

Appendix B for 5GWIFI Test Data

Product Name: ATOTO Car Navigation Multimedia Receiver

Test Model: F7G2A7WE

Environmental Conditions

Temperature:	21.6° C
Relative Humidity:	54%
ATM Pressure:	101.2 kPa
Test Engineer:	Jim Liu
Supervised by:	Lake Xie

B.1 Duty Cycle

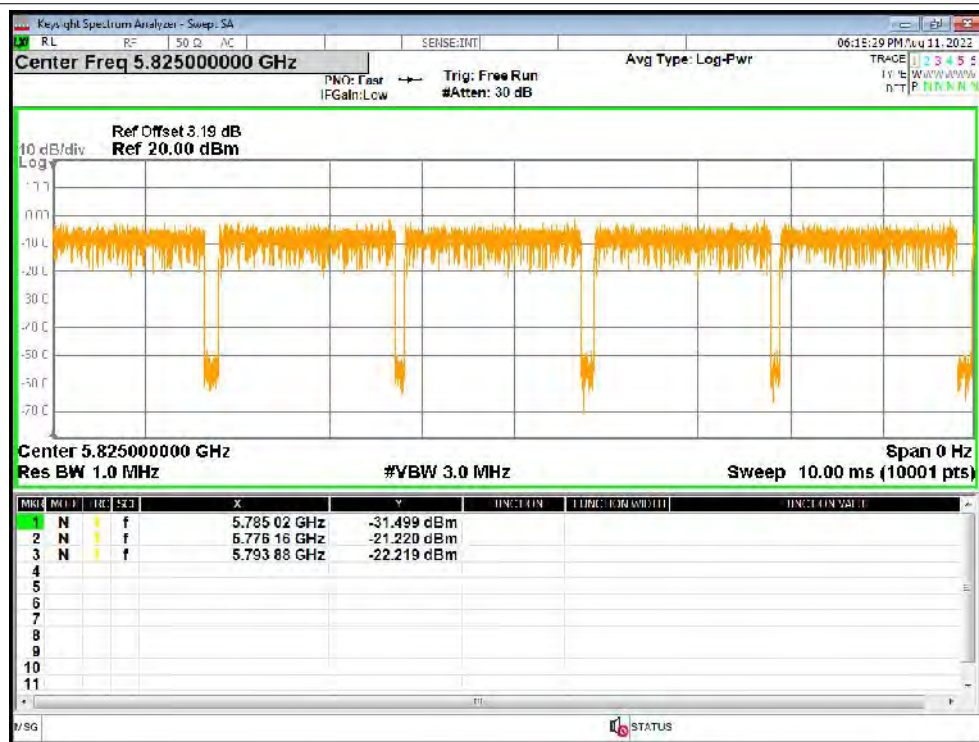
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5745	Ant1	97.82	0.1	0.48
NVNT	a	5785	Ant1	95.82	0.19	0.48
NVNT	a	5825	Ant1	0	0	0
NVNT	n20	5745	Ant1	97.71	0.1	0.52
NVNT	n20	5785	Ant1	97.86	0.09	0.52
NVNT	n20	5825	Ant1	92.22	0.35	0.52
NVNT	n40	5755	Ant1	0	0	0
NVNT	n40	5795	Ant1	98.98	0	5.15
NVNT	ac20	5745	Ant1	97.23	0.12	0.52
NVNT	ac20	5785	Ant1	98.12	0	0.52
NVNT	ac20	5825	Ant1	0	0	0
NVNT	ac40	5755	Ant1	0	0	0
NVNT	ac40	5795	Ant1	0	0	0
NVNT	ac80	5775	Ant1	0	0	0

[illegible][illegible]

Duty Cycle NVNT n20 5785MHz Ant1

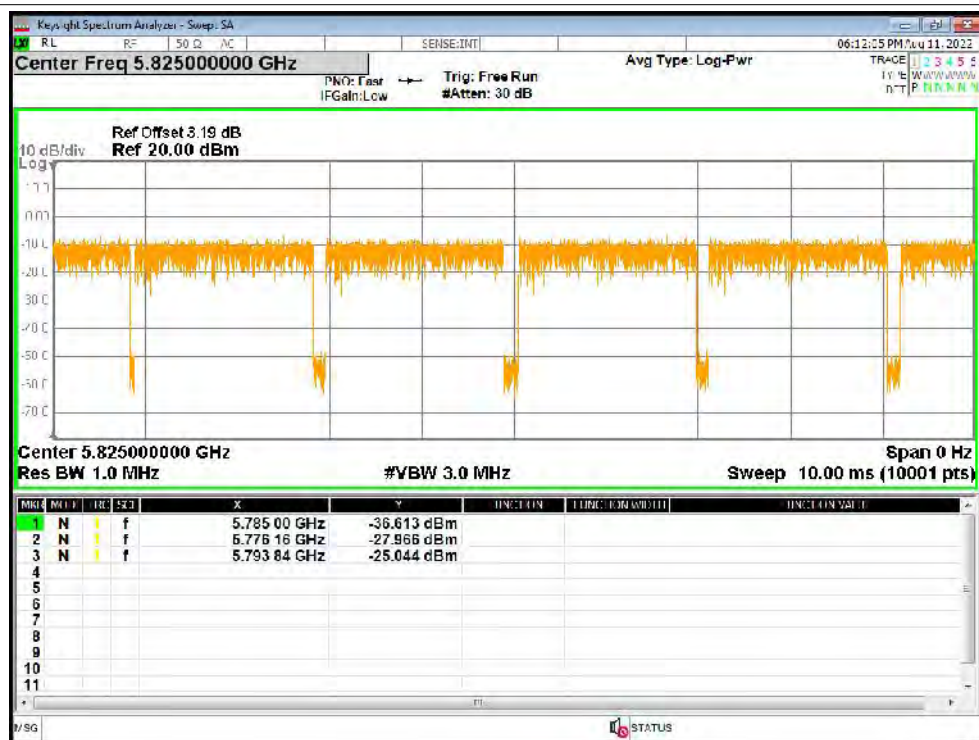


Duty Cycle NVNT n20 5825MHz Ant1



[illegible][illegible]

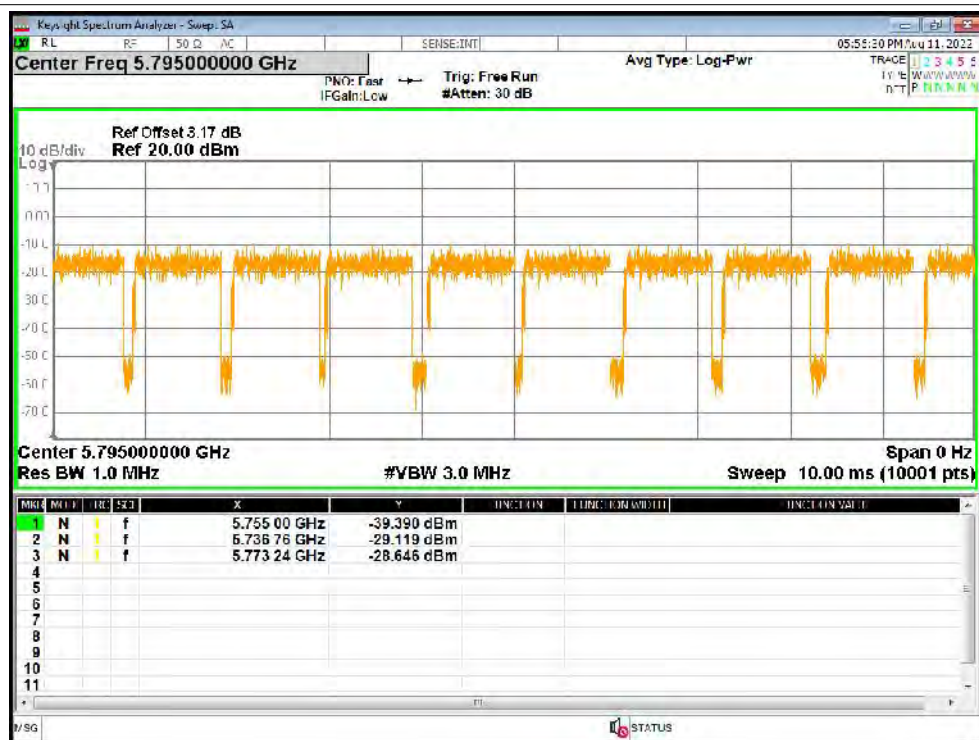
Duty Cycle NVNT ac20 5825MHz Ant1



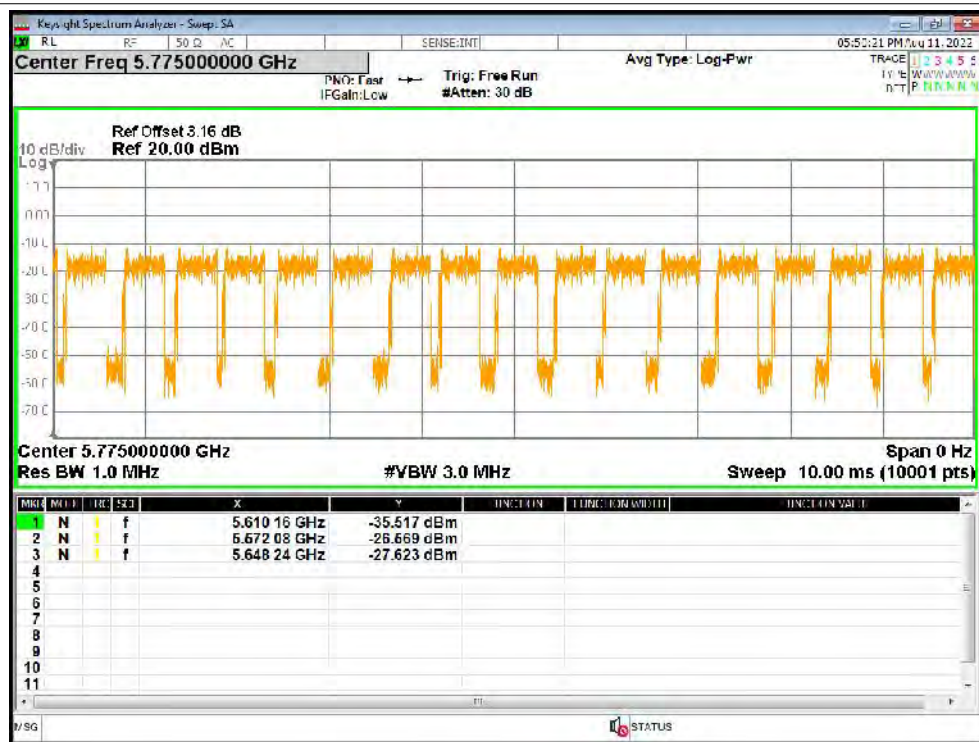
Duty Cycle NVNT ac40 5755MHz Ant1



Duty Cycle NVNT ac40 5795MHz Ant1



Duty Cycle NVNT ac80 5775MHz Ant1

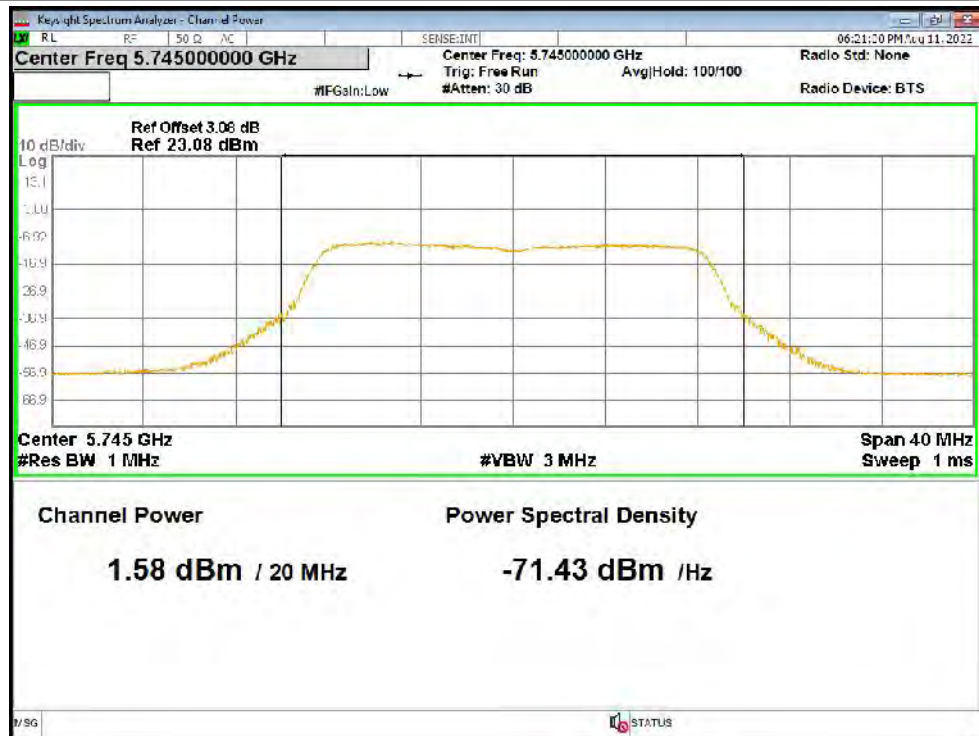


B.2 Maximum Conducted Output Power

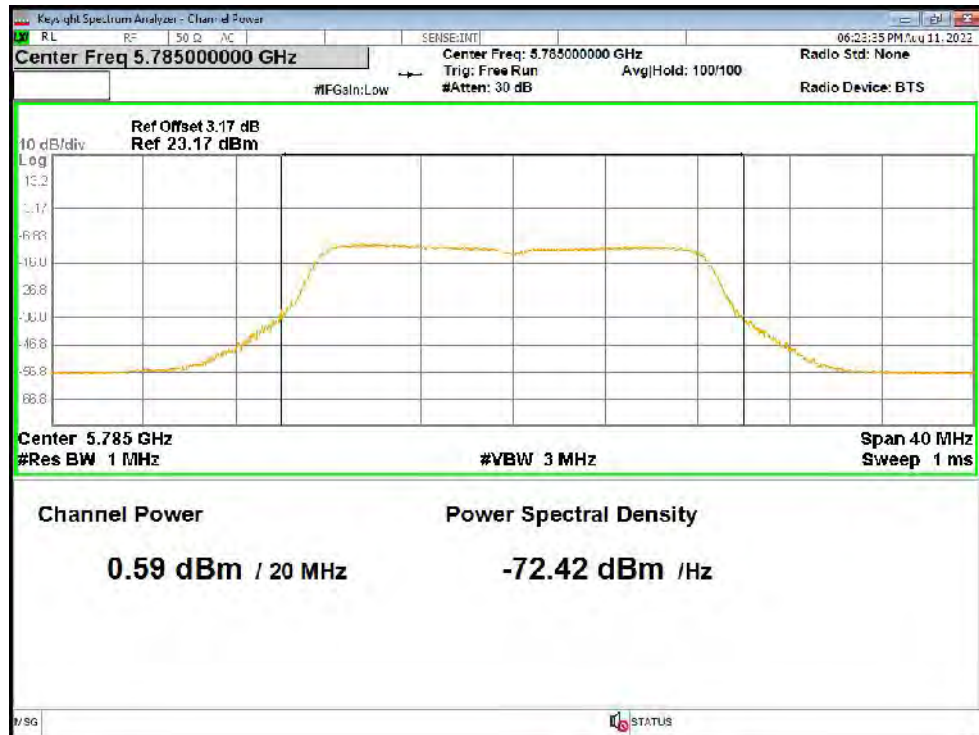
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	1.58	0.1	1.68	30	Pass
NVNT	a	5785	Ant1	0.59	0.19	0.78	30	Pass
NVNT	a	5825	Ant1	2.44	0	2.44	30	Pass
NVNT	n20	5745	Ant1	1.69	0.1	1.79	30	Pass
NVNT	n20	5785	Ant1	5.03	0.09	5.12	30	Pass
NVNT	n20	5825	Ant1	3.37	0.35	3.72	30	Pass
NVNT	n40	5755	Ant1	1.46	0	1.46	30	Pass
NVNT	n40	5795	Ant1	0.3	0	0.3	30	Pass
NVNT	ac20	5745	Ant1	1.62	0.12	1.74	30	Pass
NVNT	ac20	5785	Ant1	0.44	0	0.44	30	Pass
NVNT	ac20	5825	Ant1	2.42	0	2.42	30	Pass
NVNT	ac40	5755	Ant1	1.6	0	1.6	30	Pass
NVNT	ac40	5795	Ant1	0.38	0	0.38	30	Pass
NVNT	ac80	5775	Ant1	1.19	0	1.19	30	Pass

