Appendix D

RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name: Mstick4

Test Model: MG-S04

Environmental Conditions

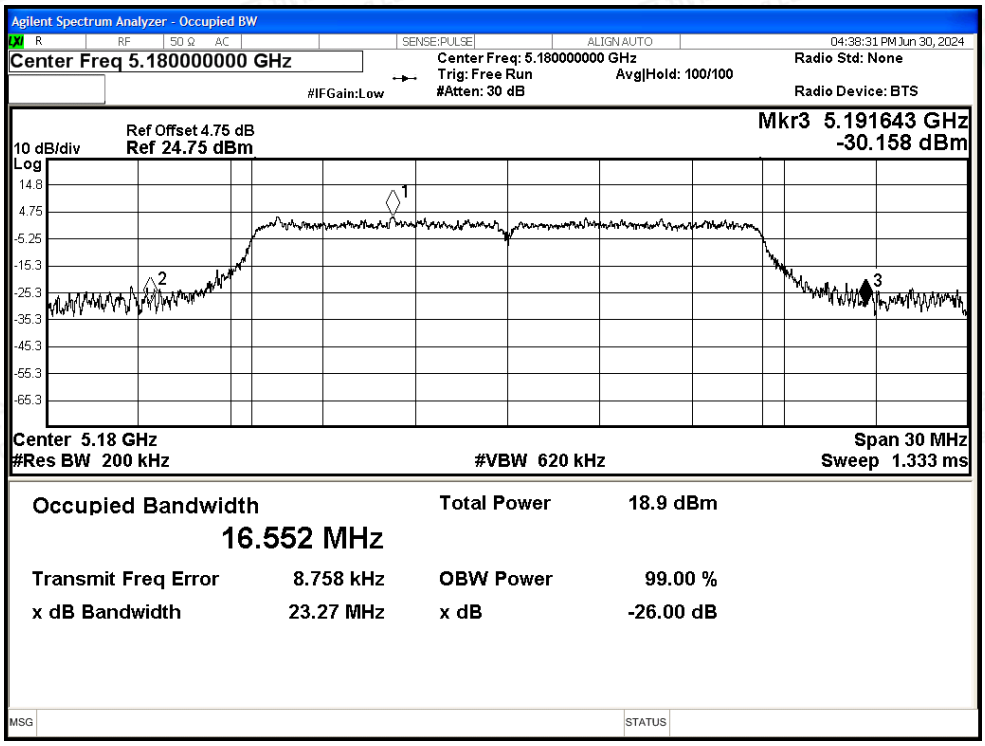
Temperature:	23.8°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng

D.1 -26dB Bandwidth

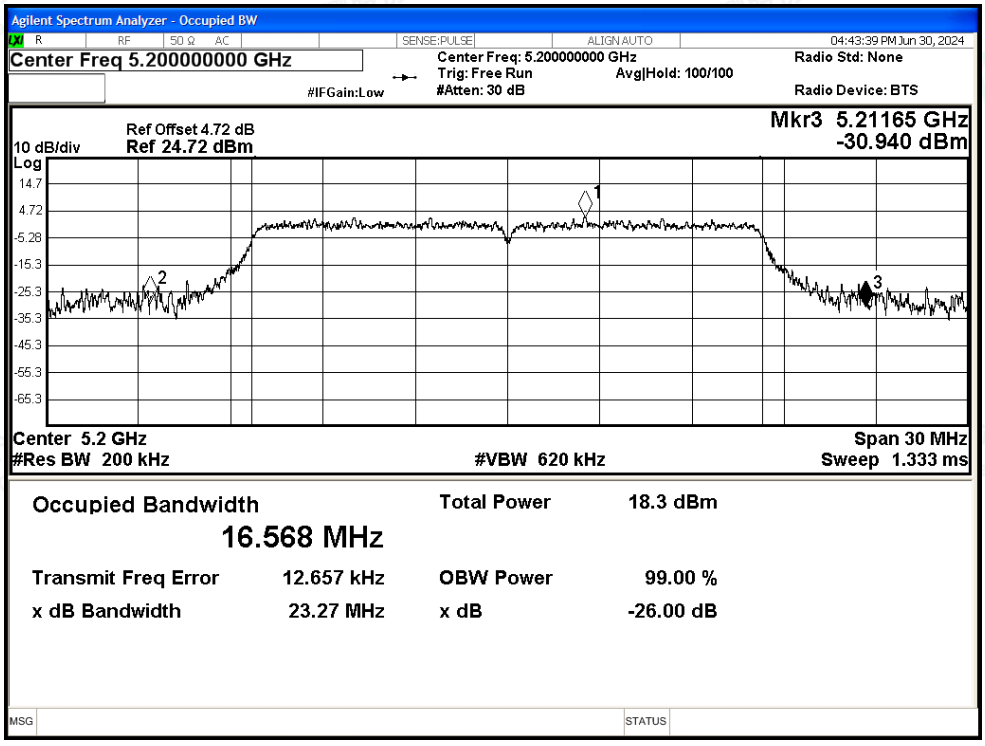
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	Ant1	23.268	----	Pass
NVNT	a	5200	Ant1	23.275	----	Pass
NVNT	a	5240	Ant1	26.332	----	Pass
NVNT	n20	5180	Ant1	26.741	----	Pass
NVNT	n20	5200	Ant1	26.247	----	Pass
NVNT	n20	5240	Ant1	28.07	----	Pass
NVNT	n40	5190	Ant1	39.352	----	Pass
NVNT	n40	5230	Ant1	39.315	----	Pass
NVNT	ac20	5180	Ant1	23.383	----	Pass
NVNT	ac20	5200	Ant1	25.26	----	Pass
NVNT	ac20	5240	Ant1	25.351	----	Pass
NVNT	ac40	5190	Ant1	39.059	----	Pass
NVNT	ac40	5230	Ant1	40.703	----	Pass
NVNT	ac80	5210	Ant1	83.44	----	Pass

