



Appendix A

RF Test Data for 2.4G (Conducted Measurement)

Product Name: Ergonomic Wireless Keyboard

Test Model: HK8013US

Environmental Conditions

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



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A.1 -6dB Bandwidth

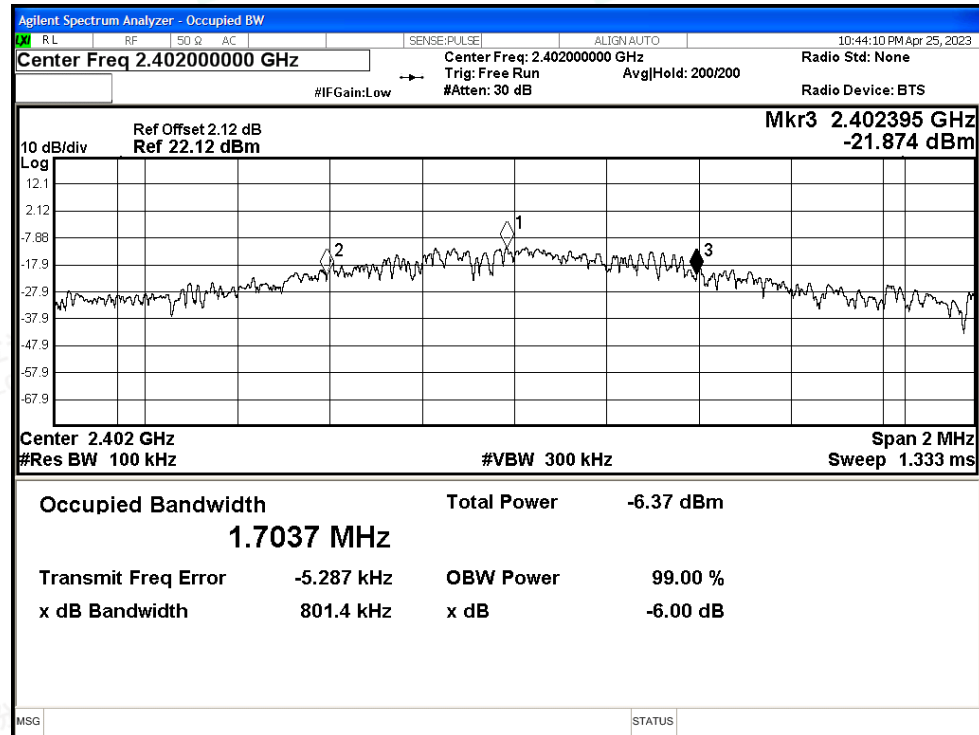
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	2.4G	2402	Ant1	0.801	>=0.5	Pass
NVNT	2.4G	2440	Ant1	0.797	>=0.5	Pass
NVNT	2.4G	2480	Ant1	0.736	>=0.5	Pass



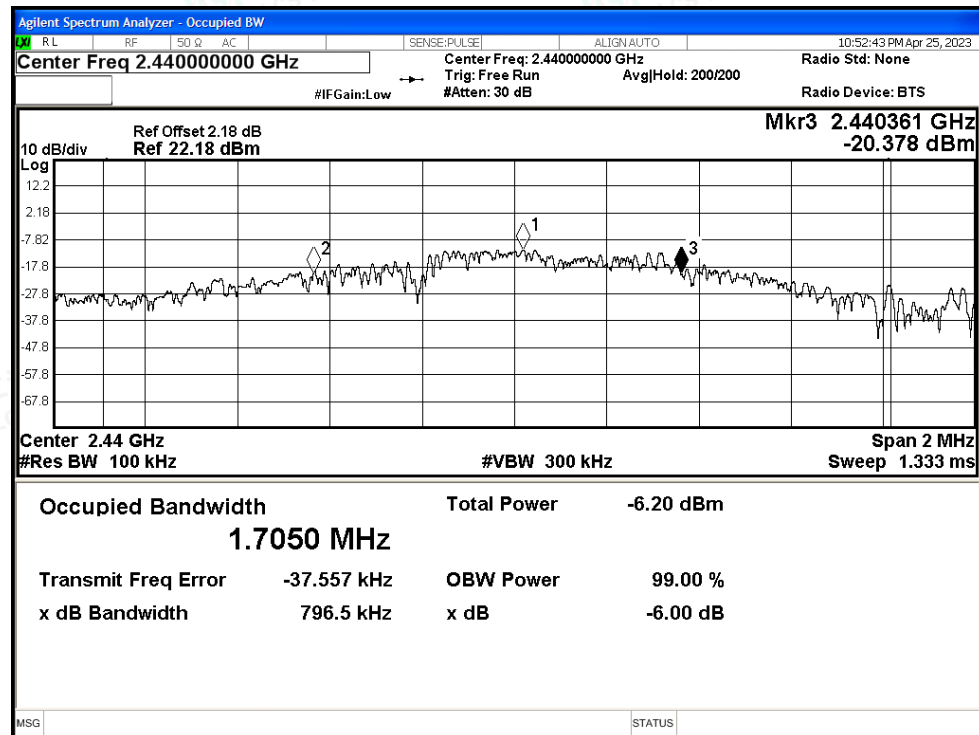


Test Graphs

-6dB Bandwidth NVNT 2.4G 2402MHz Ant1



-6dB Bandwidth NVNT 2.4G 2440MHz Ant1

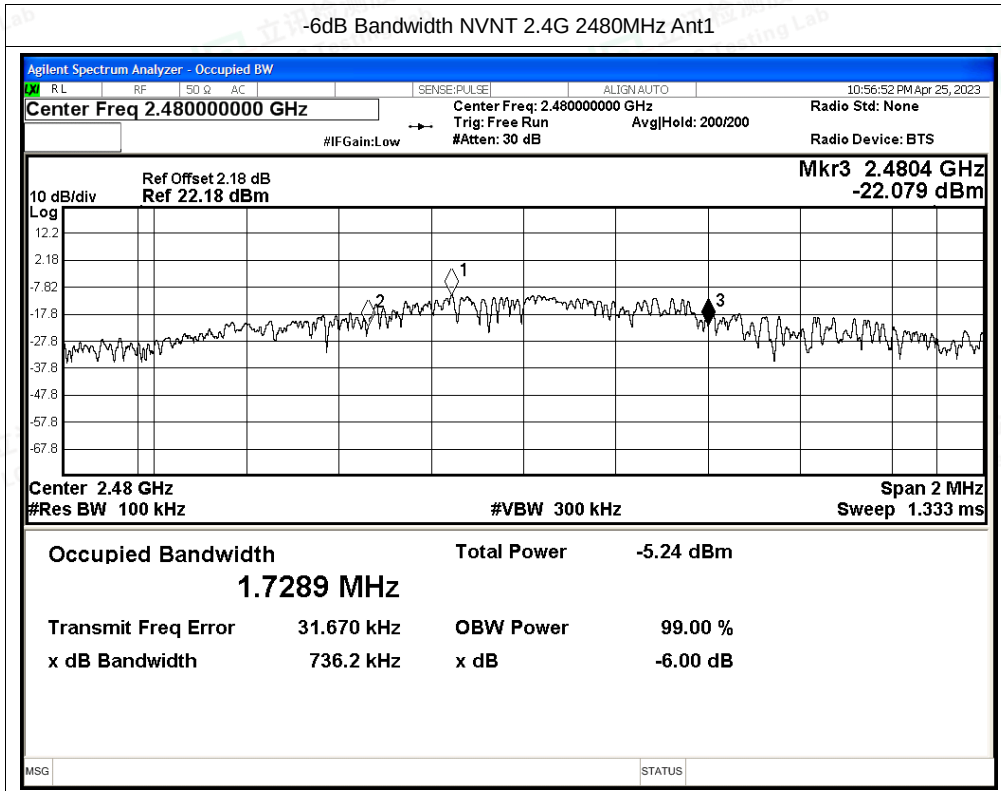


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A.2 Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	2.4G	2402	Ant1	1.943
NVNT	2.4G	2440	Ant1	1.944
NVNT	2.4G	2480	Ant1	1.925

