

Appendix A for 5.2GWIFI Test Data

Product Name: CR S2

Test Model: CR S2

Environmental Conditions

Temperature:	25.4℃
Relative Humidity:	54.3%
ATM Pressure:	101.0 kPa
Test Engineer:	Kimi Lu
Supervised by:	Baret Wu

A.1 Duty Cycle

Mode	Frequency (MHz)	Antenna	T _{on} ms	T _{total} ms	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
a	5180	Ant1	2.06	2.14	96.26	0.23	0.49
a	5200	Ant1	2.06	2.1	98.1	0	0.49
a	5240	Ant1	2.06	2.19	94.06	0.27	0.49
n20	5180	Ant1	1.92	2.05	93.66	0.28	0.52
n20	5200	Ant1	1.92	1.98	96.97	0.13	0.52
n20	5240	Ant1	1.92	1.98	96.97	0.13	0.52
n40	5190	Ant1	0.95	1.05	90.48	0	1.05
n40	5230	Ant1	0.94	1	94	0.27	1.06
ac20	5180	Ant1	1.93	2.01	96.02	0.18	0.52
ac20	5200	Ant1	1.93	1.99	96.98	0.13	0.52
ac20	5240	Ant1	1.93	2.1	91.9	0.13	0.52
ac40	5190	Ant1	0.95	1.06	89.62	0.48	1.05
ac40	5230	Ant1	0.95	1.12	84.82	0.72	1.05
ac80	5210	Ant1	0.46	0.51	90.2	0.45	2.17

Note:

