

Appendix B

RF Test Data for BT LE(Conducted Measurement)

Product Name: HCND-V4

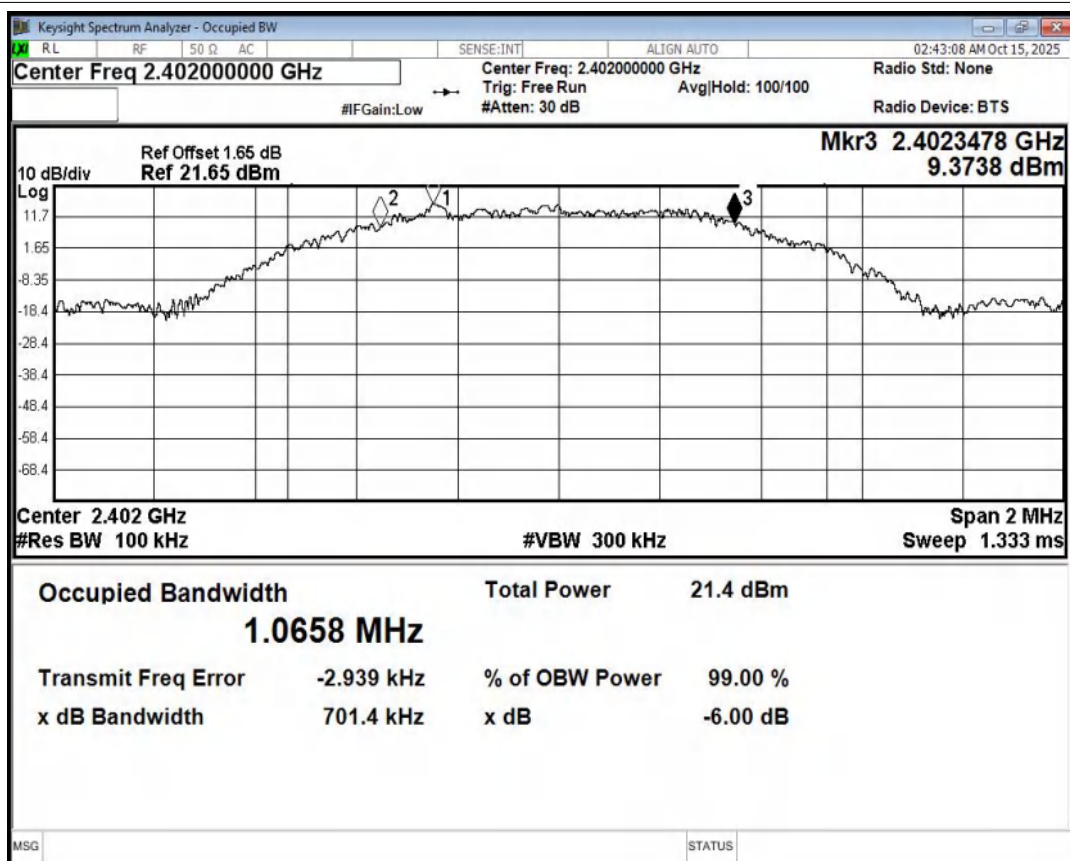
Test Model: HCND-V4

Environmental Conditions

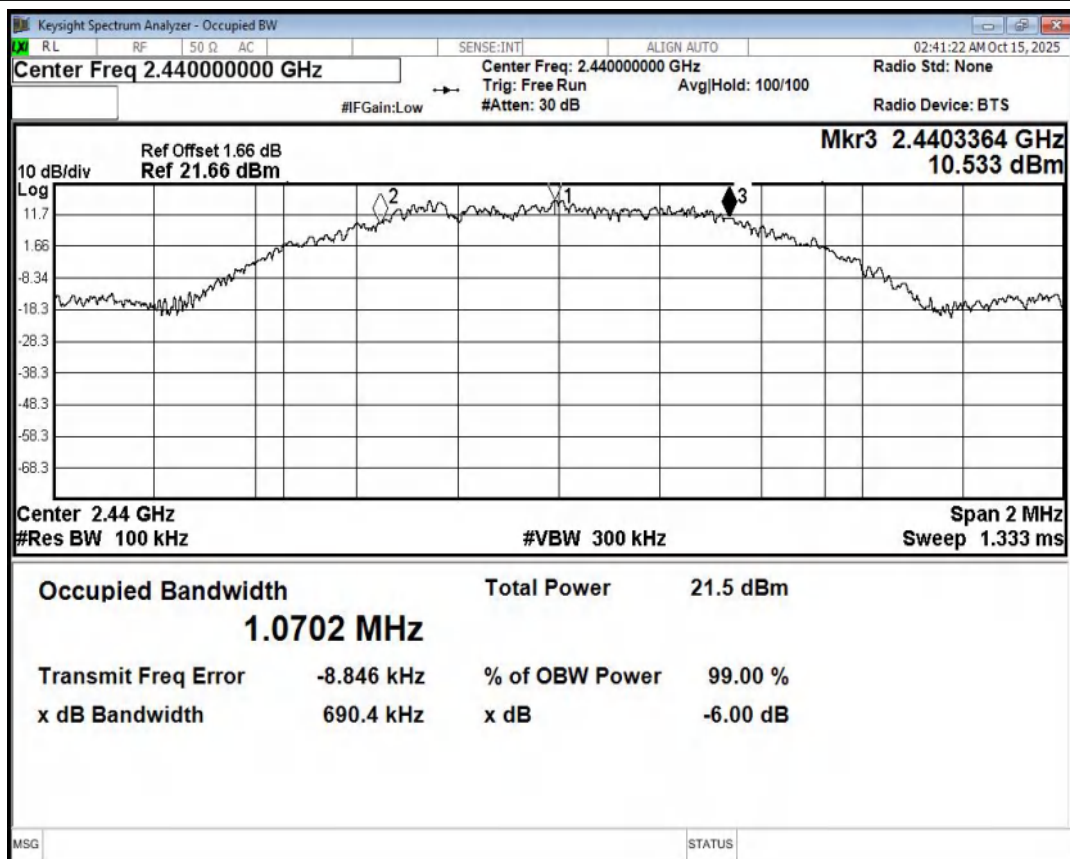
Temperature:	23.2°C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Suichao Lai
Supervised by:	Yan Chen

B.1 -6dB Bandwidth

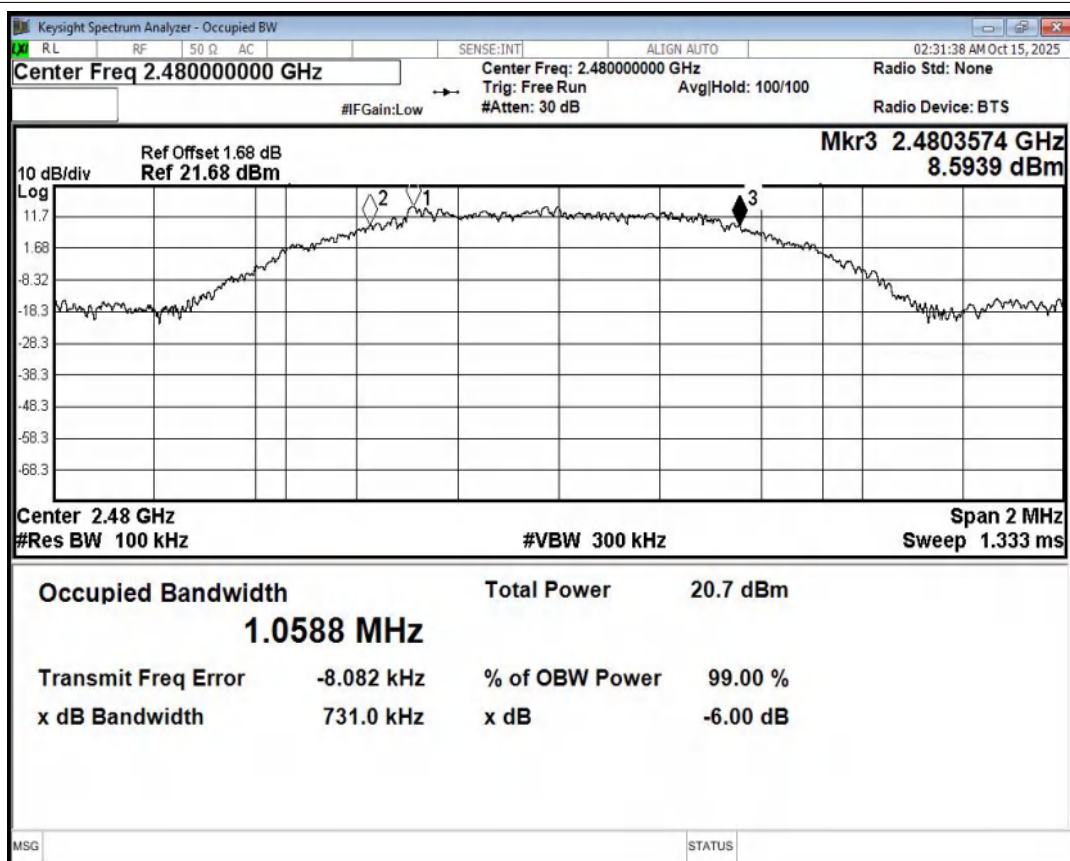
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE S2	2402	Ant1	0.7014	0.5	Pass
NVNT	BLE S2	2440	Ant1	0.6904	0.5	Pass
NVNT	BLE S2	2480	Ant1	0.731	0.5	Pass
NVNT	BLE S8	2402	Ant1	0.6297	0.5	Pass
NVNT	BLE S8	2440	Ant1	0.6079	0.5	Pass
NVNT	BLE S8	2480	Ant1	0.7105	0.5	Pass



