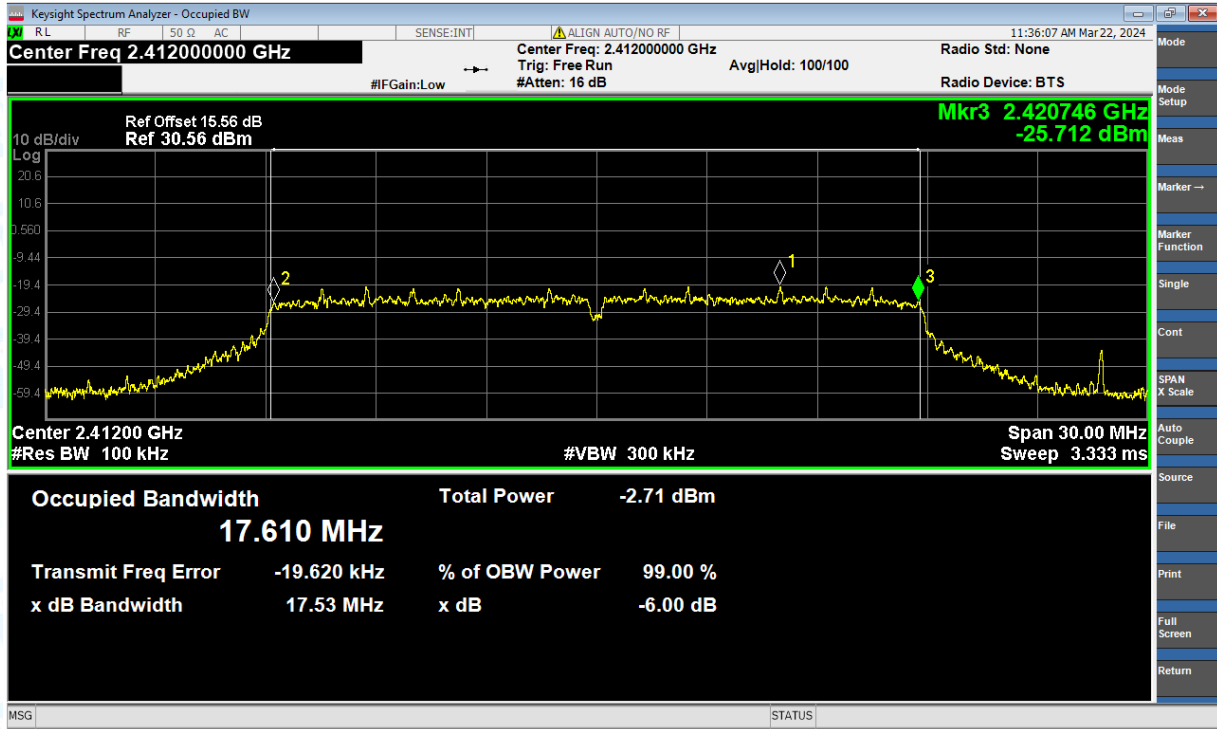
-6dB Bandwidth NVNT g 2437MHz Ant2



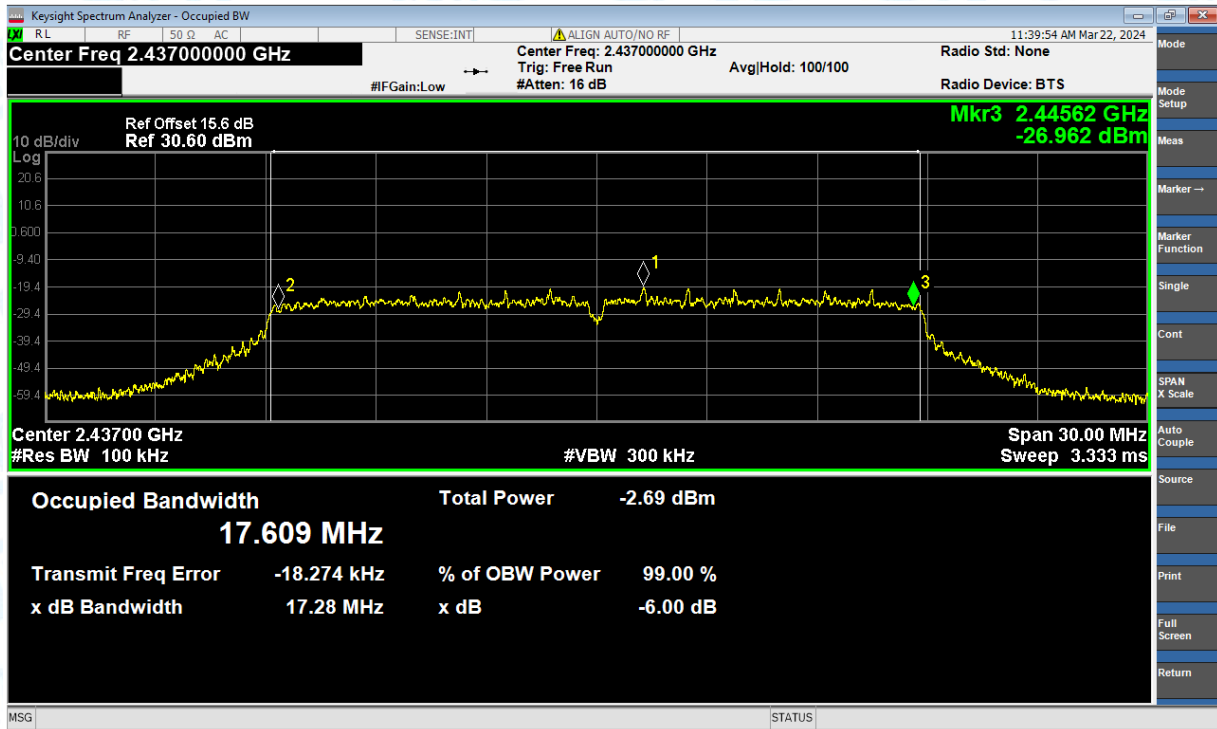
-6dB Bandwidth NVNT g 2462MHz Ant2



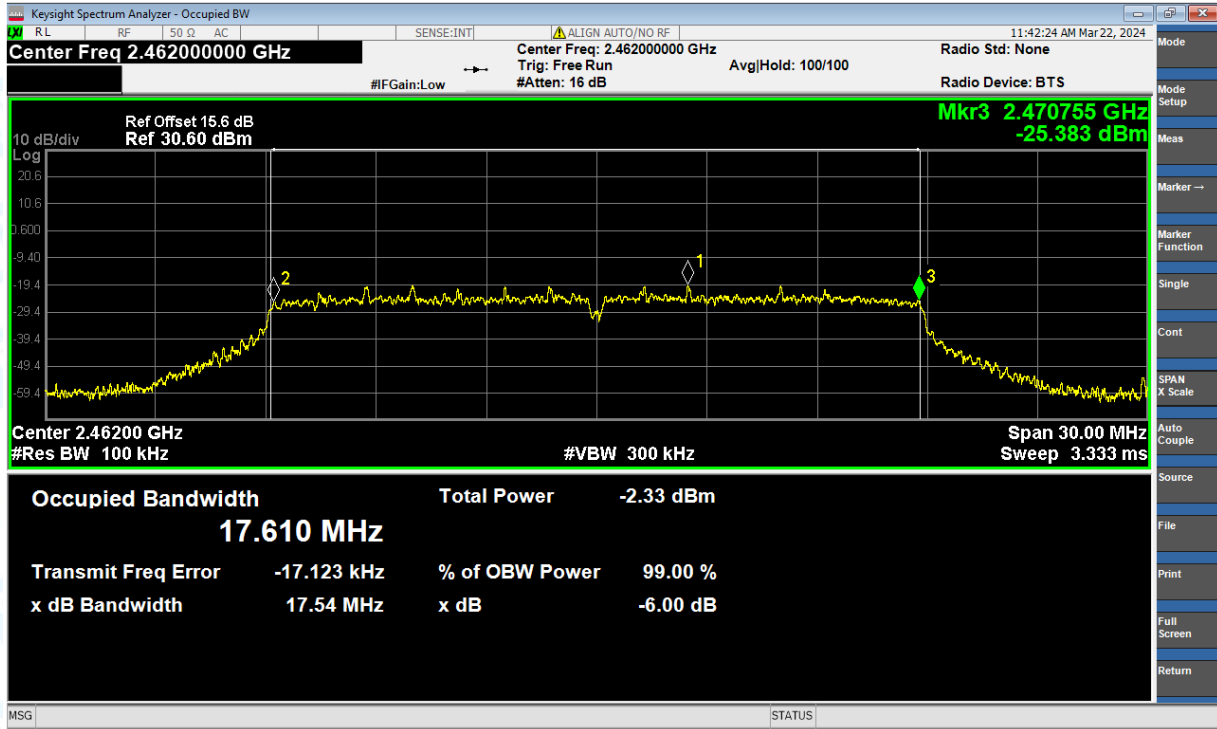
-6dB Bandwidth NVNT n(HT20) 2412MHz Ant2



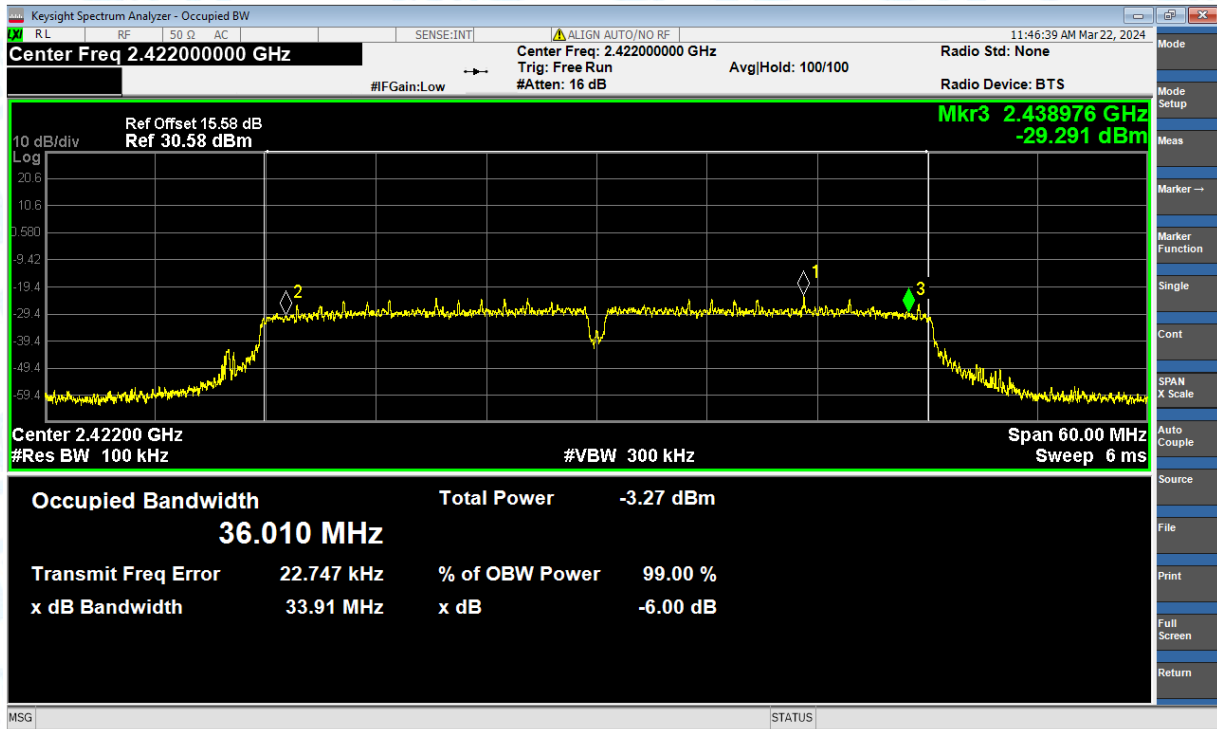
-6dB Bandwidth NVNT n(HT20) 2437MHz Ant2



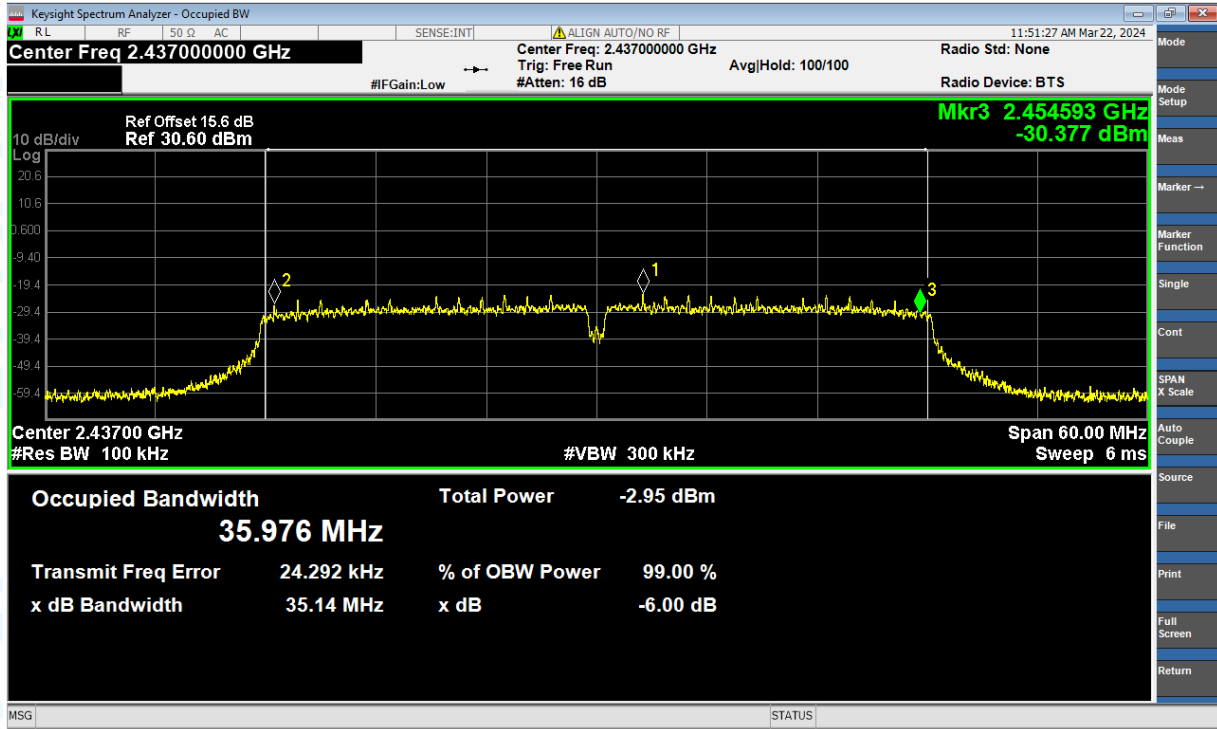
-6dB Bandwidth NVNT n(HT20) 2462MHz Ant2



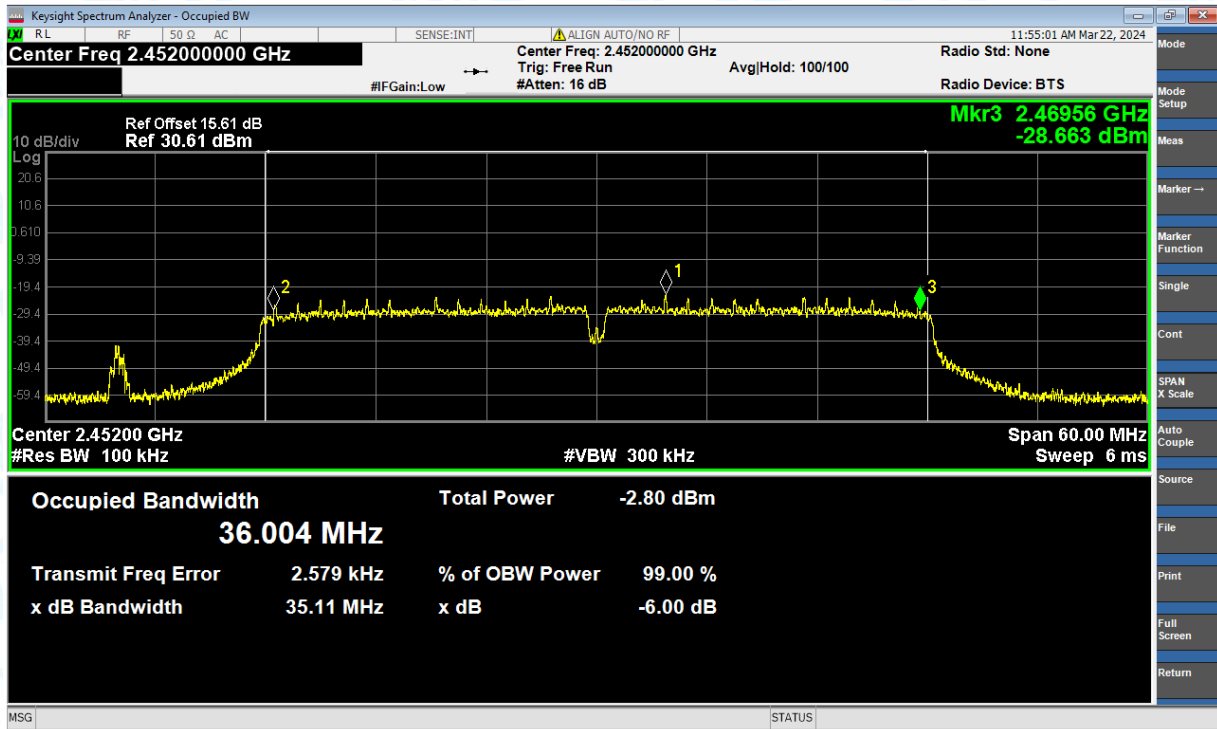
-6dB Bandwidth NVNT n(HT40) 2422MHz Ant2



-6dB Bandwidth NVNT n(HT40) 2437MHz Ant2



-6dB Bandwidth NVNT n(HT40) 2452MHz Ant2

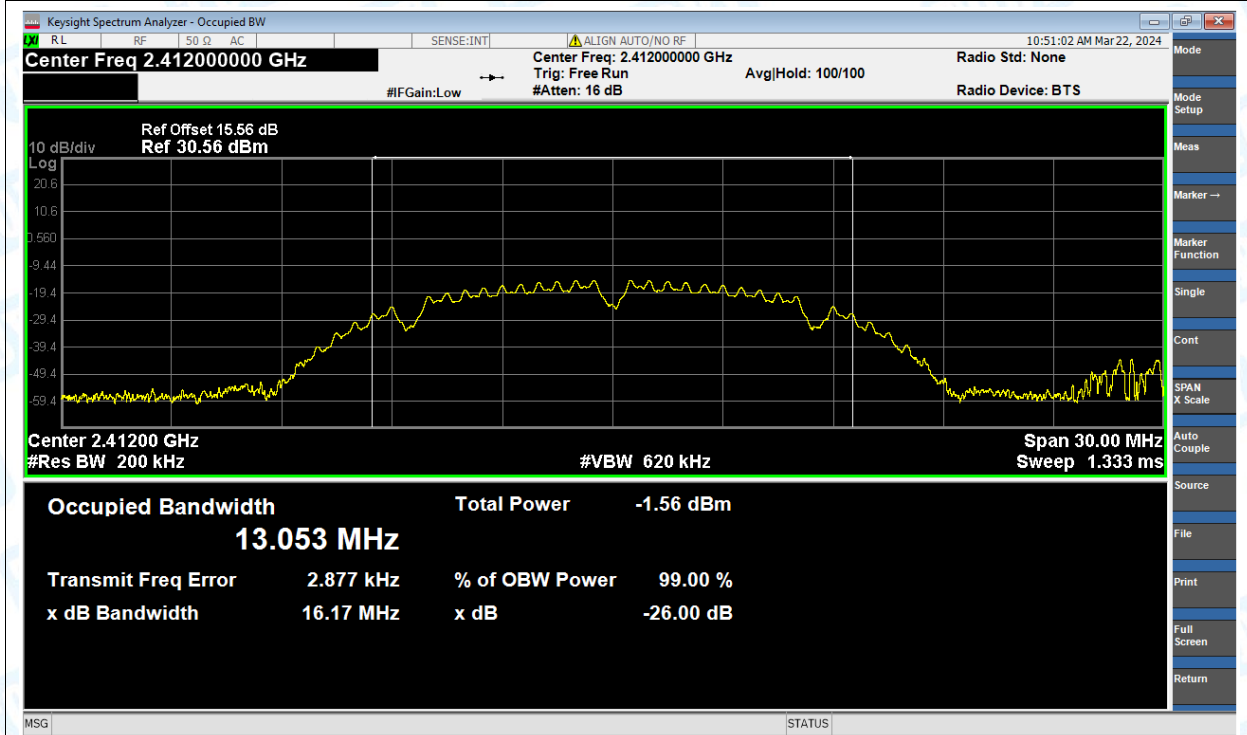


4.Occupied Channel Bandwidth

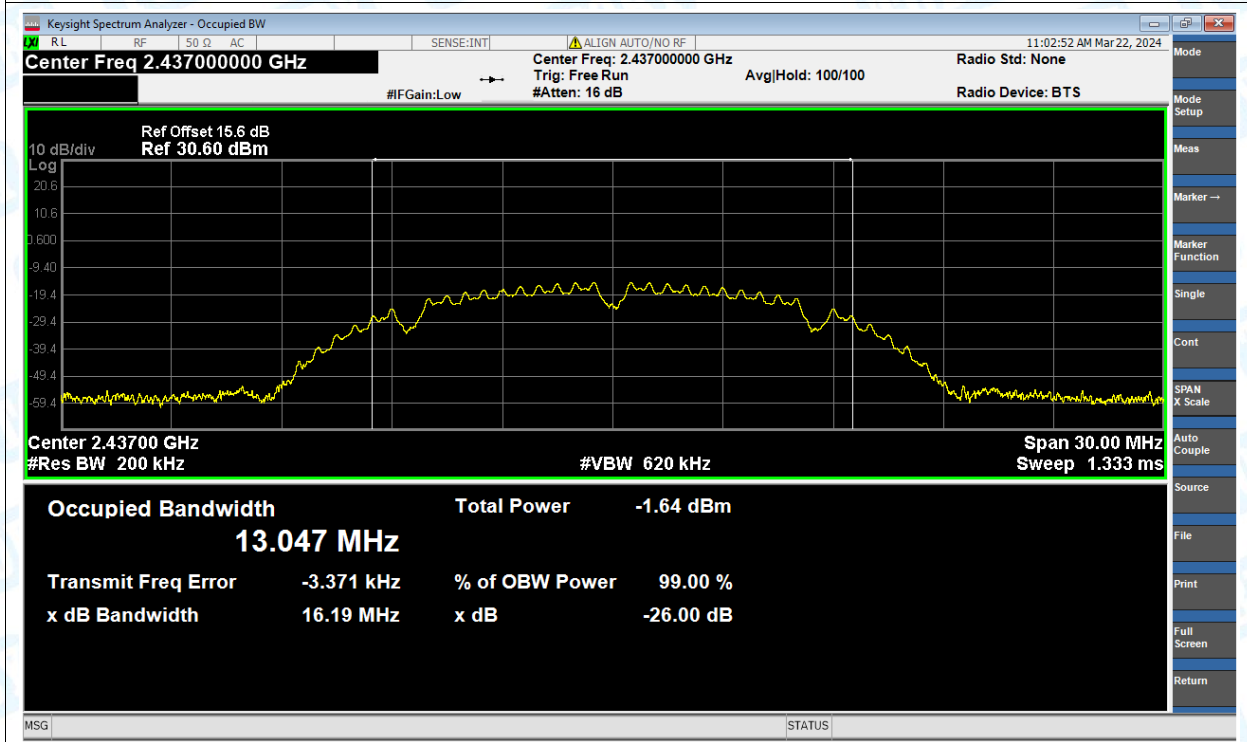
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant2	13.053
NVNT	b	2437	Ant2	13.047
NVNT	b	2462	Ant2	13.046
NVNT	g	2412	Ant2	16.594
NVNT	g	2437	Ant2	16.585
NVNT	g	2462	Ant2	16.585
NVNT	n(HT20)	2412	Ant2	17.651
NVNT	n(HT20)	2437	Ant2	17.658
NVNT	n(HT20)	2462	Ant2	17.648
NVNT	n(HT40)	2422	Ant2	36.227
NVNT	n(HT40)	2437	Ant2	36.135
NVNT	n(HT40)	2452	Ant2	36.214

