

Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: WIRELESS SPEAKER

Test Model: ZEALOT-S51

Environmental Conditions

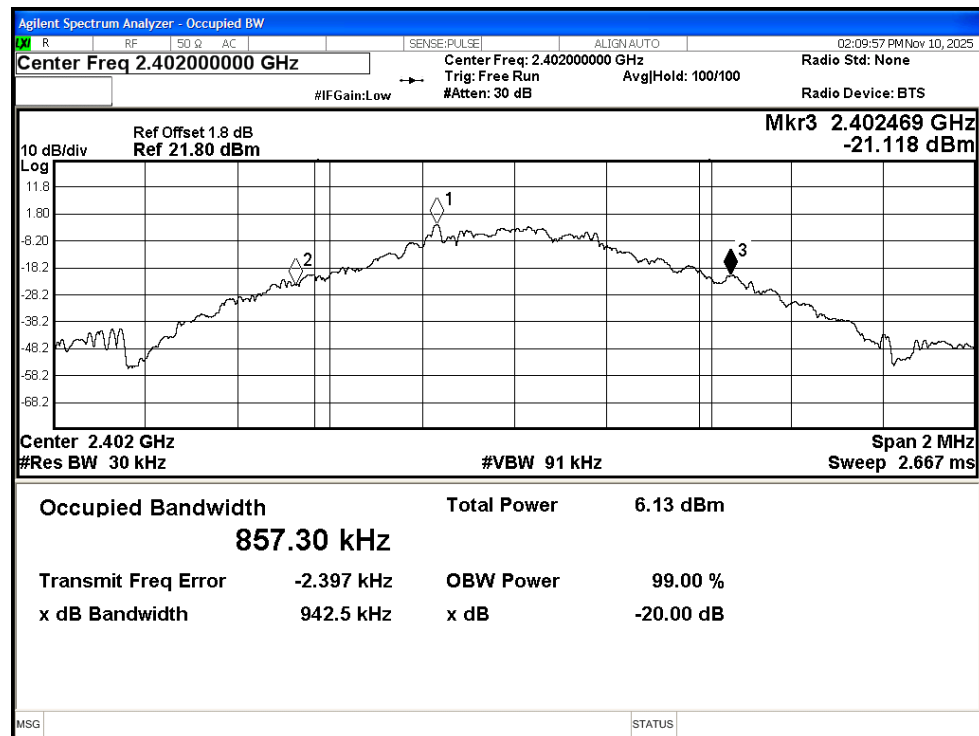
Temperature:	23.8°C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Suichao Lai
Supervised by:	Yan Chen

A.1 -20dB Bandwidth

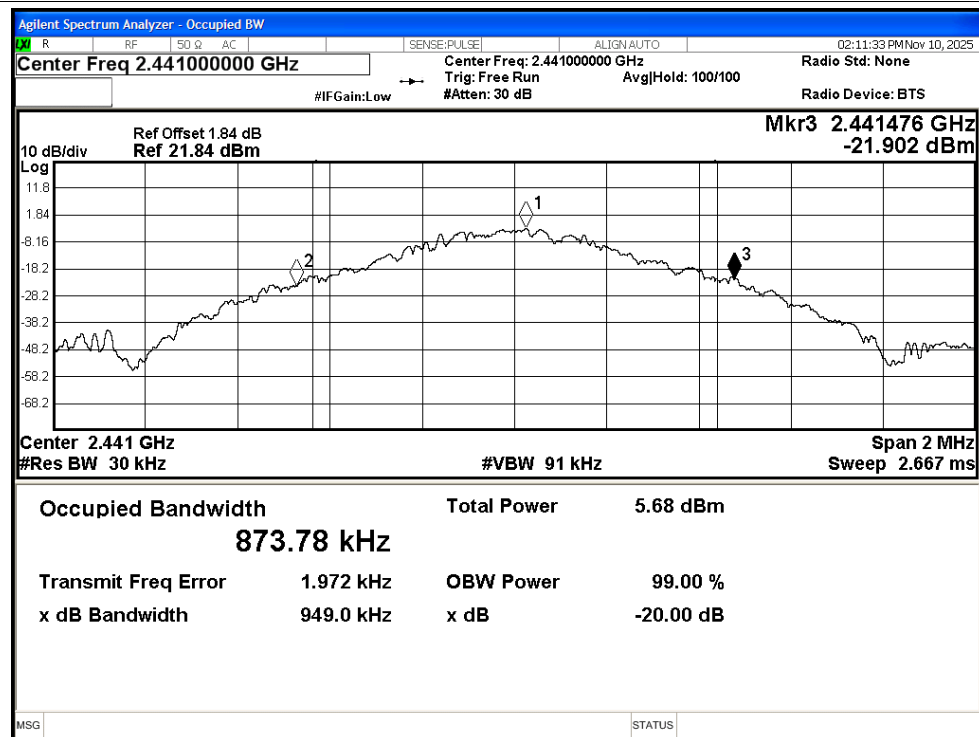
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.943	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.949	N/A	Pass
NVNT	1-DH5	2480	Ant1	1.02	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.286	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.285	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.304	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.296	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.295	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.301	N/A	Pass

Test Graphs

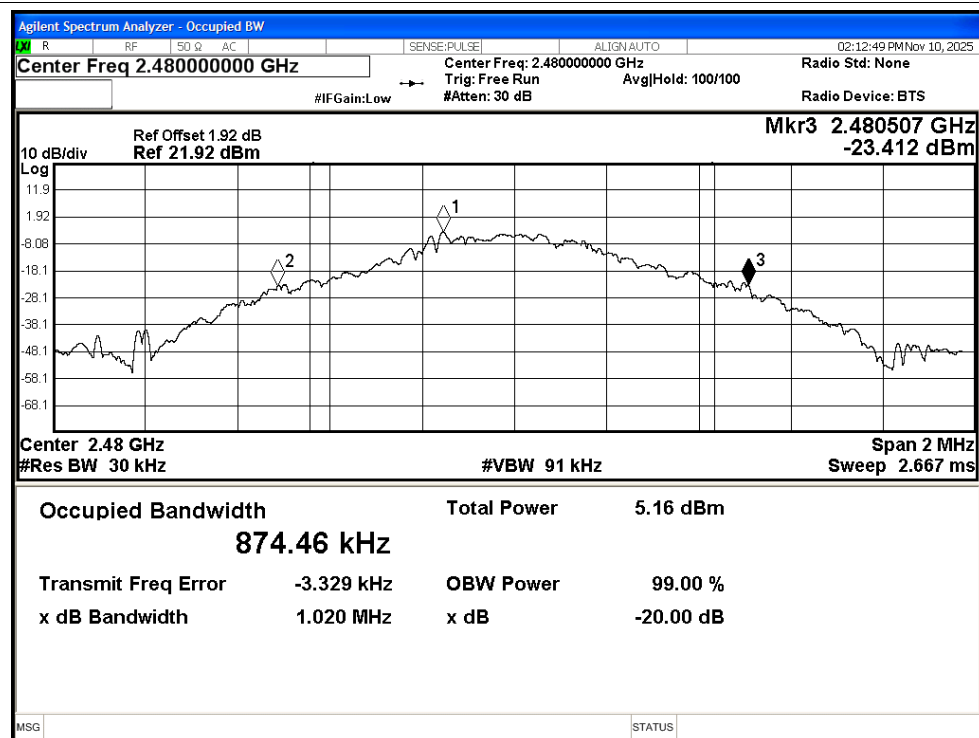
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



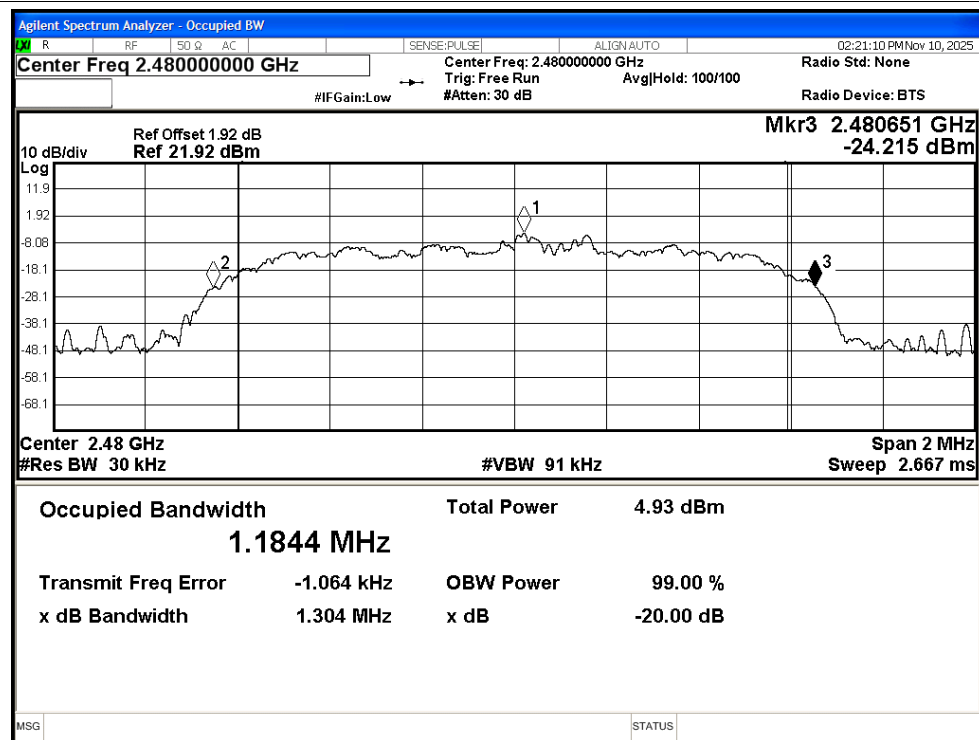
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



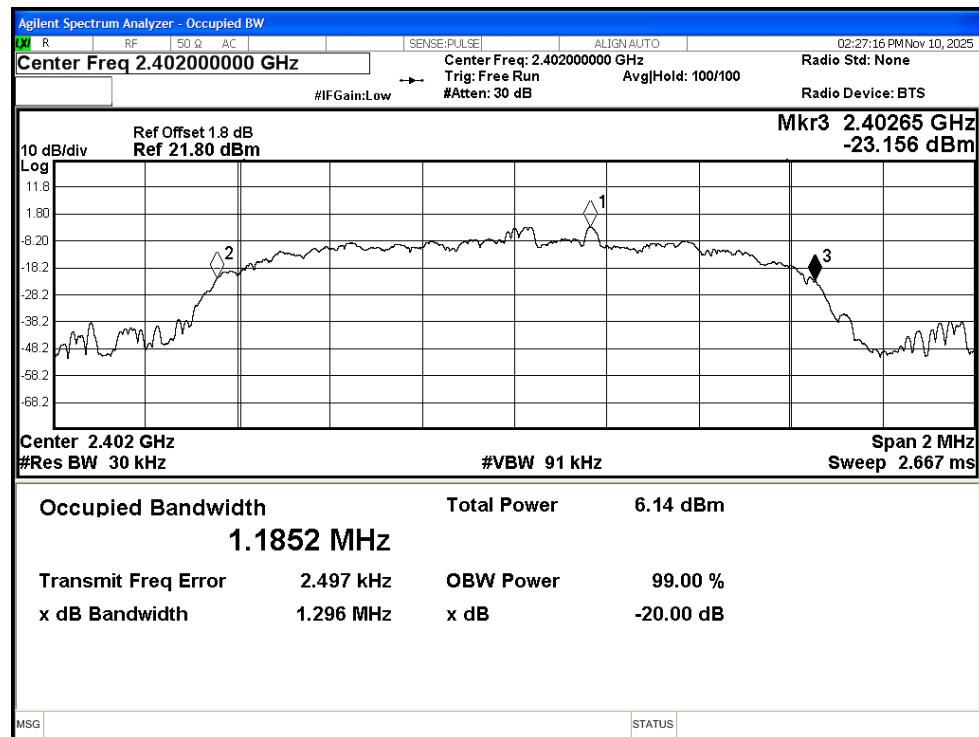
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



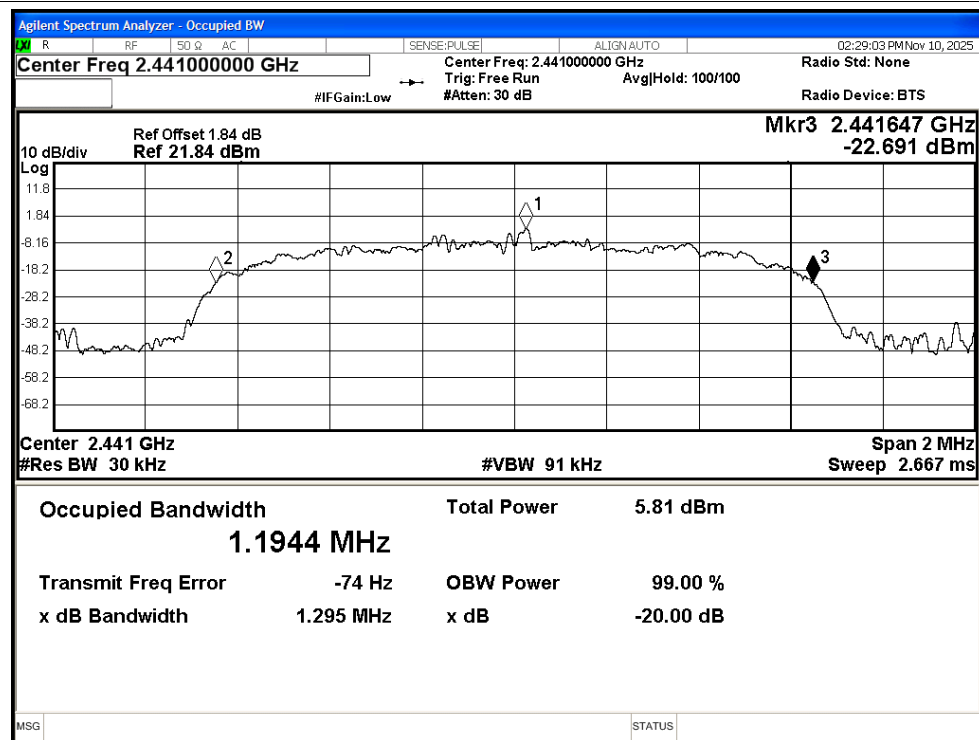
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

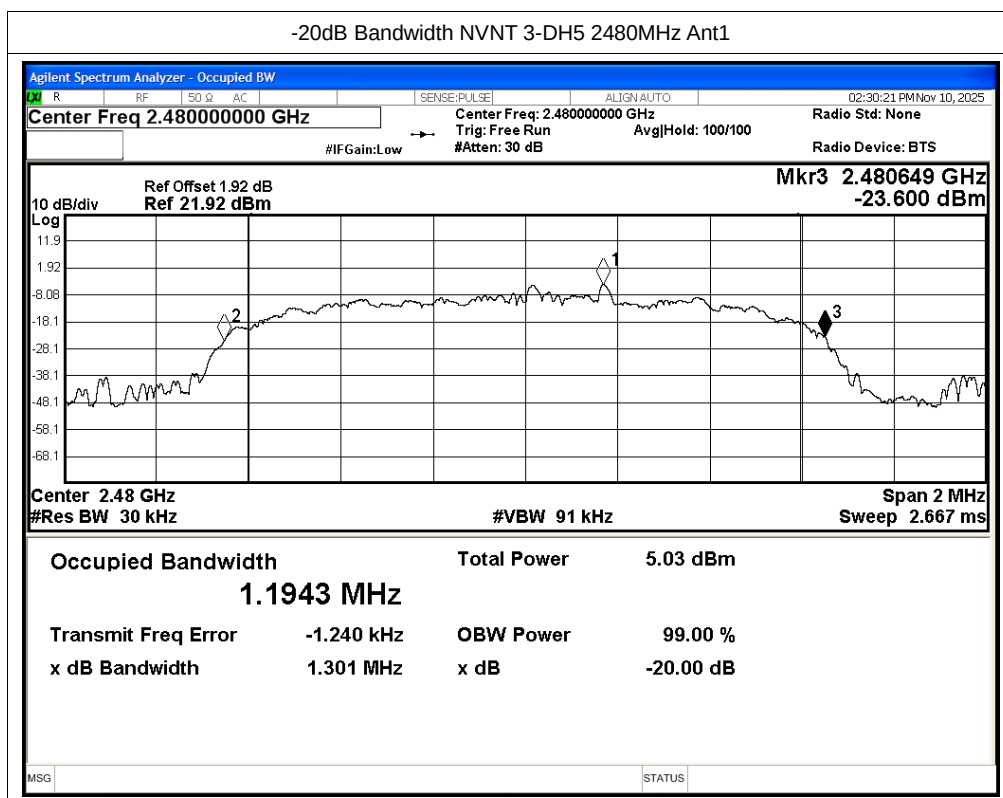


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



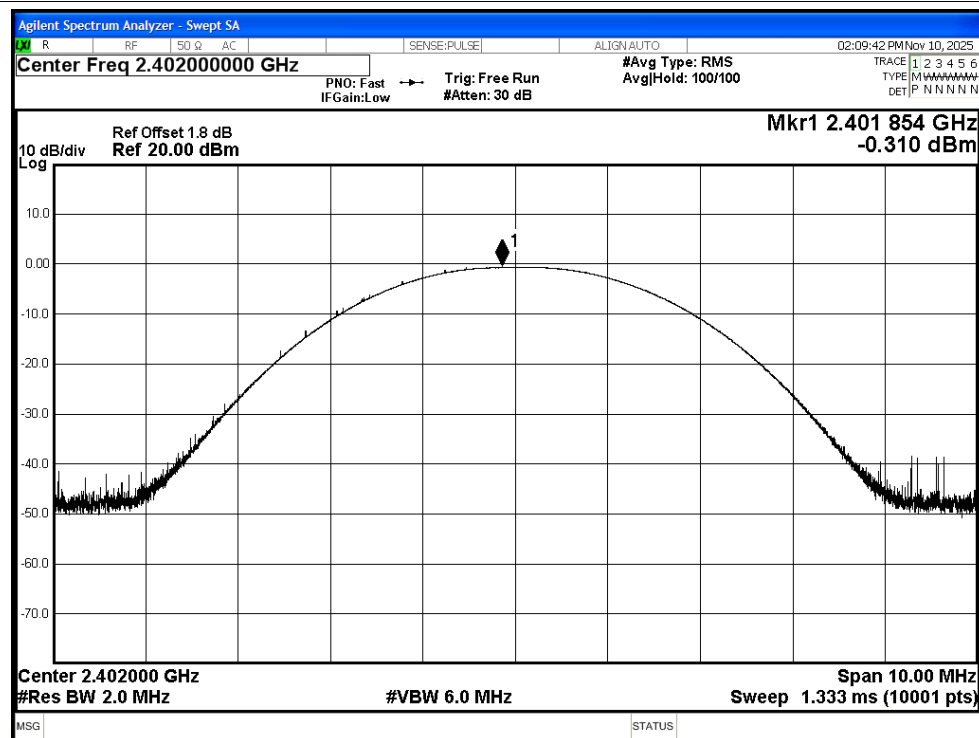


A.2 Maximum Peak Conducted Output Power

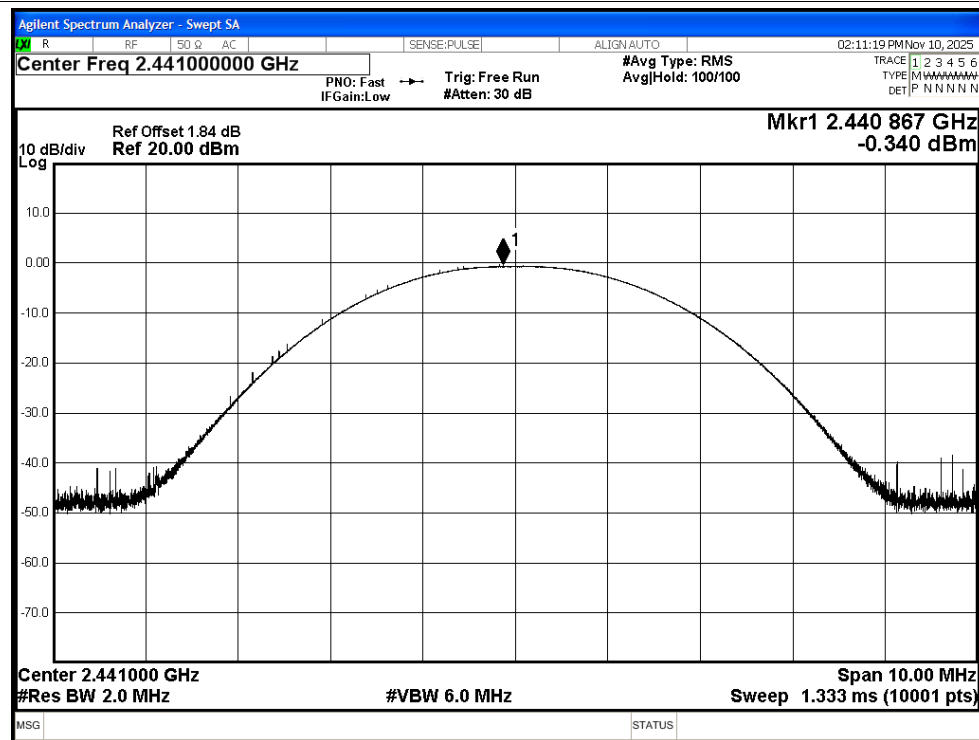
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-0.31	21	Pass
NVNT	1-DH5	2441	Ant1	-0.34	21	Pass
NVNT	1-DH5	2480	Ant1	-1.15	21	Pass
NVNT	2-DH5	2402	Ant1	1.47	21	Pass
NVNT	2-DH5	2441	Ant1	1.46	21	Pass
NVNT	2-DH5	2480	Ant1	0.69	21	Pass
NVNT	3-DH5	2402	Ant1	1.87	21	Pass
NVNT	3-DH5	2441	Ant1	1.89	21	Pass
NVNT	3-DH5	2480	Ant1	1.04	21	Pass