Test Graphs

Power NVNT a 5745MHz Ant1



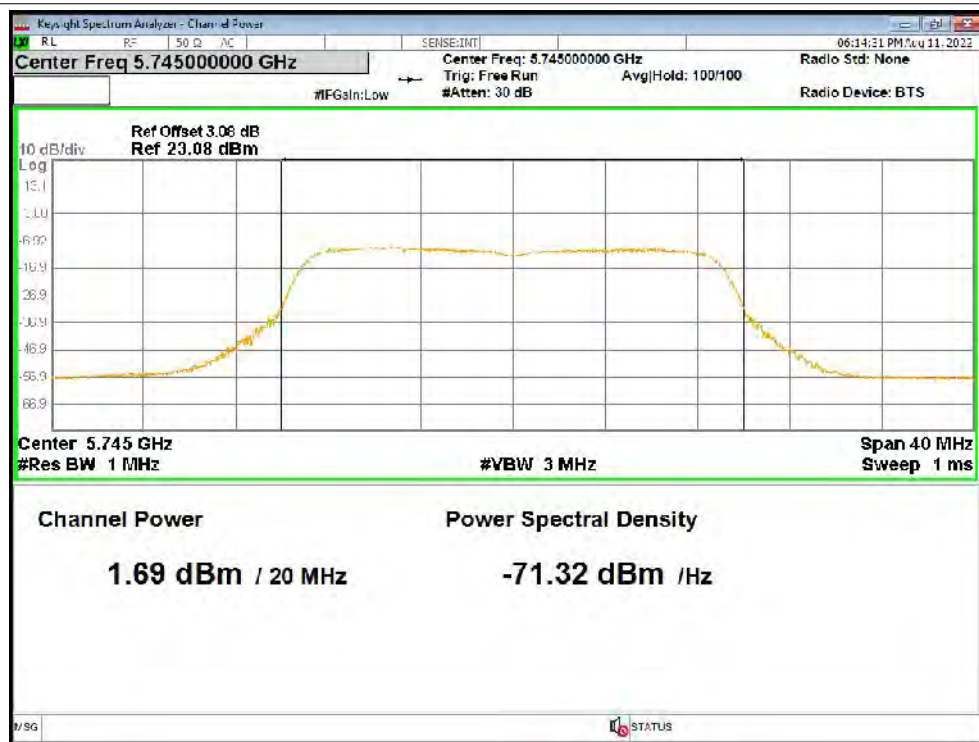
Power NVNT a 5785MHz Ant1



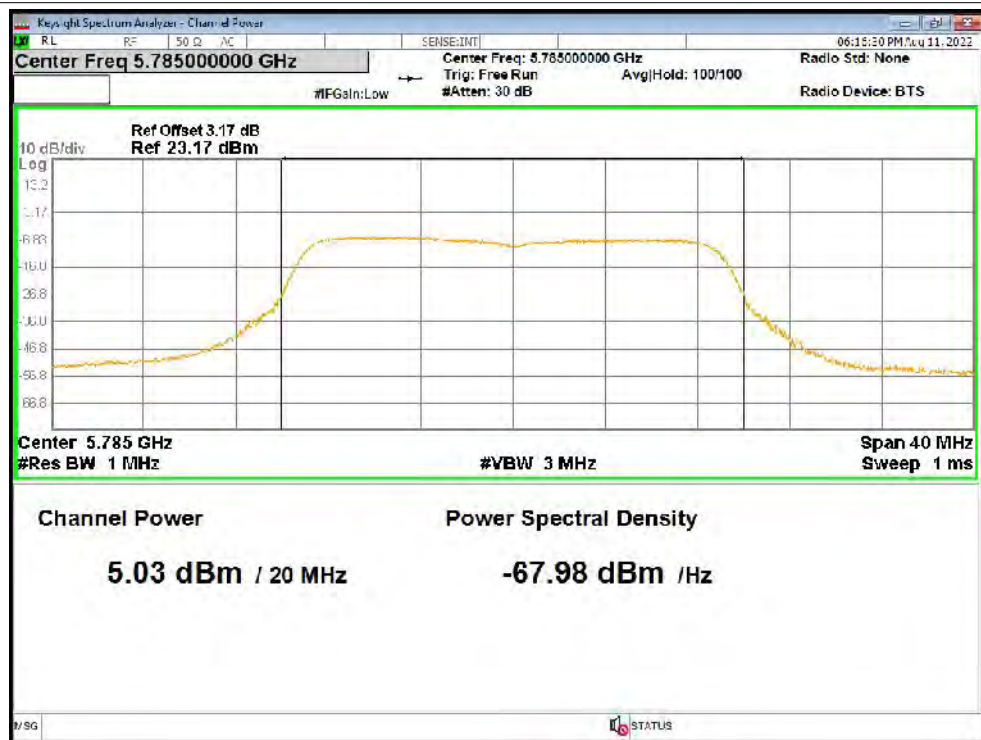
Power NVNT a 5825MHz Ant1



Power NVNT n20 5745MHz Ant1



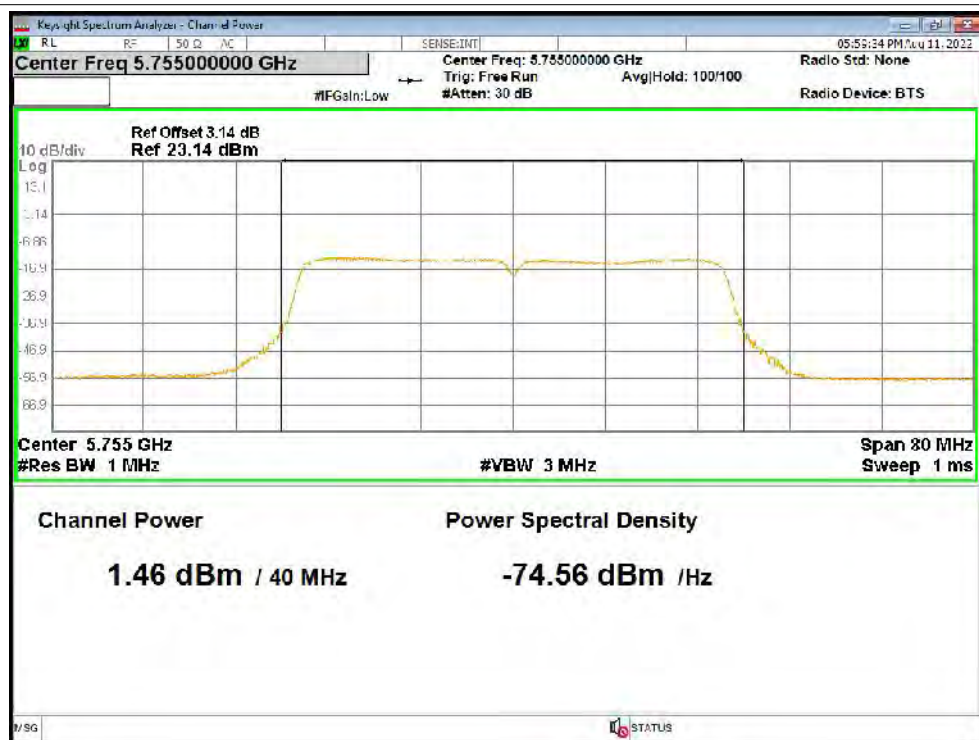
Power NVNT n20 5785MHz Ant1



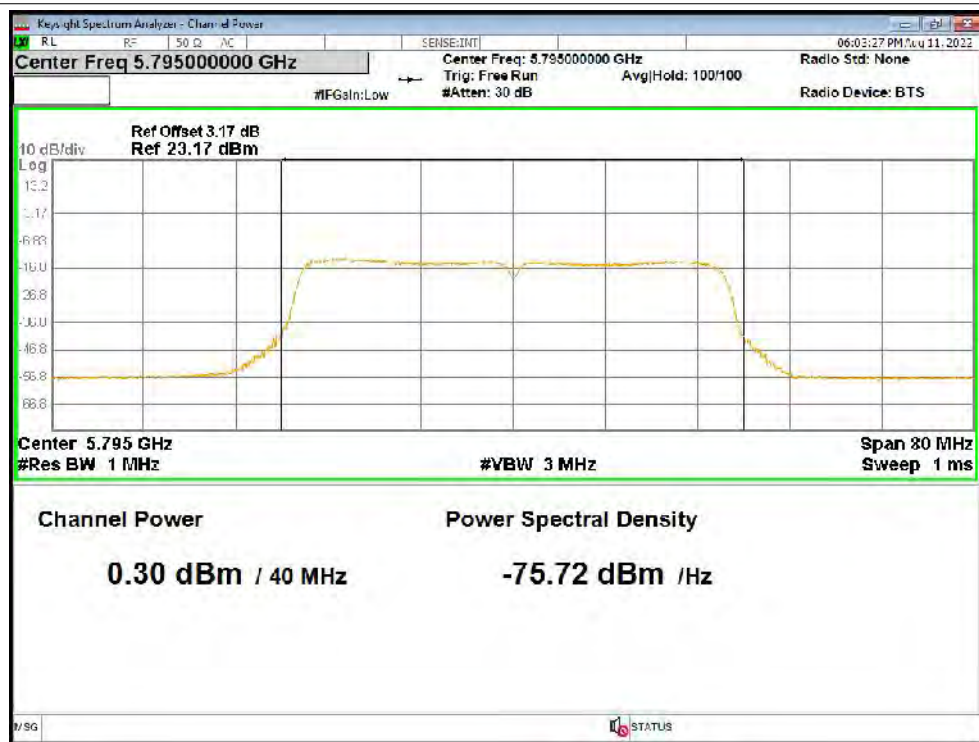
Power NVNT n20 5825MHz Ant1



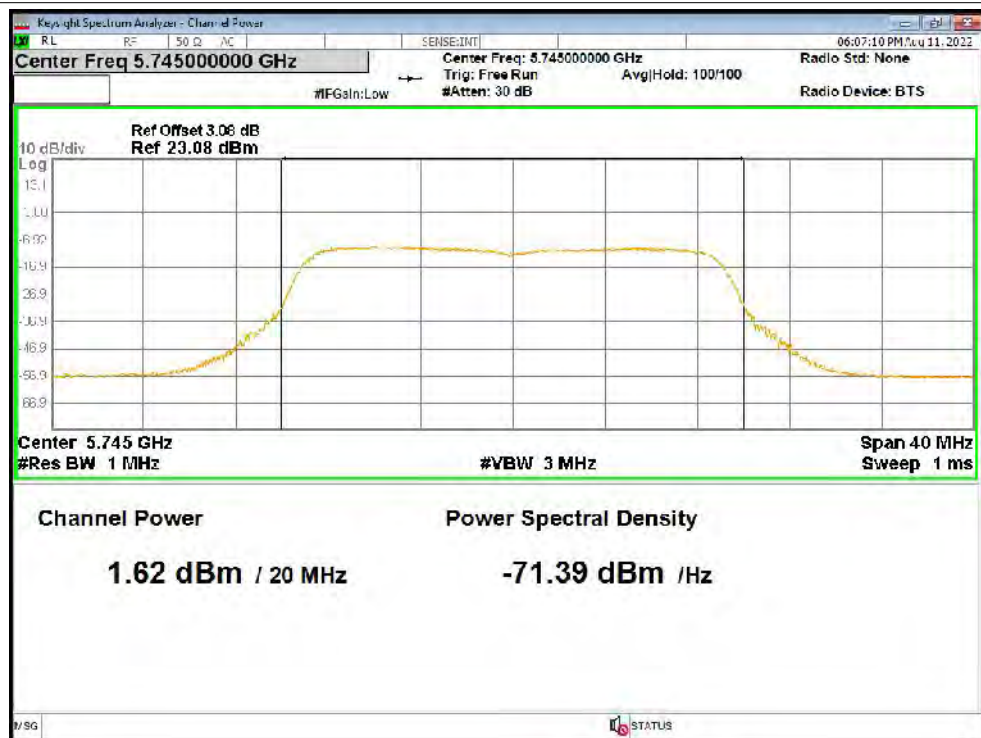
Power NVNT n40 5755MHz Ant1



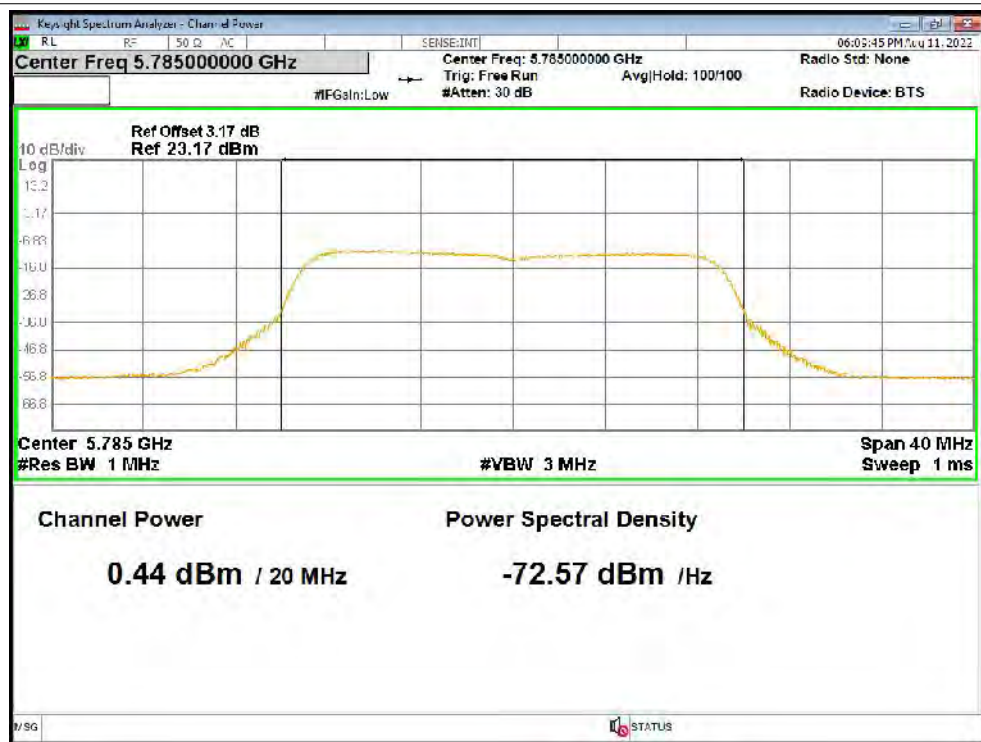
Power NVNT n40 5795MHz Ant1



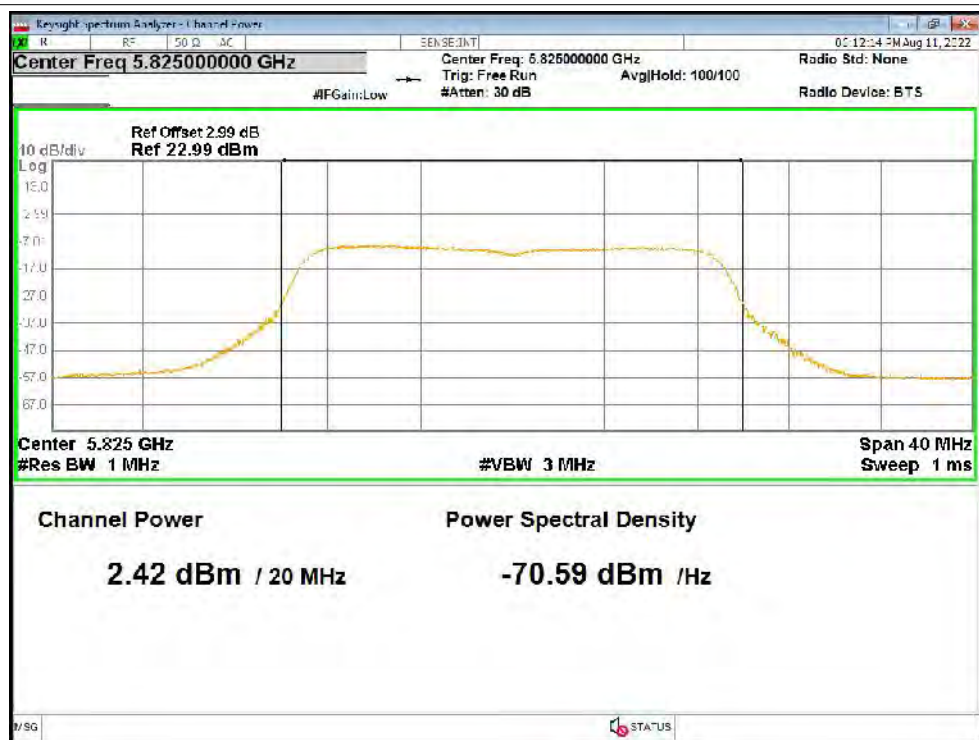
Power NVNT ac20 5745MHz Ant1



Power NVNT ac20 5785MHz Ant1



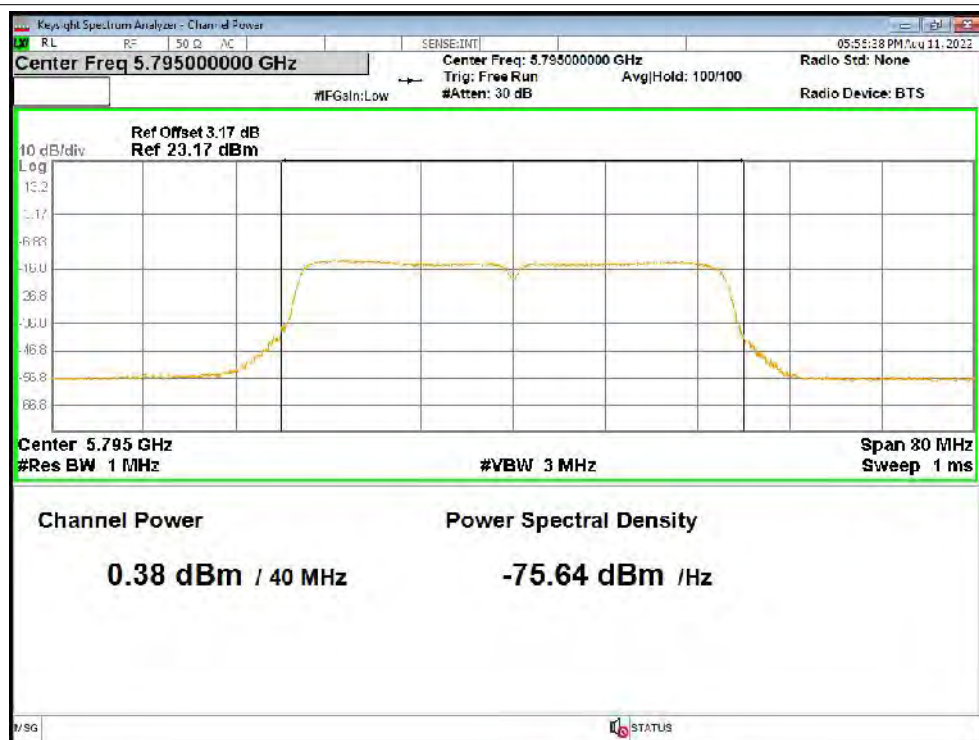
Power NVNT ac20 5825MHz Ant1



Power NVNT ac40 5755MHz Ant1