Test Graphs

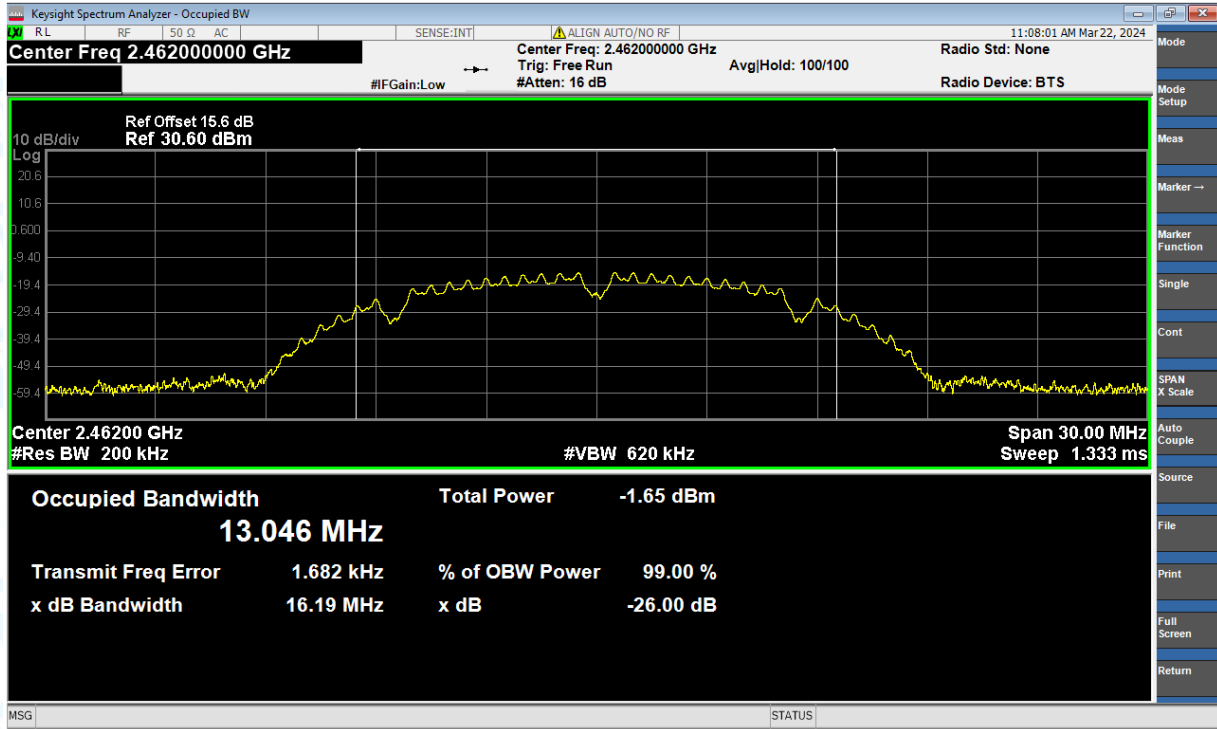
OBW NVNT b 2412MHz Ant2



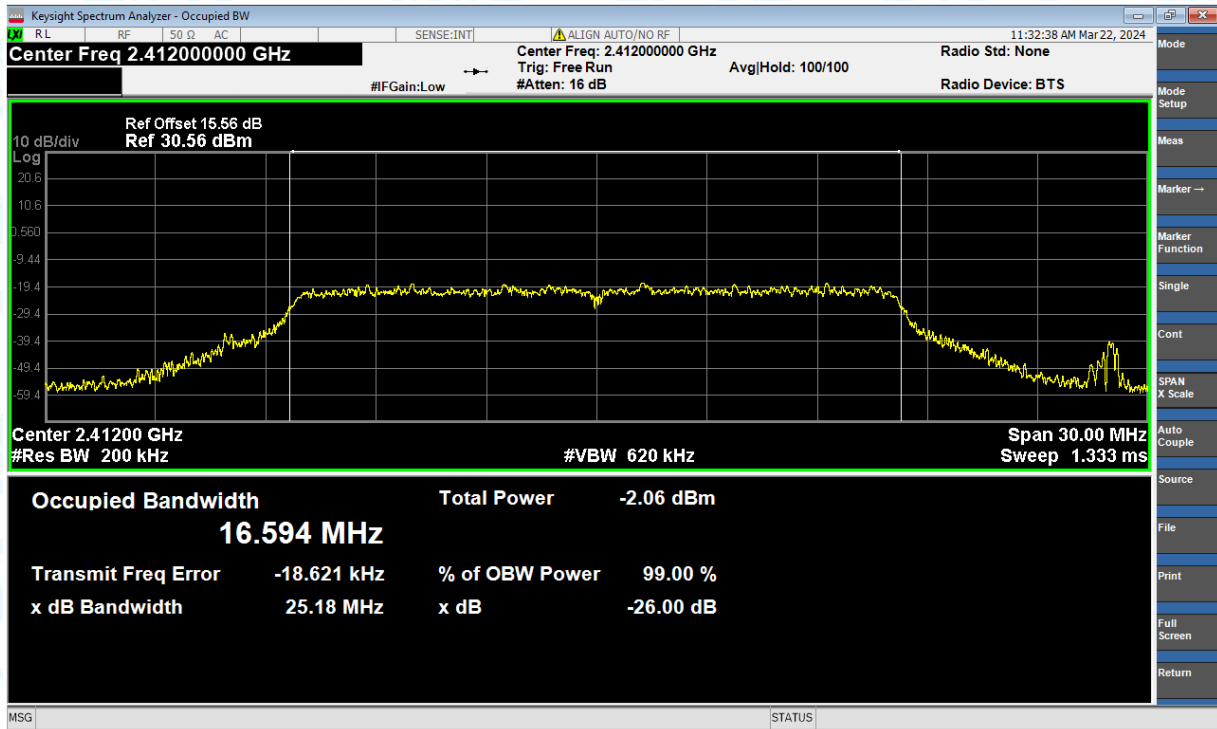
OBW NVNT b 2437MHz Ant2



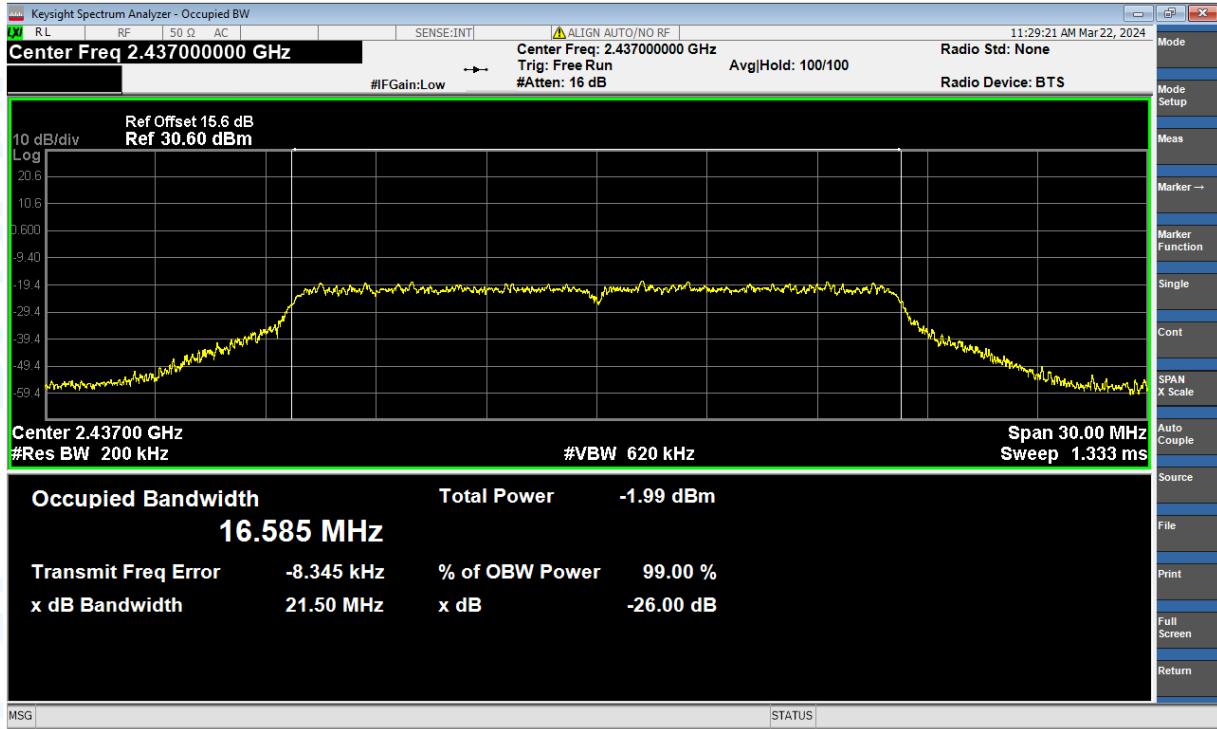
OBW NVNT b 2462MHz Ant2



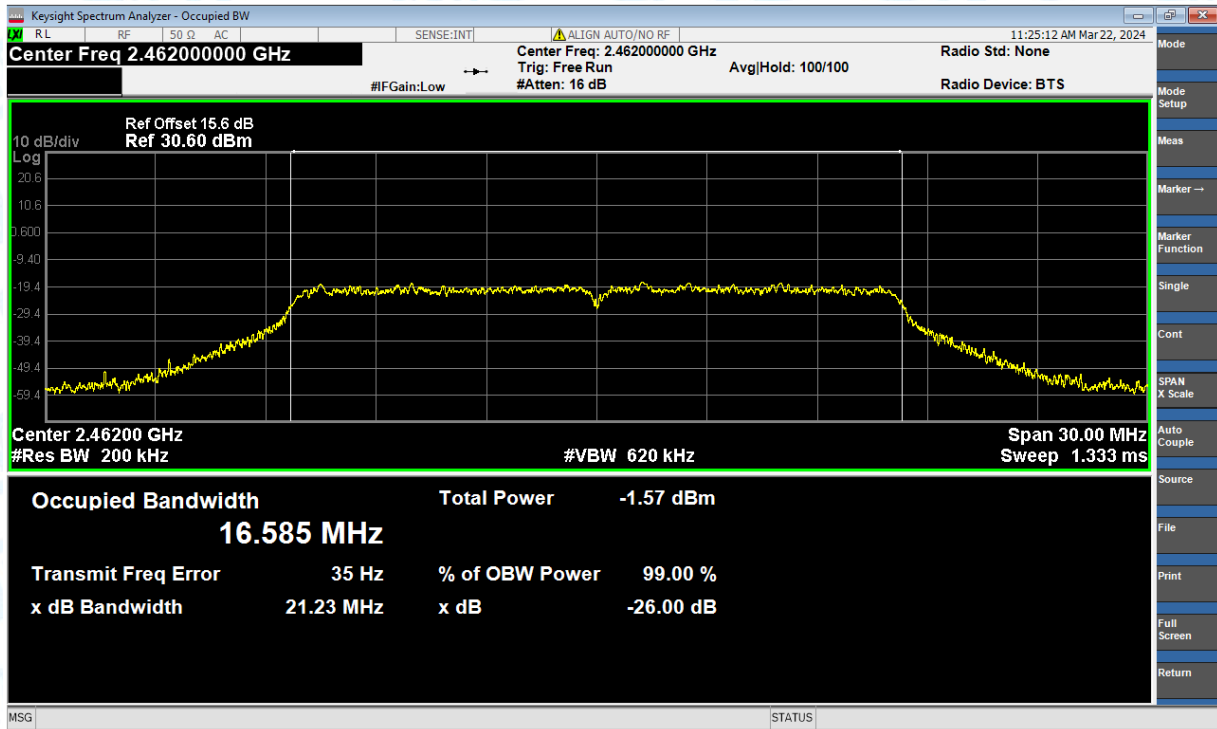
OBW NVNT g 2412MHz Ant2



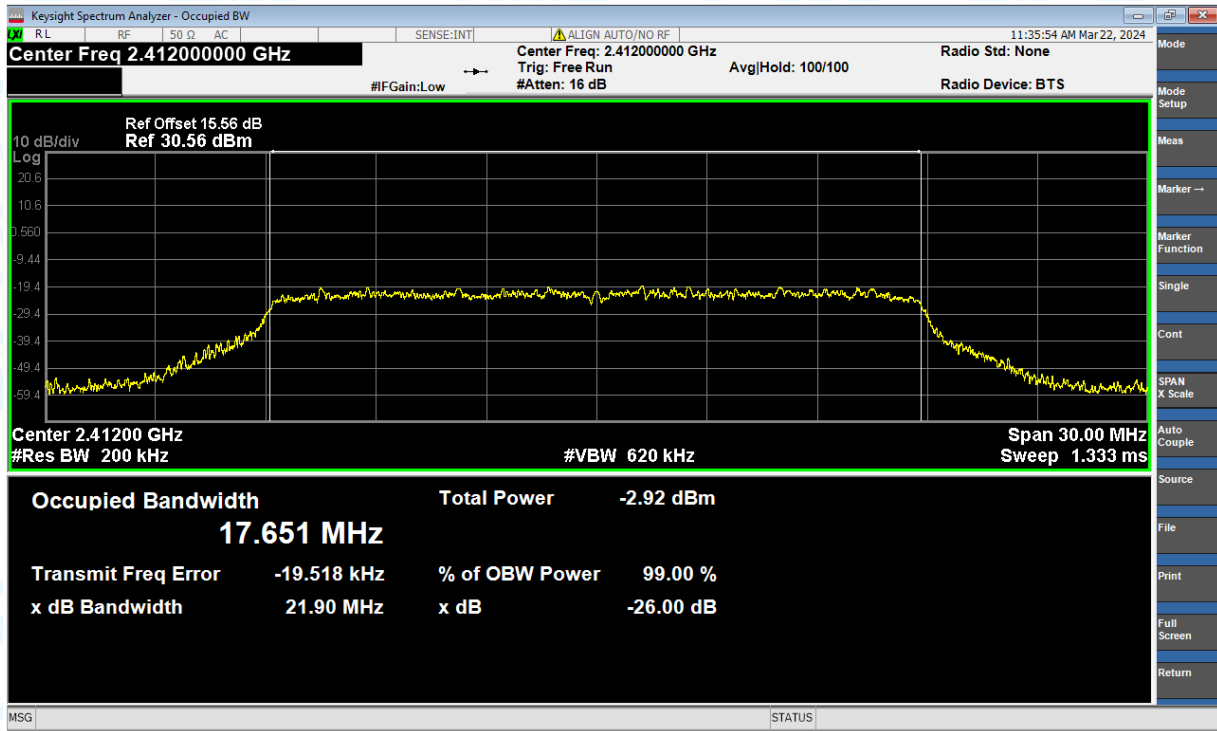
OBW NVNT g 2437MHz Ant2



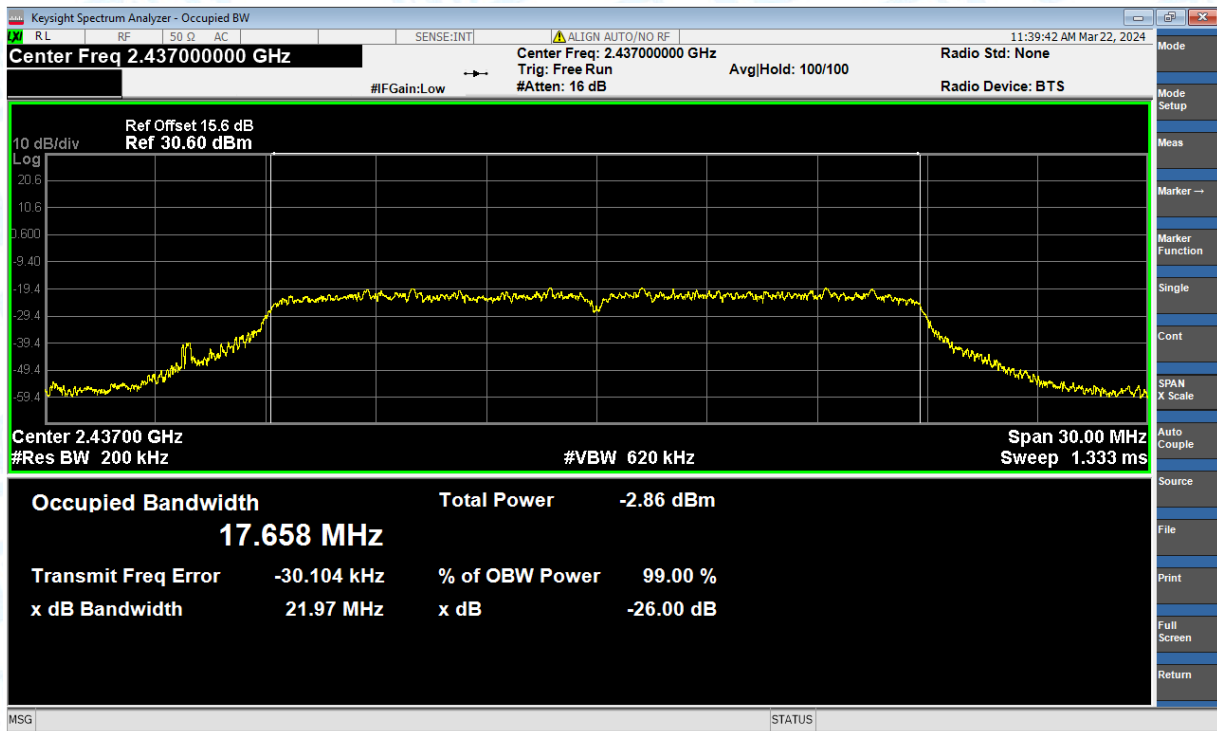
OBW NVNT g 2462MHz Ant2



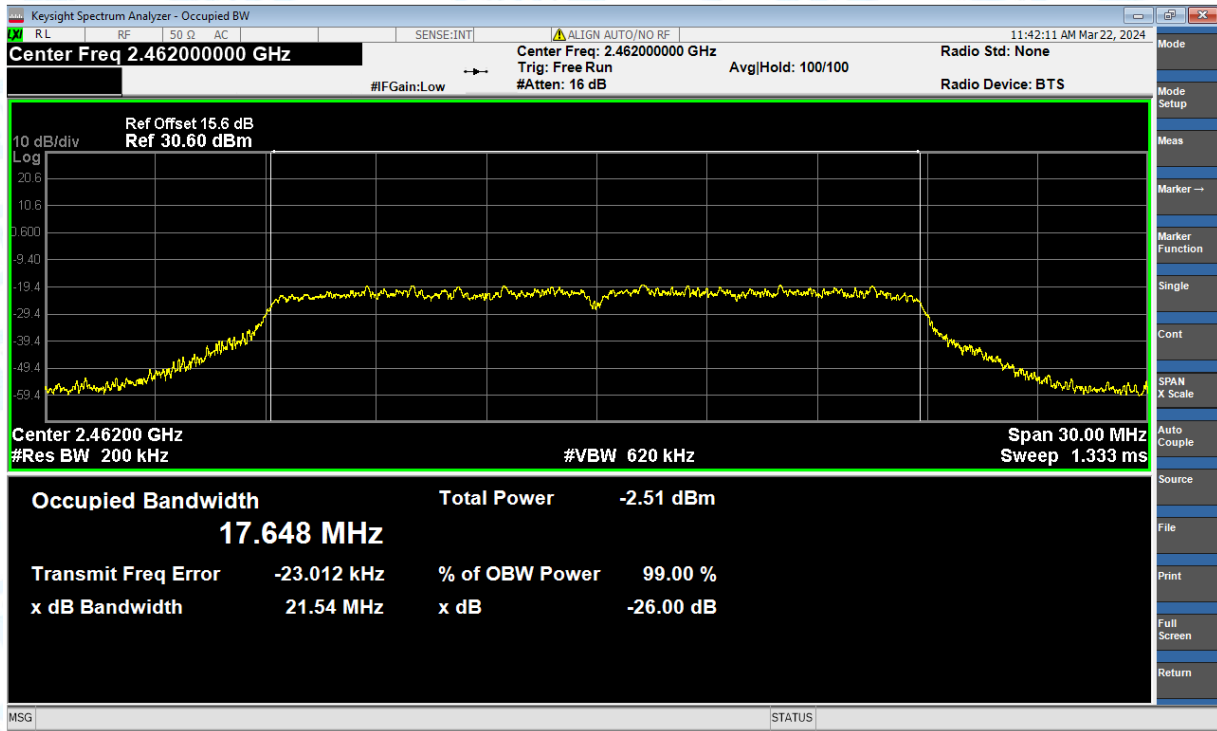
OBW NVNT n(HT20) 2412MHz Ant2



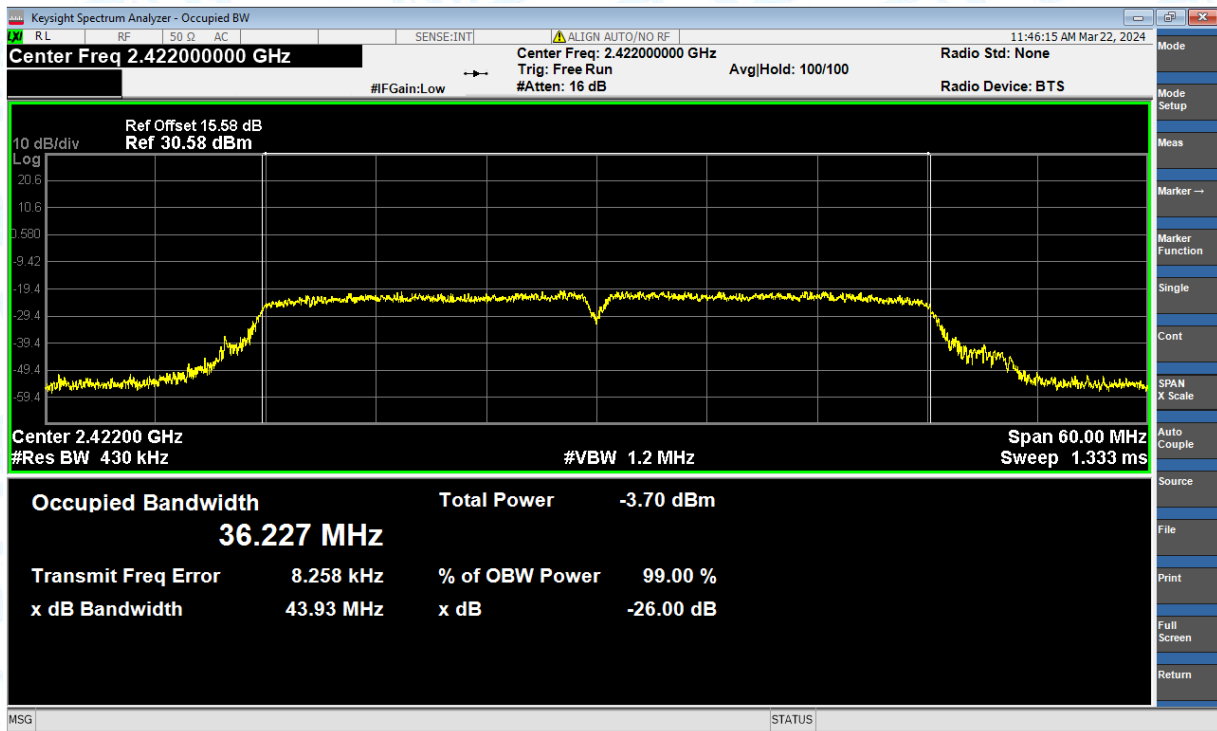
OBW NVNT n(HT20) 2437MHz Ant2



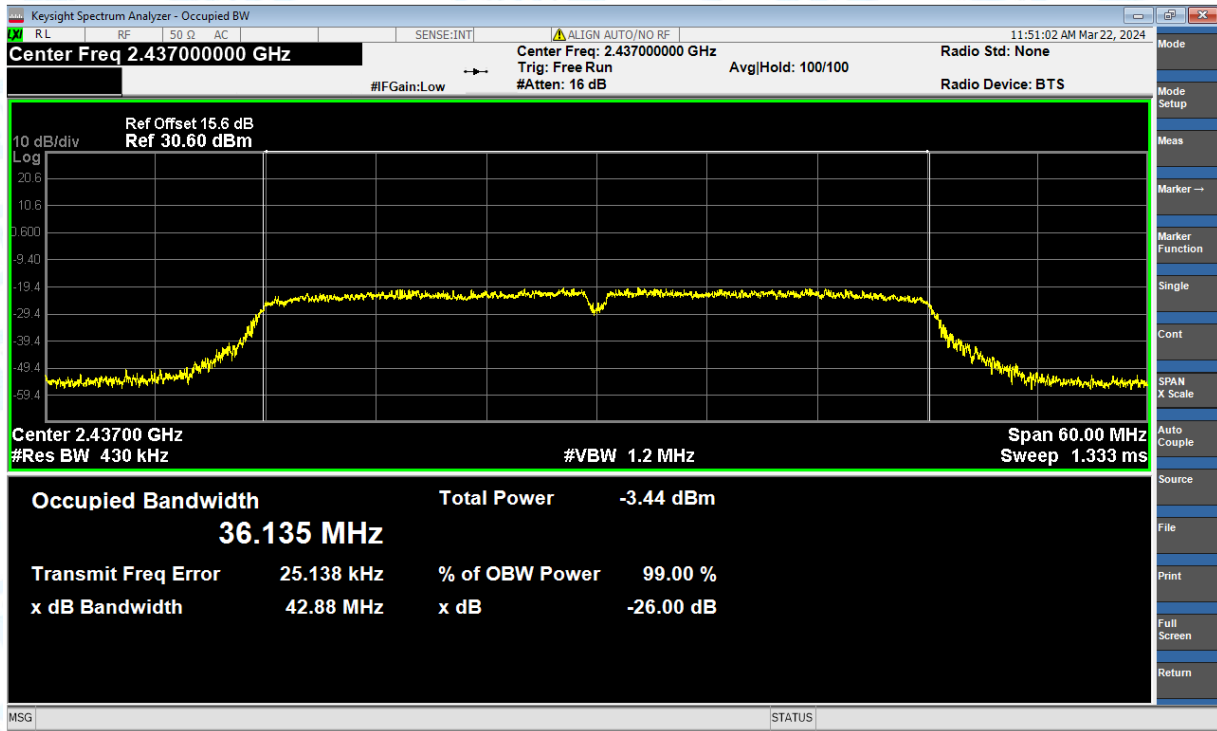
OBW NVNT n(HT20) 2462MHz Ant2



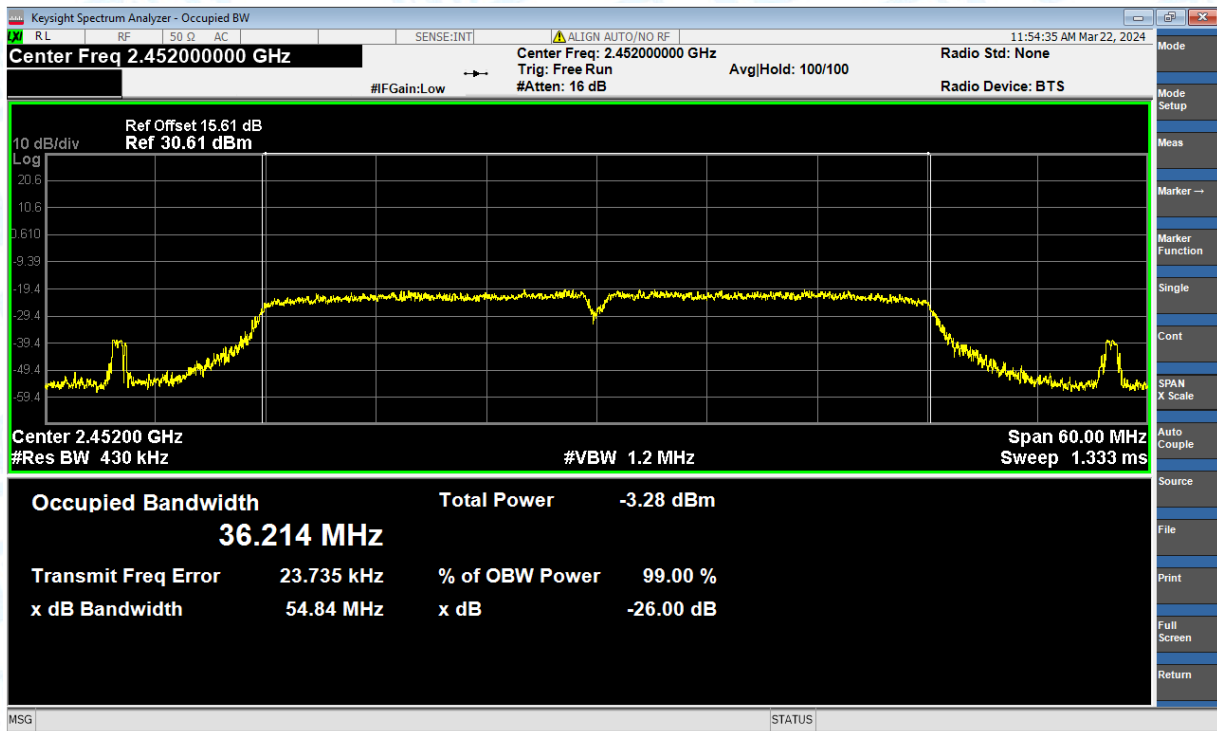
OBW NVNT n(HT40) 2422MHz Ant2



OBW NVNT n(HT40) 2437MHz Ant2



OBW NVNT n(HT40) 2452MHz Ant2



5. Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant2	-38.175	8	Pass
NVNT	b	2437	Ant2	-38.015	8	Pass
NVNT	b	2462	Ant2	-38.175	8	Pass
NVNT	g	2412	Ant2	-40.597	8	Pass
NVNT	g	2437	Ant2	-40.221	8	Pass
NVNT	g	2462	Ant2	-40.304	8	Pass
NVNT	n(HT20)	2412	Ant2	-42.285	8	Pass
NVNT	n(HT20)	2437	Ant2	-42.529	8	Pass
NVNT	n(HT20)	2462	Ant2	-42.115	8	Pass
NVNT	n(HT40)	2422	Ant2	-46.549	8	Pass
NVNT	n(HT40)	2437	Ant2	-46.187	8	Pass
NVNT	n(HT40)	2452	Ant2	-46.087	8	Pass

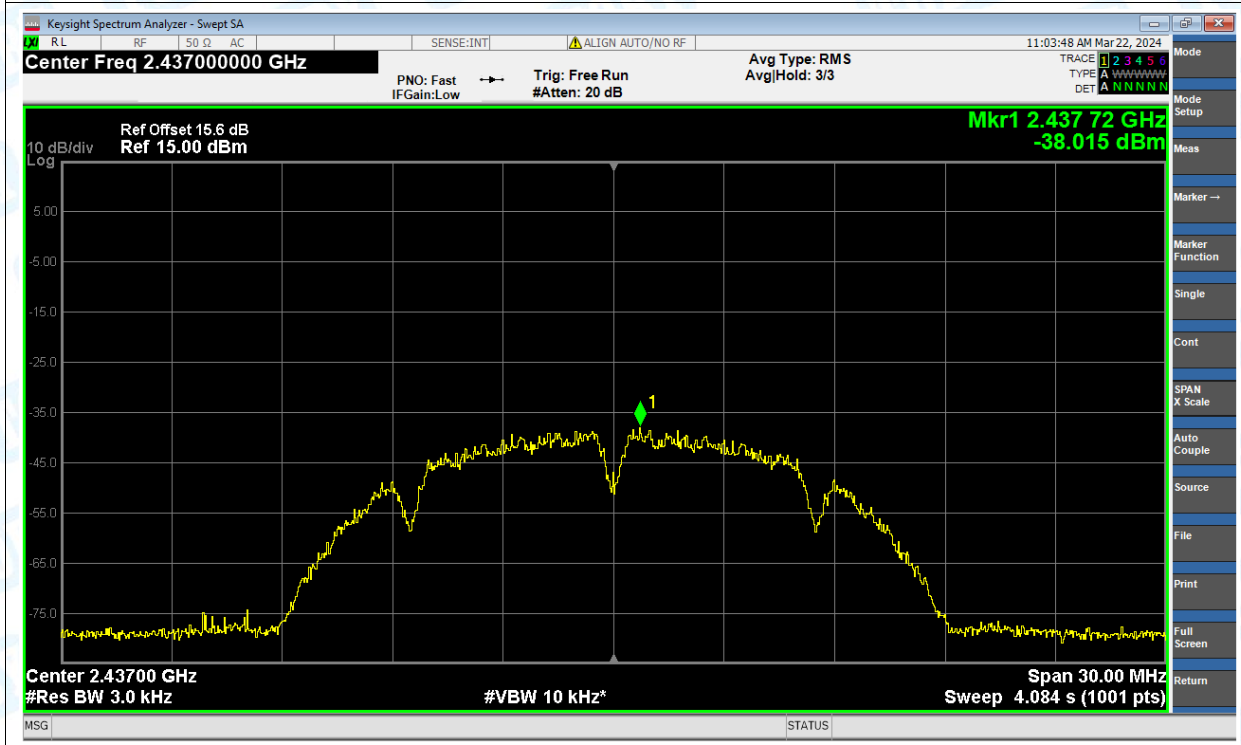
Note: The duty factor has been compensated into the result.