Test Graphs

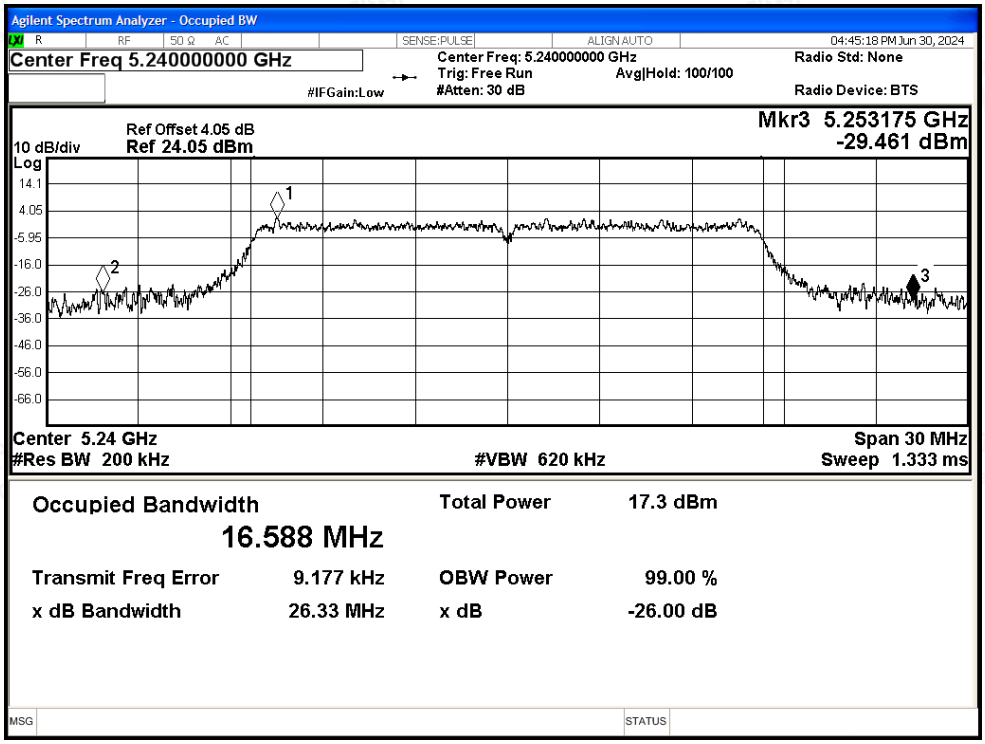
-26dB Bandwidth NVNT a 5180MHz Ant1



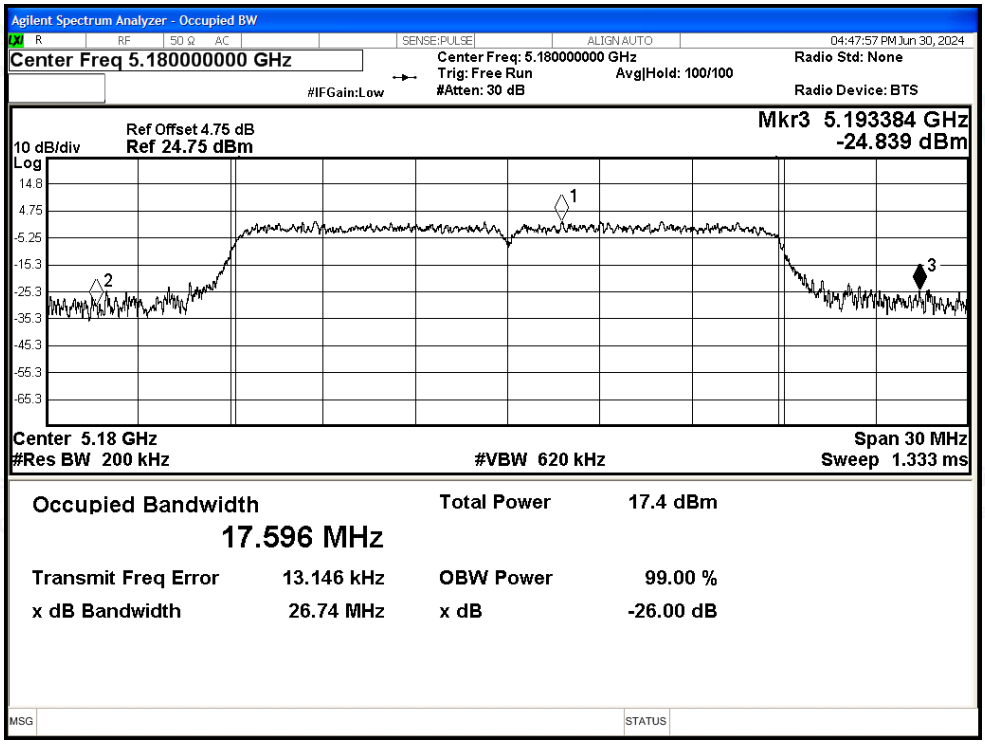
-26dB Bandwidth NVNT a 5200MHz Ant1



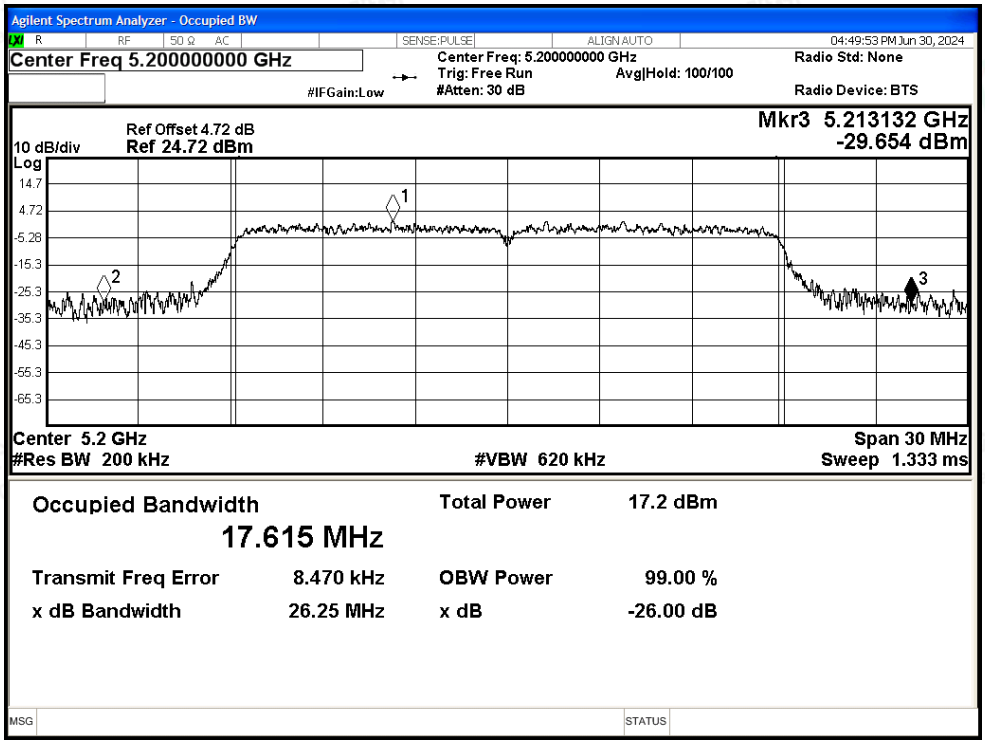
-26dB Bandwidth NVNT a 5240MHz Ant1



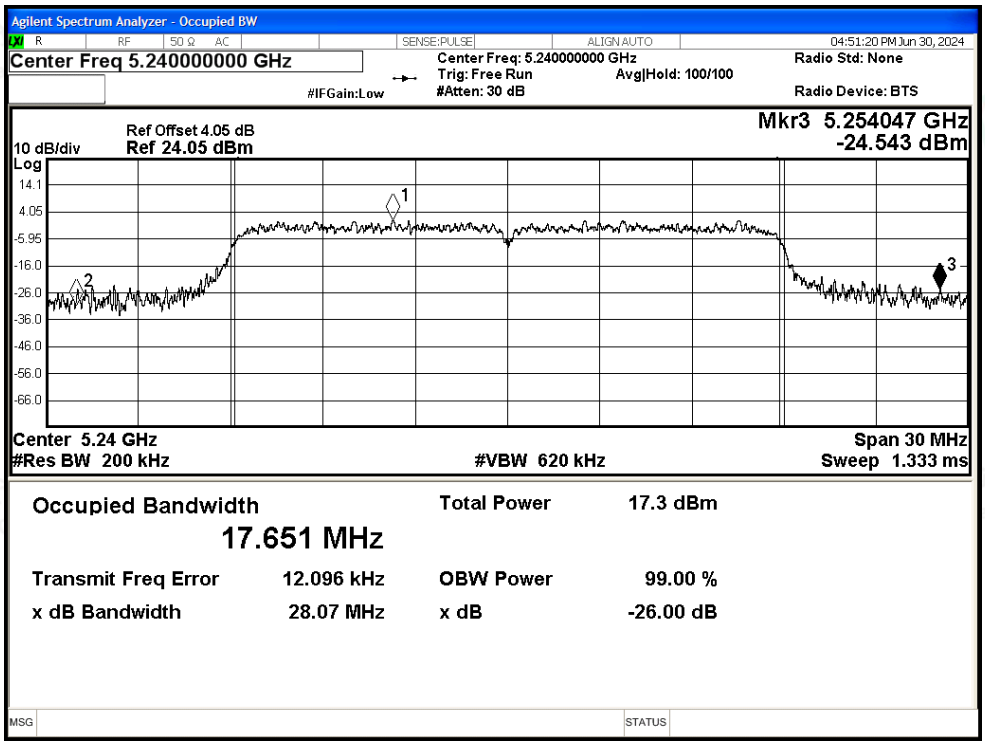
-26dB Bandwidth NVNT n20 5180MHz Ant1



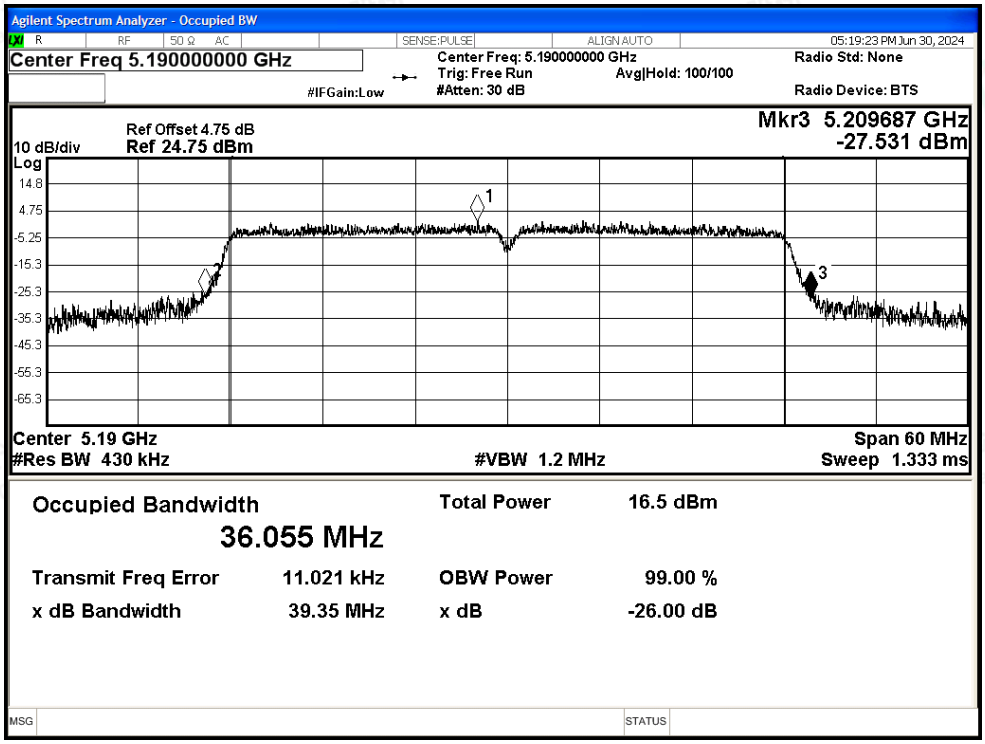
-26dB Bandwidth NVNT n20 5200MHz Ant1



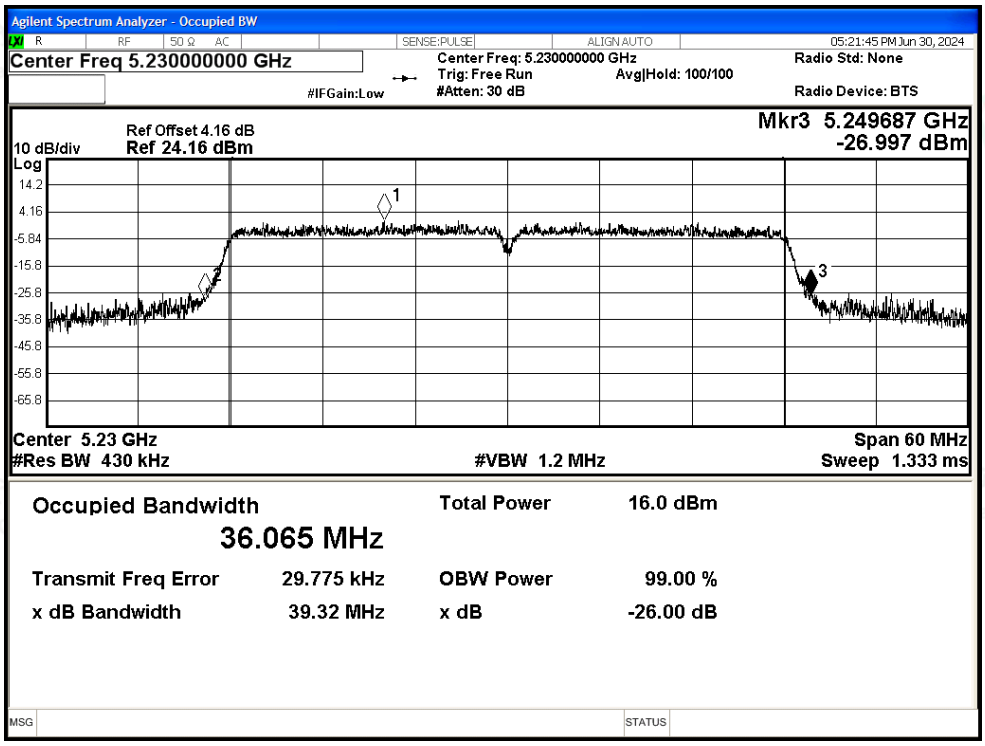
-26dB Bandwidth NVNT n20 5240MHz Ant1



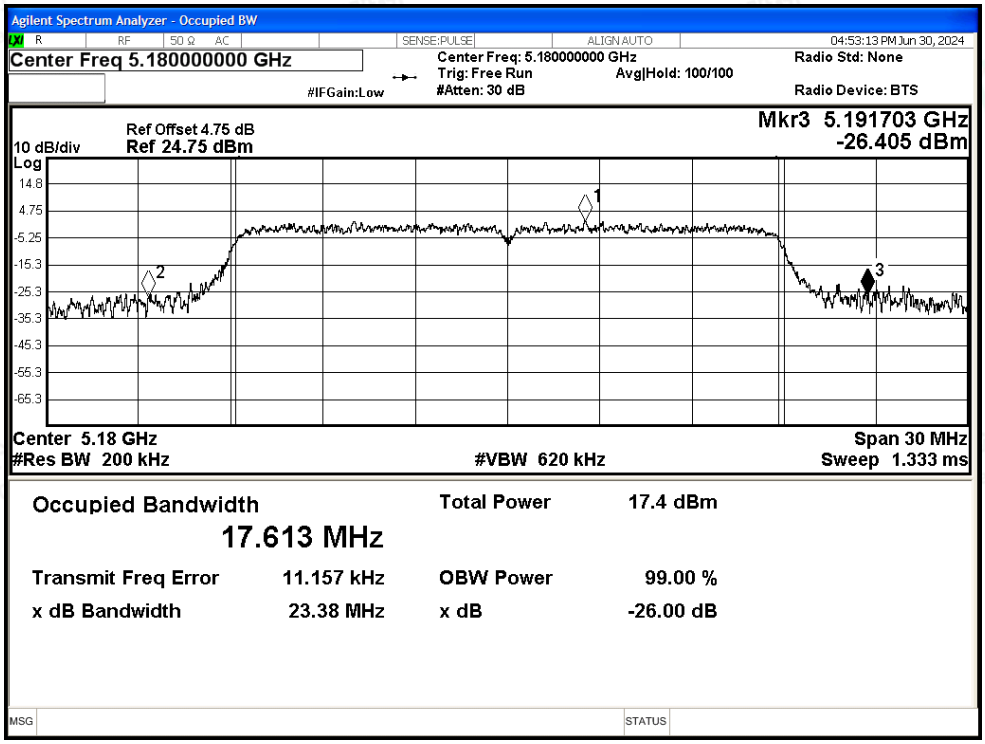
-26dB Bandwidth NVNT n40 5190MHz Ant1



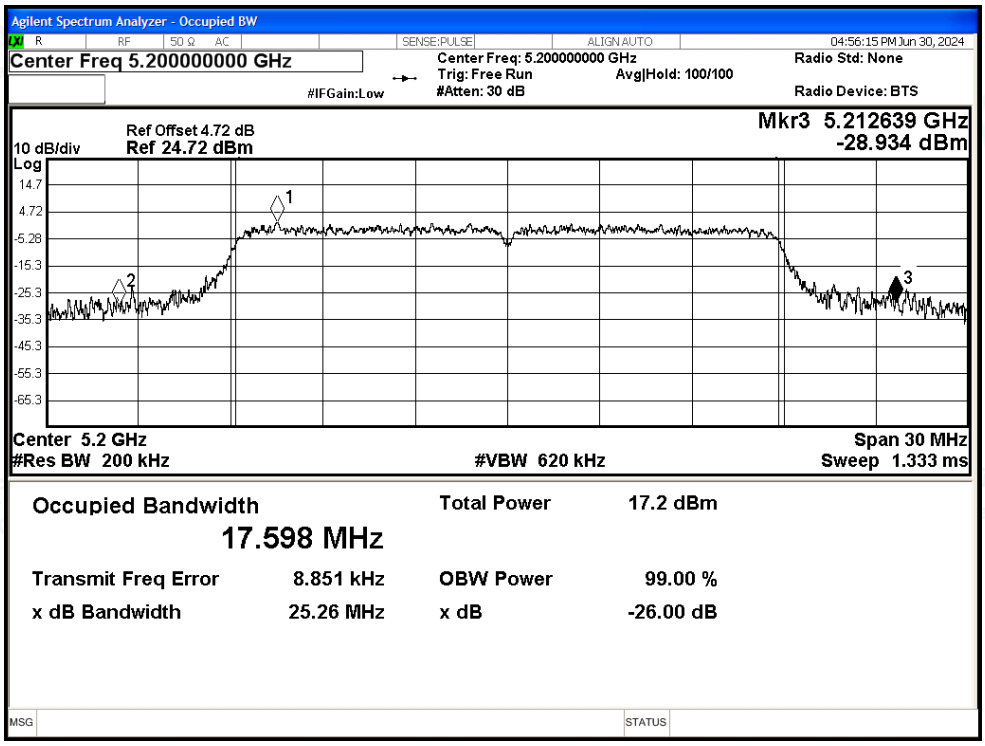
-26dB Bandwidth NVNT n40 5230MHz Ant1



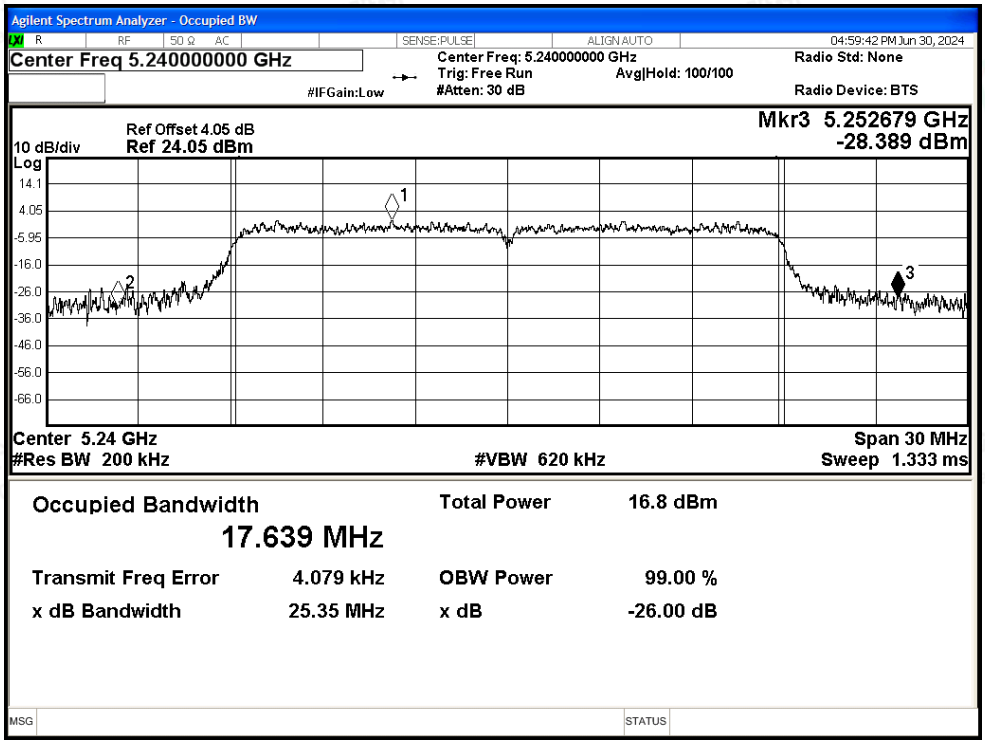
-26dB Bandwidth NVNT ac20 5180MHz Ant1



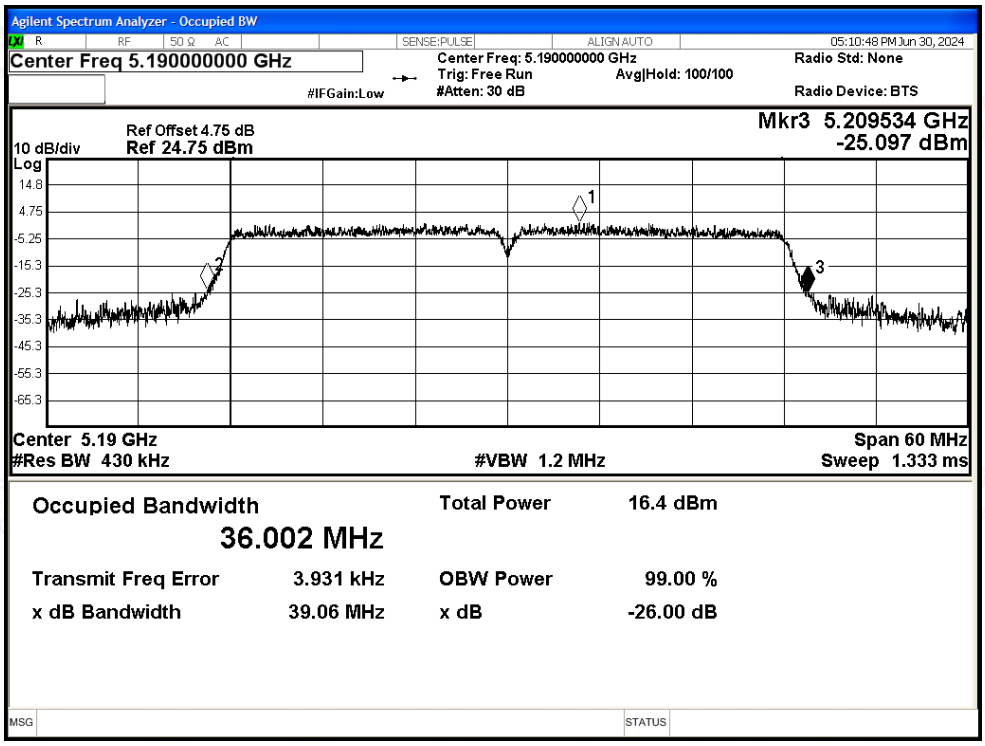
-26dB Bandwidth NVNT ac20 5200MHz Ant1



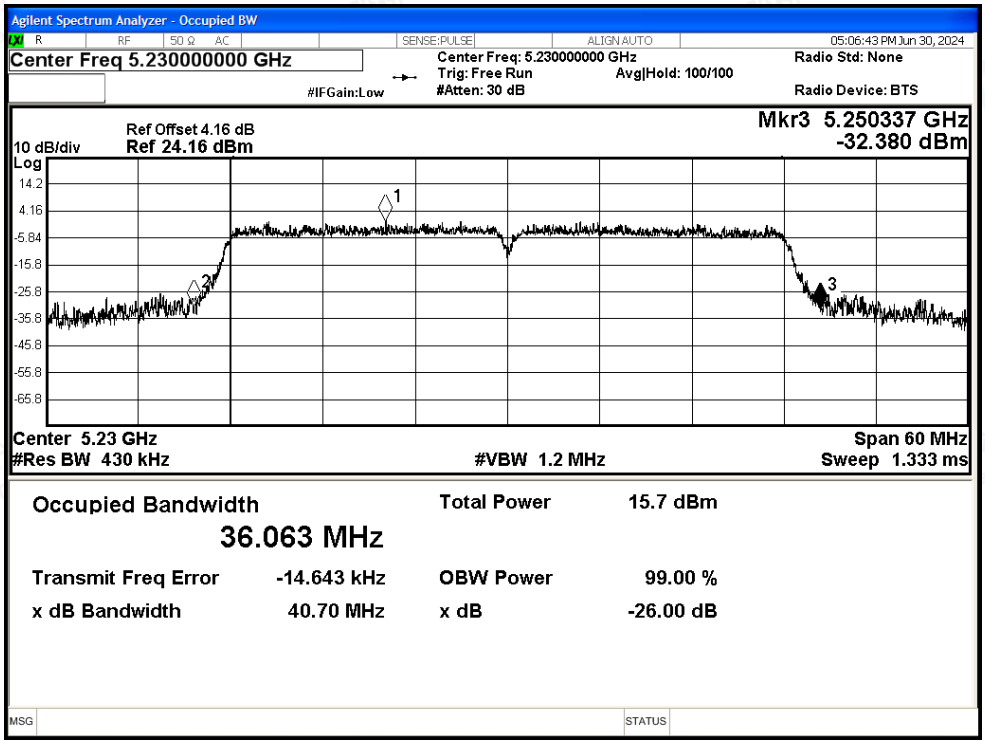
-26dB Bandwidth NVNT ac20 5240MHz Ant1



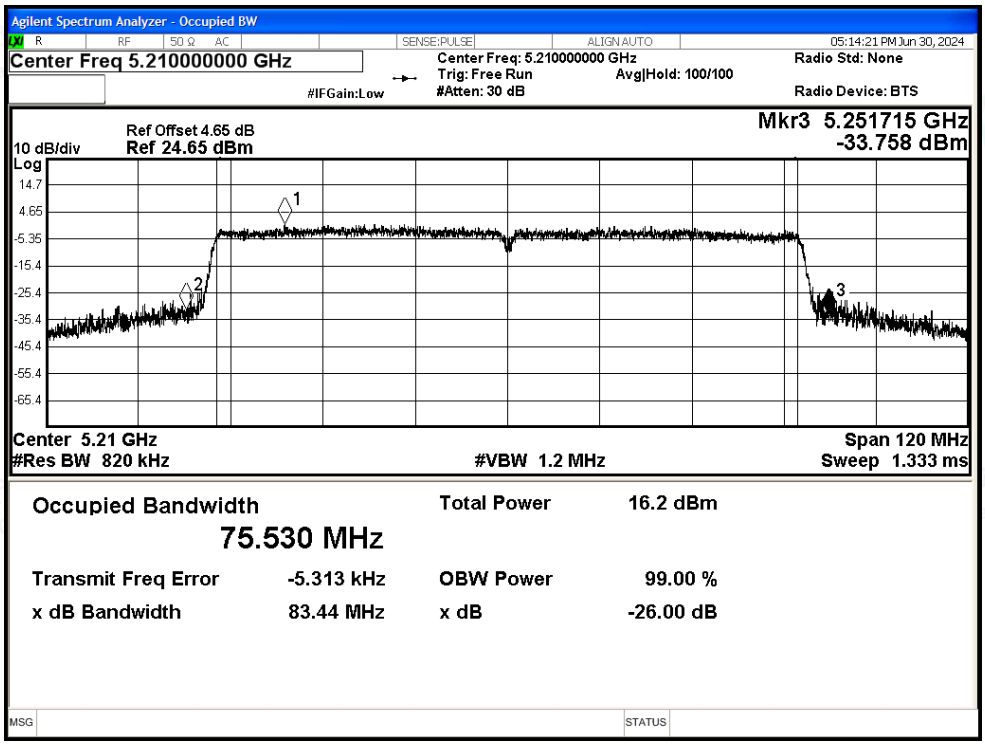
-26dB Bandwidth NVNT ac40 5190MHz Ant1



-26dB Bandwidth NVNT ac40 5230MHz Ant1



-26dB Bandwidth NVNT ac80 5210MHz Ant1



D.2 Maximum Conducted Output Power

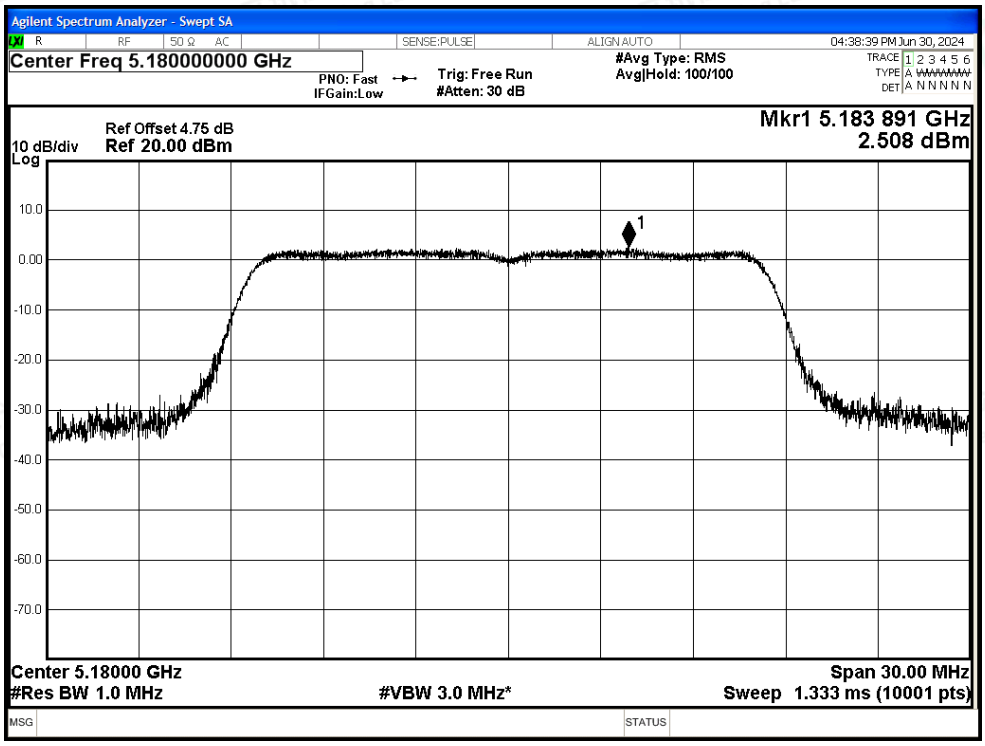
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	12.83	0.24	13.07	24	Pass
NVNT	a	5200	Ant1	12.63	0.24	12.87	24	Pass
NVNT	a	5240	Ant1	11.57	0.24	11.81	24	Pass
NVNT	n20	5180	Ant1	11.69	0.28	11.97	24	Pass
NVNT	n20	5200	Ant1	11.5	0.28	11.78	24	Pass
NVNT	n20	5240	Ant1	11.45	0.28	11.73	24	Pass
NVNT	n40	5190	Ant1	10.66	0.12	10.78	24	Pass
NVNT	n40	5230	Ant1	9.98	0.12	10.1	24	Pass
NVNT	ac20	5180	Ant1	11.6	0.28	11.88	24	Pass
NVNT	ac20	5200	Ant1	11.43	0.28	11.71	24	Pass
NVNT	ac20	5240	Ant1	11.04	0.28	11.32	24	Pass
NVNT	ac40	5190	Ant1	10.55	0.12	10.67	24	Pass
NVNT	ac40	5230	Ant1	10.73	0.12	10.85	24	Pass
NVNT	ac80	5210	Ant1	9.6	0.25	9.85	24	Pass

D.3 Maximum Power Spectral Density Level

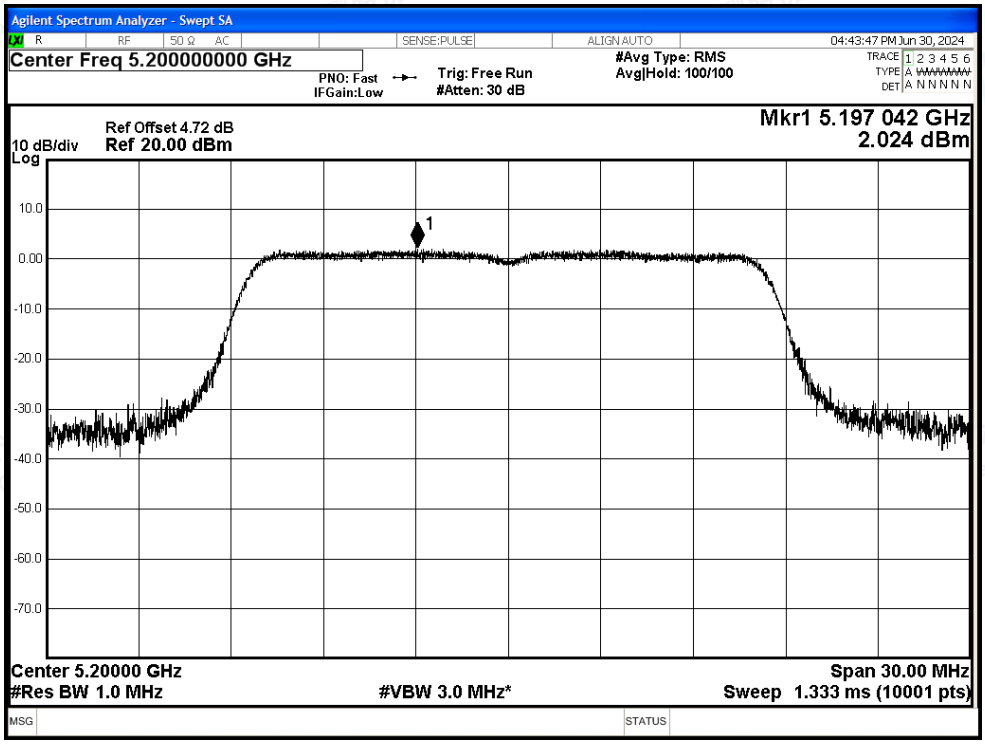
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD(dBm/MHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	a	5180	Ant1	2.51	0.24	2.75	11	Pass
NVNT	a	5200	Ant1	2.02	0.24	2.26	11	Pass
NVNT	a	5240	Ant1	0.84	0.24	1.08	11	Pass
NVNT	n20	5180	Ant1	0.71	0.28	0.99	11	Pass
NVNT	n20	5200	Ant1	0.77	0.28	1.05	11	Pass
NVNT	n20	5240	Ant1	0.52	0.28	0.8	11	Pass
NVNT	n40	5190	Ant1	-3.09	0.12	-2.97	11	Pass
NVNT	n40	5230	Ant1	-3.52	0.12	-3.4	11	Pass
NVNT	ac20	5180	Ant1	0.88	0.28	1.16	11	Pass
NVNT	ac20	5200	Ant1	0.7	0.28	0.98	11	Pass
NVNT	ac20	5240	Ant1	0.14	0.28	0.42	11	Pass
NVNT	ac40	5190	Ant1	-3.07	0.12	-2.95	11	Pass
NVNT	ac40	5230	Ant1	-2.88	0.12	-2.76	11	Pass
NVNT	ac80	5210	Ant1	-6.85	0.25	-6.6	11	Pass