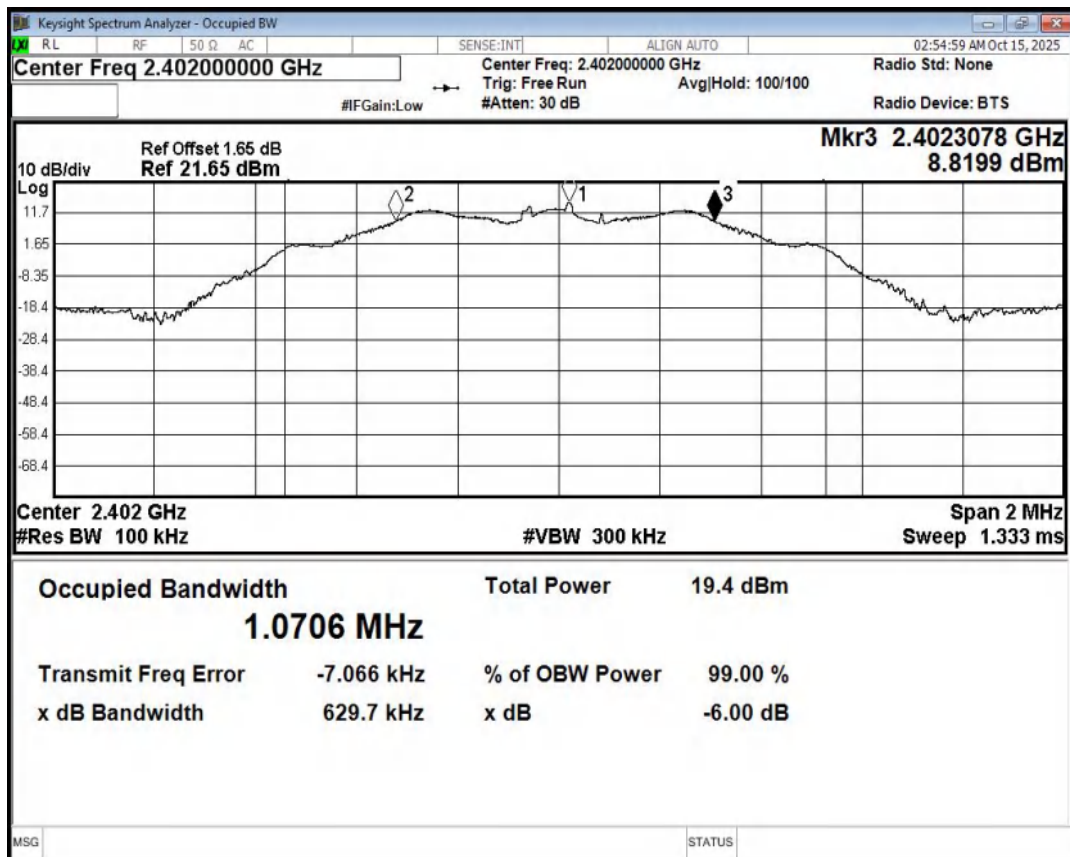
-6dB Bandwidth NVNT BLE S2 2402MHz Ant1



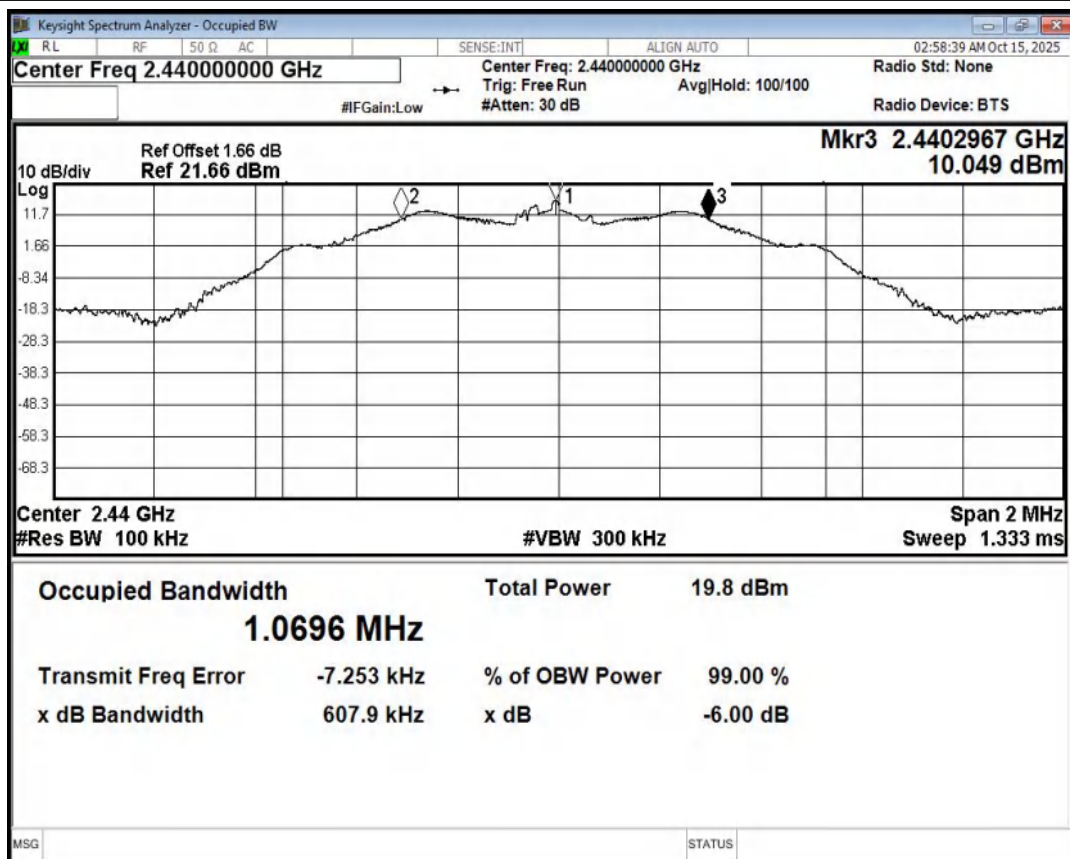
-6dB Bandwidth NVNT BLE S2 2440MHz Ant1



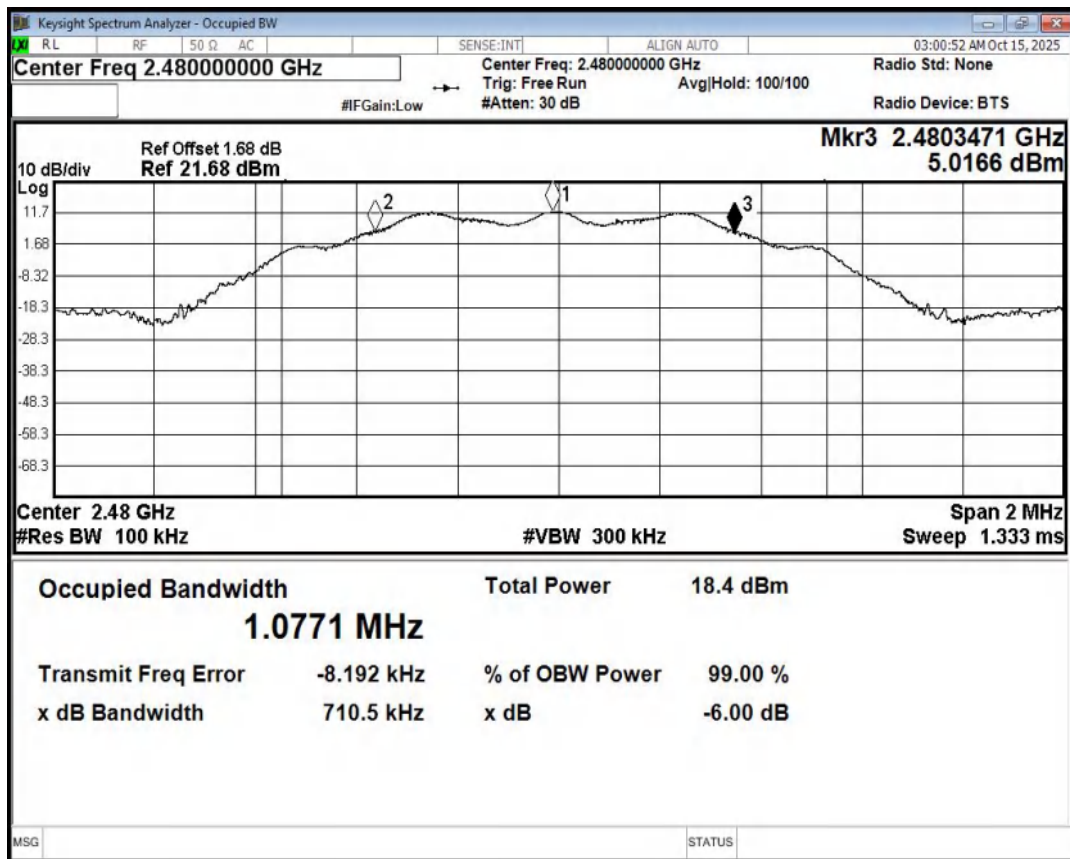
-6dB Bandwidth NVNT BLE S2 2480MHz Ant1



-6dB Bandwidth NVNT BLE S8 2402MHz Ant1



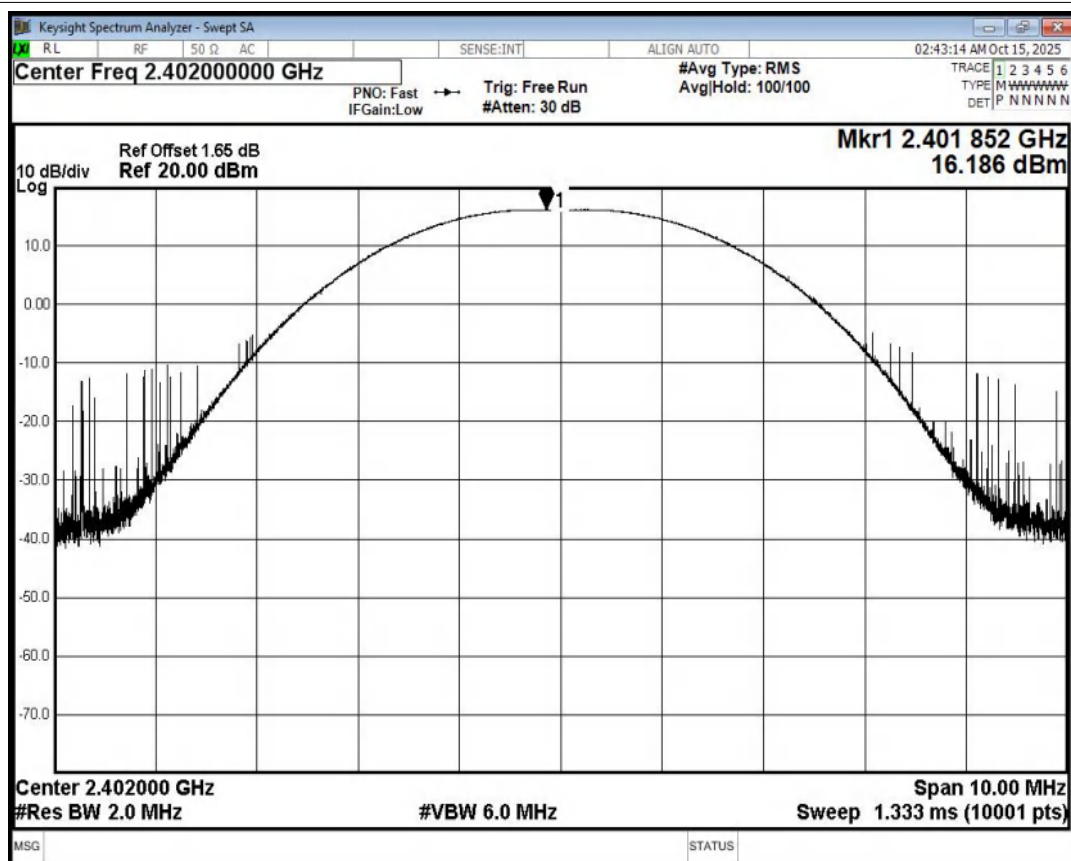
-6dB Bandwidth NVNT BLE S8 2440MHz Ant1



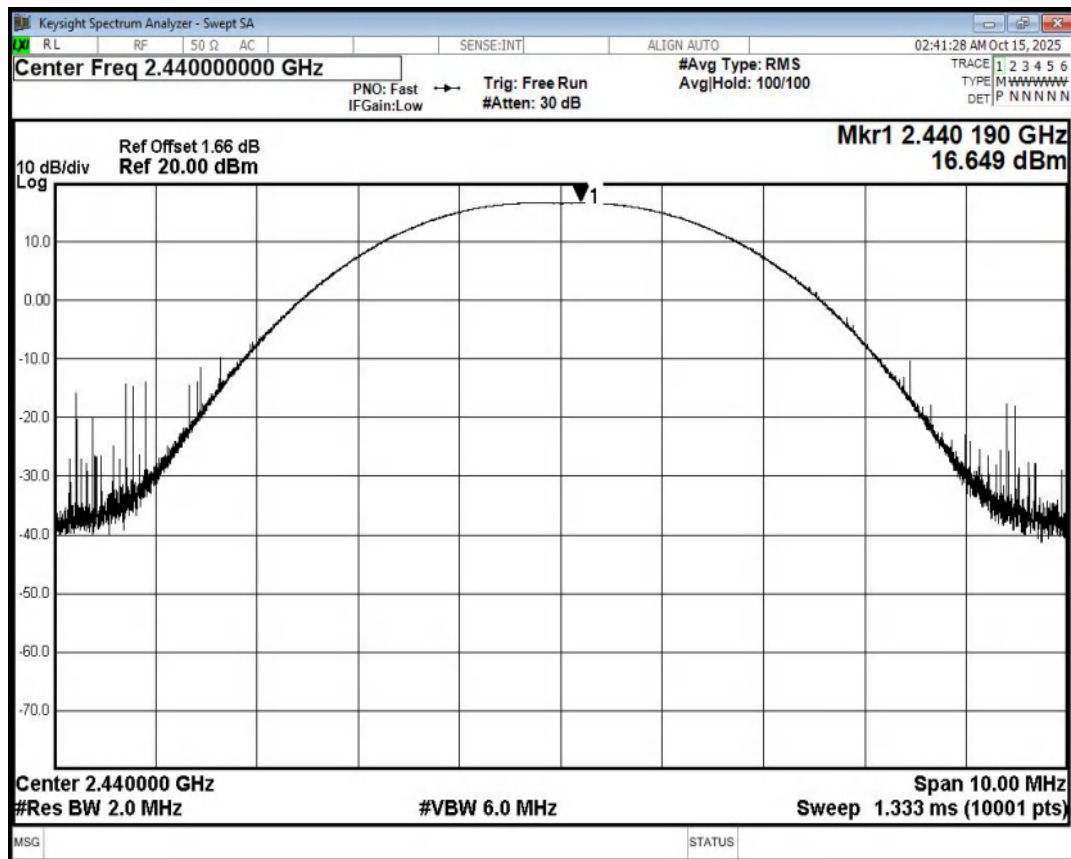
-6dB Bandwidth NVNT BLE S8 2480MHz Ant1

B.2 Maximum Peak Conducted Output Power

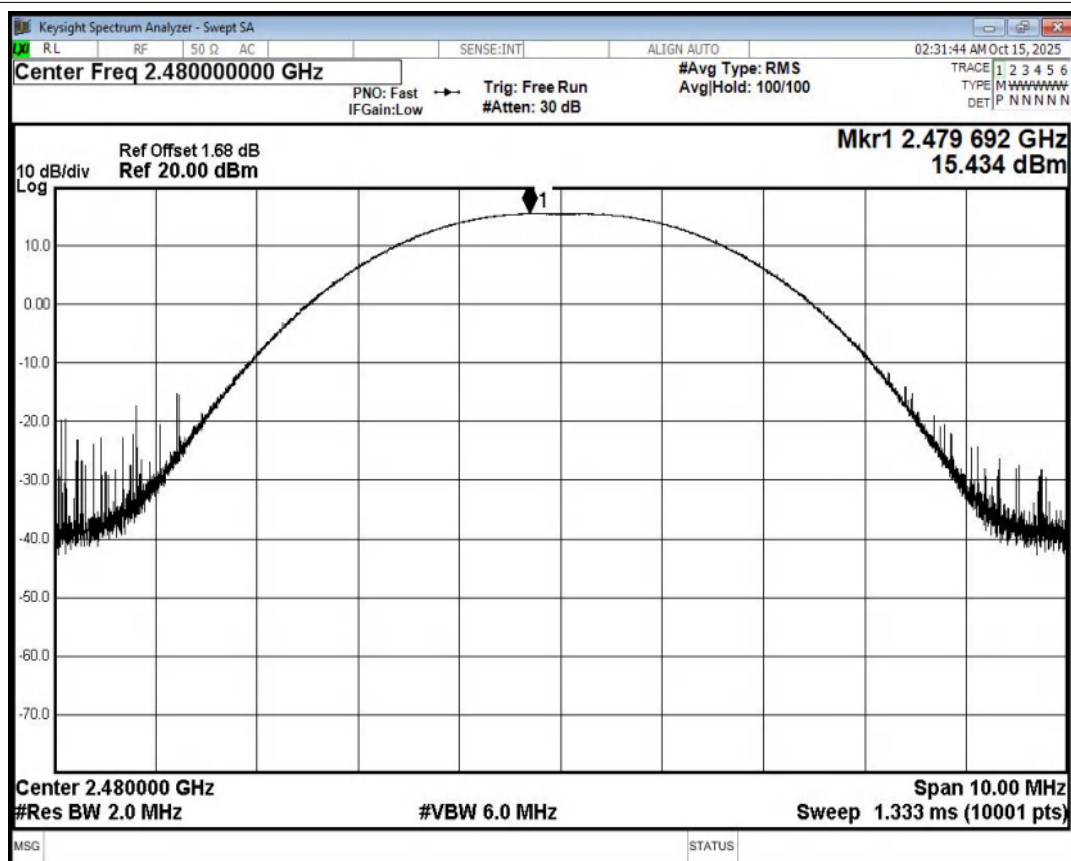
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit Conducted(dBm)	Verdict
NVNT	BLE S2	2402	Ant1	16.19	30	Pass
NVNT	BLE S2	2440	Ant1	16.65	30	Pass
NVNT	BLE S2	2480	Ant1	15.43	30	Pass
NVNT	BLE S8	2402	Ant1	16.21	30	Pass
NVNT	BLE S8	2440	Ant1	16.58	30	Pass
NVNT	BLE S8	2480	Ant1	15.44	30	Pass



