



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Smart switch

Test Model: Shelly Plus 1PM

Environmental Conditions

Temperature:	23.5 ° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	 Bill Zhu
Supervised by:	 Li Huan





A.1 -20dB Bandwidth

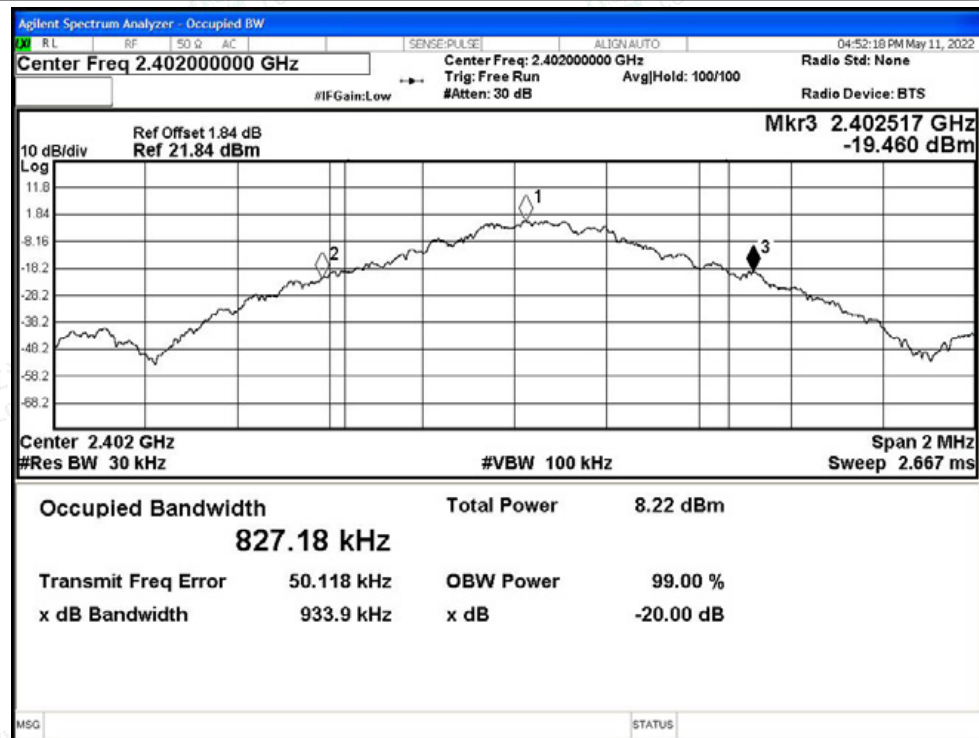
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.934	---	Pass
NVNT	1-DH5	2441	Ant1	0.941	---	Pass
NVNT	1-DH5	2480	Ant1	0.931	---	Pass
NVNT	2-DH5	2402	Ant1	1.31	---	Pass
NVNT	2-DH5	2441	Ant1	1.322	---	Pass
NVNT	2-DH5	2480	Ant1	1.318	---	Pass
NVNT	3-DH5	2402	Ant1	1.31	---	Pass
NVNT	3-DH5	2441	Ant1	1.29	---	Pass
NVNT	3-DH5	2480	Ant1	1.306	---	Pass





Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

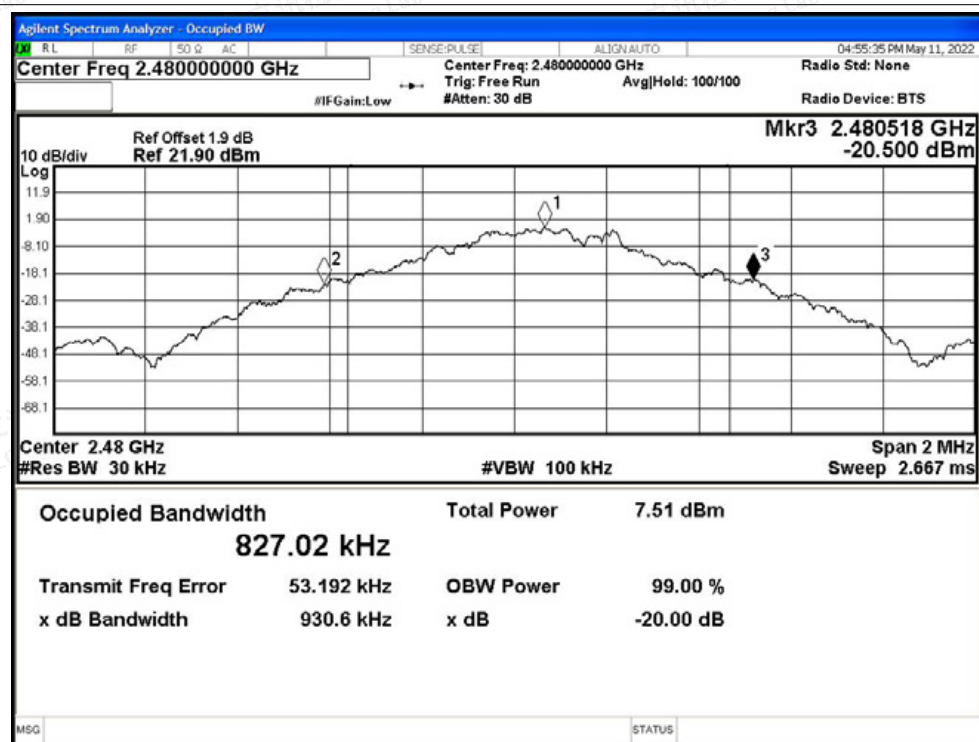
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