Power NVNT ac40 5795MHz Ant1



Power NVNT ac80 5775MHz Ant1

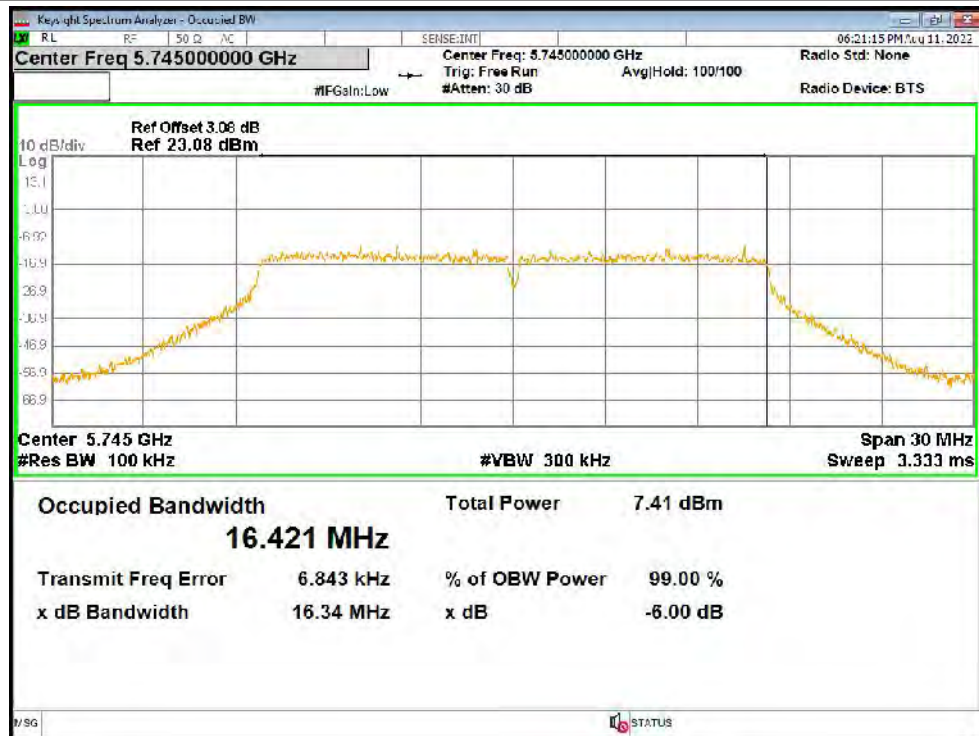


B.3 -6dB Bandwidth

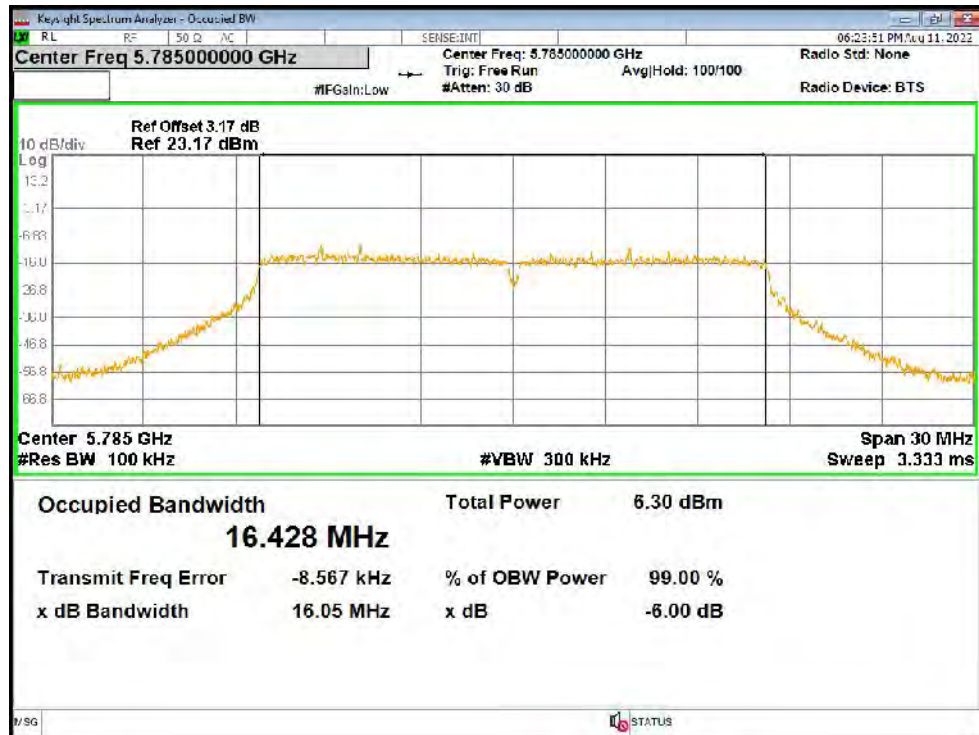
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	16.338	0.5	Pass
NVNT	a	5785	Ant1	16.053	0.5	Pass
NVNT	a	5825	Ant1	16.316	0.5	Pass
NVNT	n20	5745	Ant1	17.549	0.5	Pass
NVNT	n20	5785	Ant1	17.132	0.5	Pass
NVNT	n20	5825	Ant1	17.064	0.5	Pass
NVNT	n40	5755	Ant1	35.475	0.5	Pass
NVNT	n40	5795	Ant1	35.682	0.5	Pass
NVNT	ac20	5745	Ant1	17.164	0.5	Pass
NVNT	ac20	5785	Ant1	17.325	0.5	Pass
NVNT	ac20	5825	Ant1	17.558	0.5	Pass
NVNT	ac40	5755	Ant1	35.529	0.5	Pass
NVNT	ac40	5795	Ant1	35.447	0.5	Pass
NVNT	ac80	5775	Ant1	75.125	0.5	Pass