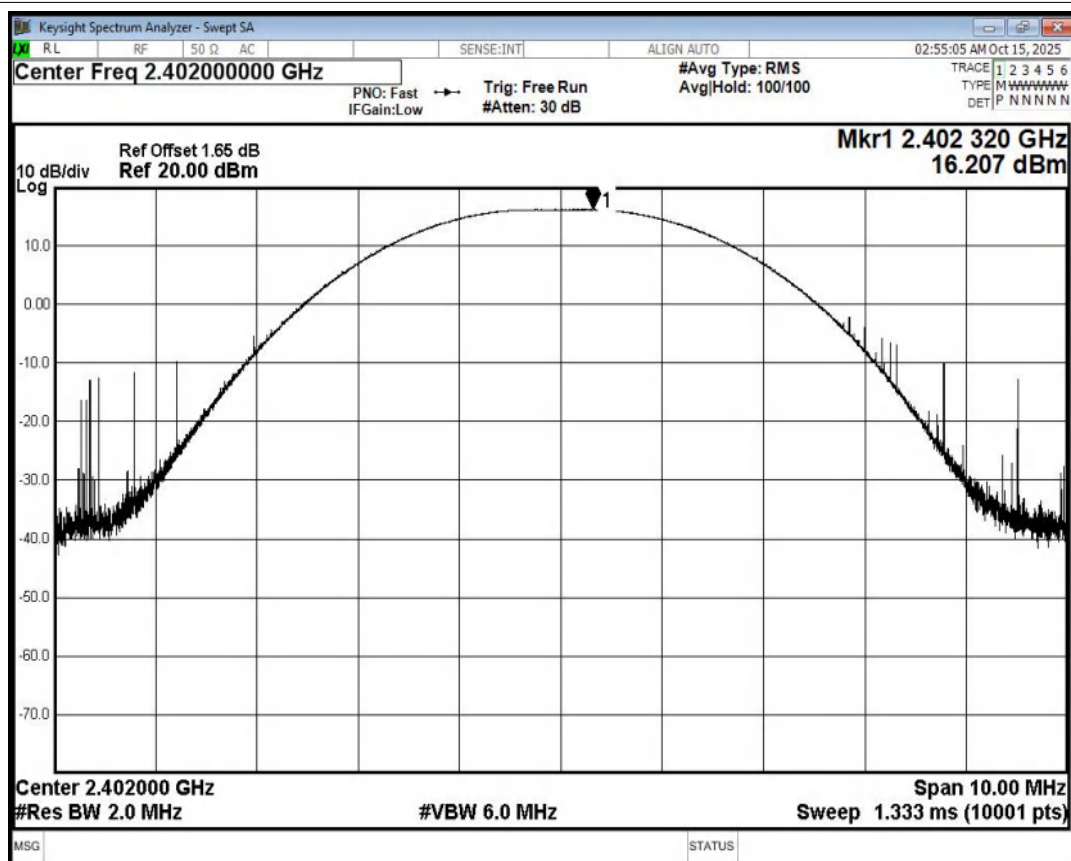
Peak Power NVNT BLE S2 2402MHz Ant1



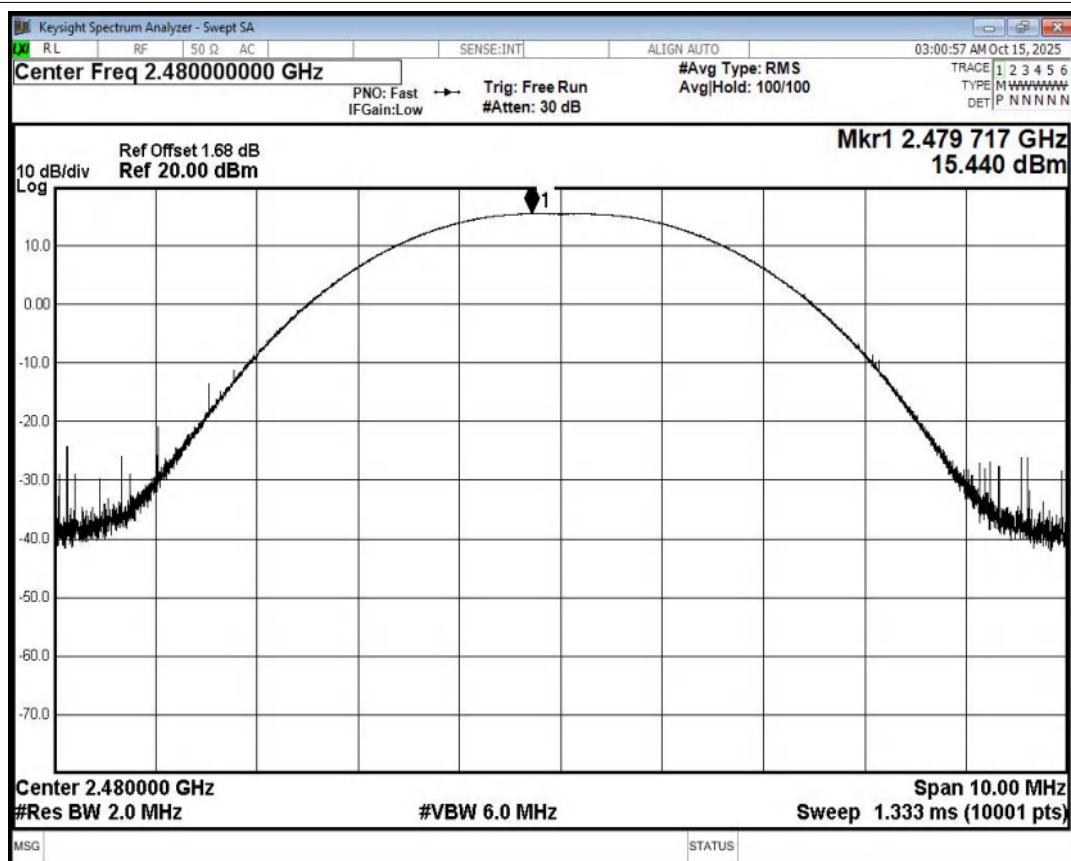
Peak Power NVNT BLE S2 2440MHz Ant1



Peak Power NVNT BLE S2 2480MHz Ant1



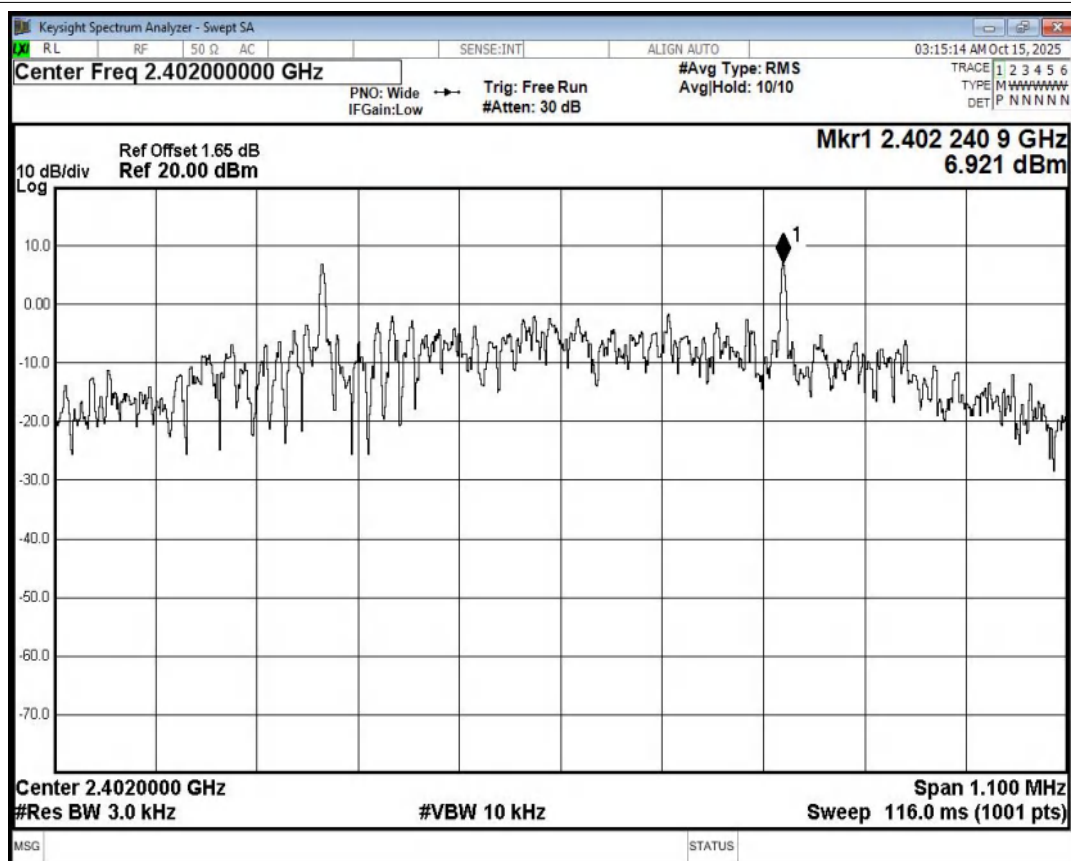
Peak Power NVNT BLE S8 2402MHz Ant1



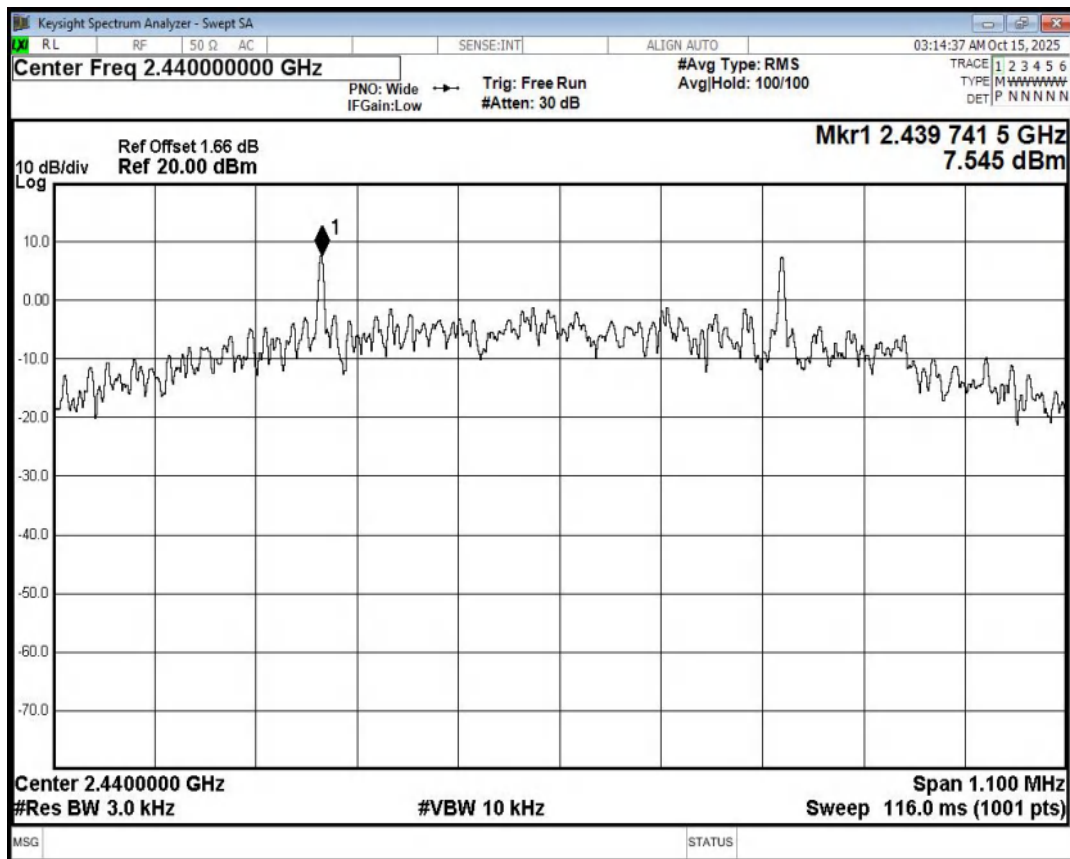
Peak Power NVNT BLE S8 2480MHz Ant1

B.3 Maximum Power Spectral Density Level

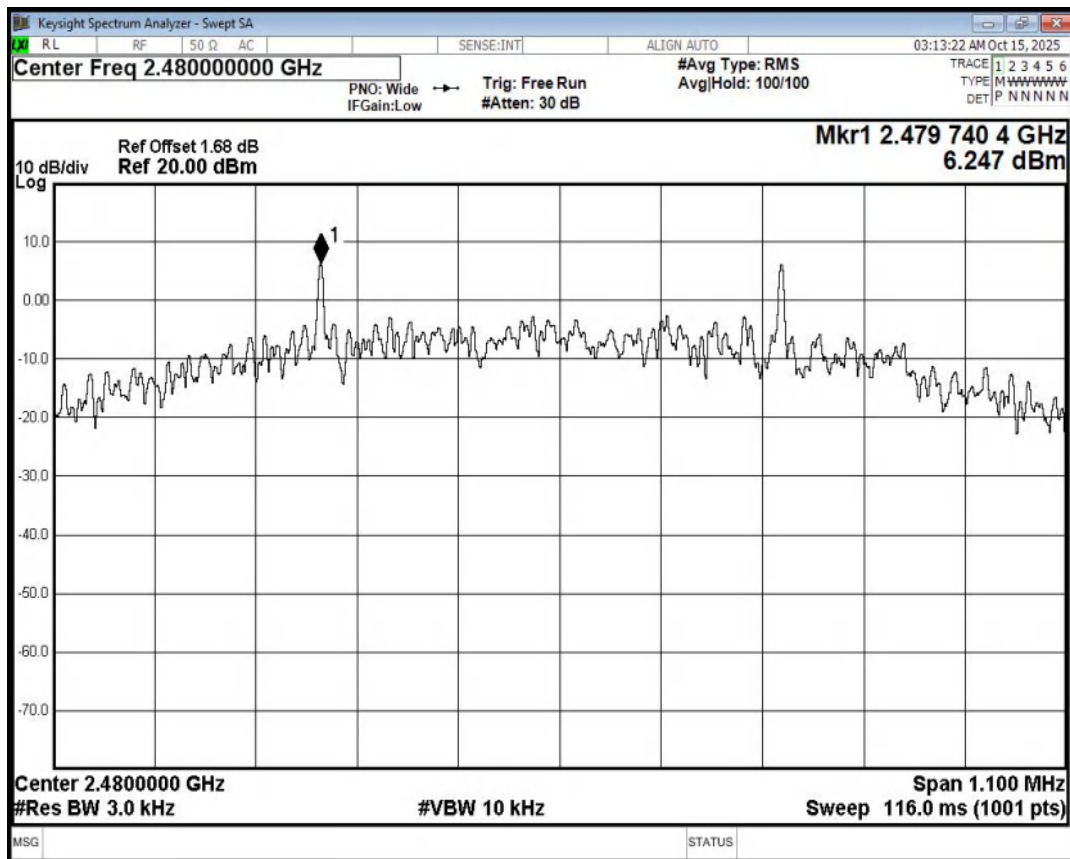
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE S2	2402	Ant1	6.92	8	Pass
NVNT	BLE S2	2440	Ant1	7.55	8	Pass
NVNT	BLE S2	2480	Ant1	6.25	8	Pass
NVNT	BLE S8	2402	Ant1	7.13	8	Pass
NVNT	BLE S8	2440	Ant1	7.6	8	Pass
NVNT	BLE S8	2480	Ant1	6.31	8	Pass



