



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Scent diffuser

Test Model: HLS450+

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Luo
Supervised by:	Nick Peng



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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	Ant1	0.655	≥ 0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.658	≥ 0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.657	≥ 0.5	Pass

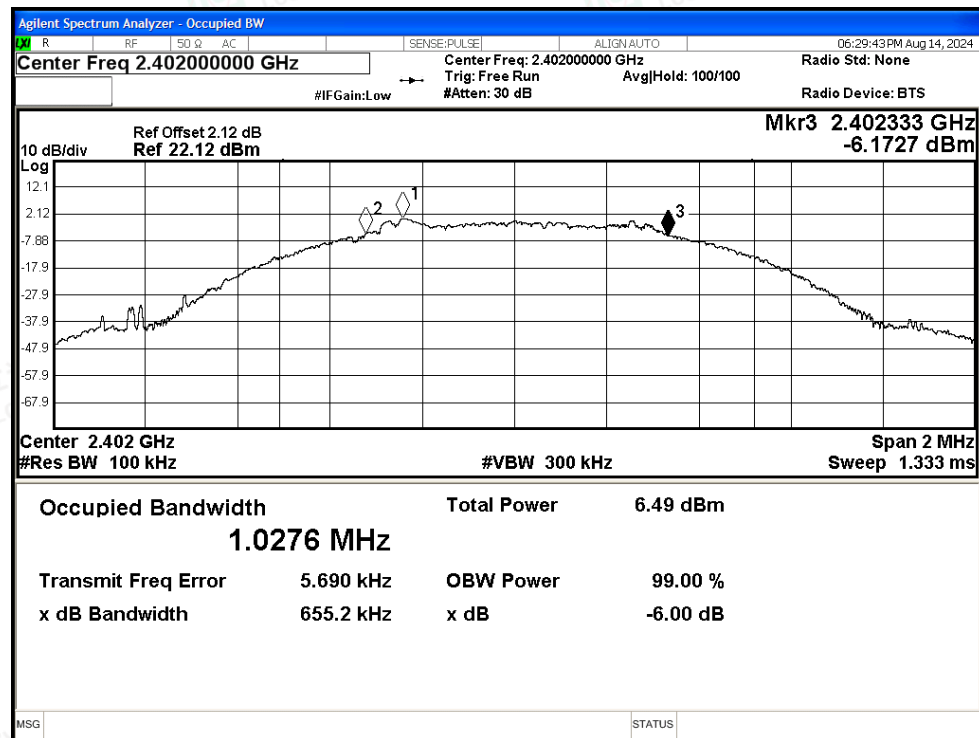


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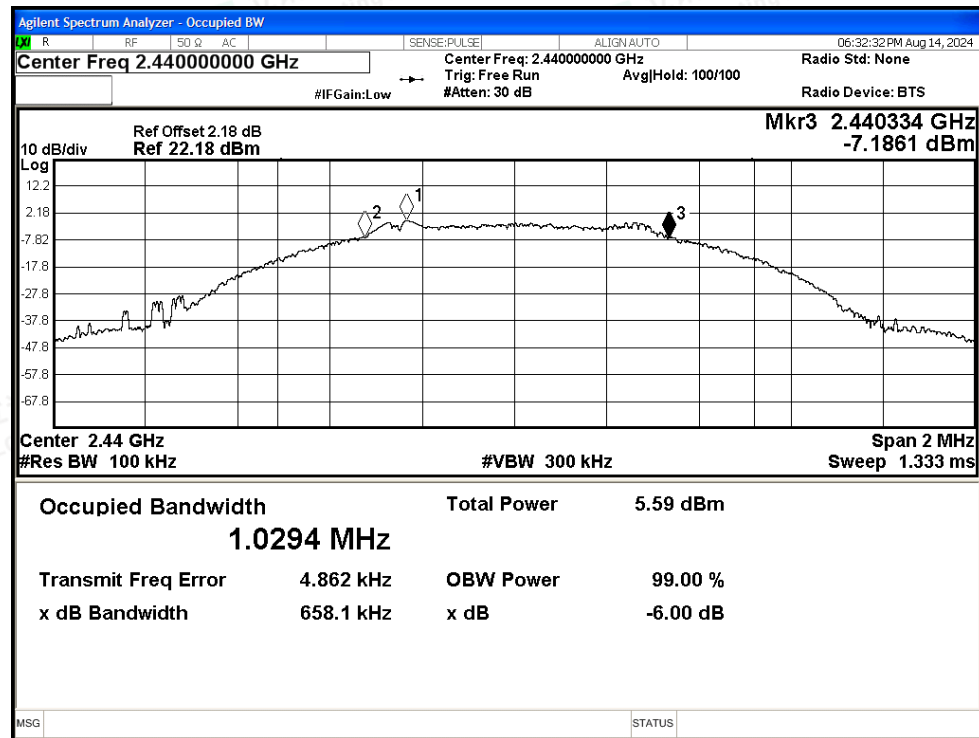


Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

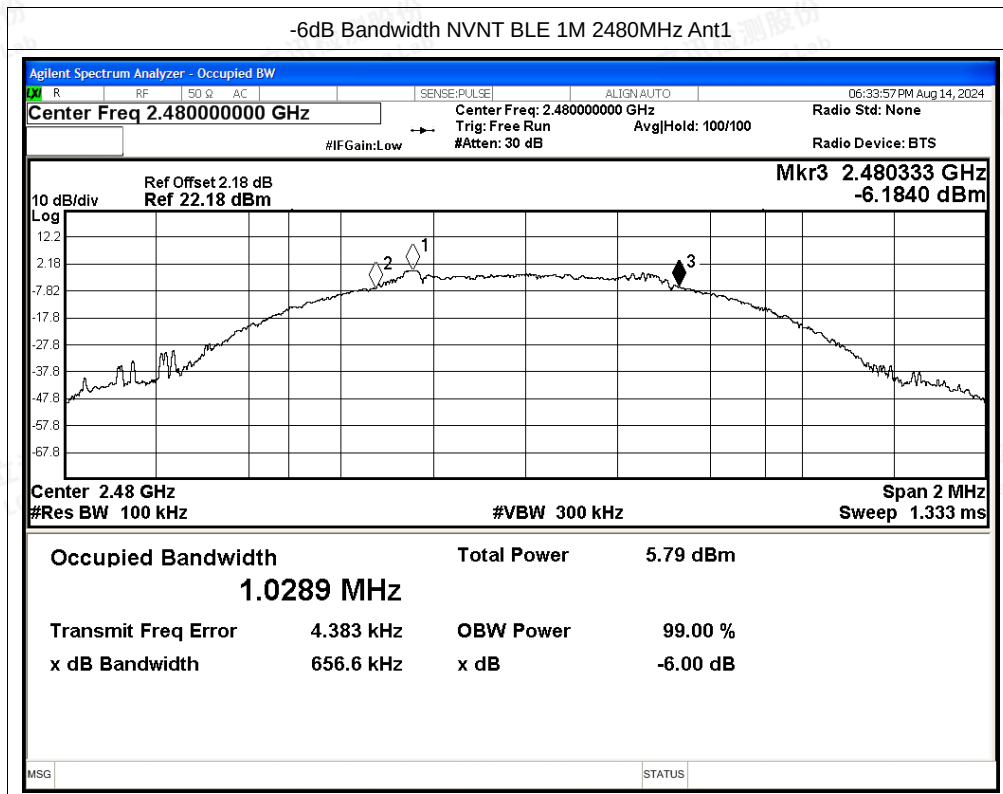


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A.2 Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	0.87	30	Pass
NVNT	BLE 1M	2440	Ant1	-0.02	30	Pass
NVNT	BLE 1M	2480	Ant1	0.14	30	Pass

