

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-202401-0123-81 The report only show the worst case data.	

Contents

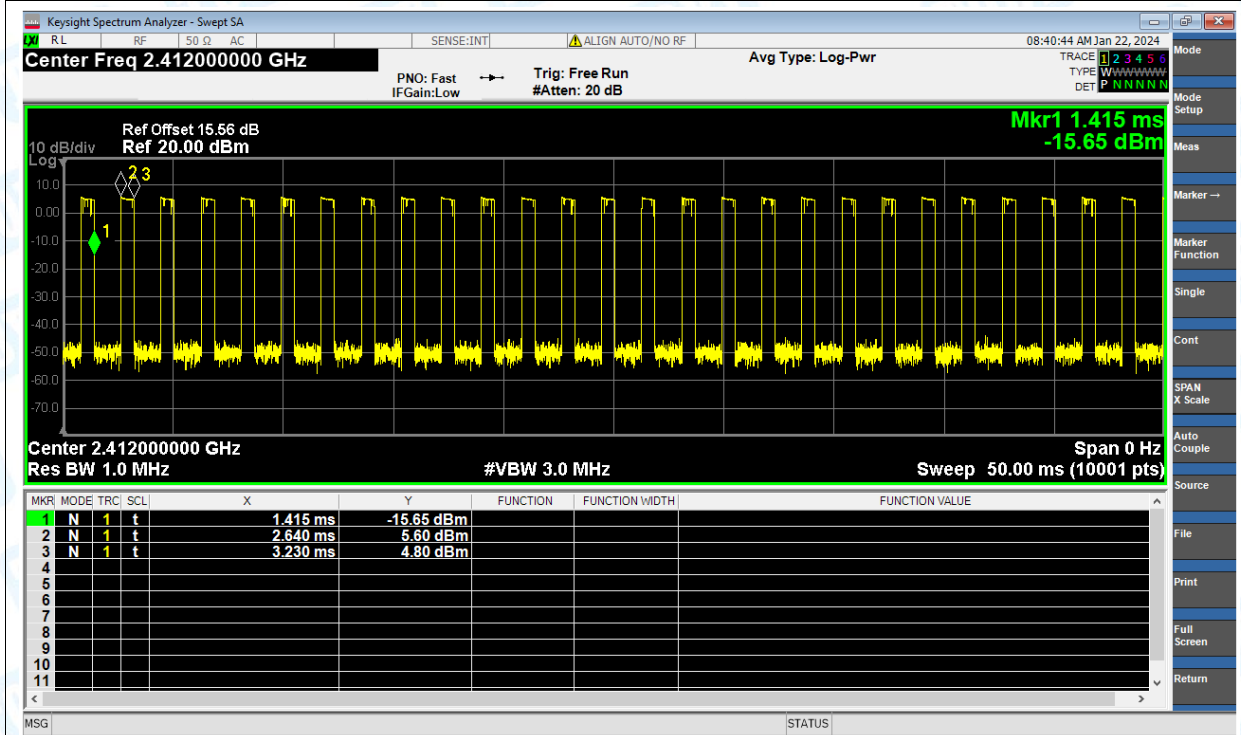
1. Duty Cycle.....	3
2. Maximum Conducted Output Power.....	10
3. -6dB Bandwidth.....	11
4. Occupied Channel Bandwidth.....	18
5. Maximum Power Spectral Density Level.....	25
6. Band Edge.....	32
7. Conducted RF Spurious Emission.....	41
8. Restrict Band.....	54

1. Duty Cycle

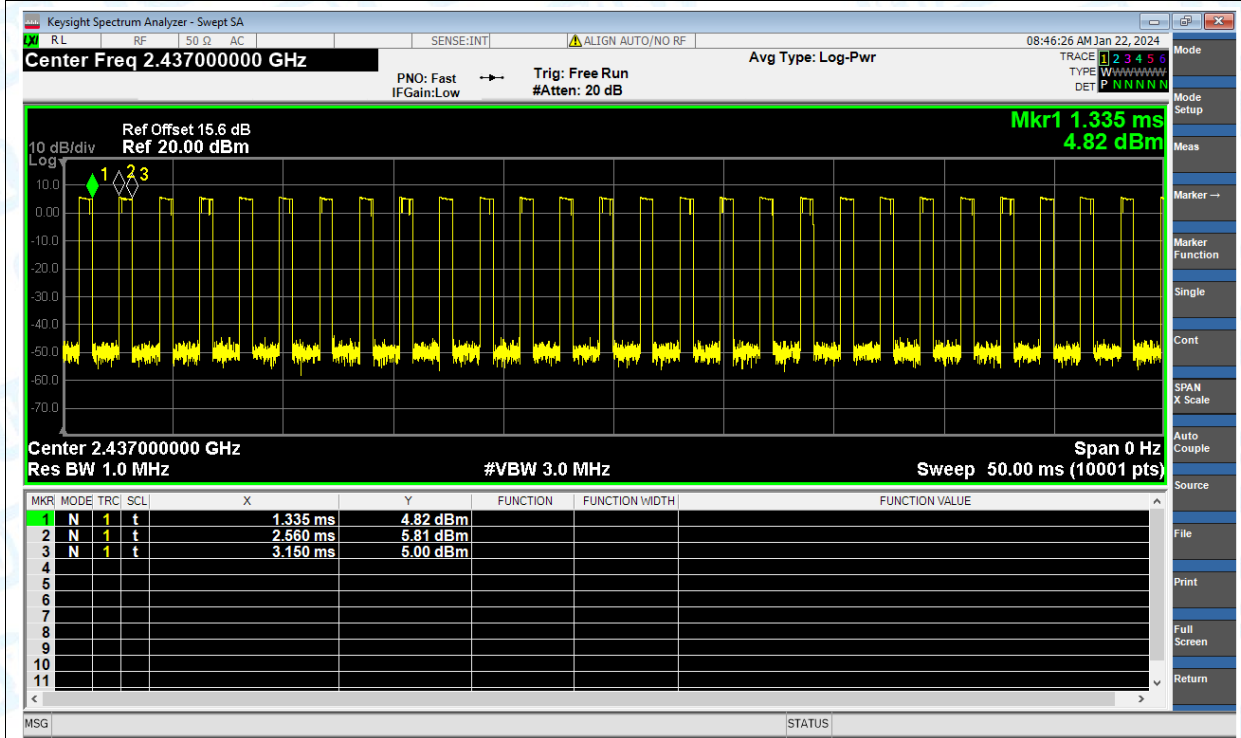
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	32.51	4.88	1.69
NVNT	b	2437	Ant1	32.51	4.88	1.69
NVNT	b	2462	Ant1	32.69	4.86	1.68
NVNT	g	2412	Ant1	32.41	4.89	1.71
NVNT	g	2437	Ant1	32.32	4.91	1.71
NVNT	g	2462	Ant1	32.32	4.91	1.71
NVNT	n(HT20)	2412	Ant1	31.46	5.02	1.79
NVNT	n(HT20)	2437	Ant1	31.2	5.06	1.79
NVNT	n(HT20)	2462	Ant1	31.37	5.03	1.79
NVNT	n(HT40)	2422	Ant1	31.96	4.95	1.72
NVNT	n(HT40)	2437	Ant1	32.04	4.94	1.72
NVNT	n(HT40)	2452	Ant1	32.04	4.94	1.72

Test Graphs

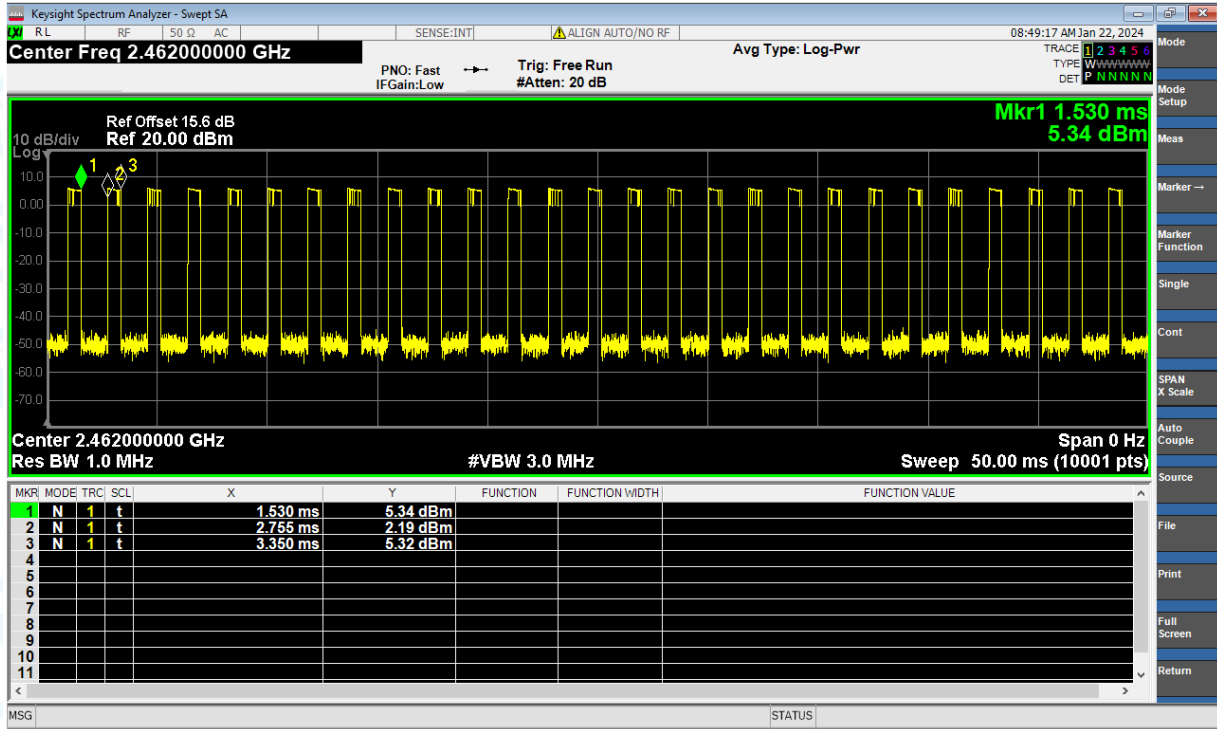
Duty Cycle NVNT b 2412MHz Ant1



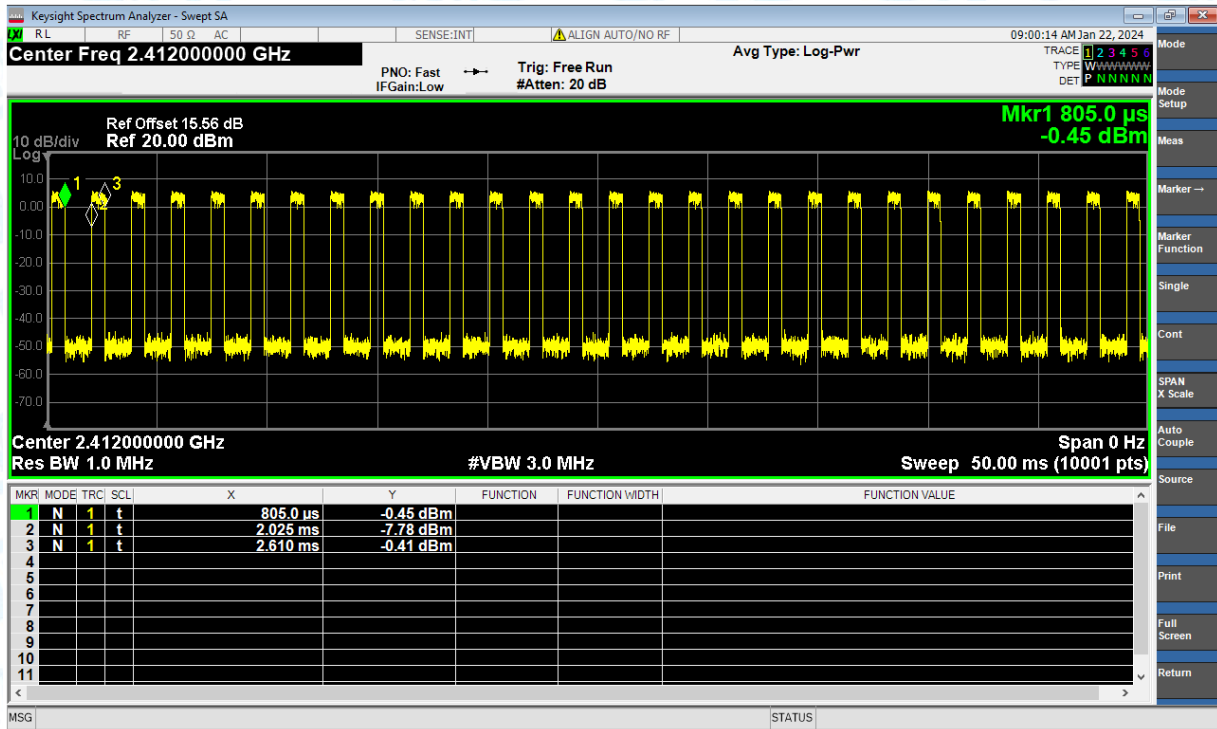
Duty Cycle NVNT b 2437MHz Ant1



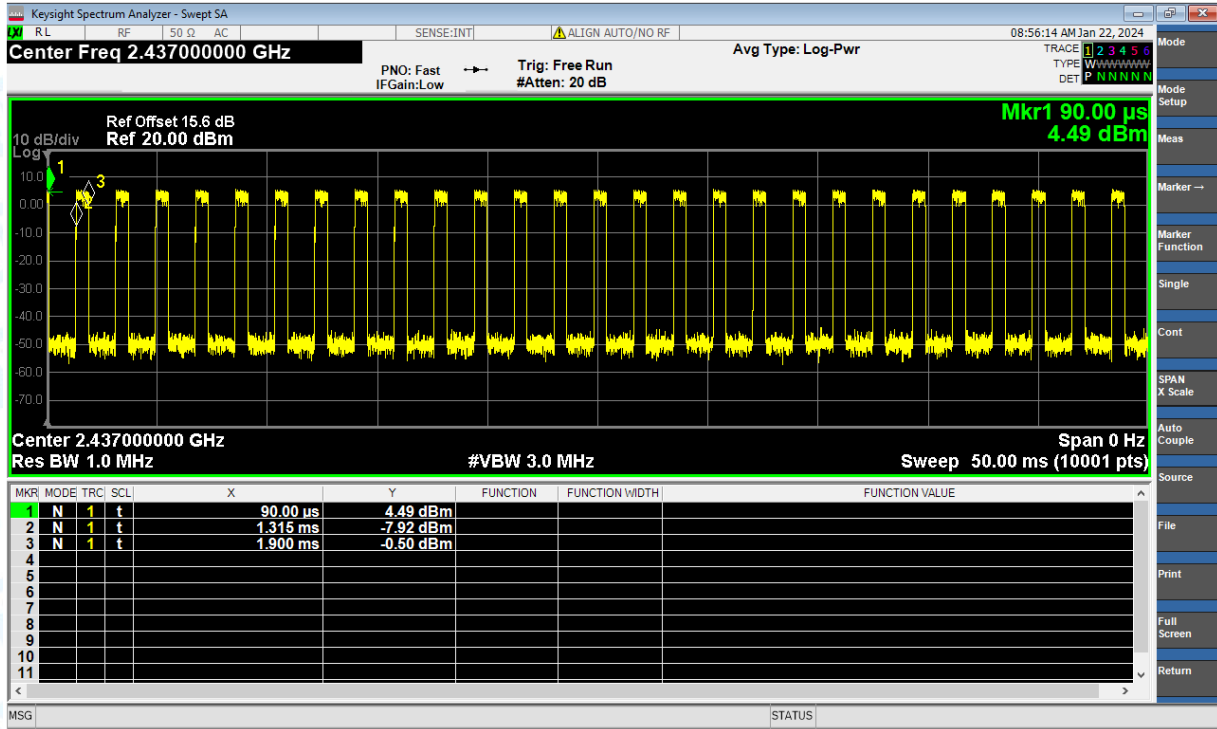
Duty Cycle NVNT b 2462MHz Ant1



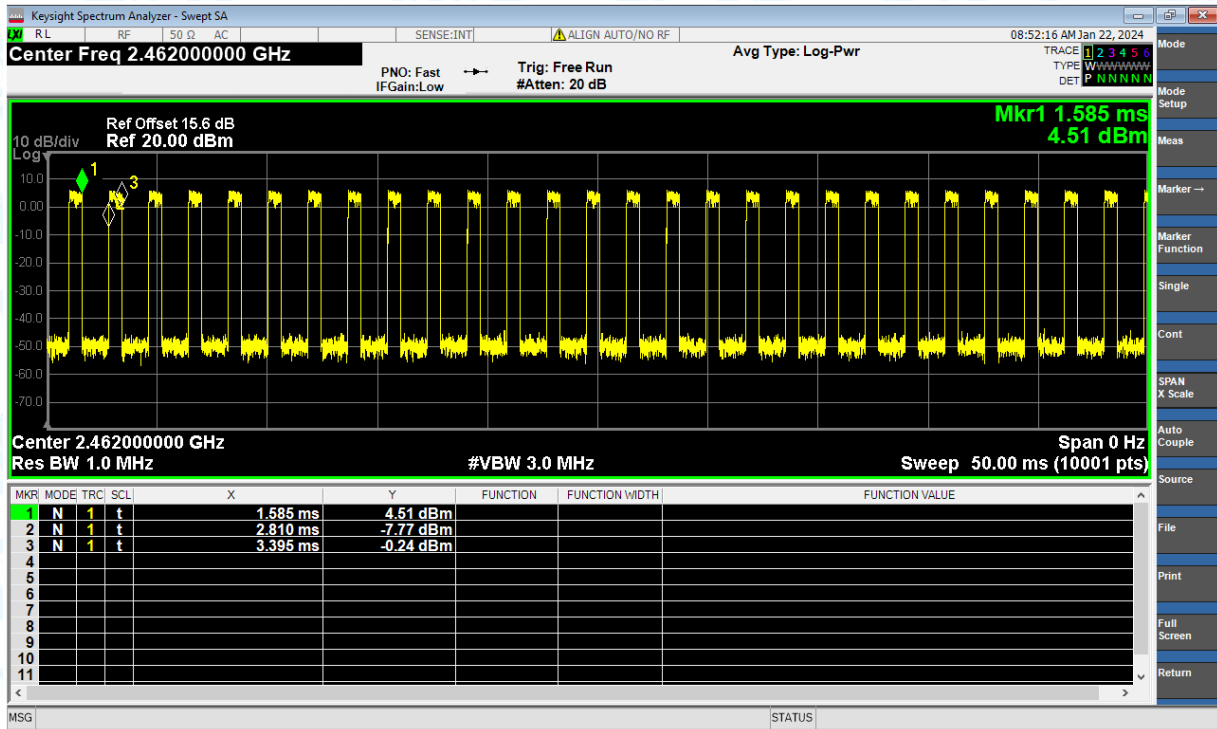
Duty Cycle NVNT g 2412MHz Ant1



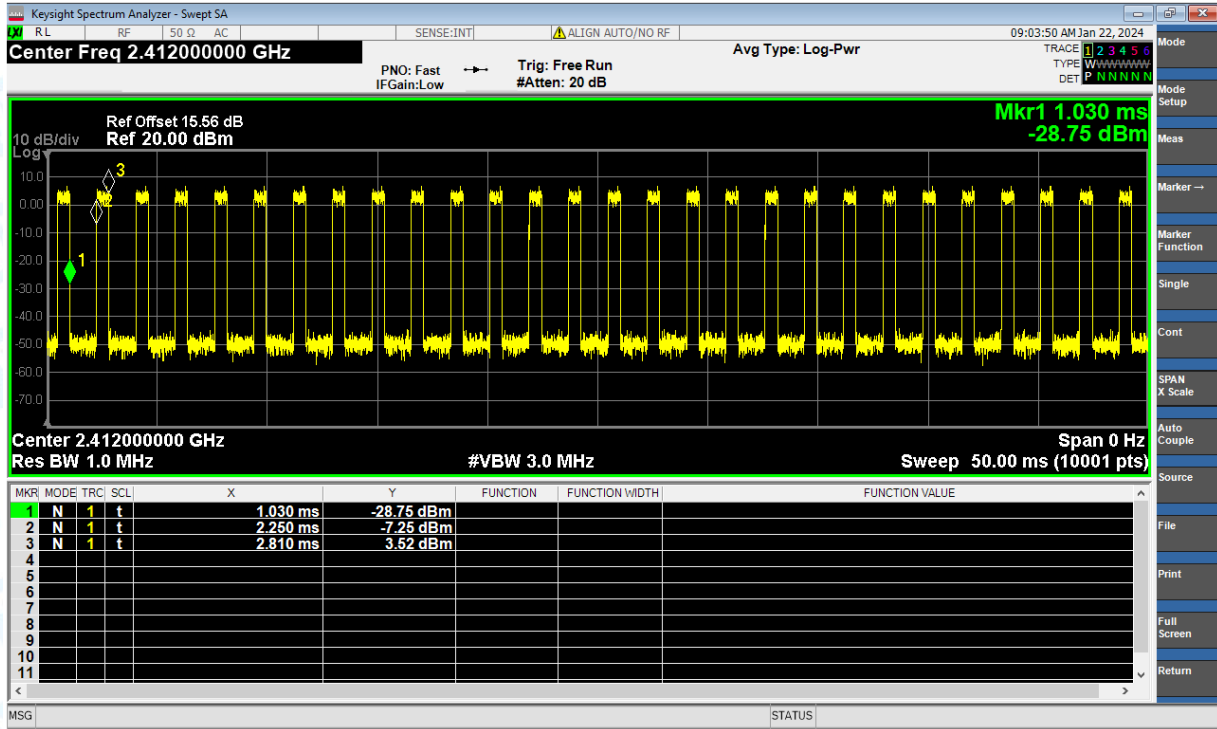
Duty Cycle NVNT g 2437MHz Ant1



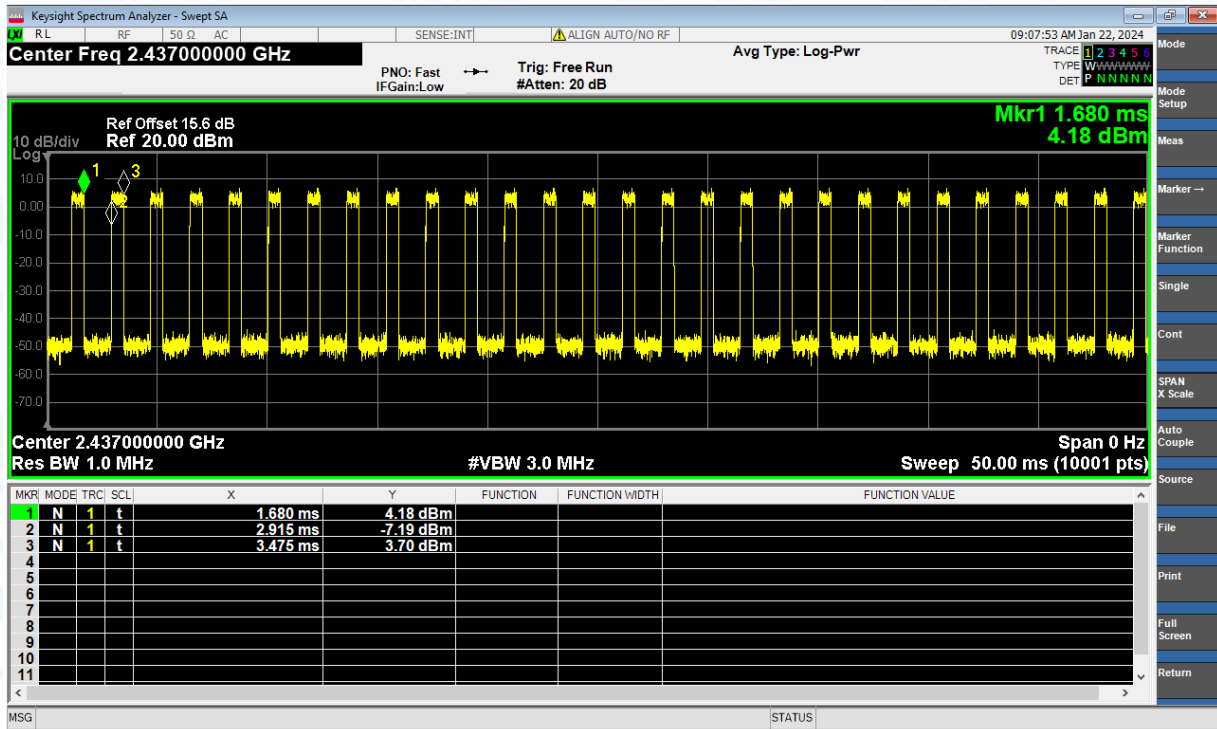
Duty Cycle NVNT g 2462MHz Ant1



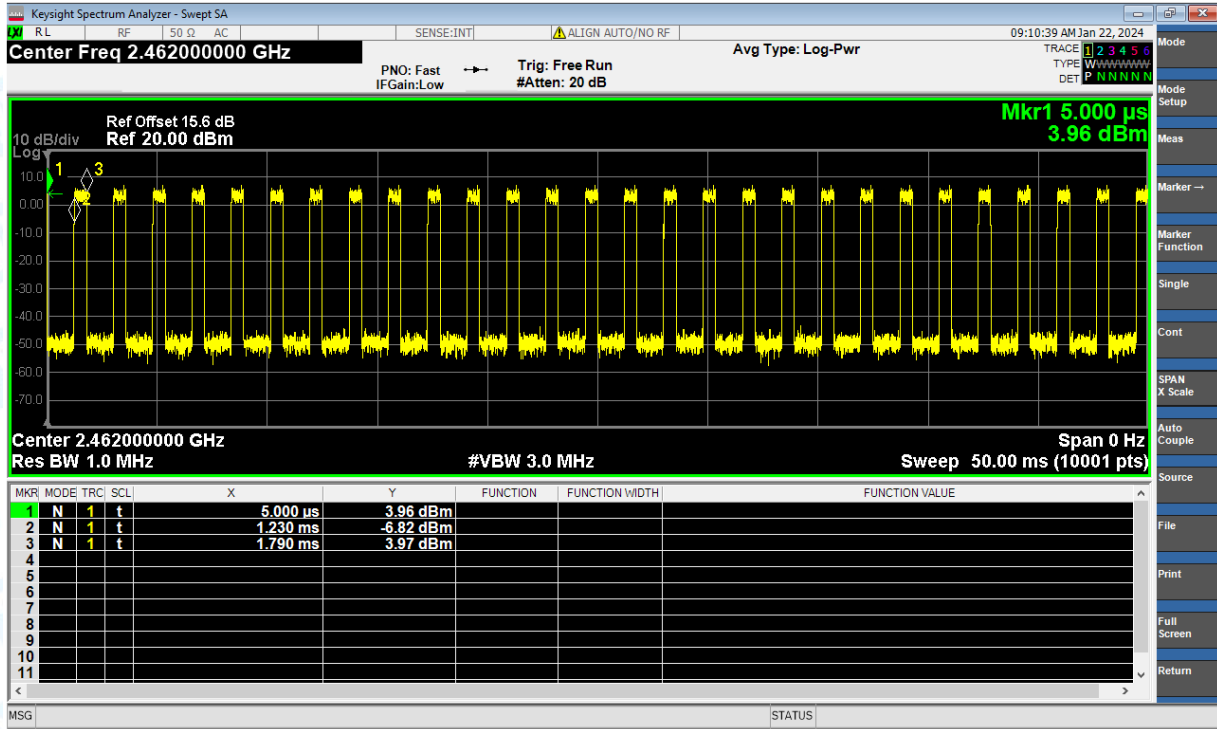
Duty Cycle NVNT n(HT20) 2412MHz Ant1



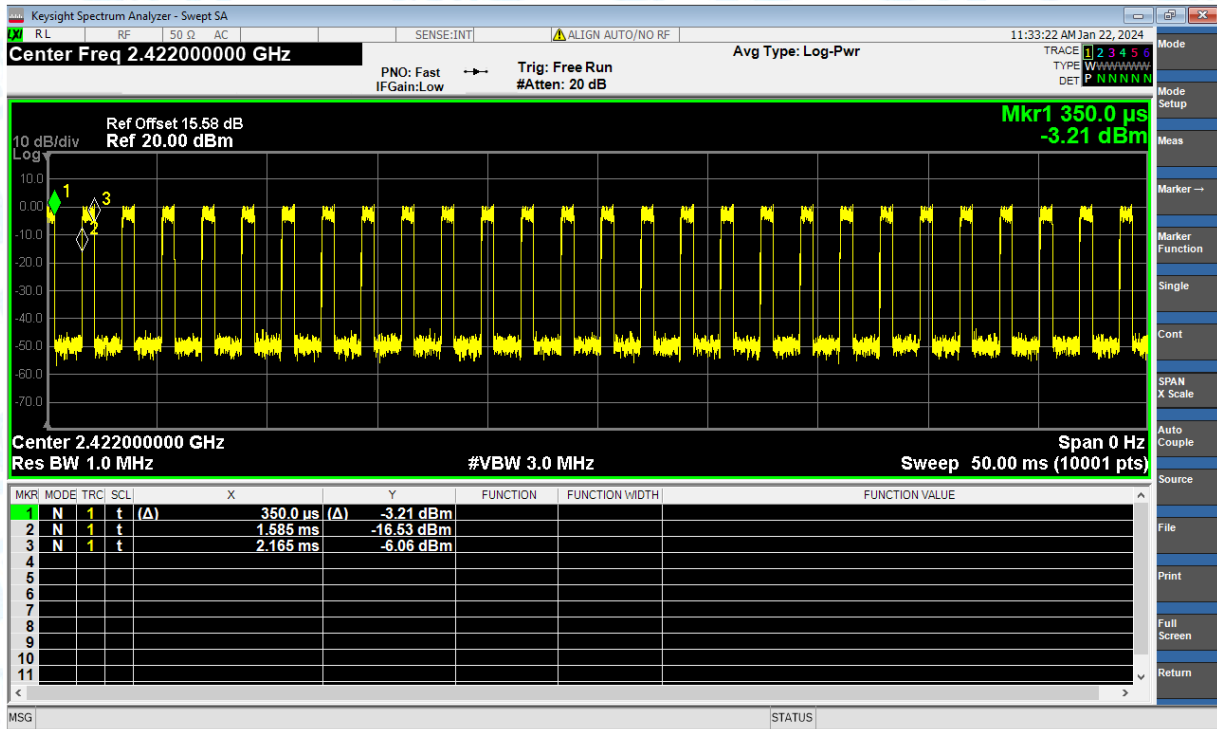
Duty Cycle NVNT n(HT20) 2437MHz Ant1



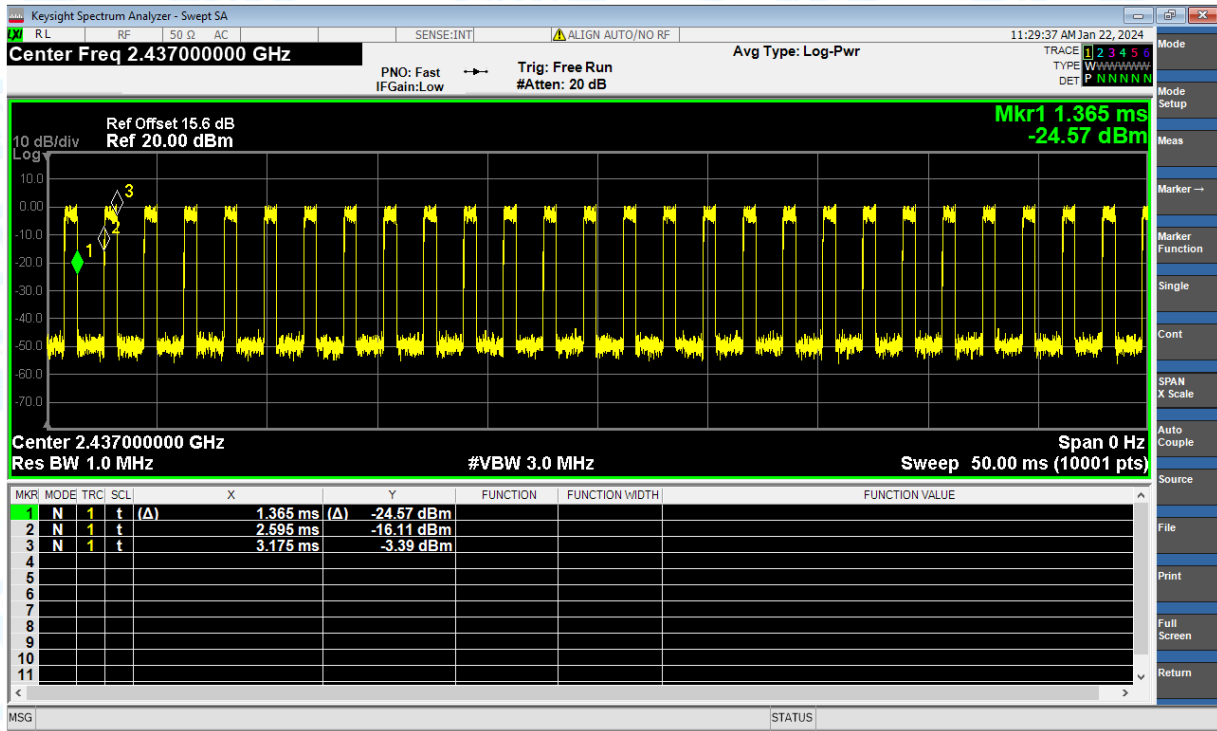
Duty Cycle NVNT n(HT20) 2462MHz Ant1



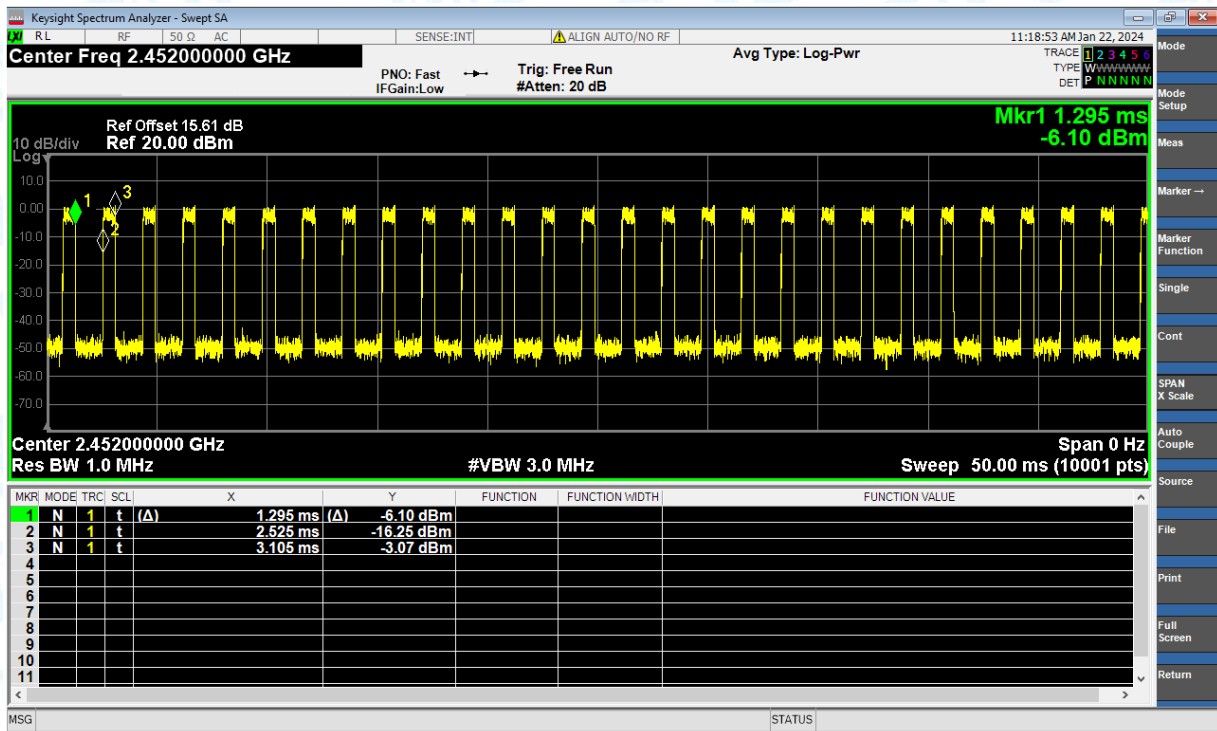
Duty Cycle NVNT n(HT40) 2422MHz Ant1



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	15.03	30	Pass
NVNT	b	2437	Ant1	15.26	30	Pass
NVNT	b	2462	Ant1	15.55	30	Pass
NVNT	g	2412	Ant1	15	30	Pass
NVNT	g	2437	Ant1	15.22	30	Pass
NVNT	g	2462	Ant1	15.43	30	Pass
NVNT	n(HT20)	2412	Ant1	15.19	30	Pass
NVNT	n(HT20)	2437	Ant1	15.34	30	Pass
NVNT	n(HT20)	2462	Ant1	15.61	30	Pass
NVNT	n(HT40)	2422	Ant1	15.38	30	Pass
NVNT	n(HT40)	2437	Ant1	15.4	30	Pass
NVNT	n(HT40)	2452	Ant1	15.64	30	Pass

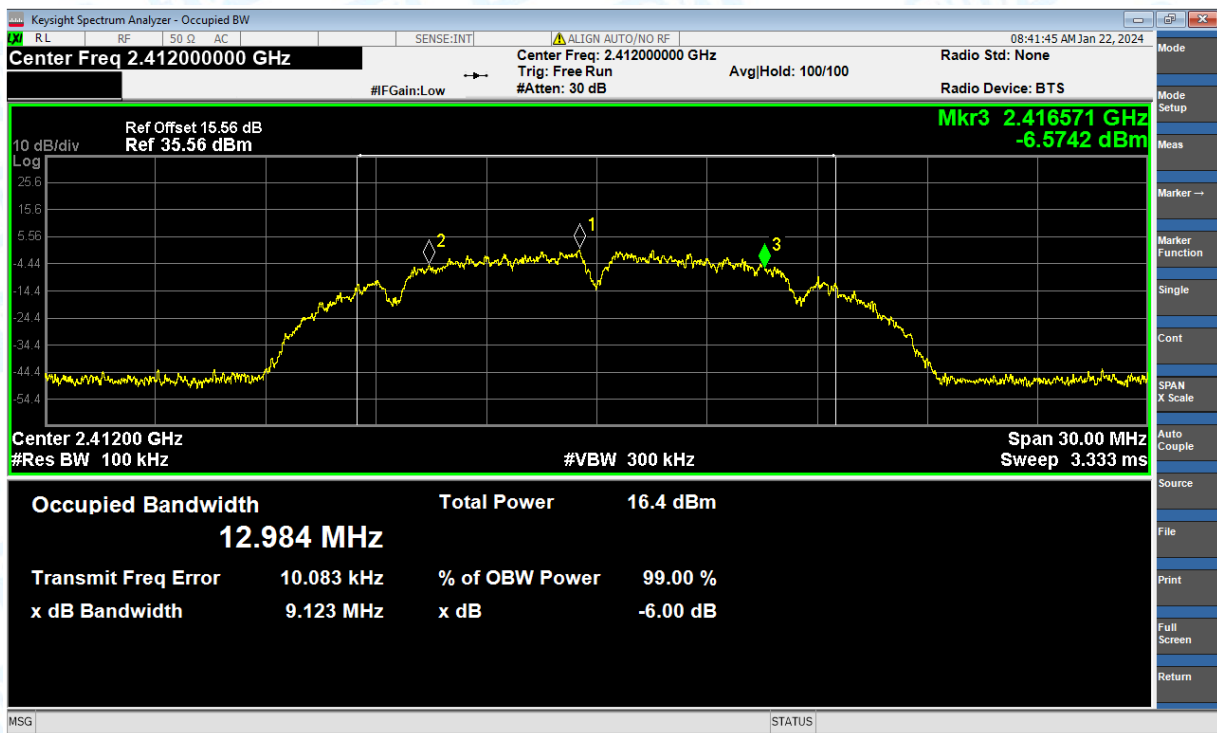
Note: The duty factor has been compensated into the result.