Test Graphs

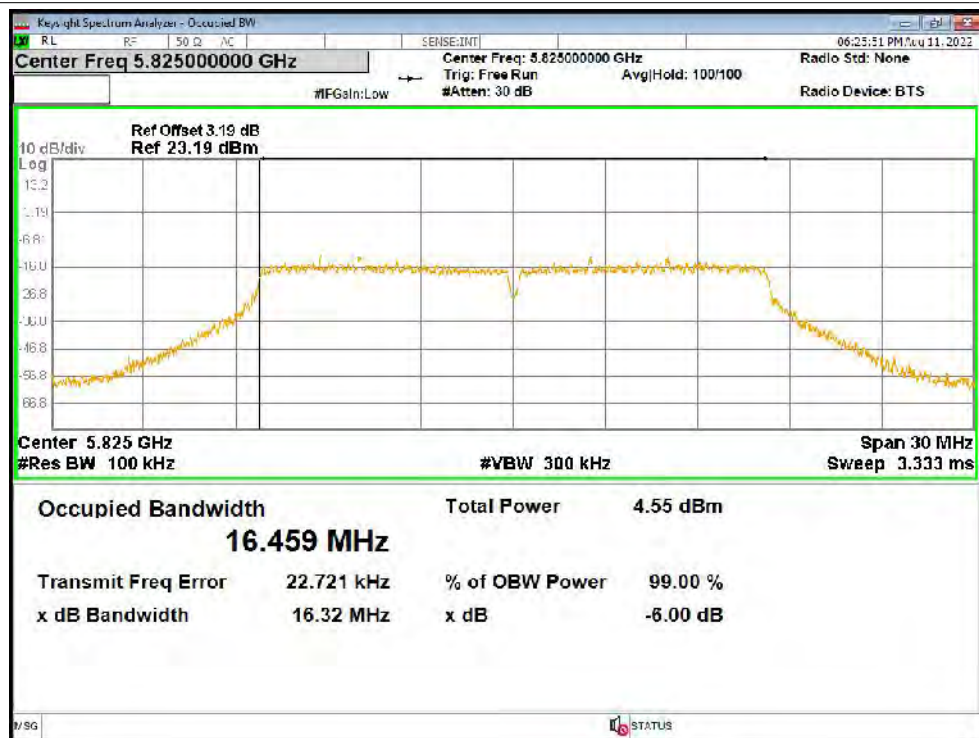
-6dB Bandwidth NVNT a 5745MHz Ant1



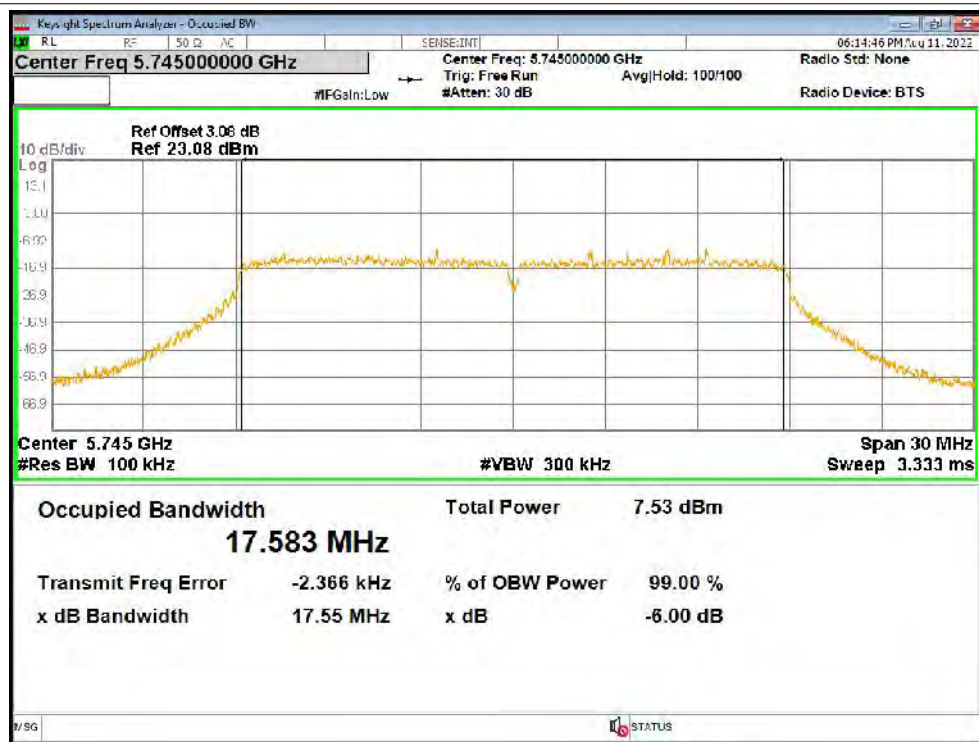
-6dB Bandwidth NVNT a 5785MHz Ant1



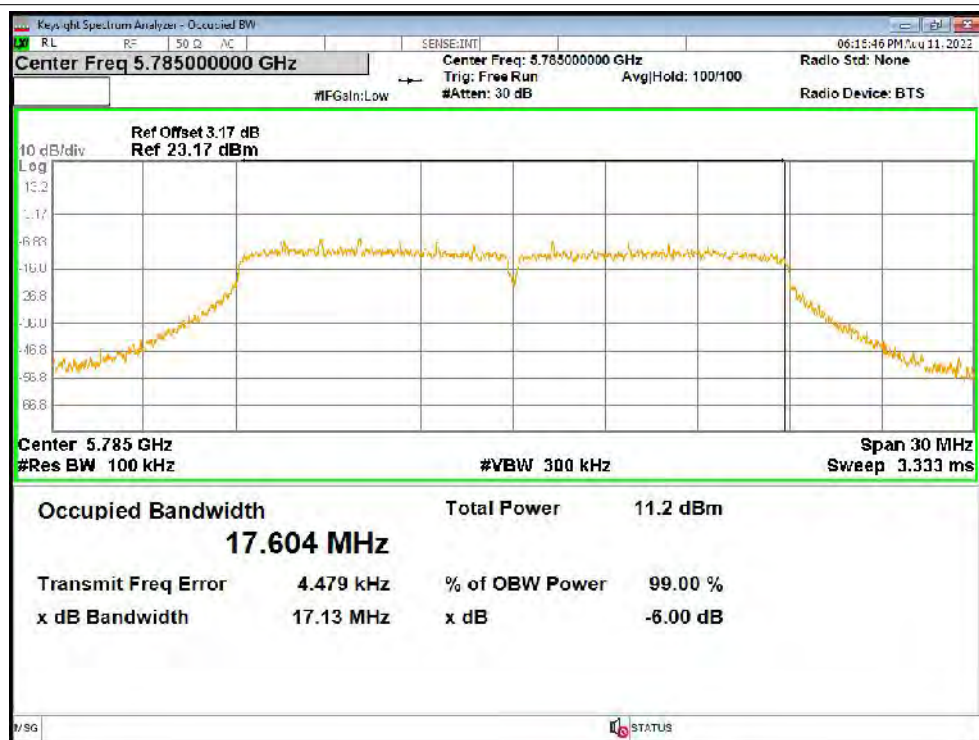
-6dB Bandwidth NVNT a 5825MHz Ant1



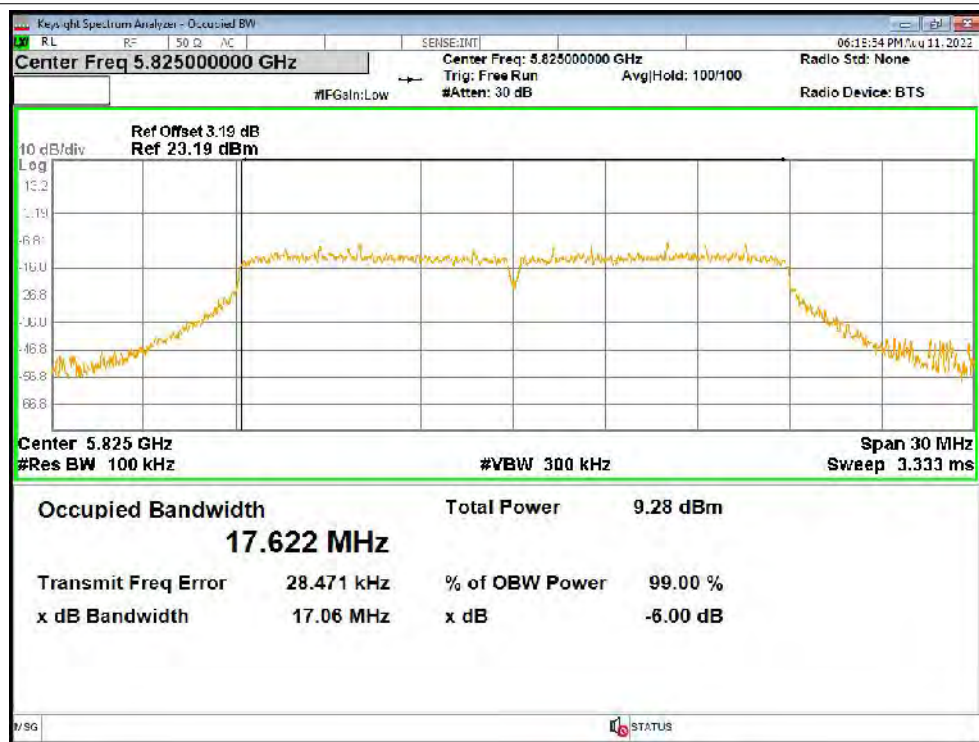
-6dB Bandwidth NVNT n20 5745MHz Ant1



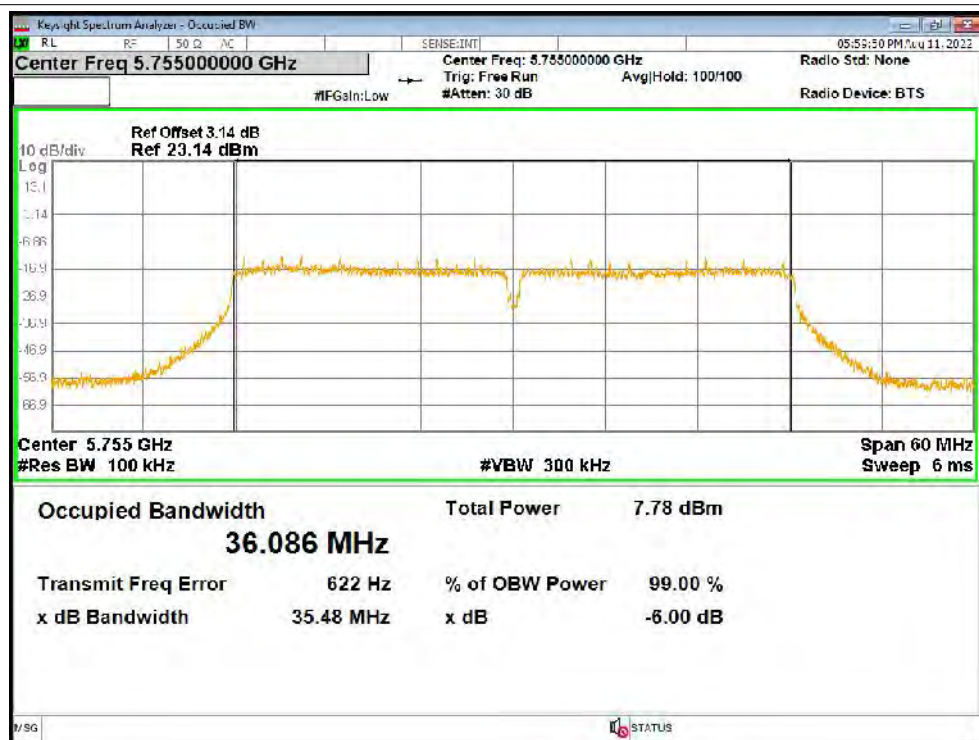
-6dB Bandwidth NVNT n20 5785MHz Ant1



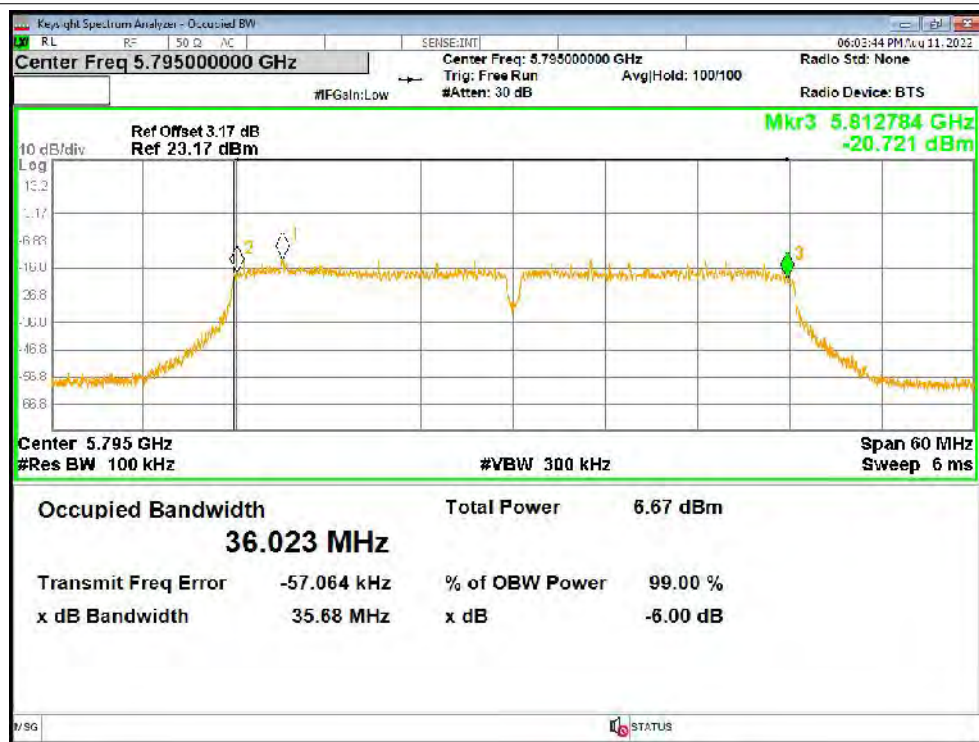
-6dB Bandwidth NVNT n20 5825MHz Ant1



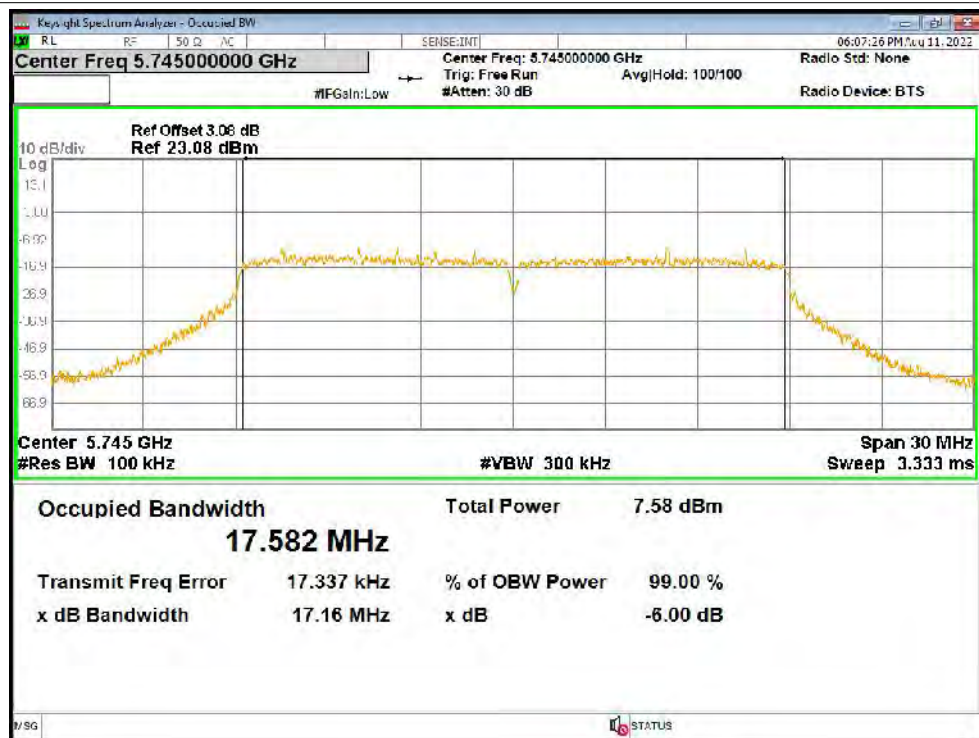
-6dB Bandwidth NVNT n40 5755MHz Ant1



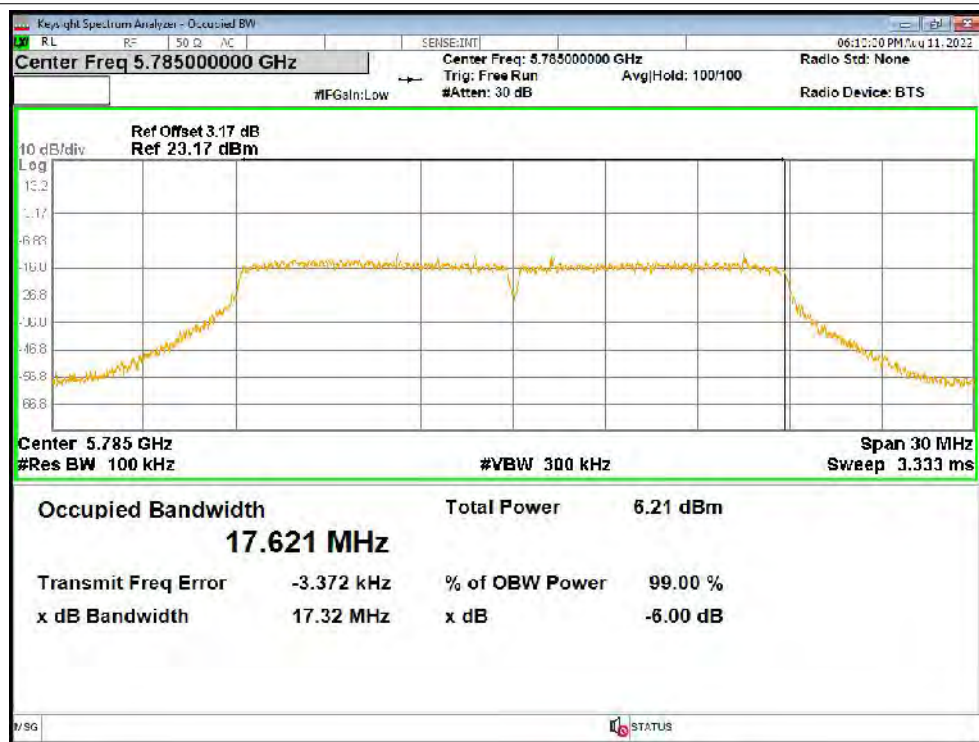
-6dB Bandwidth NVNT n40 5795MHz Ant1



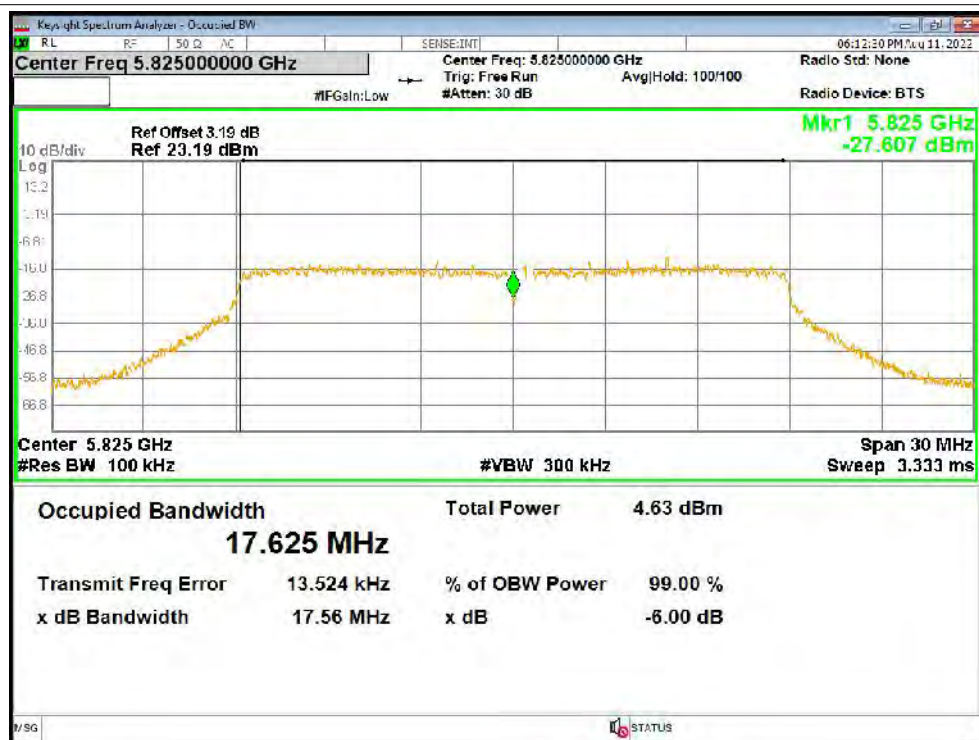
-6dB Bandwidth NVNT ac20 5745MHz Ant1



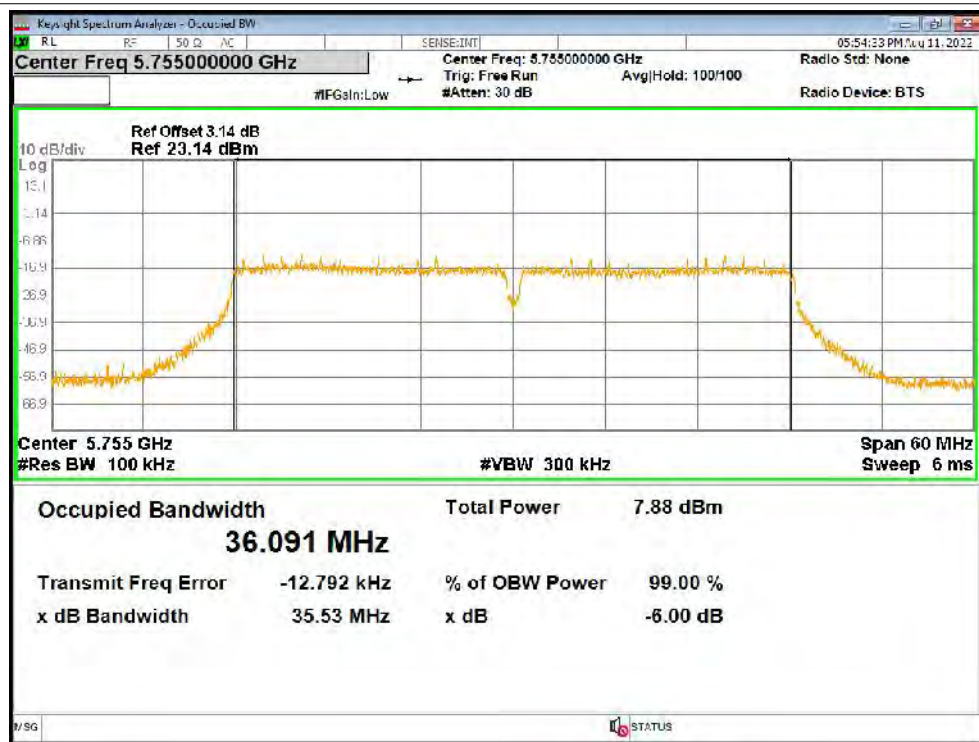
