



Appendix A

RF Test Data for BLE (Conducted Measurement)

Product Name: Smart Triangle Light

Test Model: KA-PL04

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
	<i>Nick Peng</i>
Supervised by:	Ling Zhu
	<i>Ling Zhu</i>



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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 2M	2402	Ant1	1.228	≥ 0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.351	≥ 0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.139	≥ 0.5	Pass



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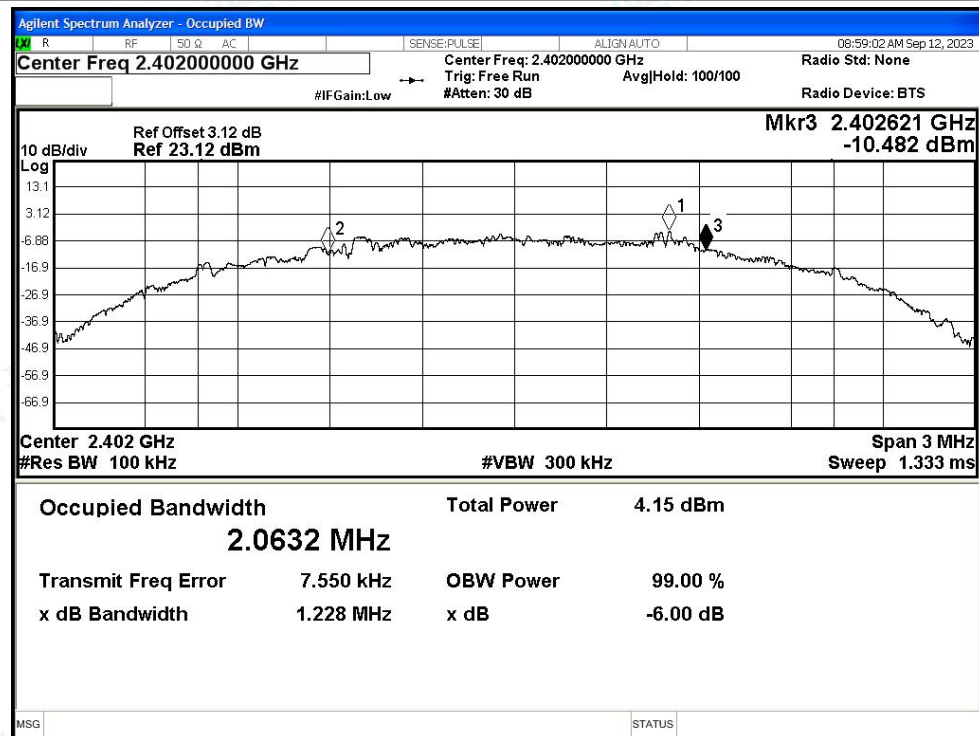
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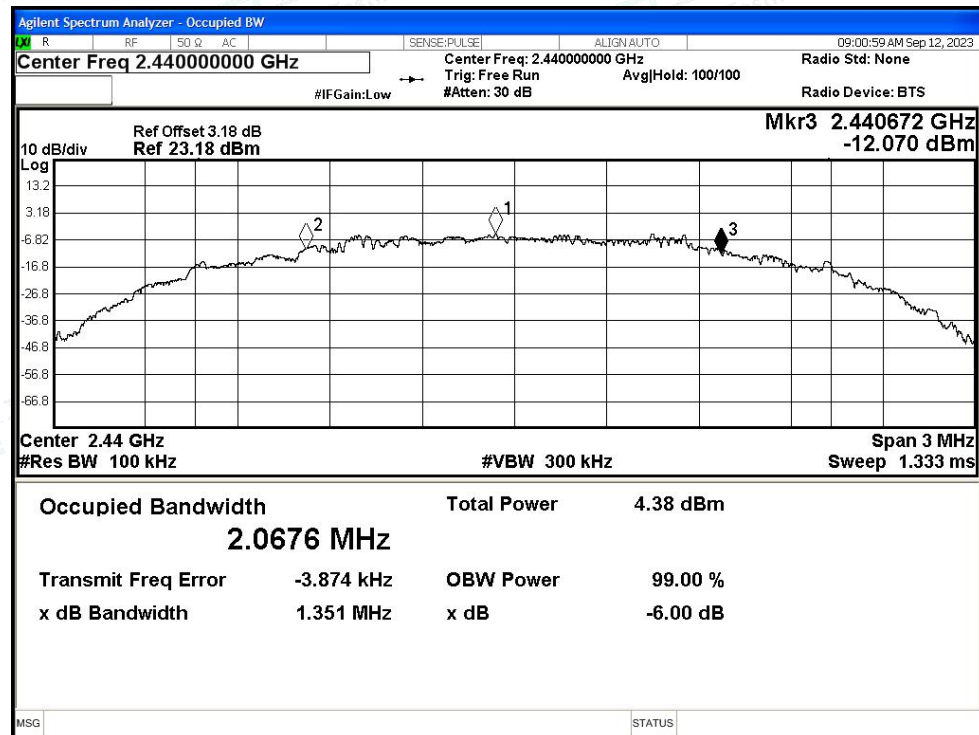


Test Graphs

-6dB Bandwidth NVNT BLE 2M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1

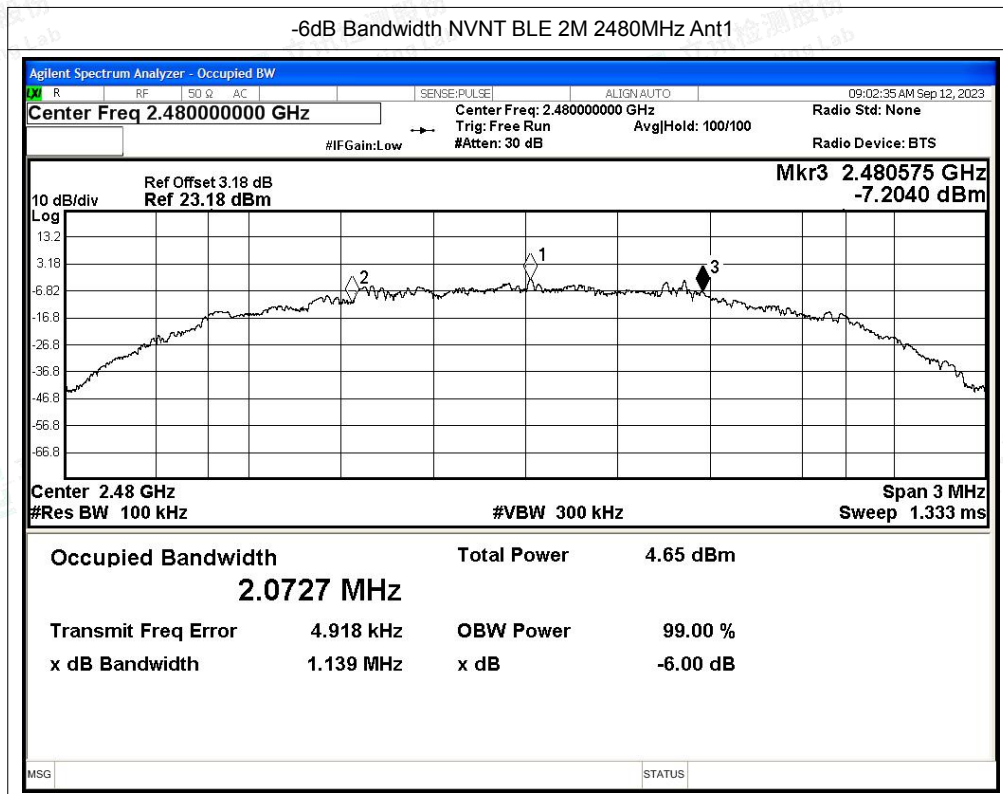


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A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 2M	2402	Ant1	-1.9	30	Pass
NVNT	BLE 2M	2440	Ant1	-1.51	30	Pass
NVNT	BLE 2M	2480	Ant1	-1.37	30	Pass