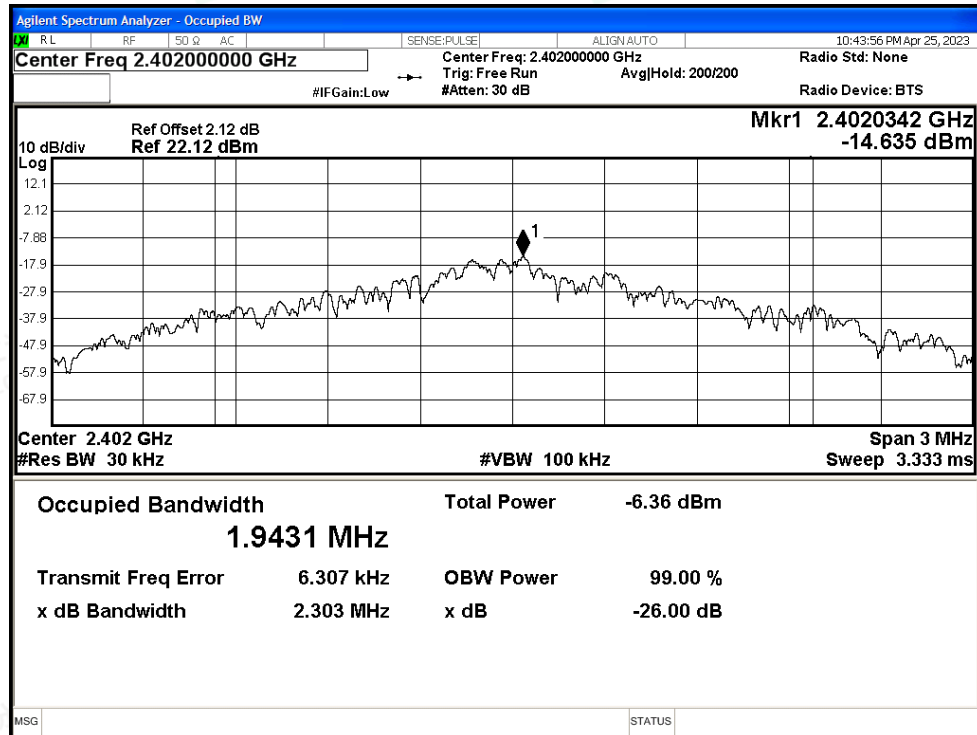


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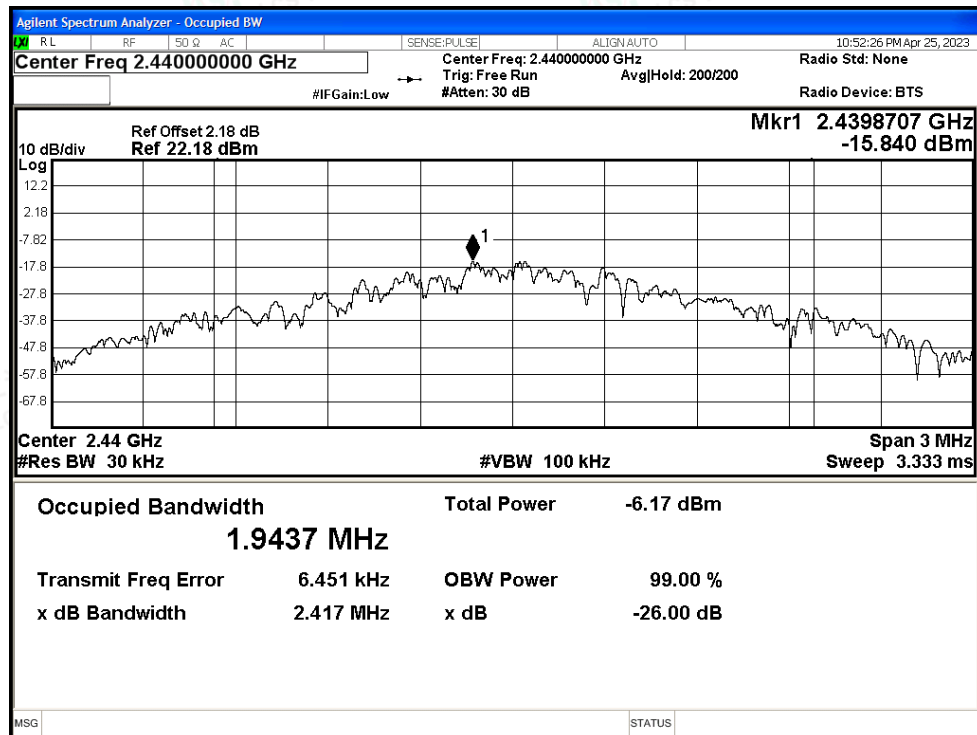


Test Graphs

OBW NVNT 2.4G 2402MHz Ant1



OBW NVNT 2.4G 2440MHz Ant1

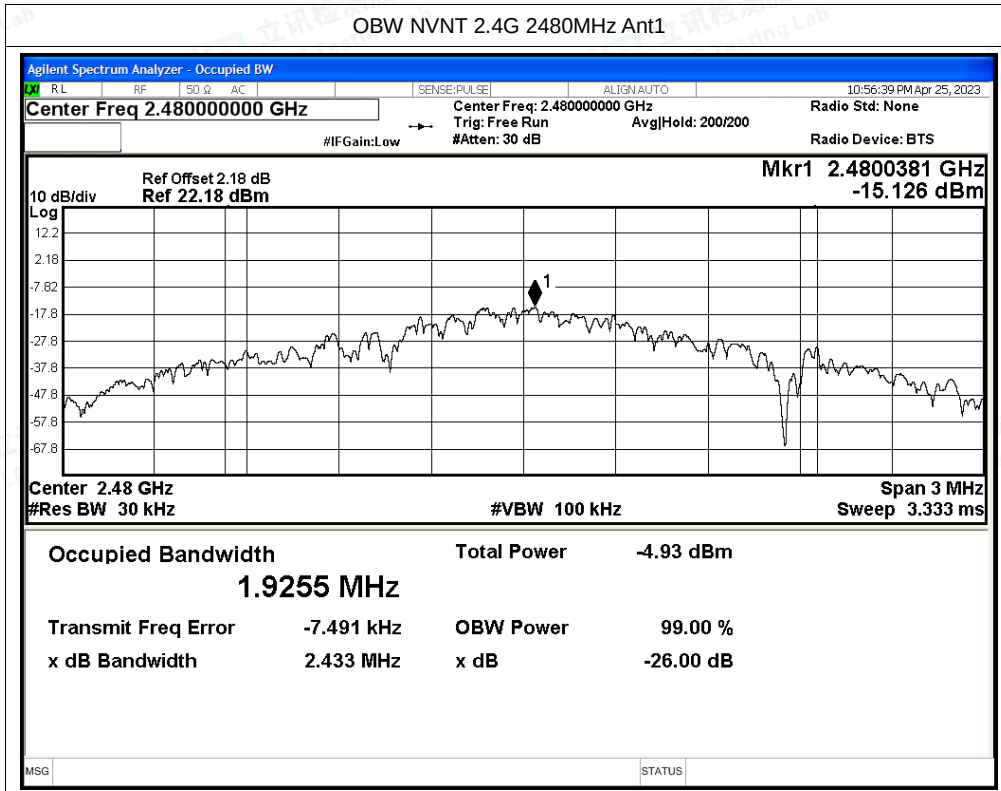


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A.3 Maximum Conducted Output Power

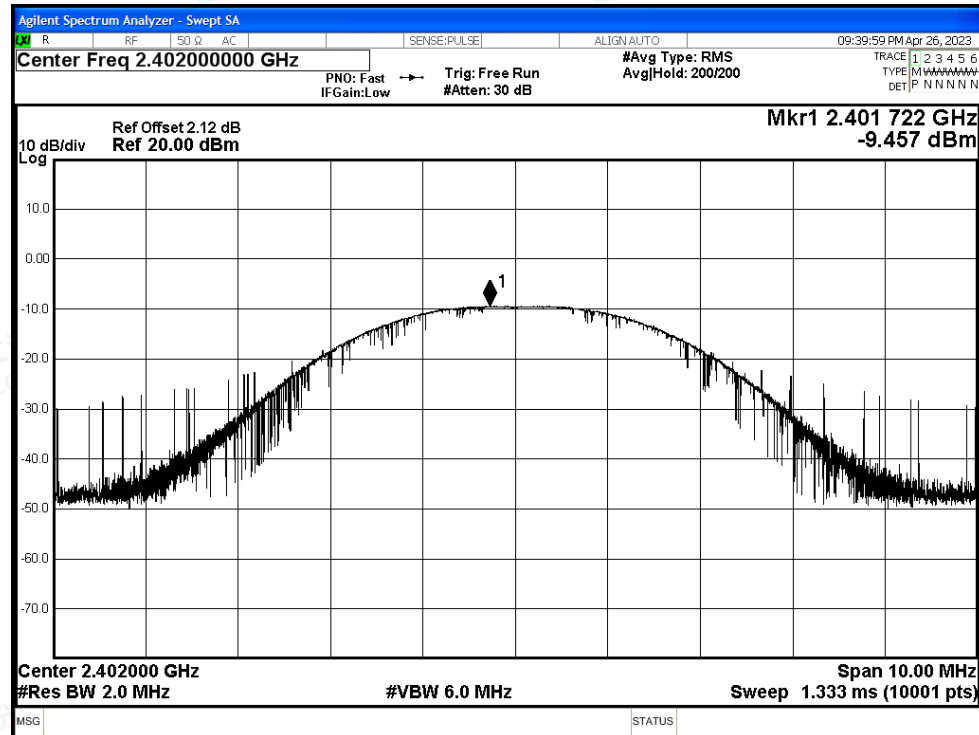
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	2.4G	2402	Ant1	-9.46	30	Pass
NVNT	2.4G	2440	Ant1	-9.17	30	Pass
NVNT	2.4G	2480	Ant1	-8.21	30	Pass