Scan code to check authenticity



-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

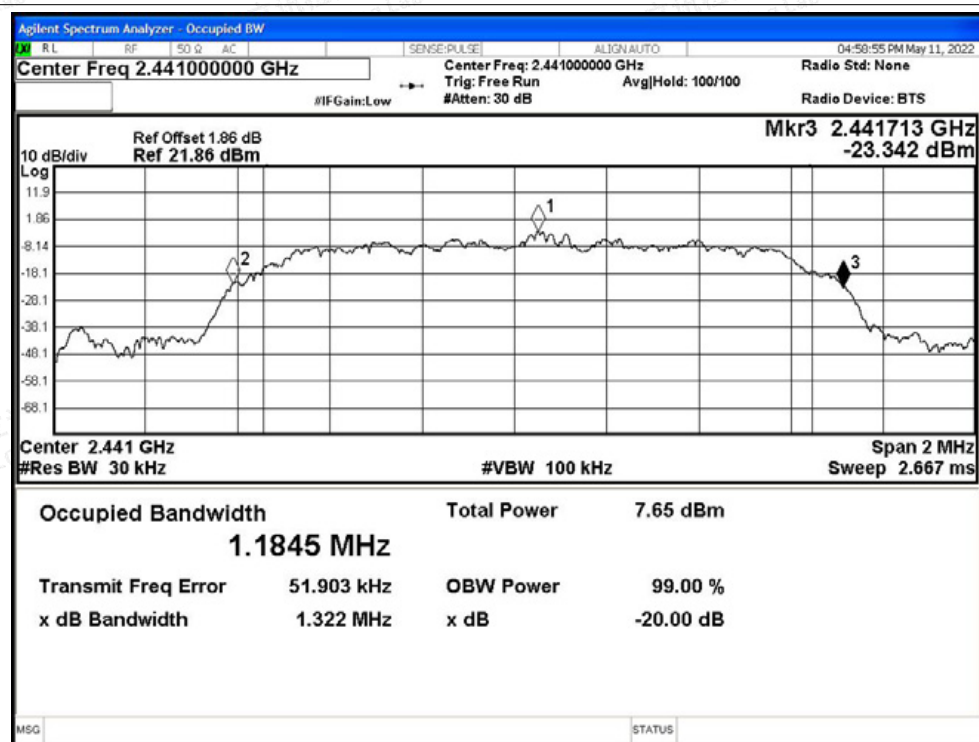


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

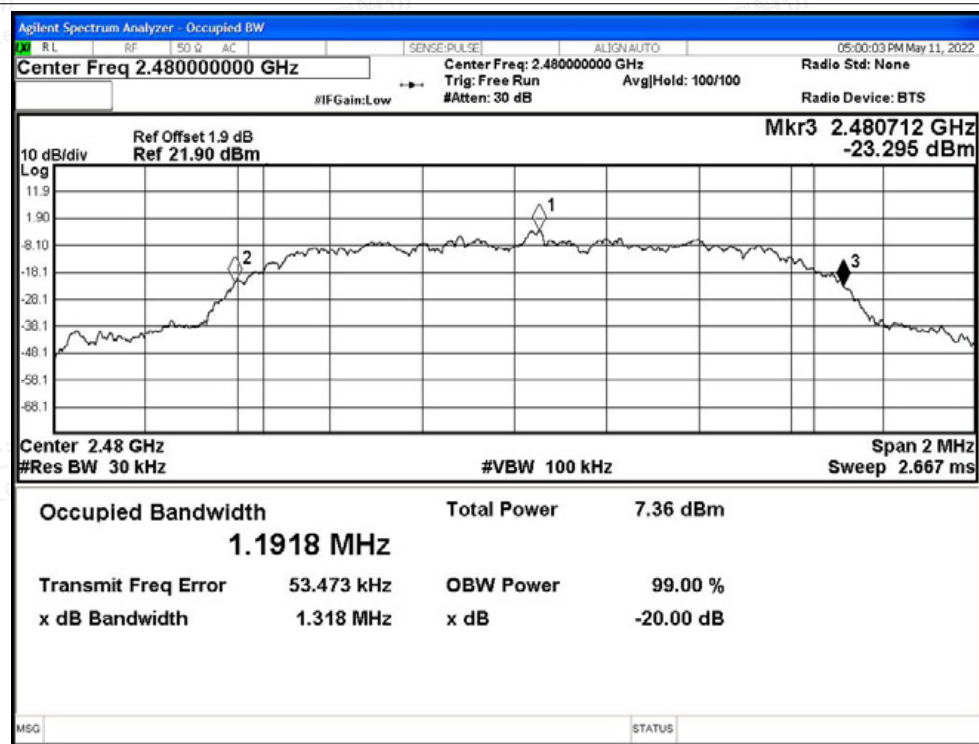




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

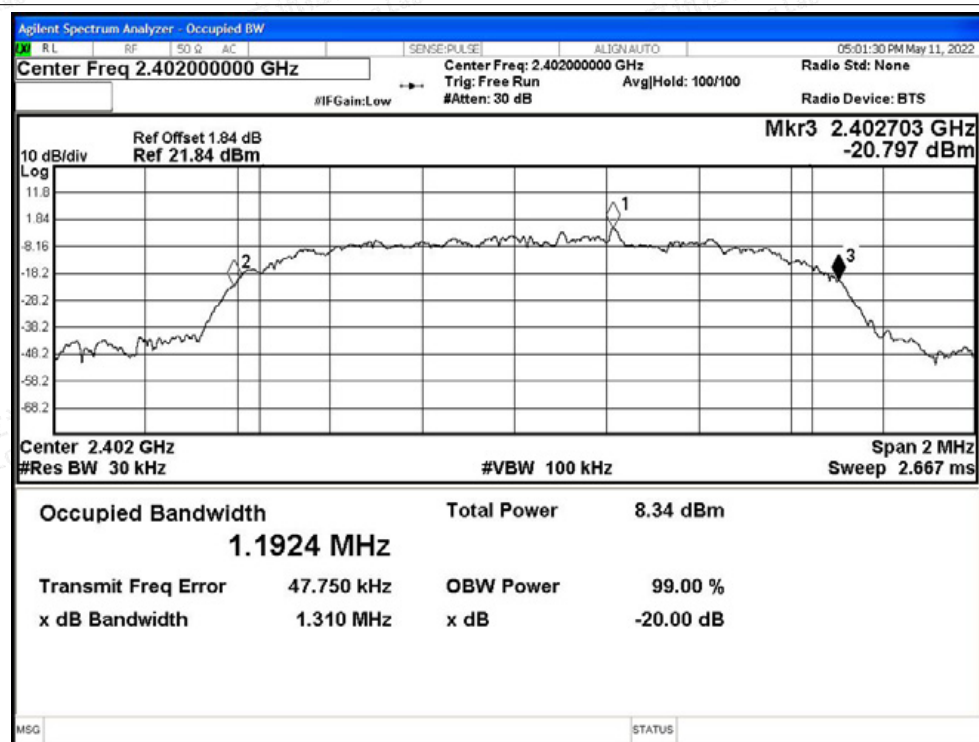


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

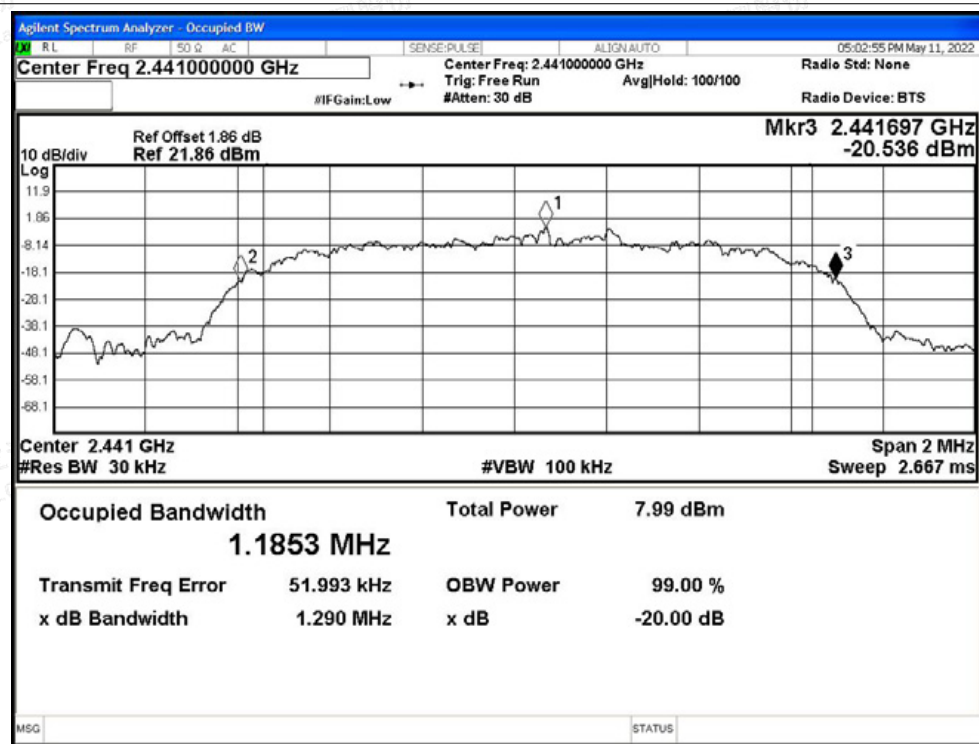


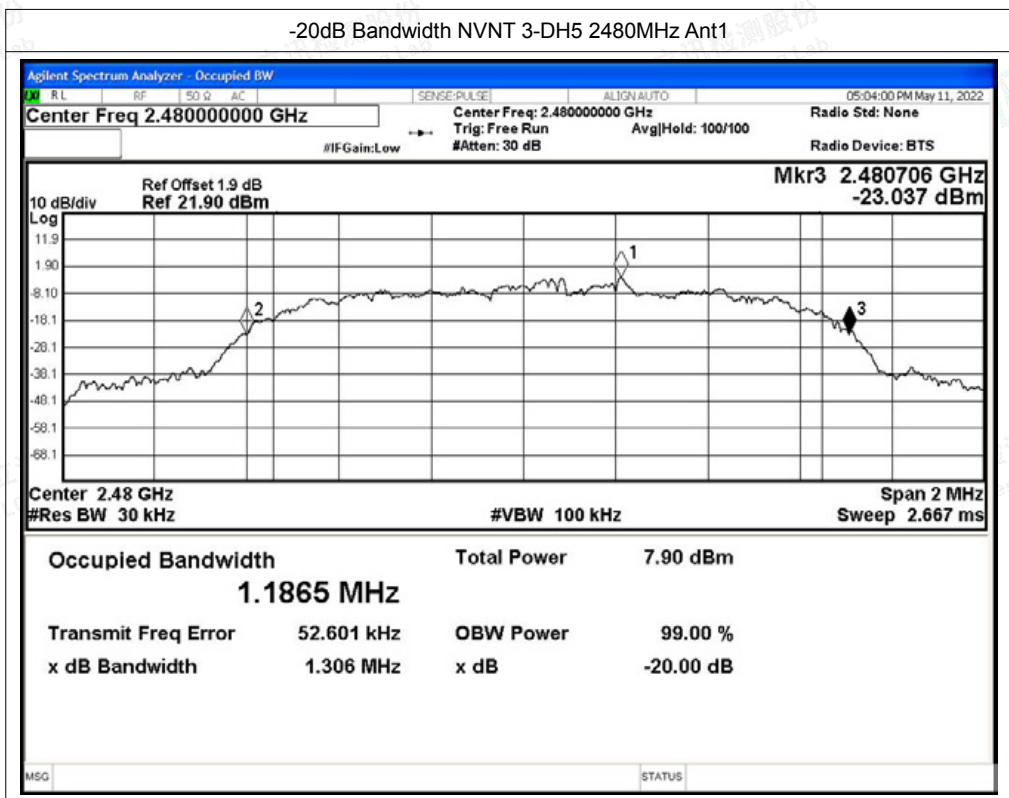


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1







A.2 Maximum Peak Conducted Output Power

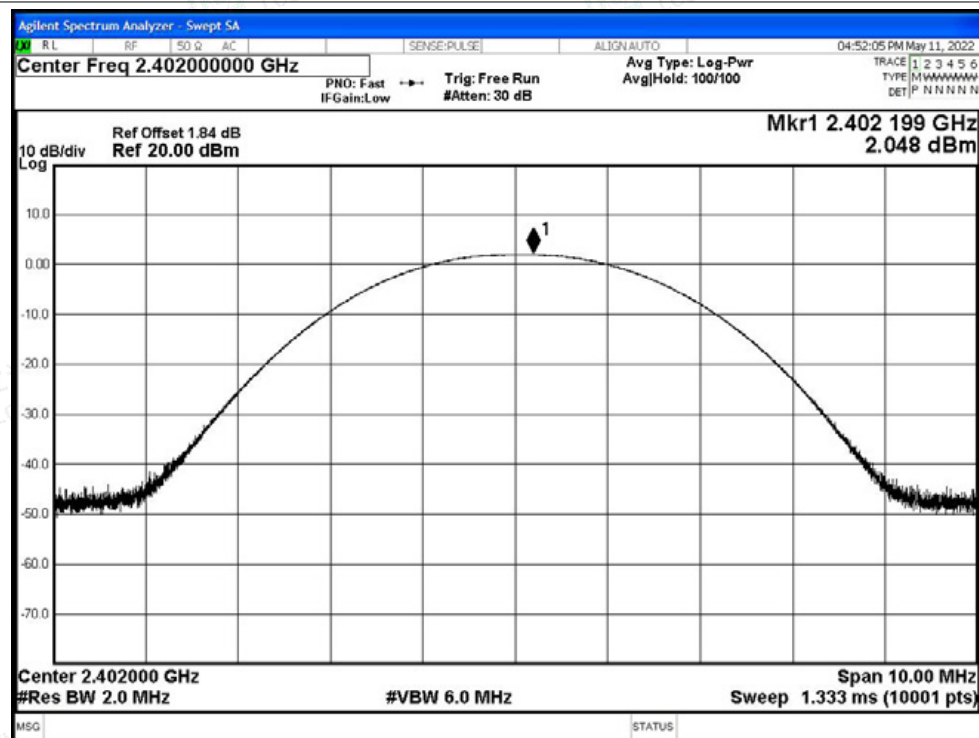
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	2.05	20.97	Pass
NVNT	1-DH5	2441	Ant1	1.45	20.97	Pass
NVNT	1-DH5	2480	Ant1	1.28	20.97	Pass
NVNT	2-DH5	2402	Ant1	4.31	20.97	Pass
NVNT	2-DH5	2441	Ant1	3.69	20.97	Pass
NVNT	2-DH5	2480	Ant1	3.54	20.97	Pass
NVNT	3-DH5	2402	Ant1	4.66	20.97	Pass
NVNT	3-DH5	2441	Ant1	4.22	20.97	Pass
NVNT	3-DH5	2480	Ant1	3.97	20.97	Pass



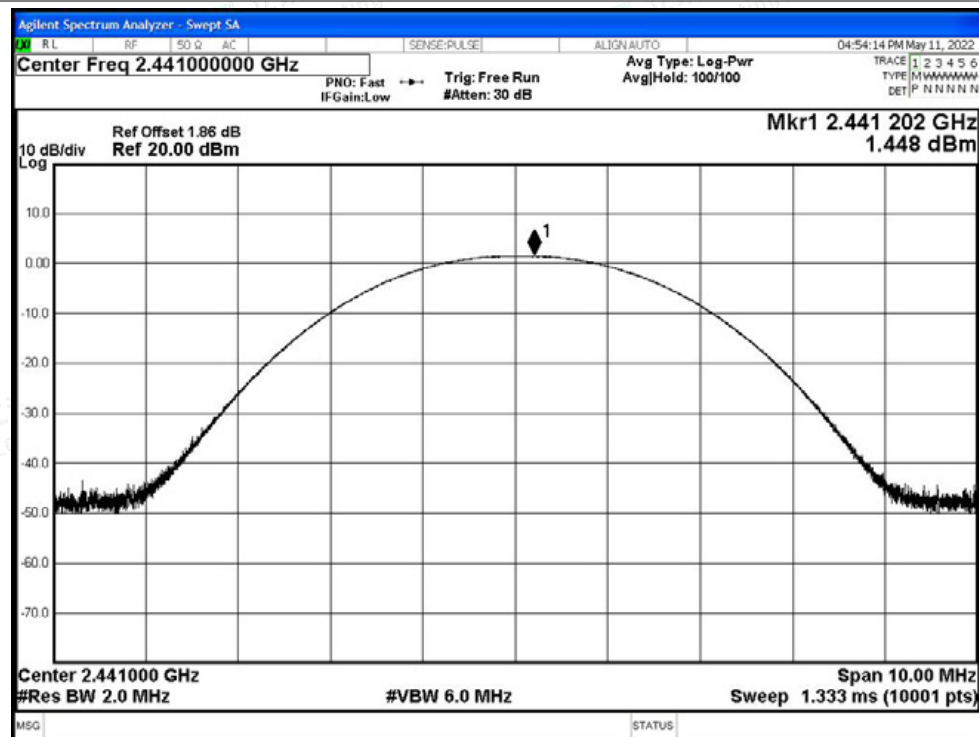


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1



Power NVNT 1-DH5 2441MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

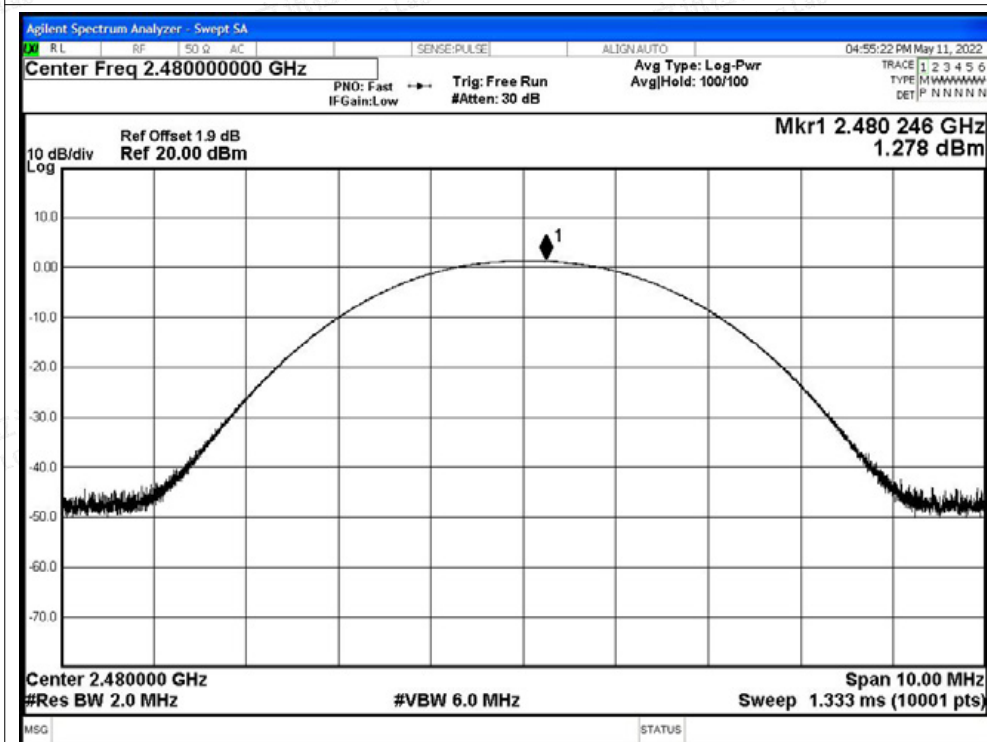
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

