



## Appendix A

### RF Test Data for BT (Conducted Measurement)

Product Name: Hyundai Mini PC

Test Model: HMB10P01

#### Environmental Conditions

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





### A.1 -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant	0.861	N/A	Pass
NVNT	1-DH5	2441	Ant	0.86	N/A	Pass
NVNT	1-DH5	2480	Ant	0.911	N/A	Pass
NVNT	2-DH5	2402	Ant	1.275	N/A	Pass
NVNT	2-DH5	2441	Ant	1.31	N/A	Pass
NVNT	2-DH5	2480	Ant	1.283	N/A	Pass
NVNT	3-DH5	2402	Ant	1.306	N/A	Pass
NVNT	3-DH5	2441	Ant	1.314	N/A	Pass
NVNT	3-DH5	2480	Ant	1.293	N/A	Pass



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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity

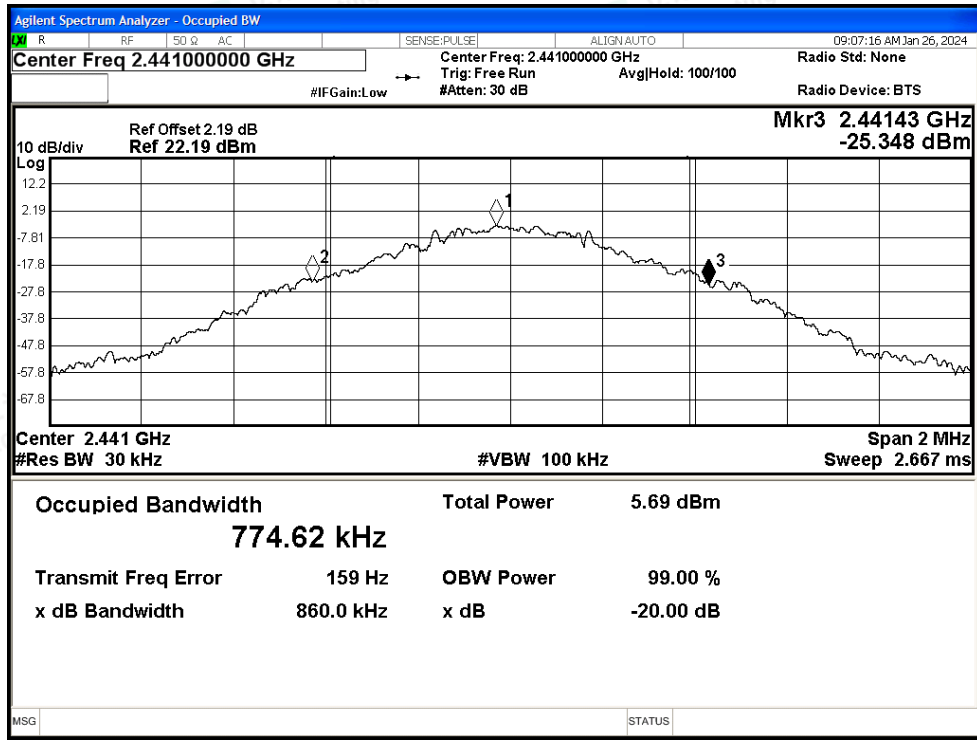


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant

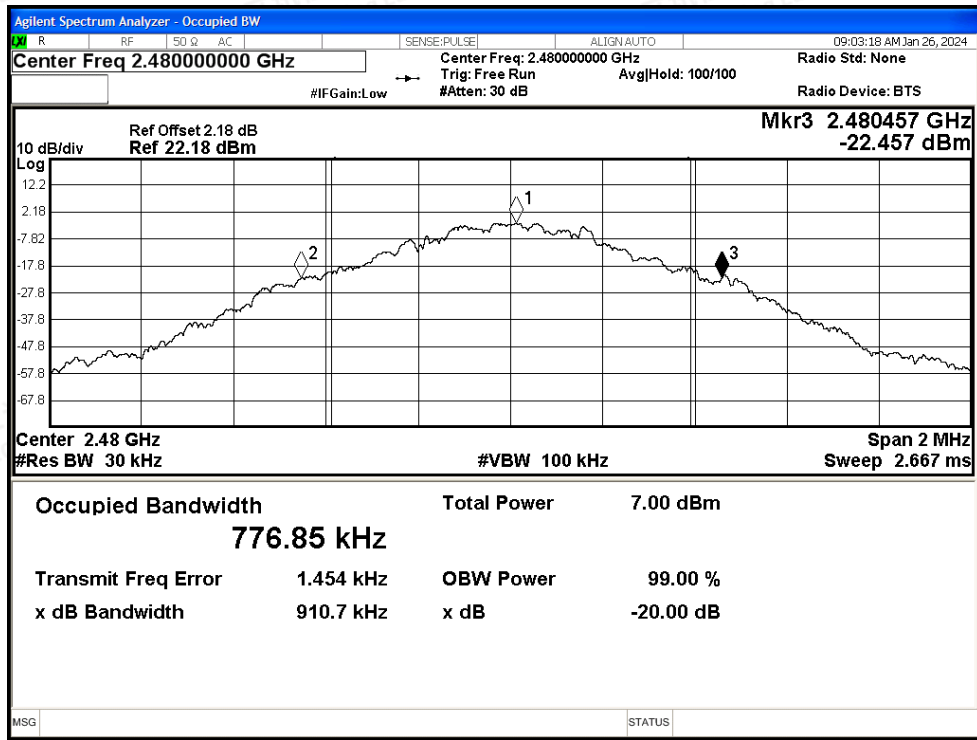


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant

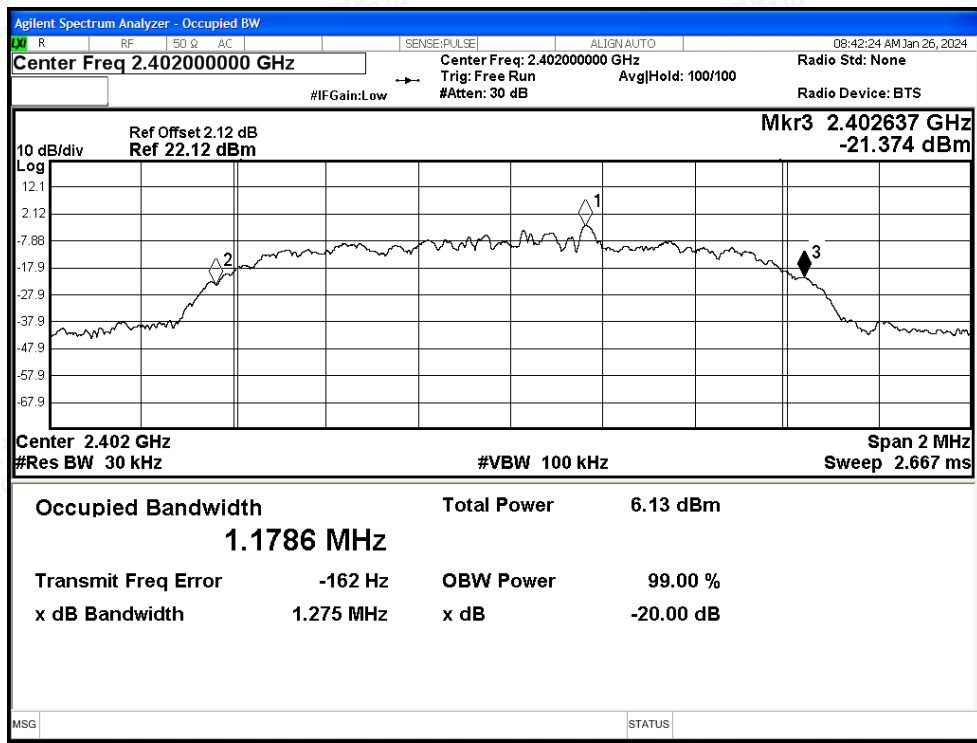




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant

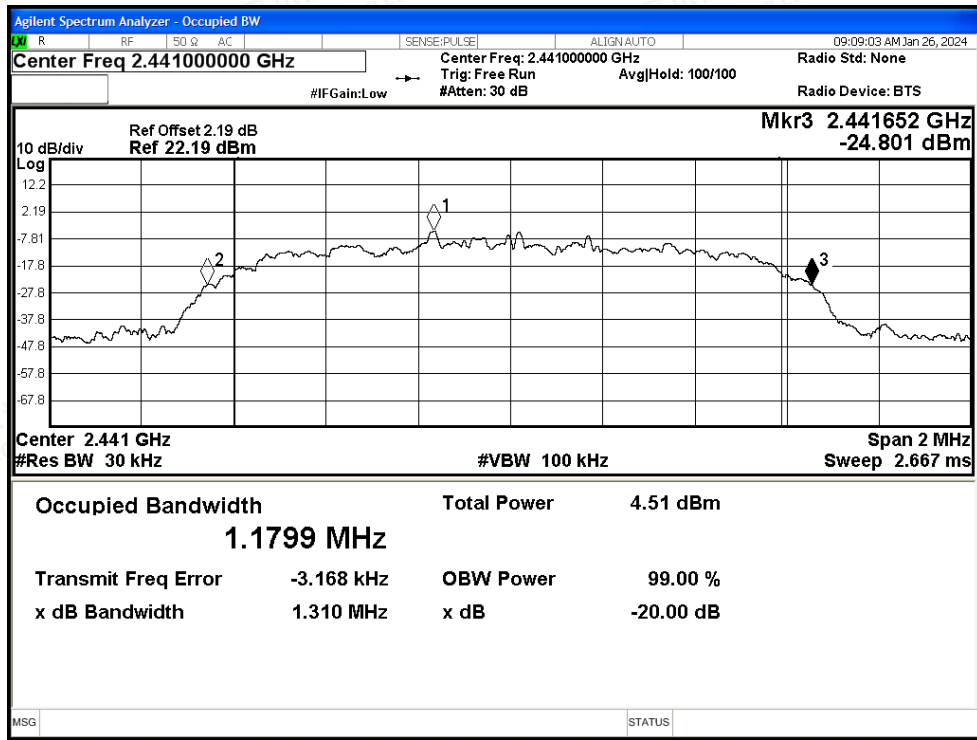


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant

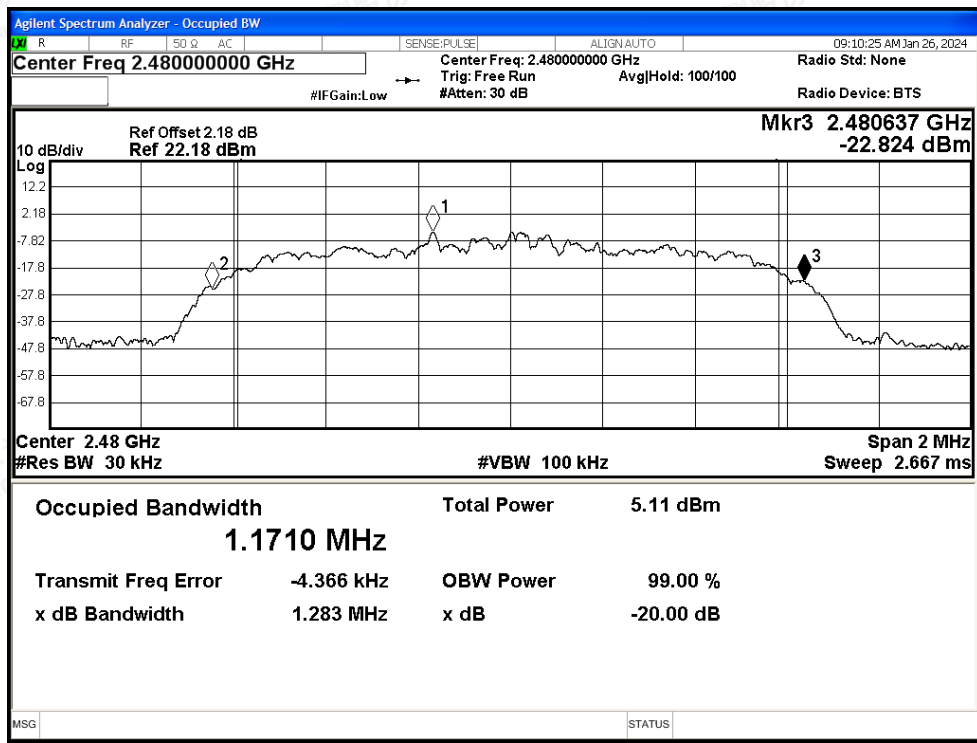




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant

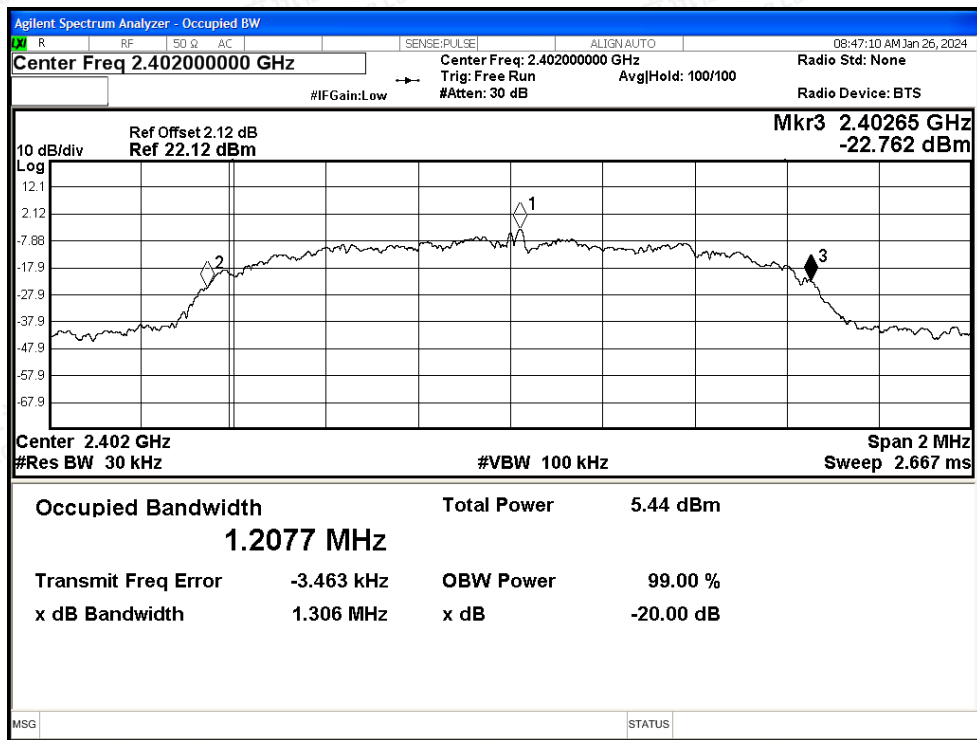


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant



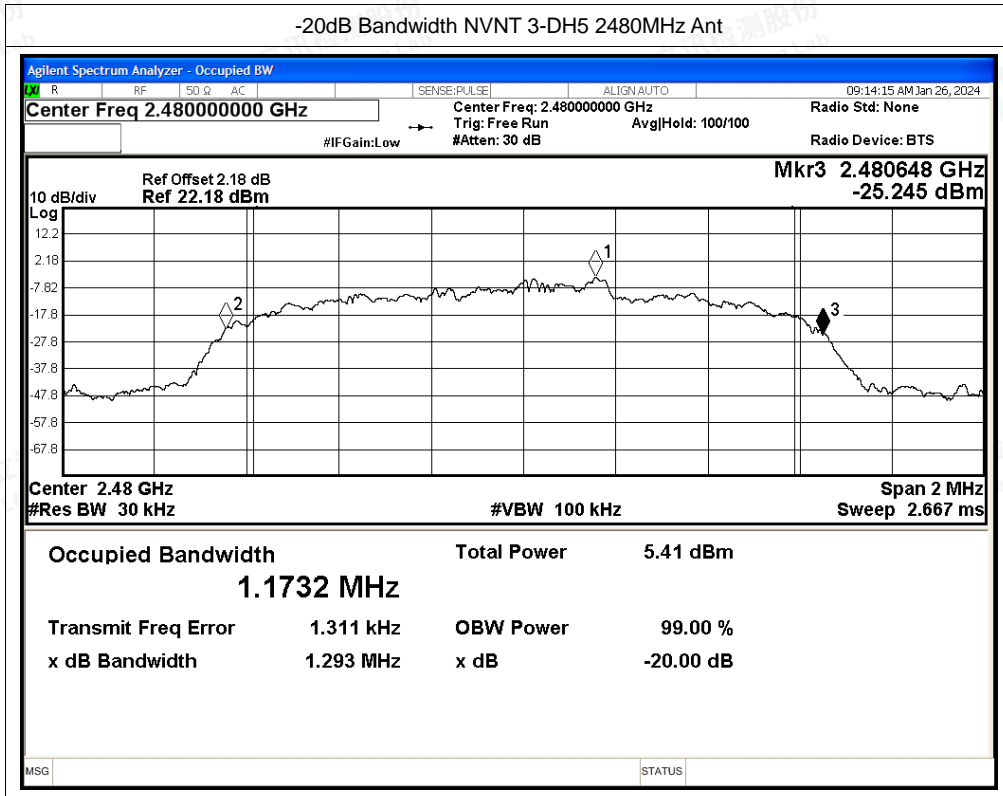


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant







## A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant	0.19	21	Pass
NVNT	1-DH5	2441	Ant	-0.13	21	Pass
NVNT	1-DH5	2480	Ant	1.1	21	Pass
NVNT	2-DH5	2402	Ant	1.19	21	Pass
NVNT	2-DH5	2441	Ant	-0.11	21	Pass
NVNT	2-DH5	2480	Ant	0.3	21	Pass
NVNT	3-DH5	2402	Ant	1.23	21	Pass
NVNT	3-DH5	2441	Ant	-0.03	21	Pass
NVNT	3-DH5	2480	Ant	0.35	21	Pass



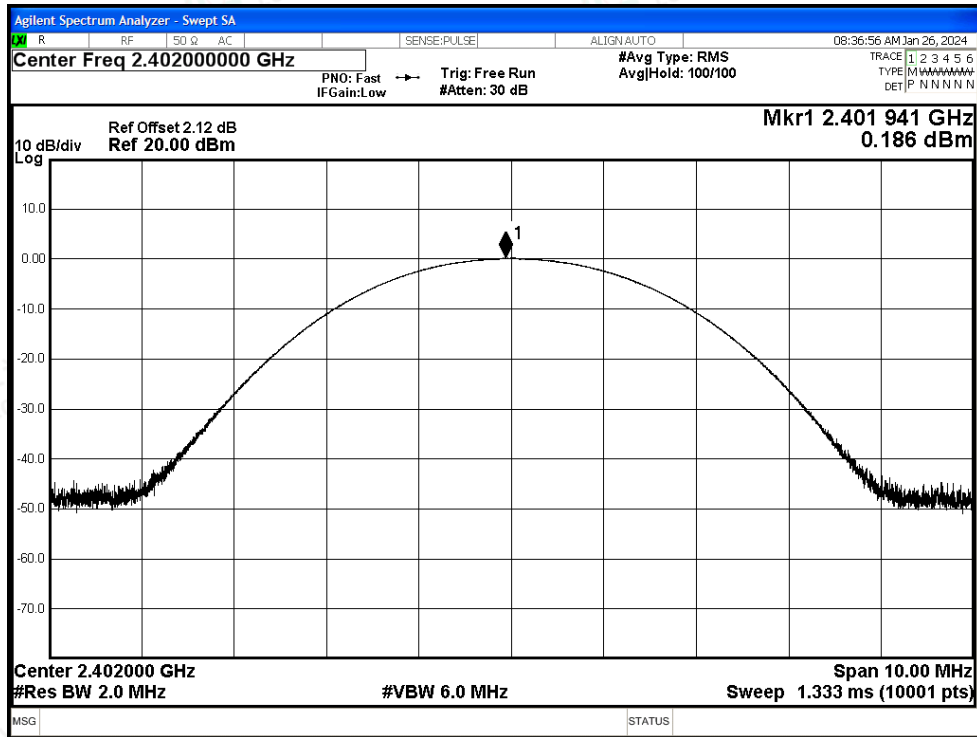
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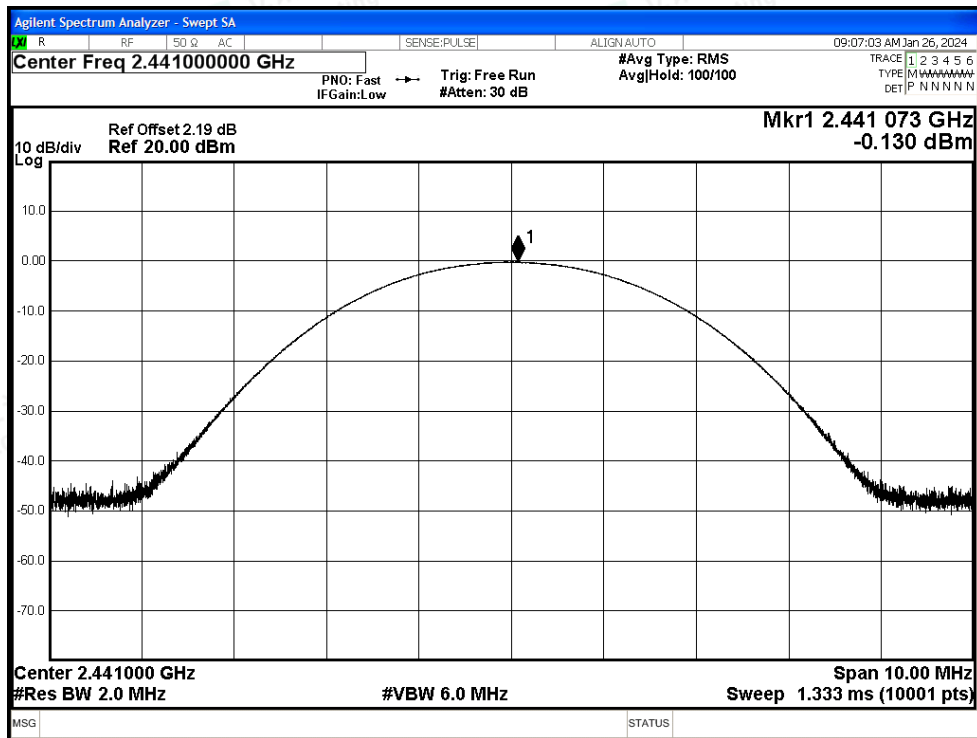


