



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: WiFi Smart Lock

Test Model: KW217

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Joker Hu
Supervised by:	Ling Zhu



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A.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant0	0.664	≥ 0.5	Pass
NVNT	BLE 1M	2440	Ant0	0.719	≥ 0.5	Pass
NVNT	BLE 1M	2480	Ant0	0.676	≥ 0.5	Pass



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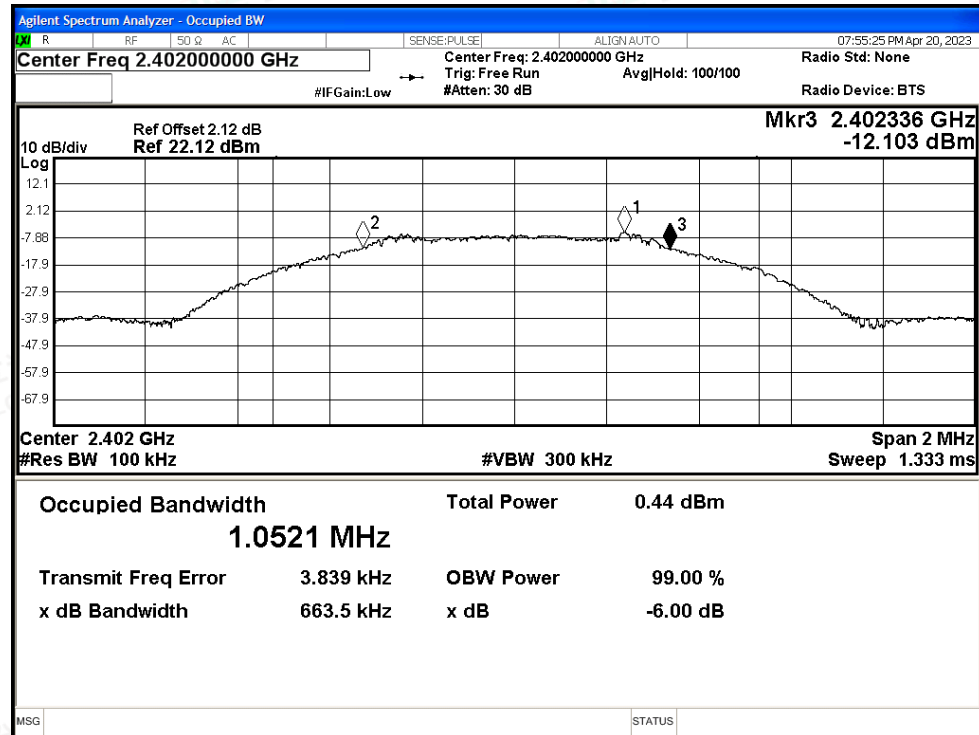
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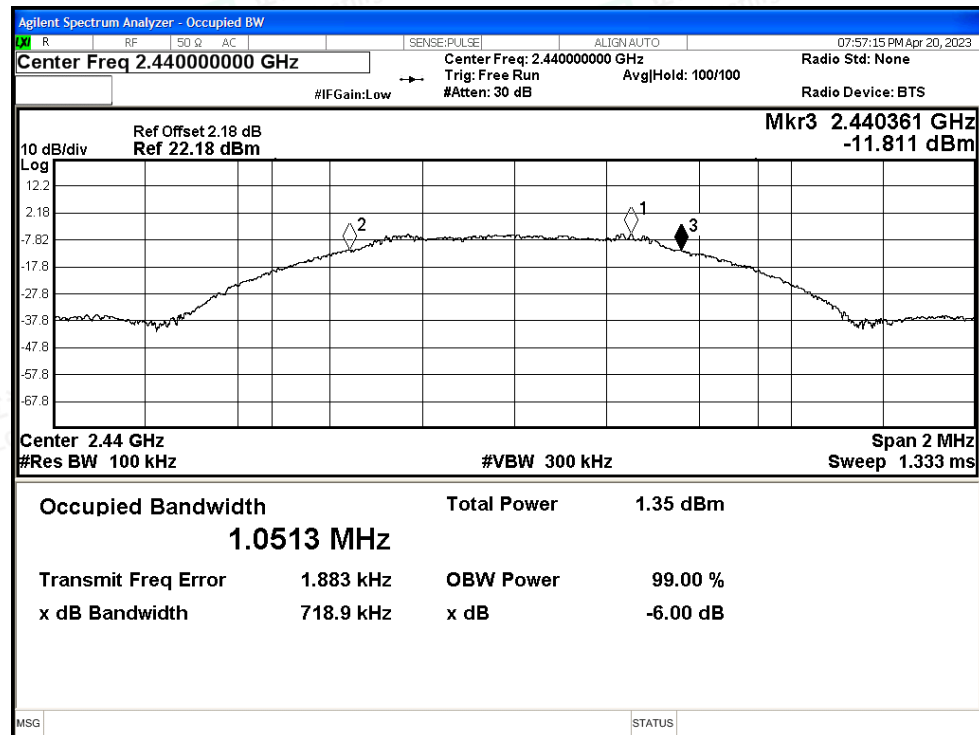


Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant0



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant0

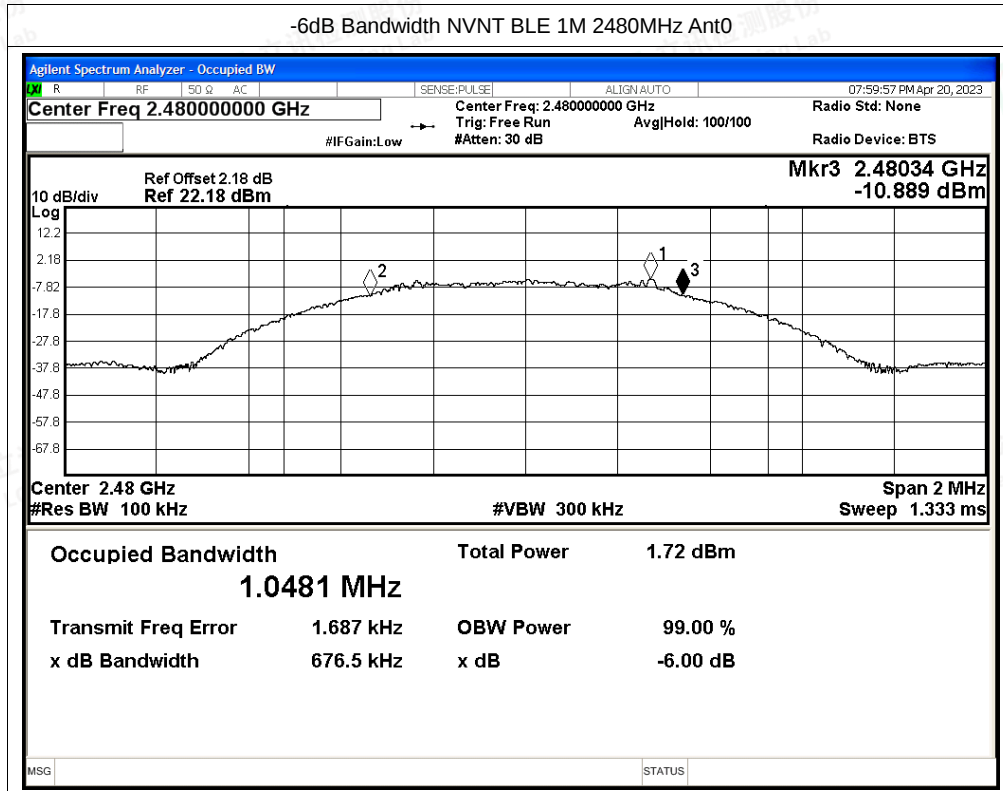


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A.2 Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant0	1.041
NVNT	BLE 1M	2440	Ant0	1.046
NVNT	BLE 1M	2480	Ant0	1.041



