



Appendix D

RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name: Wireless 3D wheel Aligner

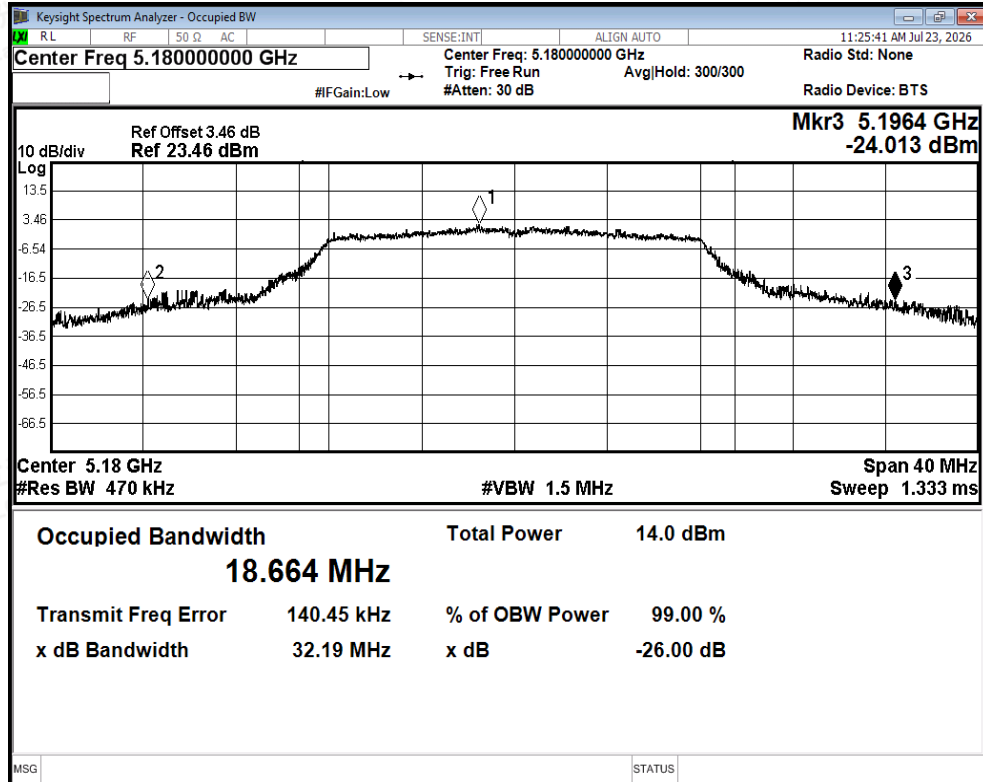
Test Model: WA613 V2.0

Environmental Conditions	
Temperature:	24.2° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Faith Li
Supervised by:	Can Kun

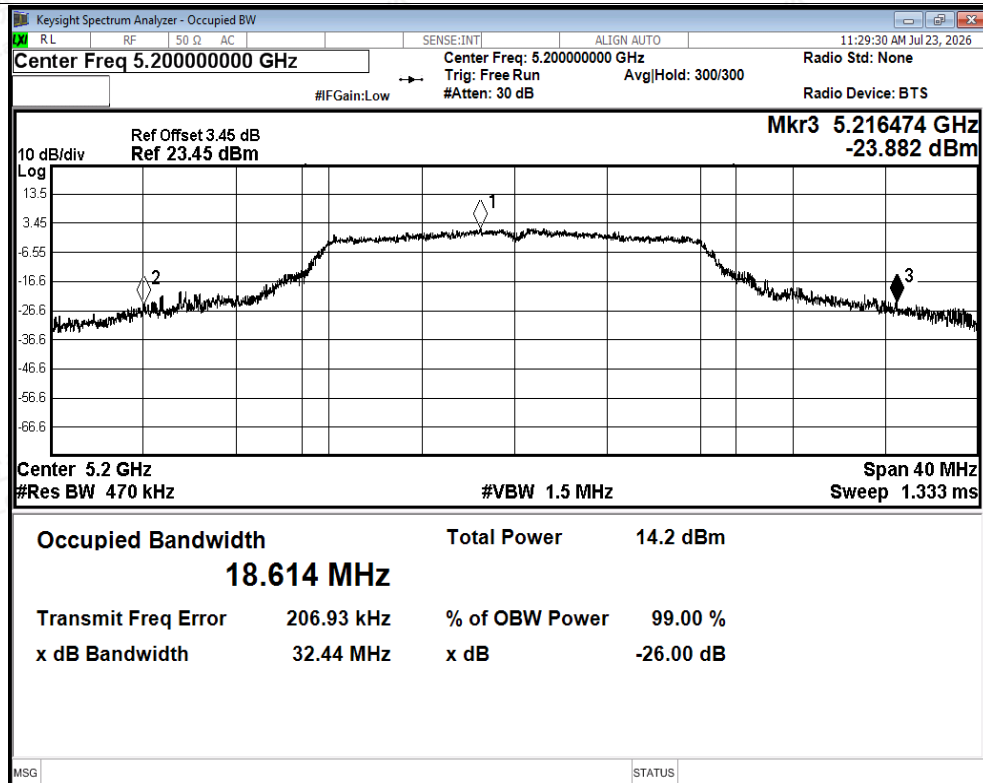


D.1 -26dB Bandwidth

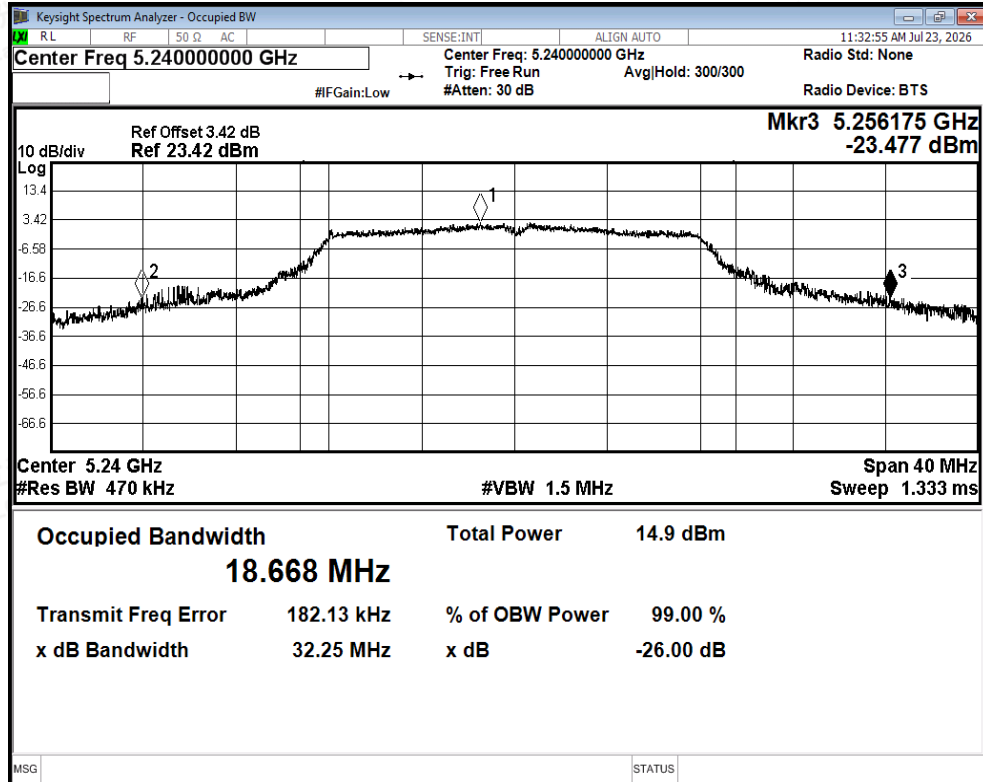
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)
NVNT	a	5180	Ant1	32.19
NVNT	a	5200	Ant1	32.44
NVNT	a	5240	Ant1	32.25
NVNT	n20	5180	Ant1	35.7
NVNT	n20	5200	Ant1	31.42
NVNT	n20	5240	Ant1	35.6
NVNT	n40	5190	Ant1	40.04
NVNT	n40	5230	Ant1	40.03
NVNT	ac20	5180	Ant1	21.53
NVNT	ac20	5200	Ant1	21.98
NVNT	ac20	5240	Ant1	21.56
NVNT	ac40	5190	Ant1	40.02
NVNT	ac40	5230	Ant1	40.09
NVNT	ac80	5210	Ant1	81.42