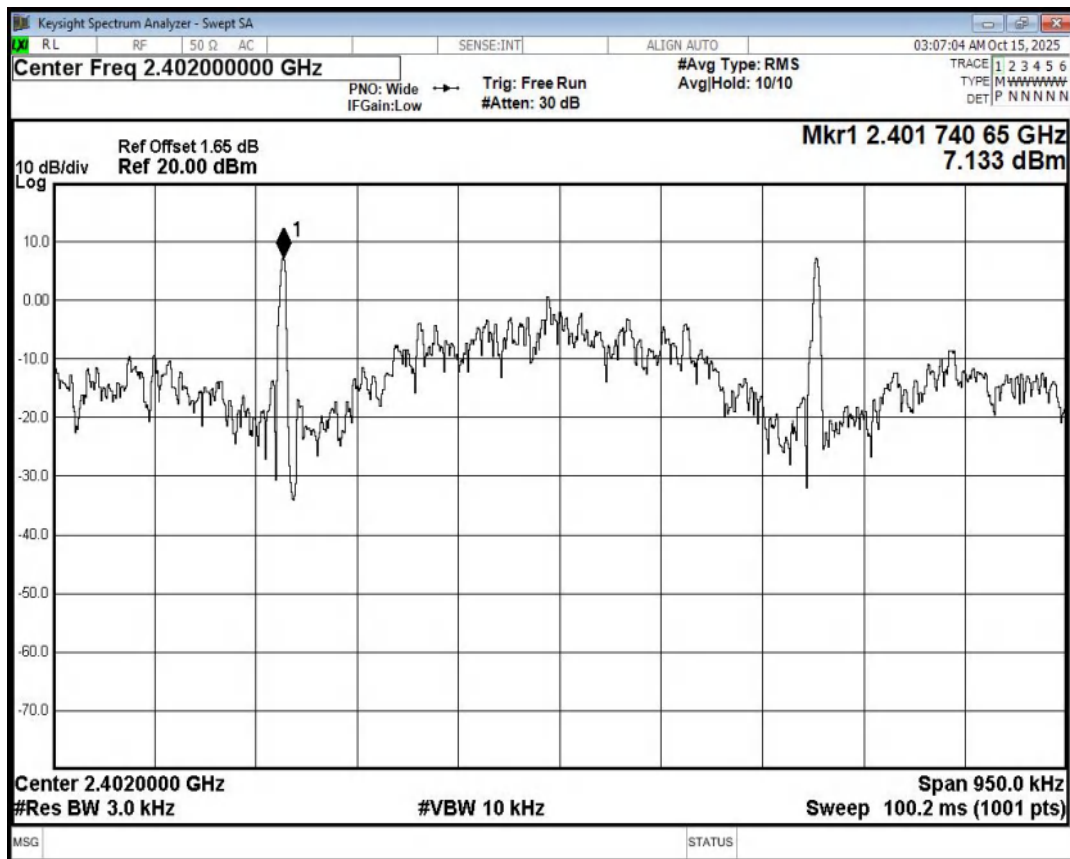
PSD NVNT BLE S2 2402MHz Ant1



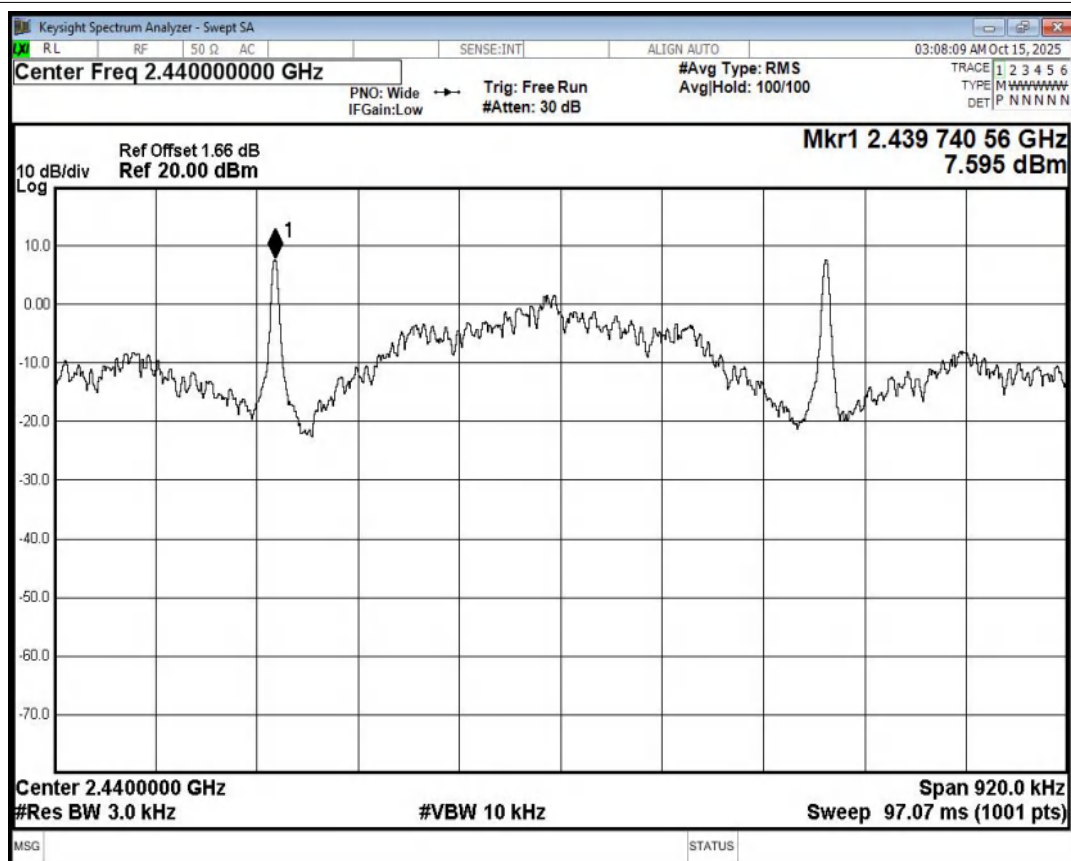
PSD NVNT BLE S2 2440MHz Ant1



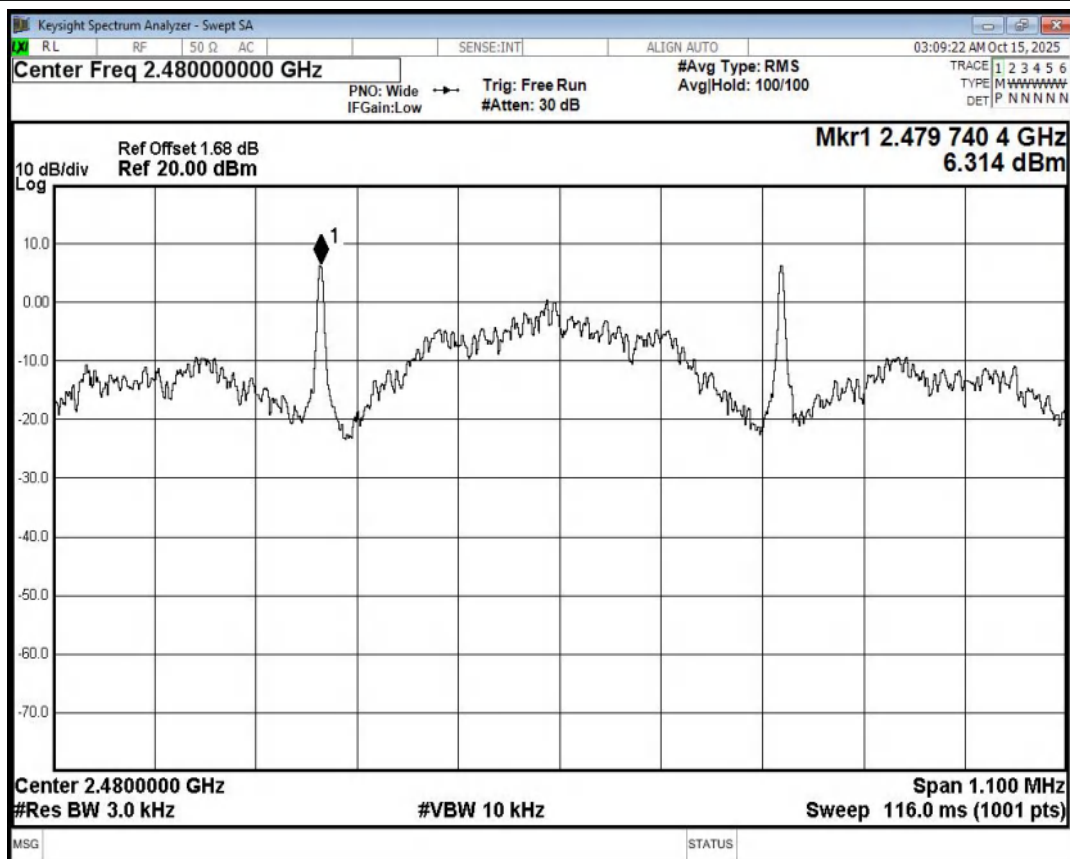
PSD NVNT BLE S2 2480MHz Ant1



PSD NVNT BLE S8 2402MHz Ant1



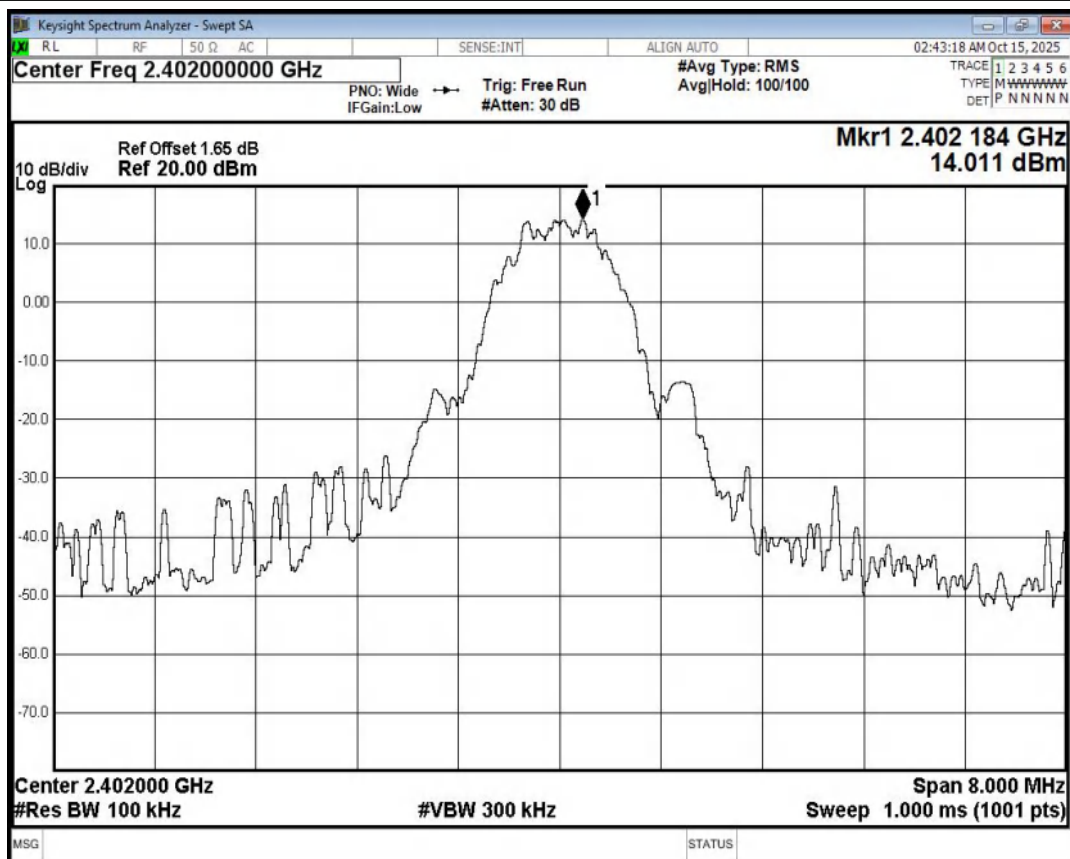
PSD NVNT BLE S8 2440MHz Ant1



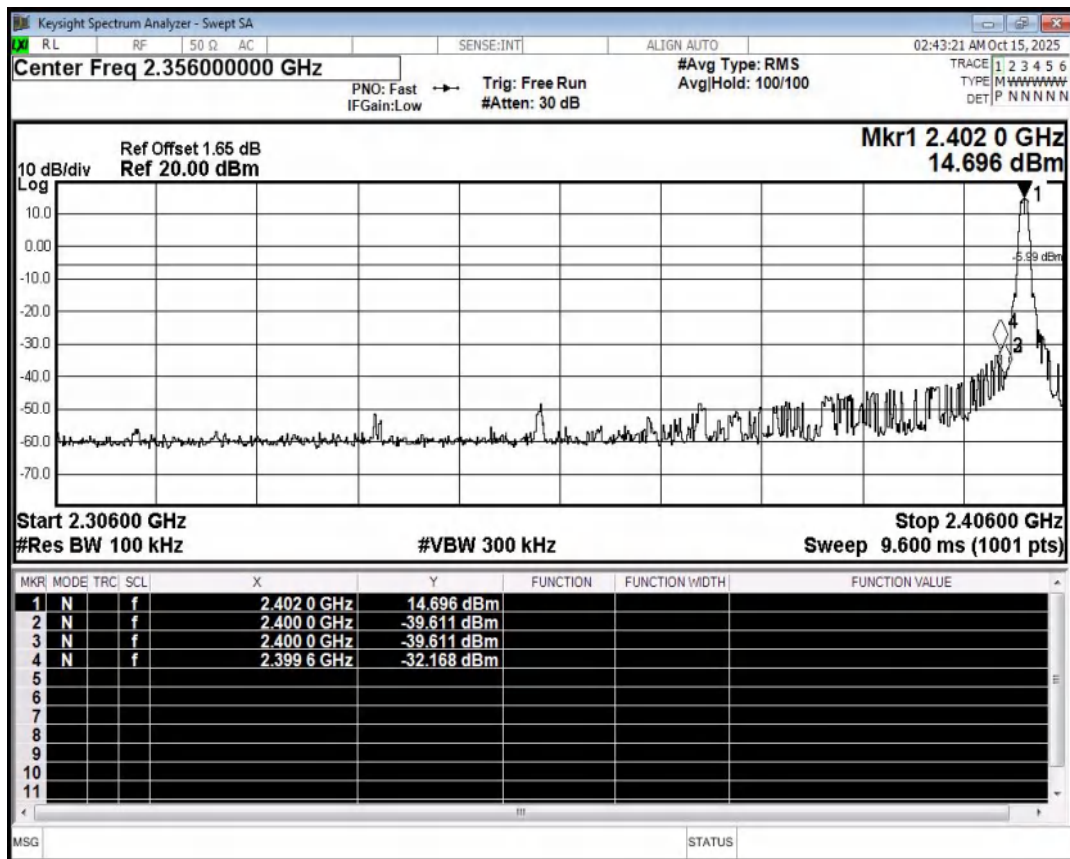
PSD NVNT BLE S8 2480MHz Ant1

B.4 Band Edge

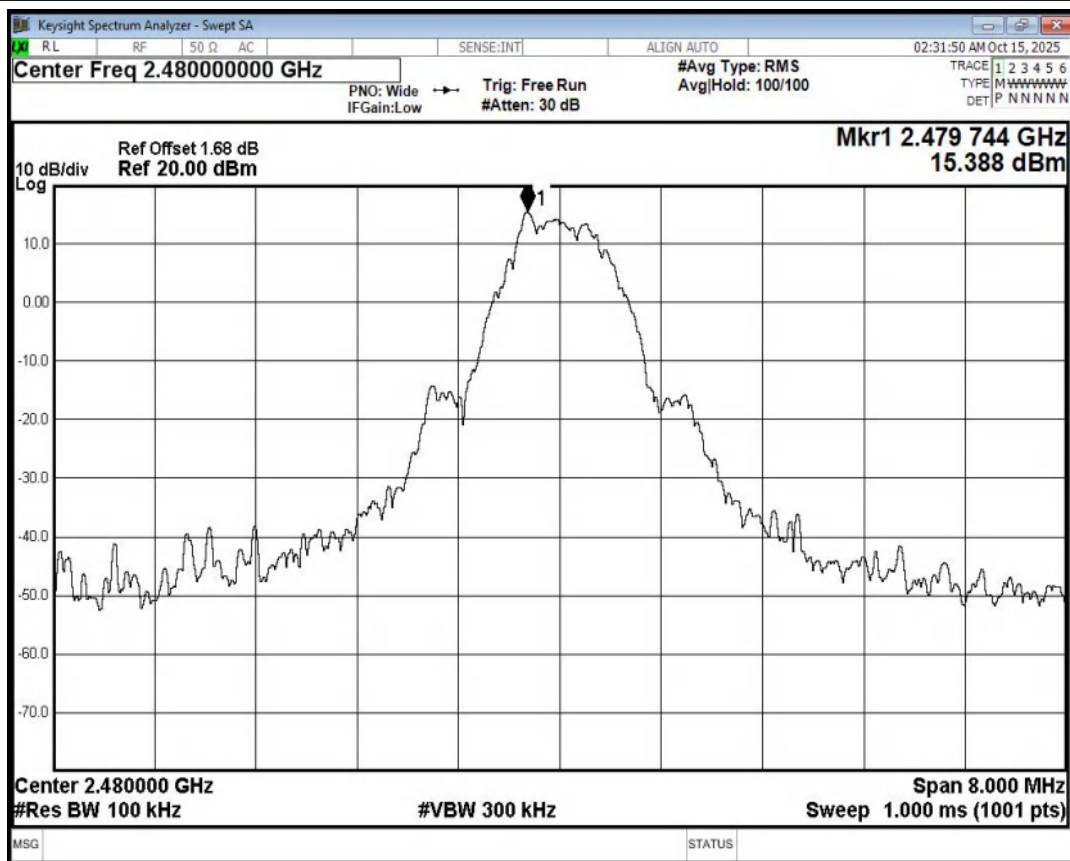
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE S2	2402	Ant1	-46.17	-20	Pass
NVNT	BLE S2	2480	Ant1	-62.07	-20	Pass
NVNT	BLE S8	2402	Ant1	-46.73	-20	Pass
NVNT	BLE S8	2480	Ant1	-60.15	-20	Pass



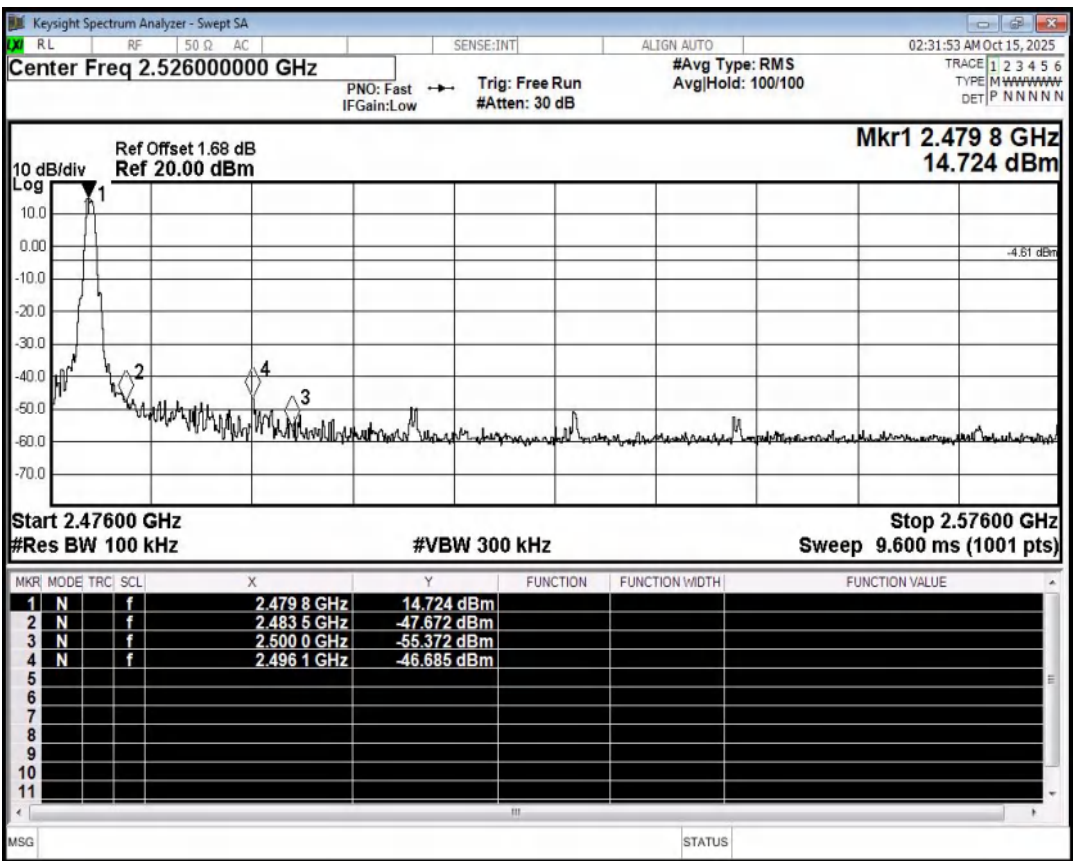
Band Edge NVNT BLE S2 2402MHz Ant1 Ref



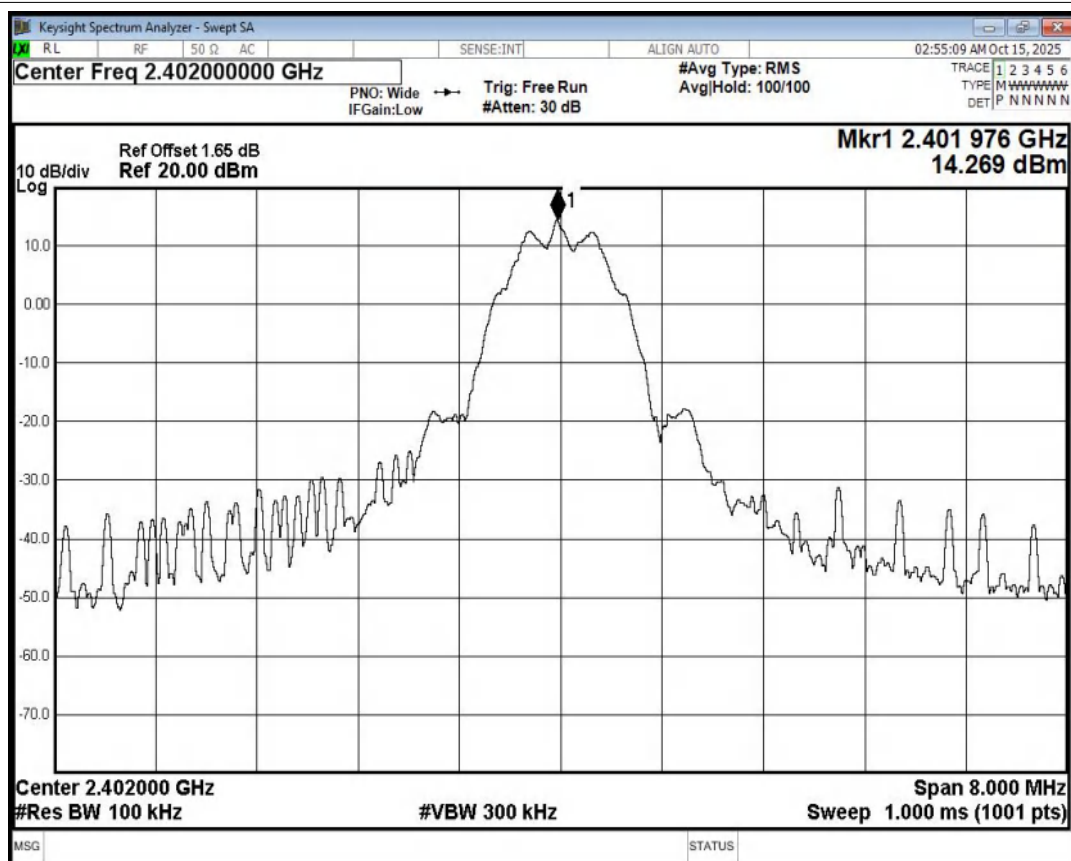
Band Edge NVNT BLE S2 2402MHz Ant1 Emission



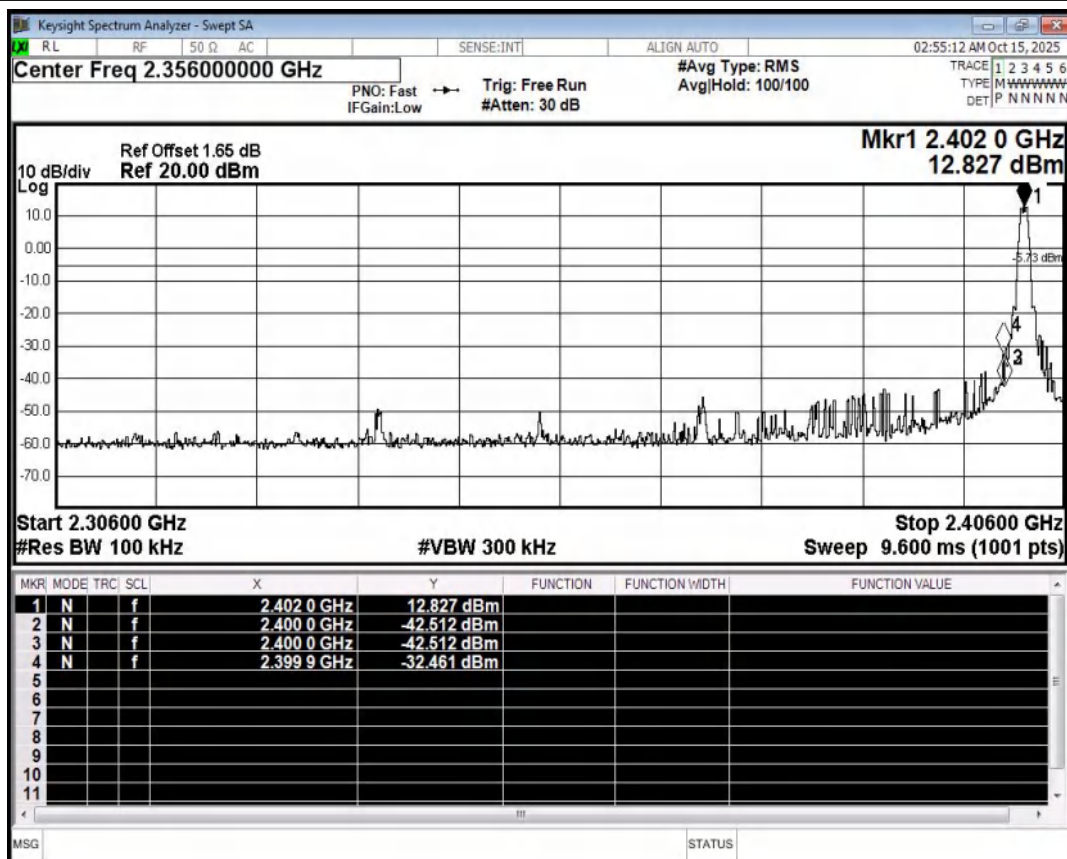
Band Edge NVNT BLE S2 2480MHz Ant1 Ref



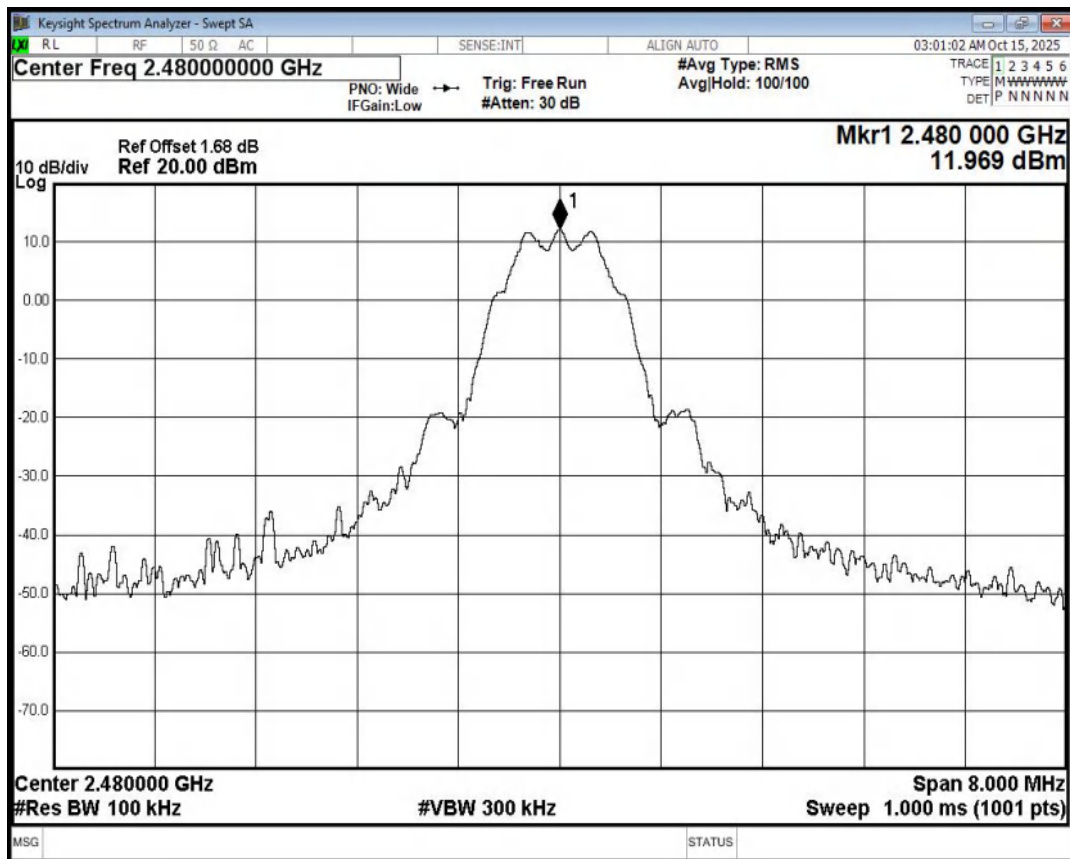
Band Edge NVNT BLE S2 2480MHz Ant1 Emission