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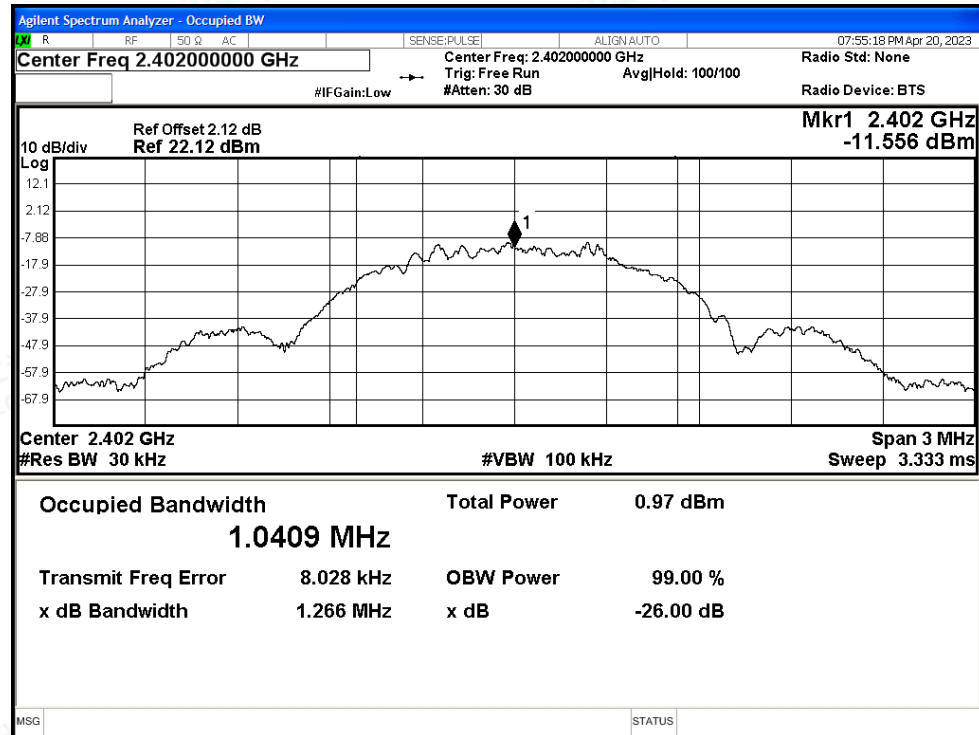
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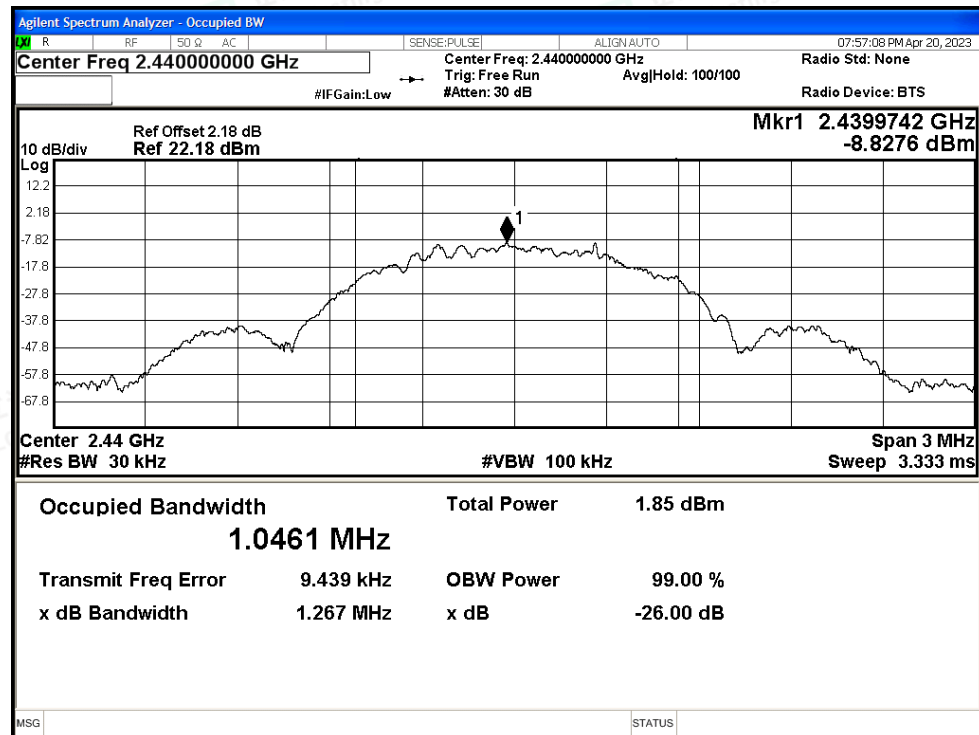


Test Graphs

OBW NVNT BLE 1M 2402MHz Ant0



OBW NVNT BLE 1M 2440MHz Ant0

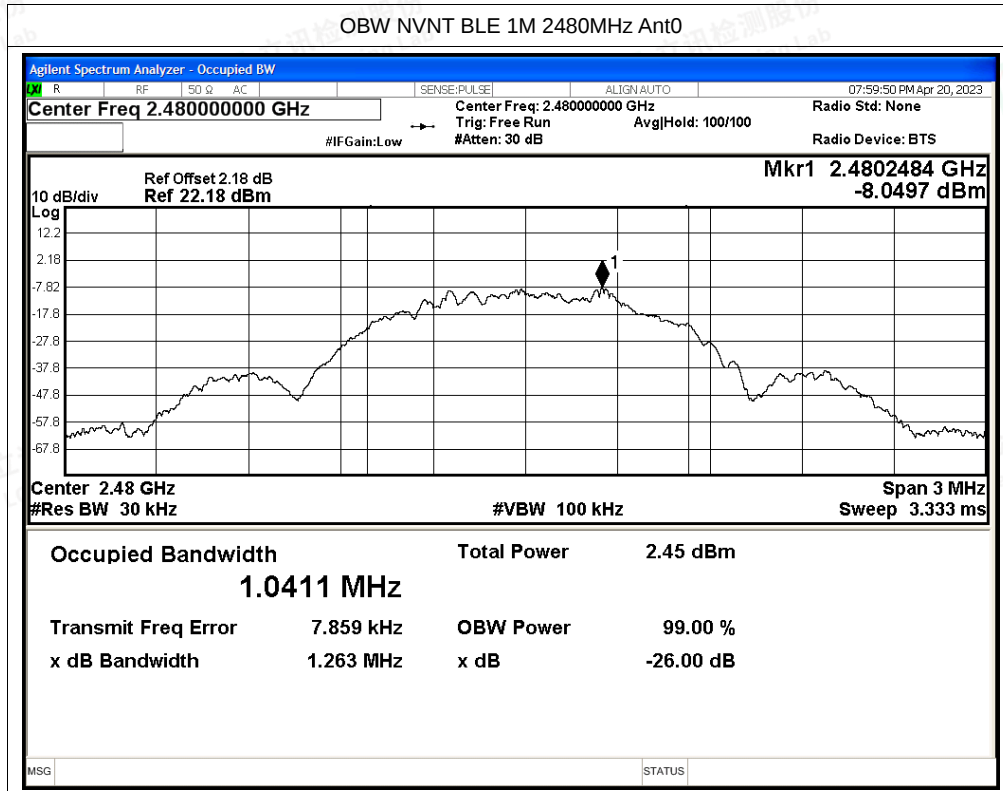


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A.3 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant0	-5.37	30	Pass
NVNT	BLE 1M	2440	Ant0	-4.44	30	Pass
NVNT	BLE 1M	2480	Ant0	-4.04	30	Pass



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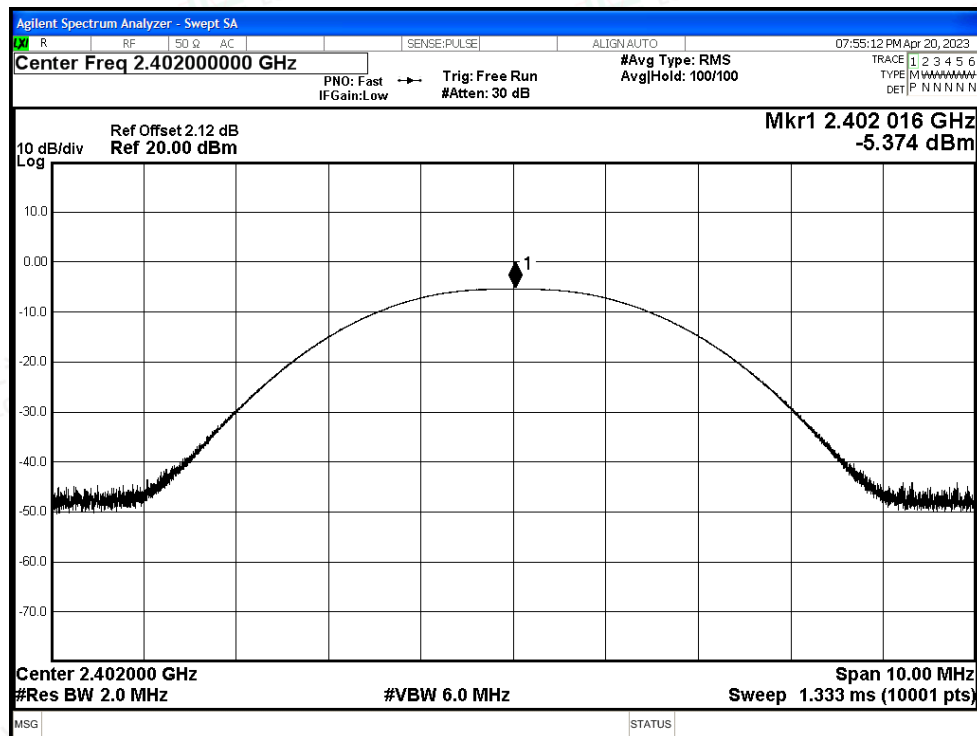
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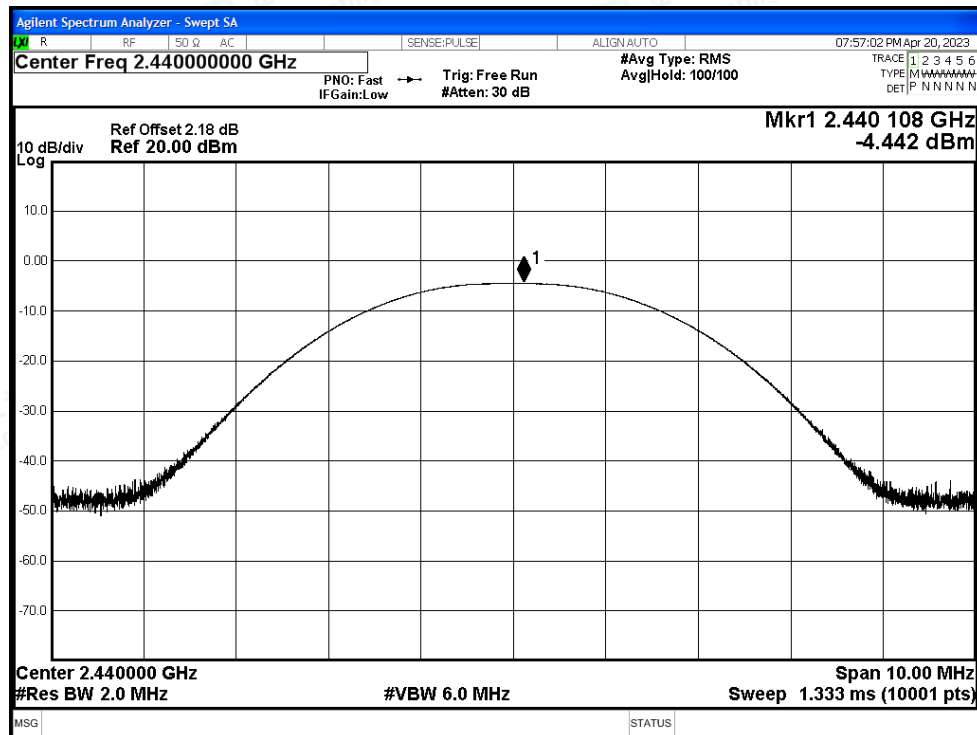