Test Graphs

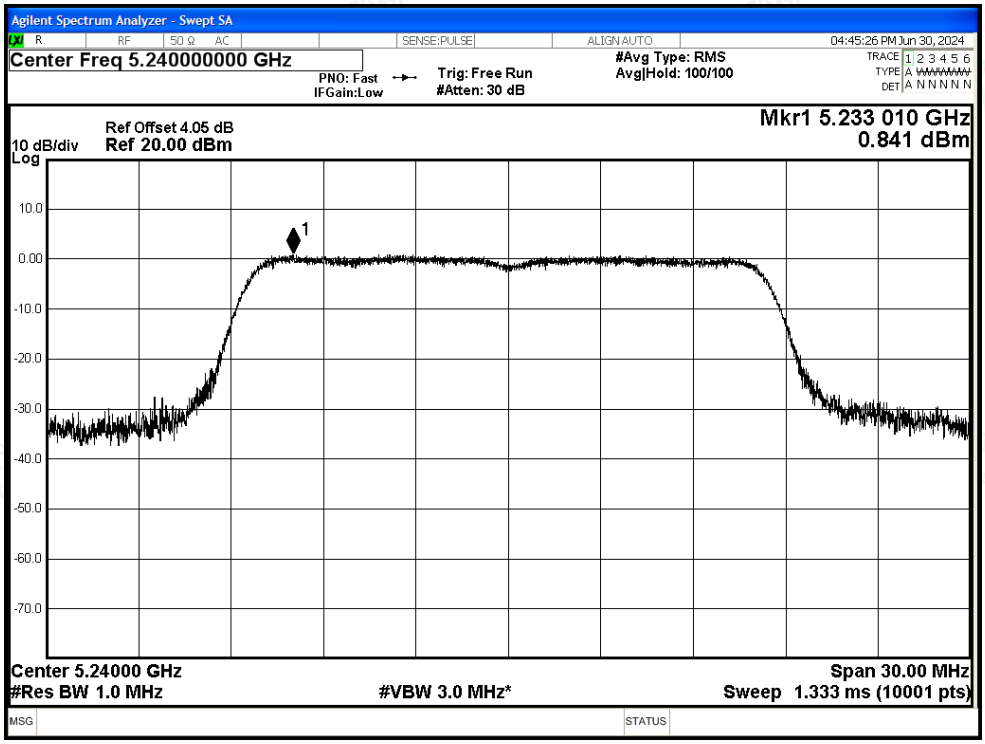
PSD NVNT a 5180MHz Ant1



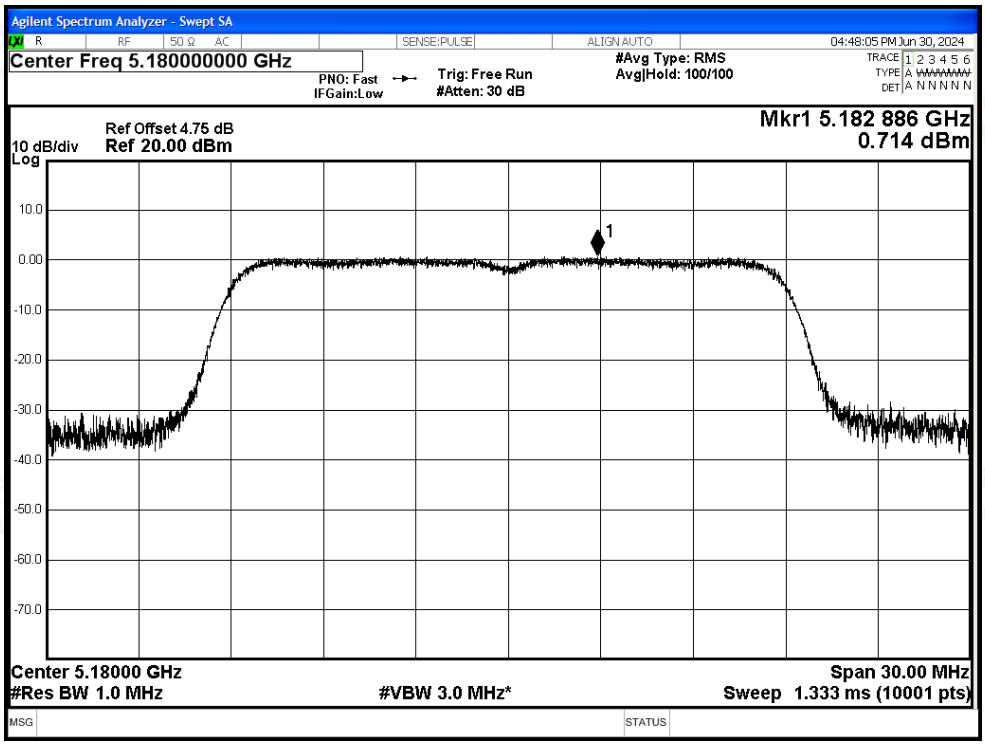
PSD NVNT a 5200MHz Ant1



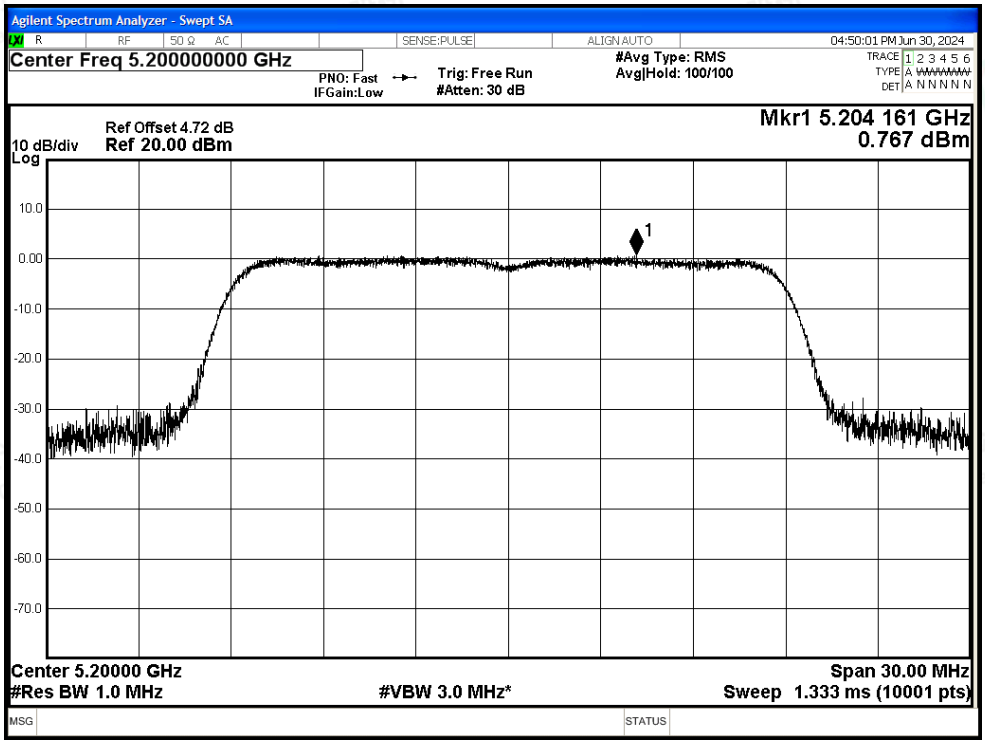
PSD NVNT a 5240MHz Ant1



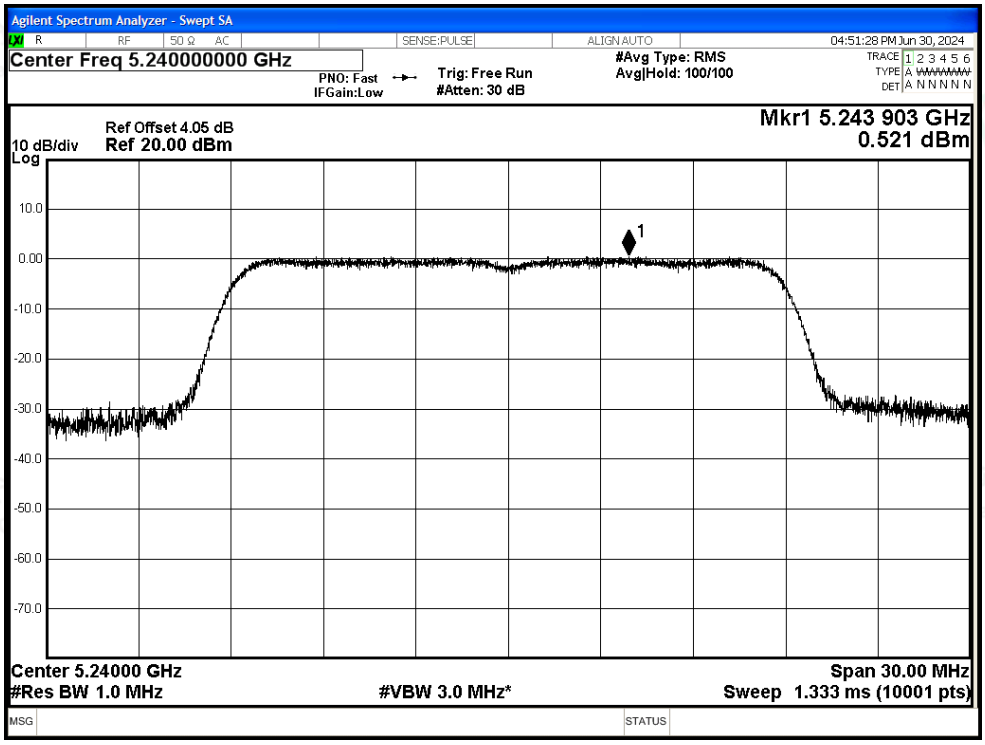
PSD NVNT n20 5180MHz Ant1



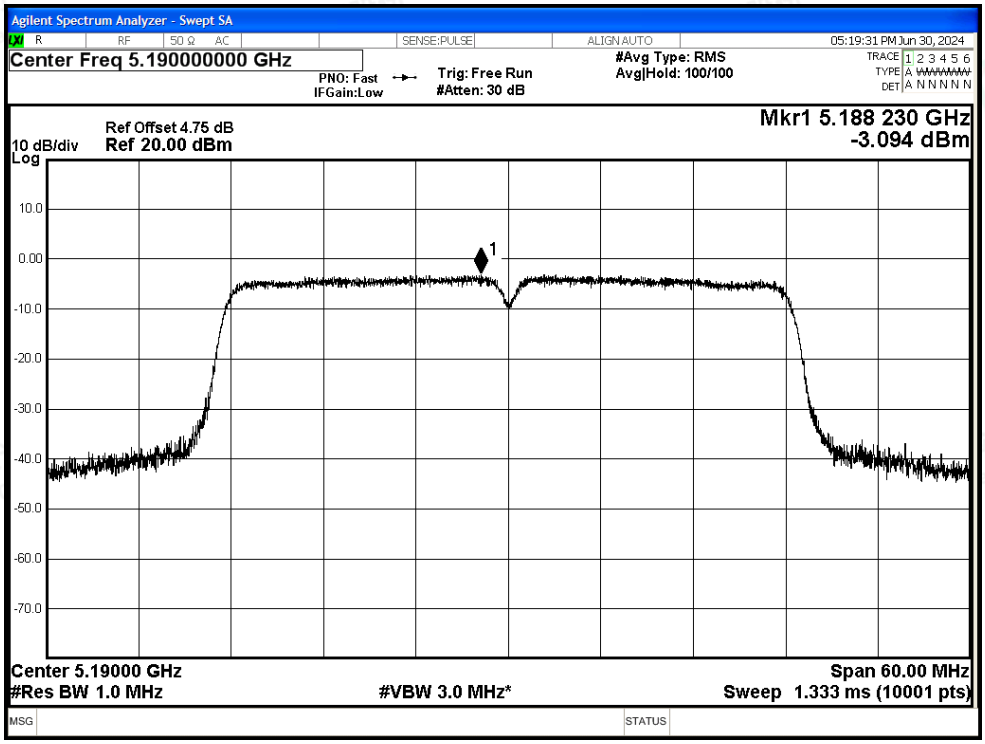
PSD NVNT n20 5200MHz Ant1



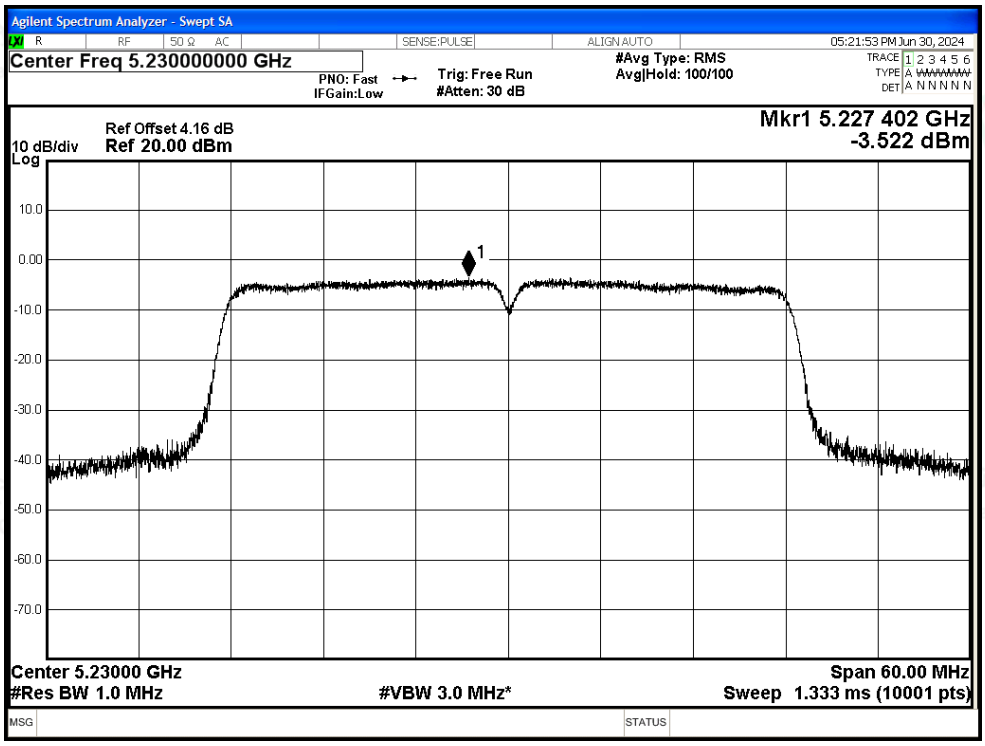
PSD NVNT n20 5240MHz Ant1



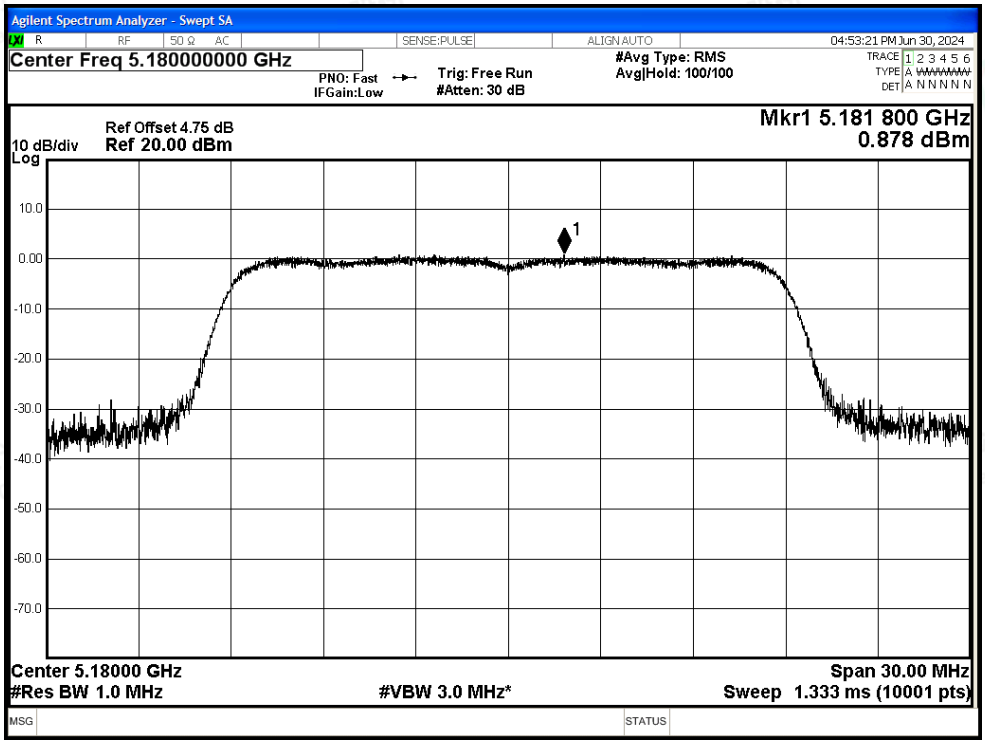
PSD NVNT n40 5190MHz Ant1



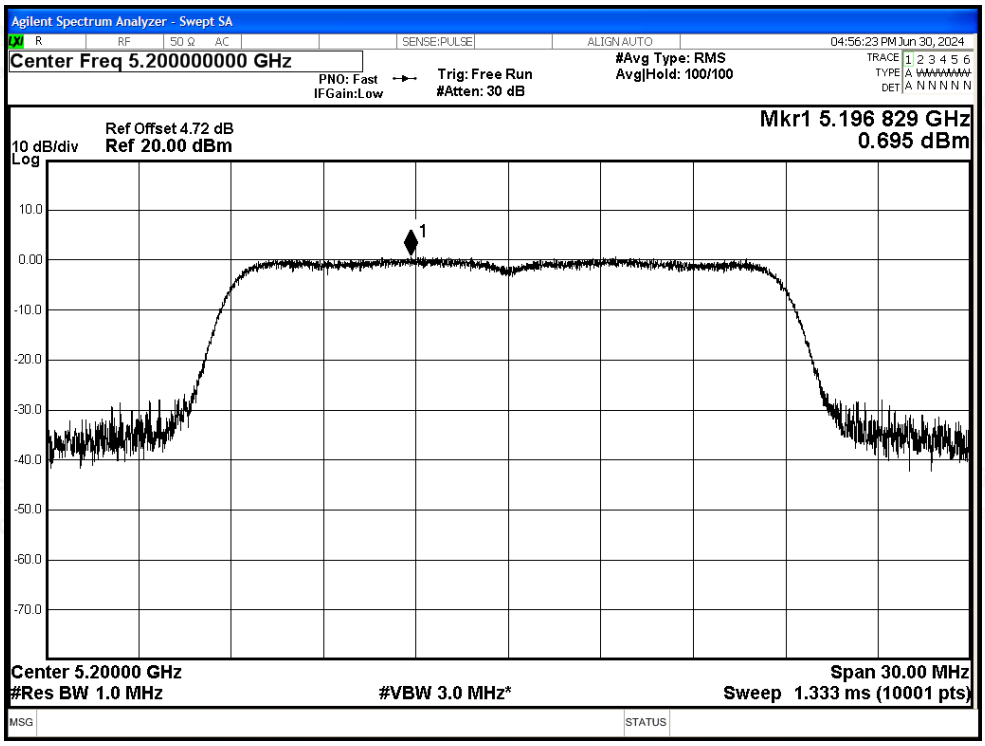
PSD NVNT n40 5230MHz Ant1



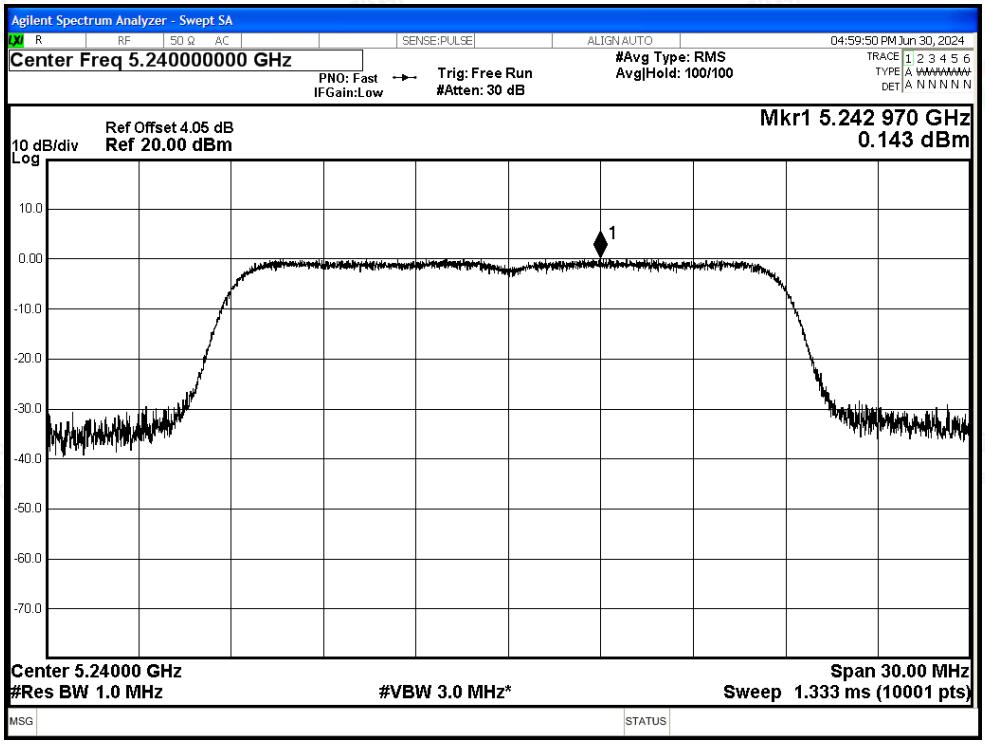
PSD NVNT ac20 5180MHz Ant1



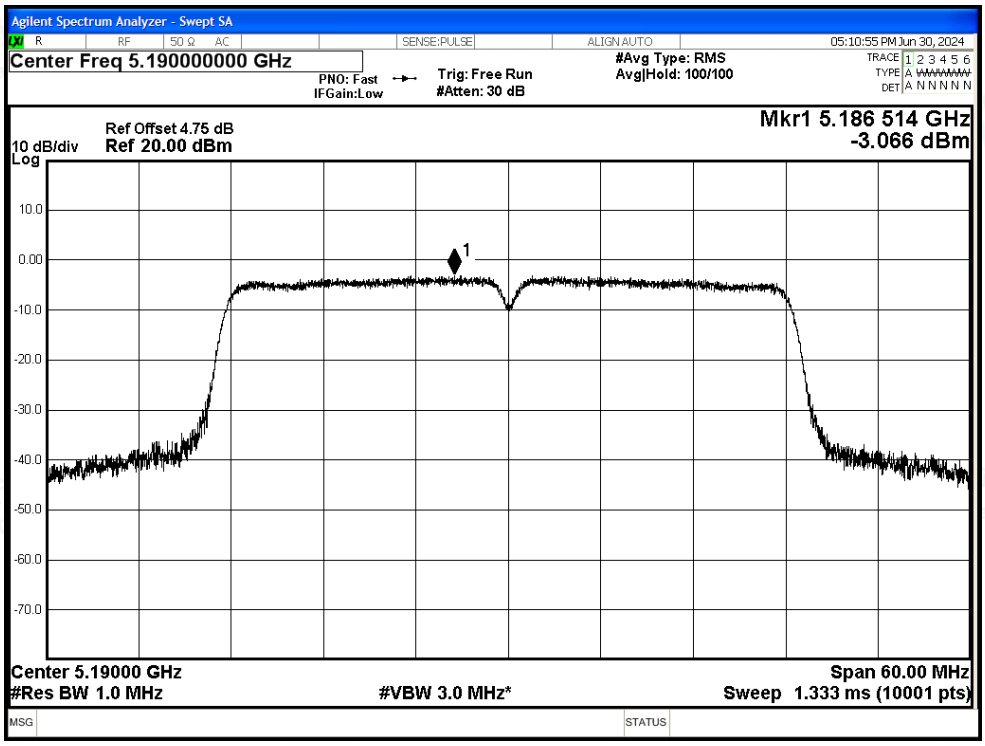
PSD NVNT ac20 5200MHz Ant1



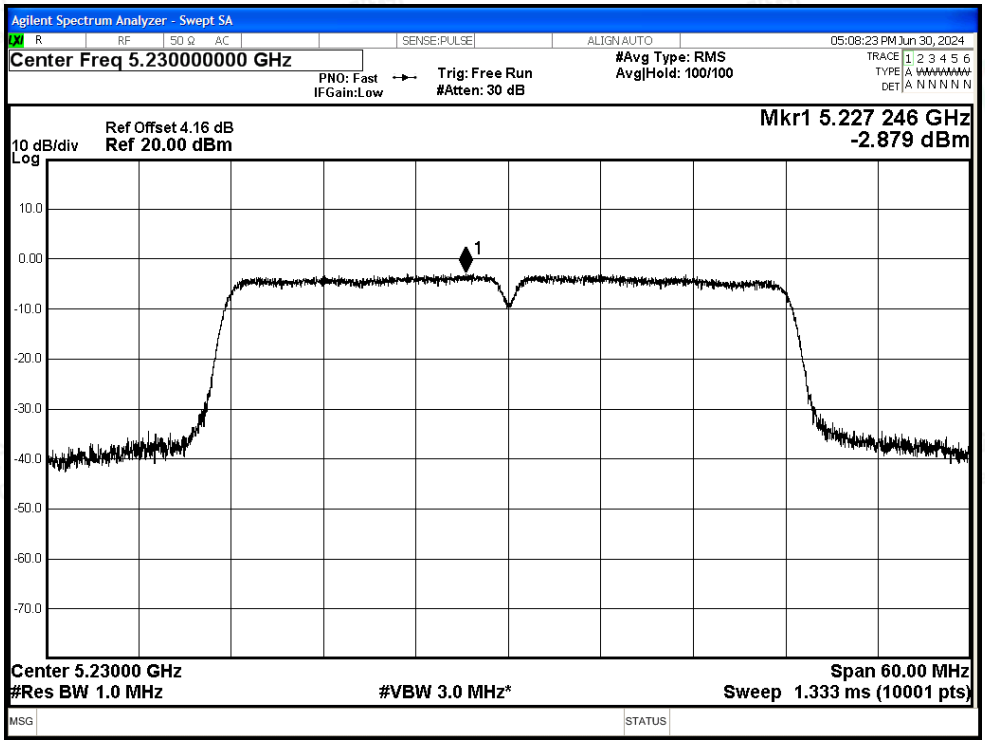
PSD NVNT ac20 5240MHz Ant1



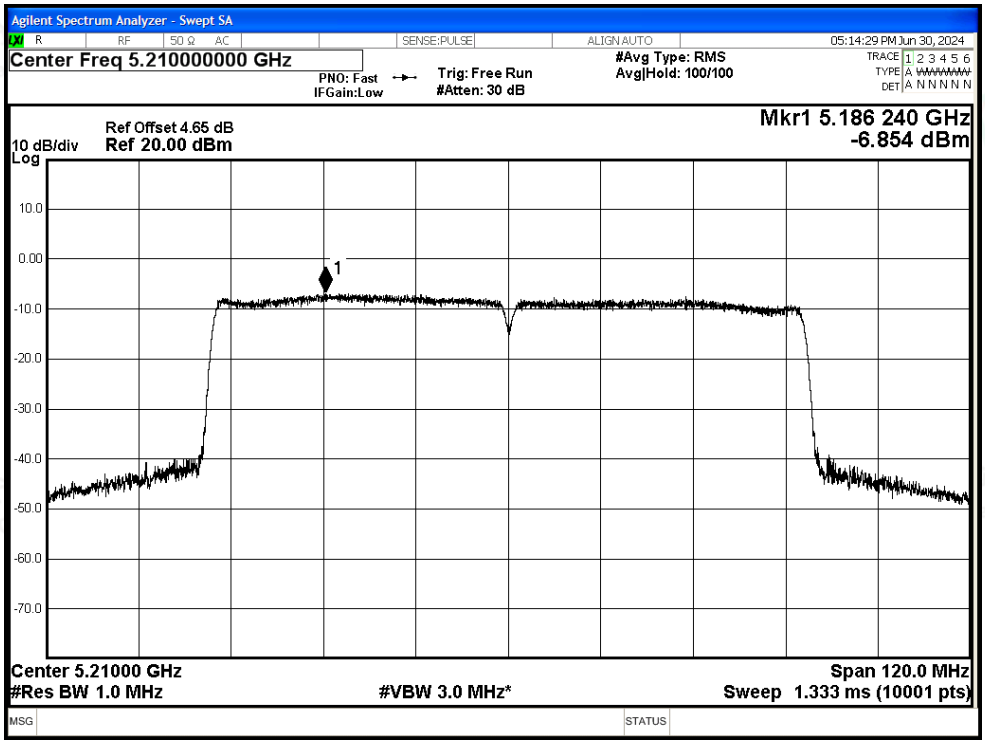
PSD NVNT ac40 5190MHz Ant1



PSD NVNT ac40 5230MHz Ant1



PSD NVNT ac80 5210MHz Ant1



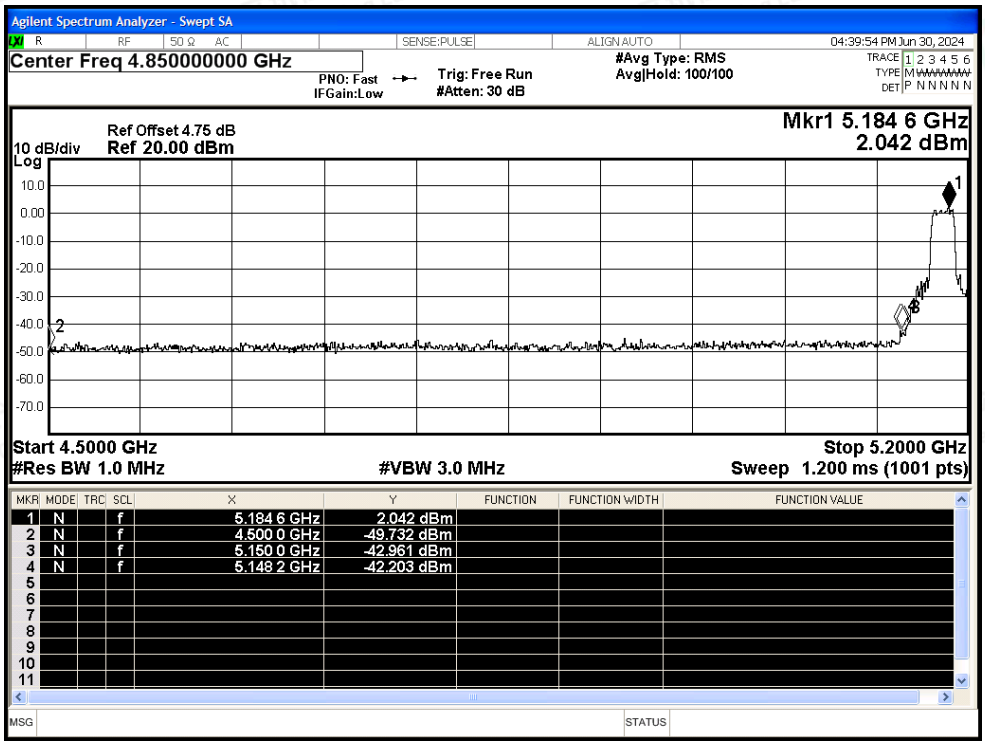
D.4 Restrict Band

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	-49.73	2	-	47.5	Peak	68.2	Pass
NVNT	a	5180	Ant1	4500	-56.85	2	0.24	40.62	Average	54	Pass
NVNT	a	5180	Ant1	5148.2	-42.2	2	-	55.03	Peak	68.2	Pass
NVNT	a	5180	Ant1	5147.5	-54.14	2	0.24	43.33	Average	54	Pass
NVNT	a	5180	Ant1	5150	-42.96	2	-	54.27	Peak	68.2	Pass
NVNT	a	5180	Ant1	5150	-55.06	2	0.24	42.41	Average	54	Pass
NVNT	a	5240	Ant1	5350	-48.47	2	-	48.76	Peak	68.2	Pass
NVNT	a	5240	Ant1	5350	-56.08	2	0.24	41.39	Average	54	Pass
NVNT	a	5240	Ant1	5424.48	-45.63	2	-	51.6	Peak	68.2	Pass
NVNT	a	5240	Ant1	5363.52	-55.89	2	0.24	41.58	Average	54	Pass
NVNT	a	5240	Ant1	5460	-50.29	2	-	46.94	Peak	68.2	Pass
NVNT	a	5240	Ant1	5460	-56.77	2	0.24	40.7	Average	54	Pass
NVNT	n20	5180	Ant1	4500	-49.99	2	-	47.24	Peak	68.2	Pass
NVNT	n20	5180	Ant1	4500	-57.23	2	0.28	40.28	Average	54	Pass
NVNT	n20	5180	Ant1	5148.9	-44.32	2	-	52.91	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5149.6	-52.89	2	0.28	44.62	Average	54	Pass
NVNT	n20	5180	Ant1	5150	-41.25	2	-	55.98	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5150	-53.47	2	0.28	44.04	Average	54	Pass
NVNT	n20	5240	Ant1	5350	-49.92	2	-	47.31	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5350	-56.41	2	0.28	41.1	Average	54	Pass
NVNT	n20	5240	Ant1	5375.28	-45.95	2	-	51.28	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5350.8	-55.88	2	0.28	41.63	Average	54	Pass
NVNT	n20	5240	Ant1	5460	-49.93	2	-	47.3	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5460	-56.54	2	0.28	40.97	Average	54	Pass
NVNT	n40	5190	Ant1	4500	-47.67	2	-	49.56	Peak	68.2	Pass
NVNT	n40	5190	Ant1	4500	-57.45	2	0.12	39.9	Average	54	Pass
NVNT	n40	5190	Ant1	5147.51	-41.35	2	-	55.88	Peak	68.2	Pass
NVNT	n40	5190	Ant1	5149.7	-53.34	2	0.12	44.01	Average	54	Pass
NVNT	n40	5190	Ant1	5150	-42.5	2	-	54.73	Peak	68.2	Pass
NVNT	n40	5190	Ant1	5150	-53.34	2	0.12	44.01	Average	54	Pass
NVNT	n40	5230	Ant1	5350	-45.1	2	-	52.13	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5350	-56.36	2	0.12	40.99	Average	54	Pass
NVNT	n40	5230	Ant1	5350.11	-45.1	2	-	52.13	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5352	-56.14	2	0.12	41.21	Average	54	Pass
