



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Pipe & Cable Locator

Test Model: PCL-30

Environmental Conditions

Temperature:	24.5°C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Jerry Chu
Supervised by:	Paddi Chen



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A.1 -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.985	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.98	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.979	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.282	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.282	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.285	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.284	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.296	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.314	N/A	Pass

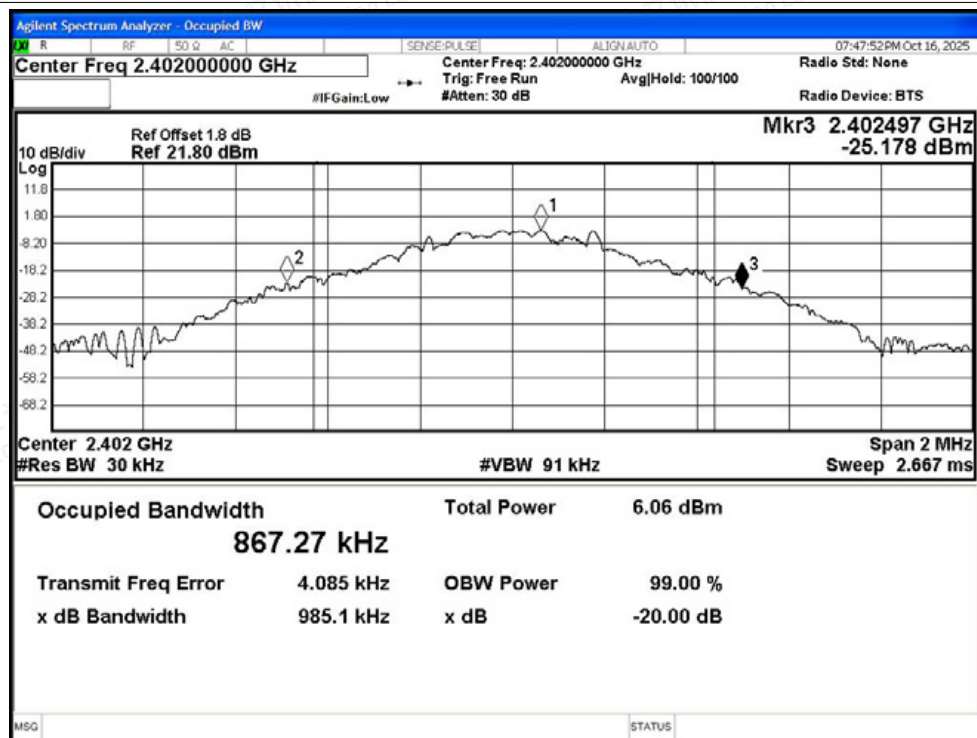


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Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

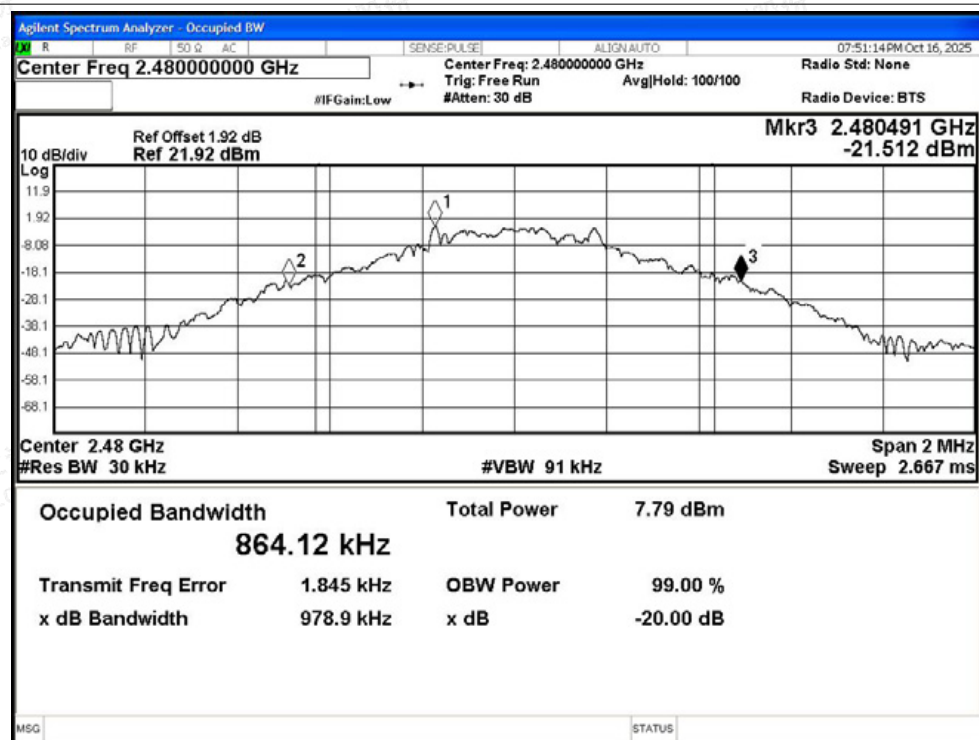


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

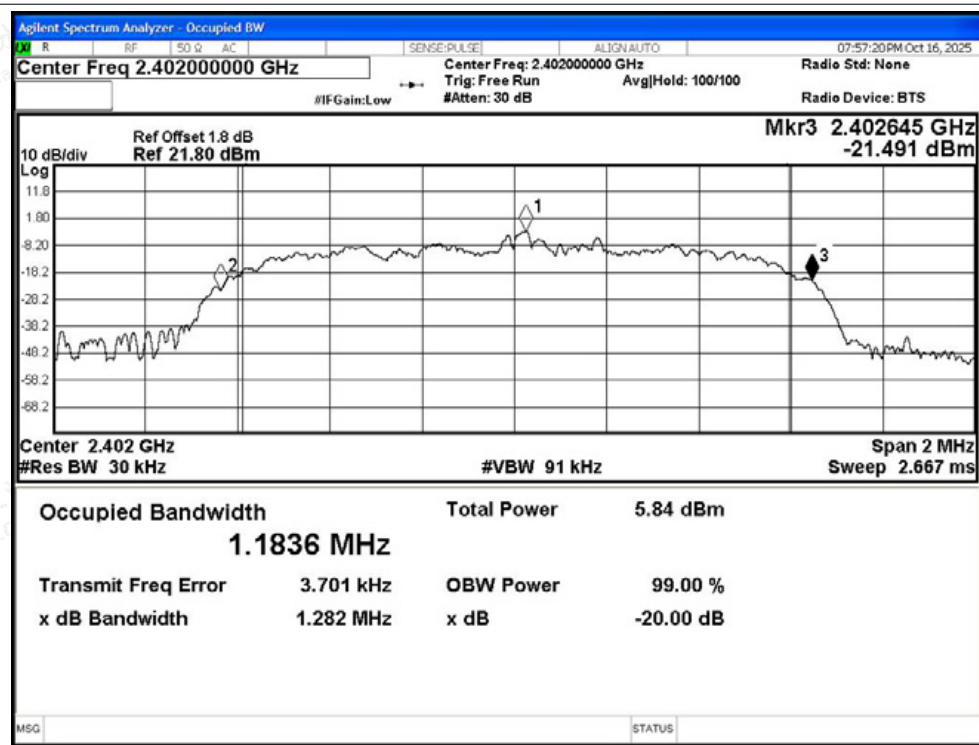




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



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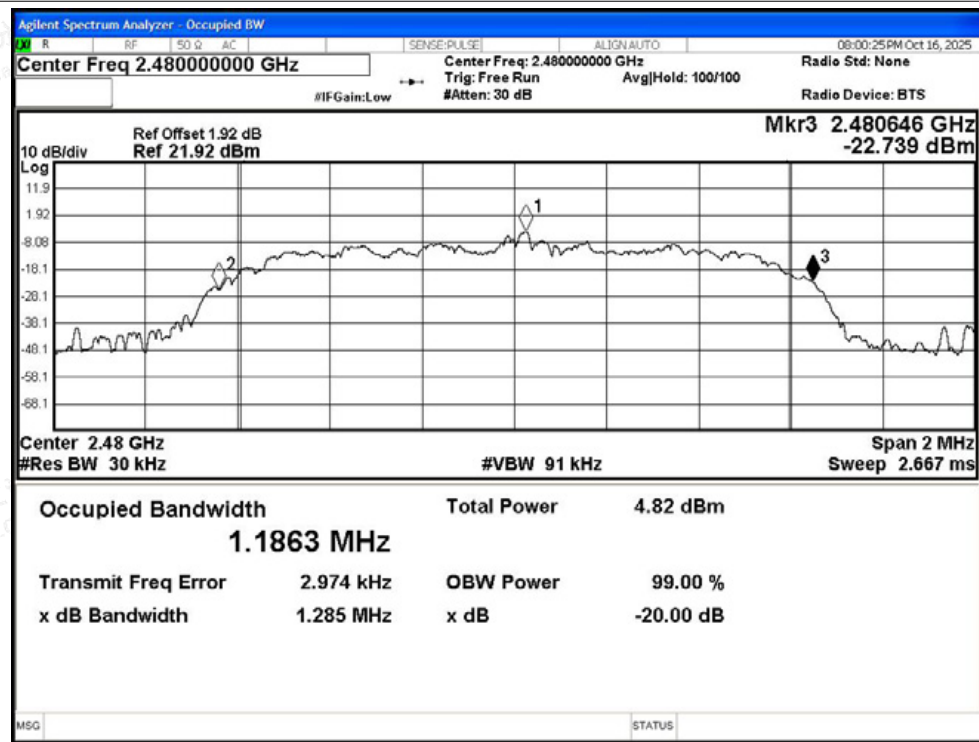
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-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



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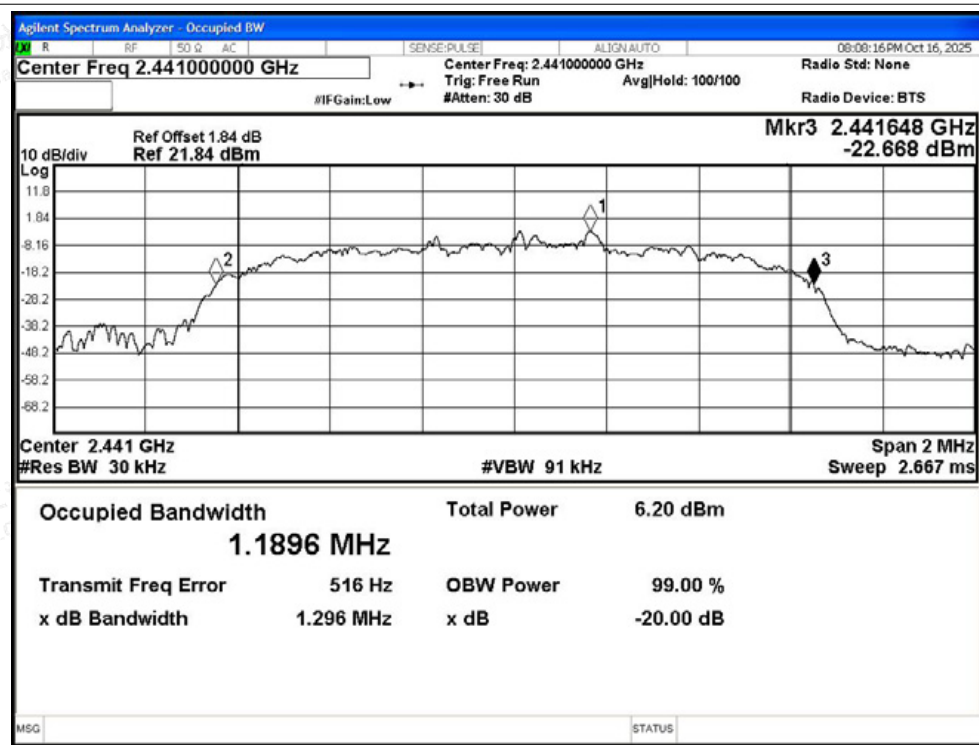
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-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



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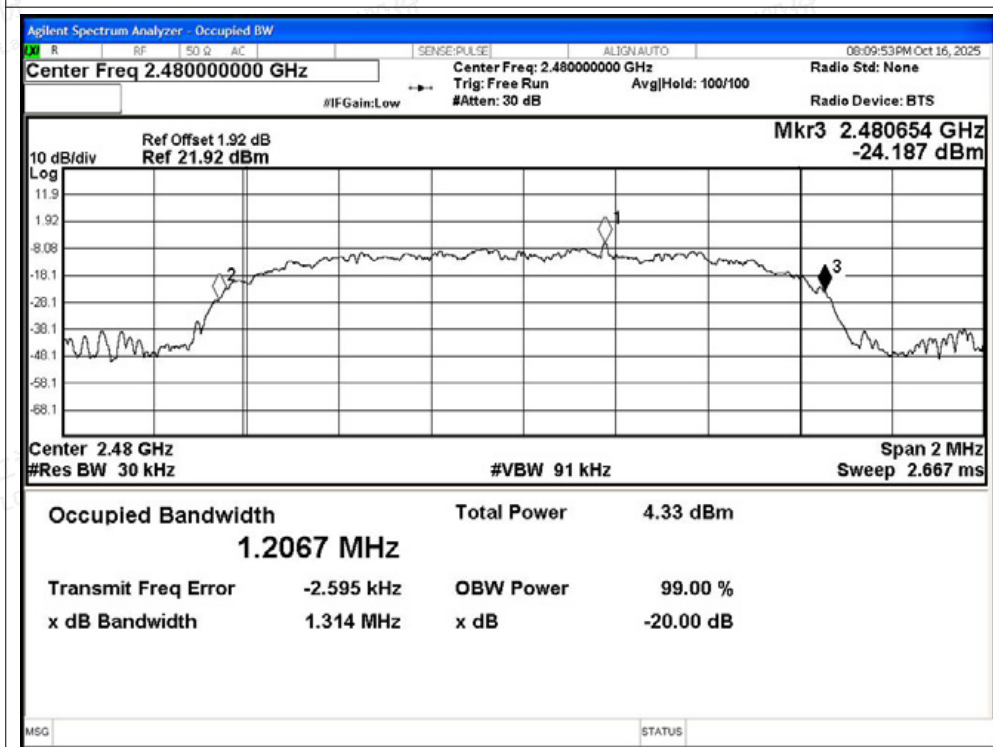
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-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1





