

Appendix B for 5.8GWIFI Test Data

Product Name: IP / NETWORK CAMERA

Test Model: IN-9820 4K

Environmental Conditions

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

**B.1 Duty Cycle**

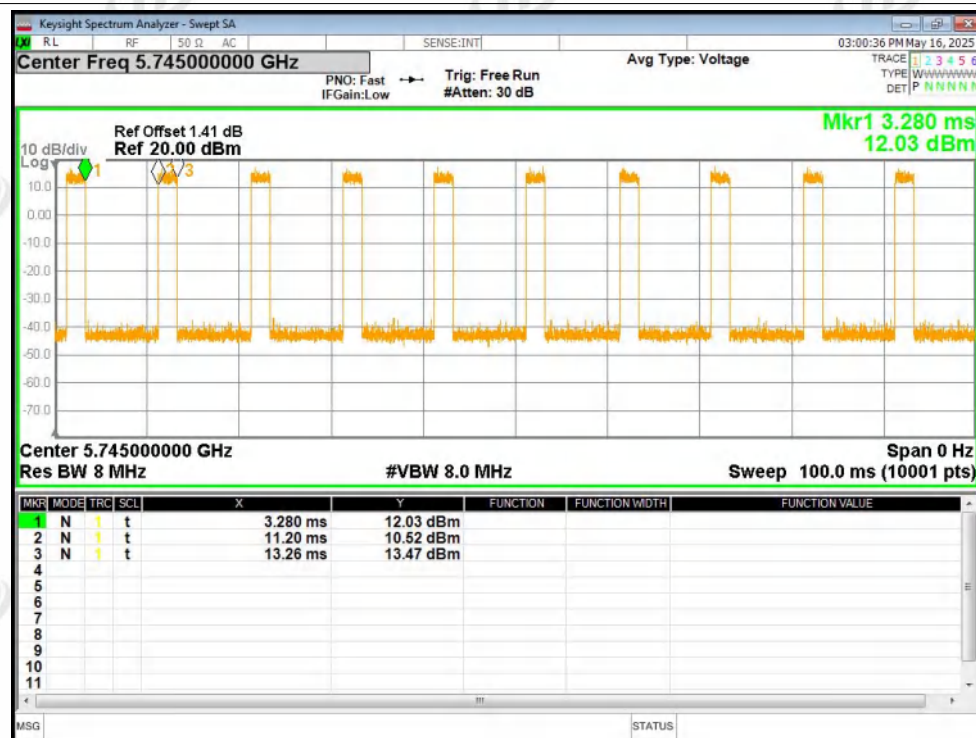
Mode	Frequency (MHz)	Antenna	T _{on} ms	T _{total} ms	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
a	5745	Ant2	3.28	3.28	20.64	6.85	0.49
a	5785	Ant2	2.07	9.92	20.87	6.8	0.48
a	5825	Ant2	2.07	10.05	20.6	6.86	0.48
n20	5745	Ant2	1.92	10.08	19.05	7.2	0.52
n20	5785	Ant2	1.92	10.11	18.99	7.21	0.52
n20	5825	Ant2	1.92	9.89	19.41	7.12	0.52
n40	5755	Ant2	0.94	10.08	9.33	10.3	1.06
n40	5795	Ant2	0.95	10.24	9.28	10.32	1.05
ac20	5745	Ant2	1.93	8.83	21.86	6.6	0.52
ac20	5785	Ant2	1.93	10.02	19.26	7.15	0.52
ac20	5825	Ant2	1.94	10.12	19.17	7.17	0.52
ac40	5755	Ant2	0.95	10.05	9.45	10.25	1.05
ac40	5795	Ant2	0.96	9.92	9.68	10.14	1.04
ac80	5775	Ant2	0.47	9.96	4.72	13.26	2.13

Note:

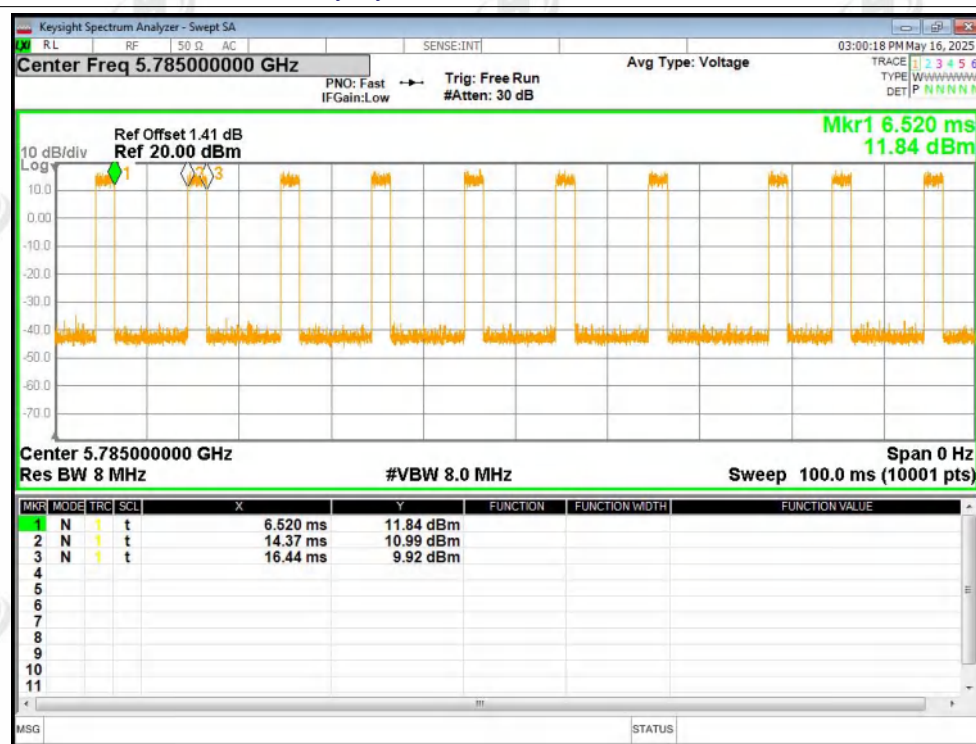
1. Duty Cycle = T_{on} / T_{total} 2. Correction Factor = $10 \log (1 / \text{Duty Cycle})$.3. $1/T = 1/T_{on}$

Test Graphs

Duty Cycle NVNT a 5745MHz Ant2



Duty Cycle NVNT a 5785MHz Ant2

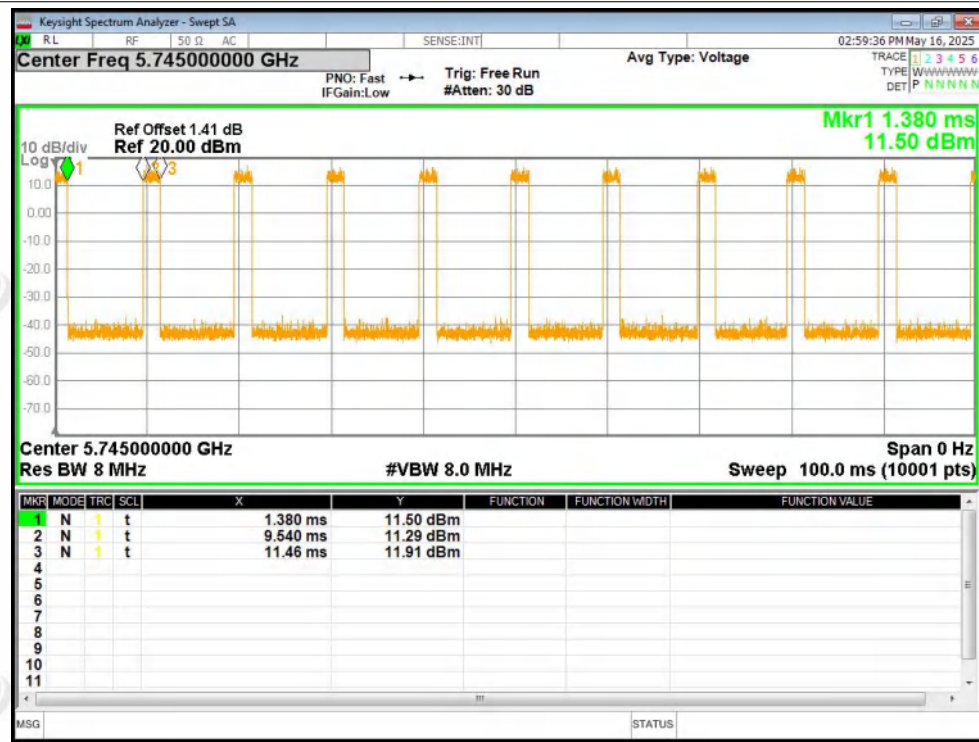




Duty Cycle NVNT a 5825MHz Ant2

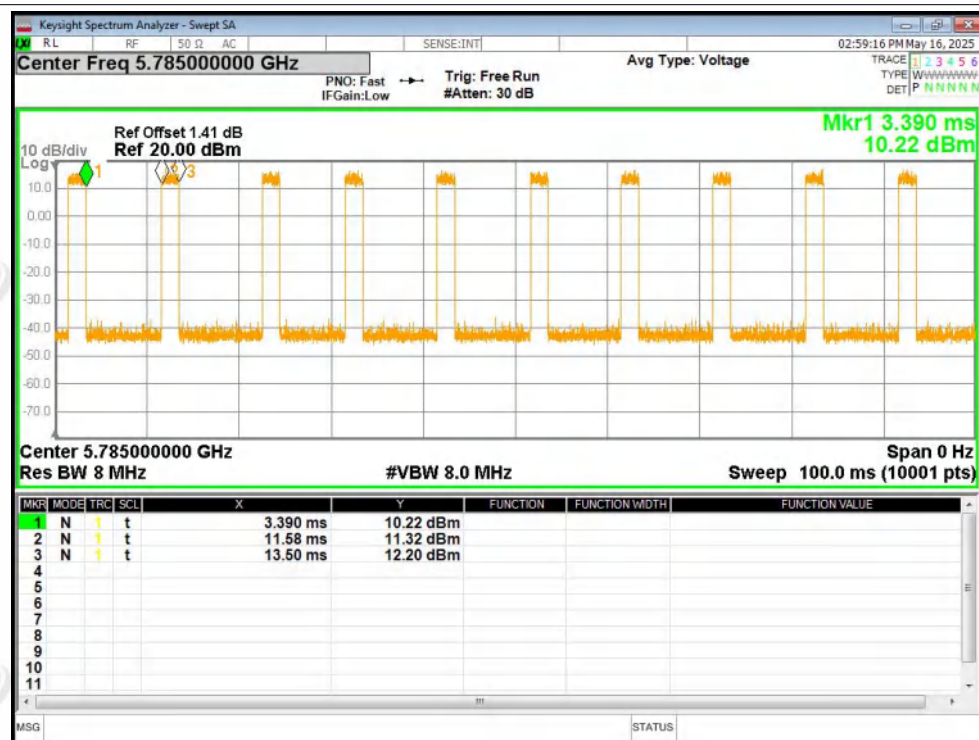


Duty Cycle NVNT n20 5745MHz Ant2





Duty Cycle NVNT n20 5785MHz Ant2

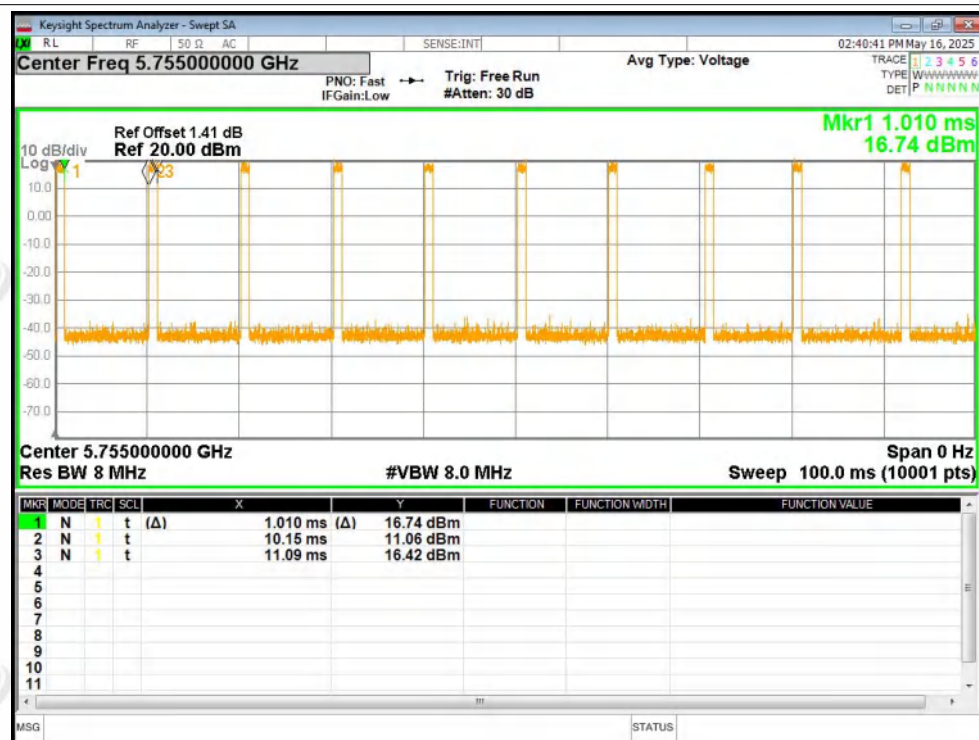


Duty Cycle NVNT n20 5825MHz Ant2





Duty Cycle NVNT n40 5755MHz Ant2

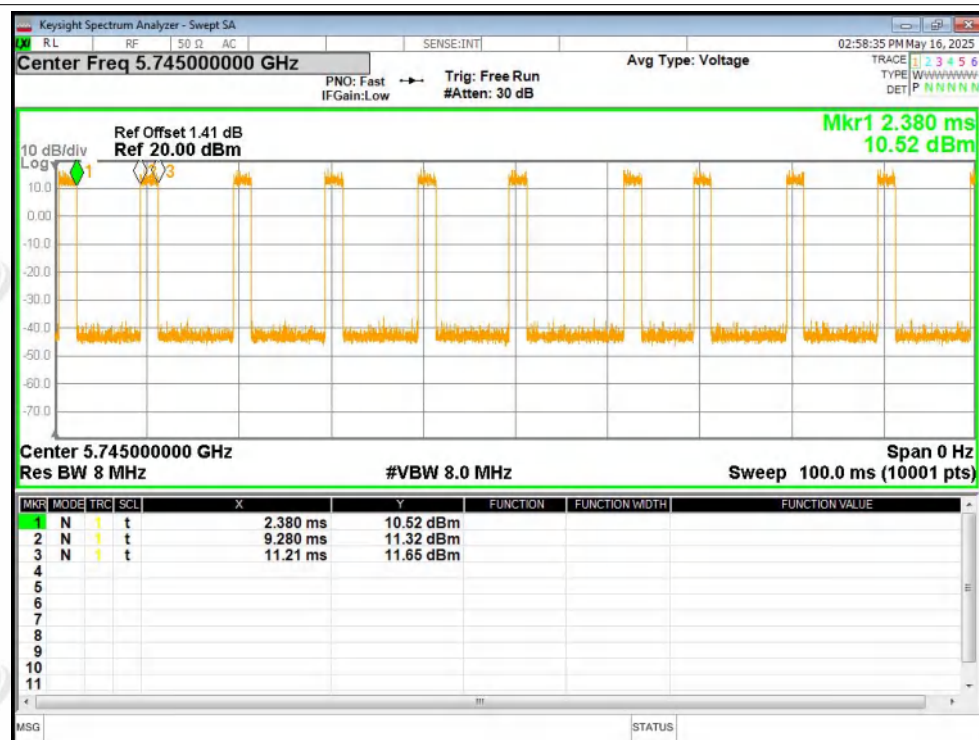


Duty Cycle NVNT n40 5795MHz Ant2





Duty Cycle NVNT ac20 5745MHz Ant2

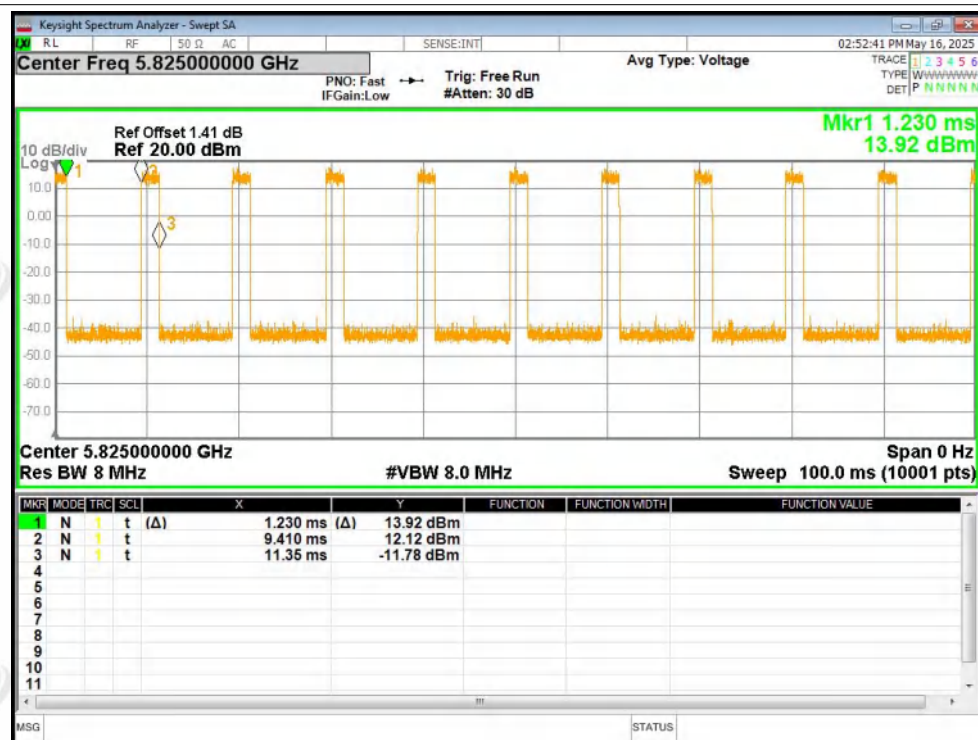


Duty Cycle NVNT ac20 5785MHz Ant2

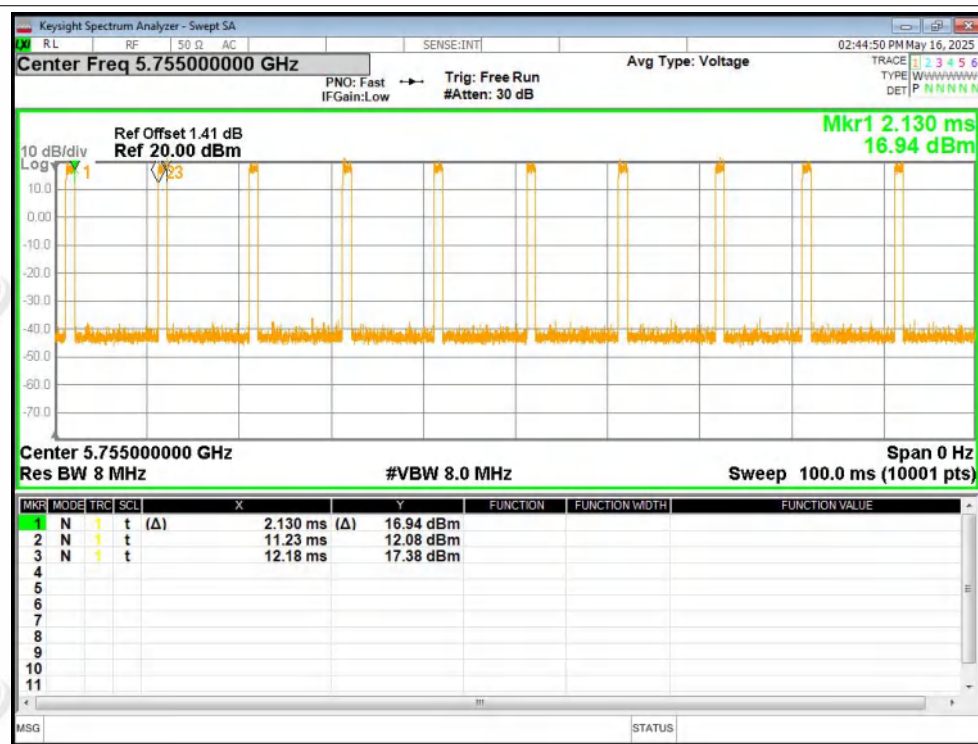




Duty Cycle NVNT ac20 5825MHz Ant2

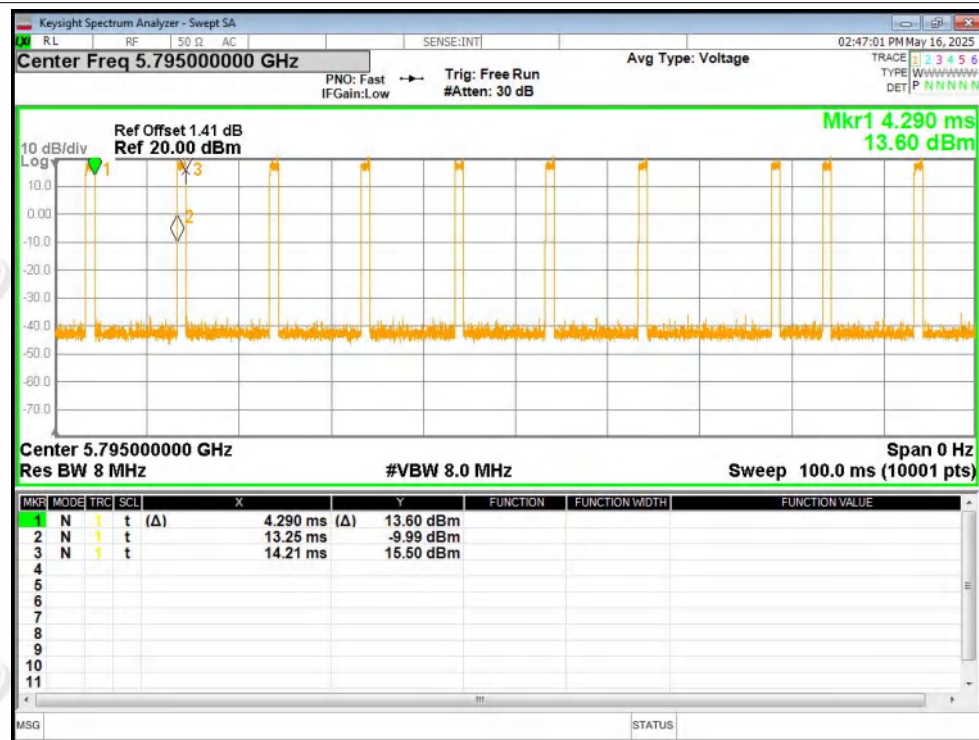


Duty Cycle NVNT ac40 5755MHz Ant2

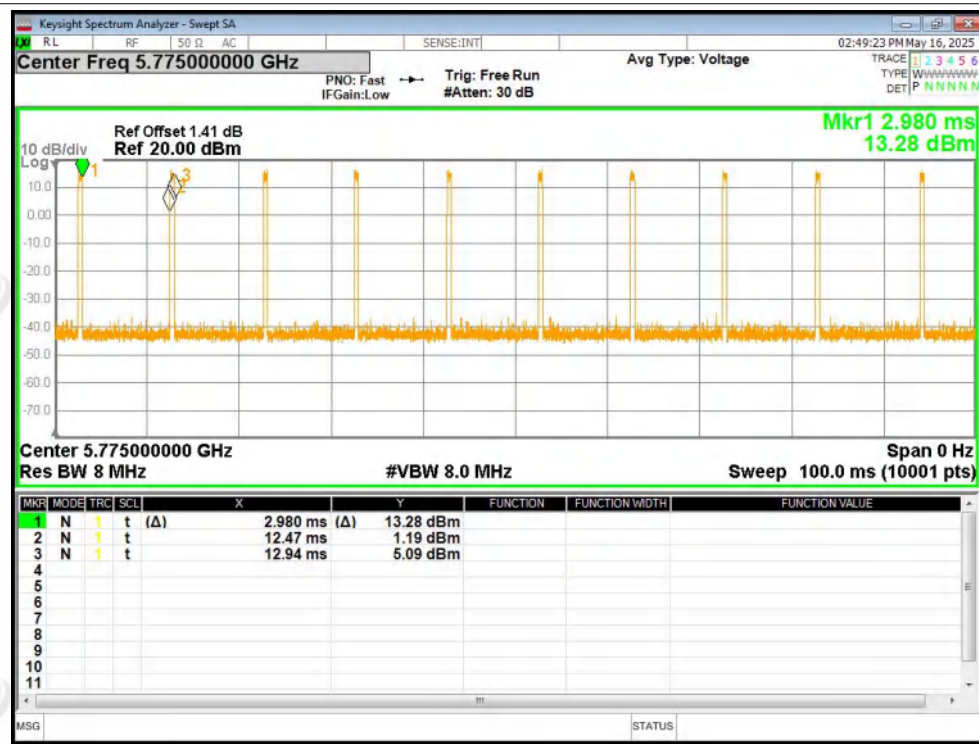




Duty Cycle NVNT ac40 5795MHz Ant2



Duty Cycle NVNT ac80 5775MHz Ant2

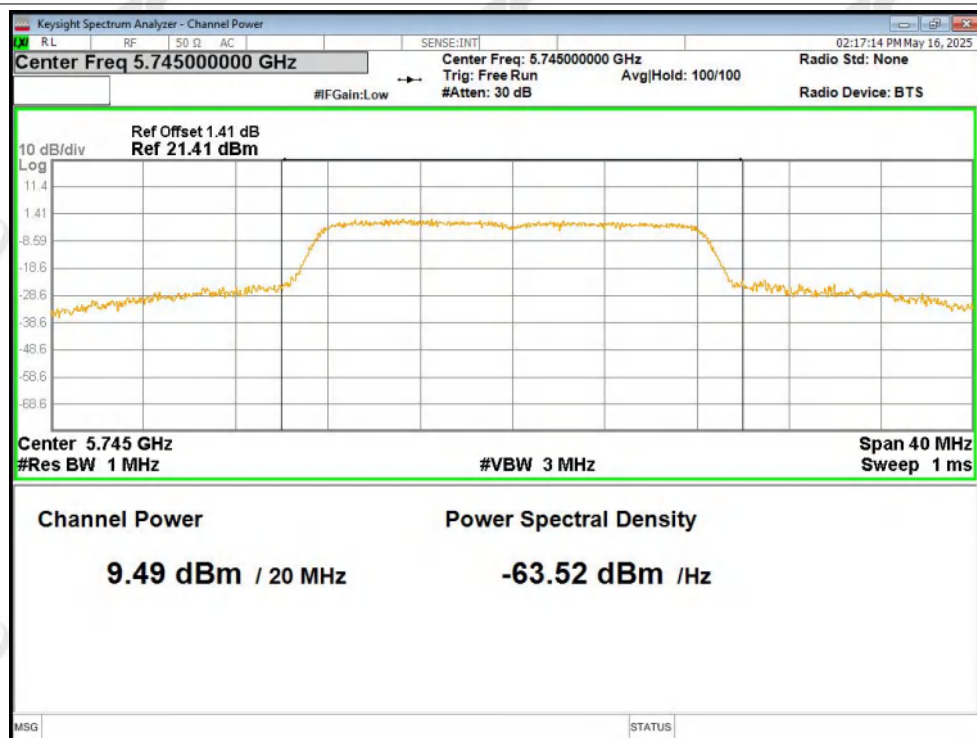


**ZHONGHAN****B.2 Maximum Conducted Output Power**

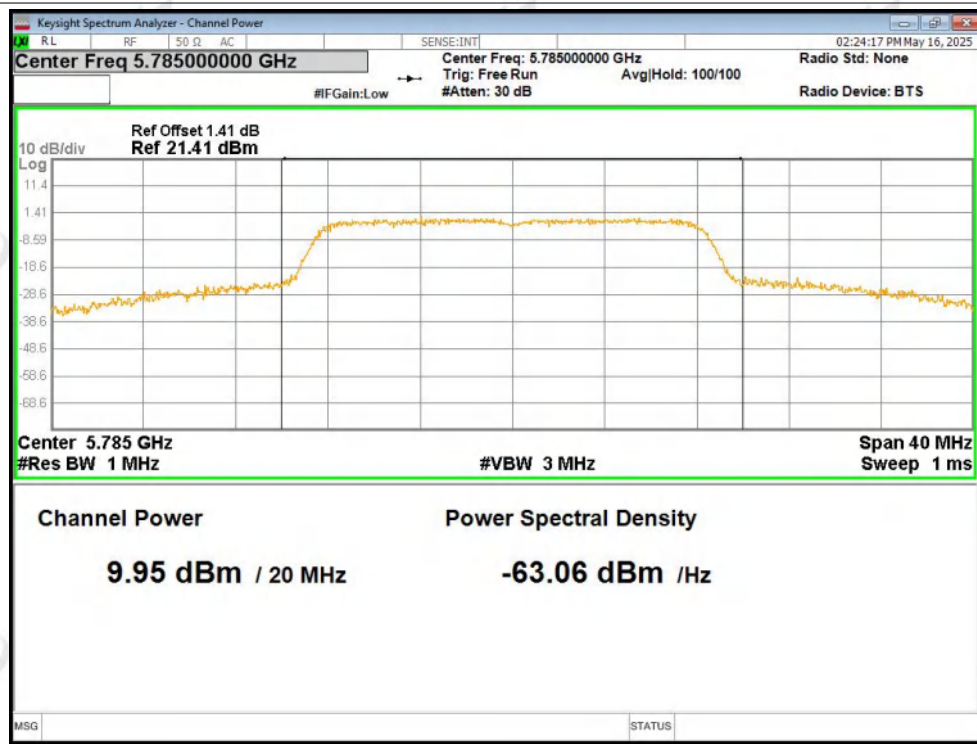
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant2	9.49	6.9	16.39	30	Pass
NVNT	a	5785	Ant2	9.95	6.9	16.85	30	Pass
NVNT	a	5825	Ant2	10.7	6.83	17.53	30	Pass
NVNT	n20	5745	Ant2	9.08	7.19	16.27	30	Pass
NVNT	n20	5785	Ant2	10.09	7.04	17.13	30	Pass
NVNT	n20	5825	Ant2	11.02	7.14	18.16	30	Pass
NVNT	n40	5755	Ant2	6.73	10.3	17.03	30	Pass
NVNT	n40	5795	Ant2	6.14	10.32	16.46	30	Pass
NVNT	ac20	5745	Ant2	8.74	7.09	15.83	30	Pass
NVNT	ac20	5785	Ant2	9.43	7.19	16.62	30	Pass
NVNT	ac20	5825	Ant2	9.46	7.66	17.12	30	Pass
NVNT	ac40	5755	Ant2	7.05	10.25	17.3	30	Pass
NVNT	ac40	5795	Ant2	6.33	10.14	16.47	30	Pass
NVNT	ac80	5775	Ant2	3.65	13.26	16.91	30	Pass