Test Graphs

Power NVNT 1-DH5 2402MHz Ant

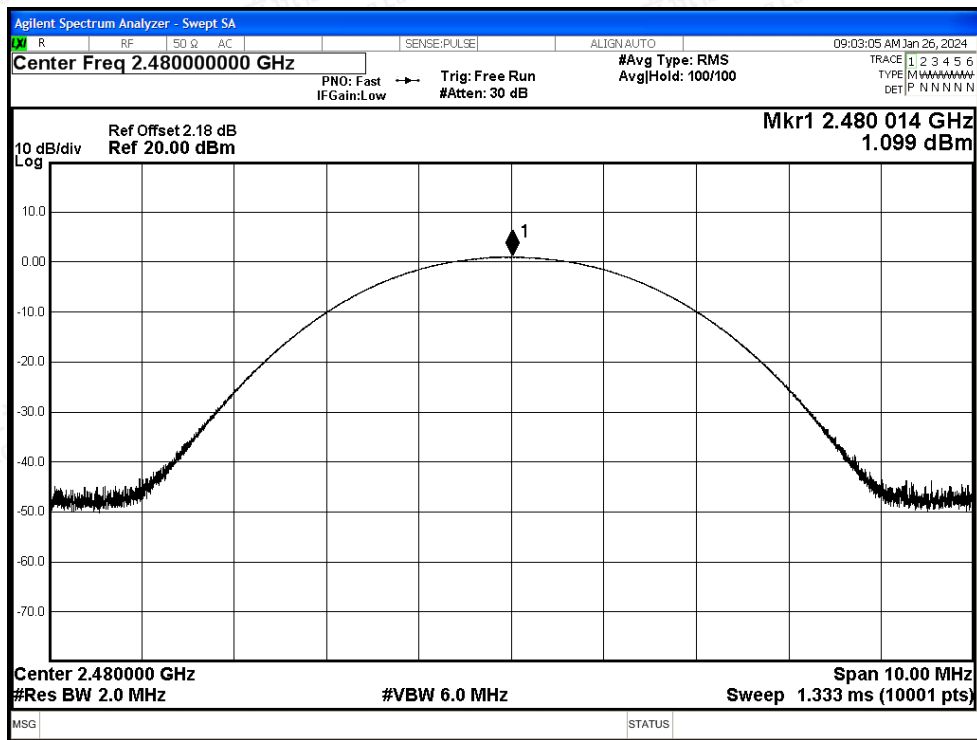


Power NVNT 1-DH5 2441MHz Ant

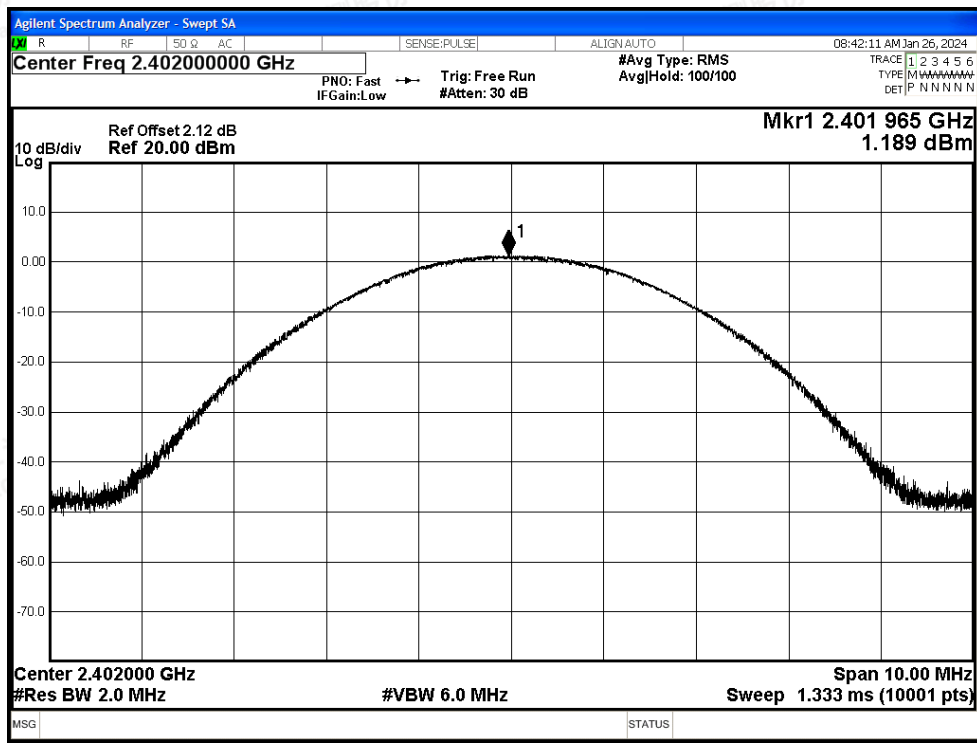




Power NVNT 1-DH5 2480MHz Ant

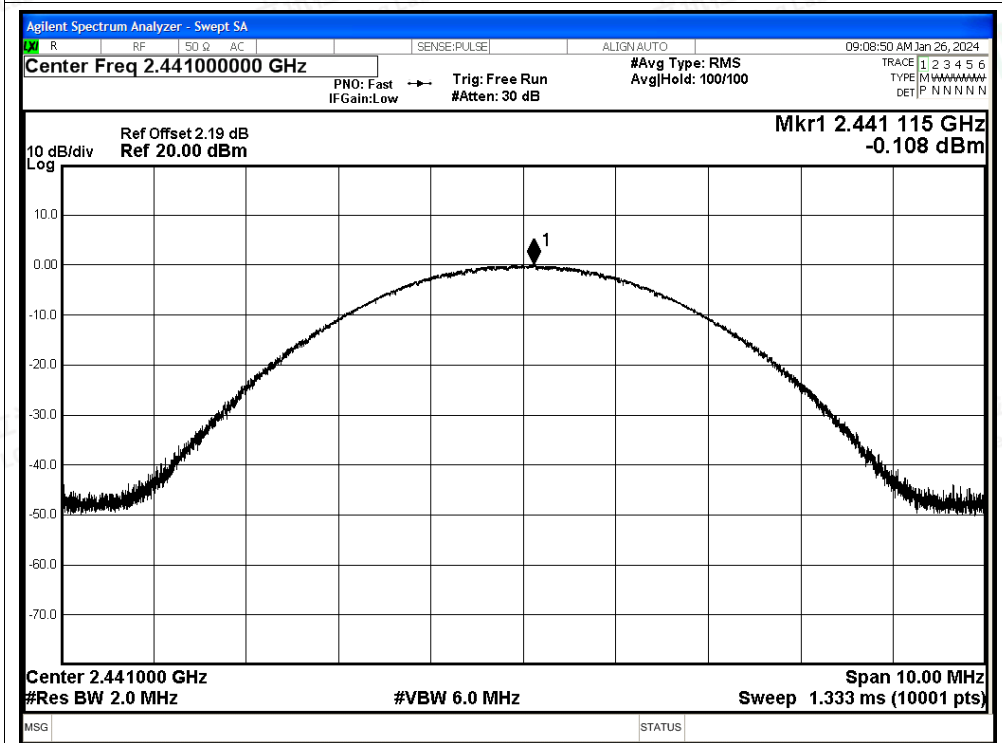


Power NVNT 2-DH5 2402MHz Ant

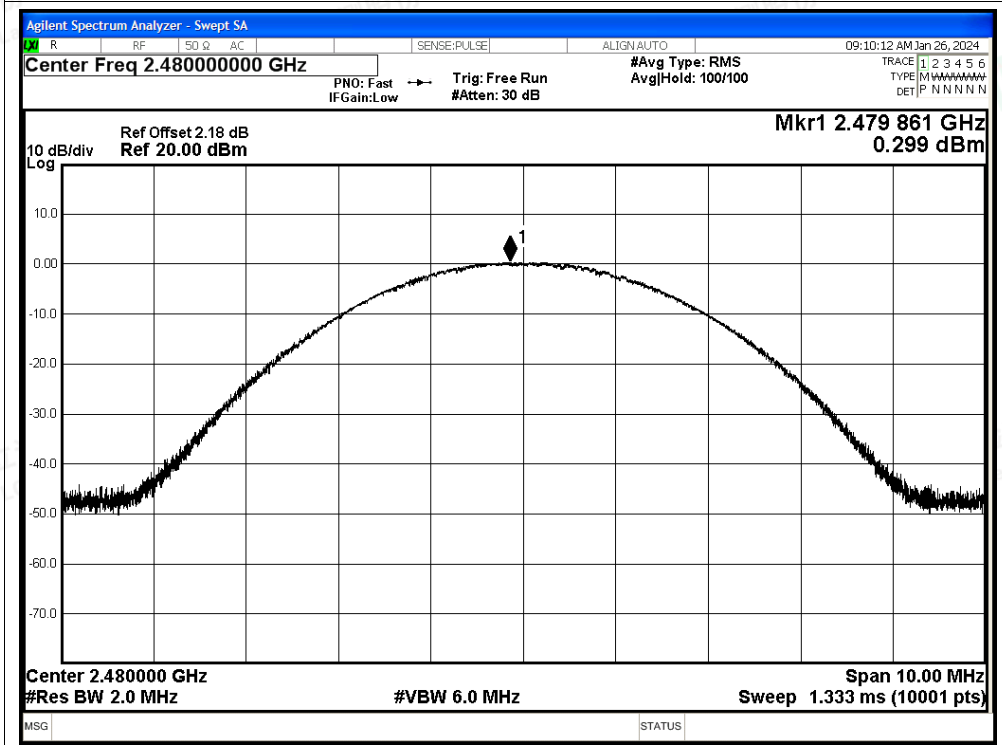




Power NVNT 2-DH5 2441MHz Ant

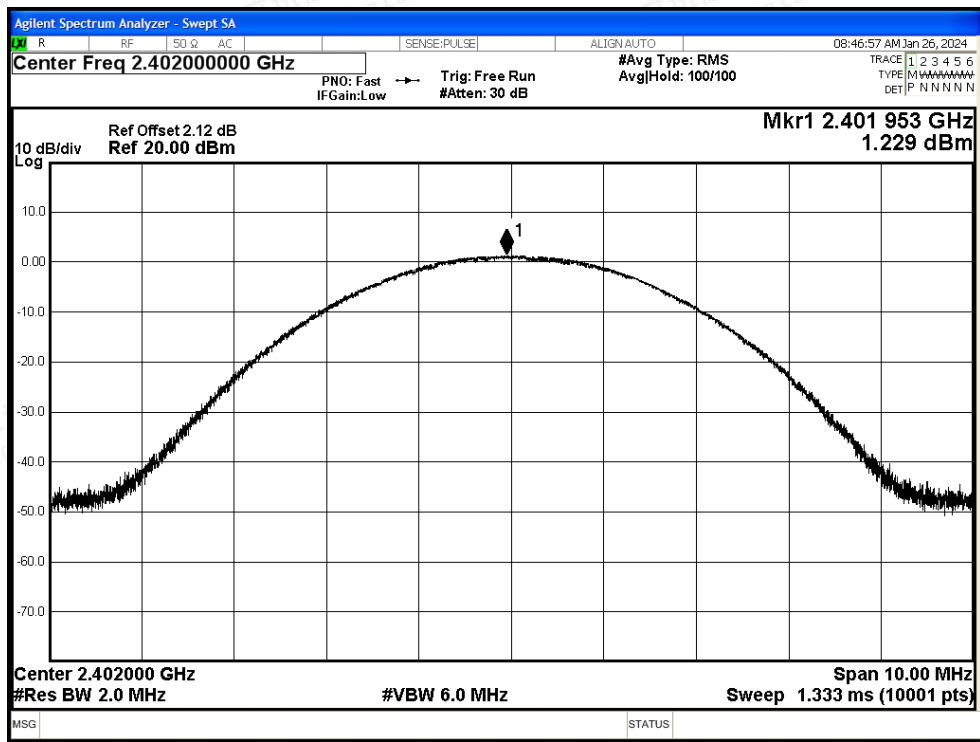


Power NVNT 2-DH5 2480MHz Ant

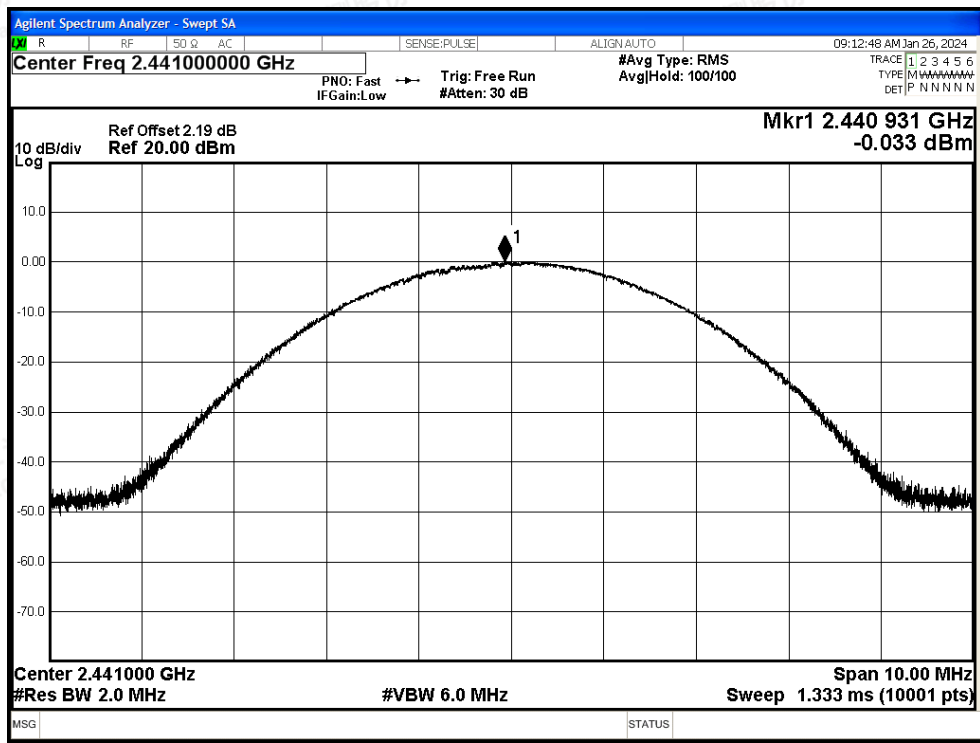




Power NVNT 3-DH5 2402MHz Ant

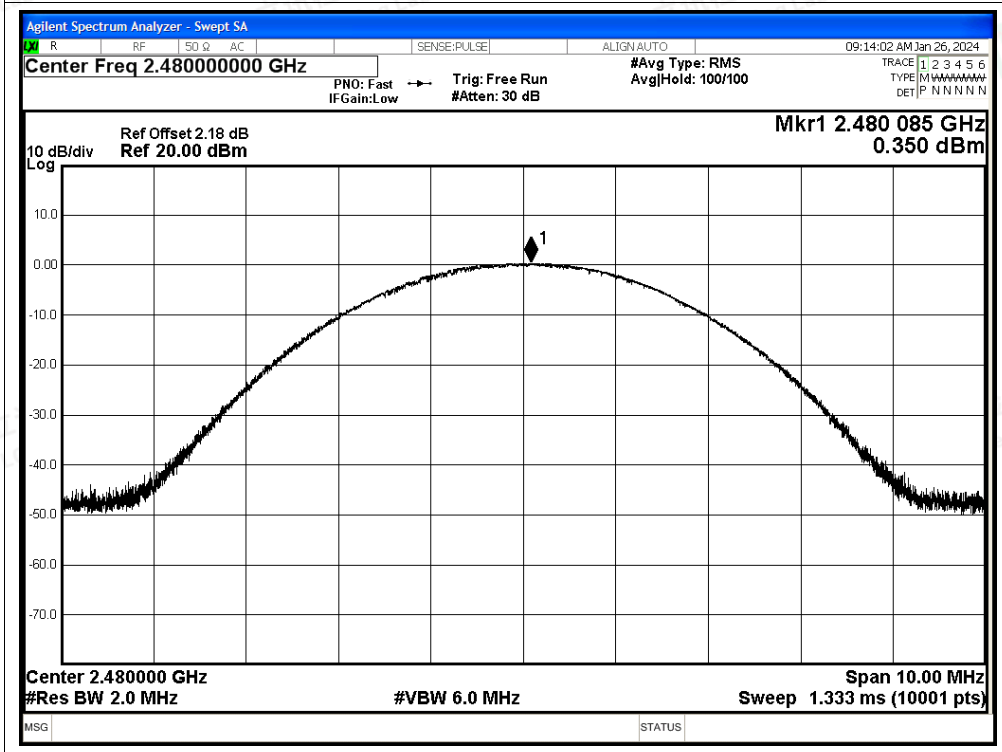


Power NVNT 3-DH5 2441MHz Ant





Power NVNT 3-DH5 2480MHz Ant





### A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant	2402.012	2402.97	0.958	0.607	Pass
NVNT	2-DH5	Ant	2402.01	2403.156	1.146	0.873	Pass
NVNT	3-DH5	Ant	2402.15	2403.168	1.018	0.876	Pass

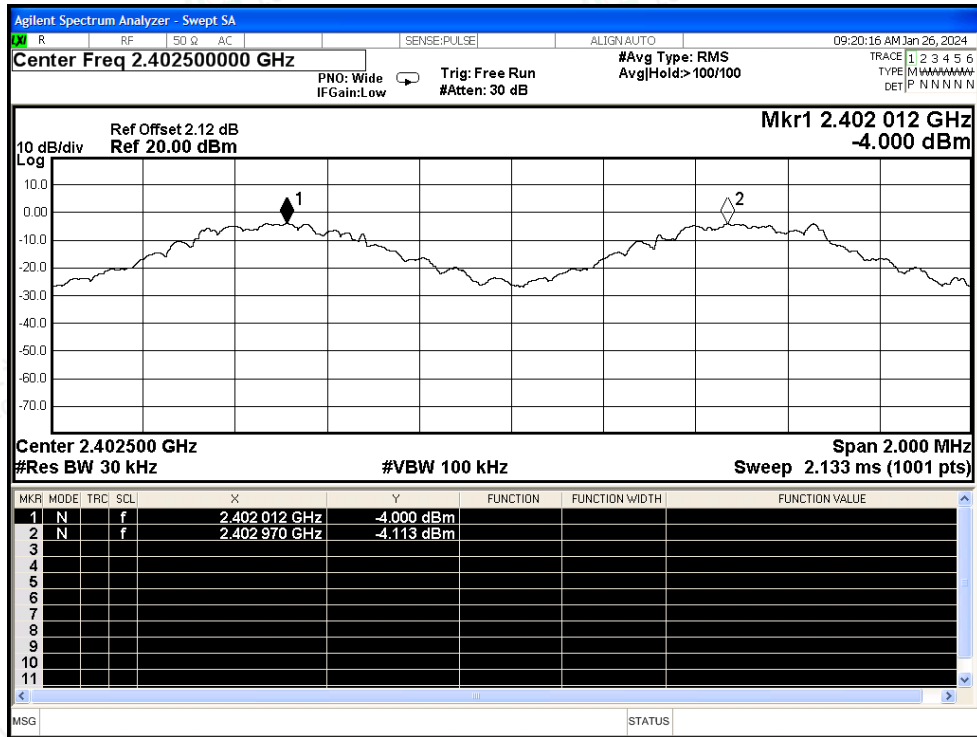


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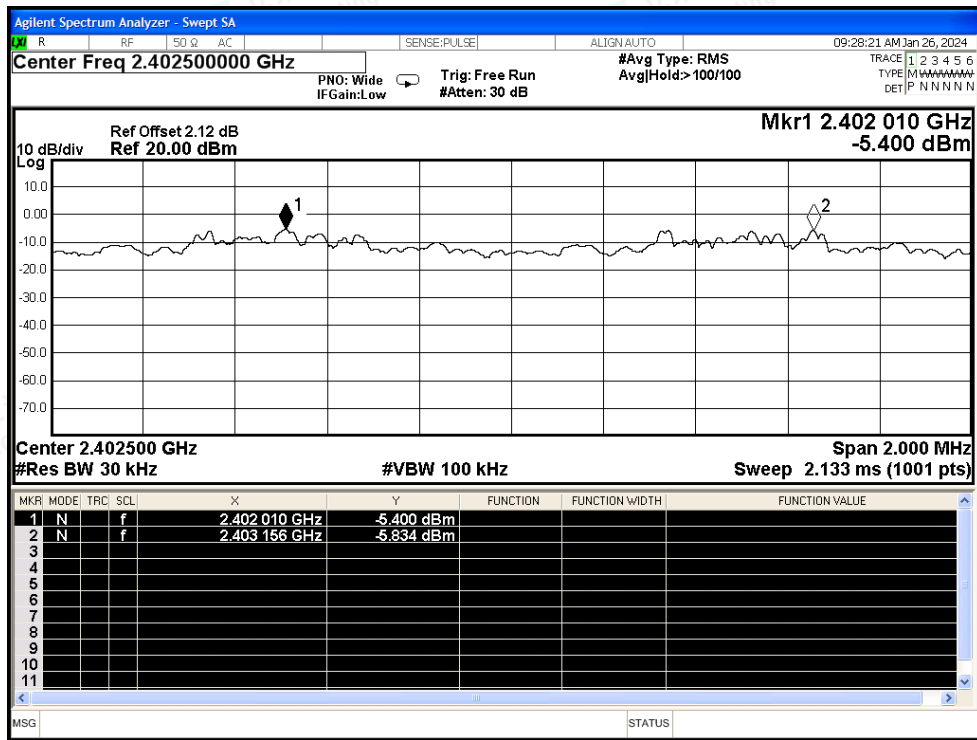


Test Graphs

CFS NVNT 1-DH5 2402MHz Ant

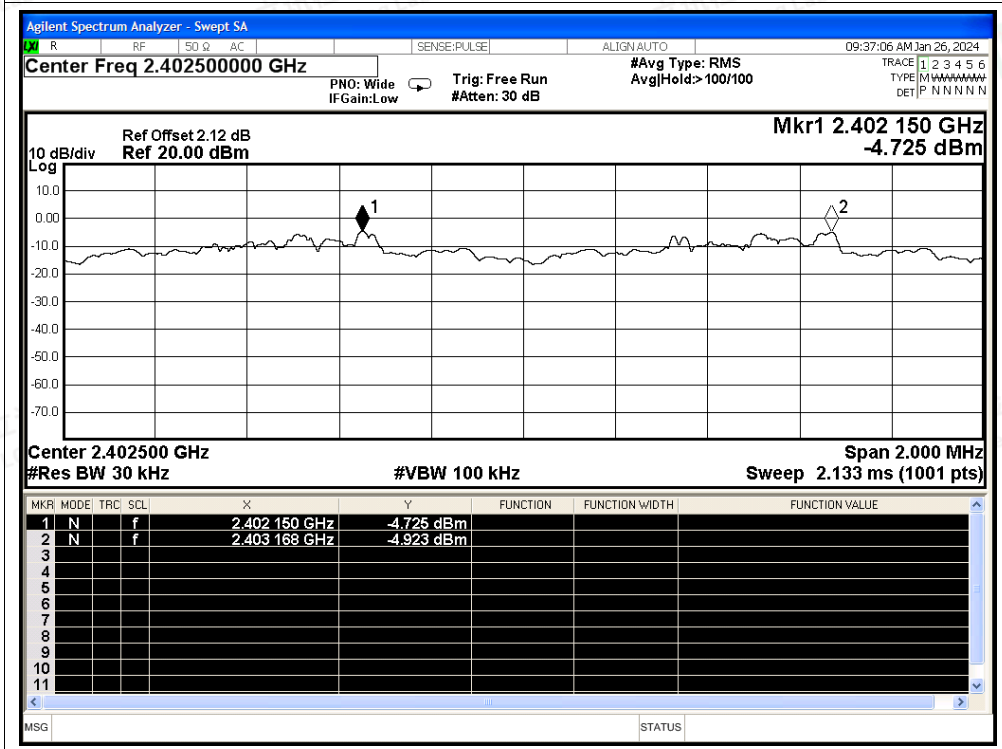


CFS NVNT 2-DH5 2402MHz Ant





CFS NVNT 3-DH5 2402MHz Ant







### 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	Ant	2.882	296.846	103	31600	400	Pass
NVNT	2-DH5	2402	Ant	2.881	302.505	105	31600	400	Pass
NVNT	3-DH5	2402	Ant	2.888	285.912	99	31600	400	Pass

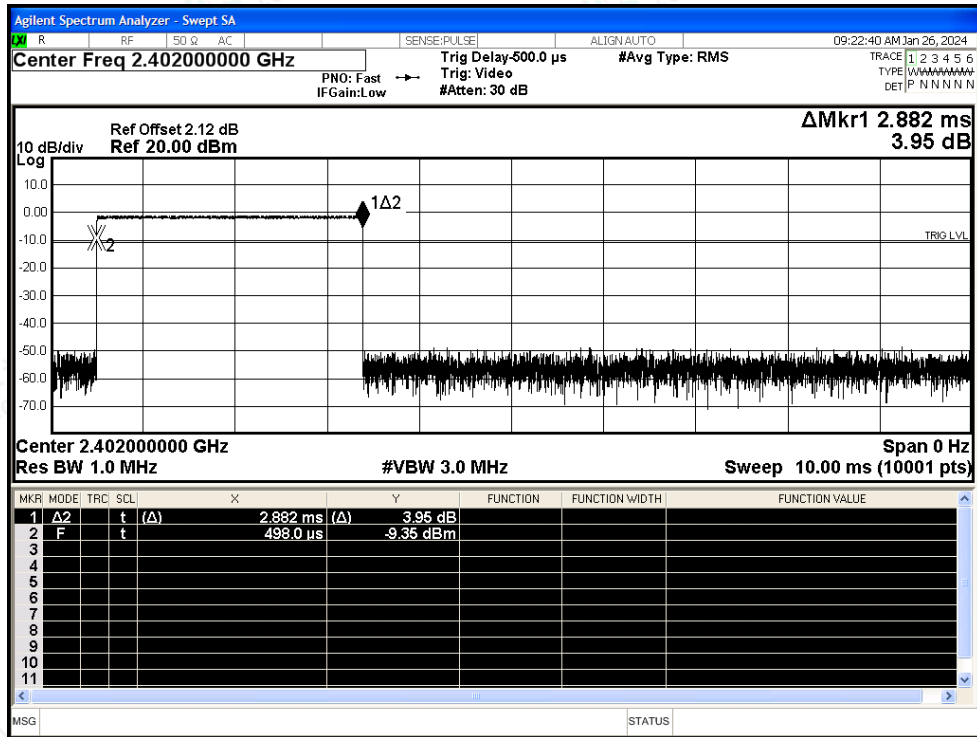


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Scan code to check authenticity