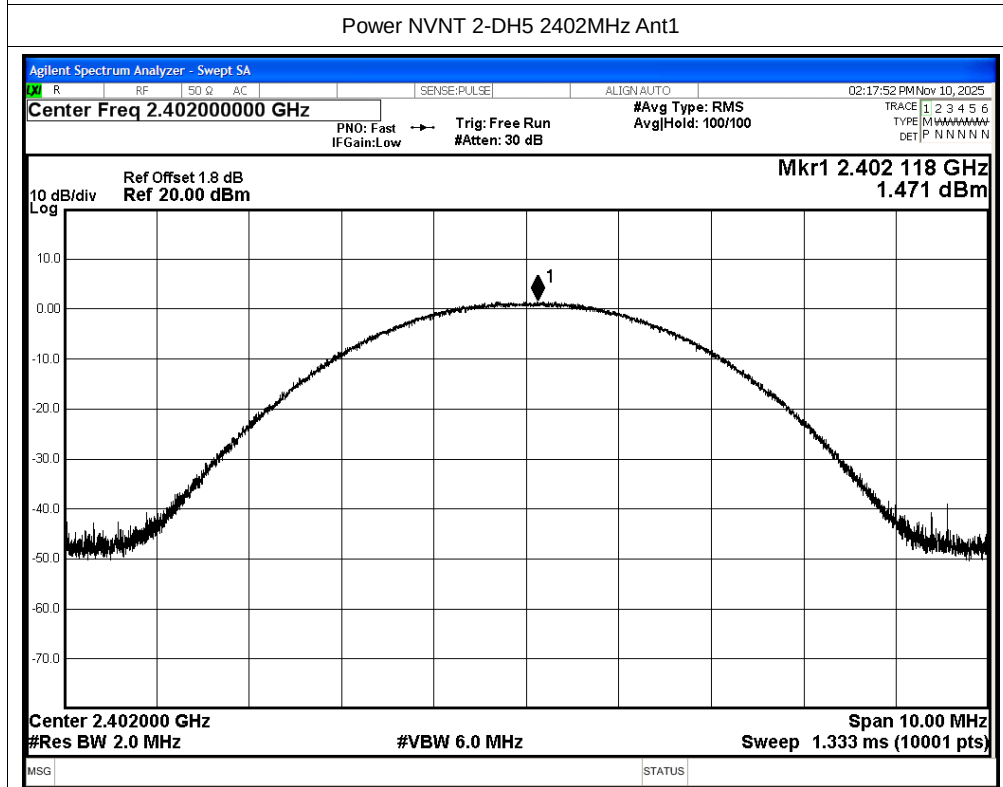
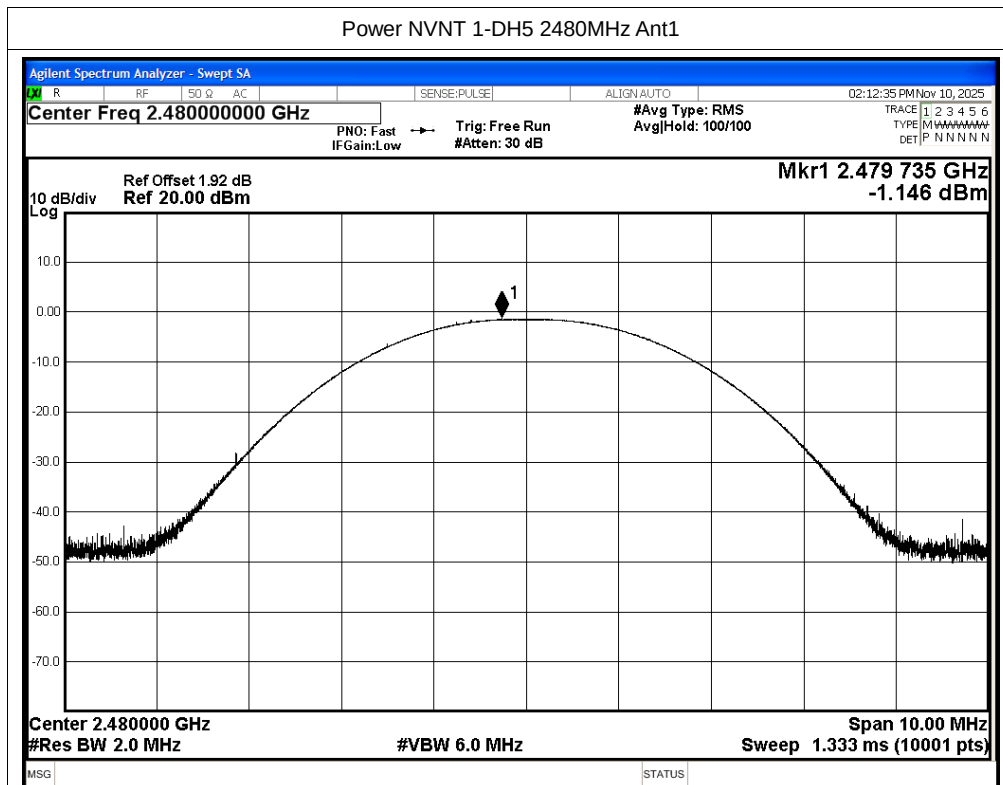
Test Graphs

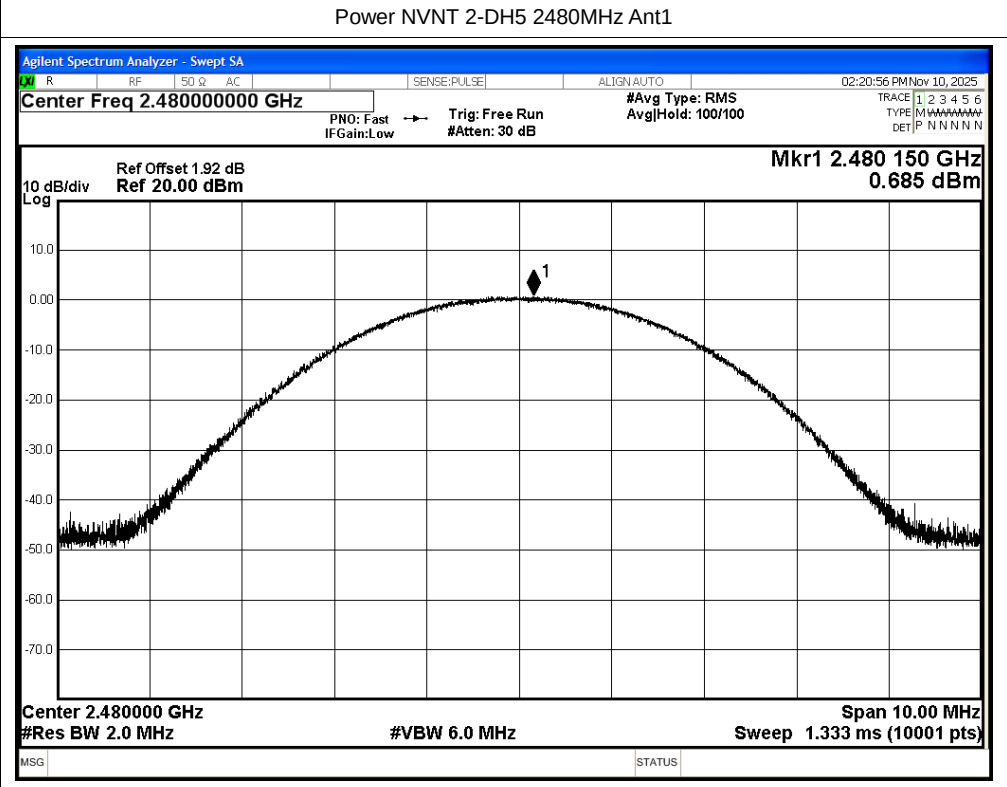
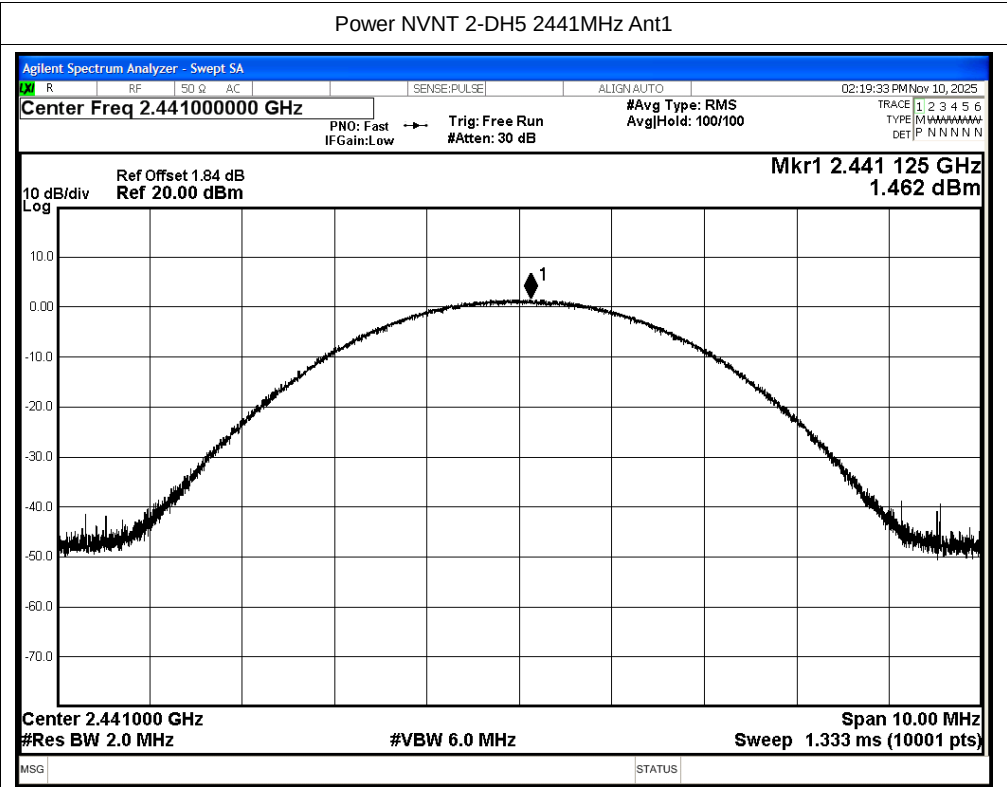
Power NVNT 1-DH5 2402MHz Ant1



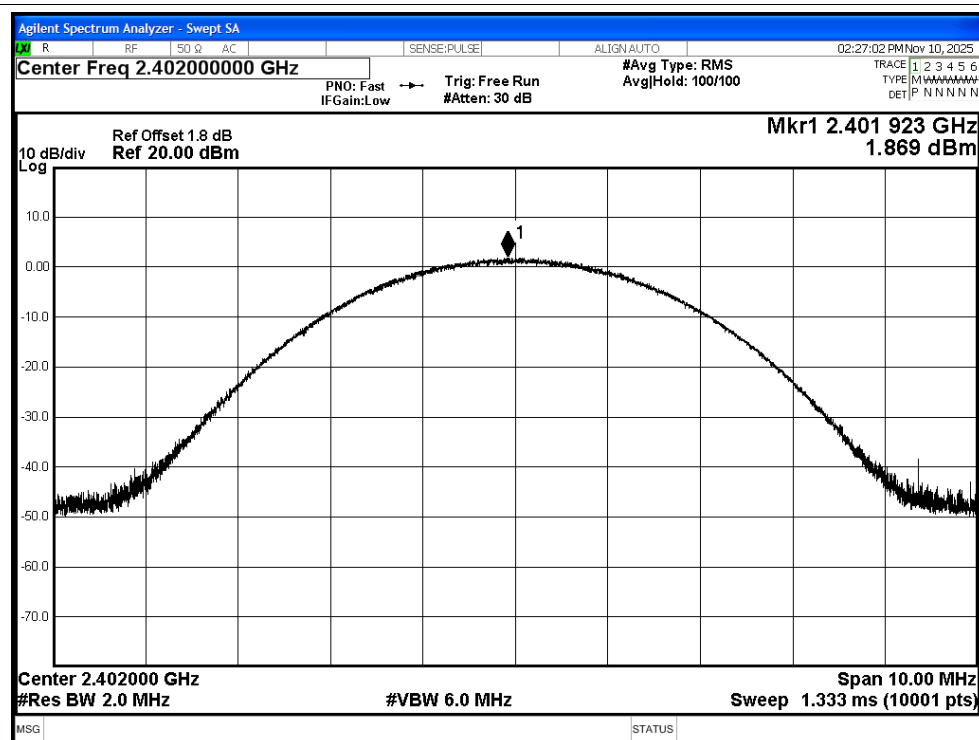
Power NVNT 1-DH5 2441MHz Ant1



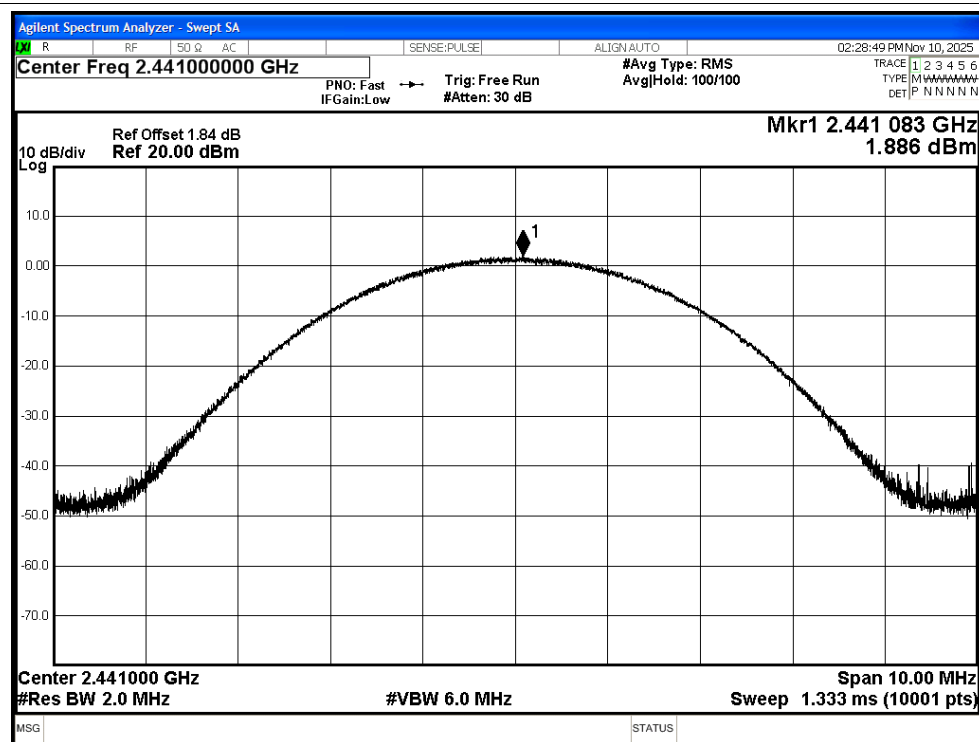


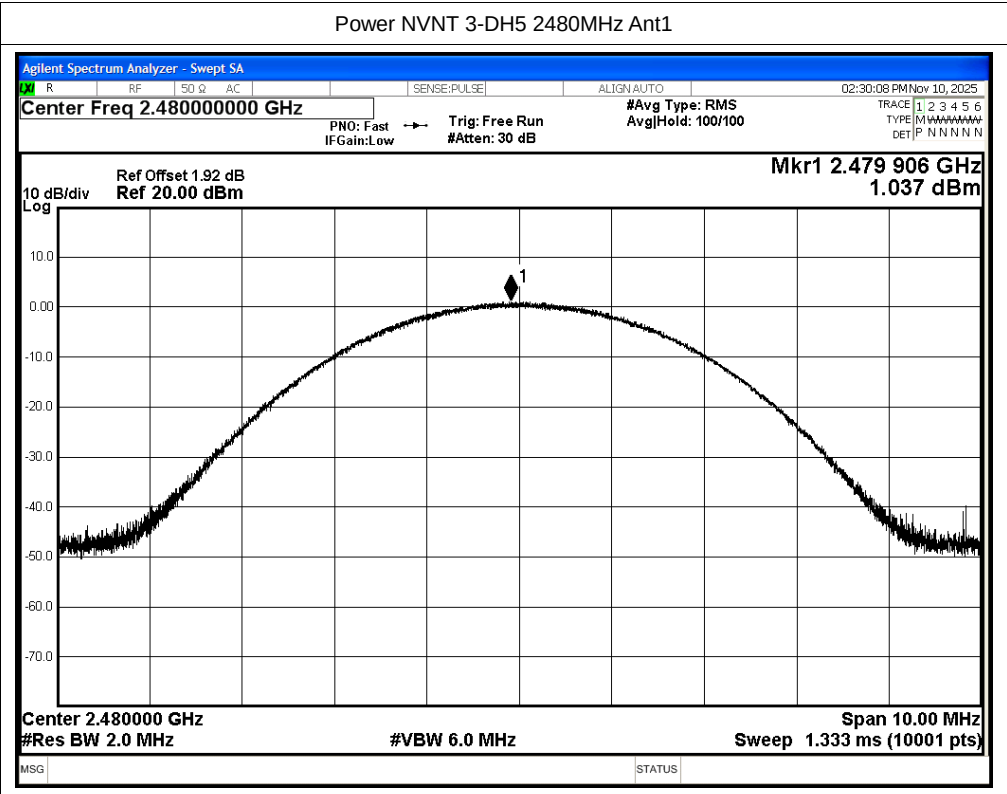


Power NVNT 3-DH5 2402MHz Ant1



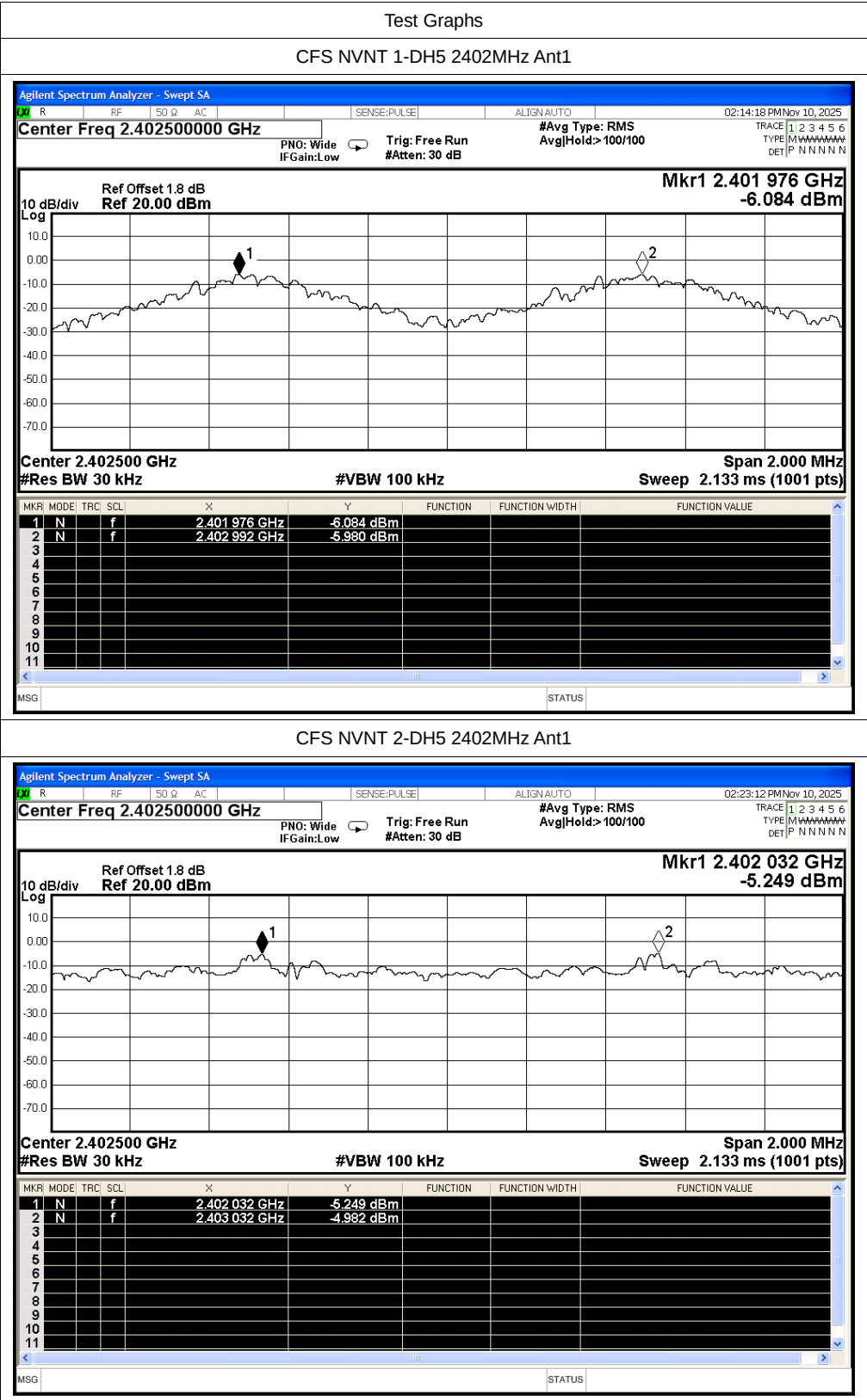
Power NVNT 3-DH5 2441MHz Ant1

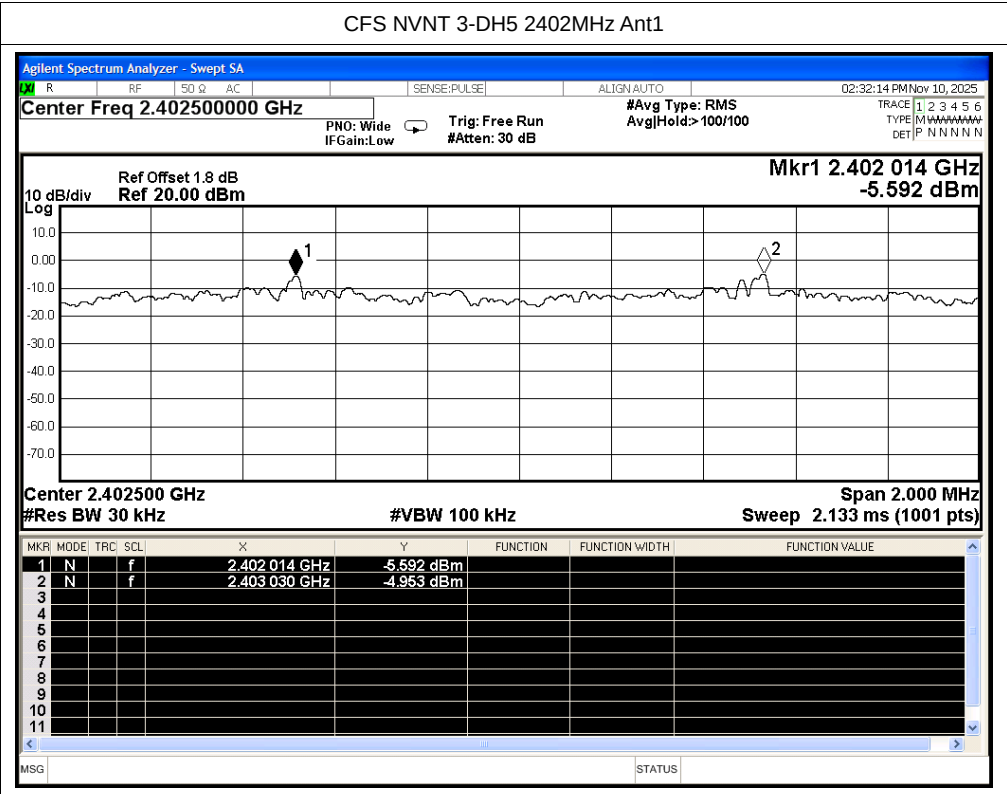




A.3 Carrier Frequencies Separation

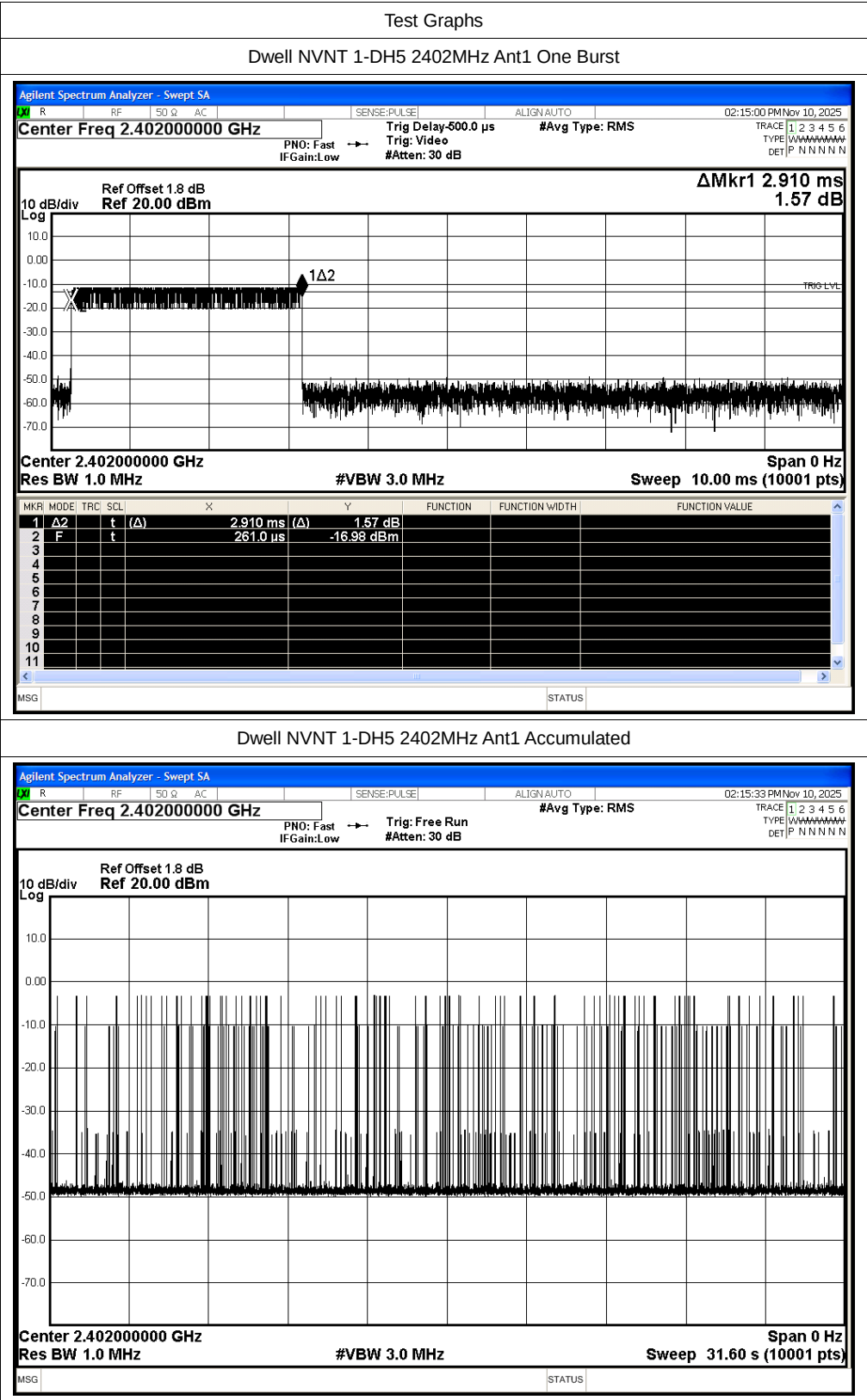
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.976	2402.992	1.016	0.680	Pass
NVNT	2-DH5	Ant1	2402.032	2403.032	1	0.869	Pass
NVNT	3-DH5	Ant1	2402.014	2403.03	1.016	0.867	Pass



