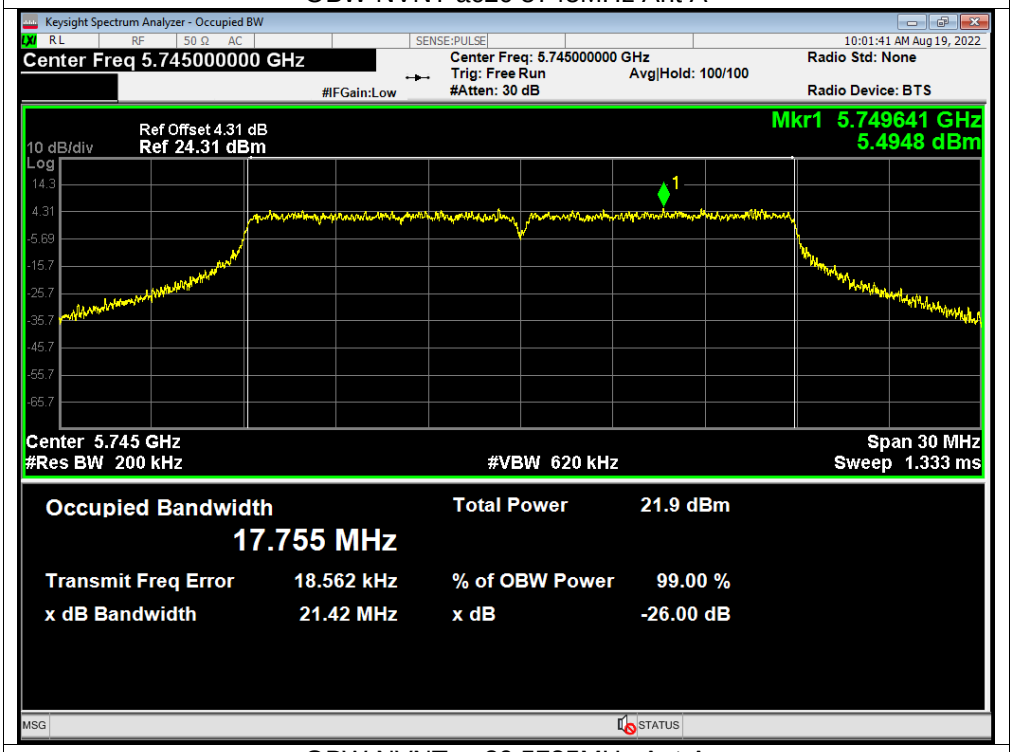
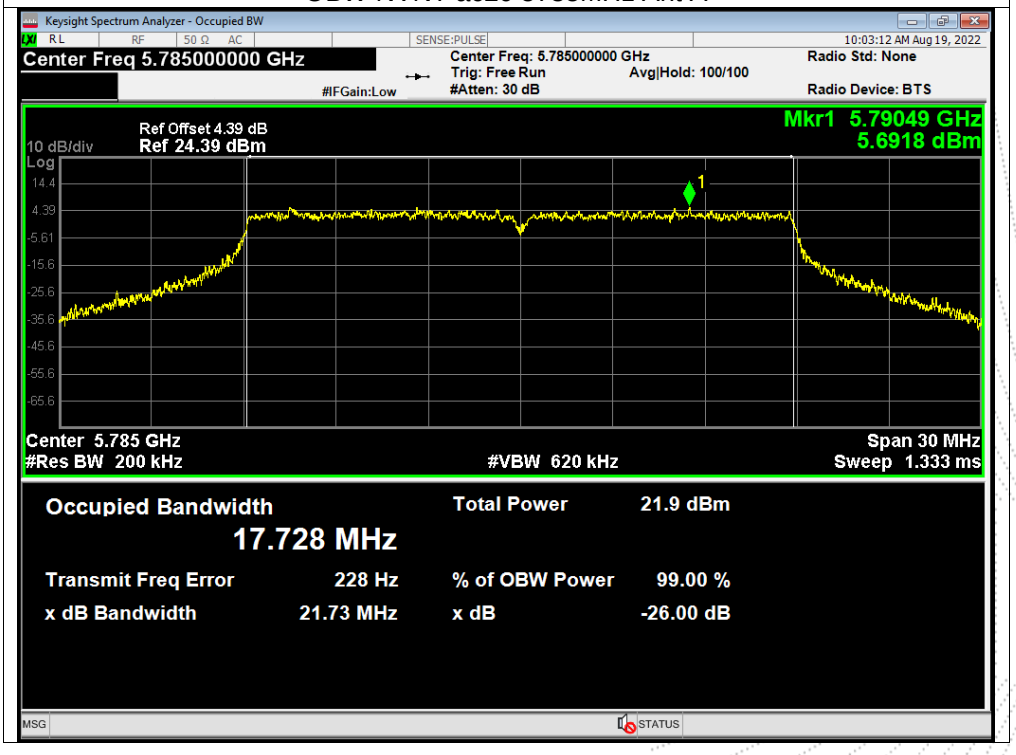
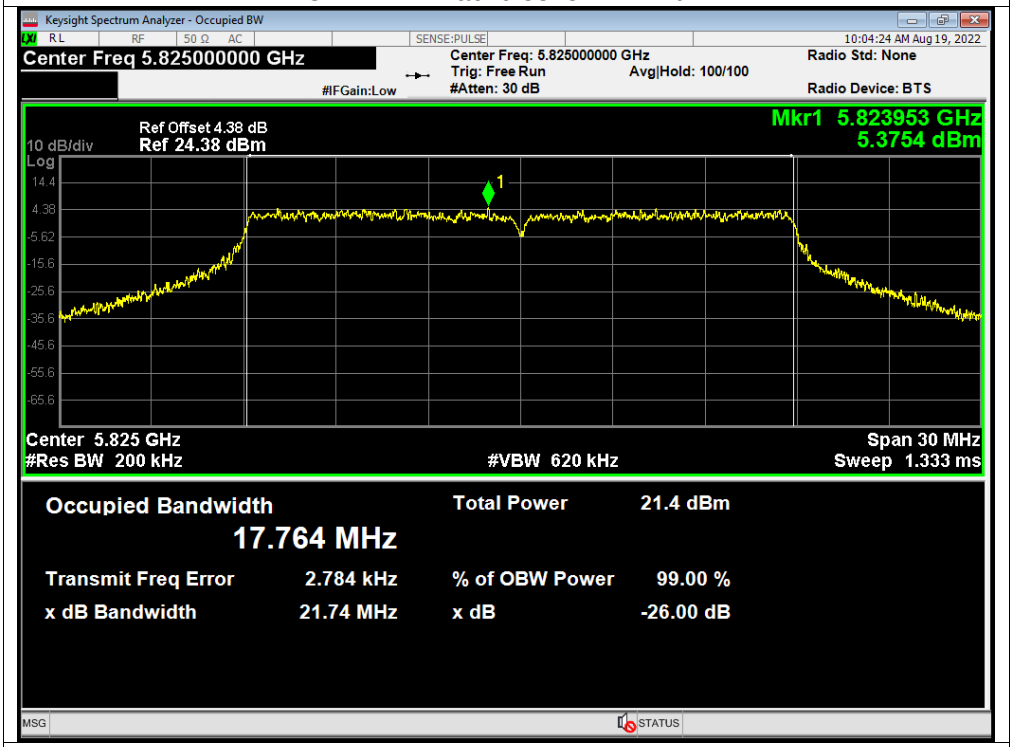
OBW NVNT ac20 5745MHz Ant A