A.2 Maximum Peak Conducted Output Power

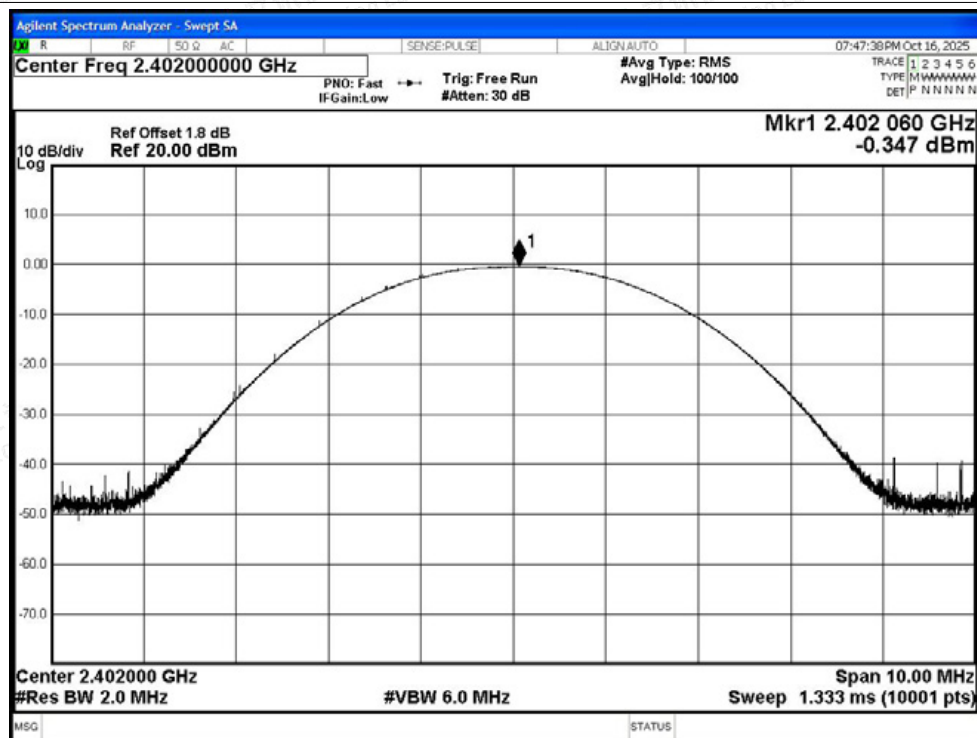
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-0.35	21	Pass
NVNT	1-DH5	2441	Ant1	2.30	21	Pass
NVNT	1-DH5	2480	Ant1	1.33	21	Pass
NVNT	2-DH5	2402	Ant1	1.58	21	Pass
NVNT	2-DH5	2441	Ant1	1.58	21	Pass
NVNT	2-DH5	2480	Ant1	0.67	21	Pass
NVNT	3-DH5	2402	Ant1	2.00	21	Pass
NVNT	3-DH5	2441	Ant1	2.10	21	Pass
NVNT	3-DH5	2480	Ant1	1.07	21	Pass



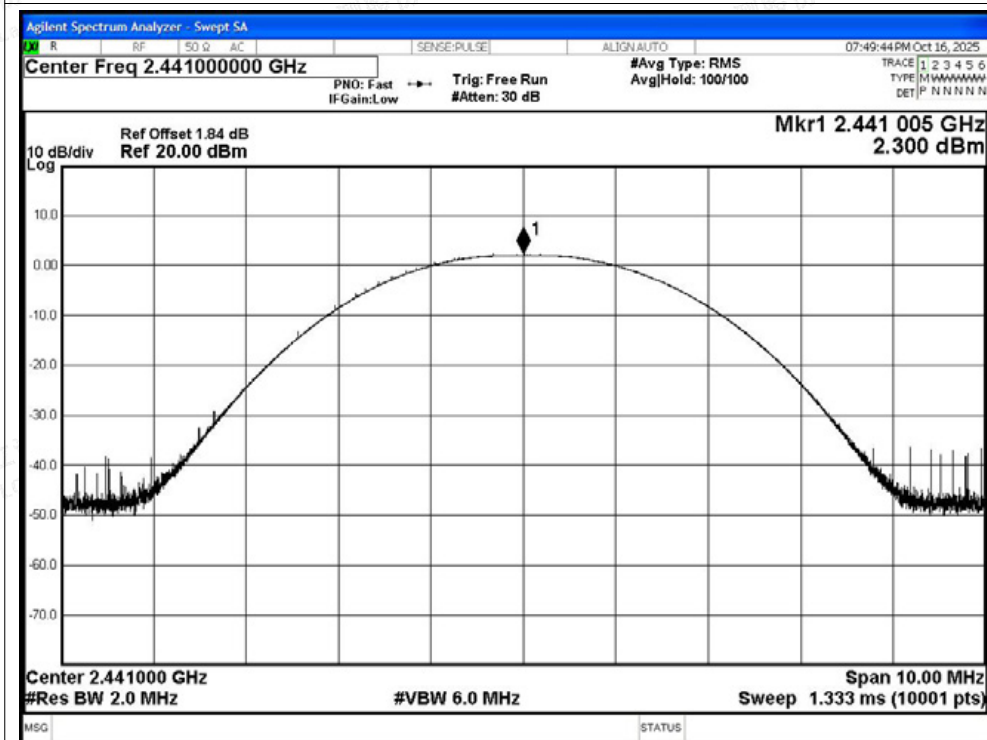


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

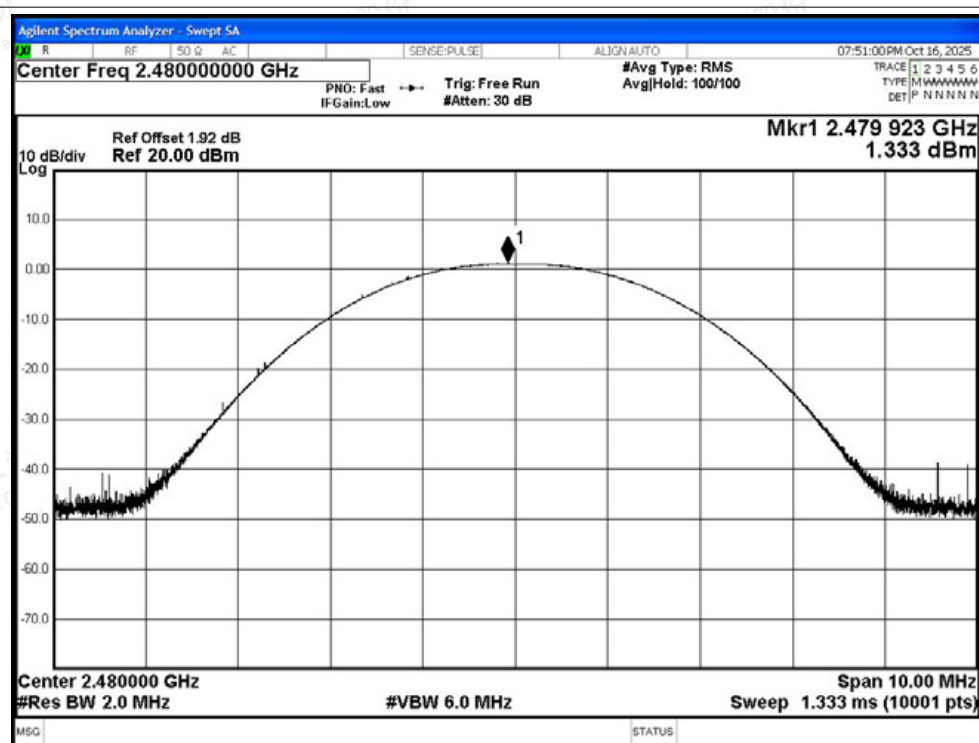


Power NVNT 1-DH5 2441MHz Ant1

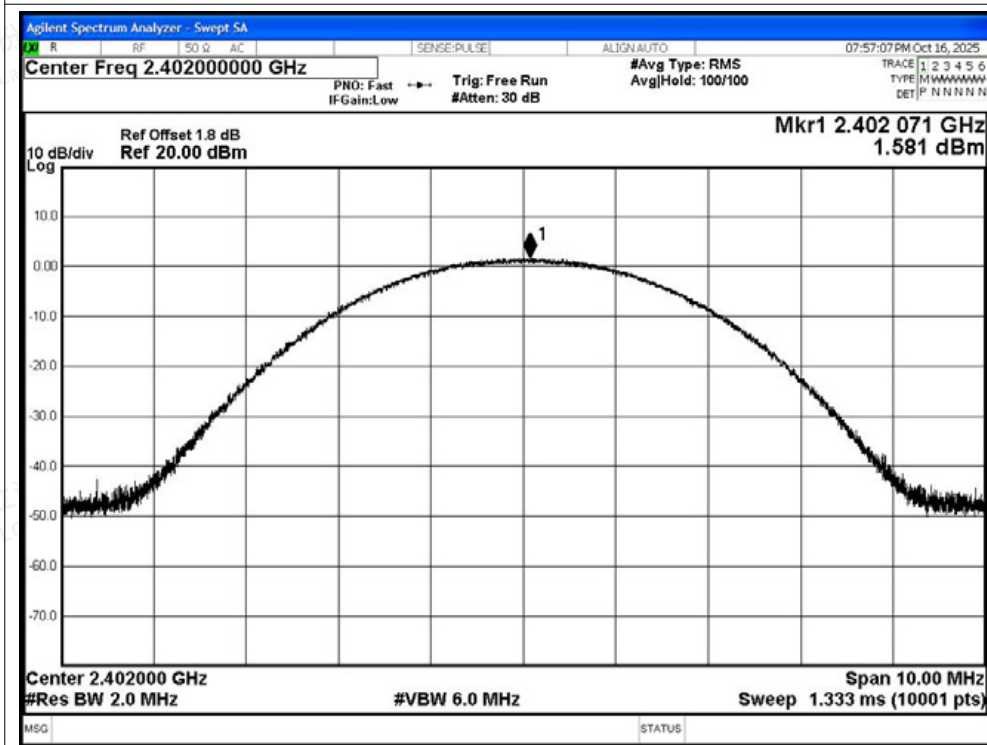




Power NVNT 1-DH5 2480MHz Ant1



Power NVNT 2-DH5 2402MHz Ant1



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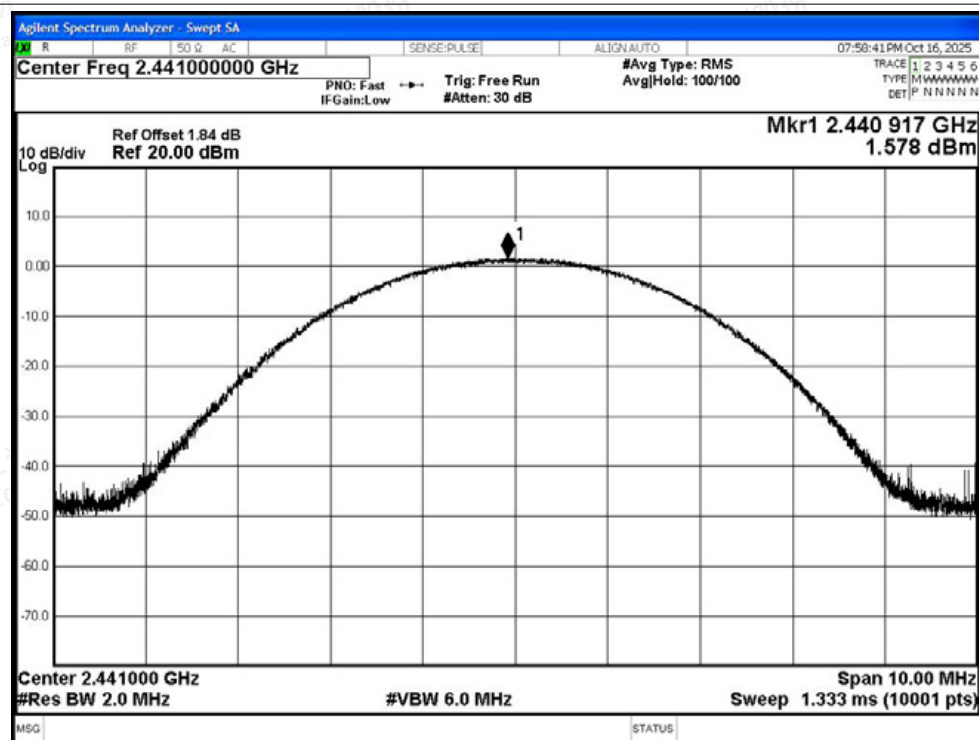
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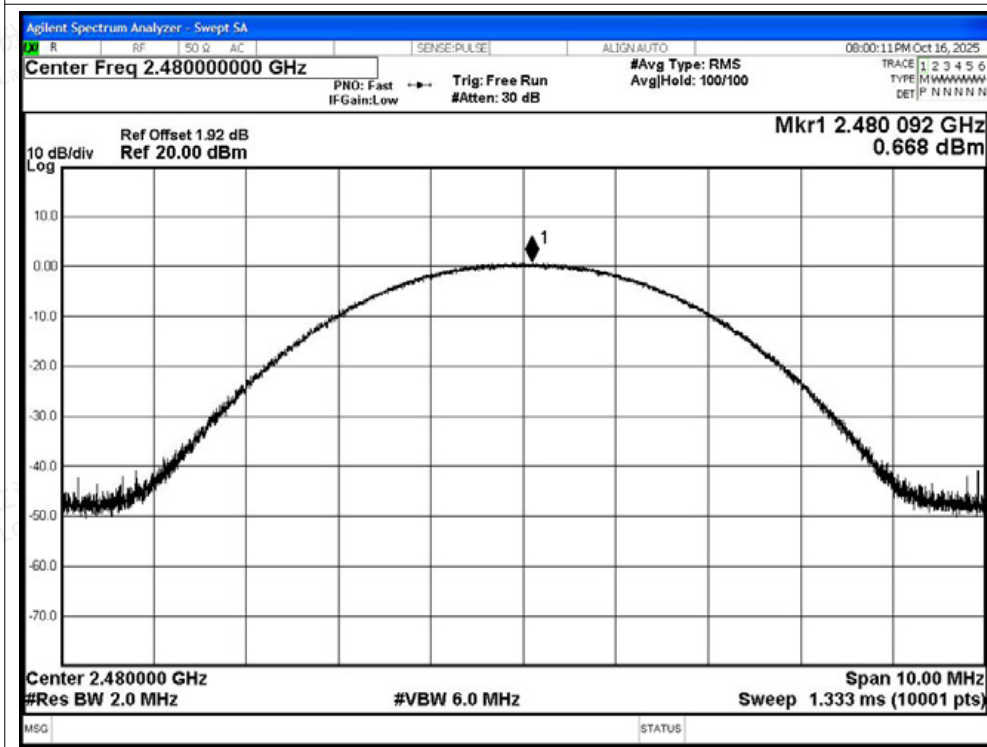
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Power NVNT 2-DH5 2441MHz Ant1