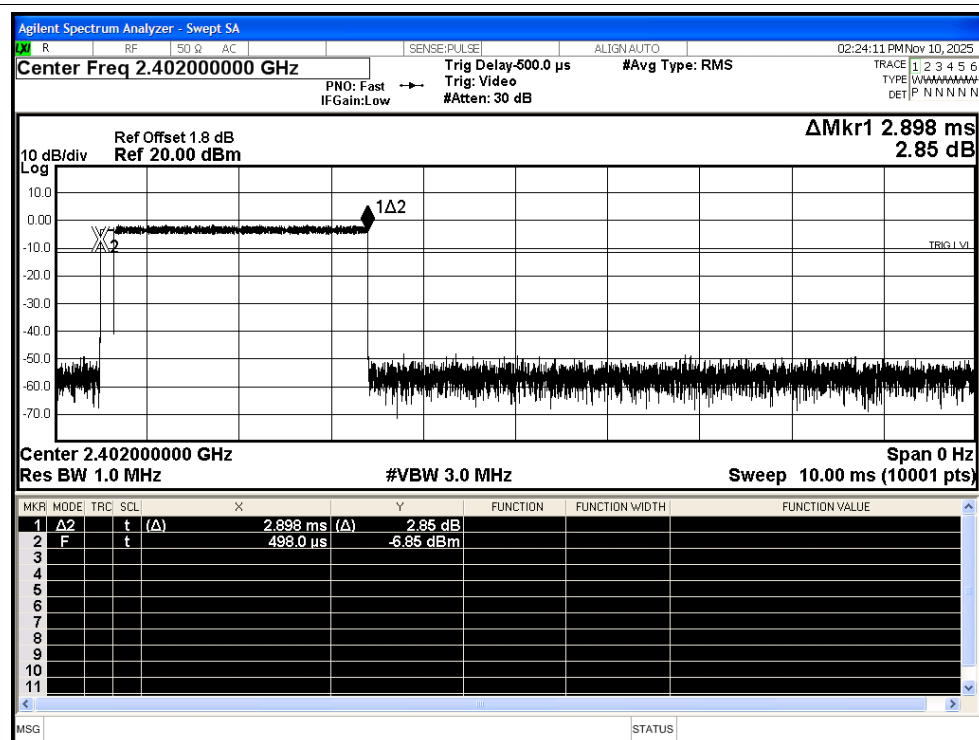


A.4 Dwell Time

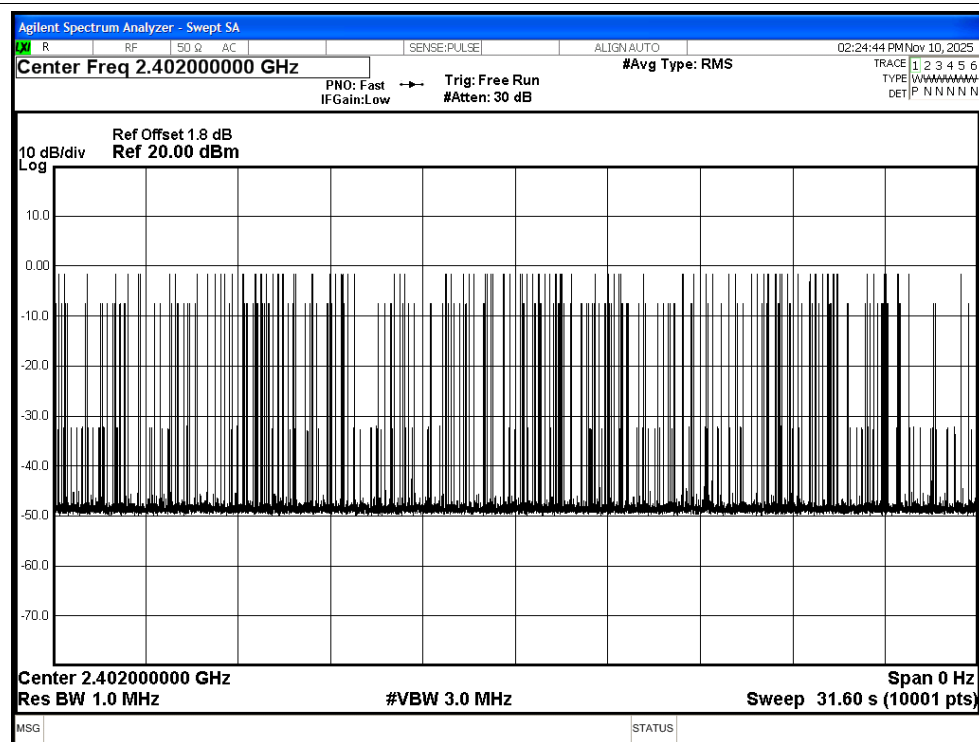
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.91	276.45	95	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.898	304.29	105	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.897	327.361	113	31600	400	Pass



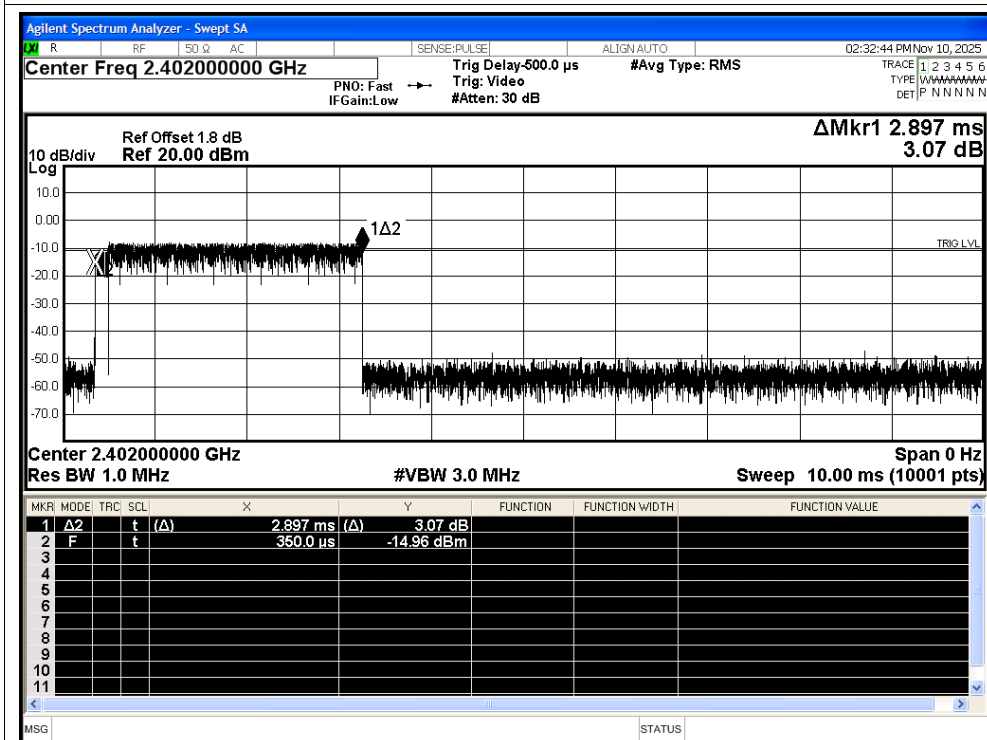
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



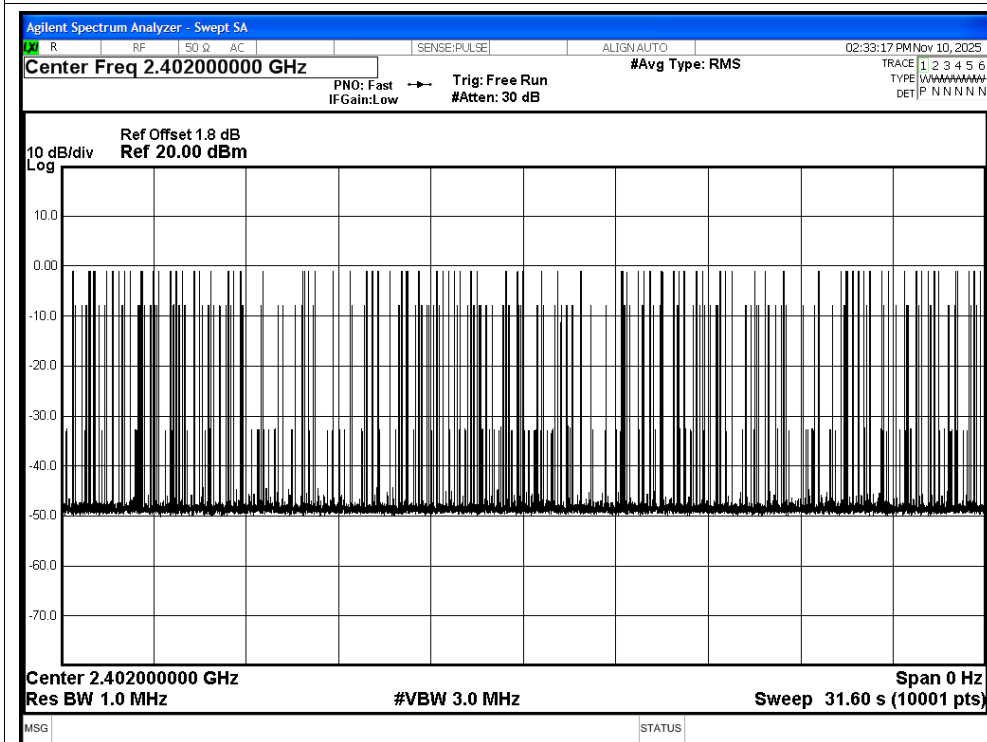
Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2402MHz Ant1 One Burst

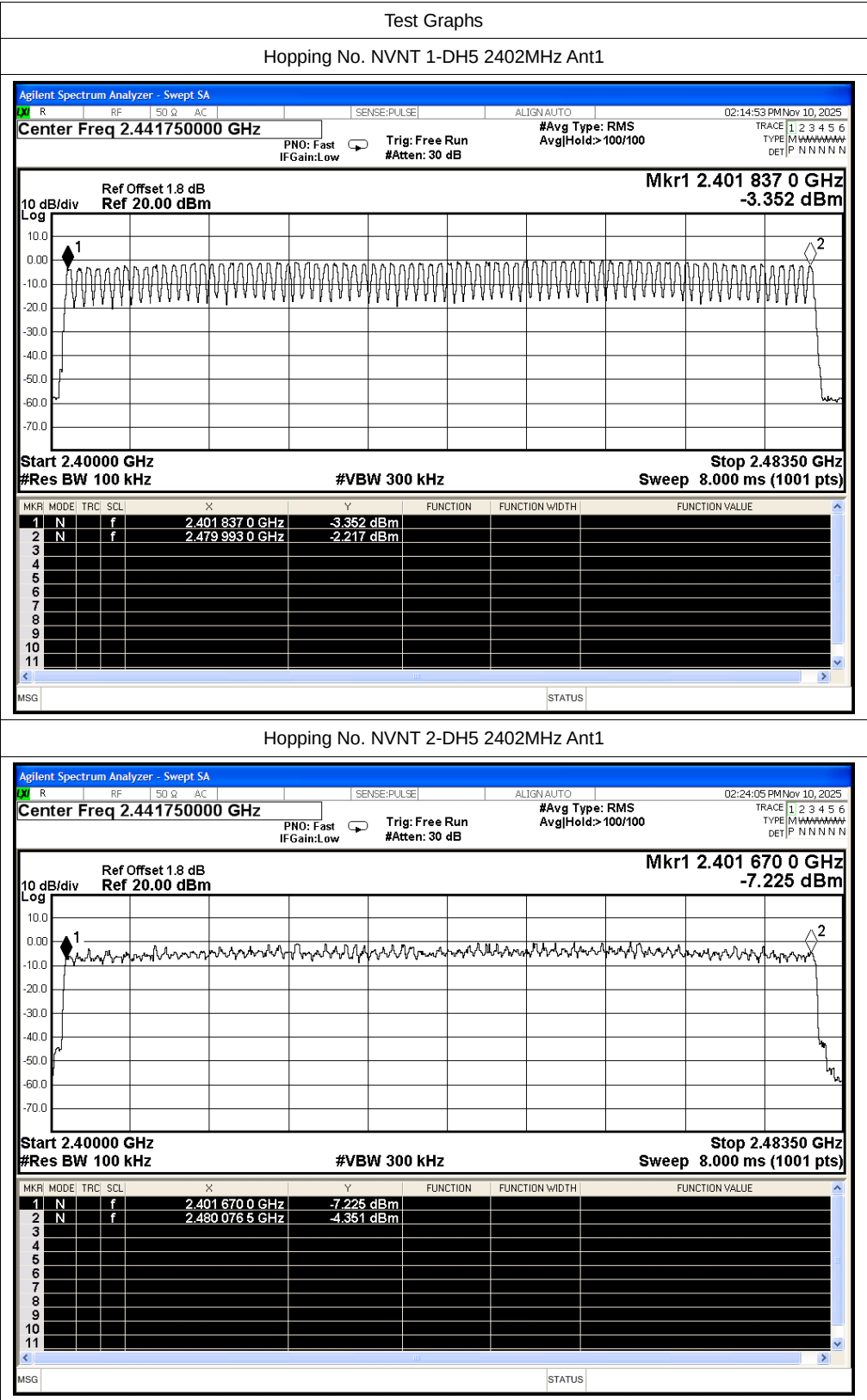


Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated



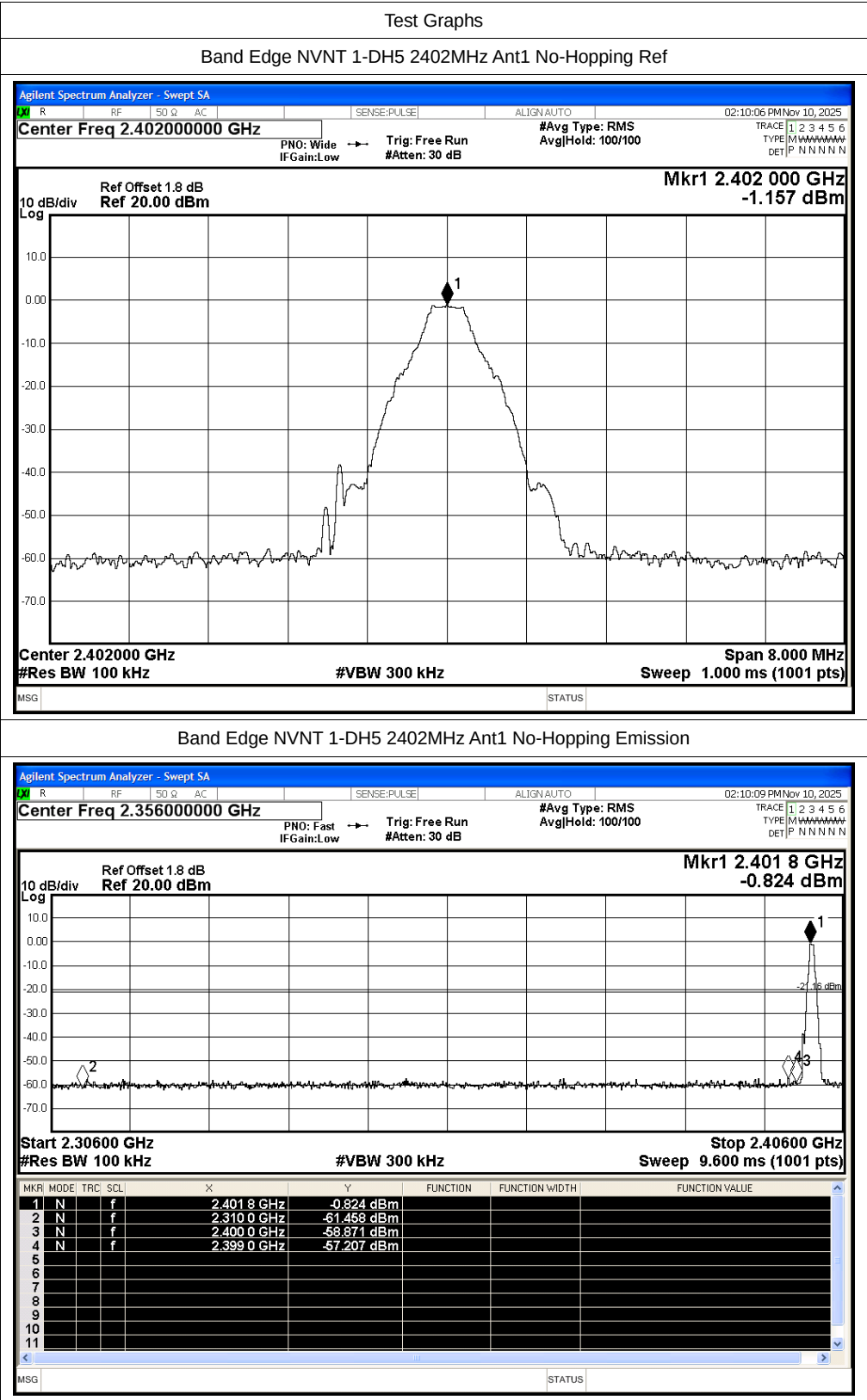
A.5 Number of Hopping Channel

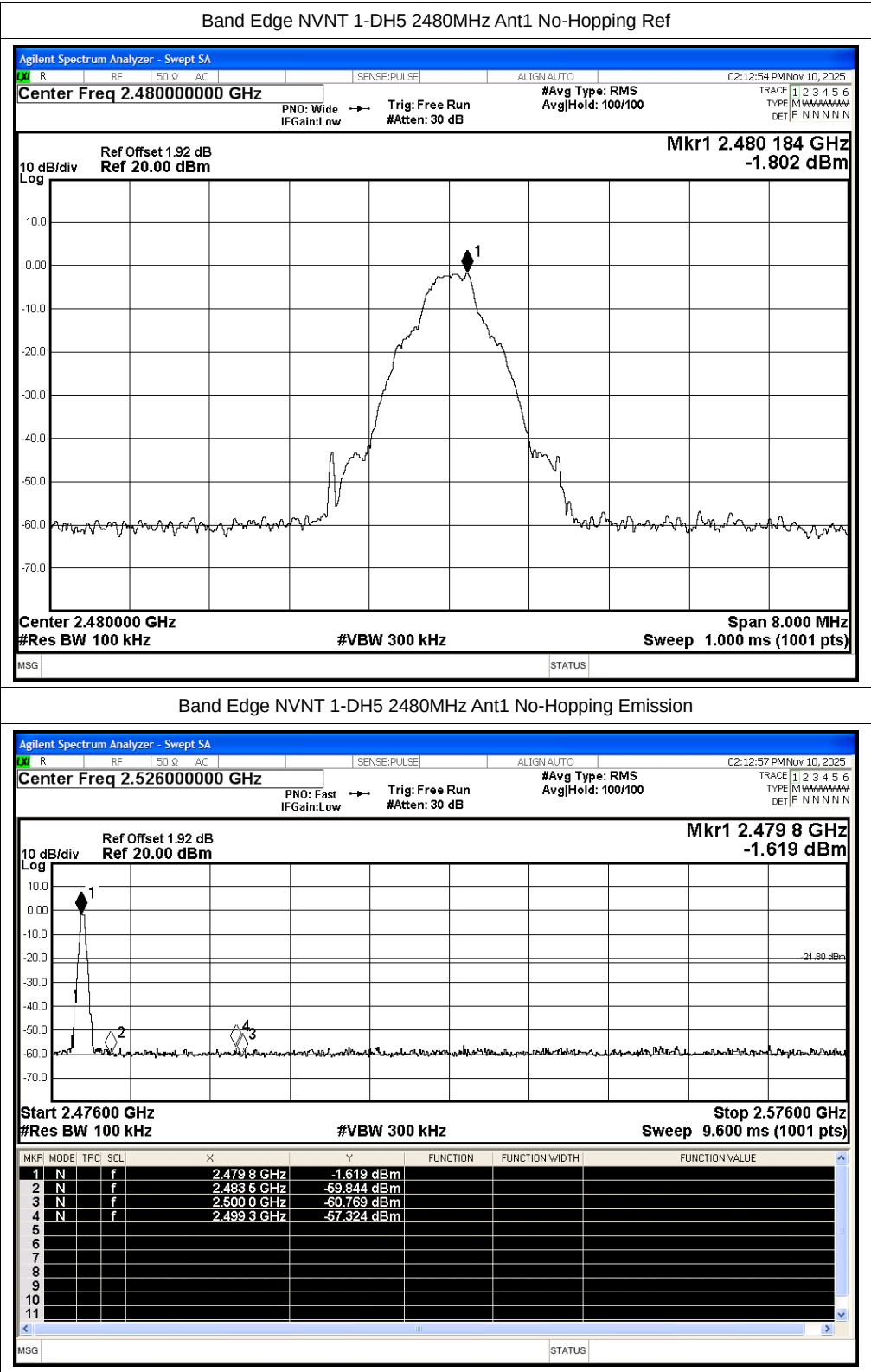
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