3. -6dB Bandwidth

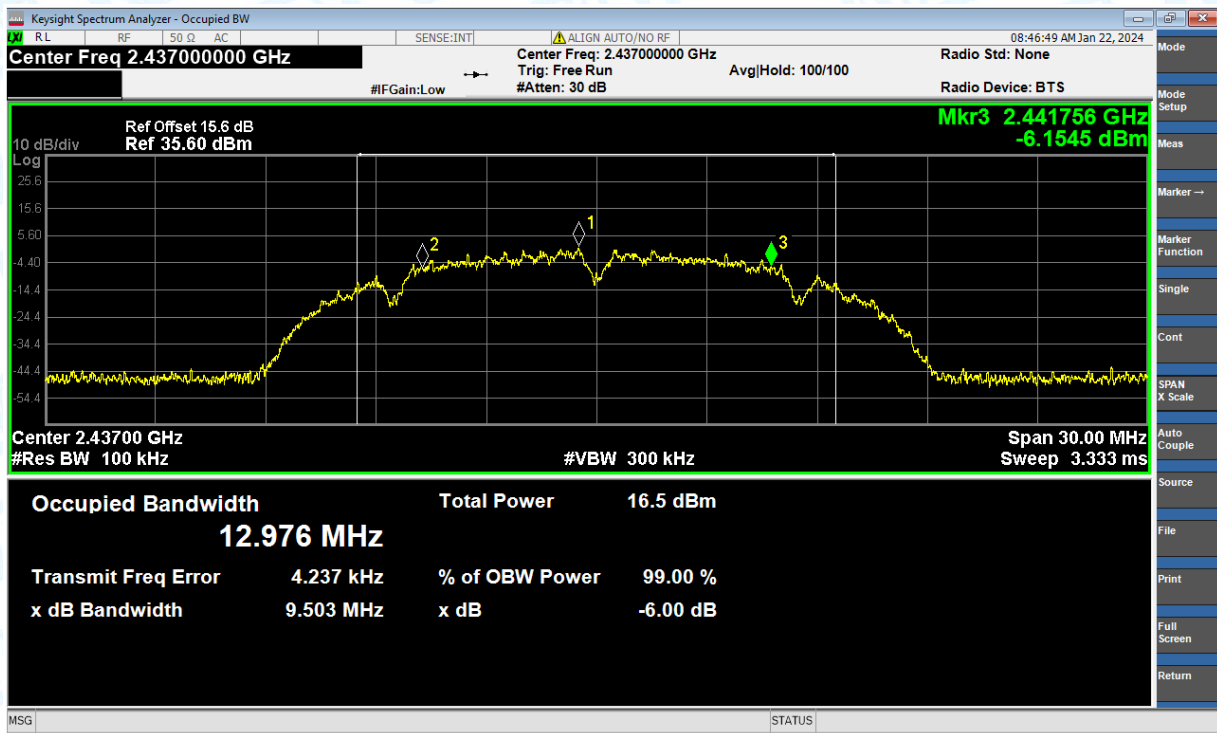
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.12	0.5	Pass
NVNT	b	2437	Ant1	9.5	0.5	Pass
NVNT	b	2462	Ant1	9.14	0.5	Pass
NVNT	g	2412	Ant1	16.32	0.5	Pass
NVNT	g	2437	Ant1	15.62	0.5	Pass
NVNT	g	2462	Ant1	16.05	0.5	Pass
NVNT	n(HT20)	2412	Ant1	15.25	0.5	Pass
NVNT	n(HT20)	2437	Ant1	14.85	0.5	Pass
NVNT	n(HT20)	2462	Ant1	16.01	0.5	Pass
NVNT	n(HT40)	2422	Ant1	35.07	0.5	Pass
NVNT	n(HT40)	2437	Ant1	30.64	0.5	Pass
NVNT	n(HT40)	2452	Ant1	33.8	0.5	Pass

Test Graphs

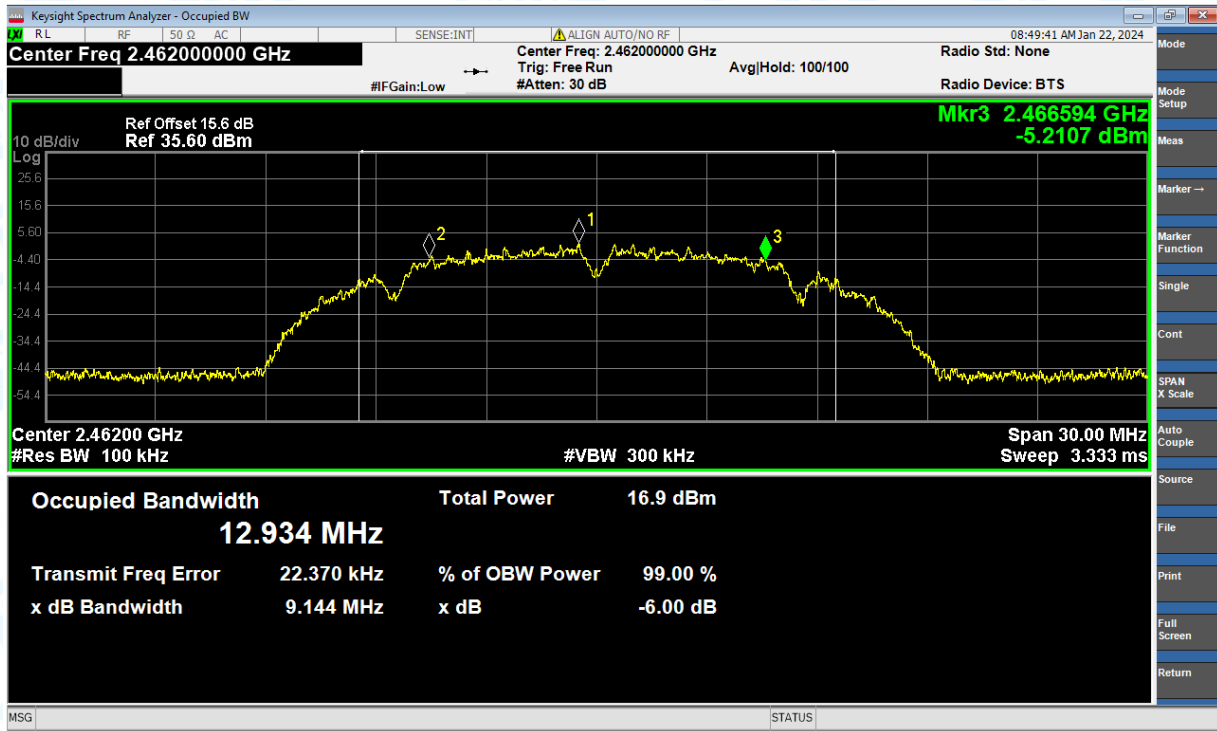
-6dB Bandwidth NVNT b 2412MHz Ant1



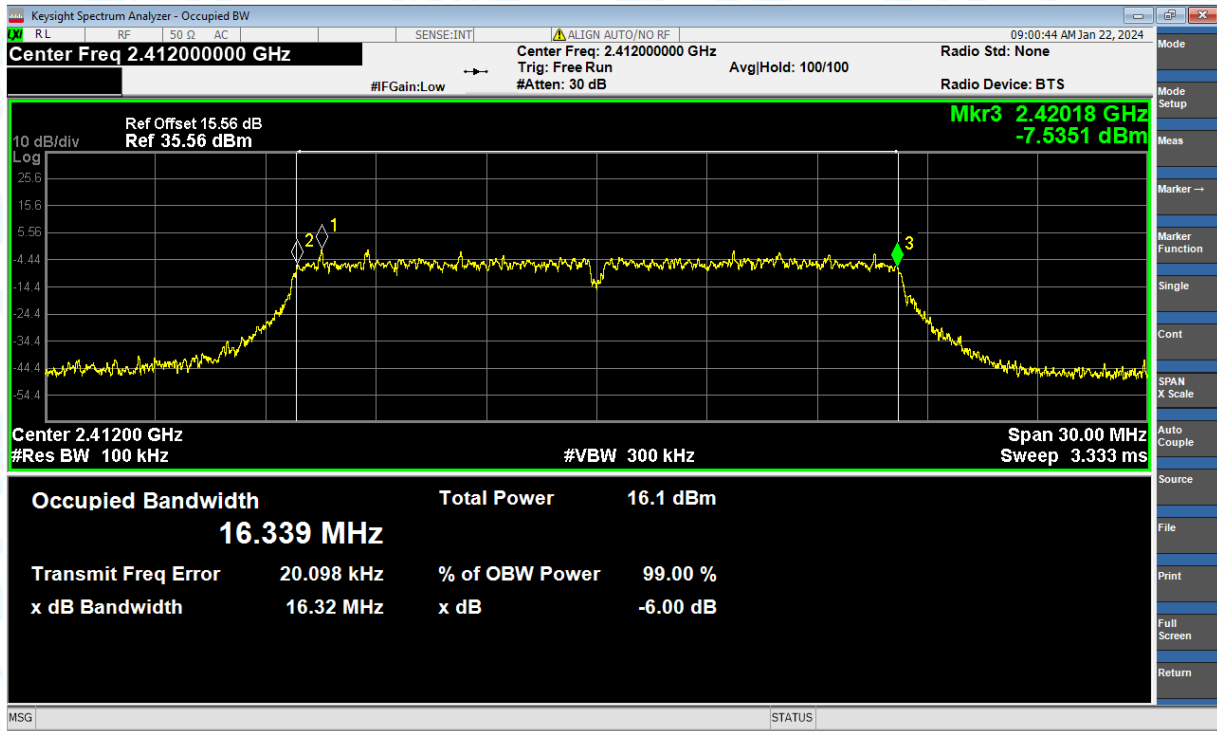
-6dB Bandwidth NVNT b 2437MHz Ant1



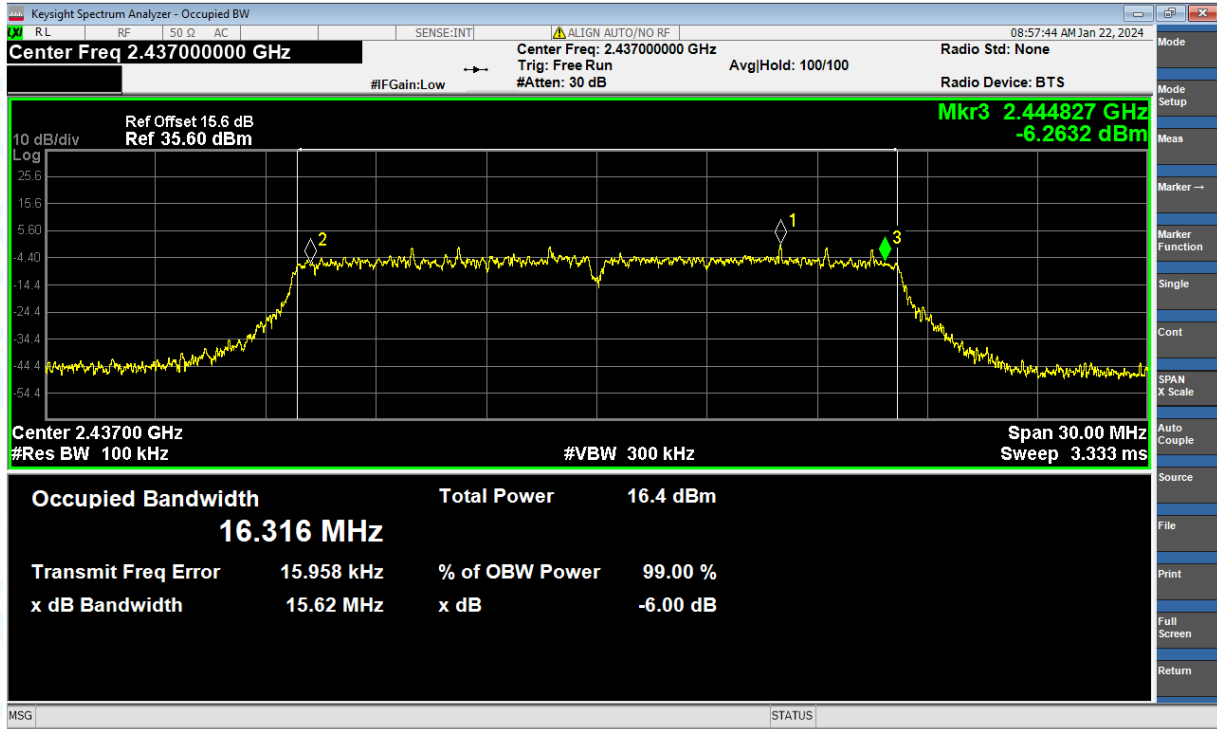
-6dB Bandwidth NVNT b 2462MHz Ant1



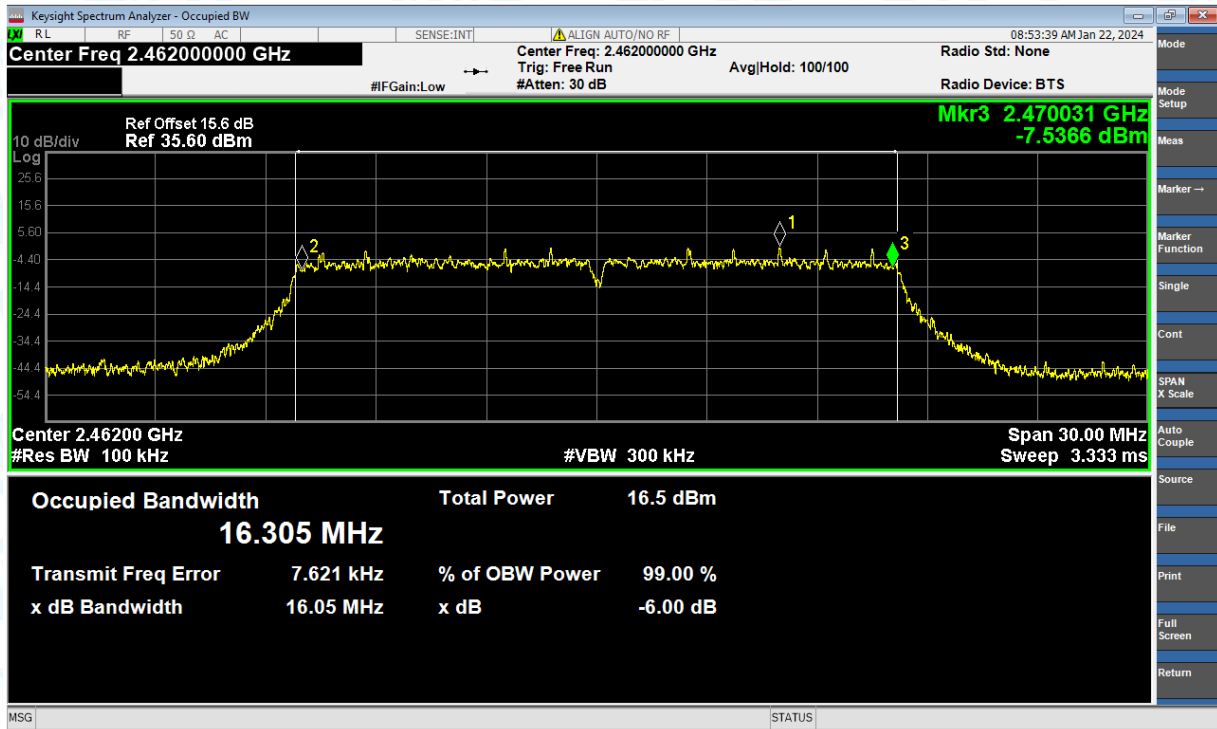
-6dB Bandwidth NVNT g 2412MHz Ant1



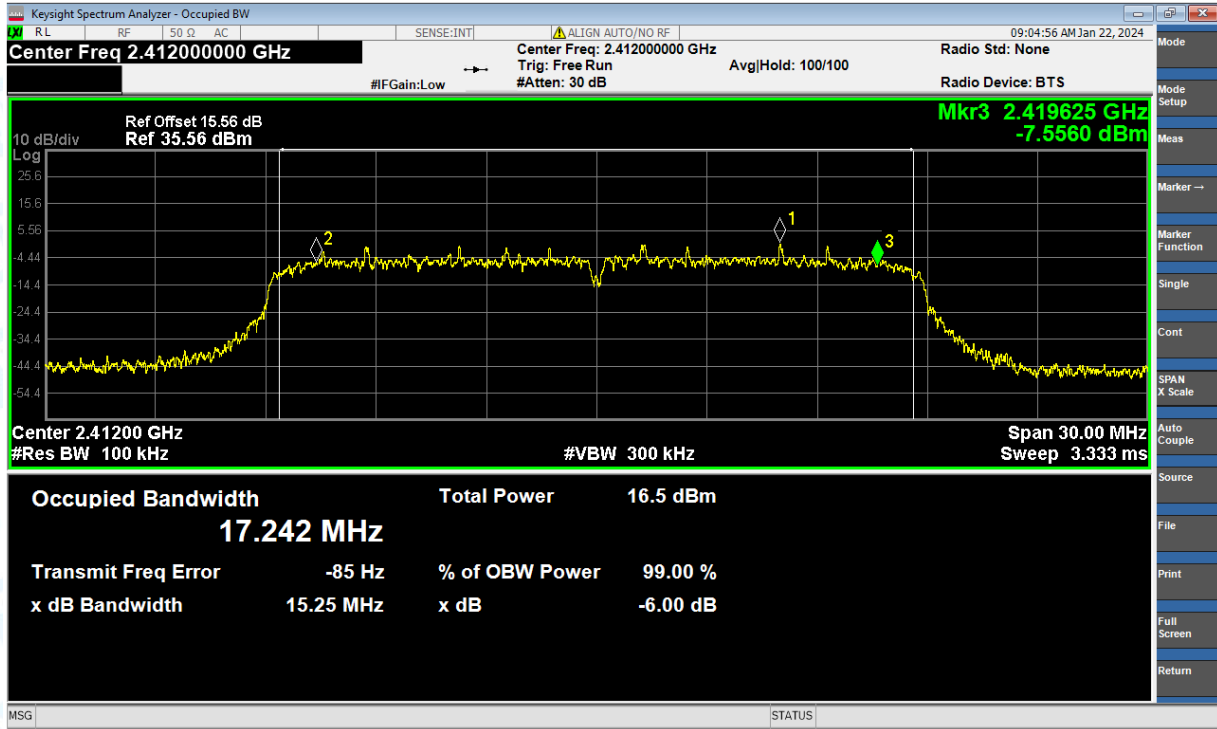
-6dB Bandwidth NVNT g 2437MHz Ant1



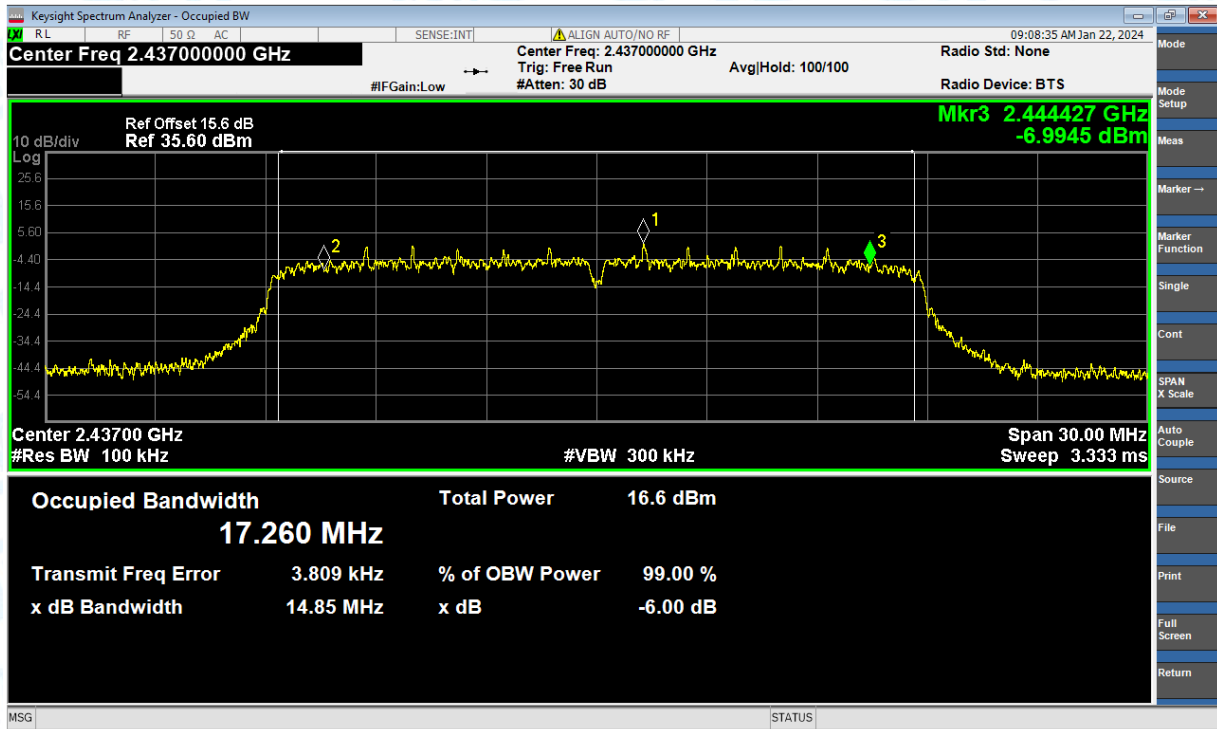
-6dB Bandwidth NVNT g 2462MHz Ant1



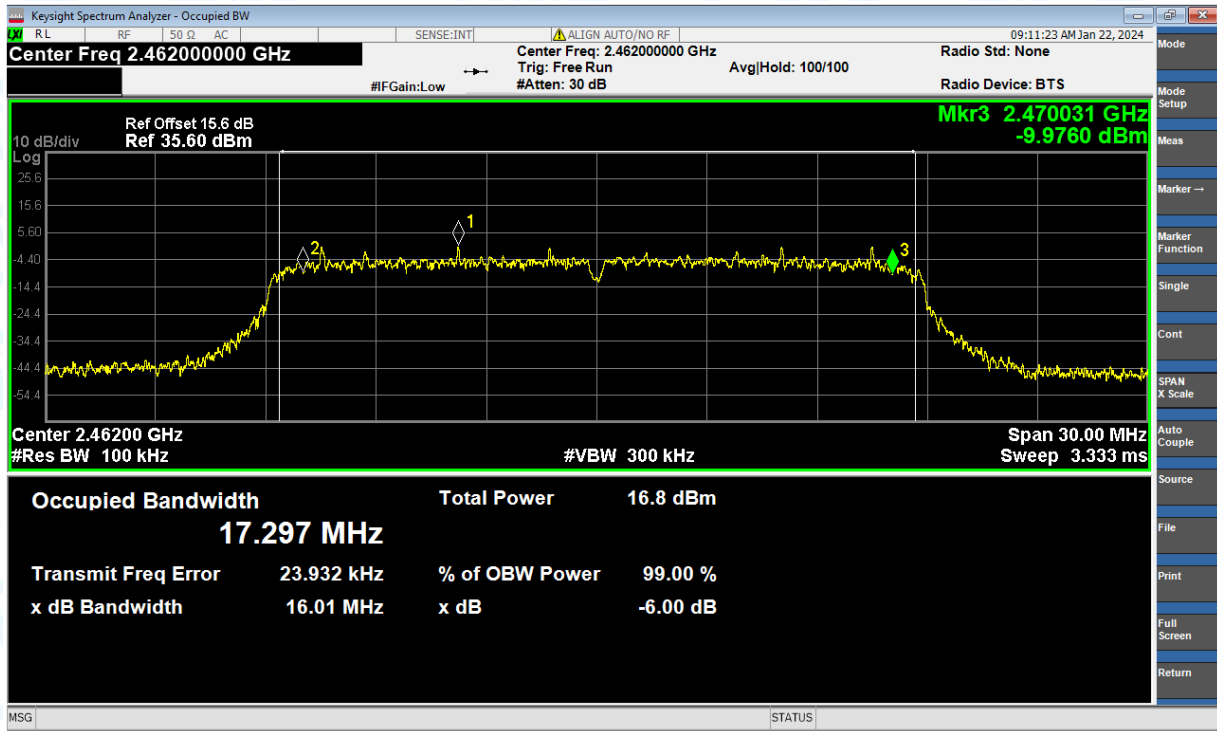
-6dB Bandwidth NVNT n(HT20) 2412MHz Ant1



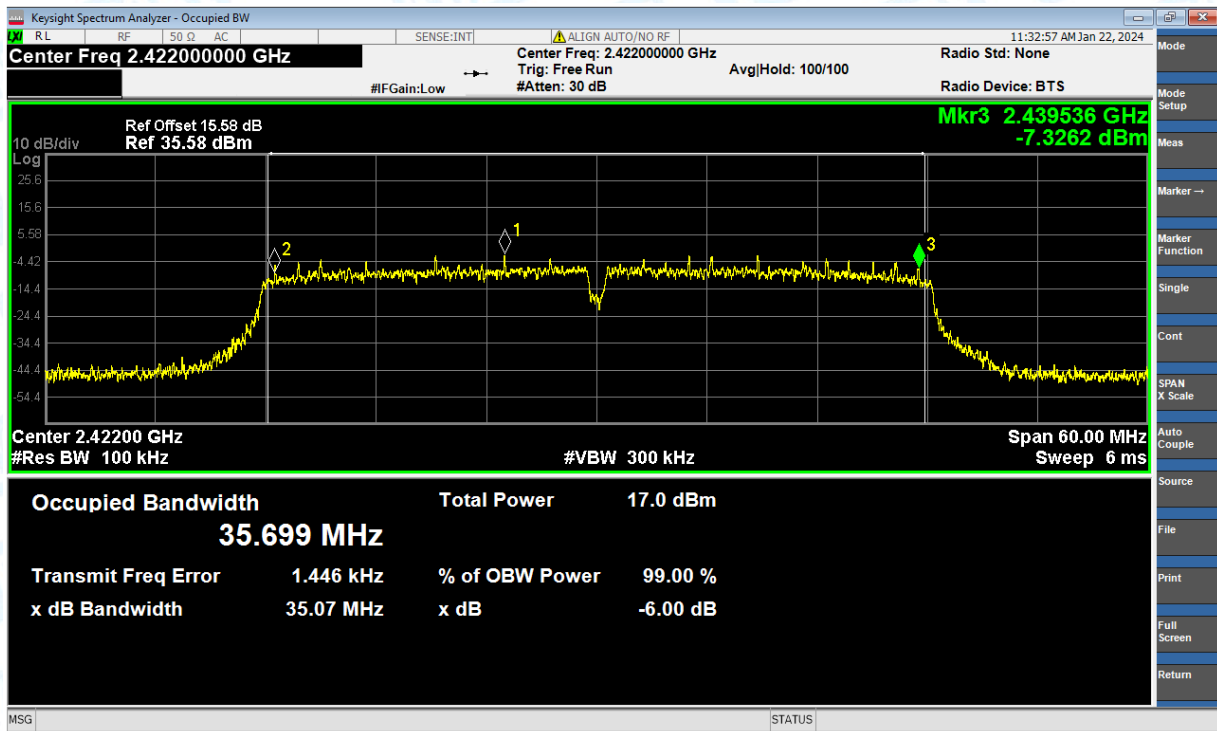
-6dB Bandwidth NVNT n(HT20) 2437MHz Ant1



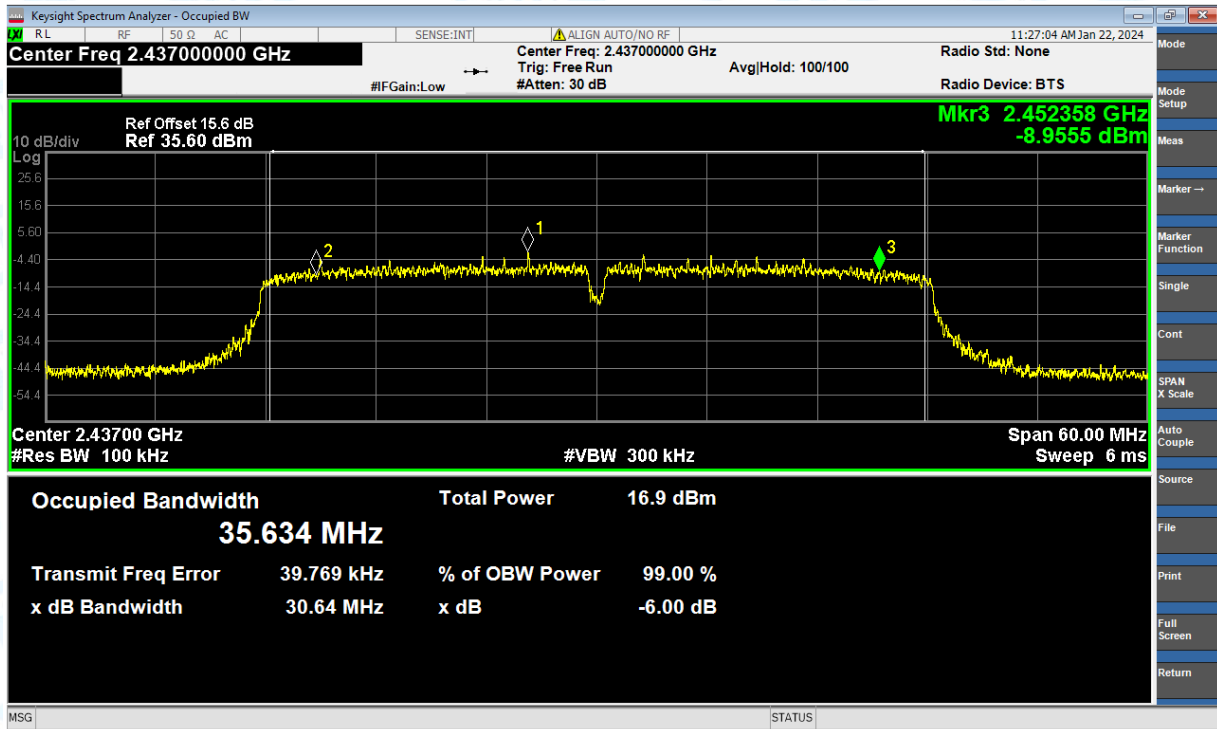
-6dB Bandwidth NVNT n(HT20) 2462MHz Ant1



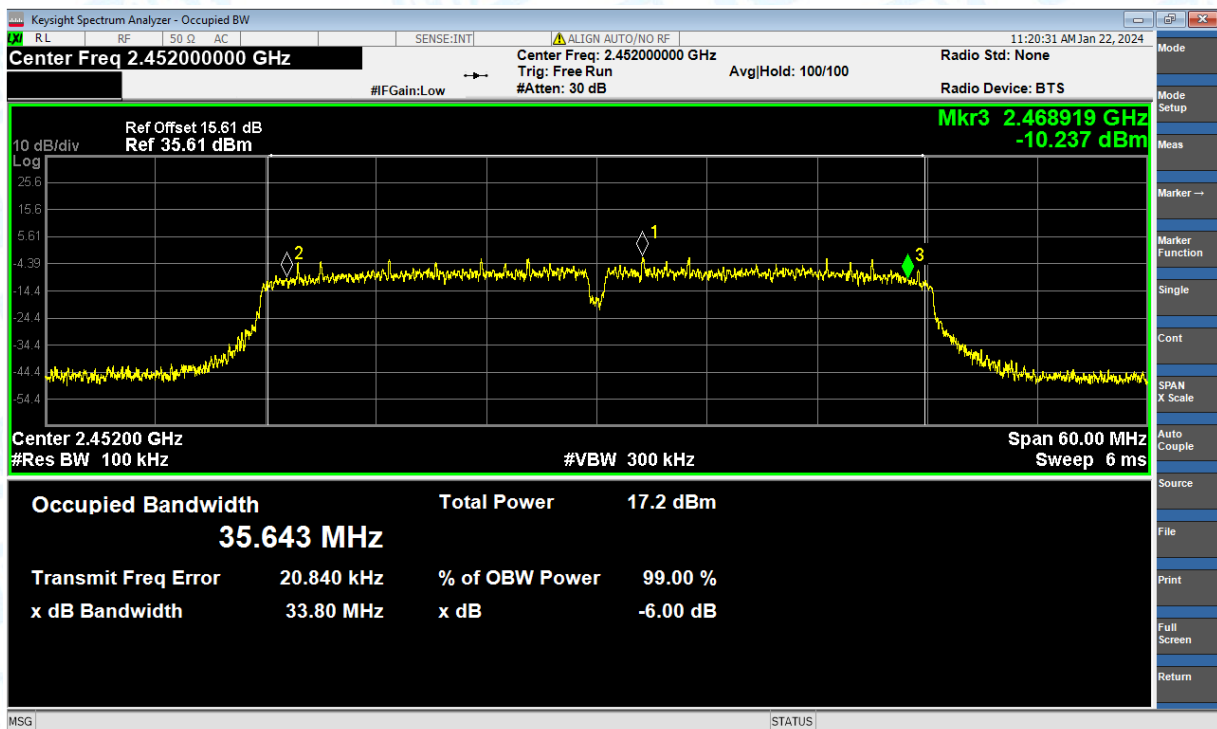
-6dB Bandwidth NVNT n(HT40) 2422MHz Ant1