Power NVNT 2-DH5 2480MHz Ant1



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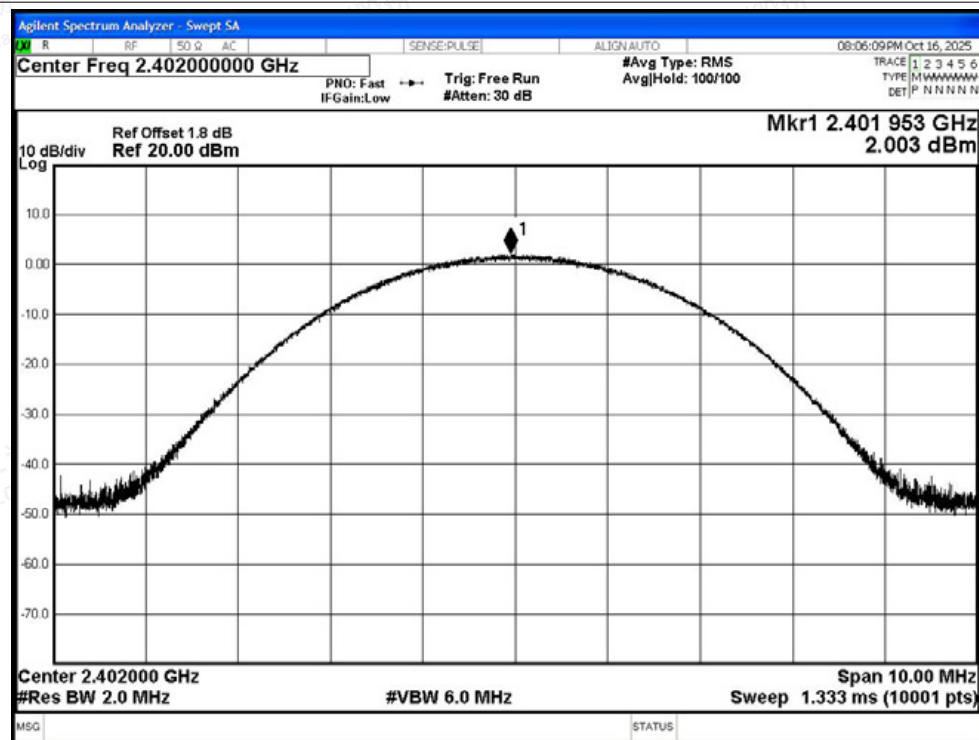
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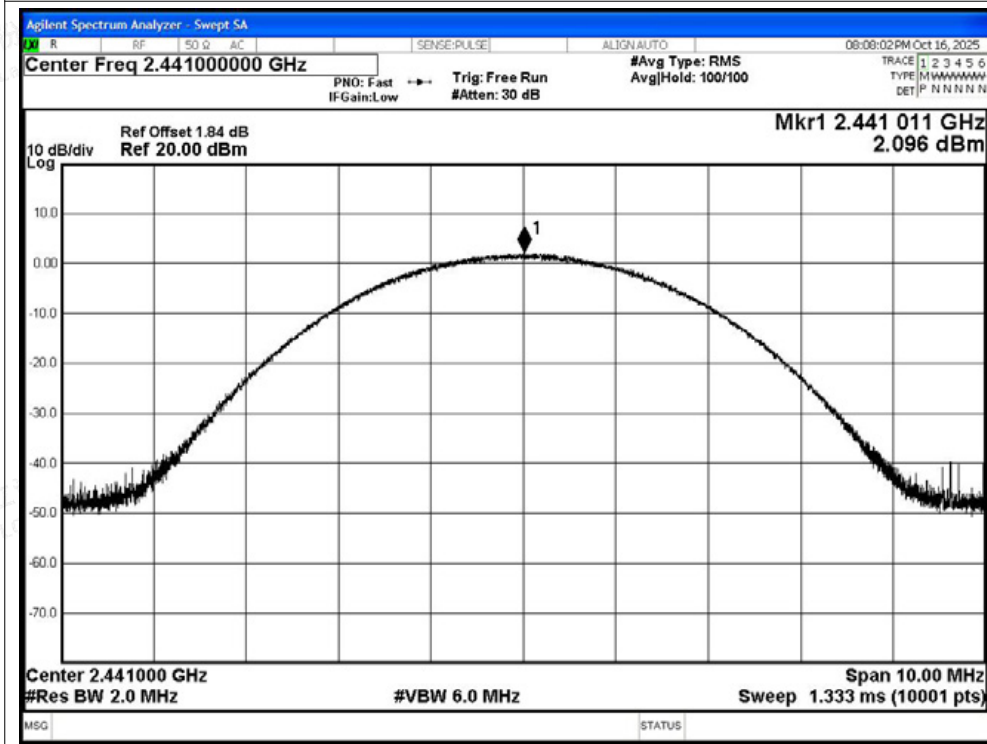
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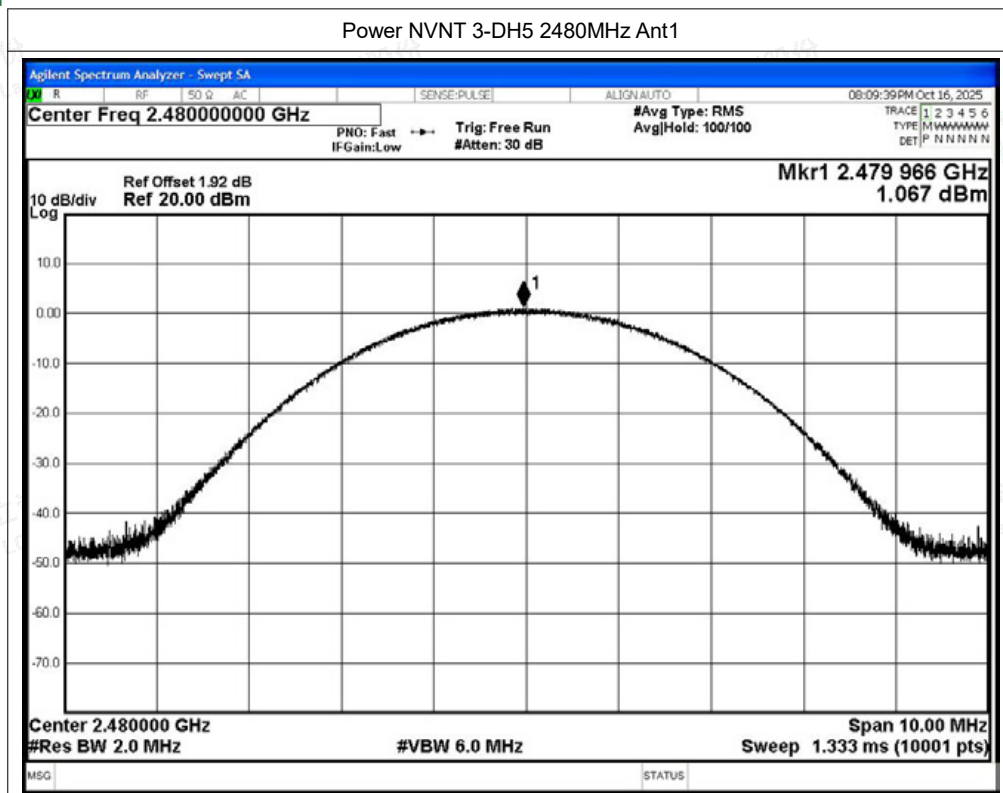


Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-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	2401.838	2402.83	0.992	0.657	Pass
NVNT	2-DH5	Ant1	2402.01	2403.014	1.004	0.855	Pass
NVNT	3-DH5	Ant1	2402.032	2403.026	0.994	0.856	Pass

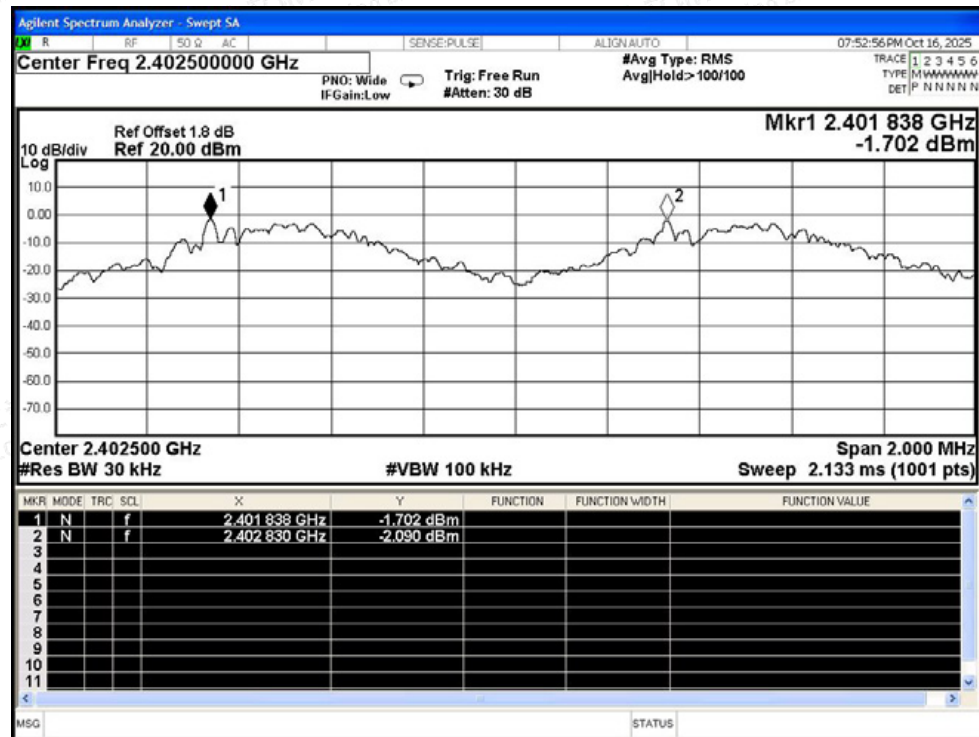


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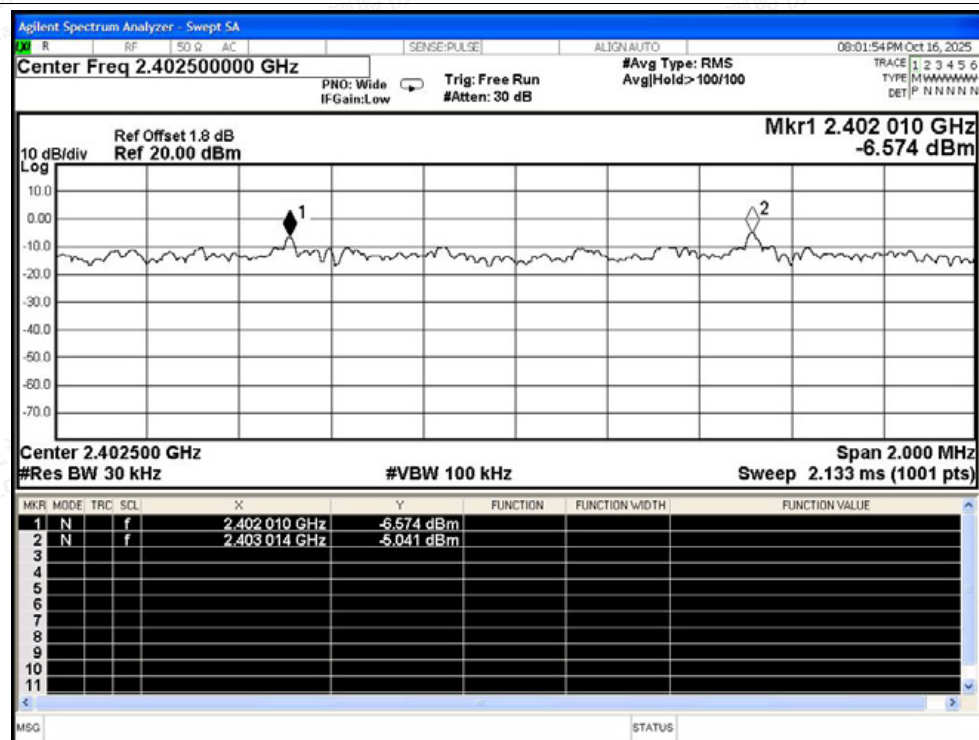


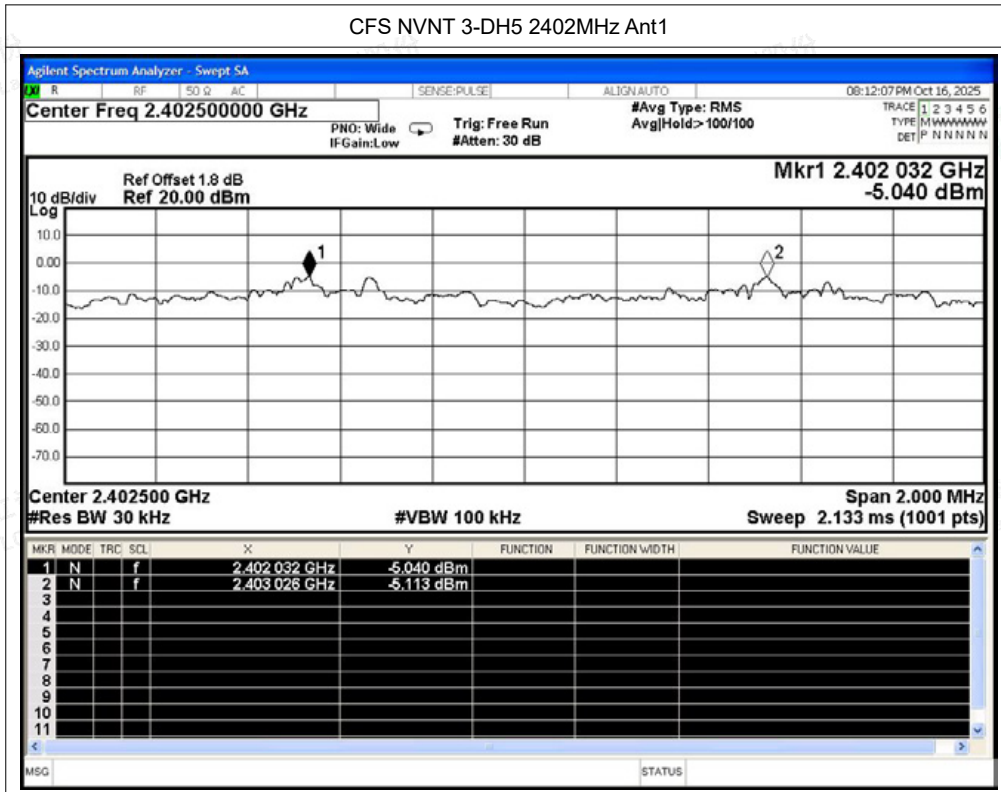
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1







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	2.909	287.991	99	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.898	321.678	111	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.898	304.29	105	31600	400	Pass