Test Graphs

Power NVNT a 5745MHz Ant2

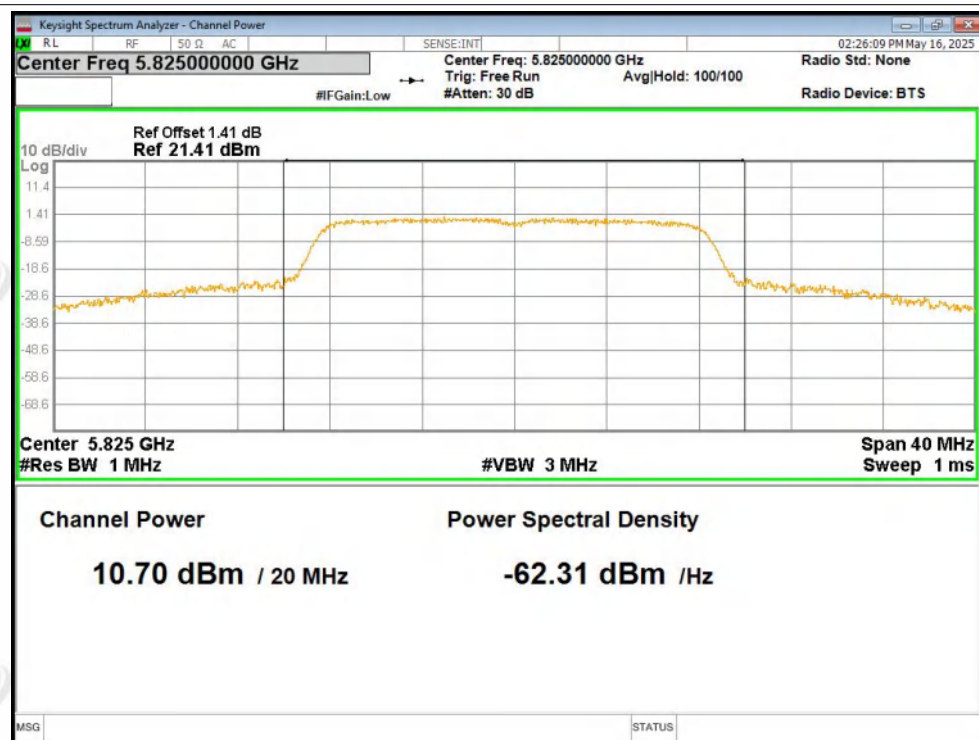


Power NVNT a 5785MHz Ant2

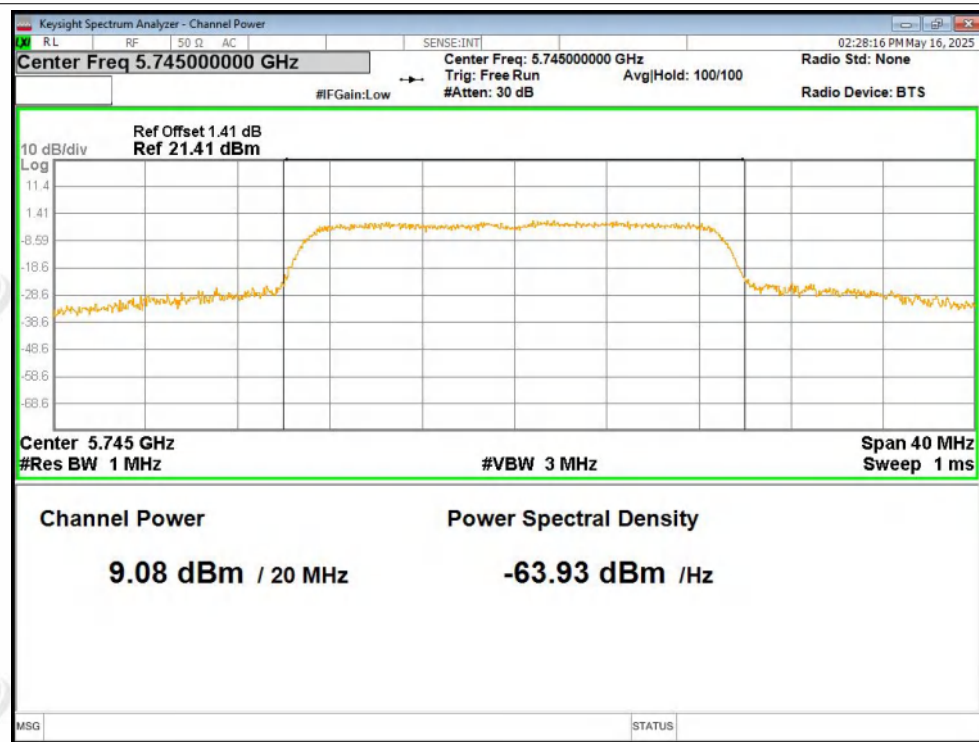




Power NVNT a 5825MHz Ant2

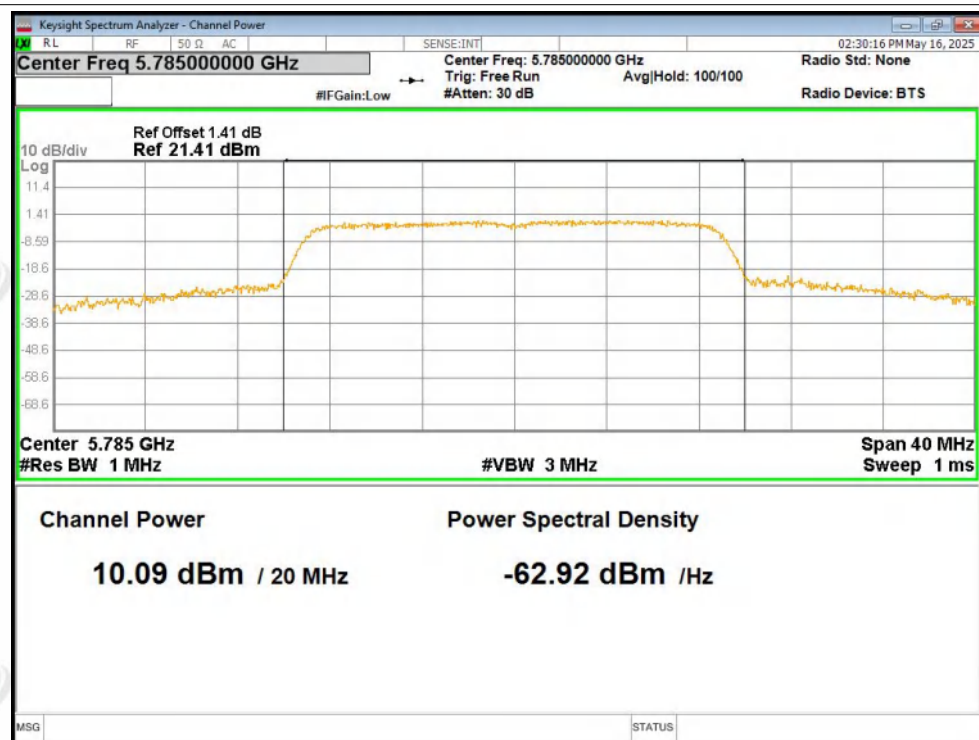


Power NVNT n20 5745MHz Ant2





Power NVNT n20 5785MHz Ant2

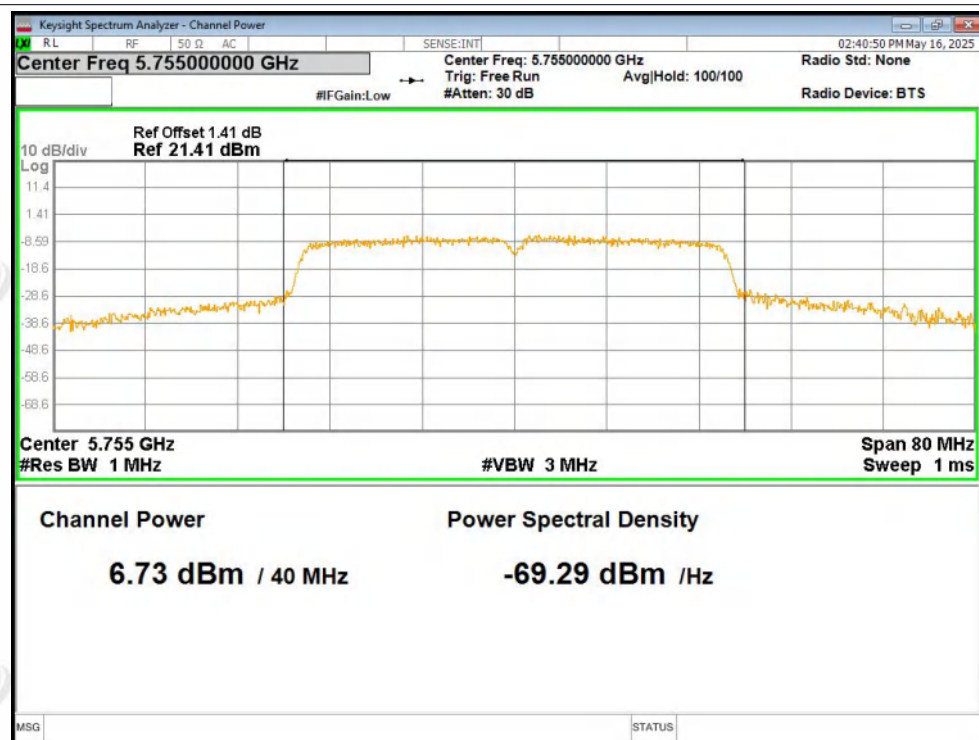


Power NVNT n20 5825MHz Ant2

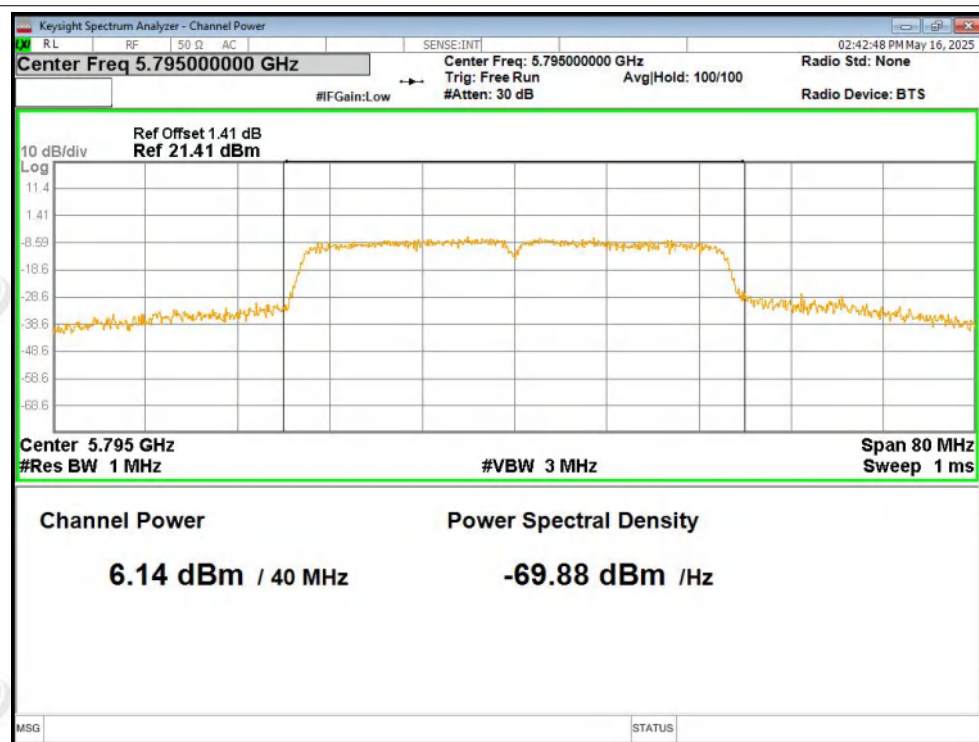




Power NVNT n40 5755MHz Ant2

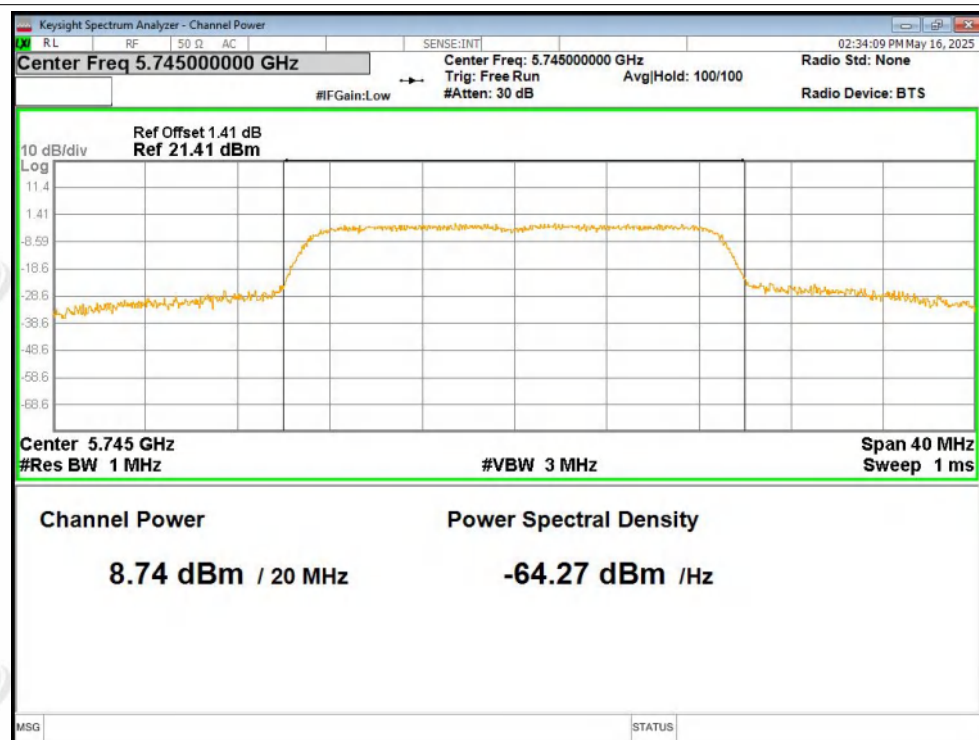


Power NVNT n40 5795MHz Ant2





Power NVNT ac20 5745MHz Ant2

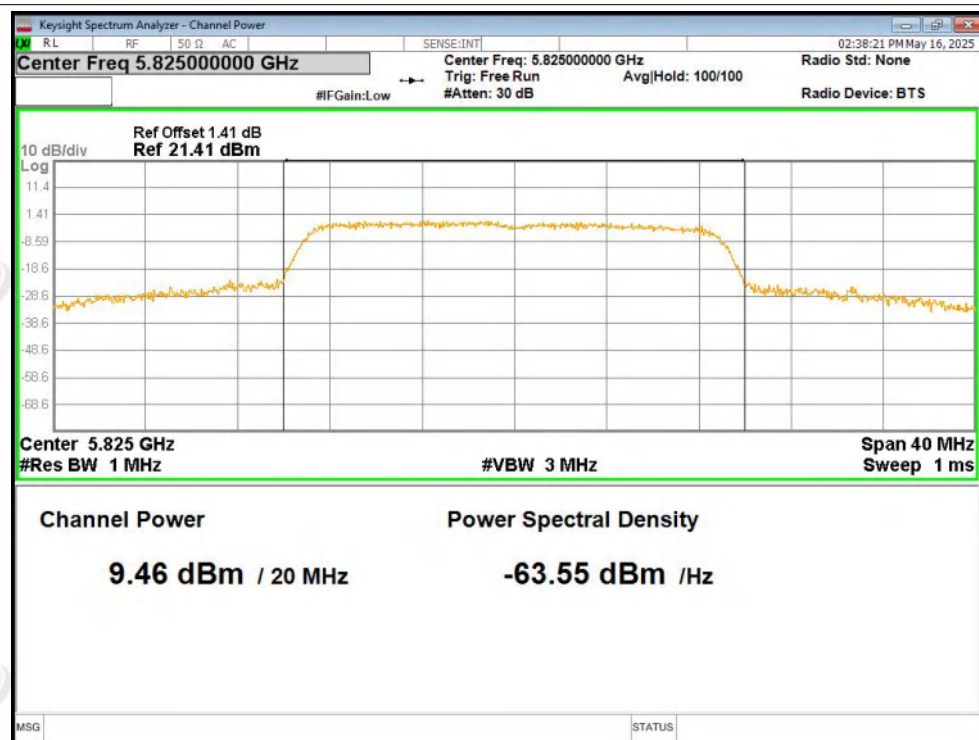


Power NVNT ac20 5785MHz Ant2

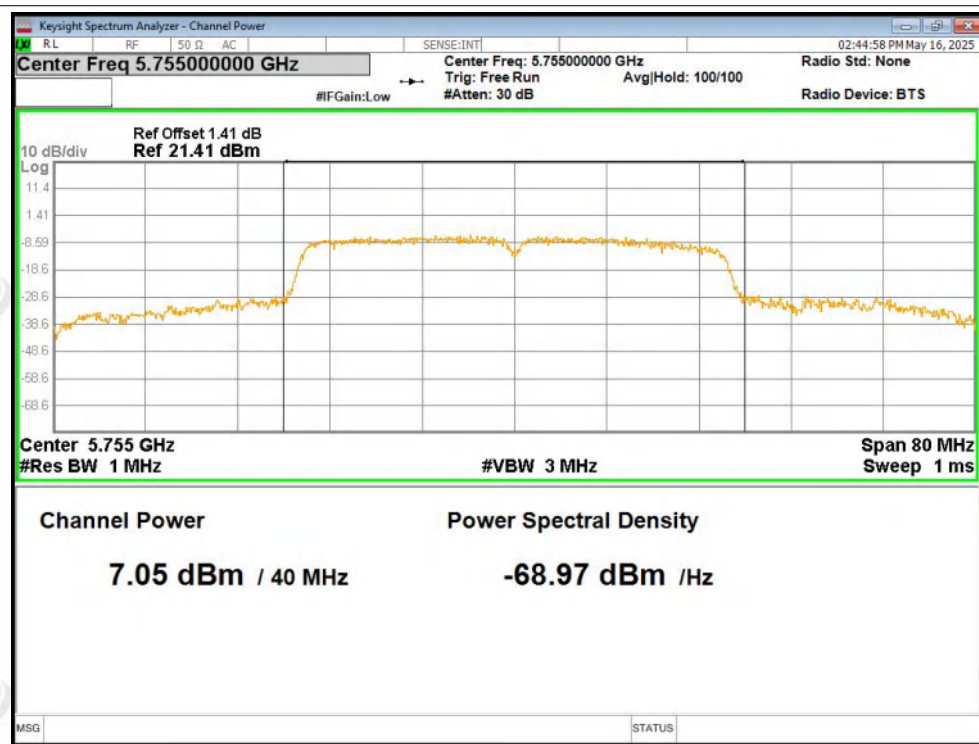




Power NVNT ac20 5825MHz Ant2

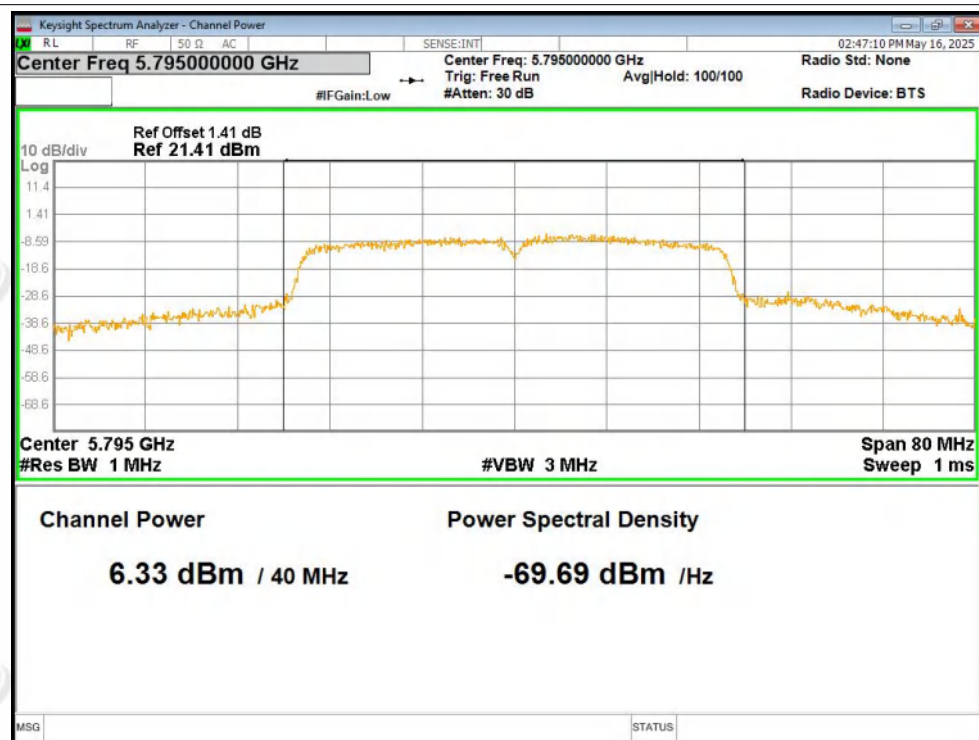


Power NVNT ac40 5755MHz Ant2

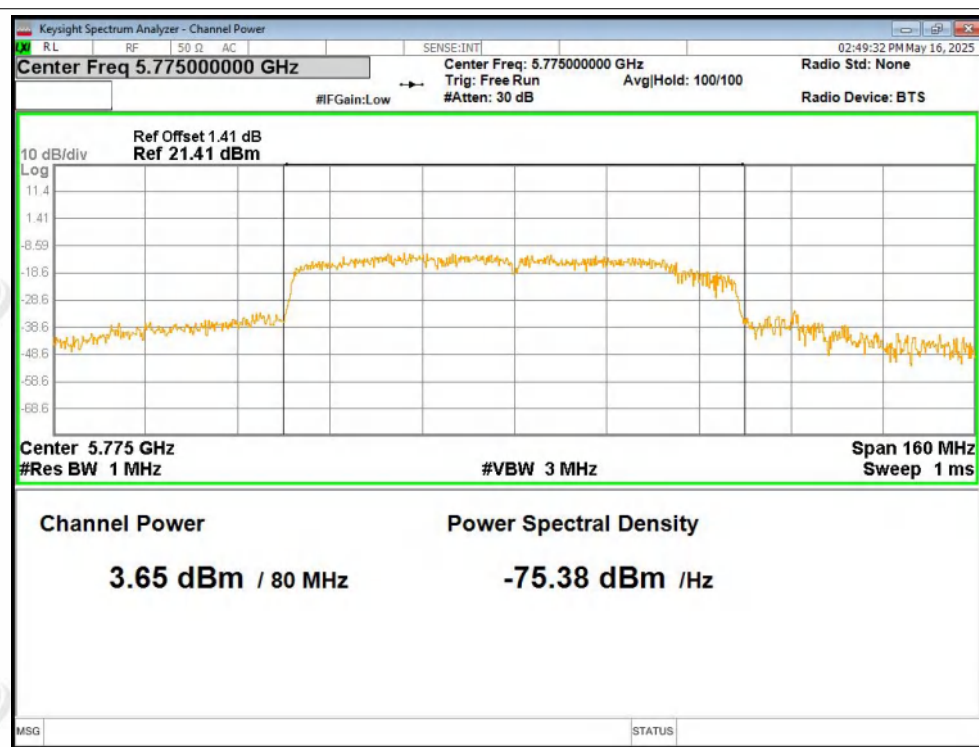




Power NVNT ac40 5795MHz Ant2



Power NVNT ac80 5775MHz Ant2



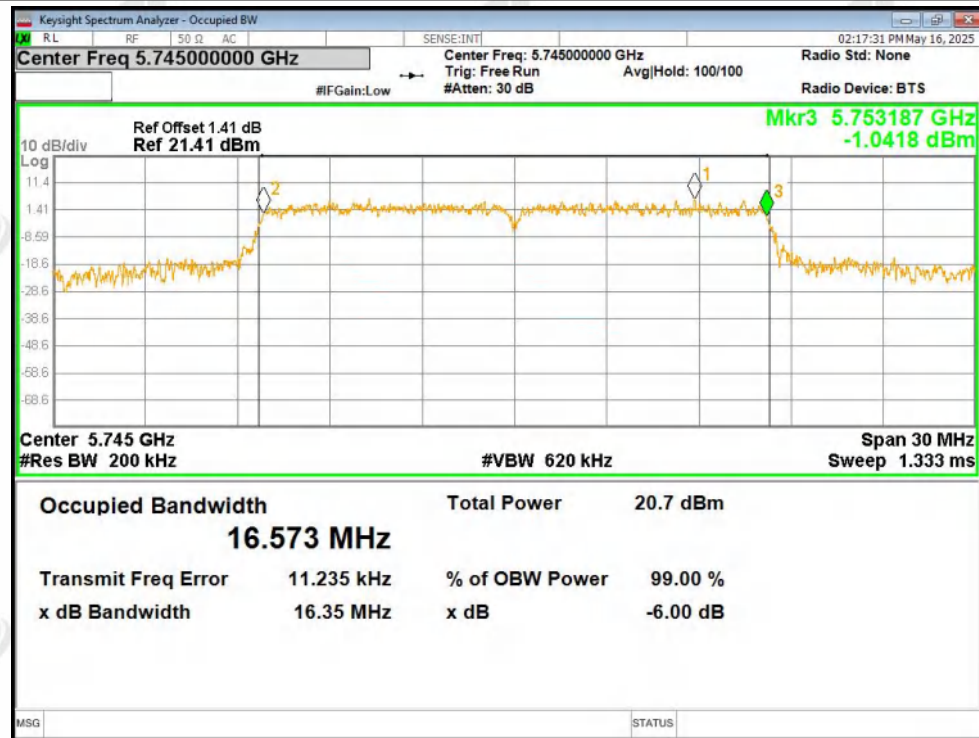
**ZHONGHAN****B.3 -6dB Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant2	16.352	0.5	Pass
NVNT	a	5785	Ant2	16.347	0.5	Pass
NVNT	a	5825	Ant2	16.347	0.5	Pass
NVNT	n20	5745	Ant2	17.62	0.5	Pass
NVNT	n20	5785	Ant2	17.443	0.5	Pass
NVNT	n20	5825	Ant2	17.374	0.5	Pass
NVNT	n40	5755	Ant2	35.214	0.5	Pass
NVNT	n40	5795	Ant2	34.954	0.5	Pass
NVNT	ac20	5745	Ant2	17.584	0.5	Pass
NVNT	ac20	5785	Ant2	16.973	0.5	Pass
NVNT	ac20	5825	Ant2	17.493	0.5	Pass
NVNT	ac40	5755	Ant2	35.92	0.5	Pass
NVNT	ac40	5795	Ant2	36.071	0.5	Pass
NVNT	ac80	5775	Ant2	74.093	0.5	Pass