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



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

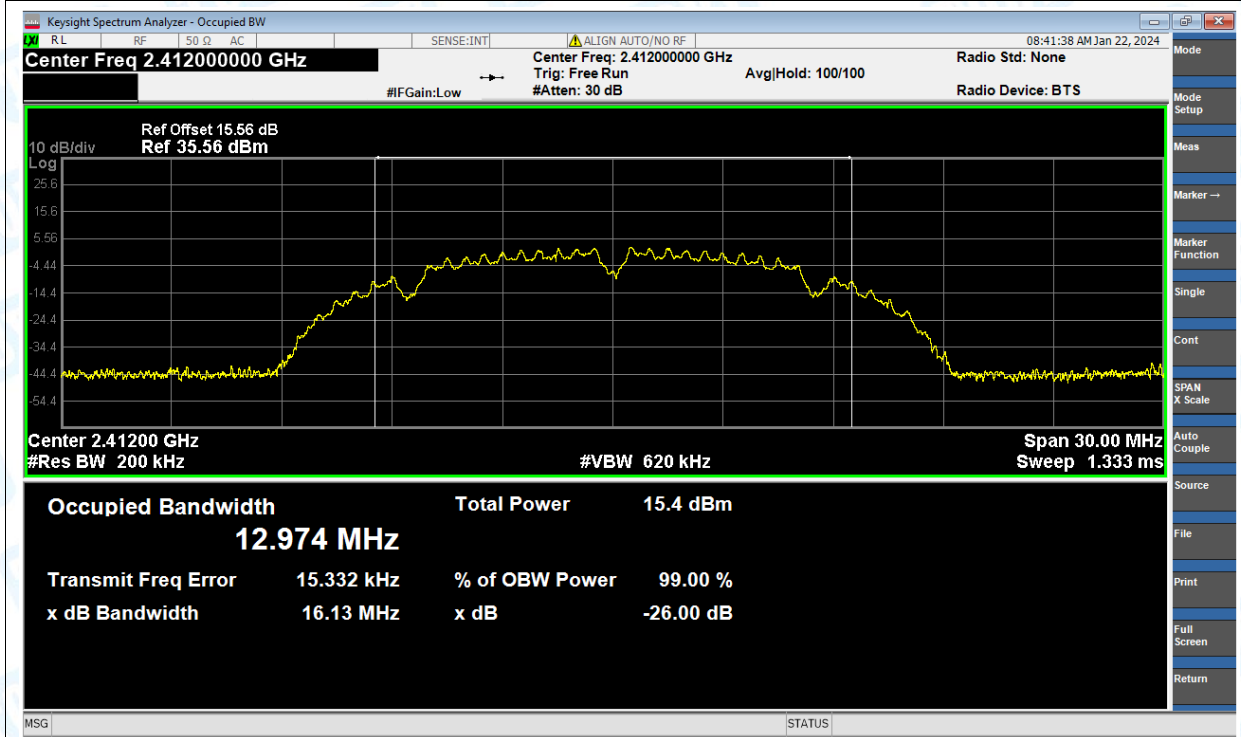


4. Occupied Channel Bandwidth

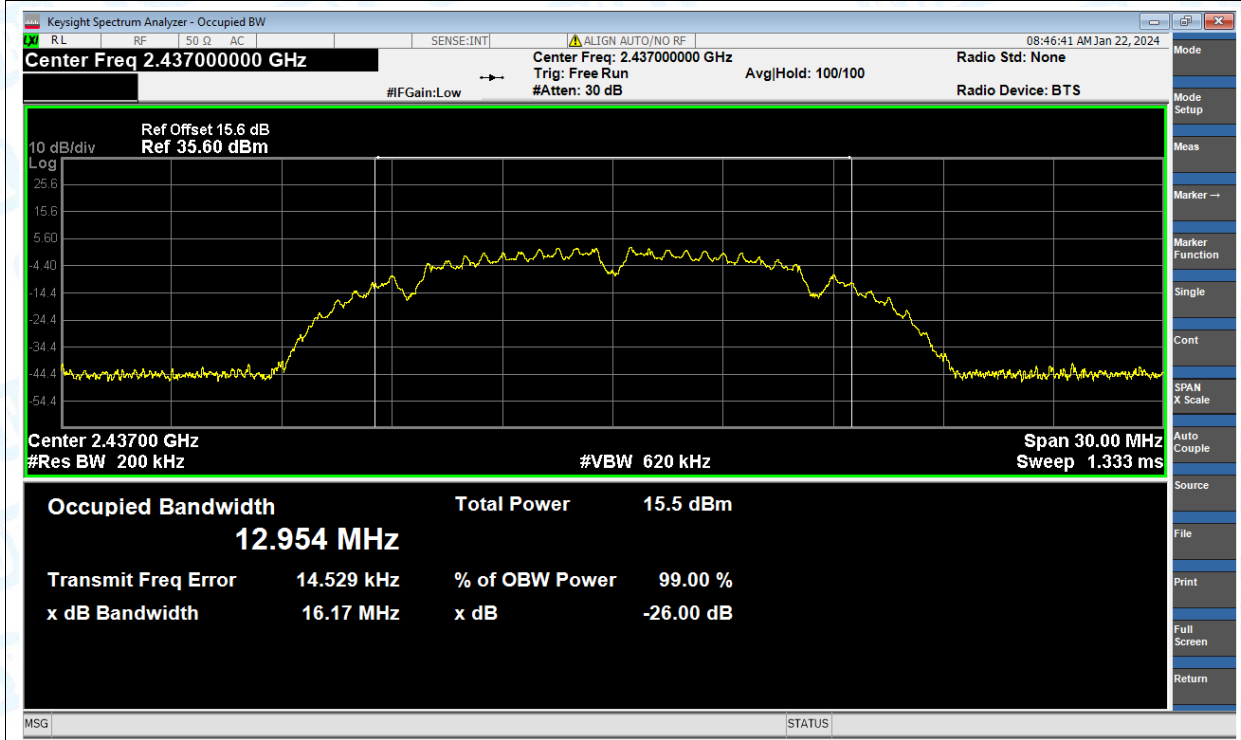
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	12.974
NVNT	b	2437	Ant1	12.954
NVNT	b	2462	Ant1	12.986
NVNT	g	2412	Ant1	16.354
NVNT	g	2437	Ant1	16.394
NVNT	g	2462	Ant1	16.387
NVNT	n(HT20)	2412	Ant1	17.252
NVNT	n(HT20)	2437	Ant1	17.278
NVNT	n(HT20)	2462	Ant1	17.231
NVNT	n(HT40)	2422	Ant1	35.723
NVNT	n(HT40)	2437	Ant1	35.646
NVNT	n(HT40)	2452	Ant1	35.729

Test Graphs

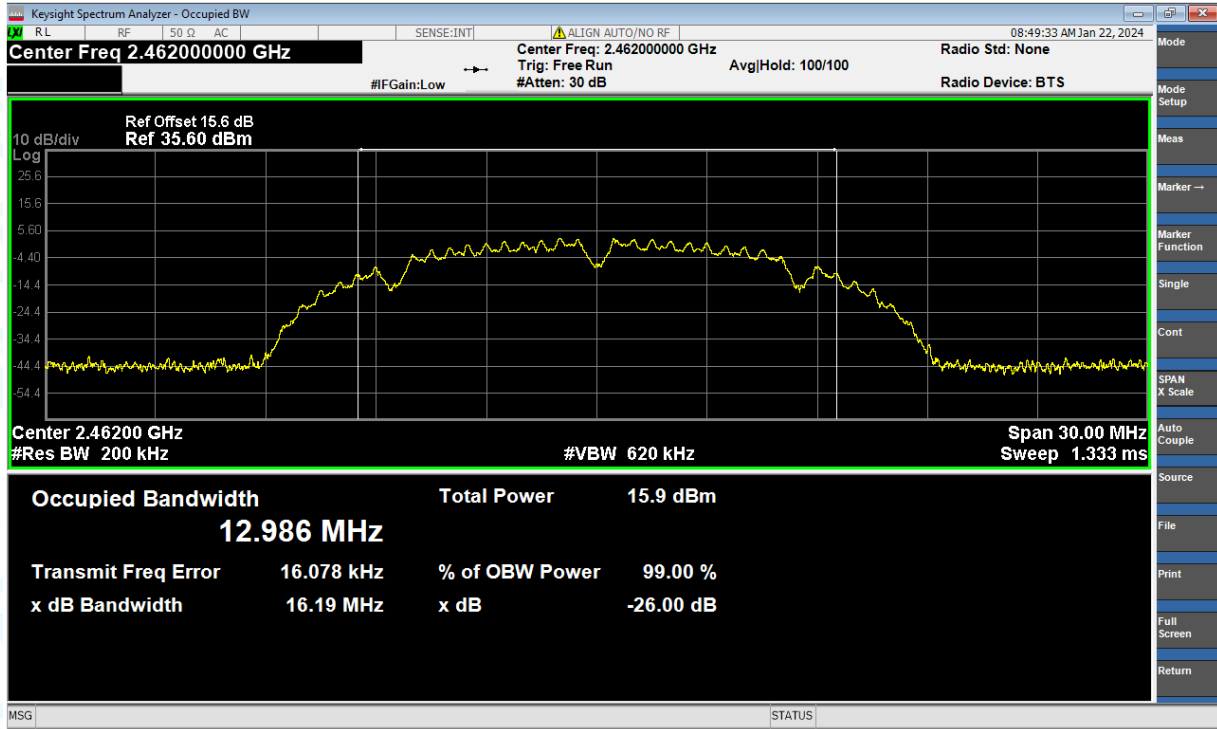
OBW NVNT b 2412MHz Ant1



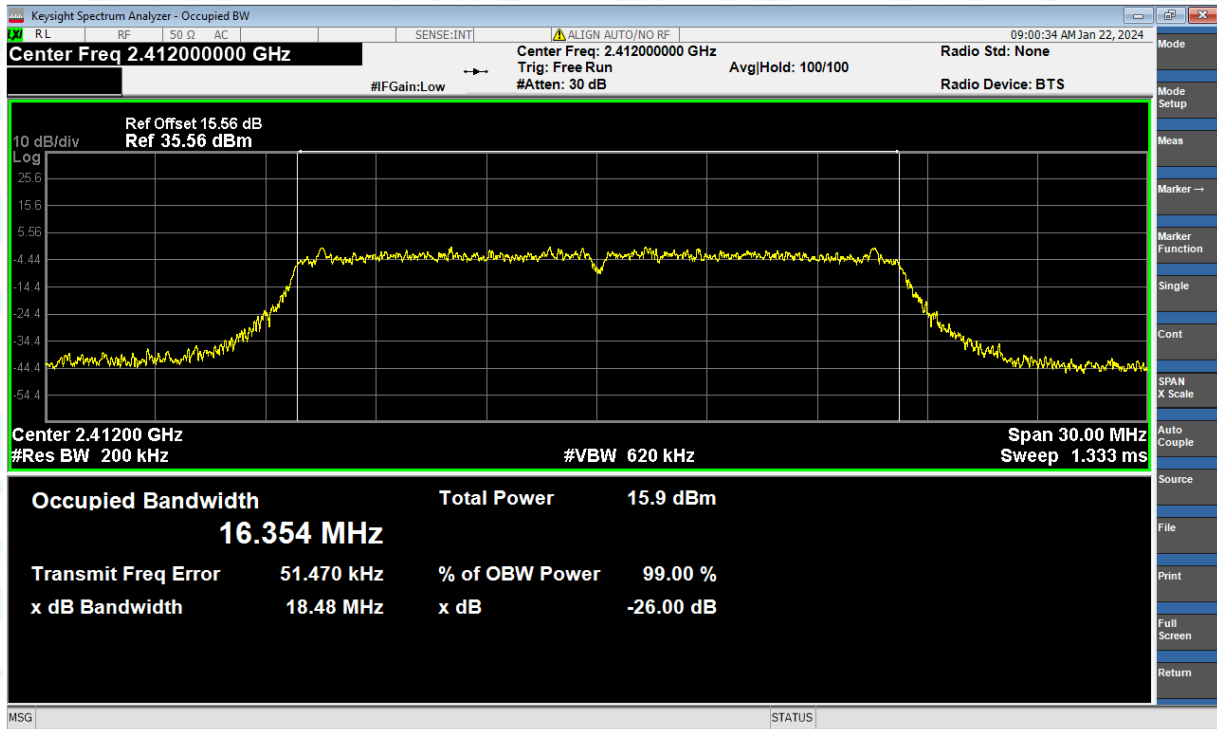
OBW NVNT b 2437MHz Ant1



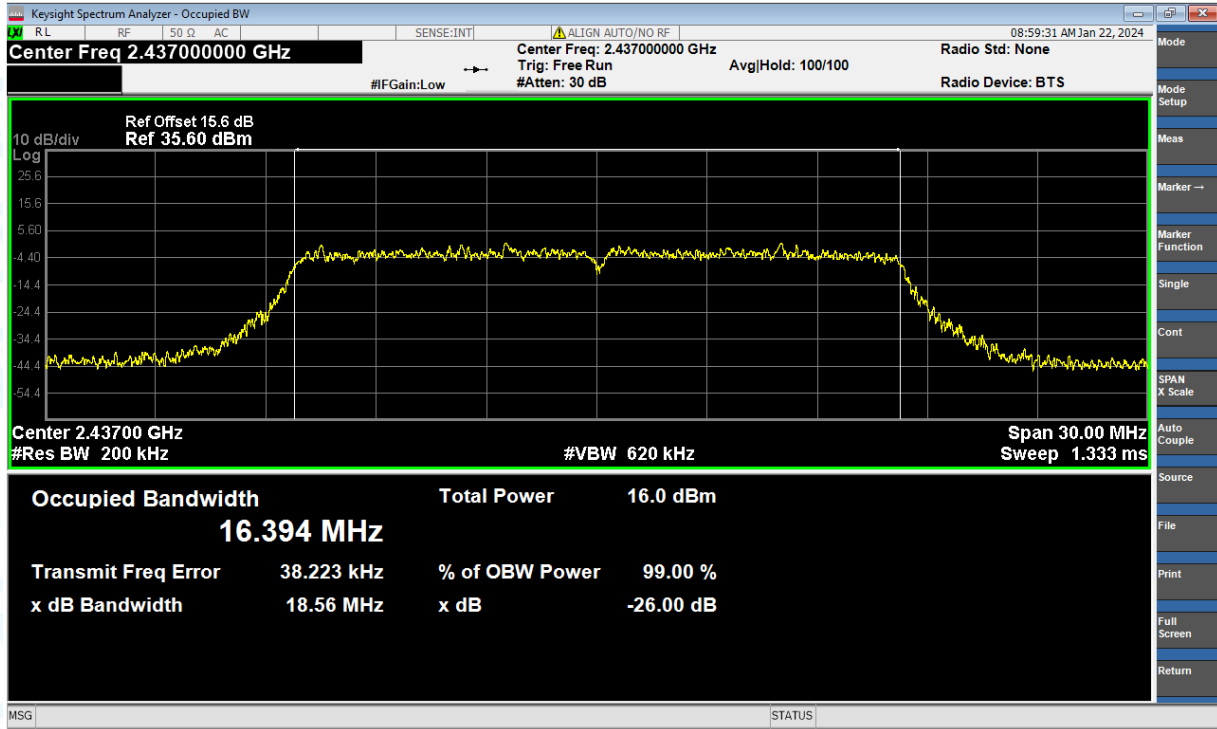
OBW NVNT b 2462MHz Ant1



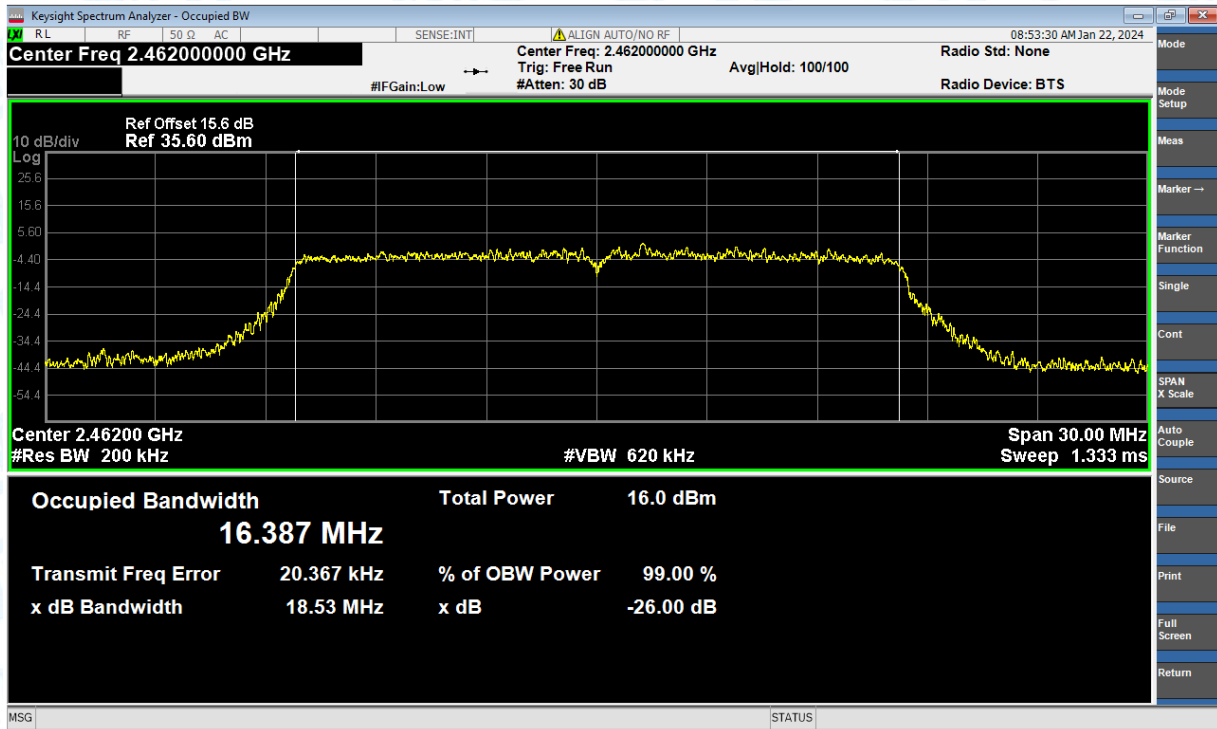
OBW NVNT g 2412MHz Ant1



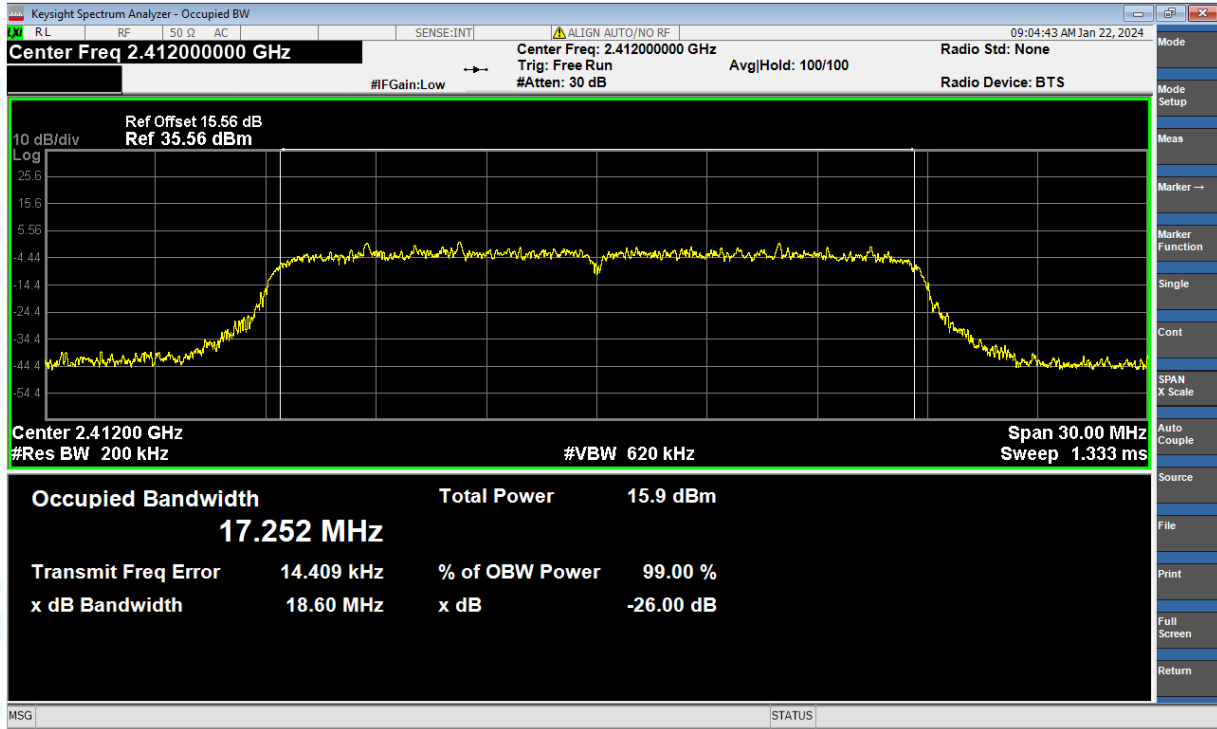
OBW NVNT g 2437MHz Ant1



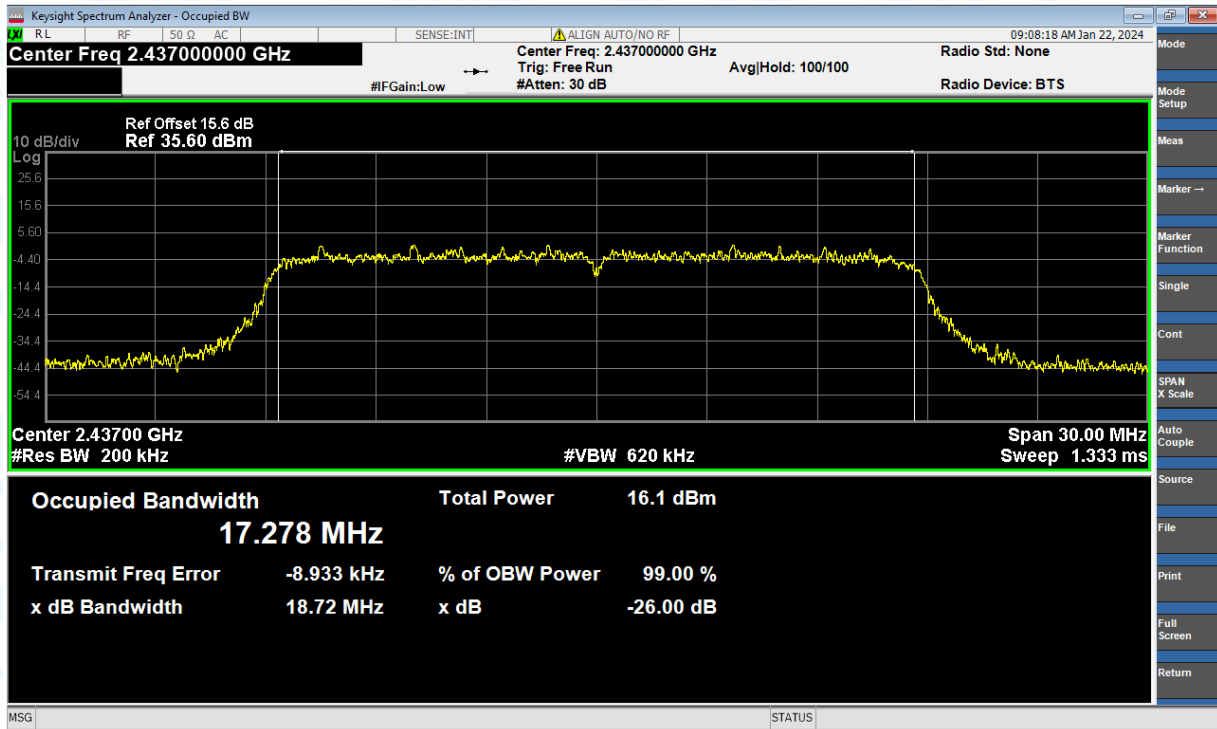
OBW NVNT g 2462MHz Ant1



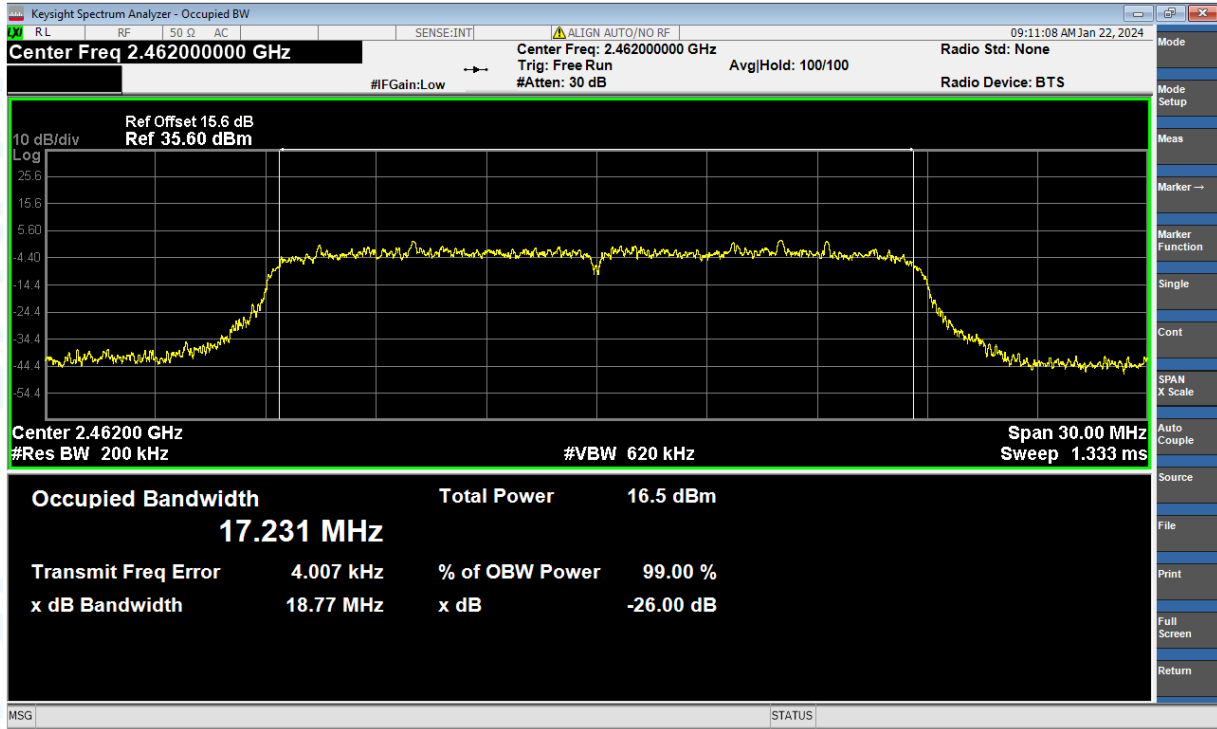
OBW NVNT n(HT20) 2412MHz Ant1



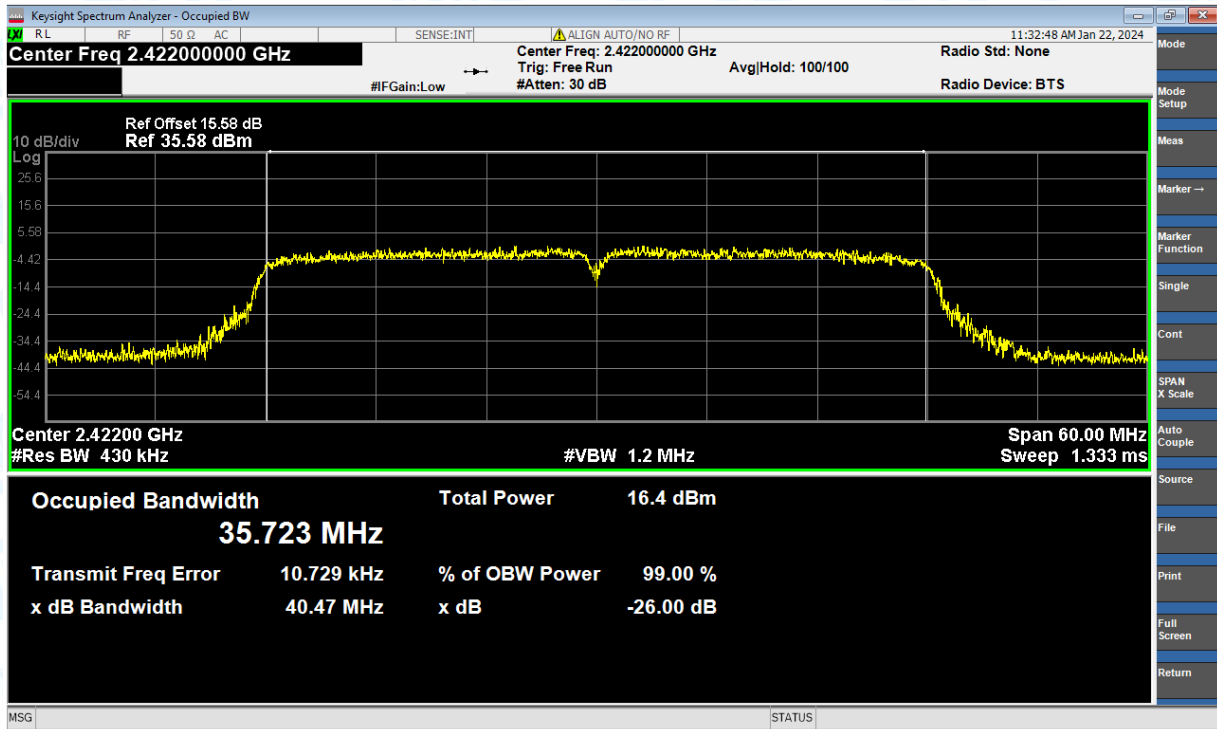
OBW NVNT n(HT20) 2437MHz Ant1



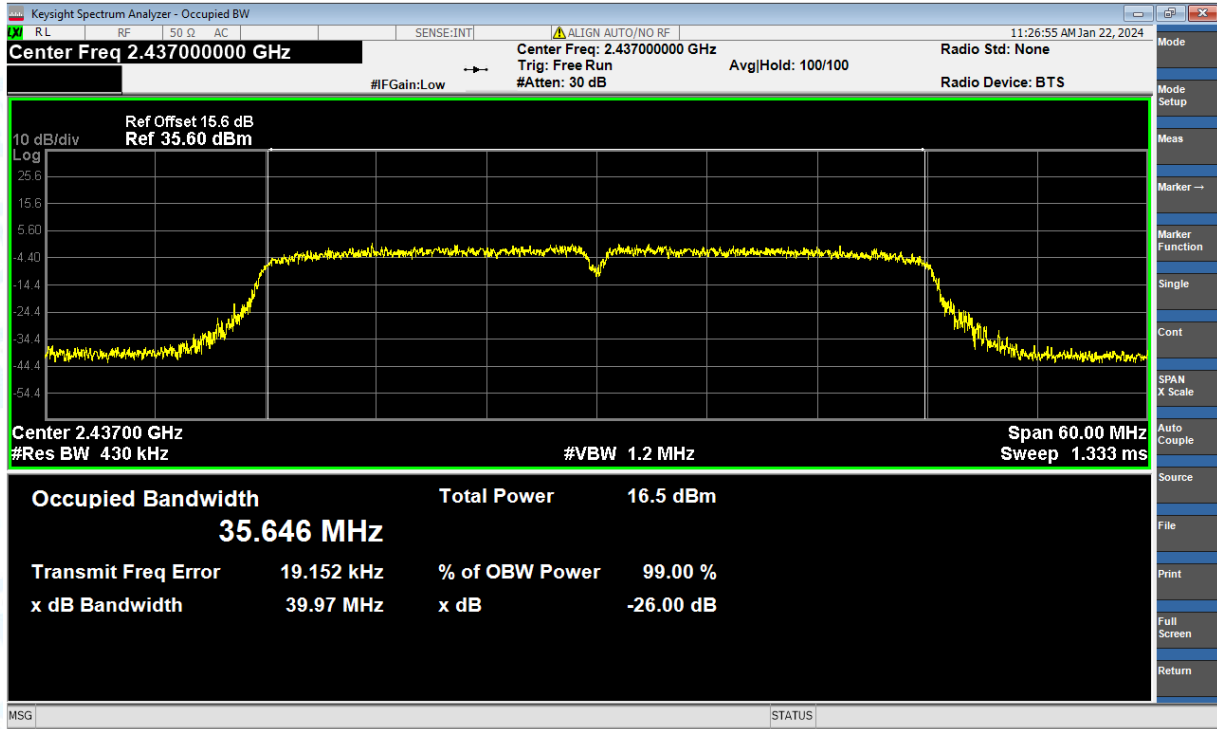
OBW NVNT n(HT20) 2462MHz Ant1



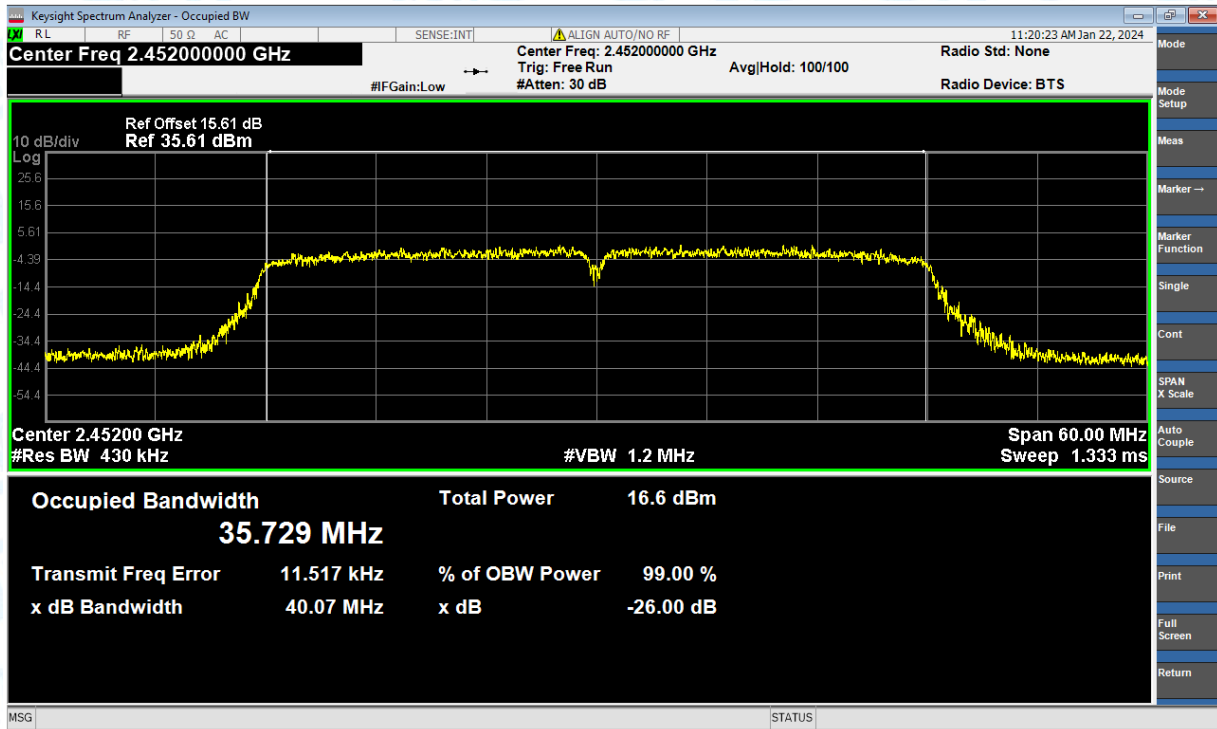
OBW NVNT n(HT40) 2422MHz Ant1



OBW NVNT n(HT40) 2437MHz Ant1



OBW NVNT n(HT40) 2452MHz Ant1



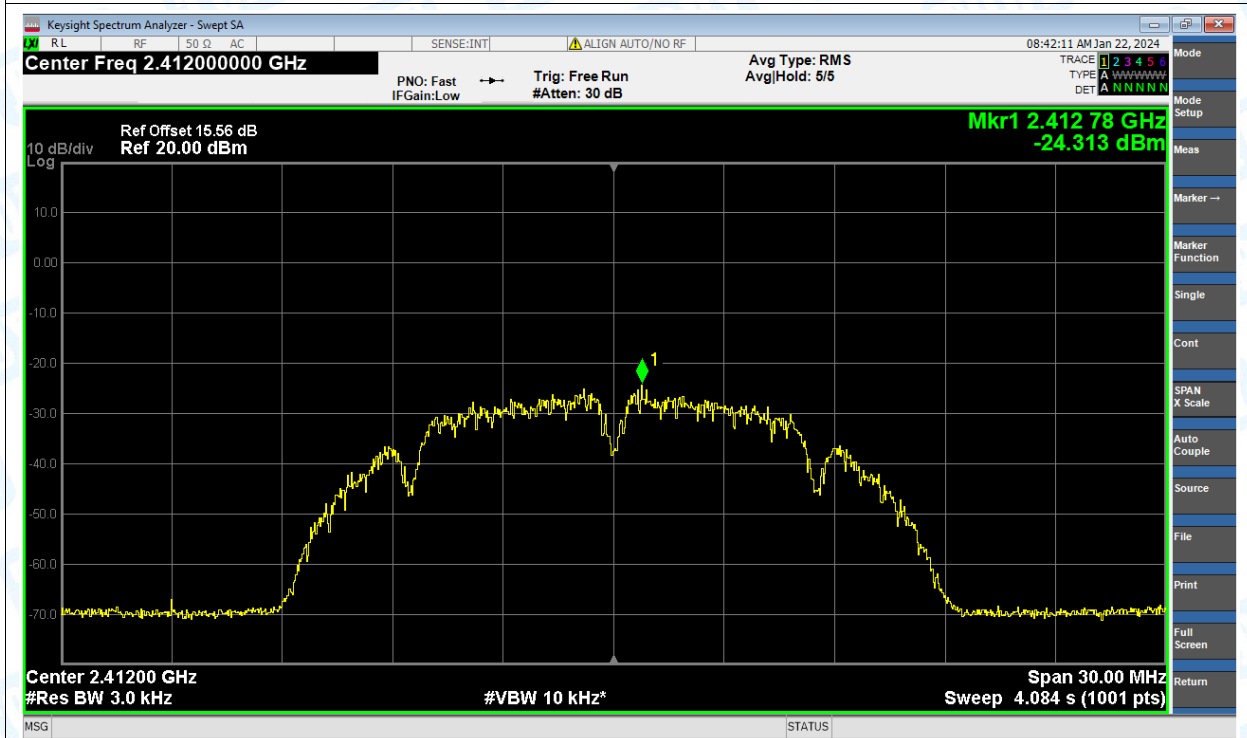
5. Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	-24.313	8	Pass
NVNT	b	2437	Ant1	-25.395	8	Pass
NVNT	b	2462	Ant1	-24.769	8	Pass
NVNT	g	2412	Ant1	-27.159	8	Pass
NVNT	g	2437	Ant1	-26.589	8	Pass
NVNT	g	2462	Ant1	-27.024	8	Pass
NVNT	n(HT20)	2412	Ant1	-27.206	8	Pass
NVNT	n(HT20)	2437	Ant1	-26.821	8	Pass
NVNT	n(HT20)	2462	Ant1	-26.504	8	Pass
NVNT	n(HT40)	2422	Ant1	-29.257	8	Pass
NVNT	n(HT40)	2437	Ant1	-29.151	8	Pass
NVNT	n(HT40)	2452	Ant1	-29.588	8	Pass

