



Appendix D

RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name: APOLLO

Test Model: APOLLO 7PRO

Environmental Conditions

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





D.1 -26dB Bandwidth

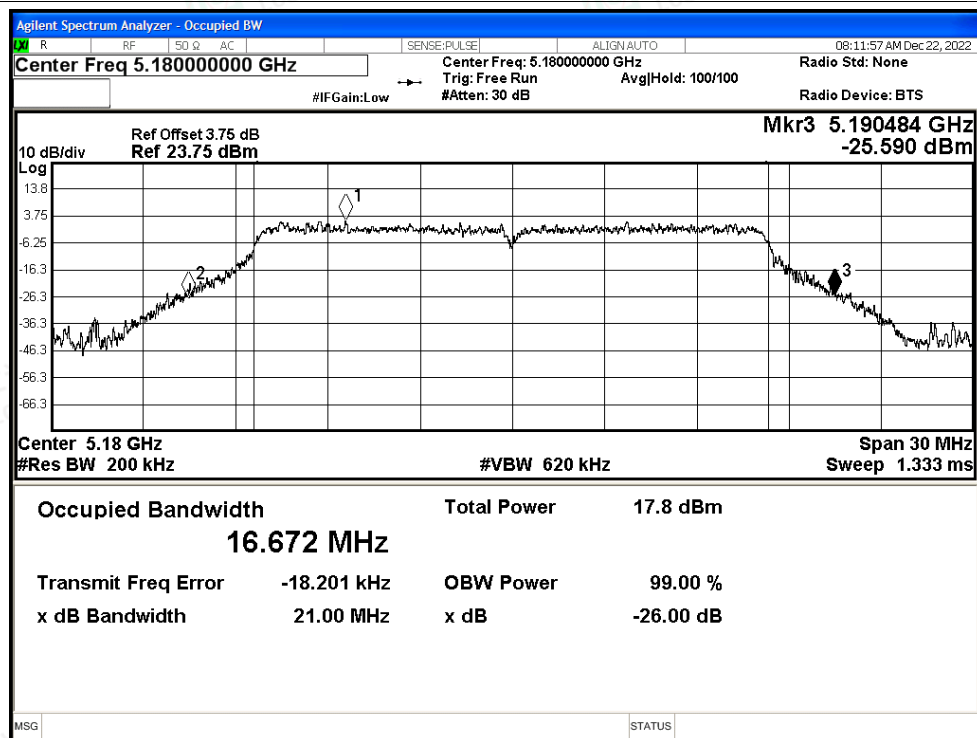
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	Ant1	21.004	≥ 0.5	Pass
NVNT	a	5200	Ant1	21.142	≥ 0.5	Pass
NVNT	a	5240	Ant1	21.715	≥ 0.5	Pass
NVNT	n20	5180	Ant1	21.437	≥ 0.5	Pass
NVNT	n20	5200	Ant1	21.136	≥ 0.5	Pass
NVNT	n20	5240	Ant1	21.552	≥ 0.5	Pass
NVNT	n40	5190	Ant1	42.351	≥ 0.5	Pass
NVNT	n40	5230	Ant1	42.47	≥ 0.5	Pass
NVNT	ac20	5180	Ant1	21.684	≥ 0.5	Pass
NVNT	ac20	5200	Ant1	21.502	≥ 0.5	Pass
NVNT	ac20	5240	Ant1	21.551	≥ 0.5	Pass
NVNT	ac40	5190	Ant1	42.261	≥ 0.5	Pass
NVNT	ac40	5230	Ant1	42.574	≥ 0.5	Pass
NVNT	ac80	5210	Ant1	82.533	≥ 0.5	Pass



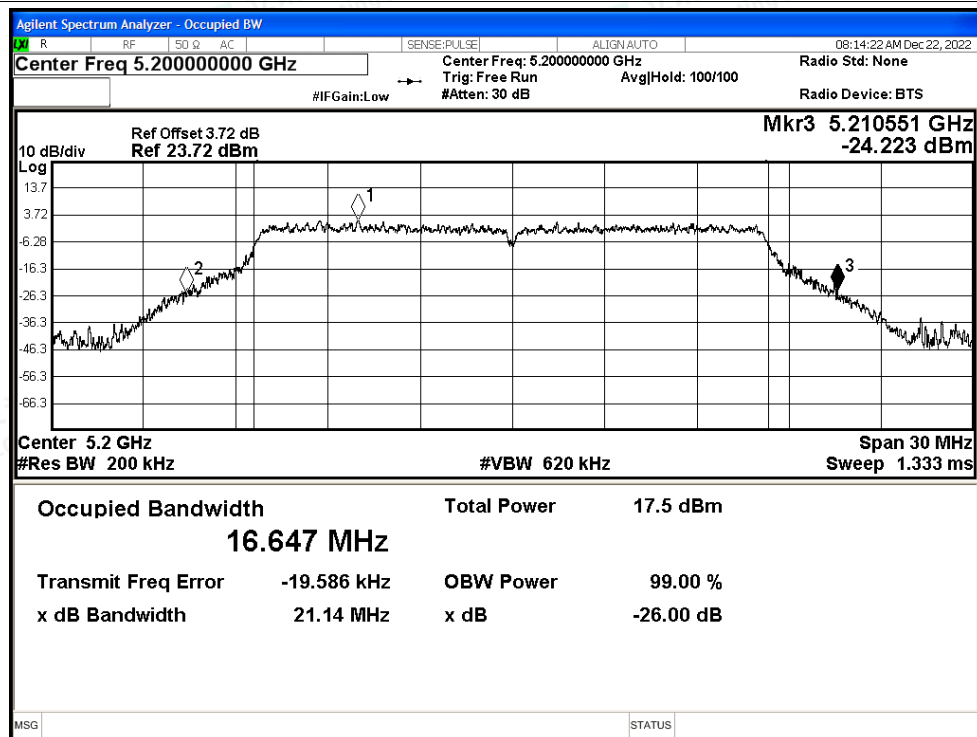


Test Graphs

-26dB Bandwidth NVNT a 5180MHz Ant1

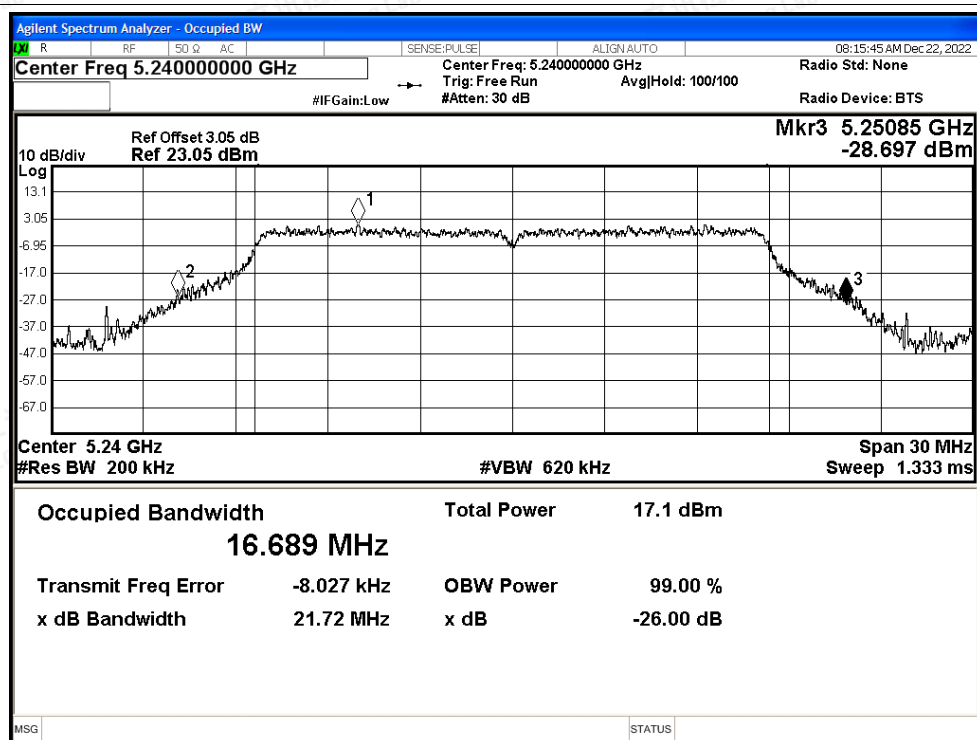


-26dB Bandwidth NVNT a 5200MHz Ant1

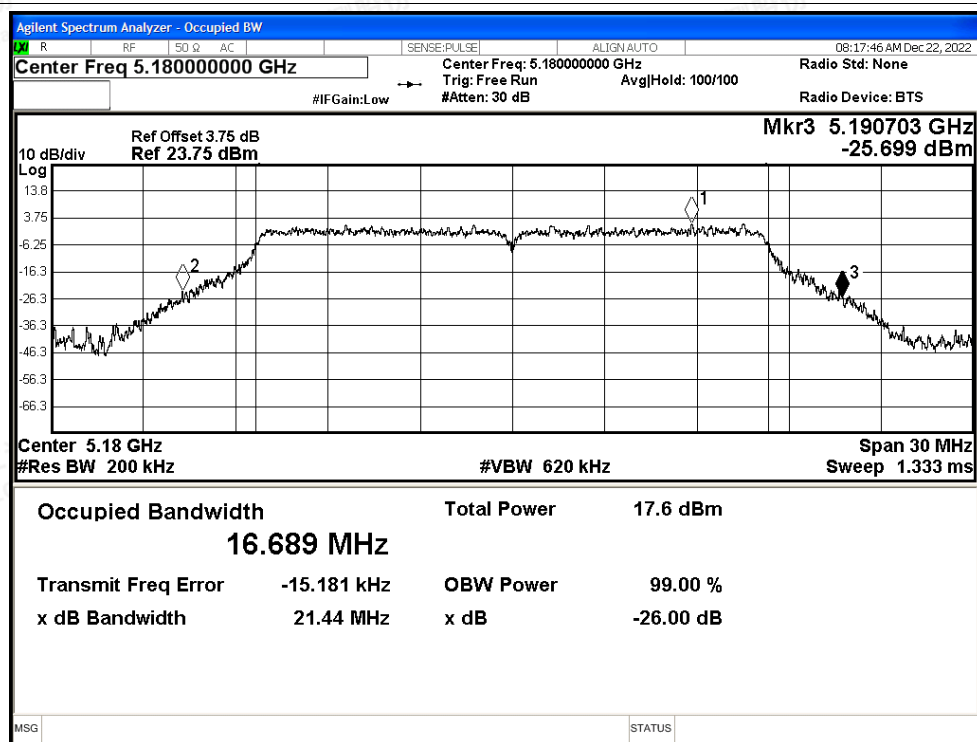




-26dB Bandwidth NVNT a 5240MHz Ant1

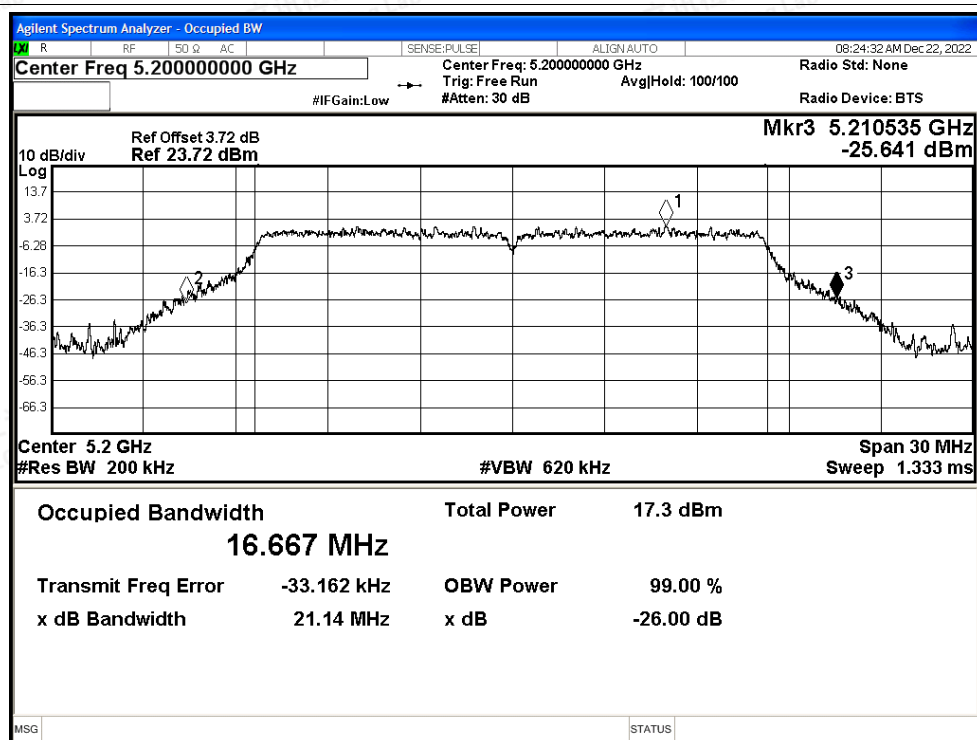


-26dB Bandwidth NVNT n20 5180MHz Ant1

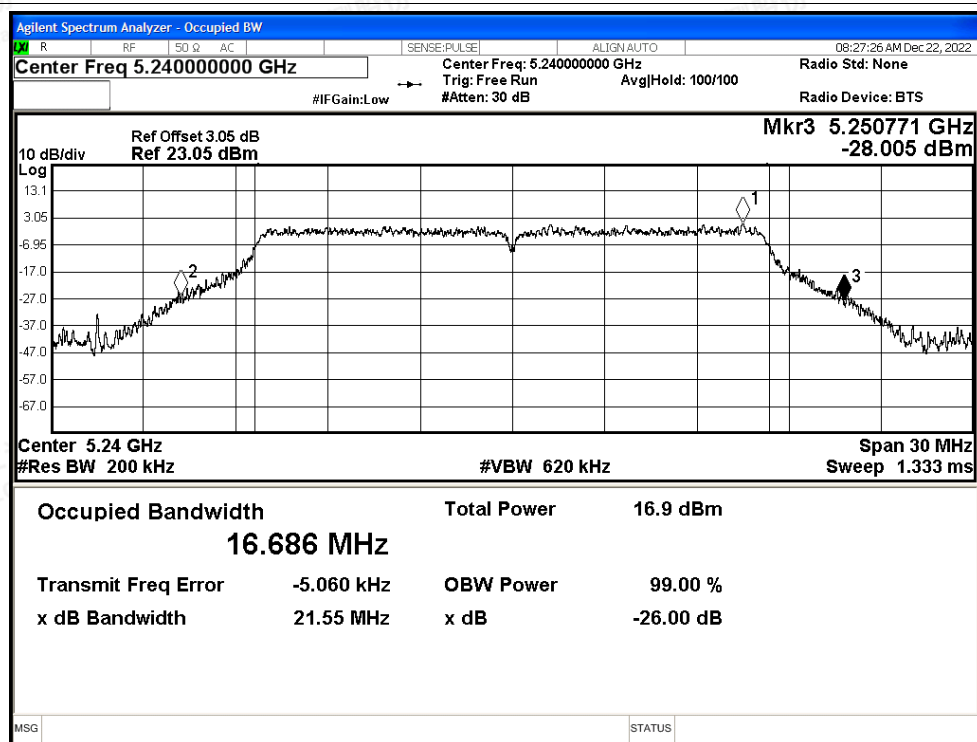




-26dB Bandwidth NVNT n20 5200MHz Ant1



-26dB Bandwidth NVNT n20 5240MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

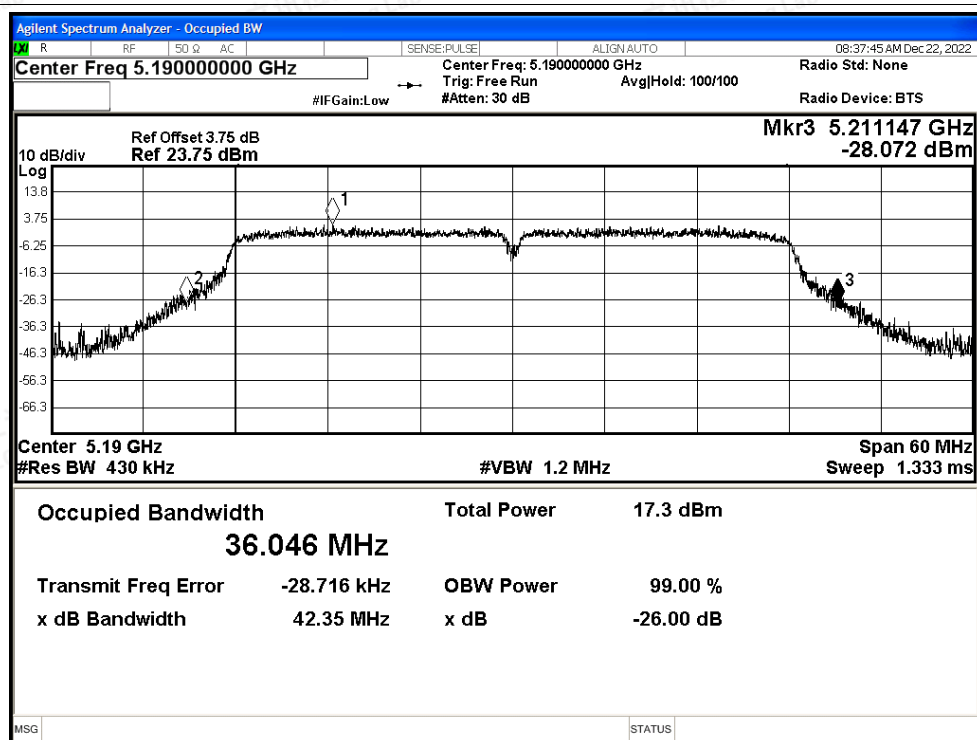
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

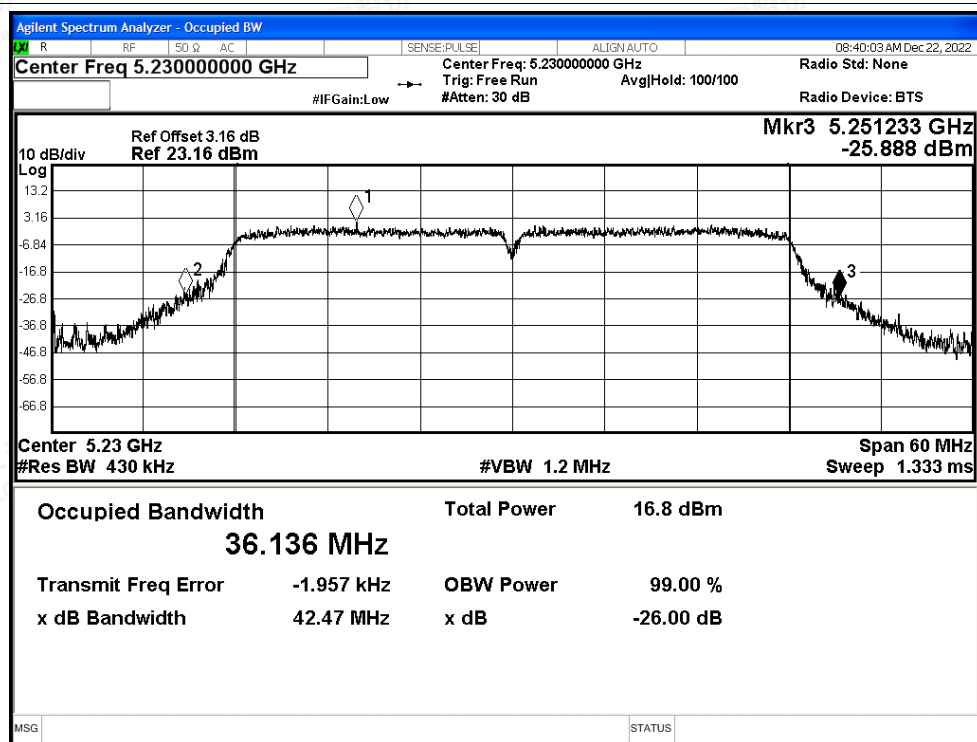
Scan code to check authenticity



-26dB Bandwidth NVNT n40 5190MHz Ant1



-26dB Bandwidth NVNT n40 5230MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

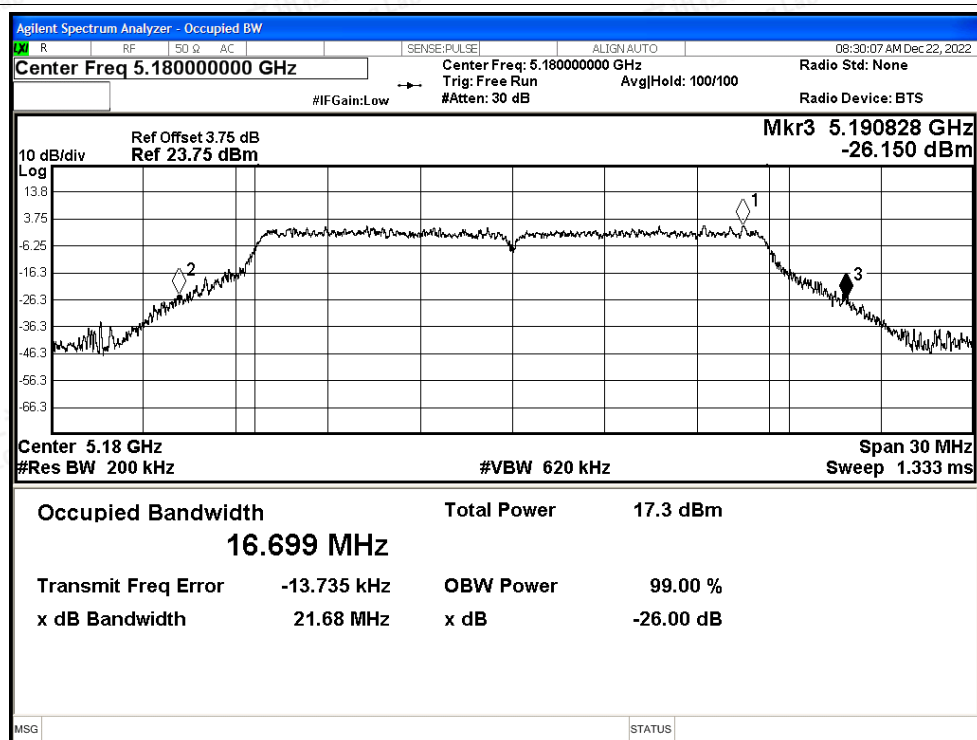
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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