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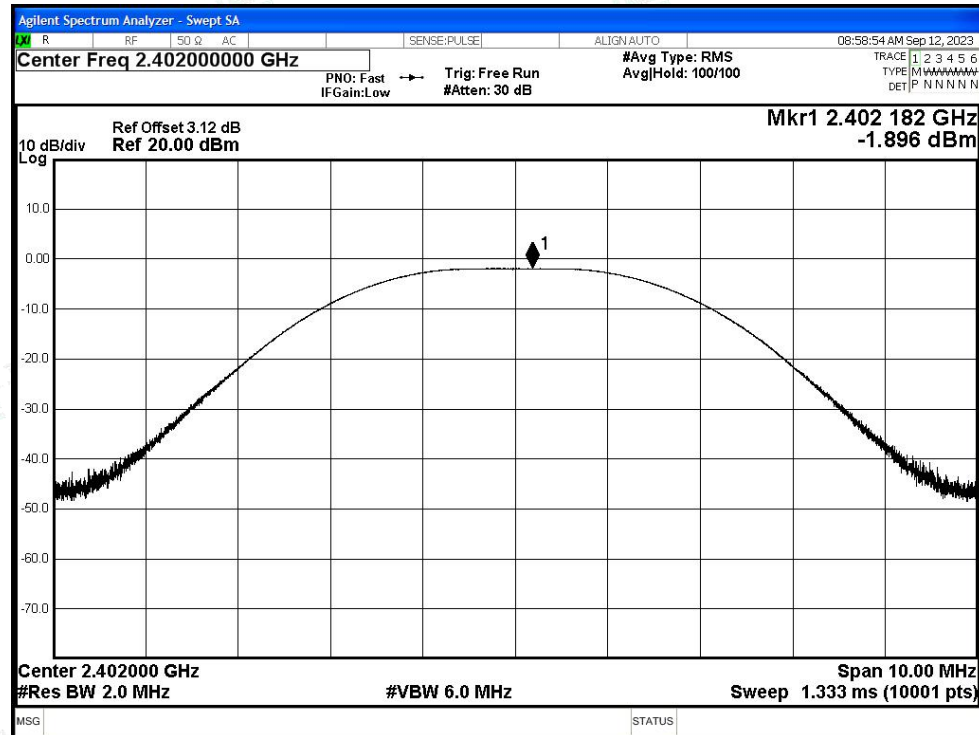
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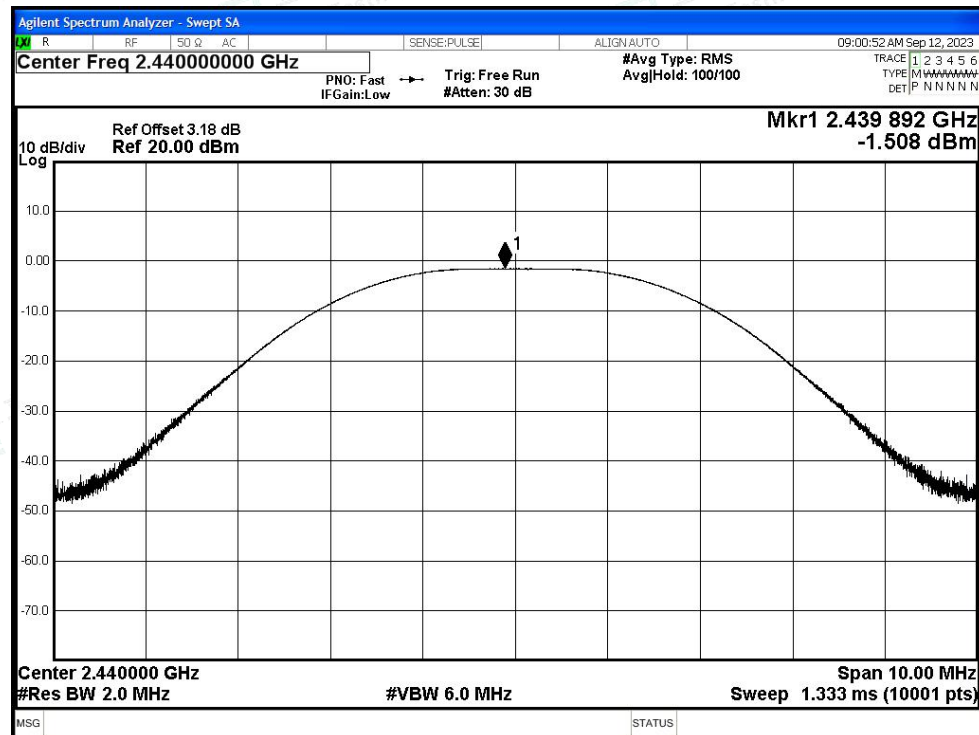


Test Graphs

Power NVNT BLE 2M 2402MHz Ant1



Power NVNT BLE 2M 2440MHz Ant1

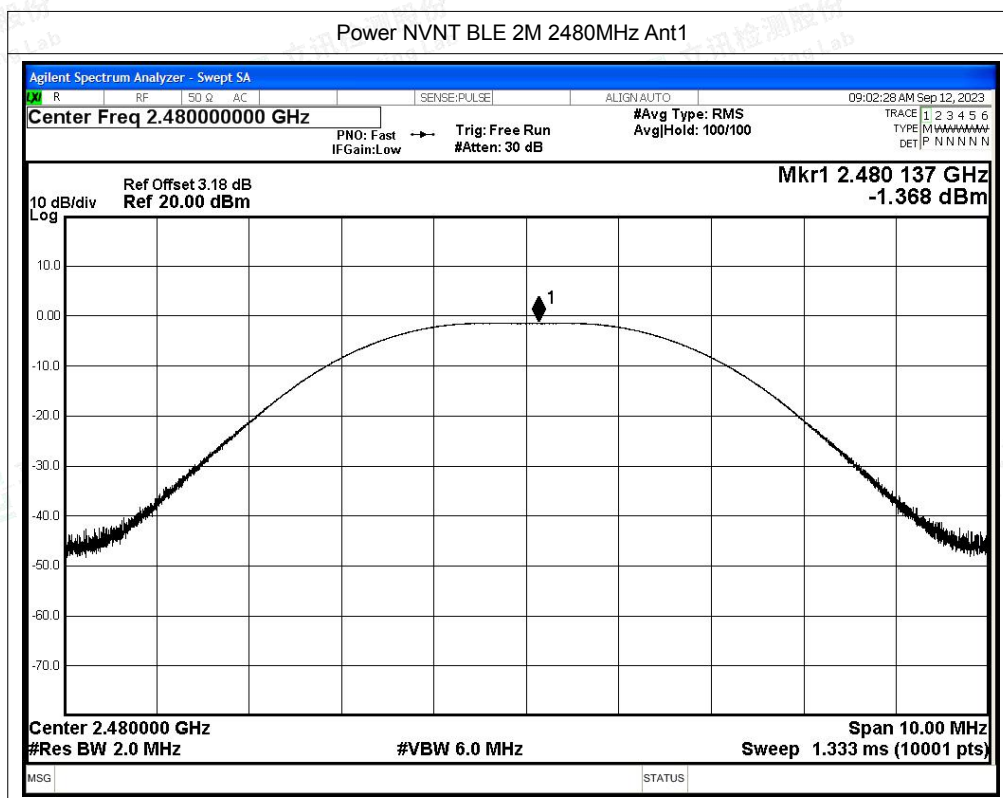


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A.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 2M	2402	Ant1	-20.7	8	Pass
NVNT	BLE 2M	2440	Ant1	-20.43	8	Pass
NVNT	BLE 2M	2480	Ant1	-20.17	8	Pass