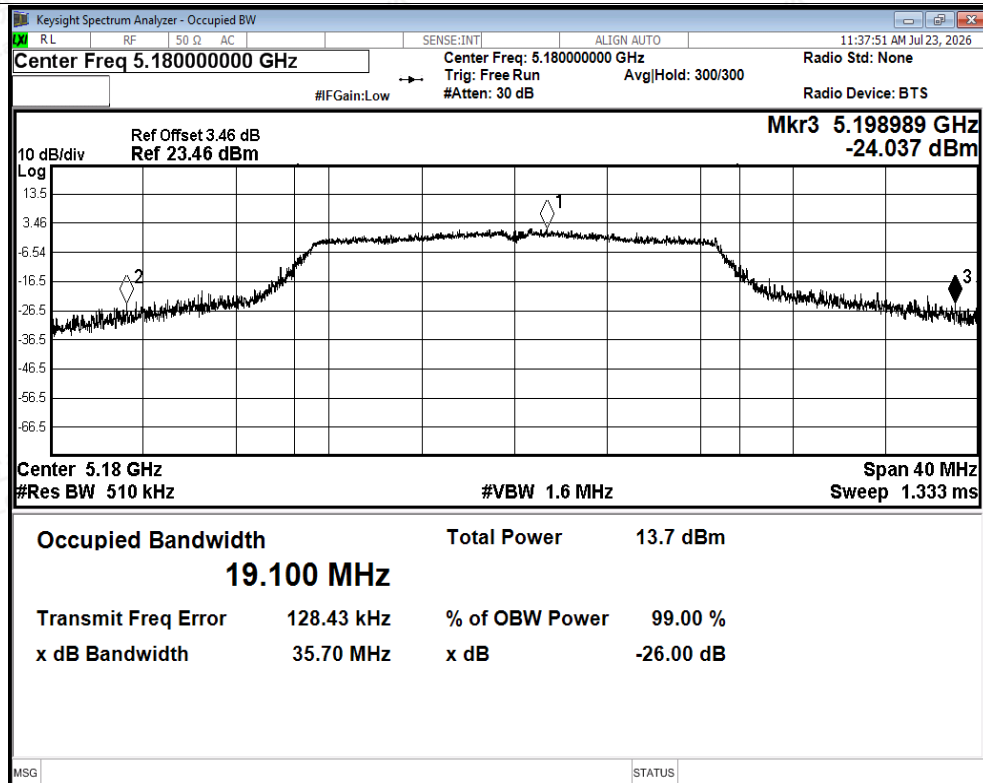
-26dB Bandwidth NVNT a 5180MHz Ant1



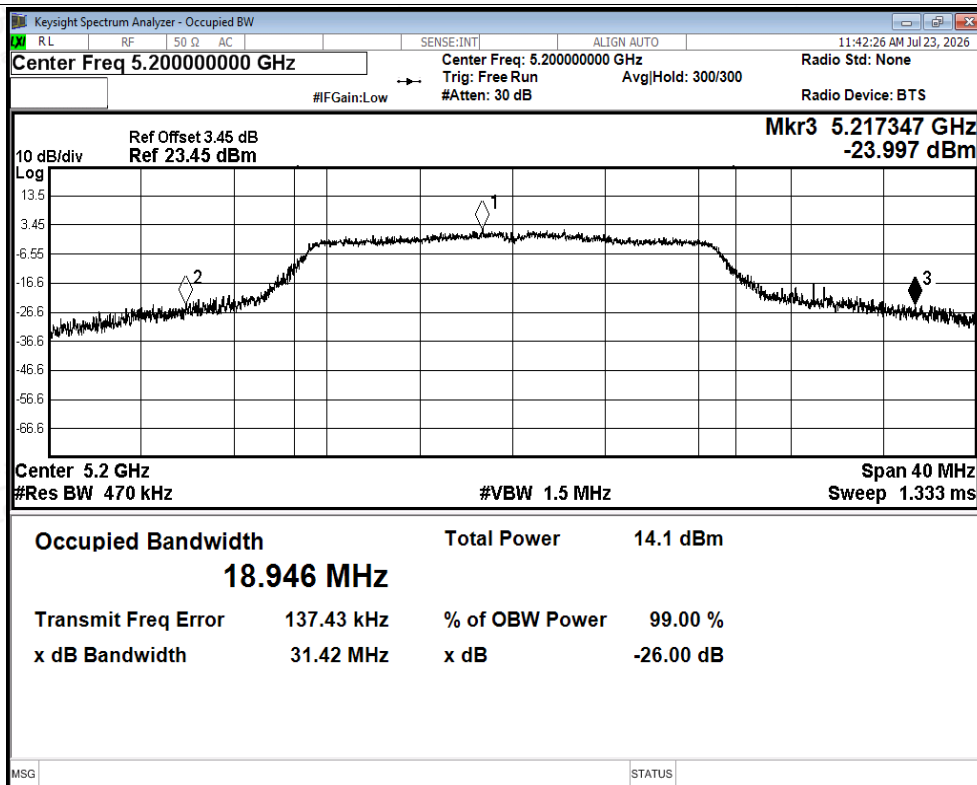
-26dB Bandwidth NVNT a 5200MHz Ant1



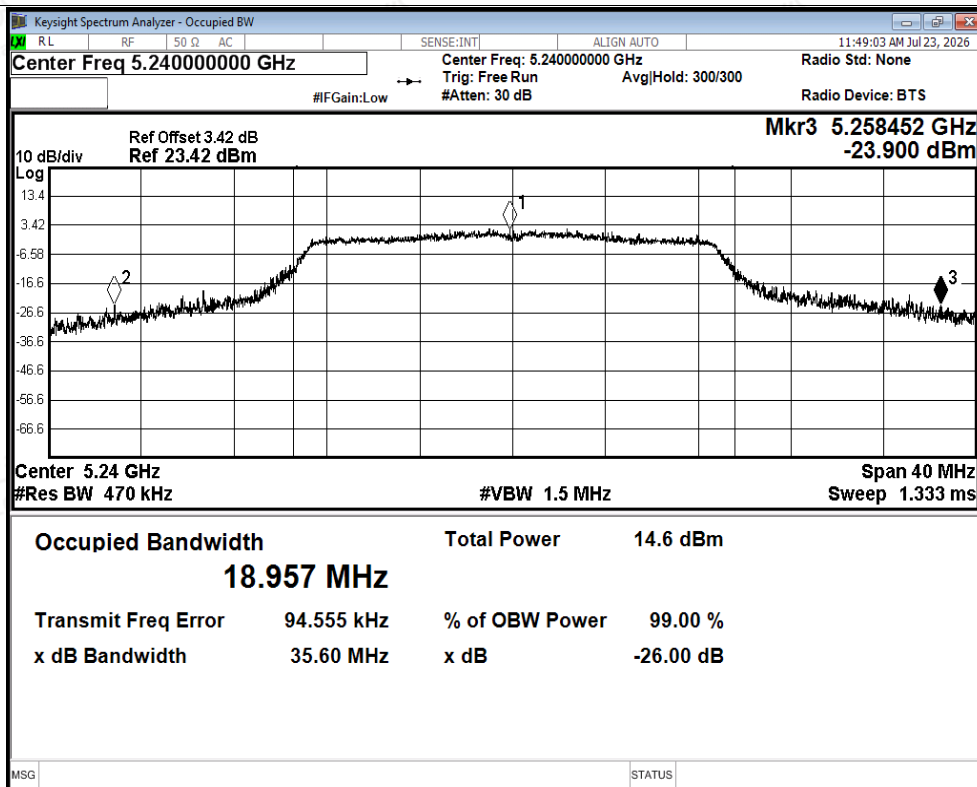
-26dB Bandwidth NVNT a 5240MHz Ant1



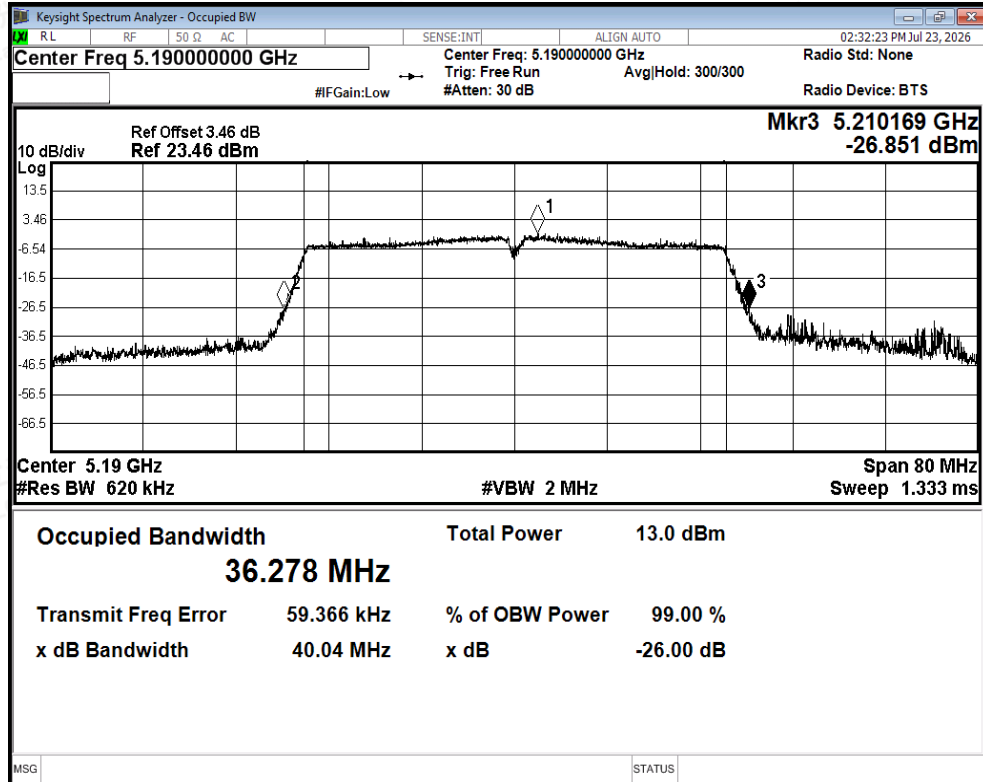
-26dB Bandwidth NVNT n20 5180MHz Ant1



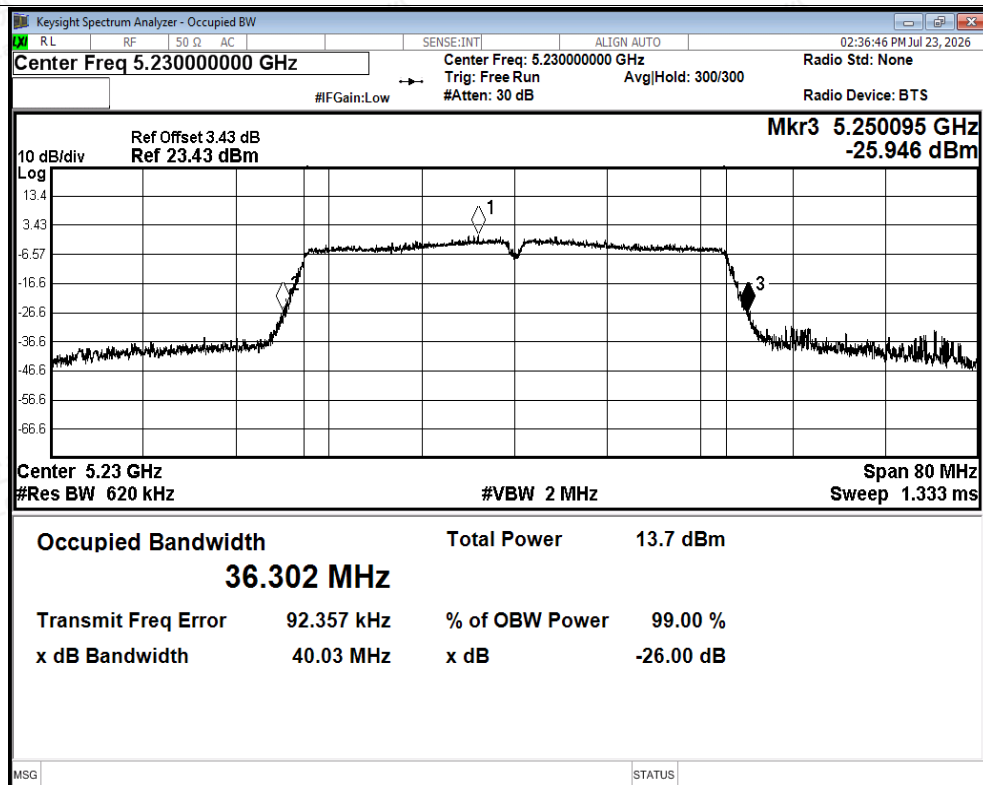
-26dB Bandwidth NVNT n20 5200MHz Ant1



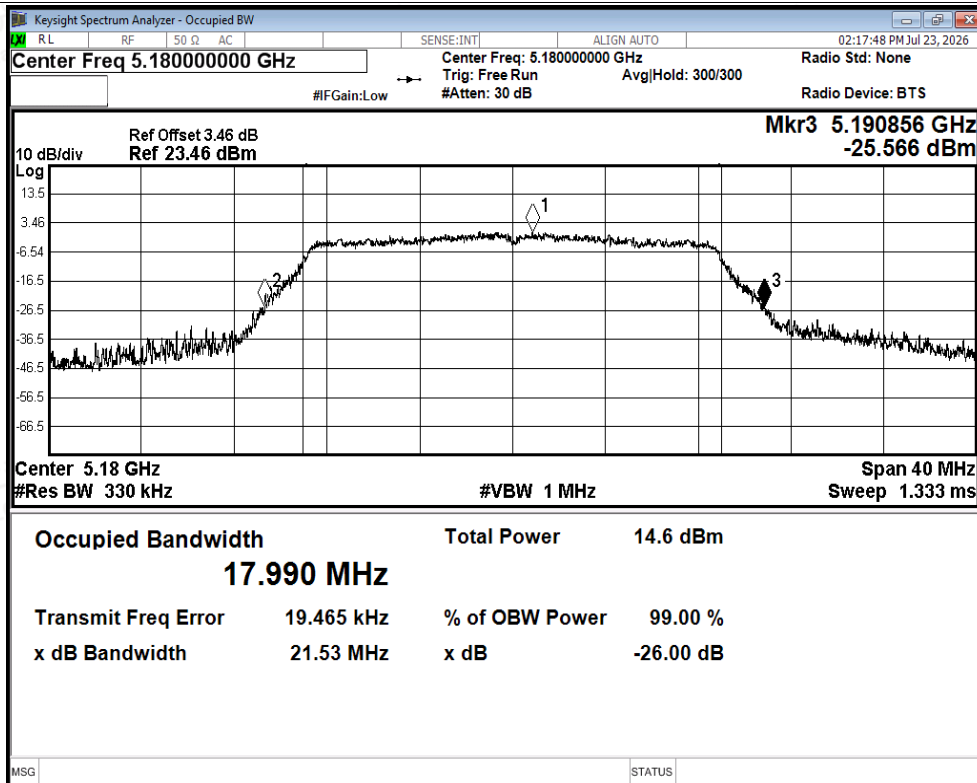
-26dB Bandwidth NVNT n20 5240MHz Ant1



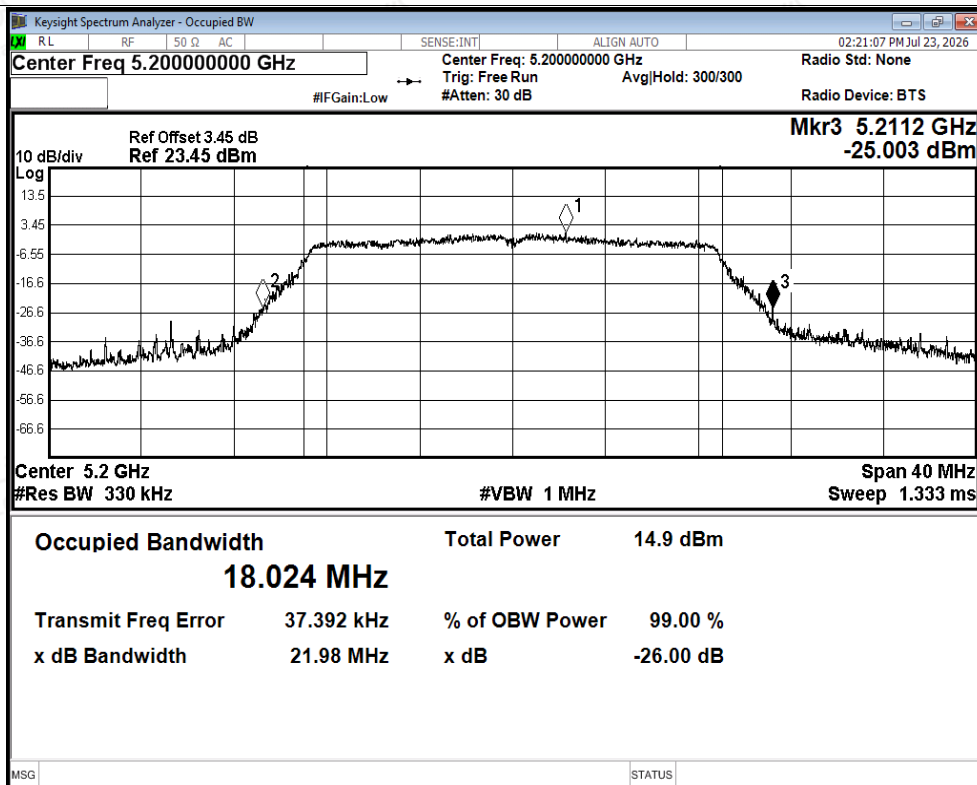
-26dB Bandwidth NVNT n40 5190MHz Ant1



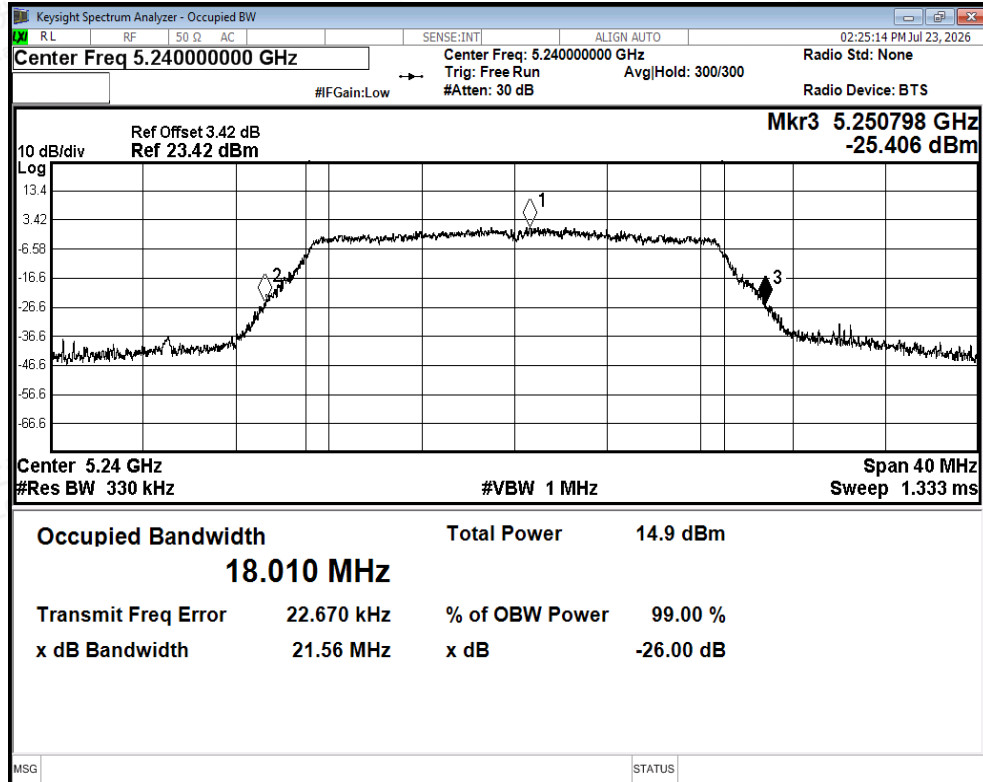
-26dB Bandwidth NVNT n40 5230MHz Ant1



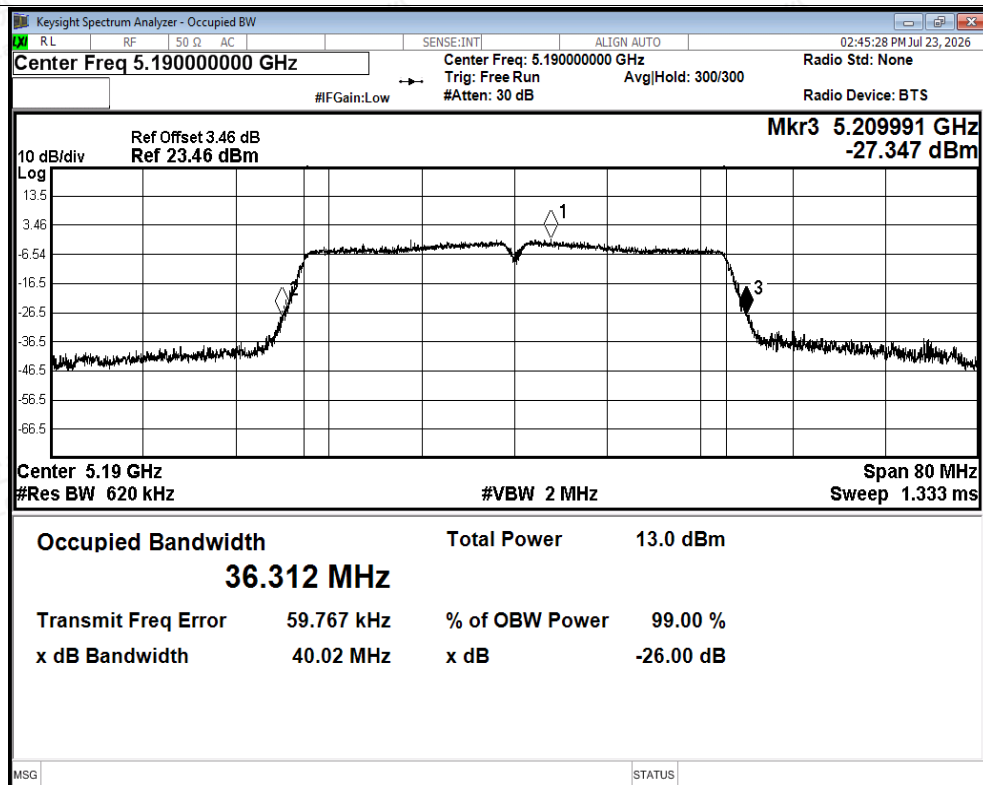
-26dB Bandwidth NVNT ac20 5180MHz Ant1



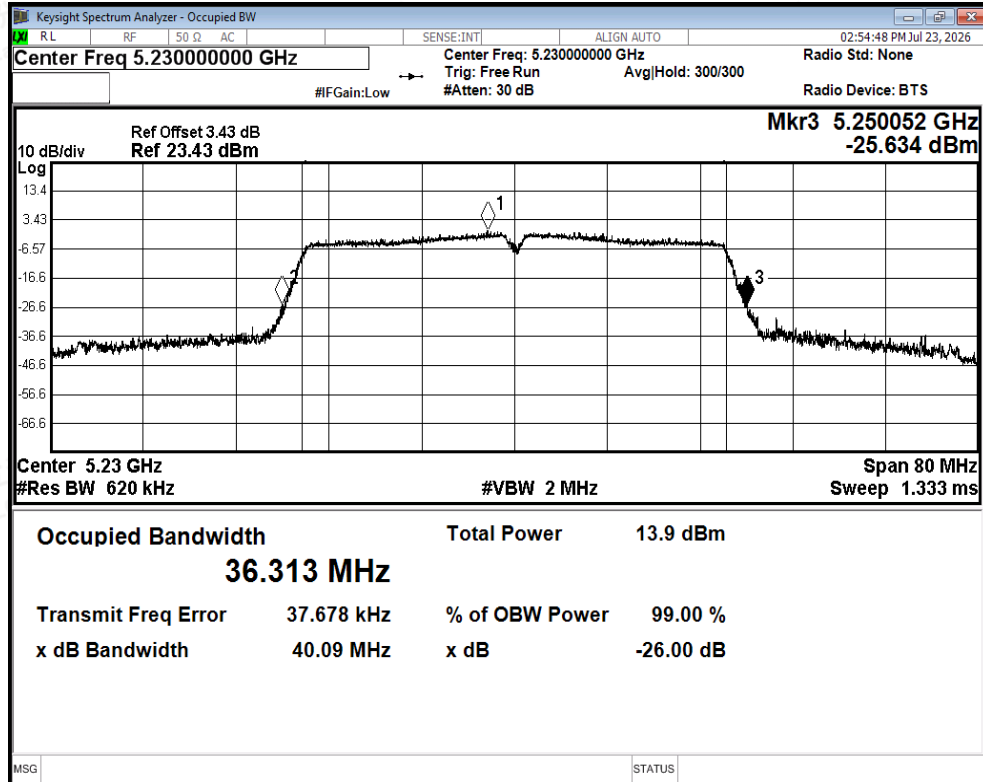
-26dB Bandwidth NVNT ac20 5200MHz Ant1



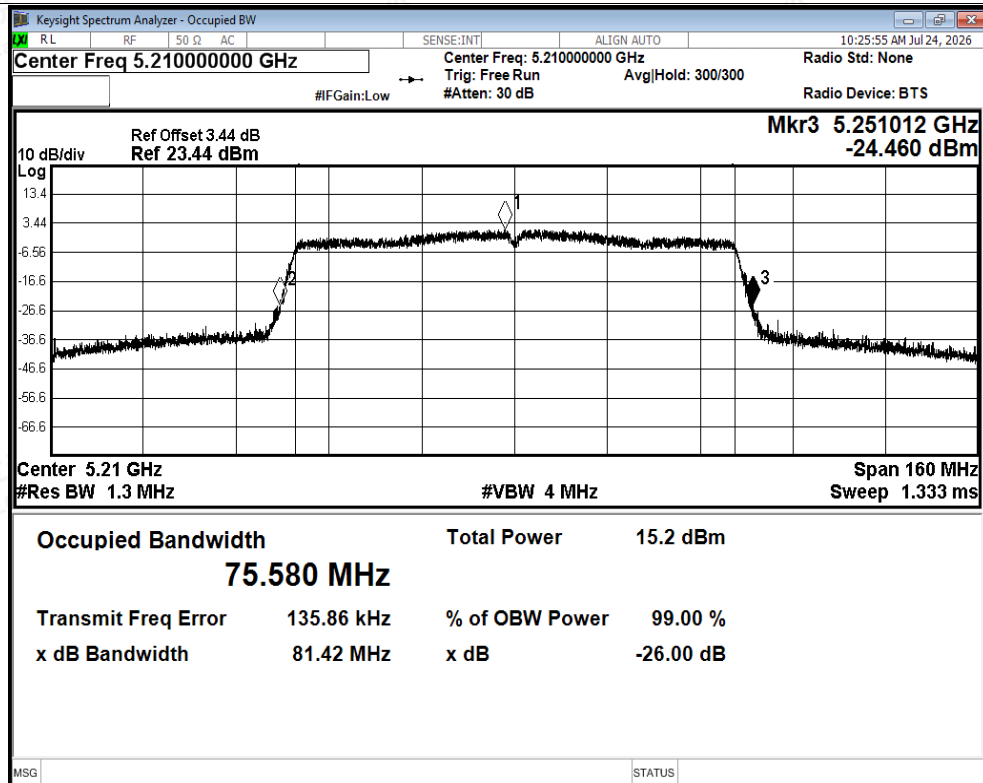
-26dB Bandwidth NVNT ac20 5240MHz Ant1



-26dB Bandwidth NVNT ac40 5190MHz Ant1



-26dB Bandwidth NVNT ac40 5230MHz Ant1



-26dB Bandwidth NVNT ac80 5210MHz Ant1



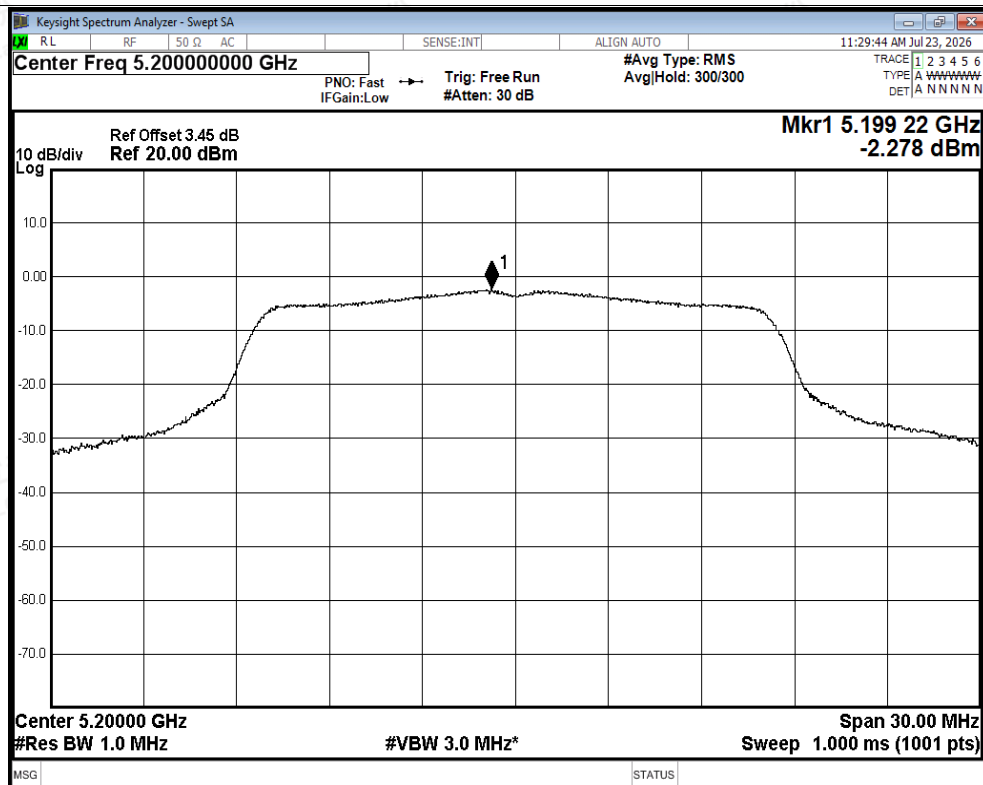
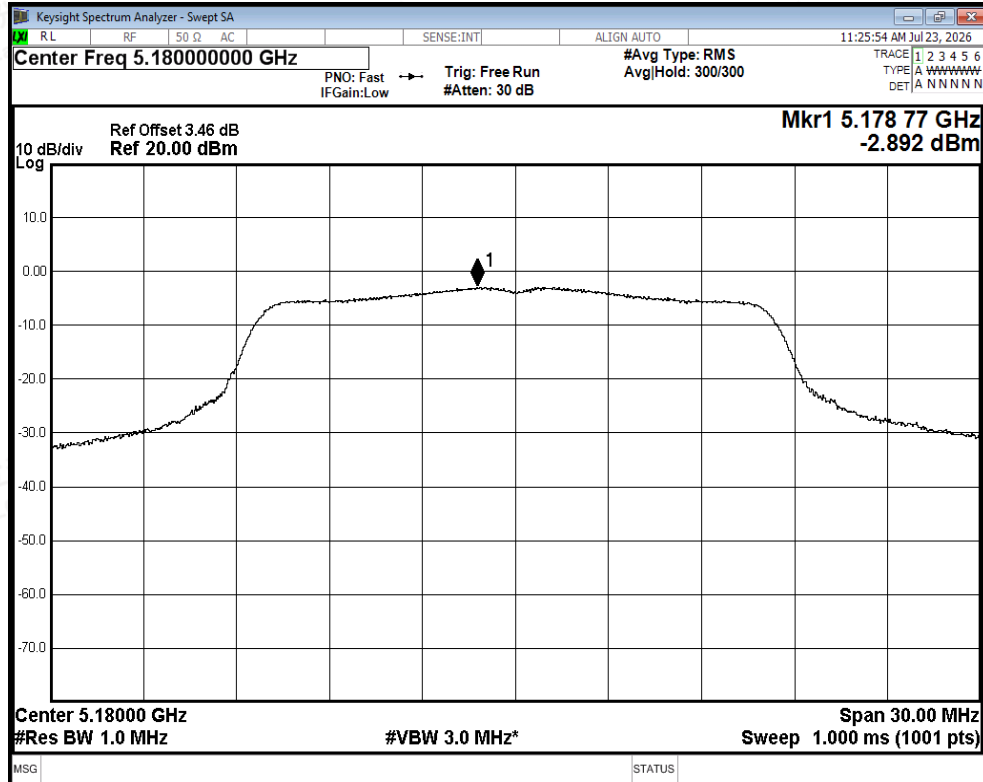
D.2 Maximum Conducted Output Power

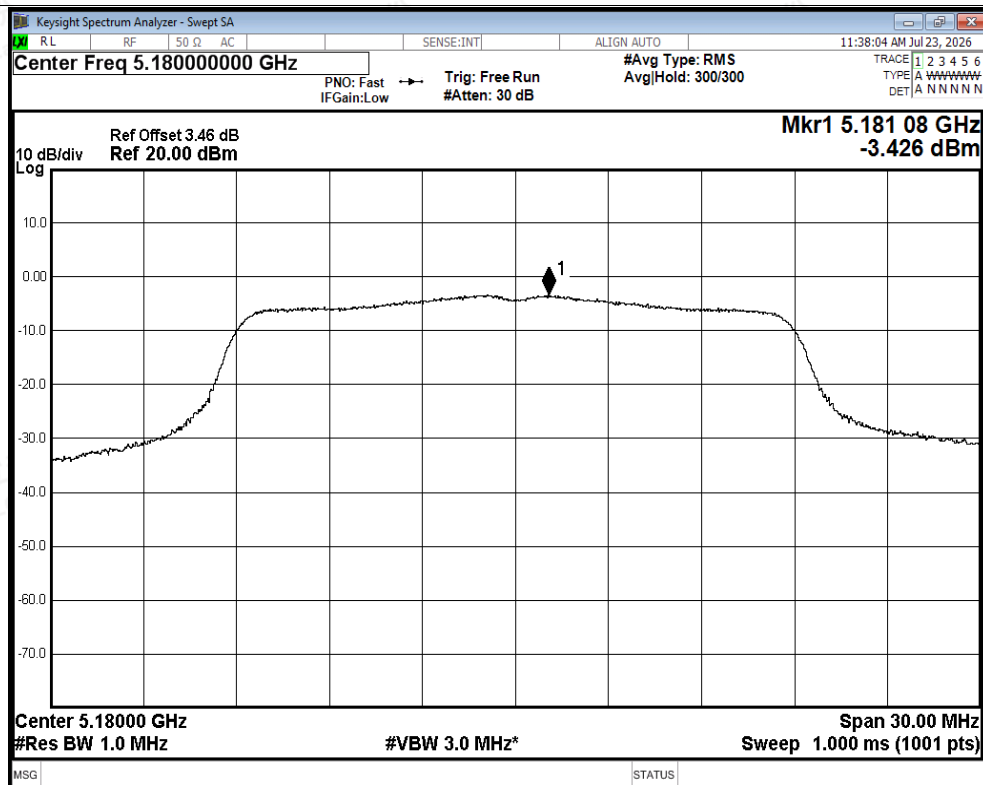
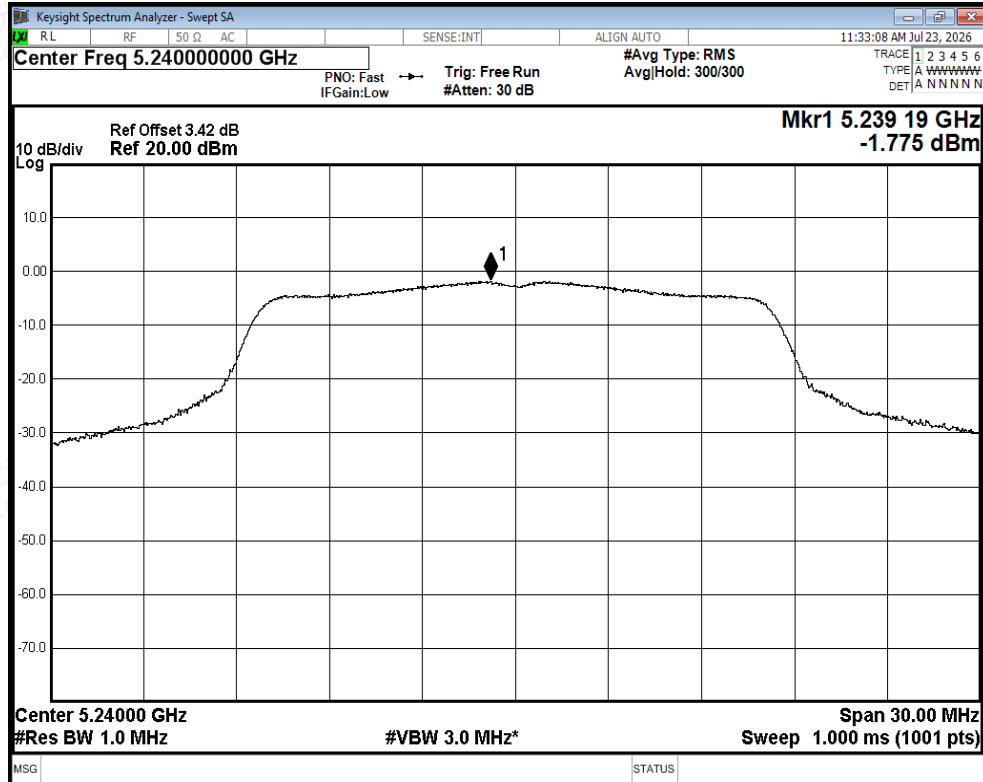
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Limit Conducted(dBm)	Verdict
NVNT	a	5180	Ant1	12.06	0.29	12.35	24	Pass
NVNT	a	5200	Ant1	12.54	0.29	12.83	24	Pass
NVNT	a	5240	Ant1	13.15	0.3	13.45	24	Pass
NVNT	n20	5180	Ant1	11.87	0.31	12.18	24	Pass
NVNT	n20	5200	Ant1	12.33	0.31	12.64	24	Pass
NVNT	n20	5240	Ant1	12.74	0.31	13.05	24	Pass
NVNT	n40	5190	Ant1	11.19	0.61	11.80	24	Pass
NVNT	n40	5230	Ant1	12	0.61	12.61	24	Pass
NVNT	ac20	5180	Ant1	12.63	0.31	12.94	24	Pass
NVNT	ac20	5200	Ant1	12.46	0.31	12.77	24	Pass
NVNT	ac20	5240	Ant1	13.02	0.31	13.33	24	Pass
NVNT	ac40	5190	Ant1	11.11	0.6	11.71	24	Pass
NVNT	ac40	5230	Ant1	12.89	0.6	13.49	24	Pass
NVNT	ac80	5210	Ant1	12.26	1.15	13.41	24	Pass

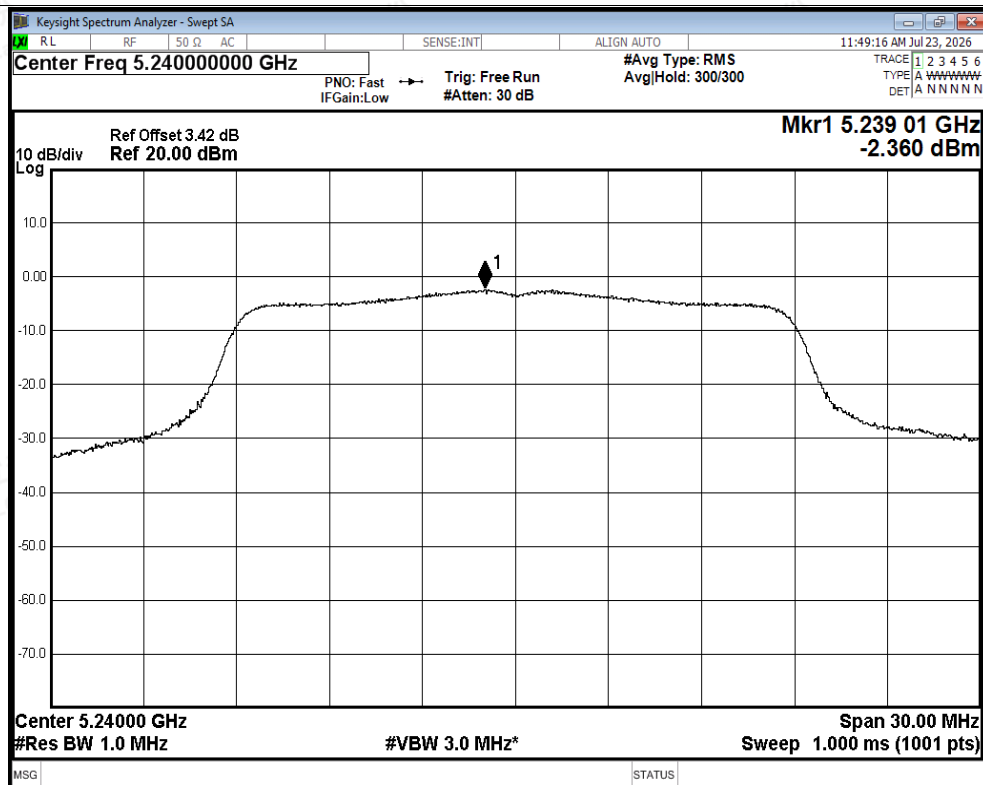
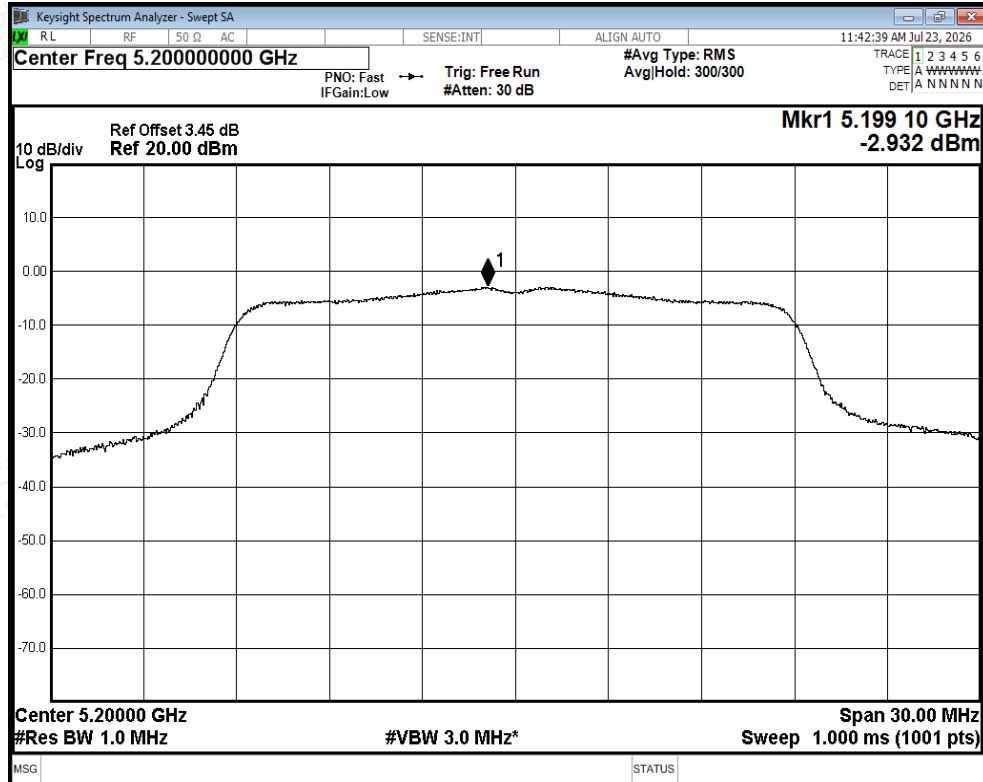


