

Appendix A

Maximum Conducted Output Power

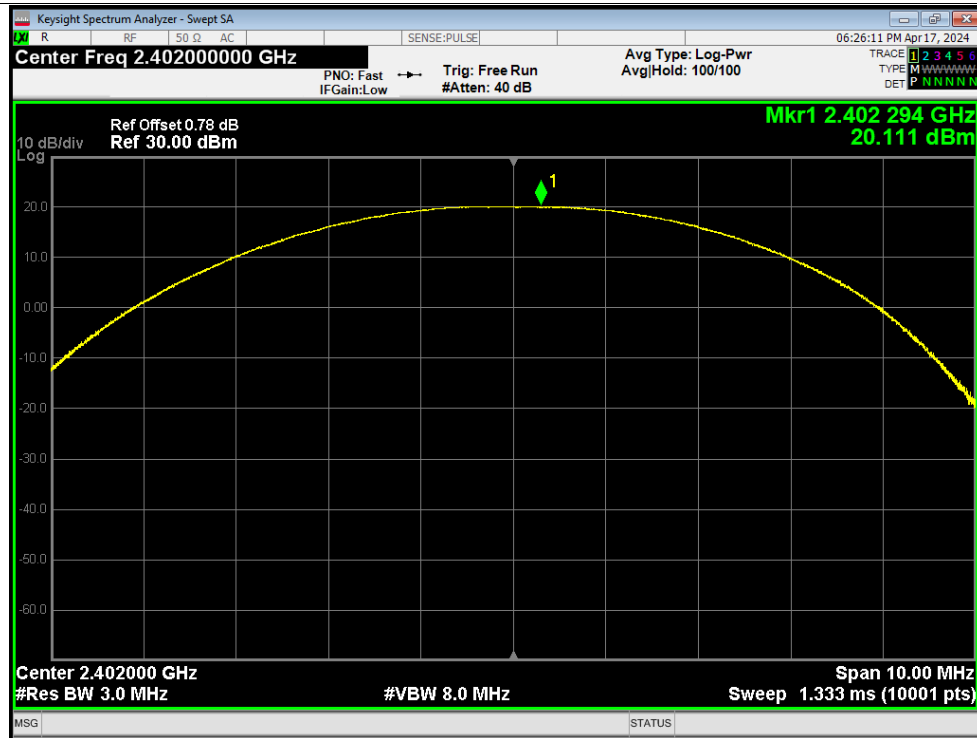
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	20.11	0	20.11	21	21.11	<=36.02	Pass
NVNT	BLE 1M	2440	Ant1	19.75	0	19.75	21	20.75	<=36.02	Pass
NVNT	BLE 1M	2480	Ant1	13.13	0	13.13	21	14.13	<=36.02	Pass
NVNT	BLE 2M	2404	Ant1	19.69	0	19.69	21	20.69	<=36.02	Pass
NVNT	BLE 2M	2440	Ant1	19.68	0	19.68	21	20.68	<=36.02	Pass
NVNT	BLE 2M	2478	Ant1	14.56	0	14.56	21	15.56	<=36.02	Pass

Note1: Antenna Gain: 1 dBi;

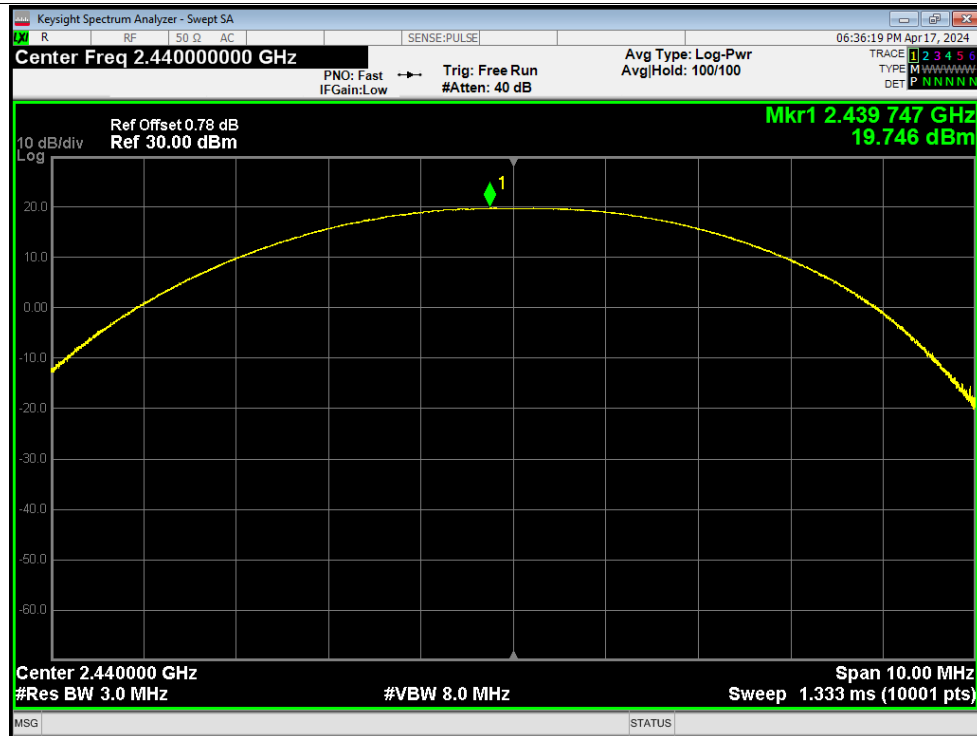
Note2: E.I.R.P = Measured Power + Antenna Gain