NVNT	n40	5230	Ant1	5460	-47.79	2	-	49.44	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5460	-56.71	2	0.12	40.64	Average	54	Pass
NVNT	ac20	5180	Ant1	4500	-48.24	2	-	48.99	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	4500	-56.98	2	0.28	40.53	Average	54	Pass

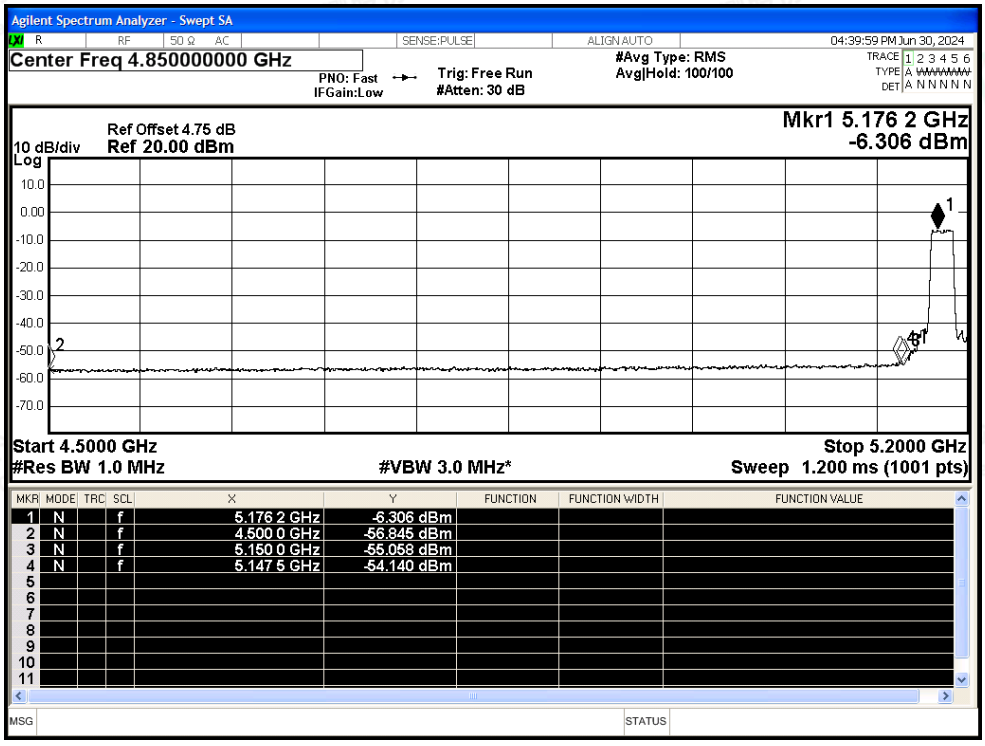
NVNT	ac20	5180	Ant1	5148.2	-42.2	2	-	55.03	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5147.5	-53.73	2	0.28	43.78	Average	54	Pass
NVNT	ac20	5180	Ant1	5150	-42.02	2	-	55.21	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5150	-54.3	2	0.28	43.21	Average	54	Pass
NVNT	ac20	5240	Ant1	5350	-47.94	2	-	49.29	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5350	-56.78	2	0.28	40.73	Average	54	Pass
NVNT	ac20	5240	Ant1	5422.56	-45.1	2	-	52.13	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5389.92	-55.98	2	0.28	41.53	Average	54	Pass
NVNT	ac20	5240	Ant1	5460	-47.19	2	-	50.04	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5460	-57.2	2	0.28	40.31	Average	54	Pass
NVNT	ac40	5190	Ant1	4500	-48.22	2	-	49.01	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	4500	-57.66	2	0.12	39.69	Average	54	Pass
NVNT	ac40	5190	Ant1	5149.7	-41.72	2	-	55.51	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	5148.24	-53.06	2	0.12	44.29	Average	54	Pass
NVNT	ac40	5190	Ant1	5150	-41.72	2	-	55.51	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	5150	-53.11	2	0.12	44.24	Average	54	Pass
NVNT	ac40	5230	Ant1	5350	-48.79	2	-	48.44	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5350	-56.3	2	0.12	41.05	Average	54	Pass
NVNT	ac40	5230	Ant1	5448.12	-45.38	2	-	51.85	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5404.38	-55.7	2	0.12	41.65	Average	54	Pass
NVNT	ac40	5230	Ant1	5460	-48.79	2	-	48.44	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5460	-56.74	2	0.12	40.61	Average	54	Pass
NVNT	ac80	5210	Ant1	5350	-45.93	2	-	51.3	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5350	-55.09	2	0.25	42.39	Average	54	Pass
NVNT	ac80	5210	Ant1	5350.44	-45.2	2	-	52.03	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5350.11	-55.09	2	0.25	42.39	Average	54	Pass
NVNT	ac80	5210	Ant1	5460	-48.32	2	-	48.91	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5460	-56.95	2	0.25	40.53	Average	54	Pass
NVNT	ac80	5210	Ant1	4500	-49.58	2	-	47.65	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	4500	-57.3	2	0.25	40.18	Average	54	Pass
NVNT	ac80	5210	Ant1	5135.16	-43.73	2	-	53.5	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5142.27	-52.8	2	0.25	44.68	Average	54	Pass
NVNT	ac80	5210	Ant1	5150	-46.1	2	-	51.13	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5150	-53.17	2	0.25	44.31	Average	54	Pass

Test Graphs

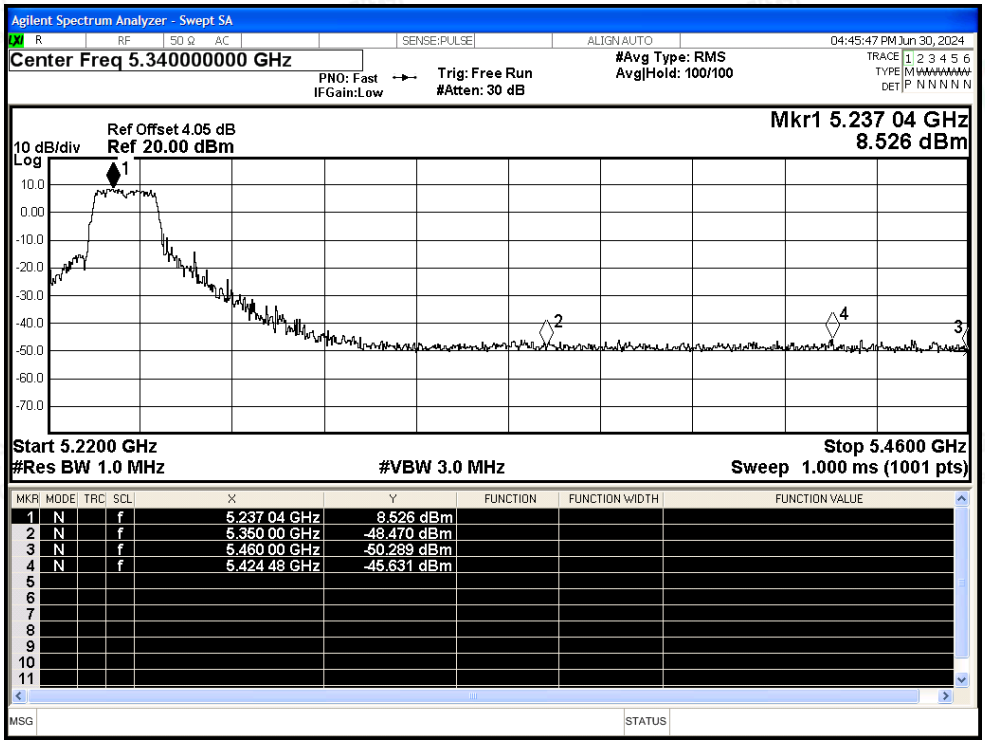
Restrict Band NVNT a 5180MHz Ant1 Peak



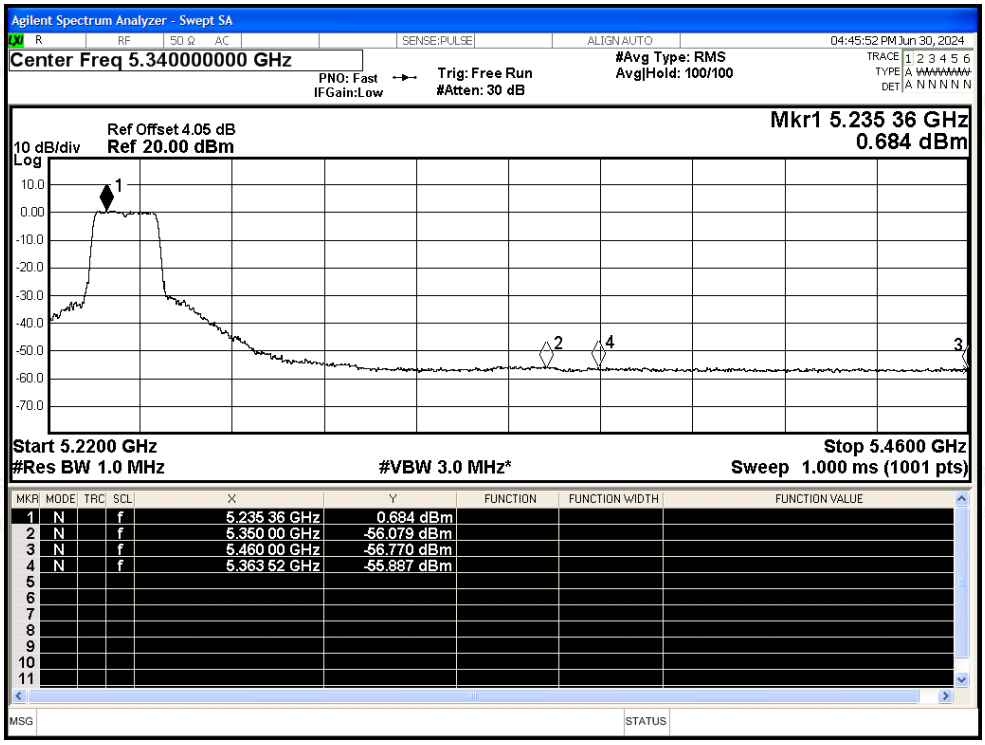
Restrict Band NVNT a 5180MHz Ant1 Average



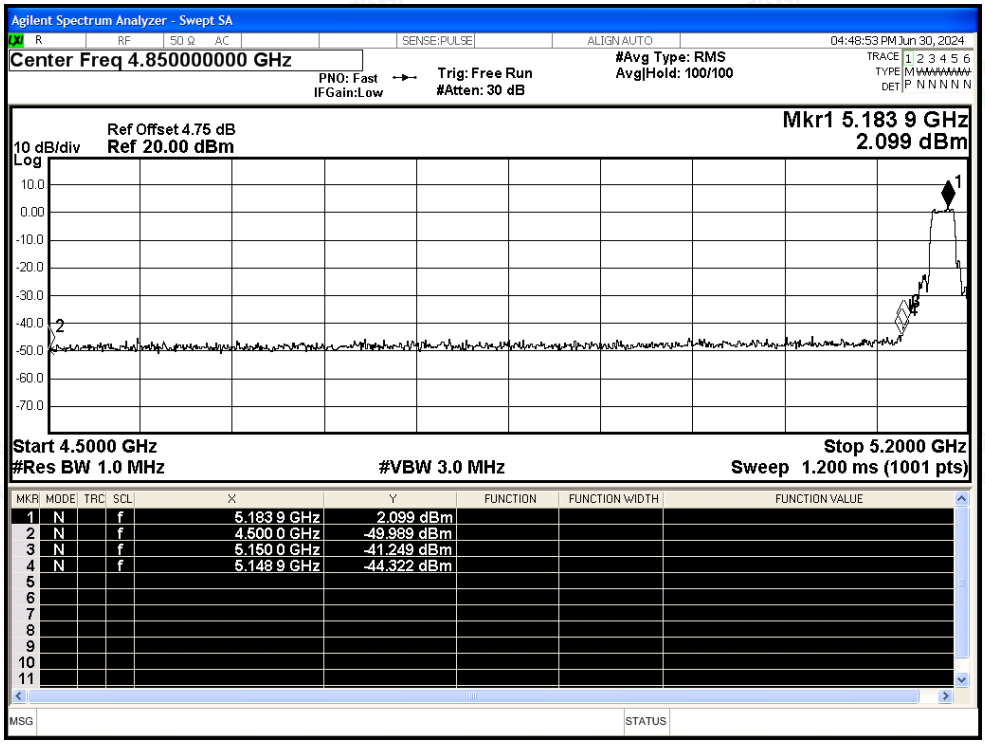
Restrict Band NVNT a 5240MHz Ant1 Peak



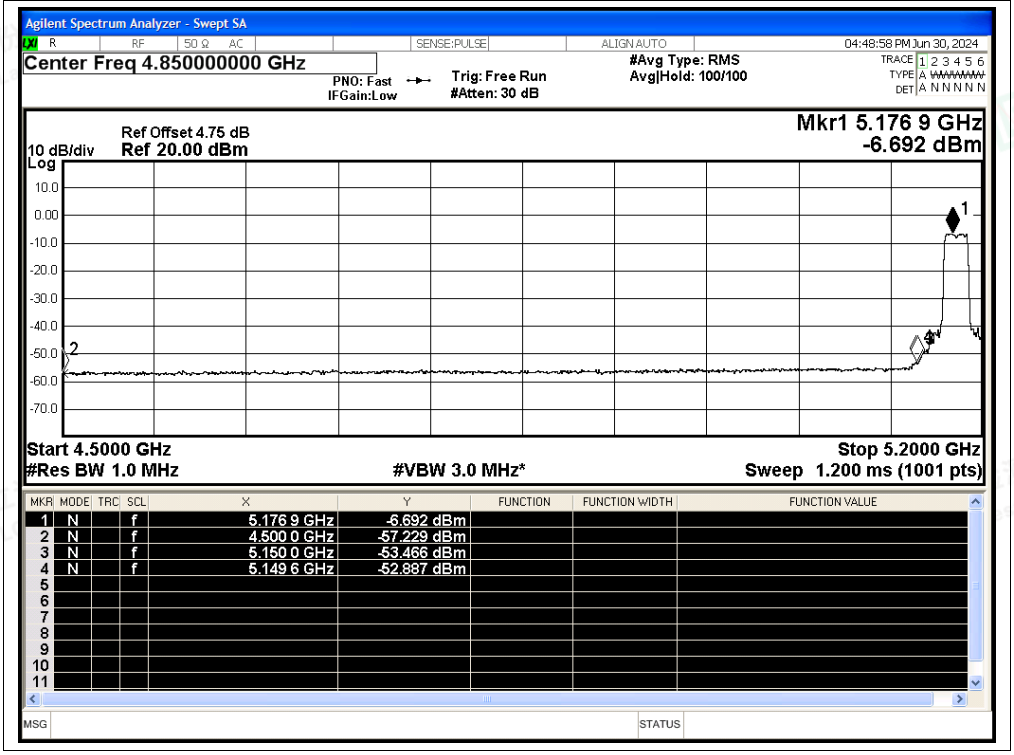
Restrict Band NVNT a 5240MHz Ant1 Average



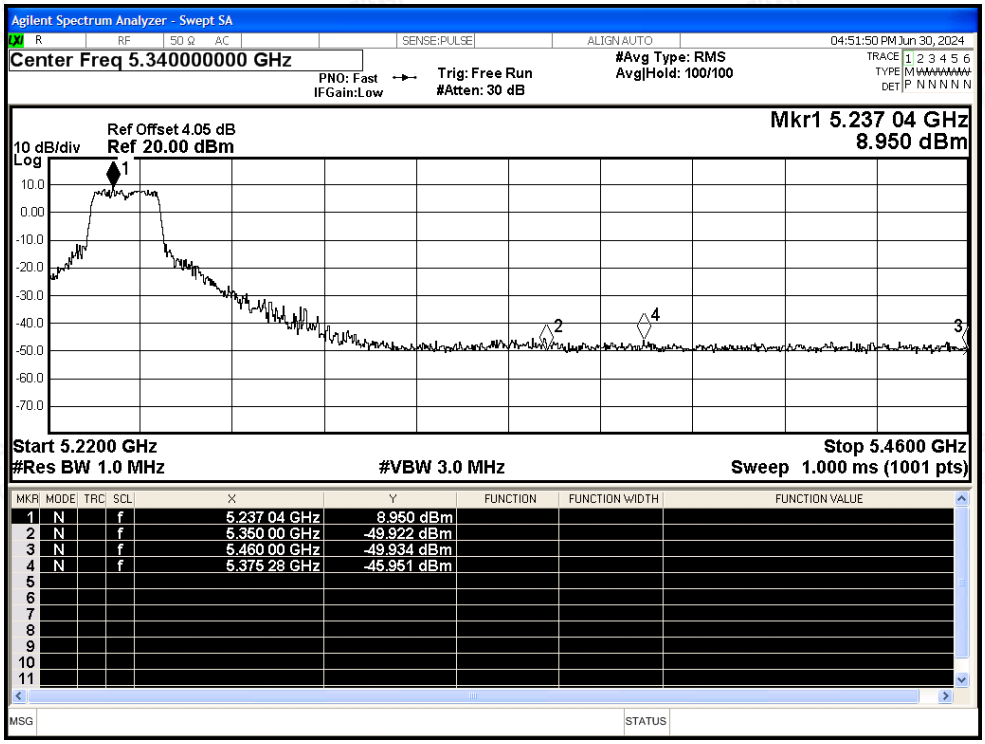
Restrict Band NVNT n20 5180MHz Ant1 Peak