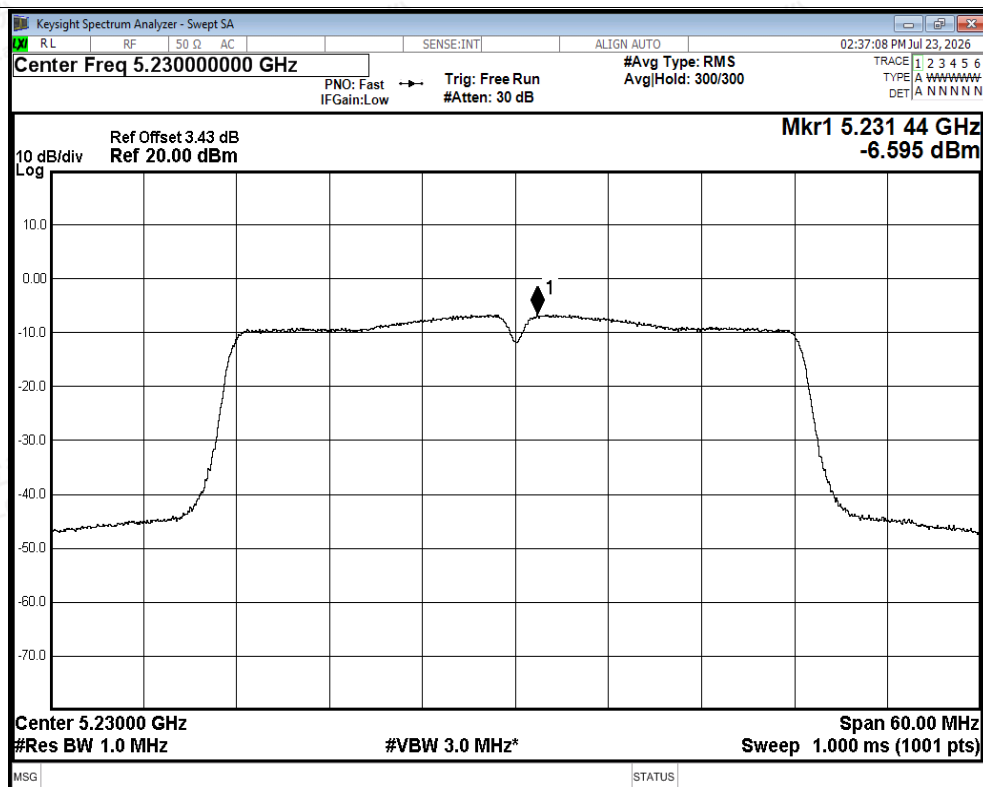
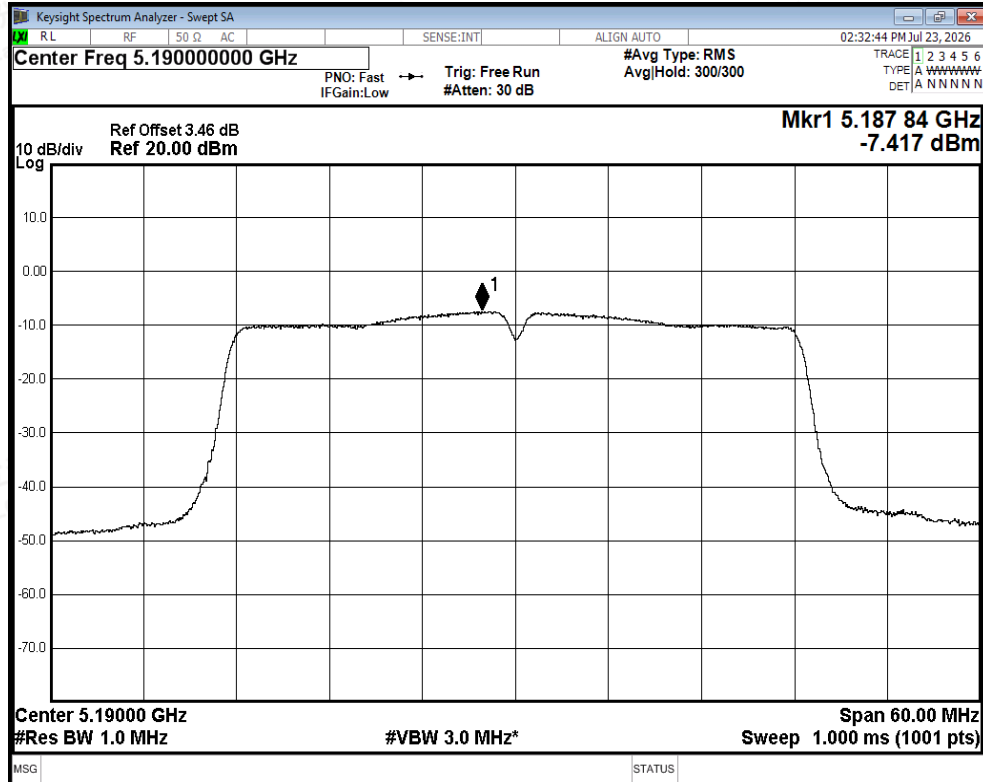
D.3 Maximum Power Spectral Density Level

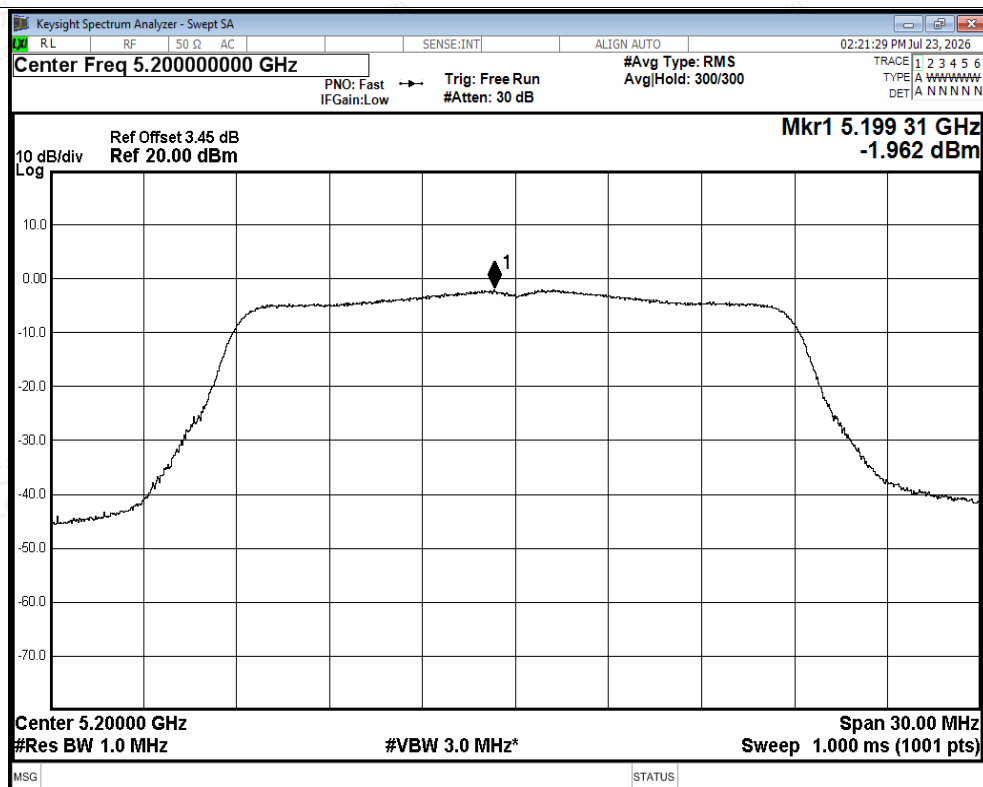
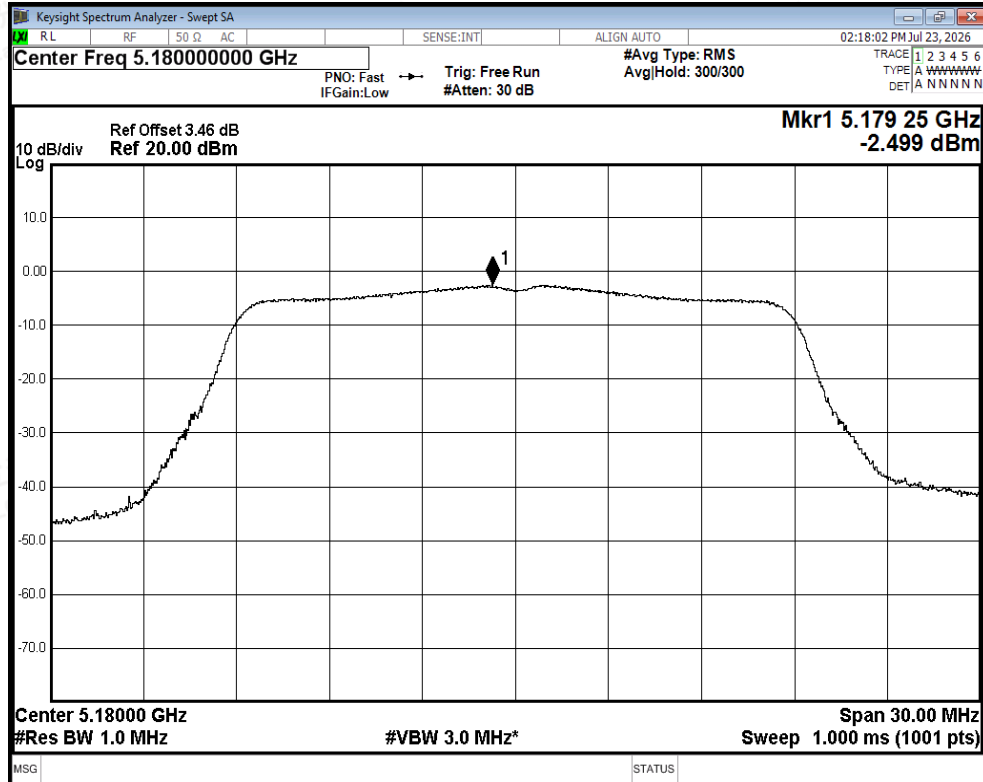
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/MHz)	Duty Factor (dB)	Total Conducted PSD (dBm/MHz)	Limit Conducted(dBm/MHz)	Verdict
NVNT	a	5180	Ant1	-2.89	0.29	-2.6	11	Pass
NVNT	a	5200	Ant1	-2.28	0.29	-1.99	11	Pass
NVNT	a	5240	Ant1	-1.78	0.3	-1.48	11	Pass
NVNT	n20	5180	Ant1	-3.43	0.31	-3.12	11	Pass
NVNT	n20	5200	Ant1	-2.93	0.31	-2.62	11	Pass
NVNT	n20	5240	Ant1	-2.36	0.31	-2.05	11	Pass
NVNT	n40	5190	Ant1	-7.42	0.61	-6.81	11	Pass
NVNT	n40	5230	Ant1	-6.6	0.61	-5.99	11	Pass
NVNT	ac20	5180	Ant1	-2.5	0.31	-2.19	11	Pass
NVNT	ac20	5200	Ant1	-1.96	0.31	-1.65	11	Pass
NVNT	ac20	5240	Ant1	-2.07	0.31	-1.76	11	Pass
NVNT	ac40	5190	Ant1	-7.54	0.6	-6.94	11	Pass
NVNT	ac40	5230	Ant1	-6.27	0.6	-5.67	11	Pass
NVNT	ac80	5210	Ant1	-9.42	1.15	-8.27	11	Pass

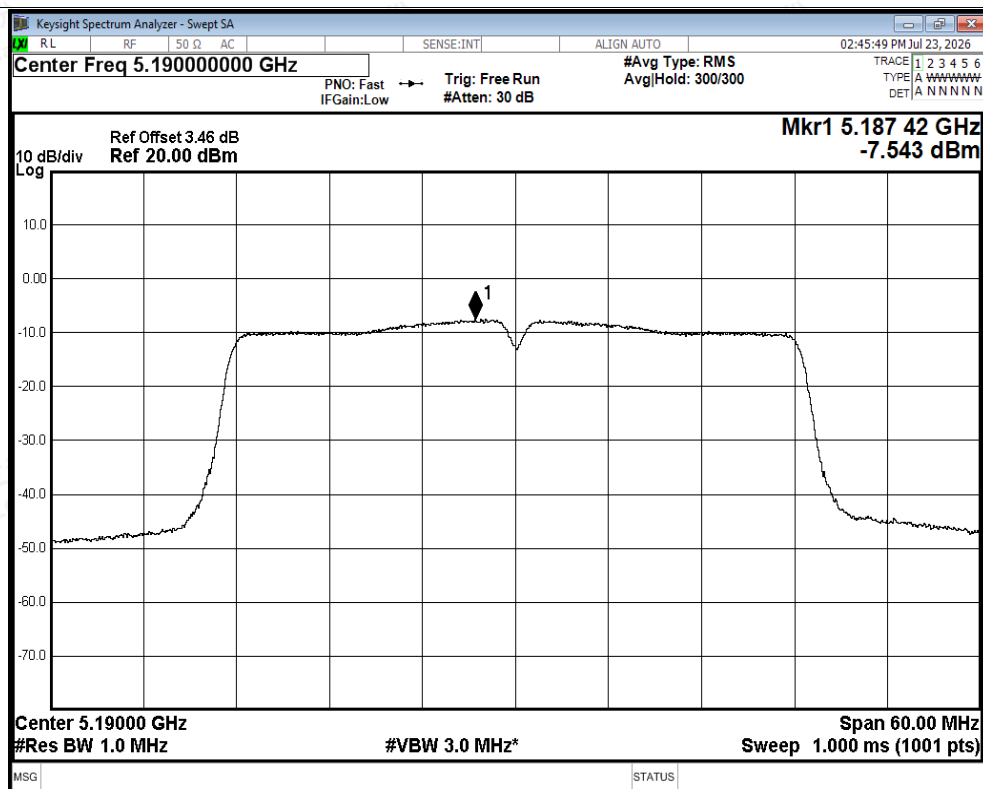
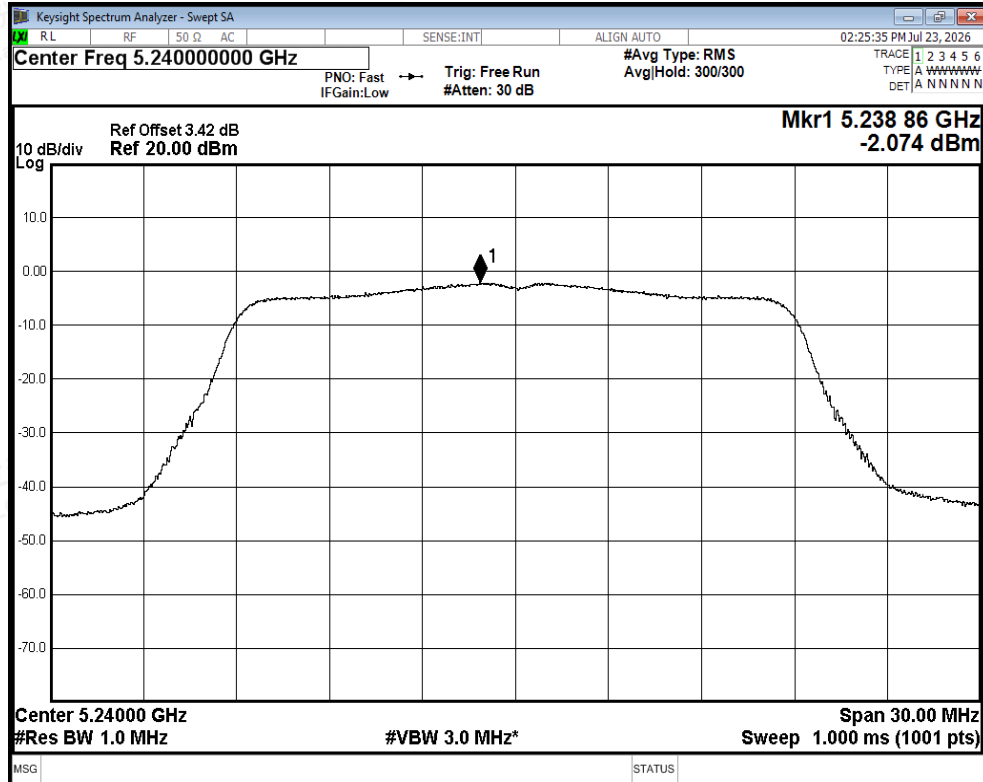


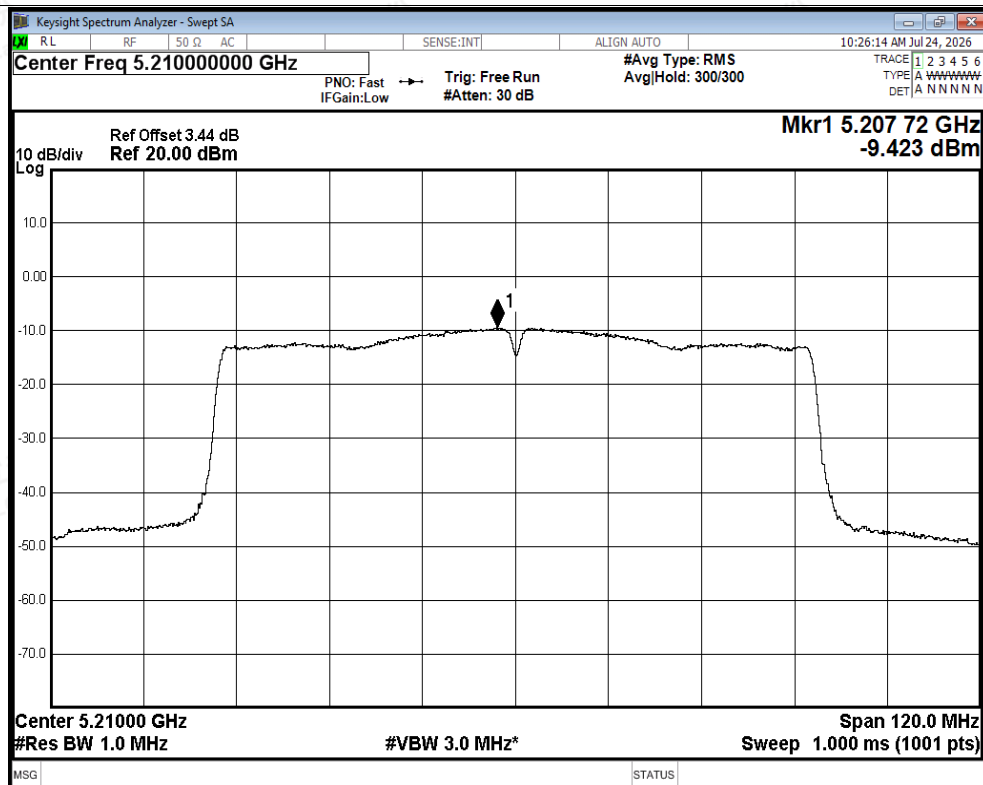
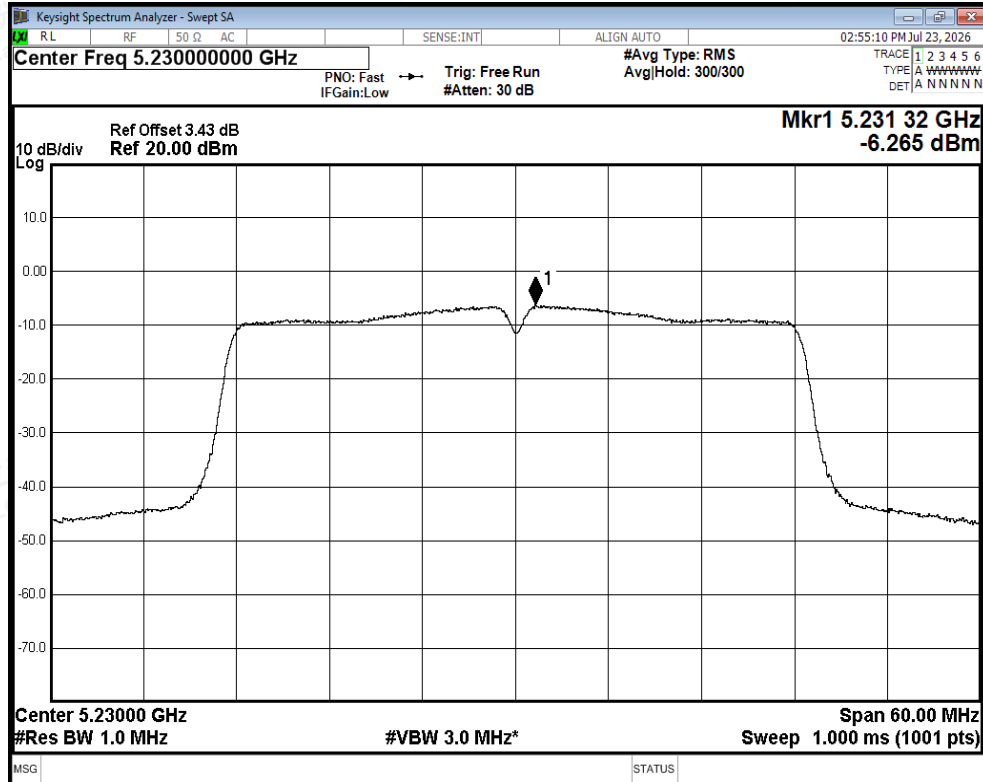














D.4 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	a	5180	Ant1	4500	-61.53	2.14	35.84	Peak	68.2	Pass
NVNT	a	5180	Ant1	4500	-68.42	2.14	28.95	Average	54	Pass
NVNT	a	5180	Ant1	5148.2	-39.12	2.14	58.25	Peak	68.2	Pass
NVNT	a	5180	Ant1	5149.6	-43.24	2.14	53.13	Average	54	Pass
NVNT	a	5180	Ant1	5150	-38.01	2.14	59.36	Peak	68.2	Pass
NVNT	a	5180	Ant1	5150	-43.27	2.14	53.10	Average	54	Pass
NVNT	a	5240	Ant1	5350	-50.11	2.14	47.26	Peak	68.2	Pass
NVNT	a	5240	Ant1	5350	-57.16	2.14	40.21	Average	54	Pass
NVNT	a	5240	Ant1	5368.56	-46.78	2.14	50.59	Peak	68.2	Pass
NVNT	a	5240	Ant1	5426.4	-56.35	2.14	41.02	Average	54	Pass
NVNT	a	5240	Ant1	5460	-49.4	2.14	47.97	Peak	68.2	Pass
NVNT	a	5240	Ant1	5460	-56.69	2.14	40.68	Average	54	Pass
NVNT	n20	5180	Ant1	4500	-51.72	2.14	45.65	Peak	68.2	Pass
NVNT	n20	5180	Ant1	4500	-58.48	2.14	38.89	Average	54	Pass
NVNT	n20	5180	Ant1	5146.1	-40.66	2.14	56.71	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5149.6	-46.74	2.14	50.63	Average	54	Pass
NVNT	n20	5180	Ant1	5150	-43.1	2.14	54.27	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5150	-46.42	2.14	50.95	Average	54	Pass
NVNT	n20	5240	Ant1	5350	-50.24	2.14	47.13	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5350	-57.04	2.14	40.33	Average	54	Pass
NVNT	n20	5240	Ant1	5389.68	-47	2.14	50.37	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5426.88	-56.28	2.14	41.09	Average	54	Pass
NVNT	n20	5240	Ant1	5460	-50.81	2.14	46.56	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5460	-56.73	2.14	40.64	Average	54	Pass
NVNT	n40	5190	Ant1	4500	-61.41	2.14	35.96	Peak	68.2	Pass
NVNT	n40	5190	Ant1	4500	-68.12	2.14	29.25	Average	54	Pass
NVNT	n40	5190	Ant1	5148.24	-47.87	2.14	49.50	Peak	68.2	Pass
NVNT	n40	5190	Ant1	5149.7	-50.09	2.14	47.28	Average	54	Pass
NVNT	n40	5190	Ant1	5150	-47.76	2.14	49.61	Peak	68.2	Pass
NVNT	n40	5190	Ant1	5150	-49.37	2.14	48.00	Average	54	Pass
NVNT	n40	5230	Ant1	5350	-49.91	2.14	47.46	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5350	-56.27	2.14	41.10	Average	54	Pass
NVNT	n40	5230	Ant1	5401.68	-46.84	2.14	50.53	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5376.03	-55.88	2.14	41.49	Average	54	Pass
NVNT	n40	5230	Ant1	5460	-49.89	2.14	47.48	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5460	-56.39	2.14	40.98	Average	54	Pass
NVNT	ac20	5180	Ant1	4500	-51.29	2.14	46.08	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	4500	-58.42	2.14	38.95	Average	54	Pass

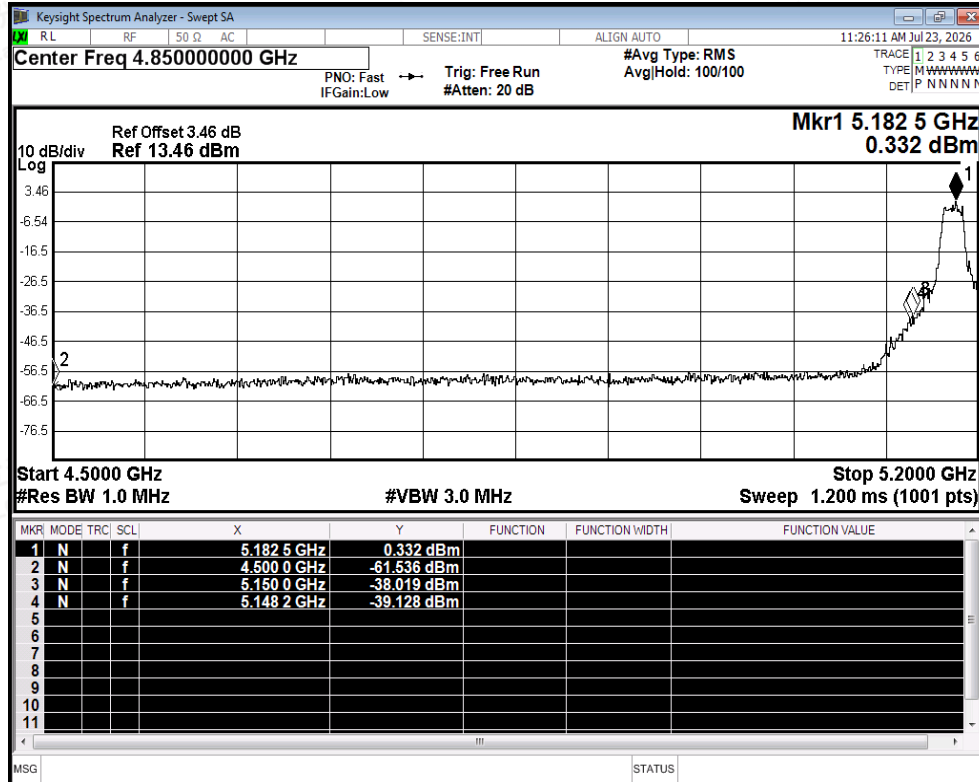
Shenzhen LCS Compliance Testing Laboratory Ltd.