Test Graphs

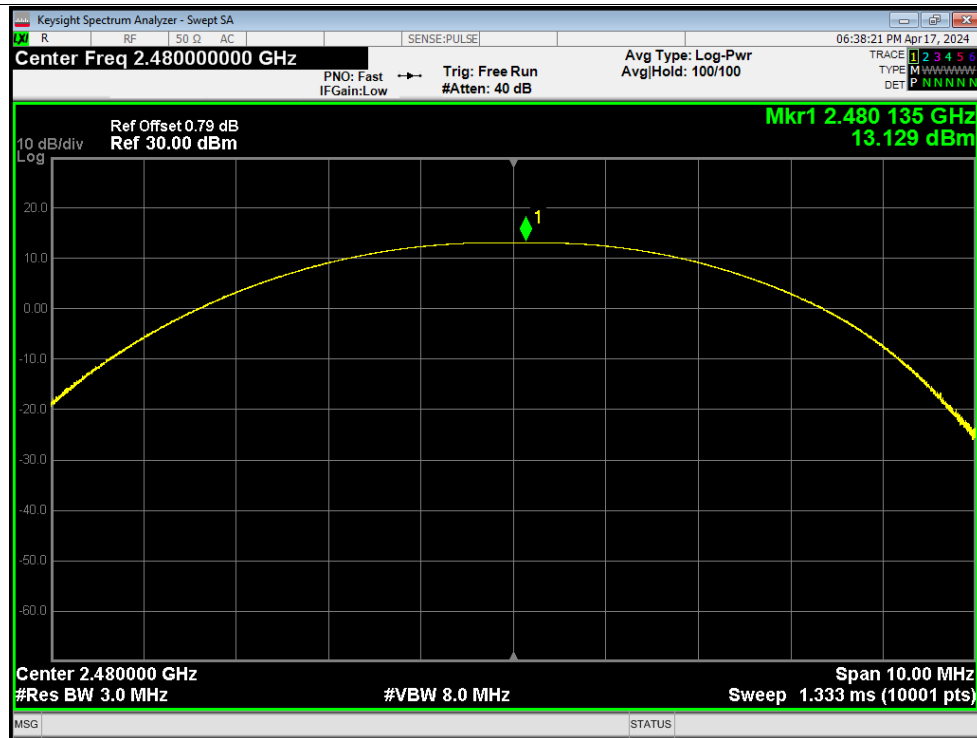
Power NVNT BLE 1M 2402MHz Ant1



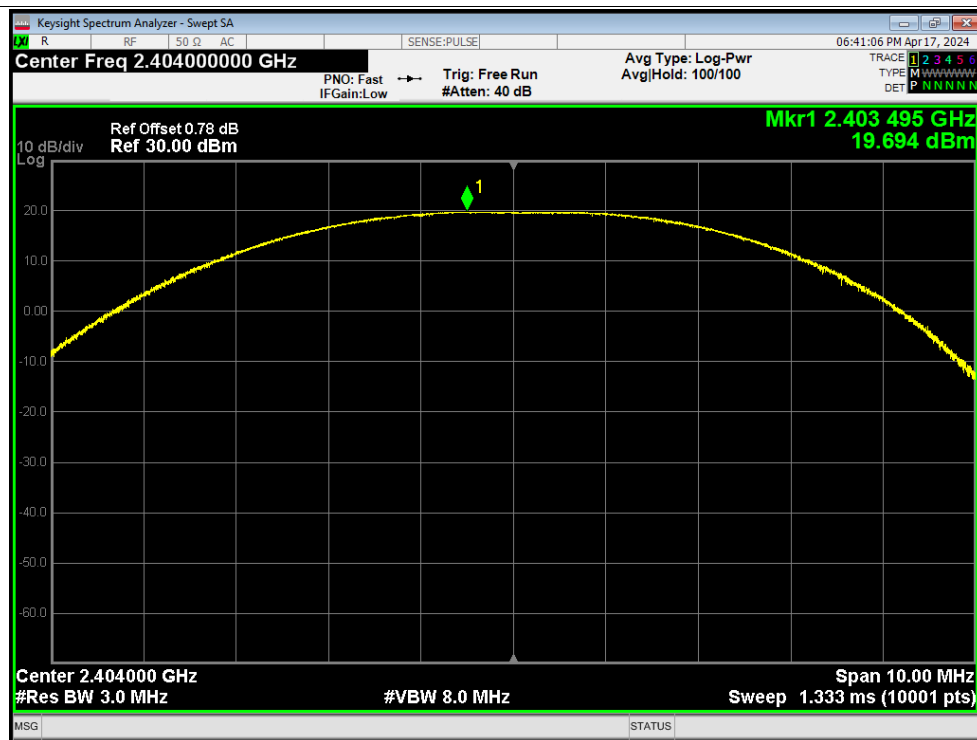
Power NVNT BLE 1M 2440MHz Ant1



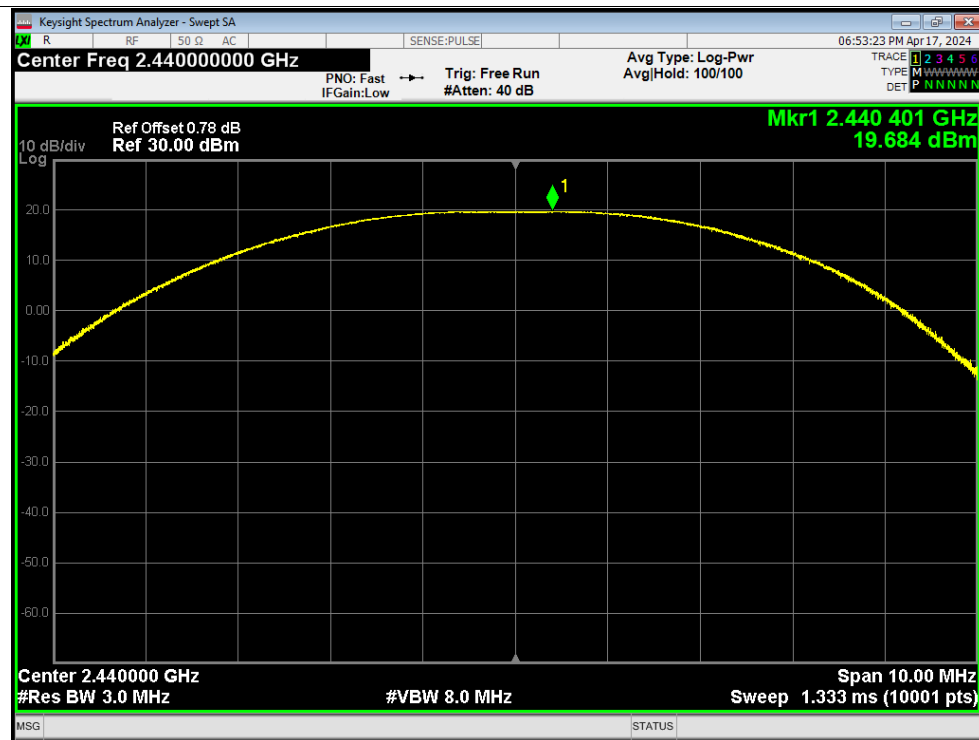
Power NVNT BLE 1M 2480MHz Ant1



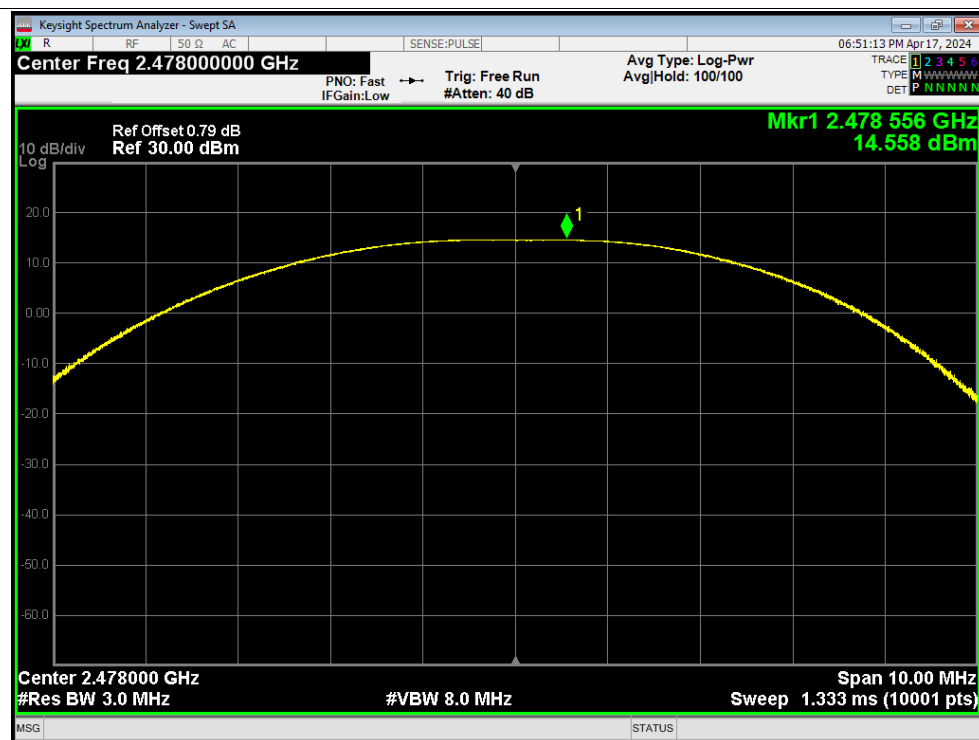
Power NVNT BLE 2M 2404MHz Ant1



Power NVNT BLE 2M 2440MHz Ant1



Power NVNT BLE 2M 2478MHz Ant1

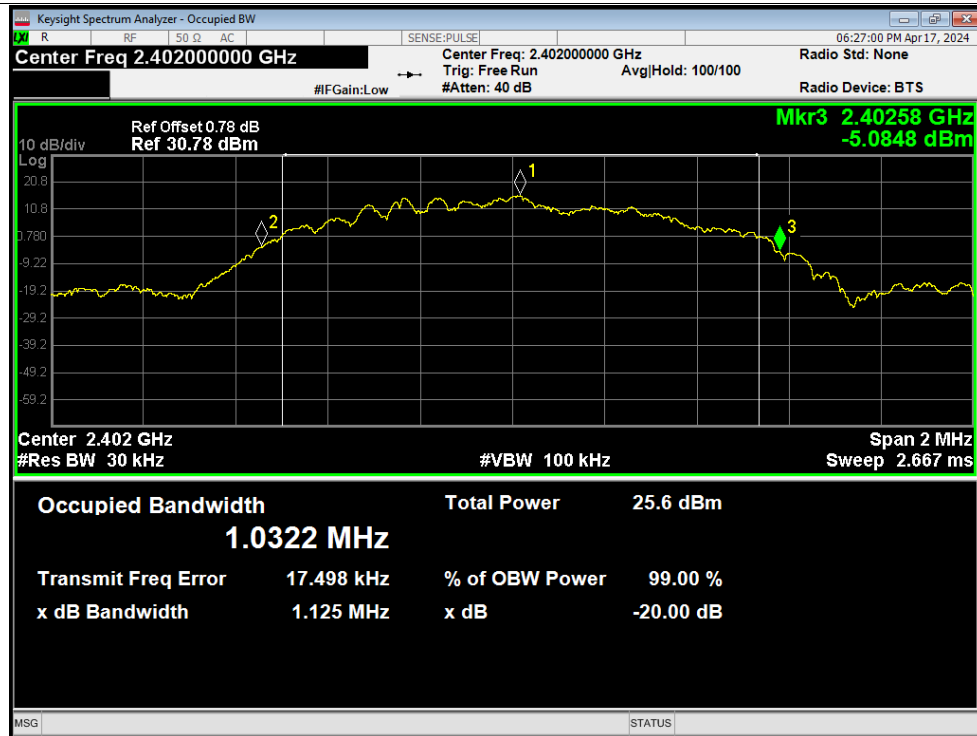


-20dB Bandwidth

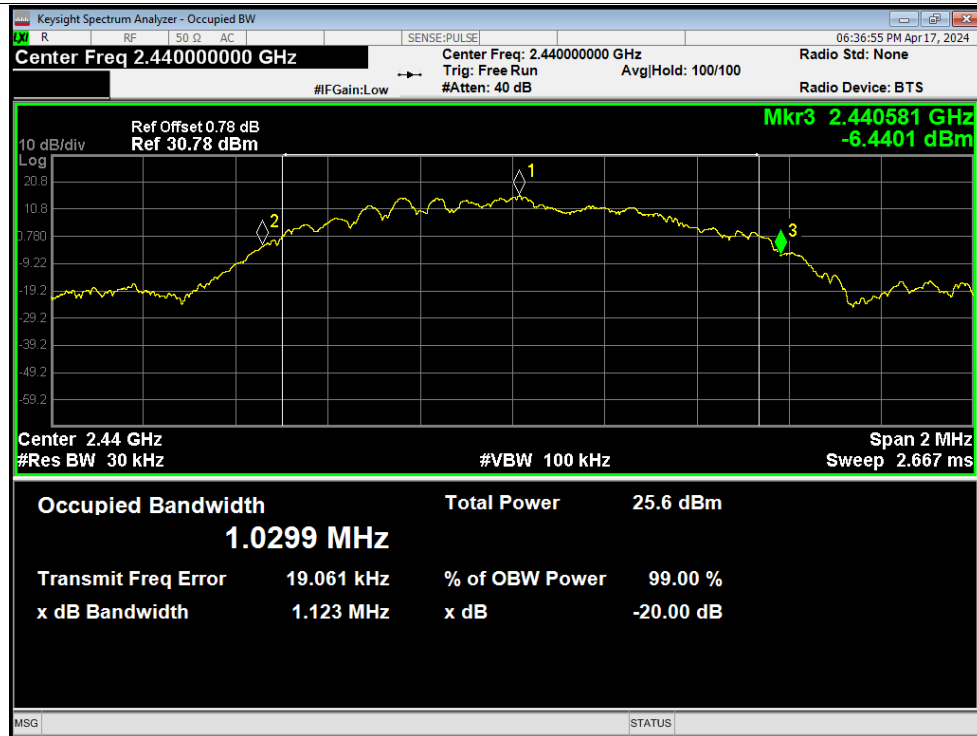
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	1.12	N/A	N/A
NVNT	BLE 1M	2440	Ant1	1.12	N/A	N/A
NVNT	BLE 1M	2480	Ant1	1.12	N/A	N/A
NVNT	BLE 2M	2404	Ant1	2.17	N/A	N/A
NVNT	BLE 2M	2440	Ant1	2.17	N/A	N/A
NVNT	BLE 2M	2478	Ant1	2.17	N/A	N/A

Test Graphs

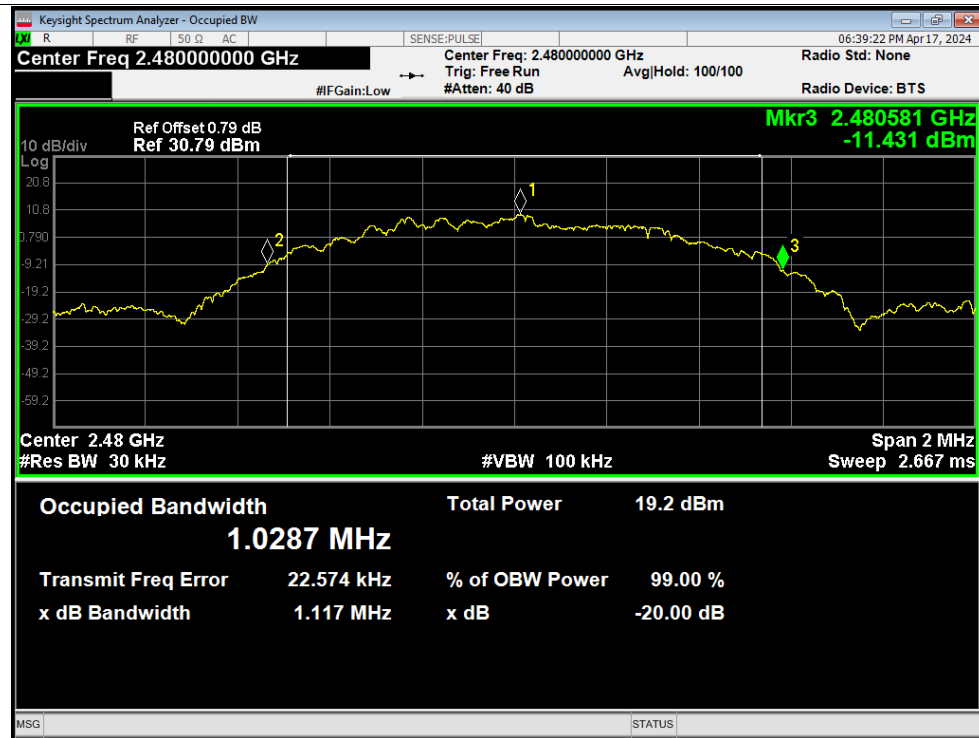
-20dB Bandwidth NVNT BLE 1M 2402MHz Ant1



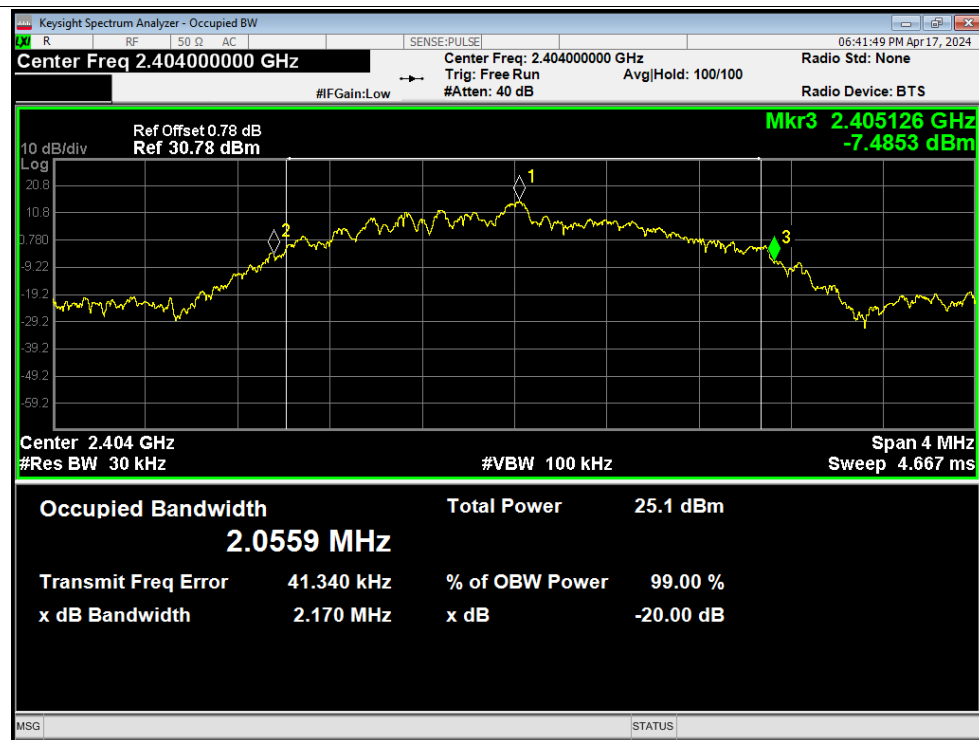
-20dB Bandwidth NVNT BLE 1M 2440MHz Ant1



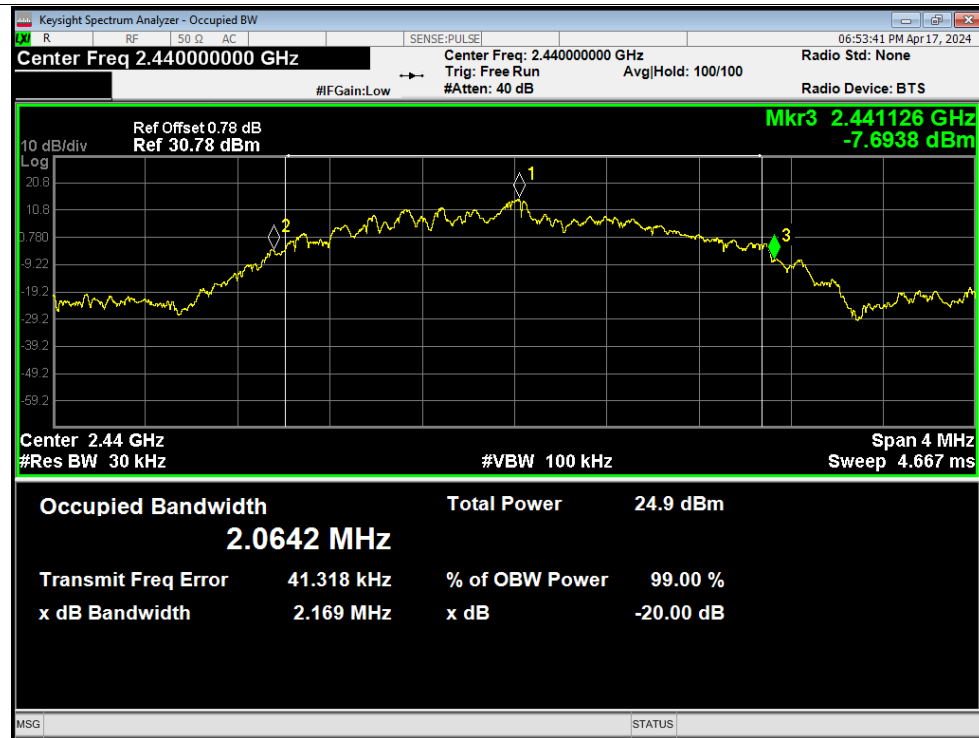
-20dB Bandwidth NVNT BLE 1M 2480MHz Ant1



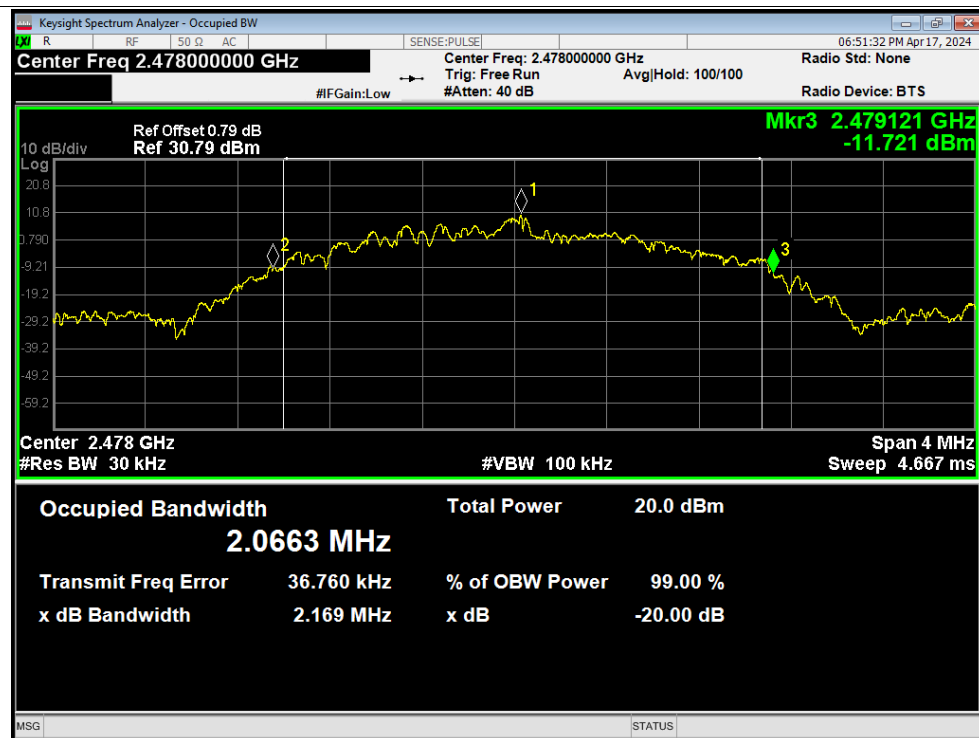
-20dB Bandwidth NVNT BLE 2M 2404MHz Ant1



