Appendix A

RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name:SPACTRA

Test Model: 7157+3157

Environmental Conditions

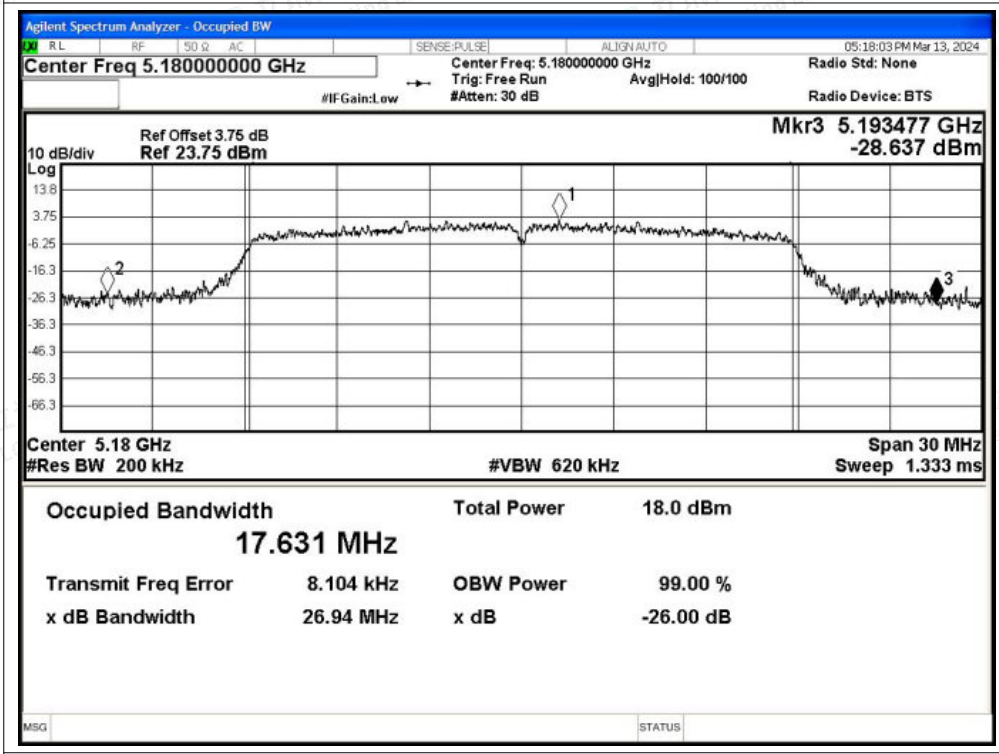
Temperature:	23.1℃
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng

A.1 -26dB Bandwidth

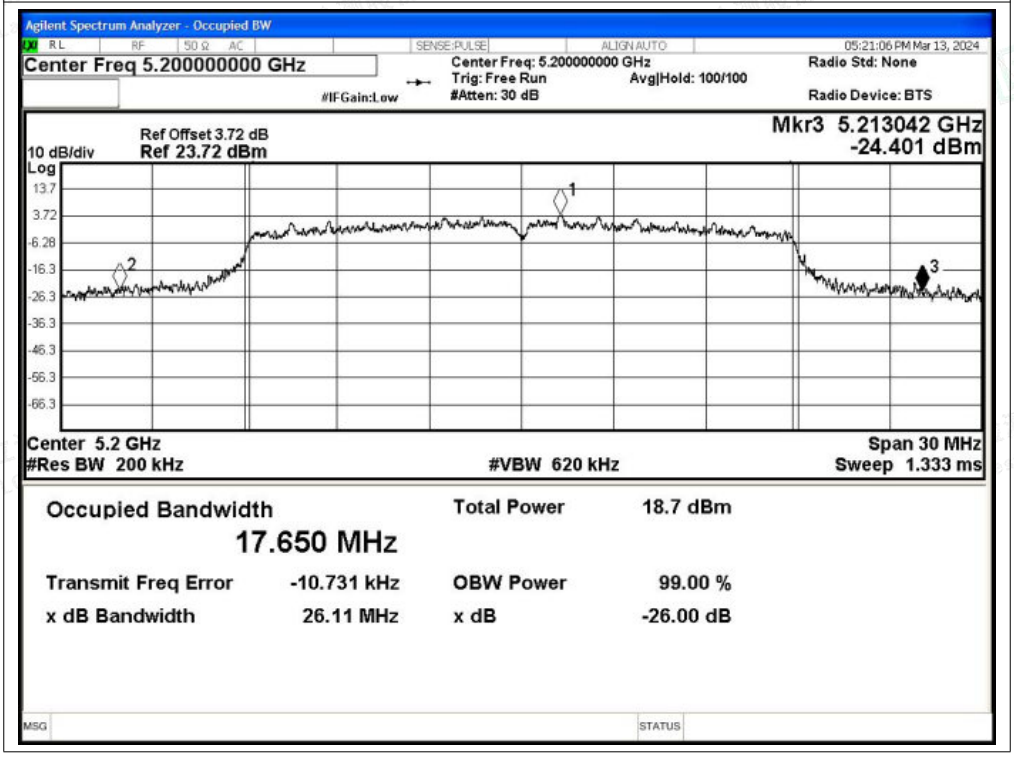
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	n20	5180	Ant0	26.938	----	Pass
NVNT	n20	5200	Ant0	26.106	----	Pass
NVNT	n20	5240	Ant0	28.631	----	Pass
NVNT	n40	5190	Ant0	54.201	----	Pass
NVNT	n40	5230	Ant0	59.435	----	Pass