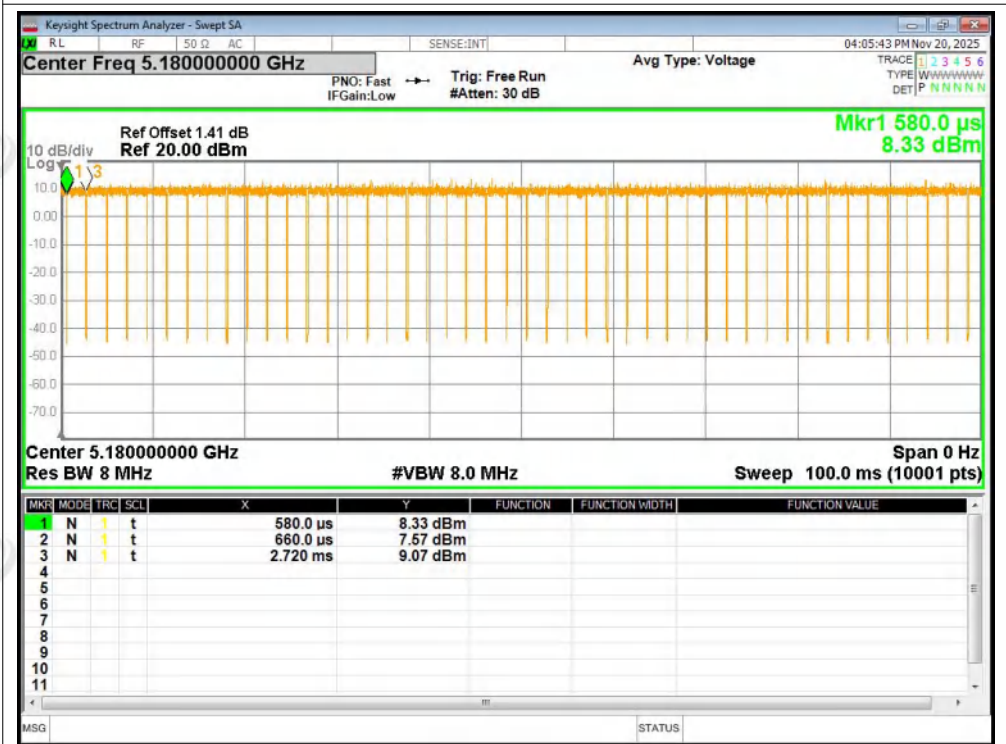
1. Duty Cycle = T_{on} / T_{total}

2. Correction Factor = $10 \log (1 / \text{Duty Cycle})$.

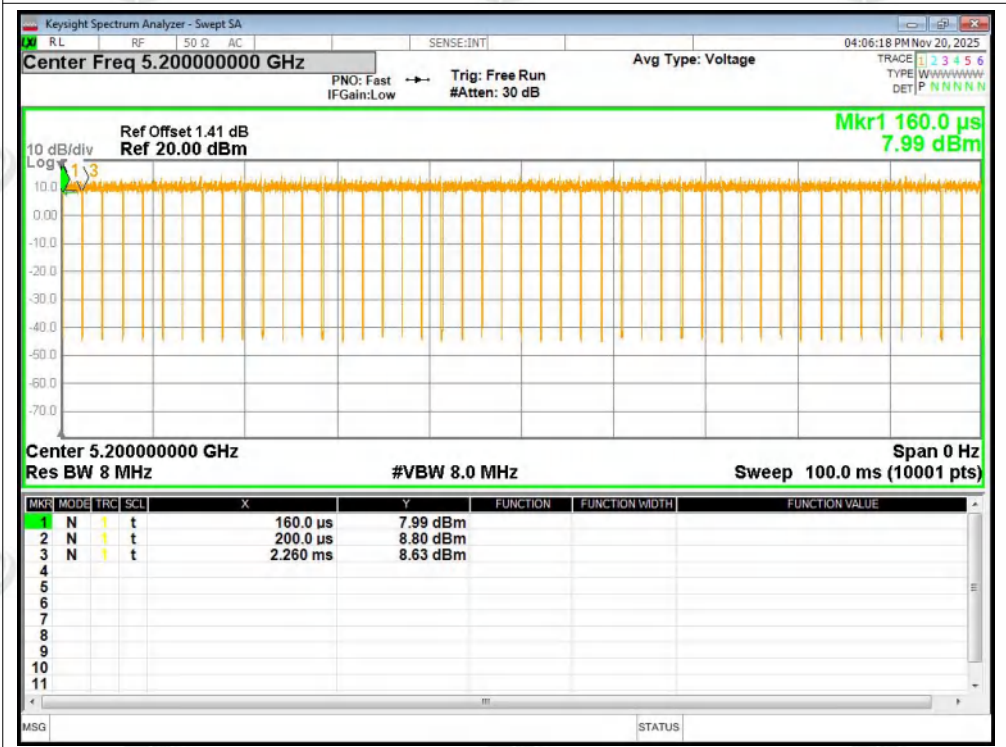
3. $1/T = 1/T_{on}$

Test Graphs

Duty Cycle NVNT a 5180MHz Ant1

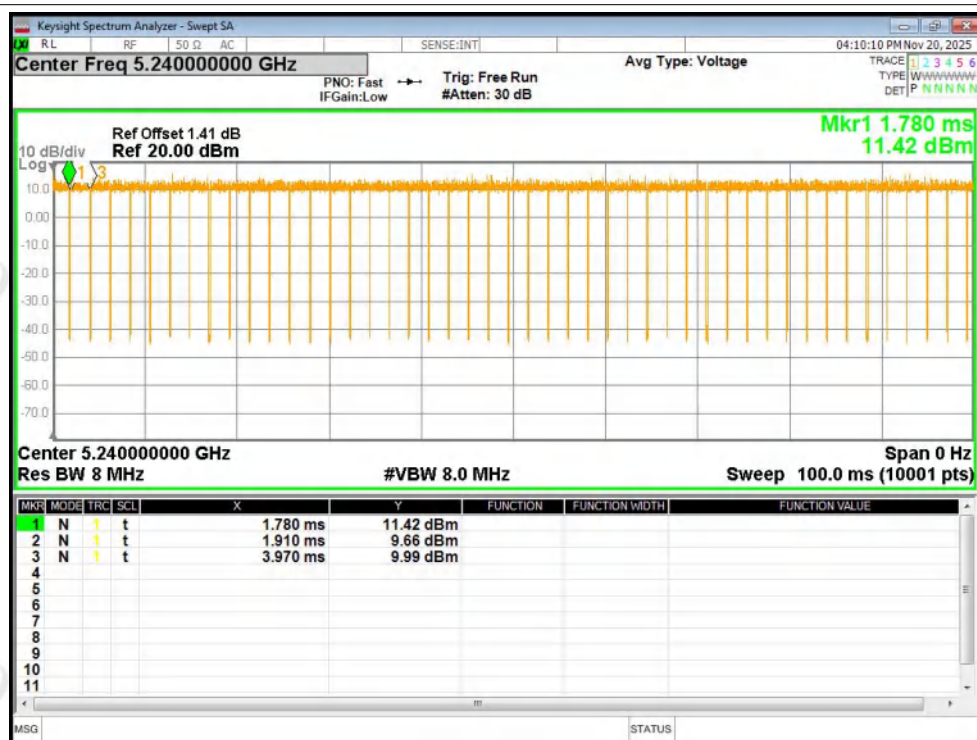


Duty Cycle NVNT a 5200MHz Ant1

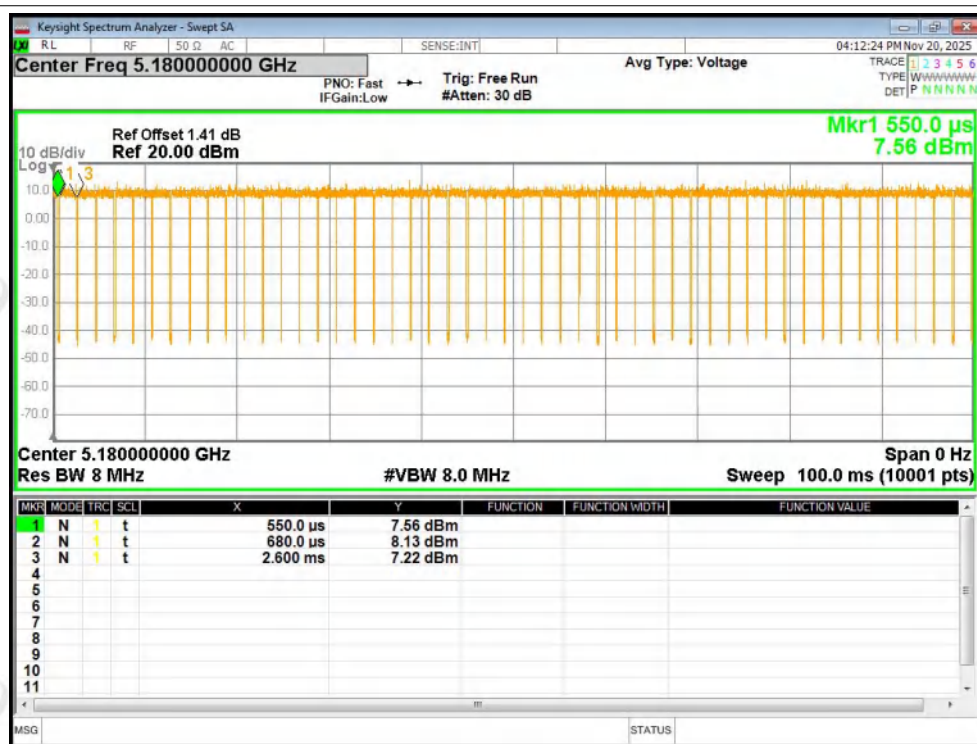




Duty Cycle NVNT a 5240MHz Ant1

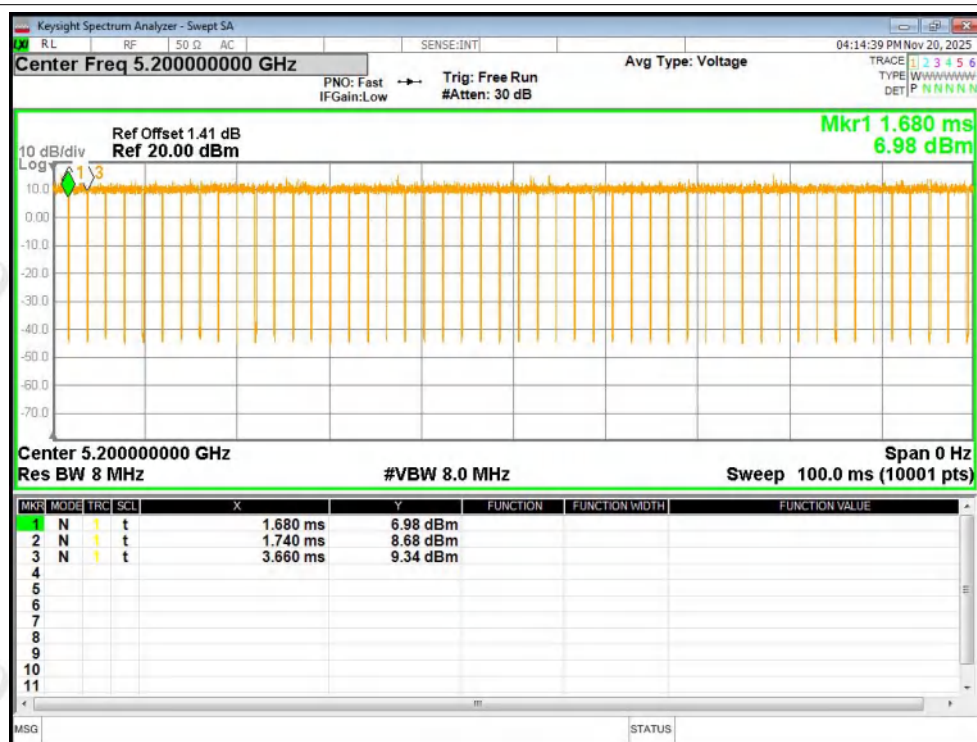


Duty Cycle NVNT n20 5180MHz Ant1

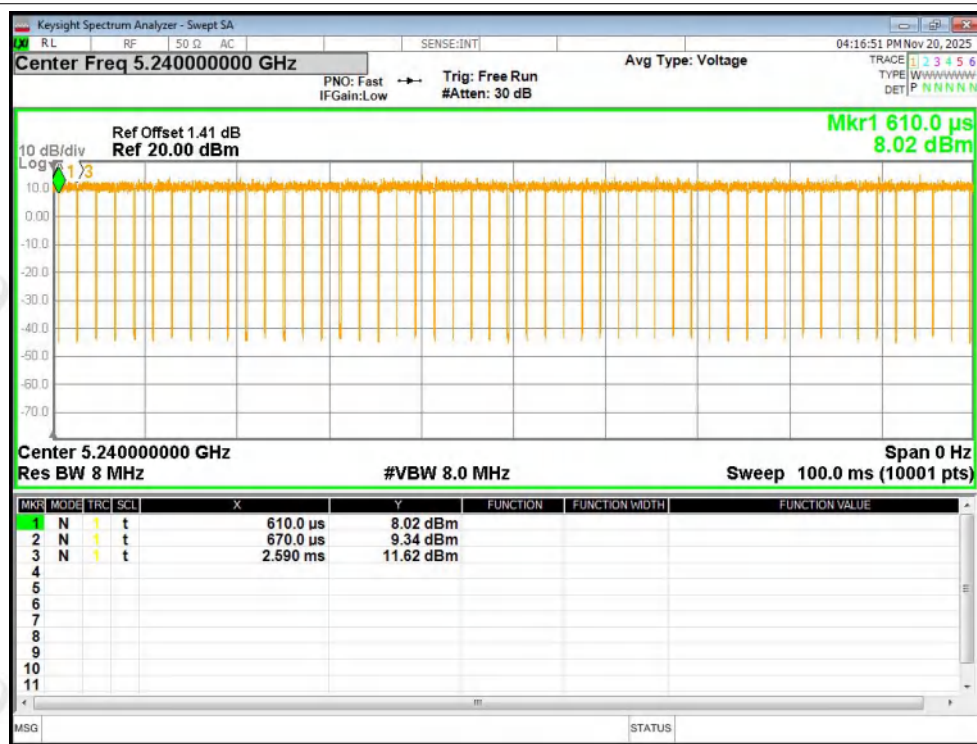




Duty Cycle NVNT n20 5200MHz Ant1

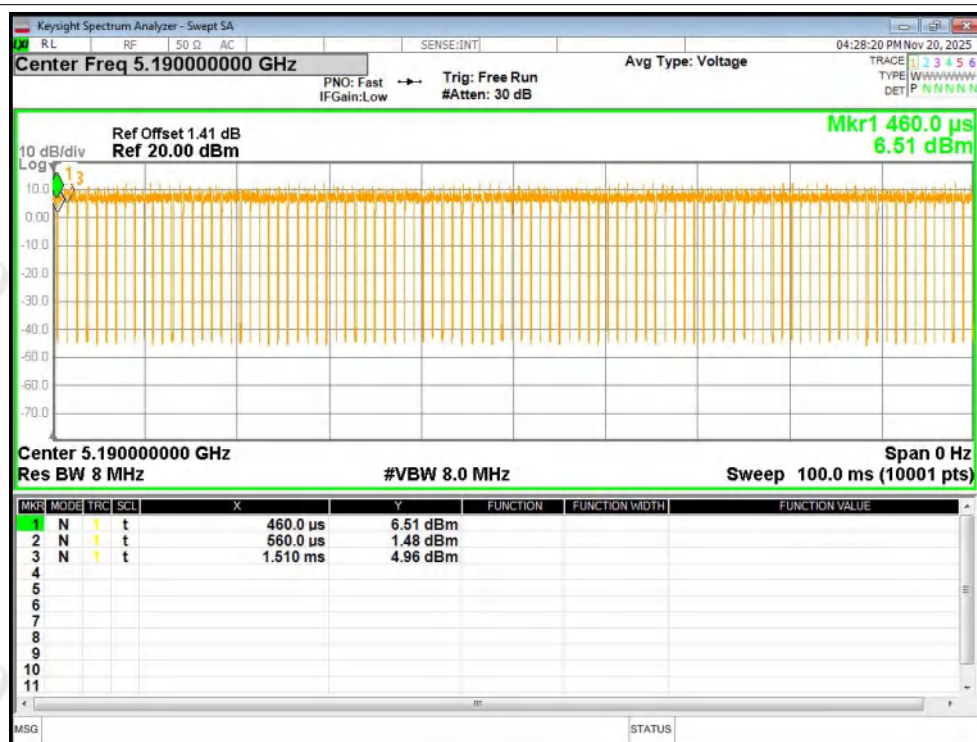


Duty Cycle NVNT n20 5240MHz Ant1

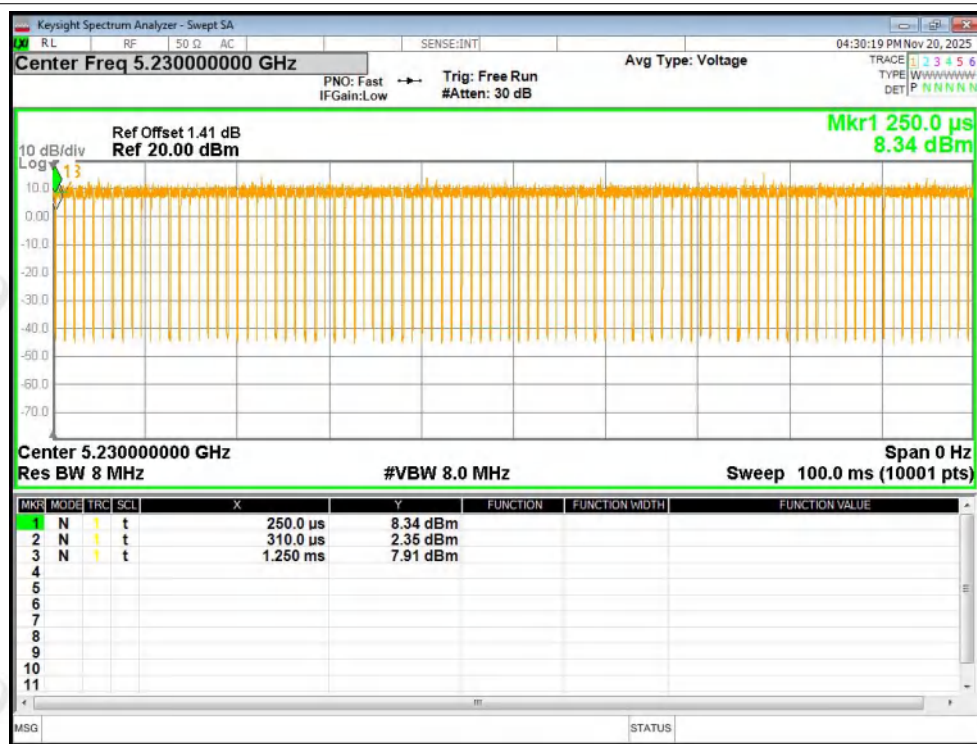




Duty Cycle NVNT n40 5190MHz Ant1

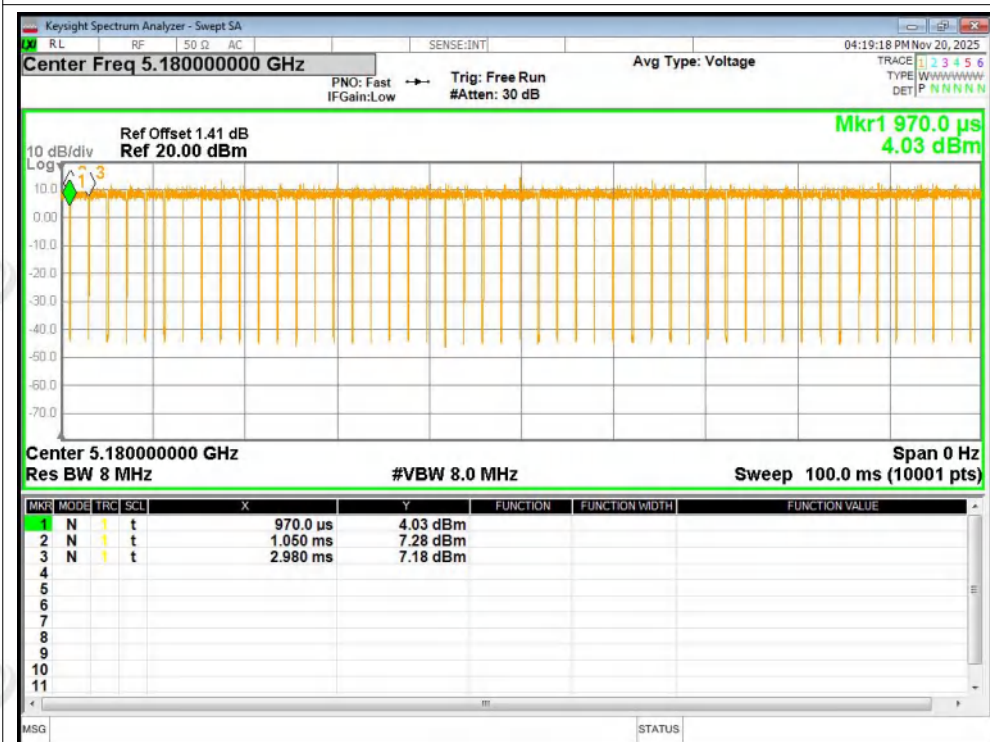


Duty Cycle NVNT n40 5230MHz Ant1

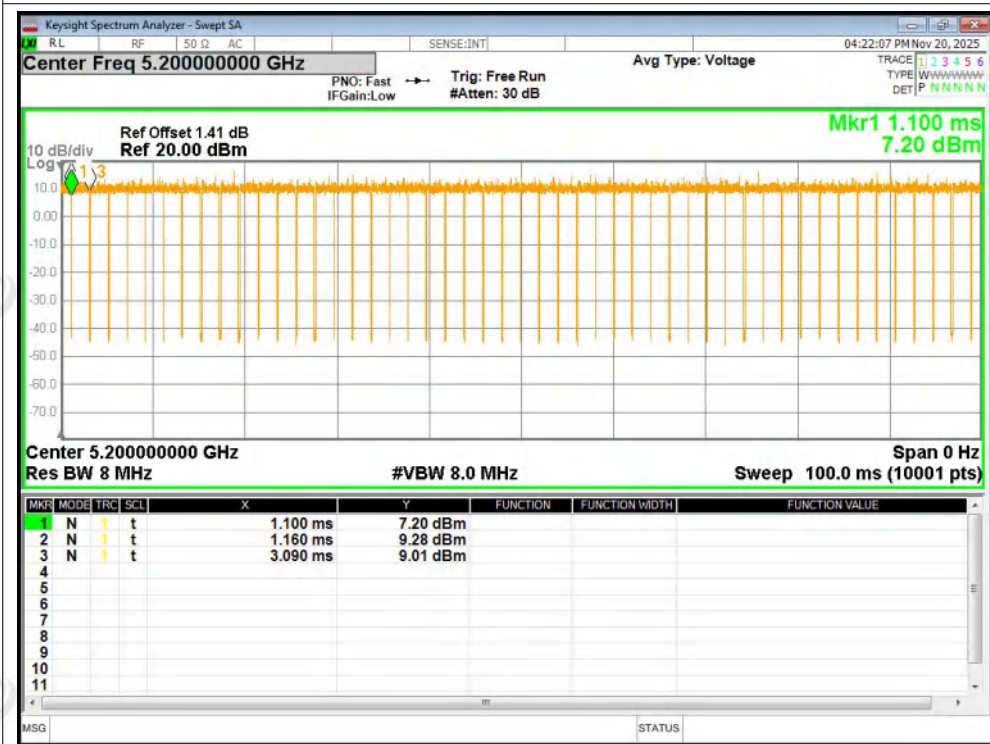




Duty Cycle NVNT ac20 5180MHz Ant1

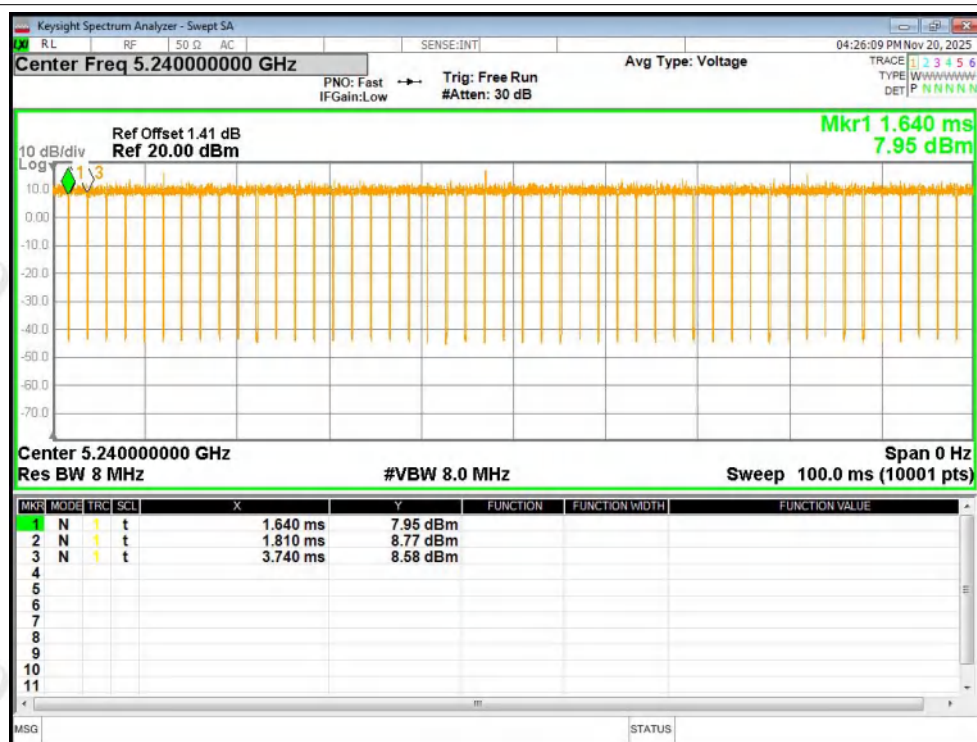


Duty Cycle NVNT ac20 5200MHz Ant1

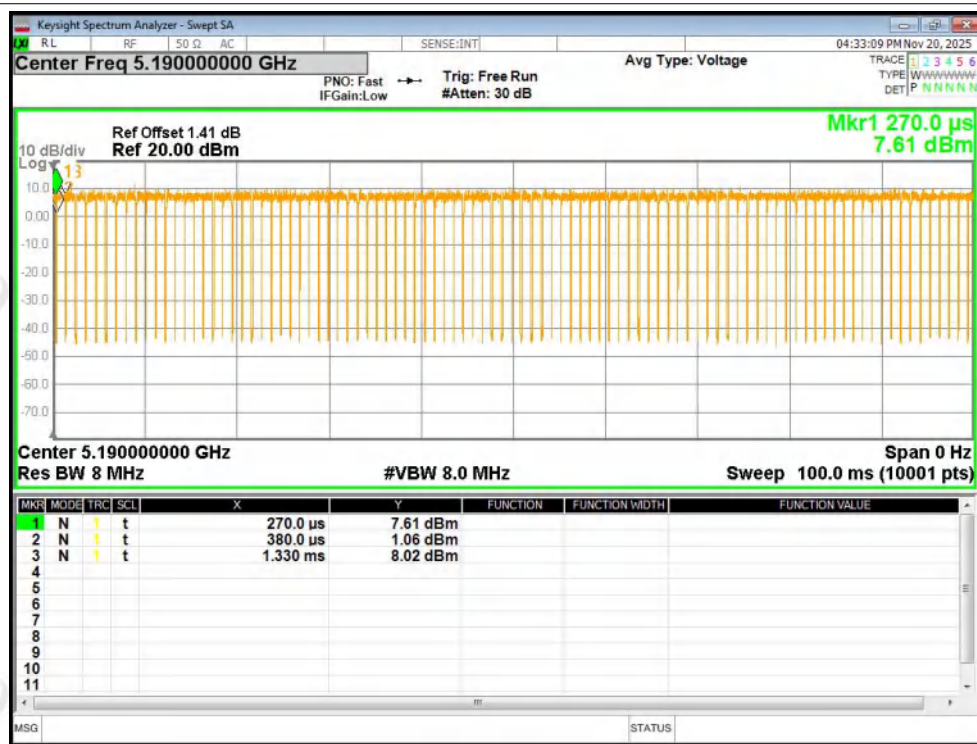




Duty Cycle NVNT ac20 5240MHz Ant1

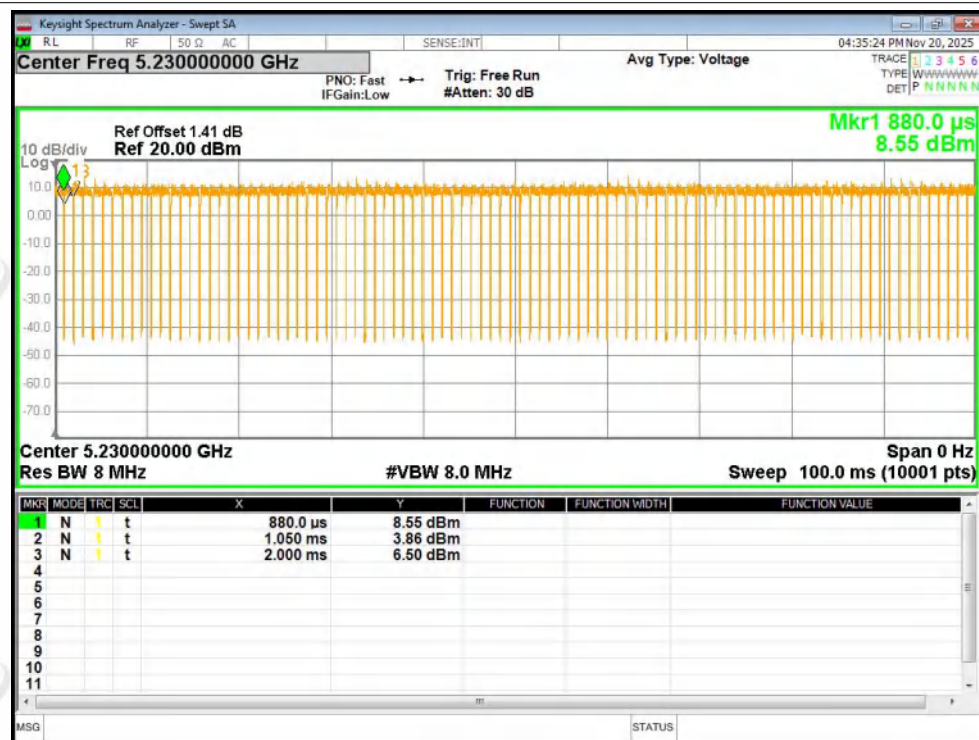


Duty Cycle NVNT ac40 5190MHz Ant1

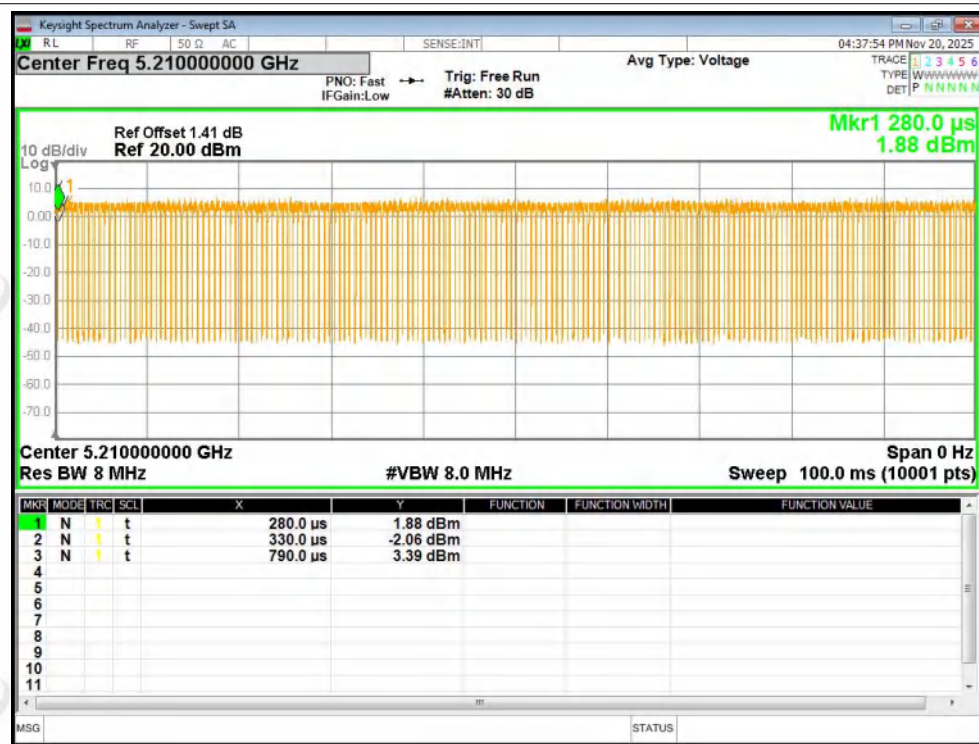




Duty Cycle NVNT ac40 5230MHz Ant1



Duty Cycle NVNT ac80 5210MHz Ant1

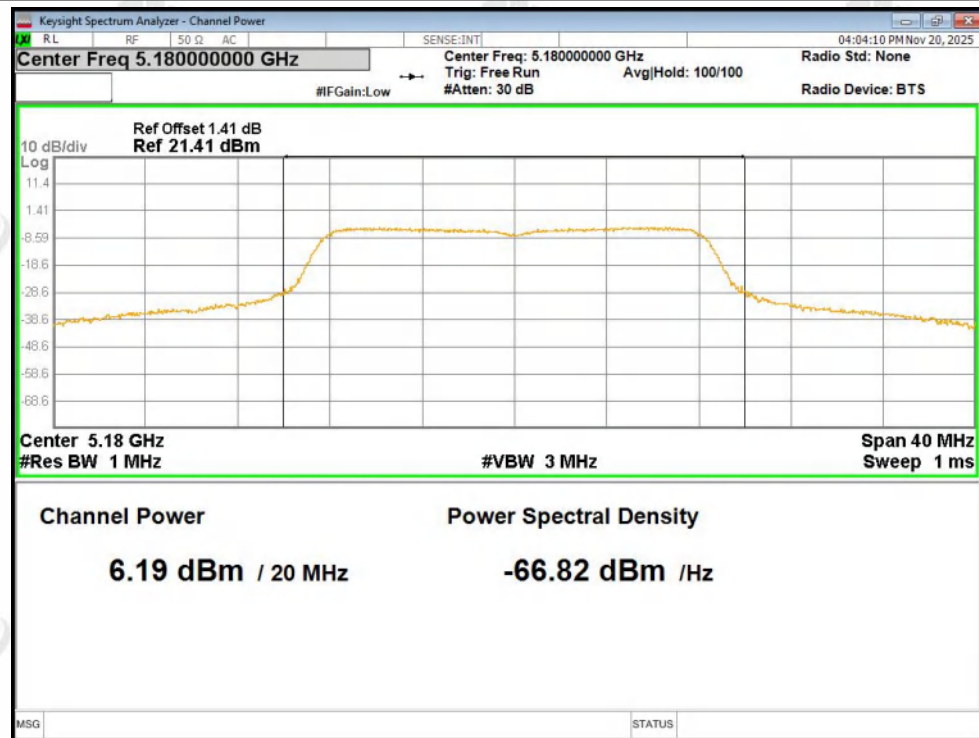


**ZHONGHAN****A.2 Maximum Conducted Output Power**

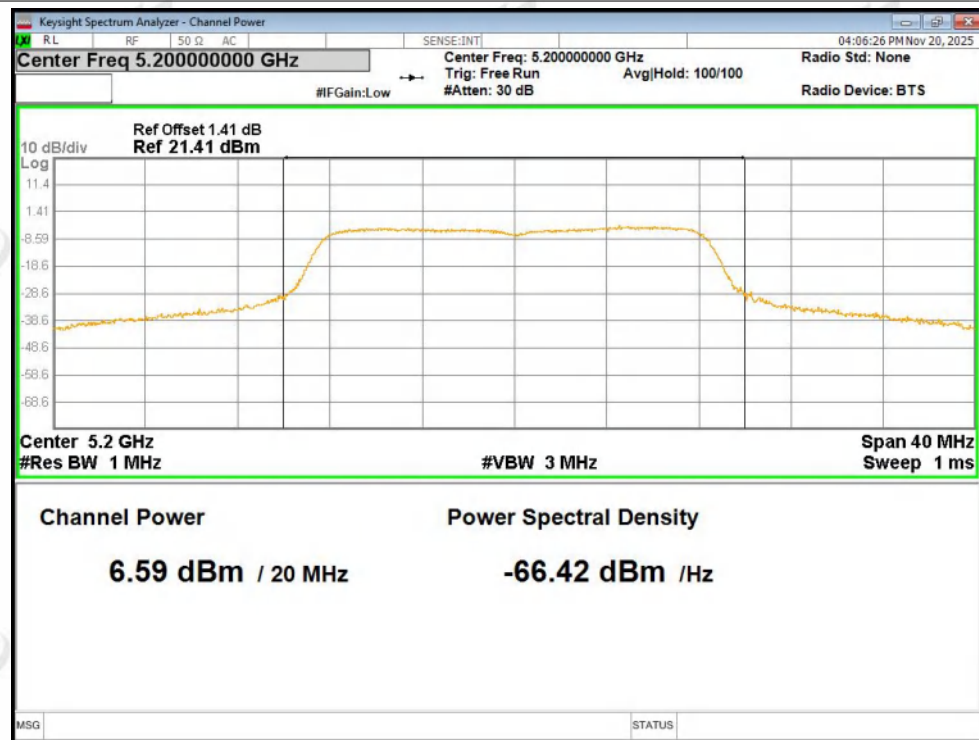
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	6.19	0.23	6.42	24	Pass
NVNT	a	5200	Ant1	6.59	0	6.59	24	Pass
NVNT	a	5240	Ant1	7.01	0.27	7.28	24	Pass
NVNT	n20	5180	Ant1	5.98	0.28	6.26	24	Pass
NVNT	n20	5200	Ant1	6.9	0.13	7.03	24	Pass
NVNT	n20	5240	Ant1	6.36	0.13	6.49	24	Pass
NVNT	n40	5190	Ant1	6.28	0	6.28	24	Pass
NVNT	n40	5230	Ant1	6.86	0.27	7.13	24	Pass
NVNT	ac20	5180	Ant1	5.96	0.18	6.14	24	Pass
NVNT	ac20	5200	Ant1	6.71	0.13	6.84	24	Pass
NVNT	ac20	5240	Ant1	6.28	0.13	6.41	24	Pass
NVNT	ac40	5190	Ant1	6.31	0.48	6.79	24	Pass
NVNT	ac40	5230	Ant1	6.77	0.72	7.49	24	Pass
NVNT	ac80	5210	Ant1	5.99	0.45	6.44	24	Pass