Test Graphs

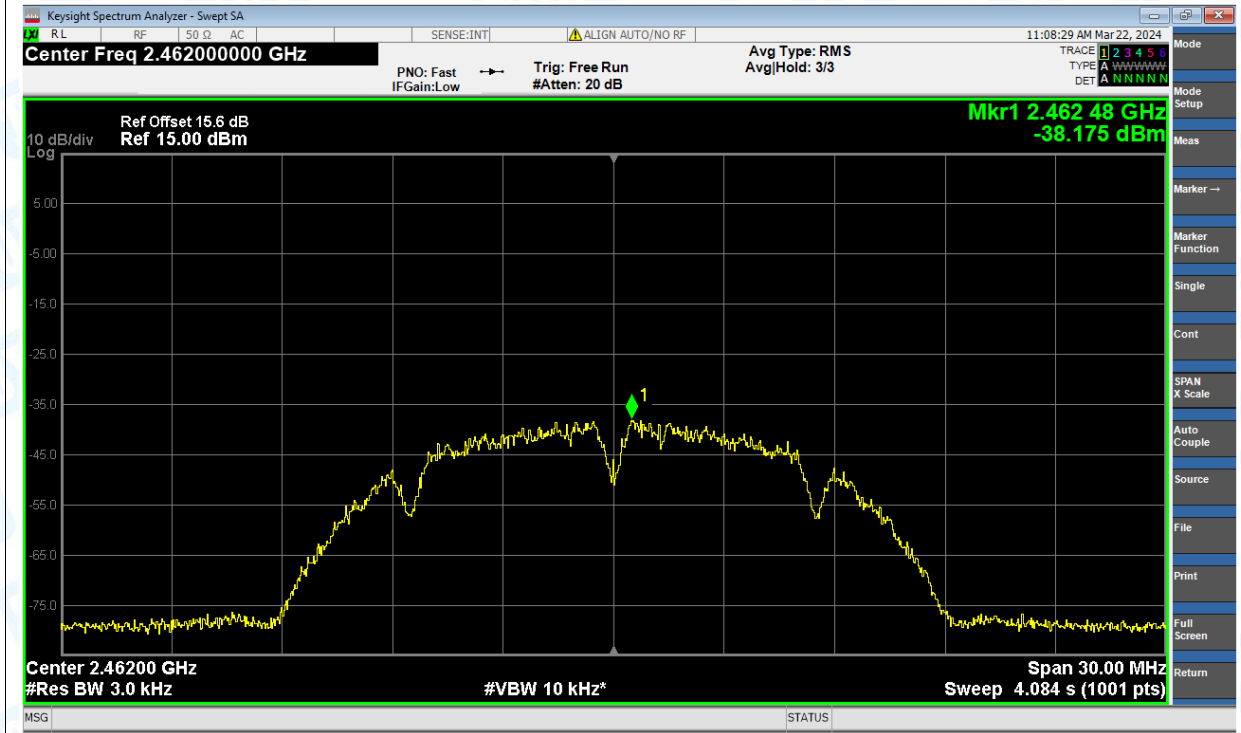
PSD NVNT b 2412MHz Ant2



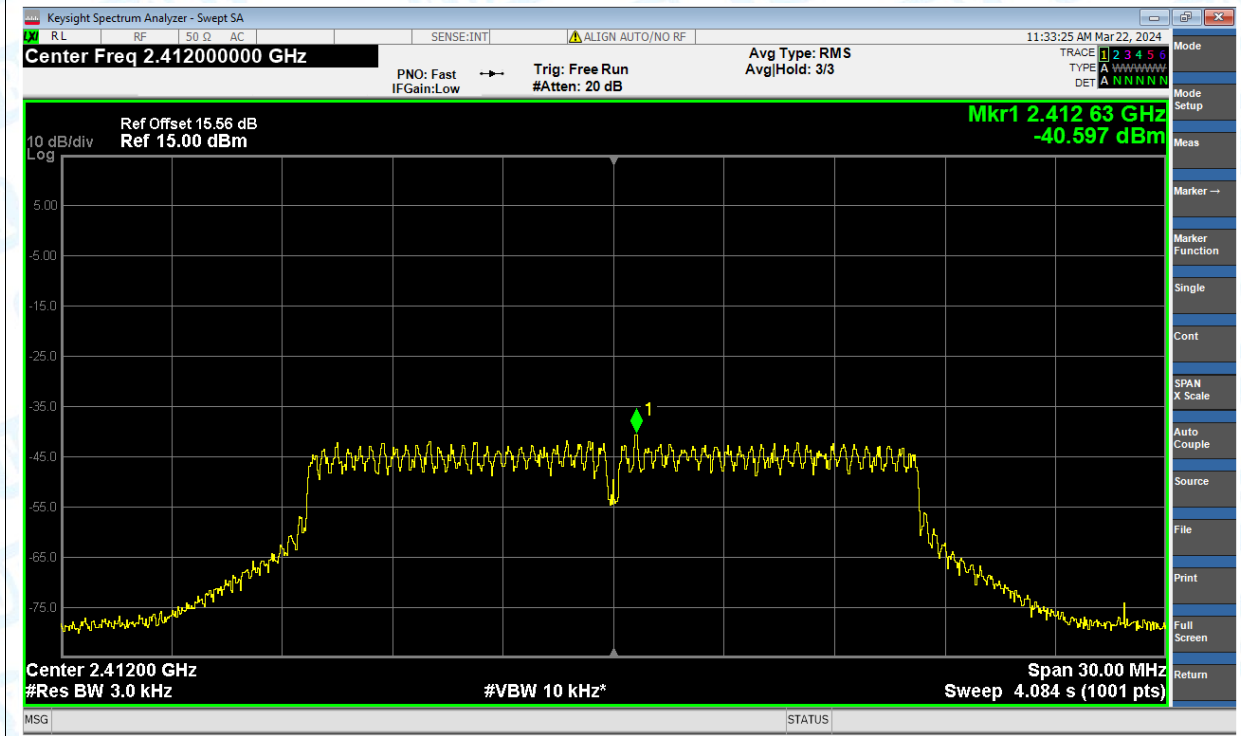
PSD NVNT b 2437MHz Ant2



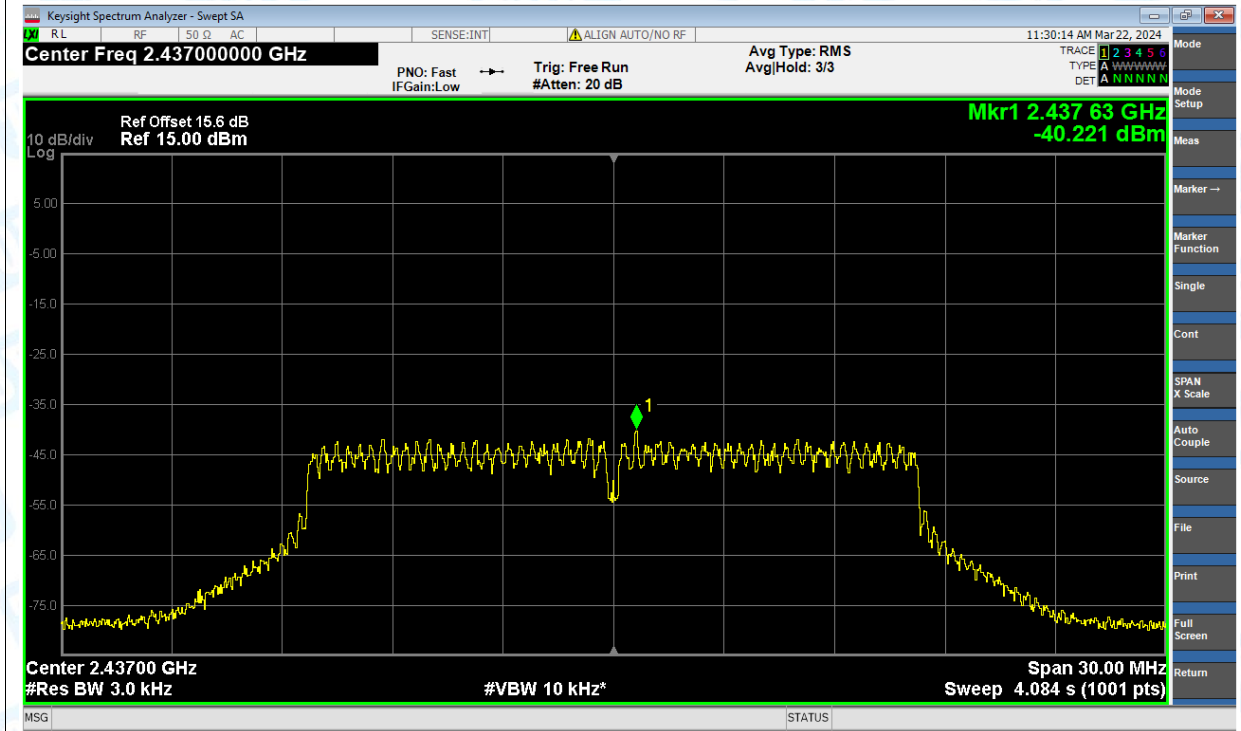
PSD NVNT b 2462MHz Ant2



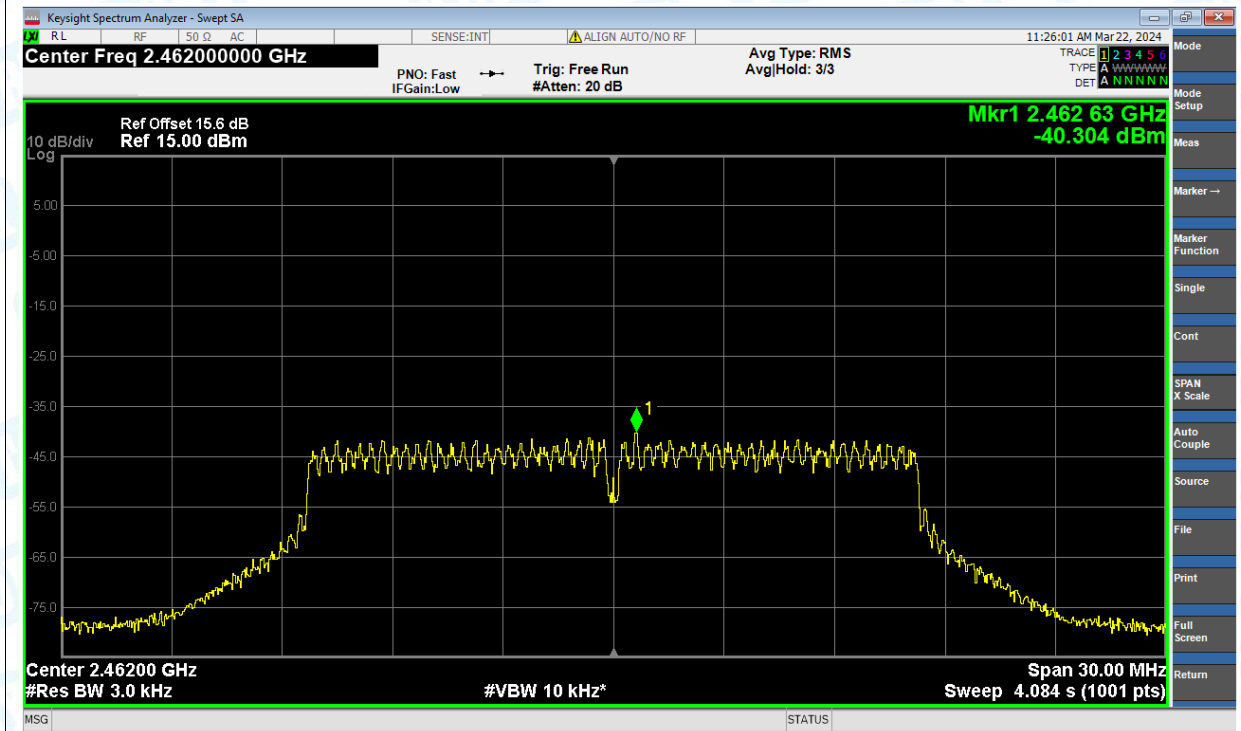
PSD NVNT g 2412MHz Ant2

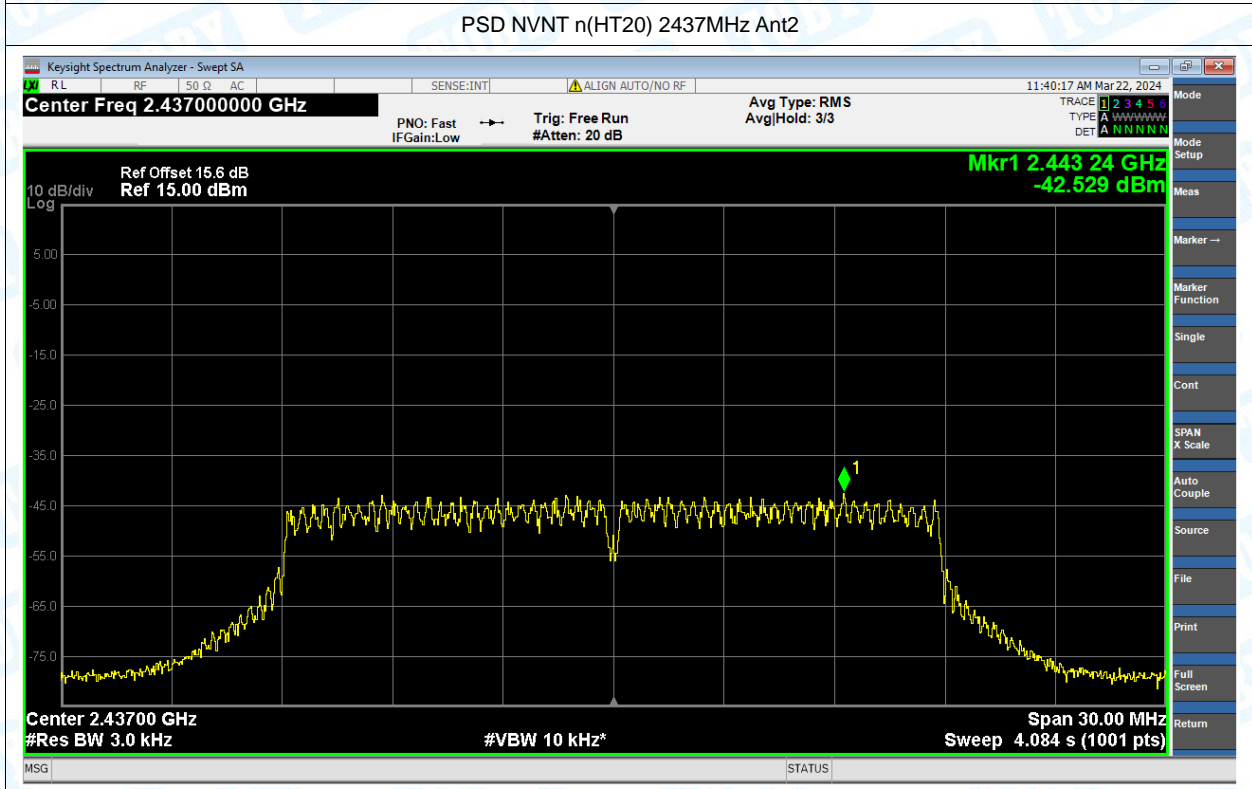
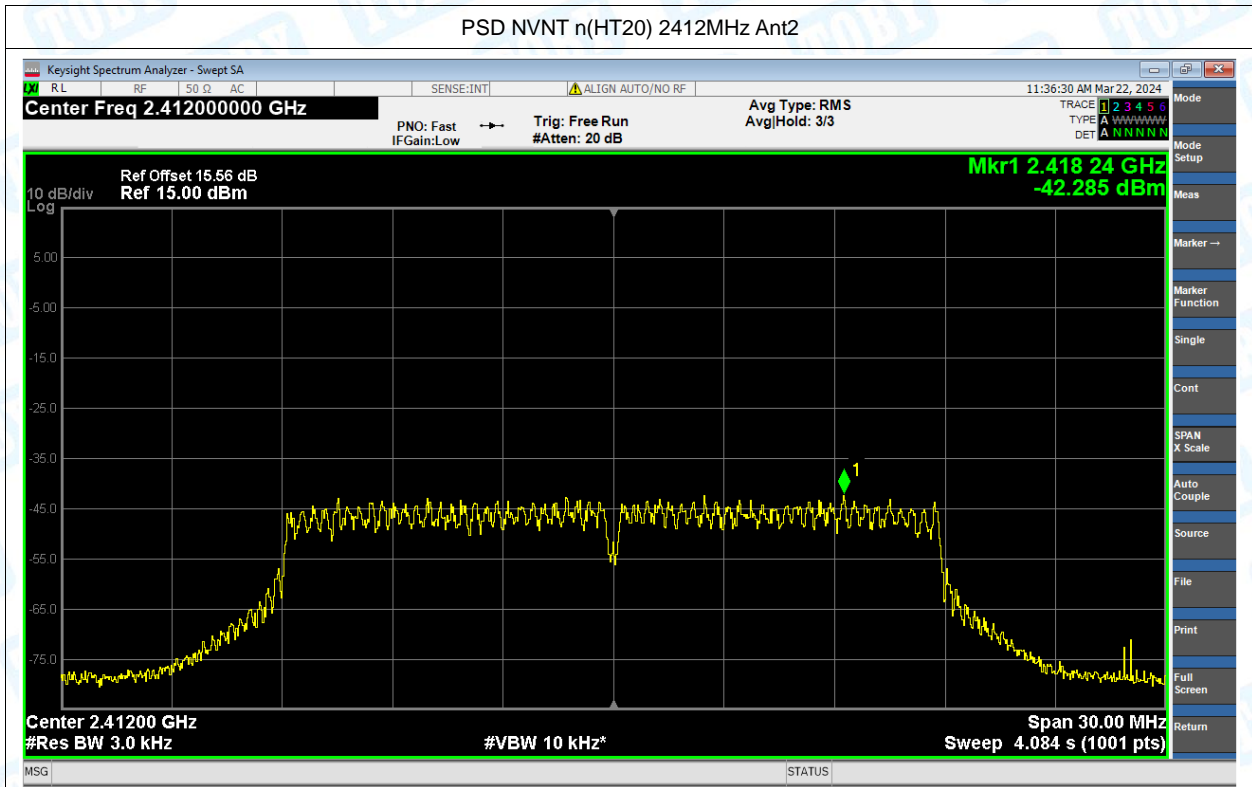


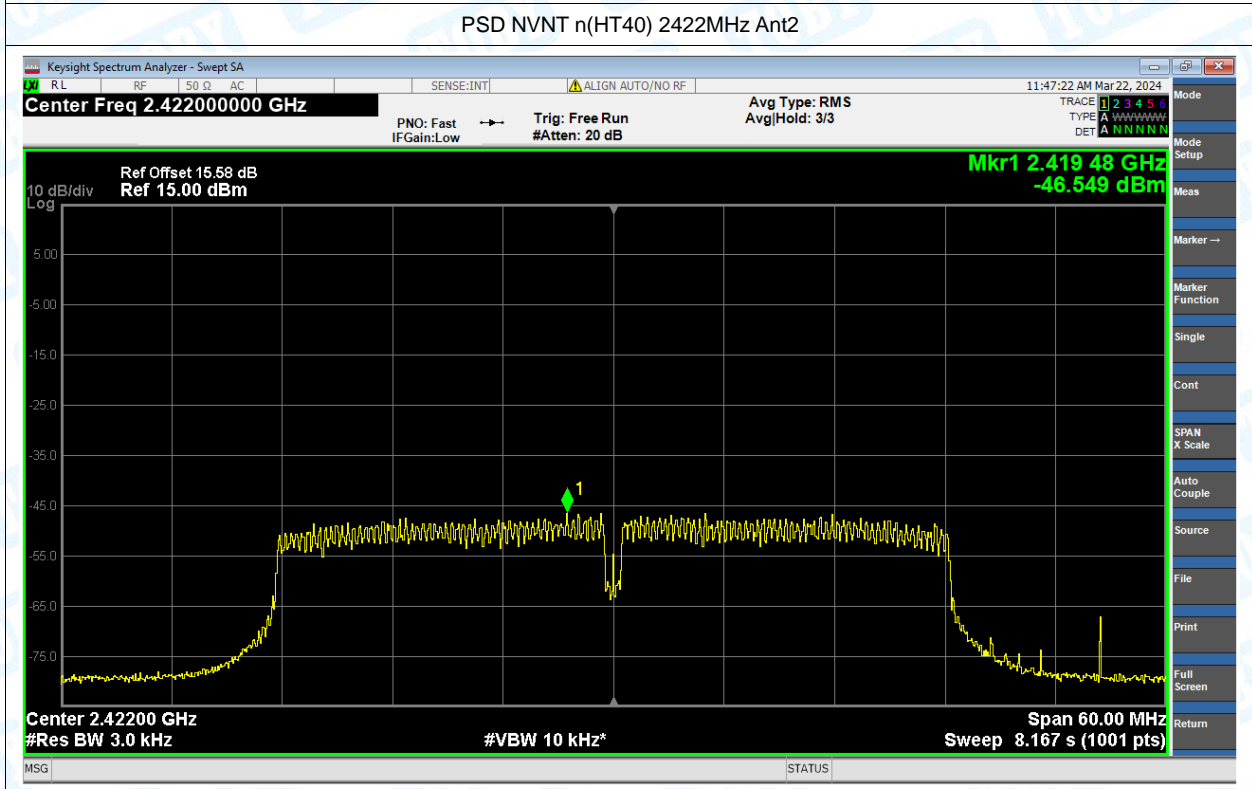
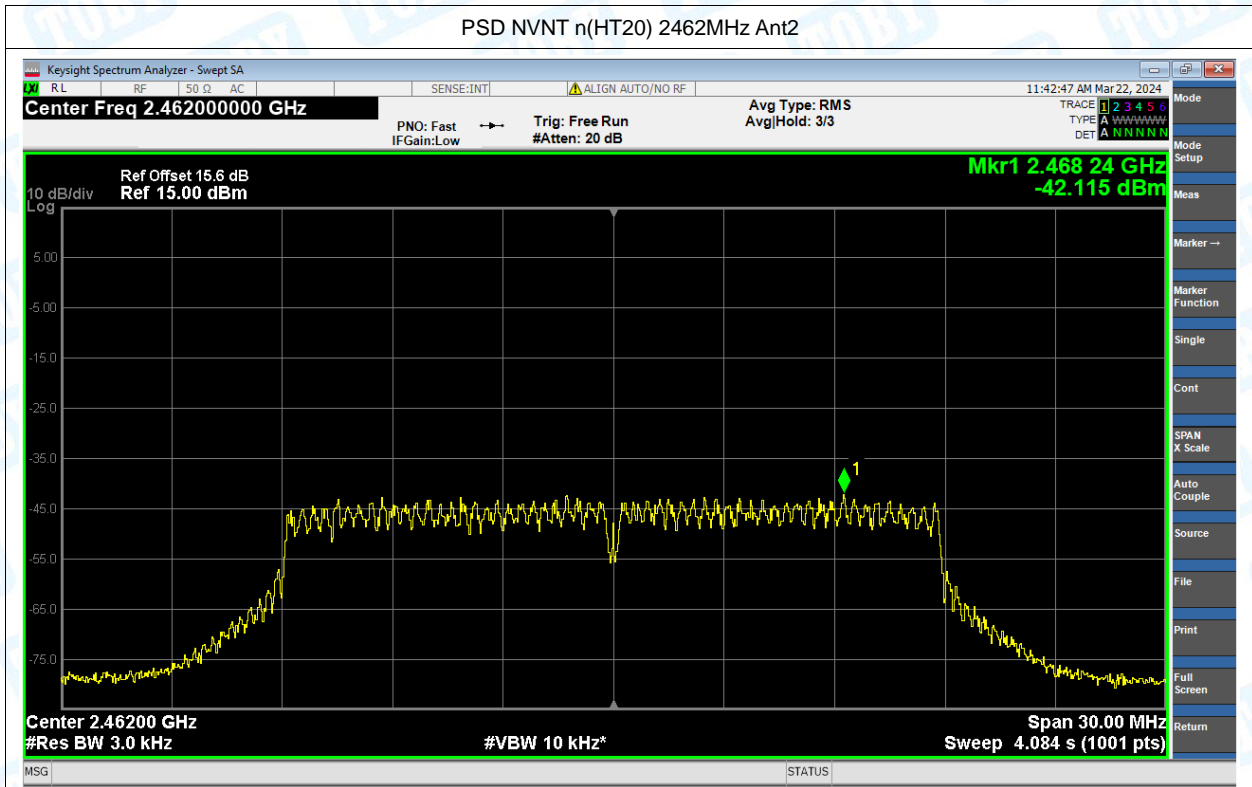
PSD NVNT g 2437MHz Ant2



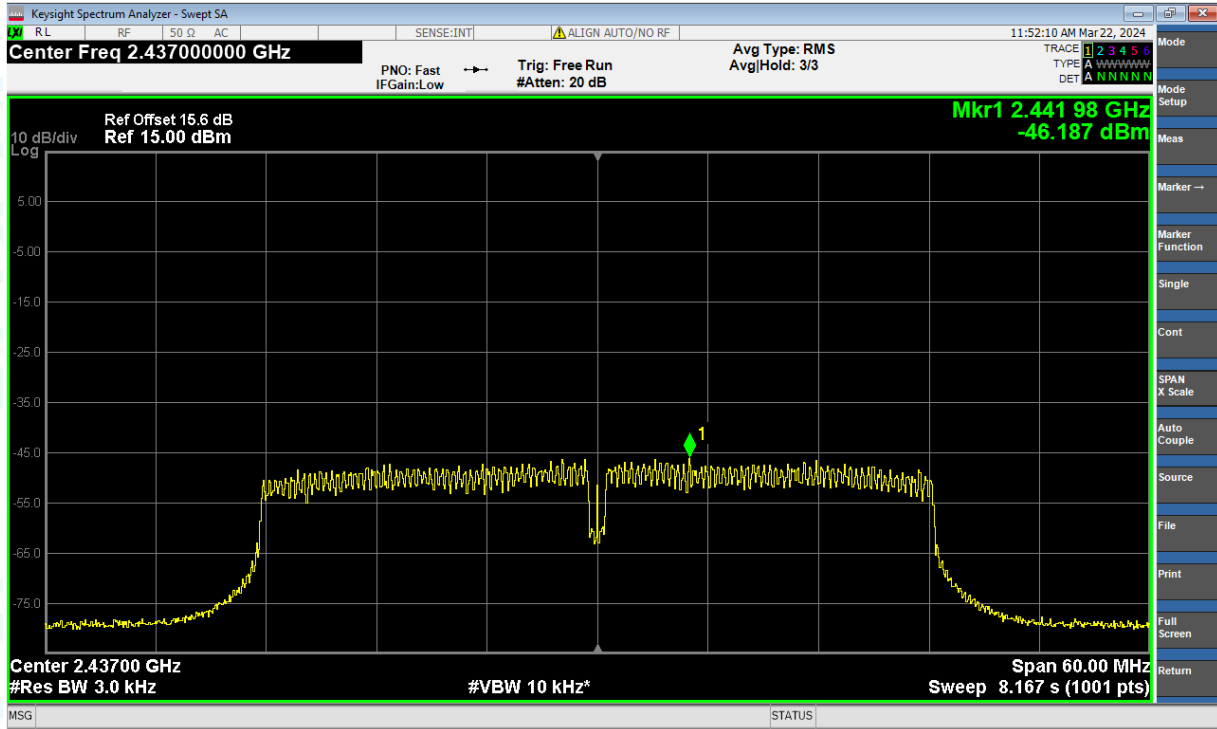
PSD NVNT g 2462MHz Ant2



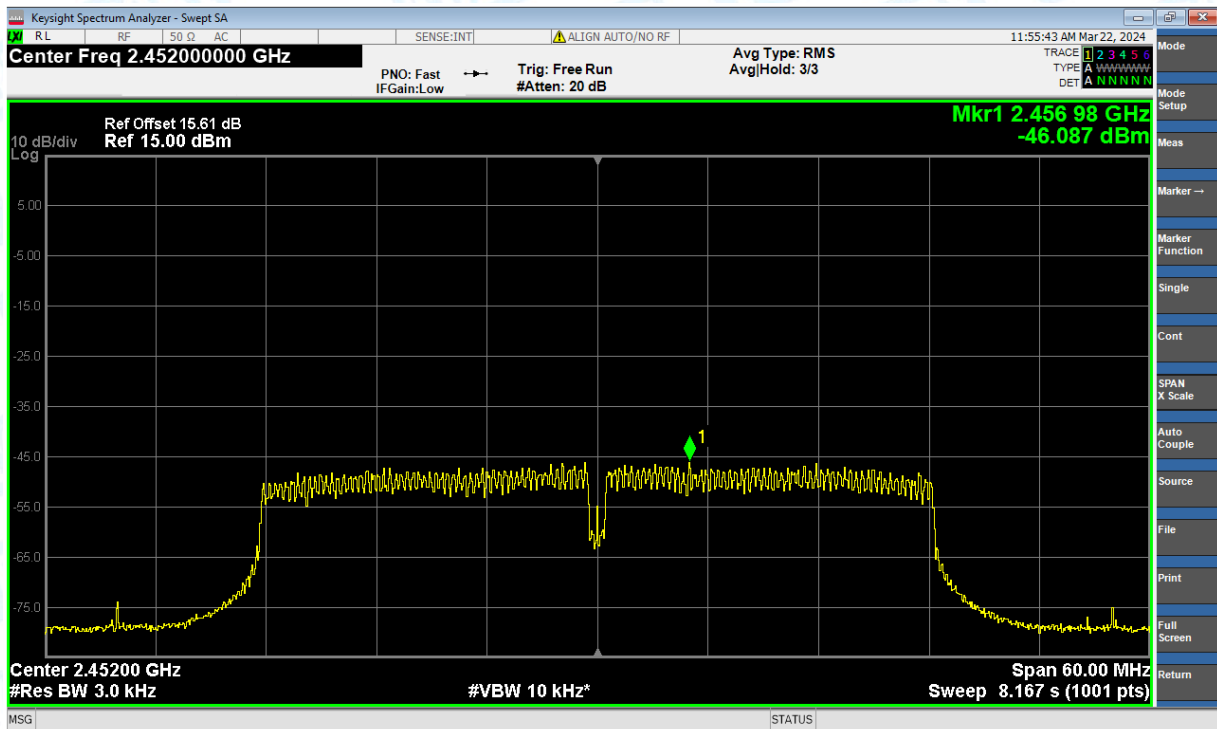




PSD NVNT n(HT40) 2437MHz Ant2



PSD NVNT n(HT40) 2452MHz Ant2

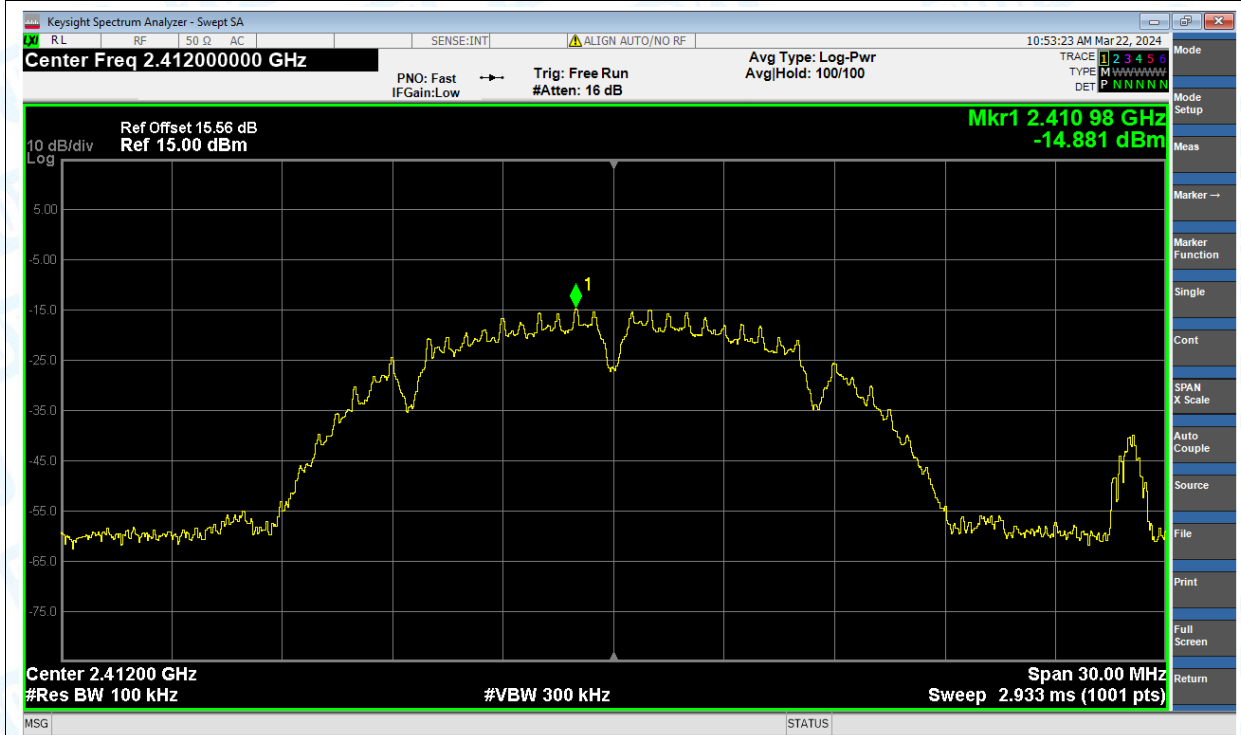


6.Band Edge

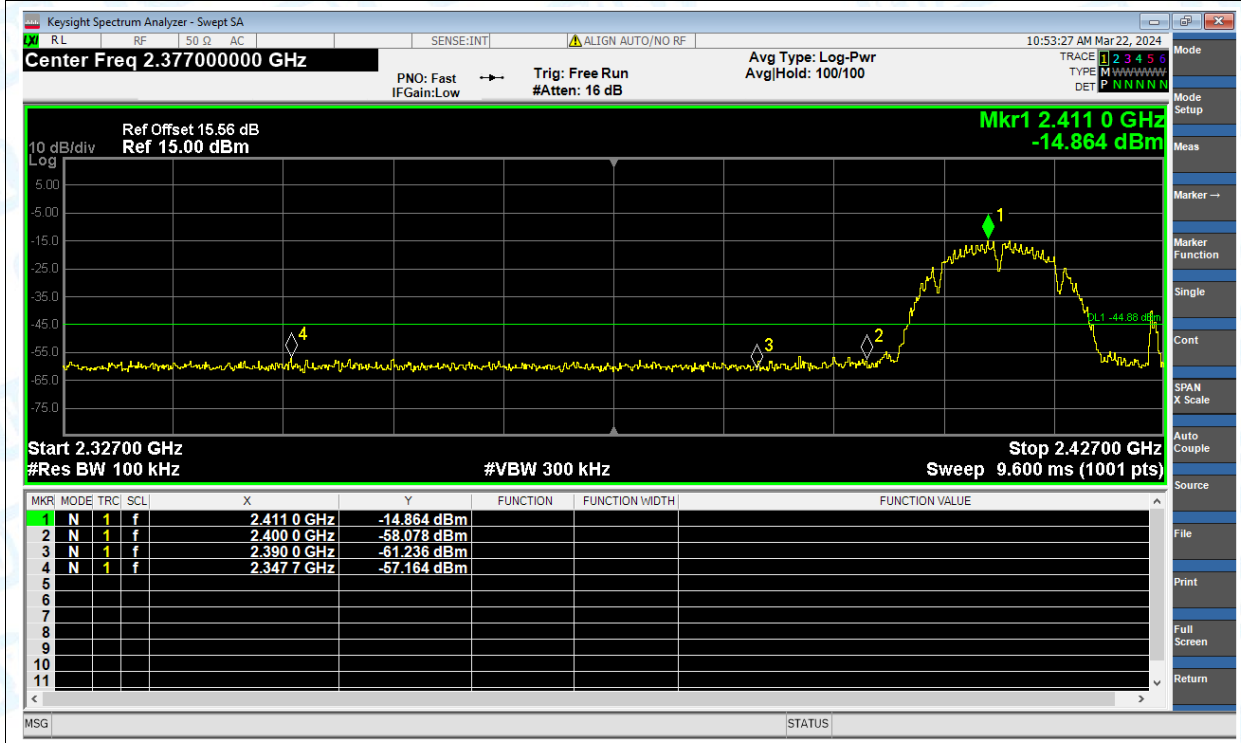
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant2	-42.28	-30	Pass
NVNT	b	2462	Ant2	-41.71	-30	Pass
NVNT	g	2412	Ant2	-38.02	-30	Pass
NVNT	g	2462	Ant2	-38.19	-30	Pass
NVNT	n(HT20)	2412	Ant2	-37.87	-30	Pass
NVNT	n(HT20)	2462	Ant2	-38.25	-30	Pass
NVNT	n(HT40)	2422	Ant2	-33.94	-30	Pass
NVNT	n(HT40)	2452	Ant2	-34.71	-30	Pass