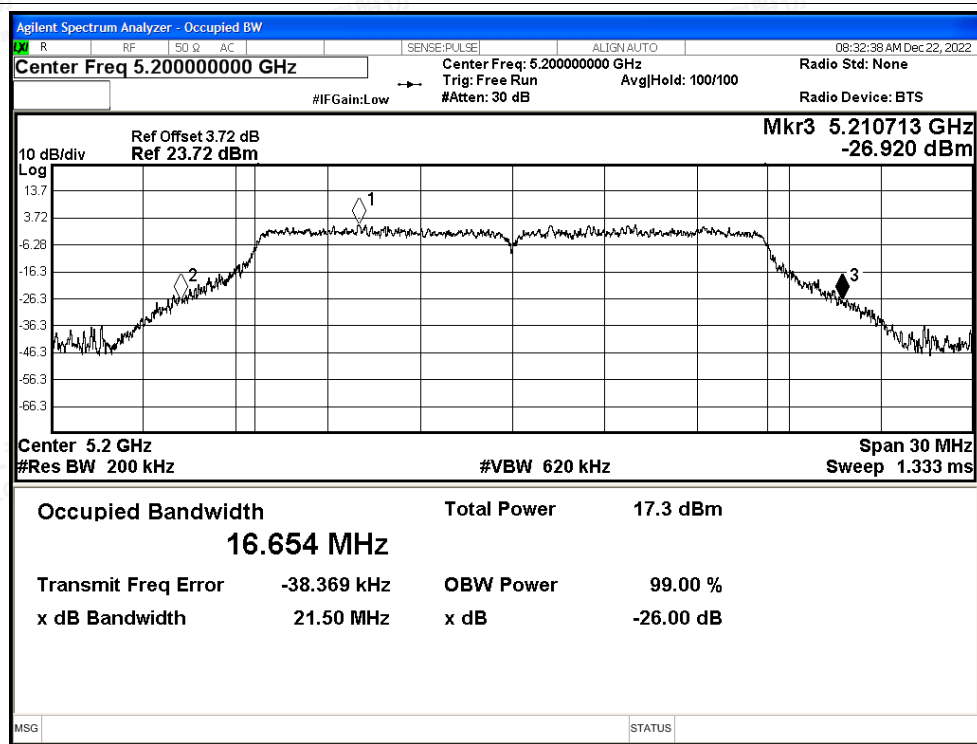
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-26dB Bandwidth NVNT ac20 5180MHz Ant1



-26dB Bandwidth NVNT ac20 5200MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

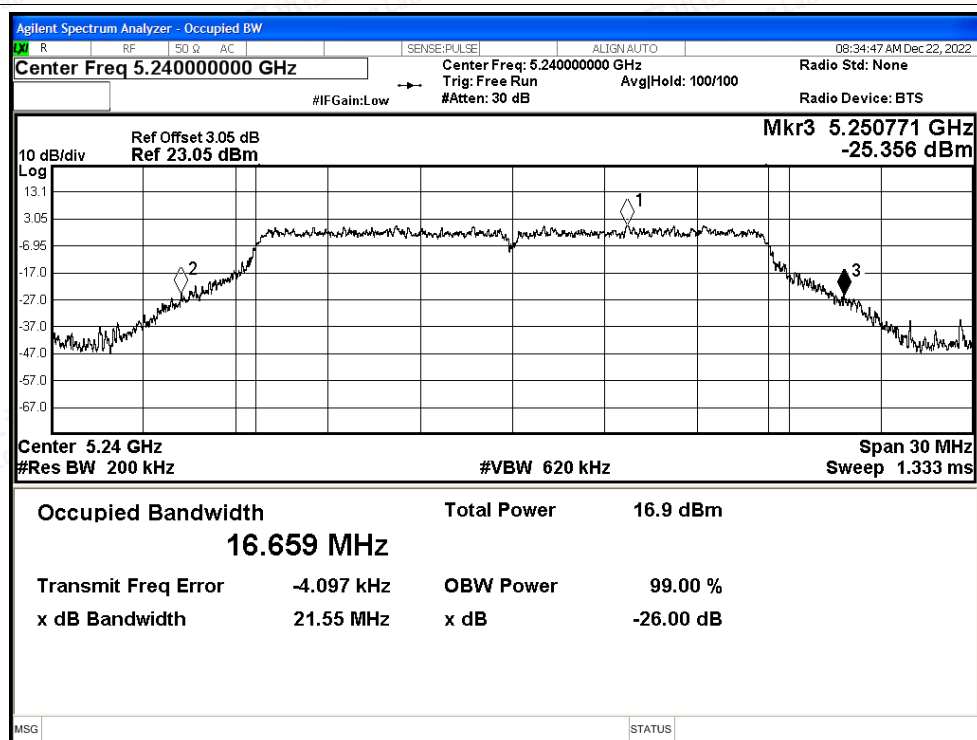
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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

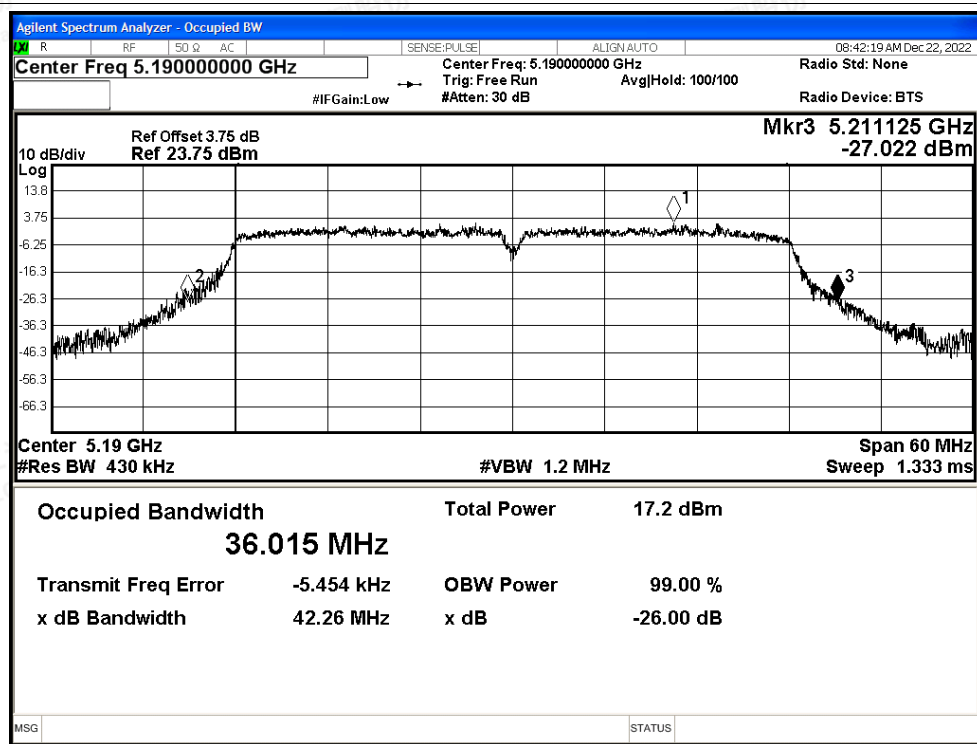
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-26dB Bandwidth NVNT ac20 5240MHz Ant1



-26dB Bandwidth NVNT ac40 5190MHz Ant1



Shenzhen LCS Compliance Testing Laboratory Ltd.

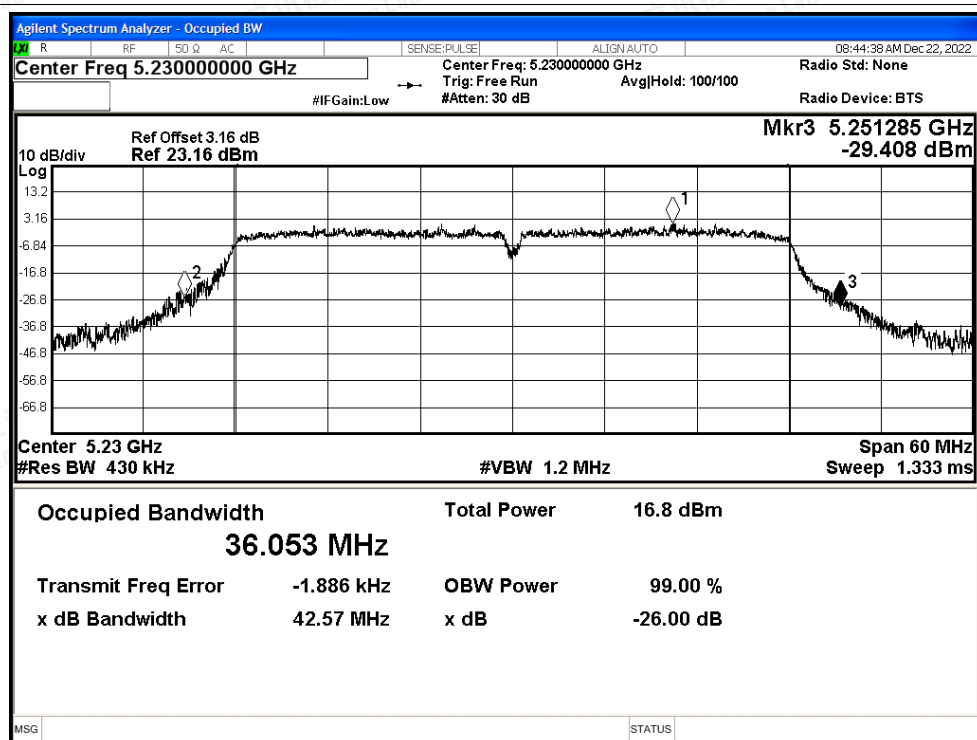
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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

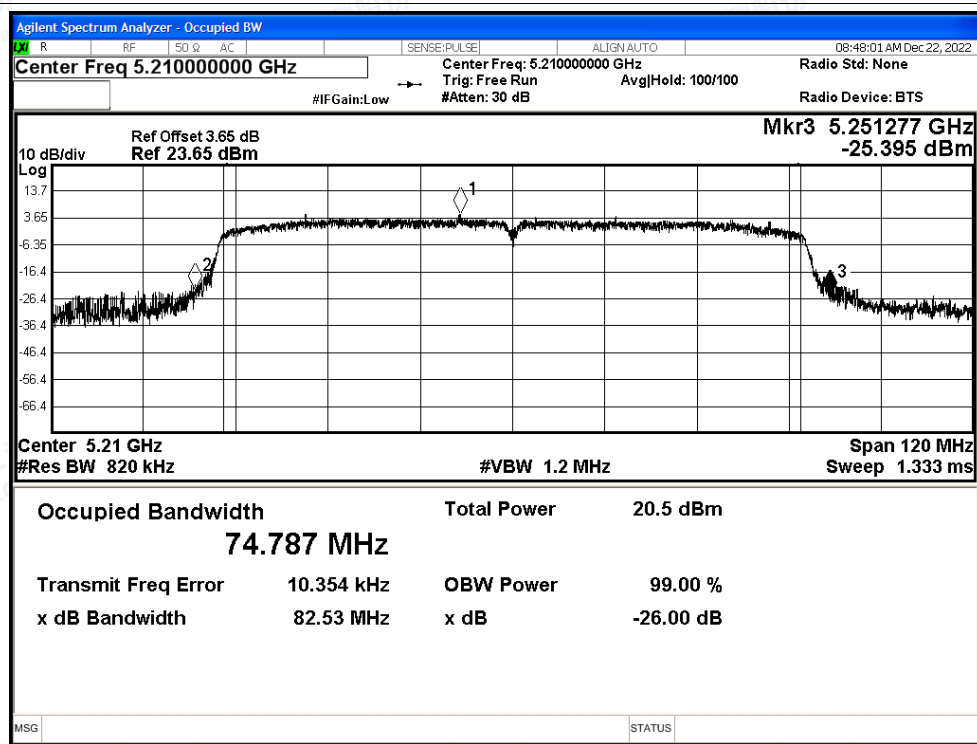
Scan code to check authenticity



-26dB Bandwidth NVNT ac40 5230MHz Ant1



-26dB Bandwidth NVNT ac80 5210MHz Ant1



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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

Scan code to check authenticity



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	11.92	0.59	12.51	24	Pass
NVNT	a	5200	Ant1	11.68	0.59	12.27	24	Pass
NVNT	a	5240	Ant1	11.08	0.59	11.67	24	Pass
NVNT	n20	5180	Ant1	11.5	0.59	12.09	24	Pass
NVNT	n20	5200	Ant1	11.28	0.59	11.87	24	Pass
NVNT	n20	5240	Ant1	10.86	0.59	11.45	24	Pass
NVNT	n40	5190	Ant1	10.59	1.18	11.77	24	Pass
NVNT	n40	5230	Ant1	10.06	1.18	11.24	24	Pass
NVNT	ac20	5180	Ant1	11.6	0.59	12.19	24	Pass
NVNT	ac20	5200	Ant1	11.41	0.59	12.00	24	Pass
NVNT	ac20	5240	Ant1	10.72	0.59	11.31	24	Pass
NVNT	ac40	5190	Ant1	10.24	1.47	11.71	24	Pass
NVNT	ac40	5230	Ant1	11.86	1.48	13.34	24	Pass
NVNT	ac80	5210	Ant1	11.94	1.48	13.42	24	Pass





D.3 Maximum Power Spectral Density Level

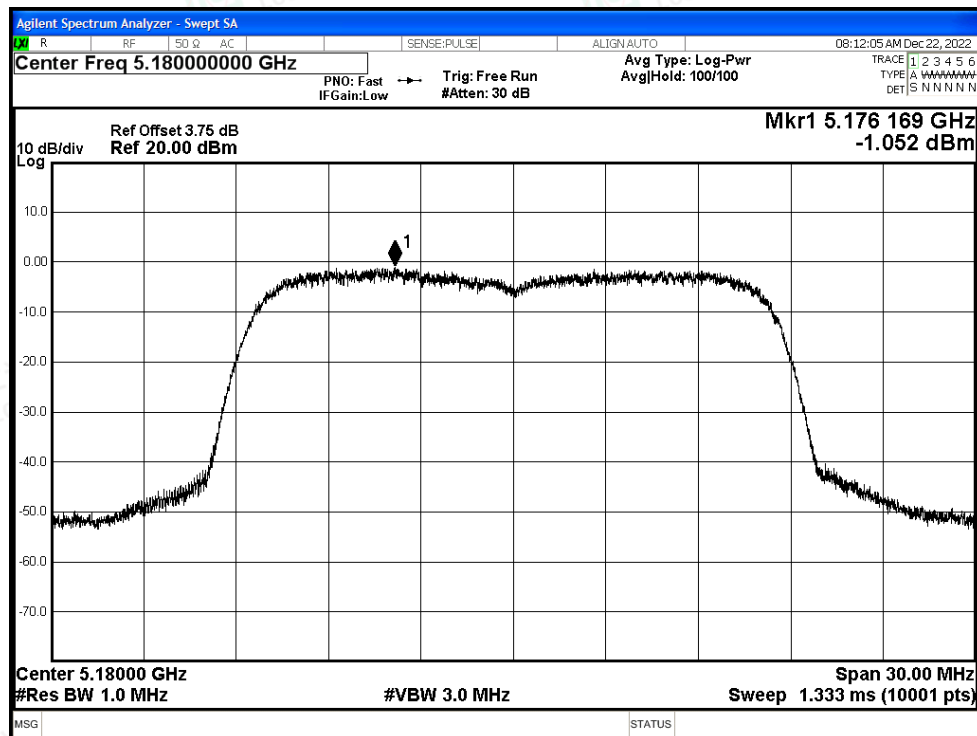
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	-1.05	0.59	-0.46	11	Pass
NVNT	a	5200	Ant1	-2.15	0.59	-1.56	11	Pass
NVNT	a	5240	Ant1	-4.39	0.59	-3.8	11	Pass
NVNT	n20	5180	Ant1	-1.04	0.59	-0.45	11	Pass
NVNT	n20	5200	Ant1	-1.86	0.59	-1.27	11	Pass
NVNT	n20	5240	Ant1	-5	0.59	-4.41	11	Pass
NVNT	n40	5190	Ant1	-12.33	1.18	-11.15	11	Pass
NVNT	n40	5230	Ant1	-15.46	1.18	-14.28	11	Pass
NVNT	ac20	5180	Ant1	-0.57	0.59	0.02	11	Pass
NVNT	ac20	5200	Ant1	-6.68	0.59	-6.09	11	Pass
NVNT	ac20	5240	Ant1	-2.64	0.59	-2.05	11	Pass
NVNT	ac40	5190	Ant1	-17.95	1.47	-16.48	11	Pass
NVNT	ac40	5230	Ant1	-15.16	1.48	-13.68	11	Pass
NVNT	ac80	5210	Ant1	-24.39	1.48	-22.91	11	Pass