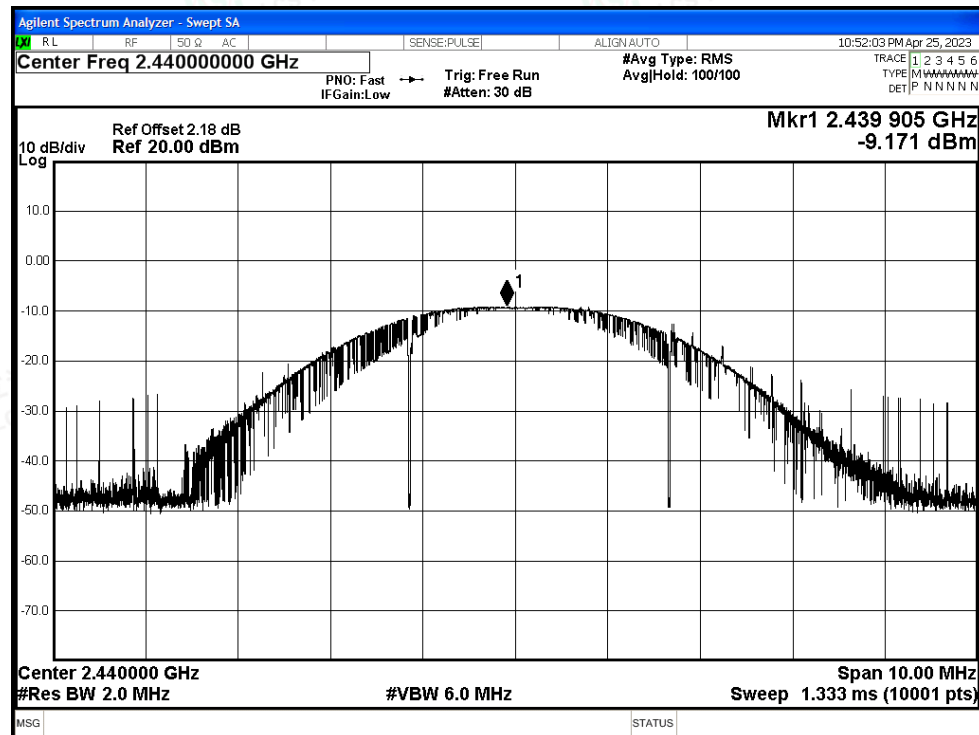


Test Graphs

Power NVNT 2.4G 2402MHz Ant1



Power NVNT 2.4G 2440MHz Ant1

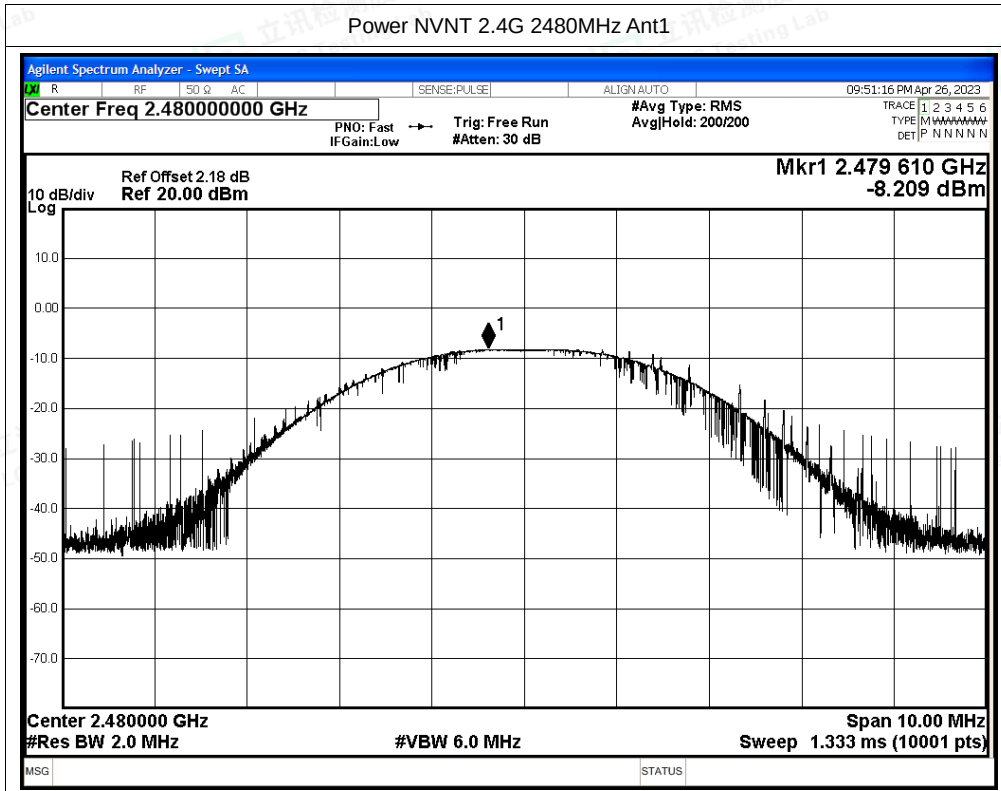


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A.4 Maximum Power Spectral Density Level

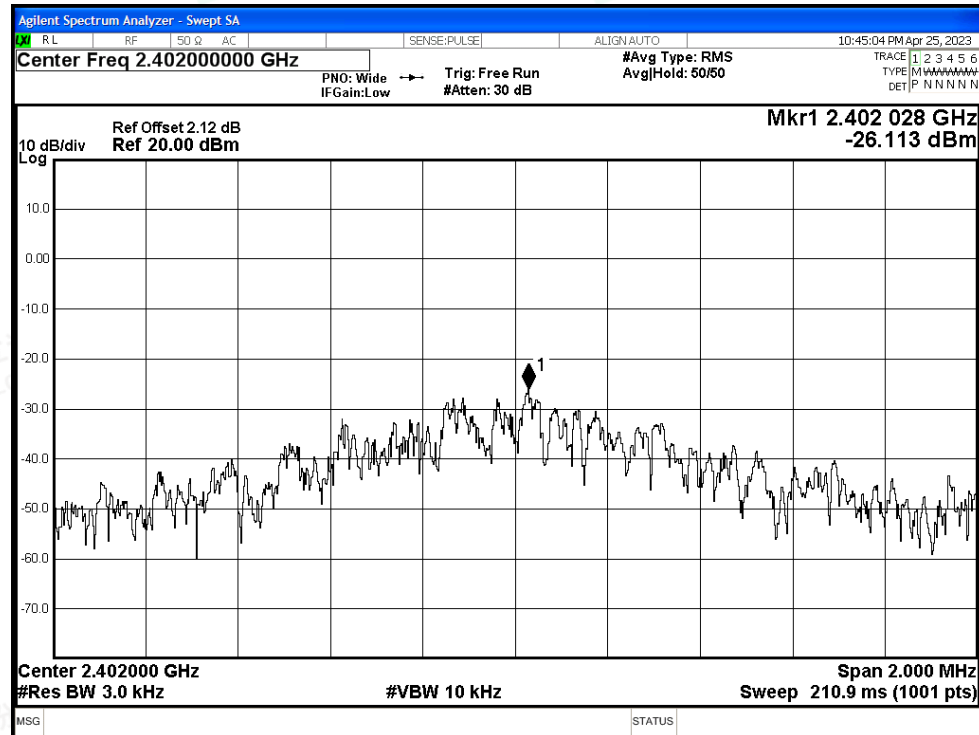
Condition	Mode	Frequency (MHz)	Antenna	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	2.4G	2402	Ant1	-26.11	8	Pass
NVNT	2.4G	2440	Ant1	-27.11	8	Pass
NVNT	2.4G	2480	Ant1	-25.94	8	Pass