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

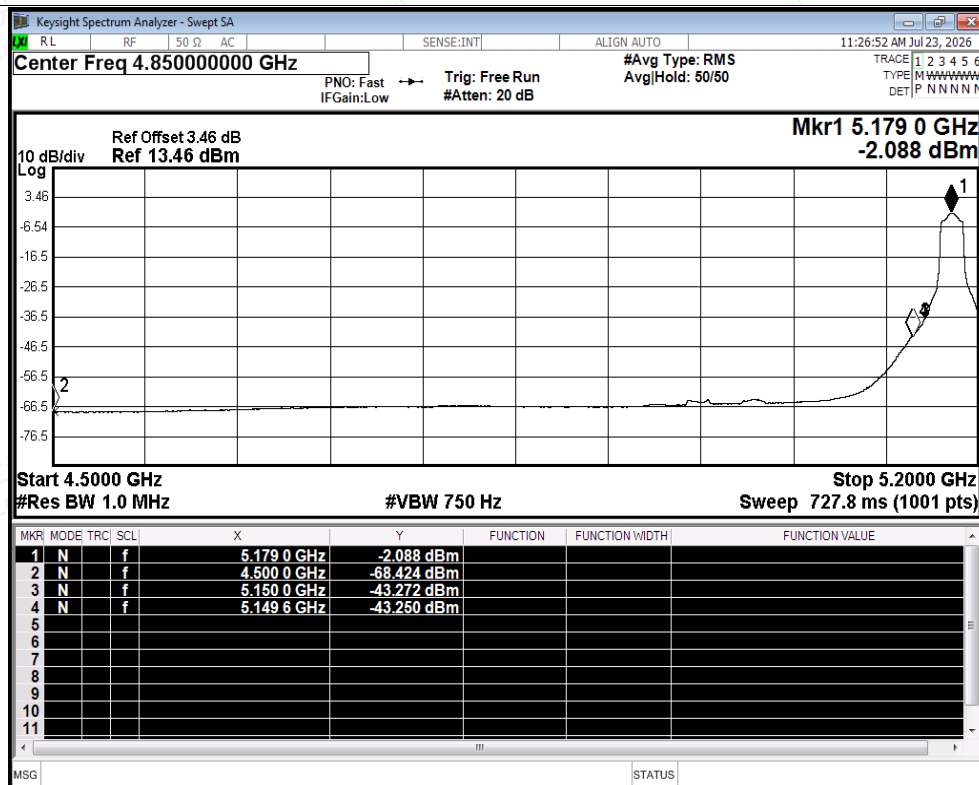
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com



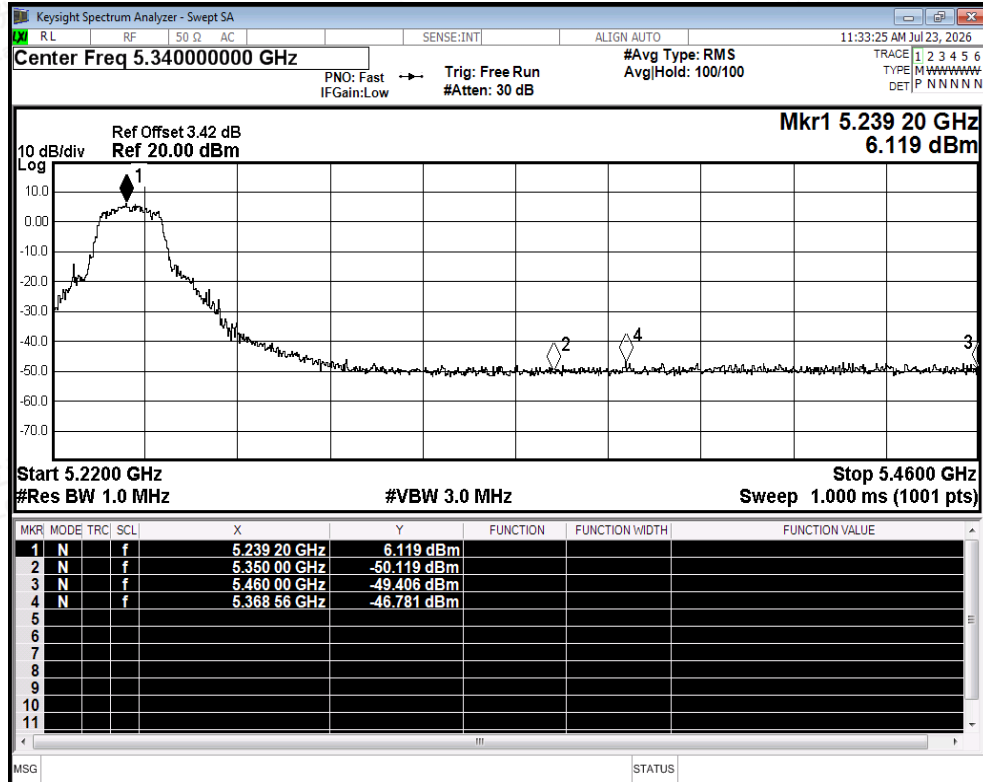
NVNT	ac20	5180	Ant1	5139.1	-46.23	2.14	51.14	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5149.6	-52.22	2.14	45.15	Average	54	Pass
NVNT	ac20	5180	Ant1	5150	-46.76	2.14	50.61	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5150	-51.79	2.14	45.58	Average	54	Pass
NVNT	ac20	5240	Ant1	5350	-48.61	2.14	48.76	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5350	-57.06	2.14	40.31	Average	54	Pass
NVNT	ac20	5240	Ant1	5450.4	-46.53	2.14	50.84	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5426.64	-56.19	2.14	41.18	Average	54	Pass
NVNT	ac20	5240	Ant1	5460	-49.51	2.14	47.86	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5460	-56.71	2.14	40.66	Average	54	Pass
NVNT	ac40	5190	Ant1	4500	-51.64	2.14	45.73	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	4500	-58.18	2.14	39.19	Average	54	Pass
NVNT	ac40	5190	Ant1	5149.7	-44.51	2.14	52.86	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	5149.7	-49.66	2.14	47.71	Average	54	Pass
NVNT	ac40	5190	Ant1	5150	-43.59	2.14	53.78	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	5150	-49.11	2.14	48.26	Average	54	Pass
NVNT	ac40	5230	Ant1	5350	-49.87	2.14	47.50	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5350	-56.24	2.14	41.13	Average	54	Pass
NVNT	ac40	5230	Ant1	5393.85	-46.87	2.14	50.50	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5445.69	-55.99	2.14	41.38	Average	54	Pass
NVNT	ac40	5230	Ant1	5460	-49.74	2.14	47.63	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5460	-56.49	2.14	40.88	Average	54	Pass
NVNT	ac80	5210	Ant1	5350	-48.19	2.14	49.18	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5350	-54.64	2.14	42.73	Average	54	Pass
NVNT	ac80	5210	Ant1	5385.09	-45.18	2.14	52.19	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5351.43	-53.99	2.14	43.38	Average	54	Pass
NVNT	ac80	5210	Ant1	5460	-48.99	2.14	48.38	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5460	-55.99	2.14	41.38	Average	54	Pass
NVNT	ac80	5210	Ant1	4500	-52.22	2.14	45.15	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	4500	-57.8	2.14	39.57	Average	54	Pass
NVNT	ac80	5210	Ant1	5146.22	-41.56	2.14	55.81	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5147.01	-45.16	2.14	52.21	Average	54	Pass
NVNT	ac80	5210	Ant1	5150	-42.82	2.14	54.55	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5150	-45.21	2.14	52.16	Average	54	Pass



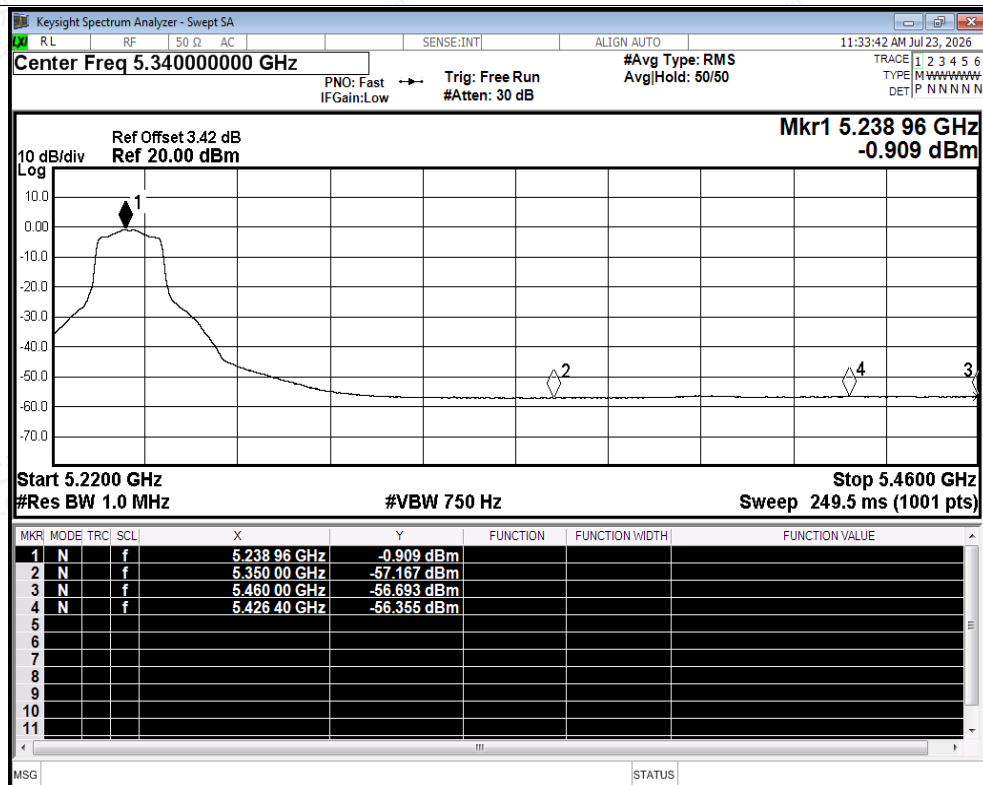
Restrict Band NVNT a 5180MHz Ant1 Peak



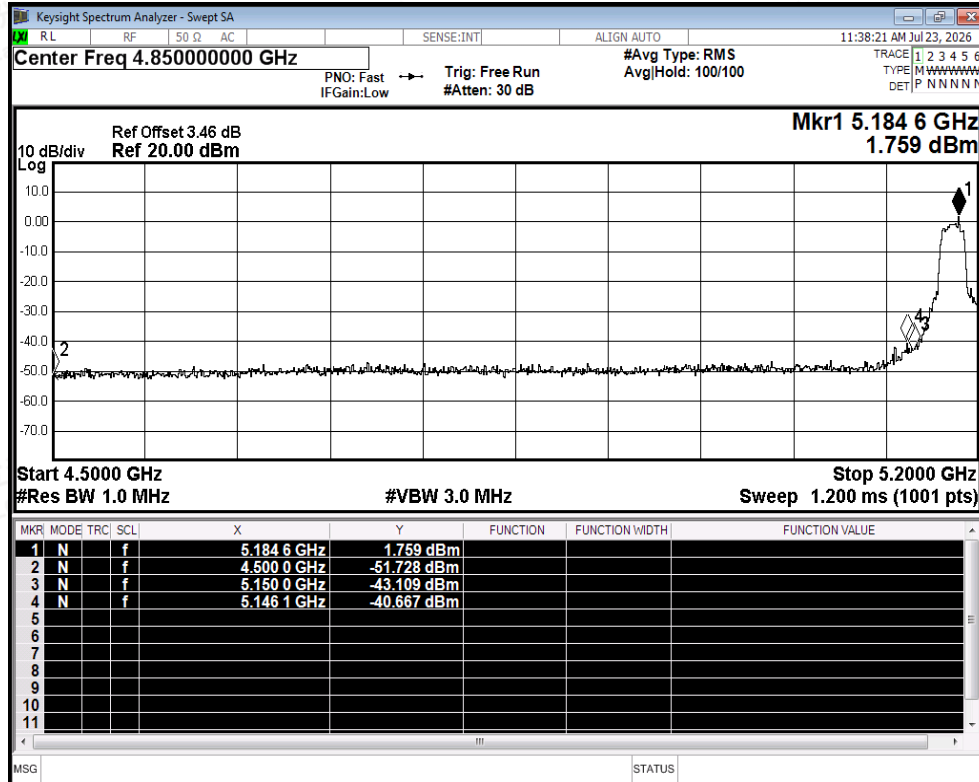
Restrict Band NVNT a 5180MHz Ant1 Average



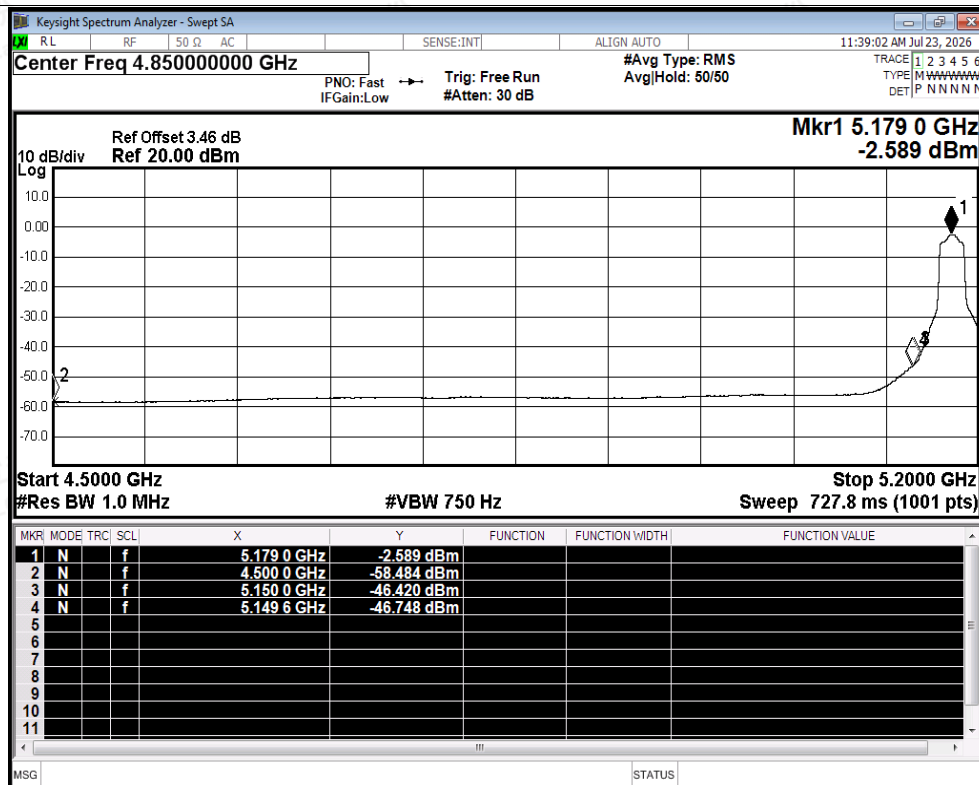
Restrict Band NVNT a 5240MHz Ant1 Peak



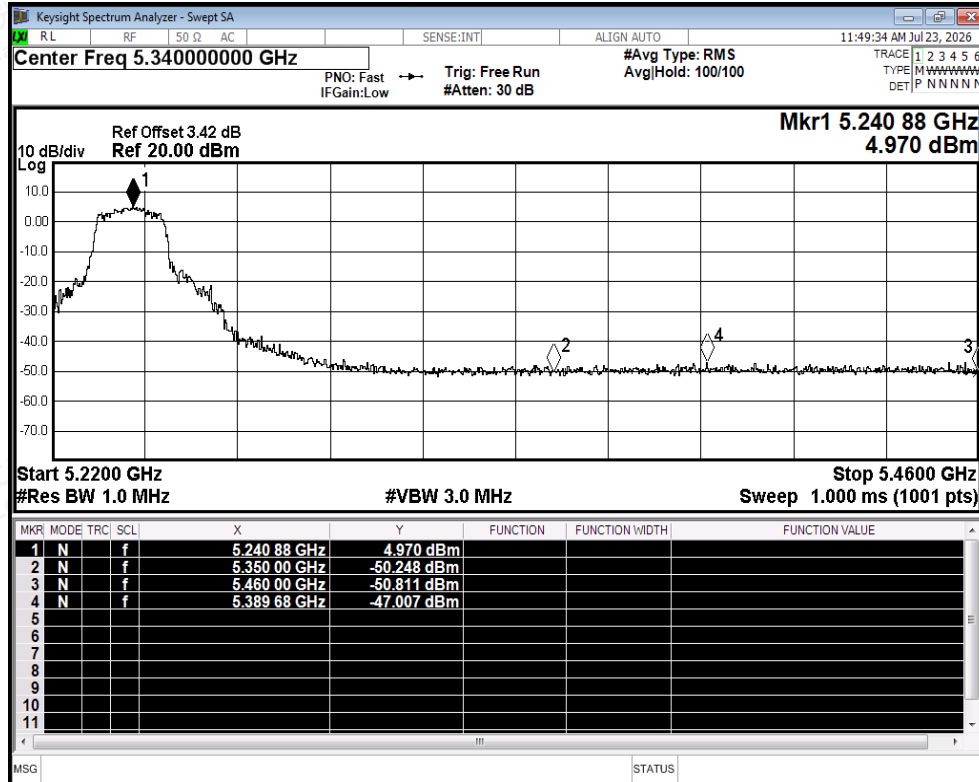
Restrict Band NVNT a 5240MHz Ant1 Average



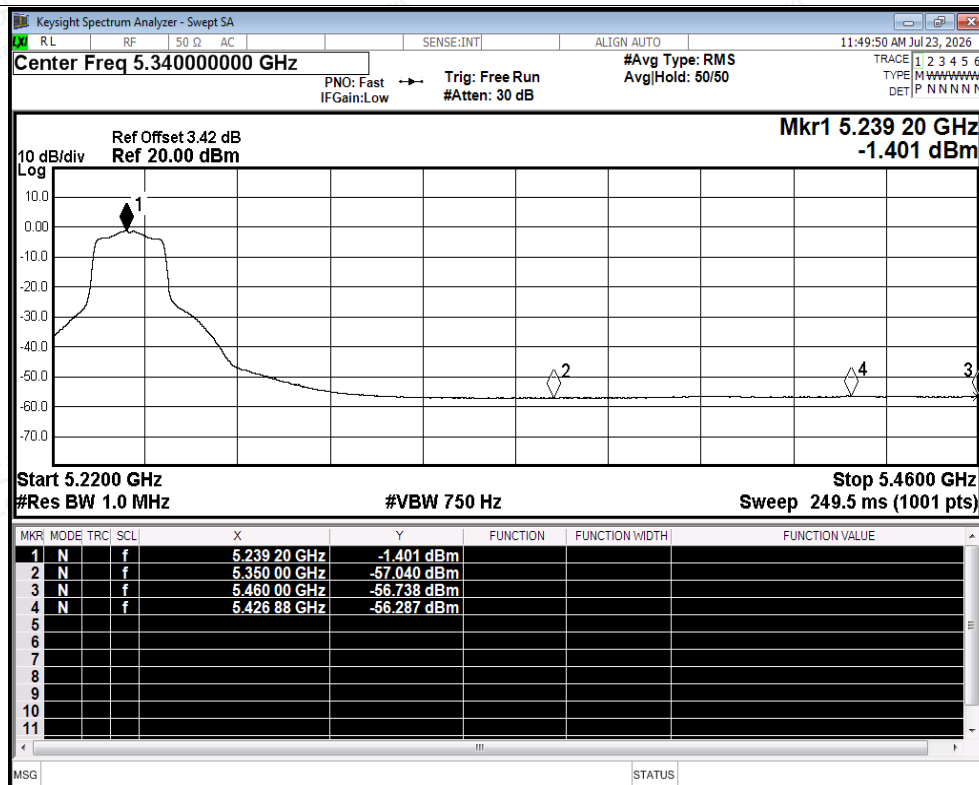
Restrict Band NVNT n20 5180MHz Ant1 Peak



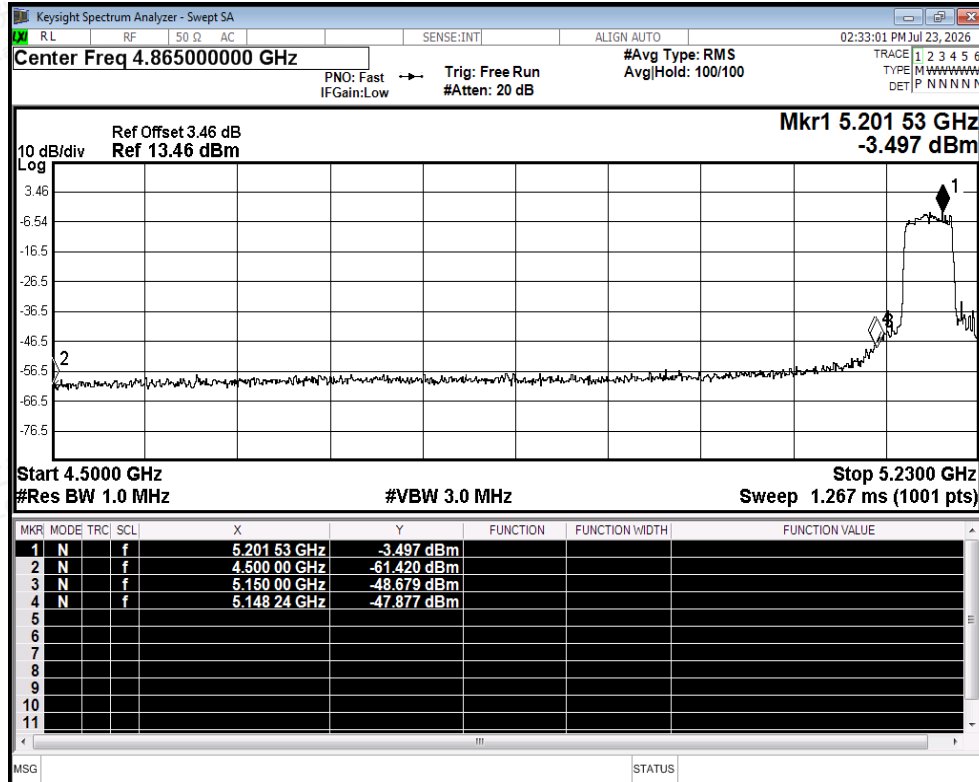
Restrict Band NVNT n20 5180MHz Ant1 Average



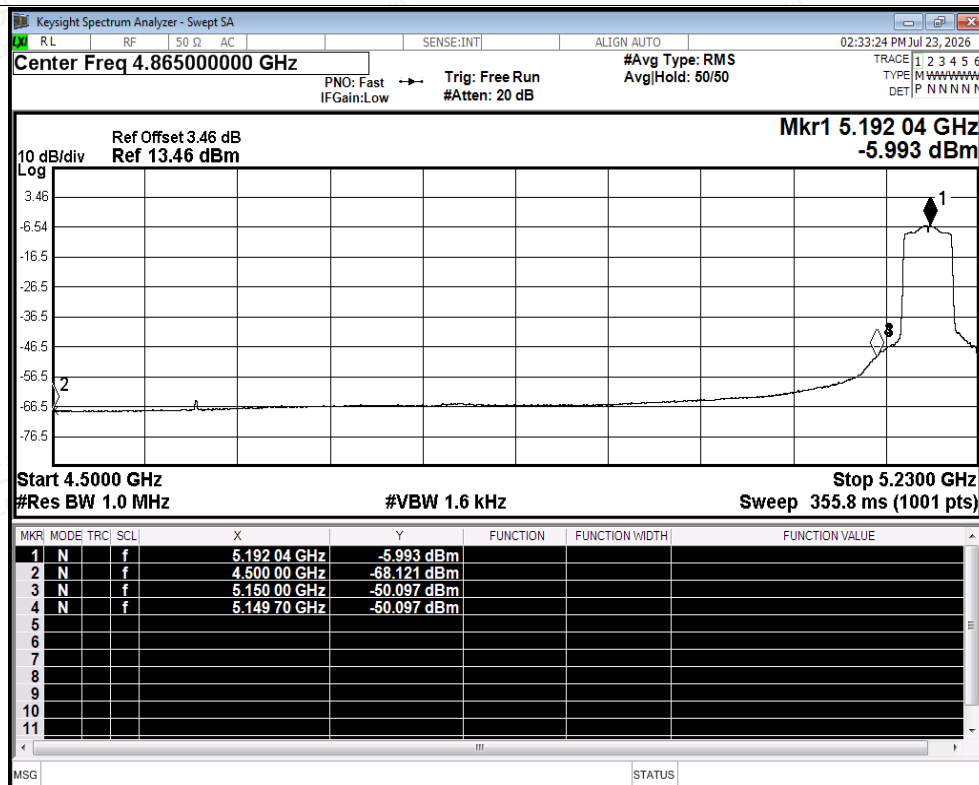
Restrict Band NVNT n20 5240MHz Ant1 Peak



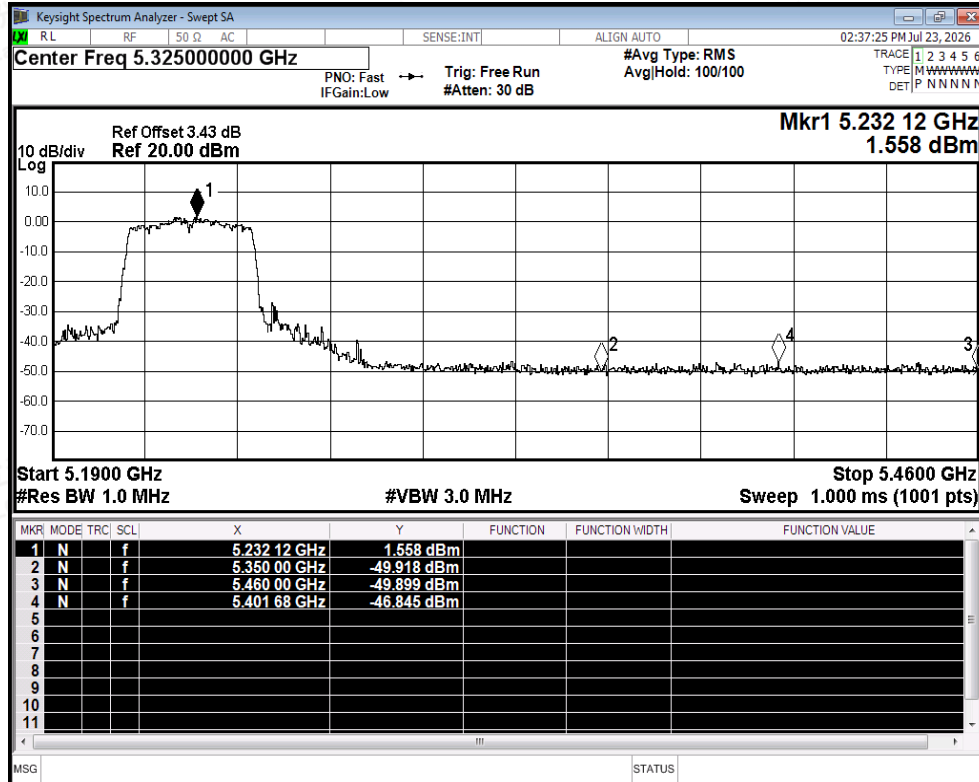
Restrict Band NVNT n20 5240MHz Ant1 Average



