RF Test Data for 2.4G WiFi (Conducted Measurements)

General Description of EUT	
Product Name:	WNVR-BTWN8-V2
Test Model:	WNVR-BTWN8-V2
Sample ID:	HC-C-202503-0230-01-01
Environmental Conditions	
Temperature:	24.6℃
Relative Humidity:	52.1%
Test Voltage:	DC 12V
Test Engineer:	Lily zhang
Note: For a more detailed features description, please refer to the report TBR-C-202503-0230-11 The report only show the worst case data.	

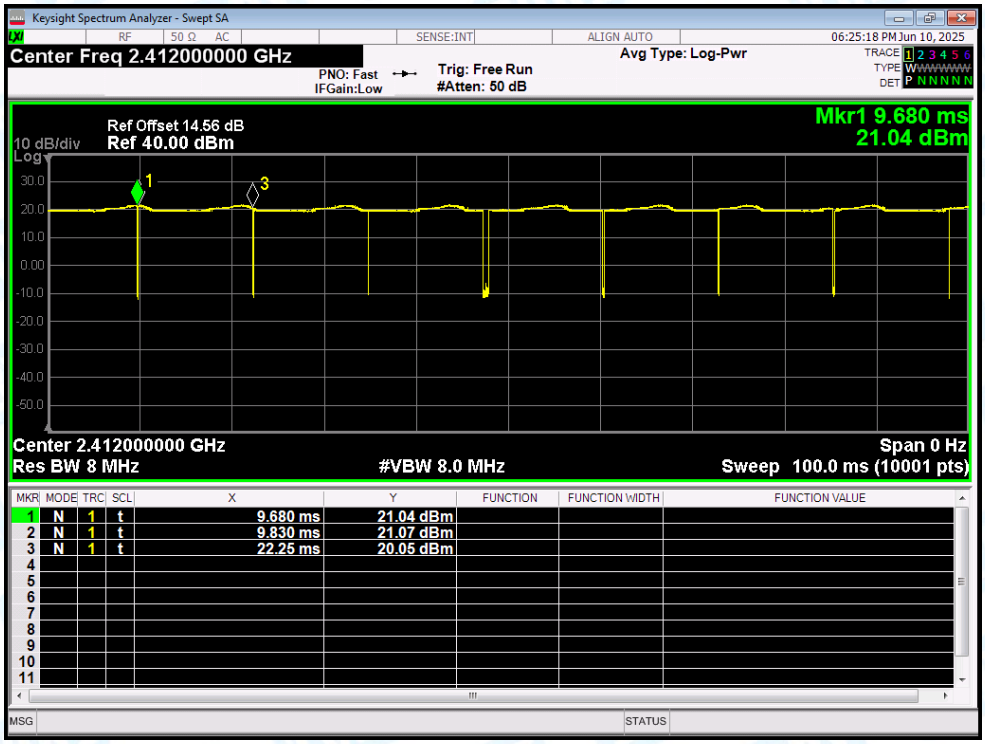
Contents

1. Duty Cycle

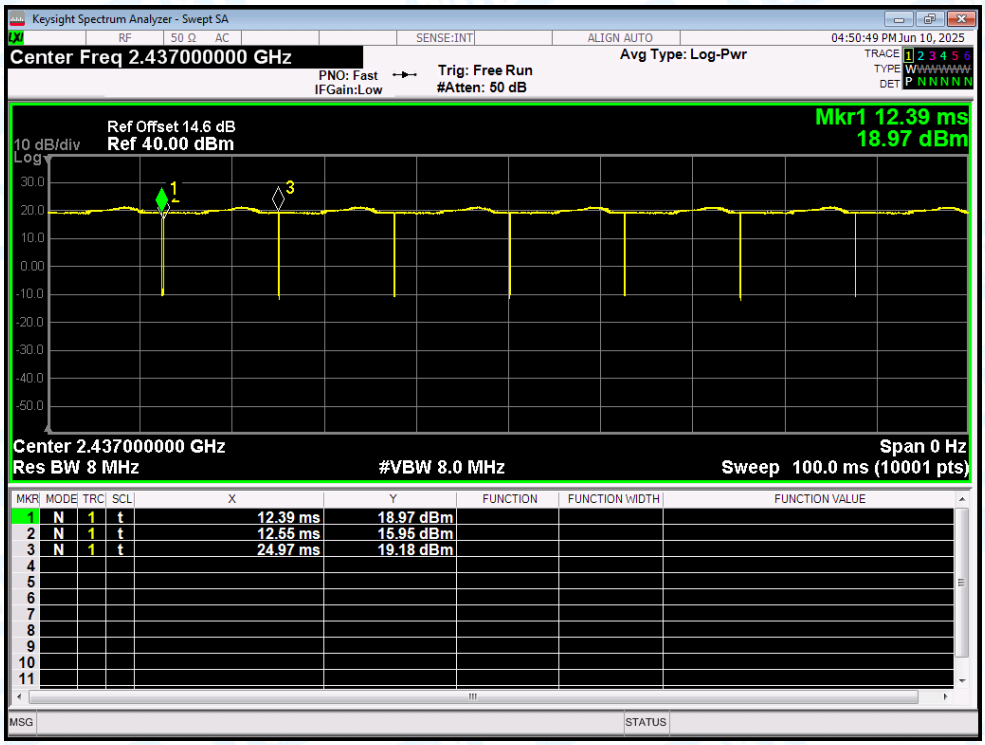
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	98.81	0.05	0.08
NVNT	b	2437	Ant1	98.73	0.06	0.08
NVNT	b	2462	Ant1	98.65	0.06	0.08
NVNT	b	2412	Ant2	99.68	0.01	0.08
NVNT	b	2437	Ant2	99.44	0.02	0.08
NVNT	b	2462	Ant2	99.2	0.03	0.08
NVNT	g	2412	Ant1	89.61	0.48	0.48
NVNT	g	2437	Ant1	89.61	0.48	0.48
NVNT	g	2462	Ant1	89.61	0.48	0.48
NVNT	g	2412	Ant2	89.57	0.48	0.49
NVNT	g	2437	Ant2	89.57	0.48	0.49
NVNT	g	2462	Ant2	89.57	0.48	0.49
NVNT	n(HT20)	2412	Sum	88.48	0.53	0.52
NVNT	n(HT20)	2437	Sum	88.07	0.55	0.52
NVNT	n(HT20)	2462	Sum	88.07	0.55	0.52
NVNT	n(HT40)	2422	Sum	34.21	4.66	7.69
NVNT	n(HT40)	2437	Sum	31.58	5.01	8.33
NVNT	n(HT40)	2452	Sum	33.33	4.77	7.69

