



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Bluetooth module

Test Model: BLE-Bike

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Mening Su
Supervised by:	Ling Zhu





A.1 -20dB Bandwidth

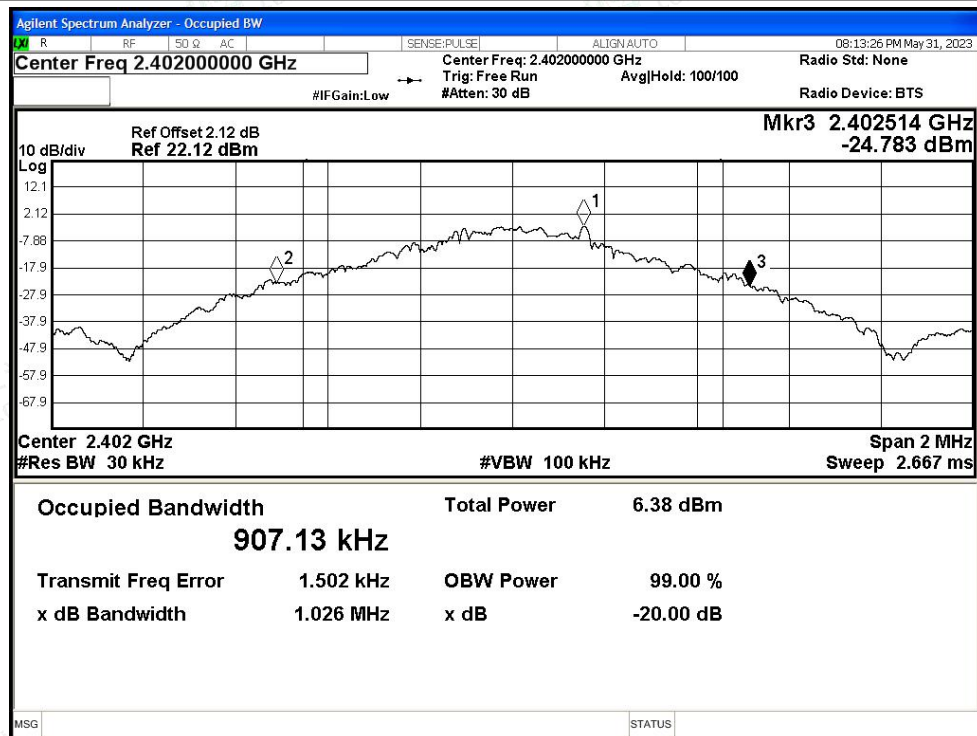
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	1.026	N/A	Pass
NVNT	1-DH5	2441	Ant1	1.011	N/A	Pass
NVNT	1-DH5	2480	Ant1	1.016	N/A	Pass



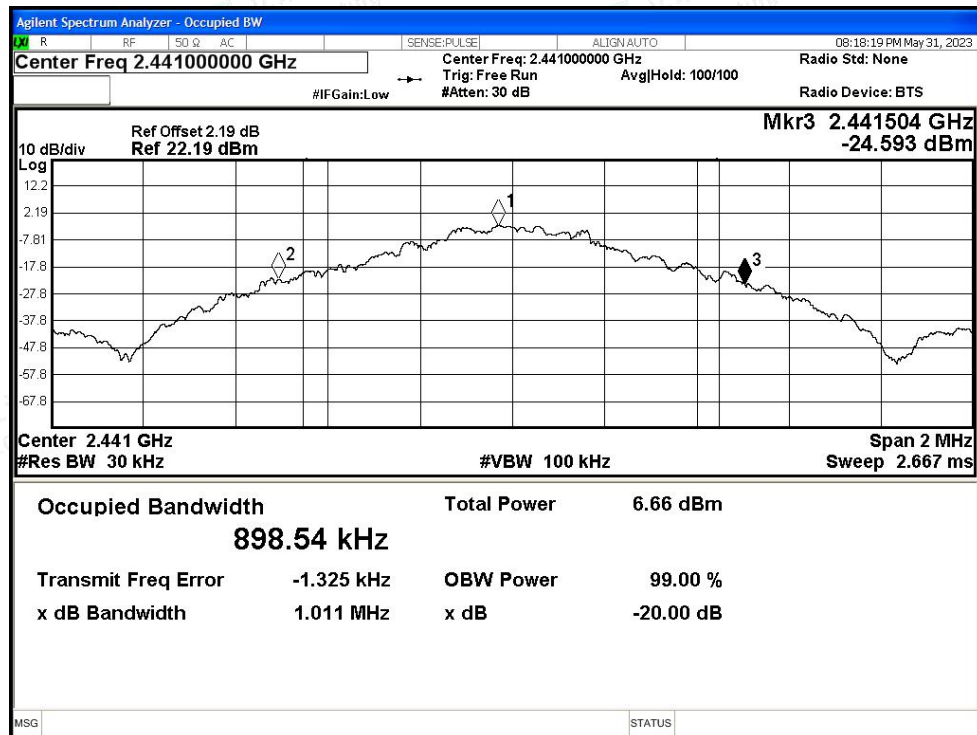


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

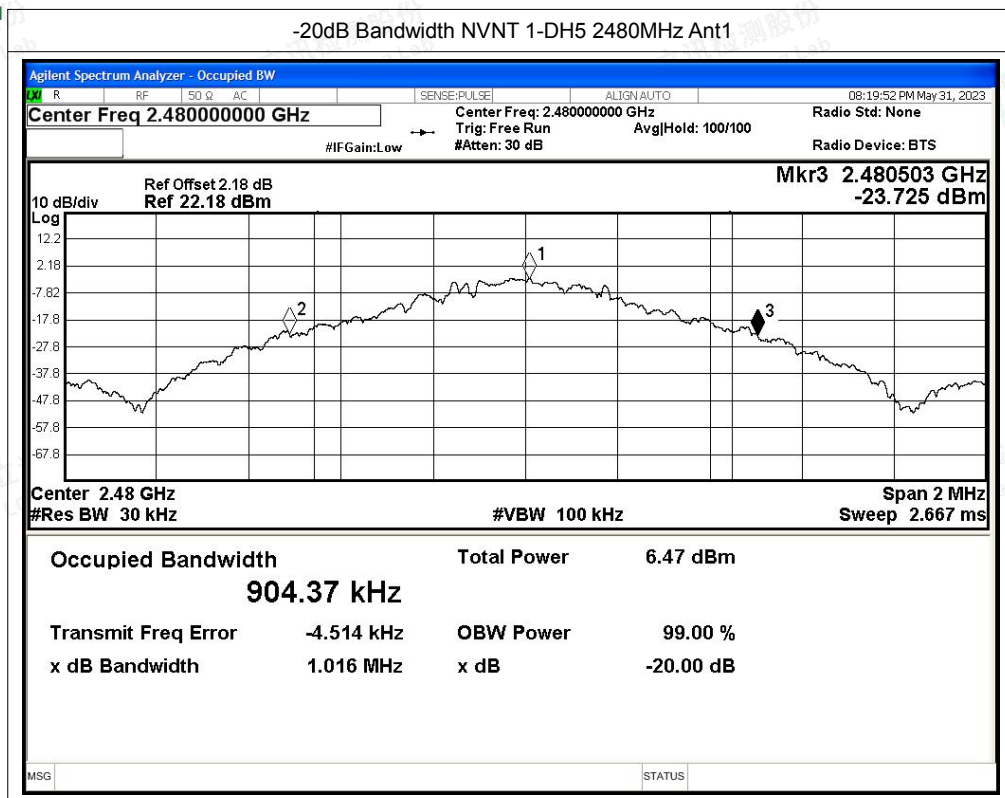


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A.2 Maximum Conducted Output Power