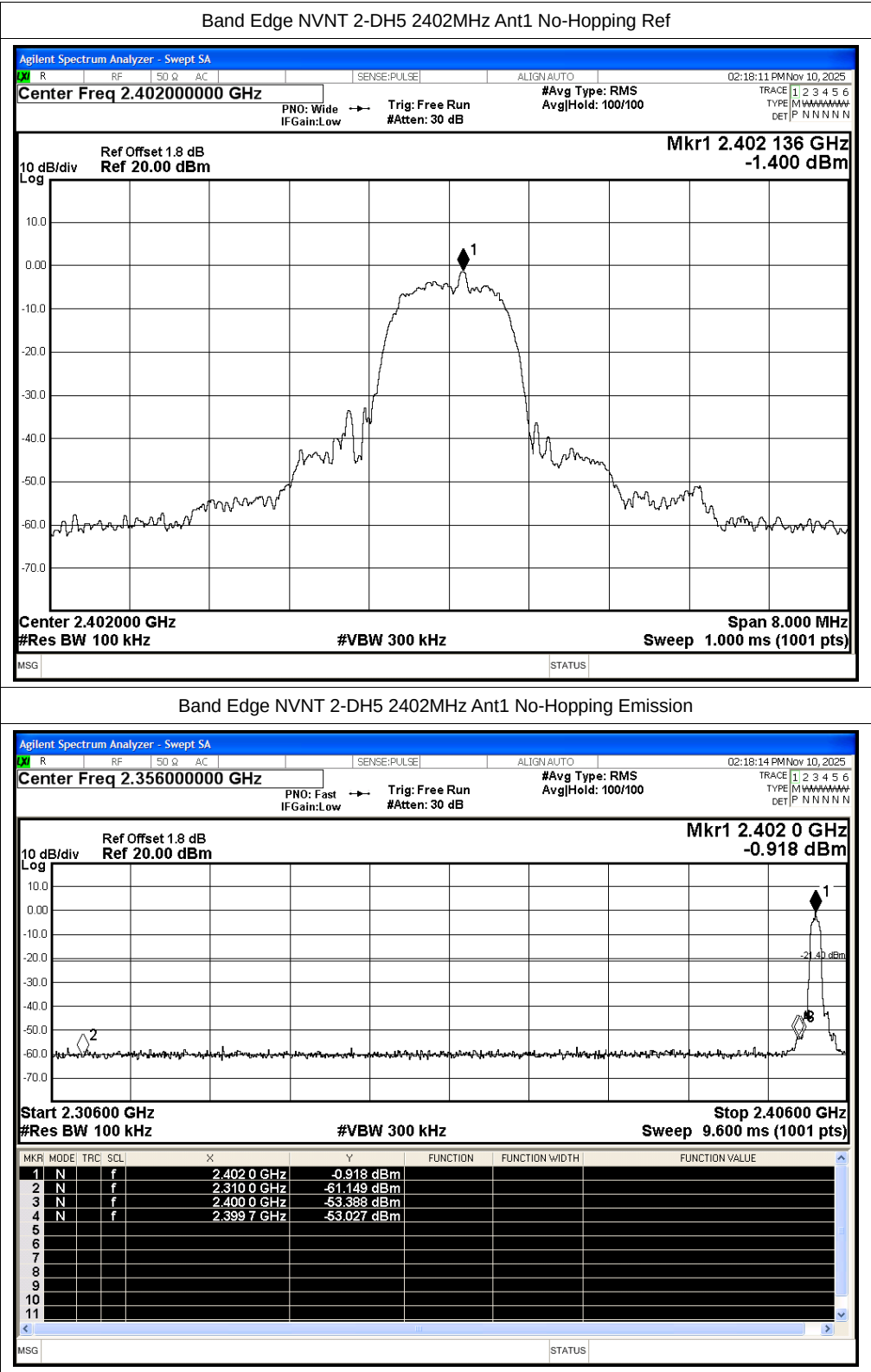


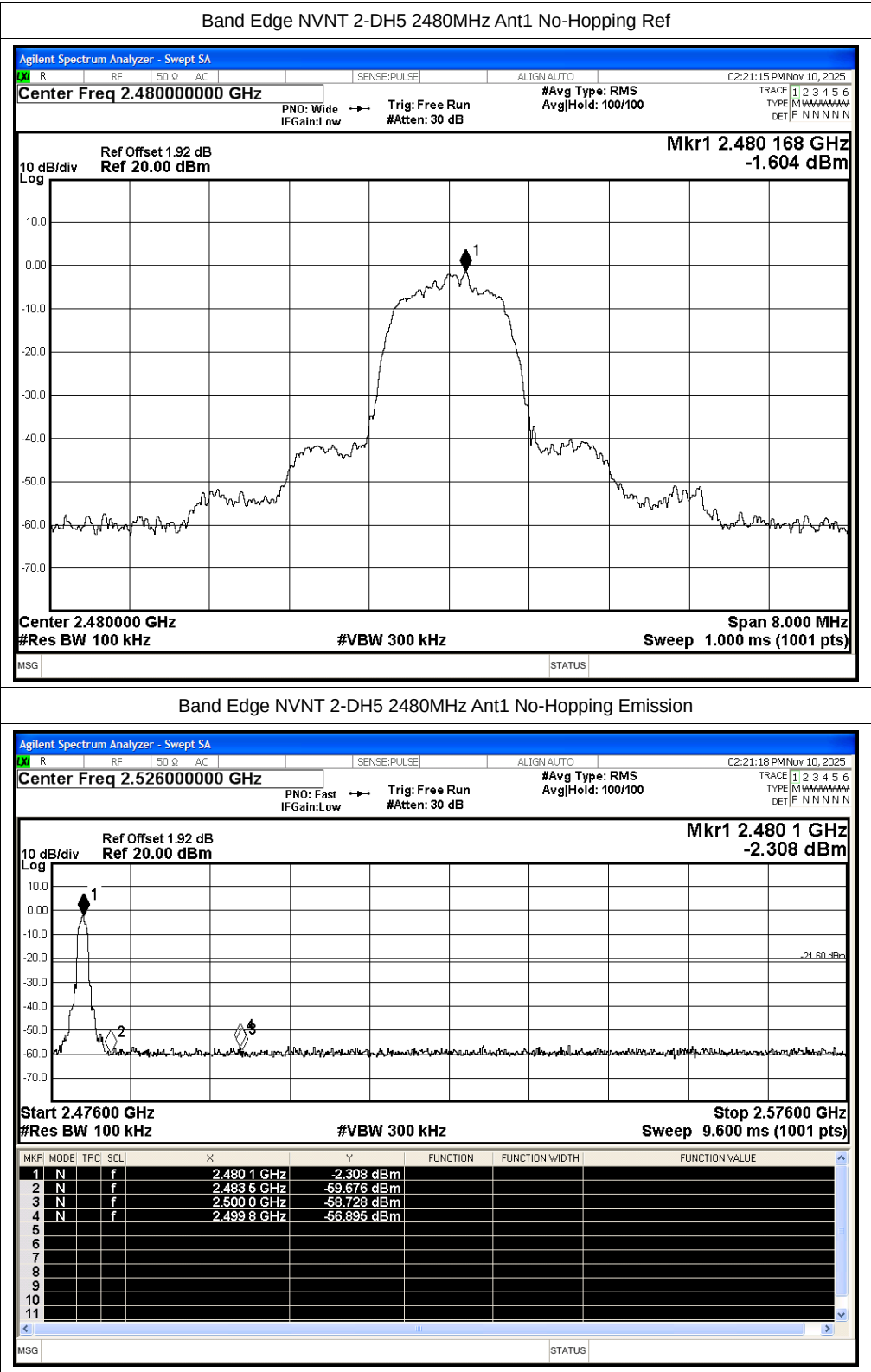
A.6 Band Edge

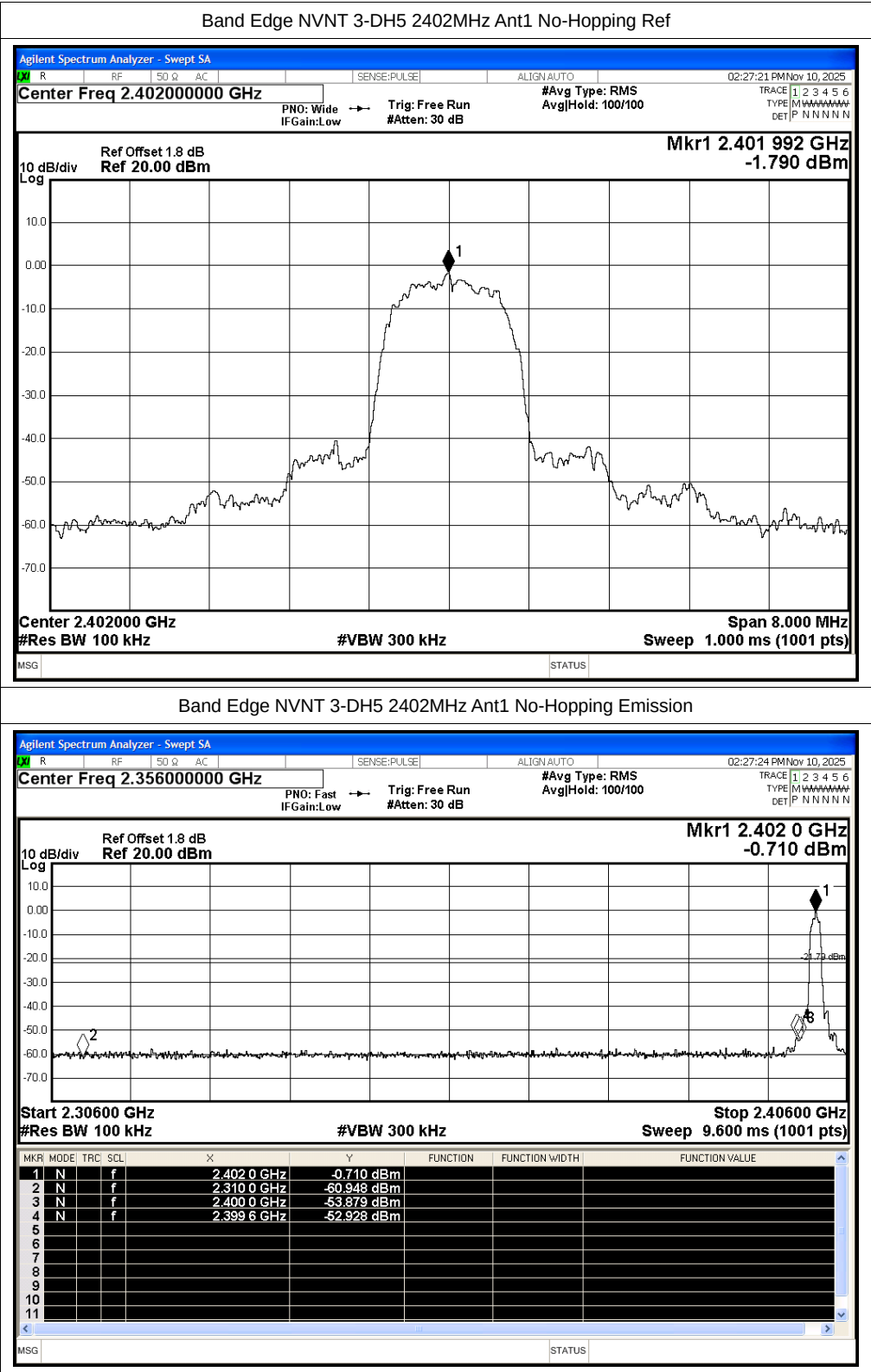
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-56.05	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-55.52	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-51.63	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-55.29	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-51.14	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-54.03	-20	Pass