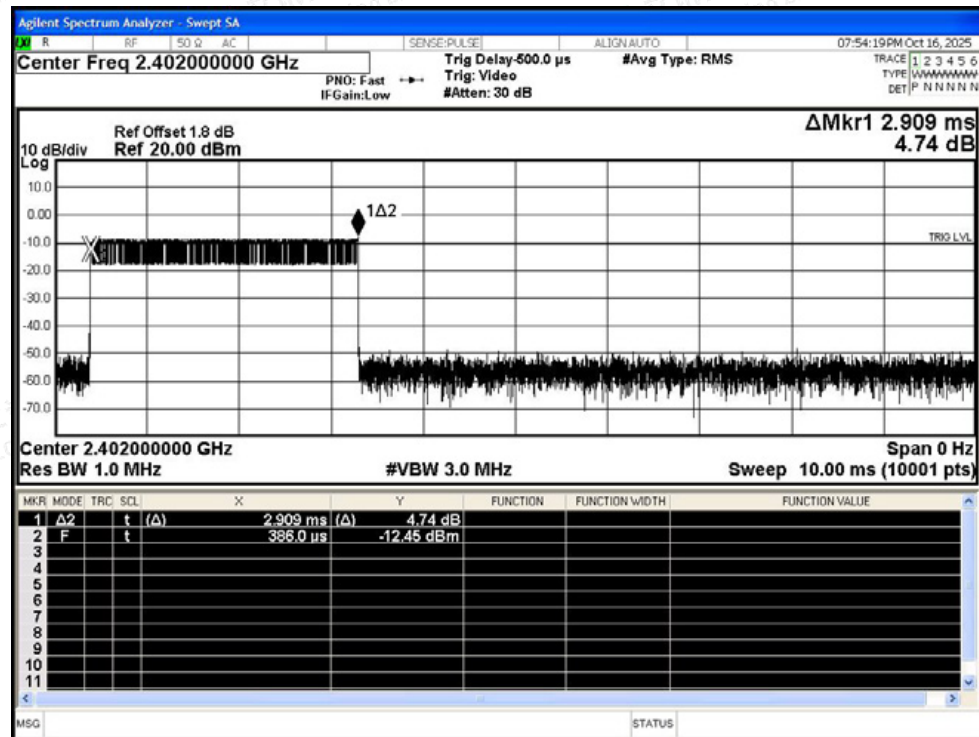


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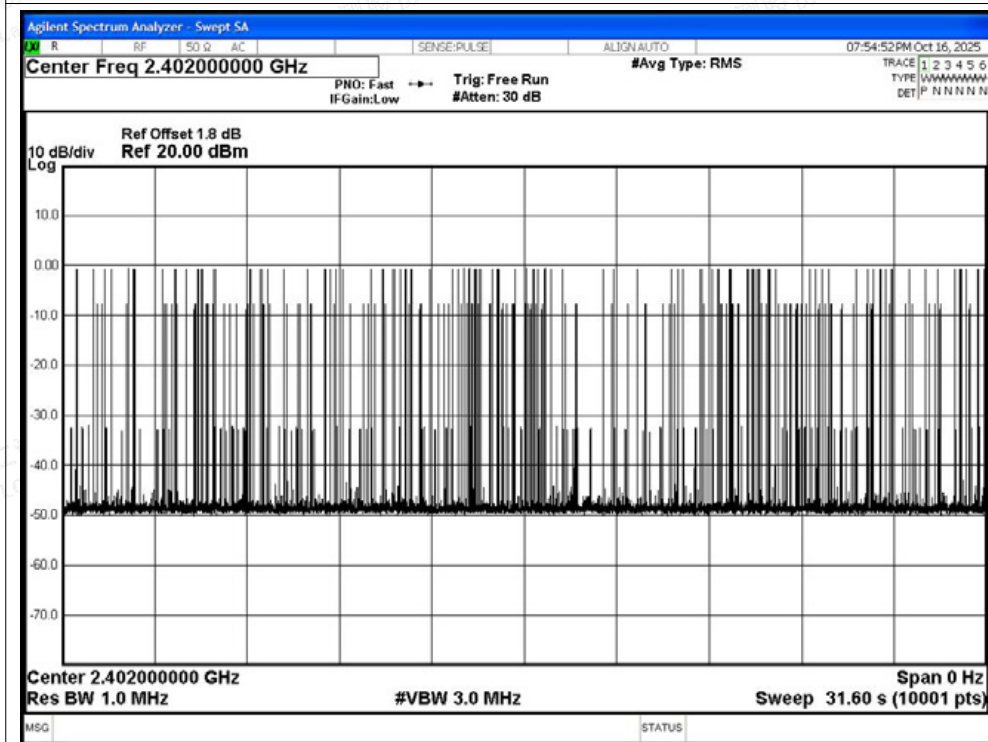


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



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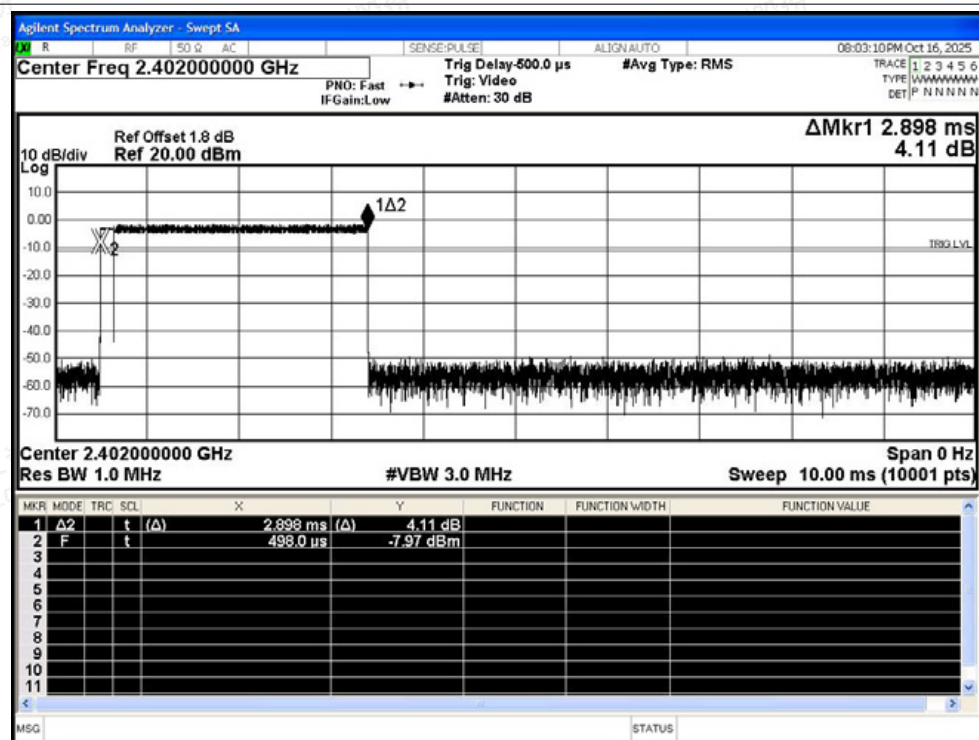
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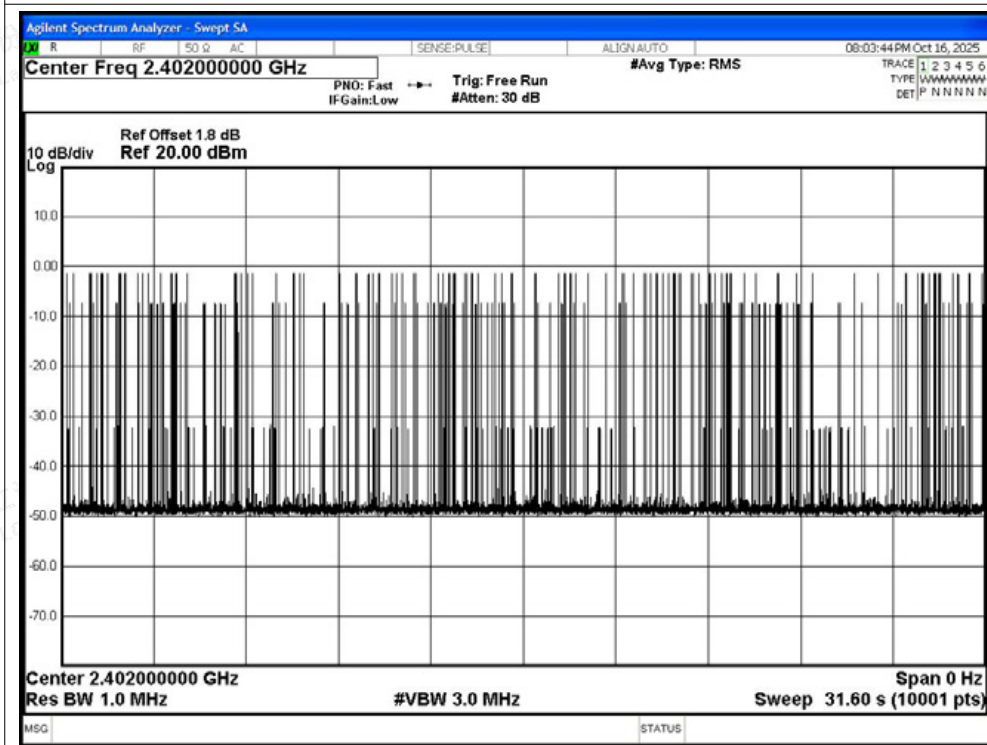
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Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