-6dB Bandwidth NVNT ac20 5785MHz Ant1



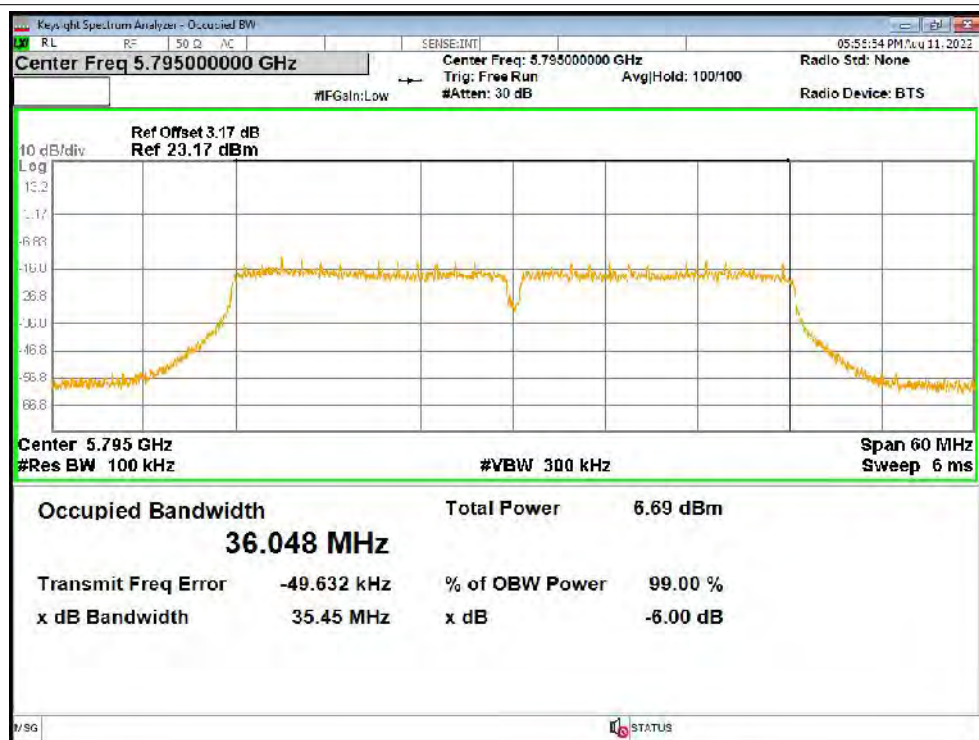
-6dB Bandwidth NVNT ac20 5825MHz Ant1



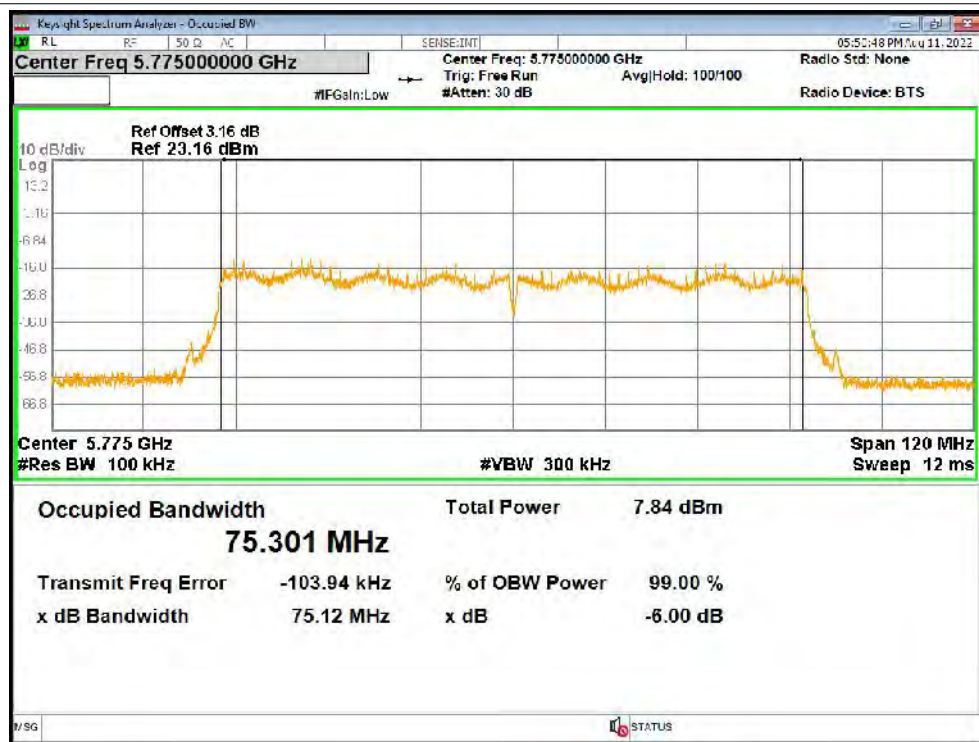
-6dB Bandwidth NVNT ac40 5755MHz Ant1



-6dB Bandwidth NVNT ac40 5795MHz Ant1



-6dB Bandwidth NVNT ac80 5775MHz Ant1

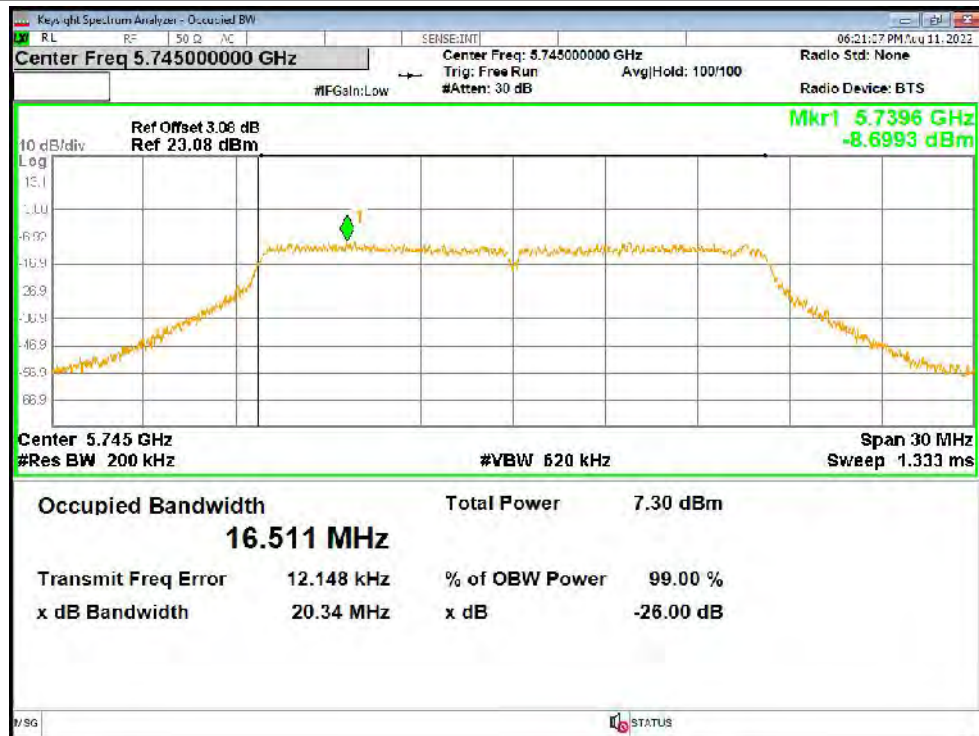


B.4 Occupied Channel Bandwidth

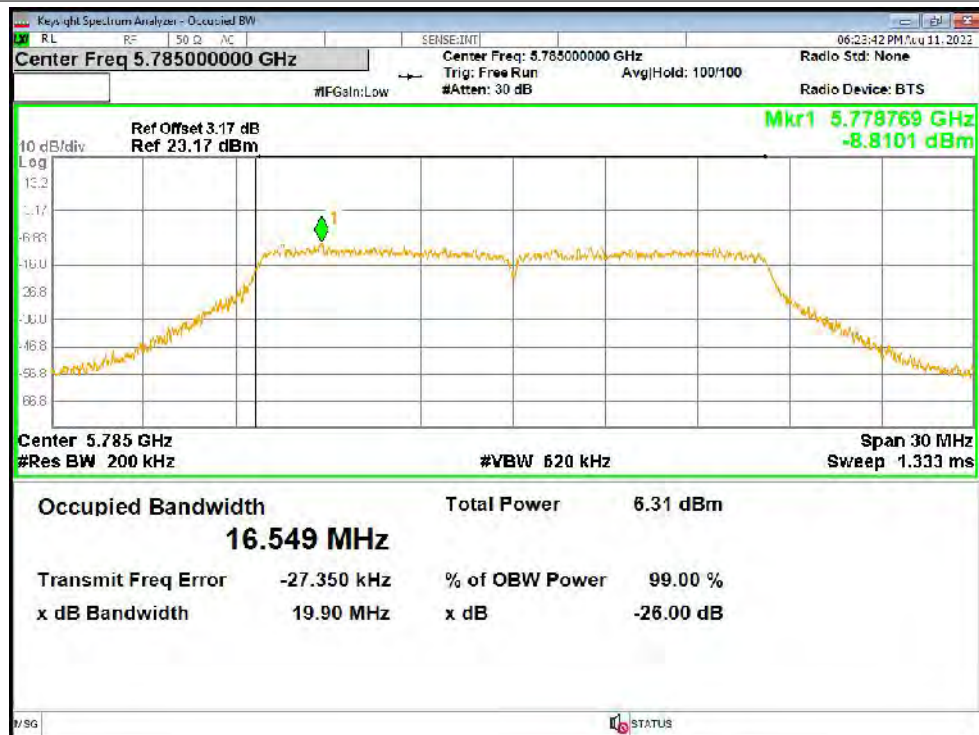
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5745	Ant1	16.511
NVNT	a	5785	Ant1	16.549
NVNT	a	5825	Ant1	16.582
NVNT	n20	5745	Ant1	17.628
NVNT	n20	5785	Ant1	17.653
NVNT	n20	5825	Ant1	17.676
NVNT	n40	5755	Ant1	36.258
NVNT	n40	5795	Ant1	36.177
NVNT	ac20	5745	Ant1	17.622
NVNT	ac20	5785	Ant1	17.699
NVNT	ac20	5825	Ant1	17.706
NVNT	ac40	5755	Ant1	36.289
NVNT	ac40	5795	Ant1	36.181
NVNT	ac80	5775	Ant1	75.447