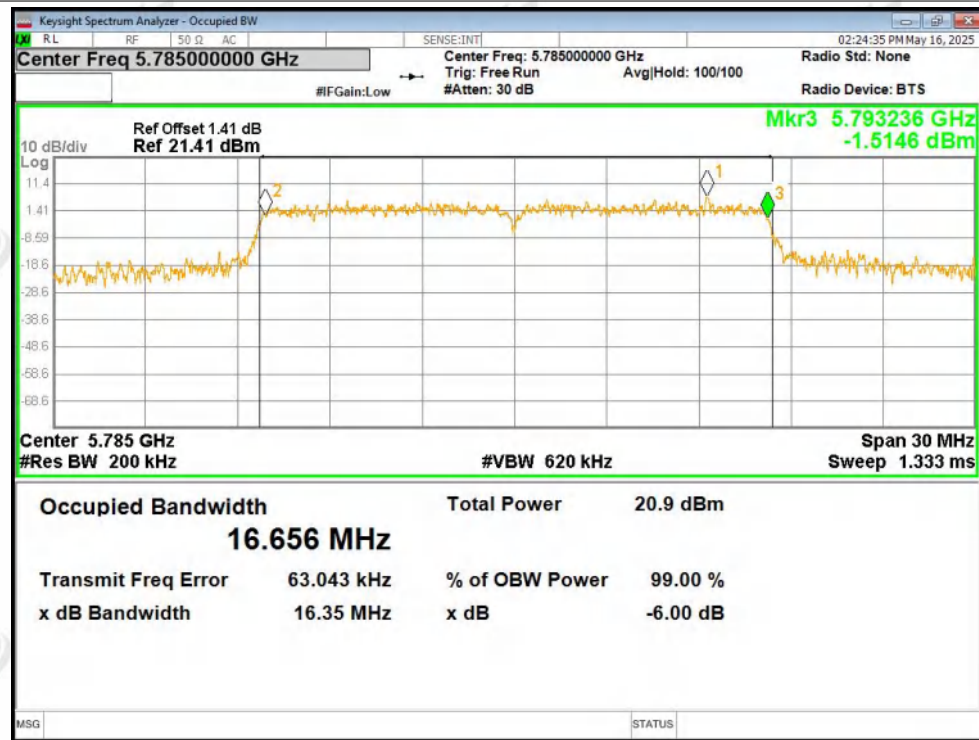


Test Graphs

-6dB Bandwidth NVNT a 5745MHz Ant2

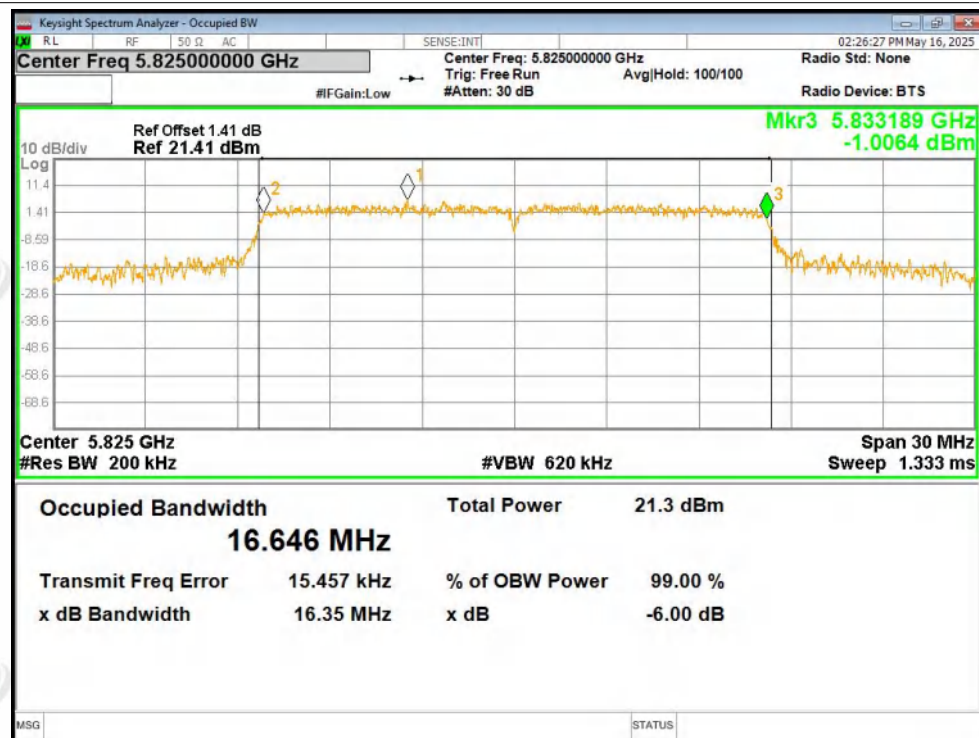


-6dB Bandwidth NVNT a 5785MHz Ant2

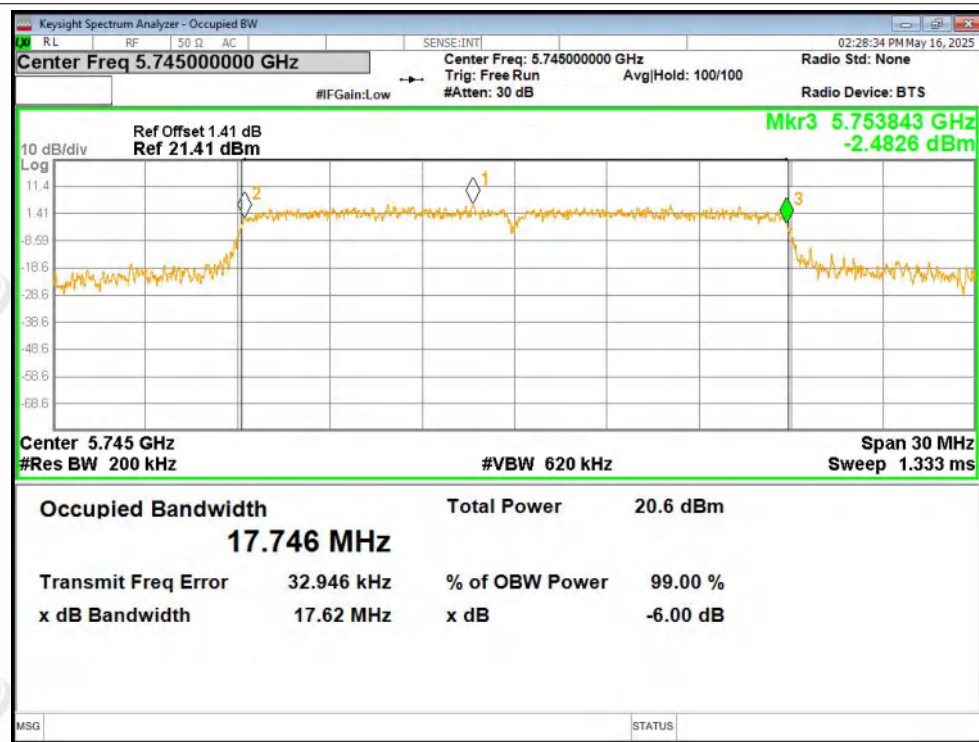




-6dB Bandwidth NVNT a 5825MHz Ant2

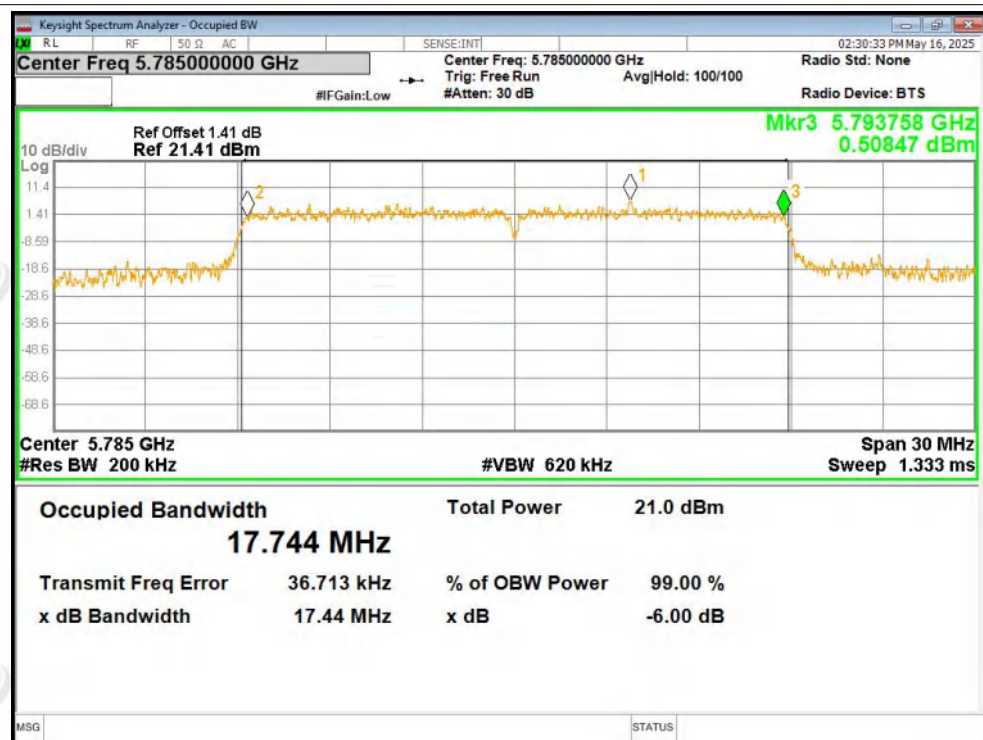


-6dB Bandwidth NVNT n20 5745MHz Ant2

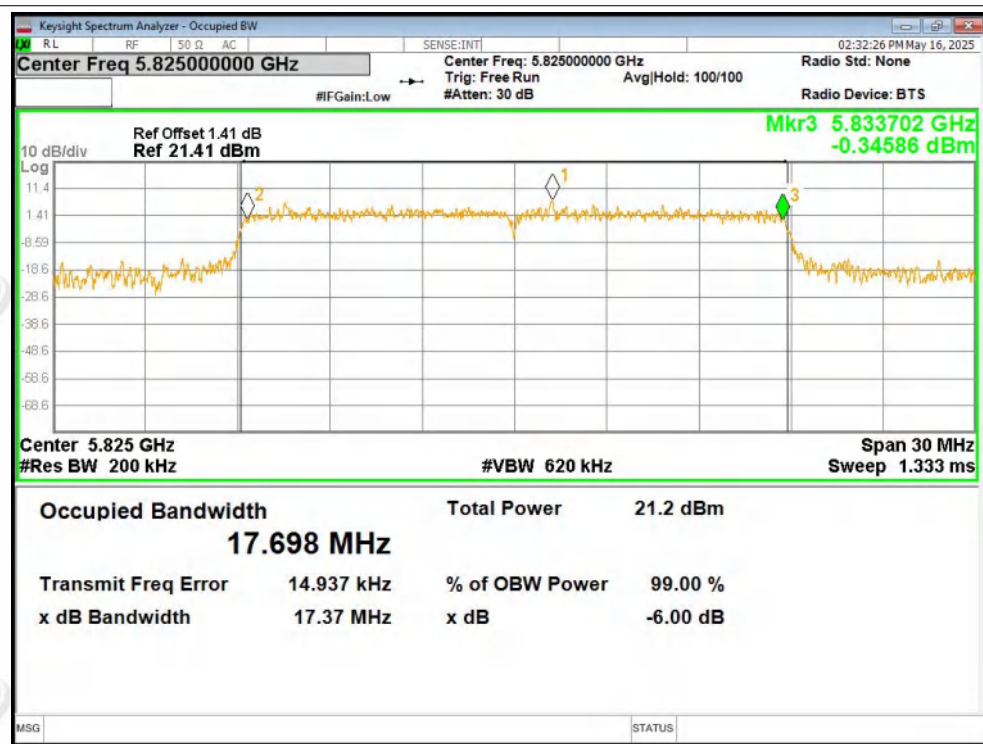




-6dB Bandwidth NVNT n20 5785MHz Ant2

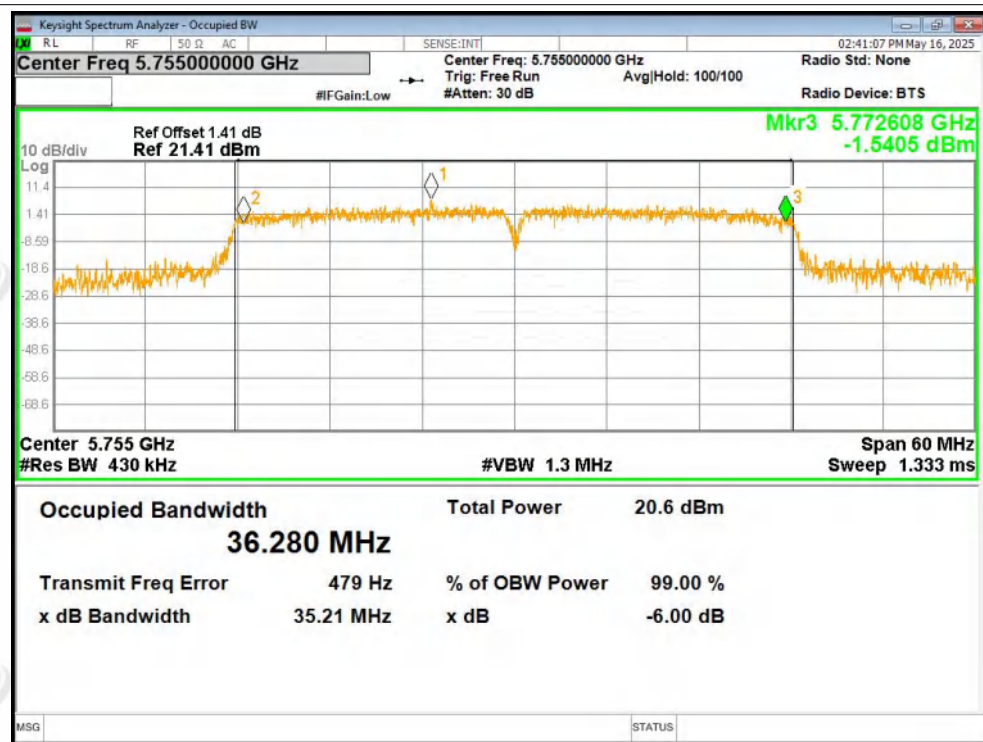


-6dB Bandwidth NVNT n20 5825MHz Ant2

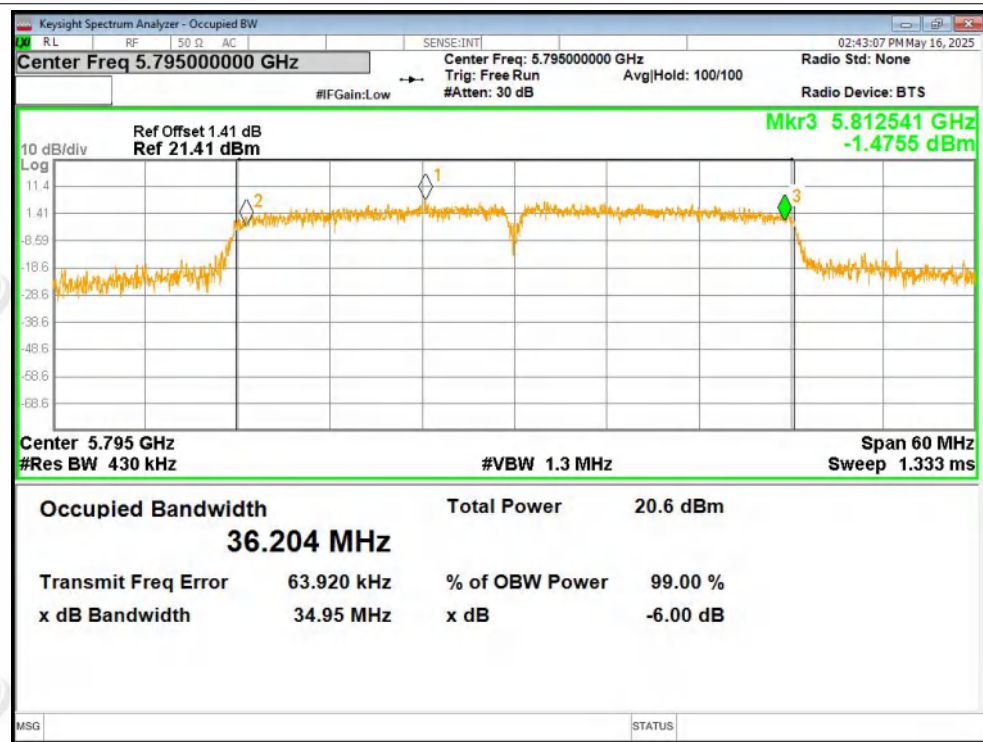




-6dB Bandwidth NVNT n40 5755MHz Ant2

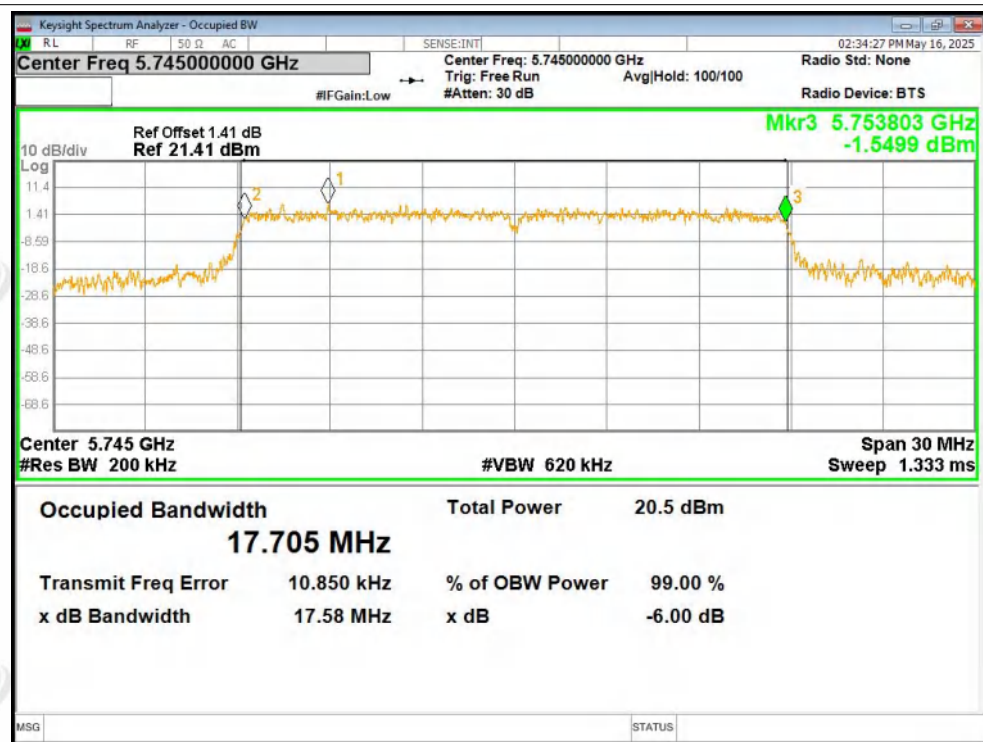


-6dB Bandwidth NVNT n40 5795MHz Ant2

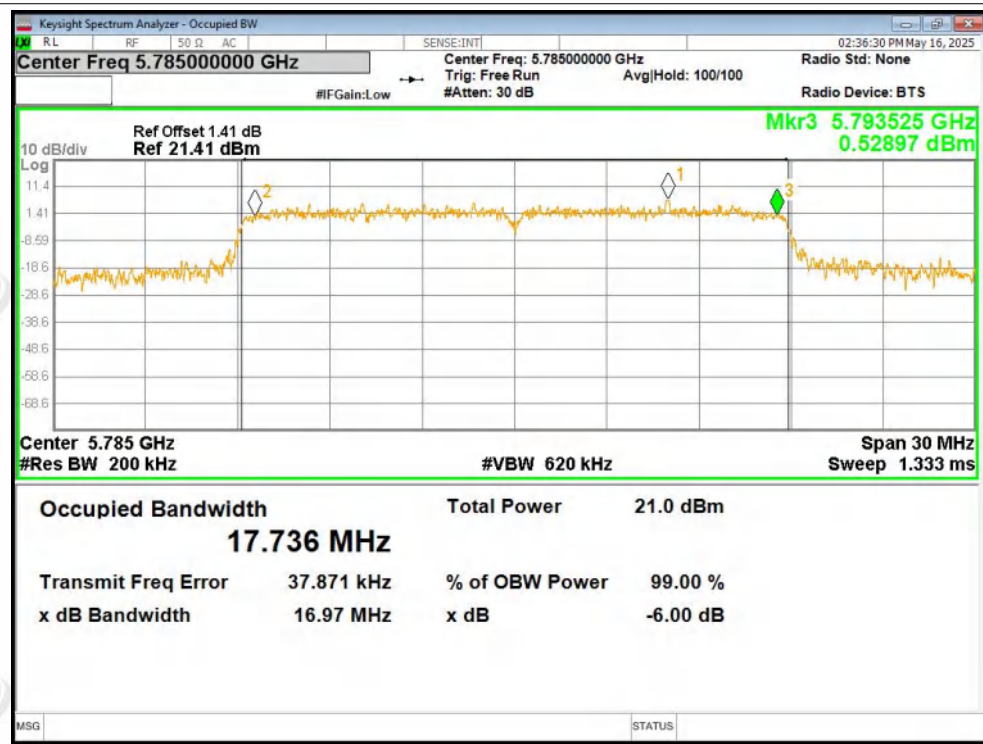




-6dB Bandwidth NVNT ac20 5745MHz Ant2

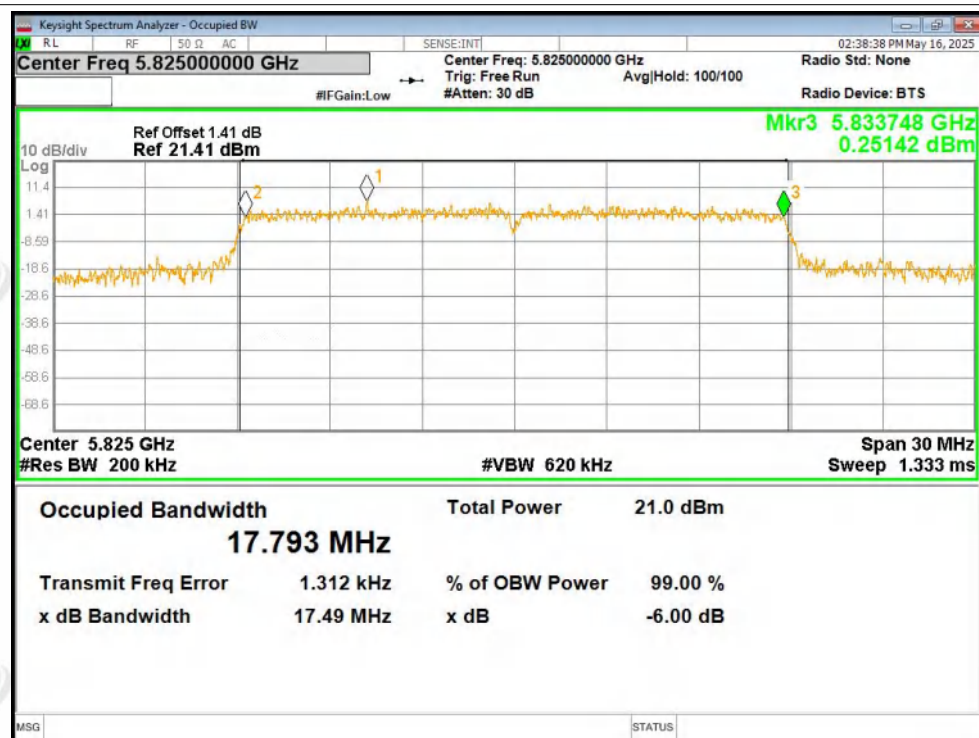


-6dB Bandwidth NVNT ac20 5785MHz Ant2

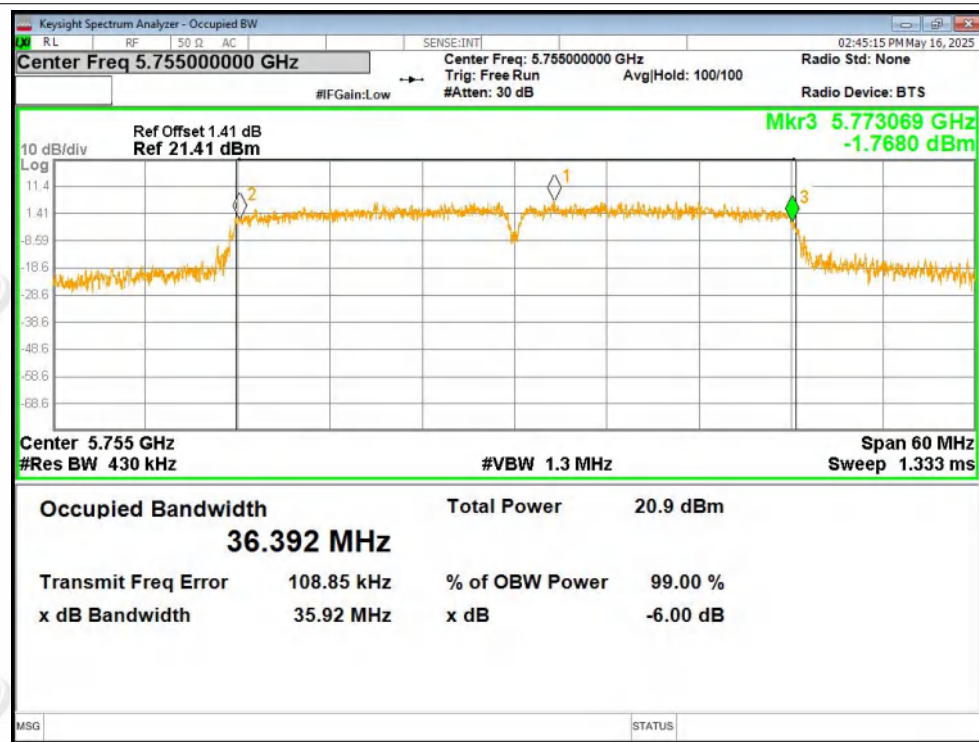




-6dB Bandwidth NVNT ac20 5825MHz Ant2

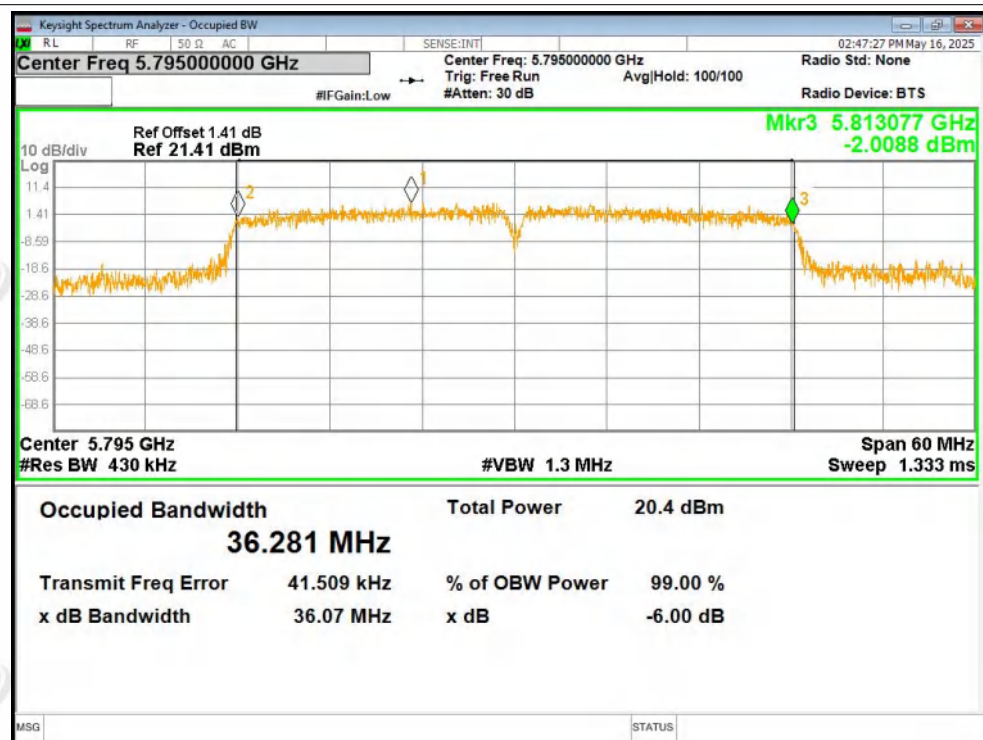


-6dB Bandwidth NVNT ac40 5755MHz Ant2

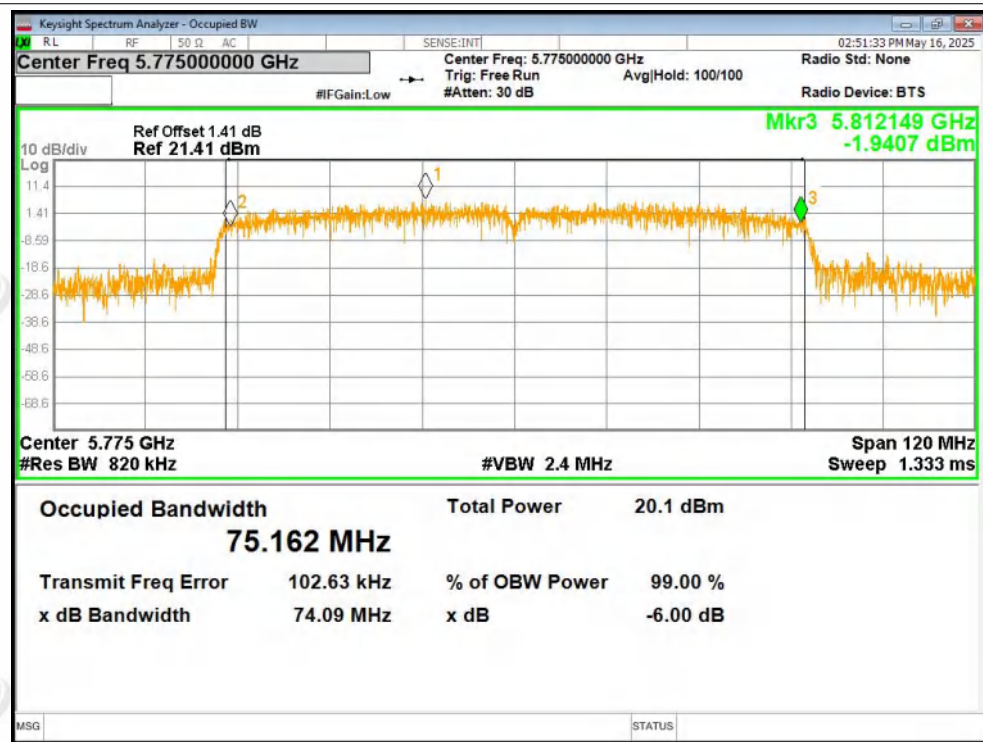




-6dB Bandwidth NVNT ac40 5795MHz Ant2



-6dB Bandwidth NVNT ac80 5775MHz Ant2



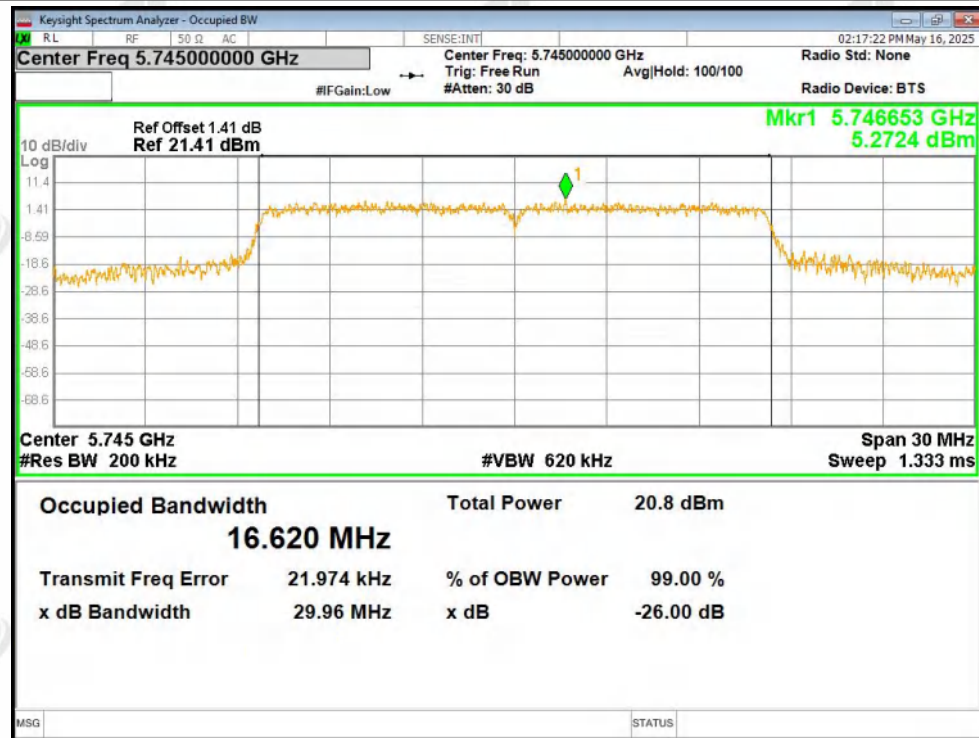
**ZHONGHAN****B.4 Occupied Channel Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5745	Ant2	16.62
NVNT	a	5785	Ant2	16.672
NVNT	a	5825	Ant2	16.597
NVNT	n20	5745	Ant2	17.72
NVNT	n20	5785	Ant2	17.705
NVNT	n20	5825	Ant2	17.736
NVNT	n40	5755	Ant2	36.285
NVNT	n40	5795	Ant2	36.142
NVNT	ac20	5745	Ant2	17.728
NVNT	ac20	5785	Ant2	17.804
NVNT	ac20	5825	Ant2	17.769
NVNT	ac40	5755	Ant2	36.229
NVNT	ac40	5795	Ant2	36.271
NVNT	ac80	5775	Ant2	75.227