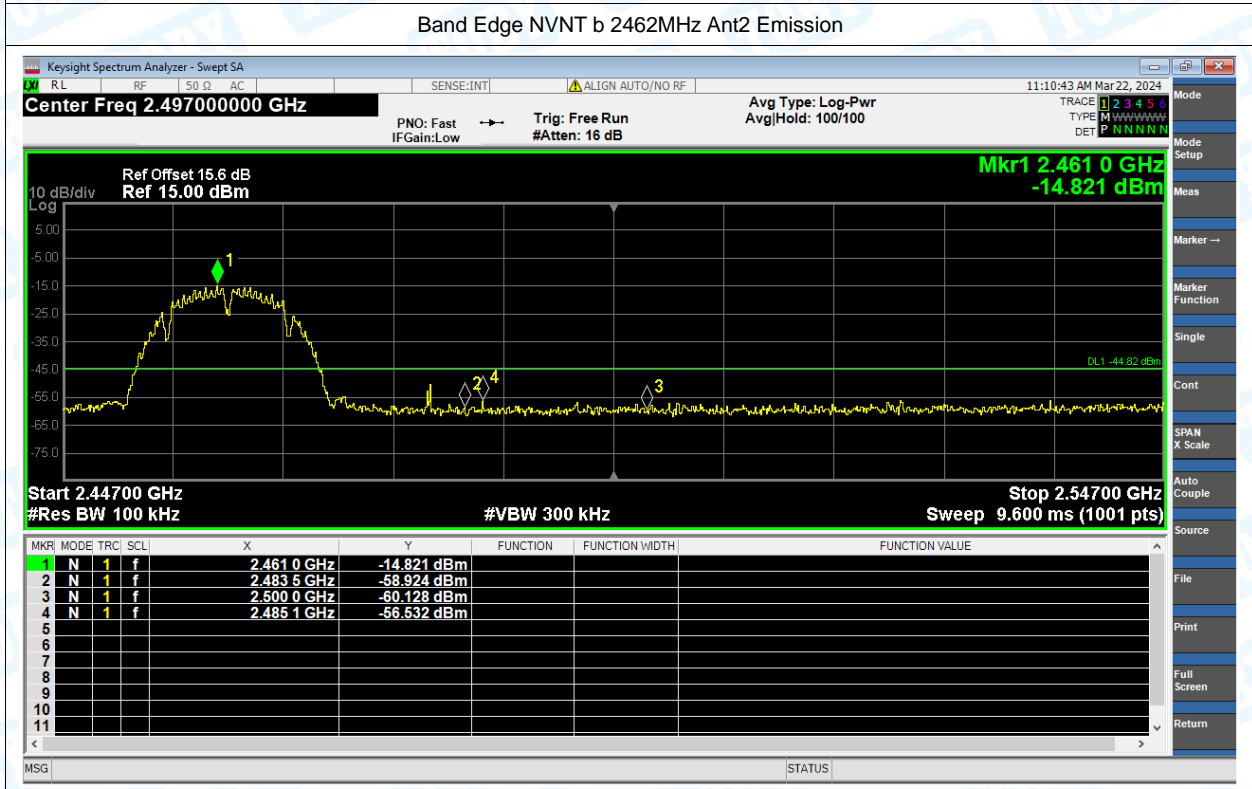
Test Graphs

Band Edge NVNT b 2412MHz Ant2 Ref

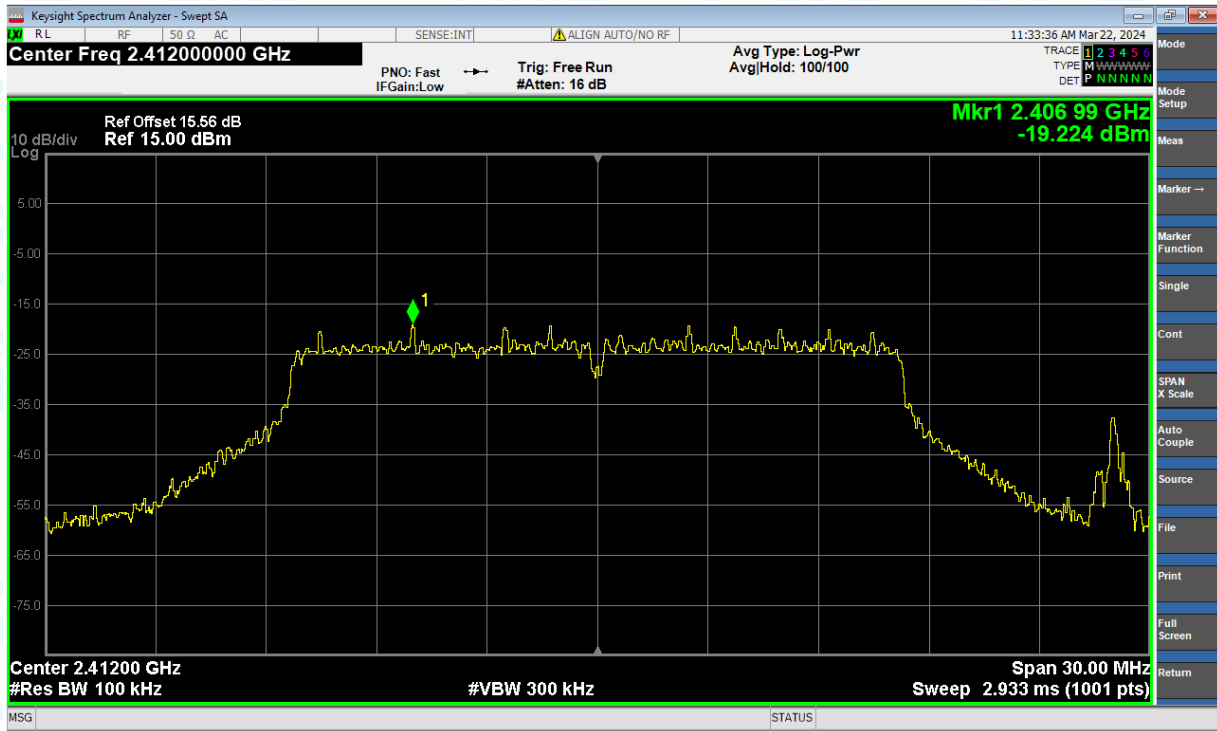


Band Edge NVNT b 2412MHz Ant2 Emission

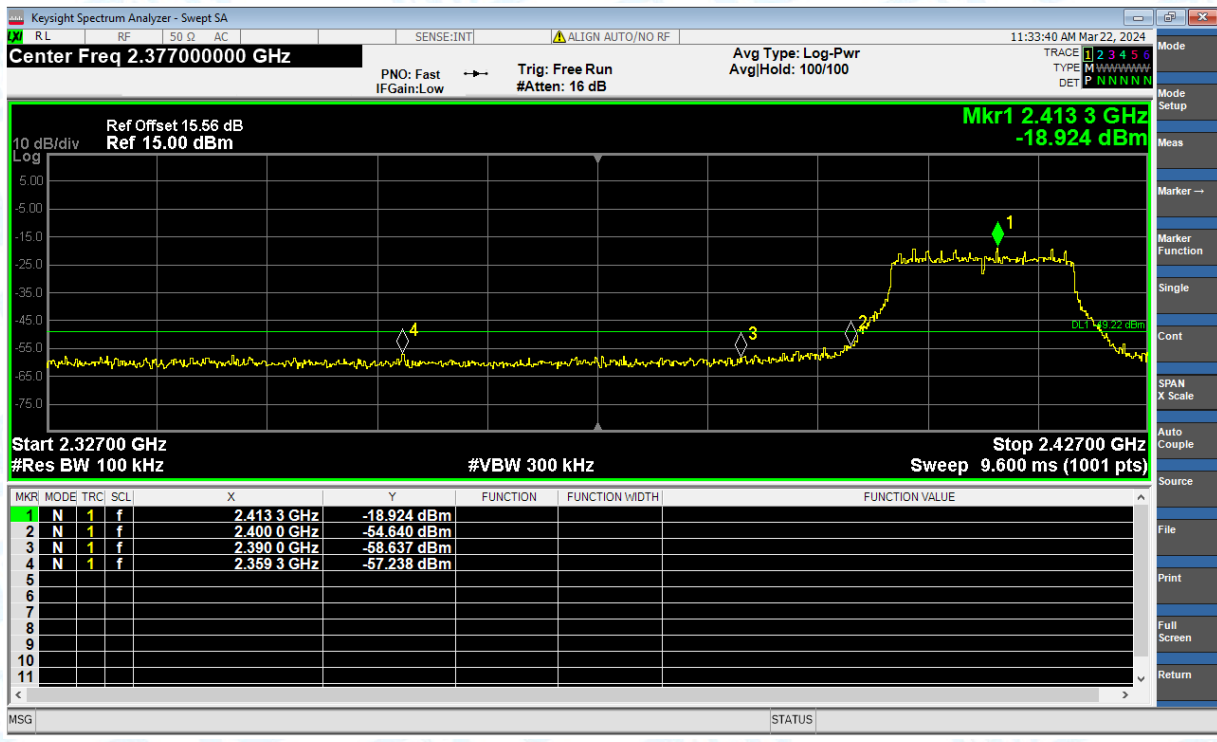




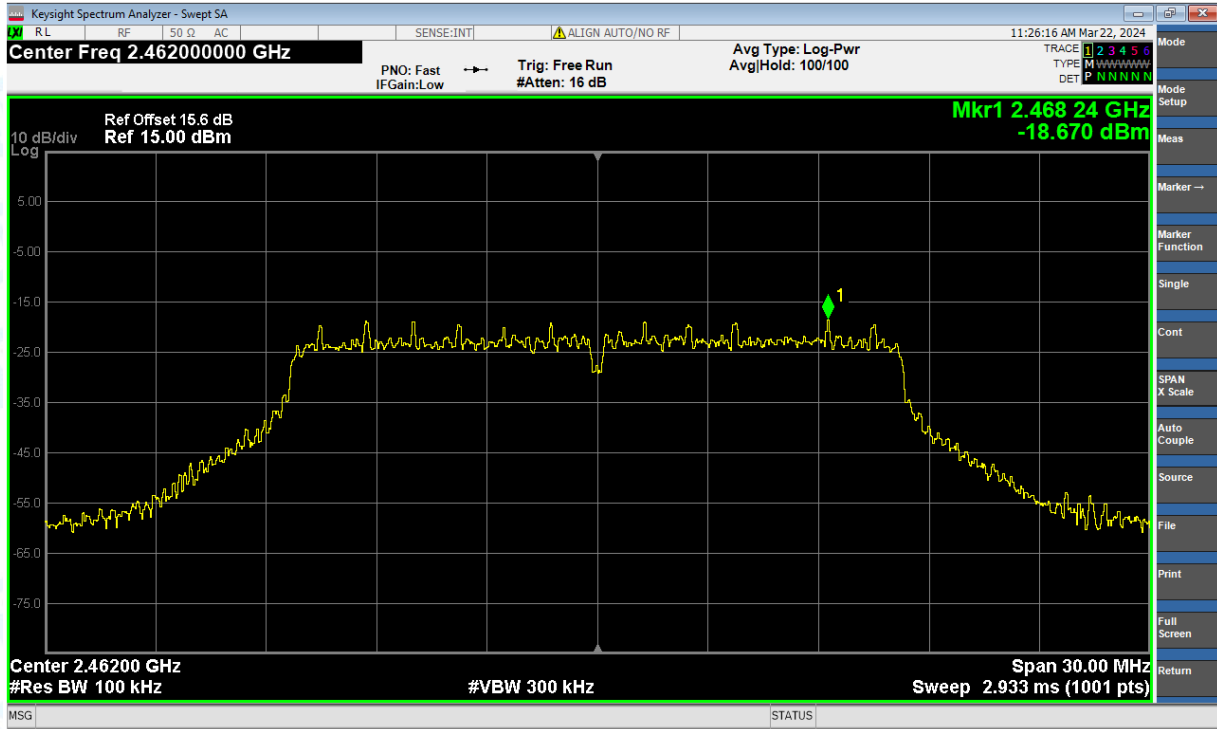
Band Edge NVNT g 2412MHz Ant2 Ref



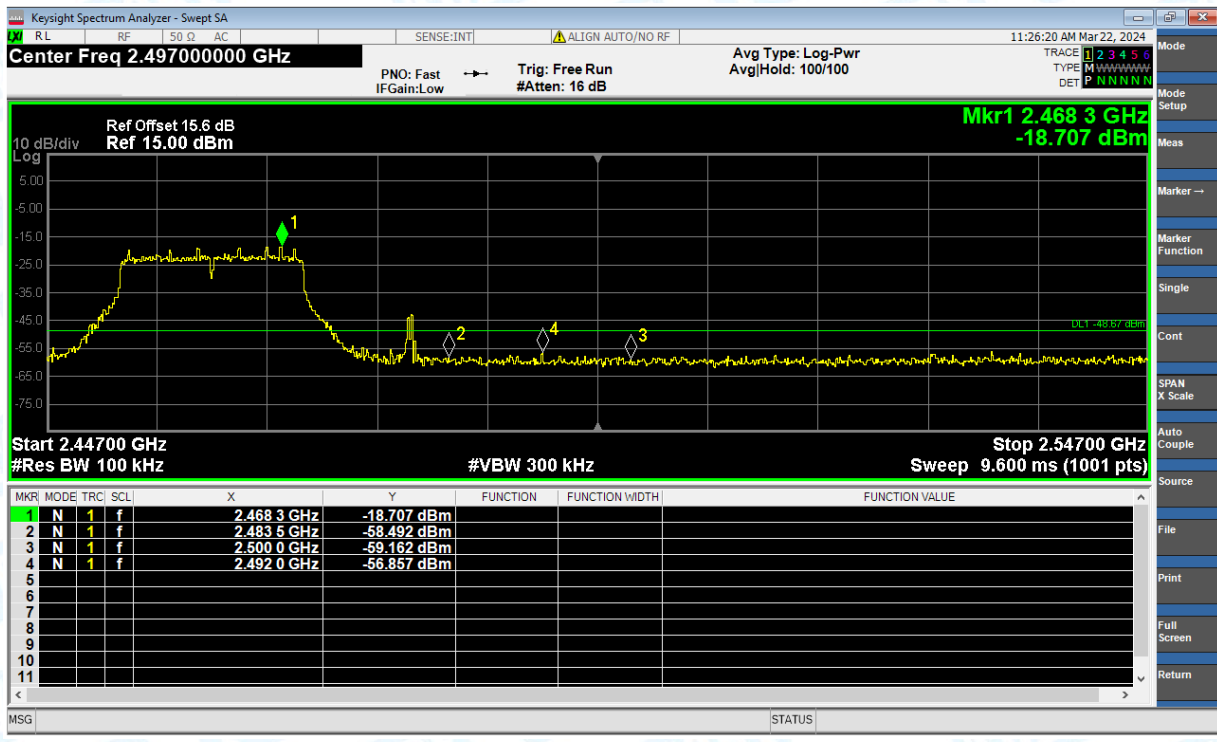
Band Edge NVNT g 2412MHz Ant2 Emission

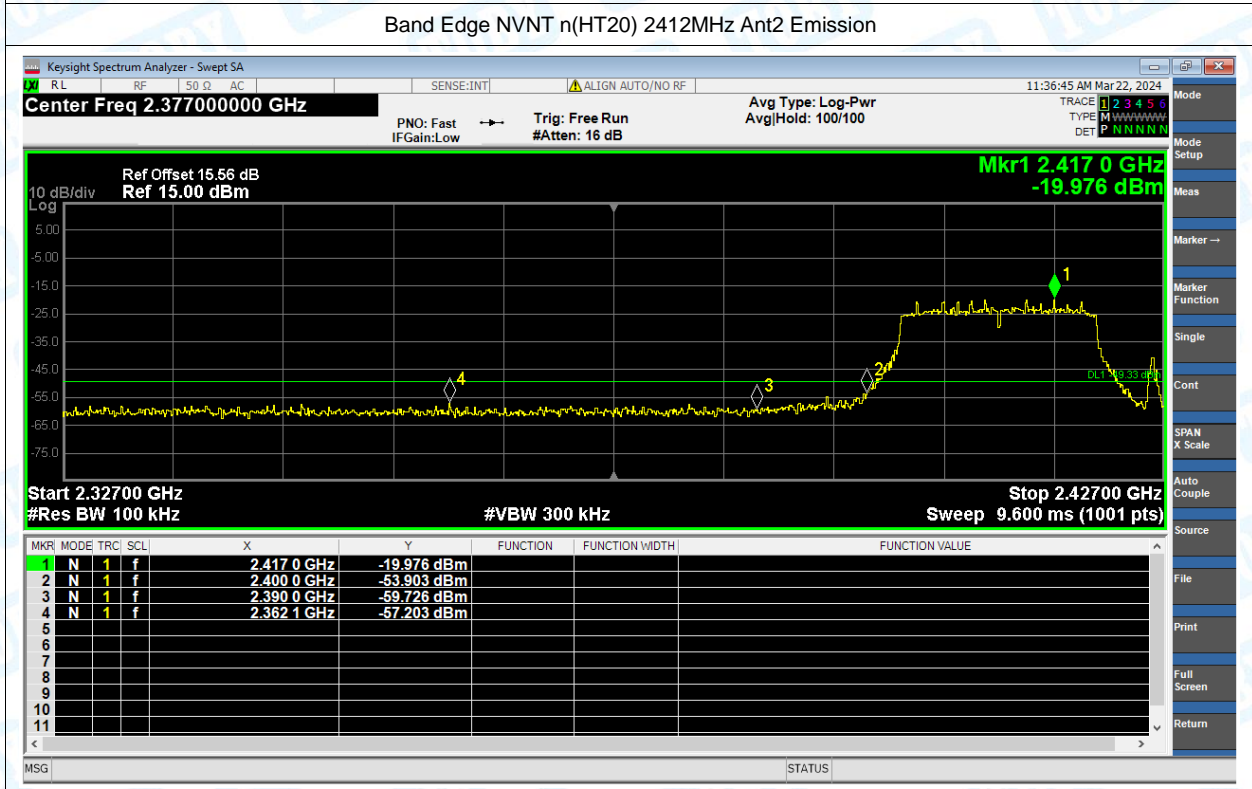
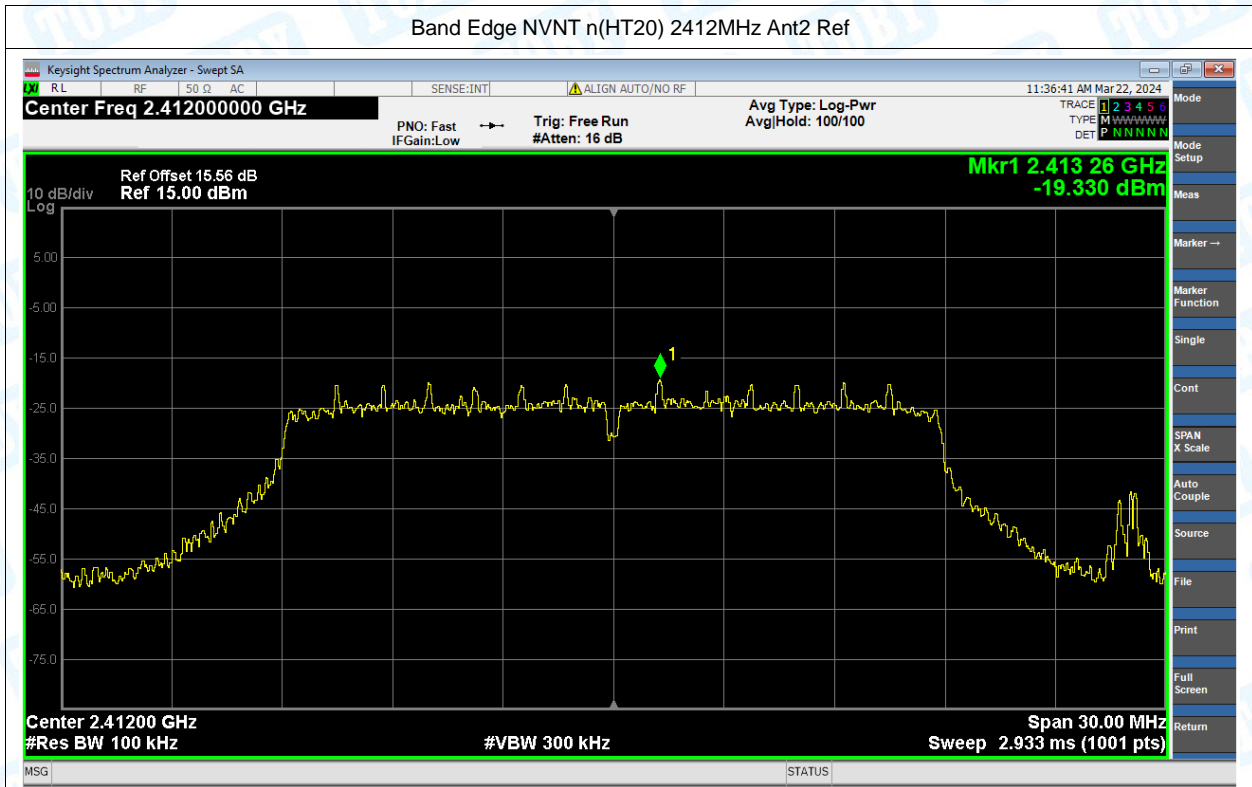


Band Edge NVNT g 2462MHz Ant2 Ref

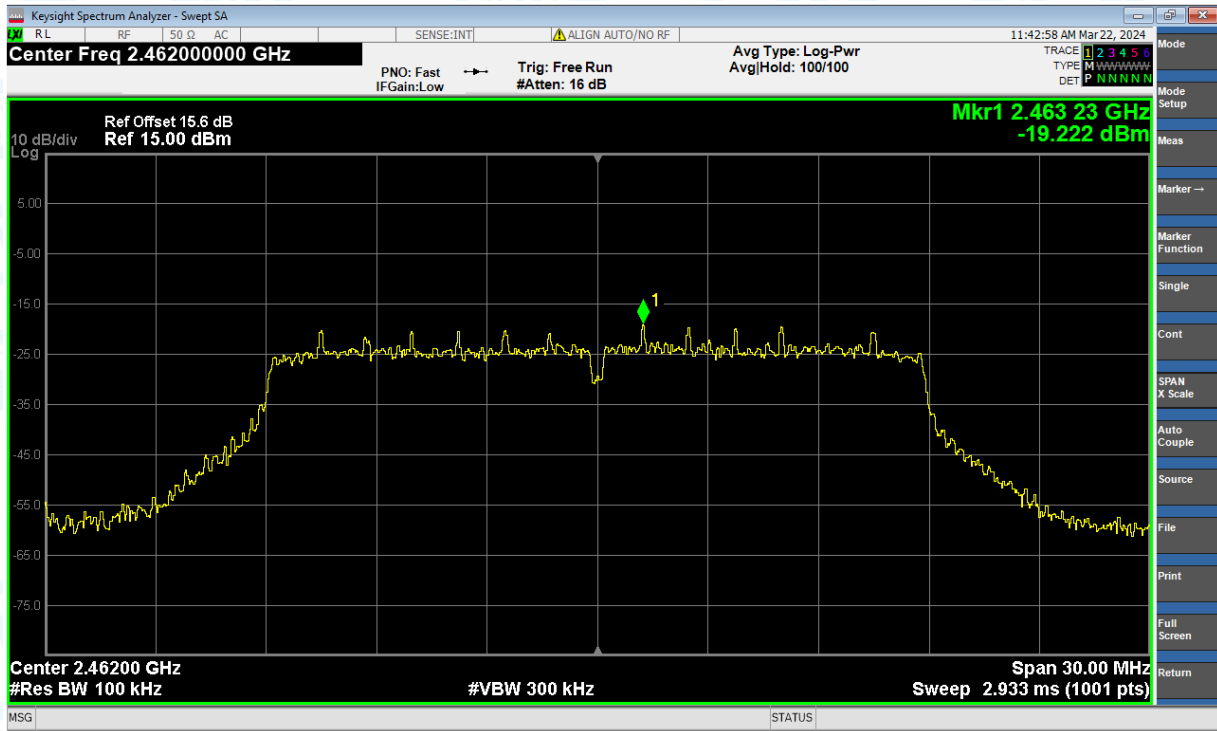


Band Edge NVNT g 2462MHz Ant2 Emission

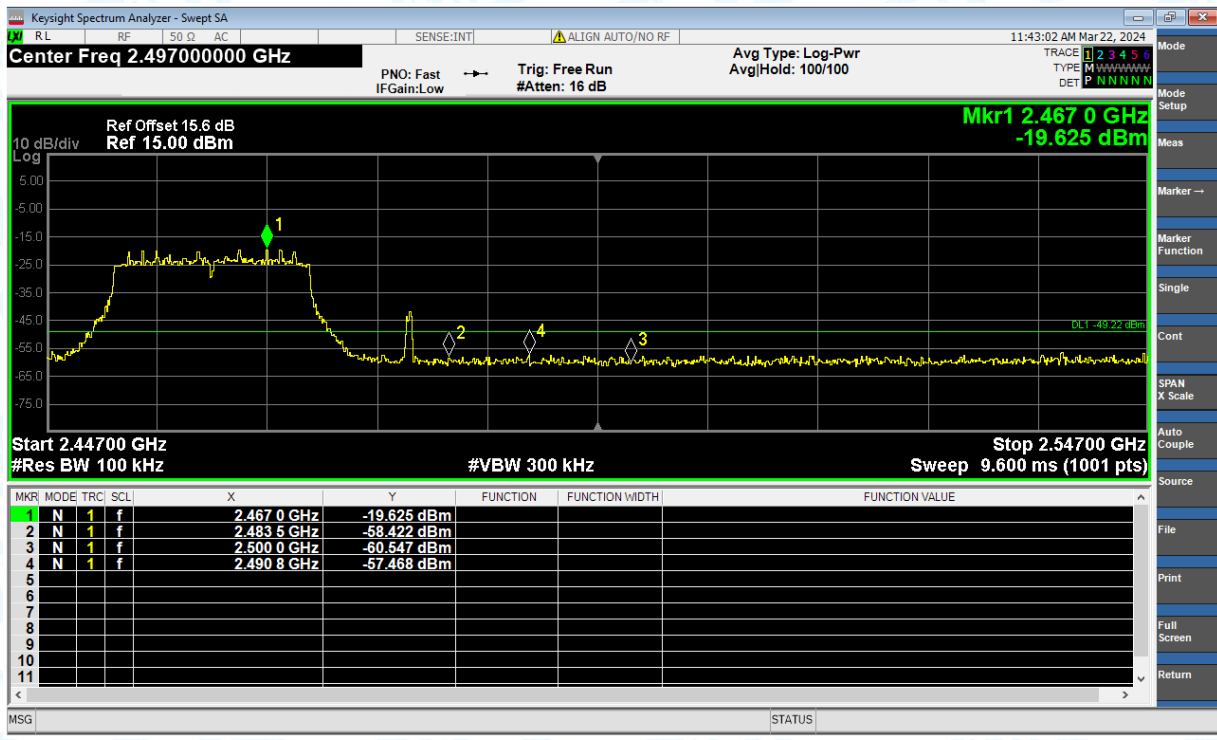




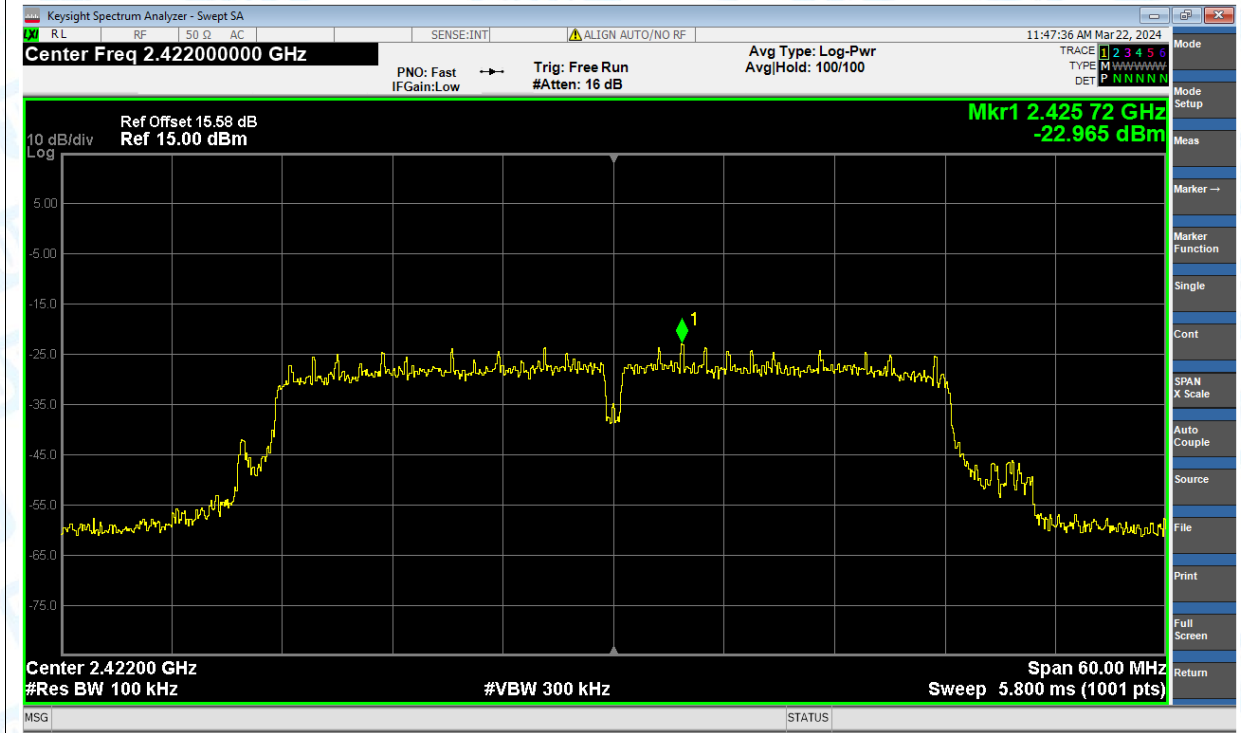
Band Edge NVNT n(HT20) 2462MHz Ant2 Ref



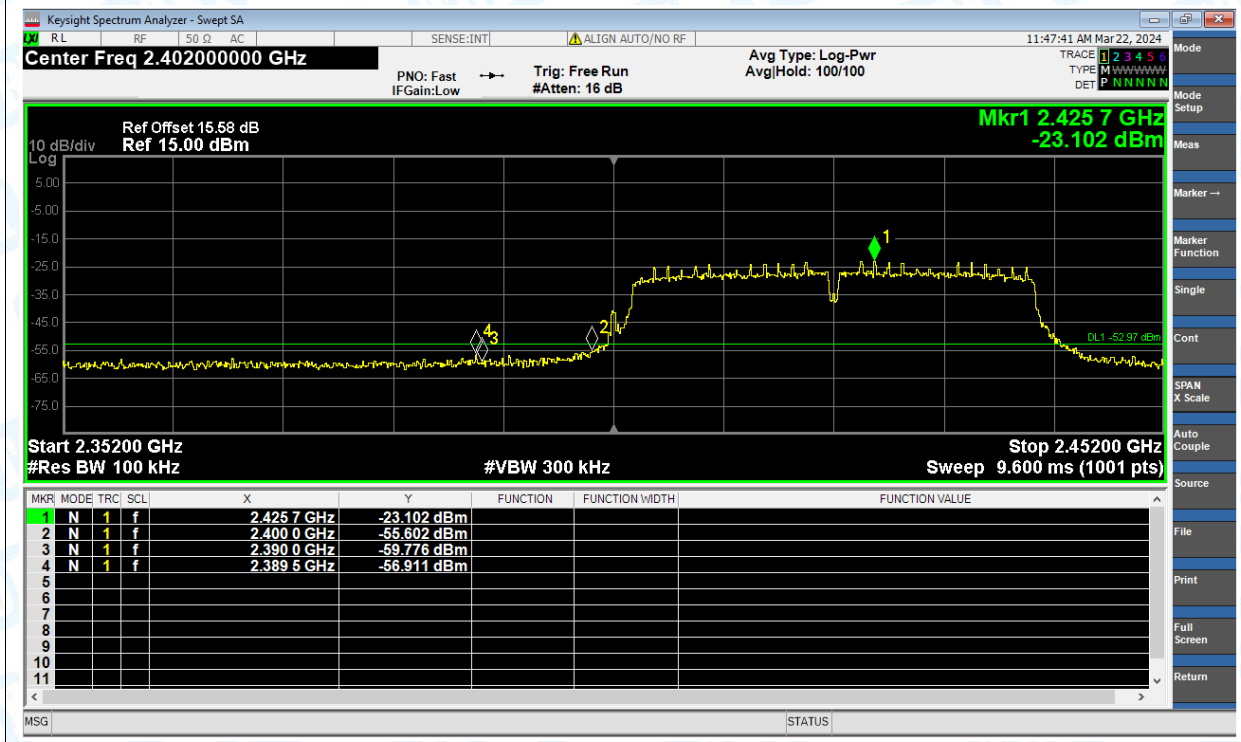
Band Edge NVNT n(HT20) 2462MHz Ant2 Emission