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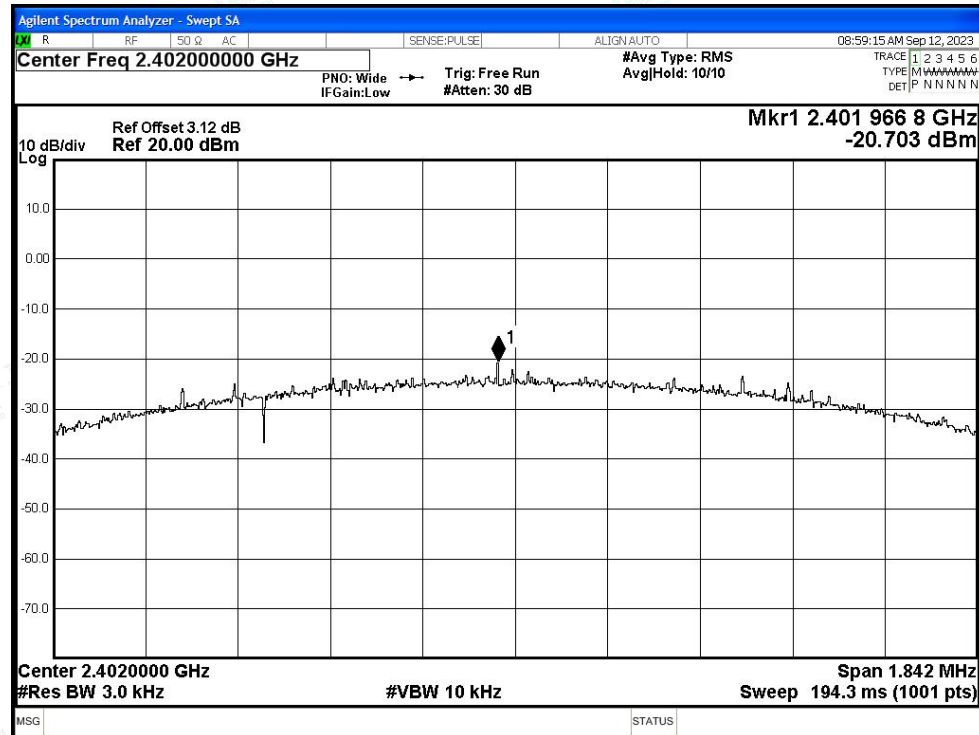
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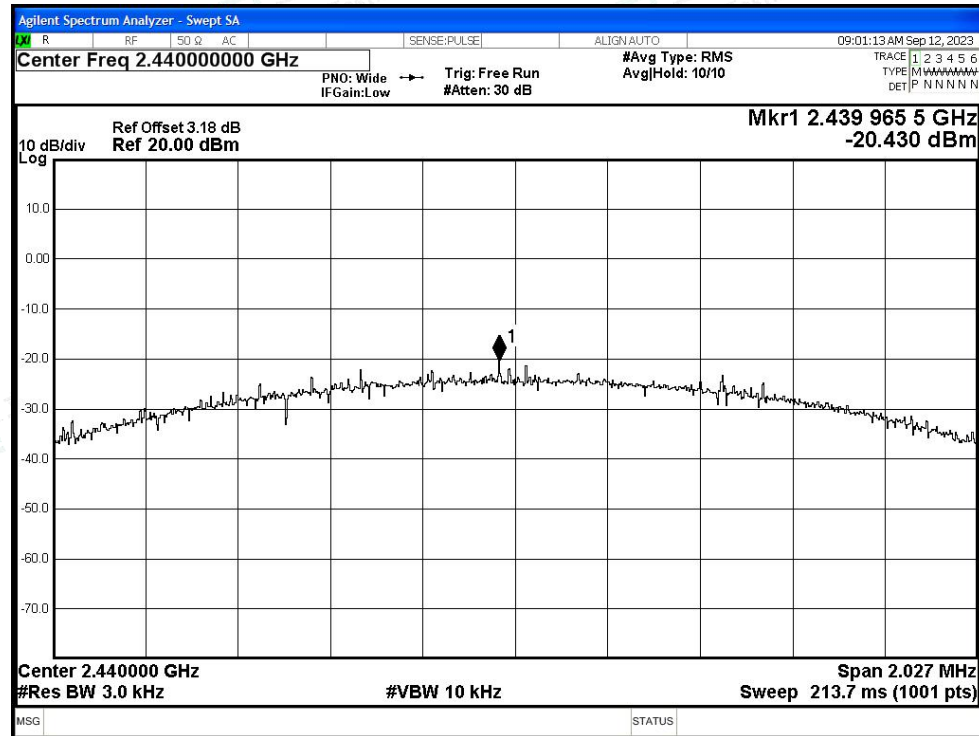


Test Graphs

PSD NVNT BLE 2M 2402MHz Ant1



PSD NVNT BLE 2M 2440MHz Ant1

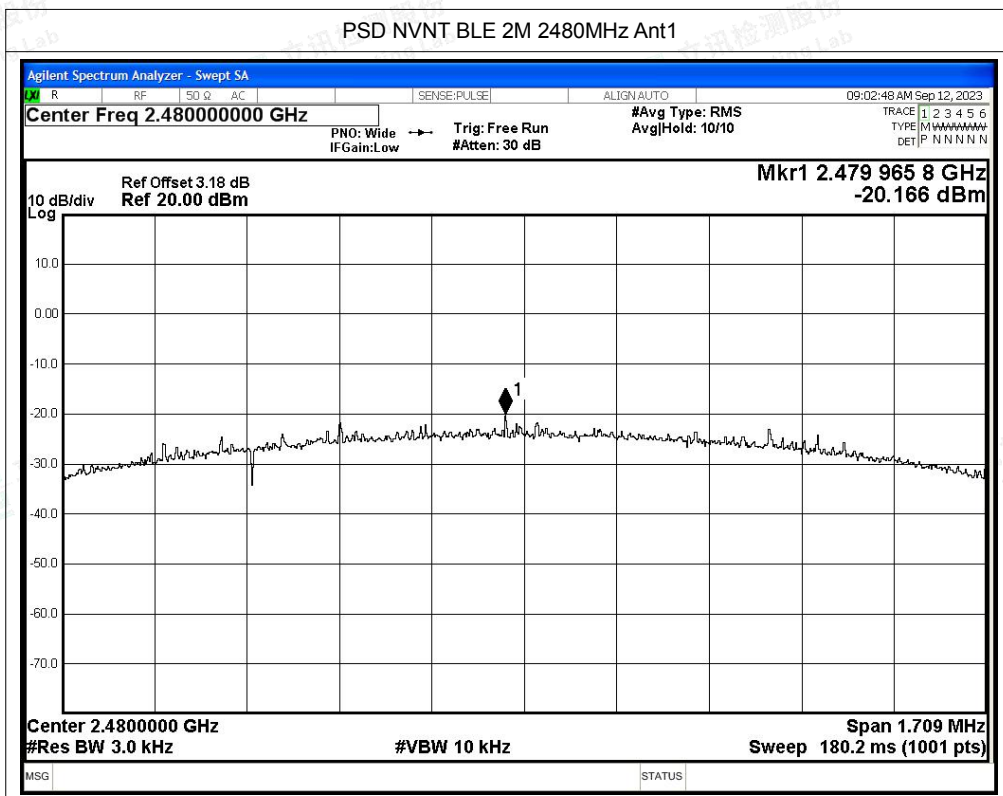


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A.4 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 2M	2402	Ant1	-31.21	-20	Pass
NVNT	BLE 2M	2480	Ant1	-53.55	-20	Pass