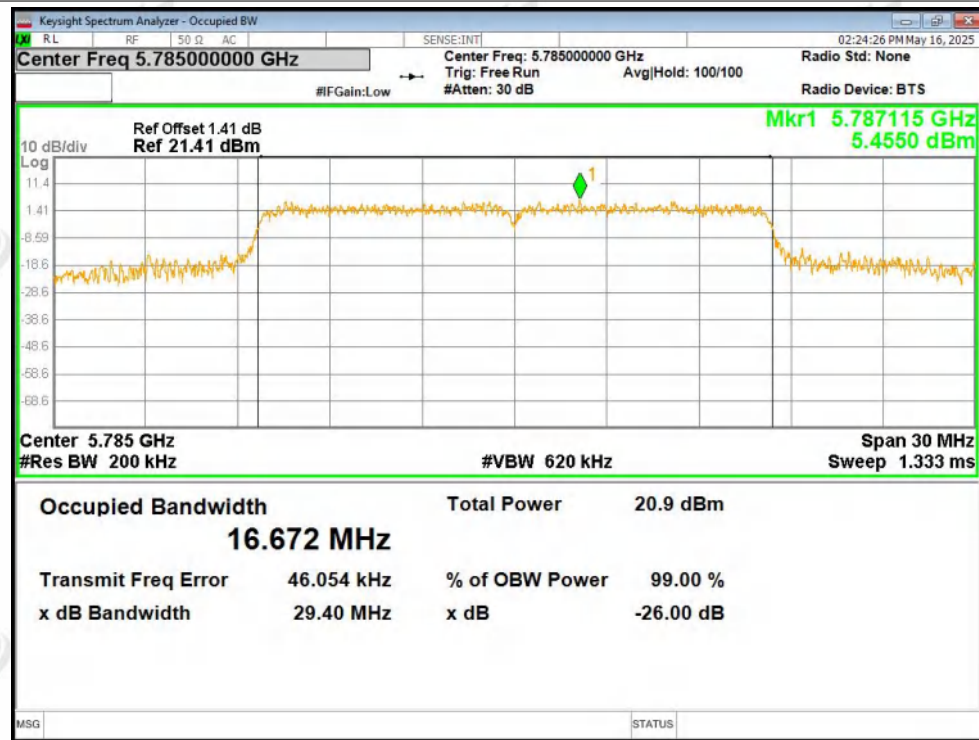


Test Graphs

OBW NVNT a 5745MHz Ant2

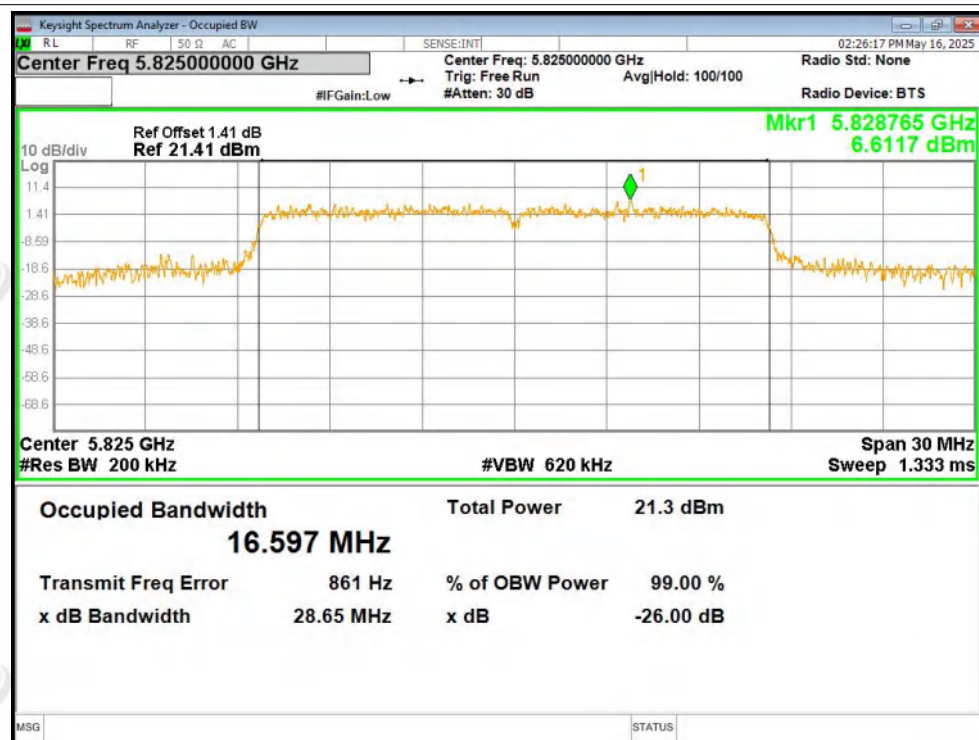


OBW NVNT a 5785MHz Ant2

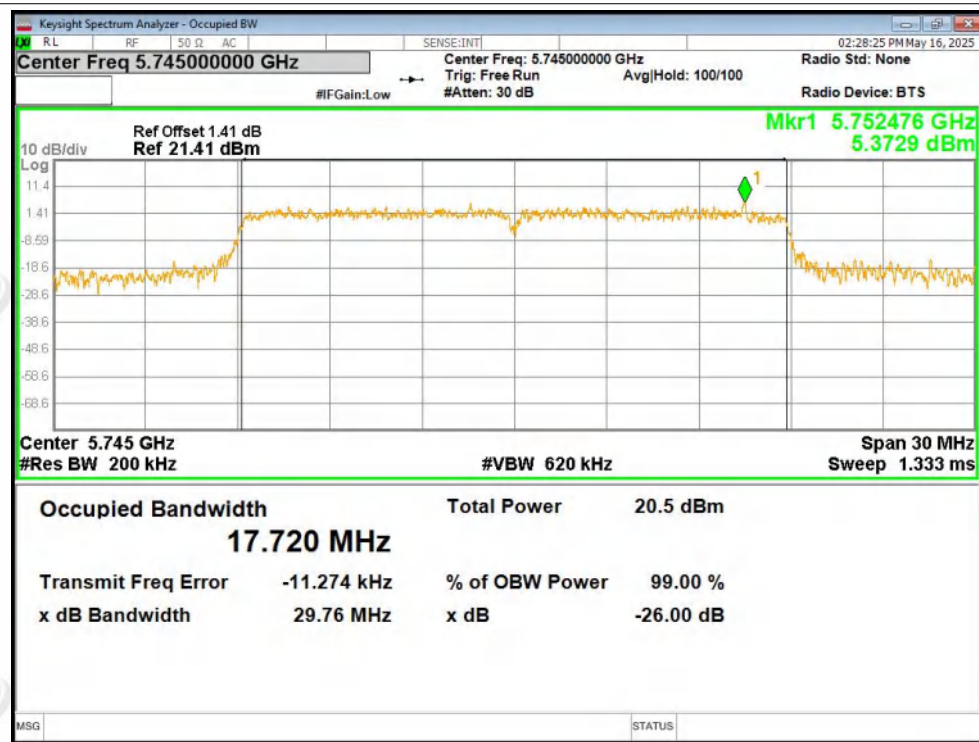




OBW NVNT a 5825MHz Ant2

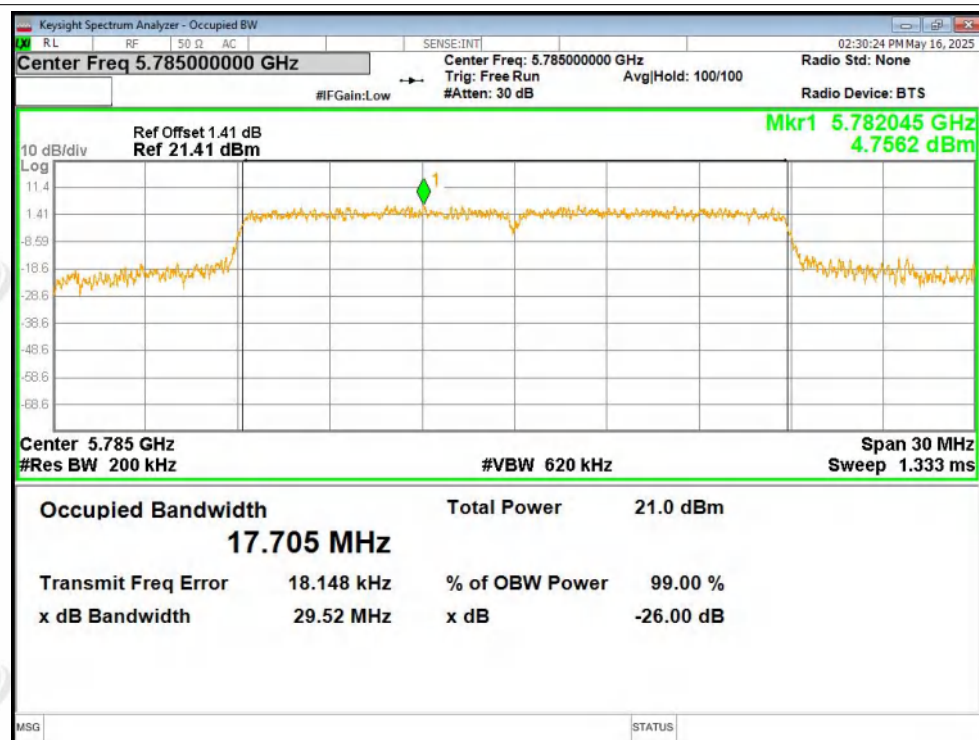


OBW NVNT n20 5745MHz Ant2

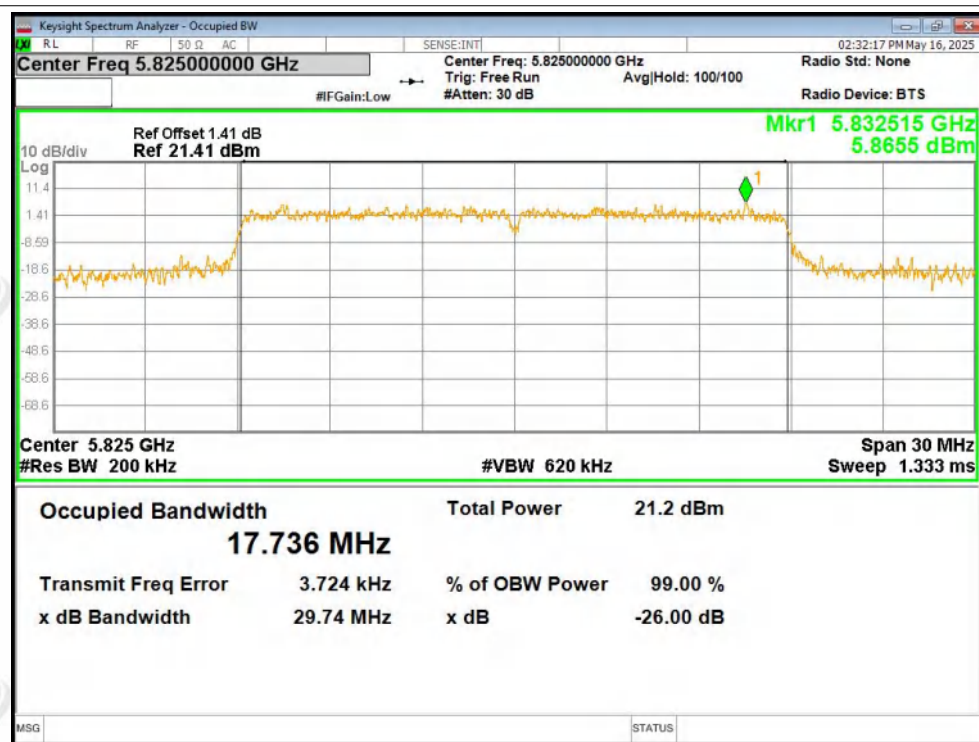




OBW NVNT n20 5785MHz Ant2

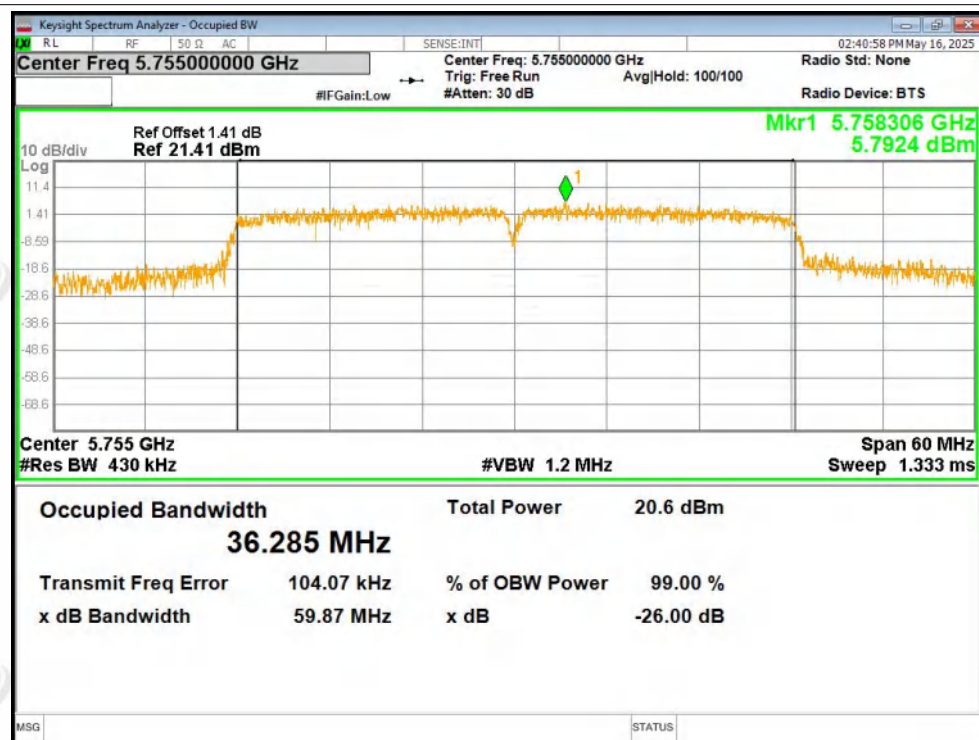


OBW NVNT n20 5825MHz Ant2

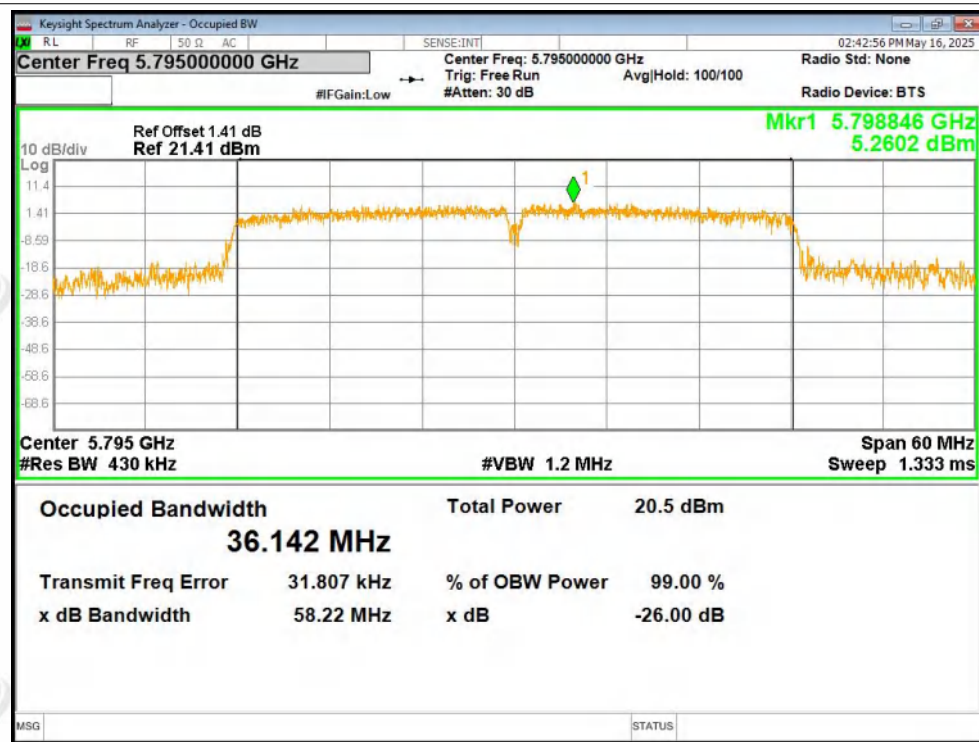




OBW NVNT n40 5755MHz Ant2

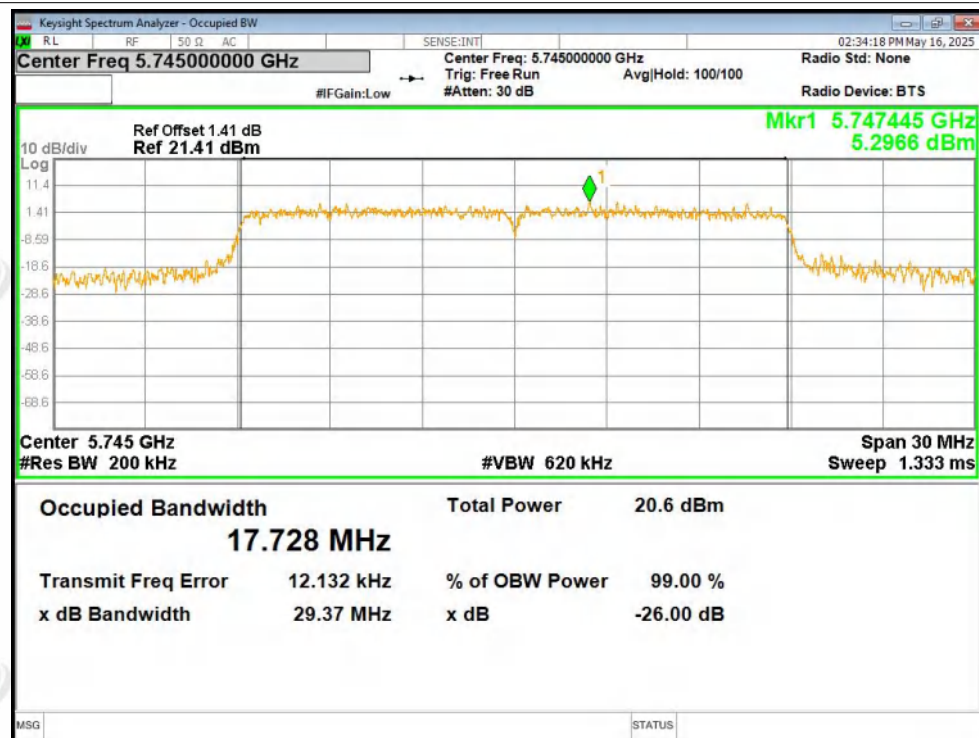


OBW NVNT n40 5795MHz Ant2

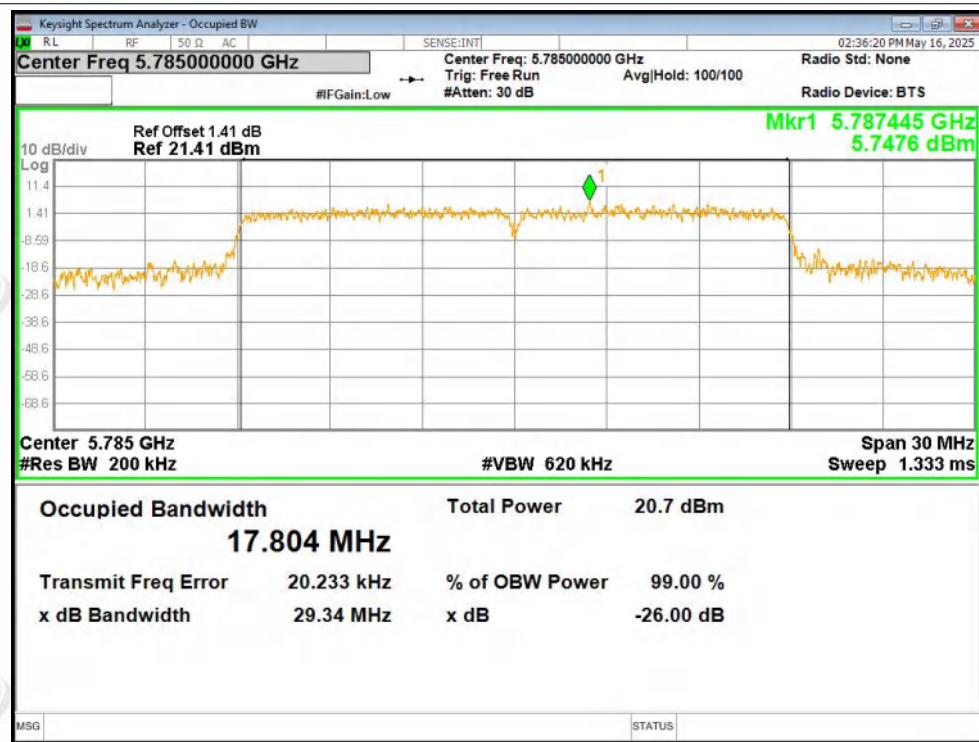




OBW NVNT ac20 5745MHz Ant2

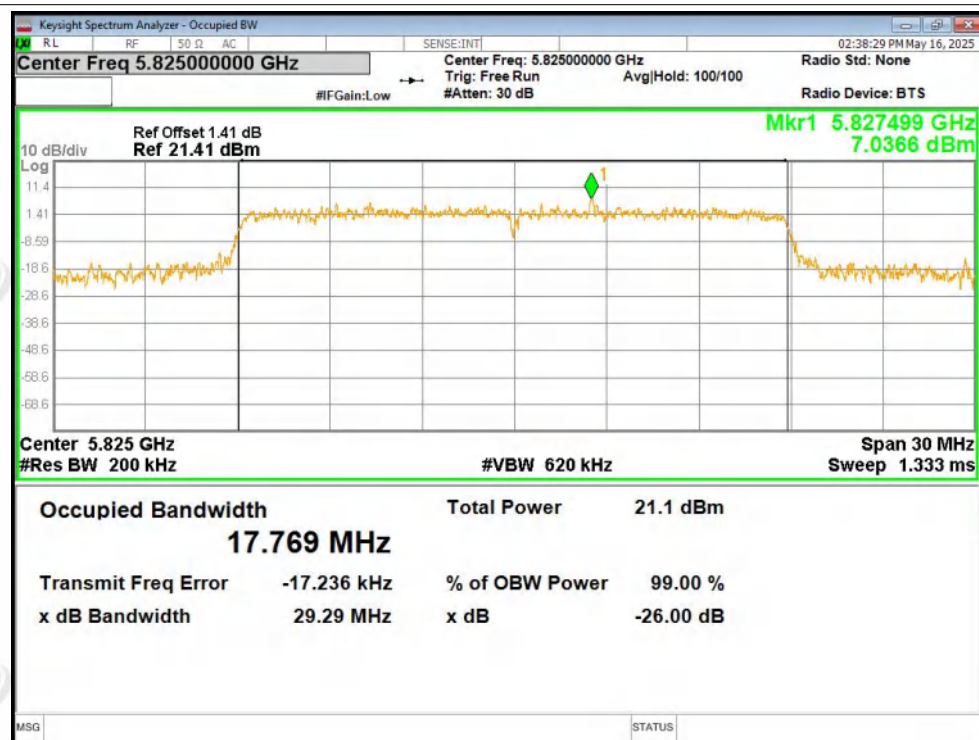


OBW NVNT ac20 5785MHz Ant2

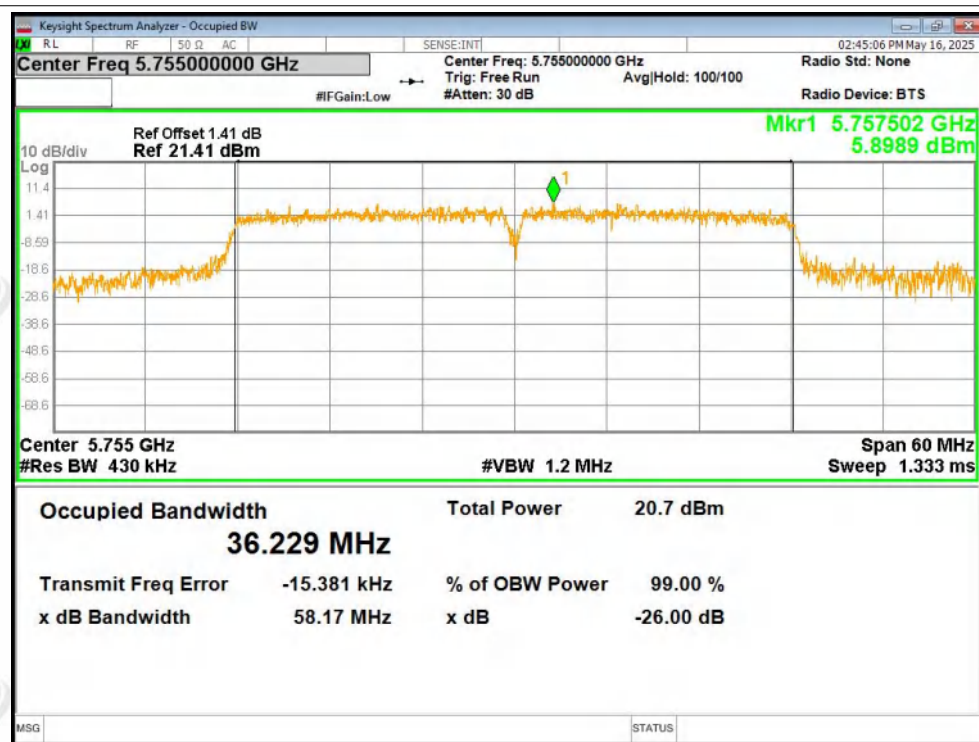




OBW NVNT ac20 5825MHz Ant2

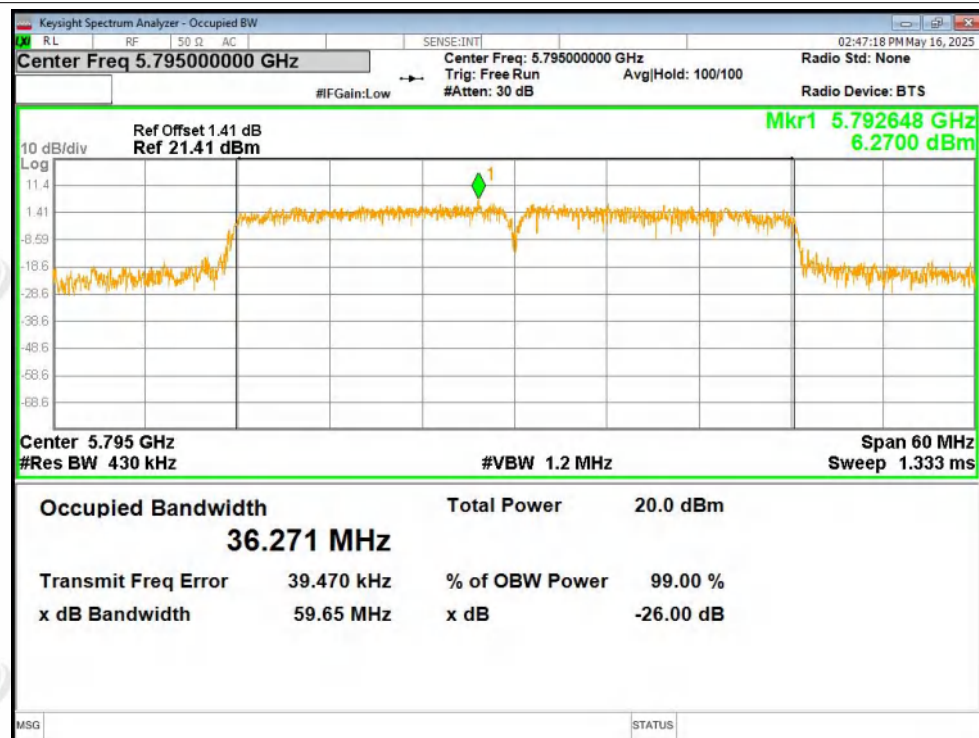


OBW NVNT ac40 5755MHz Ant2

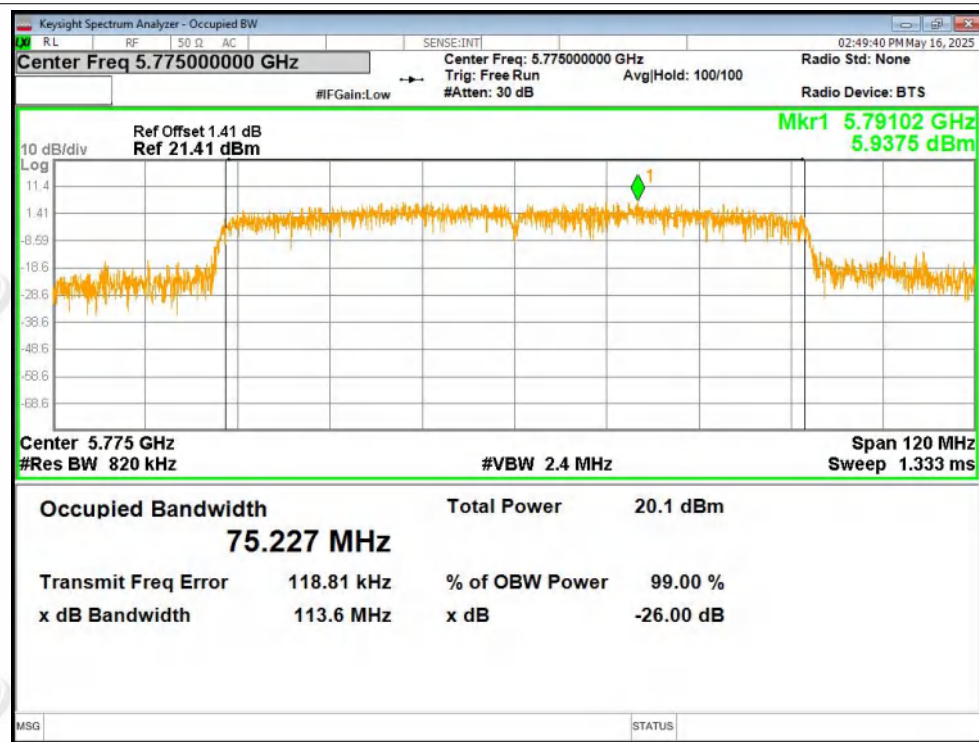




OBW NVNT ac40 5795MHz Ant2



OBW NVNT ac80 5775MHz Ant2



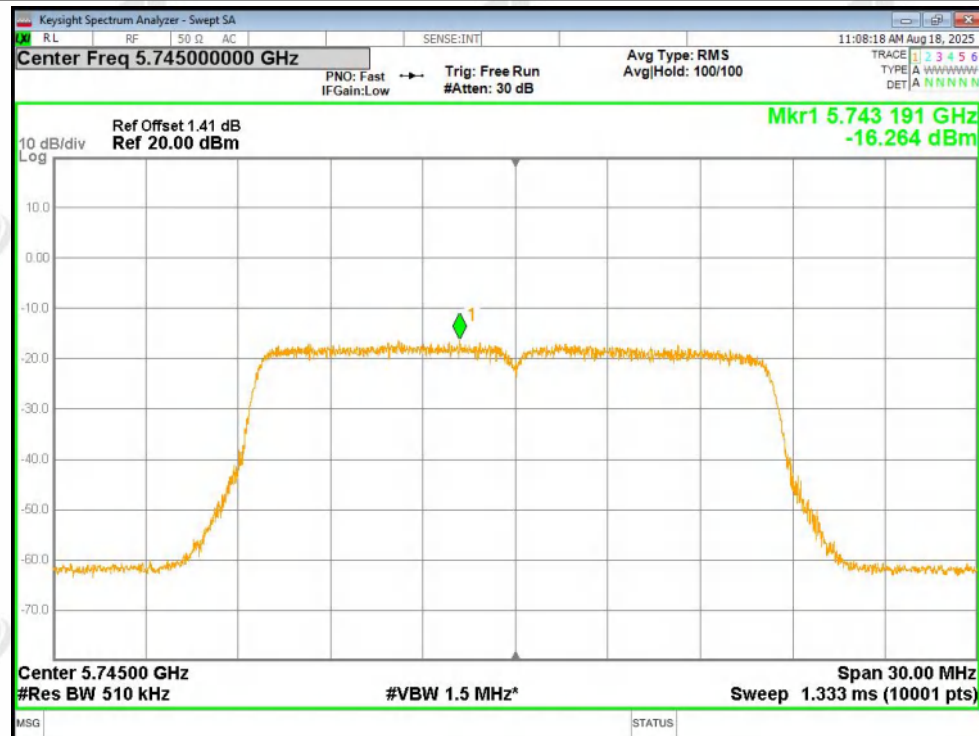
**ZHONGHAN****B.5 Maximum Power Spectral Density Level**

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant2	-16.26	6.85	-9.41	30	Pass
NVNT	a	5785	Ant2	-17.93	6.8	-11.13	30	Pass
NVNT	a	5825	Ant2	-18.97	6.86	-12.11	30	Pass
NVNT	n20	5745	Ant2	-17.22	7.2	-10.02	30	Pass
NVNT	n20	5785	Ant2	-17.61	7.21	-10.4	30	Pass
NVNT	n20	5825	Ant2	-18.53	7.12	-11.41	30	Pass
NVNT	n40	5755	Ant2	-22.38	10.3	-12.08	30	Pass
NVNT	n40	5795	Ant2	-23.17	10.32	-12.85	30	Pass
NVNT	ac20	5745	Ant2	-17.82	6.6	-11.22	30	Pass
NVNT	ac20	5785	Ant2	-18.24	7.15	-11.09	30	Pass
NVNT	ac20	5825	Ant2	-19.36	7.17	-12.19	30	Pass
NVNT	ac40	5755	Ant2	-22.03	10.25	-11.78	30	Pass
NVNT	ac40	5795	Ant2	-23.79	10.14	-13.65	30	Pass
NVNT	ac80	5775	Ant2	-26.03	13.26	-12.77	30	Pass