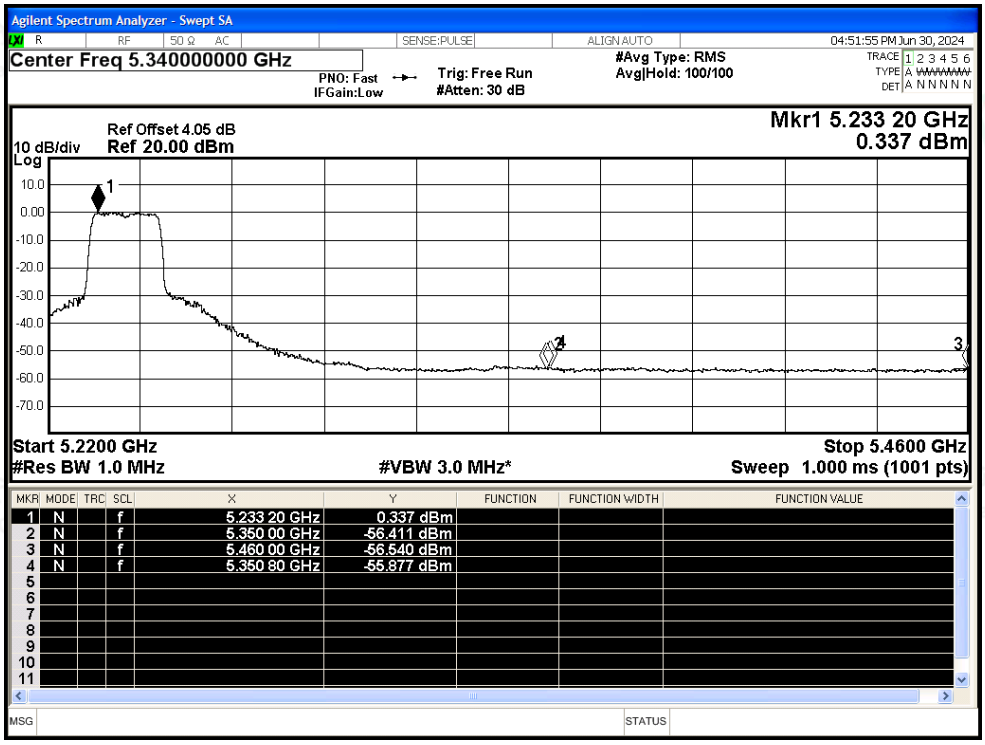
Restrict Band NVNT n20 5180MHz Ant1 Average



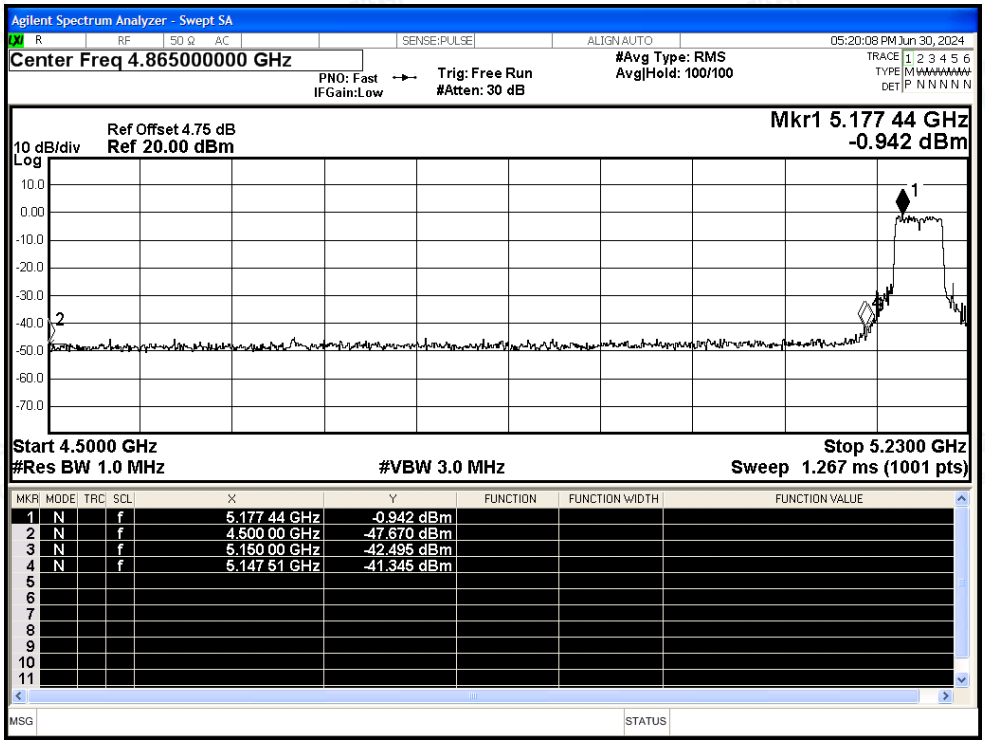
Restrict Band NVNT n20 5240MHz Ant1 Peak



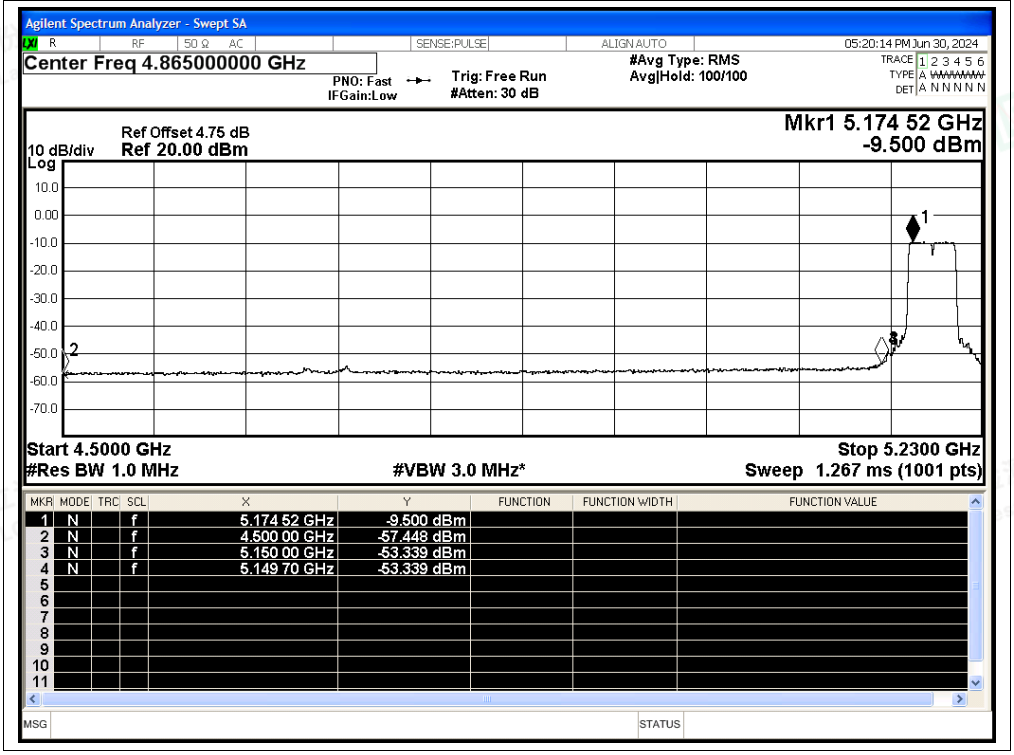
Restrict Band NVNT n20 5240MHz Ant1 Average



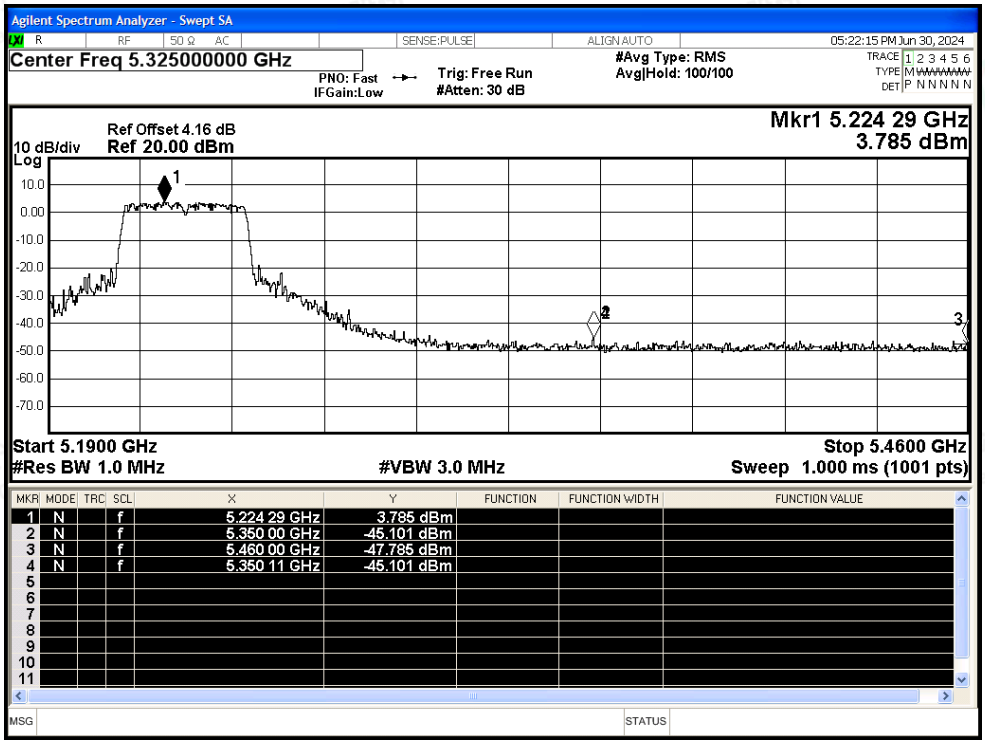
Restrict Band NVNT n40 5190MHz Ant1 Peak



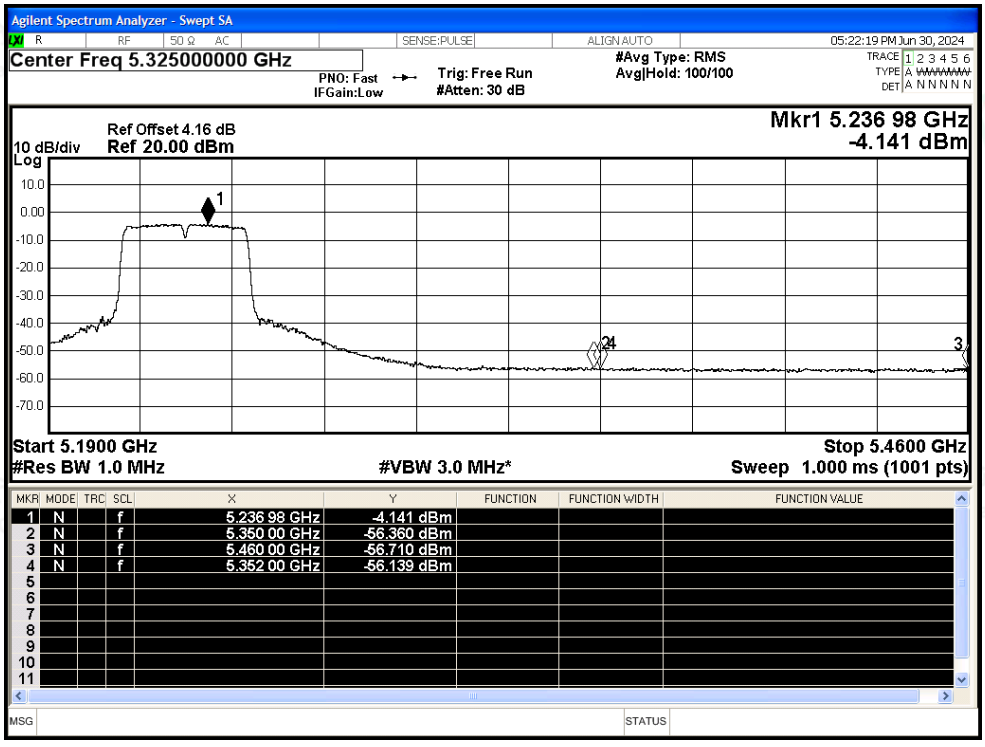
Restrict Band NVNT n40 5190MHz Ant1 Average



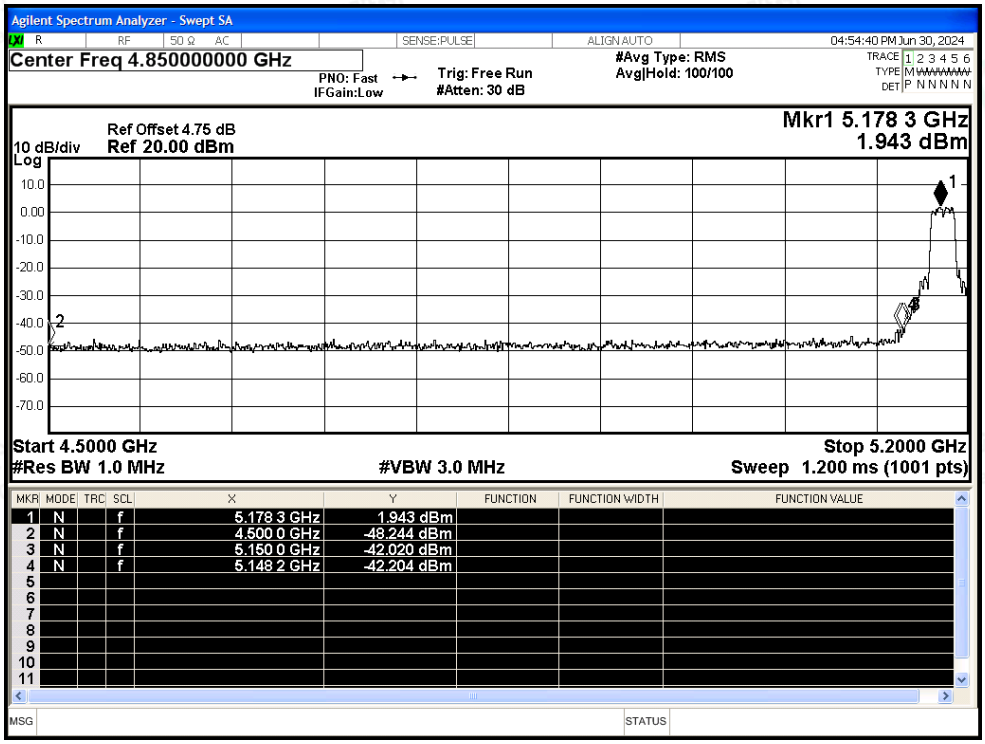
Restrict Band NVNT n40 5230MHz Ant1 Peak



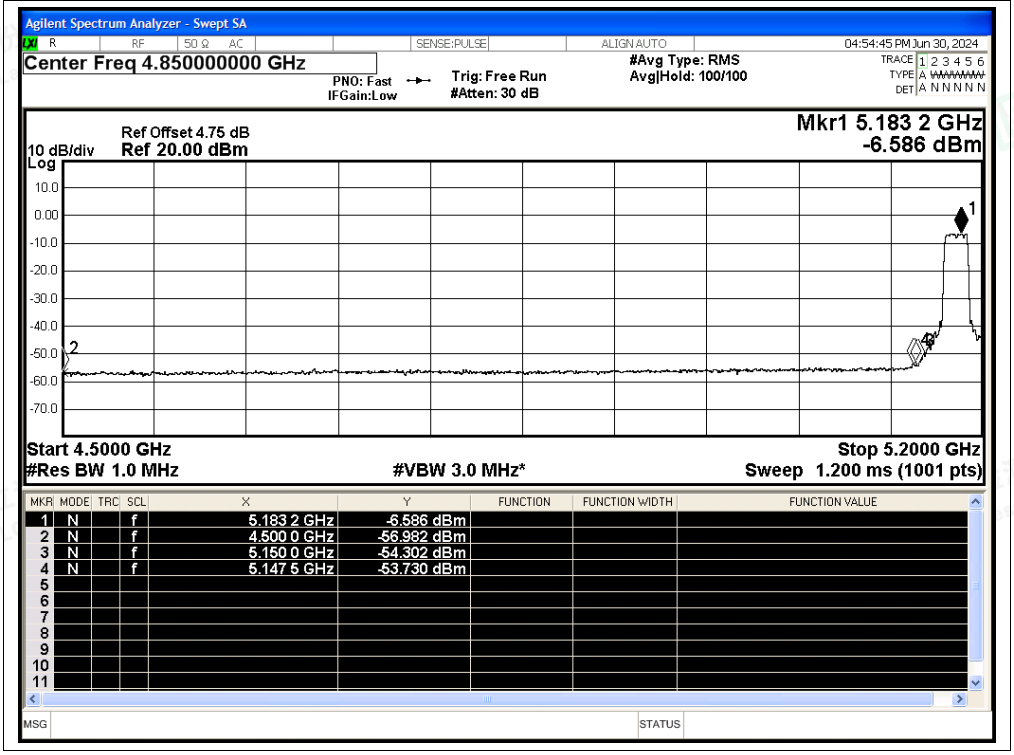
Restrict Band NVNT n40 5230MHz Ant1 Average



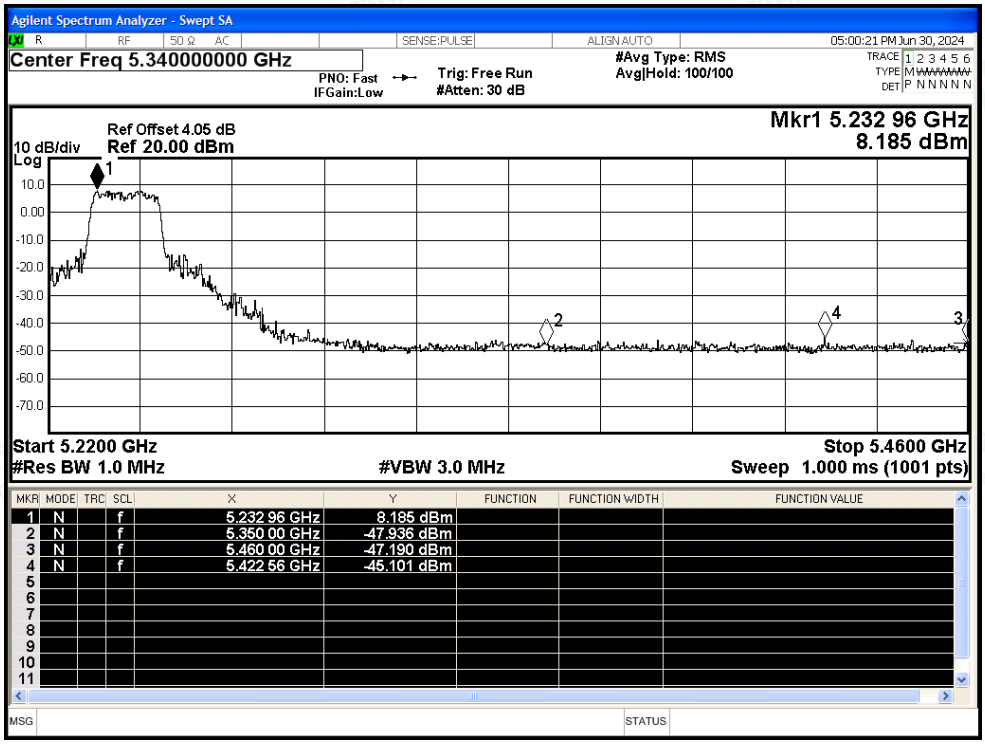
Restrict Band NVNT ac20 5180MHz Ant1 Peak



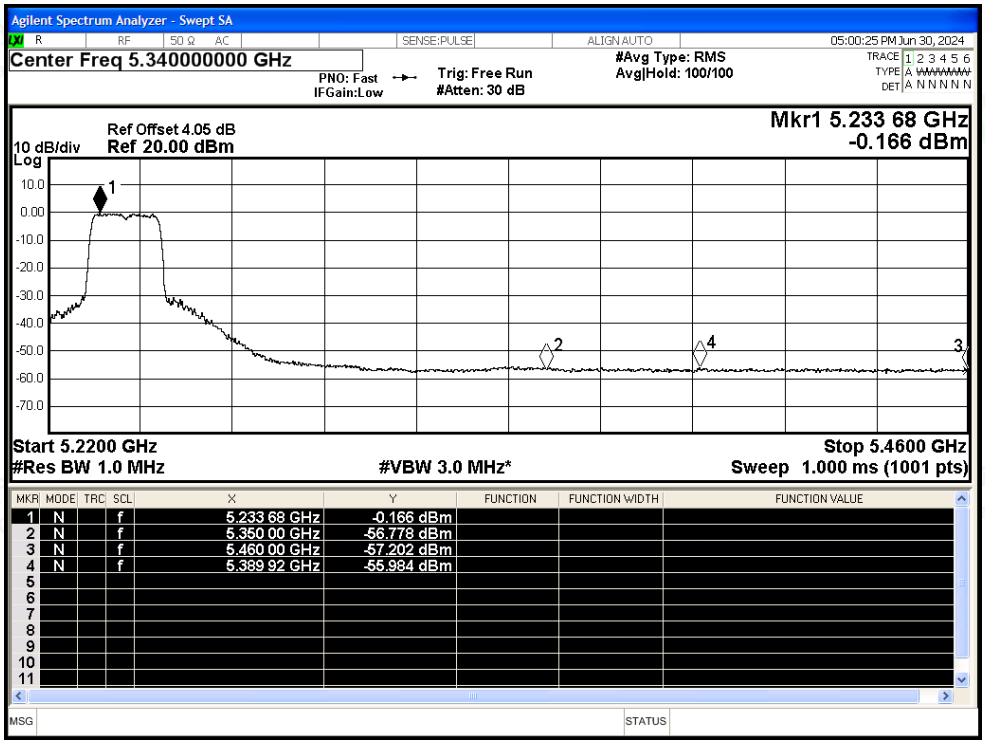
Restrict Band NVNT ac20 5180MHz Ant1 Average