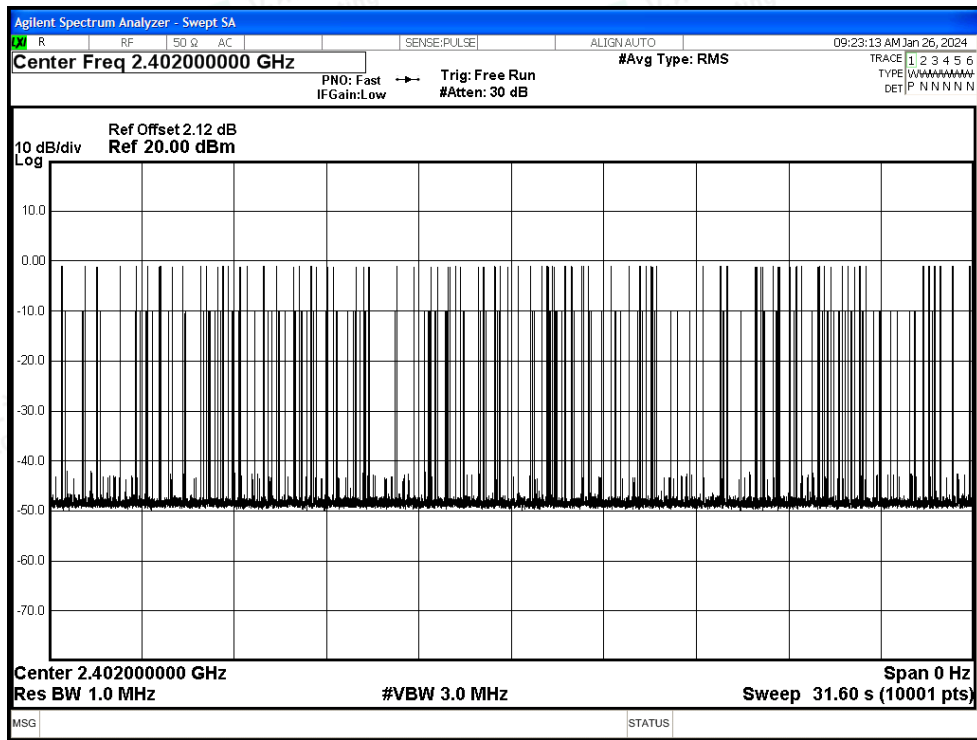


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant One Burst

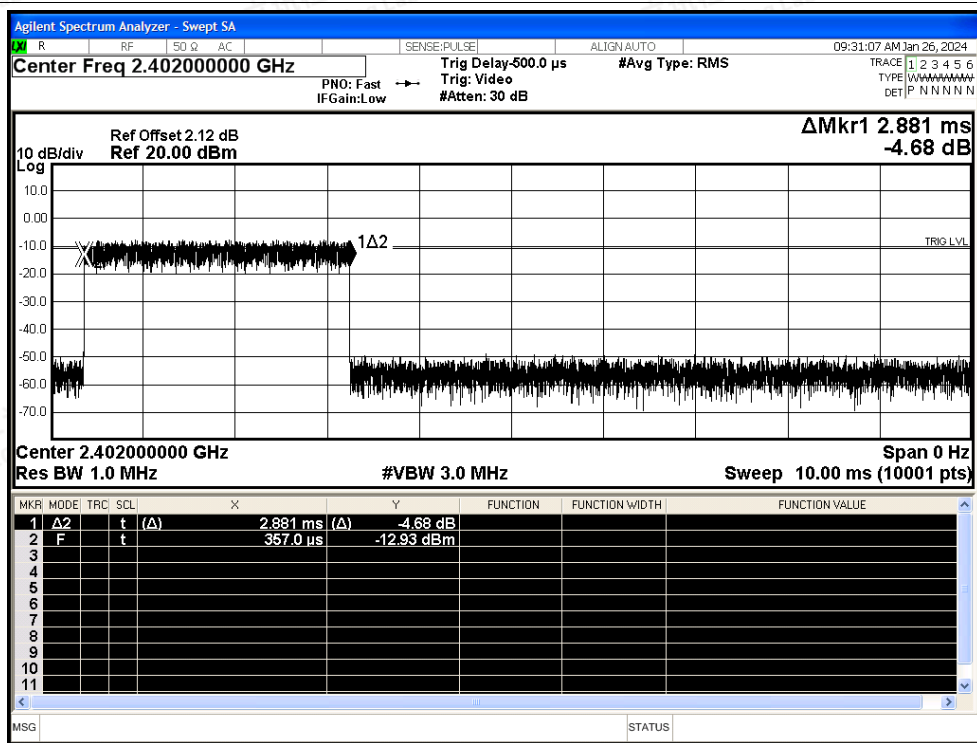


Dwell NVNT 1-DH5 2402MHz Ant Accumulated

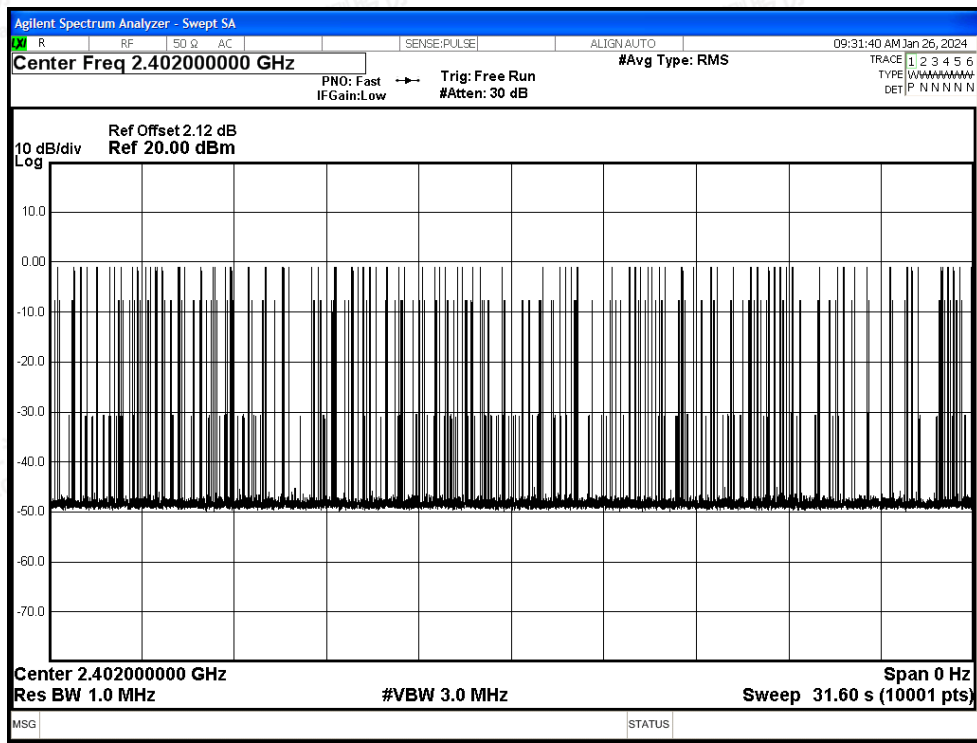




Dwell NVNT 2-DH5 2402MHz Ant One Burst

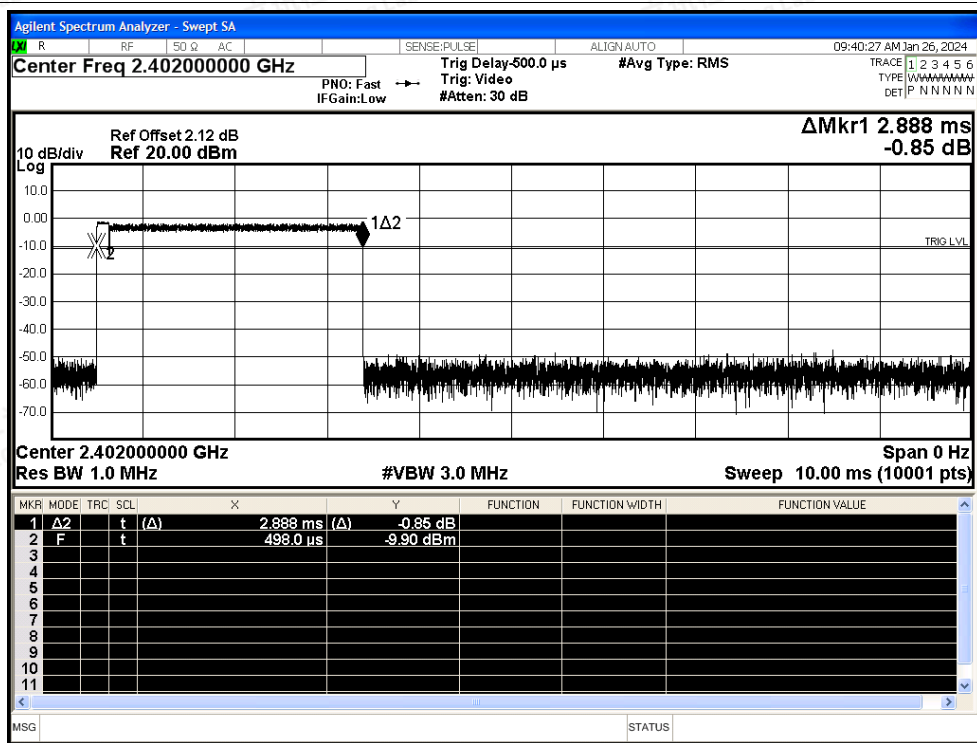


Dwell NVNT 2-DH5 2402MHz Ant Accumulated

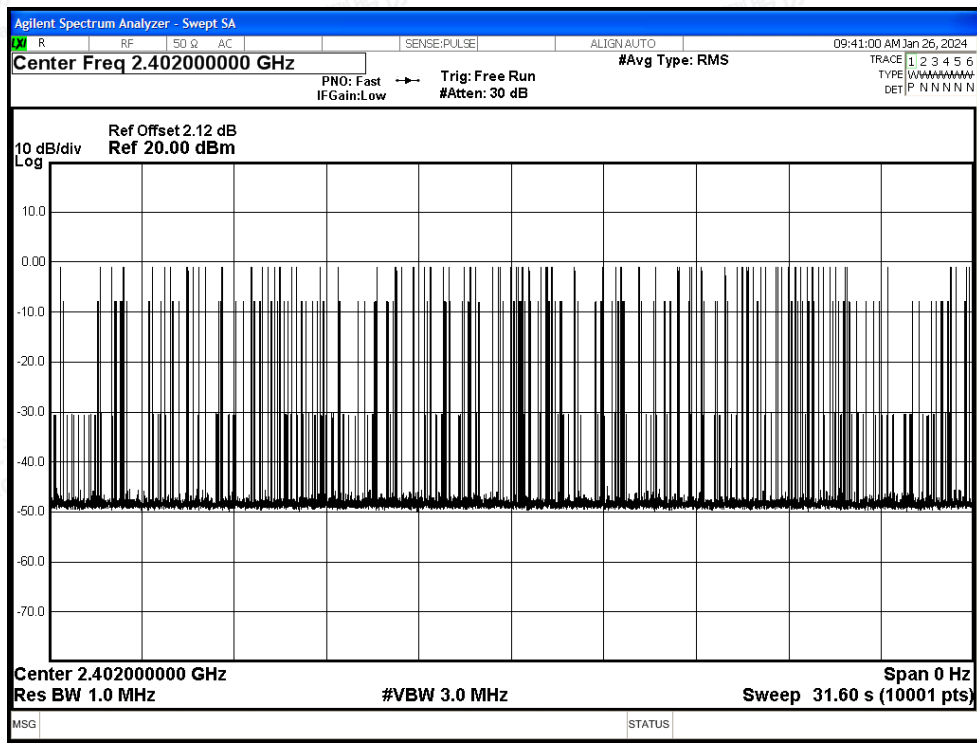




Dwell NVNT 3-DH5 2402MHz Ant One Burst



Dwell NVNT 3-DH5 2402MHz Ant Accumulated





## A.5 Number of Hopping Channel

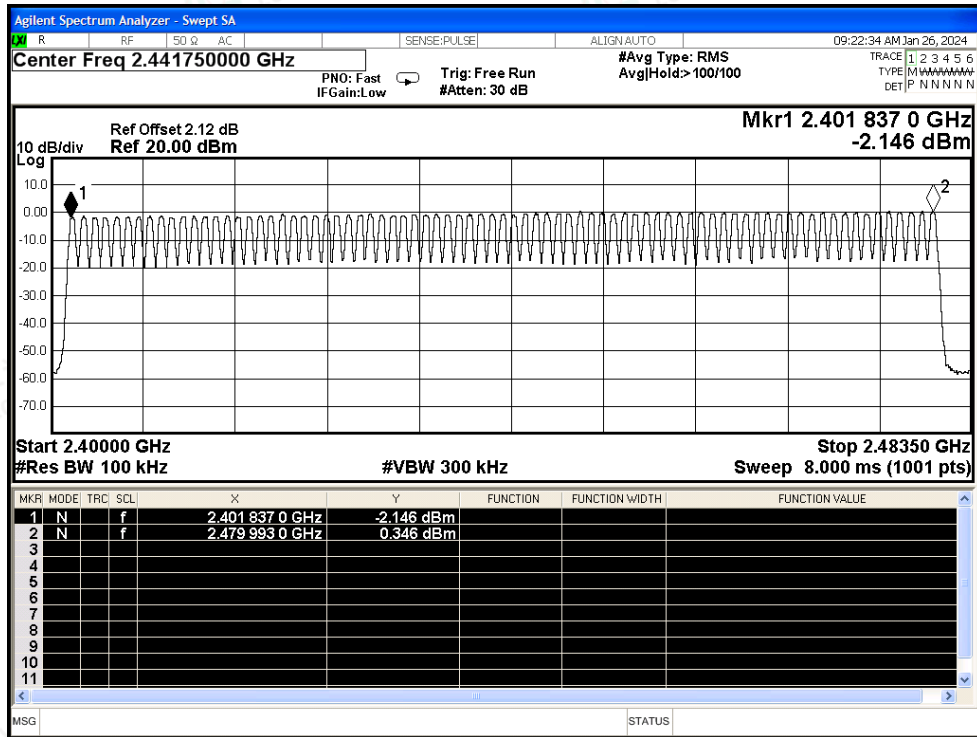
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant	79	15	Pass
NVNT	2-DH5	Ant	79	15	Pass
NVNT	3-DH5	Ant	79	15	Pass



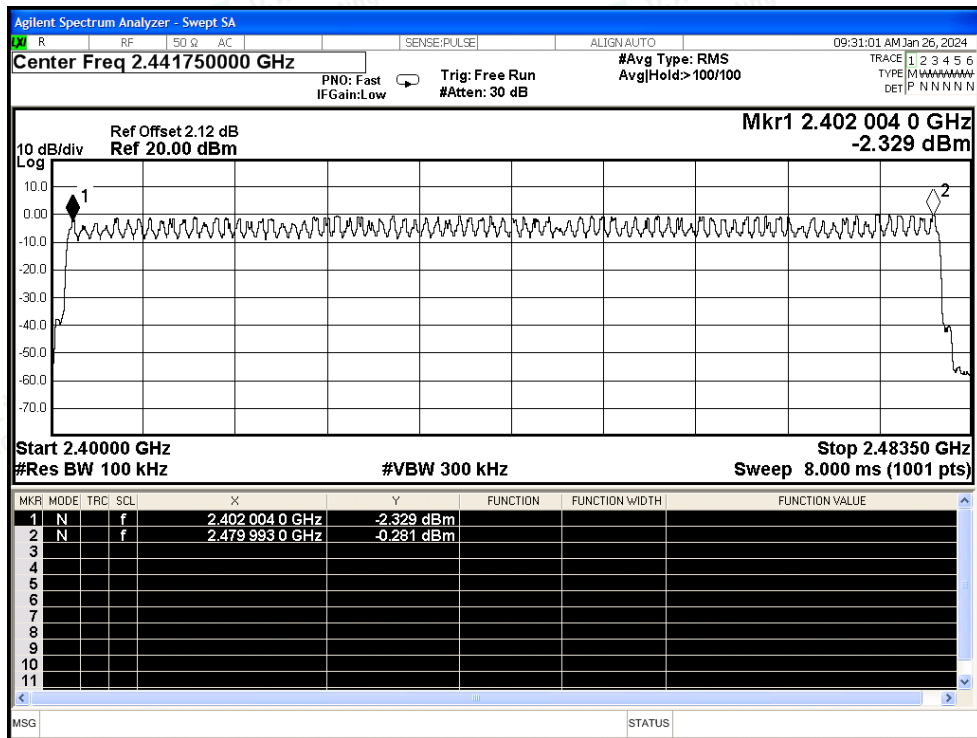


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant

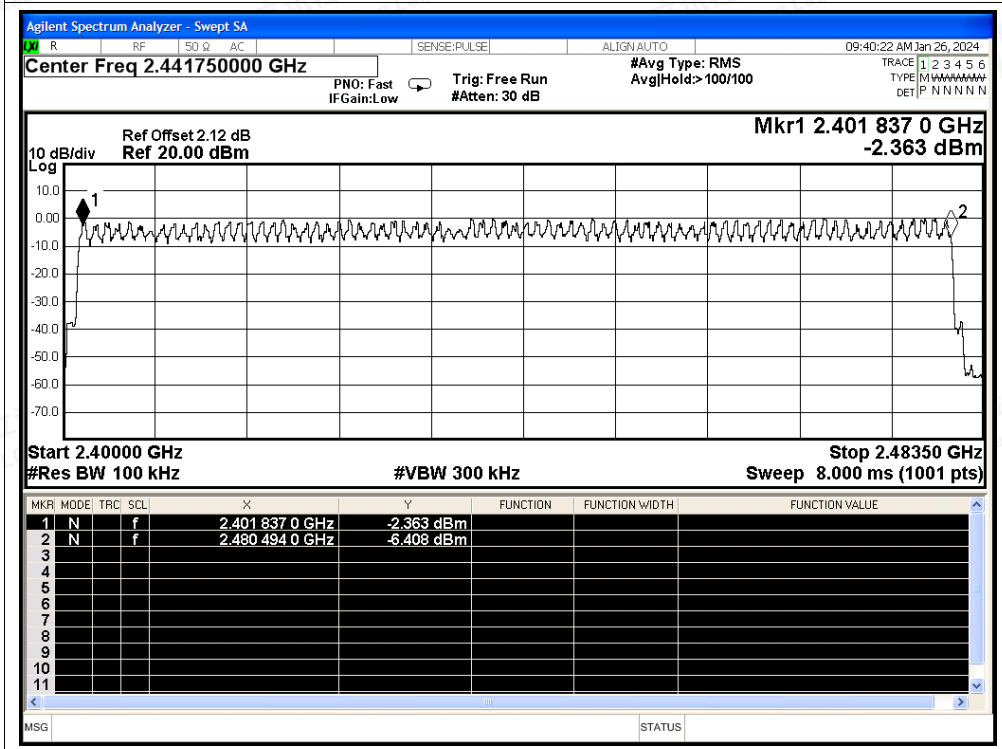


Hopping No. NVNT 2-DH5 2402MHz Ant





Hopping No. NVNT 3-DH5 2402MHz Ant





## A.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	-56.31	-20	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	-57.81	-20	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	-52.57	-20	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	-51.63	-20	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	-52.33	-20	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	-54.07	-20	Pass

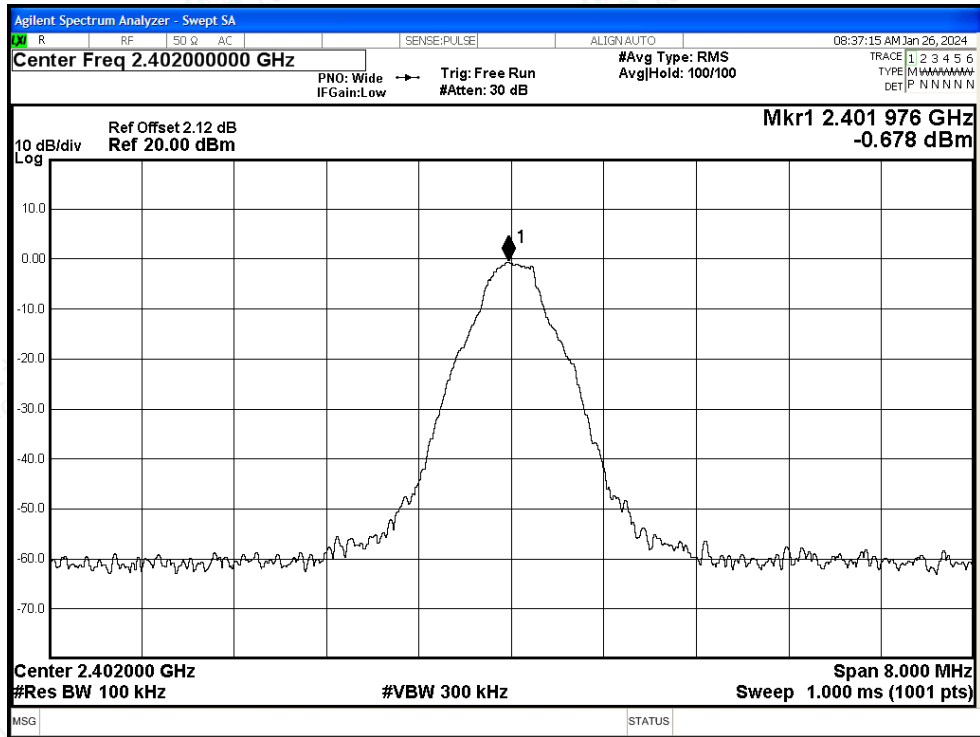




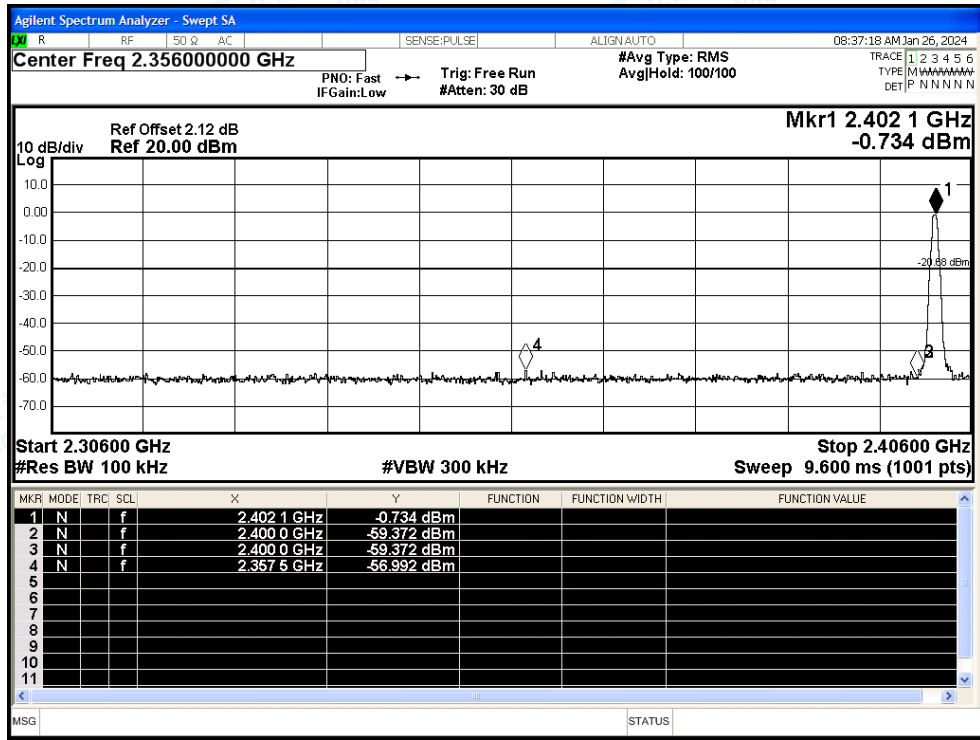


Test Graphs

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



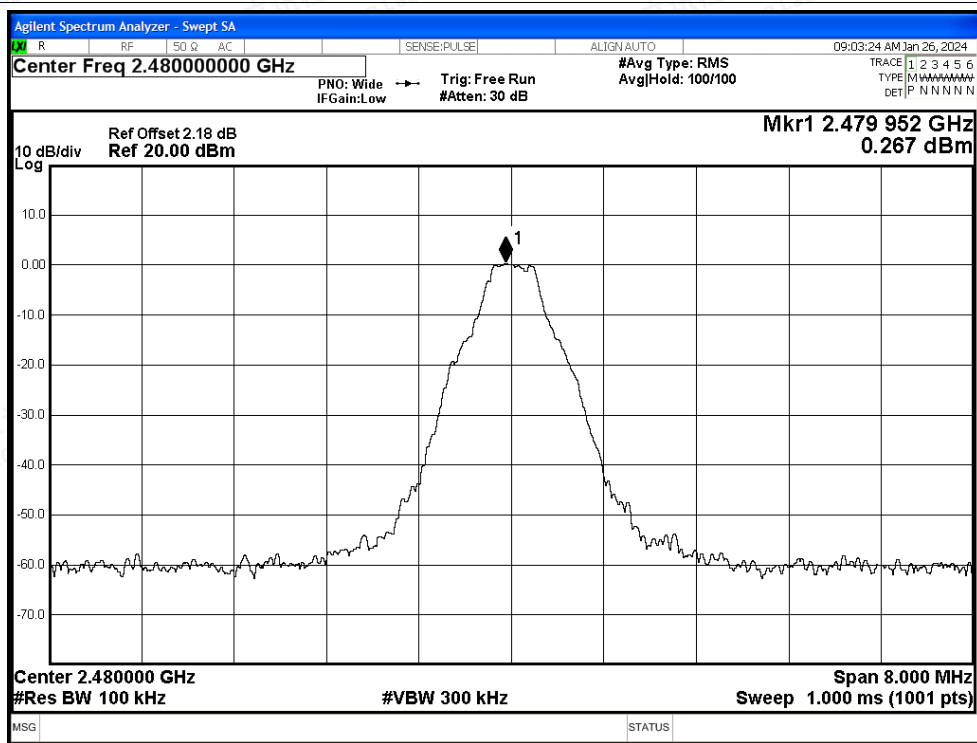
Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Emission



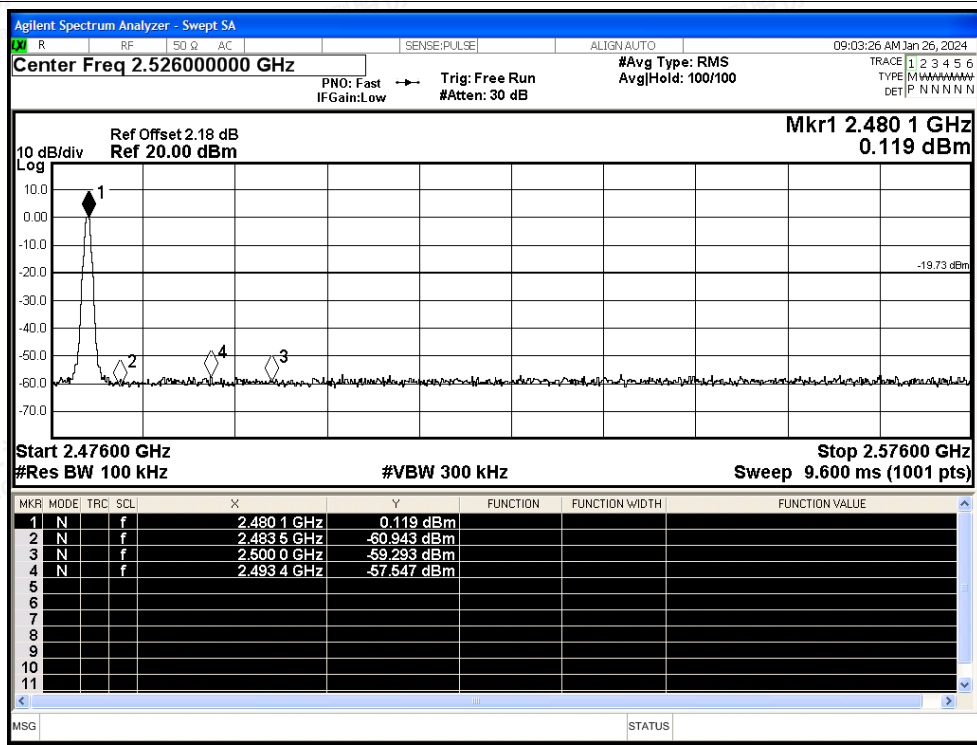
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Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Ref