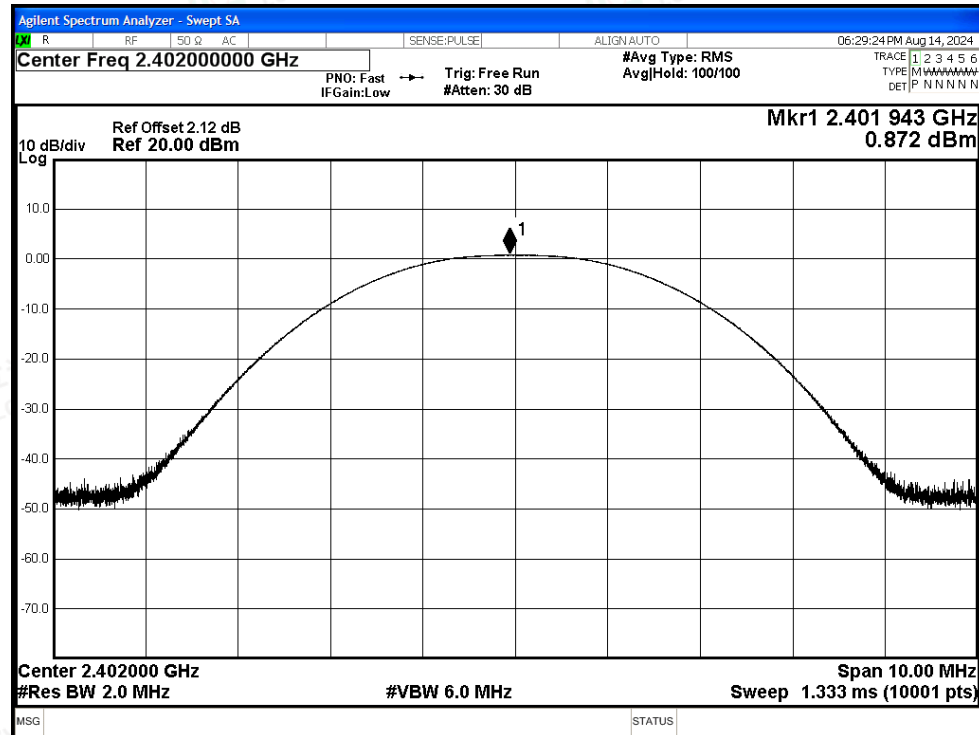


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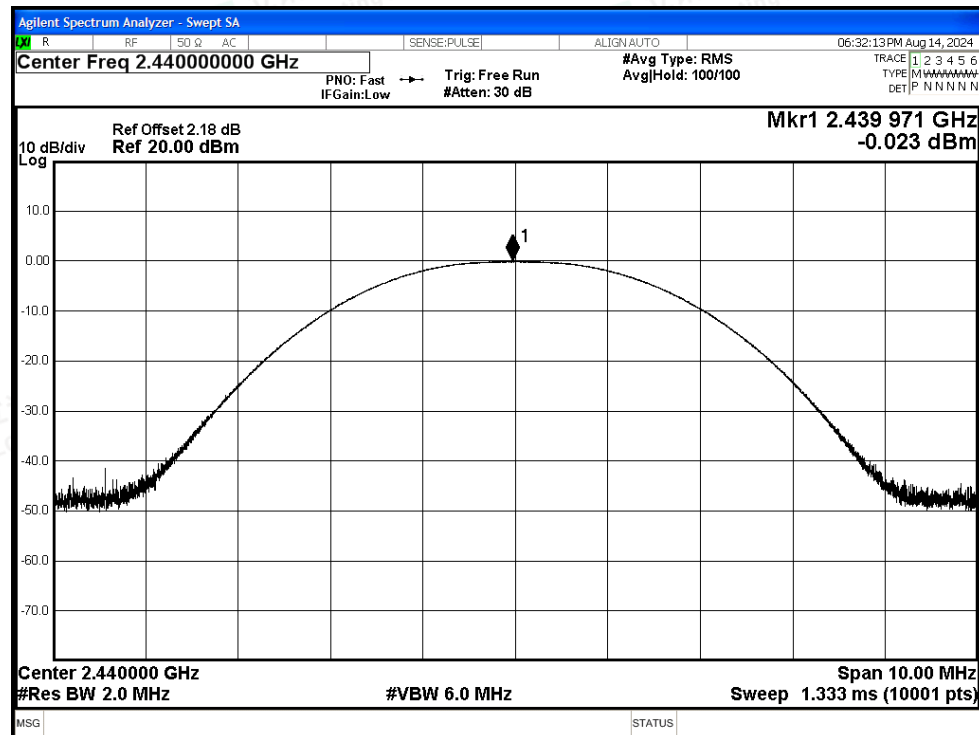


Test Graphs

Power NVNT BLE 1M 2402MHz Ant1



Power NVNT BLE 1M 2440MHz Ant1

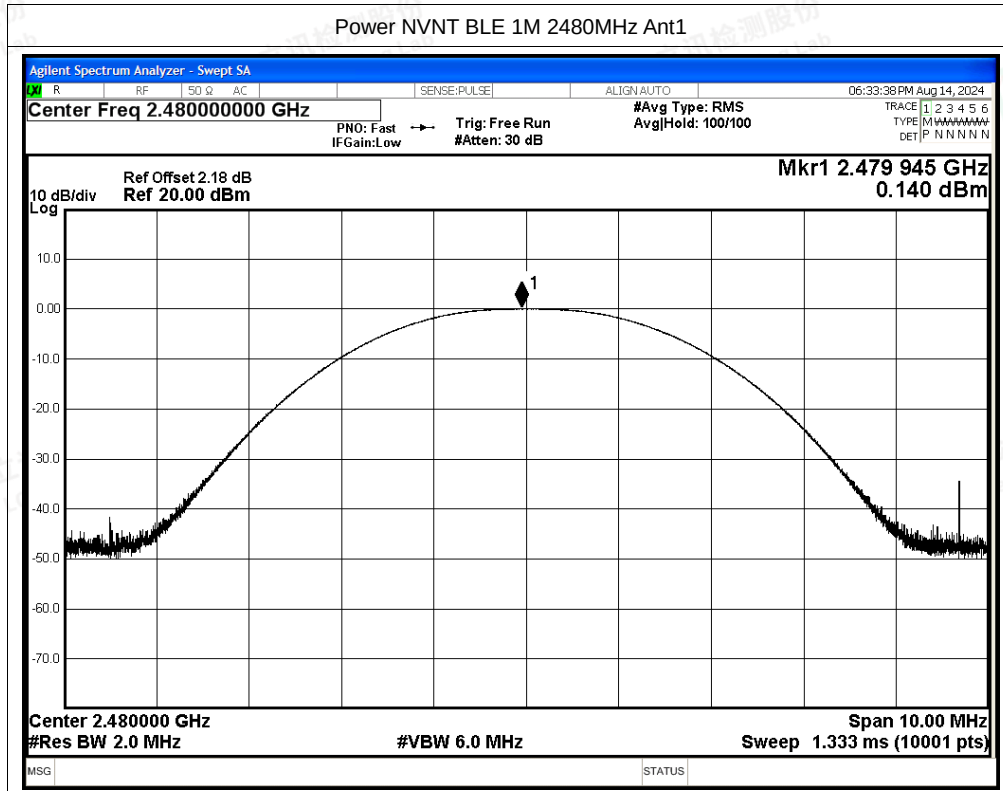


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A.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-15.88	8	Pass
NVNT	BLE 1M	2440	Ant1	-16.96	8	Pass
NVNT	BLE 1M	2480	Ant1	-16.61	8	Pass