Test Graphs

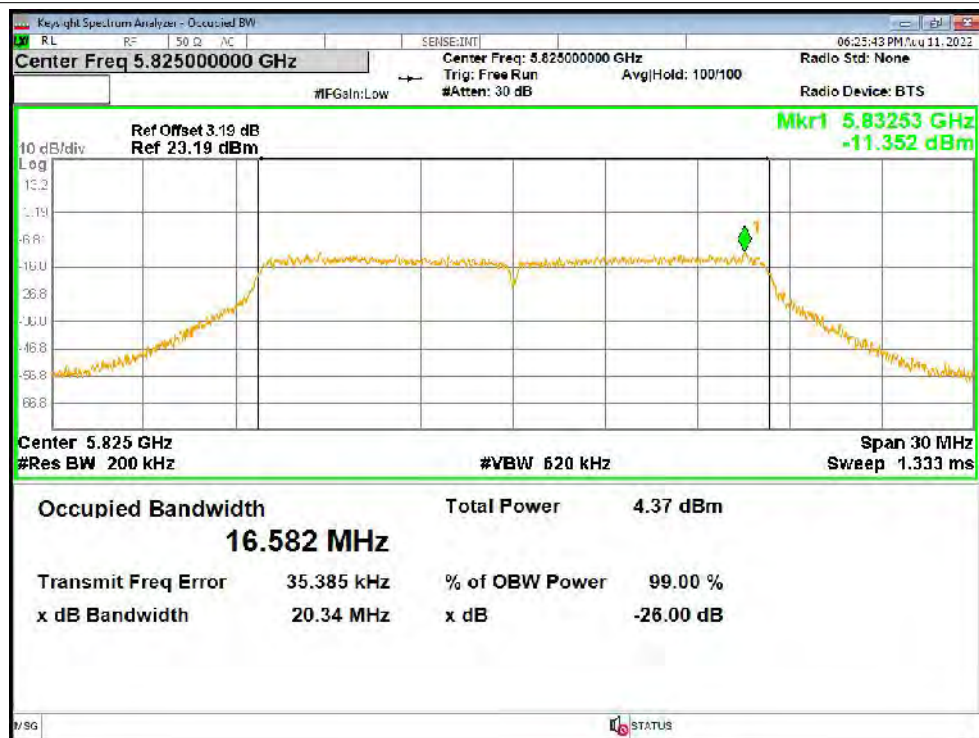
OBW NVNT a 5745MHz Ant1



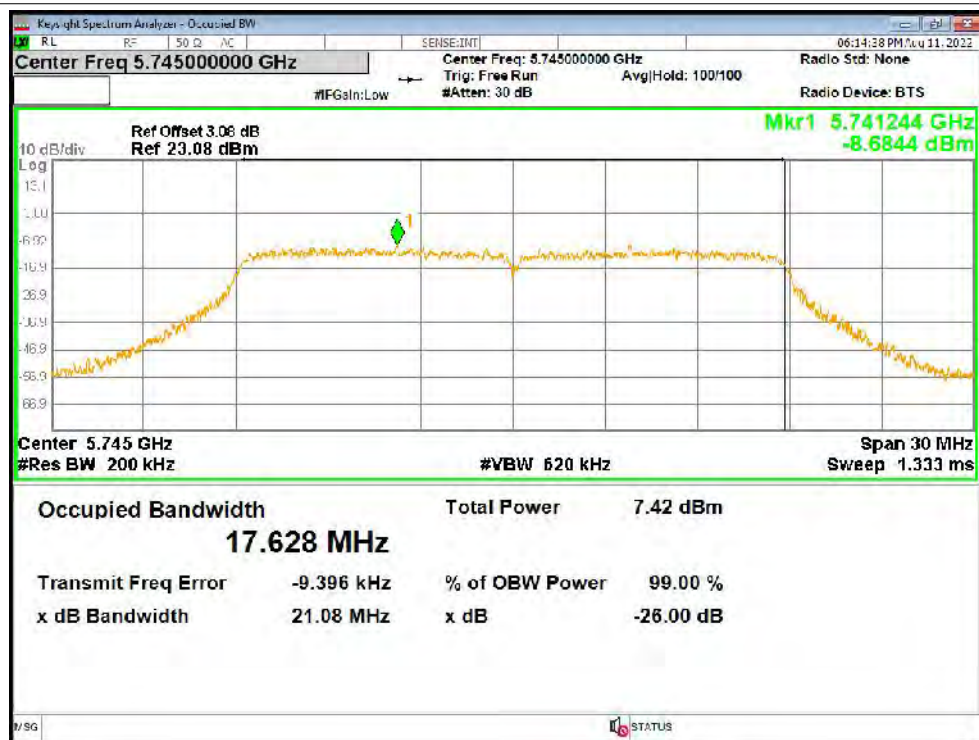
OBW NVNT a 5785MHz Ant1



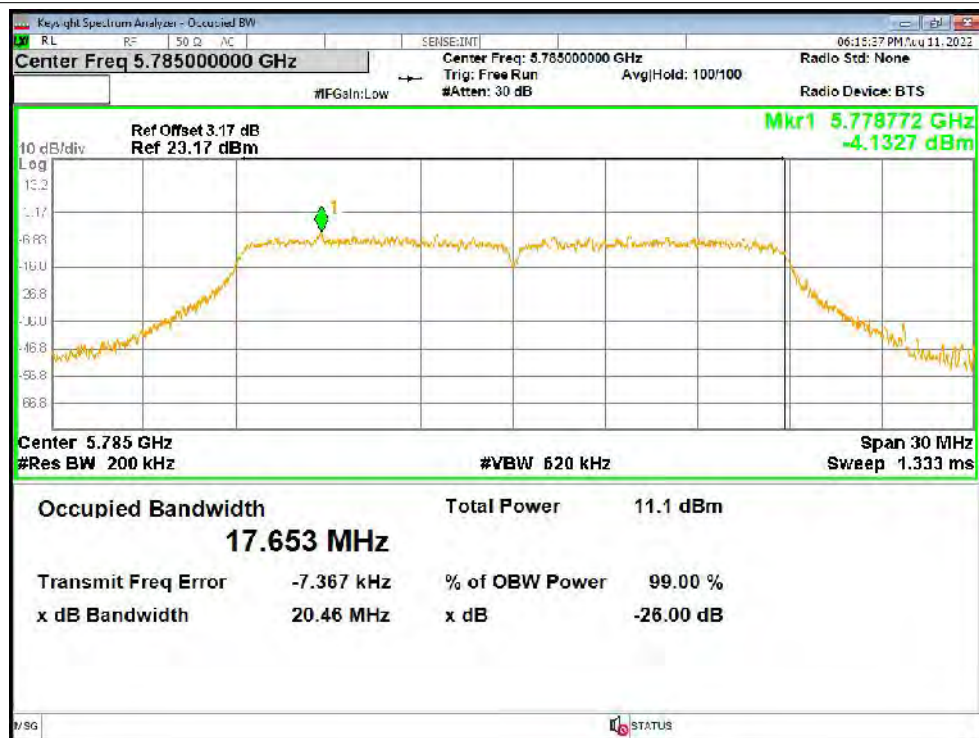
OBW NVNT a 5825MHz Ant1



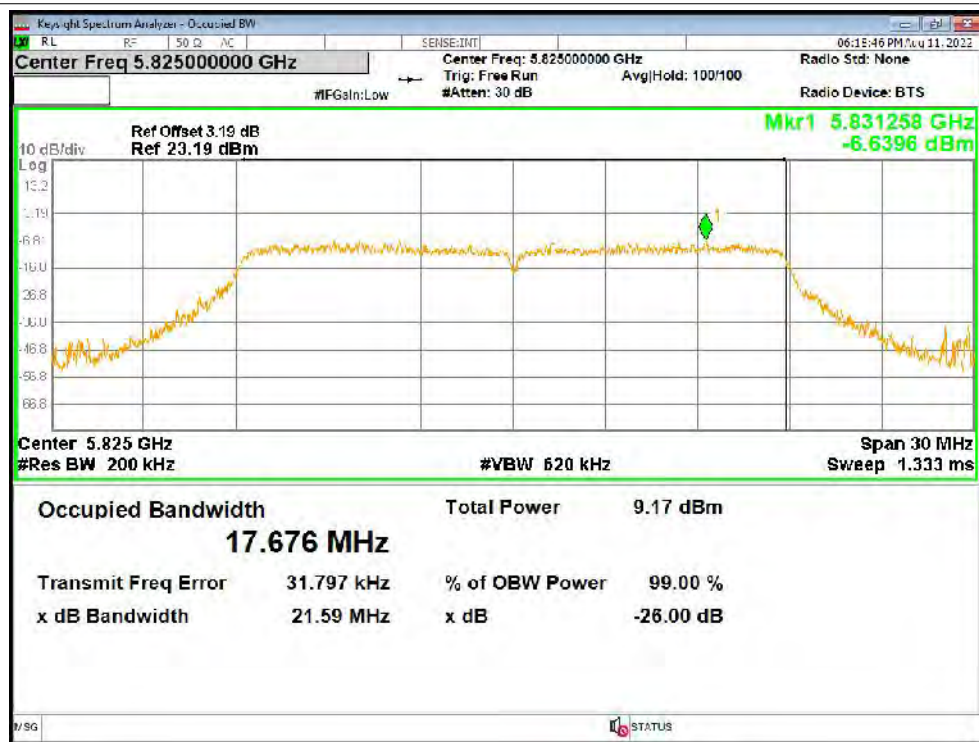
OBW NVNT n20 5745MHz Ant1



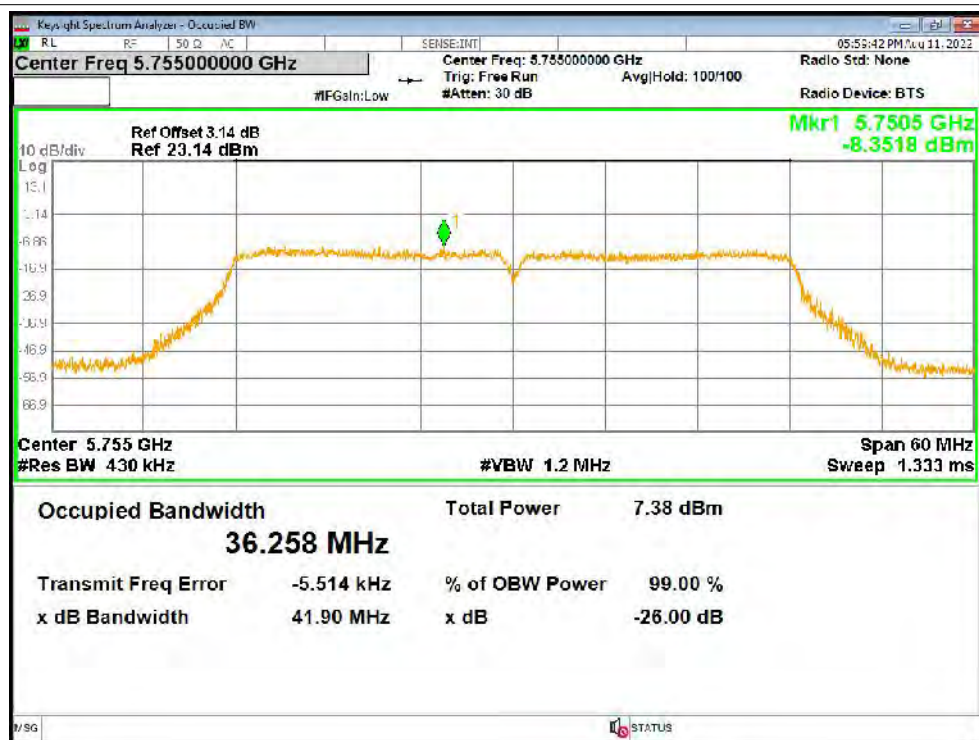
OBW NVNT n20 5785MHz Ant1



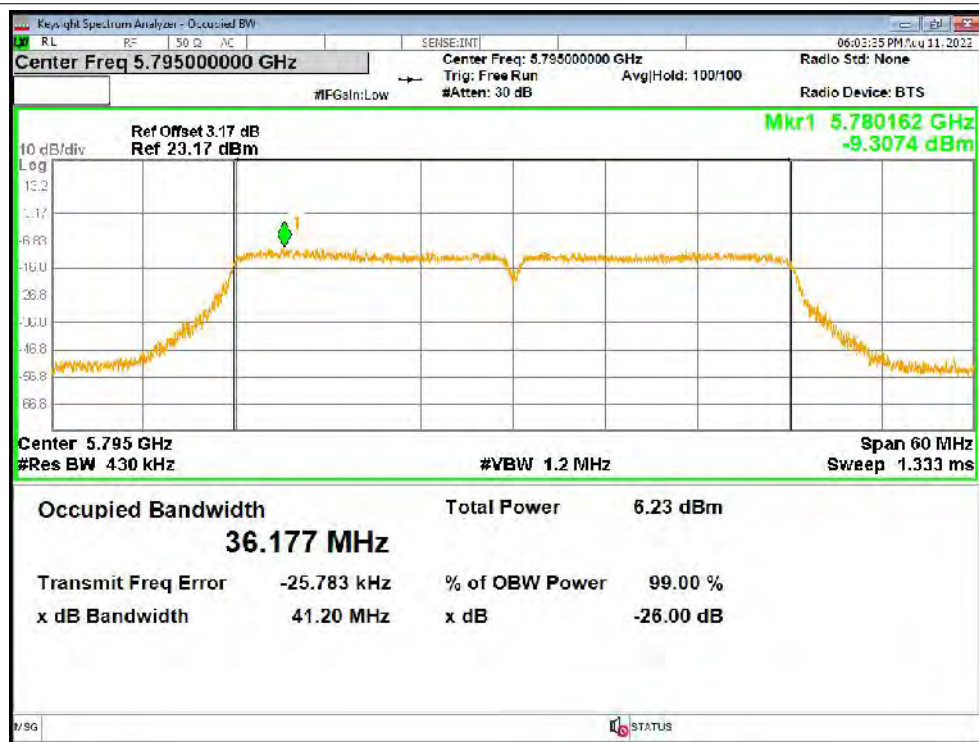
OBW NVNT n20 5825MHz Ant1



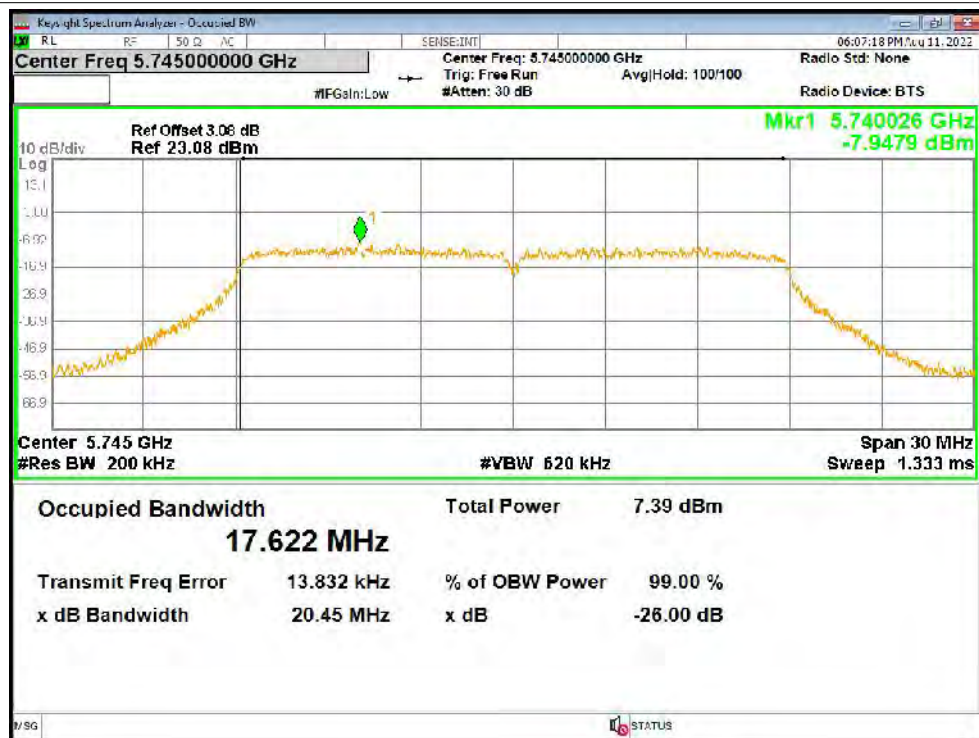
OBW NVNT n40 5755MHz Ant1



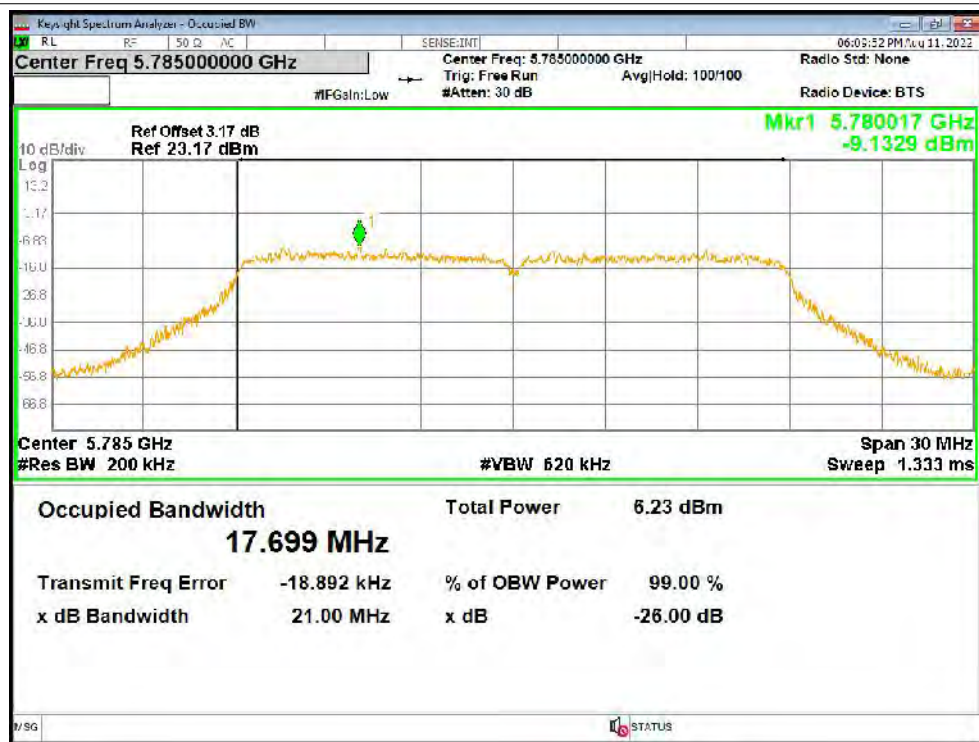
OBW NVNT n40 5795MHz Ant1



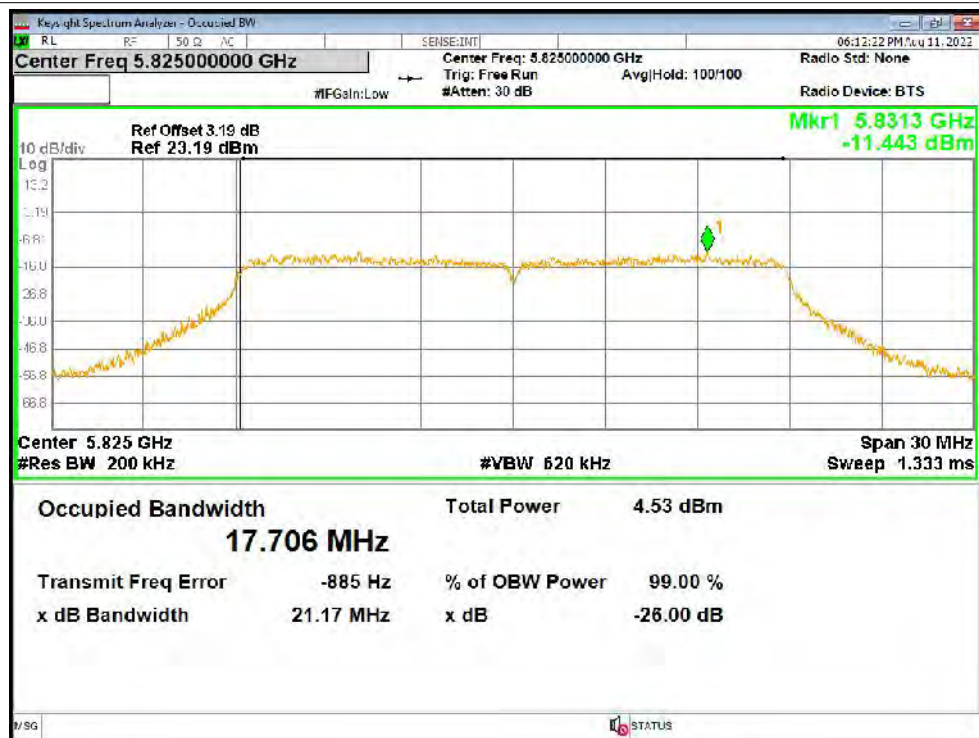
OBW NVNT ac20 5745MHz Ant1



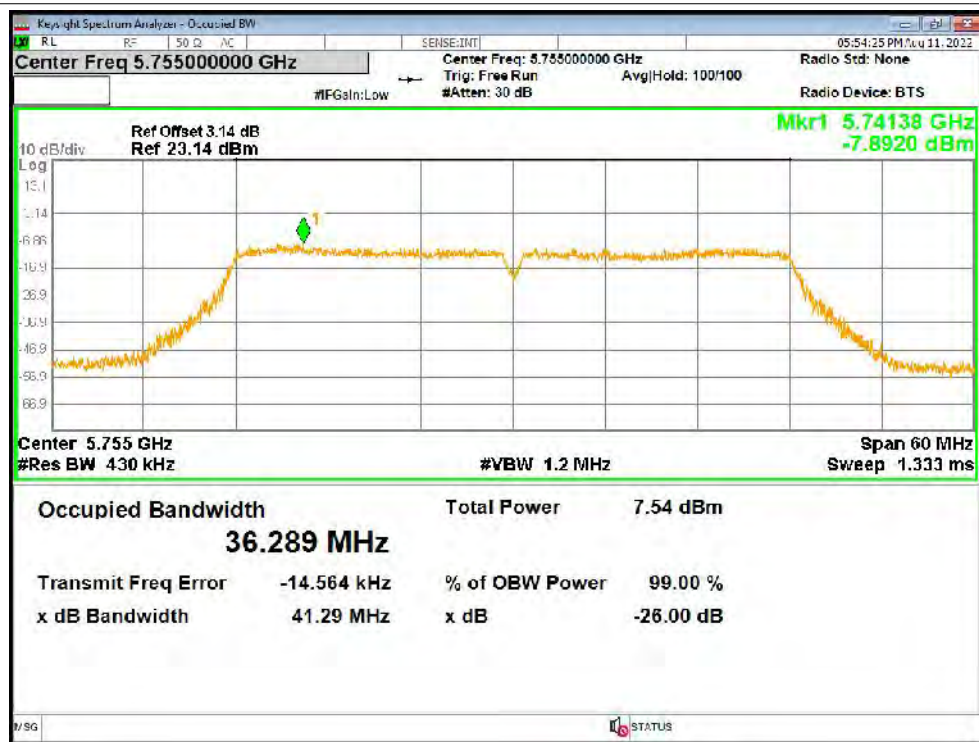
OBW NVNT ac20 5785MHz Ant1



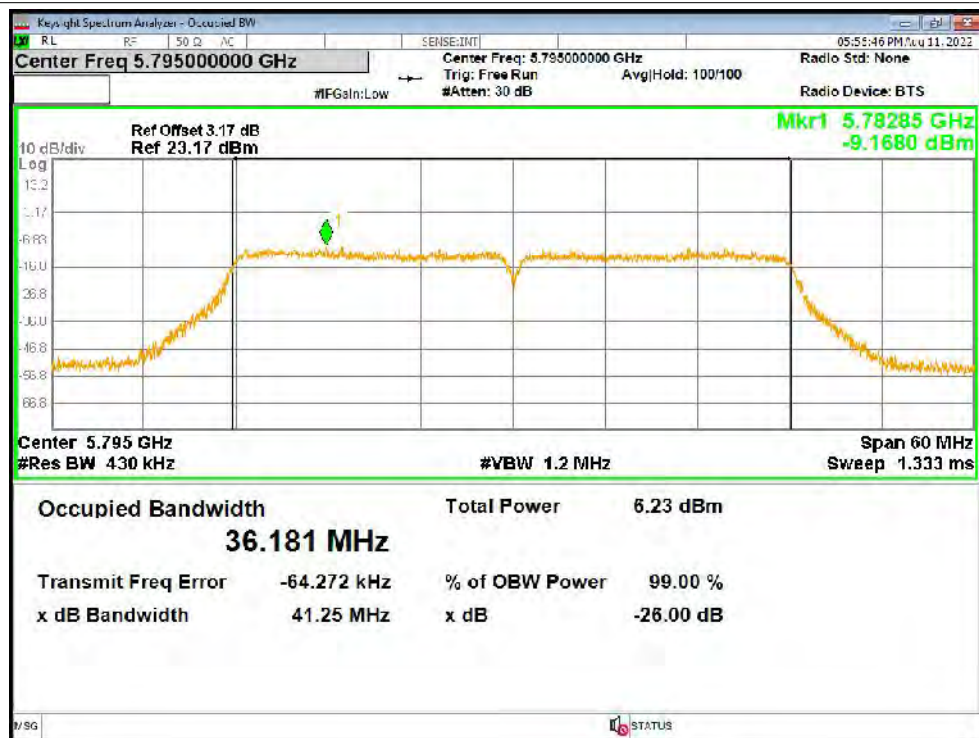
OBW NVNT ac20 5825MHz Ant1



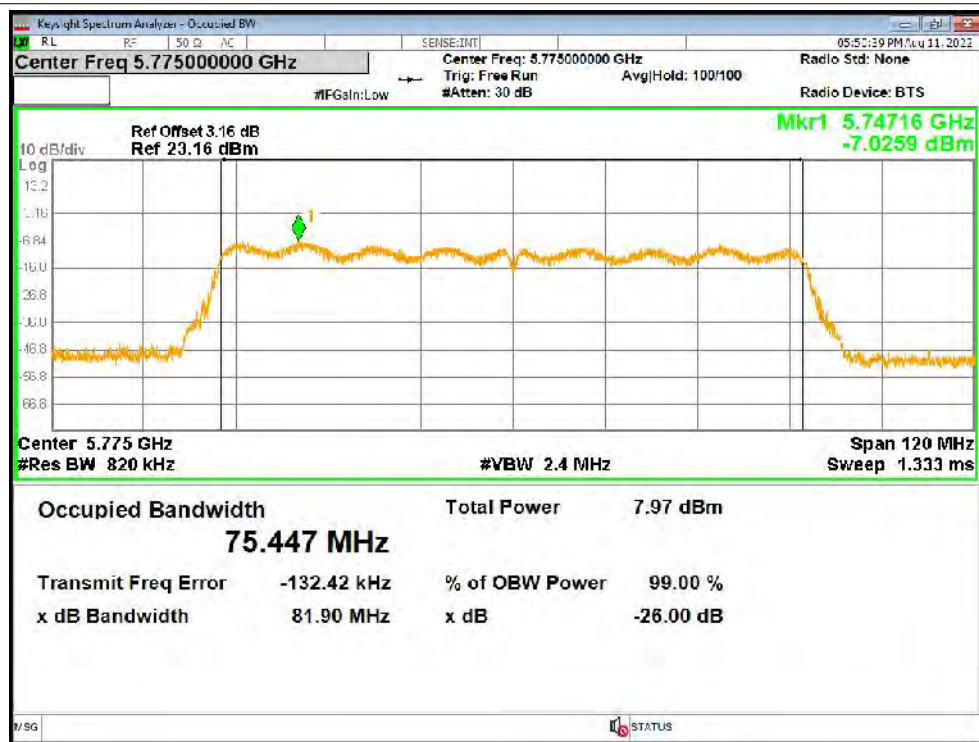
OBW NVNT ac40 5755MHz Ant1



OBW NVNT ac40 5795MHz Ant1



OBW NVNT ac80 5775MHz Ant1



B.5 Maximum Power Spectral Density Level

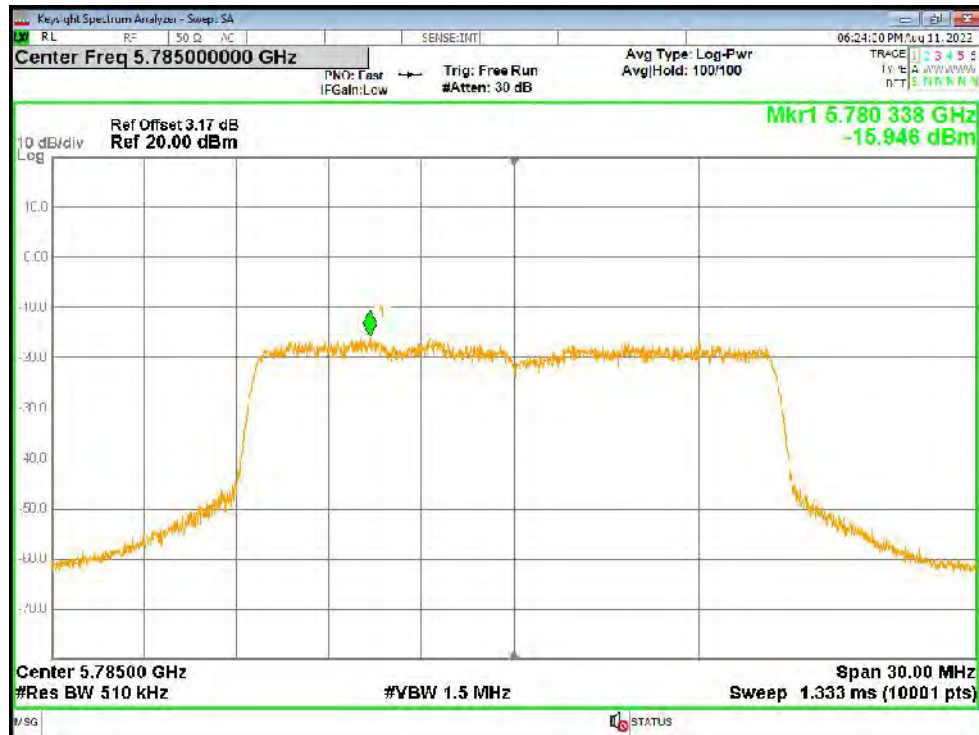
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	-14.09	0.1	-13.99	30	Pass