Test Graphs

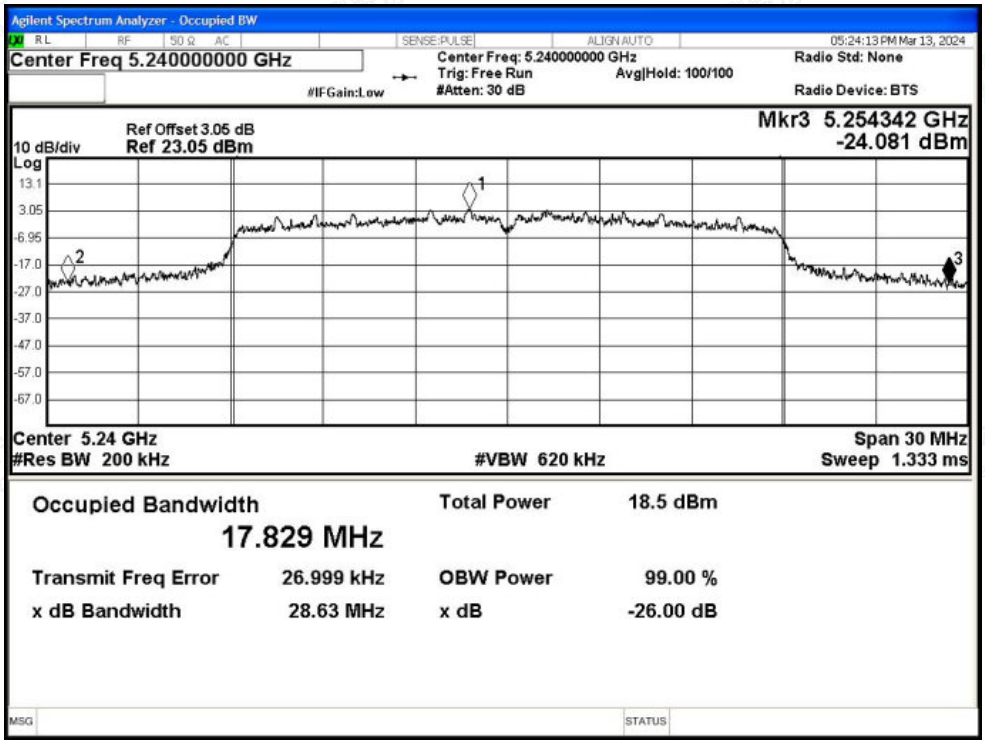
-26dB Bandwidth NVNT n20 5180MHz Ant0



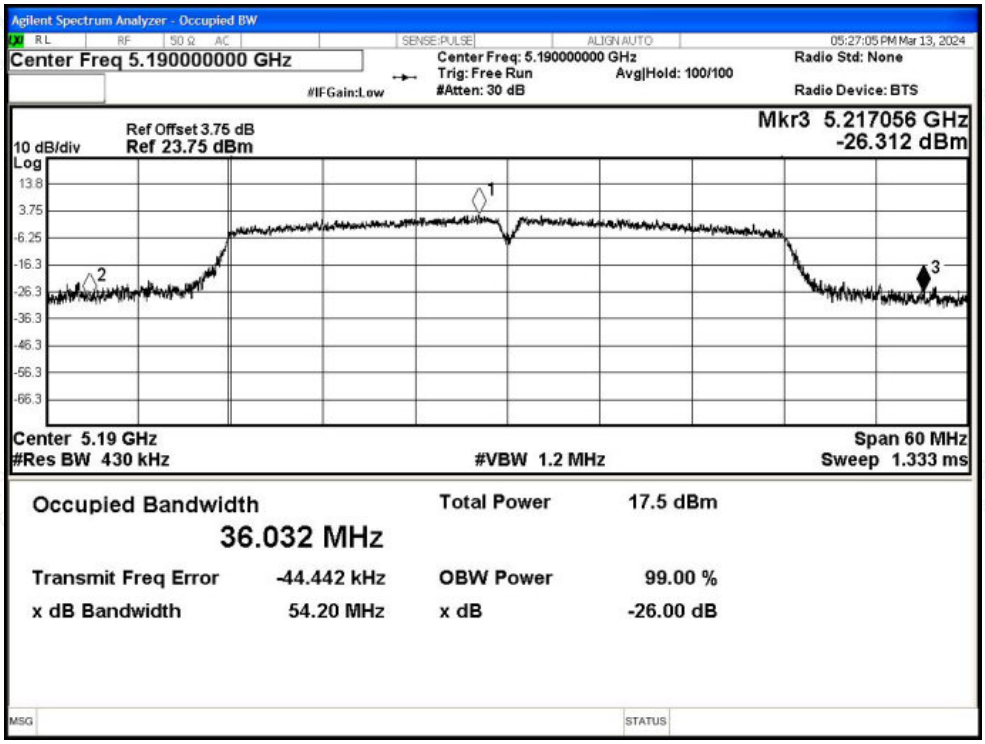
-26dB Bandwidth NVNT n20 5200MHz Ant0



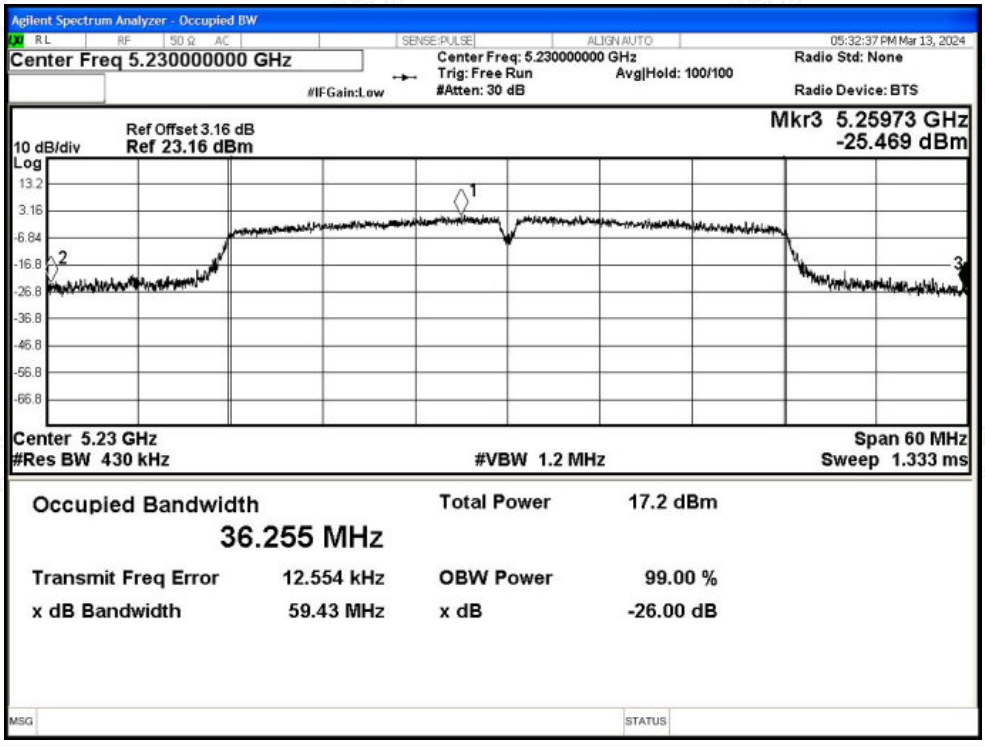
-26dB Bandwidth NVNT n20 5240MHz Ant0



-26dB Bandwidth NVNT n40 5190MHz Ant0



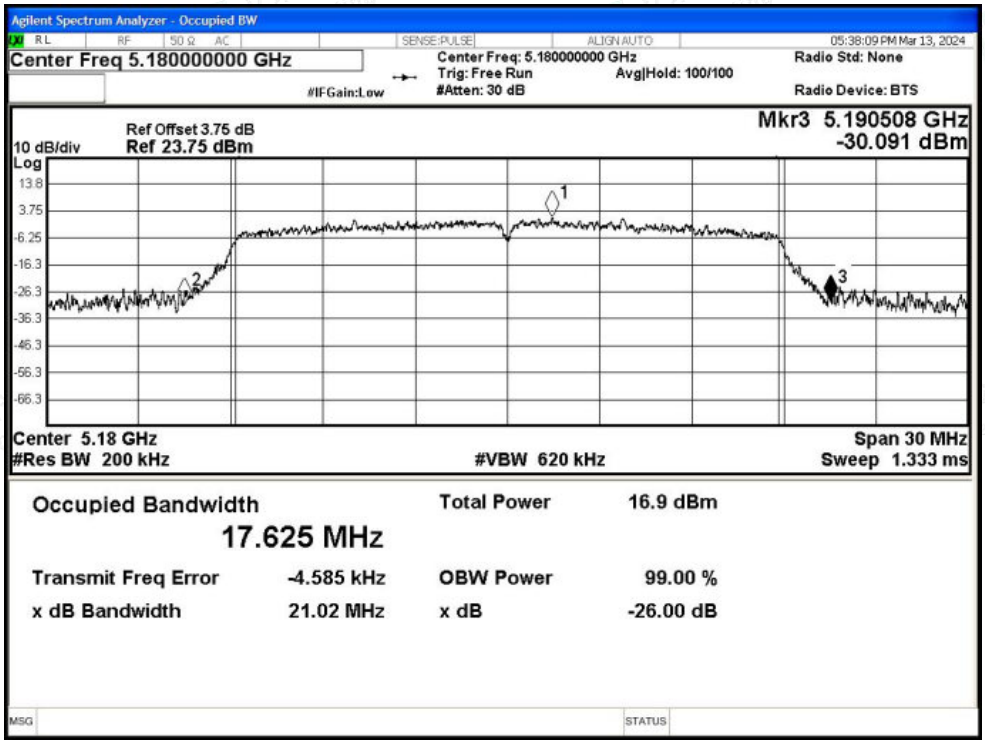
-26dB Bandwidth NVNT n40 5230MHz Ant0



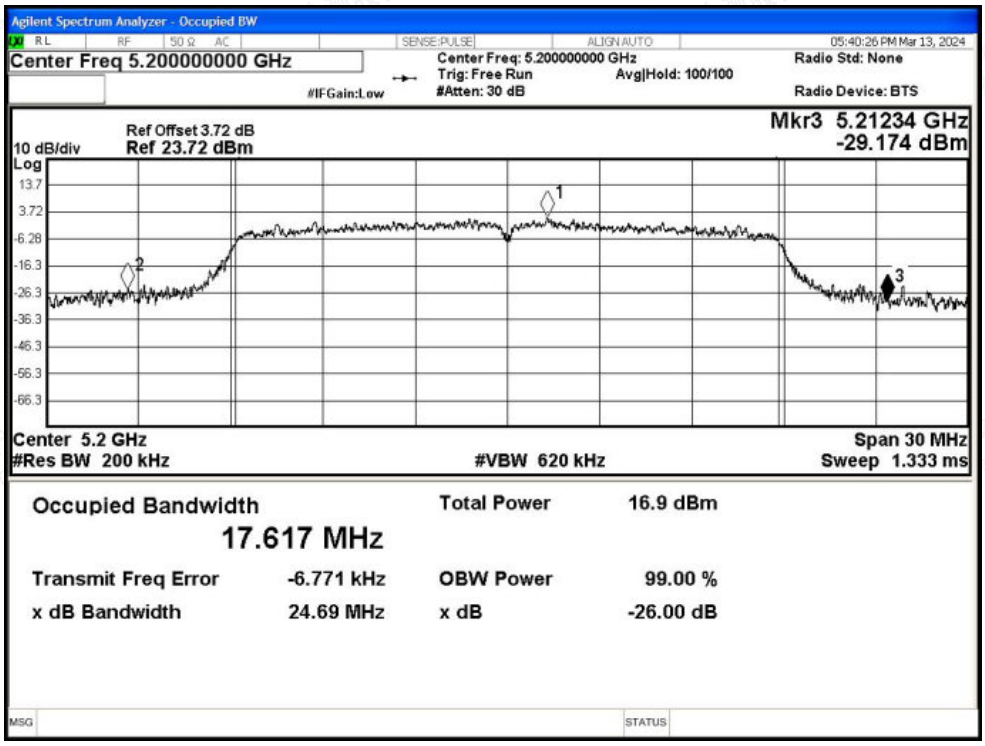
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	n20	5180	Ant1	21.025	----	Pass
NVNT	n20	5200	Ant1	24.693	----	Pass
NVNT	n20	5240	Ant1	26.957	----	Pass
NVNT	n40	5190	Ant1	40.488	----	Pass
NVNT	n40	5230	Ant1	57.05	----	Pass

Test Graphs

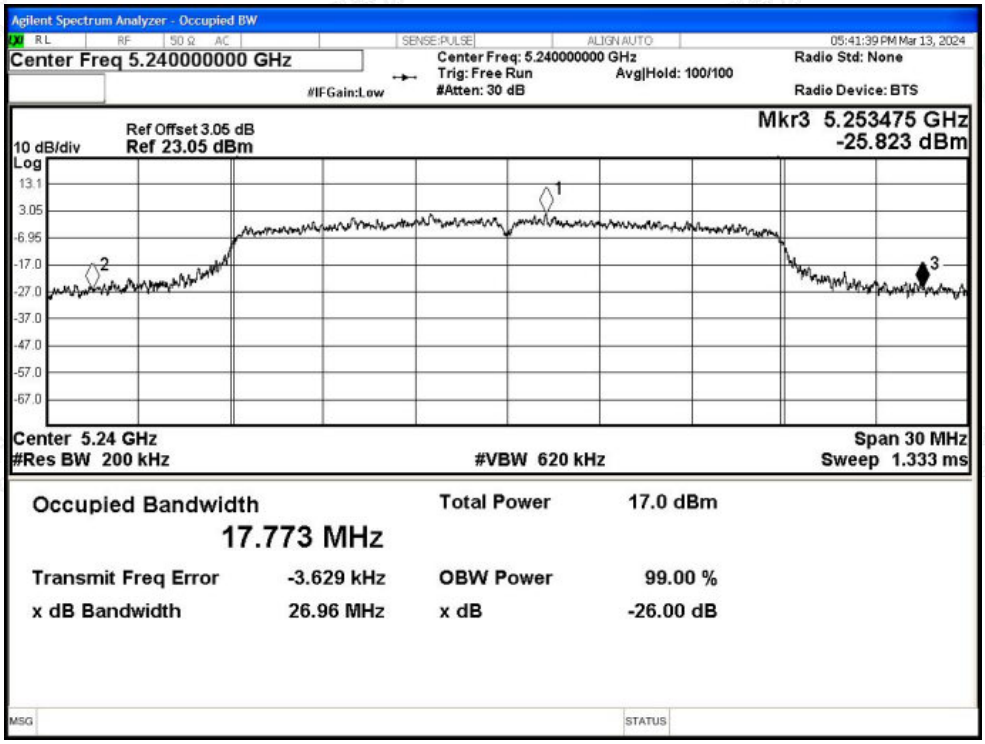
-26dB Bandwidth NVNT n20 5180MHz Ant1



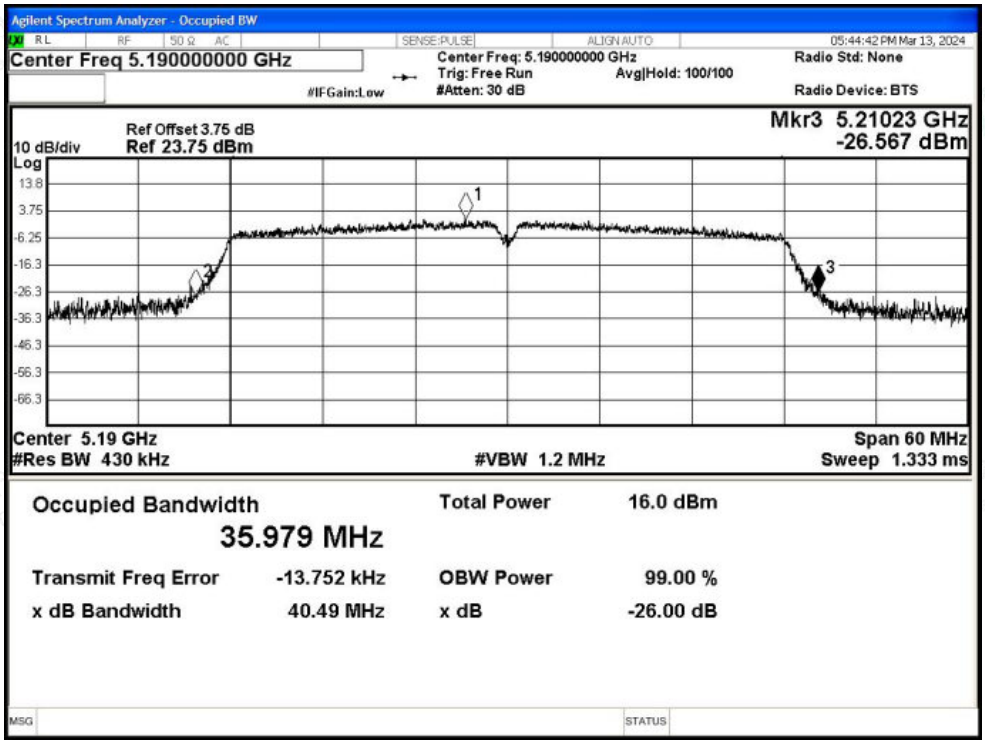
-26dB Bandwidth NVNT n20 5200MHz Ant1



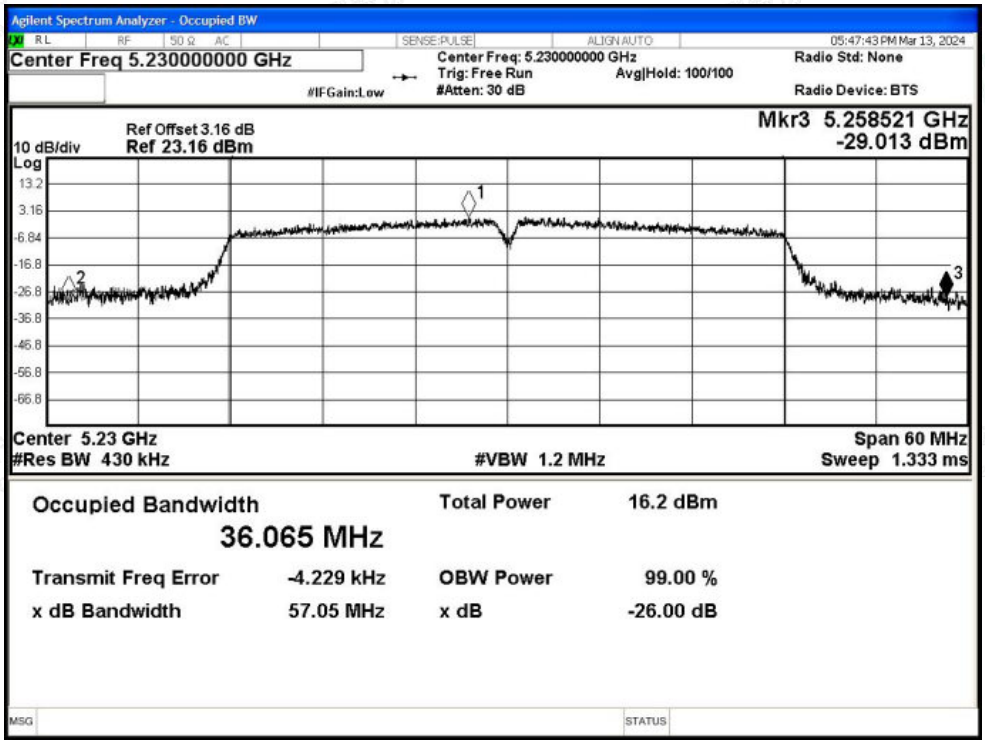
-26dB Bandwidth NVNT n20 5240MHz Ant1



-26dB Bandwidth NVNT n40 5190MHz Ant1



-26dB Bandwidth NVNT n40 5230MHz Ant1



A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5180	Ant0	12.23	0.14	12.37	24	Pass
NVNT	n20	5200	Ant0	12.44	0.22	12.66	24	Pass
NVNT	n20	5240	Ant0	12.48	0.22	12.7	24	Pass
NVNT	n40	5190	Ant0	11.62	0.15	11.77	24	Pass
NVNT	n40	5230	Ant0	11.52	0.15	11.67	24	Pass

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5180	Ant1	11.37	0	11.37	24	Pass
NVNT	n20	5200	Ant1	11.2	0	11.2	24	Pass
NVNT	n20	5240	Ant1	11.19	0	11.19	24	Pass
NVNT	n40	5190	Ant1	10.09	0.15	10.24	24	Pass
NVNT	n40	5230	Ant1	10.32	0.15	10.47	24	Pass

MIMO

Condition	Mode	Frequency (MHz)	Total Power (dBm)			Limit (dBm)	Verdict
			Ant0	Ant1	Ant0+Ant1		
NVNT	n20	5180	12.37	11.37	14.91	22.42	Pass
NVNT	n20	5200	12.66	11.2	15.00	22.42	Pass
NVNT	n20	5240	12.7	11.19	15.02	22.42	Pass
NVNT	n40	5190	11.77	10.24	14.08	22.42	Pass
NVNT	n40	5230	11.67	10.47	14.12	22.42	Pass

A.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/MHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	n20	5180	Ant0	2.33	0.14	2.47	11	Pass
NVNT	n20	5200	Ant0	3	0.22	3.22	11	Pass
NVNT	n20	5240	Ant0	2.48	0.22	2.70	11	Pass
NVNT	n40	5190	Ant0	-0.95	0.15	-0.80	11	Pass
NVNT	n40	5230	Ant0	-1.45	0.15	-1.30	11	Pass