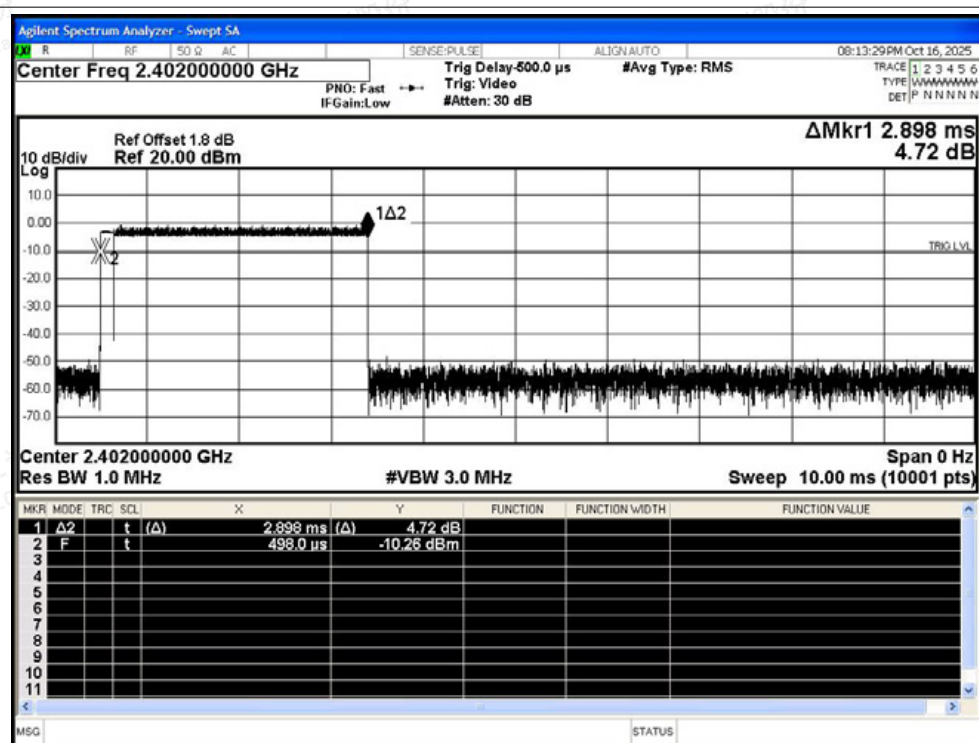


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

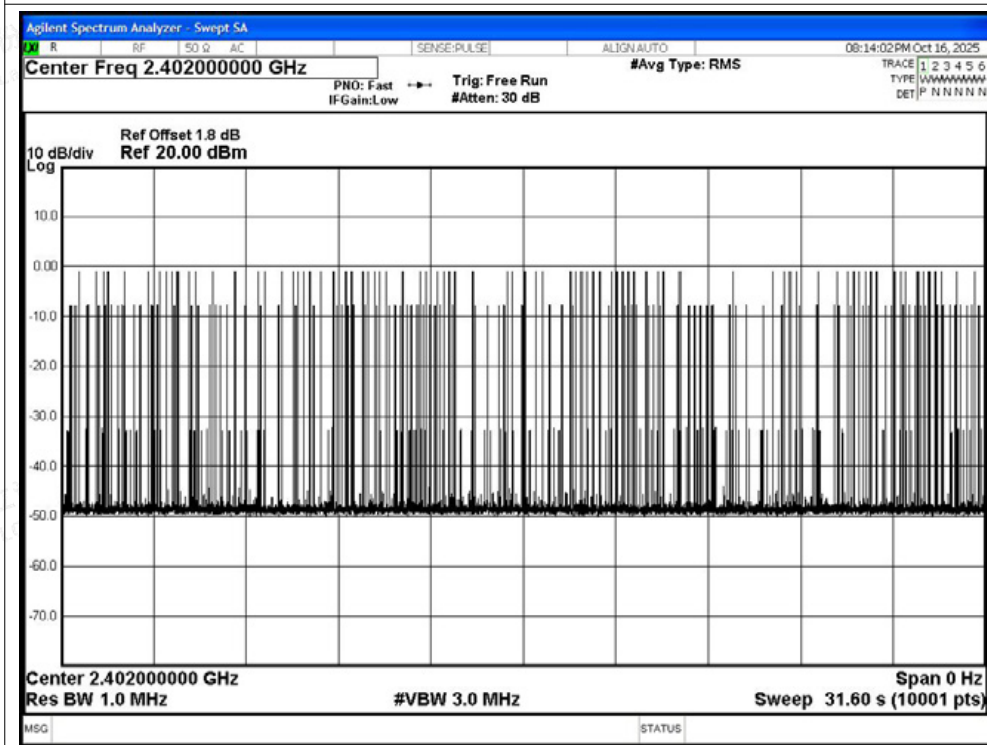




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated





A.5 Number of Hopping Channel

Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

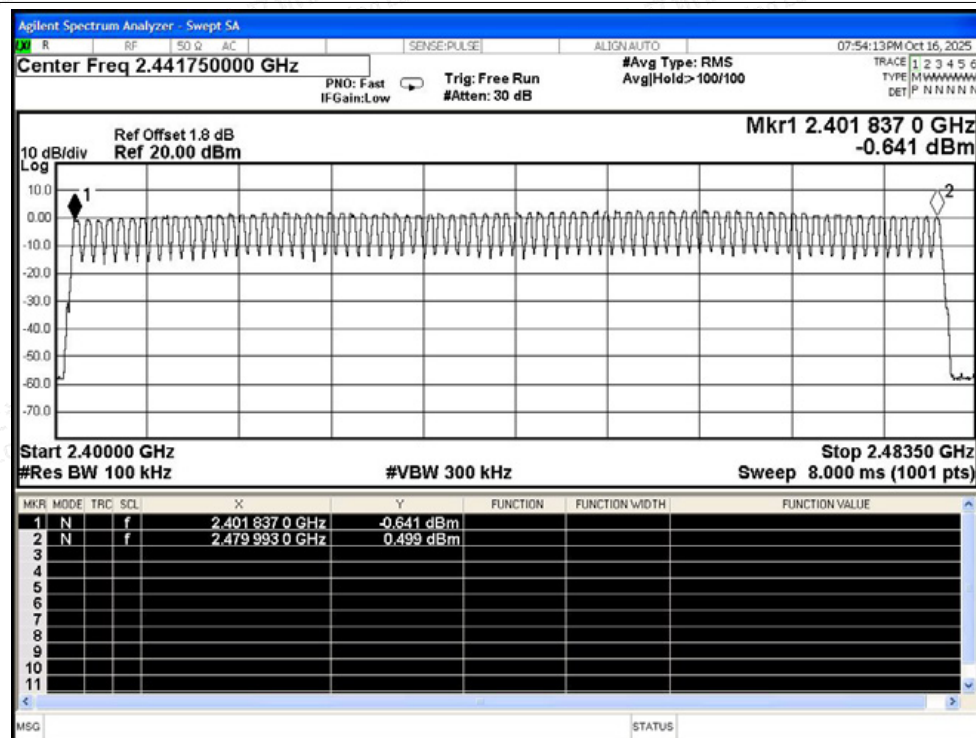


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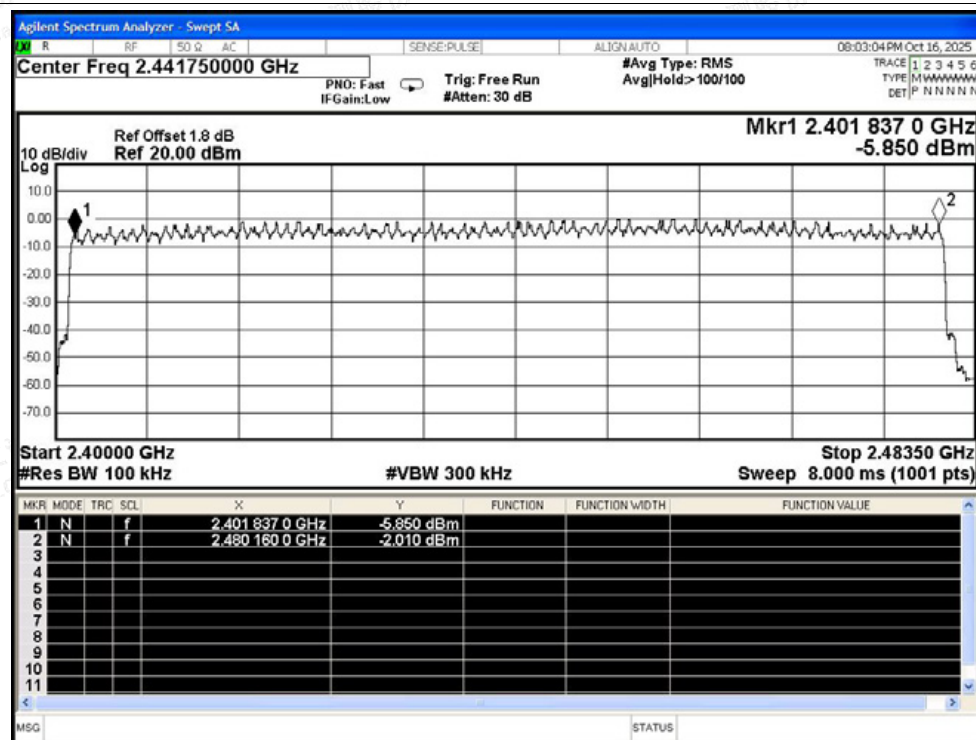


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

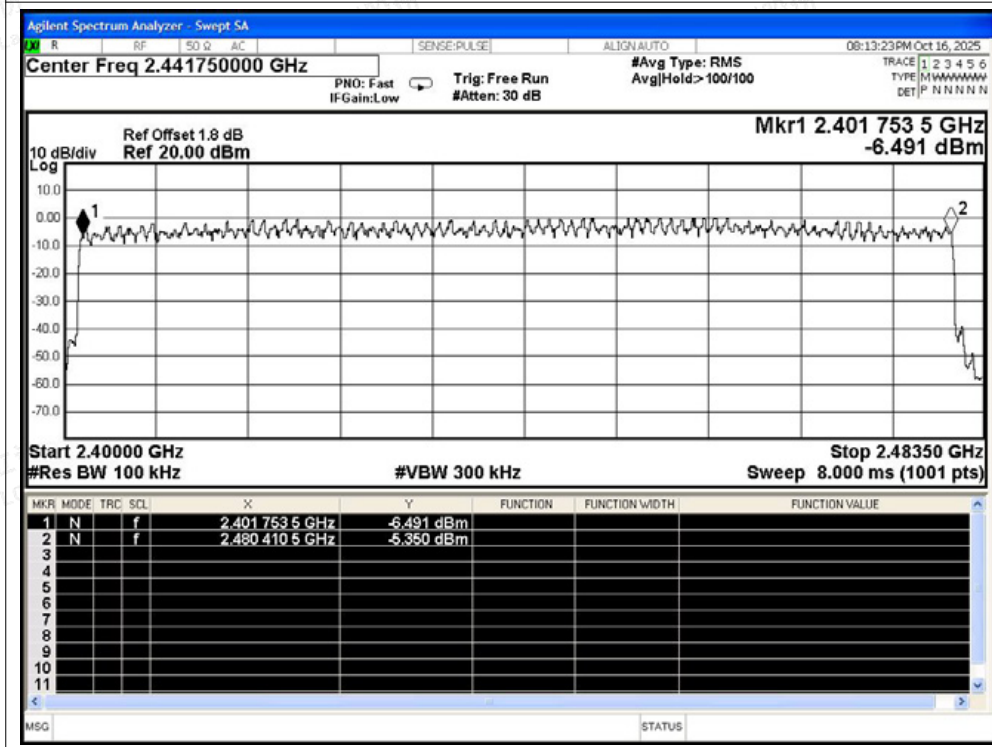


Hopping No. NVNT 2-DH5 2402MHz Ant1





Hopping No. NVNT 3-DH5 2402MHz Ant1





A.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-56.5	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-56.82	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-51.43	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-55.58	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-51.44	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-55.57	-20	Pass

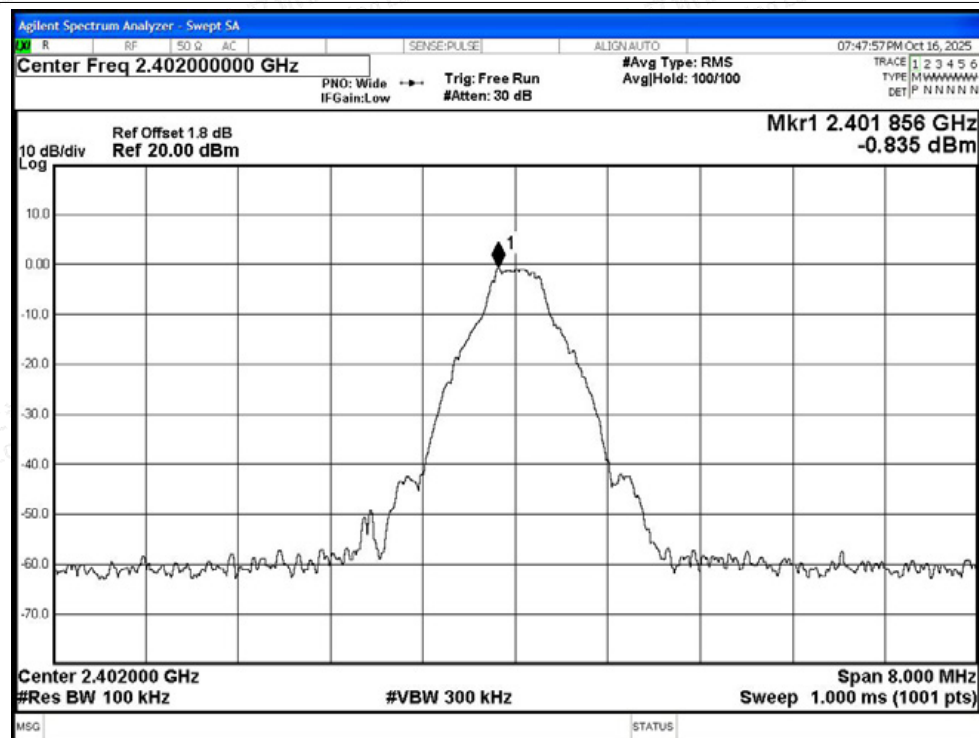


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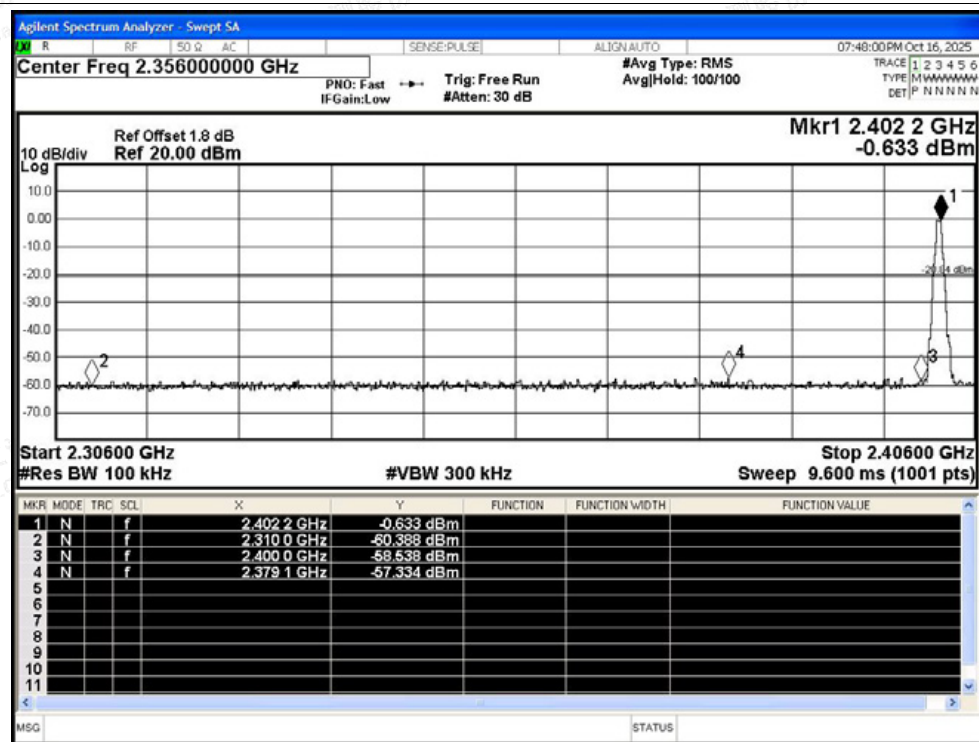


Test Graphs

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



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



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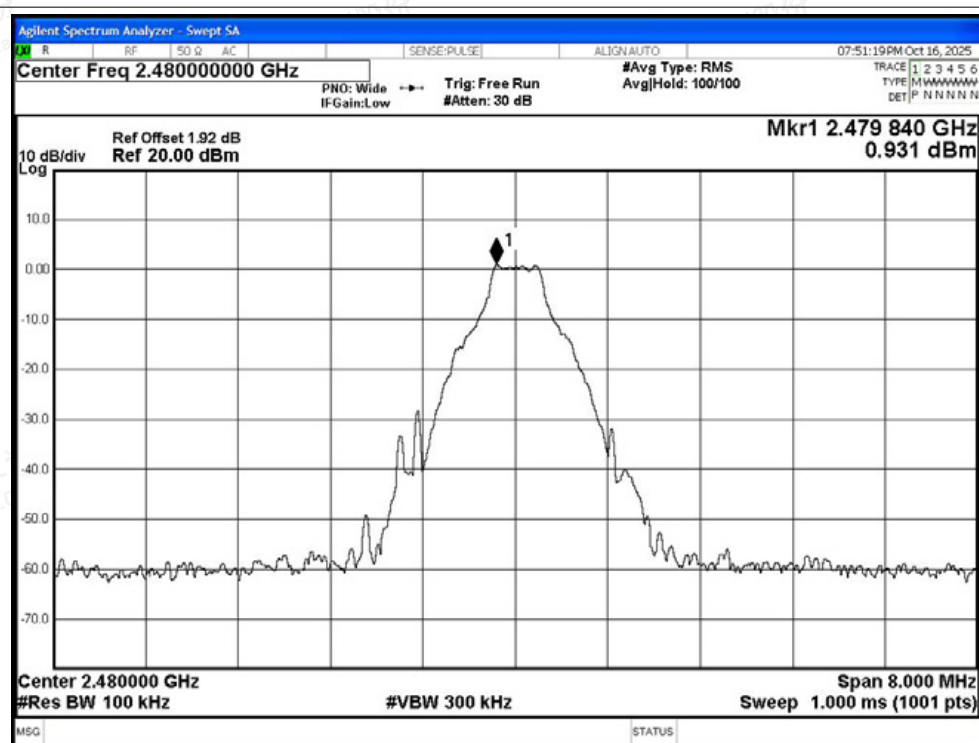
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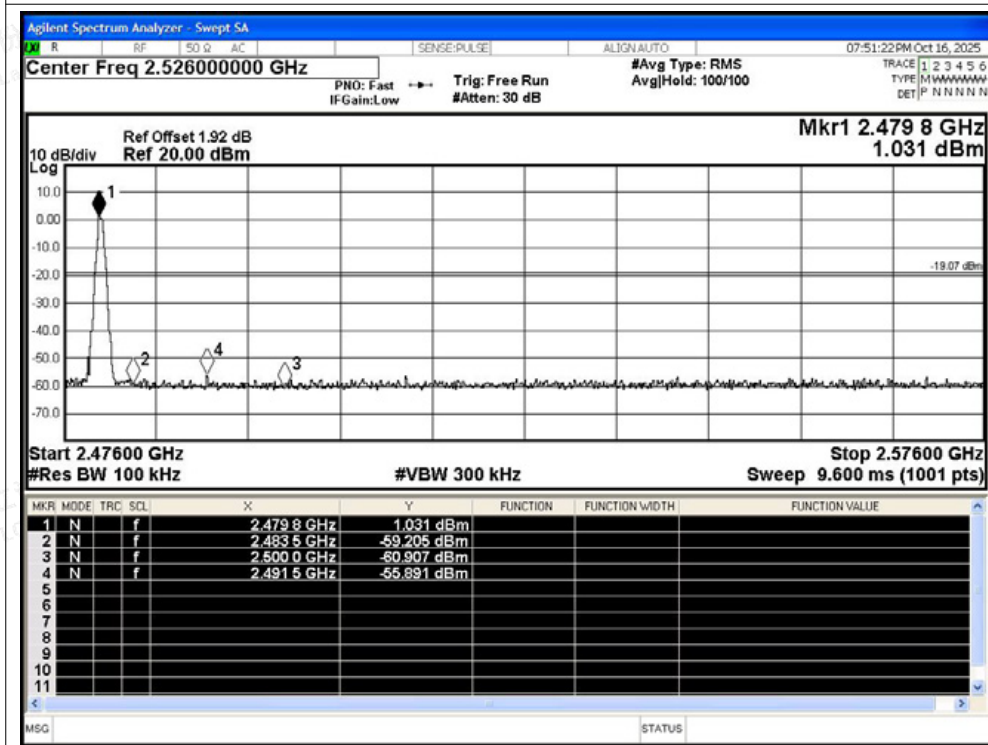
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Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