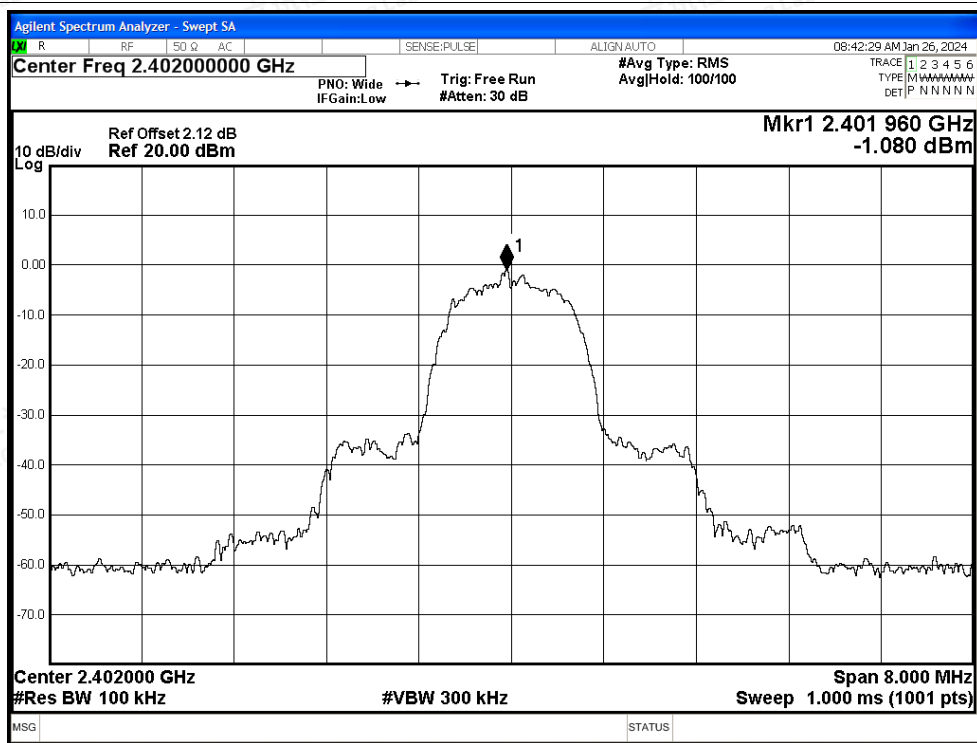


Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Emission

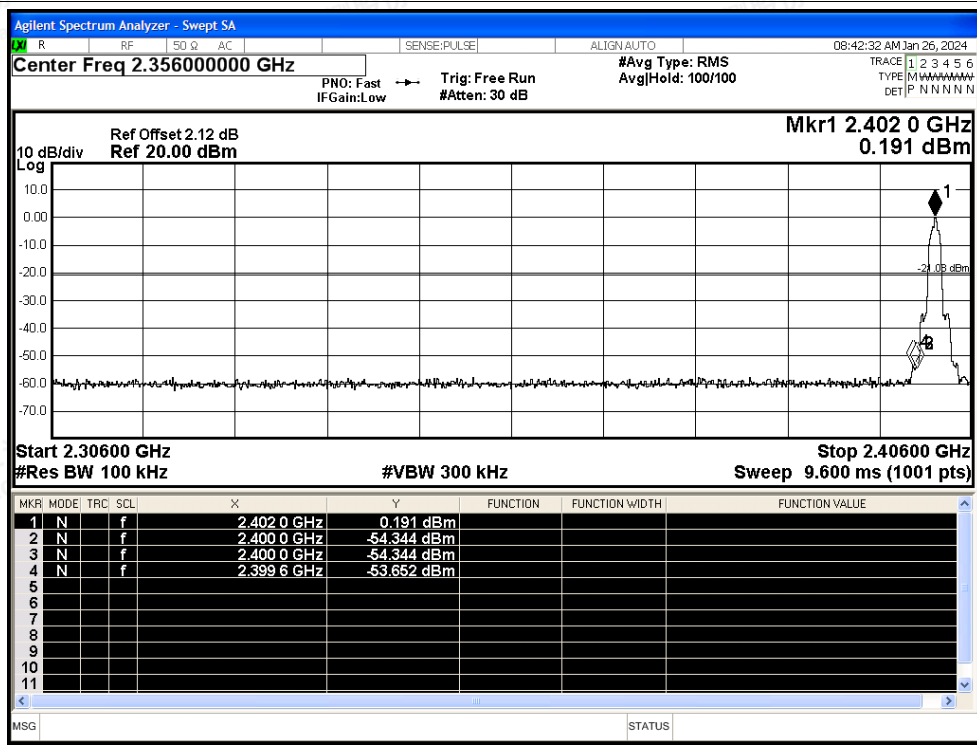




Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Ref

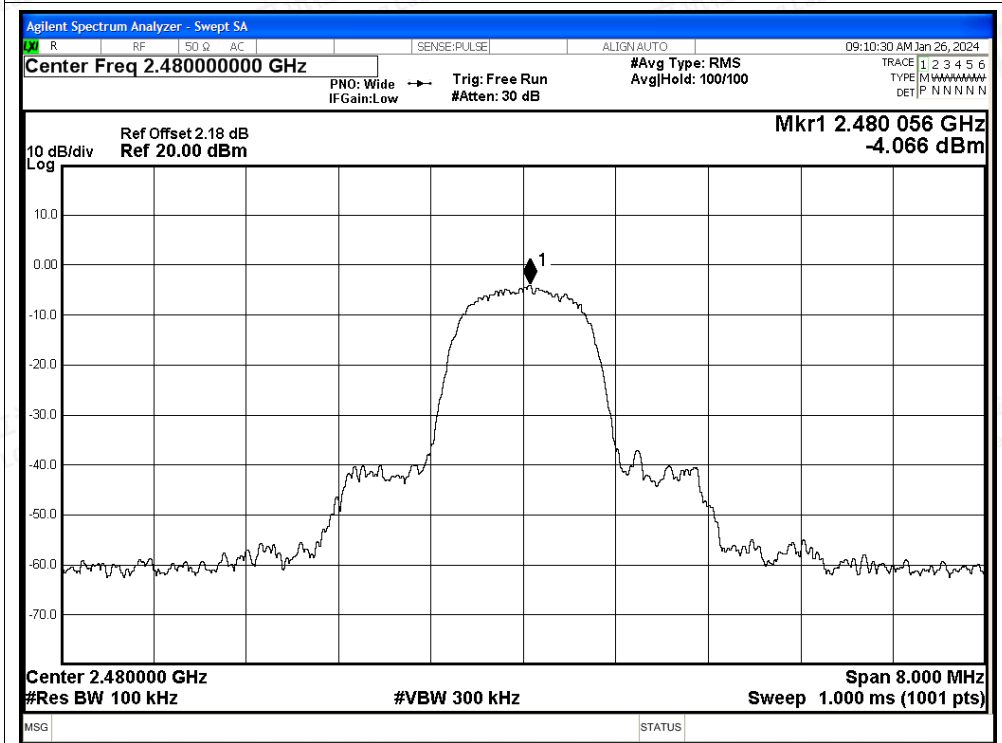


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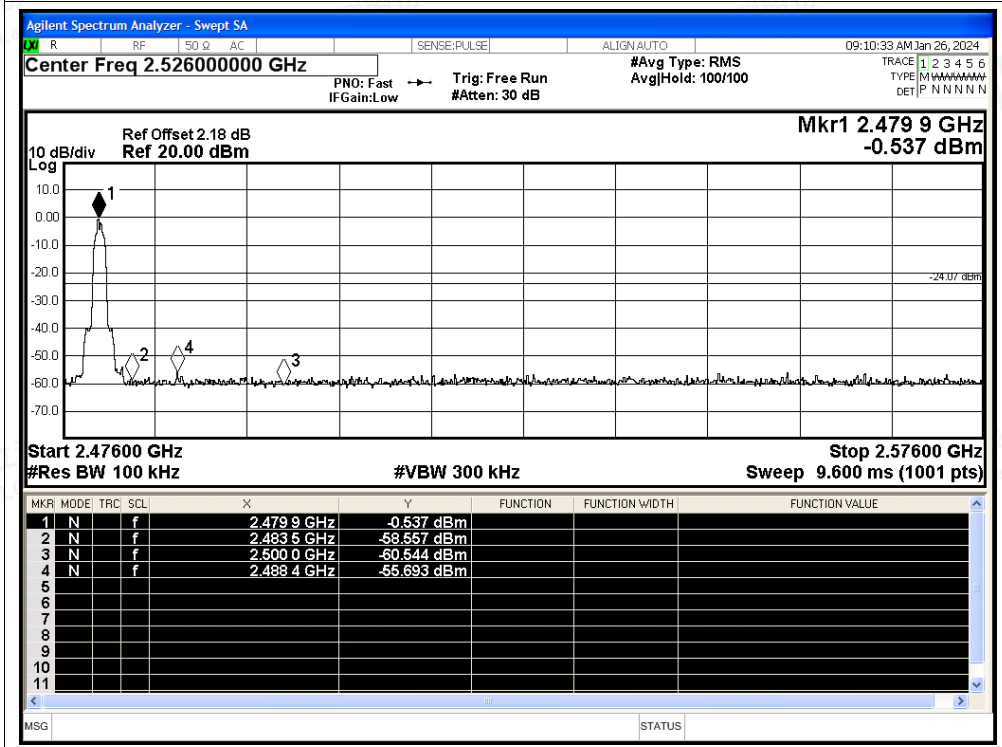




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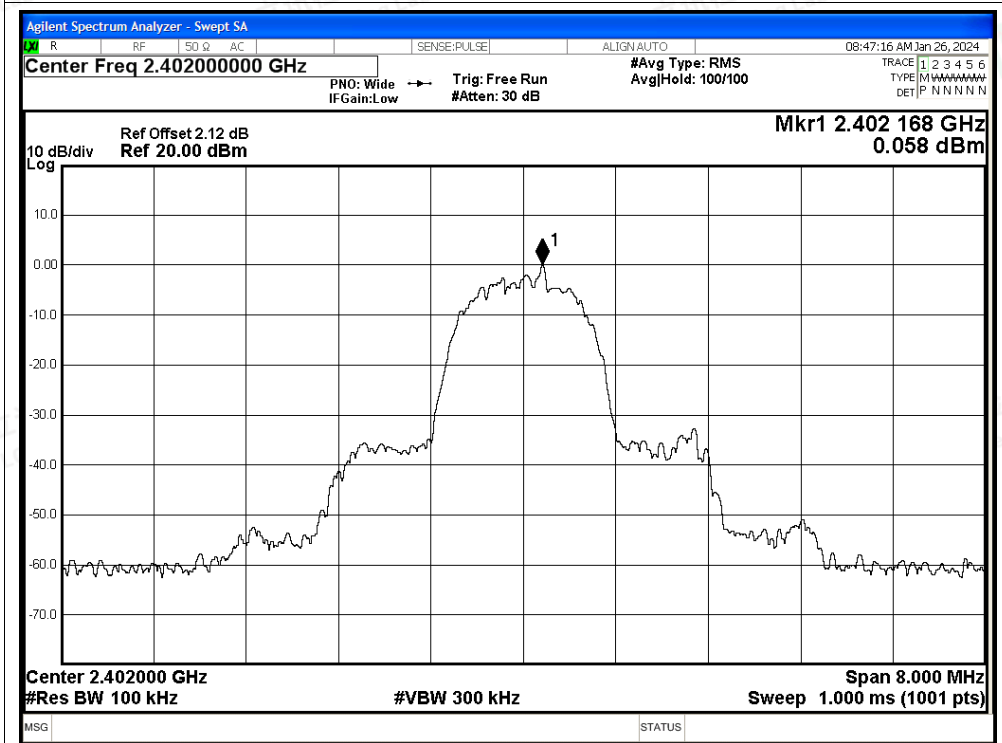


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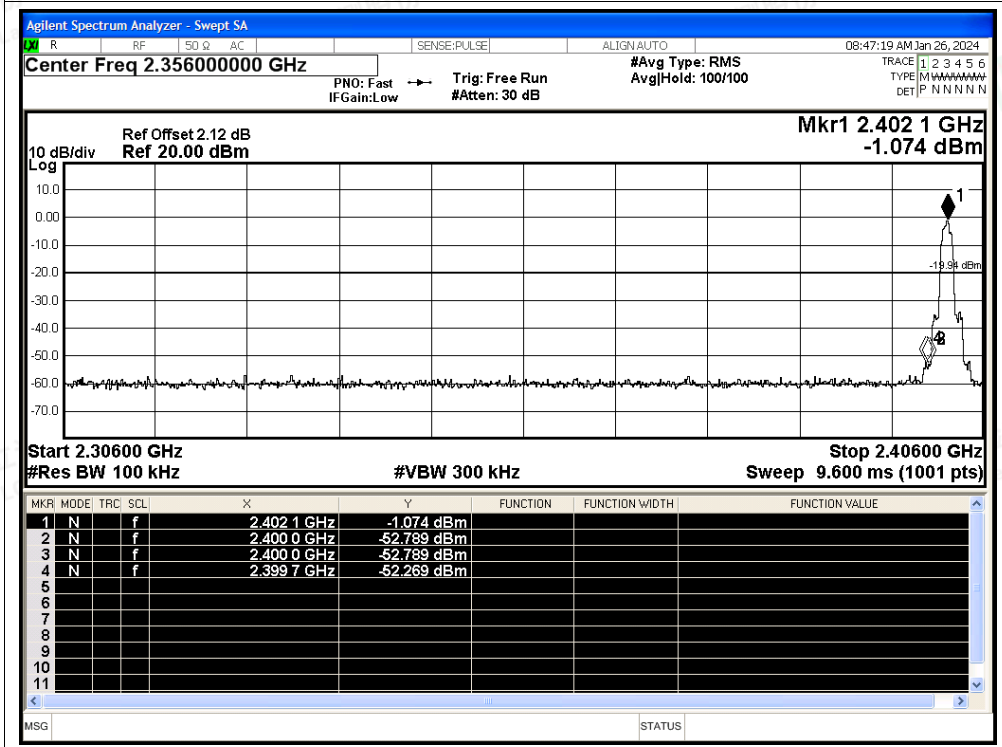




Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Ref

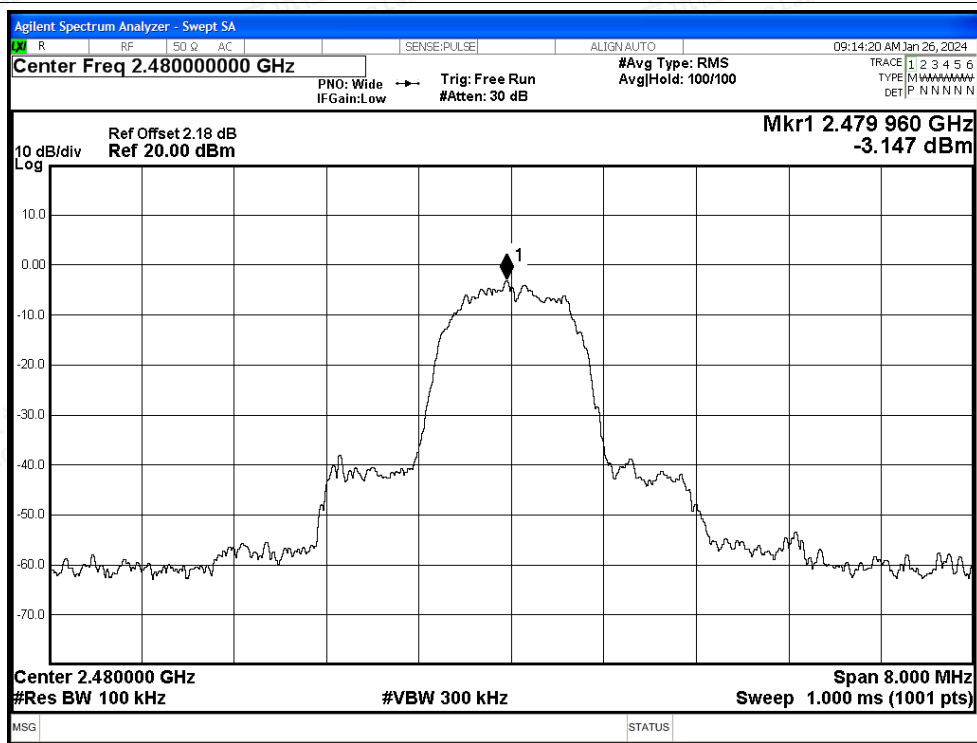


Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Emission

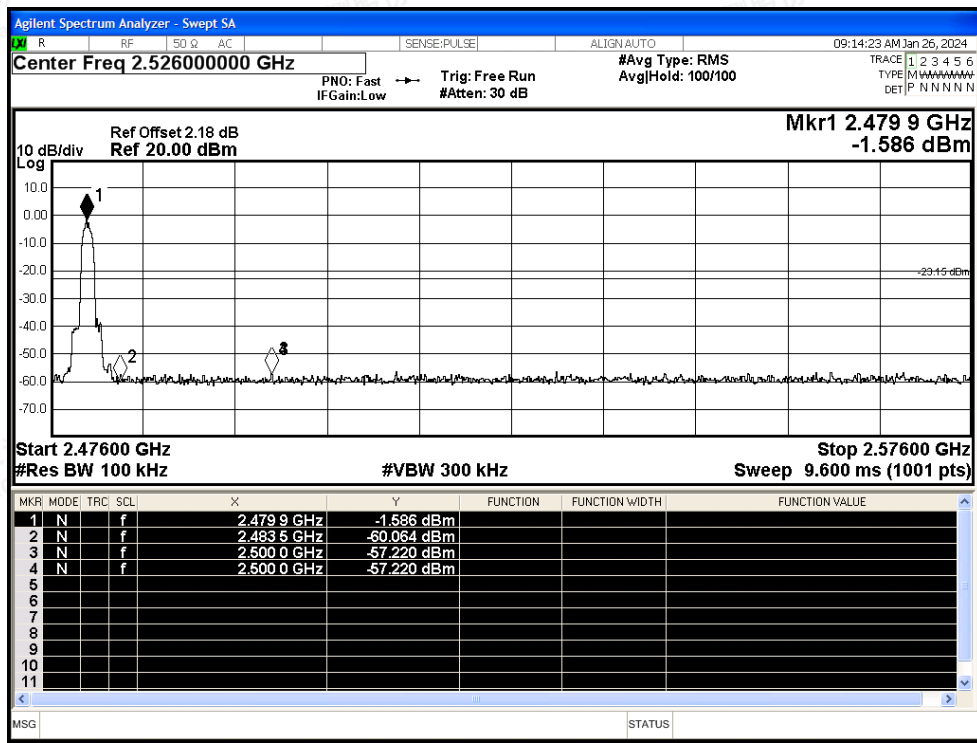




Band Edge NVNT 3-DH5 2480MHz Ant No-Hopping Ref



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





### (Hopping)

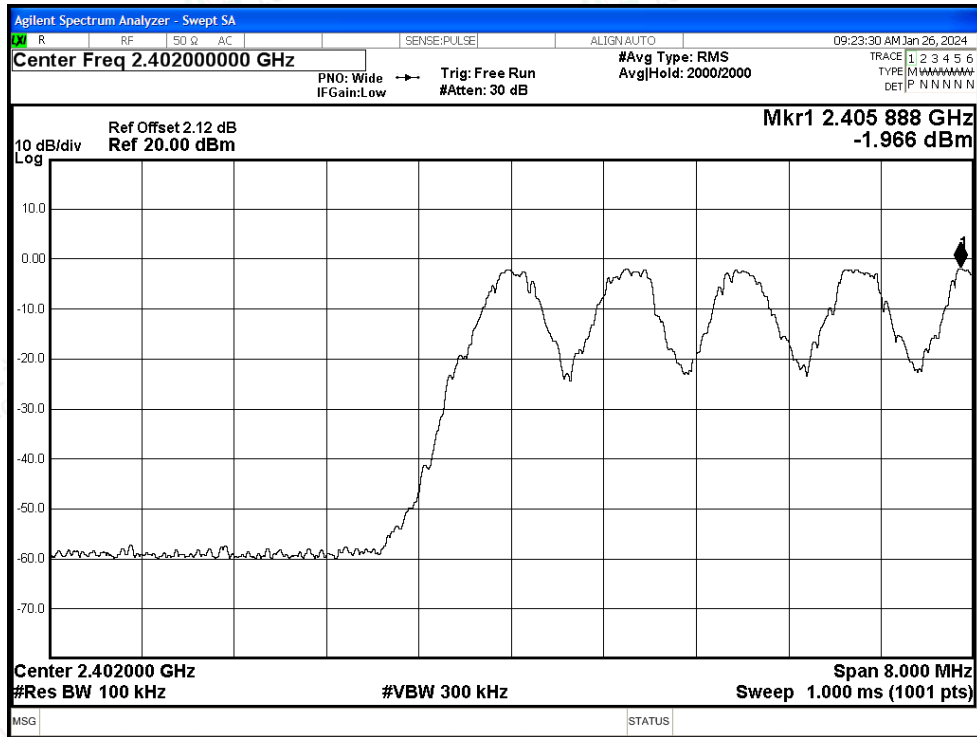
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	Hopping	-53.47	-20	Pass
NVNT	1-DH5	2480	Ant	Hopping	-55.95	-20	Pass
NVNT	2-DH5	2402	Ant	Hopping	-54.45	-20	Pass
NVNT	2-DH5	2480	Ant	Hopping	-54.38	-20	Pass
NVNT	3-DH5	2402	Ant	Hopping	-54.66	-20	Pass
NVNT	3-DH5	2480	Ant	Hopping	-56	-20	Pass



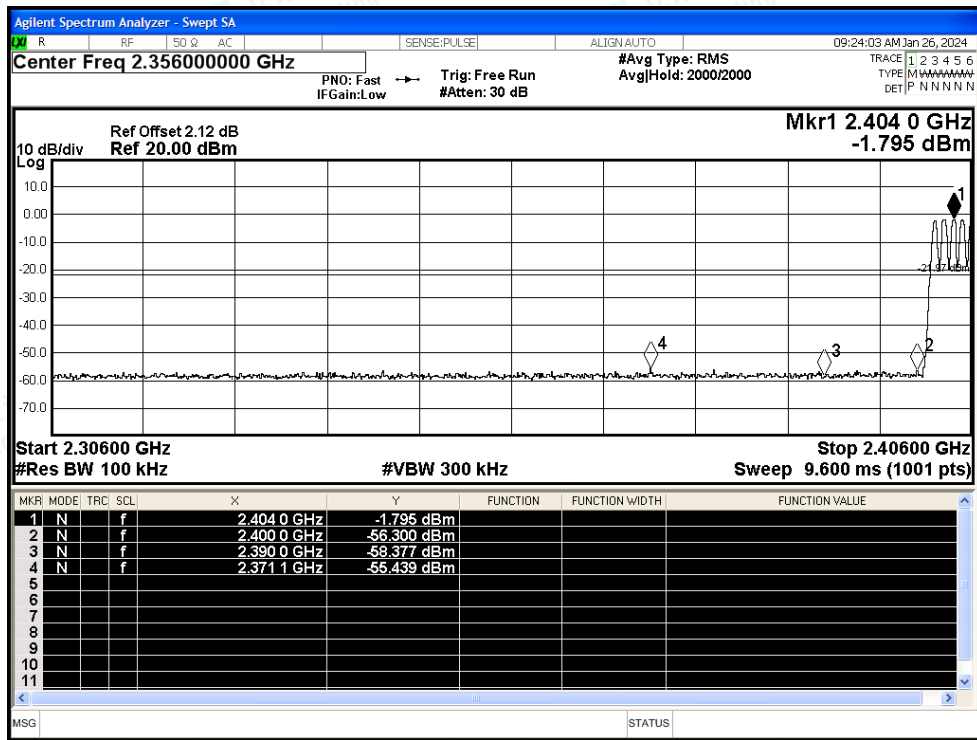


Test Graphs

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



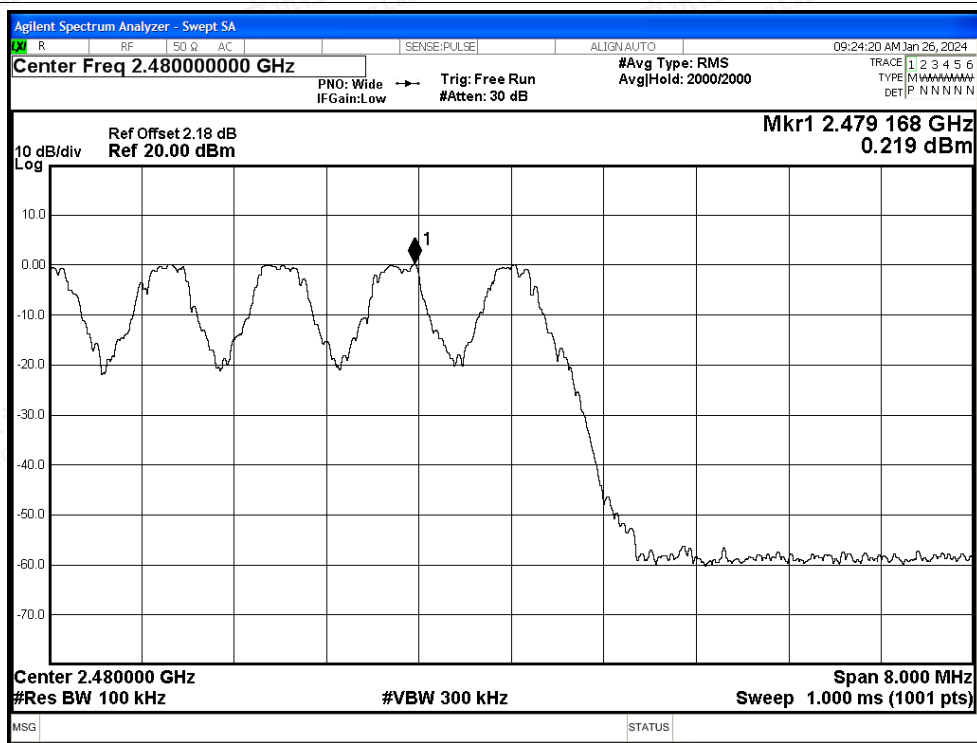
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Emission