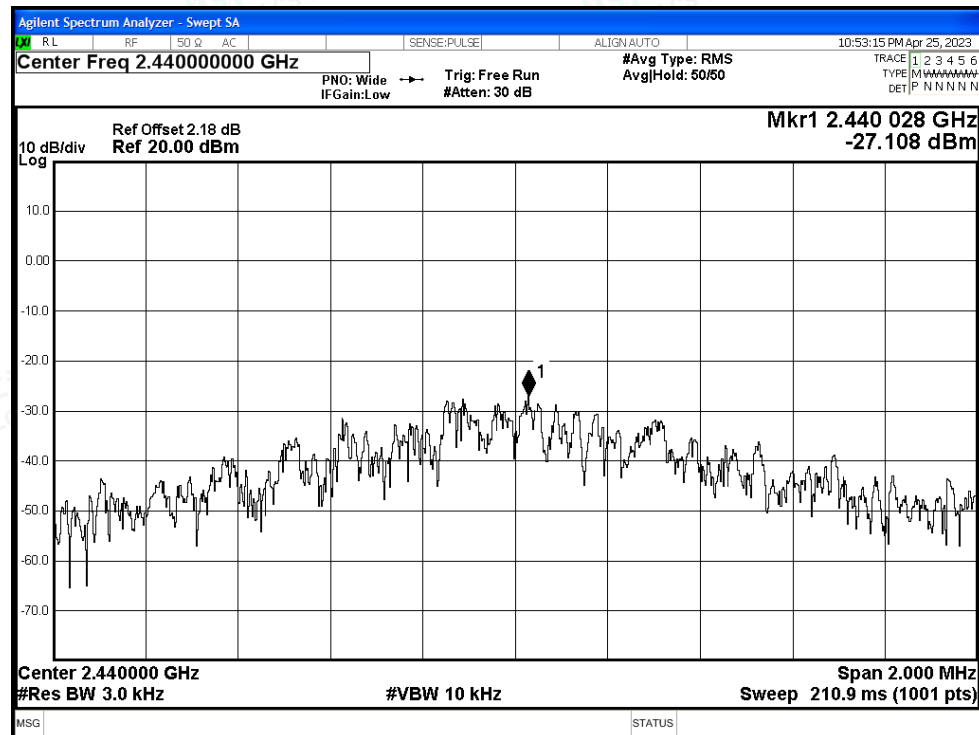


Test Graphs

PSD NVNT 2.4G 2402MHz Ant1



PSD NVNT 2.4G 2440MHz Ant1

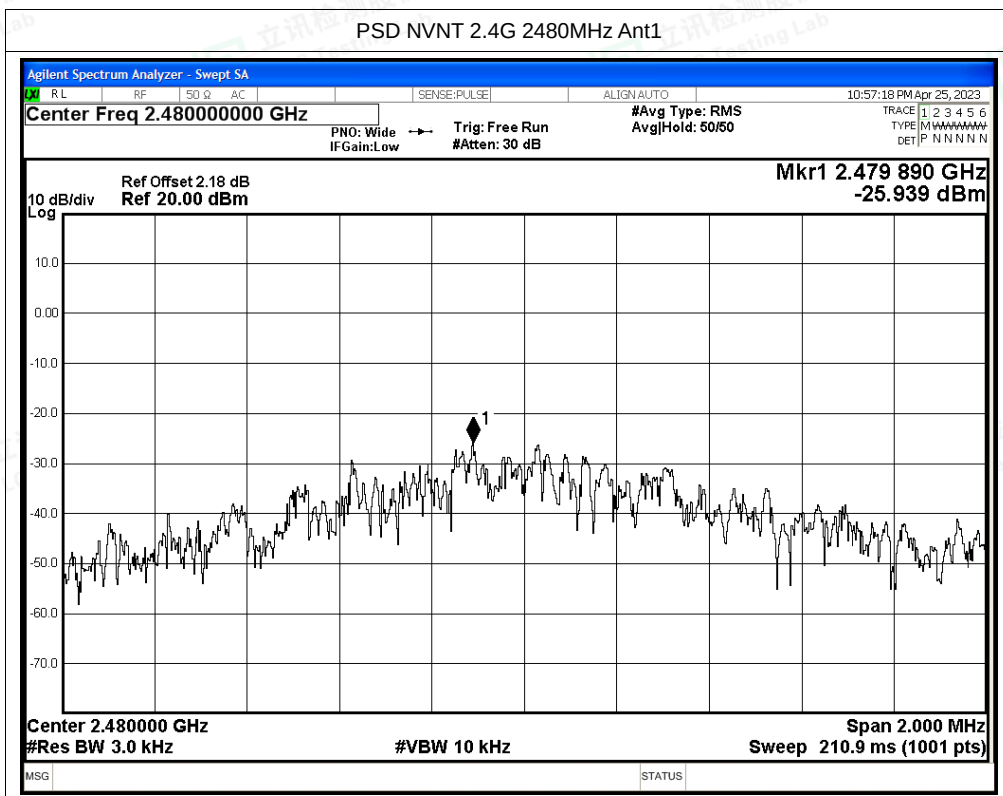


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A.5 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	2.4G	2402	Ant1	-35.34	-20	Pass
NVNT	2.4G	2480	Ant1	-40.19	-20	Pass



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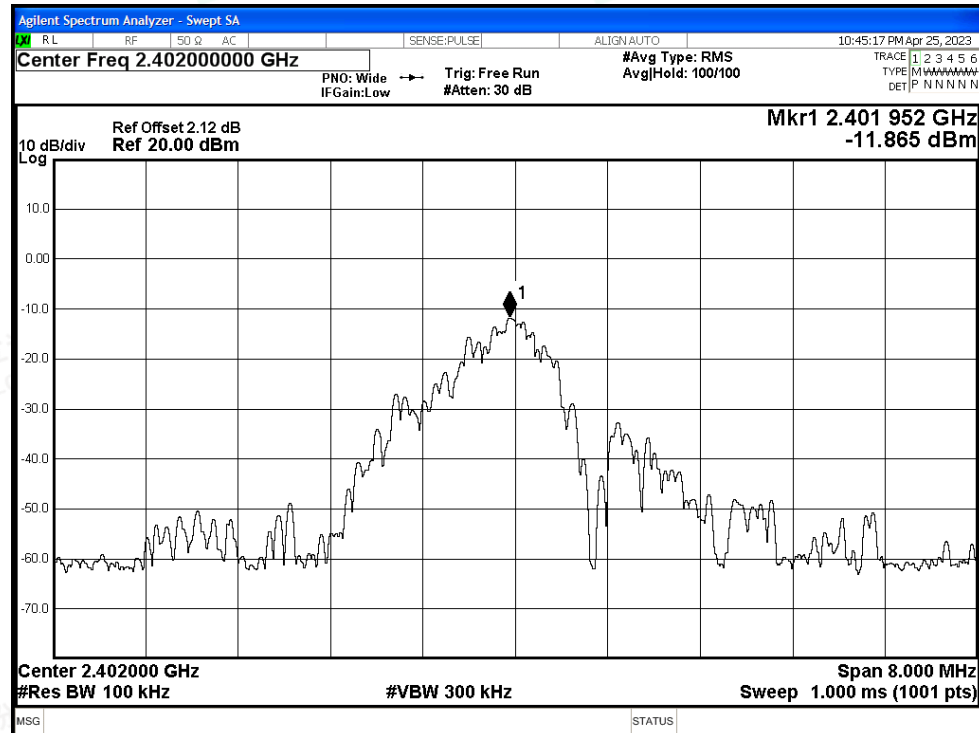
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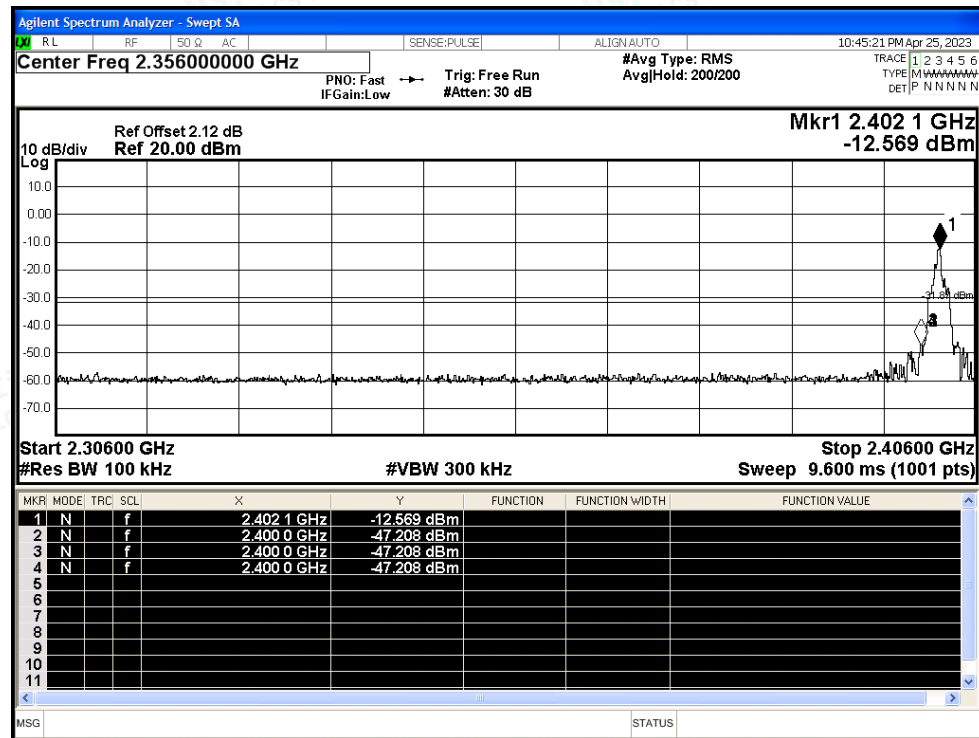