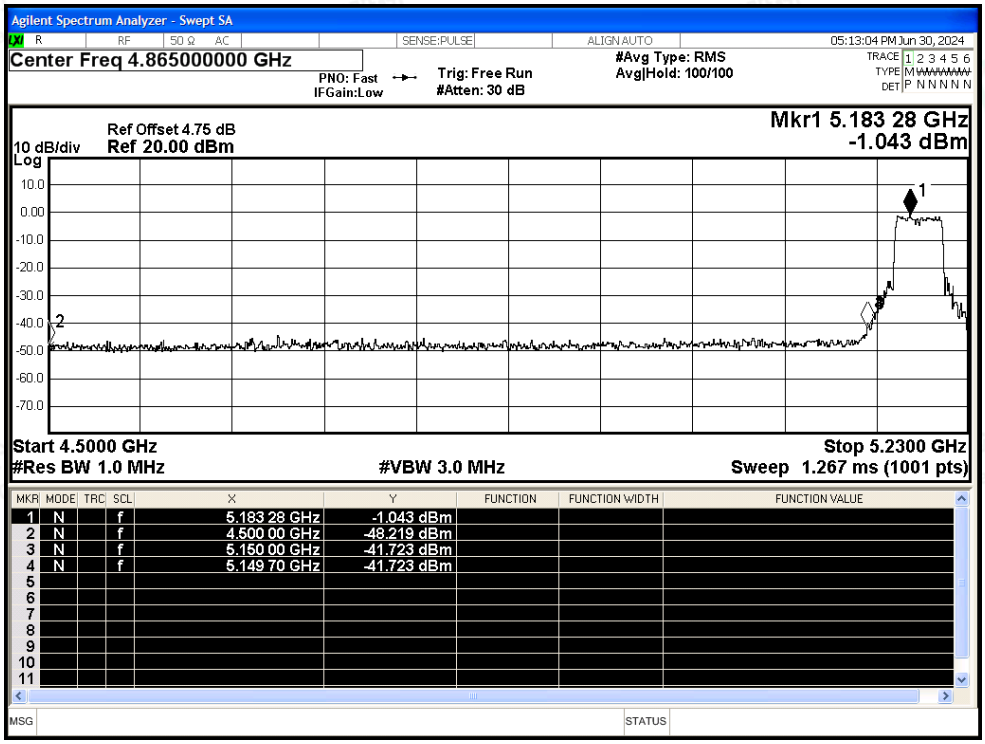
Restrict Band NVNT ac20 5240MHz Ant1 Peak



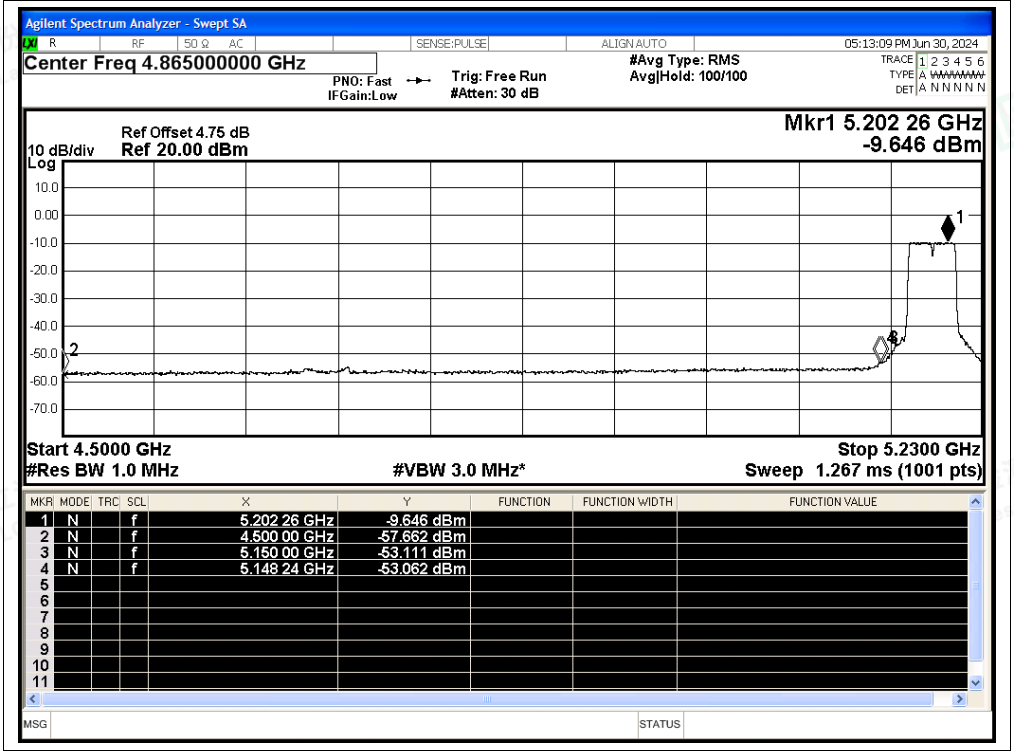
Restrict Band NVNT ac20 5240MHz Ant1 Average



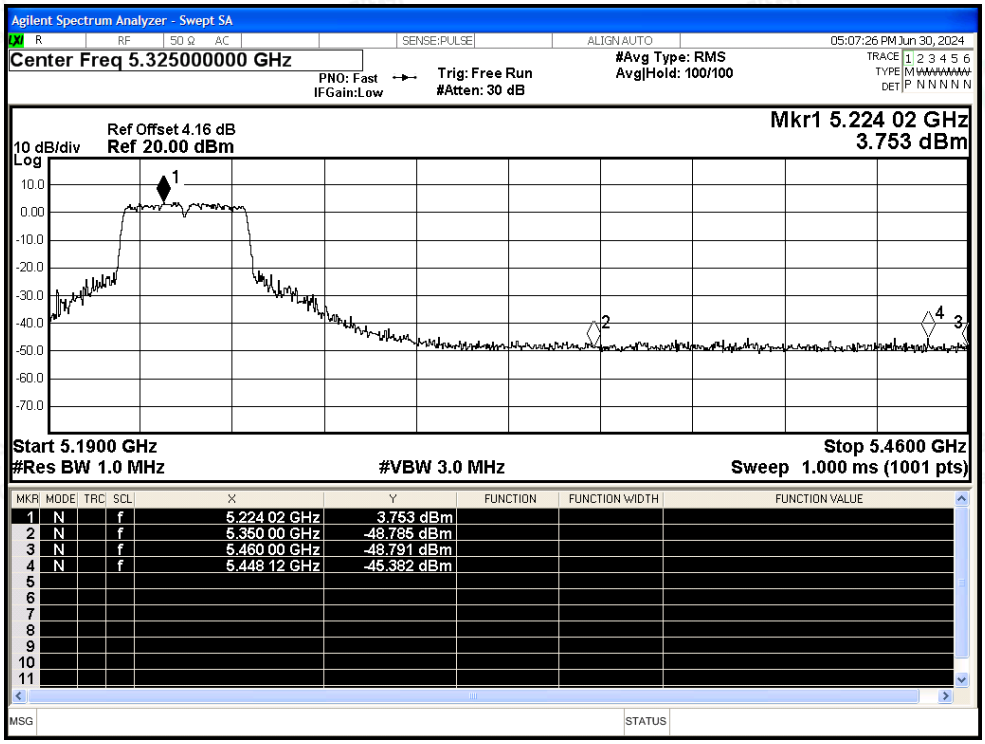
Restrict Band NVNT ac40 5190MHz Ant1 Peak



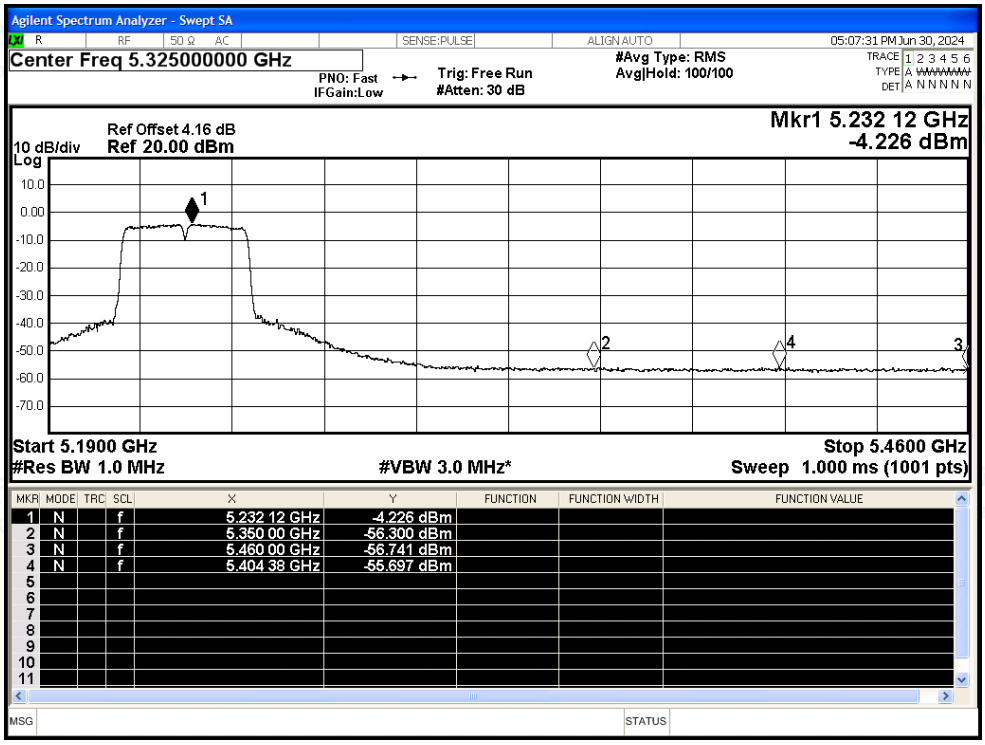
Restrict Band NVNT ac40 5190MHz Ant1 Average



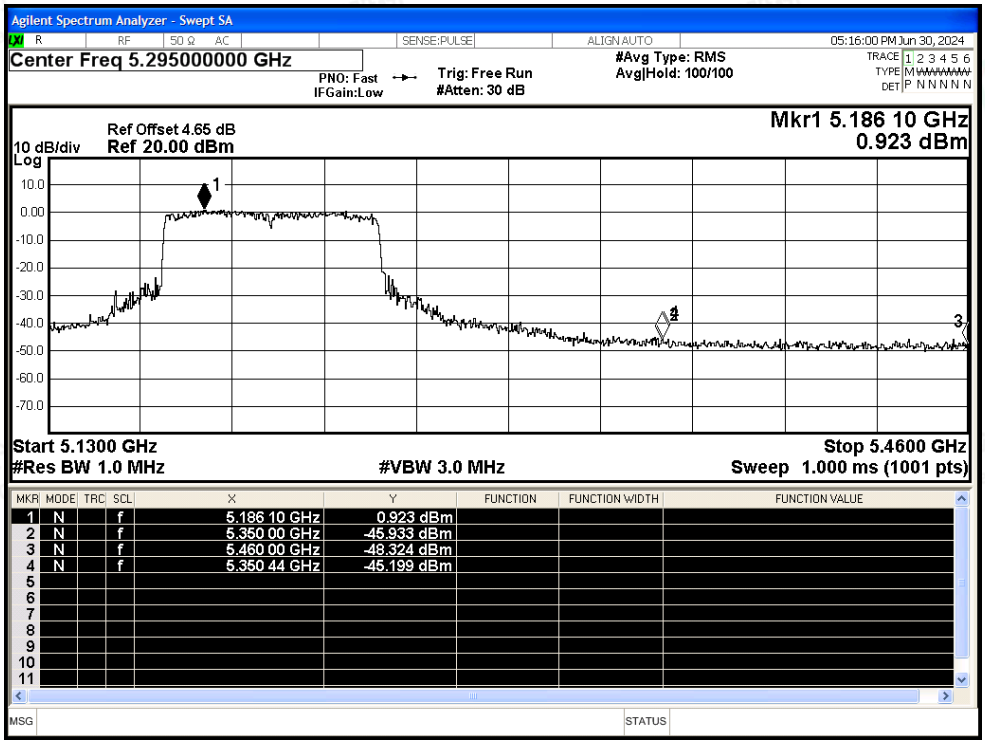
Restrict Band NVNT ac40 5230MHz Ant1 Peak



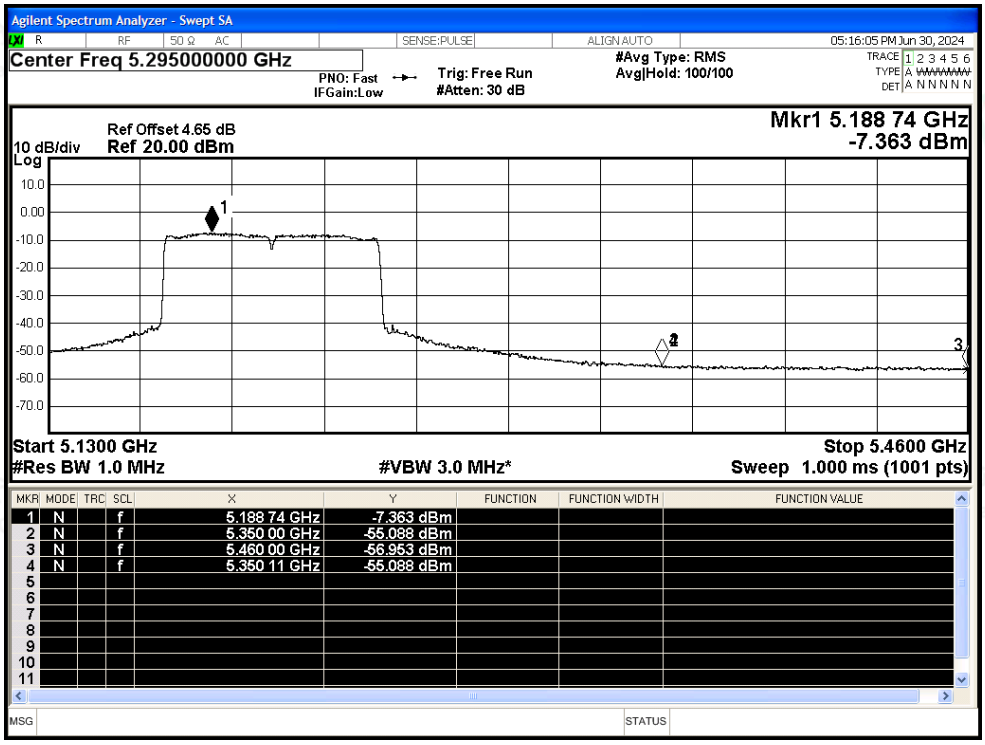
Restrict Band NVNT ac40 5230MHz Ant1 Average



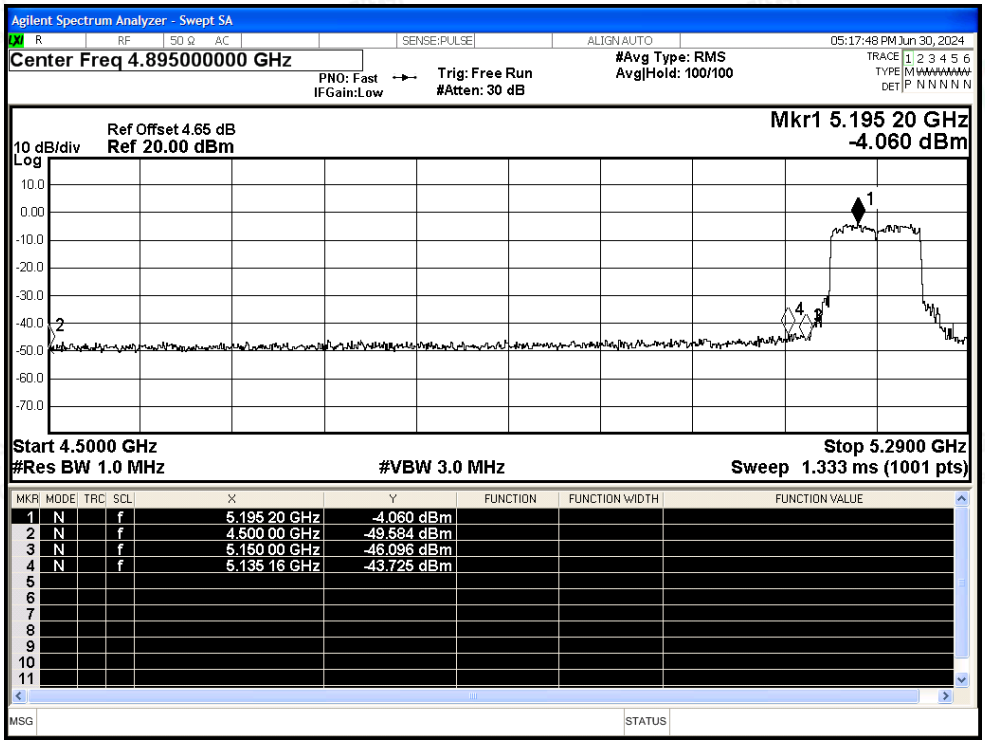
Restrict Band NVNT ac80 5210MHz Ant1 Peak



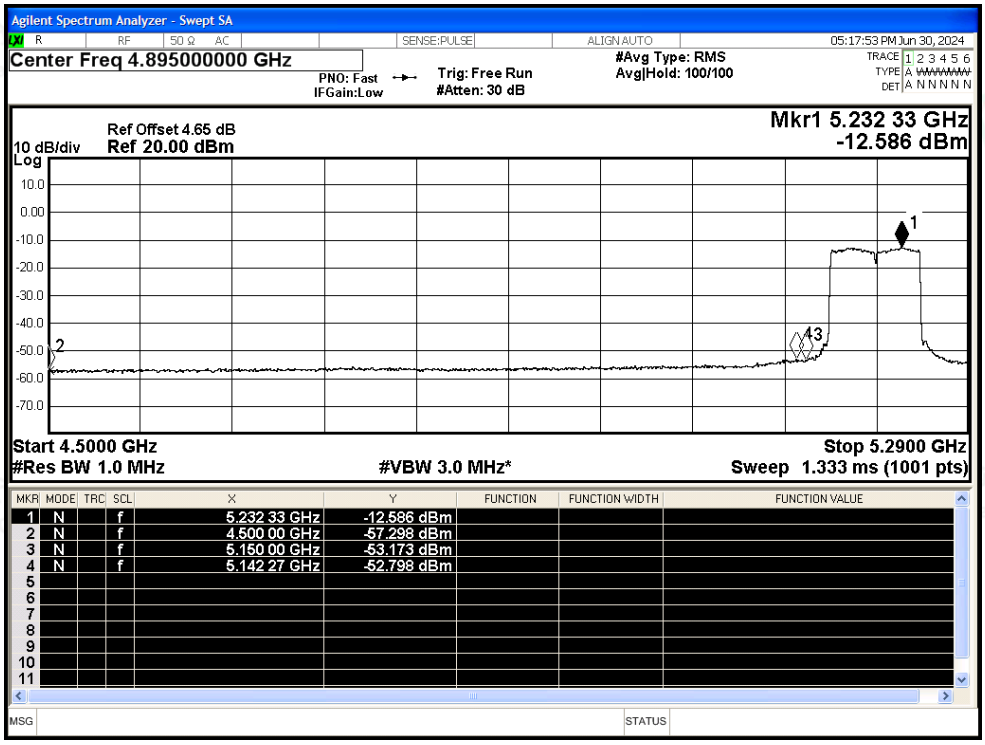
Restrict Band NVNT ac80 5210MHz Ant1 Average



Restrict Band NVNT ac80 5210MHz Ant1 Peak



Restrict Band NVNT ac80 5210MHz Ant1 Average

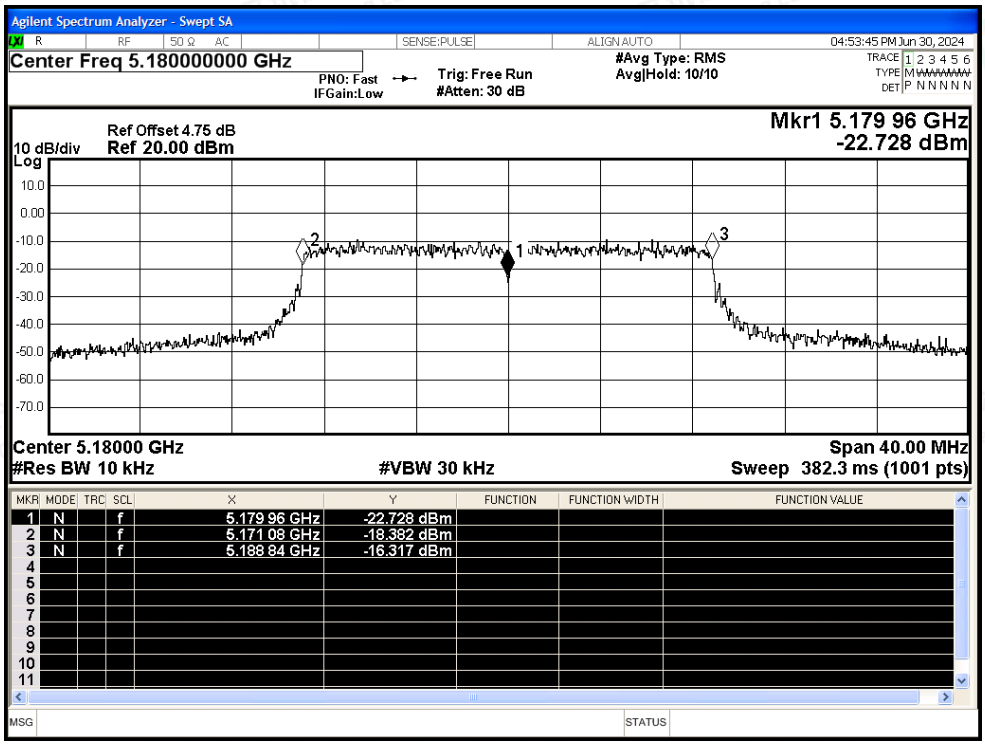


D.5 Frequency Stability

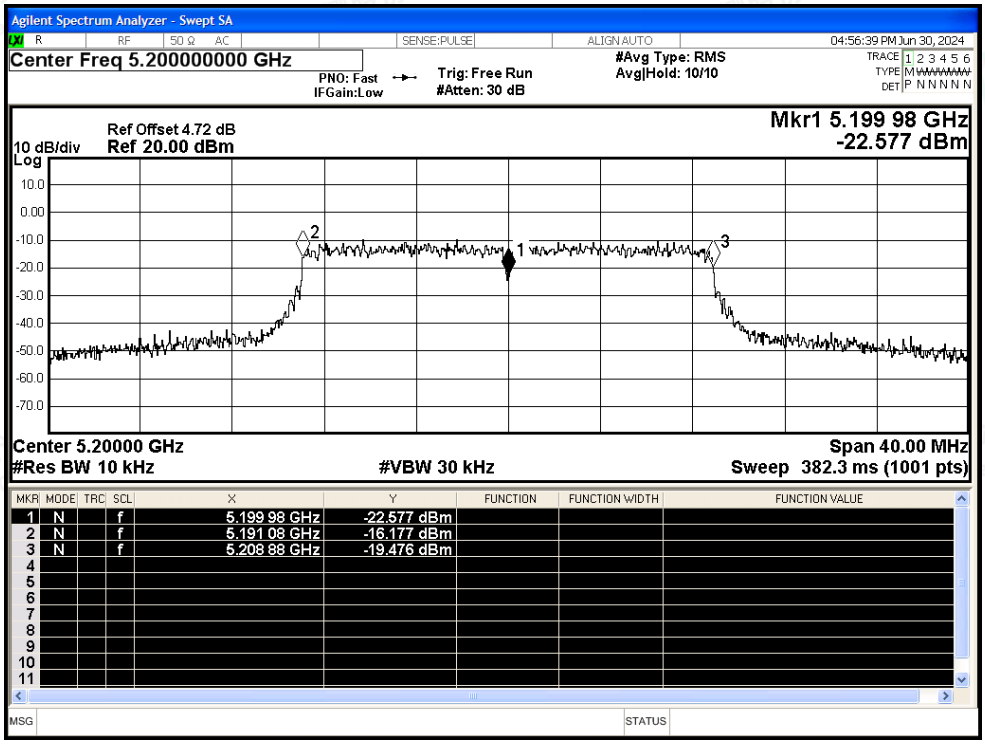
Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	ac20	5180	Ant1	5179.96	-40000	-7.72	25	Pass
NVNT	ac20	5200	Ant1	5199.98	-20000	-3.85	25	Pass
NVNT	ac20	5240	Ant1	5239.98	-20000	-3.82	25	Pass
NVNT	ac40	5190	Ant1	5190	0	0	25	Pass
NVNT	ac40	5230	Ant1	5230	0	0	25	Pass
NVNT	ac80	5210	Ant1	5210	0	0	25	Pass