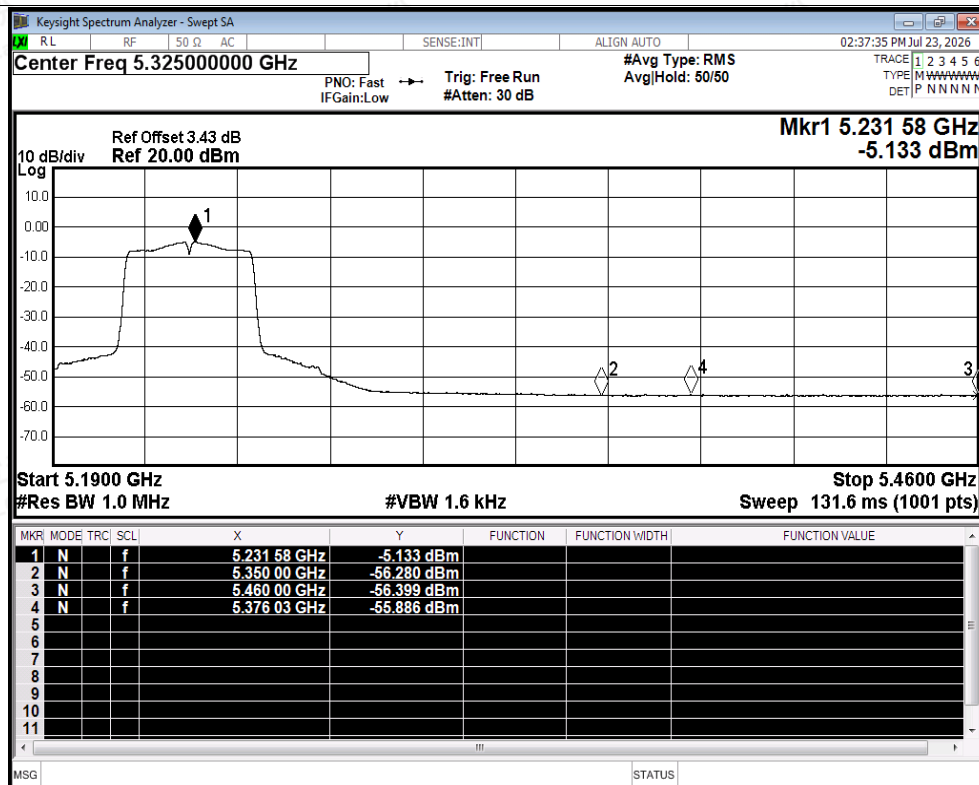
Restrict Band NVNT n40 5190MHz Ant1 Peak



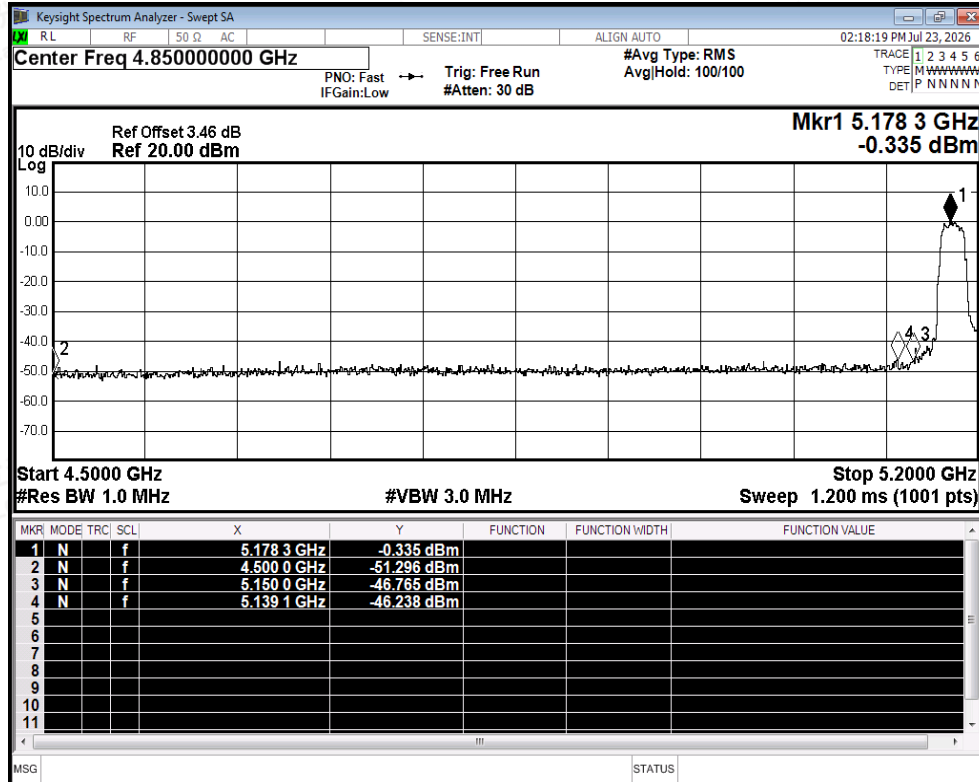
Restrict Band NVNT n40 5190MHz Ant1 Average



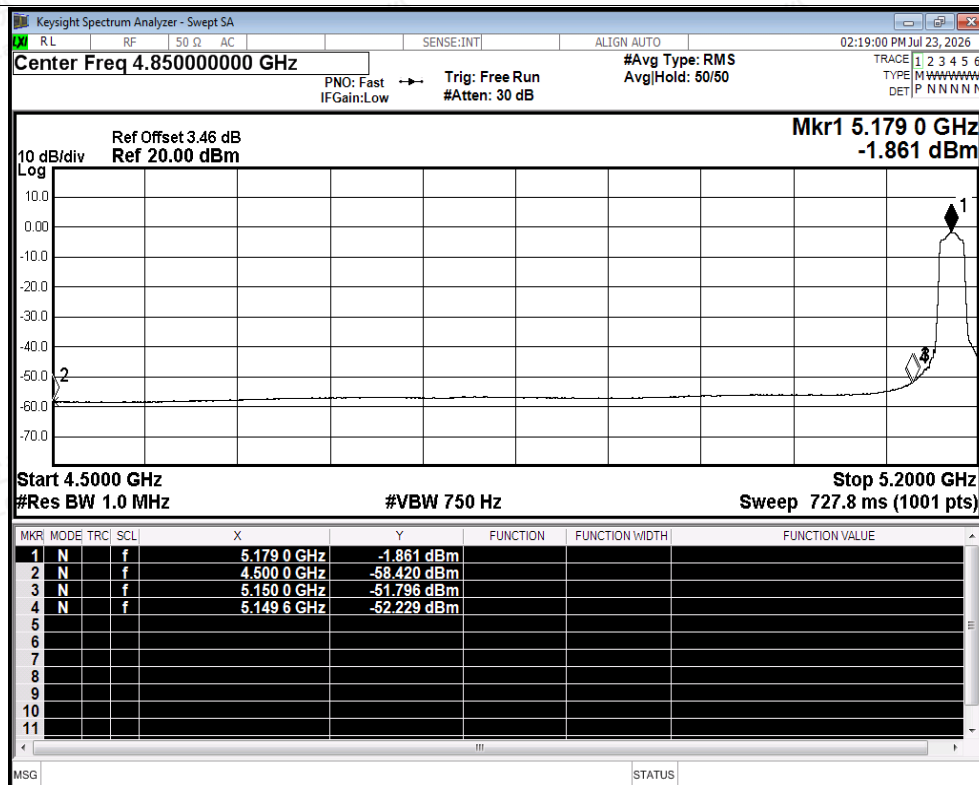
Restrict Band NVNT n40 5230MHz Ant1 Peak



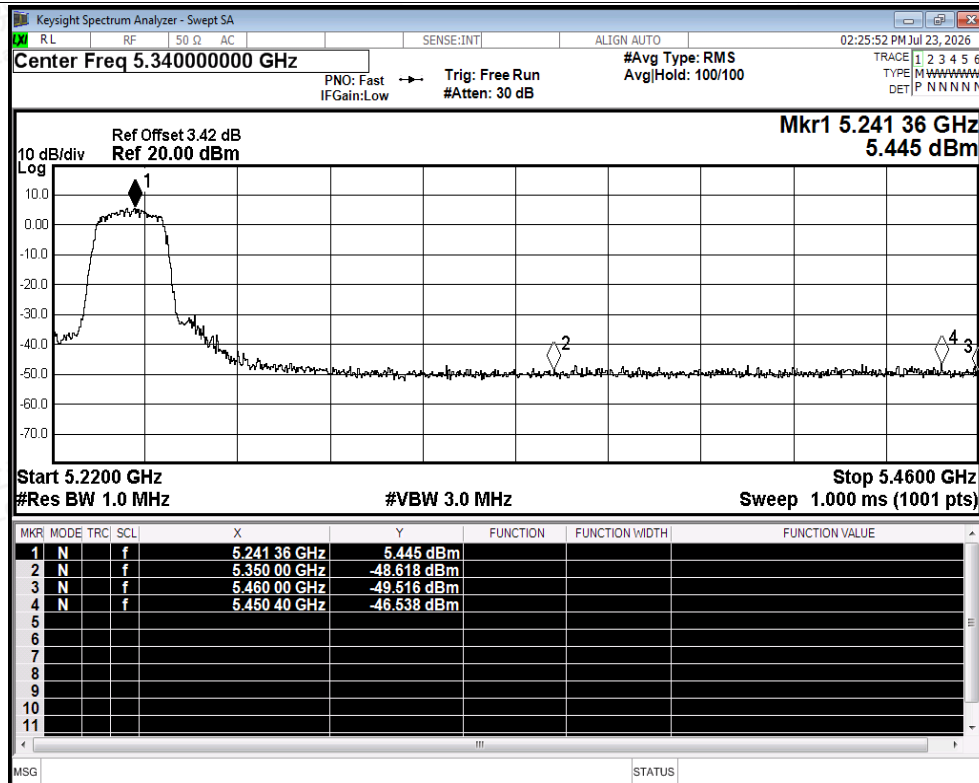
Restrict Band NVNT n40 5230MHz Ant1 Average



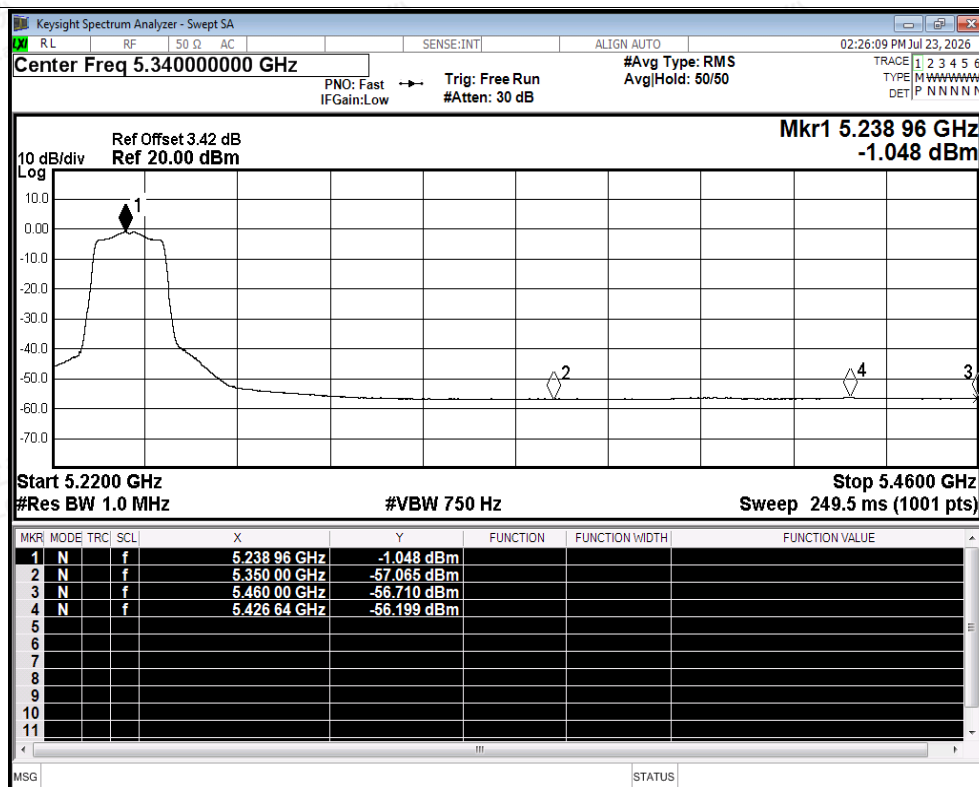
Restrict Band NVNT ac20 5180MHz Ant1 Peak



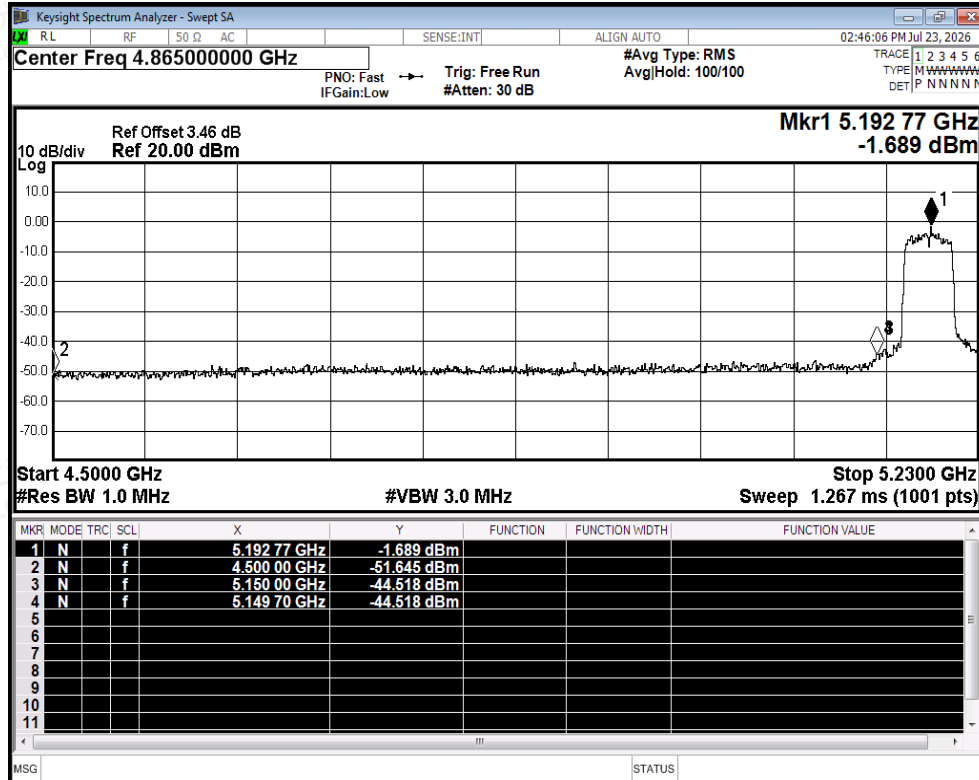
Restrict Band NVNT ac20 5180MHz Ant1 Average



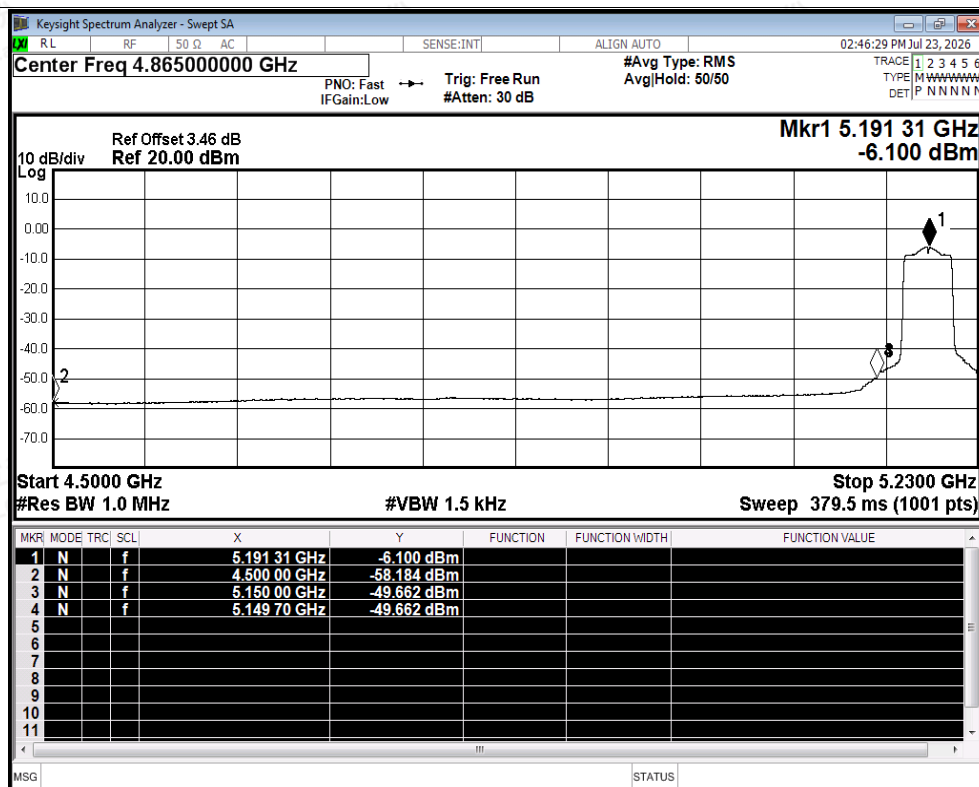
Restrict Band NVNT ac20 5240MHz Ant1 Peak



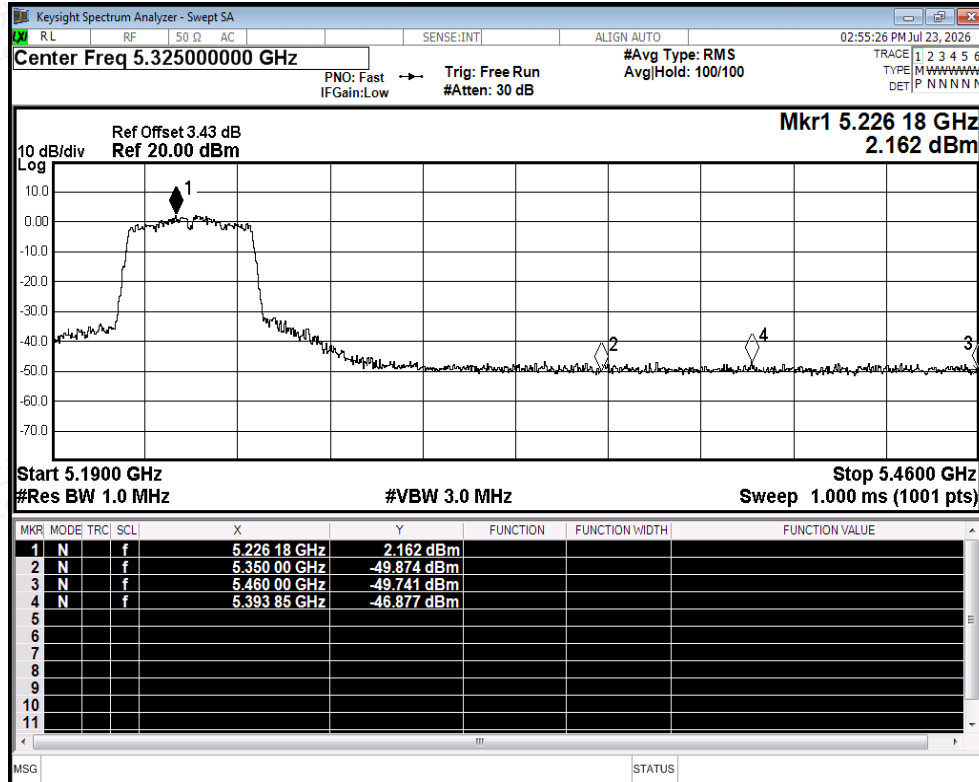
Restrict Band NVNT ac20 5240MHz Ant1 Average



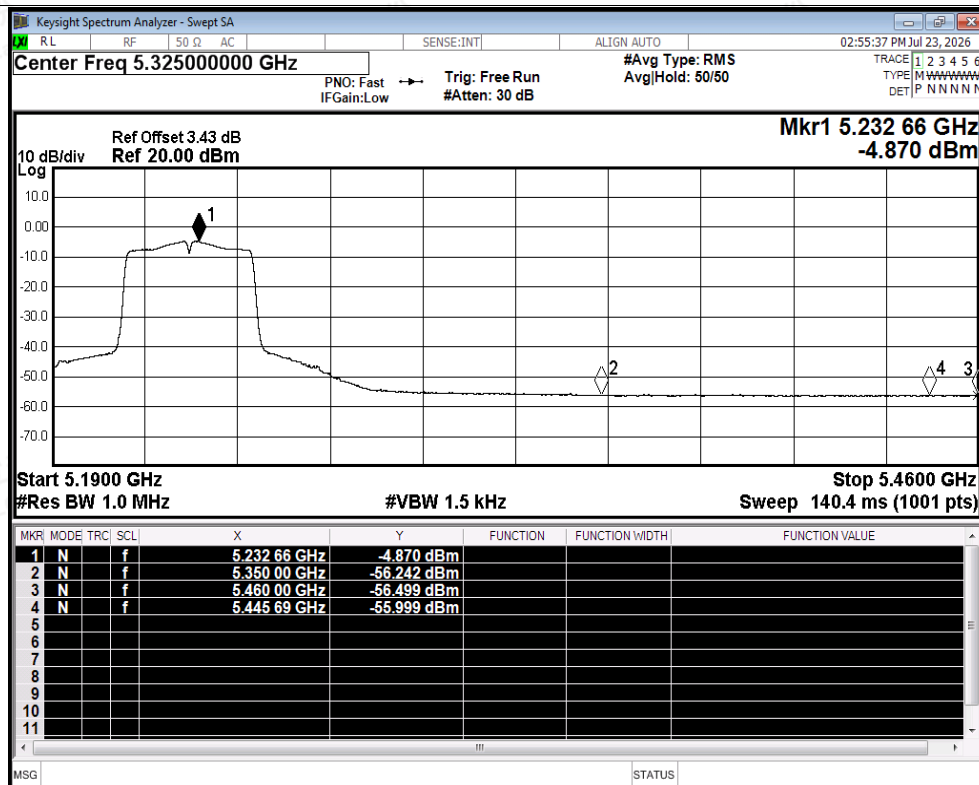
Restrict Band NVNT ac40 5190MHz Ant1 Peak



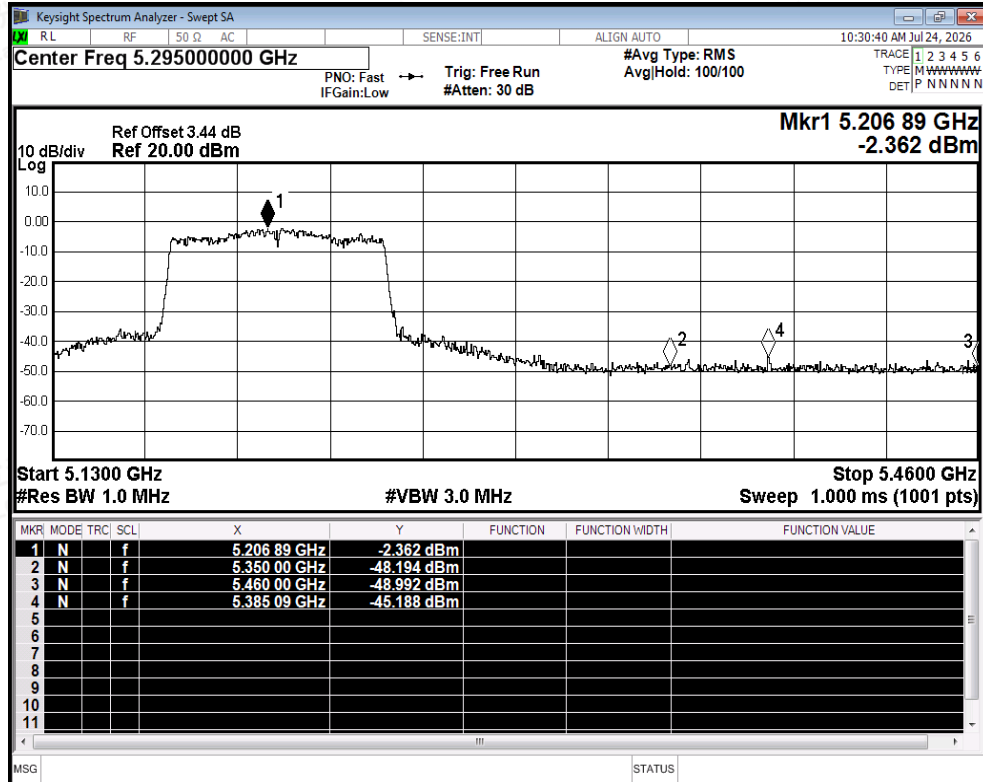
Restrict Band NVNT ac40 5190MHz Ant1 Average