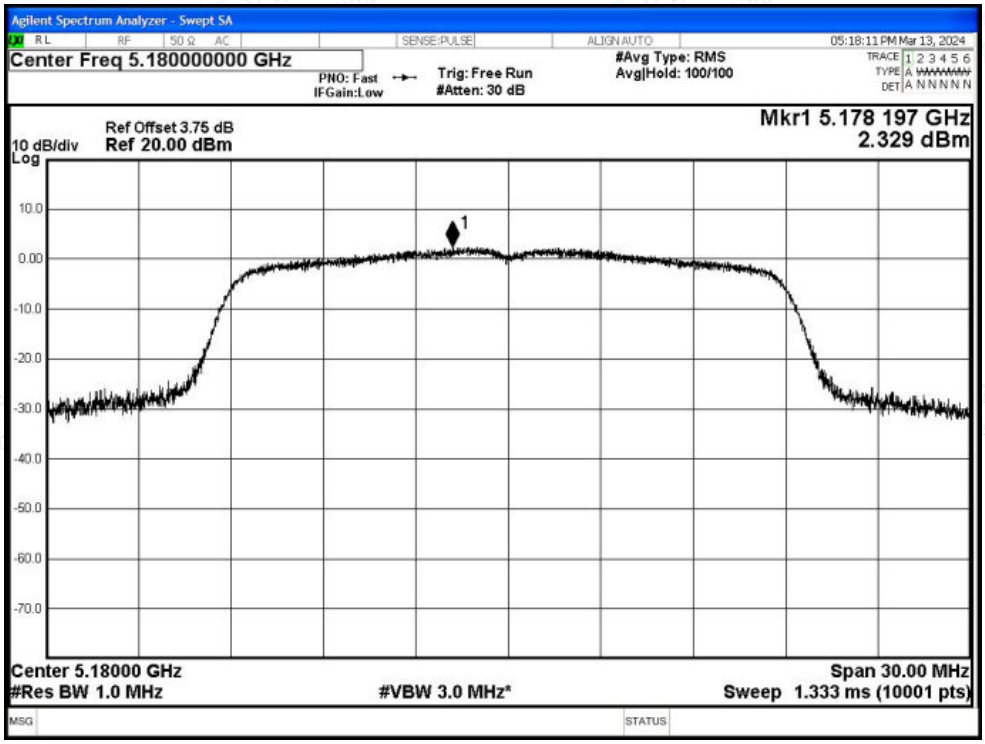
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/MHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	n20	5180	Ant1	1.62	0	1.62	11	Pass
NVNT	n20	5200	Ant1	1.65	0	1.65	11	Pass
NVNT	n20	5240	Ant1	1.55	0	1.55	11	Pass
NVNT	n40	5190	Ant1	-2.32	0.15	-2.17	11	Pass
NVNT	n40	5230	Ant1	-2.23	0.15	-2.08	11	Pass

MIMO

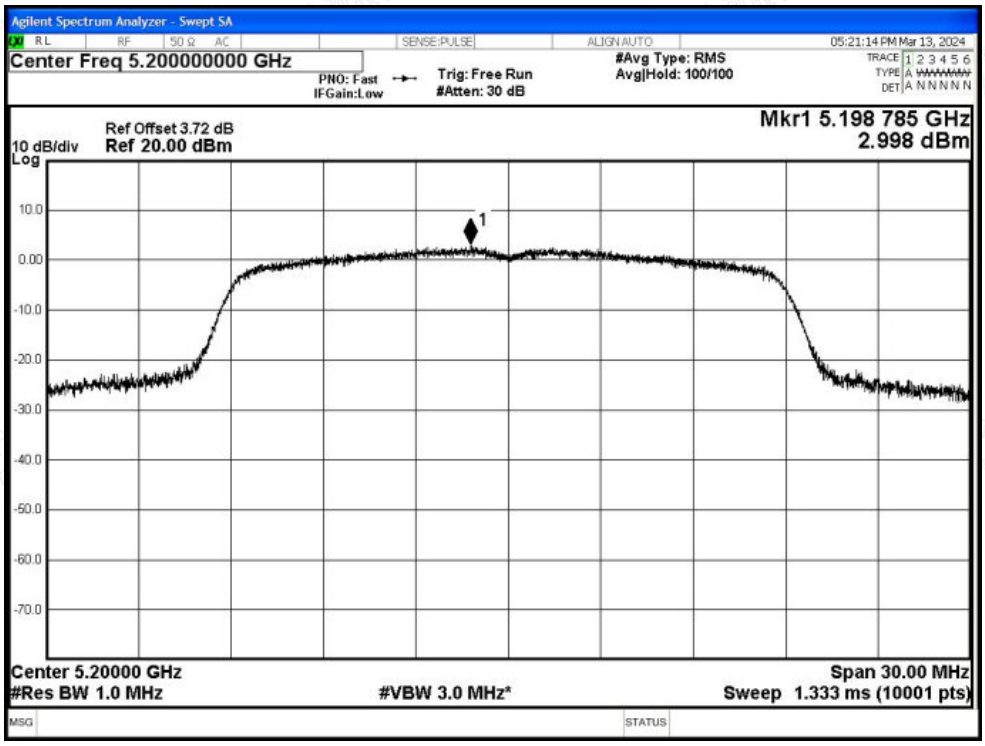
Condition	Mode	Frequency (MHz)	Total PSD (dBm/MHz)			Limit (dBm/MHz)	Verdict
			Ant0	Ant1	Ant0+Ant1		
NVNT	n20	5180	2.47	1.62	5.08	9.42	Pass
NVNT	n20	5200	3.22	1.65	5.52	9.42	Pass
NVNT	n20	5240	2.70	1.55	5.17	9.42	Pass
NVNT	n40	5190	-0.80	-2.17	1.58	9.42	Pass
NVNT	n40	5230	-1.30	-2.08	1.34	9.42	Pass