Test Graphs

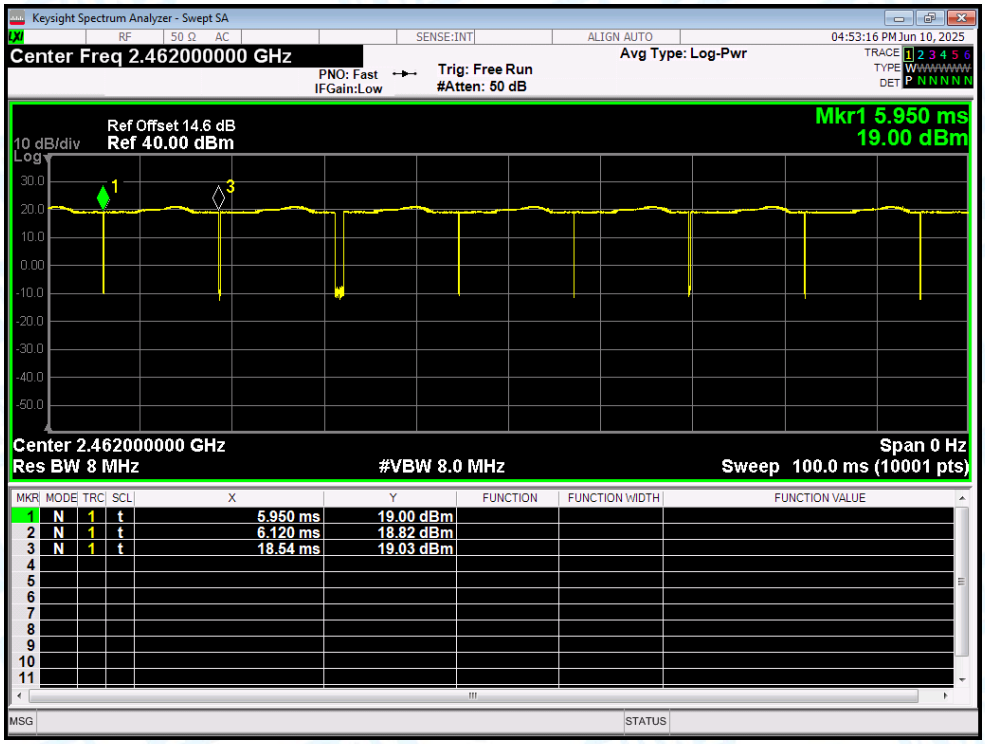
Duty Cycle NVNT b 2412MHz Ant1



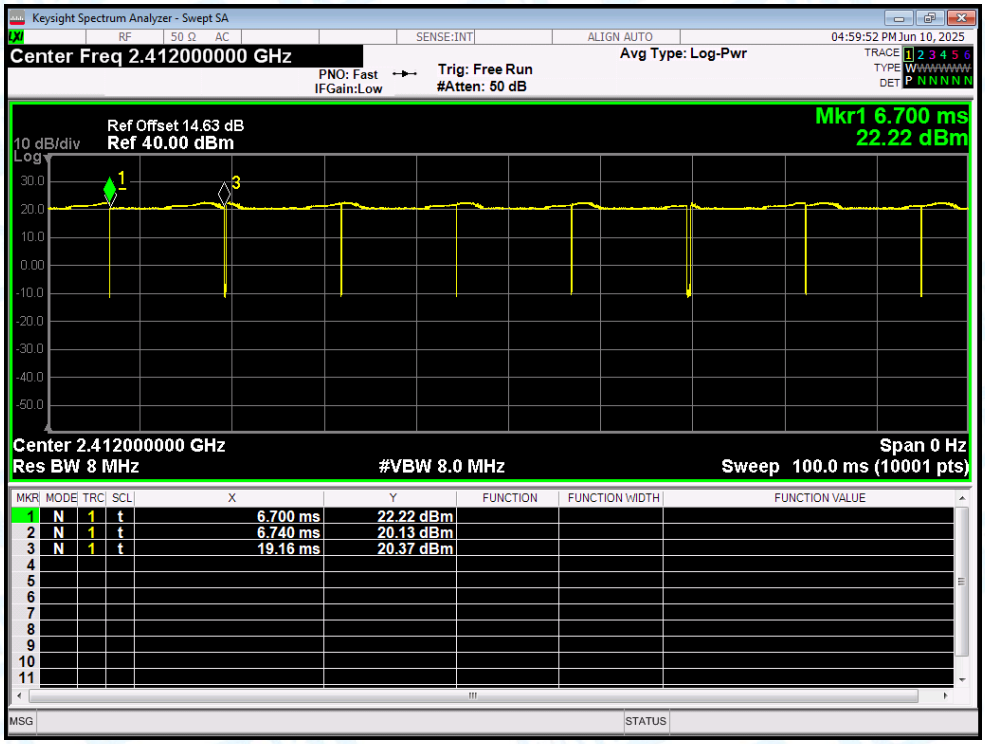
Duty Cycle NVNT b 2437MHz Ant1



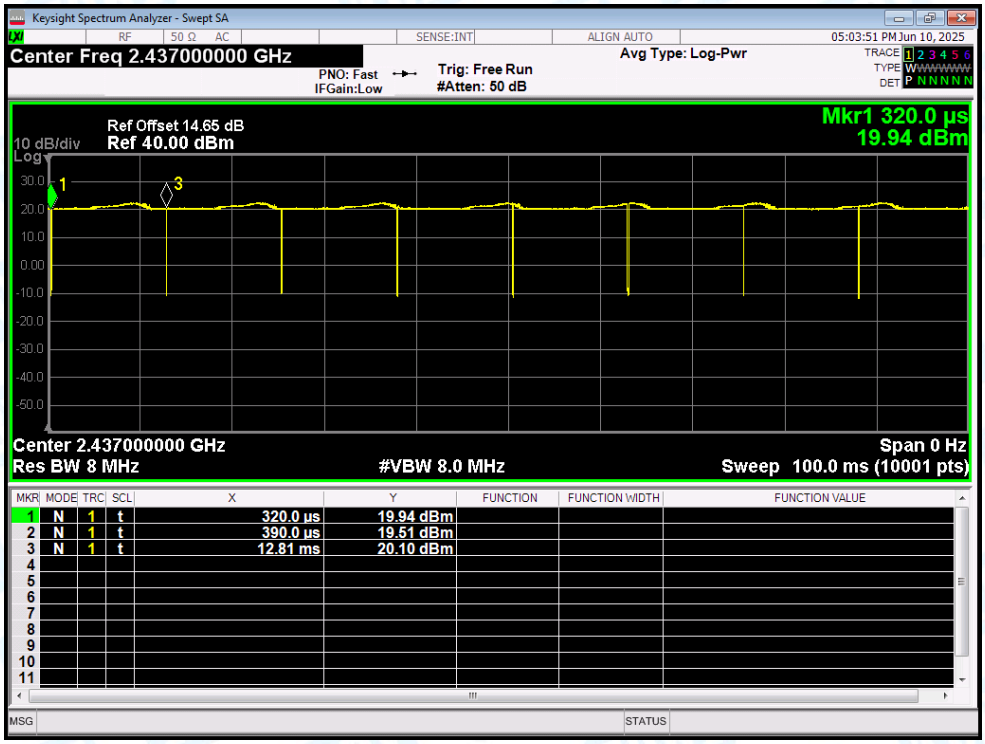
Duty Cycle NVNT b 2462MHz Ant1



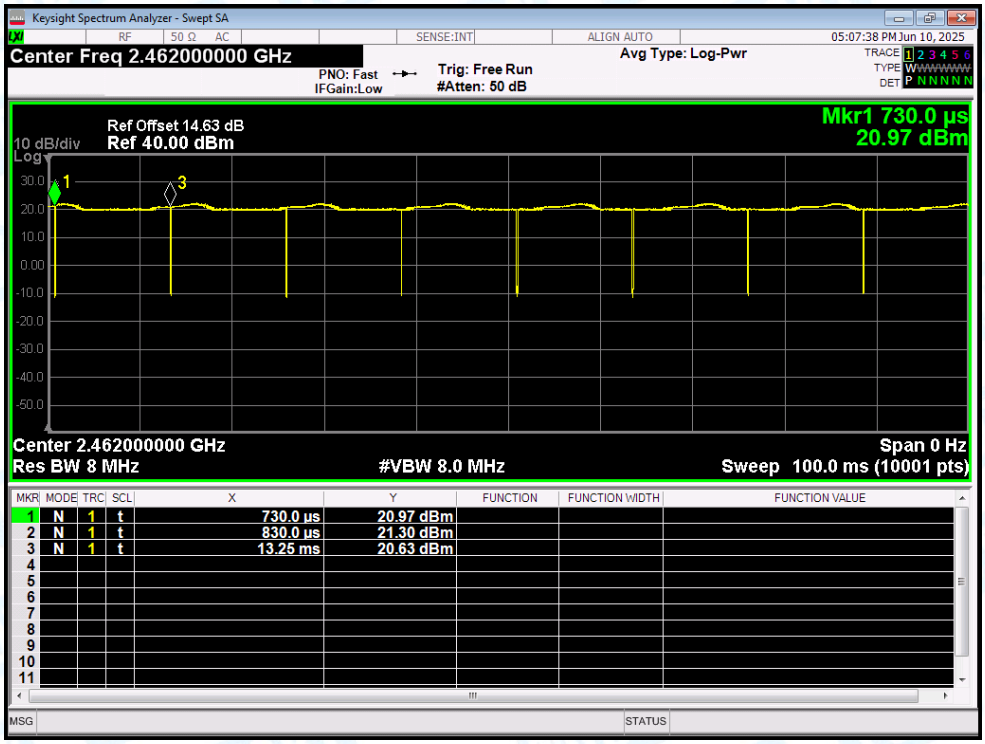
Duty Cycle NVNT b 2412MHz Ant2



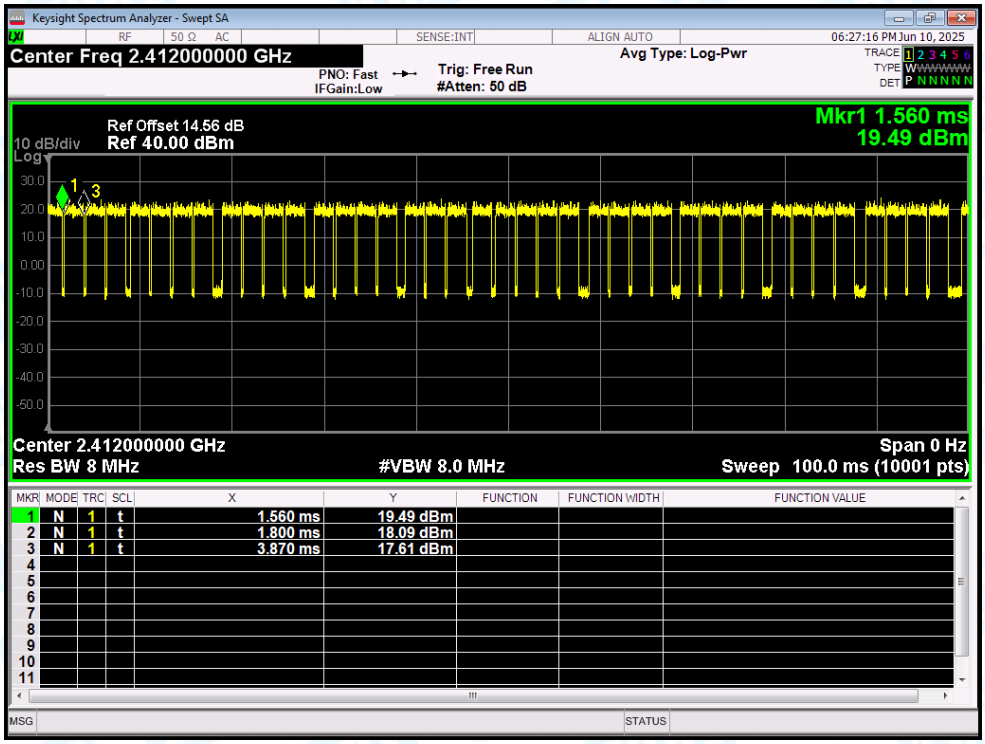
Duty Cycle NVNT b 2437MHz Ant2



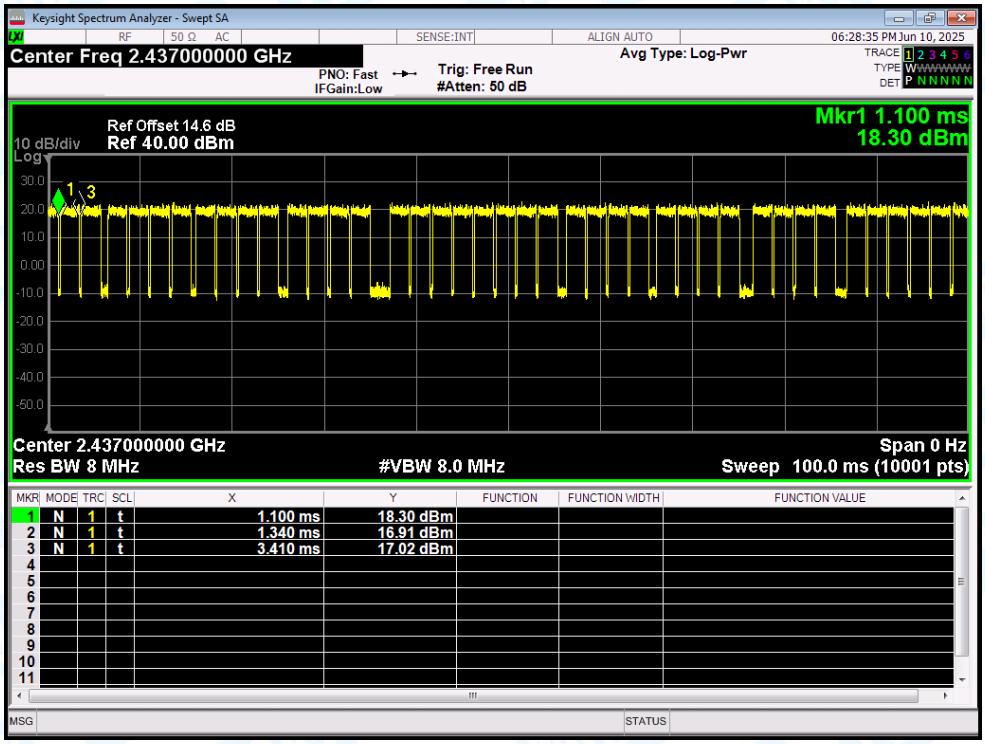
Duty Cycle NVNT b 2462MHz Ant2



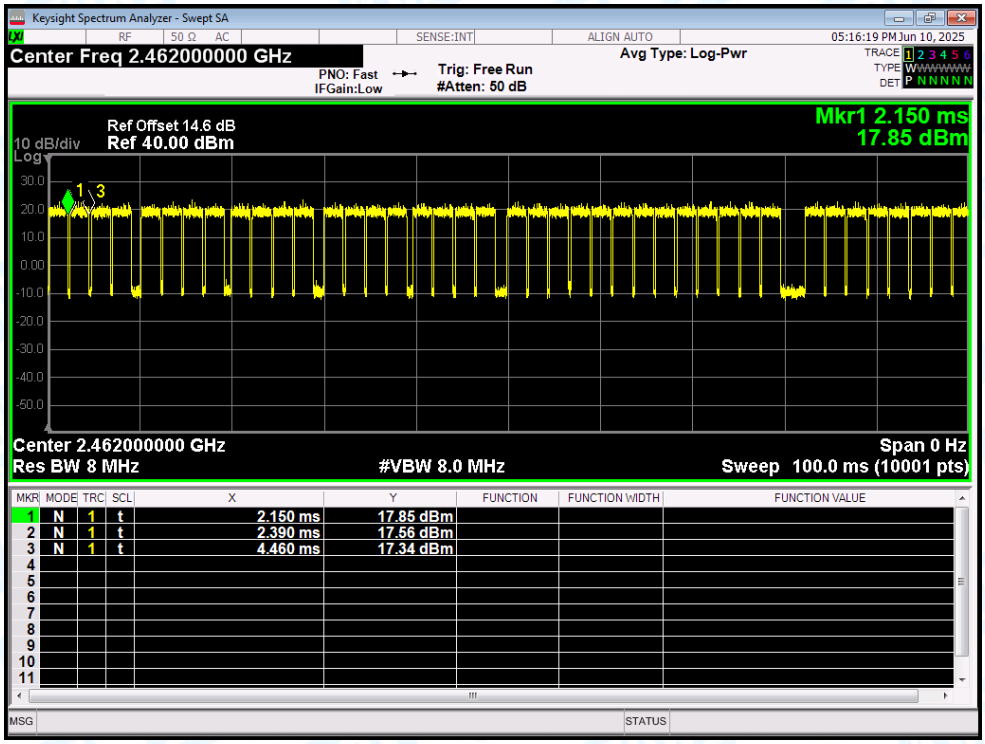
Duty Cycle NVNT g 2412MHz Ant1



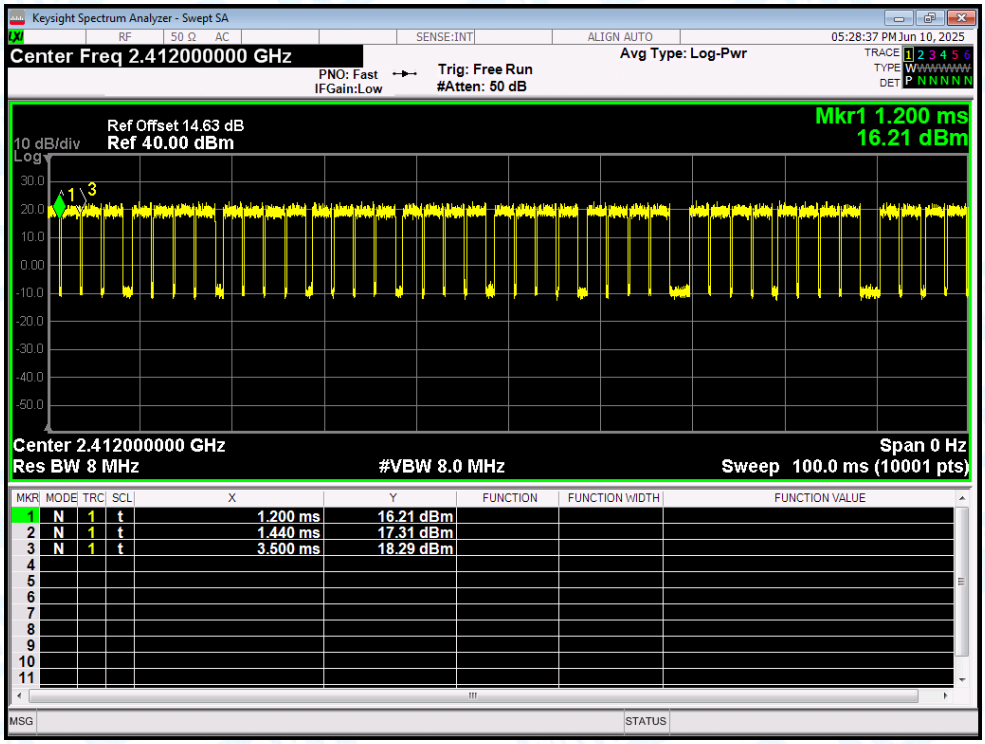
Duty Cycle NVNT g 2437MHz Ant1



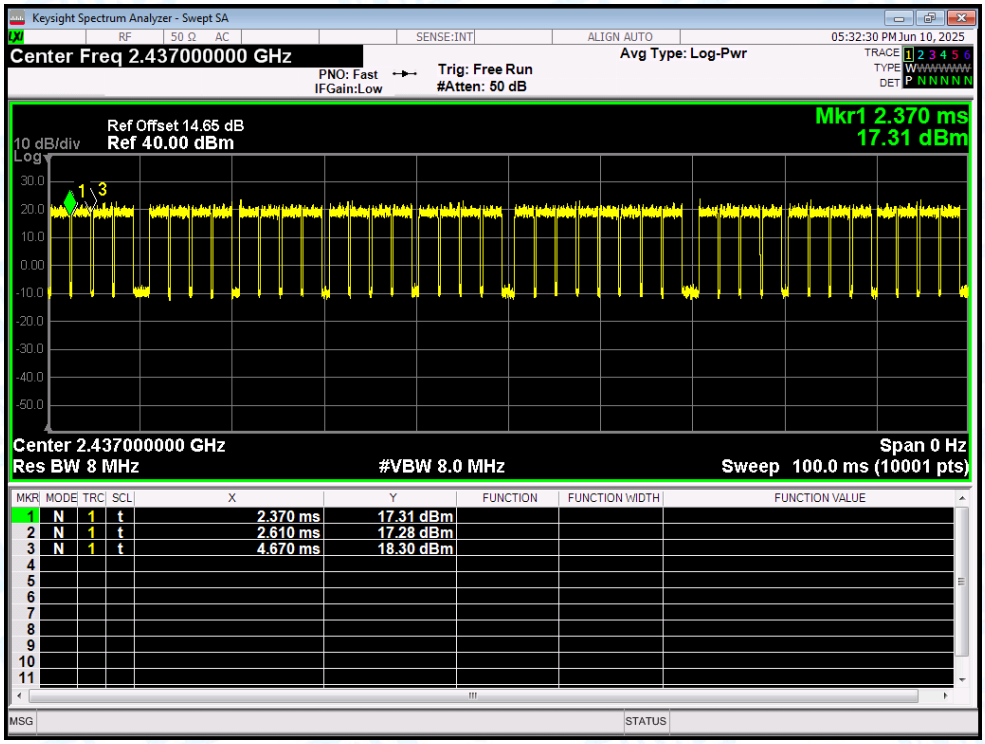
Duty Cycle NVNT g 2462MHz Ant1



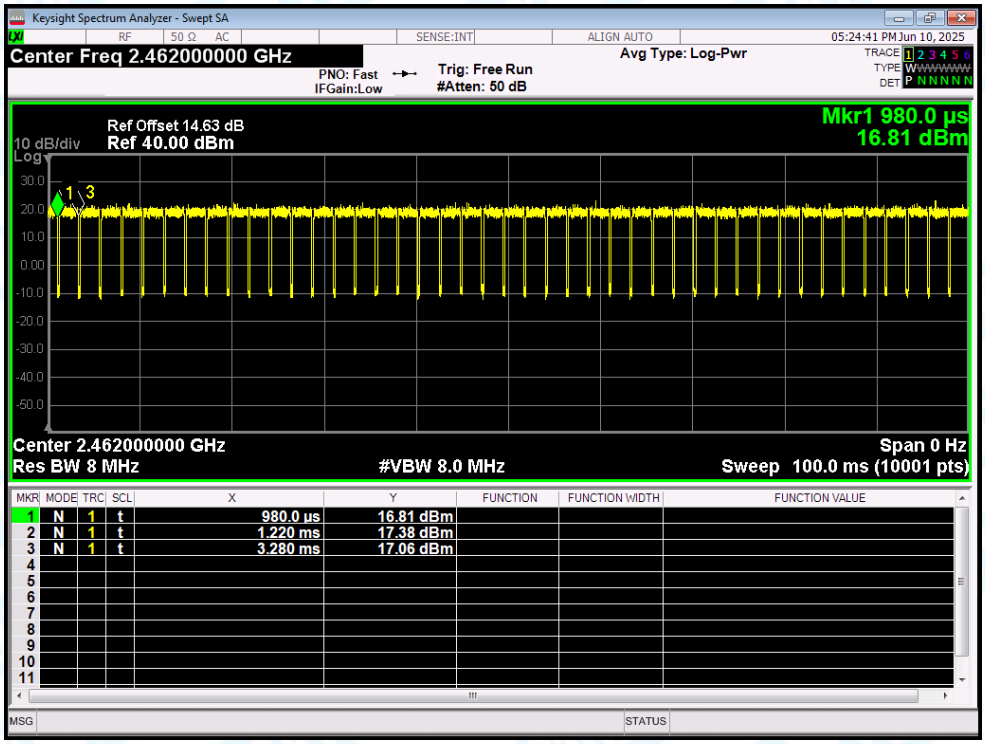
Duty Cycle NVNT g 2412MHz Ant2



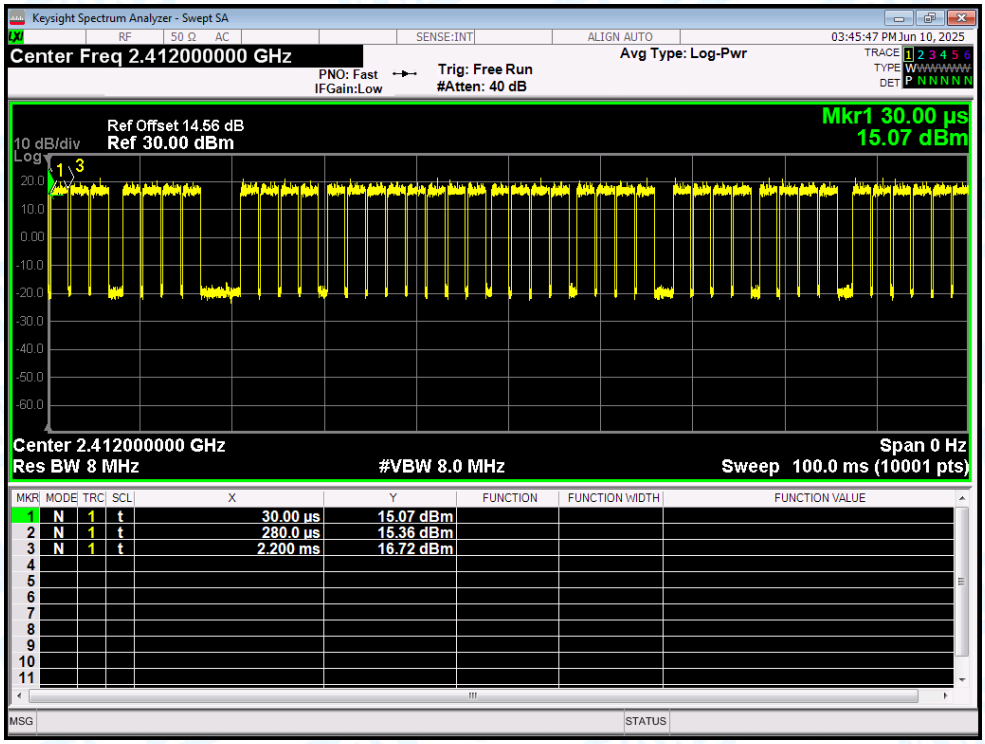
Duty Cycle NVNT g 2437MHz Ant2



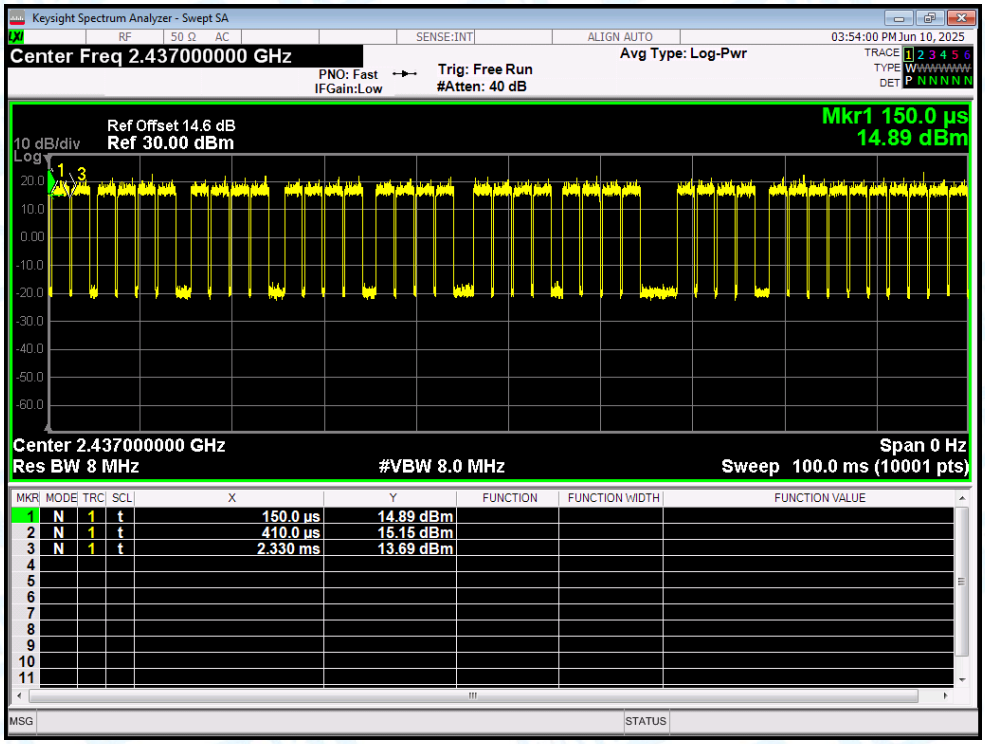
Duty Cycle NVNT g 2462MHz Ant2



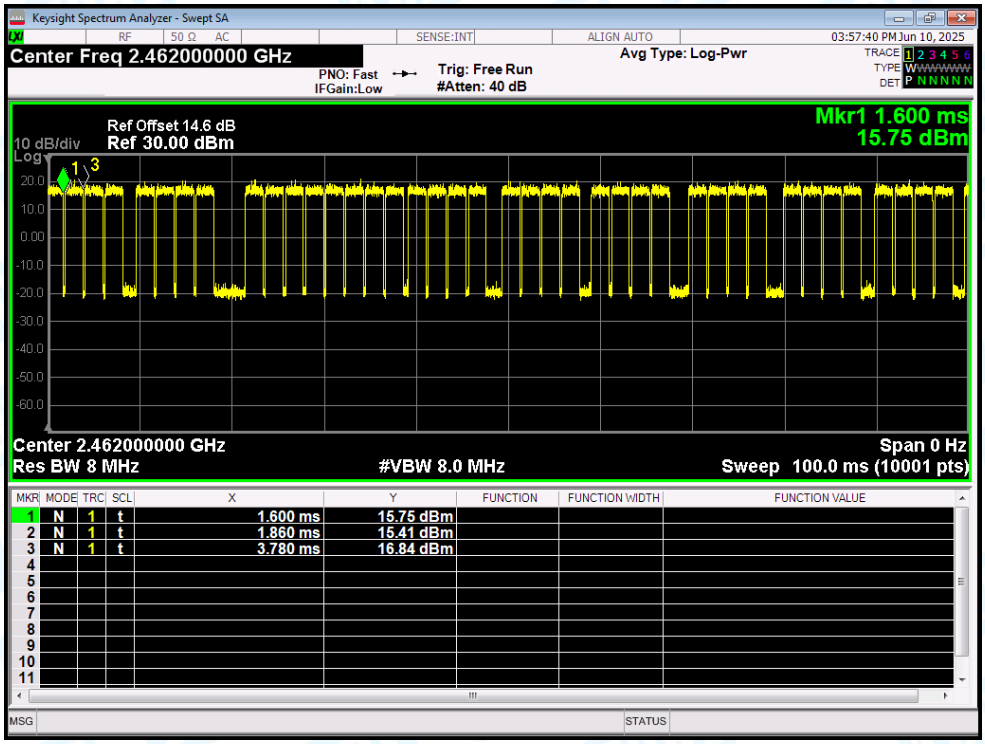
Duty Cycle NVNT n(HT20) 2412MHz Sum



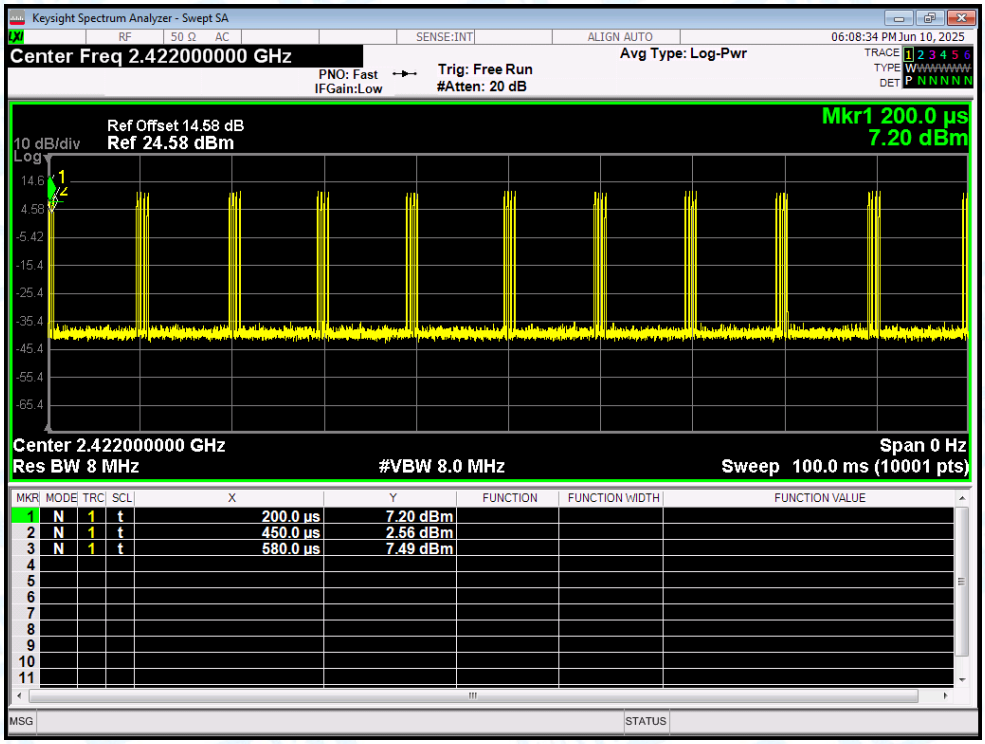
Duty Cycle NVNT n(HT20) 2437MHz Sum



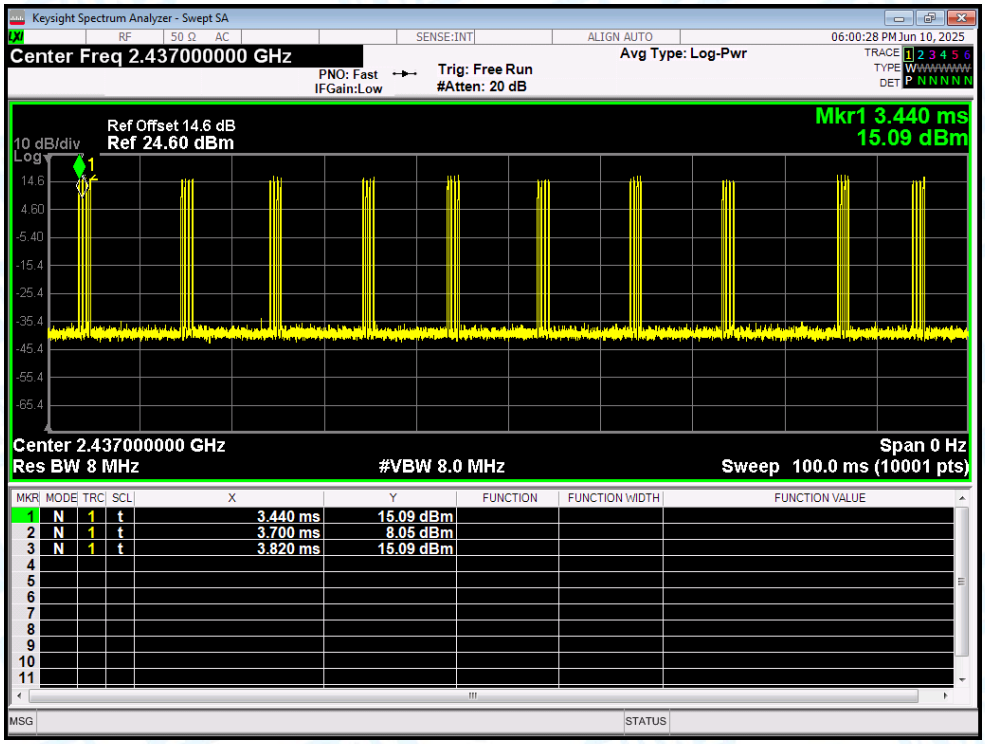
Duty Cycle NVNT n(HT20) 2462MHz Sum



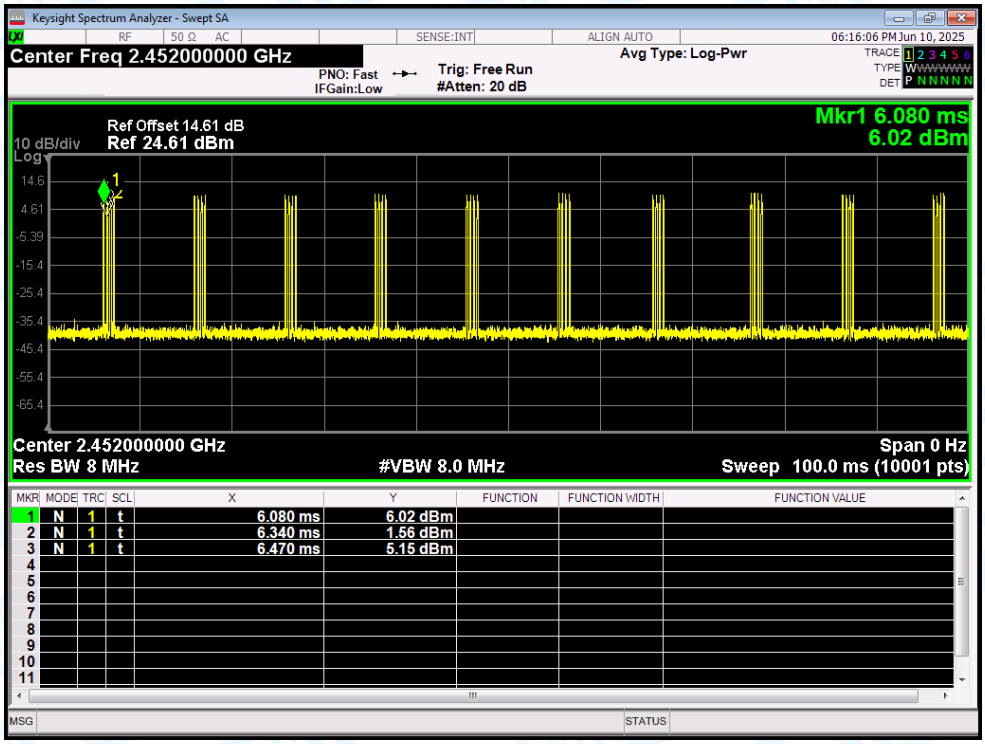
Duty Cycle NVNT n(HT40) 2422MHz Sum



Duty Cycle NVNT n(HT40) 2437MHz Sum



Duty Cycle NVNT n(HT40) 2452MHz Sum



2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	15.54	0.05	15.59	30	Pass
NVNT	b	2437	Ant1	15.07	0.06	15.13	30	Pass
NVNT	b	2462	Ant1	14.91	0.06	14.97	30	Pass
NVNT	b	2412	Ant2	16.52	0.01	16.53	30	Pass
NVNT	b	2437	Ant2	16.43	0.02	16.45	30	Pass
NVNT	b	2462	Ant2	16.54	0.03	16.57	30	Pass
NVNT	g	2412	Ant1	15.3	0.48	15.78	30	Pass
NVNT	g	2437	Ant1	15.08	0.48	15.56	30	Pass
NVNT	g	2462	Ant1	15.04	0.48	15.52	30	Pass
NVNT	g	2412	Ant2	14.87	0.48	15.35	30	Pass
NVNT	g	2437	Ant2	14.86	0.48	15.34	30	Pass
NVNT	g	2462	Ant2	14.72	0.48	15.2	30	Pass
NVNT	n(HT20)	2412	Ant1	12.96	0.53	13.49	30	Pass
NVNT	n(HT20)	2412	Ant2	12.58	0.53	13.11	30	Pass
NVNT	n(HT20)	2412	Sum	15.784	0.53	16.314	30	Pass
NVNT	n(HT20)	2437	Ant1	12.75	0.55	13.3	30	Pass
NVNT	n(HT20)	2437	Ant2	12.55	0.55	13.1	30	Pass
NVNT	n(HT20)	2437	Sum	15.661	0.55	16.211	30	Pass
NVNT	n(HT20)	2462	Ant1	12.62	0.55	13.17	30	Pass
NVNT	n(HT20)	2462	Ant2	12.39	0.55	12.94	30	Pass
NVNT	n(HT20)	2462	Sum	15.517	0.55	16.067	30	Pass
NVNT	n(HT40)	2422	Ant1	7.7	4.66	12.36	30	Pass
NVNT	n(HT40)	2422	Ant2	7.91	4.66	12.57	30	Pass
NVNT	n(HT40)	2422	Sum	10.817	4.66	15.477	30	Pass
NVNT	n(HT40)	2437	Ant1	7.08	5.01	12.09	30	Pass
NVNT	n(HT40)	2437	Ant2	7.71	5.01	12.72	30	Pass
NVNT	n(HT40)	2437	Sum	10.417	5.01	15.427	30	Pass
NVNT	n(HT40)	2452	Ant1	7.58	4.77	12.35	30	Pass
NVNT	n(HT40)	2452	Ant2	7.87	4.77	12.64	30	Pass
NVNT	n(HT40)	2452	Sum	10.738	4.77	15.508	30	Pass

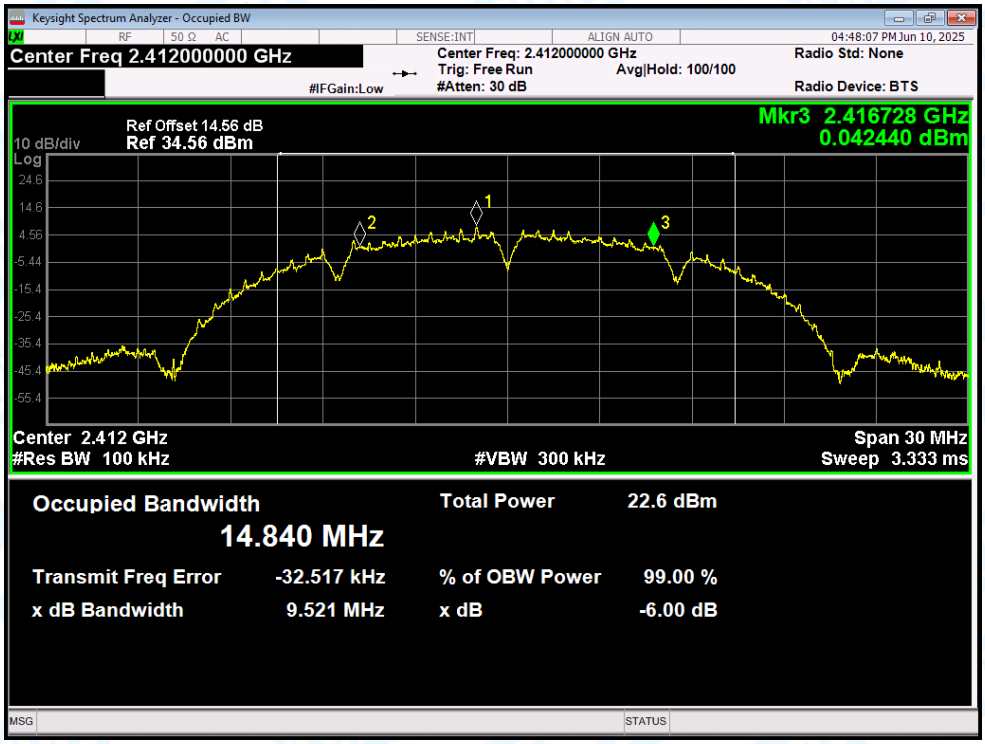
Note: For CDD Mode, Directional gain = G_{ANT} + Array Gain, Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
G_{ANT1}=5.0 dBi；G_{ANT2}=5.0dBi；**Sum Mode** use max. antenna Gain, So the Directional gain>6dBi, So the P_{limit}=30dBm

3. -6dB Bandwidth

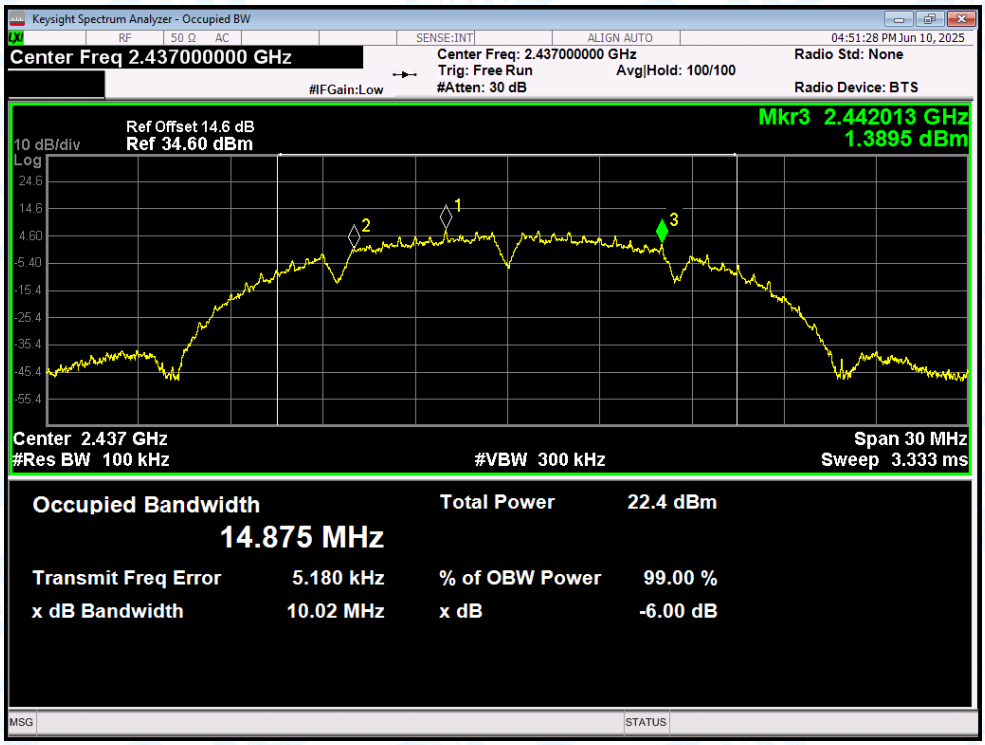
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.52	0.5	Pass
NVNT	b	2437	Ant1	10.02	0.5	Pass
NVNT	b	2462	Ant1	9.57	0.5	Pass
NVNT	b	2412	Ant2	9.5	0.5	Pass
NVNT	b	2437	Ant2	9.55	0.5	Pass
NVNT	b	2462	Ant2	10.07	0.5	Pass
NVNT	g	2412	Ant1	16.32	0.5	Pass
NVNT	g	2437	Ant1	16.34	0.5	Pass
NVNT	g	2462	Ant1	16.34	0.5	Pass
NVNT	g	2412	Ant2	16.32	0.5	Pass
NVNT	g	2437	Ant2	16.33	0.5	Pass
NVNT	g	2462	Ant2	16.33	0.5	Pass
NVNT	n(HT20)	2412	Ant1	17.54	0.5	Pass
NVNT	n(HT20)	2412	Ant2	17.53	0.5	Pass
NVNT	n(HT20)	2437	Ant1	17.56	0.5	Pass
NVNT	n(HT20)	2437	Ant2	17.18	0.5	Pass
NVNT	n(HT20)	2462	Ant1	17.53	0.5	Pass
NVNT	n(HT20)	2462	Ant2	17.57	0.5	Pass
NVNT	n(HT40)	2422	Ant1	35.24	0.5	Pass
NVNT	n(HT40)	2422	Ant2	35.24	0.5	Pass
NVNT	n(HT40)	2437	Ant1	35.04	0.5	Pass
NVNT	n(HT40)	2437	Ant2	35.29	0.5	Pass
NVNT	n(HT40)	2452	Ant1	35.47	0.5	Pass
NVNT	n(HT40)	2452	Ant2	35.05	0.5	Pass