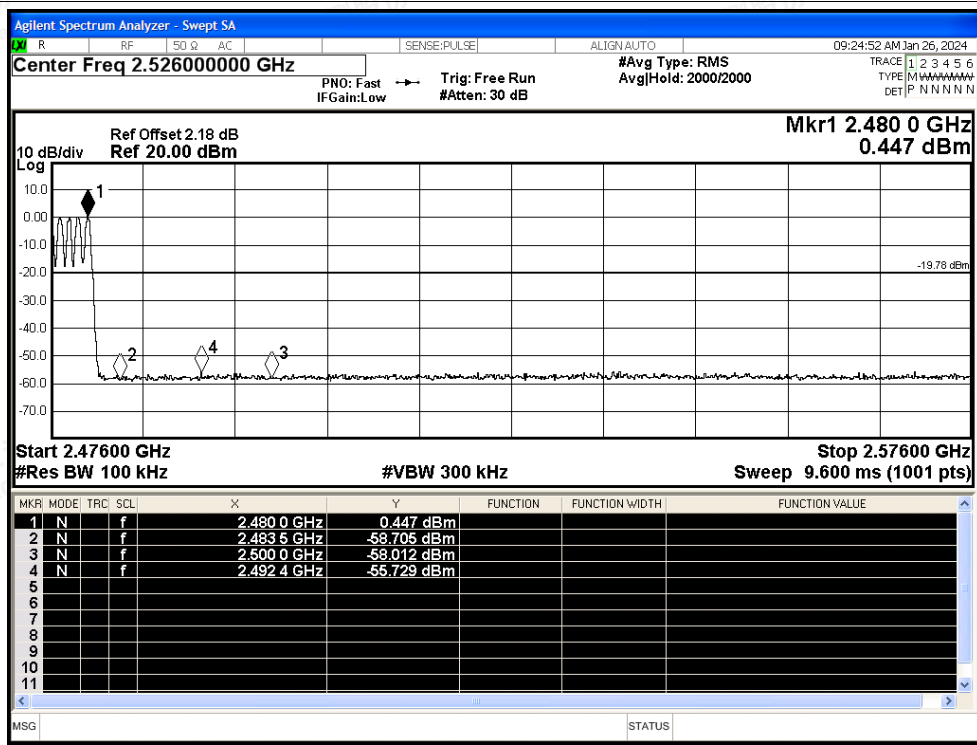




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Ref

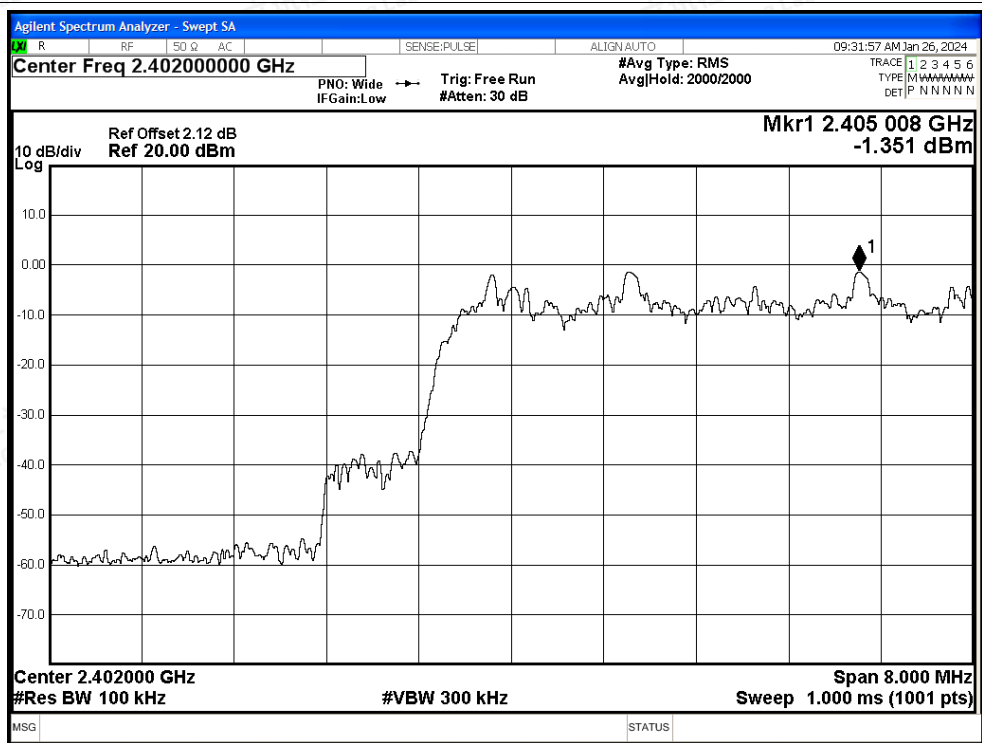


Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Emission

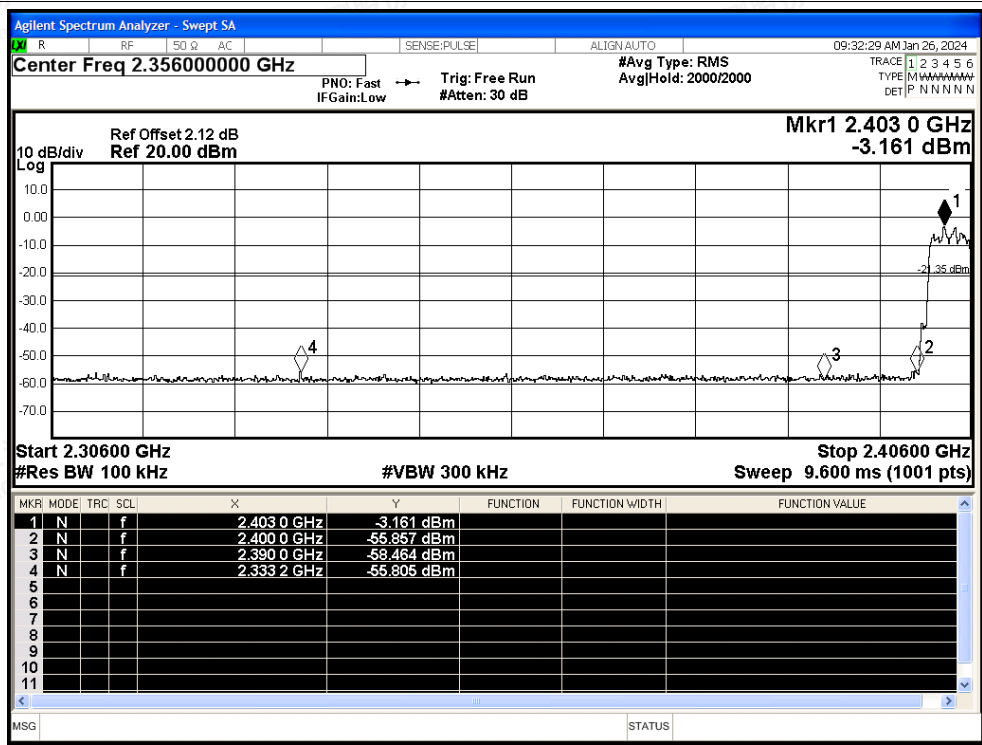




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Ref

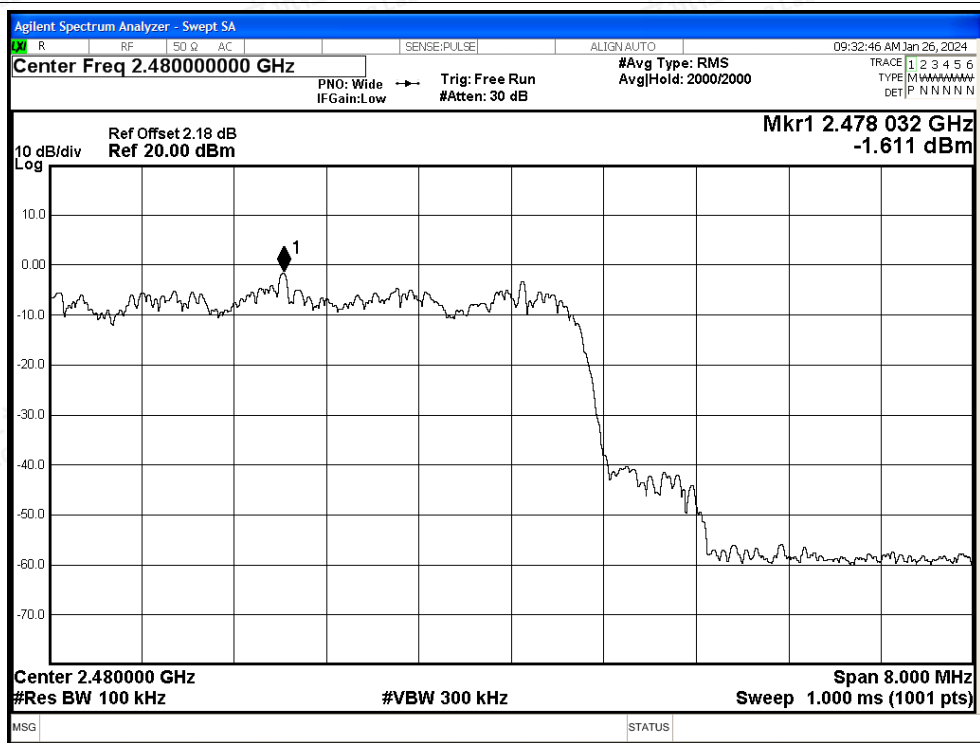


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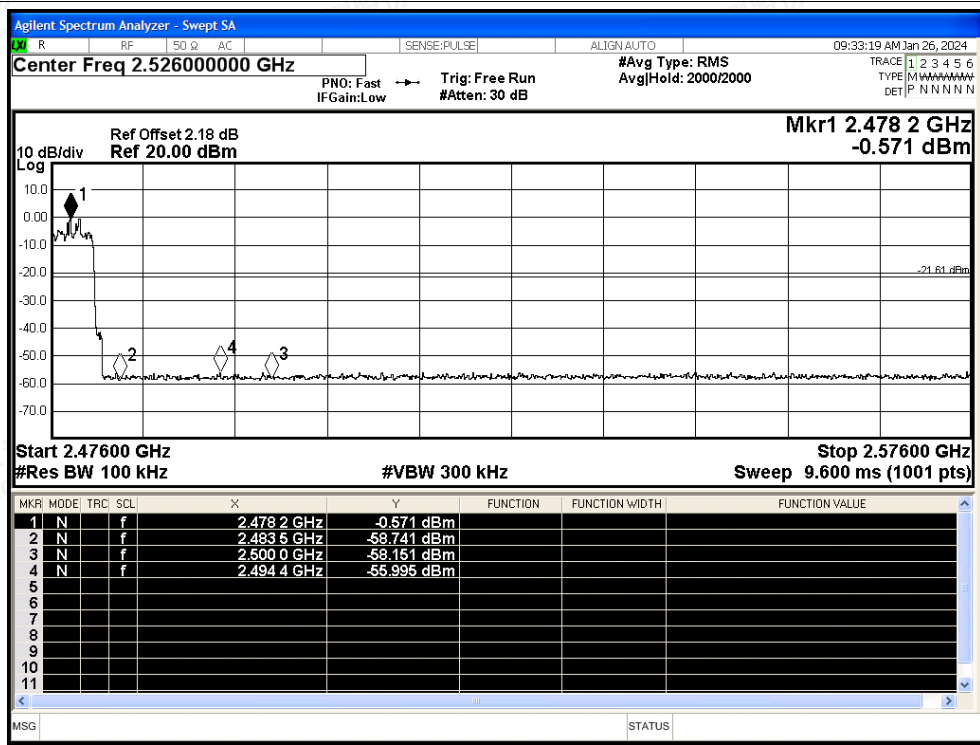




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Ref

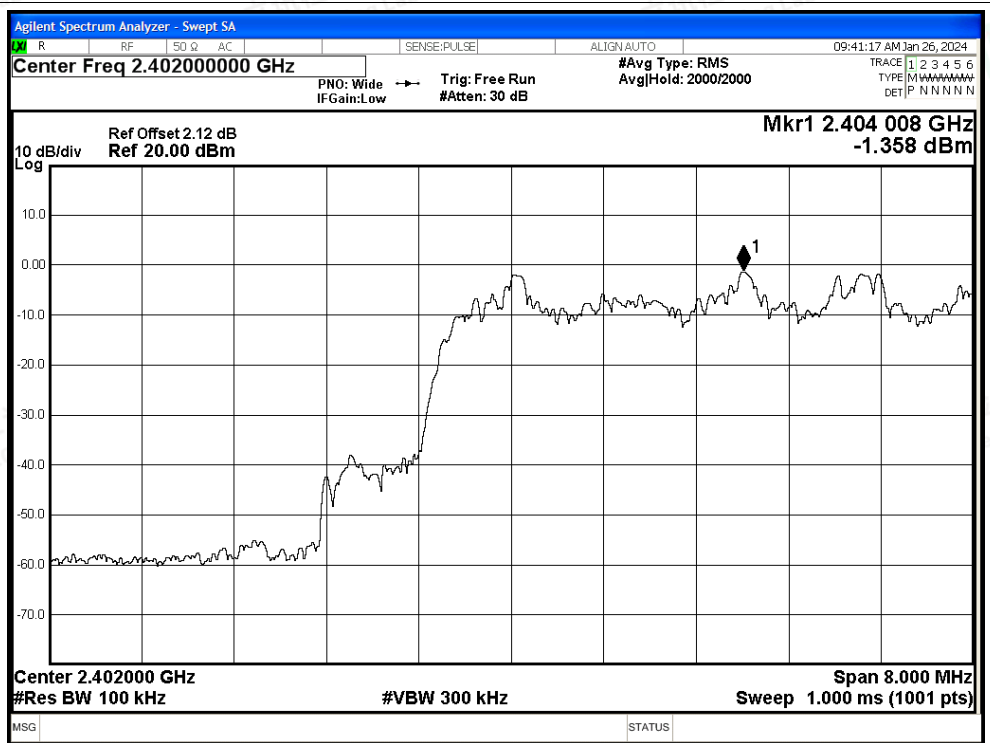


Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Emission

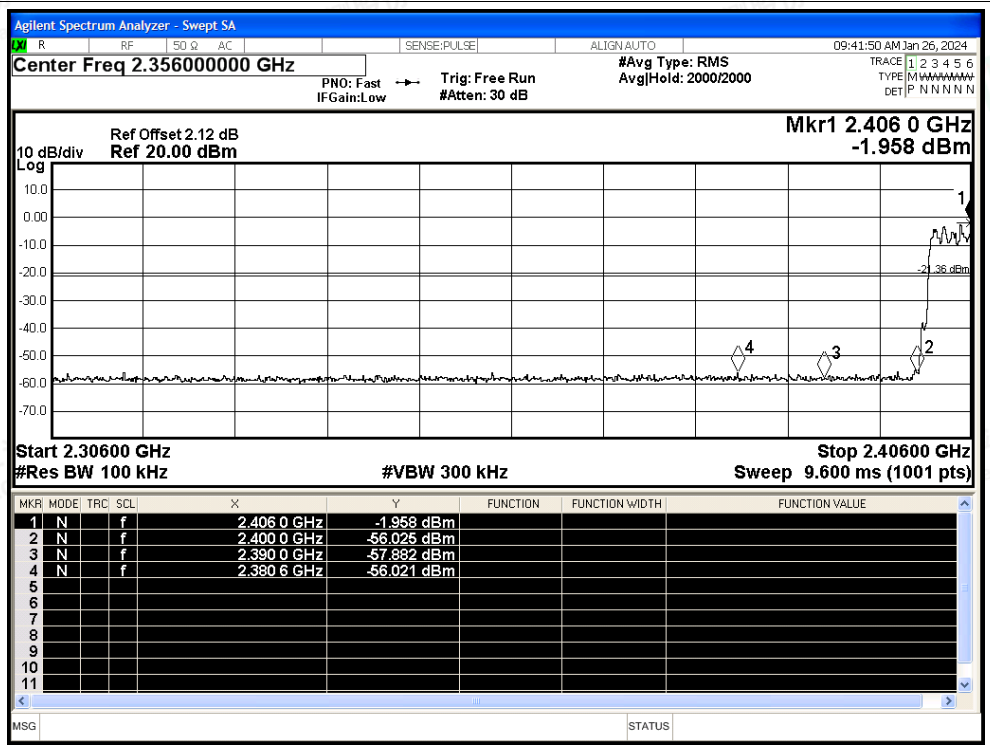




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Ref

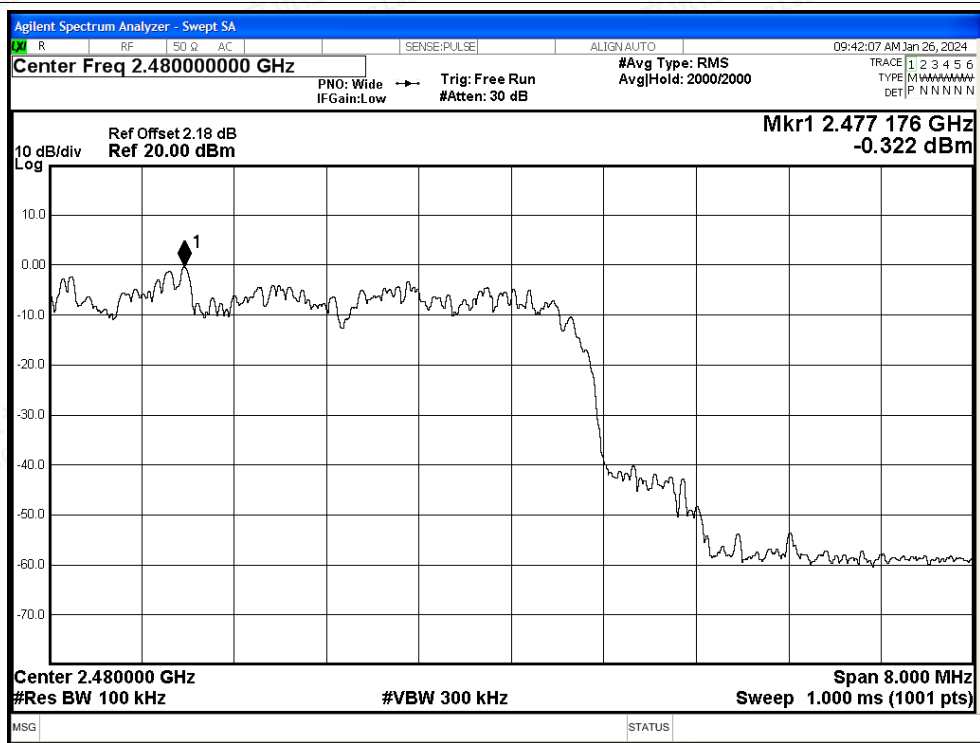


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Emission

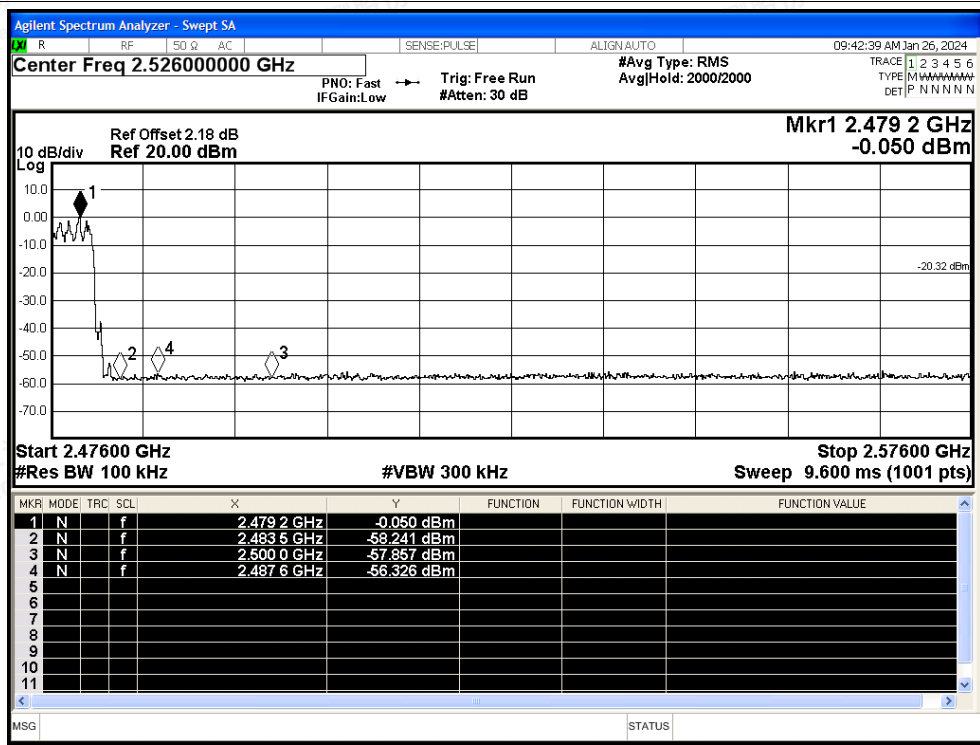




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant Hopping Emission





### A.7 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	-55.2	-20	Pass
NVNT	1-DH5	2441	Ant	-54.86	-20	Pass
NVNT	1-DH5	2480	Ant	-55.38	-20	Pass
NVNT	2-DH5	2402	Ant	-55.96	-20	Pass
NVNT	2-DH5	2441	Ant	-54.84	-20	Pass
NVNT	2-DH5	2480	Ant	-55.47	-20	Pass
NVNT	3-DH5	2402	Ant	-51.54	-20	Pass
NVNT	3-DH5	2441	Ant	-54.78	-20	Pass
NVNT	3-DH5	2480	Ant	-54.56	-20	Pass

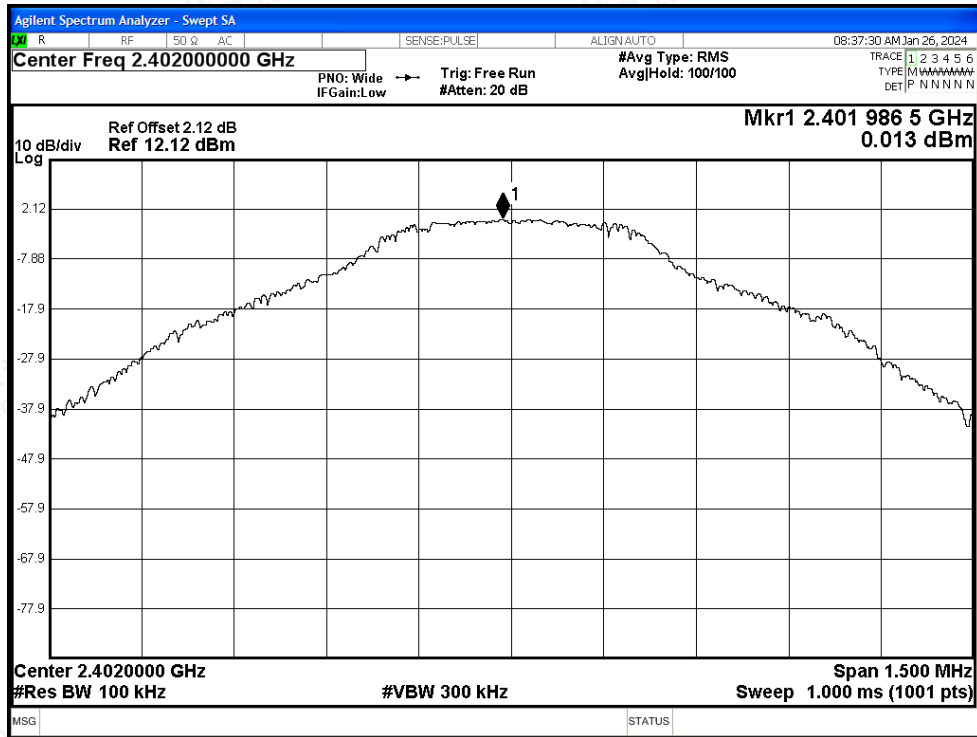


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Scan code to check authenticity

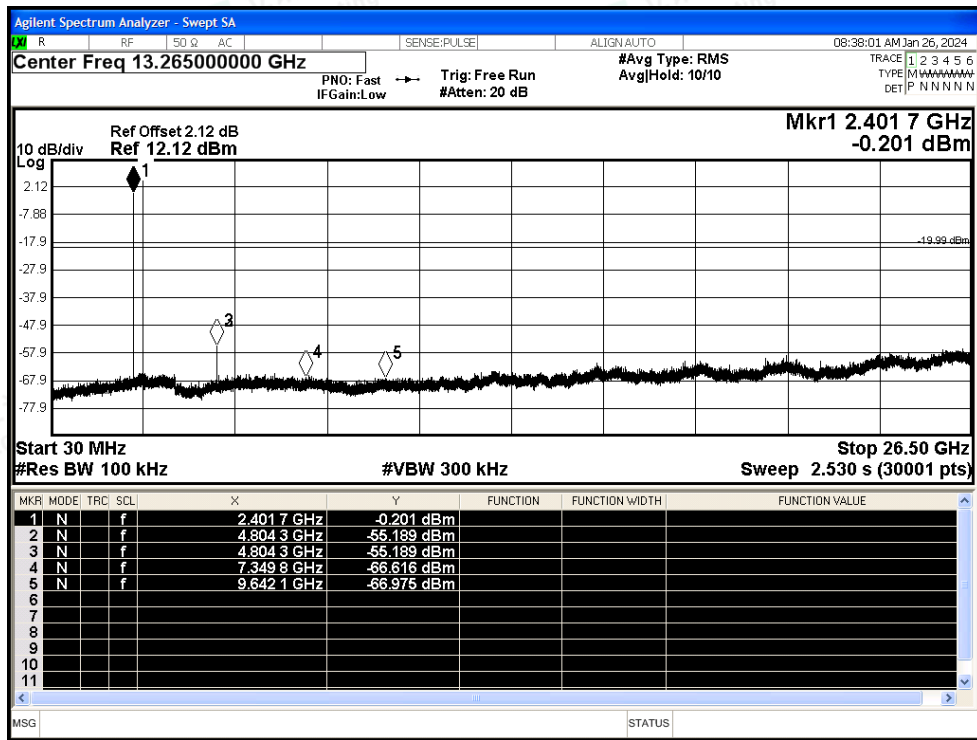


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant Ref

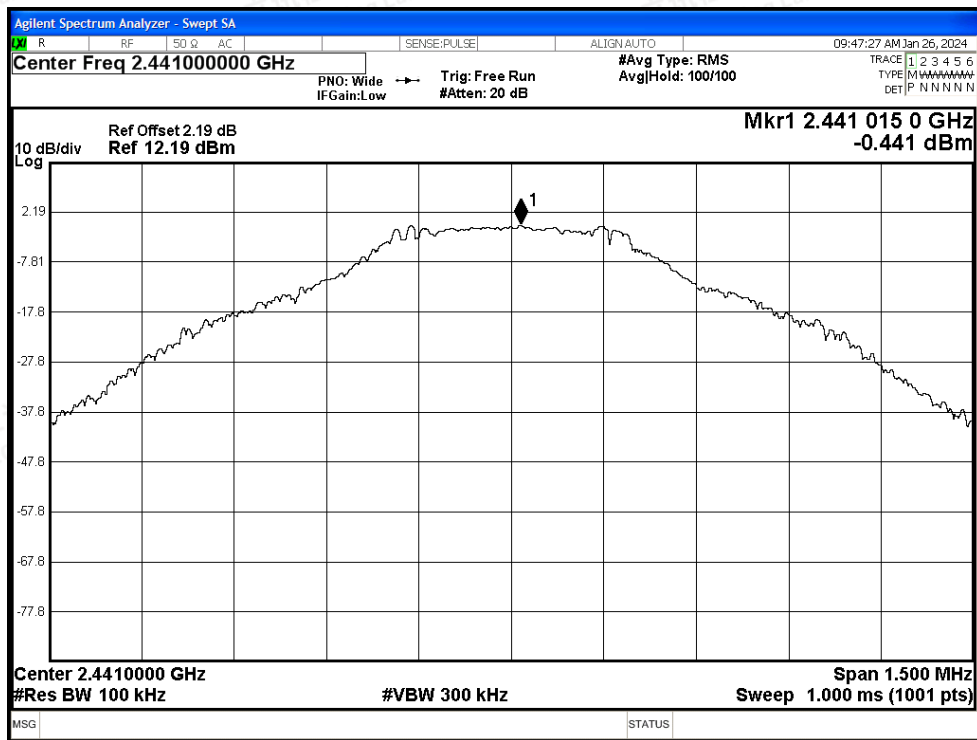


Tx. Spurious NVNT 1-DH5 2402MHz Ant Emission

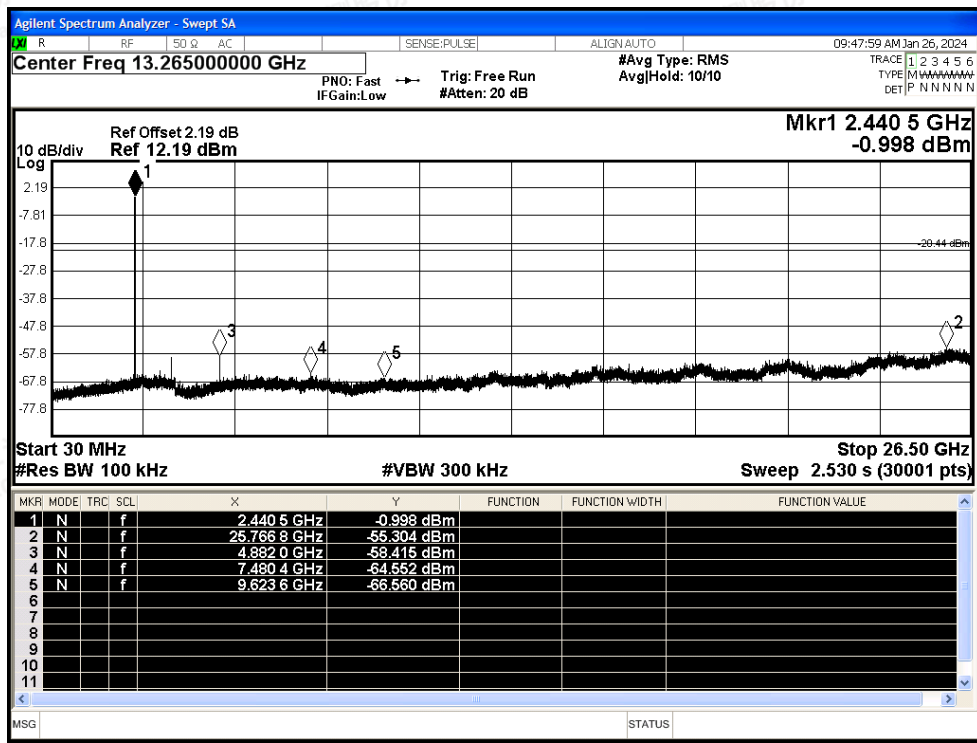




Tx. Spurious NVNT 1-DH5 2441MHz Ant Ref



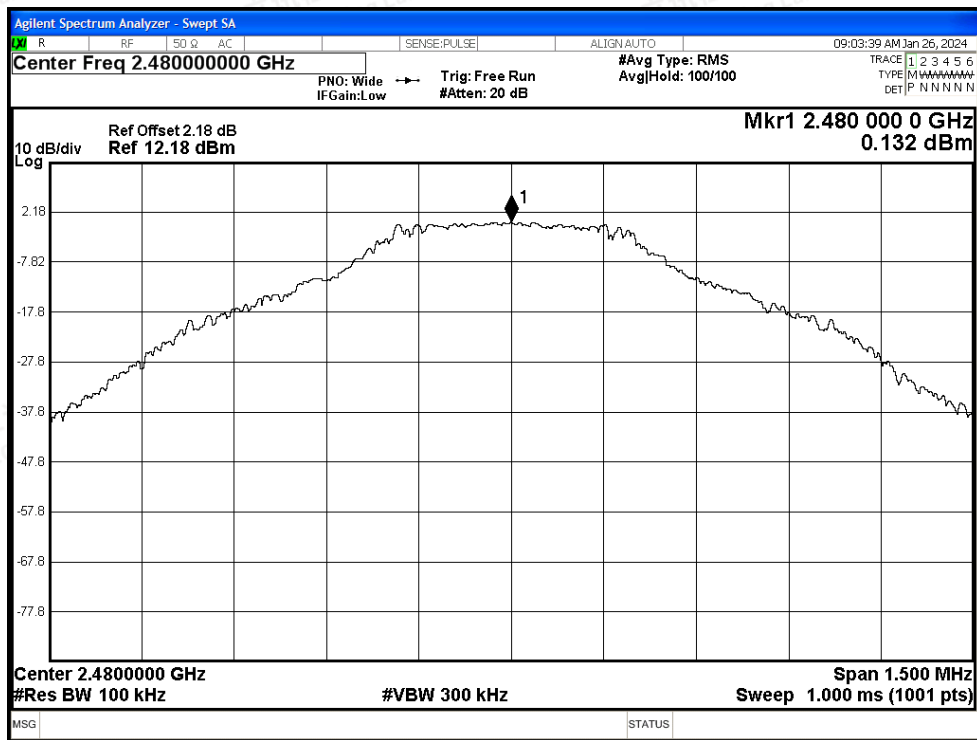
Tx. Spurious NVNT 1-DH5 2441MHz Ant Emission



