Appendix C

RF Test Data for 5.2GWIFI(Conducted Measurement)

Product Name: BDE Dual-band (2.4 and 5GHz) Wi-Fi 6 & BLE Combo Module

Test Model: BDE-BW3351NP1

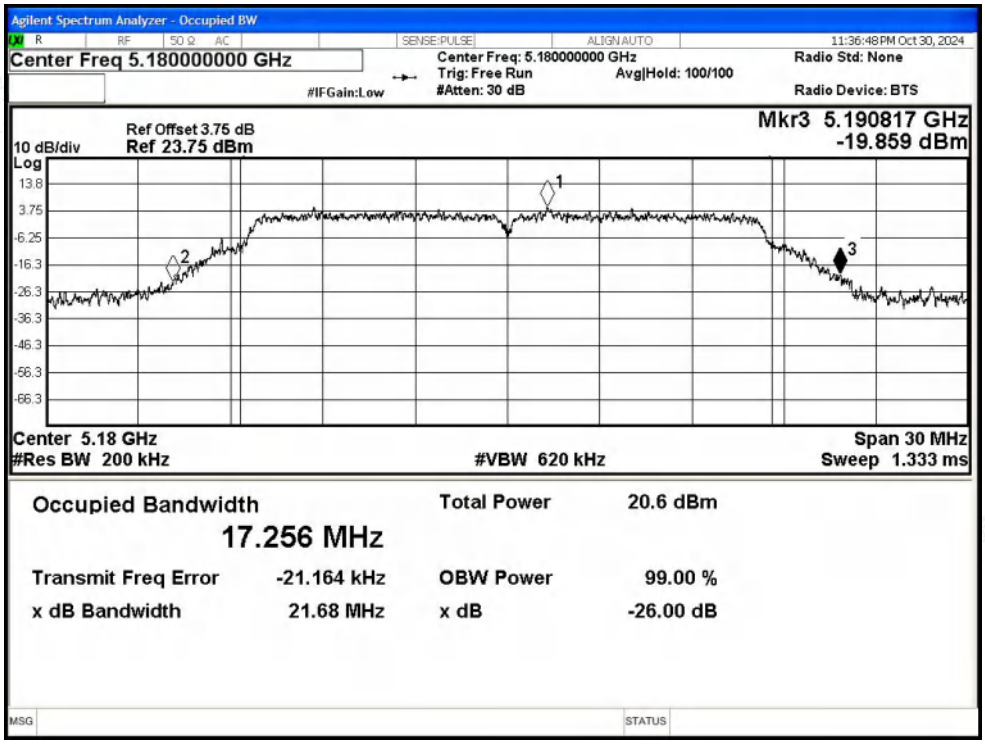
Environmental Conditions

Temperature:	23.1° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Can Kun
Supervised by:	Nick Peng

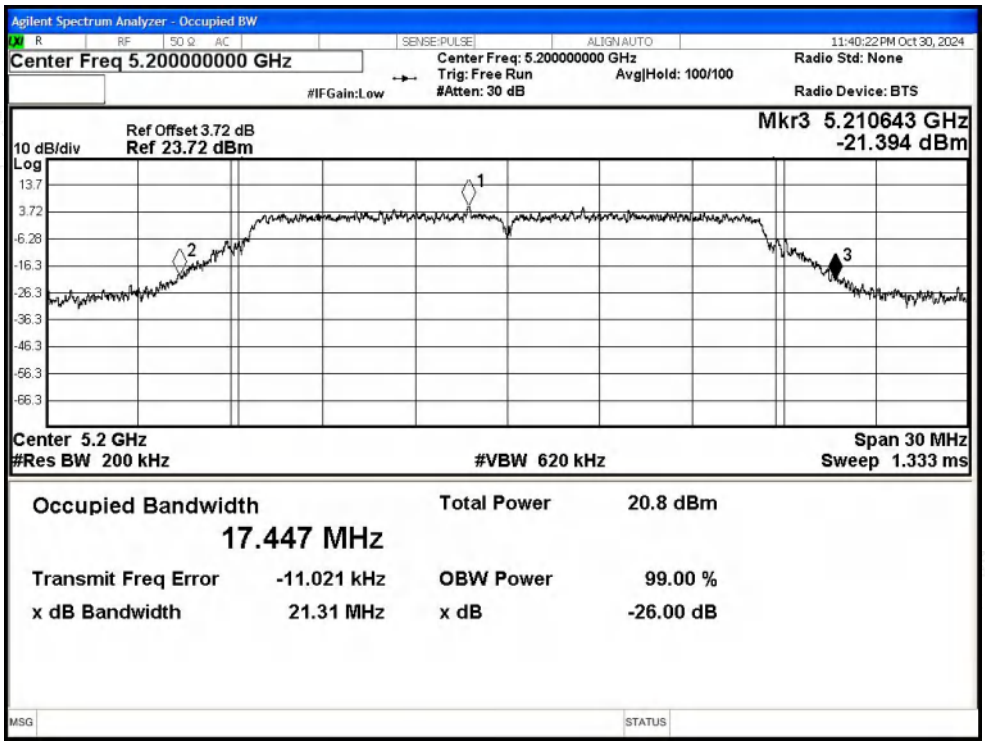
C.1 -26dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	Ant1	21.676	>=0.5	Pass
NVNT	a	5200	Ant1	21.308	>=0.5	Pass
NVNT	a	5240	Ant1	21.55	>=0.5	Pass
NVNT	n20	5180	Ant1	21.366	>=0.5	Pass
NVNT	n20	5200	Ant1	21.533	>=0.5	Pass
NVNT	n20	5240	Ant1	21.677	>=0.5	Pass
NVNT	ac20	5180	Ant1	21.123	>=0.5	Pass
NVNT	ac20	5200	Ant1	21.339	>=0.5	Pass
NVNT	ac20	5240	Ant1	22.072	>=0.5	Pass
NVNT	ax20	5180	Ant1	21.501	>=0.5	Pass
NVNT	ax20	5200	Ant1	22.204	>=0.5	Pass
NVNT	ax20	5240	Ant1	23.939	>=0.5	Pass

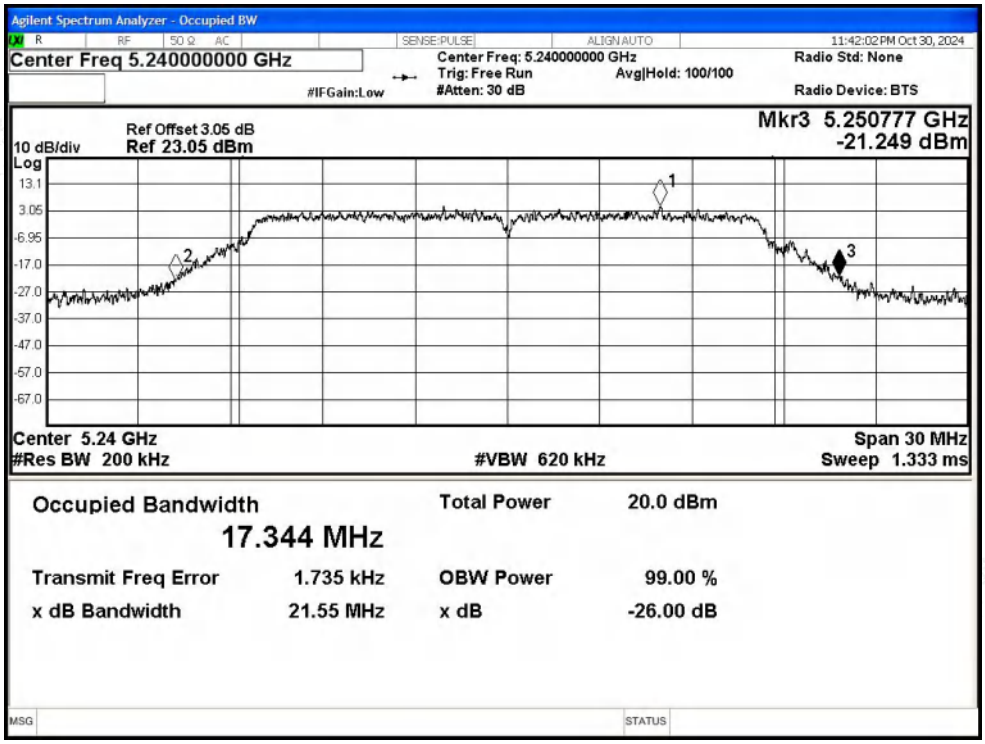
Test Graphs
-26dB Bandwidth NVNT a 5180MHz Ant1