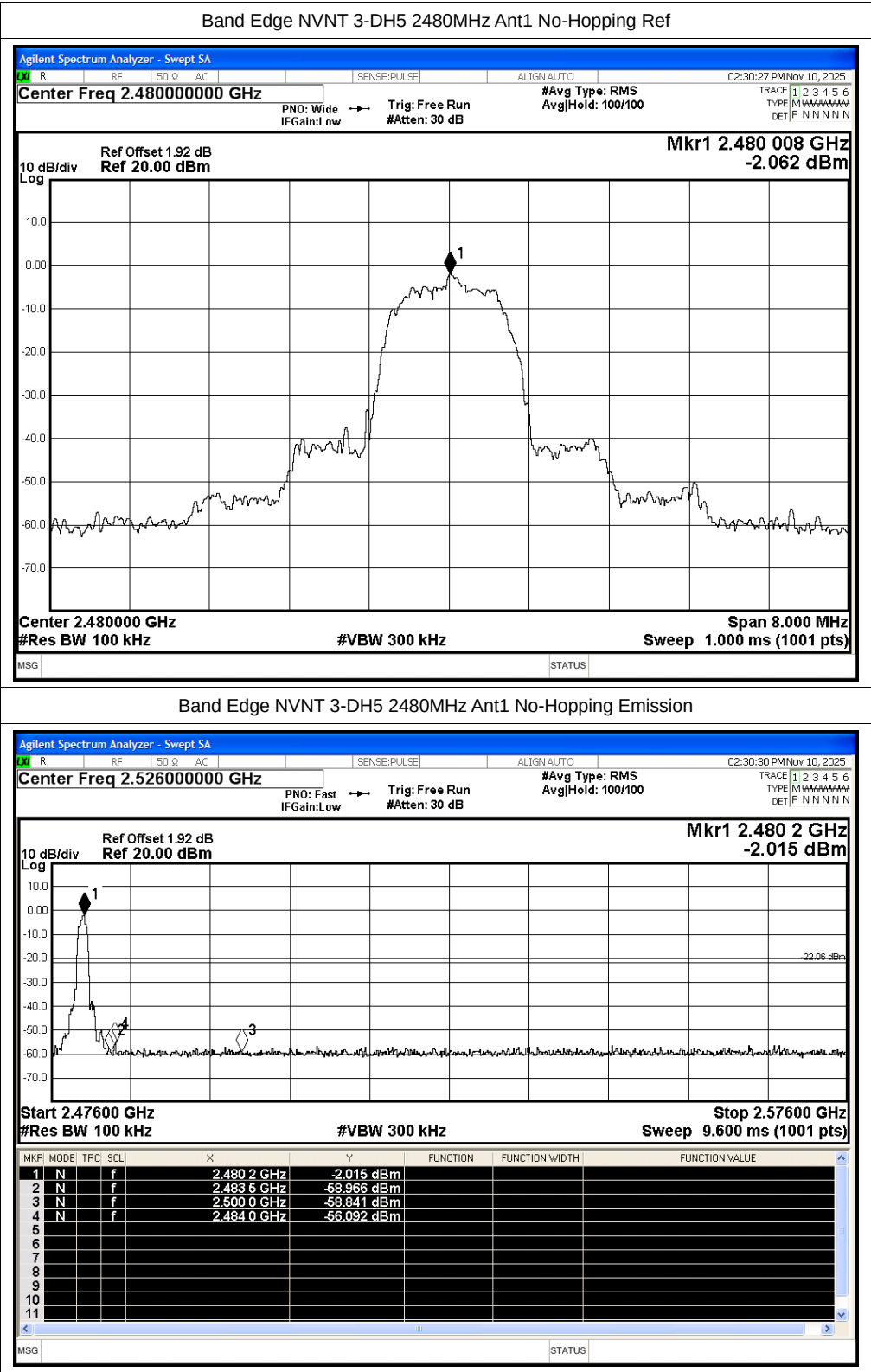






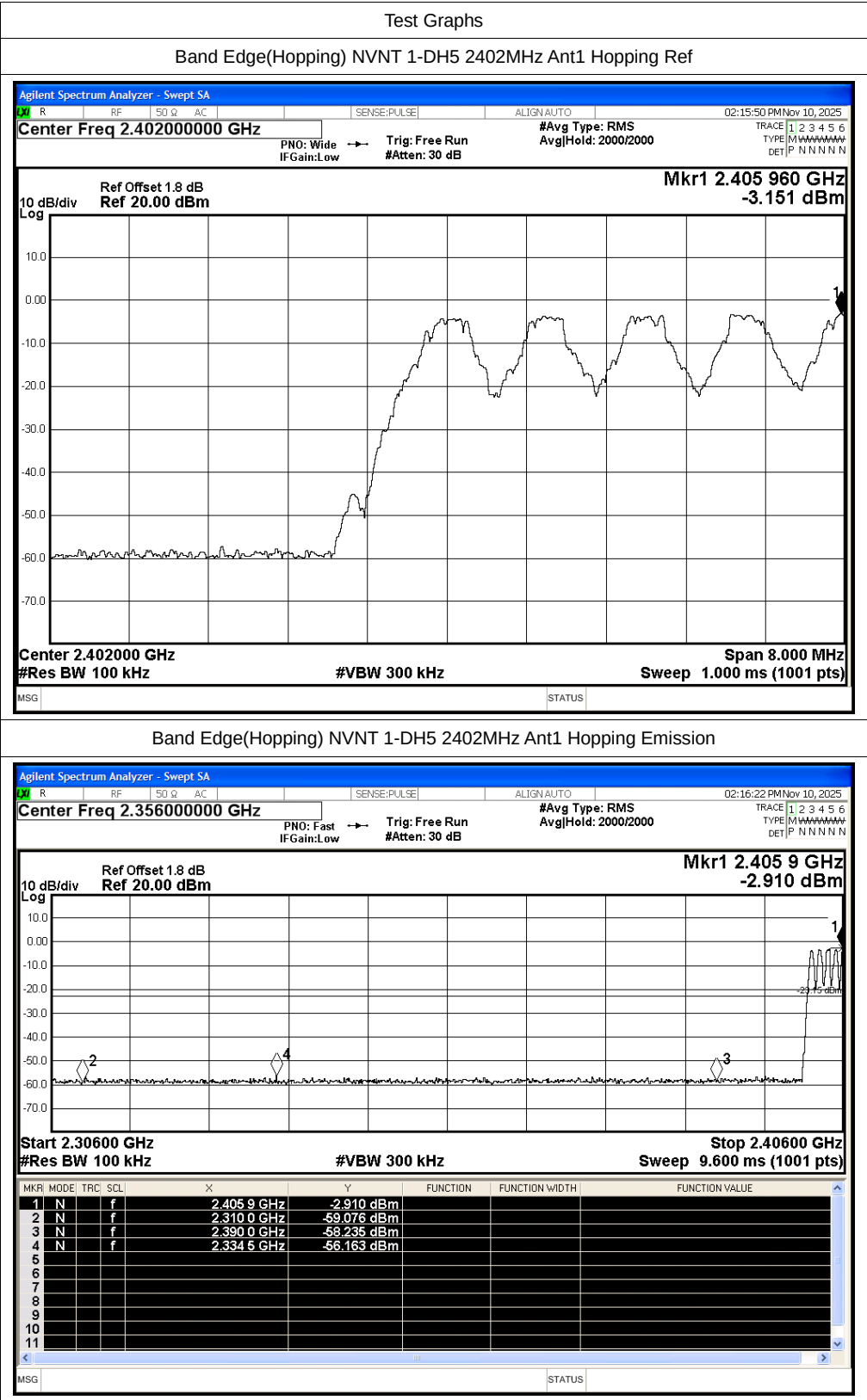


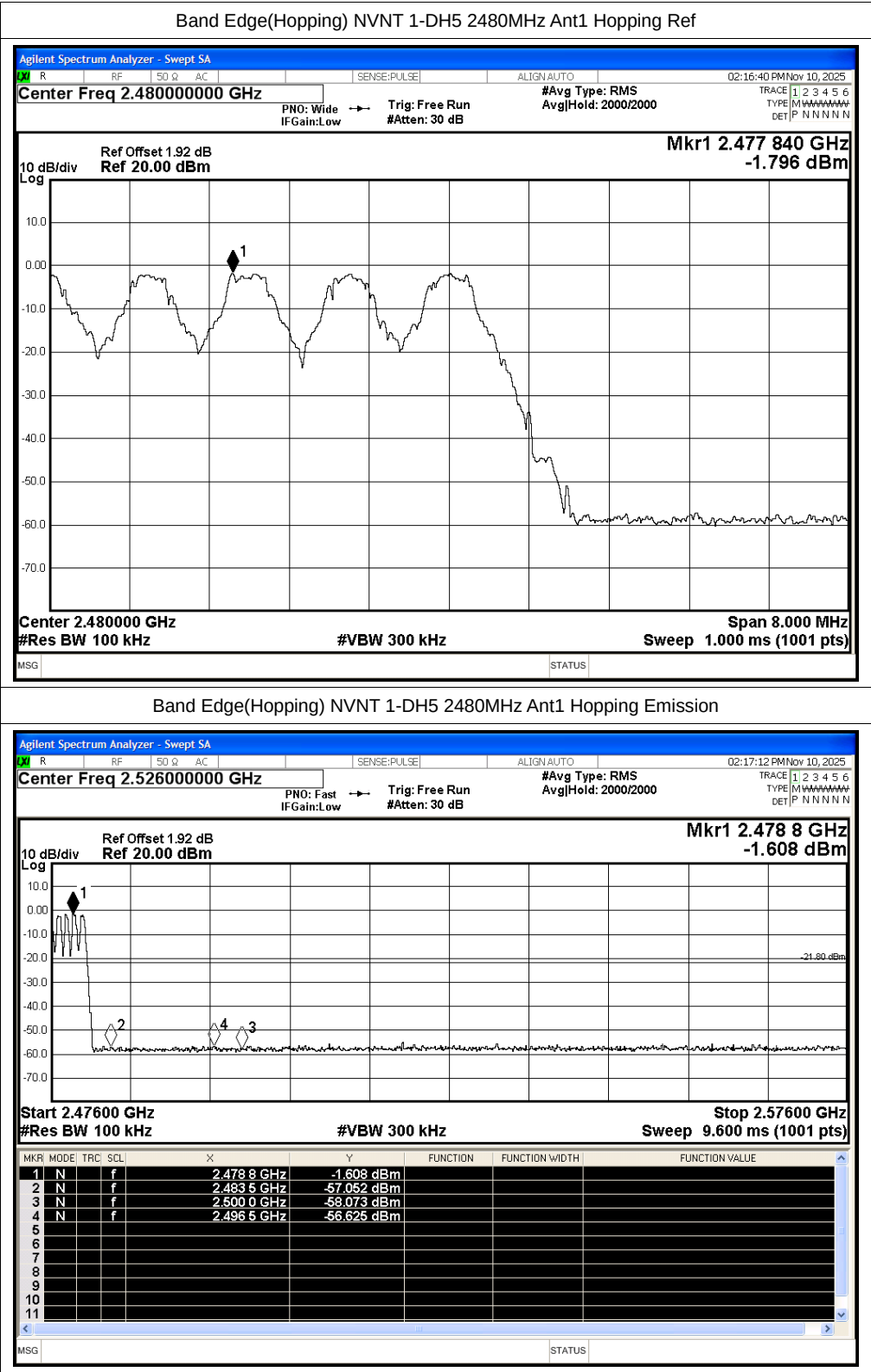


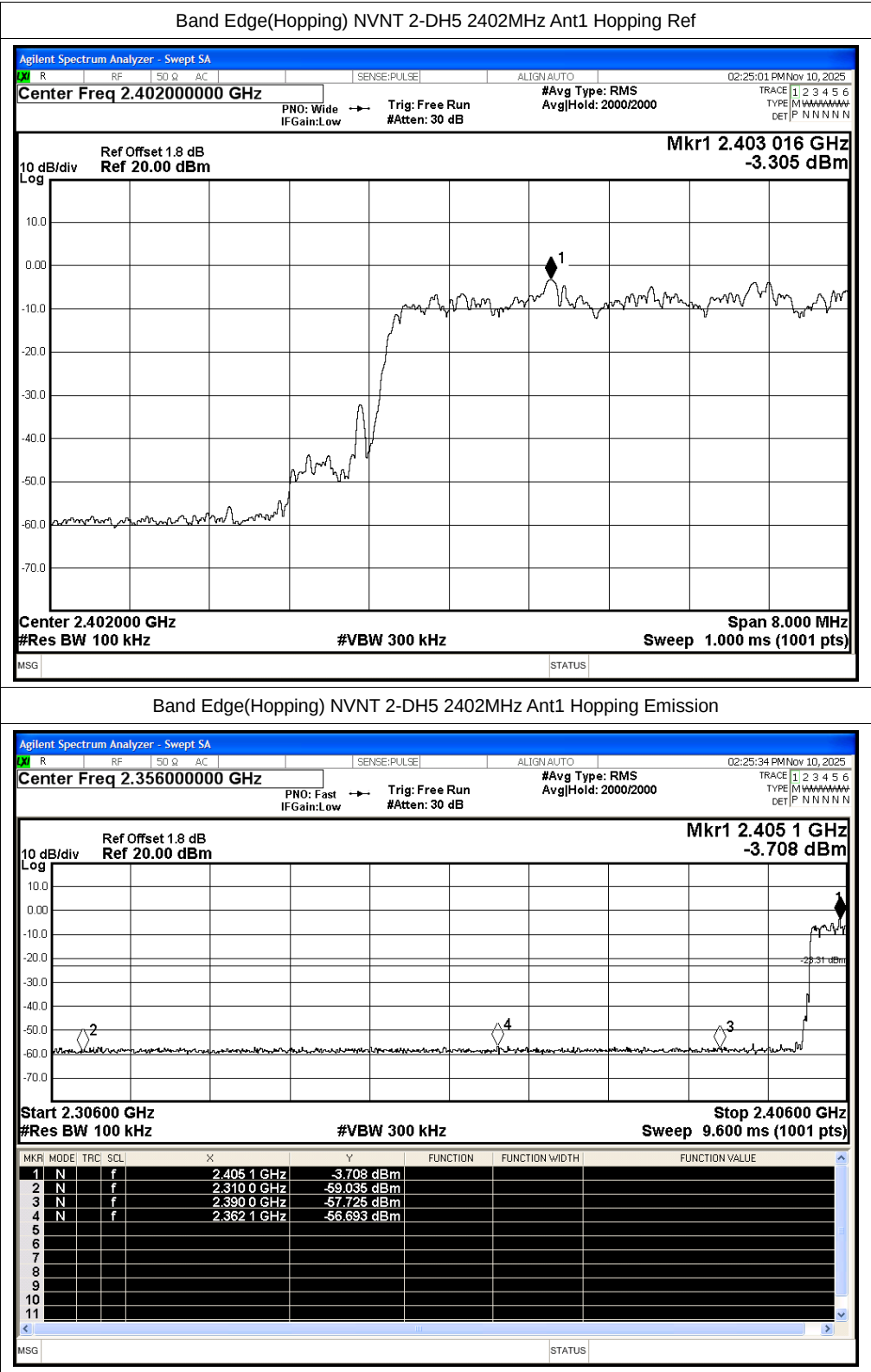


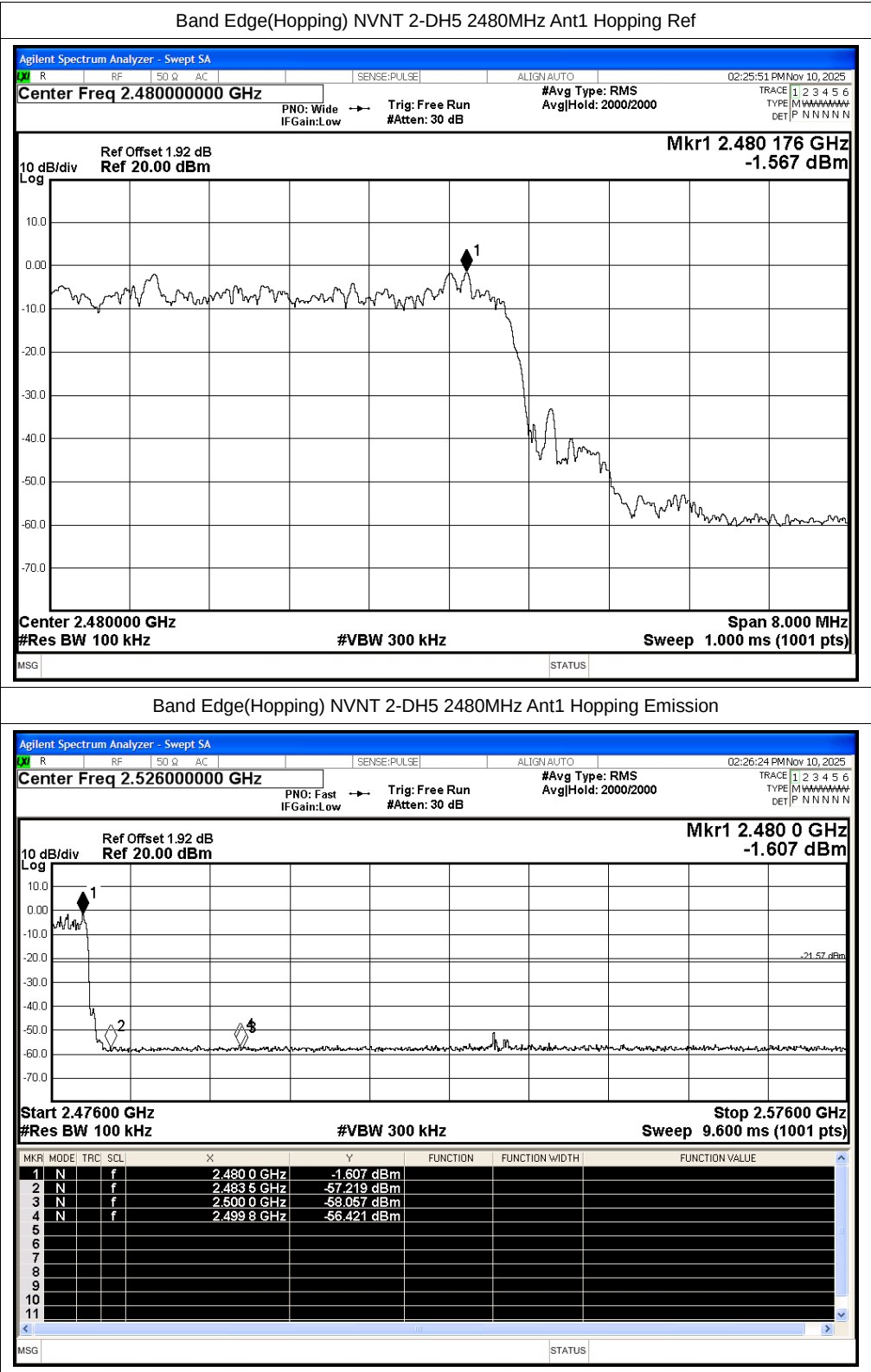
(Hopping)

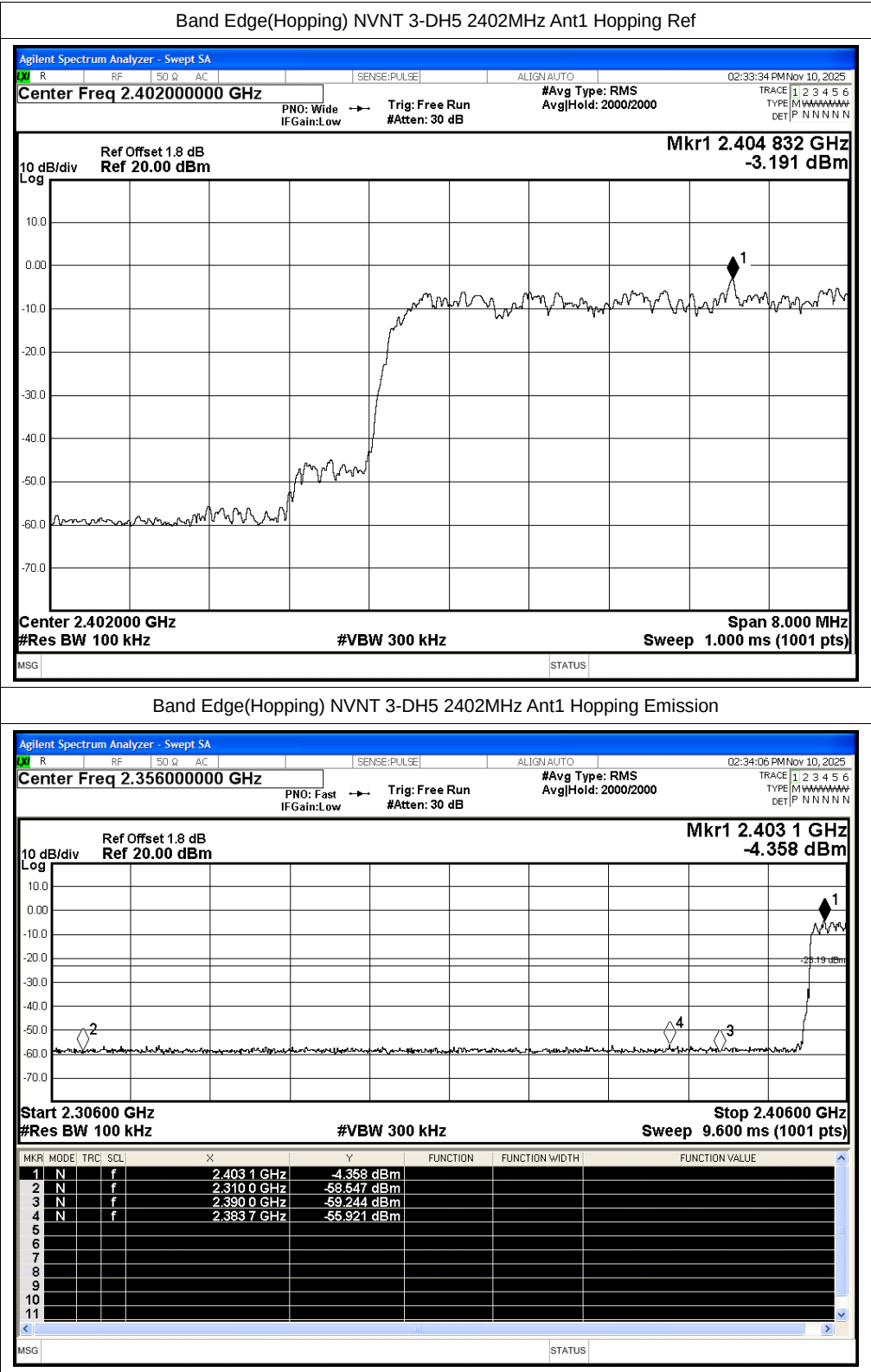
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-53.01	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-54.83	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-53.39	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-54.85	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-52.73	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-53.69	-20	Pass