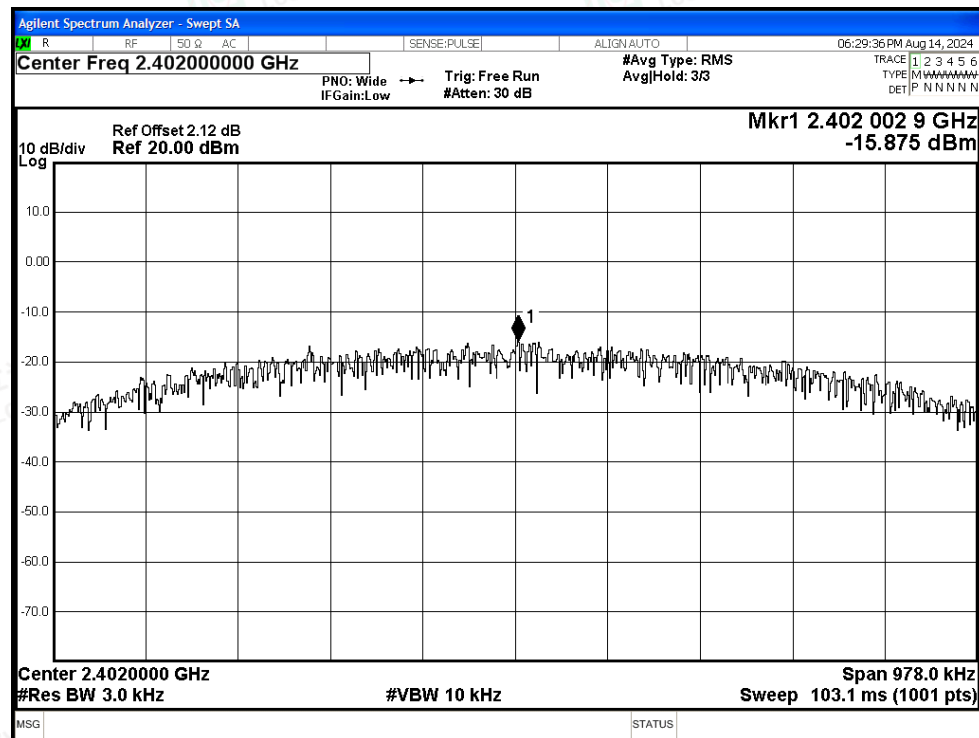


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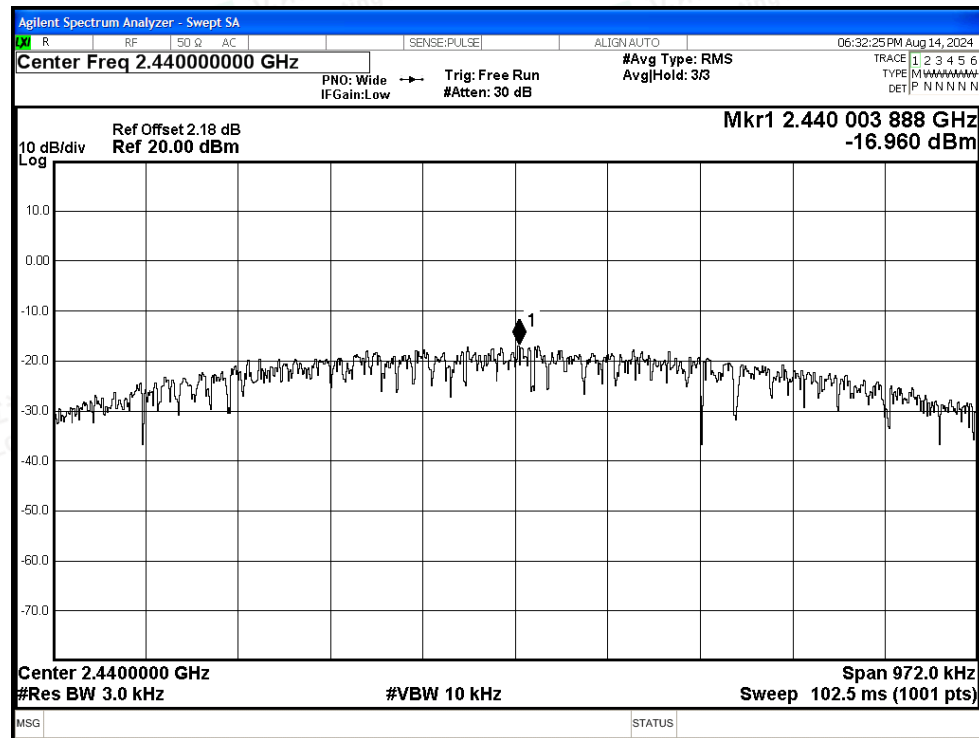


Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1



PSD NVNT BLE 1M 2440MHz Ant1

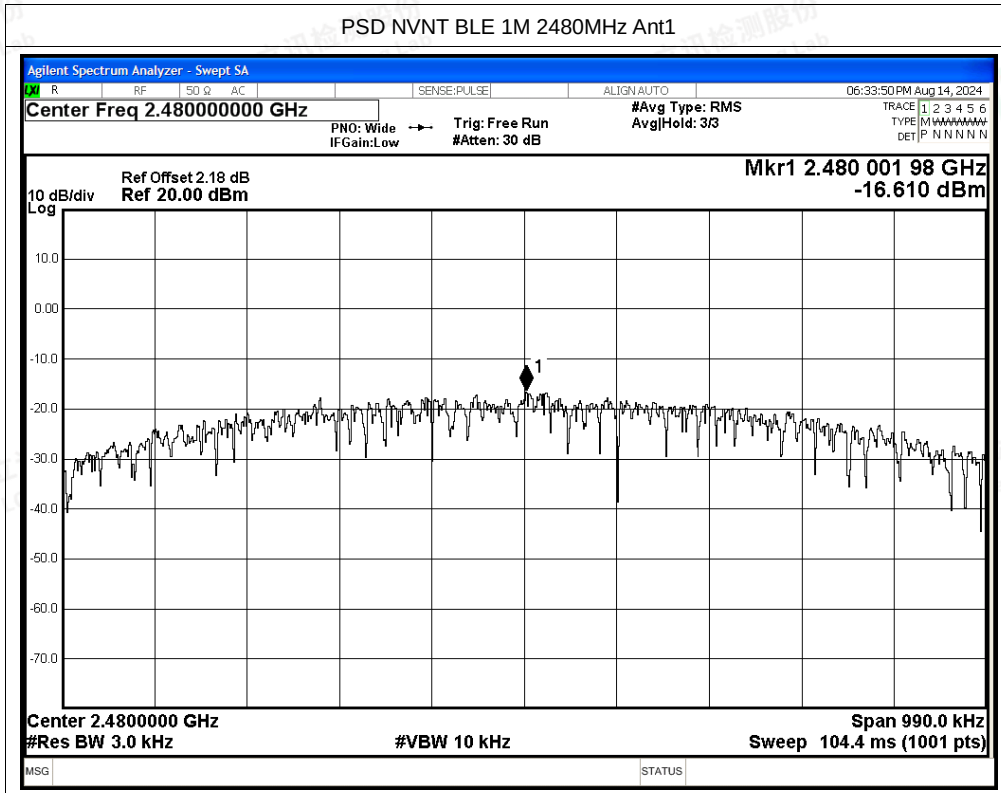


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A.4 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-57.4	-20	Pass
NVNT	BLE 1M	2480	Ant1	-55.29	-20	Pass