Test Graphs

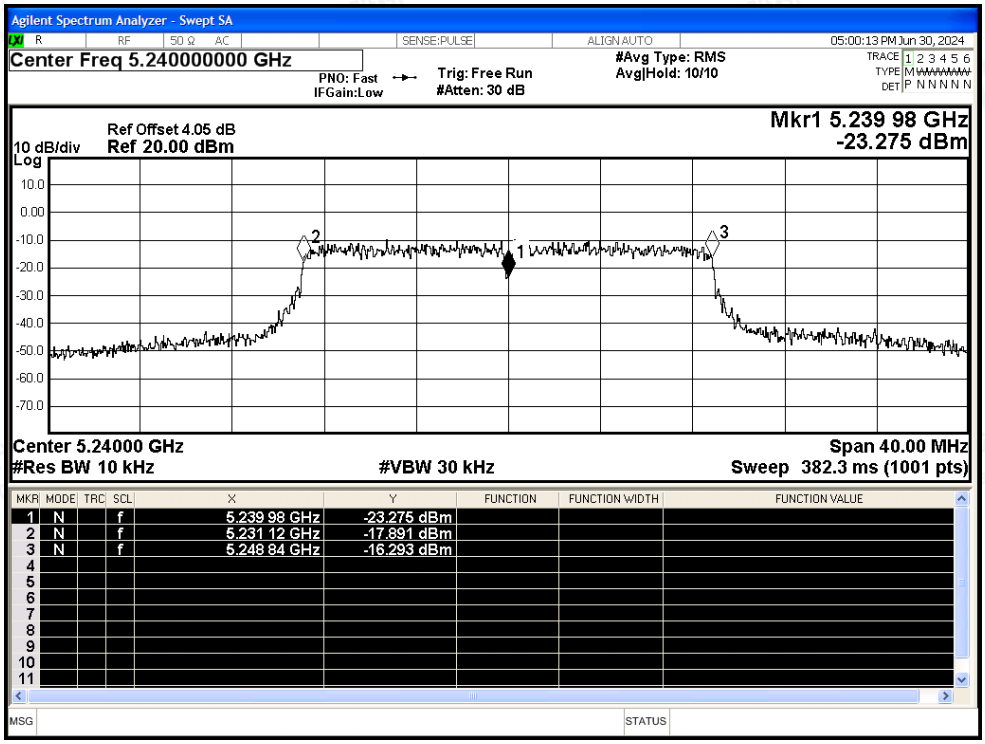
Freq. Stability NVNT ac20 5180MHz Ant1



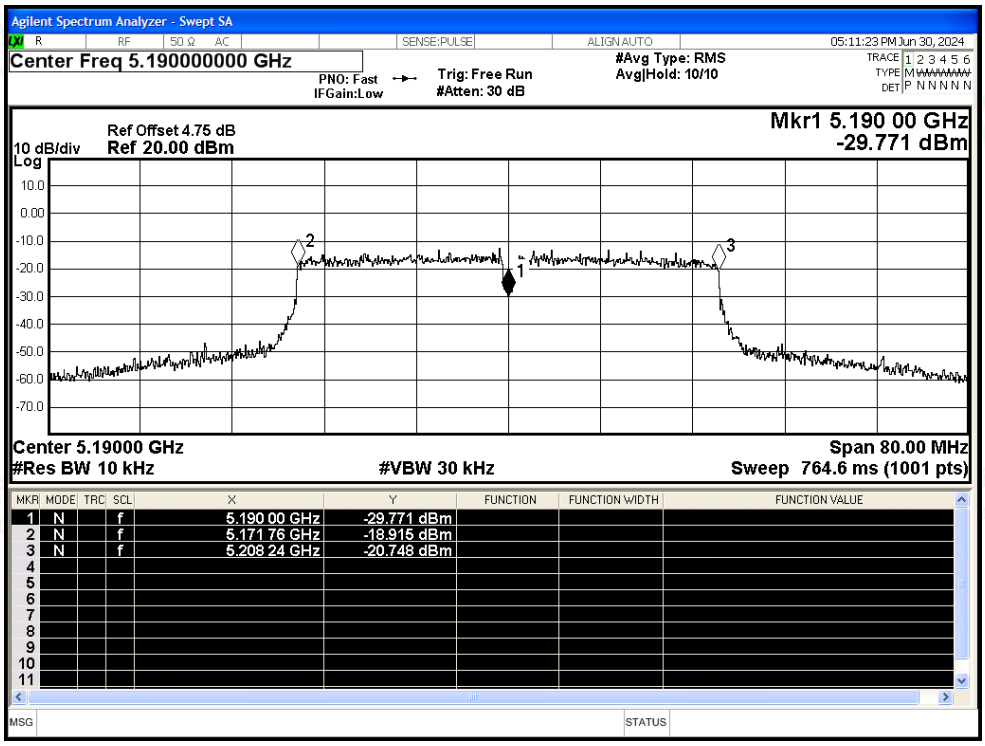
Freq. Stability NVNT ac20 5200MHz Ant1



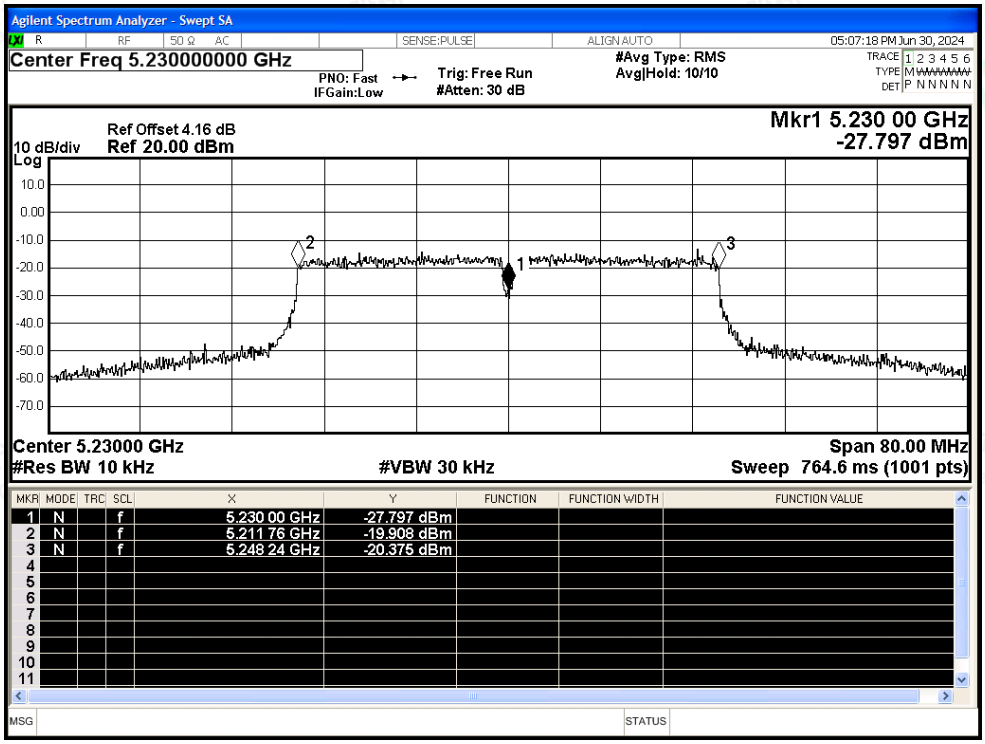
Freq. Stability NVNT ac20 5240MHz Ant1



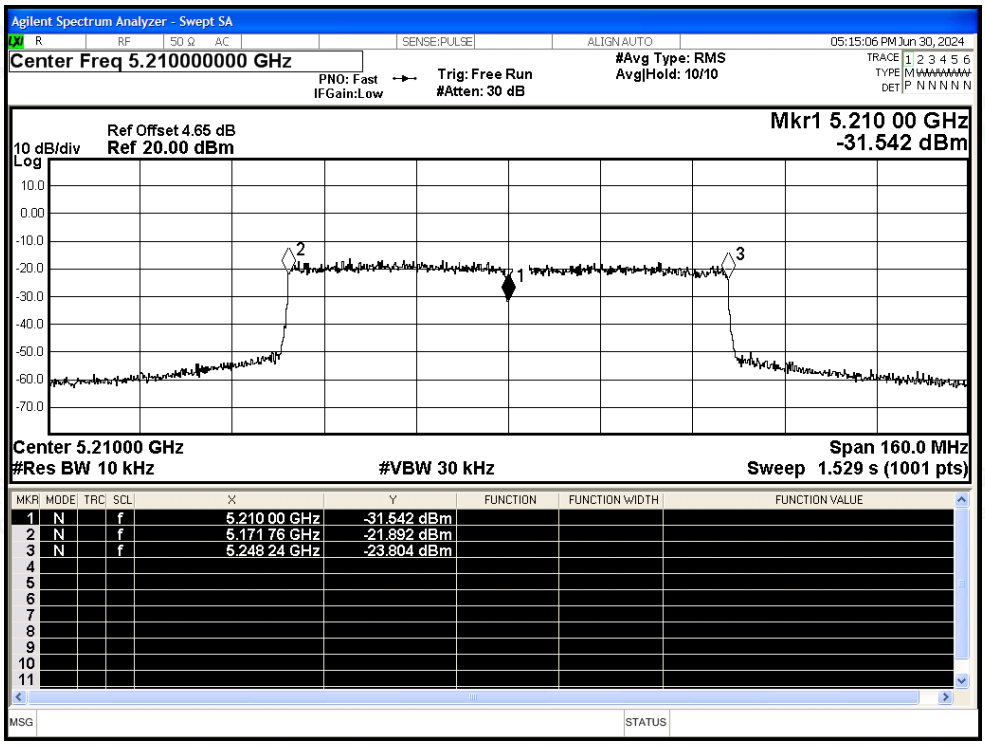
Freq. Stability NVNT ac40 5190MHz Ant1



Freq. Stability NVNT ac40 5230MHz Ant1



Freq. Stability NVNT ac80 5210MHz Ant1

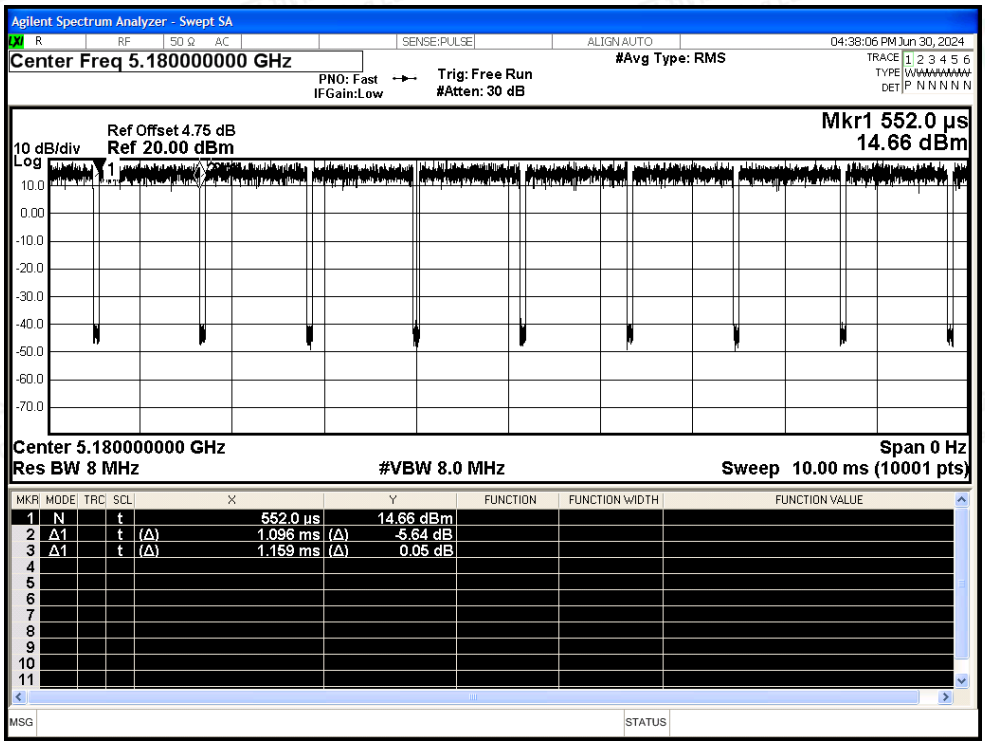


D.6 Duty Cycle

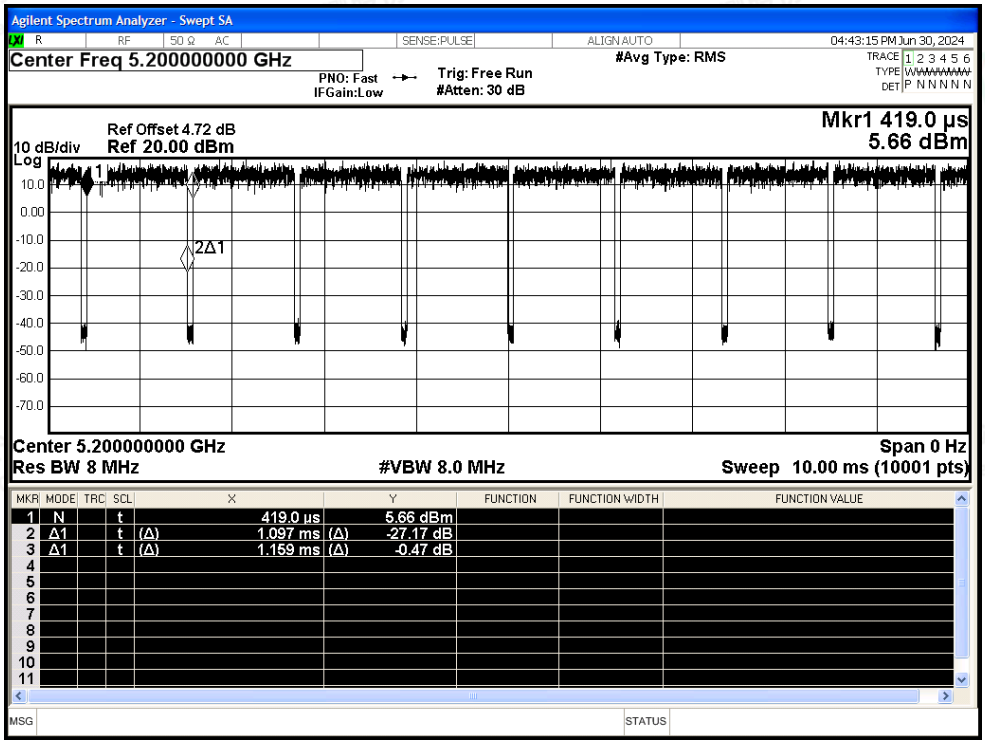
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	94.56	0.24	0.91
NVNT	a	5200	Ant1	94.65	0.24	0.91
NVNT	a	5240	Ant1	94.56	0.24	0.91
NVNT	n20	5180	Ant1	93.67	0.28	1.07
NVNT	n20	5200	Ant1	93.67	0.28	1.07
NVNT	n20	5240	Ant1	93.67	0.28	1.07
NVNT	n40	5190	Ant1	97.18	0.12	0.46
NVNT	n40	5230	Ant1	97.23	0.12	0.46
NVNT	ac20	5180	Ant1	93.72	0.28	1.06
NVNT	ac20	5200	Ant1	93.72	0.28	1.06
NVNT	ac20	5240	Ant1	93.72	0.28	1.06
NVNT	ac40	5190	Ant1	97.19	0.12	0.46
NVNT	ac40	5230	Ant1	97.24	0.12	0.46
NVNT	ac80	5210	Ant1	94.41	0.25	0.97