Test Graphs

Band Edge NVNT 2.4G 2402MHz Ant1 Ref



Band Edge NVNT 2.4G 2402MHz Ant1 Emission

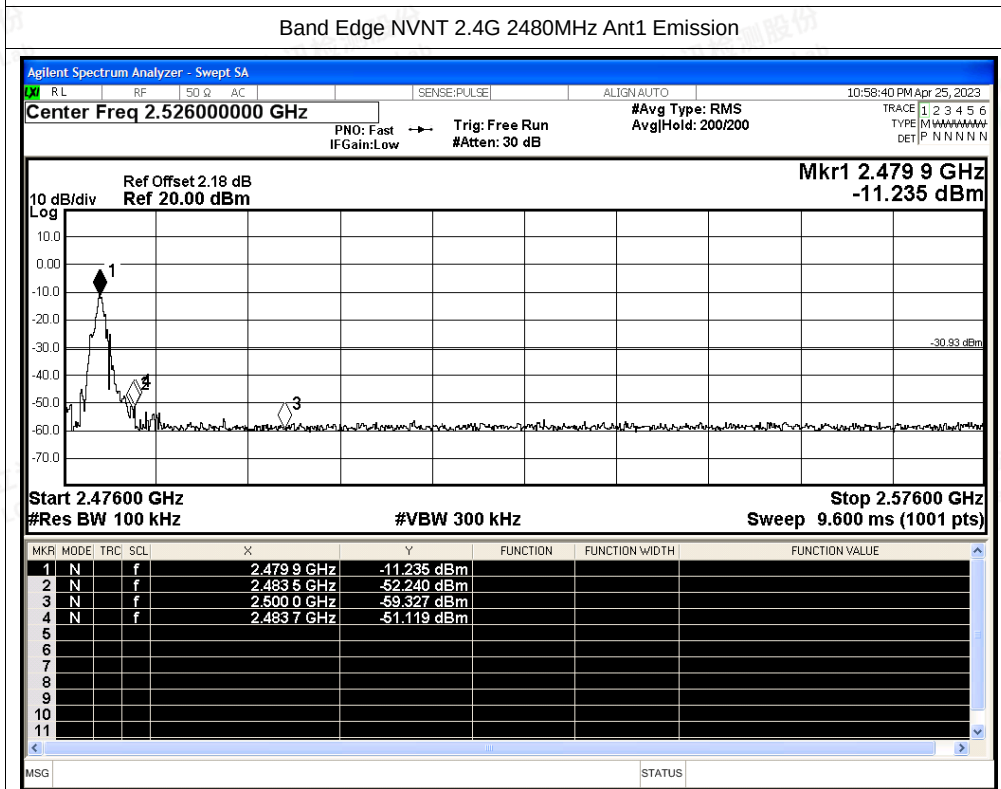
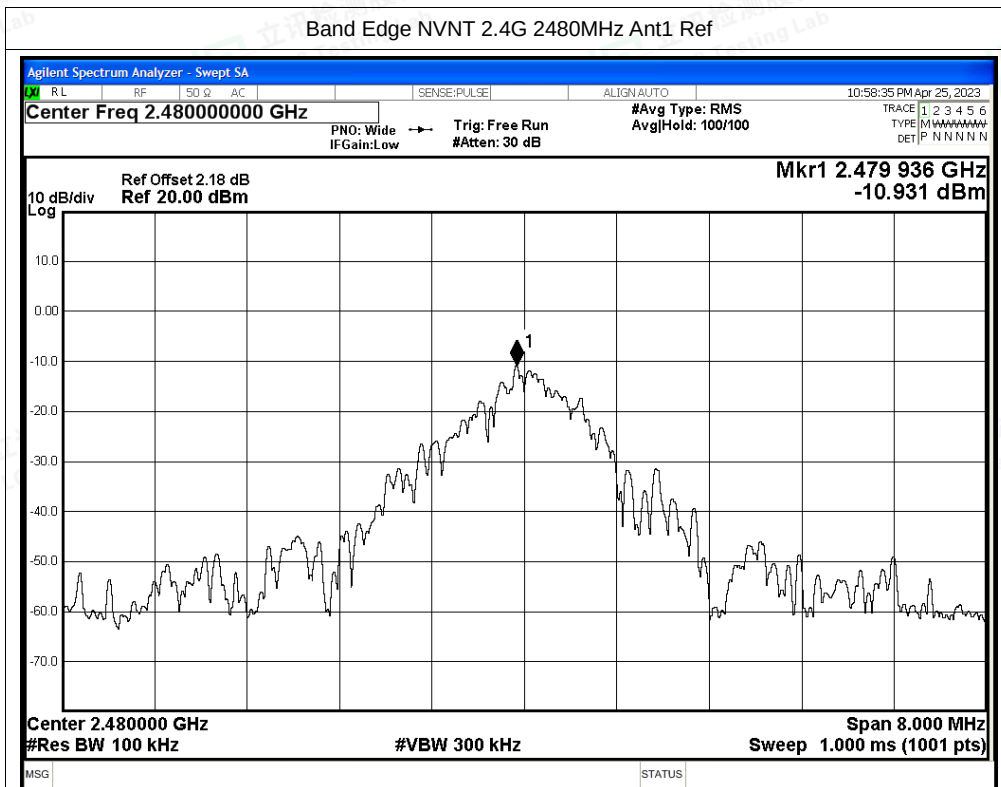


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A.6 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	2.4G	2402	Ant1	-21.24	-20	Pass
NVNT	2.4G	2440	Ant1	-27.21	-20	Pass
NVNT	2.4G	2480	Ant1	-27.29	-20	Pass



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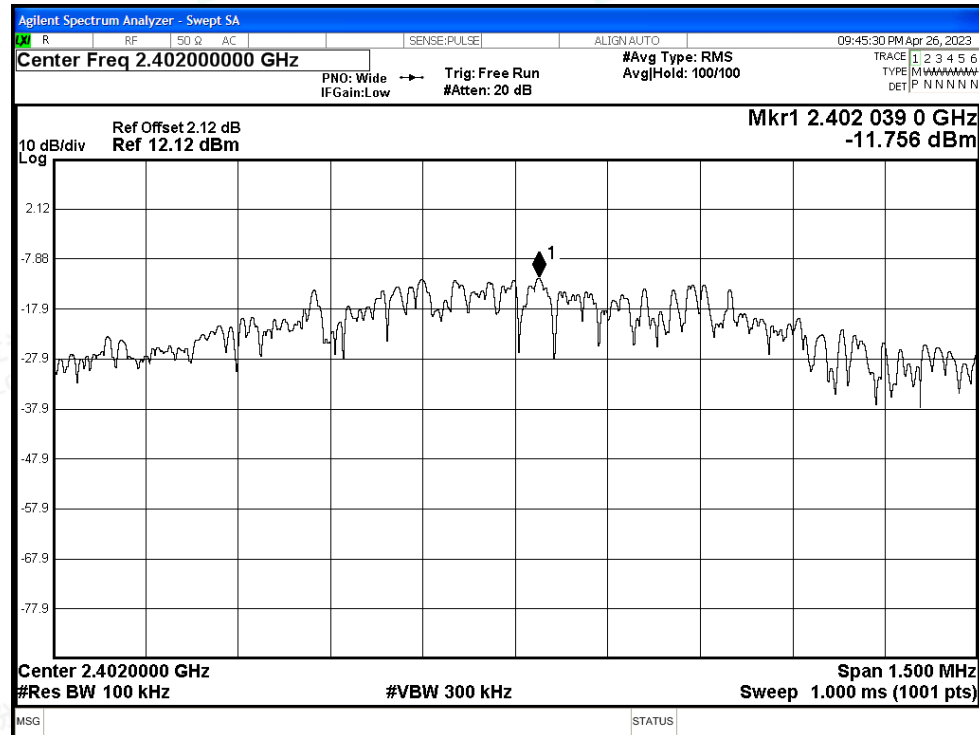
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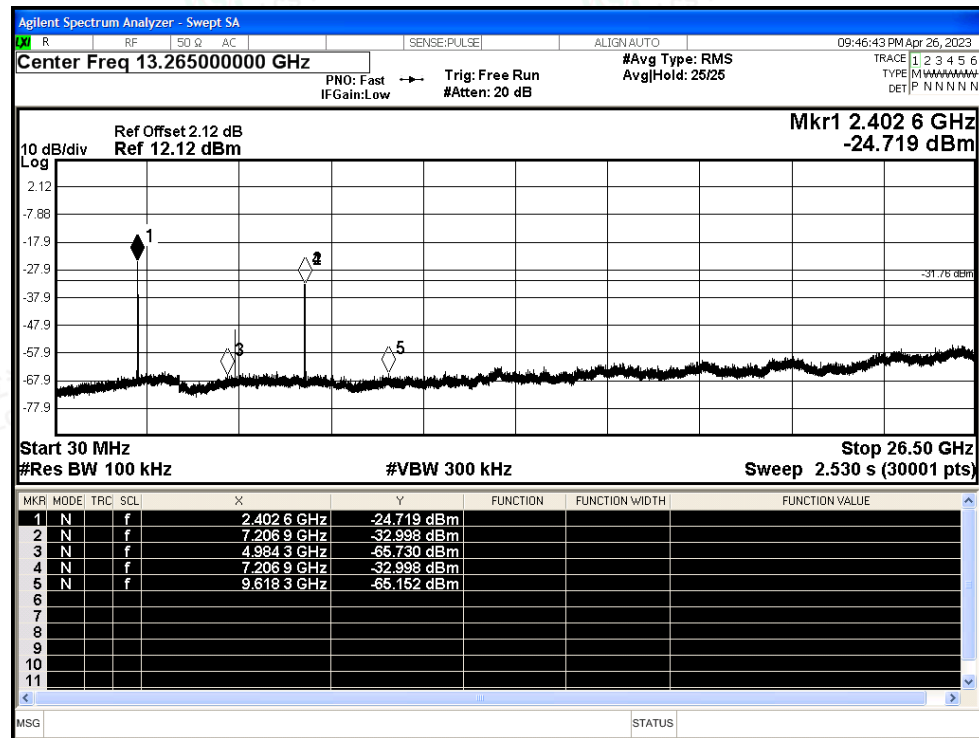