-20dB Bandwidth NVNT BLE 2M 2440MHz Ant1



-20dB Bandwidth NVNT BLE 2M 2478MHz Ant1

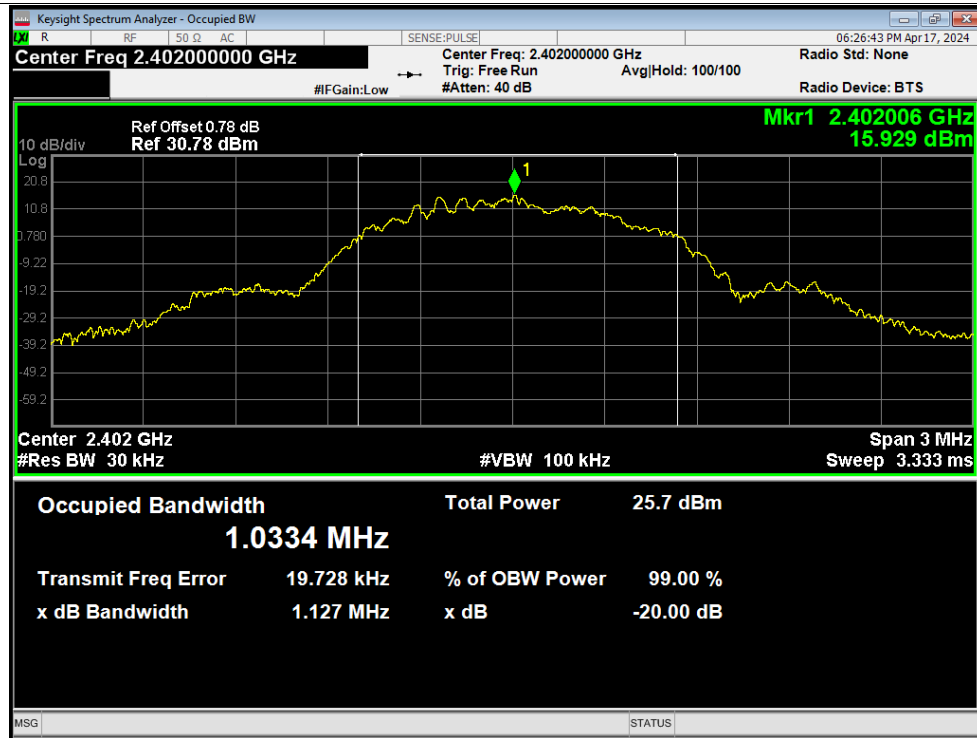


Occupied Channel Bandwidth

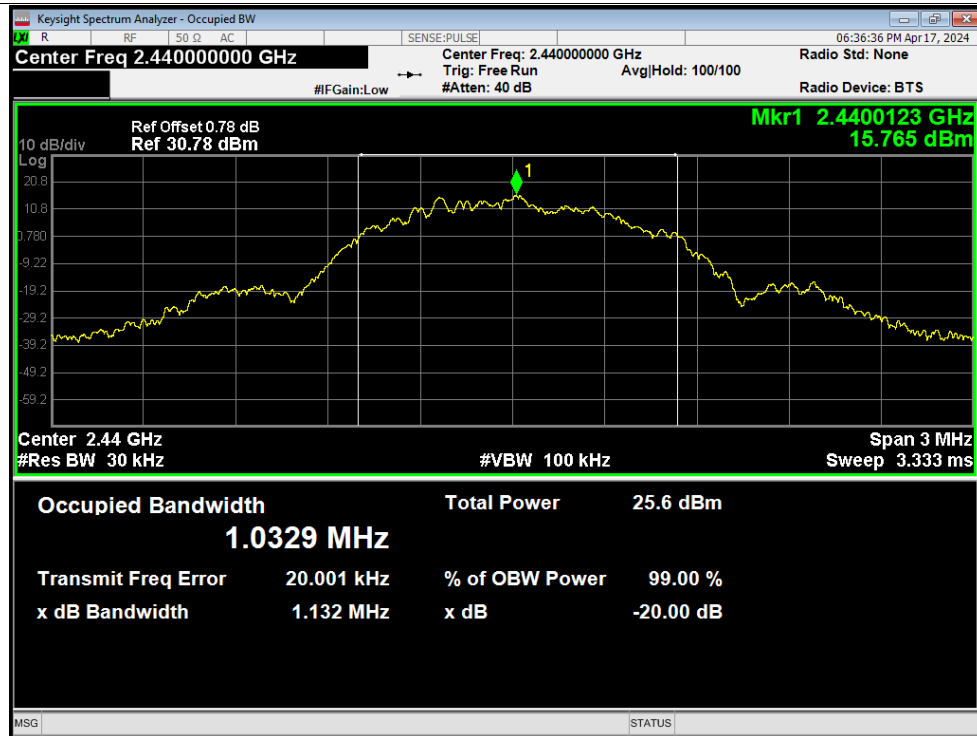
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.033
NVNT	BLE 1M	2440	Ant1	1.033
NVNT	BLE 1M	2480	Ant1	1.027
NVNT	BLE 2M	2404	Ant1	2.047
NVNT	BLE 2M	2440	Ant1	2.049
NVNT	BLE 2M	2478	Ant1	2.06