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



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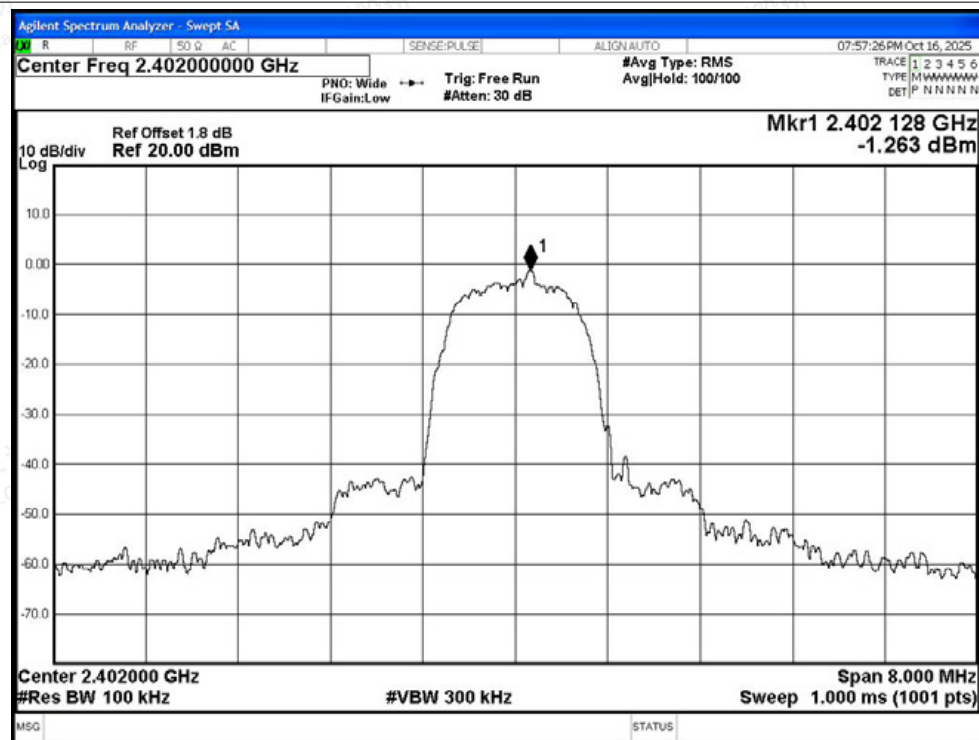
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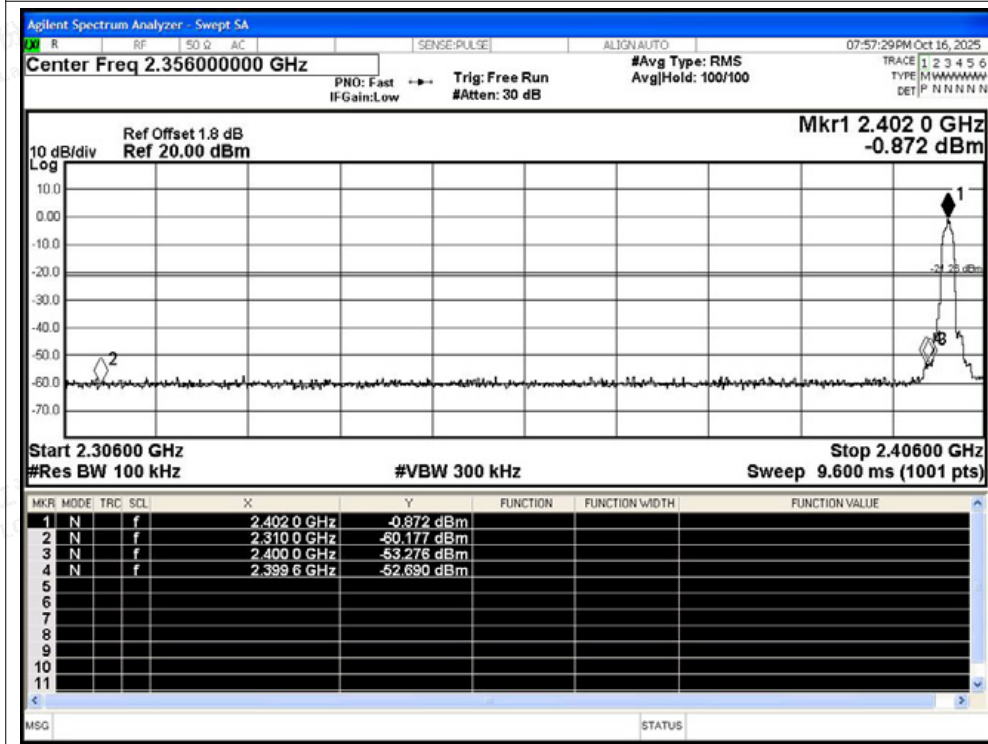
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Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