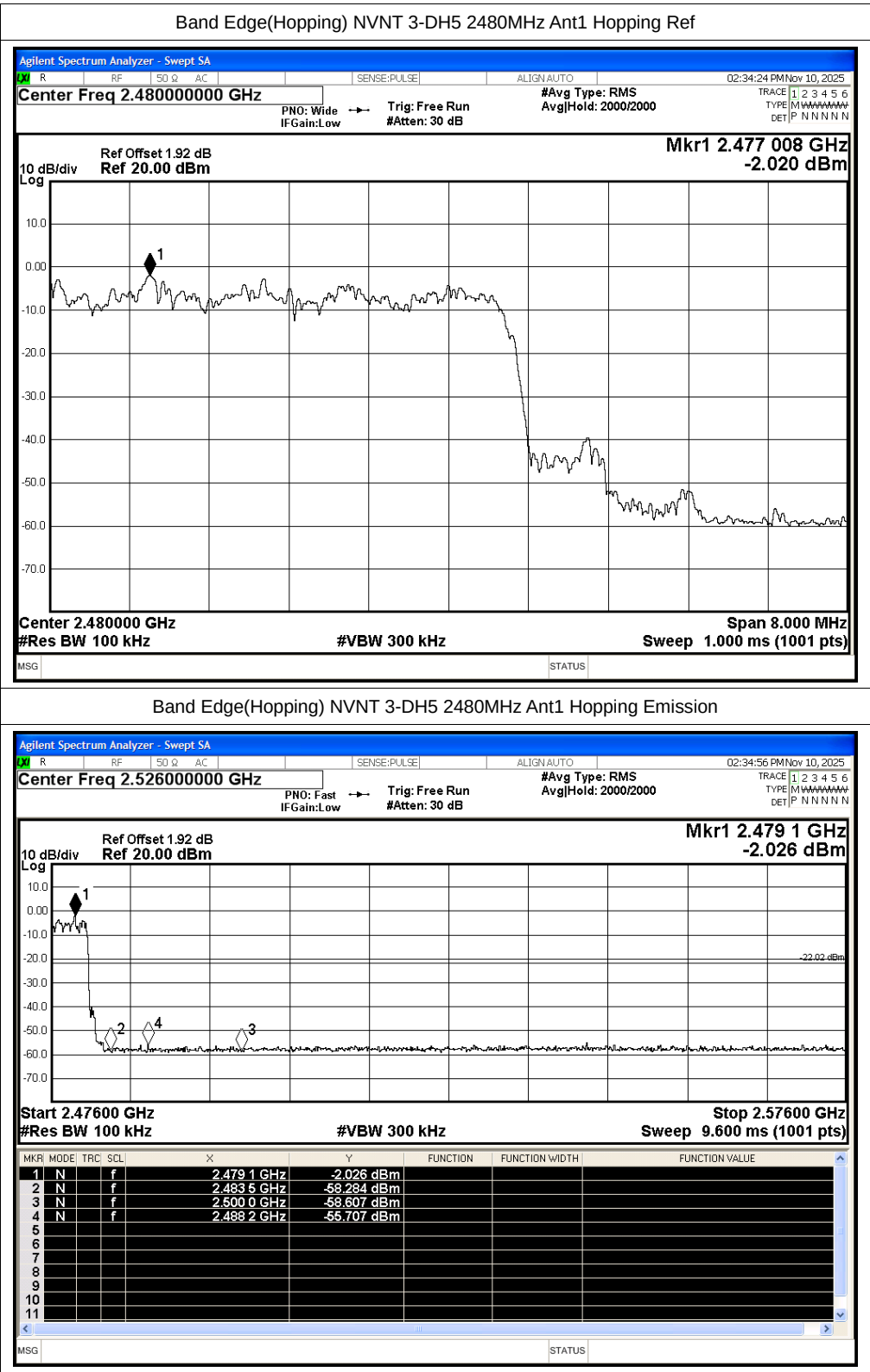






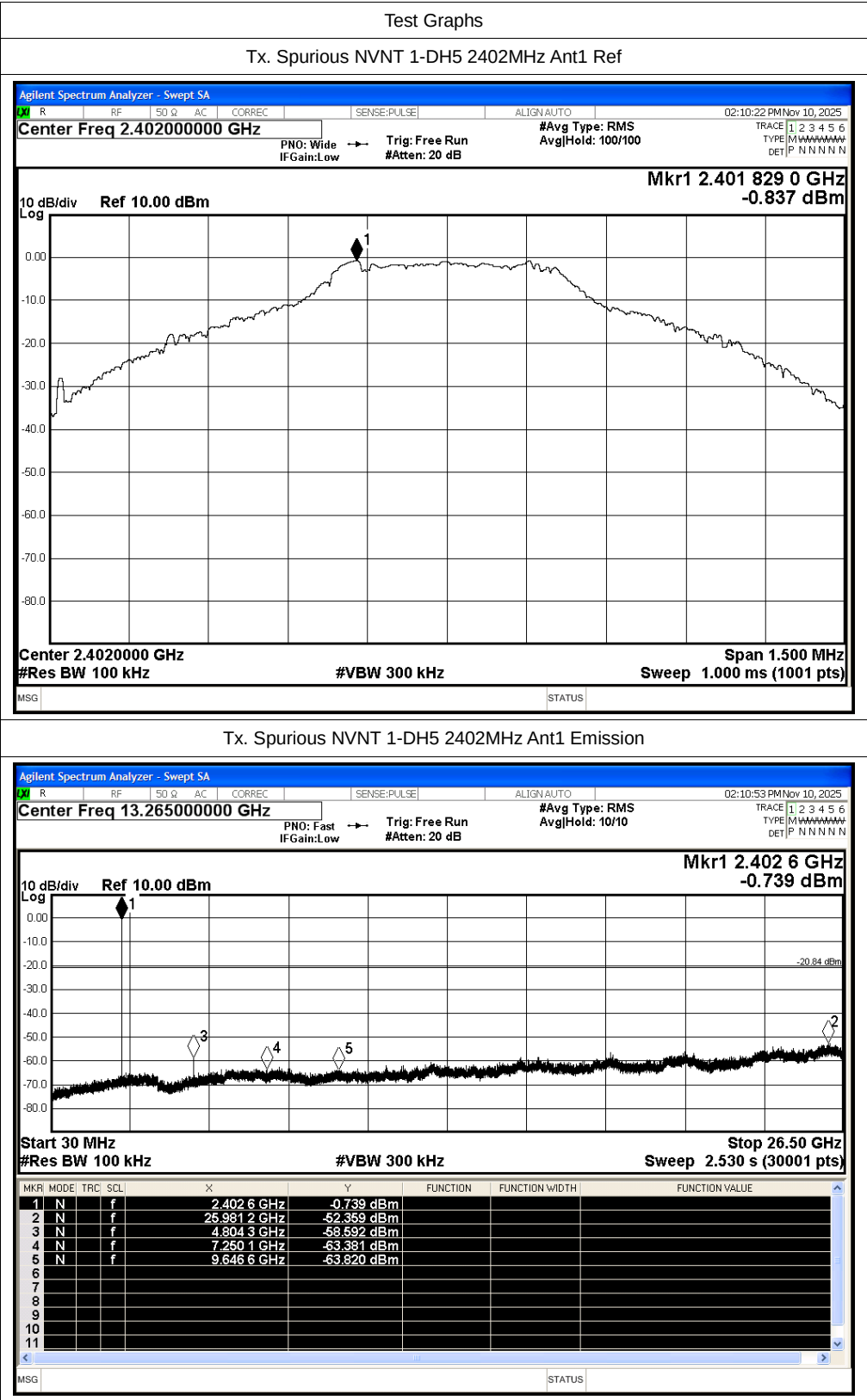


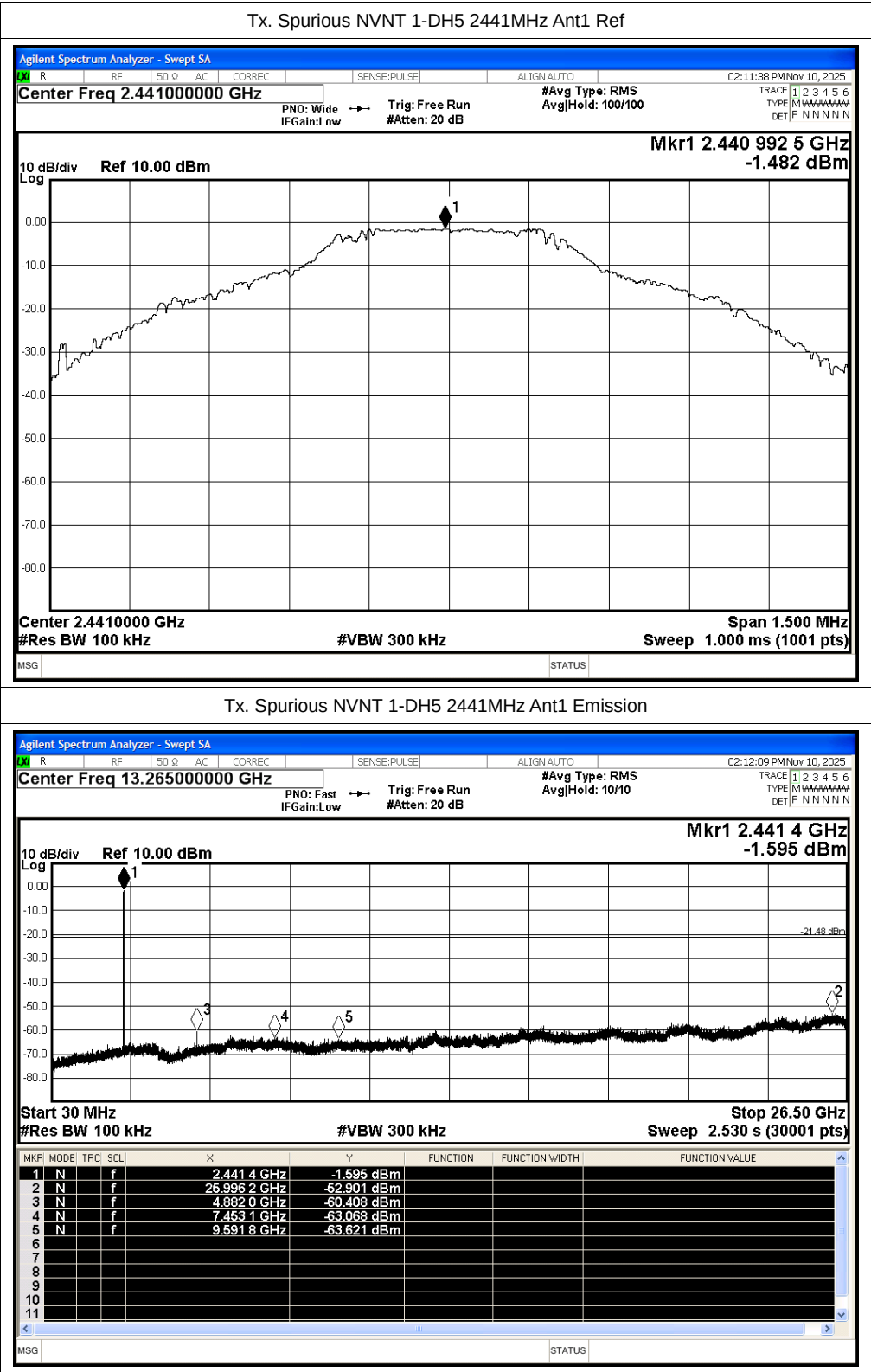


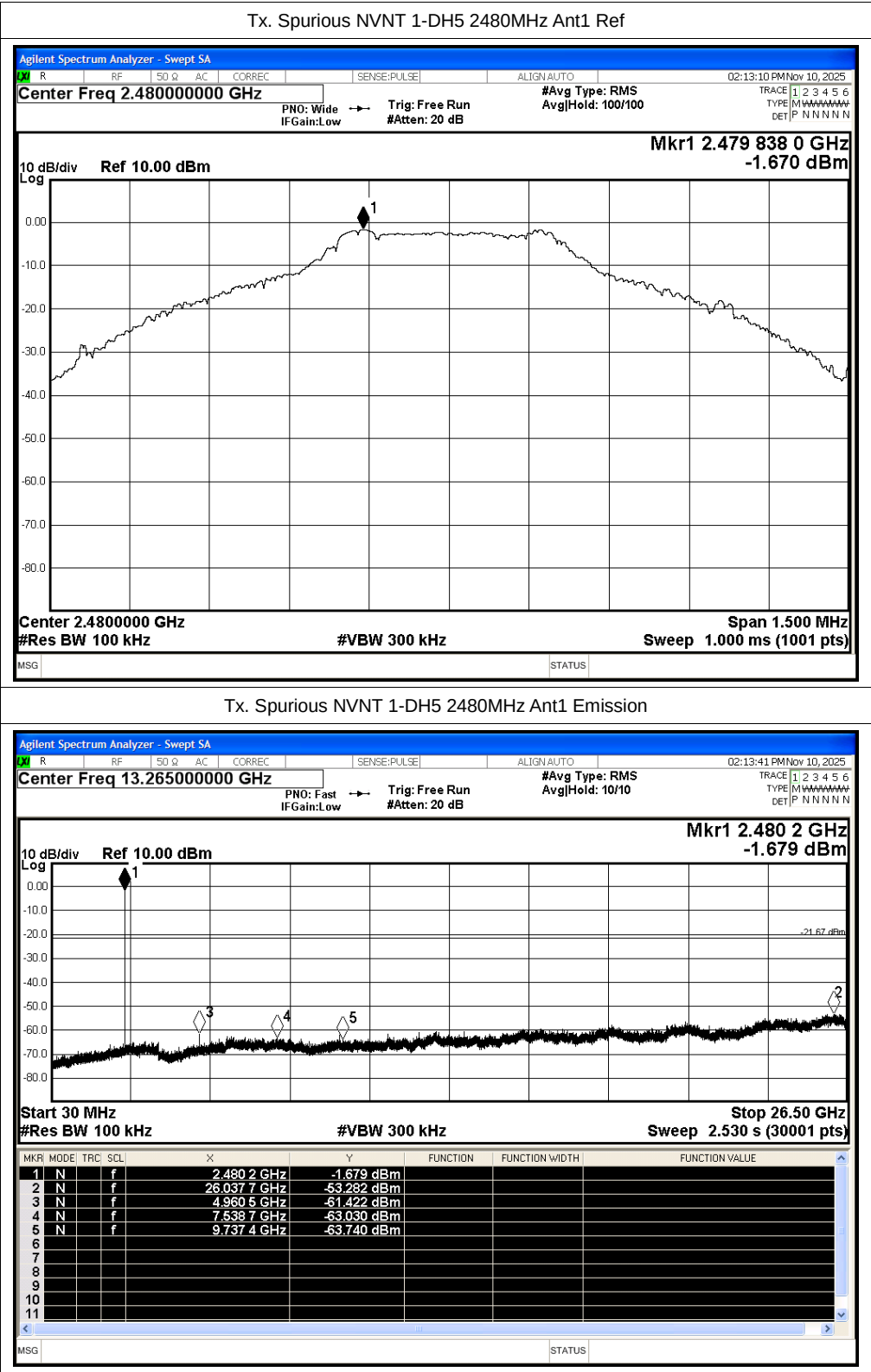


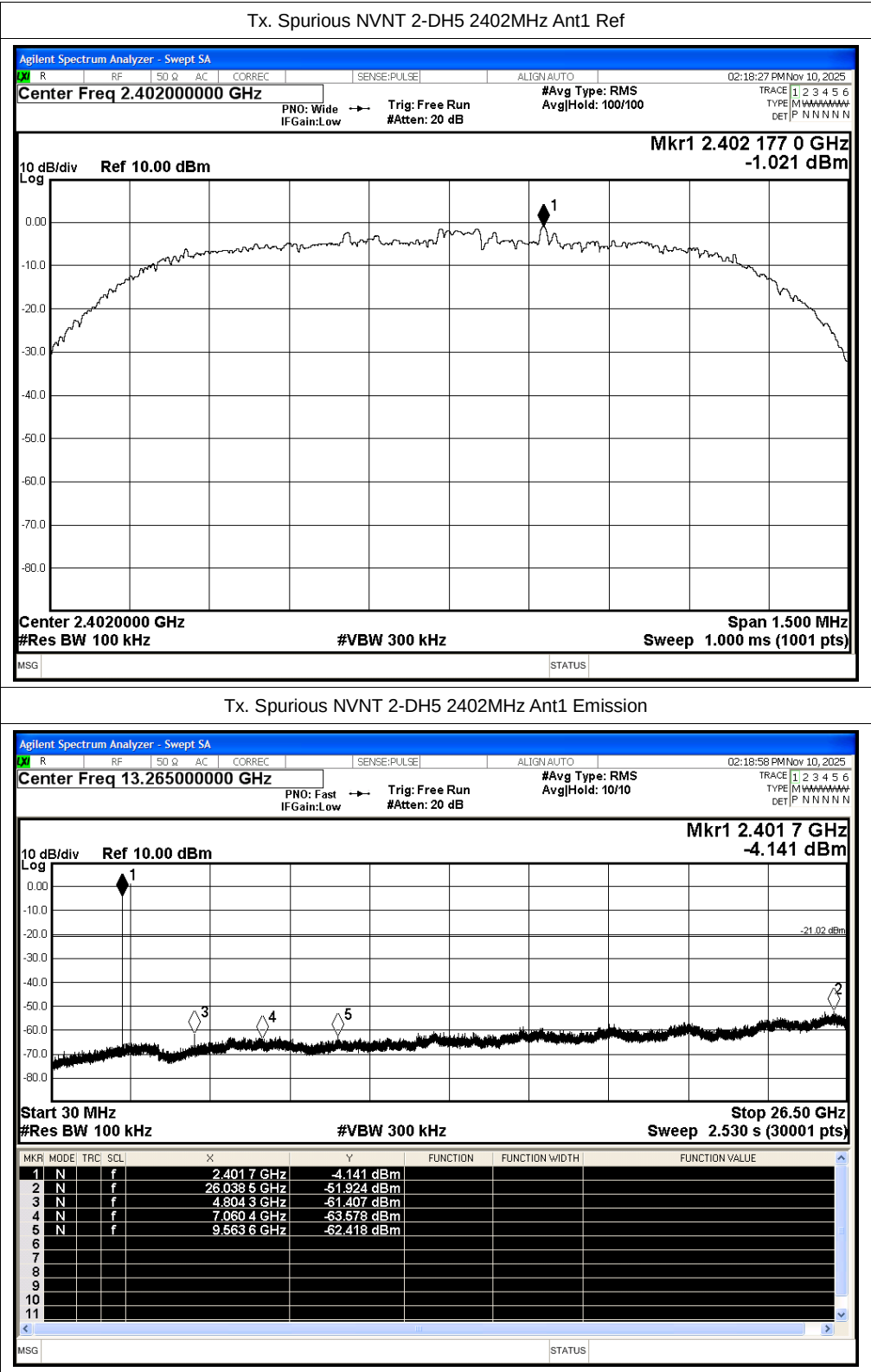
A.7 Conducted RF Spurious Emission

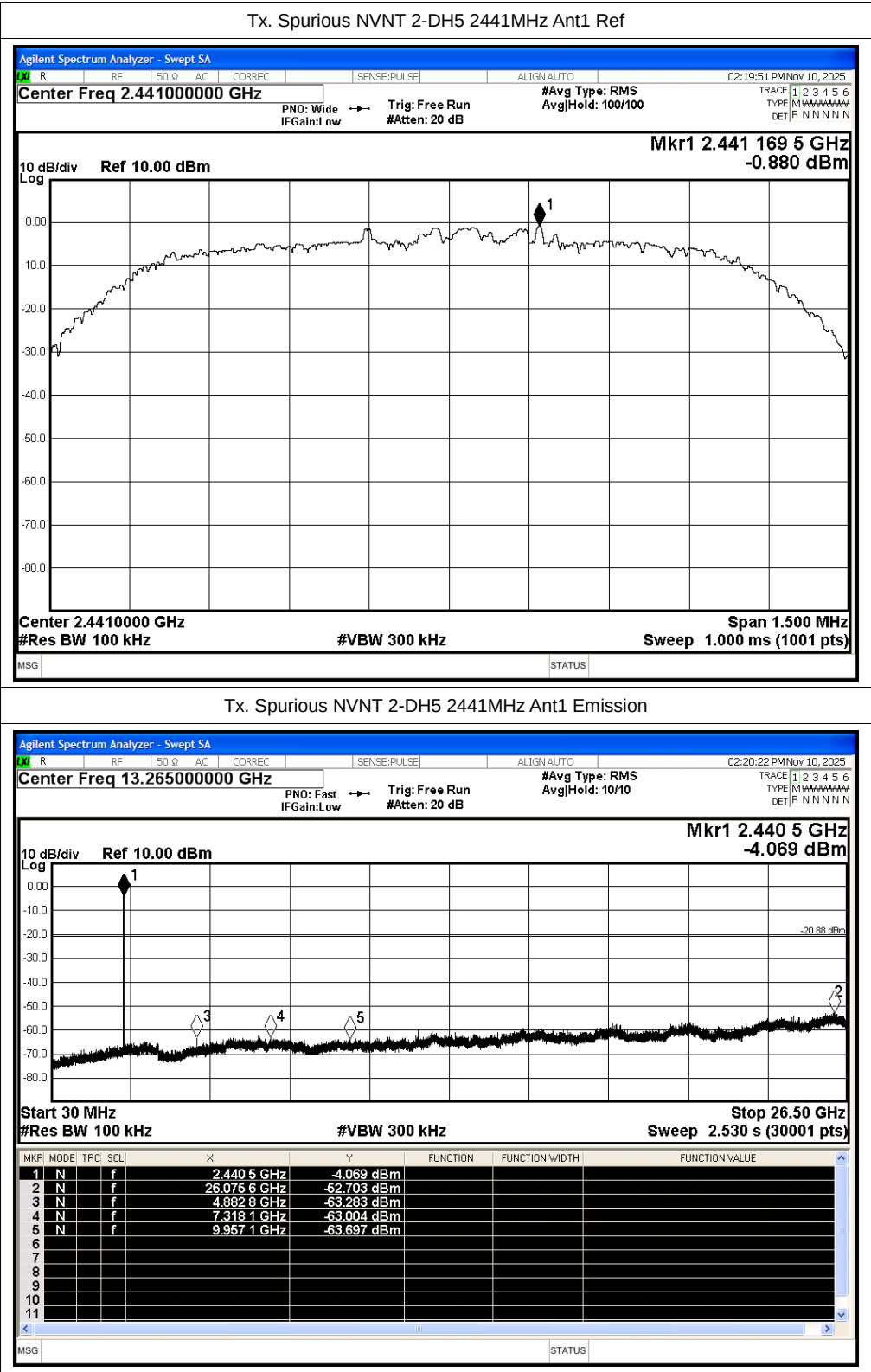
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-51.52	-20	Pass
NVNT	1-DH5	2441	Ant1	-51.42	-20	Pass
NVNT	1-DH5	2480	Ant1	-51.61	-20	Pass
NVNT	2-DH5	2402	Ant1	-50.9	-20	Pass
NVNT	2-DH5	2441	Ant1	-51.82	-20	Pass
NVNT	2-DH5	2480	Ant1	-51.28	-20	Pass
NVNT	3-DH5	2402	Ant1	-52.7	-20	Pass
NVNT	3-DH5	2441	Ant1	-51.32	-20	Pass
NVNT	3-DH5	2480	Ant1	-49.93	-20	Pass