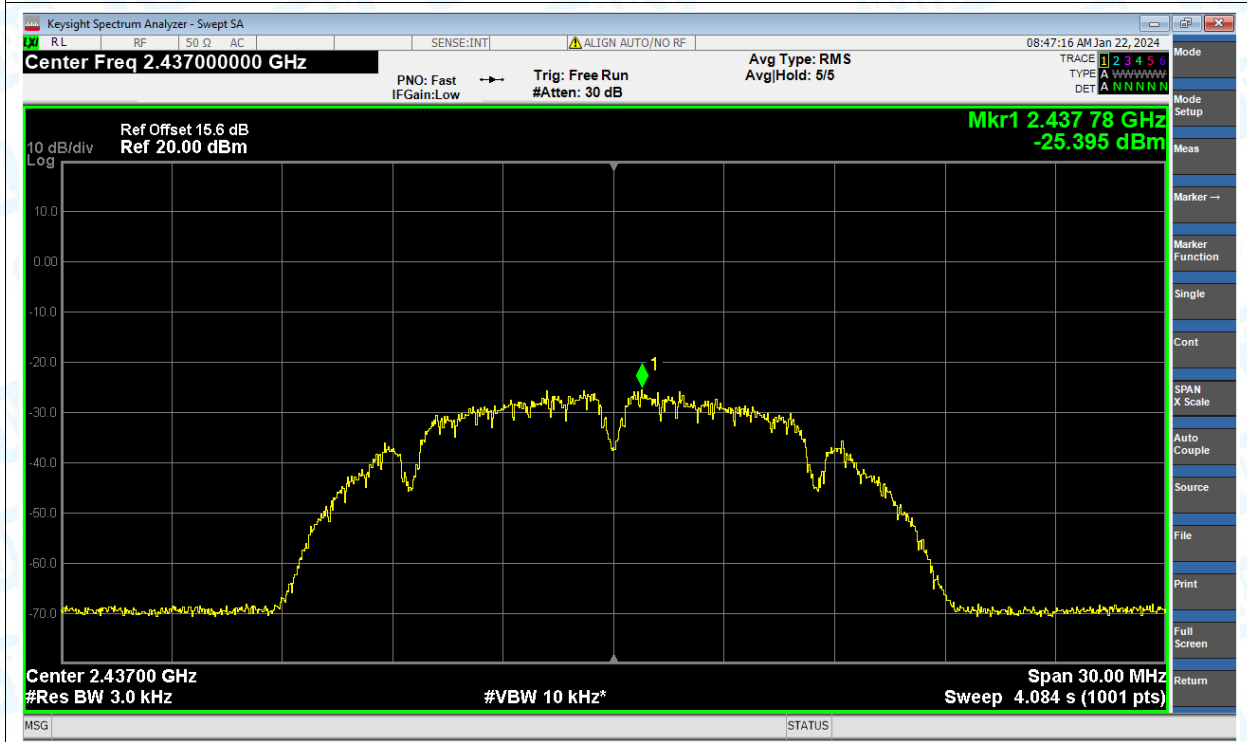
Note: The duty factor has been compensated into the result.

Test Graphs

PSD NVNT b 2412MHz Ant1



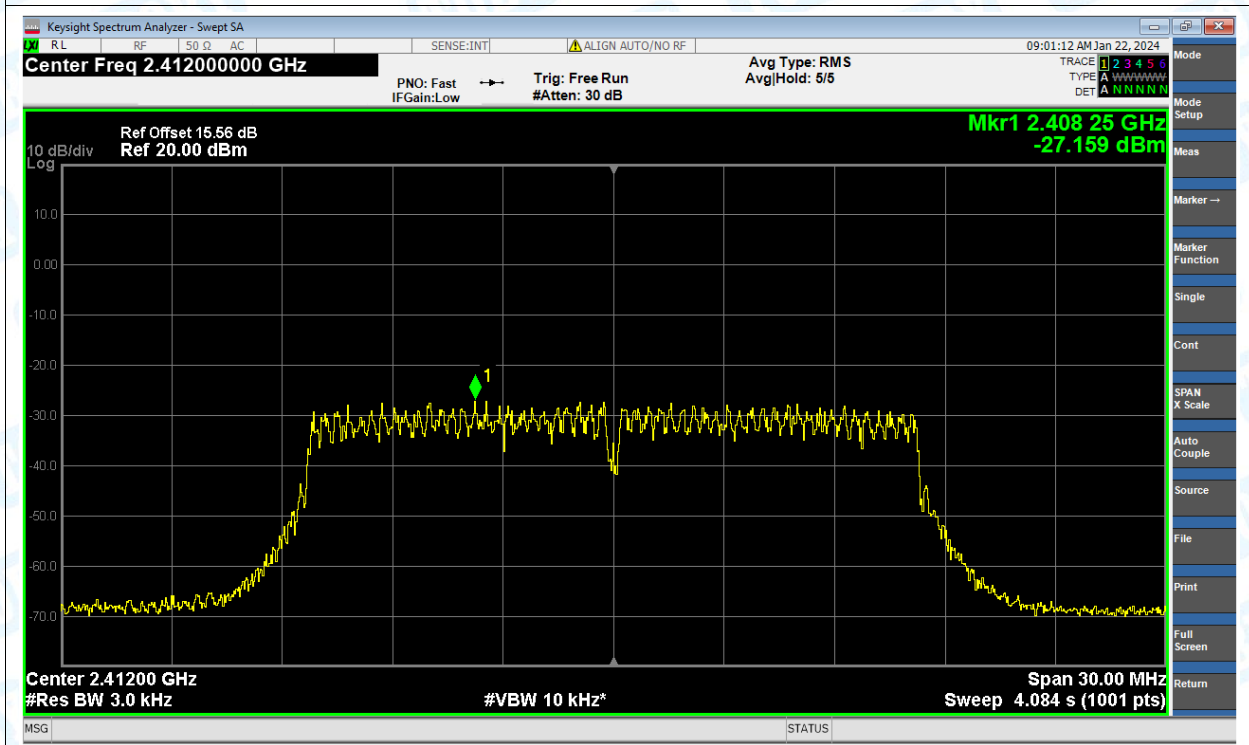
PSD NVNT b 2437MHz Ant1

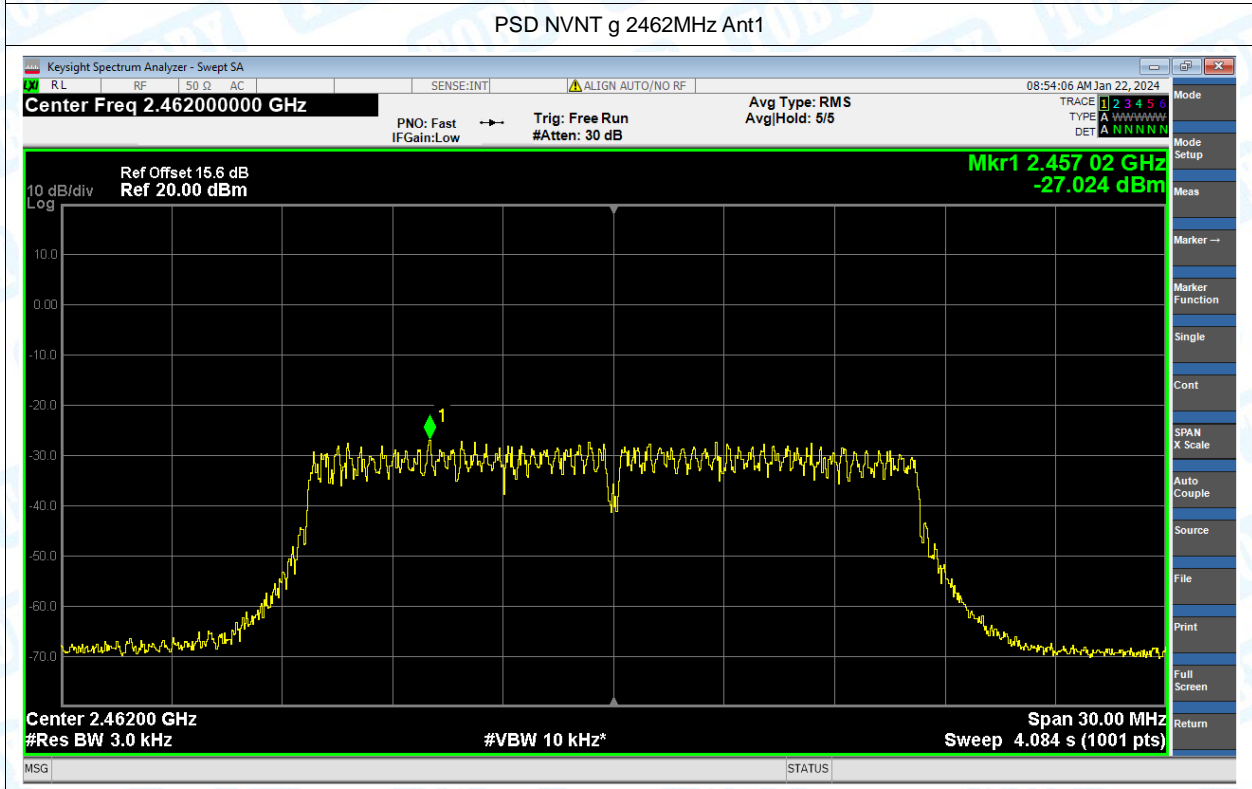
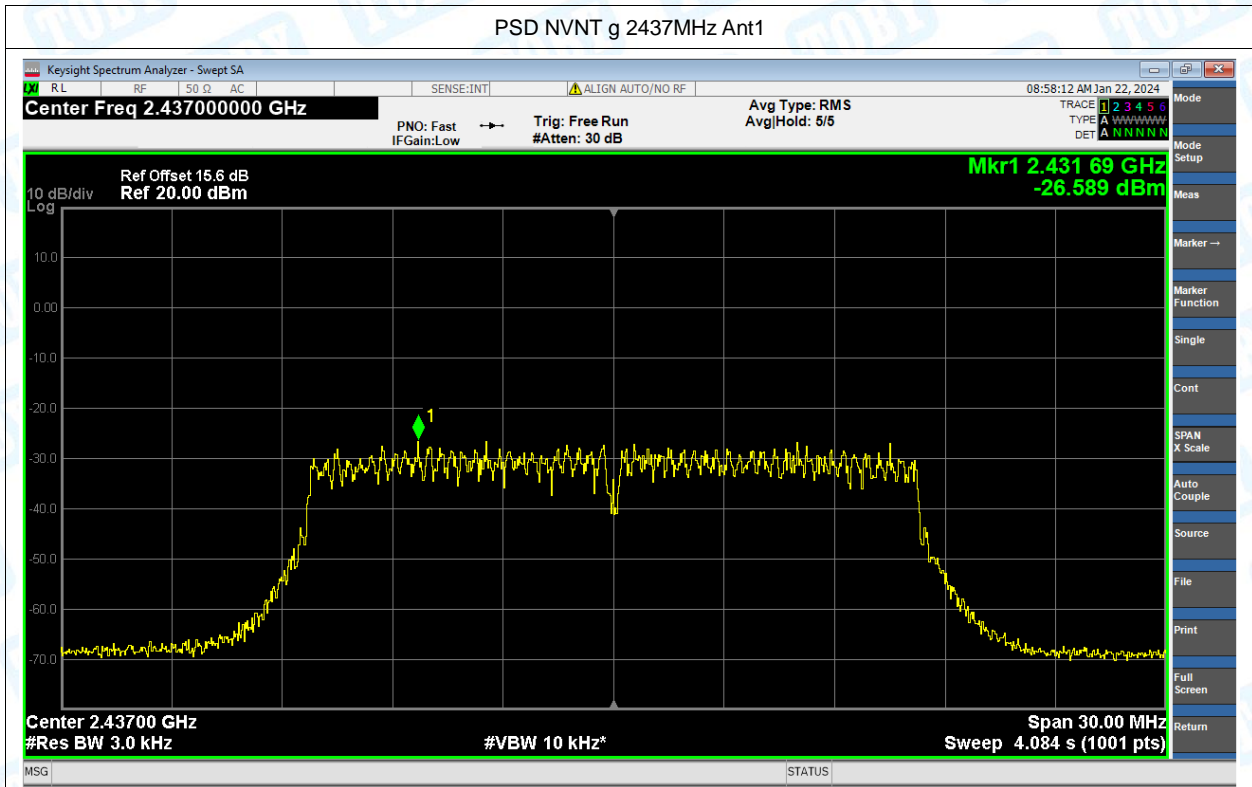


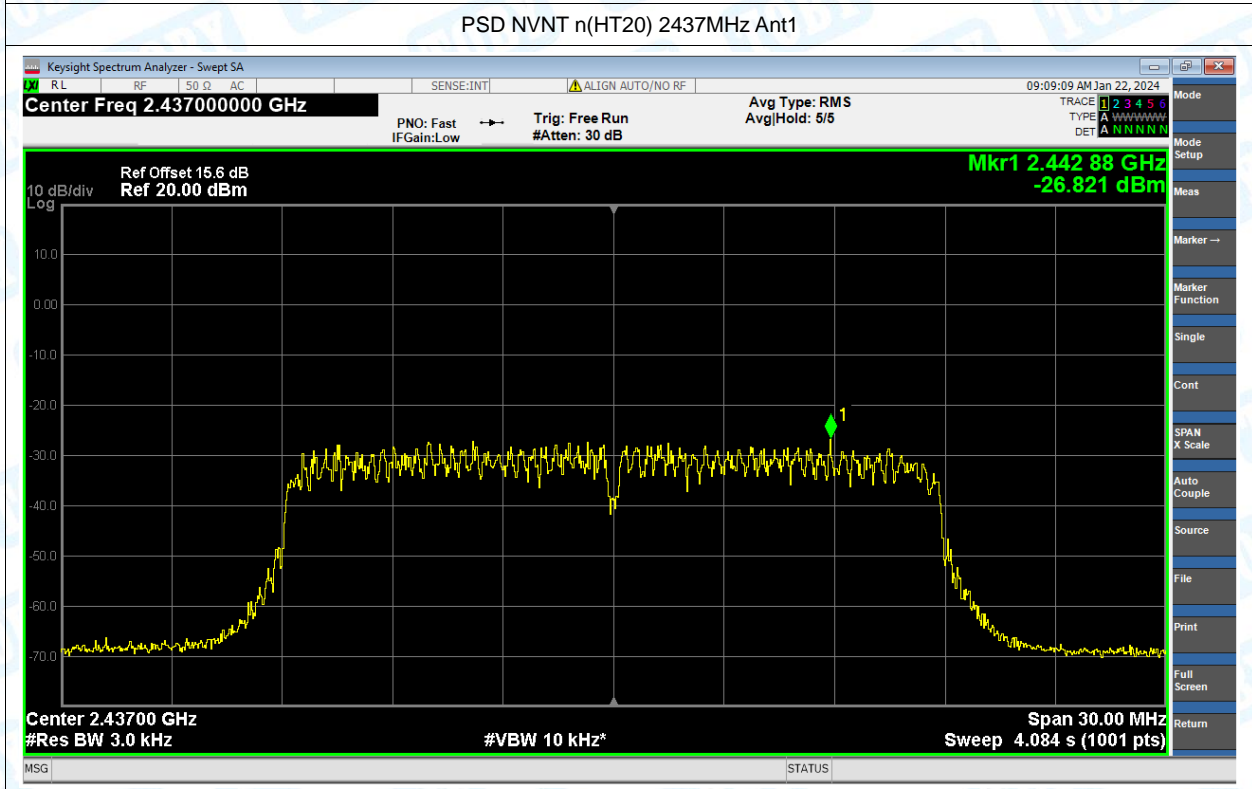
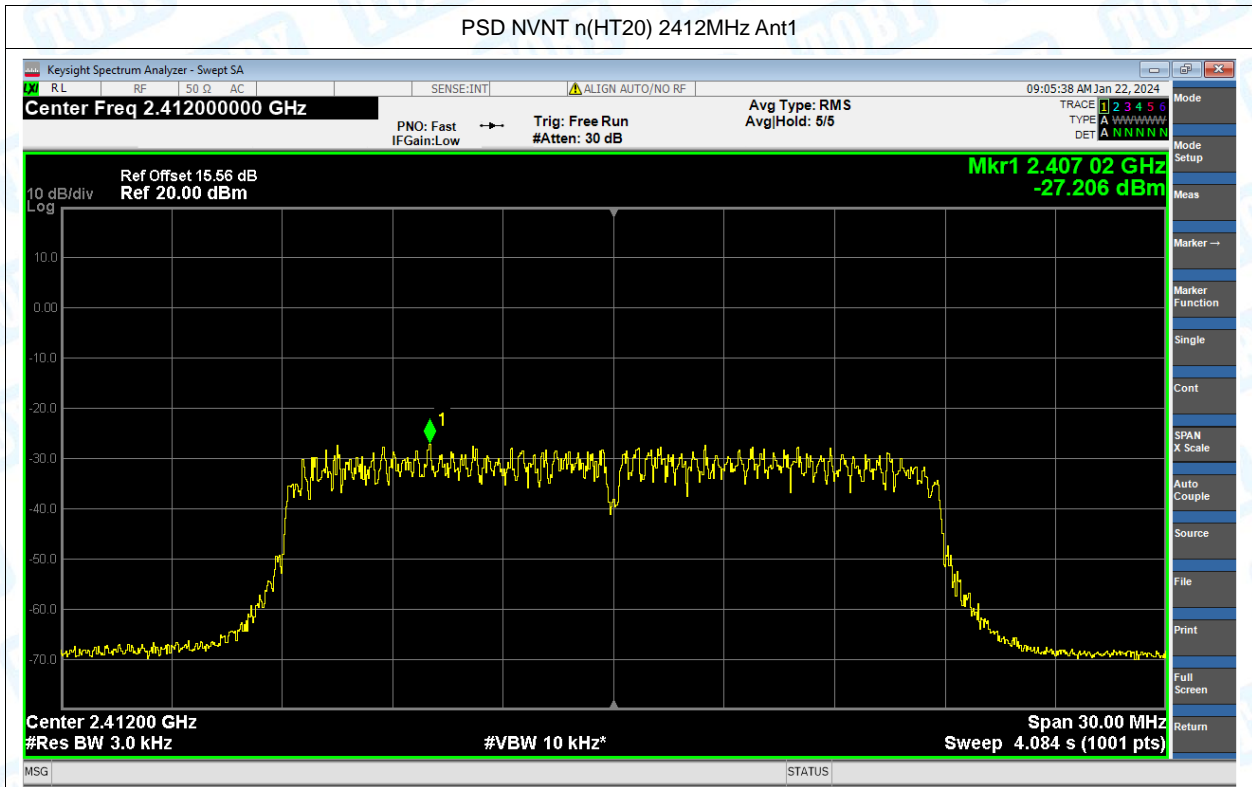
PSD NVNT b 2462MHz Ant1

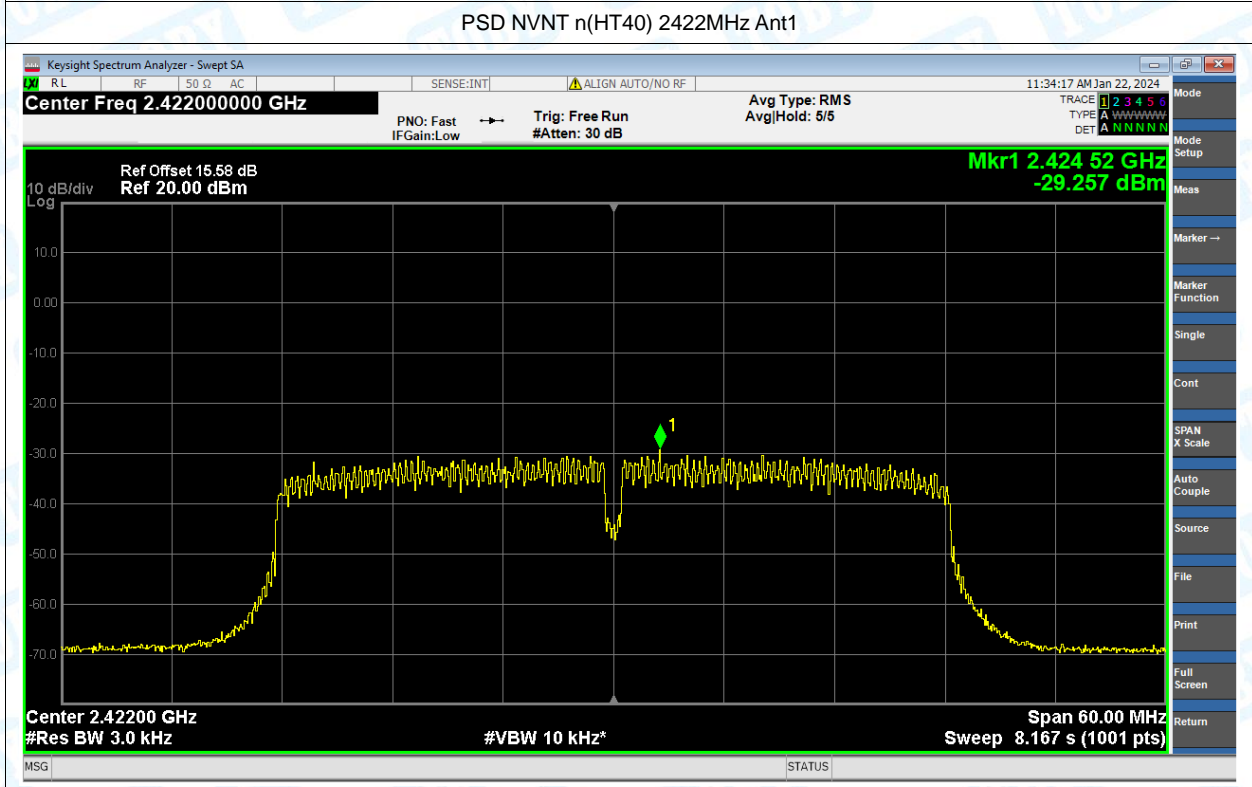


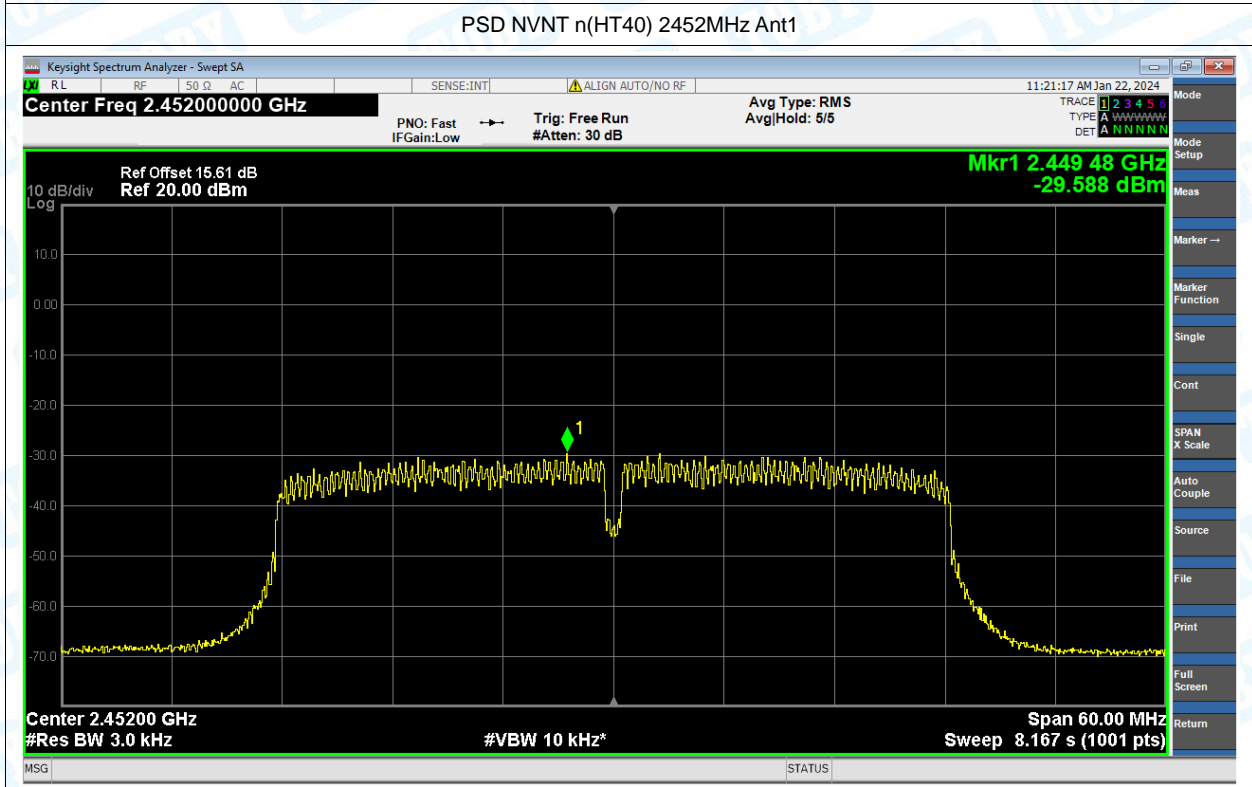
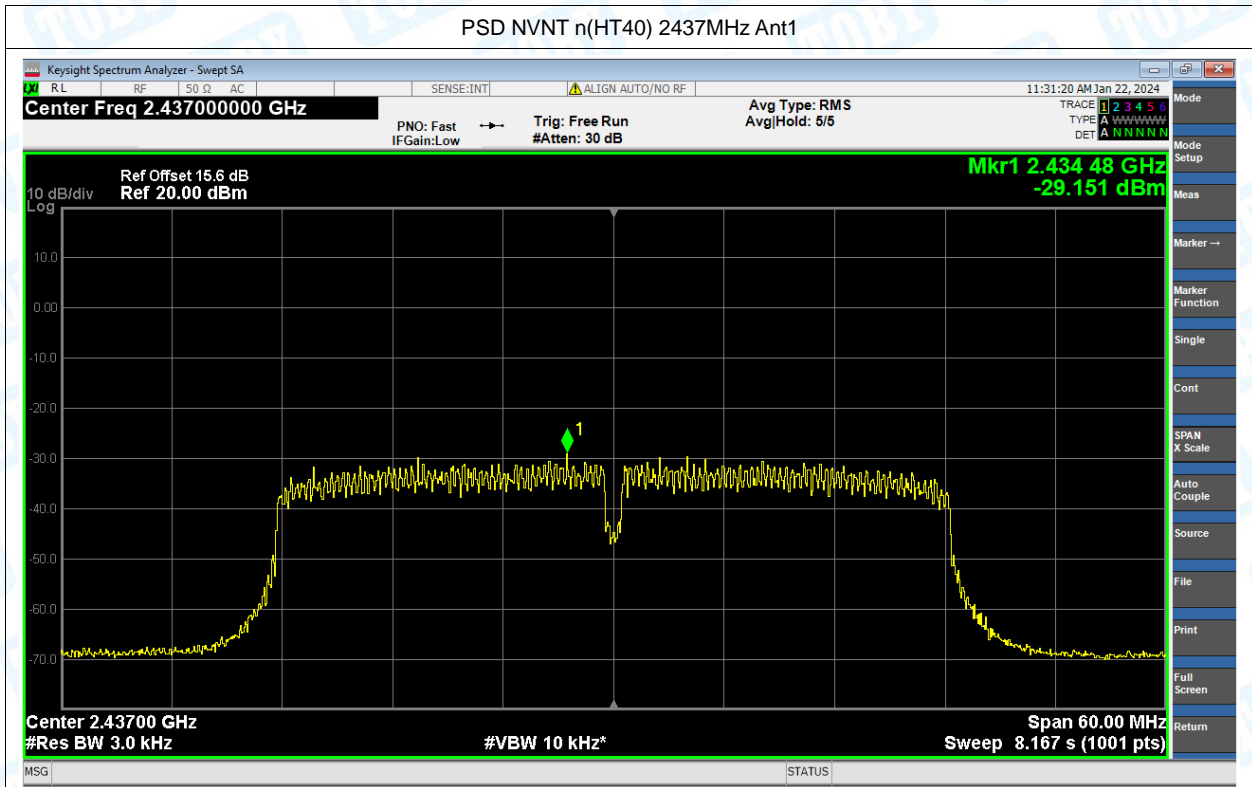
PSD NVNT g 2412MHz Ant1











6. Band Edge

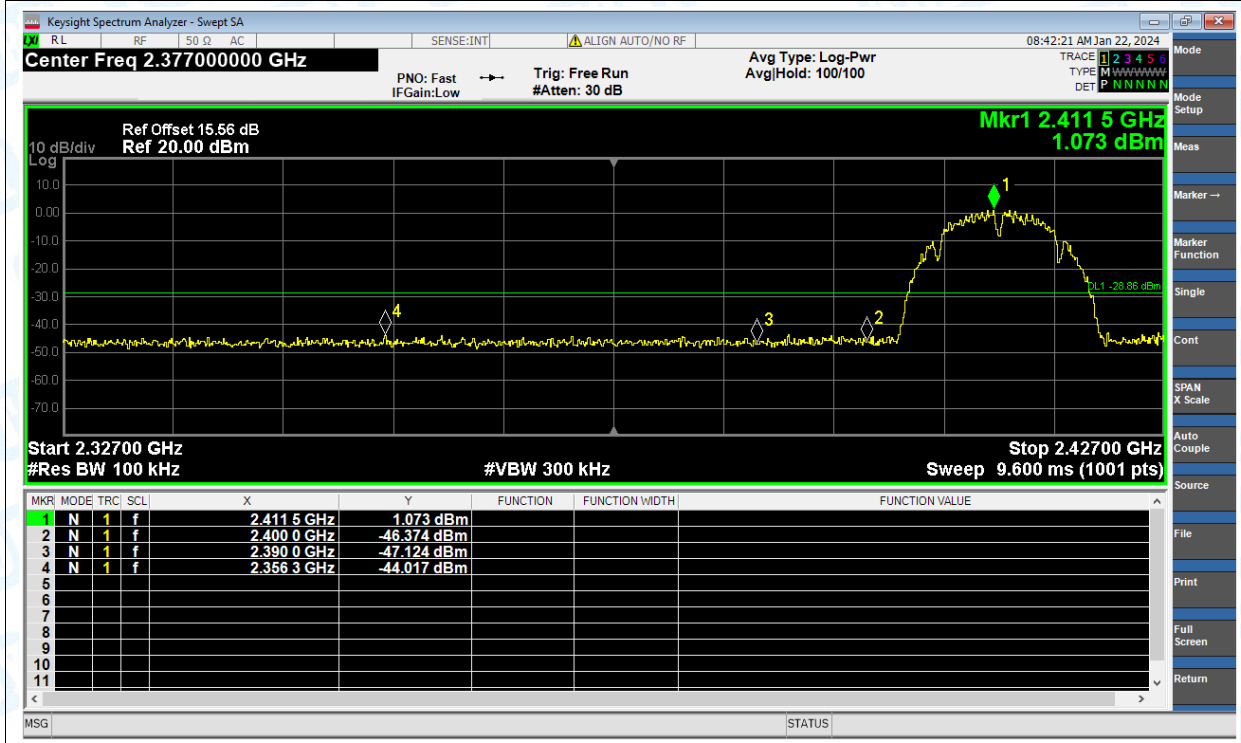
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-45.16	-30	Pass
NVNT	b	2462	Ant1	-45.22	-30	Pass
NVNT	g	2412	Ant1	-43.98	-30	Pass
NVNT	g	2462	Ant1	-44.6	-30	Pass
NVNT	n(HT20)	2412	Ant1	-43.77	-30	Pass
NVNT	n(HT20)	2462	Ant1	-43.79	-30	Pass
NVNT	n(HT40)	2422	Ant1	-41.72	-30	Pass
NVNT	n(HT40)	2452	Ant1	-41.47	-30	Pass