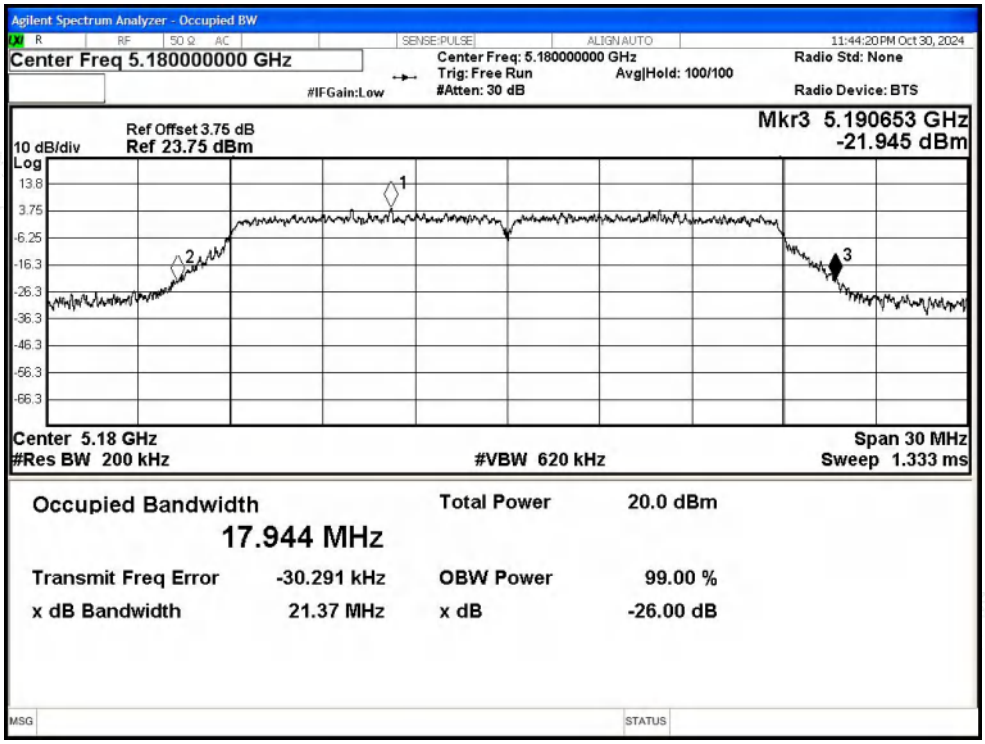
-26dB Bandwidth NVNT a 5200MHz Ant1



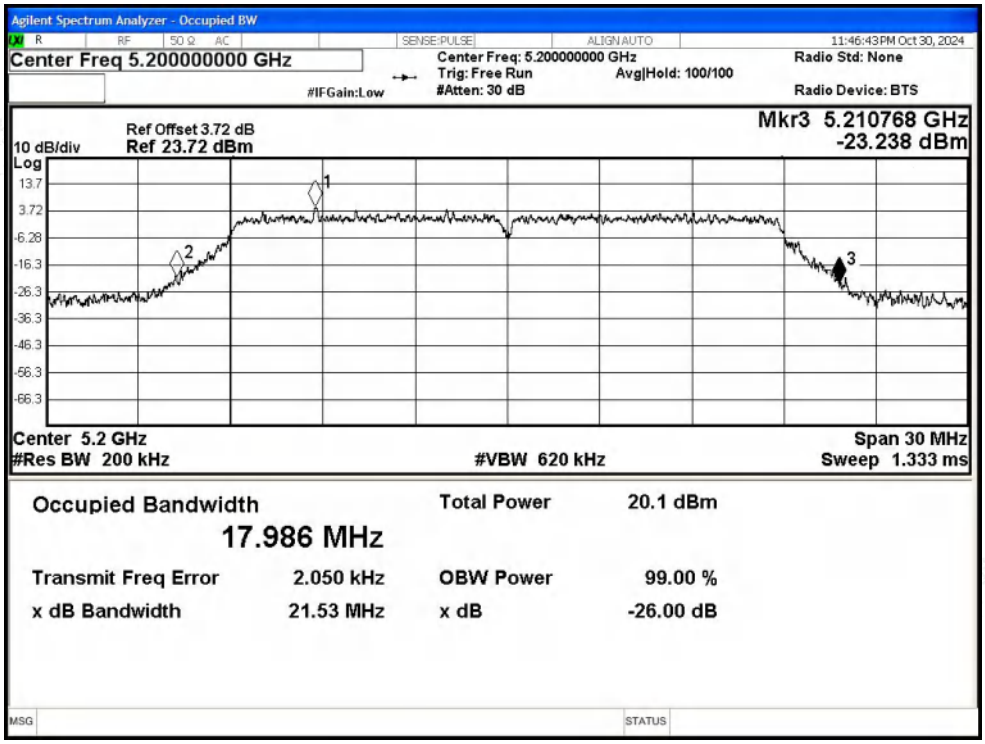
-26dB Bandwidth NVNT a 5240MHz Ant1



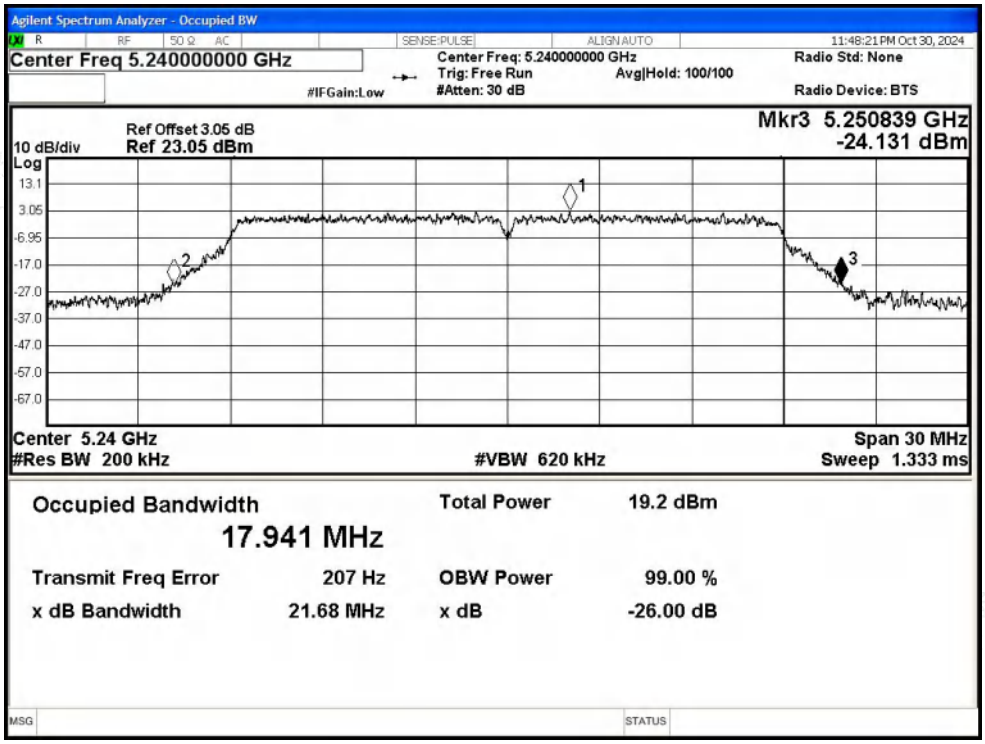
-26dB Bandwidth NVNT n20 5180MHz Ant1



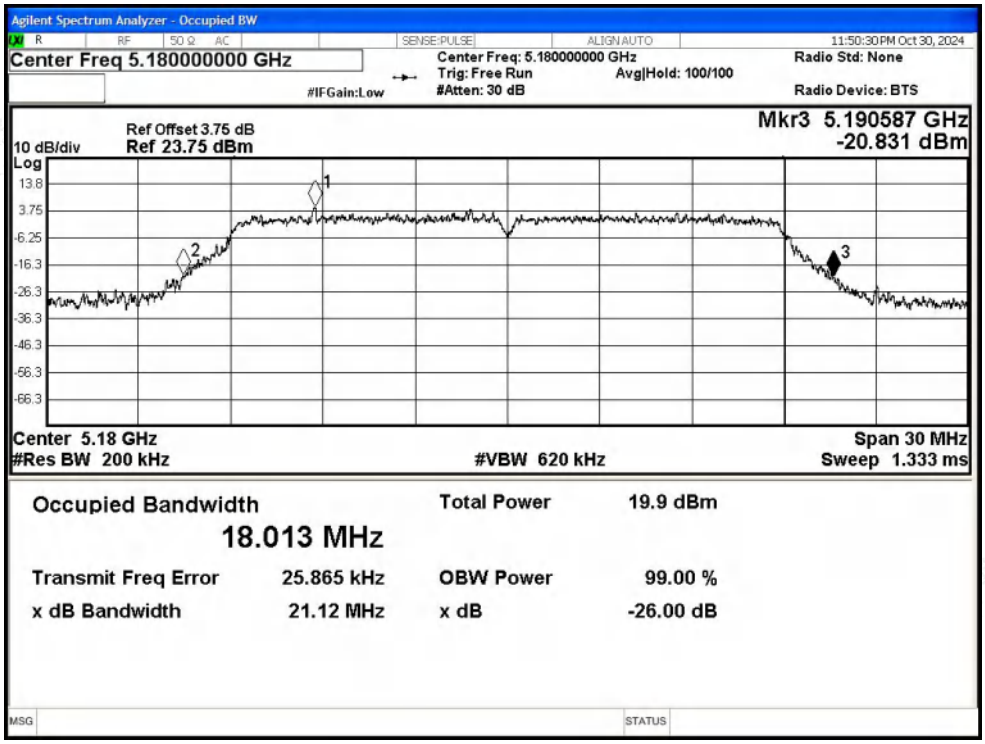
-26dB Bandwidth NVNT n20 5200MHz Ant1



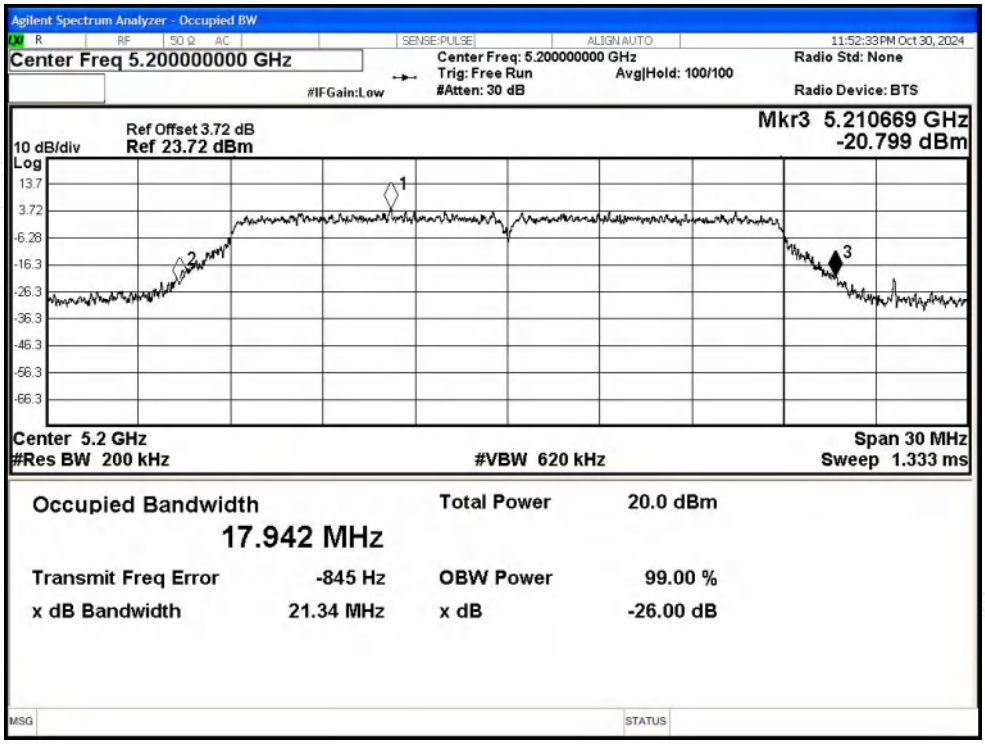
-26dB Bandwidth NVNT n20 5240MHz Ant1



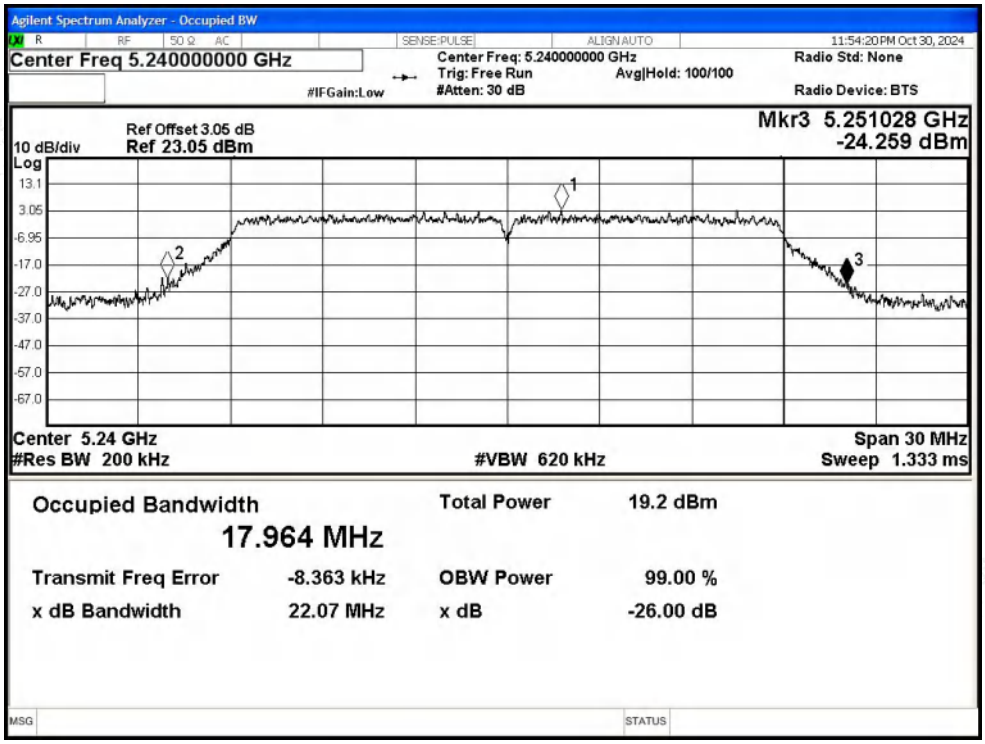
-26dB Bandwidth NVNT ac20 5180MHz Ant1



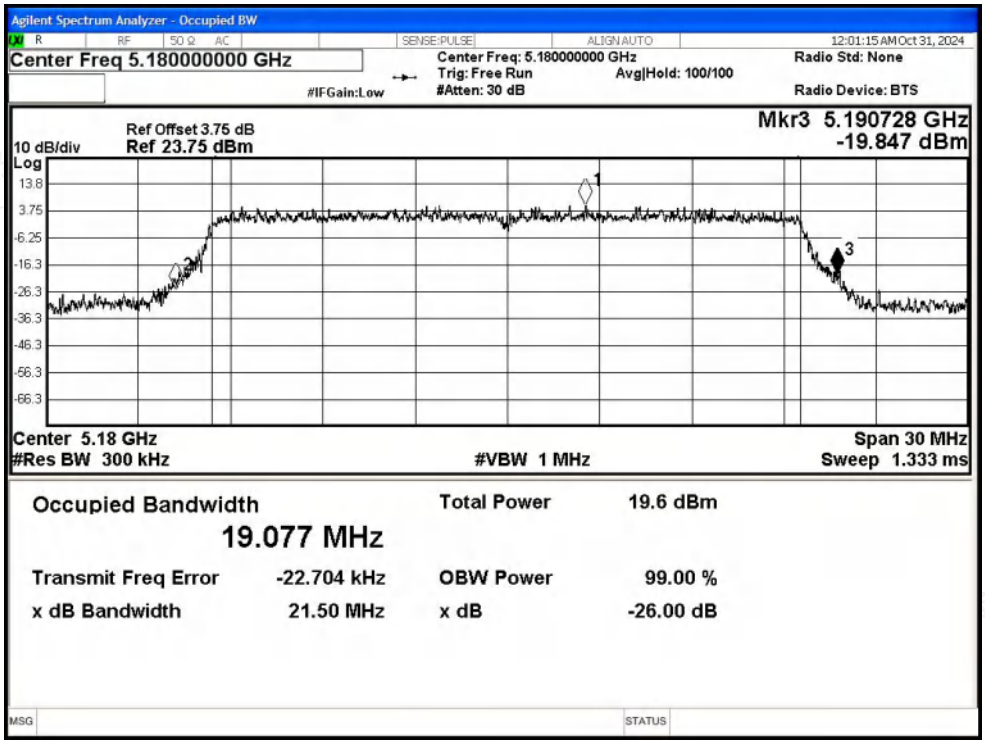
-26dB Bandwidth NVNT ac20 5200MHz Ant1



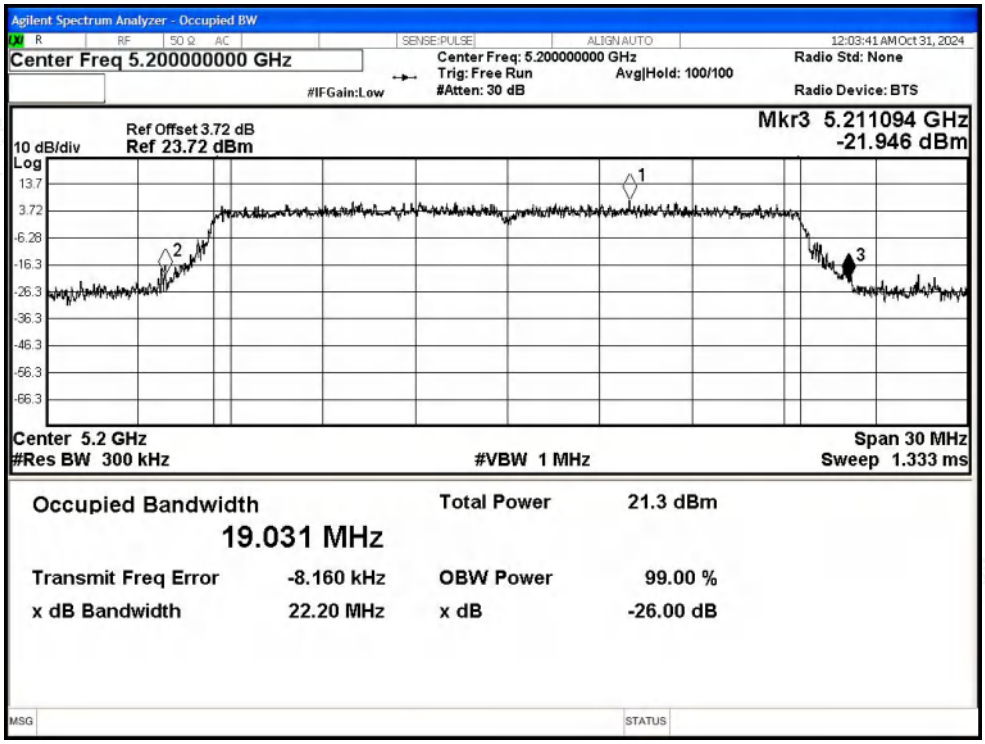
-26dB Bandwidth NVNT ac20 5240MHz Ant1



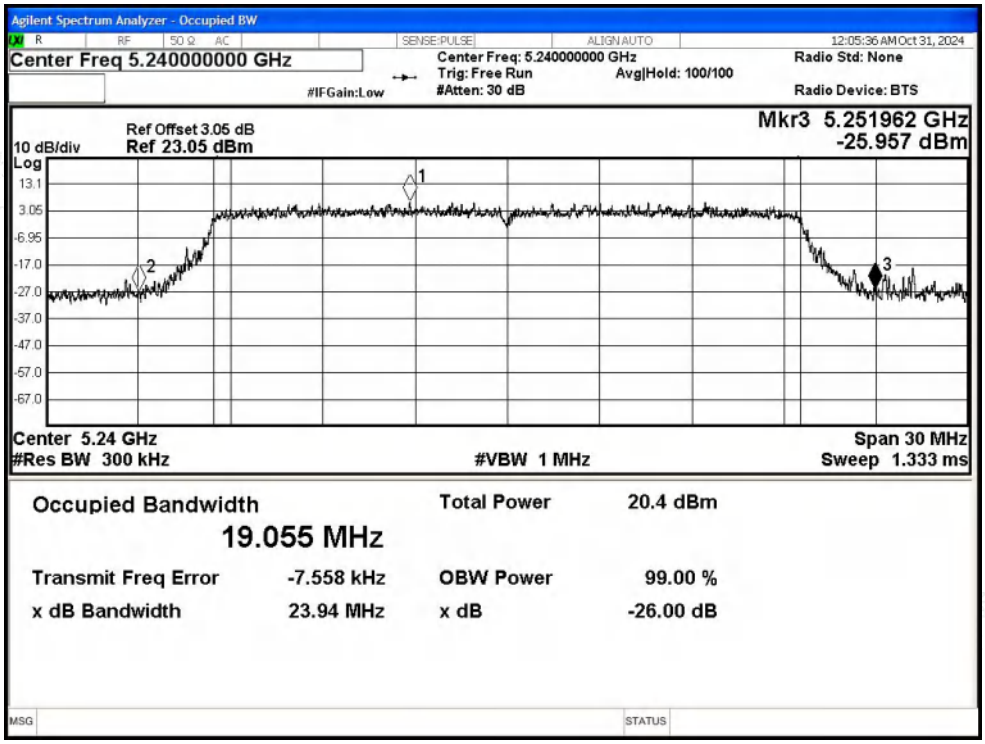
-26dB Bandwidth NVNT ax20 5180MHz Ant1



-26dB Bandwidth NVNT ax20 5200MHz Ant1



-26dB Bandwidth NVNT ax20 5240MHz Ant1



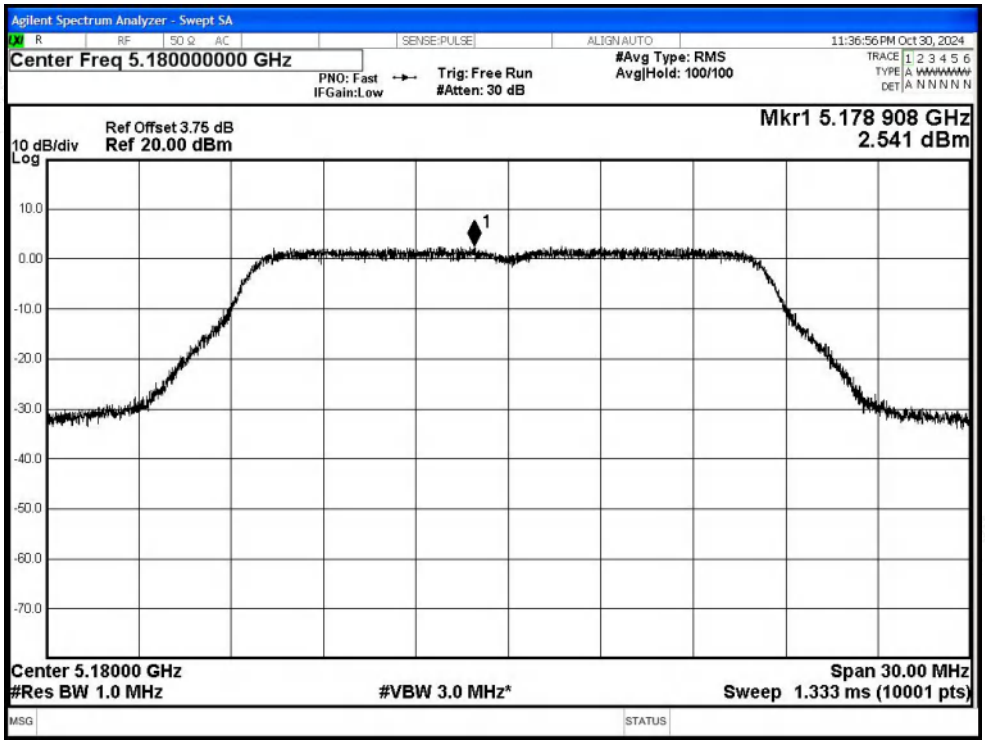
C.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	12.81	2.4	15.21	24	Pass
NVNT	a	5200	Ant1	12.55	2.4	14.95	24	Pass
NVNT	a	5240	Ant1	12.18	2.4	14.58	24	Pass
NVNT	n20	5180	Ant1	11.87	2.75	14.62	24	Pass
NVNT	n20	5200	Ant1	12.27	2.75	15.02	24	Pass
NVNT	n20	5240	Ant1	11.45	2.75	14.20	24	Pass
NVNT	ac20	5180	Ant1	11.67	2.74	14.41	24	Pass
NVNT	ac20	5200	Ant1	11.93	2.74	14.67	24	Pass
NVNT	ac20	5240	Ant1	11.12	2.74	13.86	24	Pass
NVNT	ax20	5180	Ant1	10.92	3.1	14.02	24	Pass
NVNT	ax20	5200	Ant1	12.3	3.1	15.40	24	Pass
NVNT	ax20	5240	Ant1	11.11	3.1	14.21	24	Pass

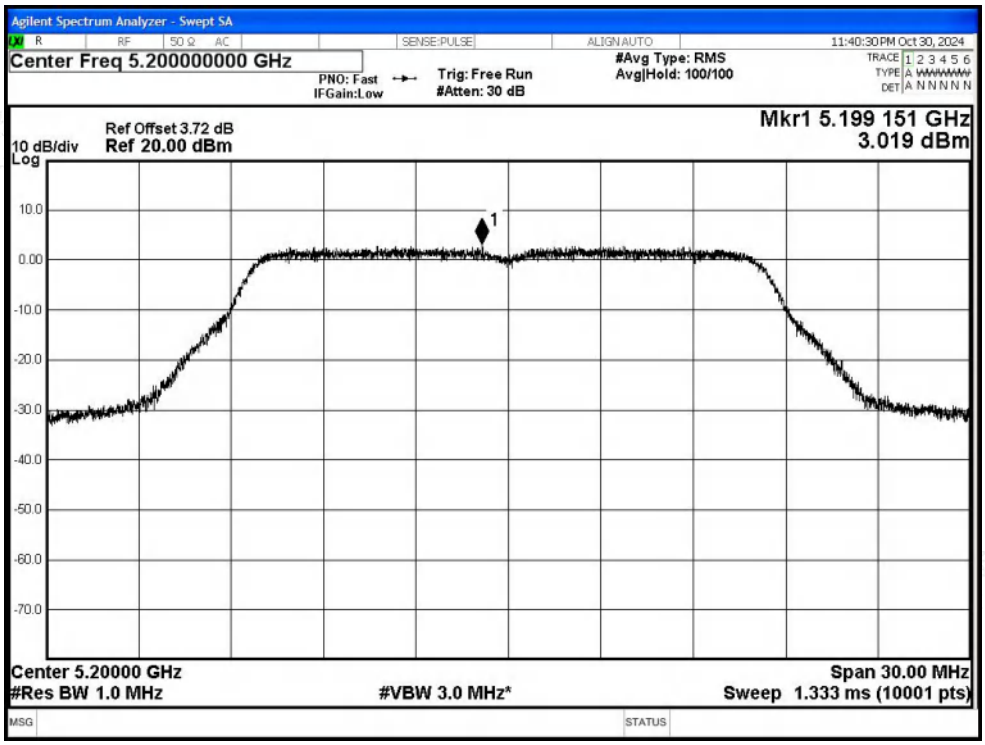
C.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	2.54	2.4	4.94	10	Pass
NVNT	a	5200	Ant1	3.02	2.4	5.42	10	Pass
NVNT	a	5240	Ant1	2.29	2.4	4.69	10	Pass
NVNT	n20	5180	Ant1	1.4	2.75	4.15	10	Pass
NVNT	n20	5200	Ant1	1.85	2.75	4.60	10	Pass
NVNT	n20	5240	Ant1	0.9	2.75	3.65	10	Pass
NVNT	ac20	5180	Ant1	1.49	2.74	4.23	10	Pass
NVNT	ac20	5200	Ant1	1.68	2.74	4.42	10	Pass
NVNT	ac20	5240	Ant1	1.14	2.74	3.88	10	Pass
NVNT	ax20	5180	Ant1	0.17	3.1	3.27	10	Pass
NVNT	ax20	5200	Ant1	1.68	3.1	4.78	10	Pass
NVNT	ax20	5240	Ant1	1.33	3.1	4.43	10	Pass