Test Graphs

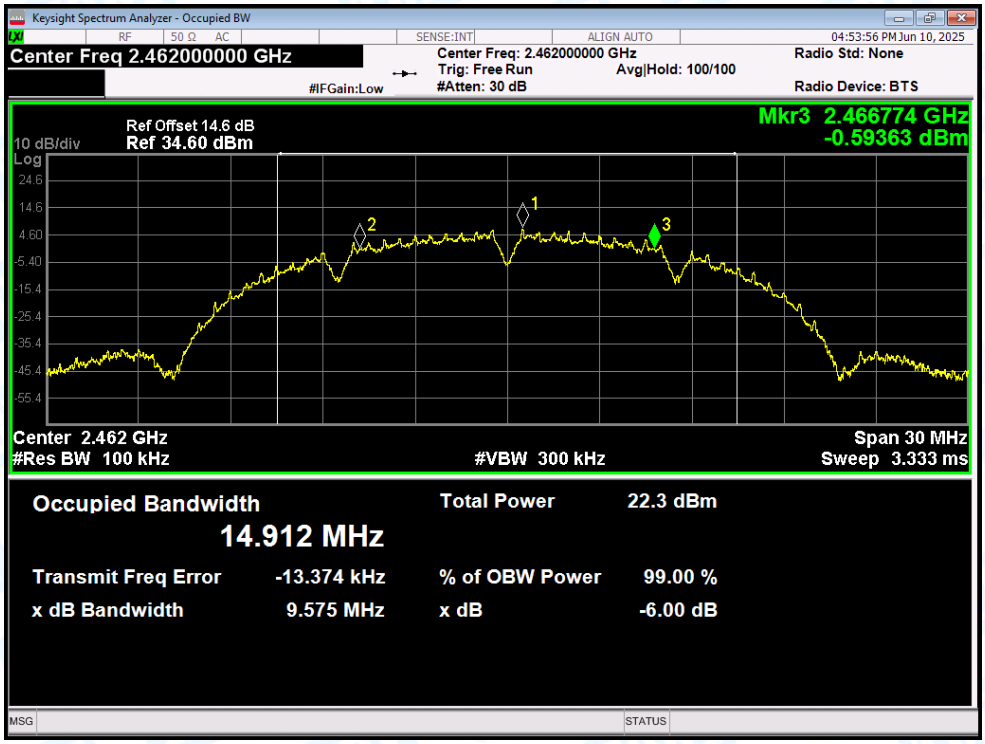
-6dB Bandwidth NVNT b 2412MHz Ant1



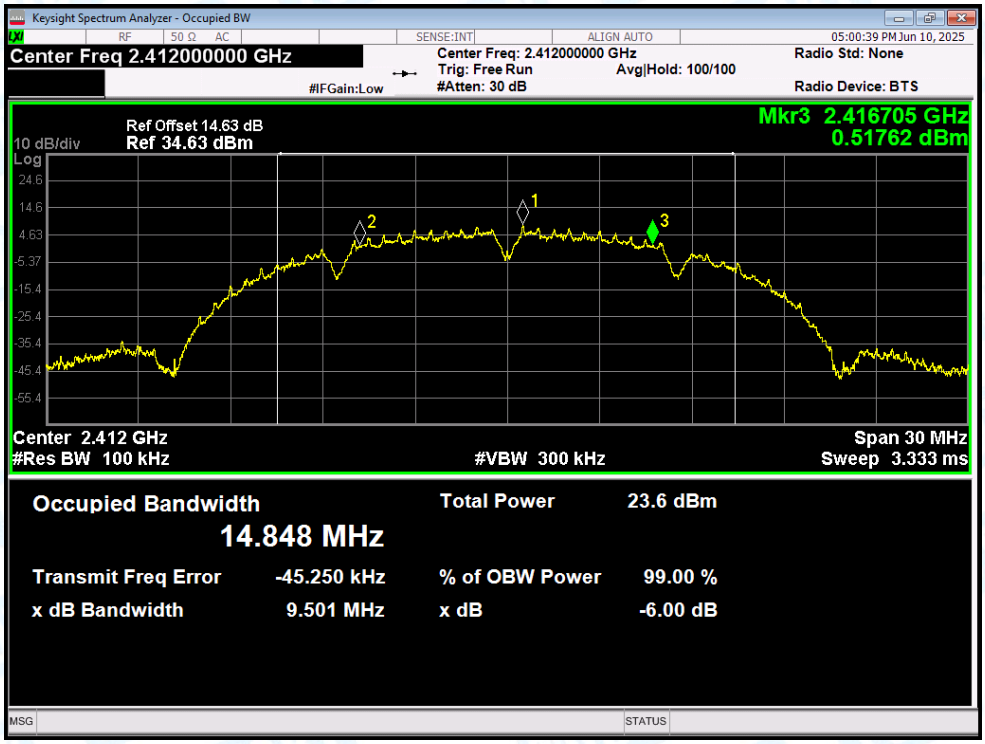
-6dB Bandwidth NVNT b 2437MHz Ant1



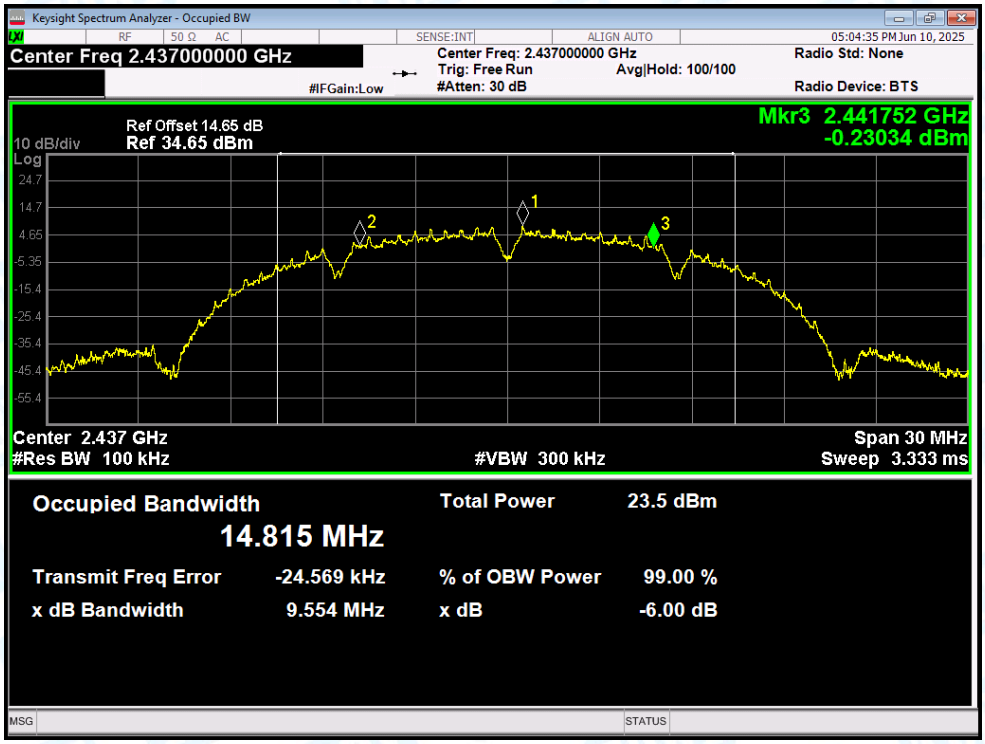
-6dB Bandwidth NVNT b 2462MHz Ant1



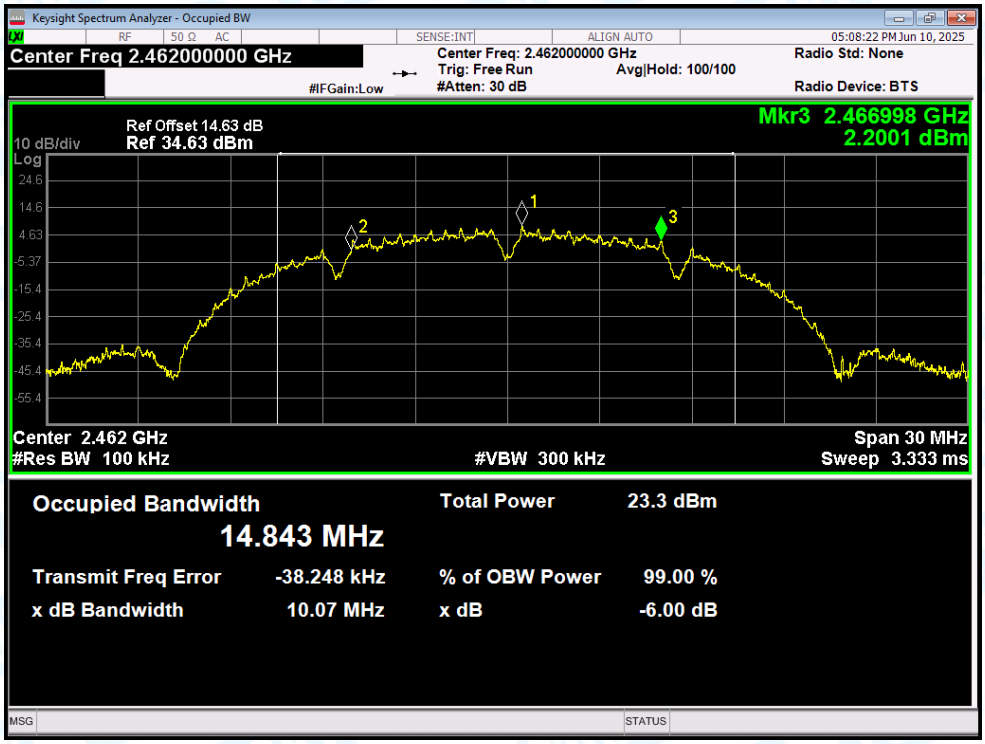
-6dB Bandwidth NVNT b 2412MHz Ant2



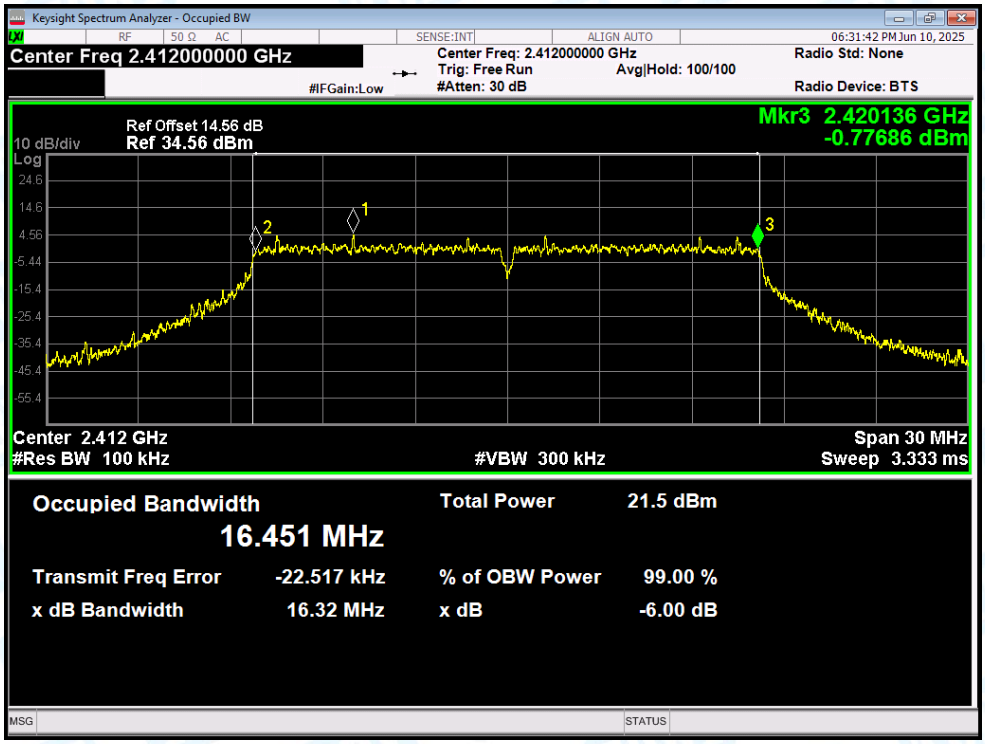
-6dB Bandwidth NVNT b 2437MHz Ant2



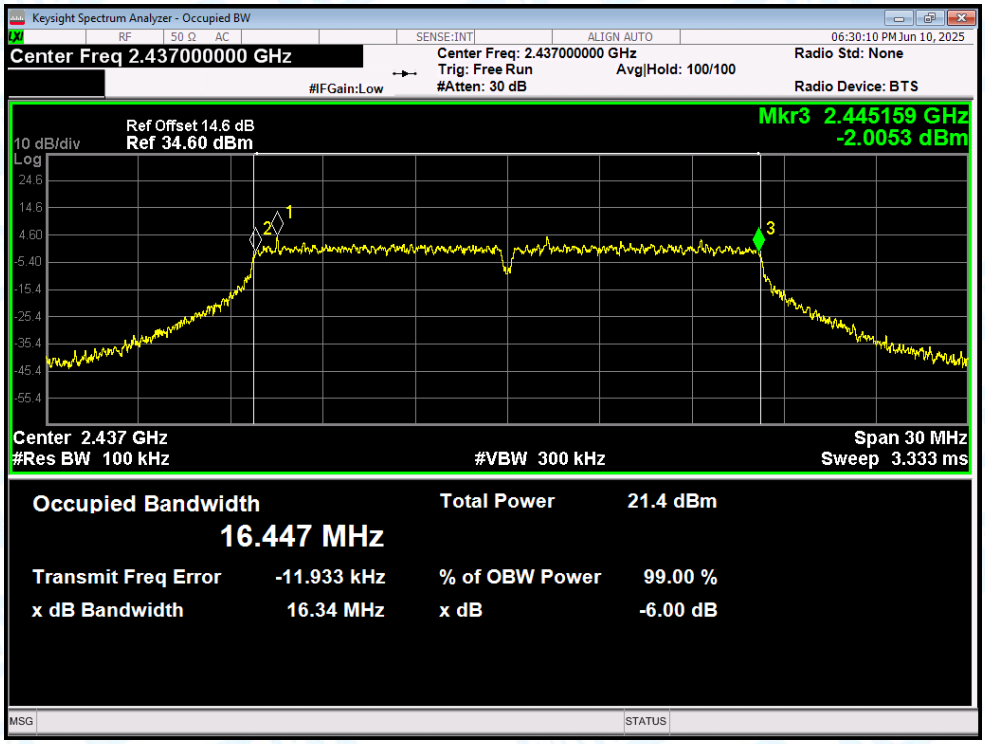
-6dB Bandwidth NVNT b 2462MHz Ant2



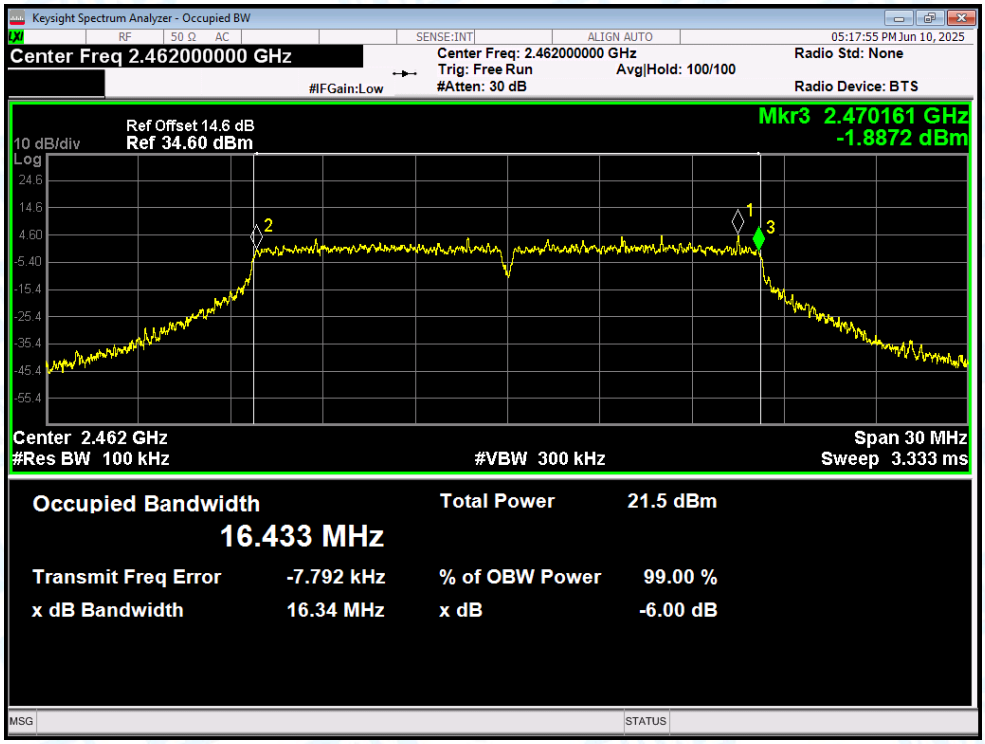
-6dB Bandwidth NVNT g 2412MHz Ant1



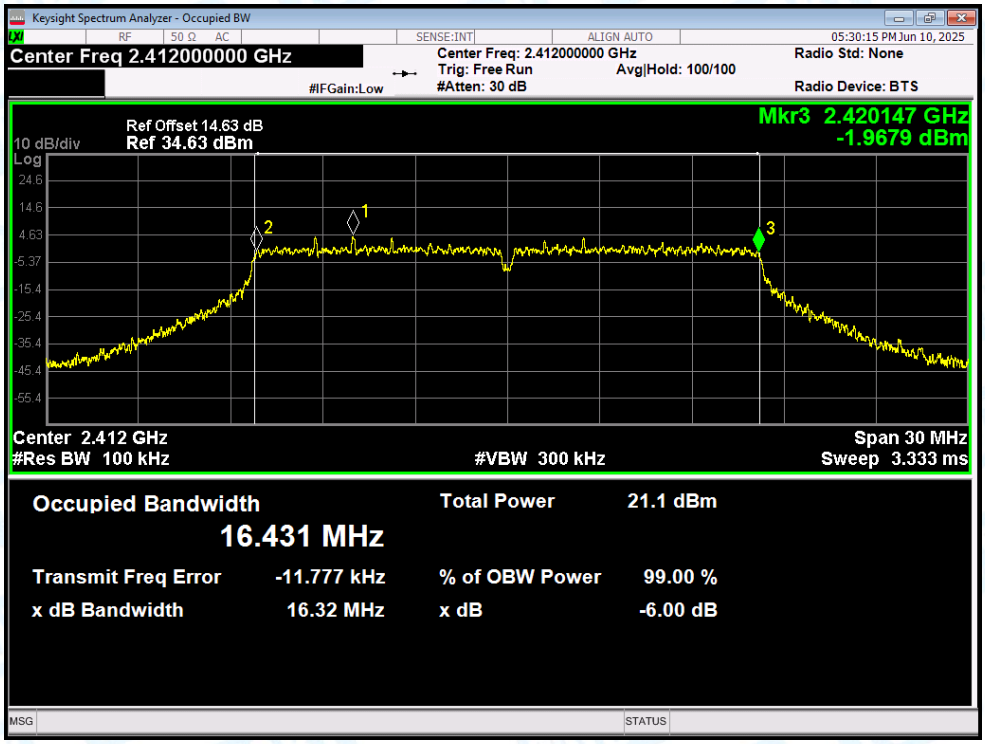
-6dB Bandwidth NVNT g 2437MHz Ant1



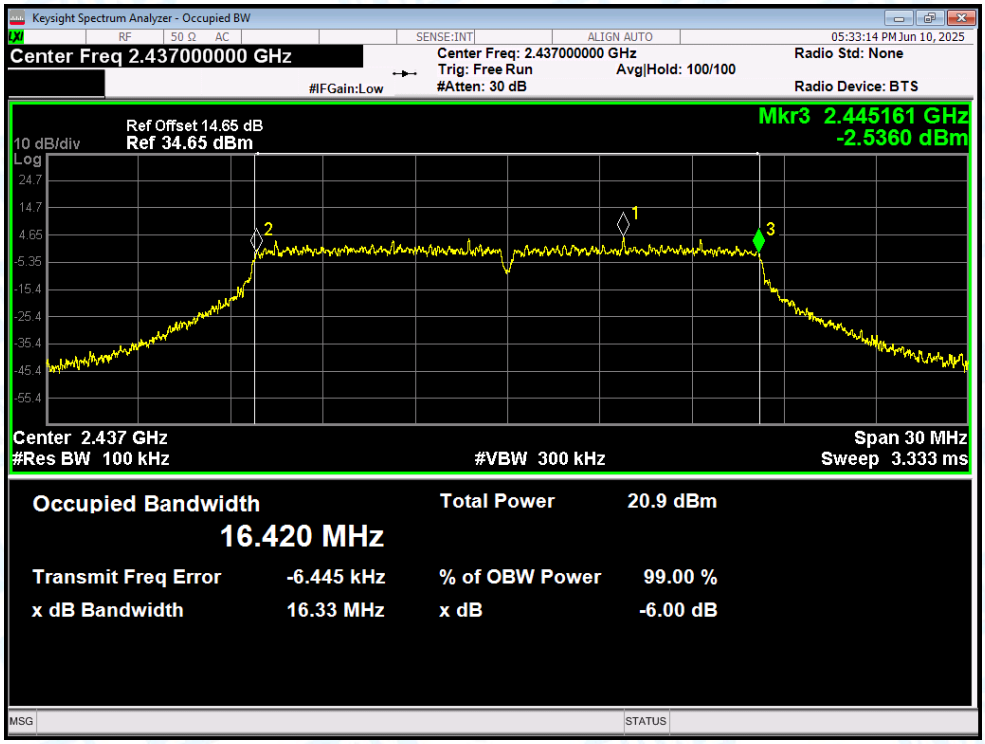
-6dB Bandwidth NVNT g 2462MHz Ant1



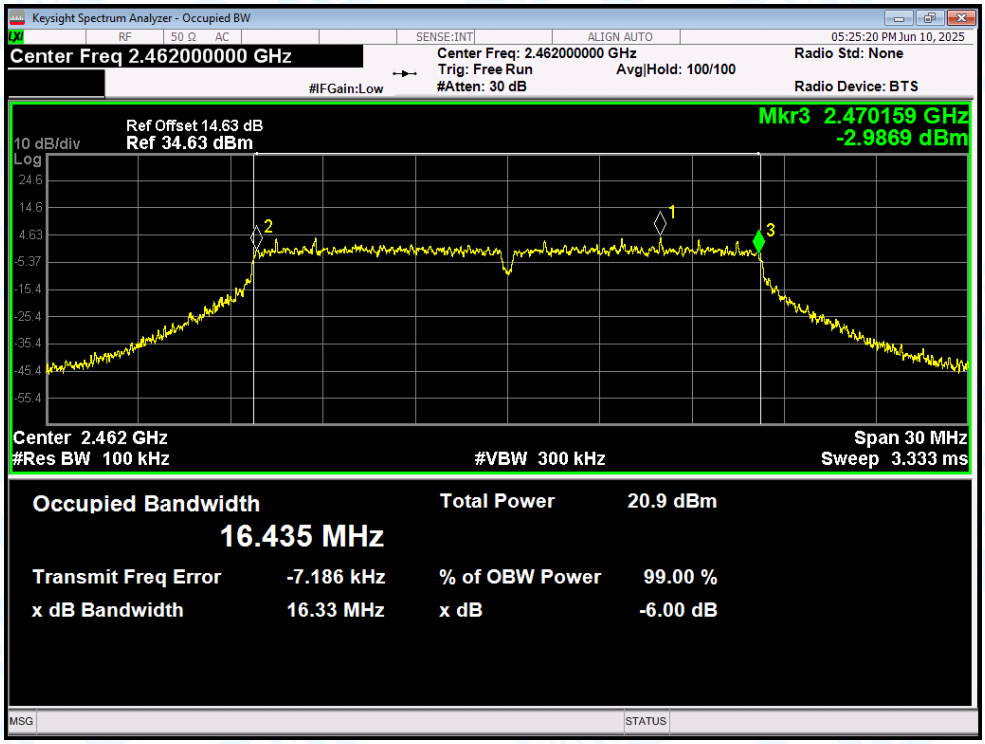
-6dB Bandwidth NVNT g 2412MHz Ant2



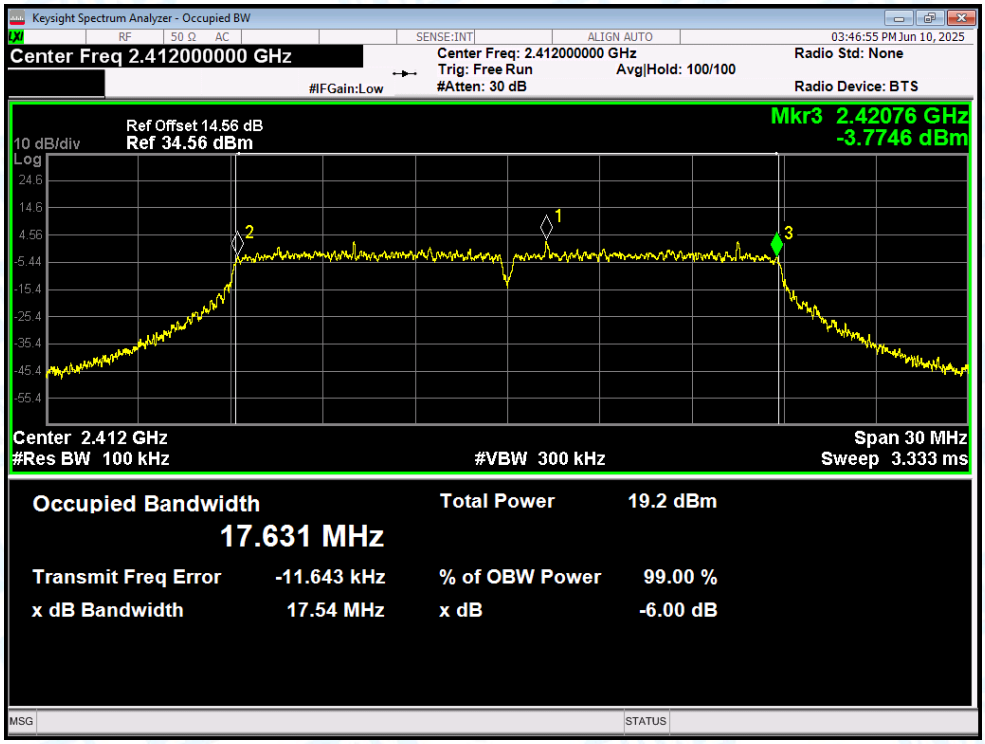
-6dB Bandwidth NVNT g 2437MHz Ant2



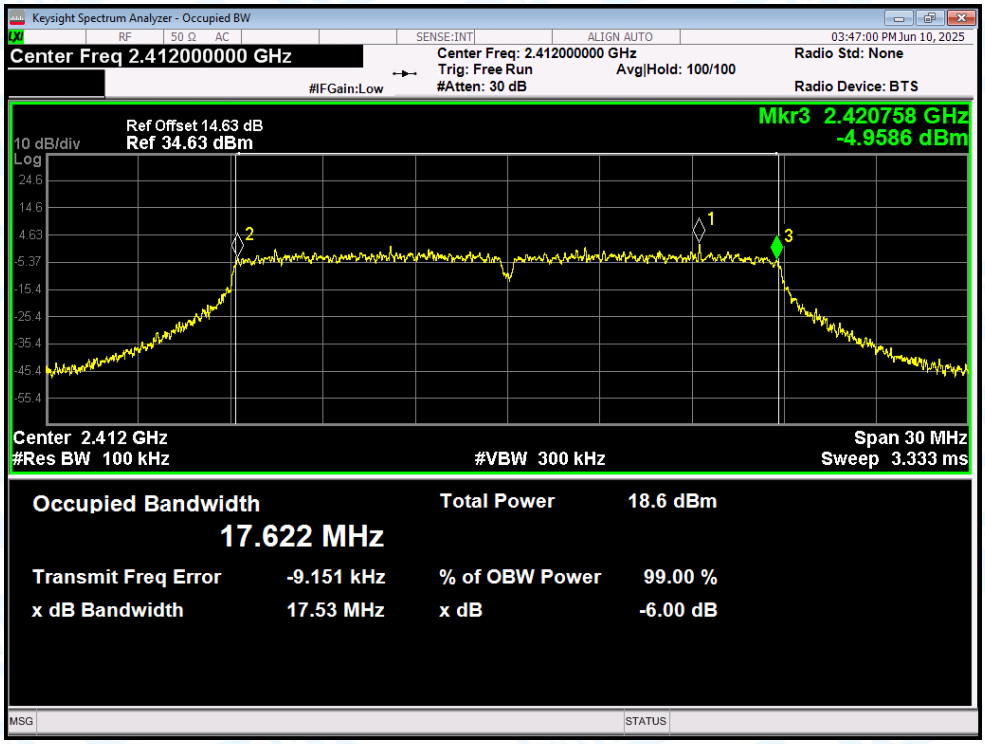
-6dB Bandwidth NVNT g 2462MHz Ant2



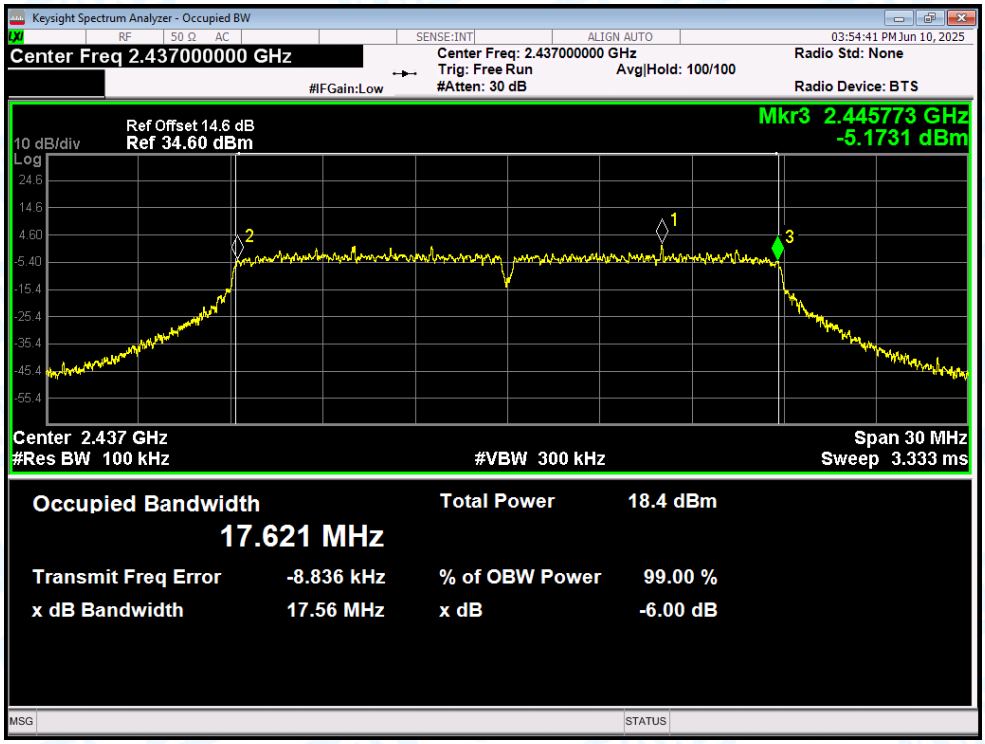
-6dB Bandwidth NVNT n(HT20) 2412MHz Ant1



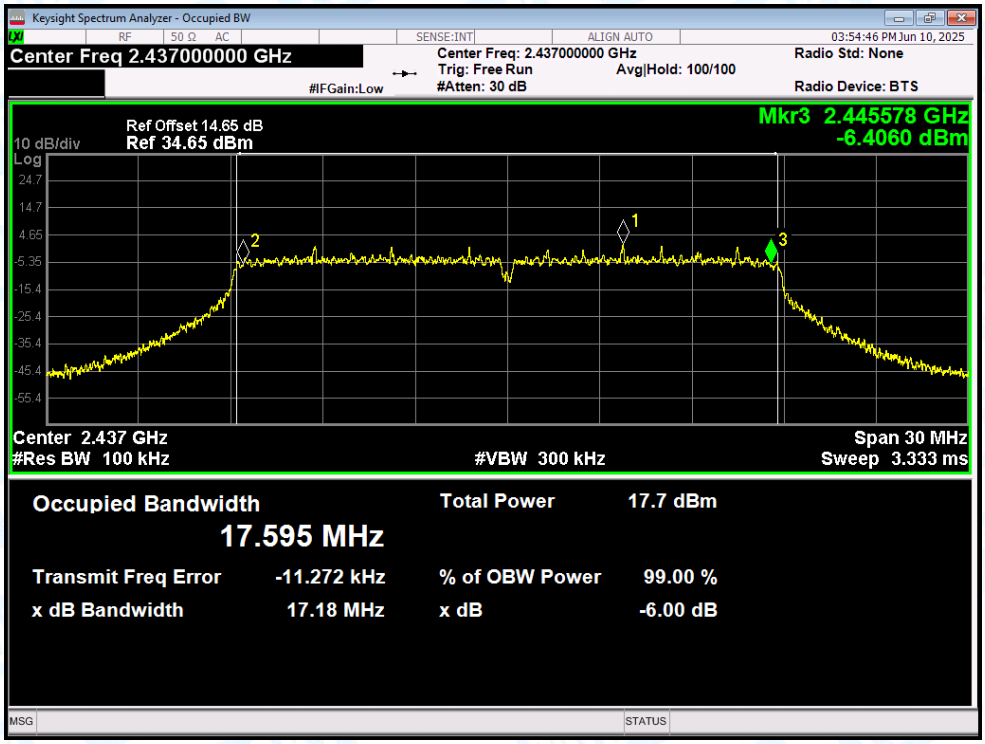
-6dB Bandwidth NVNT n(HT20) 2412MHz Ant2



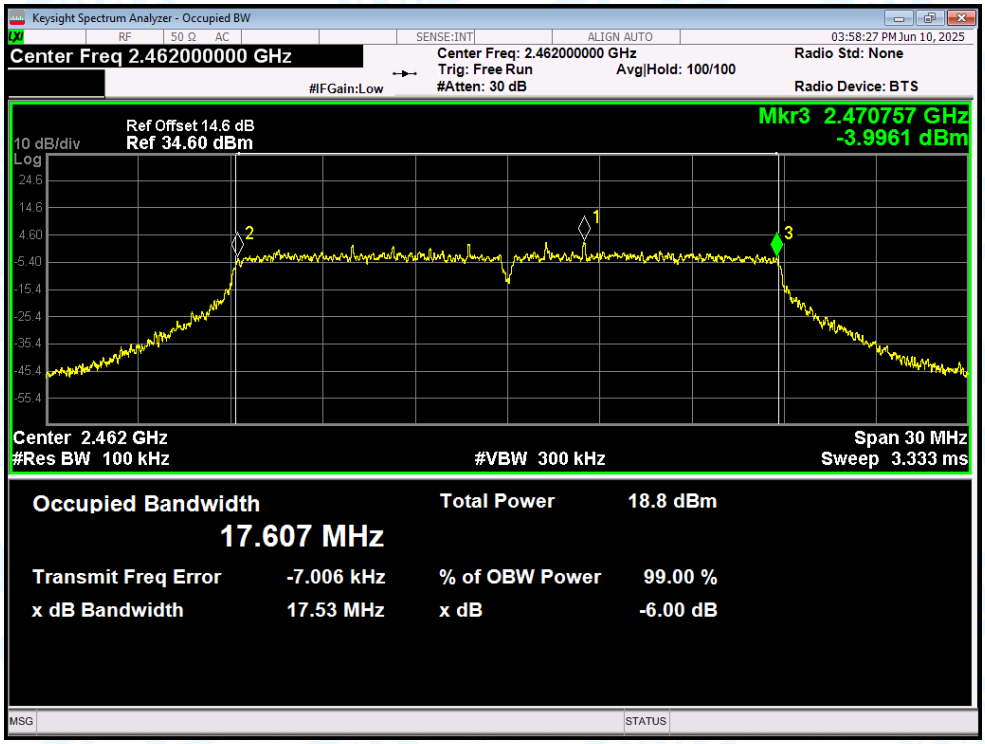
-6dB Bandwidth NVNT n(HT20) 2437MHz Ant1



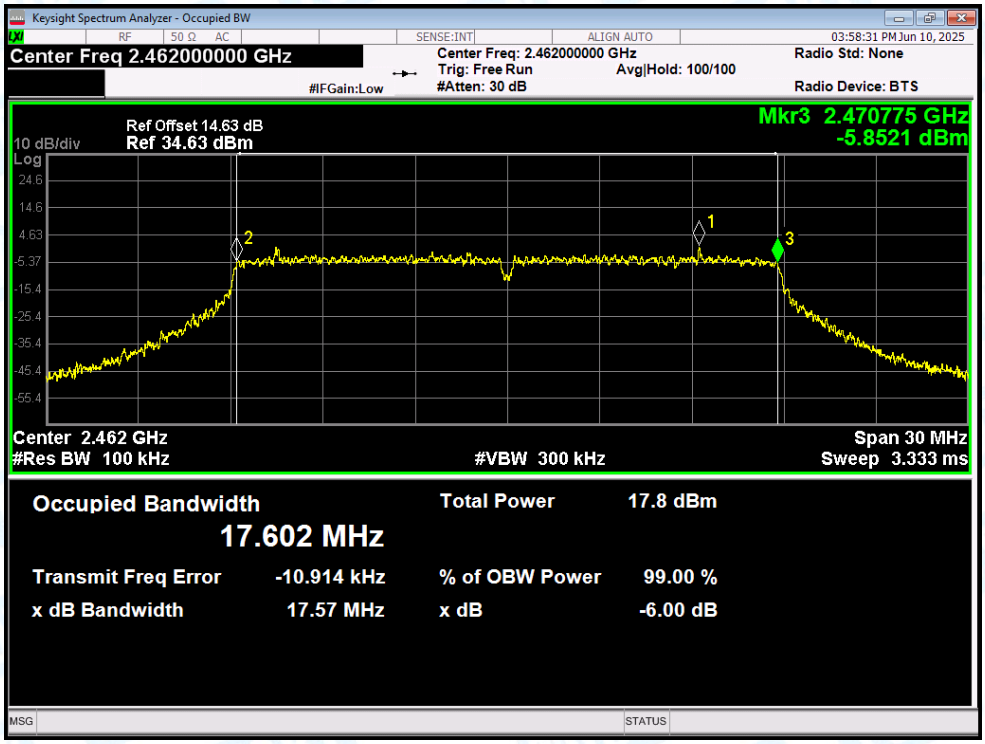
-6dB Bandwidth NVNT n(HT20) 2437MHz Ant2



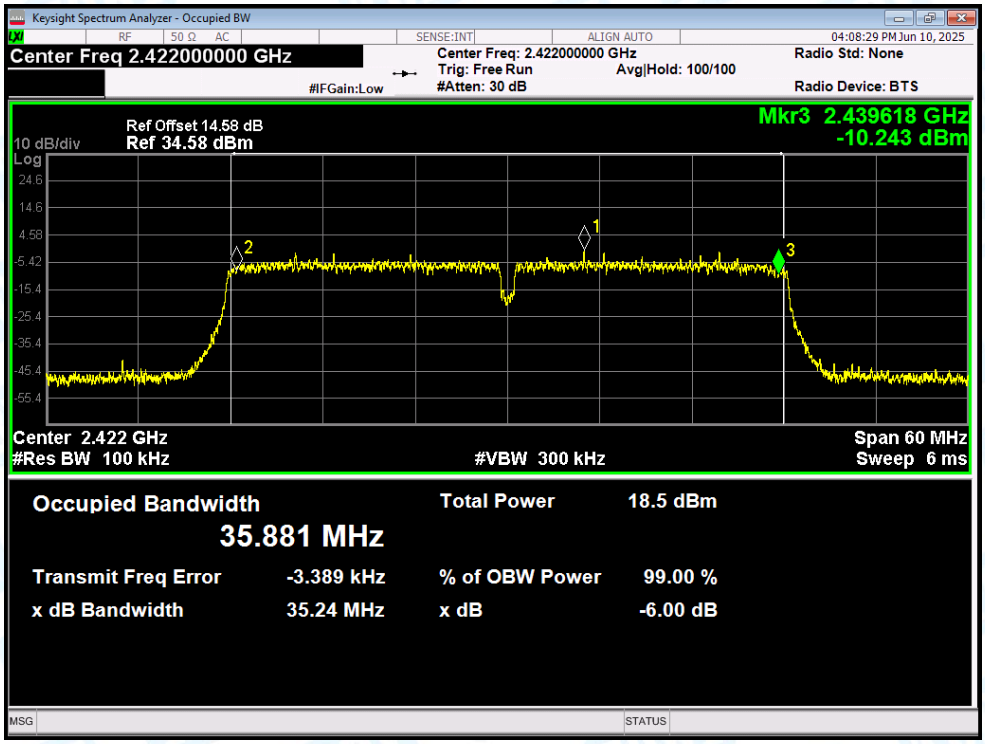
-6dB Bandwidth NVNT n(HT20) 2462MHz Ant1



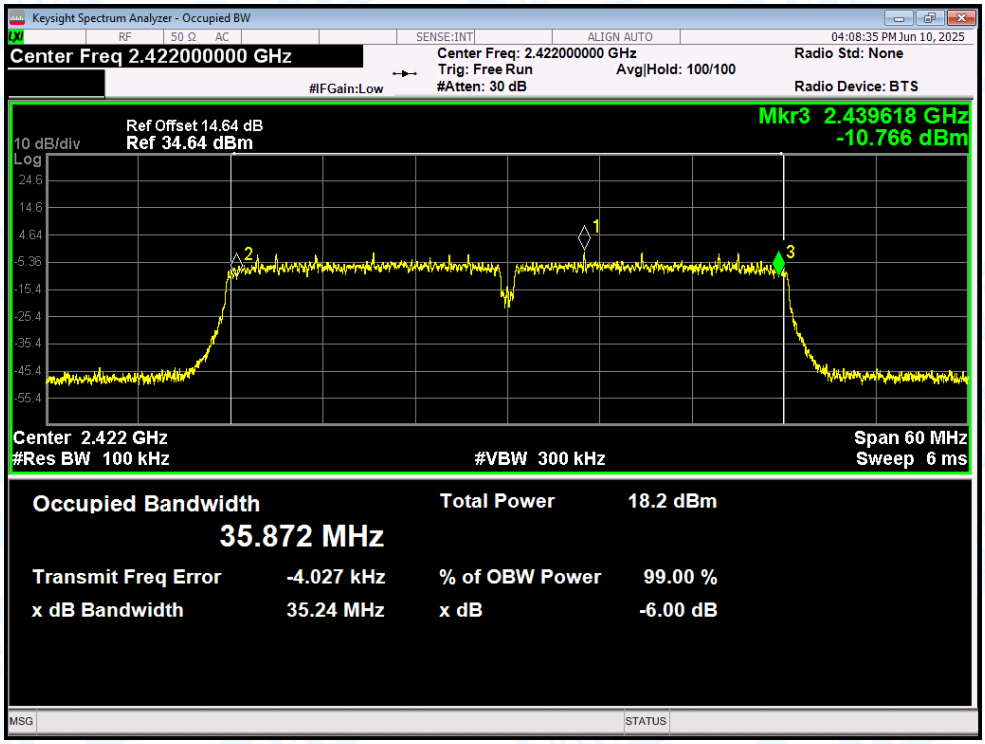
-6dB Bandwidth NVNT n(HT20) 2462MHz Ant2



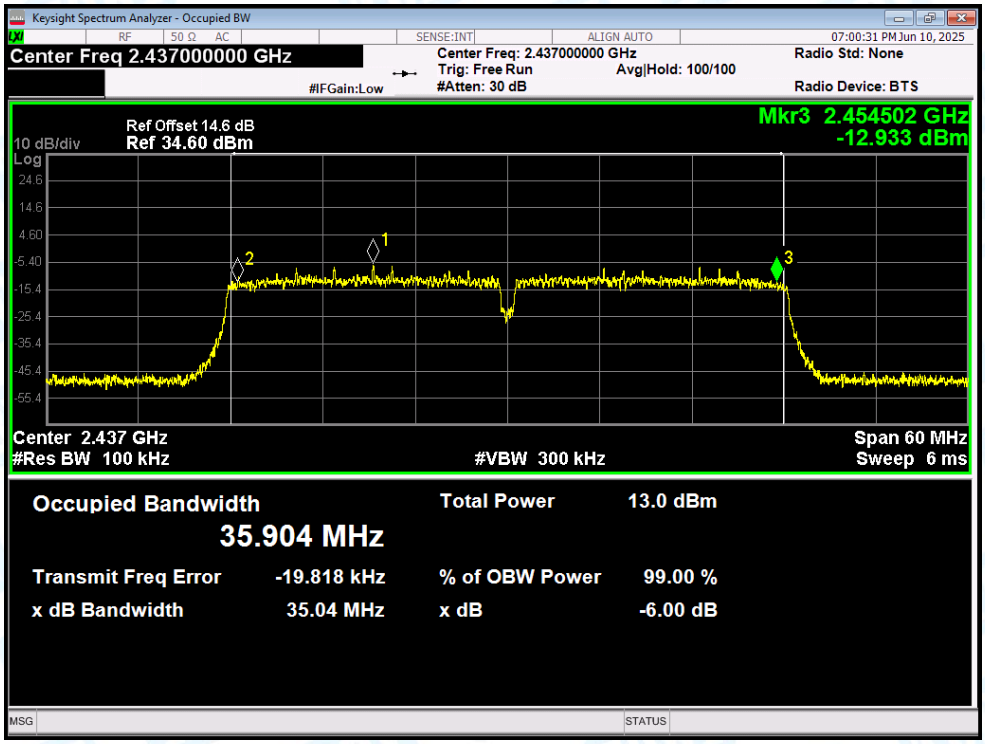
-6dB Bandwidth NVNT n(HT40) 2422MHz Ant1



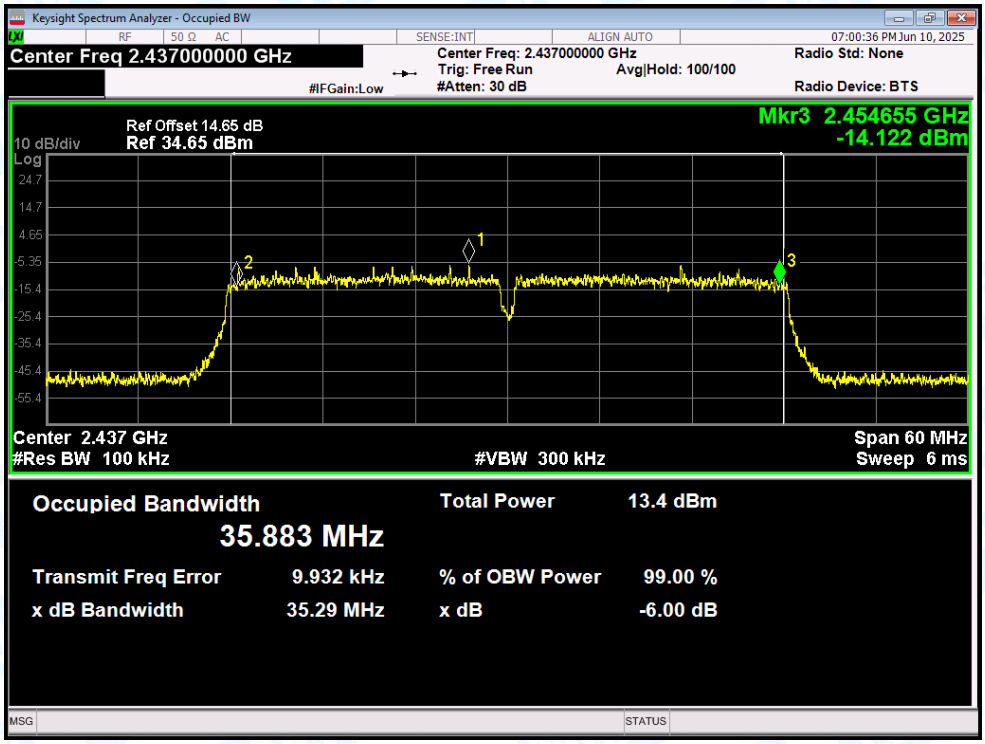
-6dB Bandwidth NVNT n(HT40) 2422MHz Ant2



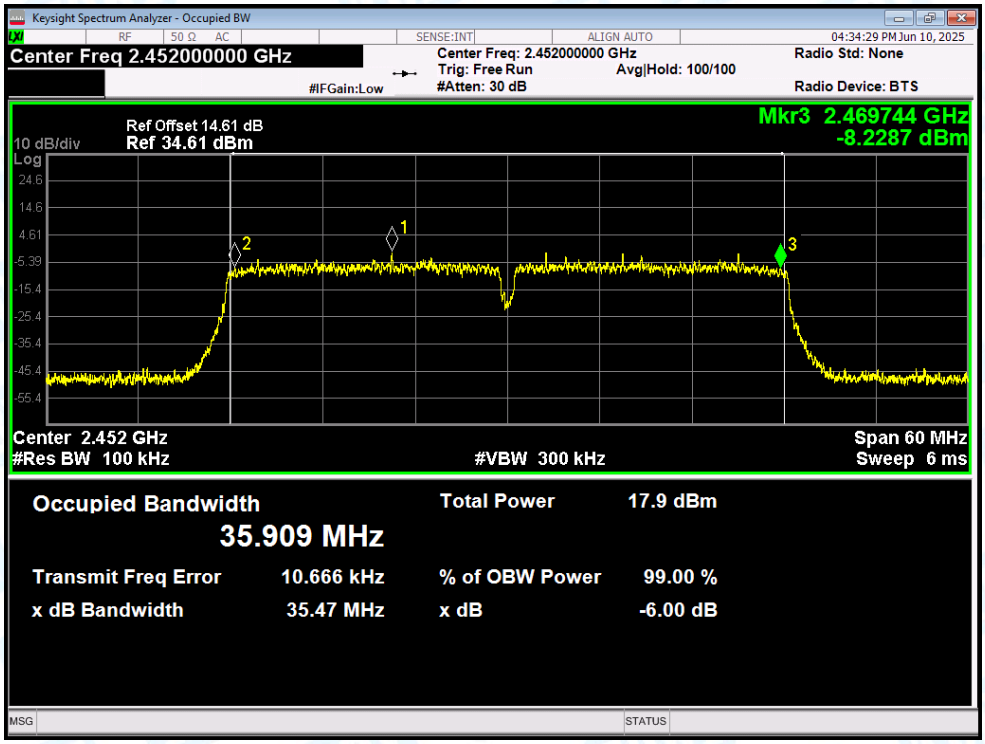
-6dB Bandwidth NVNT n(HT40) 2437MHz Ant1



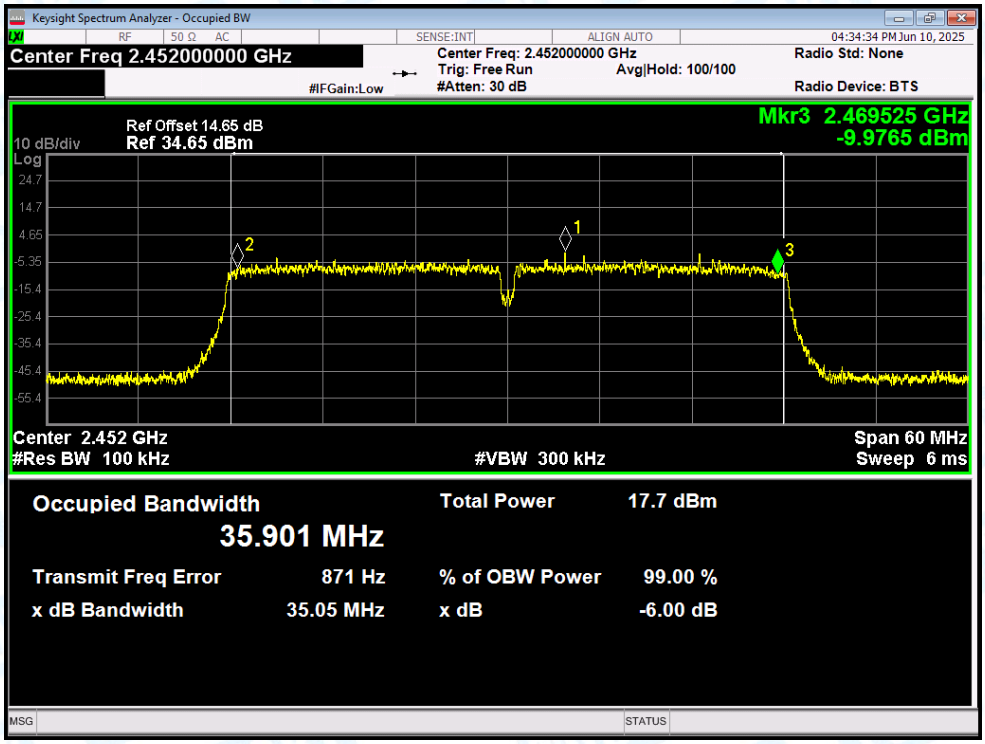
-6dB Bandwidth NVNT n(HT40) 2437MHz Ant2



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



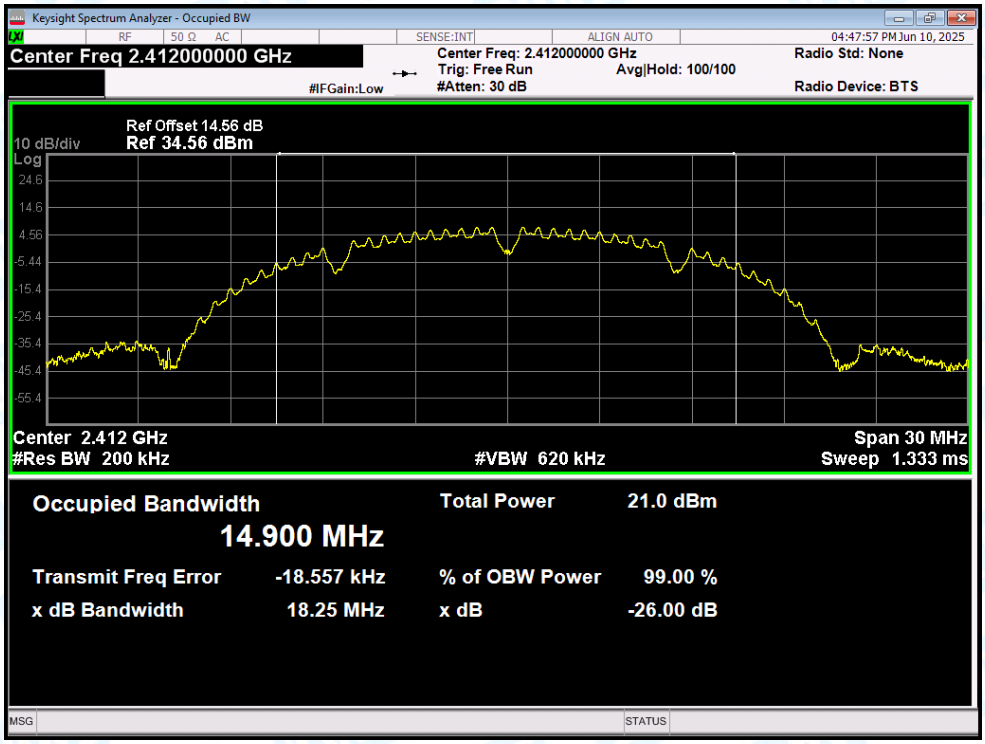
-6dB Bandwidth NVNT n(HT40) 2452MHz Ant2