Test Graphs

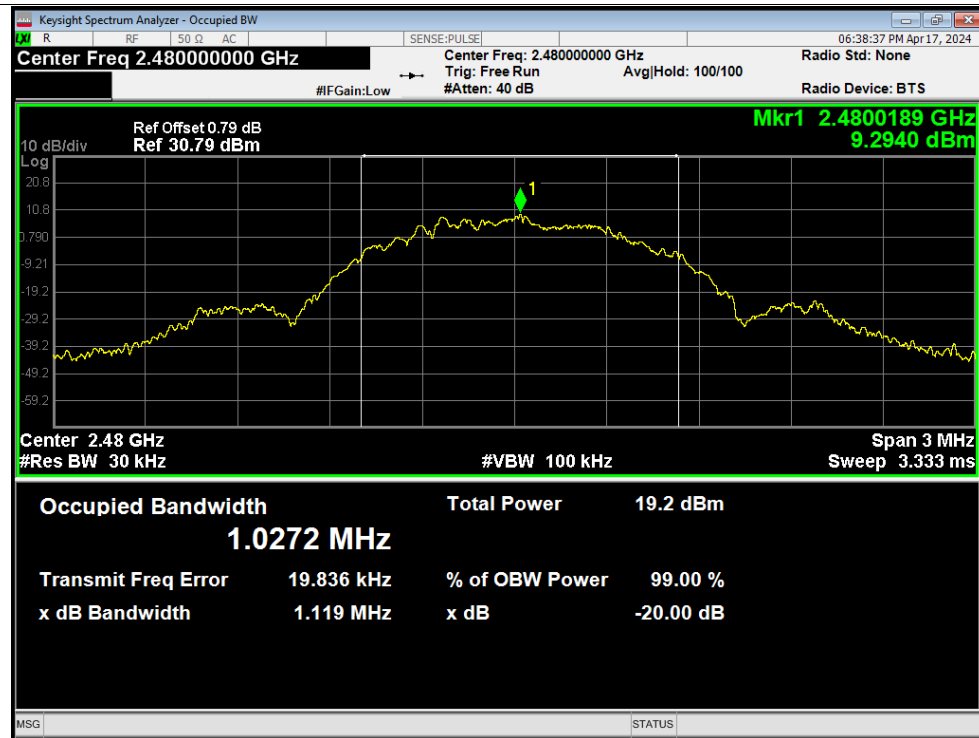
OBW NVNT BLE 1M 2402MHz Ant1



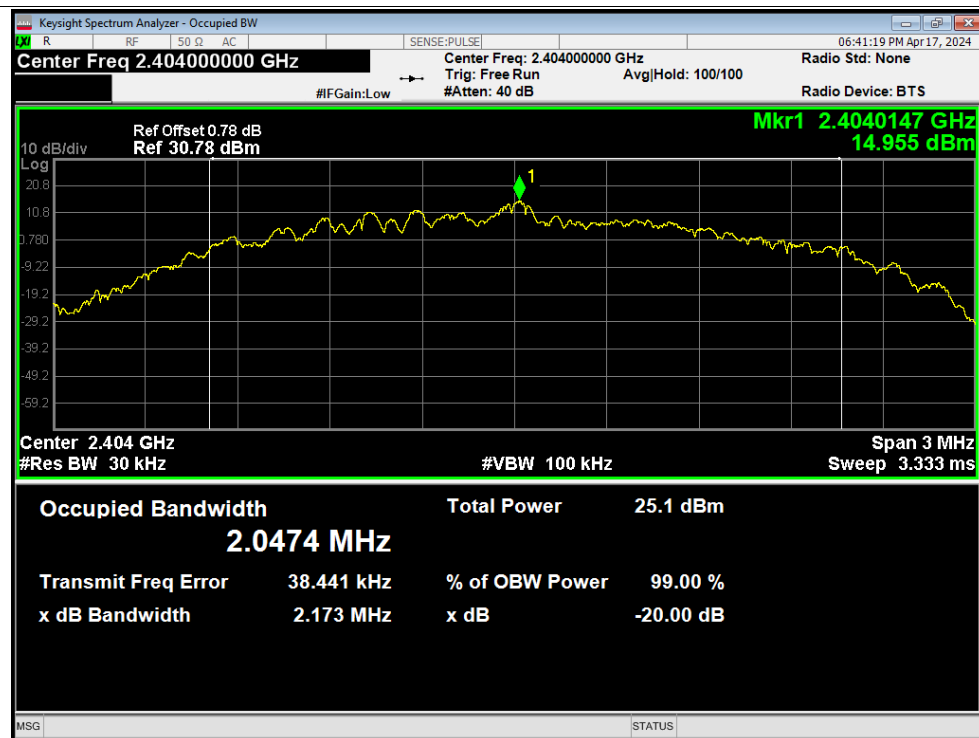
OBW NVNT BLE 1M 2440MHz Ant1



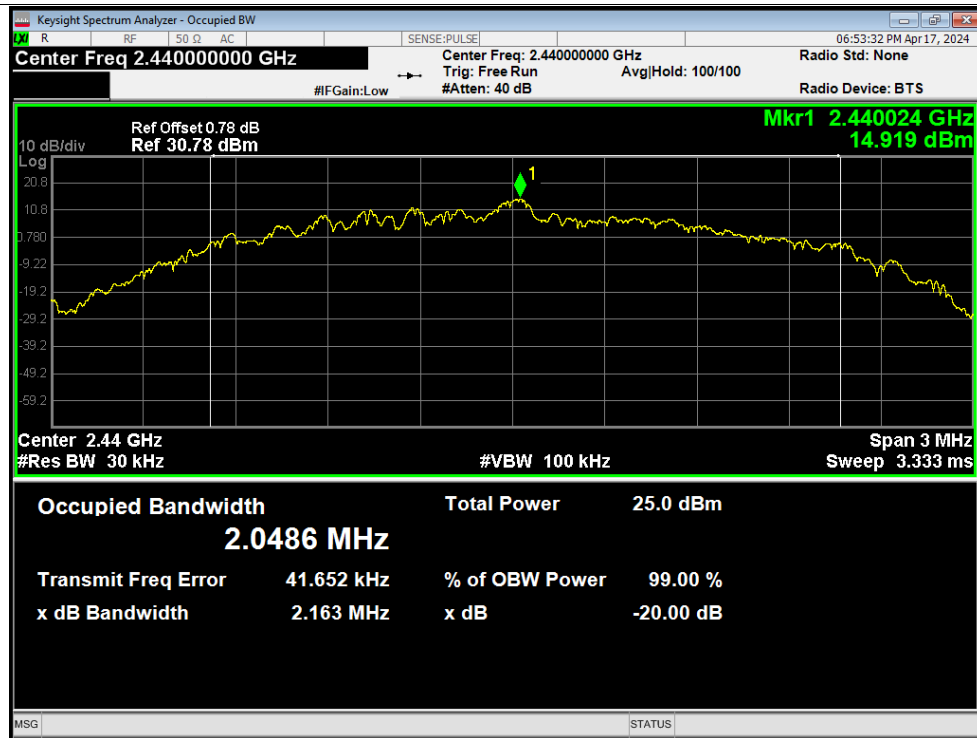
OBW NVNT BLE 1M 2480MHz Ant1



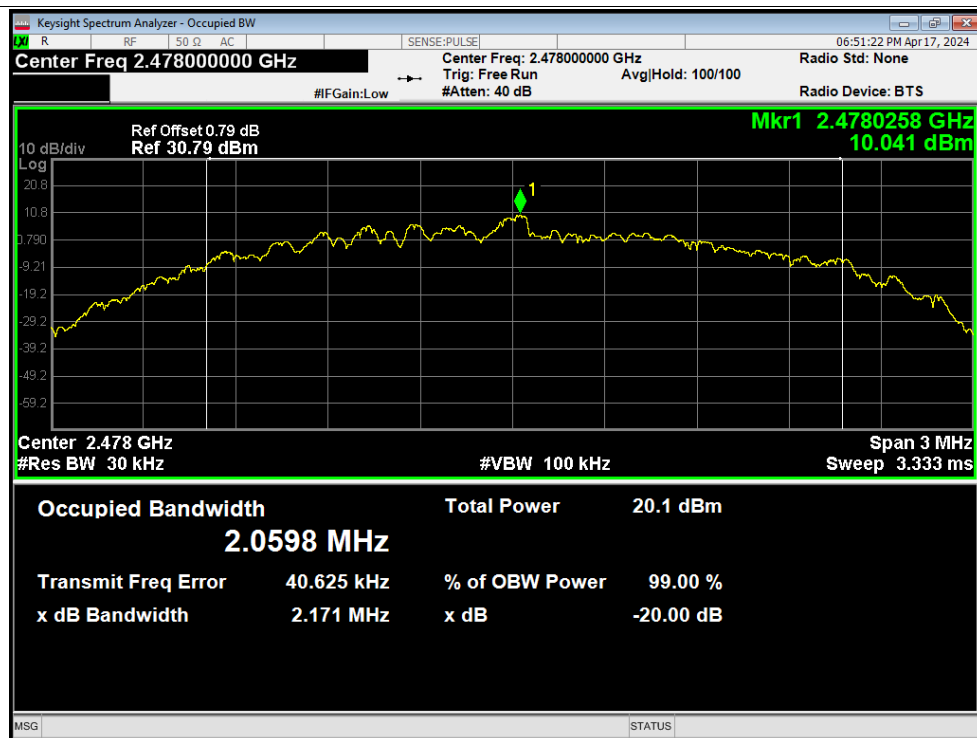
OBW NVNT BLE 2M 2404MHz Ant1



OBW NVNT BLE 2M 2440MHz Ant1



OBW NVNT BLE 2M 2478MHz Ant1

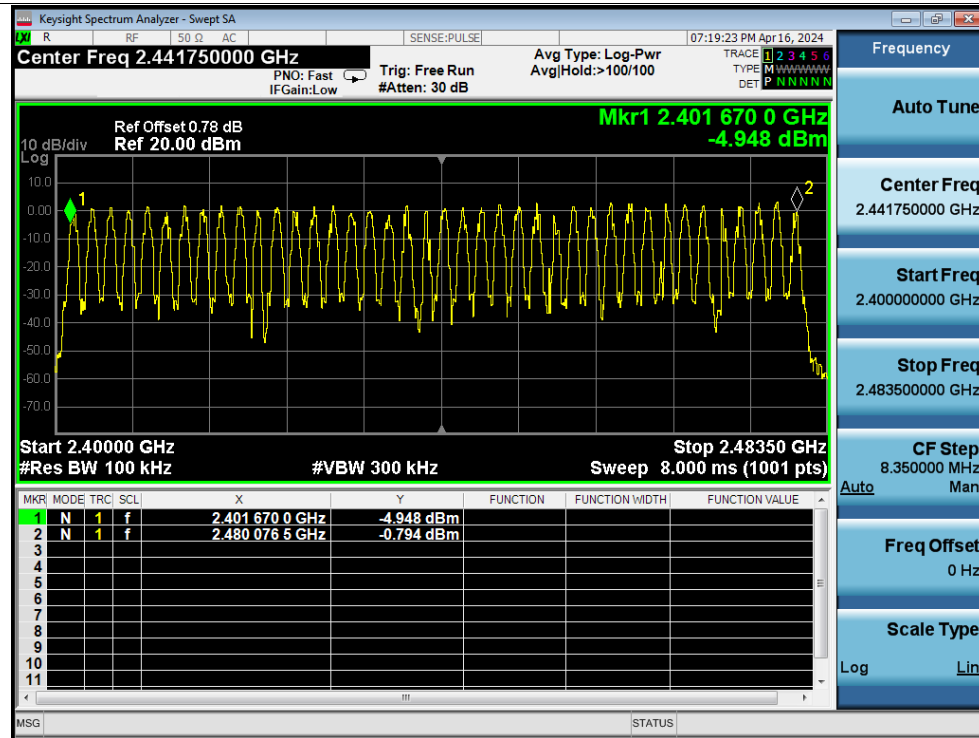


Number of Hopping Channel

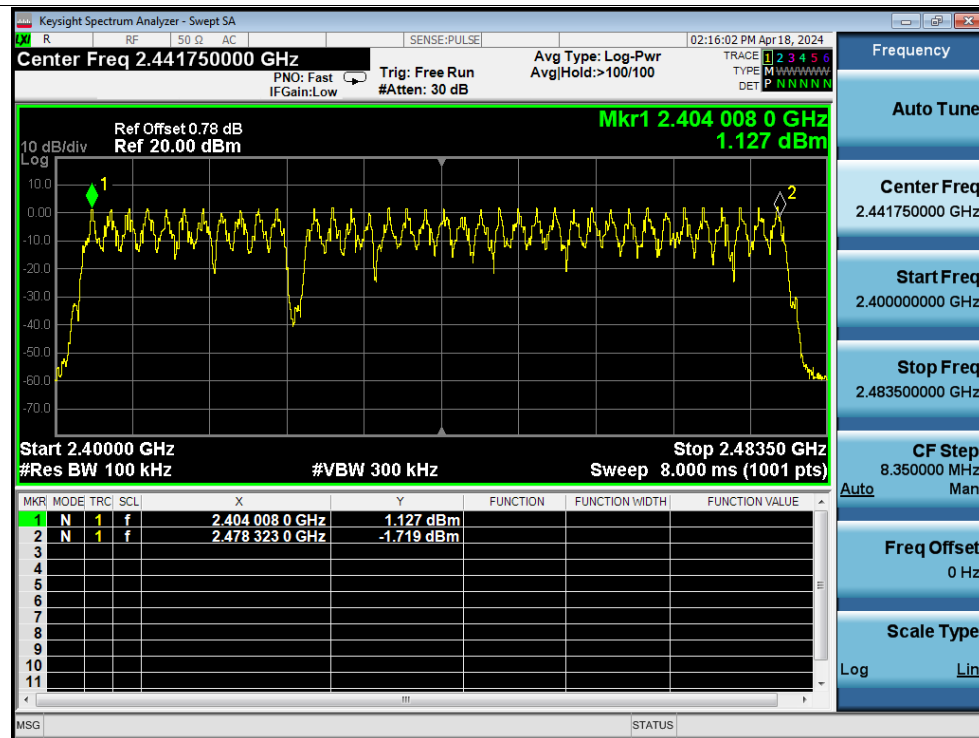
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	BLE 1M	Ant1	40	15	Pass
NVNT	BLE 2M	Ant1	37	15	Pass

Test Graphs

Hopping No. NVNT BLE 1M 2402MHz Ant1



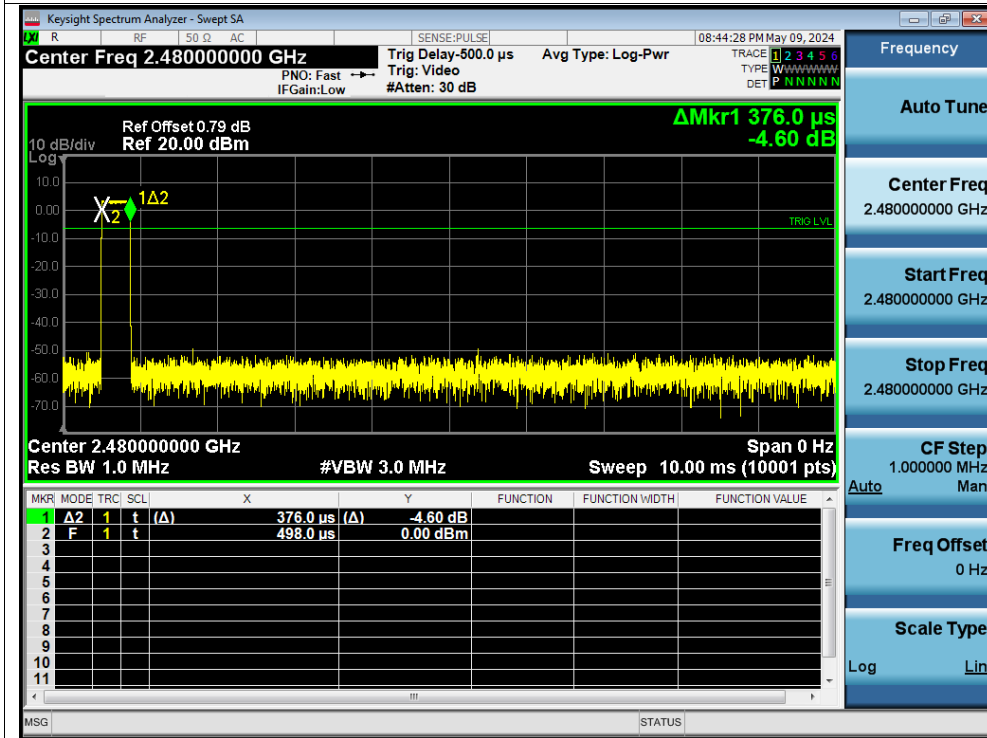
Hopping No. NVNT BLE 2M 2404MHz Ant1



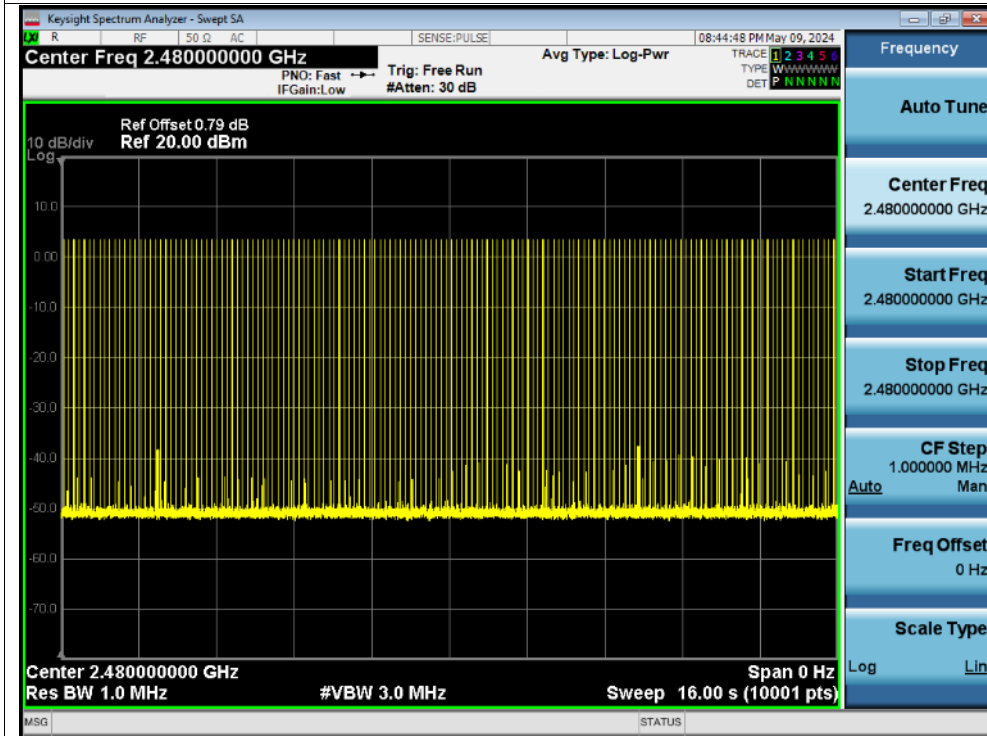
Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	BLE 1M	Hopping	Ant1	0.376	56.776	151	16000	400	Pass
NVNT	BLE 2M	Hopping	Ant1	0.116	2.204	19	14800	400	Pass

Dwell NVNT BLE 1M Hopping Ant1 One Burst



Dwell NVNT BLE 1M Hopping Ant1 Accumulated



Dwell NVNT BLE 2M Hopping Ant1 One Burst

Keysight Spectrum Analyzer - Swept SA

R RF 50 Ω AC SENSE:PULSE 01:54:54 PM May 20, 2024

Center Freq 2.404000000 GHz Trig Delay: 500.0 μs Avg Type: Log-Pwr
 PNO: Fast → Trig: Video TrIG LVL
 IF Gain: Low #Atten: 30 dB

Ref Offset: 0.78 dB
 Ref: 20.00 dBm

ΔMkr1 116.0 μs -1.29 dBm

10 dB/div Log

Center 2.404000000 GHz Span 0 Hz
 Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.00 ms (10001 pts)

Mkr	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	1	t	(Δ)	116.0 μs (Δ)	-1.29 dB		
2	F	1	t		498.0 μs	-4.27 dBm		
3								
4								
5								
6								
7								
8								
9								
10								
11								

MSG STATUS

Frequency

Auto Tune

Center Freq
2.404000000 GHz

Start Freq
2.404000000 GHz

Stop Freq
2.404000000 GHz

CF Step
1.000000 MHz Man

Auto

Freq Offset
0 Hz

Scale Type
Log Lin

Keysight Spectrum Analyzer - Swept SA

Center Freq 2.404000000 GHz

Ref Offset 0.78 dB
Ref 20.00 dBm

10 dB/div
Log

Center 2.404000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz

Span 0 Hz
Sweep 14.80 s (10001 pts)

Trig: Free Run
#Atten: 30 dB

Avg Type: Log-Pwr

Frequency

Auto Tune

Center Freq
2.404000000 GHz

Start Freq
2.404000000 GHz

Stop Freq
2.404000000 GHz

CF Step
1.000000 MHz
Auto Man

Freq Offset
0 Hz

Scale Type
Log Lin

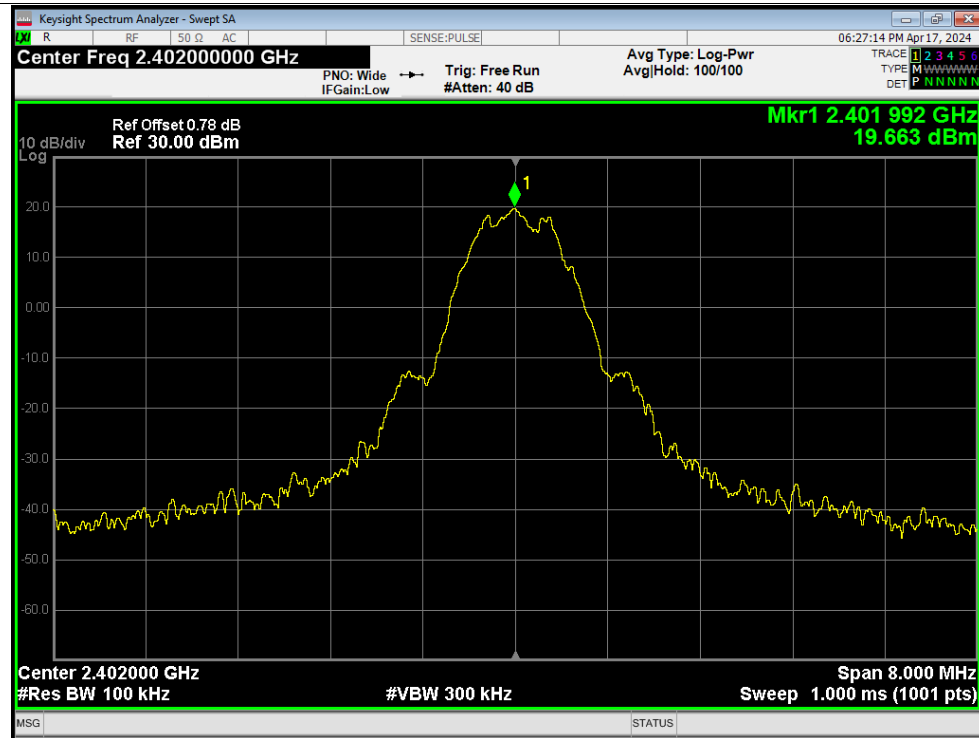
MSG STATUS

Band Edge

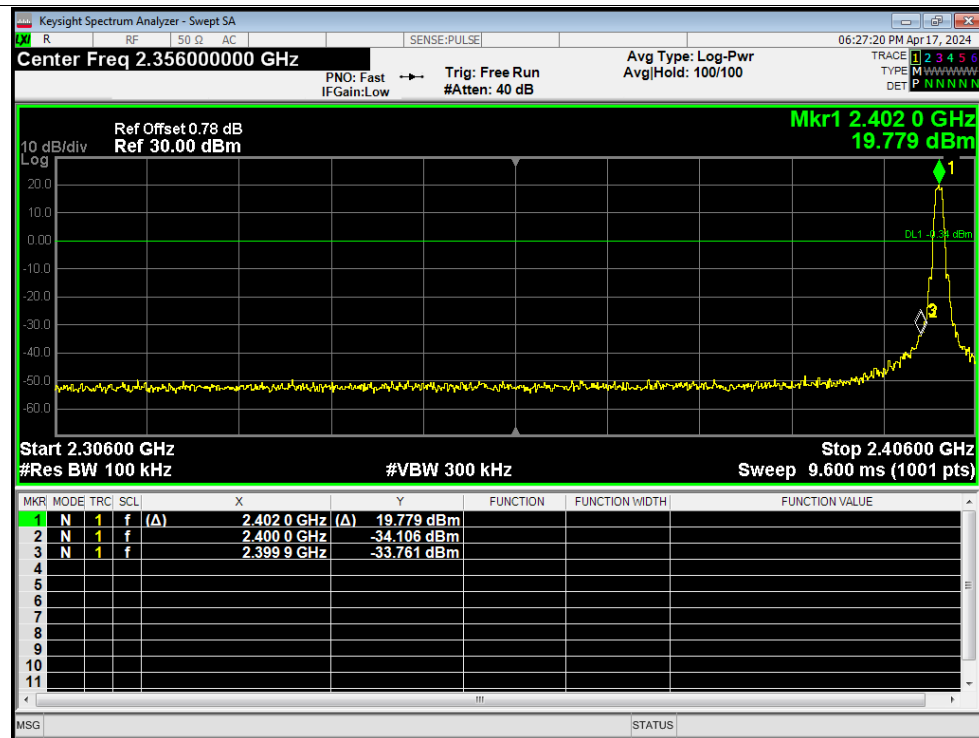
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	No-Hopping	-53.42	-20	Pass
NVNT	BLE 1M	2480	Ant1	No-Hopping	-58.25	-20	Pass
NVNT	BLE 2M	2404	Ant1	No-Hopping	-57.59	-20	Pass
NVNT	BLE 2M	2478	Ant1	No-Hopping	-59.43	-20	Pass