Test Graphs

Power NVNT a 5180MHz Ant1

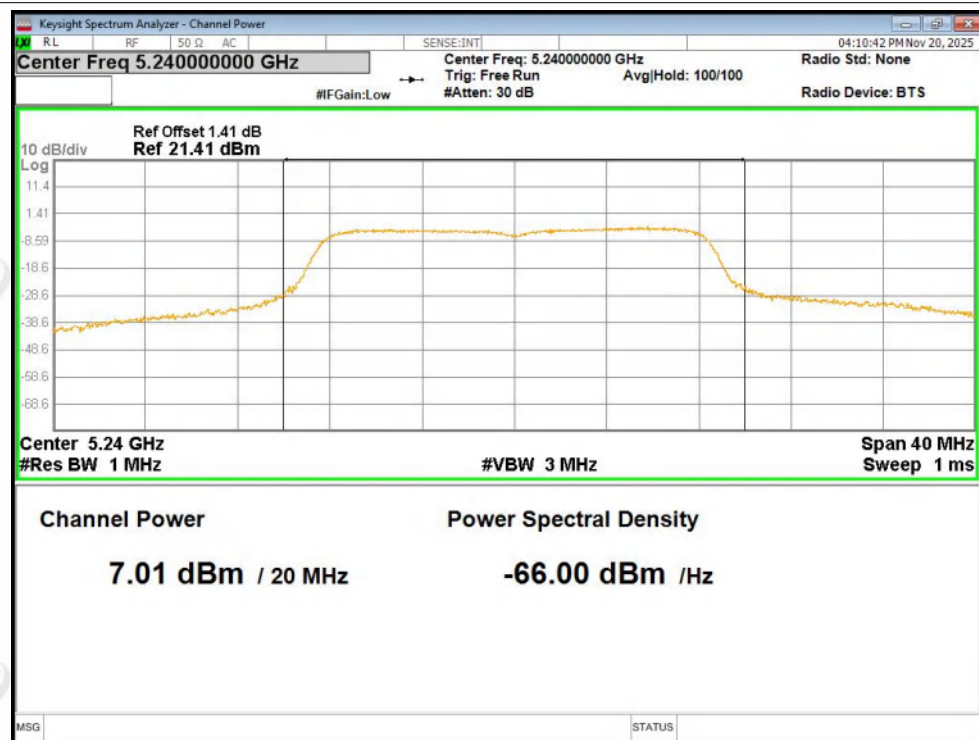


Power NVNT a 5200MHz Ant1

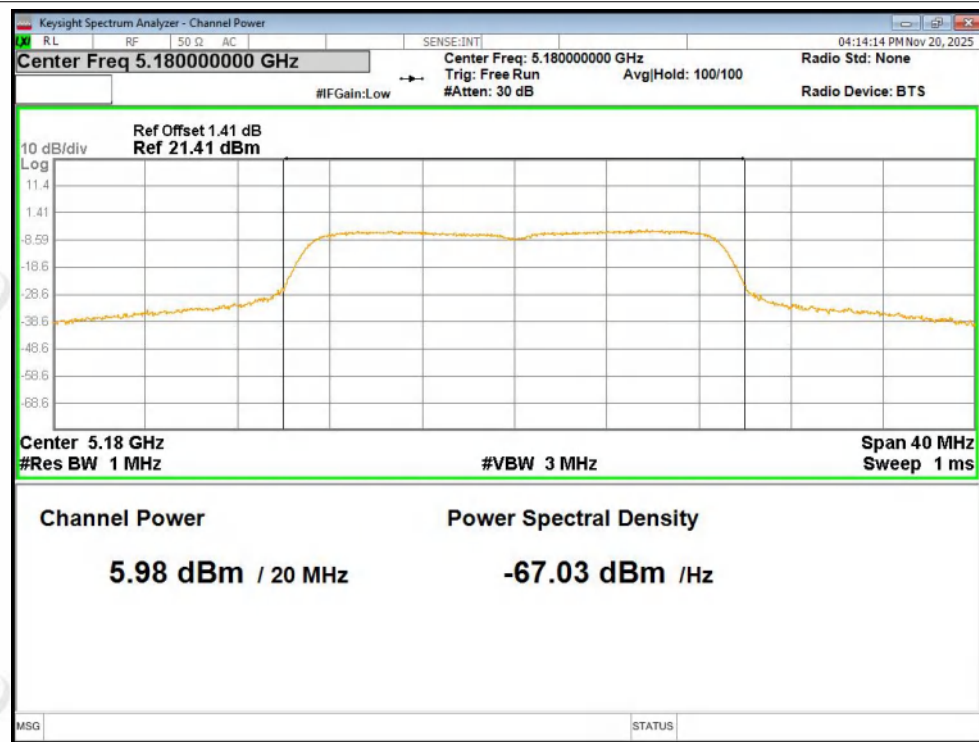




Power NVNT a 5240MHz Ant1

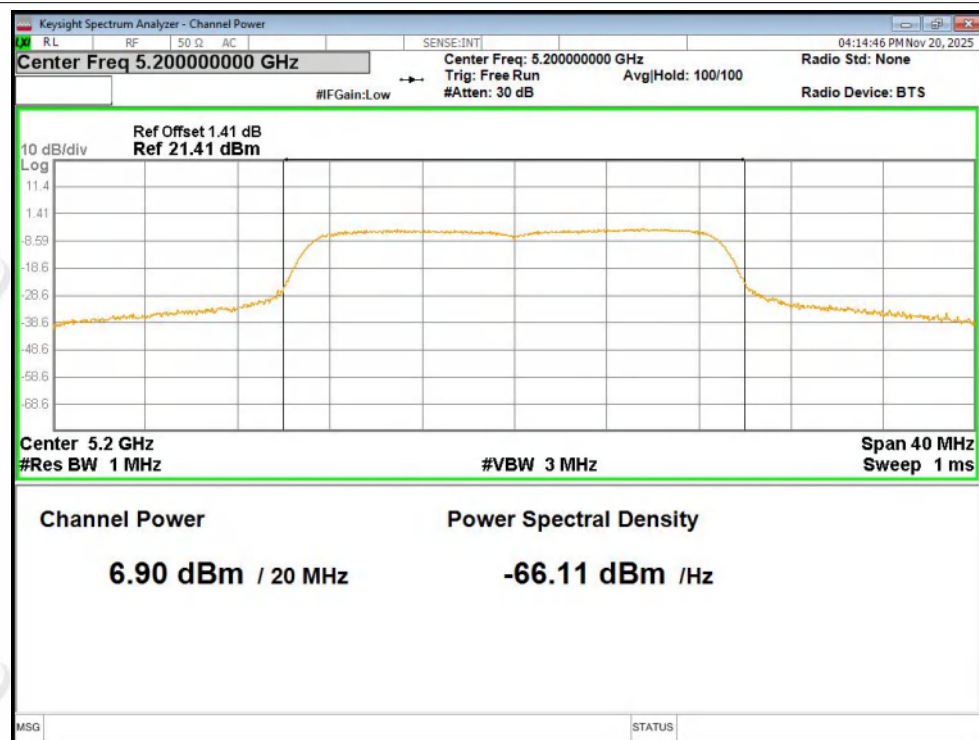


Power NVNT n20 5180MHz Ant1

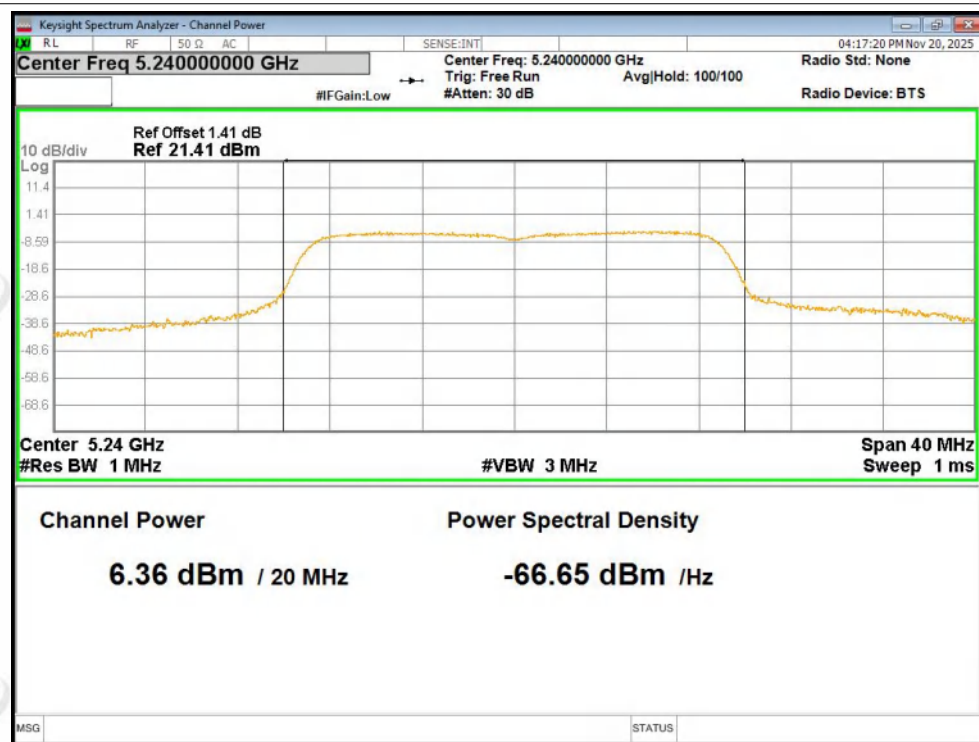




Power NVNT n20 5200MHz Ant1

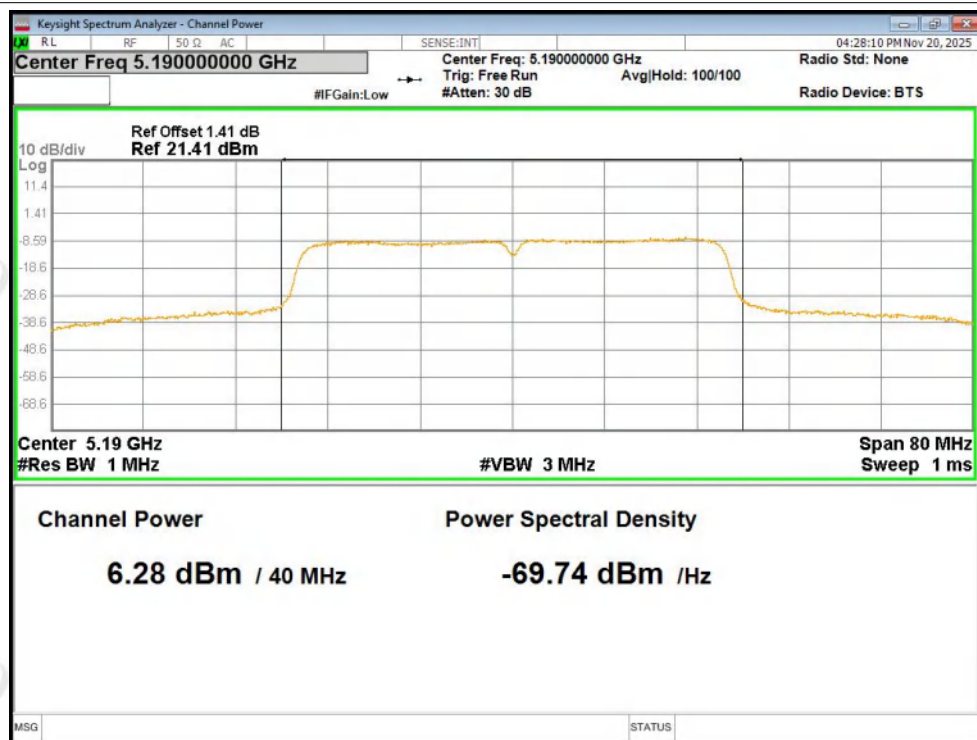


Power NVNT n20 5240MHz Ant1

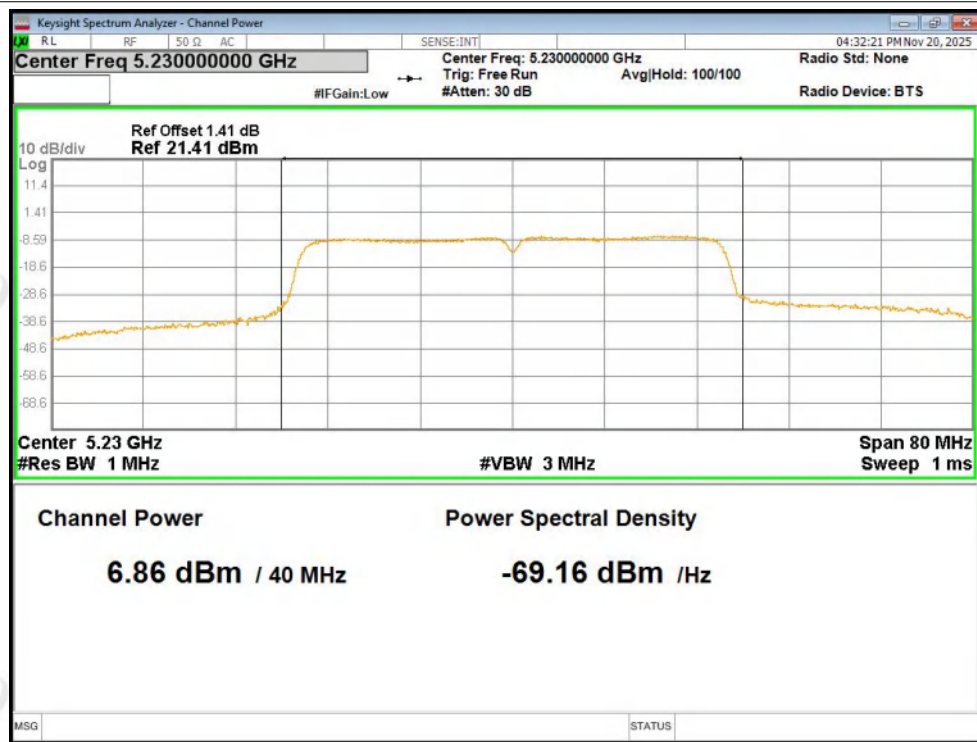




Power NVNT n40 5190MHz Ant1

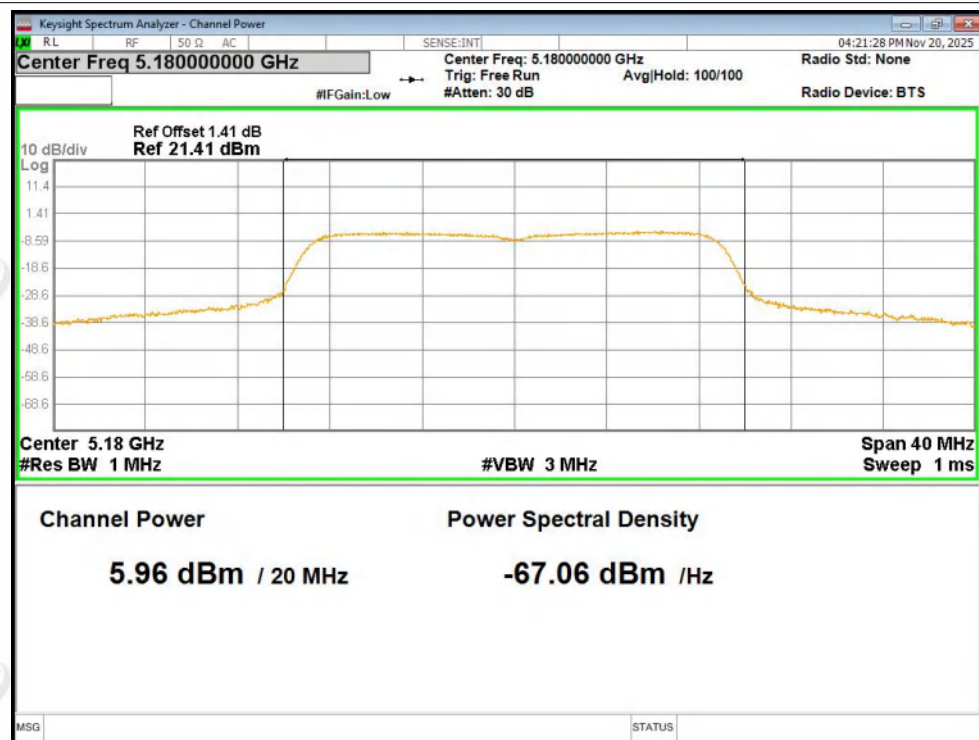


Power NVNT n40 5230MHz Ant1

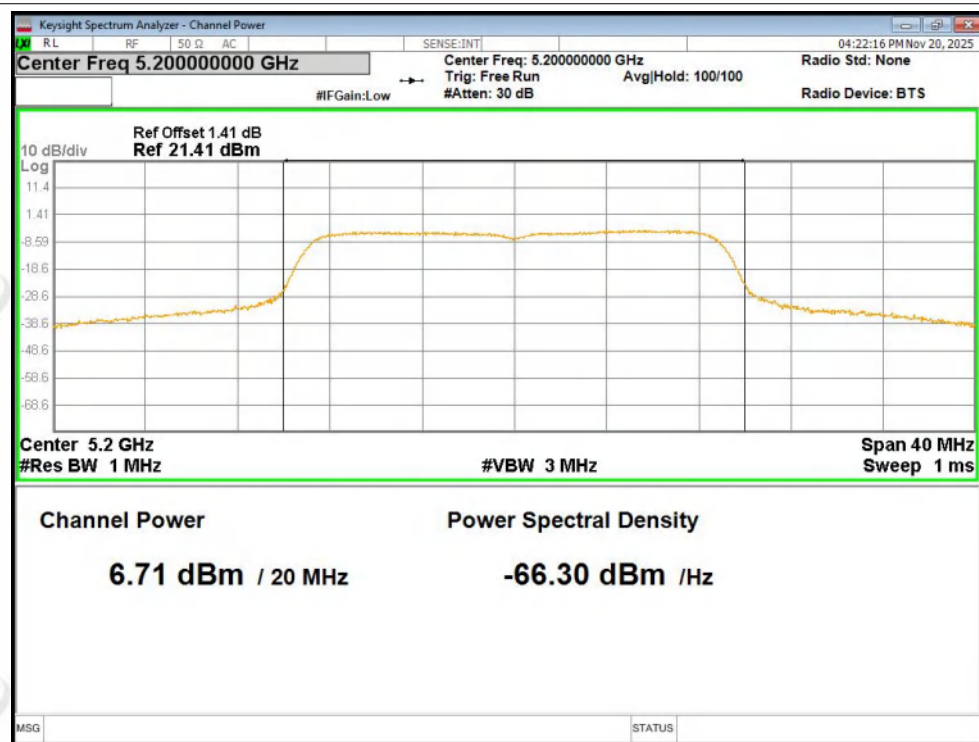




Power NVNT ac20 5180MHz Ant1

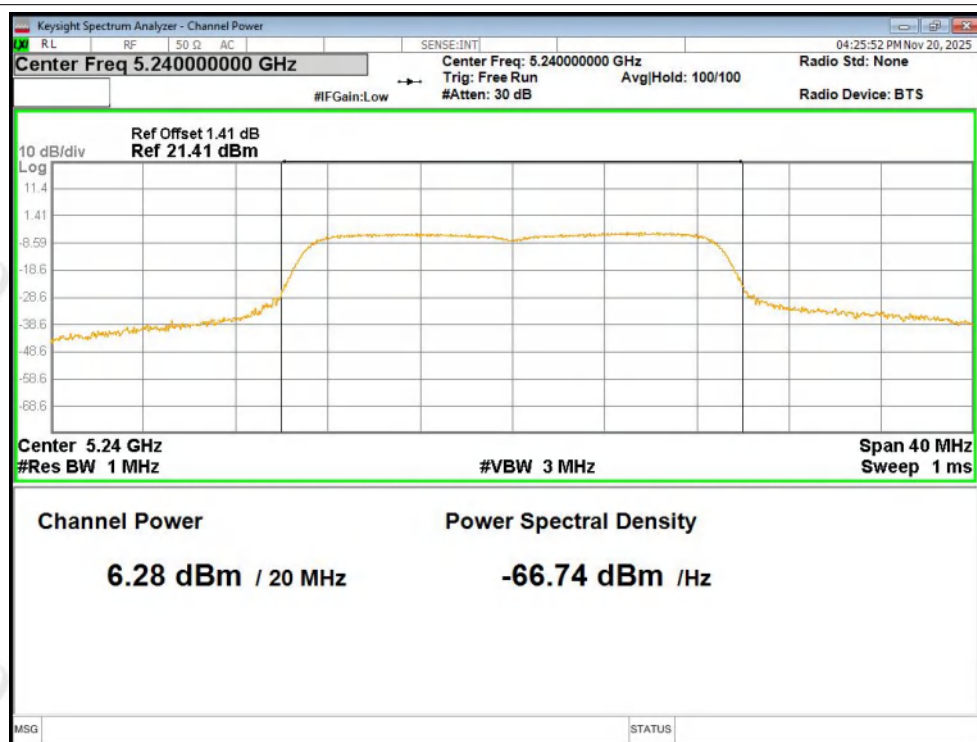


Power NVNT ac20 5200MHz Ant1

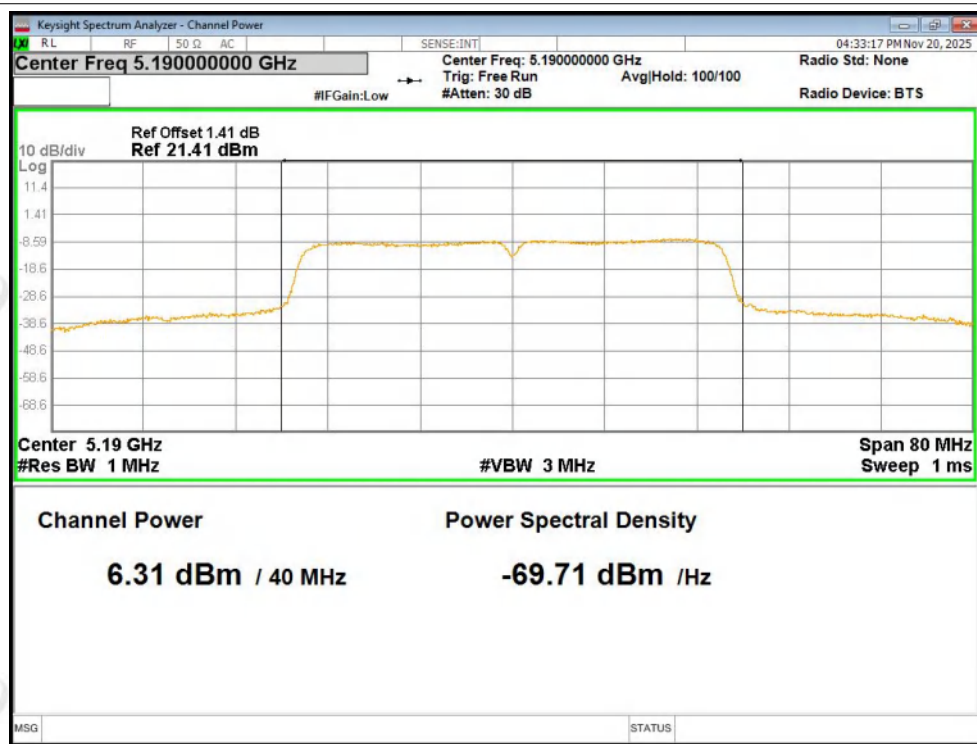




Power NVNT ac20 5240MHz Ant1

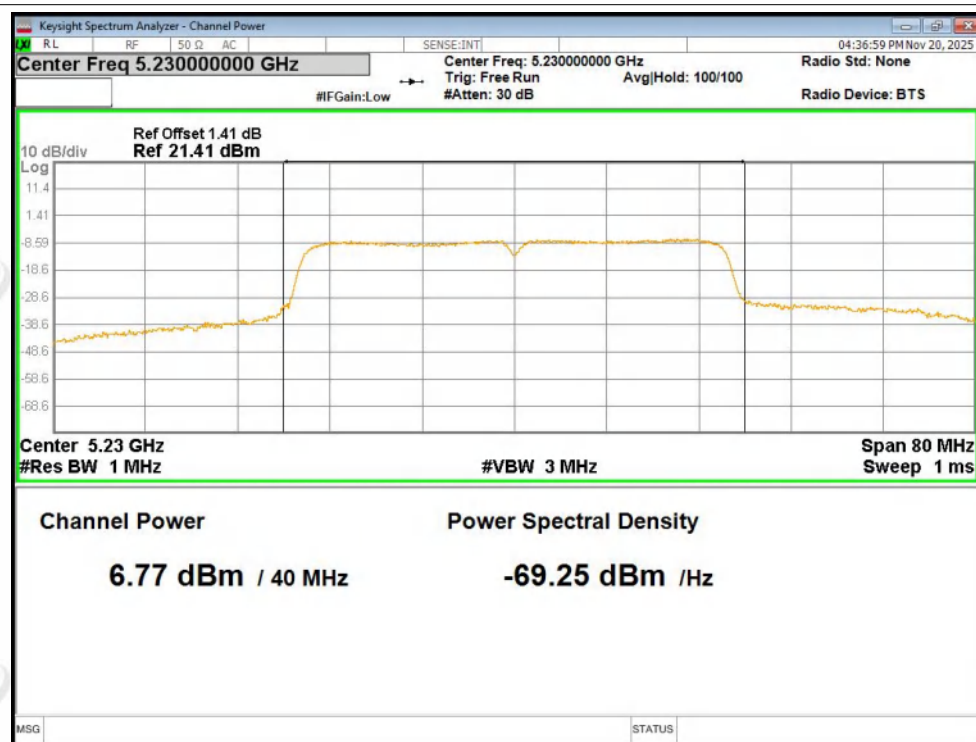


Power NVNT ac40 5190MHz Ant1

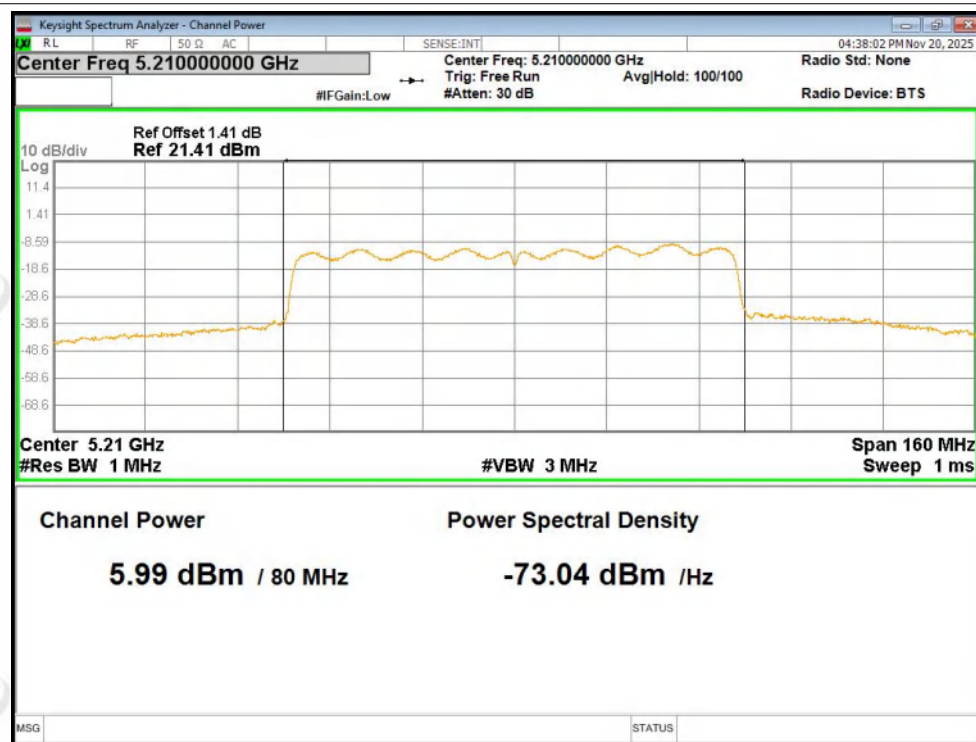




Power NVNT ac40 5230MHz Ant1



Power NVNT ac80 5210MHz Ant1





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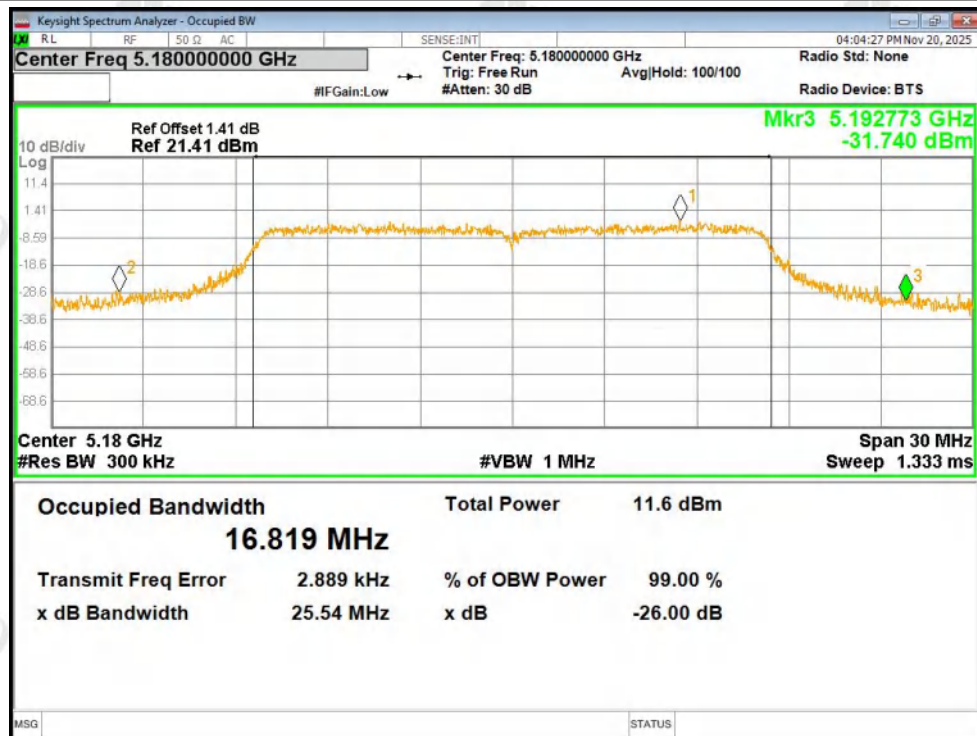
A.3 -26dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	Ant1	25.540	Pass
NVNT	a	5200	Ant1	24.157	Pass
NVNT	a	5240	Ant1	29.841	Pass
NVNT	n20	5180	Ant1	26.89	Pass
NVNT	n20	5200	Ant1	26.000	Pass
NVNT	n20	5240	Ant1	27.232	Pass
NVNT	n40	5190	Ant1	54.786	Pass
NVNT	n40	5230	Ant1	56.588	Pass
NVNT	ac20	5180	Ant1	22.998	Pass
NVNT	ac20	5200	Ant1	26.124	Pass
NVNT	ac20	5240	Ant1	25.731	Pass
NVNT	ac40	5190	Ant1	56.355	Pass
NVNT	ac40	5230	Ant1	51.554	Pass
NVNT	ac80	5210	Ant1	105.157	Pass