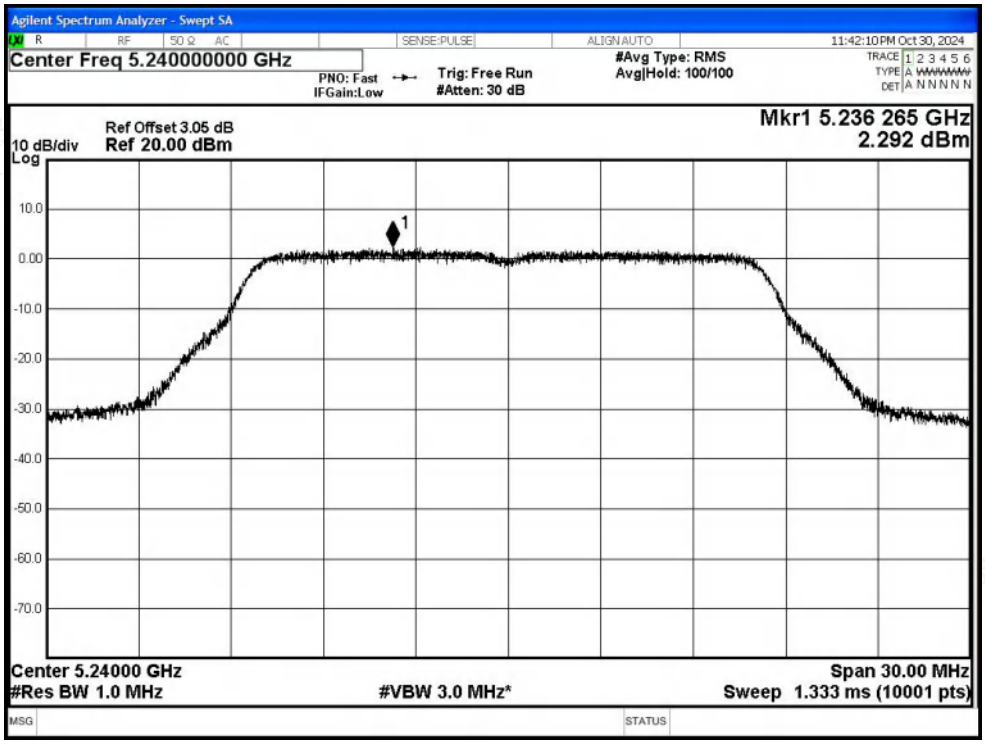
Test Graphs
PSD NVNT a 5180MHz Ant1



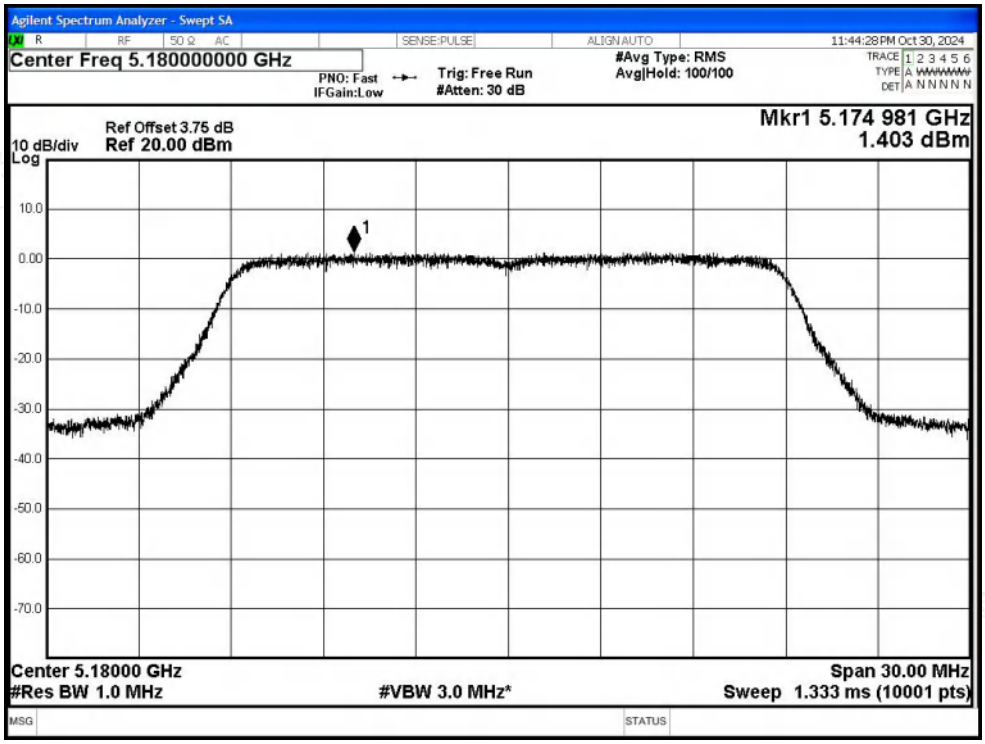
PSD NVNT a 5200MHz Ant1



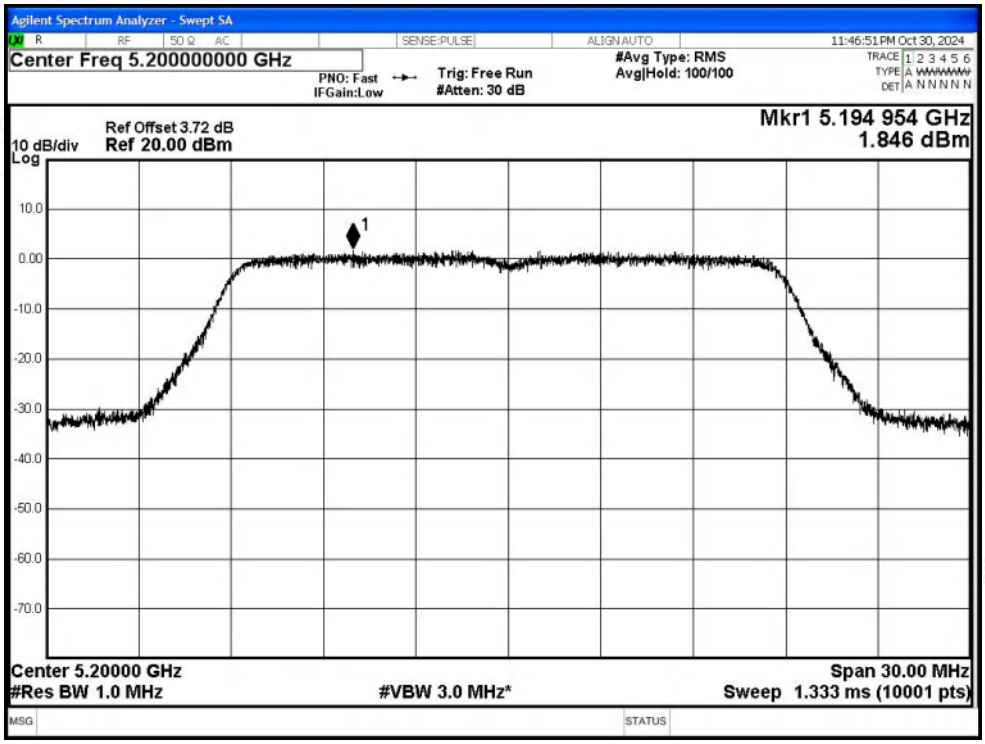
PSD NVNT a 5240MHz Ant1



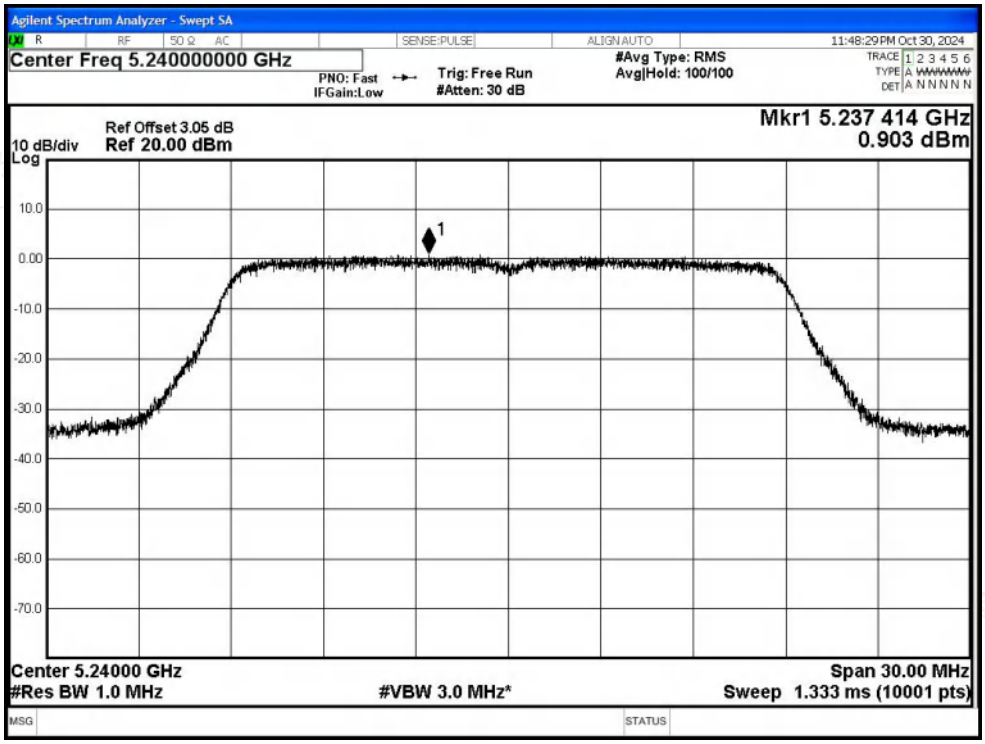
PSD NVNT n20 5180MHz Ant1



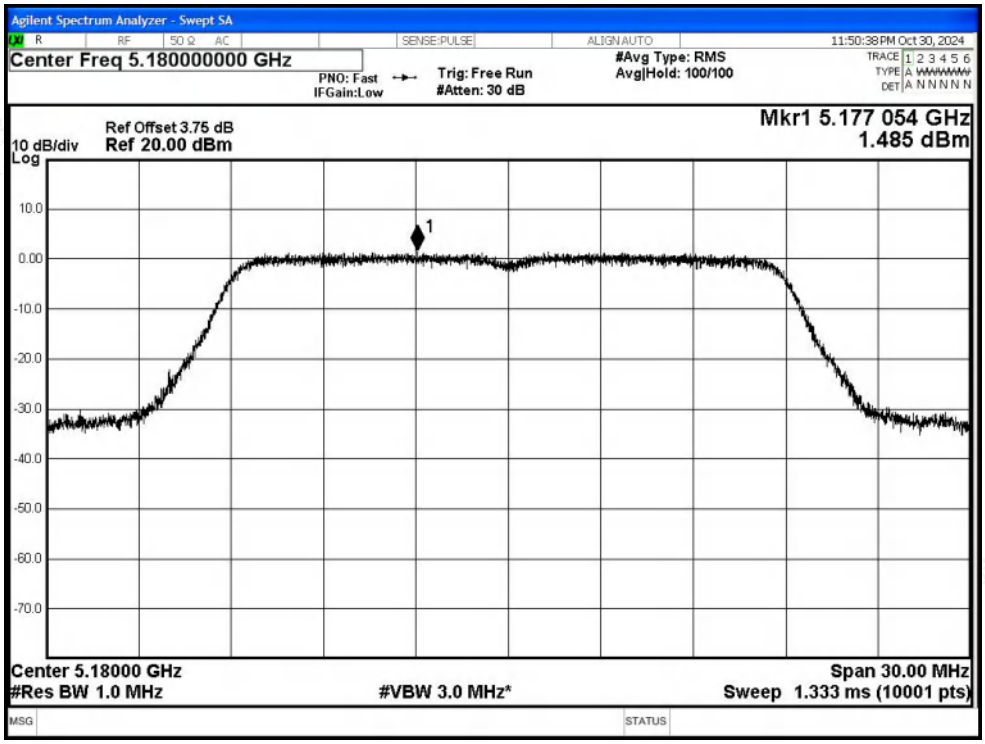
PSD NVNT n20 5200MHz Ant1



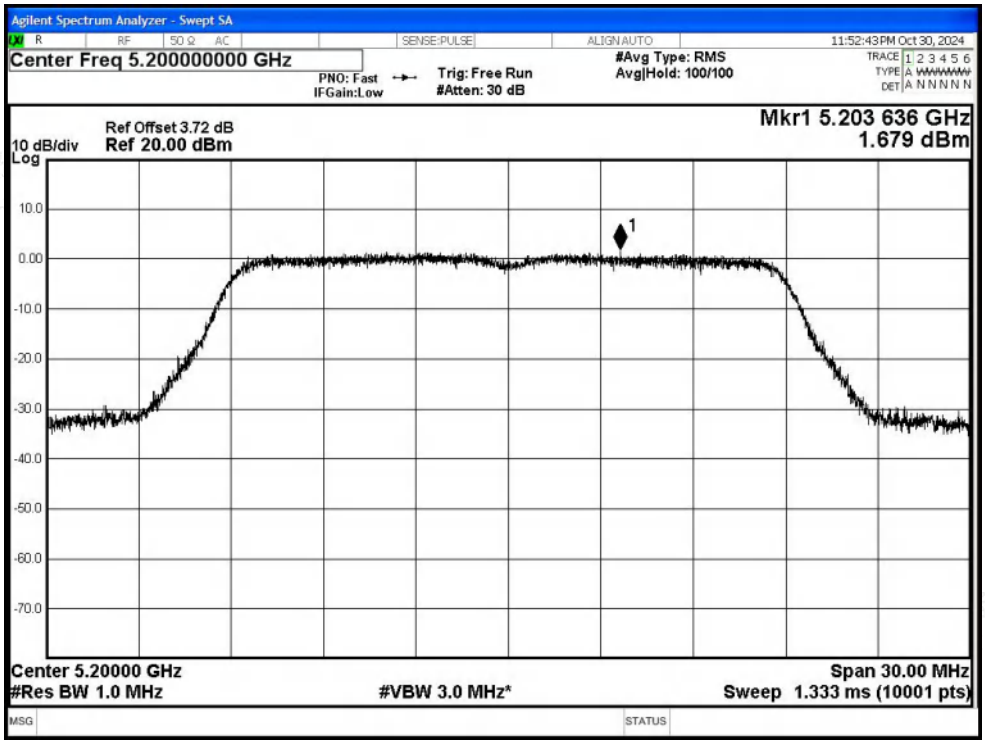
PSD NVNT n20 5240MHz Ant1



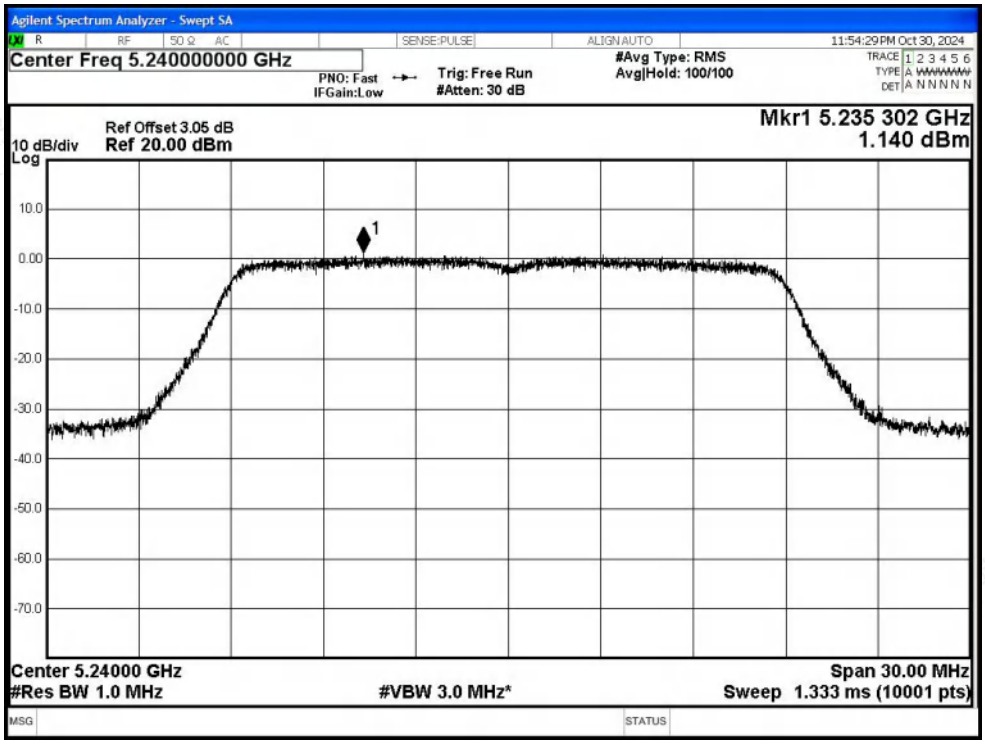
PSD NVNT ac20 5180MHz Ant1



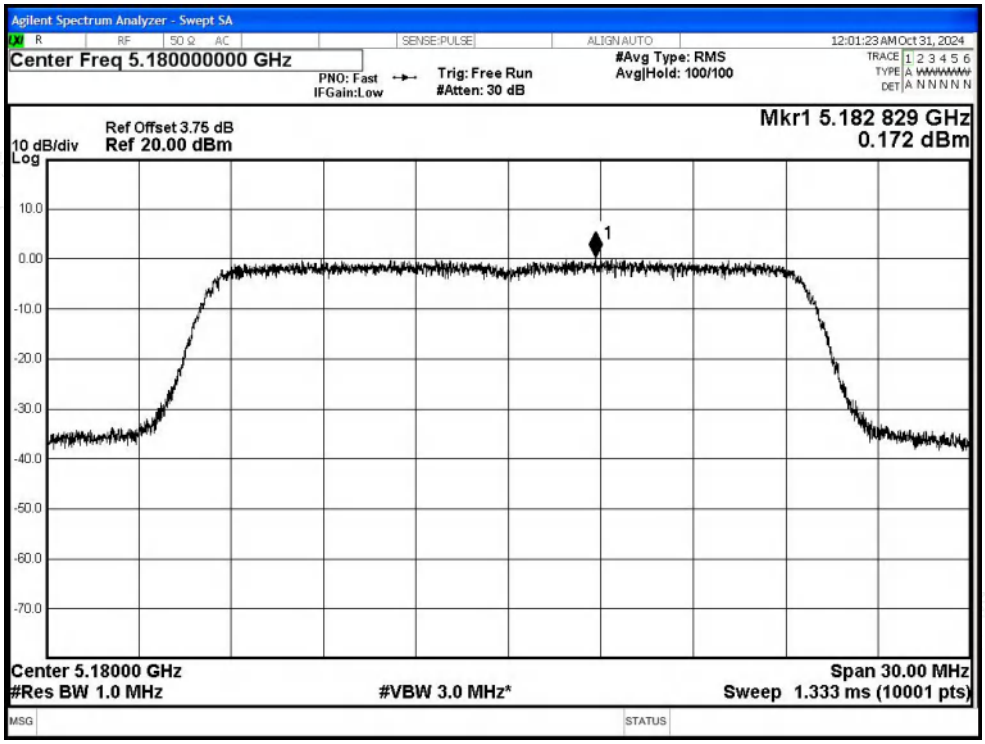
PSD NVNT ac20 5200MHz Ant1



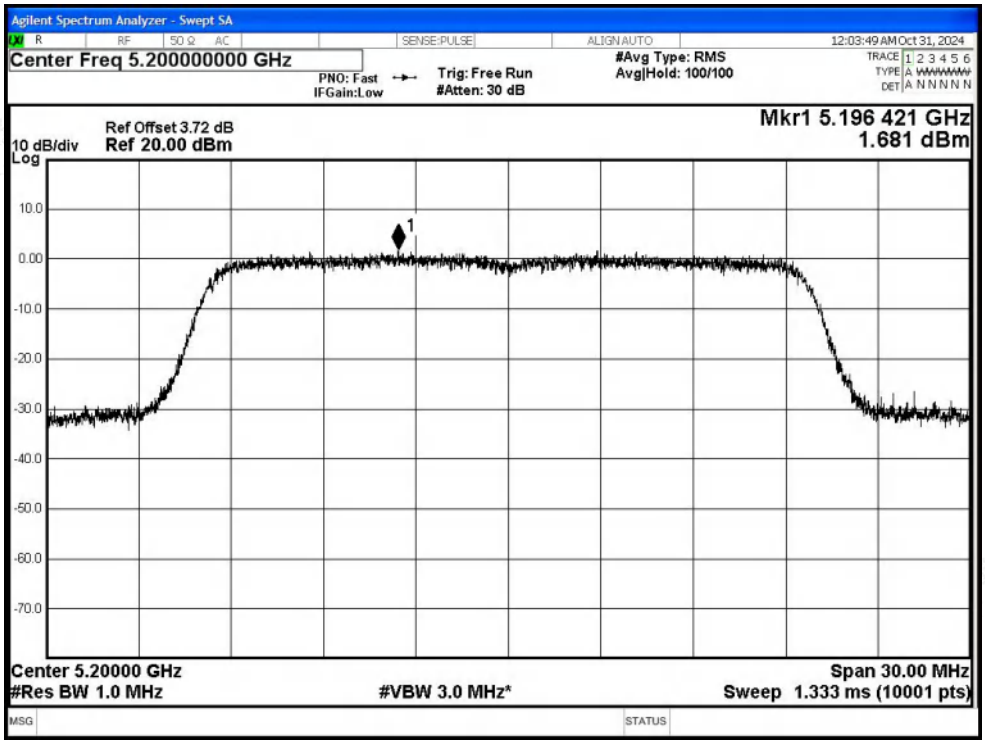
PSD NVNT ac20 5240MHz Ant1



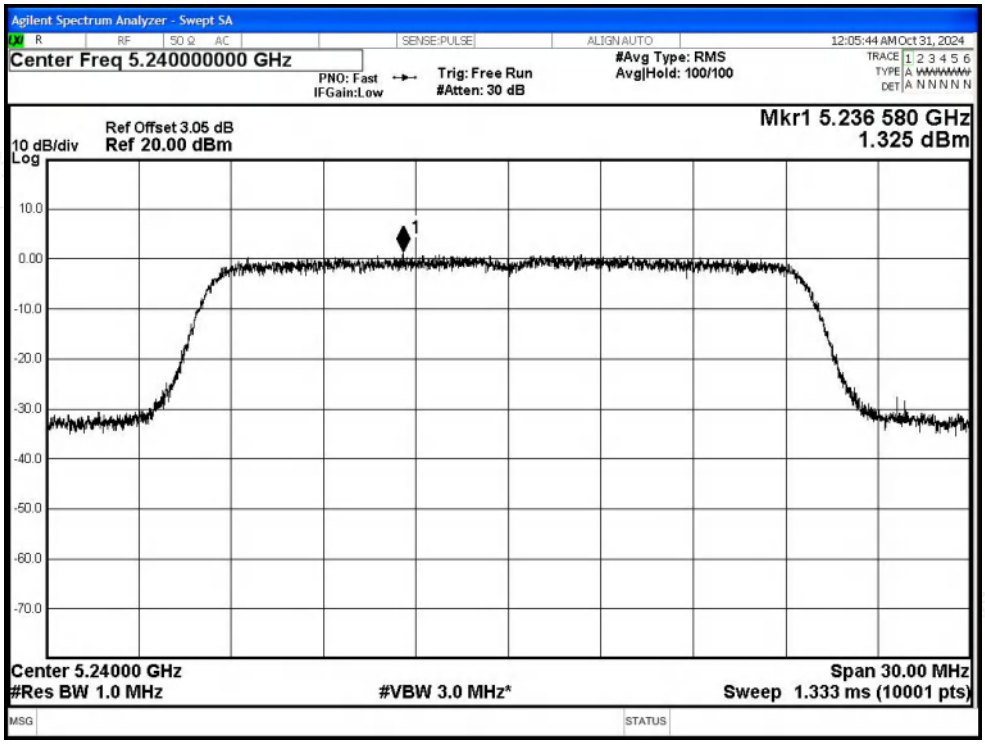
PSD NVNT ax20 5180MHz Ant1



PSD NVNT ax20 5200MHz Ant1



PSD NVNT ax20 5240MHz Ant1

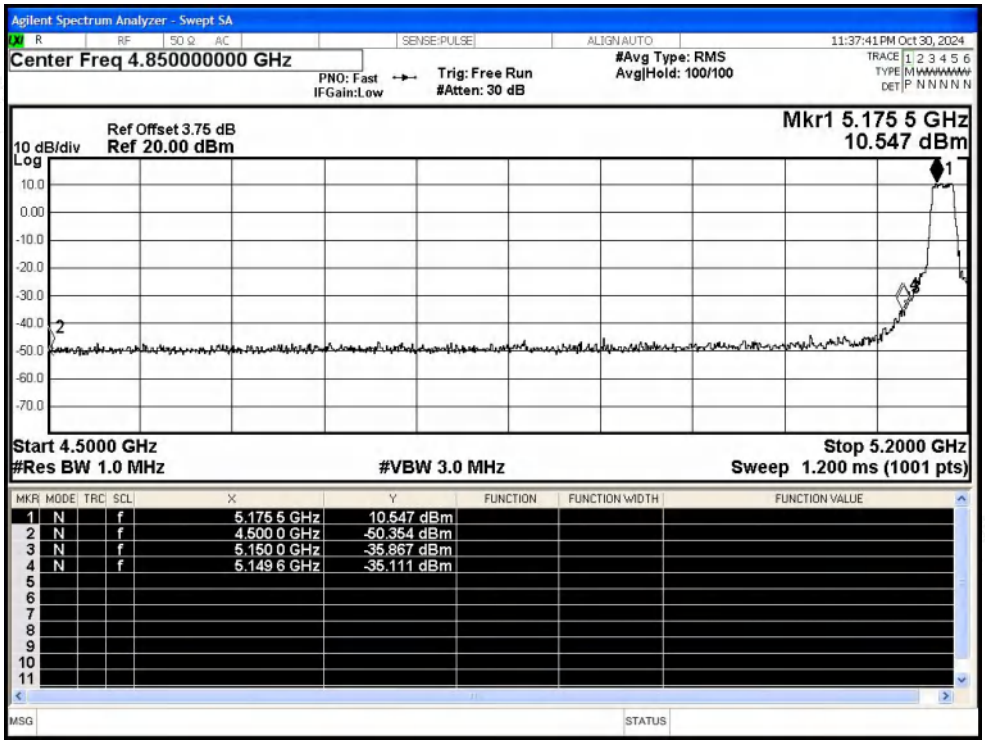


C.4 Restrict Band

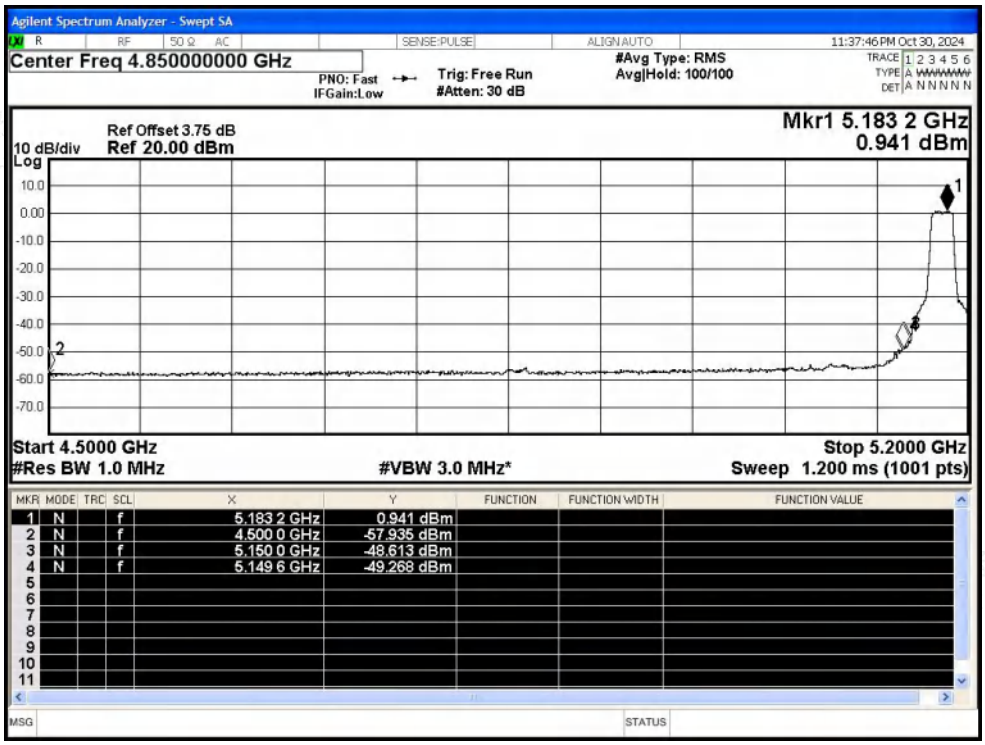
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	a	5180	Ant1	4500	-50.35	2.9	-	47.78	Peak	68.2	Pass
NVNT	a	5180	Ant1	4500	-57.94	2.9	2.4	42.59	Average	54	Pass
NVNT	a	5180	Ant1	5149.6	-35.11	2.9	-	63.02	Peak	68.2	Pass
NVNT	a	5180	Ant1	5149.6	-49.27	2.9	2.4	51.26	Average	54	Pass
NVNT	a	5180	Ant1	5150	-35.87	2.9	-	62.26	Peak	68.2	Pass
NVNT	a	5180	Ant1	5150	-48.61	2.9	2.4	51.92	Average	54	Pass
NVNT	a	5240	Ant1	5350	-48.63	2.9	-	49.5	Peak	68.2	Pass
NVNT	a	5240	Ant1	5350	-57.71	2.9	2.4	42.82	Average	54	Pass
NVNT	a	5240	Ant1	5379.12	-46.81	2.9	-	51.32	Peak	68.2	Pass
NVNT	a	5240	Ant1	5357.52	-56.81	2.9	2.4	43.72	Average	54	Pass
NVNT	a	5240	Ant1	5460	-49.11	2.9	-	49.02	Peak	68.2	Pass
NVNT	a	5240	Ant1	5460	-57.6	2.9	2.4	42.93	Average	54	Pass
NVNT	n20	5180	Ant1	4500	-50.01	2.9	-	48.12	Peak	68.2	Pass
NVNT	n20	5180	Ant1	4500	-57.79	2.9	2.75	43.09	Average	54	Pass
NVNT	n20	5180	Ant1	5142.6	-35.83	2.9	-	62.3	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5148.9	-49.6	2.9	2.75	51.28	Average	54	Pass
NVNT	n20	5180	Ant1	5150	-37.75	2.9	-	60.38	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5150	-49.99	2.9	2.75	50.89	Average	54	Pass
NVNT	n20	5240	Ant1	5350	-48.44	2.9	-	49.69	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5350	-58.48	2.9	2.75	42.4	Average	54	Pass
NVNT	n20	5240	Ant1	5358	-47.05	2.9	-	51.08	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5357.28	-56.85	2.9	2.75	44.03	Average	54	Pass