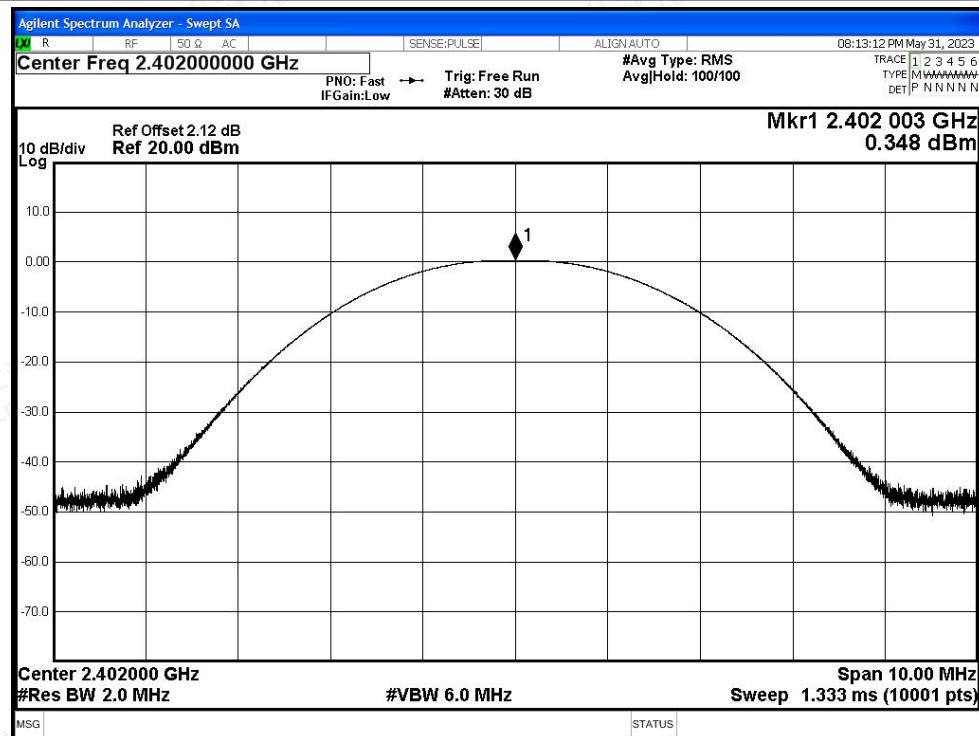
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	0.35	21	Pass
NVNT	1-DH5	2441	Ant1	0.44	21	Pass
NVNT	1-DH5	2480	Ant1	0.5	21	Pass