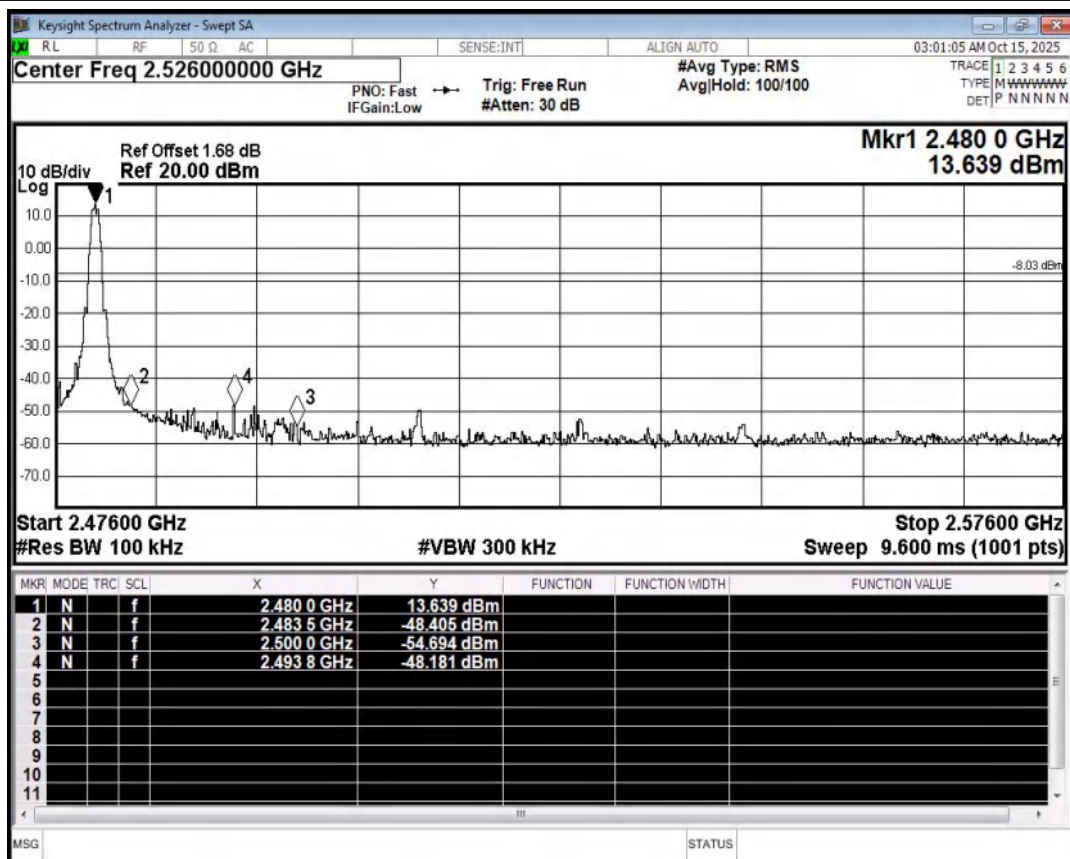
Band Edge NVNT BLE S8 2402MHz Ant1 Ref



Band Edge NVNT BLE S8 2402MHz Ant1 Emission



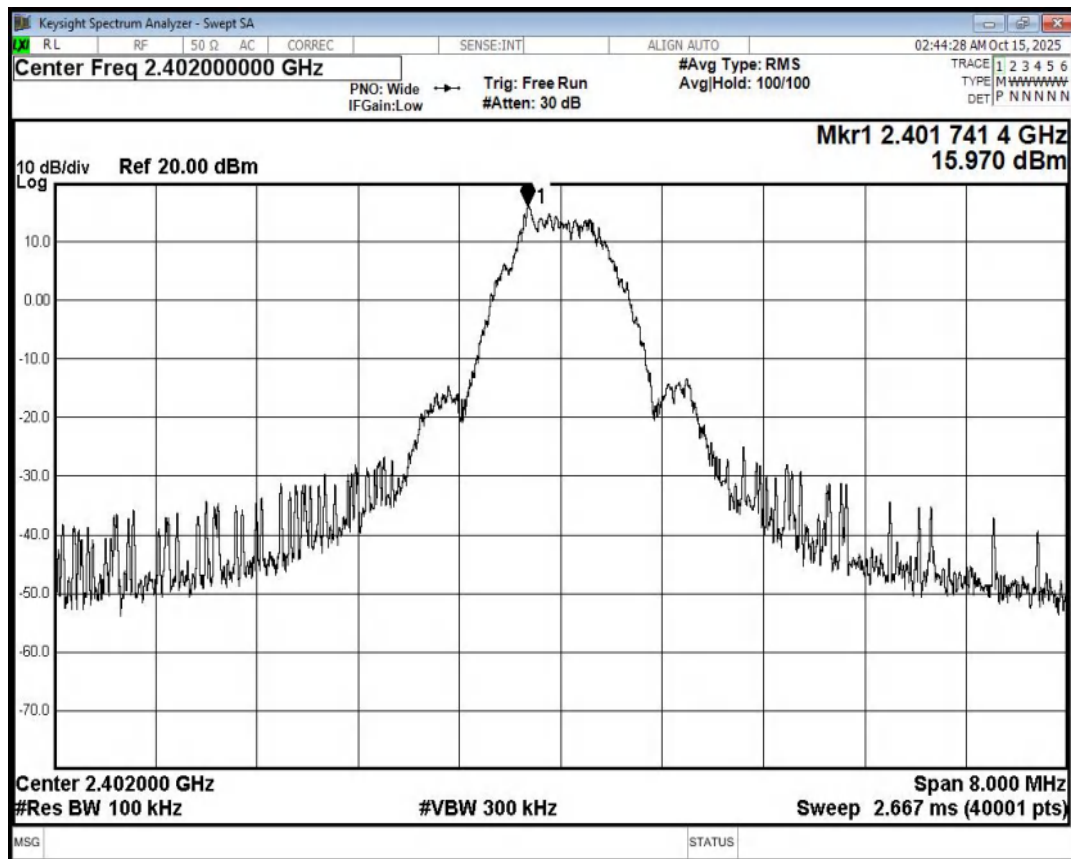
Band Edge NVNT BLE S8 2480MHz Ant1 Ref



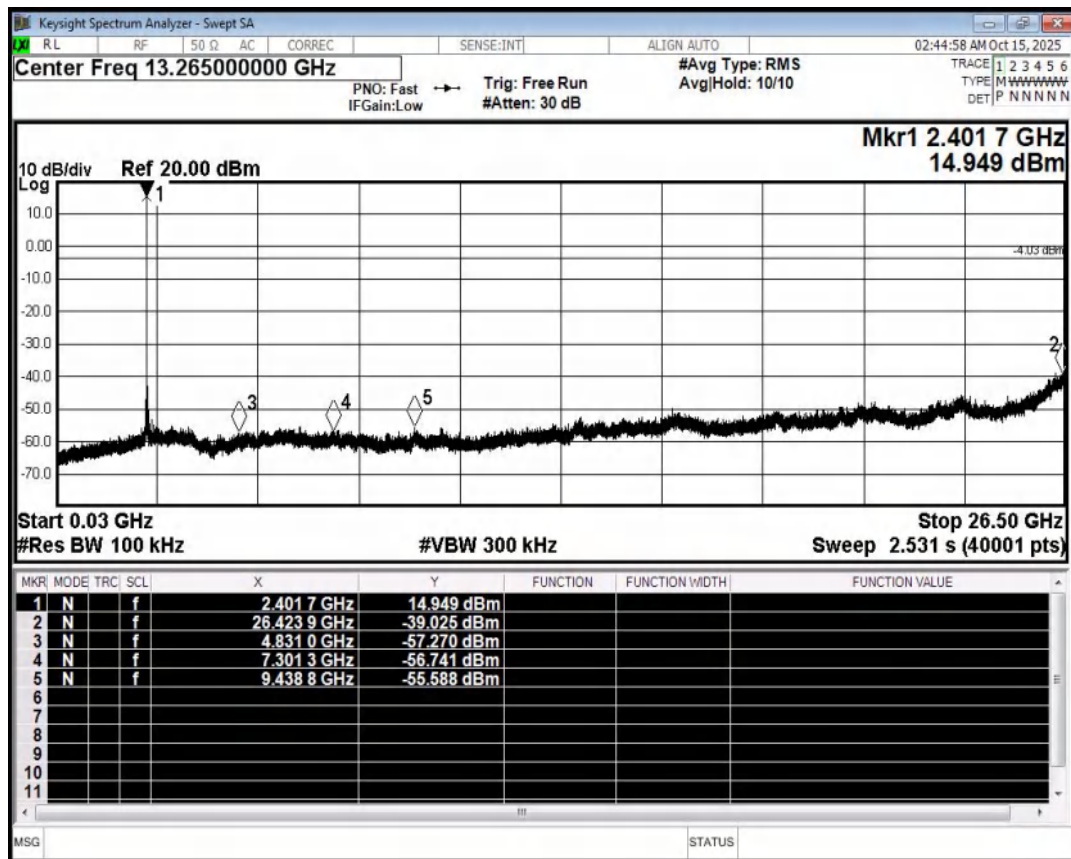
Band Edge NVNT BLE S8 2480MHz Ant1 Emission

B.5 Conducted RF Spurious Emission

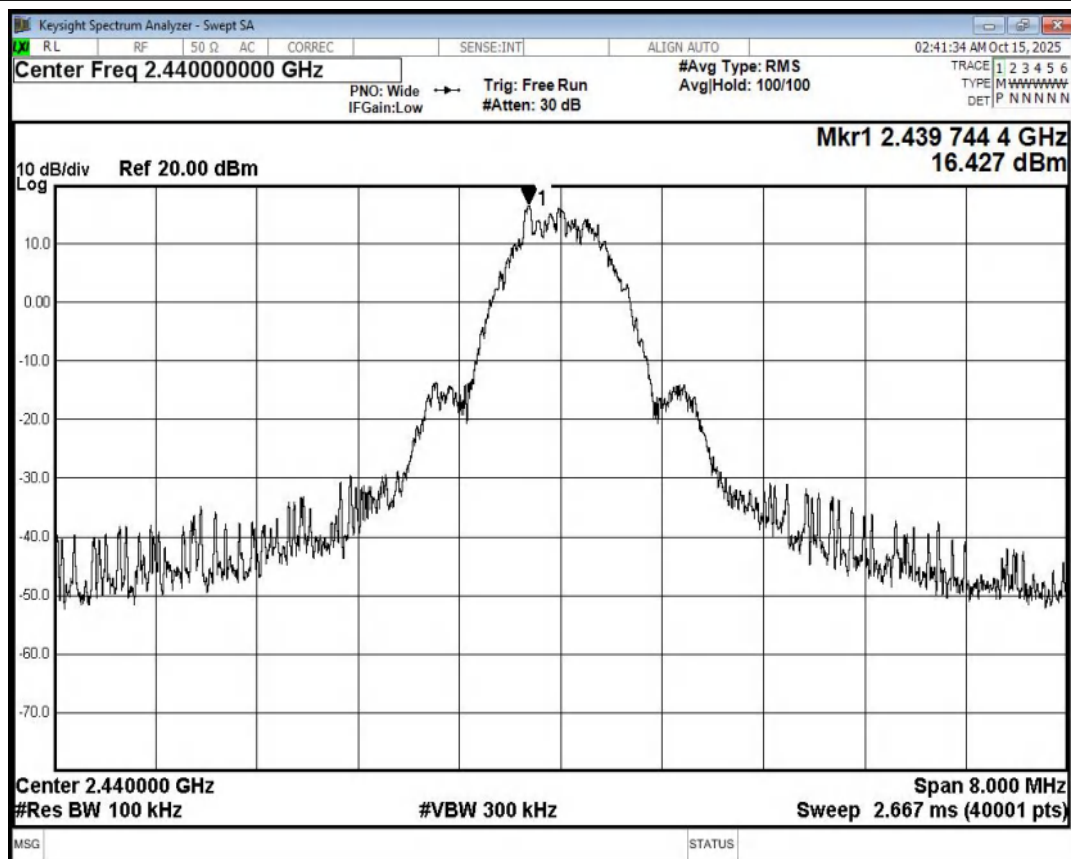
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE S2	2402	Ant1	-54.99	-20	Pass
NVNT	BLE S2	2440	Ant1	-55.24	-20	Pass
NVNT	BLE S2	2480	Ant1	-52.05	-20	Pass
NVNT	BLE S8	2402	Ant1	-51.44	-20	Pass
NVNT	BLE S8	2440	Ant1	-54.4	-20	Pass
NVNT	BLE S8	2480	Ant1	-50.72	-20	Pass



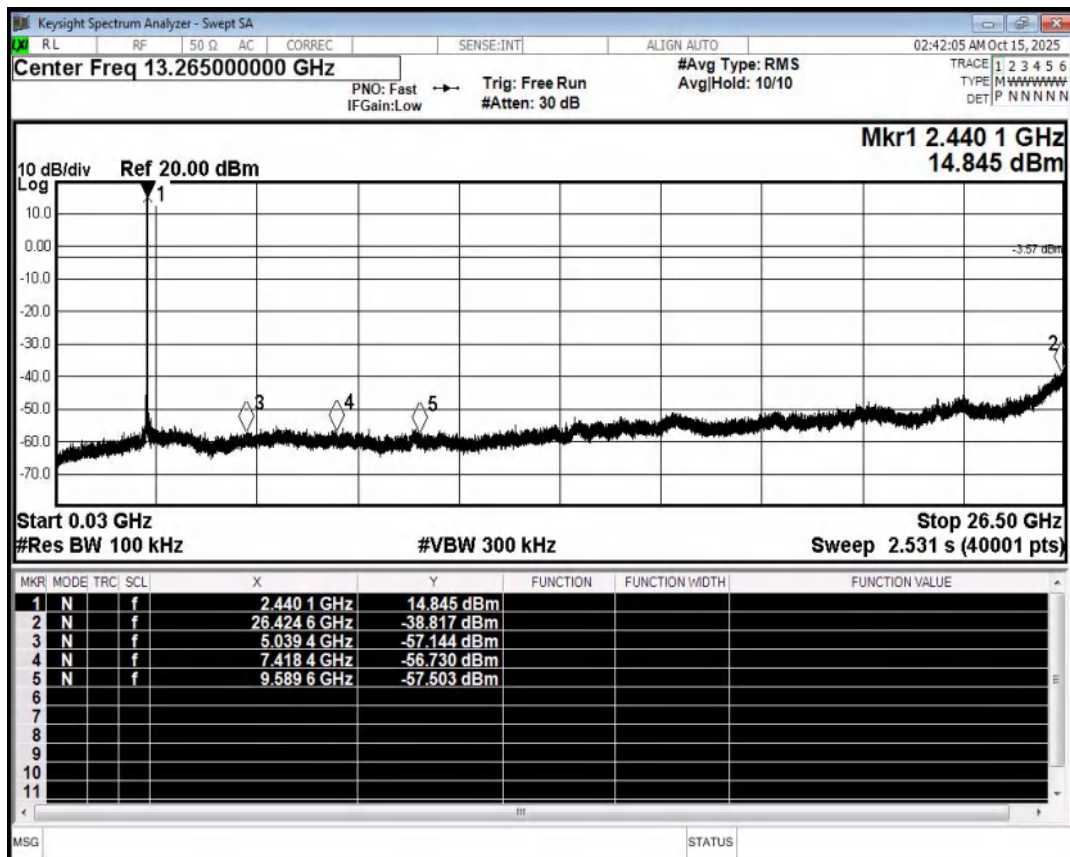
Tx. Spurious NVNT BLE S2 2402MHz Ant1 Ref



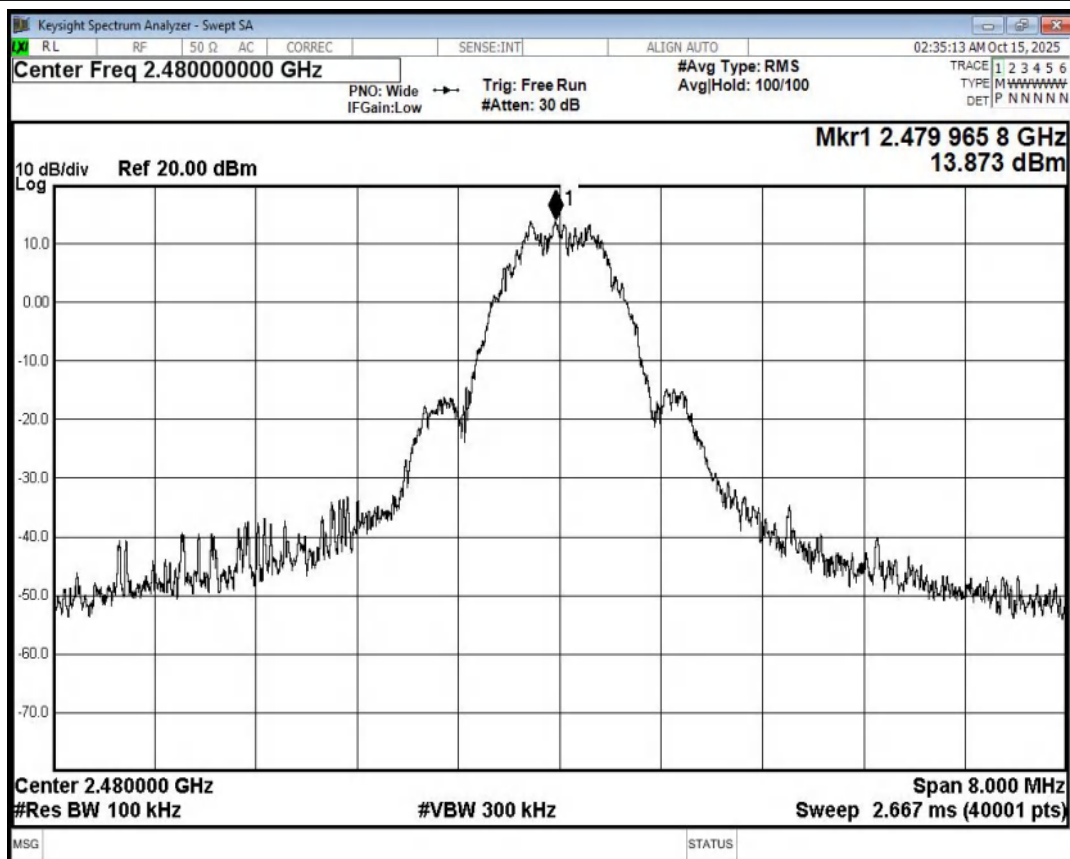
Tx. Spurious NVNT BLE S2 2402MHz Ant1 Emission



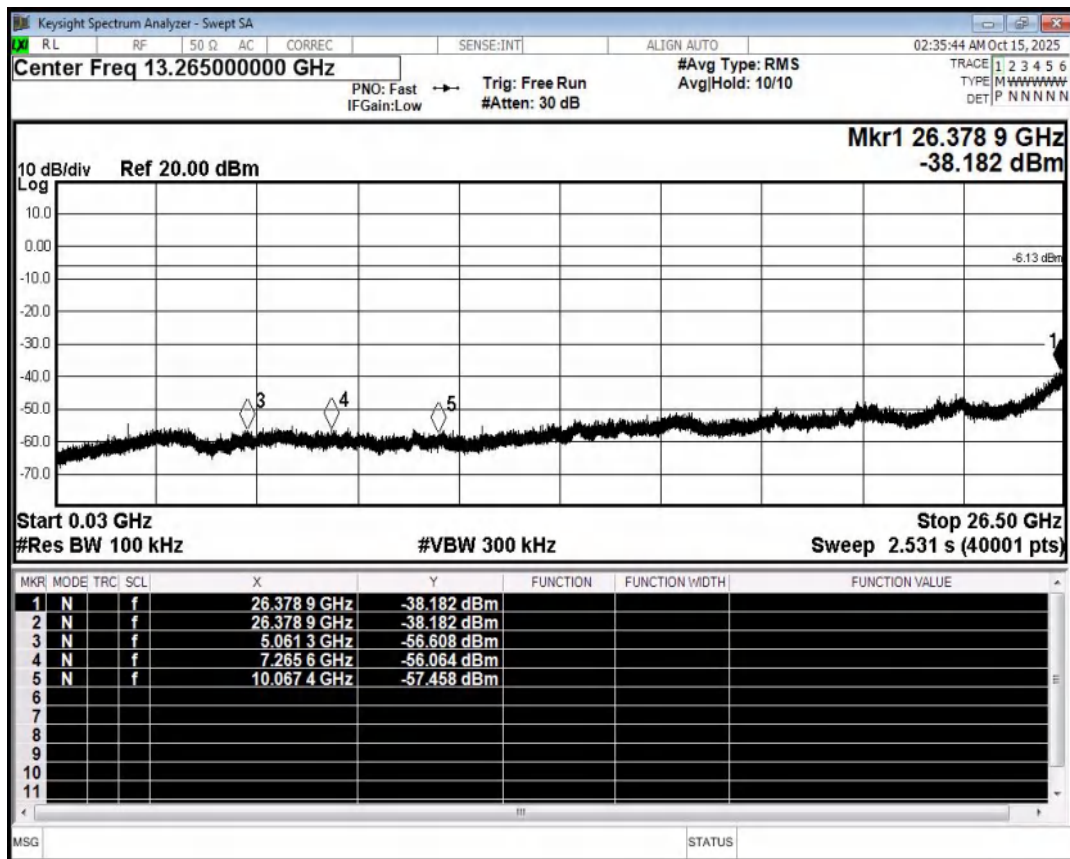
Tx. Spurious NVNT BLE S2 2440MHz Ant1 Ref



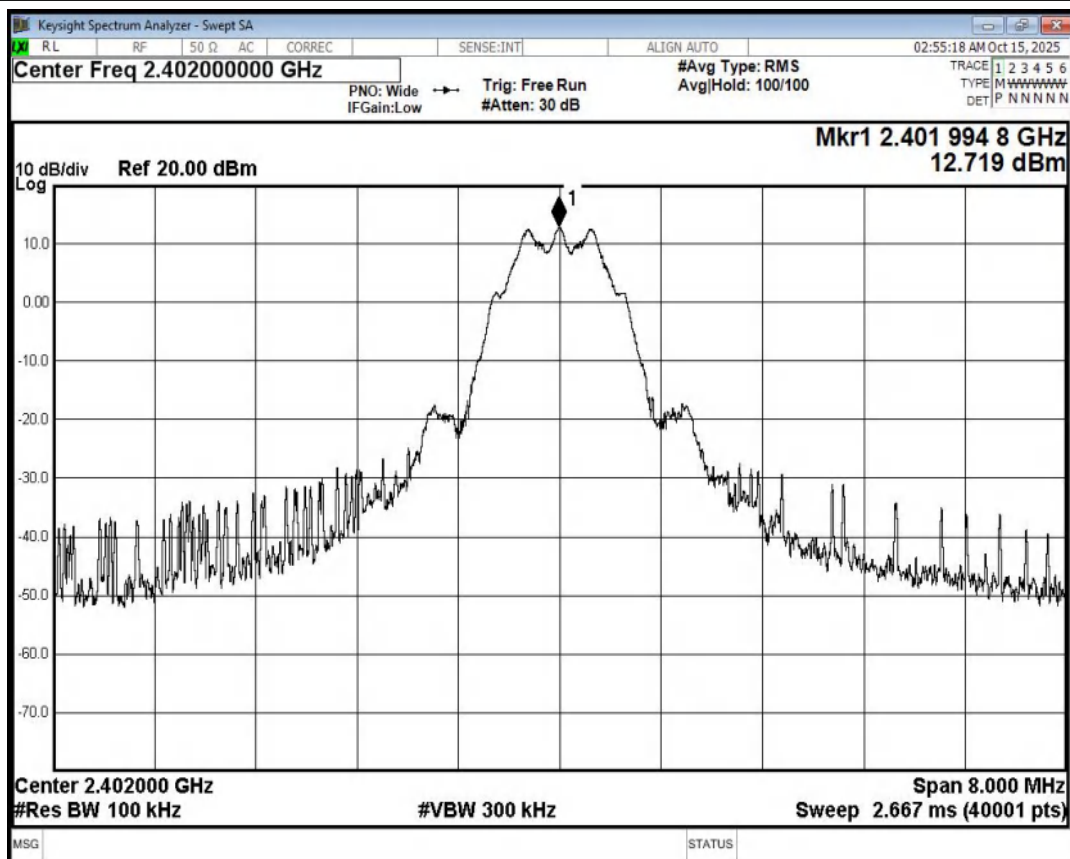
Tx. Spurious NVNT BLE S2 2440MHz Ant1 Emission