Test Graphs

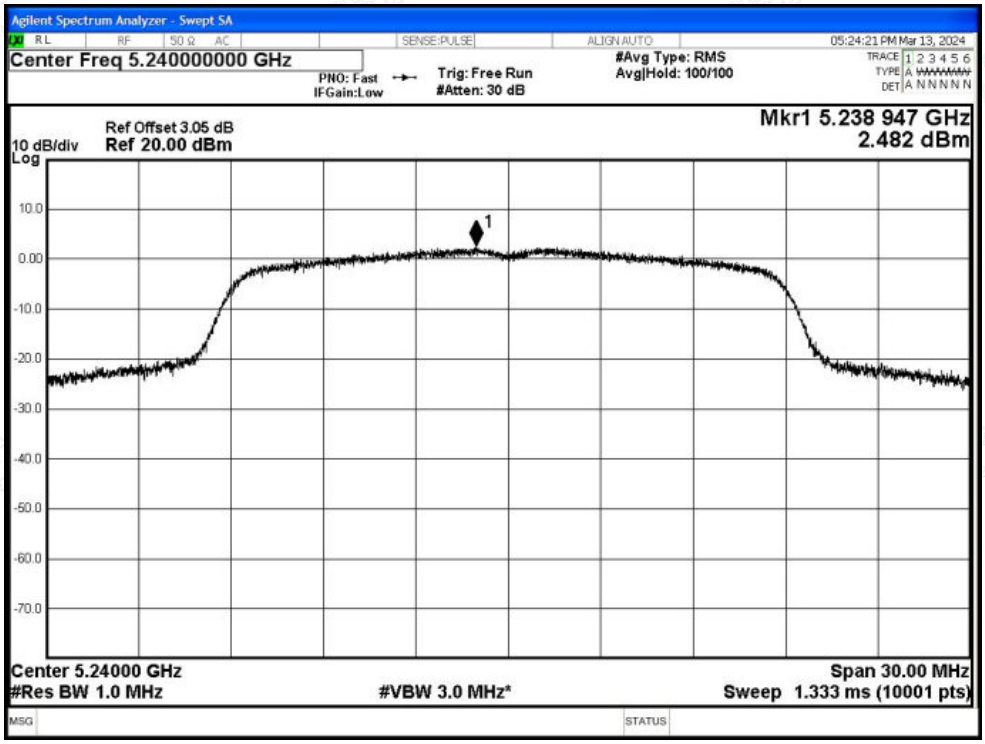
PSD NVNT n20 5180MHz Ant0



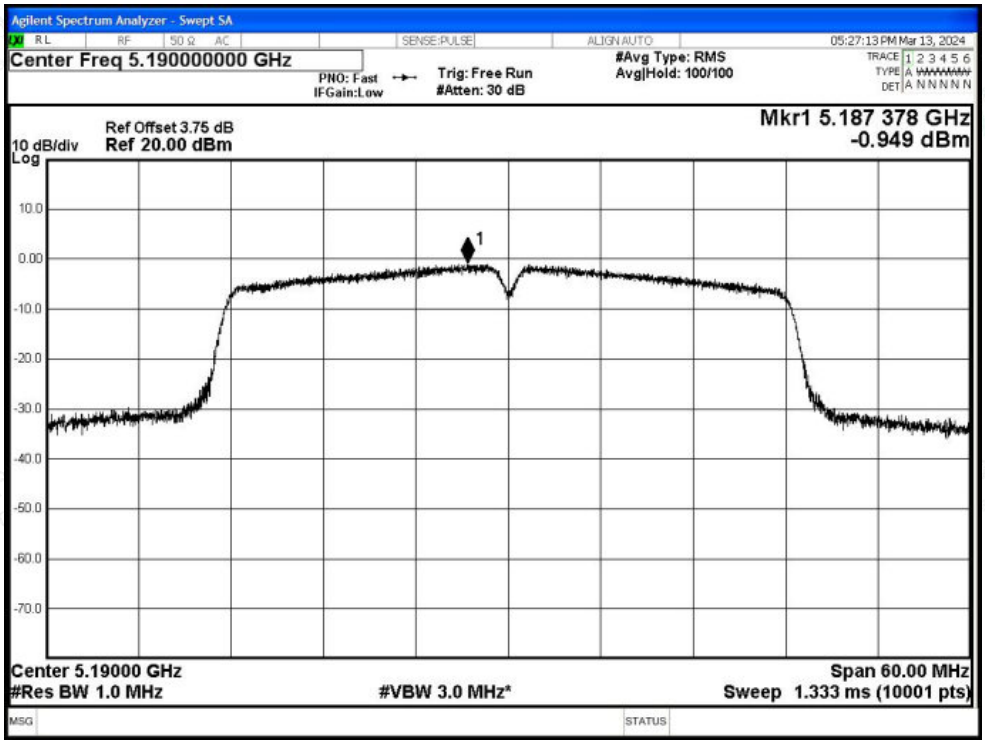
PSD NVNT n20 5200MHz Ant0



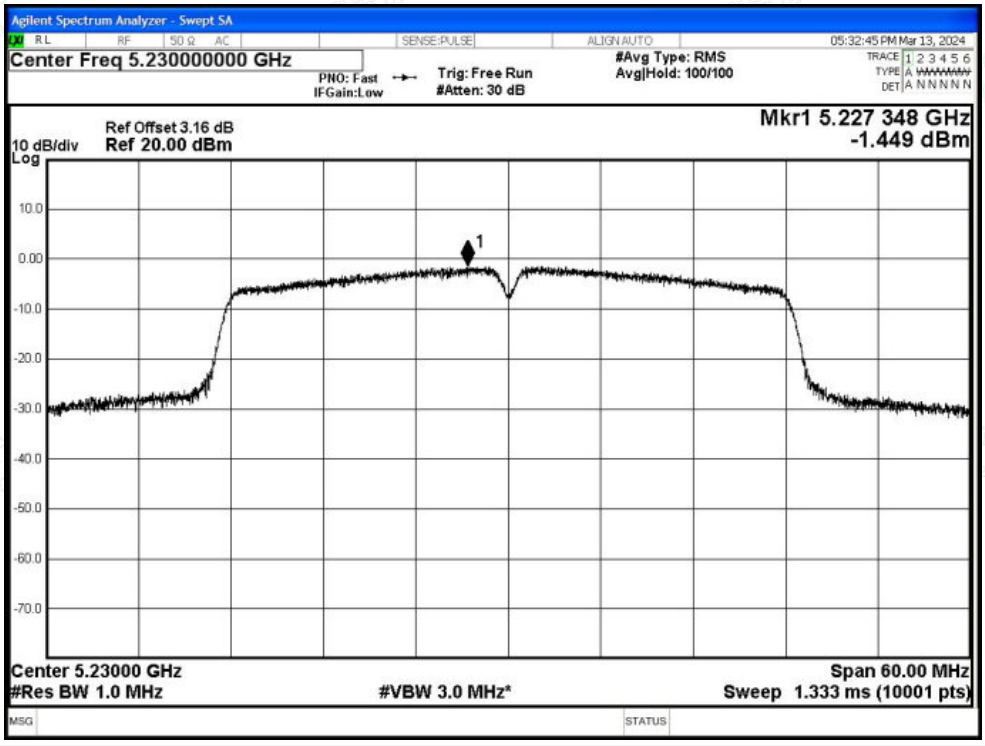
PSD NVNT n20 5240MHz Ant0



PSD NVNT n40 5190MHz Ant0

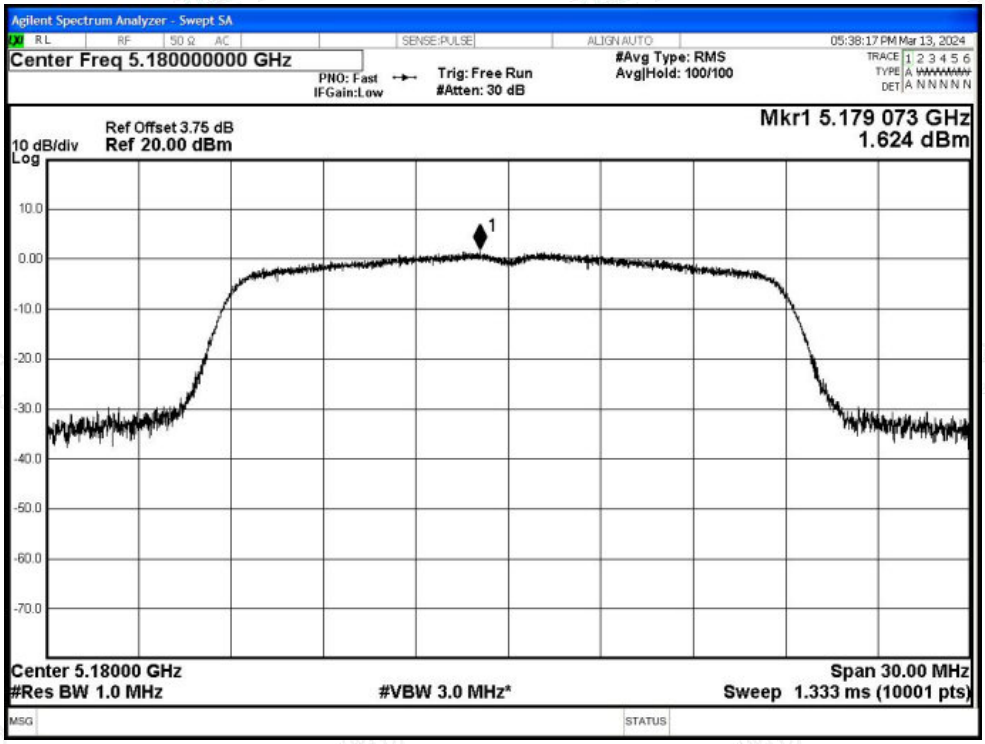


PSD NVNT n40 5230MHz Ant0

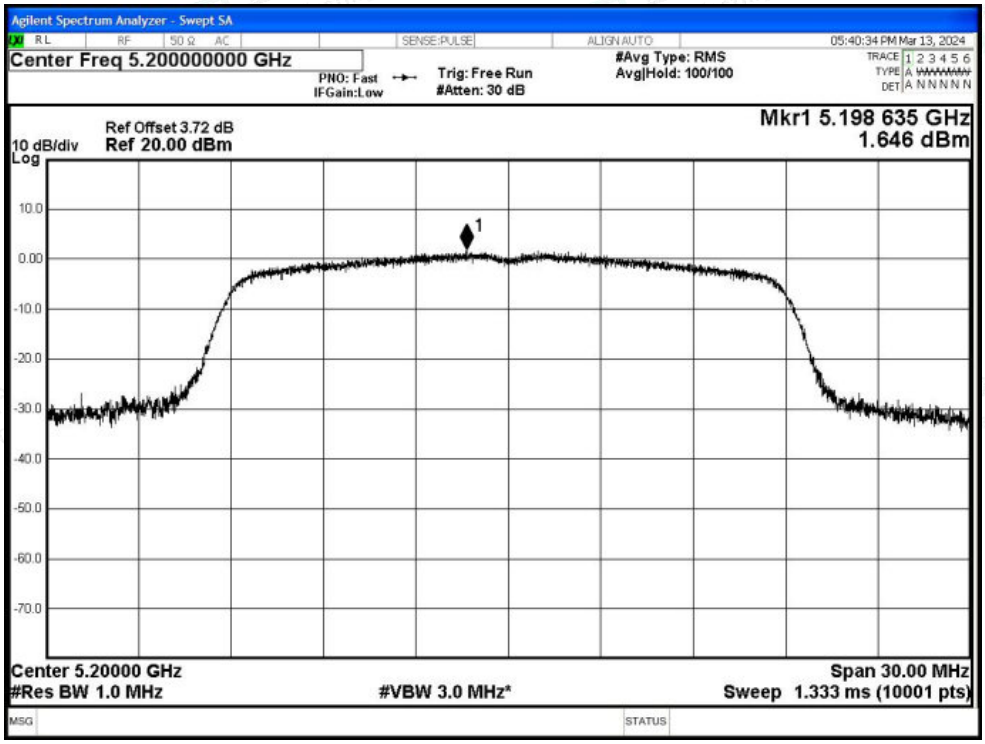


Test Graphs

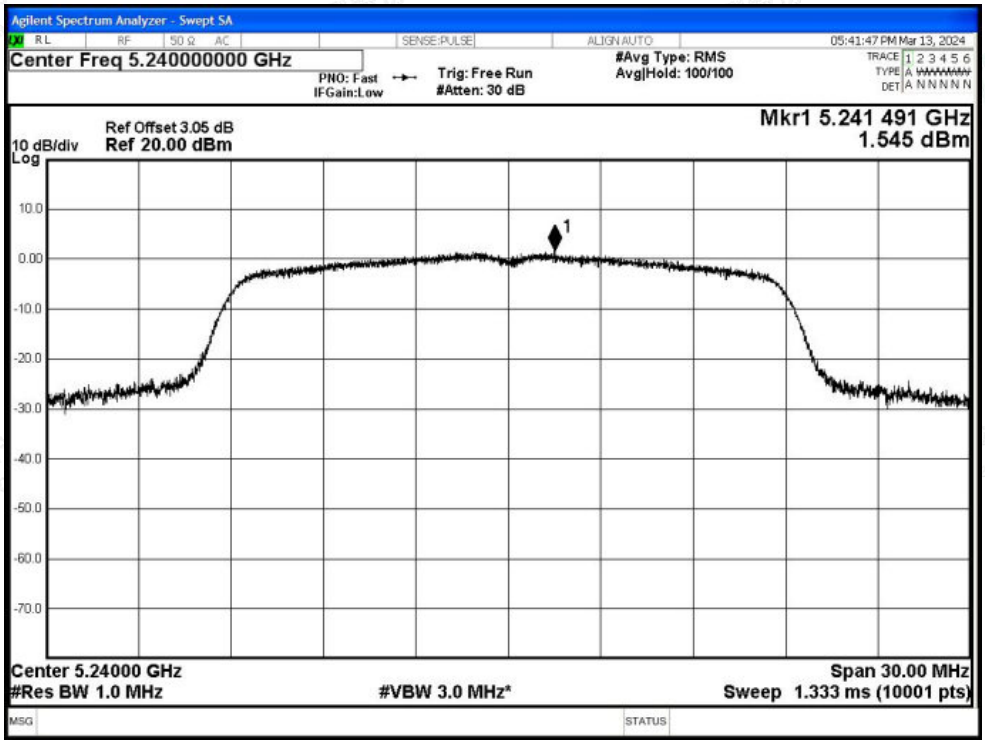
PSD NVNT n20 5180MHz Ant1



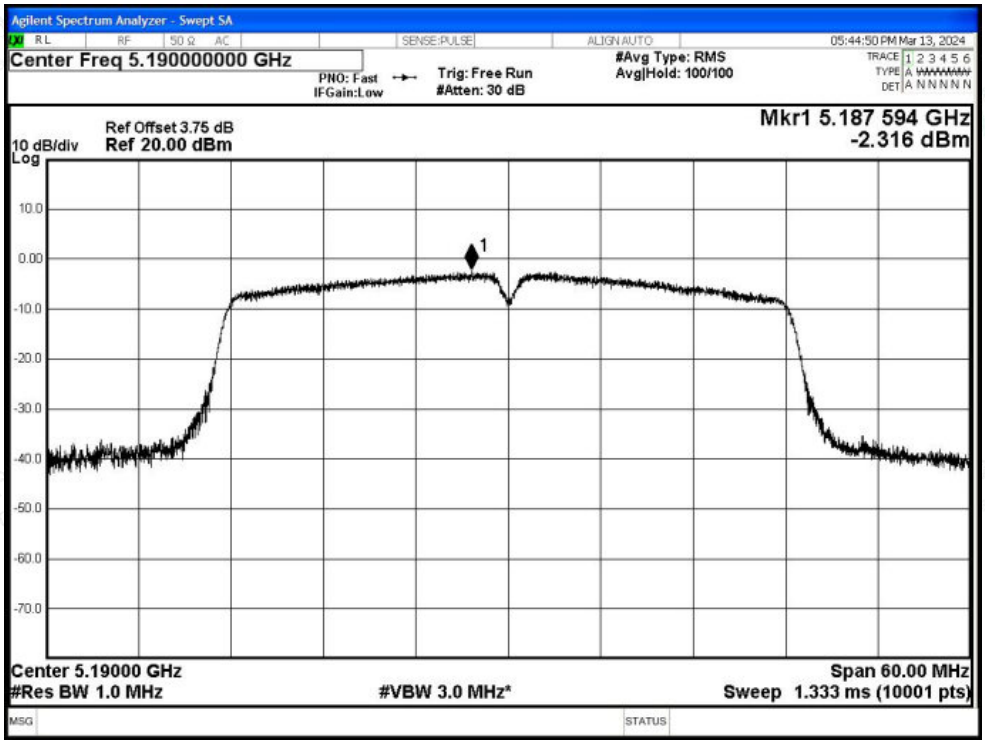
PSD NVNT n20 5200MHz Ant1



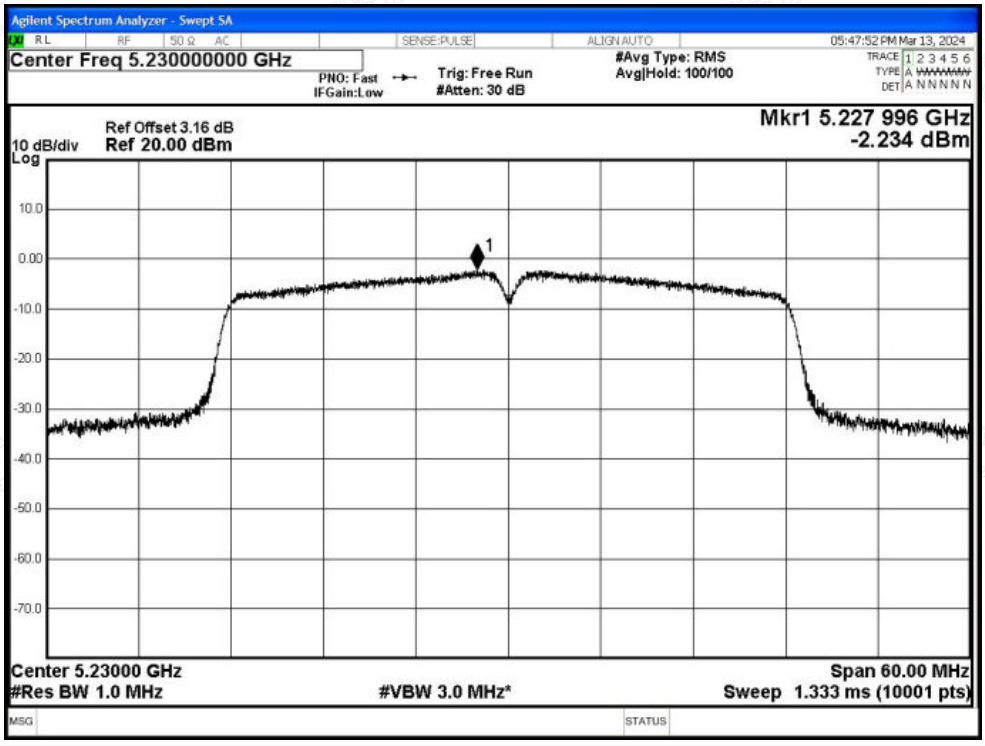
PSD NVNT n20 5240MHz Ant1



PSD NVNT n40 5190MHz Ant1



PSD NVNT n40 5230MHz Ant1



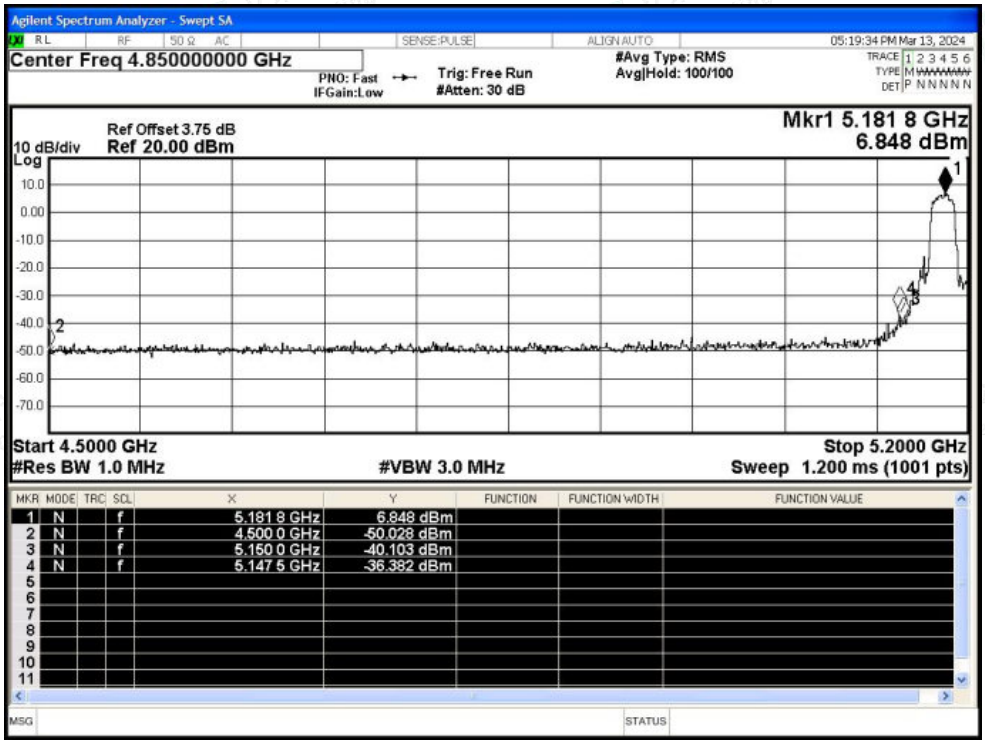
A.4 Restrict Band

Condition	Mode	Frequency (MHz)	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	n20mimo	5180	4500	-50.03	7.58	-	52.78	Peak	68.2	Pass
NVNT	n20mimo	5180	4500	-58.27	7.58	0.14	44.68	Average	54	Pass
NVNT	n20mimo	5180	5147.5	-36.38	7.58	-	66.43	Peak	68.2	Pass
NVNT	n20mimo	5180	5148.9	-51.06	7.58	0.14	51.89	Average	54	Pass
NVNT	n20mimo	5180	5150	-40.1	7.58	-	62.71	Peak	68.2	Pass
NVNT	n20mimo	5180	5150	-50.47	7.58	0.14	52.48	Average	54	Pass
NVNT	n20mimo	5240	5350	-48.25	7.58	-	54.56	Peak	68.2	Pass
NVNT	n20mimo	5240	5350	-57.99	7.58	0.22	45.04	Average	54	Pass
NVNT	n20mimo	5240	5354.64	-46.94	7.58	-	55.87	Peak	68.2	Pass
NVNT	n20mimo	5240	5367.6	-57.14	7.58	0.22	45.89	Average	54	Pass
NVNT	n20mimo	5240	5460	-51.45	7.58	-	51.36	Peak	68.2	Pass
NVNT	n20mimo	5240	5460	-58.68	7.58	0.22	44.35	Average	54	Pass
NVNT	n40mimo	5190	4500	-49.35	7.58	-	53.46	Peak	68.2	Pass
NVNT	n40mimo	5190	4500	-58.43	7.58	0.15	44.53	Average	54	Pass
NVNT	n40mimo	5190	5148.97	-42.32	7.58	-	60.49	Peak	68.2	Pass
NVNT	n40mimo	5190	5149.7	-54.75	7.58	0.15	48.21	Average	54	Pass
NVNT	n40mimo	5190	5150	-46.97	7.58	-	55.84	Peak	68.2	Pass
NVNT	n40mimo	5190	5150	-54.75	7.58	0.15	48.21	Average	54	Pass
NVNT	n40mimo	5230	5350	-47.61	7.58	-	55.2	Peak	68.2	Pass
NVNT	n40mimo	5230	5350	-57.07	7.58	0.15	45.89	Average	54	Pass
NVNT	n40mimo	5230	5365.77	-46.91	7.58	-	55.9	Peak	68.2	Pass
NVNT	n40mimo	5230	5353.08	-56.4	7.58	0.15	46.56	Average	54	Pass
NVNT	n40mimo	5230	5460	-47.94	7.58	-	54.87	Peak	68.2	Pass
NVNT	n40mimo	5230	5460	-58.06	7.58	0.15	44.9	Average	54	Pass