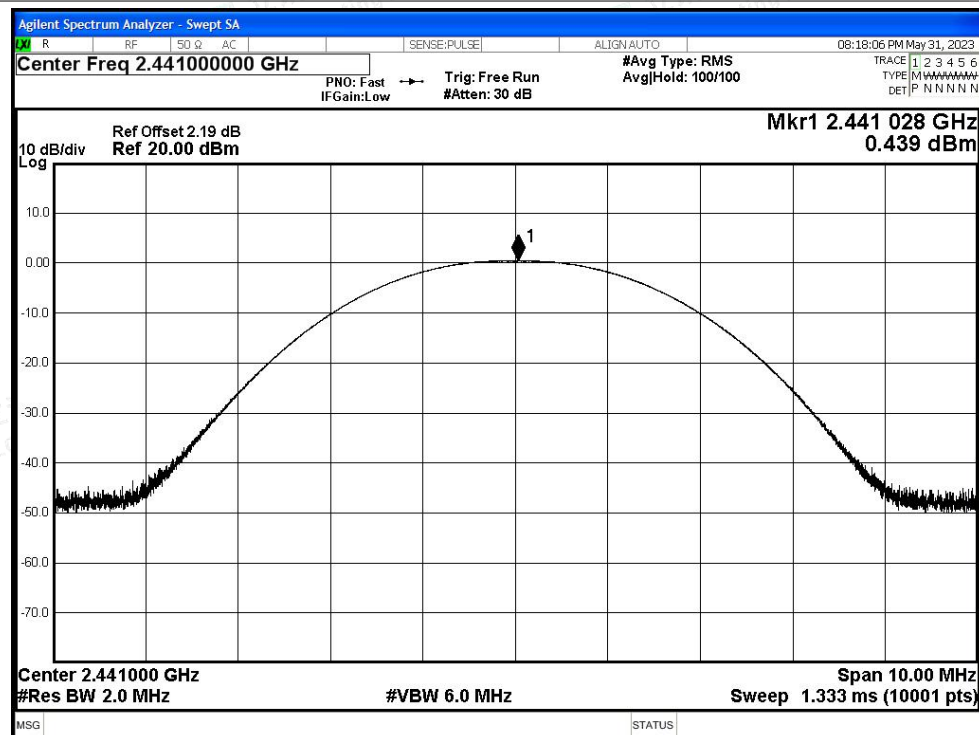


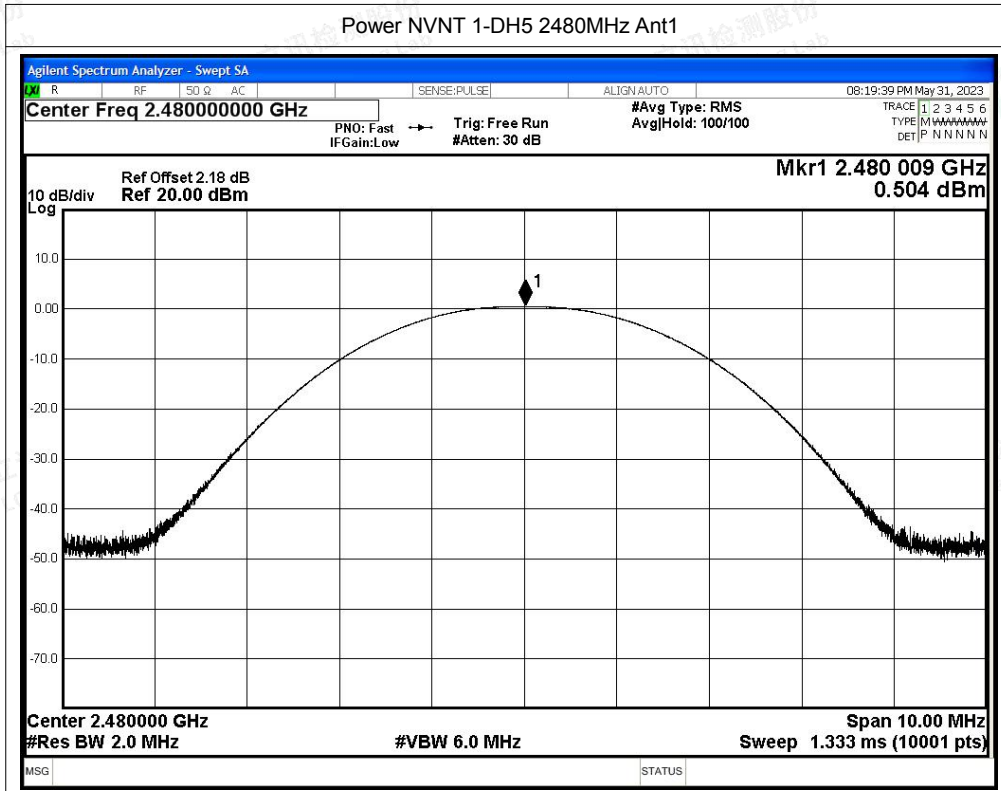
Test Graphs

Power NVNT 1-DH5 2402MHz Ant1



Power NVNT 1-DH5 2441MHz Ant1



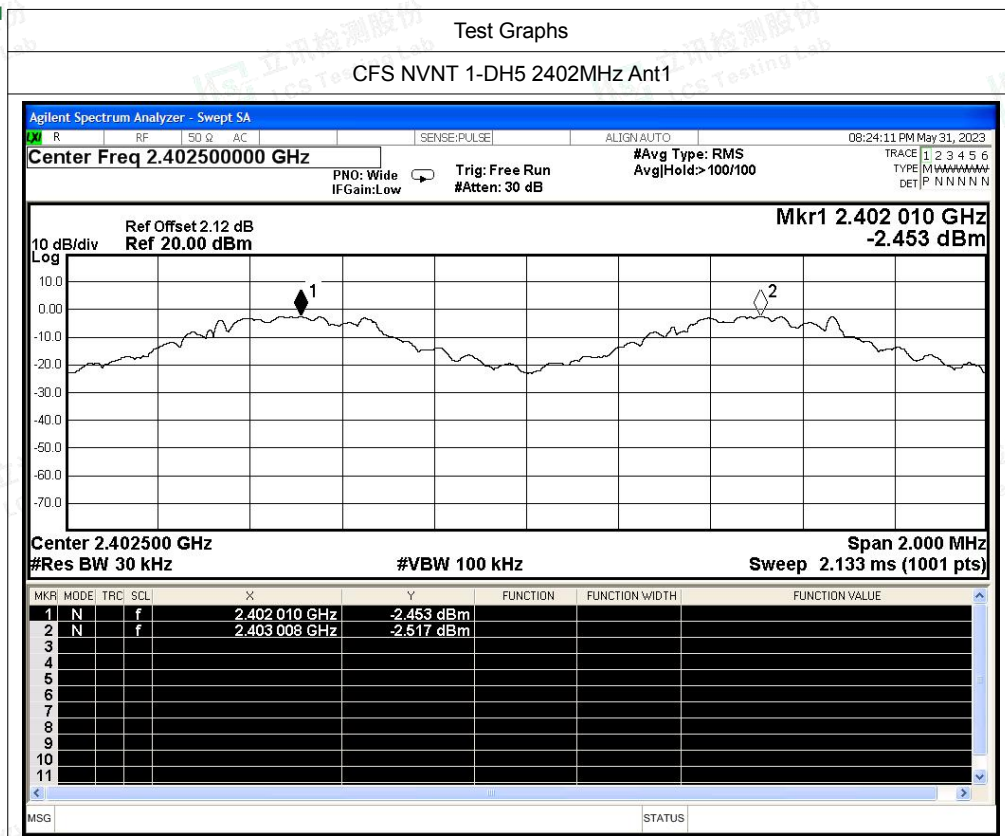




A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2402.01	2403.008	0.998	0.684	Pass





A.4 Dwell Time

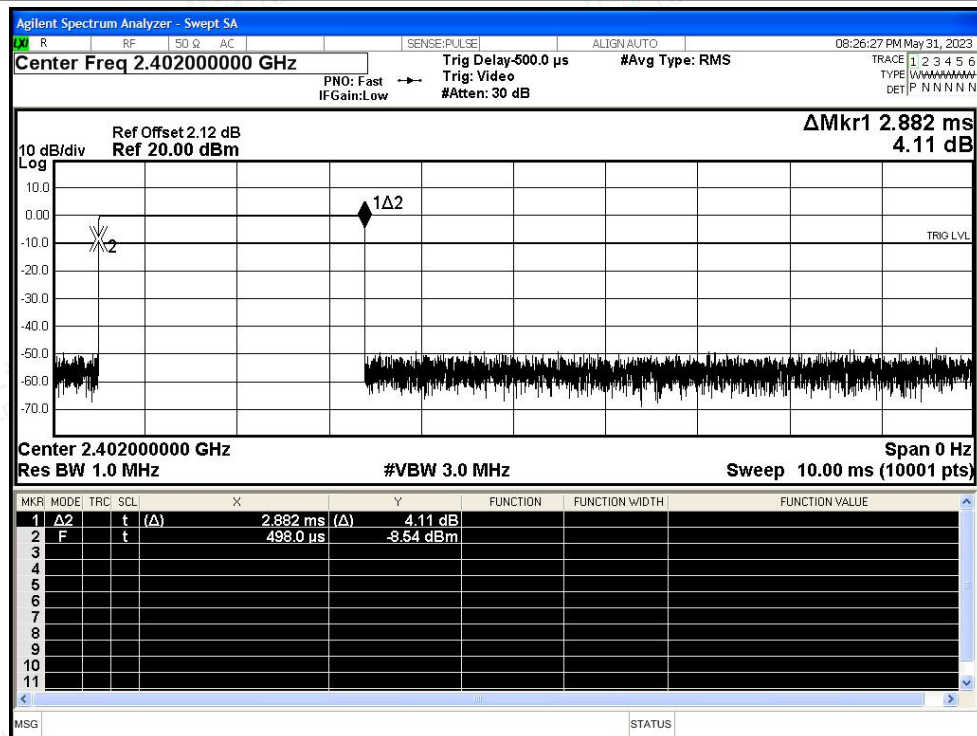
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.882	273.79	95	31600	400	Pass



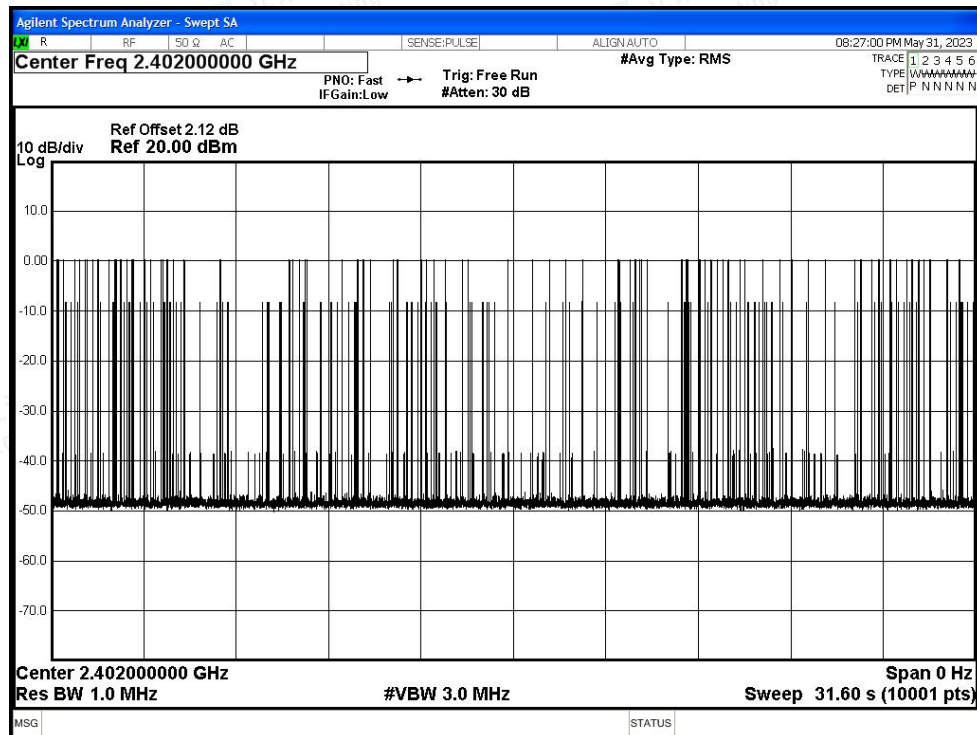


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated





A.5 Number of Hopping Channel

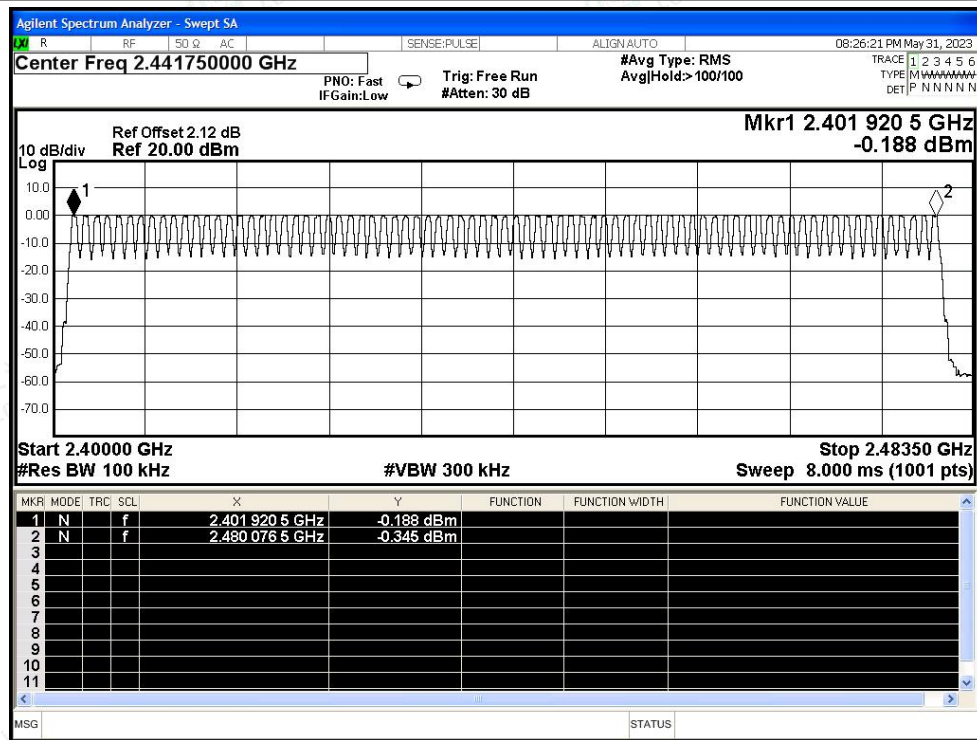
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass





Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1



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A.6 Band Edge

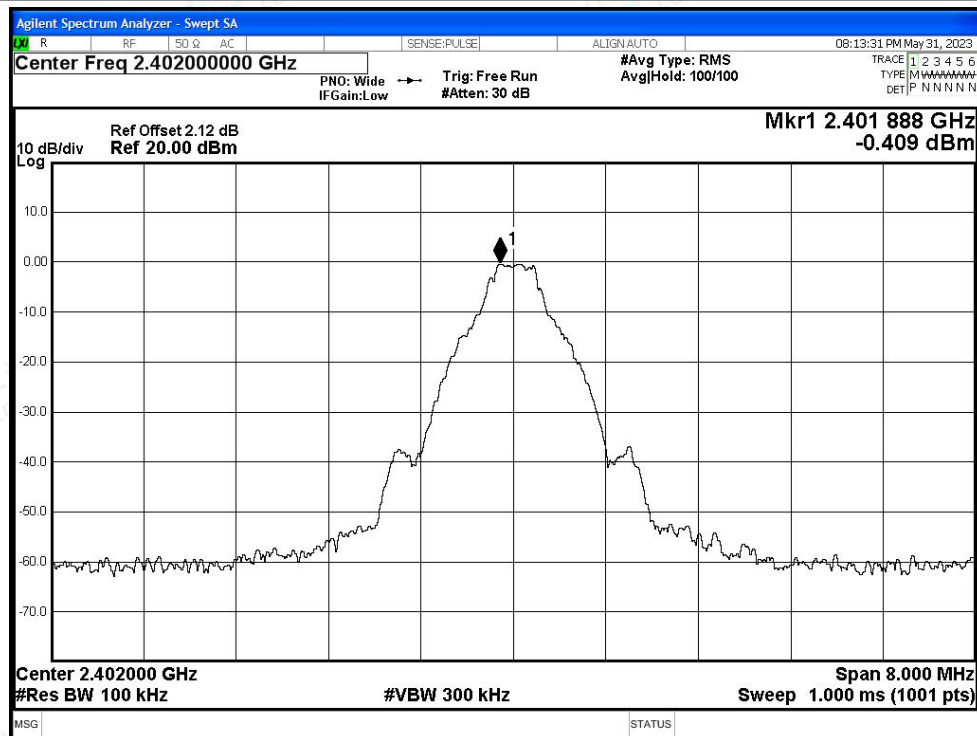
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-55.96	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-58.03	-20	Pass



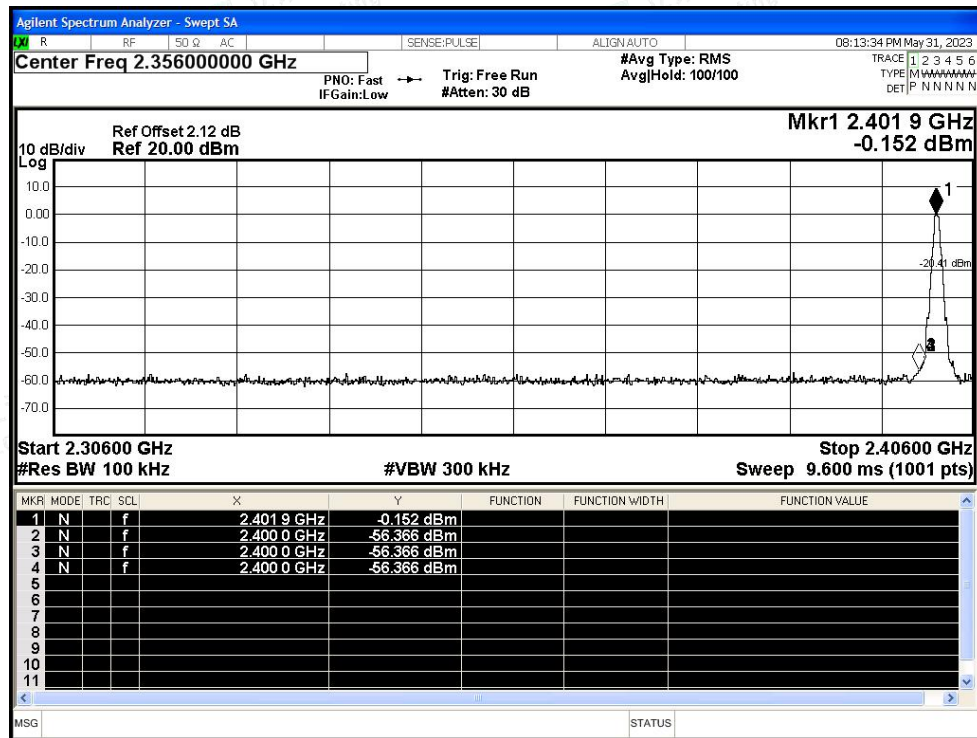


Test Graphs

Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



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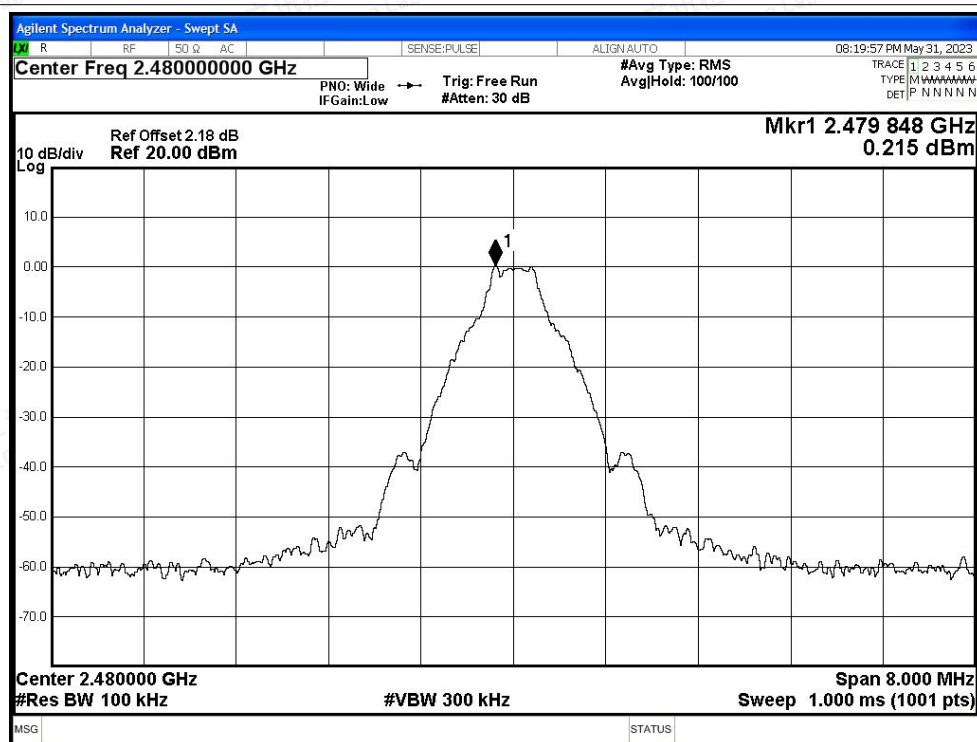
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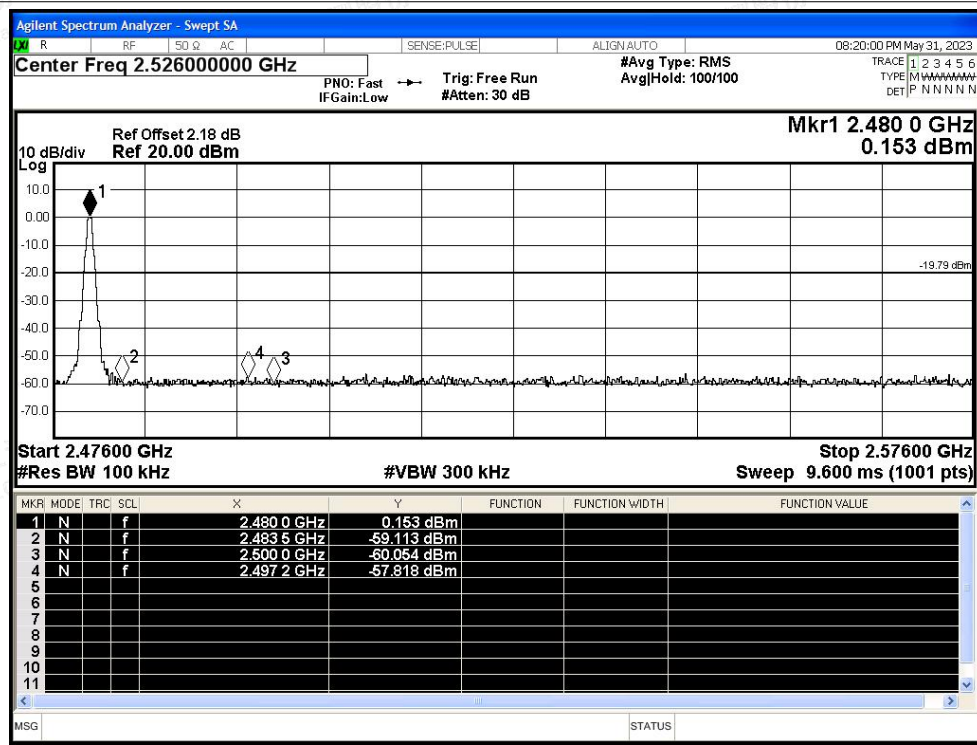
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Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