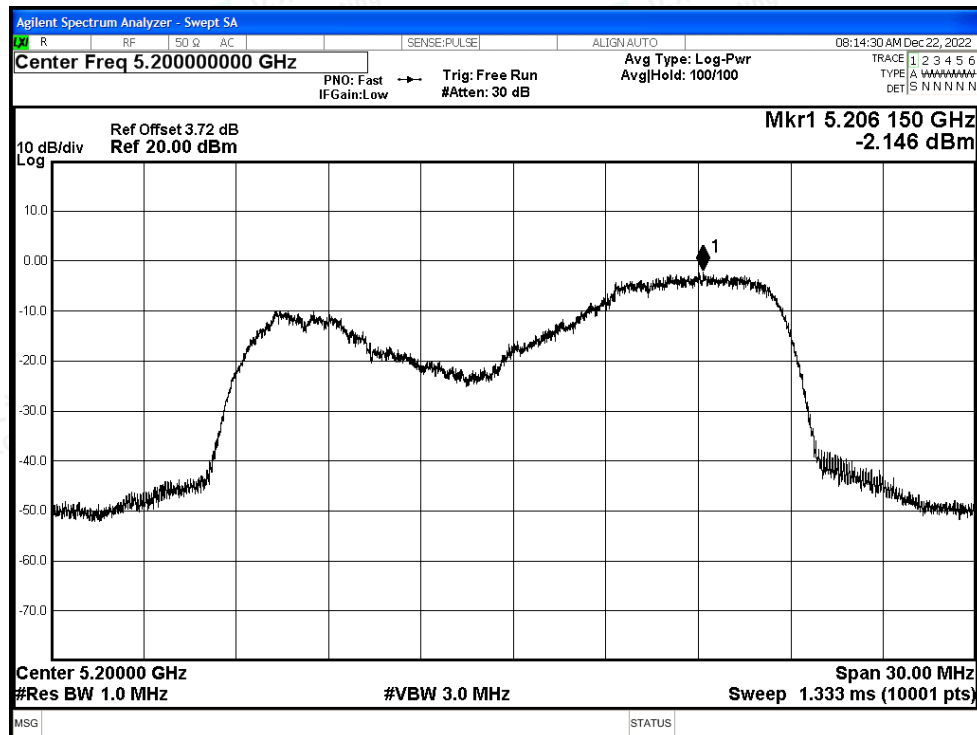


Test Graphs

PSD NVNT a 5180MHz Ant1

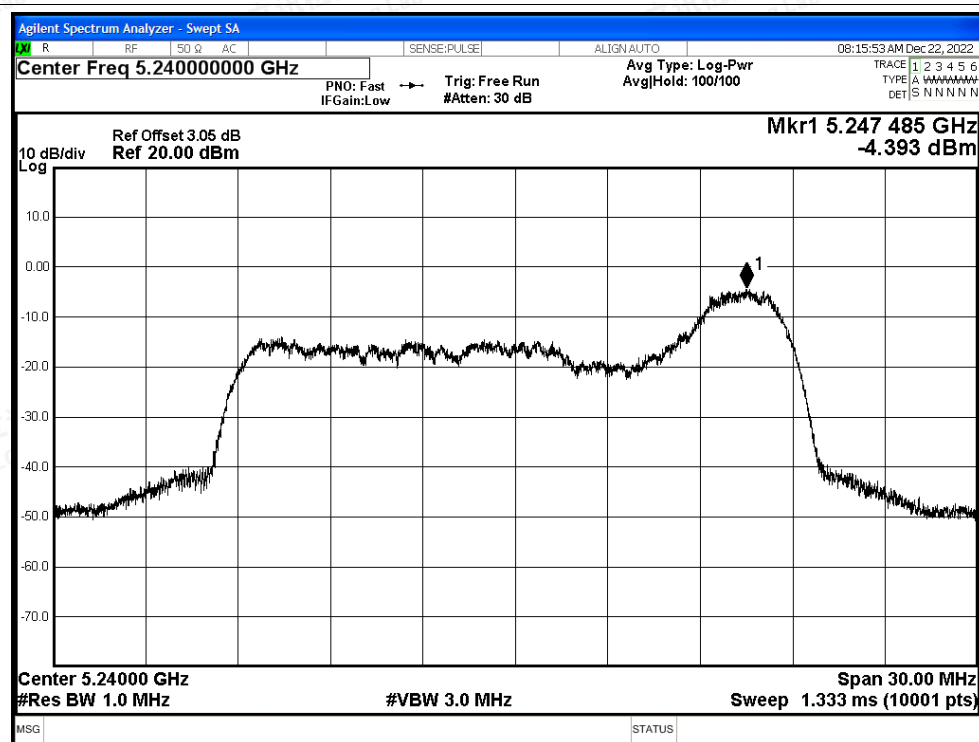


PSD NVNT a 5200MHz Ant1

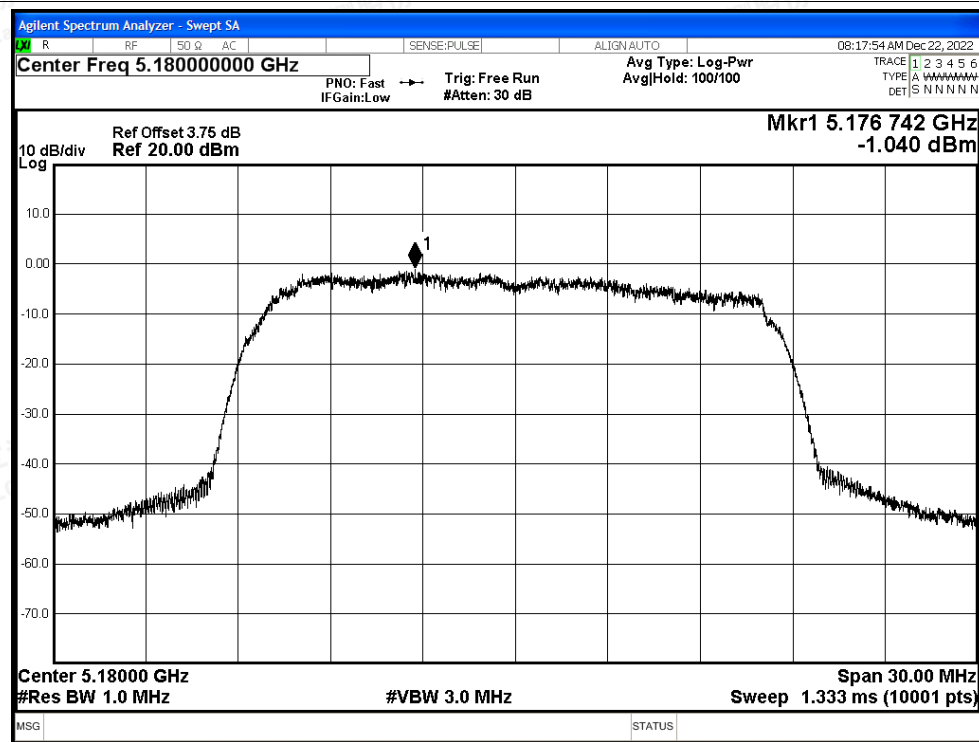


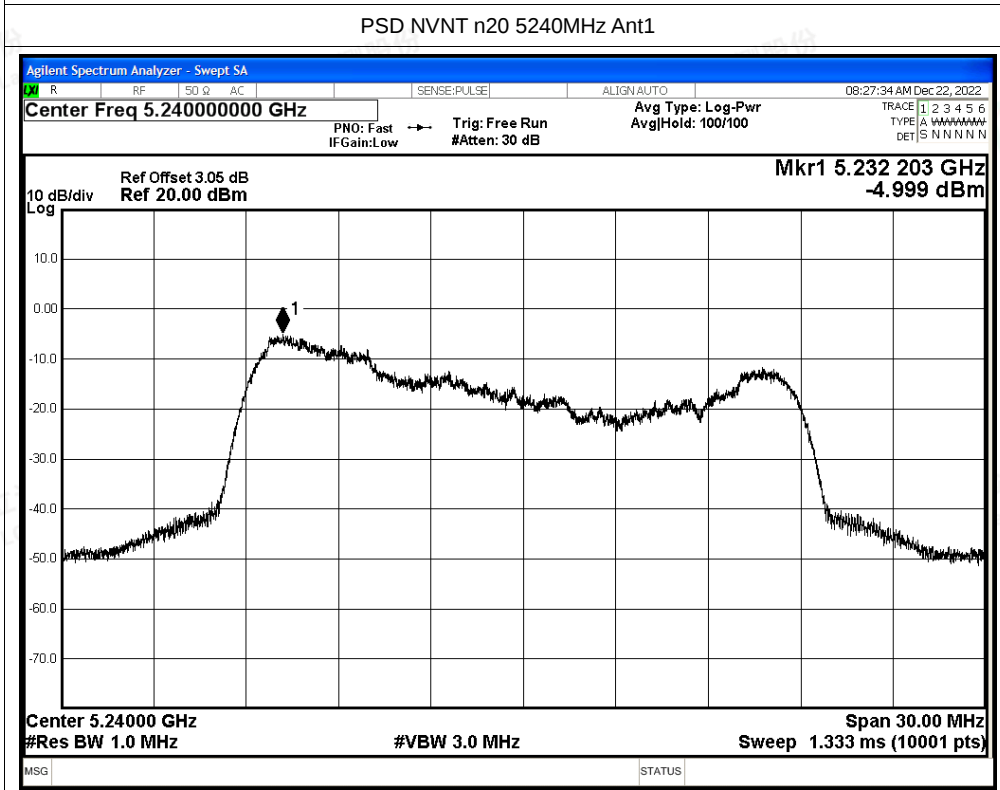
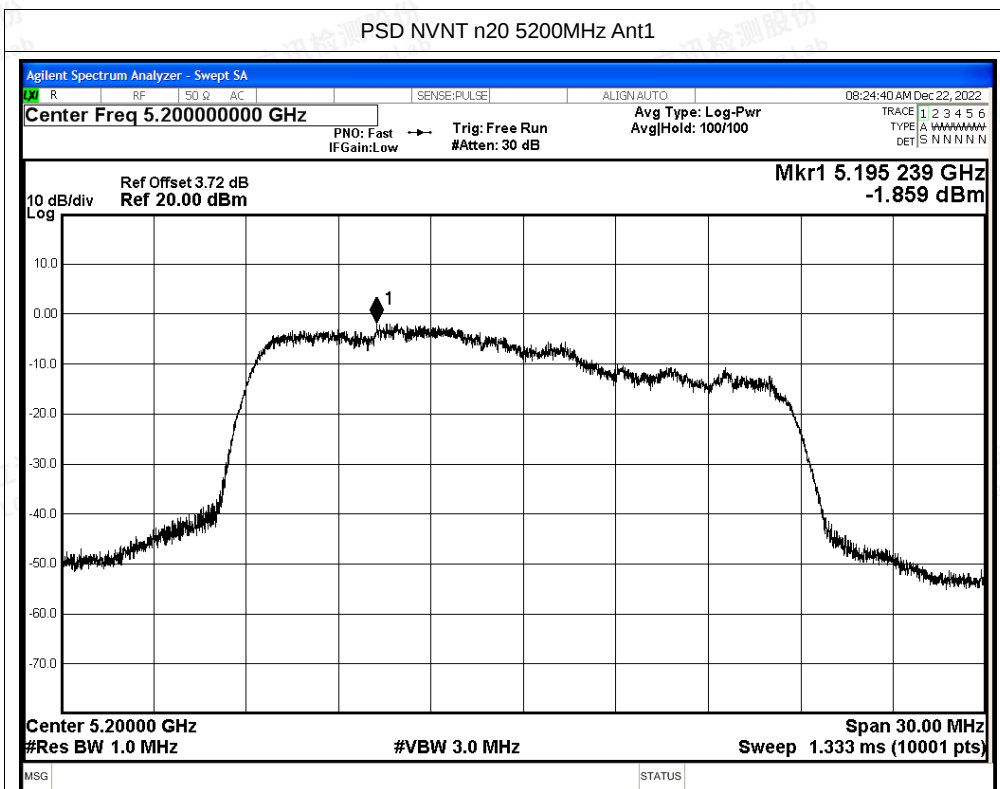


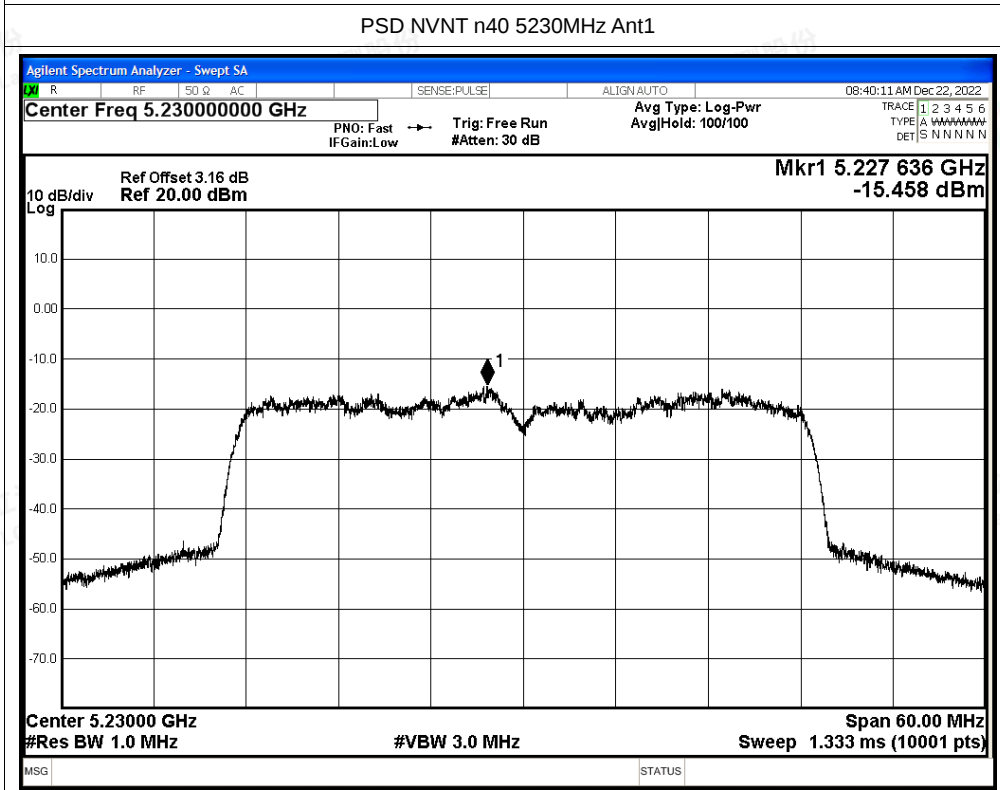
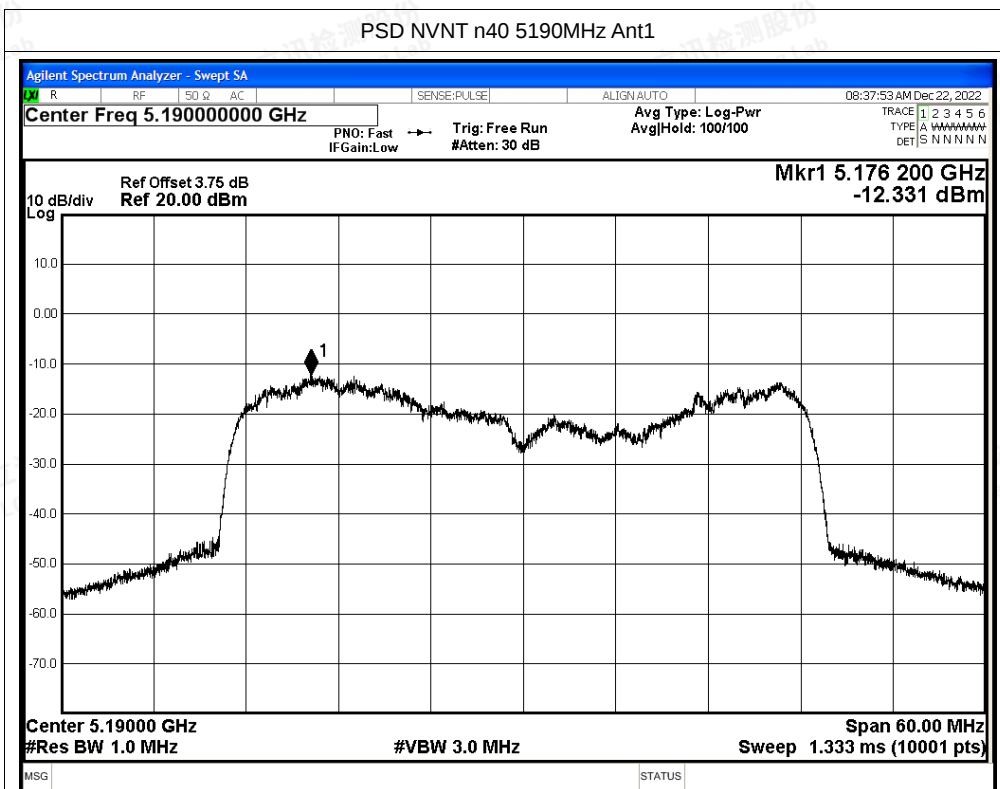
PSD NVNT a 5240MHz Ant1