NVNT	n20	5240	Ant1	5460	-50.25	2.9	-	47.88	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5460	-57.54	2.9	2.75	43.34	Average	54	Pass
NVNT	ac20	5180	Ant1	4500	-49.2	2.9	-	48.93	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	4500	-57.65	2.9	2.74	43.22	Average	54	Pass
NVNT	ac20	5180	Ant1	5148.2	-33.55	2.9	-	64.58	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5147.5	-49.05	2.9	2.74	51.82	Average	54	Pass
NVNT	ac20	5180	Ant1	5150	-33.78	2.9	-	64.35	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5150	-49.13	2.9	2.74	51.74	Average	54	Pass
NVNT	ac20	5240	Ant1	5350	-49.74	2.9	-	48.39	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5350	-57.53	2.9	2.74	43.34	Average	54	Pass
NVNT	ac20	5240	Ant1	5400.48	-46.71	2.9	-	51.42	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5428.32	-56.94	2.9	2.74	43.93	Average	54	Pass
NVNT	ac20	5240	Ant1	5460	-50.28	2.9	-	47.85	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5460	-57.75	2.9	2.74	43.12	Average	54	Pass

NVNT	ax20	5180	Ant1	4500	-49.51	2.9	-	48.62	Peak	68.2	Pass
NVNT	ax20	5180	Ant1	4500	-58.53	2.9	3.1	42.7	Average	54	Pass
NVNT	ax20	5180	Ant1	5148.2	-35.72	2.9	-	62.41	Peak	68.2	Pass
NVNT	ax20	5180	Ant1	5149.6	-50.99	2.9	3.1	50.24	Average	54	Pass
NVNT	ax20	5180	Ant1	5150	-38.46	2.9	-	59.67	Peak	68.2	Pass
NVNT	ax20	5180	Ant1	5150	-51.39	2.9	3.1	49.84	Average	54	Pass
NVNT	ax20	5240	Ant1	5350	-51.27	2.9	-	46.86	Peak	68.2	Pass
NVNT	ax20	5240	Ant1	5350	-57.18	2.9	3.1	44.05	Average	54	Pass
NVNT	ax20	5240	Ant1	5358	-46.74	2.9	-	51.39	Peak	68.2	Pass
NVNT	ax20	5240	Ant1	5358.72	-56.54	2.9	3.1	44.69	Average	54	Pass
NVNT	ax20	5240	Ant1	5460	-51.11	2.9	-	47.02	Peak	68.2	Pass
NVNT	ax20	5240	Ant1	5460	-58.16	2.9	3.1	43.07	Average	54	Pass

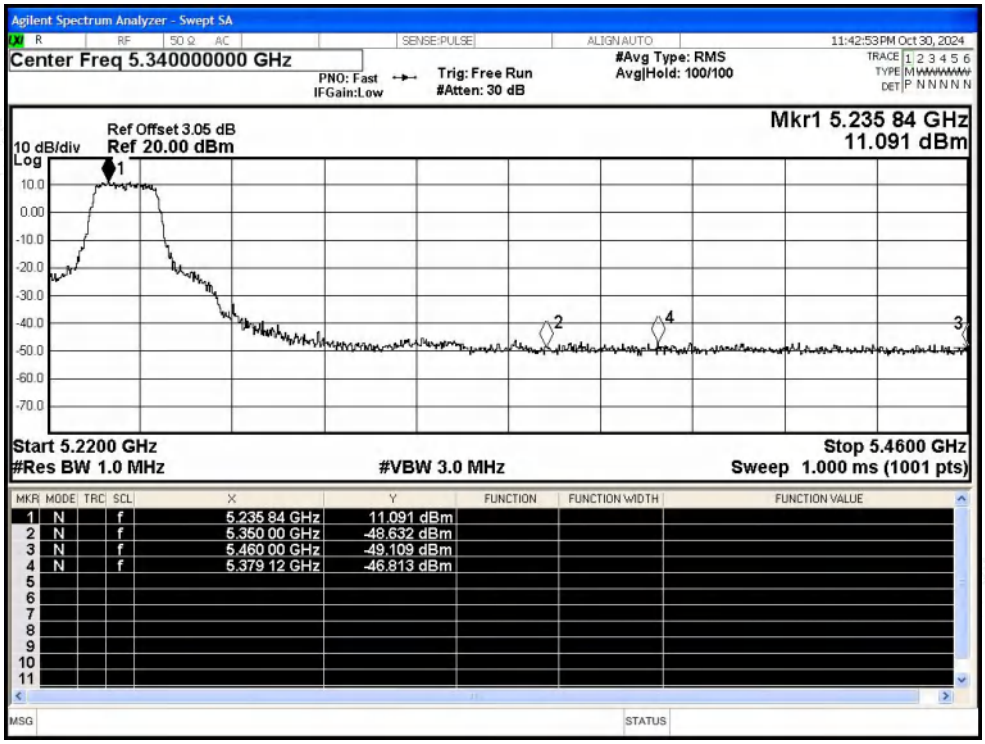
Test Graphs
Restrict Band NVNT a 5180MHz Ant1 Peak



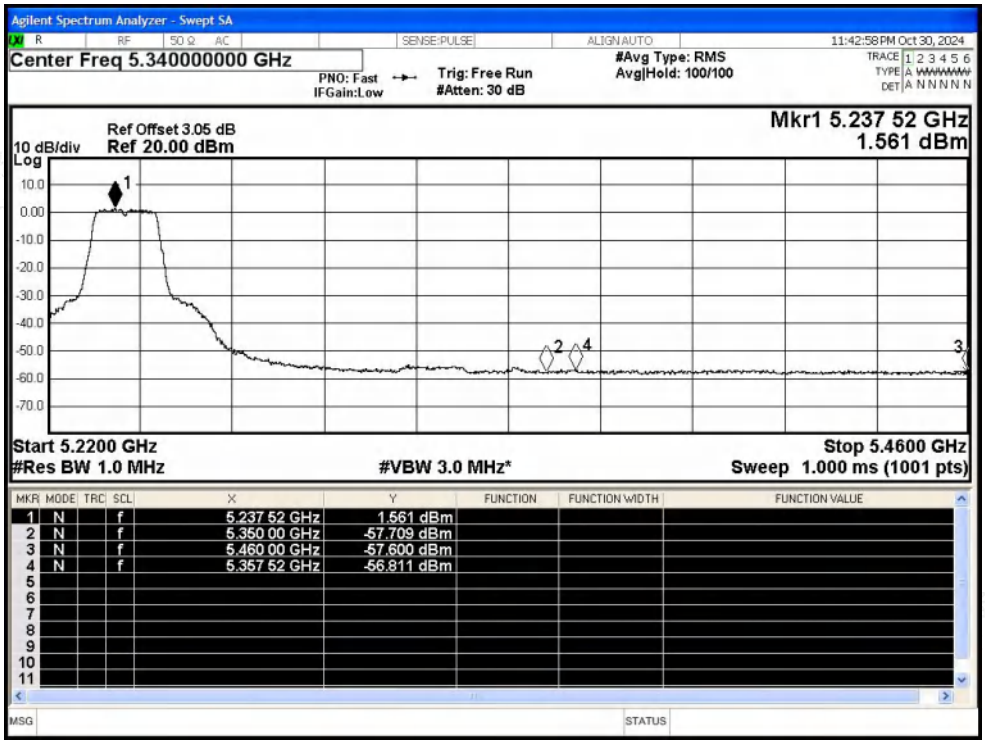
Restrict Band NVNT a 5180MHz Ant1 Average



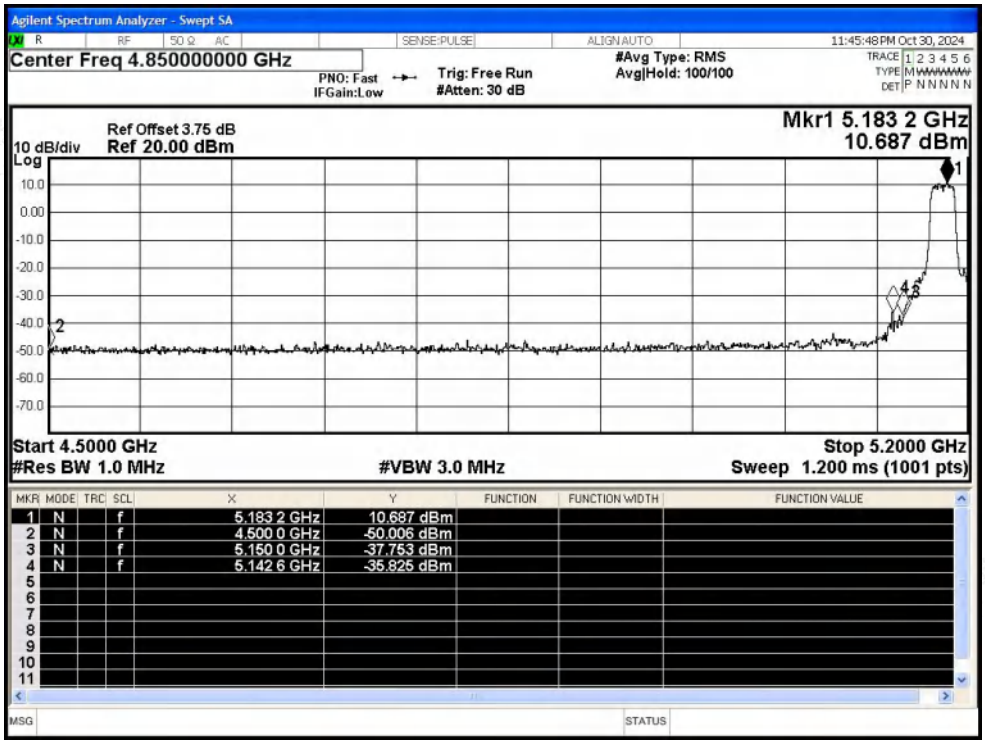
Restrict Band NVNT a 5240MHz Ant1 Peak



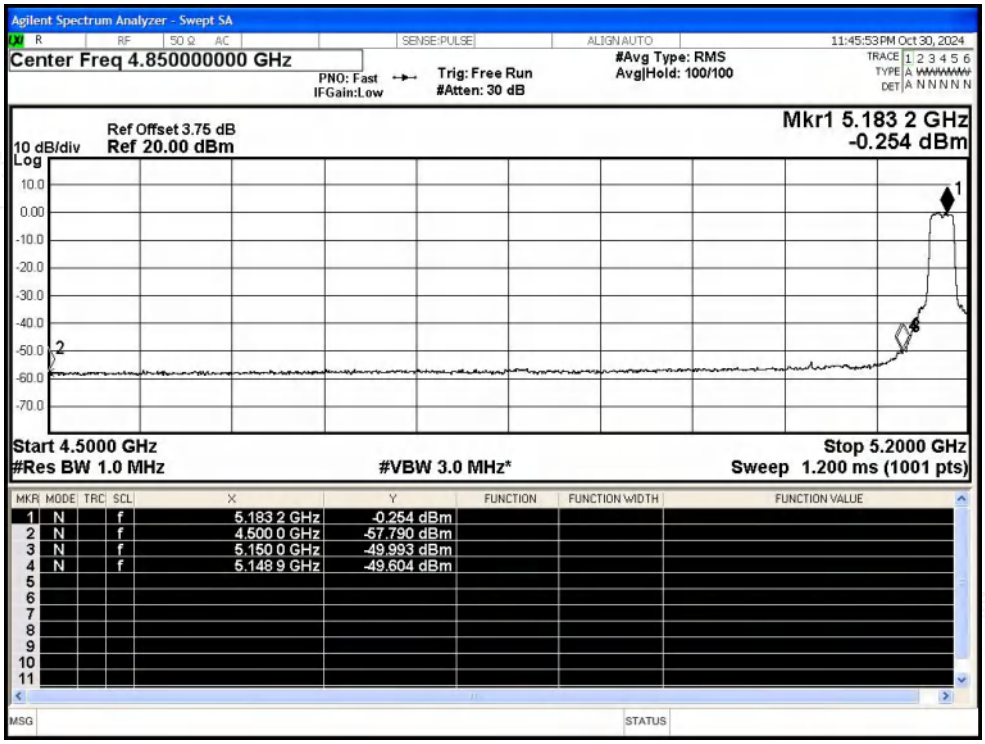
Restrict Band NVNT a 5240MHz Ant1 Average



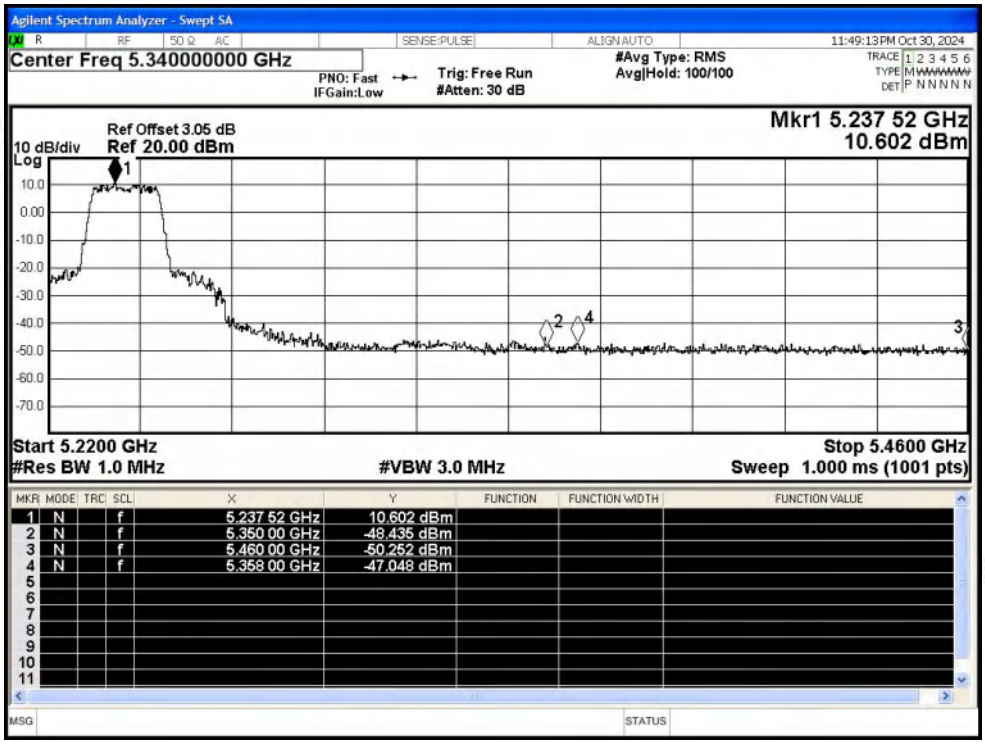
Restrict Band NVNT n20 5180MHz Ant1 Peak