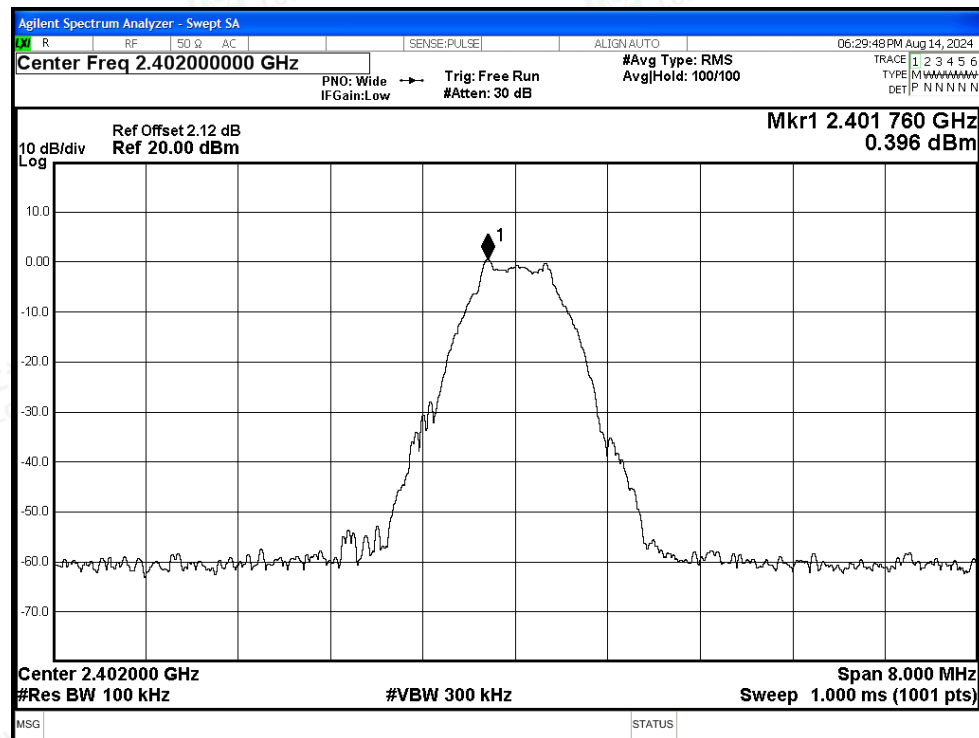


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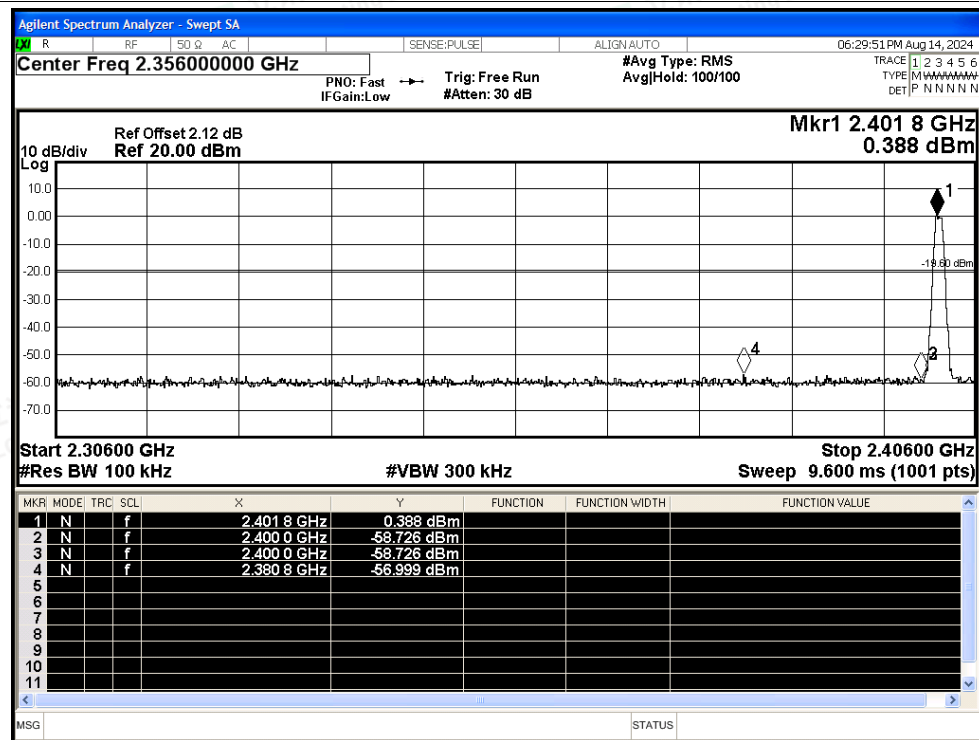


Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



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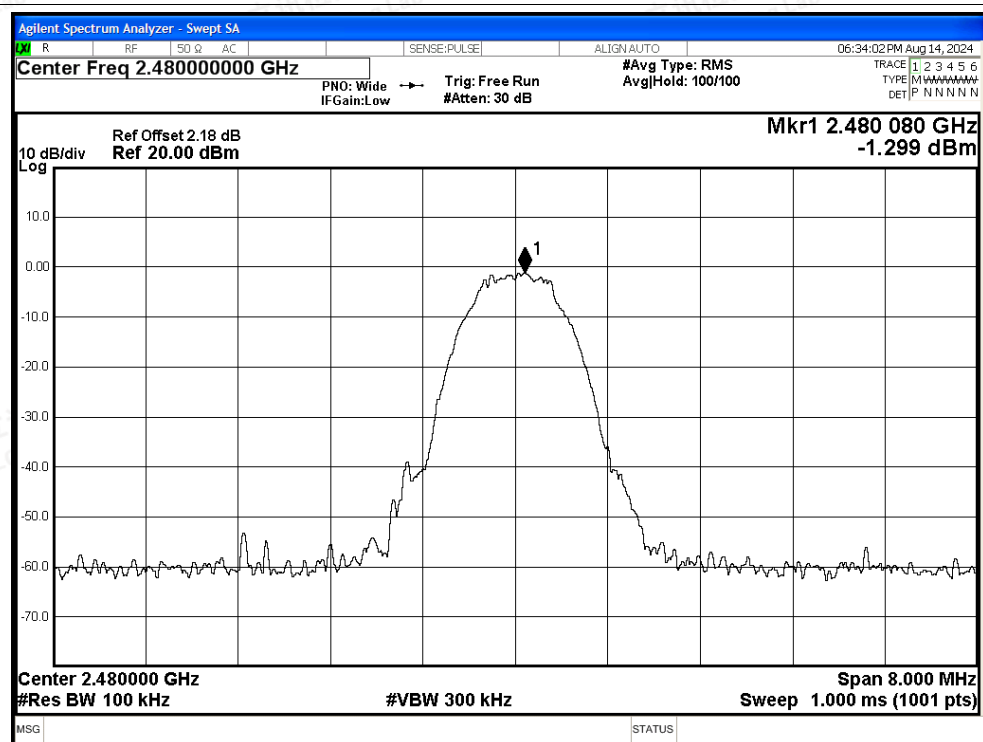
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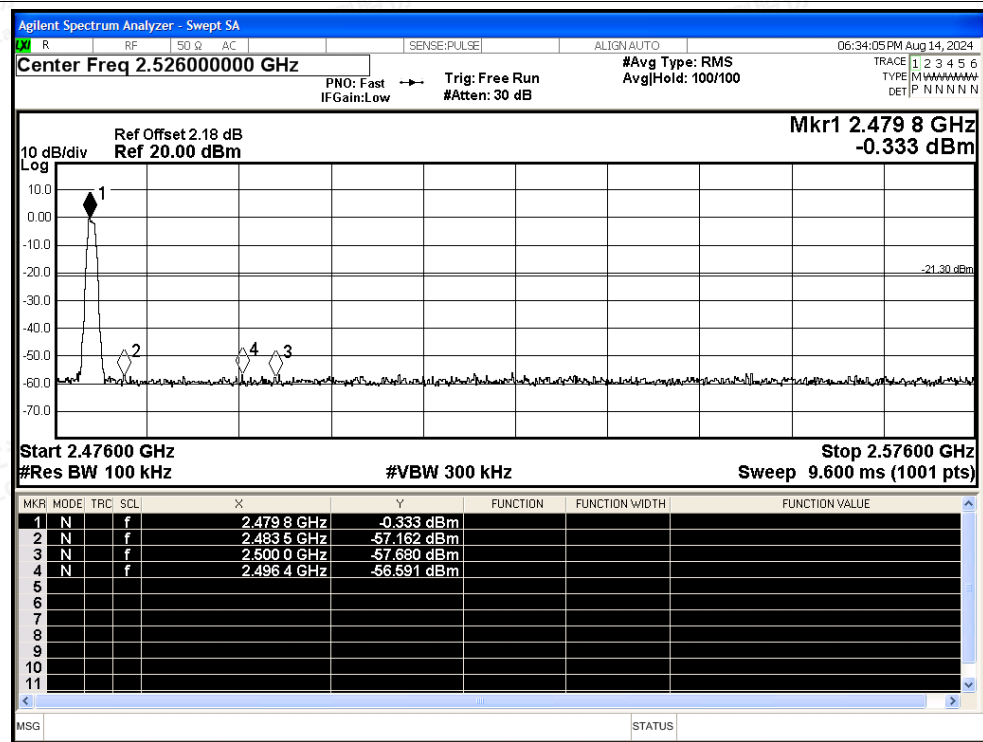
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Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