Test Graphs

Power NVNT BLE 1M 2402MHz Ant0



Power NVNT BLE 1M 2440MHz Ant0

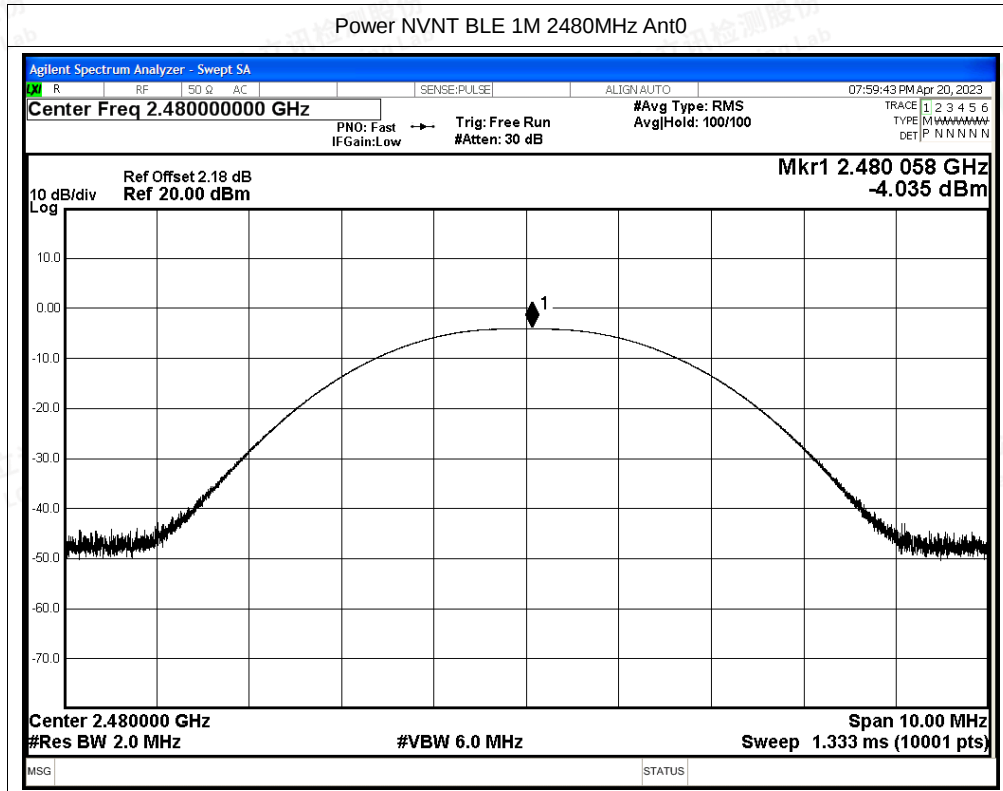


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A.4 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant0	-21.76	8	Pass
NVNT	BLE 1M	2440	Ant0	-20.75	8	Pass
NVNT	BLE 1M	2480	Ant0	-20.86	8	Pass



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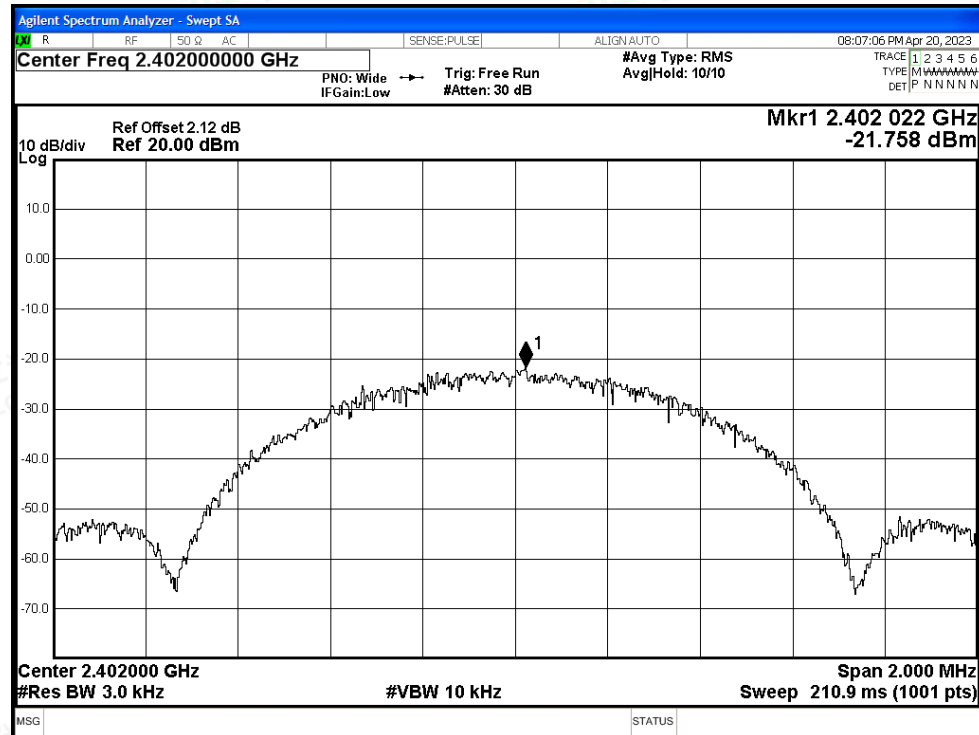
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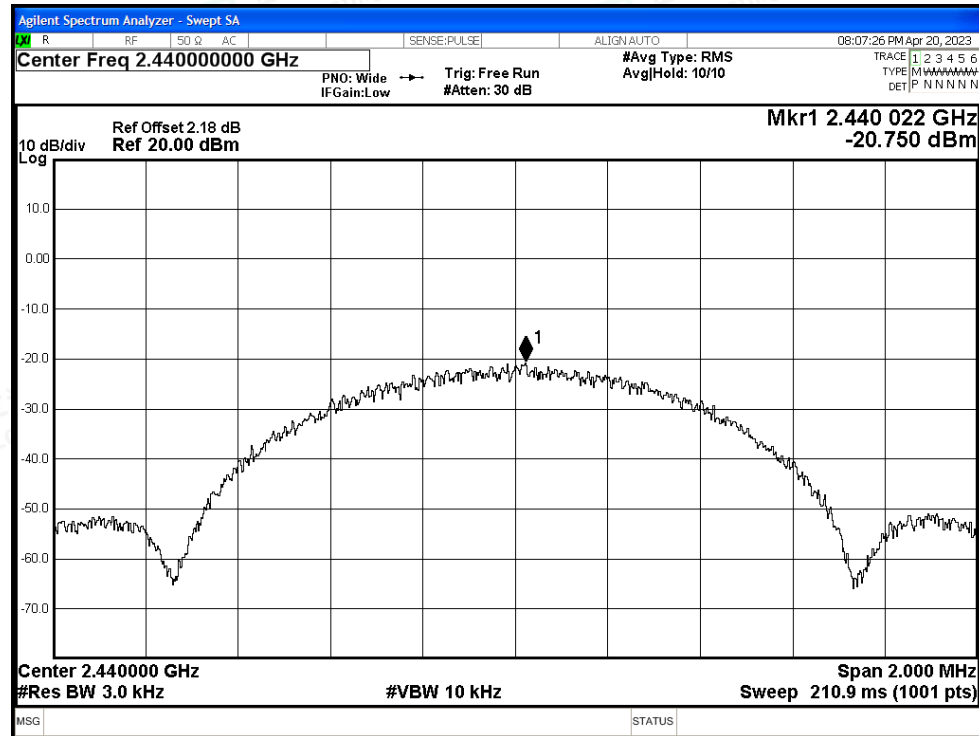