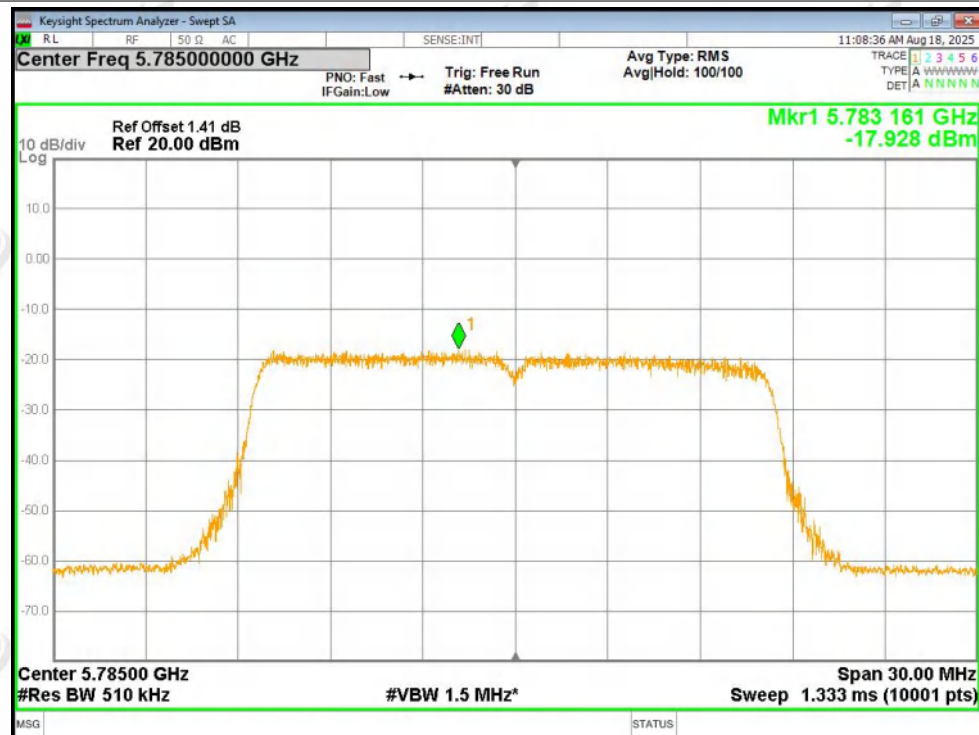


Test Graphs

PSD NVNT a 5745MHz Ant1

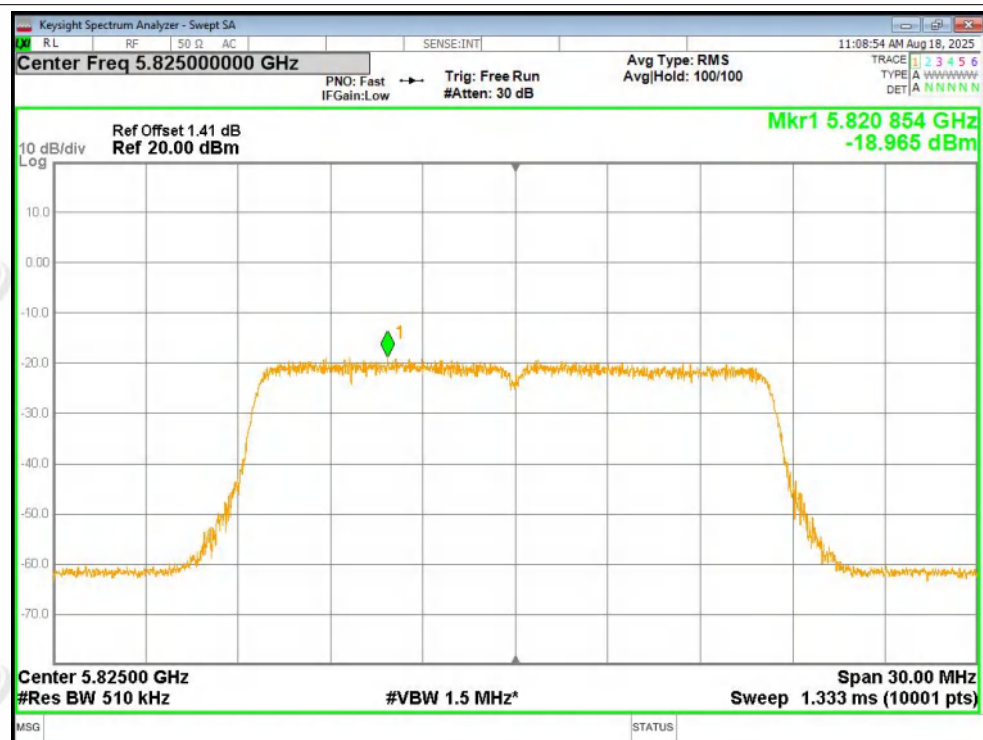


PSD NVNT a 5785MHz Ant1

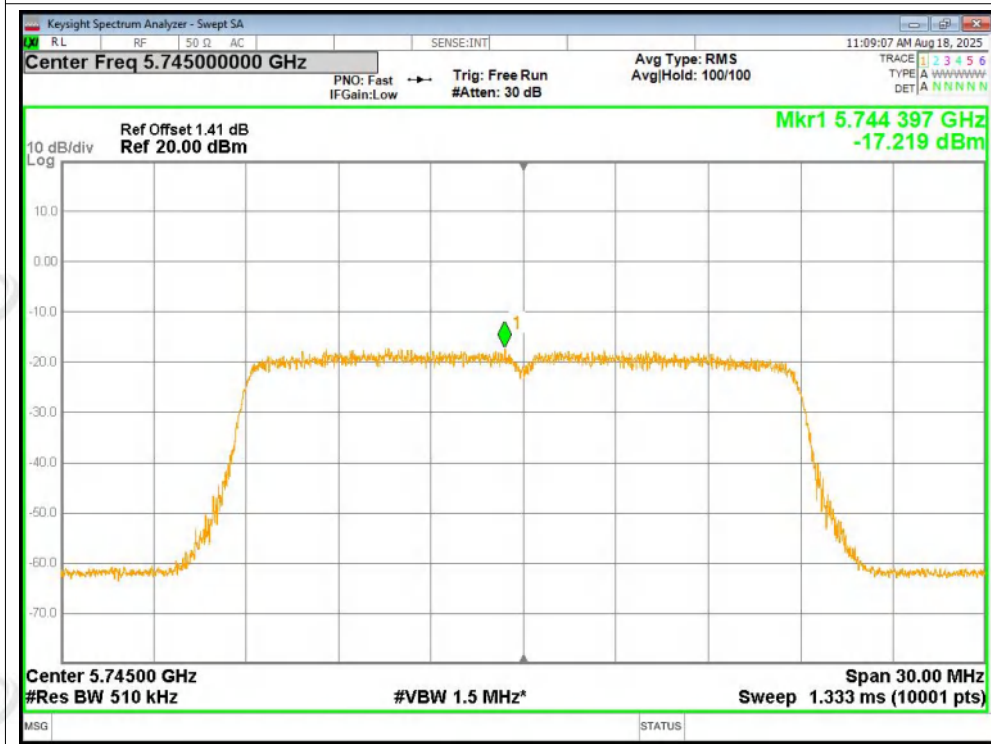




PSD NVNT a 5825MHz Ant1

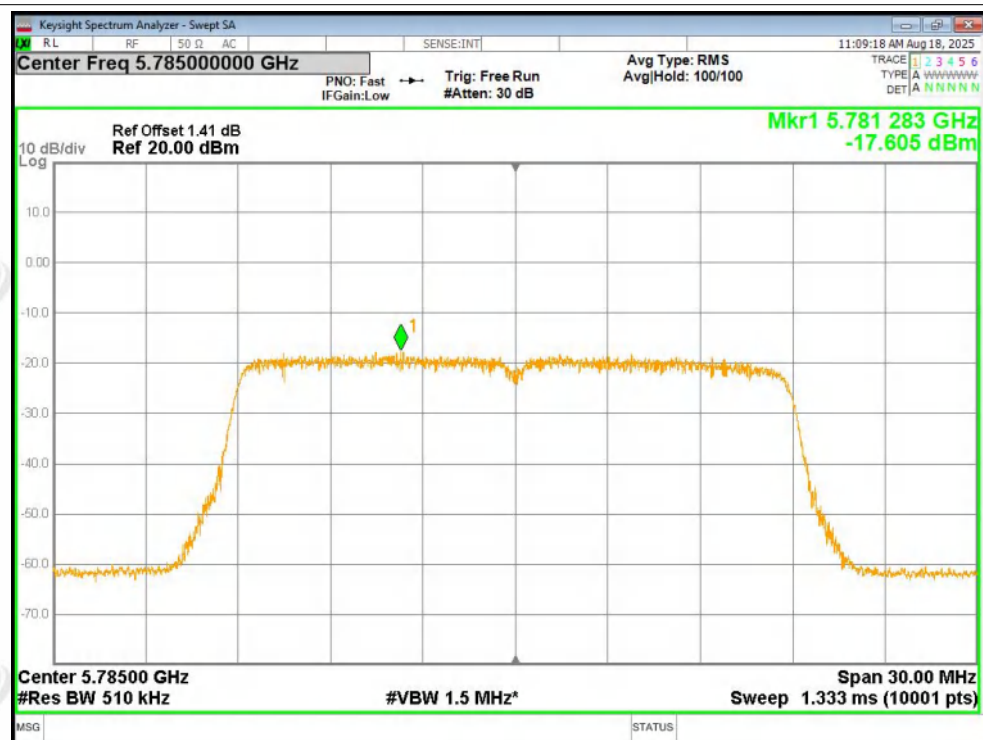


PSD NVNT n20 5745MHz Ant1

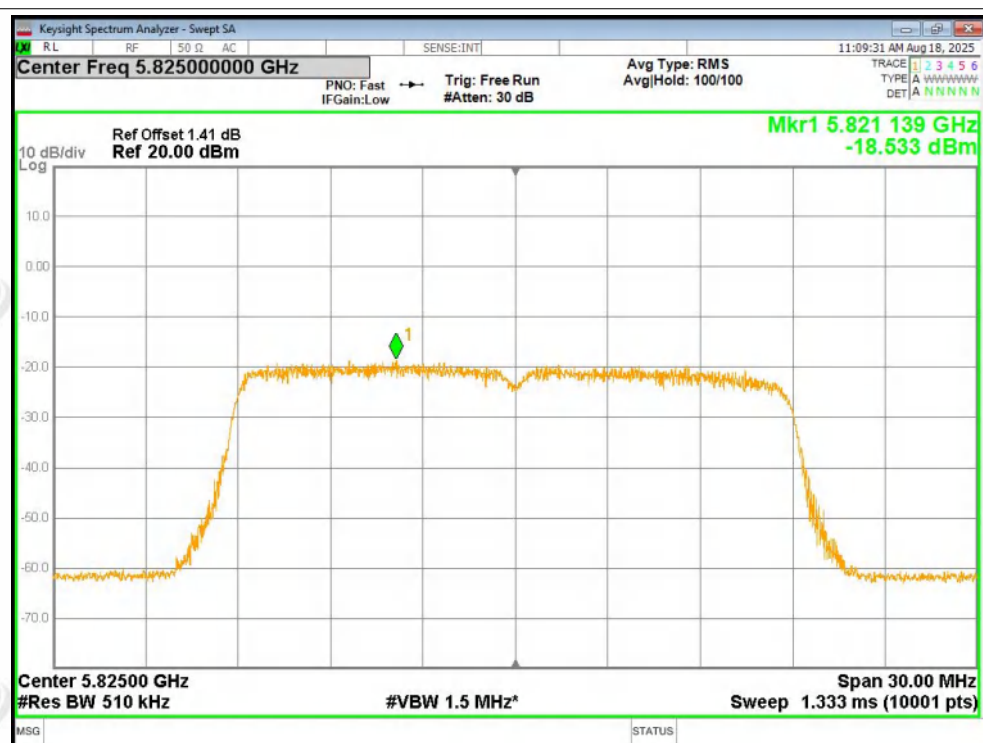




PSD NVNT n20 5785MHz Ant1

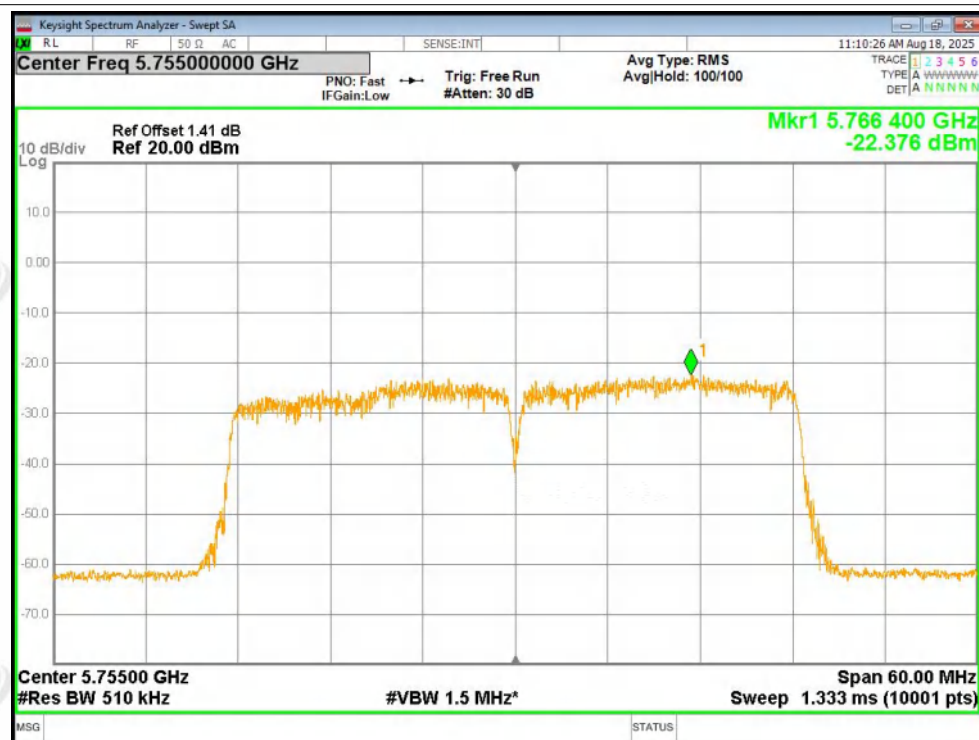


PSD NVNT n20 5825MHz Ant1

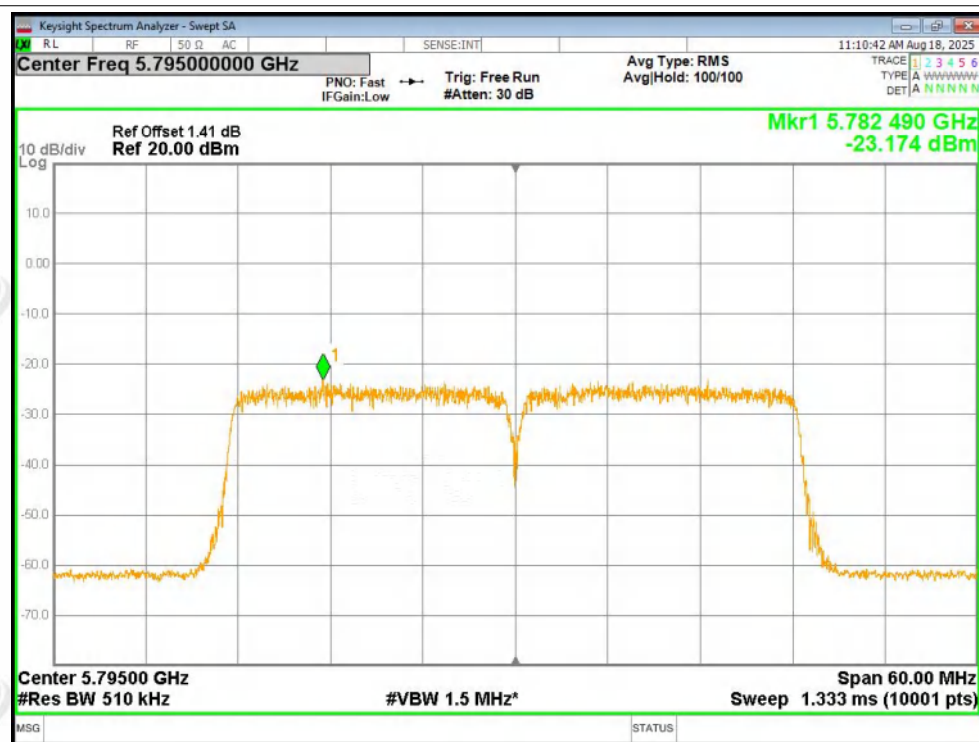




PSD NVNT n40 5755MHz Ant1

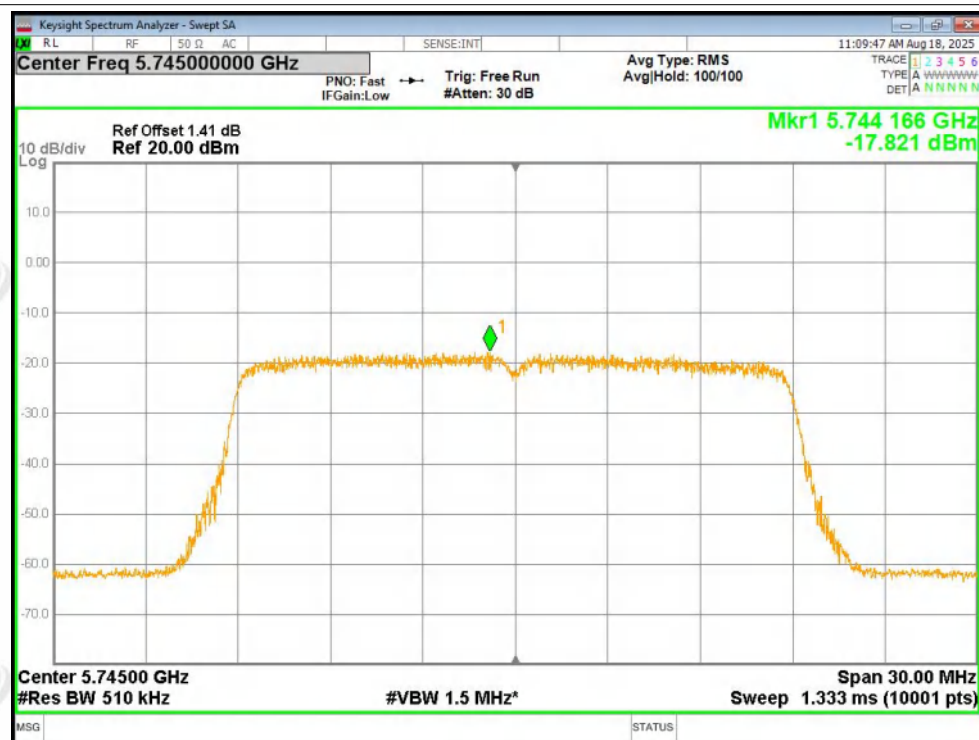


PSD NVNT n40 5795MHz Ant1

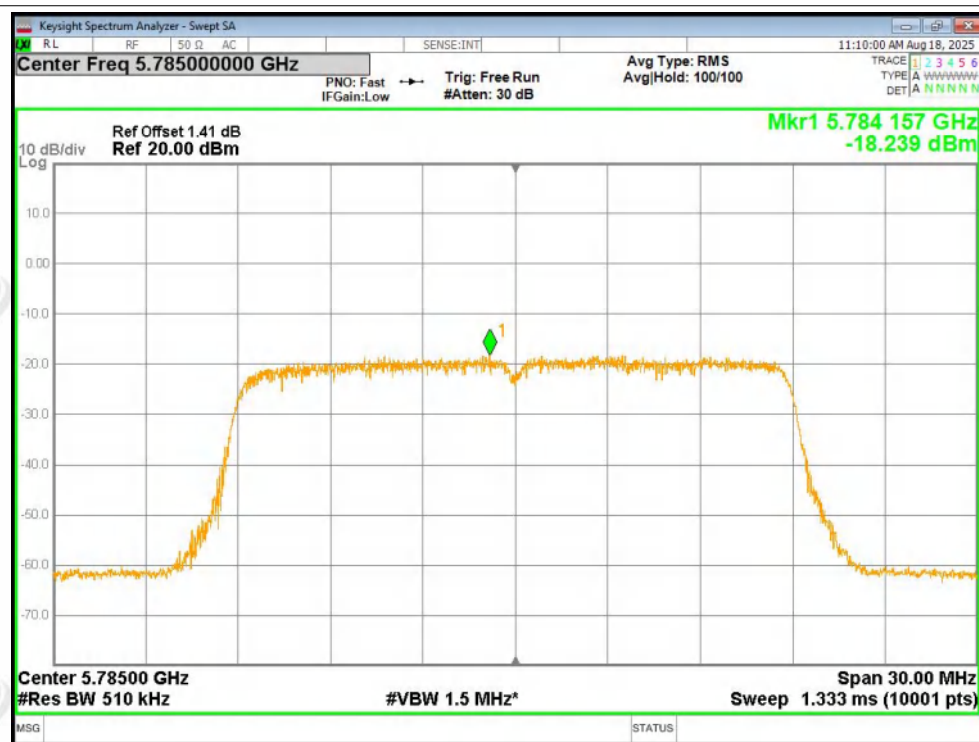




PSD NVNT ac20 5745MHz Ant1

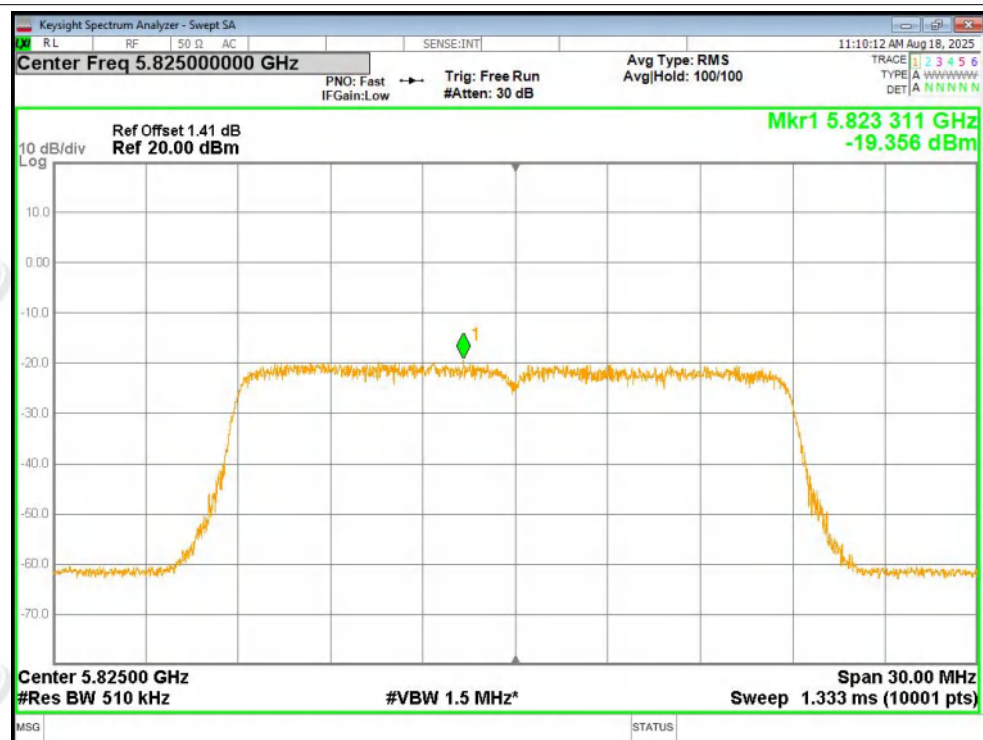


PSD NVNT ac20 5785MHz Ant1

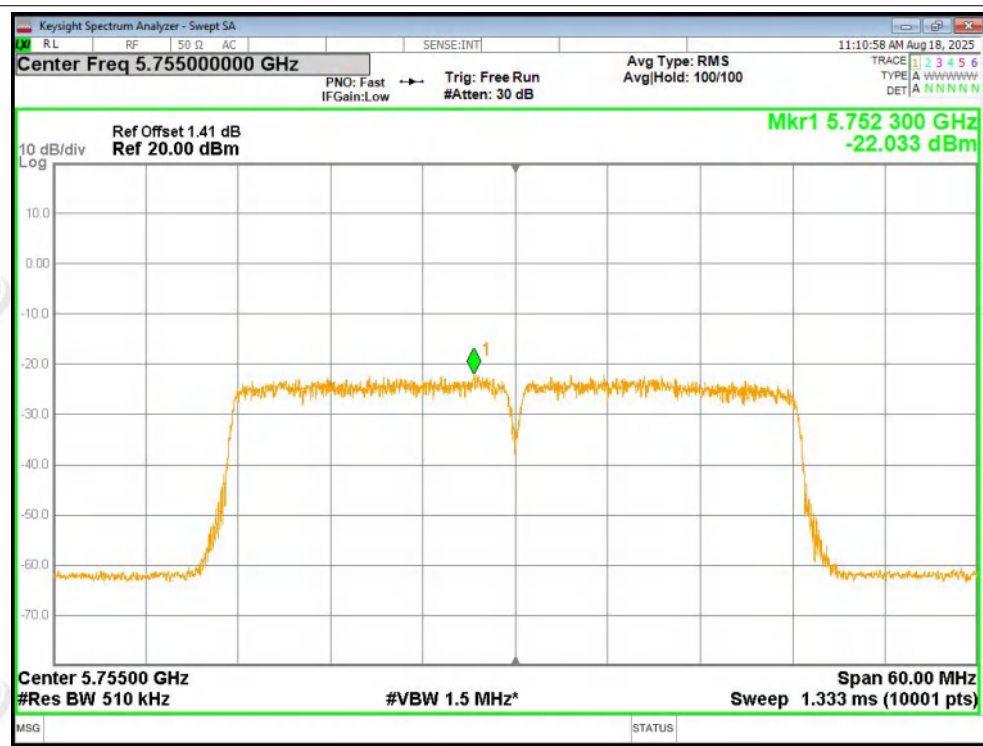




PSD NVNT ac20 5825MHz Ant1

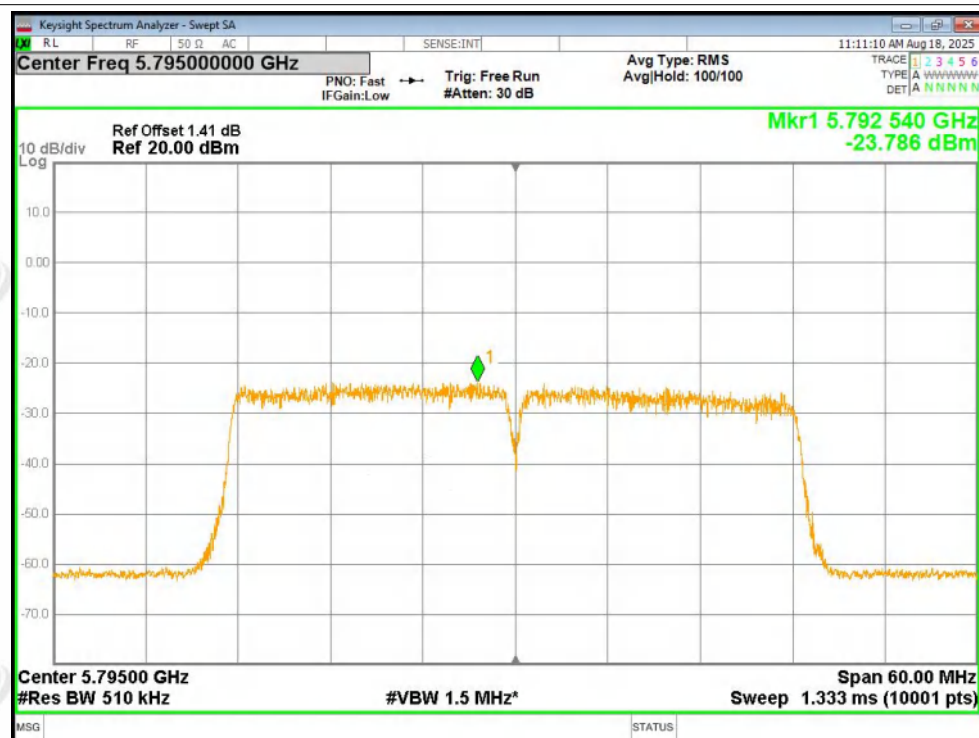


PSD NVNT ac40 5755MHz Ant1

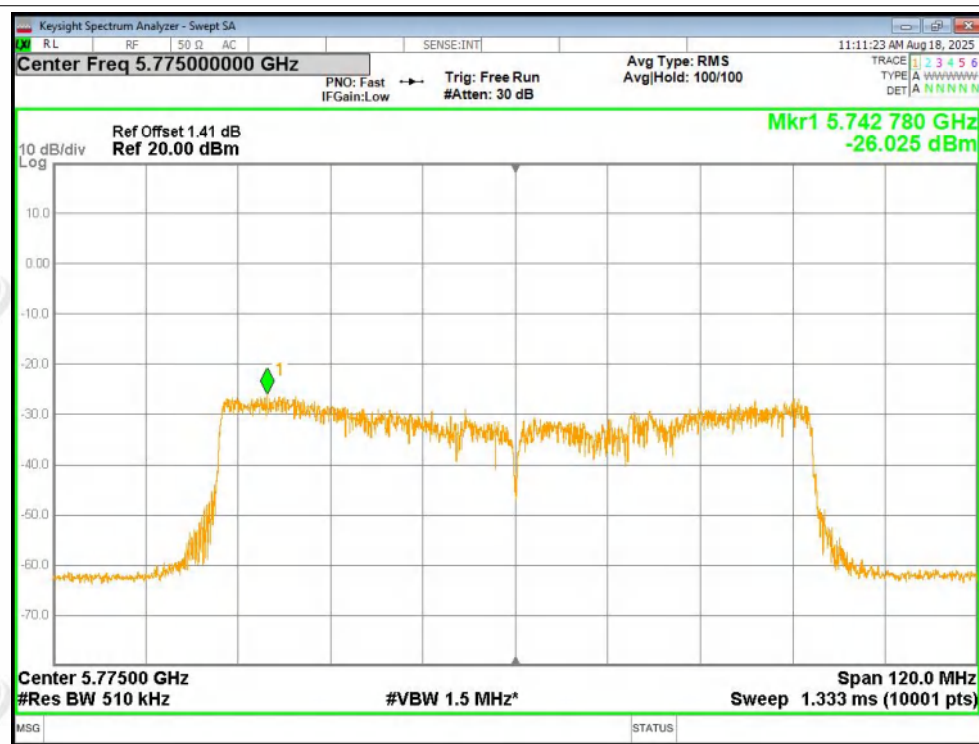




PSD NVNT ac40 5795MHz Ant1



PSD NVNT ac80 5775MHz Ant1



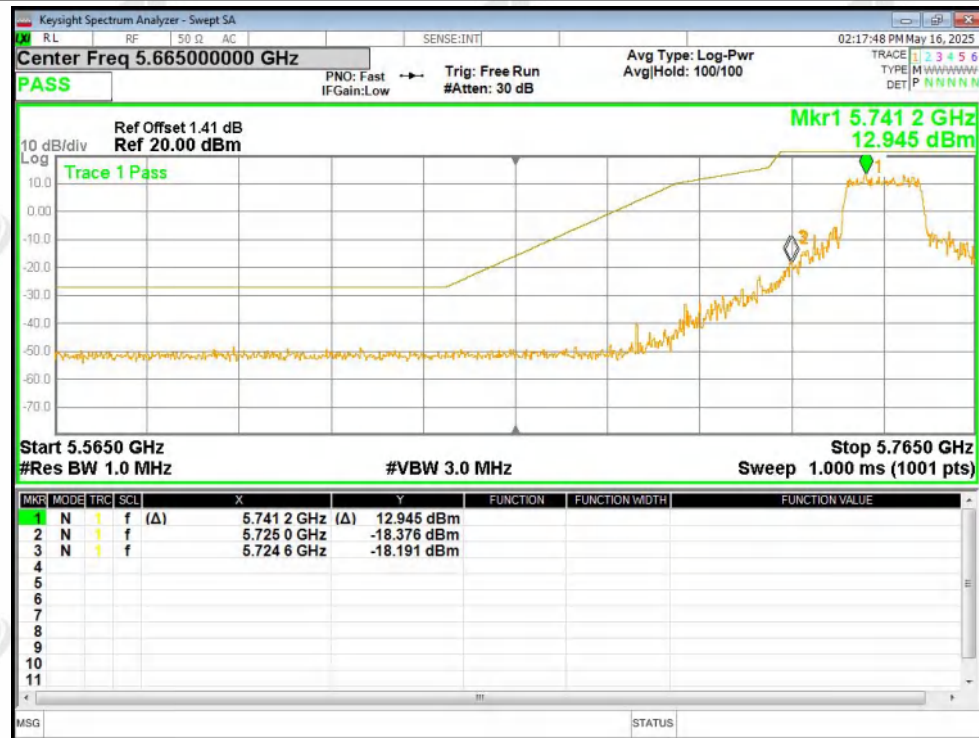
**ZHONGHAN**
B.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant2	-18.19	Reference data graph	Pass
NVNT	a	5825	Ant2	-26.17	Reference data graph	Pass
NVNT	n20	5745	Ant2	-14.42	Reference data graph	Pass
NVNT	n20	5825	Ant2	-20.31	Reference data graph	Pass
NVNT	n40	5755	Ant2	-15.91	Reference data graph	Pass
NVNT	n40	5795	Ant2	-27.32	Reference data graph	Pass
NVNT	ac20	5745	Ant2	-16.17	Reference data graph	Pass
NVNT	ac20	5825	Ant2	-23.46	Reference data graph	Pass
NVNT	ac40	5755	Ant2	-15.38	Reference data graph	Pass
NVNT	ac40	5795	Ant2	-30.69	Reference data graph	Pass
NVNT	ac80	5775	Ant2	-17.47	Reference data graph	Pass