Test Graphs

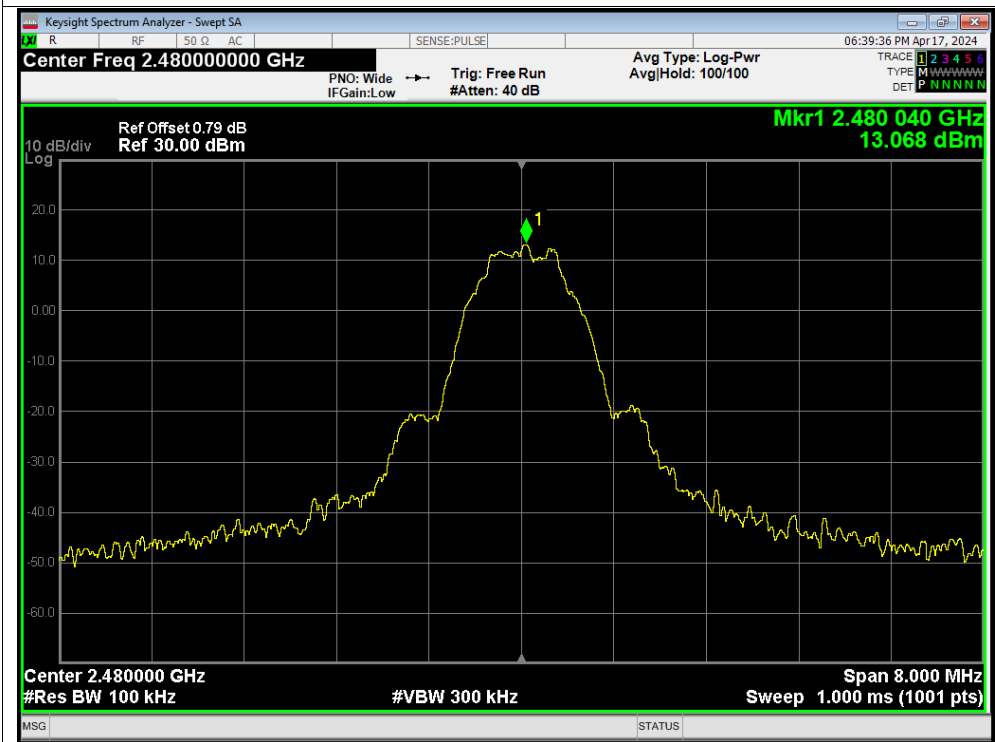
Band Edge NVNT BLE 1M 2402MHz Ant1 No-Hopping Ref



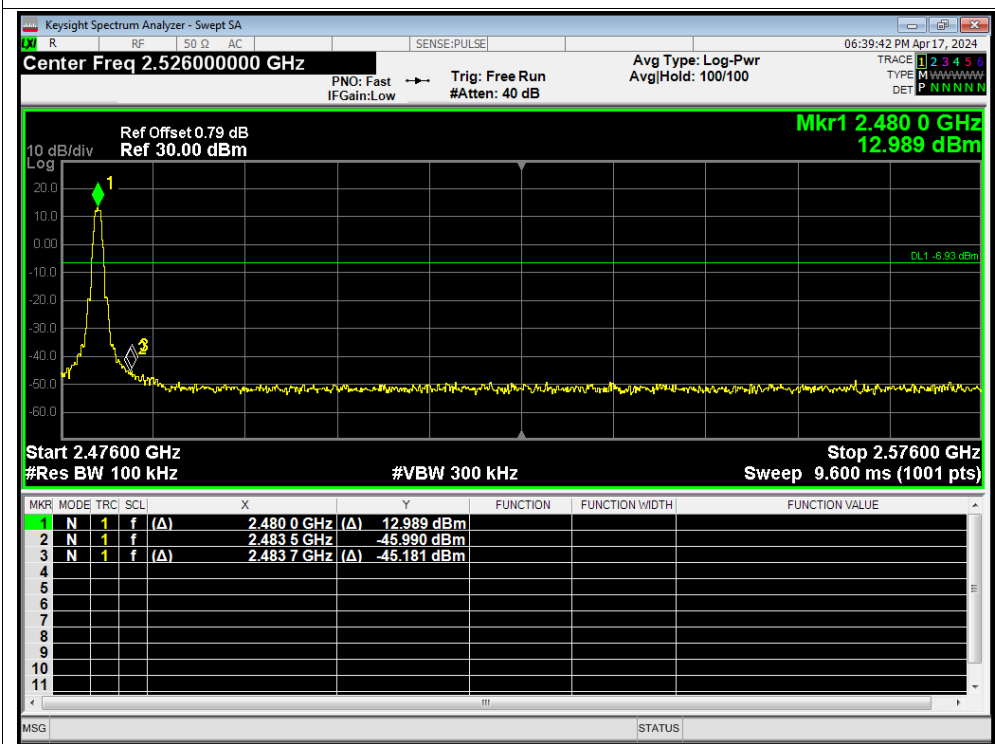
Band Edge NVNT BLE 1M 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT BLE 1M 2480MHz Ant1 No-Hopping Ref



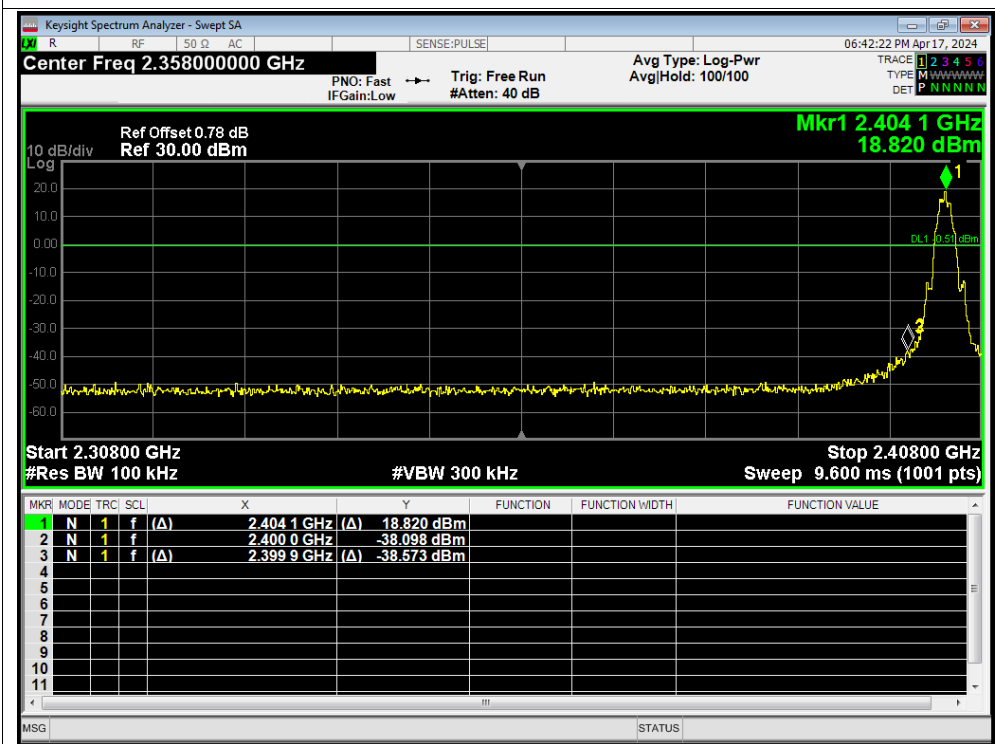
Band Edge NVNT BLE 1M 2480MHz Ant1 No-Hopping Emission



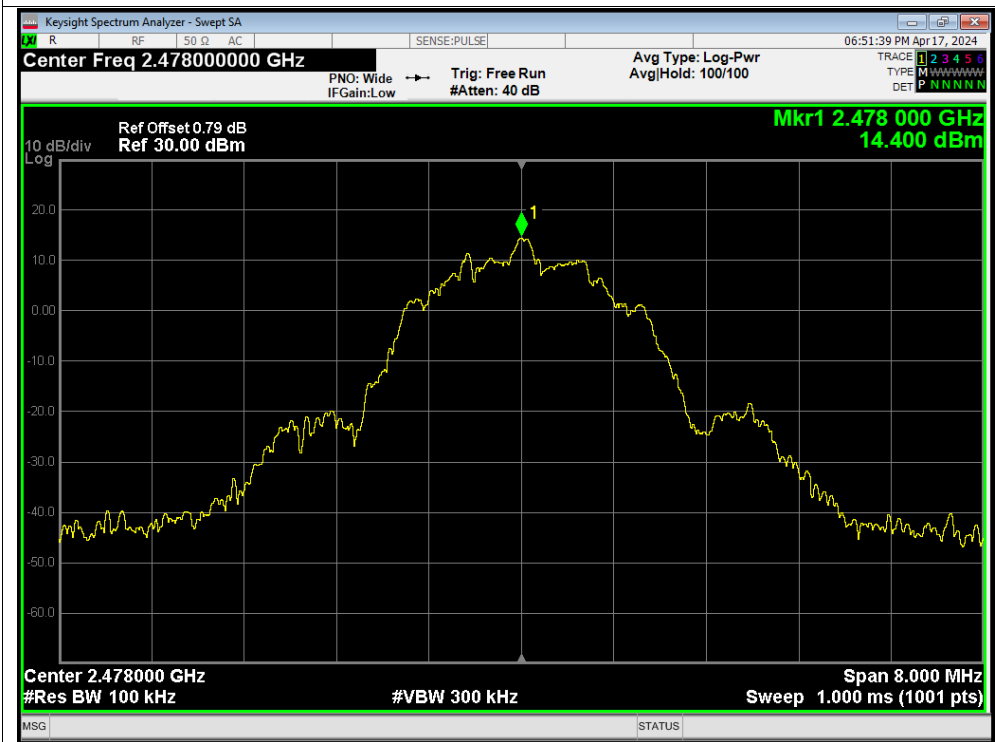
Band Edge NVNT BLE 2M 2404MHz Ant1 No-Hopping Ref



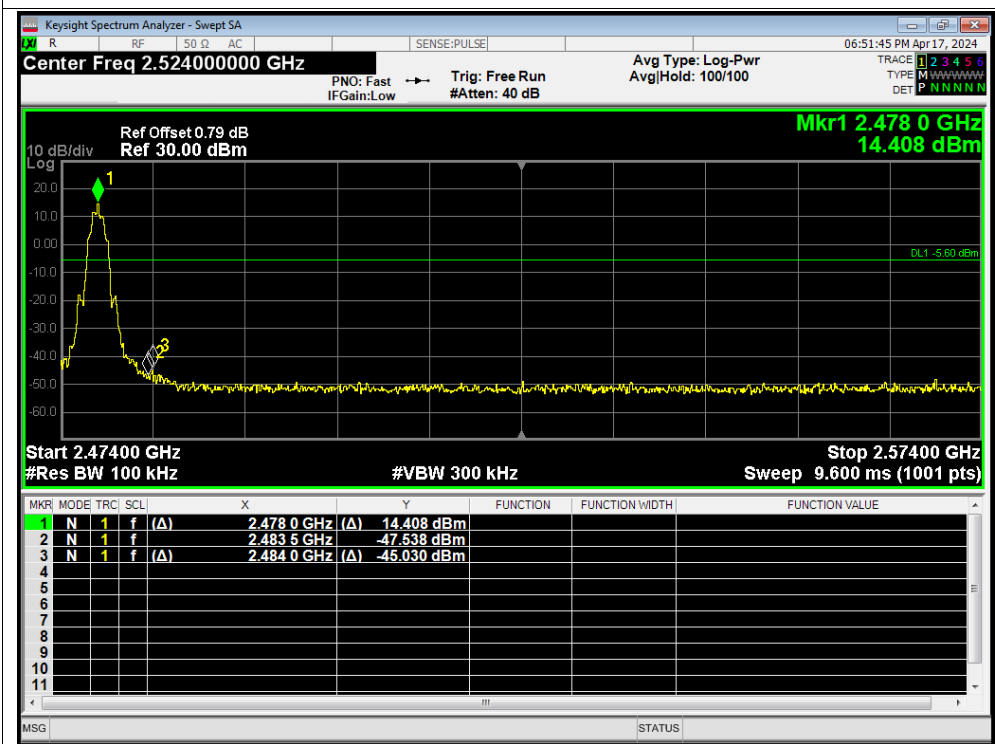
Band Edge NVNT BLE 2M 2404MHz Ant1 No-Hopping Emission



Band Edge NVNT BLE 2M 2478MHz Ant1 No-Hopping Ref



Band Edge NVNT BLE 2M 2478MHz Ant1 No-Hopping Emission



Band Edge(Hopping)

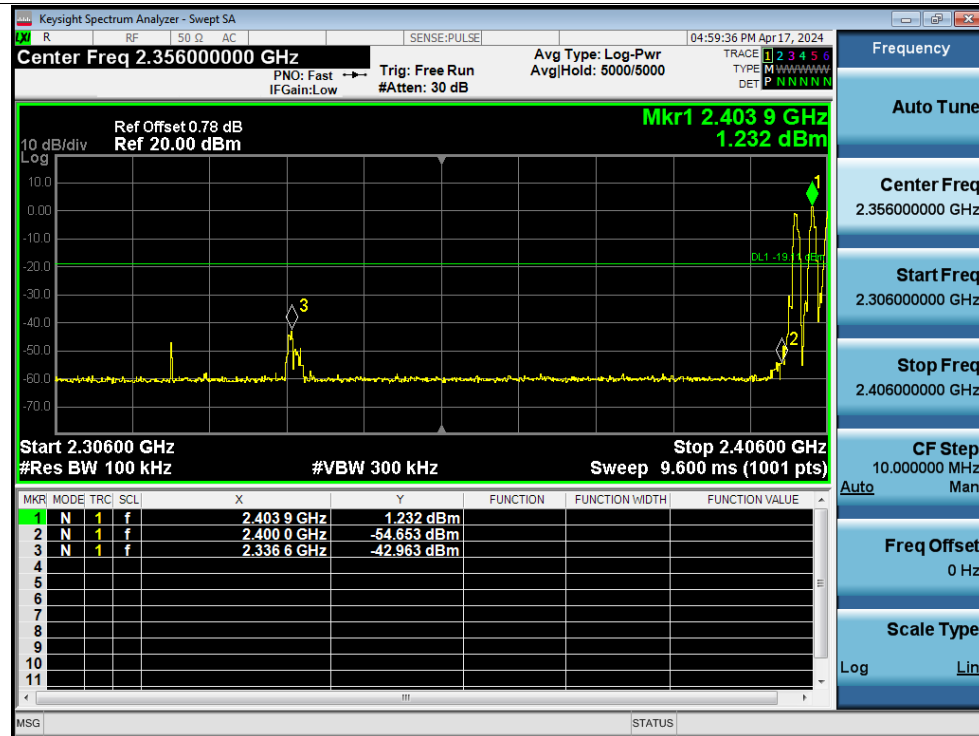
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	Hopping	-43.85	-20	Pass
NVNT	BLE 1M	2480	Ant1	Hopping	-58.54	-20	Pass
NVNT	BLE 2M	2404	Ant1	Hopping	-50.63	-20	Pass
NVNT	BLE 2M	2478	Ant1	Hopping	-58.98	-20	Pass