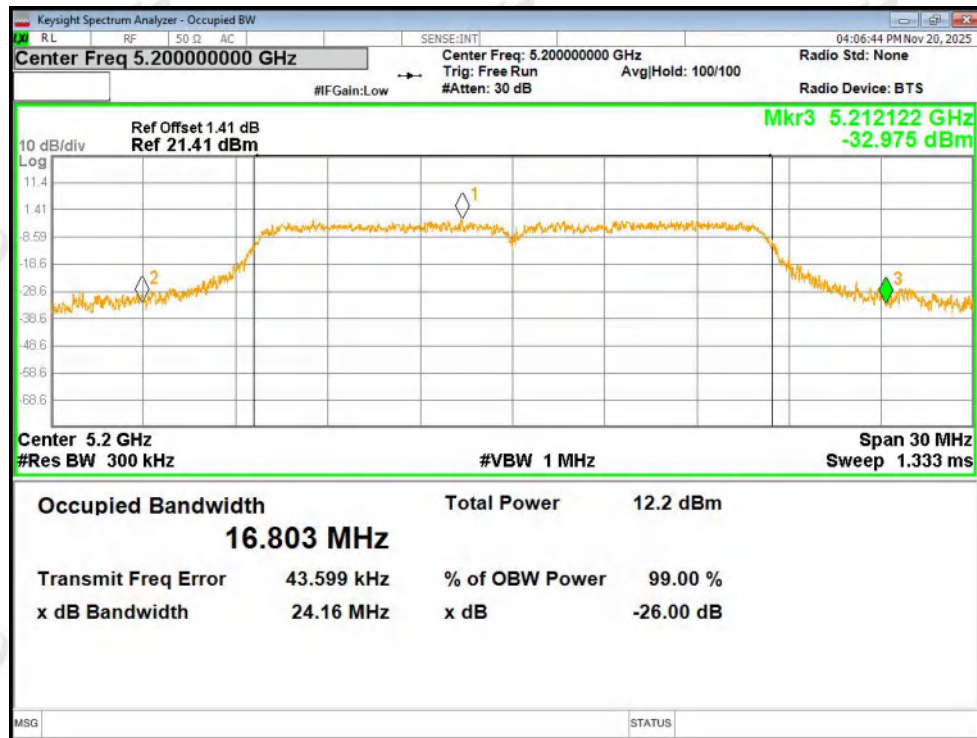


Test Graphs

-26dB Bandwidth NVNT a 5180MHz Ant1

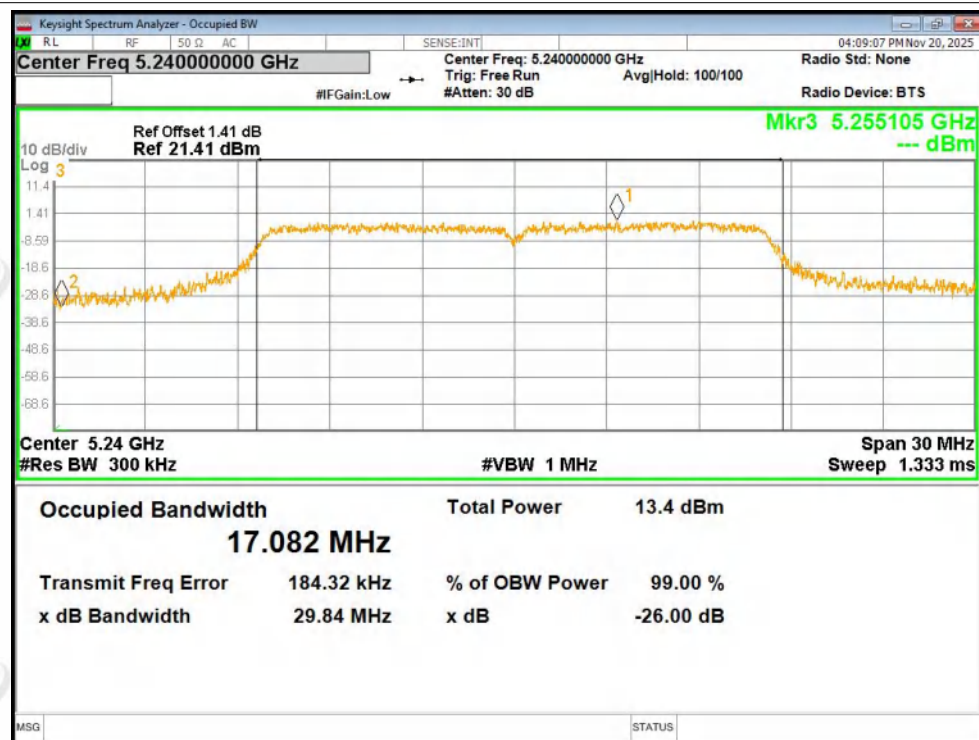


-26dB Bandwidth NVNT a 5200MHz Ant1

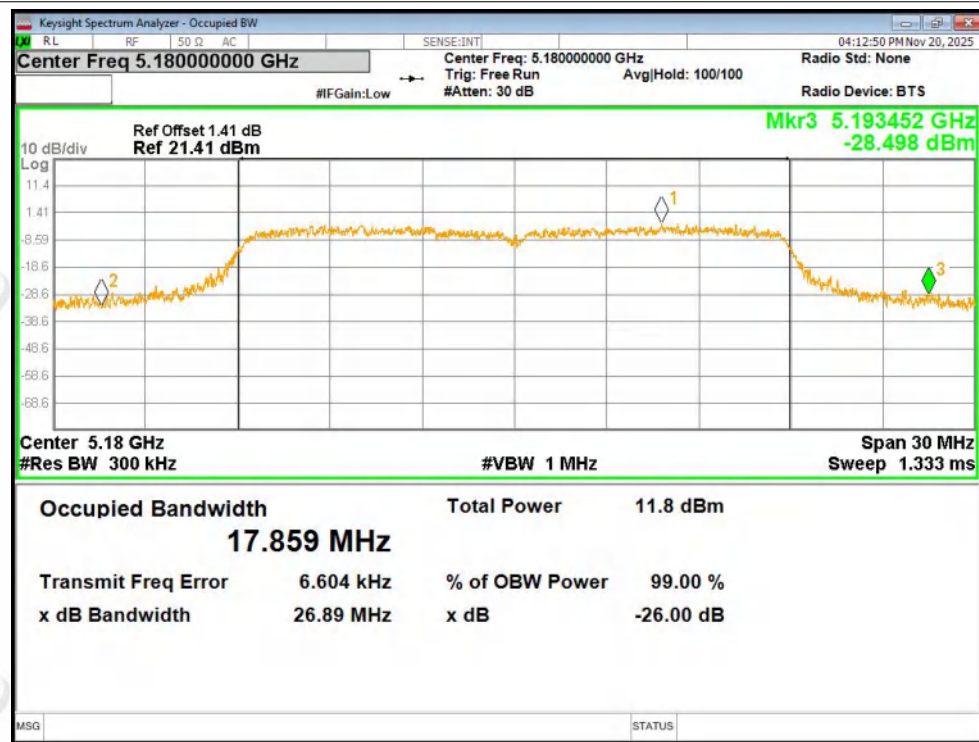




-26dB Bandwidth NVNT a 5240MHz Ant1

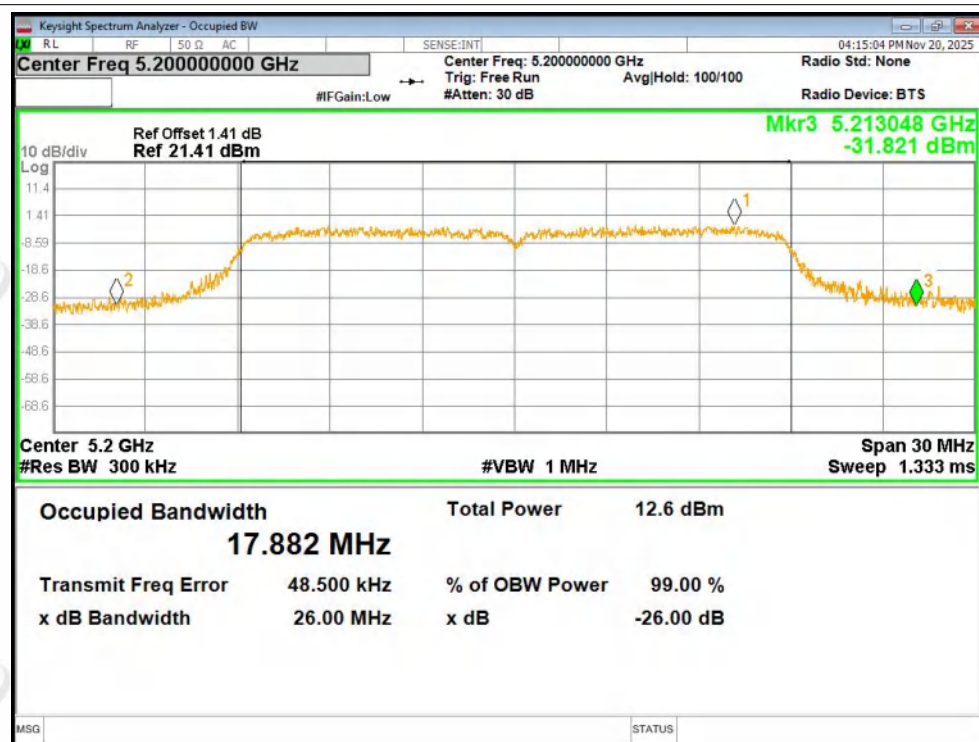


-26dB Bandwidth NVNT n20 5180MHz Ant1

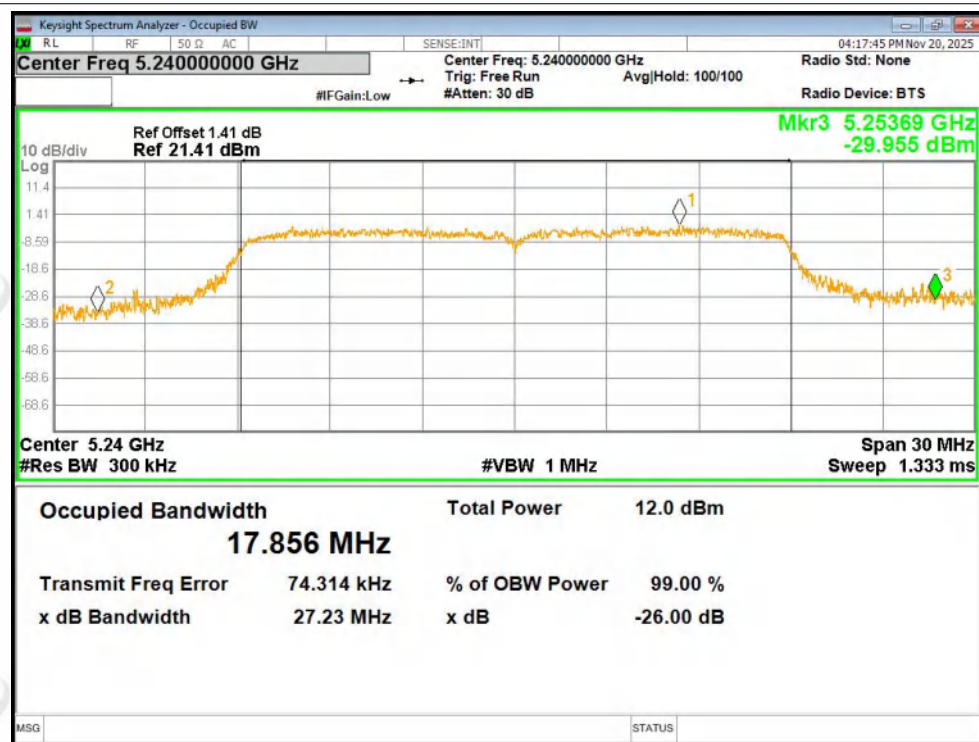




-26dB Bandwidth NVNT n20 5200MHz Ant1

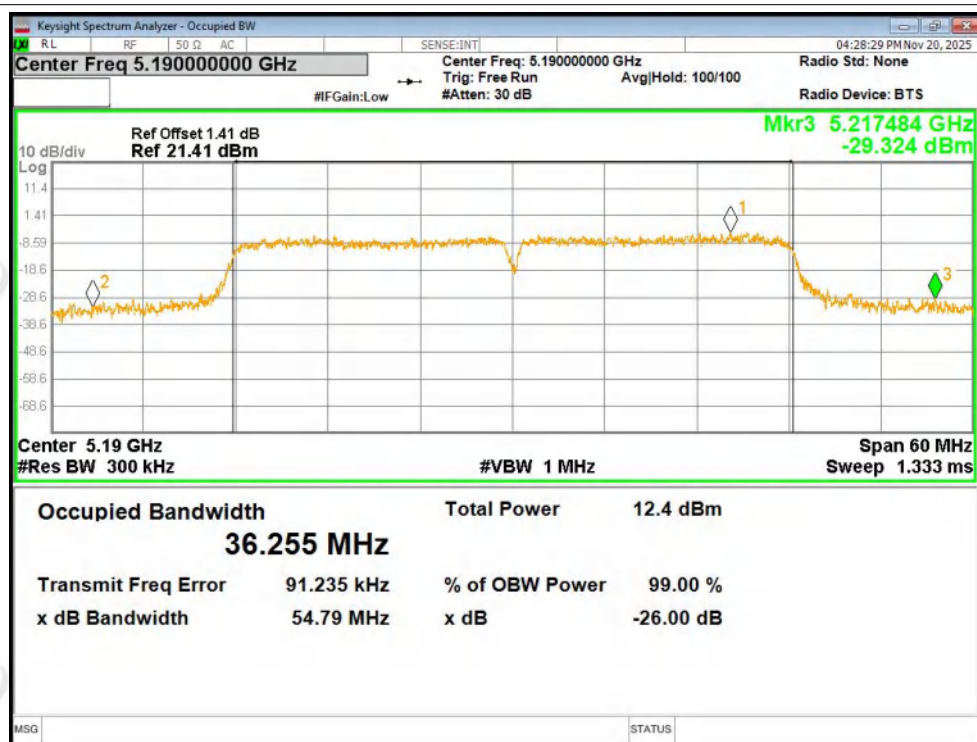


-26dB Bandwidth NVNT n20 5240MHz Ant1

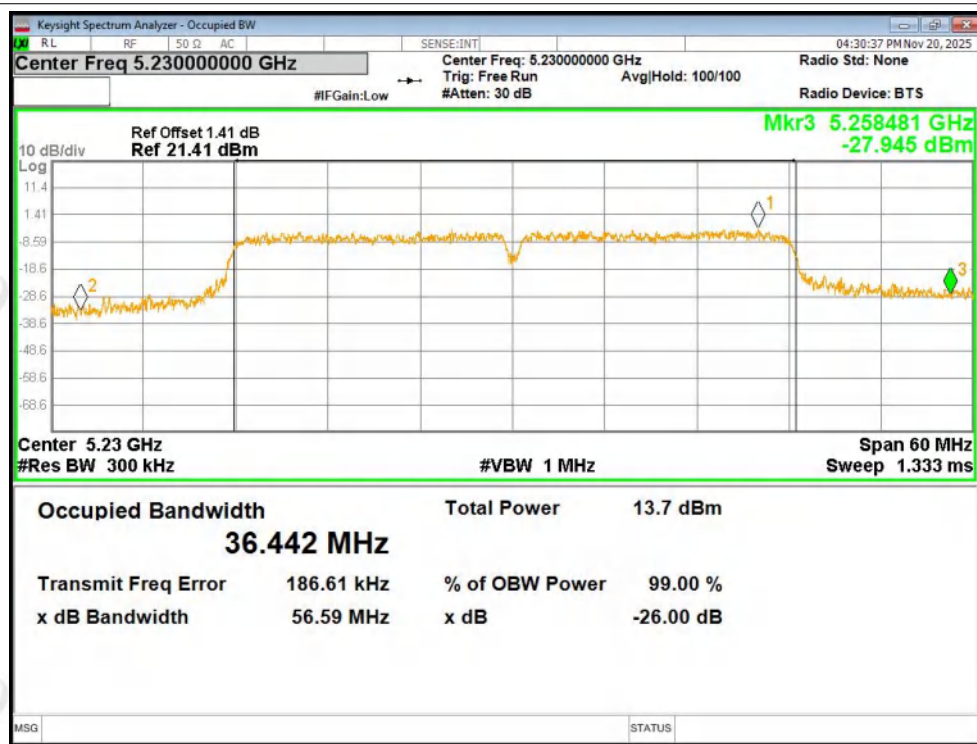




-26dB Bandwidth NVNT n40 5190MHz Ant1

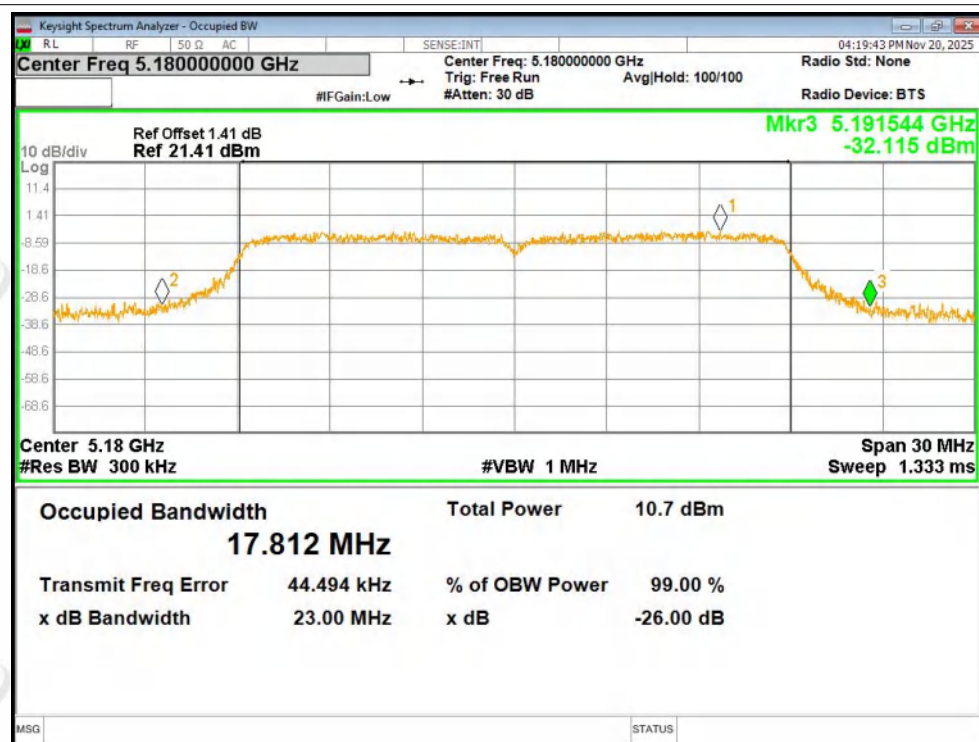


-26dB Bandwidth NVNT n40 5230MHz Ant1

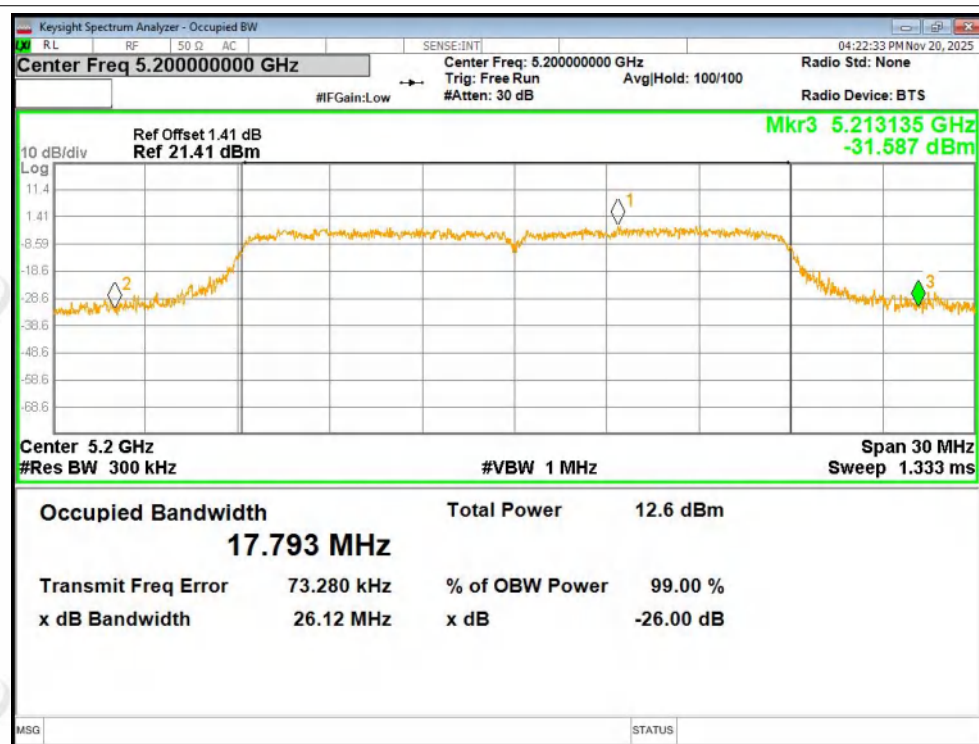




-26dB Bandwidth NVNT ac20 5180MHz Ant1

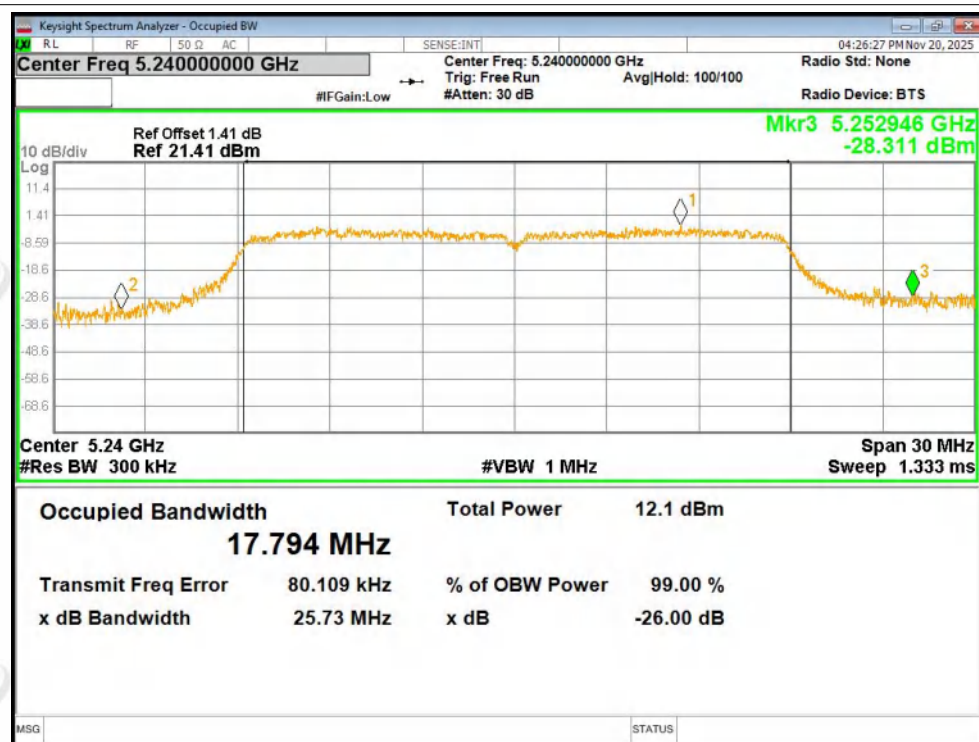


-26dB Bandwidth NVNT ac20 5200MHz Ant1

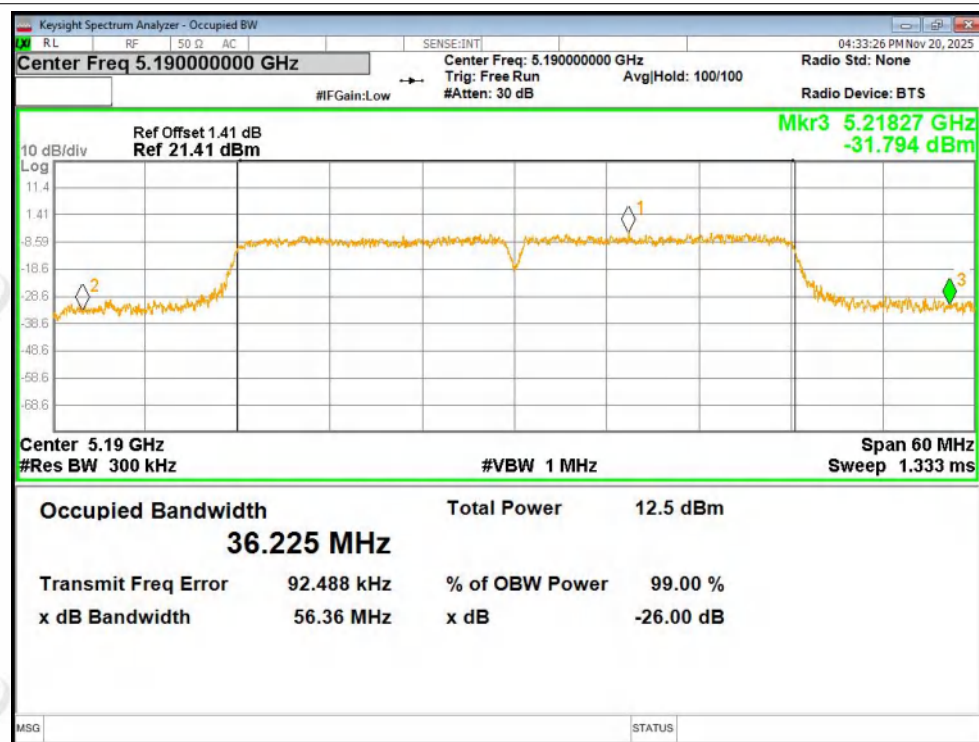




-26dB Bandwidth NVNT ac20 5240MHz Ant1

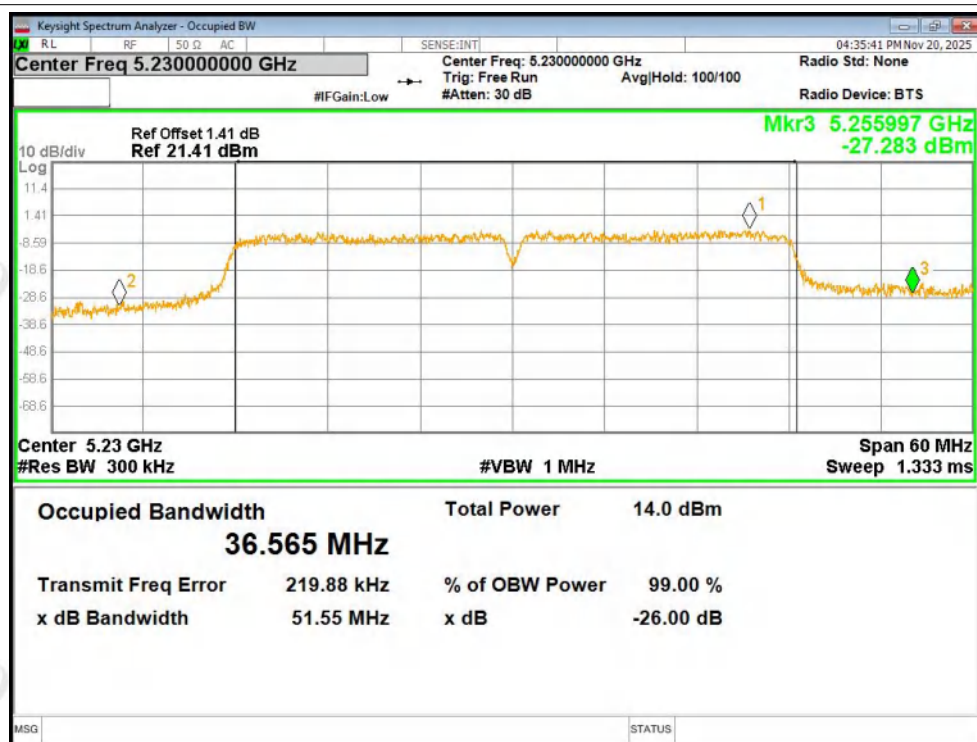


-26dB Bandwidth NVNT ac40 5190MHz Ant1

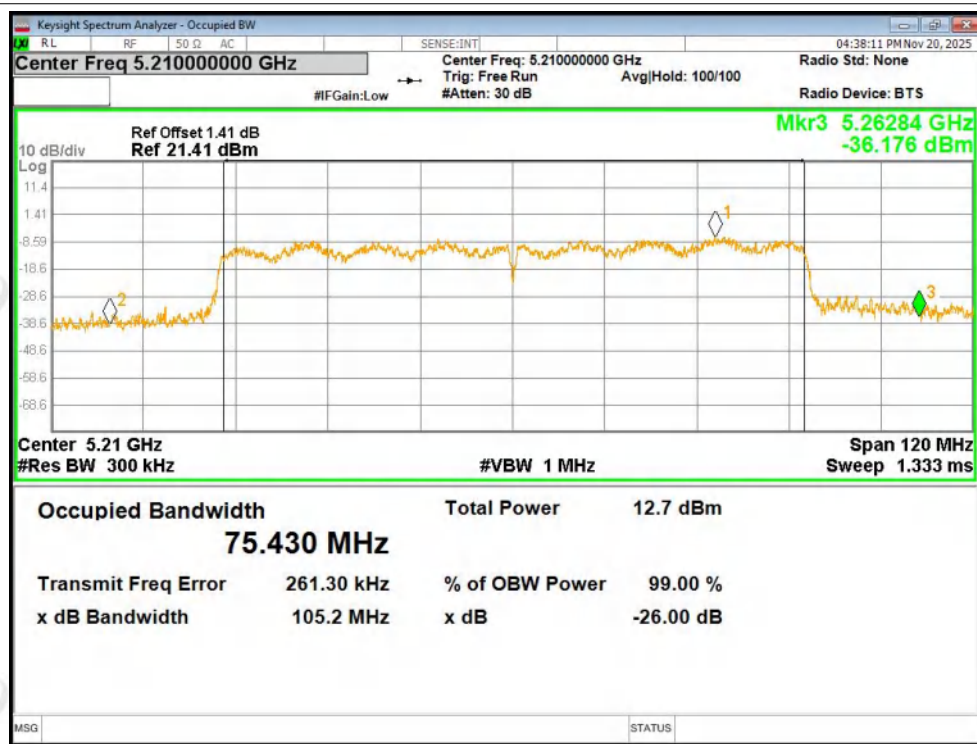




-26dB Bandwidth NVNT ac40 5230MHz Ant1



-26dB Bandwidth NVNT ac80 5210MHz Ant1





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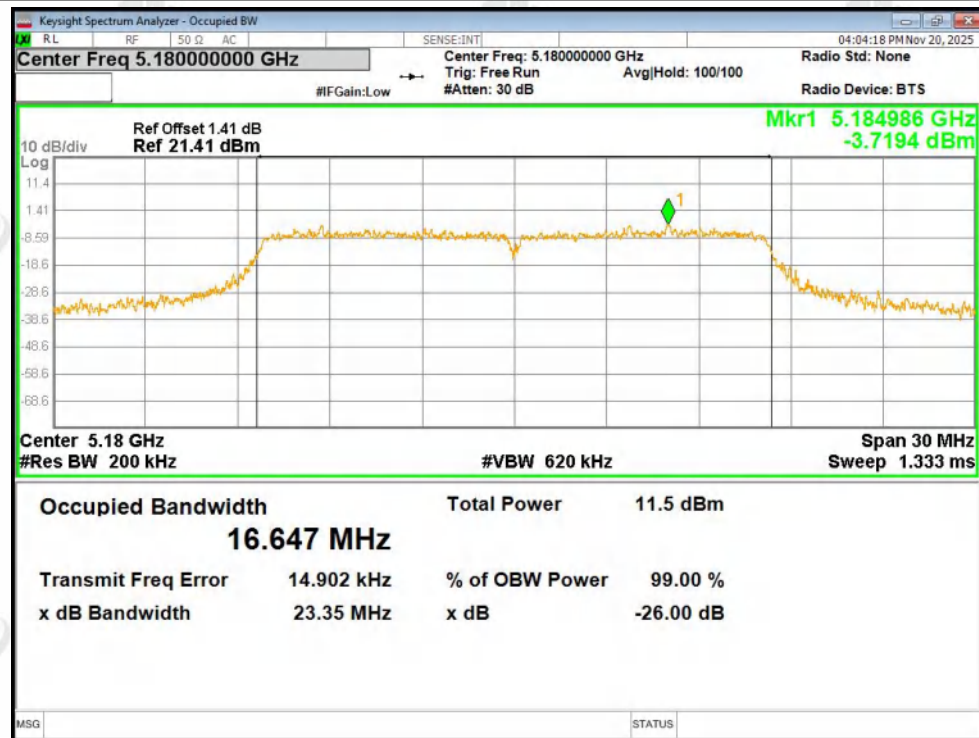
A.4 Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5180	Ant1	16.647
NVNT	a	5200	Ant1	16.601
NVNT	a	5240	Ant1	16.863
NVNT	n20	5180	Ant1	17.732
NVNT	n20	5200	Ant1	17.741
NVNT	n20	5240	Ant1	17.724
NVNT	n40	5190	Ant1	36.336
NVNT	n40	5230	Ant1	36.338
NVNT	ac20	5180	Ant1	17.699
NVNT	ac20	5200	Ant1	17.72
NVNT	ac20	5240	Ant1	17.678
NVNT	ac40	5190	Ant1	36.361
NVNT	ac40	5230	Ant1	36.354
NVNT	ac80	5210	Ant1	75.487