Test Graphs

Band Edge NVNT b 2412MHz Ant1 Ref



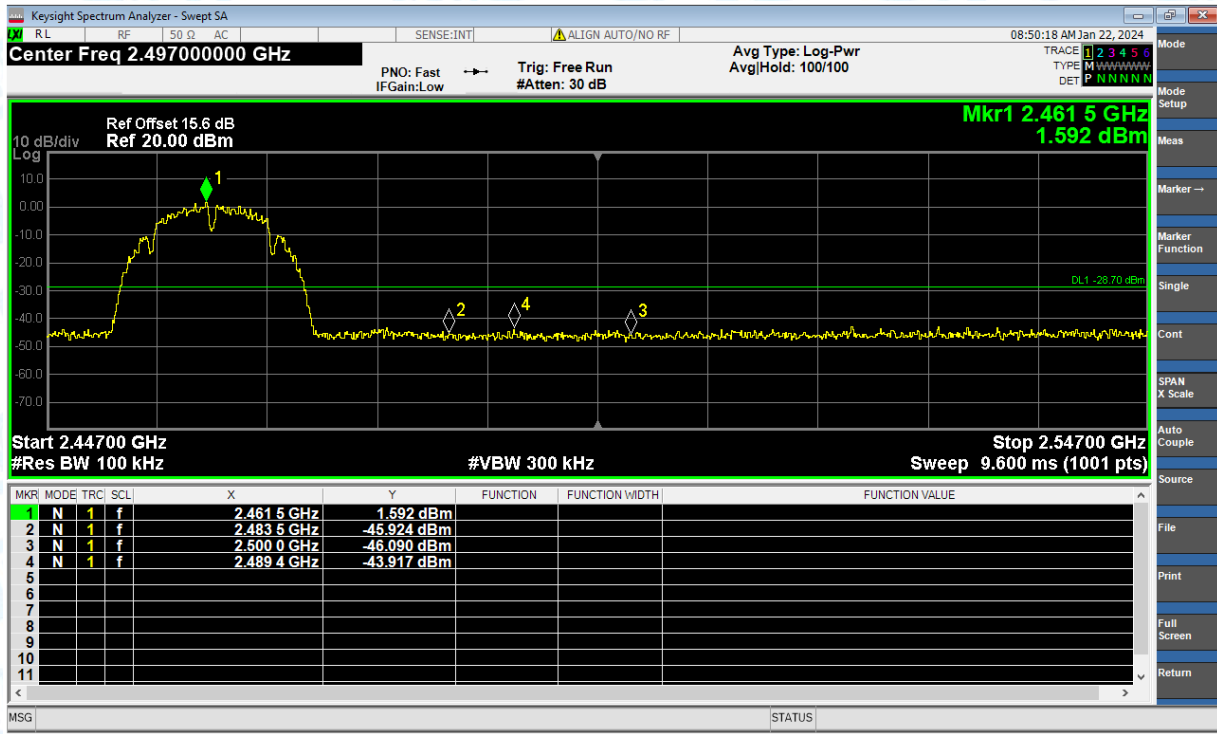
Band Edge NVNT b 2412MHz Ant1 Emission



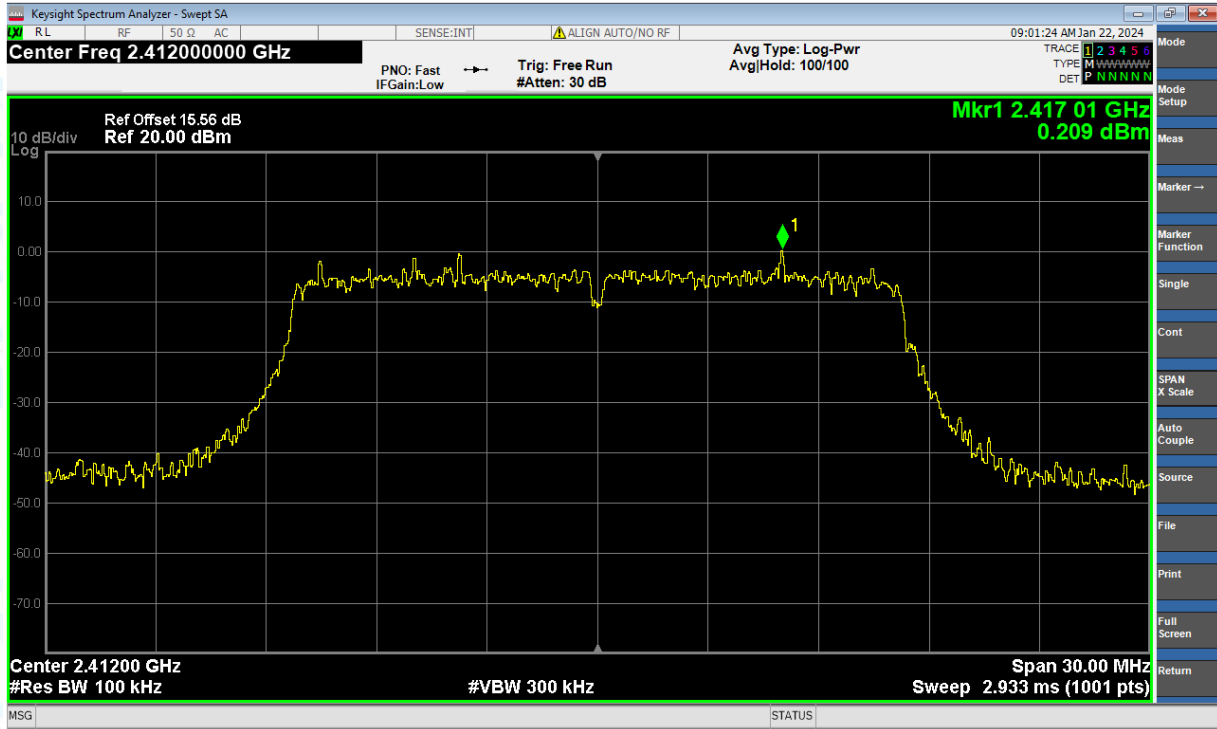
Band Edge NVNT b 2462MHz Ant1 Ref



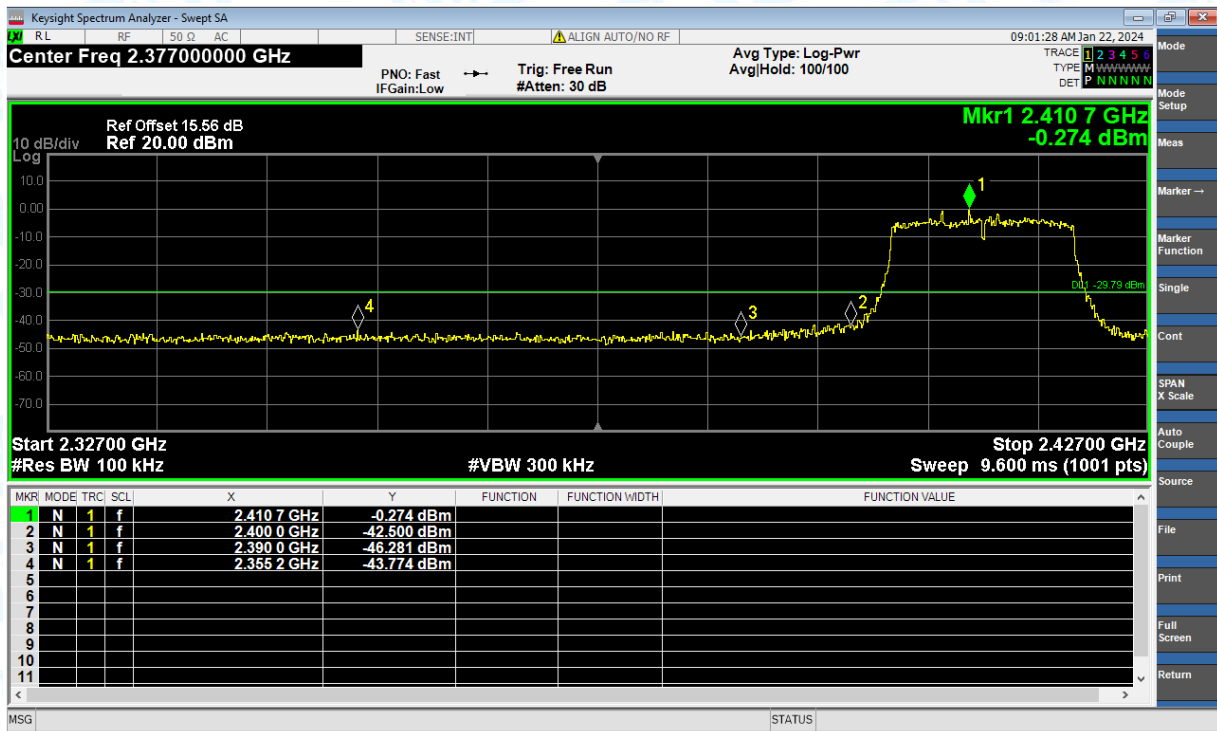
Band Edge NVNT b 2462MHz Ant1 Emission



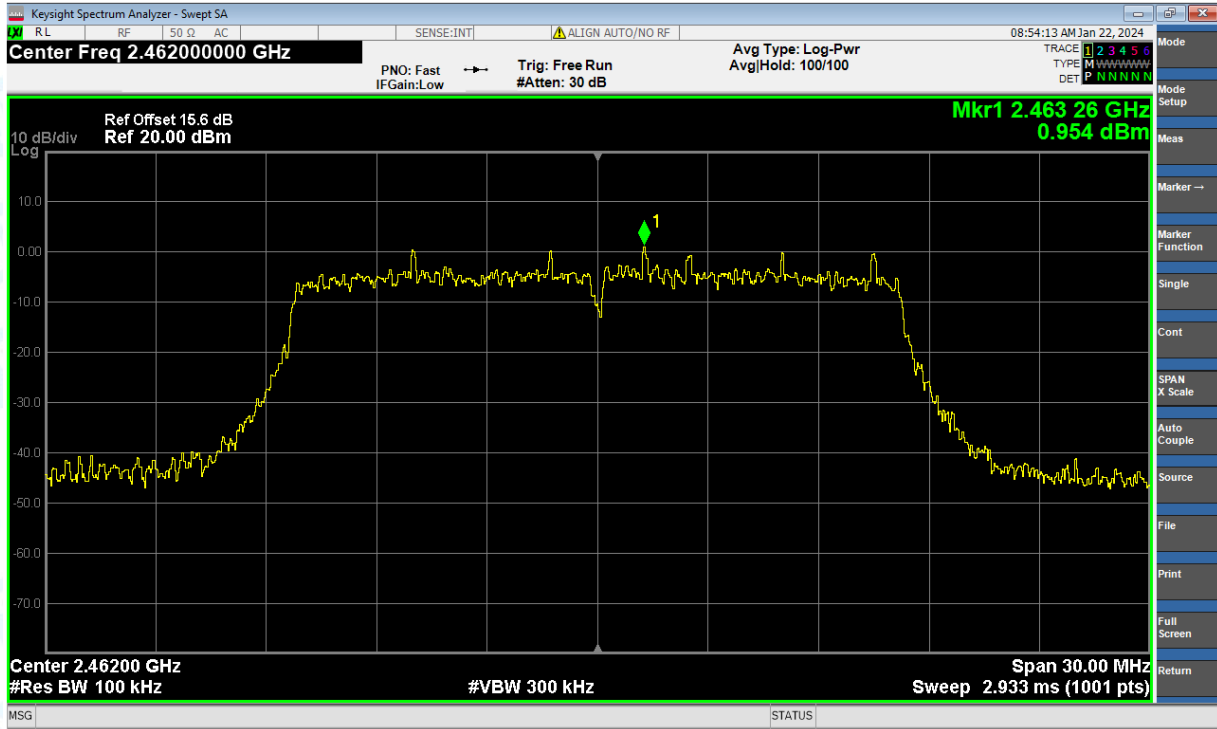
Band Edge NVNT g 2412MHz Ant1 Ref



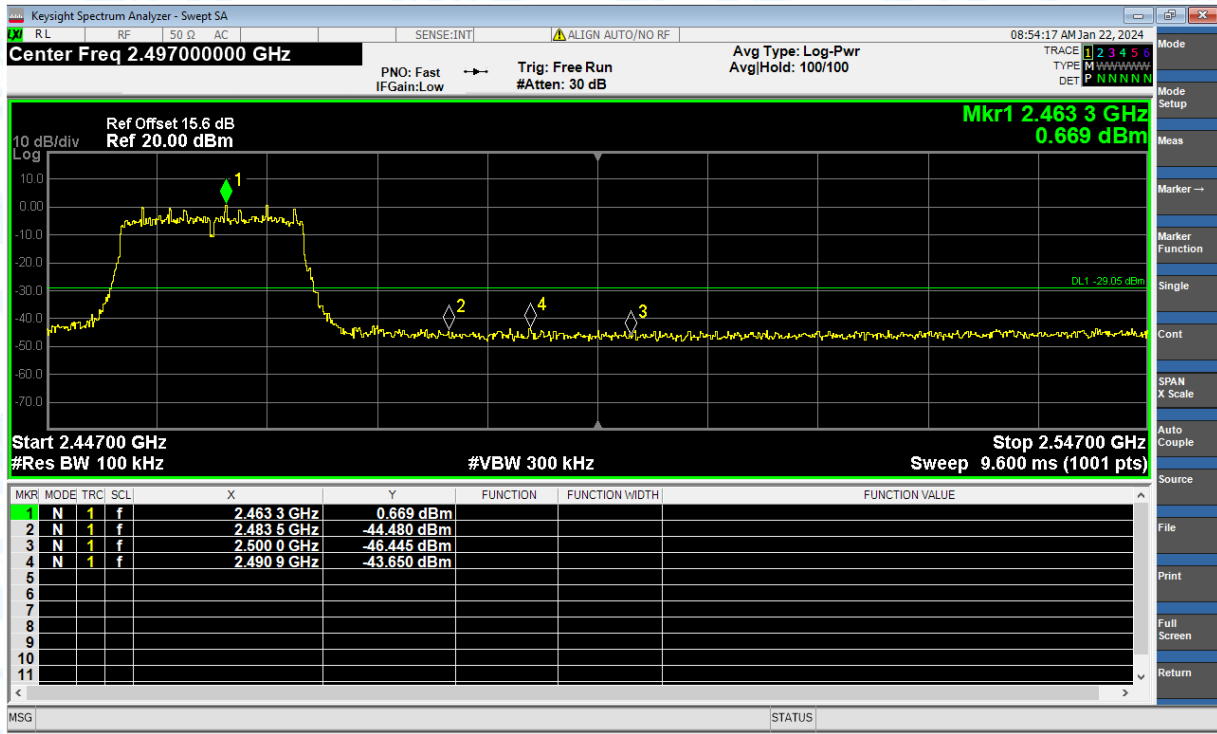
Band Edge NVNT g 2412MHz Ant1 Emission



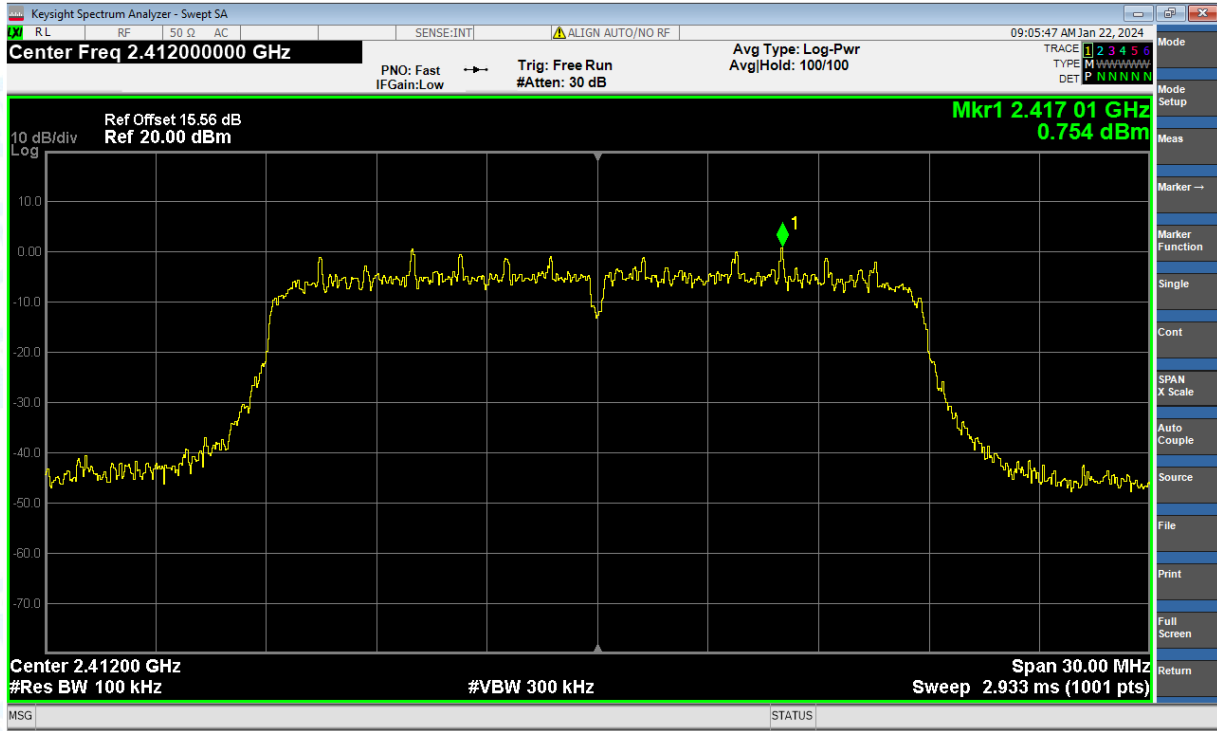
Band Edge NVNT g 2462MHz Ant1 Ref



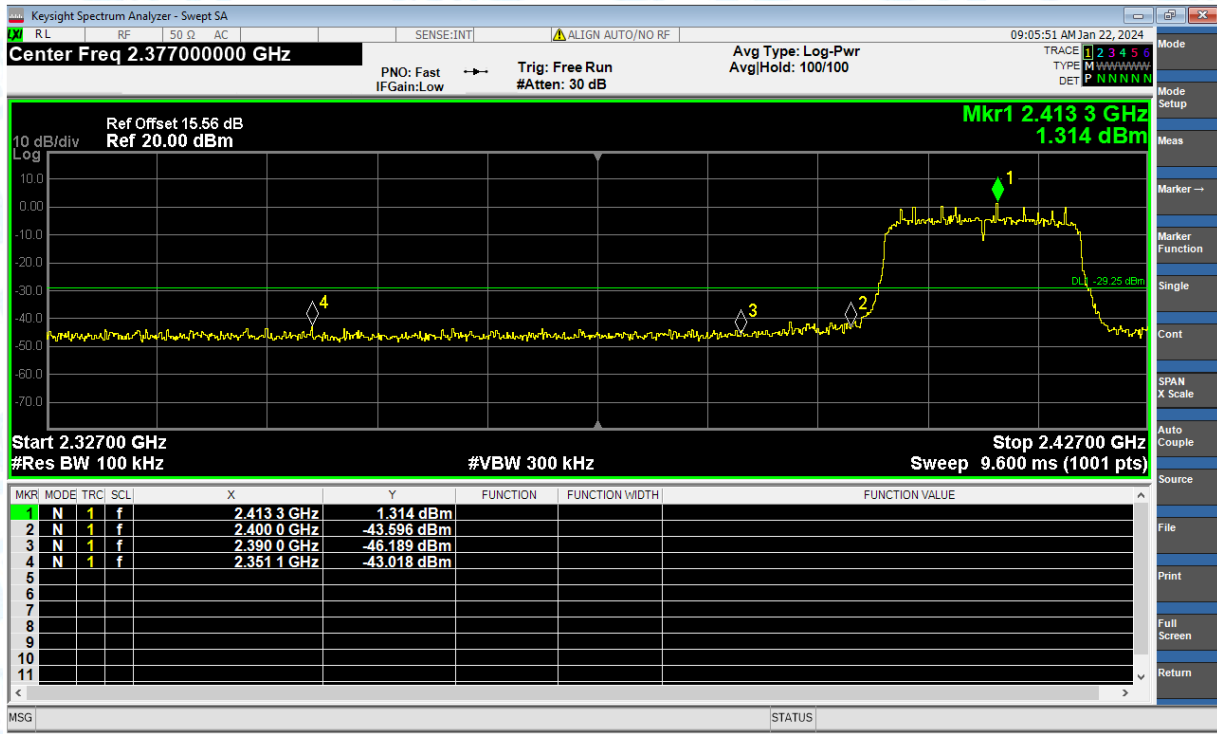
Band Edge NVNT g 2462MHz Ant1 Emission



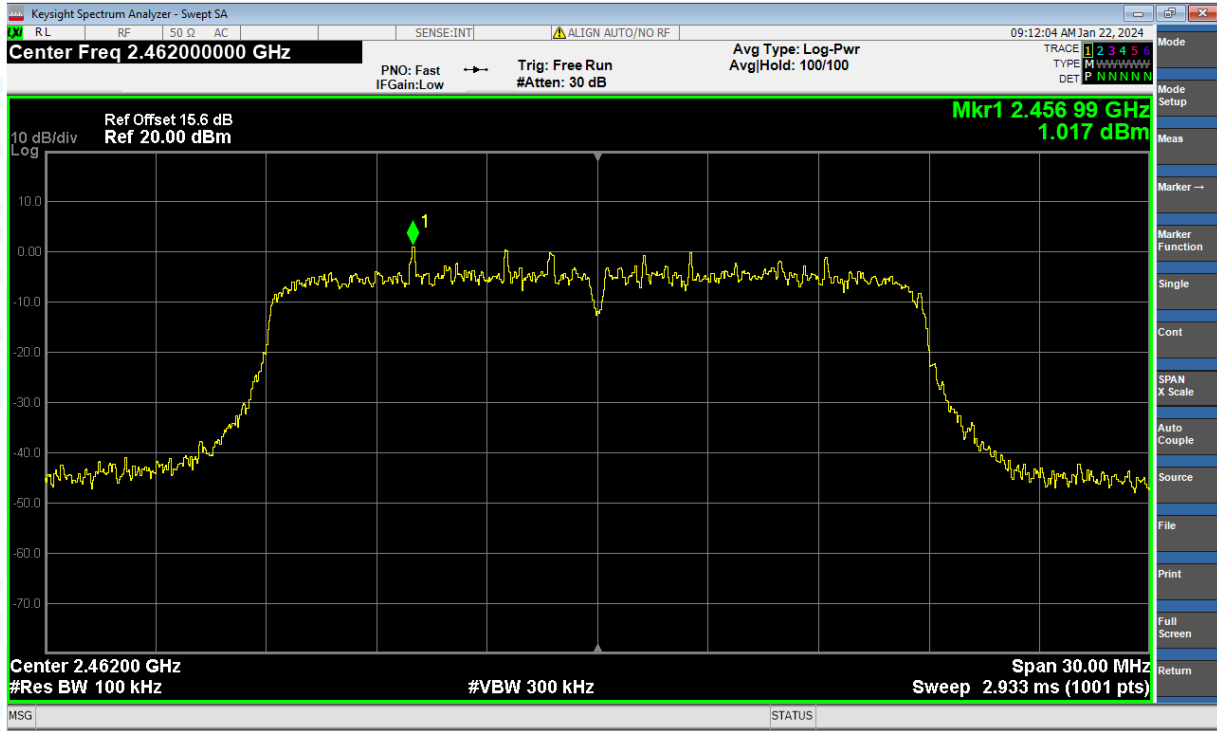
Band Edge NVNT n(HT20) 2412MHz Ant1 Ref



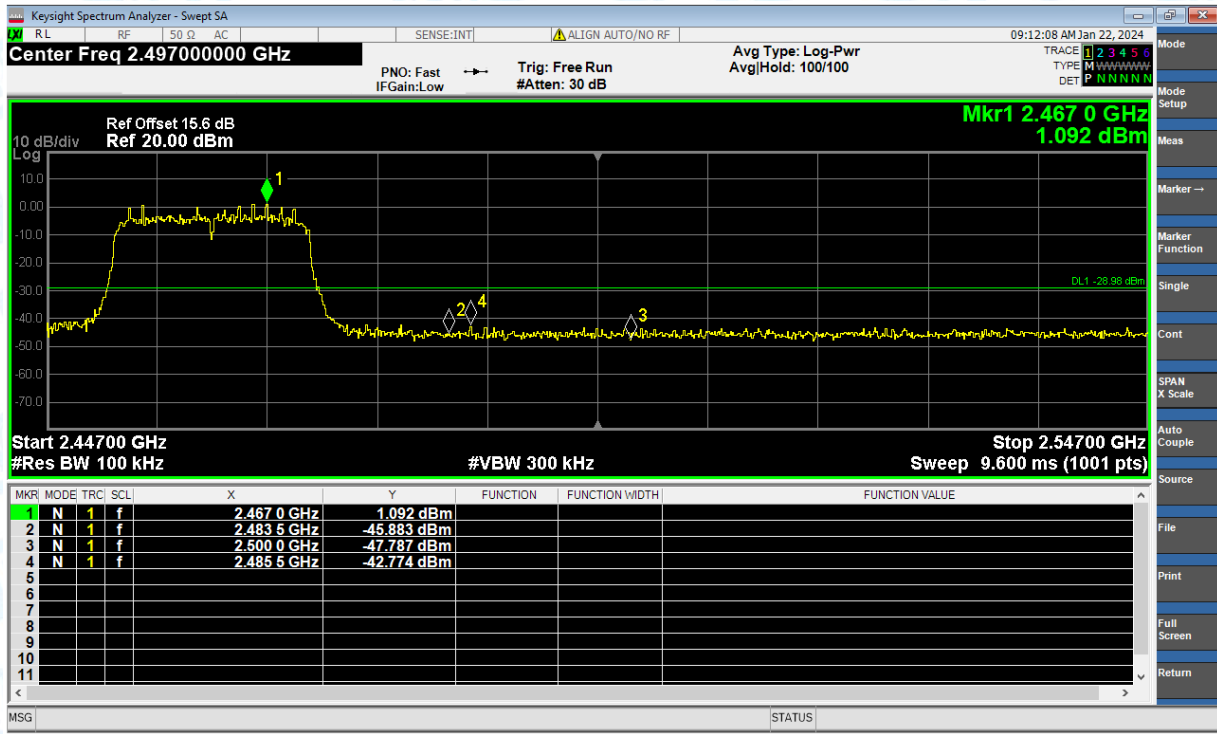
Band Edge NVNT n(HT20) 2412MHz Ant1 Emission



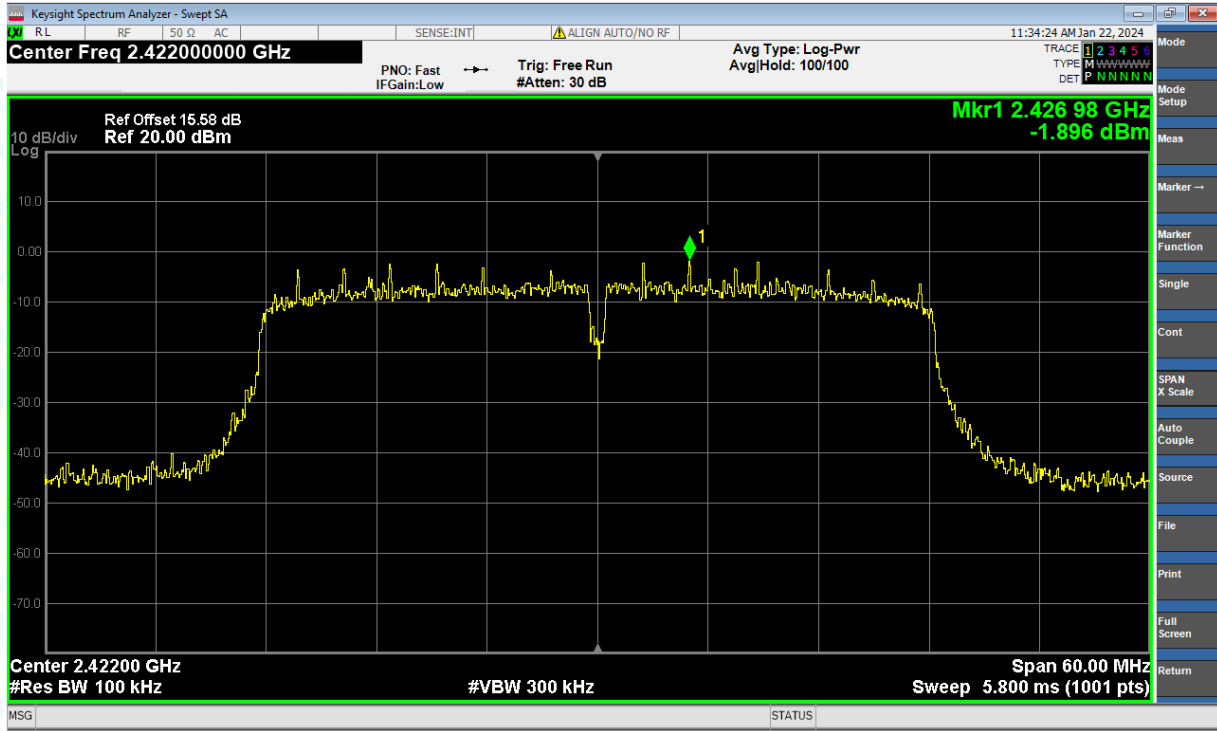
Band Edge NVNT n(HT20) 2462MHz Ant1 Ref



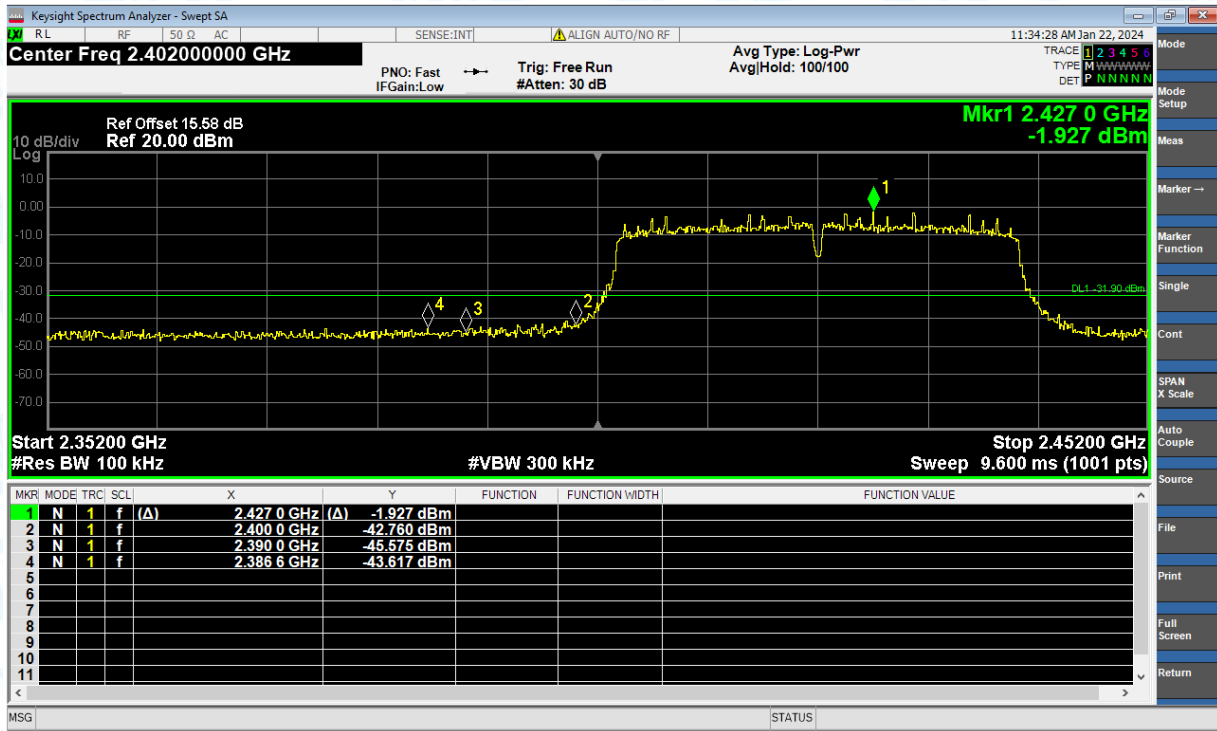
Band Edge NVNT n(HT20) 2462MHz Ant1 Emission



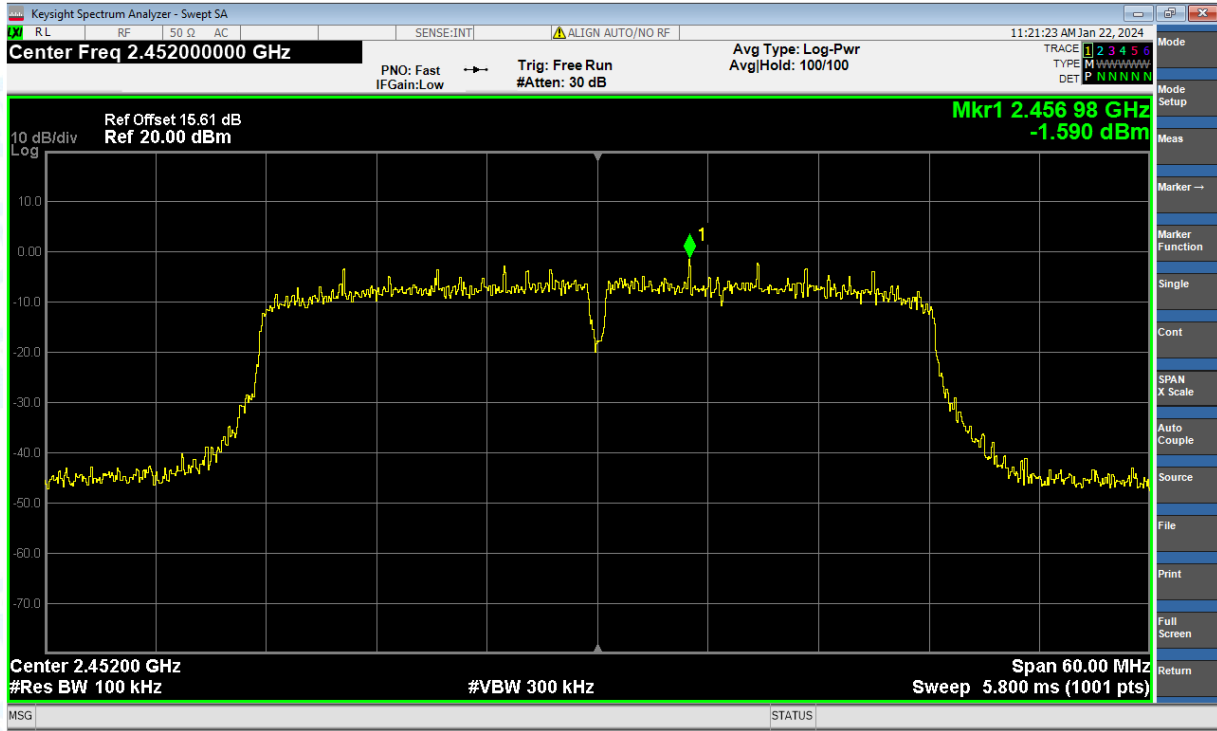
Band Edge NVNT n(HT40) 2422MHz Ant1 Ref



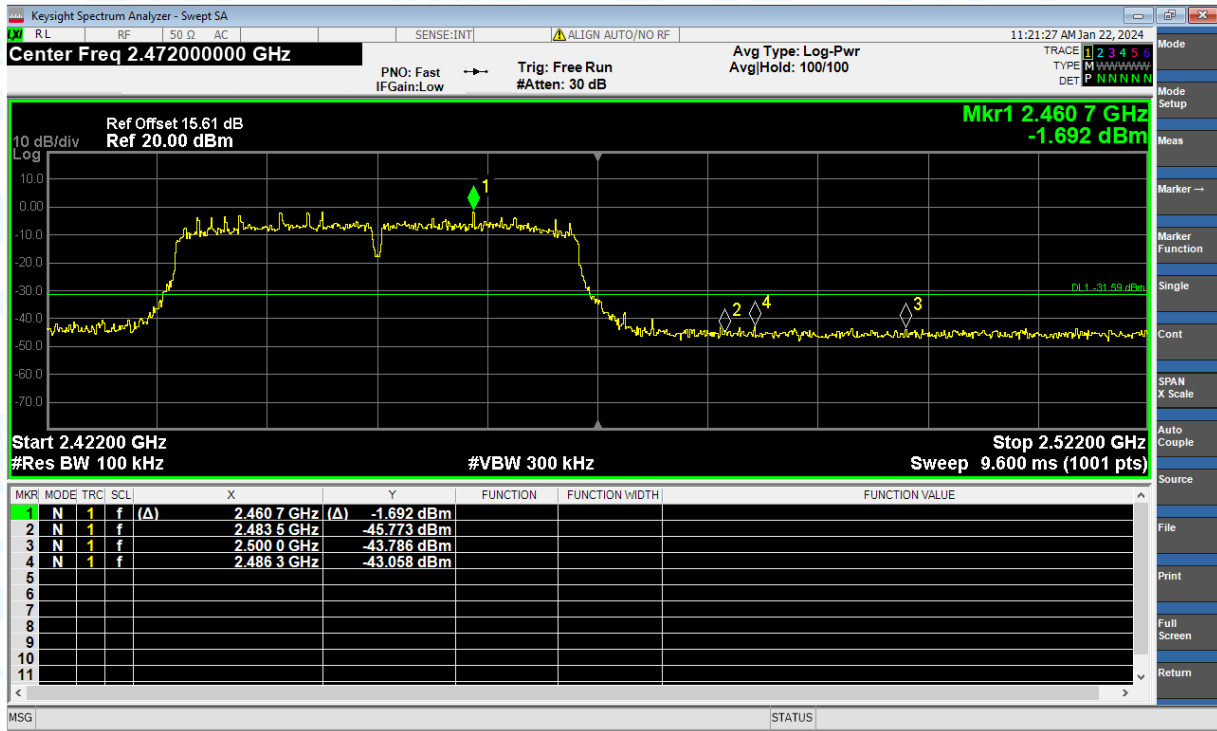
Band Edge NVNT n(HT40) 2422MHz Ant1 Emission