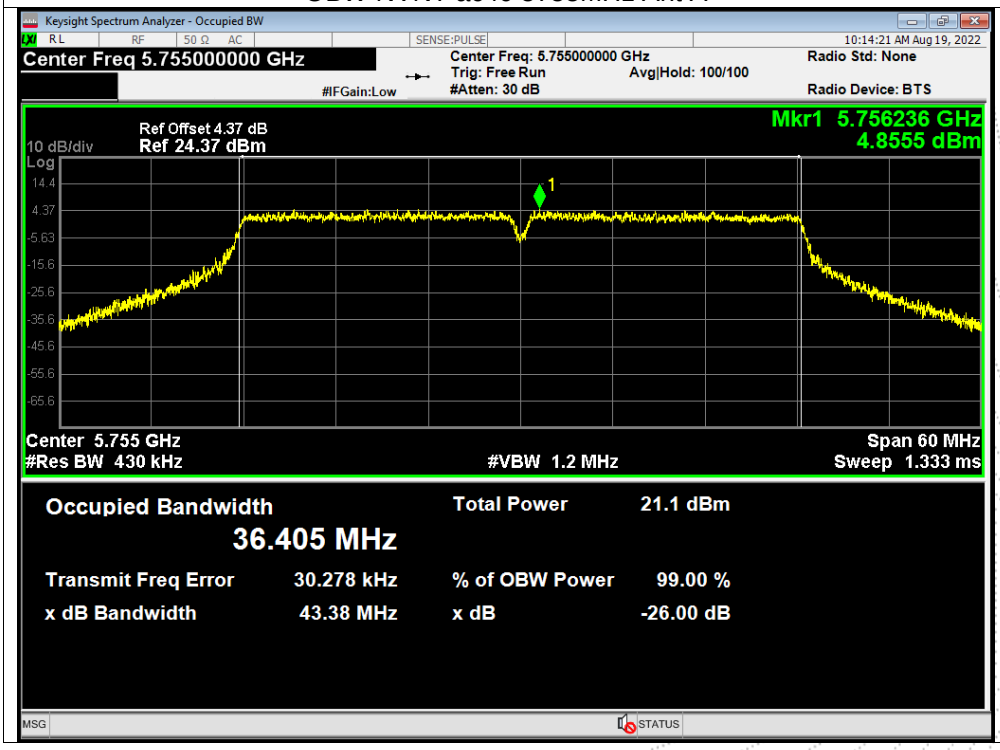
OBW NVNT ac20 5785MHz Ant A



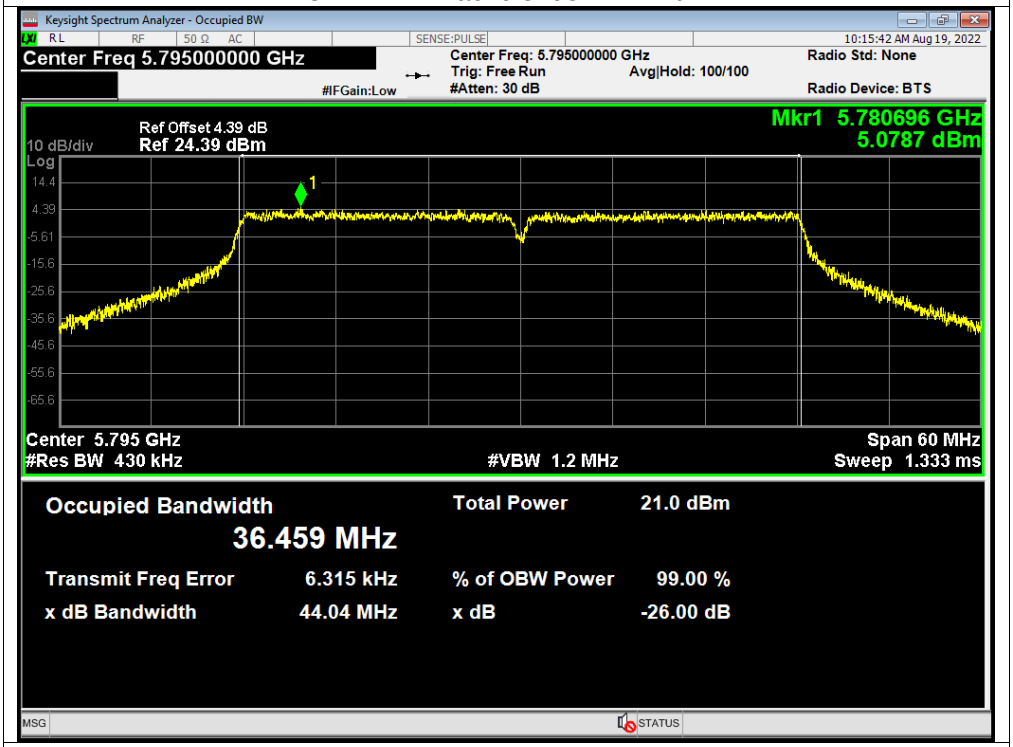
OBW NVNT ac20 5825MHz Ant A



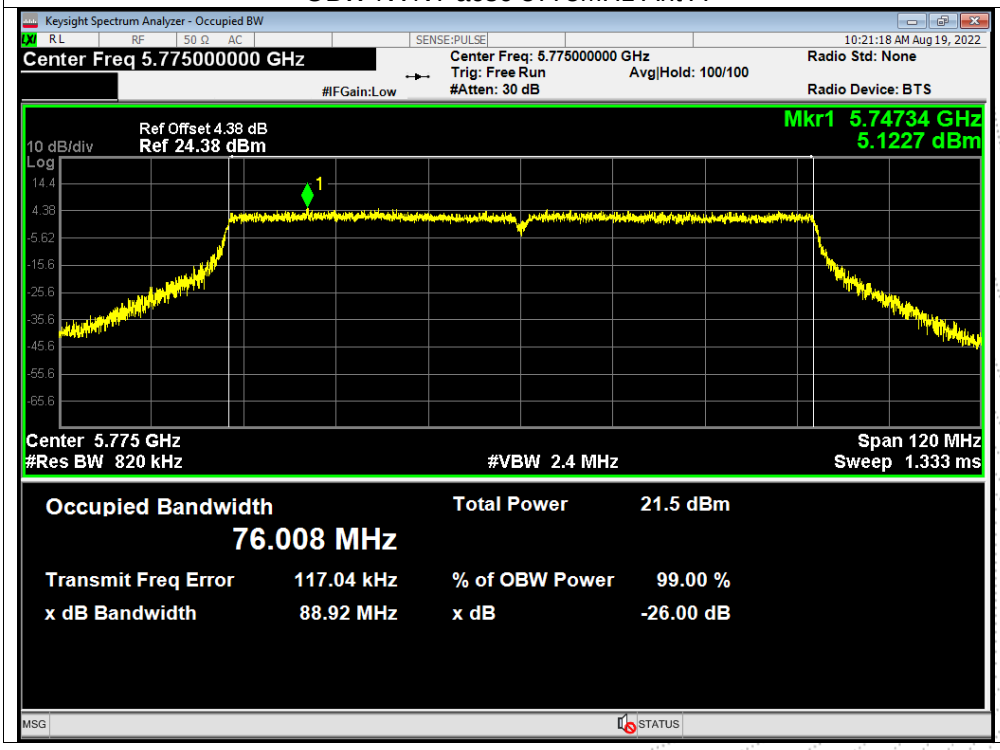
OBW NVNT ac40 5755MHz Ant A



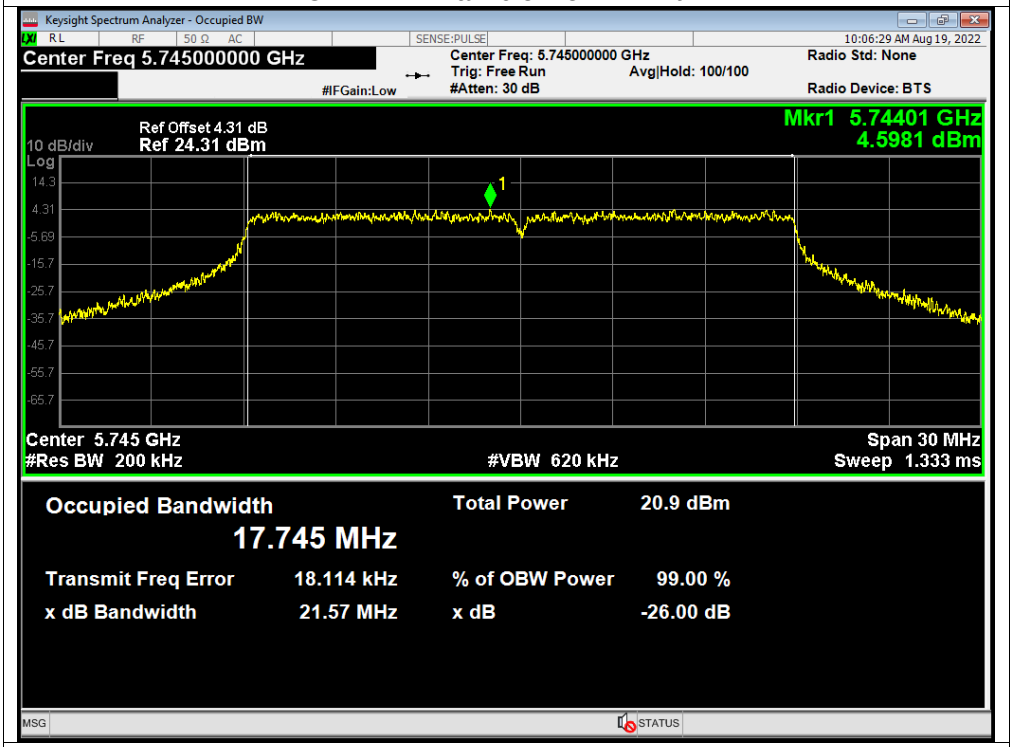
OBW NVNT ac40 5795MHz Ant A



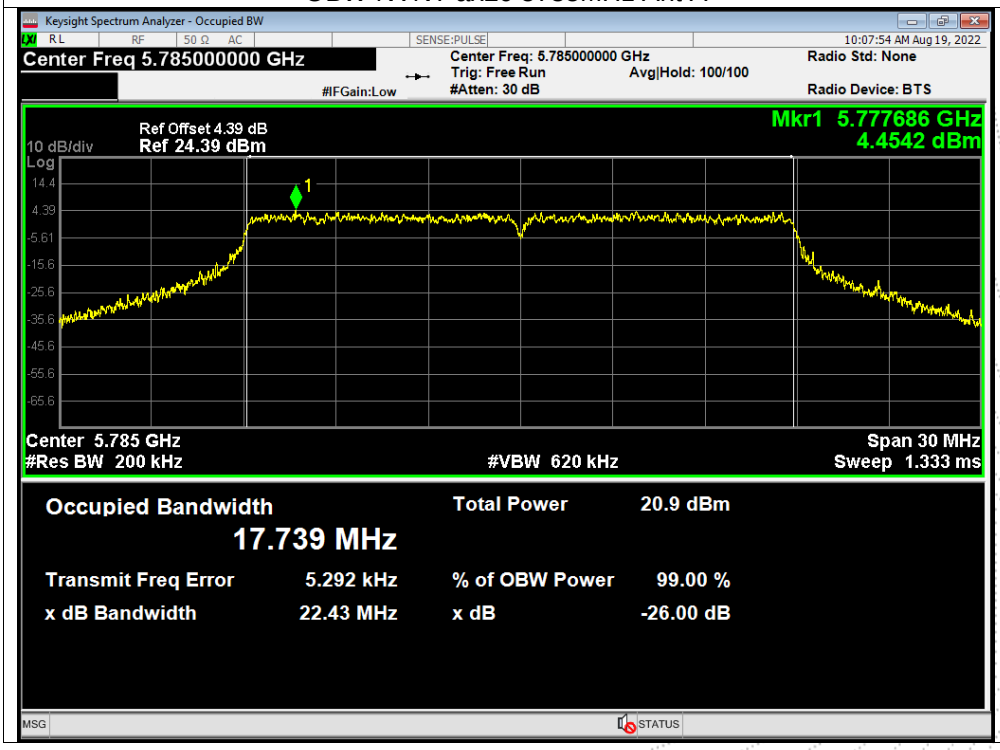
OBW NVNT ac80 5775MHz Ant A



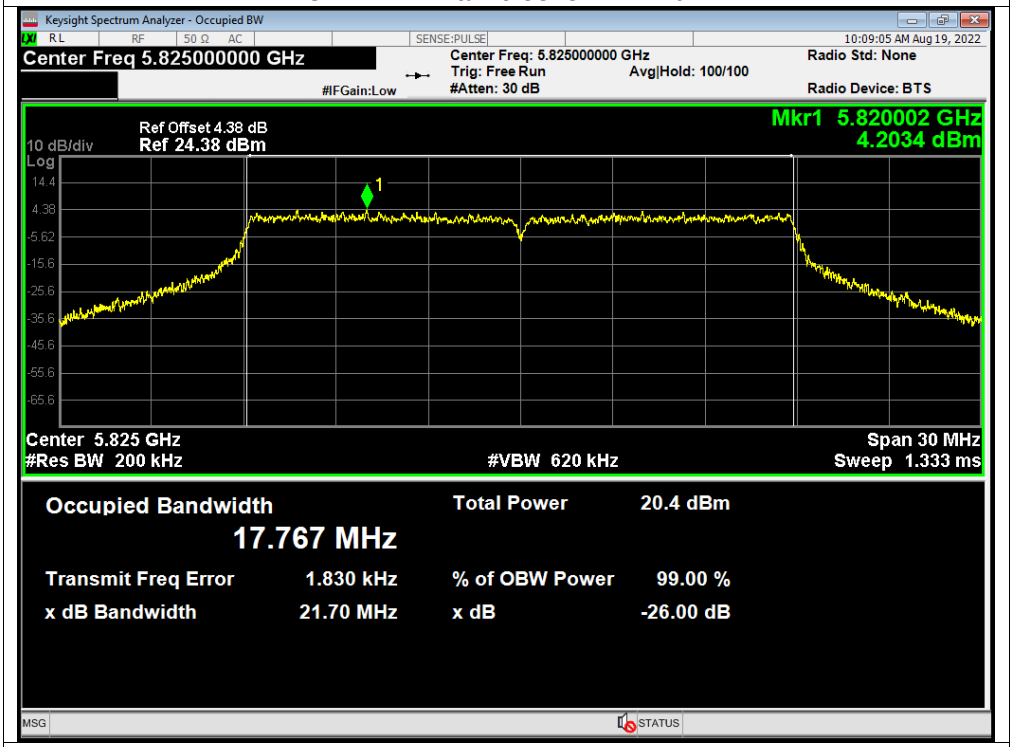
OBW NVNT ax20 5745MHz Ant A



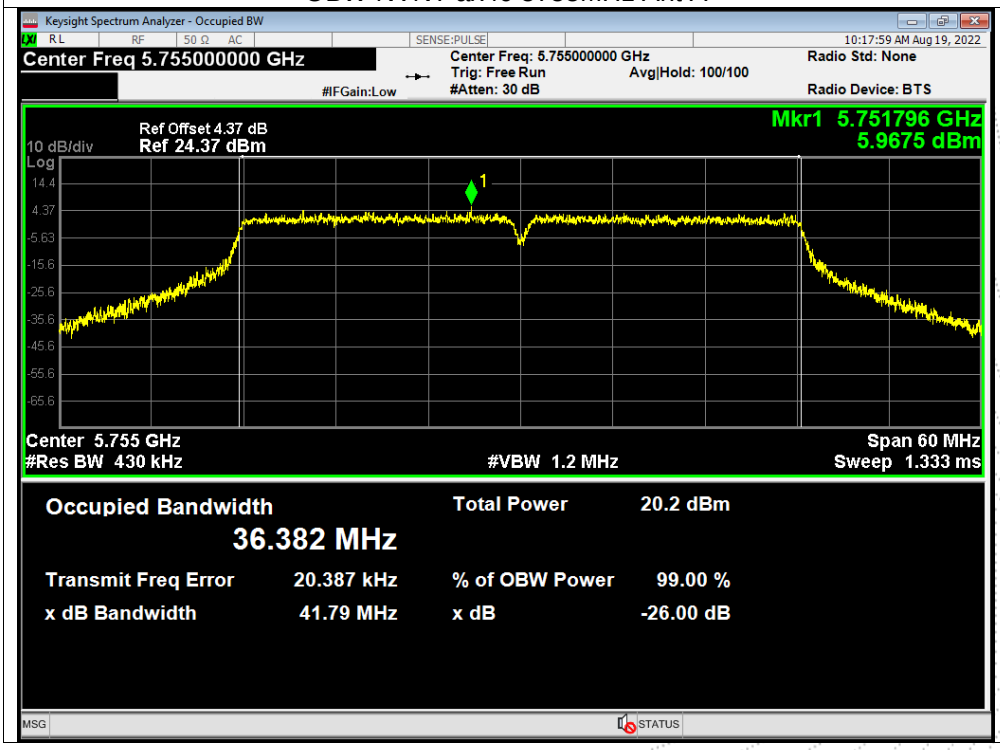
OBW NVNT ax20 5785MHz Ant A



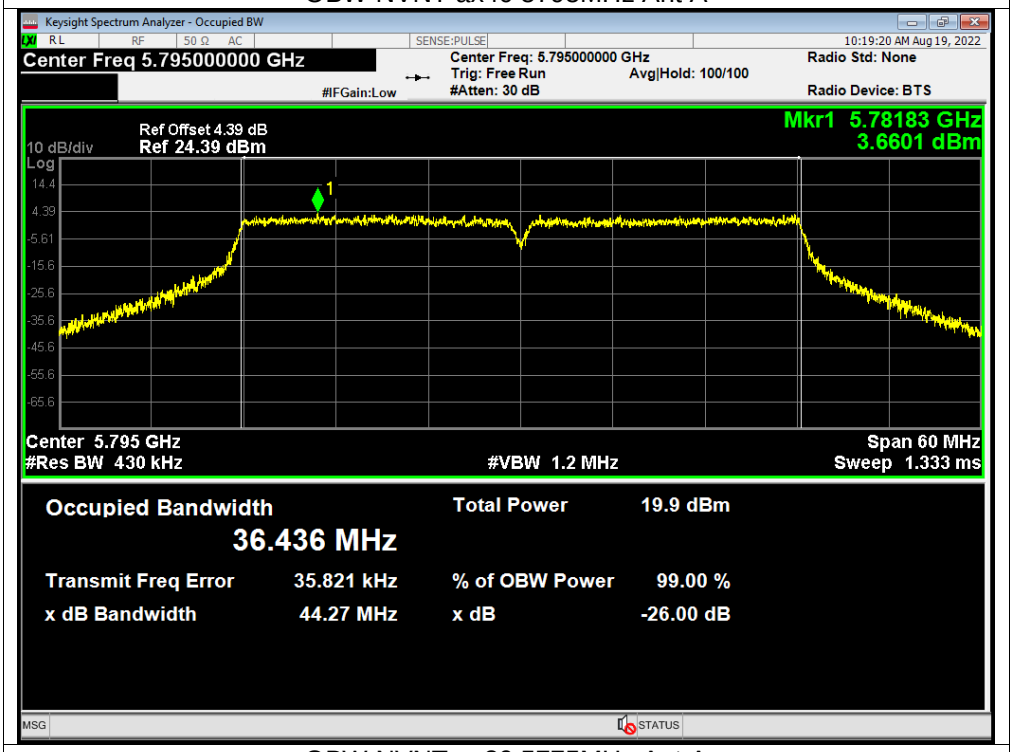
OBW NVNT ax20 5825MHz Ant A



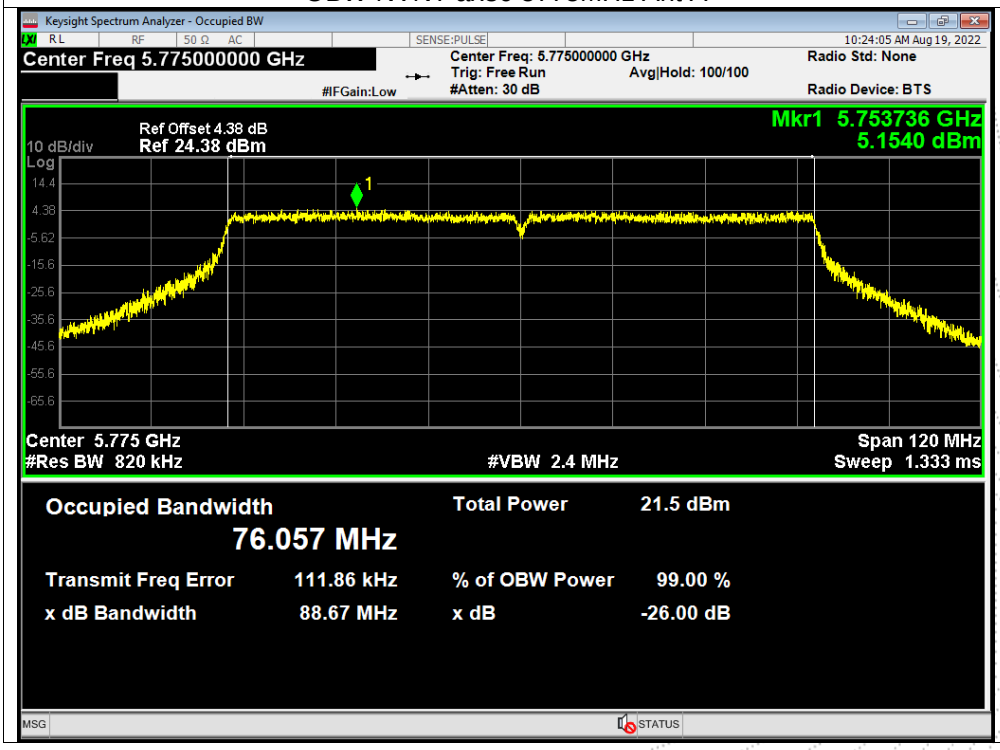
OBW NVNT ax40 5755MHz Ant A



OBW NVNT ax40 5795MHz Ant A

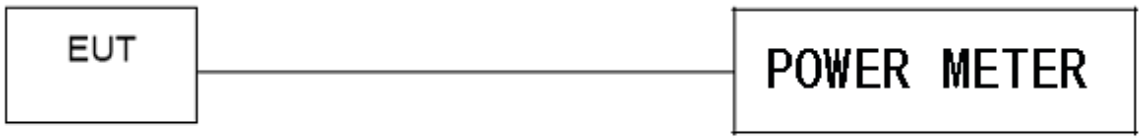


OBW NVNT ax80 5775MHz Ant A



10. Maximum Conducted Output Power

10.1 Block Diagram Of Test Setup



10.2 Limit

According to FCC §15.407

The maximum conduced output power should not exceed**:**

Frequency Band(MHz)	Limit
5150~5250	0.25W
5250~5350	0.25W
5725~5850	1W

10.3 Test Procedure

Maximum conducted output power may be measured using a spectrum analyzer/EMI receiver or an RF power meter.

1. Device Configuration

If possible, configure or modify the operation of the EUT so that it transmits continuously at its maximum power control level (see section II.B.).

a) The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.

b) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations (e.g., overheating), the EUT shall be operated at its maximum power control level with the transmit duration as long as possible and the duty cycle as high as possible.

2. Measurement using a Spectrum Analyzer or EMI Receiver (SA)