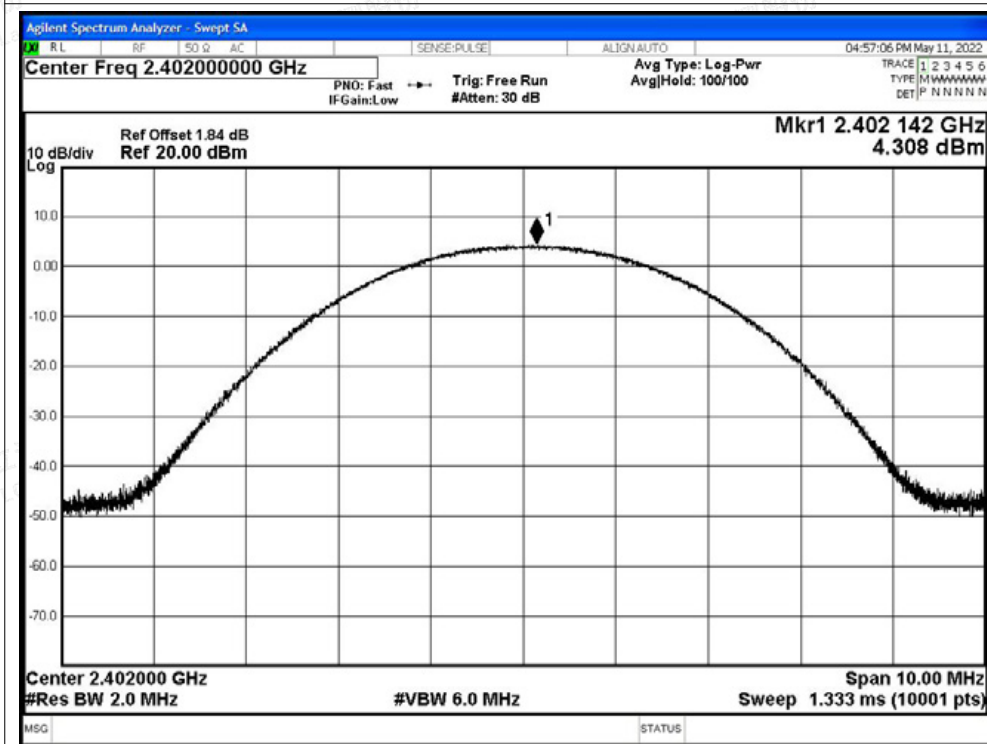
Scan code to check authenticity



Power NVNT 1-DH5 2480MHz Ant1

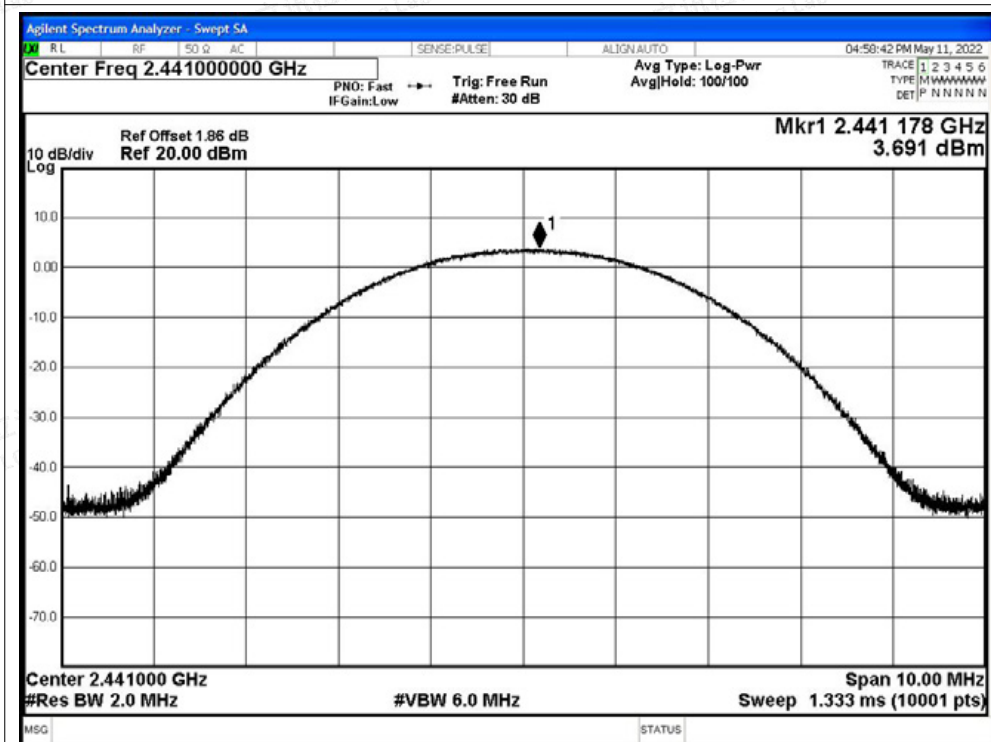


Power NVNT 2-DH5 2402MHz Ant1

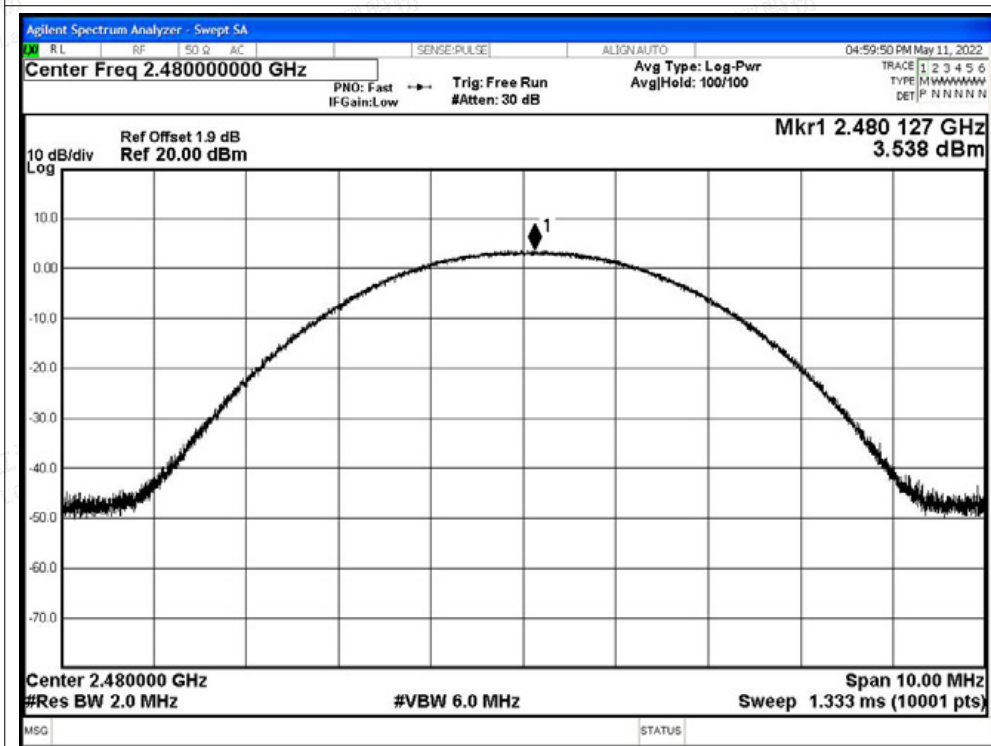




Power NVNT 2-DH5 2441MHz Ant1

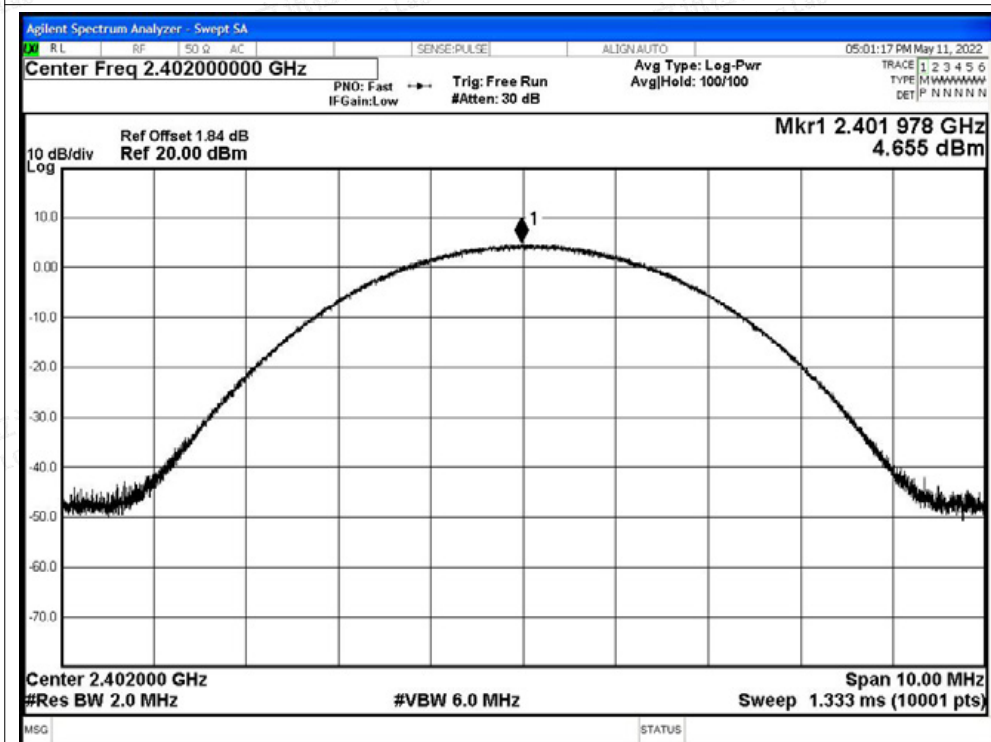


Power NVNT 2-DH5 2480MHz Ant1

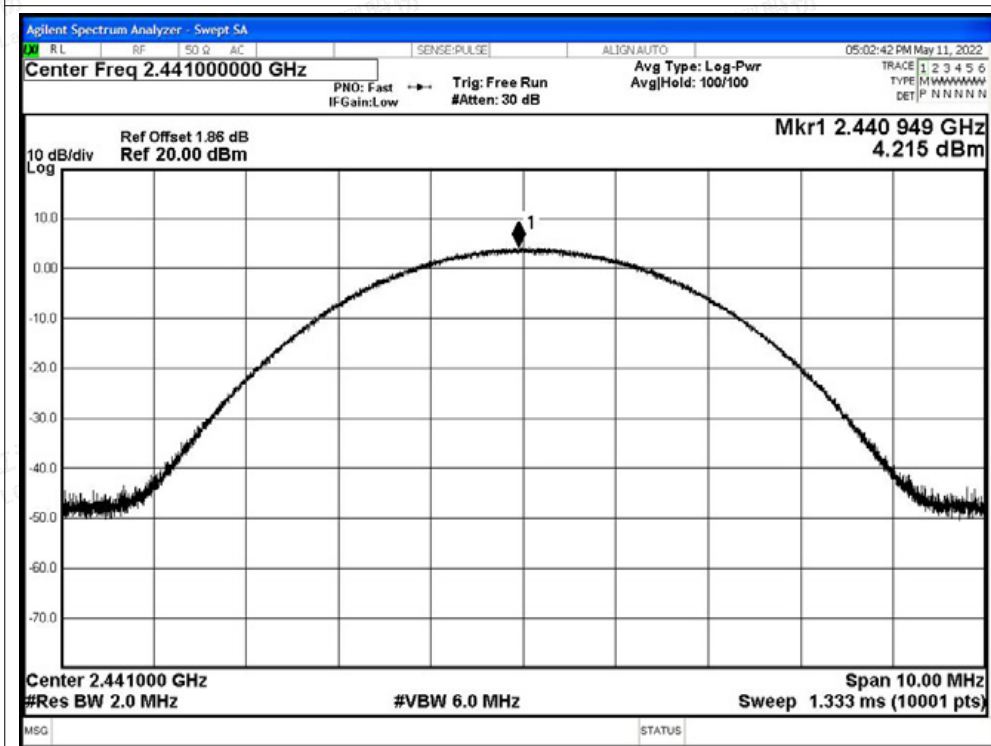


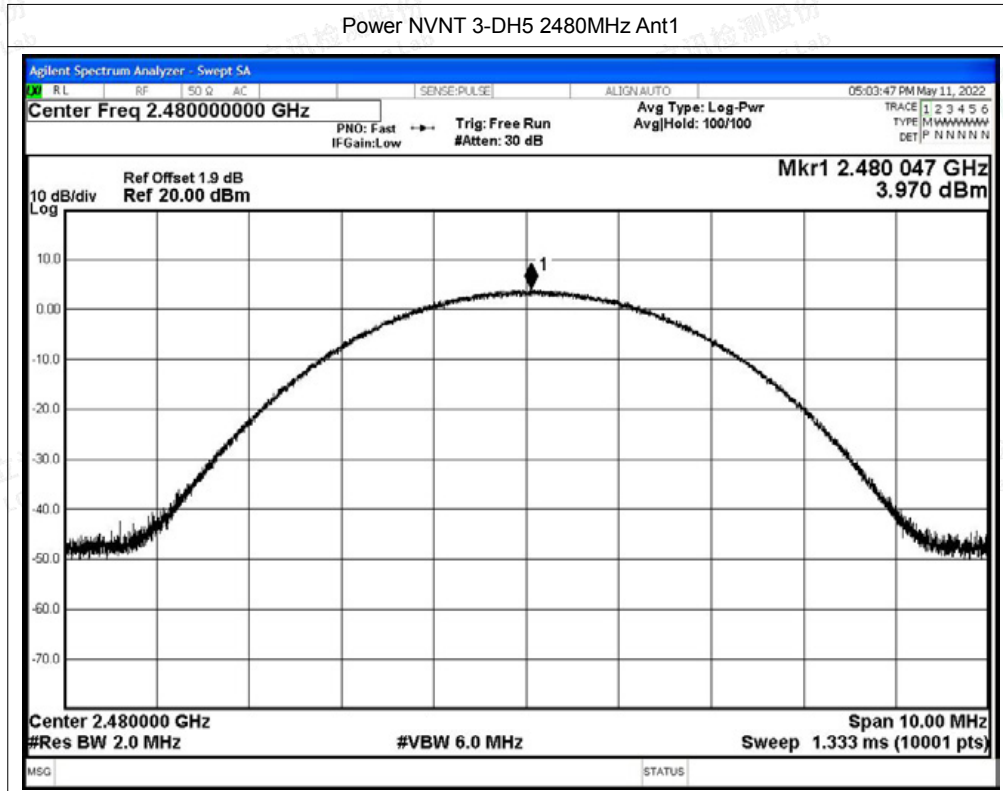


Power NVNT 3-DH5 2402MHz Ant1



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	2402.07	2403.068	0.998	0.623	Pass
NVNT	2-DH5	Ant1	2402.09	2403.028	0.938	0.873	Pass
NVNT	3-DH5	Ant1	2402.056	2403.07	1.014	0.873	Pass