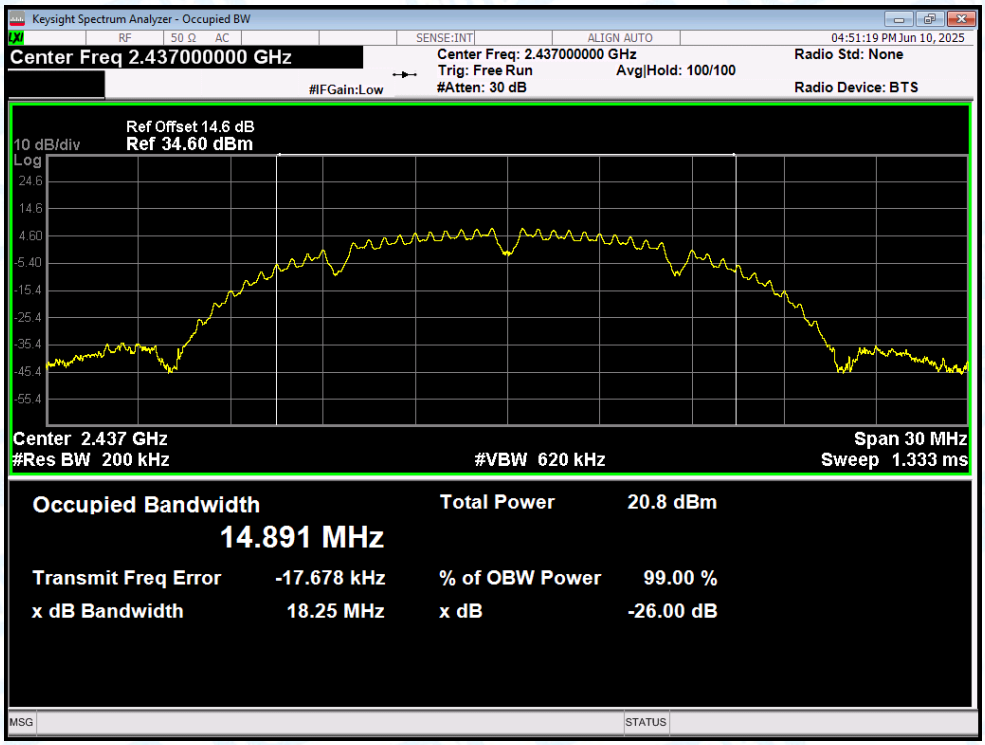
4. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	14.9
NVNT	b	2437	Ant1	14.891
NVNT	b	2462	Ant1	14.899
NVNT	b	2412	Ant2	14.852
NVNT	b	2437	Ant2	14.832
NVNT	b	2462	Ant2	14.832
NVNT	g	2412	Ant1	16.569
NVNT	g	2437	Ant1	16.556
NVNT	g	2462	Ant1	16.542
NVNT	g	2412	Ant2	16.54
NVNT	g	2437	Ant2	16.504
NVNT	g	2462	Ant2	16.524
NVNT	n(HT20)	2412	Ant1	17.697
NVNT	n(HT20)	2412	Ant2	17.685
NVNT	n(HT20)	2437	Ant1	17.701
NVNT	n(HT20)	2437	Ant2	17.673
NVNT	n(HT20)	2462	Ant1	17.676
NVNT	n(HT20)	2462	Ant2	17.677
NVNT	n(HT40)	2422	Ant1	35.914
NVNT	n(HT40)	2422	Ant2	35.89
NVNT	n(HT40)	2437	Ant1	35.941
NVNT	n(HT40)	2437	Ant2	35.923
NVNT	n(HT40)	2452	Ant1	35.933
NVNT	n(HT40)	2452	Ant2	35.884