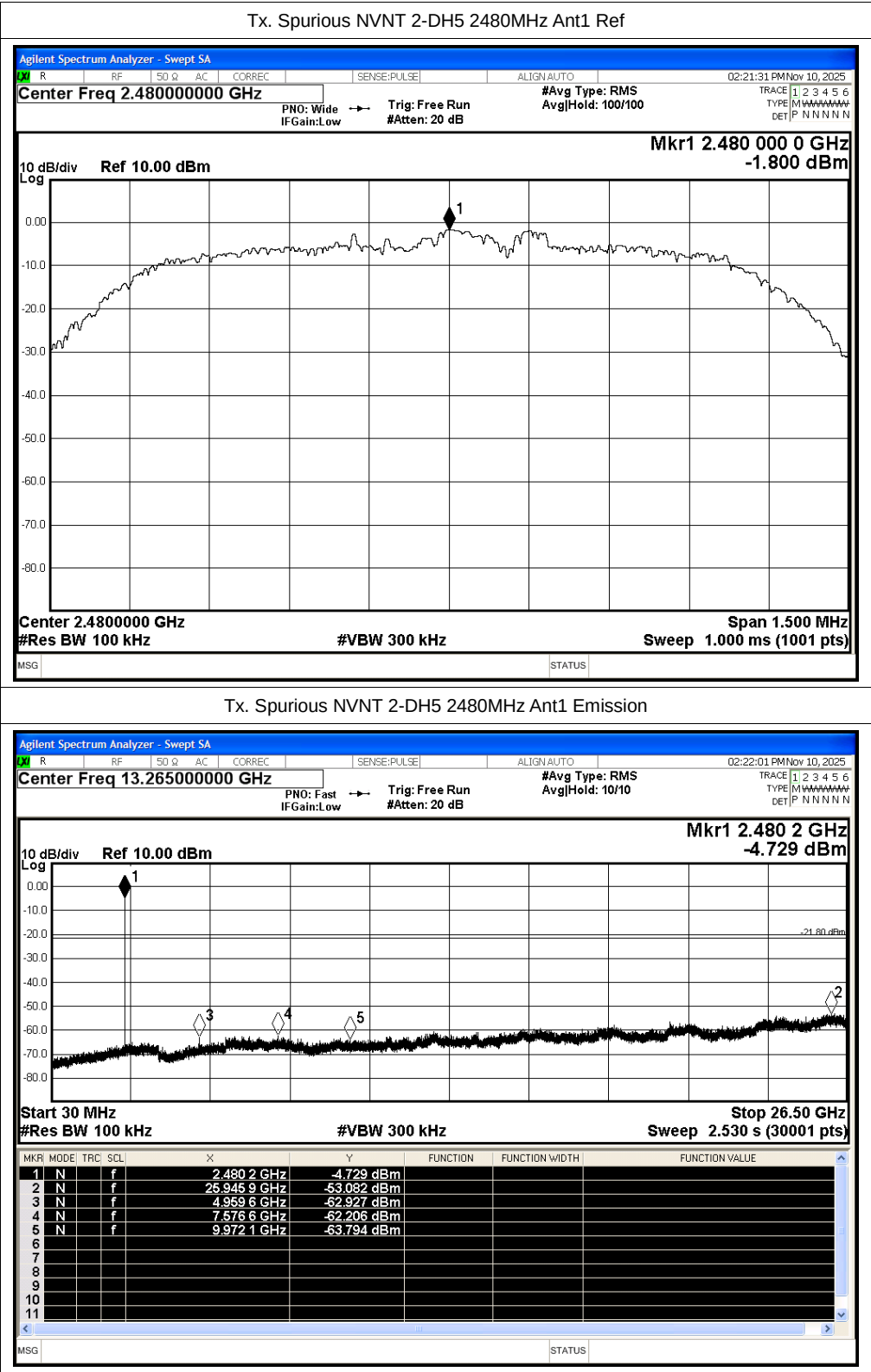


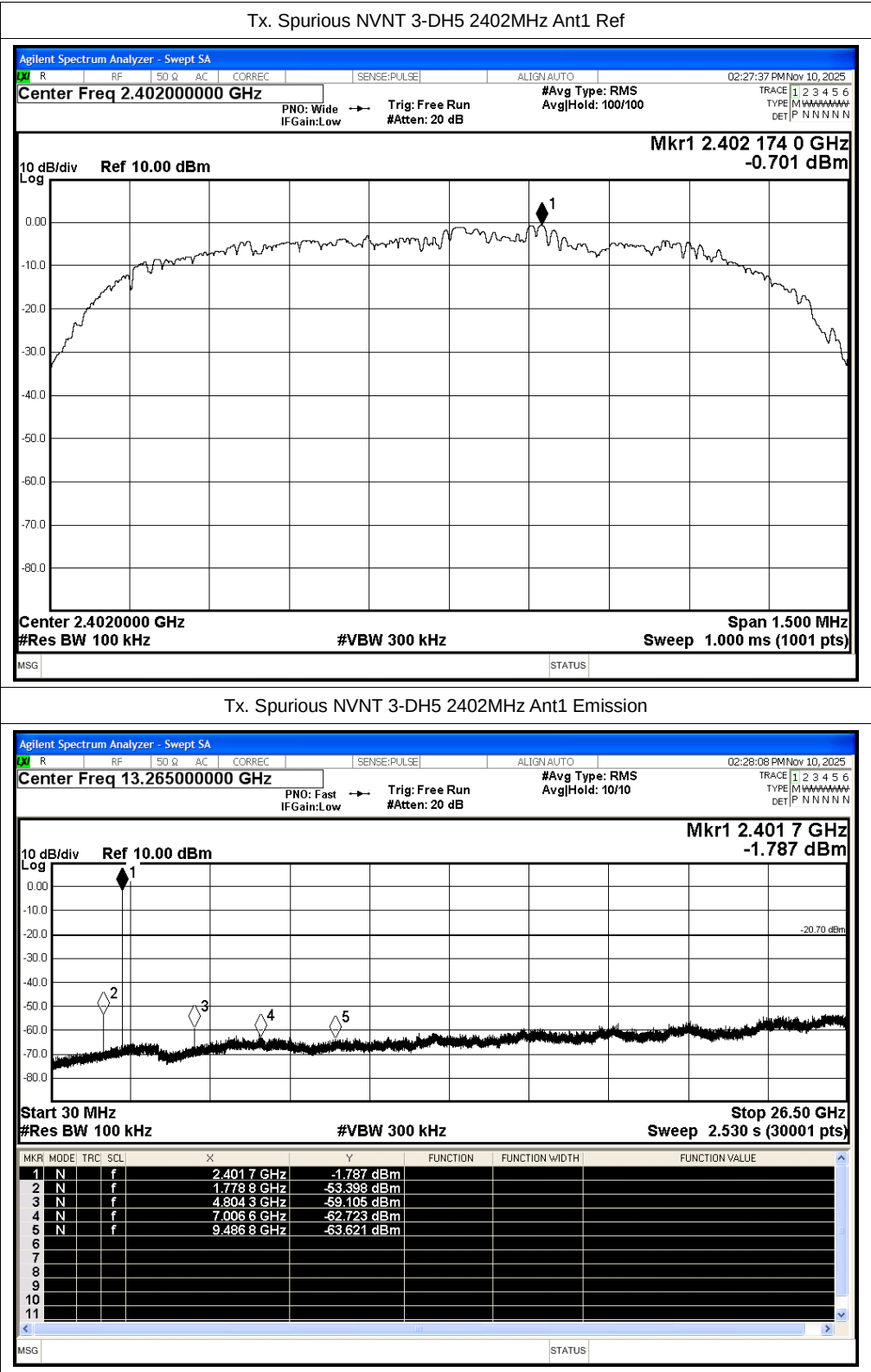


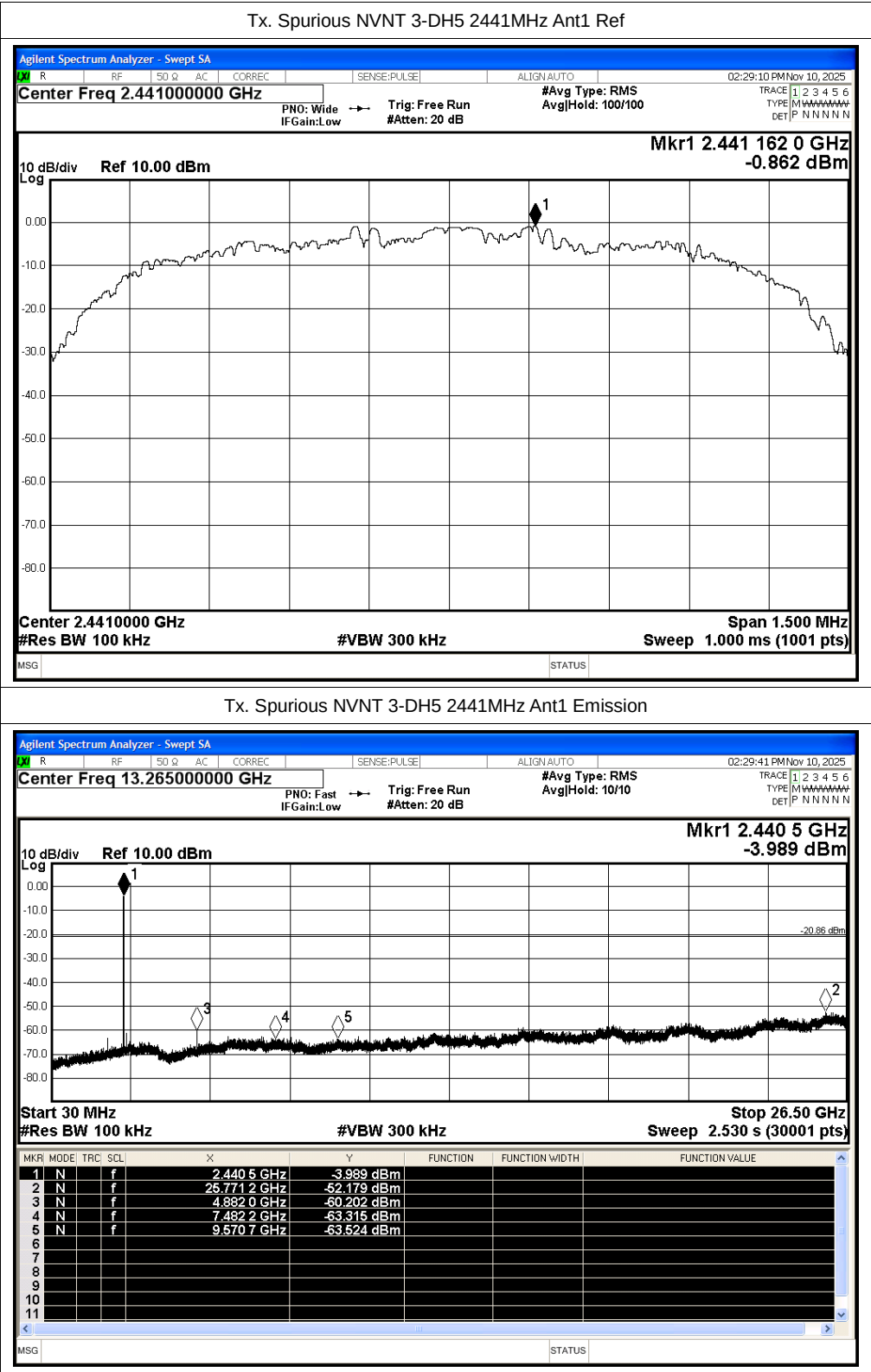


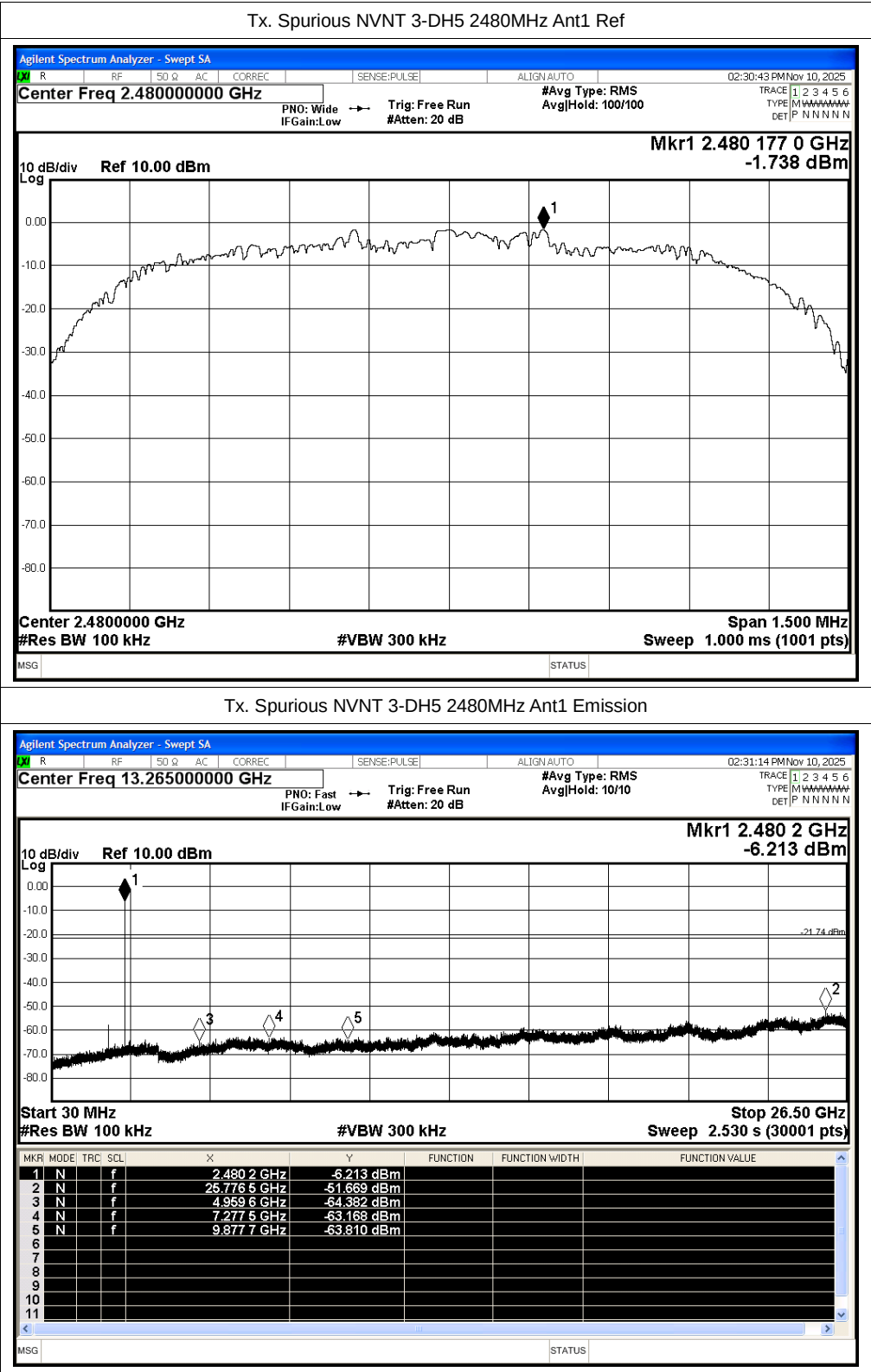






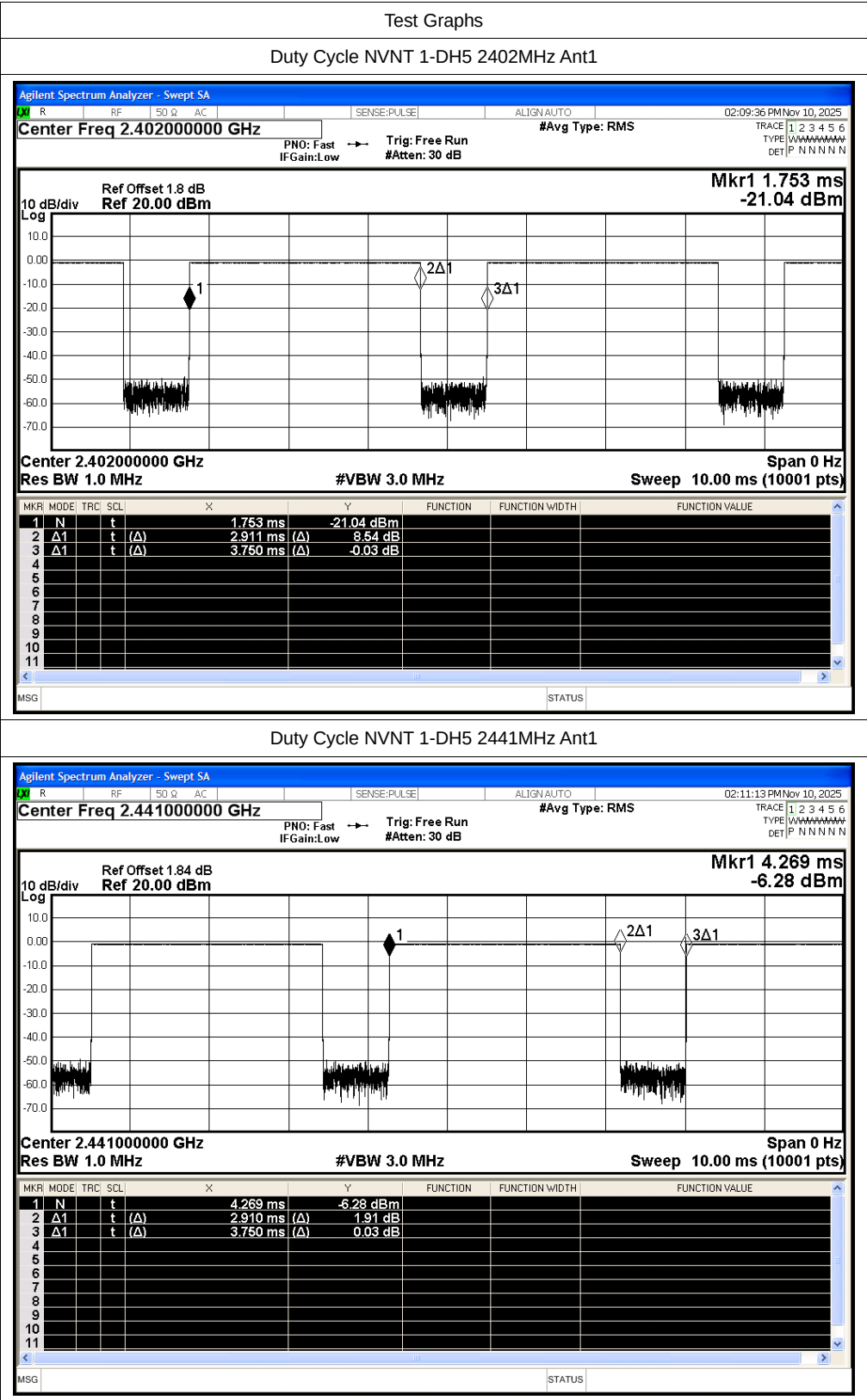


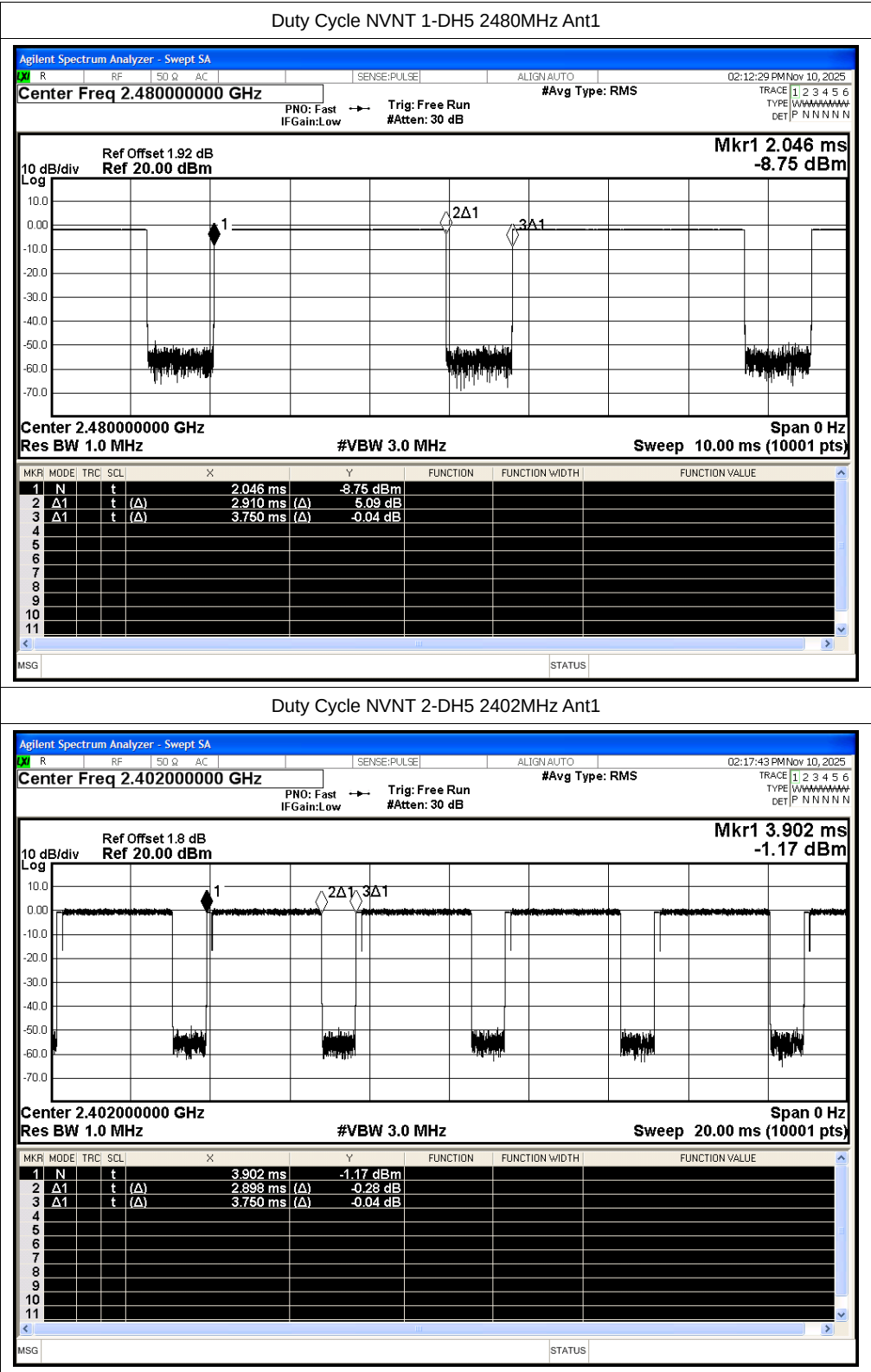


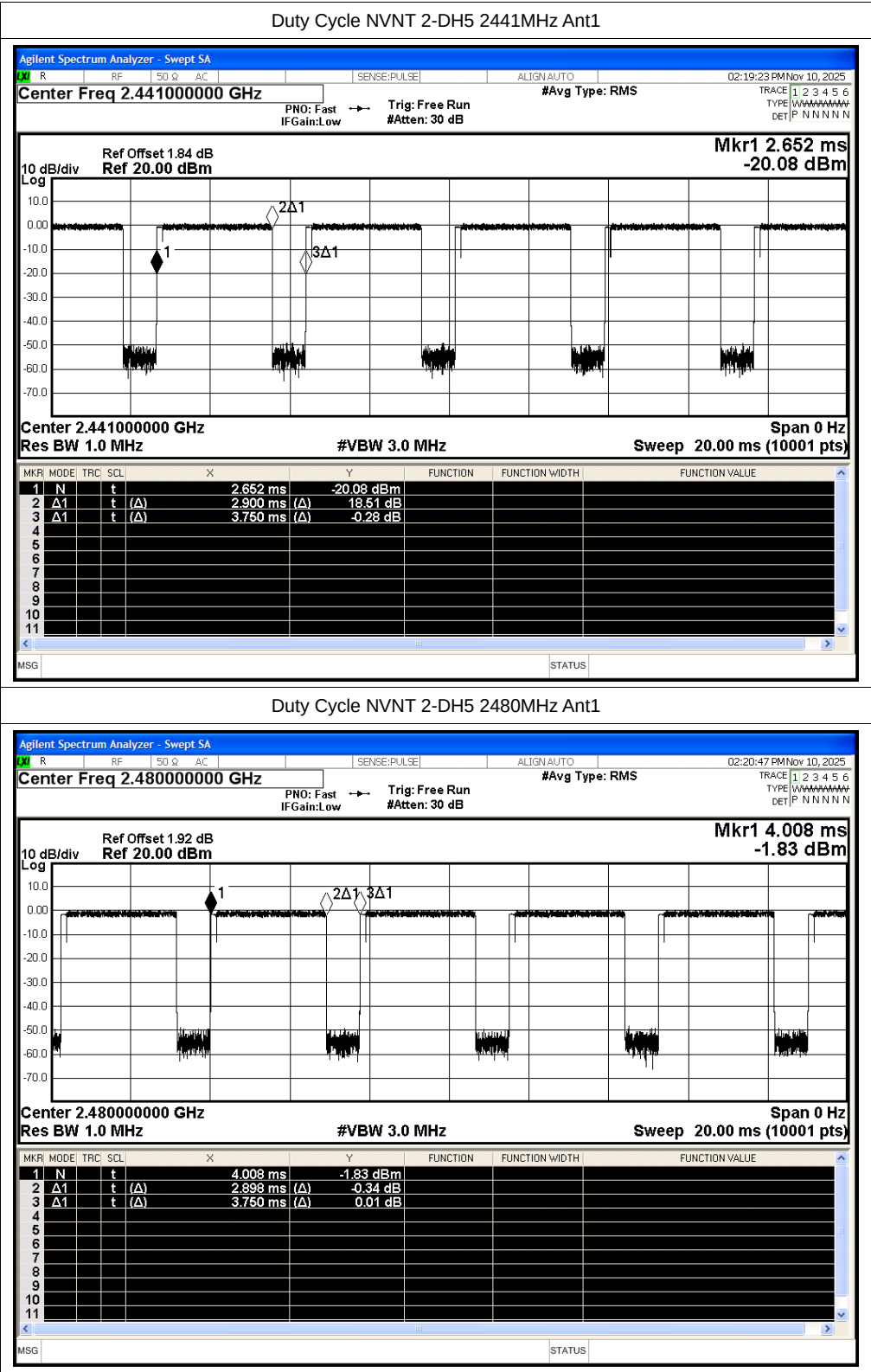


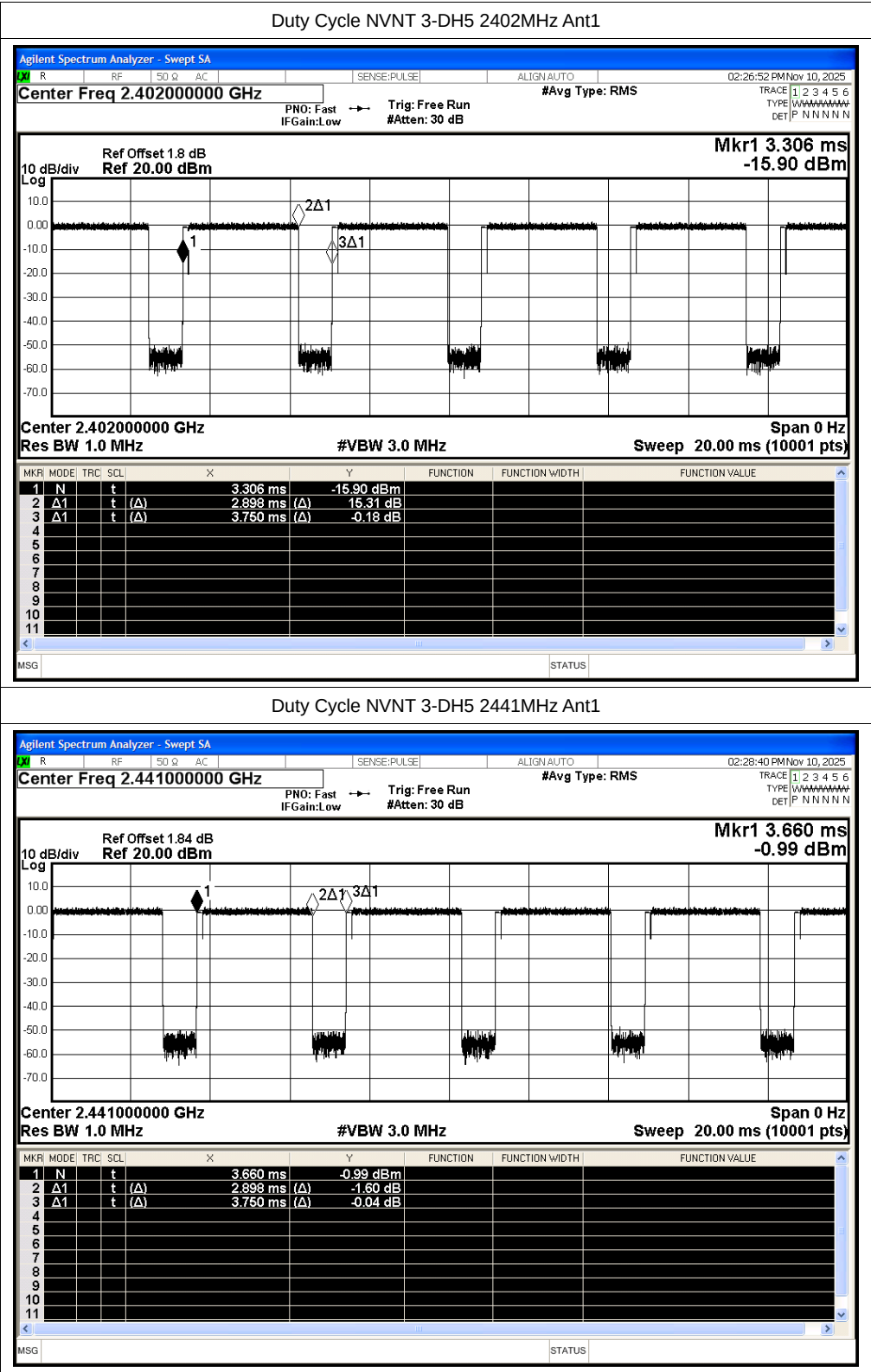
A.8 Duty Cycle

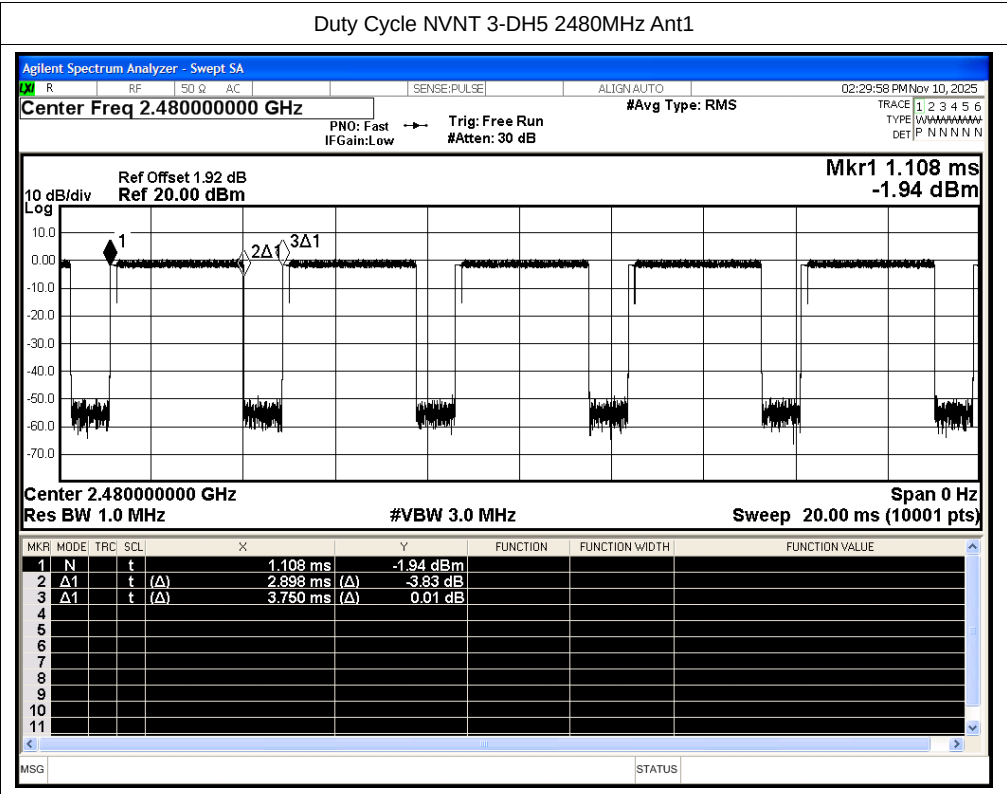
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	77.63	1.1	0.34
NVNT	1-DH5	2441	Ant1	77.6	1.1	0.34
NVNT	1-DH5	2480	Ant1	77.6	1.1	0.34
NVNT	2-DH5	2402	Ant1	77.28	1.12	0.35
NVNT	2-DH5	2441	Ant1	77.33	1.12	0.34
NVNT	2-DH5	2480	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2402	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2441	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2480	Ant1	77.28	1.12	0.35