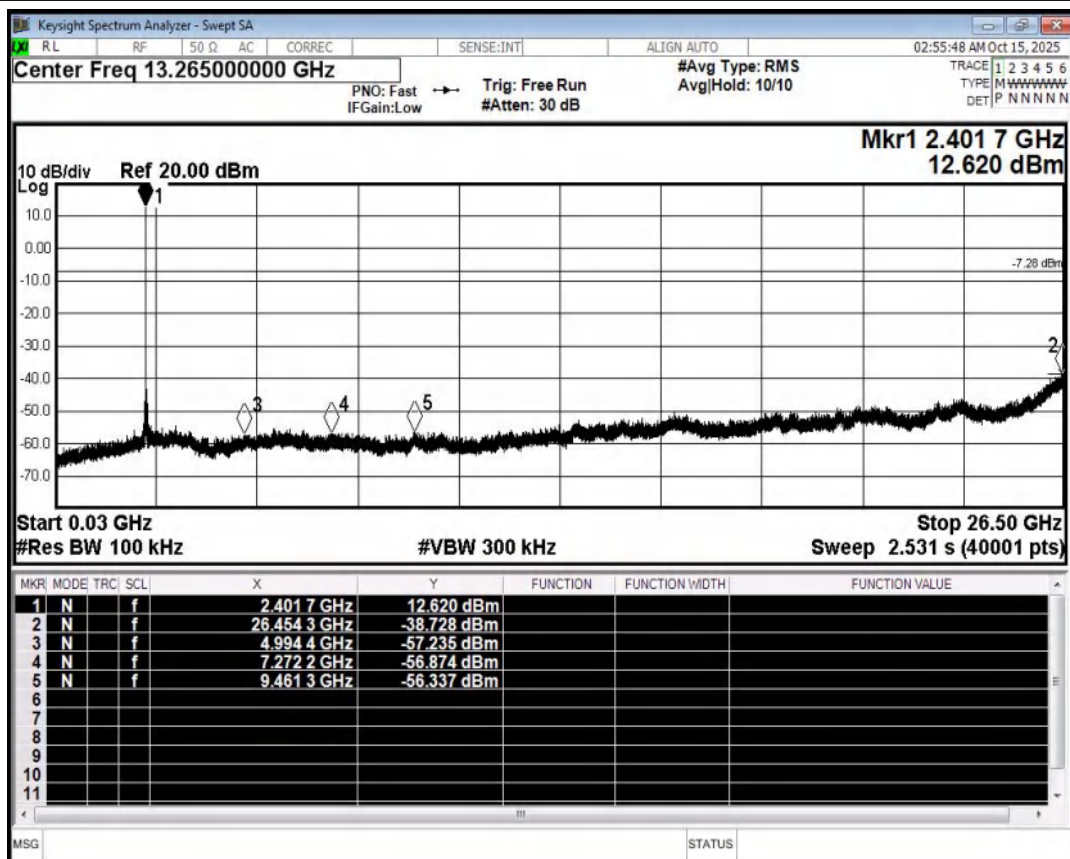
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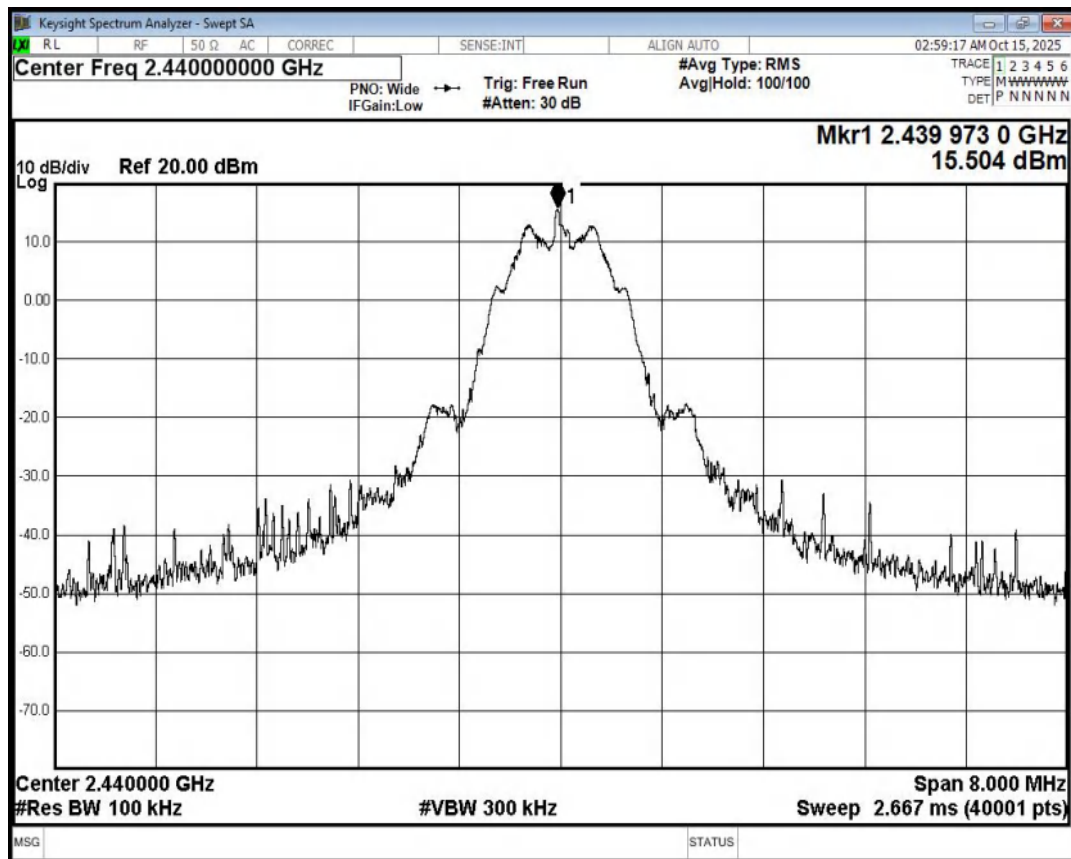
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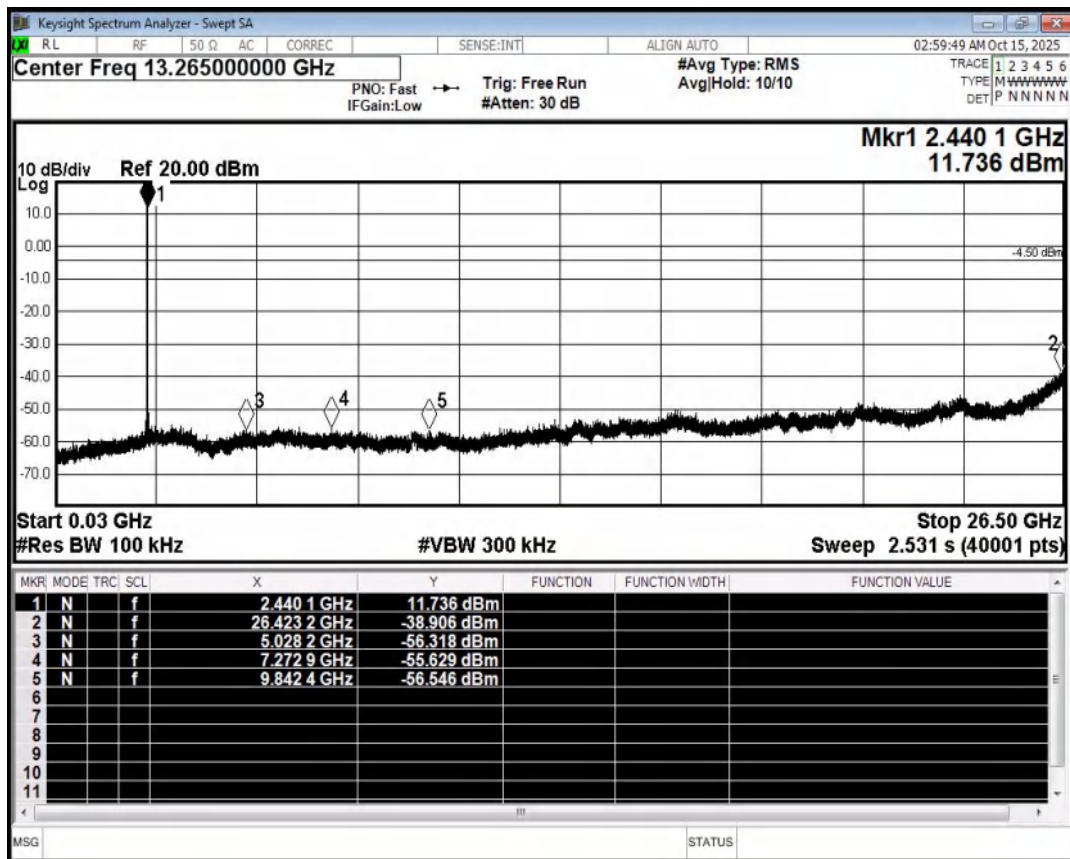
Tx. Spurious NVNT BLE S8 2402MHz Ant1 Ref



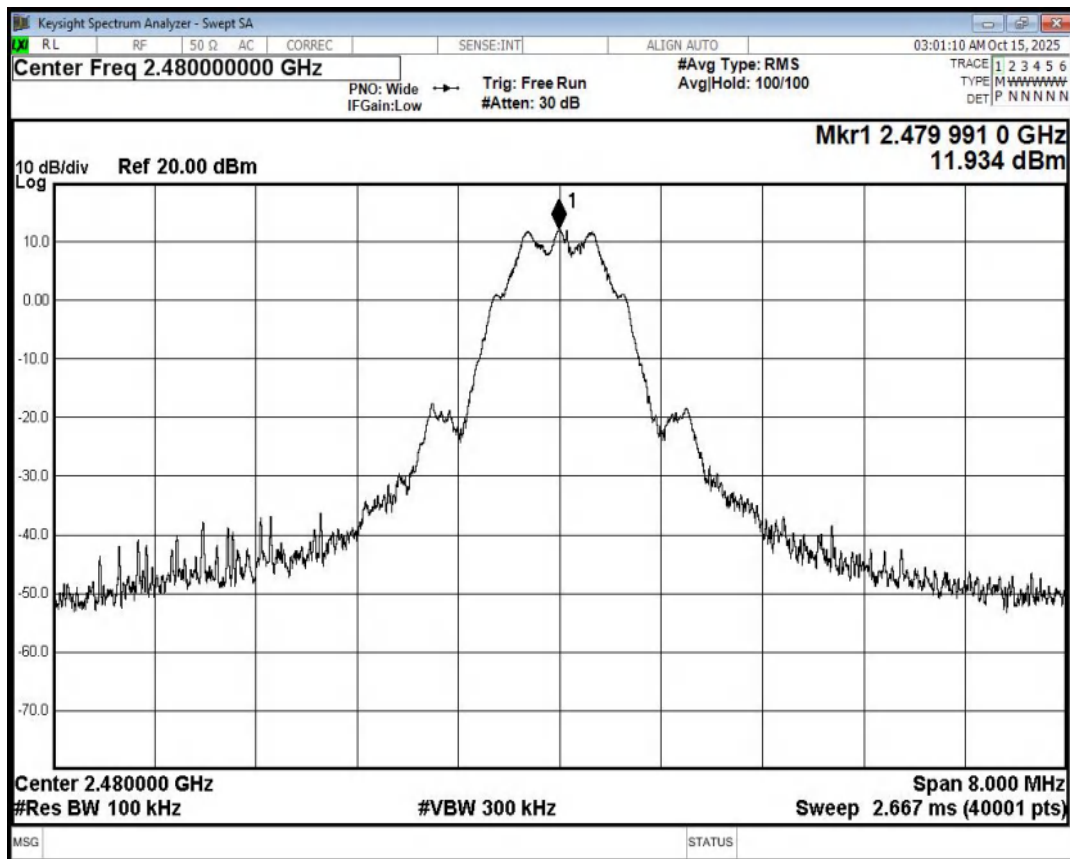
Tx. Spurious NVNT BLE S8 2402MHz Ant1 Emission



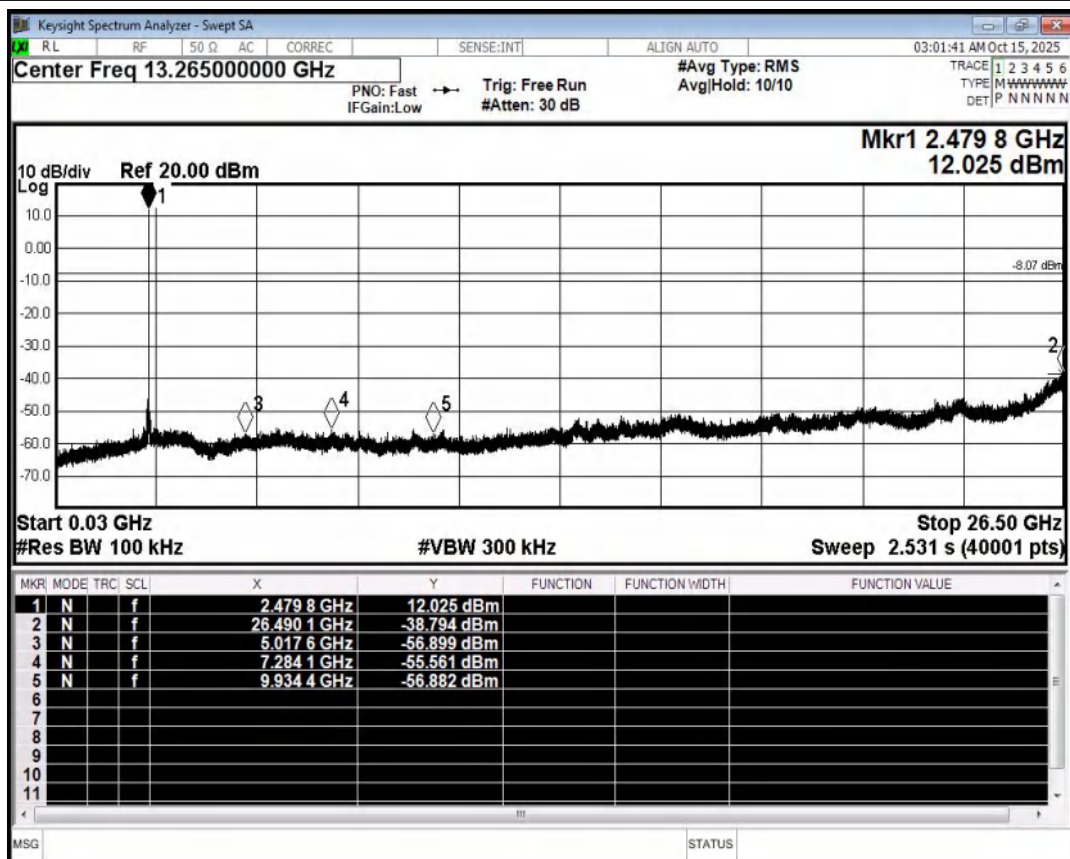
Tx. Spurious NVNT BLE S8 2440MHz Ant1 Ref



Tx. Spurious NVNT BLE S8 2440MHz Ant1 Emission



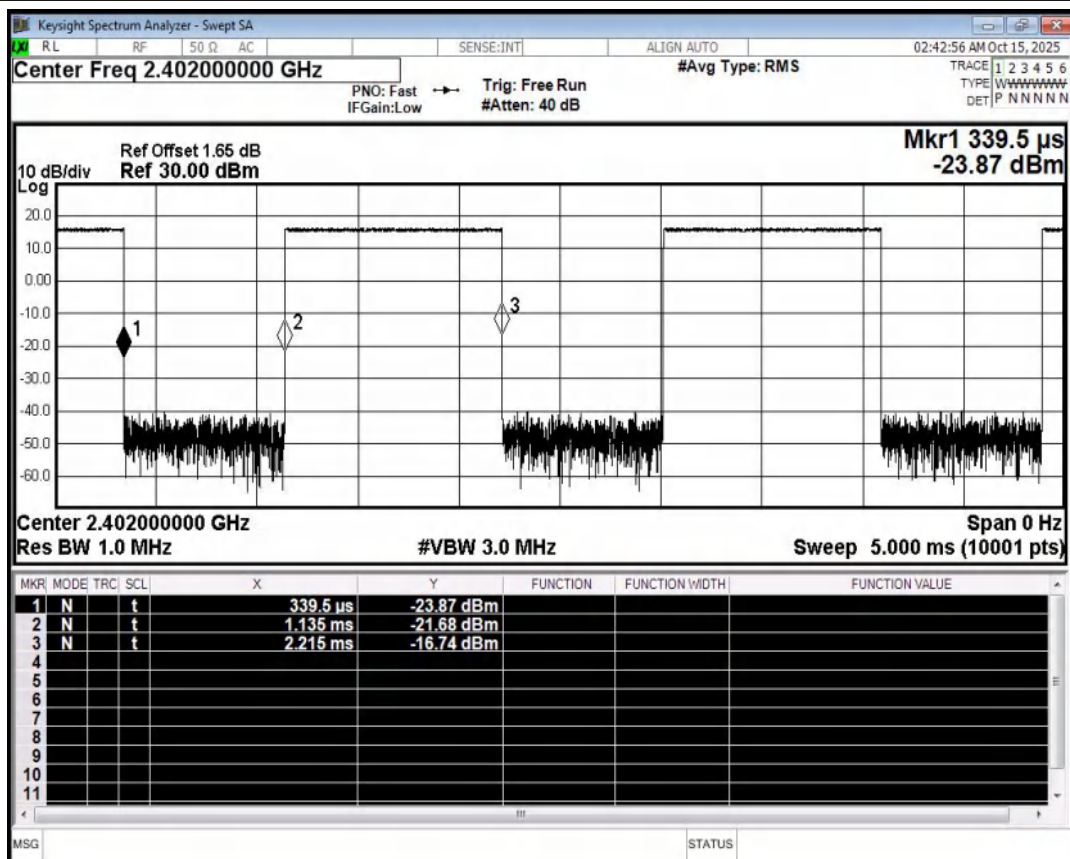
Tx. Spurious NVNT BLE S8 2480MHz Ant1 Ref