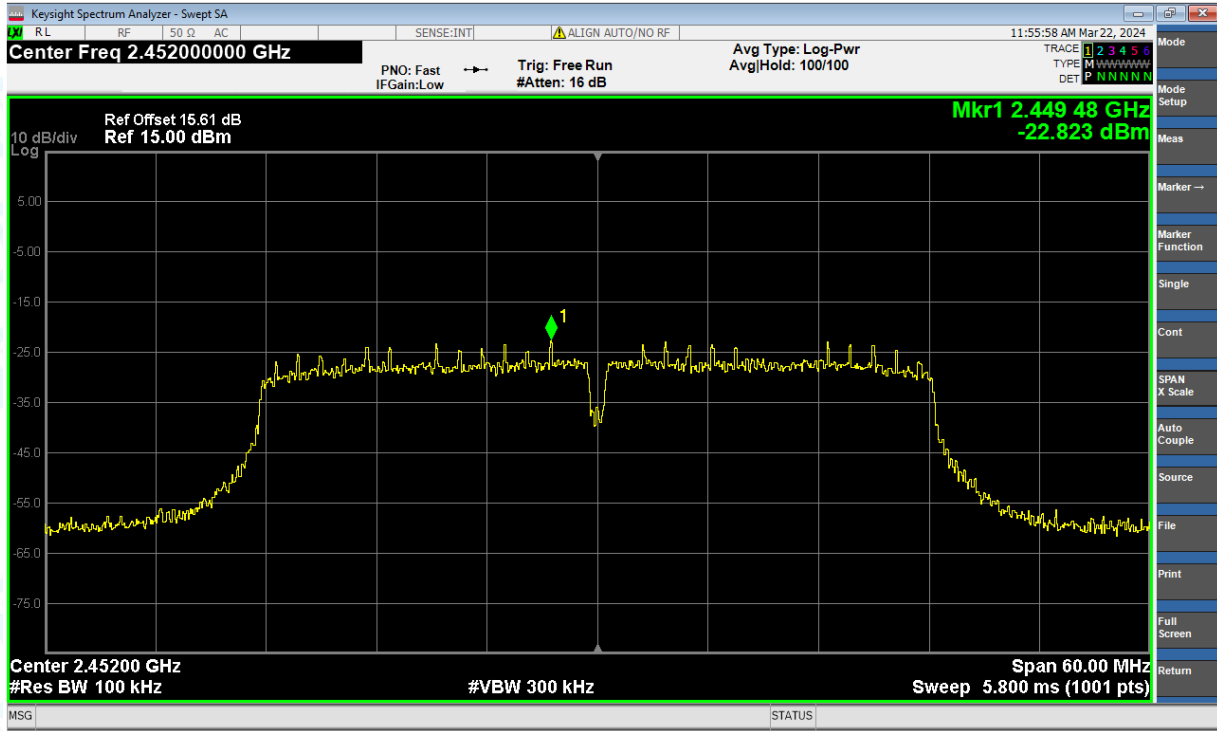
Band Edge NVNT n(HT40) 2422MHz Ant2 Ref



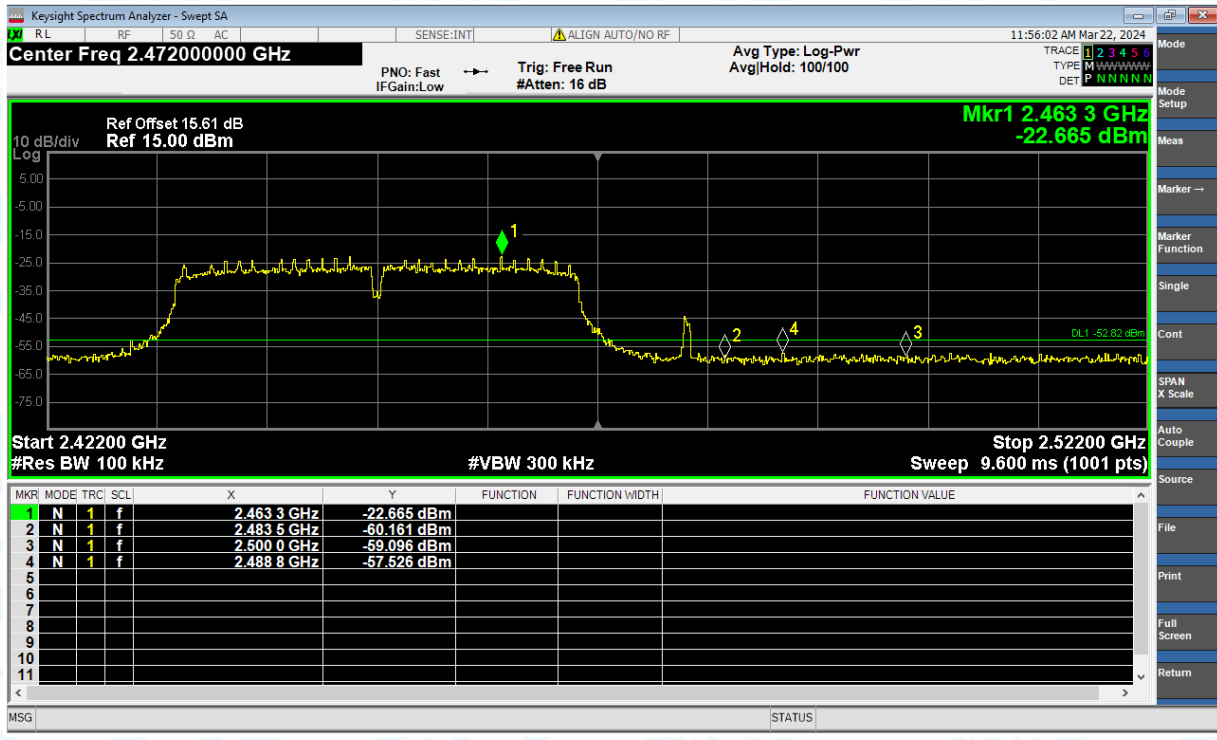
Band Edge NVNT n(HT40) 2422MHz Ant2 Emission



Band Edge NVNT n(HT40) 2452MHz Ant2 Ref



Band Edge NVNT n(HT40) 2452MHz Ant2 Emission



7. Conducted RF Spurious Emission

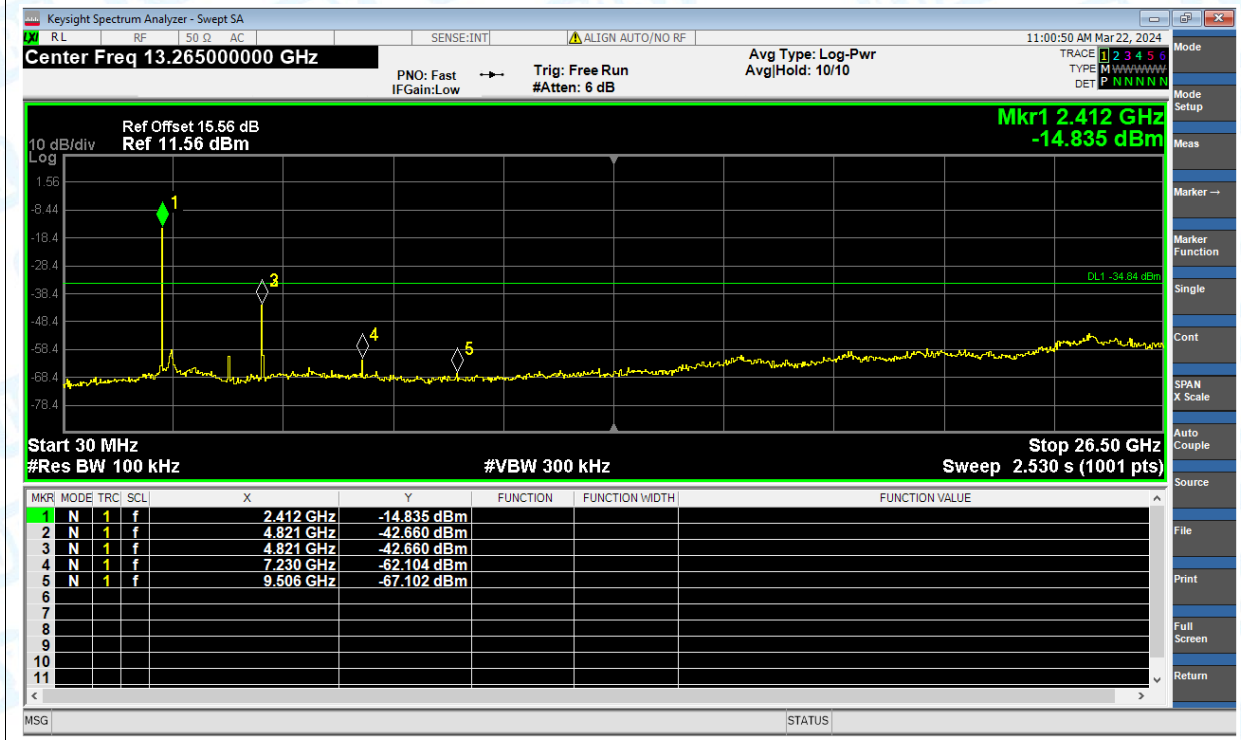
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant2	-27.82	-20	Pass
NVNT	b	2437	Ant2	-28.95	-20	Pass
NVNT	b	2462	Ant2	-29.77	-20	Pass
NVNT	g	2412	Ant2	-35.05	-20	Pass
NVNT	g	2437	Ant2	-33.76	-20	Pass
NVNT	g	2462	Ant2	-29.88	-20	Pass
NVNT	n(HT20)	2412	Ant2	-33.94	-20	Pass
NVNT	n(HT20)	2437	Ant2	-32.15	-20	Pass
NVNT	n(HT20)	2462	Ant2	-33.72	-20	Pass
NVNT	n(HT40)	2422	Ant2	-29.42	-20	Pass
NVNT	n(HT40)	2437	Ant2	-29.96	-20	Pass
NVNT	n(HT40)	2452	Ant2	-29.44	-20	Pass

Test Graphs

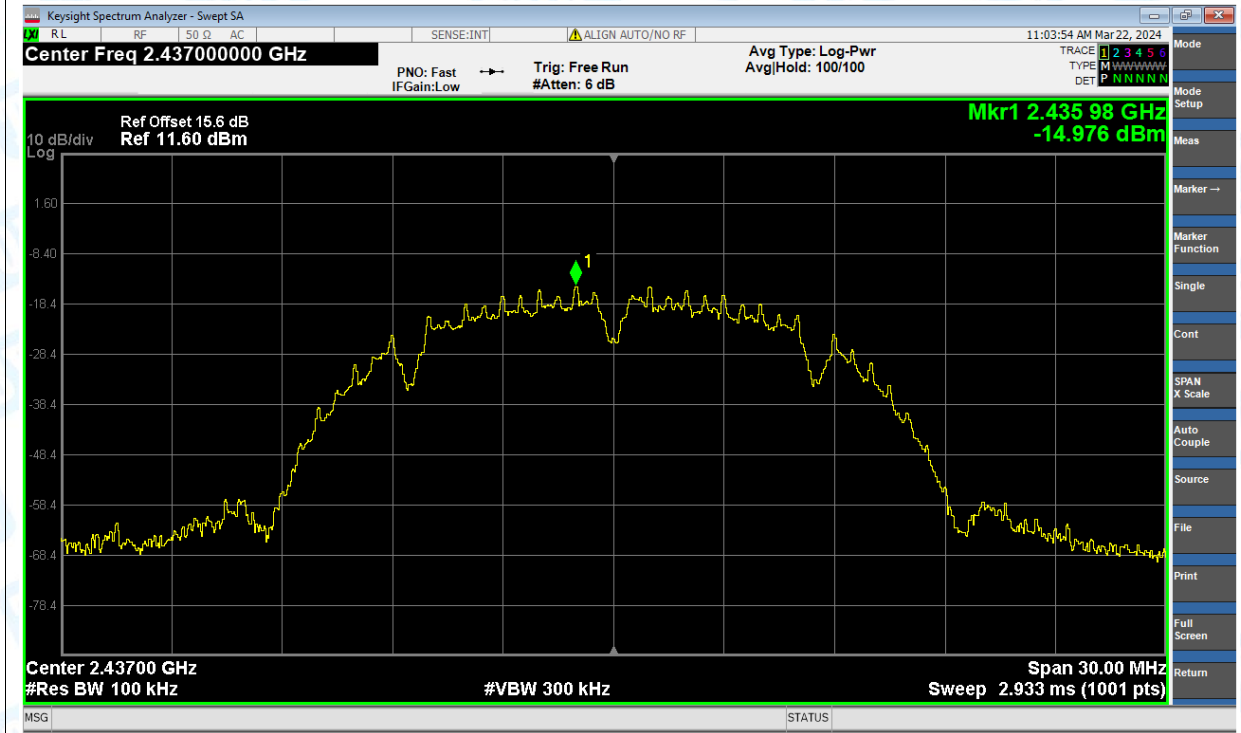
Tx. Spurious NVNT b 2412MHz Ant2 Ref



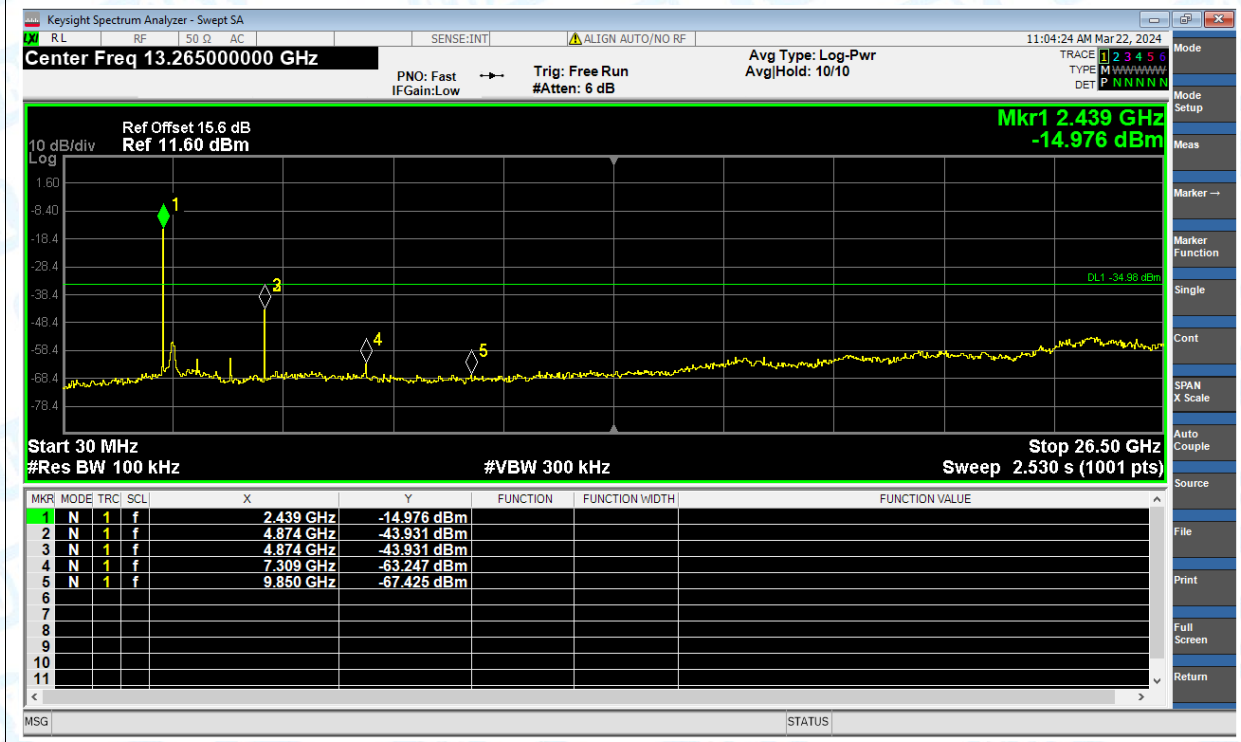
Tx. Spurious NVNT b 2412MHz Ant2 Emission



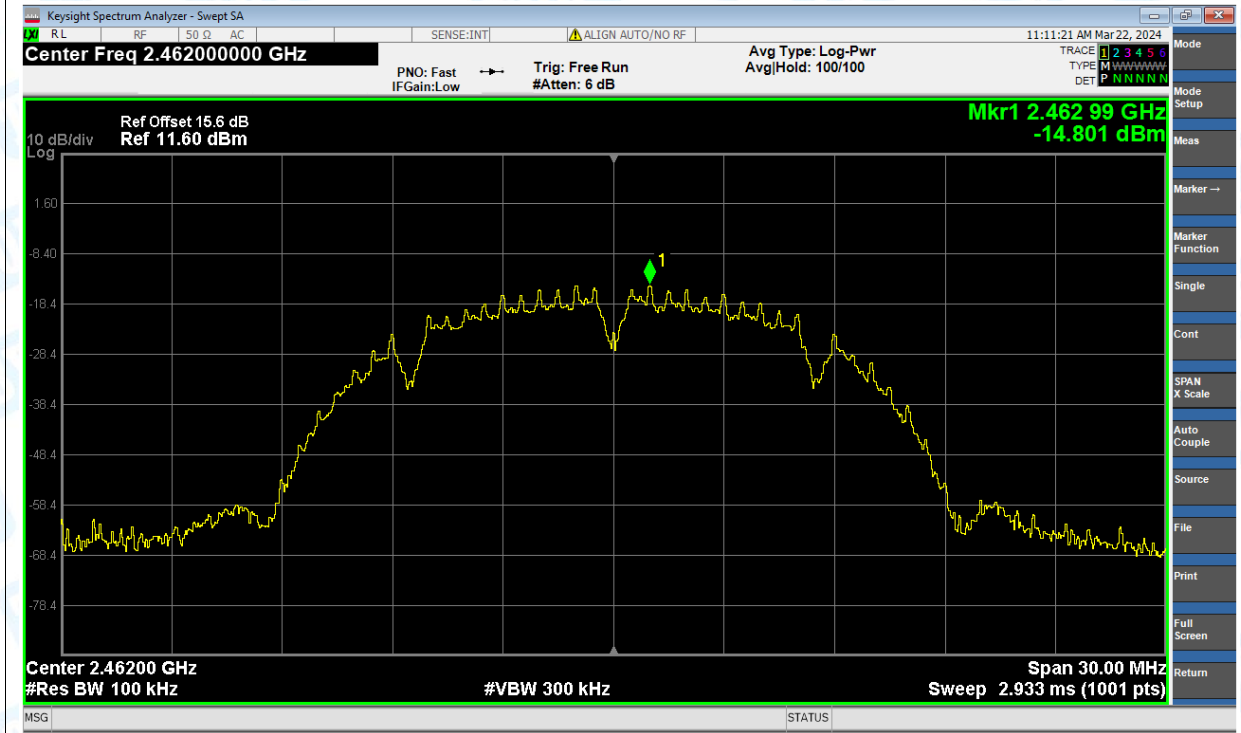
Tx. Spurious NVNT b 2437MHz Ant2 Ref



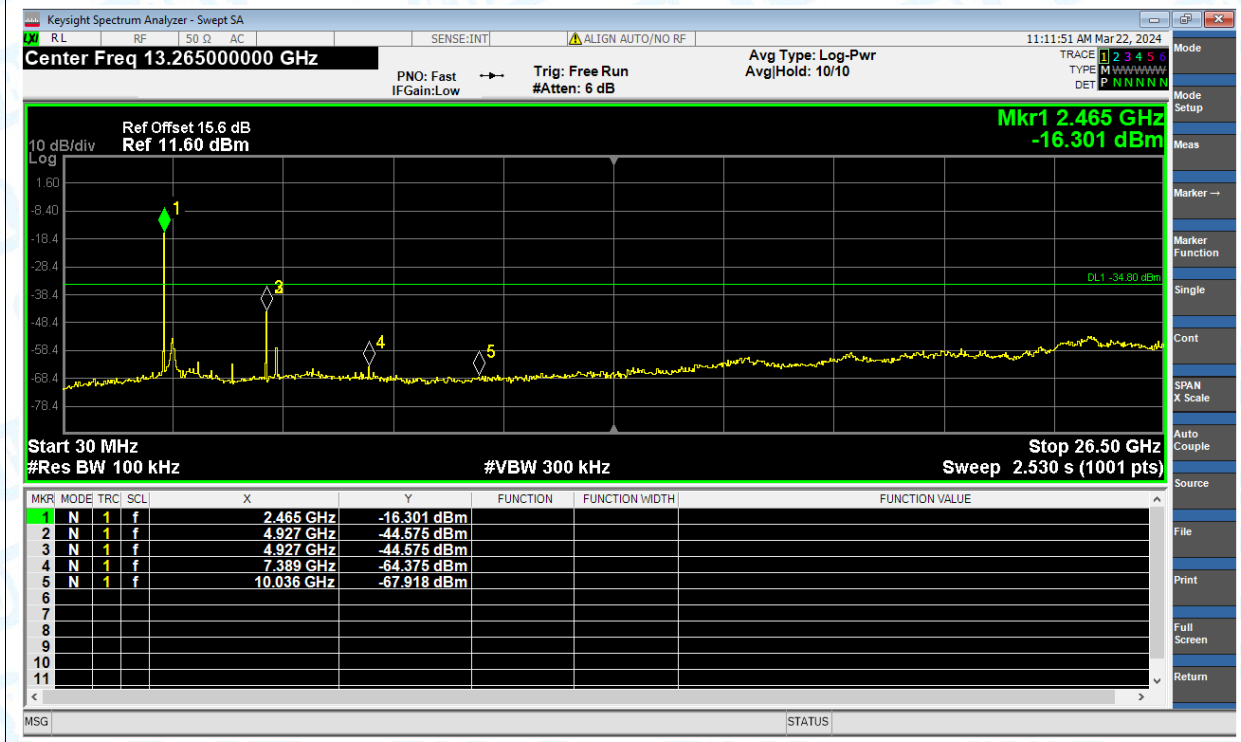
Tx. Spurious NVNT b 2437MHz Ant2 Emission



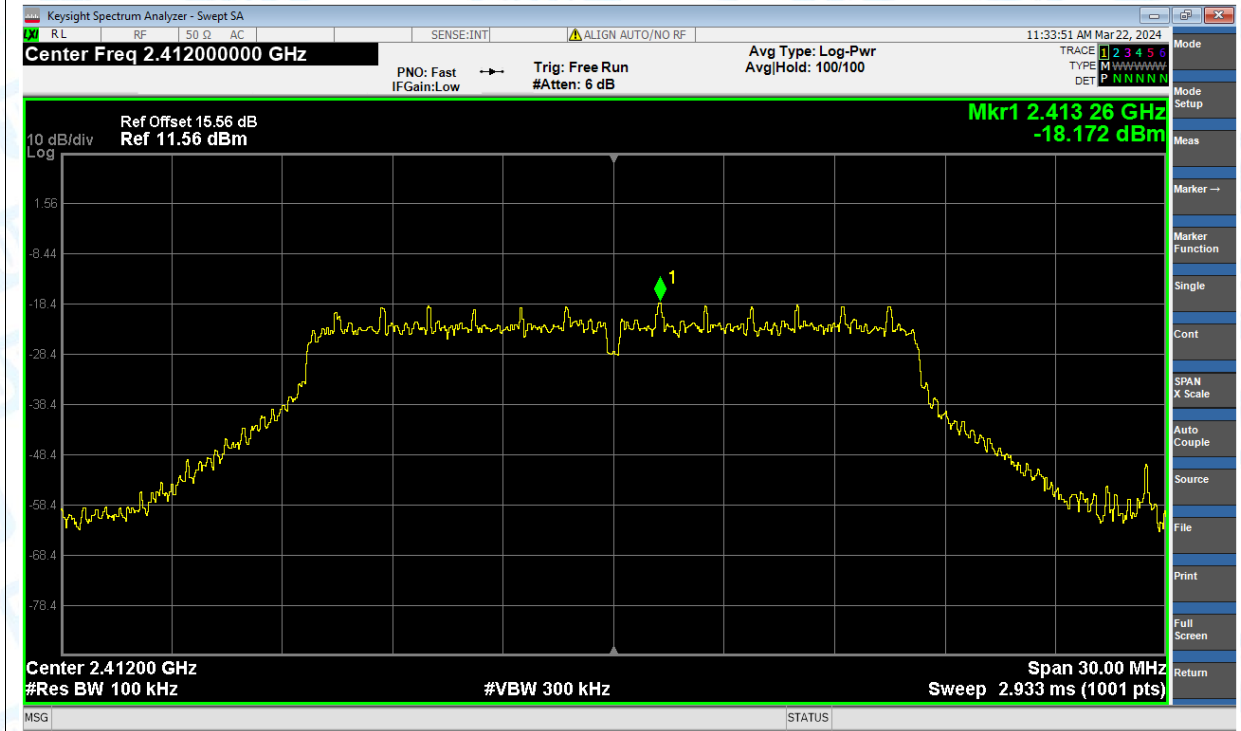
Tx. Spurious NVNT b 2462MHz Ant2 Ref



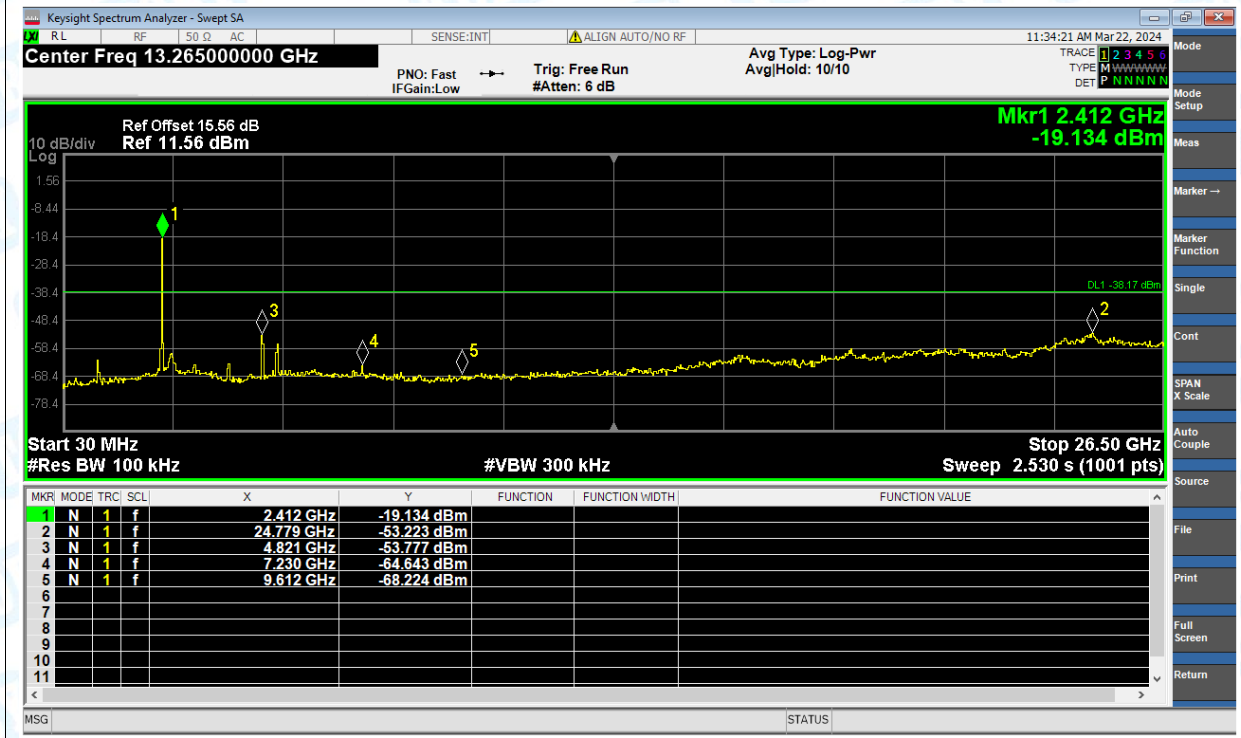
Tx. Spurious NVNT b 2462MHz Ant2 Emission



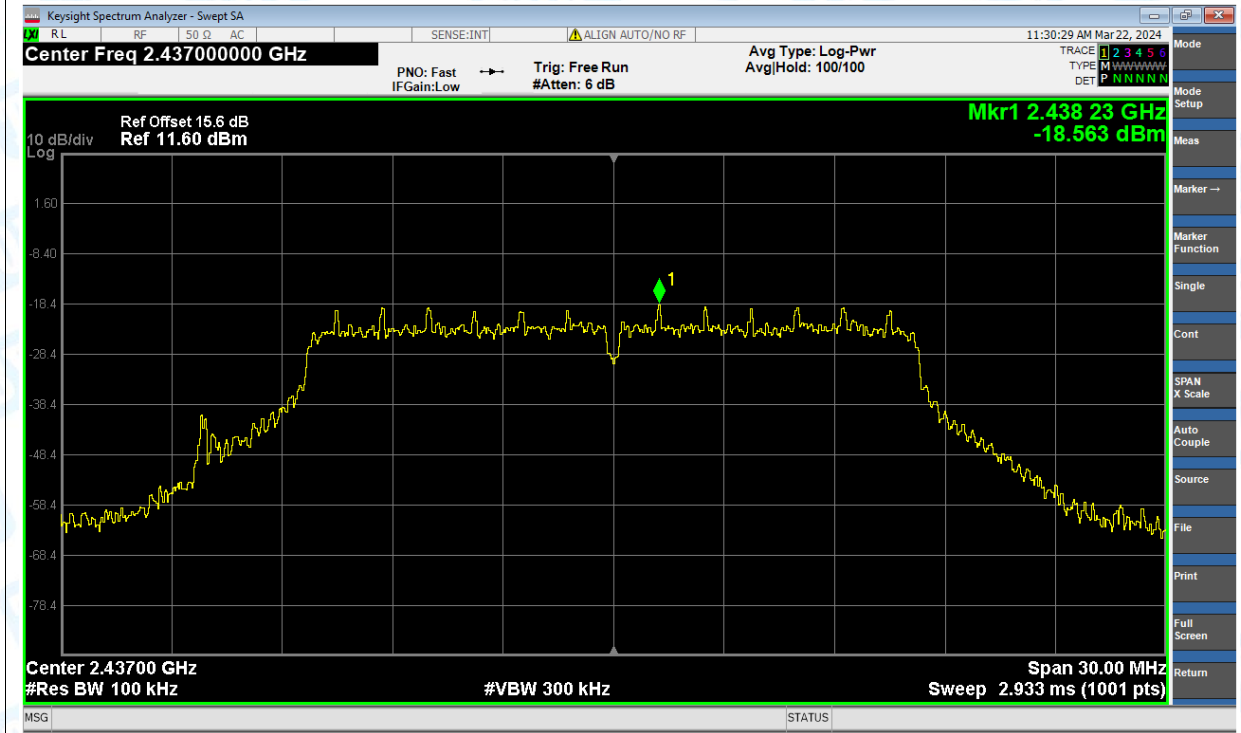
Tx. Spurious NVNT g 2412MHz Ant2 Ref



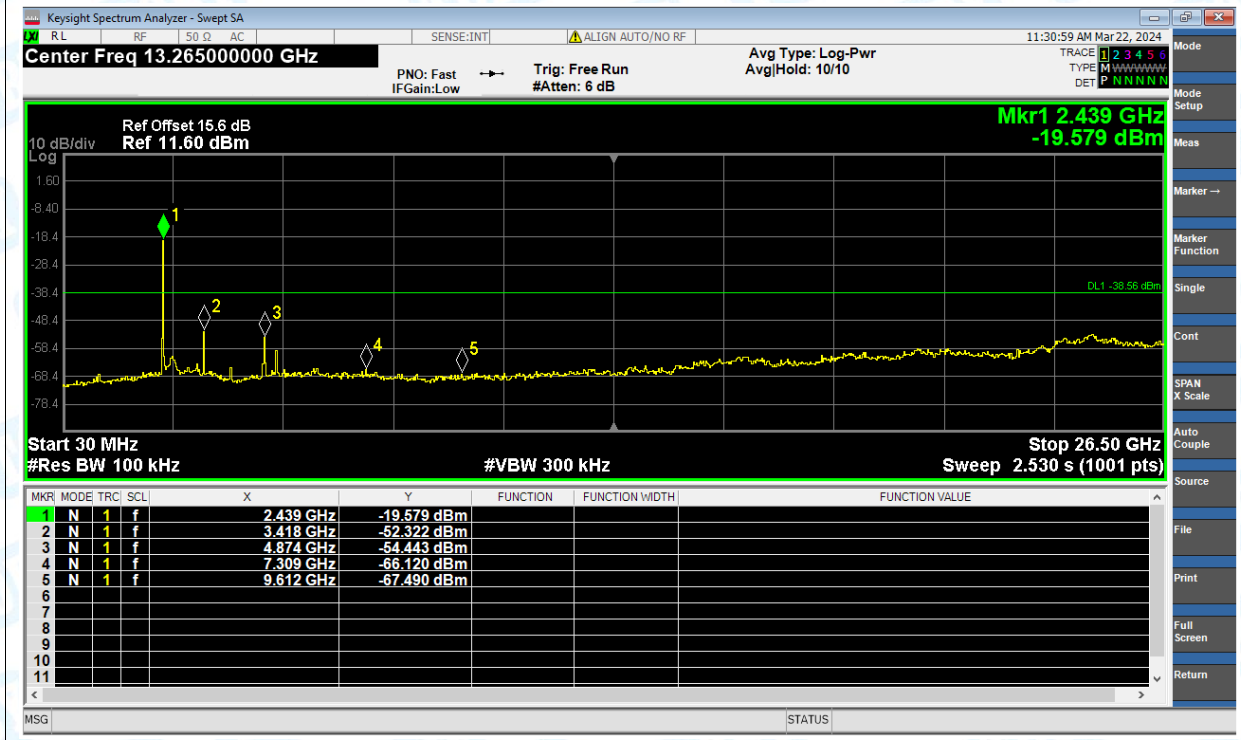
Tx. Spurious NVNT g 2412MHz Ant2 Emission