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(Hopping)

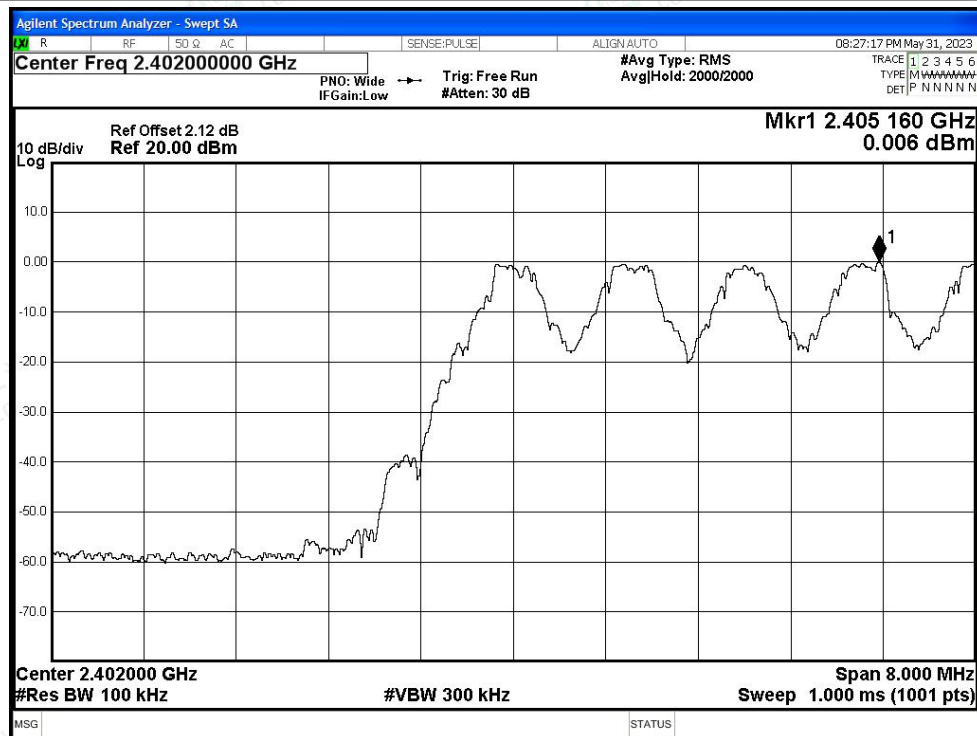
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-56.3	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-55.9	-20	Pass