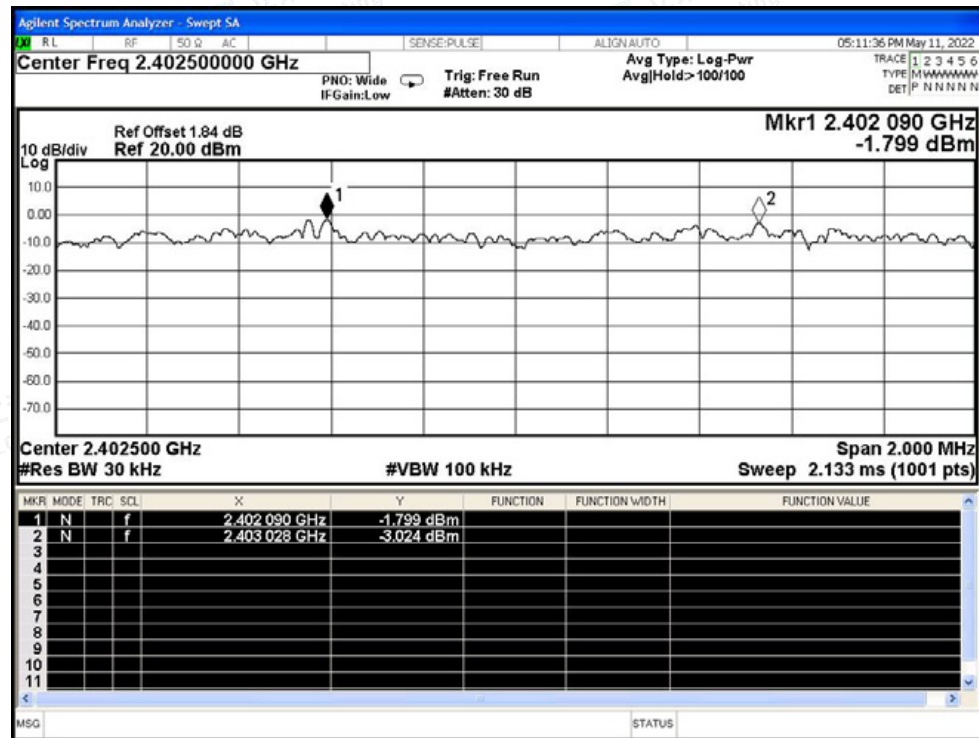


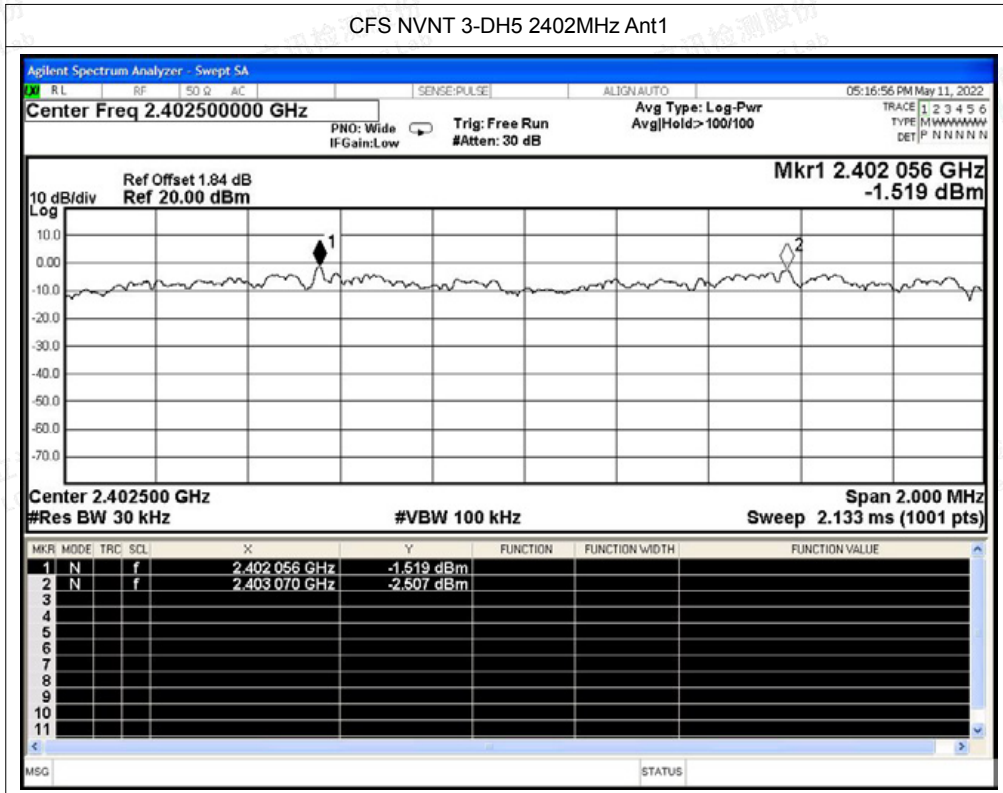
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1







A.4 Dwell Time

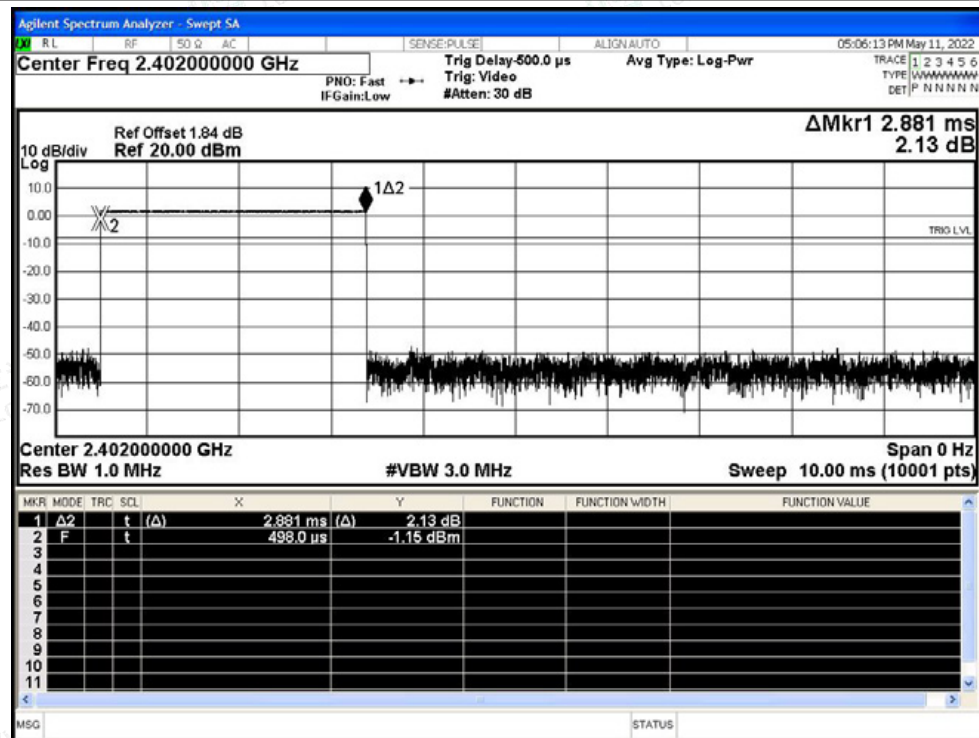
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.881	322.672	112	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.881	311.148	108	31600	400	Pass
NVNT	1-DH5	2480	Ant1	2.882	331.43	115	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.888	303.24	105	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.888	355.224	123	31600	400	Pass
NVNT	2-DH5	2480	Ant1	2.889	320.679	111	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.891	306.446	106	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.891	338.247	117	31600	400	Pass
NVNT	3-DH5	2480	Ant1	2.891	323.792	112	31600	400	Pass