Band Edge NVNT n(HT40) 2452MHz Ant1 Ref



Band Edge NVNT n(HT40) 2452MHz Ant1 Emission

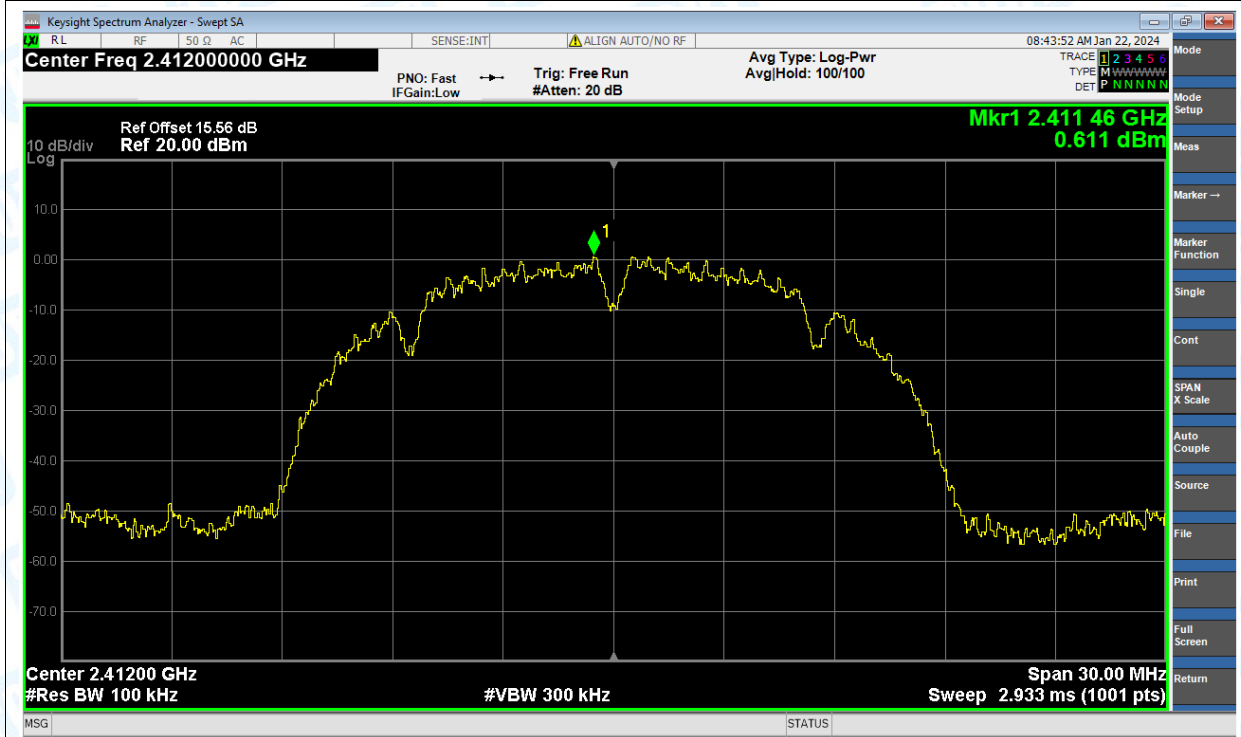


7. Conducted RF Spurious Emission

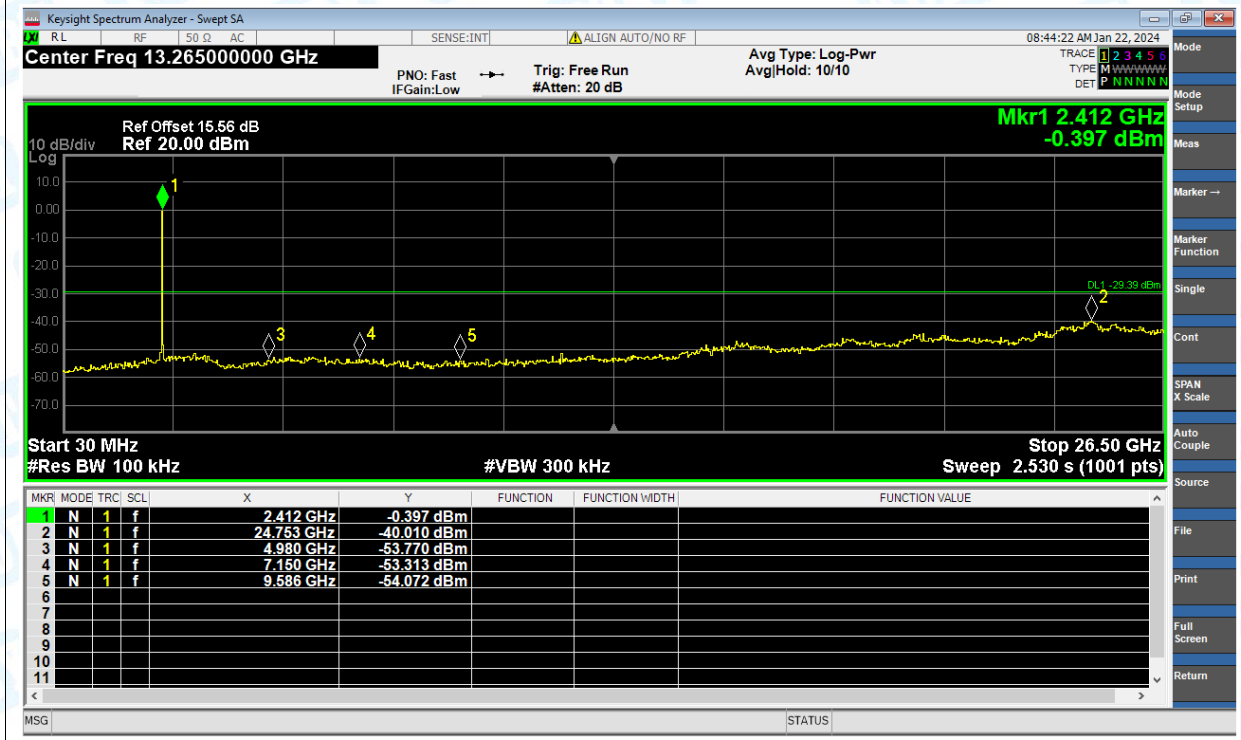
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-40.62	-30	Pass
NVNT	b	2437	Ant1	-39.95	-30	Pass
NVNT	b	2462	Ant1	-40.84	-30	Pass
NVNT	g	2412	Ant1	-38.43	-30	Pass
NVNT	g	2437	Ant1	-39.55	-30	Pass
NVNT	g	2462	Ant1	-39.06	-30	Pass
NVNT	n(HT20)	2412	Ant1	-39.14	-30	Pass
NVNT	n(HT20)	2437	Ant1	-38.58	-30	Pass
NVNT	n(HT20)	2462	Ant1	-40.02	-30	Pass
NVNT	n(HT40)	2422	Ant1	-36.97	-30	Pass
NVNT	n(HT40)	2437	Ant1	-36.44	-30	Pass
NVNT	n(HT40)	2452	Ant1	-38.17	-30	Pass

Test Graphs

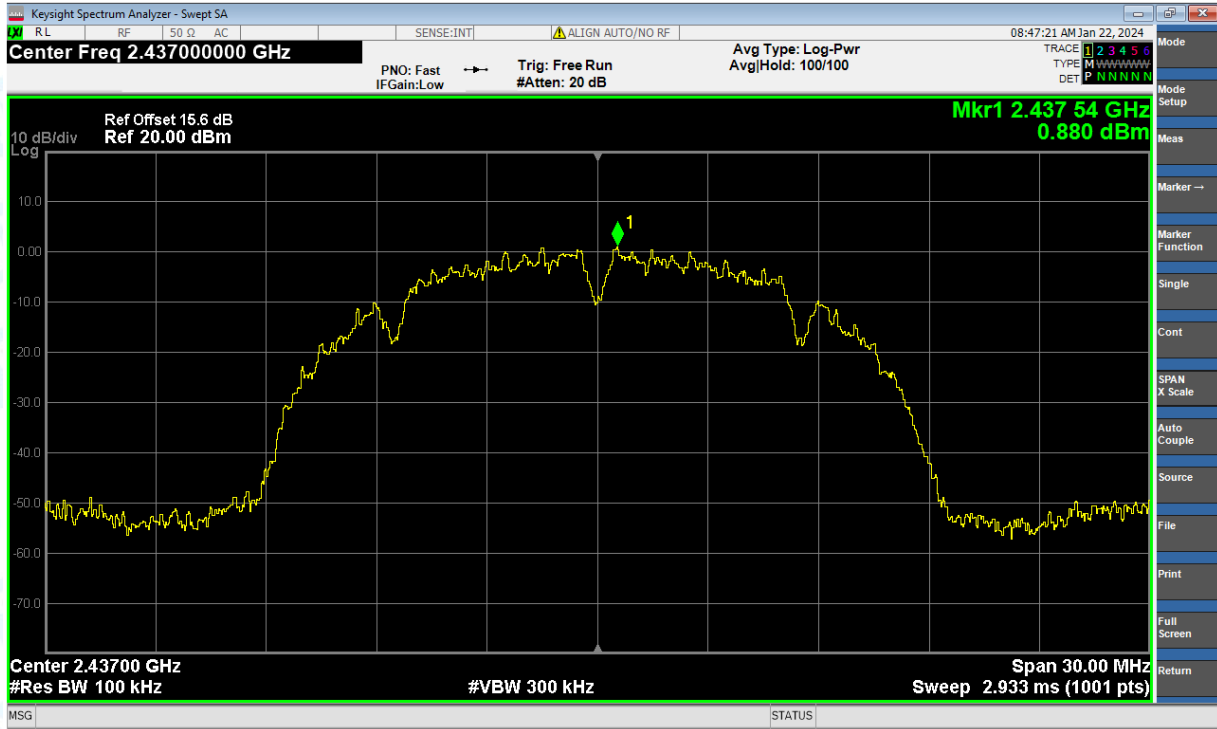
Tx. Spurious NVNT b 2412MHz Ant1 Ref



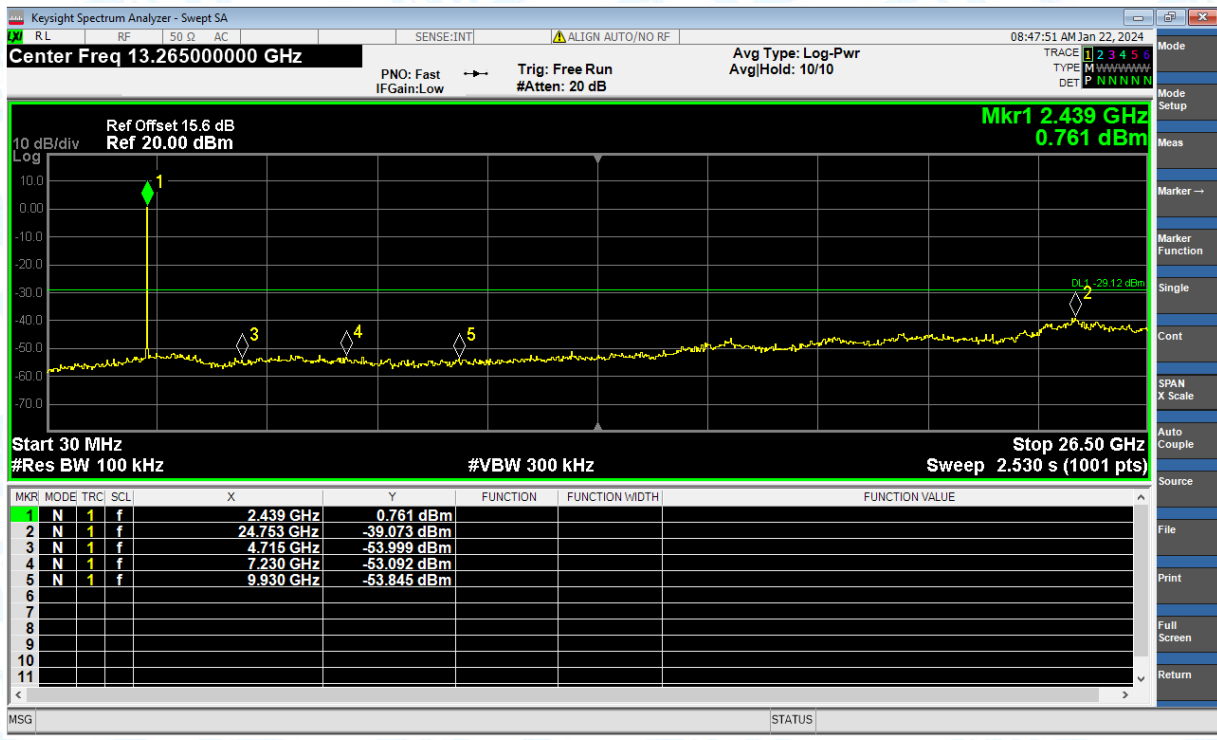
Tx. Spurious NVNT b 2412MHz Ant1 Emission



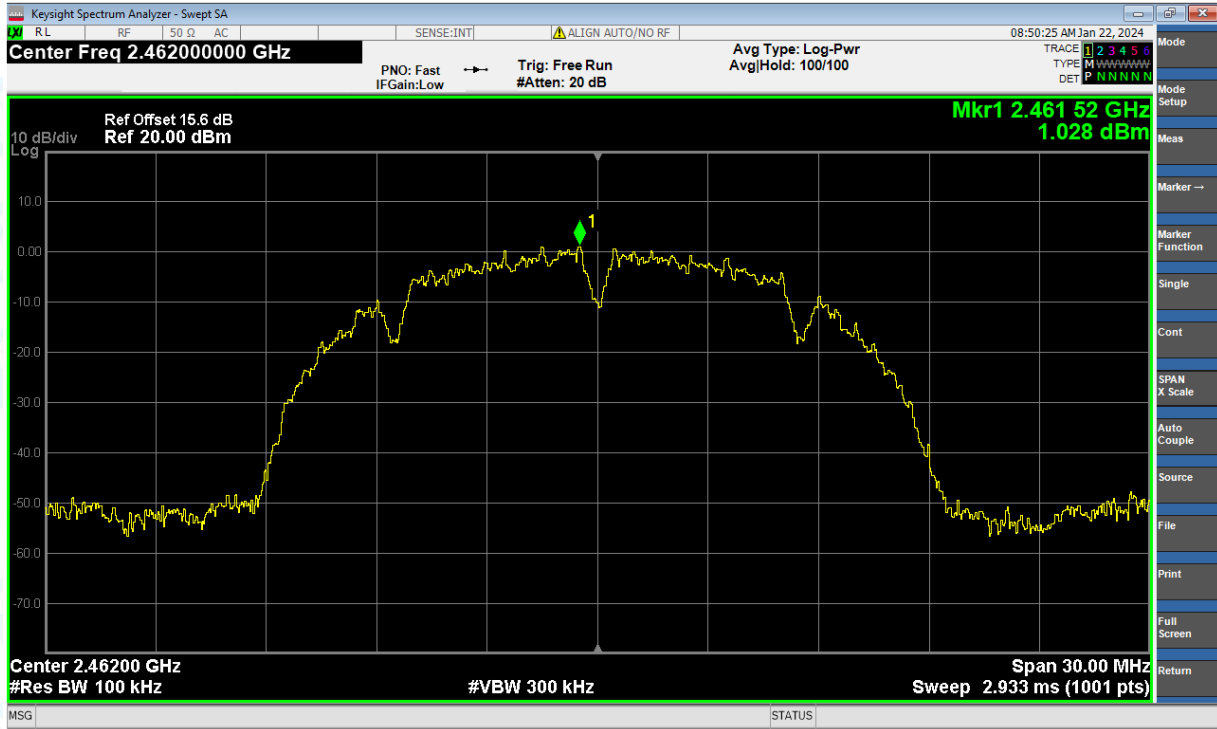
Tx. Spurious NVNT b 2437MHz Ant1 Ref



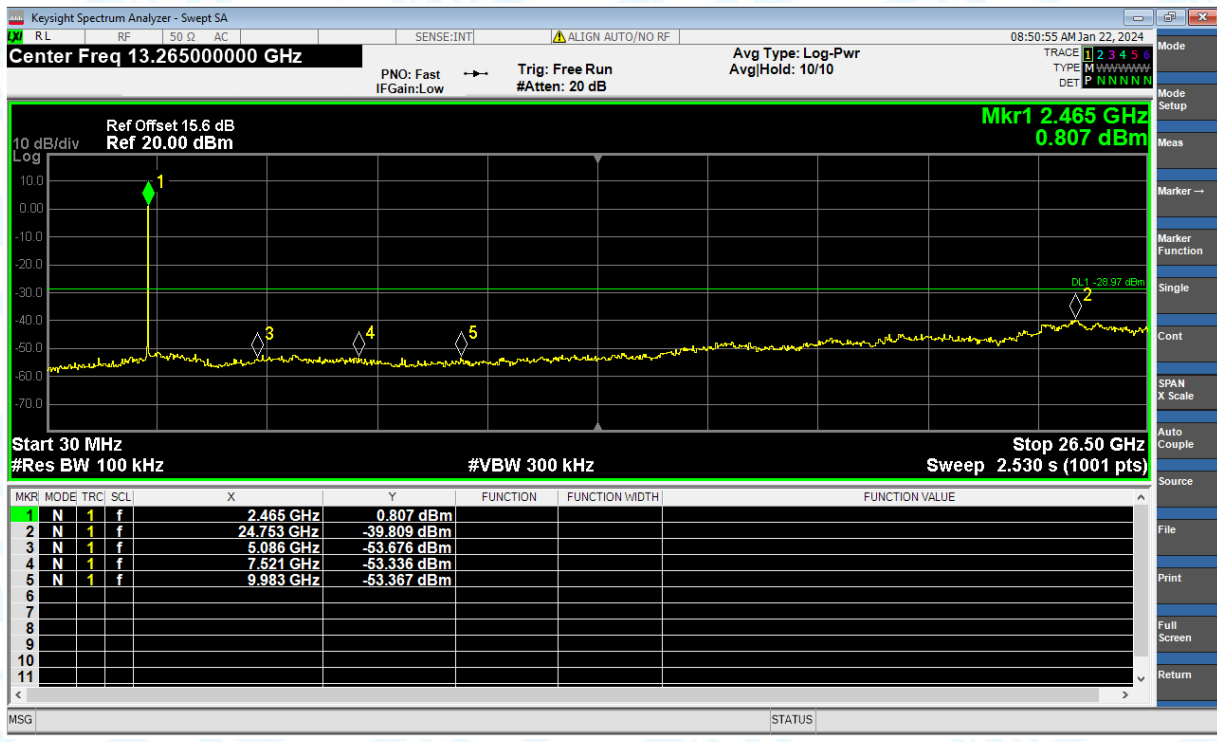
Tx. Spurious NVNT b 2437MHz Ant1 Emission



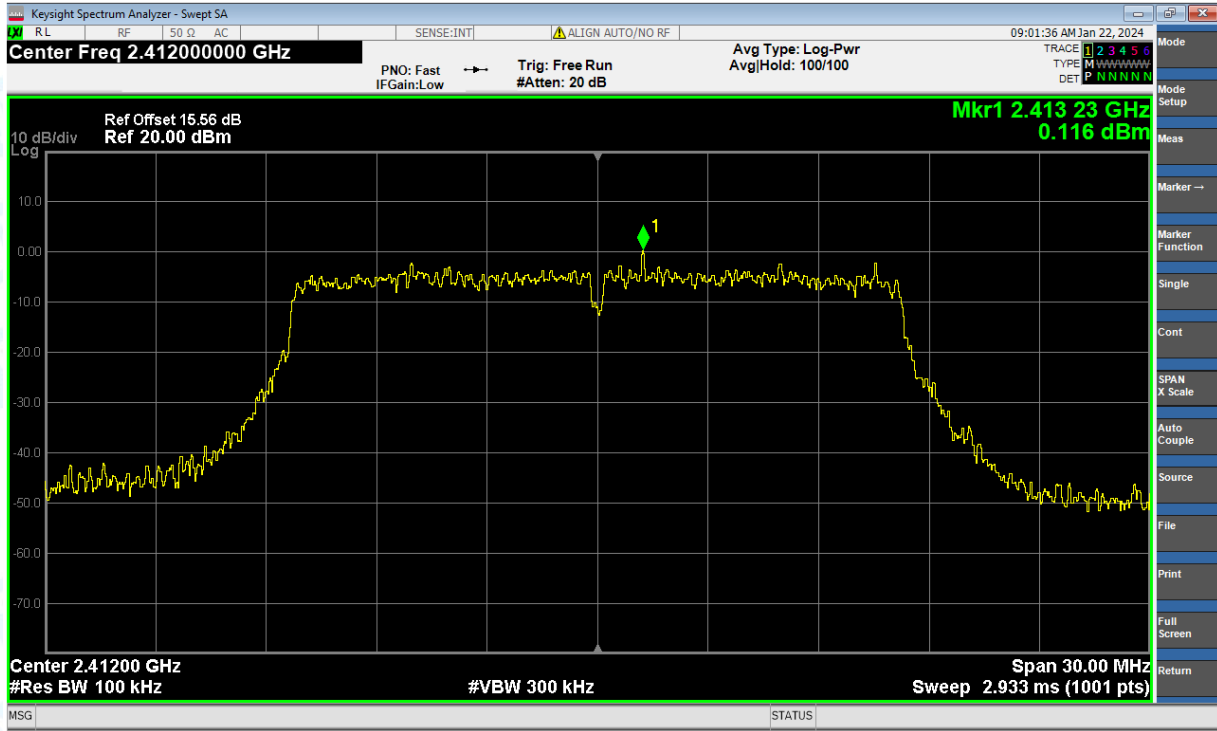
Tx. Spurious NVNT b 2462MHz Ant1 Ref



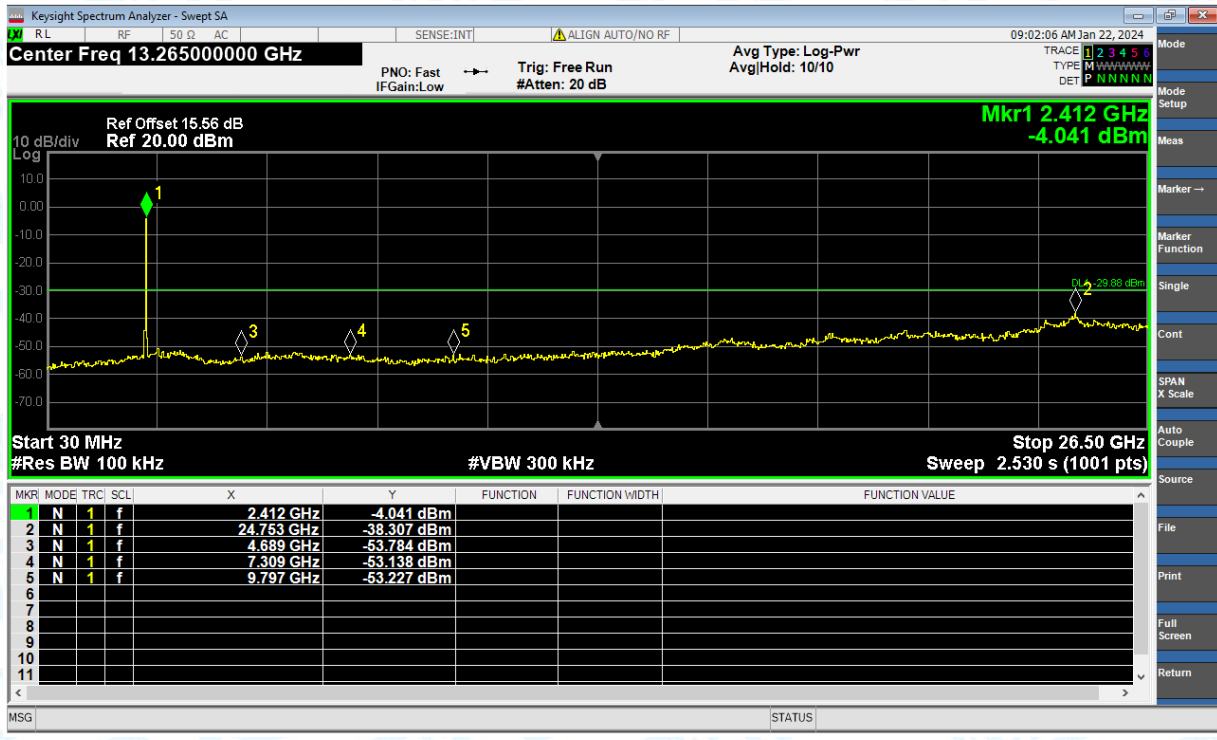
Tx. Spurious NVNT b 2462MHz Ant1 Emission



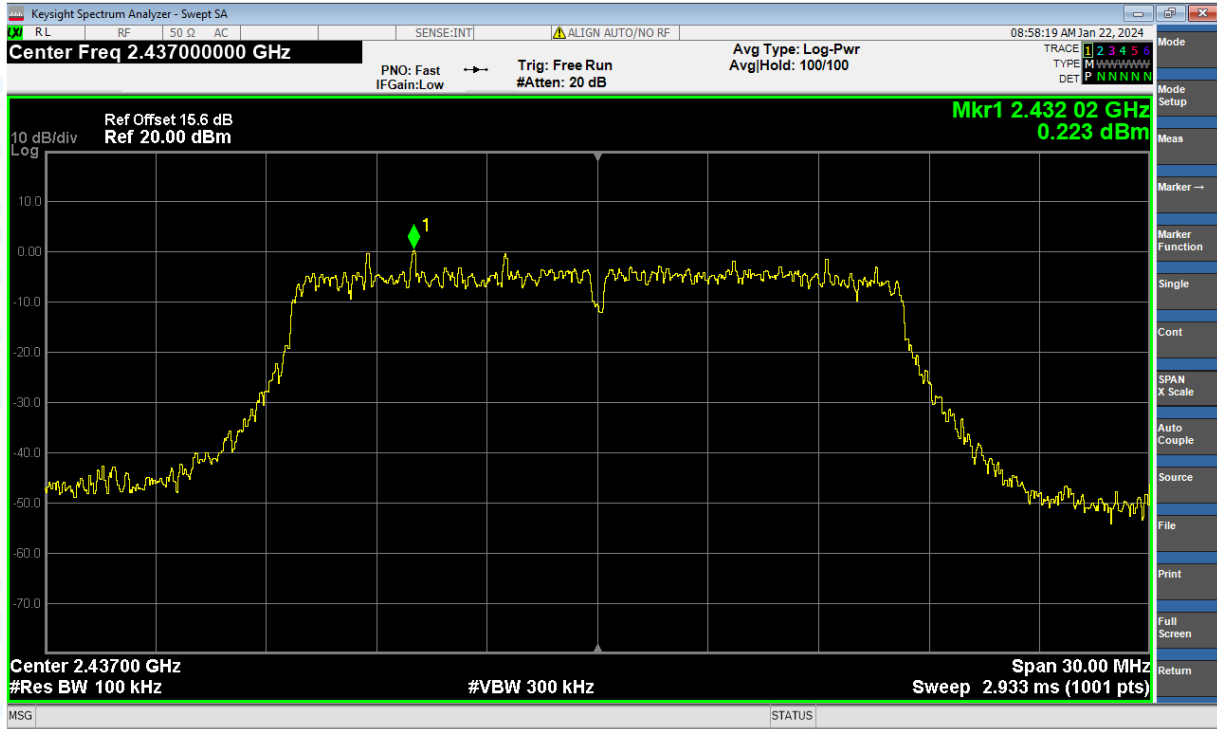
Tx. Spurious NVNT g 2412MHz Ant1 Ref



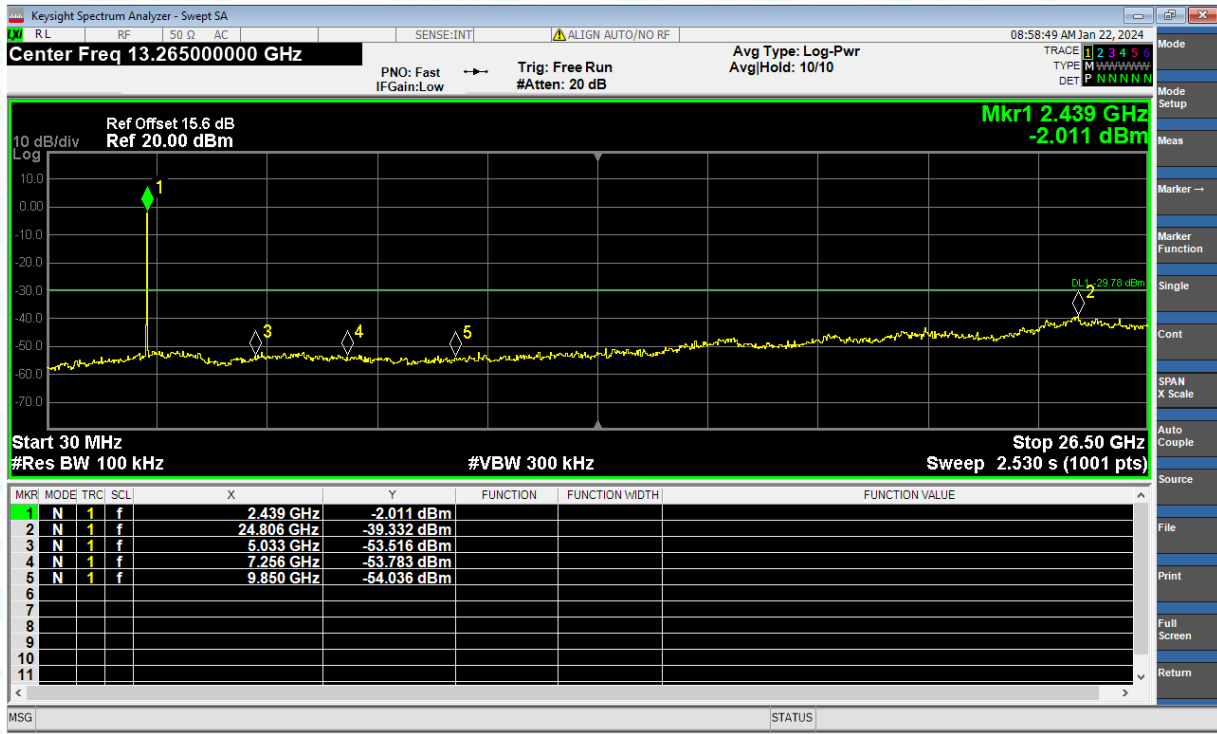
Tx. Spurious NVNT g 2412MHz Ant1 Emission



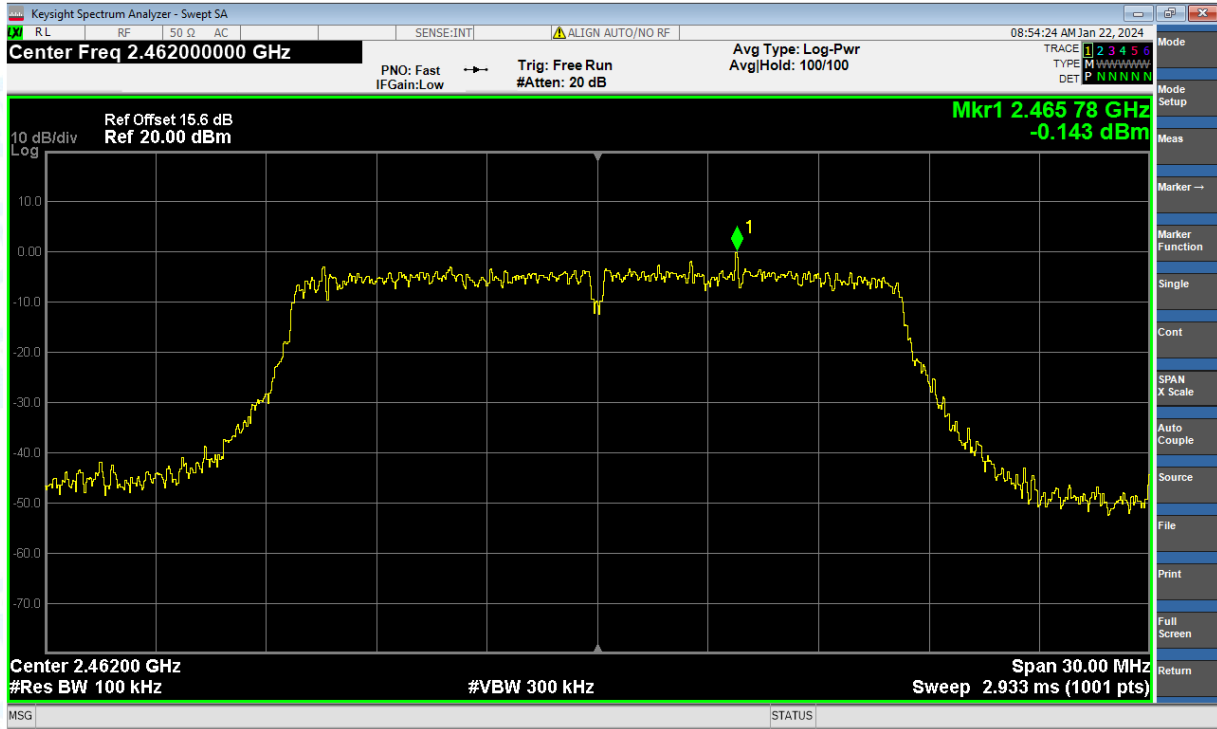
Tx. Spurious NVNT g 2437MHz Ant1 Ref



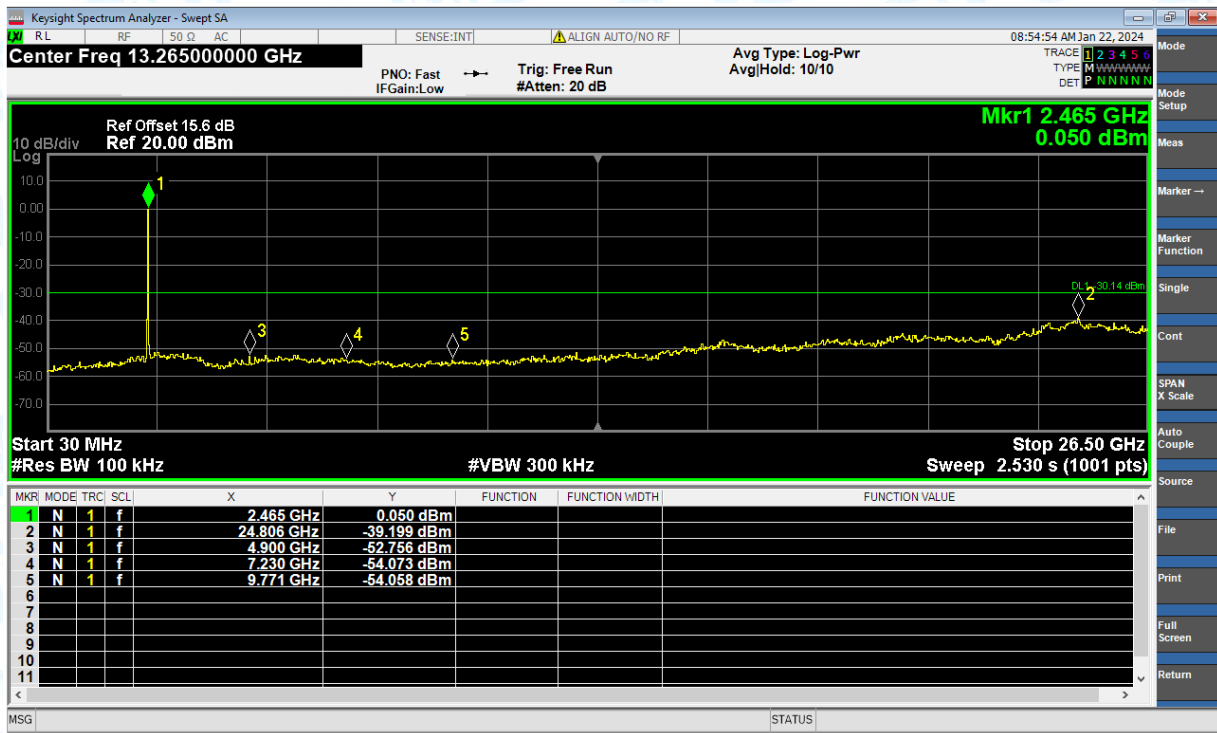
Tx. Spurious NVNT g 2437MHz Ant1 Emission