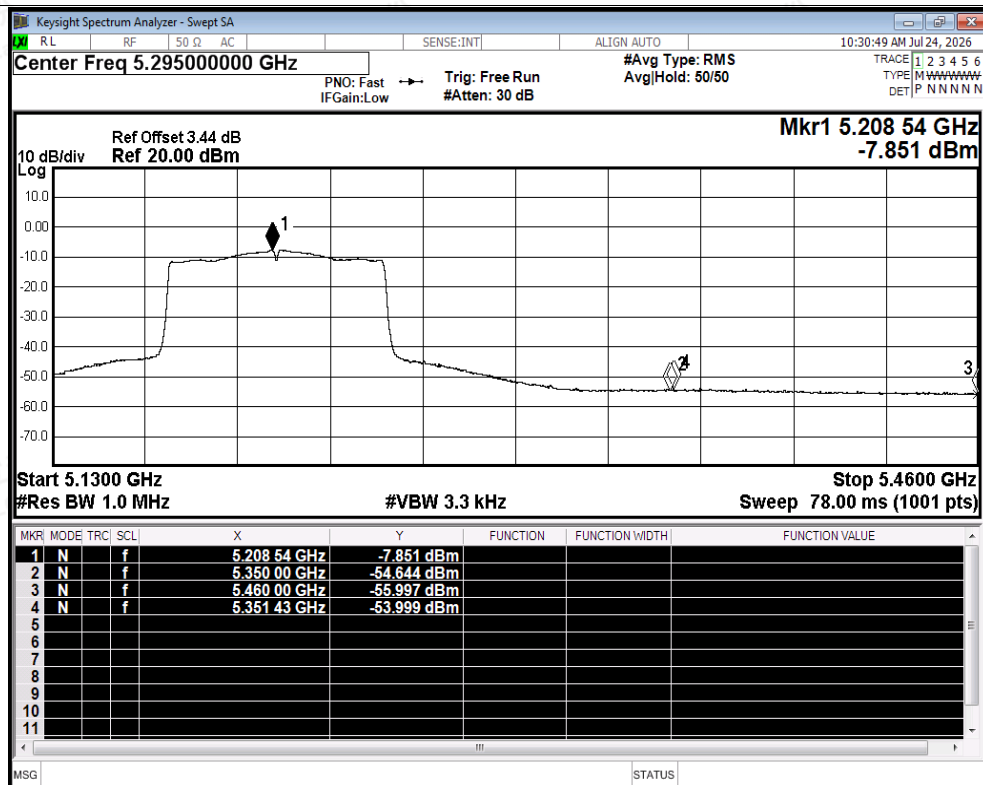
Restrict Band NVNT ac40 5230MHz Ant1 Peak



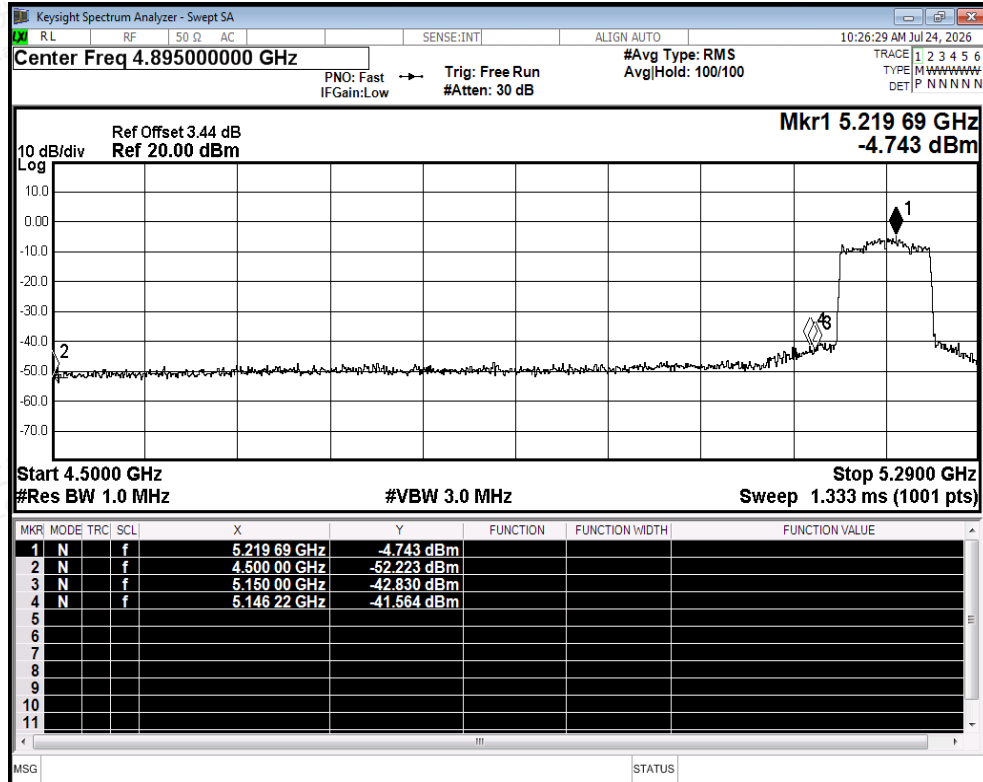
Restrict Band NVNT ac40 5230MHz Ant1 Average



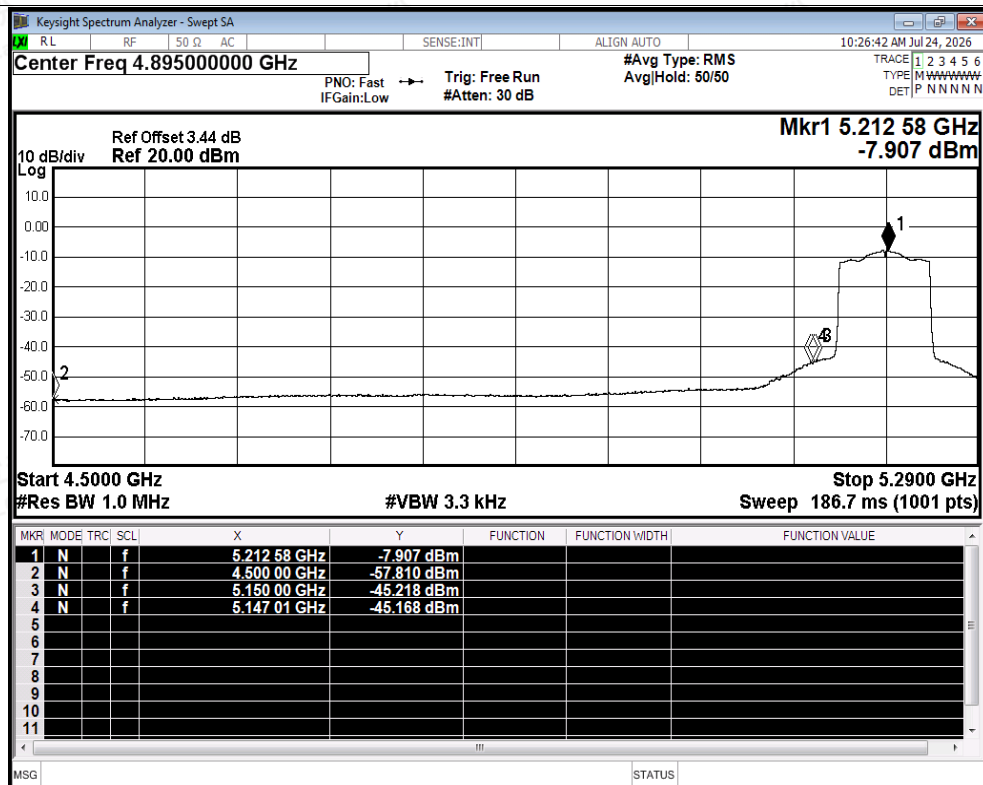
Restrict Band NVNT ac80 5210MHz Ant1 Peak



Restrict Band NVNT ac80 5210MHz Ant1 Average



Restrict Band NVNT ac80 5210MHz Ant1 Peak

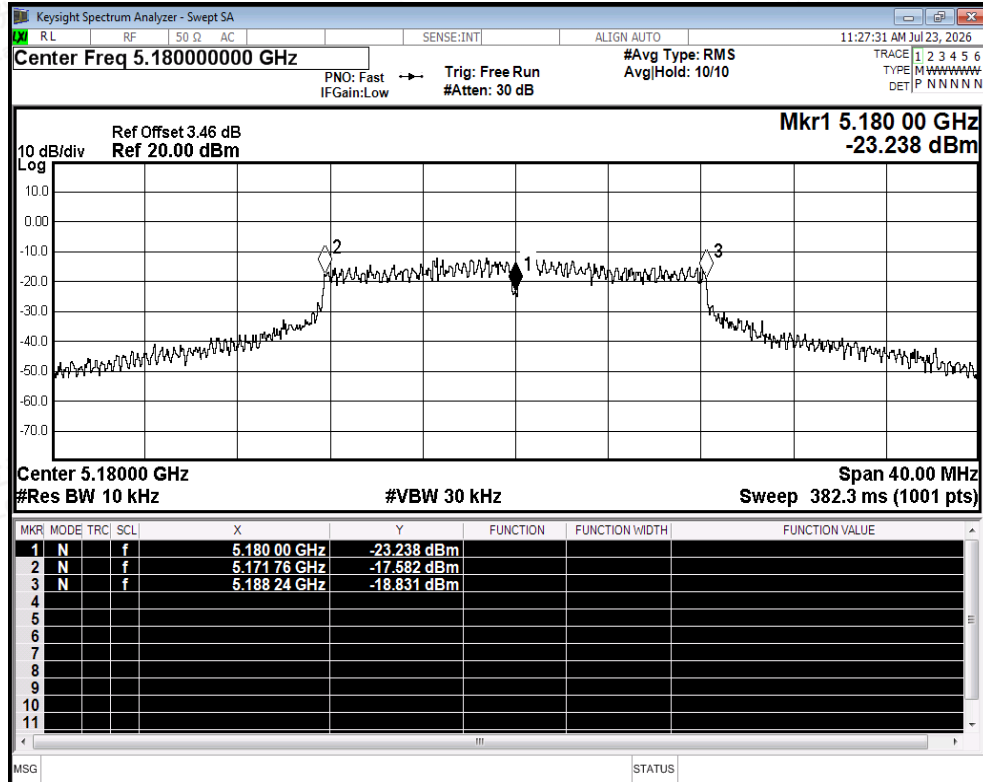


Restrict Band NVNT ac80 5210MHz Ant1 Average

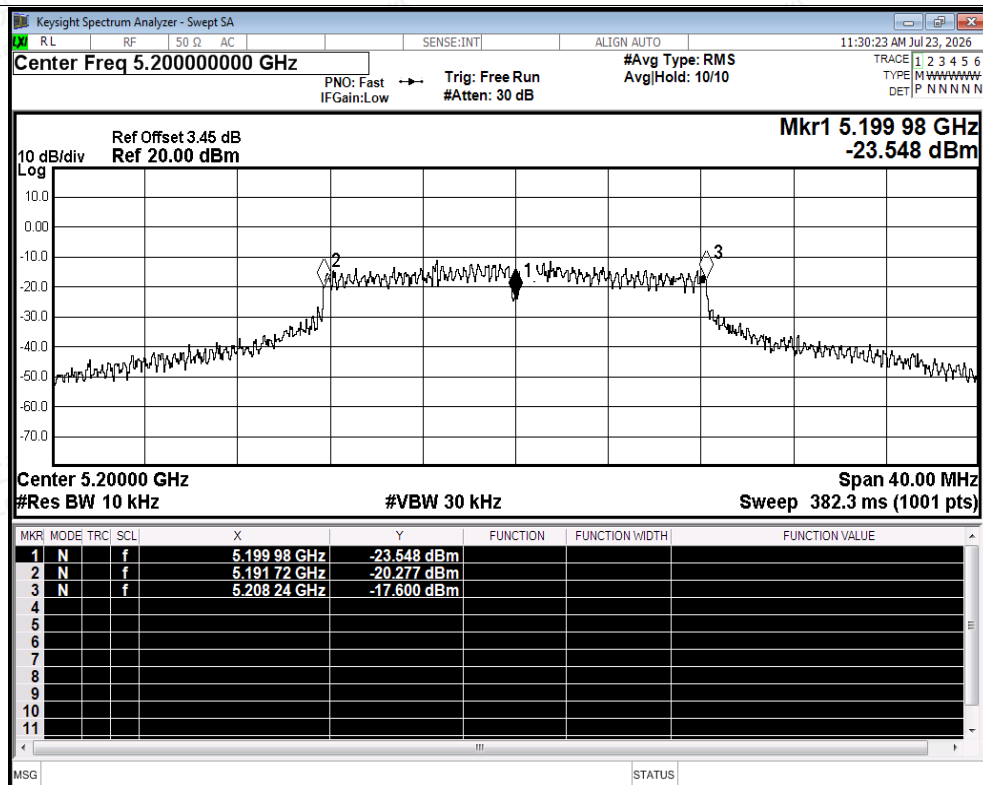


D.5 Frequency Stability

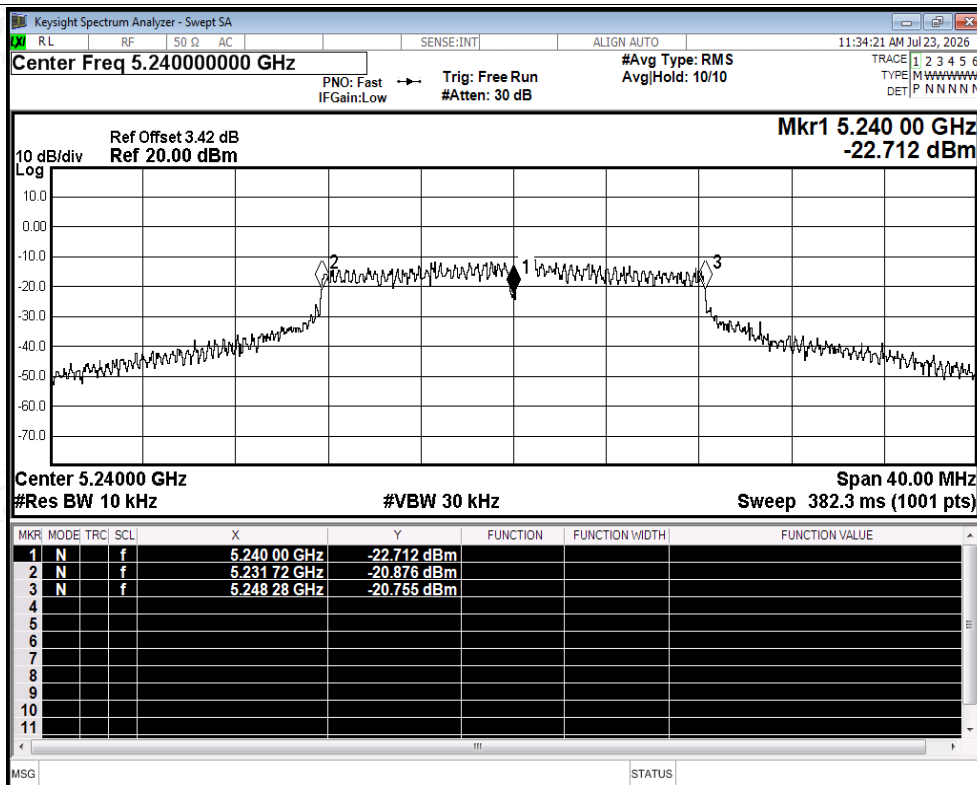
Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	a	5180	Ant1	5180	0	0	25	Pass
NVNT	a	5200	Ant1	5199.98	-20000	-3.85	25	Pass
NVNT	a	5240	Ant1	5240	0	0	25	Pass
NVNT	n20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
NVNT	n20	5200	Ant1	5200	0	0	25	Pass
NVNT	n20	5240	Ant1	5240.02	20000	3.82	25	Pass
NVNT	n40	5190	Ant1	5190	0	0	25	Pass
NVNT	n40	5230	Ant1	5230	0	0	25	Pass
NVNT	ac20	5180	Ant1	5180.02	20000	3.86	25	Pass
NVNT	ac20	5200	Ant1	5200	0	0	25	Pass
NVNT	ac20	5240	Ant1	5240.02	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