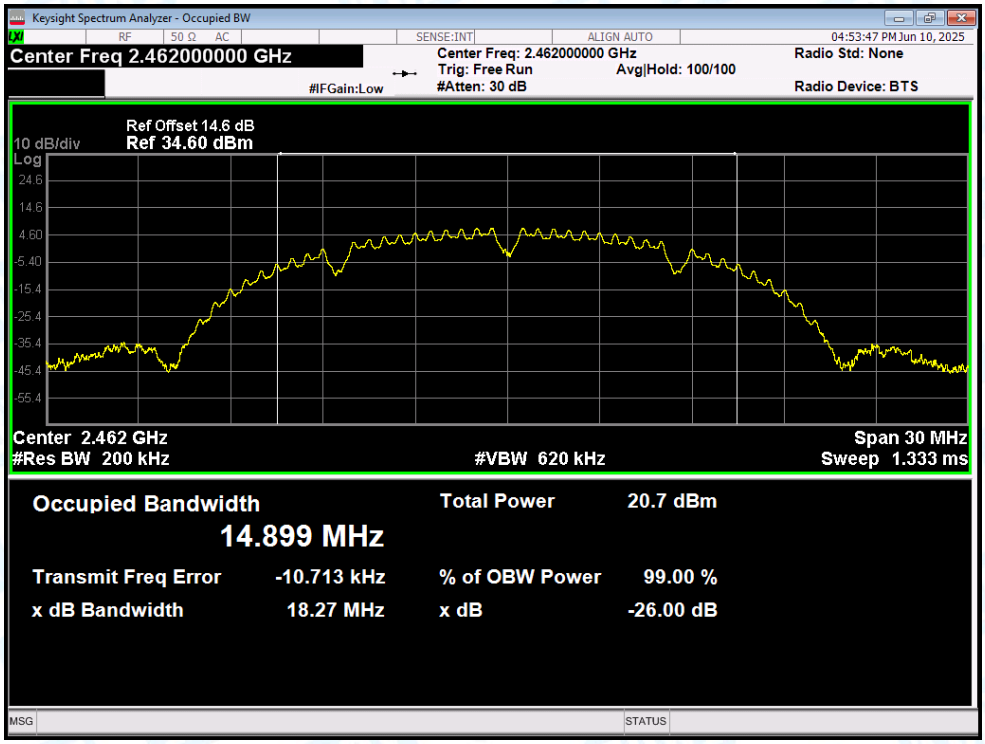
Test Graphs
OBW NVNT b 2412MHz Ant1



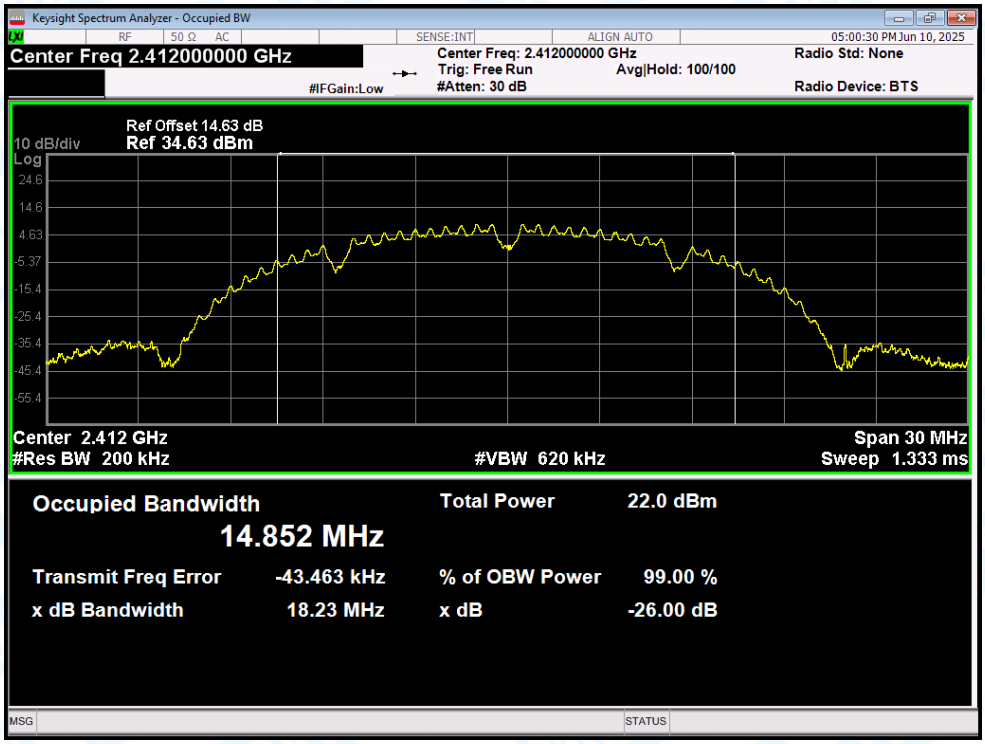
OBW NVNT b 2437MHz Ant1



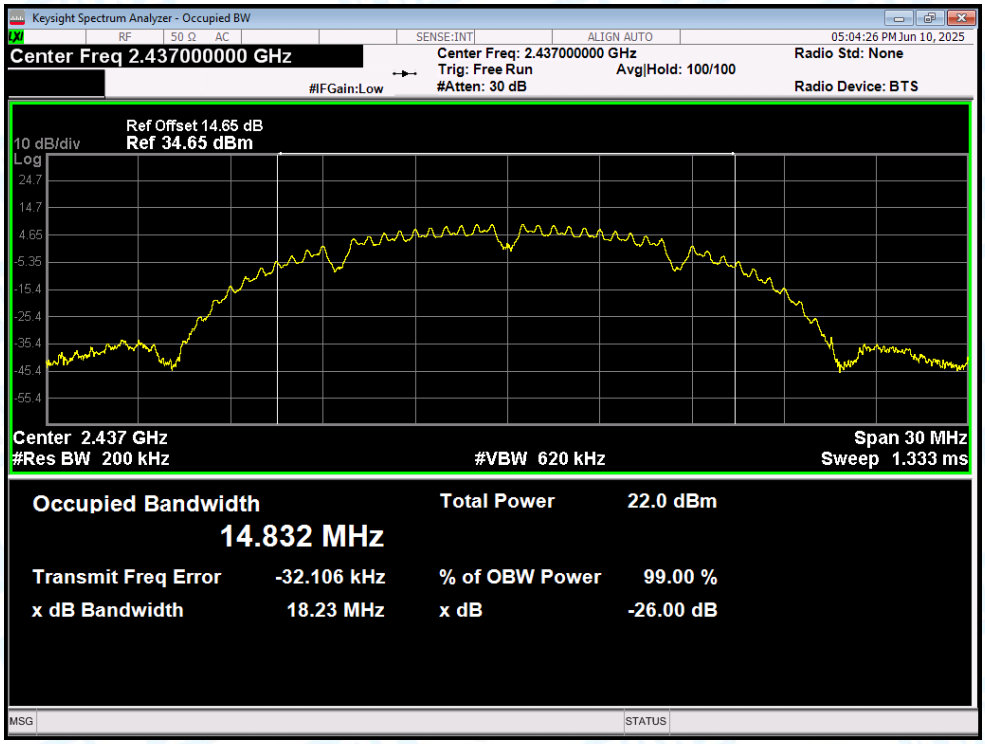
OBW NVNT b 2462MHz Ant1



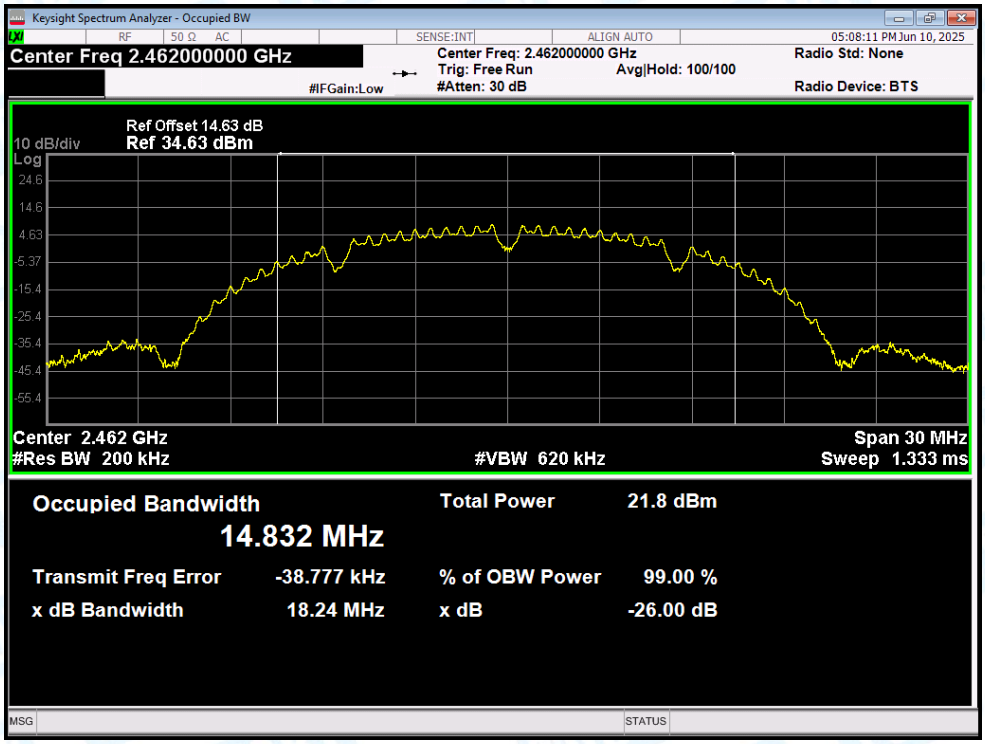
OBW NVNT b 2412MHz Ant2



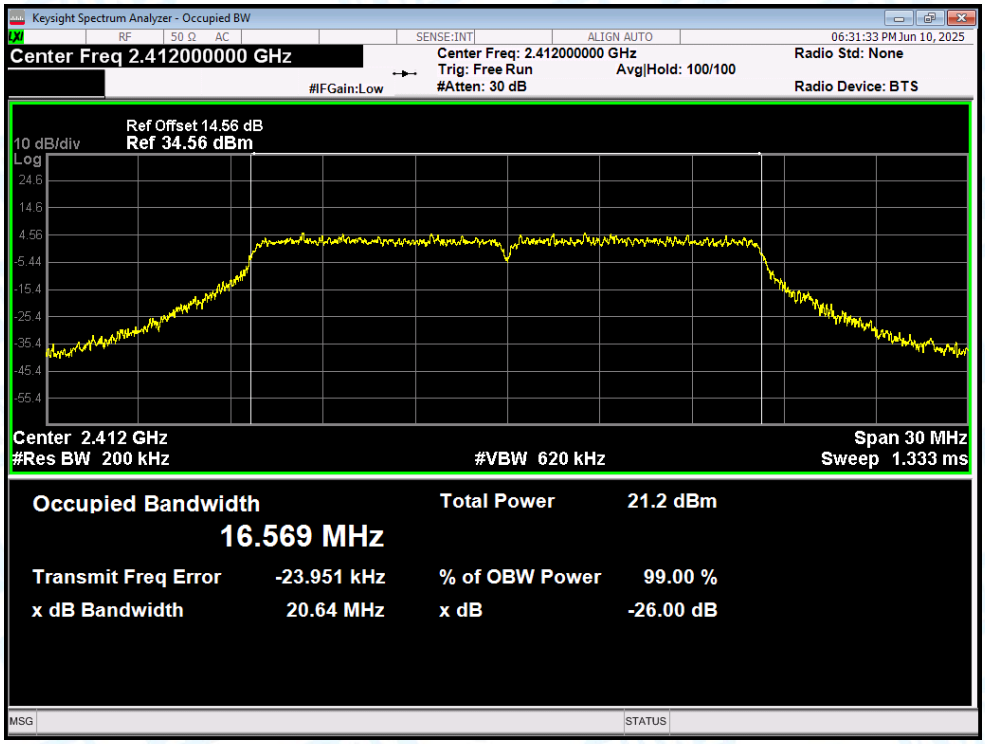
OBW NVNT b 2437MHz Ant2



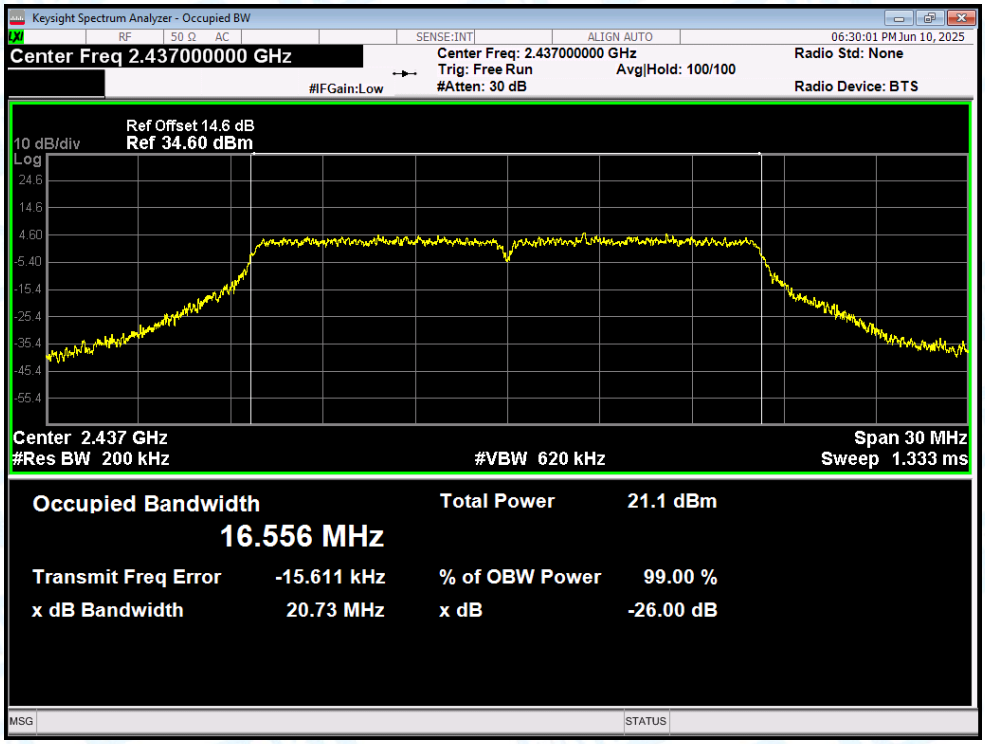
OBW NVNT b 2462MHz Ant2



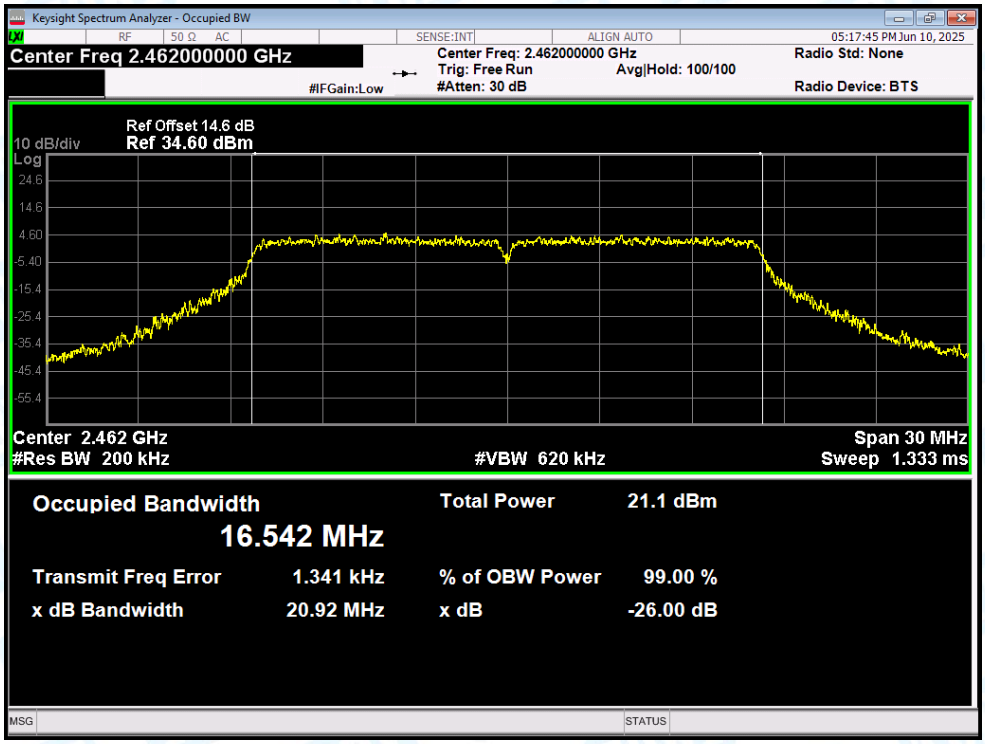
OBW NVNT g 2412MHz Ant1



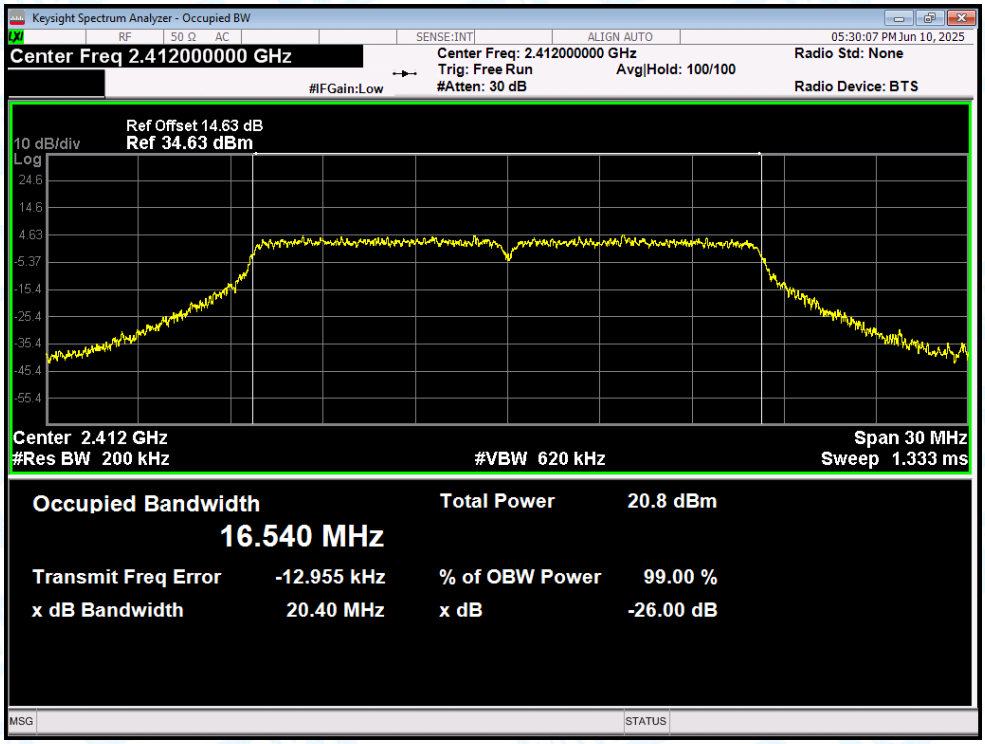
OBW NVNT g 2437MHz Ant1



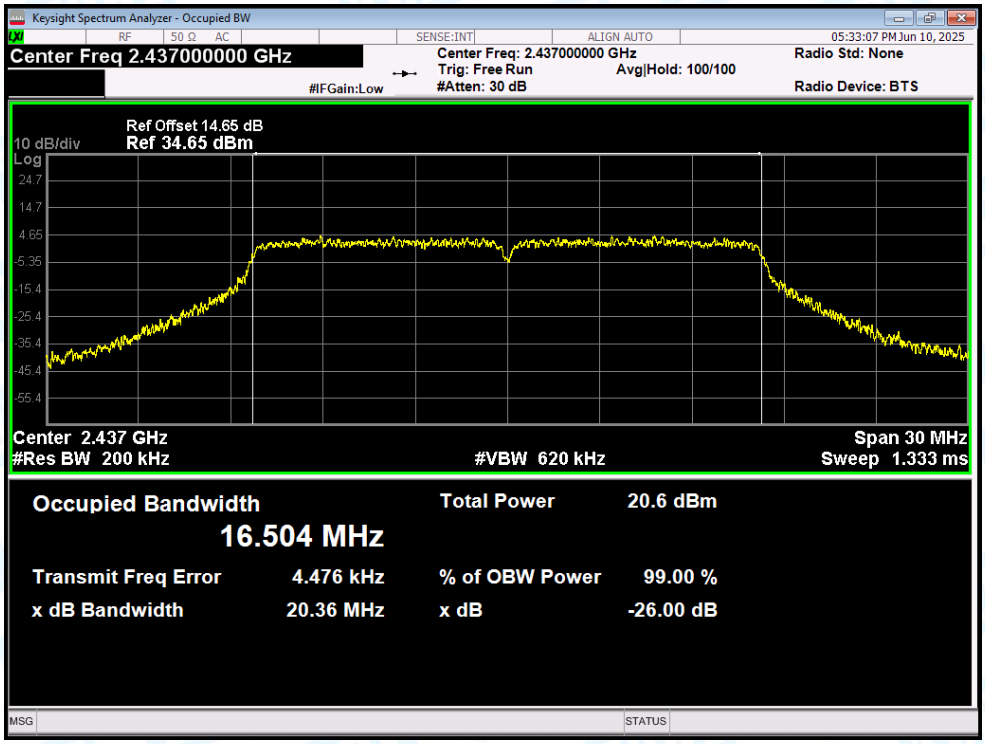
OBW NVNT g 2462MHz Ant1



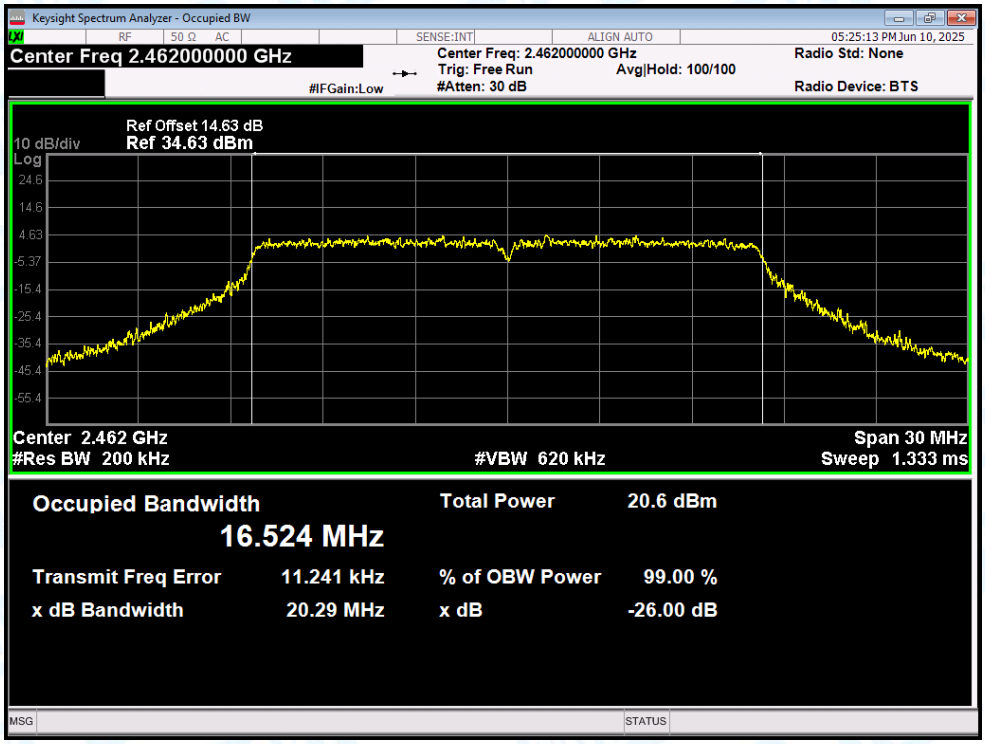
OBW NVNT g 2412MHz Ant2



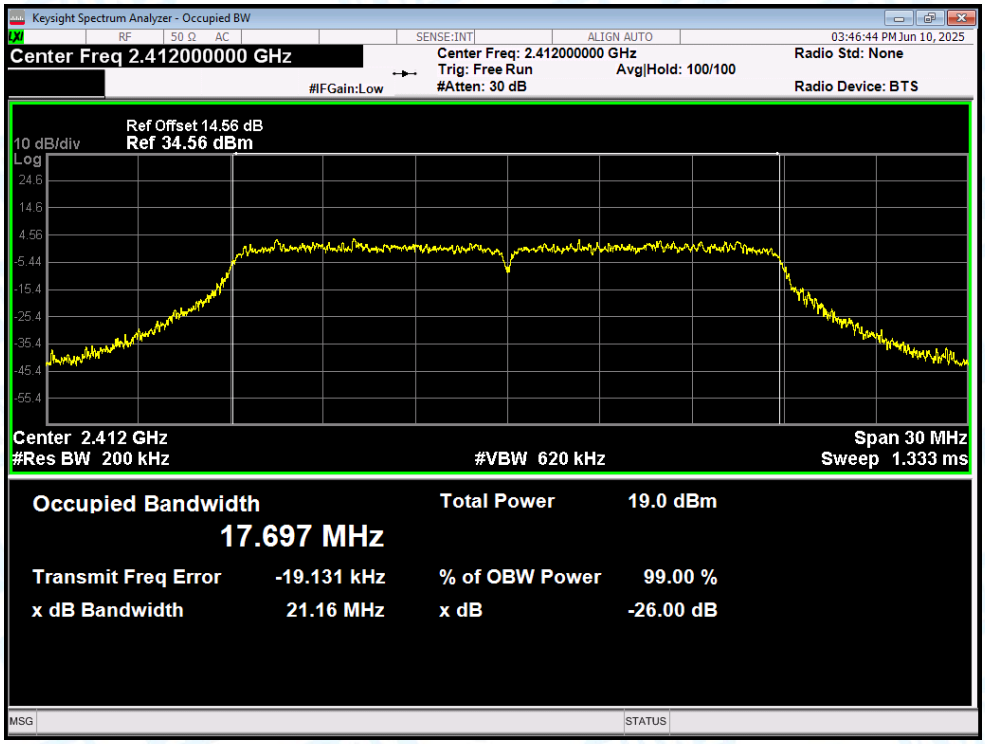
OBW NVNT g 2437MHz Ant2



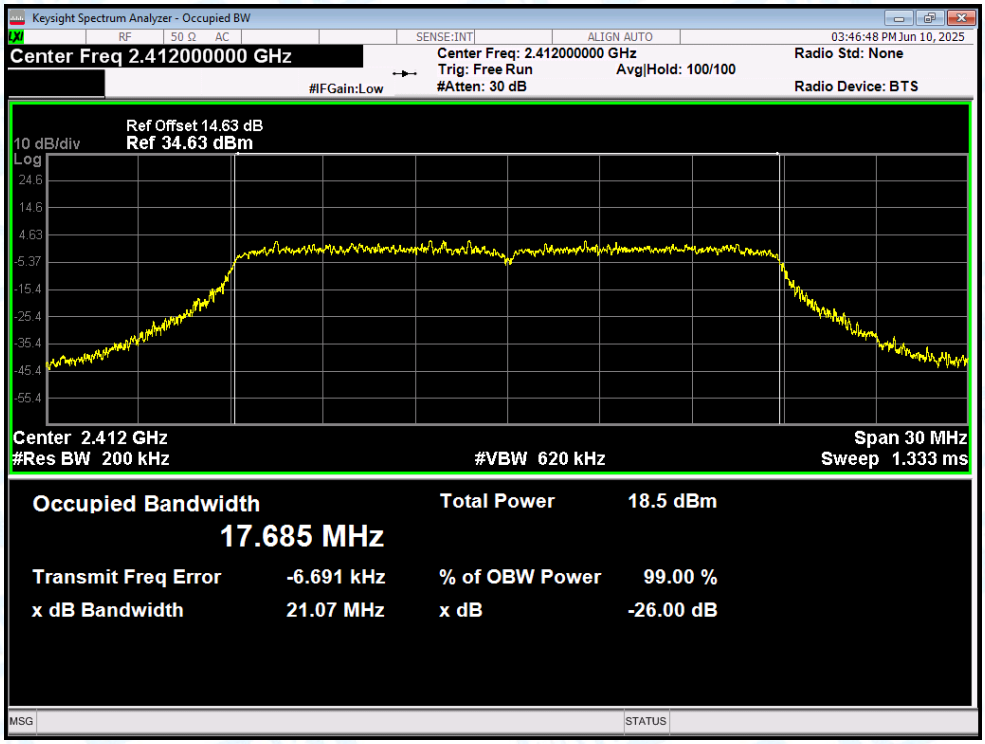
OBW NVNT g 2462MHz Ant2



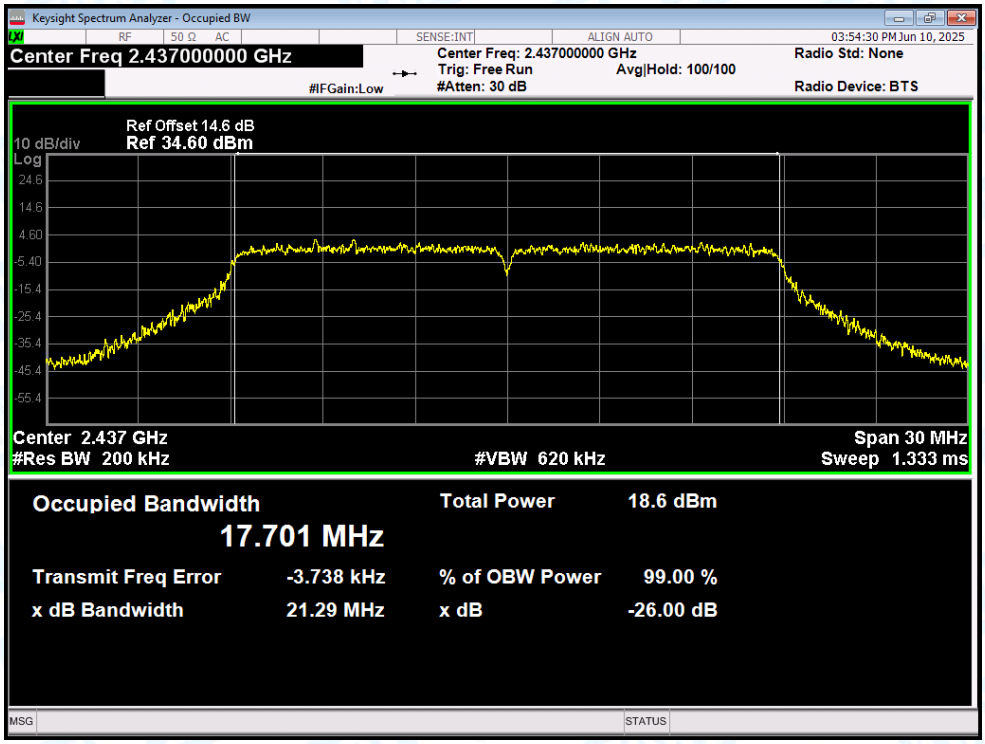
OBW NVNT n(HT20) 2412MHz Ant1



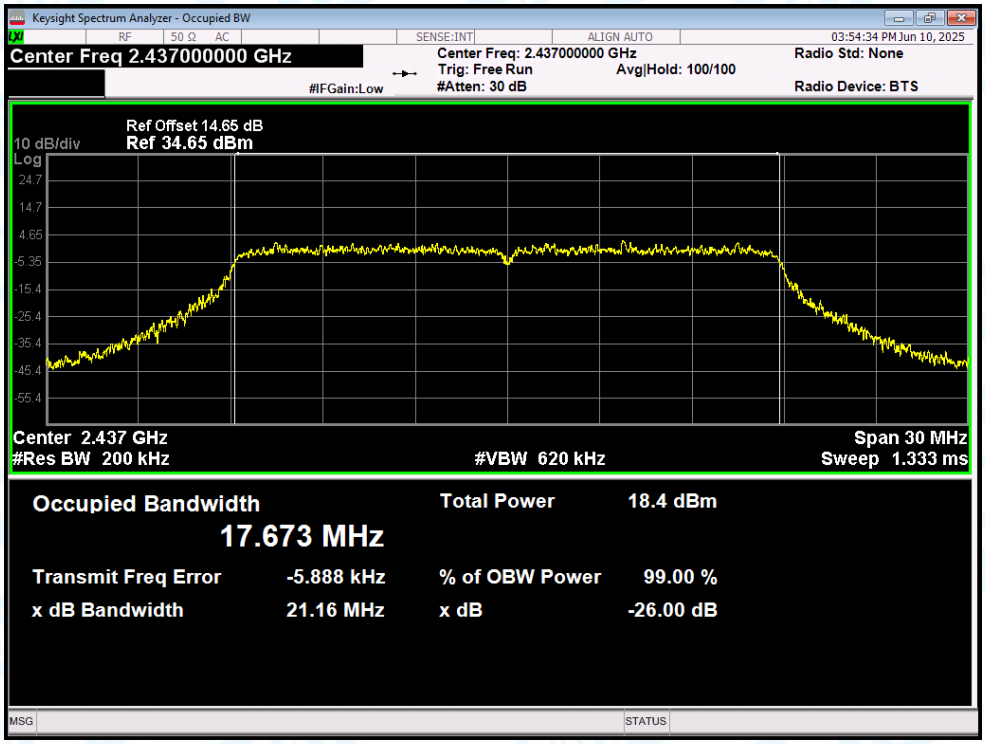
OBW NVNT n(HT20) 2412MHz Ant2



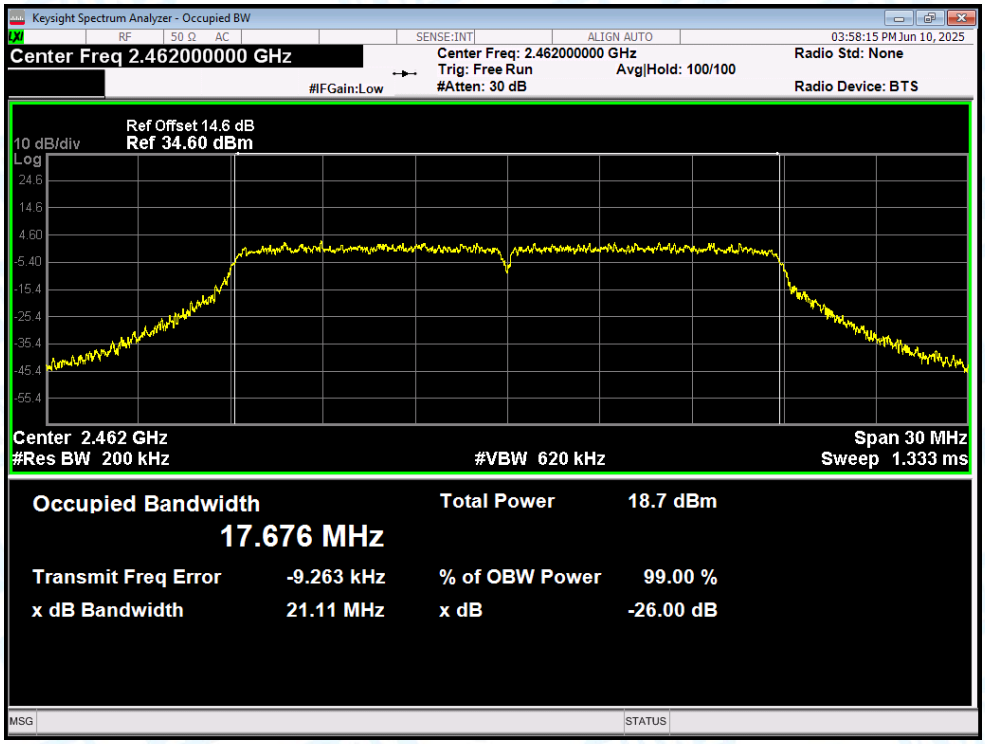
OBW NVNT n(HT20) 2437MHz Ant1



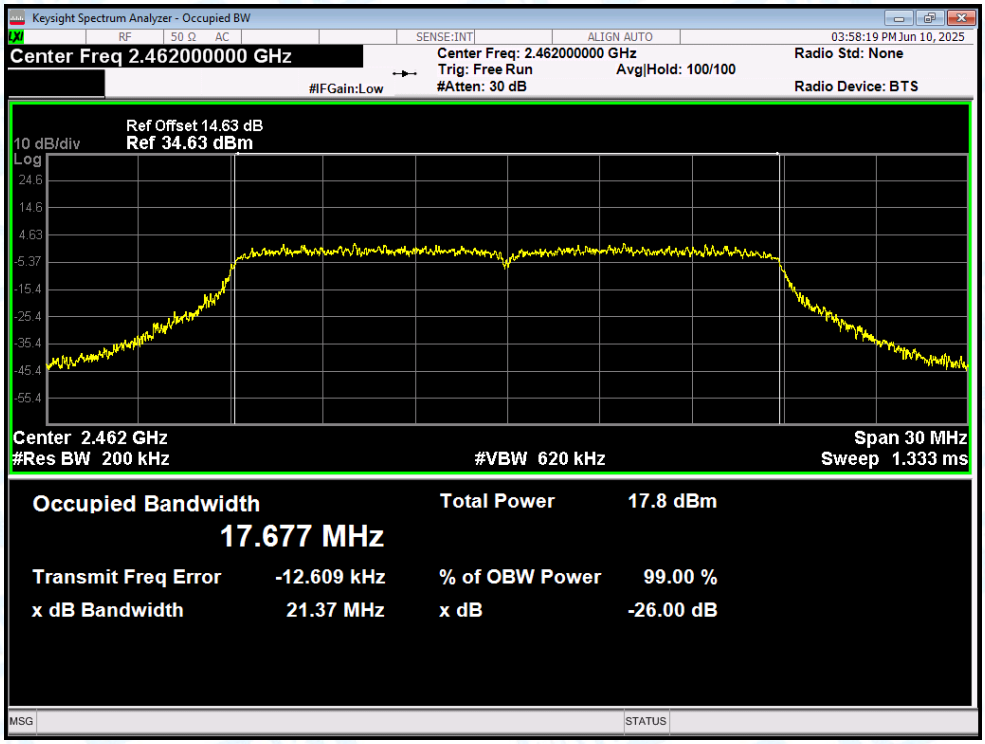
OBW NVNT n(HT20) 2437MHz Ant2



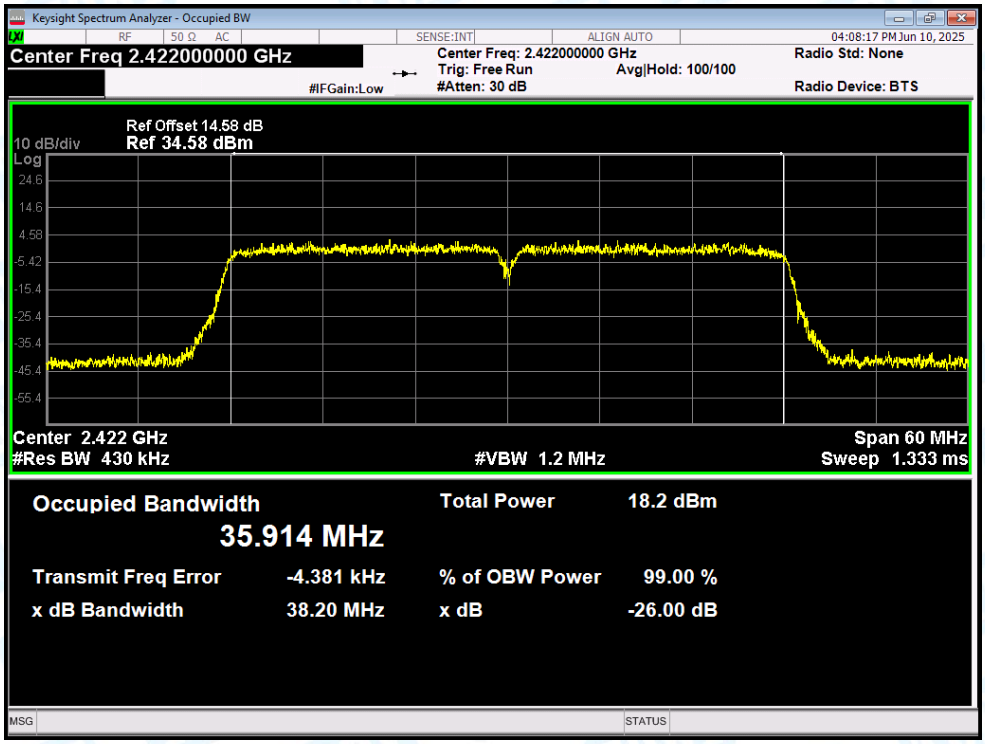
OBW NVNT n(HT20) 2462MHz Ant1



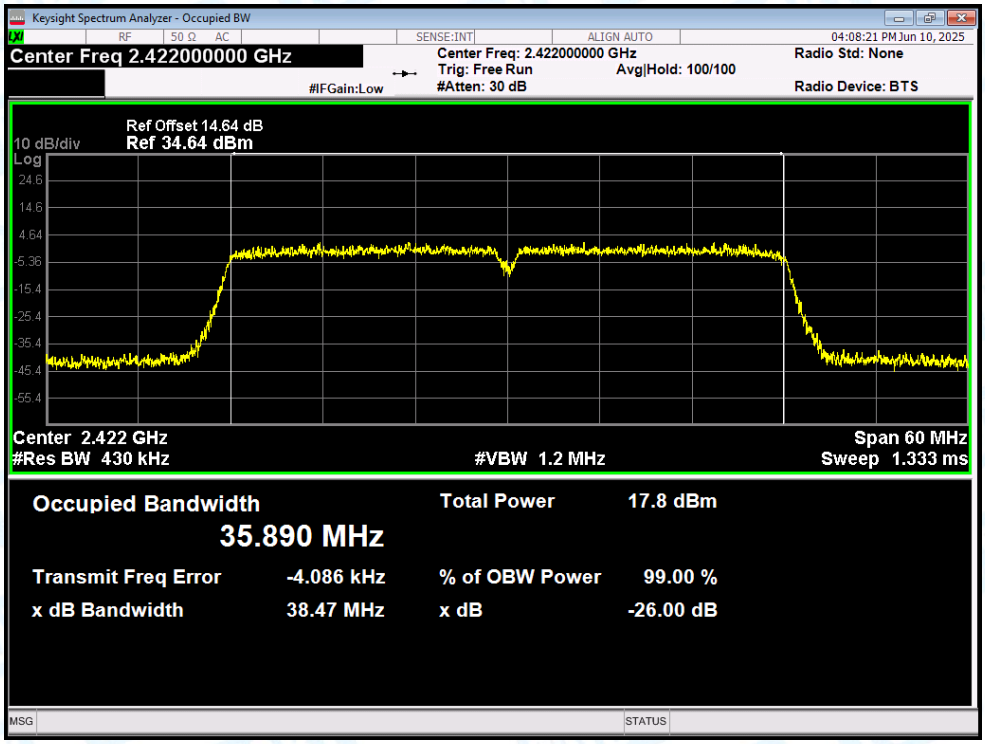
OBW NVNT n(HT20) 2462MHz Ant2



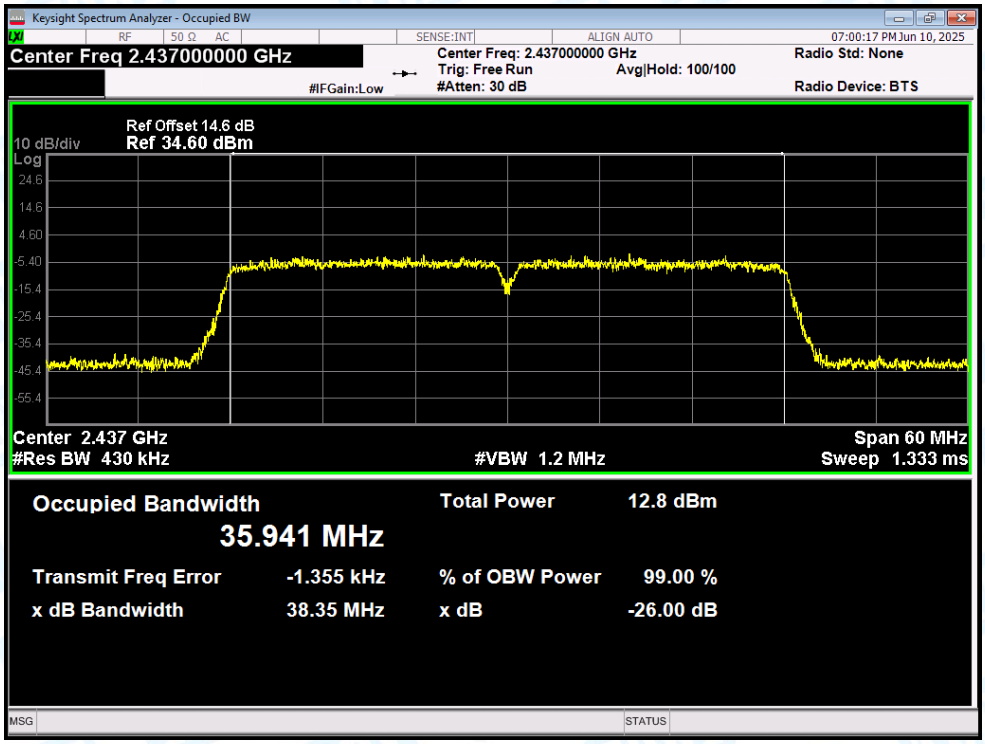
OBW NVNT n(HT40) 2422MHz Ant1



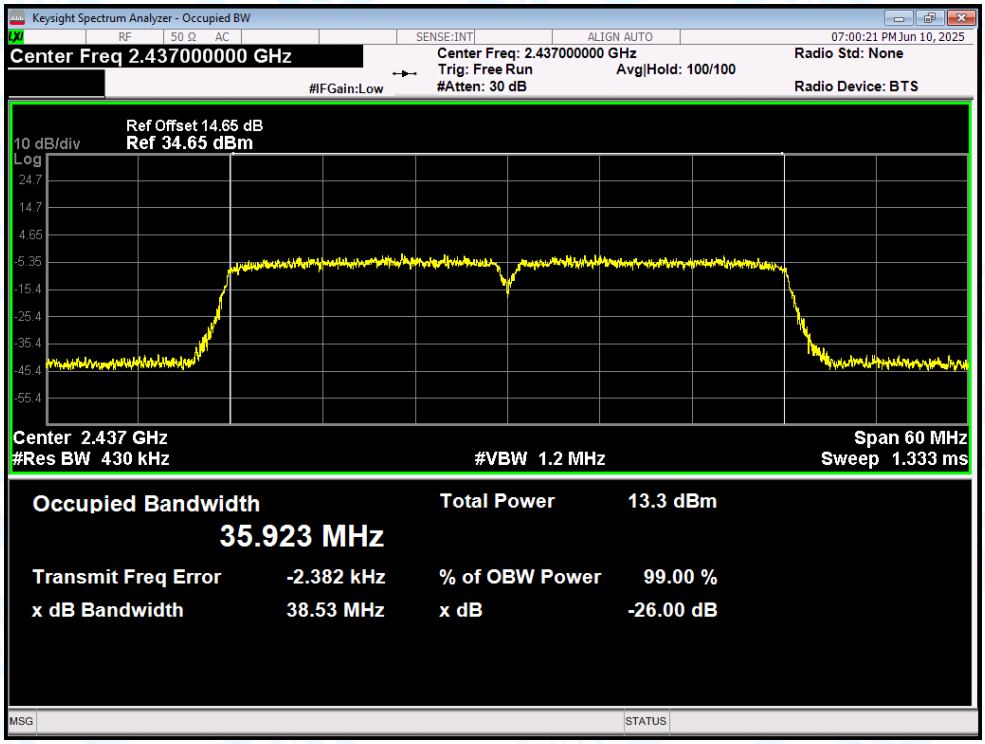
OBW NVNT n(HT40) 2422MHz Ant2



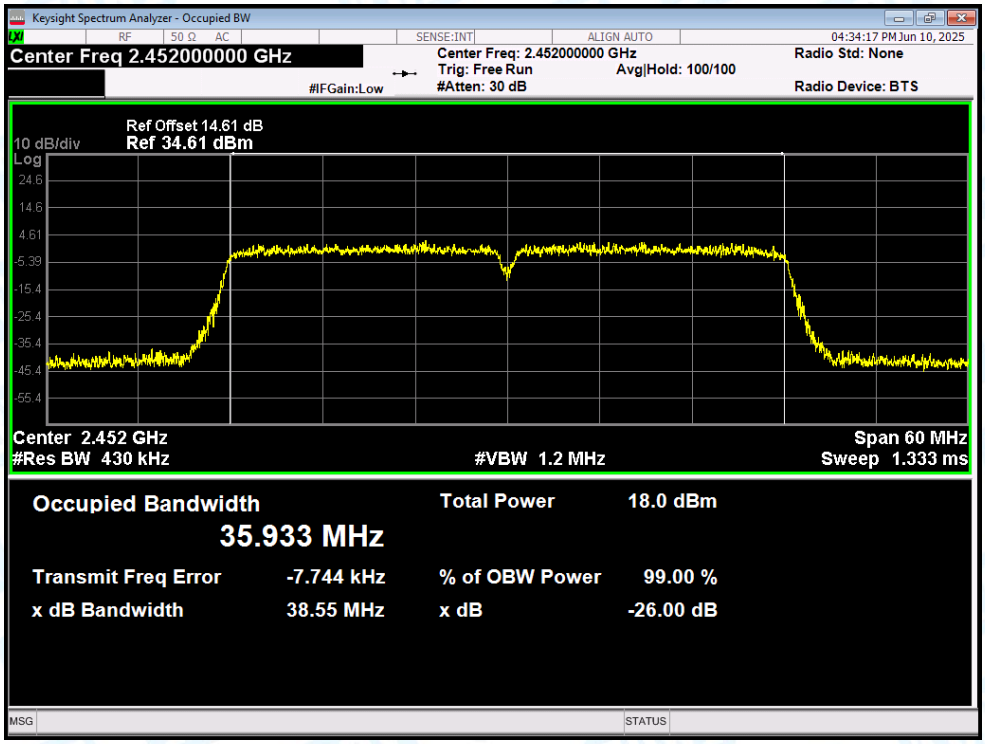
OBW NVNT n(HT40) 2437MHz Ant1



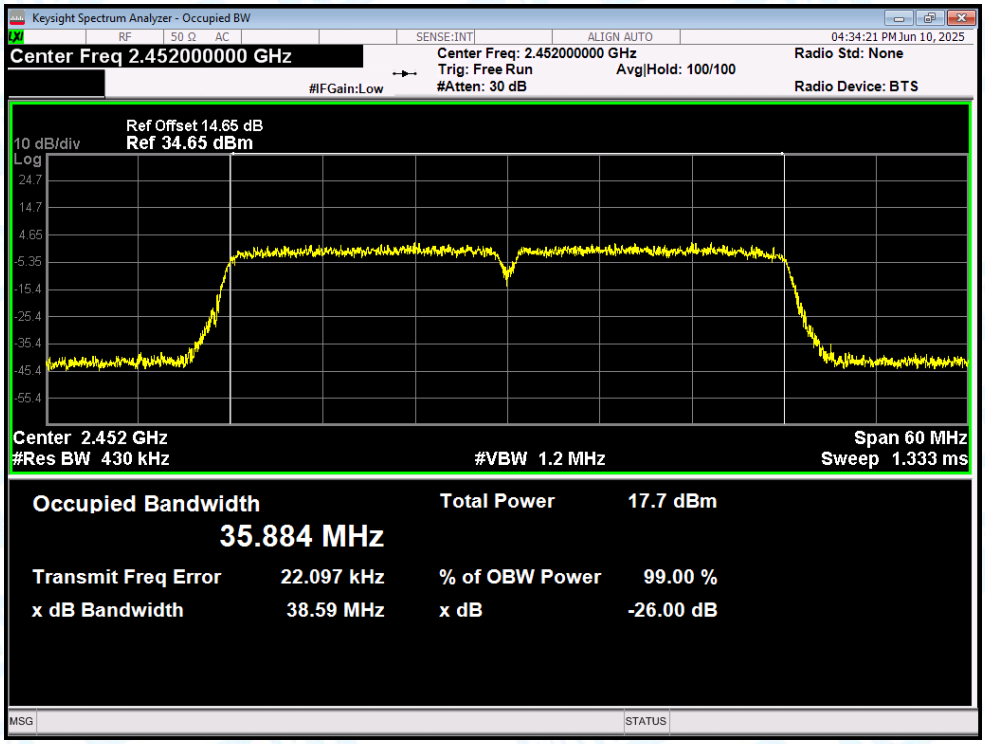
OBW NVNT n(HT40) 2437MHz Ant2



OBW NVNT n(HT40) 2452MHz Ant1



OBW NVNT n(HT40) 2452MHz Ant2



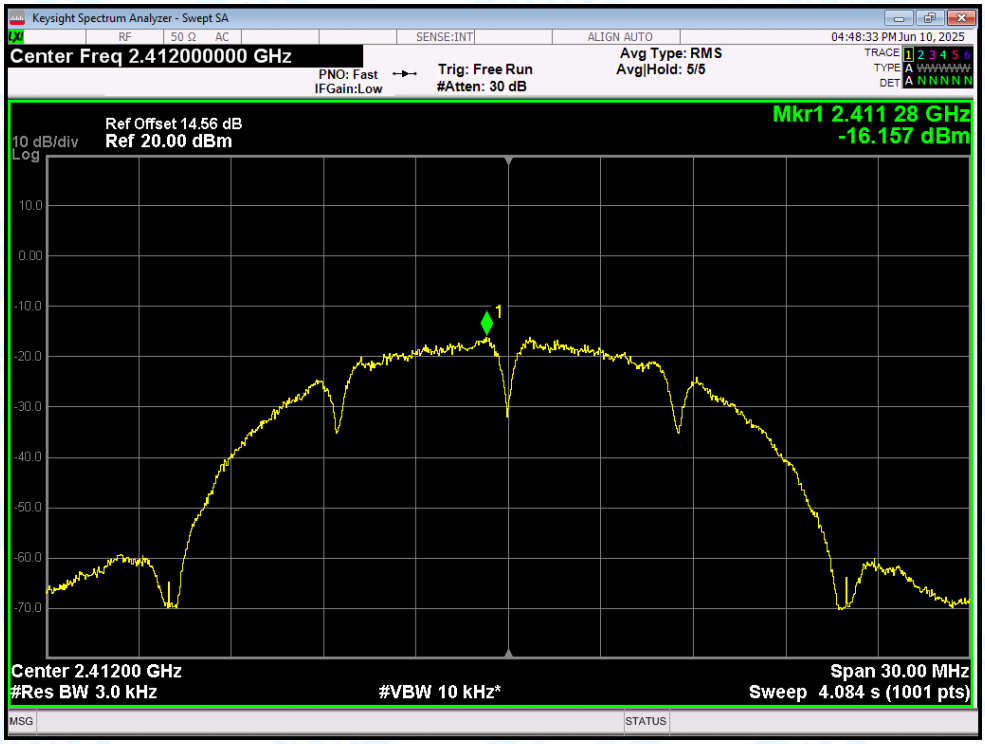
5. Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	-16.157	8	Pass
NVNT	b	2437	Ant1	-15.875	8	Pass
NVNT	b	2462	Ant1	-16.286	8	Pass
NVNT	b	2412	Ant2	-14.902	8	Pass
NVNT	b	2437	Ant2	-14.921	8	Pass
NVNT	b	2462	Ant2	-15.328	8	Pass
NVNT	g	2412	Ant1	-19.026	8	Pass
NVNT	g	2437	Ant1	-18.909	8	Pass
NVNT	g	2462	Ant1	-18.577	8	Pass
NVNT	g	2412	Ant2	-19.22	8	Pass
NVNT	g	2437	Ant2	-19.448	8	Pass
NVNT	g	2462	Ant2	-19.405	8	Pass
NVNT	n(HT20)	2412	Ant1	-21.075	8	Pass
NVNT	n(HT20)	2412	Ant2	-22.173	8	Pass
NVNT	n(HT20)	2412	Sum	-18.579	5.99	Pass
NVNT	n(HT20)	2437	Ant1	-22.27	8	Pass
NVNT	n(HT20)	2437	Ant2	-22.554	8	Pass
NVNT	n(HT20)	2437	Sum	-19.399	5.99	Pass
NVNT	n(HT20)	2462	Ant1	-22.633	8	Pass
NVNT	n(HT20)	2462	Ant2	-22.839	8	Pass
NVNT	n(HT20)	2462	Sum	-19.724	5.99	Pass
NVNT	n(HT40)	2422	Ant1	-28.127	8	Pass
NVNT	n(HT40)	2422	Ant2	-28.263	8	Pass
NVNT	n(HT40)	2422	Sum	-25.184	5.99	Pass
NVNT	n(HT40)	2437	Ant1	-32.833	8	Pass
NVNT	n(HT40)	2437	Ant2	-33.274	8	Pass
NVNT	n(HT40)	2437	Sum	-30.038	5.99	Pass
NVNT	n(HT40)	2452	Ant1	-28.566	8	Pass
NVNT	n(HT40)	2452	Ant2	-27.937	8	Pass
NVNT	n(HT40)	2452	Sum	-25.23	5.99	Pass

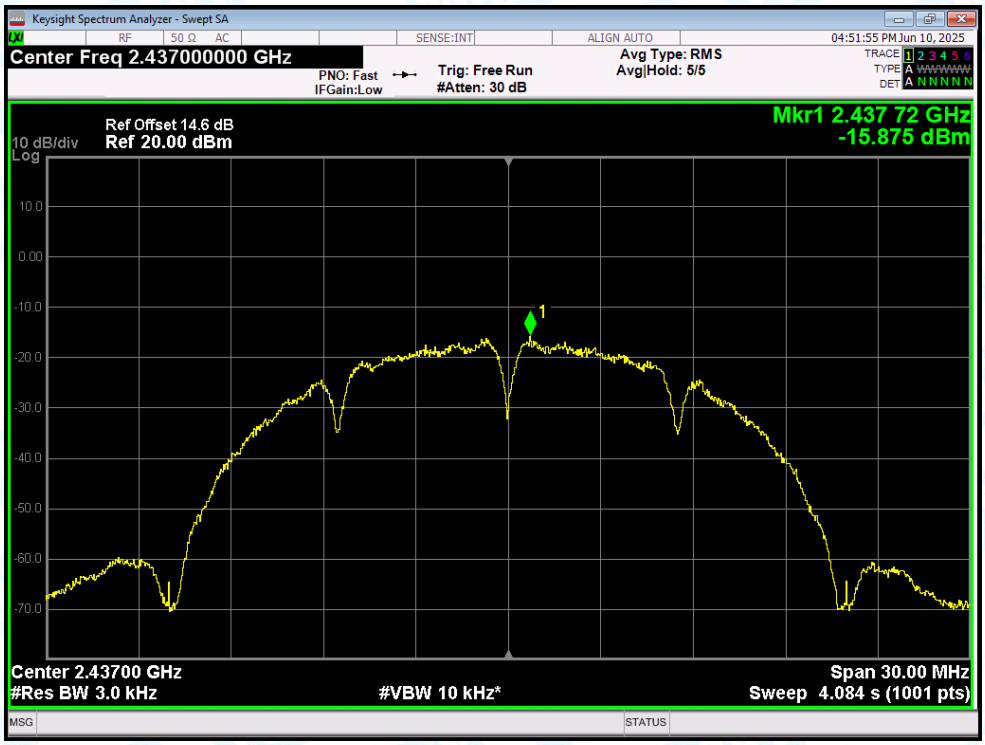
Note：The Duty Cycle Factor is compensated in the graph.

Note:For Sum Mode, Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$)^2 / 2]=8.01dBi;G_{ANT1}=5.0dBi； G_{ANT2}=5.0dBi；and the Directional gain＞6dBi, So the PSD_{limit}=PSD_{limit}-(8.01-6)=5.99dBm.