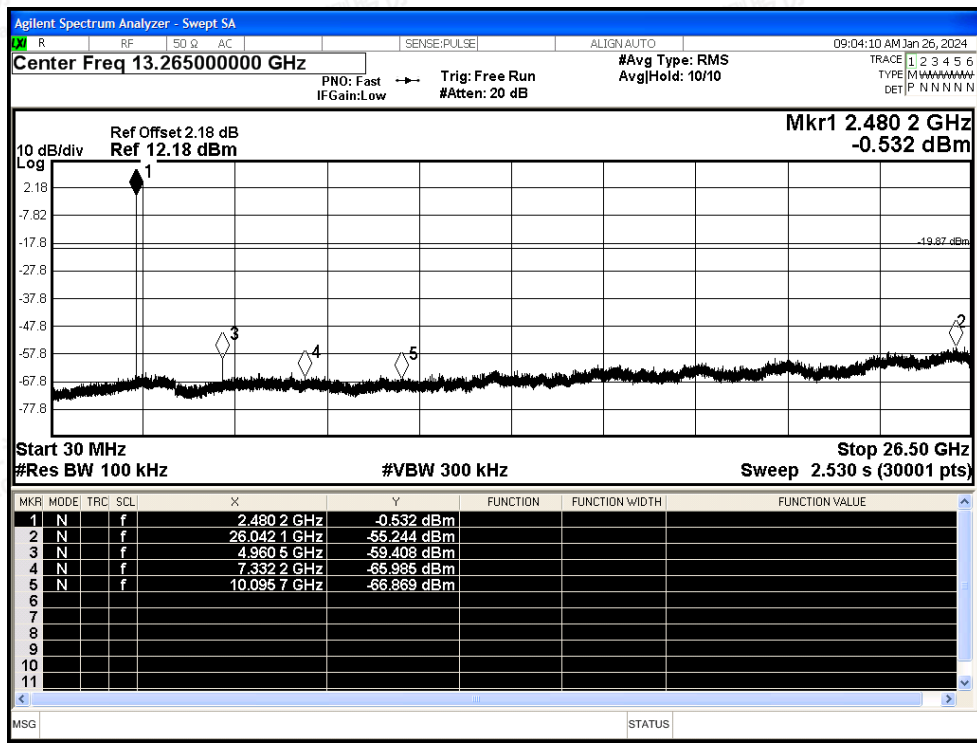




Tx. Spurious NVNT 1-DH5 2480MHz Ant Ref

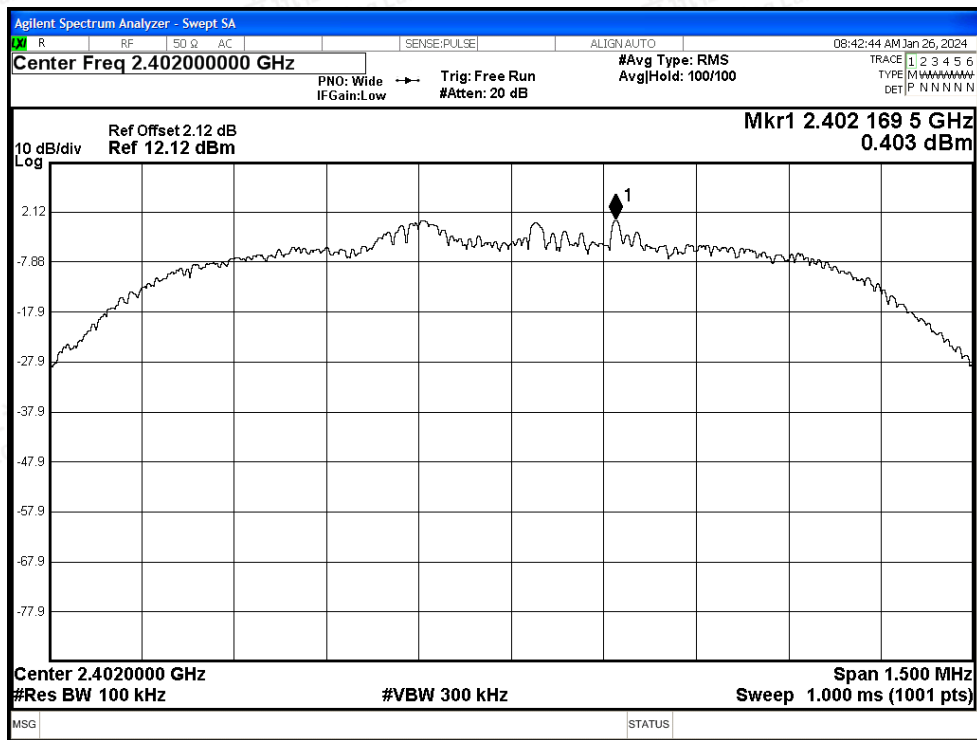


Tx. Spurious NVNT 1-DH5 2480MHz Ant Emission

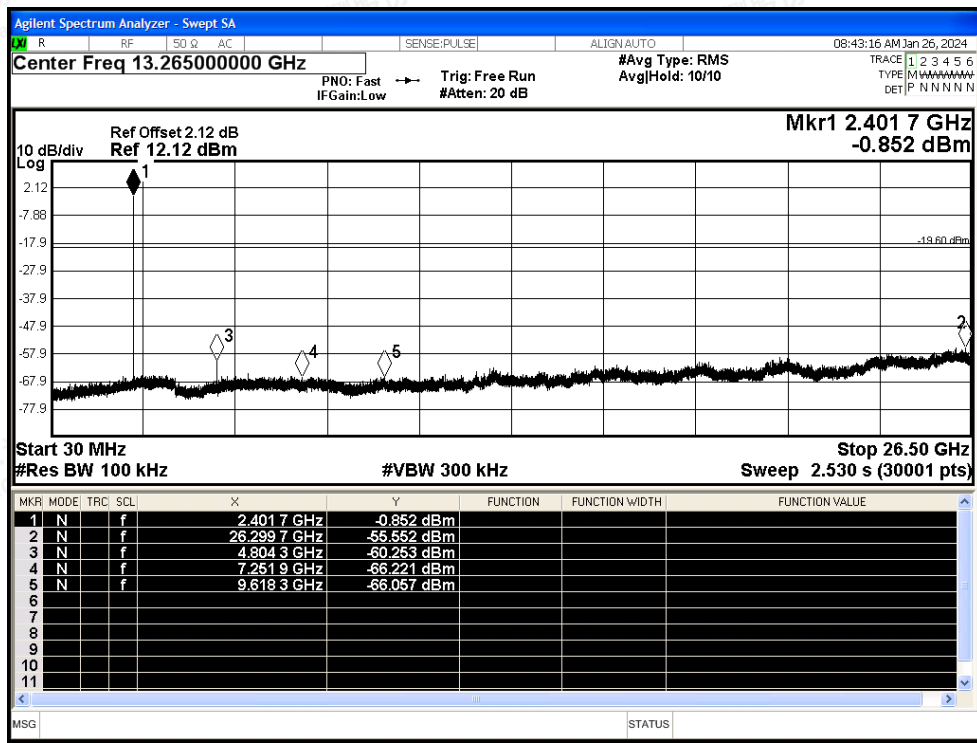




Tx. Spurious NVNT 2-DH5 2402MHz Ant Ref

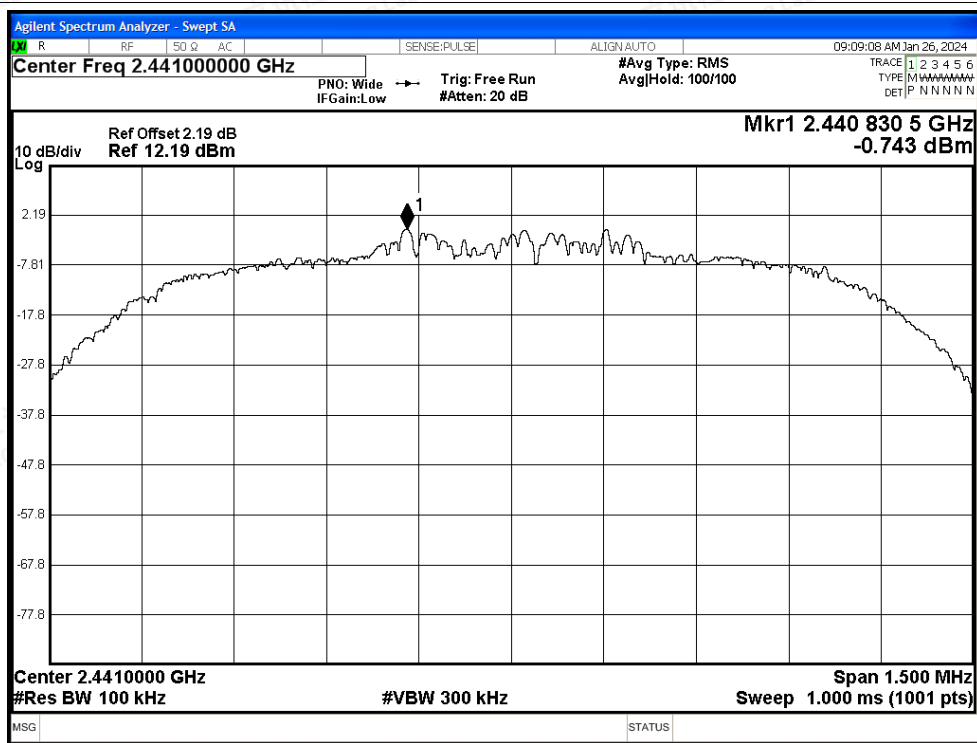


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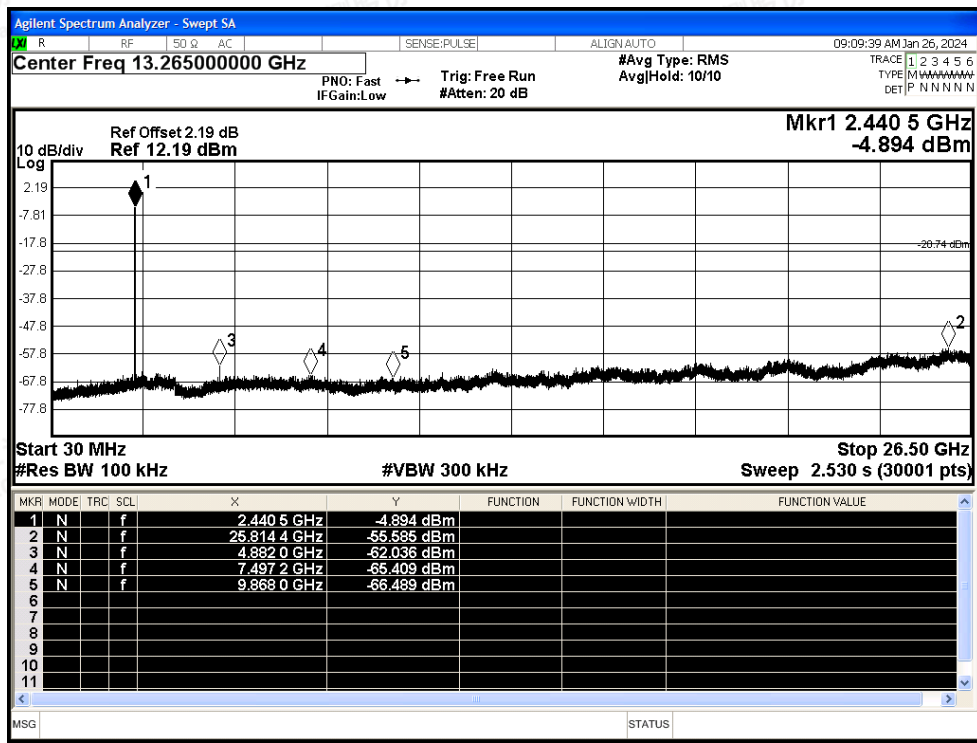




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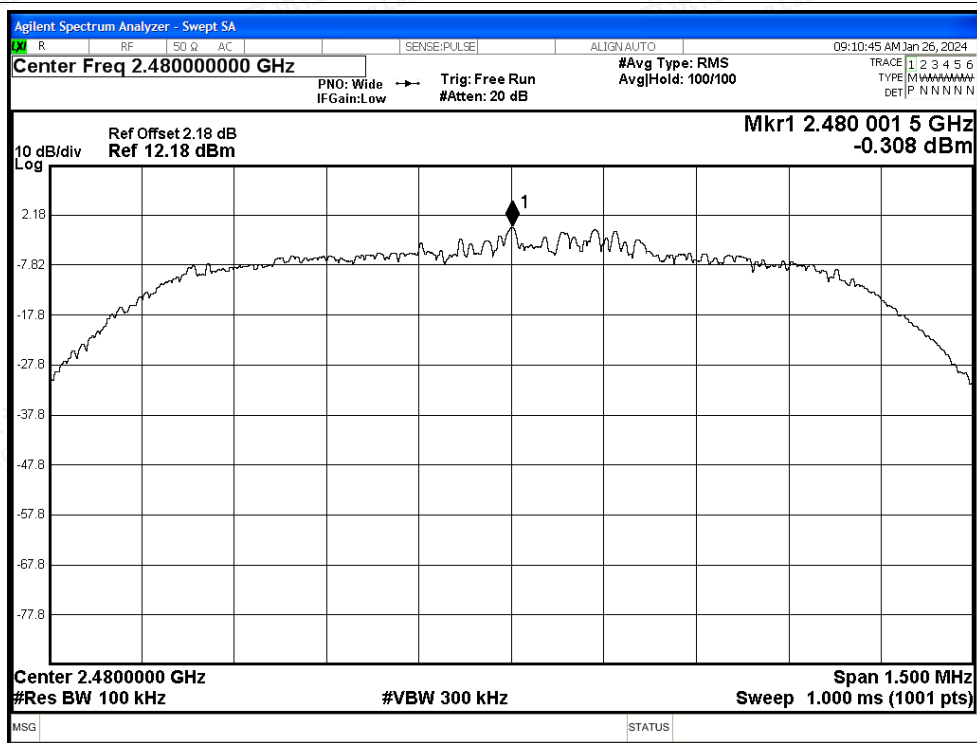


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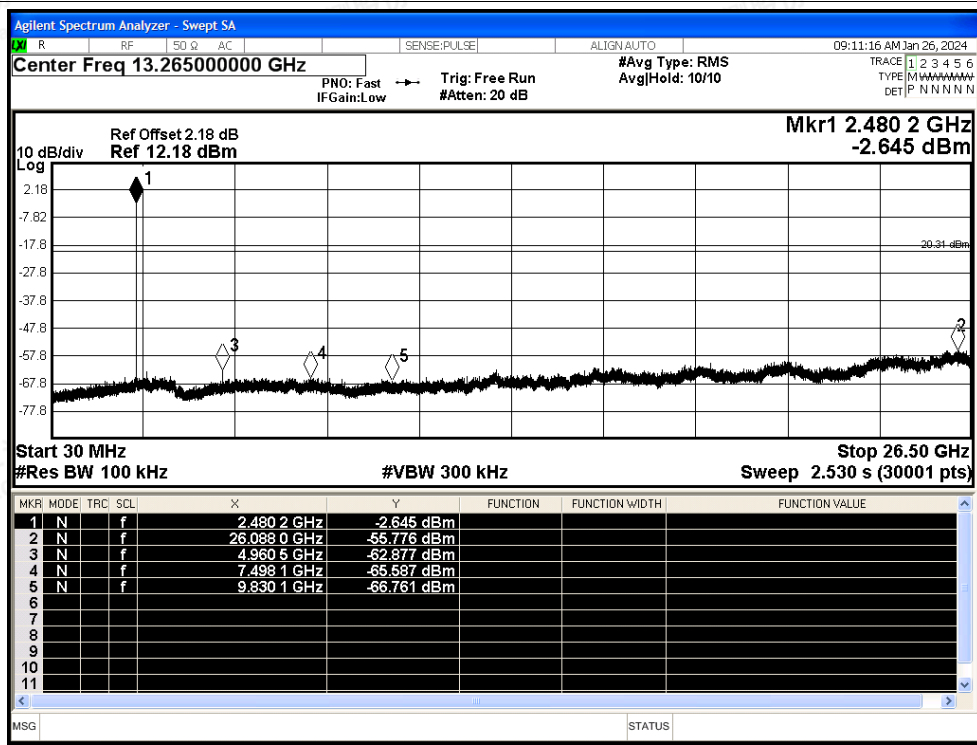




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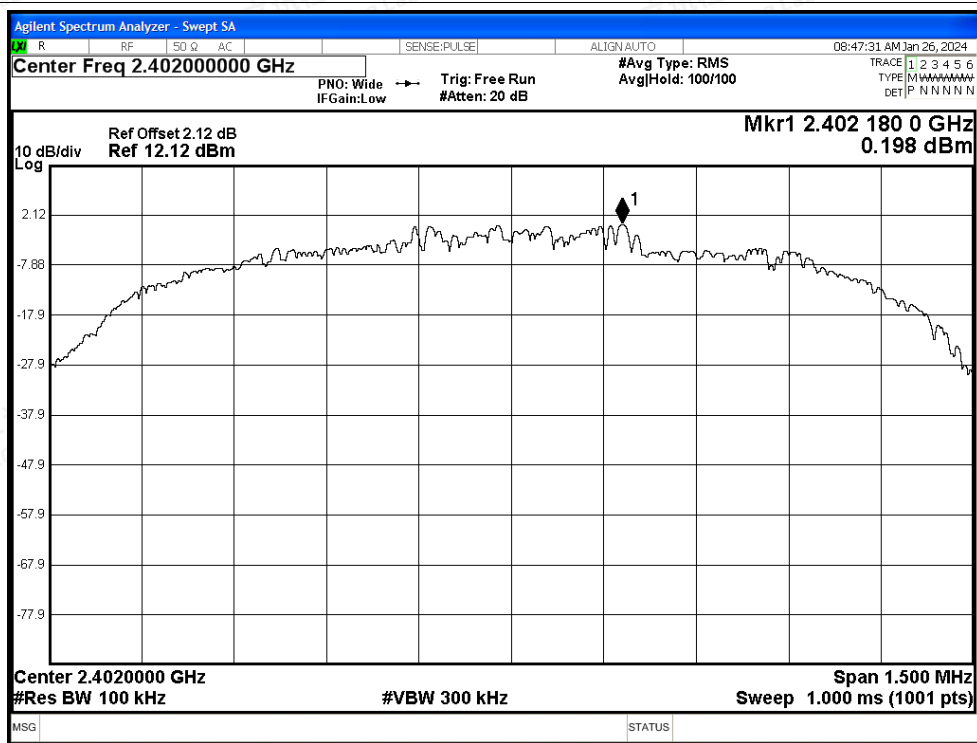


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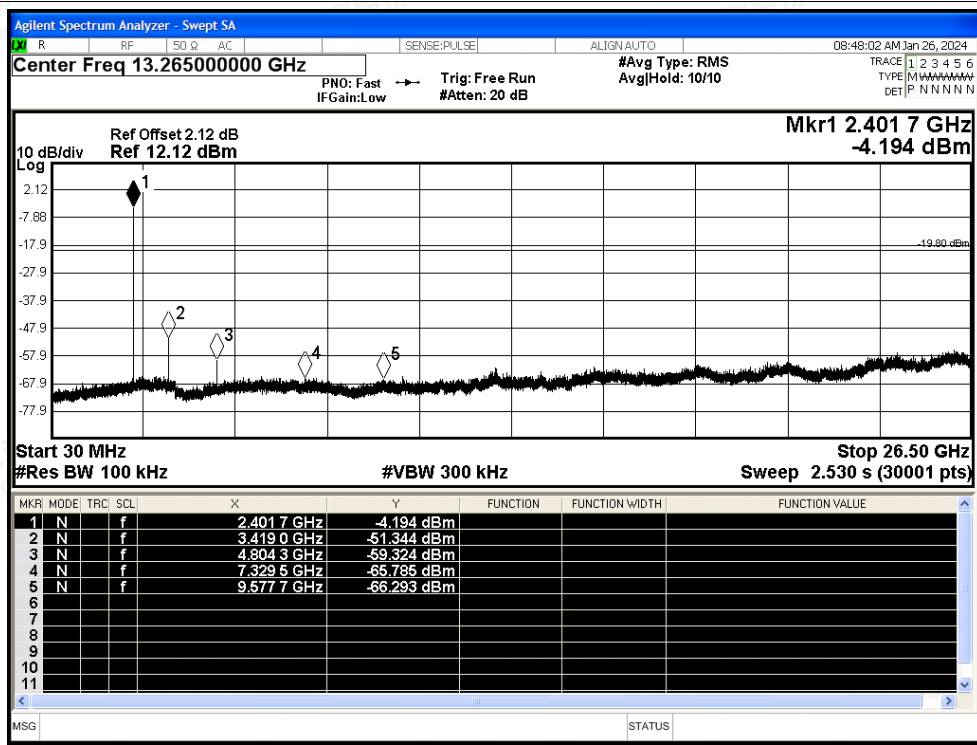




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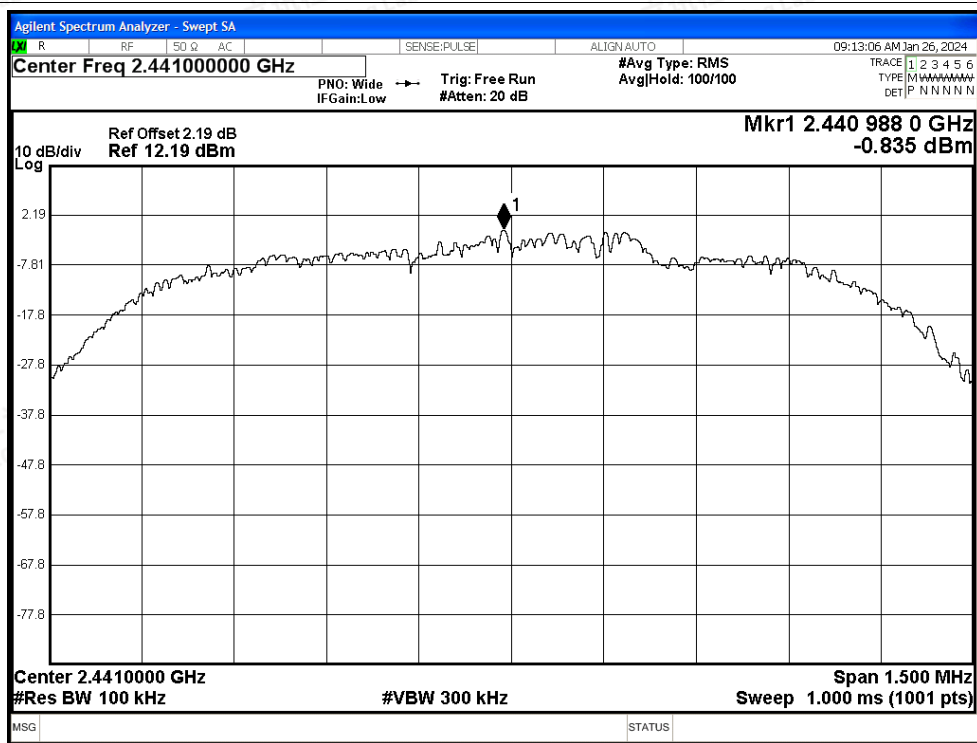


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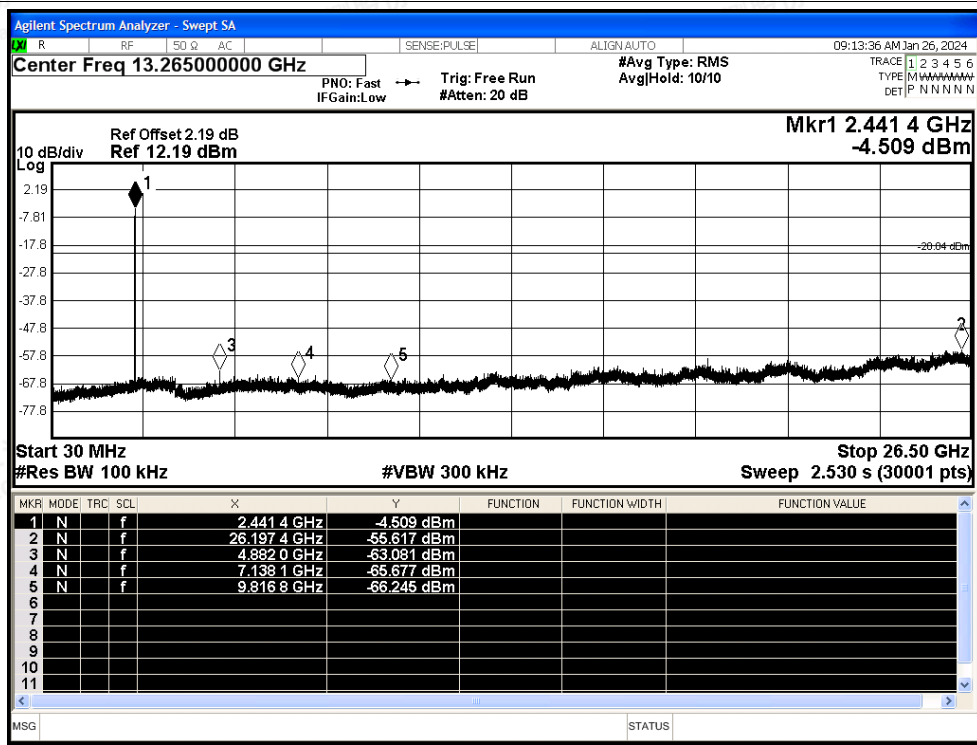