Test Graphs

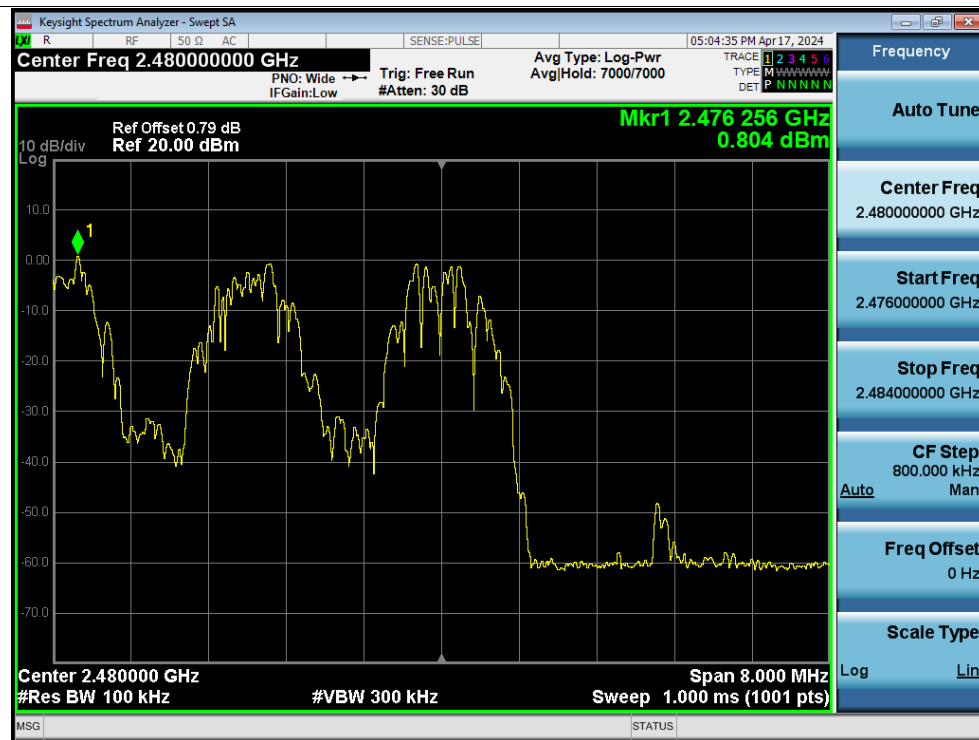
Band Edge(Hopping) NVNT BLE 1M 2402MHz Ant1 Hopping Ref



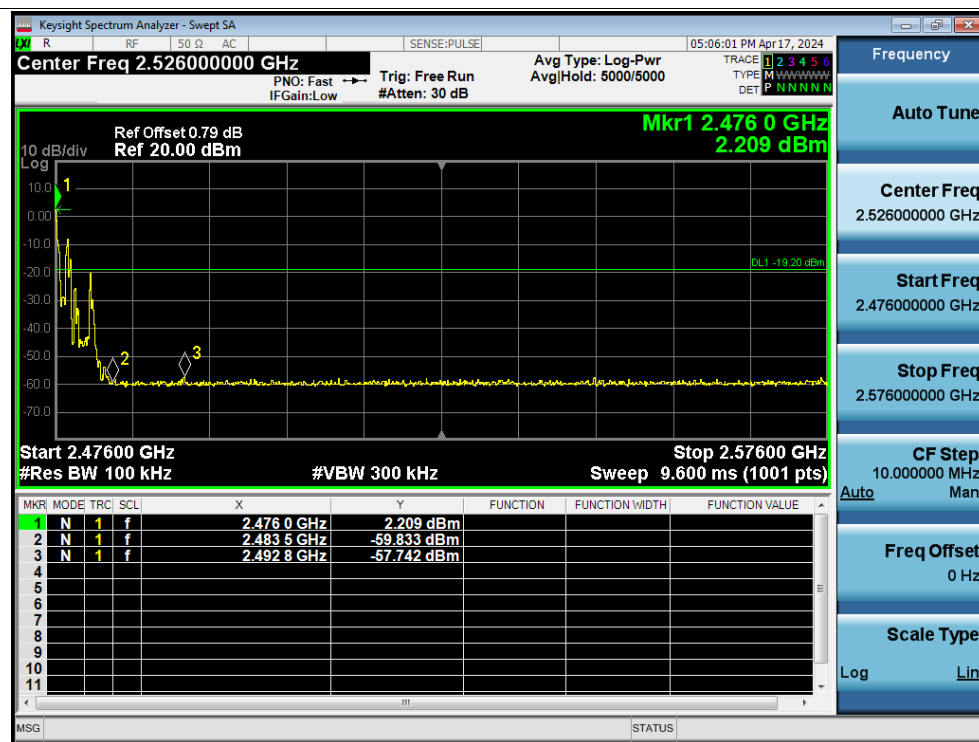
Band Edge(Hopping) NVNT BLE 1M 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT BLE 1M 2480MHz Ant1 Hopping Ref



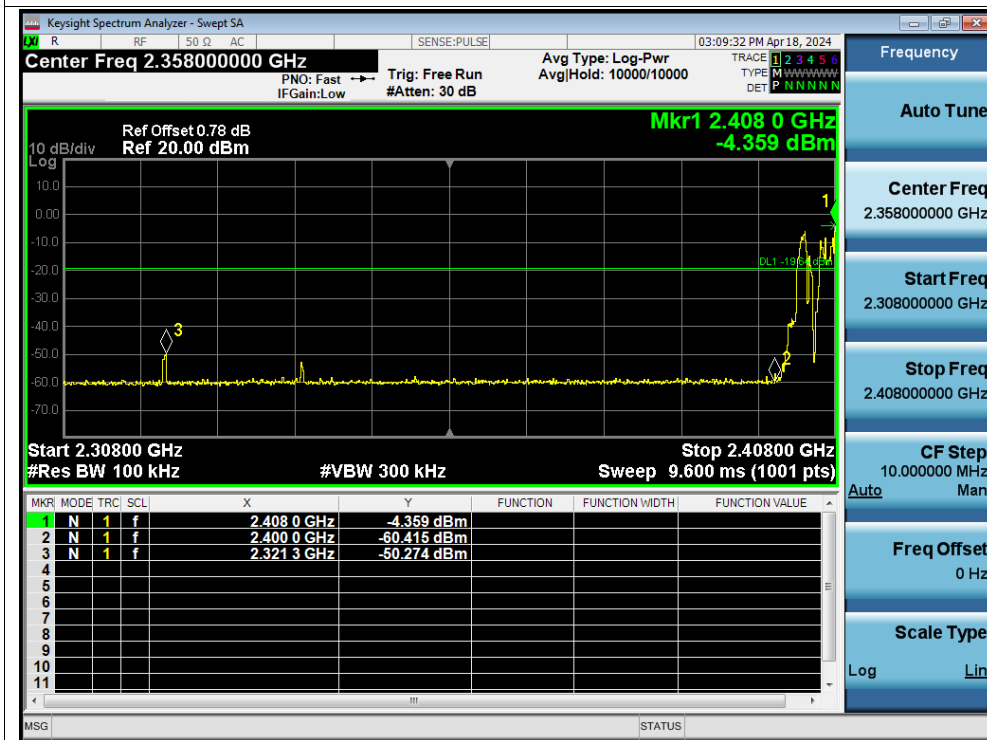
Band Edge(Hopping) NVNT BLE 1M 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT BLE 2M 2404MHz Ant1 Hopping Ref



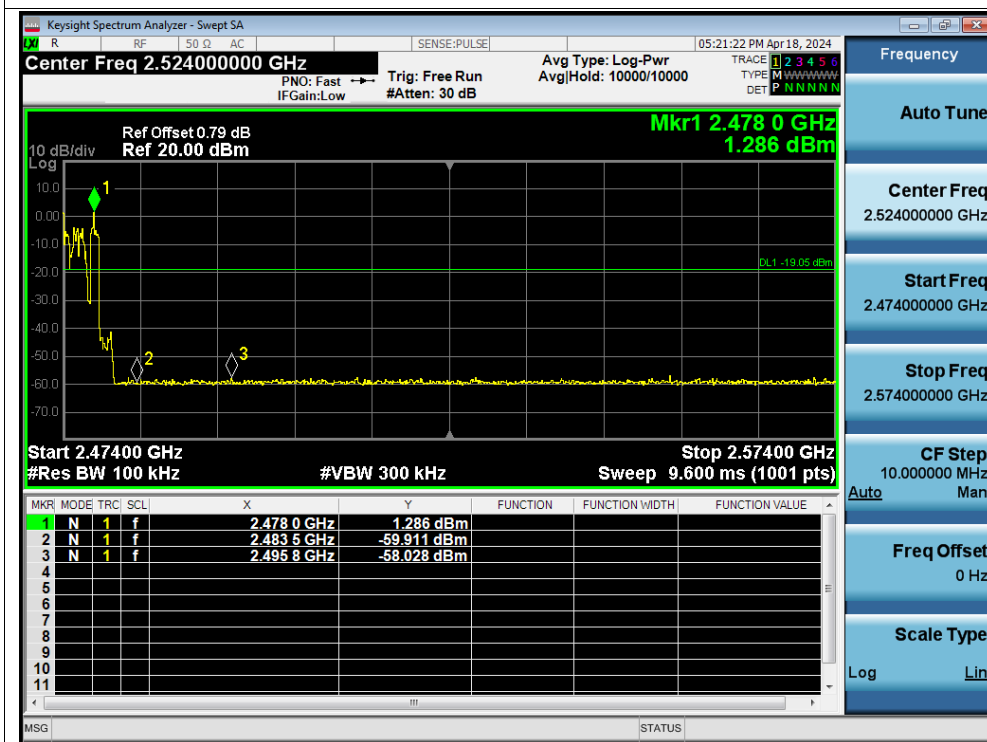
Band Edge(Hopping) NVNT BLE 2M 2404MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT BLE 2M 2478MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT BLE 2M 2478MHz Ant1 Hopping Emission

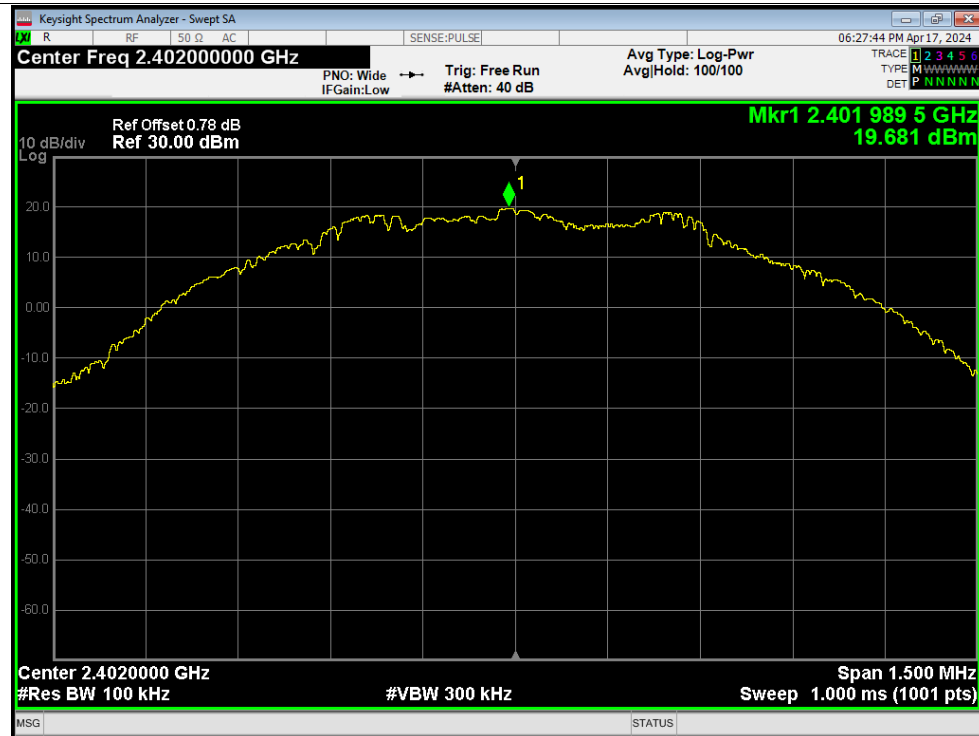


Conducted RF Spurious Emission

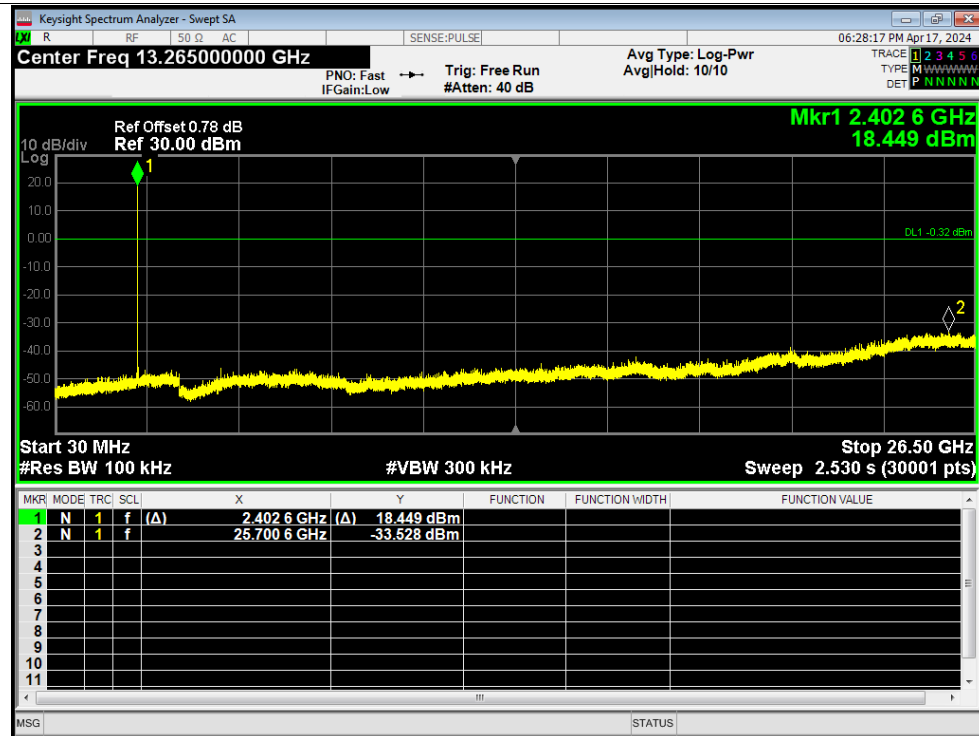
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-53.21	-20	Pass
NVNT	BLE 1M	2440	Ant1	-53.27	-20	Pass
NVNT	BLE 1M	2480	Ant1	-46.46	-20	Pass
NVNT	BLE 2M	2404	Ant1	-52.16	-20	Pass
NVNT	BLE 2M	2440	Ant1	-52.7	-20	Pass
NVNT	BLE 2M	2478	Ant1	-47.26	-20	Pass