NVNT	a	5785	Ant1	-15.95	0.19	-15.76	30	Pass
NVNT	a	5825	Ant1	-17.17	0	-17.17	30	Pass
NVNT	n20	5745	Ant1	-14.14	0.1	-14.04	30	Pass
NVNT	n20	5785	Ant1	-11.58	0.09	-11.49	30	Pass
NVNT	n20	5825	Ant1	-12.17	0.35	-11.82	30	Pass
NVNT	n40	5755	Ant1	-17.69	0	-17.69	30	Pass
NVNT	n40	5795	Ant1	-20.25	0	-20.25	30	Pass
NVNT	ac20	5745	Ant1	-15.2	0.12	-15.08	30	Pass
NVNT	ac20	5785	Ant1	-16.18	0	-16.18	30	Pass
NVNT	ac20	5825	Ant1	-17.03	4.52	-12.51	30	Pass
NVNT	ac40	5755	Ant1	-19.2	0	-19.2	30	Pass
NVNT	ac40	5795	Ant1	-20.32	0	-20.32	30	Pass
NVNT	ac80	5775	Ant1	-24.31	0	-24.31	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

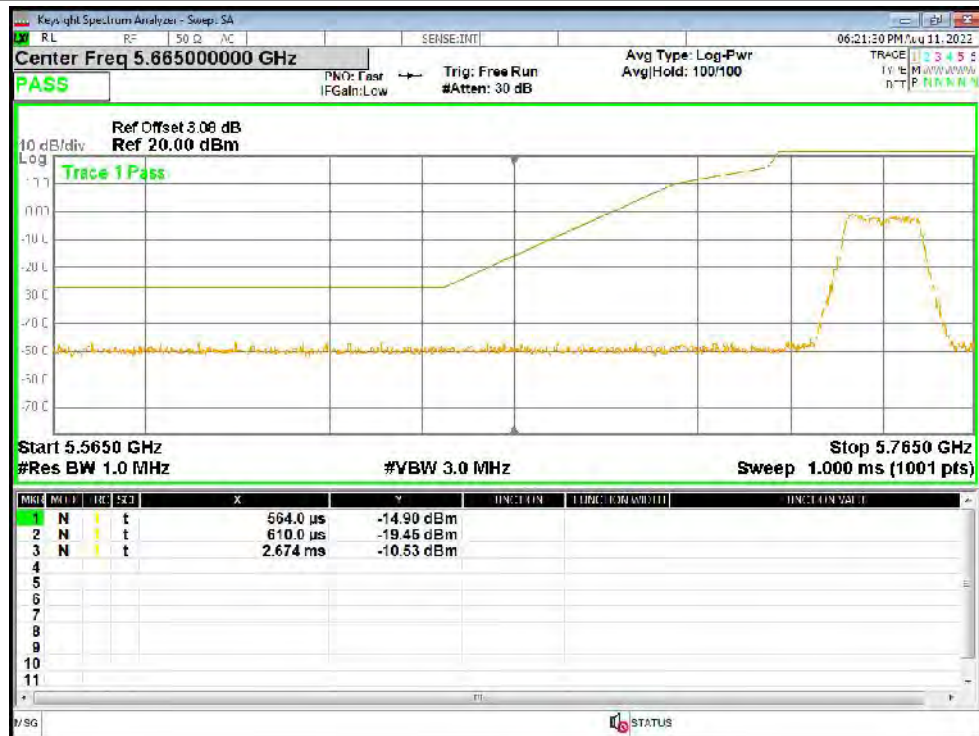


B.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBm)	Verdict
NVNT	a	5745	Ant1	-46.72	Pass
NVNT	a	5825	Ant1	-46.18	Pass
NVNT	n20	5745	Ant1	-46.81	Pass
NVNT	n20	5825	Ant1	-46.23	Pass
NVNT	n40	5755	Ant1	-45.07	Pass
NVNT	n40	5795	Ant1	-45.16	Pass
NVNT	ac20	5745	Ant1	-46.15	Pass
NVNT	ac20	5825	Ant1	-45.52	Pass
NVNT	ac40	5755	Ant1	-44.87	Pass
NVNT	ac40	5795	Ant1	-46.66	Pass
NVNT	ac80	5775	Ant1	-44.34	Pass