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A.5 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-49.79	-20	Pass
NVNT	BLE 1M	2440	Ant1	-45.58	-20	Pass
NVNT	BLE 1M	2480	Ant1	-54.92	-20	Pass

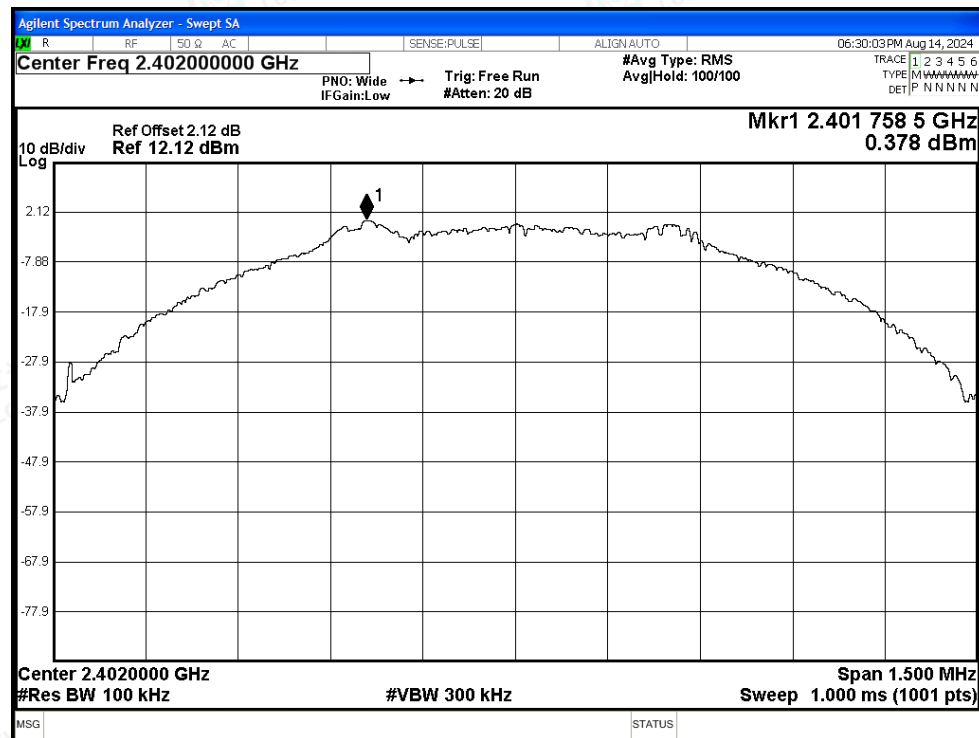


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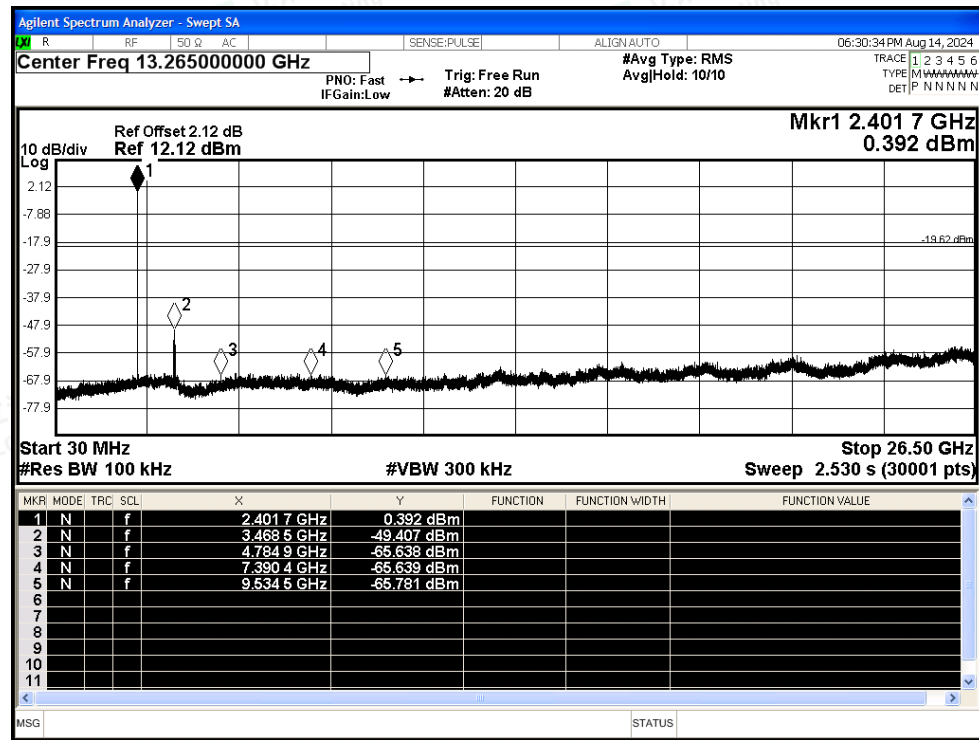


Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



Shenzhen LCS Compliance Testing Laboratory Ltd.

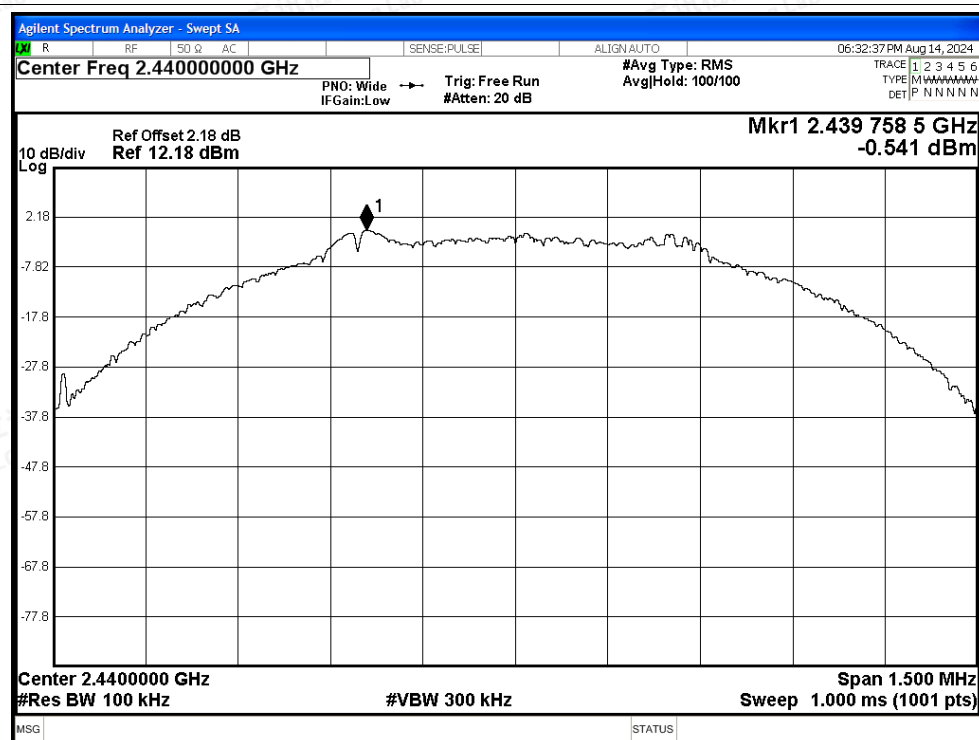
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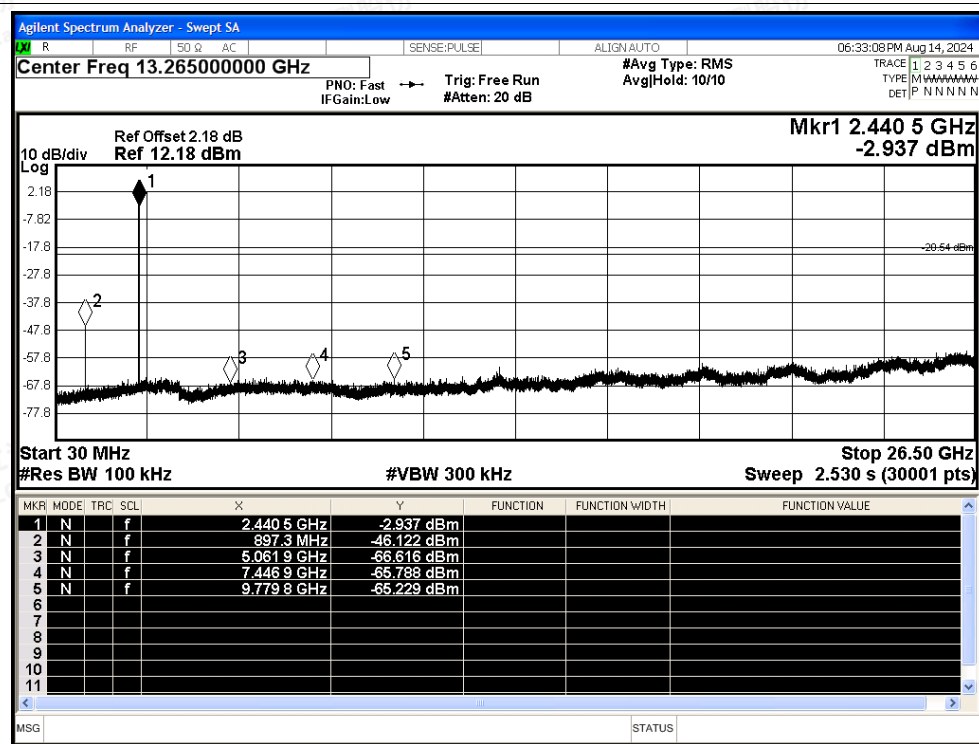
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Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