Test Graphs

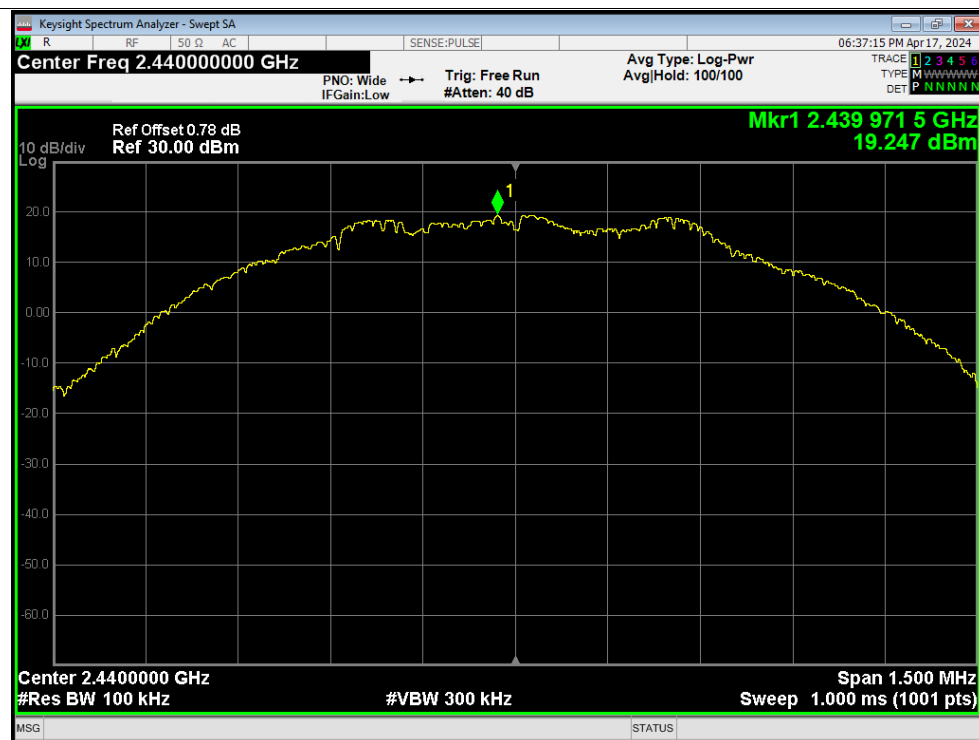
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



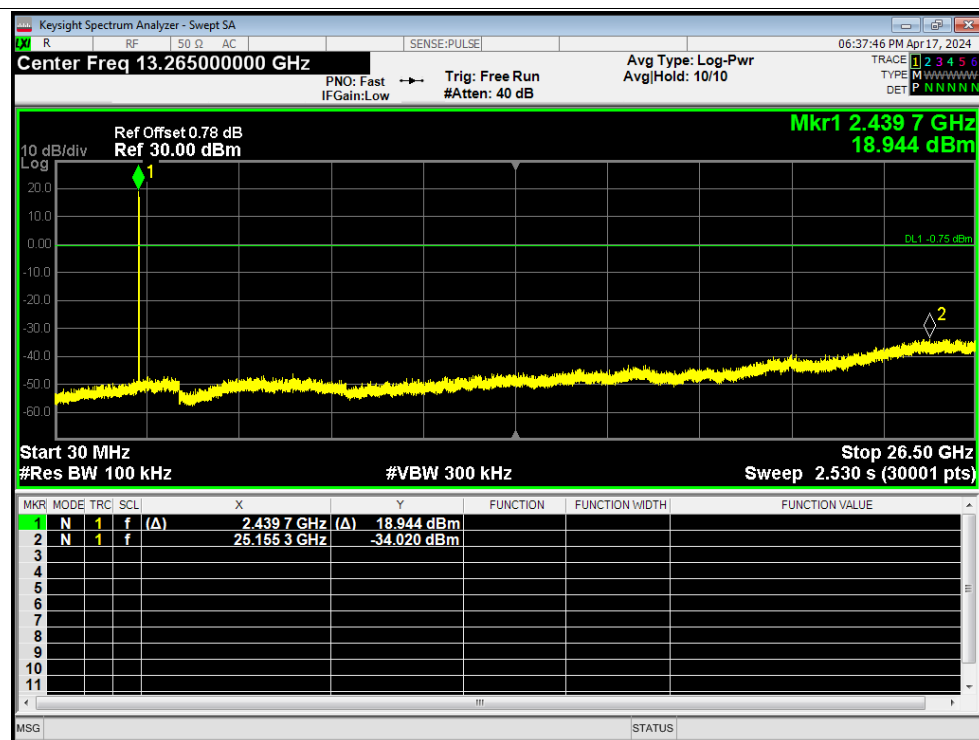
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



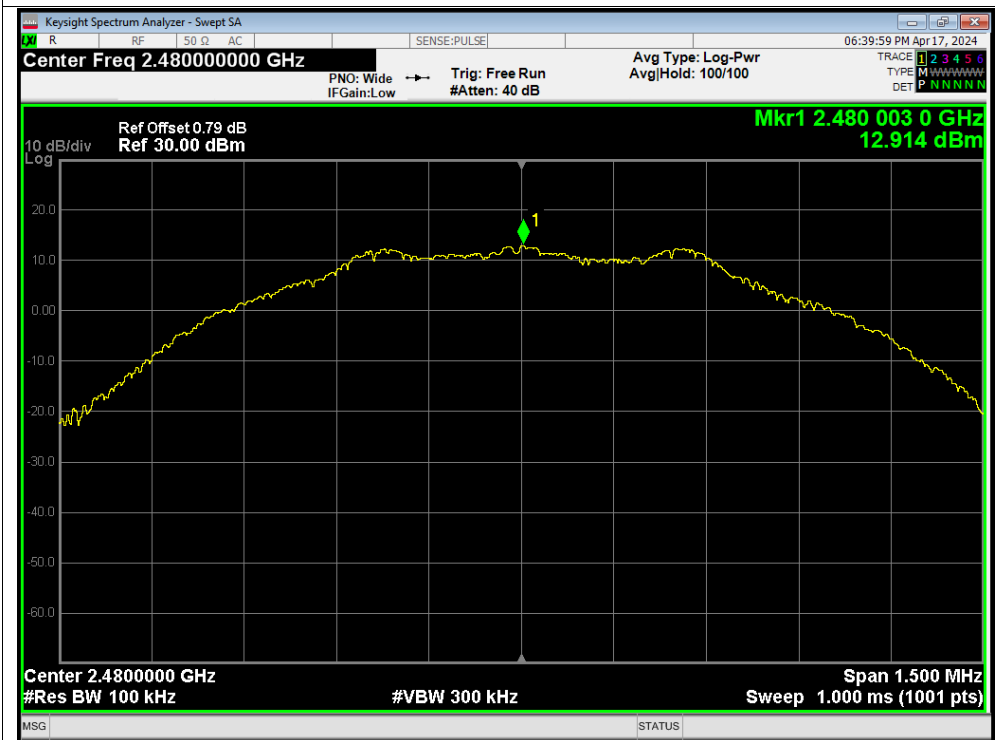
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



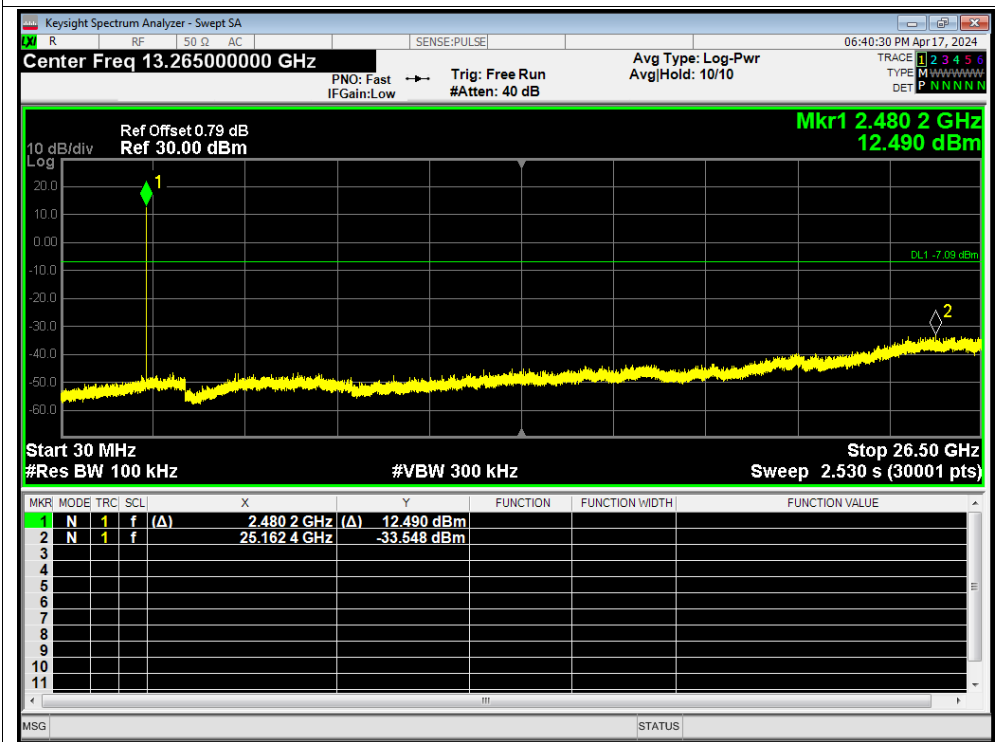
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



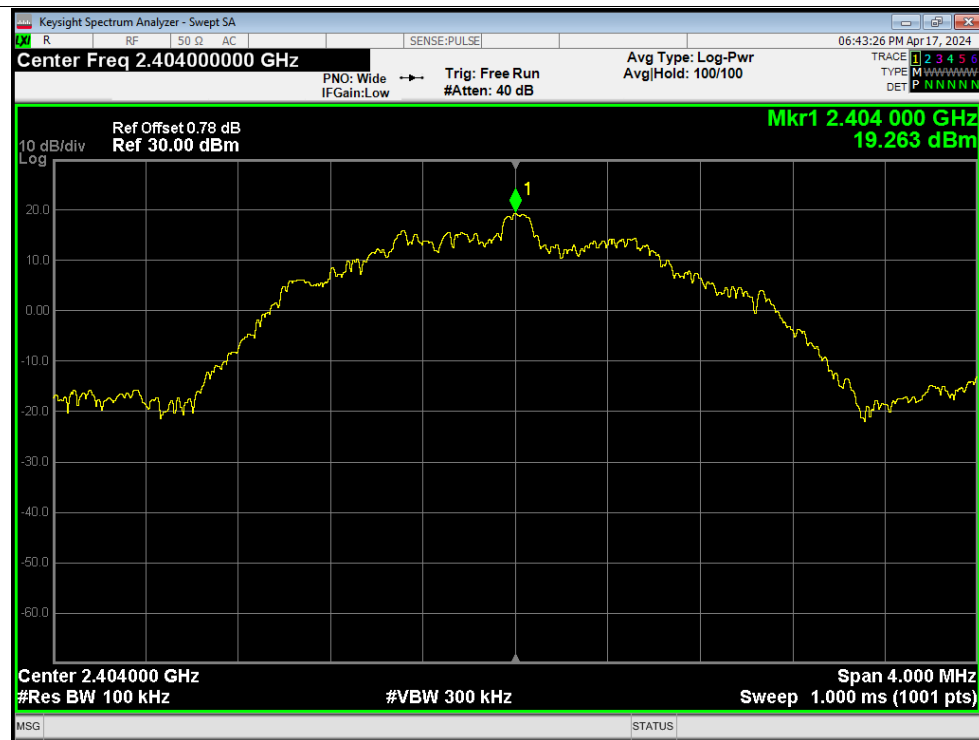
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



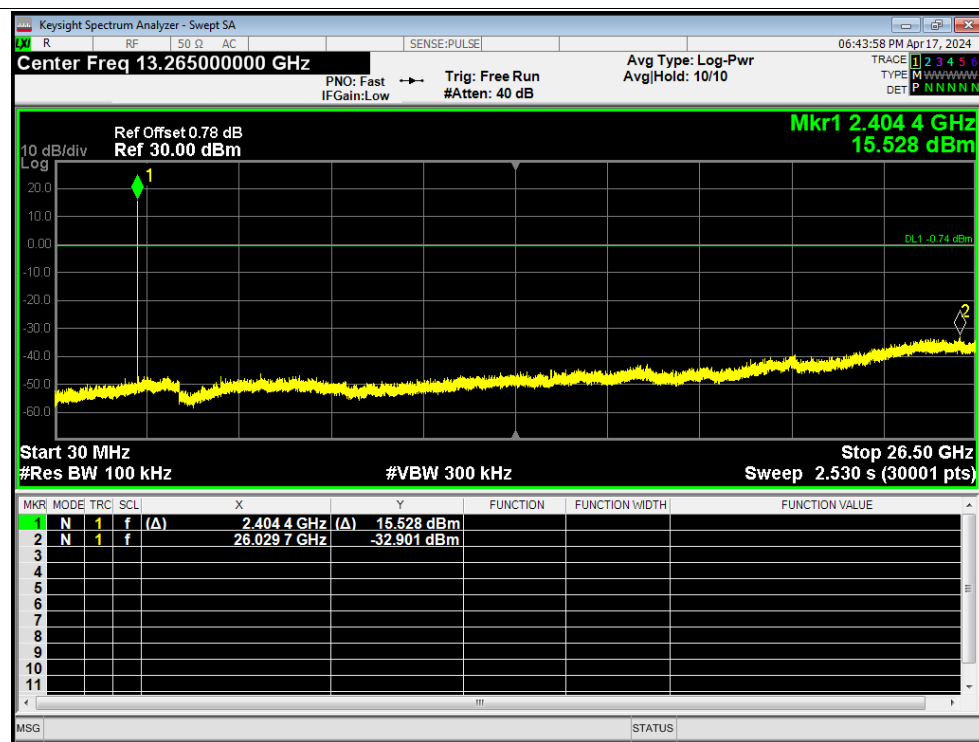
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



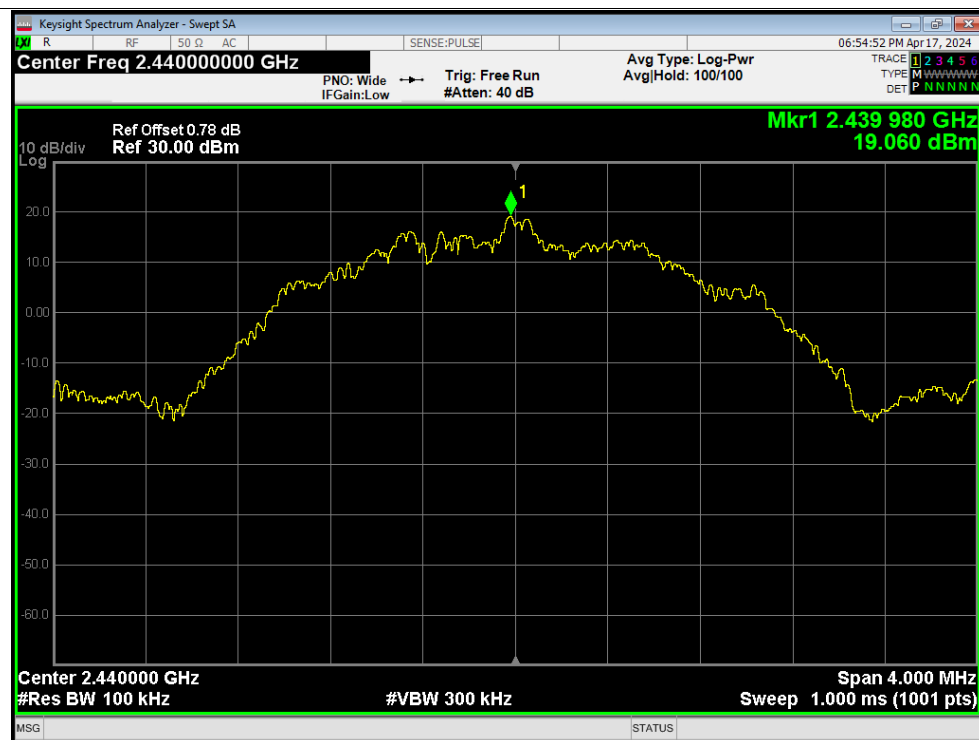
Tx. Spurious NVNT BLE 2M 2404MHz Ant1 Ref