Measurement of maximum conducted output power using a spectrum analyzer requires integrating the spectrum across a frequency span that encompasses, at a minimum, either the EBW or the 99-percent occupied bandwidth of the signal.1 However, the EBW must be used to determine bandwidth dependent limits on maximum conducted output power in accordance with § 15.407(a).

a) The test method shall be selected as follows: (i) Method SA-1 or SA-1 Alternative (averaging with the EUT transmitting at full power throughout each sweep) shall be applied if either of the following conditions can be satisfied:

• The EUT transmits continuously (or with a duty cycle ≥ 98 percent).

• Sweep triggering or gating can be implemented in a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep (with the analyzer configured as in Method SA-1, below) is equal to or shorter than the duration T of each transmission from the EUT and if those transmissions exhibit full power throughout their durations.

(ii) Method SA-2 or SA-2 Alternative (averaging across on and off times of the EUT transmissions, followed by duty cycle correction) shall be applied if the conditions of (i) cannot be achieved and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than ± 2 percent.

(iii) Method SA-3 (RMS detection with max hold) or SA-3 Alternative (reduced VBW with max hold) shall be applied if the conditions of (i) and (ii) cannot be achieved.

b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep): (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.

(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum

10.4 EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

10.5 Test Result

For 1T1R

Antenna A

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	5745-5825MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	17.06	30	Pass
NVNT	a	5785	17.14	30	Pass
NVNT	a	5825	16.88	30	Pass
NVNT	n20	5745	16.93	30	Pass
NVNT	n20	5785	16.94	30	Pass