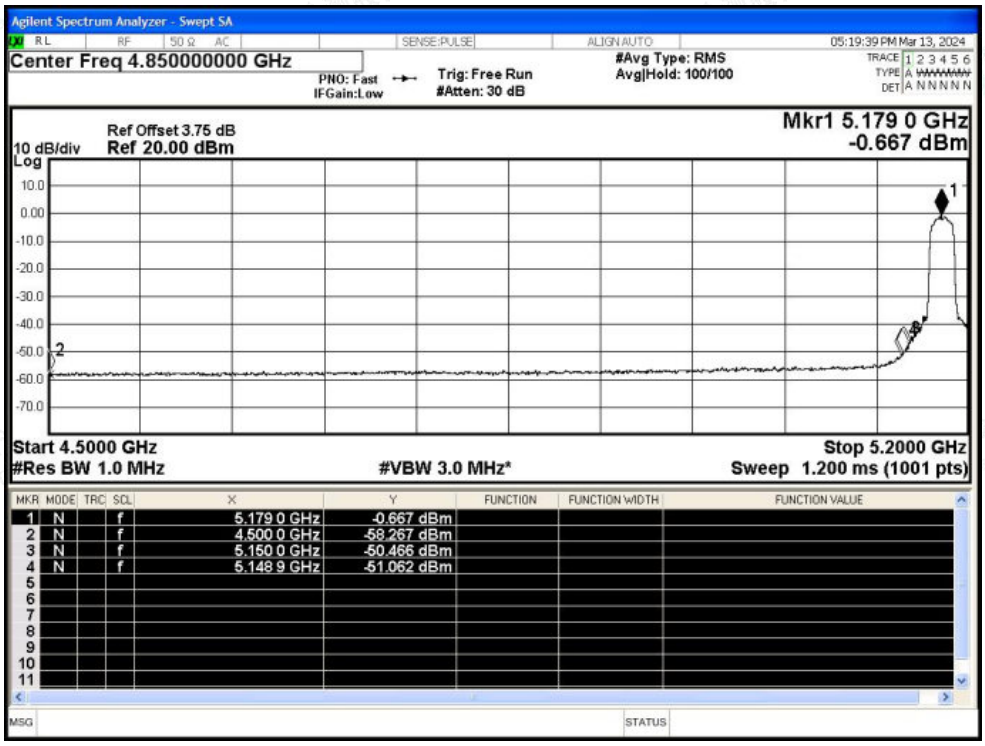
Note: Only show the worst set of data.

Test Graphs

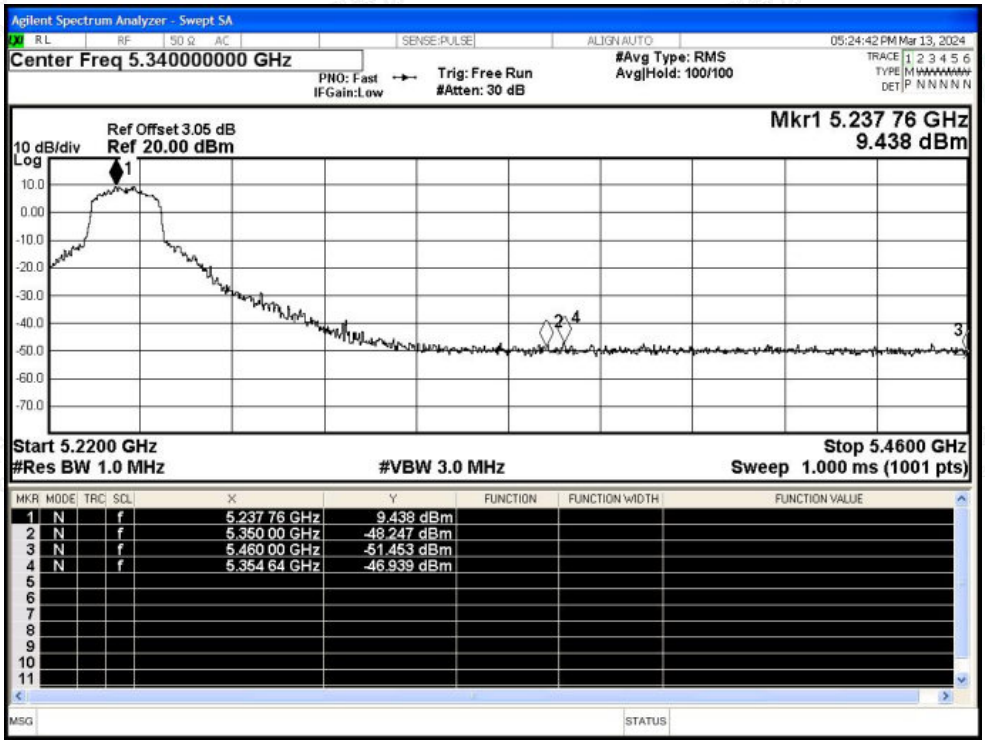
Restrict Band NVNT n20mimo 5180MHz Peak



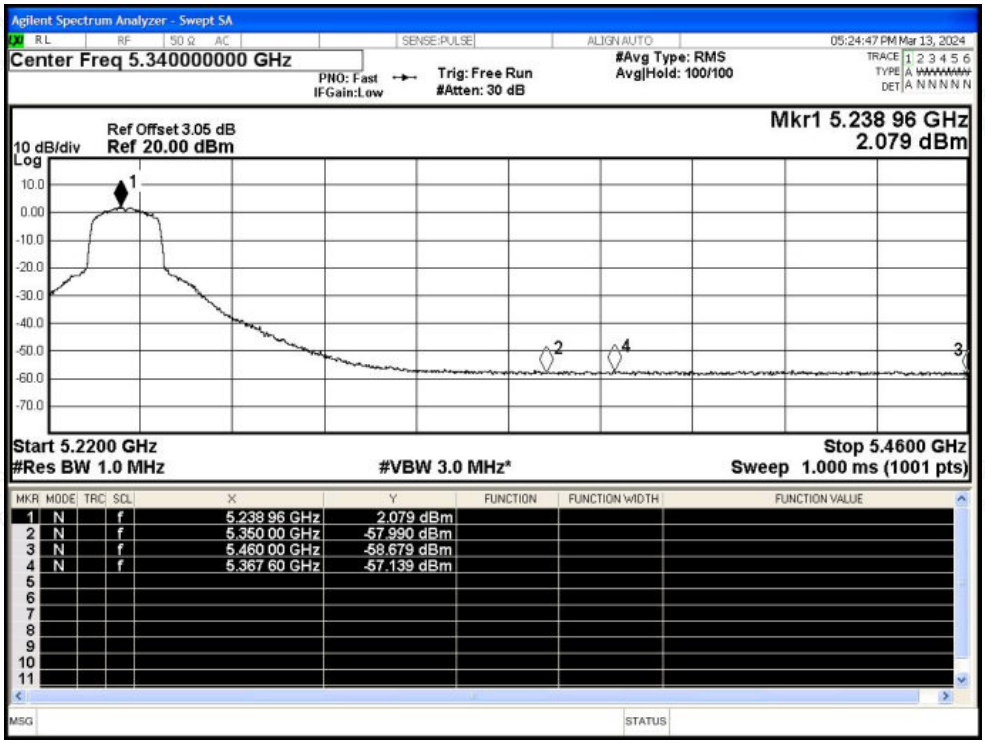
Restrict Band NVNT n20mimo 5180MHz Average



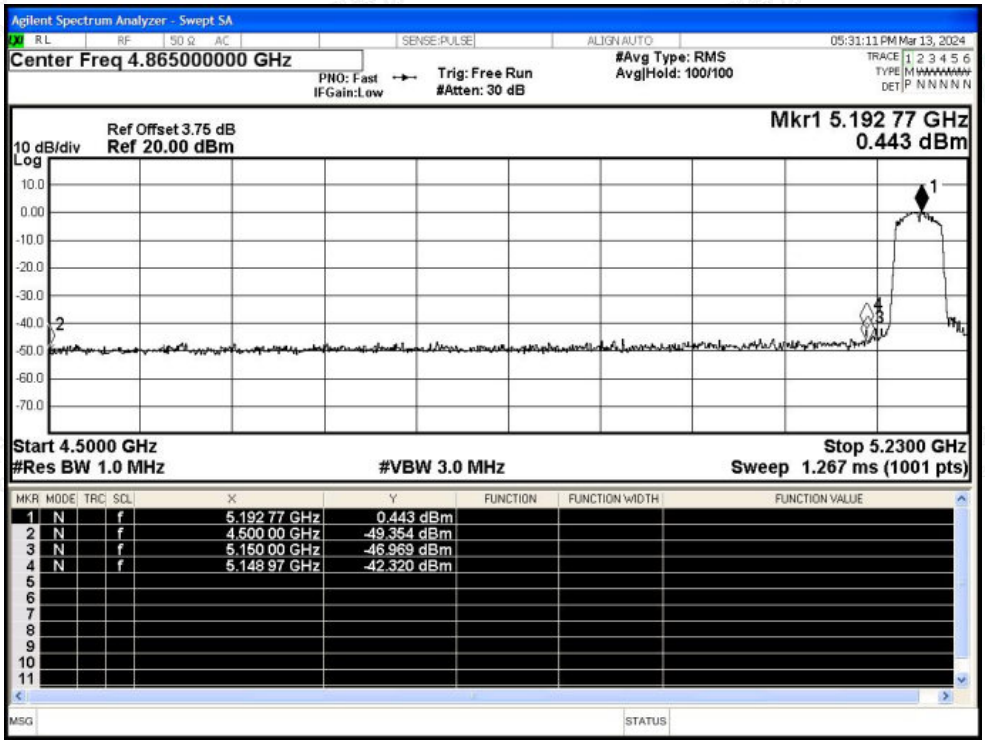
Restrict Band NVNT n20mimo 5240MHz Peak



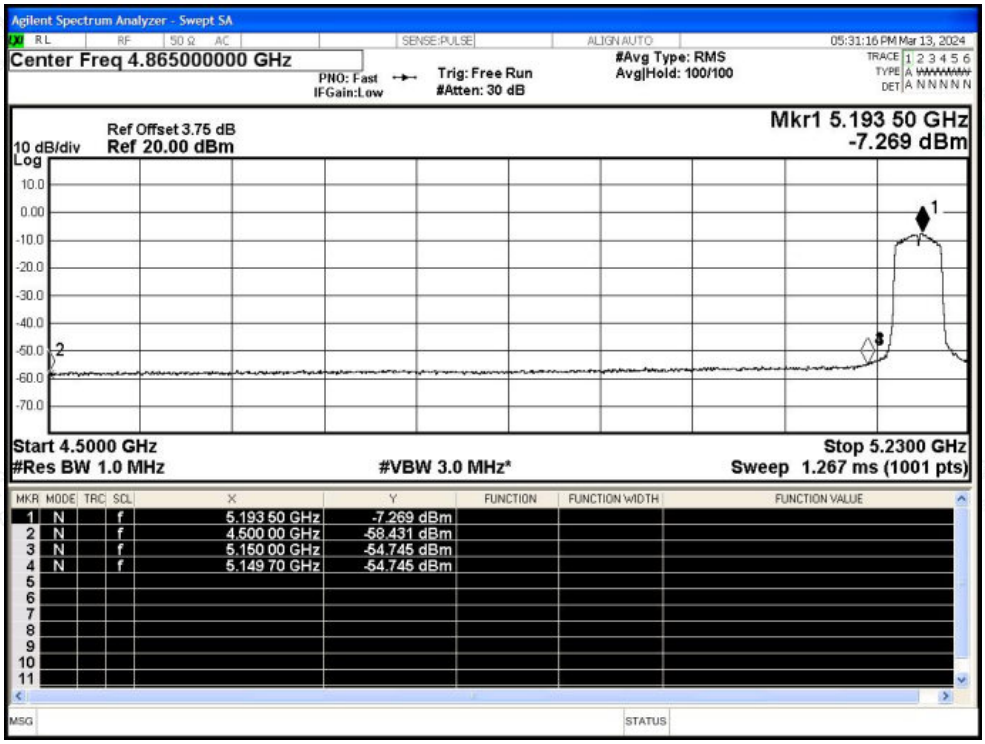
Restrict Band NVNT n20mimo 5240MHz Average