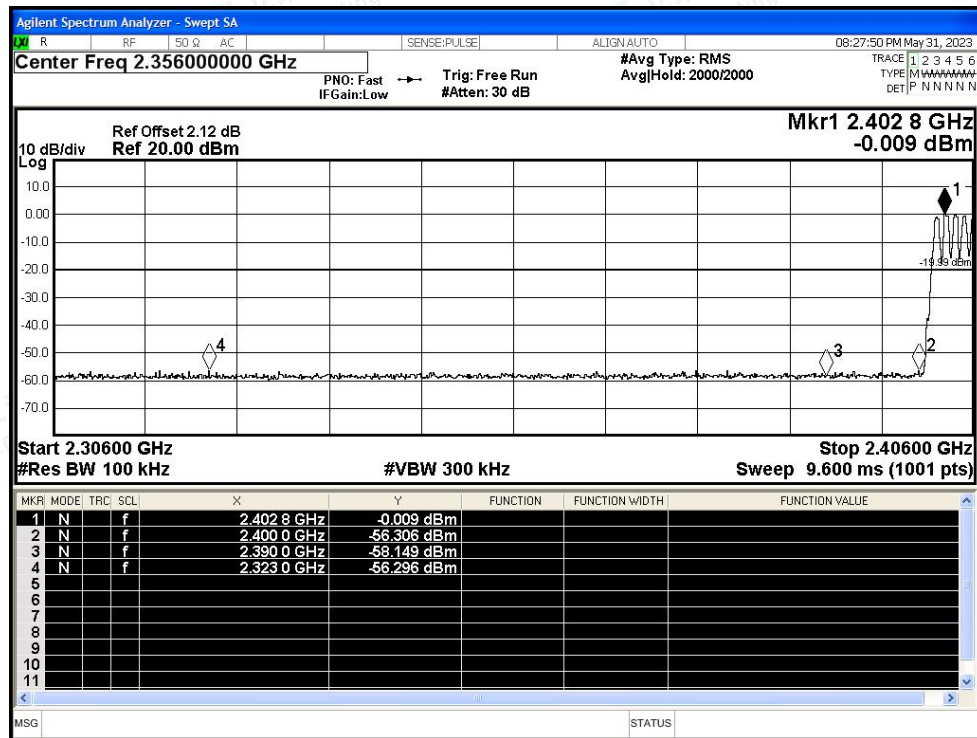


Test Graphs

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



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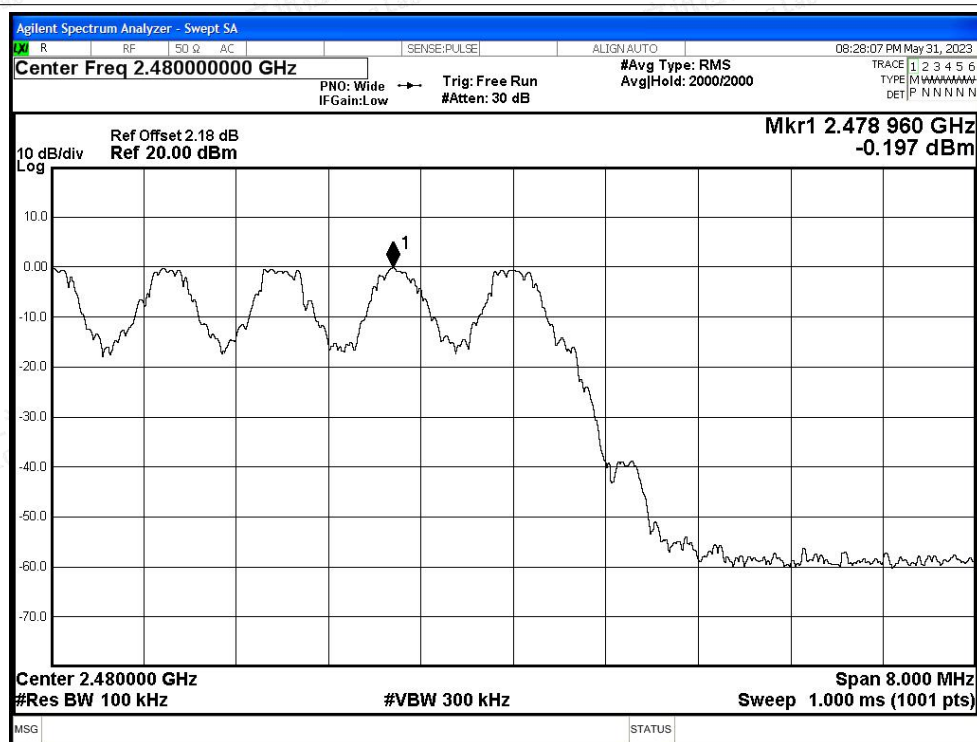
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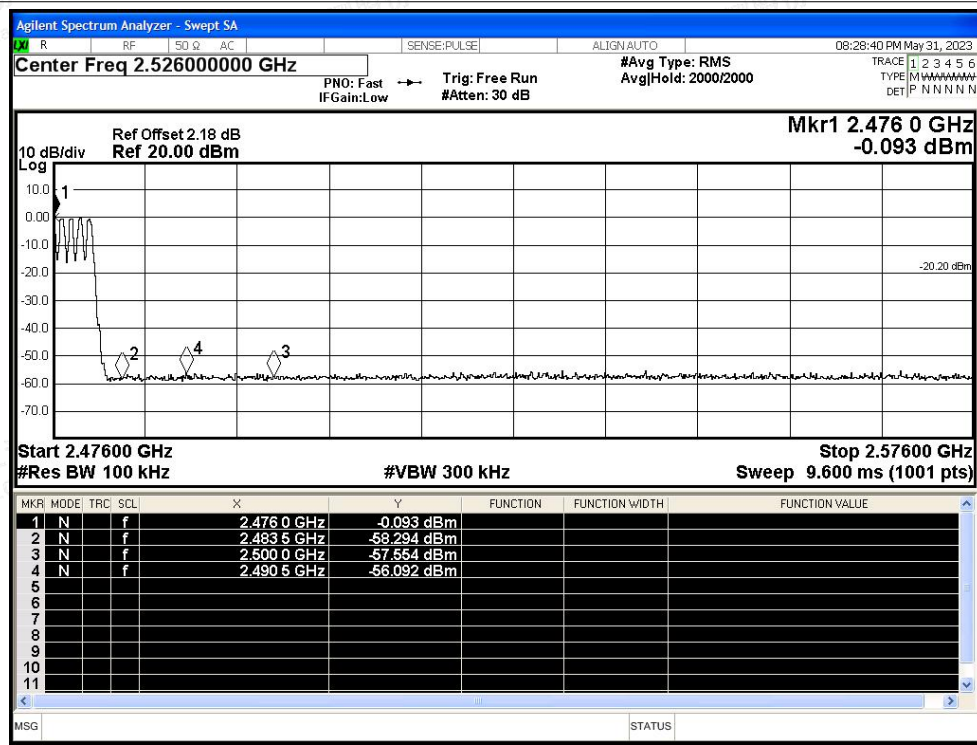
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Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



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A.7 Conducted RF Spurious Emission

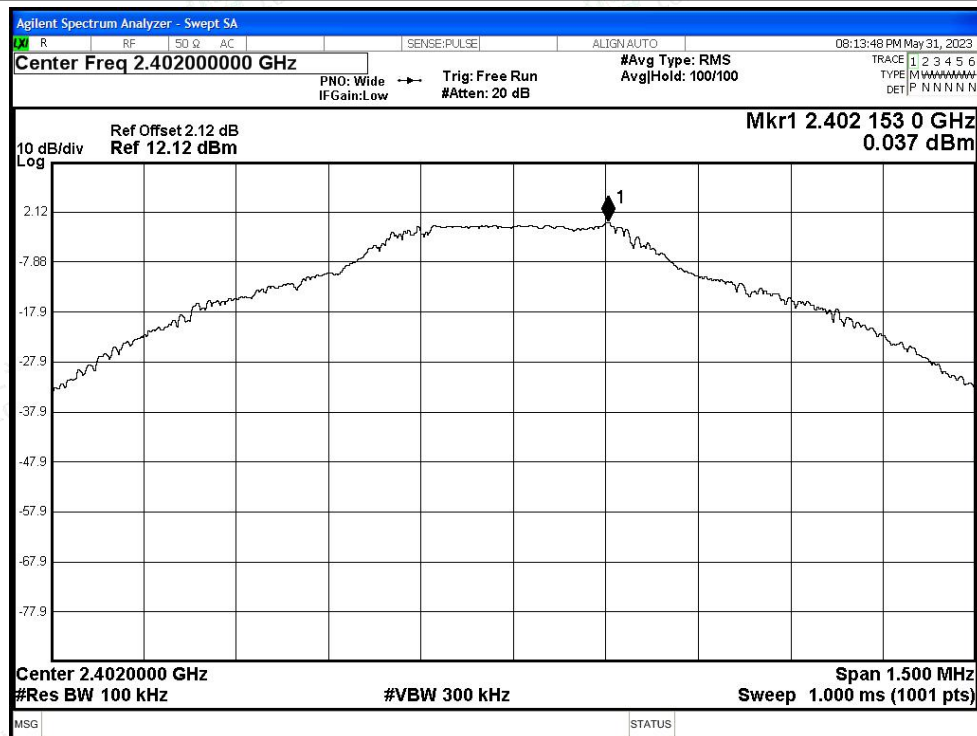
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-55.76	-20	Pass
NVNT	1-DH5	2441	Ant1	-55.36	-20	Pass
NVNT	1-DH5	2480	Ant1	-55.98	-20	Pass