NVNT	n20	5825	16.50	30	Pass
NVNT	n40	5755	15.26	30	Pass
NVNT	n40	5795	14.91	30	Pass
NVNT	ac20	5745	16.90	30	Pass
NVNT	ac20	5785	16.38	30	Pass
NVNT	ac20	5825	16.18	30	Pass
NVNT	ac40	5755	15.11	30	Pass
NVNT	ac40	5795	16.88	30	Pass
NVNT	ac80	5775	14.50	30	Pass
NVNT	ax20	5180	15.66	30	Pass
NVNT	ax20	5200	15.26	30	Pass
NVNT	ax20	5240	14.70	30	Pass
NVNT	ax40	5190	14.80	30	Pass
NVNT	ax40	5230	14.78	30	Pass
NVNT	ax80	5210	14.69	30	Pass

Antenna B

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	5745-5825MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	16.49	30	Pass
NVNT	a	5785	16.59	30	Pass
NVNT	a	5825	16.40	30	Pass
NVNT	n20	5745	16.36	30	Pass
NVNT	n20	5785	16.32	30	Pass
NVNT	n20	5825	15.97	30	Pass
NVNT	n40	5755	14.46	30	Pass
NVNT	n40	5795	14.39	30	Pass
NVNT	ac20	5745	15.69	30	Pass
NVNT	ac20	5785	15.78	30	Pass
NVNT	ac20	5825	15.09	30	Pass
NVNT	ac40	5755	14.70	30	Pass
NVNT	ac40	5795	14.50	30	Pass
NVNT	ac80	5775	15.81	30	Pass
NVNT	ax20	5180	14.42	30	Pass
NVNT	ax20	5200	14.41	30	Pass
NVNT	ax20	5240	13.85	30	Pass
NVNT	ax40	5190	13.78	30	Pass
NVNT	ax40	5230	13.48	30	Pass
NVNT	ax80	5210	13.39	30	Pass

Antenna C

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	5745-5825MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	16.91	30	Pass
NVNT	a	5785	16.89	30	Pass
NVNT	a	5825	16.81	30	Pass
NVNT	n20	5745	16.65	30	Pass
NVNT	n20	5785	16.75	30	Pass
NVNT	n20	5825	16.48	30	Pass
NVNT	n40	5755	14.46	30	Pass
NVNT	n40	5795	14.77	30	Pass
NVNT	ac20	5745	16.06	30	Pass
NVNT	ac20	5785	15.83	30	Pass
NVNT	ac20	5825	15.77	30	Pass
NVNT	ac40	5755	14.59	30	Pass
NVNT	ac40	5795	14.67	30	Pass
NVNT	ac80	5775	15.26	30	Pass
NVNT	ax20	5180	15.03	30	Pass
NVNT	ax20	5200	14.96	30	Pass
NVNT	ax20	5240	14.79	30	Pass
NVNT	ax40	5190	13.67	30	Pass
NVNT	ax40	5230	13.47	30	Pass
NVNT	ax80	5210	16.89	30	Pass