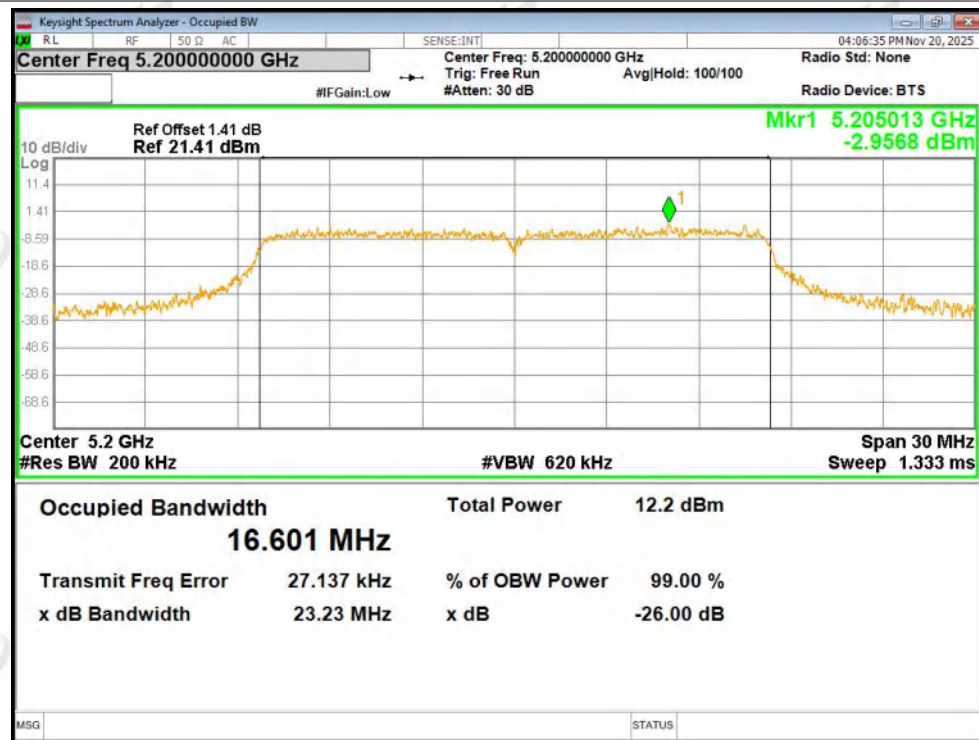


Test Graphs

OBW NVNT a 5180MHz Ant1

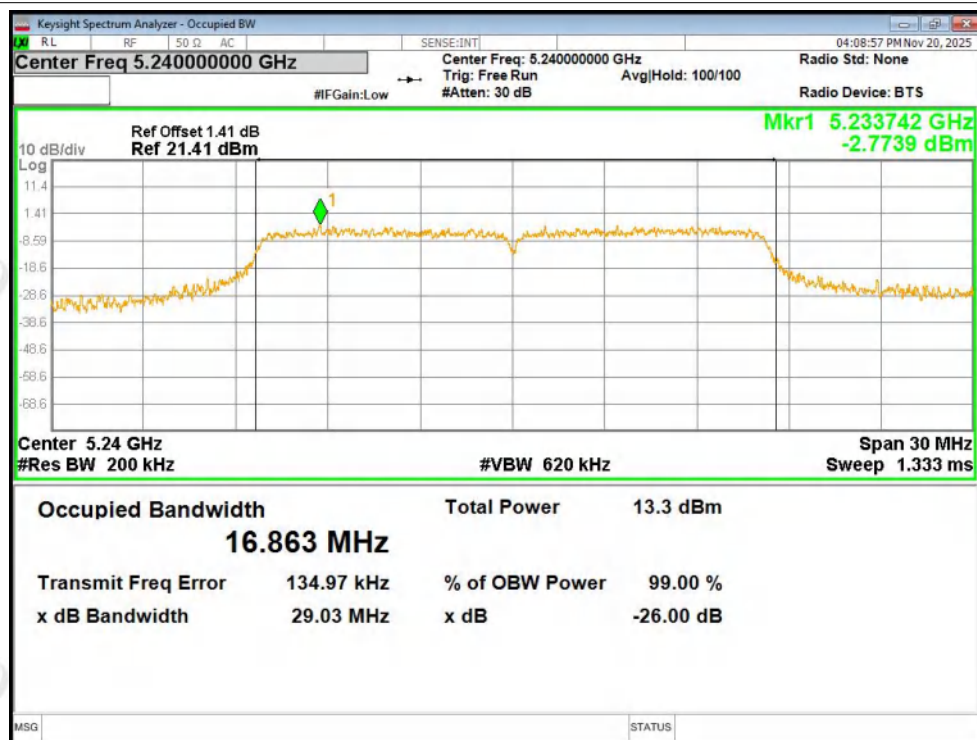


OBW NVNT a 5200MHz Ant1

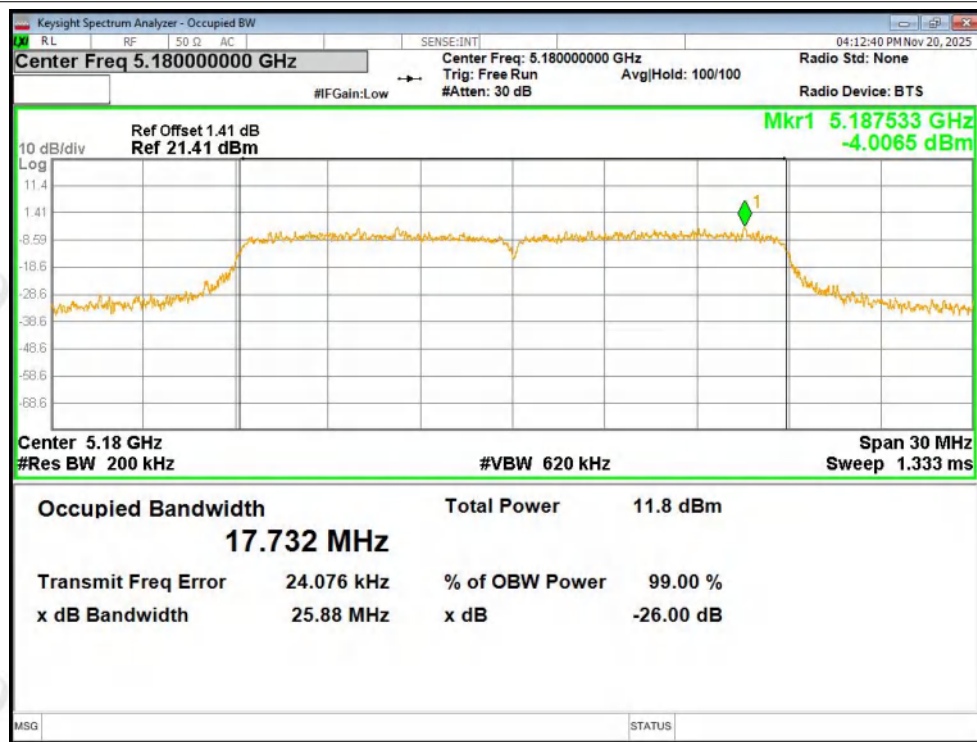




OBW NVNT a 5240MHz Ant1

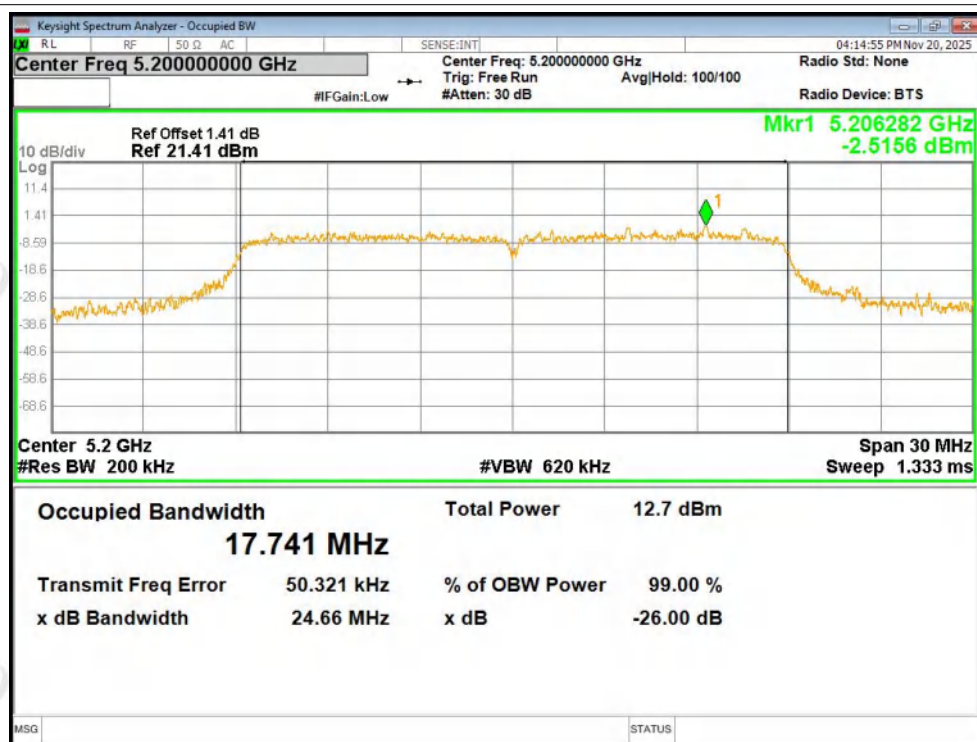


OBW NVNT n20 5180MHz Ant1

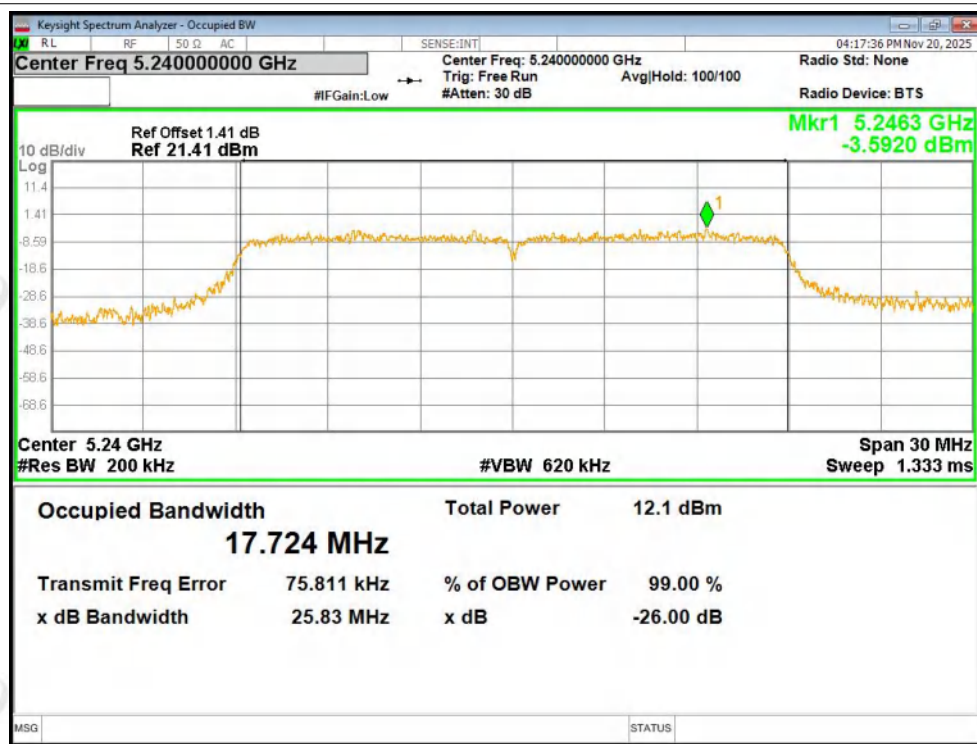




OBW NVNT n20 5200MHz Ant1

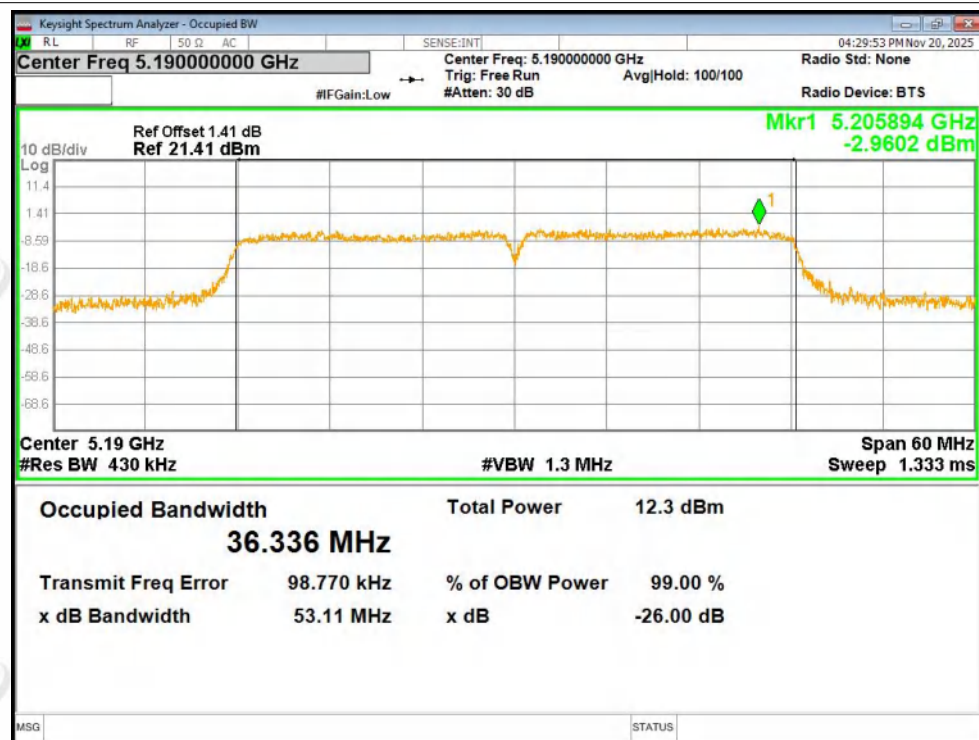


OBW NVNT n20 5240MHz Ant1

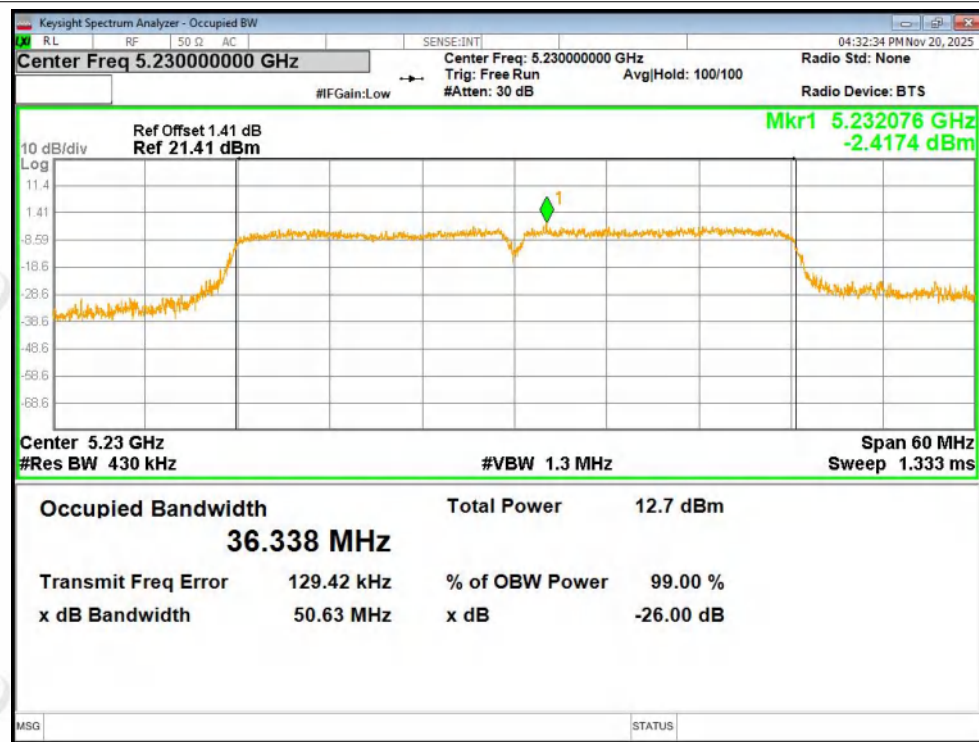




OBW NVNT n40 5190MHz Ant1

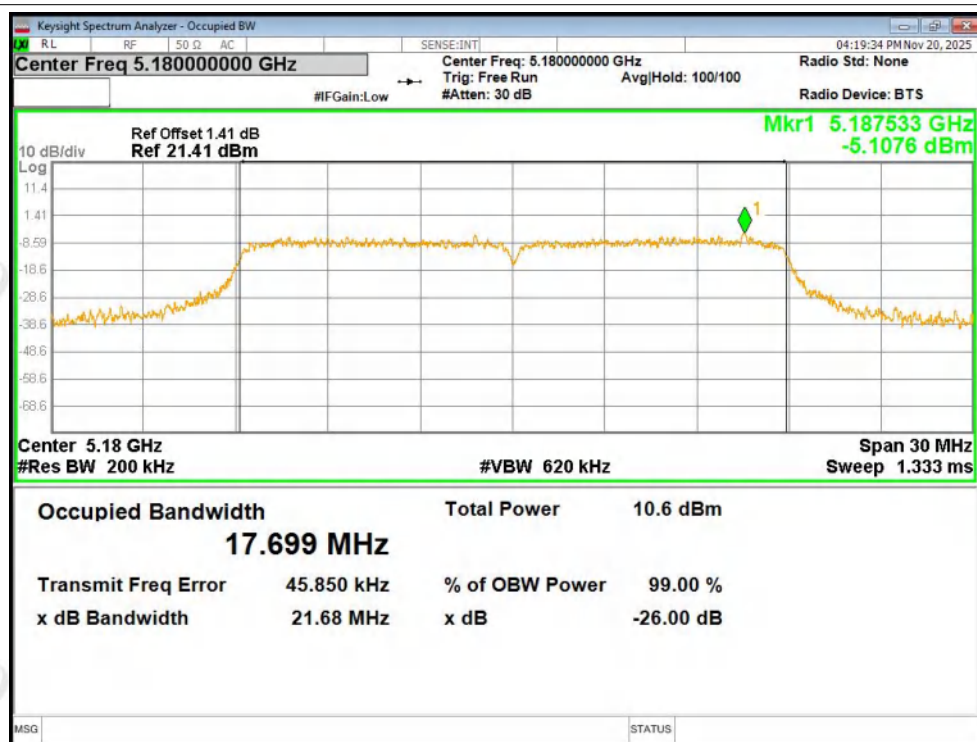


OBW NVNT n40 5230MHz Ant1

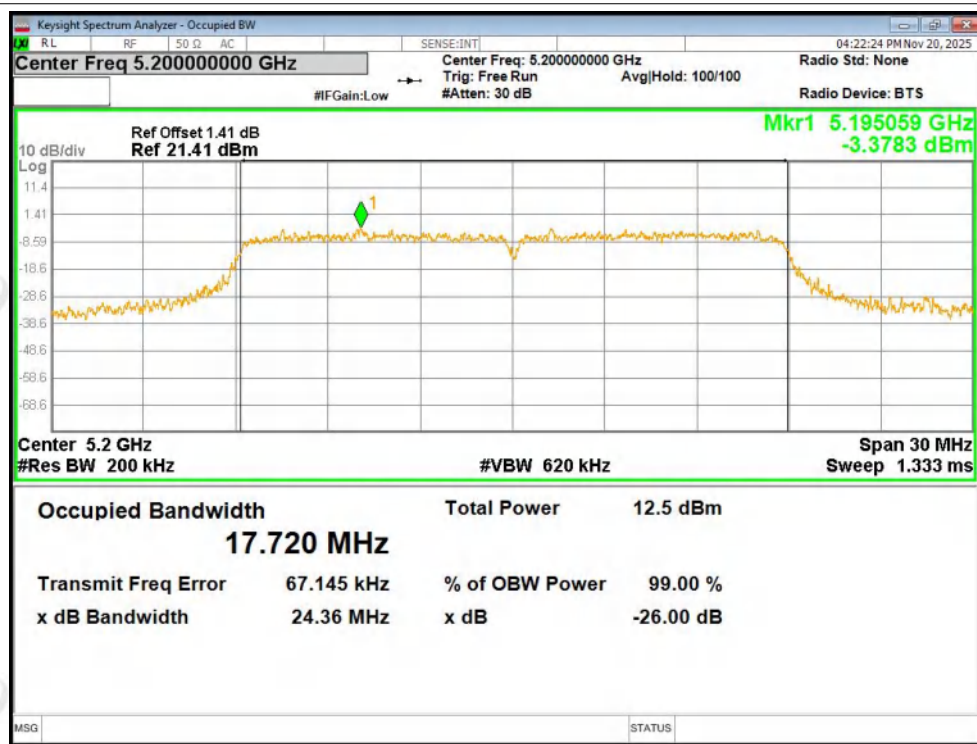




OBW NVNT ac20 5180MHz Ant1

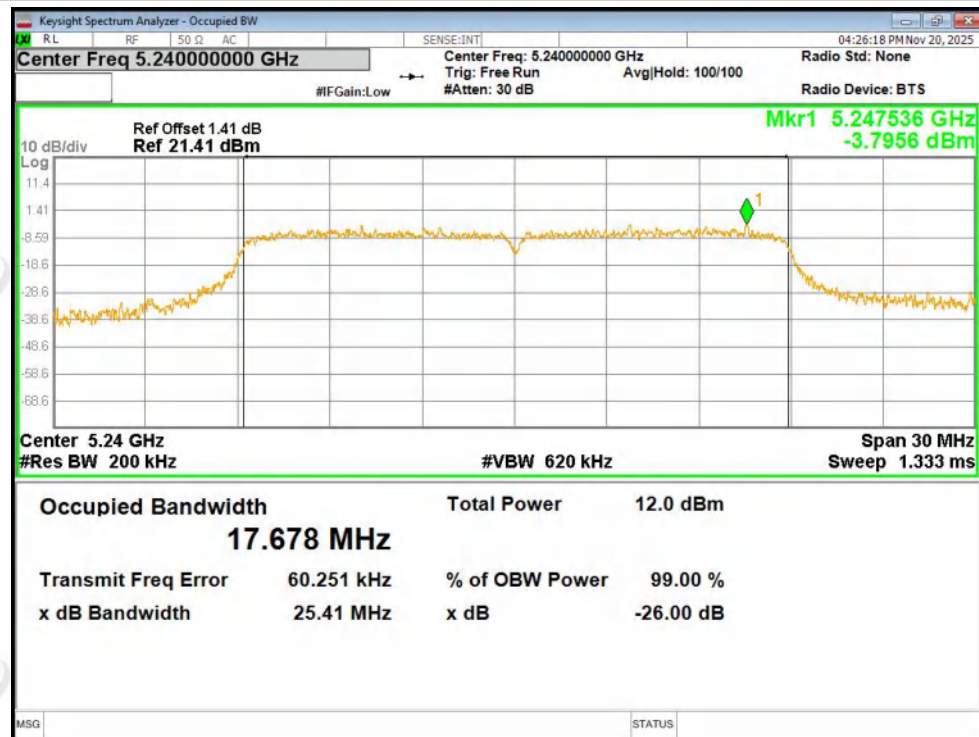


OBW NVNT ac20 5200MHz Ant1

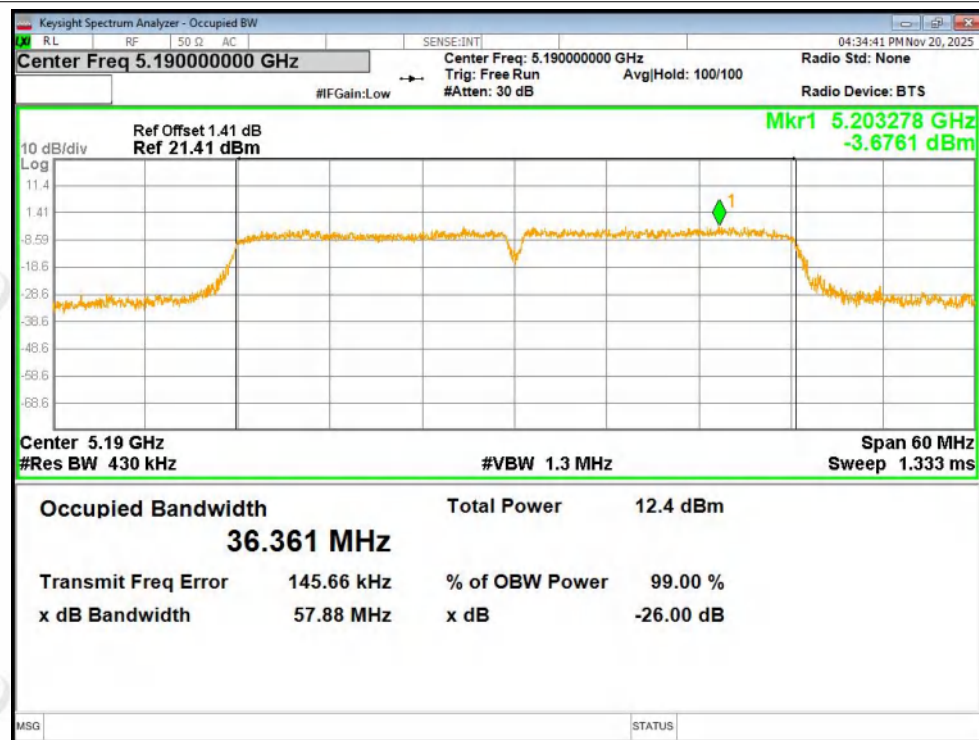




OBW NVNT ac20 5240MHz Ant1

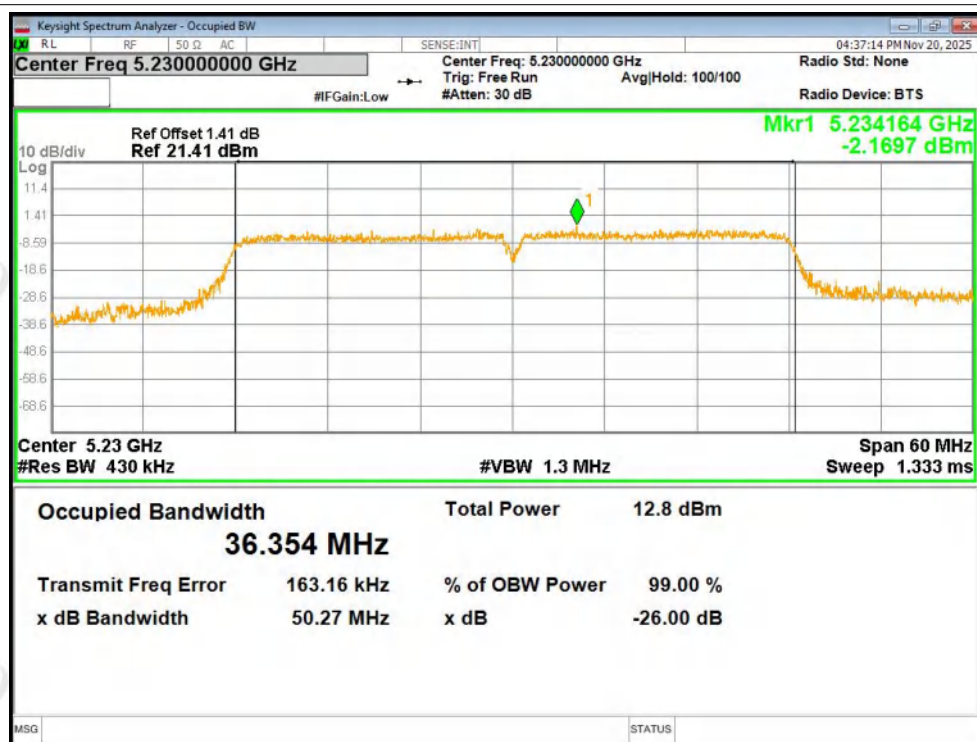


OBW NVNT ac40 5190MHz Ant1

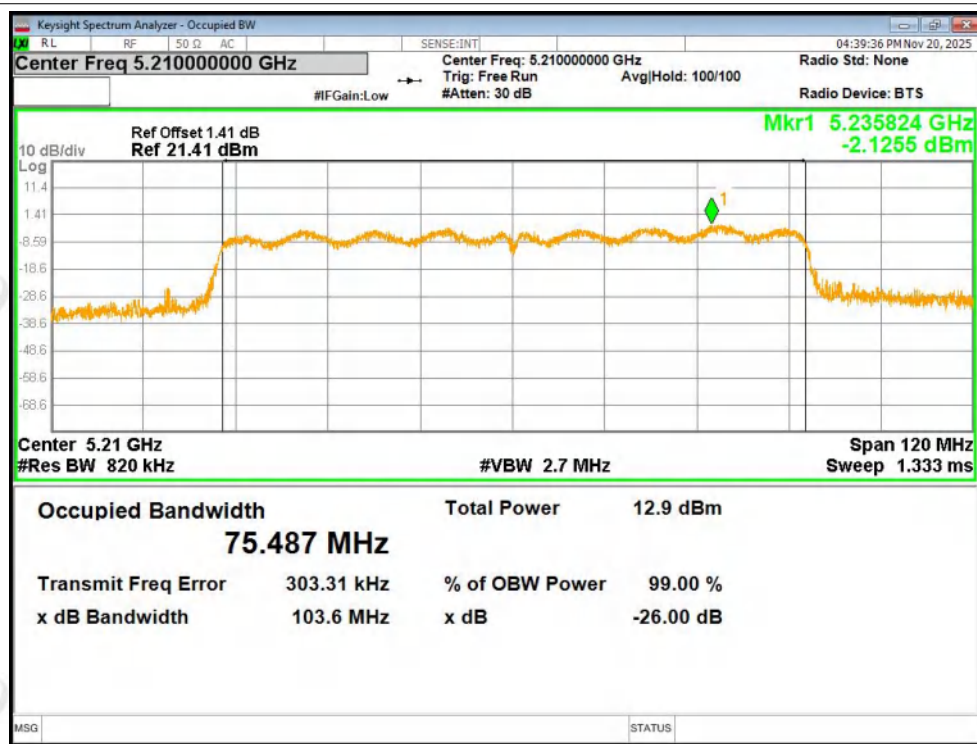




OBW NVNT ac40 5230MHz Ant1



OBW NVNT ac80 5210MHz Ant1

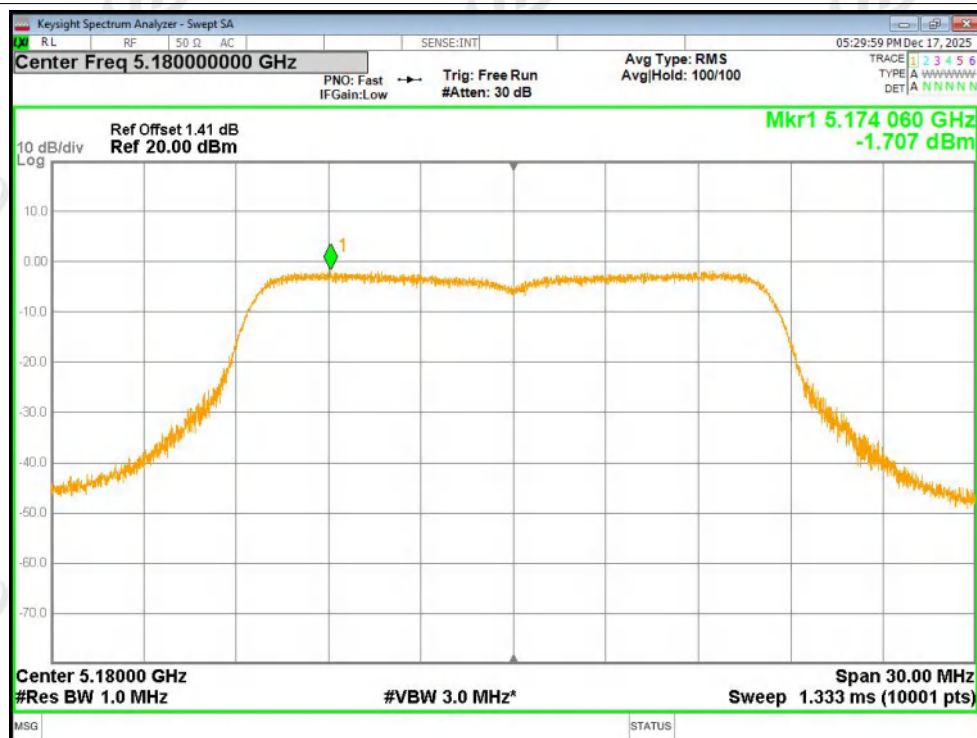


**ZHONGHAN****A.5 Maximum Power Spectral Density Level**

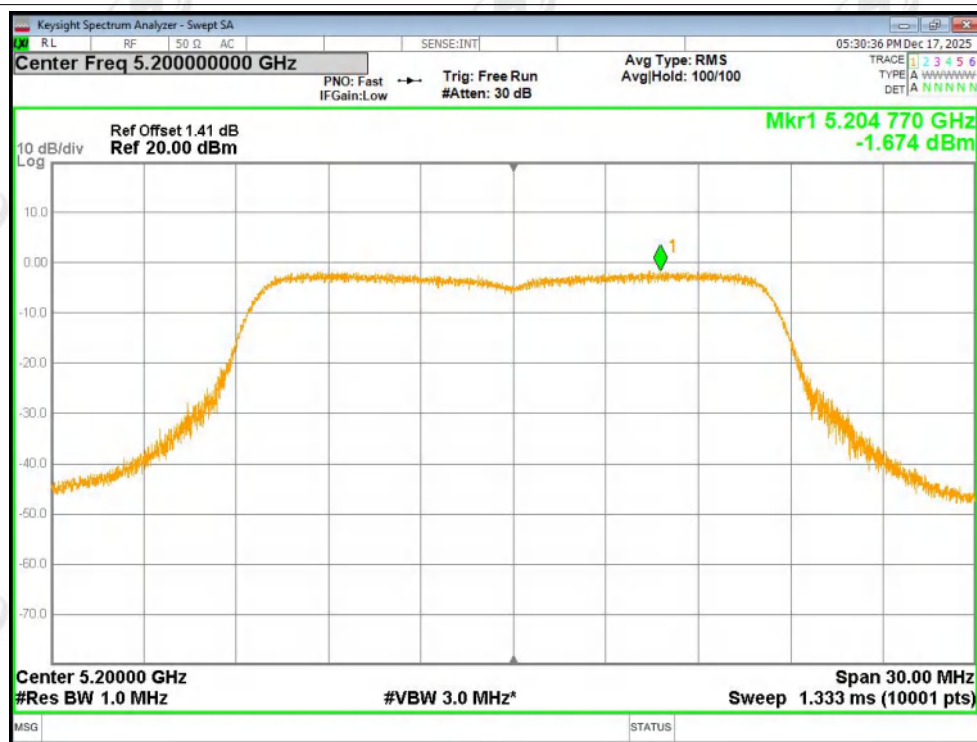
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	-1.71	0.23	-1.48	11	Pass
NVNT	a	5200	Ant1	-1.67	0	-1.67	11	Pass
NVNT	a	5240	Ant1	-1.29	0.1	-1.19	11	Pass
NVNT	n20	5180	Ant1	-1.6	0.28	-1.32	11	Pass
NVNT	n20	5200	Ant1	-1.65	0.13	-1.52	11	Pass
NVNT	n20	5240	Ant1	-1.39	0.13	-1.26	11	Pass
NVNT	n40	5190	Ant1	-6.75	0.43	-6.32	11	Pass
NVNT	n40	5230	Ant1	-6.67	0.27	-6.4	11	Pass
NVNT	ac20	5180	Ant1	-2.42	0.18	-2.24	11	Pass
NVNT	ac20	5200	Ant1	-2.09	0.13	-1.96	11	Pass
NVNT	ac20	5240	Ant1	-2.05	0.37	-1.68	11	Pass
NVNT	ac40	5190	Ant1	-7.4	0.48	-6.92	11	Pass
NVNT	ac40	5230	Ant1	-7.32	0.72	-6.6	11	Pass
NVNT	ac80	5210	Ant1	-10.23	0.45	-9.78	11	Pass