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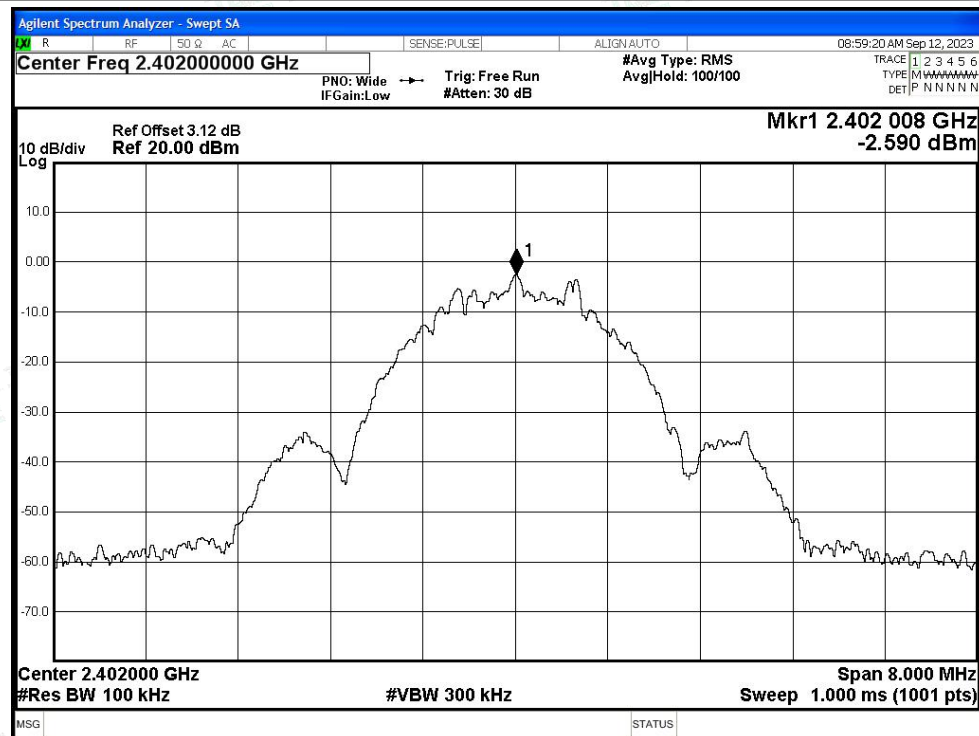
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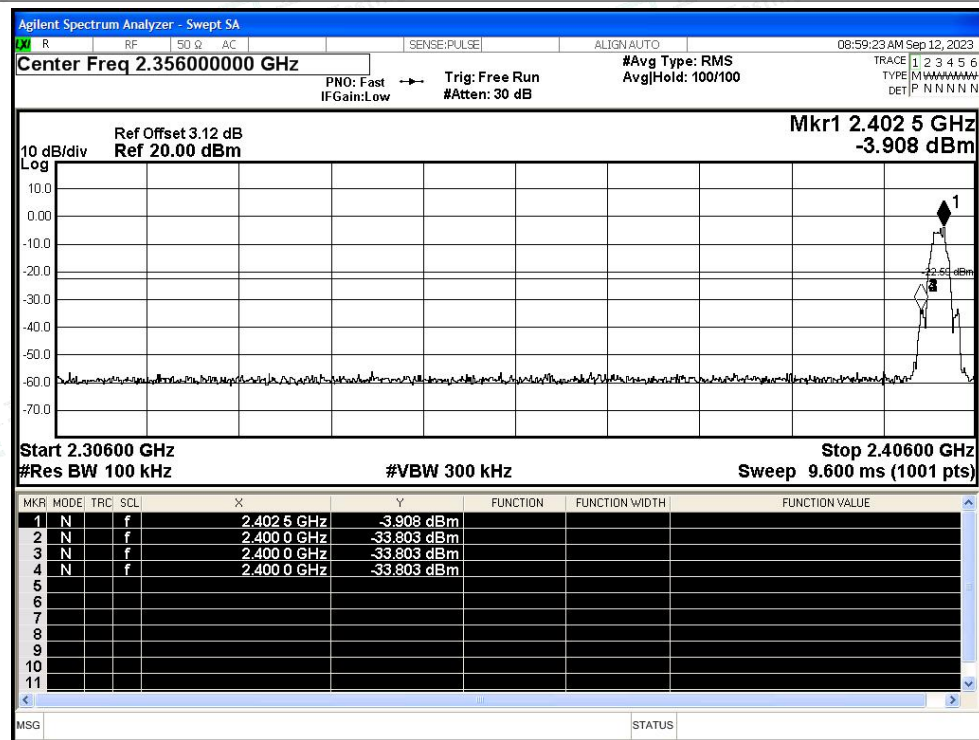


Test Graphs

Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



Band Edge NVNT BLE 2M 2402MHz Ant1 Emission



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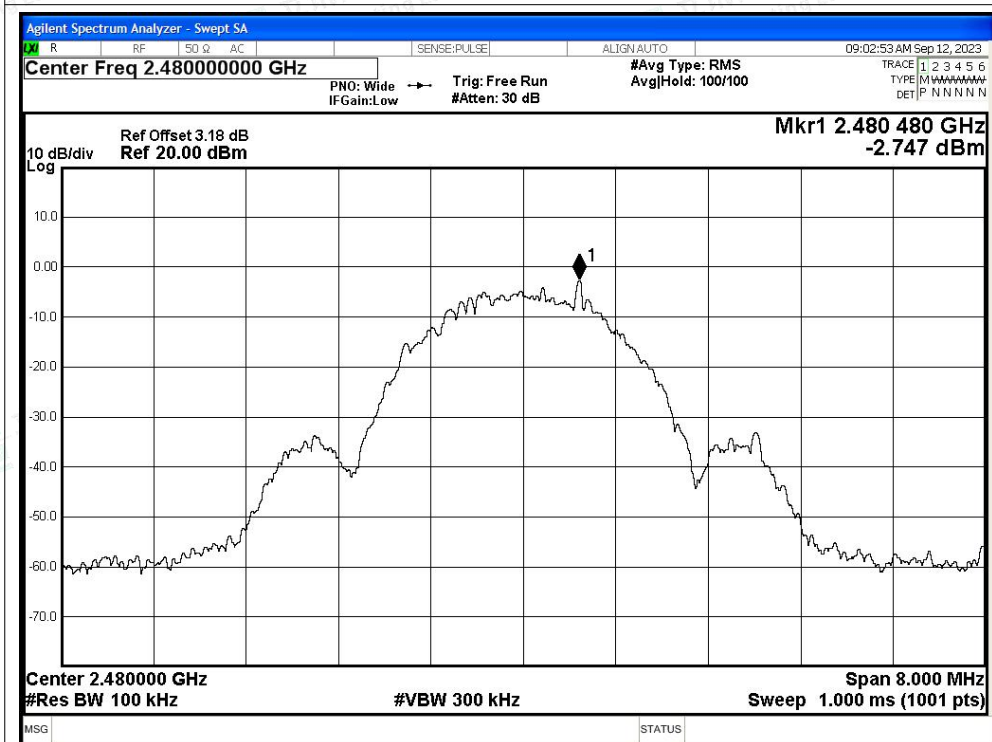
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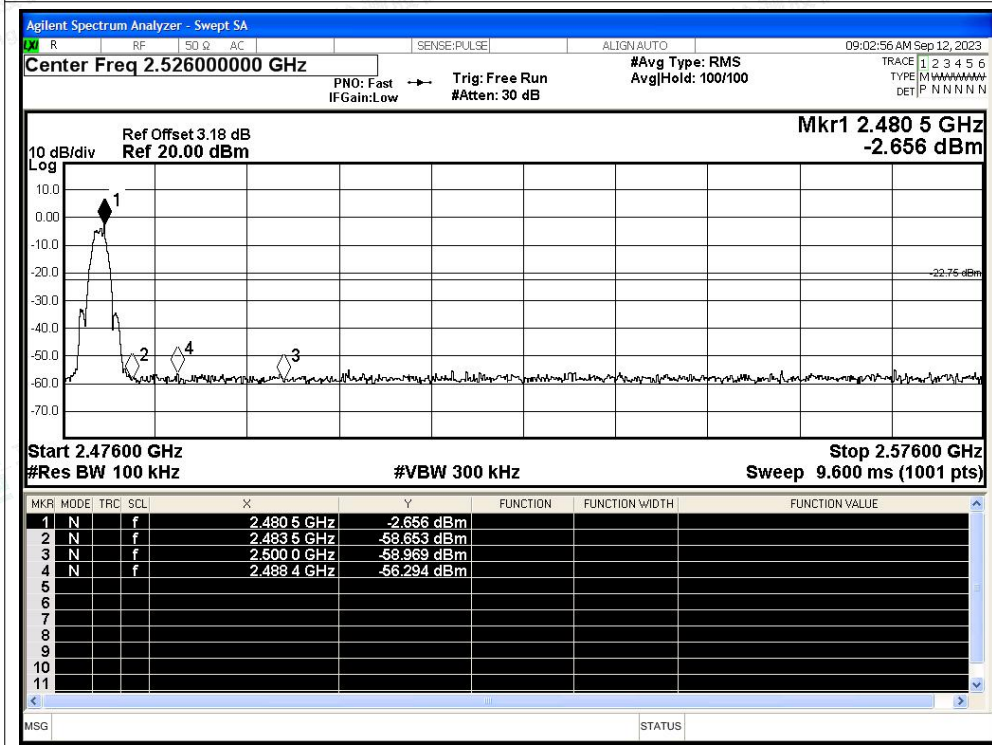
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Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