PSD NVNT n20 5180MHz Ant1

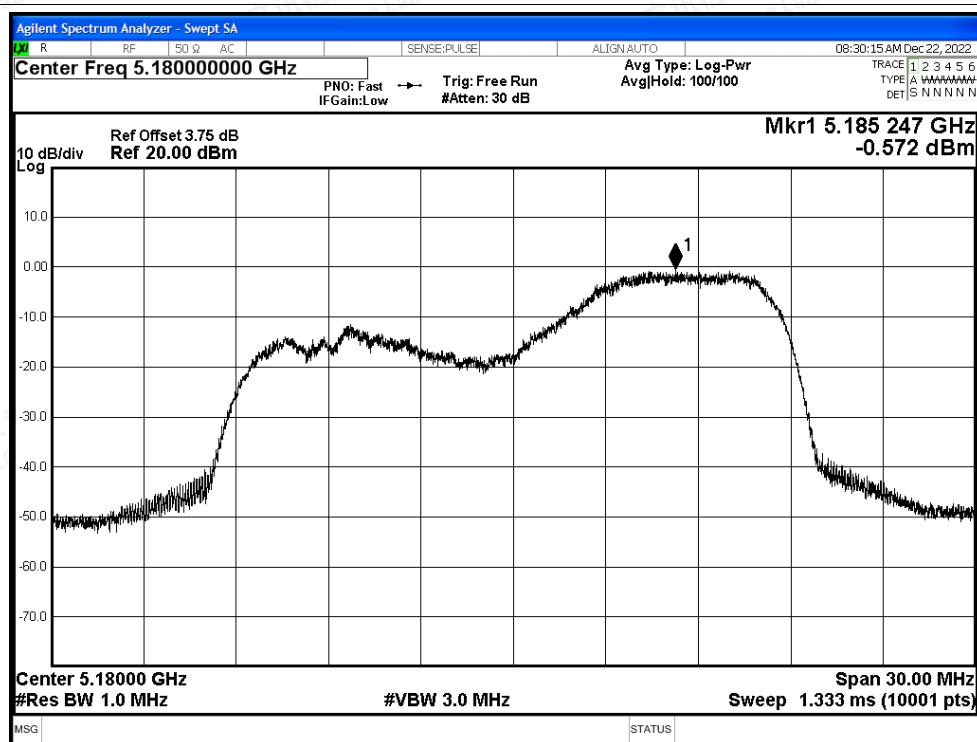




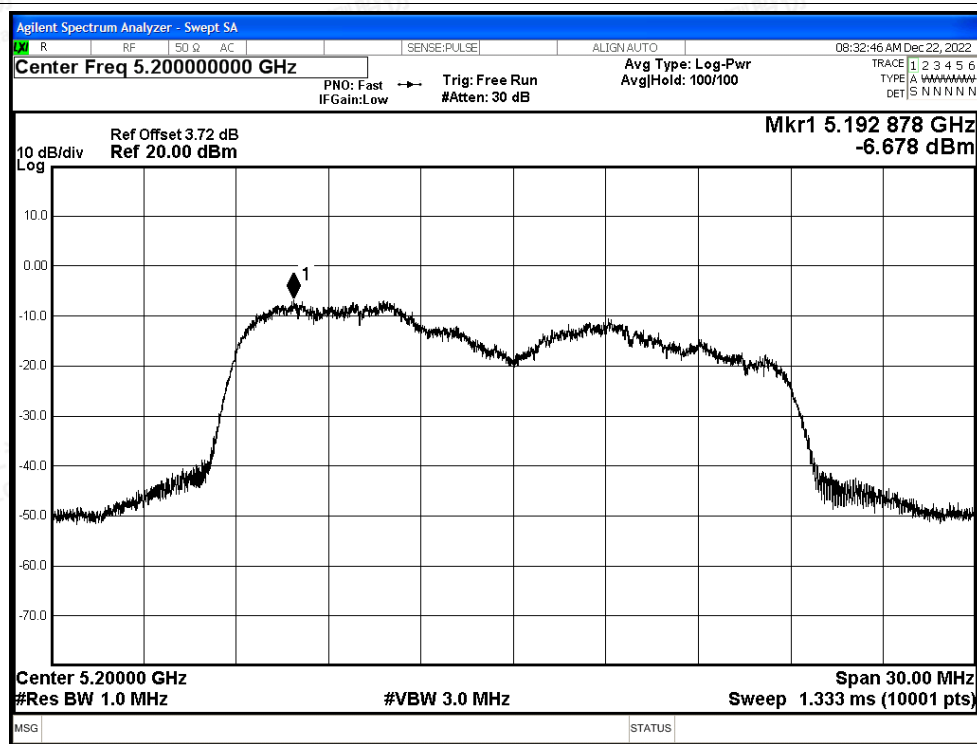




PSD NVNT ac20 5180MHz Ant1

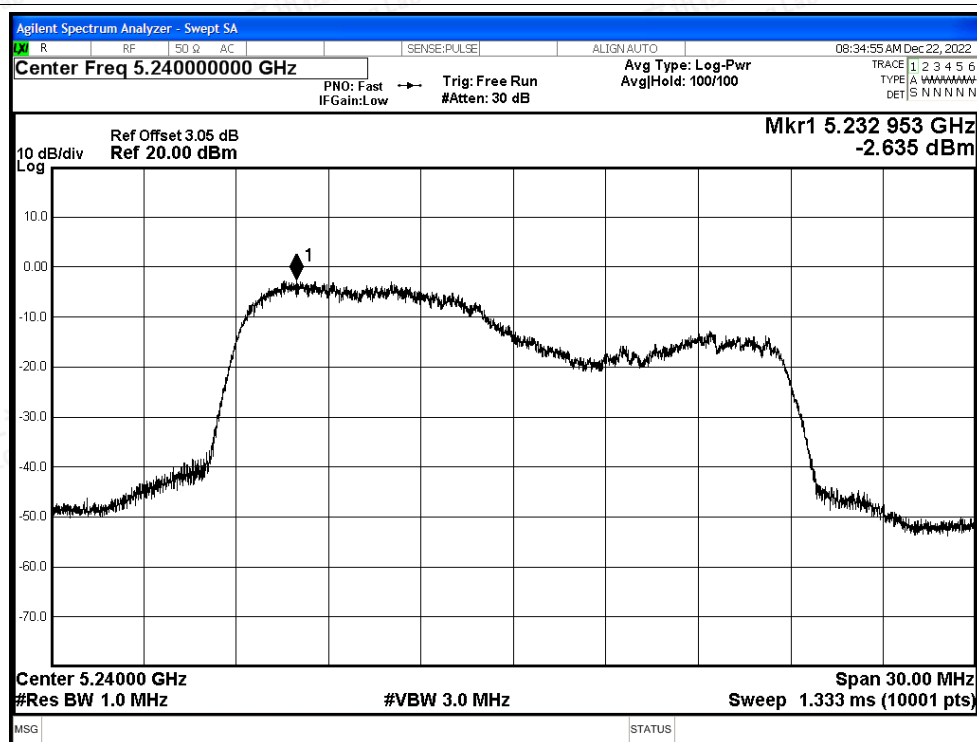


PSD NVNT ac20 5200MHz Ant1

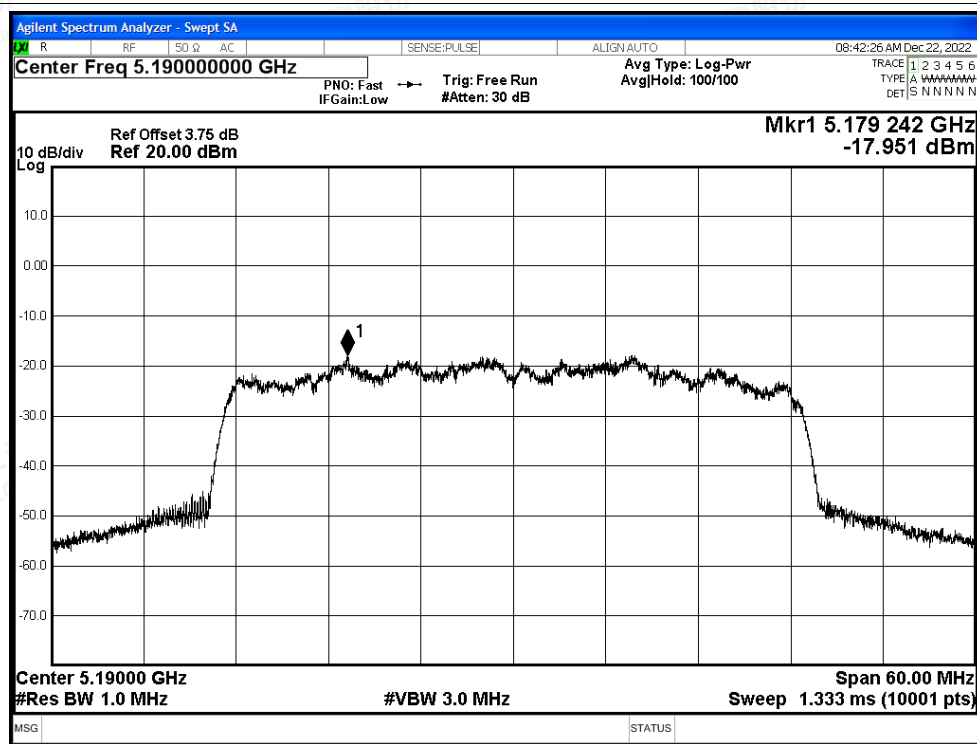




PSD NVNT ac20 5240MHz Ant1

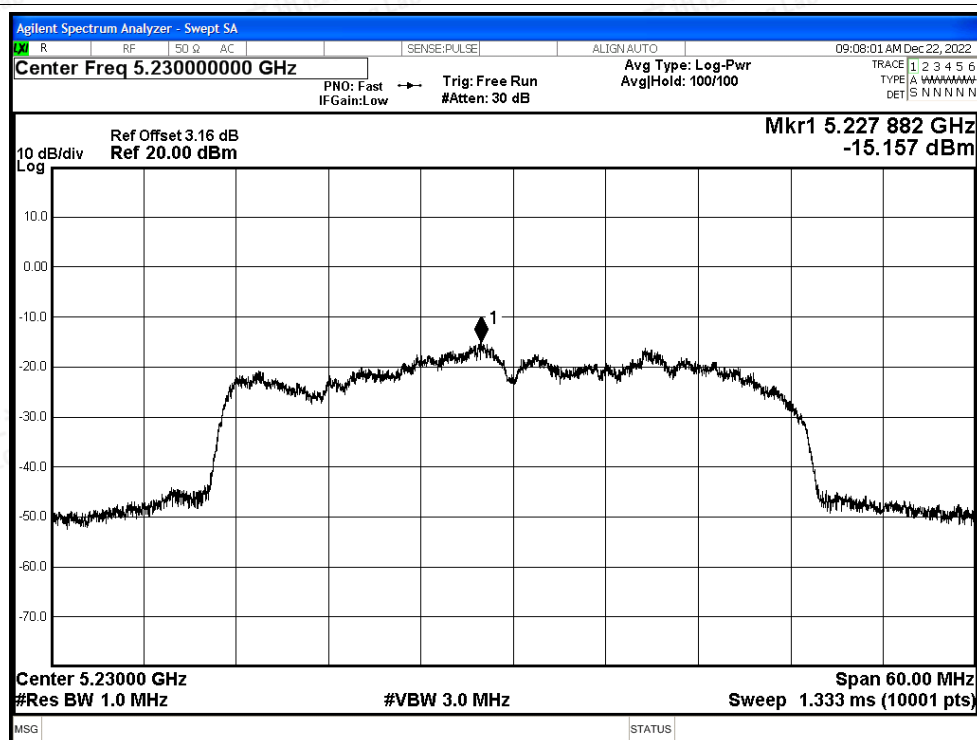


PSD NVNT ac40 5190MHz Ant1

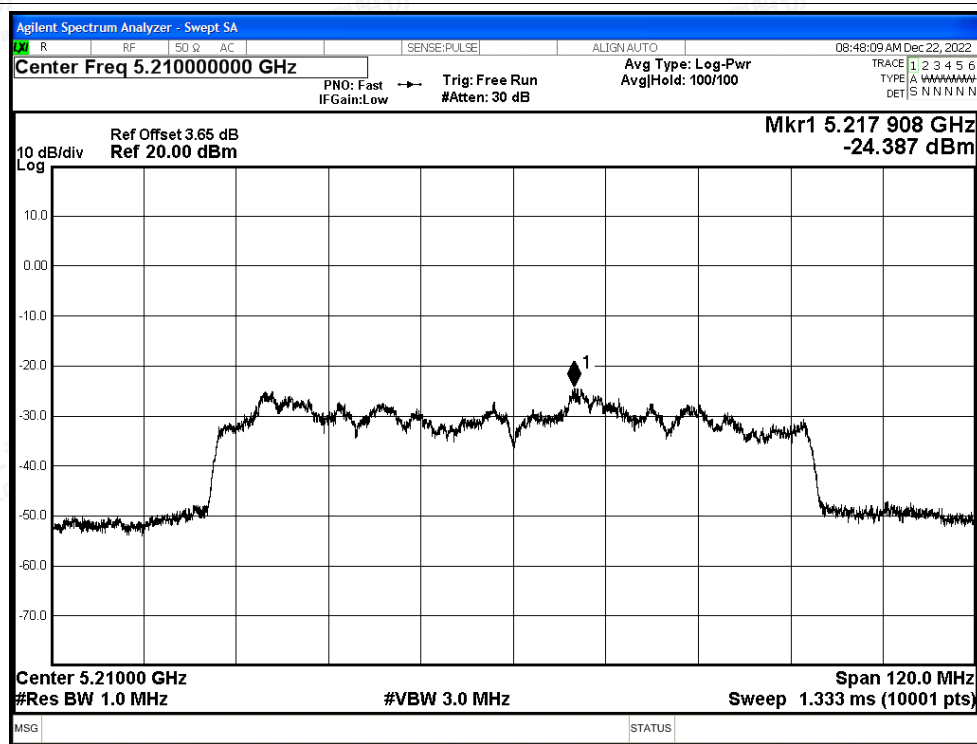




PSD NVNT ac40 5230MHz Ant1



PSD NVNT ac80 5210MHz Ant1





D.4 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	a	5180	Ant1	4500	-50.9	3.98	48.31	Peak	68.2	Pass
NVNT	a	5180	Ant1	4500	-59.56	3.98	39.65	Average	54	Pass
NVNT	a	5180	Ant1	5126.5	-43.97	3.98	55.24	Peak	68.2	Pass
NVNT	a	5180	Ant1	5127.9	-53.11	3.98	46.10	Average	54	Pass
NVNT	a	5180	Ant1	5150	-48	3.98	51.21	Peak	68.2	Pass
NVNT	a	5180	Ant1	5150	-57.53	3.98	41.68	Average	54	Pass
NVNT	a	5240	Ant1	5350	-50.49	3.98	48.72	Peak	68.2	Pass
NVNT	a	5240	Ant1	5350	-59.71	3.98	39.50	Average	54	Pass
NVNT	a	5240	Ant1	5365.92	-47.17	3.98	52.04	Peak	68.2	Pass
NVNT	a	5240	Ant1	5436.72	-58.56	3.98	40.65	Average	54	Pass
NVNT	a	5240	Ant1	5460	-48.53	3.98	50.68	Peak	68.2	Pass
NVNT	a	5240	Ant1	5460	-59.57	3.98	39.64	Average	54	Pass
NVNT	n20	5180	Ant1	4500	-50.65	3.98	48.56	Peak	68.2	Pass
NVNT	n20	5180	Ant1	4500	-59.59	3.98	39.62	Average	54	Pass
NVNT	n20	5180	Ant1	5127.9	-44.09	3.98	55.12	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5127.9	-53.28	3.98	45.93	Average	54	Pass
NVNT	n20	5180	Ant1	5150	-48.48	3.98	50.73	Peak	68.2	Pass
NVNT	n20	5180	Ant1	5150	-57.66	3.98	41.55	Average	54	Pass
NVNT	n20	5240	Ant1	5350	-49.85	3.98	49.36	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5350	-59.56	3.98	39.65	Average	54	Pass
NVNT	n20	5240	Ant1	5367.6	-47.27	3.98	51.94	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5426.64	-58.78	3.98	40.43	Average	54	Pass
NVNT	n20	5240	Ant1	5460	-51.28	3.98	47.93	Peak	68.2	Pass
NVNT	n20	5240	Ant1	5460	-59.5	3.98	39.71	Average	54	Pass
NVNT	n40	5190	Ant1	4500	-50.73	3.98	48.48	Peak	68.2	Pass
NVNT	n40	5190	Ant1	4500	-59.1	3.98	40.11	Average	54	Pass
NVNT	n40	5190	Ant1	5147.51	-40.04	3.98	59.17	Peak	68.2	Pass
NVNT	n40	5190	Ant1	5148.97	-55.08	3.98	44.13	Average	54	Pass
NVNT	n40	5190	Ant1	5150	-45.16	3.98	54.05	Peak	68.2	Pass
NVNT	n40	5190	Ant1	5150	-55.32	3.98	43.89	Average	54	Pass
NVNT	n40	5230	Ant1	5350	-49.31	3.98	49.90	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5350	-59.32	3.98	39.89	Average	54	Pass
NVNT	n40	5230	Ant1	5435.7	-47.4	3.98	51.81	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5357.4	-58.56	3.98	40.65	Average	54	Pass
NVNT	n40	5230	Ant1	5460	-49.61	3.98	49.60	Peak	68.2	Pass
NVNT	n40	5230	Ant1	5460	-59.29	3.98	39.92	Average	54	Pass
NVNT	ac20	5180	Ant1	4500	-50.23	3.98	48.98	Peak	68.2	Pass





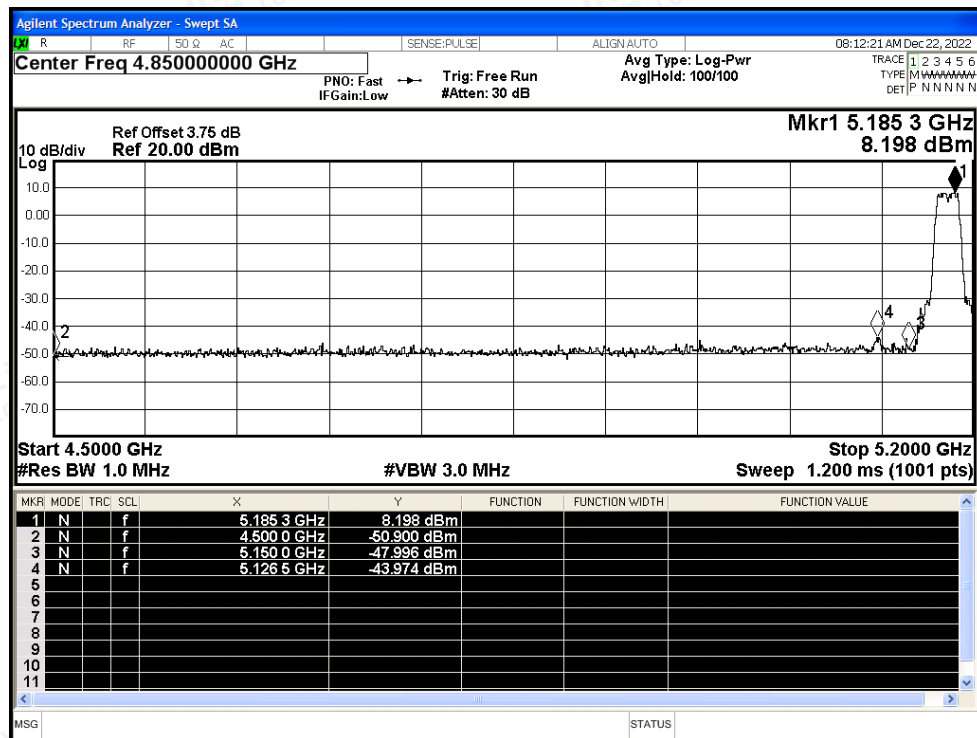
NVNT	ac20	5180	Ant1	4500	-59.63	3.98	39.58	Average	54	Pass
NVNT	ac20	5180	Ant1	5127.2	-43.76	3.98	55.45	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5127.9	-53.29	3.98	45.92	Average	54	Pass
NVNT	ac20	5180	Ant1	5150	-48.19	3.98	51.02	Peak	68.2	Pass
NVNT	ac20	5180	Ant1	5150	-57.59	3.98	41.62	Average	54	Pass
NVNT	ac20	5240	Ant1	5350	-50.98	3.98	48.23	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5350	-59.7	3.98	39.51	Average	54	Pass
NVNT	ac20	5240	Ant1	5426.64	-46.58	3.98	52.63	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5425.92	-58.7	3.98	40.51	Average	54	Pass
NVNT	ac20	5240	Ant1	5460	-52.03	3.98	47.18	Peak	68.2	Pass
NVNT	ac20	5240	Ant1	5460	-59.6	3.98	39.61	Average	54	Pass
NVNT	ac40	5190	Ant1	4500	-50.02	3.98	49.19	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	4500	-59.17	3.98	40.04	Average	54	Pass
NVNT	ac40	5190	Ant1	5149.7	-42.71	3.98	56.50	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	5149.7	-54.98	3.98	44.23	Average	54	Pass
NVNT	ac40	5190	Ant1	5150	-42.71	3.98	56.50	Peak	68.2	Pass
NVNT	ac40	5190	Ant1	5150	-54.98	3.98	44.23	Average	54	Pass
NVNT	ac40	5230	Ant1	5350	-49.31	3.98	49.90	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5350	-58.95	3.98	40.26	Average	54	Pass
NVNT	ac40	5230	Ant1	5399.25	-47.2	3.98	52.01	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5410.05	-58.39	3.98	40.82	Average	54	Pass
NVNT	ac40	5230	Ant1	5460	-49.61	3.98	49.60	Peak	68.2	Pass
NVNT	ac40	5230	Ant1	5460	-59.07	3.98	40.14	Average	54	Pass
NVNT	ac80	5210	Ant1	5350	-47.76	3.98	51.45	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5350	-58.28	3.98	40.93	Average	54	Pass
NVNT	ac80	5210	Ant1	5405.22	-45.97	3.98	53.24	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5389.38	-57.63	3.98	41.58	Average	54	Pass
NVNT	ac80	5210	Ant1	5460	-49.23	3.98	49.98	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5460	-58.62	3.98	40.59	Average	54	Pass
NVNT	ac80	5210	Ant1	4500	-50.66	3.98	48.55	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	4500	-59.12	3.98	40.09	Average	54	Pass
NVNT	ac80	5210	Ant1	5143.85	-44.45	3.98	54.76	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5146.22	-55.64	3.98	43.57	Average	54	Pass
NVNT	ac80	5210	Ant1	5150	-44.34	3.98	54.87	Peak	68.2	Pass
NVNT	ac80	5210	Ant1	5150	-55.56	3.98	43.65	Average	54	Pass