Tx. Spurious NVNT g 2462MHz Ant1 Ref



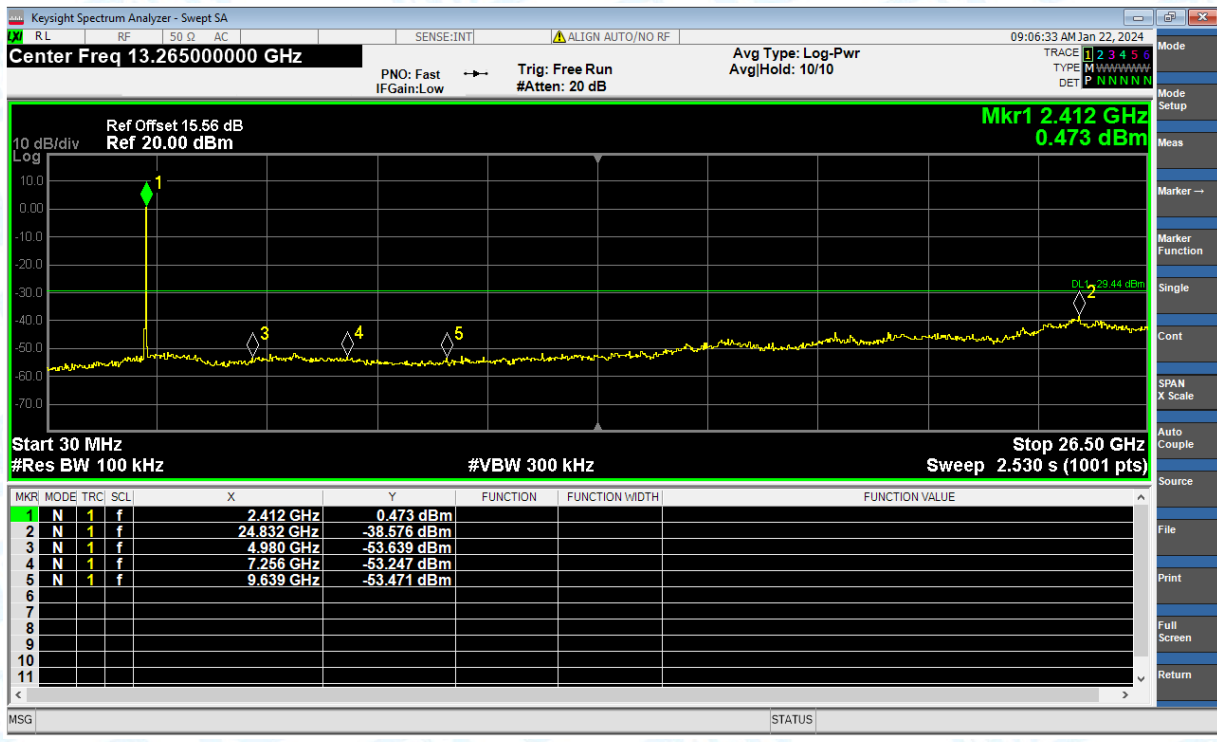
Tx. Spurious NVNT g 2462MHz Ant1 Emission



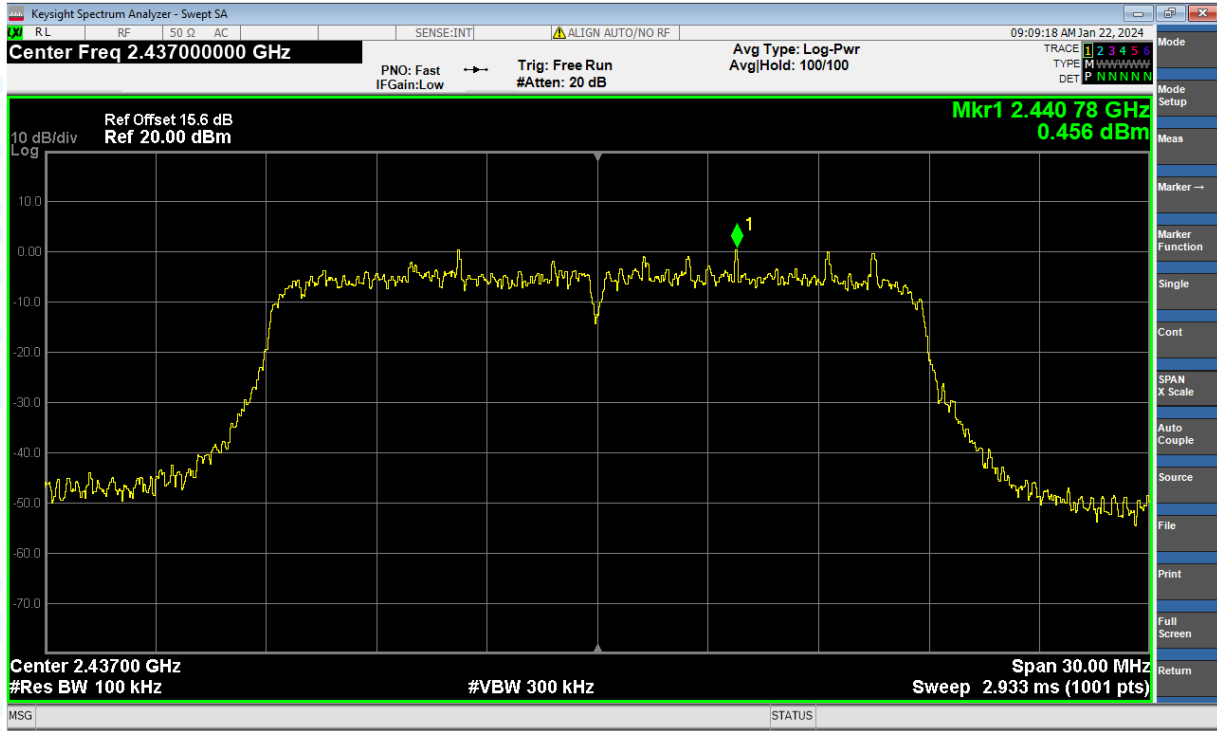
Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Ref



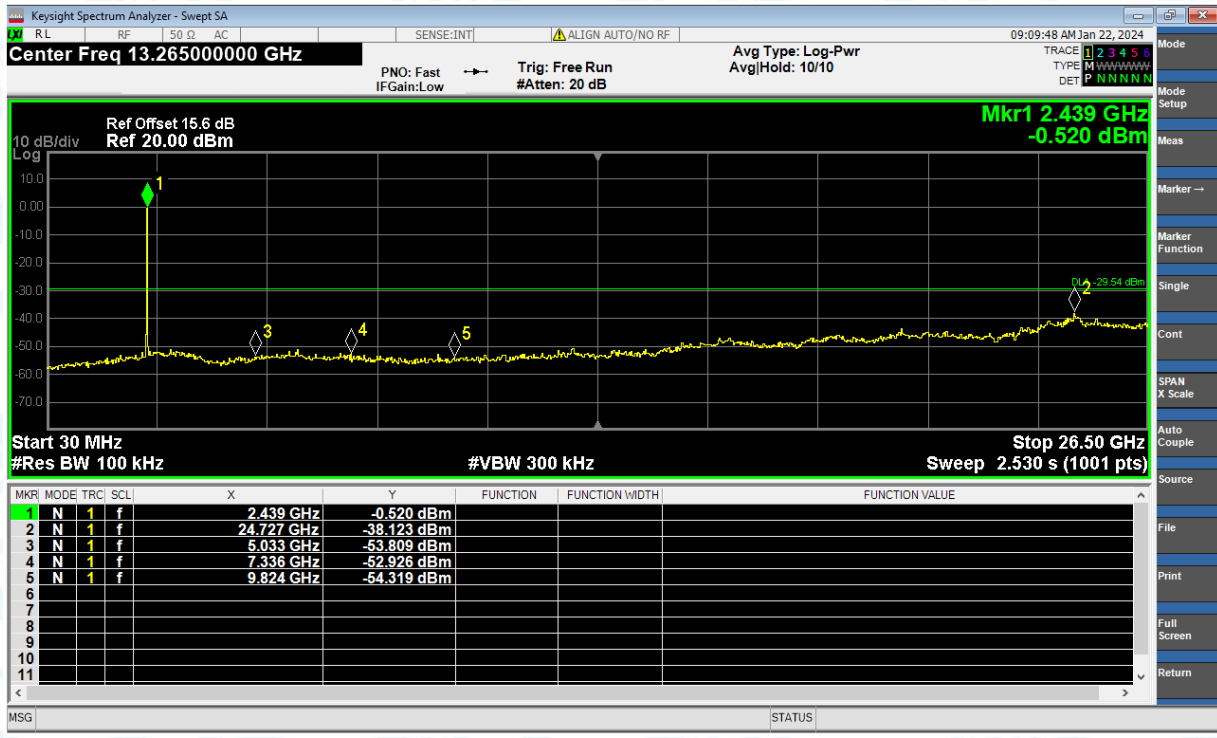
Tx. Spurious NVNT n(HT20) 2412MHz Ant1 Emission



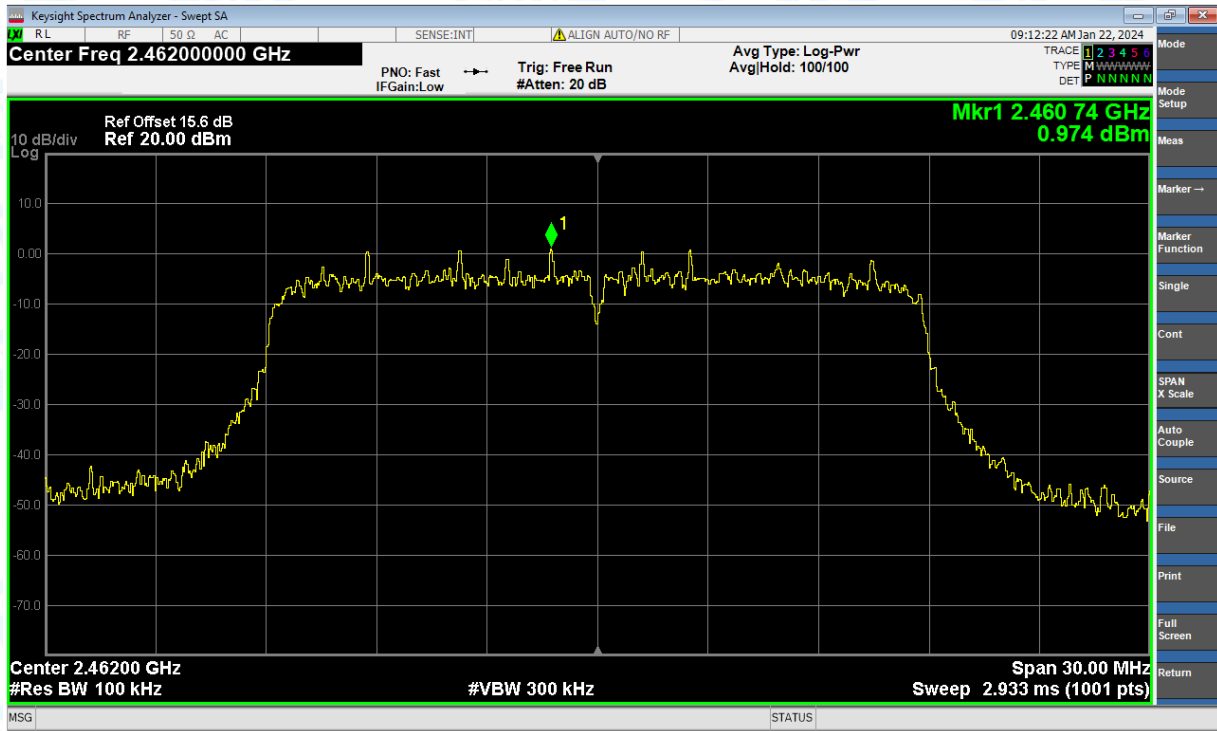
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Ref



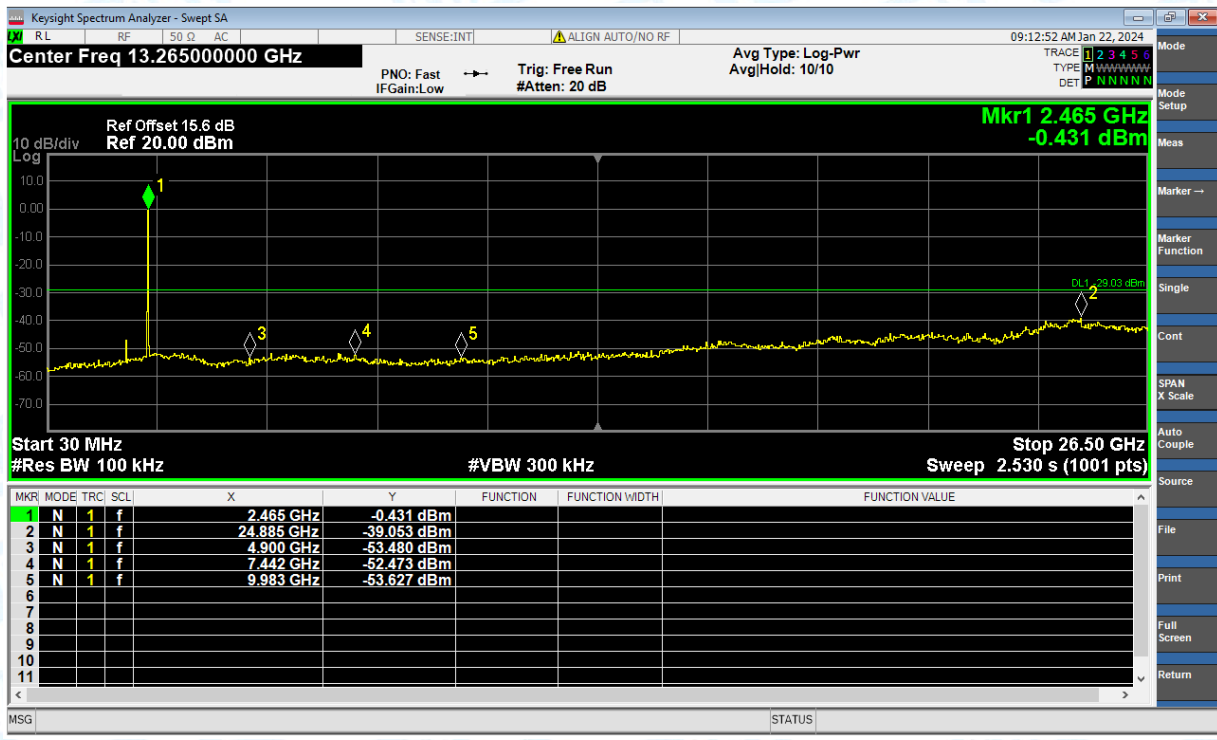
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Emission



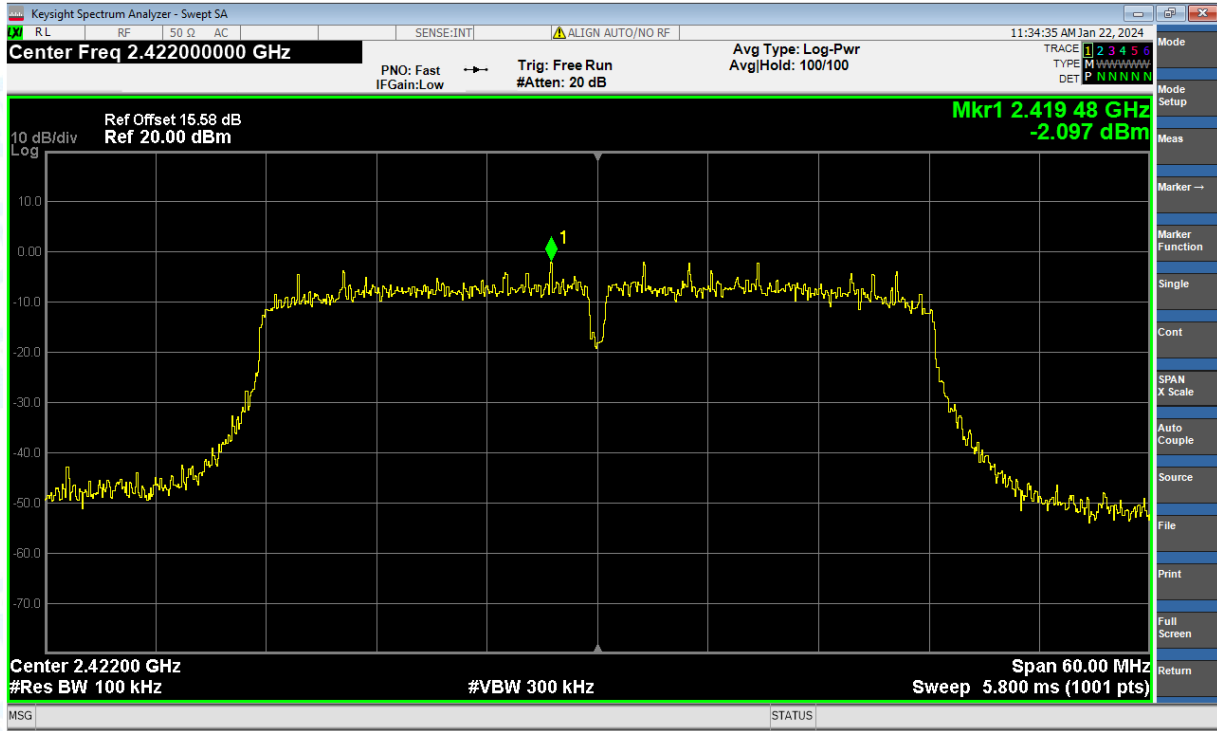
Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Ref



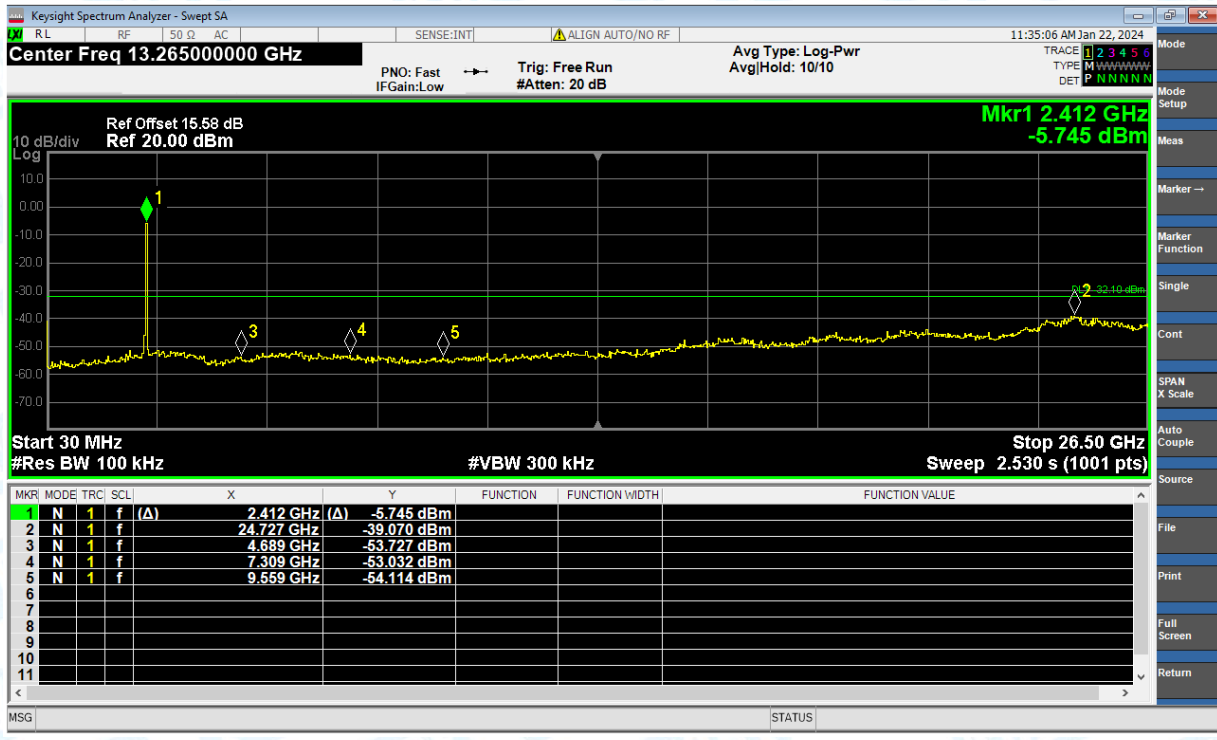
Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Emission



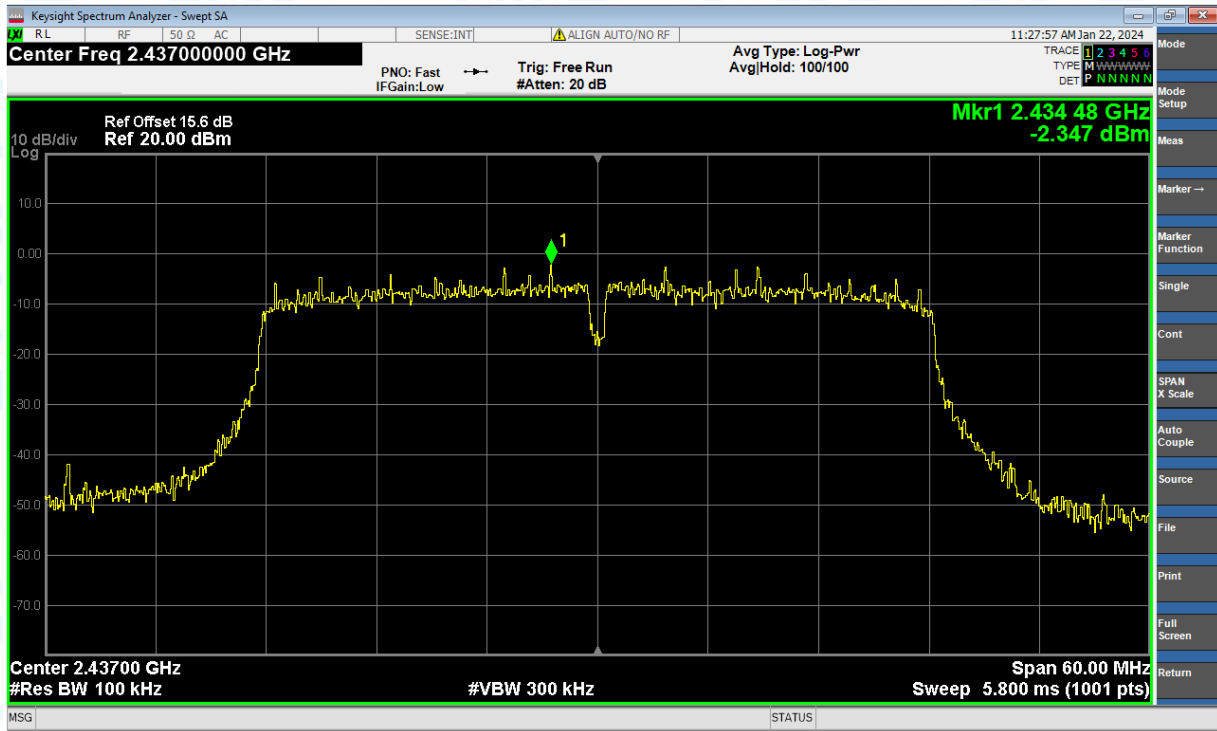
Tx. Spurious NVNT n(HT40) 2422MHz Ant1 Ref



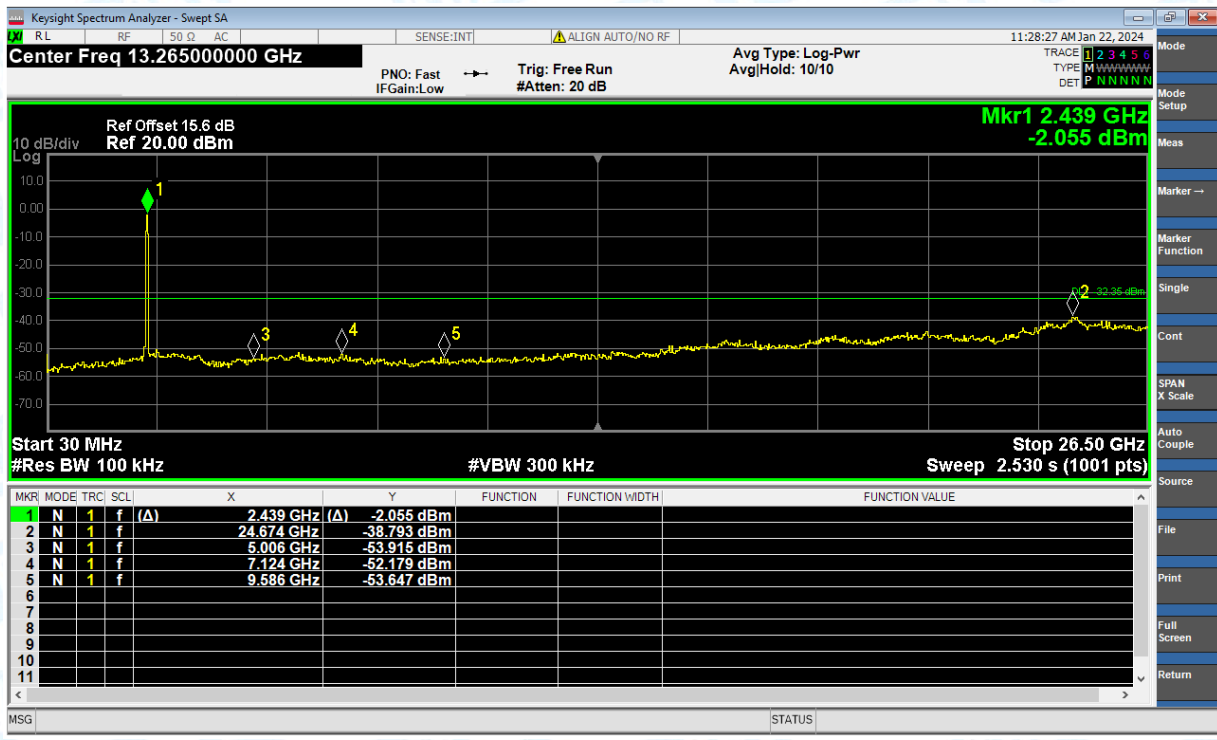
Tx. Spurious NVNT n(HT40) 2422MHz Ant1 Emission



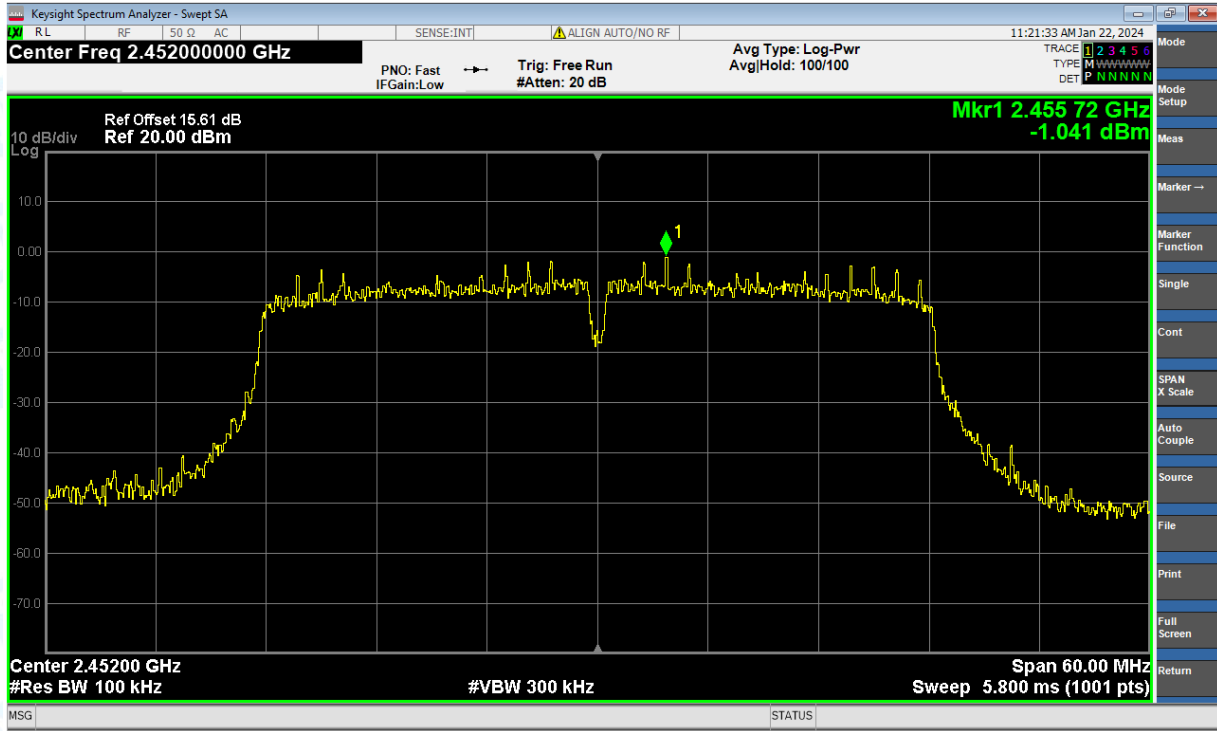
Tx. Spurious NVNT n(HT40) 2437MHz Ant1 Ref



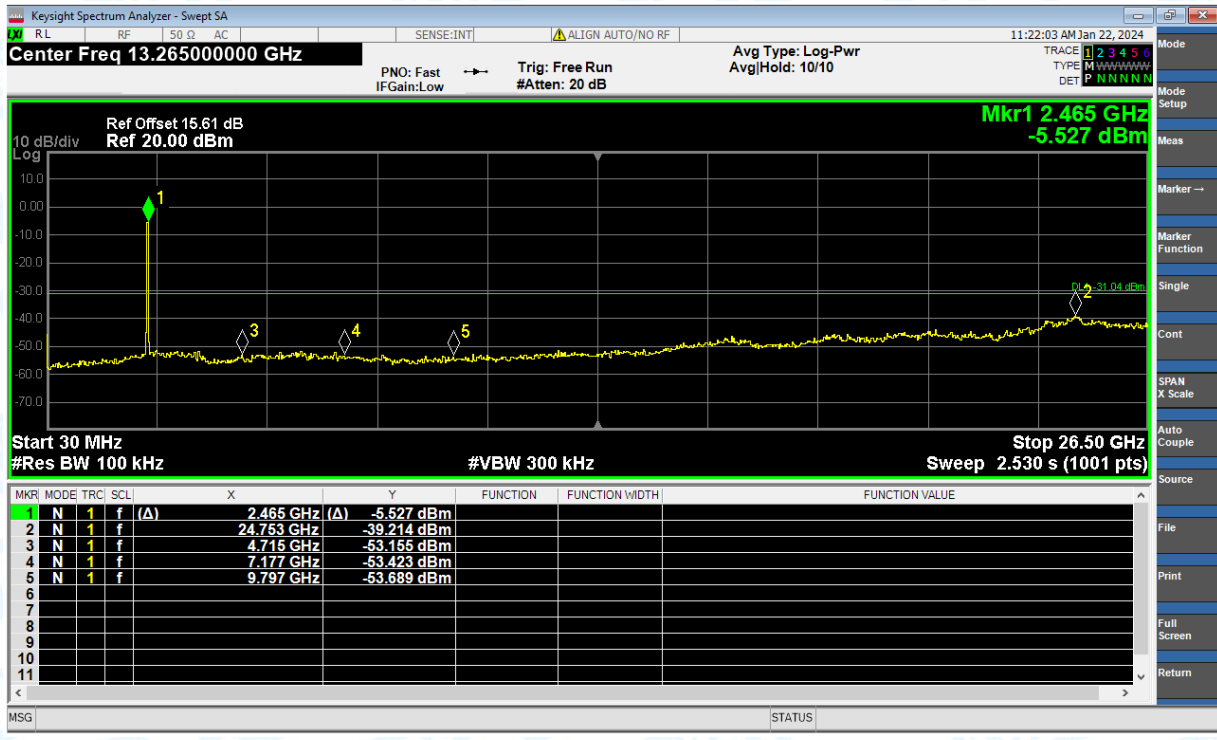
Tx. Spurious NVNT n(HT40) 2437MHz Ant1 Emission