Test Graphs

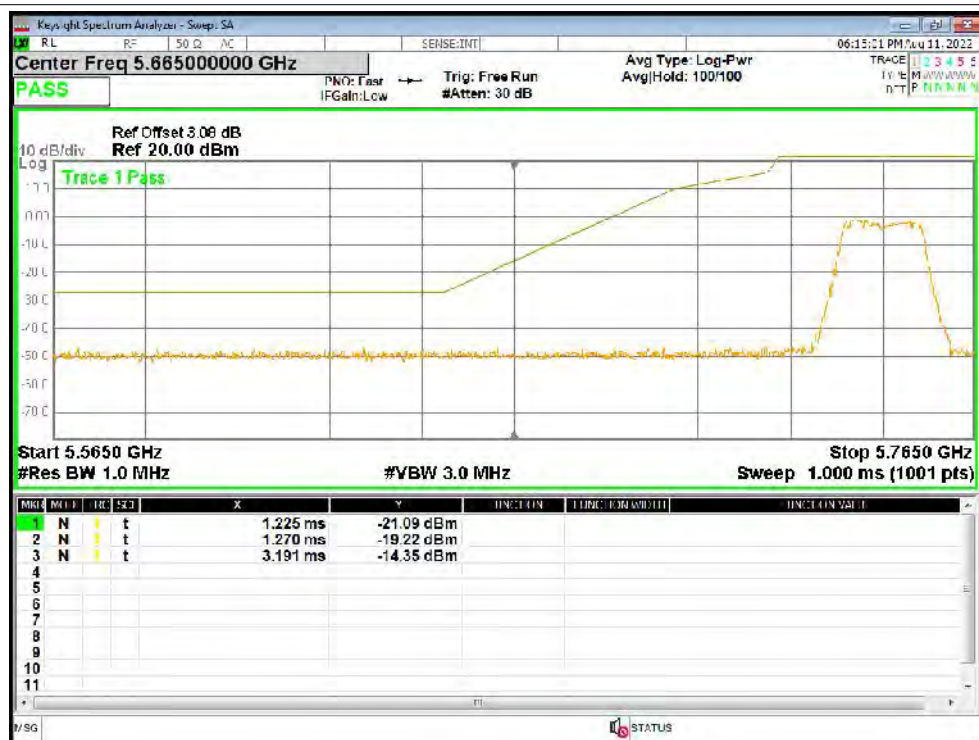
Band Edge NVNT a 5745MHz Low Ant1



Band Edge NVNT a 5825MHz High Ant1



Band Edge NVNT n20 5745MHz Low Ant1



Band Edge NVNT n20 5825MHz High Ant1



Band Edge NVNT n40 5755MHz Low Ant1



Band Edge NVNT n40 5795MHz High Ant1



Band Edge NVNT ac40 5755MHz Low Ant1



Band Edge NVNT ac40 5795MHz High Ant1



B.7 Frequency Stability

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	a	5745	Ant1	5745.02	20000	3.48	Within 5725-5850MHz	Pass
NVNT	a	5785	Ant1	5785.04	40000	6.91	Within 5725-5850MHz	Pass
NVNT	a	5825	Ant1	5825.02	20000	3.43	Within 5725-5850MHz	Pass
NVNT	n20	5745	Ant1	5744.98	-20000	-3.48	Within 5725-5850MHz	Pass
NVNT	n20	5785	Ant1	5785.02	20000	3.46	Within 5725-5850MHz	Pass
NVNT	n20	5825	Ant1	5825.04	40000	6.87	Within 5725-5850MHz	Pass
NVNT	n40	5755	Ant1	5755	0	0	Within 5725-5850MHz	Pass
NVNT	n40	5795	Ant1	5795	0	0	Within 5725-5850MHz	Pass
NVNT	ac20	5745	Ant1	5745	0	0	Within 5725-5850MHz	Pass
NVNT	ac20	5785	Ant1	5785	0	0	Within 5725-5850MHz	Pass
NVNT	ac20	5825	Ant1	5825.02	20000	3.43	Within 5725-5850MHz	Pass
NVNT	ac40	5755	Ant1	5755	0	0	Within 5725-5850MHz	Pass
NVNT	ac40	5795	Ant1	5795	0	0	Within 5725-5850MHz	Pass
NVNT	ac80	5775	Ant1	5775	0	0	Within 5725-5850MHz	Pass

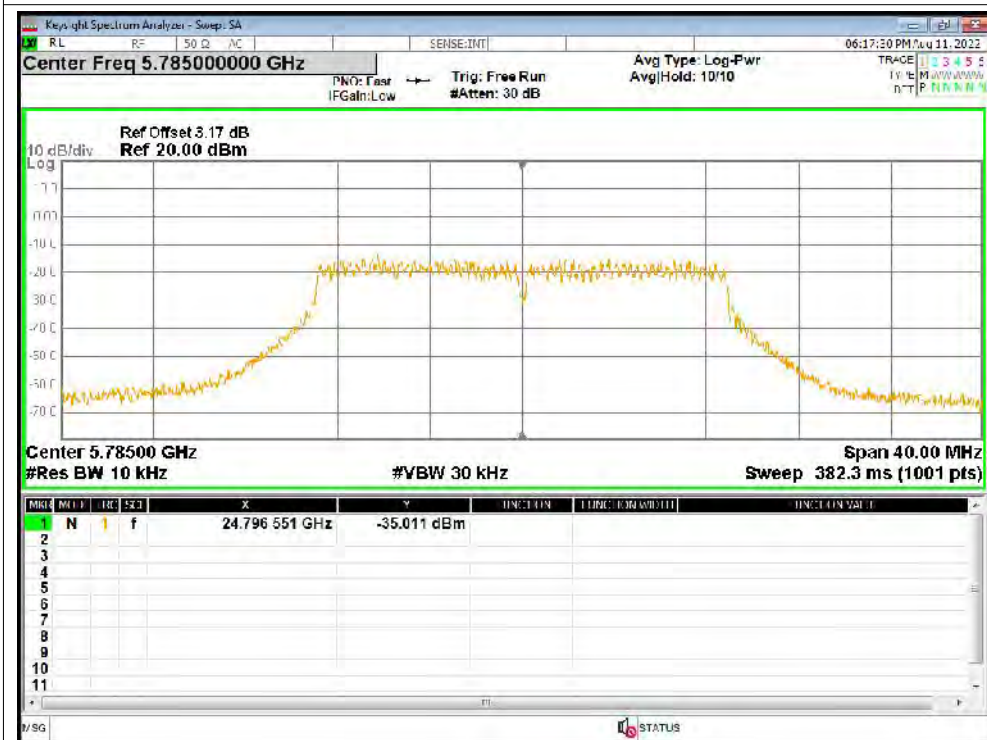
Freq. Stability NVNT a 5825MHz Ant1



Freq. Stability NVNT n20 5745MHz Ant1



Freq. Stability NVNT n20 5785MHz Ant1



Freq. Stability NVNT n20 5825MHz Ant1



Freq. Stability NVNT n40 5755MHz Ant1



Freq. Stability NVNT n40 5795MHz Ant1



Freq. Stability NVNT ac20 5745MHz Ant1



Freq. Stability NVNT ac20 5785MHz Ant1



Freq. Stability NVNT ac20 5825MHz Ant1



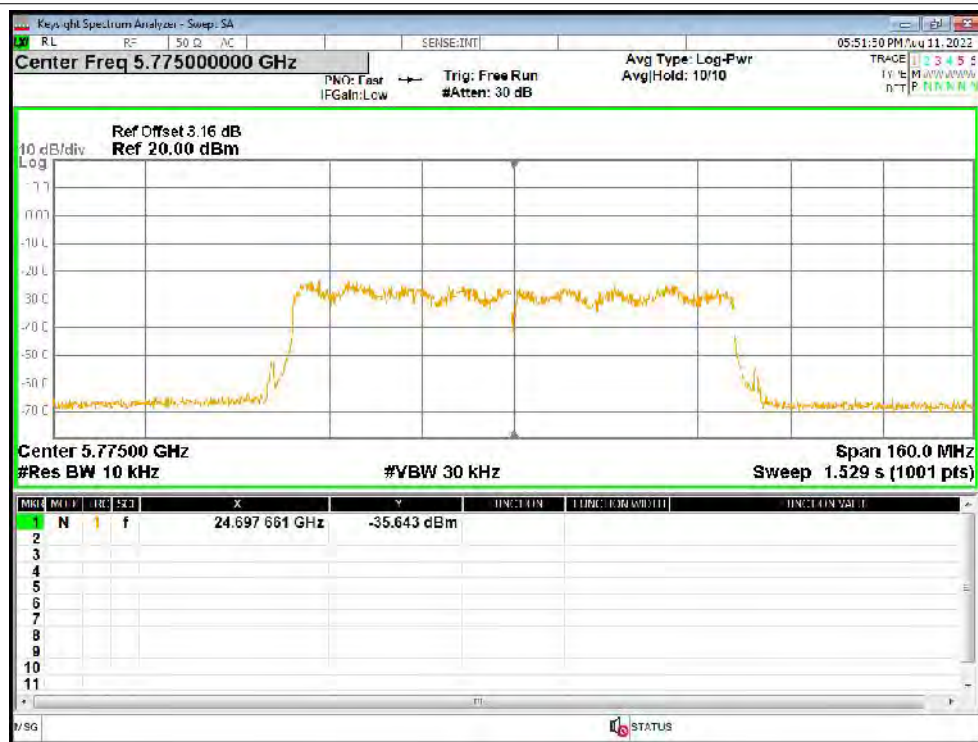
Freq. Stability NVNT ac40 5755MHz Ant1



Freq. Stability NVNT ac40 5795MHz Ant1



Freq. Stability NVNT ac80 5775MHz Ant1



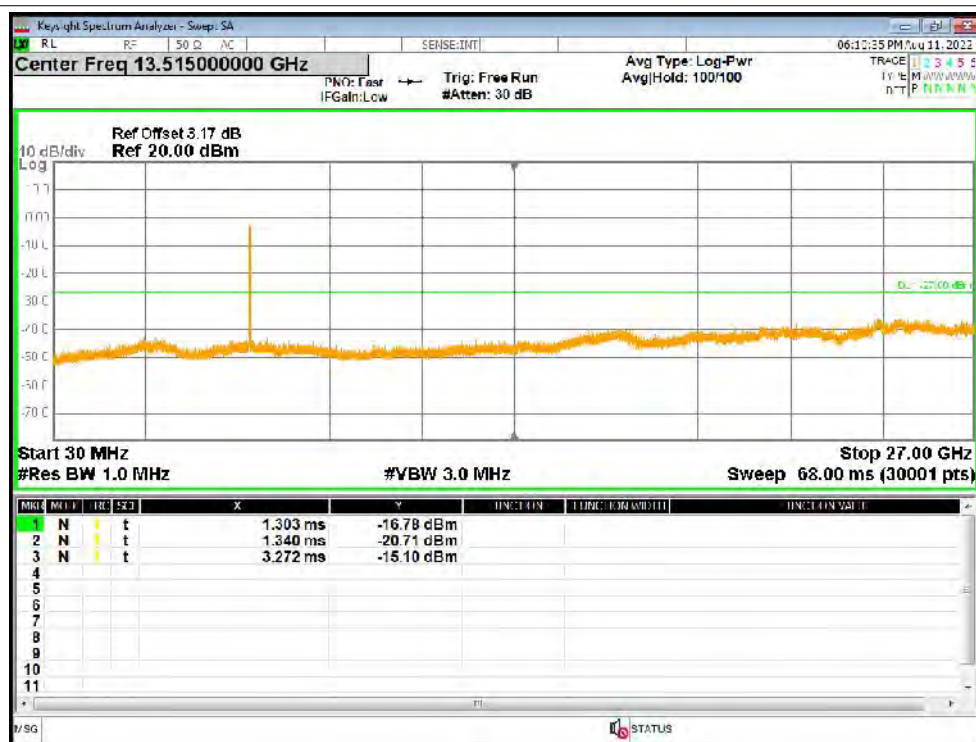
B.8 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	a	5745	Ant1	-35.83	-27	Pass
NVNT	a	5785	Ant1	-35.44	-27	Pass
NVNT	a	5825	Ant1	-35.86	-27	Pass
NVNT	n20	5745	Ant1	-35.33	-27	Pass
NVNT	n20	5785	Ant1	-35.01	-27	Pass
NVNT	n20	5825	Ant1	-35.51	-27	Pass
NVNT	n40	5755	Ant1	-35.33	-27	Pass
NVNT	n40	5795	Ant1	-35.7	-27	Pass
NVNT	ac20	5745	Ant1	-35.64	-27	Pass
NVNT	ac20	5785	Ant1	-35.67	-27	Pass
NVNT	ac20	5825	Ant1	-35.71	-27	Pass
NVNT	ac40	5755	Ant1	-35.9	-27	Pass
NVNT	ac40	5795	Ant1	-35.42	-27	Pass
NVNT	ac80	5775	Ant1	-35.64	-27	Pass

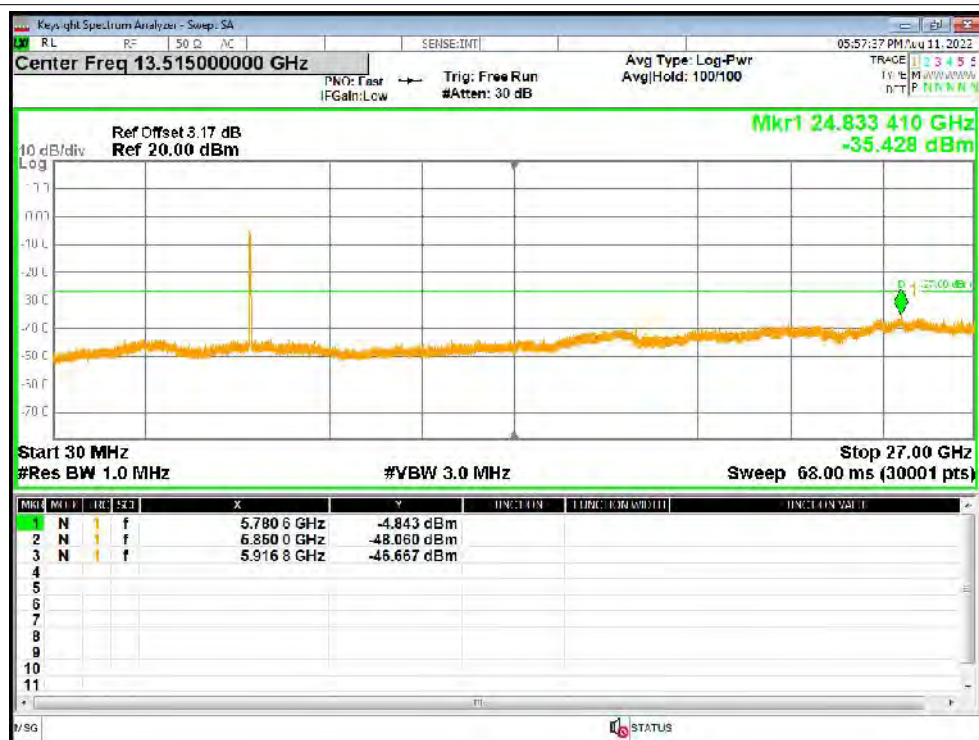
Tx. Spurious NVNT ac20 5745MHz Ant1 Emission



Tx. Spurious NVNT ac20 5785MHz Ant1 Emission



Tx. Spurious NVNT ac40 5795MHz Ant1 Emission



Tx. Spurious NVNT ac80 5775MHz Ant1 Emission