Test Graphs

PSD NVNT BLE 1M 2402MHz Ant0



PSD NVNT BLE 1M 2440MHz Ant0

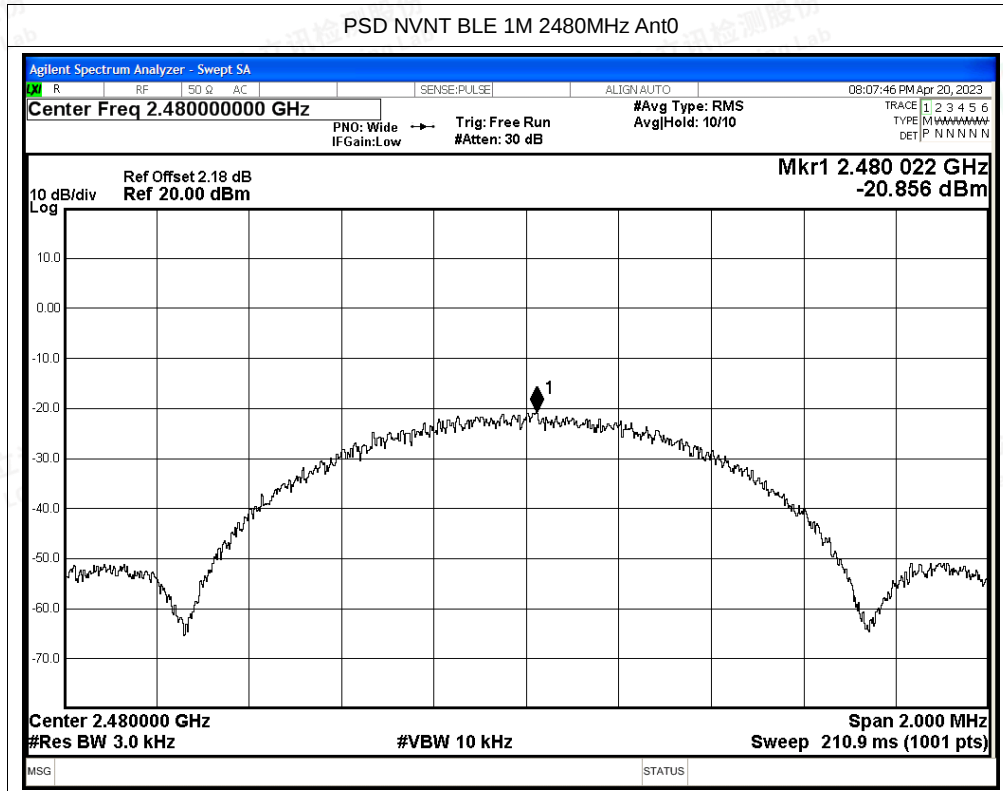


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A.5 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant0	-50.93	-20	Pass
NVNT	BLE 1M	2480	Ant0	-53.14	-20	Pass

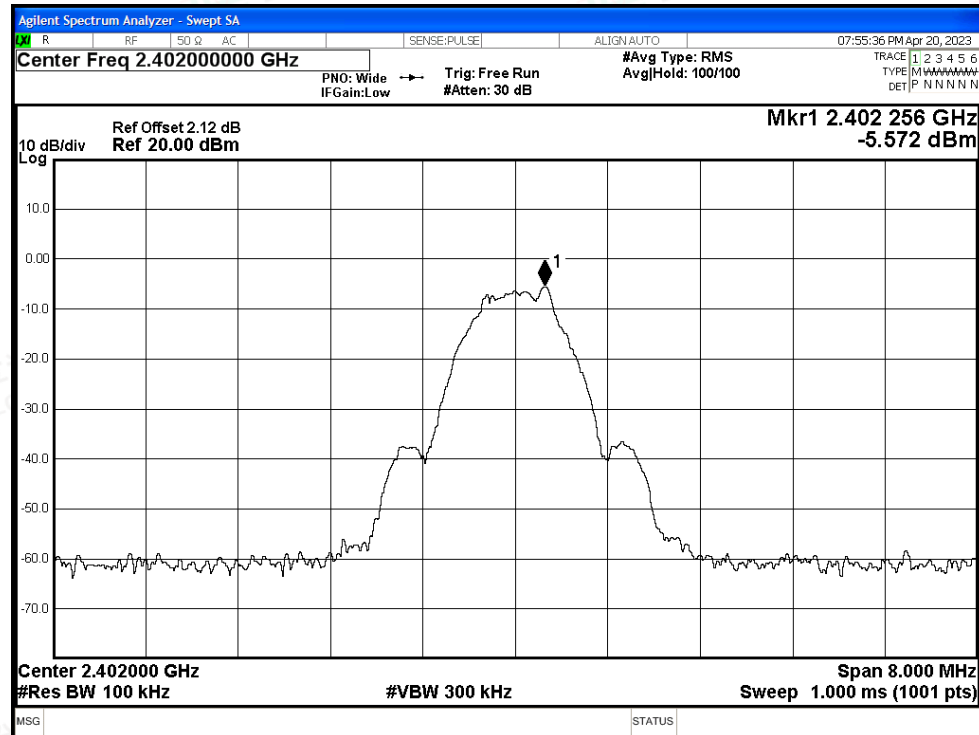


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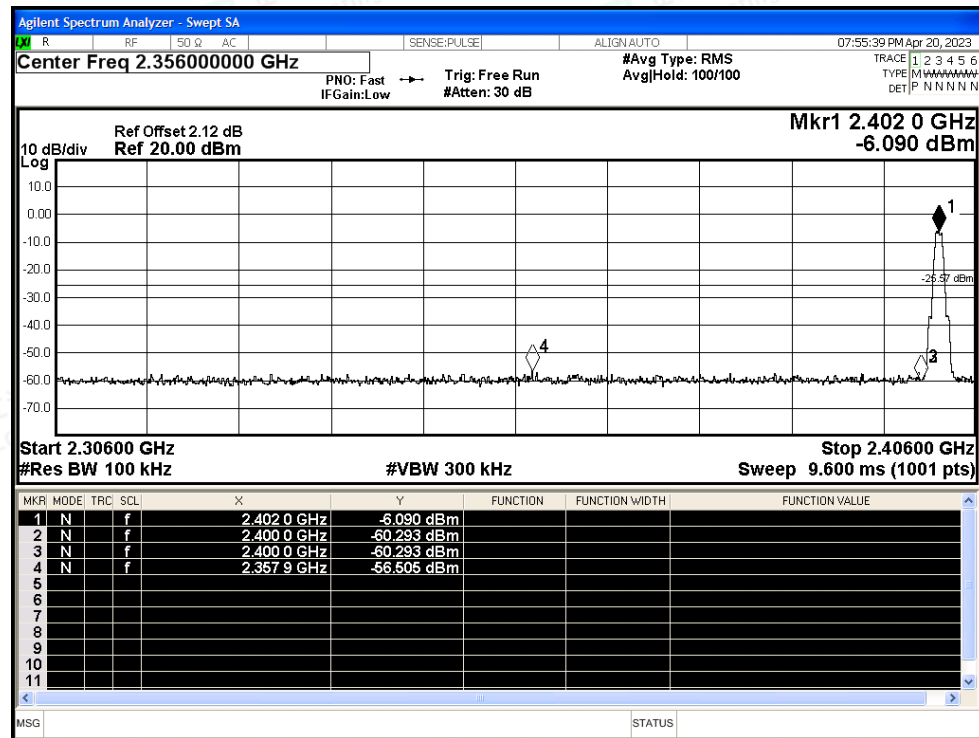


Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant0 Ref



Band Edge NVNT BLE 1M 2402MHz Ant0 Emission

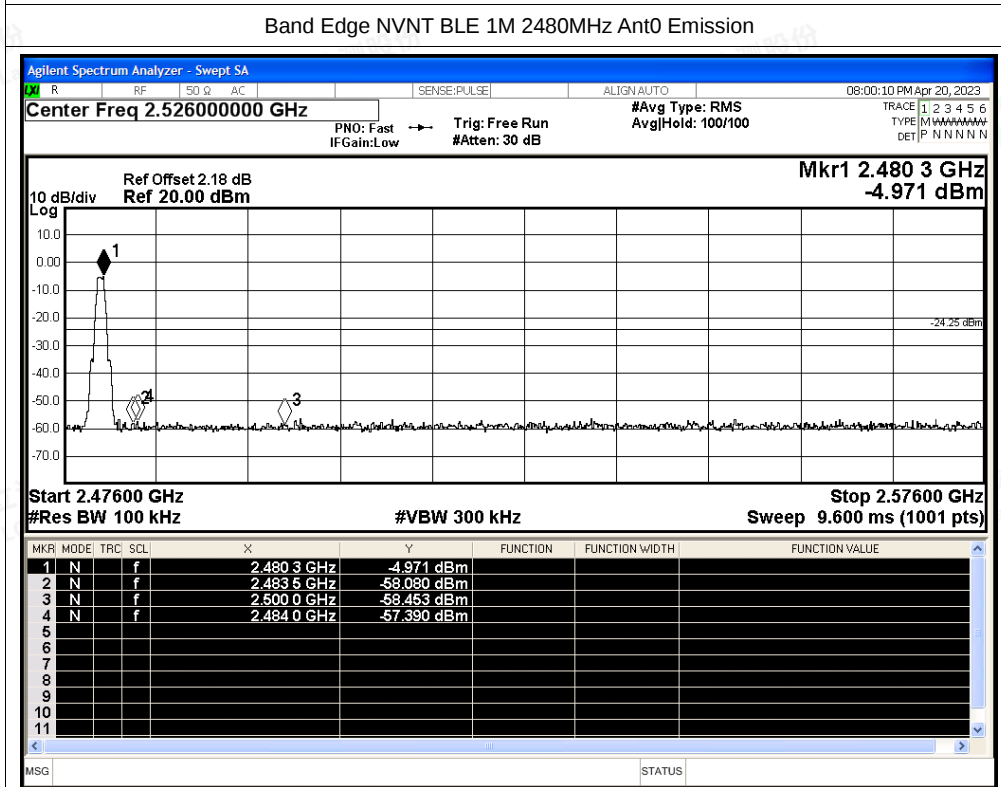
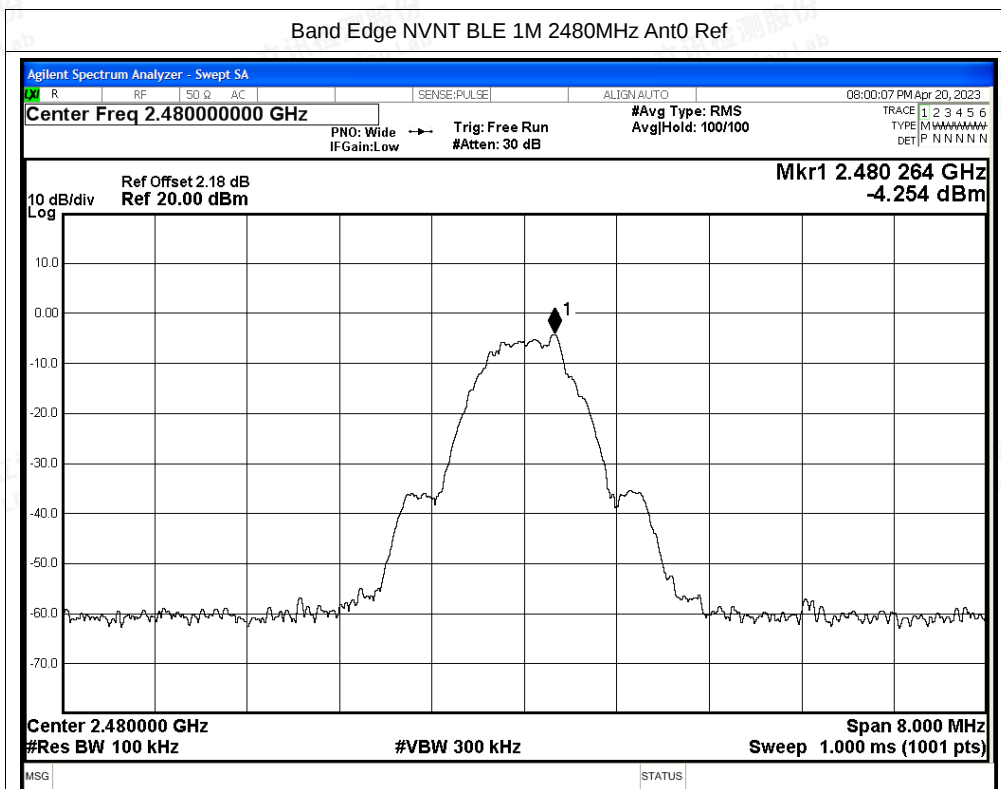


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A.6 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant0	-46.31	-20	Pass
NVNT	BLE 1M	2440	Ant0	-49.76	-20	Pass
NVNT	BLE 1M	2480	Ant0	-51.16	-20	Pass



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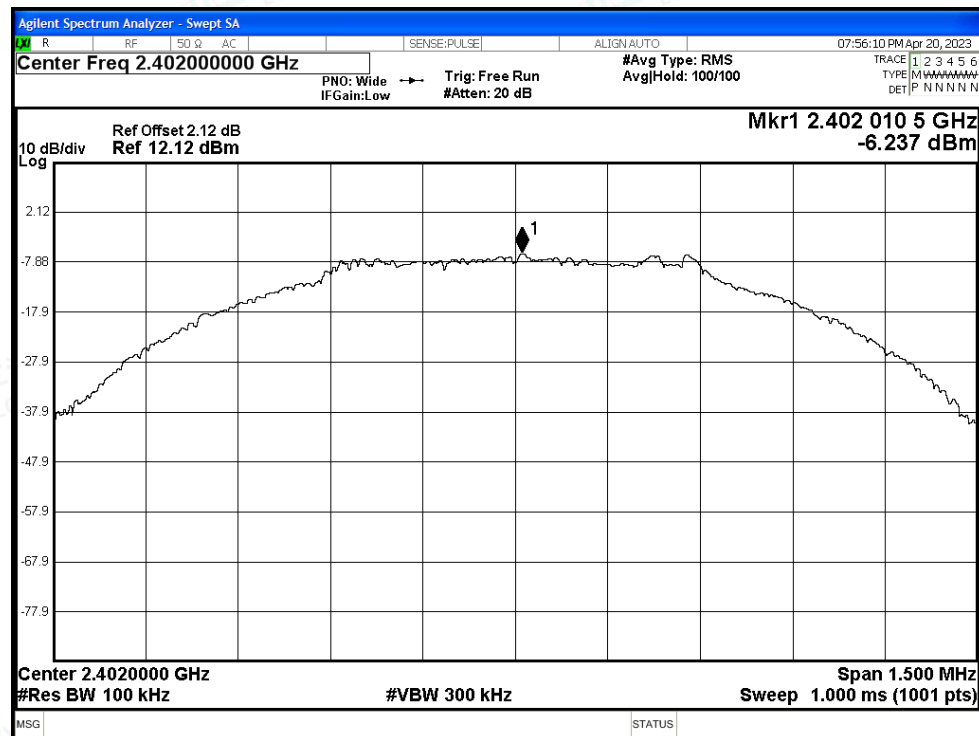
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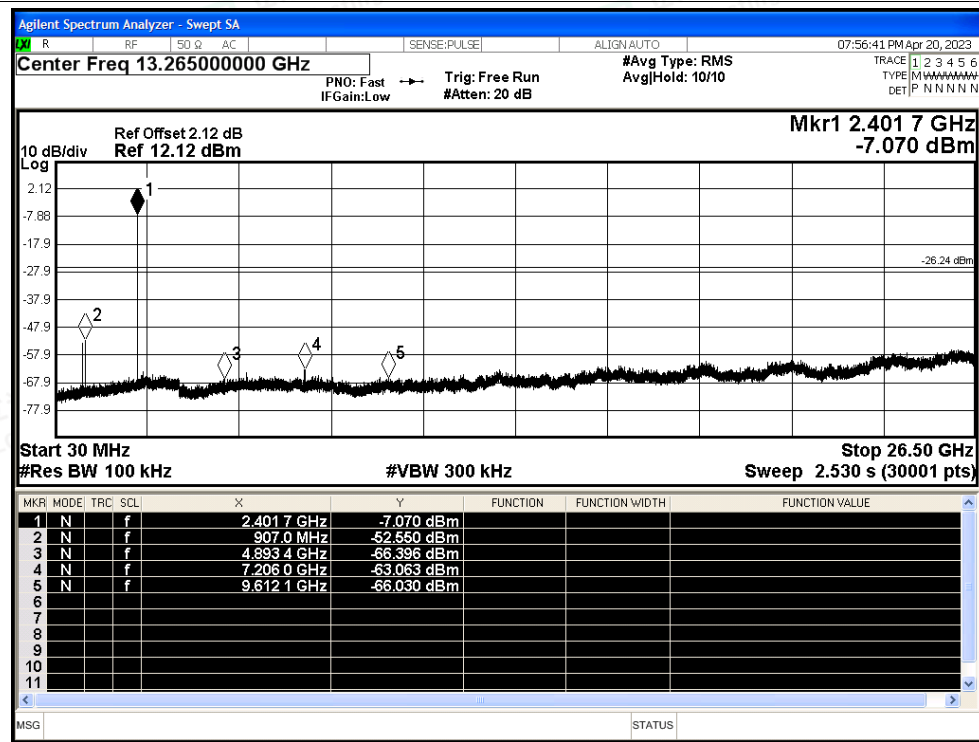


Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant0 Ref



Tx. Spurious NVNT BLE 1M 2402MHz Ant0 Emission



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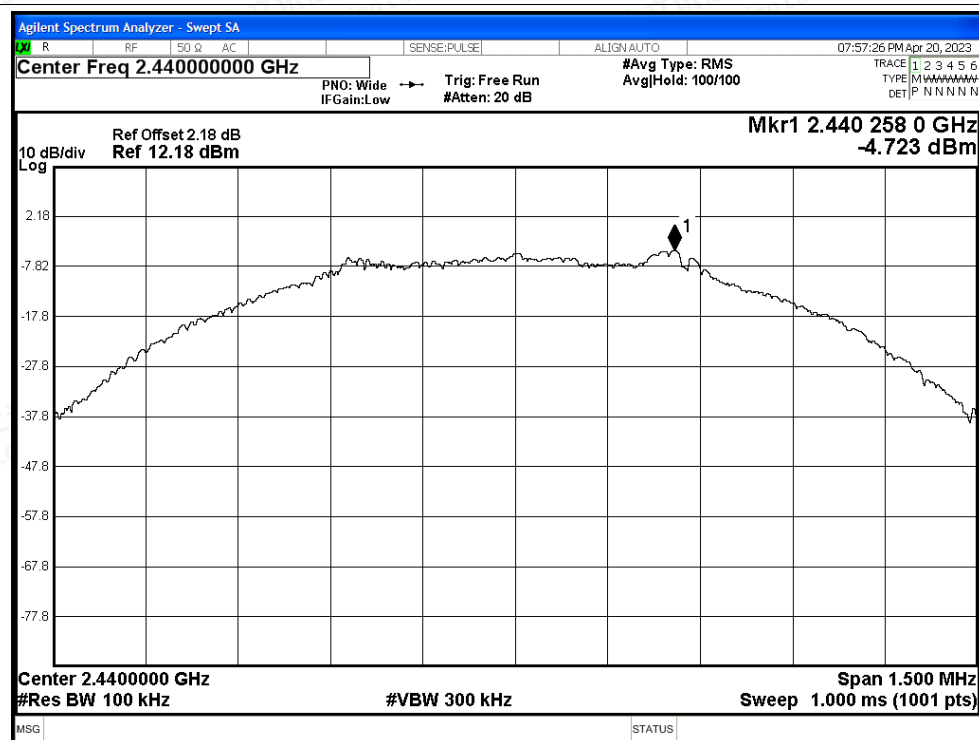
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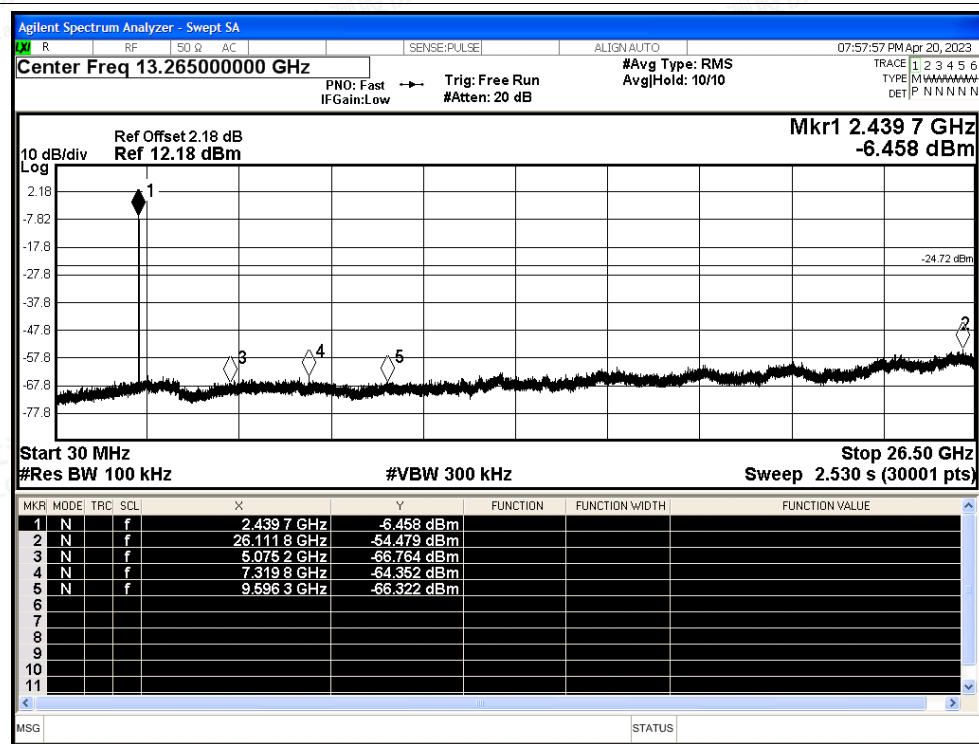
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Tx. Spurious NVNT BLE 1M 2440MHz Ant0 Ref



Tx. Spurious NVNT BLE 1M 2440MHz Ant0 Emission



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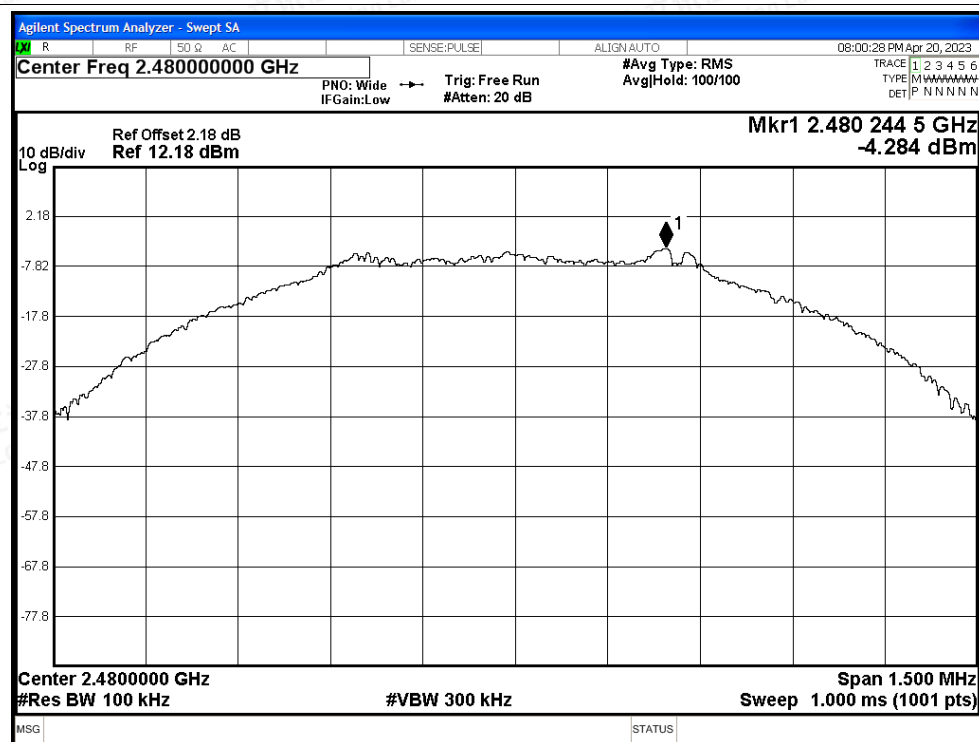
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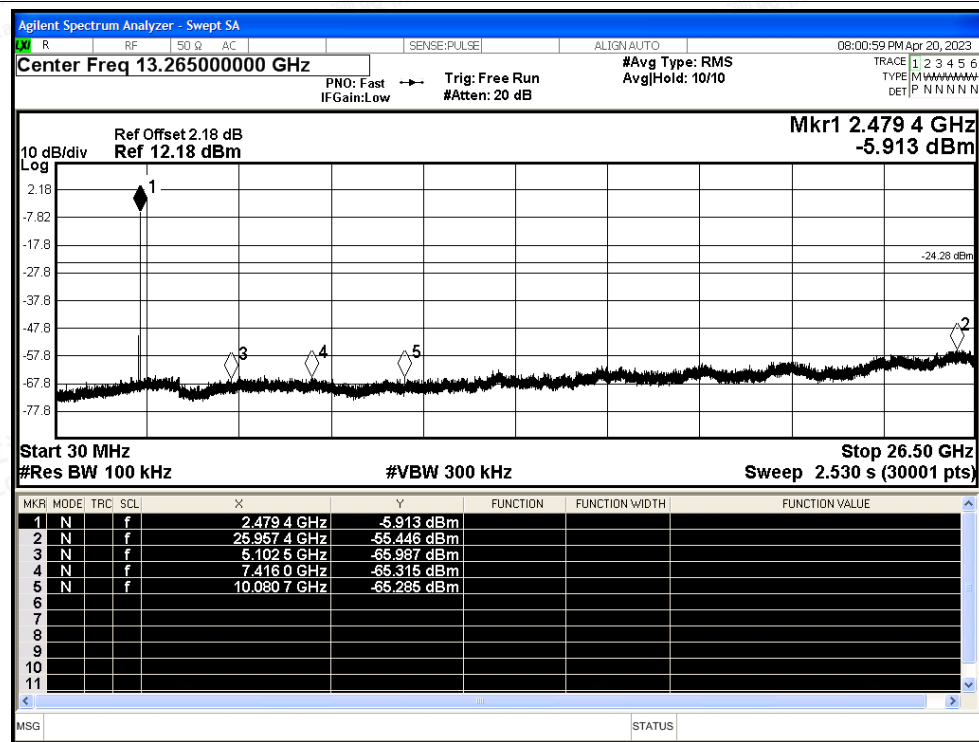
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Tx. Spurious NVNT BLE 1M 2480MHz Ant0 Ref



Tx. Spurious NVNT BLE 1M 2480MHz Ant0 Emission



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A.7 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant0	85.1	0.7	0.47
NVNT	BLE 1M	2440	Ant0	85.1	0.7	0.47
NVNT	BLE 1M	2480	Ant0	85.1	0.7	0.47