Antenna D

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	5745-5825MHz		

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	16.47	30	Pass
NVNT	a	5785	16.48	30	Pass
NVNT	a	5825	16.33	30	Pass
NVNT	n20	5745	16.52	30	Pass
NVNT	n20	5785	16.51	30	Pass
NVNT	n20	5825	16.31	30	Pass
NVNT	n40	5755	14.60	30	Pass
NVNT	n40	5795	14.34	30	Pass
NVNT	ac20	5745	15.59	30	Pass
NVNT	ac20	5785	15.86	30	Pass
NVNT	ac20	5825	15.48	30	Pass
NVNT	ac40	5755	15.54	30	Pass
NVNT	ac40	5795	14.70	30	Pass
NVNT	ac80	5775	13.37	30	Pass
NVNT	ax20	5180	15.74	30	Pass
NVNT	ax20	5200	15.68	30	Pass
NVNT	ax20	5240	15.57	30	Pass
NVNT	ax40	5190	13.72	30	Pass
NVNT	ax40	5230	13.56	30	Pass
NVNT	ax80	5210	13.52	30	Pass

For 2T2R

Antenna A +antenna B

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	19.66	28.5	Pass
NVNT	n20	5785	19.65	28.5	Pass
NVNT	n20	5825	19.25	28.5	Pass
NVNT	n40	5755	17.89	28.5	Pass
NVNT	n40	5795	17.67	28.5	Pass
NVNT	ac20	5745	19.35	28.5	Pass
NVNT	ac20	5785	19.10	28.5	Pass
NVNT	ac20	5825	18.68	28.5	Pass
NVNT	ac40	5755	17.92	28.5	Pass
NVNT	ac40	5795	18.86	28.5	Pass
NVNT	ac80	5775	18.21	28.5	Pass
NVNT	ax20	5180	18.09	28.5	Pass
NVNT	ax20	5200	17.87	28.5	Pass
NVNT	ax20	5240	17.31	28.5	Pass
NVNT	ax40	5190	17.33	28.5	Pass
NVNT	ax40	5230	17.19	28.5	Pass
NVNT	ax80	5210	17.10	28.5	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

Antenna A +antenna C

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	19.80	28.5	Pass
NVNT	n20	5785	19.86	28.5	Pass
NVNT	n20	5825	19.50	28.5	Pass
NVNT	n40	5755	17.89	28.5	Pass
NVNT	n40	5795	17.85	28.5	Pass
NVNT	ac20	5745	19.51	28.5	Pass
NVNT	ac20	5785	19.12	28.5	Pass
NVNT	ac20	5825	18.99	28.5	Pass
NVNT	ac40	5755	17.87	28.5	Pass
NVNT	ac40	5795	18.92	28.5	Pass
NVNT	ac80	5775	17.91	28.5	Pass
NVNT	ax20	5180	18.37	28.5	Pass
NVNT	ax20	5200	18.12	28.5	Pass
NVNT	ax20	5240	17.76	28.5	Pass
NVNT	ax40	5190	17.28	28.5	Pass
NVNT	ax40	5230	17.18	28.5	Pass
NVNT	ax80	5210	18.94	28.5	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

Antenna A +antenna D

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	19.74	28.5	Pass
NVNT	n20	5785	19.74	28.5	Pass
NVNT	n20	5825	19.42	28.5	Pass
NVNT	n40	5755	17.95	28.5	Pass
NVNT	n40	5795	17.64	28.5	Pass
NVNT	ac20	5745	19.30	28.5	Pass
NVNT	ac20	5785	19.14	28.5	Pass
NVNT	ac20	5825	18.85	28.5	Pass
NVNT	ac40	5755	18.34	28.5	Pass
NVNT	ac40	5795	18.94	28.5	Pass
NVNT	ac80	5775	16.98	28.5	Pass
NVNT	ax20	5180	18.71	28.5	Pass
NVNT	ax20	5200	18.49	28.5	Pass
NVNT	ax20	5240	18.17	28.5	Pass
NVNT	ax40	5190	17.30	28.5	Pass
NVNT	ax40	5230	17.22	28.5	Pass
NVNT	ax80	5210	17.15	28.5	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

Antenna B +antenna C

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	19.52	28.5	Pass
NVNT	n20	5785	19.55	28.5	Pass
NVNT	n20	5825	19.24	28.5	Pass
NVNT	n40	5755	17.47	28.5	Pass
NVNT	n40	5795	17.59	28.5	Pass
NVNT	ac20	5745	18.89	28.5	Pass
NVNT	ac20	5785	18.82	28.5	Pass
NVNT	ac20	5825	18.45	28.5	Pass
NVNT	ac40	5755	17.66	28.5	Pass
NVNT	ac40	5795	17.60	28.5	Pass
NVNT	ac80	5775	18.55	28.5	Pass
NVNT	ax20	5180	17.75	28.5	Pass
NVNT	ax20	5200	17.70	28.5	Pass
NVNT	ax20	5240	17.36	28.5	Pass
NVNT	ax40	5190	16.74	28.5	Pass
NVNT	ax40	5230	16.49	28.5	Pass
NVNT	ax80	5210	18.49	28.5	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

Antenna B +antenna D

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	19.45	28.5	Pass
NVNT	n20	5785	19.43	28.5	Pass
NVNT	n20	5825	19.15	28.5	Pass
NVNT	n40	5755	17.54	28.5	Pass
NVNT	n40	5795	17.38	28.5	Pass
NVNT	ac20	5745	18.65	28.5	Pass
NVNT	ac20	5785	18.83	28.5	Pass
NVNT	ac20	5825	18.30	28.5	Pass
NVNT	ac40	5755	18.15	28.5	Pass
NVNT	ac40	5795	17.61	28.5	Pass
NVNT	ac80	5775	17.77	28.5	Pass
NVNT	ax20	5180	18.14	28.5	Pass
NVNT	ax20	5200	18.10	28.5	Pass
NVNT	ax20	5240	17.80	28.5	Pass
NVNT	ax40	5190	16.76	28.5	Pass
NVNT	ax40	5230	16.53	28.5	Pass
NVNT	ax80	5210	16.47	28.5	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

Antenna C +antenna D

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	19.60	28.5	Pass
NVNT	n20	5785	19.64	28.5	Pass
NVNT	n20	5825	19.41	28.5	Pass
NVNT	n40	5755	17.54	28.5	Pass
NVNT	n40	5795	17.57	28.5	Pass
NVNT	ac20	5745	18.84	28.5	Pass
NVNT	ac20	5785	18.86	28.5	Pass
NVNT	ac20	5825	18.64	28.5	Pass
NVNT	ac40	5755	18.10	28.5	Pass
NVNT	ac40	5795	17.70	28.5	Pass
NVNT	ac80	5775	17.43	28.5	Pass
NVNT	ax20	5180	18.41	28.5	Pass
NVNT	ax20	5200	18.35	28.5	Pass
NVNT	ax20	5240	18.21	28.5	Pass
NVNT	ax40	5190	16.71	28.5	Pass
NVNT	ax40	5230	16.53	28.5	Pass
NVNT	ax80	5210	18.53	28.5	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

For 3T3R

Antenna A +Antenna B +antenna C

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	21.42	26.7	Pass
NVNT	n20	5785	21.45	26.7	Pass
NVNT	n20	5825	21.09	26.7	Pass
NVNT	n40	5755	19.51	26.7	Pass
NVNT	n40	5795	19.47	26.7	Pass
NVNT	ac20	5745	21.02	26.7	Pass
NVNT	ac20	5785	20.78	26.7	Pass
NVNT	ac20	5825	20.47	26.7	Pass
NVNT	ac40	5755	19.58	26.7	Pass
NVNT	ac40	5795	20.26	26.7	Pass
NVNT	ac80	5775	19.99	26.7	Pass
NVNT	ax20	5180	19.84	26.7	Pass
NVNT	ax20	5200	19.66	26.7	Pass
NVNT	ax20	5240	19.24	26.7	Pass
NVNT	ax40	5190	18.89	26.7	Pass
NVNT	ax40	5230	18.73	26.7	Pass
NVNT	ax80	5210	20.01	26.7	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