Band Edge NVNT BLE 2M 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 2M	2402	Ant1	-52.14	-20	Pass
NVNT	BLE 2M	2440	Ant1	-52.73	-20	Pass
NVNT	BLE 2M	2480	Ant1	-52.41	-20	Pass



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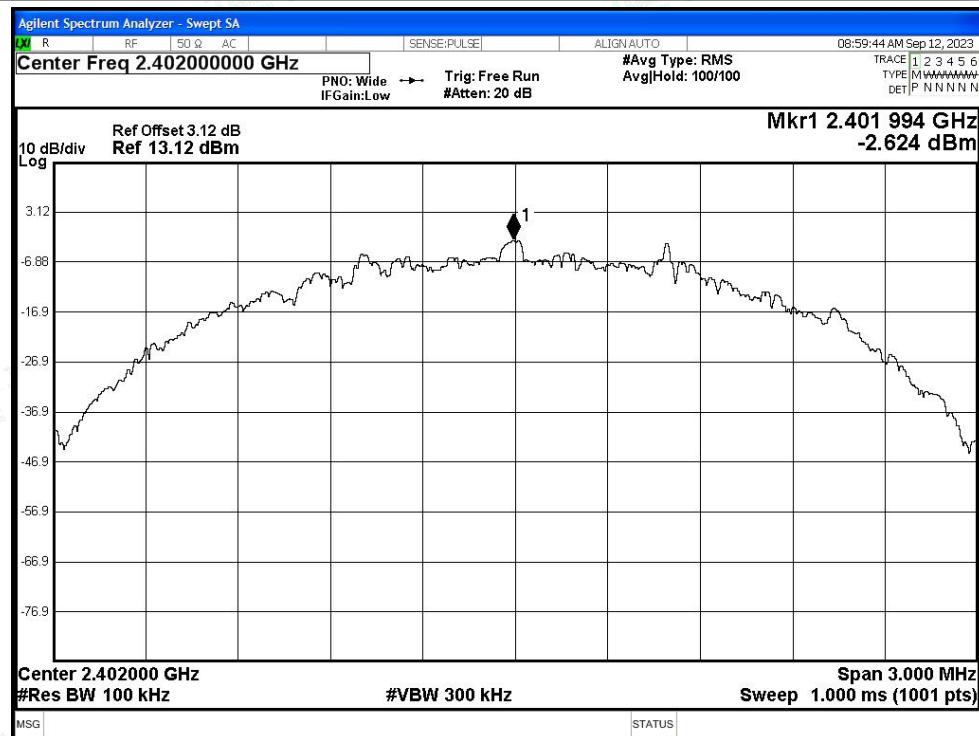
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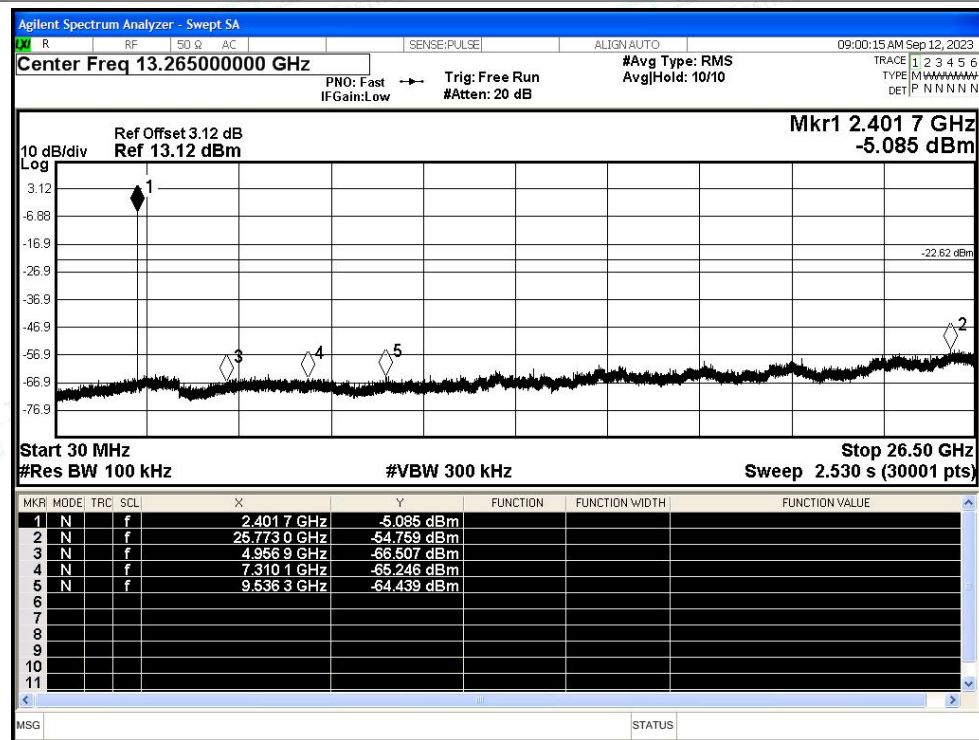


Test Graphs

Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



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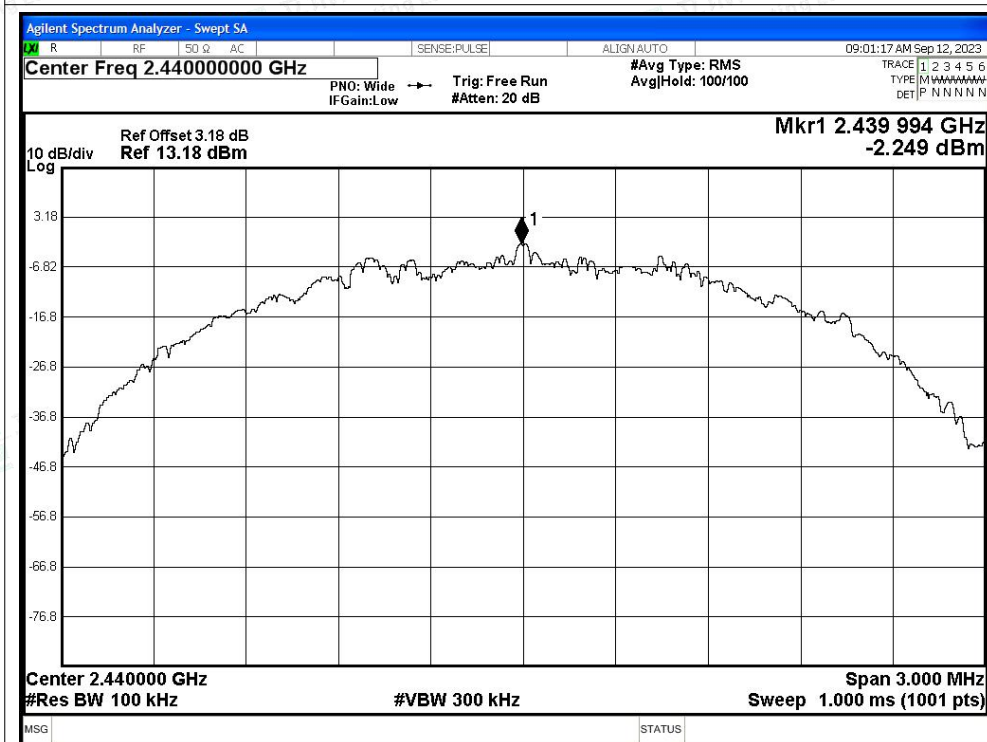
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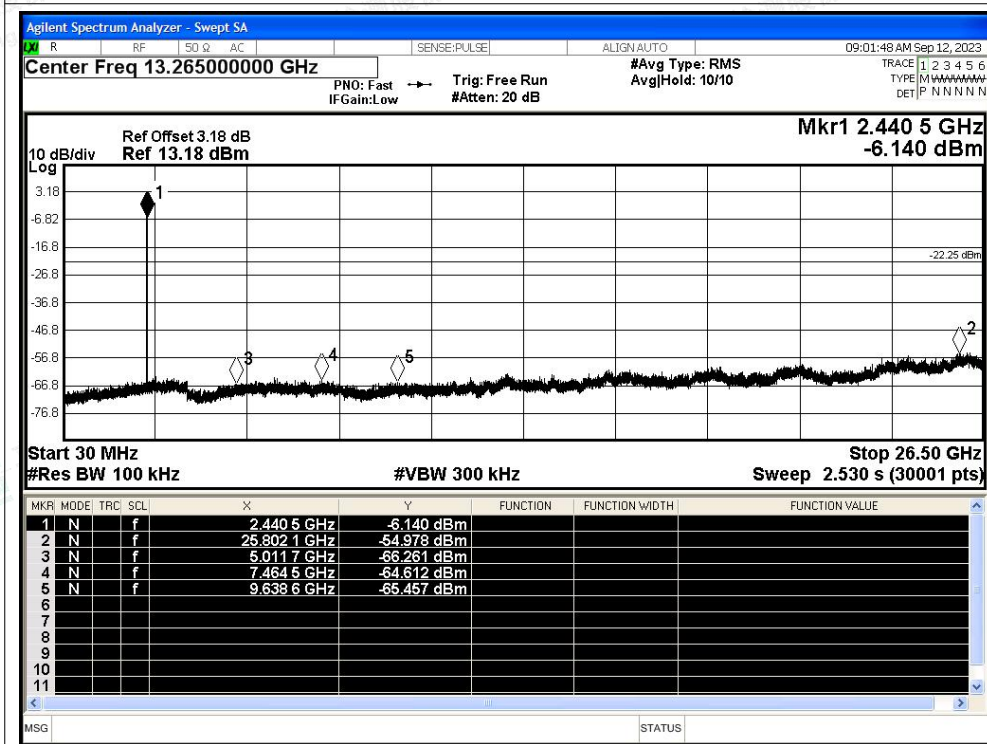
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Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