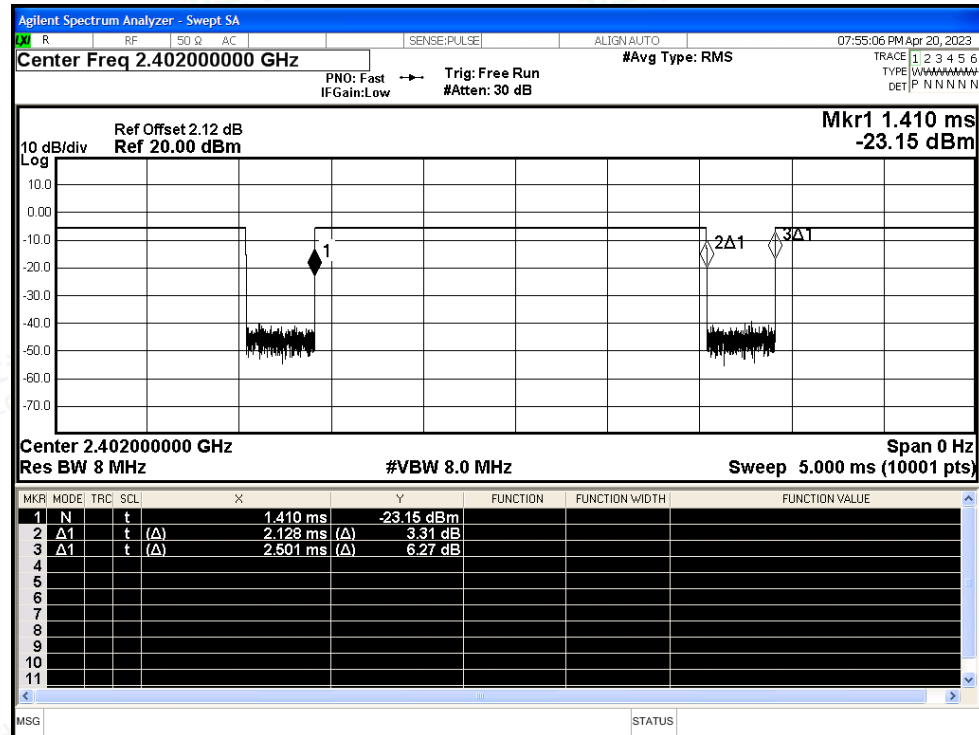


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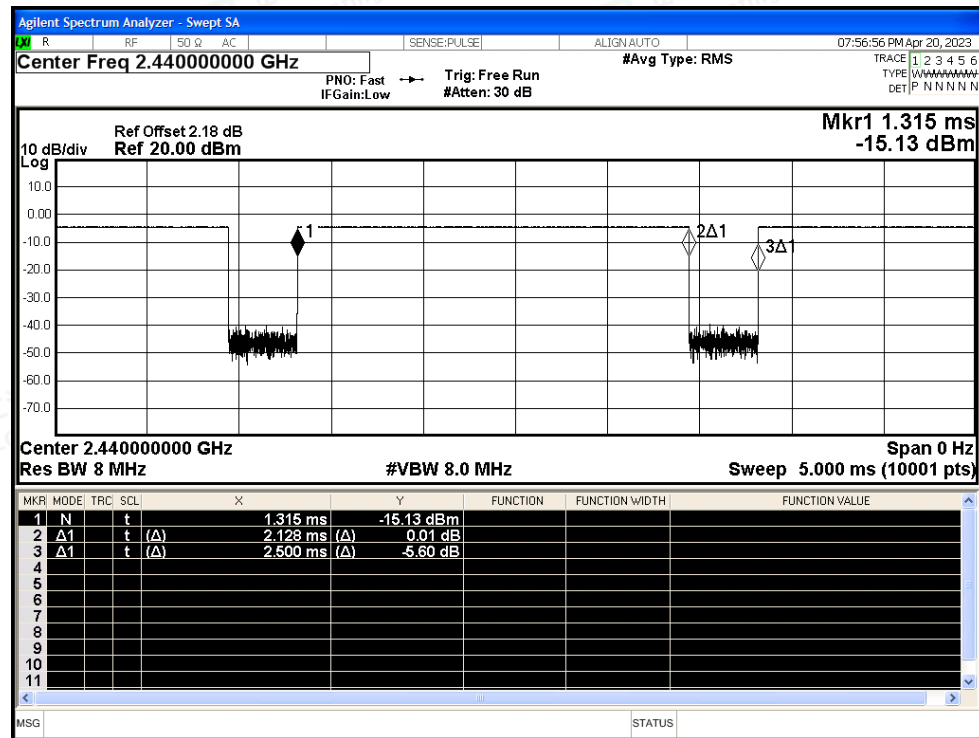


Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz Ant0



Duty Cycle NVNT BLE 1M 2440MHz Ant0

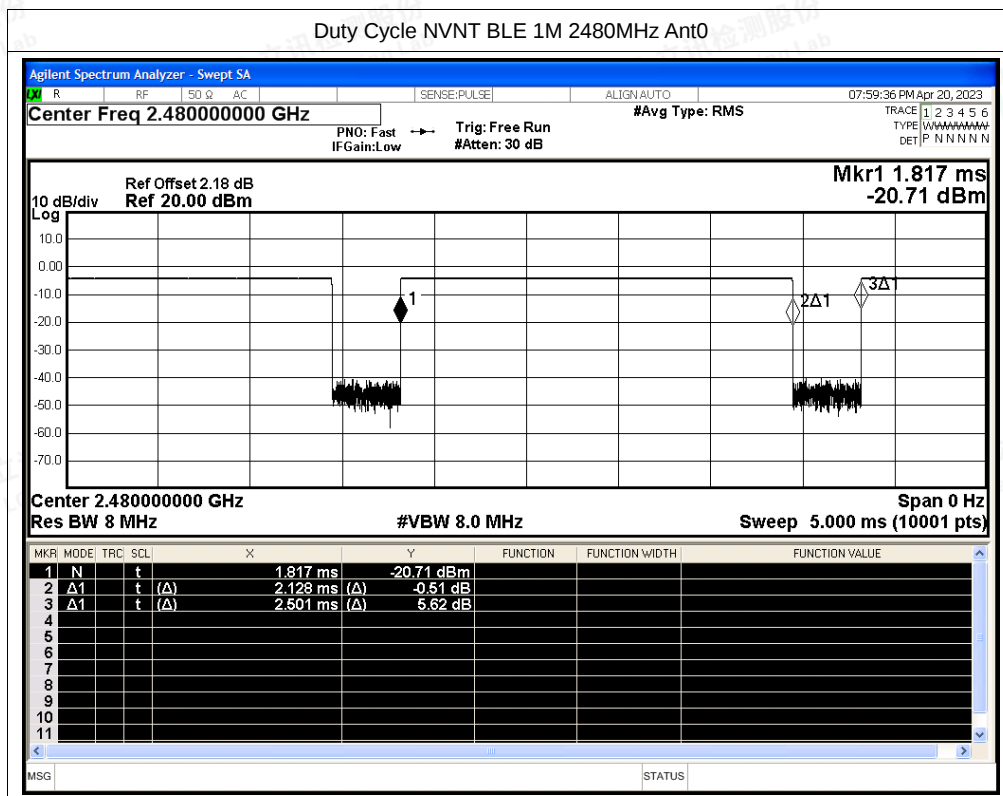


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A.8 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1M	2402	Ant0	2310	-50.67	2.27	46.83	Peak	74	Pass
NVNT	BLE 1M	2402	Ant0	2310	-57.74	2.27	39.76	Average	54	Pass
NVNT	BLE 1M	2402	Ant0	2315.856	-47.38	2.27	50.12	Peak	74	Pass
NVNT	BLE 1M	2402	Ant0	2386.032	-57.25	2.27	40.25	Average	54	Pass
NVNT	BLE 1M	2402	Ant0	2390	-51.95	2.27	45.55	Peak	74	Pass
NVNT	BLE 1M	2402	Ant0	2390	-57.38	2.27	40.12	Average	54	Pass
NVNT	BLE 1M	2480	Ant0	2483.5	-49.94	2.27	47.56	Peak	74	Pass
NVNT	BLE 1M	2480	Ant0	2483.5	-56.37	2.27	41.13	Average	54	Pass
NVNT	BLE 1M	2480	Ant0	2483.56	-46.54	2.27	50.96	Peak	74	Pass
NVNT	BLE 1M	2480	Ant0	2483.512	-56.37	2.27	41.13	Average	54	Pass
NVNT	BLE 1M	2480	Ant0	2500	-48.79	2.27	48.71	Peak	74	Pass
NVNT	BLE 1M	2480	Ant0	2500	-56.97	2.27	40.53	Average	54	Pass