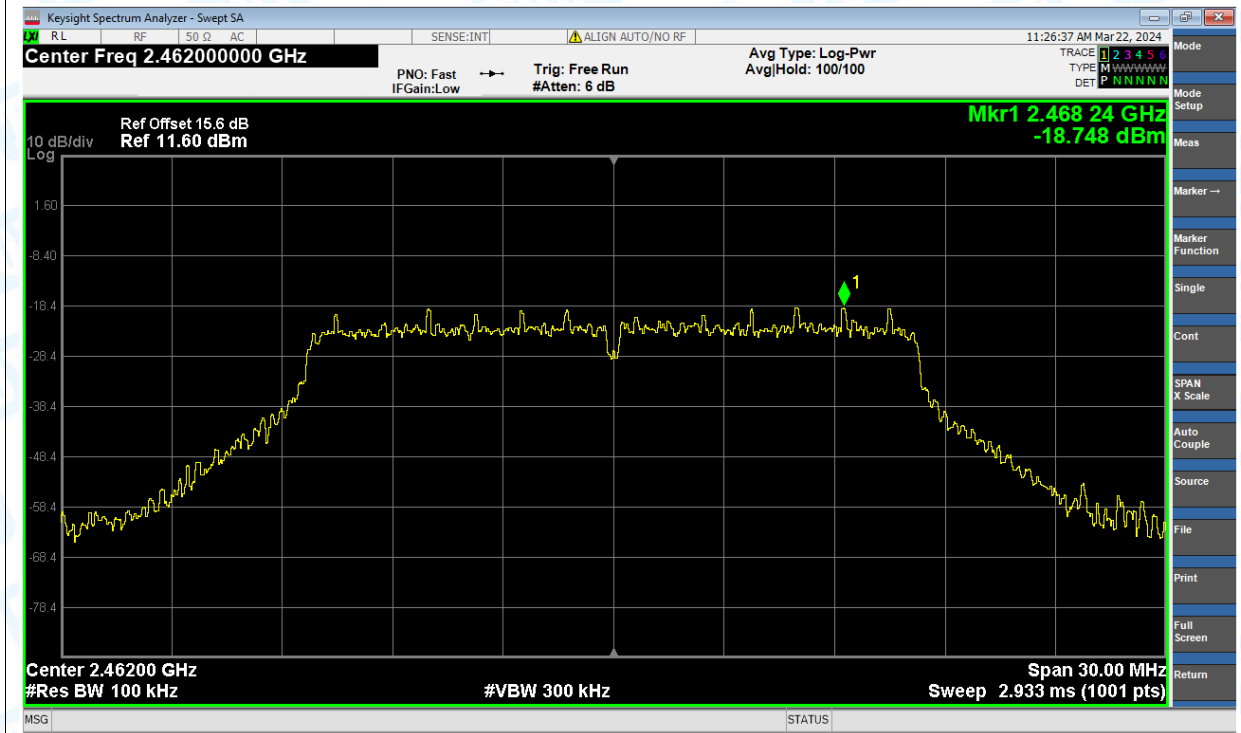
Tx. Spurious NVNT g 2437MHz Ant2 Ref



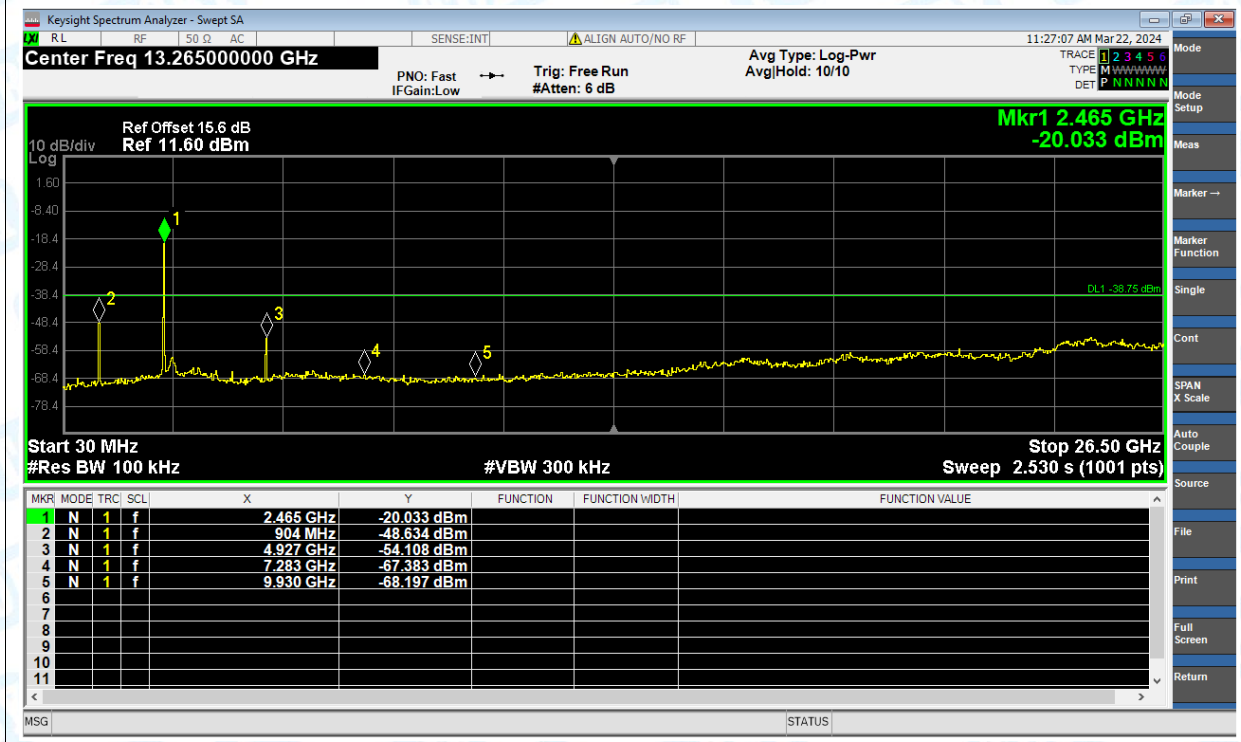
Tx. Spurious NVNT g 2437MHz Ant2 Emission



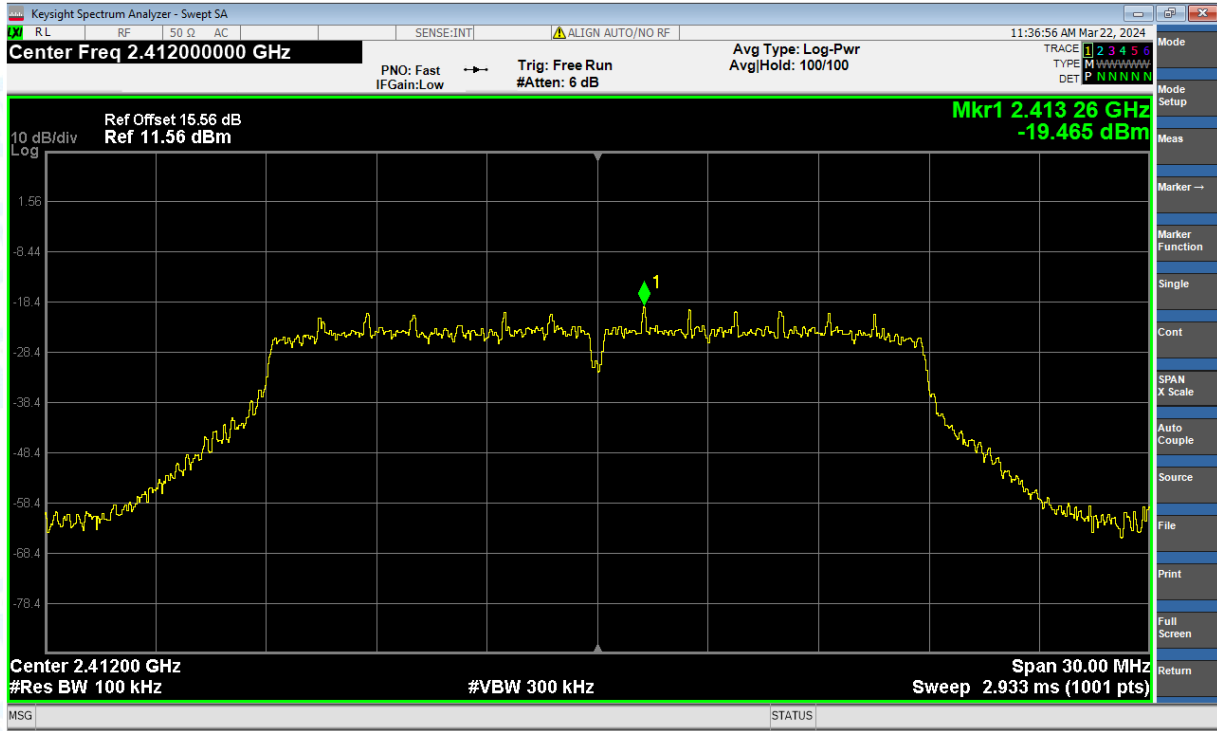
Tx. Spurious NVNT g 2462MHz Ant2 Ref



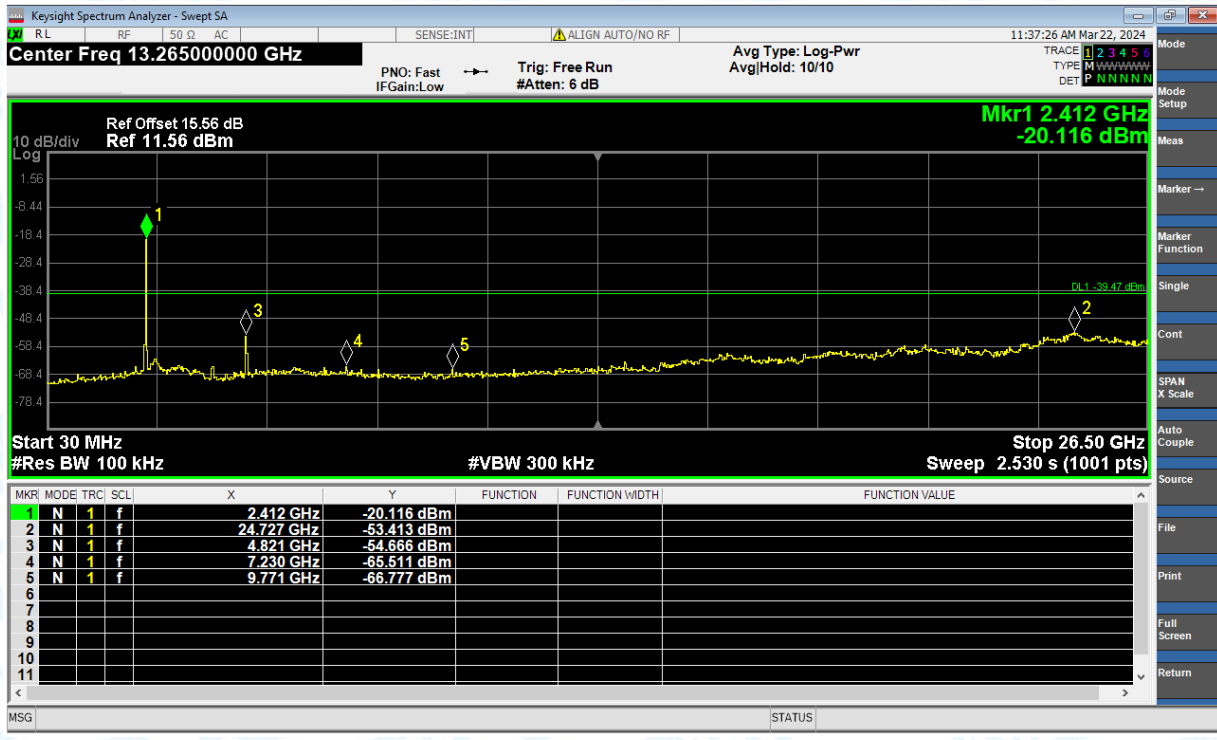
Tx. Spurious NVNT g 2462MHz Ant2 Emission



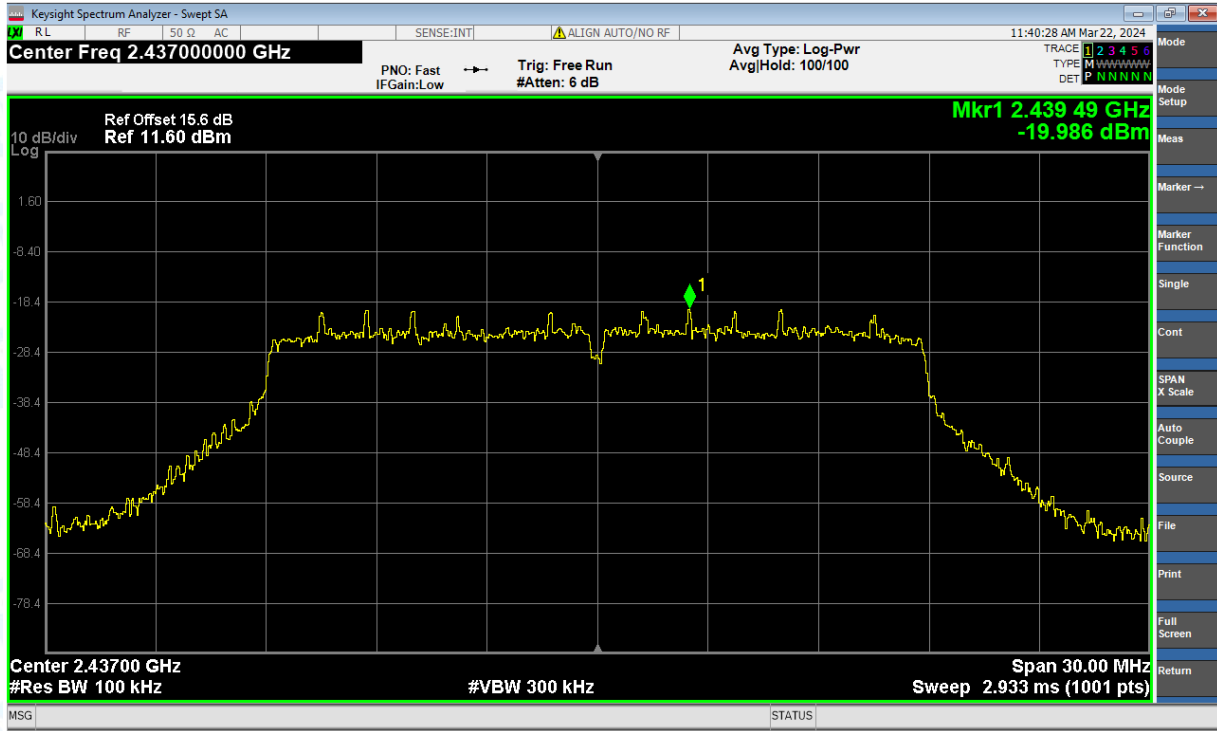
Tx. Spurious NVNT n(HT20) 2412MHz Ant2 Ref



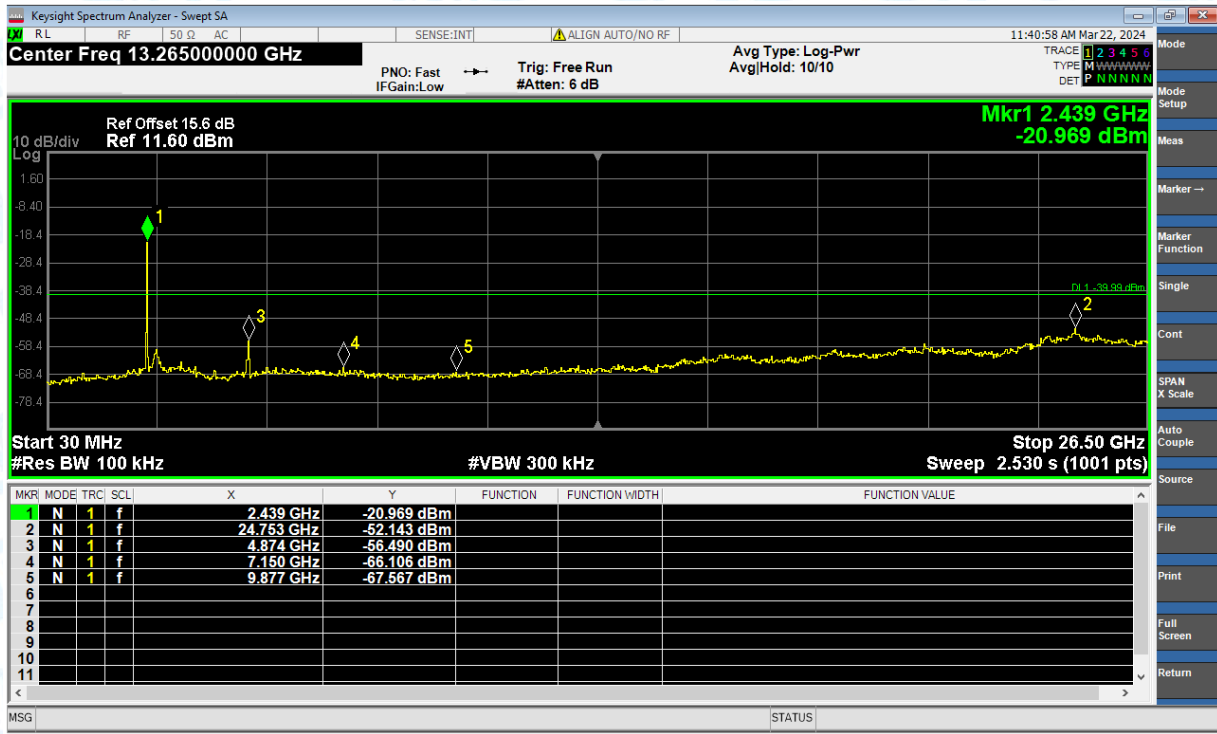
Tx. Spurious NVNT n(HT20) 2412MHz Ant2 Emission



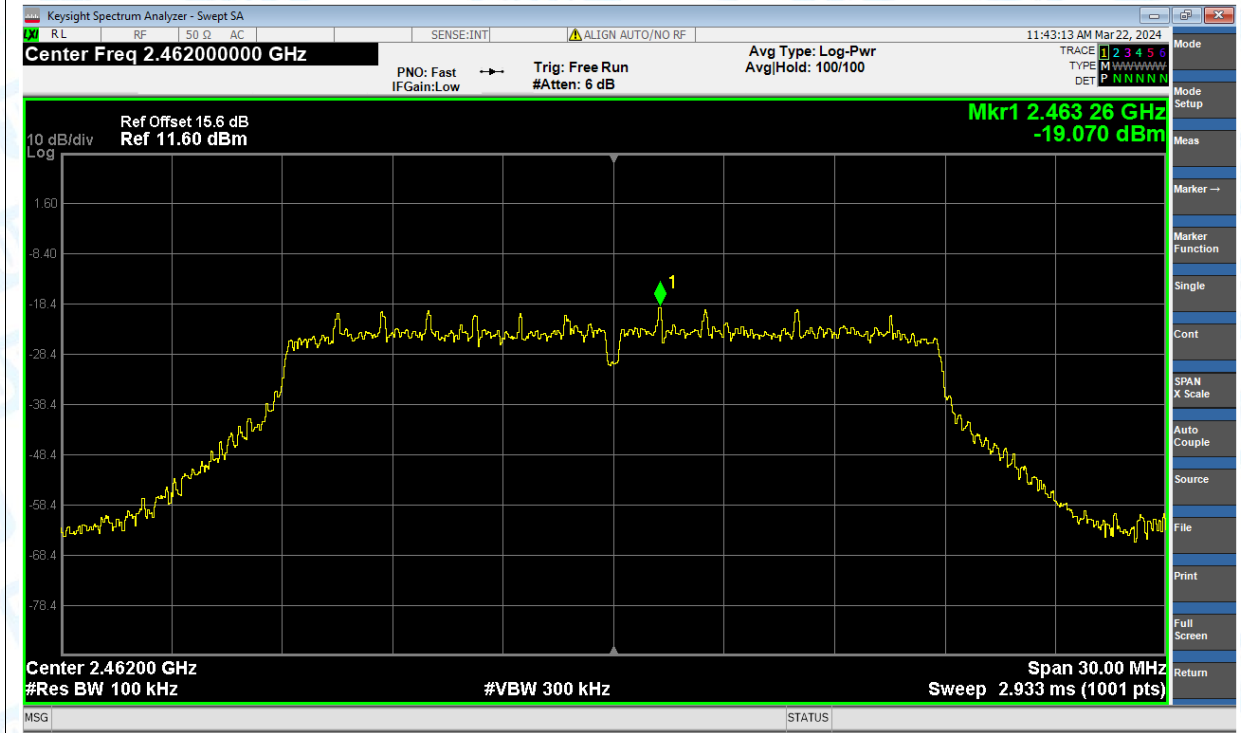
Tx. Spurious NVNT n(HT20) 2437MHz Ant2 Ref



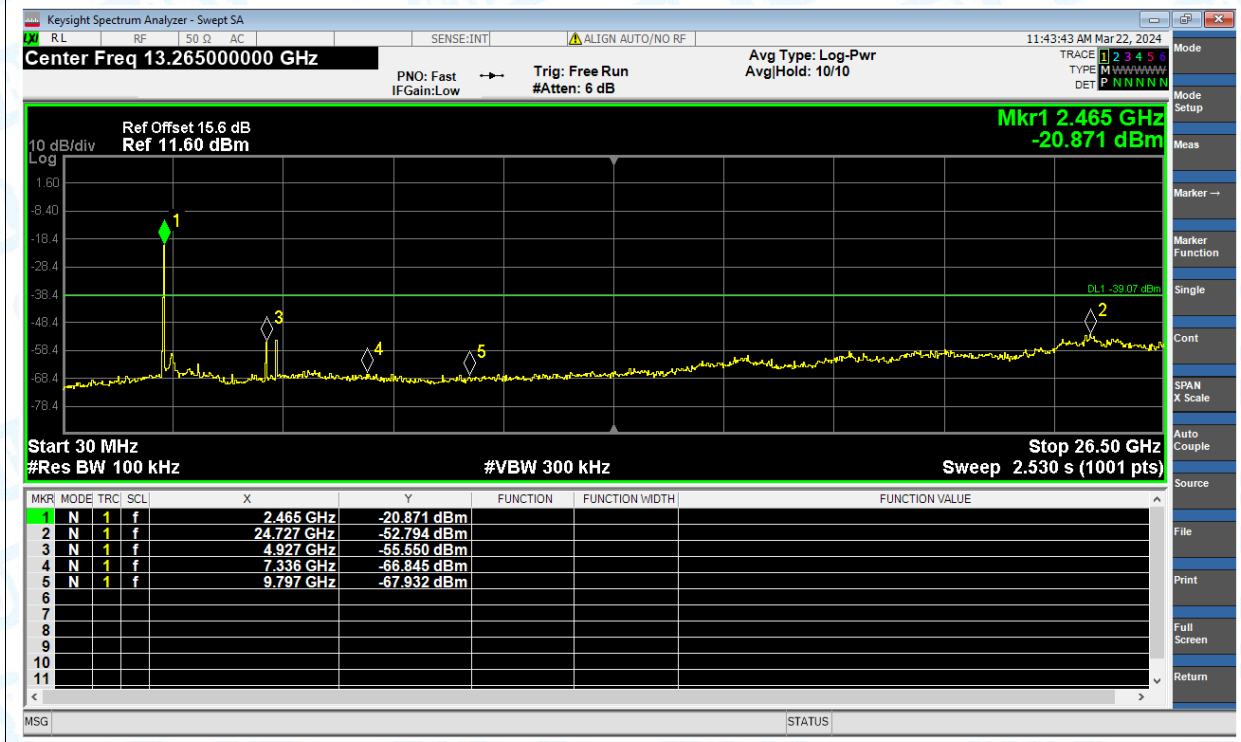
Tx. Spurious NVNT n(HT20) 2437MHz Ant2 Emission



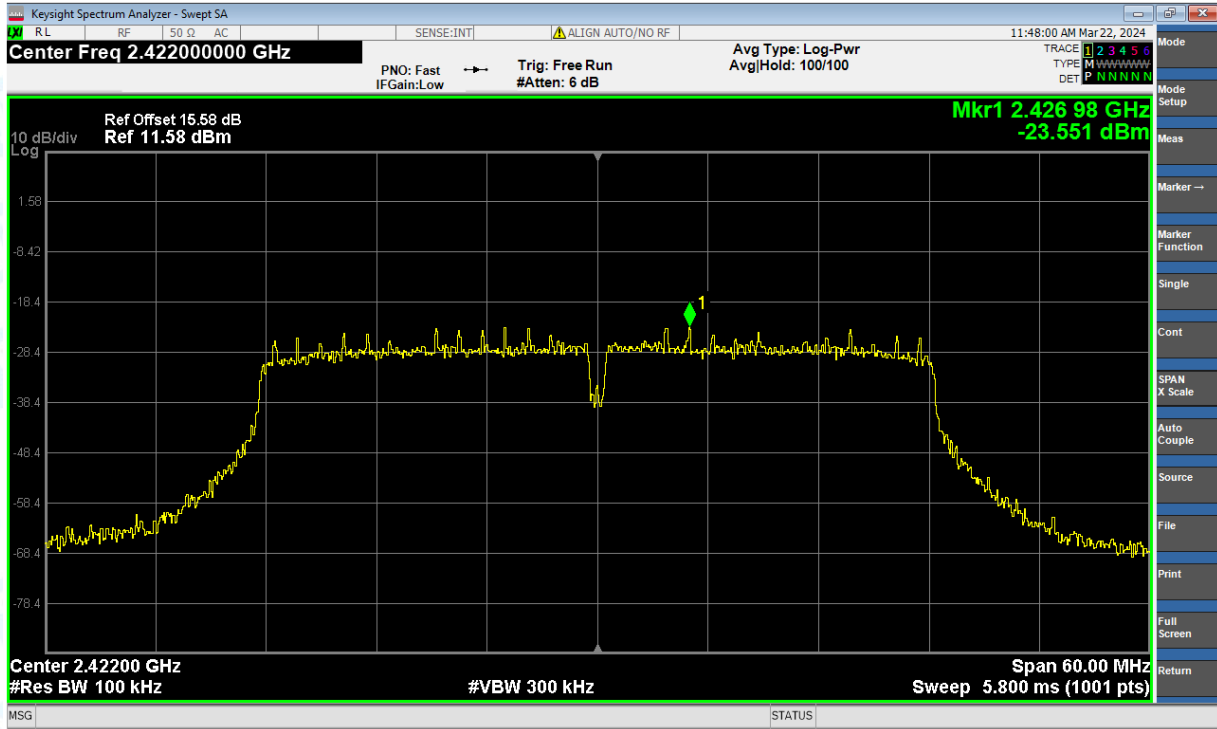
Tx. Spurious NVNT n(HT20) 2462MHz Ant2 Ref



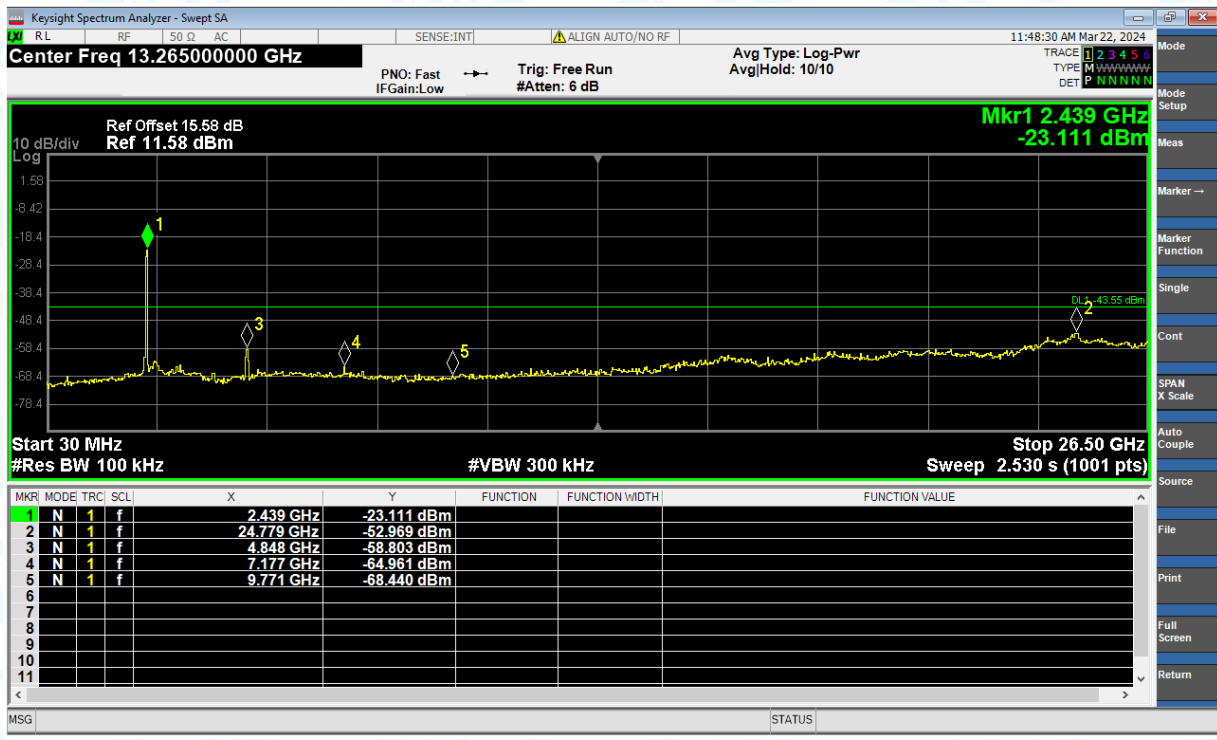
Tx. Spurious NVNT n(HT20) 2462MHz Ant2 Emission



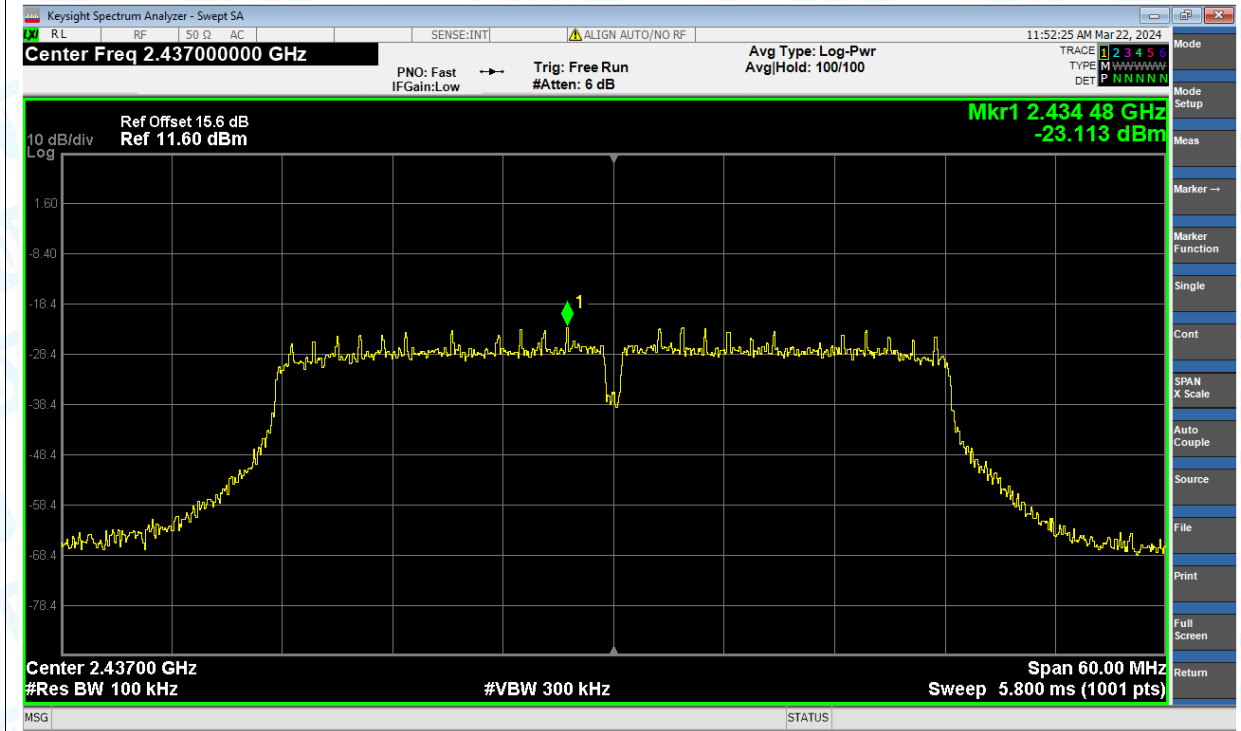
Tx. Spurious NVNT n(HT40) 2422MHz Ant2 Ref