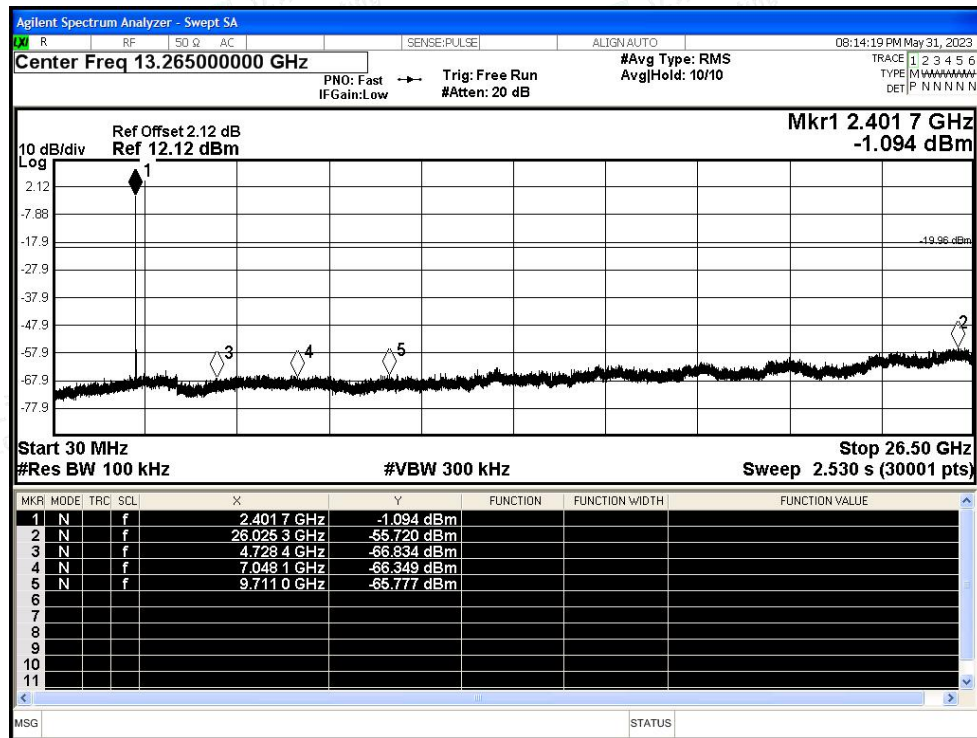


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



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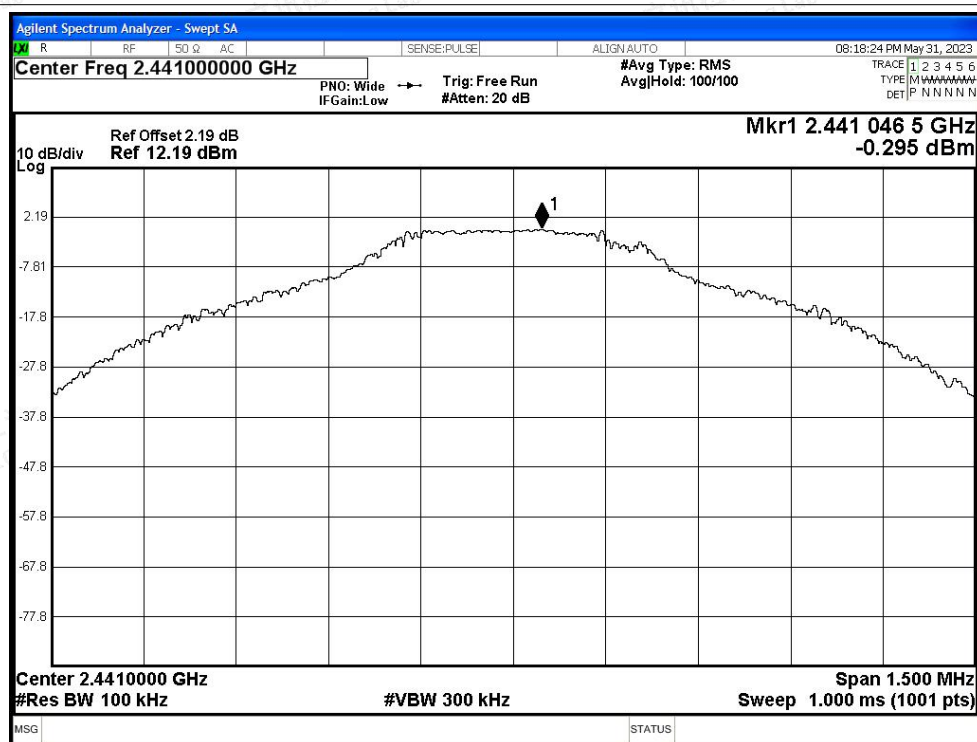
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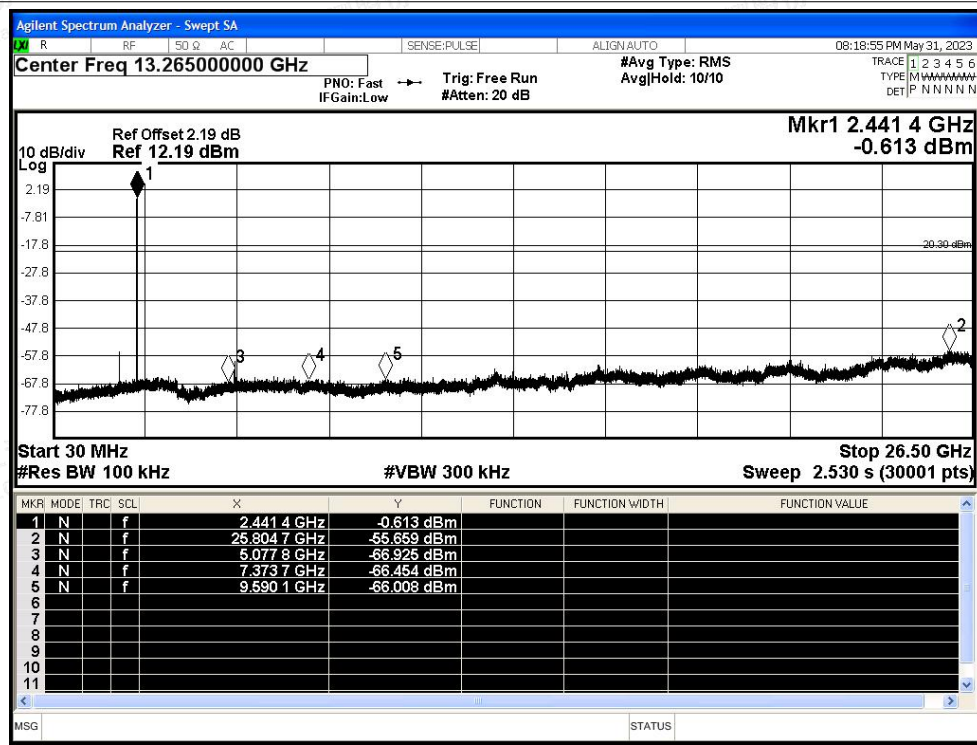
Scan code to check authenticity



Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



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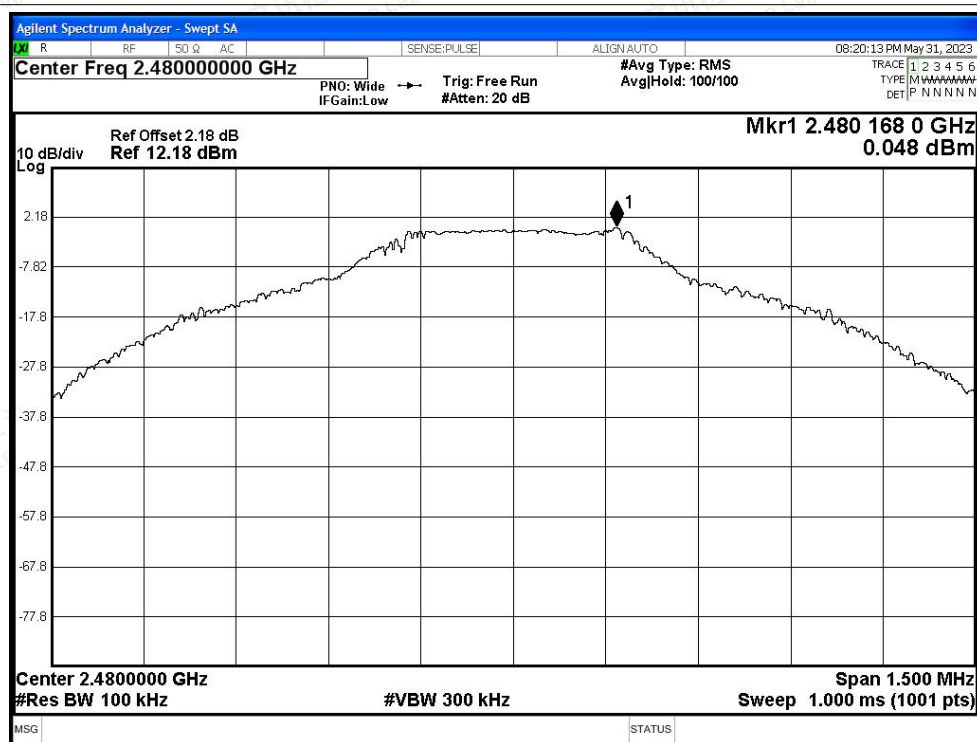
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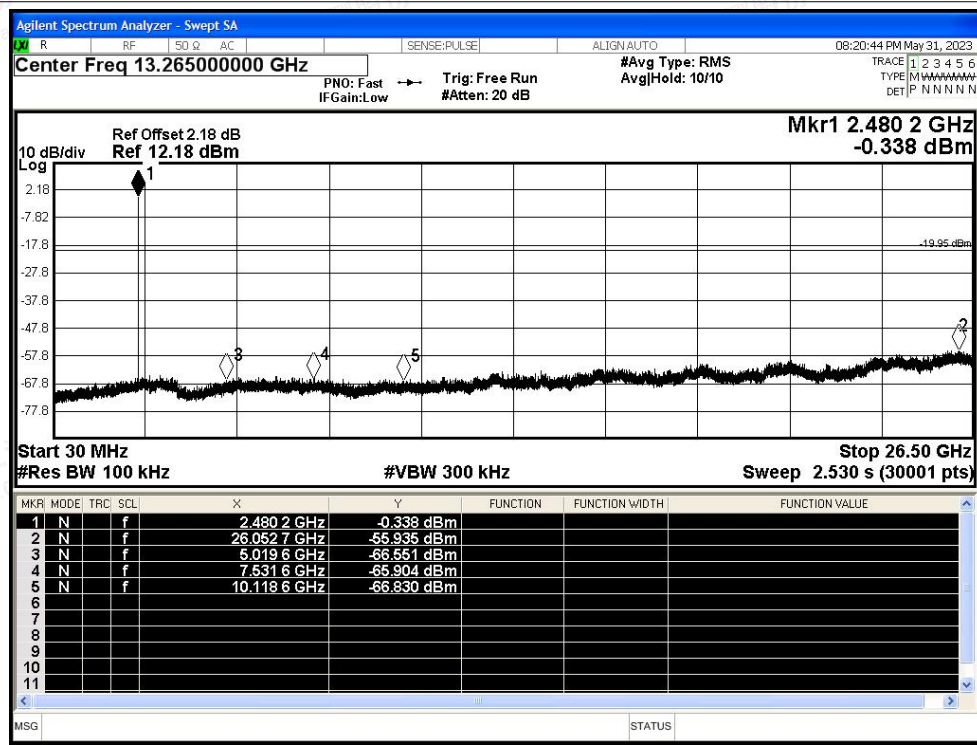
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Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