Test Graphs

Tx. Spurious NVNT 2.4G 2402MHz Ant1 Ref



Tx. Spurious NVNT 2.4G 2402MHz Ant1 Emission



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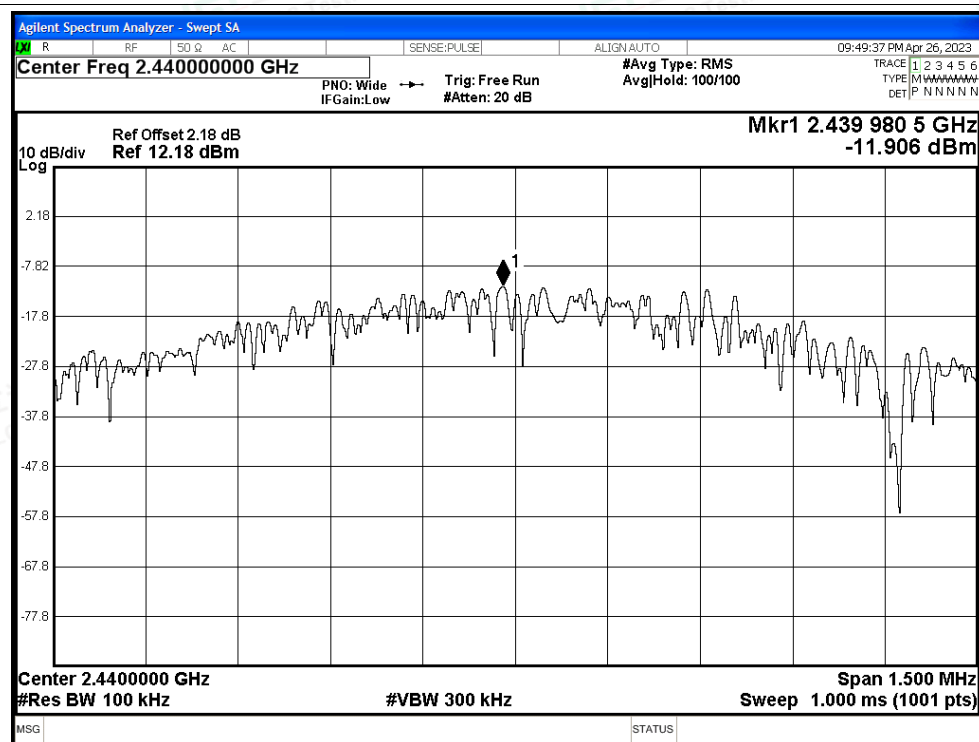
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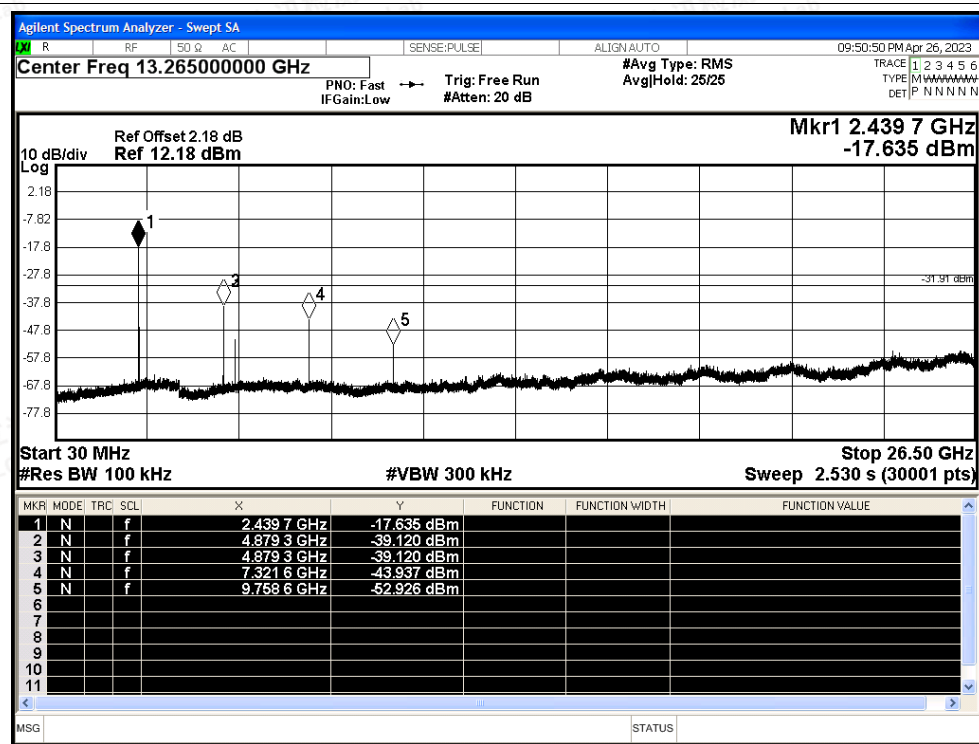
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Tx. Spurious NVNT 2.4G 2440MHz Ant1 Ref



Tx. Spurious NVNT 2.4G 2440MHz Ant1 Emission



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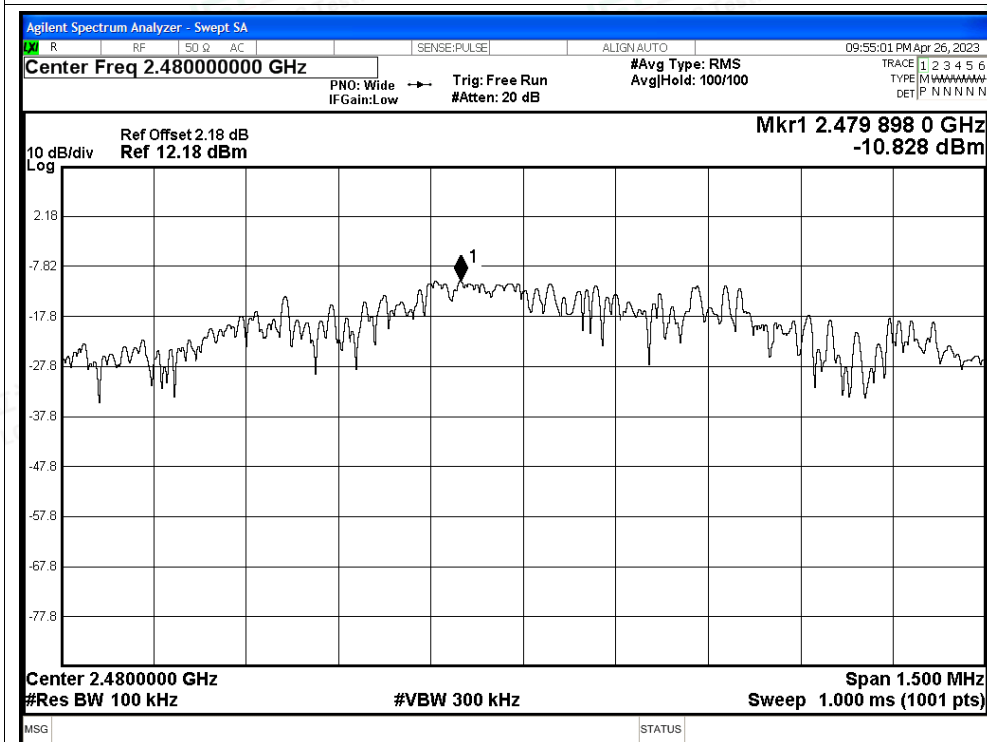
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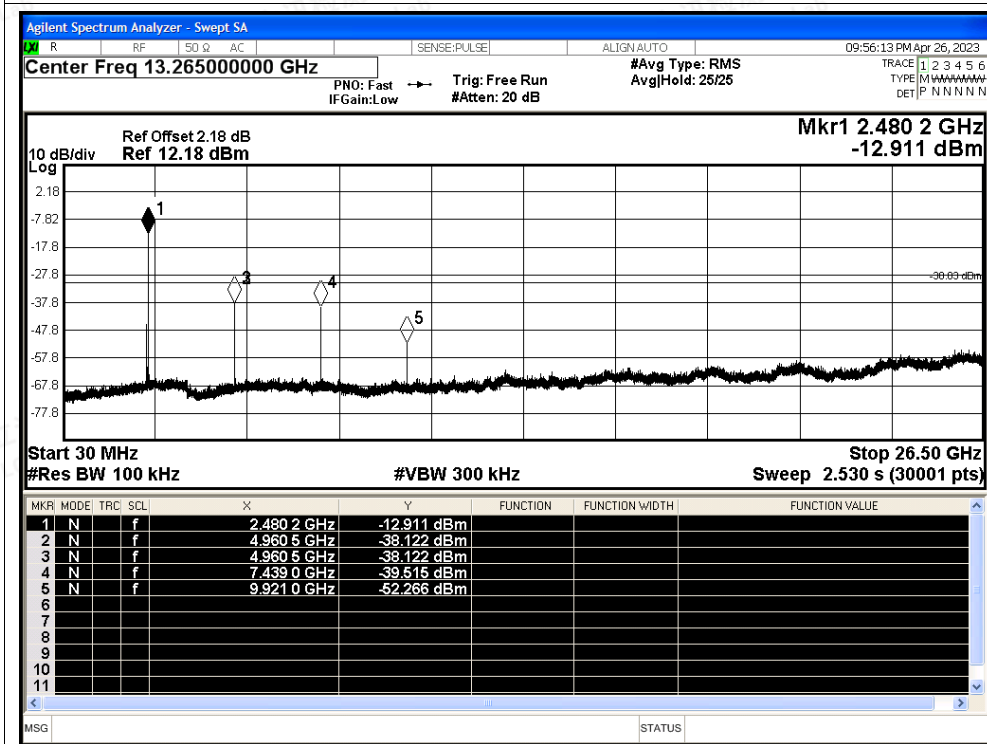
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Tx. Spurious NVNT 2.4G 2480MHz Ant1 Ref