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



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



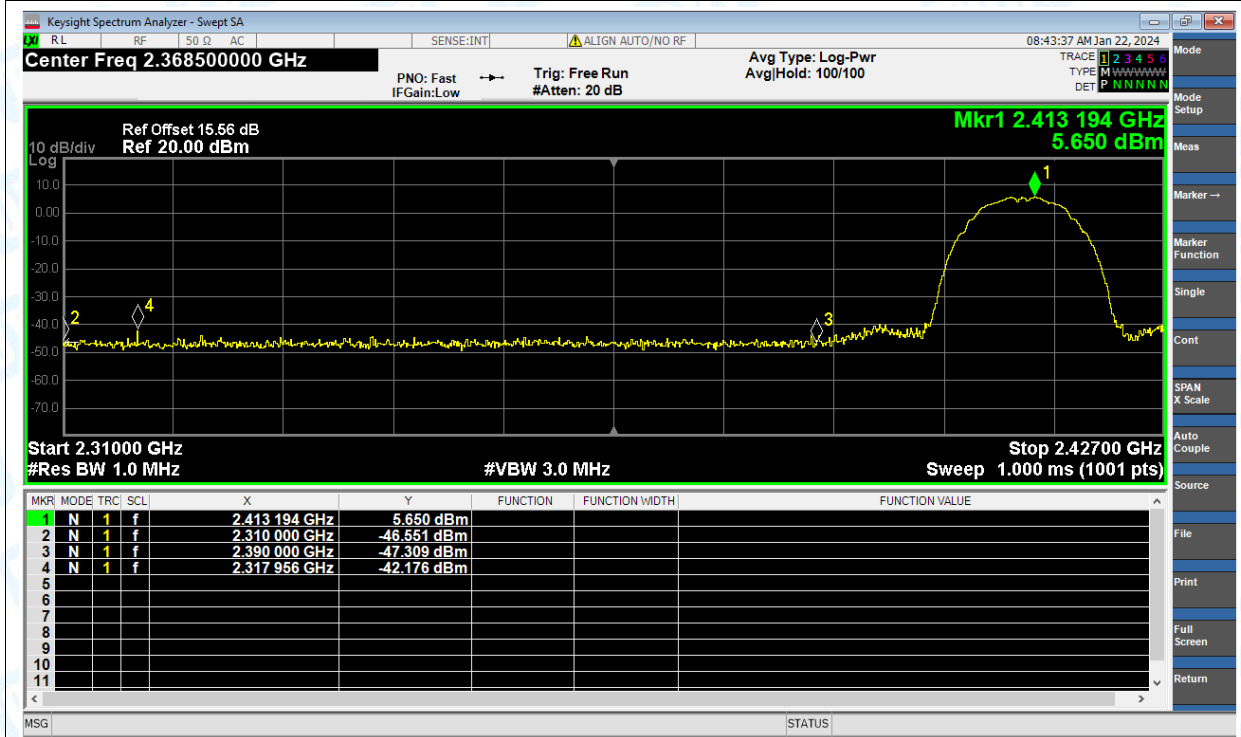
8. Restrict Band

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	-46.55	3.26	-	51.97	Peak	74	Pass
NVNT	b	2412	Ant1	2310	-55.45	3.26	4.88	47.95	Average	54	Pass
NVNT	b	2412	Ant1	2317.956	-42.18	3.26	-	56.34	Peak	74	Pass
NVNT	b	2412	Ant1	2317.722	-53.78	3.26	4.88	49.62	Average	54	Pass
NVNT	b	2412	Ant1	2390	-47.31	3.26	-	51.21	Peak	74	Pass
NVNT	b	2412	Ant1	2390	-55.08	3.26	4.88	48.32	Average	54	Pass
NVNT	b	2462	Ant1	2483.5	-45.92	3.26	-	52.6	Peak	74	Pass
NVNT	b	2462	Ant1	2483.5	-54.18	3.26	4.86	49.2	Average	54	Pass
NVNT	b	2462	Ant1	2486.591	-42.14	3.26	-	56.38	Peak	74	Pass
NVNT	b	2462	Ant1	2499.682	-53.7	3.26	4.86	49.68	Average	54	Pass
NVNT	b	2462	Ant1	2500	-47.77	3.26	-	50.75	Peak	74	Pass
NVNT	b	2462	Ant1	2500	-54.19	3.26	4.86	49.19	Average	54	Pass
NVNT	g	2412	Ant1	2310	-46	3.26	-	52.52	Peak	74	Pass
NVNT	g	2412	Ant1	2310	-55.02	3.26	4.89	48.39	Average	54	Pass
NVNT	g	2412	Ant1	2389.911	-41.55	3.26	-	56.97	Peak	74	Pass
NVNT	g	2412	Ant1	2389.911	-52.25	3.26	4.89	51.16	Average	54	Pass
NVNT	g	2412	Ant1	2390	-43.27	3.26	-	55.25	Peak	74	Pass
NVNT	g	2412	Ant1	2390	-51.77	3.26	4.89	51.64	Average	54	Pass
NVNT	g	2462	Ant1	2483.5	-42.22	3.26	-	56.3	Peak	74	Pass
NVNT	g	2462	Ant1	2483.5	-52.91	3.26	4.91	50.52	Average	54	Pass
NVNT	g	2462	Ant1	2483.676	-39.02	3.26	-	59.5	Peak	74	Pass
NVNT	g	2462	Ant1	2483.623	-52.47	3.26	4.91	50.96	Average	54	Pass
NVNT	g	2462	Ant1	2500	-45.93	3.26	-	52.59	Peak	74	Pass
NVNT	g	2462	Ant1	2500	-53.99	3.26	4.91	49.44	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2310	-47.27	3.26	-	51.25	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2310	-55.04	3.26	5.02	48.5	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2389.911	-39.34	3.26	-	59.18	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2389.677	-51.83	3.26	5.02	51.71	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2390	-43.03	3.26	-	55.49	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2390	-52.23	3.26	5.02	51.31	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2483.5	-44.22	3.26	-	54.3	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2483.5	-53.18	3.26	5.03	50.37	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2485.584	-39.64	3.26	-	58.88	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2485.743	-52.18	3.26	5.03	51.37	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2500	-44.93	3.26	-	53.59	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2500	-53.68	3.26	5.03	49.87	Average	54	Pass
NVNT	n(HT40)	2422	Ant1	2310	-45.86	3.26	-	52.66	Peak	74	Pass
NVNT	n(HT40)	2422	Ant1	2310	-55	3.26	4.95	48.47	Average	54	Pass
NVNT	n(HT40)	2422	Ant1	2387.106	-37.41	3.26	-	61.11	Peak	74	Pass
NVNT	n(HT40)	2422	Ant1	2388.384	-49.54	3.26	4.95	53.93	Average	54	Pass
NVNT	n(HT40)	2422	Ant1	2390	-39.44	3.26	-	59.08	Peak	74	Pass

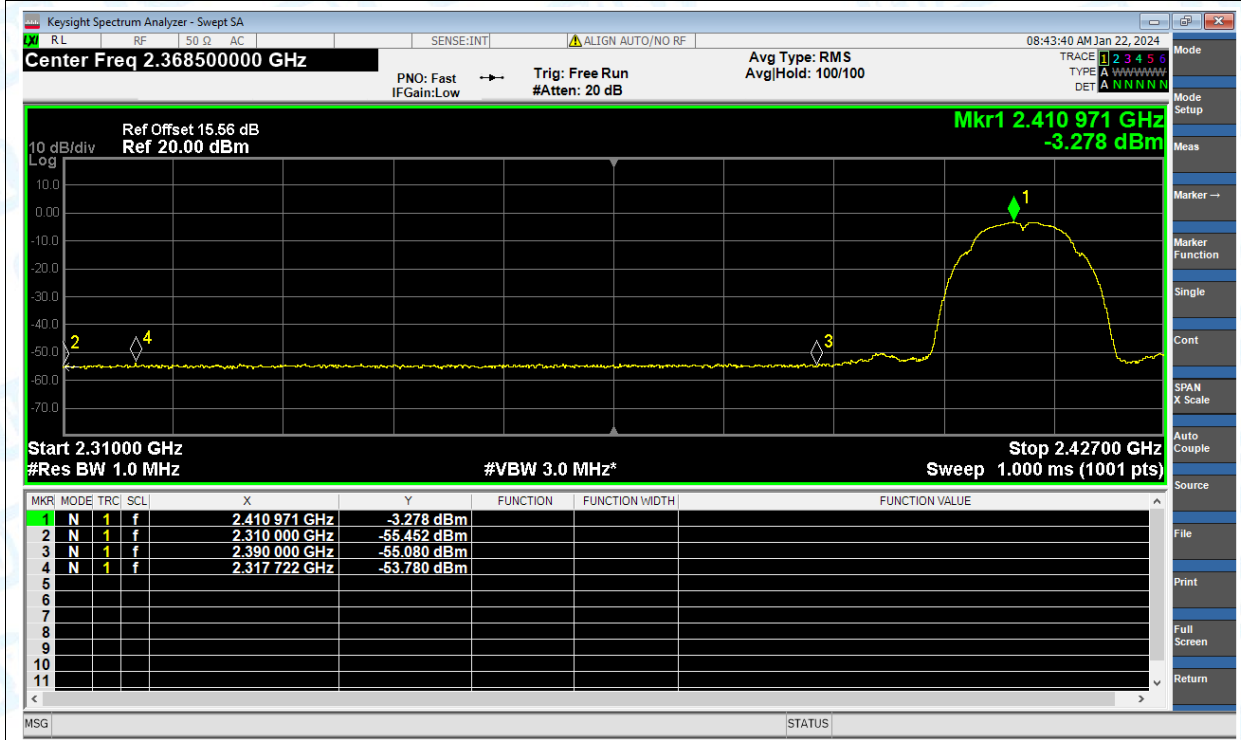
NVNT	n(HT40)	2422	Ant1	2390	-49.79	3.26	4.95	53.68	Average	54	Pass
NVNT	n(HT40)	2452	Ant1	2483.5	-40.42	3.26	-	58.1	Peak	74	Pass
NVNT	n(HT40)	2452	Ant1	2483.5	-51.14	3.26	4.94	52.32	Average	54	Pass
NVNT	n(HT40)	2452	Ant1	2483.698	-39.23	3.26	-	59.29	Peak	74	Pass
NVNT	n(HT40)	2452	Ant1	2484.244	-51.01	3.26	4.94	52.45	Average	54	Pass
NVNT	n(HT40)	2452	Ant1	2500	-43.44	3.26	-	55.08	Peak	74	Pass
NVNT	n(HT40)	2452	Ant1	2500	-52.98	3.26	4.94	50.48	Average	54	Pass

Test Graphs

Restrict Band NVNT b 2412MHz Ant1 Peak



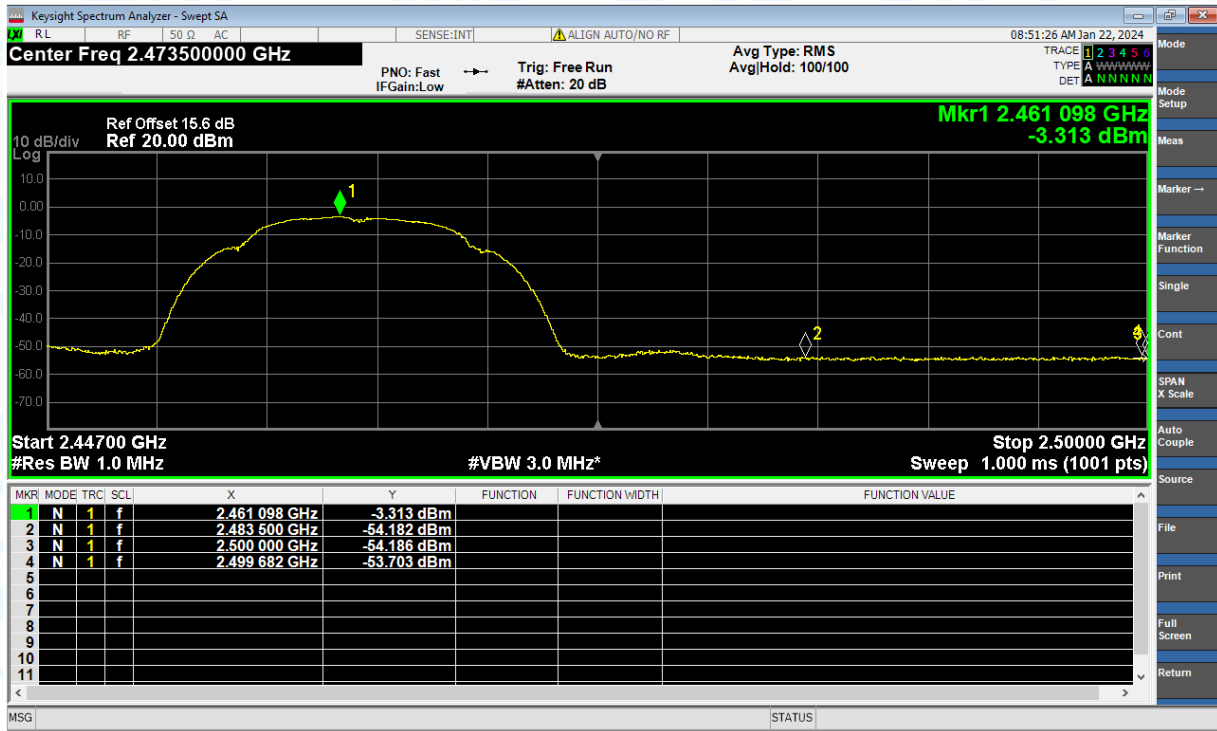
Restrict Band NVNT b 2412MHz Ant1 Average



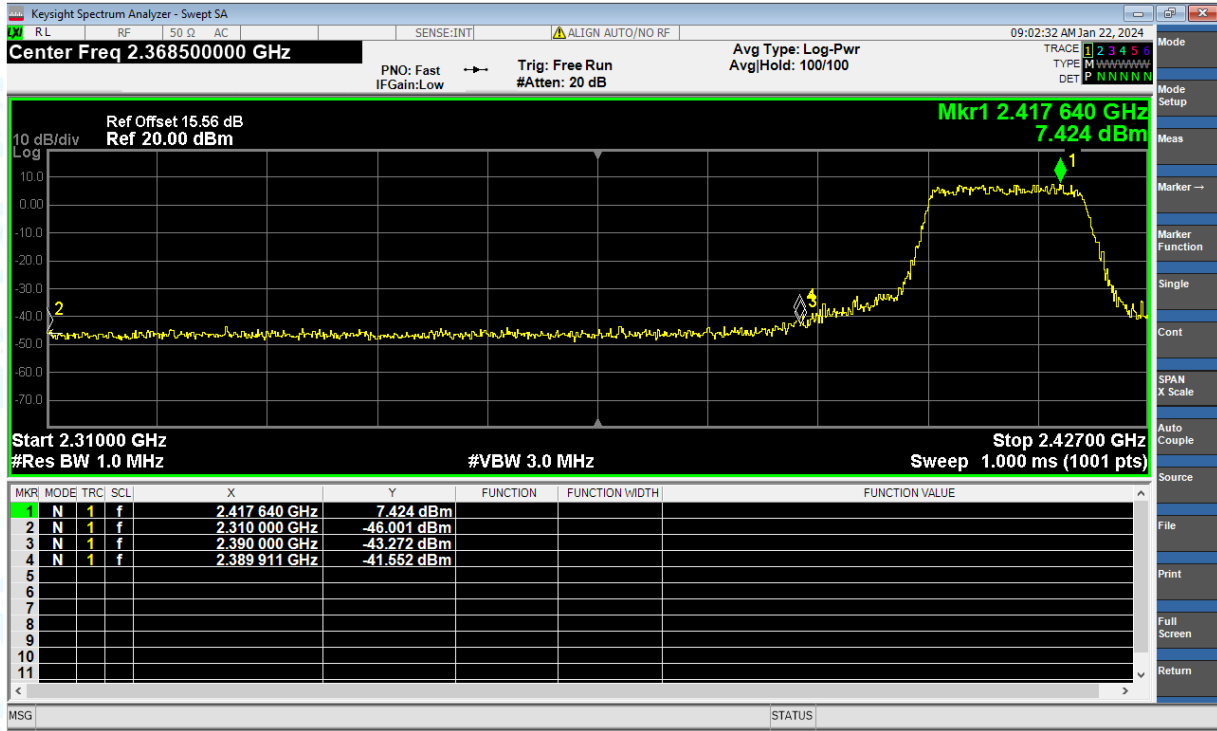
Restrict Band NVNT b 2462MHz Ant1 Peak



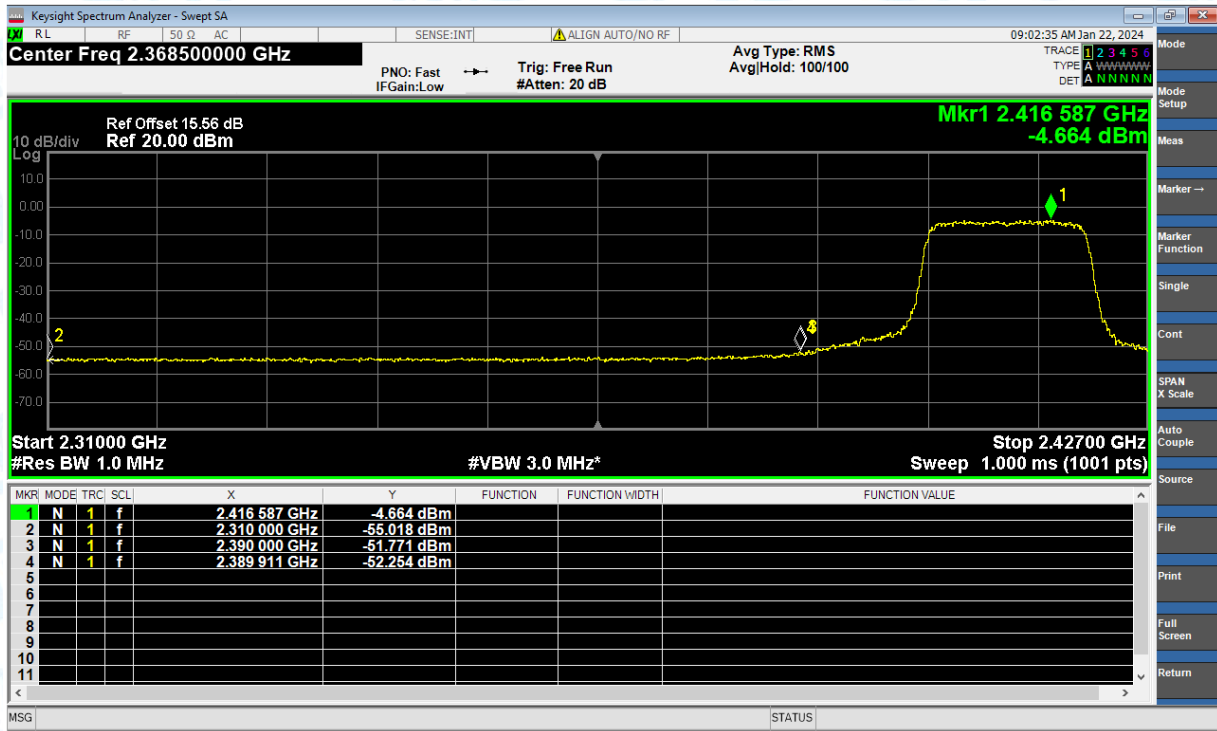
Restrict Band NVNT b 2462MHz Ant1 Average



Restrict Band NVNT g 2412MHz Ant1 Peak



Restrict Band NVNT g 2412MHz Ant1 Average



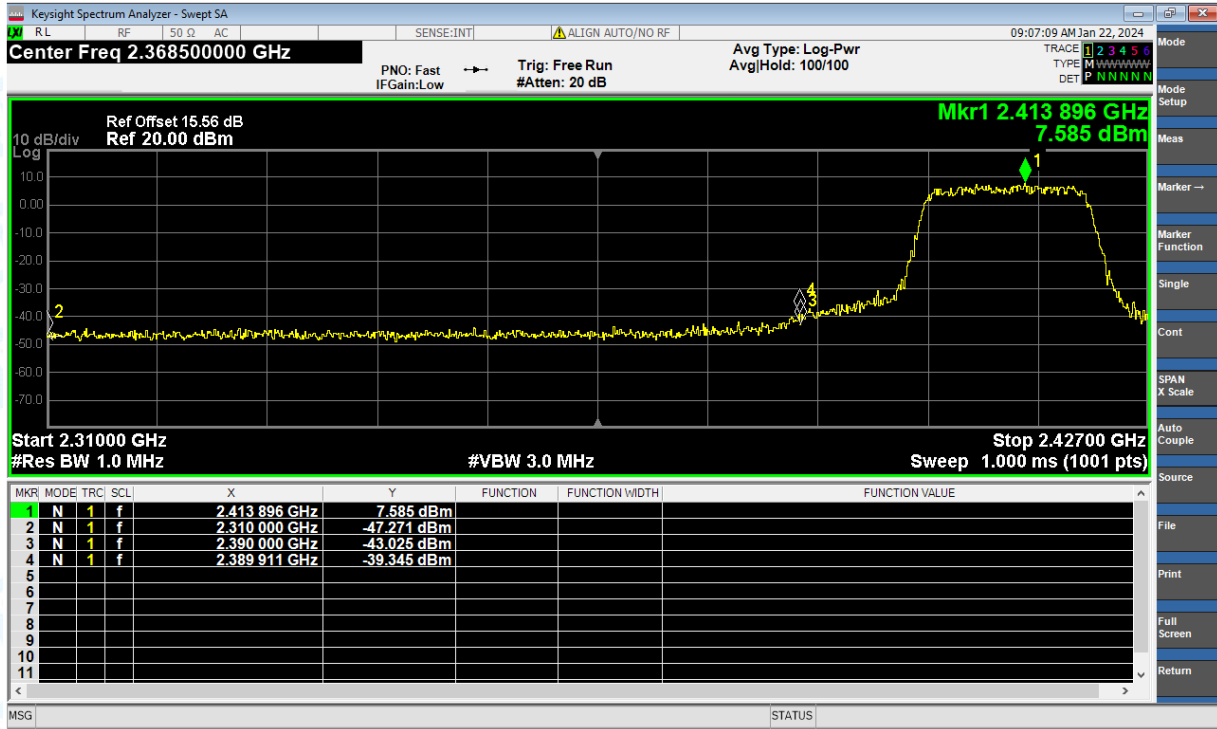
Restrict Band NVNT g 2462MHz Ant1 Peak



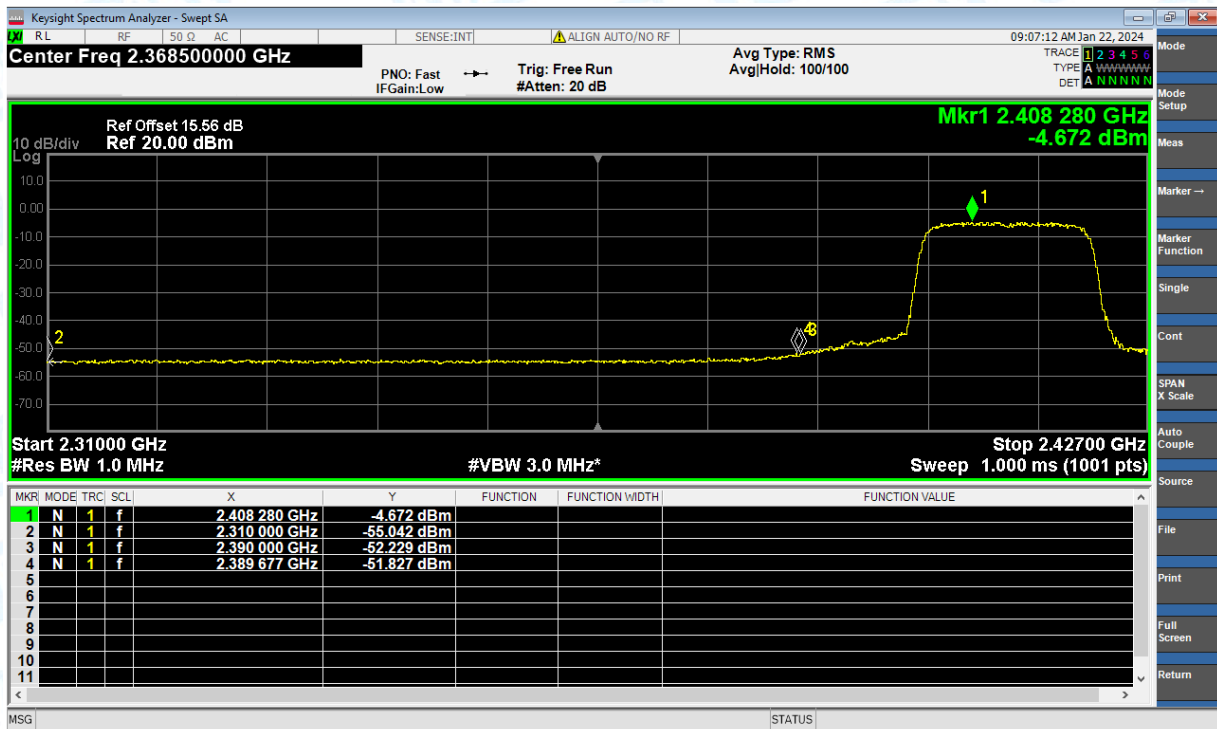
Restrict Band NVNT g 2462MHz Ant1 Average



Restrict Band NVNT n(HT20) 2412MHz Ant1 Peak



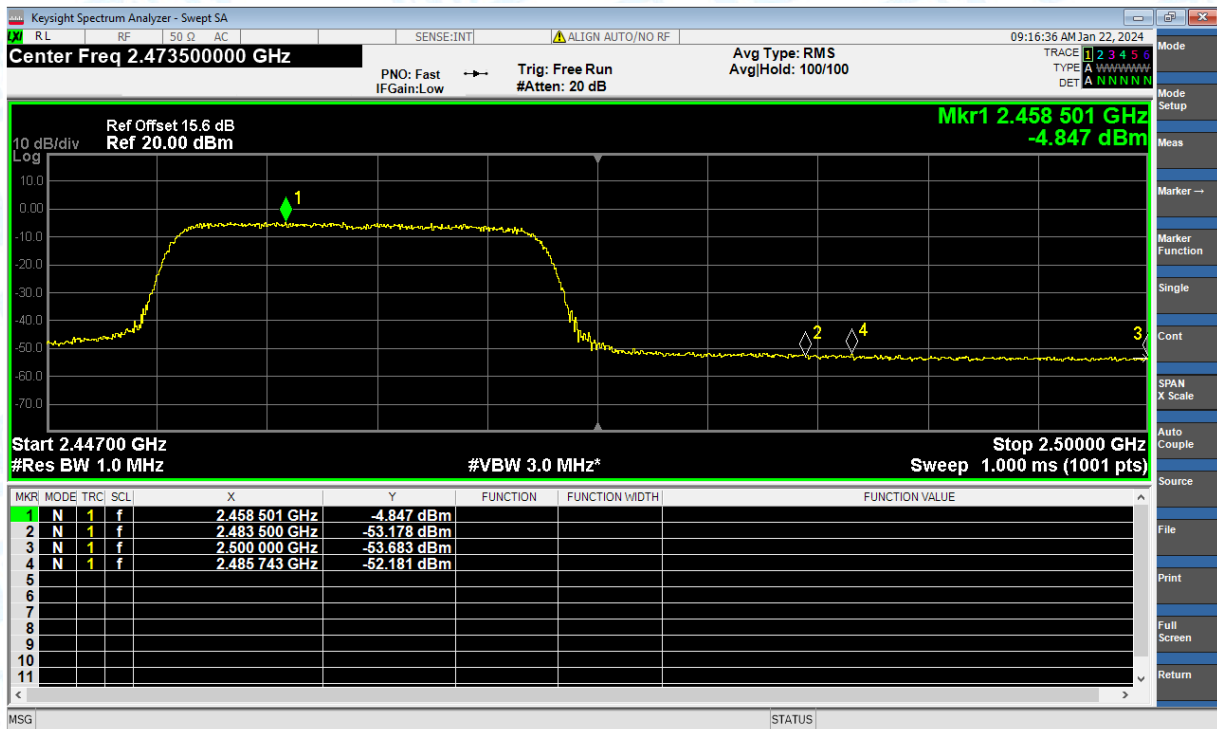
Restrict Band NVNT n(HT20) 2412MHz Ant1 Average



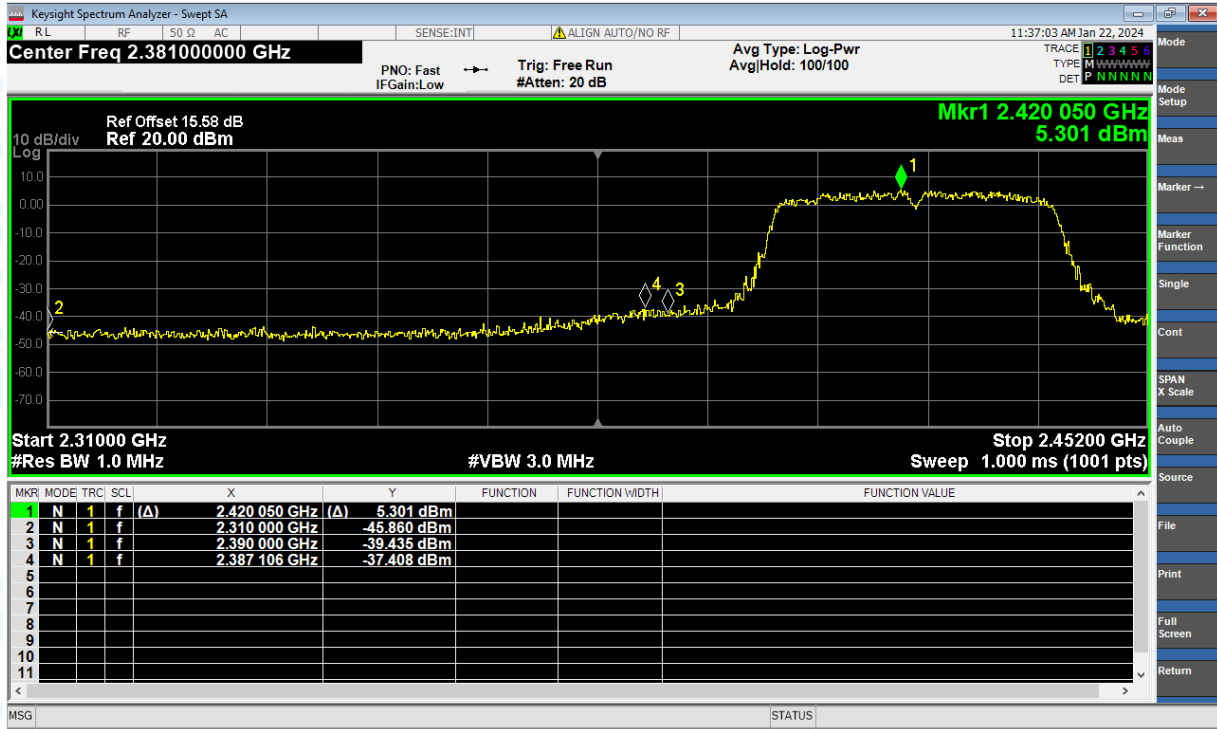
Restrict Band NVNT n(HT20) 2462MHz Ant1 Peak



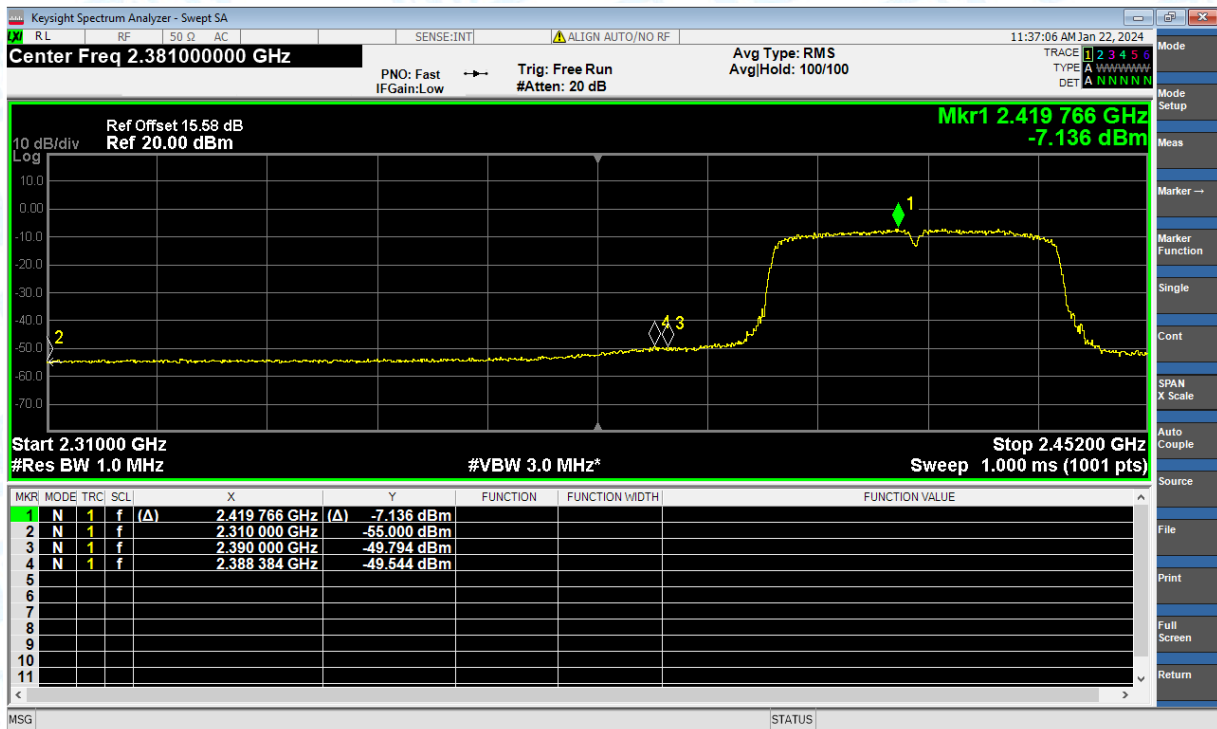
Restrict Band NVNT n(HT20) 2462MHz Ant1 Average



Restrict Band NVNT n(HT40) 2422MHz Ant1 Peak



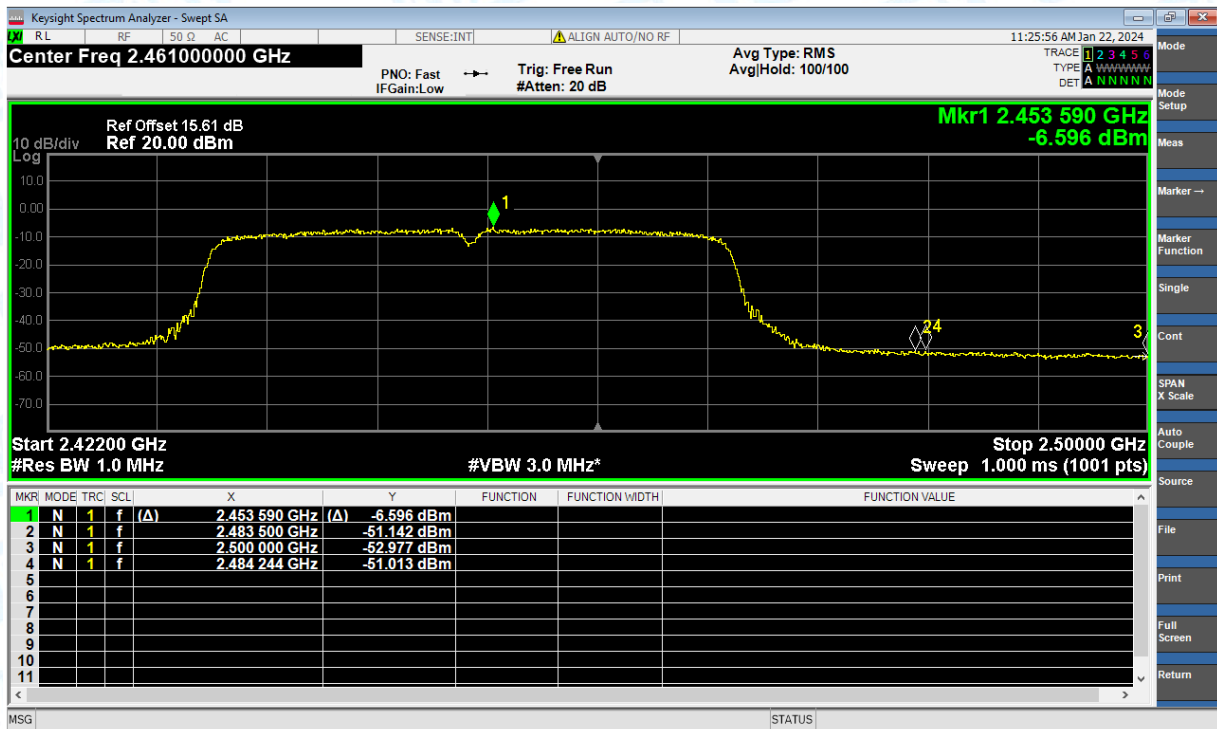
Restrict Band NVNT n(HT40) 2422MHz Ant1 Average



Restrict Band NVNT n(HT40) 2452MHz Ant1 Peak



Restrict Band NVNT n(HT40) 2452MHz Ant1 Average



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