Antenna A +Antenna B +antenna D

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	21.38	26.7	Pass
NVNT	n20	5785	21.37	26.7	Pass
NVNT	n20	5825	21.04	26.7	Pass
NVNT	n40	5755	19.56	26.7	Pass
NVNT	n40	5795	19.33	26.7	Pass
NVNT	ac20	5745	20.87	26.7	Pass
NVNT	ac20	5785	20.79	26.7	Pass
NVNT	ac20	5825	20.38	26.7	Pass
NVNT	ac40	5755	19.90	26.7	Pass
NVNT	ac40	5795	20.27	26.7	Pass
NVNT	ac80	5775	19.45	26.7	Pass
NVNT	ax20	5180	20.09	26.7	Pass
NVNT	ax20	5200	19.92	26.7	Pass
NVNT	ax20	5240	19.53	26.7	Pass
NVNT	ax40	5190	18.90	26.7	Pass
NVNT	ax40	5230	18.75	26.7	Pass
NVNT	ax80	5210	18.68	26.7	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

Antenna B +Antenna C +antenna D

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	21.28	26.7	Pass
NVNT	n20	5785	21.30	26.7	Pass
NVNT	n20	5825	21.03	26.7	Pass
NVNT	n40	5755	19.28	26.7	Pass
NVNT	n40	5795	19.28	26.7	Pass
NVNT	ac20	5745	20.56	26.7	Pass
NVNT	ac20	5785	20.59	26.7	Pass
NVNT	ac20	5825	20.23	26.7	Pass
NVNT	ac40	5755	19.74	26.7	Pass
NVNT	ac40	5795	19.40	26.7	Pass
NVNT	ac80	5775	19.70	26.7	Pass
NVNT	ax20	5180	19.87	26.7	Pass
NVNT	ax20	5200	19.82	26.7	Pass
NVNT	ax20	5240	19.56	26.7	Pass
NVNT	ax40	5190	18.49	26.7	Pass
NVNT	ax40	5230	18.27	26.7	Pass
NVNT	ax80	5210	19.69	26.7	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

For 4T4R

Antenna A +Antenna B+ Antenna C +antenna D

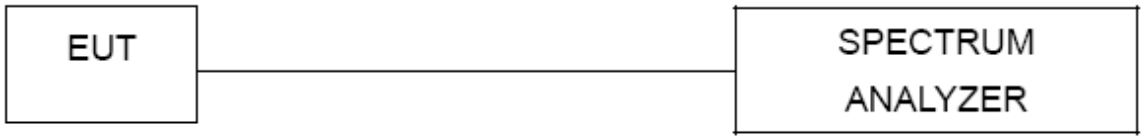
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	n20	5745	22.64	25.5	Pass
NVNT	n20	5785	**22.66**	25.5	Pass
NVNT	n20	5825	22.34	25.5	Pass
NVNT	n40	5755	20.73	25.5	Pass
NVNT	n40	5795	20.63	25.5	Pass
NVNT	ac20	5745	22.11	25.5	Pass
NVNT	ac20	5785	21.99	25.5	Pass
NVNT	ac20	5825	21.67	25.5	Pass
NVNT	ac40	5755	21.02	25.5	Pass
NVNT	ac40	5795	21.33	25.5	Pass
NVNT	ac80	5775	20.85	25.5	Pass
NVNT	ax20	5180	21.27	25.5	Pass
NVNT	ax20	5200	21.12	25.5	Pass
NVNT	ax20	5240	20.79	25.5	Pass
NVNT	ax40	5190	20.04	25.5	Pass
NVNT	ax40	5230	19.88	25.5	Pass
NVNT	ax80	5210	20.89	25.5	Pass

For those cases where the rule specifies that the conduction Output Power be reduced by the amount in dB that the directional gain of the transmitting antenna exceeds 6 dBi, the applicable output power limit shall be calculated as follows: Limit =P_{limit}-（Gain - 6）

11. Out Of Band Emissions

11.1 Block Diagram Of Test Setup



11.2 Limit

According to FCC §15.407(b)
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

11.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

11.4 EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data

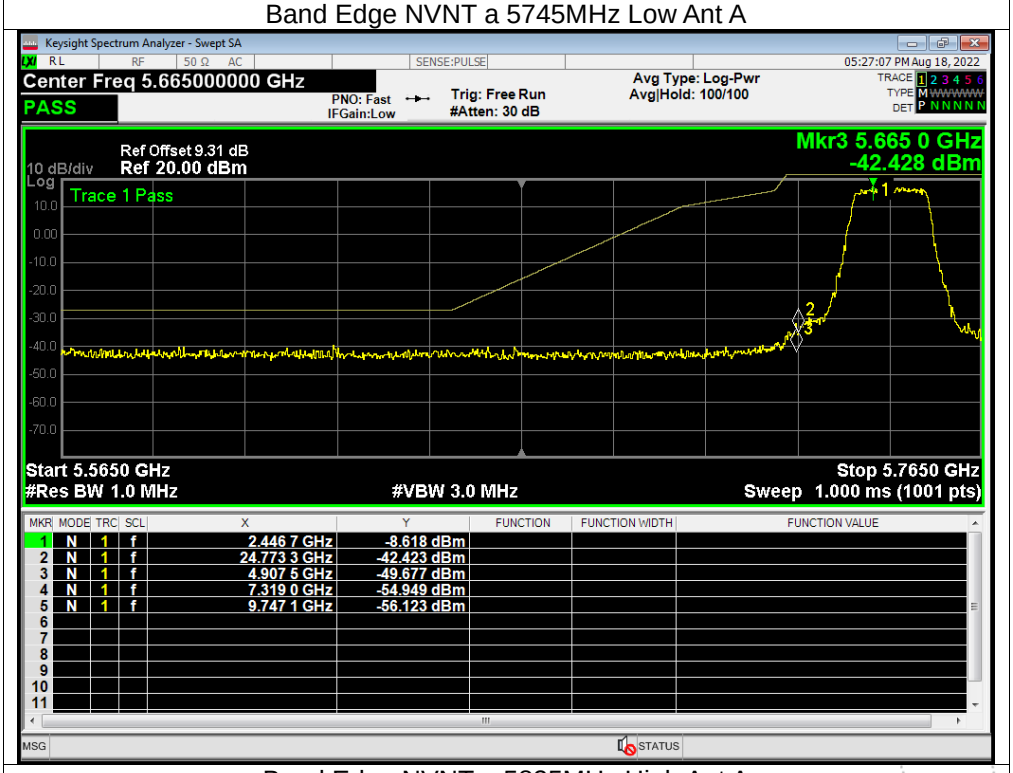
11.5 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	AC 120V/60Hz

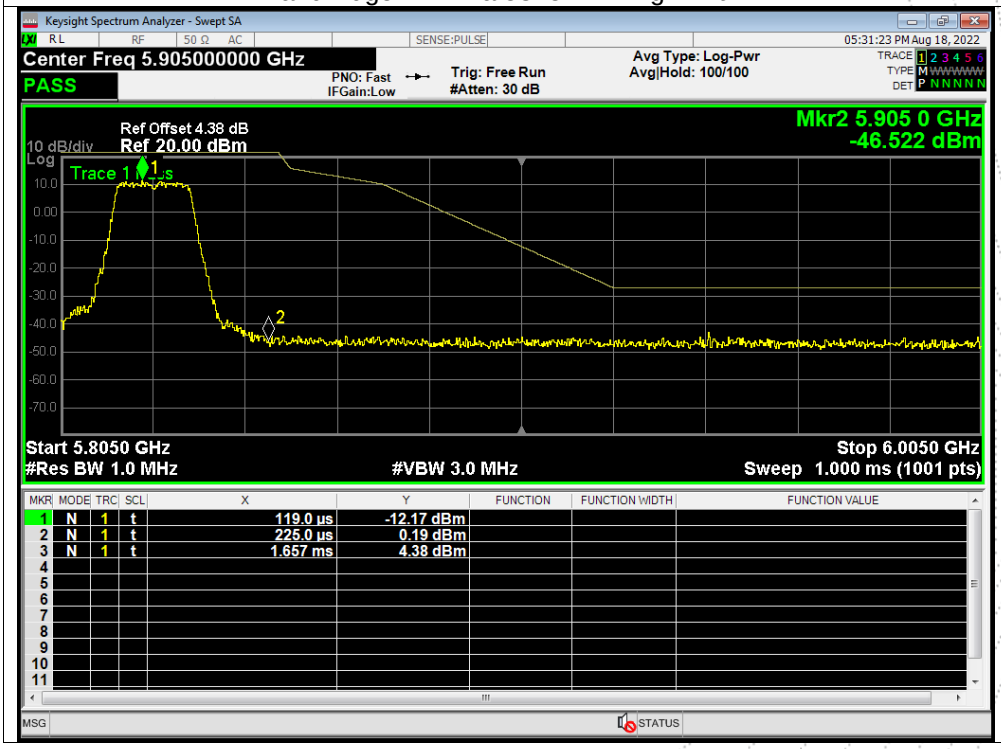
Note: A(B/C/D) Represent the value of antenna A and B/C/D, The worst data is Antenna A, only shown Antenna A.