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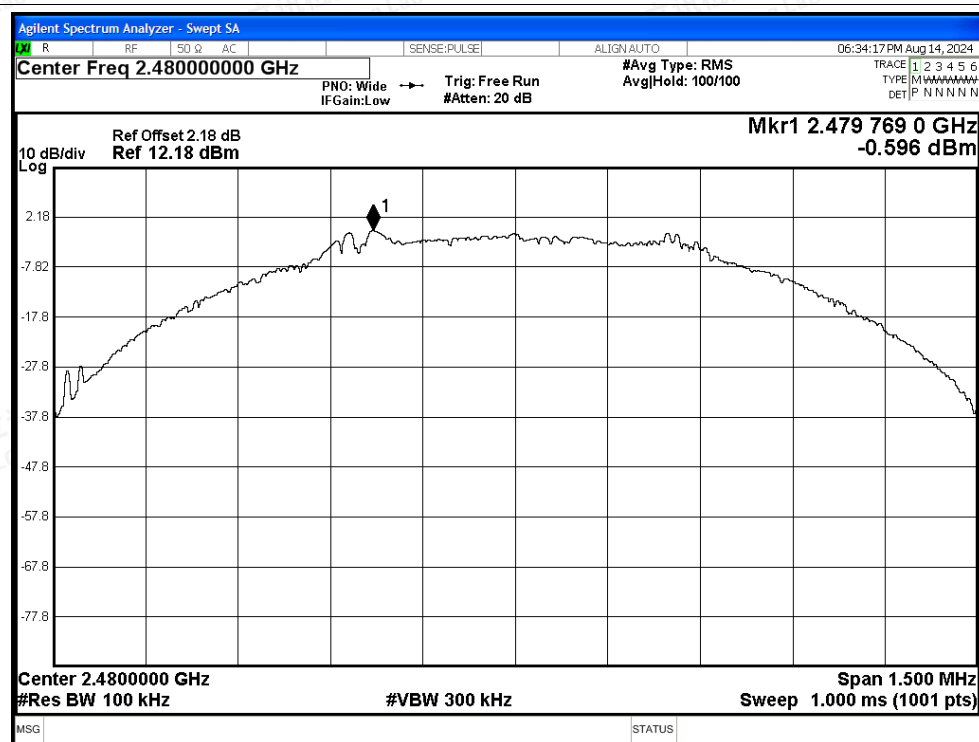
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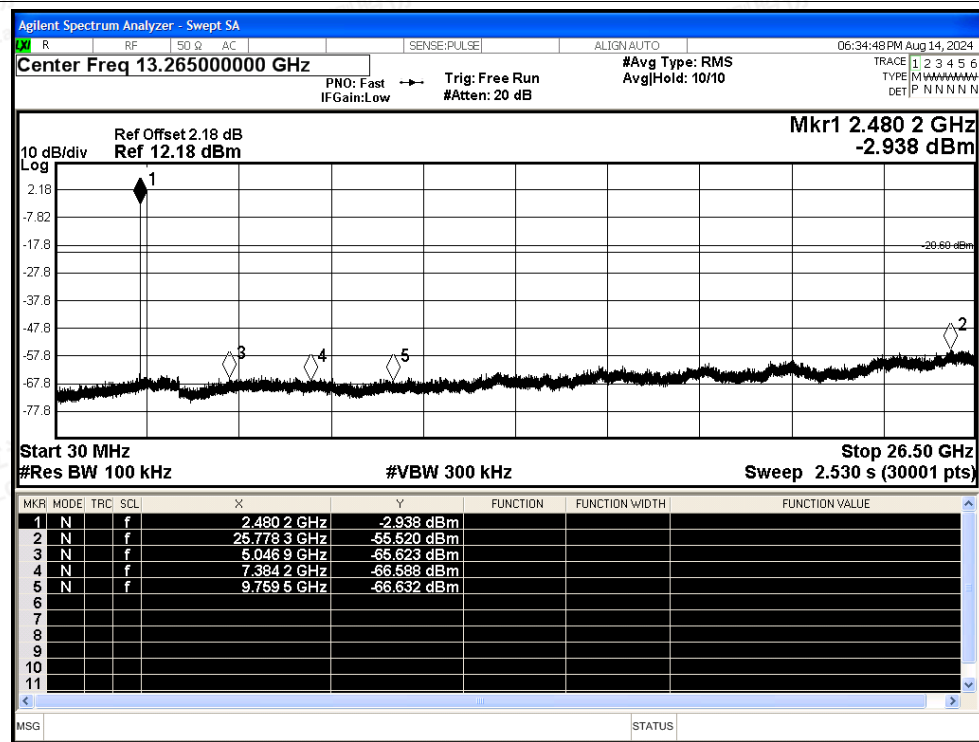
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Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



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A.6 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	87.39	0.59	0.61
NVNT	BLE 1M	2440	Ant1	87.39	0.59	0.61
NVNT	BLE 1M	2480	Ant1	87.39	0.59	0.61