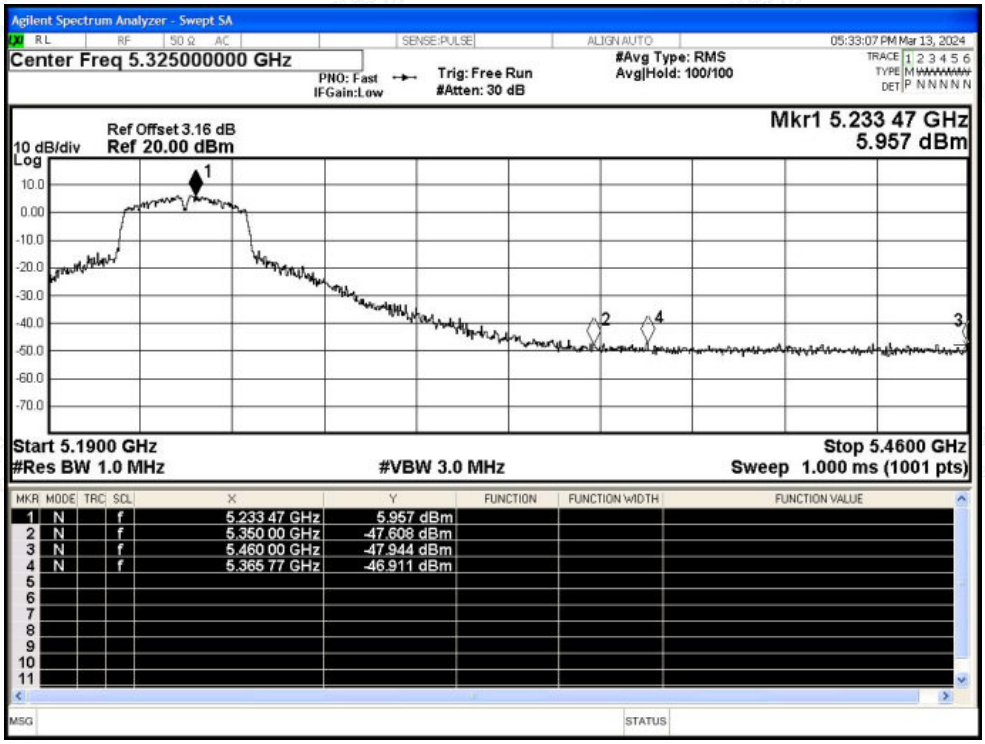
Restrict Band NVNT n40mimo 5190MHz Peak



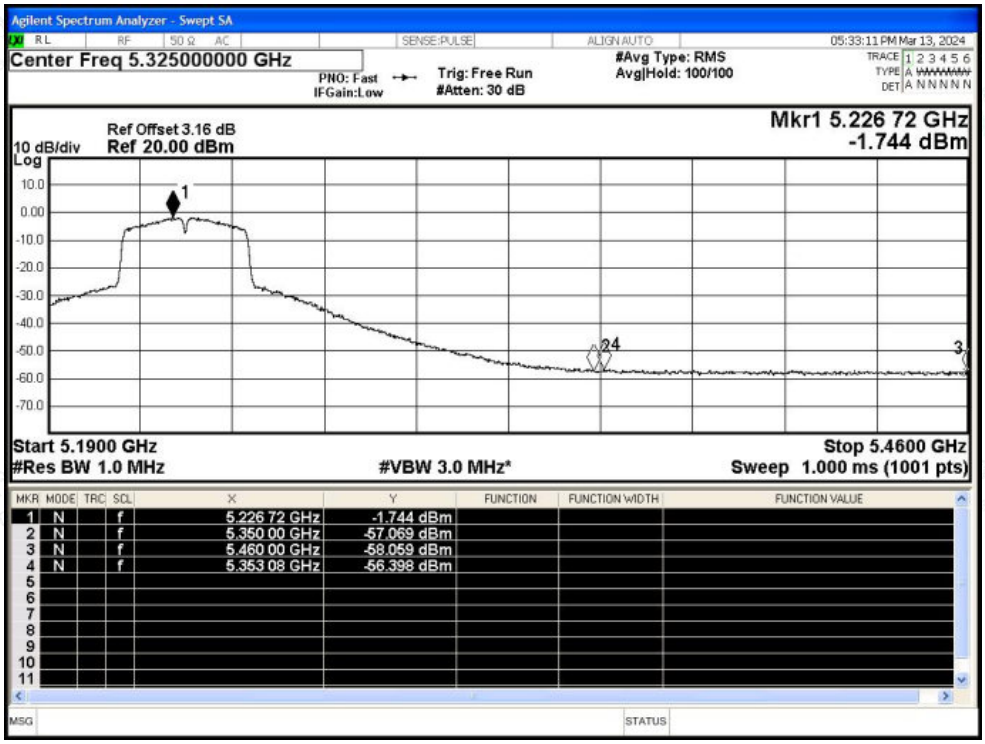
Restrict Band NVNT n40mimo 5190MHz Average



Restrict Band NVNT n40mimo 5230MHz Peak



Restrict Band NVNT n40mimo 5230MHz Average

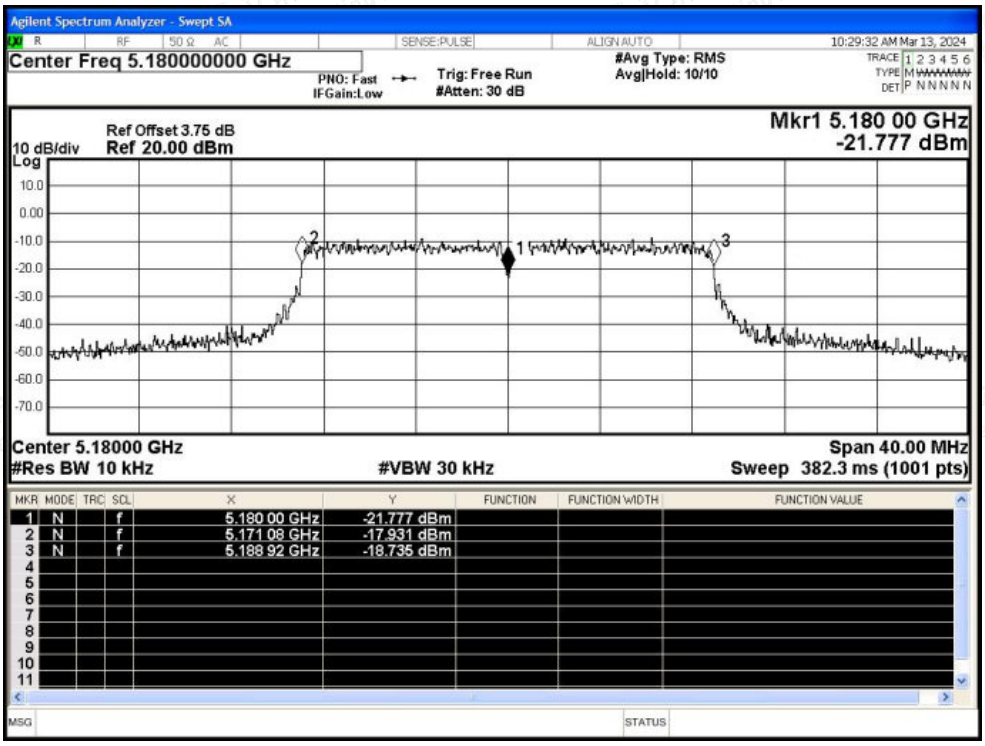


A.5 Frequency Stability

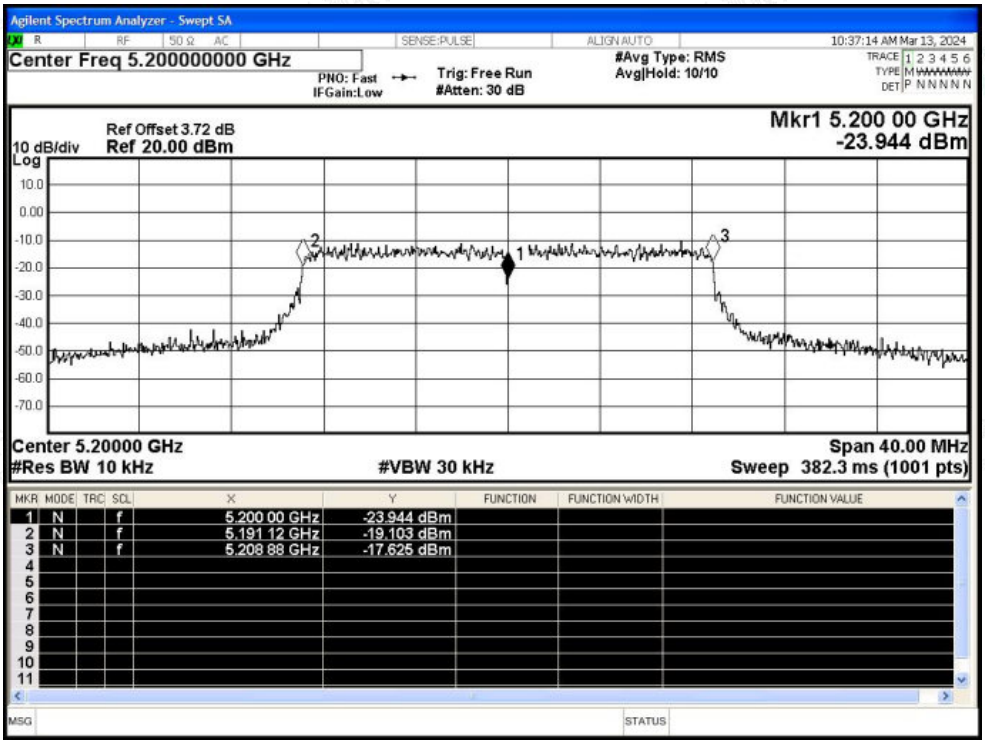
Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	n20	5180	Ant1	5180	0	0	25	Pass
NVNT	n20	5200	Ant1	5200	0	0	25	Pass
NVNT	n20	5240	Ant1	5240	0	0	25	Pass
NVNT	n40	5190	Ant1	5190	0	0	25	Pass
NVNT	n40	5230	Ant1	5230	0	0	25	Pass