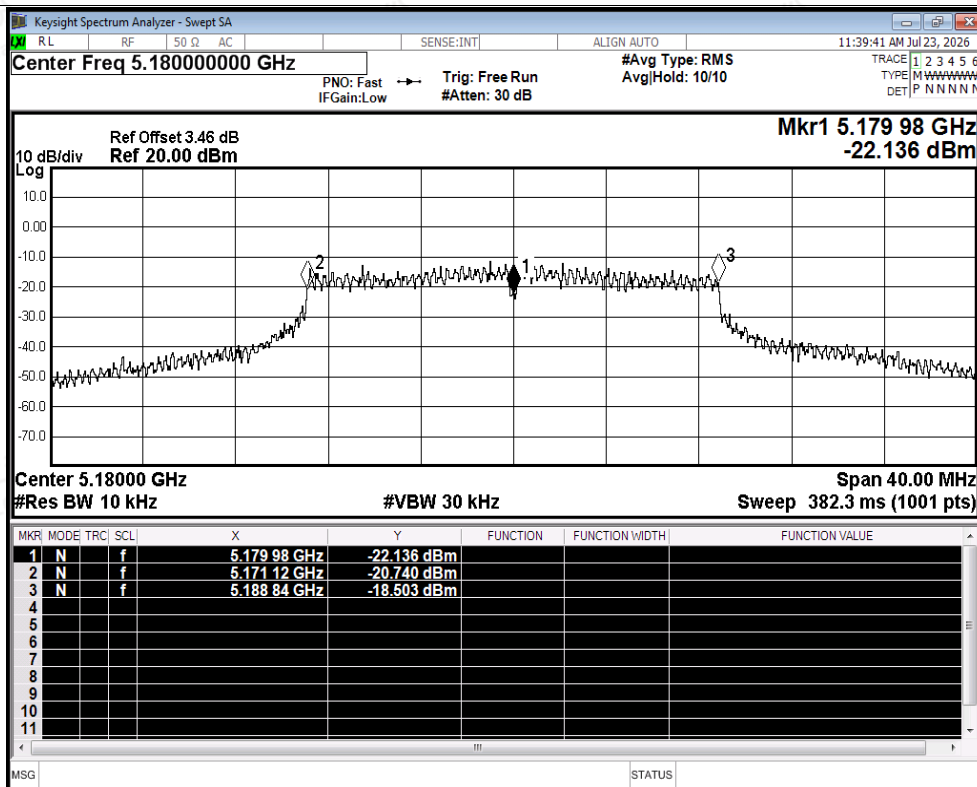
Freq. Stability NVNT a 5180MHz Ant1



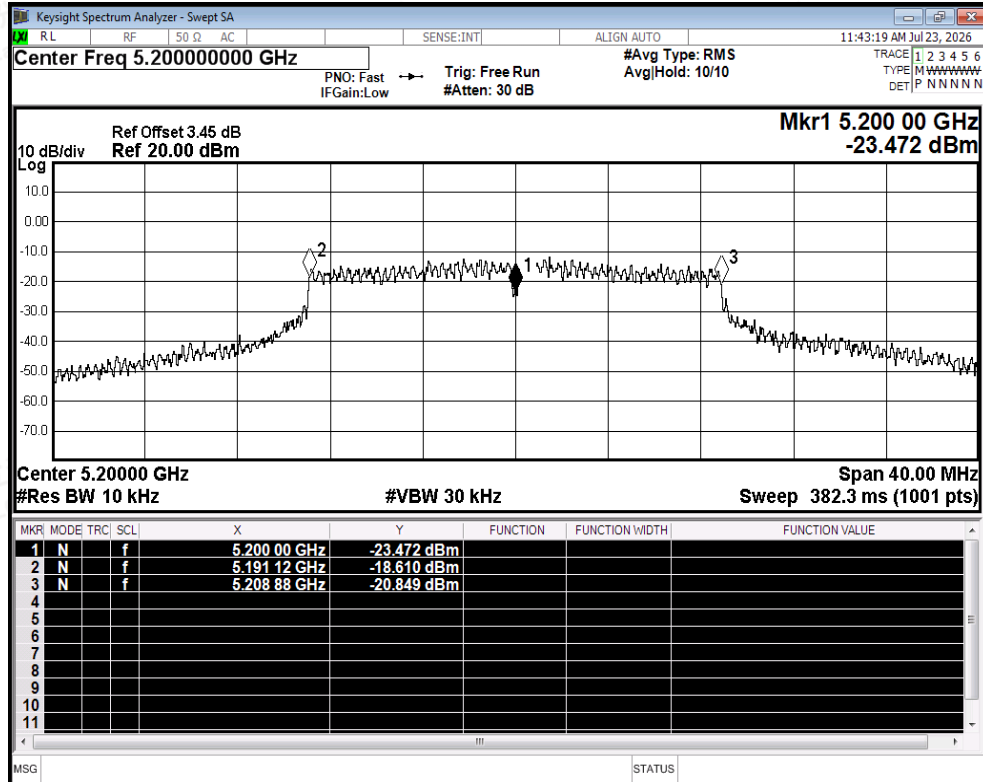
Freq. Stability NVNT a 5200MHz Ant1



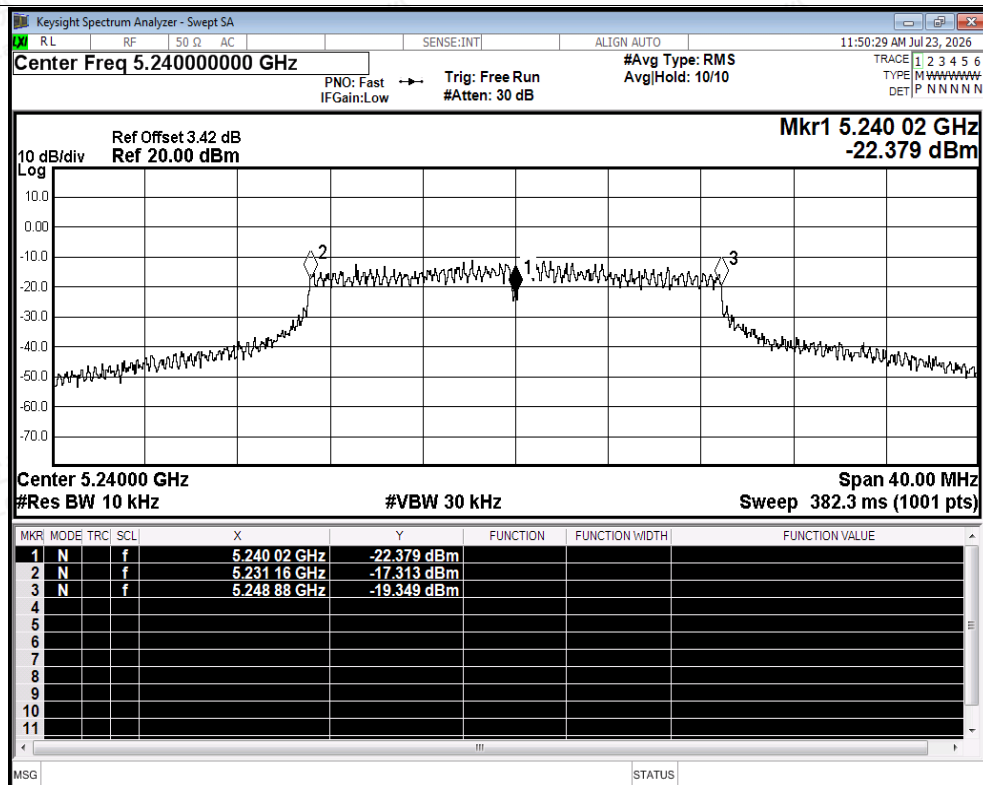
Freq. Stability NVNT a 5240MHz Ant1



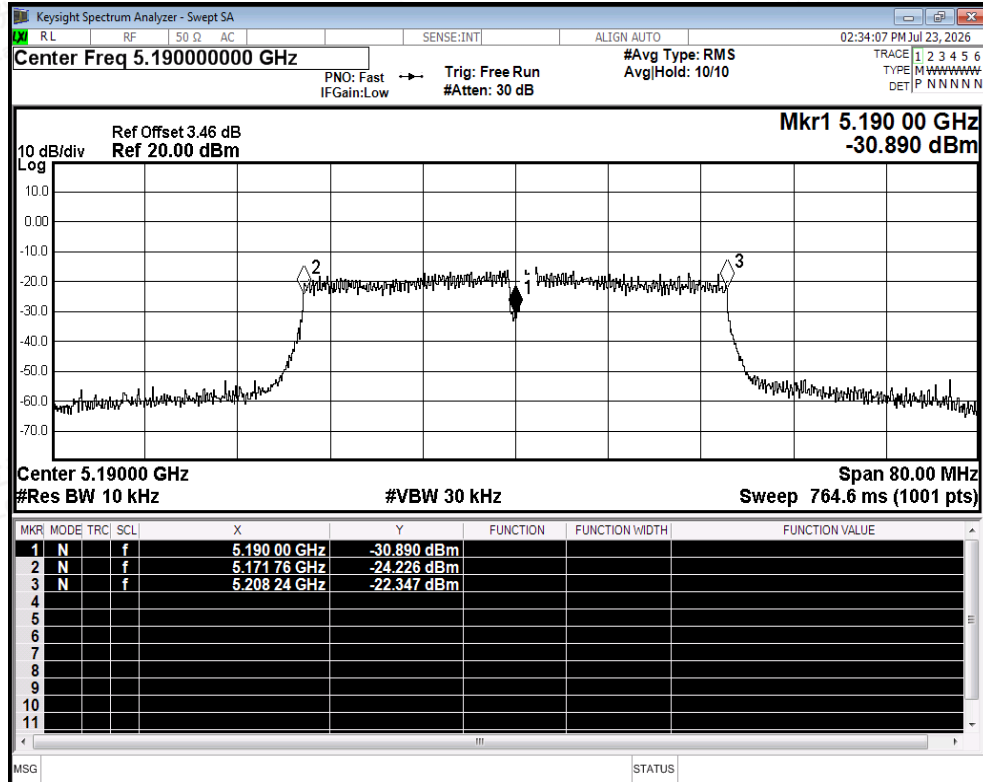
Freq. Stability NVNT n20 5180MHz Ant1



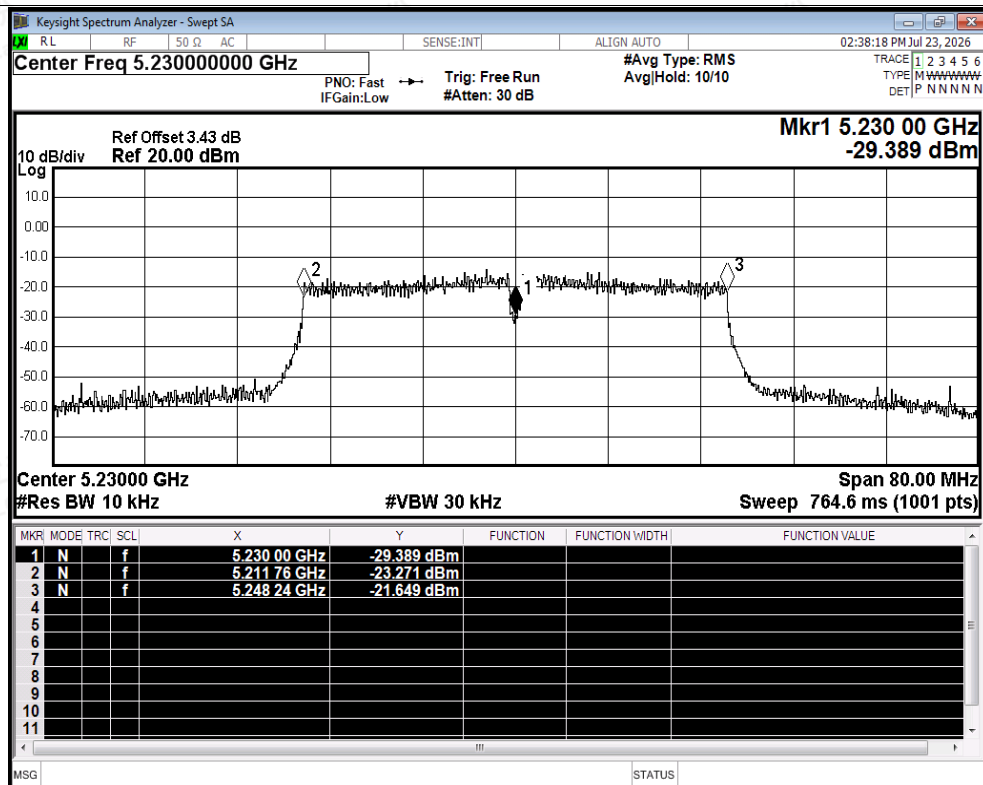
Freq. Stability NVNT n20 5200MHz Ant1



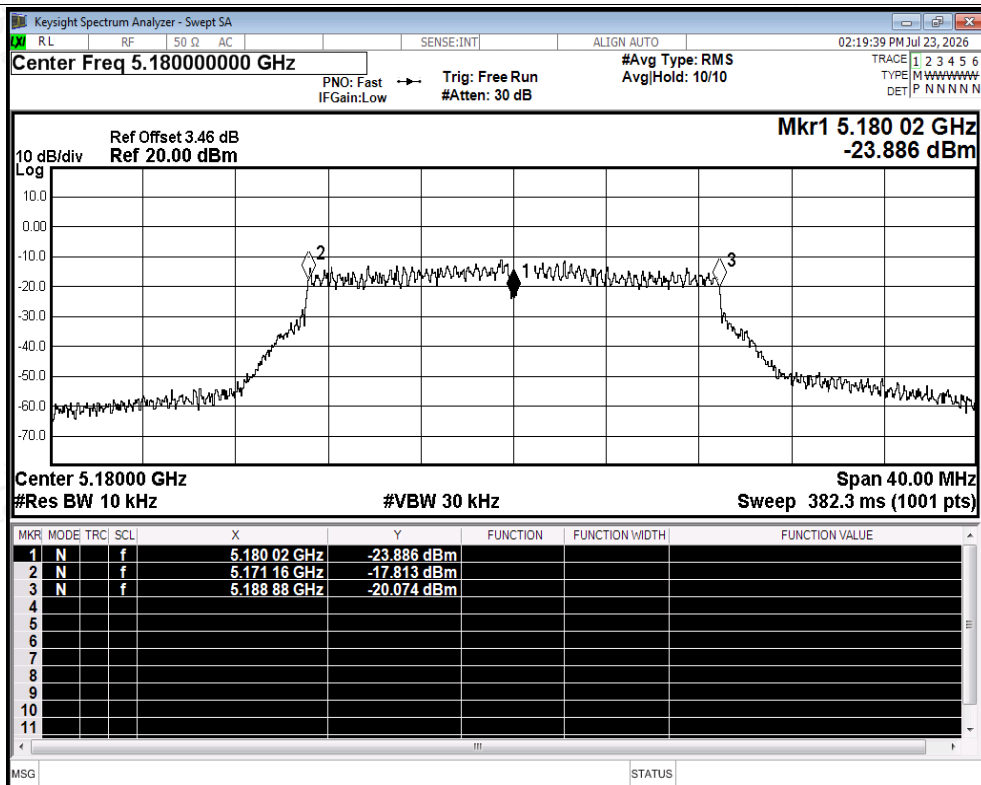
Freq. Stability NVNT n20 5240MHz Ant1



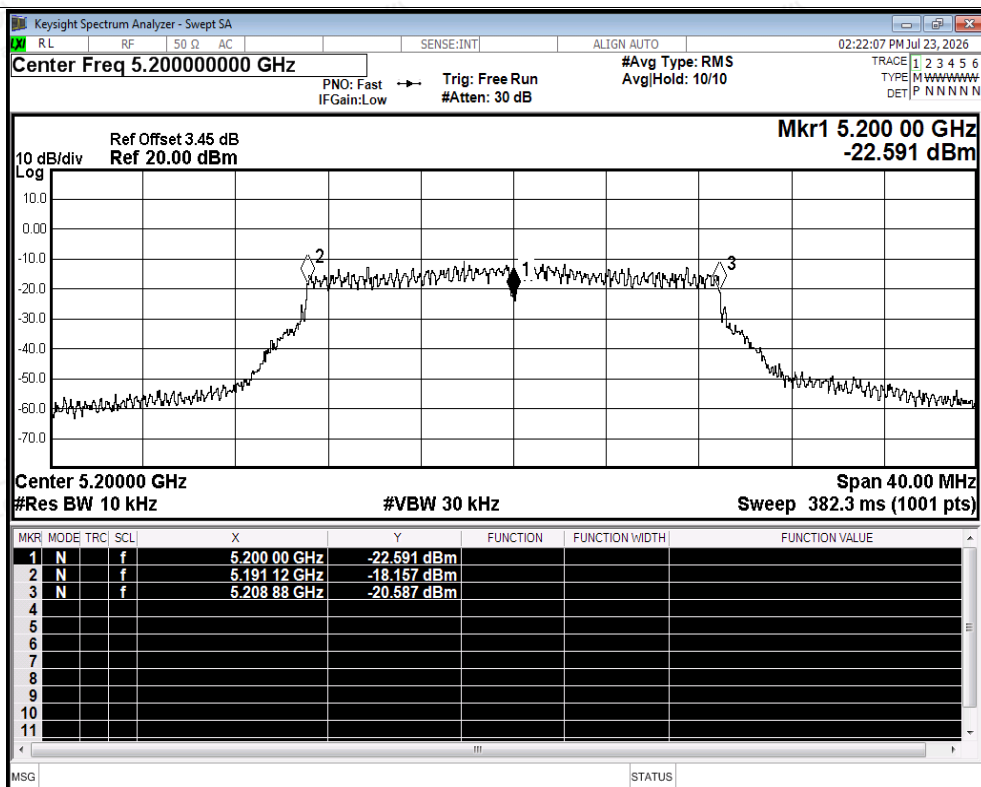
Freq. Stability NVNT n40 5190MHz Ant1



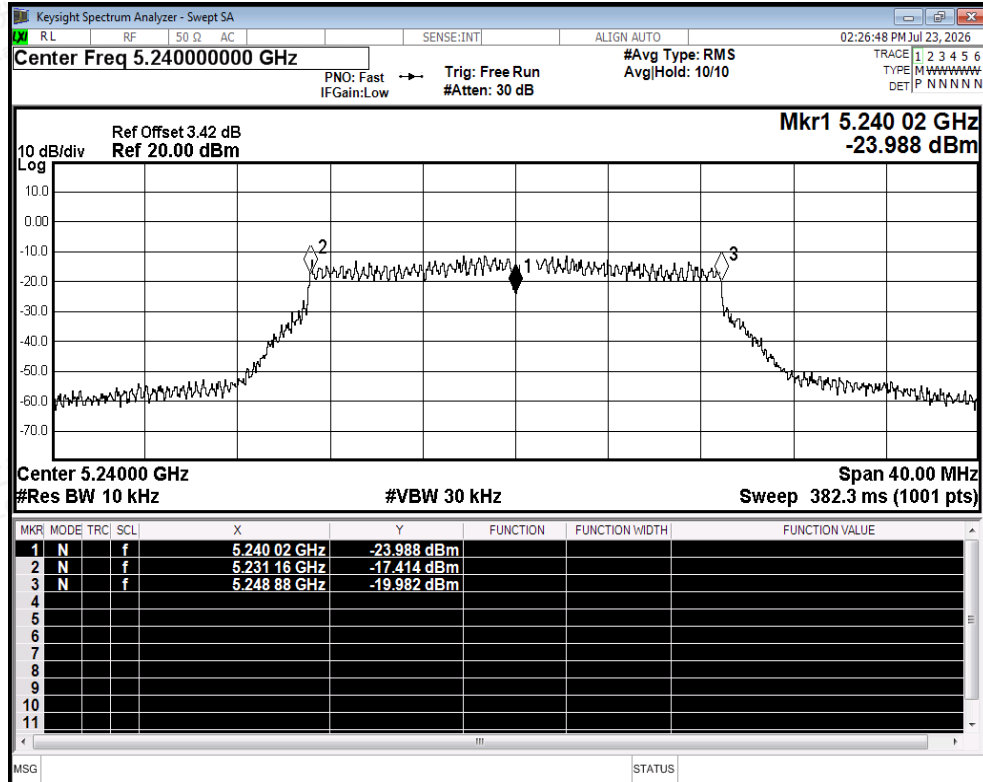
Freq. Stability NVNT n40 5230MHz Ant1



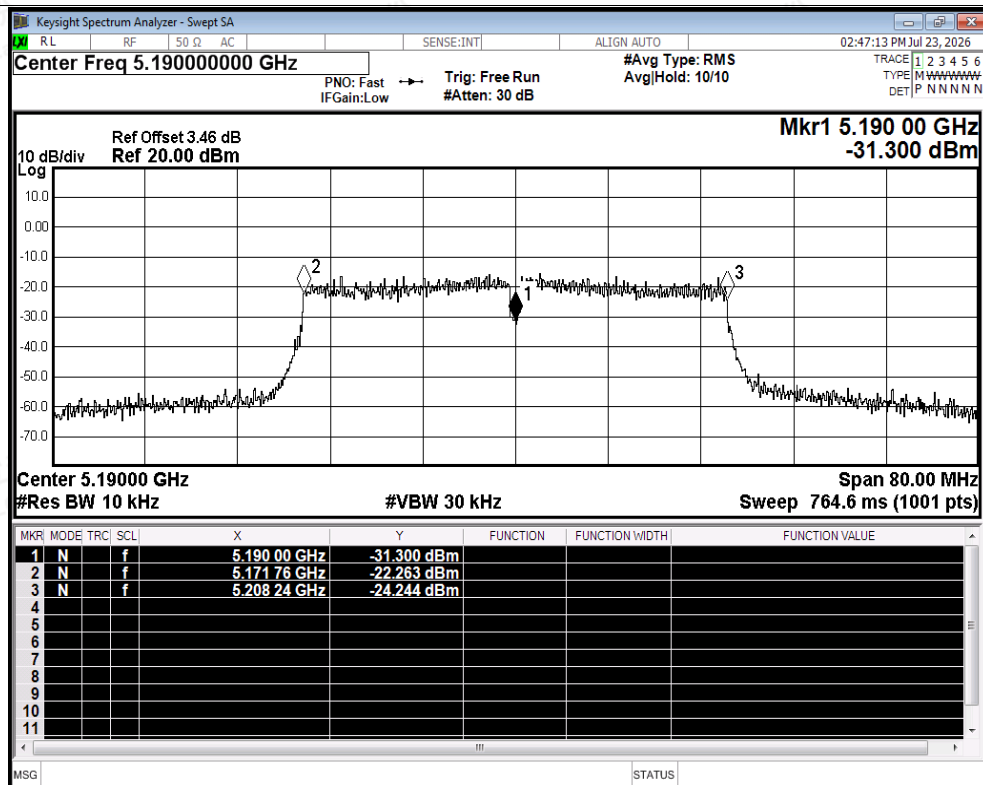
Freq. Stability NVNT ac20 5180MHz Ant1



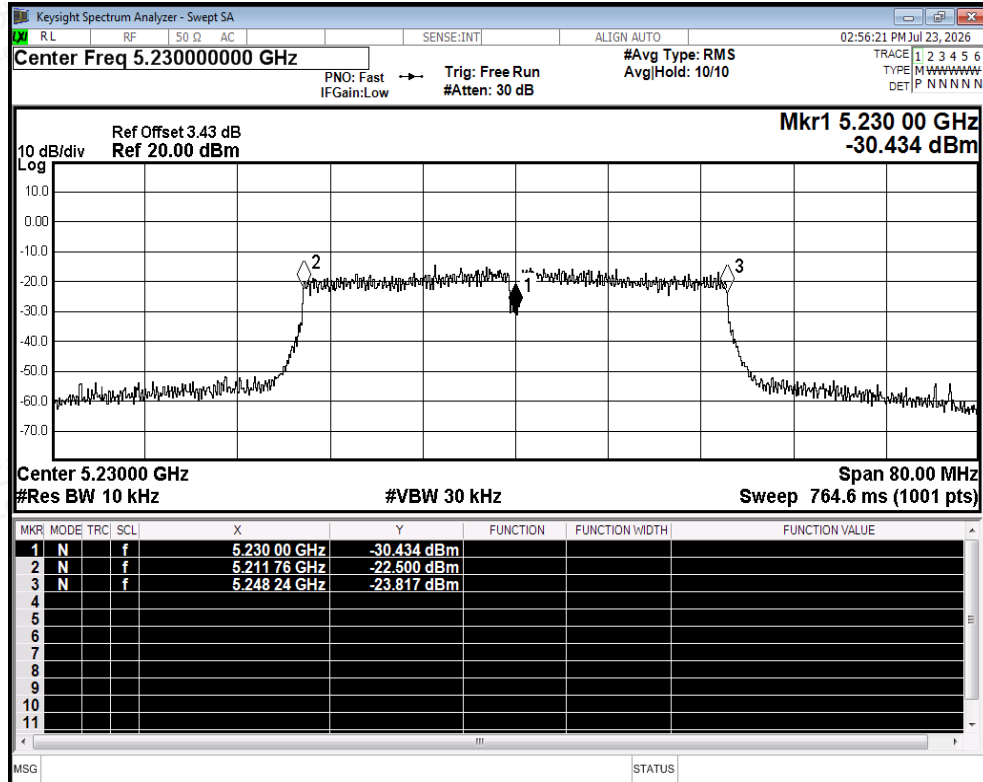
Freq. Stability NVNT ac20 5200MHz Ant1



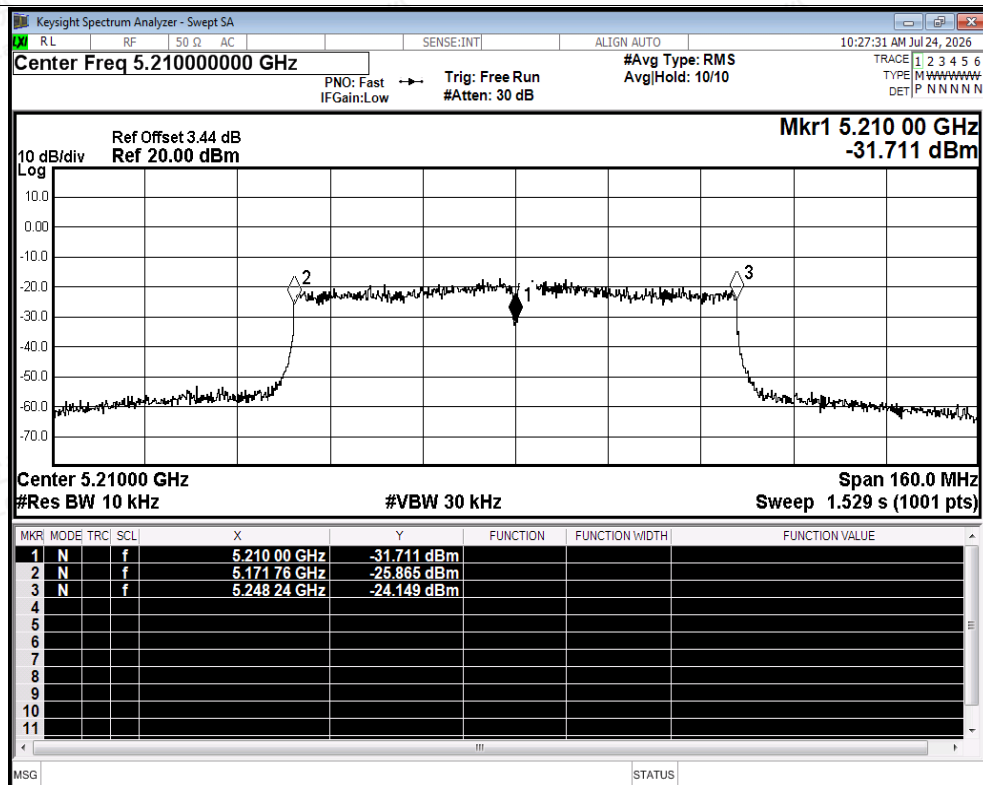
Freq. Stability NVNT ac20 5240MHz Ant1



Freq. Stability NVNT ac40 5190MHz Ant1



Freq. Stability NVNT ac40 5230MHz Ant1

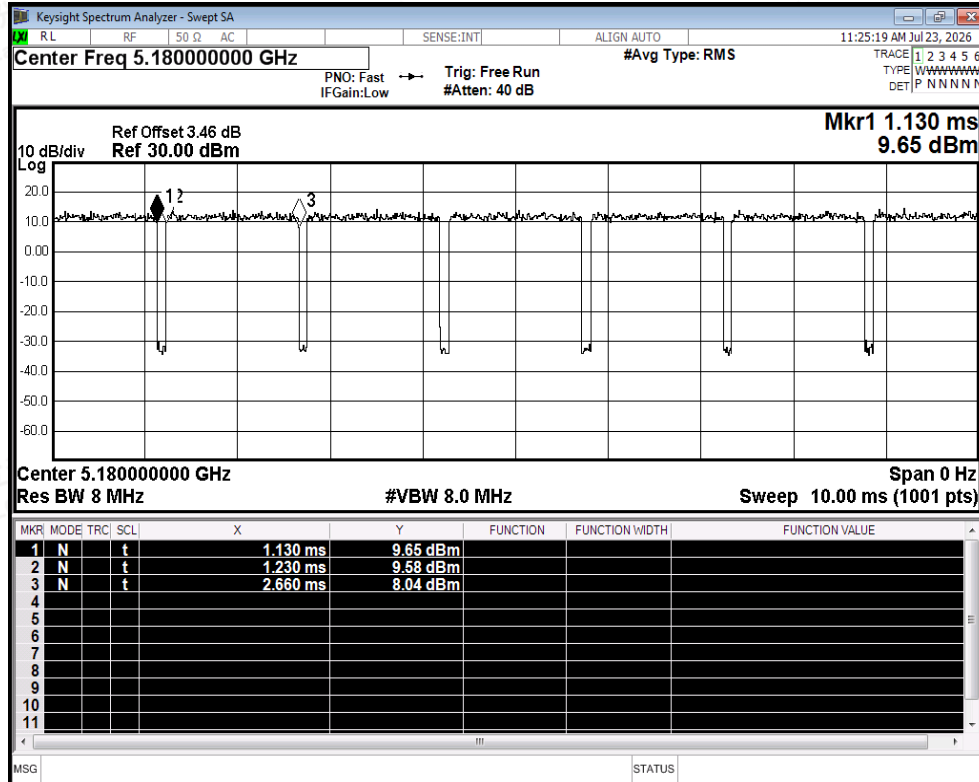


Freq. Stability NVNT ac80 5210MHz Ant1

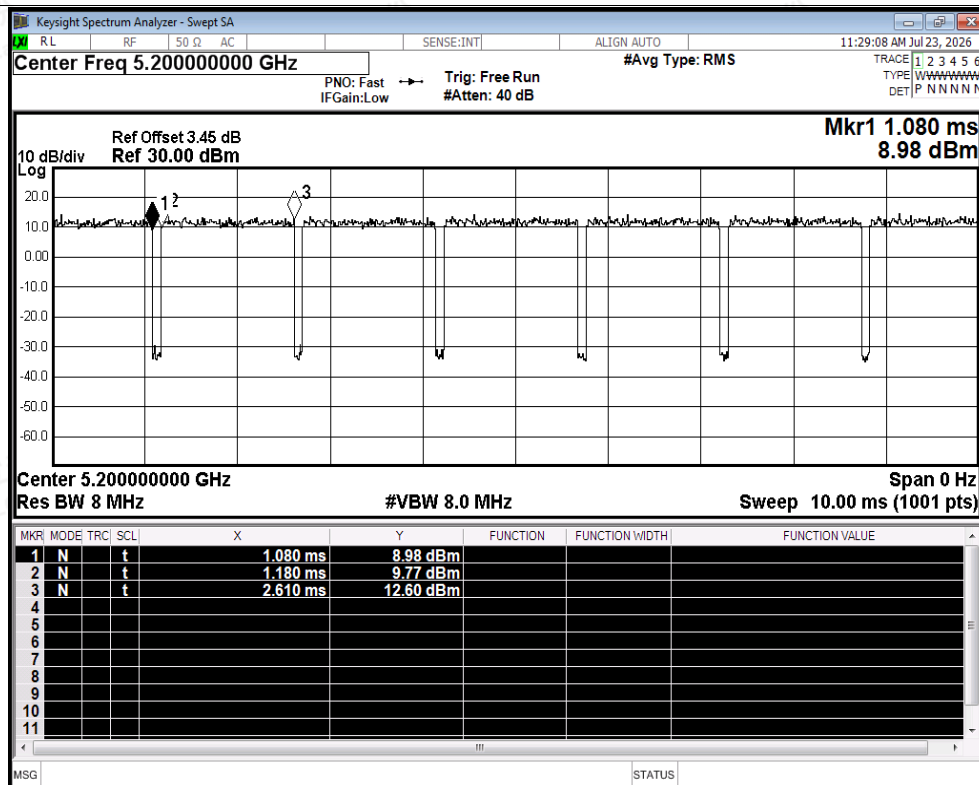


D.6 Duty Cycle

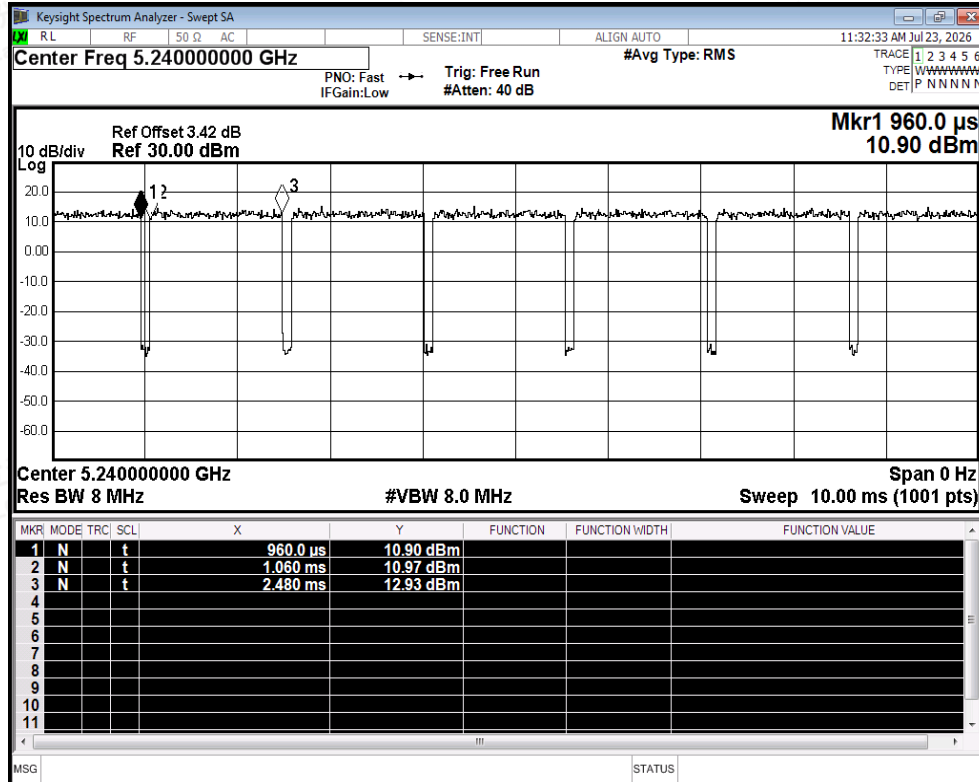
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	93.46	0.29	0.7
NVNT	a	5200	Ant1	93.46	0.29	0.7
NVNT	a	5240	Ant1	93.42	0.3	0.7
NVNT	n20	5180	Ant1	93.06	0.31	0.75
NVNT	n20	5200	Ant1	93.06	0.31	0.75
NVNT	n20	5240	Ant1	93.06	0.31	0.75
NVNT	n40	5190	Ant1	86.84	0.61	1.52
NVNT	n40	5230	Ant1	86.84	0.61	1.52
NVNT	ac20	5180	Ant1	93.06	0.31	0.75
NVNT	ac20	5200	Ant1	93.1	0.31	0.74
NVNT	ac20	5240	Ant1	93.06	0.31	0.75
NVNT	ac40	5190	Ant1	87.01	0.6	1.49
NVNT	ac40	5230	Ant1	87.01	0.6	1.49
NVNT	ac80	5210	Ant1	76.74	1.15	3.03