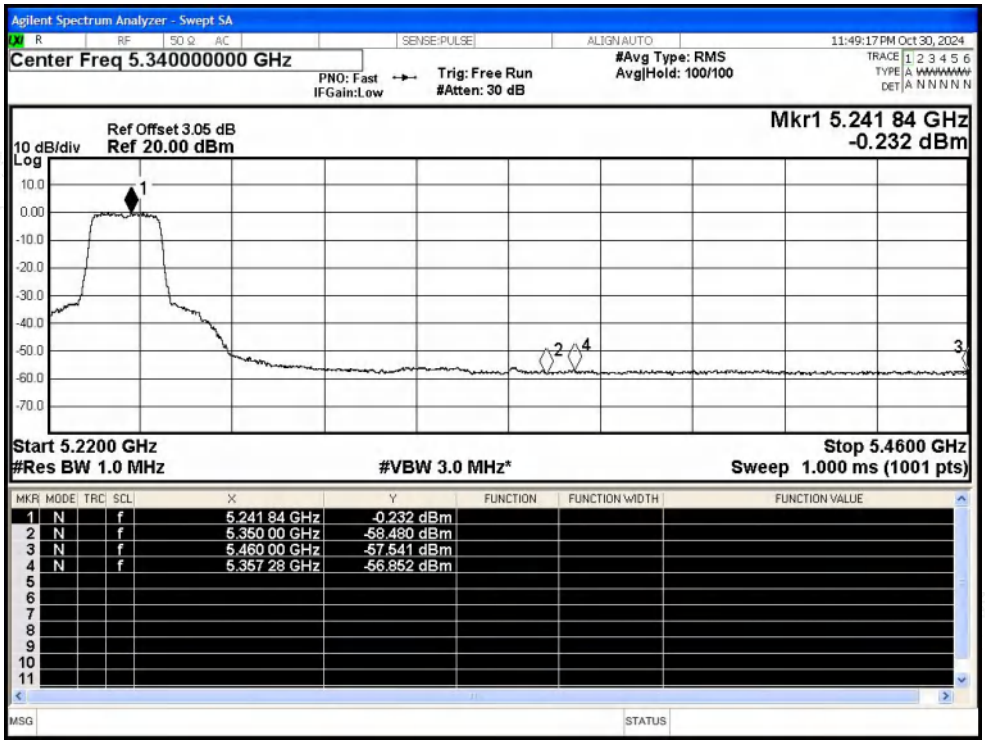
Restrict Band NVNT n20 5180MHz Ant1 Average



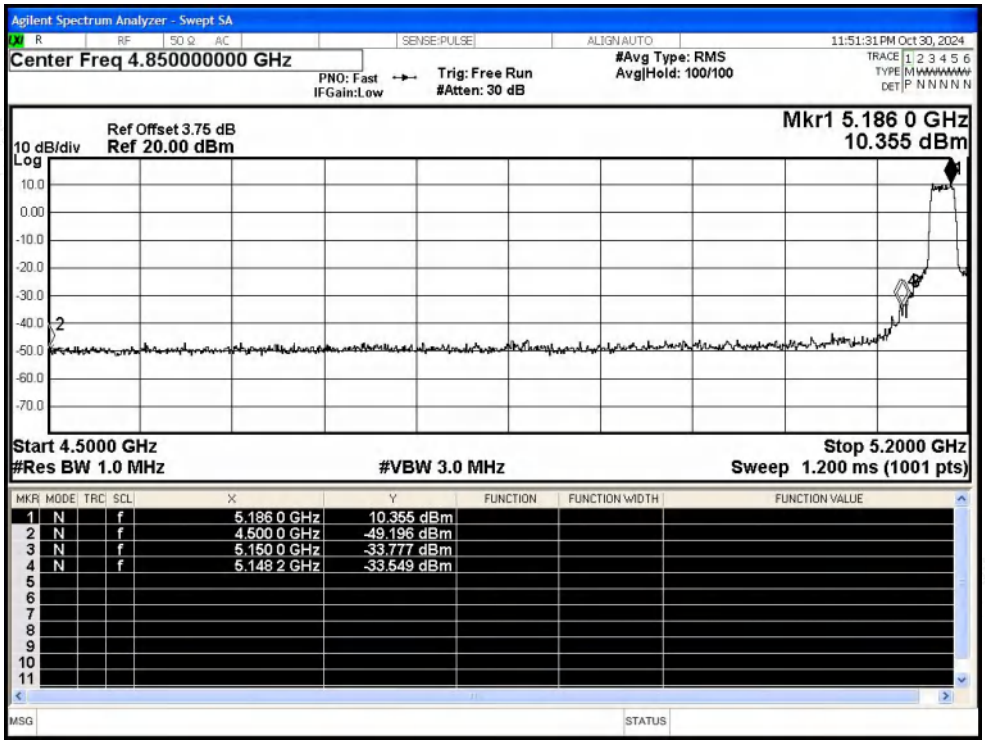
Restrict Band NVNT n20 5240MHz Ant1 Peak



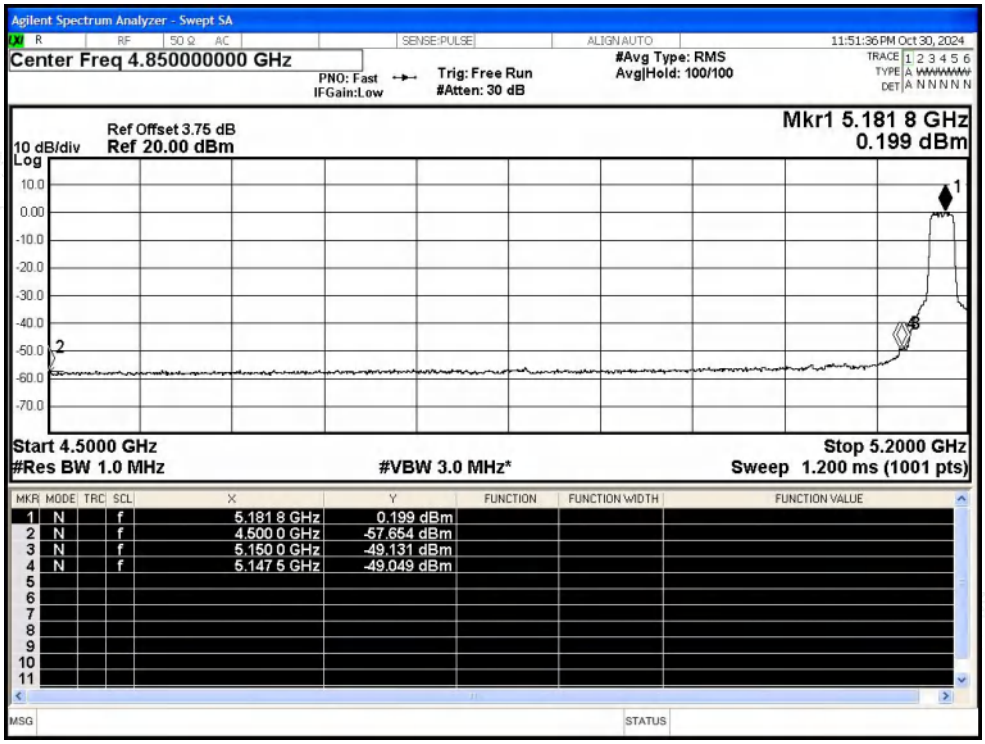
Restrict Band NVNT n20 5240MHz Ant1 Average



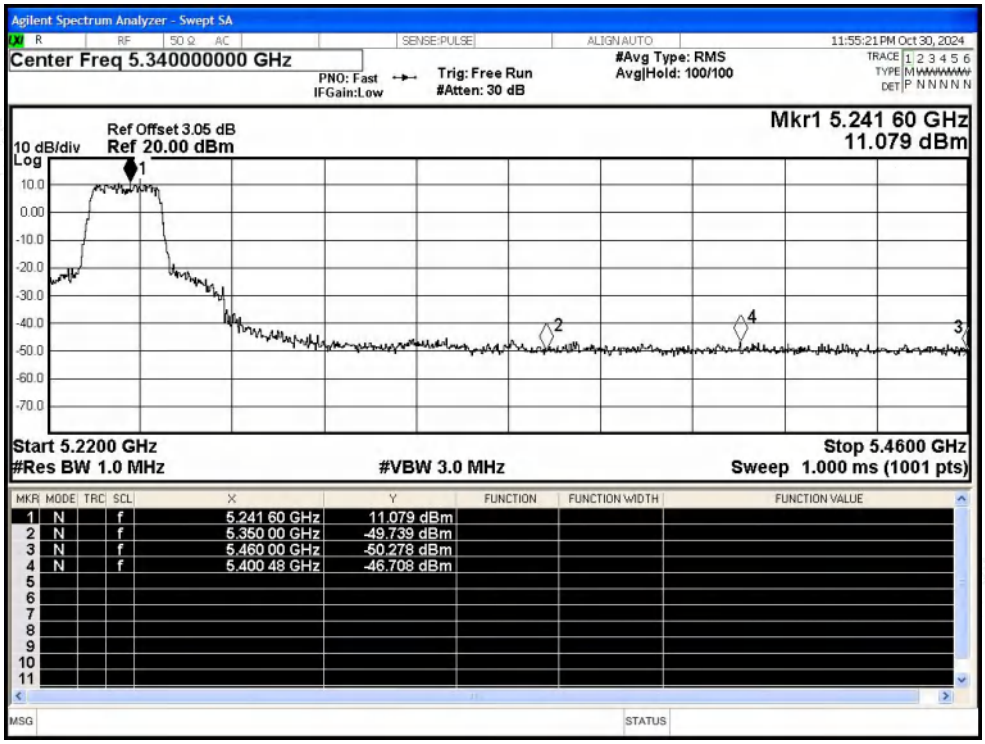
Restrict Band NVNT ac20 5180MHz Ant1 Peak



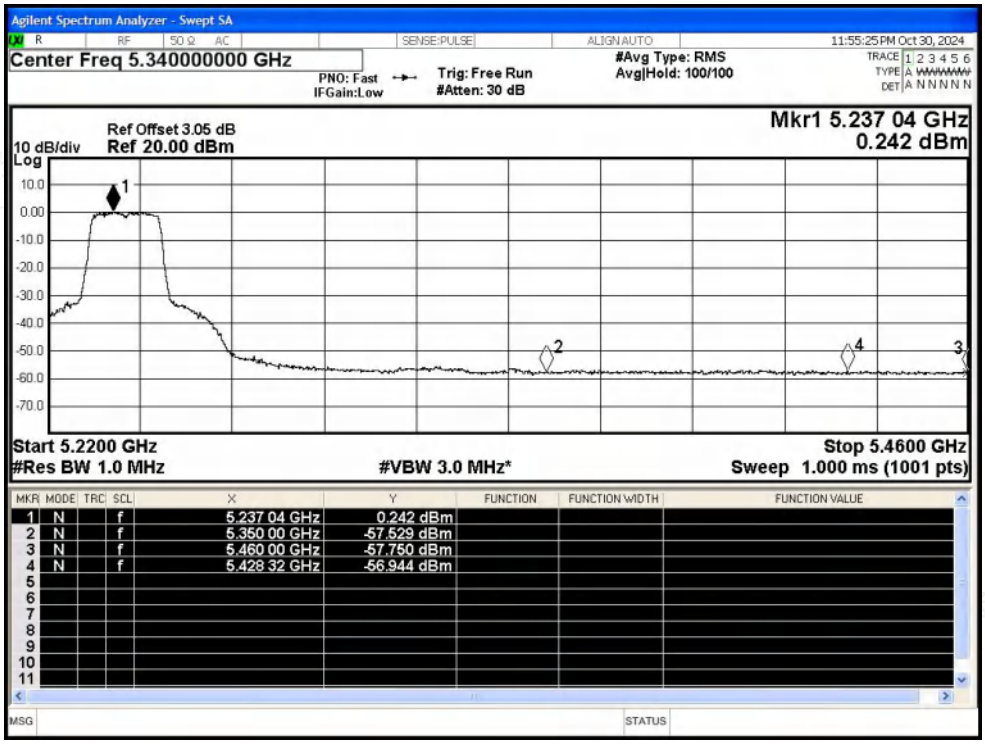
Restrict Band NVNT ac20 5180MHz Ant1 Average



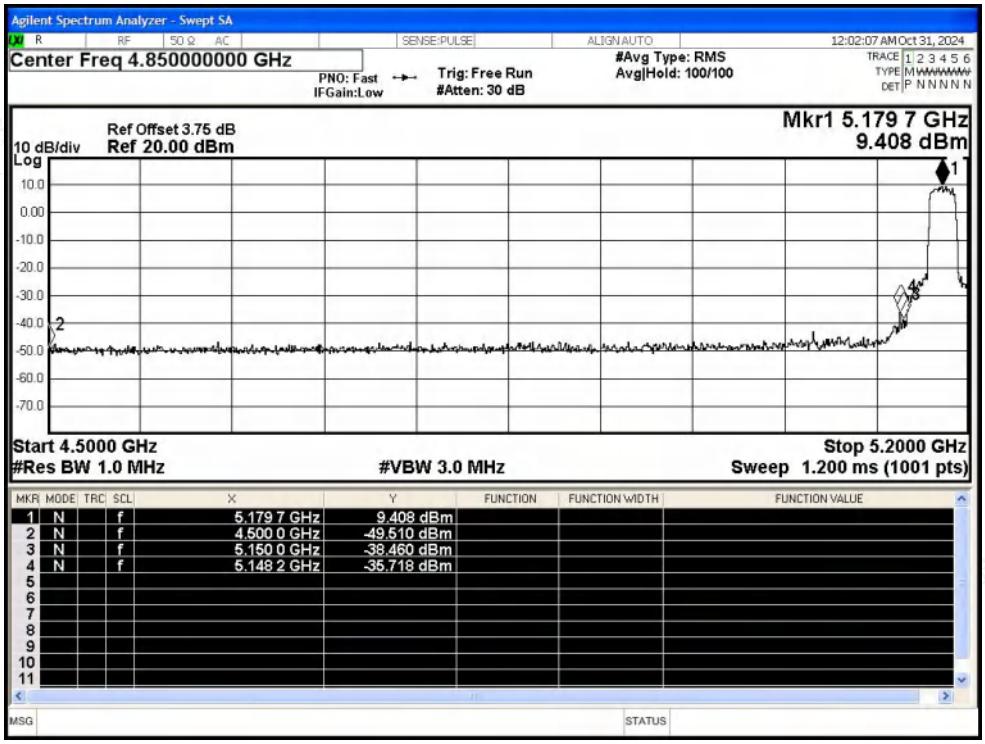
Restrict Band NVNT ac20 5240MHz Ant1 Peak



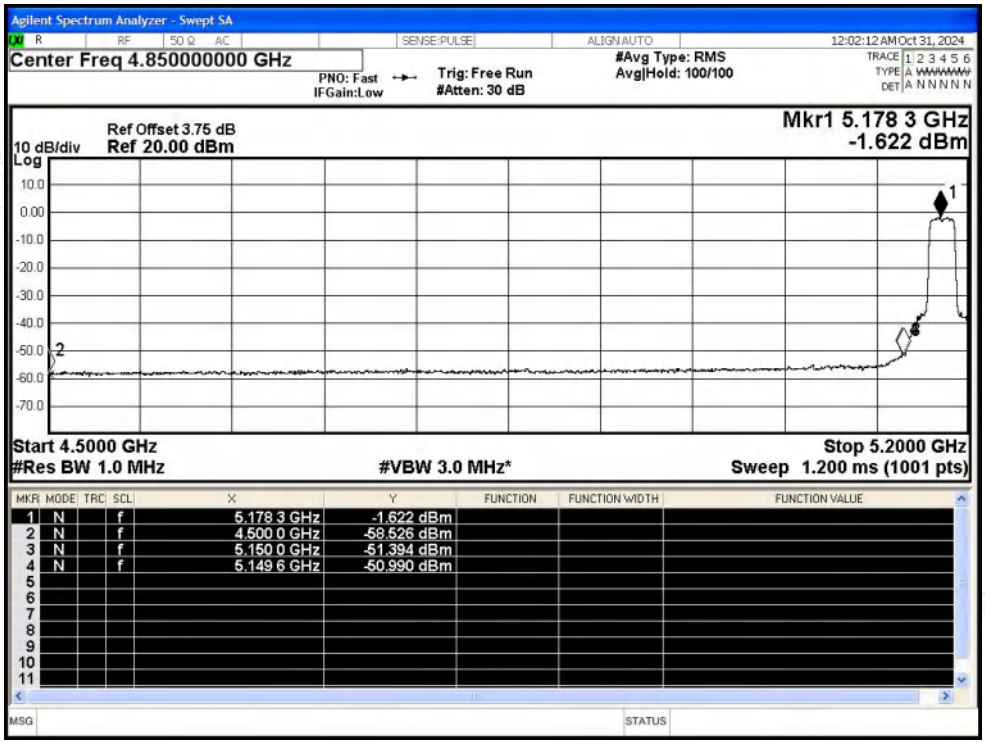
Restrict Band NVNT ac20 5240MHz Ant1 Average



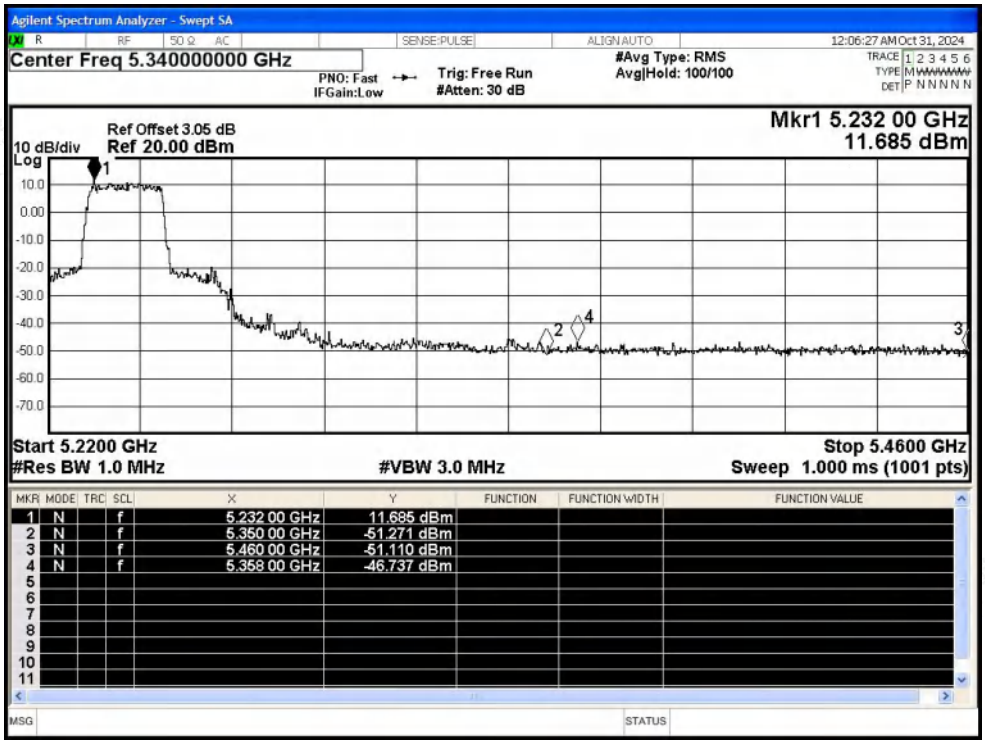
Restrict Band NVNT ax20 5180MHz Ant1 Peak