Test Graphs

Band Edge NVNT a 5745MHz Low Ant2

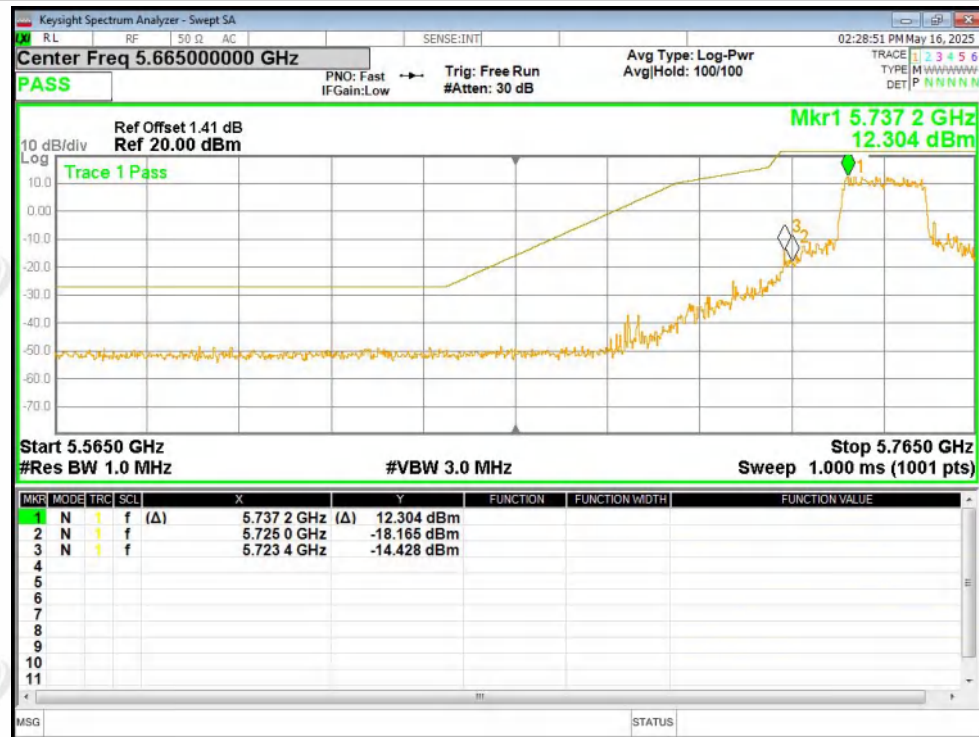


Band Edge NVNT a 5825MHz High Ant2

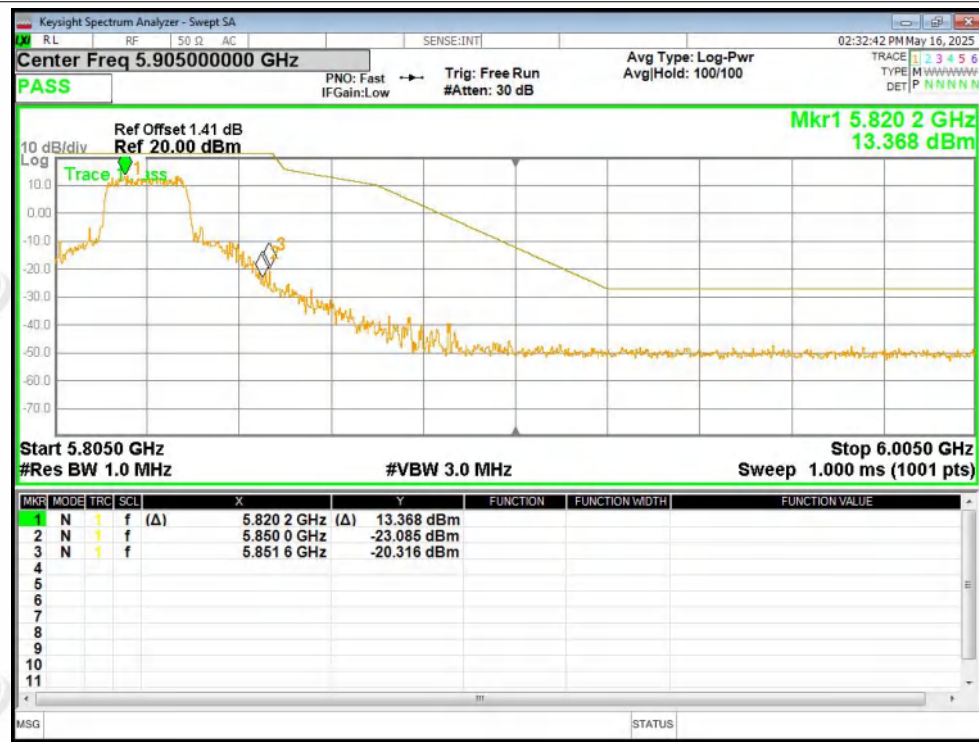




Band Edge NVNT n20 5745MHz Low Ant2



Band Edge NVNT n20 5825MHz High Ant2

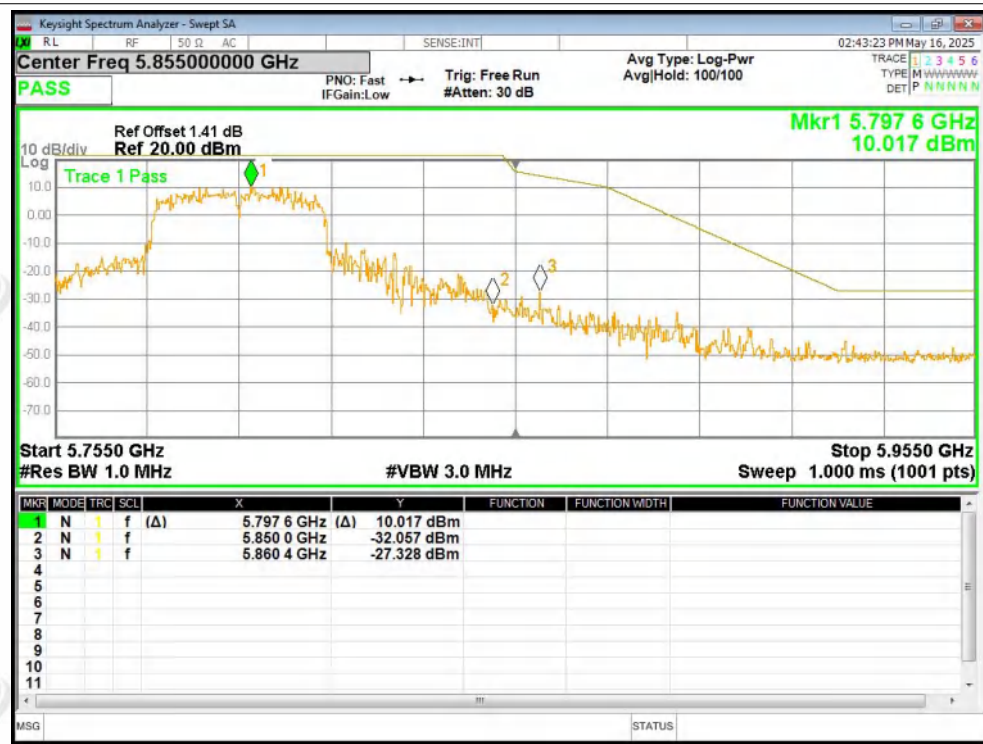




Band Edge NVNT n40 5755MHz Low Ant2

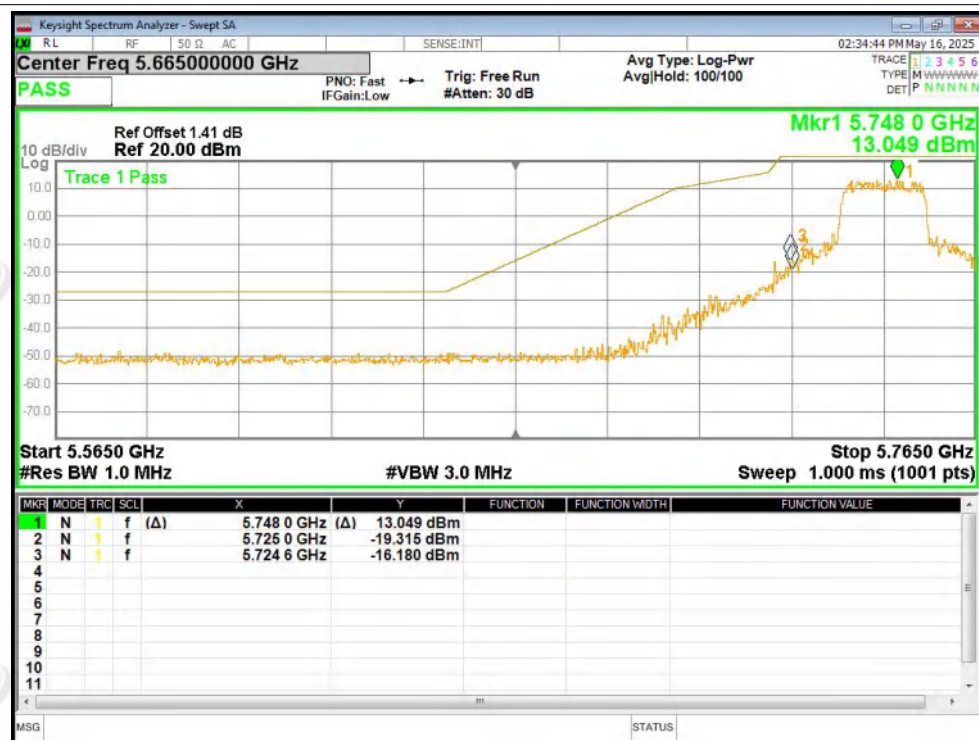


Band Edge NVNT n40 5795MHz High Ant2





Band Edge NVNT ac20 5745MHz Low Ant2

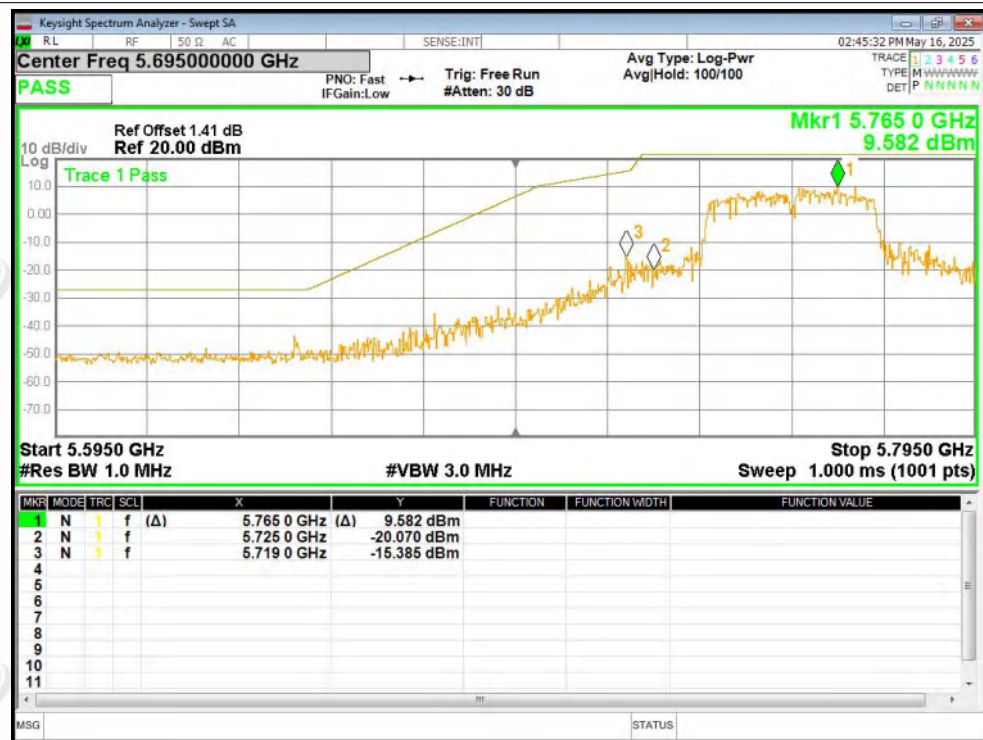


Band Edge NVNT ac20 5825MHz High Ant2

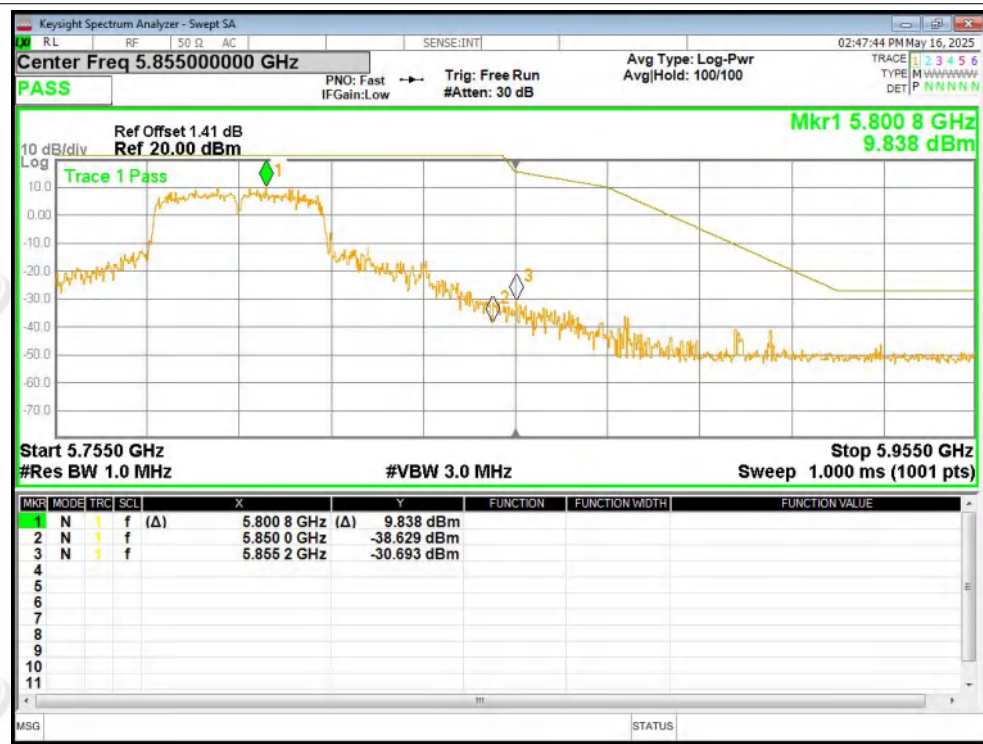




Band Edge NVNT ac40 5755MHz Low Ant2

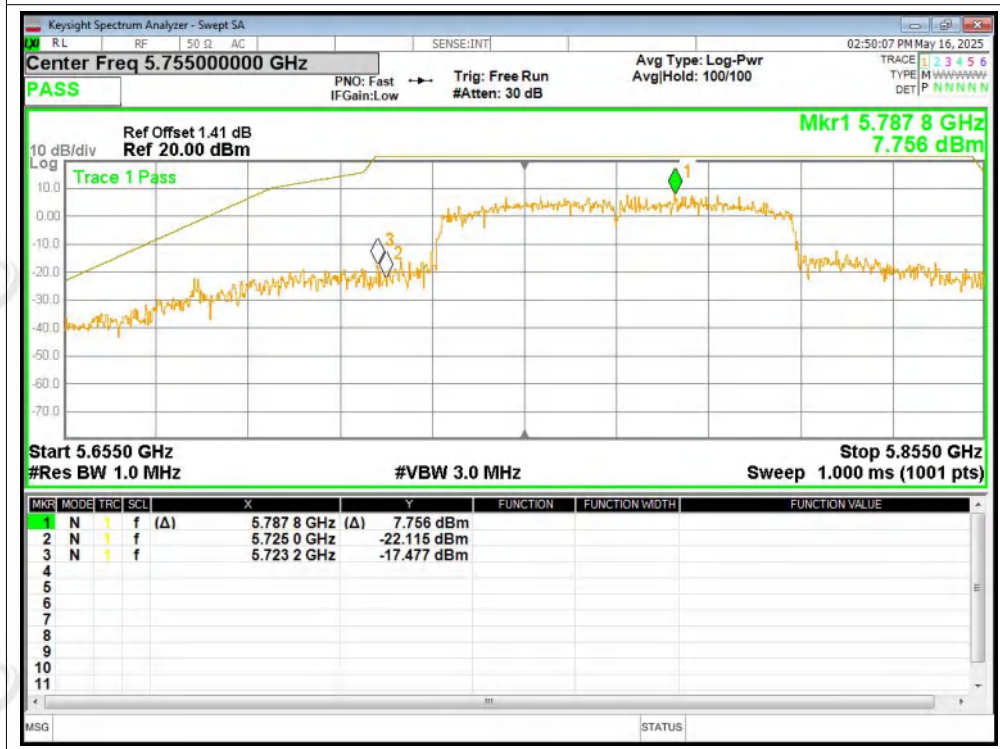


Band Edge NVNT ac40 5795MHz High Ant2





Band Edge NVNT ac80 5775MHz Low Ant2



**ZHONGHAN****B.7 Frequency Stability**

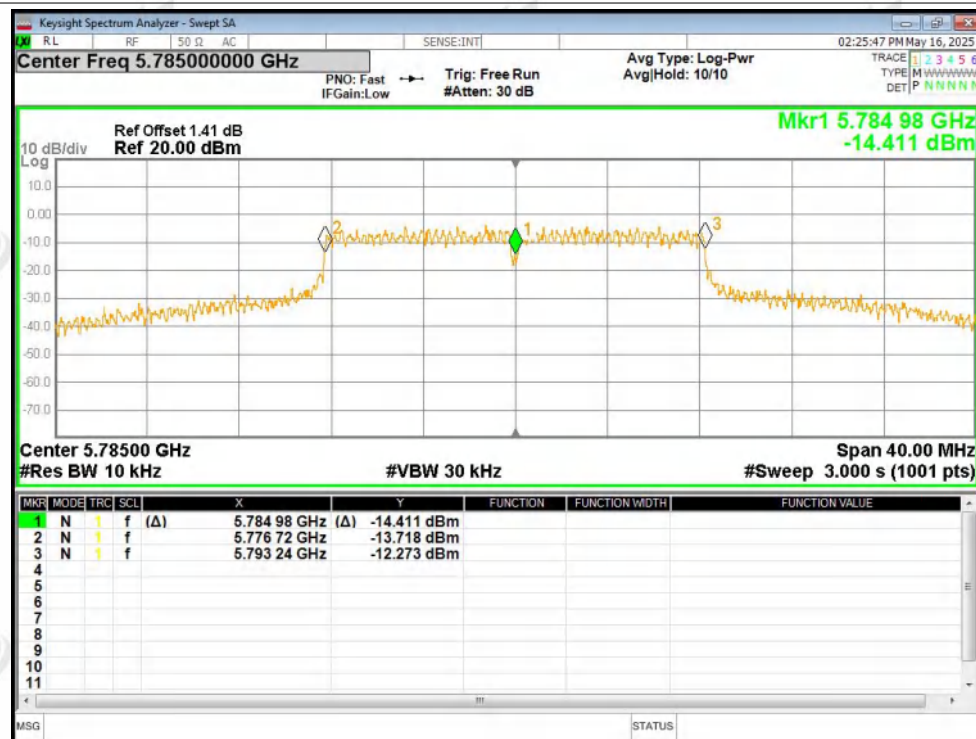
Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	a	5745	Ant2	5744.98	-20000	-3.48	Within 5745-5825MHz	Pass
NVNT	a	5785	Ant2	5784.98	-20000	-3.46		Pass
NVNT	a	5825	Ant2	5824.96	-40000	-6.87		Pass
NVNT	n20	5745	Ant2	5744.98	-20000	-3.48		Pass
NVNT	n20	5785	Ant2	5784.98	-20000	-3.46		Pass
NVNT	n20	5825	Ant2	5825	0	0		Pass
NVNT	n40	5755	Ant2	5755	0	0		Pass
NVNT	n40	5795	Ant2	5795	0	0		Pass
NVNT	ac20	5745	Ant2	5745	0	0		Pass
NVNT	ac20	5785	Ant2	5785	0	0		Pass
NVNT	ac20	5825	Ant2	5824.98	-20000	-3.43		Pass
NVNT	ac40	5755	Ant2	5755	0	0		Pass
NVNT	ac40	5795	Ant2	5795	0	0		Pass
NVNT	ac80	5775	Ant2	5775	0	0		Pass