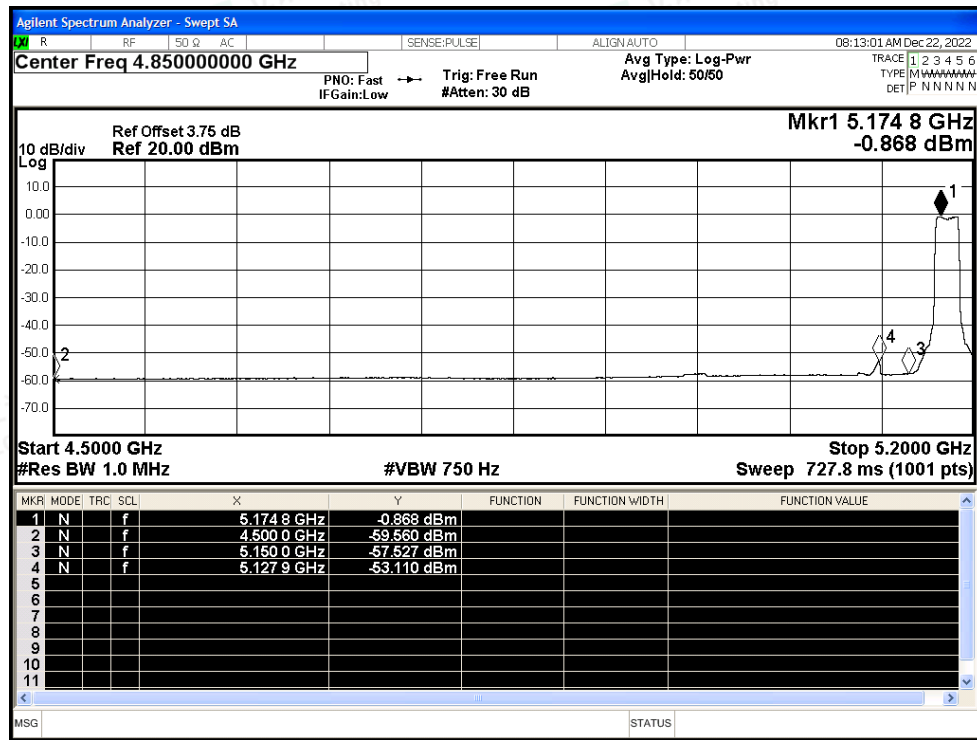


Test Graphs

Restrict Band NVNT a 5180MHz Ant1 Peak

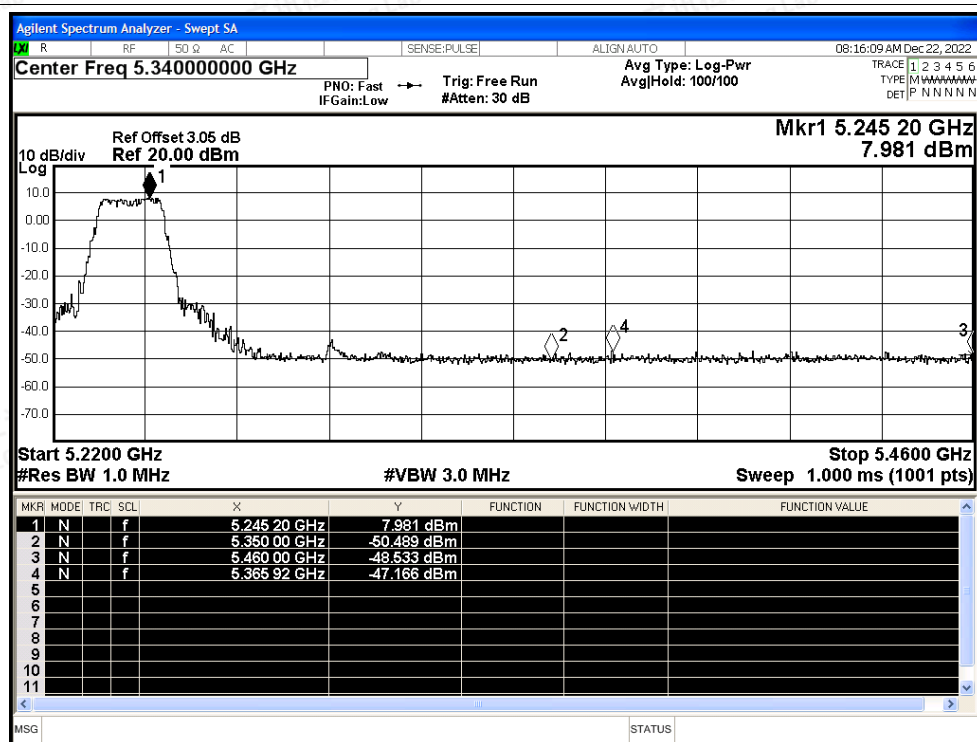


Restrict Band NVNT a 5180MHz Ant1 Average

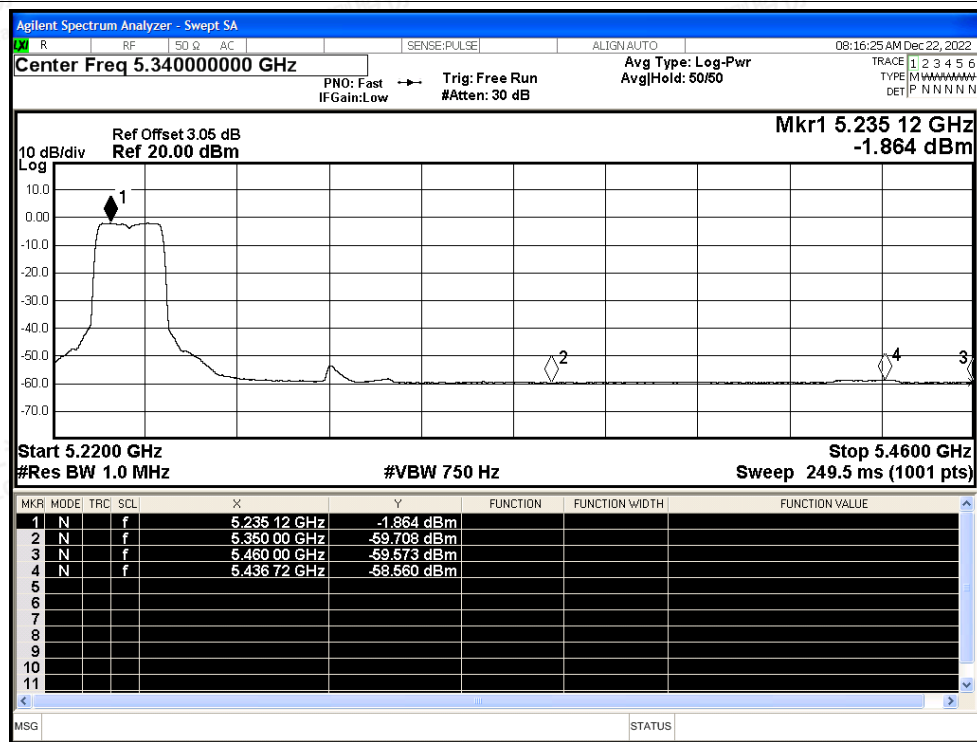




Restrict Band NVNT a 5240MHz Ant1 Peak

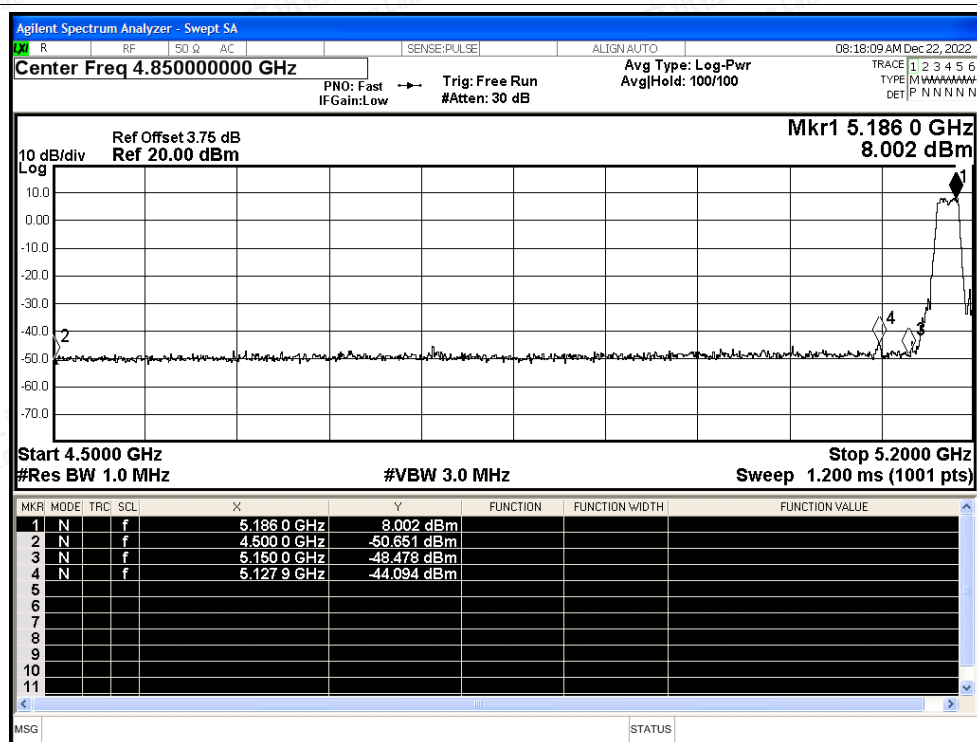


Restrict Band NVNT a 5240MHz Ant1 Average

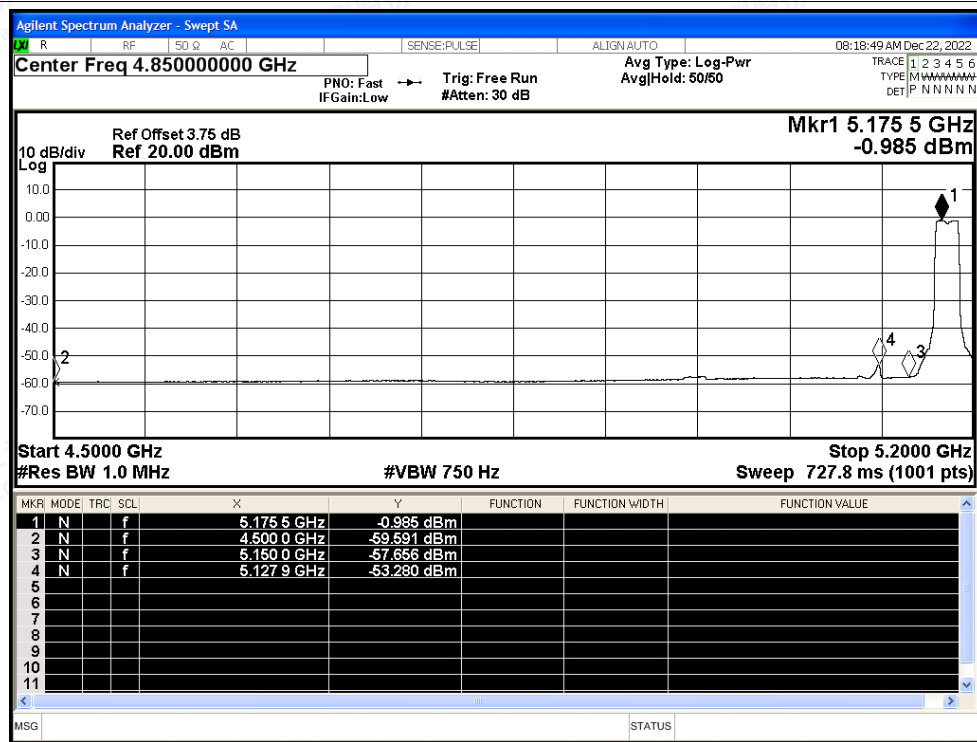




Restrict Band NVNT n20 5180MHz Ant1 Peak

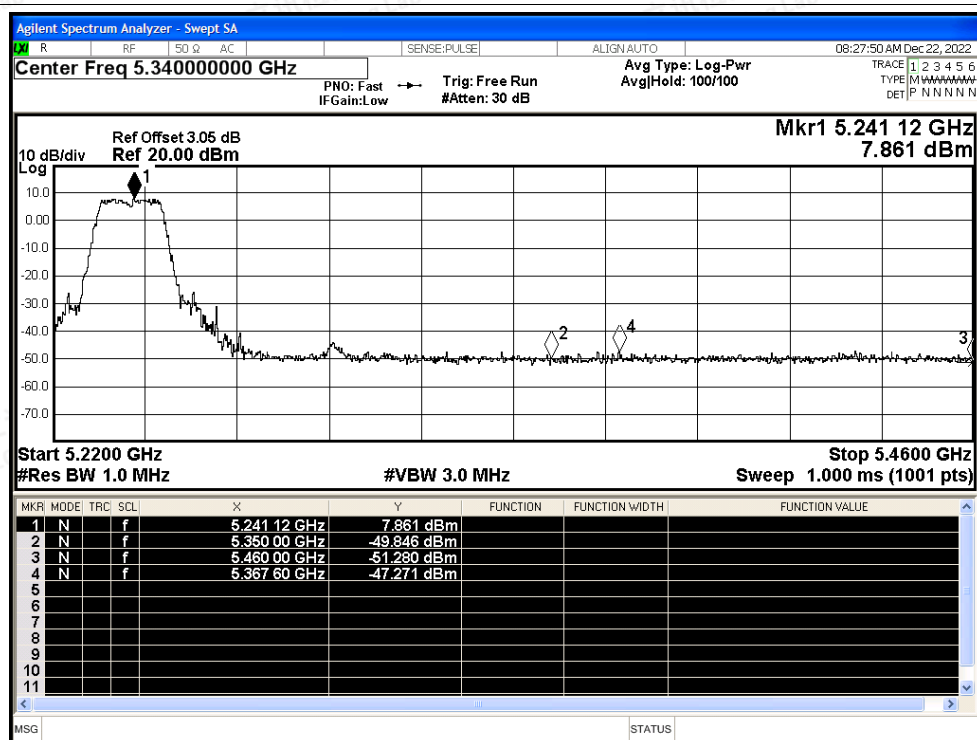


Restrict Band NVNT n20 5180MHz Ant1 Average

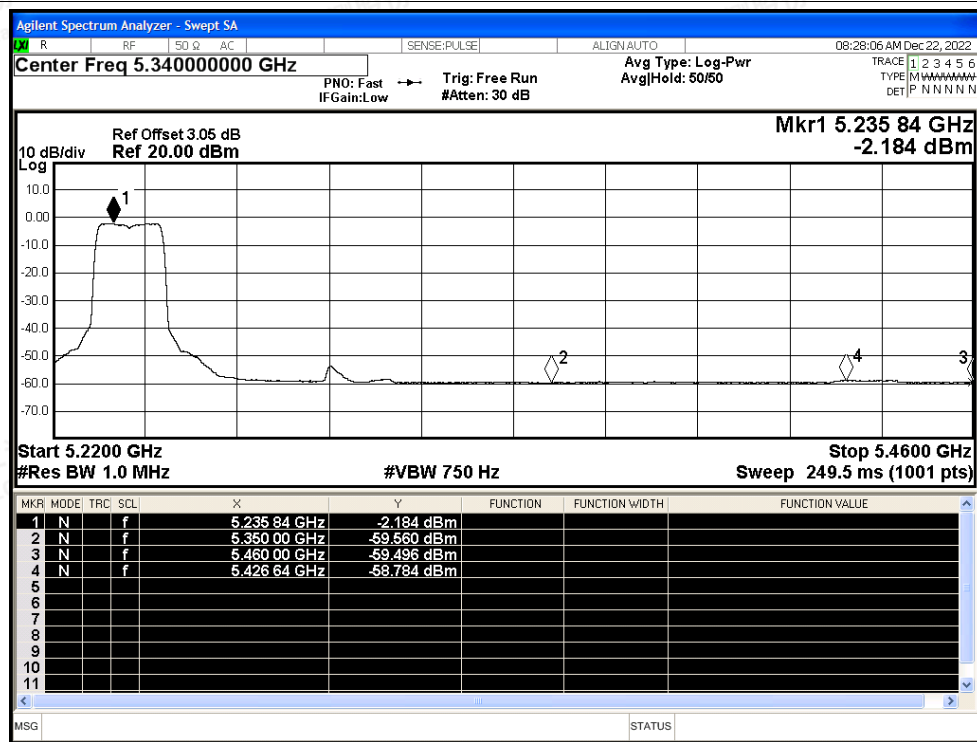




Restrict Band NVNT n20 5240MHz Ant1 Peak

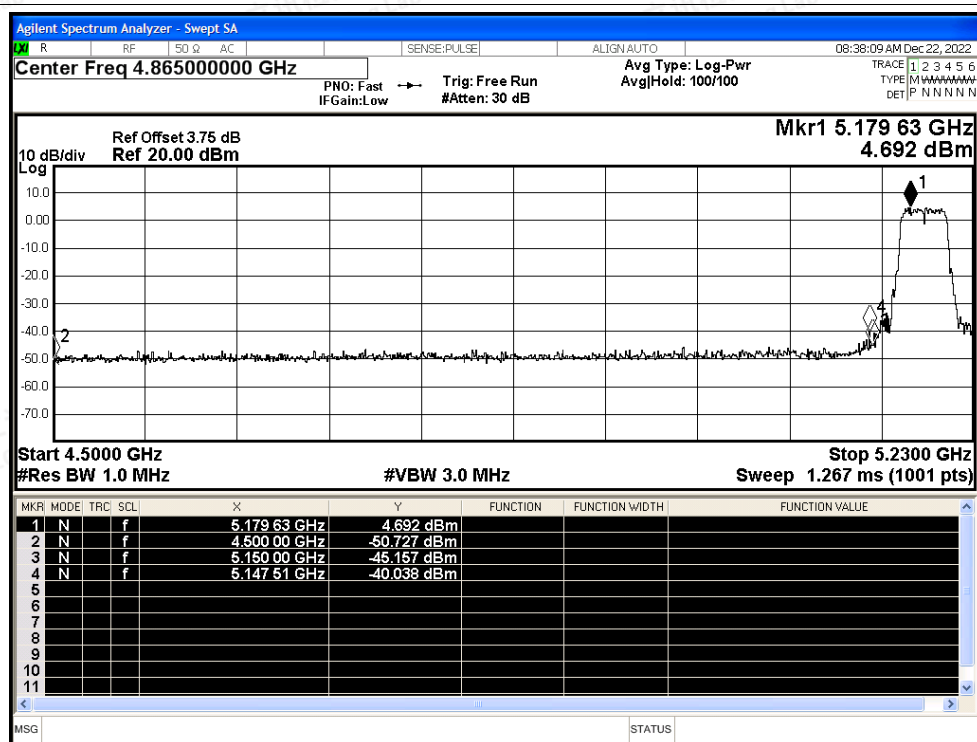


Restrict Band NVNT n20 5240MHz Ant1 Average

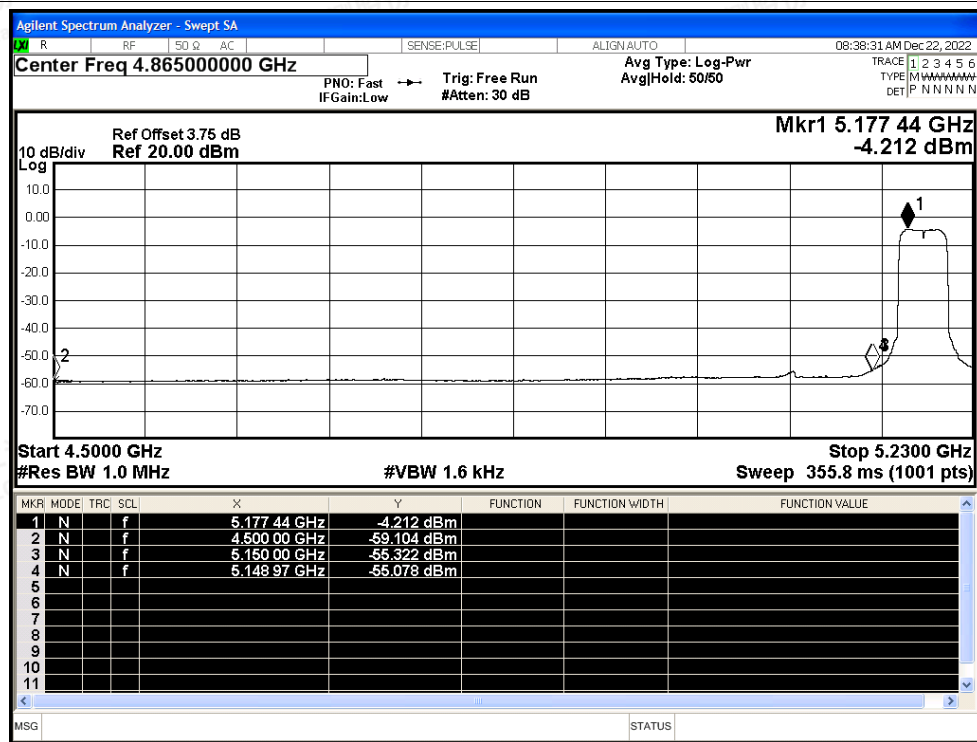




Restrict Band NVNT n40 5190MHz Ant1 Peak



Restrict Band NVNT n40 5190MHz Ant1 Average



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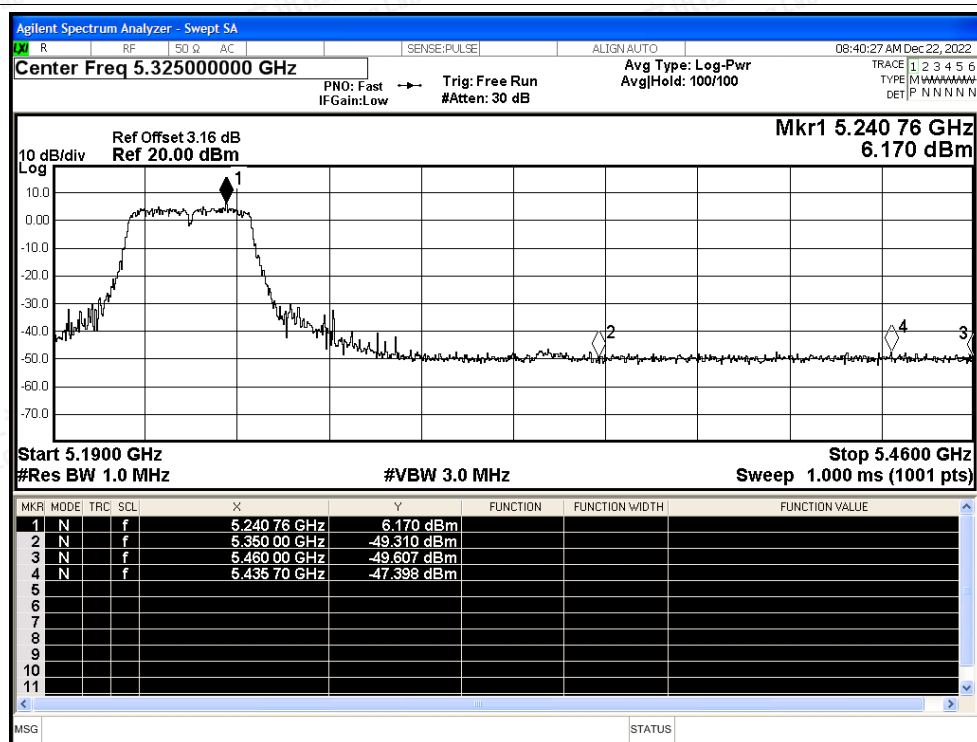
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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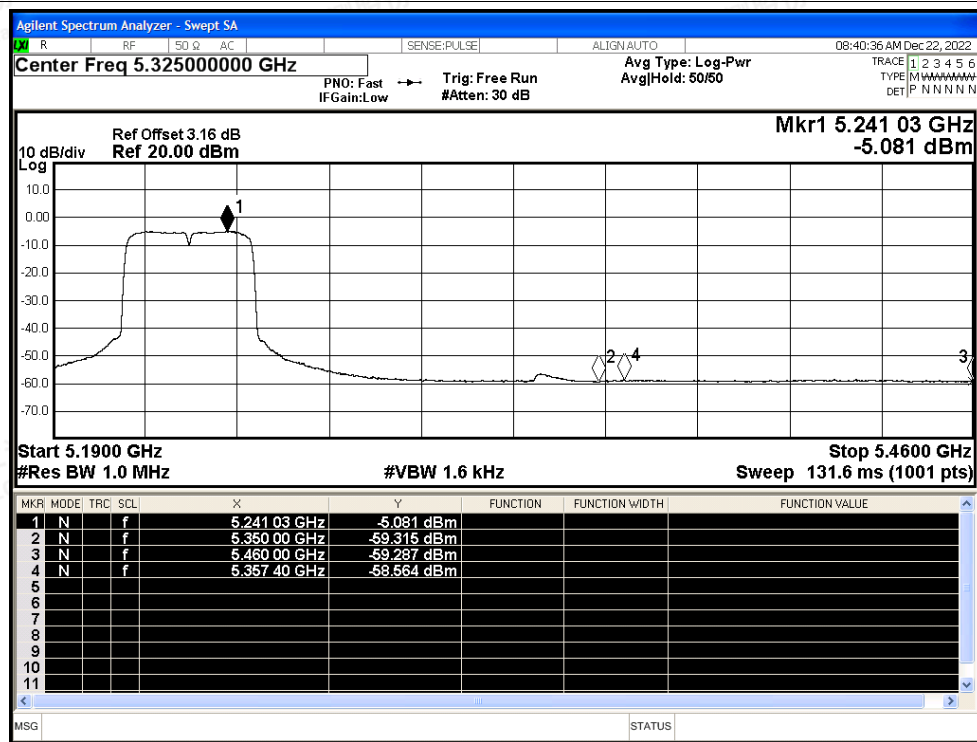
Scan code to check authenticity