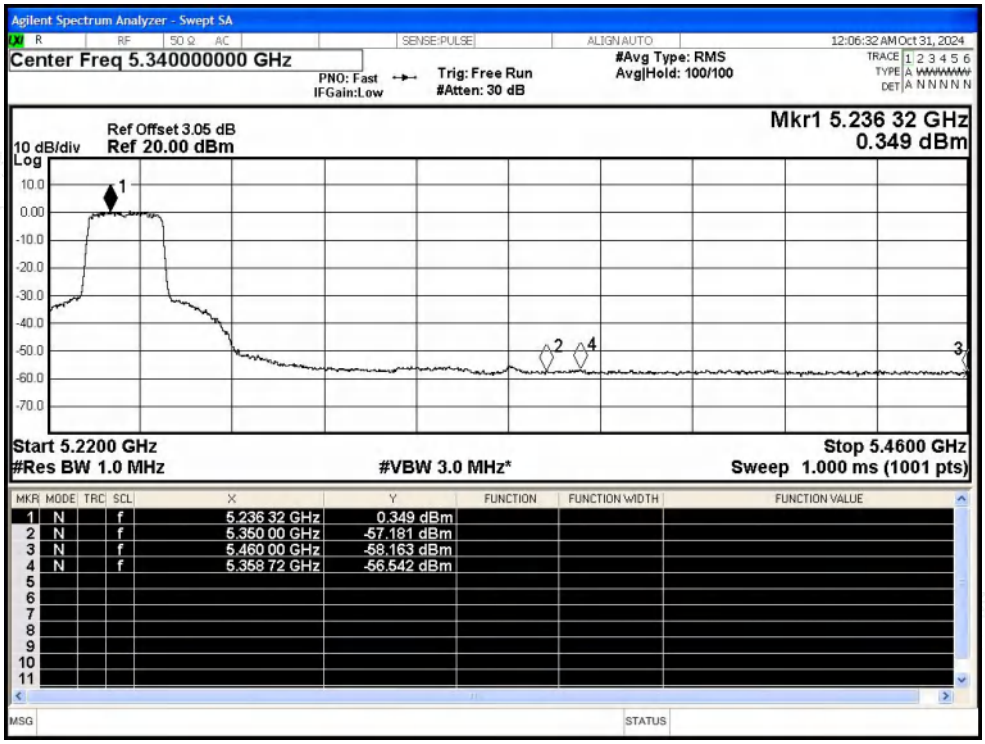
Restrict Band NVNT ax20 5180MHz Ant1 Average



Restrict Band NVNT ax20 5240MHz Ant1 Peak



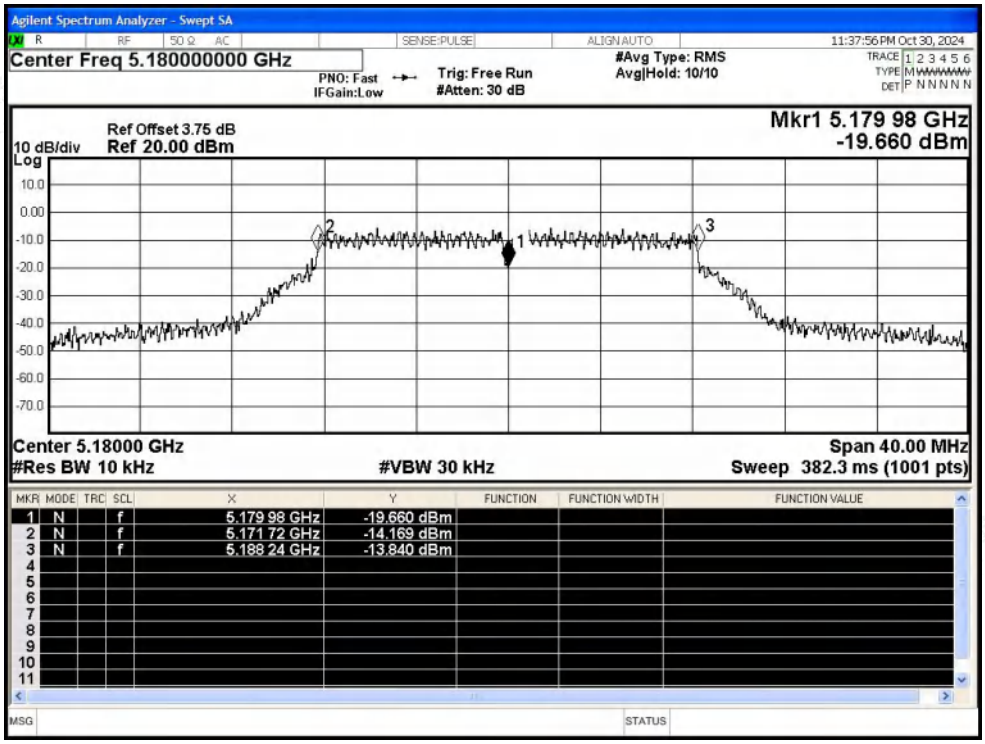
Restrict Band NVNT ax20 5240MHz Ant1 Average



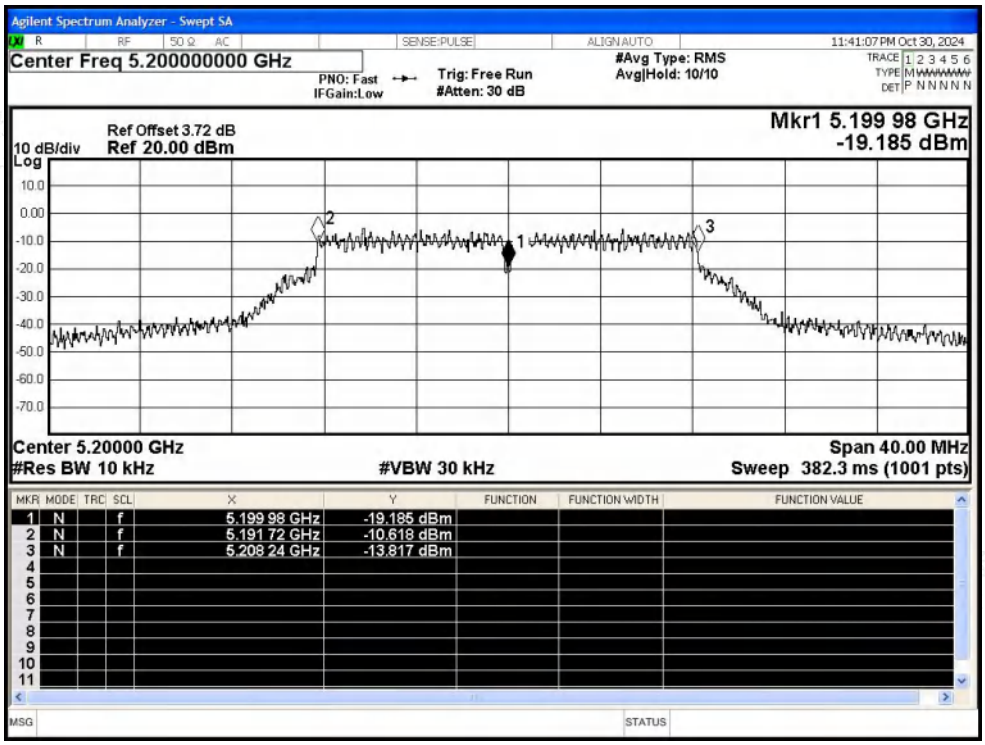
C.5 Frequency Stability

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	a	5180	Ant1	5179.98	-20000	-3.86	25	Pass
NVNT	a	5200	Ant1	5199.98	-20000	-3.85	25	Pass
NVNT	a	5240	Ant1	5239.96	-40000	-7.63	25	Pass
NVNT	n20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
NVNT	n20	5200	Ant1	5199.96	-40000	-7.69	25	Pass
NVNT	n20	5240	Ant1	5239.98	-20000	-3.82	25	Pass
NVNT	ac20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
NVNT	ac20	5200	Ant1	5199.98	-20000	-3.85	25	Pass
NVNT	ac20	5240	Ant1	5239.98	-20000	-3.82	25	Pass
NVNT	ax20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
NVNT	ax20	5200	Ant1	5200	0	0	25	Pass
NVNT	ax20	5240	Ant1	5239.96	-40000	-7.63	25	Pass

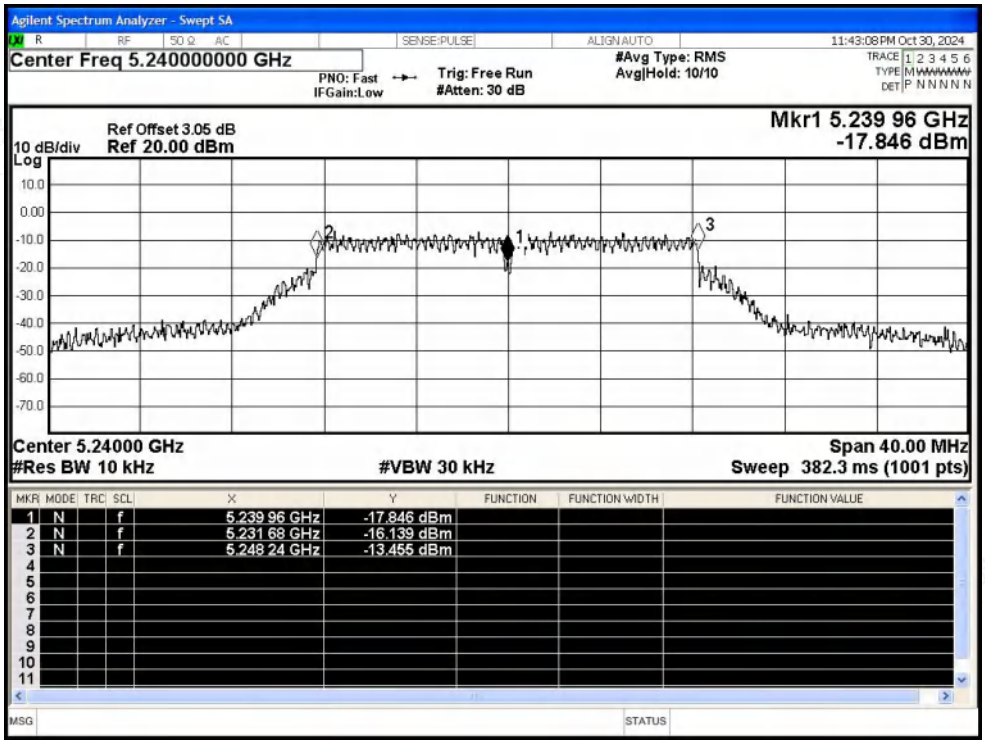
Test Graphs
Freq. Stability NVNT a 5180MHz Ant1