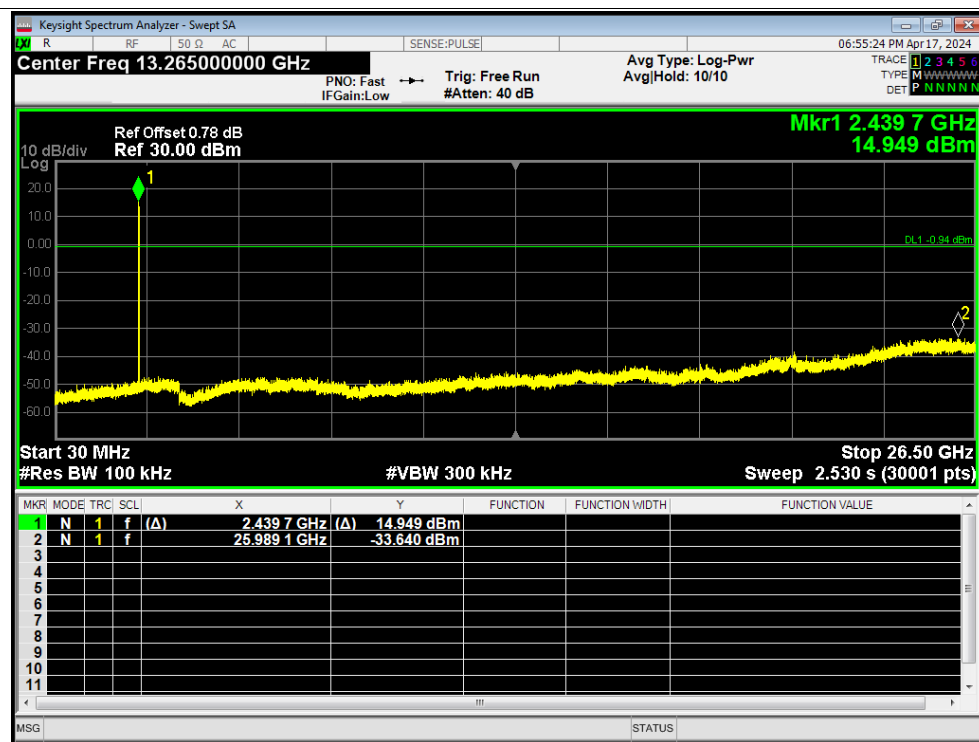
Tx. Spurious NVNT BLE 2M 2404MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



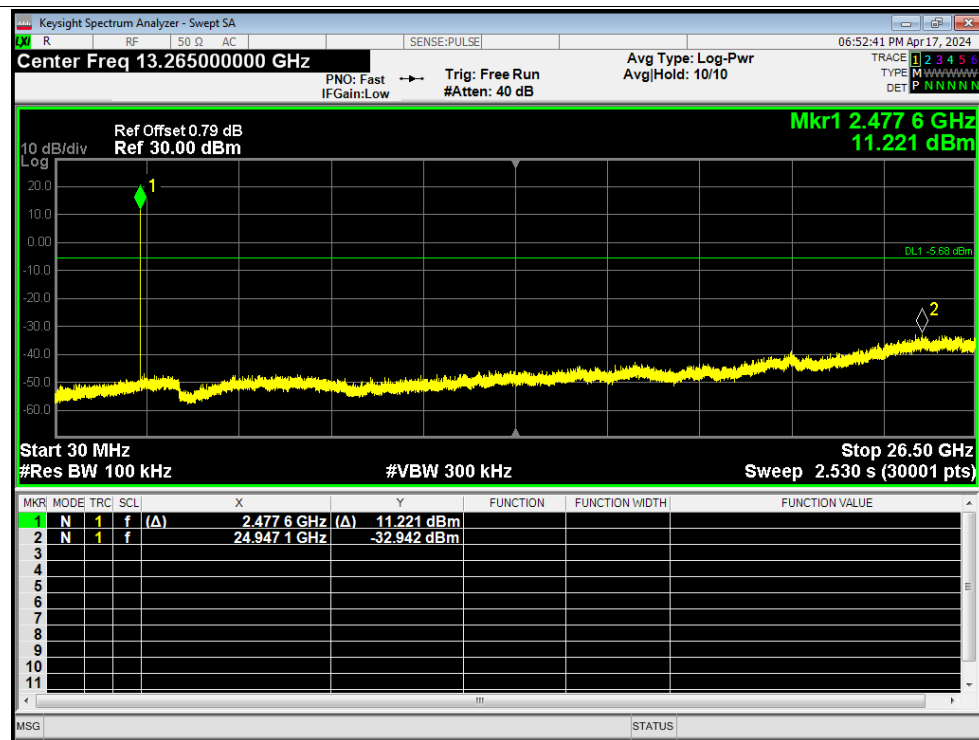
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2478MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2478MHz Ant1 Emission

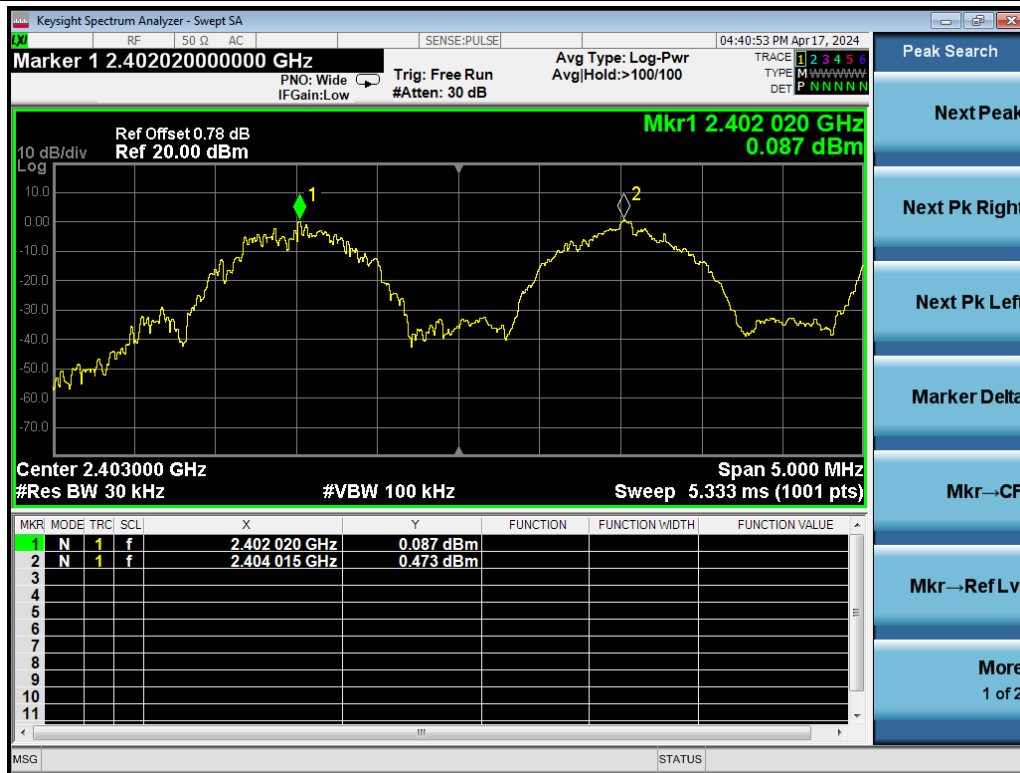


Carrier Frequencies Separation

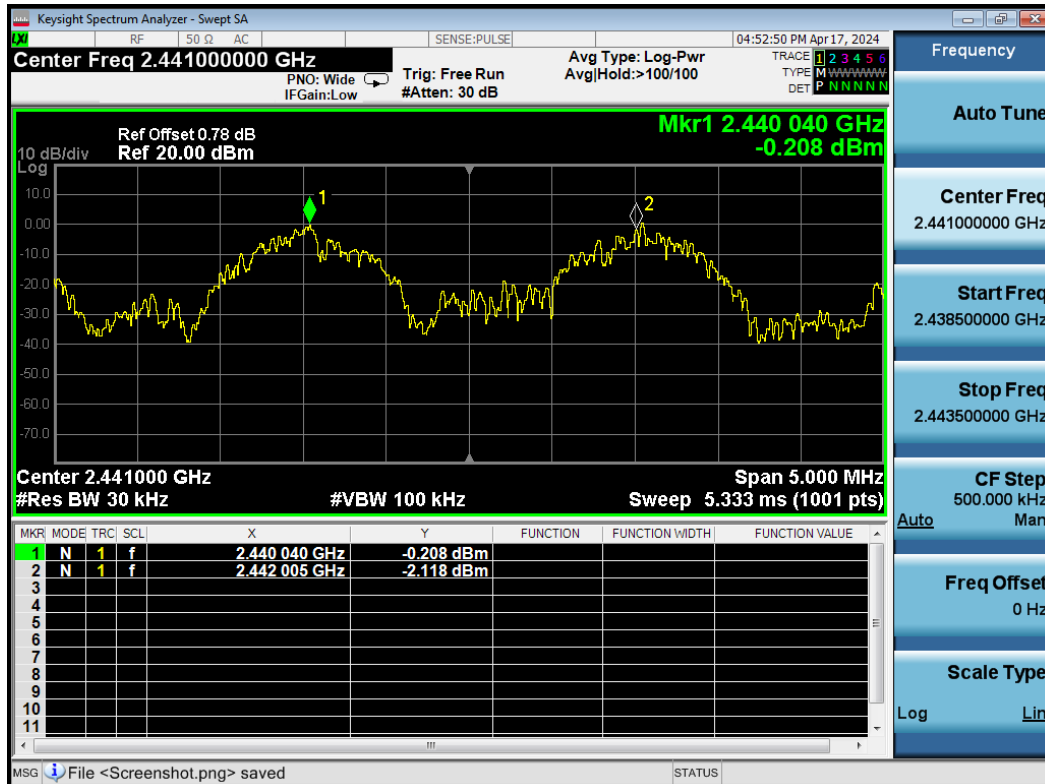
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	BLE 1M	Ant1	2402.02	2404.015	1.995	0.025	Pass
NVNT	BLE 1M	Ant1	2440.04	2442.005	1.965	0.025	Pass
NVNT	BLE 1M	Ant1	2477.995	2480.005	2.01	0.025	Pass
NVNT	BLE 2M	Ant1	2404.004	2406.05	2.046	1.447	Pass
NVNT	BLE 2M	Ant1	2440.015	2442.015	2	1.447	Pass
NVNT	BLE 2M	Ant1	2476.015	2478.01	1.995	1.447	Pass

Test Graphs

CFS NVNT BLE 1M 2402MHz Ant1



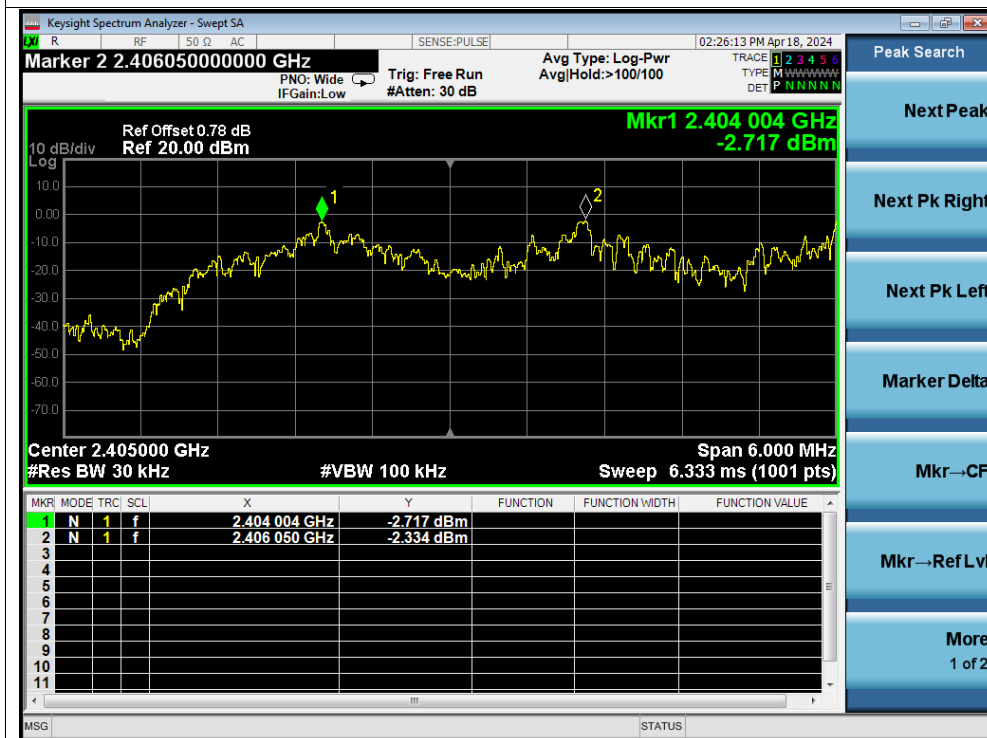
CFS NVNT BLE 1M 2440MHz Ant1



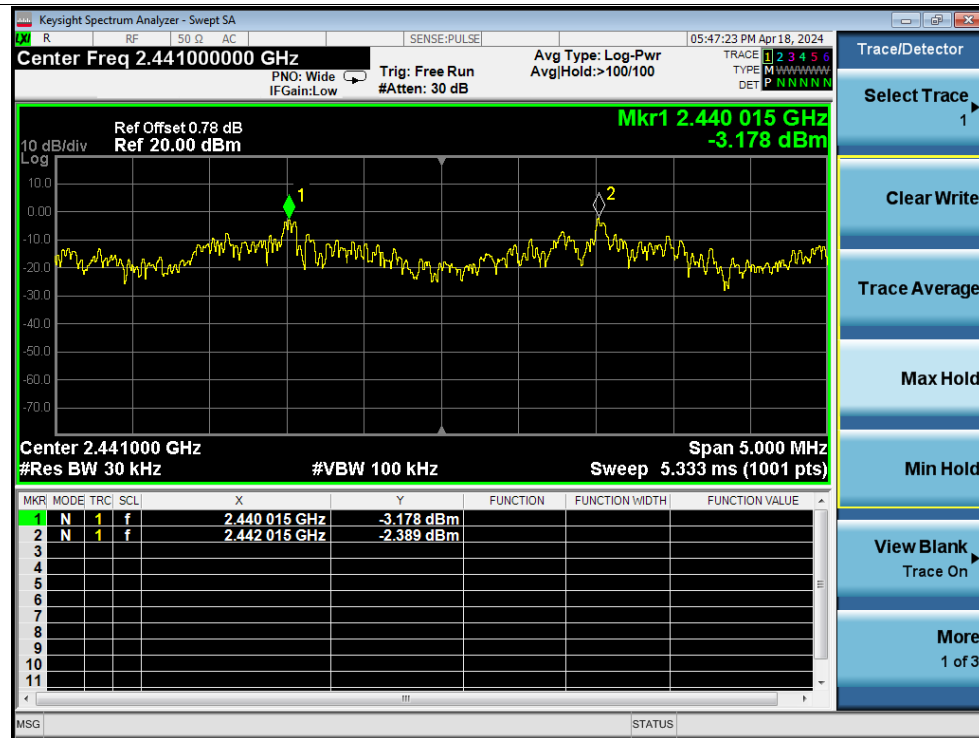
CFS NVNT BLE 1M 2480MHz Ant1



CFS NVNT BLE 2M 2404MHz Ant1



CFS NVNT BLE 2M 2440MHz Ant1



CFS NVNT BLE 2M 2478MHz Ant1