Test Graphs

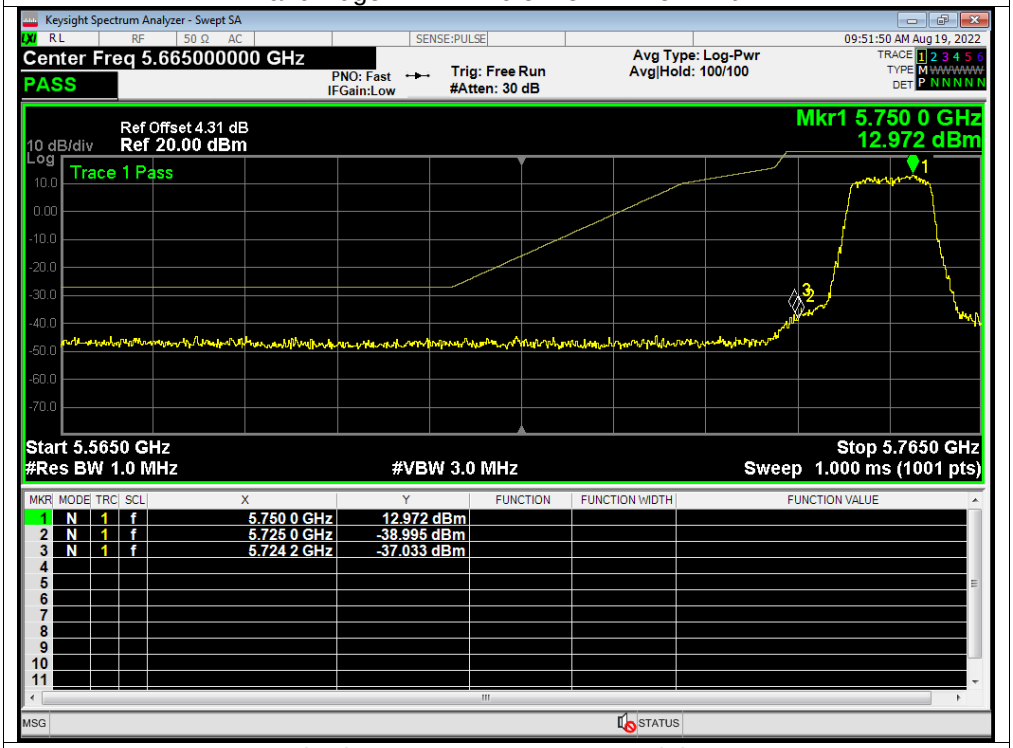
Band Edge NVNT a 5745MHz Low Ant A



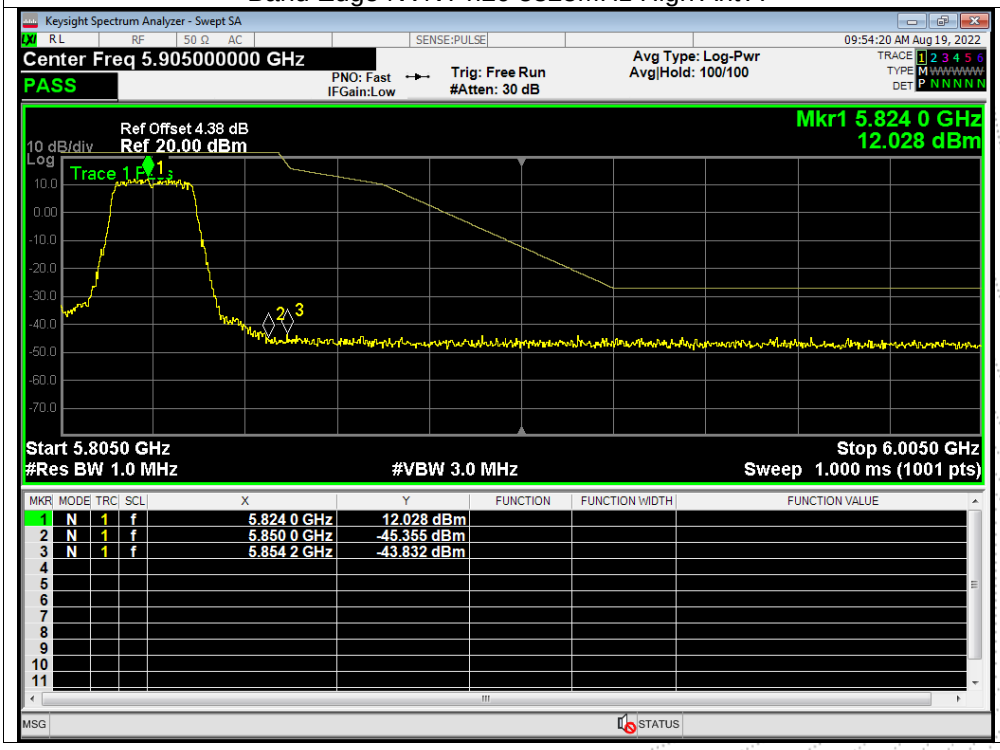
Band Edge NVNT a 5825MHz High Ant A



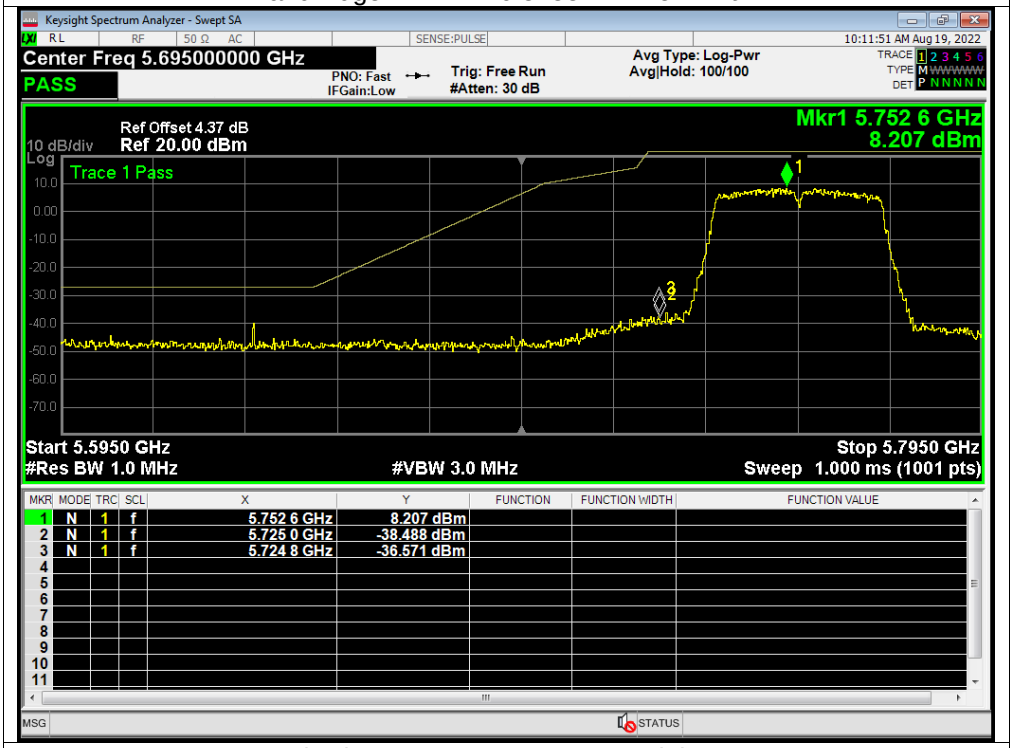
Band Edge NVNT n20 5745MHz Low Ant A



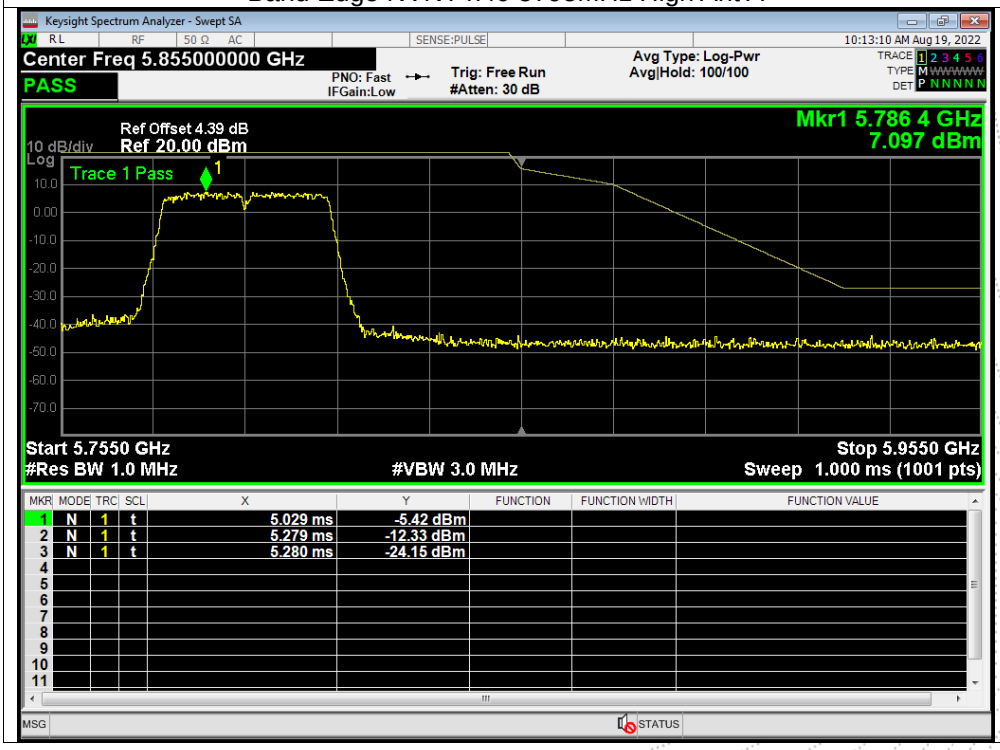