Test Graphs

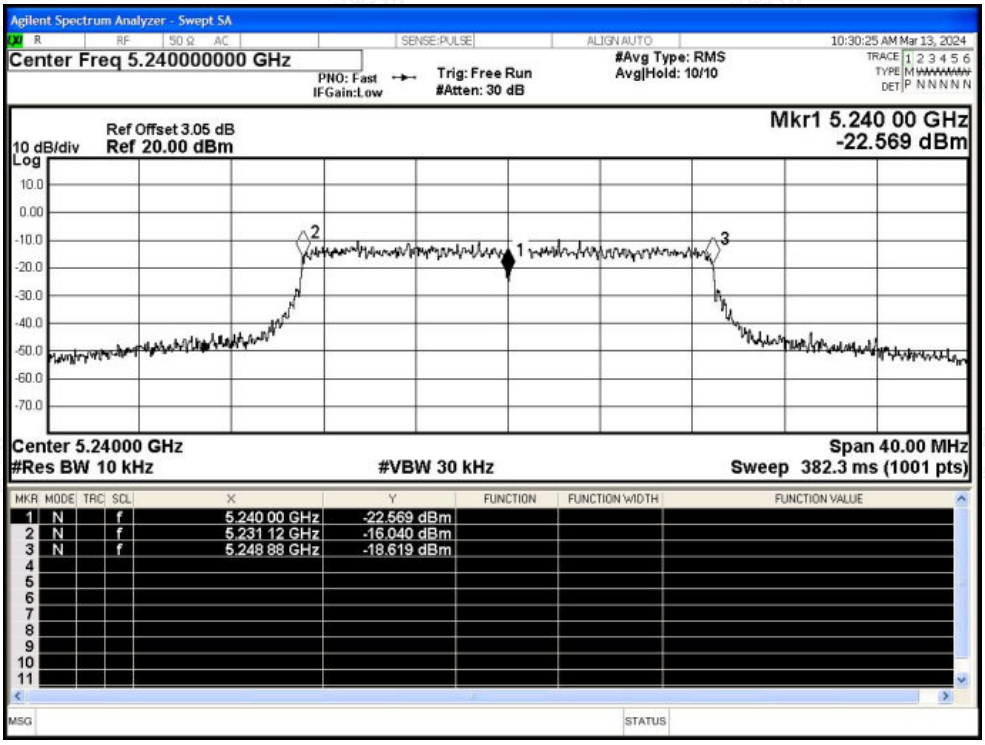
Freq. Stability NVNT n20 5180MHz Ant1



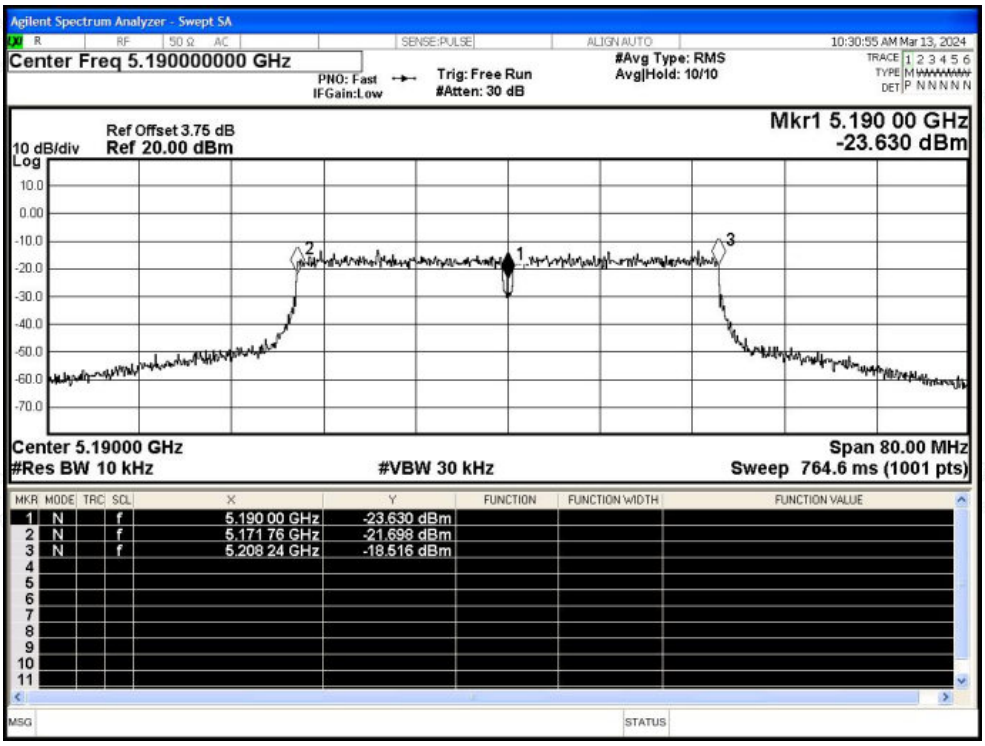
Freq. Stability NVNT n20 5200MHz Ant1



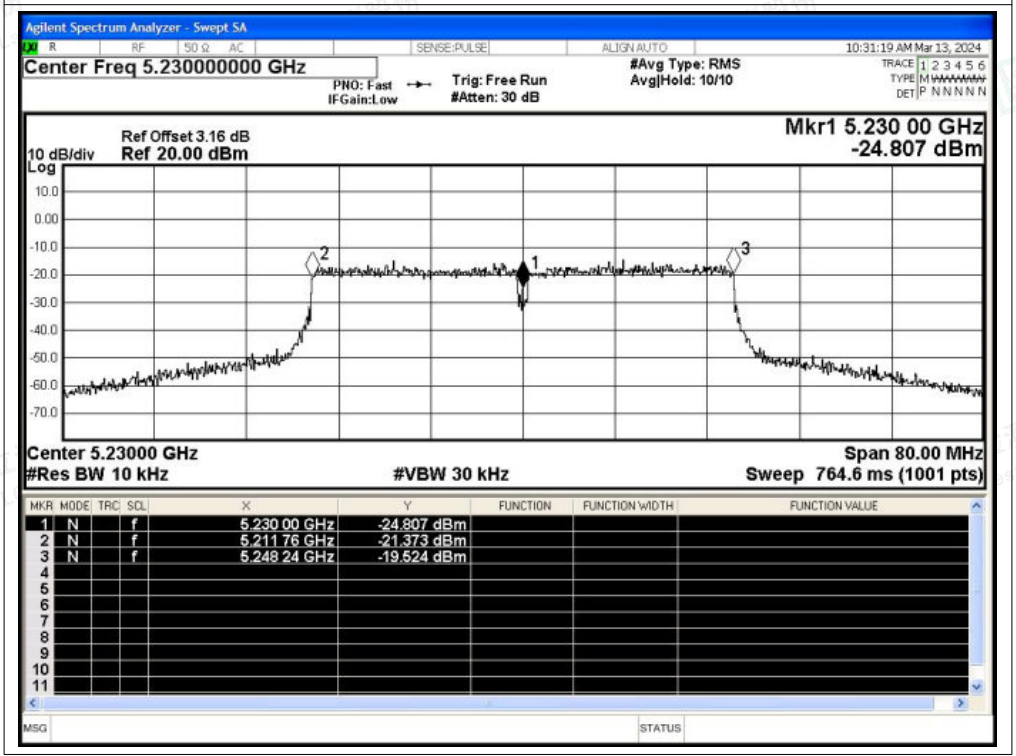
Freq. Stability NVNT n20 5240MHz Ant1



Freq. Stability NVNT n40 5190MHz Ant1



Freq. Stability NVNT n40 5230MHz Ant1

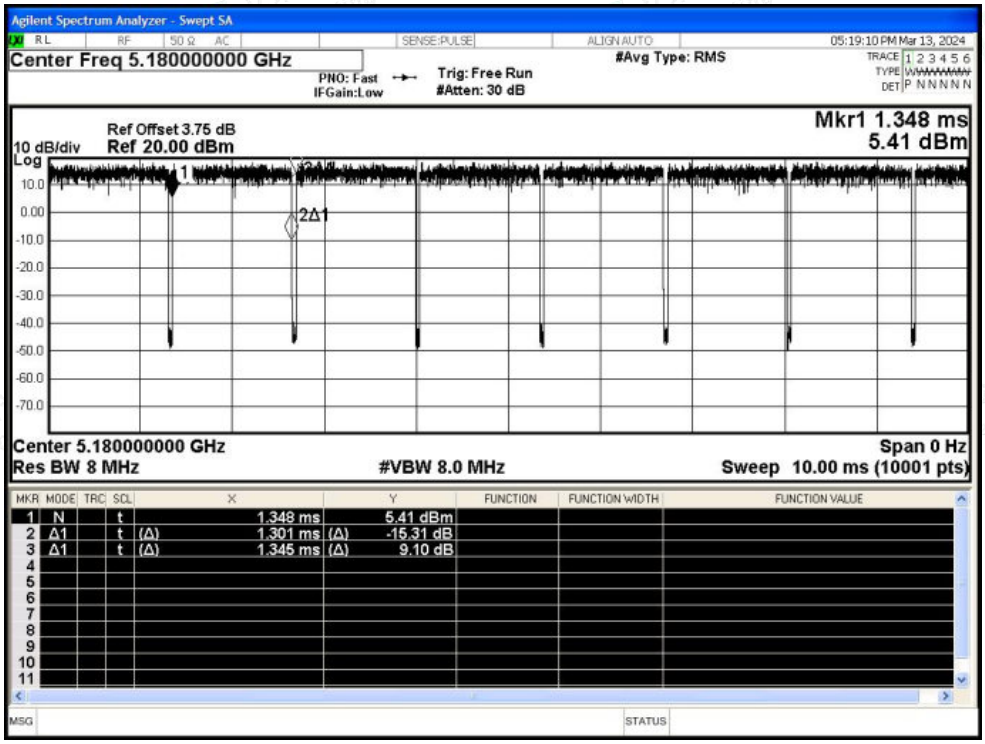


A.6 Duty Cycle

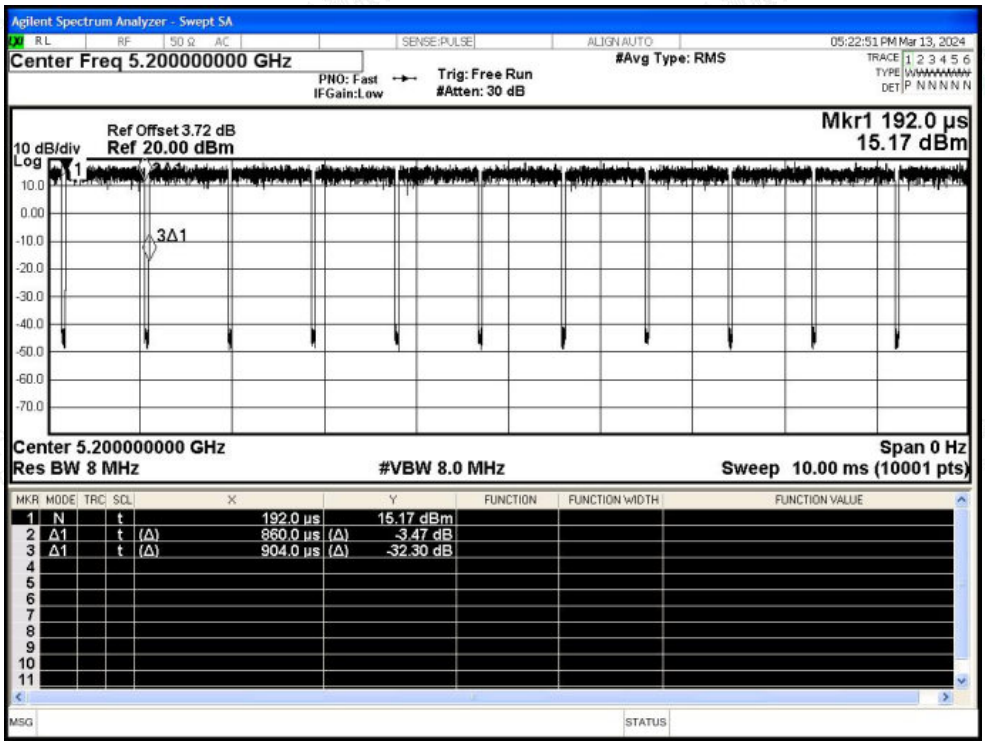
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	n20	5180	Ant0	96.73	0.14	0.77
NVNT	n20	5200	Ant0	95.13	0.22	1.16
NVNT	n20	5240	Ant0	95.13	0.22	1.16
NVNT	n40	5190	Ant0	96.61	0.15	0.82
NVNT	n40	5230	Ant0	96.53	0.15	0.82