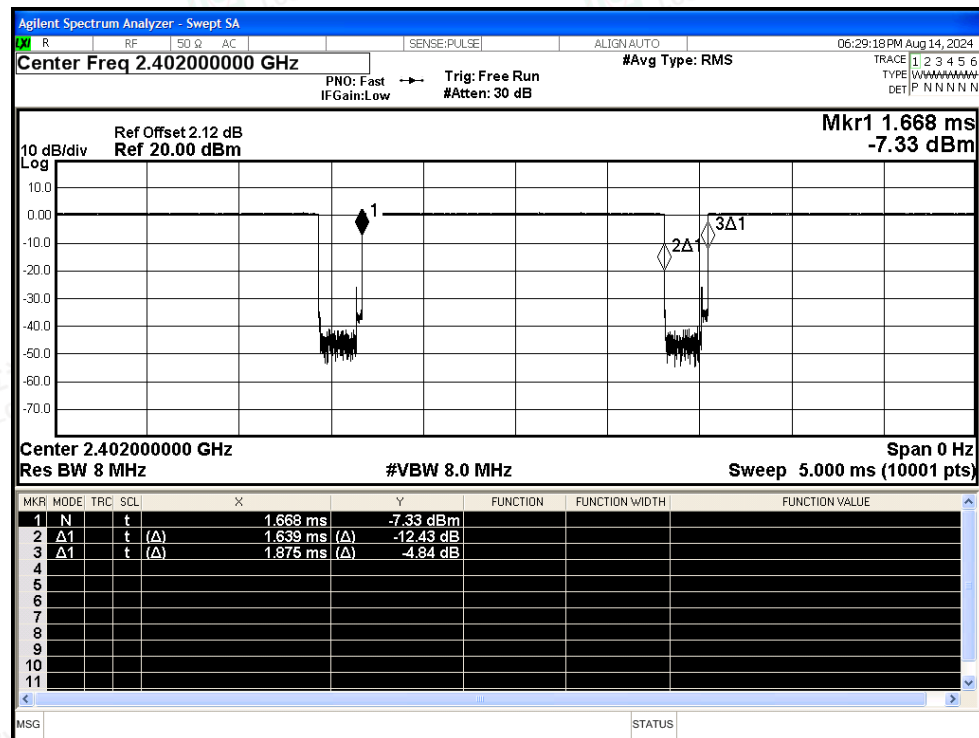


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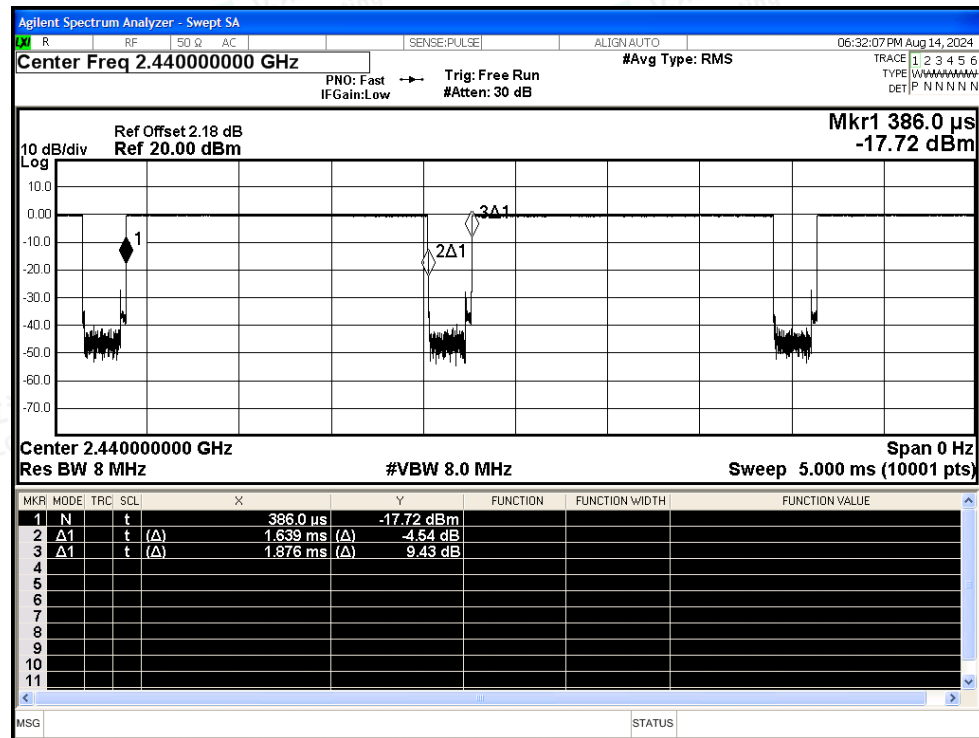


Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz Ant1



Duty Cycle NVNT BLE 1M 2440MHz Ant1

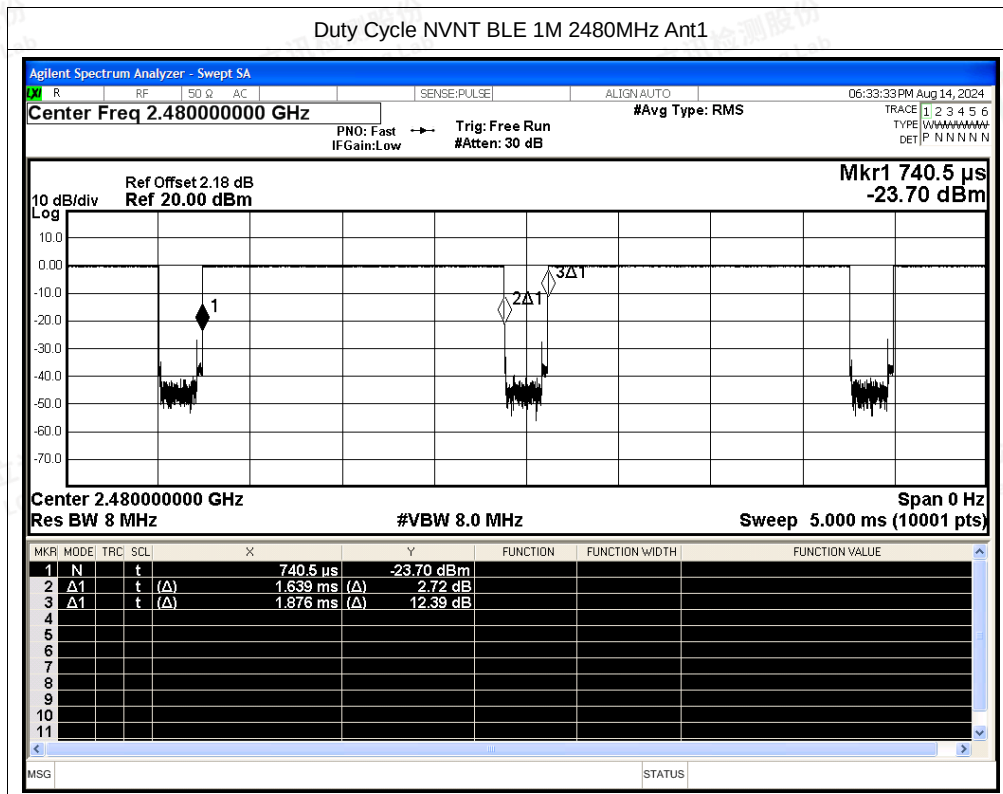


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A.7 Restrict Band

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 1M	2402	Ant1	2310	-51.22	2	-	46.04	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2310	-58.76	2	0.59	39.09	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2379.12	-47.7	2	-	49.56	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2389.968	-57.47	2	0.59	40.38	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2390	-48.68	2	-	48.58	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2390	-57.47	2	0.59	40.38	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-50.32	2	-	46.94	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-57.39	2	0.59	40.46	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2484.4	-38.95	2	-	58.31	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2484.28	-56.6	2	0.59	41.25	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2500	-50.92	2	-	46.34	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2500	-57.71	2	0.59	40.14	Average	54	Pass