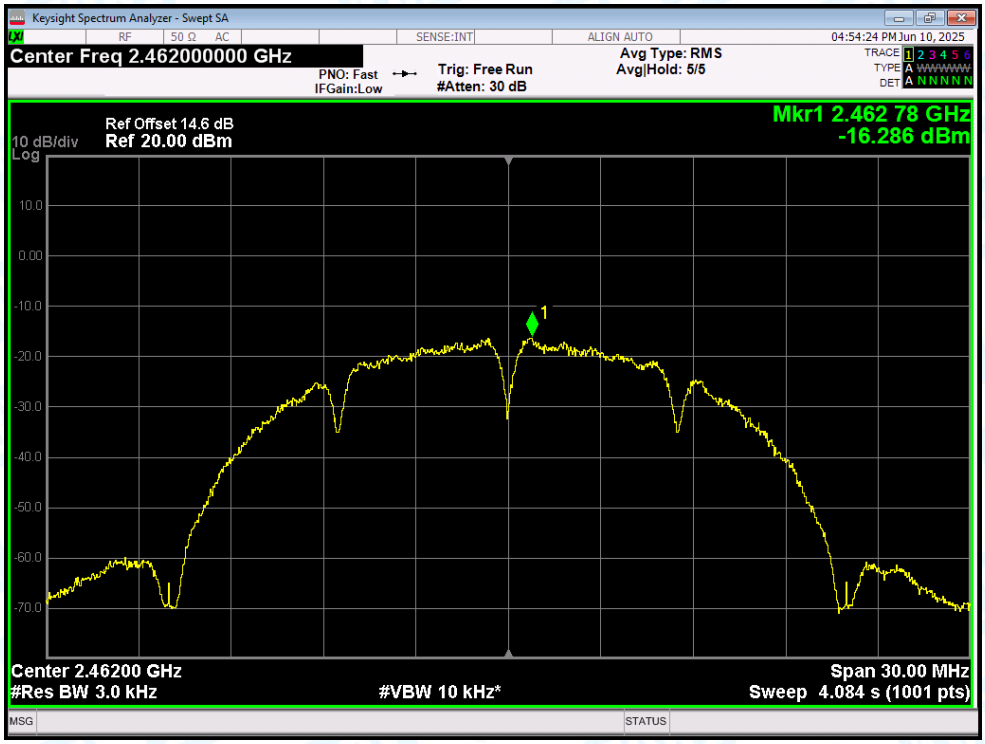
Test Graphs
PSD NVNT b 2412MHz Ant1



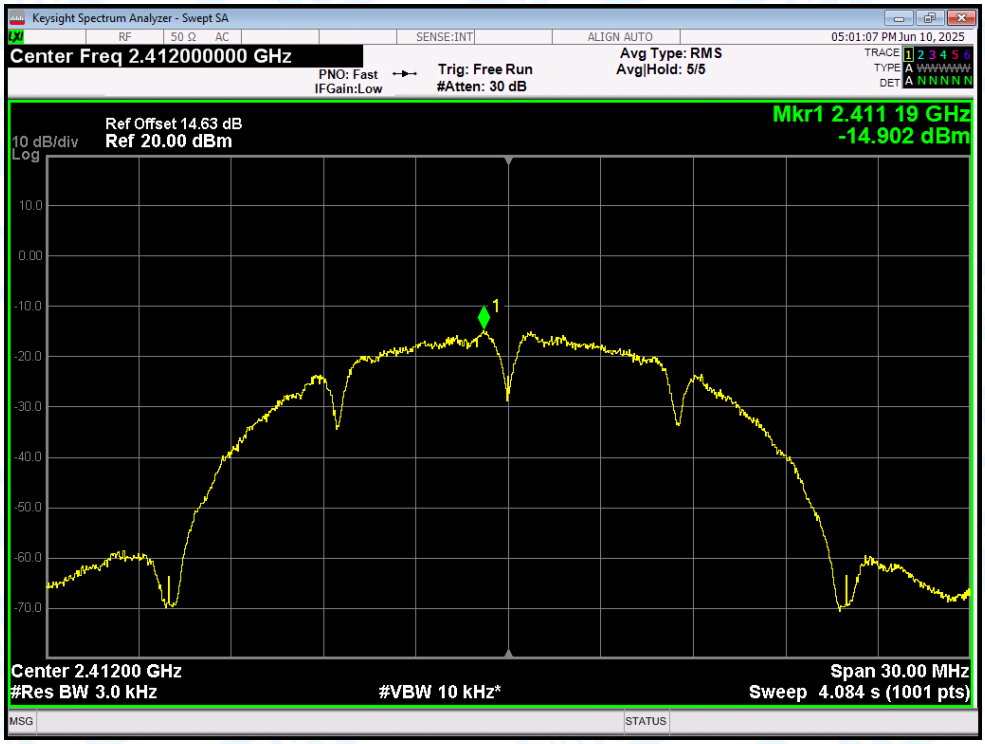
PSD NVNT b 2437MHz Ant1



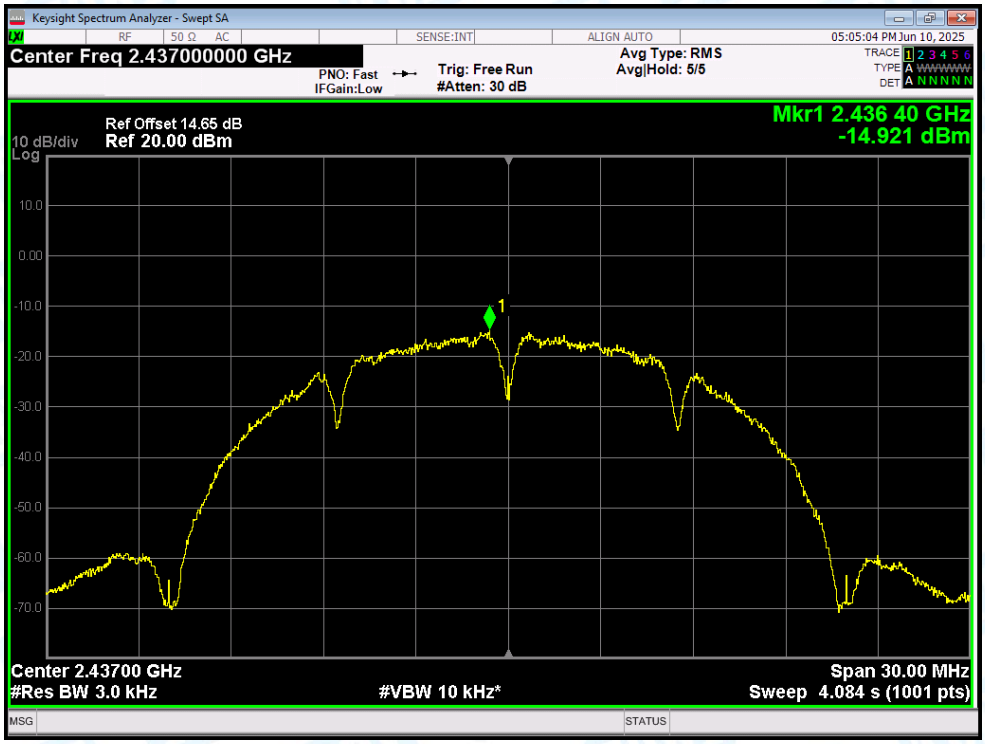
PSD NVNT b 2462MHz Ant1



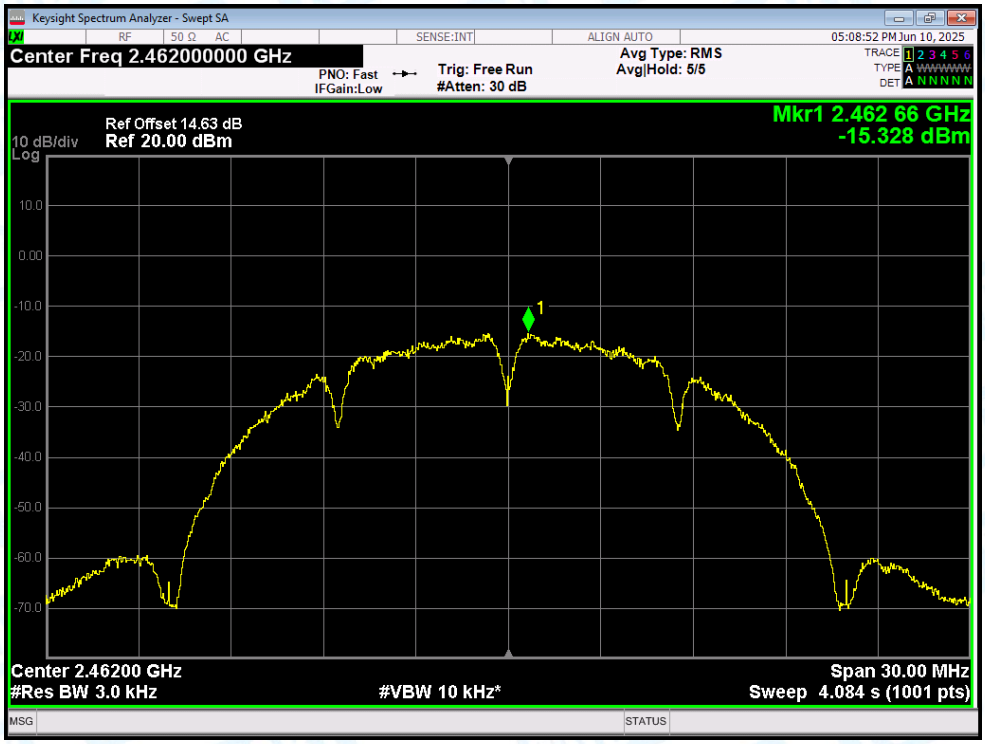
PSD NVNT b 2412MHz Ant2



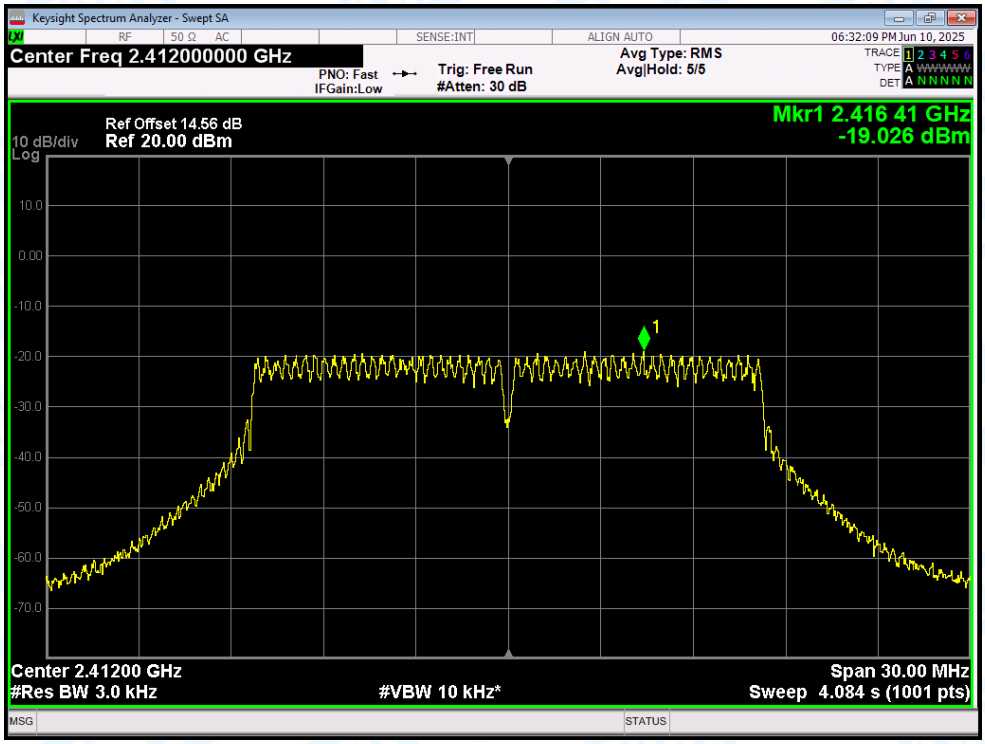
PSD NVNT b 2437MHz Ant2



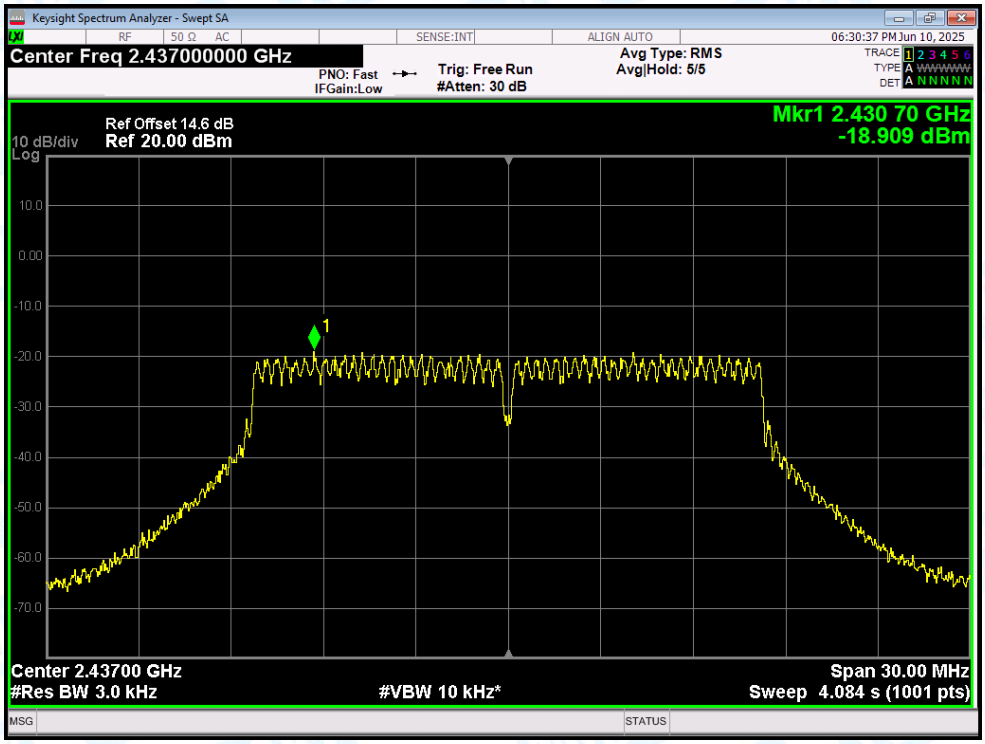
PSD NVNT b 2462MHz Ant2



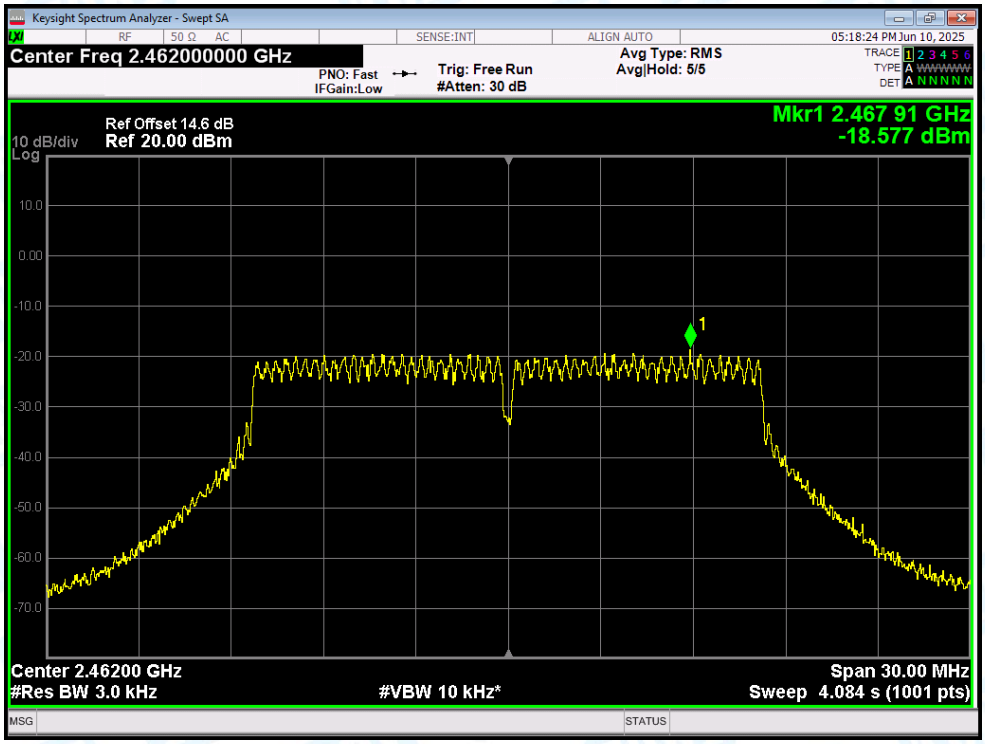
PSD NVNT g 2412MHz Ant1



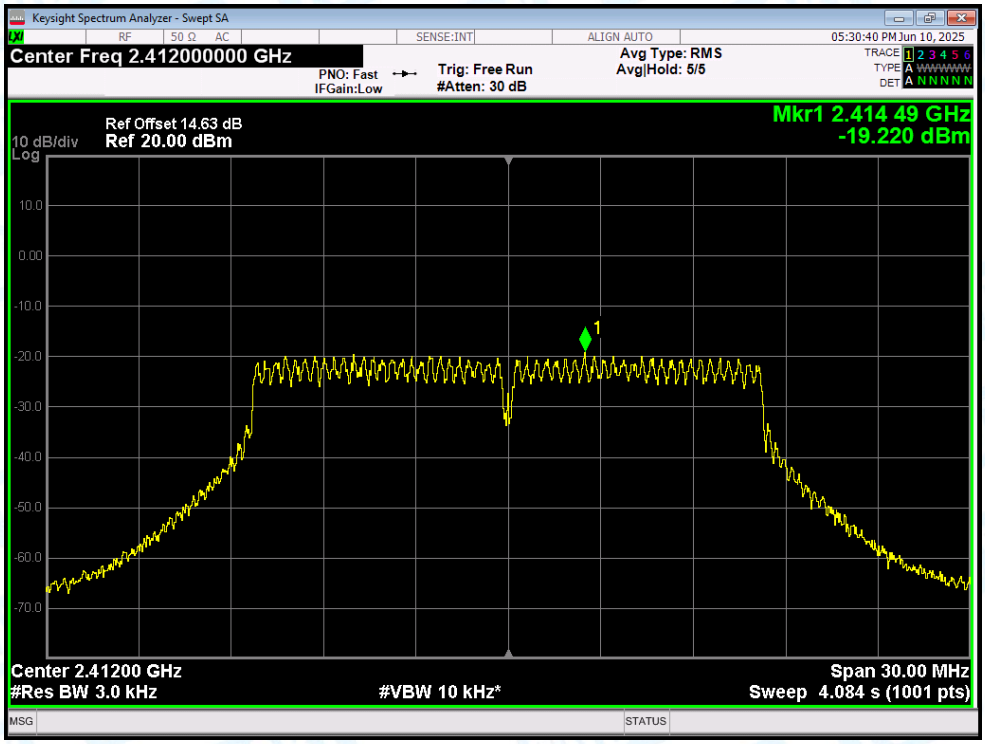
PSD NVNT g 2437MHz Ant1



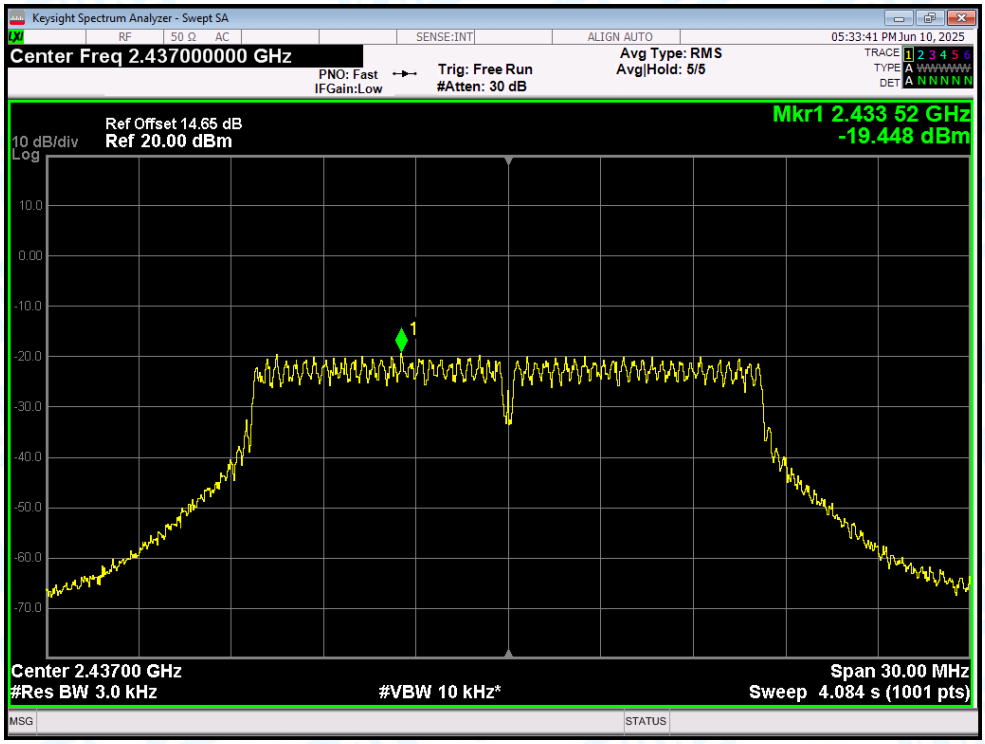
PSD NVNT g 2462MHz Ant1



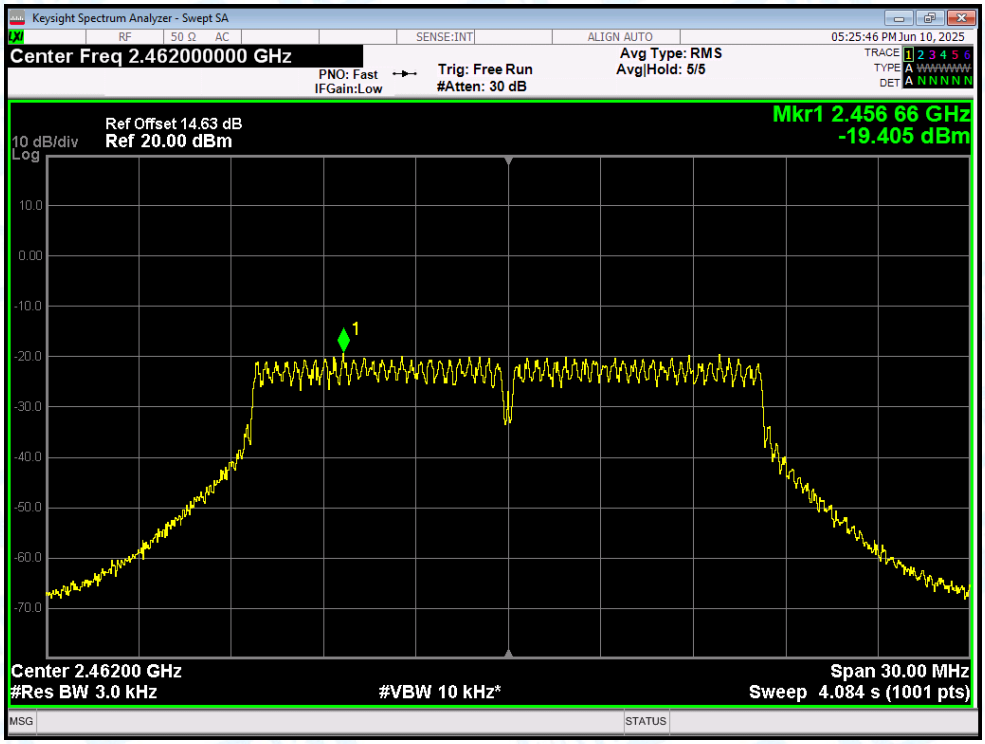
PSD NVNT g 2412MHz Ant2



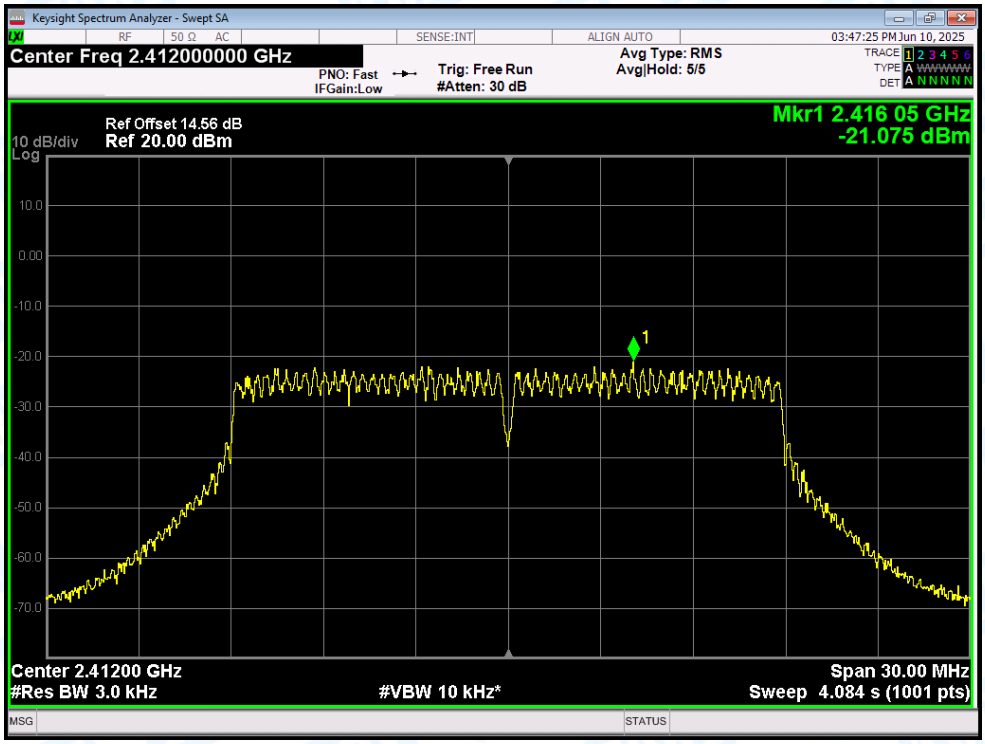
PSD NVNT g 2437MHz Ant2



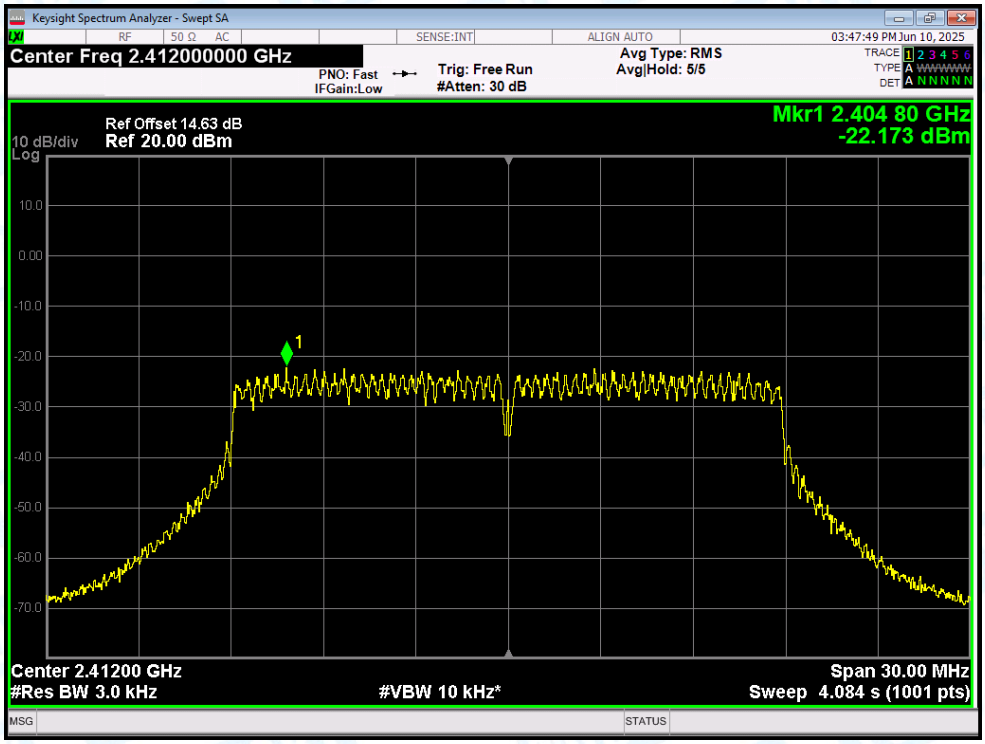
PSD NVNT g 2462MHz Ant2



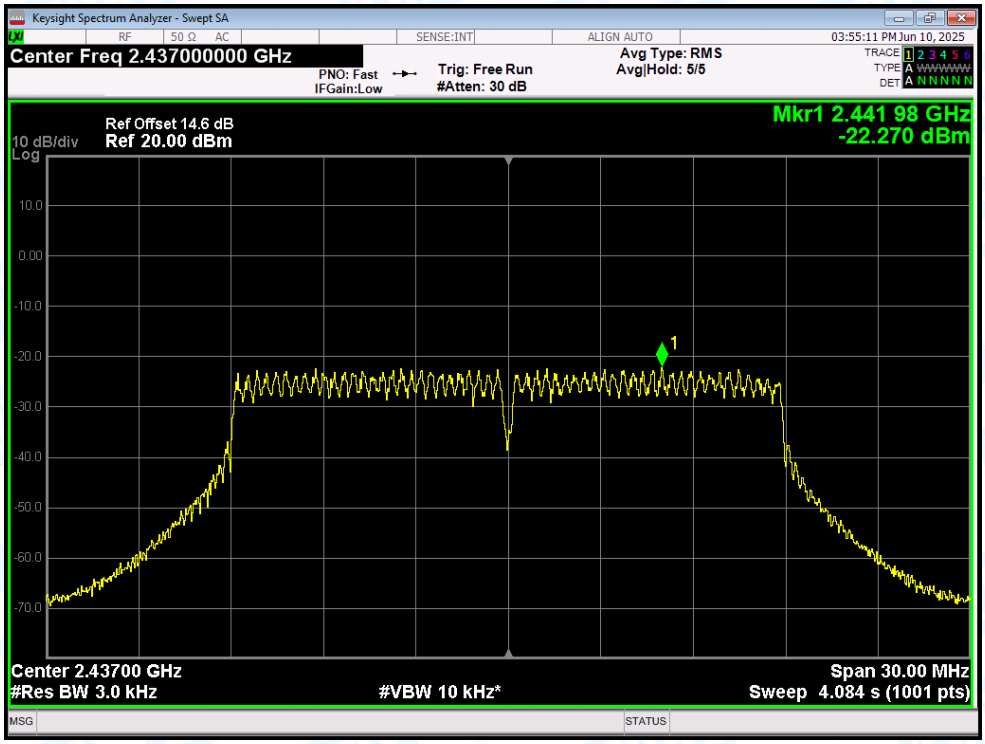
PSD NVNT n(HT20) 2412MHz Ant1



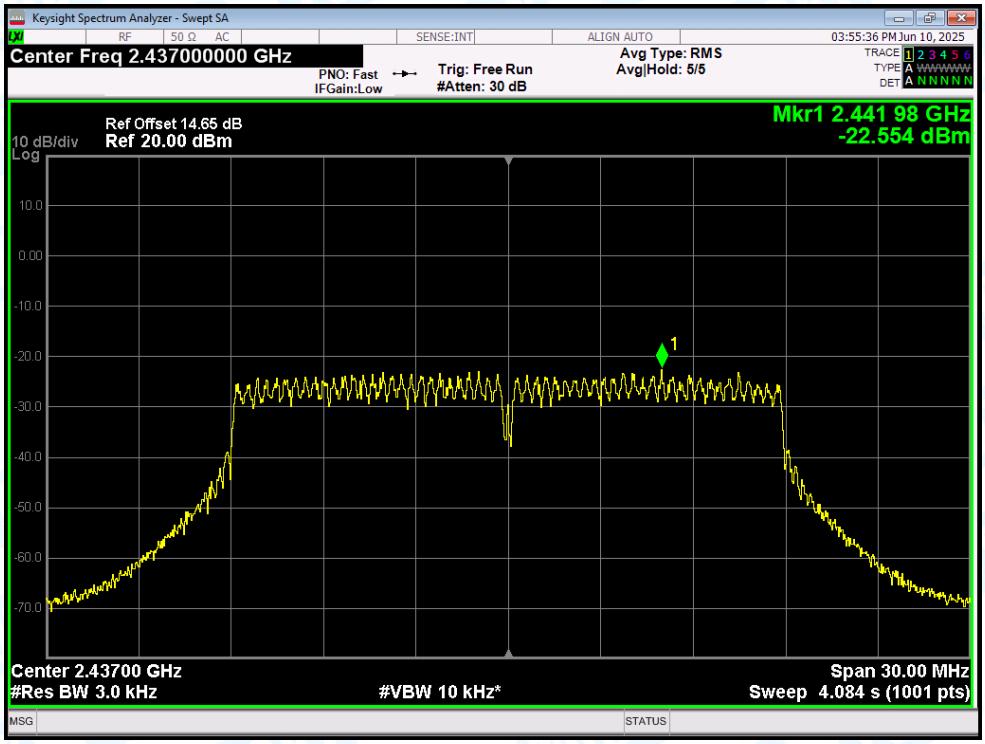
PSD NVNT n(HT20) 2412MHz Ant2



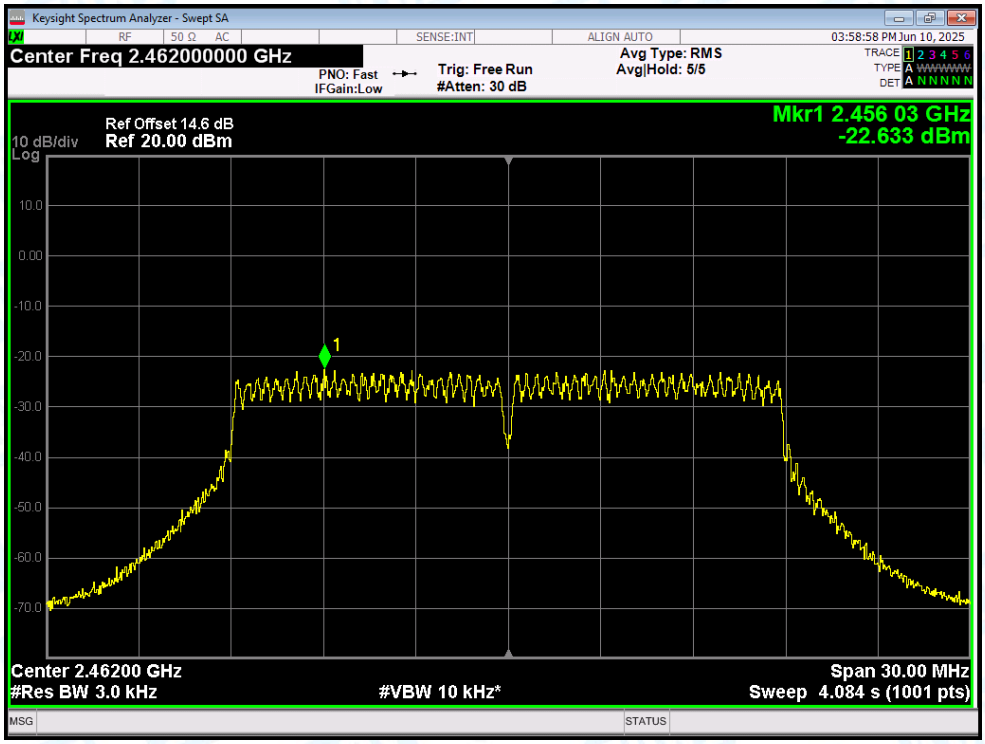
PSD NVNT n(HT20) 2437MHz Ant1



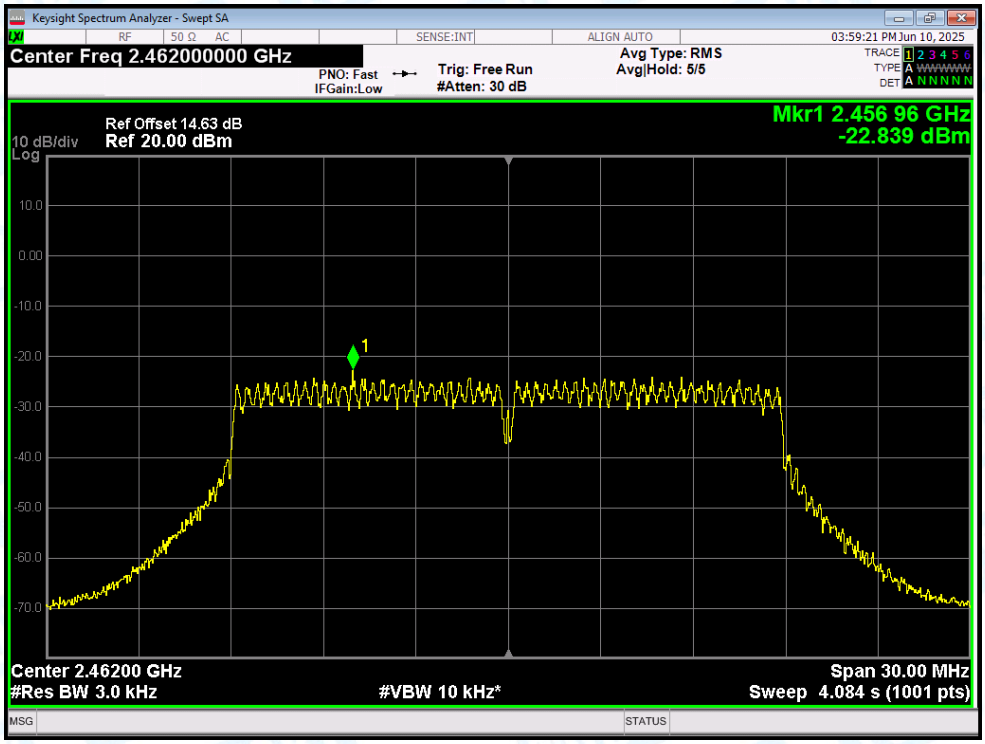
PSD NVNT n(HT20) 2437MHz Ant2



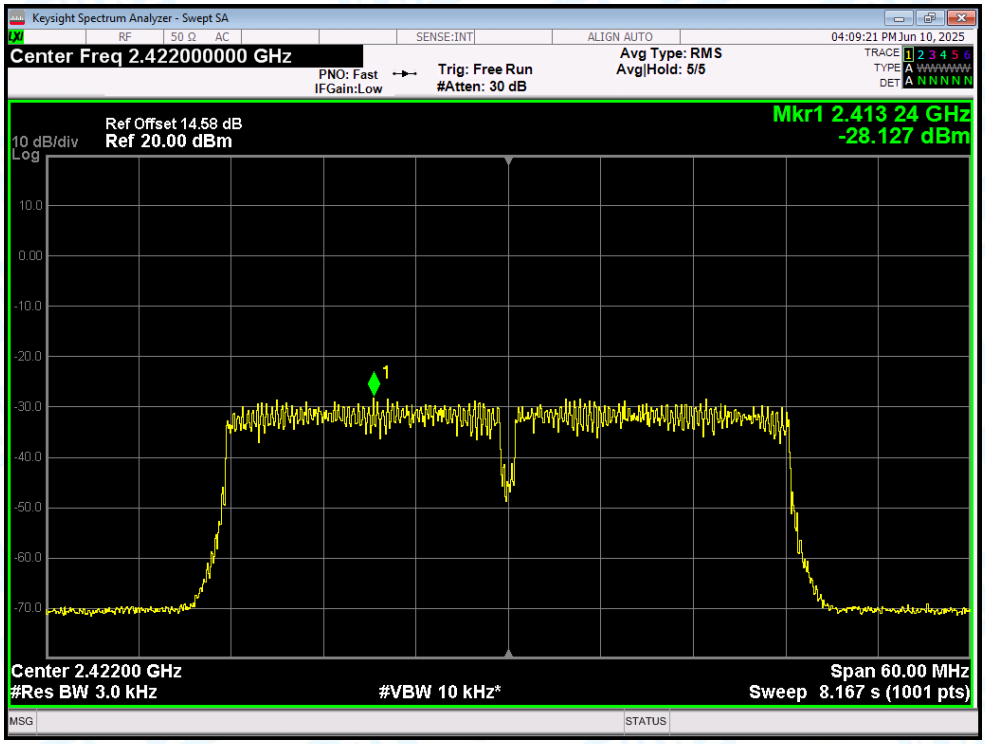
PSD NVNT n(HT20) 2462MHz Ant1



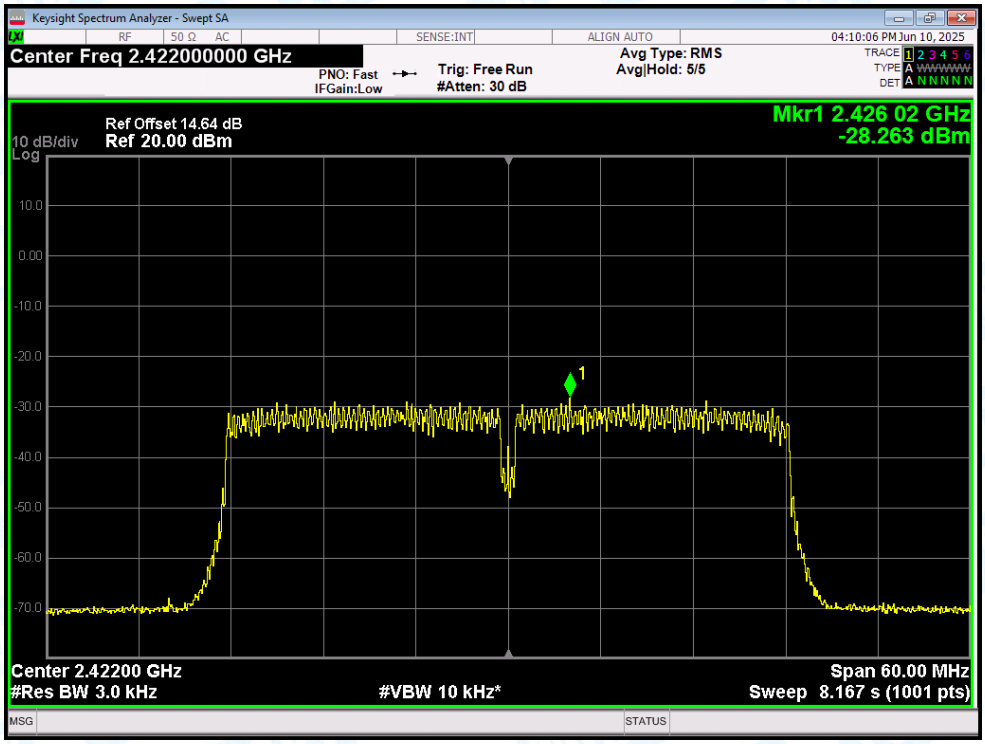
PSD NVNT n(HT20) 2462MHz Ant2



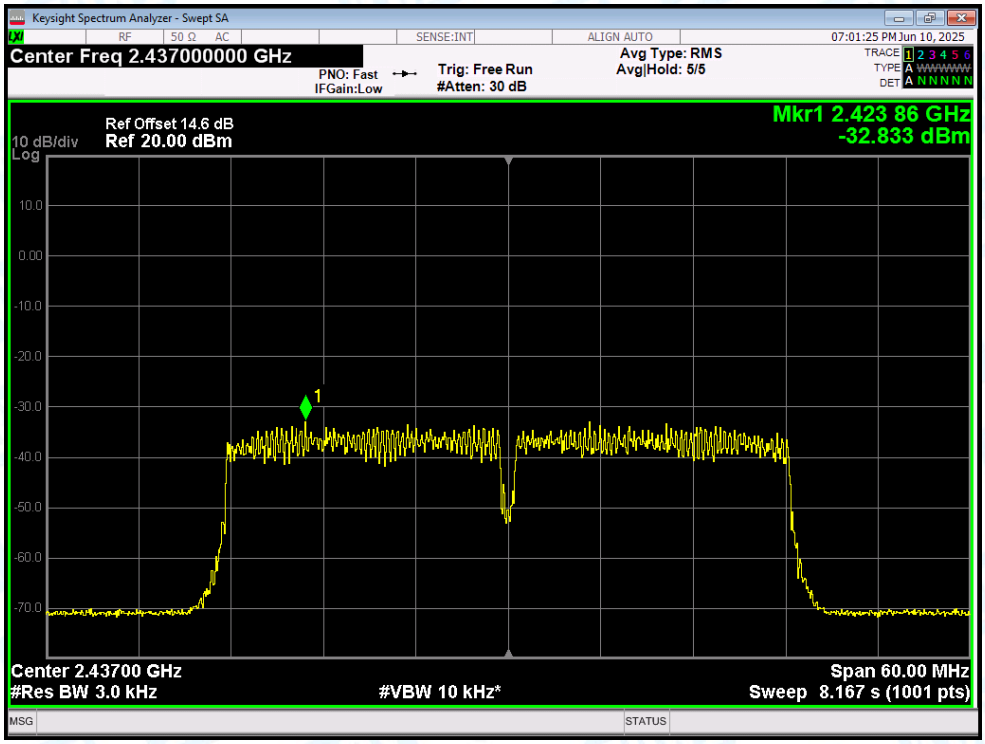
PSD NVNT n(HT40) 2422MHz Ant1



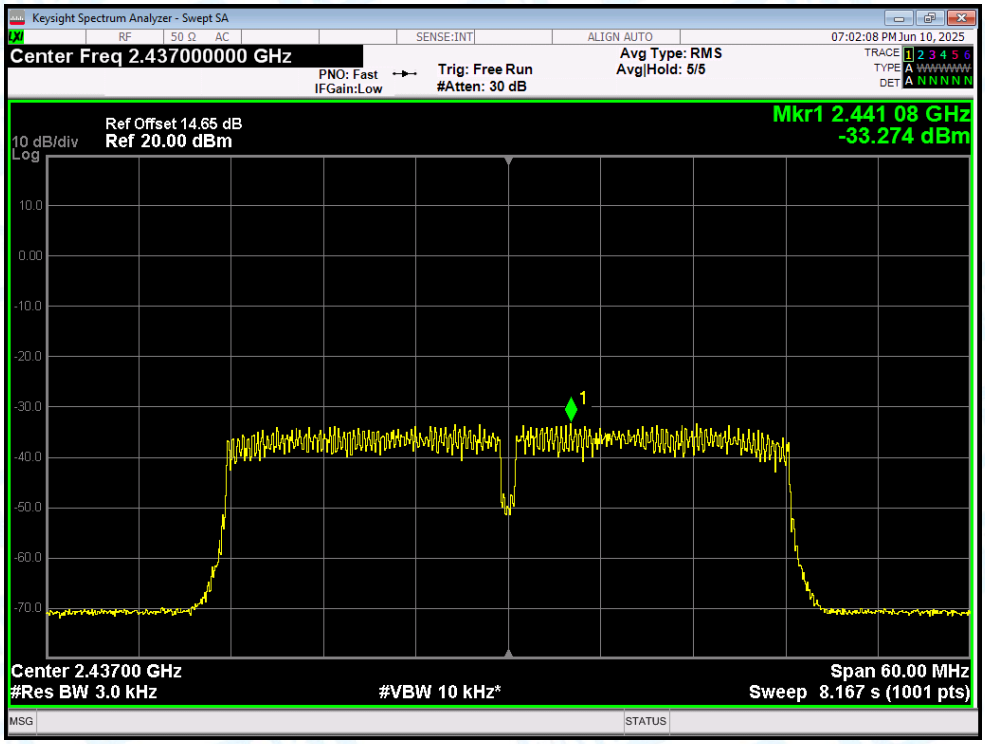
PSD NVNT n(HT40) 2422MHz Ant2



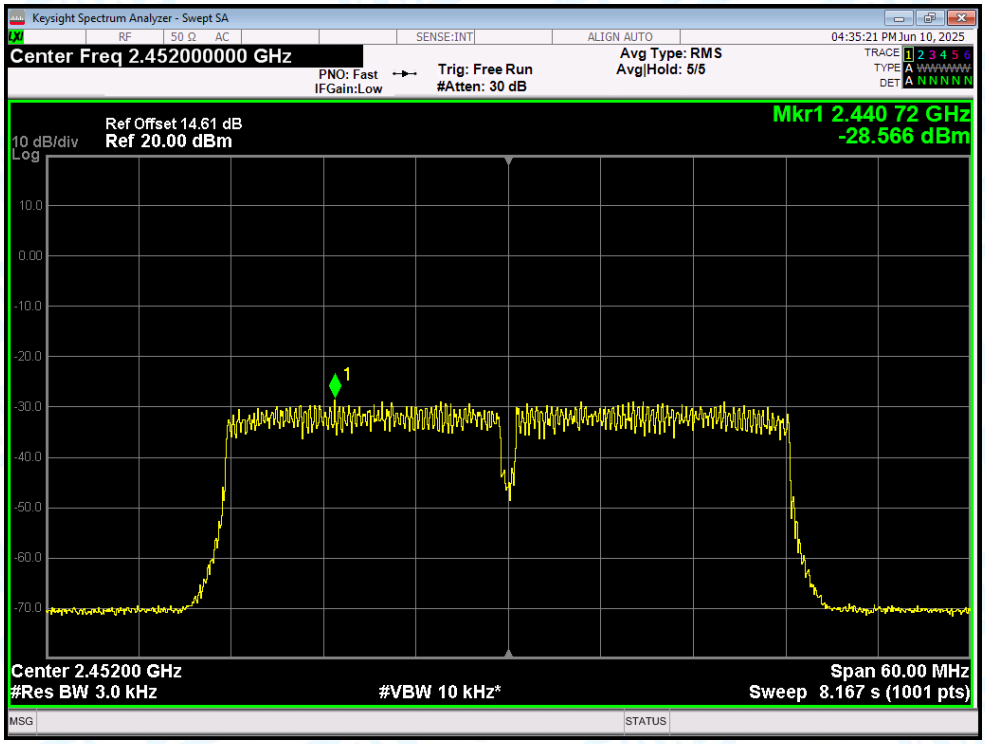
PSD NVNT n(HT40) 2437MHz Ant1



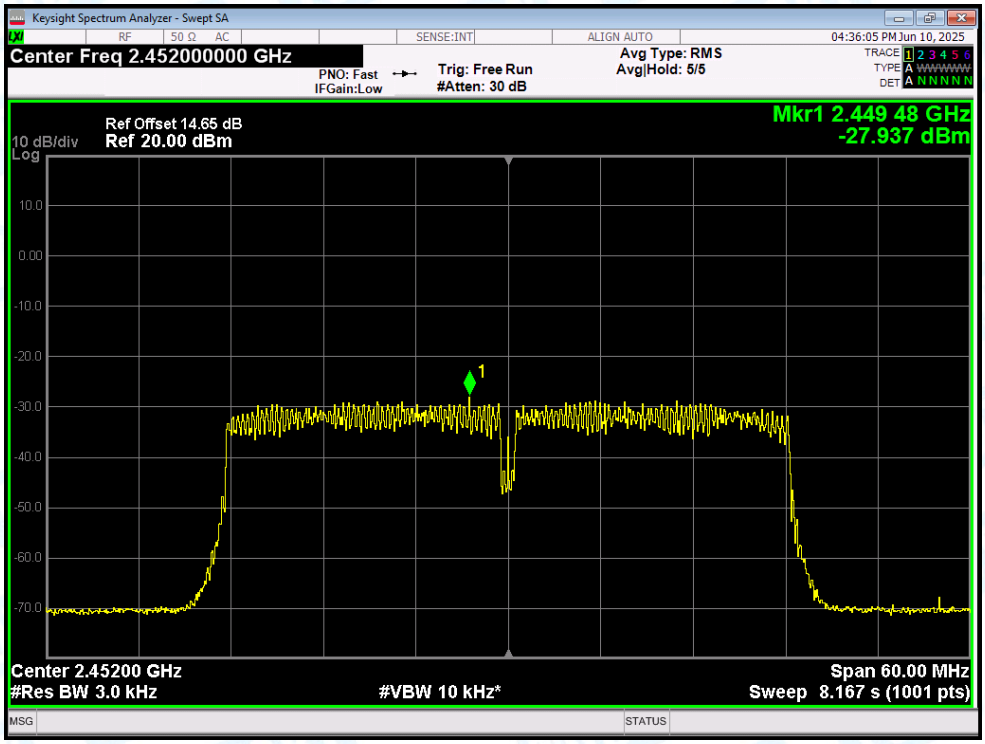
PSD NVNT n(HT40) 2437MHz Ant2



PSD NVNT n(HT40) 2452MHz Ant1



PSD NVNT n(HT40) 2452MHz Ant2

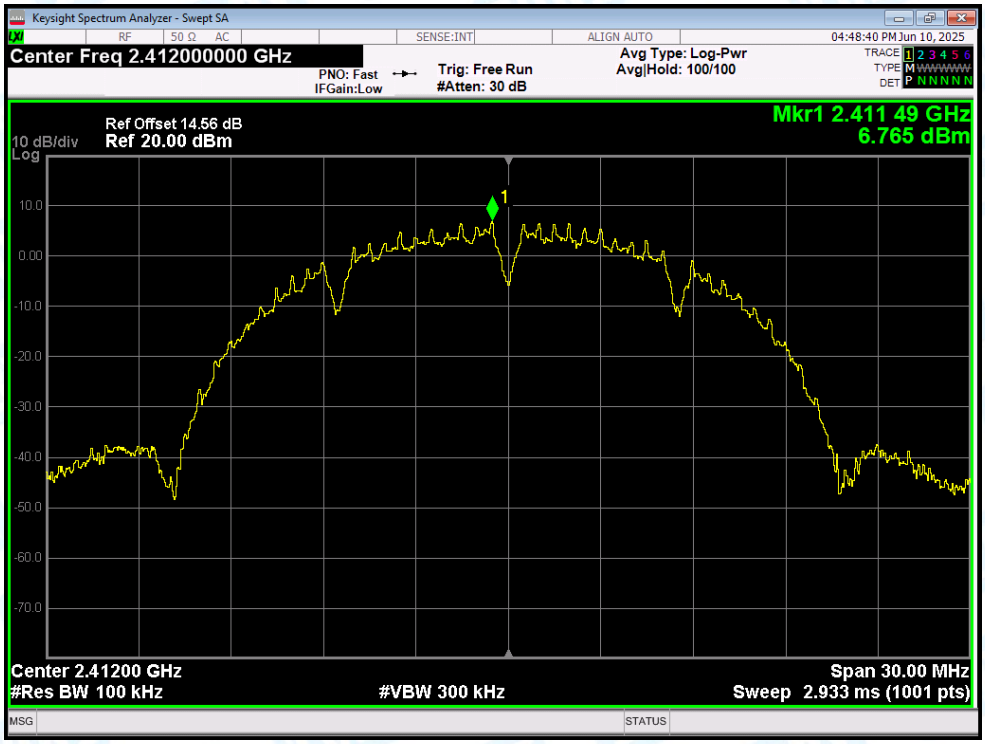


6. Band Edge

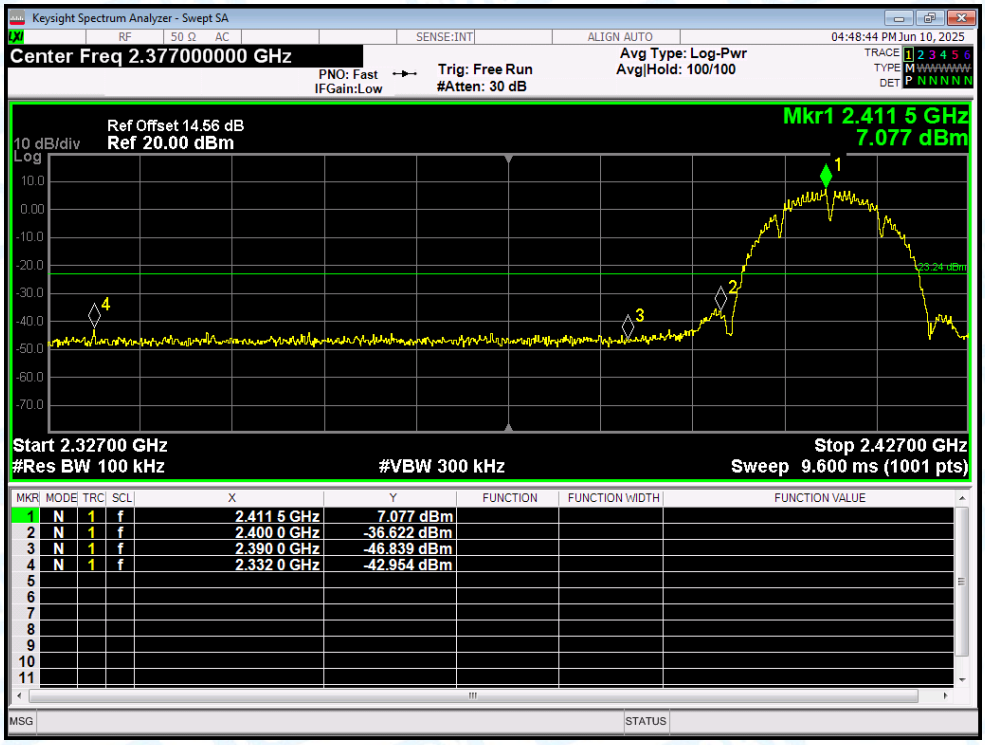
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-49.72	-30	Pass
NVNT	b	2462	Ant1	-51.5	-30	Pass
NVNT	b	2412	Ant2	-51.53	-30	Pass
NVNT	b	2462	Ant2	-52.46	-30	Pass
NVNT	g	2412	Ant1	-46.61	-30	Pass
NVNT	g	2462	Ant1	-47.45	-30	Pass