Test Graphs

Freq. Stability NVNT a 5745MHz Ant2



Freq. Stability NVNT a 5785MHz Ant2

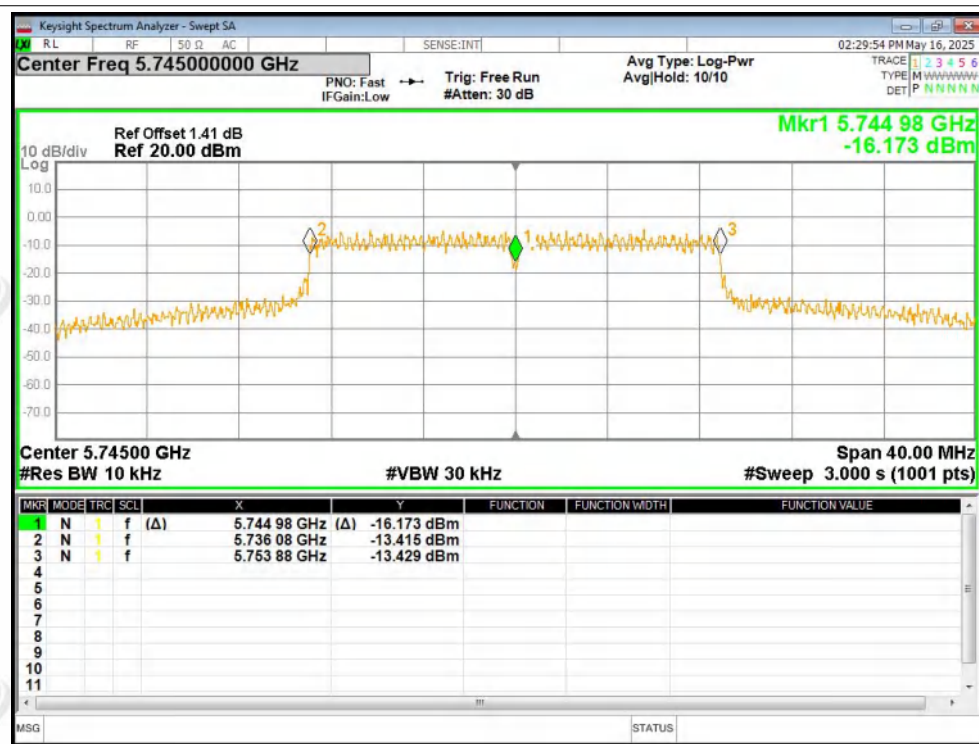




Freq. Stability NVNT a 5825MHz Ant2

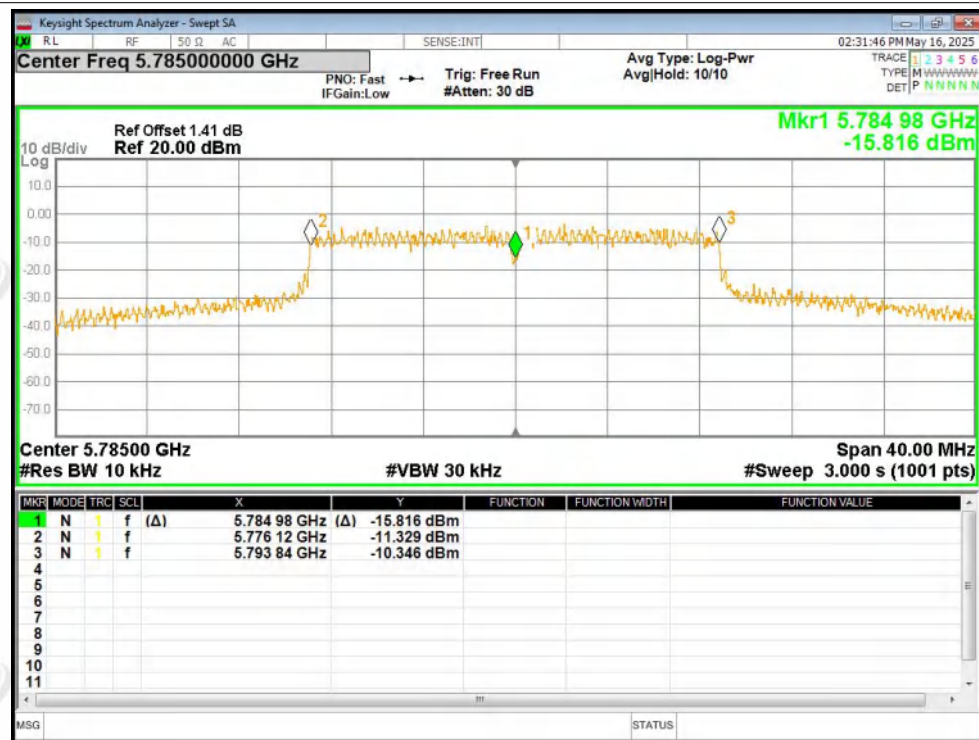


Freq. Stability NVNT n20 5745MHz Ant2

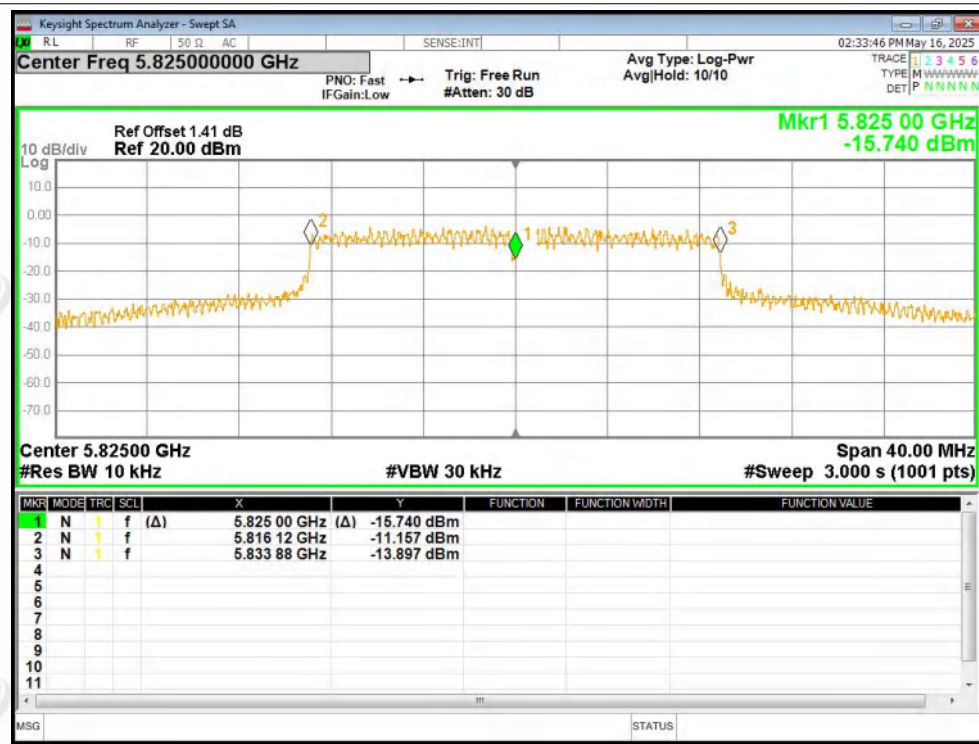




Freq. Stability NVNT n20 5785MHz Ant2

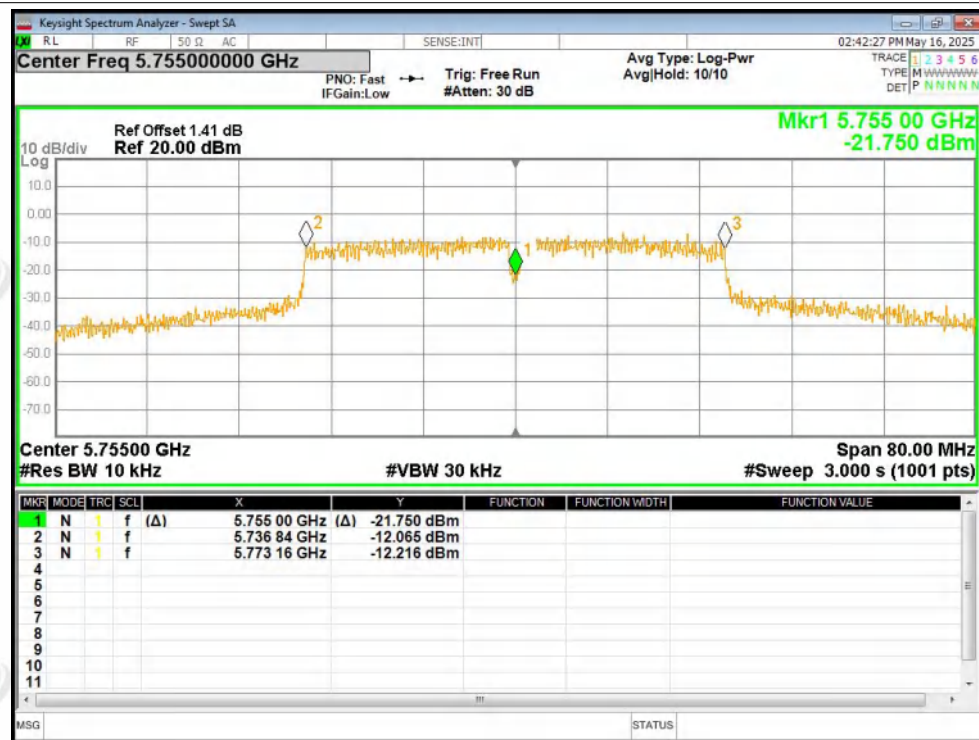


Freq. Stability NVNT n20 5825MHz Ant2





Freq. Stability NVNT n40 5755MHz Ant2



Freq. Stability NVNT n40 5795MHz Ant2





Freq. Stability NVNT ac20 5745MHz Ant2

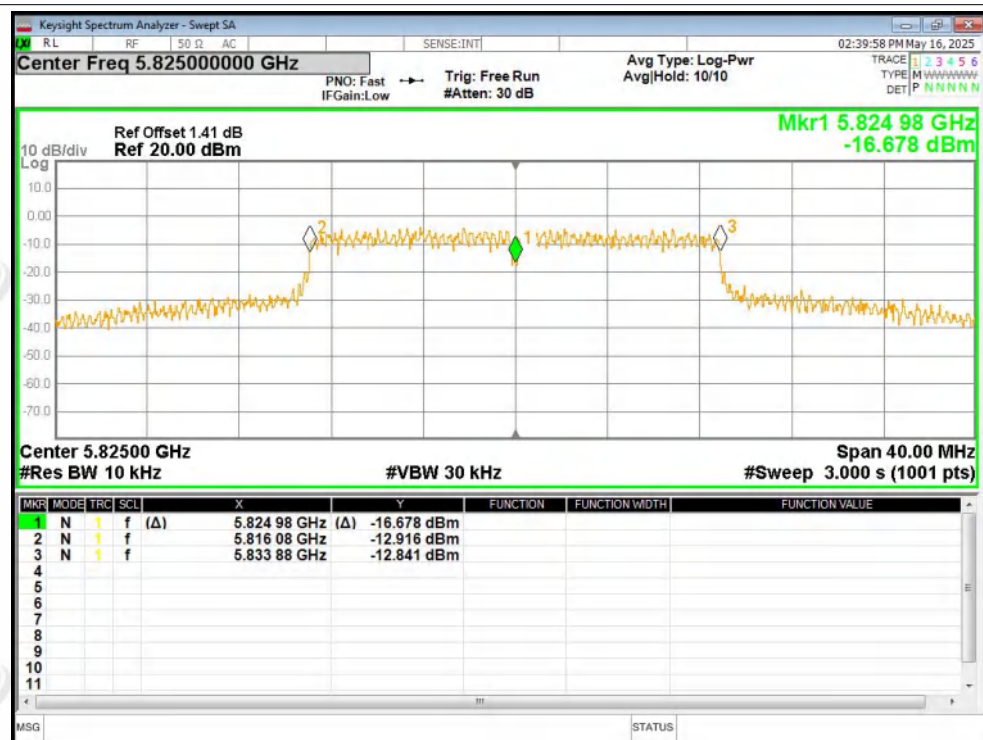


Freq. Stability NVNT ac20 5785MHz Ant2

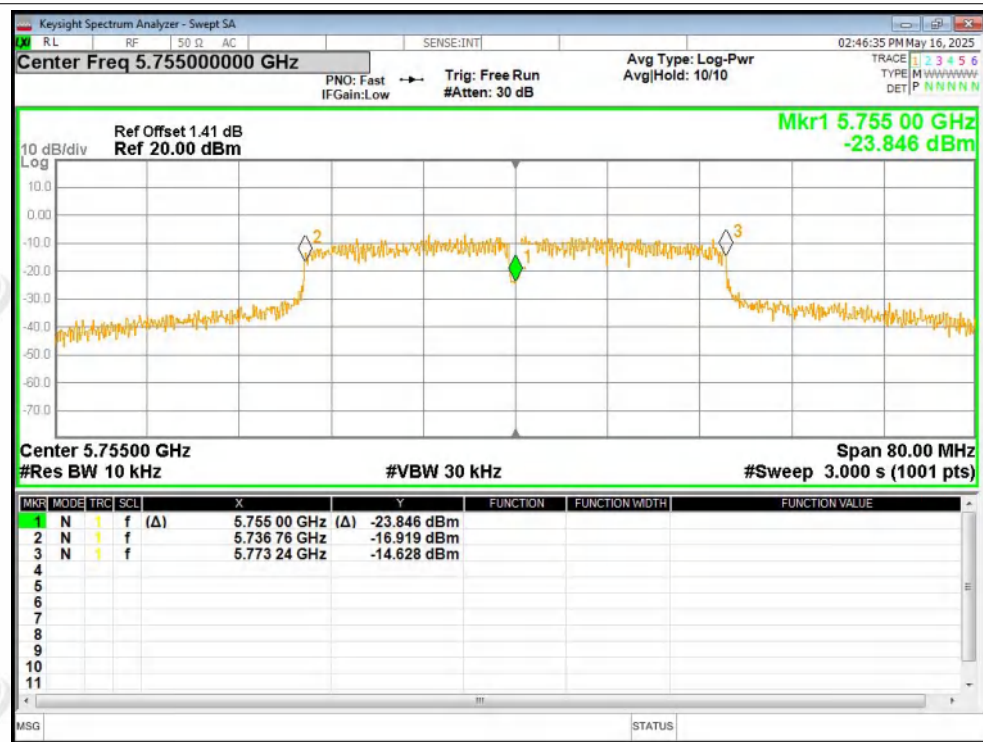




Freq. Stability NVNT ac20 5825MHz Ant2



Freq. Stability NVNT ac40 5755MHz Ant2





Freq. Stability NVNT ac40 5795MHz Ant2



Freq. Stability NVNT ac80 5775MHz Ant2

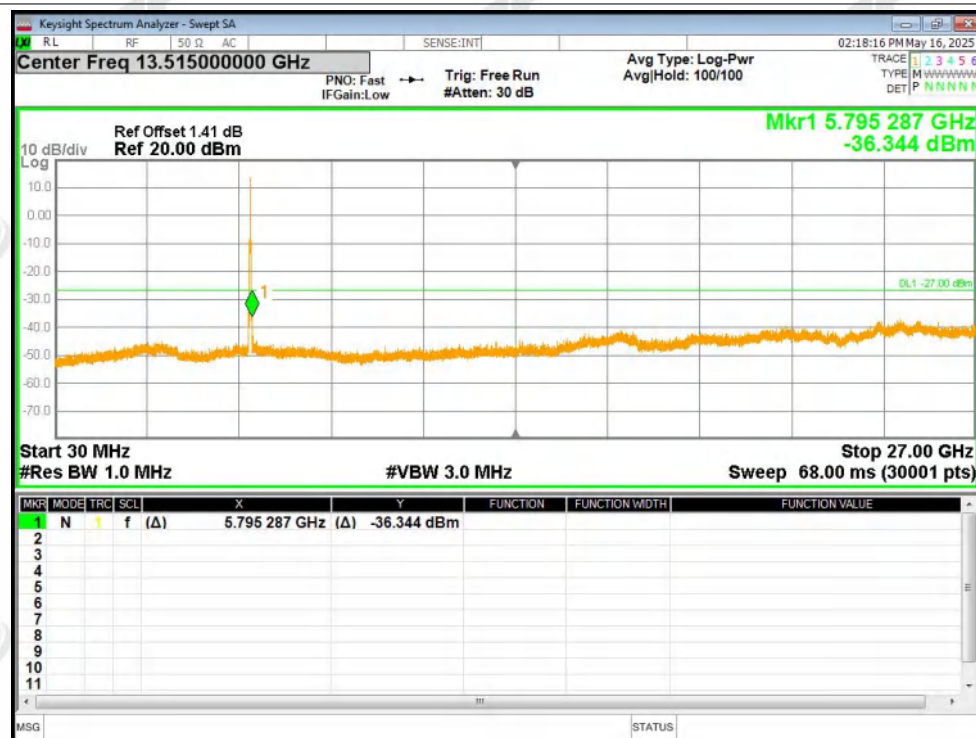


**ZHONGHAN****B.8 Conducted RF Spurious Emission**

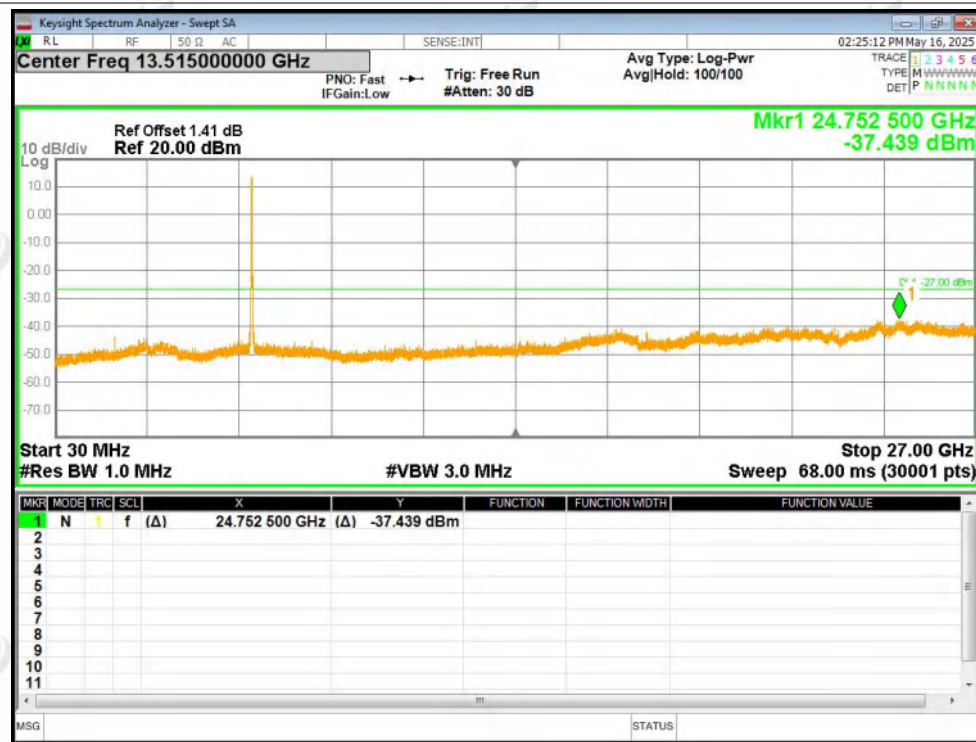
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	a	5745	Ant2	-36.34	-27	Pass
NVNT	a	5785	Ant2	-37.43	-27	Pass
NVNT	a	5825	Ant2	-37.25	-27	Pass
NVNT	n20	5745	Ant2	-35.9	-27	Pass
NVNT	n20	5785	Ant2	-36.98	-27	Pass
NVNT	n20	5825	Ant2	-35.77	-27	Pass
NVNT	n40	5755	Ant2	-37.01	-27	Pass