Restrict Band NVNT n40 5230MHz Ant1 Peak

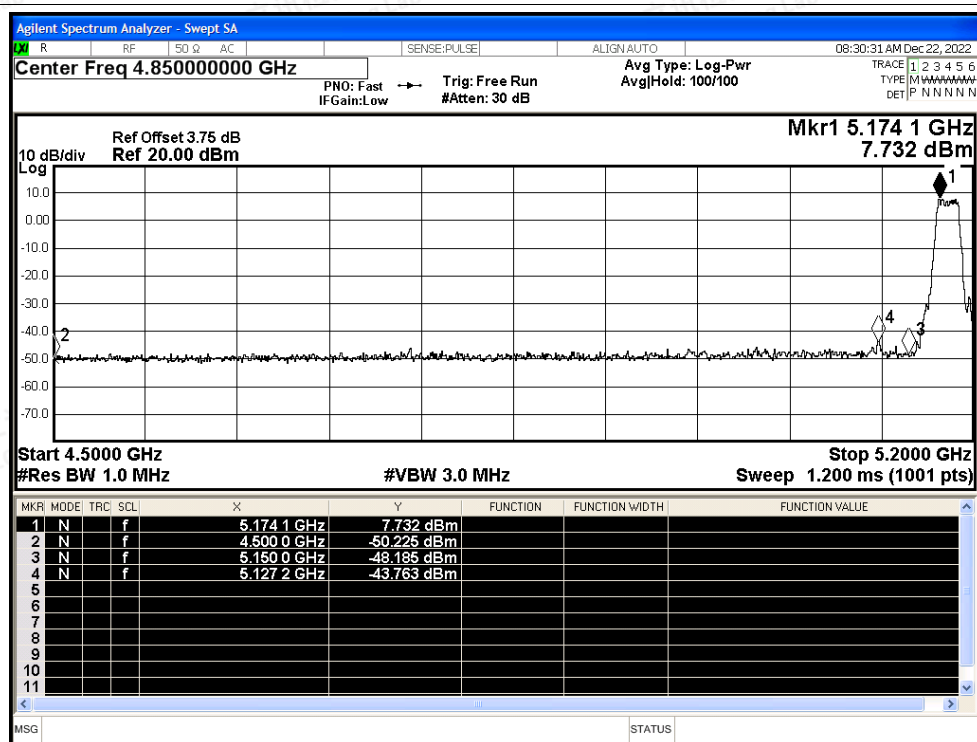


Restrict Band NVNT n40 5230MHz Ant1 Average

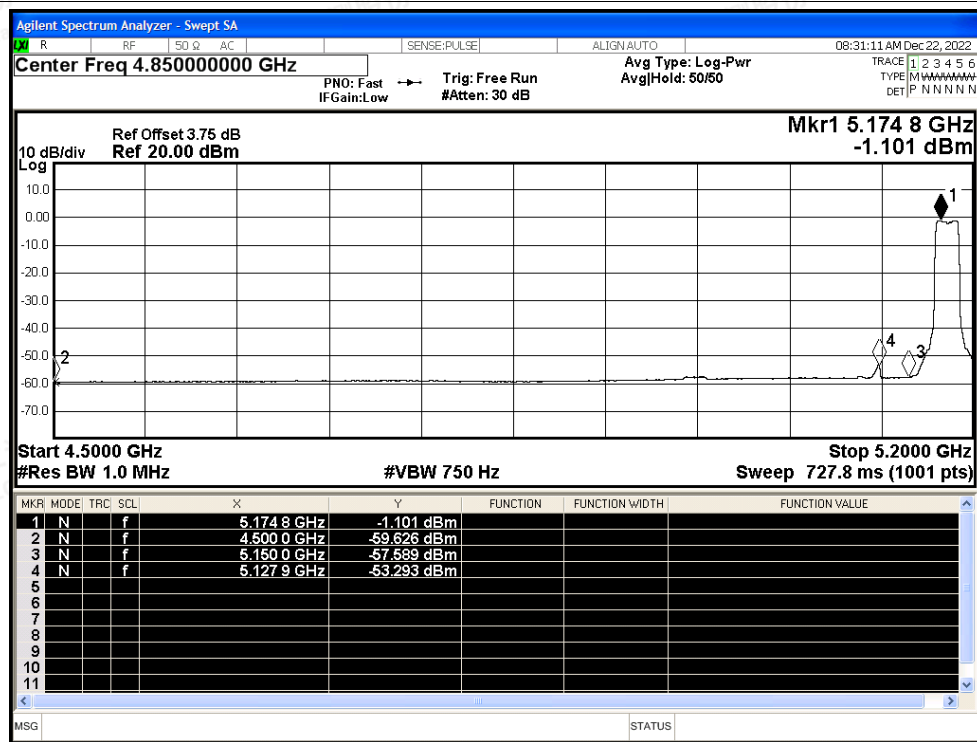




Restrict Band NVNT ac20 5180MHz Ant1 Peak

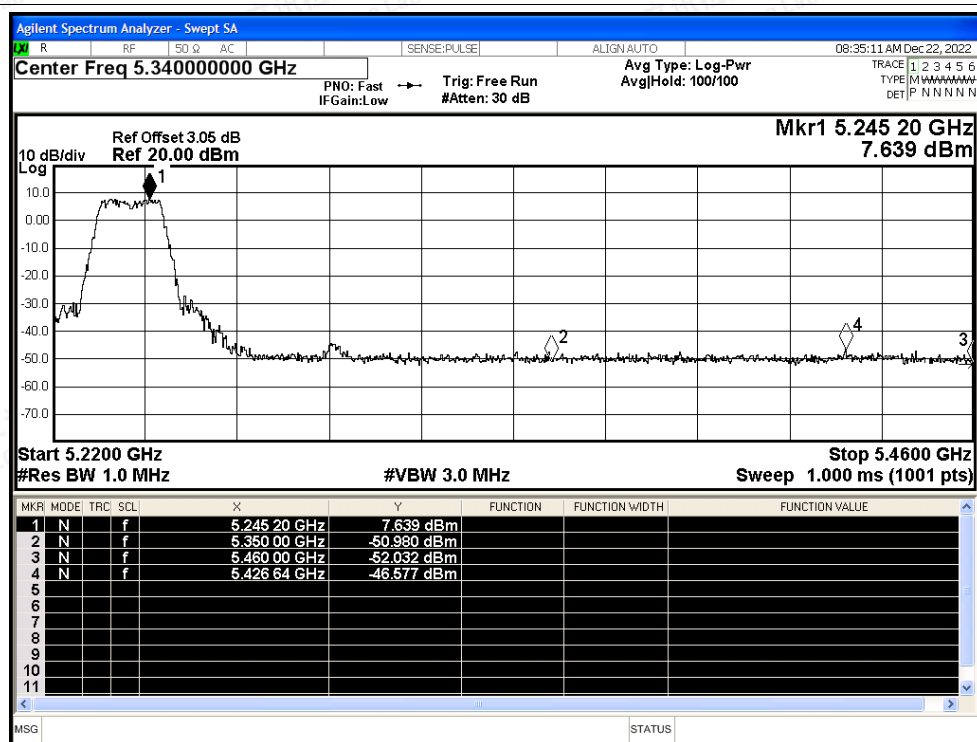


Restrict Band NVNT ac20 5180MHz Ant1 Average

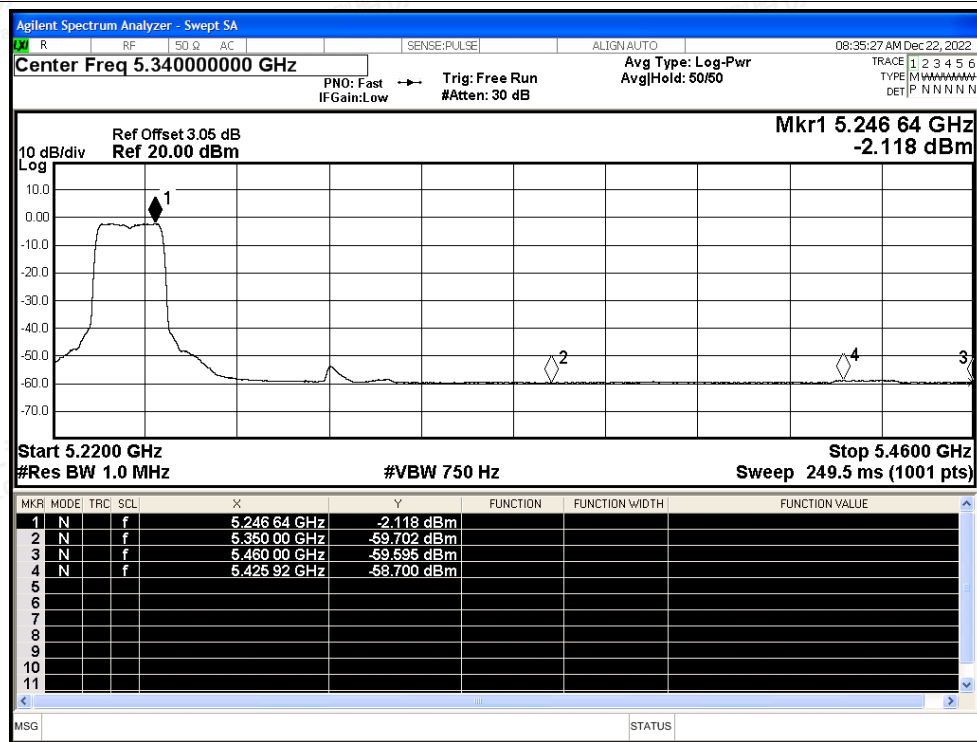




Restrict Band NVNT ac20 5240MHz Ant1 Peak

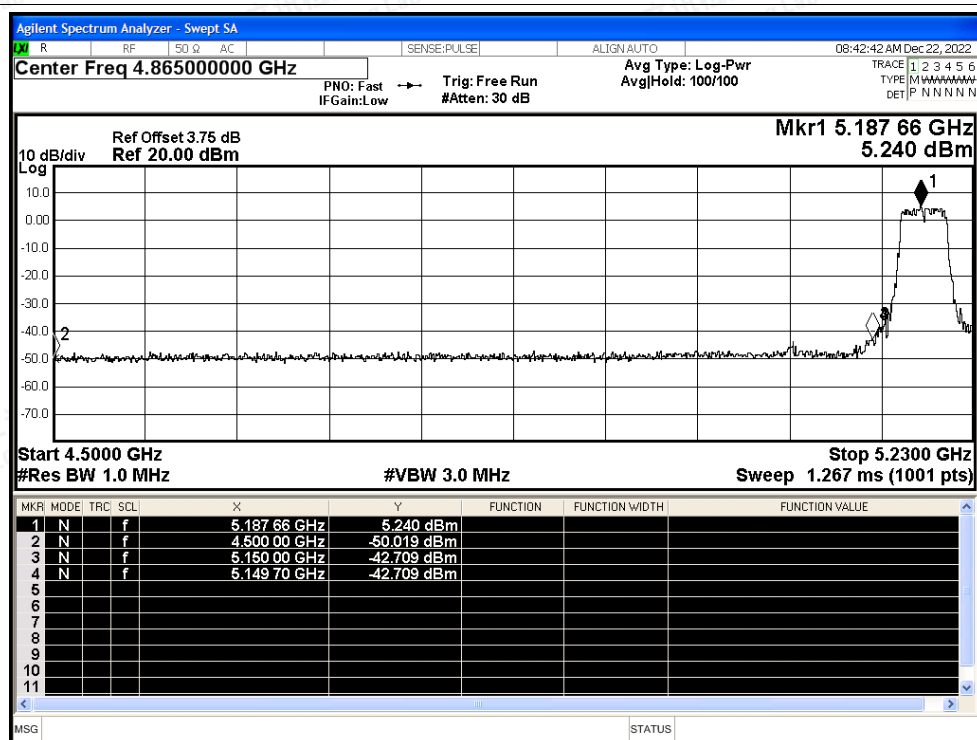


Restrict Band NVNT ac20 5240MHz Ant1 Average

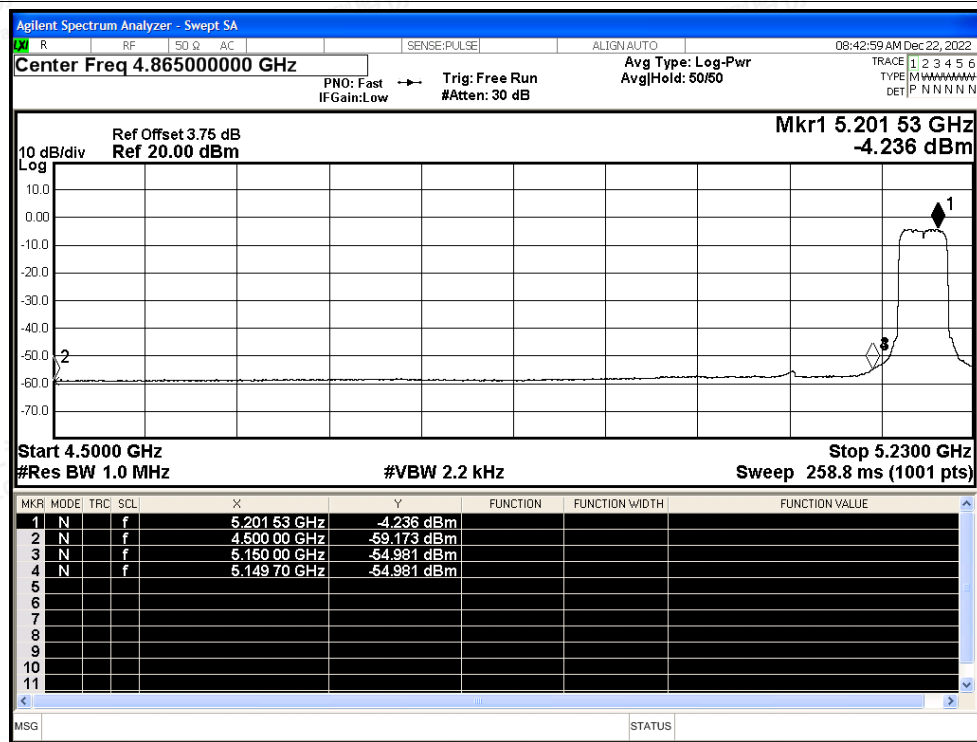




Restrict Band NVNT ac40 5190MHz Ant1 Peak



Restrict Band NVNT ac40 5190MHz Ant1 Average



Shenzhen LCS Compliance Testing Laboratory Ltd.

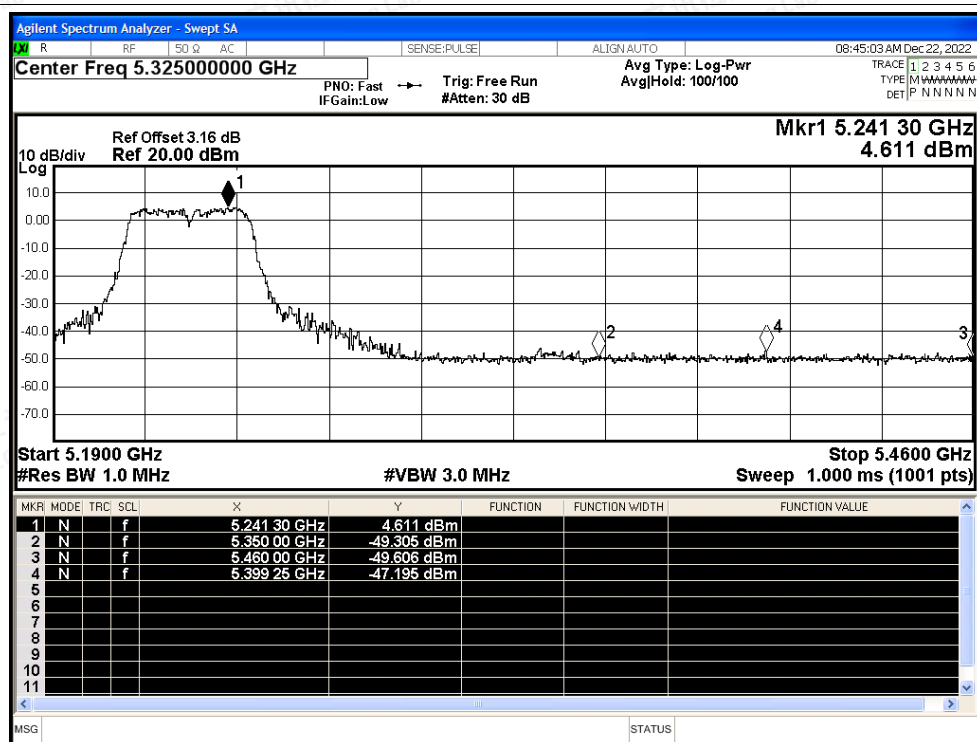
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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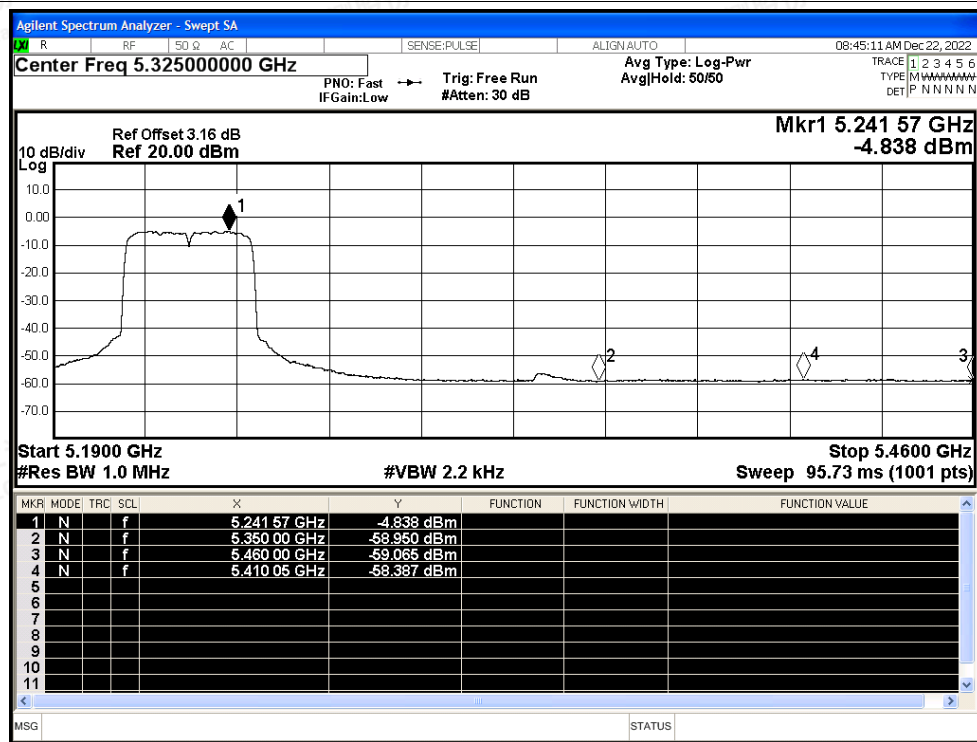
Scan code to check authenticity



Restrict Band NVNT ac40 5230MHz Ant1 Peak

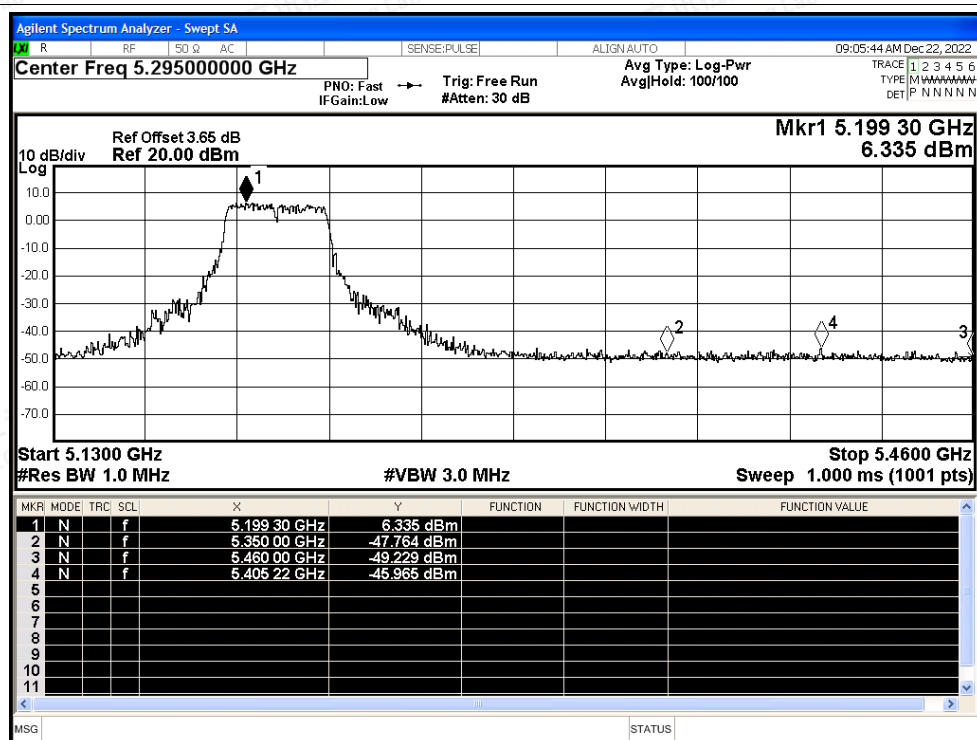


Restrict Band NVNT ac40 5230MHz Ant1 Average

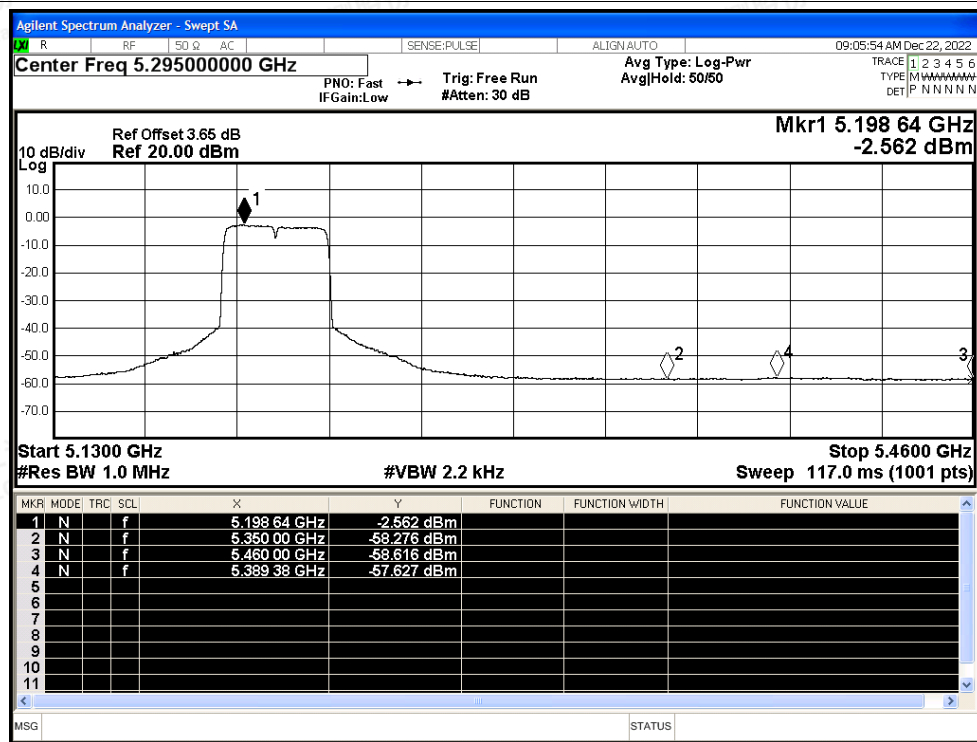




Restrict Band NVNT ac80 5210MHz Ant1 Peak

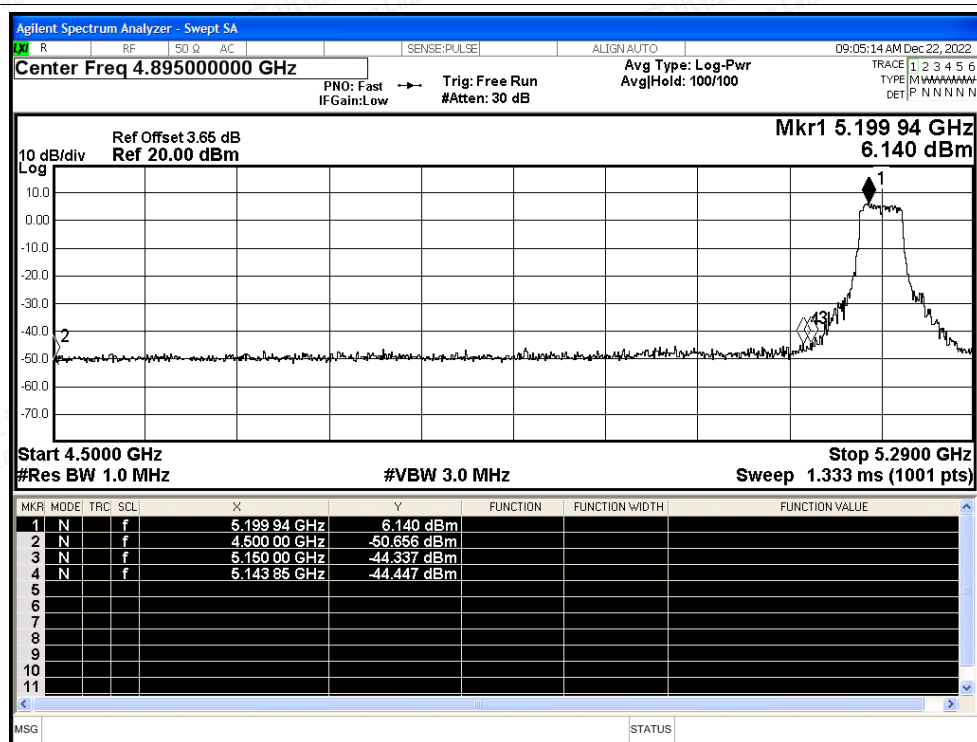


Restrict Band NVNT ac80 5210MHz Ant1 Average

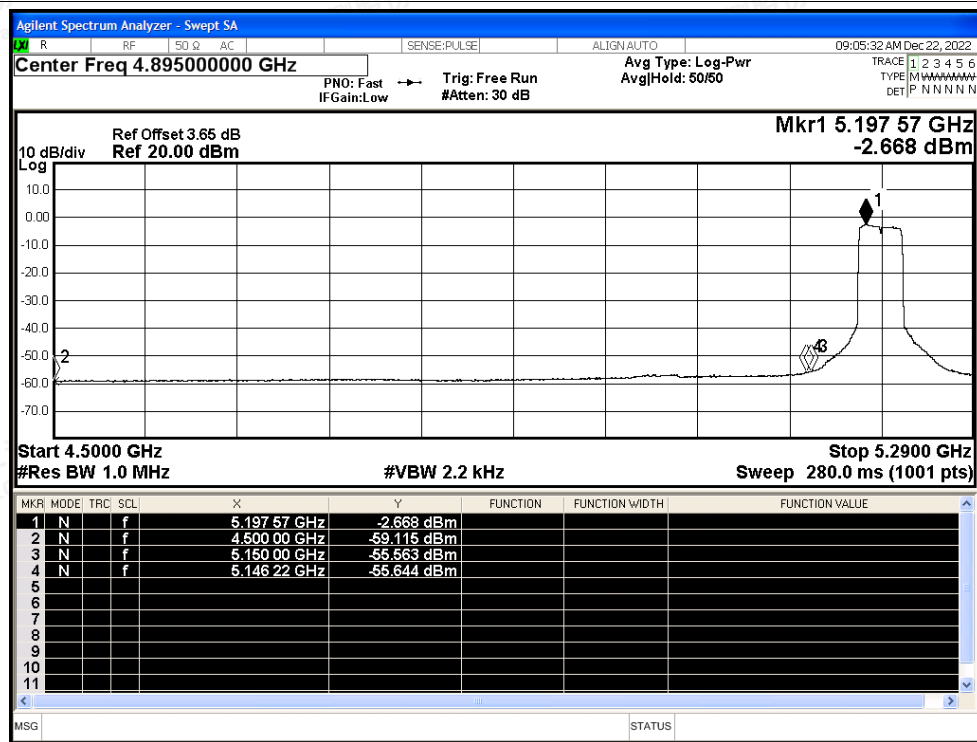




Restrict Band NVNT ac80 5210MHz Ant1 Peak



Restrict Band NVNT ac80 5210MHz Ant1 Average



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D.5 Frequency Stability

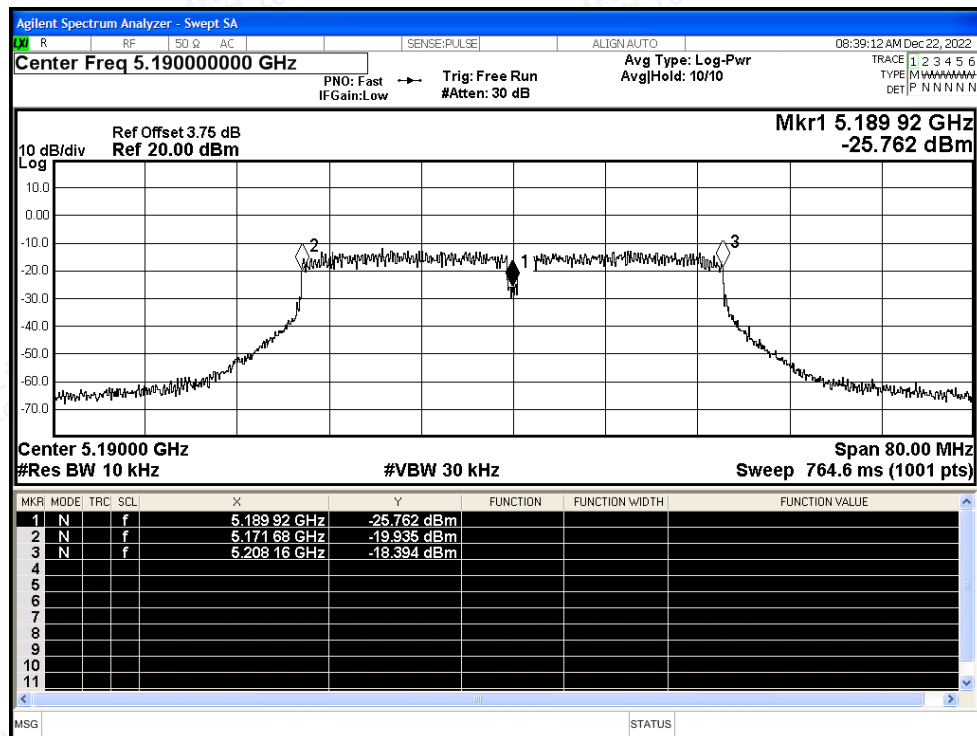
Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	n40	5190	Ant1	5189.92	-80000	-15.41	25	Pass
NVNT	n40	5230	Ant1	5229.92	-80000	-15.3	25	Pass
NVNT	ac20	5180	Ant1	5179.98	-20000	-3.86	25	Pass
NVNT	ac20	5200	Ant1	5199.94	-60000	-11.54	25	Pass
NVNT	ac20	5240	Ant1	5239.96	-40000	-7.63	25	Pass
NVNT	ac40	5190	Ant1	5189.96	-40000	-7.71	25	Pass
NVNT	ac40	5230	Ant1	5229.92	-80000	-15.3	25	Pass
NVNT	ac80	5210	Ant1	5209.92	-80000	-15.36	25	Pass