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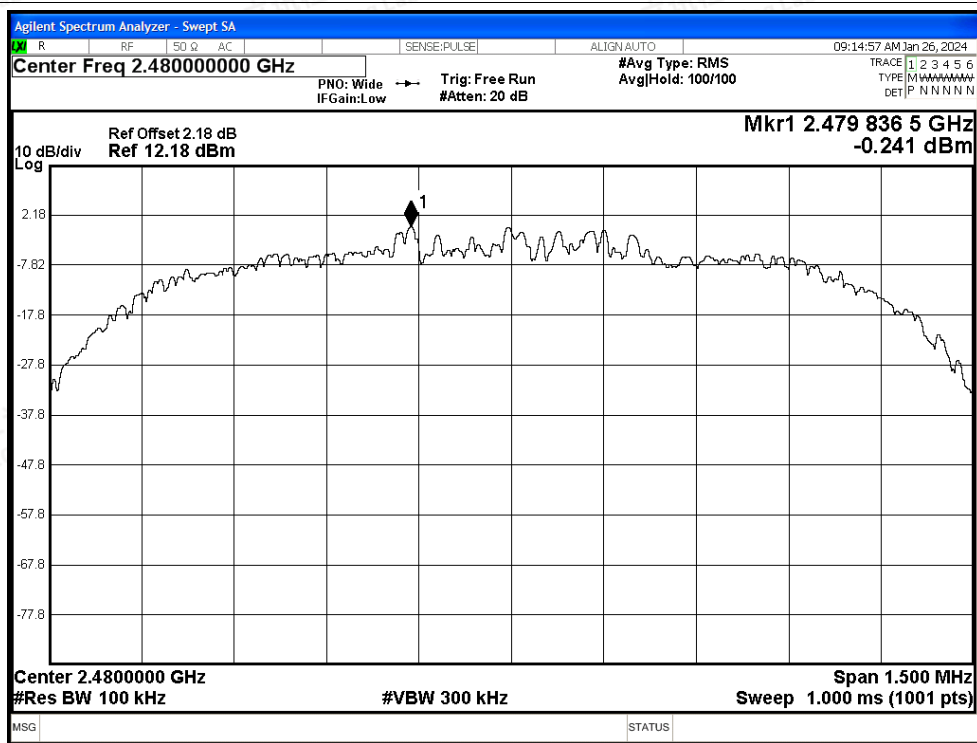


Tx. Spurious NVNT 3-DH5 2441MHz Ant Emission

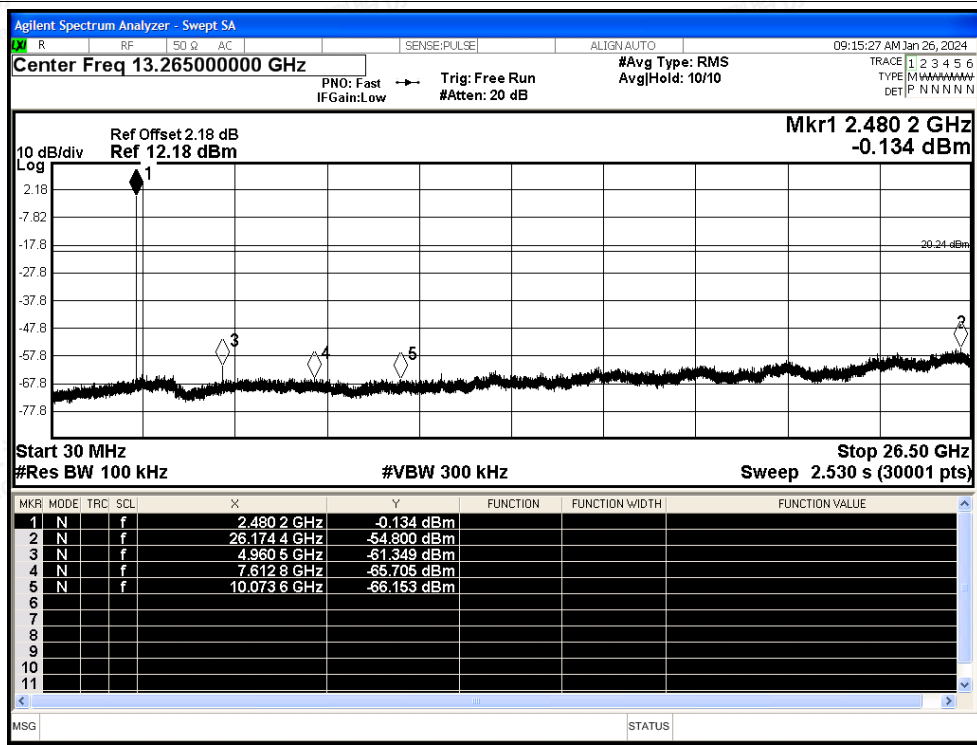




Tx. Spurious NVNT 3-DH5 2480MHz Ant Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant Emission





## A.8 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant	76.88	1.14	0.35
NVNT	1-DH5	2441	Ant	76.88	1.14	0.35
NVNT	1-DH5	2480	Ant	76.91	1.14	0.35
NVNT	2-DH5	2402	Ant	76.96	1.14	0.35
NVNT	2-DH5	2441	Ant	76.99	1.14	0.35
NVNT	2-DH5	2480	Ant	76.99	1.14	0.35
NVNT	3-DH5	2402	Ant	77.01	1.13	0.35
NVNT	3-DH5	2441	Ant	77.04	1.13	0.35
NVNT	3-DH5	2480	Ant	77.01	1.13	0.35



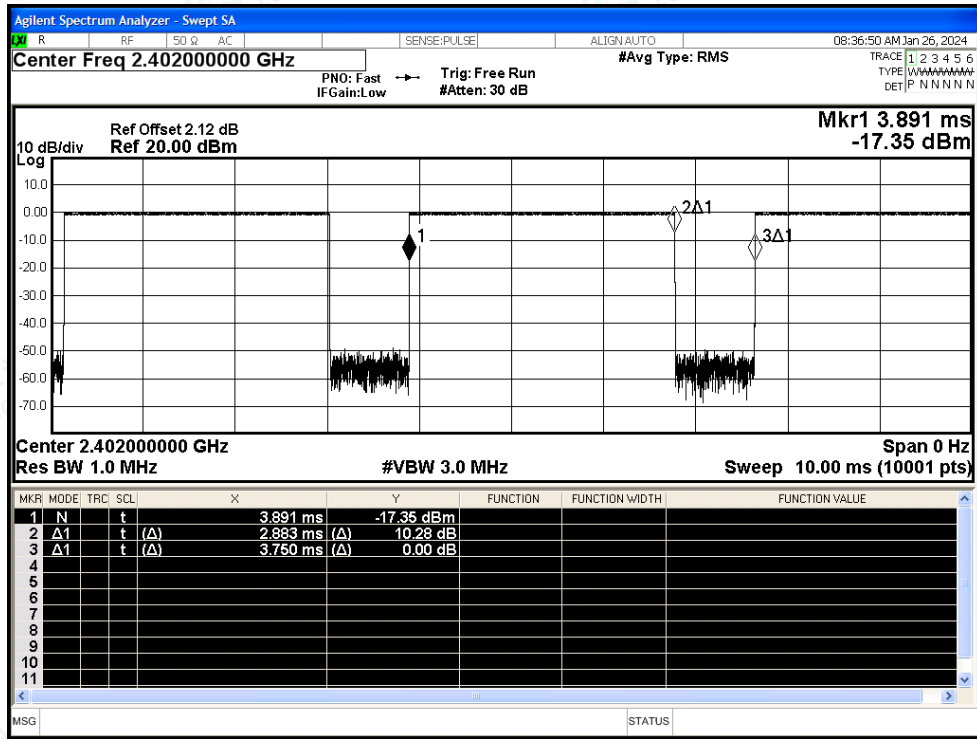
Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
Scan code to check authenticity



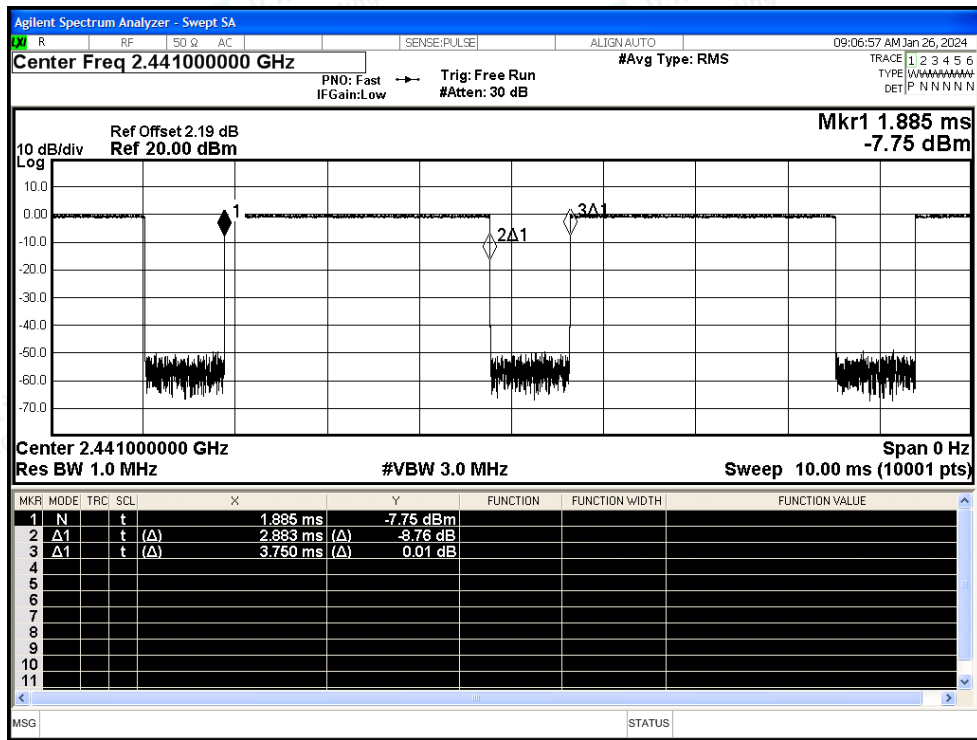


Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant

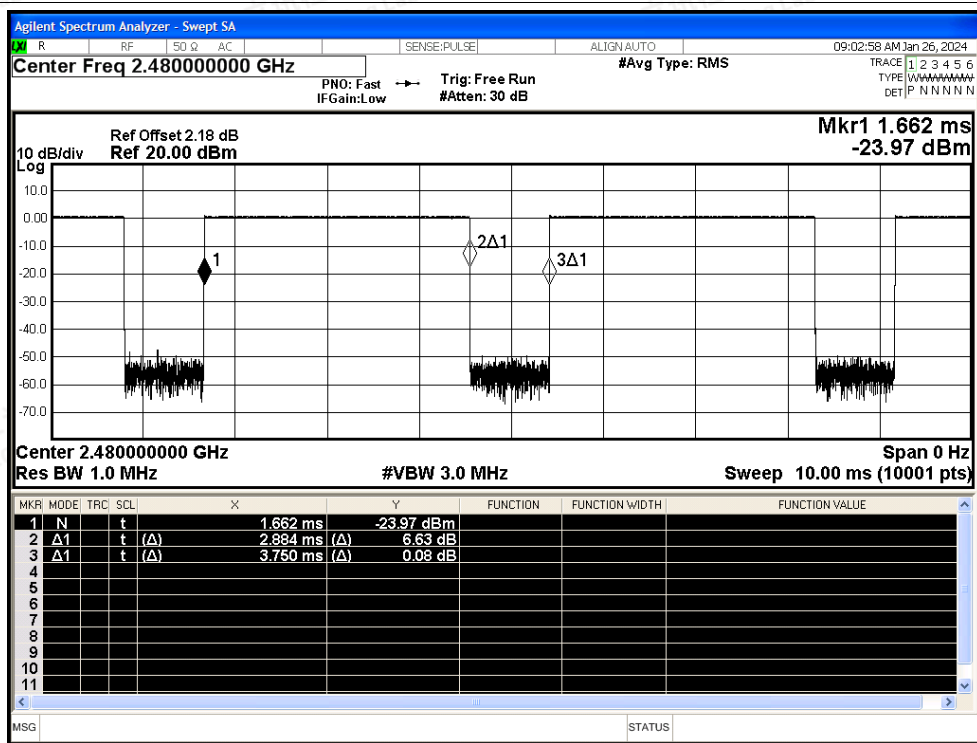


Duty Cycle NVNT 1-DH5 2441MHz Ant

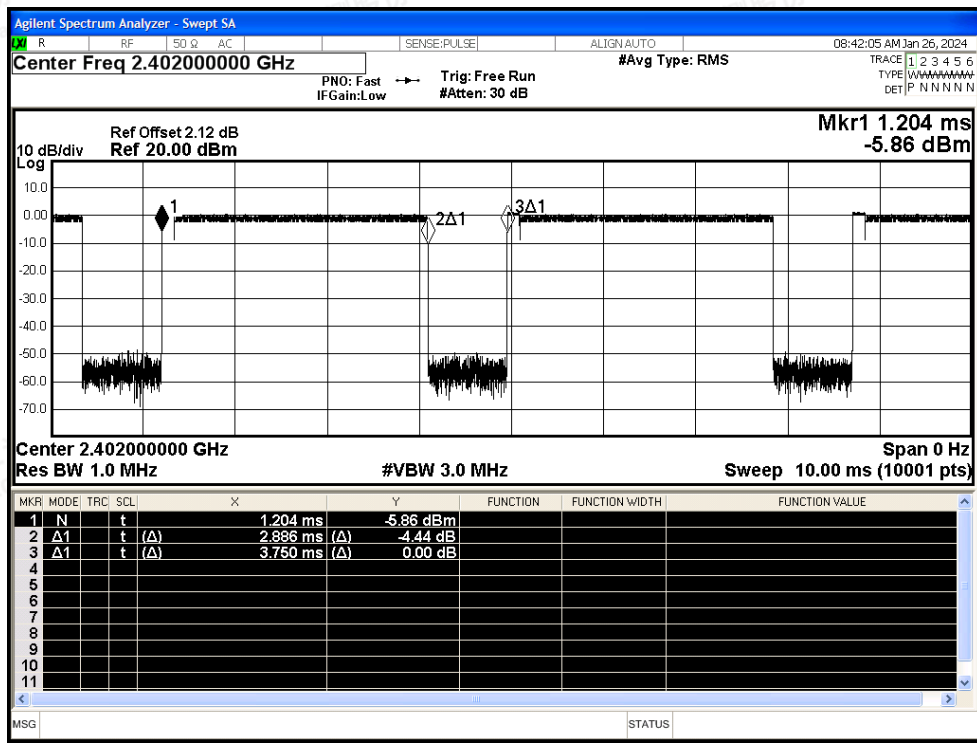




Duty Cycle NVNT 1-DH5 2480MHz Ant

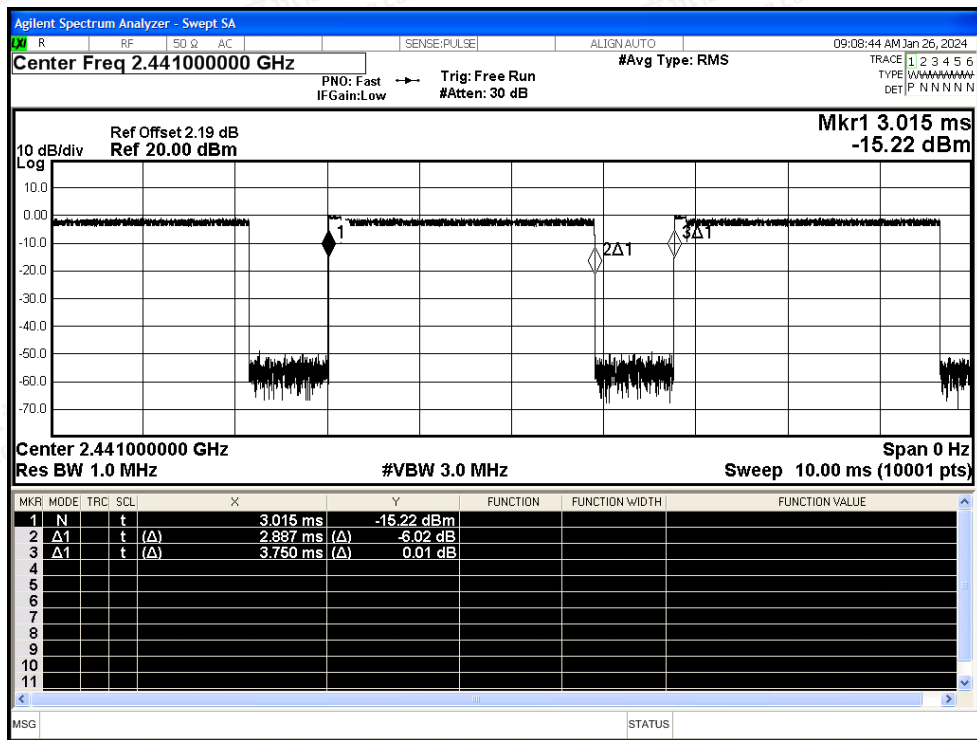


Duty Cycle NVNT 2-DH5 2402MHz Ant

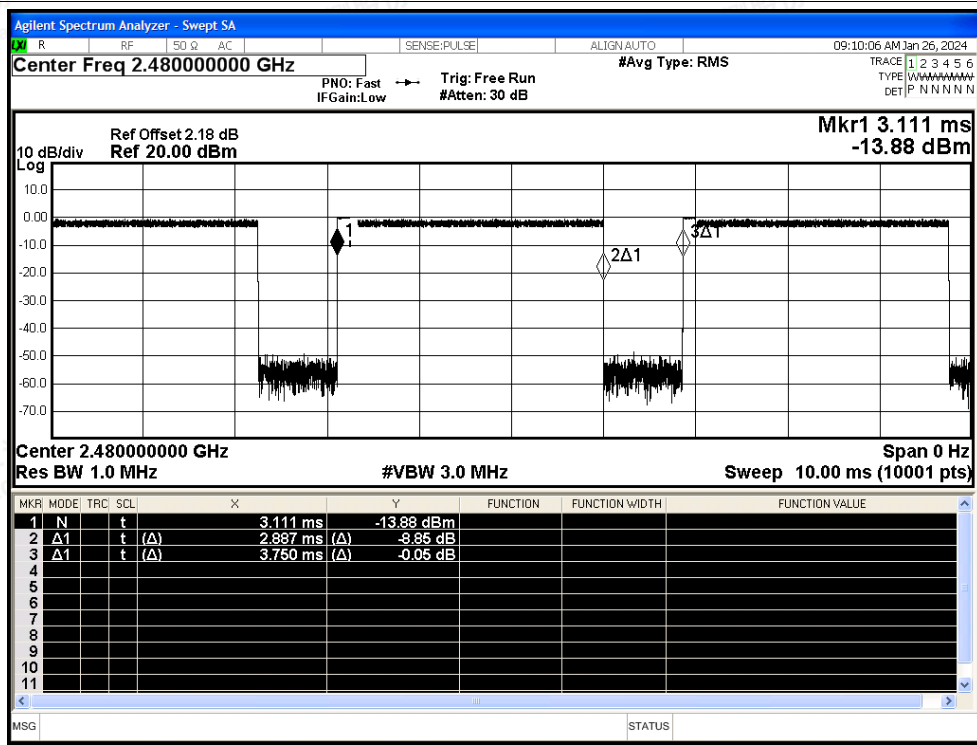




Duty Cycle NVNT 2-DH5 2441MHz Ant

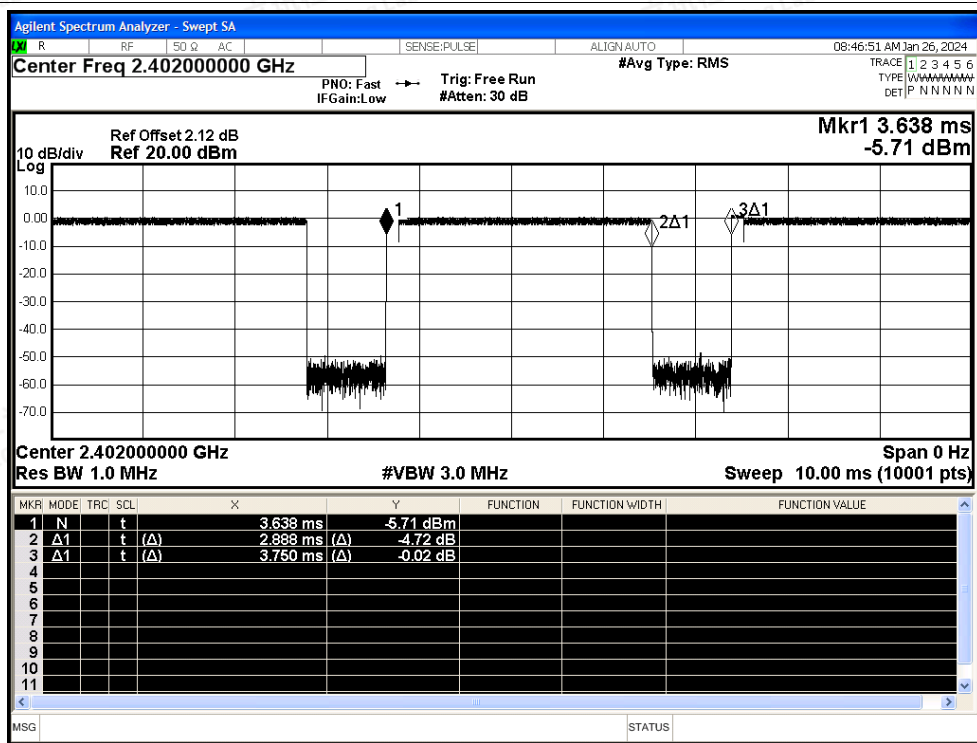


Duty Cycle NVNT 2-DH5 2480MHz Ant

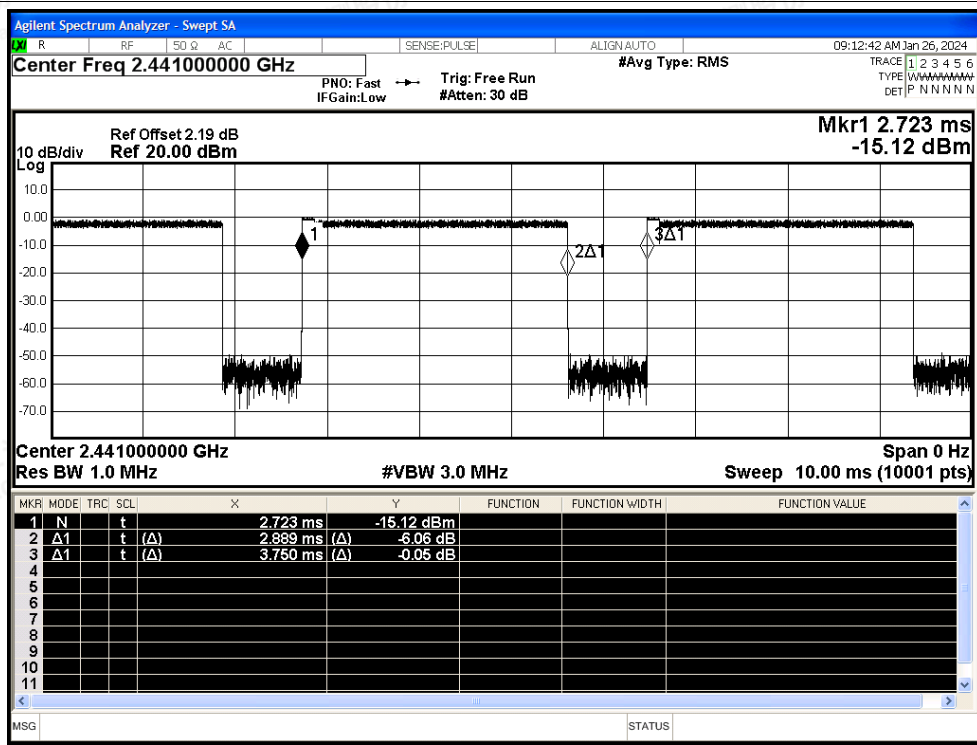




Duty Cycle NVNT 3-DH5 2402MHz Ant

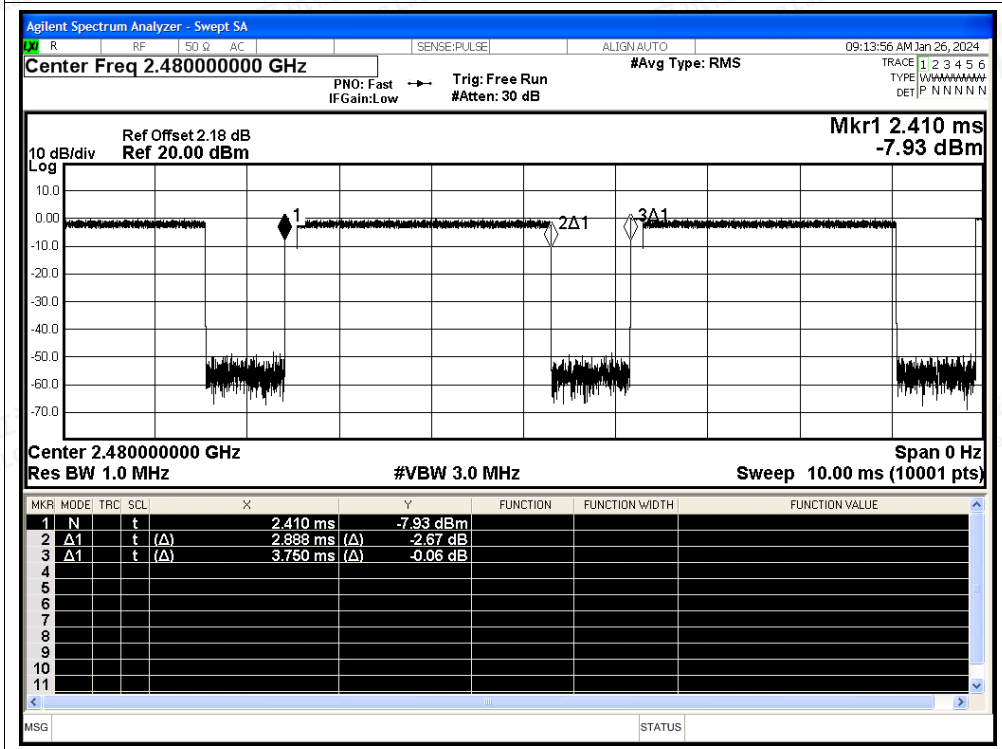


Duty Cycle NVNT 3-DH5 2441MHz Ant





Duty Cycle NVNT 3-DH5 2480MHz Ant





## A.9 Restrict Band

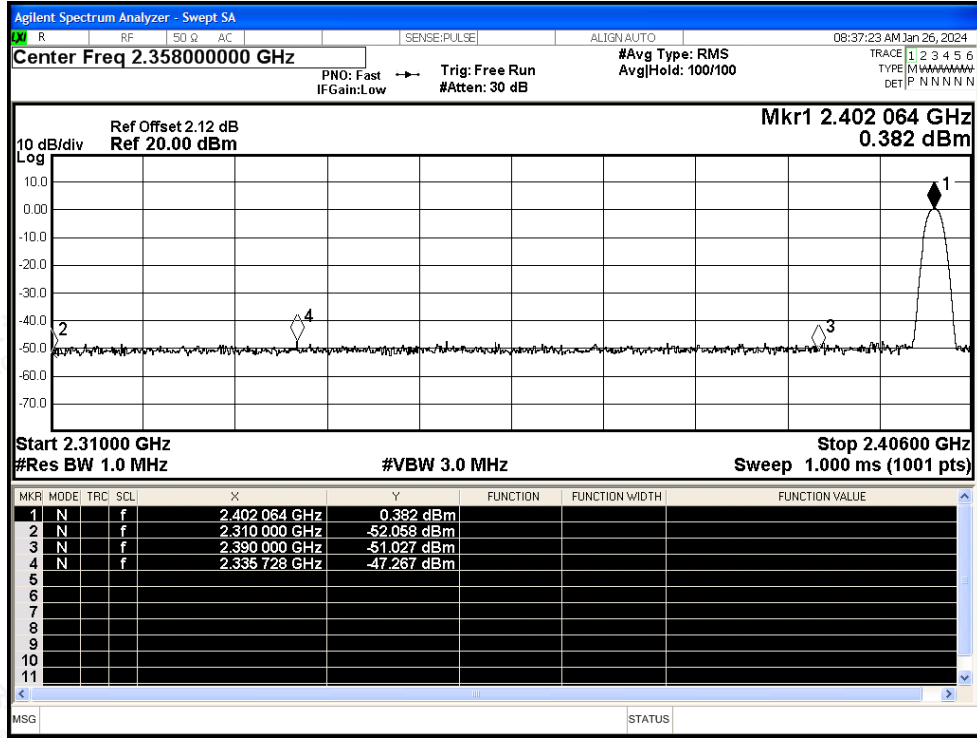
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-52.06	2	-	45.2	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-58.55	2	1.14	39.85	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2335.728	-47.27	2	-	49.99	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2364.816	-57.78	2	1.14	40.62	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-51.03	2	-	46.23	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-58.34	2	1.14	40.06	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-48.41	2	-	48.85	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-57.74	2	1.14	40.66	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2490.472	-46.71	2	-	50.55	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2498.608	-57.12	2	1.14	41.28	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-50.01	2	-	47.25	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-58.62	2	1.14	39.78	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-50.36	2	-	46.9	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-59.55	2	1.14	38.85	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2351.472	-47.57	2	-	49.69	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2384.112	-57.65	2	1.14	40.75	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-50.21	2	-	47.05	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-58.36	2	1.14	40.04	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-49.69	2	-	47.57	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-57.57	2	1.14	40.83	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2486.44	-46.72	2	-	50.54	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2494.432	-57.18	2	1.14	41.22	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-50.73	2	-	46.53	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-58.3	2	1.14	40.1	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-51.29	2	-	45.97	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-58.91	2	1.13	39.48	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2365.968	-47.75	2	-	49.51	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2343.312	-57.84	2	1.13	40.55	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-50.97	2	-	46.29	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-58.42	2	1.13	39.97	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-49.78	2	-	47.48	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-57.97	2	1.13	40.42	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2487.184	-46.83	2	-	50.43	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2486.176	-57.29	2	1.13	41.1	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-48.92	2	-	48.34	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-58.22	2	1.13	40.17	Average	54	Pass