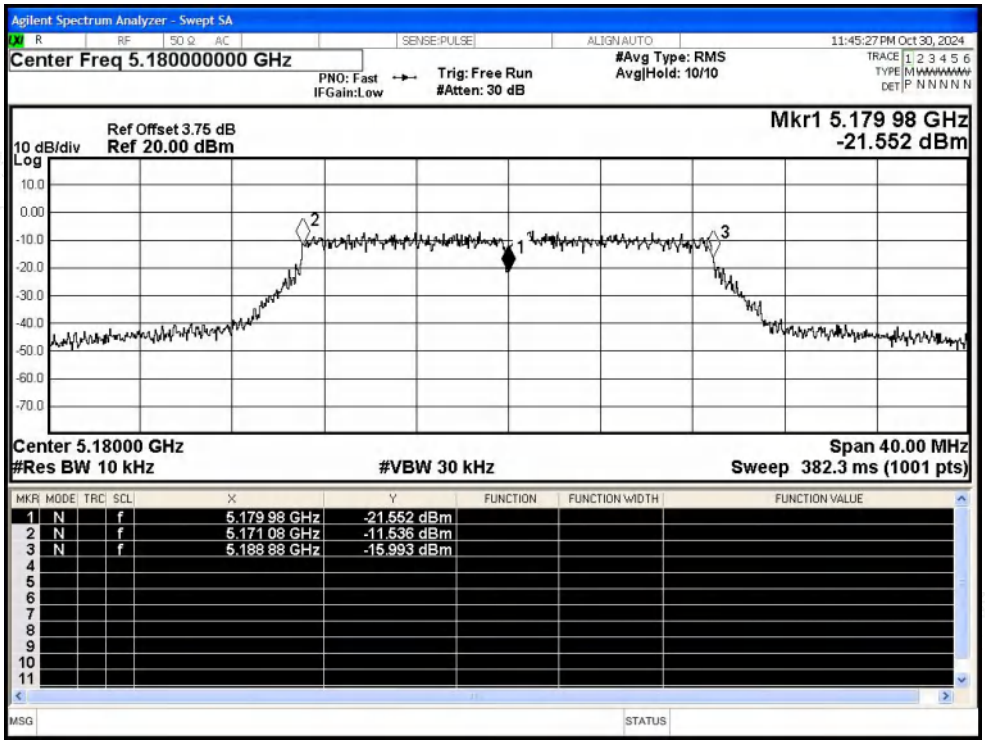
Freq. Stability NVNT a 5200MHz Ant1



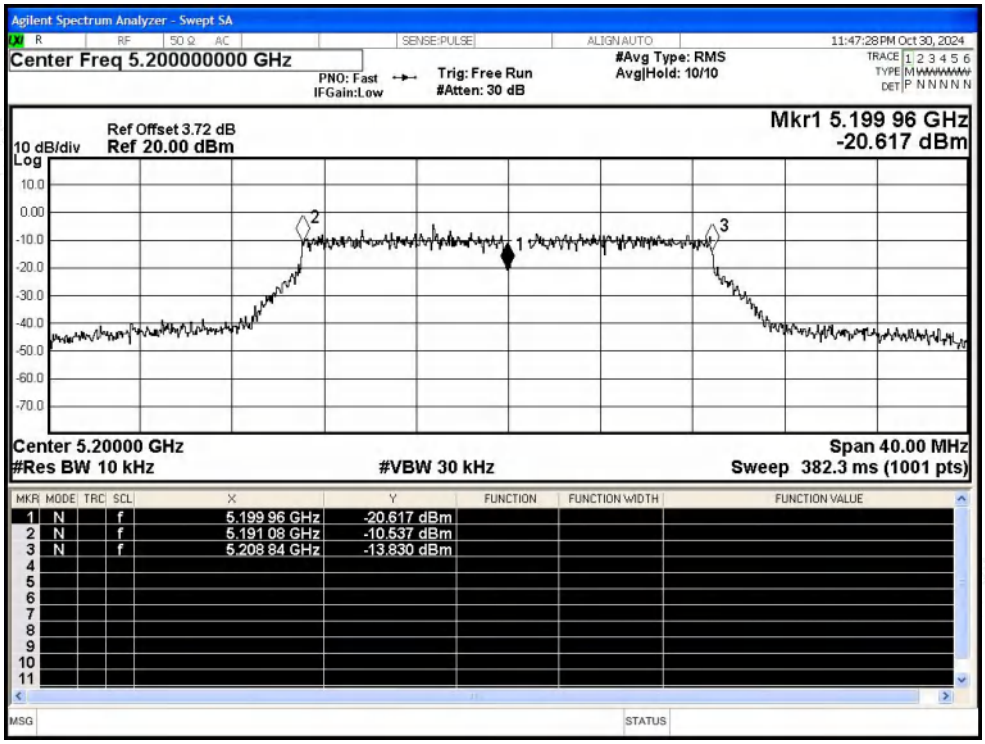
Freq. Stability NVNT a 5240MHz Ant1



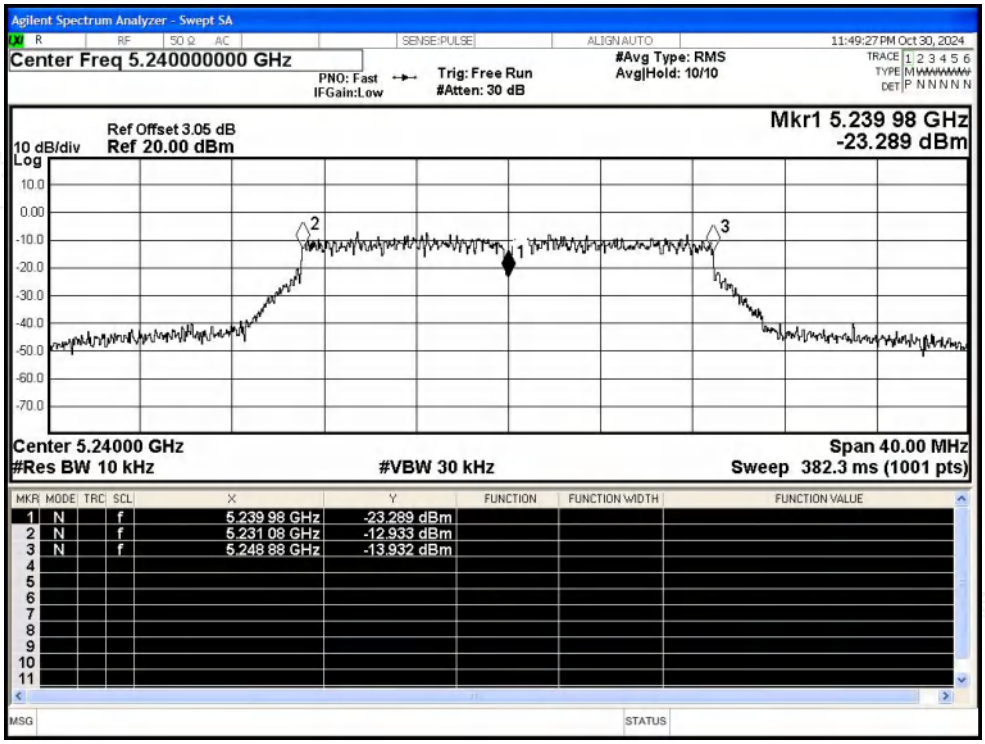
Freq. Stability NVNT n20 5180MHz Ant1



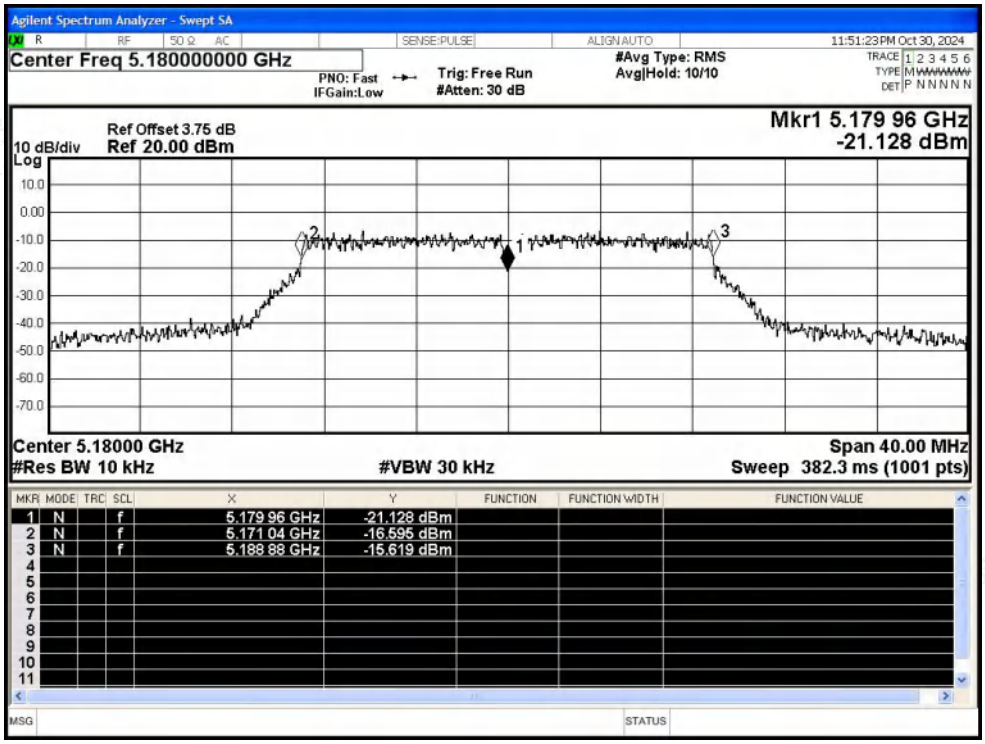
Freq. Stability NVNT n20 5200MHz Ant1



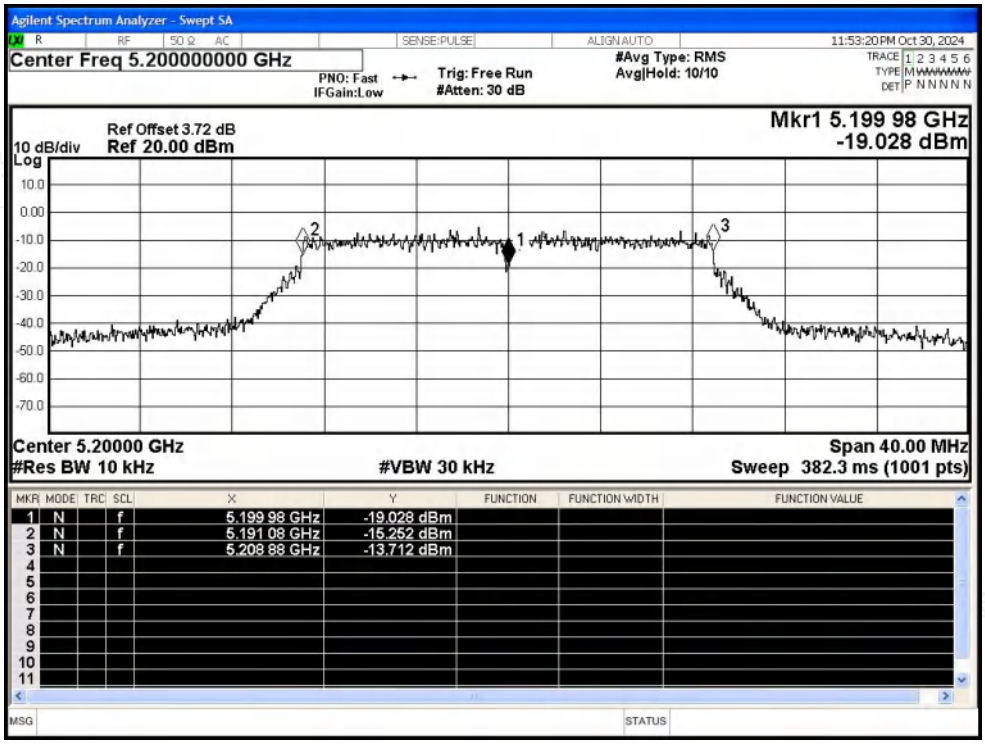
Freq. Stability NVNT n20 5240MHz Ant1



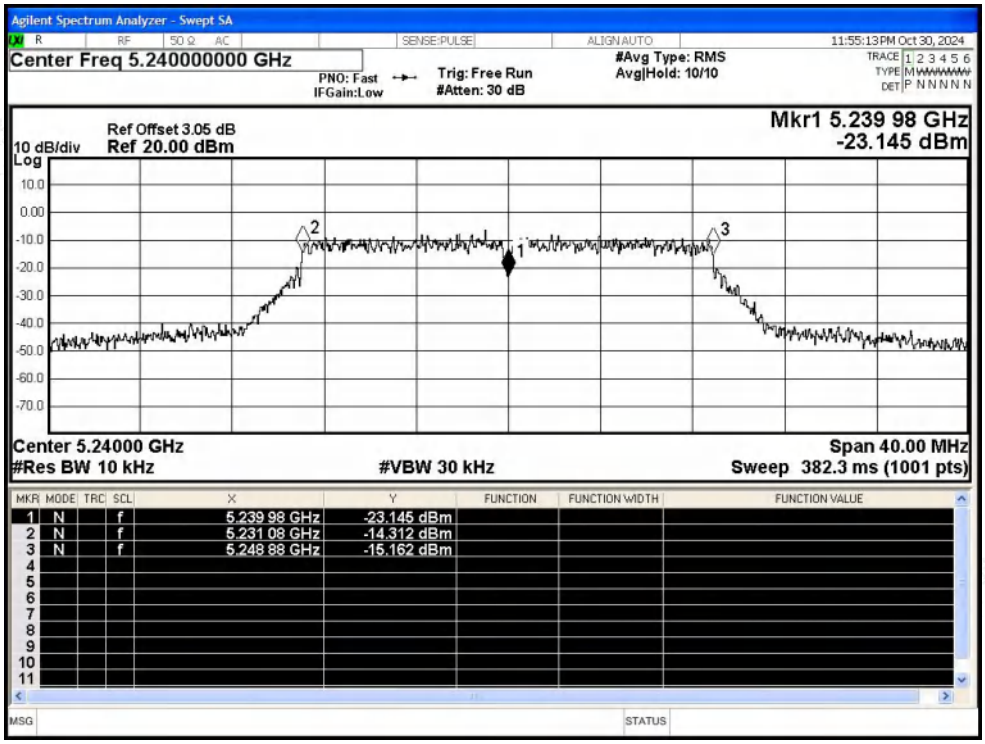
Freq. Stability NVNT ac20 5180MHz Ant1



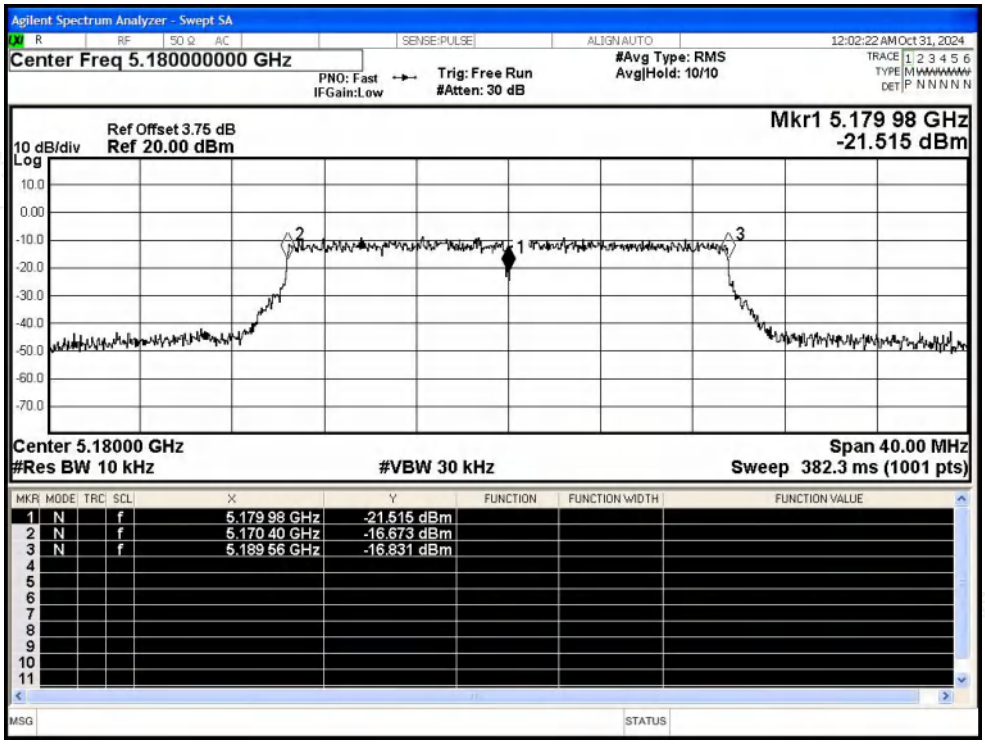
Freq. Stability NVNT ac20 5200MHz Ant1



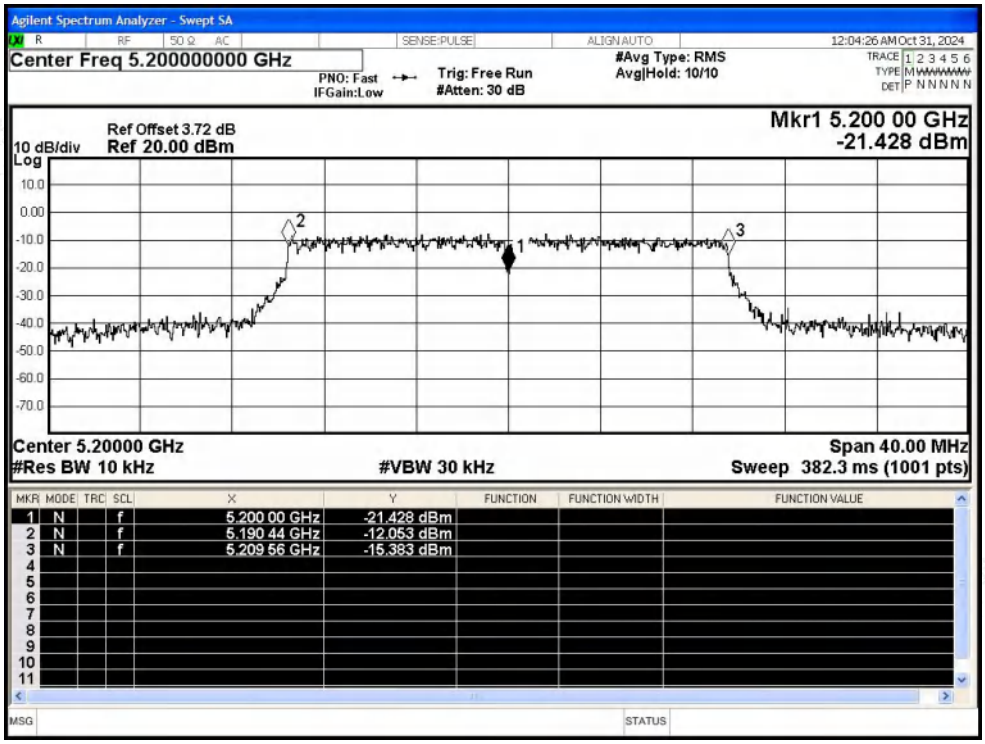
Freq. Stability NVNT ac20 5240MHz Ant1



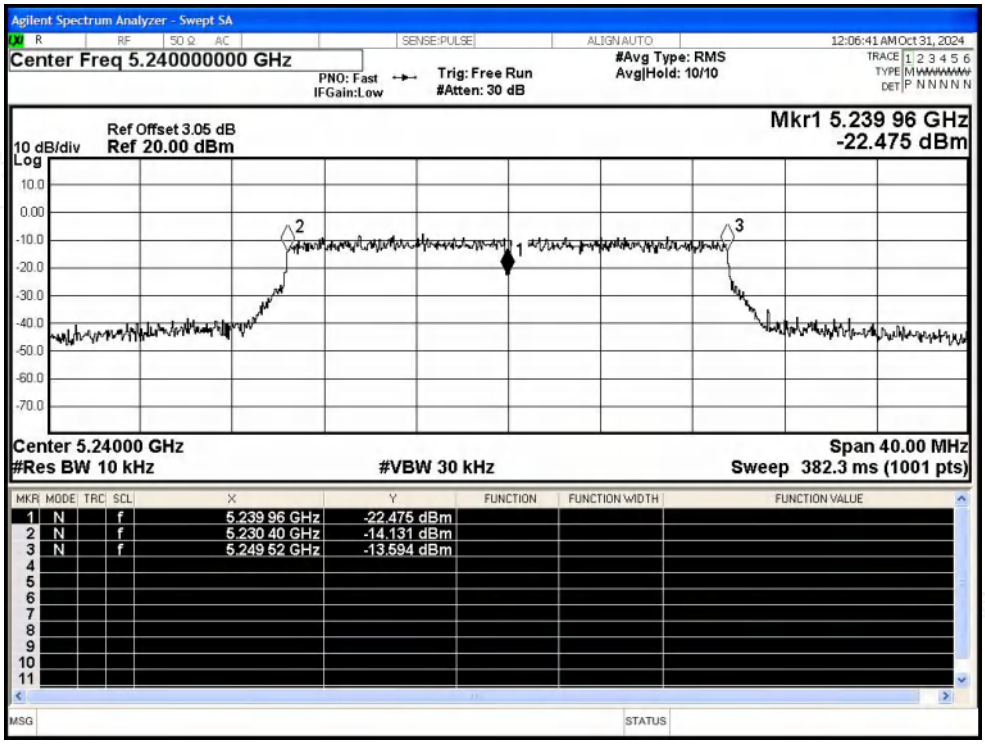
Freq. Stability NVNT ax20 5180MHz Ant1



Freq. Stability NVNT ax20 5200MHz Ant1



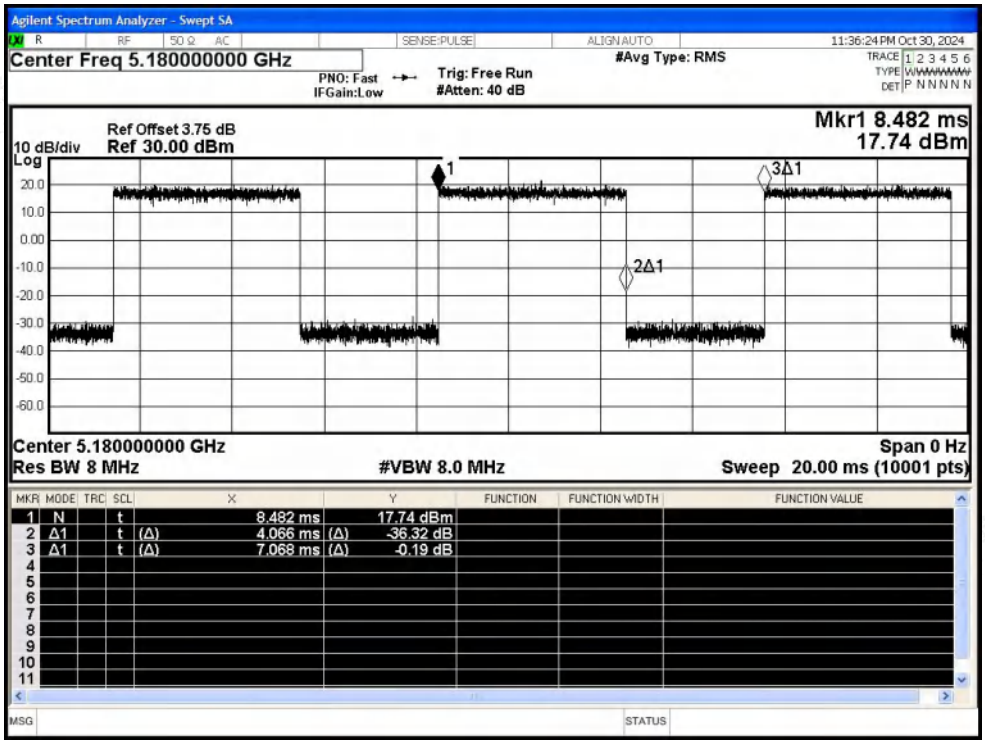
Freq. Stability NVNT ax20 5240MHz Ant1



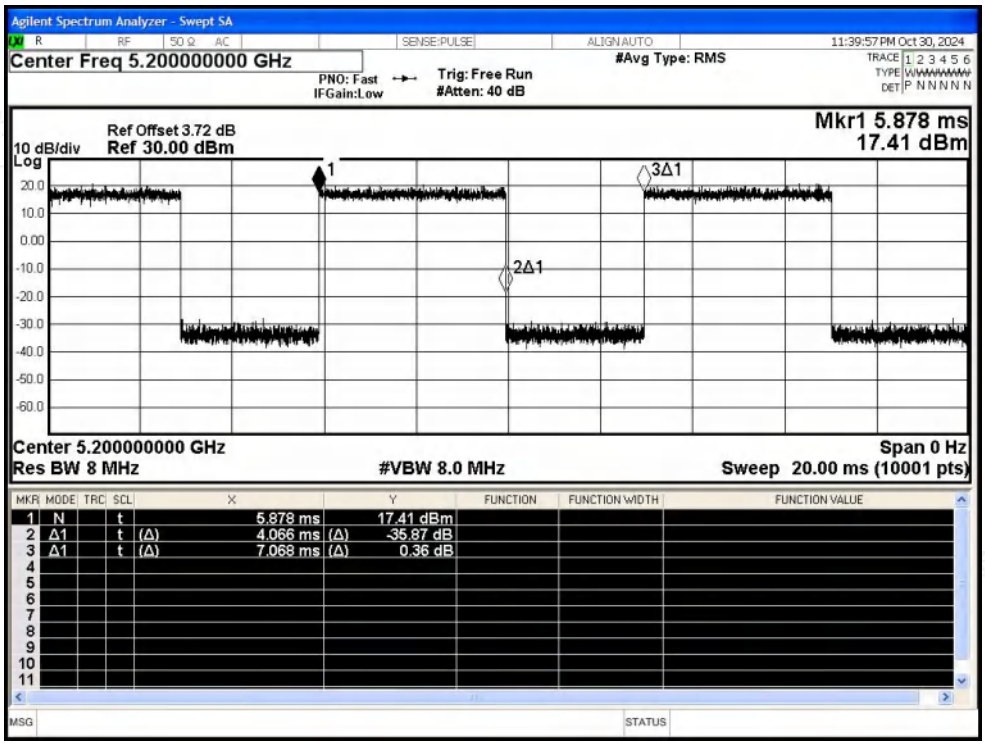
C.6 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	57.53	2.4	0.25
NVNT	a	5200	Ant1	57.53	2.4	0.25
NVNT	a	5240	Ant1	57.5	2.4	0.25
NVNT	n20	5180	Ant1	53.12	2.75	0.29
NVNT	n20	5200	Ant1	53.12	2.75	0.29
NVNT	n20	5240	Ant1	53.11	2.75	0.29
NVNT	ac20	5180	Ant1	53.16	2.74	0.29
NVNT	ac20	5200	Ant1	53.2	2.74	0.29
NVNT	ac20	5240	Ant1	53.16	2.74	0.29
NVNT	ax20	5180	Ant1	48.96	3.1	0.35
NVNT	ax20	5200	Ant1	48.95	3.1	0.35
NVNT	ax20	5240	Ant1	48.95	3.1	0.35

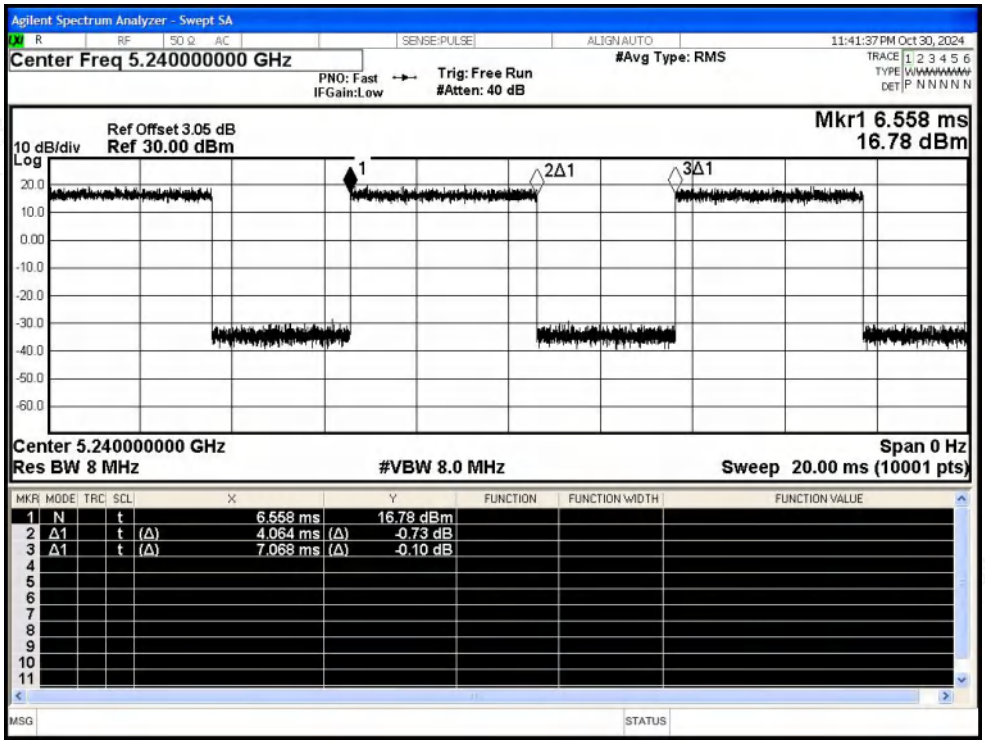
Test Graphs
Duty Cycle NVNT a 5180MHz Ant1