NVNT	g	2412	Ant2	-47.66	-30	Pass
NVNT	g	2462	Ant2	-48.7	-30	Pass
NVNT	n(HT20)	2412	Ant1	-46.48	-30	Pass
NVNT	n(HT20)	2412	Ant2	-44.97	-30	Pass
NVNT	n(HT20)	2462	Ant1	-44.56	-30	Pass
NVNT	n(HT20)	2462	Ant2	-45.36	-30	Pass
NVNT	n(HT40)	2422	Ant1	-43.32	-30	Pass
NVNT	n(HT40)	2422	Ant2	-43.14	-30	Pass
NVNT	n(HT40)	2452	Ant1	-42.58	-30	Pass
NVNT	n(HT40)	2452	Ant2	-42.92	-30	Pass

Test Graphs

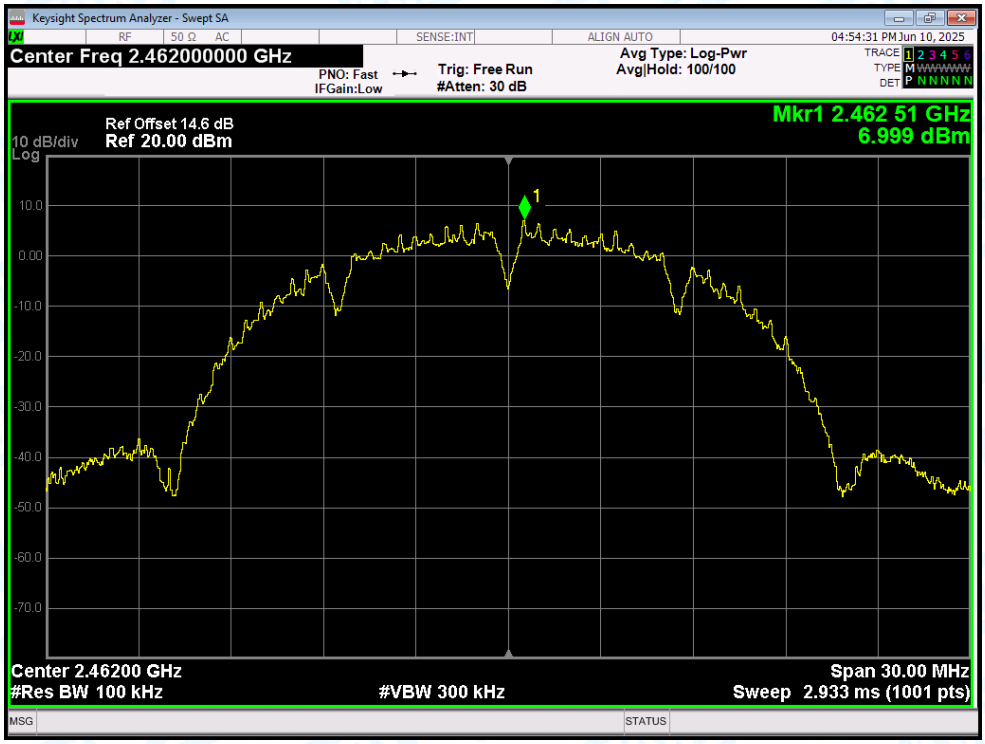
Band Edge NVNT b 2412MHz Ant1 Ref



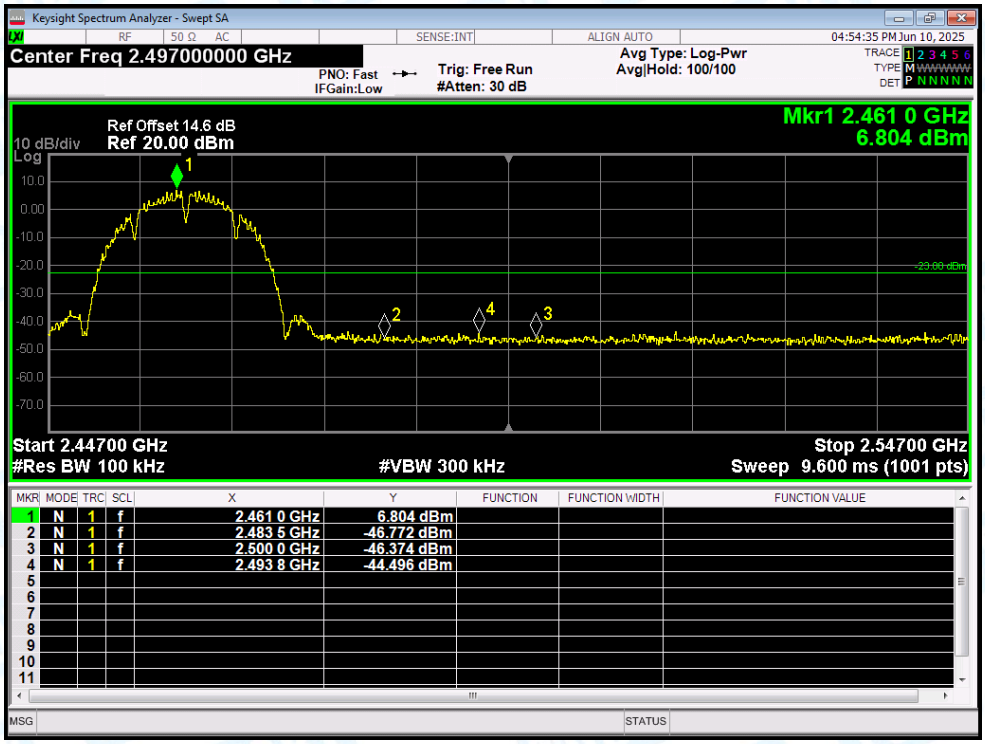
Band Edge NVNT b 2412MHz Ant1 Emission



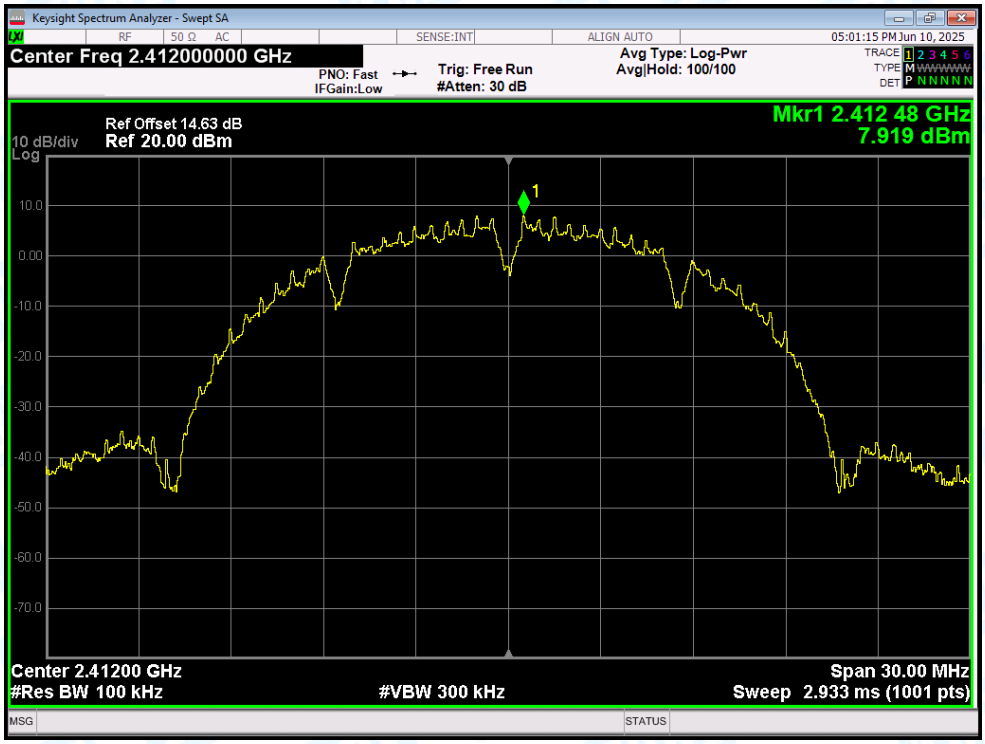
Band Edge NVNT b 2462MHz Ant1 Ref



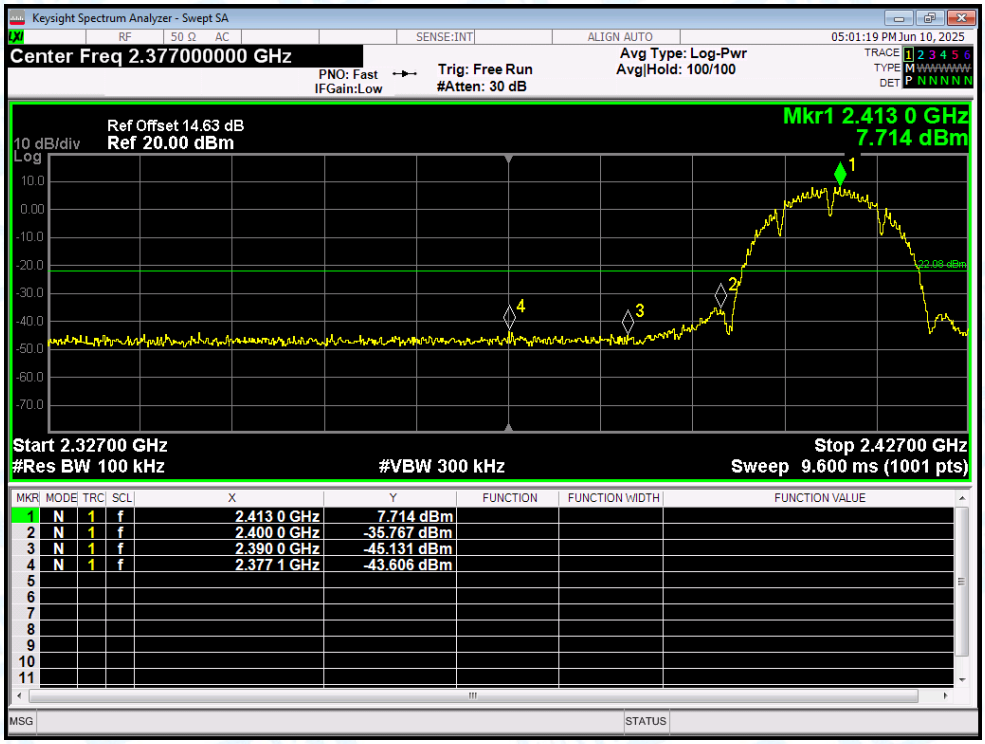
Band Edge NVNT b 2462MHz Ant1 Emission



Band Edge NVNT b 2412MHz Ant2 Ref

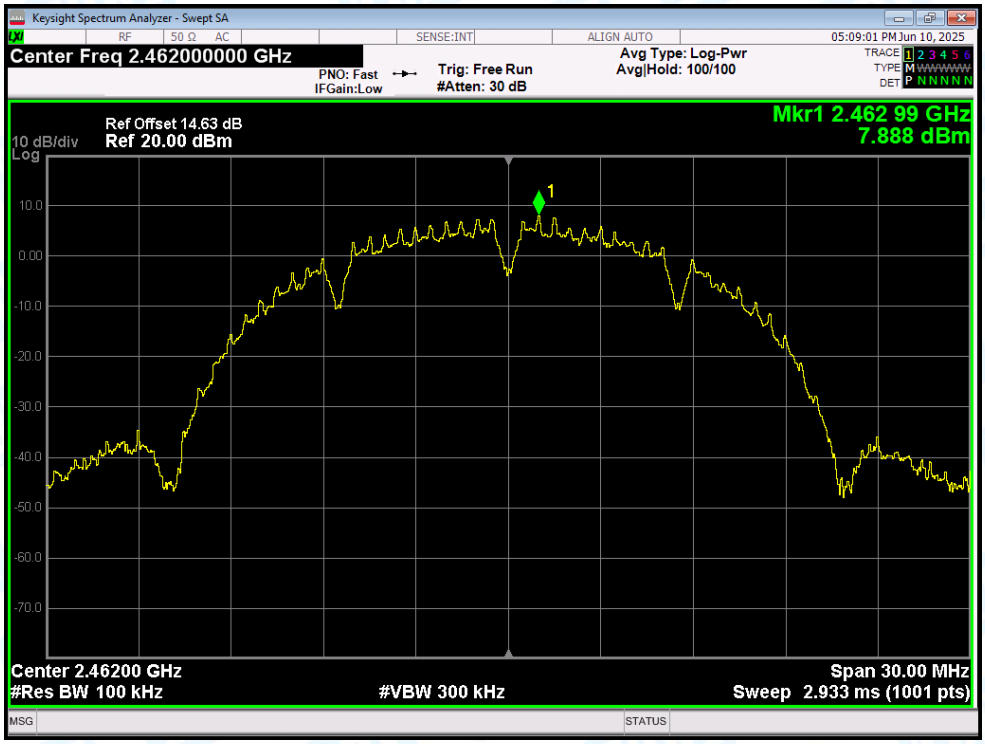


Band Edge NVNT b 2412MHz Ant2 Emission

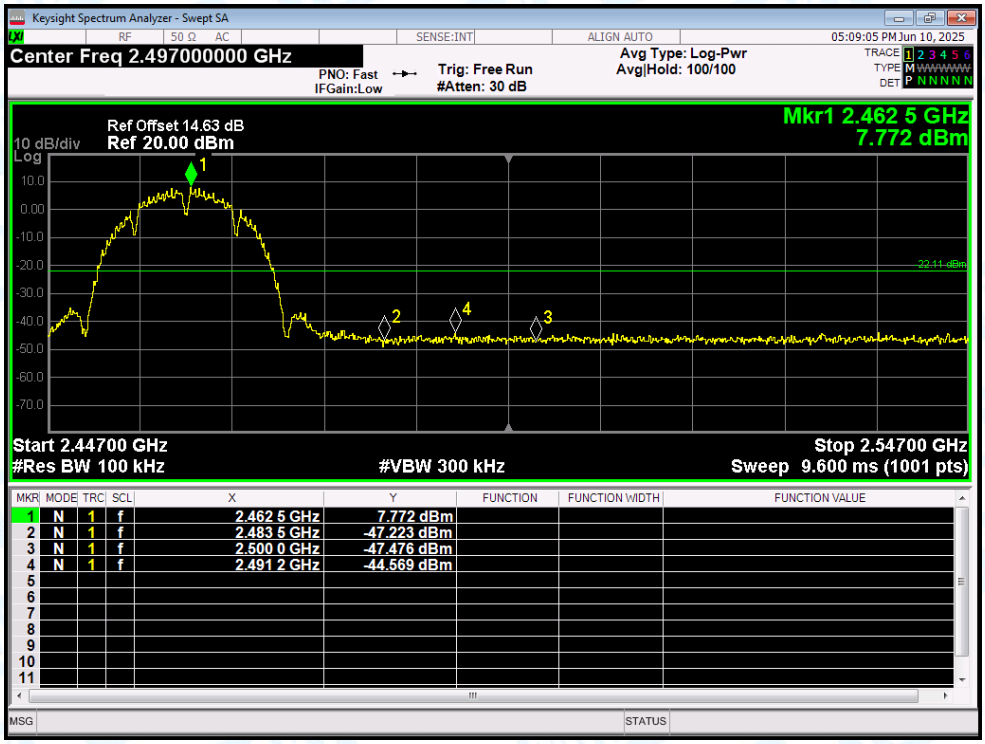


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 0 GHz	7.714 dBm			
2	N	1	f	2.400 0 GHz	-35.767 dBm			
3	N	1	f	2.390 0 GHz	-45.131 dBm			
4	N	1	f	2.377 1 GHz	-43.606 dBm			
5								
6								
7								
8								
9								
10								
11								

Band Edge NVNT b 2462MHz Ant2 Ref

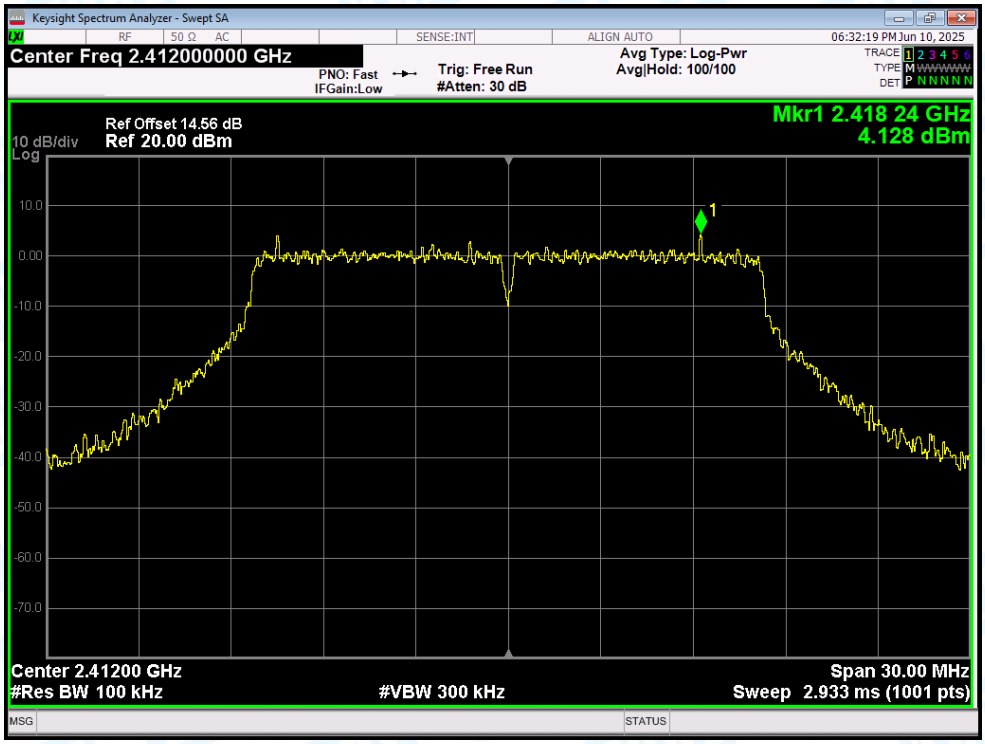


Band Edge NVNT b 2462MHz Ant2 Emission

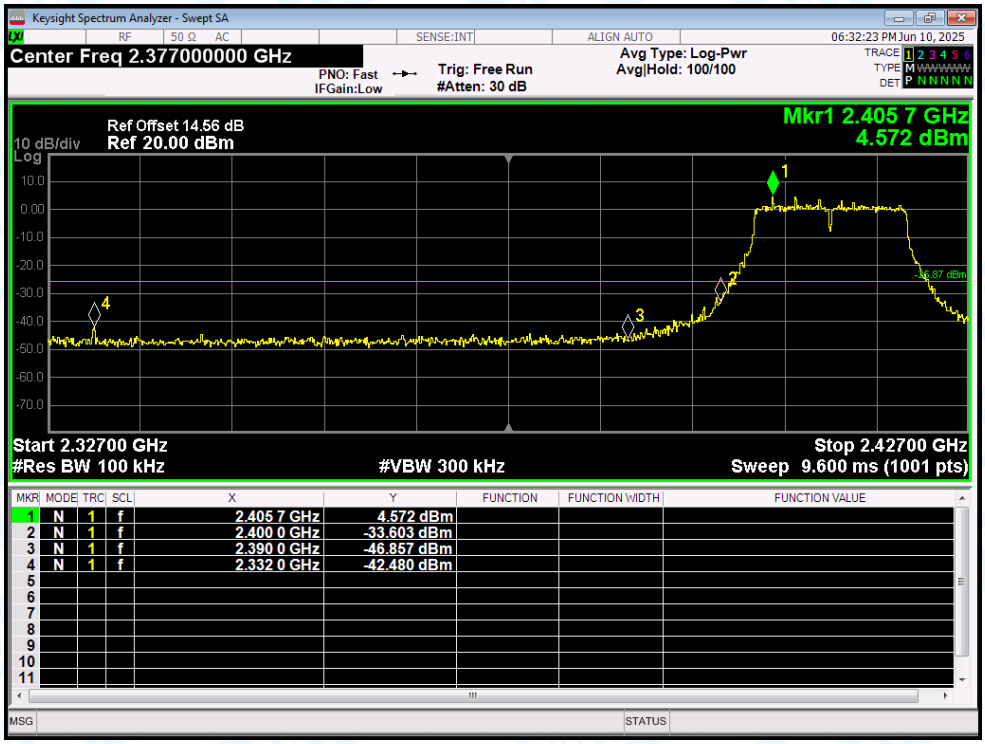


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 5 GHz	7.772 dBm			
2	N	1	f	2.483 5 GHz	-47.223 dBm			
3	N	1	f	2.500 0 GHz	-47.476 dBm			
4	N	1	f	2.491 2 GHz	-44.569 dBm			
5								
6								
7								
8								
9								
10								
11								

Band Edge NVNT g 2412MHz Ant1 Ref

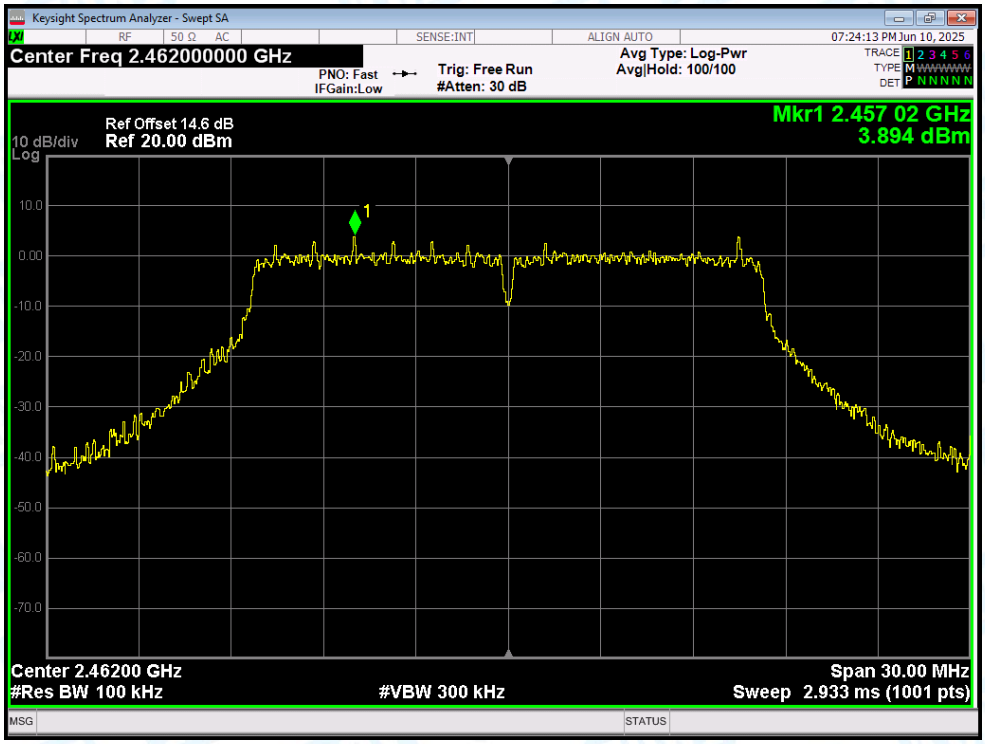


Band Edge NVNT g 2412MHz Ant1 Emission

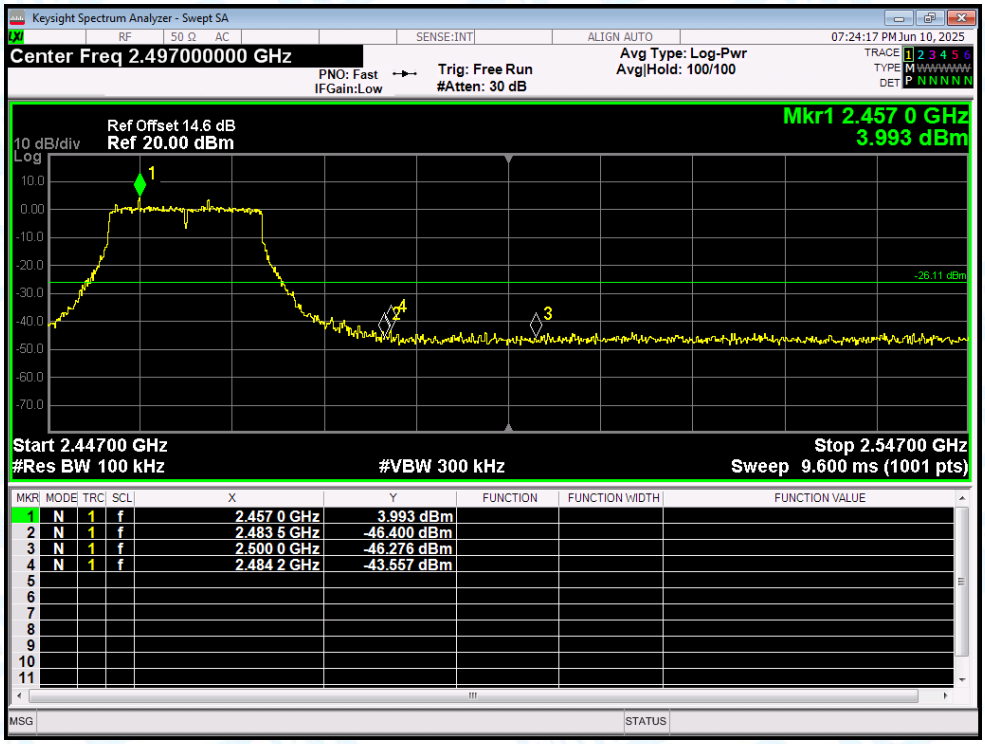


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.405 7 GHz	4.572 dBm			
2	N	1	f	2.400 0 GHz	-33.603 dBm			
3	N	1	f	2.390 0 GHz	-46.857 dBm			
4	N	1	f	2.332 0 GHz	-42.480 dBm			
5								
6								
7								
8								
9								
10								
11								