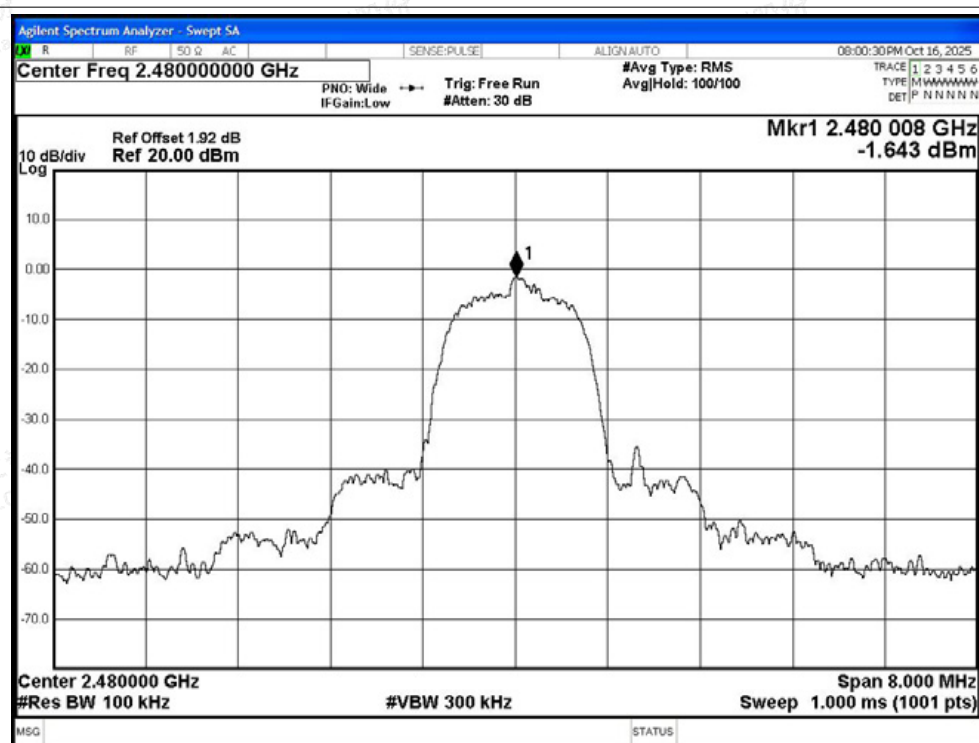


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

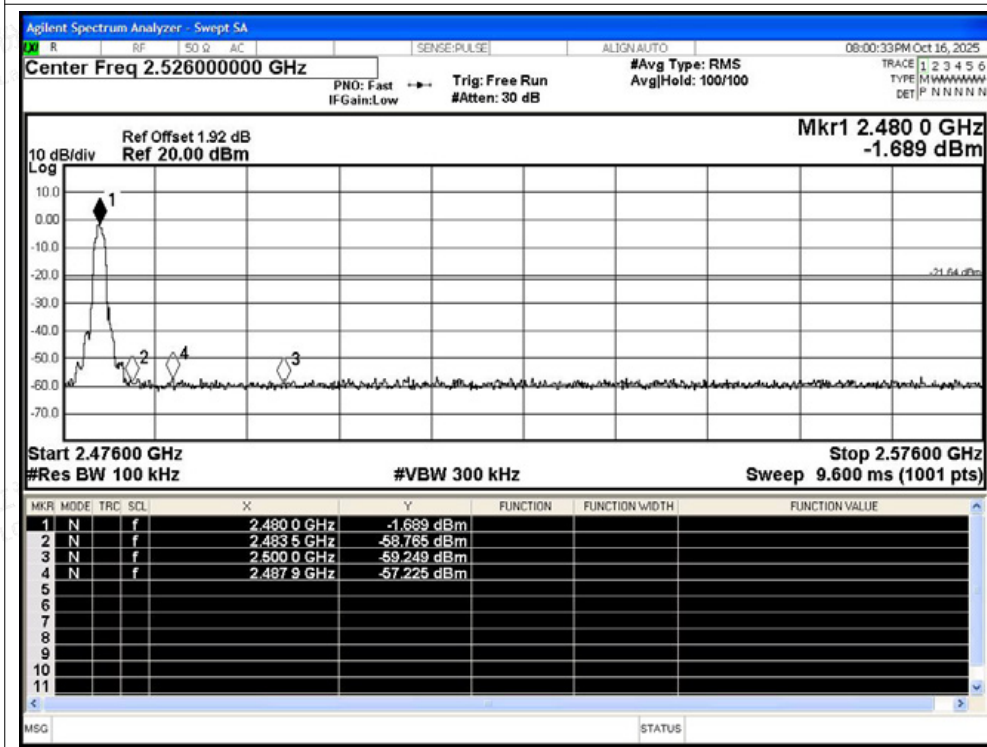




Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref

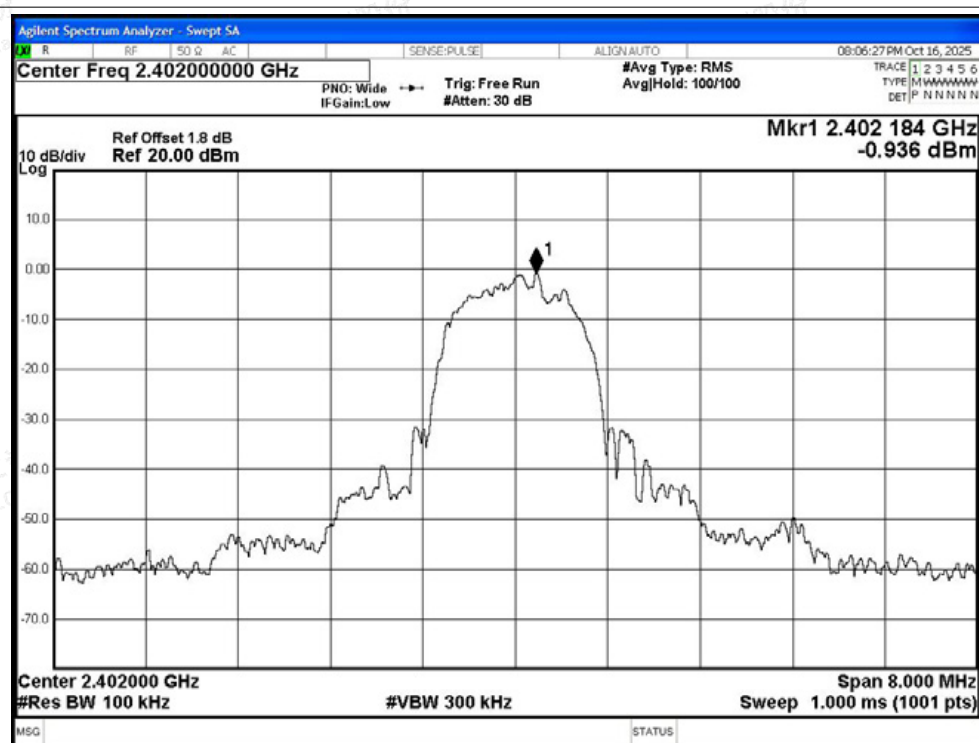


Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission

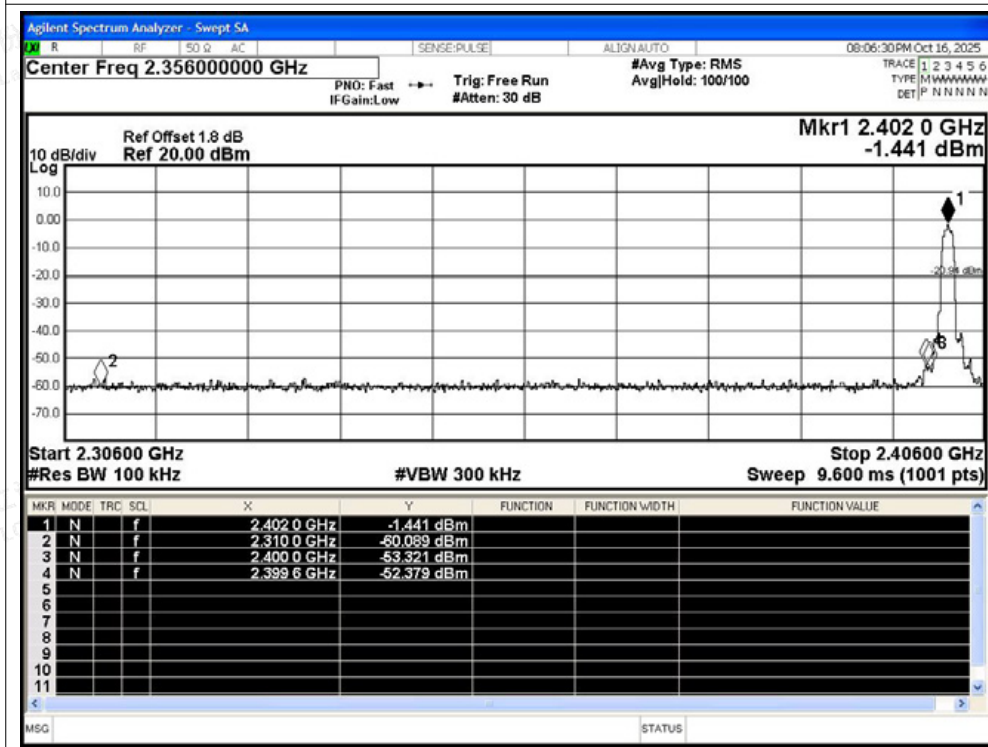




Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



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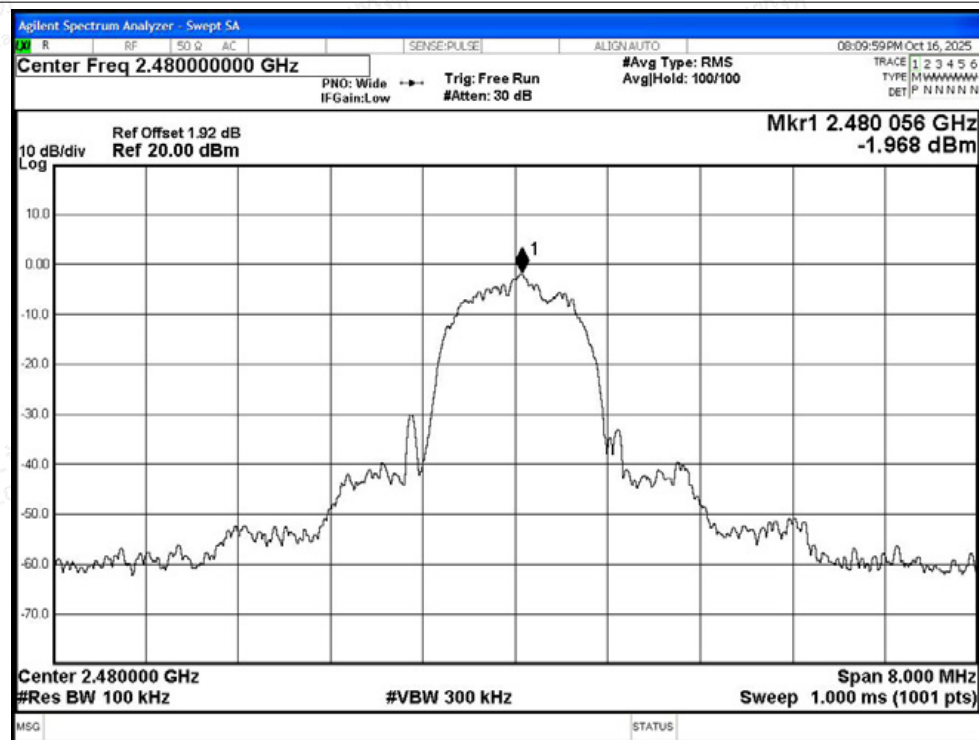
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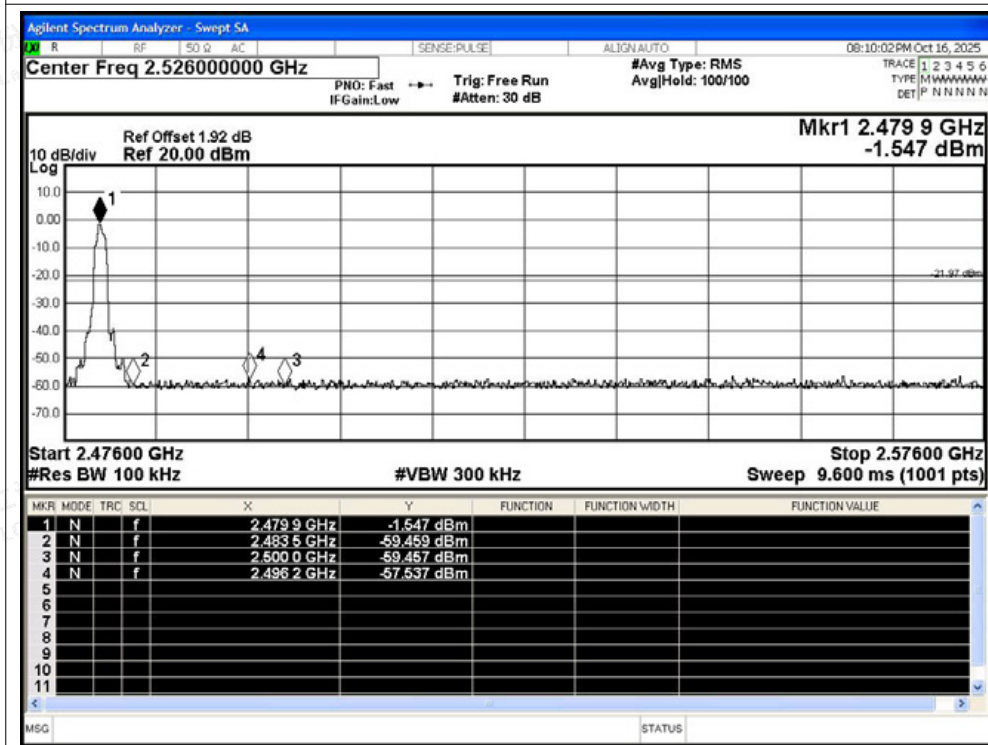
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Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission





(Hopping)

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-56.51	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-57.35	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-52.75	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-54.31	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-53.55	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-54.1	-20	Pass

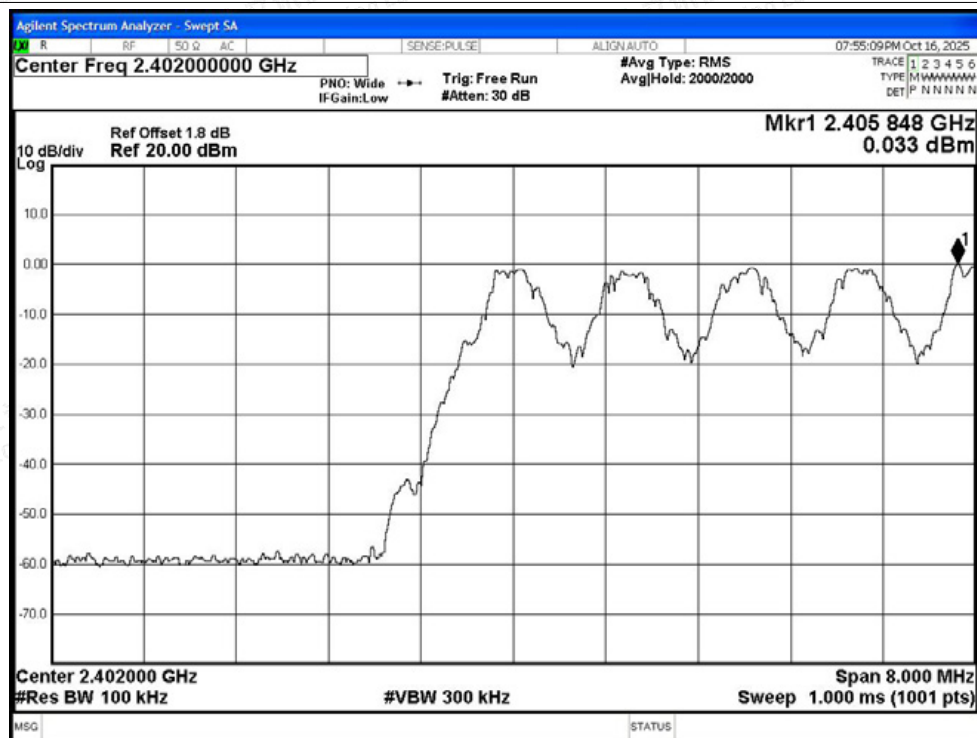


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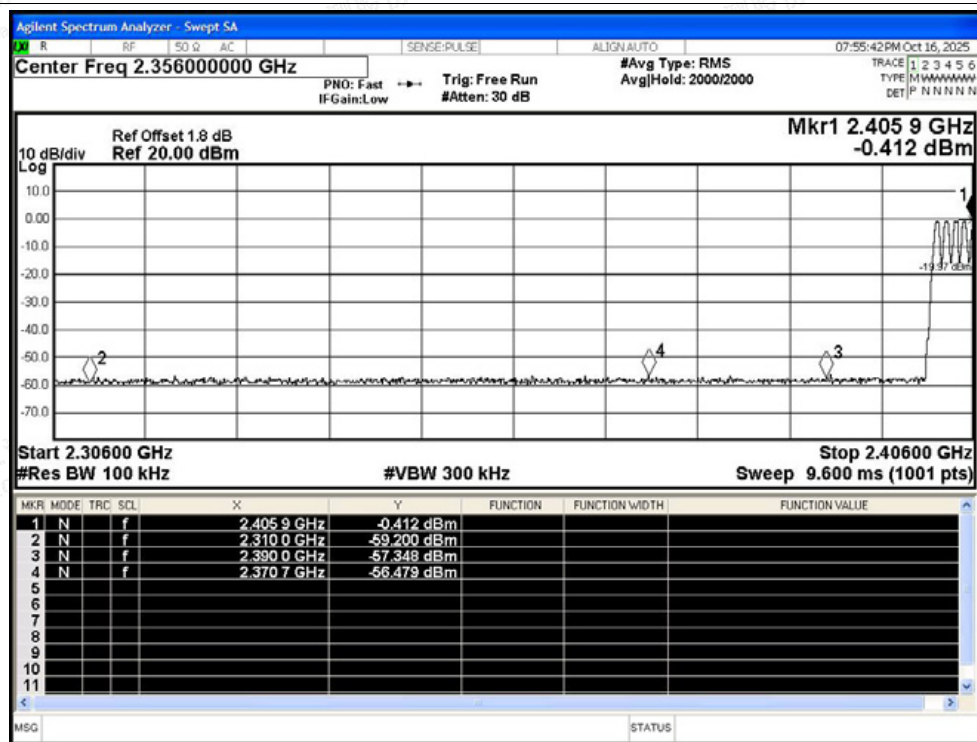