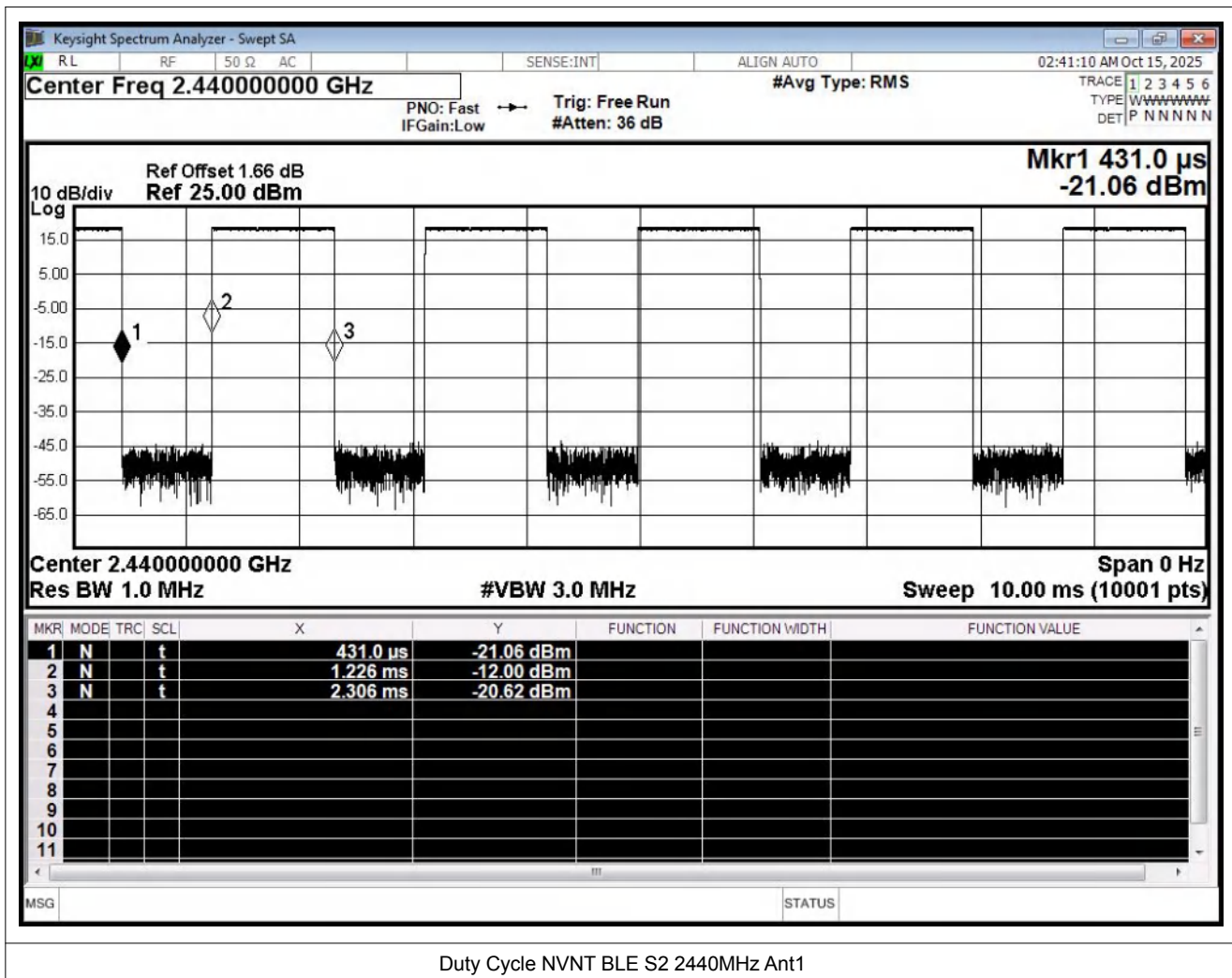
Tx. Spurious NVNT BLE S8 2480MHz Ant1 Emission

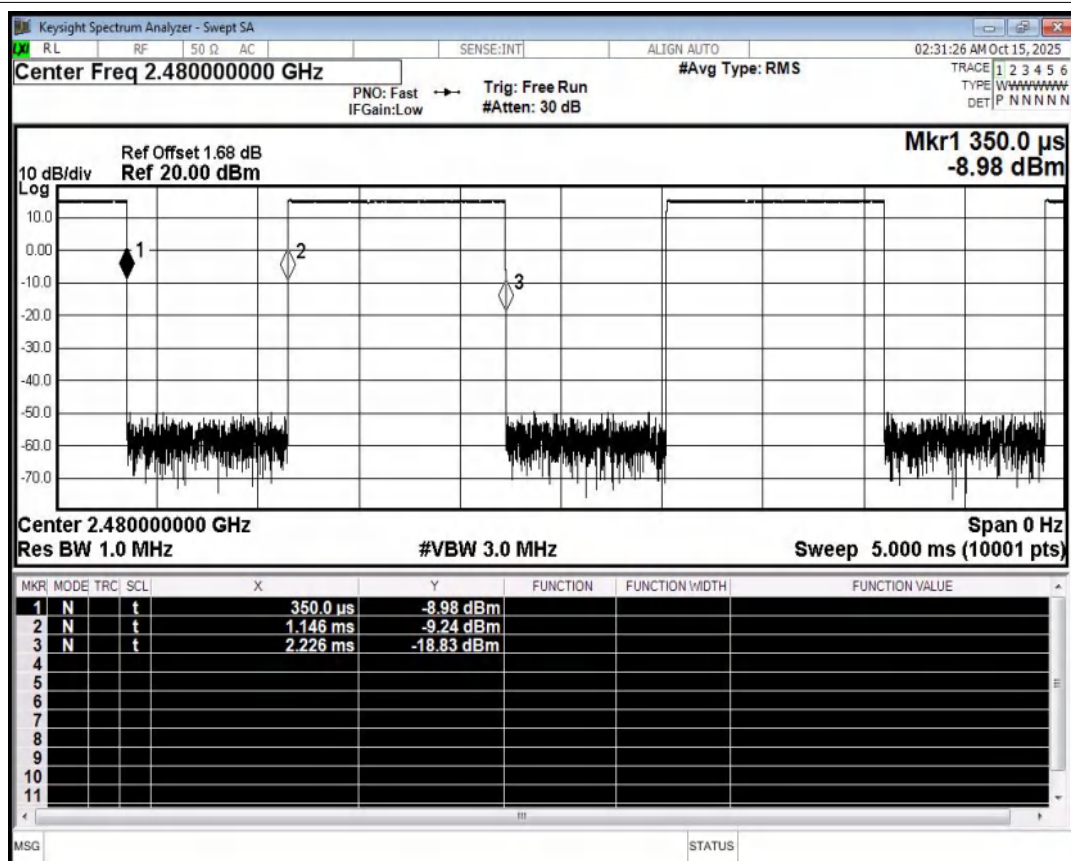
B.6 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE S2	2402	Ant1	57.57	2.4	0.93
NVNT	BLE S2	2440	Ant1	57.6	2.4	0.93
NVNT	BLE S2	2480	Ant1	57.56	2.4	0.93
NVNT	BLE S8	2402	Ant1	82.88	0.82	0.32
NVNT	BLE S8	2440	Ant1	82.88	0.82	0.32
NVNT	BLE S8	2480	Ant1	82.87	0.82	0.32