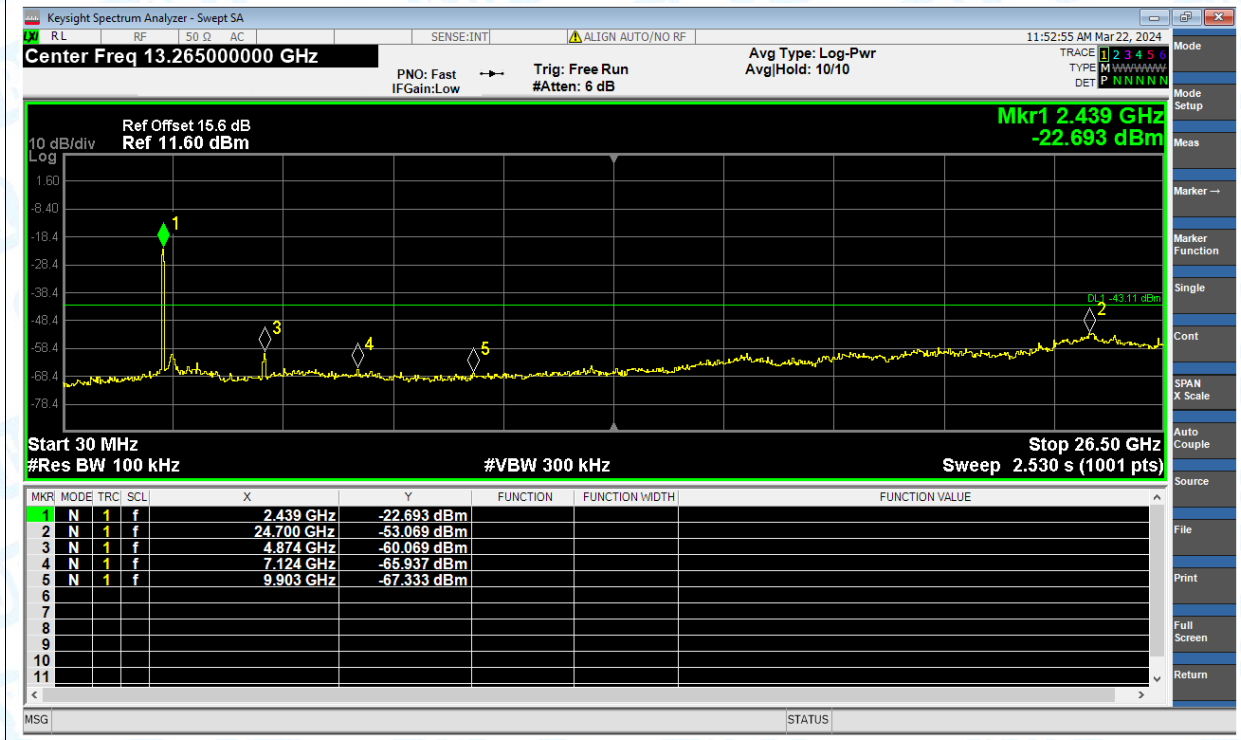
Tx. Spurious NVNT n(HT40) 2422MHz Ant2 Emission



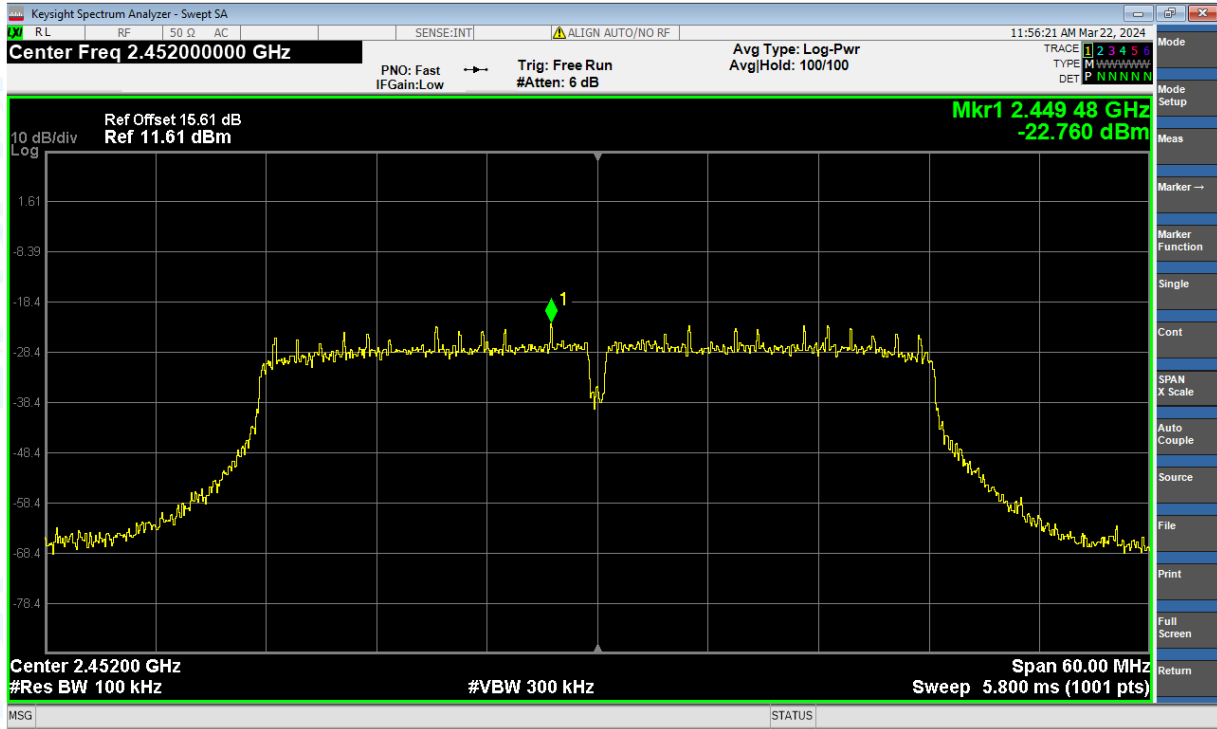
Tx. Spurious NVNT n(HT40) 2437MHz Ant2 Ref



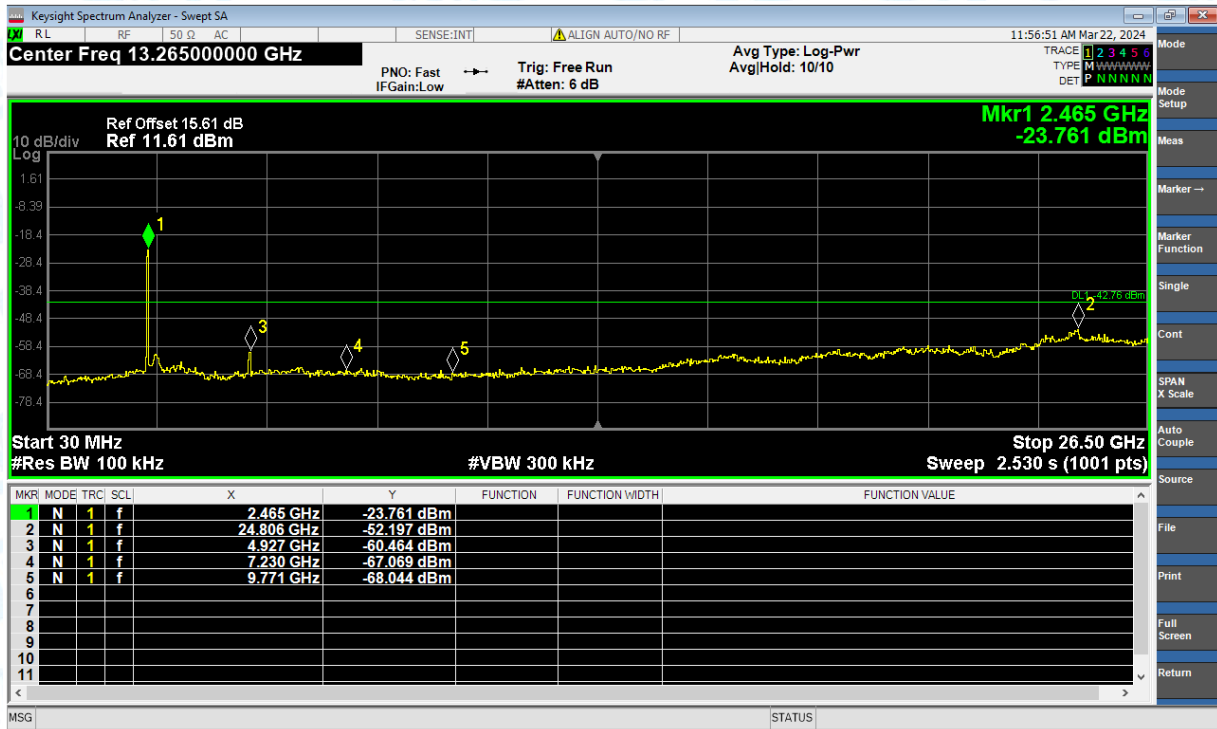
Tx. Spurious NVNT n(HT40) 2437MHz Ant2 Emission



Tx. Spurious NVNT n(HT40) 2452MHz Ant2 Ref



Tx. Spurious NVNT n(HT40) 2452MHz Ant2 Emission



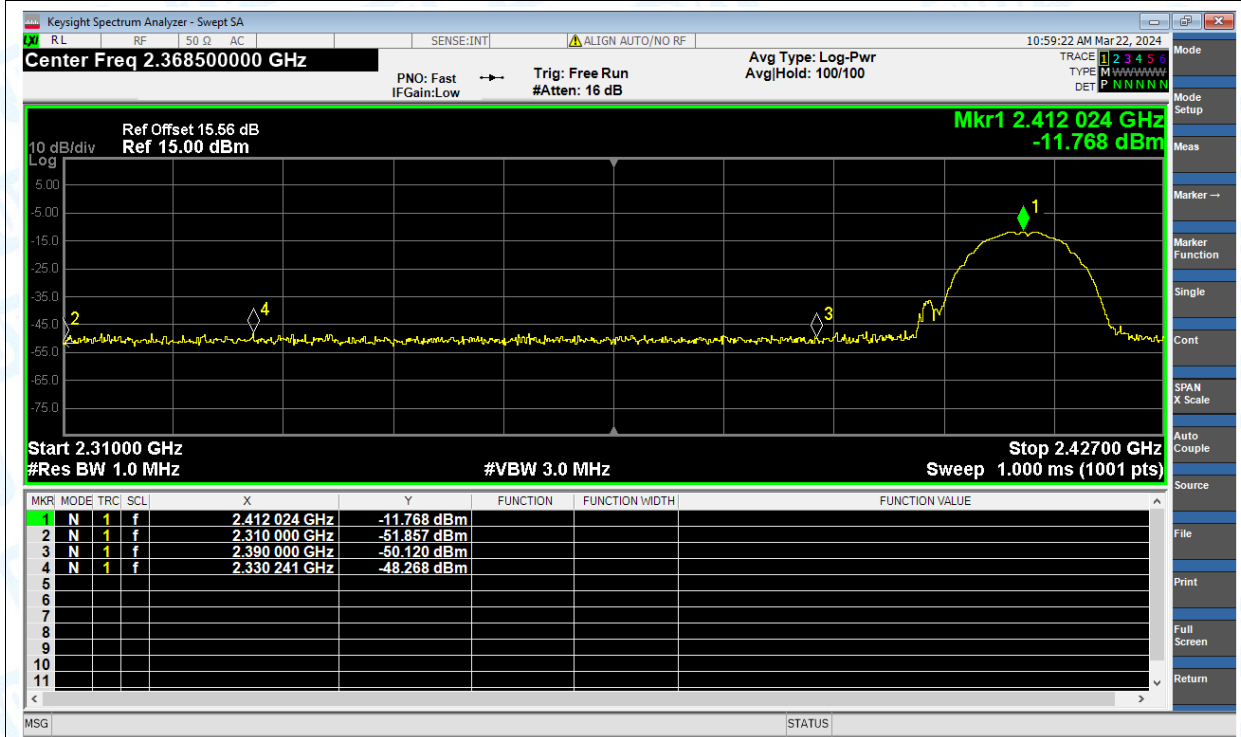
8.Restrict Band

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	Ant2	2310	-51.86	3.26	-	46.66	Peak	74	Pass
NVNT	b	2412	Ant2	2310	-58.6	3.26	0.33	40.25	Average	54	Pass
NVNT	b	2412	Ant2	2330.241	-48.27	3.26	-	50.25	Peak	74	Pass
NVNT	b	2412	Ant2	2356.683	-57.85	3.26	0.33	41	Average	54	Pass
NVNT	b	2412	Ant2	2390	-50.12	3.26	-	48.4	Peak	74	Pass
NVNT	b	2412	Ant2	2390	-58.83	3.26	0.33	40.02	Average	54	Pass
NVNT	b	2462	Ant2	2483.5	-50.27	3.26	-	48.25	Peak	74	Pass
NVNT	b	2462	Ant2	2483.5	-58.6	3.26	0.33	40.25	Average	54	Pass
NVNT	b	2462	Ant2	2486.697	-46.57	3.26	-	51.95	Peak	74	Pass
NVNT	b	2462	Ant2	2498.728	-57.58	3.26	0.33	41.27	Average	54	Pass
NVNT	b	2462	Ant2	2500	-50.82	3.26	-	47.7	Peak	74	Pass
NVNT	b	2462	Ant2	2500	-58.58	3.26	0.33	40.27	Average	54	Pass
NVNT	g	2412	Ant2	2310	-50.71	3.26	-	47.81	Peak	74	Pass
NVNT	g	2412	Ant2	2310	-58.8	3.26	0.28	40	Average	54	Pass
NVNT	g	2412	Ant2	2380.668	-47.05	3.26	-	51.47	Peak	74	Pass
NVNT	g	2412	Ant2	2389.56	-57.78	3.26	0.28	41.02	Average	54	Pass
NVNT	g	2412	Ant2	2390	-49.59	3.26	-	48.93	Peak	74	Pass
NVNT	g	2412	Ant2	2390	-58.73	3.26	0.28	40.07	Average	54	Pass
NVNT	g	2462	Ant2	2483.5	-48.05	3.26	-	50.47	Peak	74	Pass
NVNT	g	2462	Ant2	2483.5	-58.54	3.26	0.27	40.25	Average	54	Pass
NVNT	g	2462	Ant2	2484.842	-45.01	3.26	-	53.51	Peak	74	Pass
NVNT	g	2462	Ant2	2485.001	-57.4	3.26	0.27	41.39	Average	54	Pass
NVNT	g	2462	Ant2	2500	-49.58	3.26	-	48.94	Peak	74	Pass
NVNT	g	2462	Ant2	2500	-58.15	3.26	0.27	40.64	Average	54	Pass
NVNT	n(HT20)	2412	Ant2	2310	-51.45	3.26	-	47.07	Peak	74	Pass
NVNT	n(HT20)	2412	Ant2	2310	-58.62	3.26	0.28	40.18	Average	54	Pass
NVNT	n(HT20)	2412	Ant2	2310.351	-47.02	3.26	-	51.5	Peak	74	Pass
NVNT	n(HT20)	2412	Ant2	2388.975	-57.7	3.26	0.28	41.1	Average	54	Pass
NVNT	n(HT20)	2412	Ant2	2390	-47.82	3.26	-	50.7	Peak	74	Pass
NVNT	n(HT20)	2412	Ant2	2390	-58.8	3.26	0.28	40	Average	54	Pass
NVNT	n(HT20)	2462	Ant2	2483.5	-49.91	3.26	-	48.61	Peak	74	Pass
NVNT	n(HT20)	2462	Ant2	2483.5	-57.89	3.26	0.28	40.91	Average	54	Pass
NVNT	n(HT20)	2462	Ant2	2485.743	-45.43	3.26	-	53.09	Peak	74	Pass
NVNT	n(HT20)	2462	Ant2	2483.941	-57.63	3.26	0.28	41.17	Average	54	Pass
NVNT	n(HT20)	2462	Ant2	2500	-50.88	3.26	-	47.64	Peak	74	Pass
NVNT	n(HT20)	2462	Ant2	2500	-58.19	3.26	0.28	40.61	Average	54	Pass
NVNT	n(HT40)	2422	Ant2	2310	-50.23	3.26	-	48.29	Peak	74	Pass
NVNT	n(HT40)	2422	Ant2	2310	-58.8	3.26	0.28	40	Average	54	Pass
NVNT	n(HT40)	2422	Ant2	2371.06	-47.49	3.26	-	51.03	Peak	74	Pass
NVNT	n(HT40)	2422	Ant2	2388.668	-57.59	3.26	0.28	41.21	Average	54	Pass
NVNT	n(HT40)	2422	Ant2	2390	-49.3	3.26	-	49.22	Peak	74	Pass

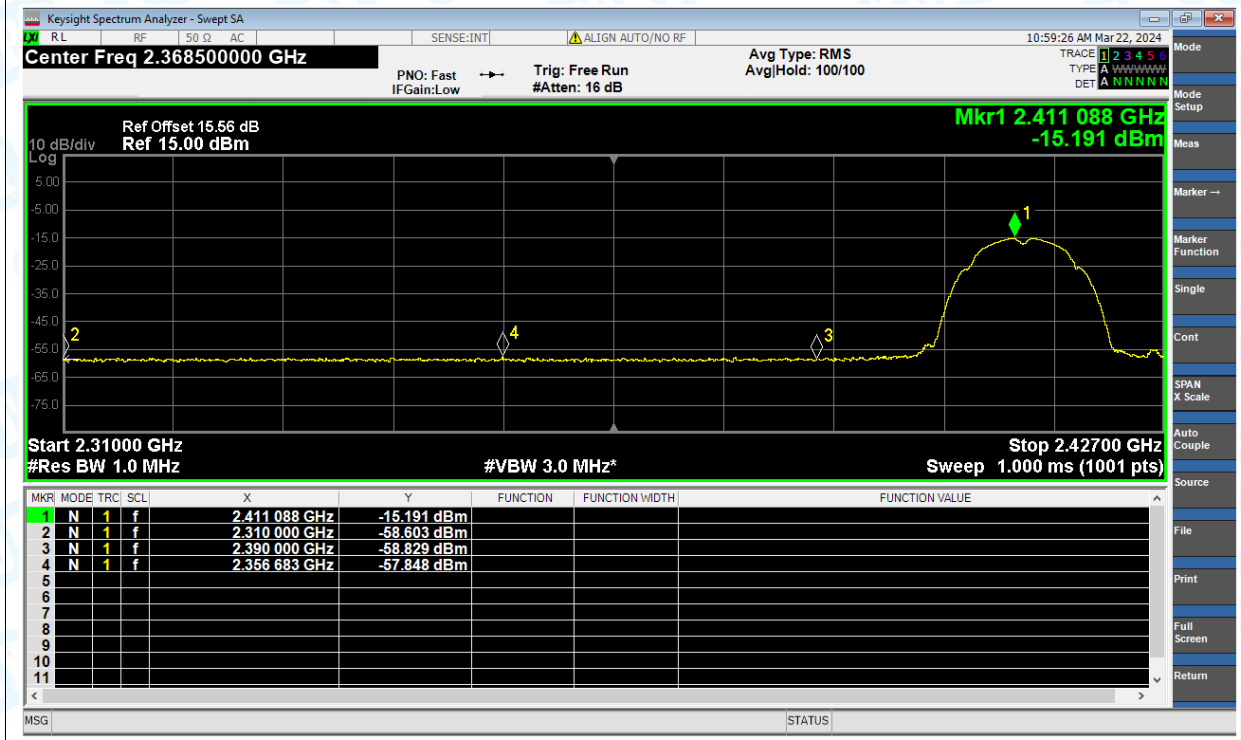
NVNT	n(HT40)	2422	Ant2	2390	-57.98	3.26	0.28	40.82	Average	54	Pass
NVNT	n(HT40)	2452	Ant2	2483.5	-49.94	3.26	-	48.58	Peak	74	Pass
NVNT	n(HT40)	2452	Ant2	2483.5	-58.59	3.26	0.35	40.28	Average	54	Pass
NVNT	n(HT40)	2452	Ant2	2498.908	-47.08	3.26	-	51.44	Peak	74	Pass
NVNT	n(HT40)	2452	Ant2	2484.868	-57.55	3.26	0.35	41.32	Average	54	Pass
NVNT	n(HT40)	2452	Ant2	2500	-49.09	3.26	-	49.43	Peak	74	Pass
NVNT	n(HT40)	2452	Ant2	2500	-58.26	3.26	0.35	40.61	Average	54	Pass

Test Graphs

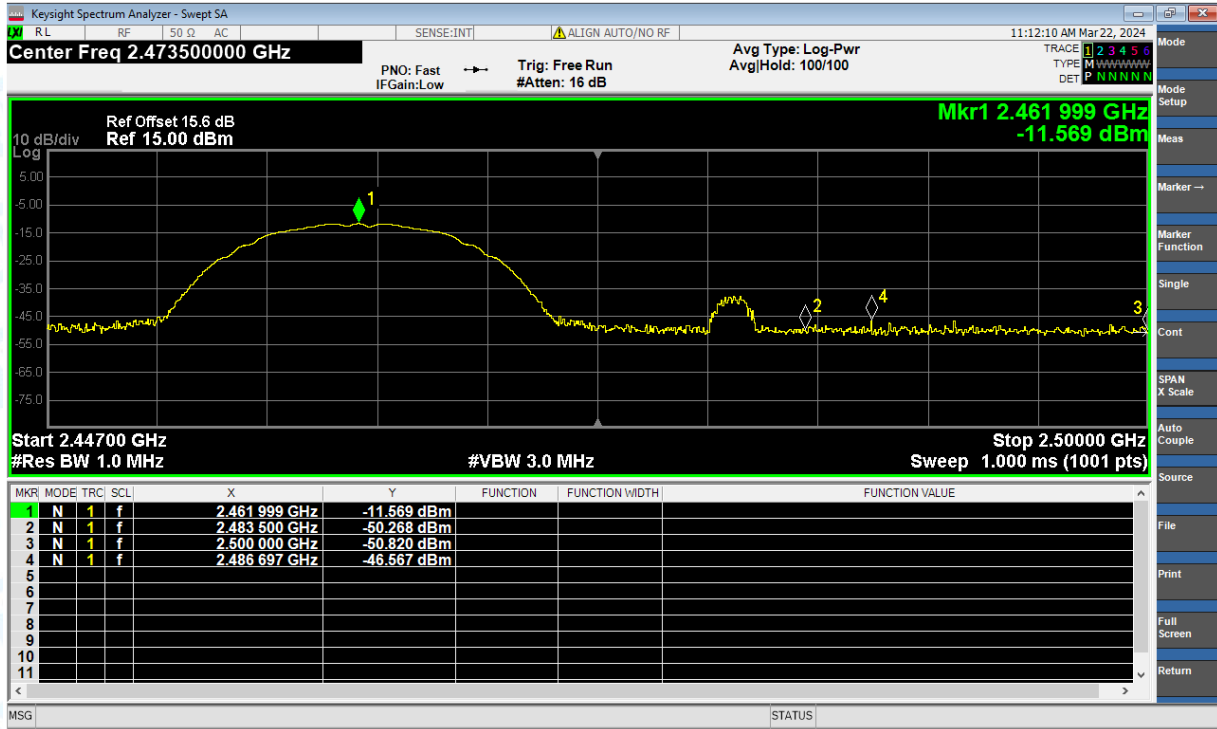
Restrict Band NVNT b 2412MHz Ant2 Peak



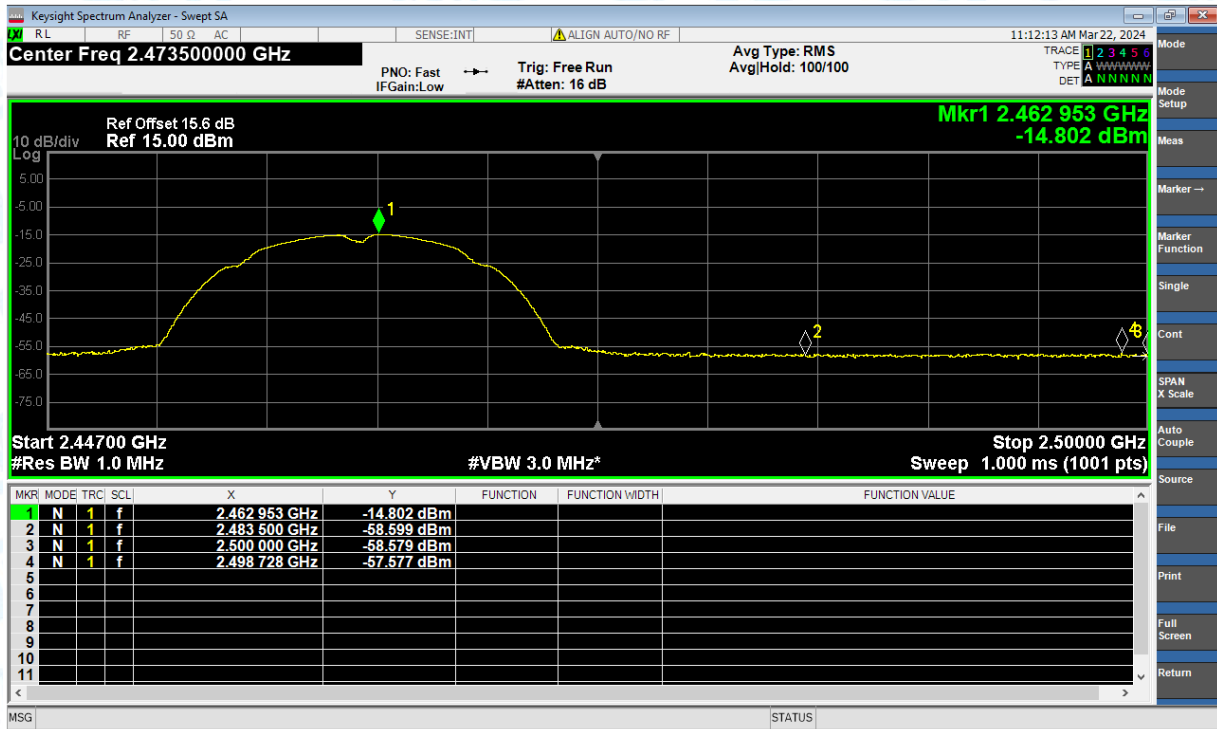
Restrict Band NVNT b 2412MHz Ant2 Average



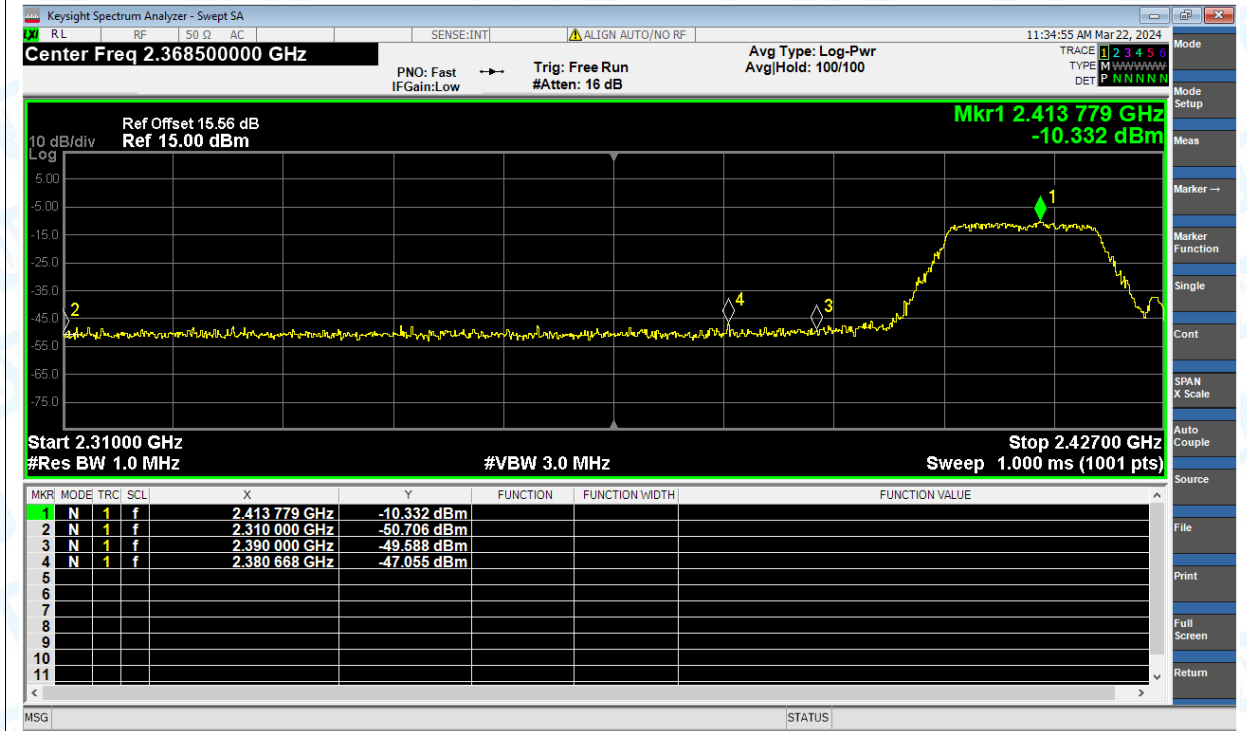
Restrict Band NVNT b 2462MHz Ant2 Peak



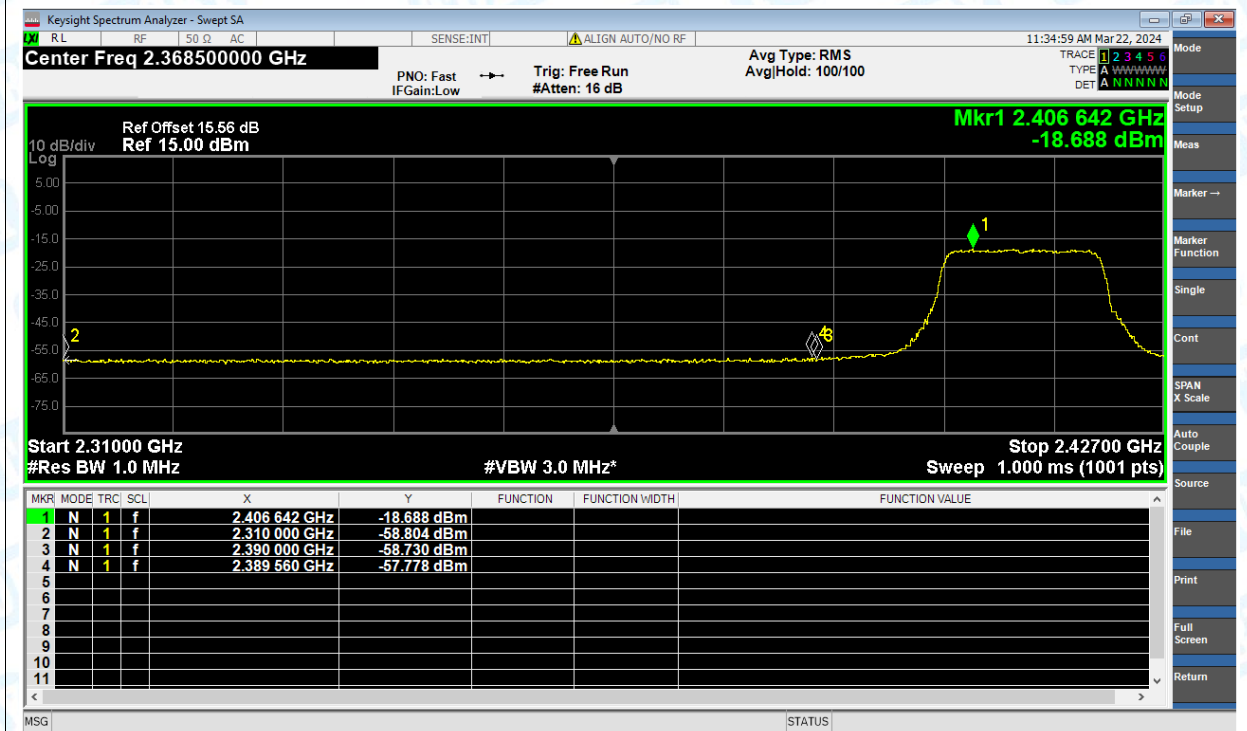
Restrict Band NVNT b 2462MHz Ant2 Average