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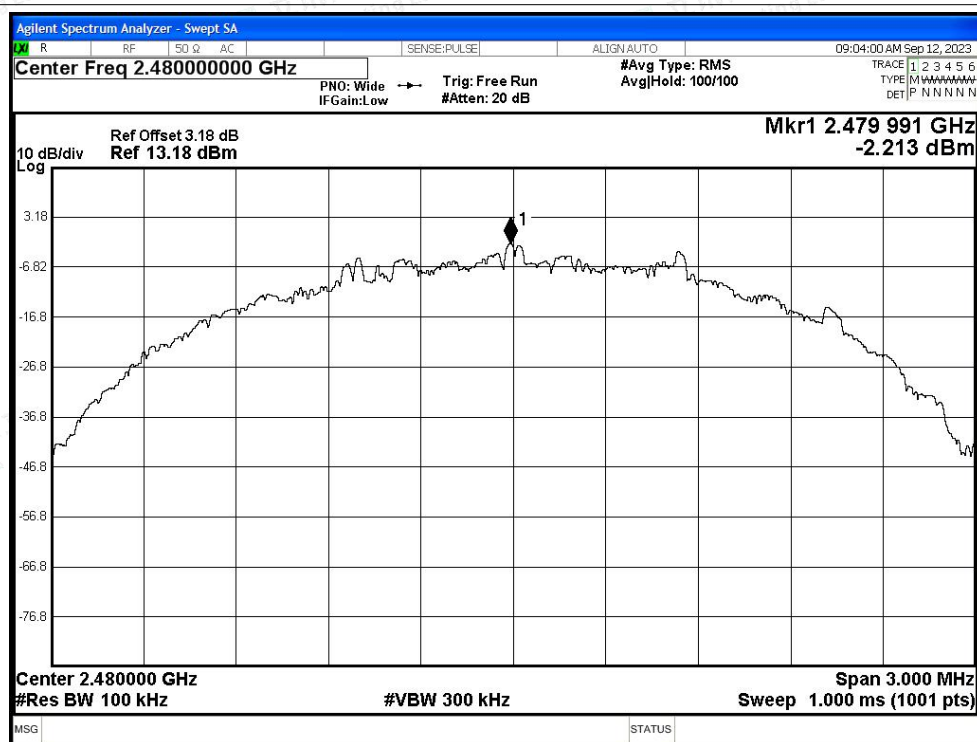
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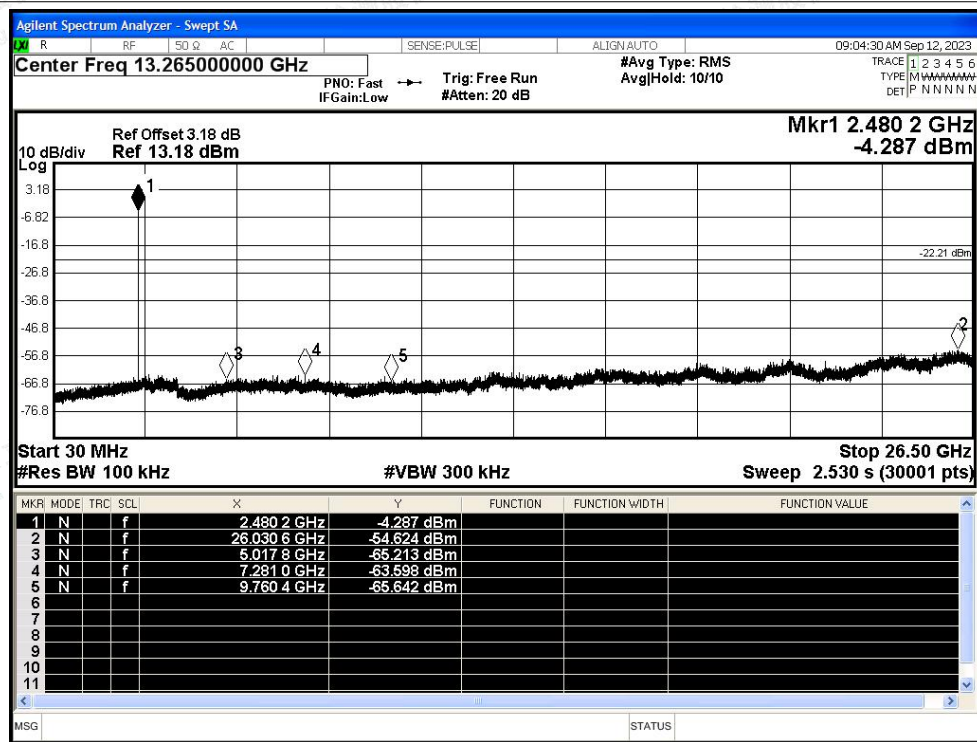
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Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 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 2M	2402	Ant1	57.15	2.43	0.93
NVNT	BLE 2M	2440	Ant1	57.17	2.43	0.93
NVNT	BLE 2M	2480	Ant1	57.17	2.43	0.93