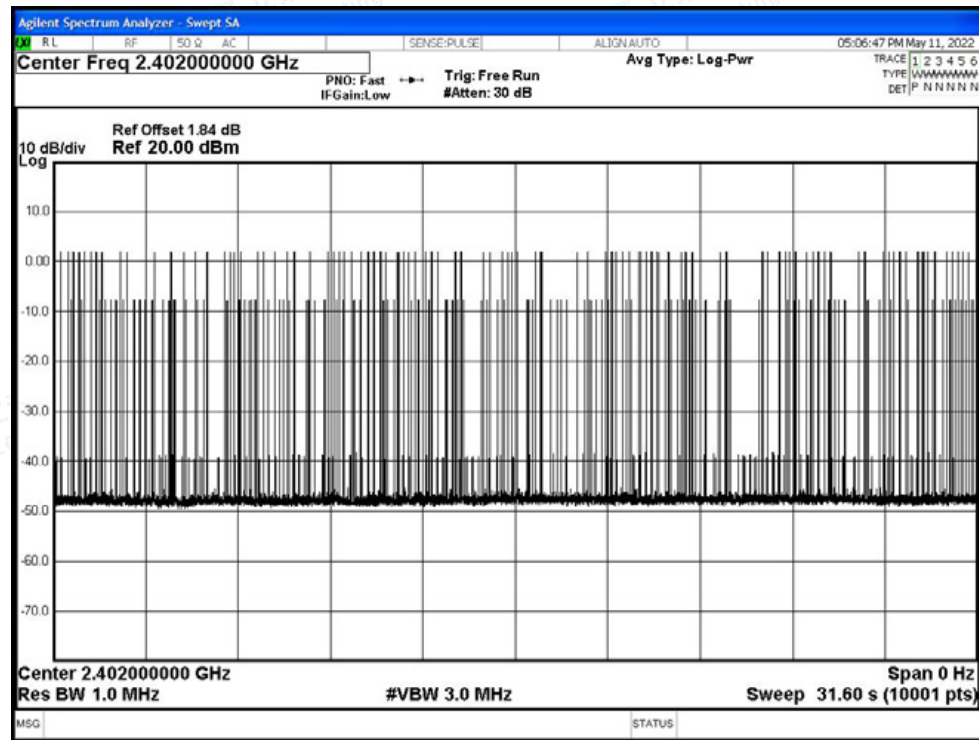


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

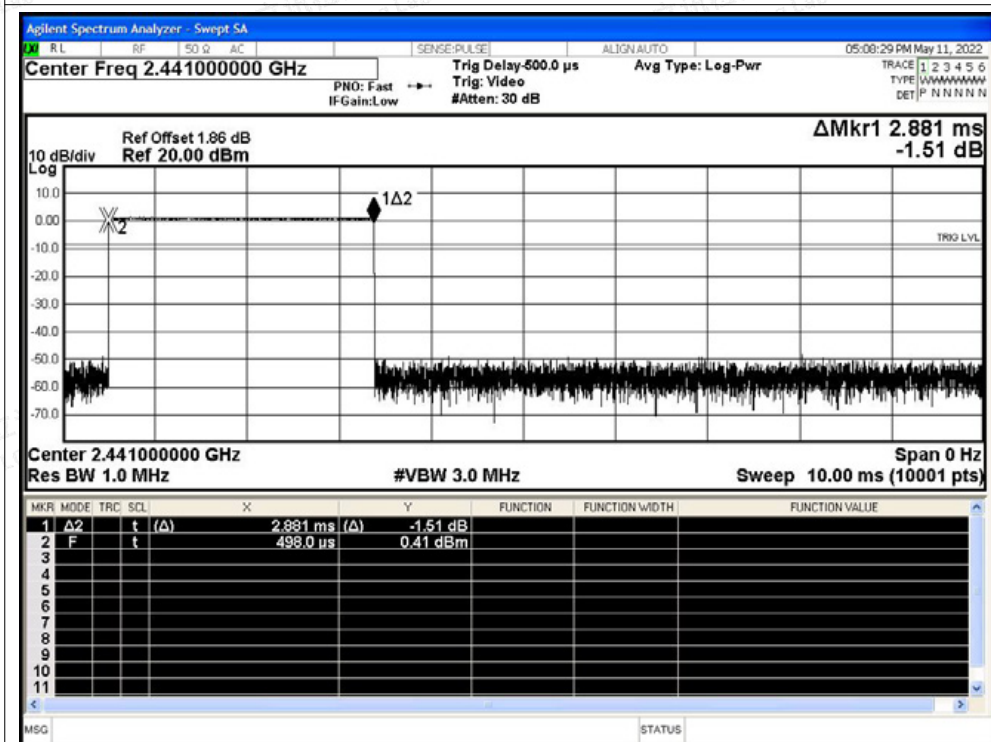


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated

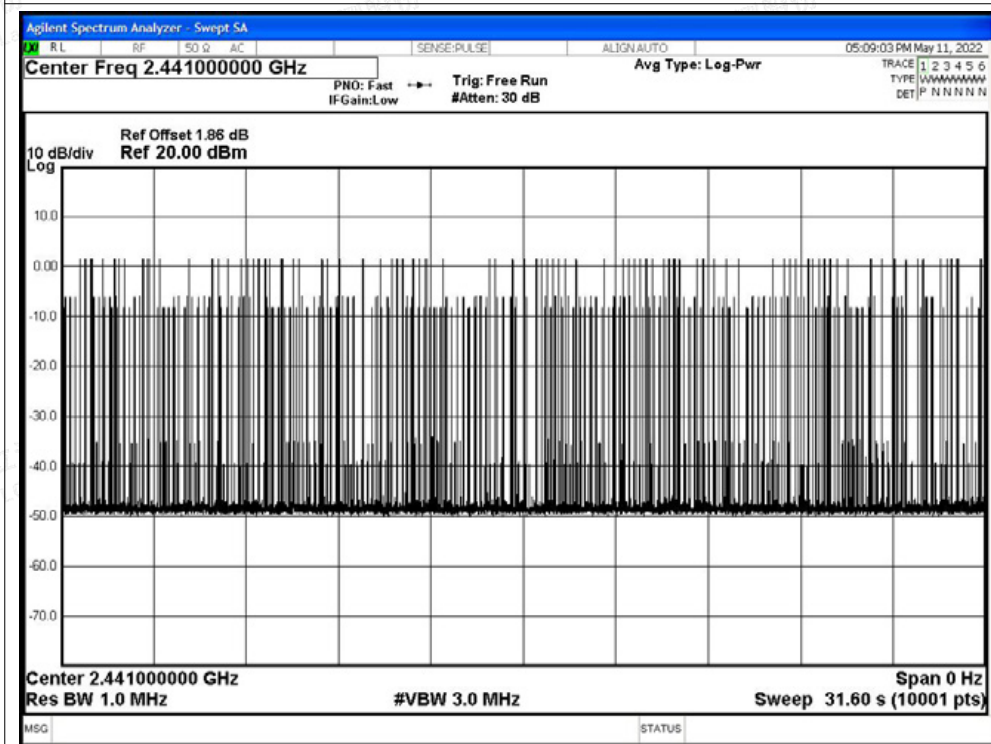




Dwell NVNT 1-DH5 2441MHz Ant1 One Burst

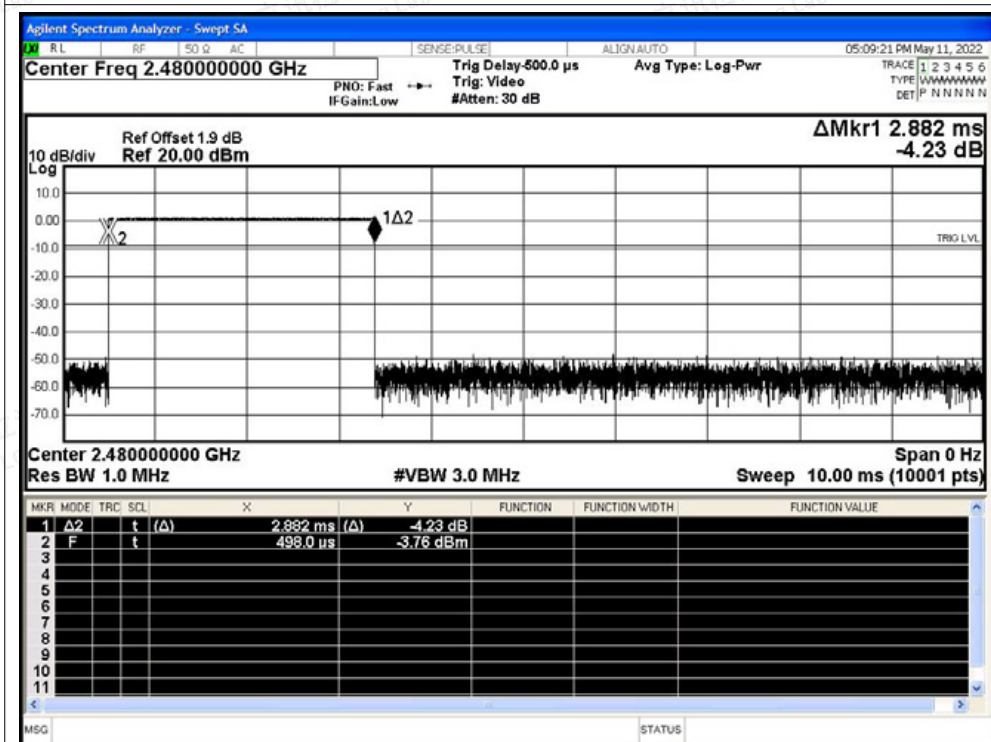


Dwell NVNT 1-DH5 2441MHz Ant1 Accumulated

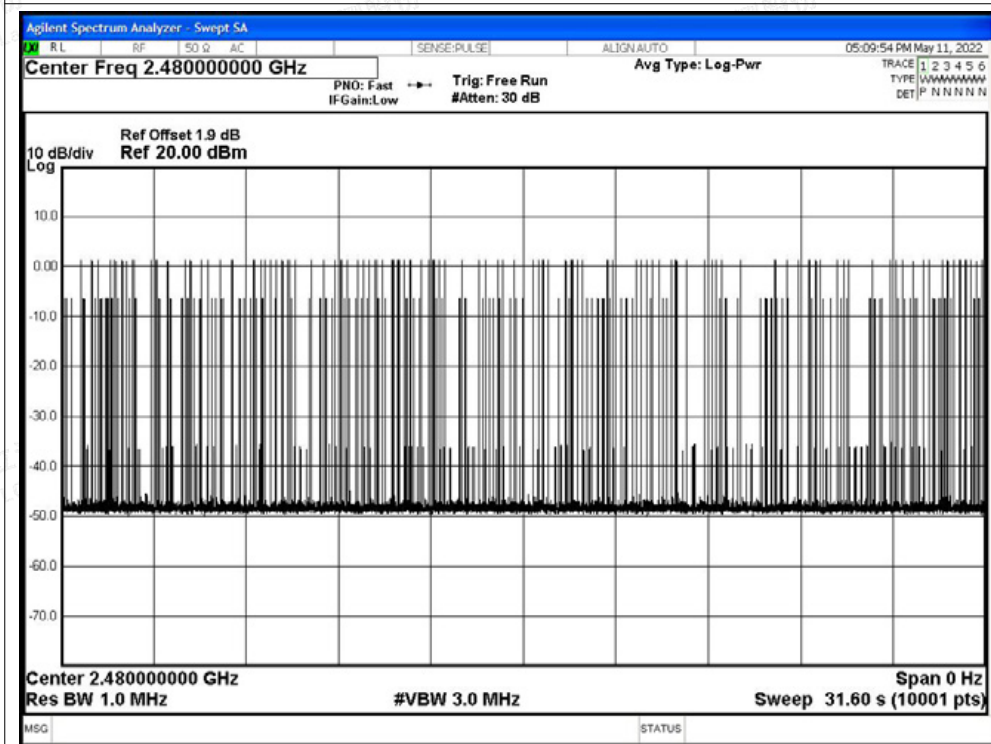




Dwell NVNT 1-DH5 2480MHz Ant1 One Burst

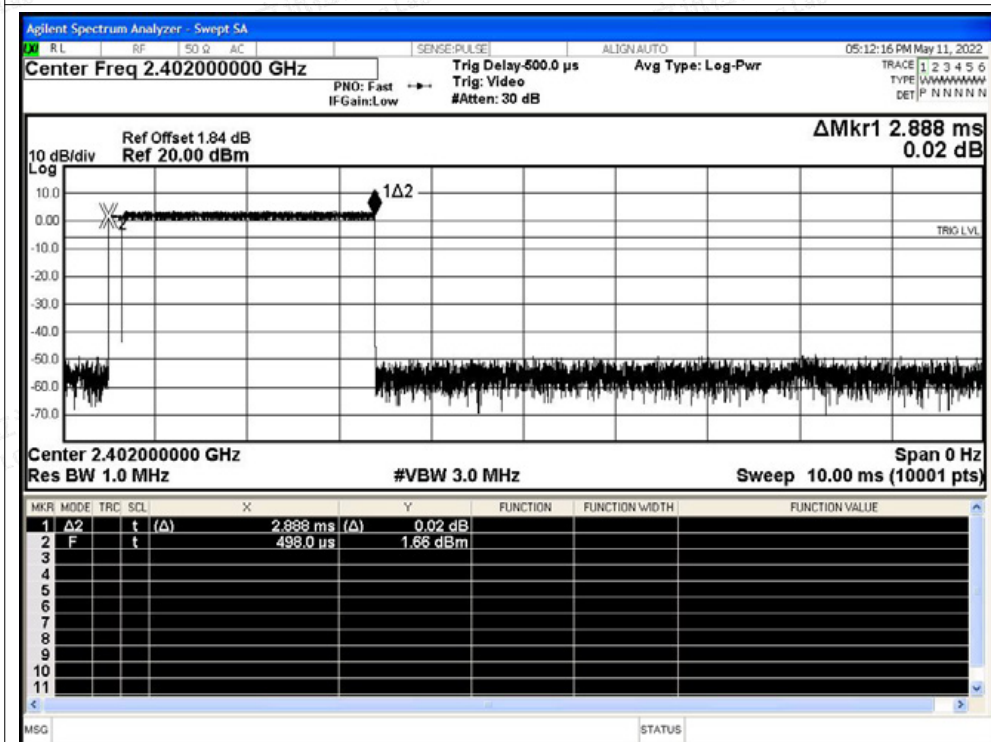


Dwell NVNT 1-DH5 2480MHz Ant1 Accumulated

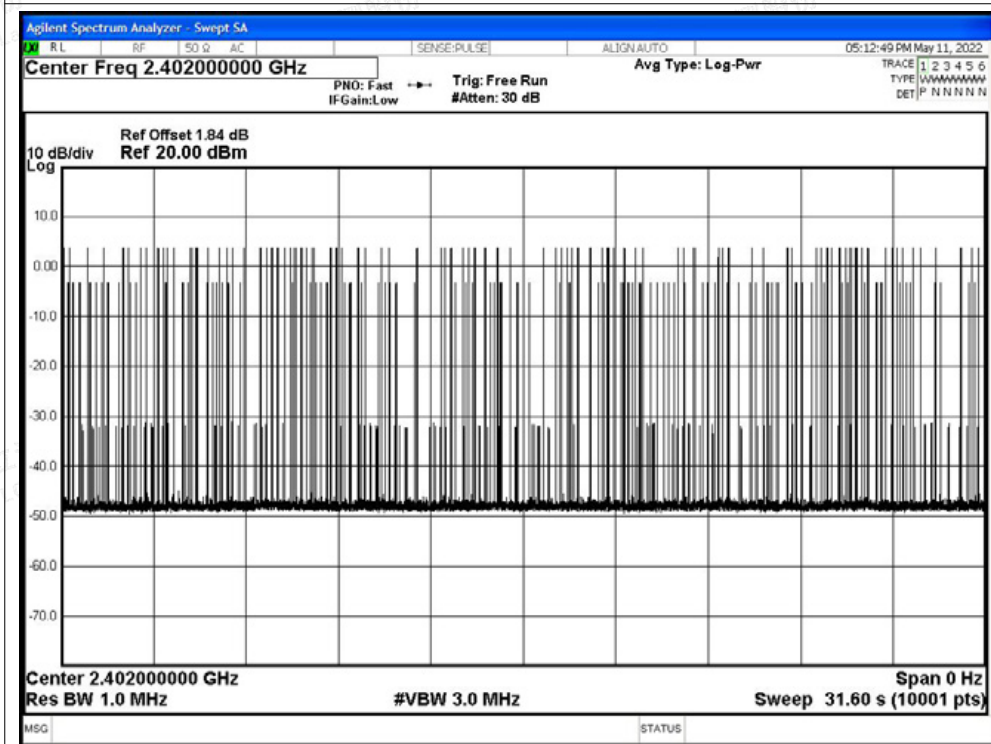




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