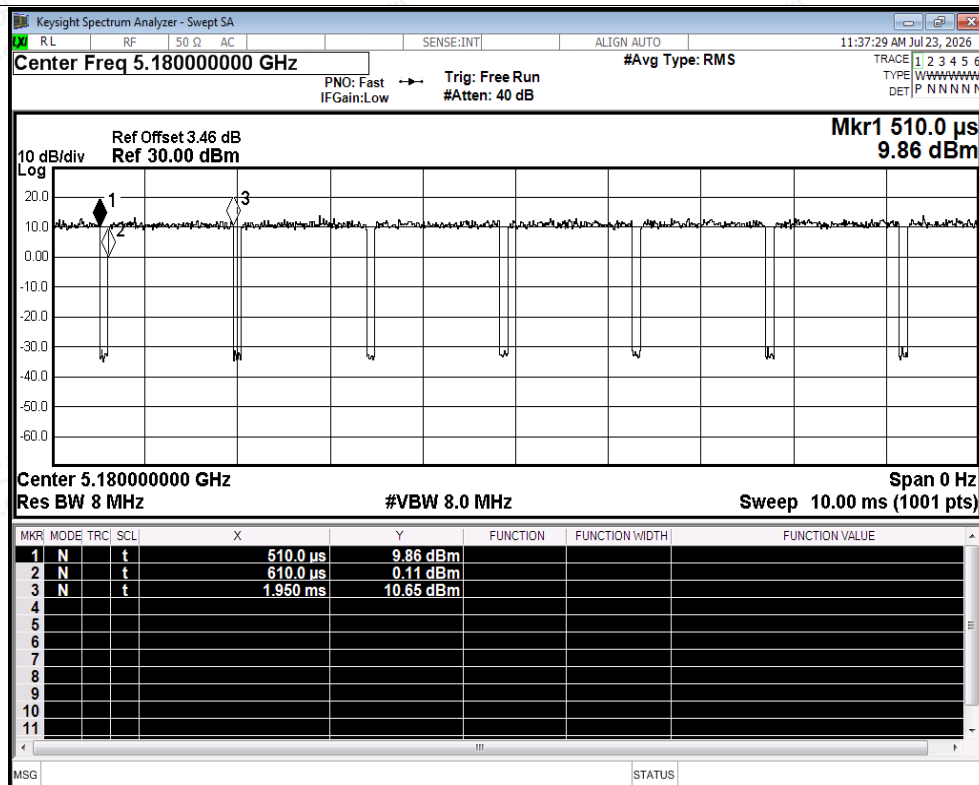
Duty Cycle NVNT a 5180MHz Ant1



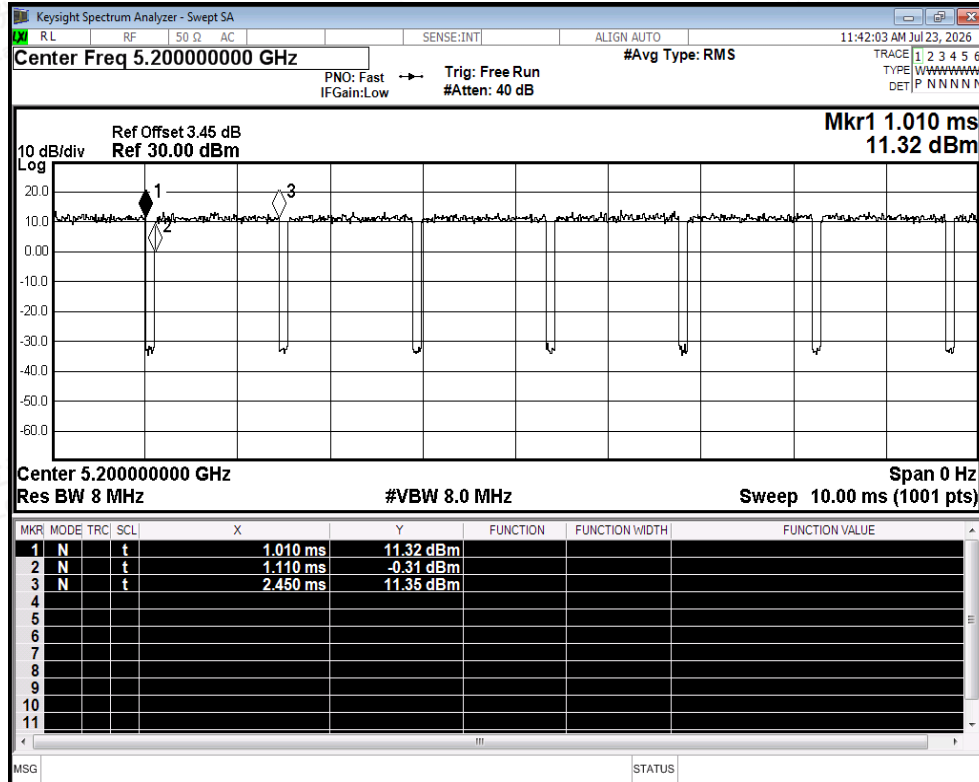
Duty Cycle NVNT a 5200MHz Ant1



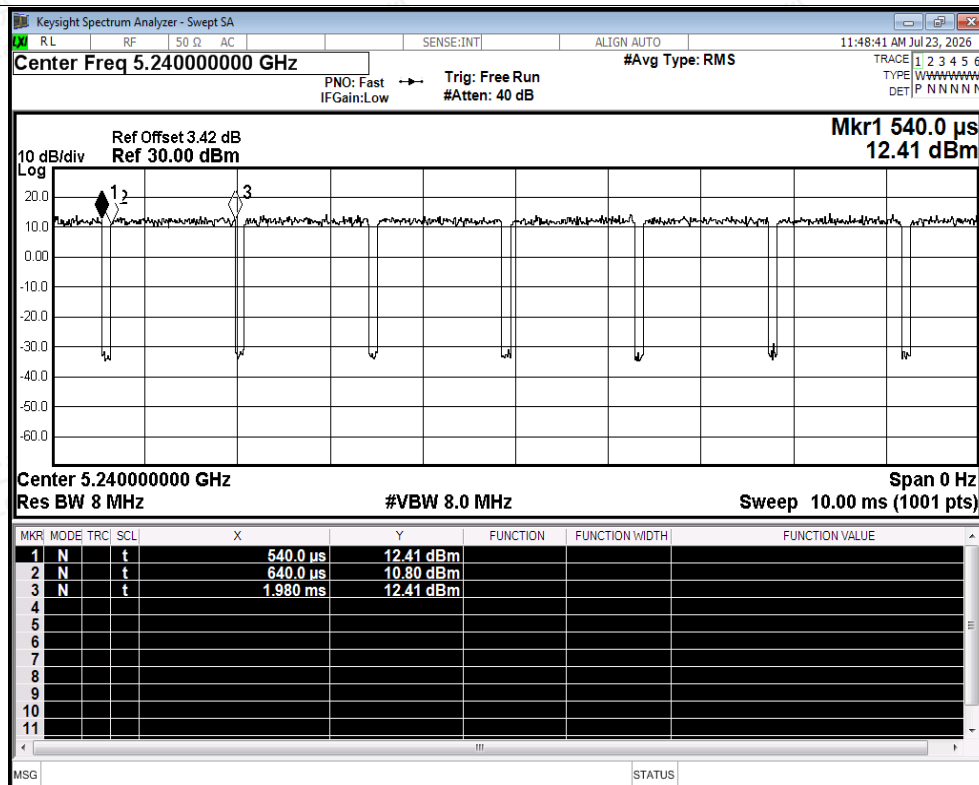
Duty Cycle NVNT a 5240MHz Ant1



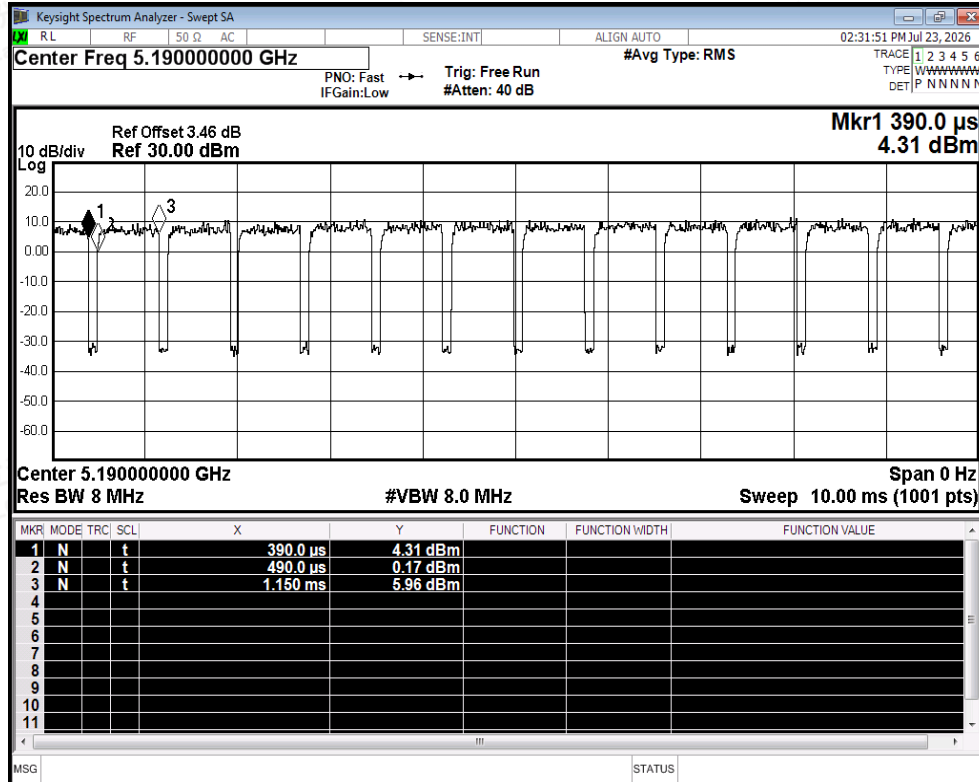
Duty Cycle NVNT n20 5180MHz Ant1



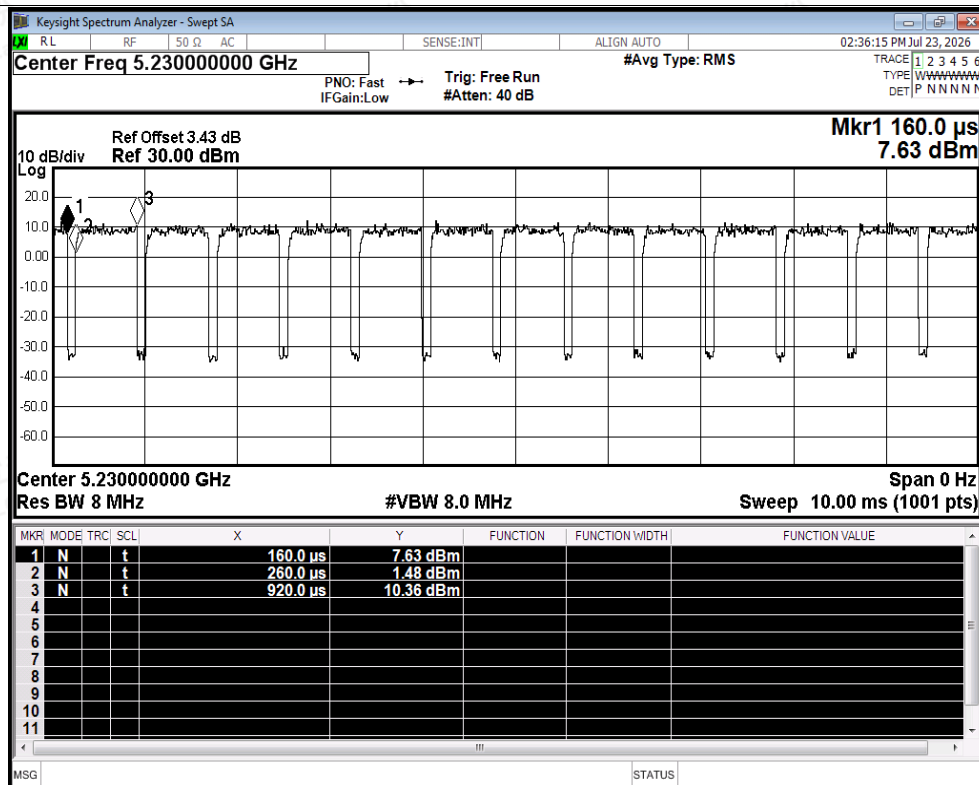
Duty Cycle NVNT n20 5200MHz Ant1



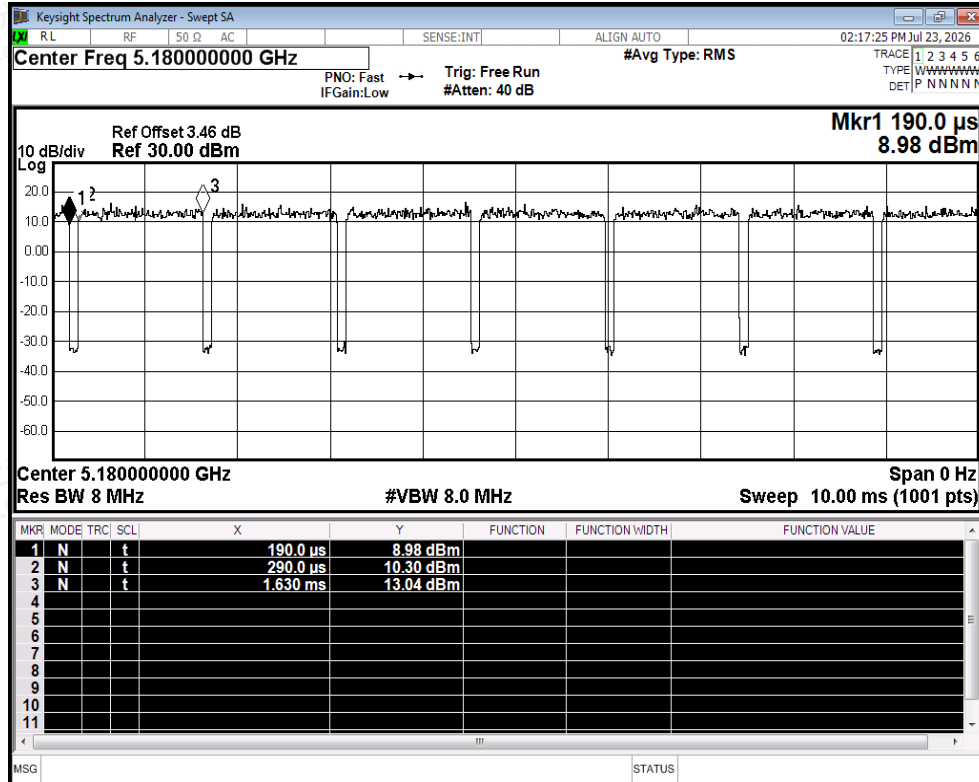
Duty Cycle NVNT n20 5240MHz Ant1



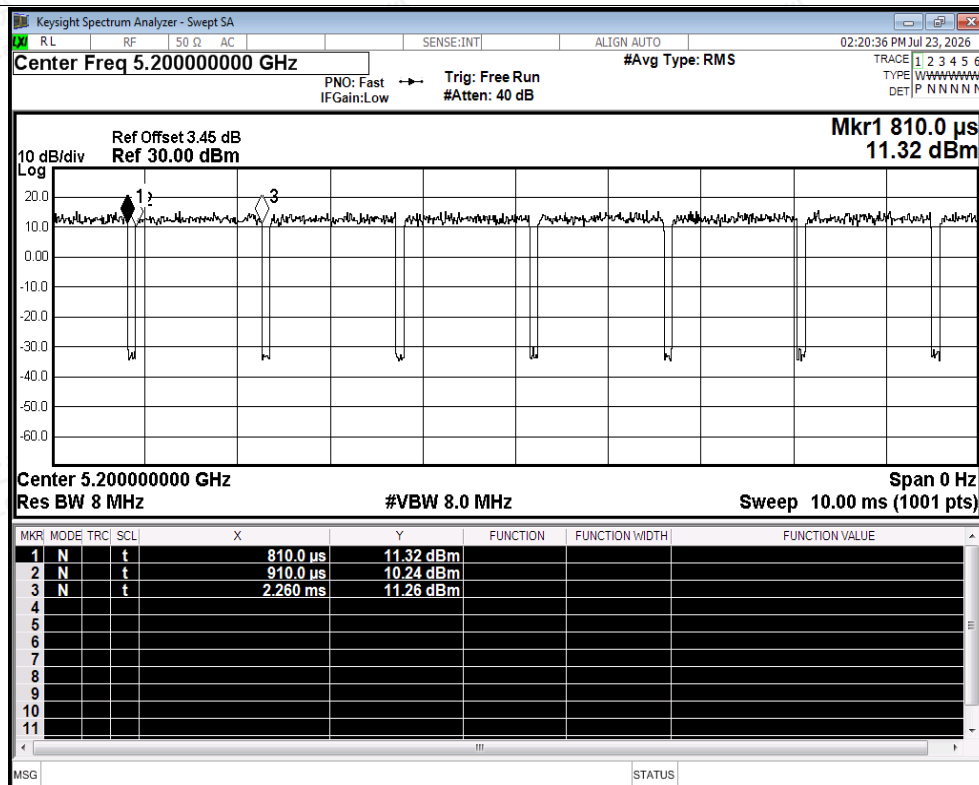
Duty Cycle NVNT n40 5190MHz Ant1



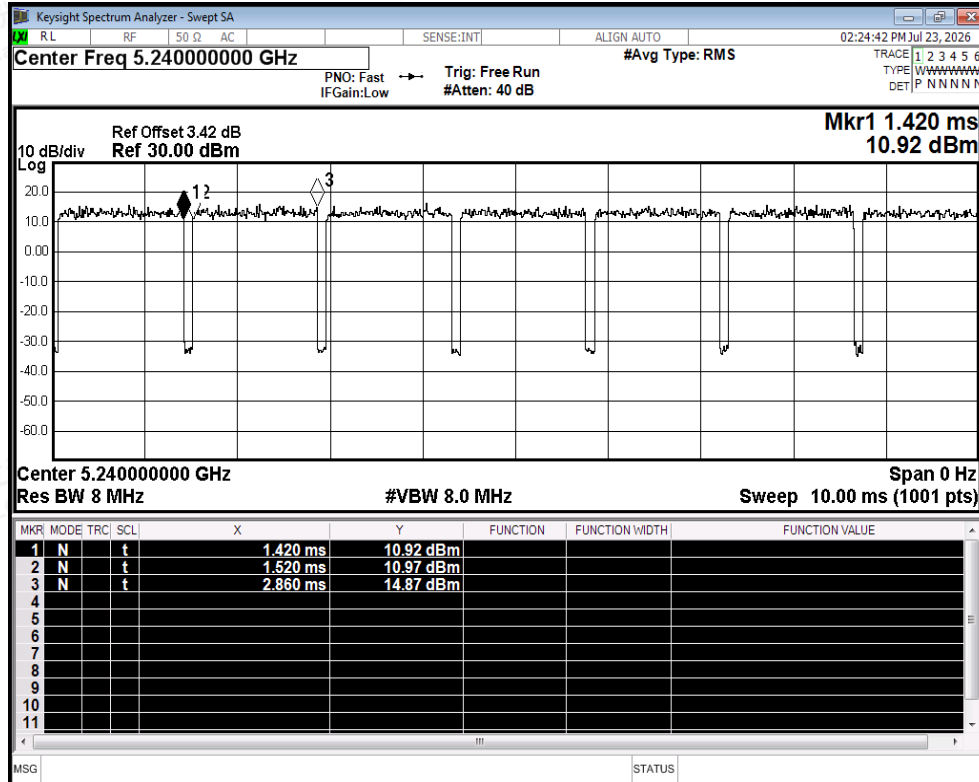
Duty Cycle NVNT n40 5230MHz Ant1



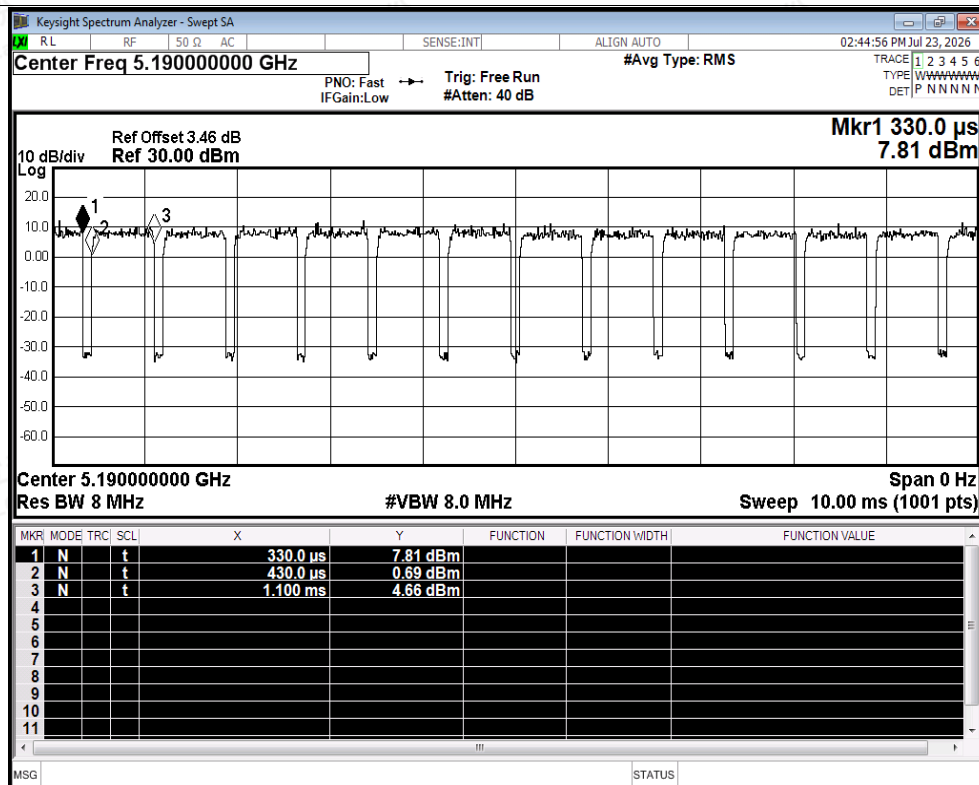
Duty Cycle NVNT ac20 5180MHz Ant1



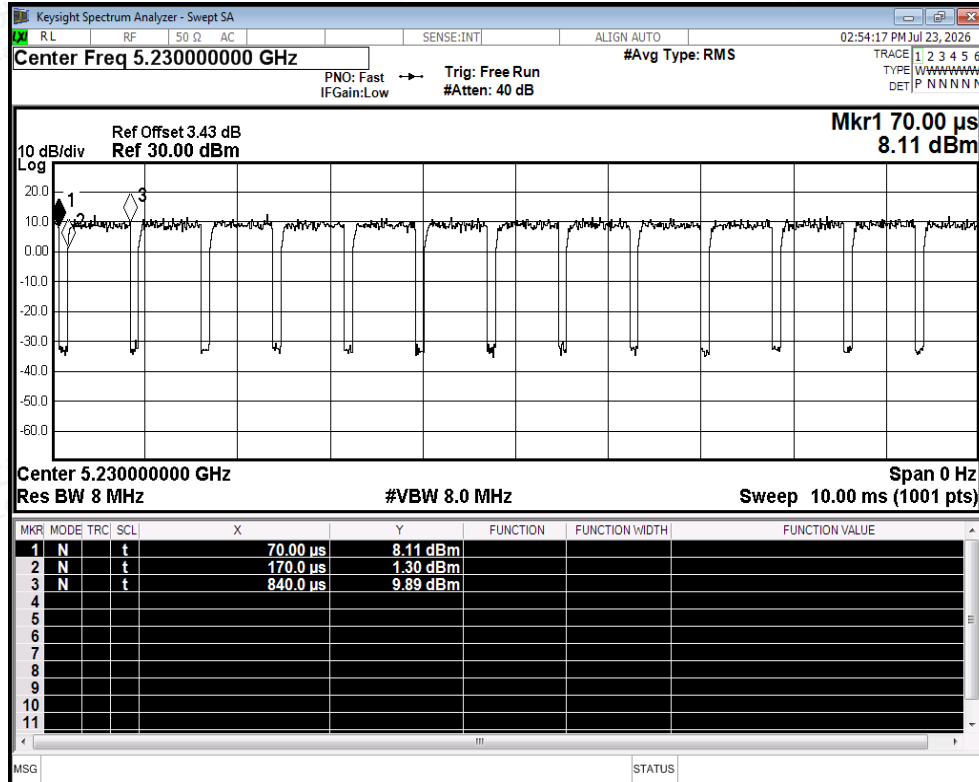
Duty Cycle NVNT ac20 5200MHz Ant1



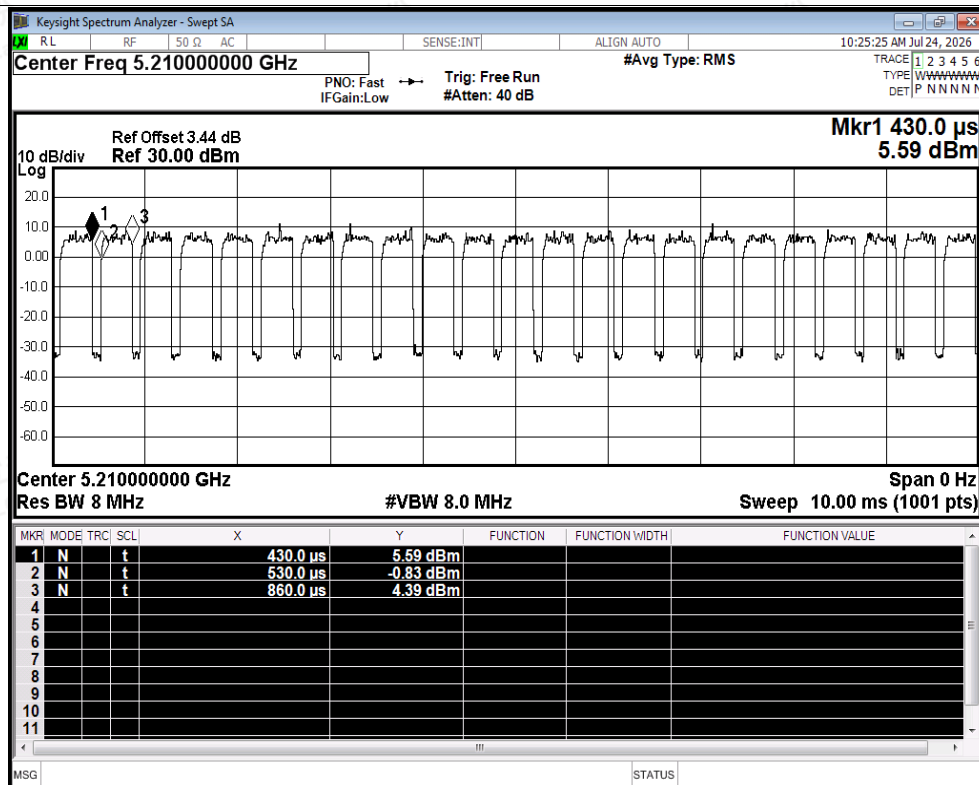
Duty Cycle NVNT ac20 5240MHz Ant1



Duty Cycle NVNT ac40 5190MHz Ant1



Duty Cycle NVNT ac40 5230MHz Ant1



Duty Cycle NVNT ac80 5210MHz Ant1