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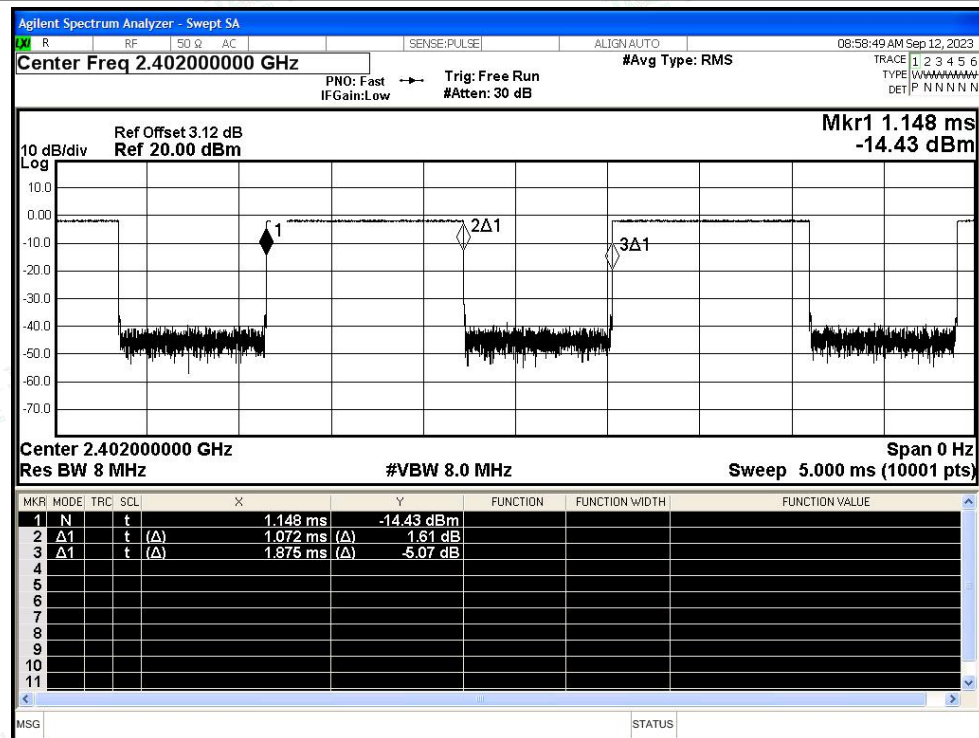
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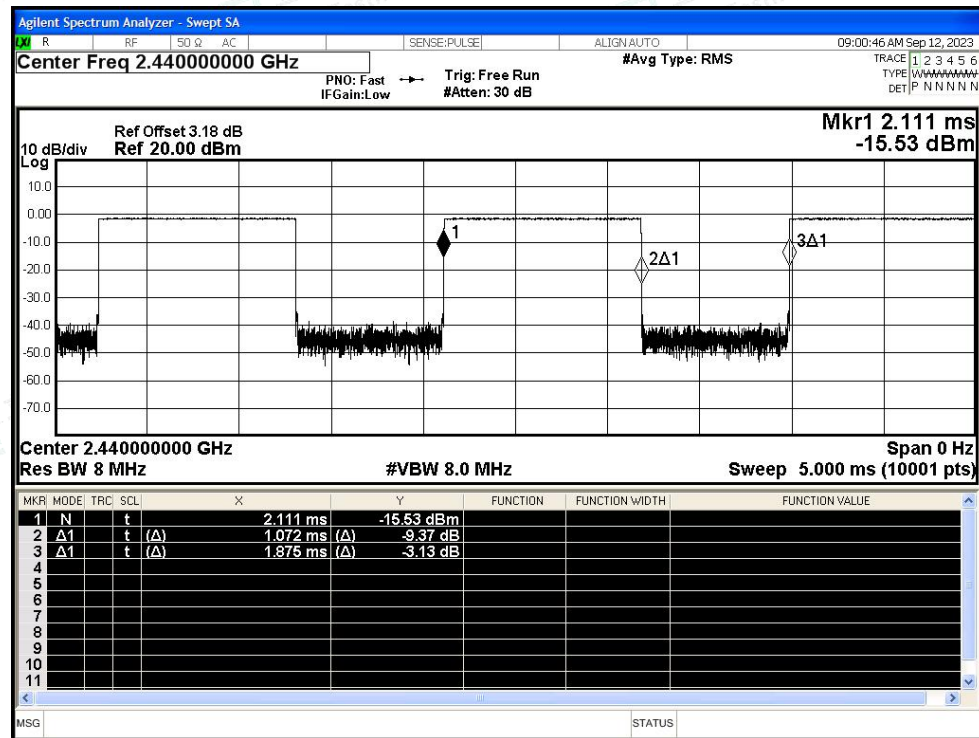


Test Graphs

Duty Cycle NVNT BLE 2M 2402MHz Ant1



Duty Cycle NVNT BLE 2M 2440MHz Ant1

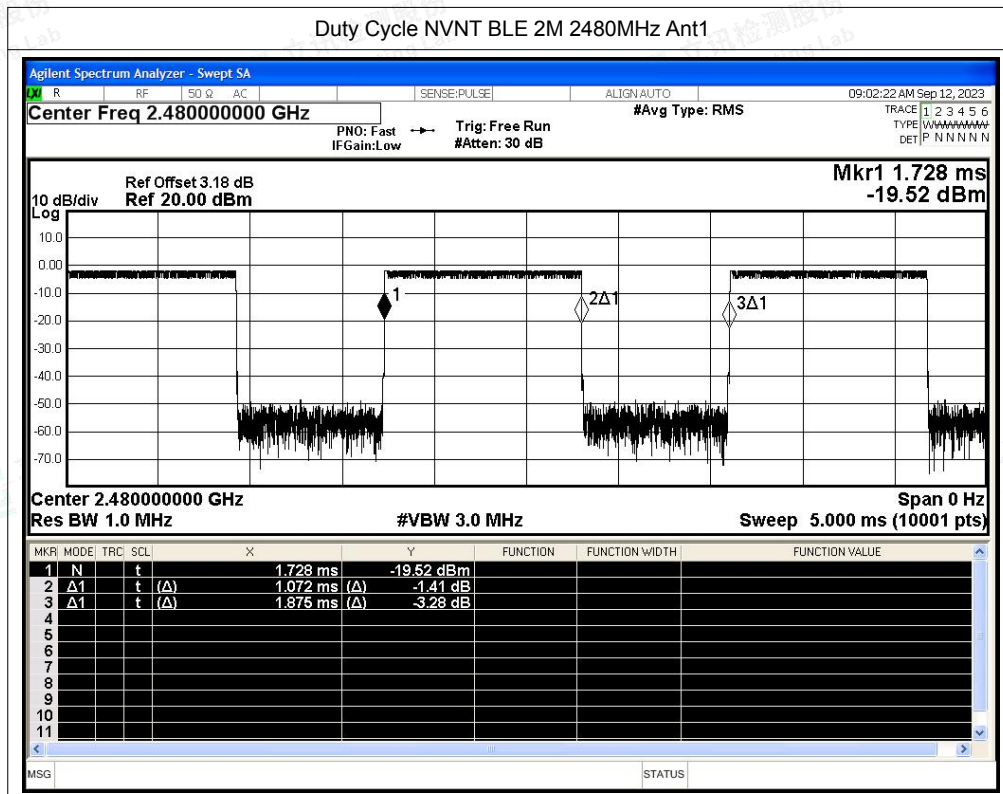


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A.7 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 2M	2402	Ant1	2310	-49.7	2.2	47.76	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2310	-56.49	2.2	40.97	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2363.184	-46.7	2.2	50.76	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2382	-56.12	2.2	41.34	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2390	-50.56	2.2	46.90	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2390	-56.24	2.2	41.22	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-47.51	2.2	49.95	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-51.71	2.2	45.75	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2491.384	-46.28	2.2	51.18	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.512	-51.71	2.2	45.75	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2500	-48.59	2.2	48.87	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2500	-55.77	2.2	41.69	Average	54	Pass