Test Graphs

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

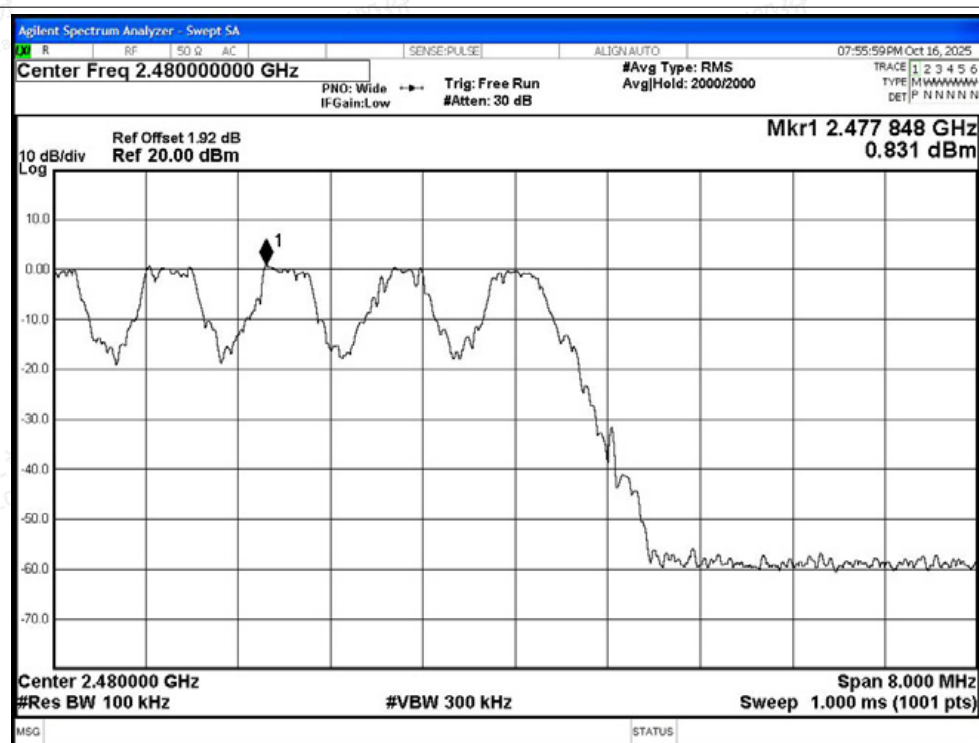


Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

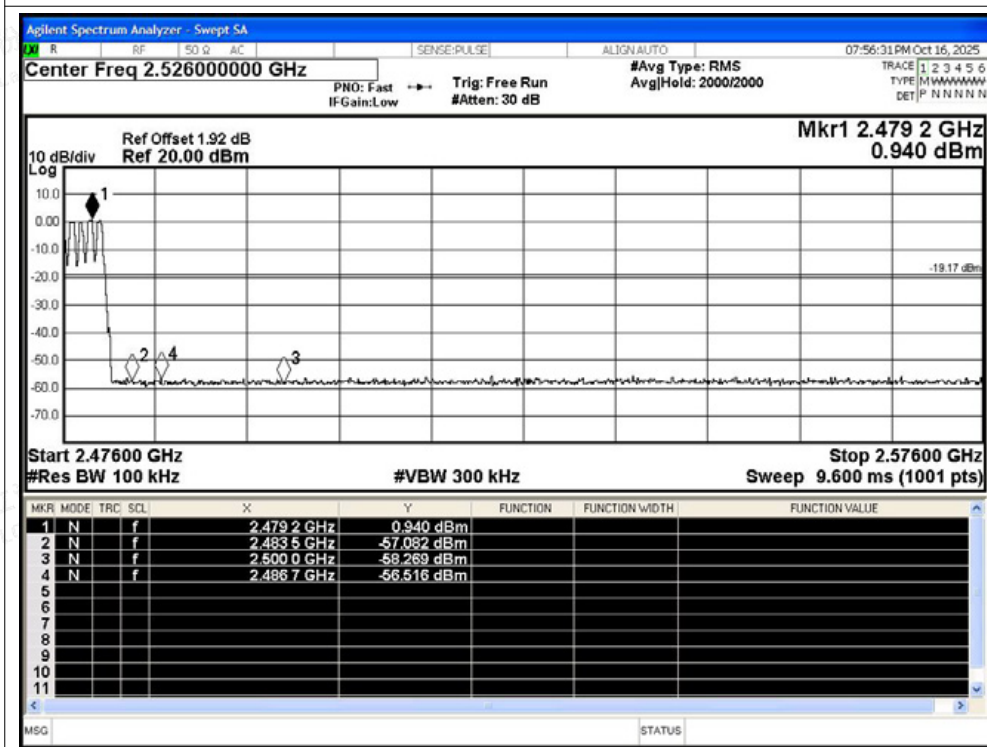




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref

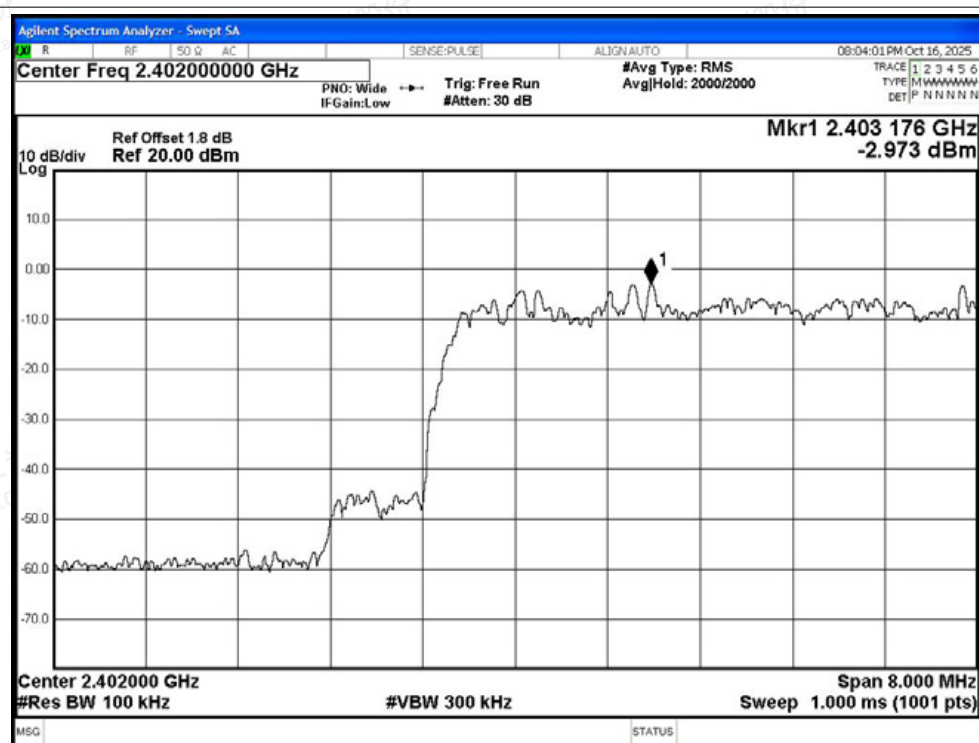


Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission

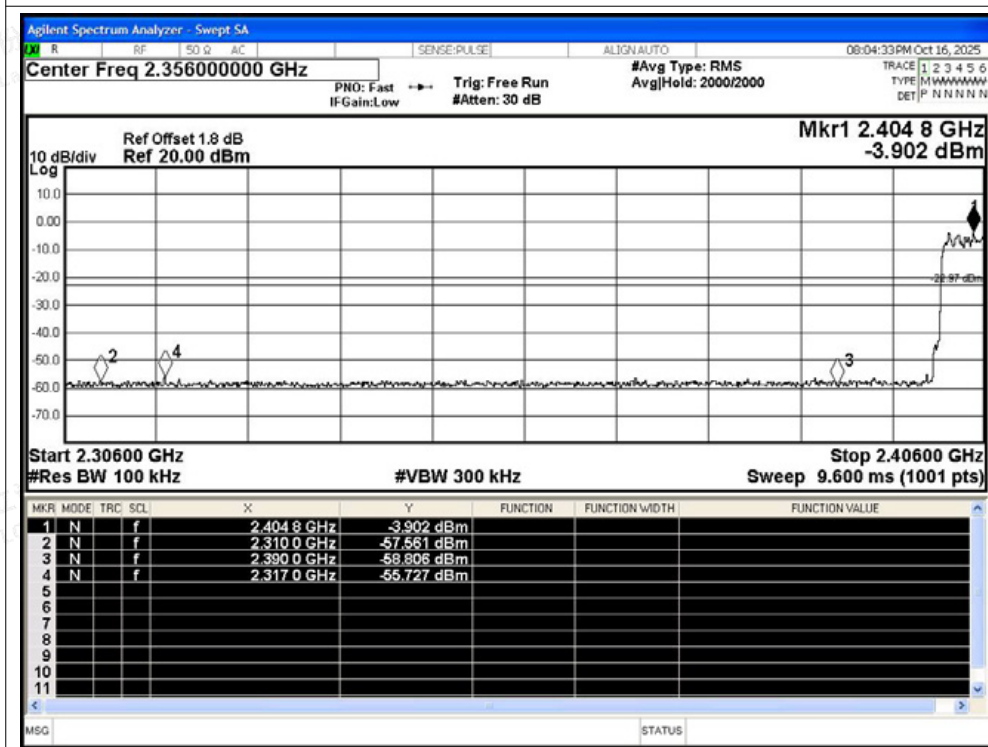




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



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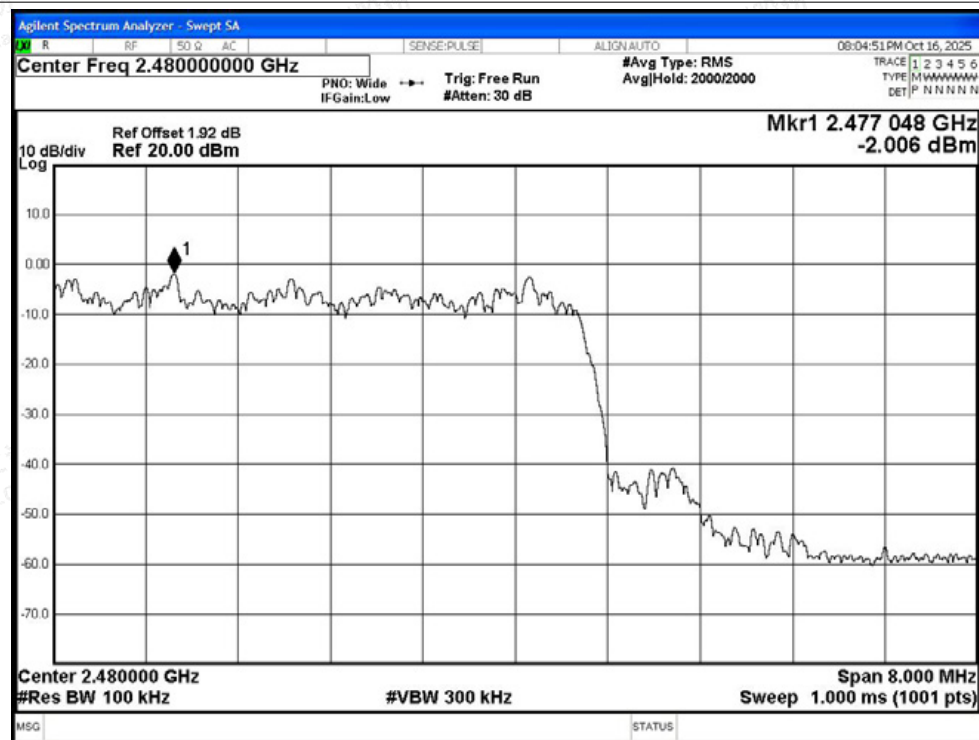
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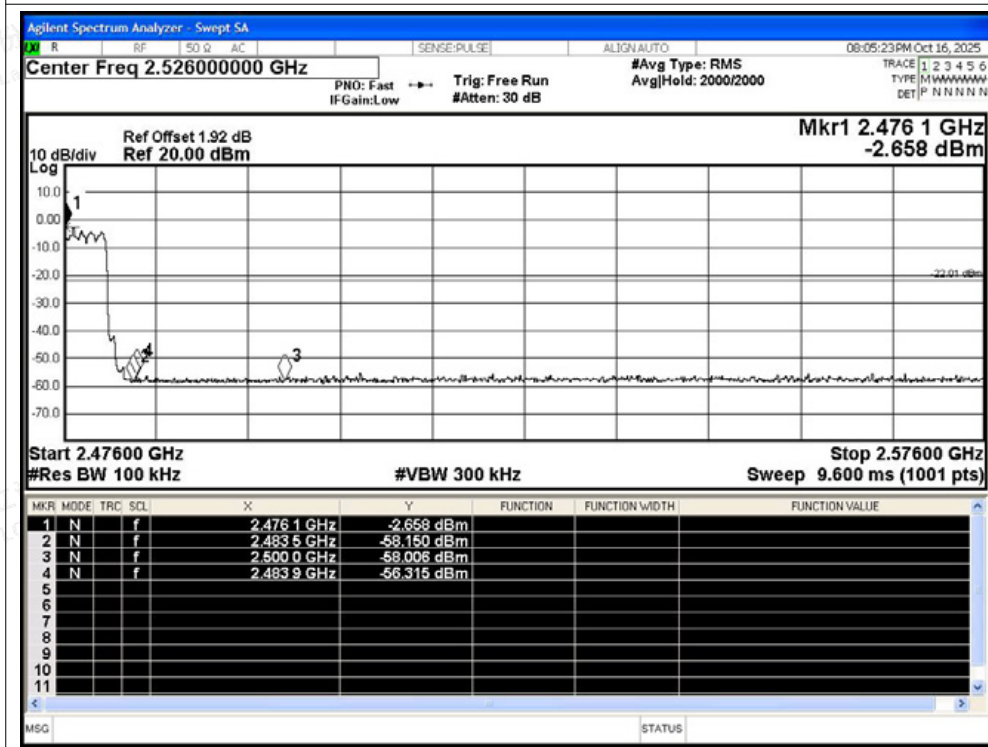
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Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



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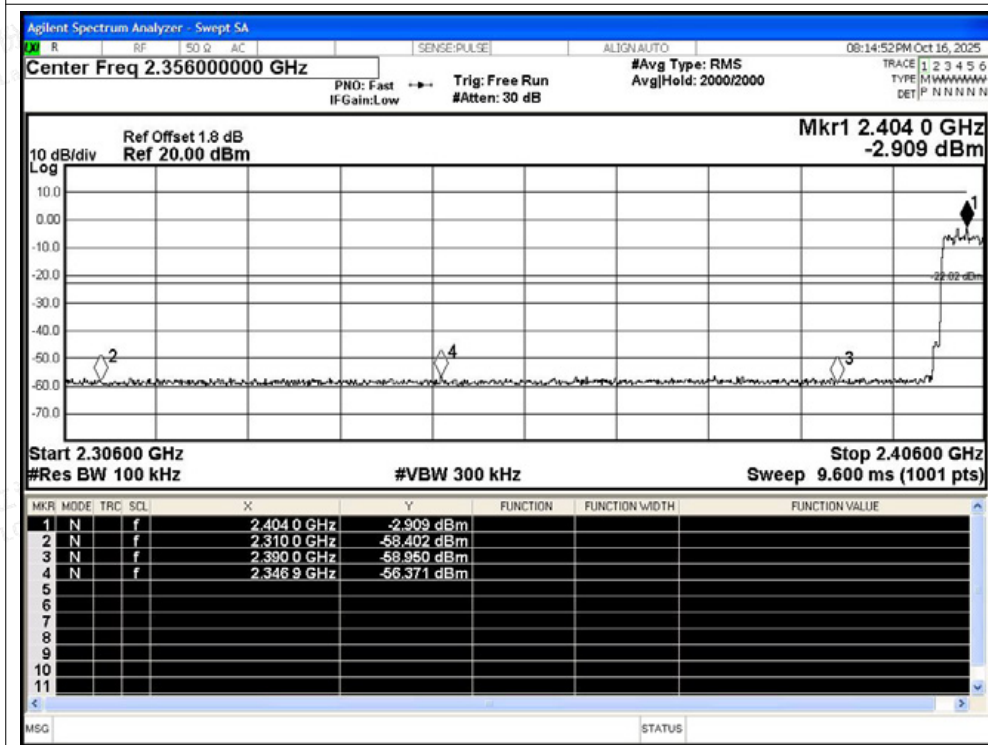
Scan code to check authenticity



Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref

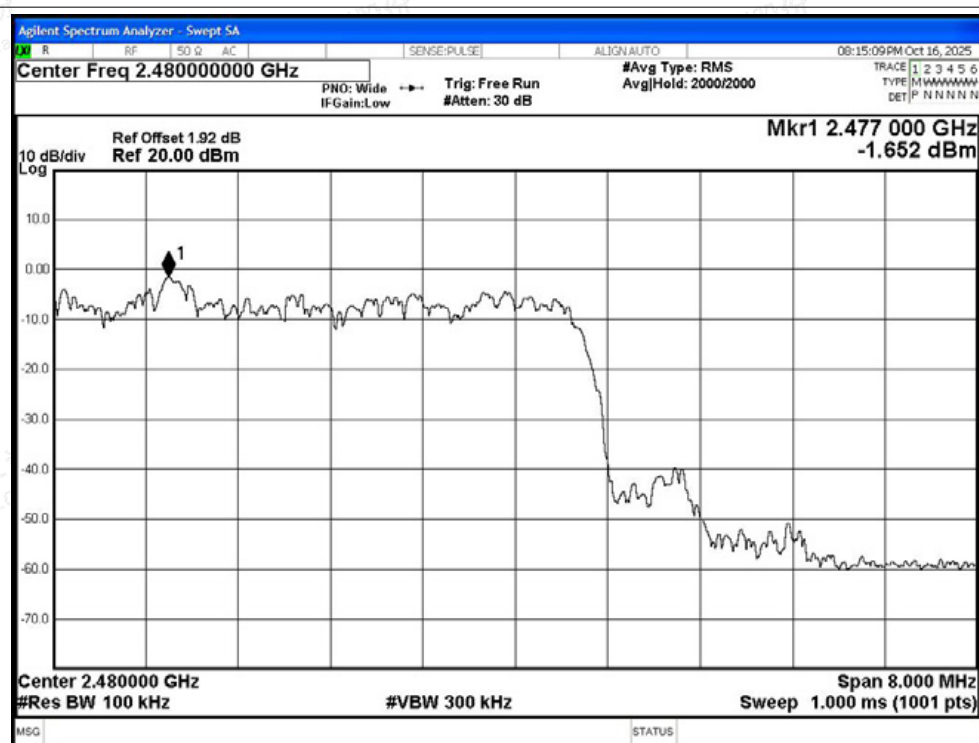


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission

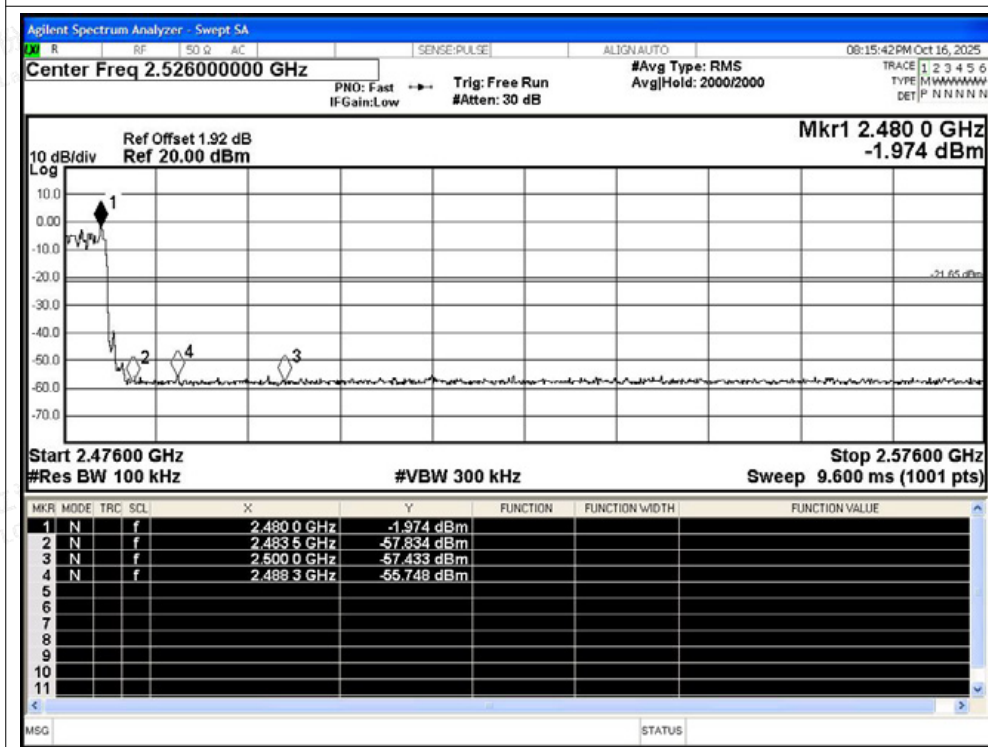




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-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	-54.67	-20	Pass
NVNT	1-DH5	2441	Ant1	-57.52	-20	Pass
NVNT	1-DH5	2480	Ant1	-56.16	-20	Pass
NVNT	2-DH5	2402	Ant1	-54.37	-20	Pass
NVNT	2-DH5	2441	Ant1	-54.83	-20	Pass
NVNT	2-DH5	2480	Ant1	-53.5	-20	Pass
NVNT	3-DH5	2402	Ant1	-55.1	-20	Pass
NVNT	3-DH5	2441	Ant1	-54.81	-20	Pass
NVNT	3-DH5	2480	Ant1	-54.02	-20	Pass



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