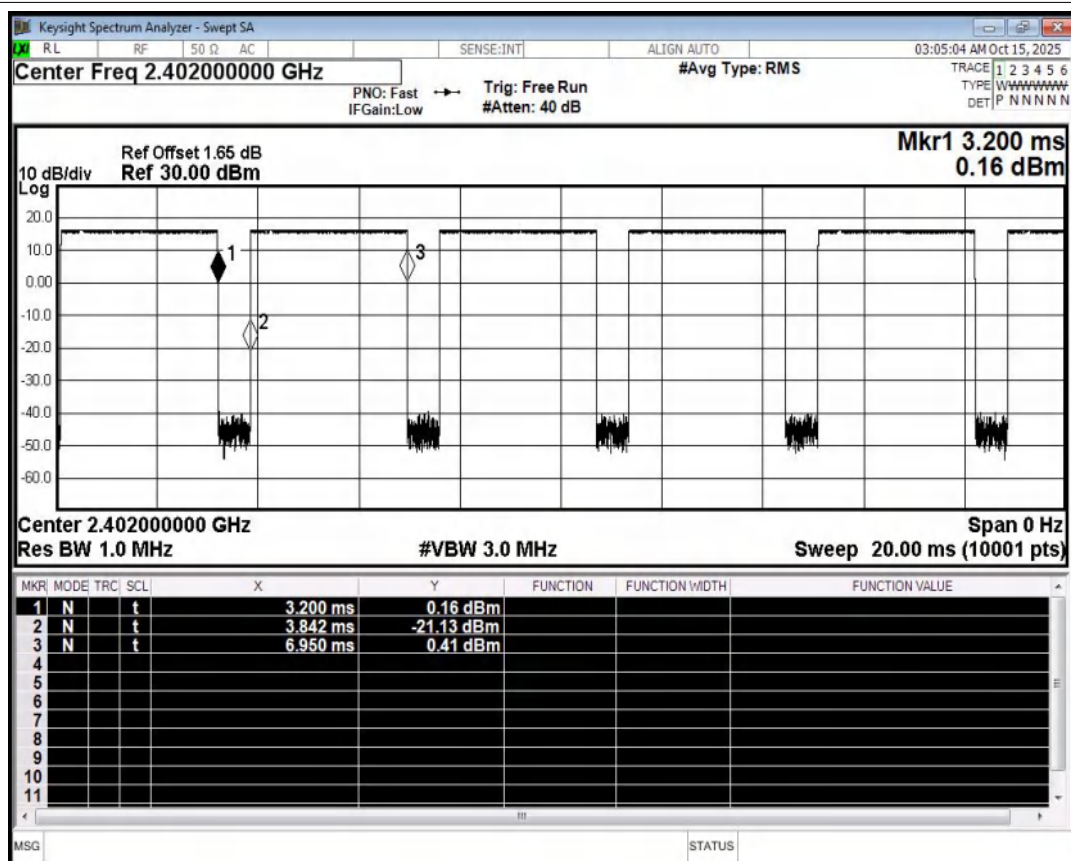


Duty Cycle NVNT BLE S2 2402MHz Ant1

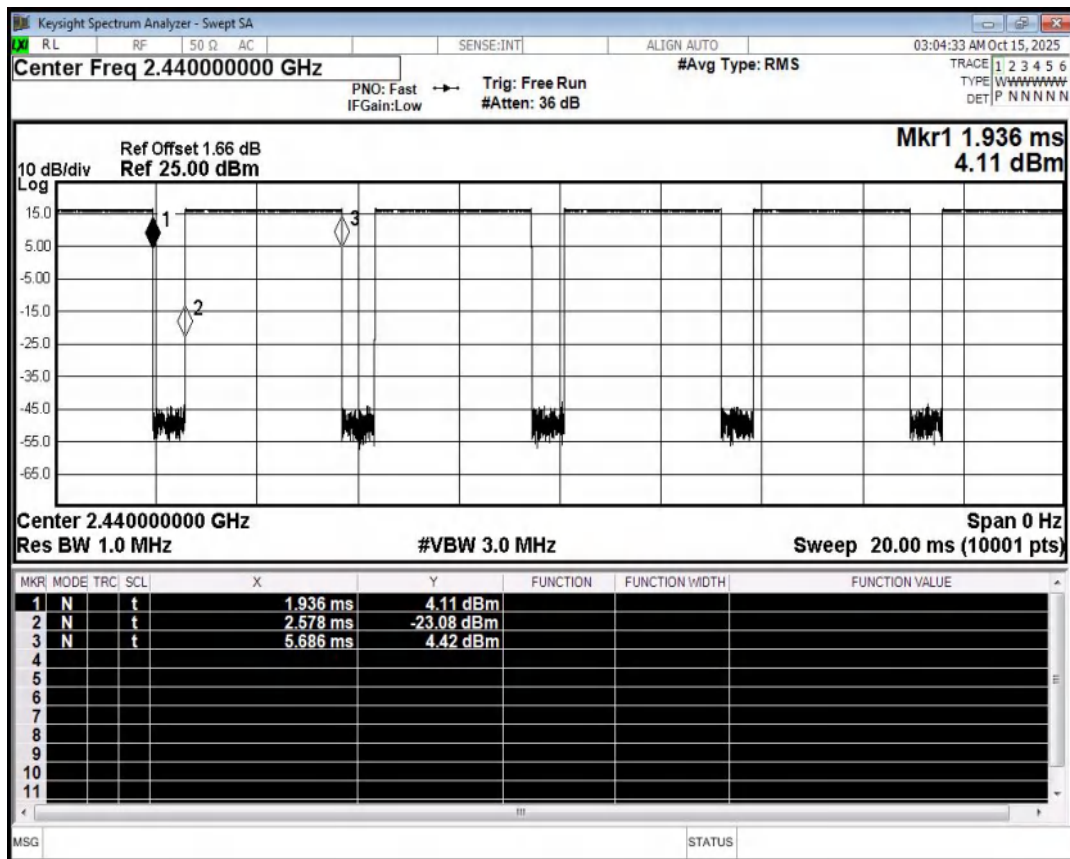




Duty Cycle NVNT BLE S2 2480MHz Ant1



Duty Cycle NVNT BLE S8 2402MHz Ant1



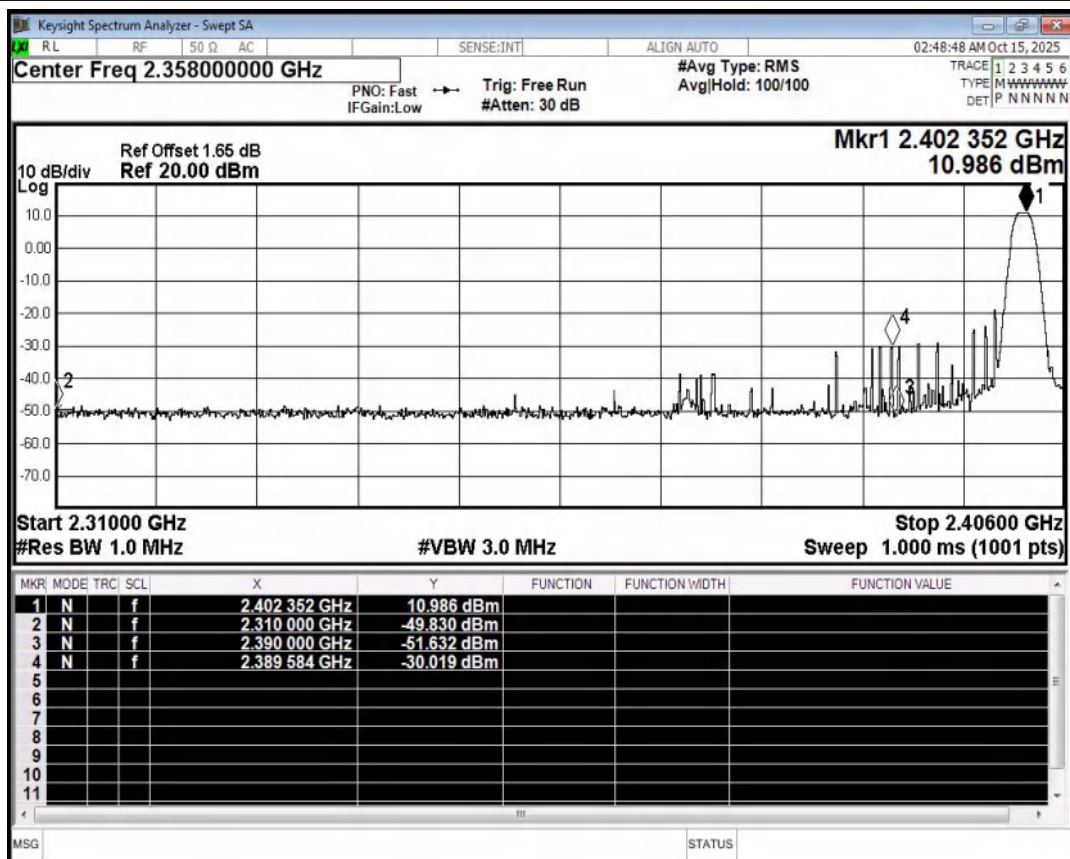
Duty Cycle NVNT BLE S8 2440MHz Ant1



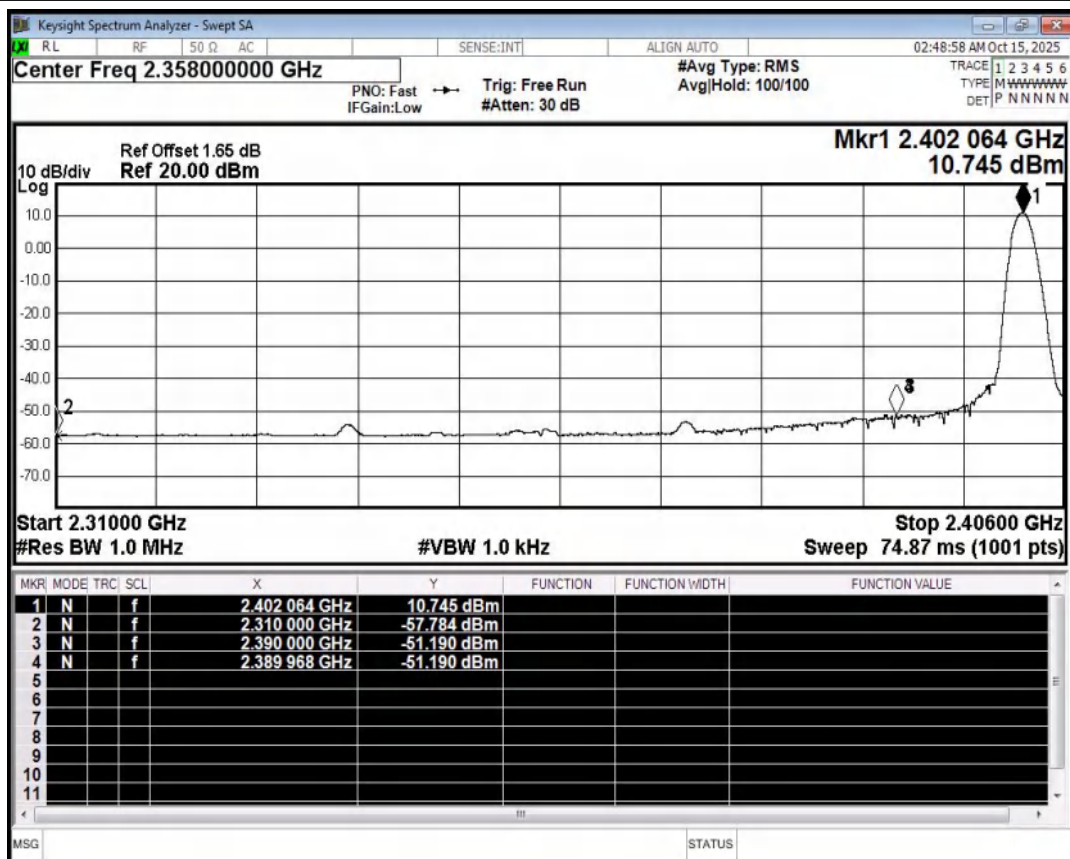
Duty Cycle NVNT BLE S8 2480MHz Ant1

B.7 Restrict Band

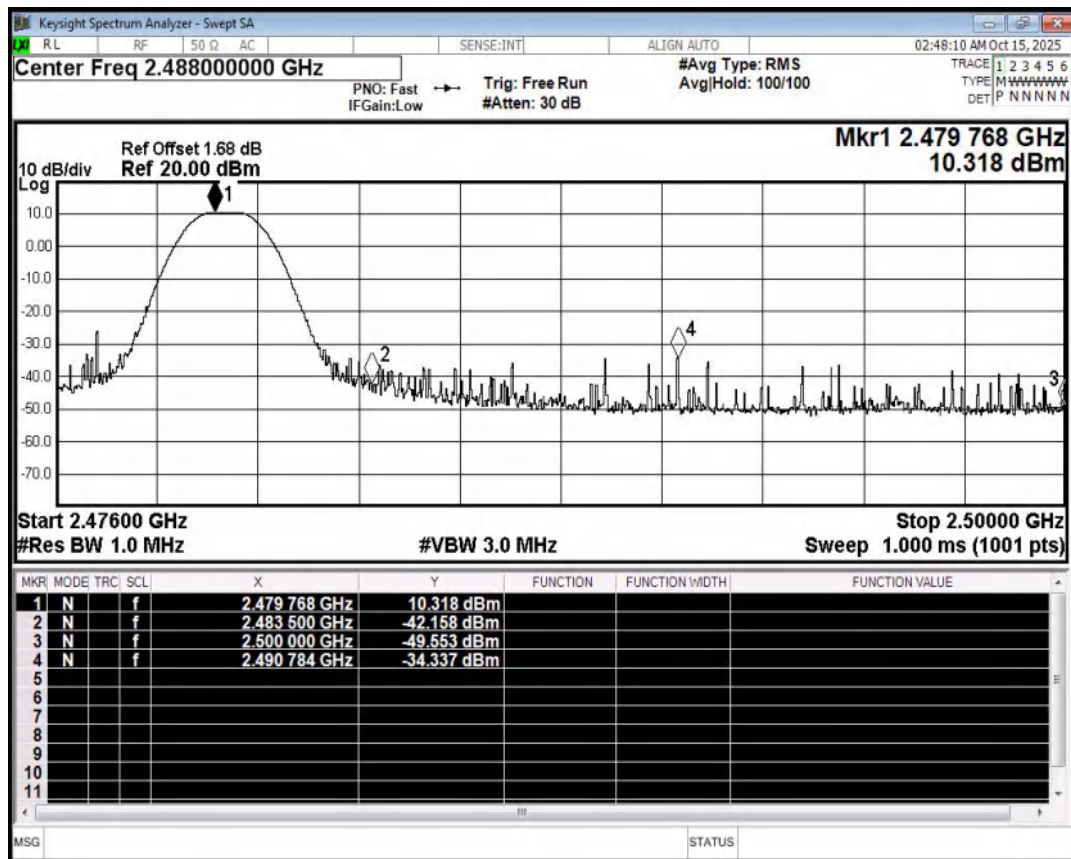
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE S2	2402	Ant1	2310	-49.83	3.32	-	48.75	Peak	74	Pass
NVNT	BLE S2	2402	Ant1	2310	-57.78	3.32	2.4	43.20	Average	54	Pass
NVNT	BLE S2	2402	Ant1	2389.584	-30.01	3.32	-	68.57	Peak	74	Pass
NVNT	BLE S2	2402	Ant1	2389.968	-51.19	3.32	2.4	49.79	Average	54	Pass
NVNT	BLE S2	2402	Ant1	2390	-51.19	3.32	-	47.39	Peak	74	Pass
NVNT	BLE S2	2402	Ant1	2390	-51.93	3.32	2.4	49.05	Average	54	Pass
NVNT	BLE S2	2480	Ant1	2483.5	-42.15	3.32	-	56.43	Peak	74	Pass
NVNT	BLE S2	2480	Ant1	2483.5	-52.73	3.32	2.4	48.25	Average	54	Pass
NVNT	BLE S2	2480	Ant1	2490.784	-34.33	3.32	-	64.25	Peak	74	Pass
NVNT	BLE S2	2480	Ant1	2483.512	-49.93	3.32	2.4	51.05	Average	54	Pass
NVNT	BLE S2	2480	Ant1	2500	-49.55	3.32	-	49.03	Peak	74	Pass
NVNT	BLE S2	2480	Ant1	2500	-56.47	3.32	2.4	44.51	Average	54	Pass
NVNT	BLE S8	2402	Ant1	2310	-51.1	3.32	-	47.48	Peak	74	Pass
NVNT	BLE S8	2402	Ant1	2310	-57.65	3.32	0.82	41.75	Average	54	Pass
NVNT	BLE S8	2402	Ant1	2378.832	-34.25	3.32	-	64.33	Peak	74	Pass
NVNT	BLE S8	2402	Ant1	2389.104	-51.19	3.32	0.82	48.21	Average	54	Pass
NVNT	BLE S8	2402	Ant1	2390	-49.71	3.32	-	48.87	Peak	74	Pass
NVNT	BLE S8	2402	Ant1	2390	-51.25	3.32	0.82	48.15	Average	54	Pass
NVNT	BLE S8	2480	Ant1	2483.5	-43.49	3.32	-	55.09	Peak	74	Pass
NVNT	BLE S8	2480	Ant1	2483.5	-46.38	3.32	0.82	53.02	Average	54	Pass
NVNT	BLE S8	2480	Ant1	2490.232	-34.96	3.32	-	63.62	Peak	74	Pass
NVNT	BLE S8	2480	Ant1	2483.512	-46.38	3.32	0.82	53.02	Average	54	Pass
NVNT	BLE S8	2480	Ant1	2500	-49.63	3.32	-	48.95	Peak	74	Pass
NVNT	BLE S8	2480	Ant1	2500	-56.66	3.32	0.82	42.74	Average	54	Pass



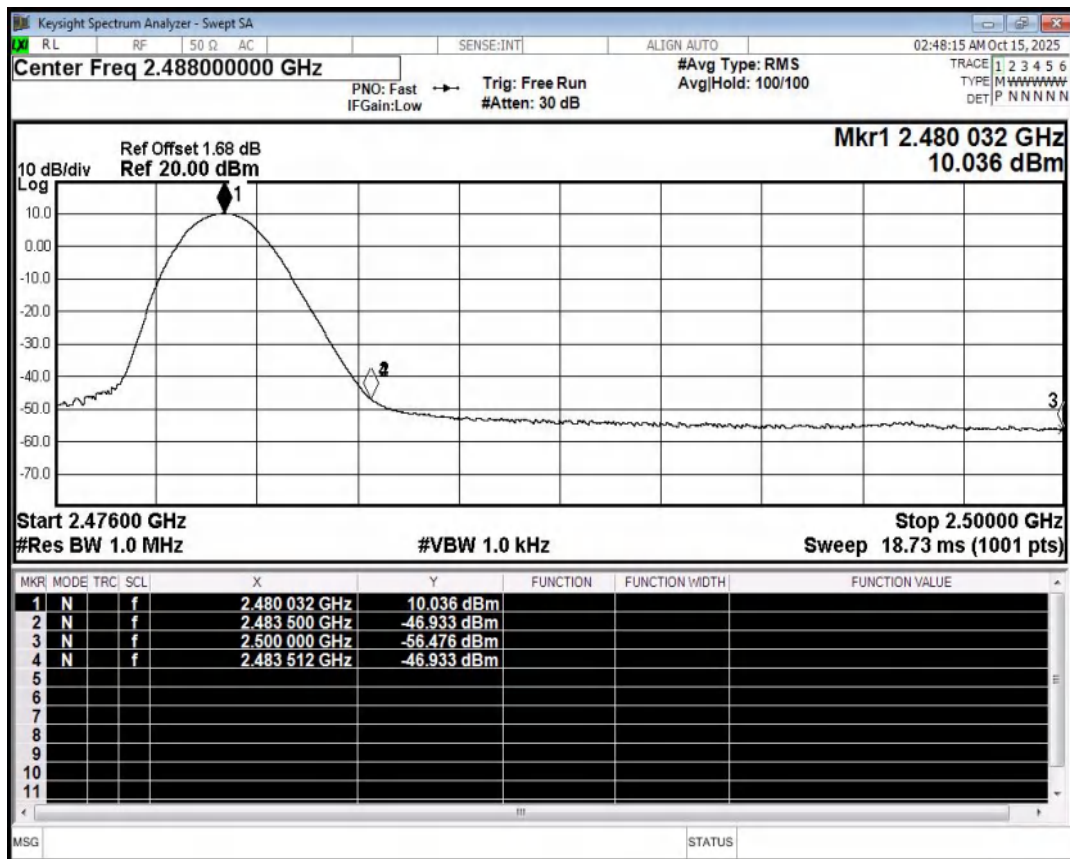
Restrict Band NVNT BLE S2 2402MHz Ant1 Peak



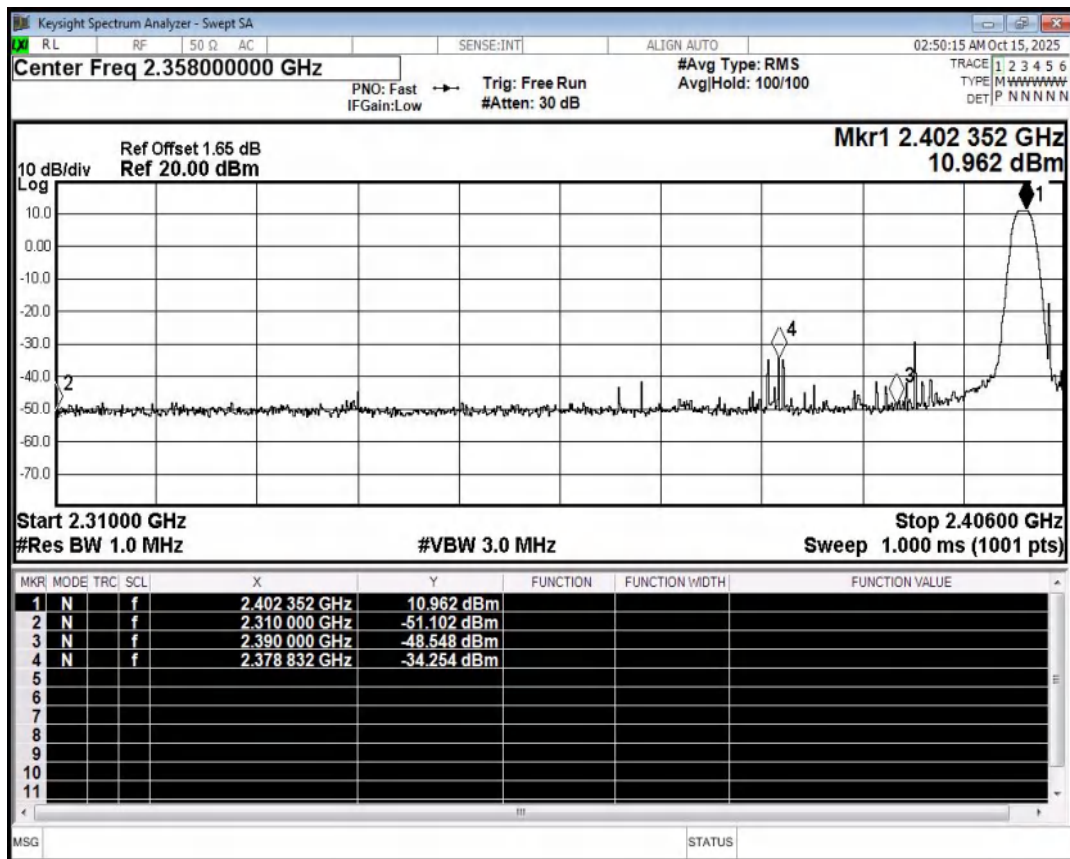
Restrict Band NVNT BLE S2 2402MHz Ant1 Average



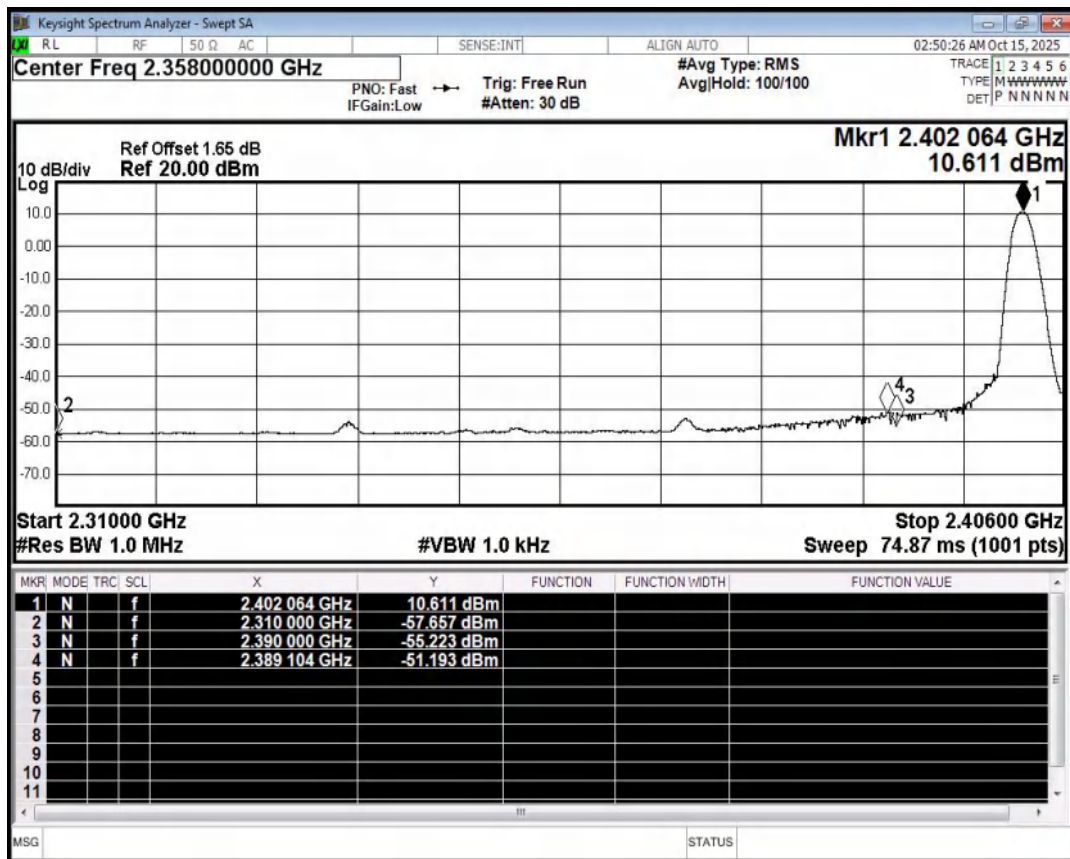
Restrict Band NVNT BLE S2 2480MHz Ant1 Peak



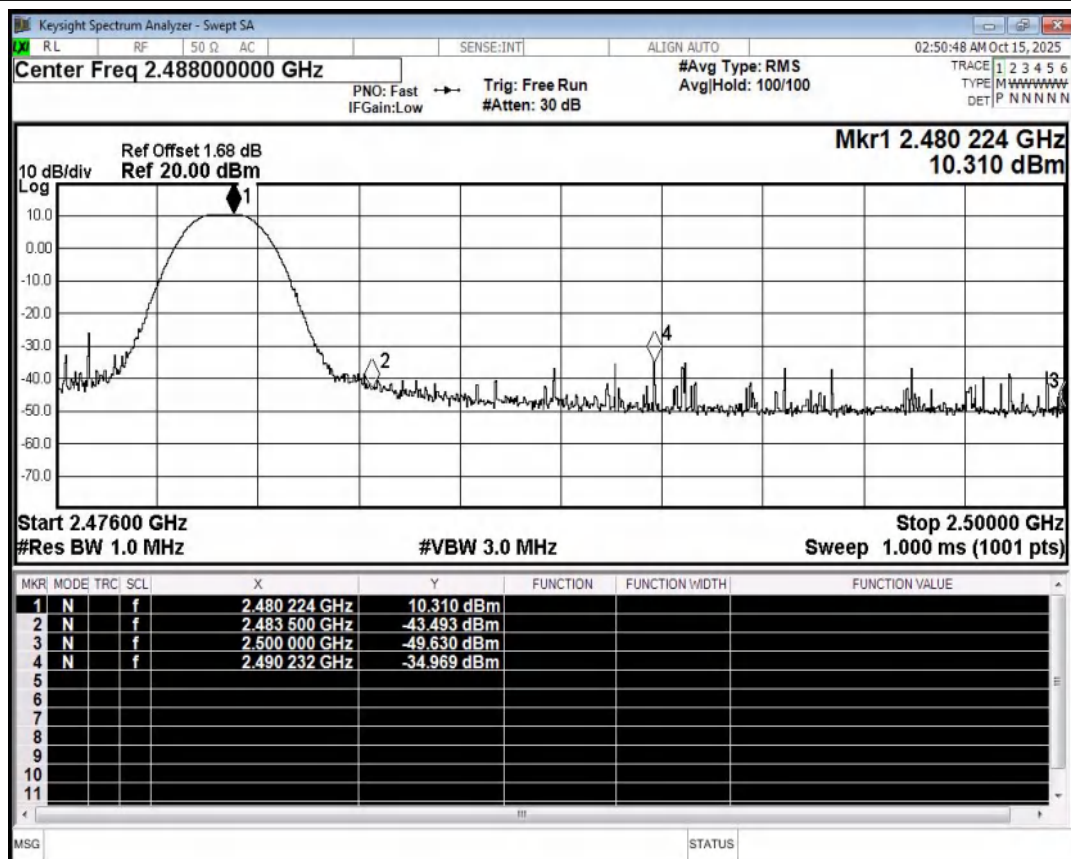
Restrict Band NVNT BLE S2 2480MHz Ant1 Average



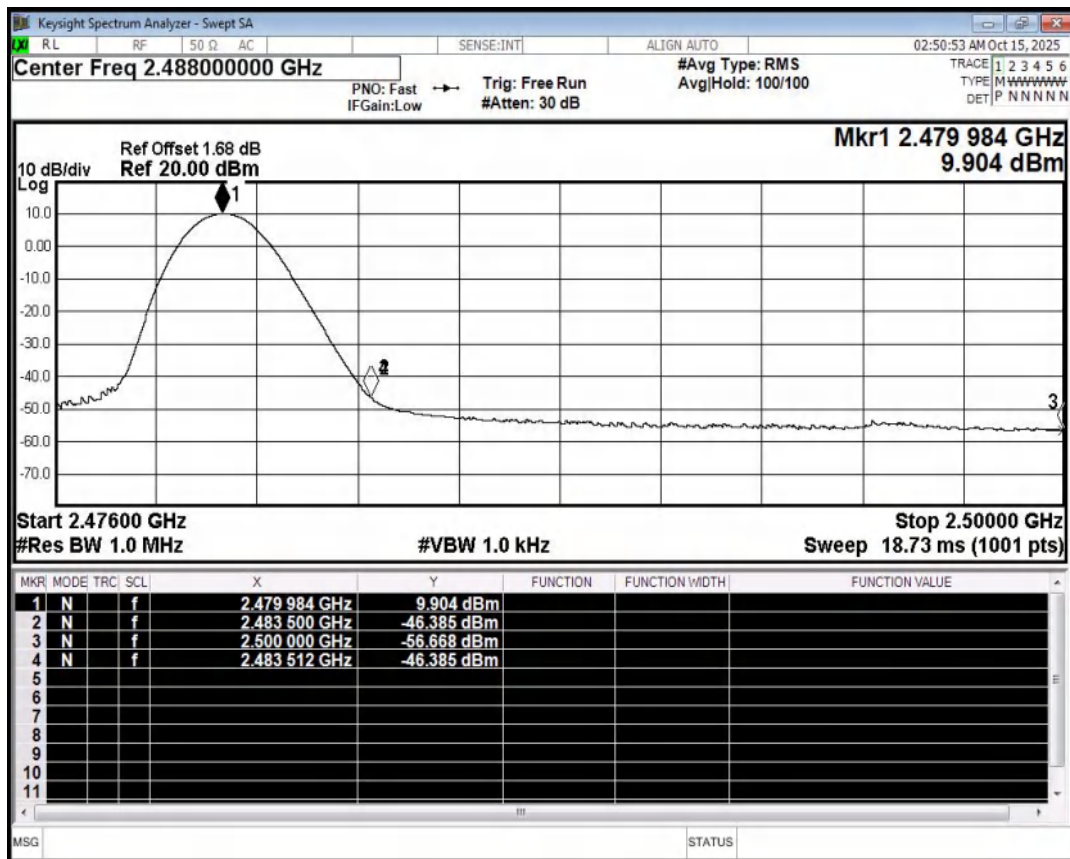
Restrict Band NVNT BLE S8 2402MHz Ant1 Peak



Restrict Band NVNT BLE S8 2402MHz Ant1 Average



Restrict Band NVNT BLE S8 2480MHz Ant1 Peak



Restrict Band NVNT BLE S8 2480MHz Ant1 Average