Band Edge NVNT g 2462MHz Ant1 Ref

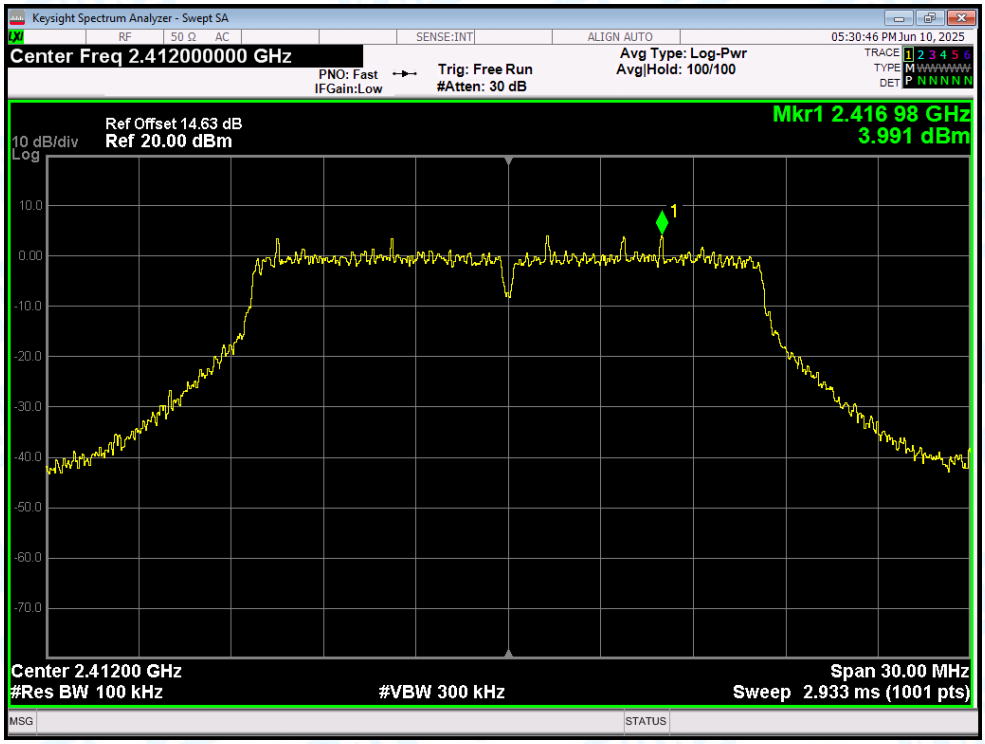


Band Edge NVNT g 2462MHz Ant1 Emission

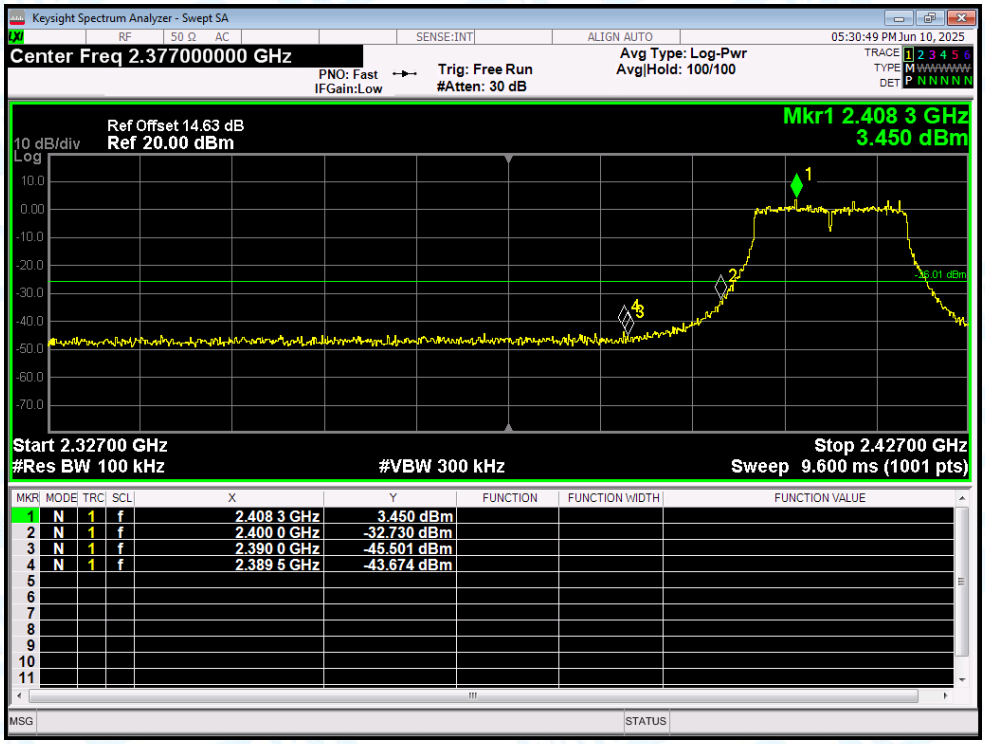


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.457 0 GHz	3.993 dBm			
2	N	1	f	2.483 5 GHz	-46.400 dBm			
3	N	1	f	2.500 0 GHz	-46.276 dBm			
4	N	1	f	2.484 2 GHz	-43.557 dBm			
5								
6								
7								
8								
9								
10								
11								

Band Edge NVNT g 2412MHz Ant2 Ref

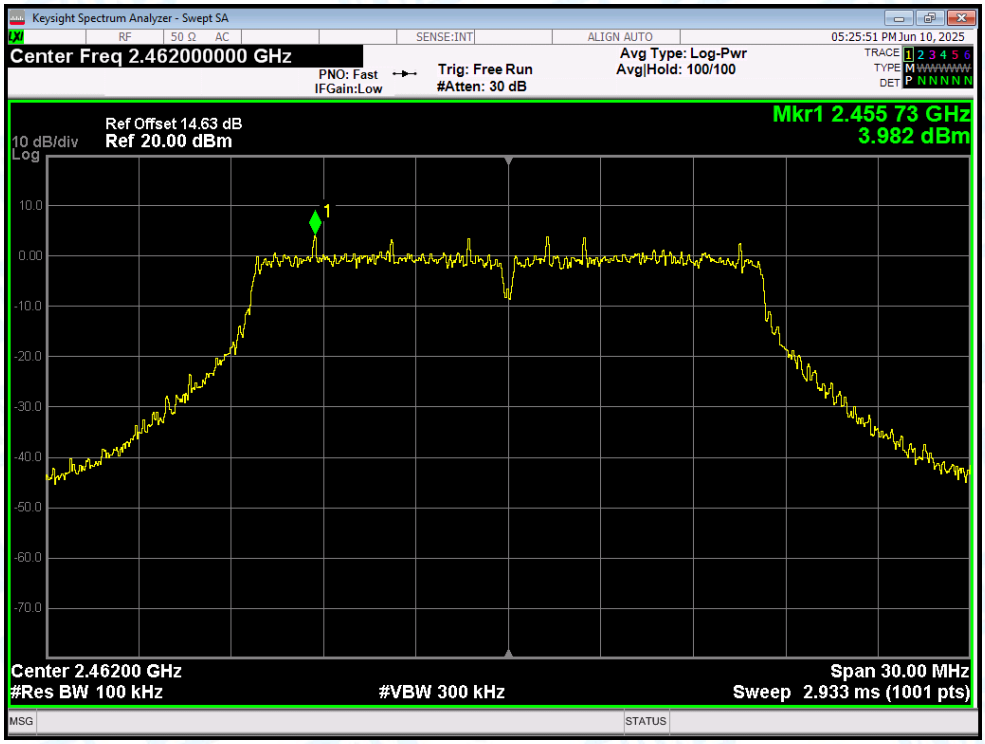


Band Edge NVNT g 2412MHz Ant2 Emission

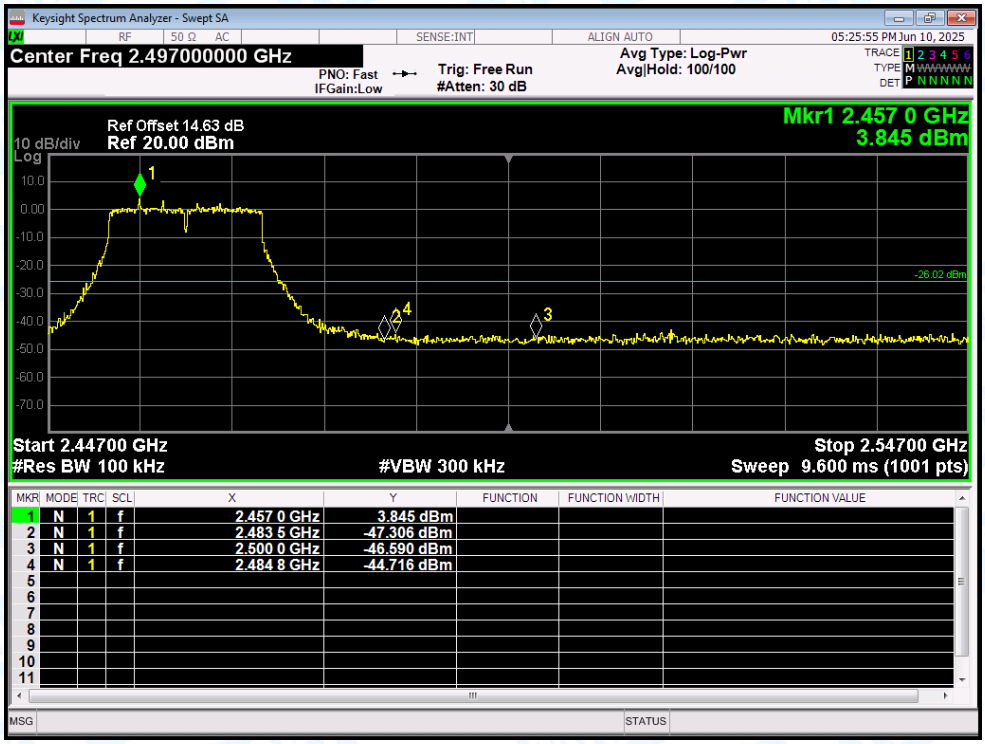


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.408 3 GHz	3.450 dBm			
2	N	1	f	2.400 0 GHz	-32.730 dBm			
3	N	1	f	2.390 0 GHz	-45.501 dBm			
4	N	1	f	2.389 5 GHz	-43.674 dBm			
5								
6								
7								
8								
9								
10								
11								

Band Edge NVNT g 2462MHz Ant2 Ref

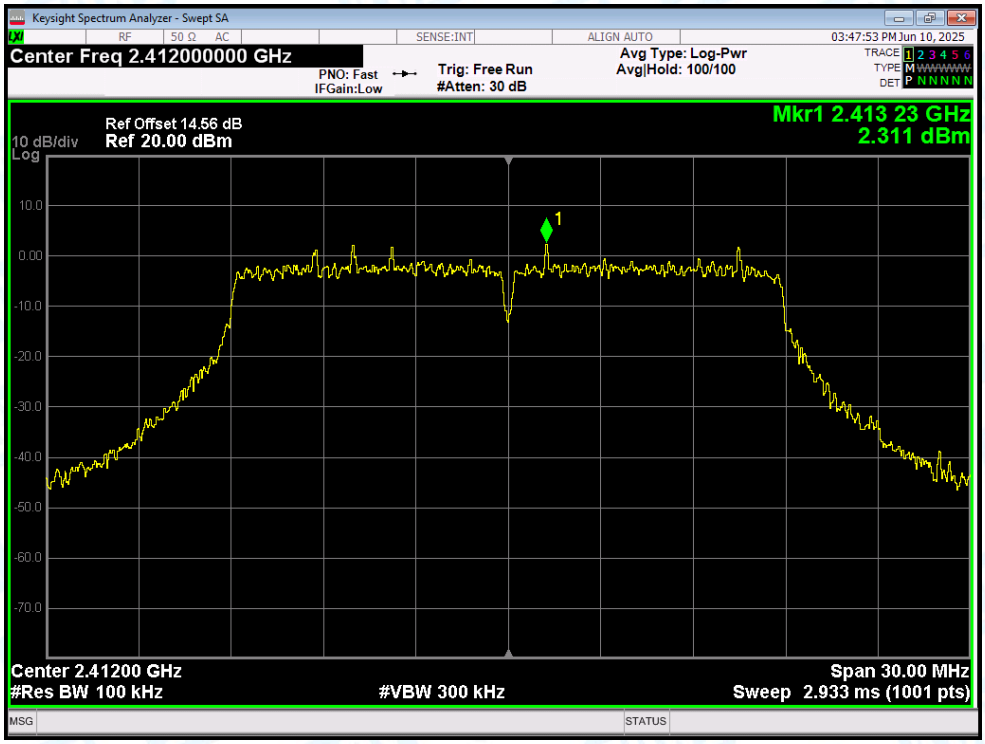


Band Edge NVNT g 2462MHz Ant2 Emission

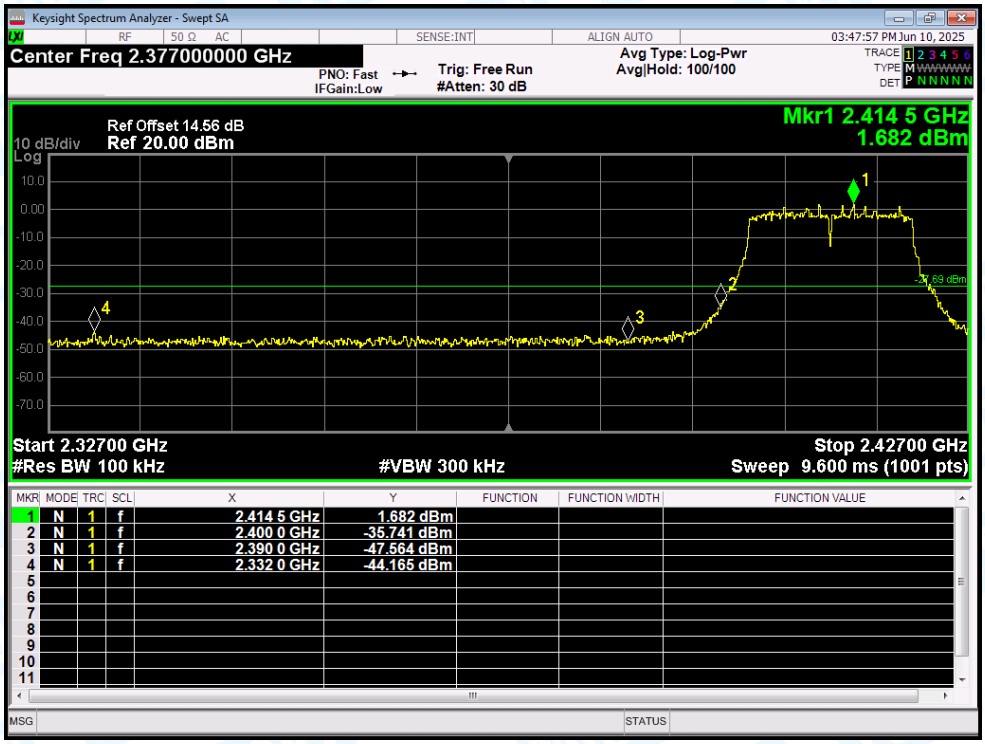


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.457 0 GHz	3.845 dBm			
2	N	1	f	2.483 5 GHz	-47.306 dBm			
3	N	1	f	2.500 0 GHz	-46.590 dBm			
4	N	1	f	2.484 8 GHz	-44.716 dBm			
5								
6								
7								
8								
9								
10								
11								

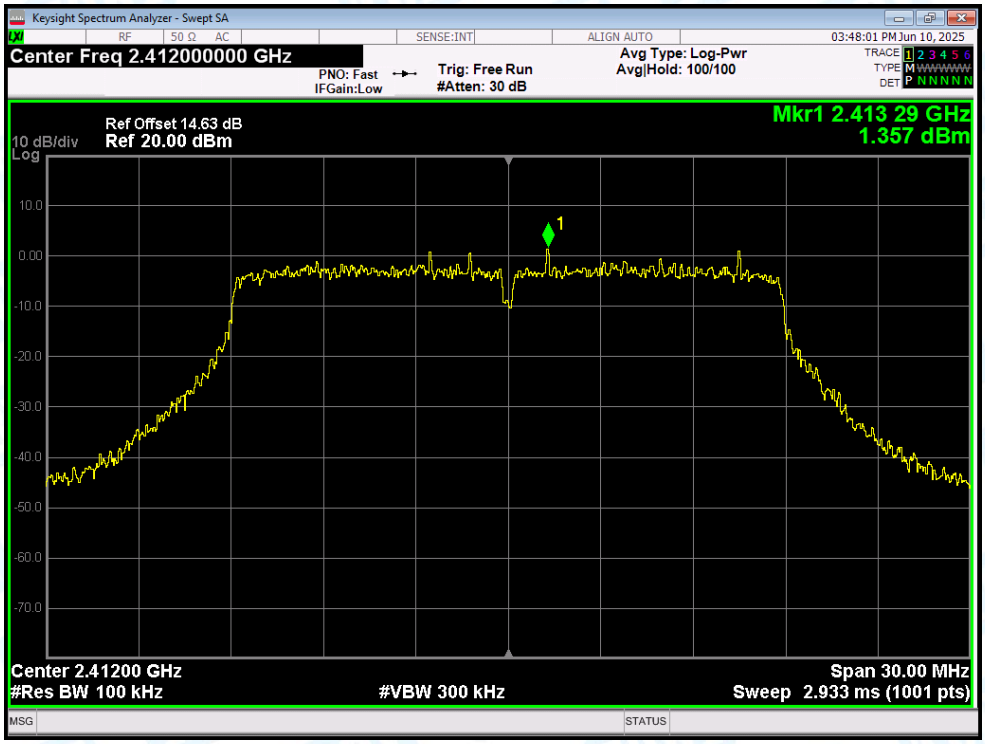
Band Edge NVNT n(HT20) 2412MHz Ant1 Ref



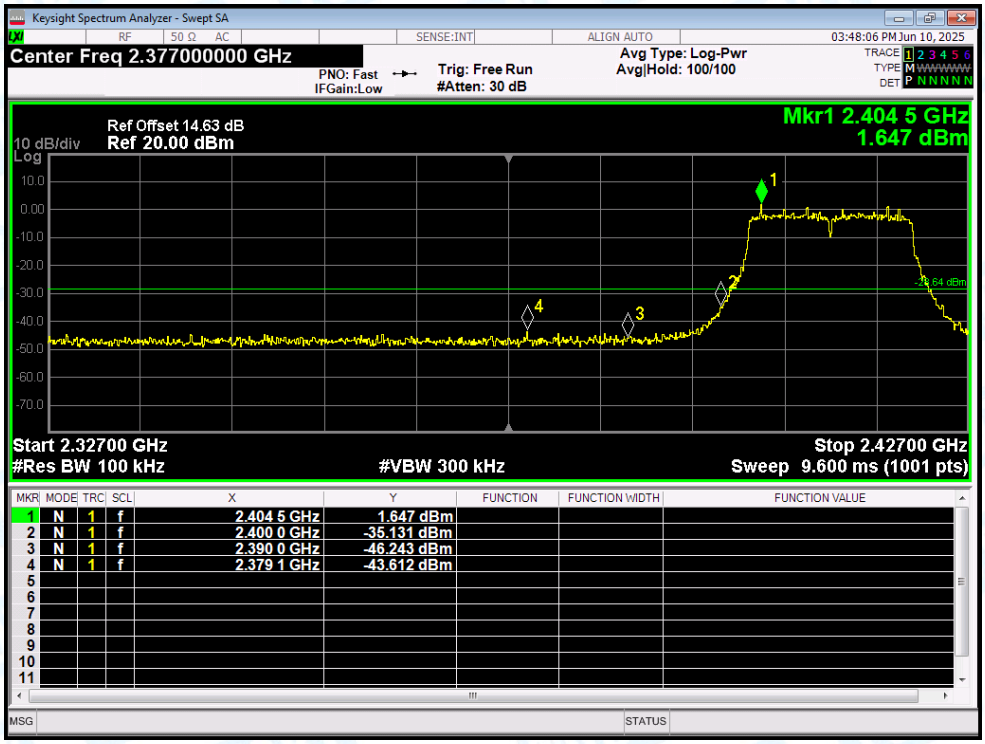
Band Edge NVNT n(HT20) 2412MHz Ant1 Emission



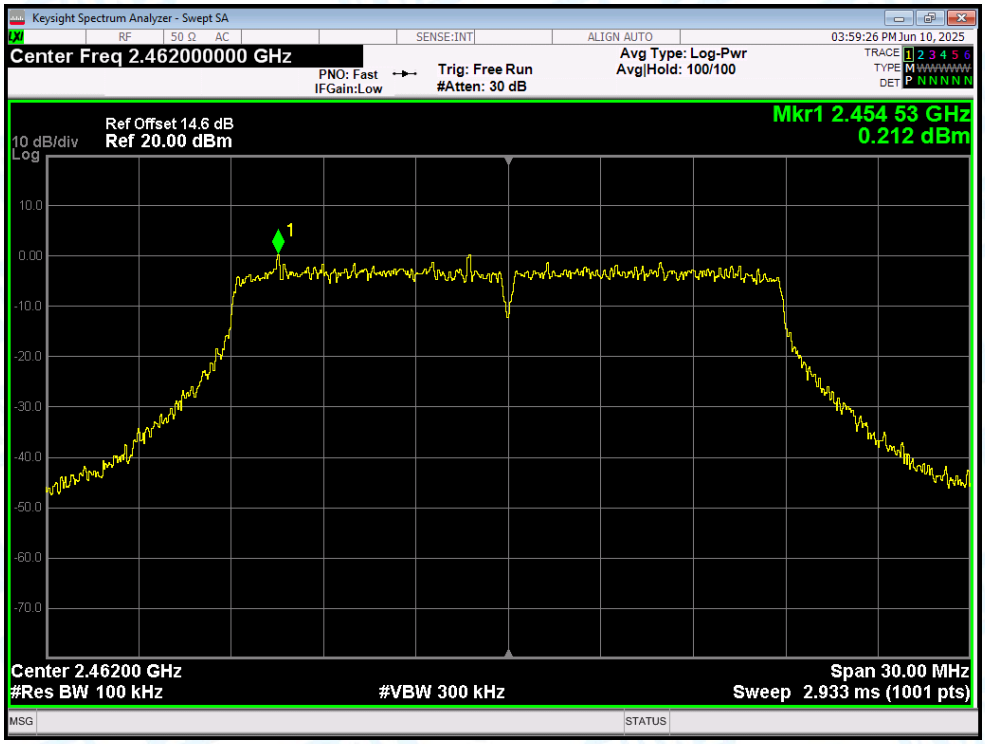
Band Edge NVNT n(HT20) 2412MHz Ant2 Ref



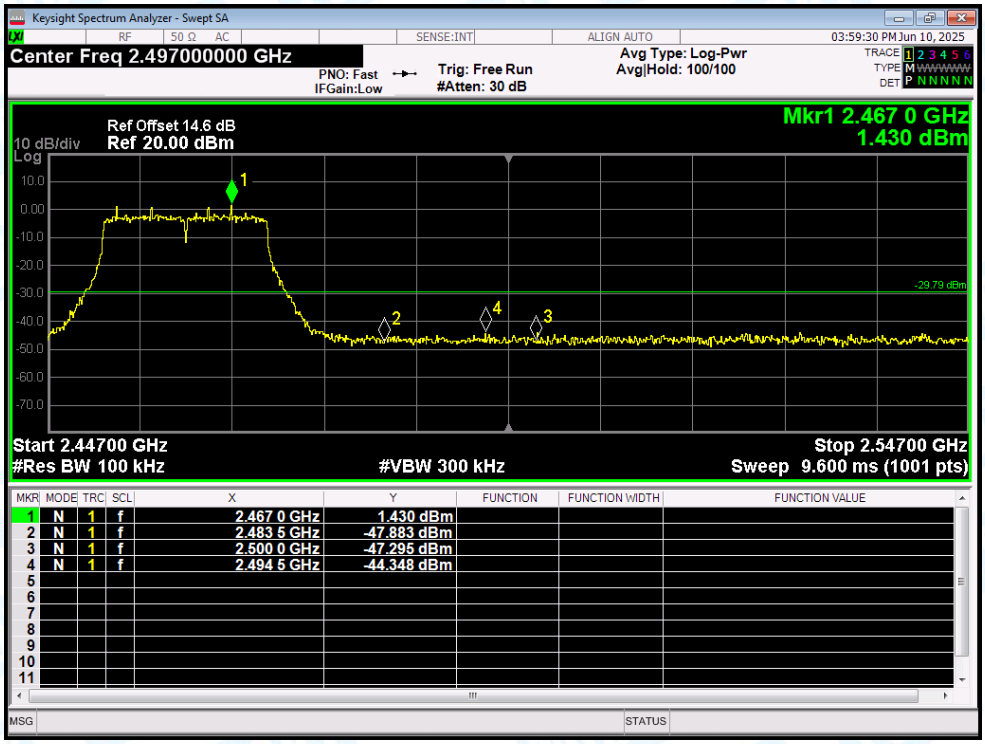
Band Edge NVNT n(HT20) 2412MHz Ant2 Emission



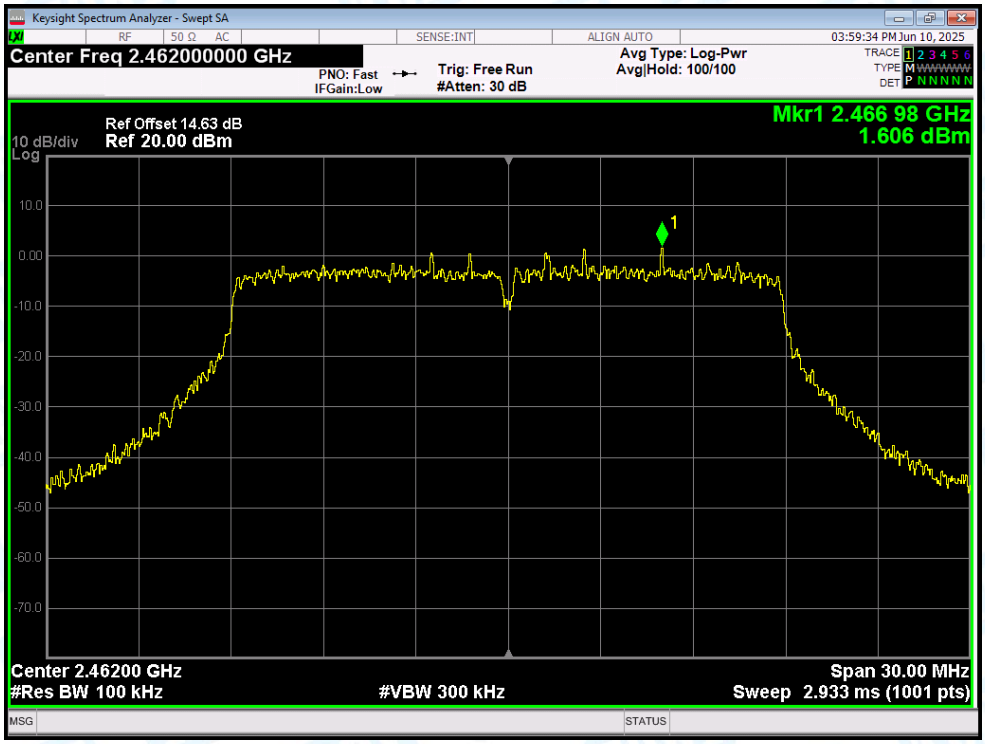
Band Edge NVNT n(HT20) 2462MHz Ant1 Ref



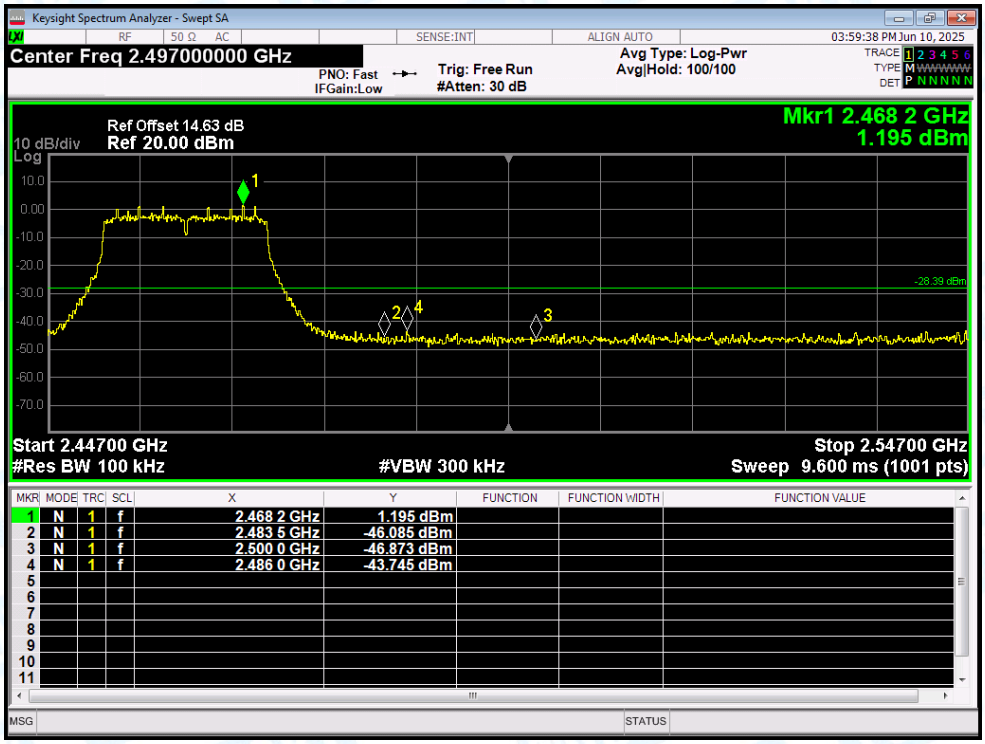
Band Edge NVNT n(HT20) 2462MHz Ant1 Emission



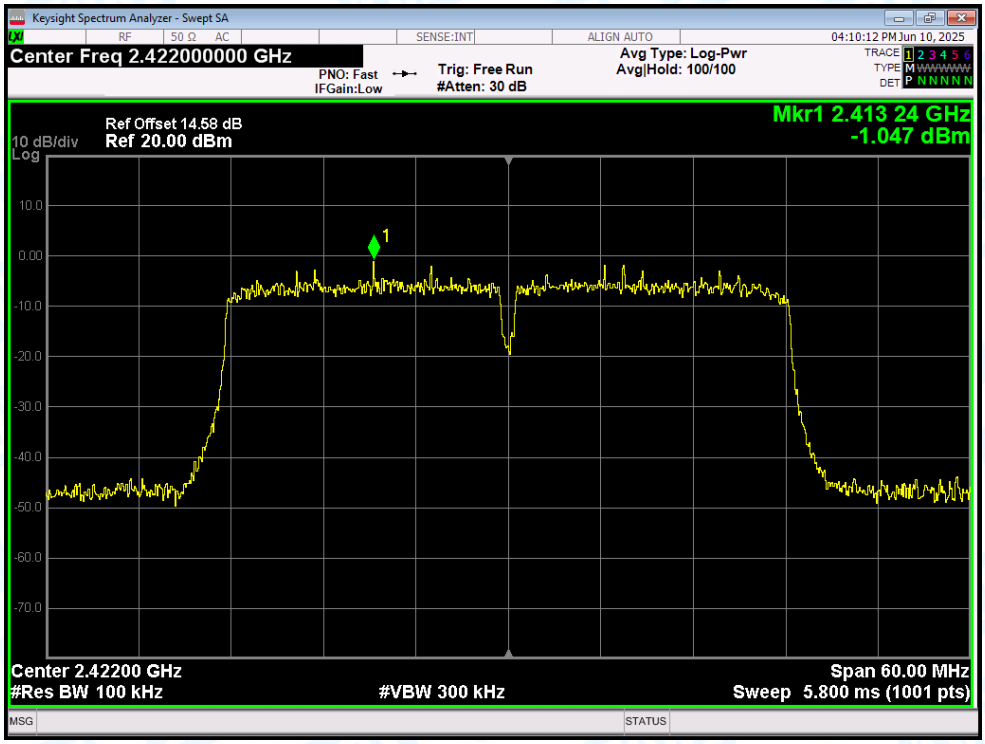
Band Edge NVNT n(HT20) 2462MHz Ant2 Ref



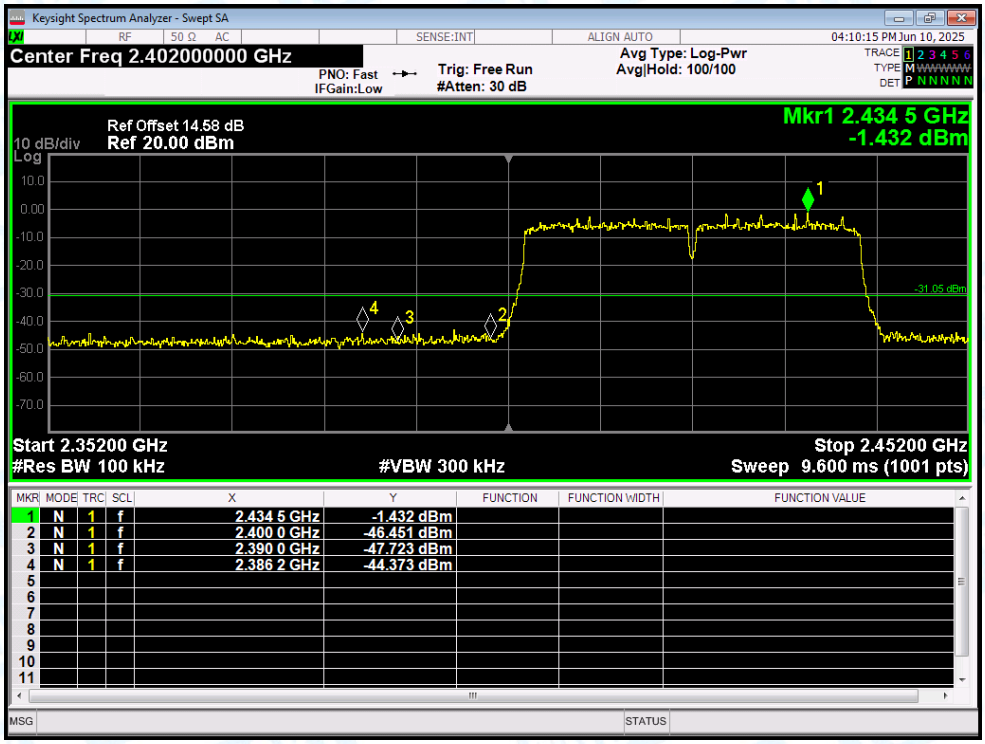
Band Edge NVNT n(HT20) 2462MHz Ant2 Emission



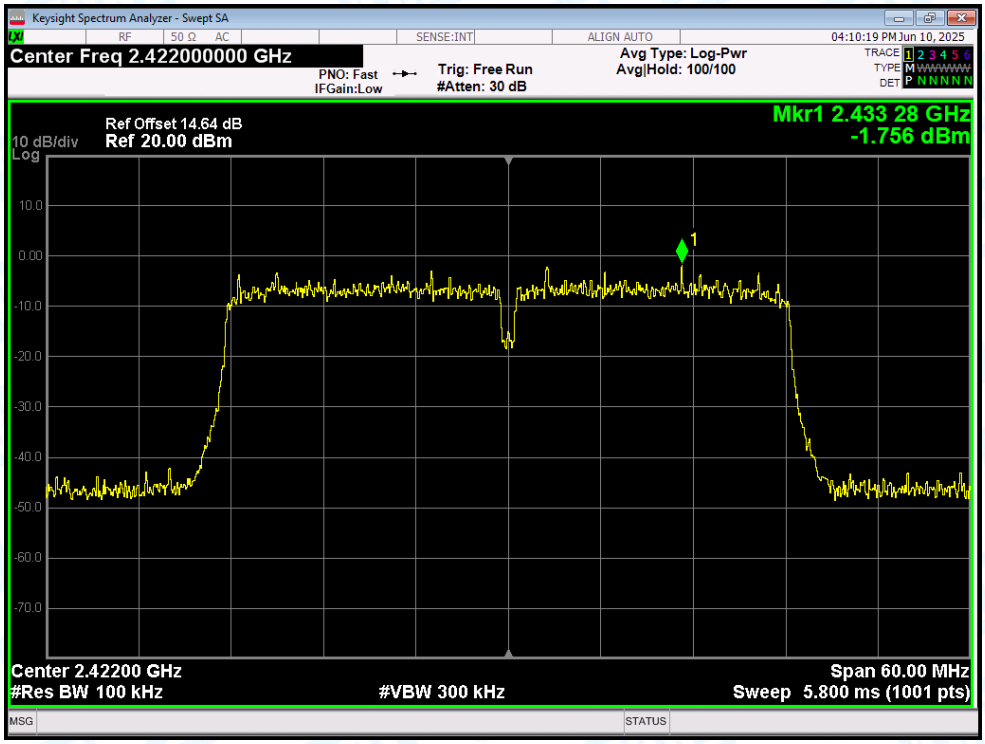
Band Edge NVNT n(HT40) 2422MHz Ant1 Ref



Band Edge NVNT n(HT40) 2422MHz Ant1 Emission



Band Edge NVNT n(HT40) 2422MHz Ant2 Ref



Band Edge NVNT n(HT40) 2422MHz Ant2 Emission