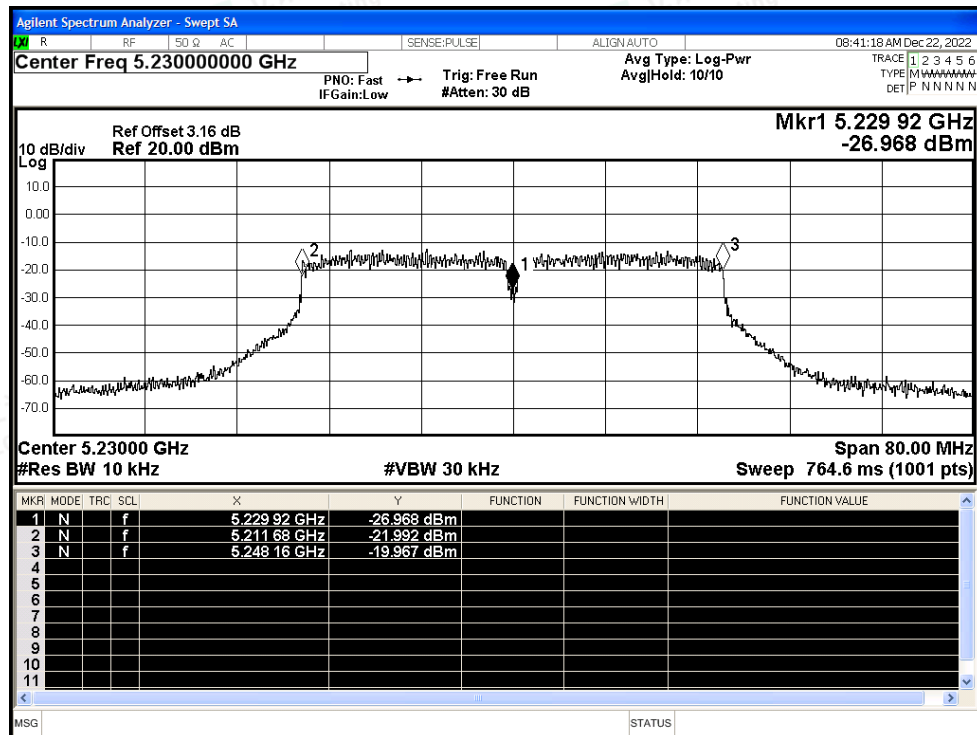


Test Graphs

Freq. Stability NVNT n40 5190MHz Ant1

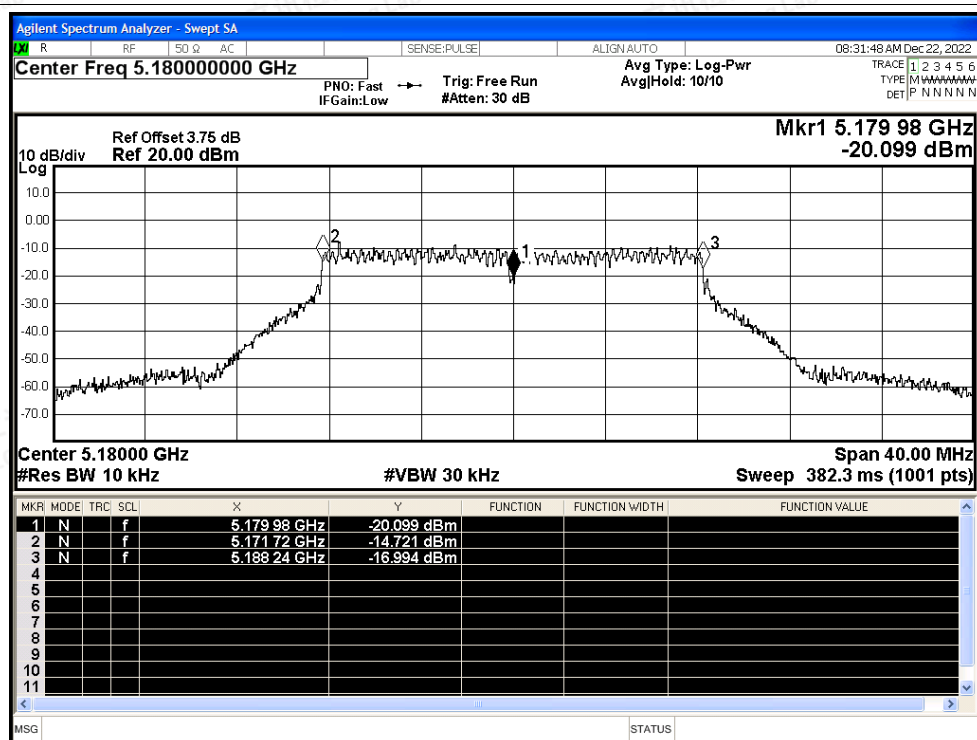


Freq. Stability NVNT n40 5230MHz Ant1

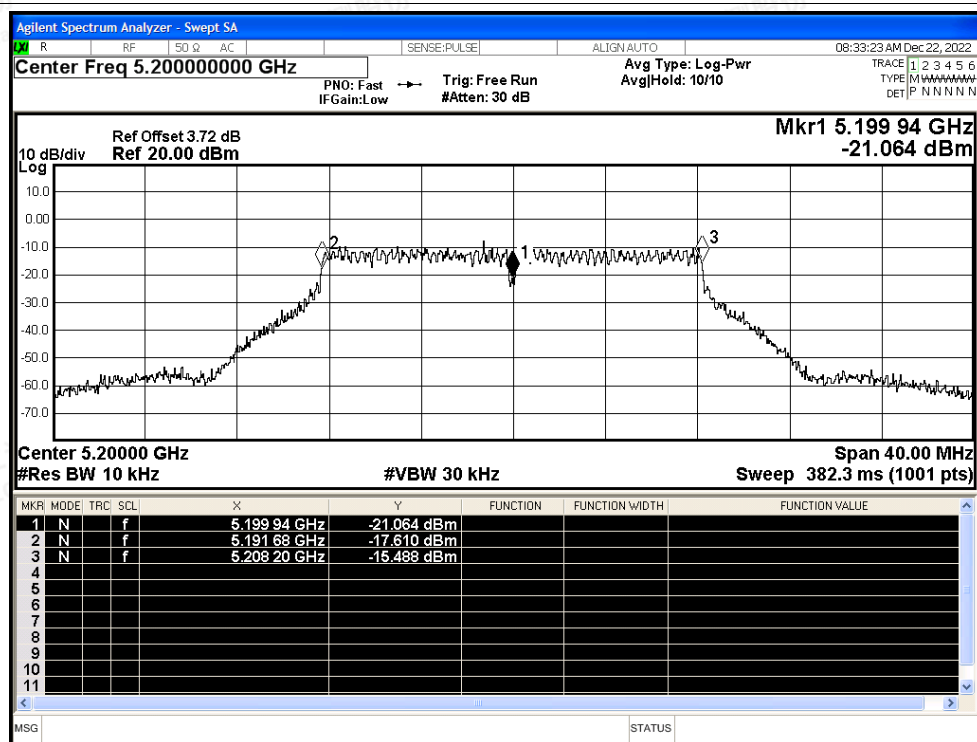




Freq. Stability NVNT ac20 5180MHz Ant1

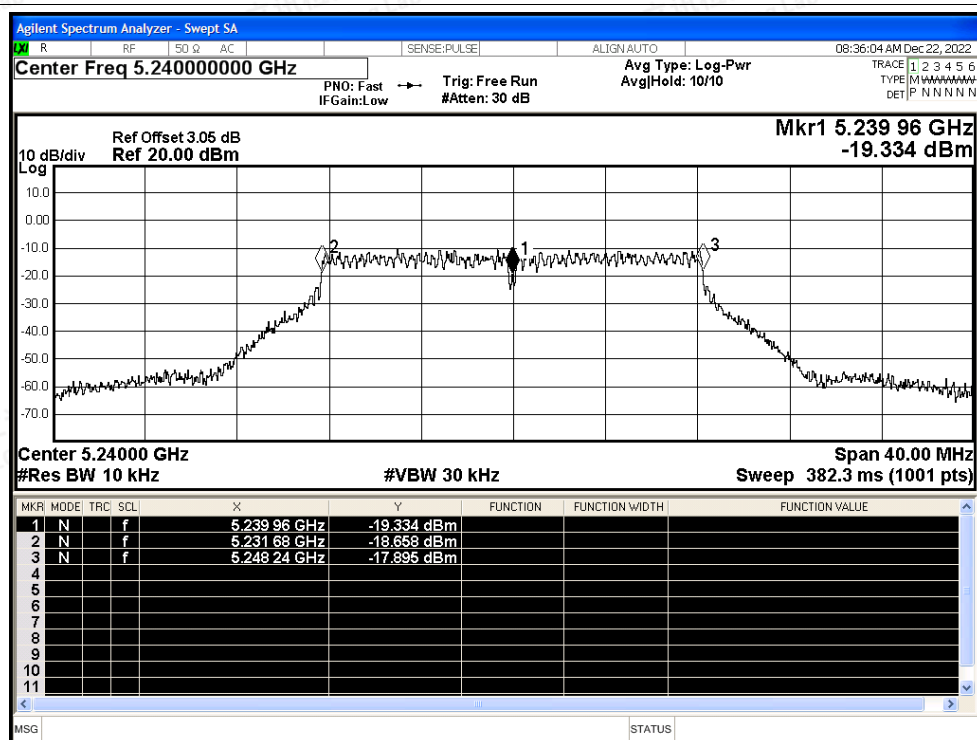


Freq. Stability NVNT ac20 5200MHz Ant1

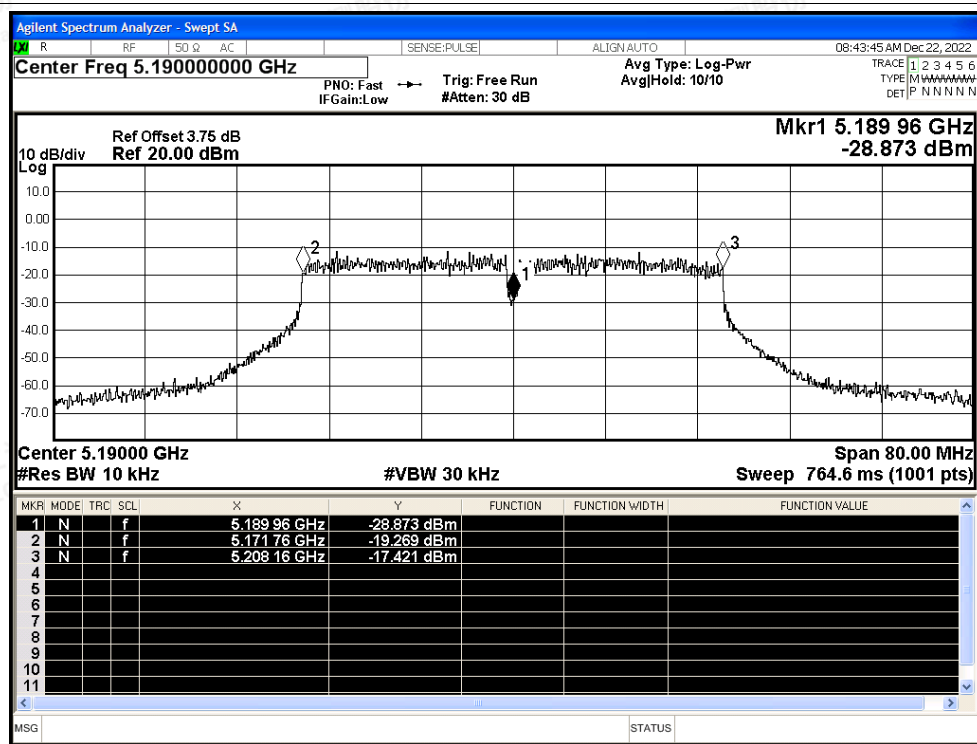




Freq. Stability NVNT ac20 5240MHz Ant1

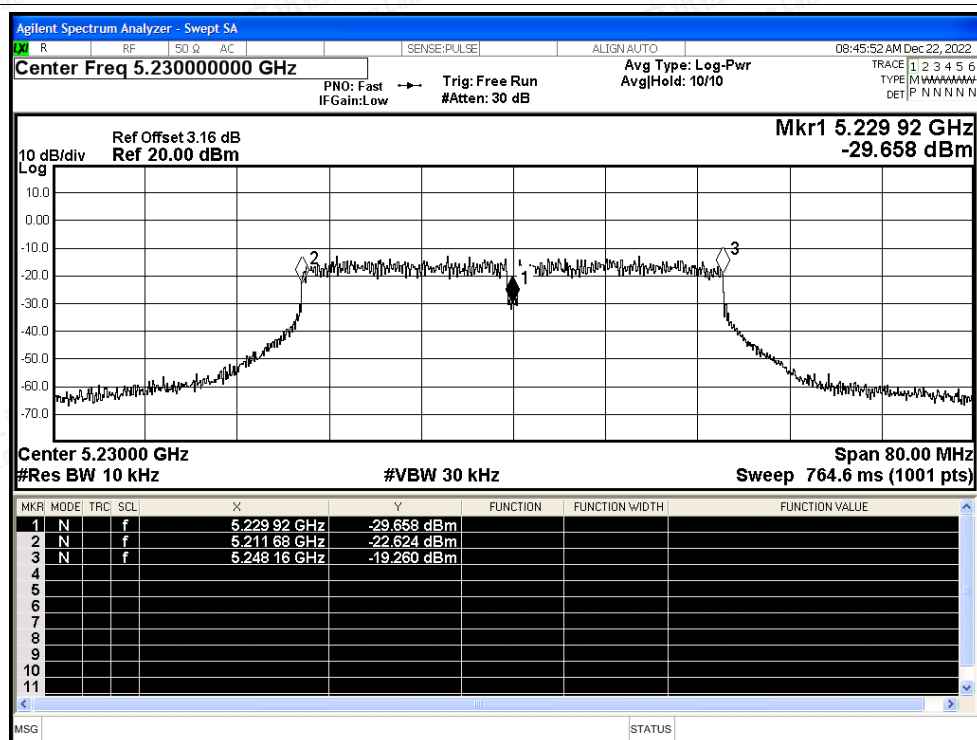


Freq. Stability NVNT ac40 5190MHz Ant1

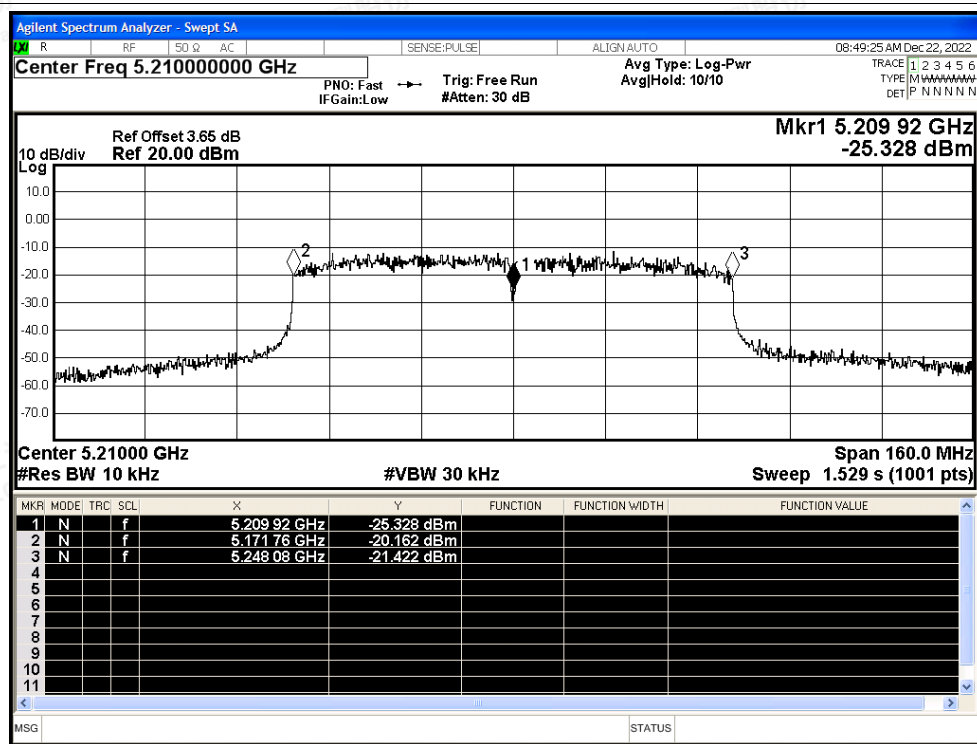




Freq. Stability NVNT ac40 5230MHz Ant1



Freq. Stability NVNT ac80 5210MHz Ant1





D.6 Duty Cycle

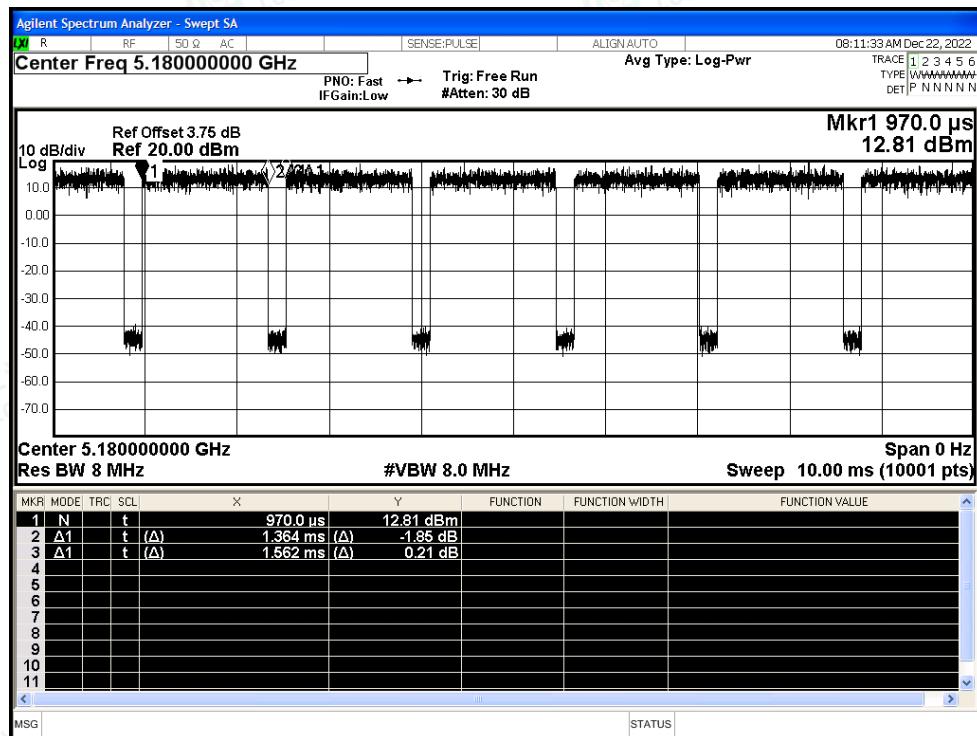
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	87.32	0.59	0.73
NVNT	a	5200	Ant1	87.32	0.59	0.73
NVNT	a	5240	Ant1	87.32	0.59	0.73
NVNT	n20	5180	Ant1	87.32	0.59	0.73
NVNT	n20	5200	Ant1	87.32	0.59	0.73
NVNT	n20	5240	Ant1	87.32	0.59	0.73
NVNT	n40	5190	Ant1	76.29	1.18	1.57
NVNT	n40	5230	Ant1	76.29	1.18	1.57
NVNT	ac20	5180	Ant1	87.3	0.59	0.73
NVNT	ac20	5200	Ant1	87.32	0.59	0.73
NVNT	ac20	5240	Ant1	87.32	0.59	0.73
NVNT	ac40	5190	Ant1	71.35	1.47	2.03
NVNT	ac40	5230	Ant1	71.2	1.48	2.03
NVNT	ac80	5210	Ant1	71.18	1.48	2.04