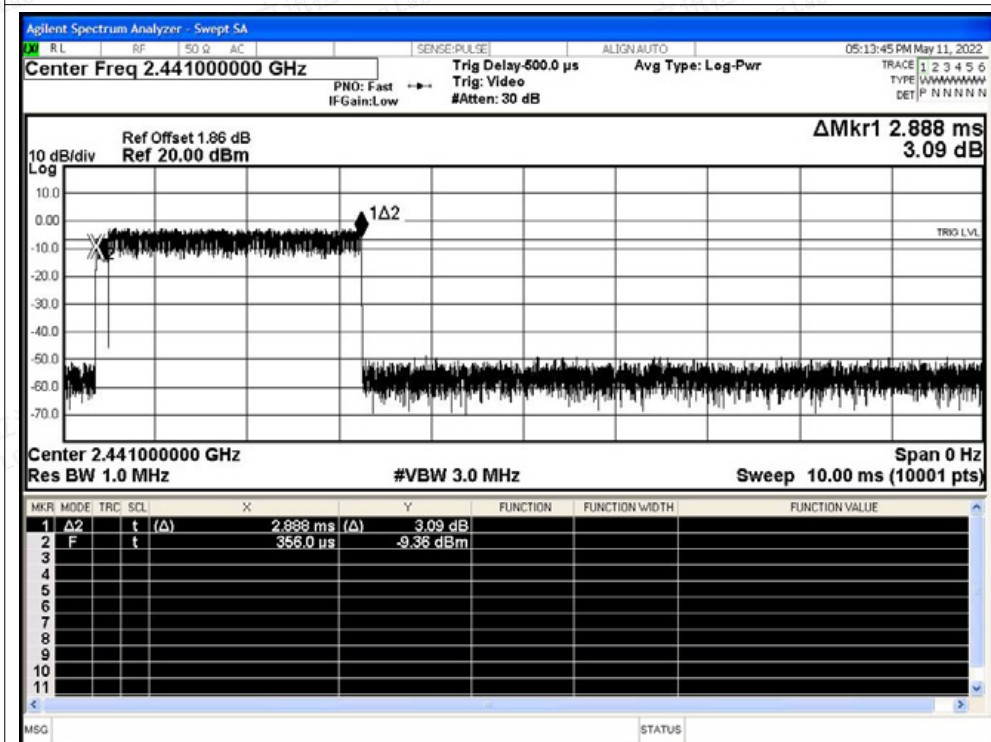


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

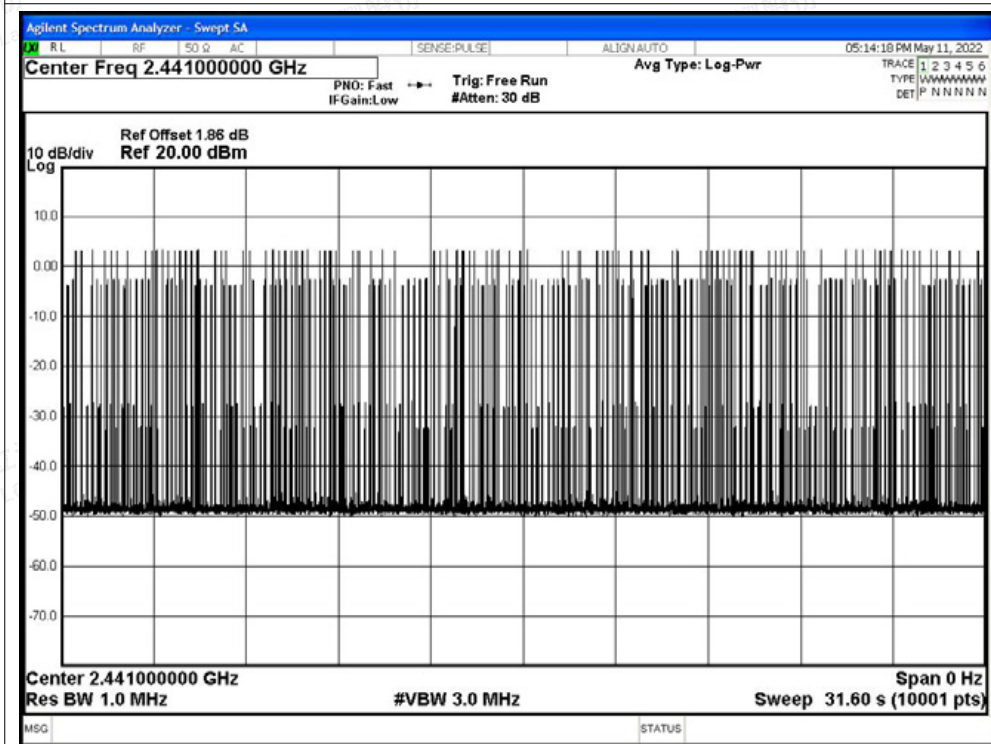




Dwell NVNT 2-DH5 2441MHz Ant1 One Burst

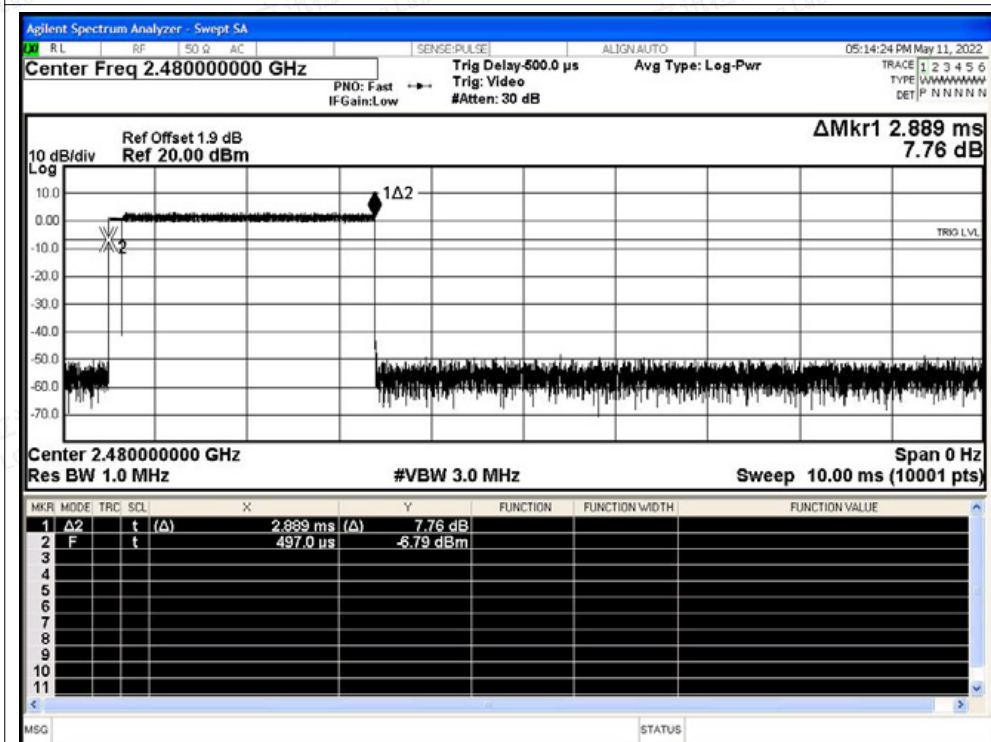


Dwell NVNT 2-DH5 2441MHz Ant1 Accumulated

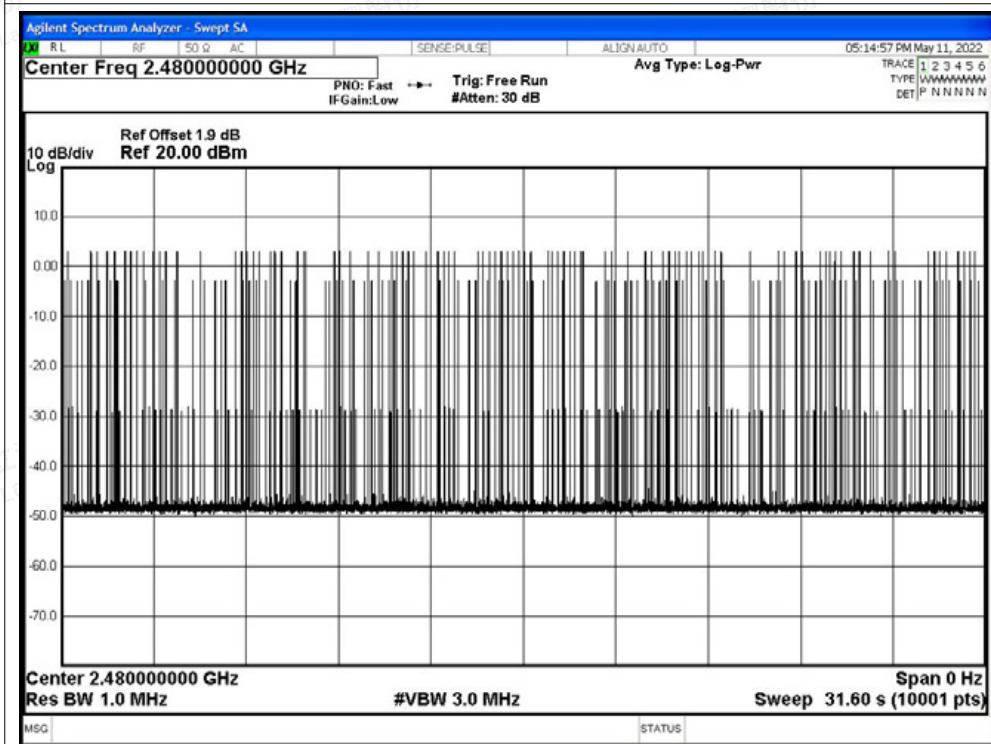




Dwell NVNT 2-DH5 2480MHz Ant1 One Burst

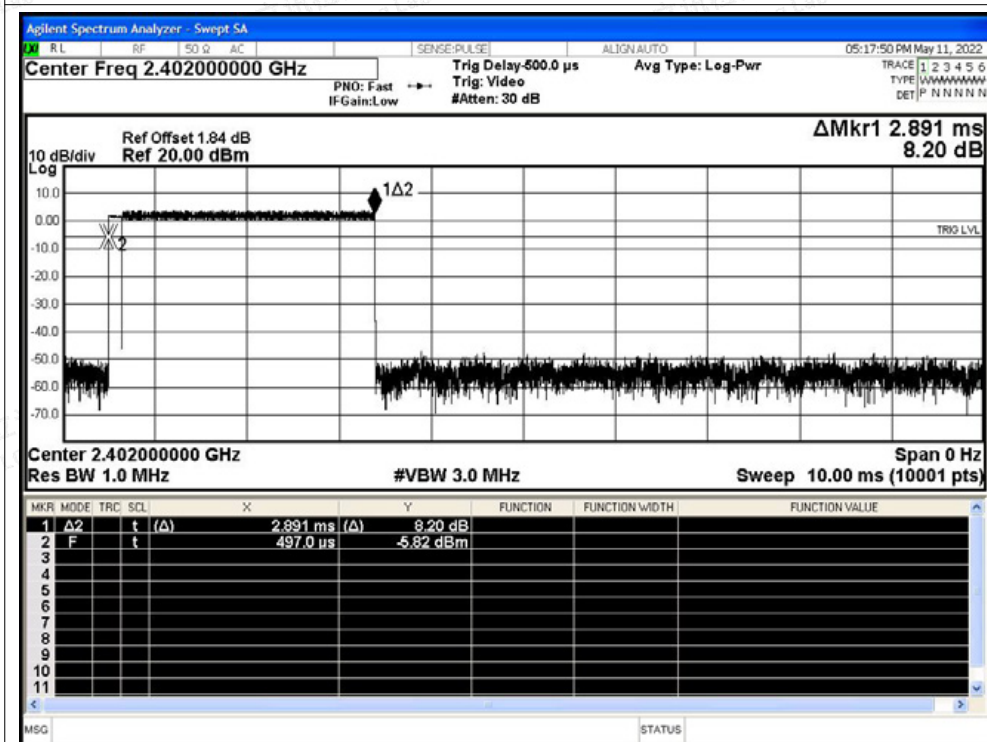


Dwell NVNT 2-DH5 2480MHz Ant1 Accumulated

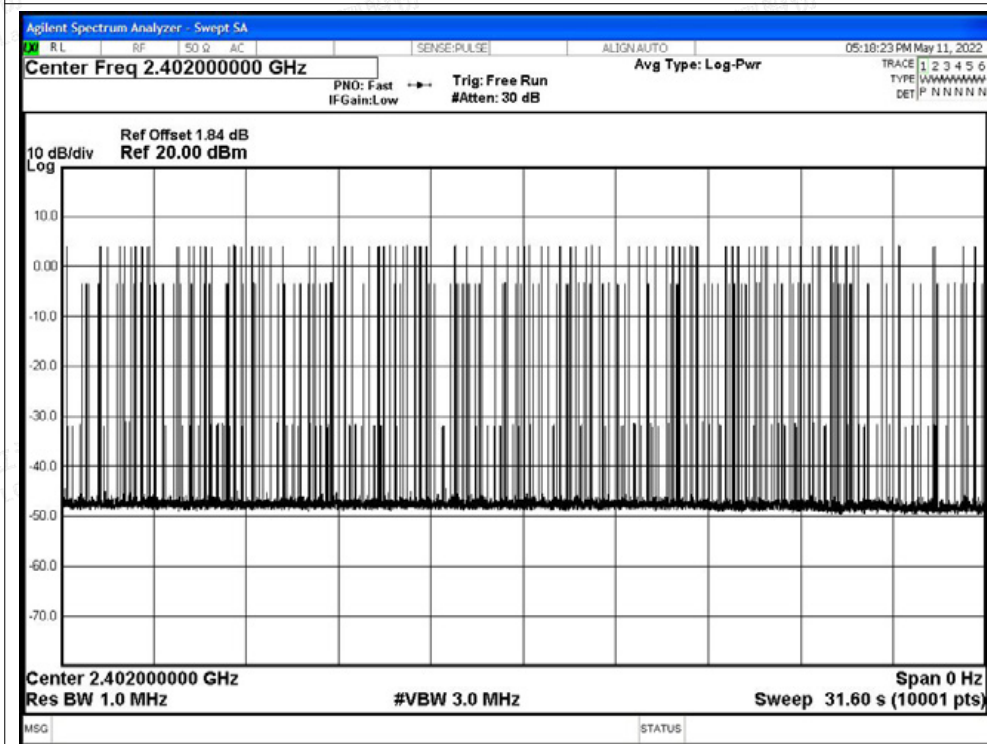




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst

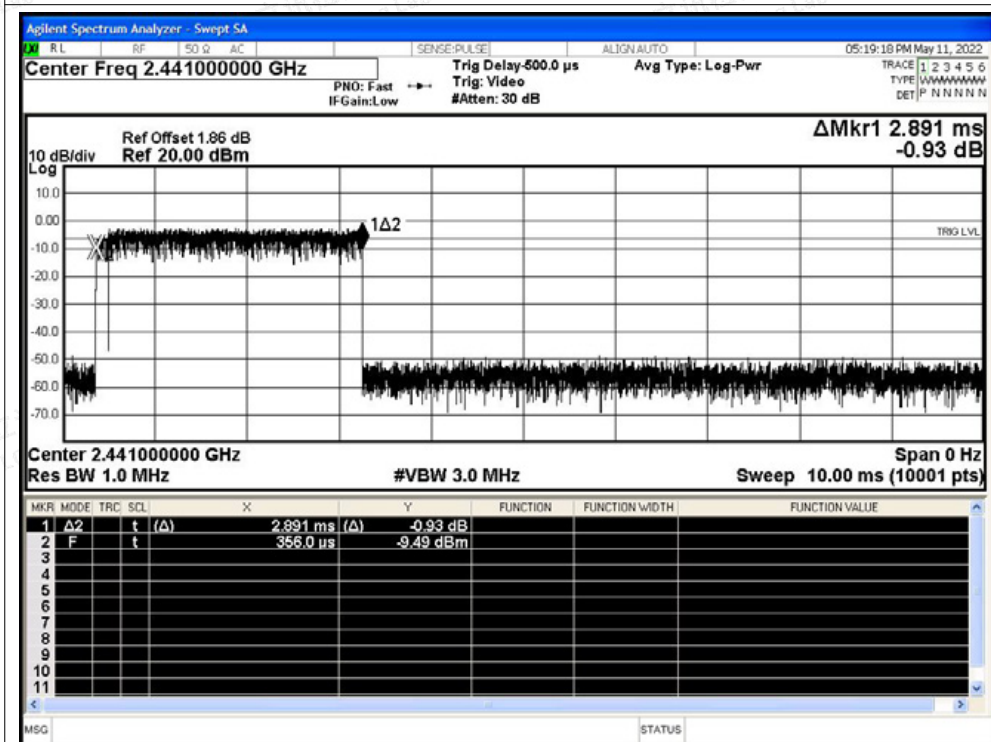


Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

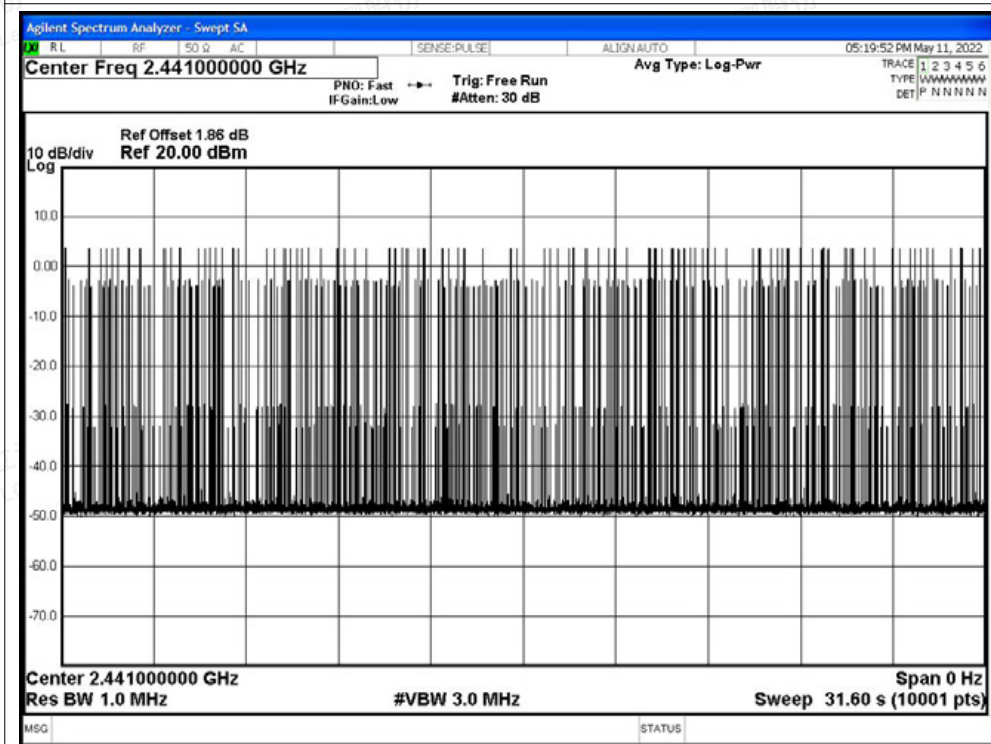




Dwell NVNT 3-DH5 2441MHz Ant1 One Burst

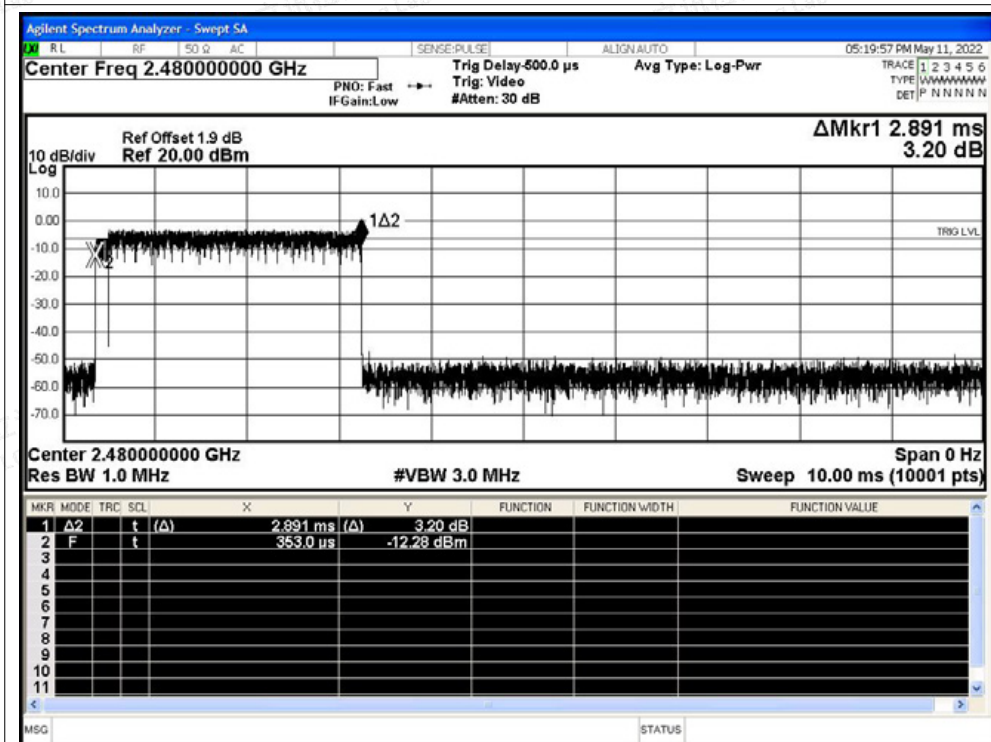


Dwell NVNT 3-DH5 2441MHz Ant1 Accumulated

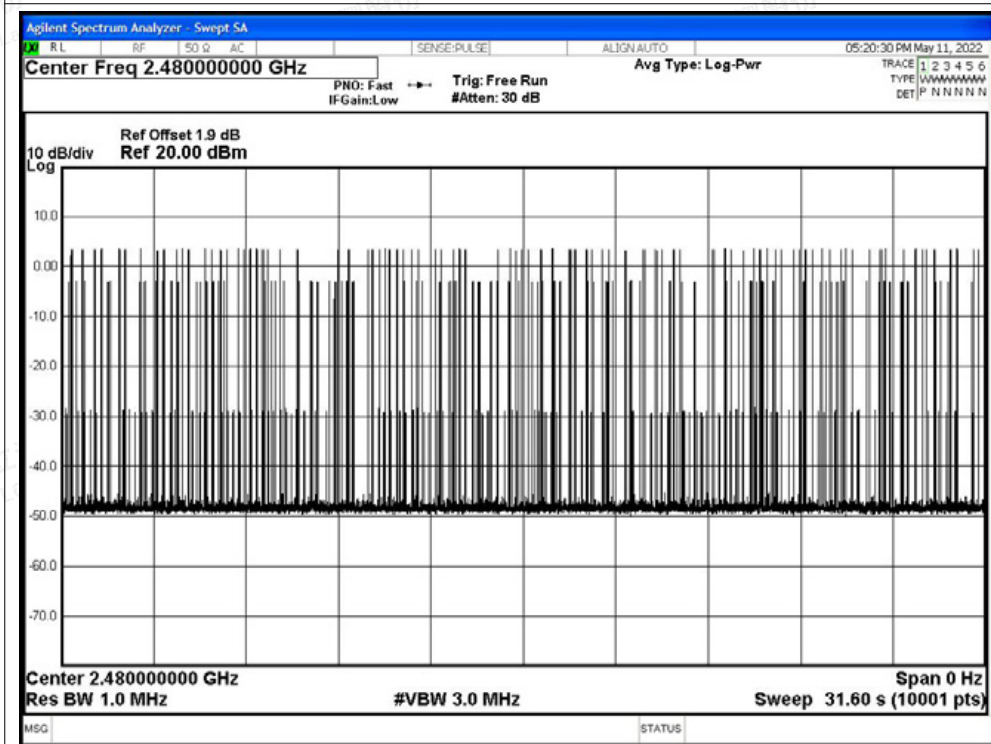




Dwell NVNT 3-DH5 2480MHz Ant1 One Burst



Dwell NVNT 3-DH5 2480MHz Ant1 Accumulated





A.5 Number of Hopping Channel

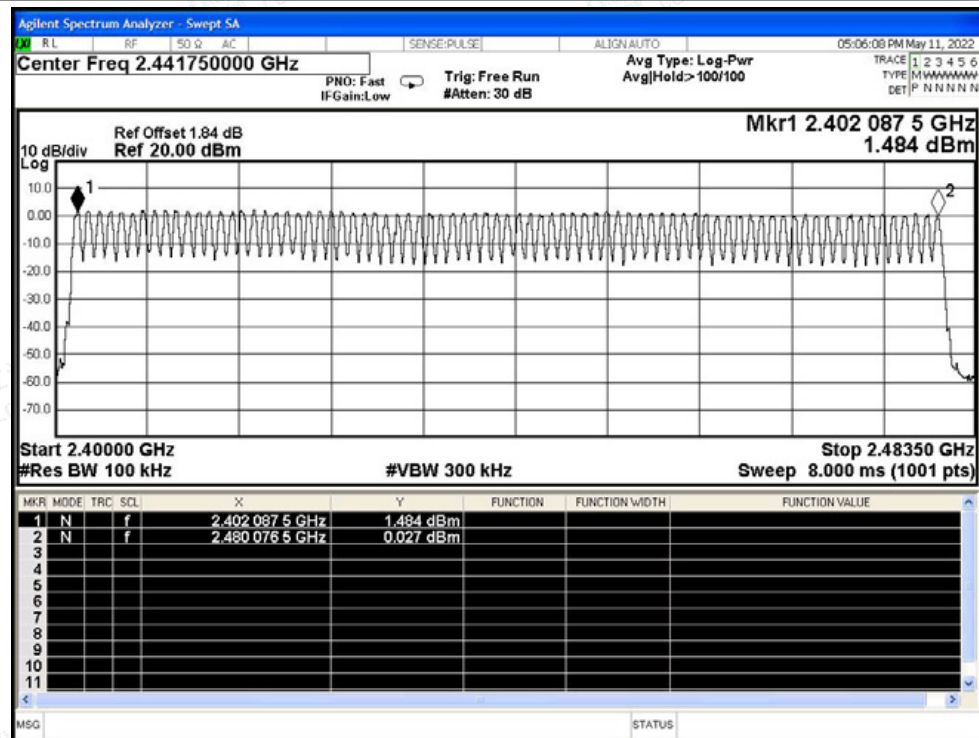
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass



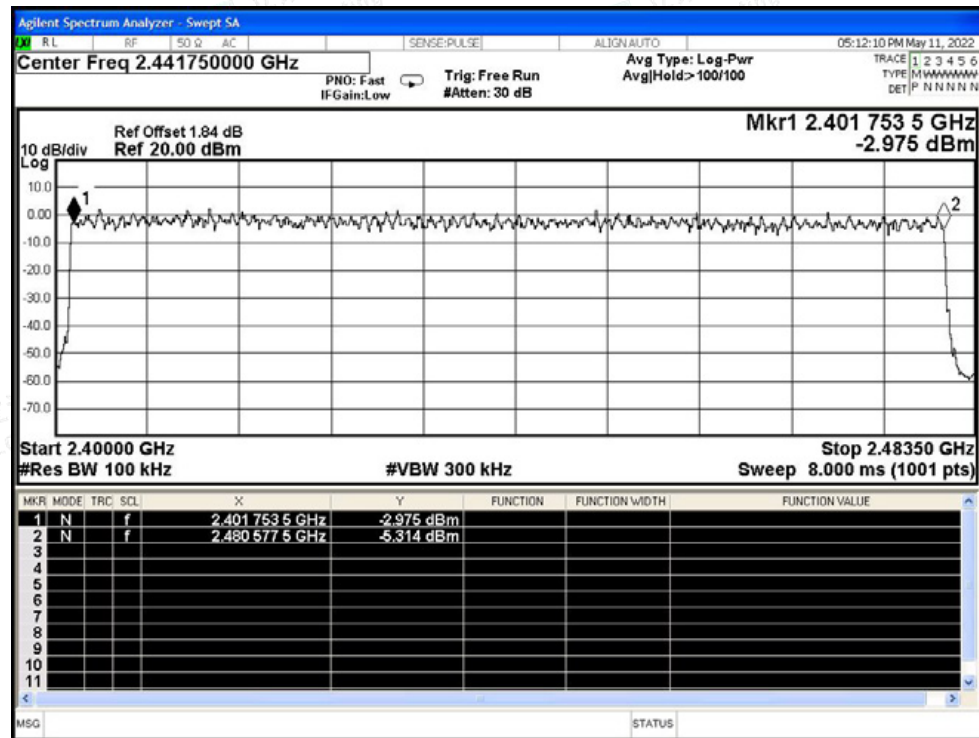


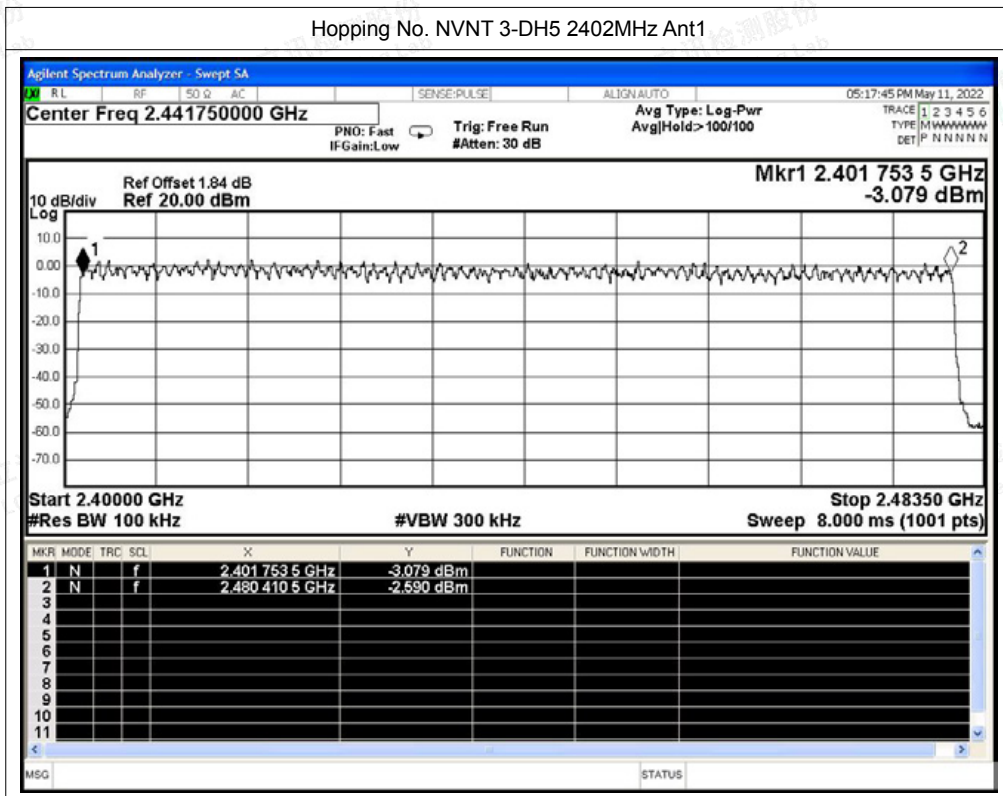
Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1