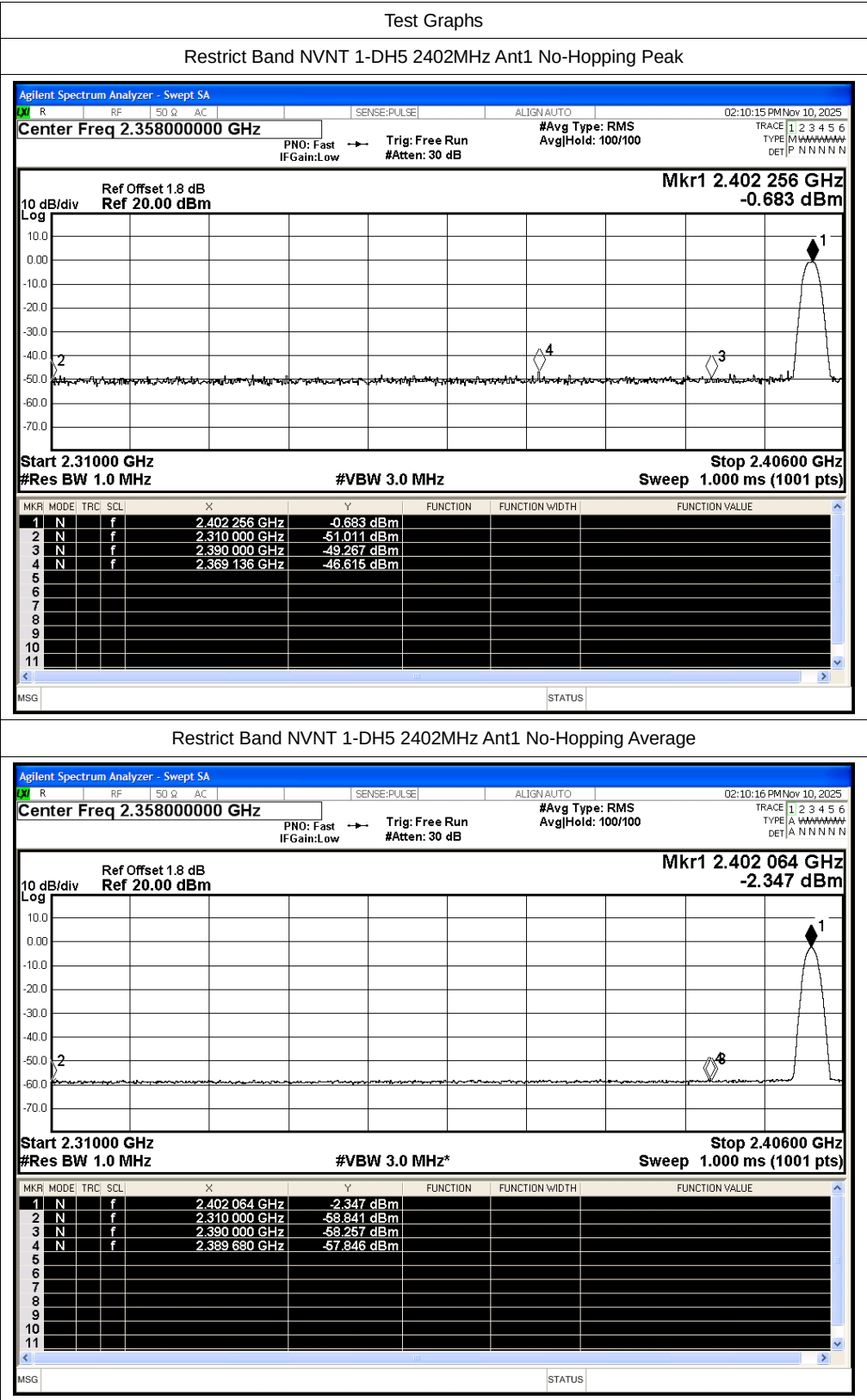


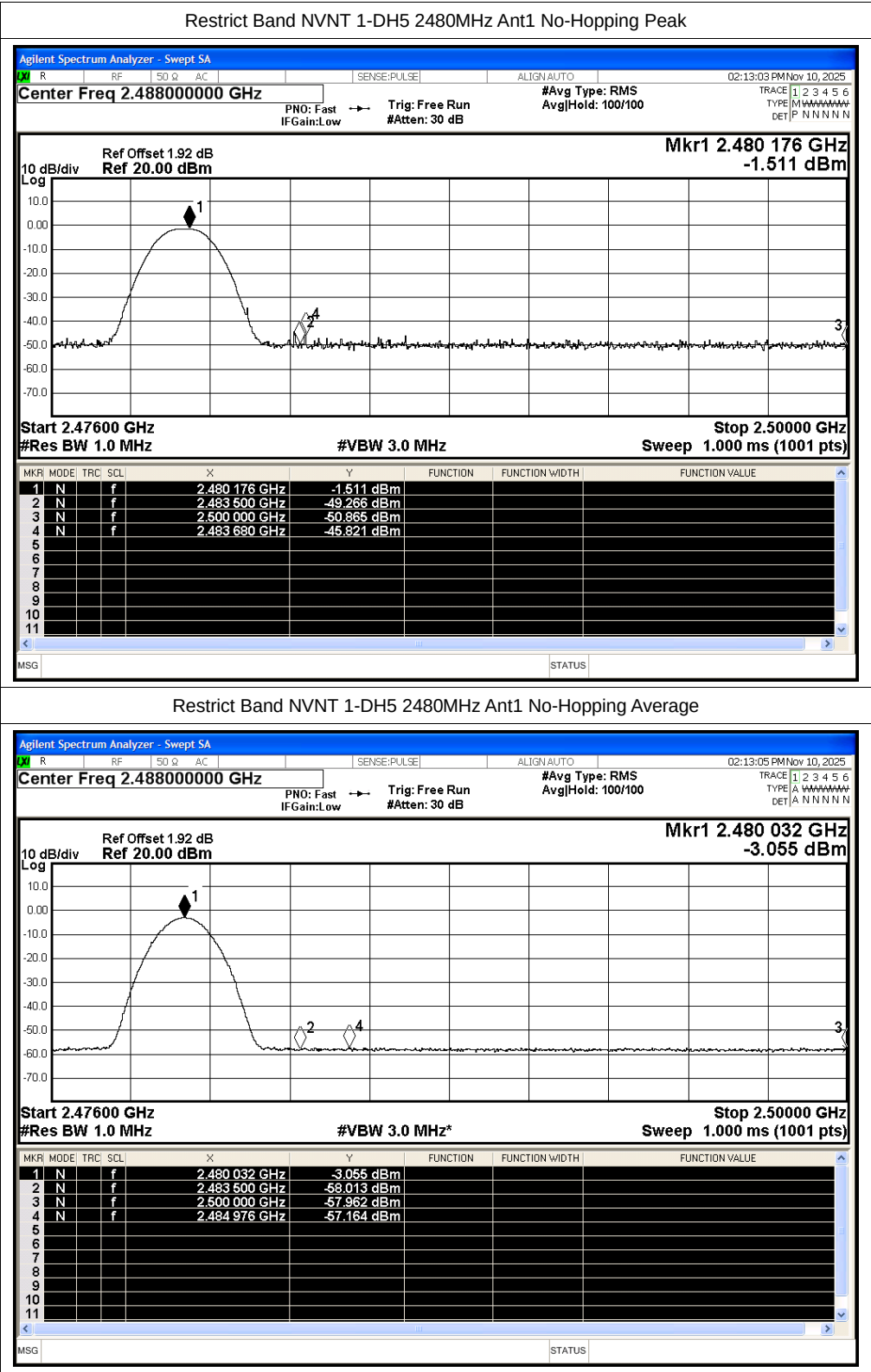


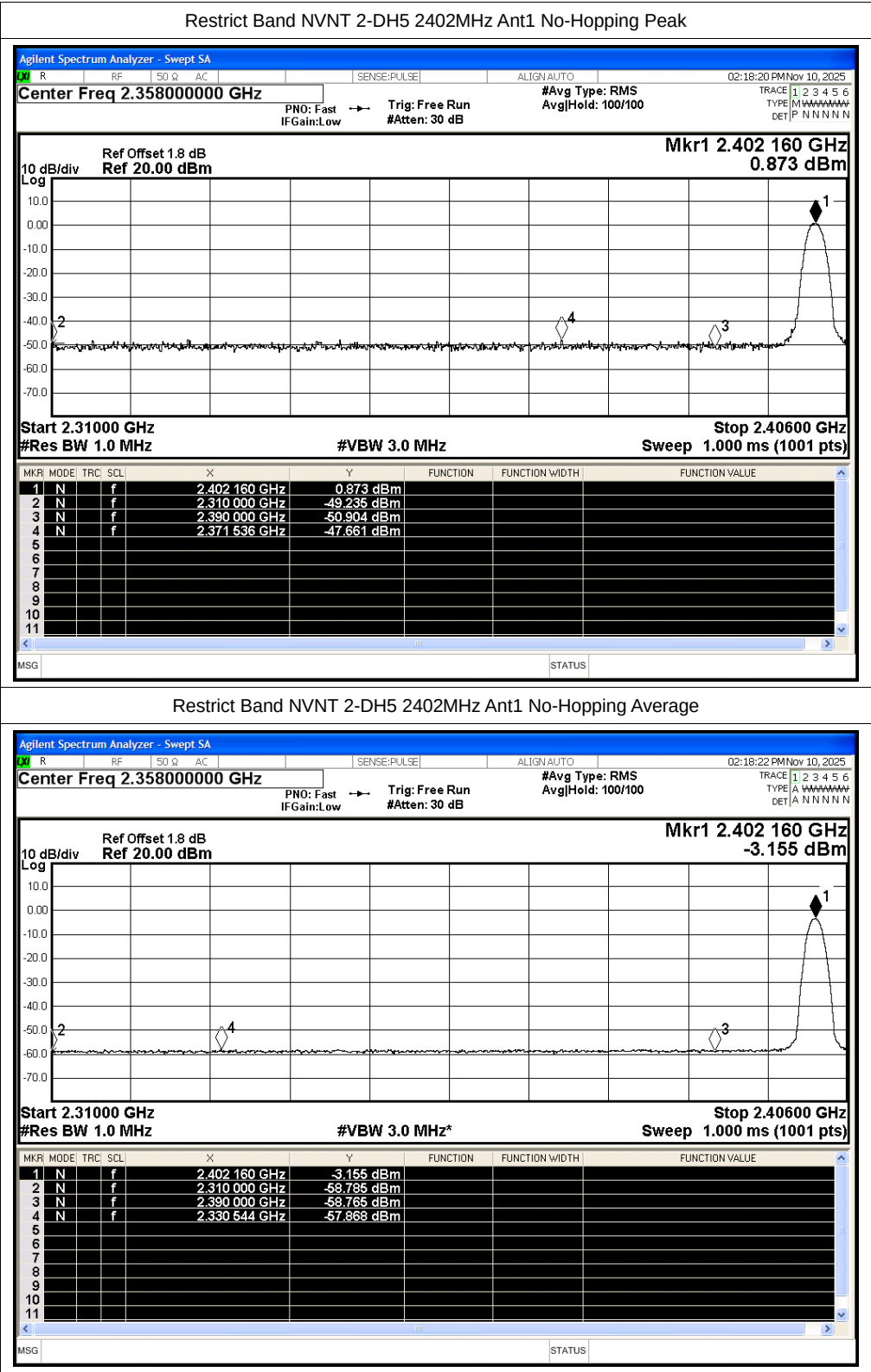


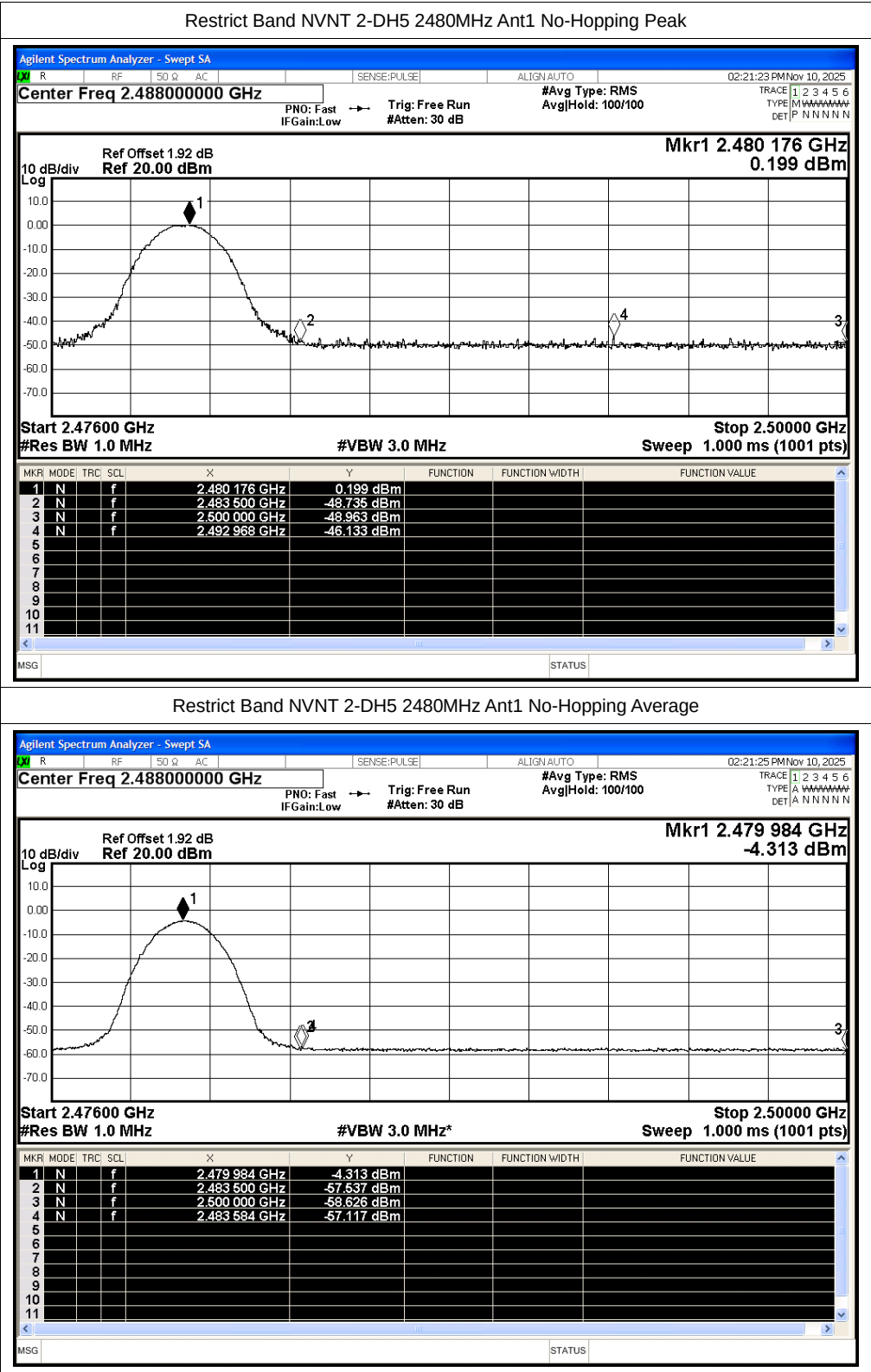
A.9 Restrict Band

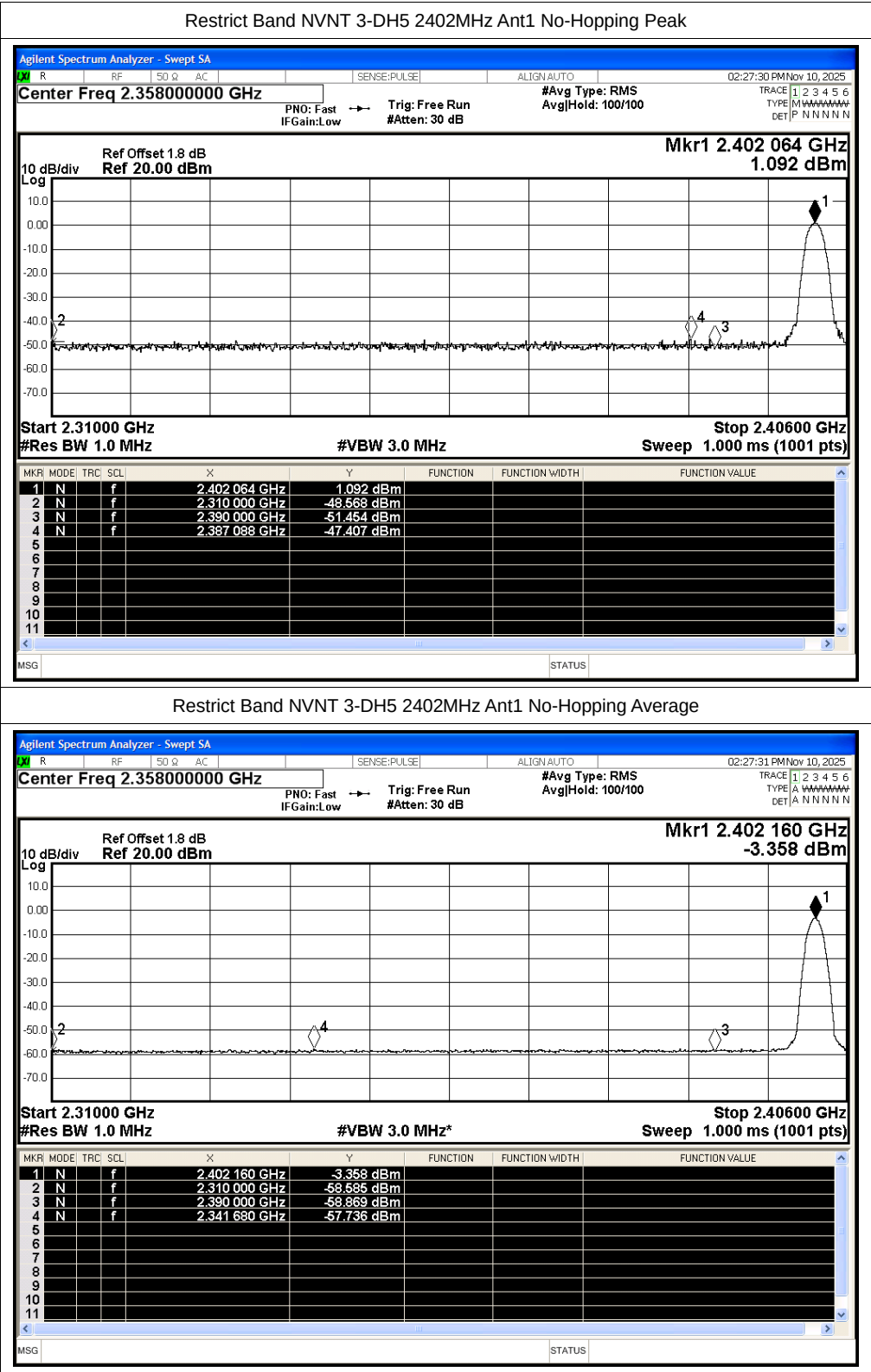
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-51.01	2	-	46.25	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-58.84	2	1.1	39.52	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2369.136	-46.62	2	-	50.64	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2389.68	-57.85	2	1.1	40.51	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-49.27	2	-	47.99	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-58.26	2	1.1	40.1	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-49.27	2	-	47.99	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-58.01	2	1.1	40.35	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.68	-45.82	2	-	51.44	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.976	-57.16	2	1.1	41.2	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-50.87	2	-	46.39	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-57.96	2	1.1	40.4	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-49.24	2	-	48.02	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-58.79	2	1.12	39.59	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2371.536	-47.66	2	-	49.6	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2330.544	-57.87	2	1.12	40.51	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.9	2	-	46.36	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-58.77	2	1.12	39.61	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-48.74	2	-	48.52	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-57.54	2	1.12	40.84	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2492.968	-46.13	2	-	51.13	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.584	-57.12	2	1.12	41.26	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-48.96	2	-	48.3	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-58.63	2	1.12	39.75	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-48.57	2	-	48.69	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-58.59	2	1.12	39.79	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2387.088	-47.41	2	-	49.85	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2341.68	-57.74	2	1.12	40.64	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-51.45	2	-	45.81	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-58.87	2	1.12	39.51	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-50.24	2	-	47.02	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-57.72	2	1.12	40.66	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2485.624	-46.93	2	-	50.33	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2490.736	-57.24	2	1.12	41.14	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-49.56	2	-	47.7	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-58.56	2	1.12	39.82	Average	54	Pass

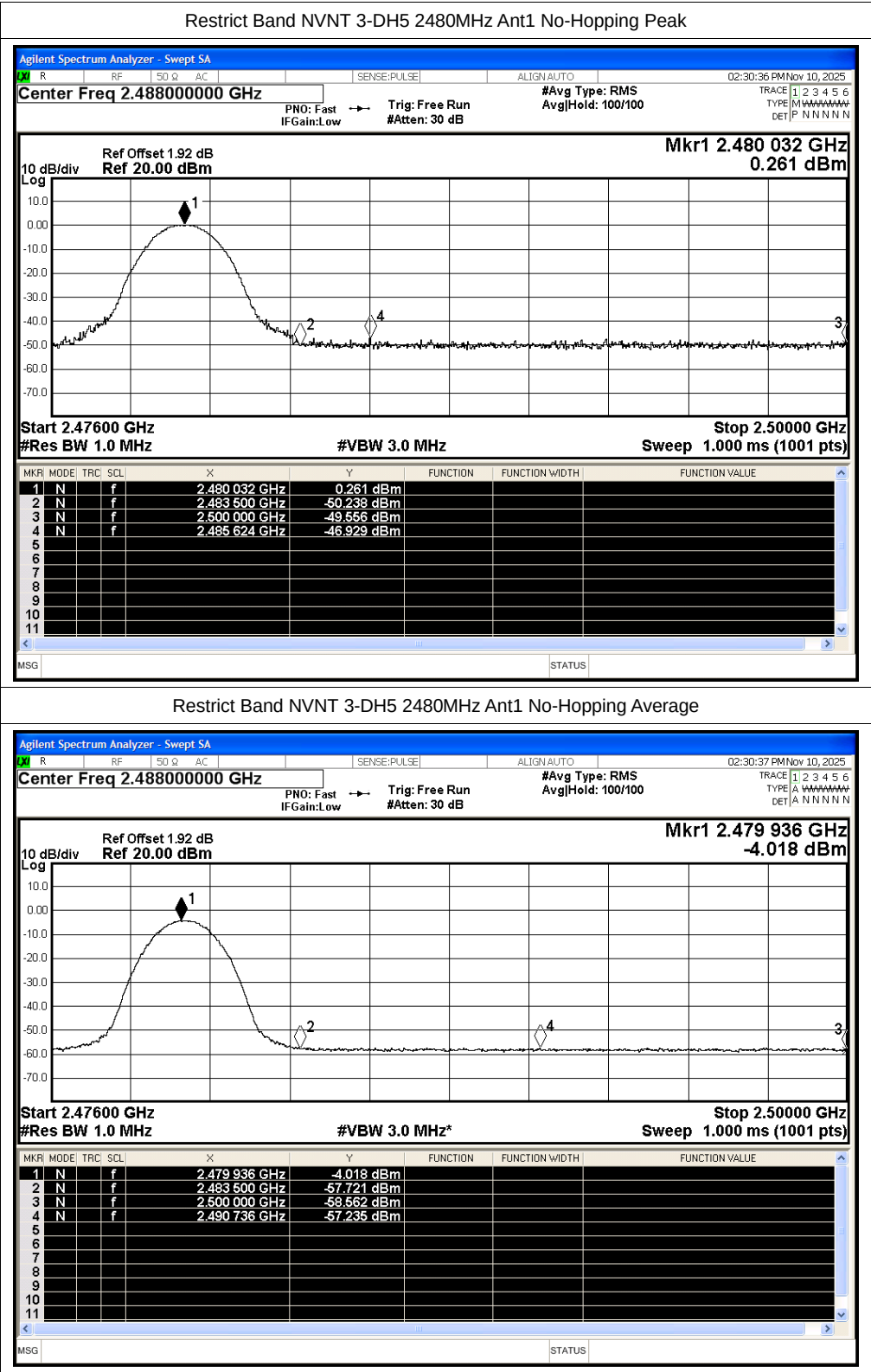












Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Average

Agilent Spectrum Analyzer - Swept SA

Center Freq 2.488000000 GHz

PN0: Fast
IF Gain: Low

Trig: Free Run
#Atten: 30 dB

#Avg Type: RMS
Avg/Hold: 100/100

02:30:37 PM Nov 10, 2025

TRACE 1 2 3 4 5 6
TYPE A M M M M M M M M
DET A N N N N N N

10 dB/div
Log

Ref Offset 1.92 dB
Ref 20.00 dBm

Mkr1 2.479 936 GHz
-4.018 dBm

Start 2.47600 GHz
#Res BW 1.0 MHz

#VBW 3.0 MHz*

Stop 2.50000 GHz
Sweep 1.000 ms (1001 pts)

MSG STATUS