Test Graphs

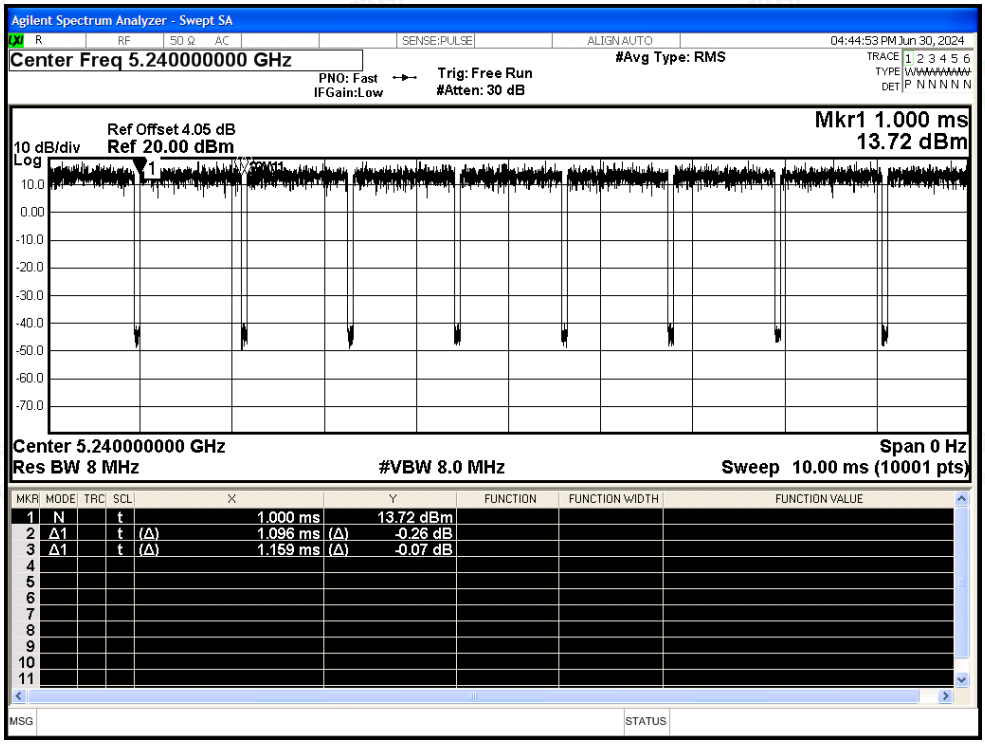
Duty Cycle NVNT a 5180MHz Ant1



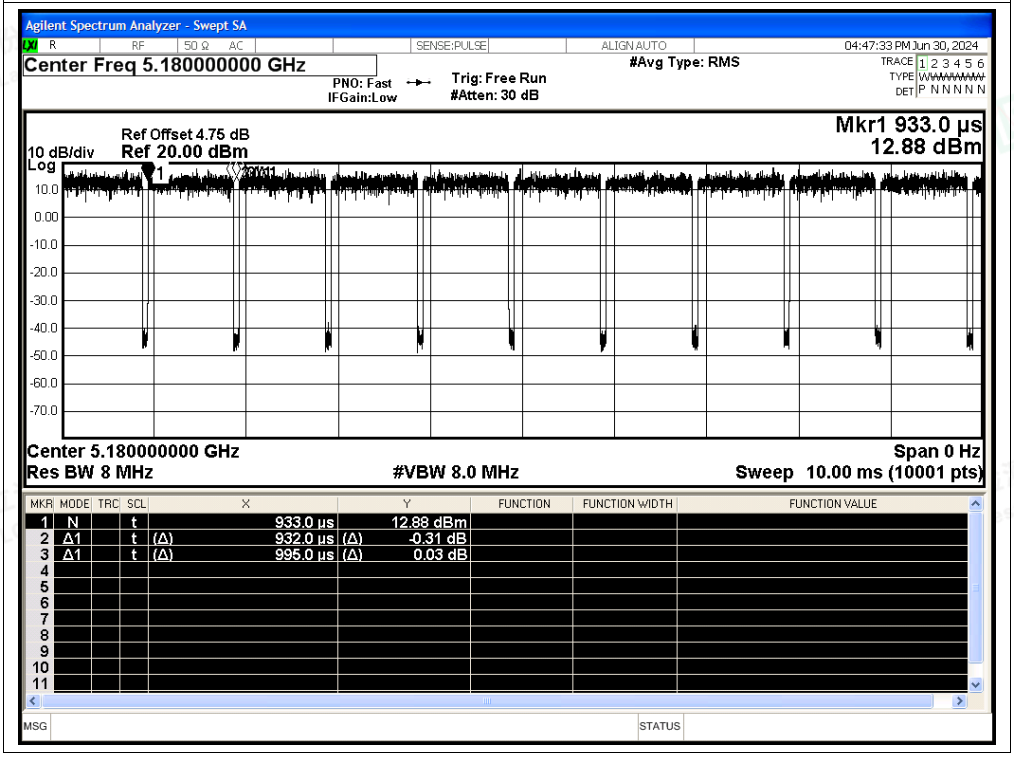
Duty Cycle NVNT a 5200MHz Ant1



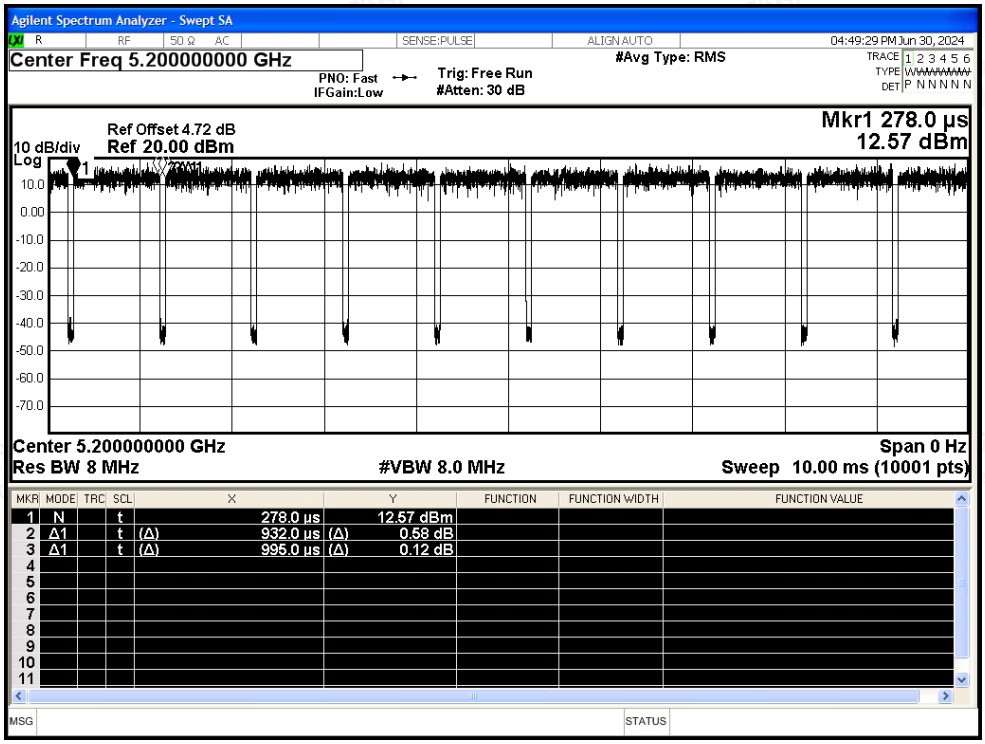
Duty Cycle NVNT a 5240MHz Ant1



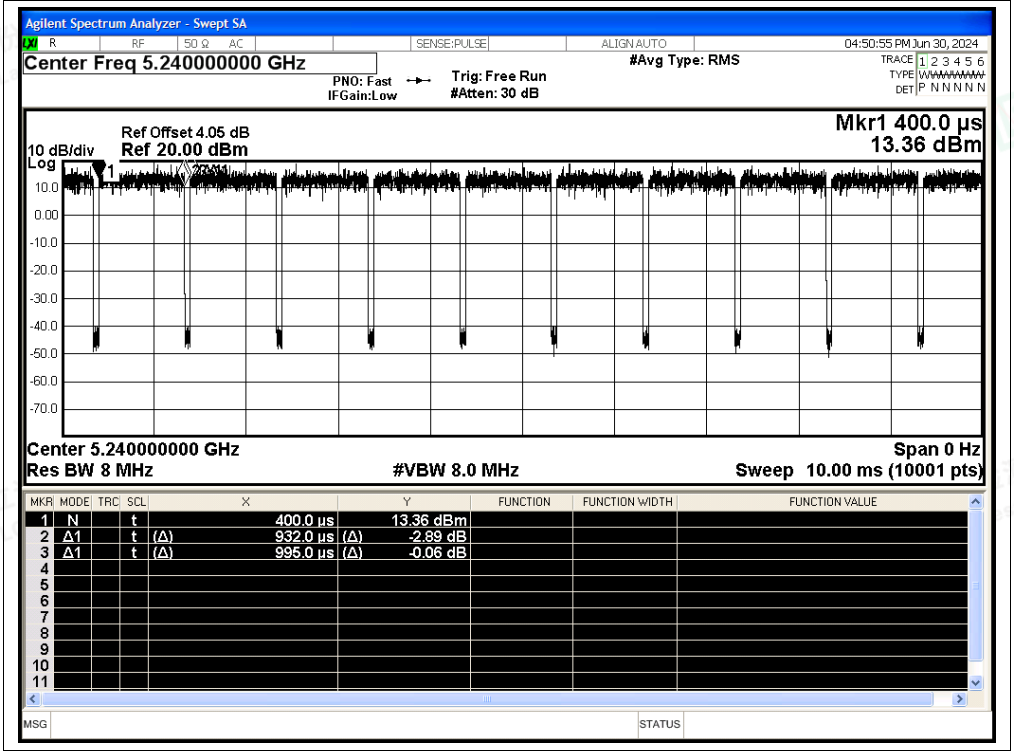
Duty Cycle NVNT n20 5180MHz Ant1



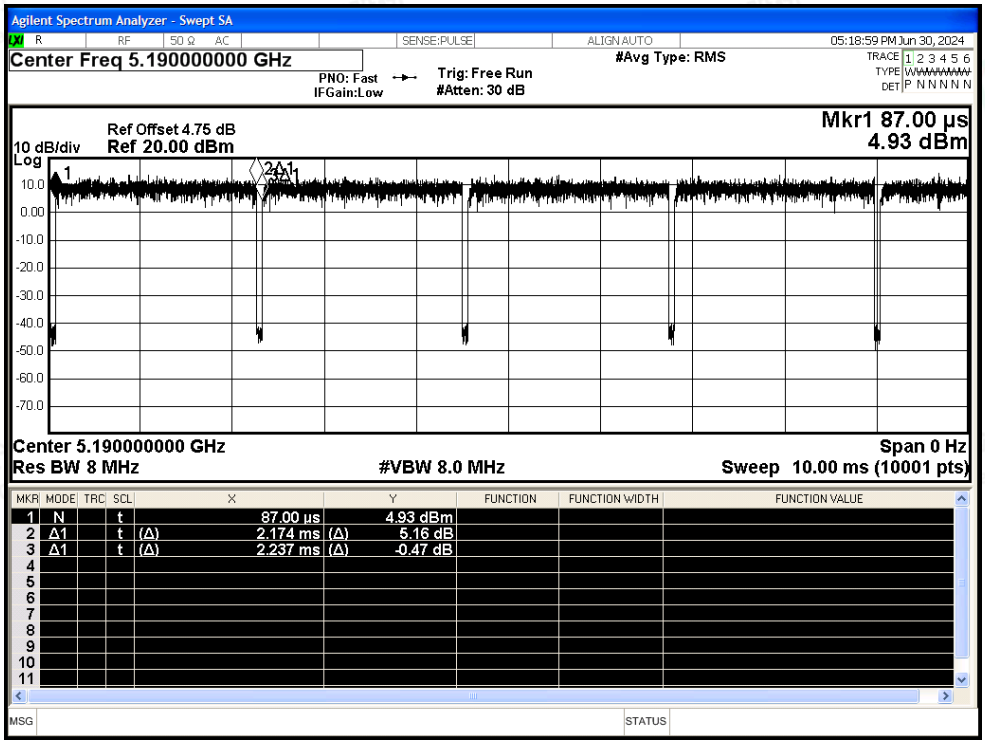
Duty Cycle NVNT n20 5200MHz Ant1



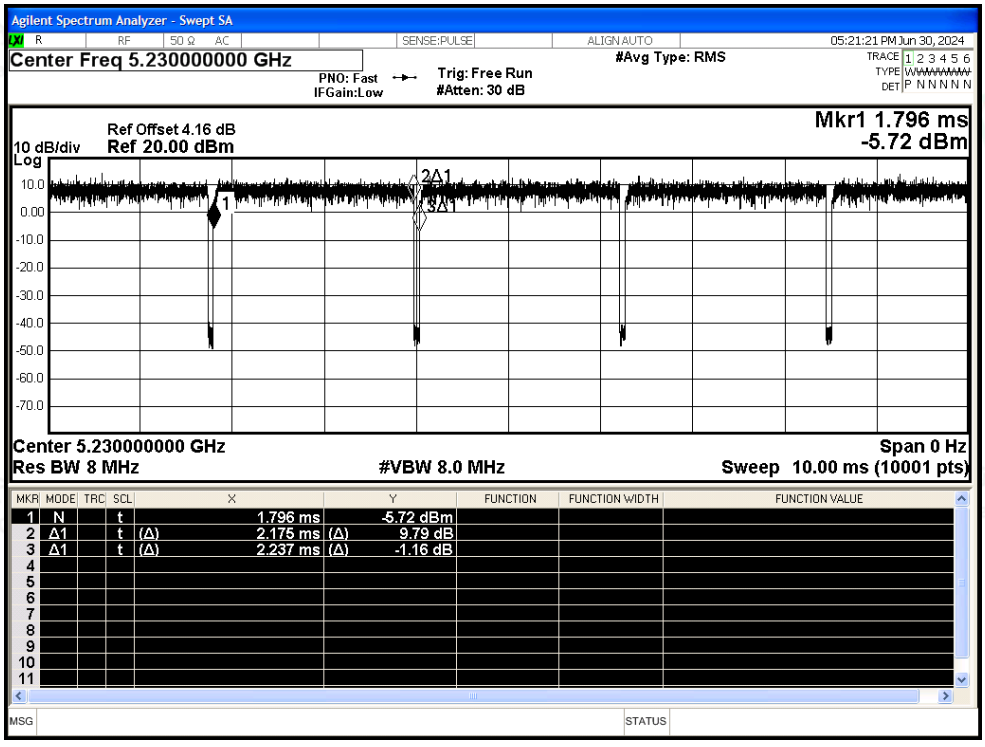
Duty Cycle NVNT n20 5240MHz Ant1



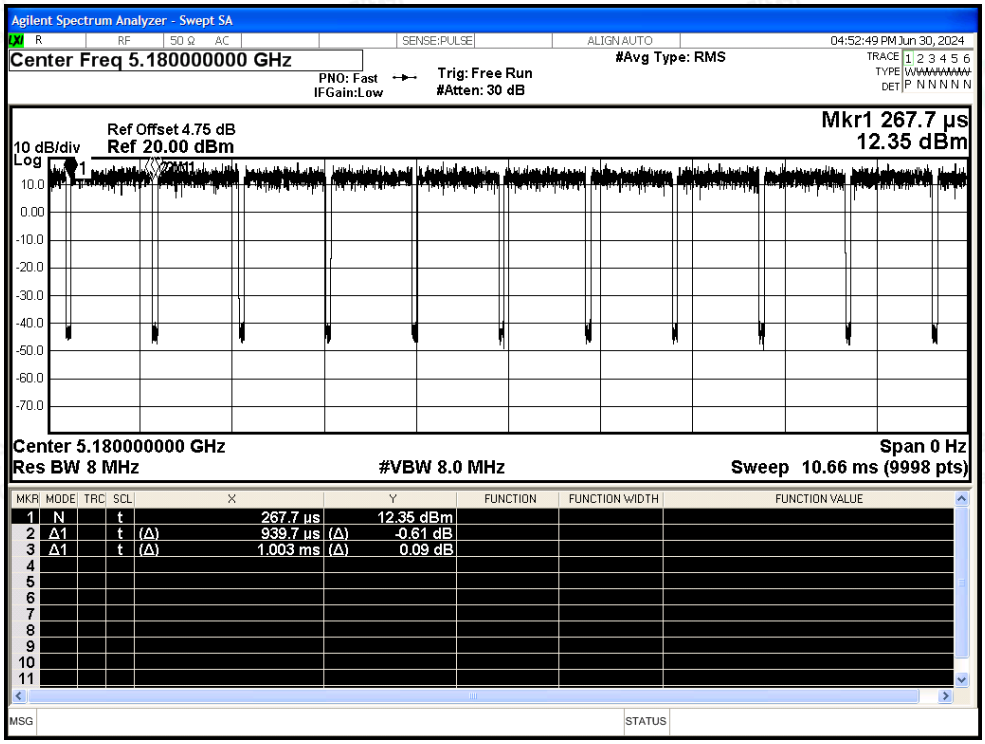
Duty Cycle NVNT n40 5190MHz Ant1



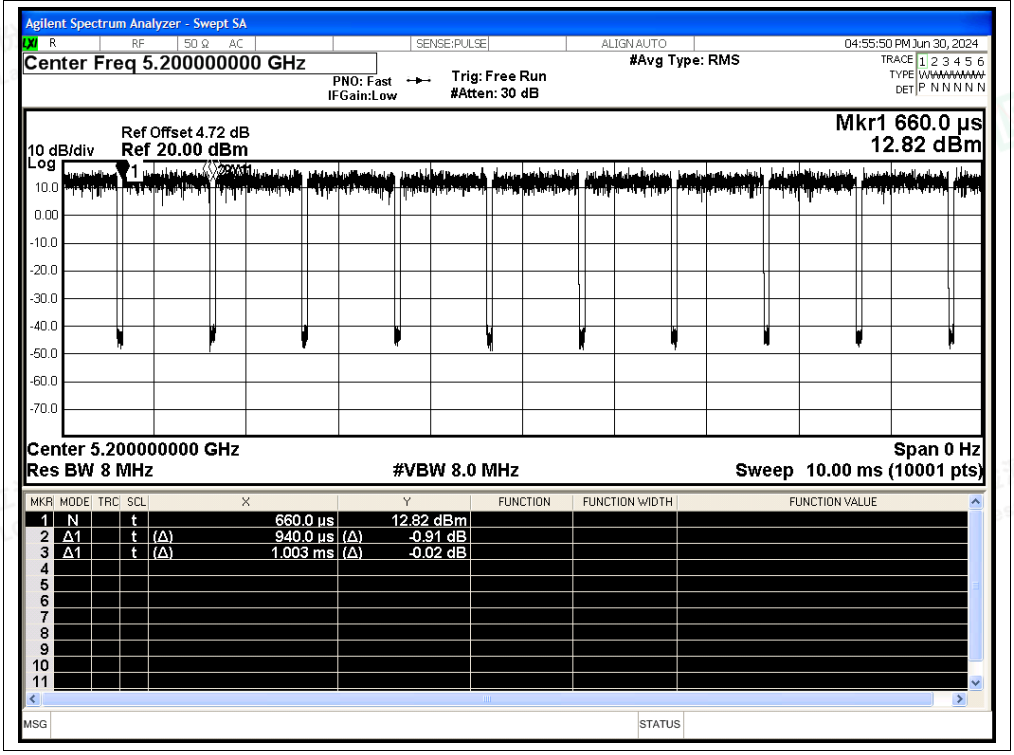
Duty Cycle NVNT n40 5230MHz Ant1



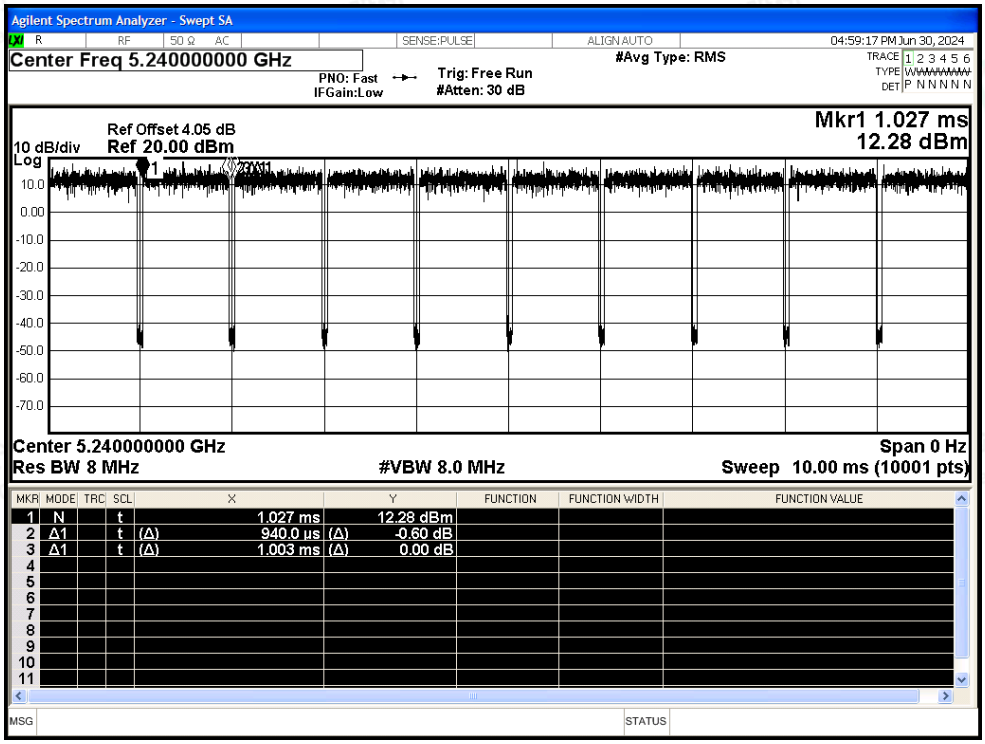
Duty Cycle NVNT ac20 5180MHz Ant1



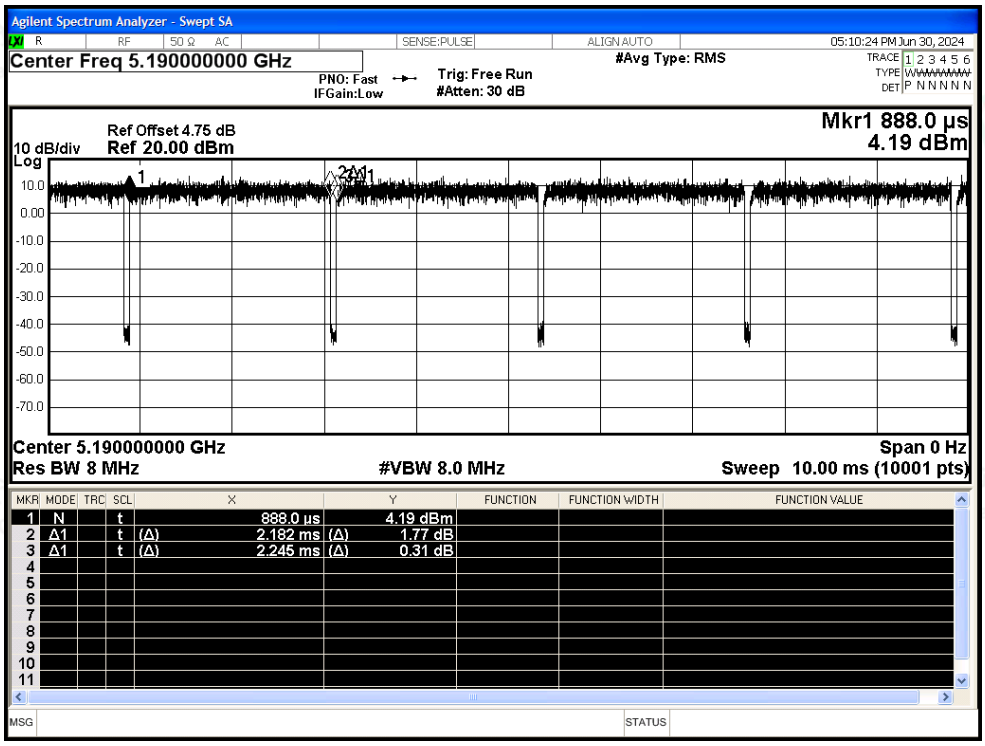
Duty Cycle NVNT ac20 5200MHz Ant1



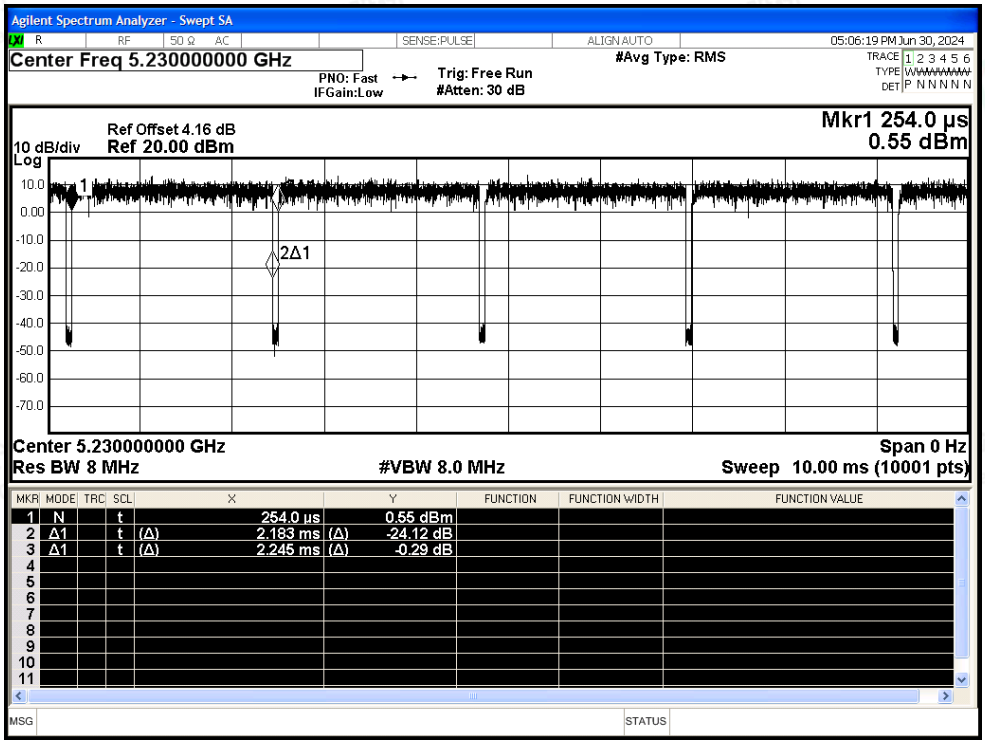
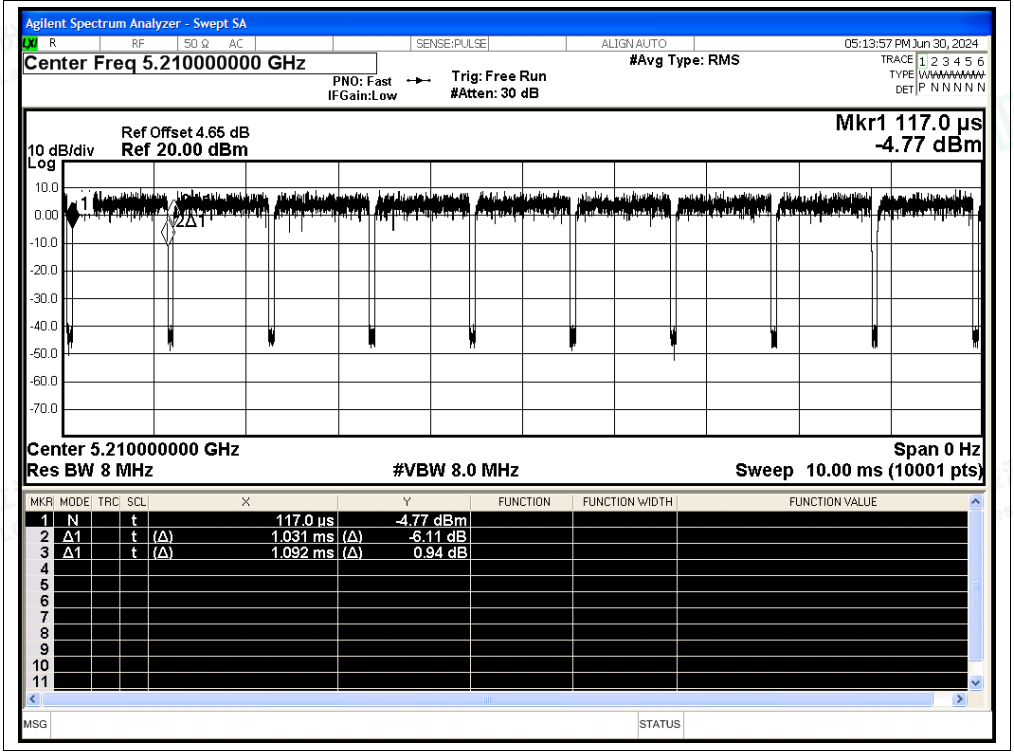
Duty Cycle NVNT ac20 5240MHz Ant1



Duty Cycle NVNT ac40 5190MHz Ant1



Duty Cycle NVNT ac40 5230MHz Ant1



Duty Cycle NVNT ac80 5210MHz Ant1