A.6 Band Edge

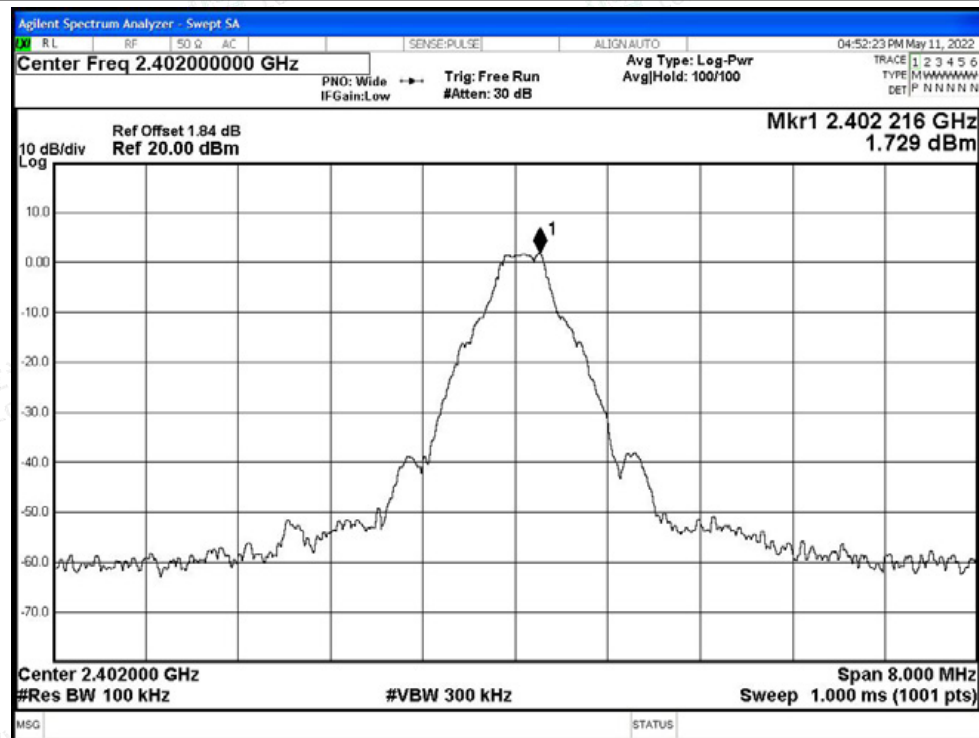
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-54.22	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-57.29	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-53.2	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-57.84	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-53.15	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-57.86	-20	Pass



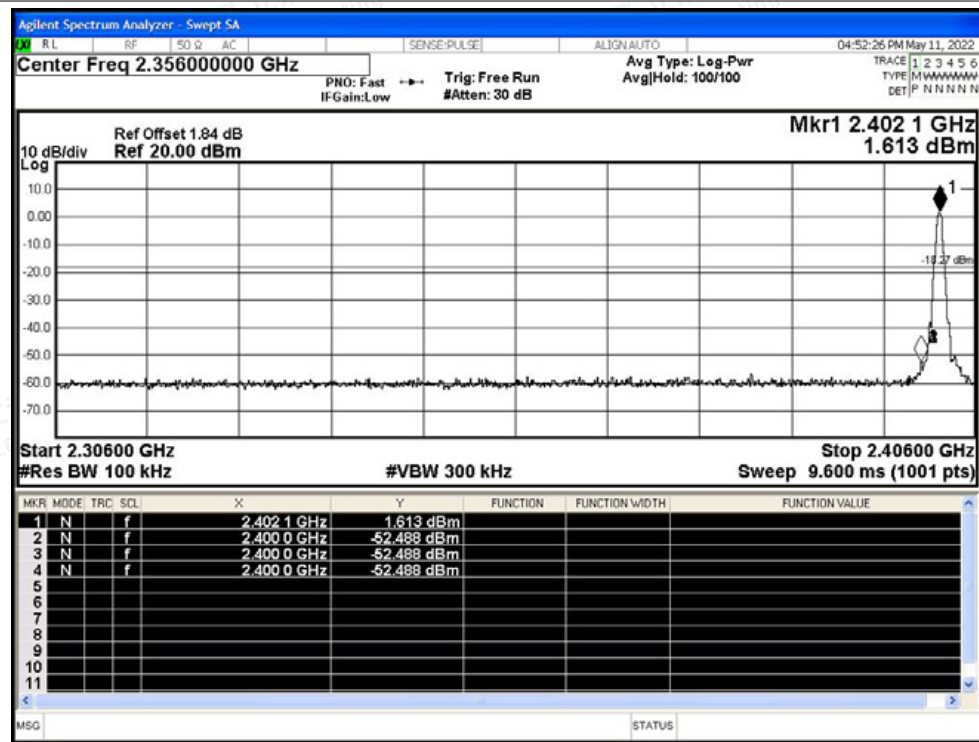


Test Graphs

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

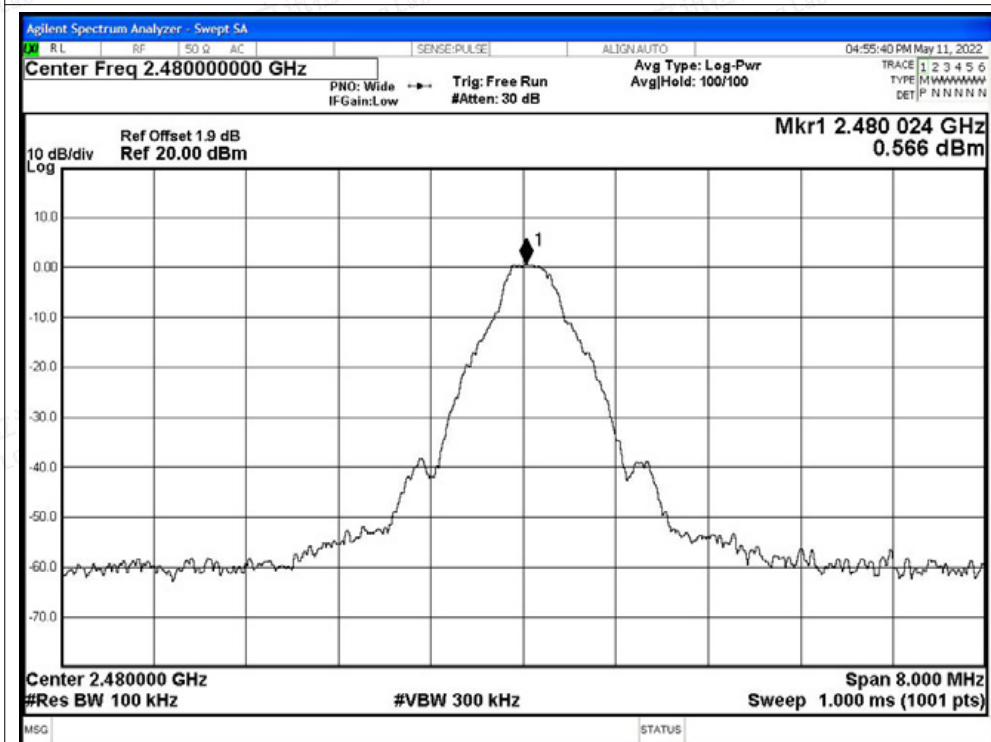


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

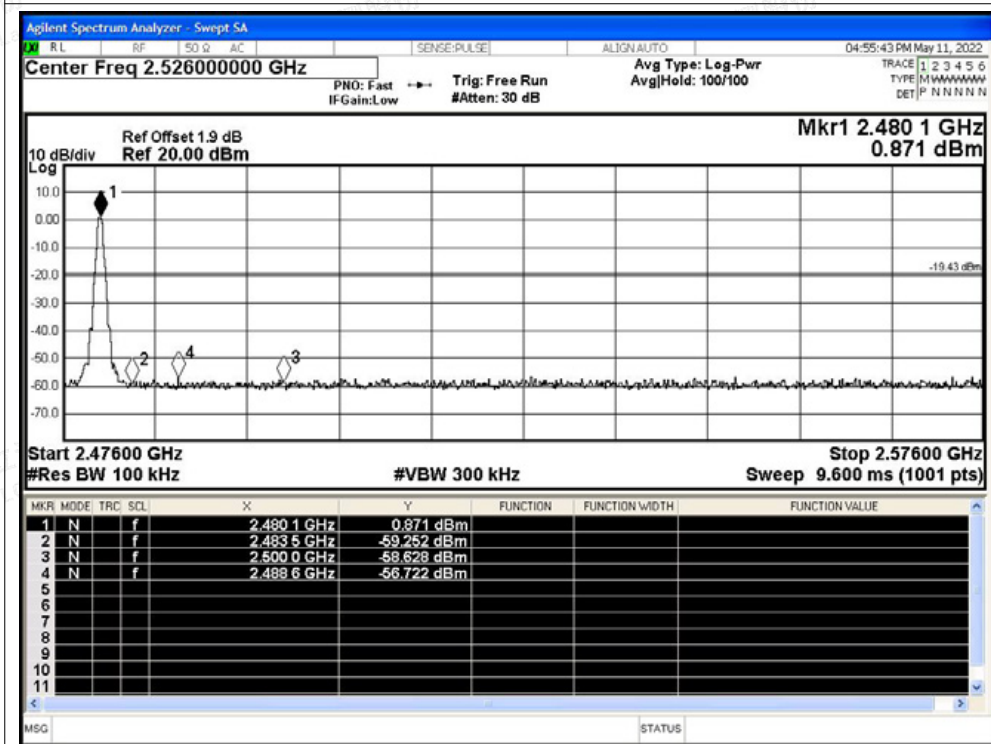




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

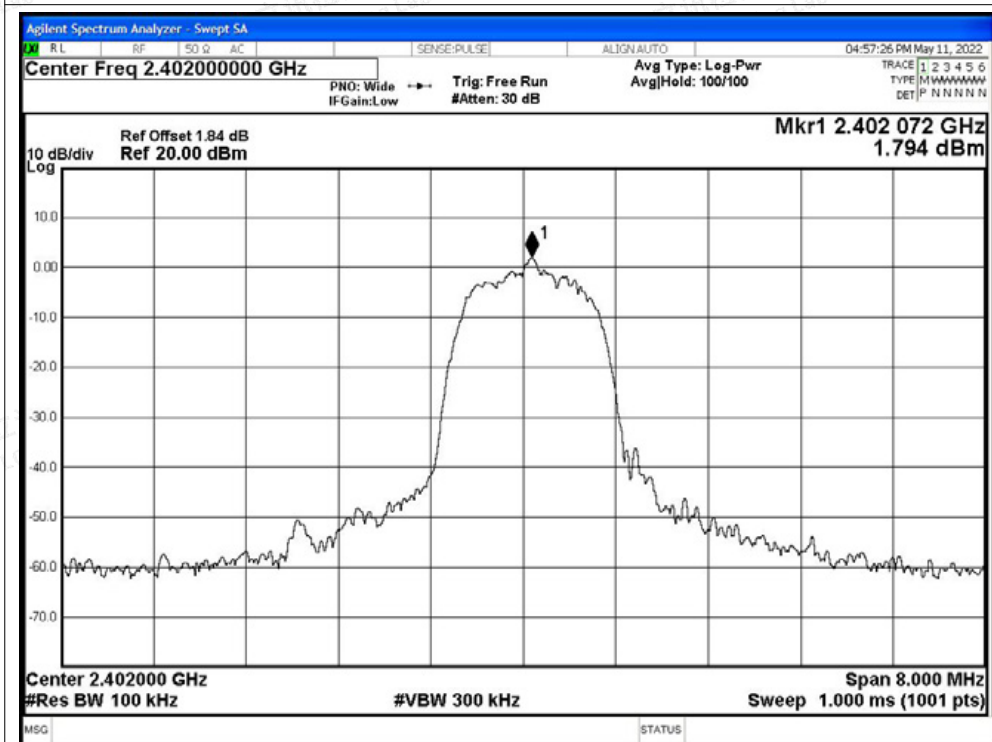


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission





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



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