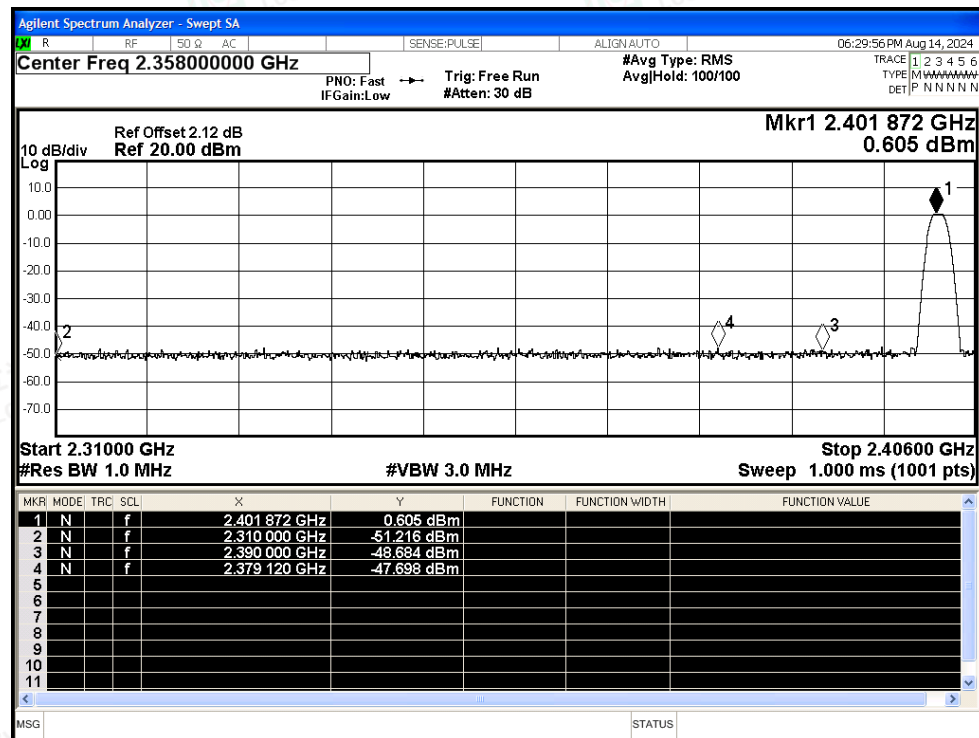


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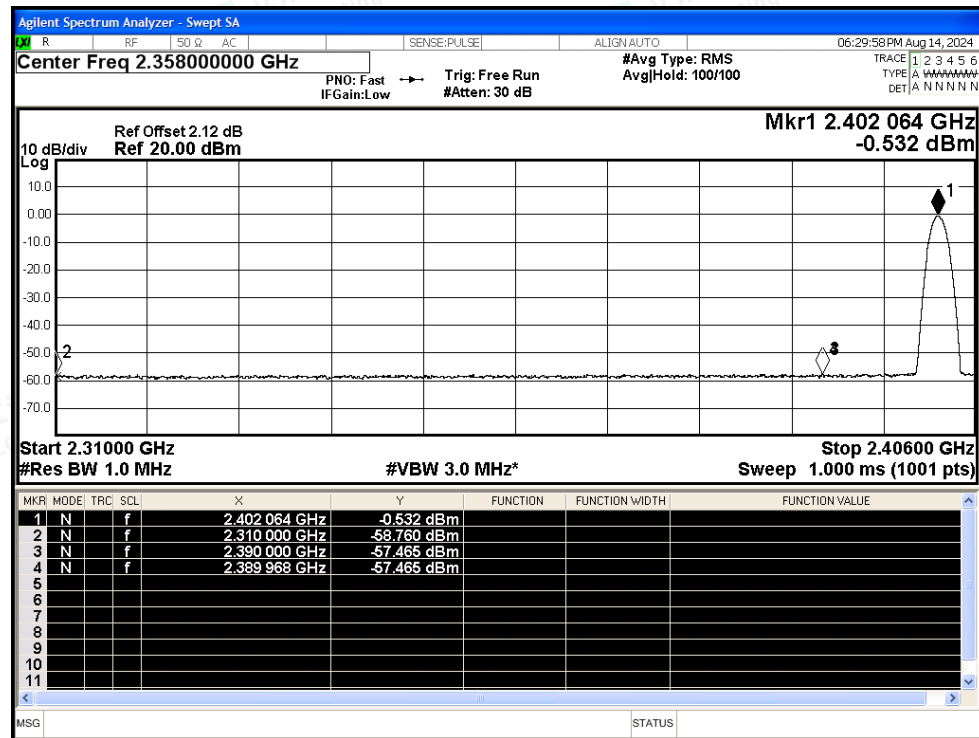


Test Graphs

Restrict Band NVNT BLE 1M 2402MHz Ant1 Peak



Restrict Band NVNT BLE 1M 2402MHz Ant1 Average



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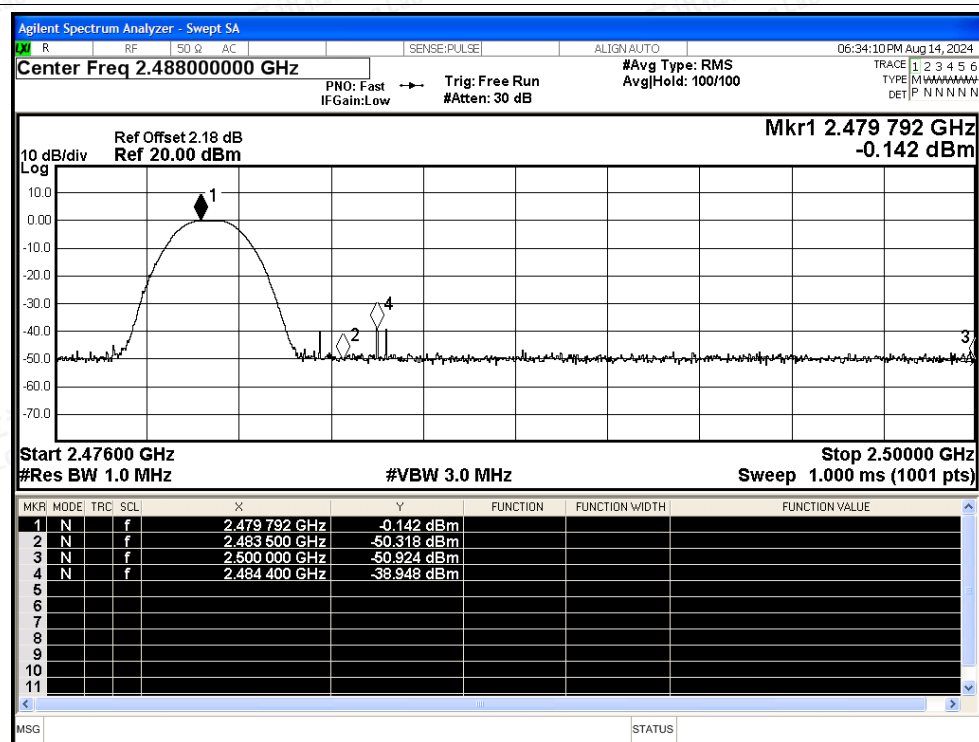
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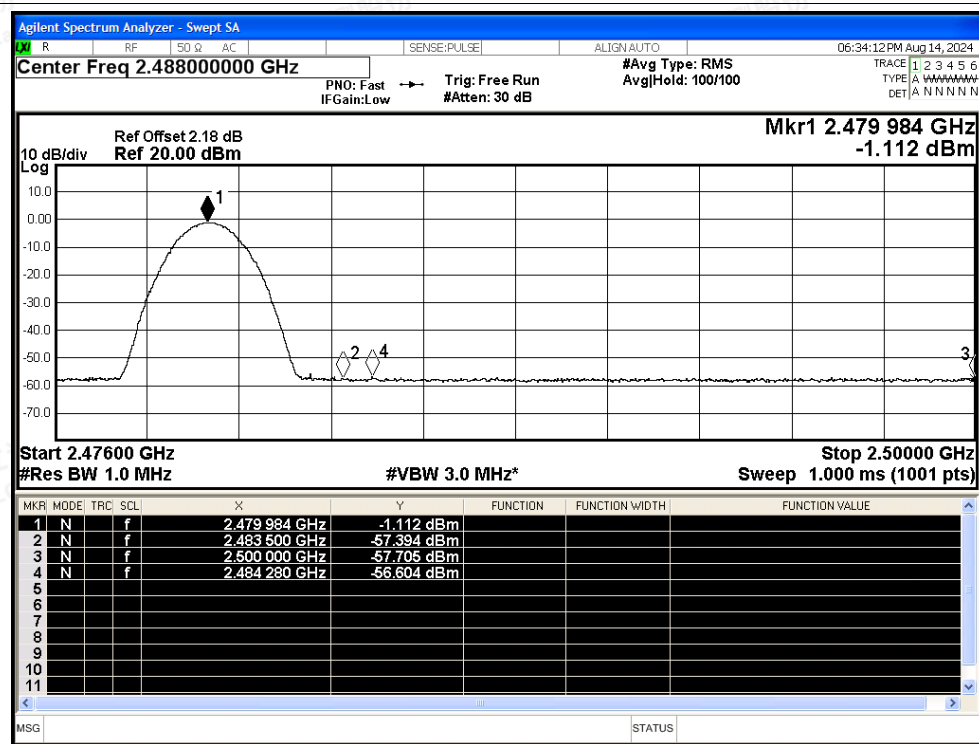
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Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



Restrict Band NVNT BLE 1M 2480MHz Ant1 Average



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