Test Graphs

PSD NVNT a 5180MHz Ant1

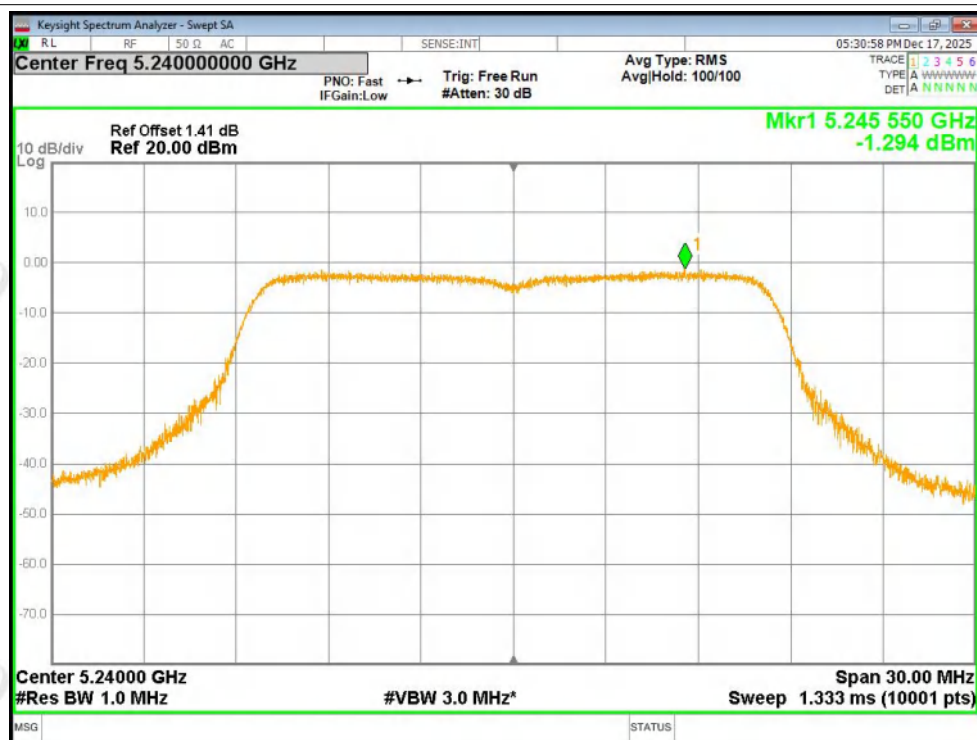


PSD NVNT a 5200MHz Ant1

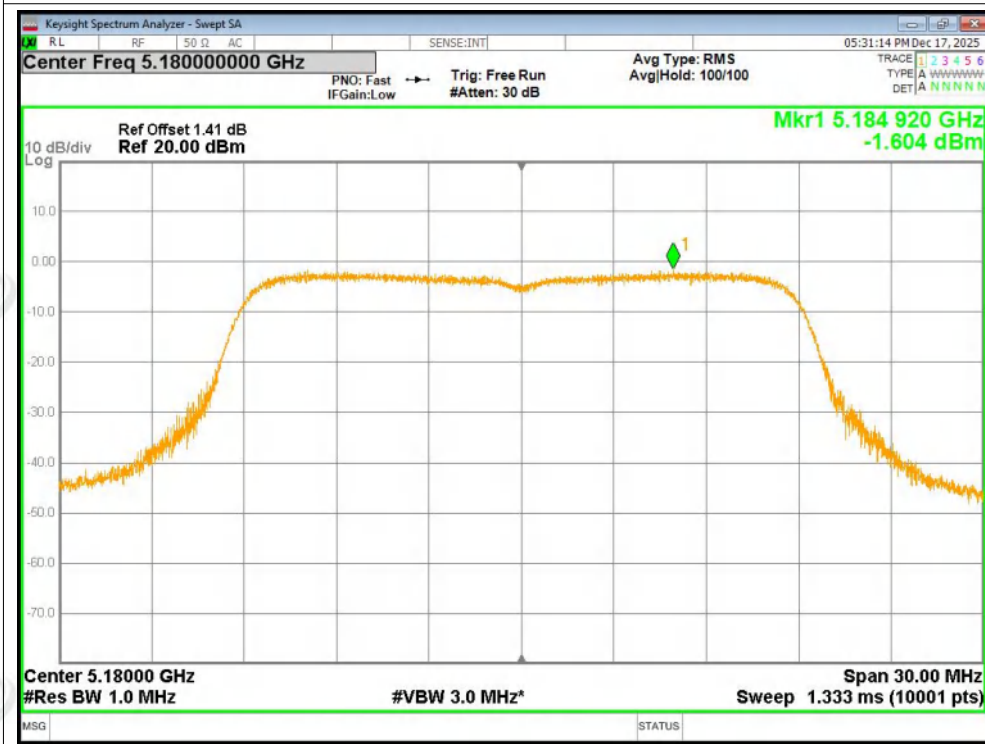




PSD NVNT a 5240MHz Ant1

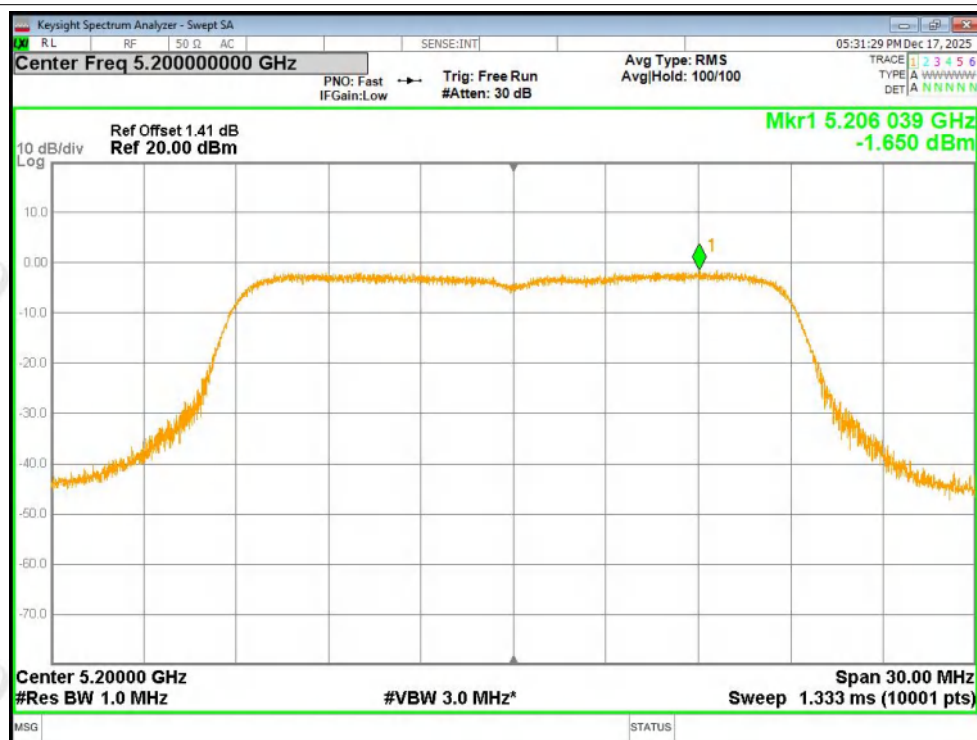


PSD NVNT n20 5180MHz Ant1

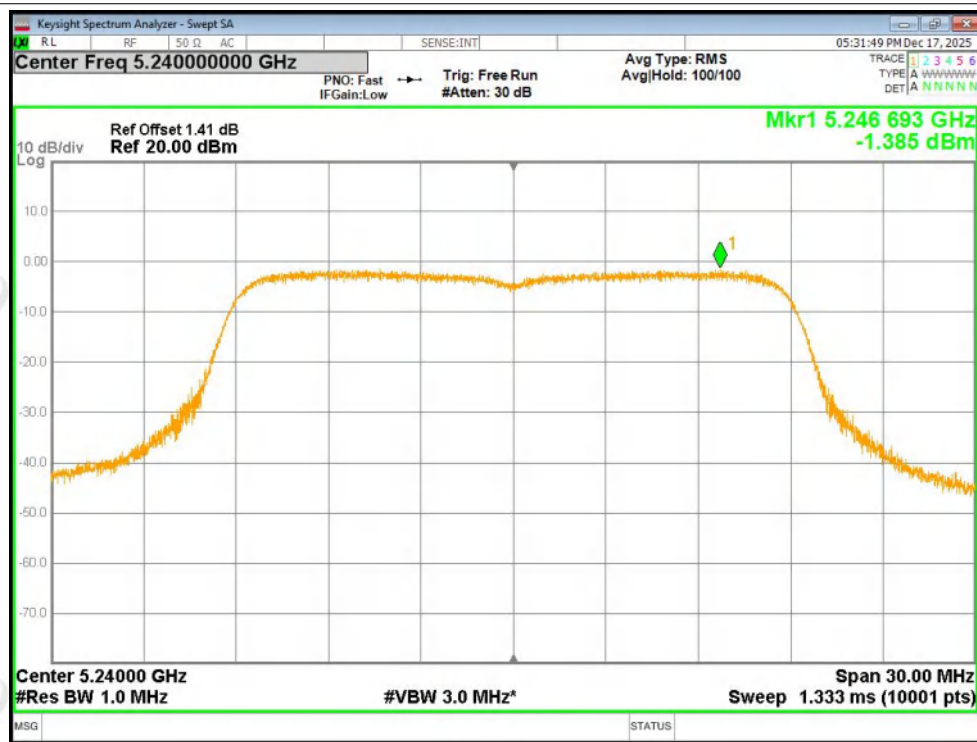




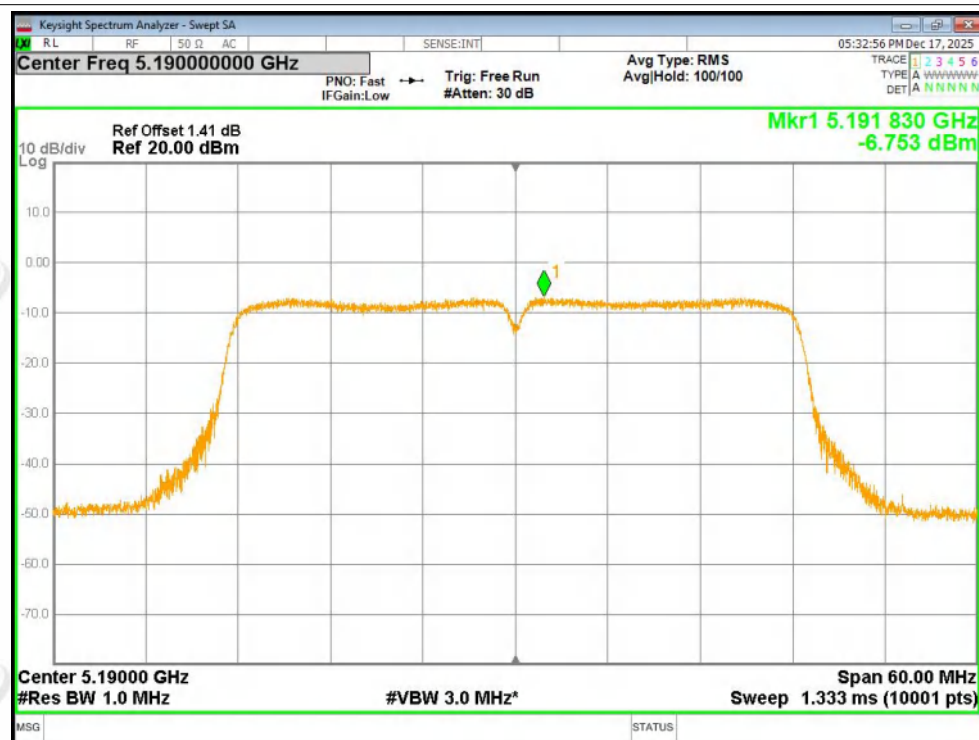
PSD NVNT n20 5200MHz Ant1



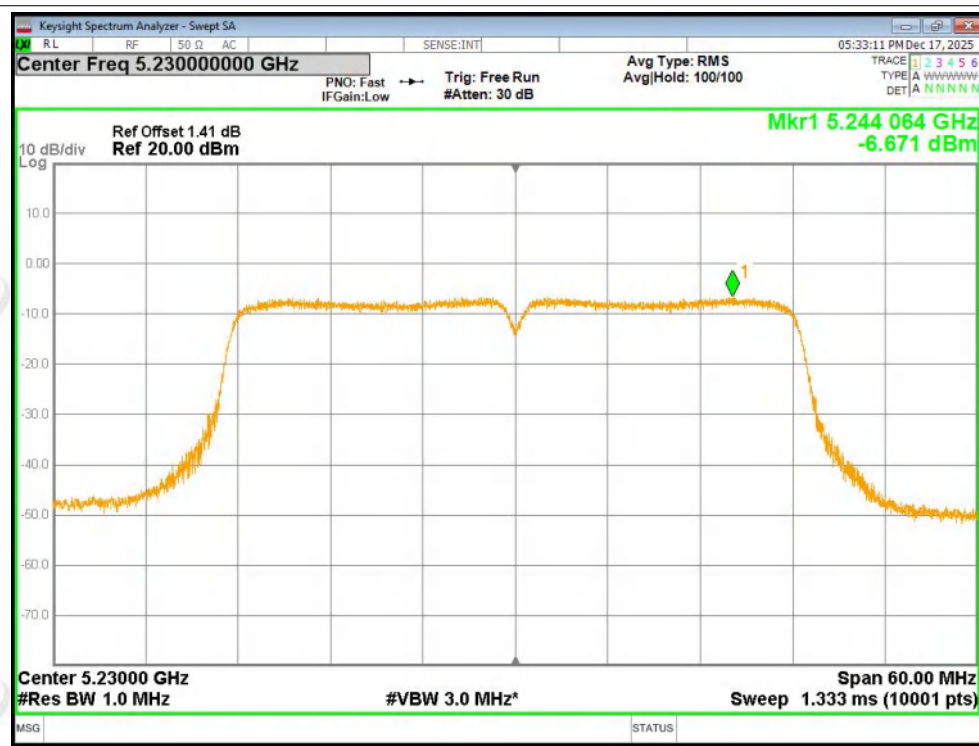
PSD NVNT n20 5240MHz Ant1



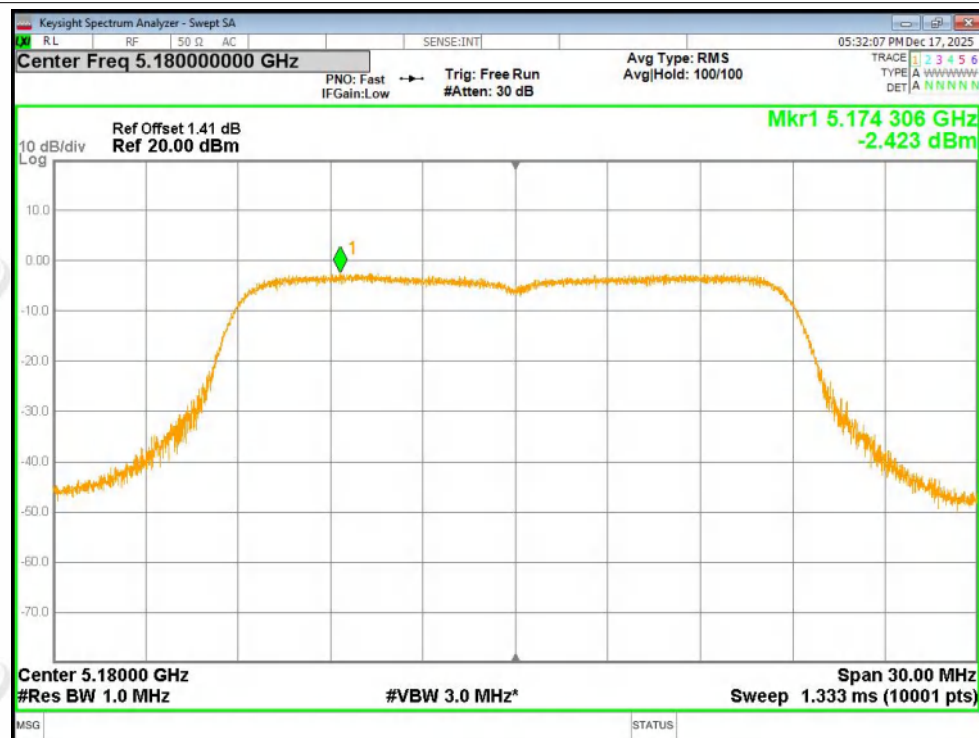
PSD NVNT n40 5190MHz Ant1



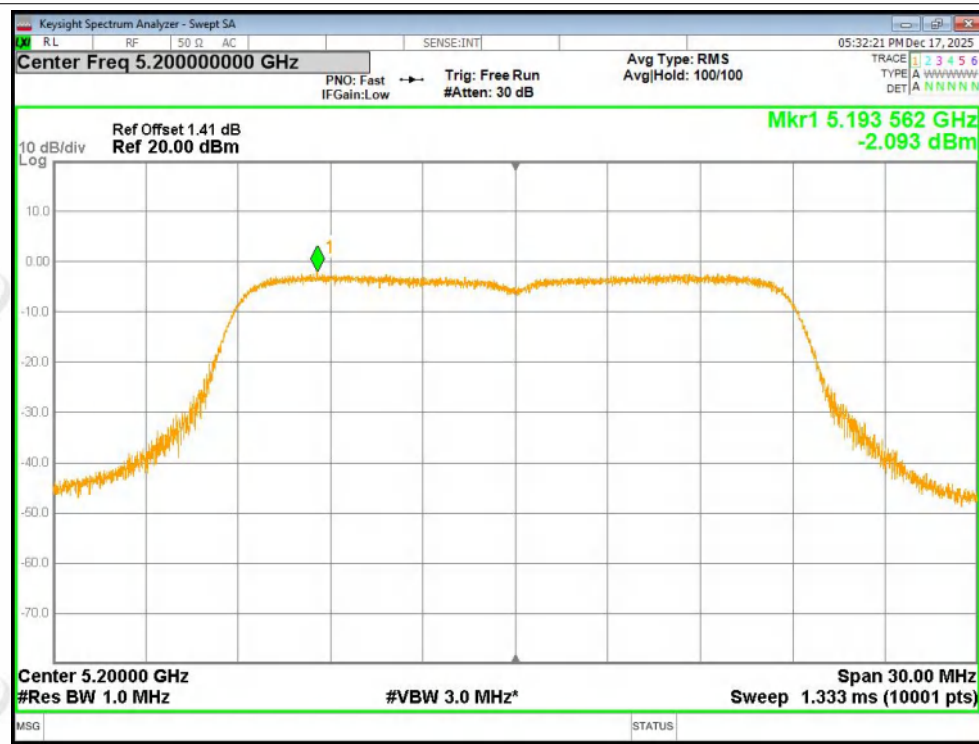
PSD NVNT n40 5230MHz Ant1



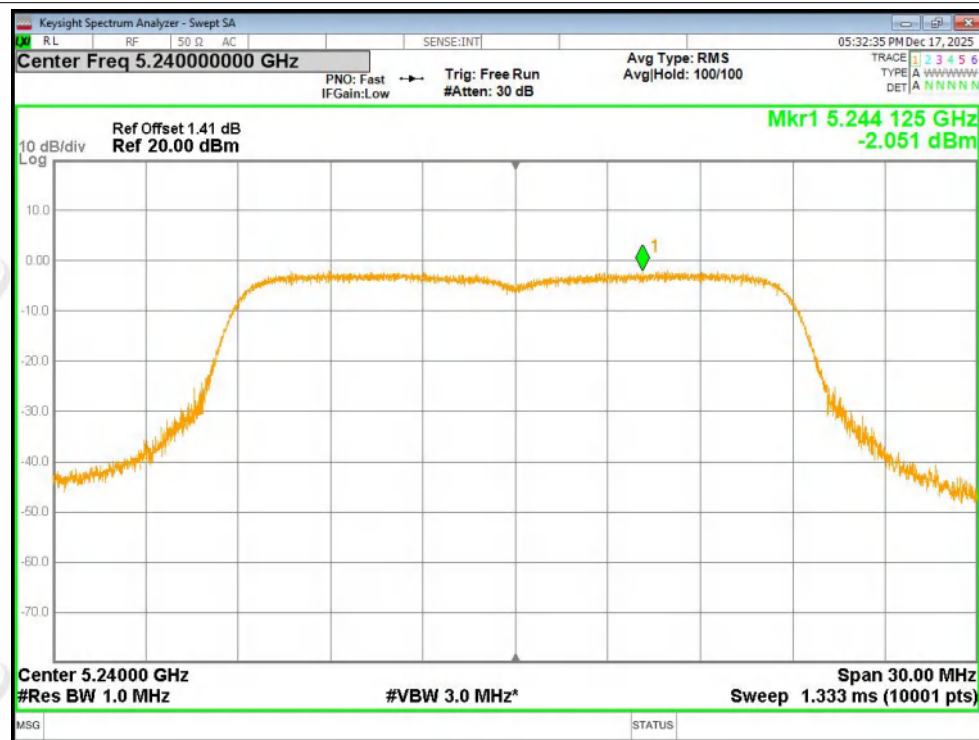
PSD NVNT ac20 5180MHz Ant1



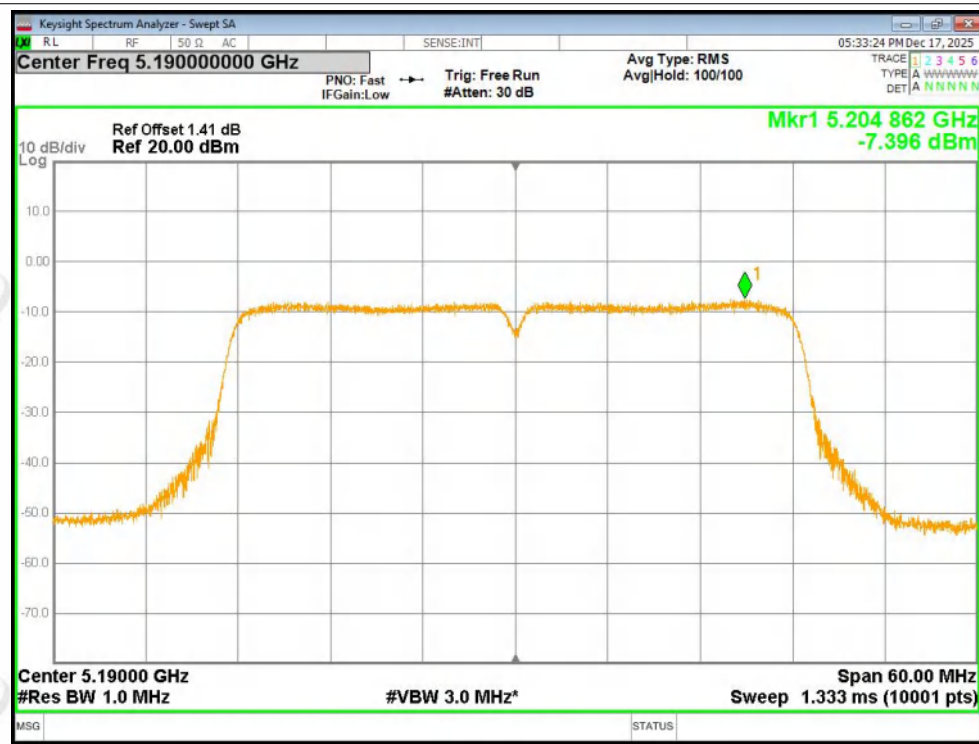
PSD NVNT ac20 5200MHz Ant1



PSD NVNT ac20 5240MHz Ant1

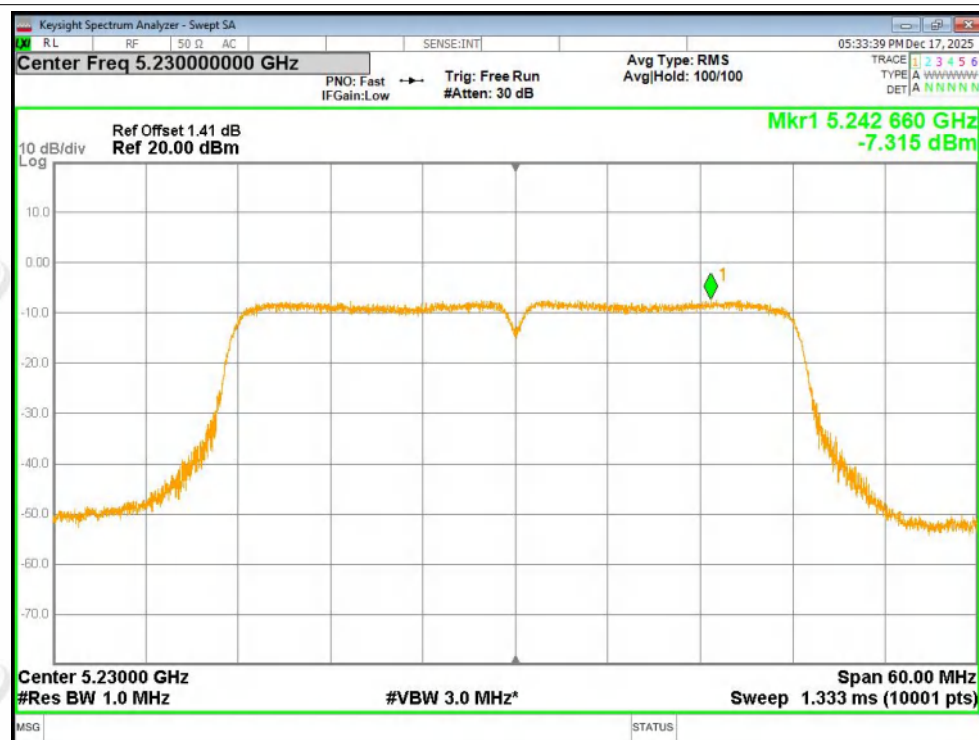


PSD NVNT ac40 5190MHz Ant1

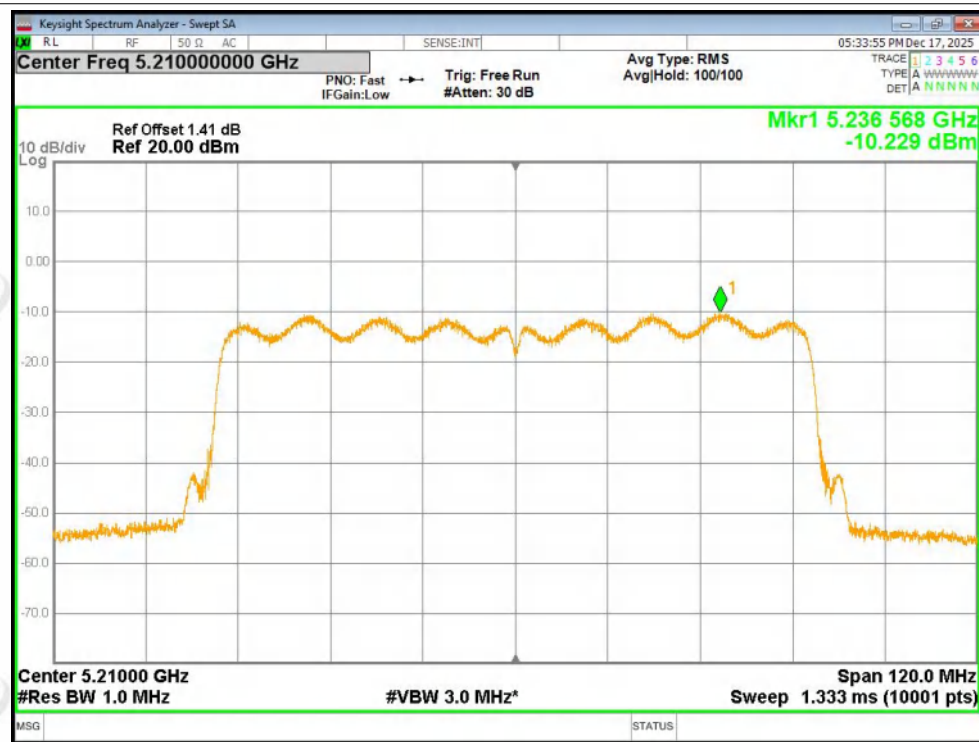




PSD NVNT ac40 5230MHz Ant1



PSD NVNT ac80 5210MHz Ant1

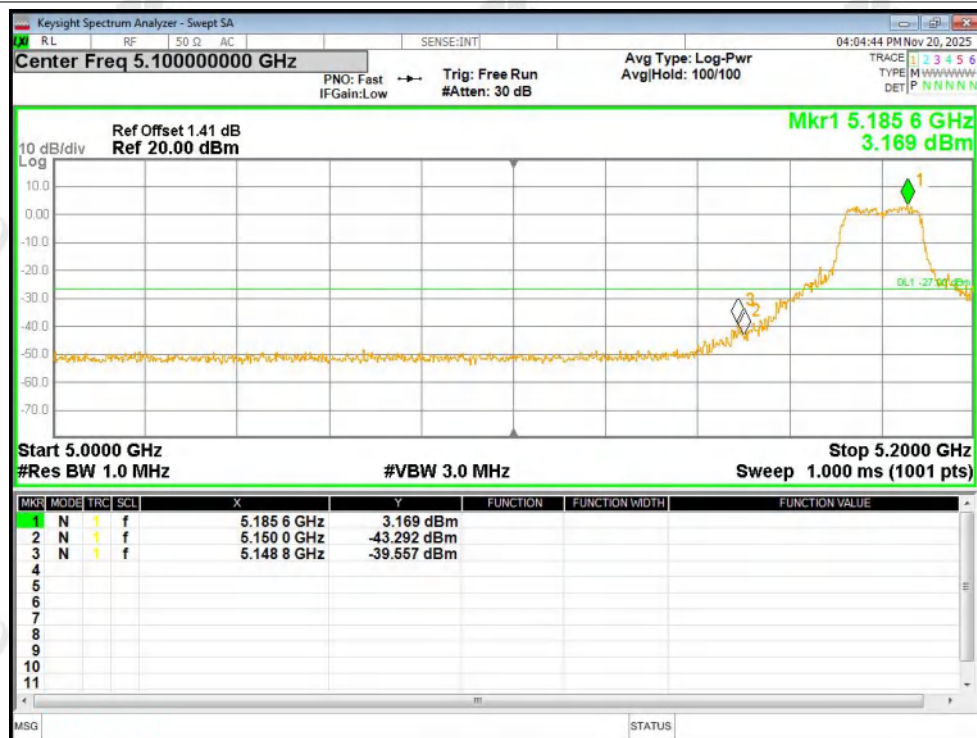


A.6 Band Edge

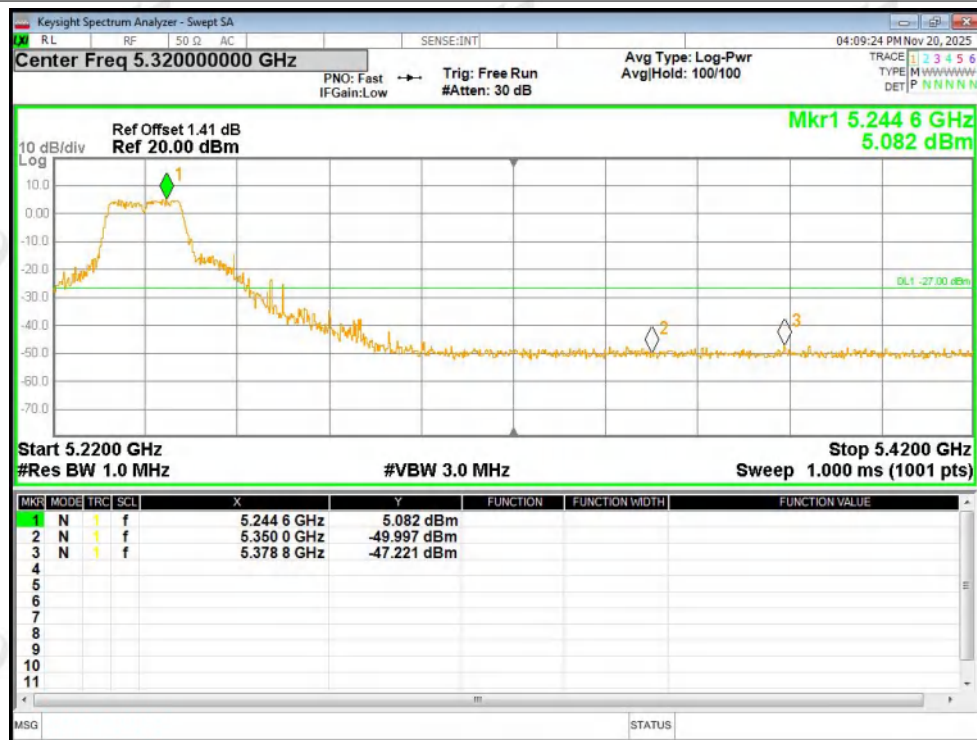
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	-39.55	-27	Pass
NVNT	a	5240	Ant1	-47.22	-27	Pass
NVNT	n20	5180	Ant1	-39.09	-27	Pass
NVNT	n20	5240	Ant1	-47.87	-27	Pass
NVNT	n40	5190	Ant1	-30.25	-27	Pass
NVNT	n40	5230	Ant1	-47.71	-27	Pass
NVNT	ac20	5180	Ant1	-42.99	-27	Pass
NVNT	ac20	5240	Ant1	-47.94	-27	Pass
NVNT	ac40	5190	Ant1	-27.2	-27	Pass
NVNT	ac40	5230	Ant1	-46.95	-27	Pass
NVNT	ac80	5210	Ant1	-30.21	-27	Pass