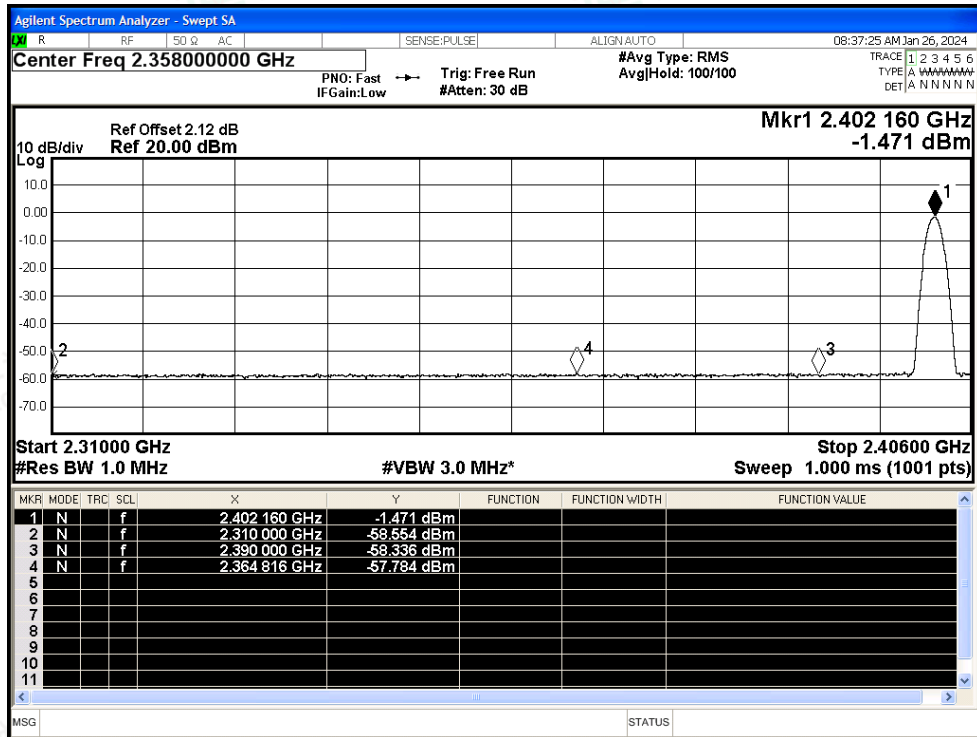


Test Graphs

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

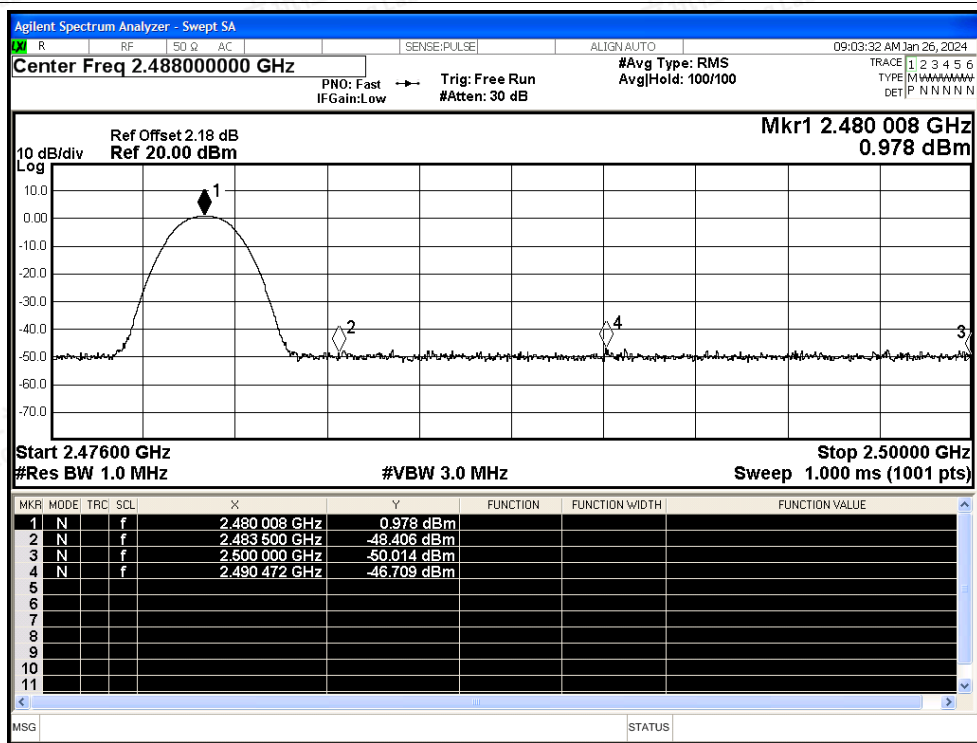


Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Average

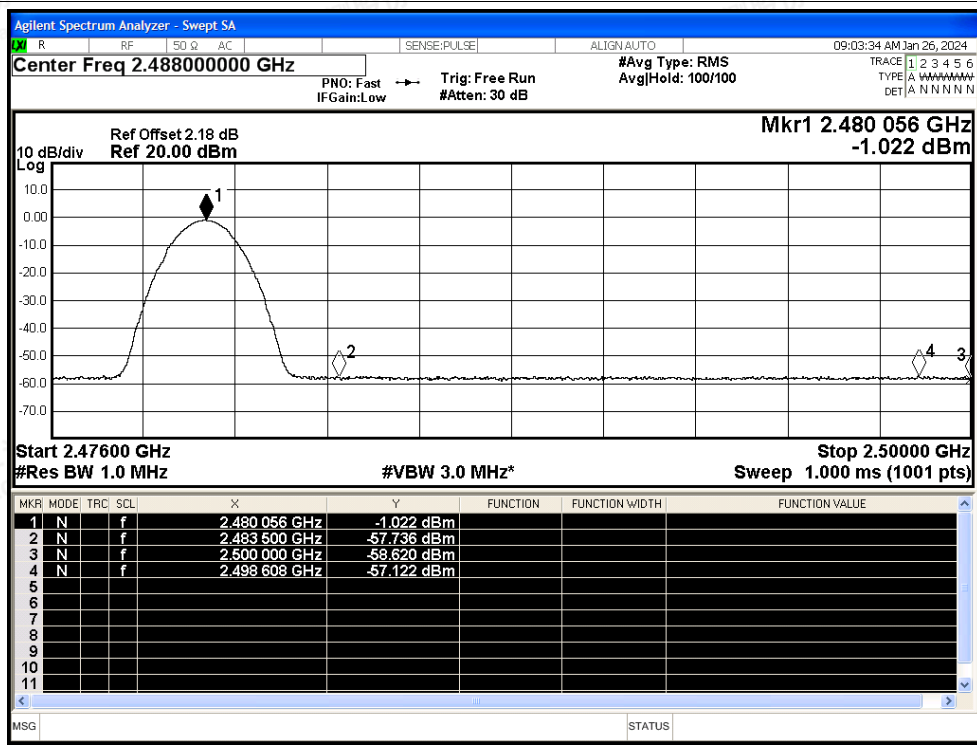




Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Peak



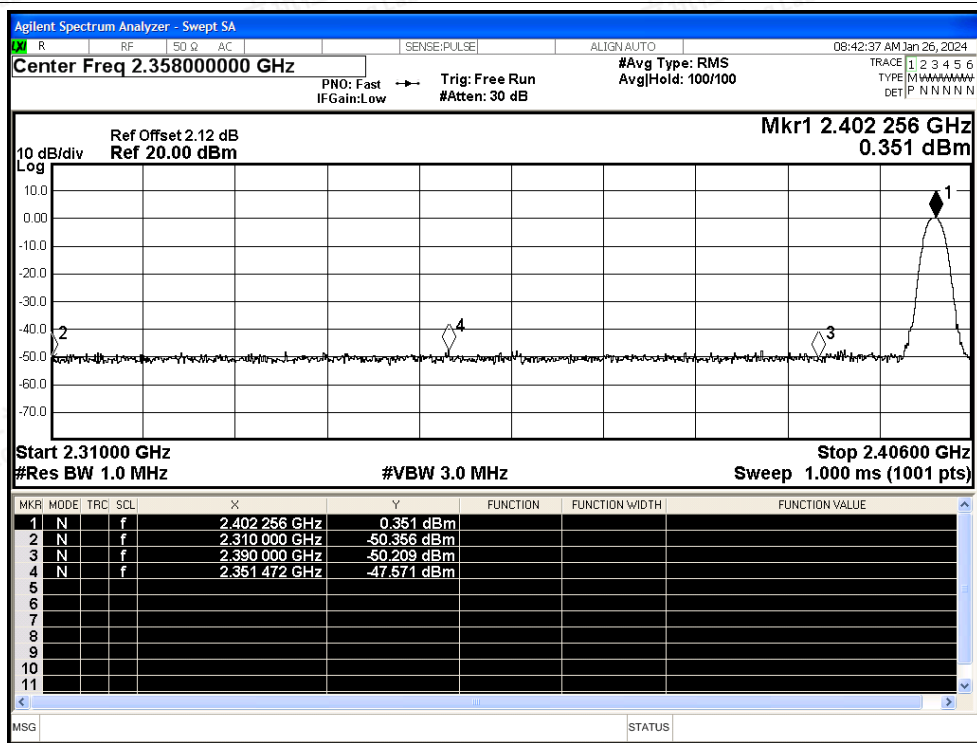
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Average



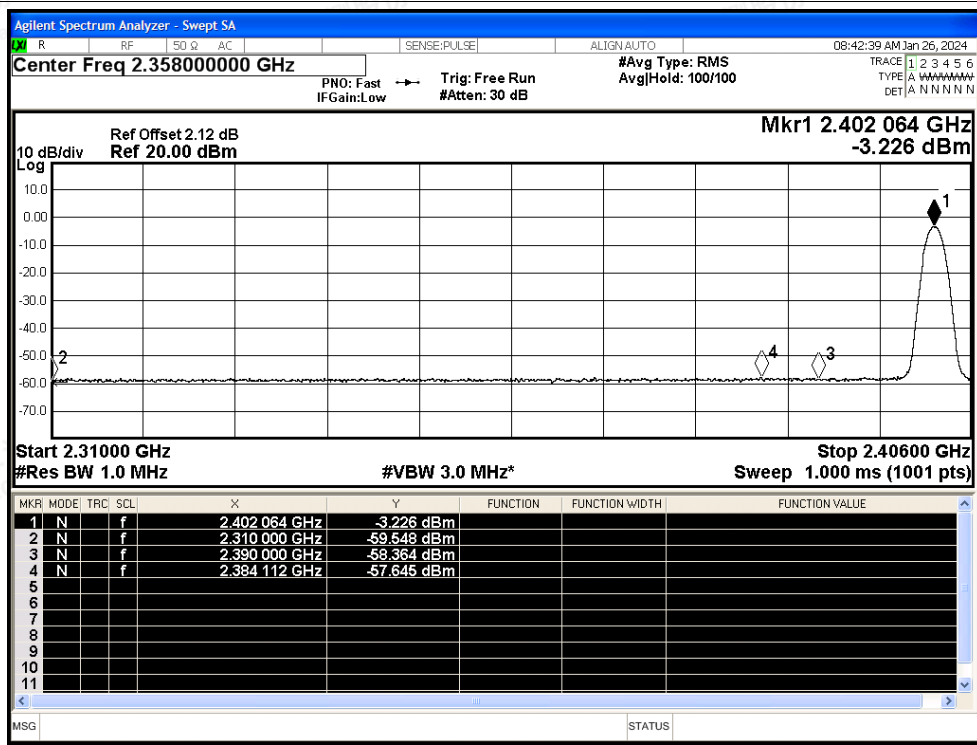




Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Peak

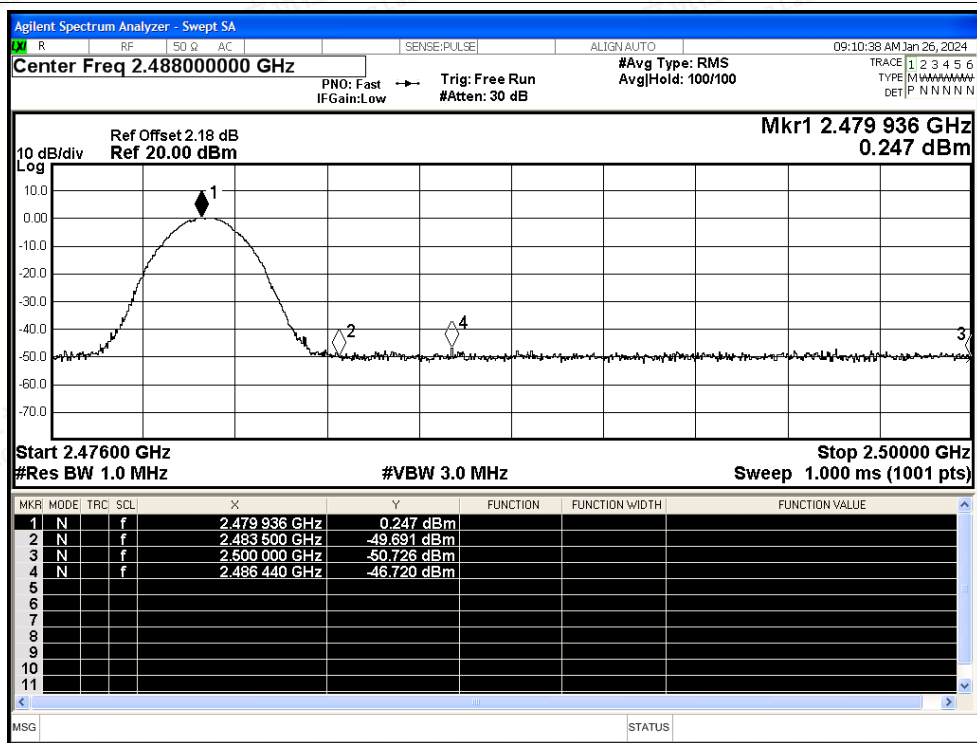


Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Average

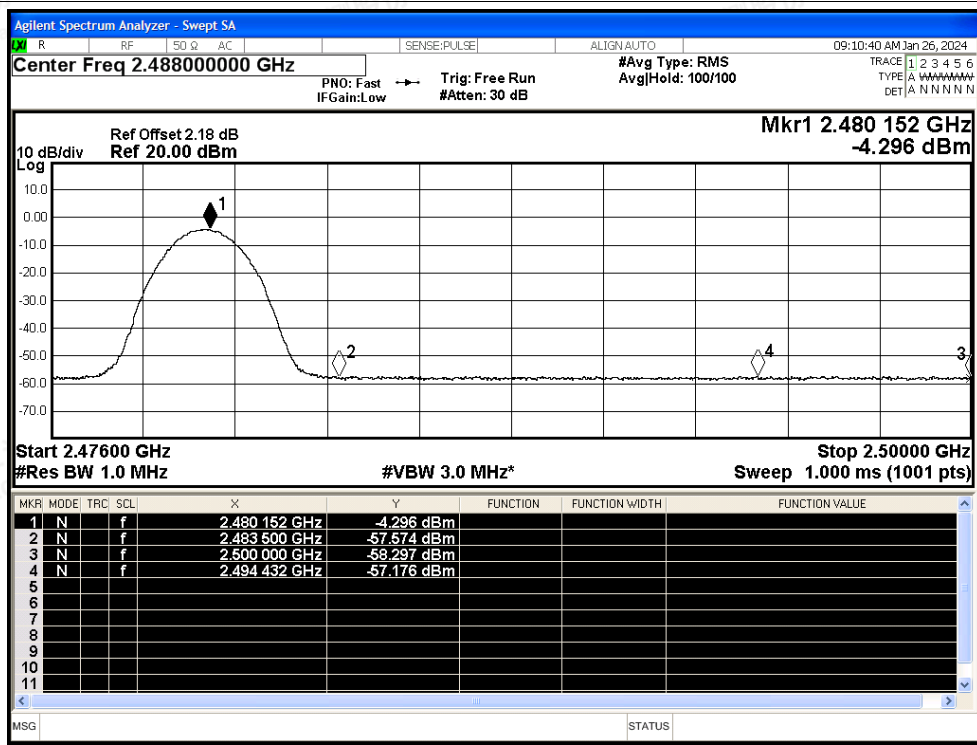




Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Peak

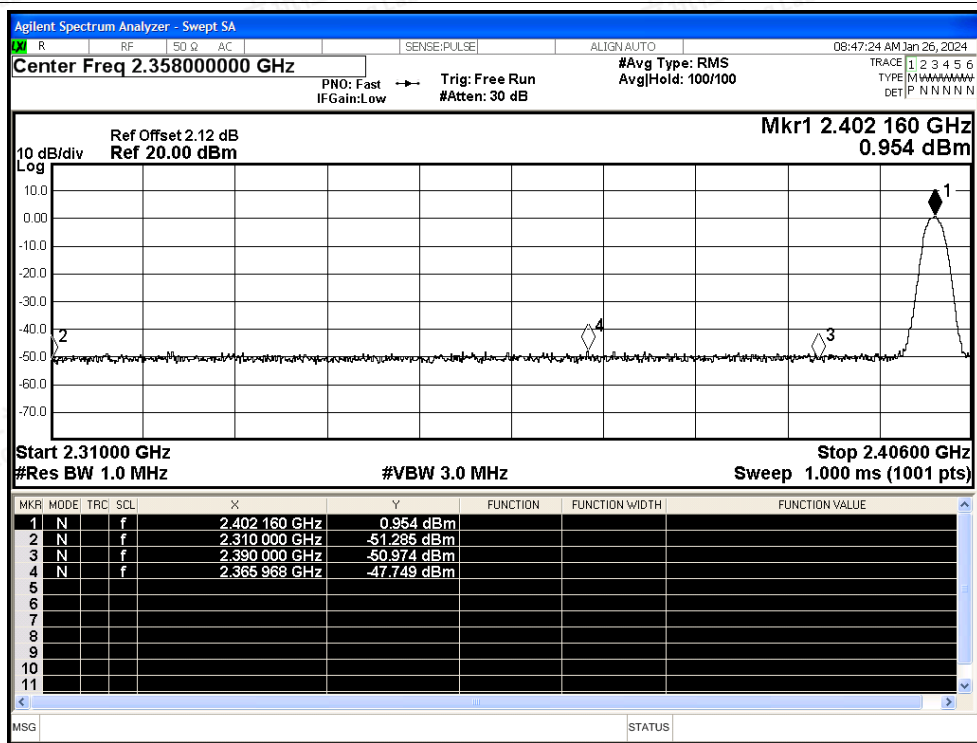


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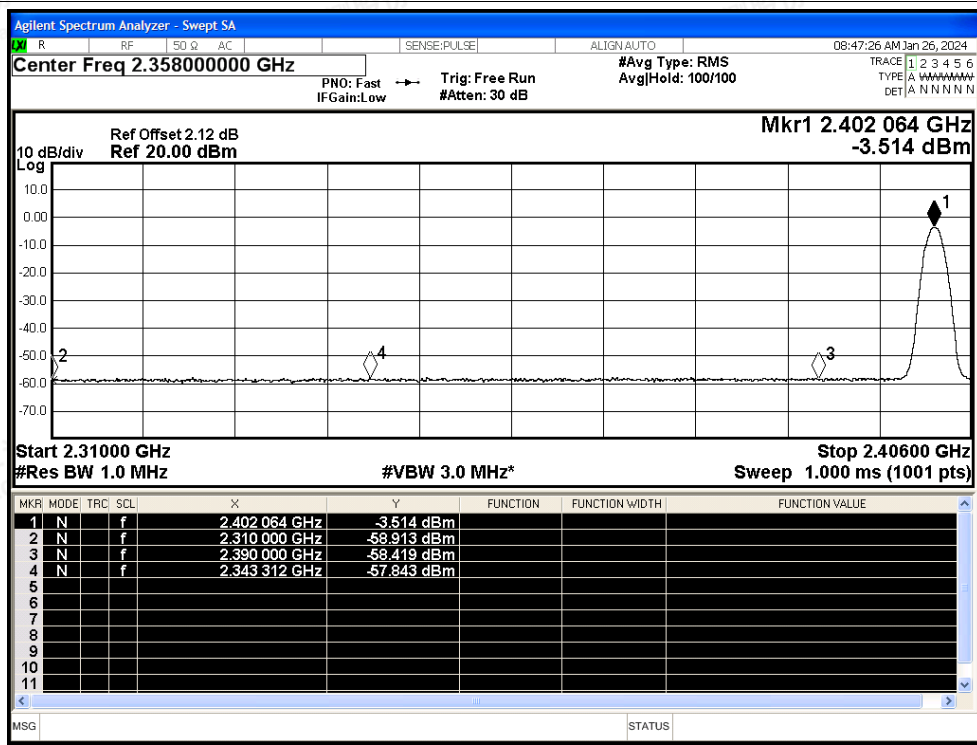




Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Peak

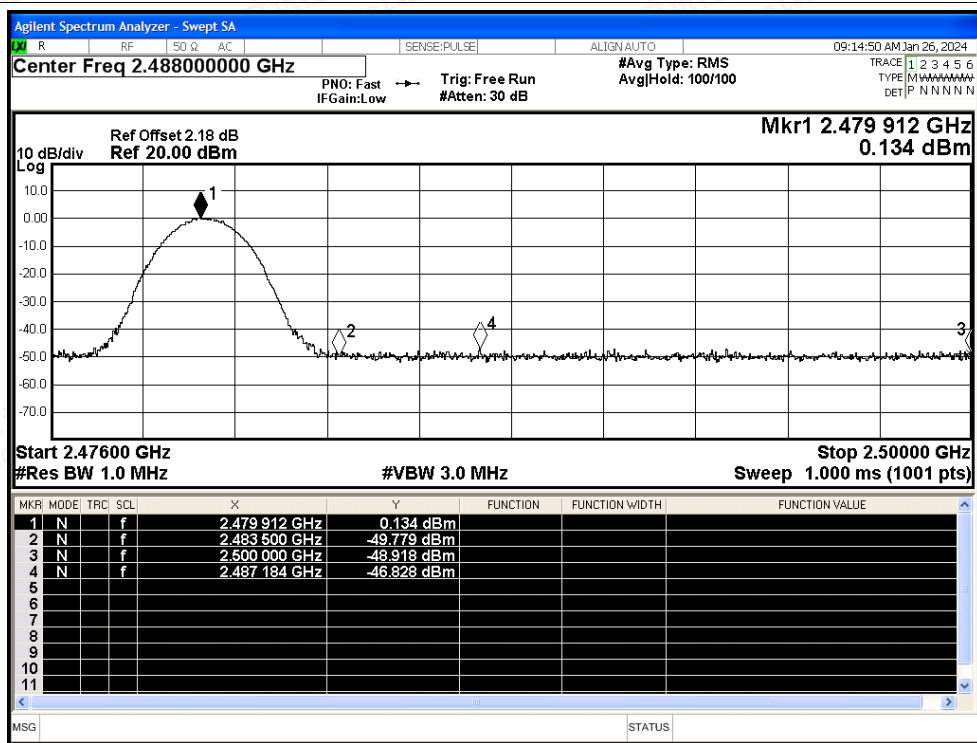


Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Average





Restrict Band NVNT 3-DH5 2480MHz Ant No-Hopping Peak



Restrict Band NVNT 3-DH5 2480MHz Ant No-Hopping Average