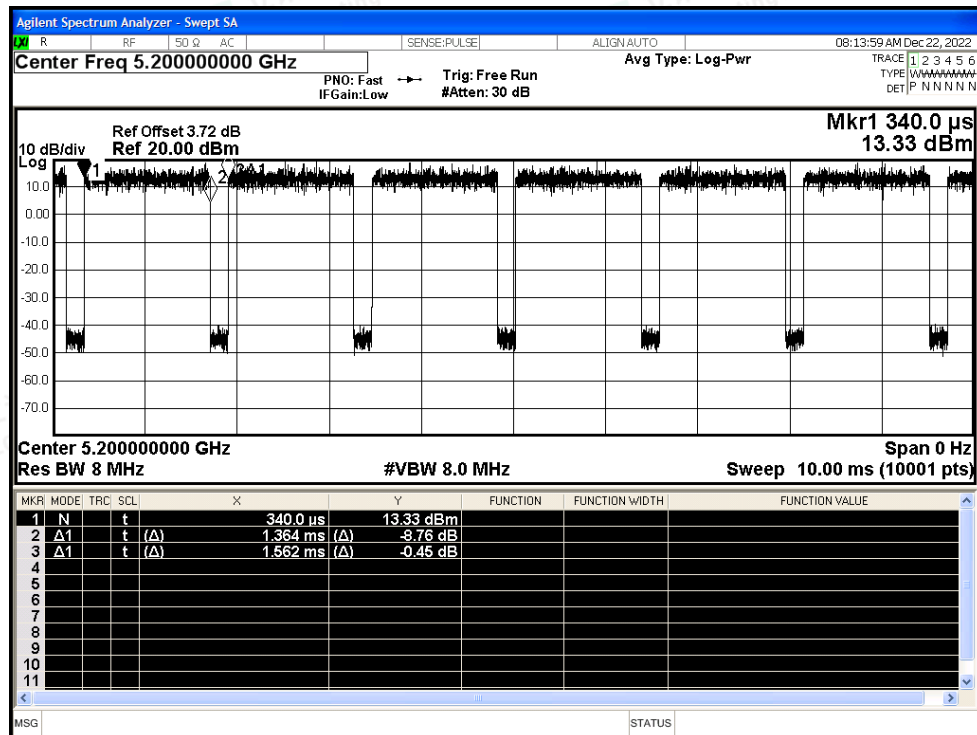


Test Graphs

Duty Cycle NVNT a 5180MHz Ant1

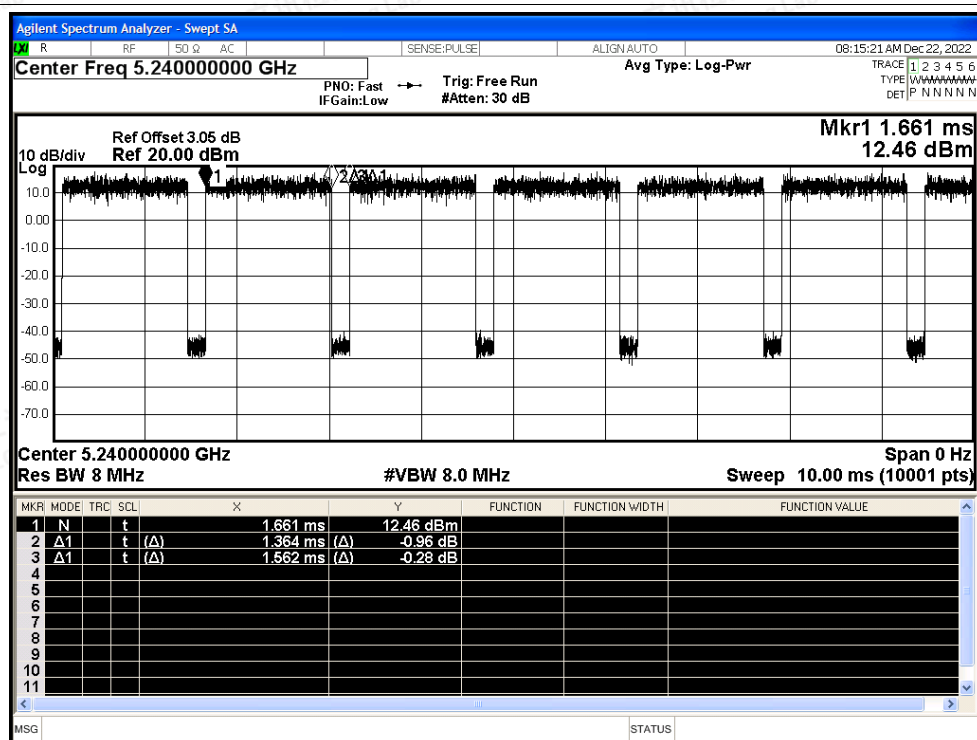


Duty Cycle NVNT a 5200MHz Ant1

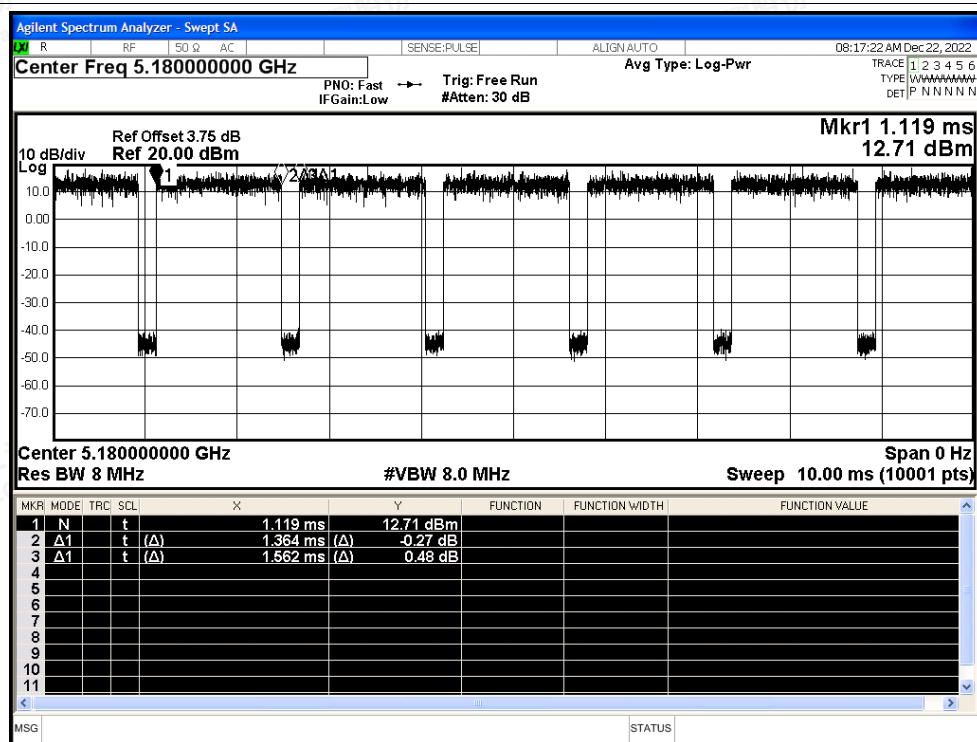




Duty Cycle NVNT a 5240MHz Ant1

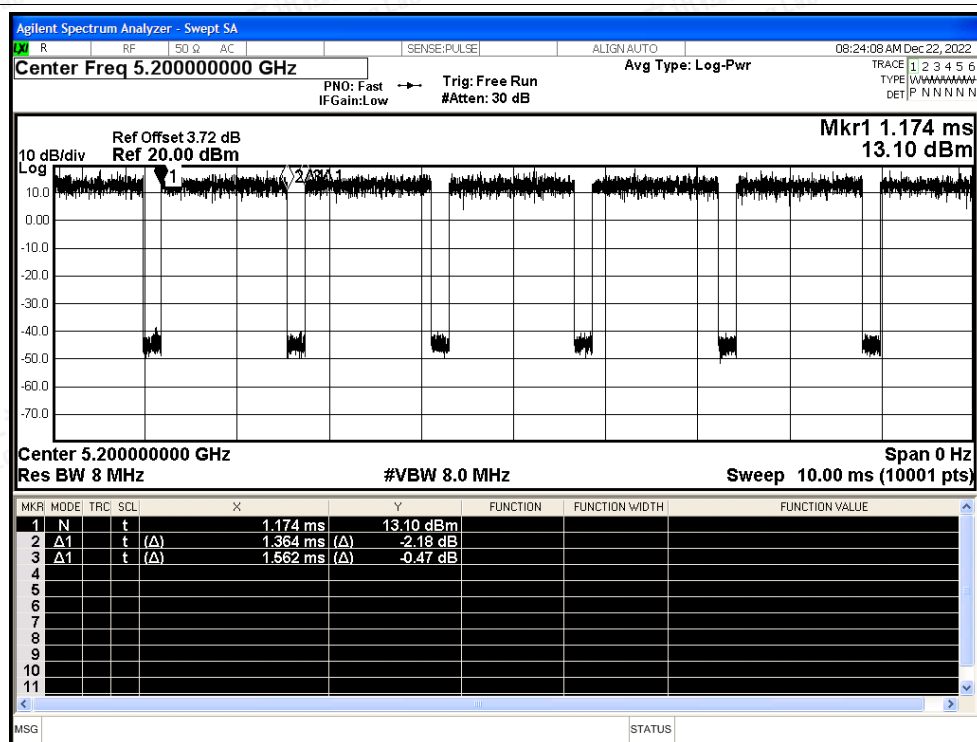


Duty Cycle NVNT n20 5180MHz Ant1

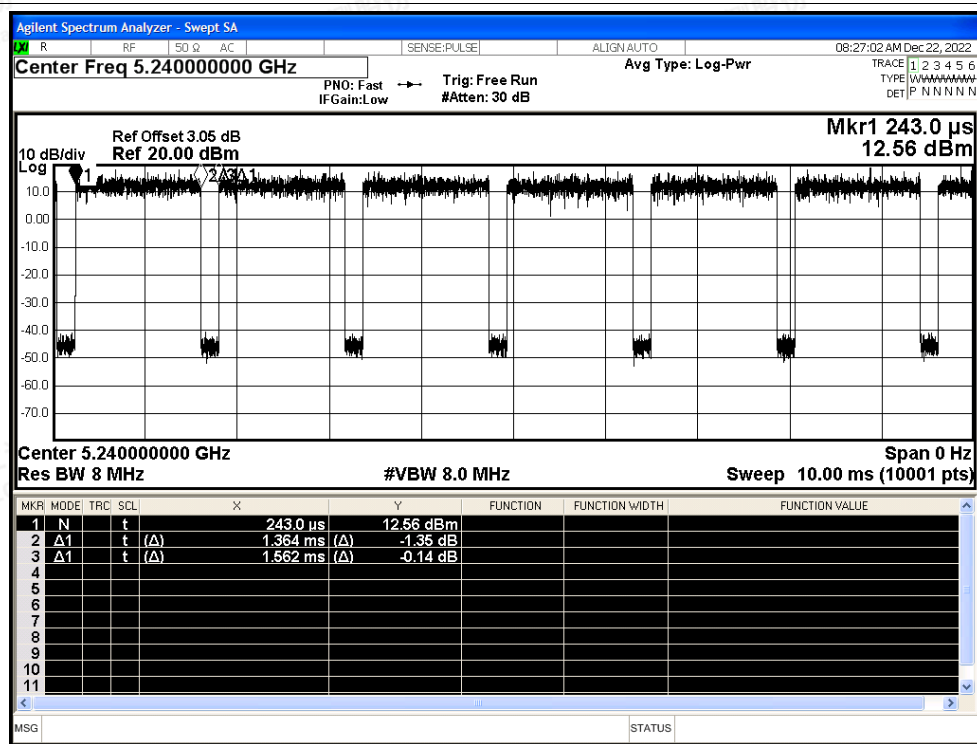




Duty Cycle NVNT n20 5200MHz Ant1



Duty Cycle NVNT n20 5240MHz Ant1



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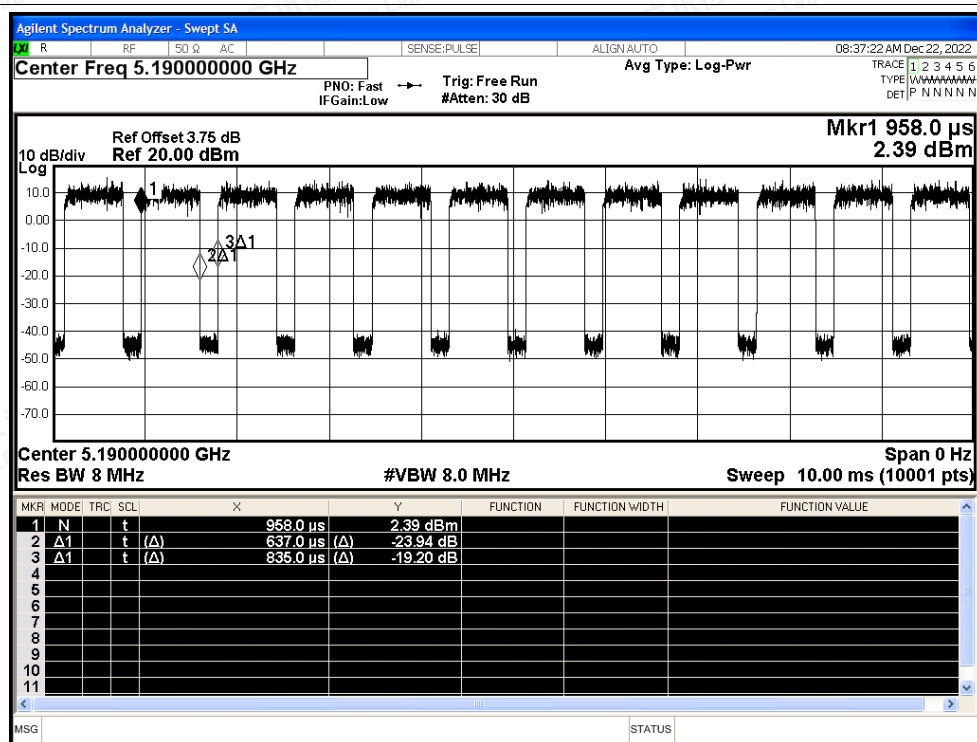
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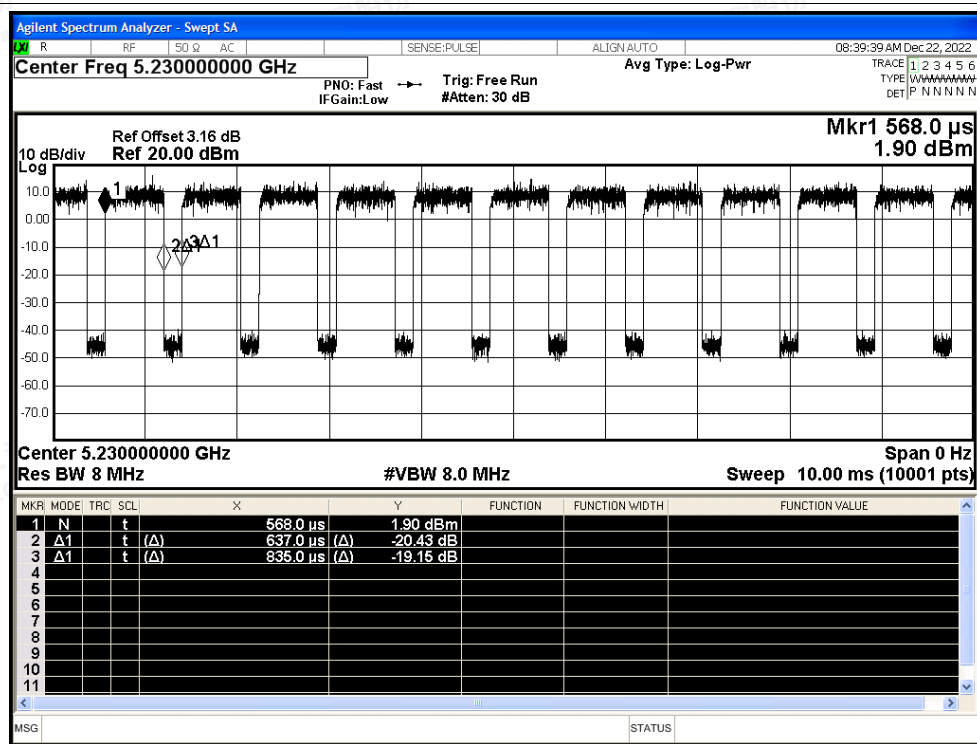
Scan code to check authenticity



Duty Cycle NVNT n40 5190MHz Ant1

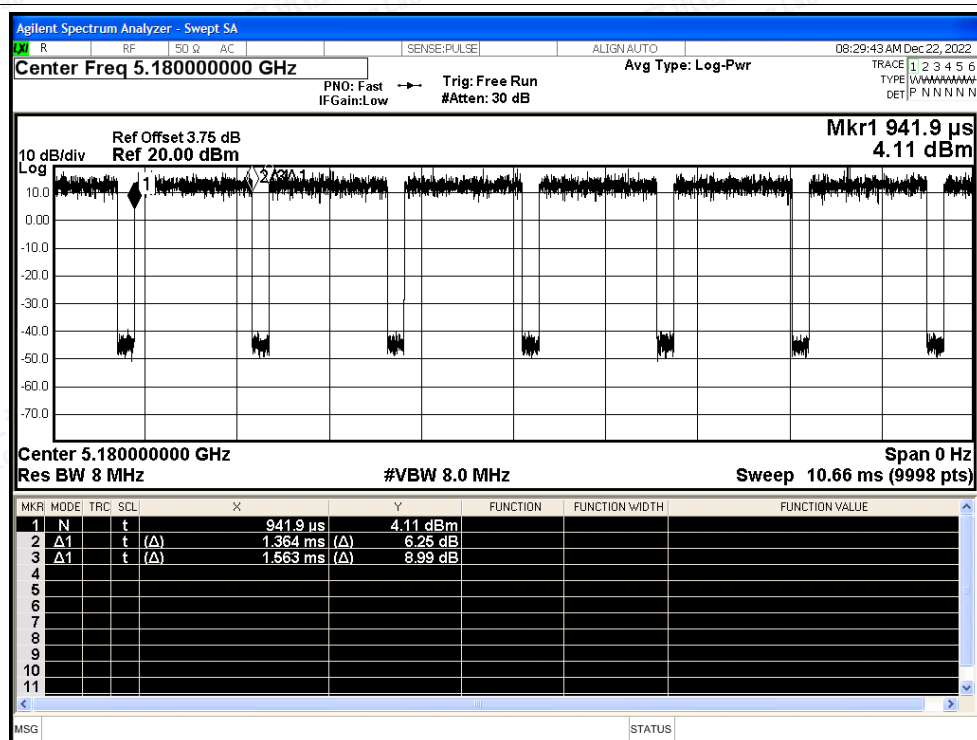


Duty Cycle NVNT n40 5230MHz Ant1

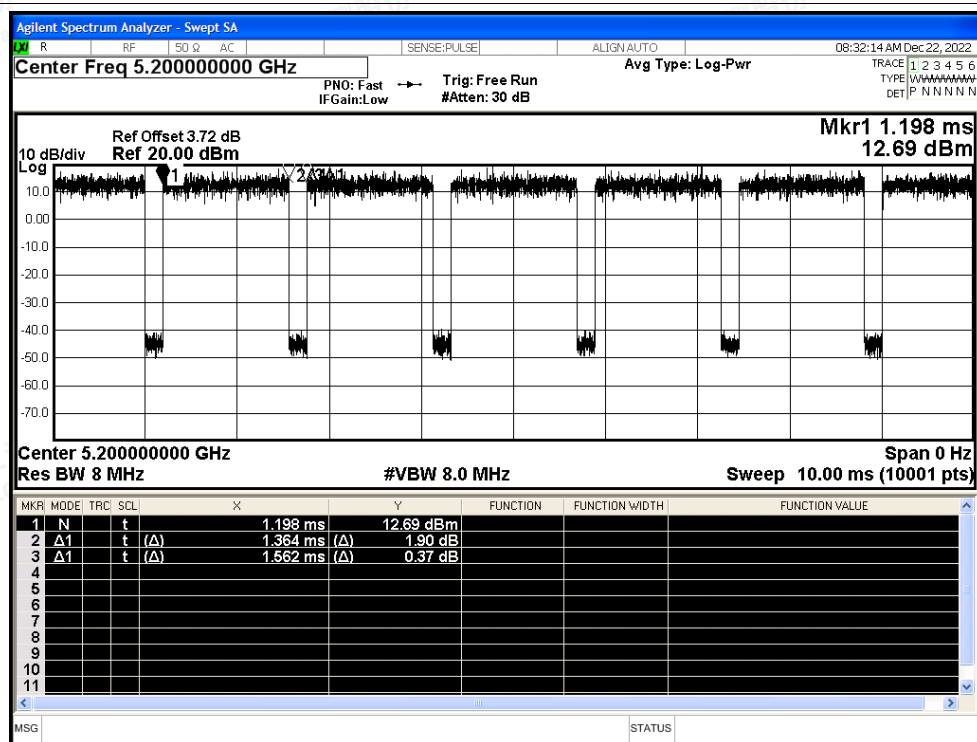




Duty Cycle NVNT ac20 5180MHz Ant1

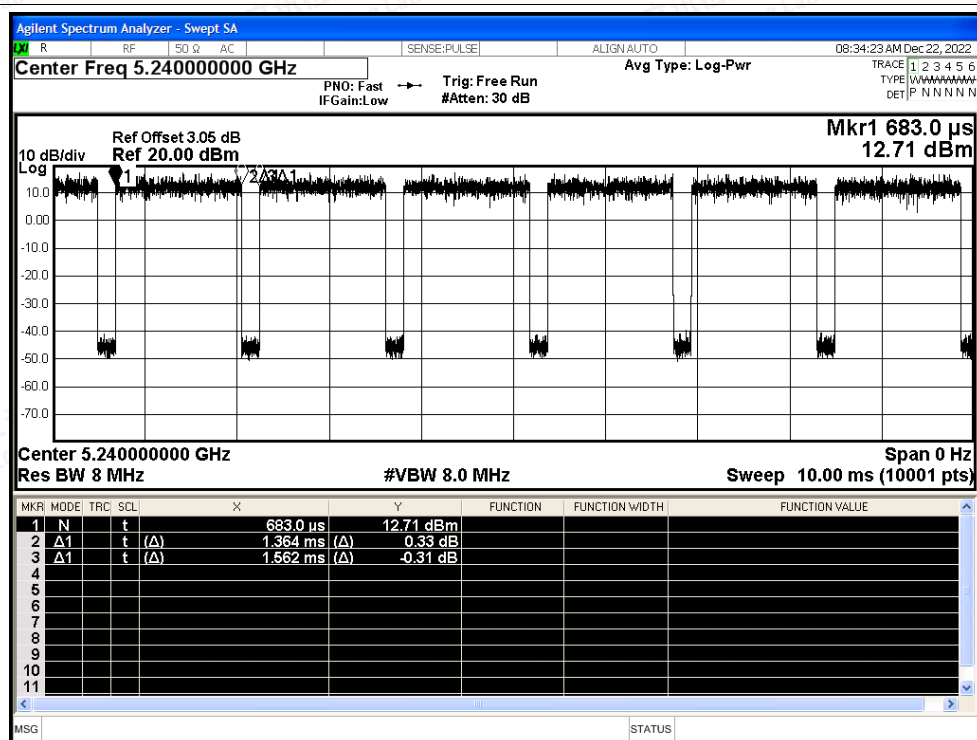


Duty Cycle NVNT ac20 5200MHz Ant1

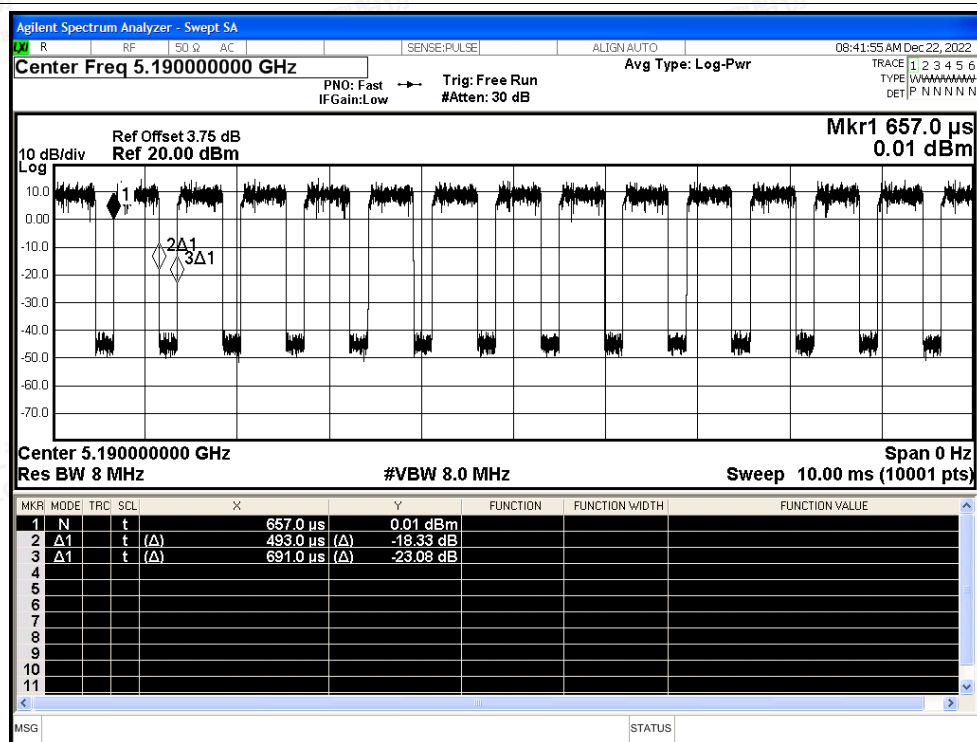




Duty Cycle NVNT ac20 5240MHz Ant1

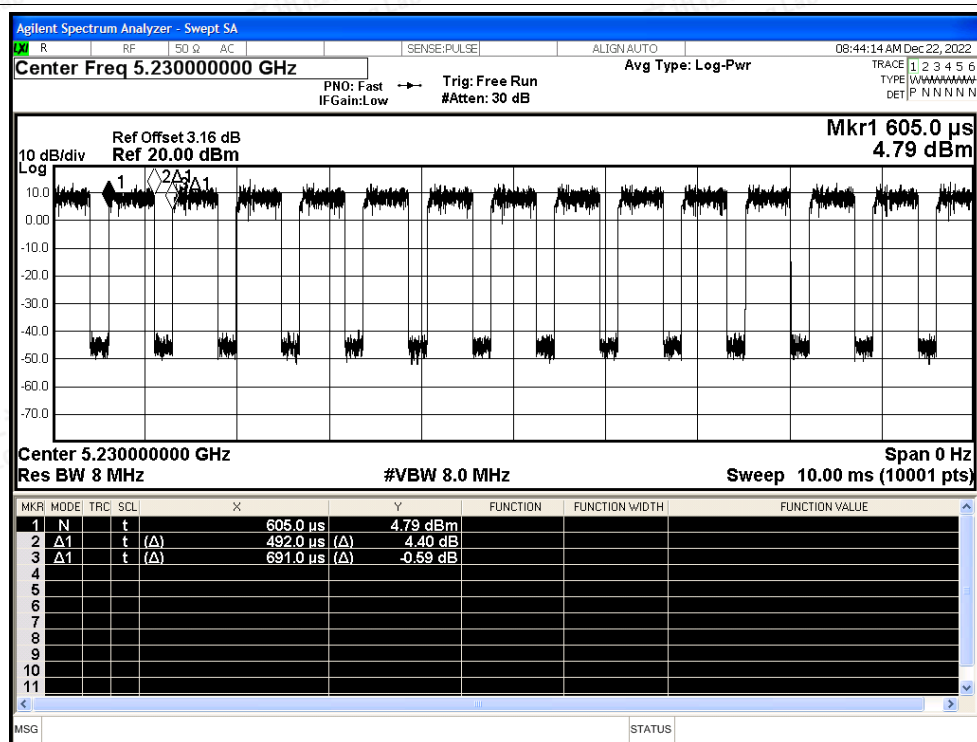


Duty Cycle NVNT ac40 5190MHz Ant1





Duty Cycle NVNT ac40 5230MHz Ant1



Duty Cycle NVNT ac80 5210MHz Ant1