Test Graphs

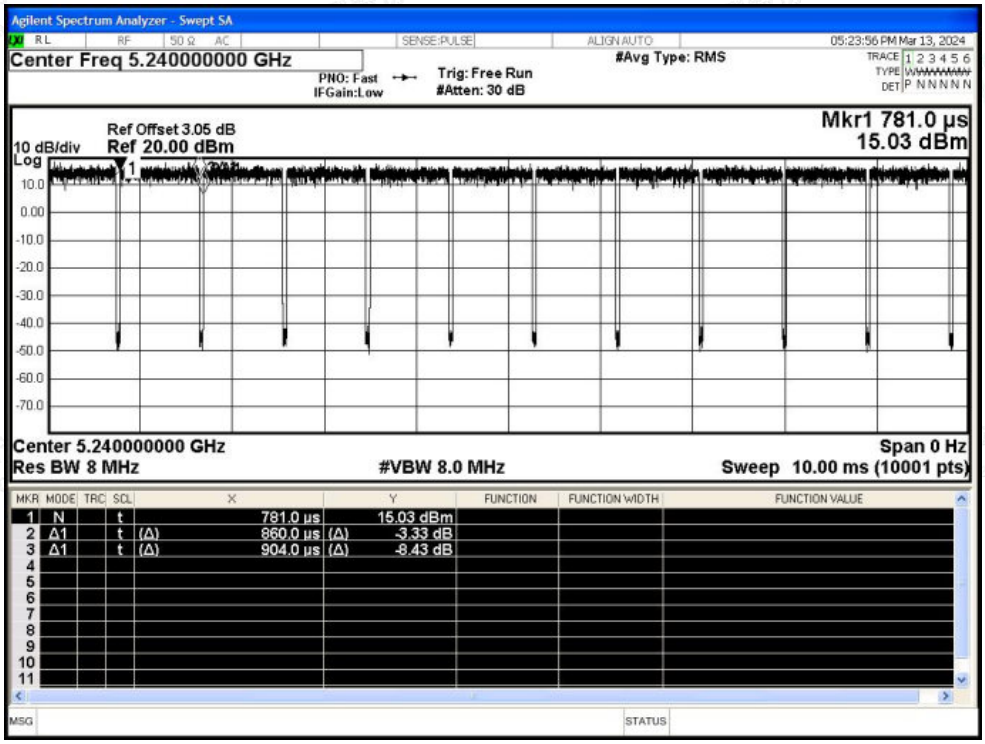
Duty Cycle NVNT n20 5180MHz Ant0



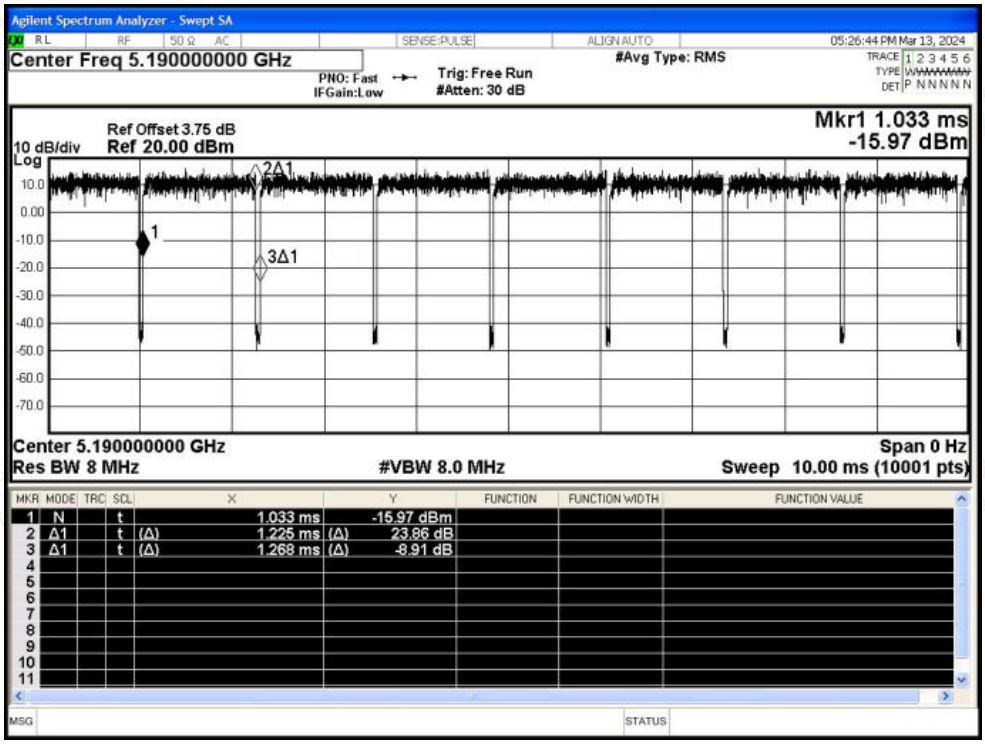
Duty Cycle NVNT n20 5200MHz Ant0



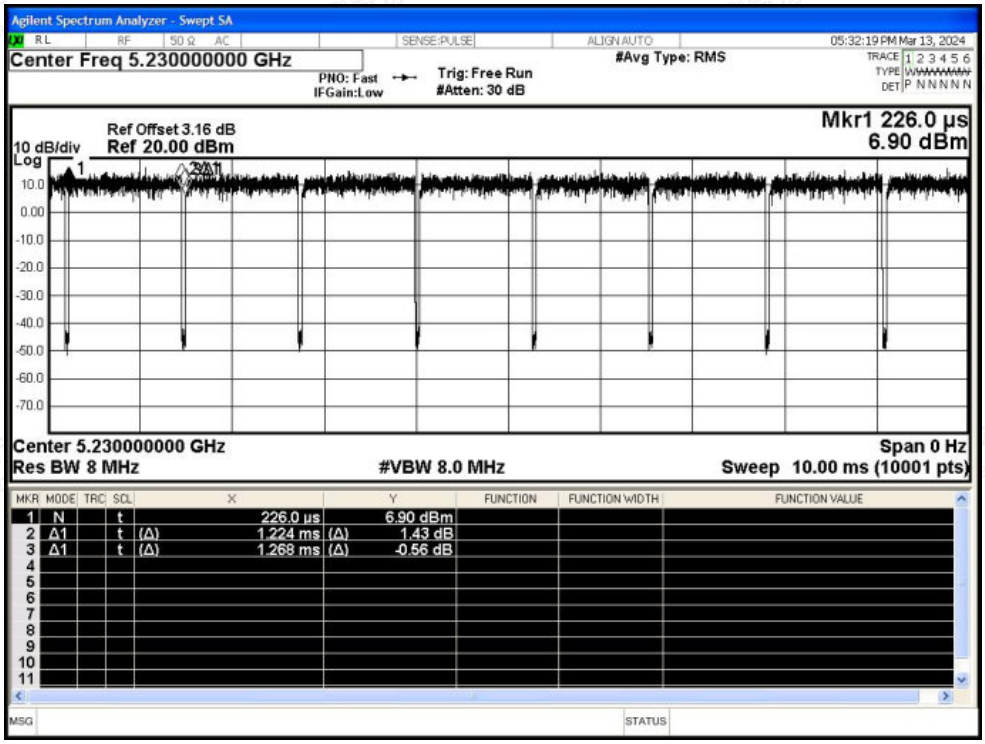
Duty Cycle NVNT n20 5240MHz Ant0



Duty Cycle NVNT n40 5190MHz Ant0



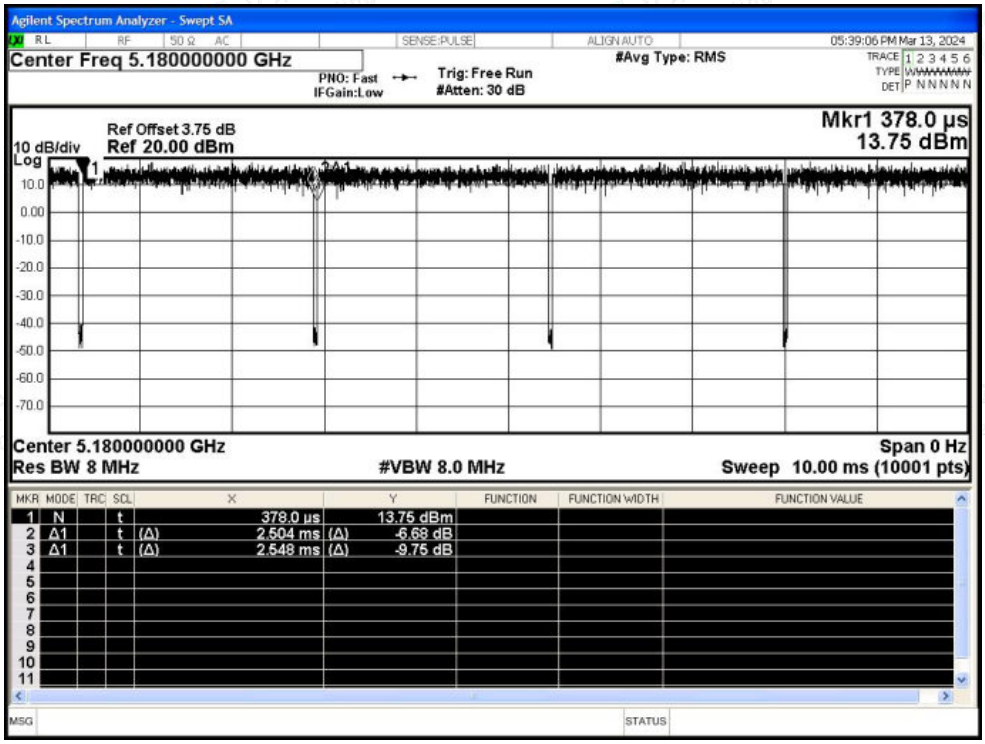
Duty Cycle NVNT n40 5230MHz Ant0



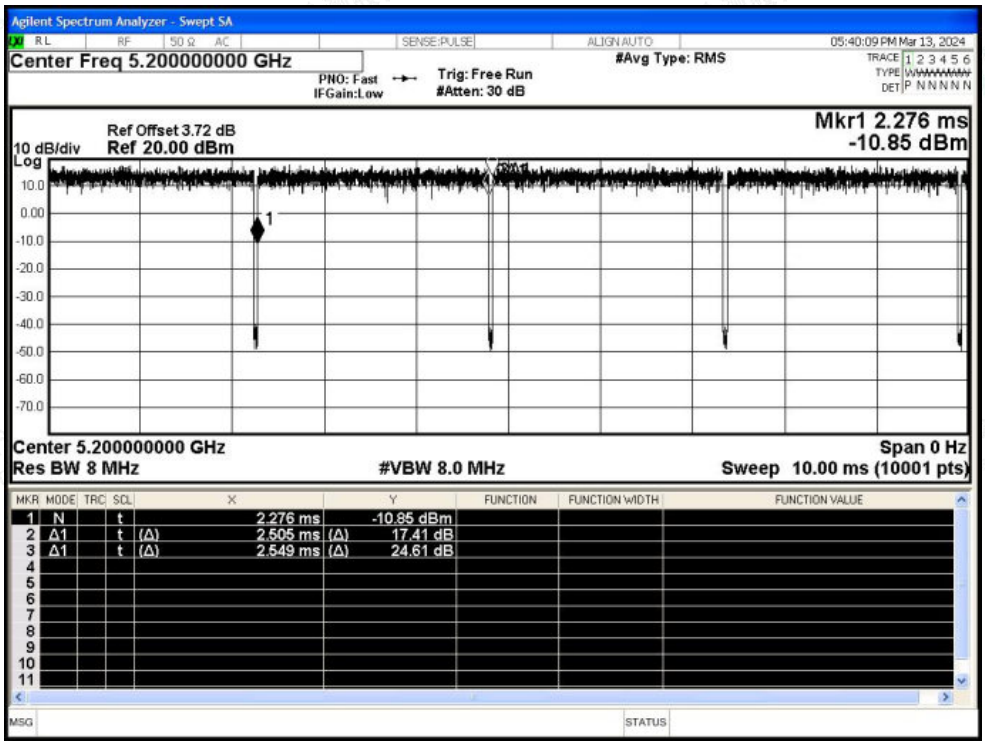
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	n20	5180	Ant1	98.27	0	0.4
NVNT	n20	5200	Ant1	98.27	0	0.4
NVNT	n20	5240	Ant1	98.27	0	0.4
NVNT	n40	5190	Ant1	96.53	0.15	0.82
NVNT	n40	5230	Ant1	96.61	0.15	0.82

Test Graphs

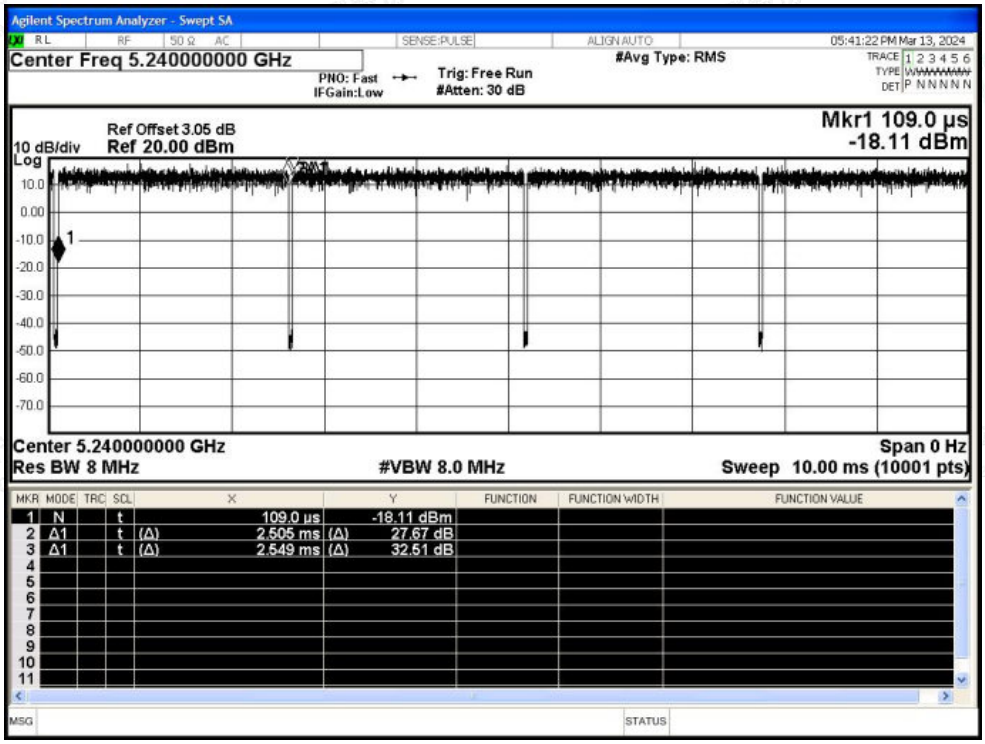
Duty Cycle NVNT n20 5180MHz Ant1



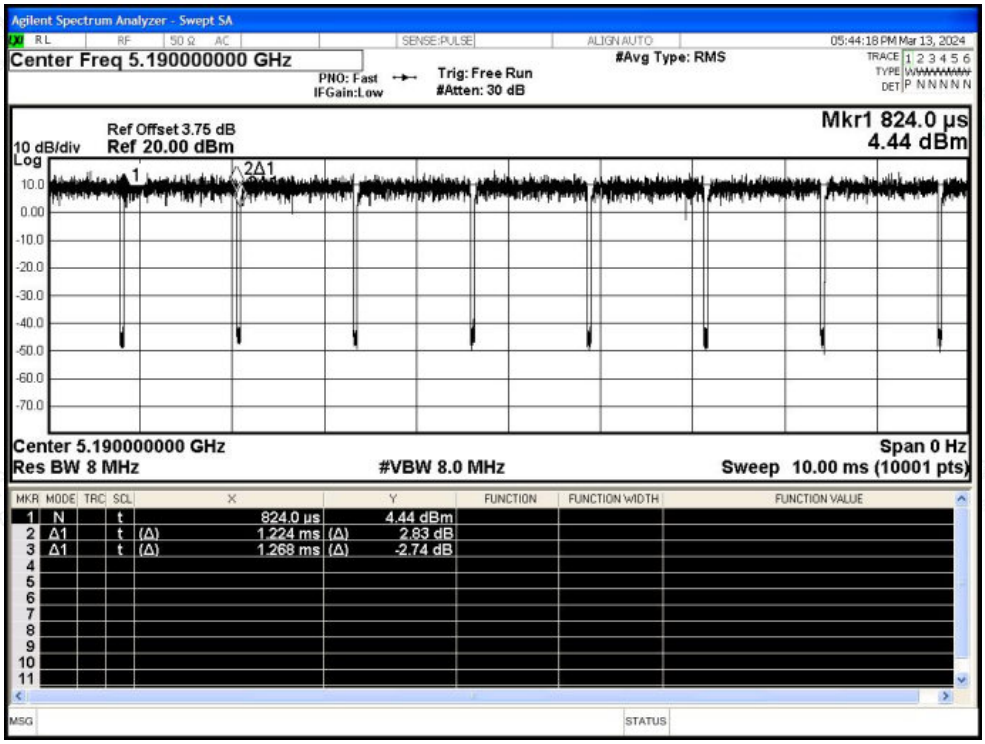
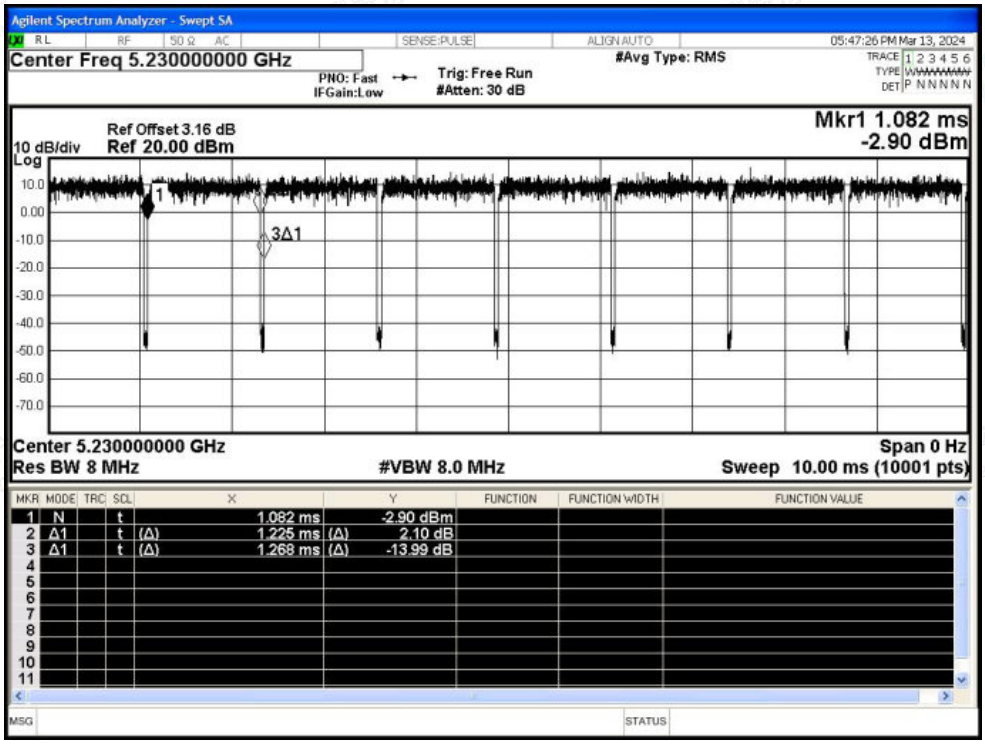
Duty Cycle NVNT n20 5200MHz Ant1



Duty Cycle NVNT n20 5240MHz Ant1



Duty Cycle NVNT n40 5190MHz Ant1



Duty Cycle NVNT n40 5230MHz Ant1