Test Graphs

Band Edge NVNT a 5180MHz Low Ant1

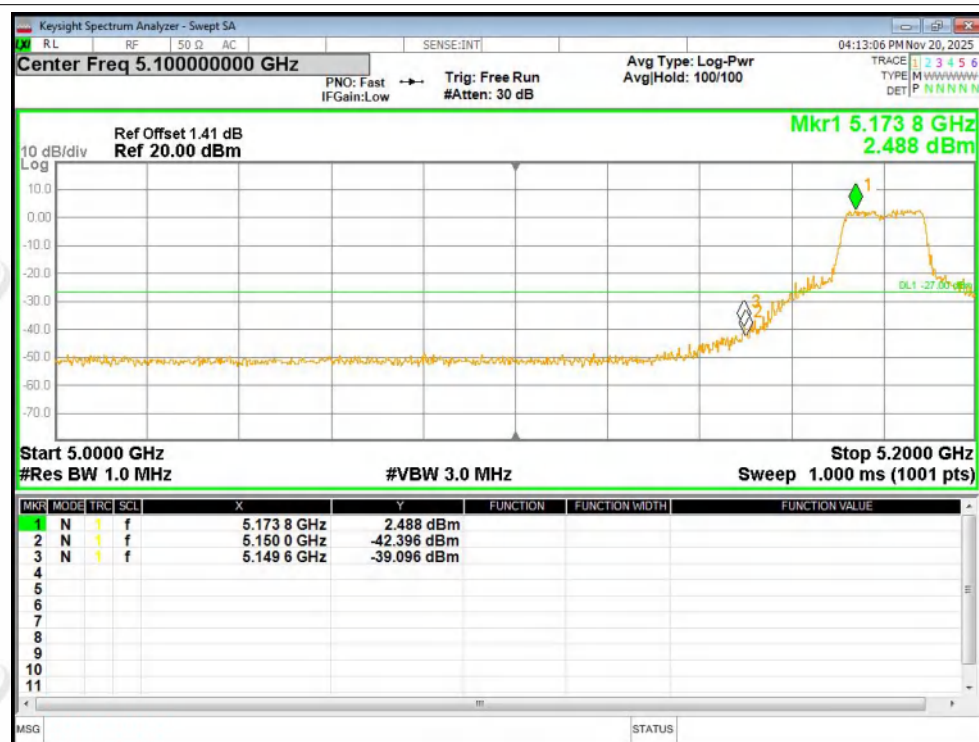


Band Edge NVNT a 5240MHz High Ant1

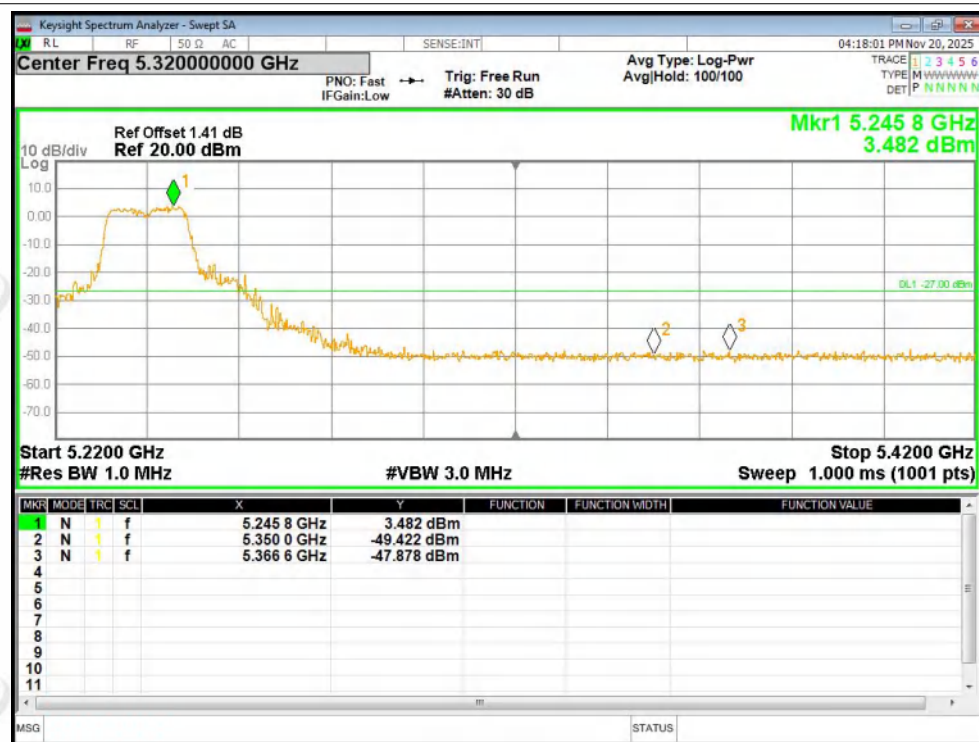




Band Edge NVNT n20 5180MHz Low Ant1

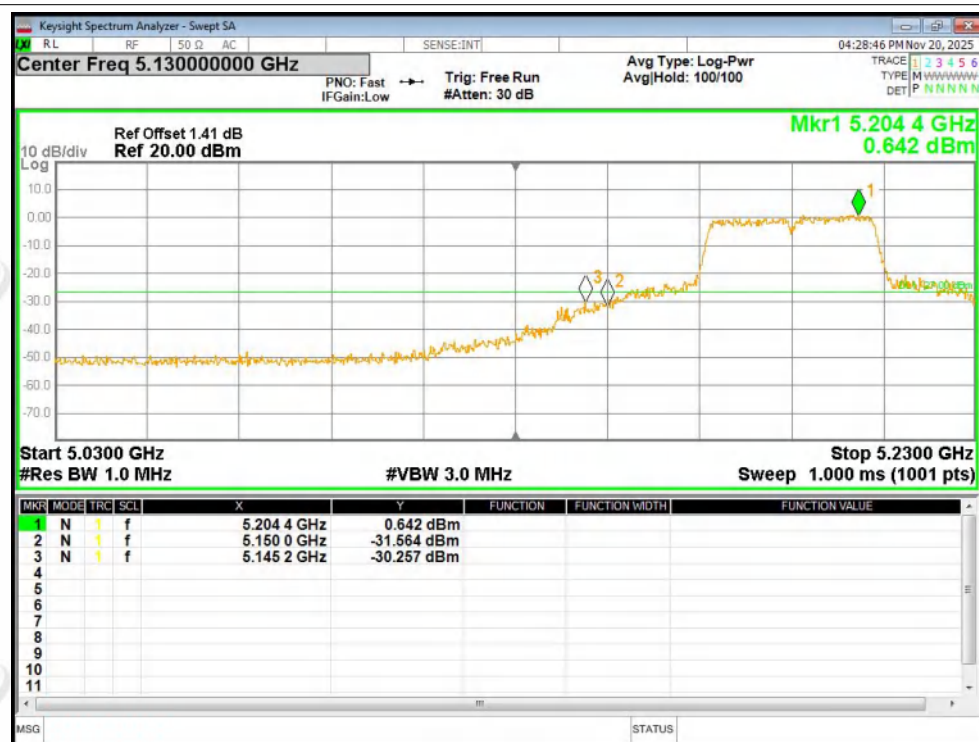


Band Edge NVNT n20 5240MHz High Ant1





Band Edge NVNT n40 5190MHz Low Ant1

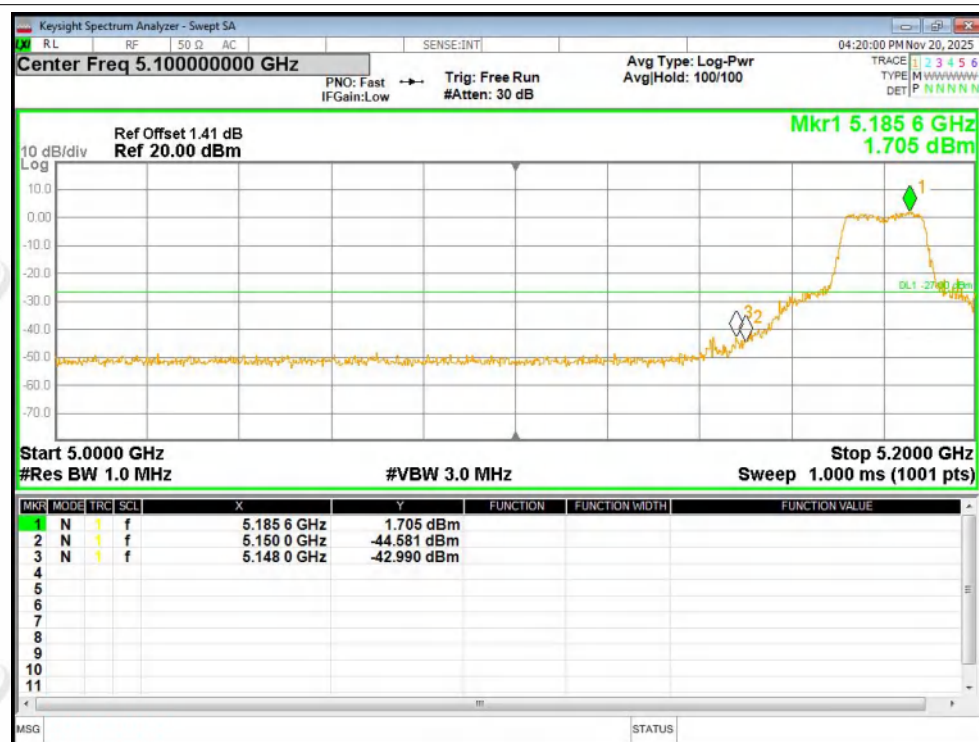


Band Edge NVNT n40 5230MHz High Ant1

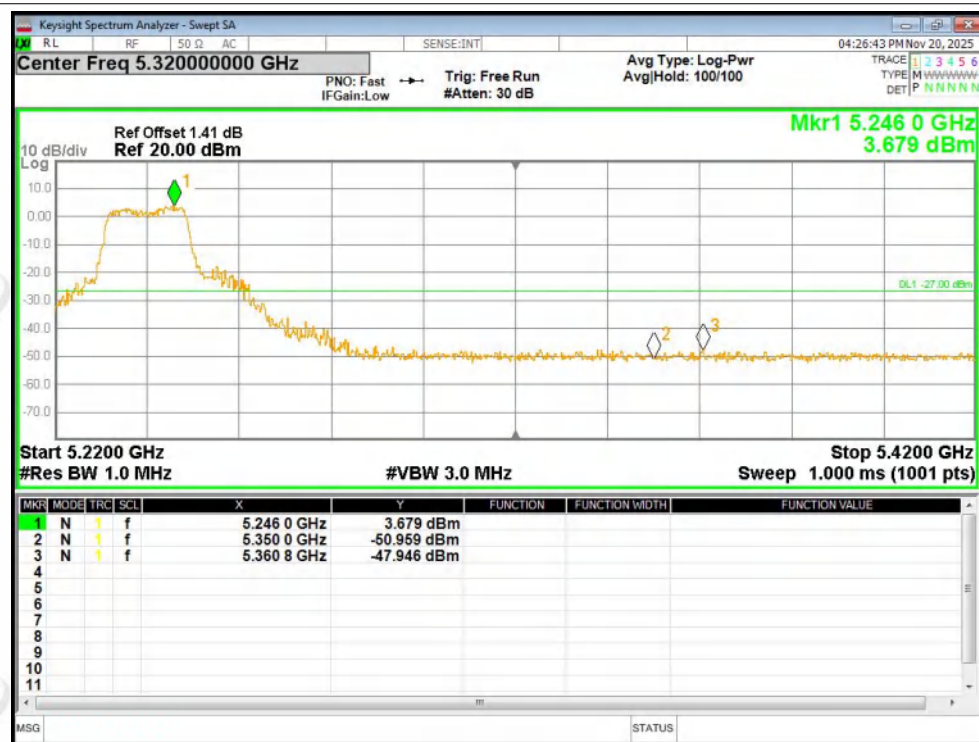




Band Edge NVNT ac20 5180MHz Low Ant1

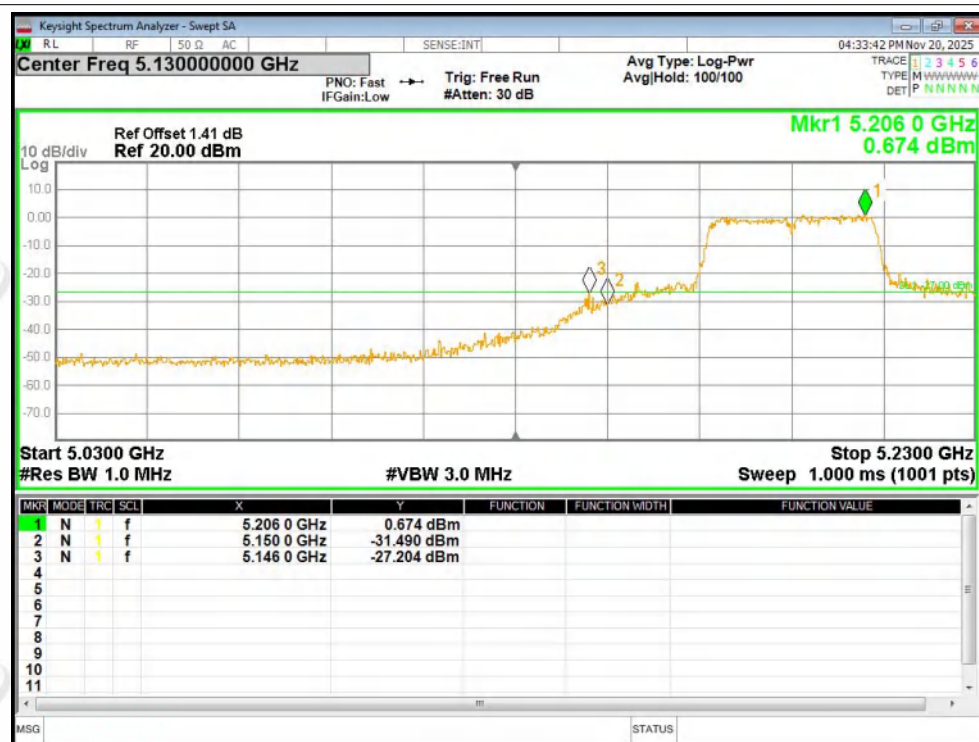


Band Edge NVNT ac20 5240MHz High Ant1

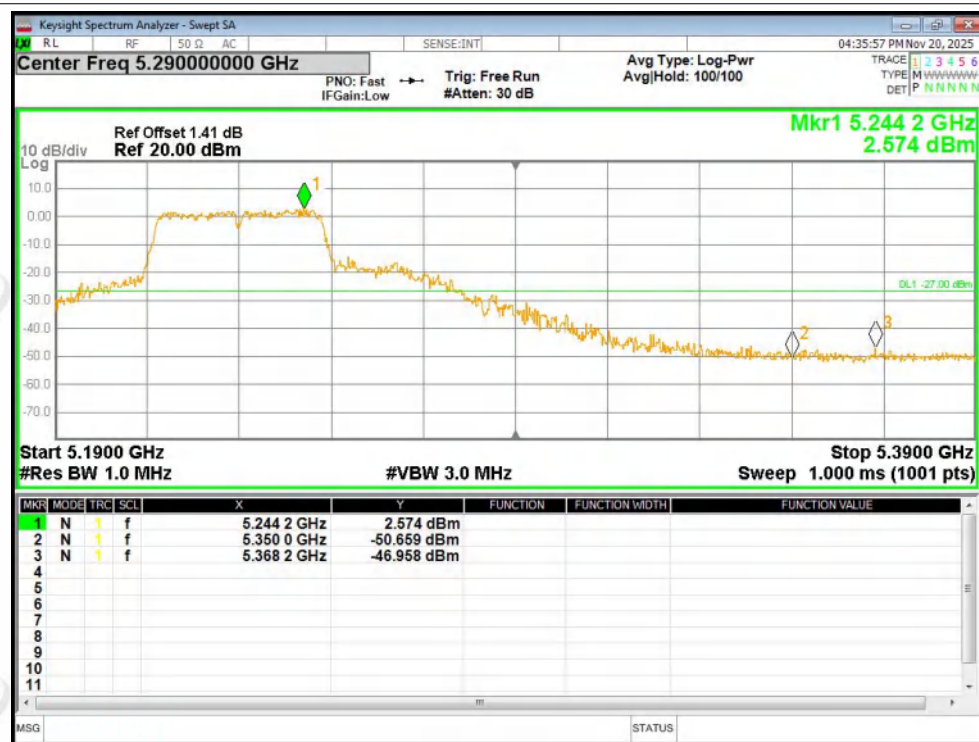


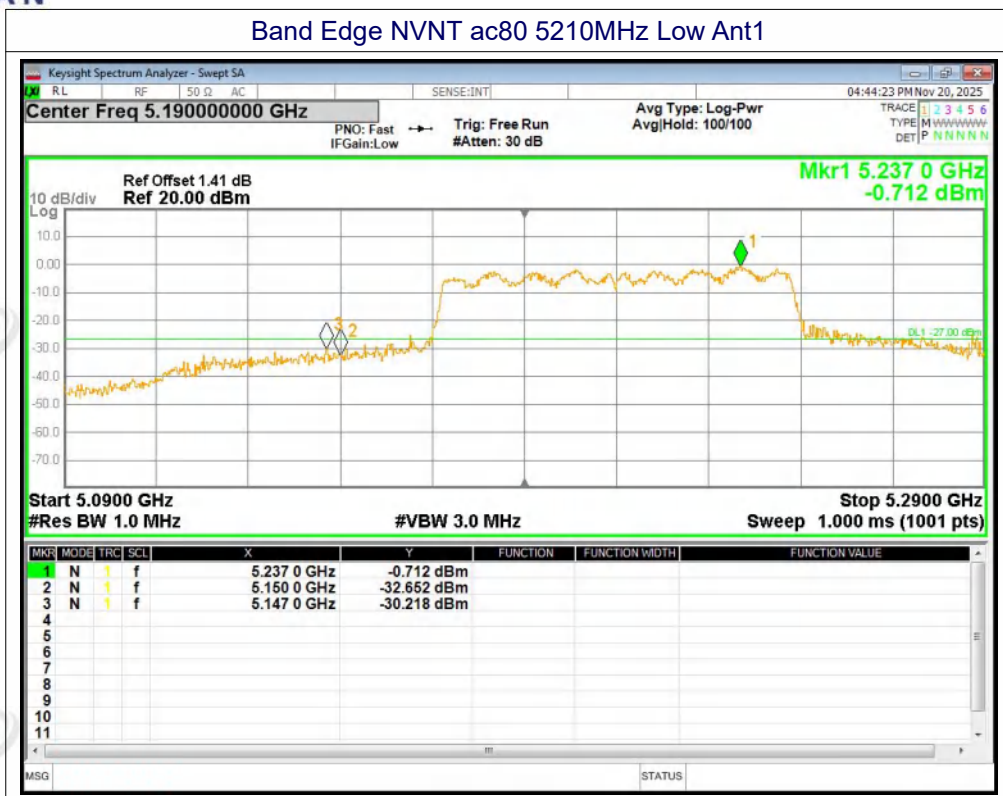


Band Edge NVNT ac40 5190MHz Low Ant1



Band Edge NVNT ac40 5230MHz High Ant1



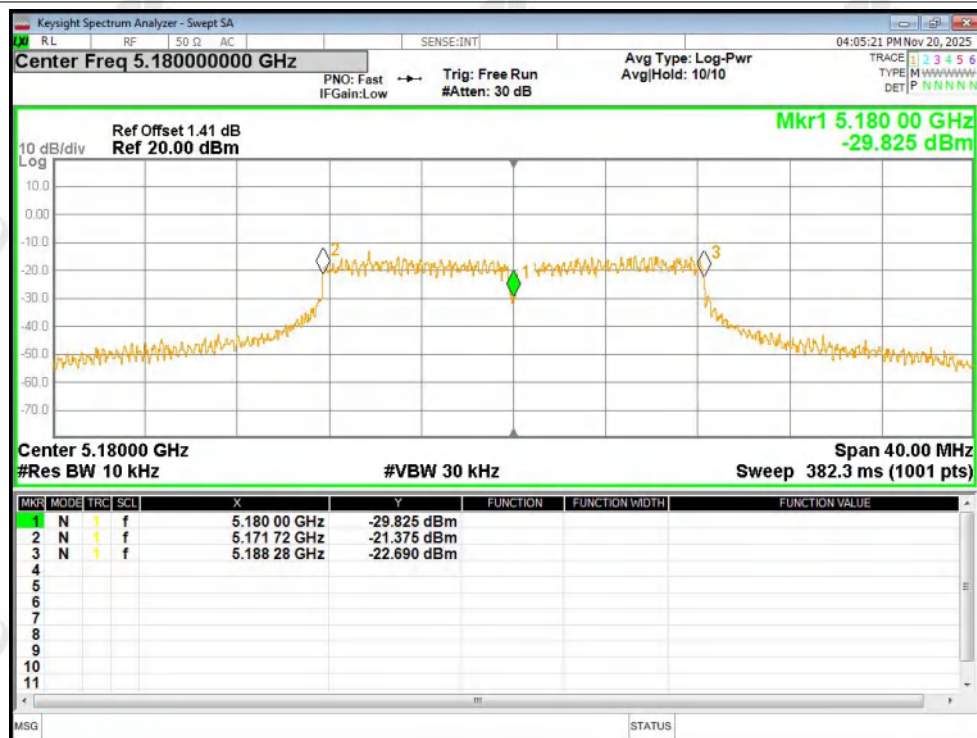


**ZHONGHAN****A.7 Frequency Stability**

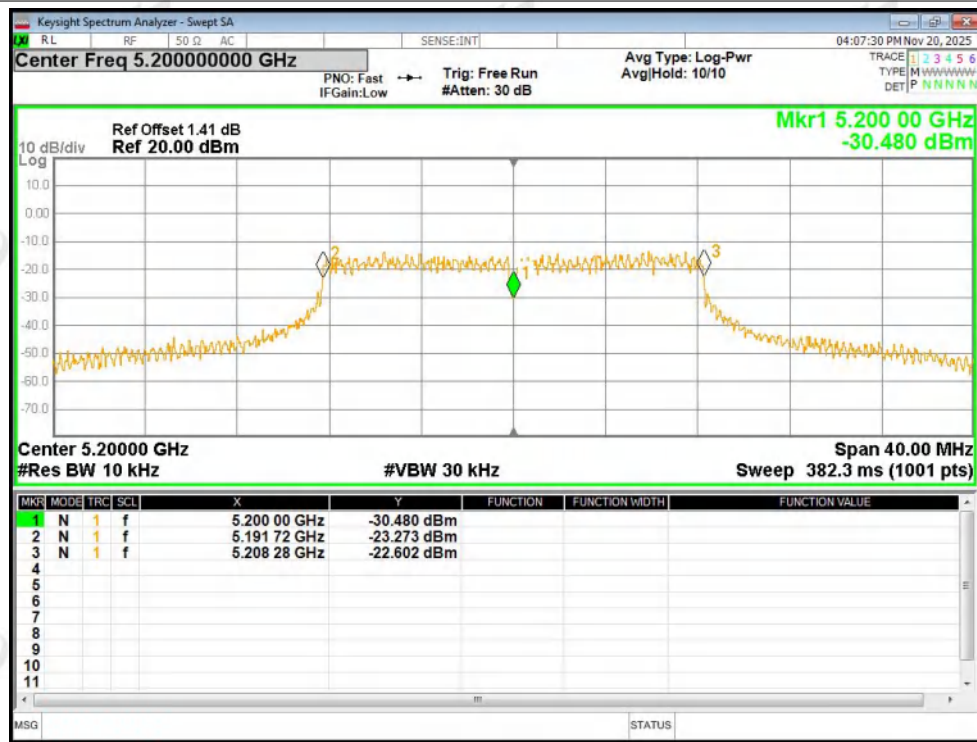
Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	a	5180	Ant1	5180	0	0	Within 5180-5240MHz	Pass
NVNT	a	5200	Ant1	5200	0	0		Pass
NVNT	a	5240	Ant1	5240.02	20000	3.82		Pass
NVNT	n20	5180	Ant1	5180	0	0		Pass
NVNT	n20	5200	Ant1	5200	0	0		Pass
NVNT	n20	5240	Ant1	5240.04	40000	7.63		Pass
NVNT	n40	5190	Ant1	5190	0	0		Pass
NVNT	n40	5230	Ant1	5230	0	0		Pass
NVNT	ac20	5180	Ant1	5180.02	20000	3.86		Pass
NVNT	ac20	5200	Ant1	5200.02	20000	3.85		Pass
NVNT	ac20	5240	Ant1	5240	0	0		Pass
NVNT	ac40	5190	Ant1	5190.04	40000	7.71		Pass
NVNT	ac40	5230	Ant1	5230.04	40000	7.65		Pass
NVNT	ac80	5210	Ant1	5210.08	80000	15.36		Pass