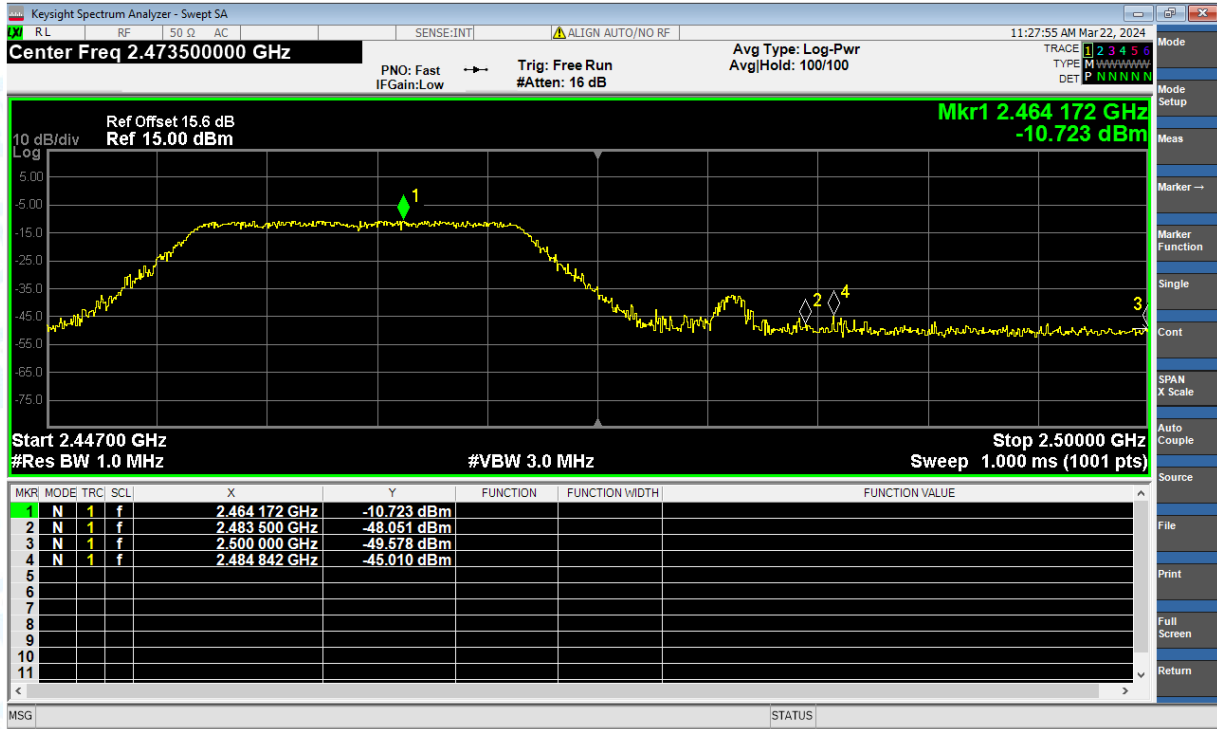
Restrict Band NVNT g 2412MHz Ant2 Peak



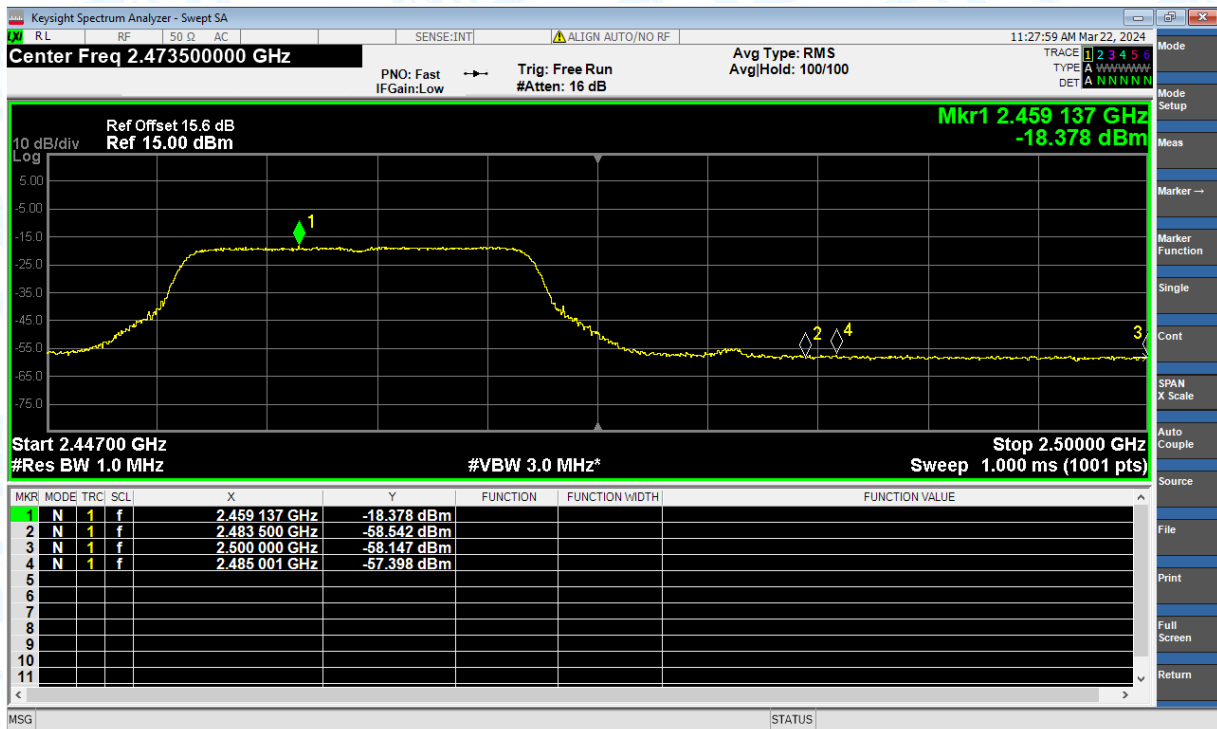
Restrict Band NVNT g 2412MHz Ant2 Average

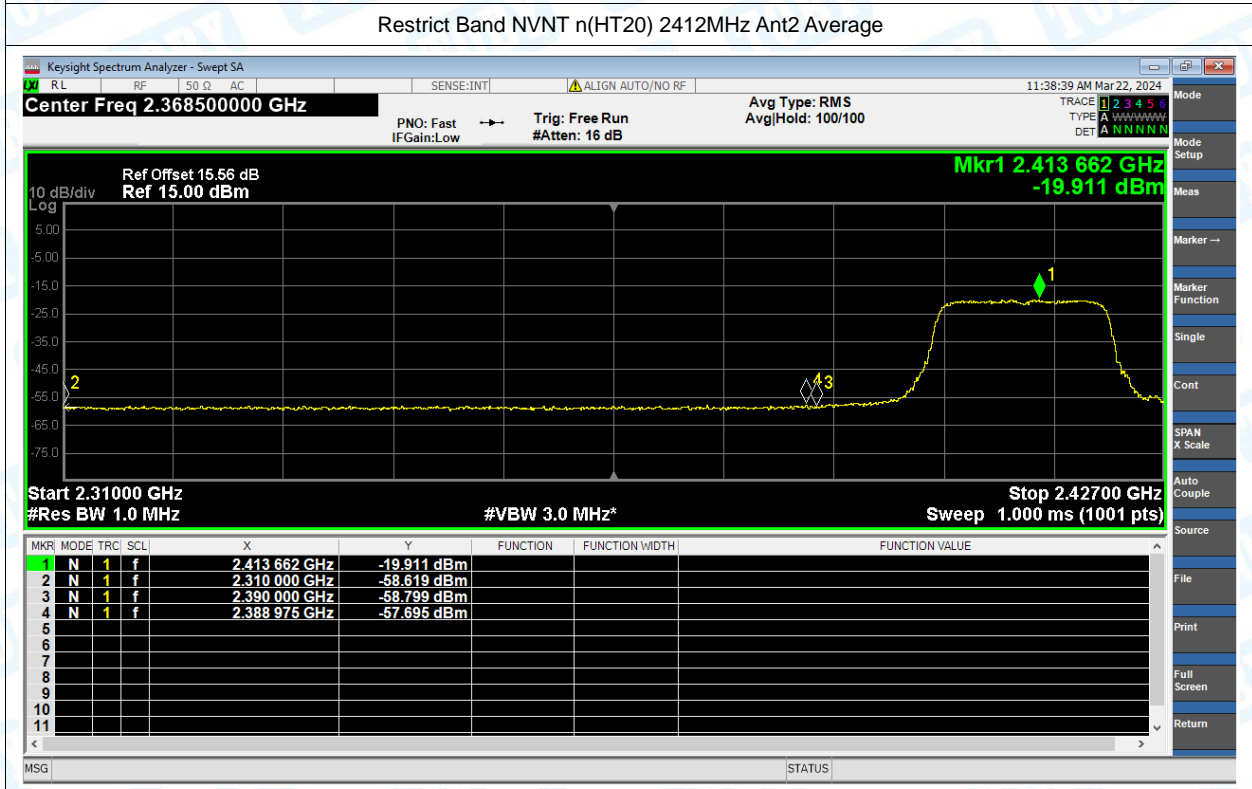
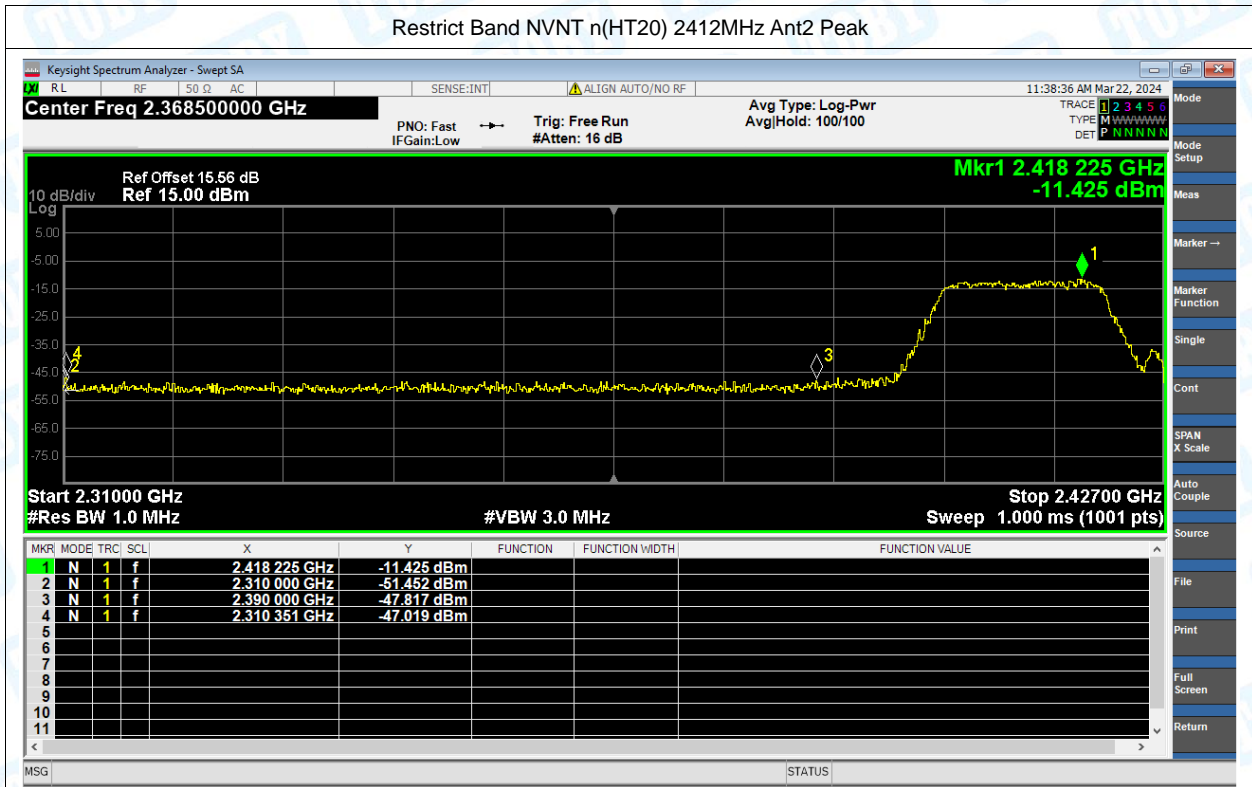


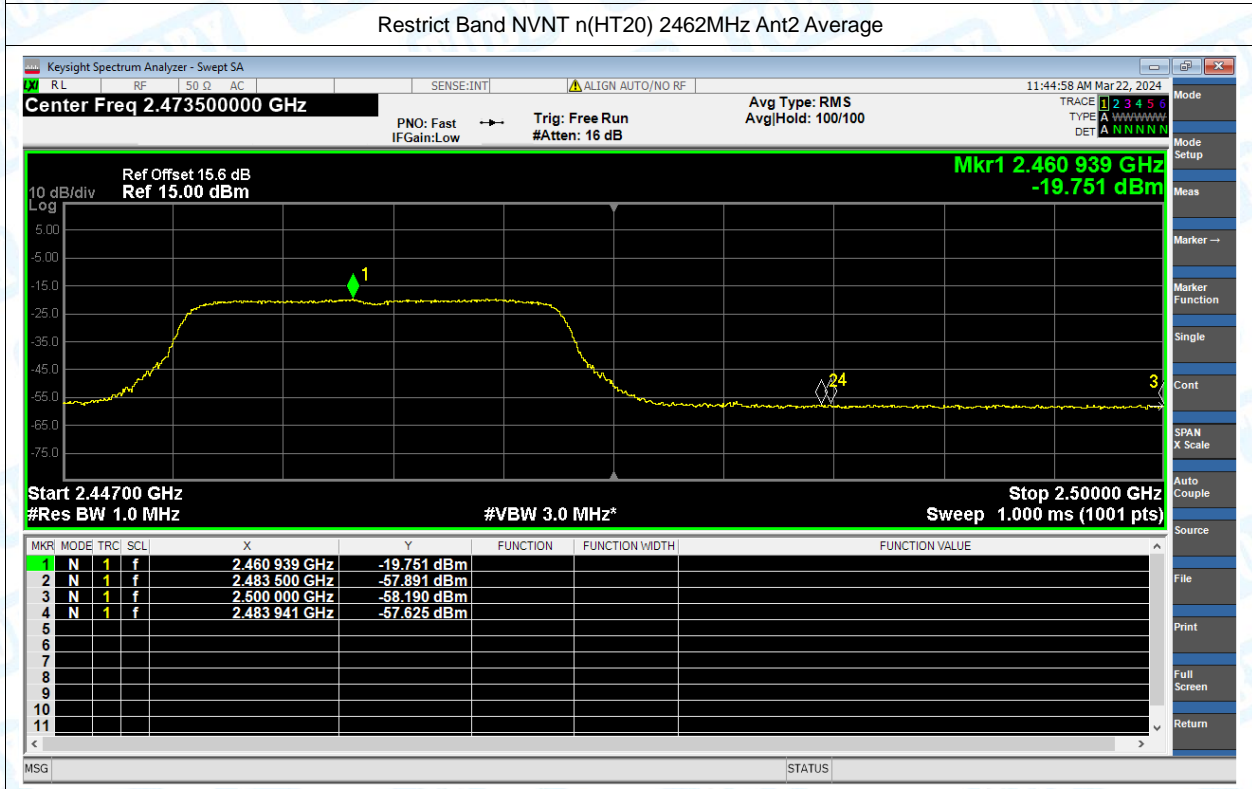
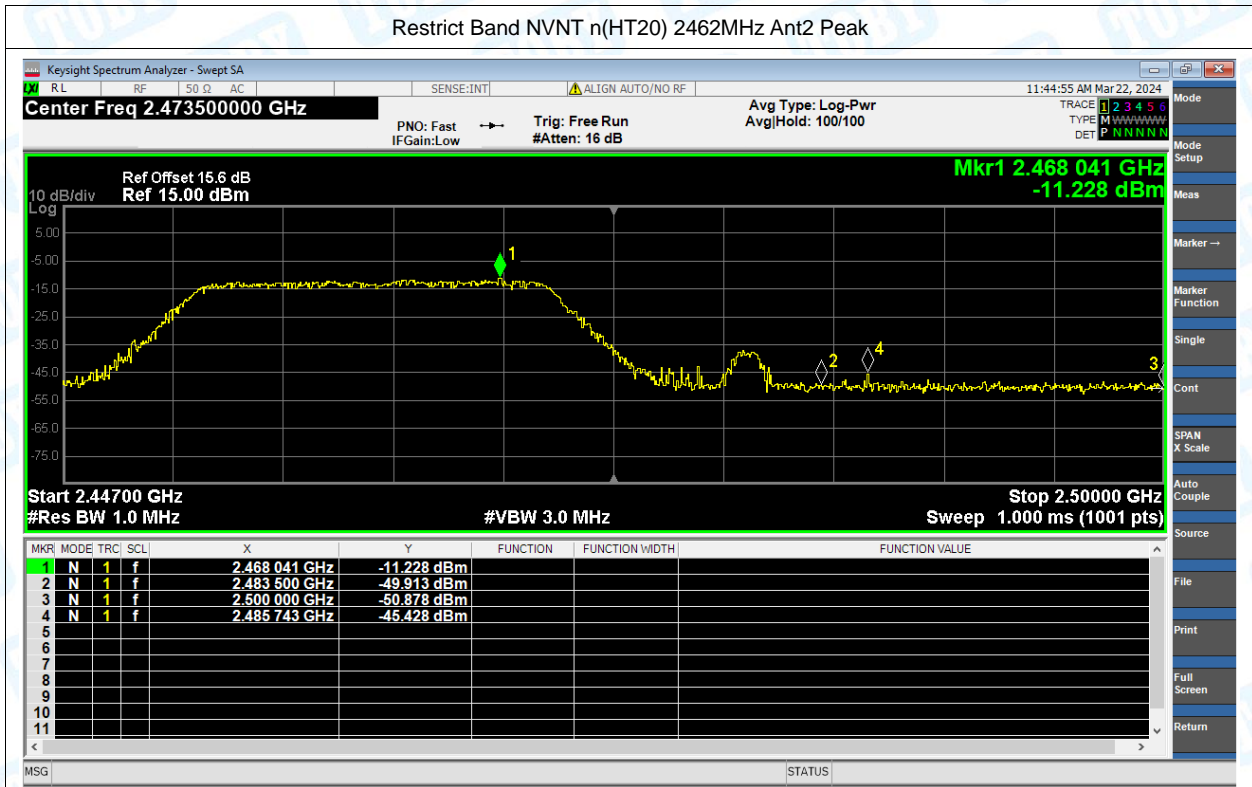
Restrict Band NVNT g 2462MHz Ant2 Peak

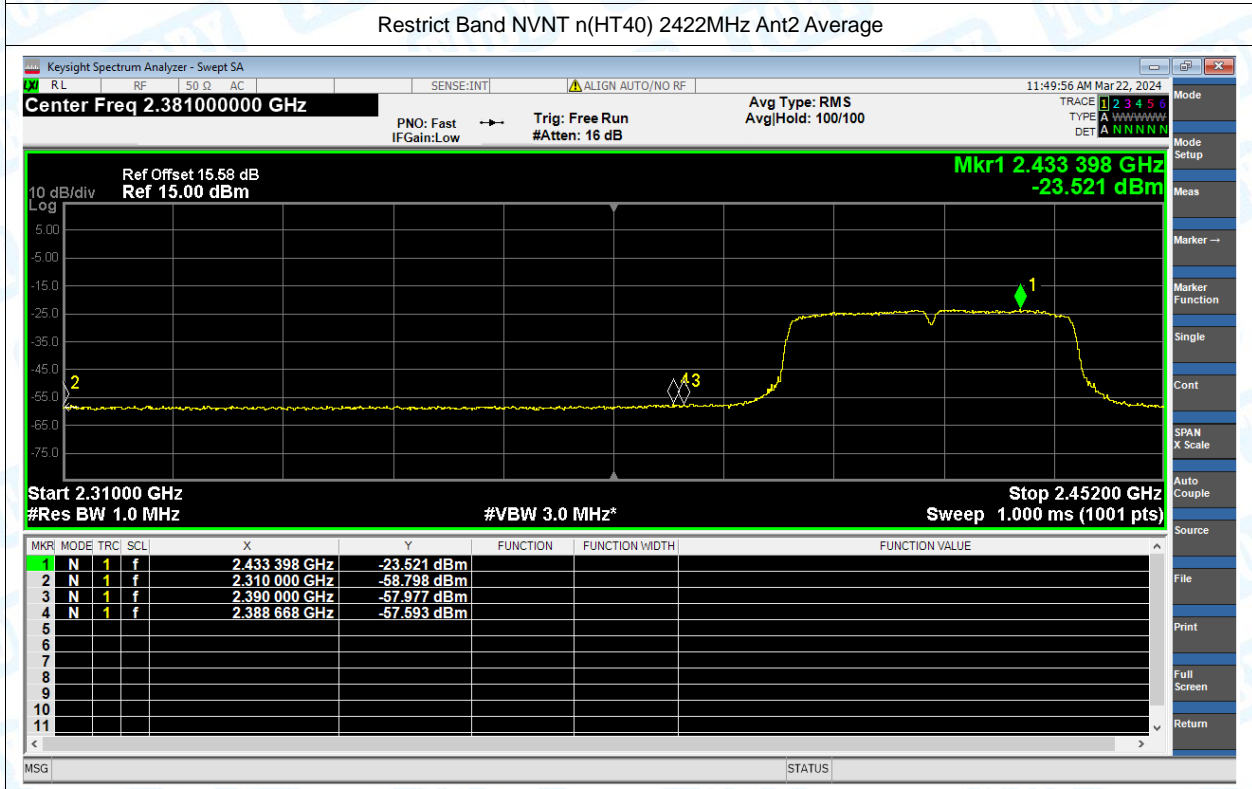
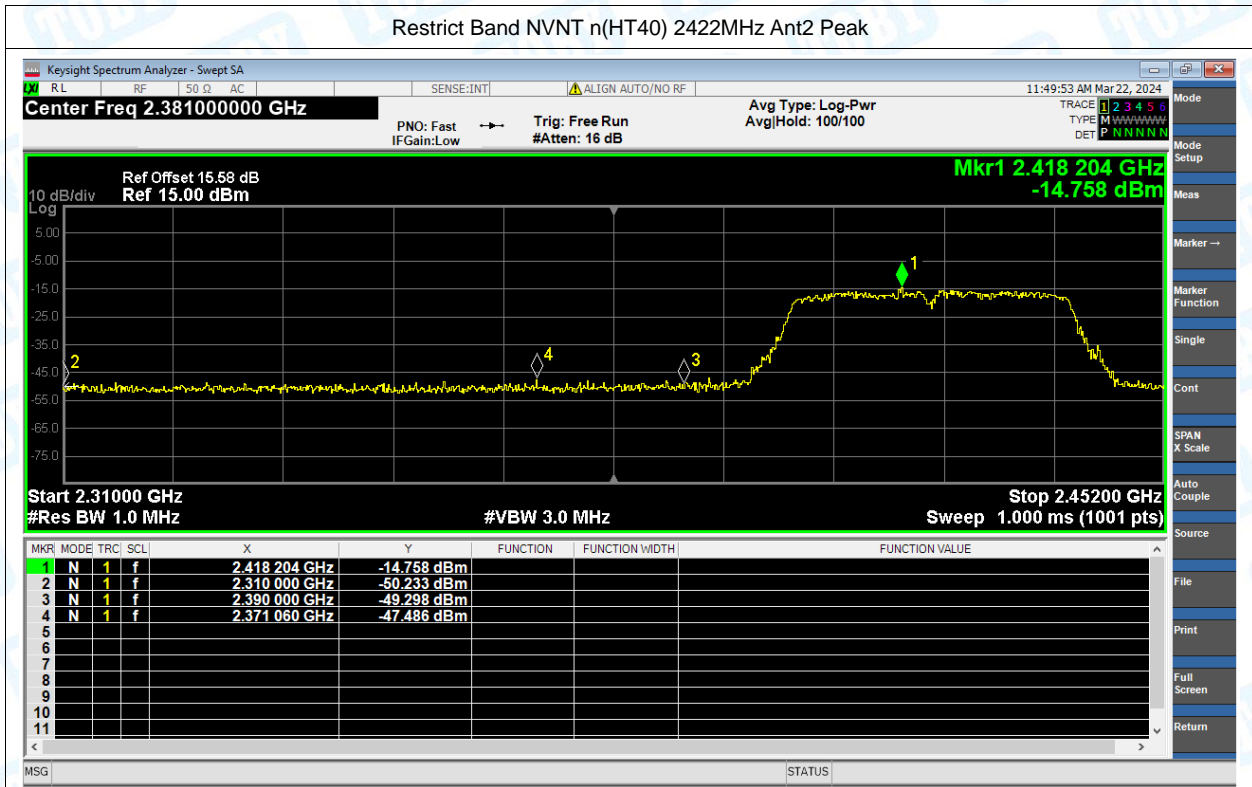


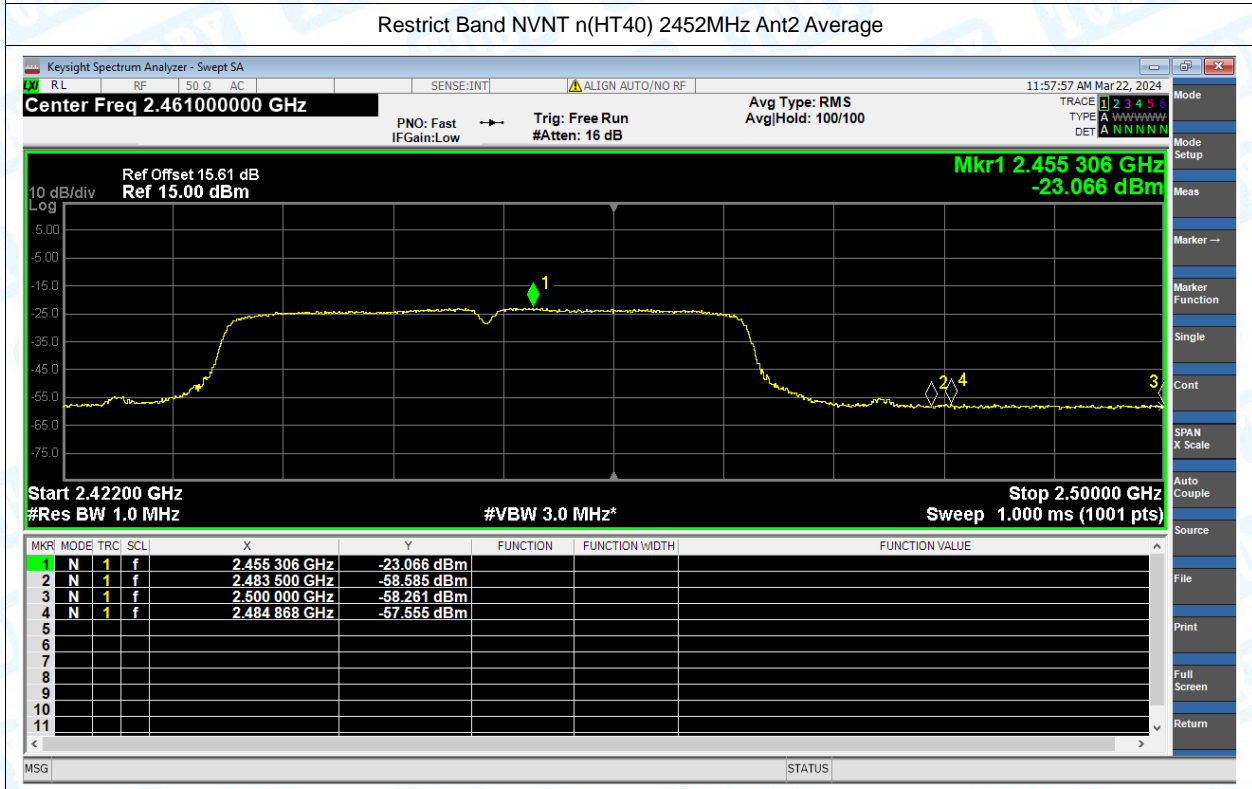
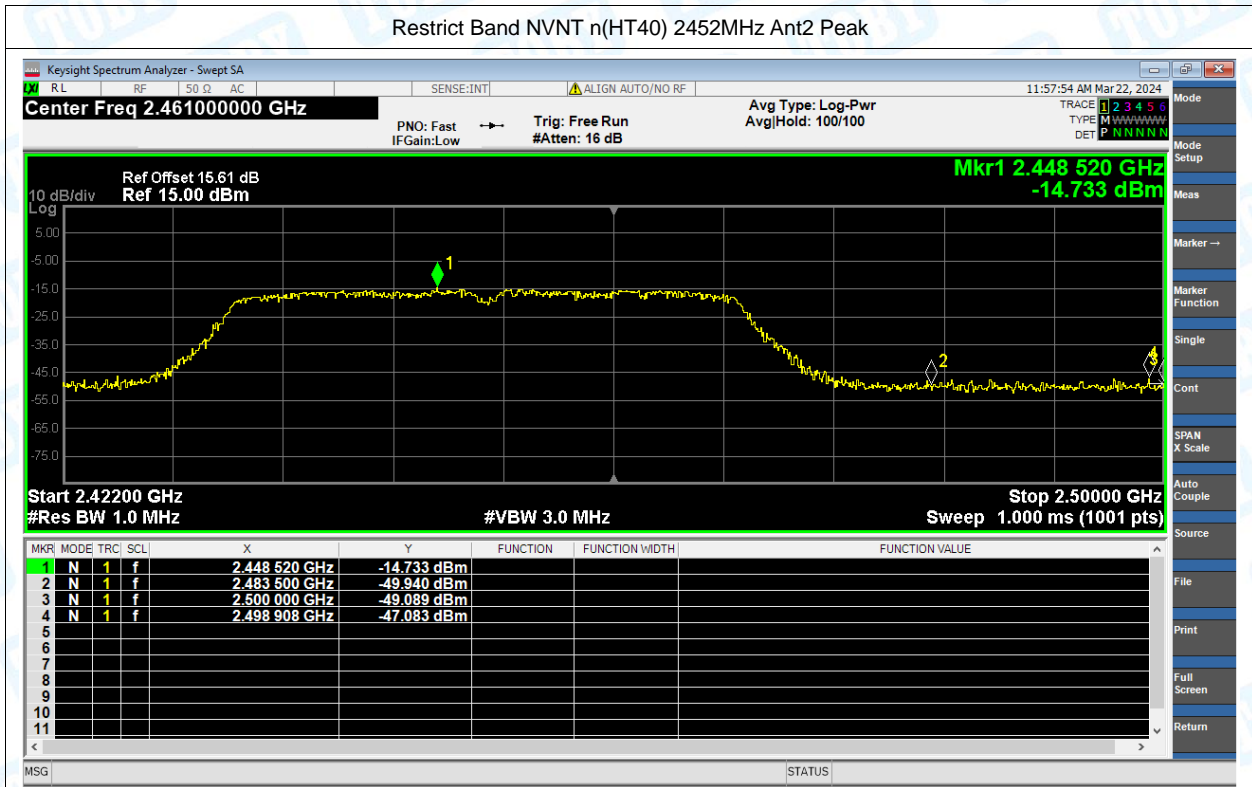
Restrict Band NVNT g 2462MHz Ant2 Average











-----END OF THE REPORT-----