Tx. Spurious NVNT 2.4G 2480MHz Ant1 Emission



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A.7 Duty Cycle

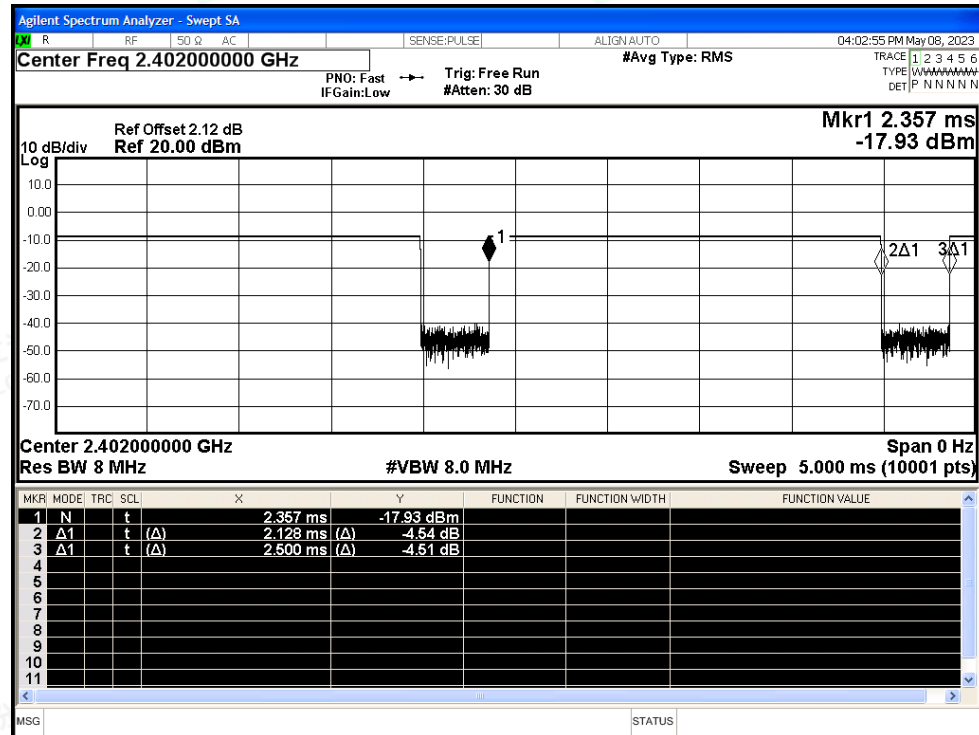
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	2.4G	2402	Ant1	85.1	0.7	0.47
NVNT	2.4G	2440	Ant1	85.1	0.7	0.47
NVNT	2.4G	2480	Ant1	85.08	0.7	0.47



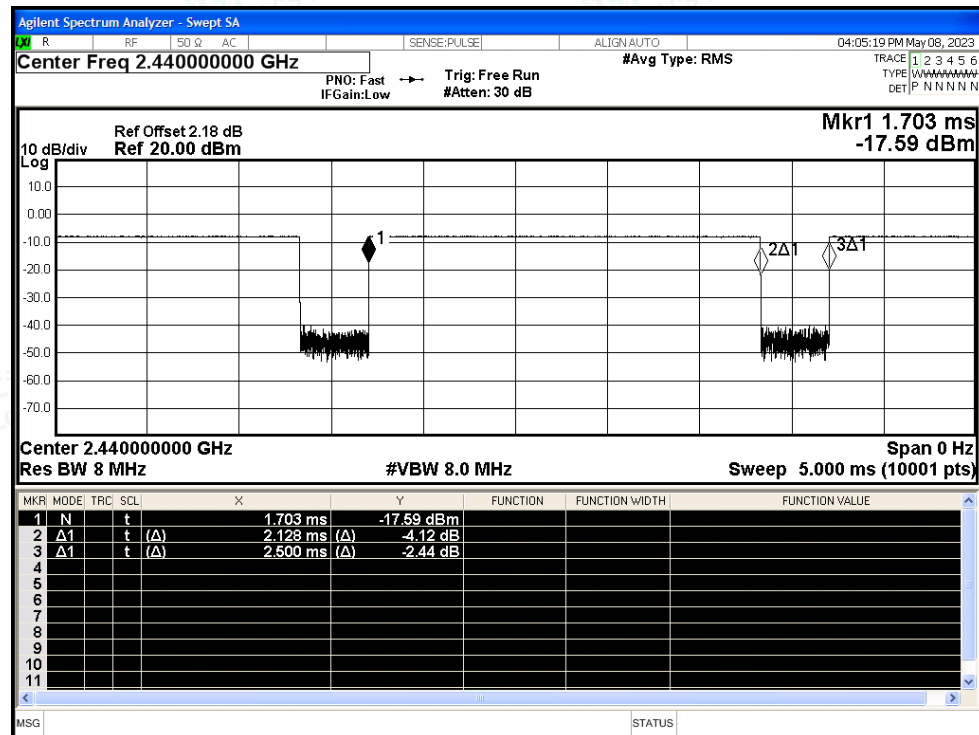


Test Graphs

Duty Cycle NVNT 2.4G 2402MHz Ant1



Duty Cycle NVNT 2.4G 2440MHz Ant1

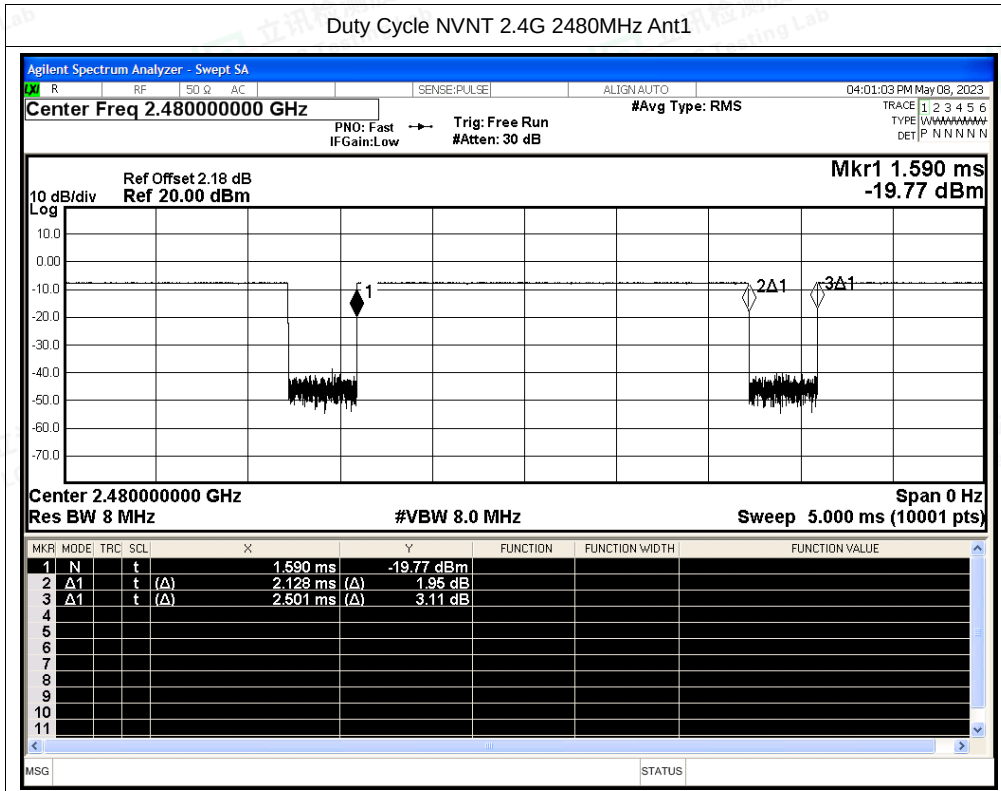


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A.8 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	2.4G	2402	Ant1	2310	-49.26	2	48	Peak	74	Pass
NVNT	2.4G	2402	Ant1	2310	-57.75	2	39.51	Average	54	Pass
NVNT	2.4G	2402	Ant1	2388.72	-47.38	2	49.88	Peak	74	Pass
NVNT	2.4G	2402	Ant1	2388.816	-57.26	2	40	Average	54	Pass
NVNT	2.4G	2402	Ant1	2390	-49.03	2	48.23	Peak	74	Pass
NVNT	2.4G	2402	Ant1	2390	-57.4	2	39.86	Average	54	Pass
NVNT	2.4G	2480	Ant1	2483.5	-50	2	47.26	Peak	74	Pass
NVNT	2.4G	2480	Ant1	2483.5	-56.73	2	40.53	Average	54	Pass
NVNT	2.4G	2480	Ant1	2486.68	-46.53	2	50.73	Peak	74	Pass
NVNT	2.4G	2480	Ant1	2483.752	-56.73	2	40.53	Average	54	Pass
NVNT	2.4G	2480	Ant1	2500	-49.06	2	48.2	Peak	74	Pass
NVNT	2.4G	2480	Ant1	2500	-57.1	2	40.16	Average	54	Pass