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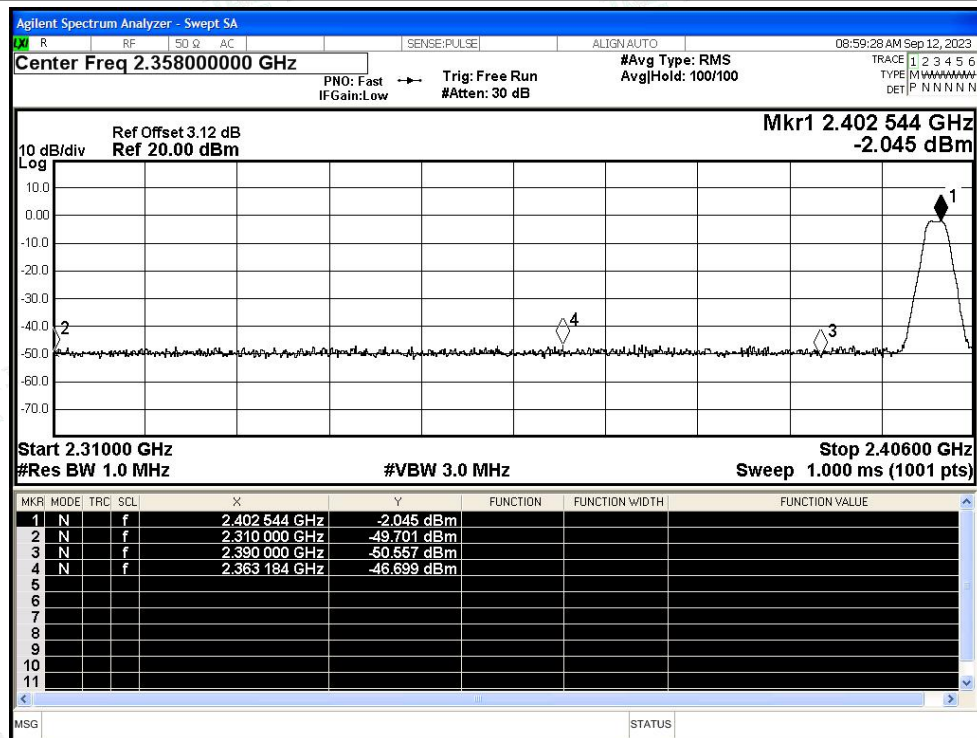
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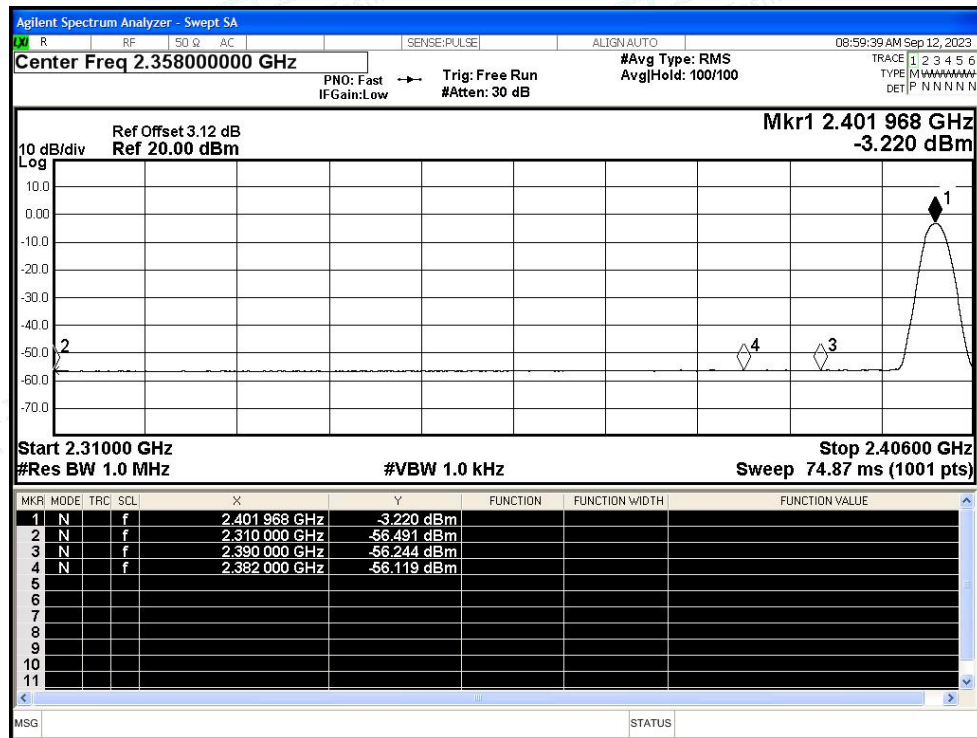


Test Graphs

Restrict Band NVNT BLE 2M 2402MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2402MHz Ant1 Average



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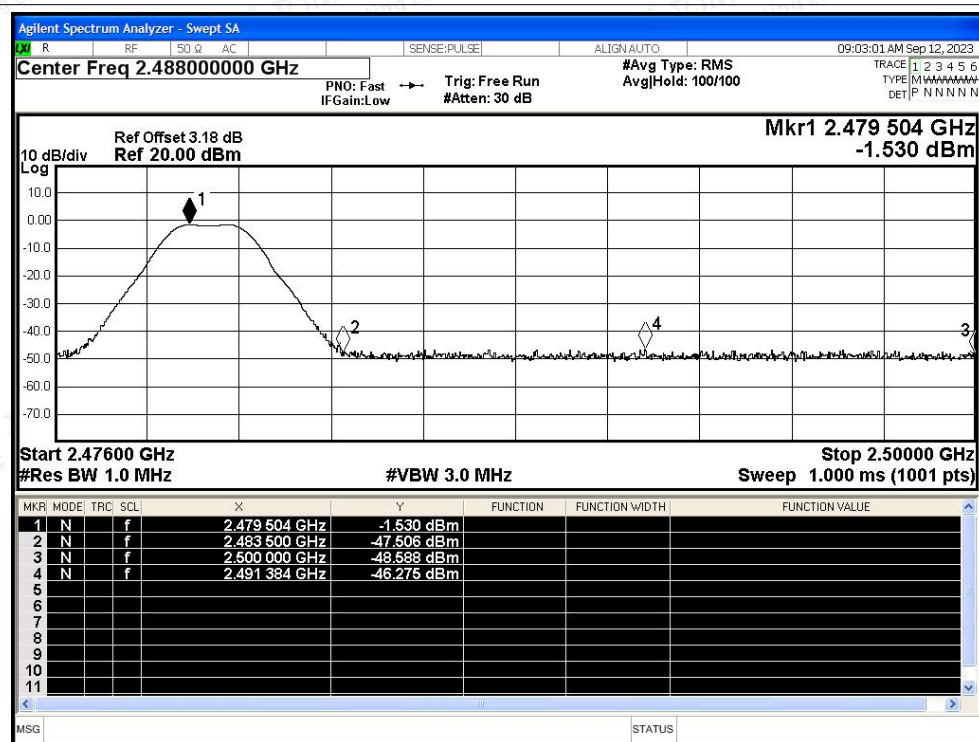
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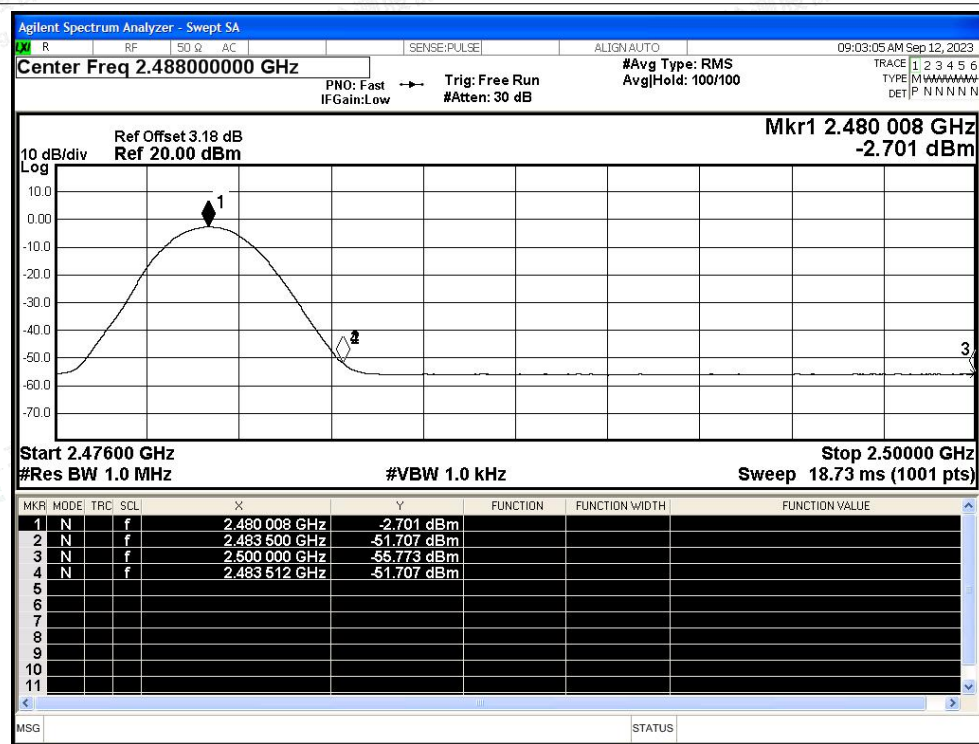
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Restrict Band NVNT BLE 2M 2480MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2480MHz Ant1 Average



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