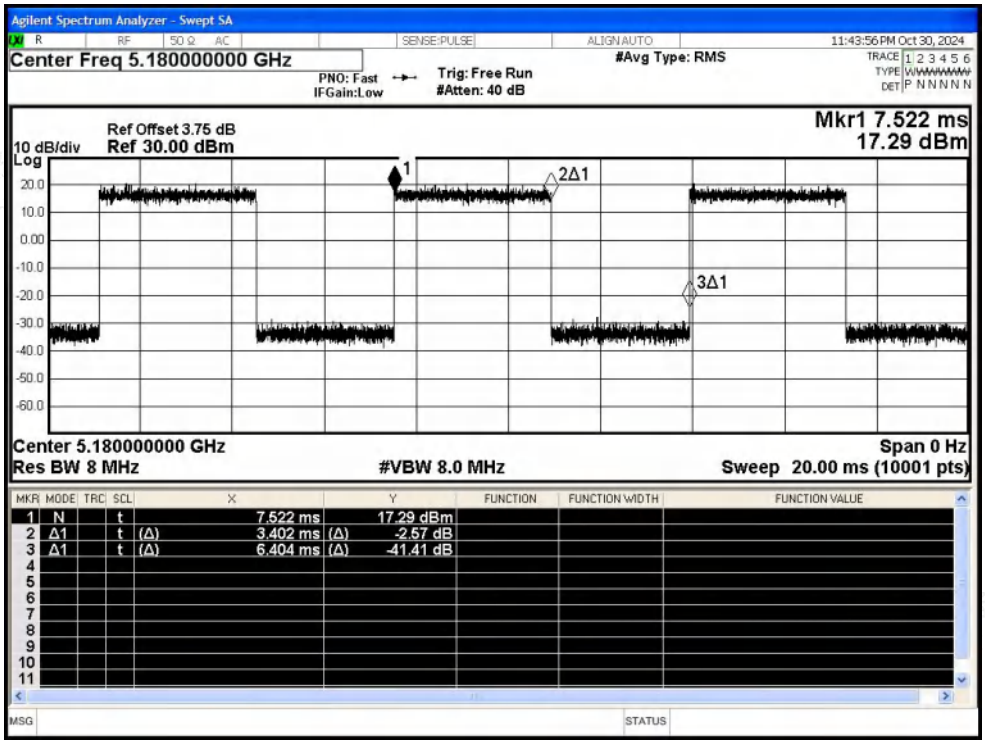
Duty Cycle NVNT a 5200MHz Ant1



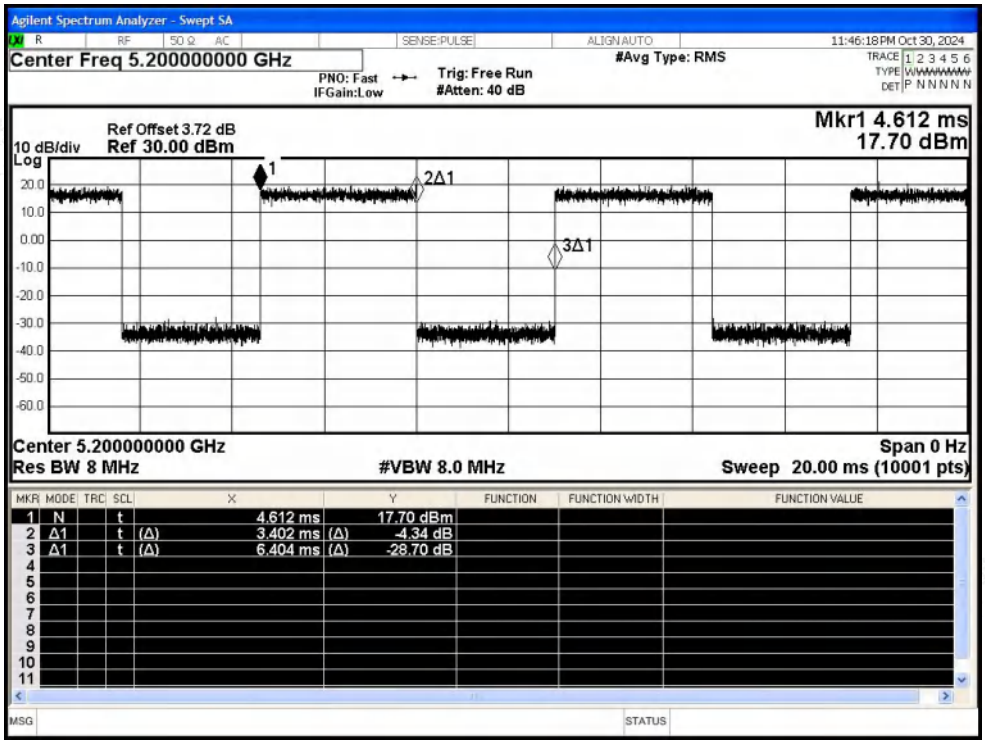
Duty Cycle NVNT a 5240MHz Ant1



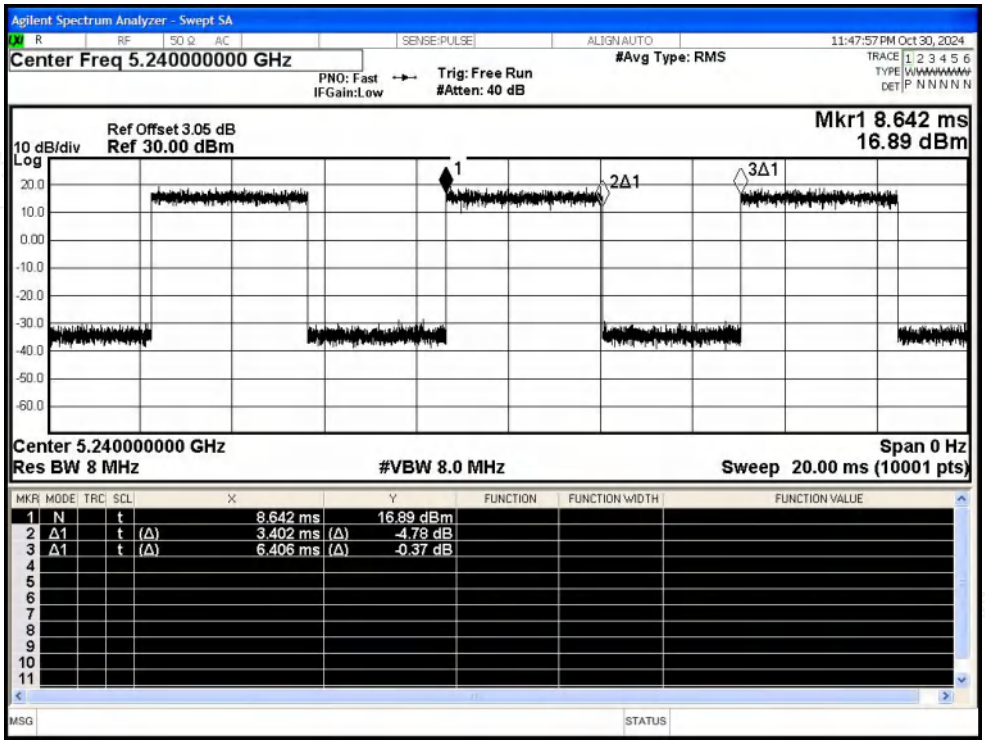
Duty Cycle NVNT n20 5180MHz Ant1



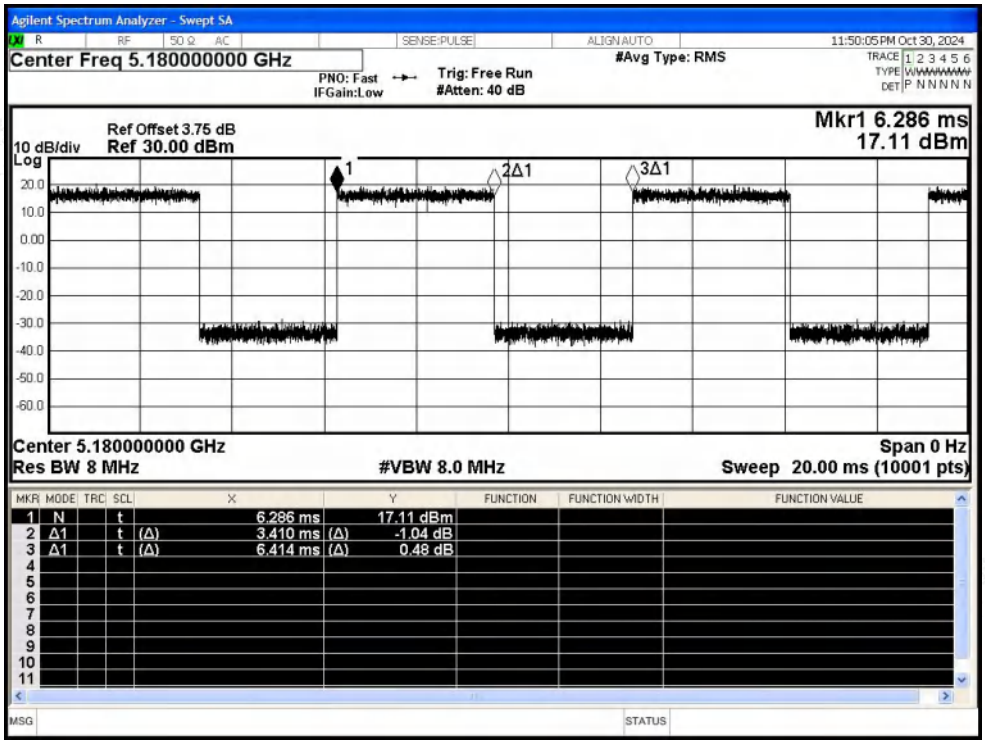
Duty Cycle NVNT n20 5200MHz Ant1



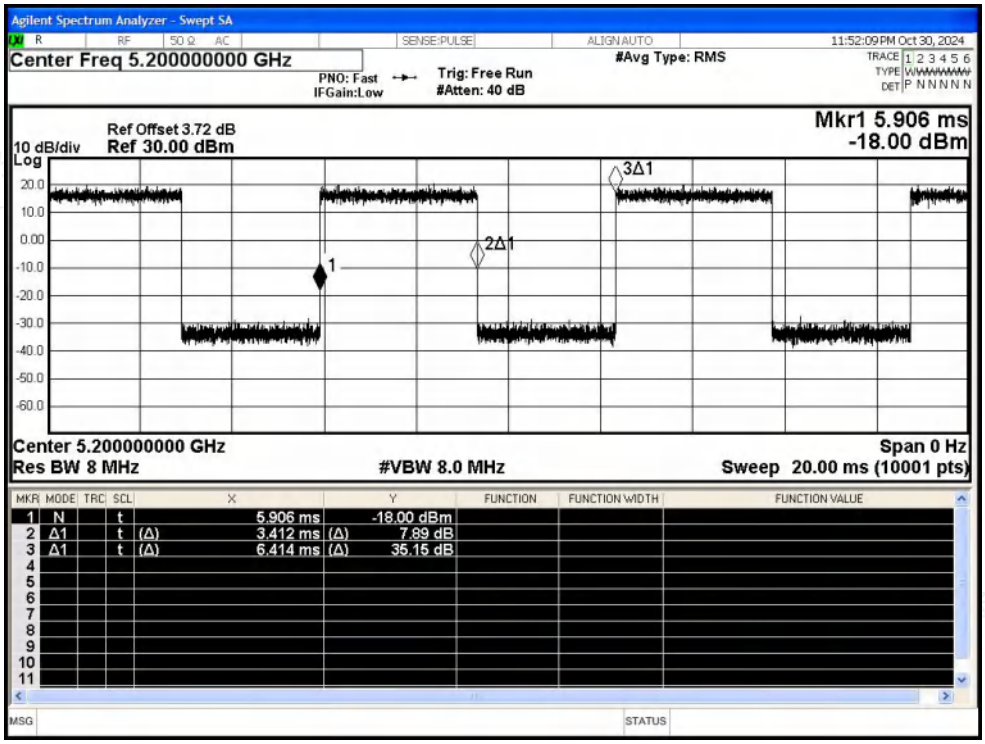
Duty Cycle NVNT n20 5240MHz Ant1



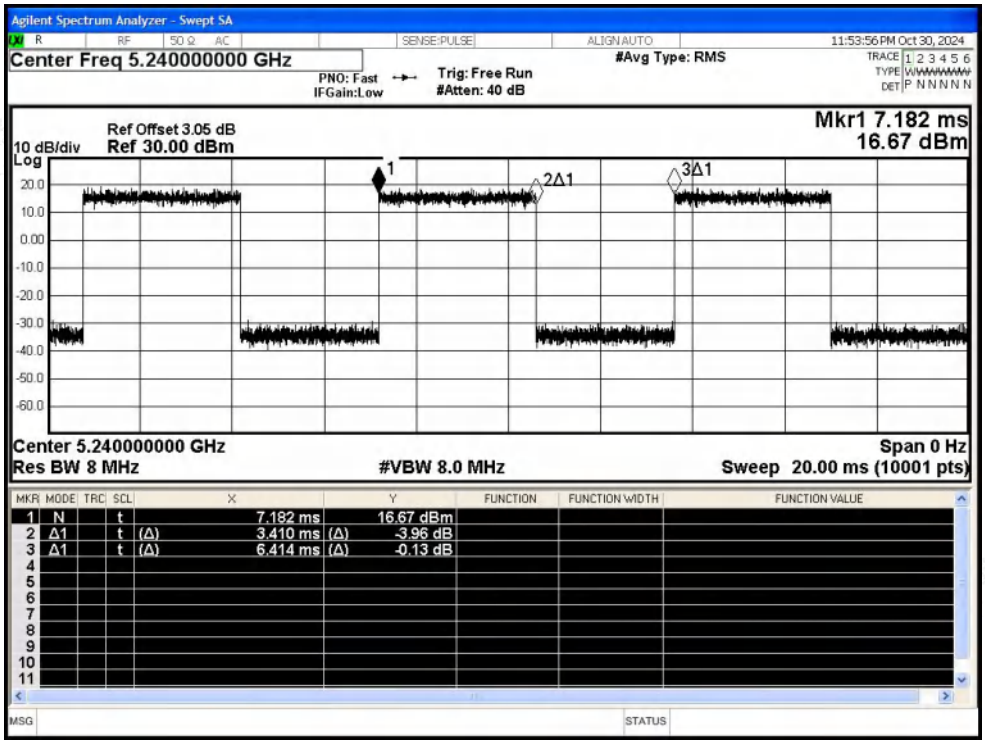
Duty Cycle NVNT ac20 5180MHz Ant1



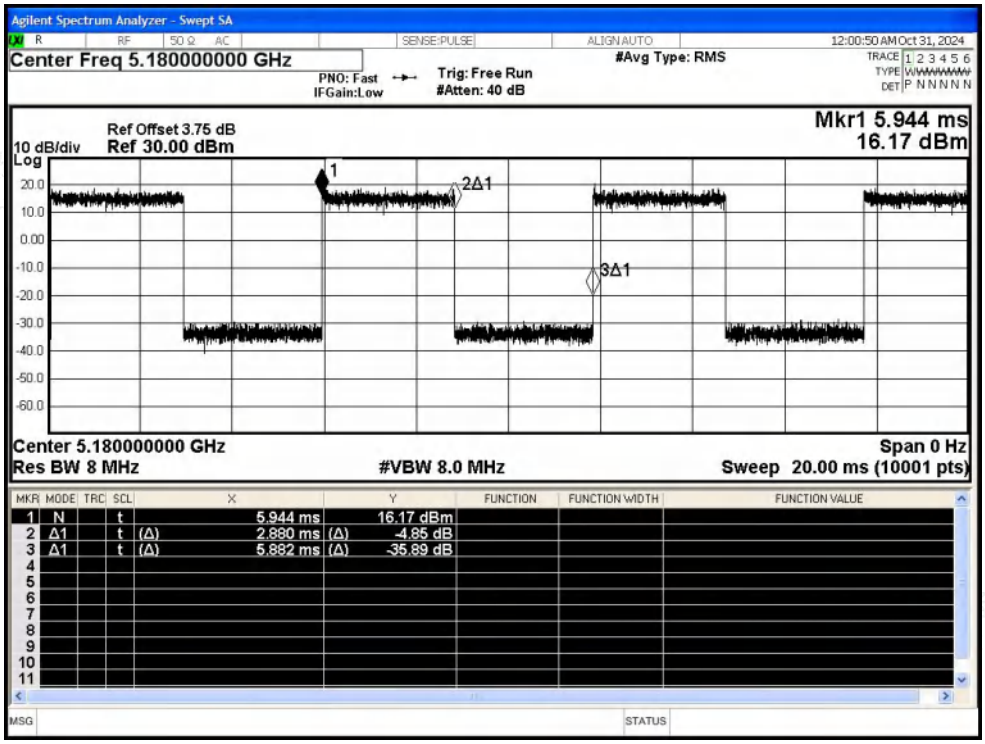
Duty Cycle NVNT ac20 5200MHz Ant1



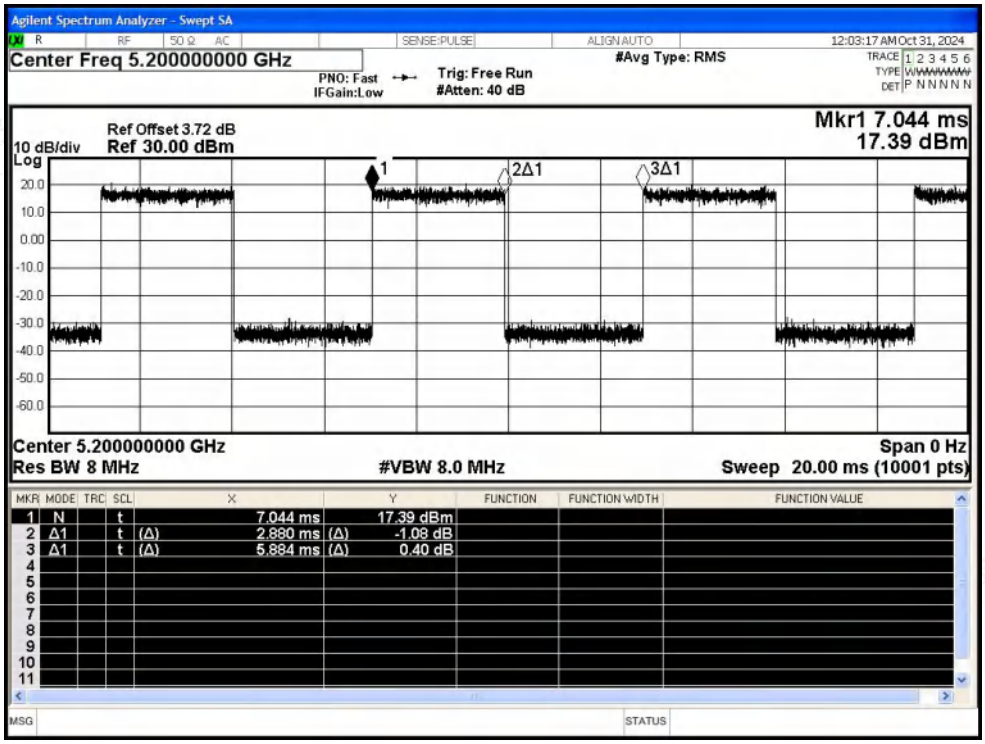
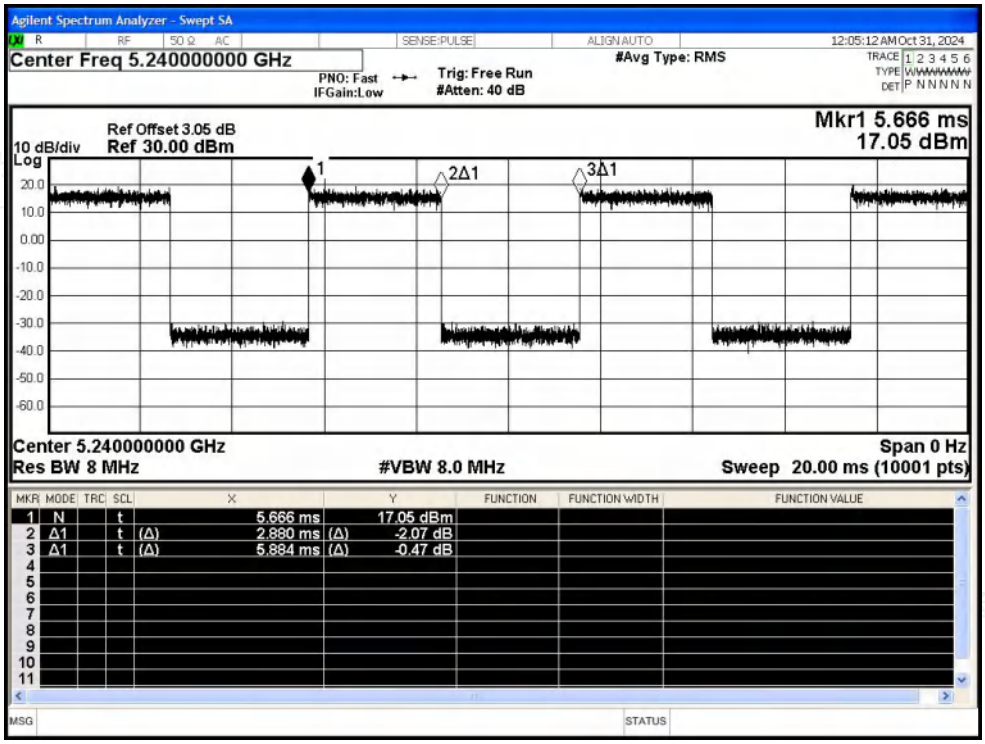
Duty Cycle NVNT ac20 5240MHz Ant1



Duty Cycle NVNT ax20 5180MHz Ant1



Duty Cycle NVNT ax20 5200MHz Ant1



Duty Cycle NVNT ax20 5240MHz Ant1