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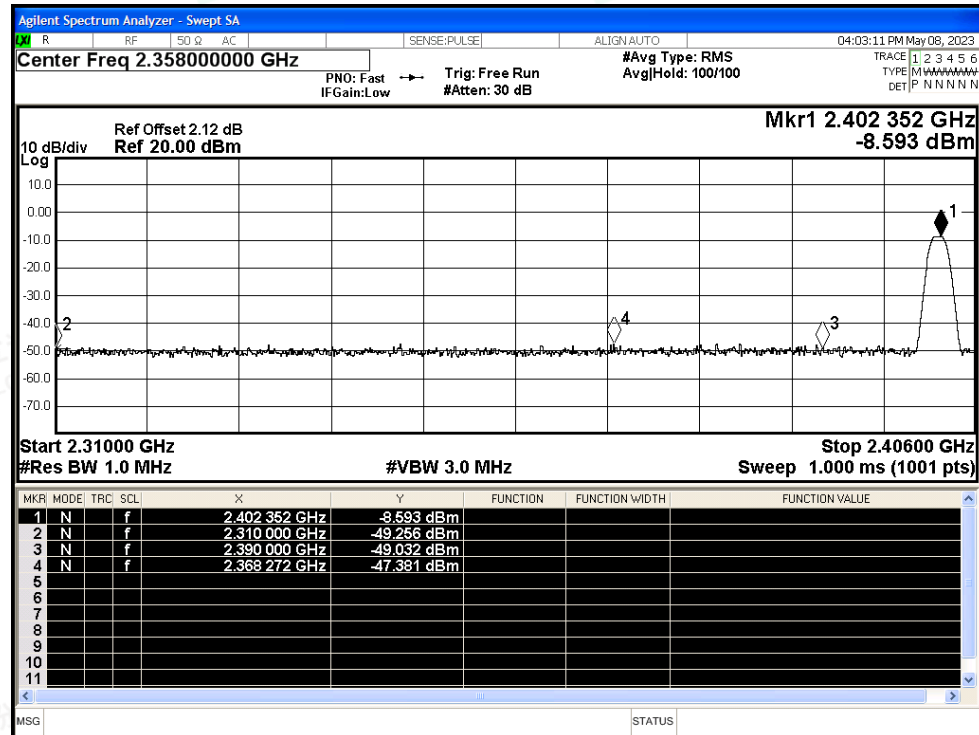
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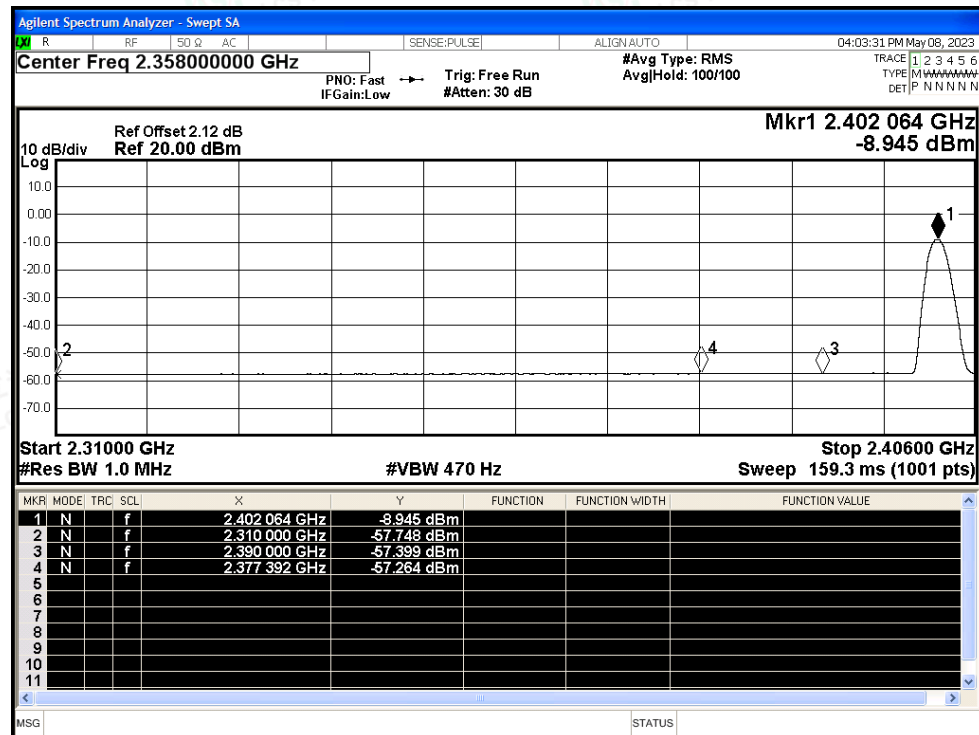


Test Graphs

Restrict Band NVNT 2.4G 2402MHz Ant1 Peak



Restrict Band NVNT 2.4G 2402MHz Ant1 Average



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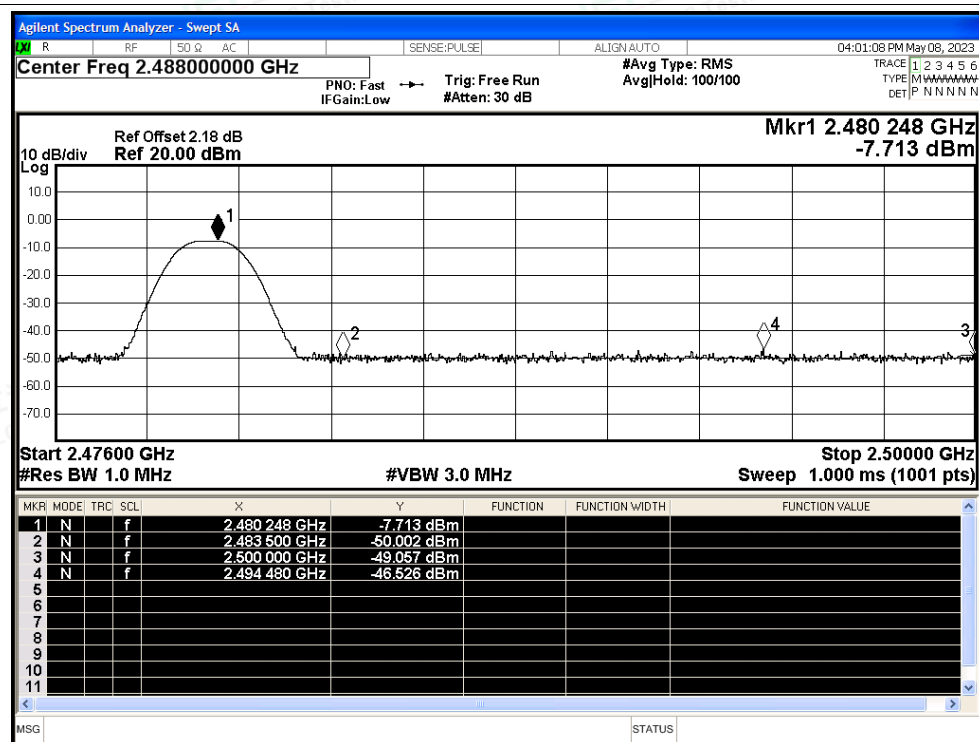
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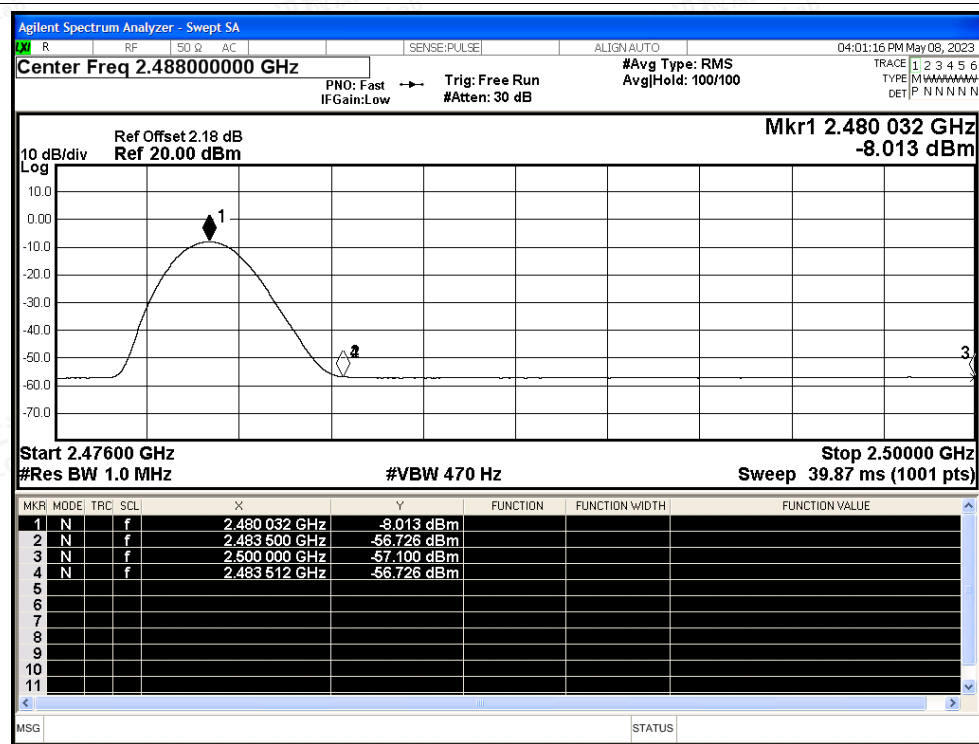
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Restrict Band NVNT 2.4G 2480MHz Ant1 Peak



Restrict Band NVNT 2.4G 2480MHz Ant1 Average



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