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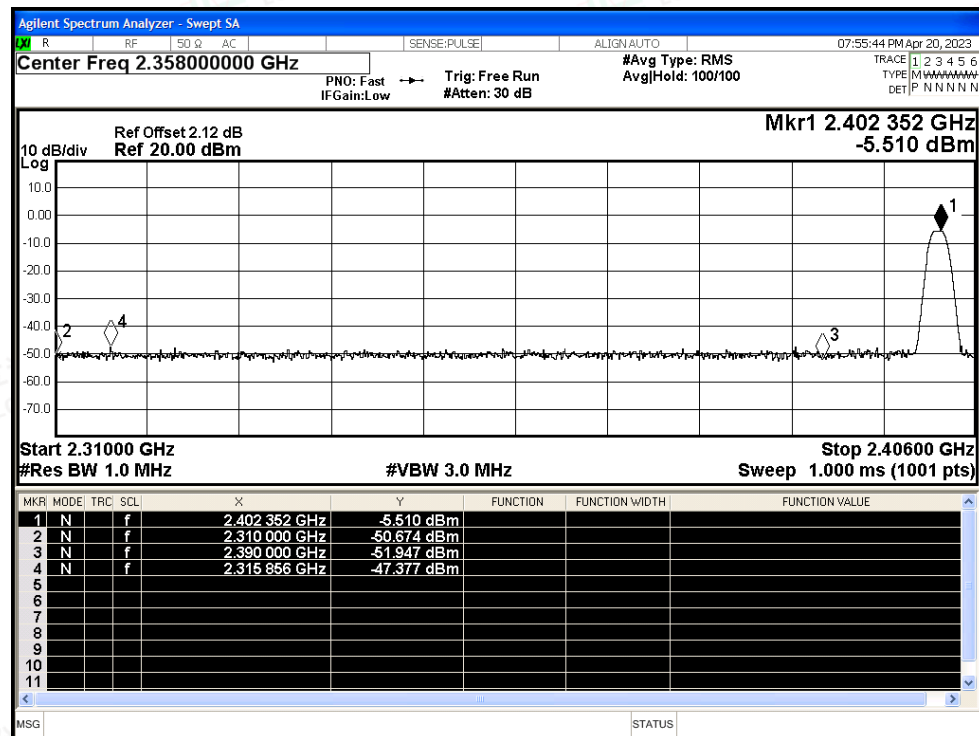
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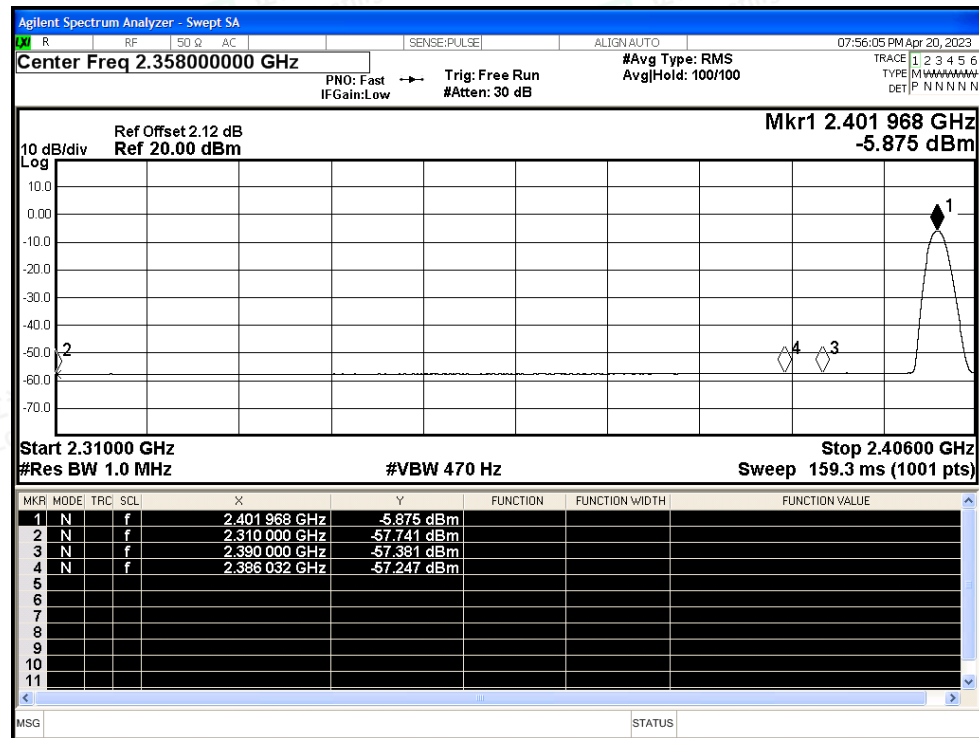


Test Graphs

Restrict Band NVNT BLE 1M 2402MHz Ant0 Peak



Restrict Band NVNT BLE 1M 2402MHz Ant0 Average



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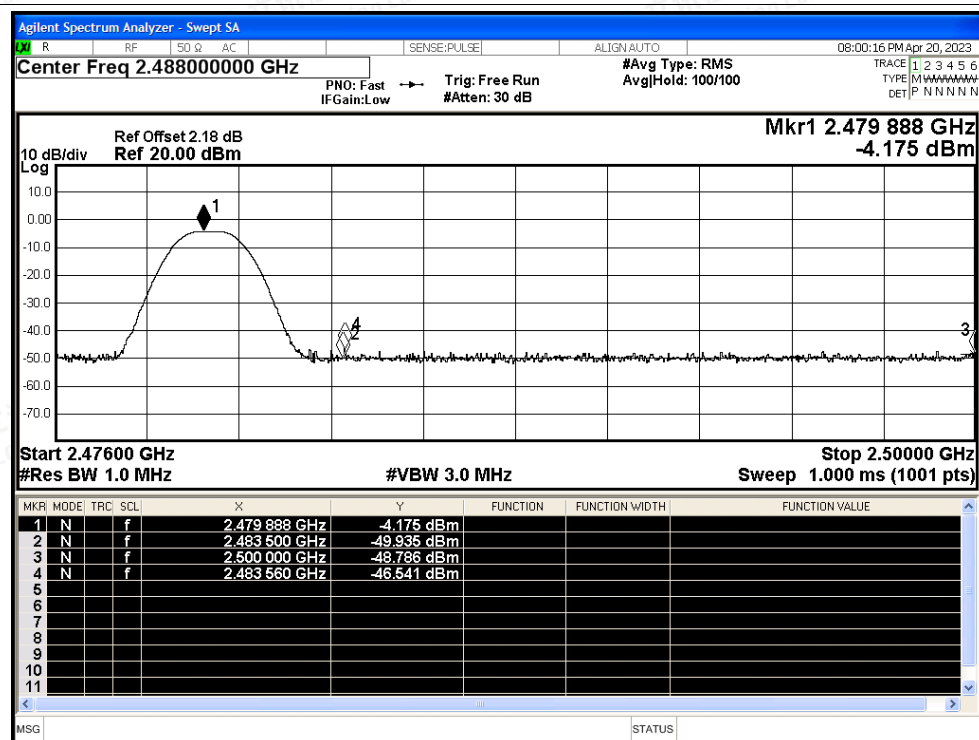
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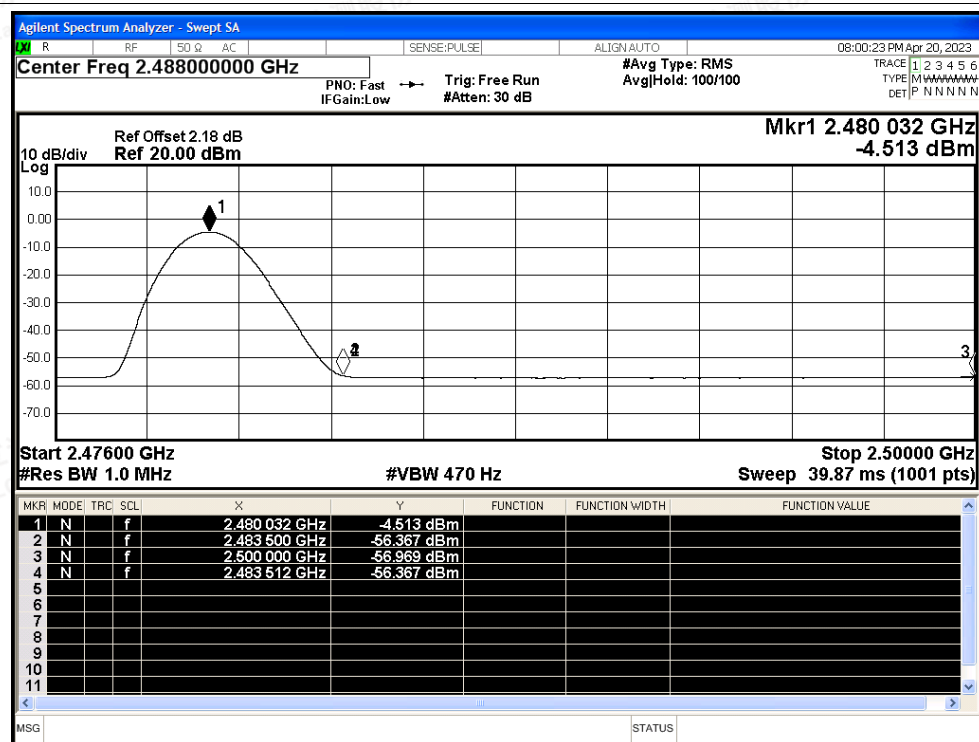
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Restrict Band NVNT BLE 1M 2480MHz Ant0 Peak



Restrict Band NVNT BLE 1M 2480MHz Ant0 Average



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