Test Graphs

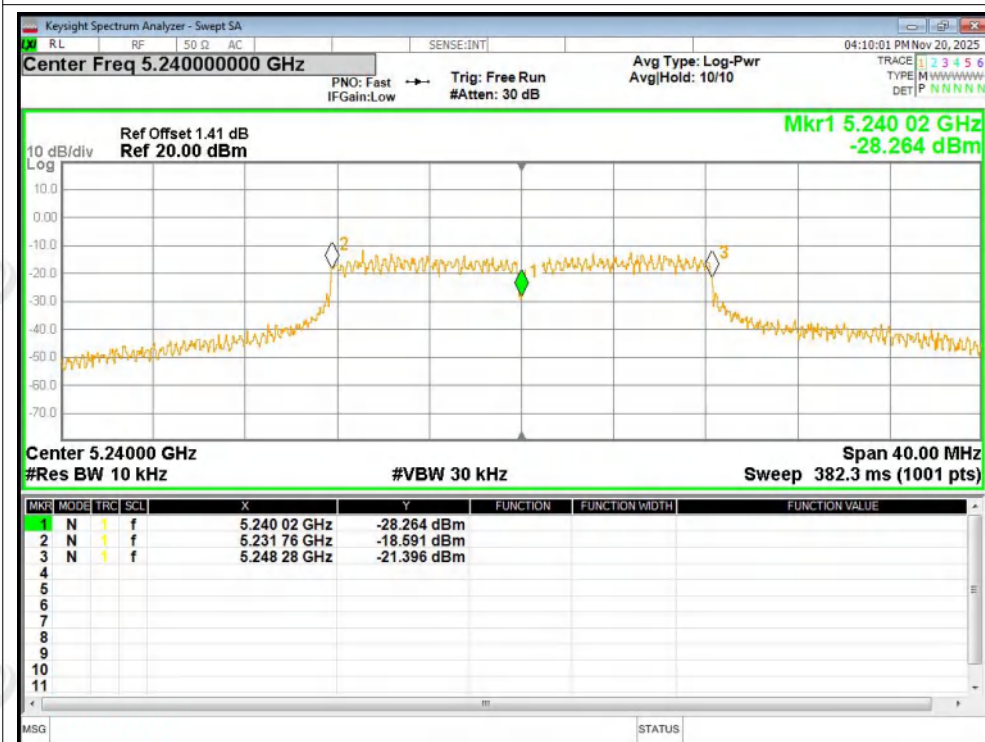
Freq. Stability NVNT a 5180MHz Ant1



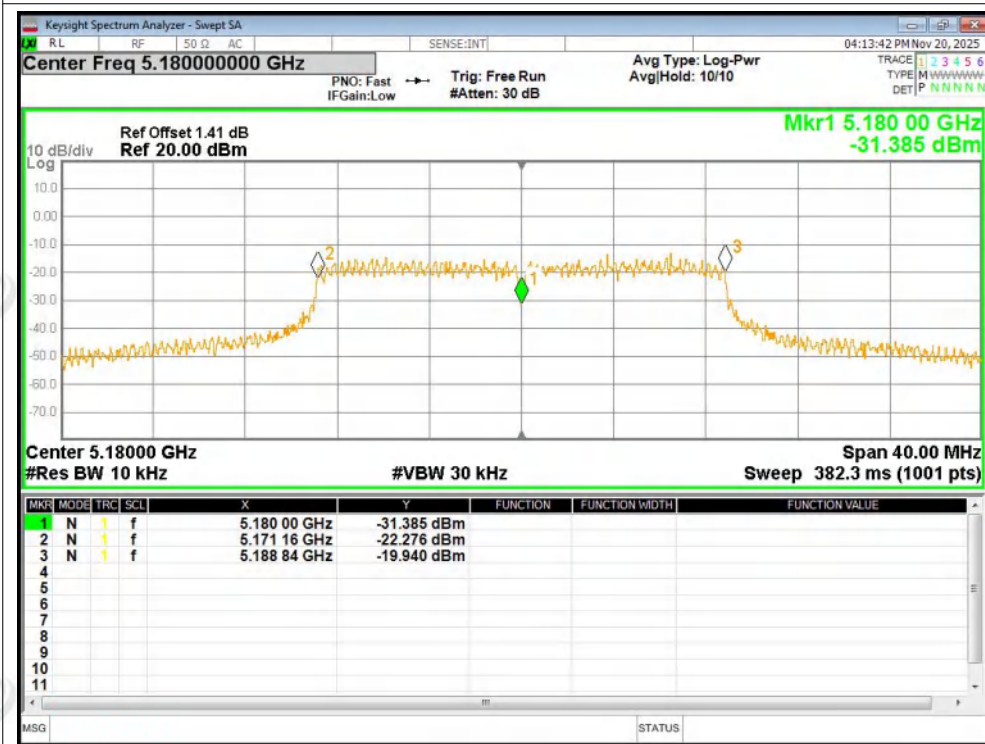
Freq. Stability NVNT a 5200MHz Ant1



Freq. Stability NVNT a 5240MHz Ant1

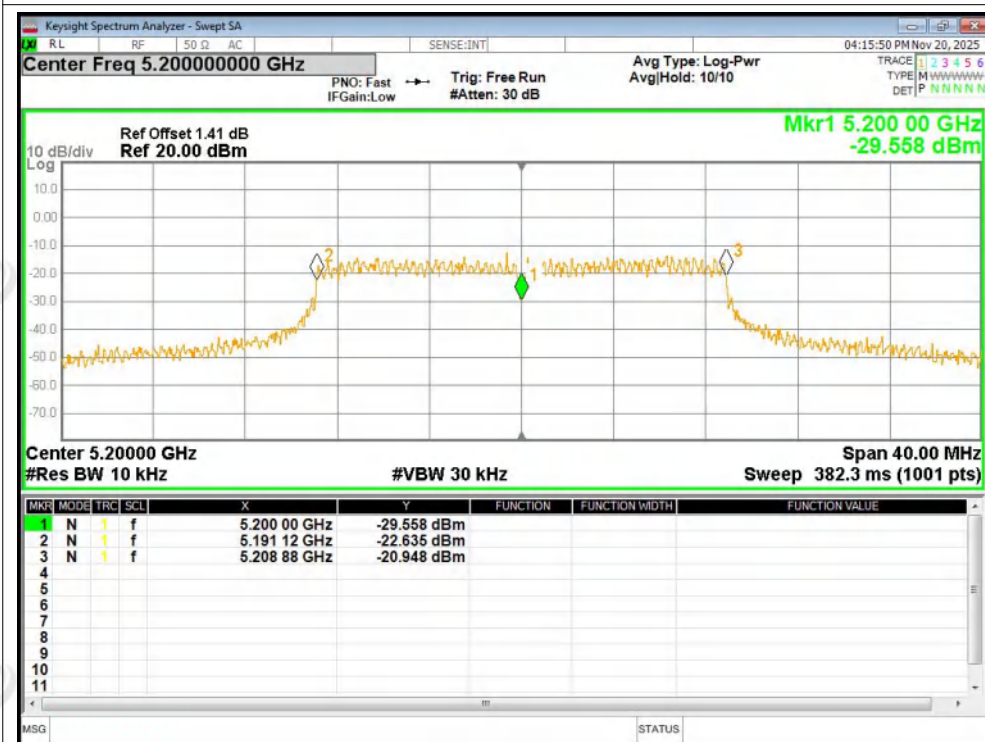


Freq. Stability NVNT n20 5180MHz Ant1

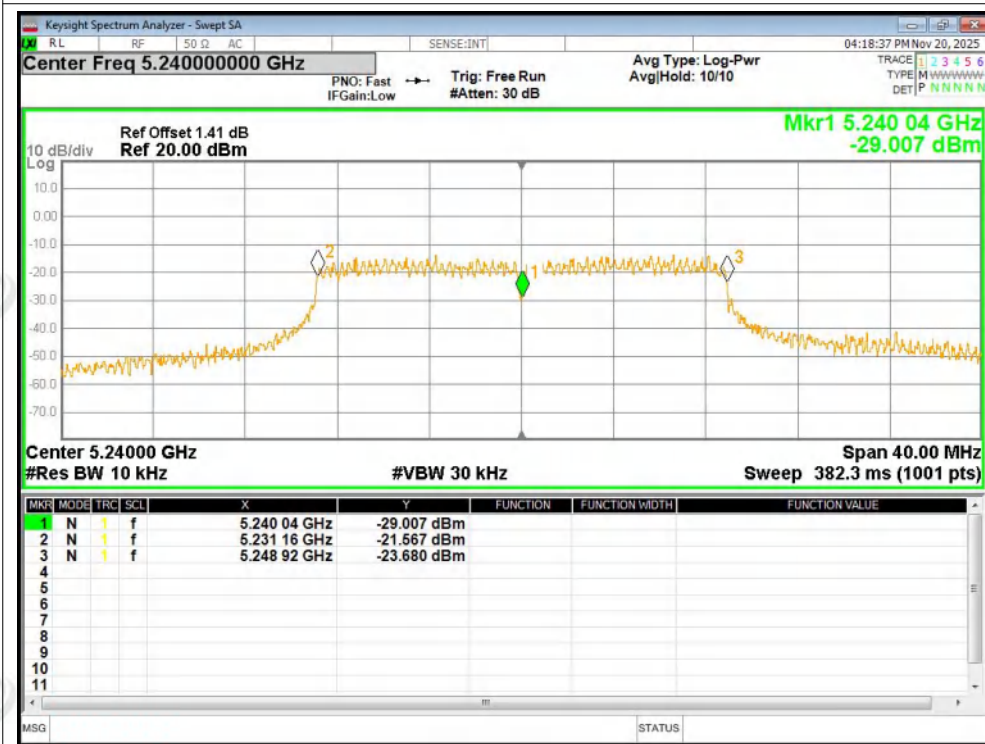




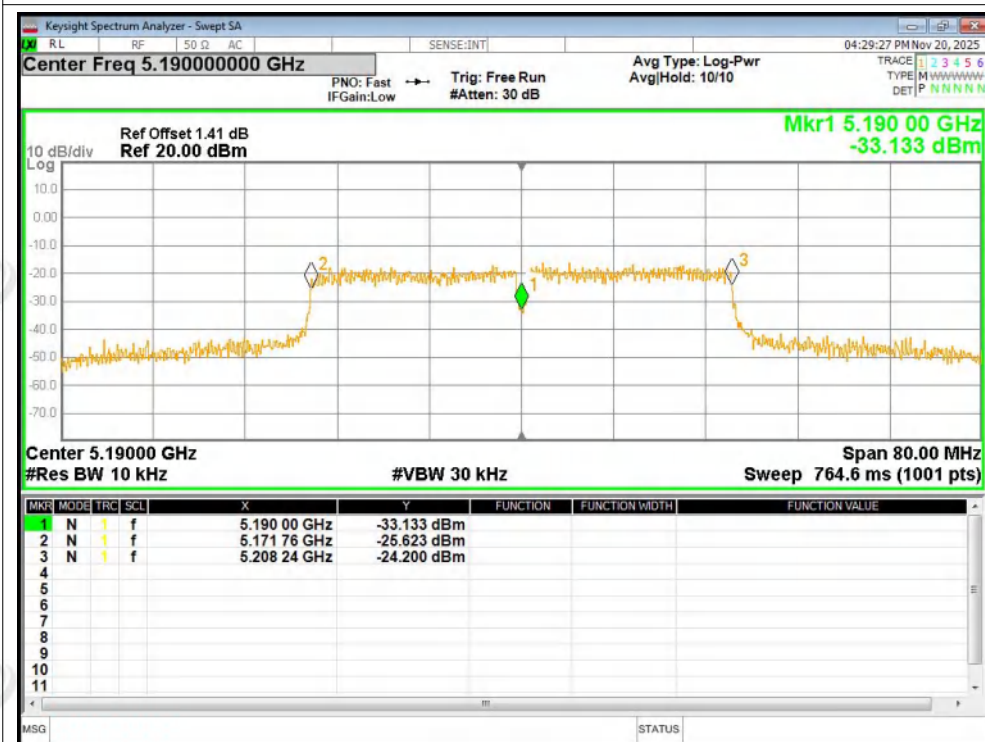
Freq. Stability NVNT n20 5200MHz Ant1



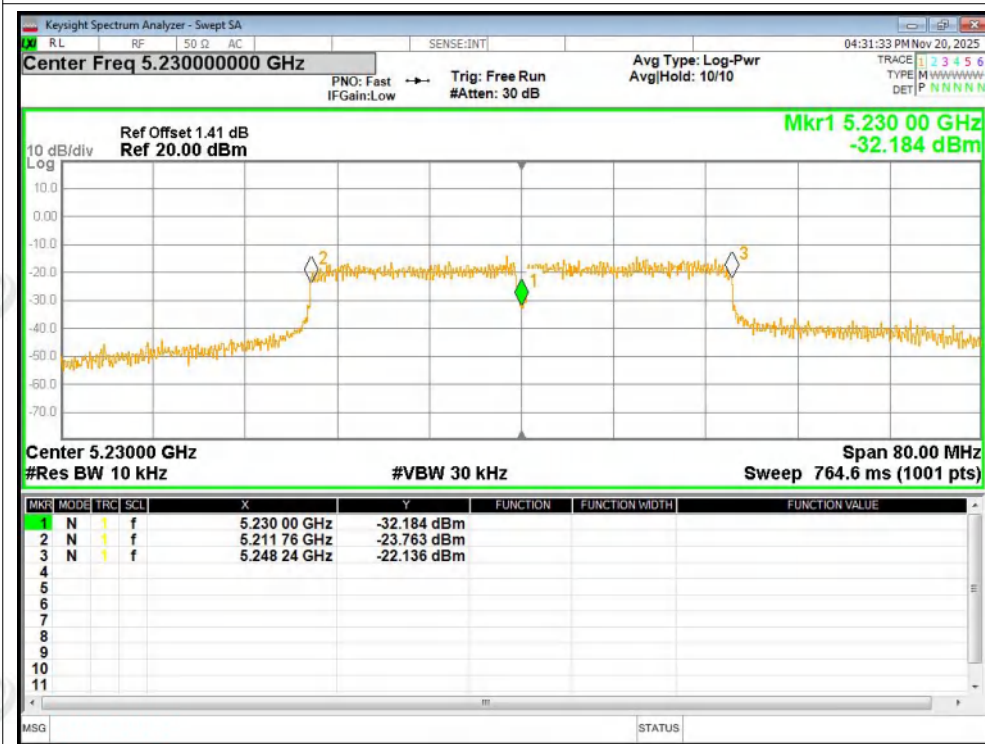
Freq. Stability NVNT n20 5240MHz Ant1



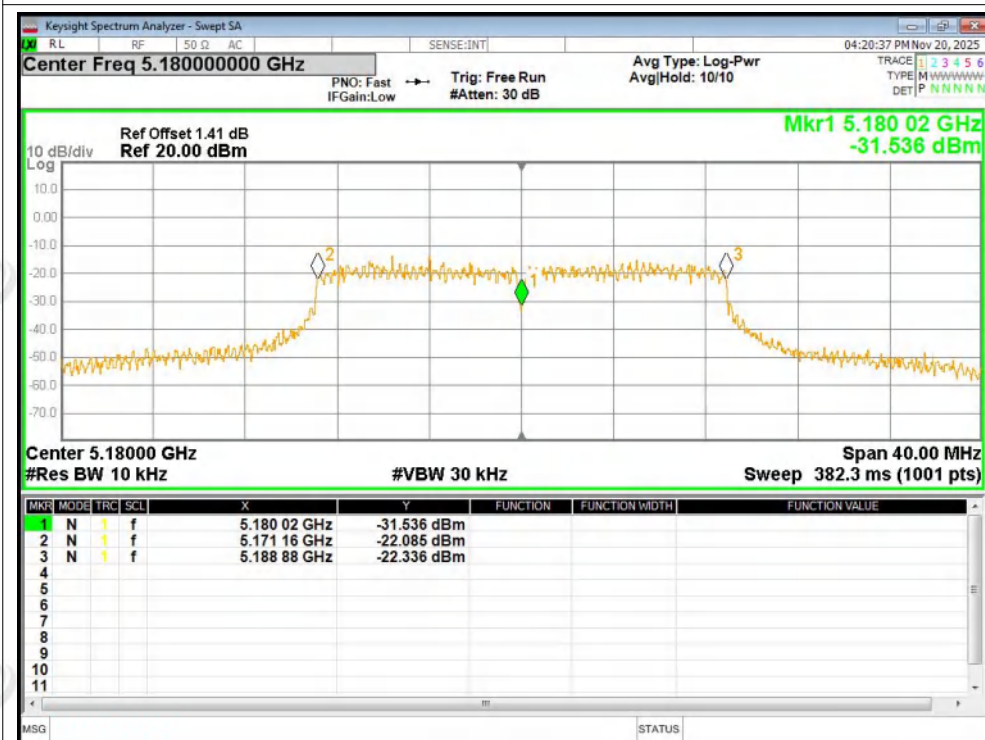
Freq. Stability NVNT n40 5190MHz Ant1



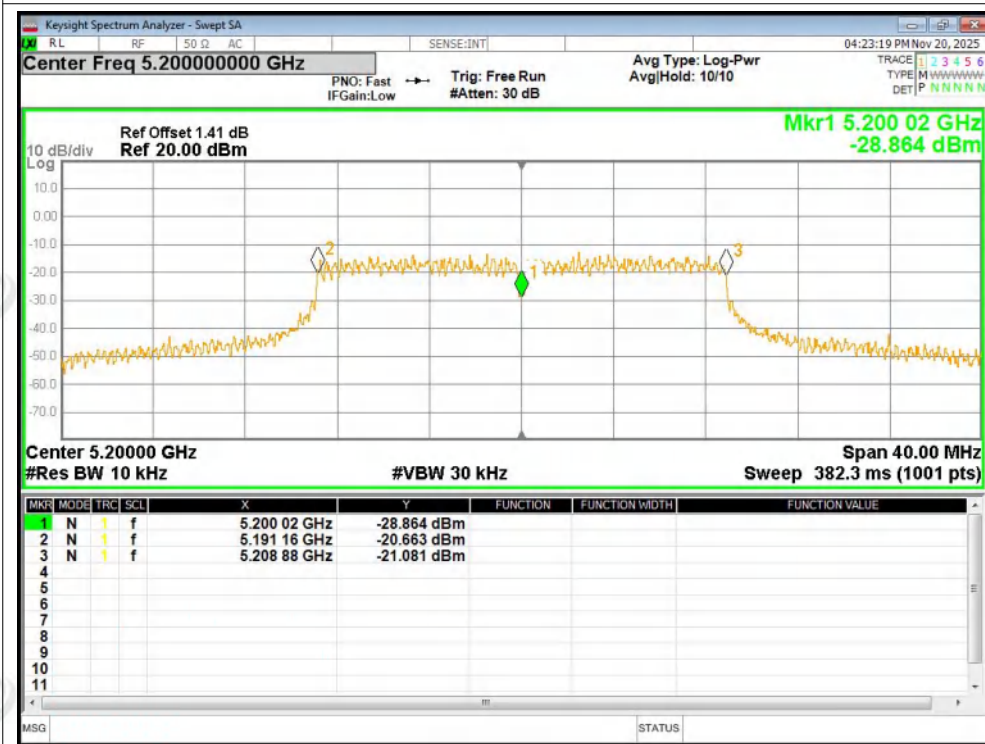
Freq. Stability NVNT n40 5230MHz Ant1



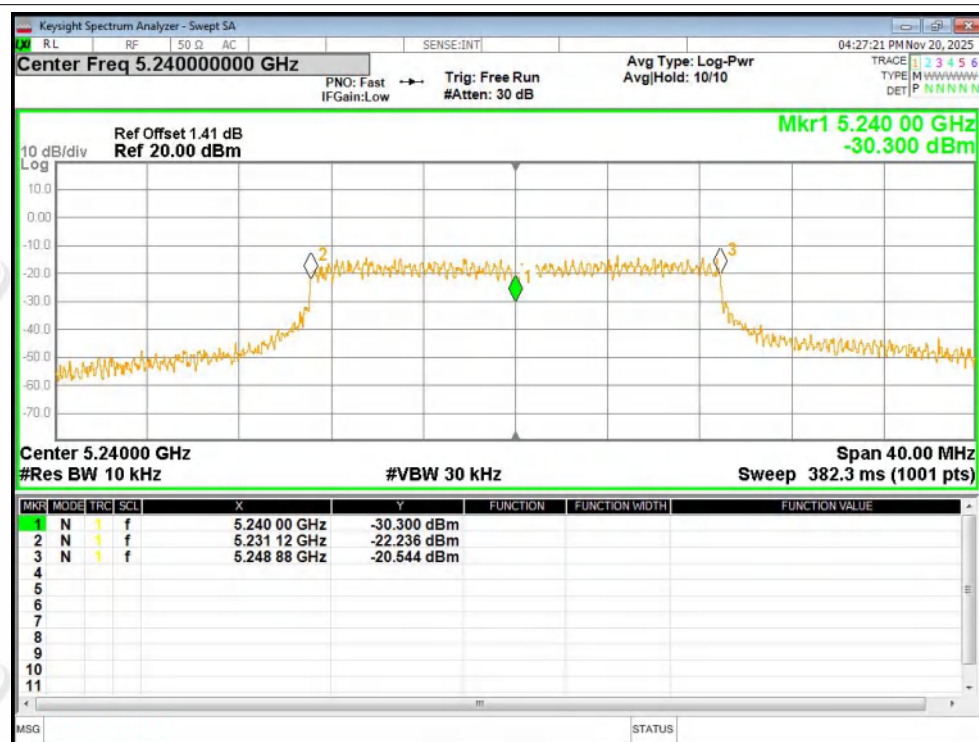
Freq. Stability NVNT ac20 5180MHz Ant1



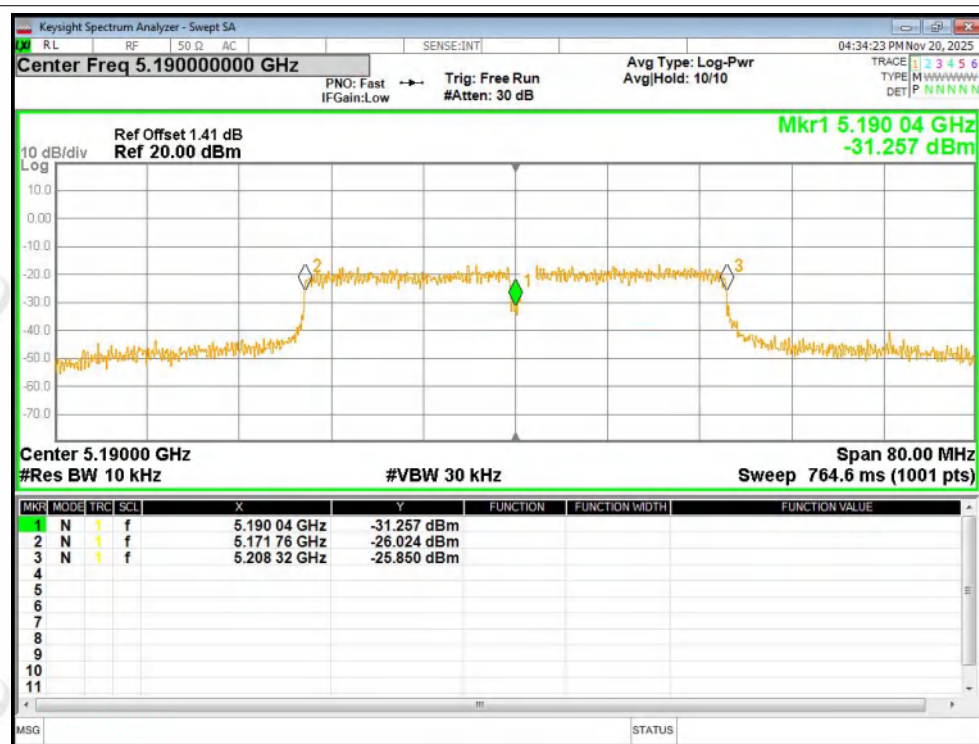
Freq. Stability NVNT ac20 5200MHz Ant1



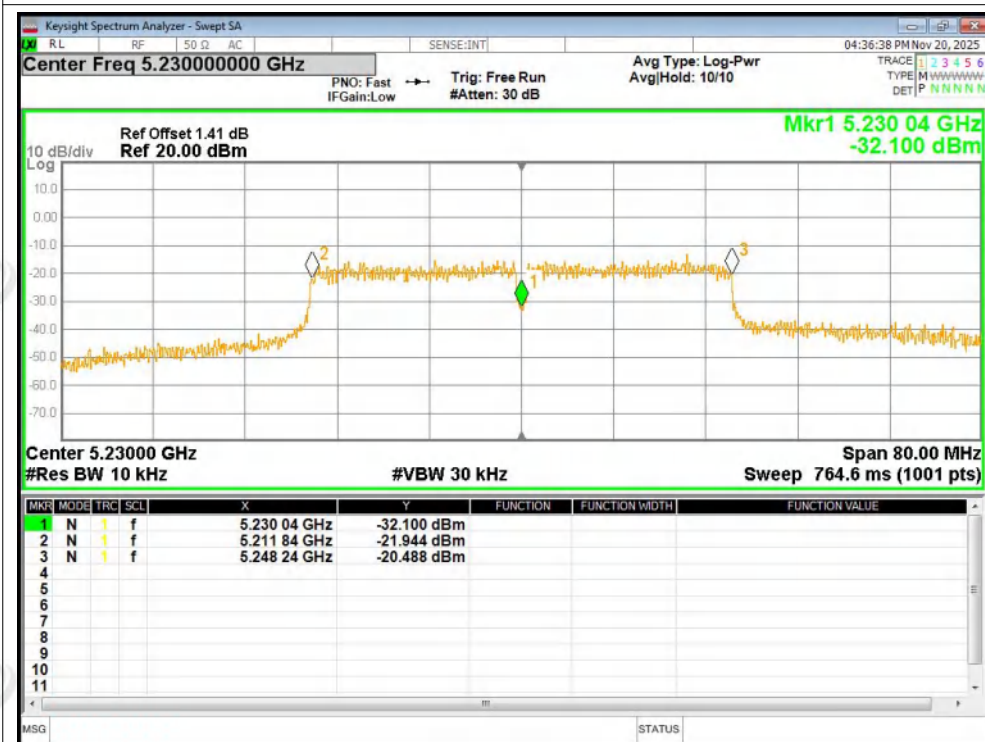
Freq. Stability NVNT ac20 5240MHz Ant1



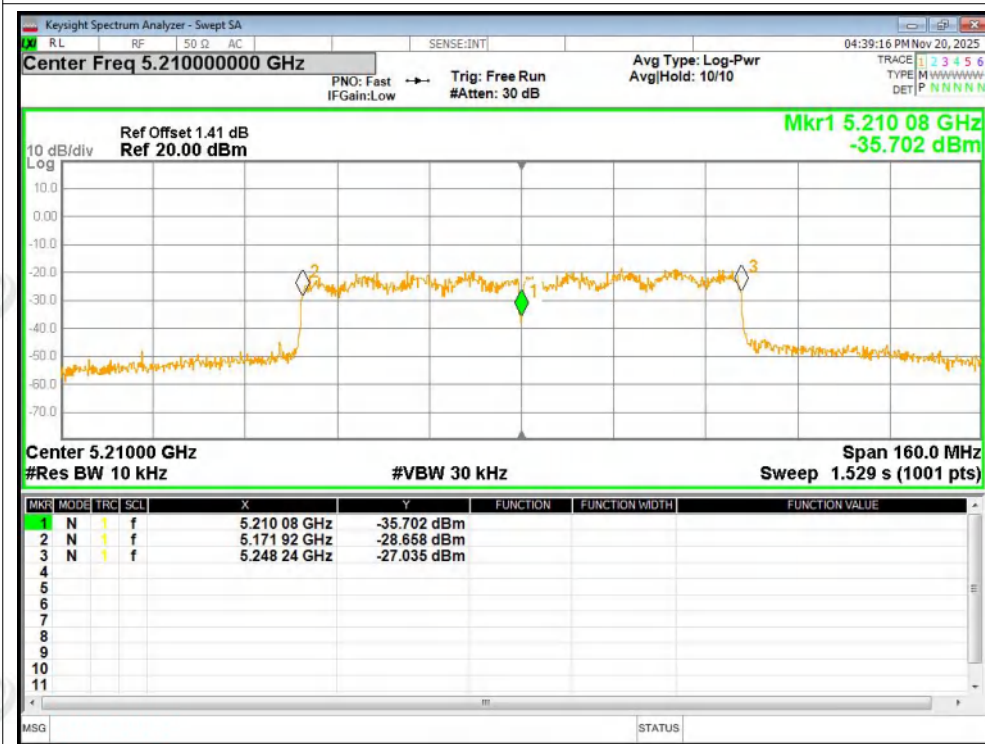
Freq. Stability NVNT ac40 5190MHz Ant1



Freq. Stability NVNT ac40 5230MHz Ant1



Freq. Stability NVNT ac80 5210MHz Ant1

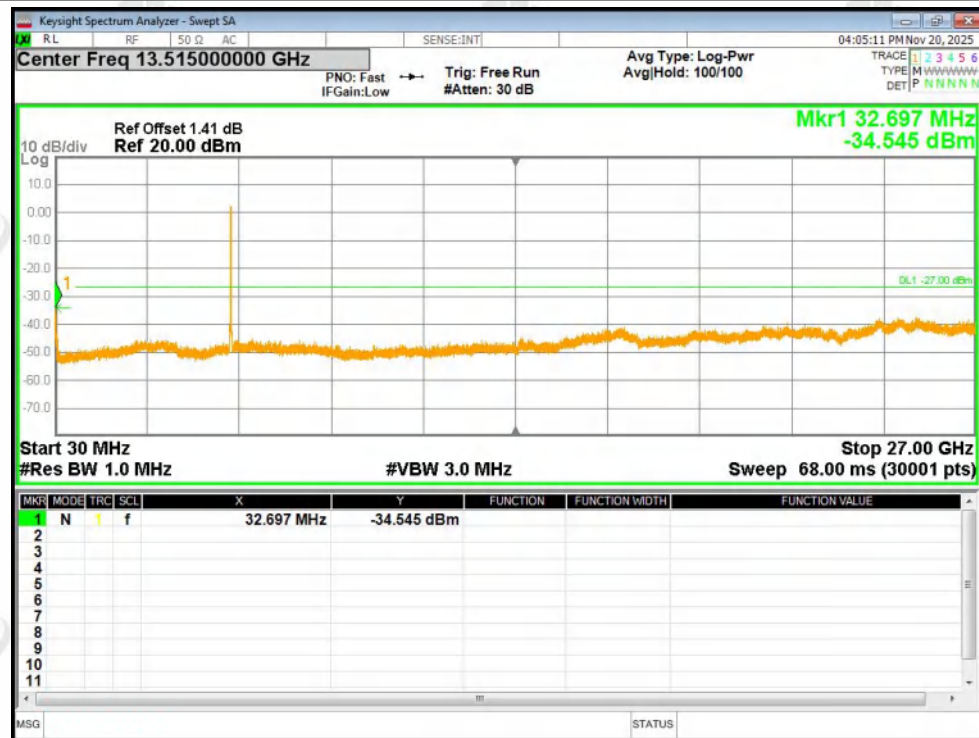


**ZHONGHAN****A.8 Conducted RF Spurious Emission**

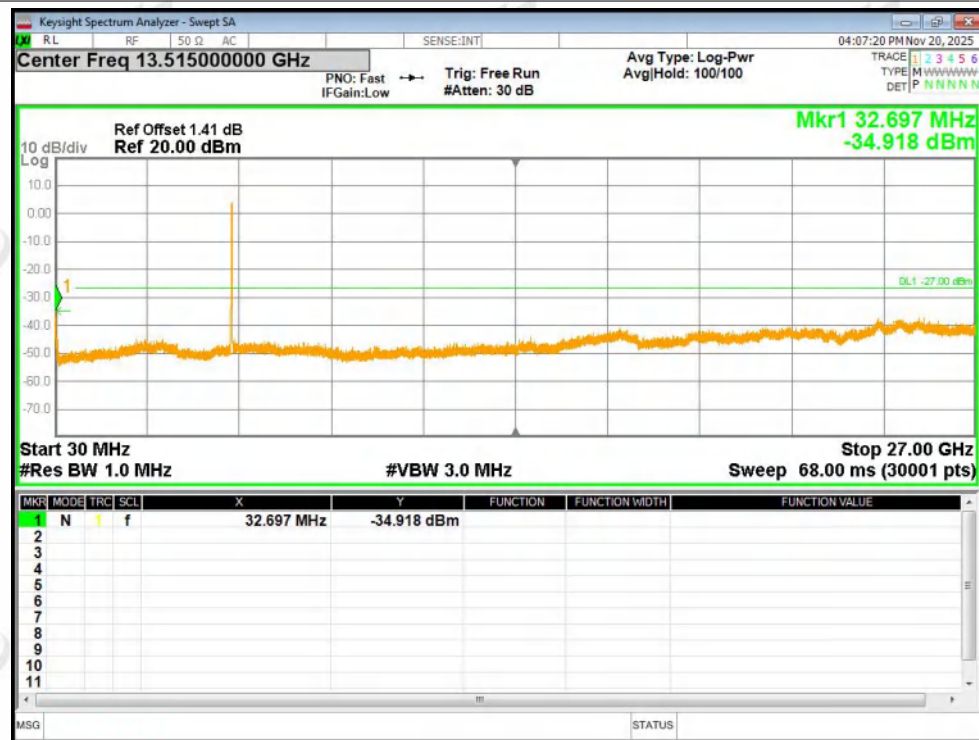
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	-34.54	-27	Pass
NVNT	a	5200	Ant1	-34.91	-27	Pass
NVNT	a	5240	Ant1	-35.62	-27	Pass
NVNT	n20	5180	Ant1	-33.98	-27	Pass
NVNT	n20	5200	Ant1	-35.68	-27	Pass
NVNT	n20	5240	Ant1	-34.15	-27	Pass
NVNT	n40	5190	Ant1	-35.83	-27	Pass
NVNT	n40	5230	Ant1	-34.74	-27	Pass
NVNT	ac20	5180	Ant1	-34.89	-27	Pass
NVNT	ac20	5200	Ant1	-33.67	-27	Pass
NVNT	ac20	5240	Ant1	-32.18	-27	Pass
NVNT	ac40	5190	Ant1	-34.82	-27	Pass
NVNT	ac40	5230	Ant1	-34.21	-27	Pass
NVNT	ac80	5210	Ant1	-33.56	-27	Pass

Test Graphs

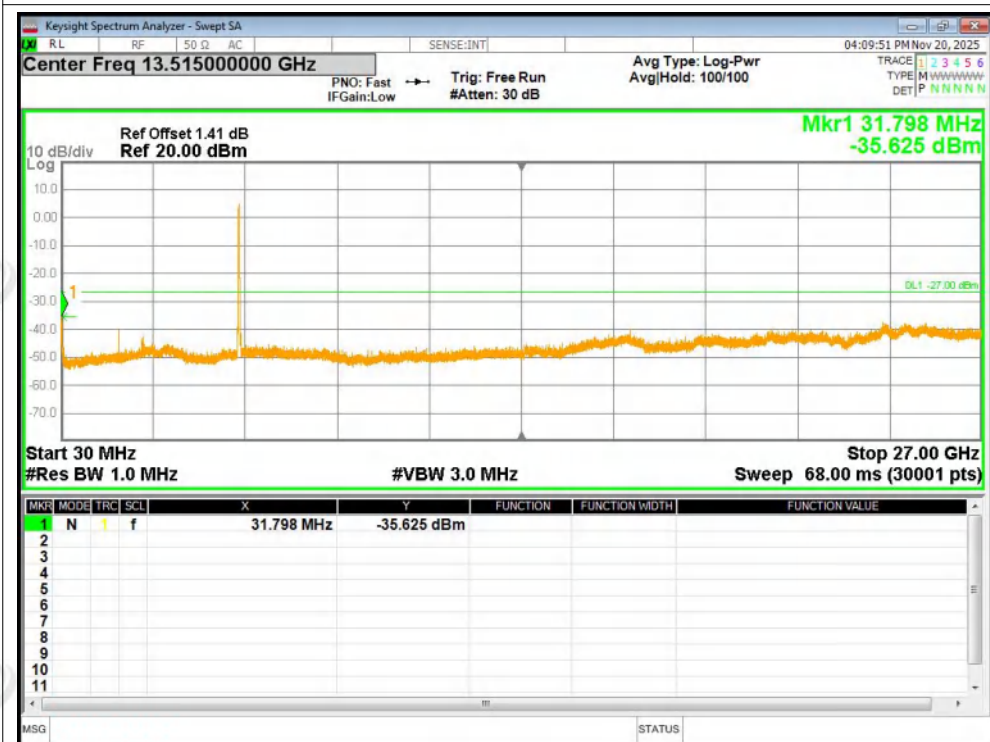
Tx. Spurious NVNT a 5180MHz Ant1 Emission



Tx. Spurious NVNT a 5200MHz Ant1 Emission



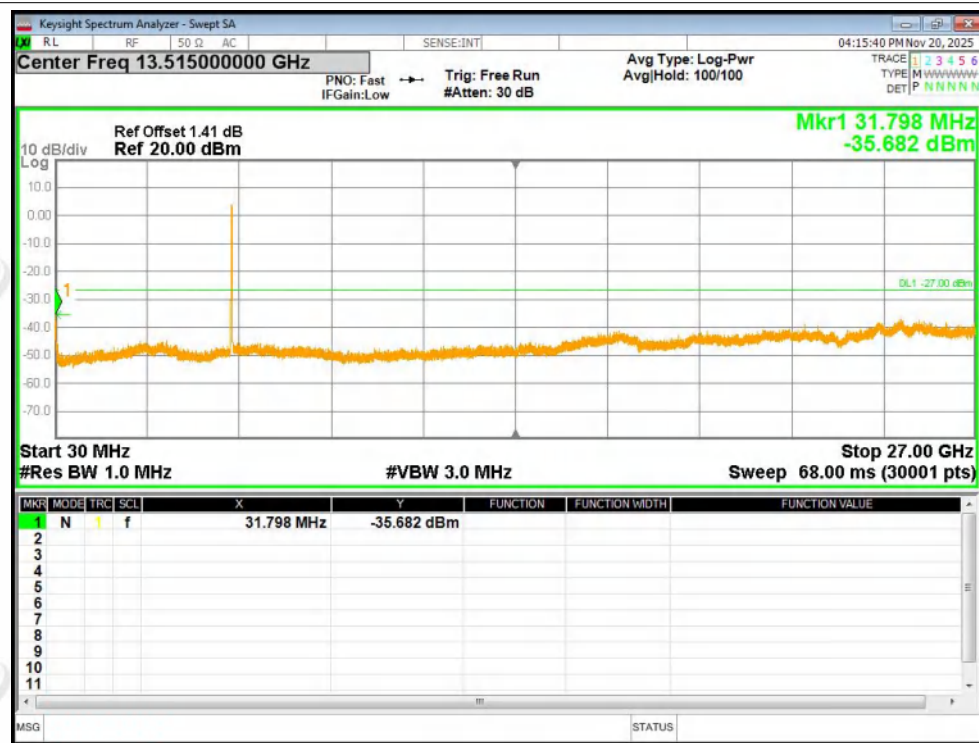
Tx. Spurious NVNT a 5240MHz Ant1 Emission



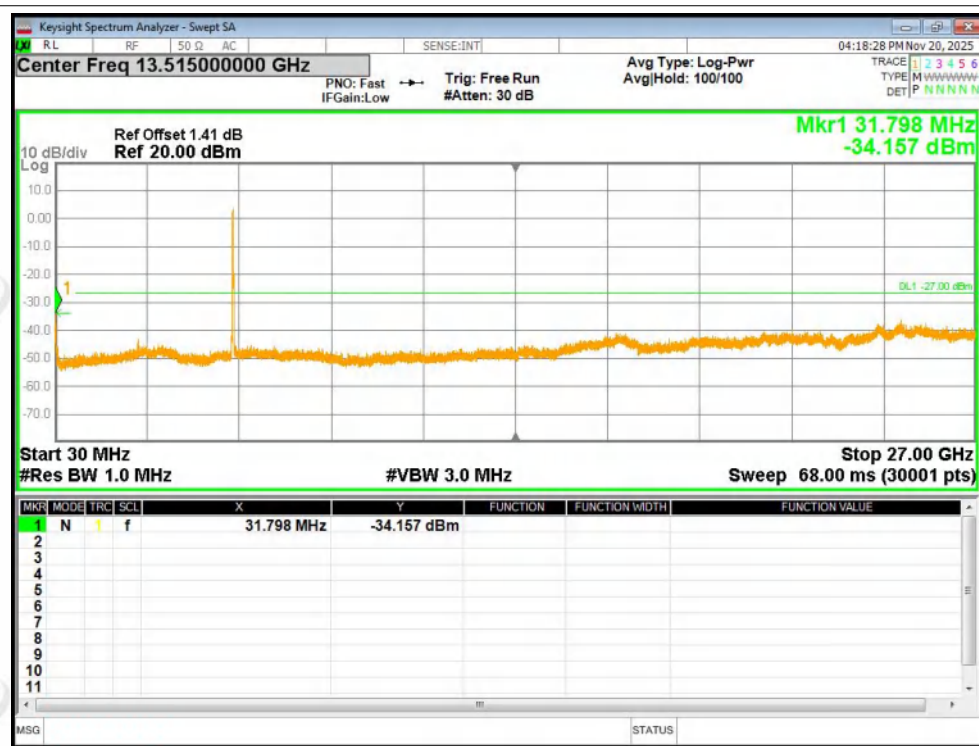
Tx. Spurious NVNT n20 5180MHz Ant1 Emission



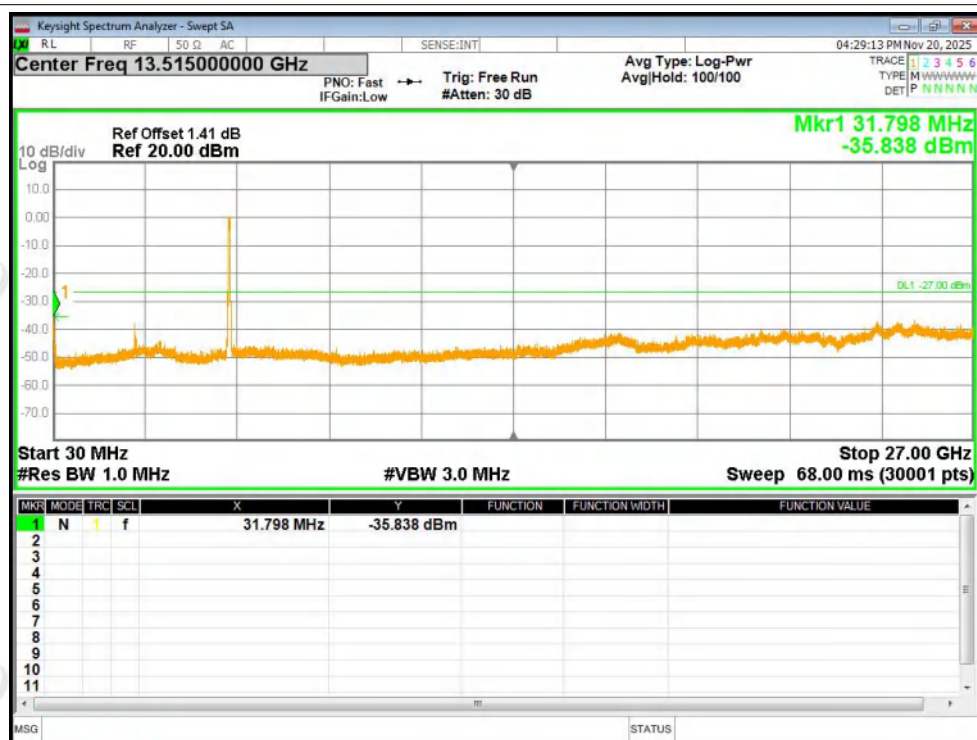
Tx. Spurious NVNT n20 5200MHz Ant1 Emission



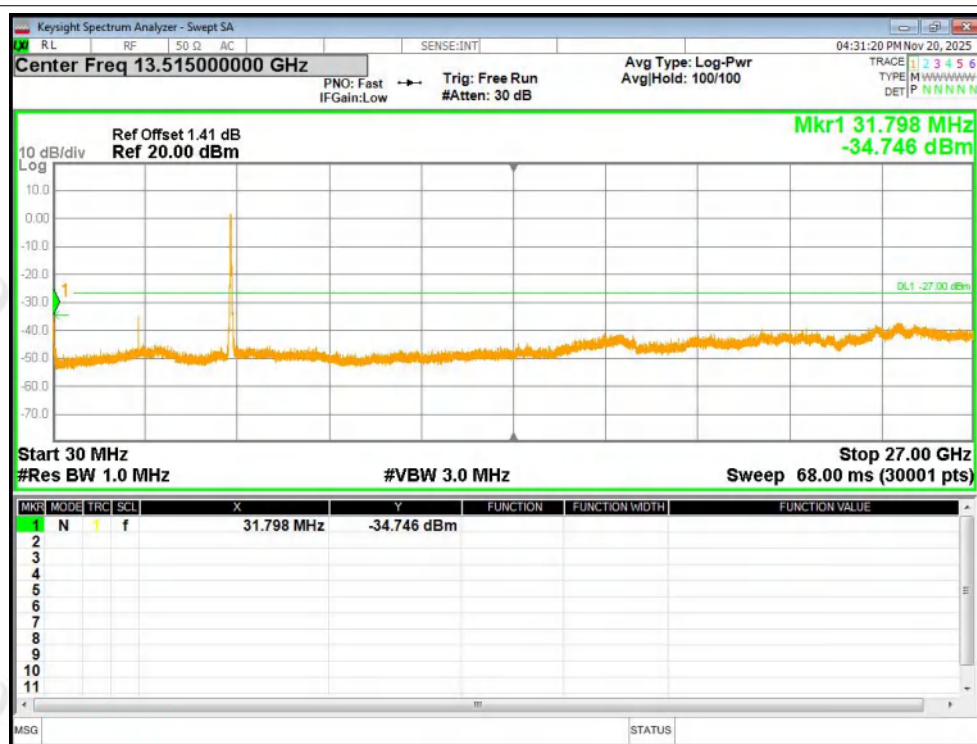
Tx. Spurious NVNT n20 5240MHz Ant1 Emission



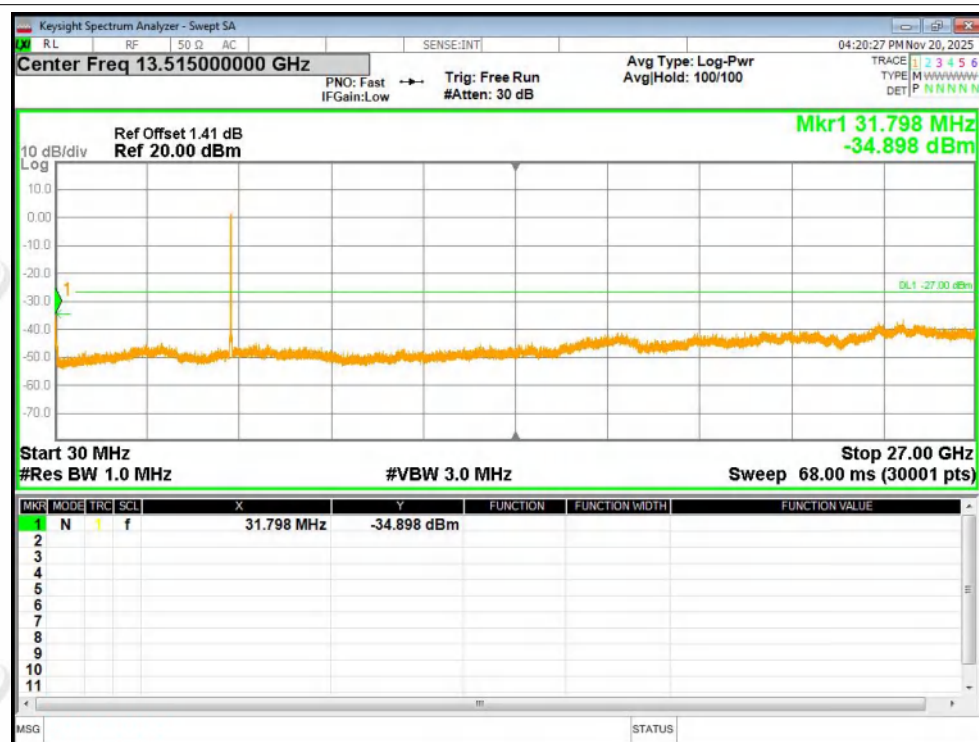
Tx. Spurious NVNT n40 5190MHz Ant1 Emission



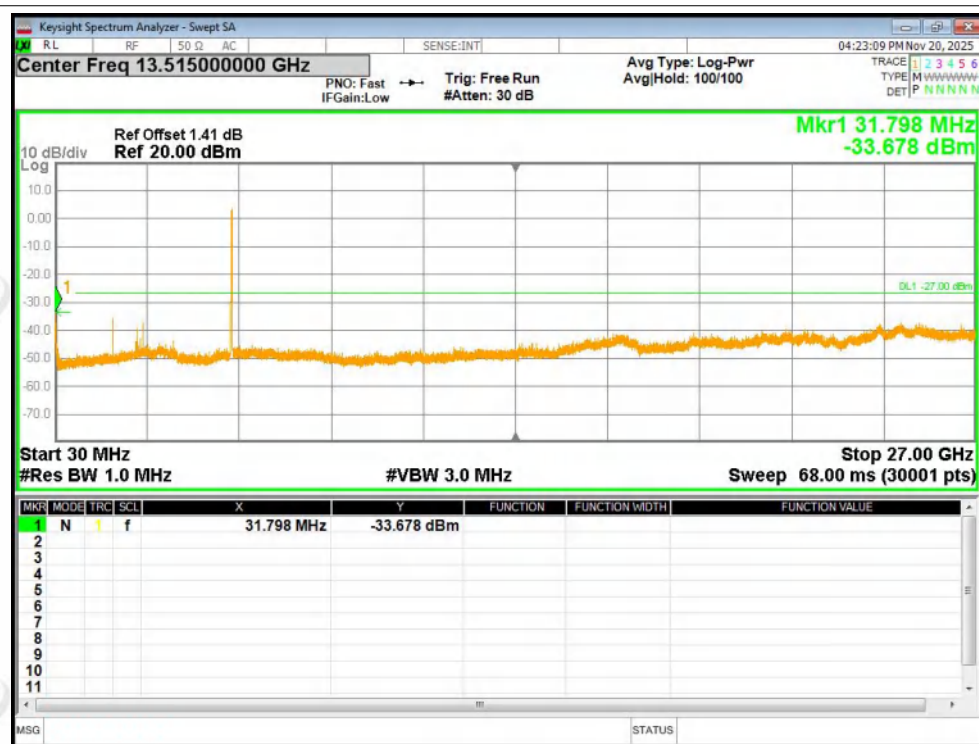
Tx. Spurious NVNT n40 5230MHz Ant1 Emission



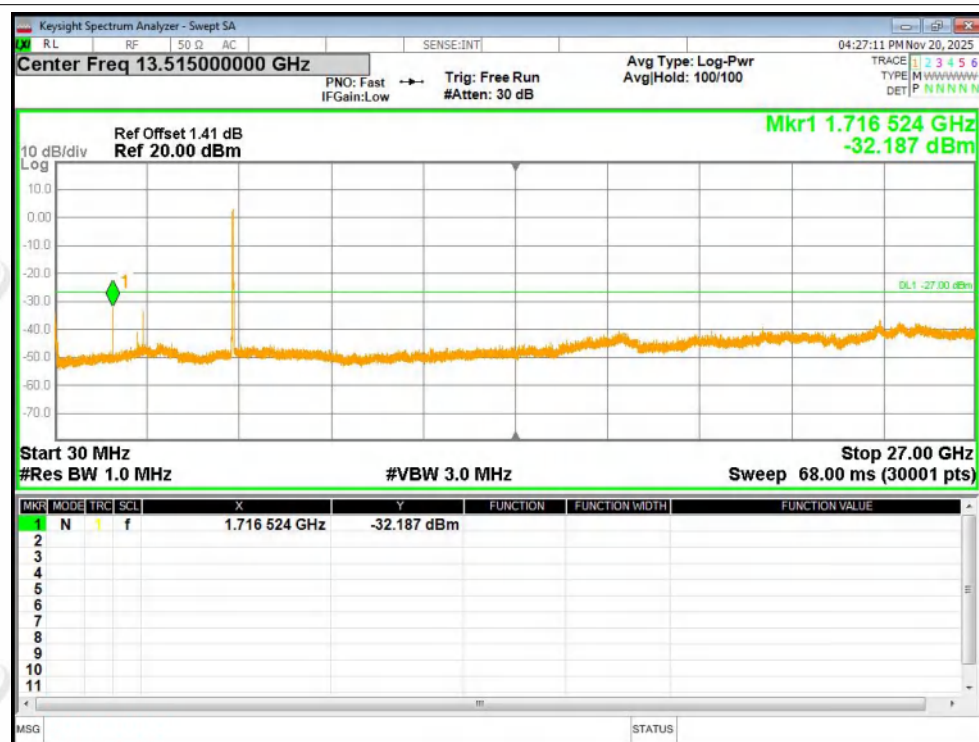
Tx. Spurious NVNT ac20 5180MHz Ant1 Emission



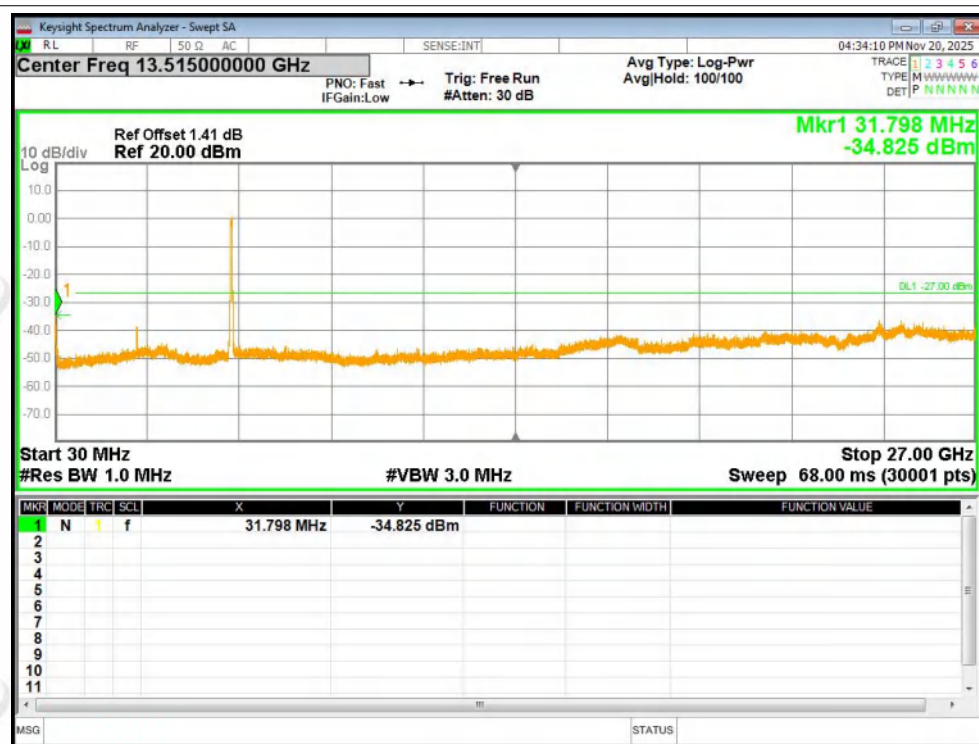
Tx. Spurious NVNT ac20 5200MHz Ant1 Emission



Tx. Spurious NVNT ac20 5240MHz Ant1 Emission



Tx. Spurious NVNT ac40 5190MHz Ant1 Emission



Tx. Spurious NVNT ac40 5230MHz Ant1 Emission



Tx. Spurious NVNT ac80 5210MHz Ant1 Emission



Remark1: From 26.5GHz to 40GHz,the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.