NVNT	n40	5795	Ant2	-36.85	-27	Pass
NVNT	ac20	5745	Ant2	-35.58	-27	Pass
NVNT	ac20	5785	Ant2	-36.64	-27	Pass
NVNT	ac20	5825	Ant2	-37.35	-27	Pass
NVNT	ac40	5755	Ant2	-37.45	-27	Pass
NVNT	ac40	5795	Ant2	-37.45	-27	Pass
NVNT	ac80	5775	Ant2	-37.25	-27	Pass

Test Graphs

Tx. Spurious NVNT a 5745MHz Ant2 Emission

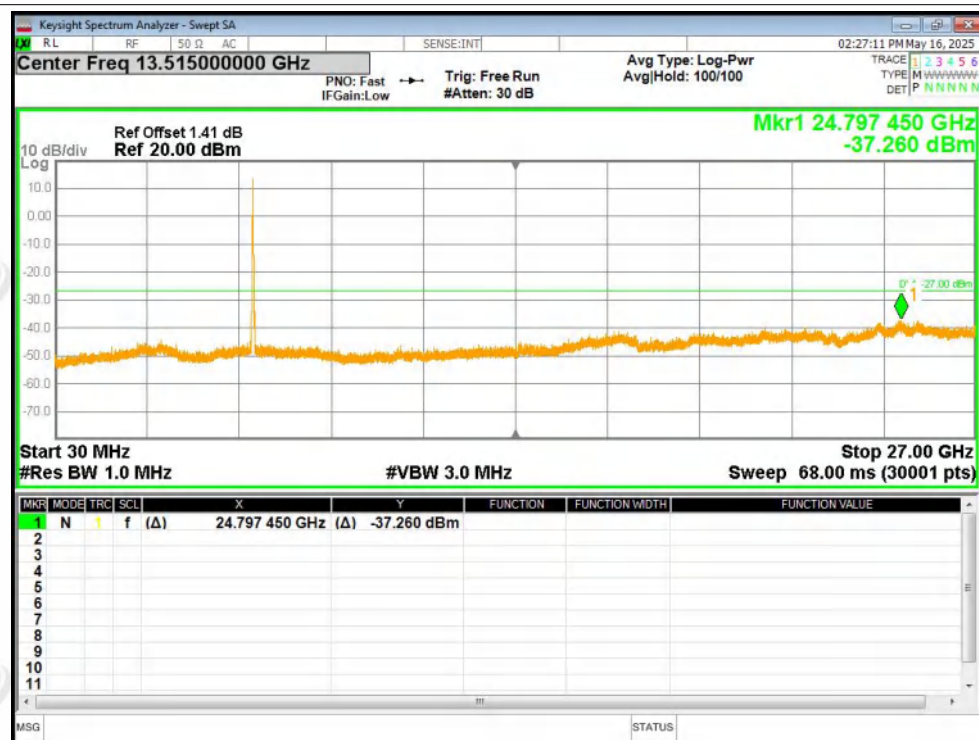


Tx. Spurious NVNT a 5785MHz Ant2 Emission

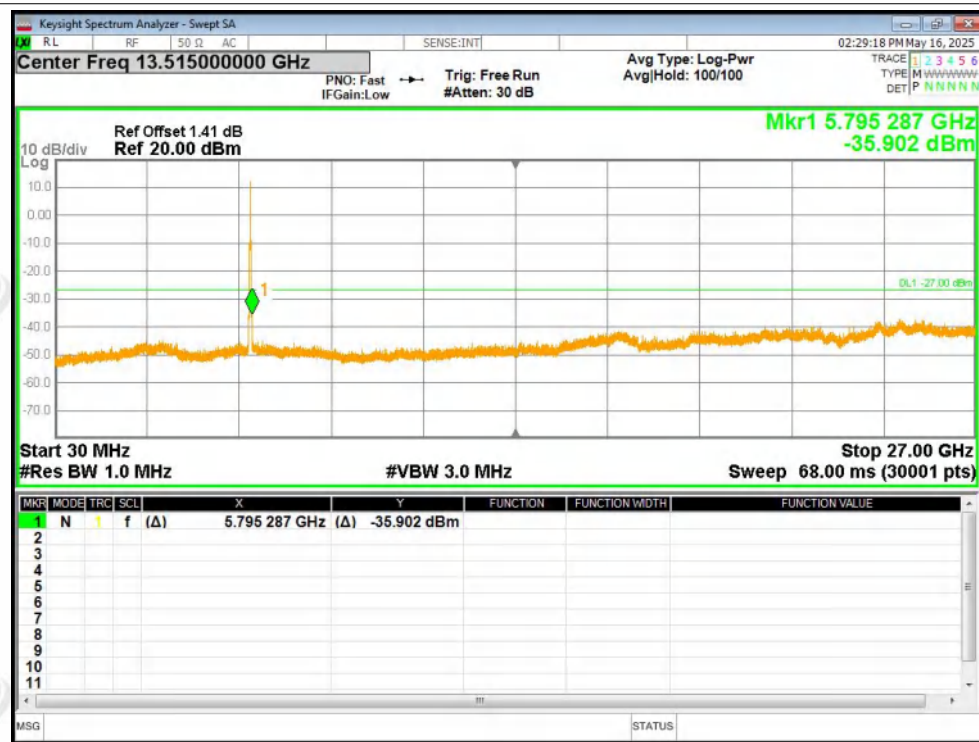




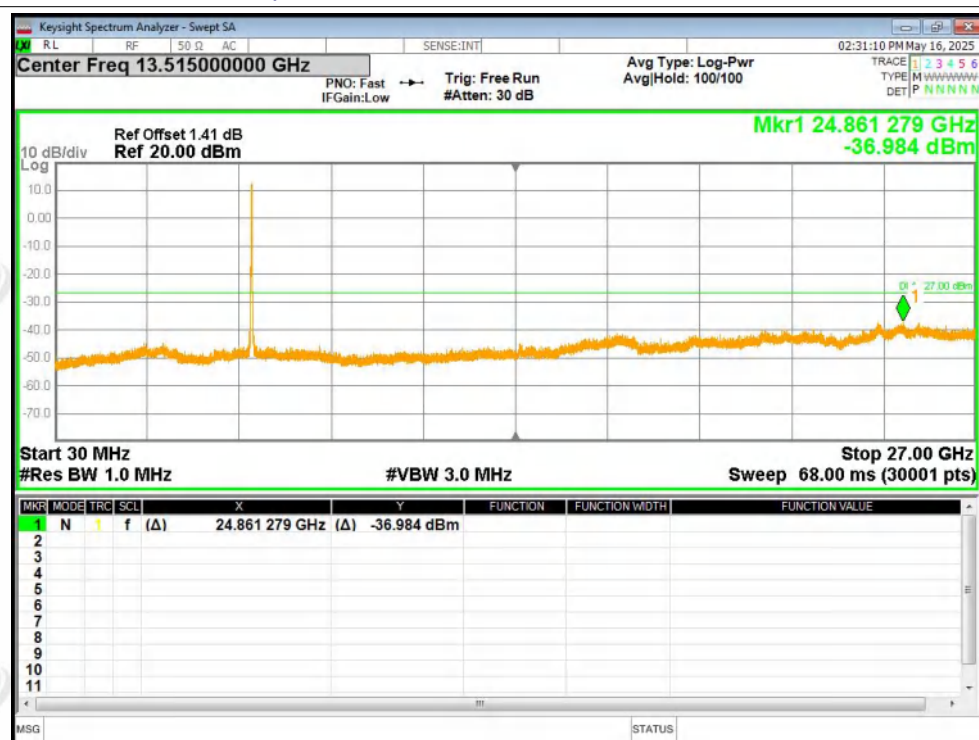
Tx. Spurious NVNT a 5825MHz Ant2 Emission



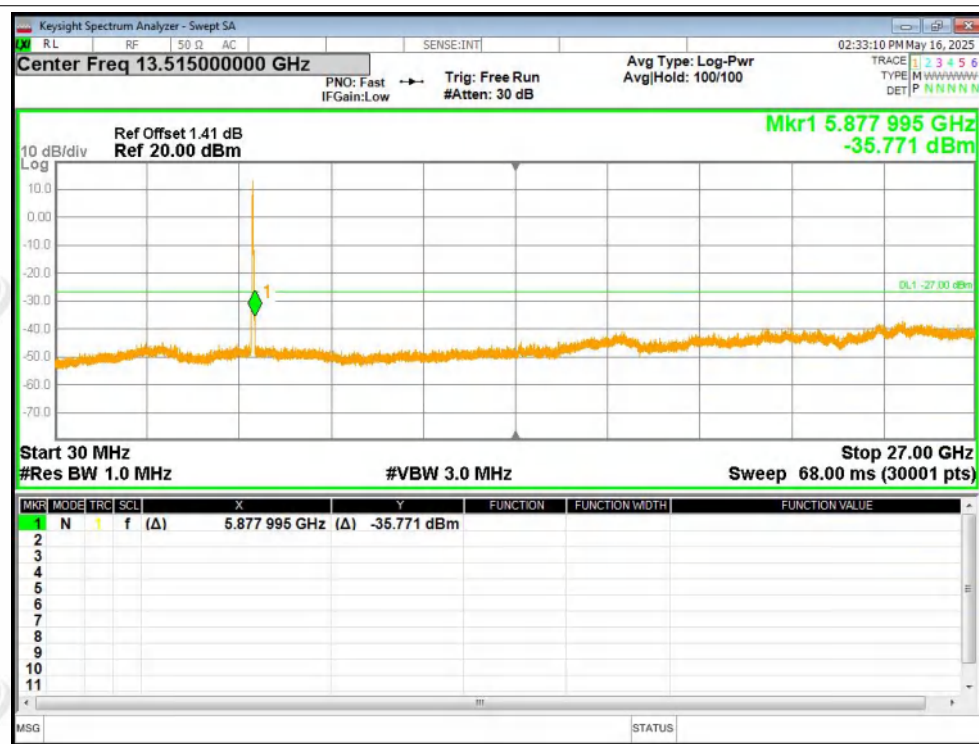
Tx. Spurious NVNT n20 5745MHz Ant2 Emission



Tx. Spurious NVNT n20 5785MHz Ant2 Emission

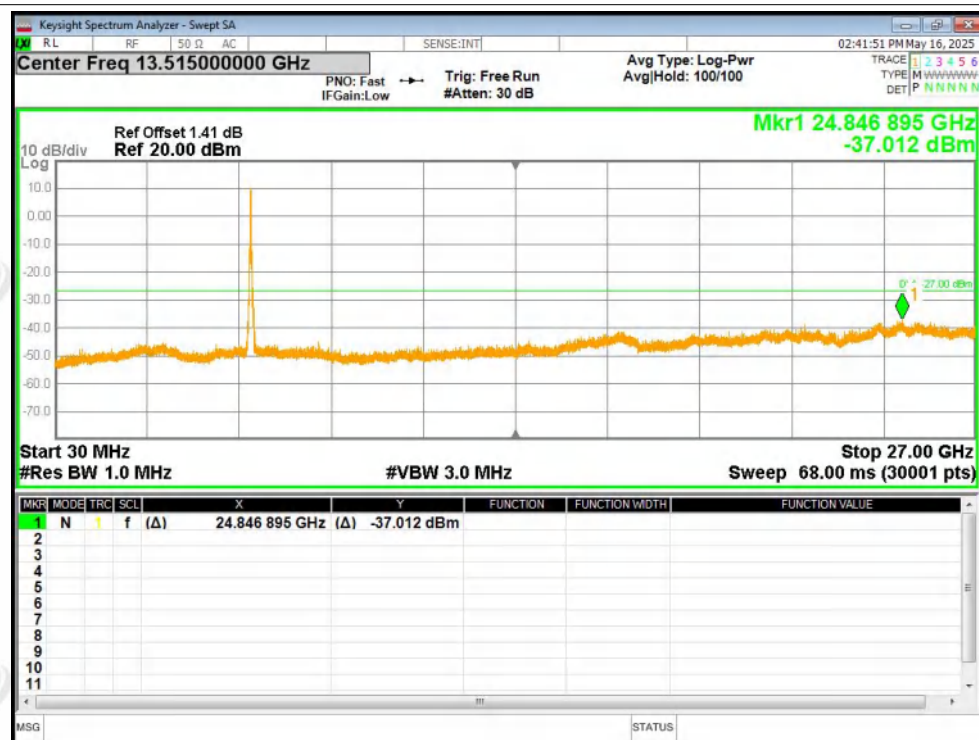


Tx. Spurious NVNT n20 5825MHz Ant2 Emission





Tx. Spurious NVNT n40 5755MHz Ant2 Emission

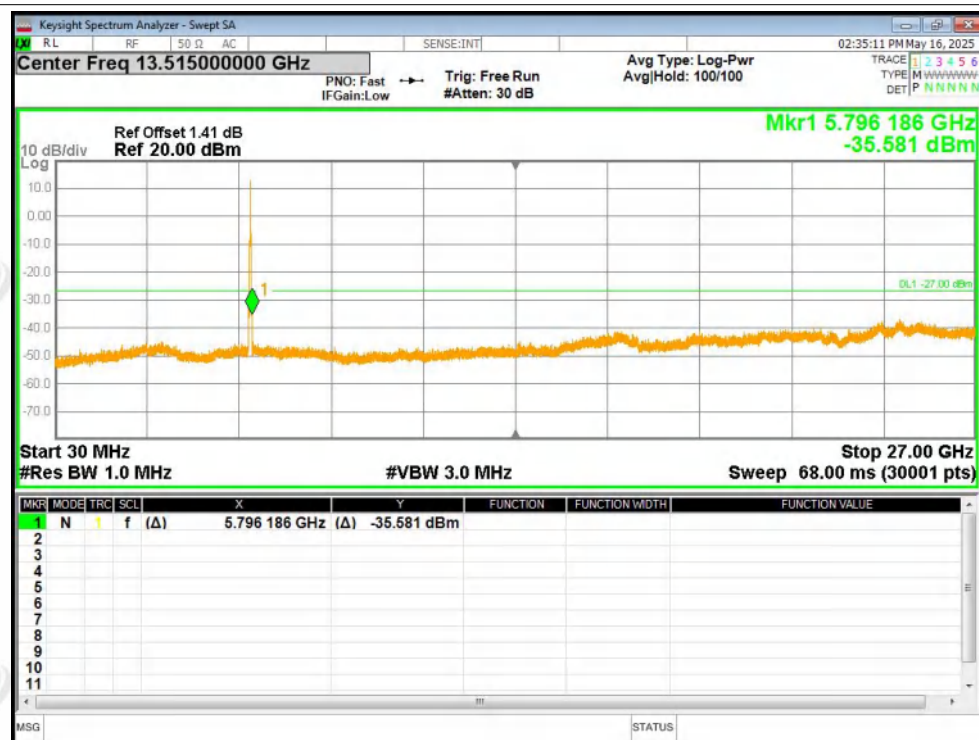


Tx. Spurious NVNT n40 5795MHz Ant2 Emission

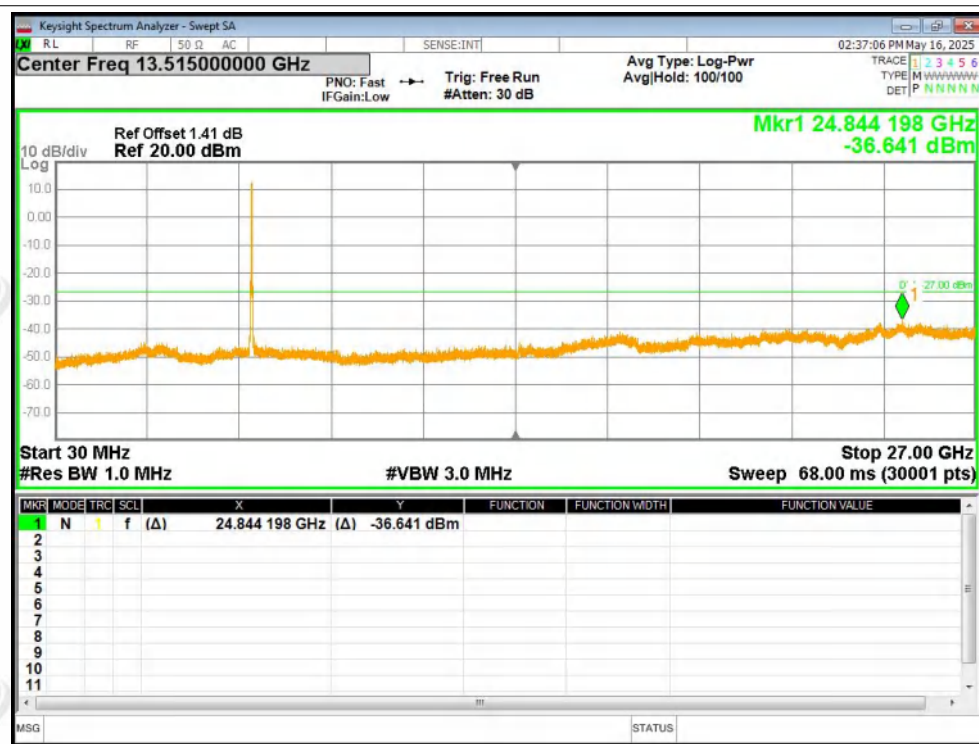




Tx. Spurious NVNT ac20 5745MHz Ant2 Emission

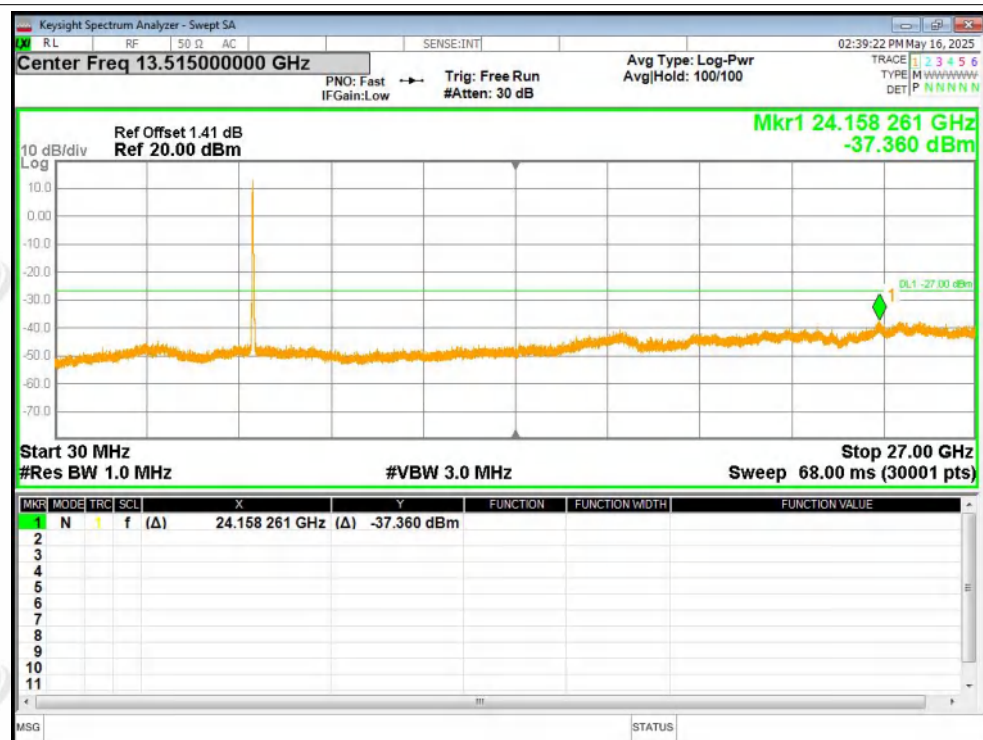


Tx. Spurious NVNT ac20 5785MHz Ant2 Emission





Tx. Spurious NVNT ac20 5825MHz Ant2 Emission

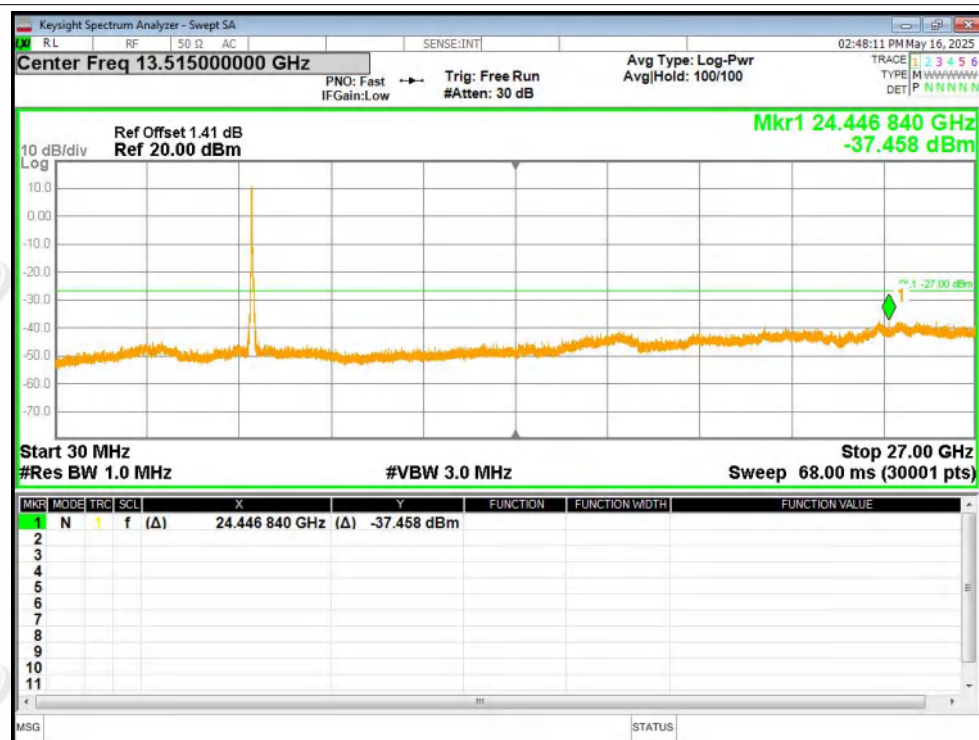


Tx. Spurious NVNT ac40 5755MHz Ant2 Emission





Tx. Spurious NVNT ac40 5795MHz Ant2 Emission



Tx. Spurious NVNT ac80 5775MHz Ant2 Emission