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A.8 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-49.78	3.85	49.33	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-57.9	3.85	41.21	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2389.68	-47.52	3.85	51.59	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2388.24	-57.55	3.85	41.56	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-51.51	3.85	47.60	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-57.61	3.85	41.50	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-50.46	3.85	48.65	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-55.74	3.85	43.37	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2490.256	-46.66	3.85	52.45	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.512	-55.74	3.85	43.37	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-50.68	3.85	48.43	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-57.34	3.85	41.77	Average	54	Pass

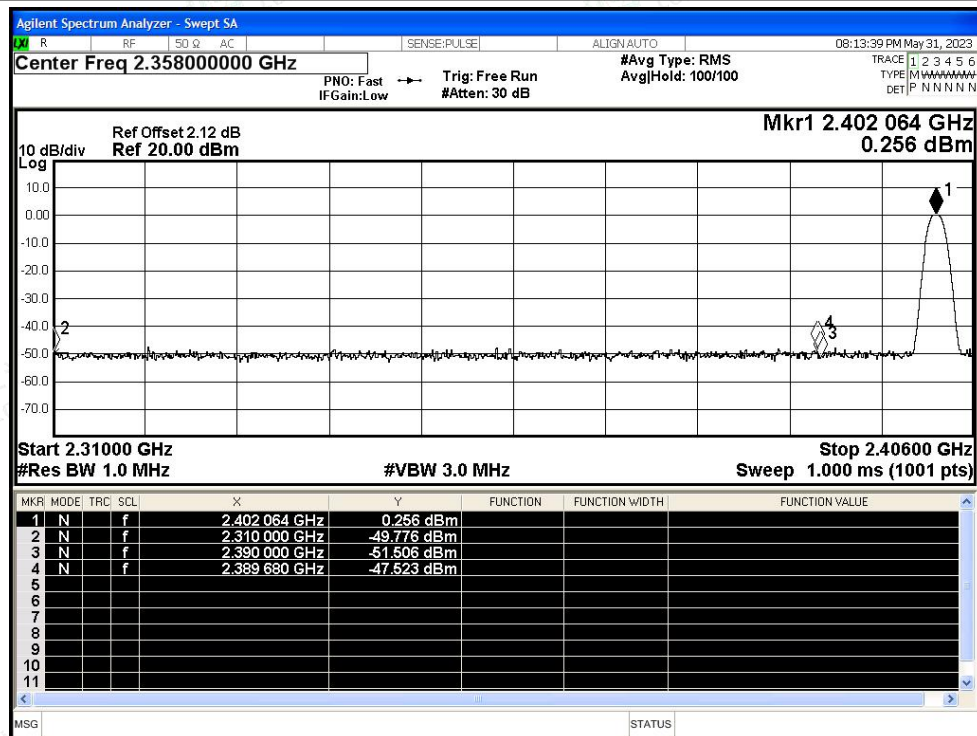


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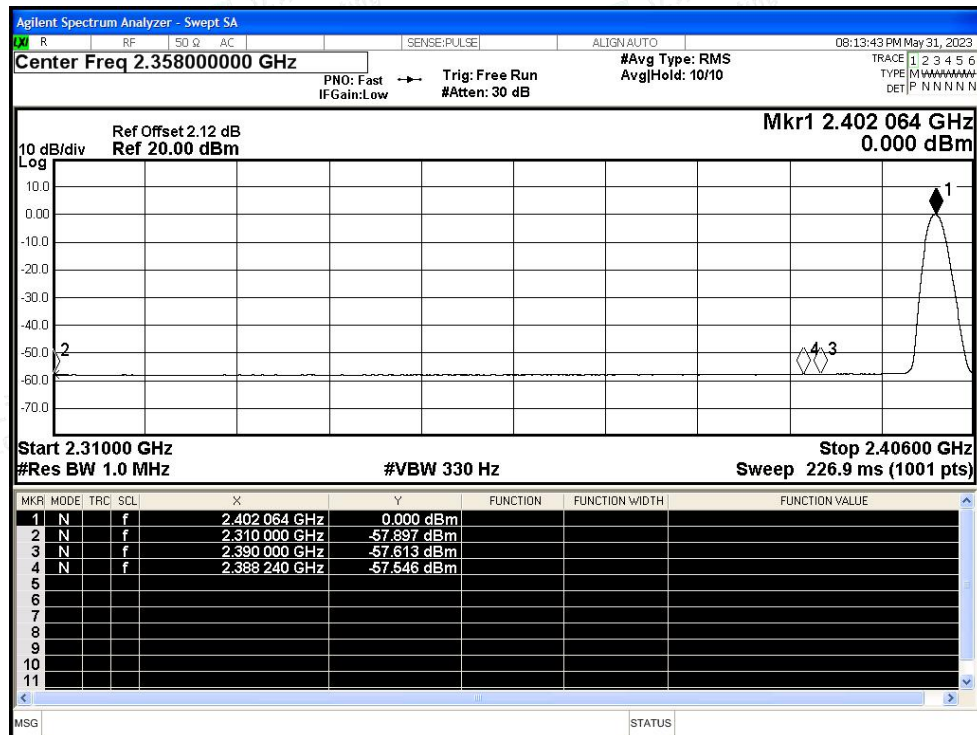


Test Graphs

Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



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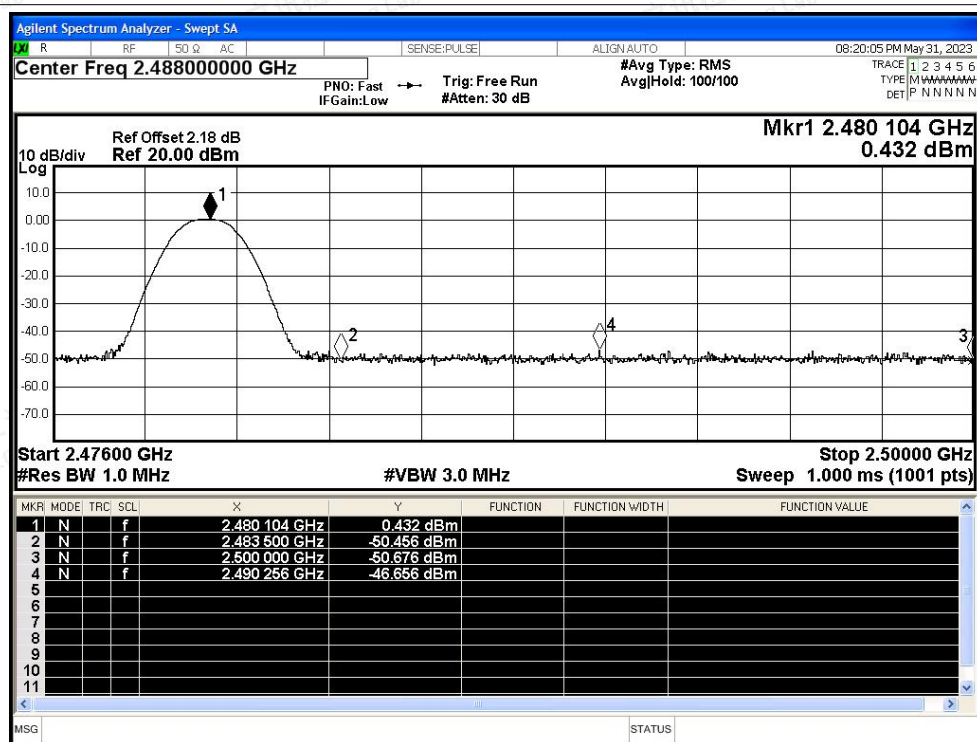
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Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average