Band Edge NVNT n20 5825MHz High Ant A



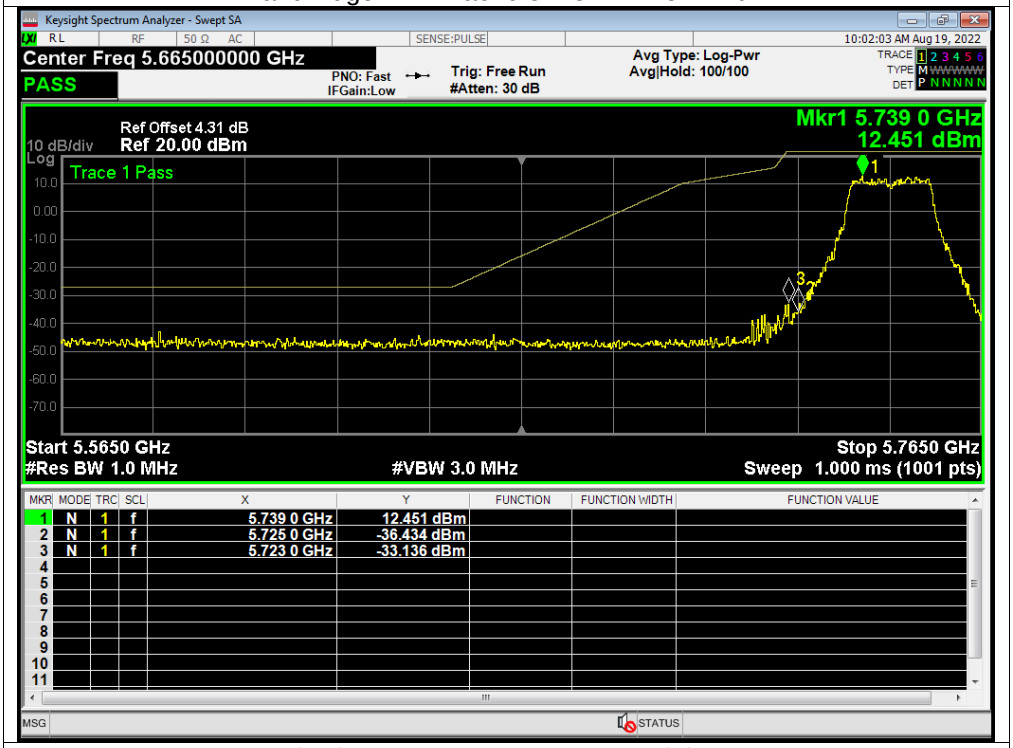
Band Edge NVNT n40 5755MHz Low Ant A



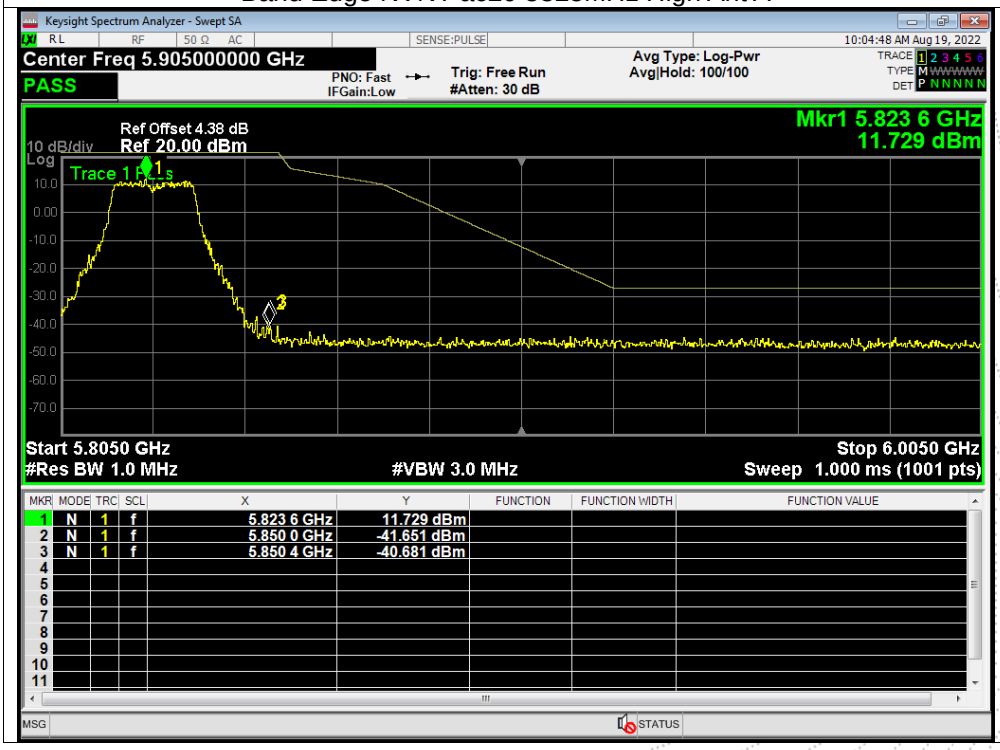
Band Edge NVNT n40 5795MHz High Ant A



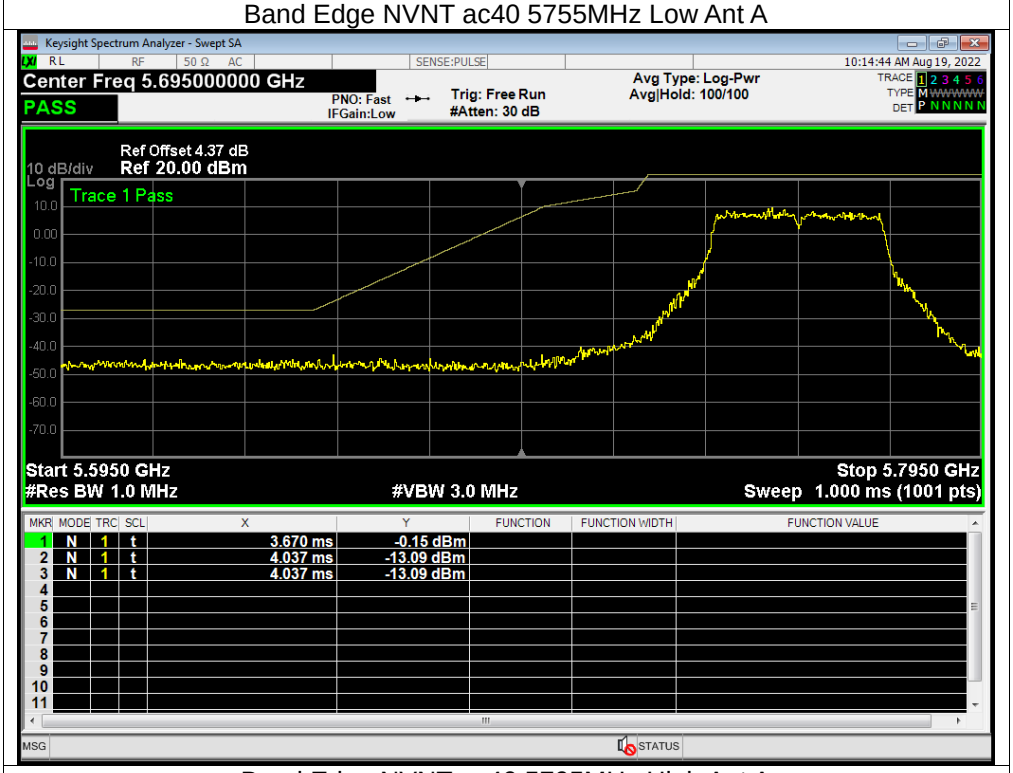
Band Edge NVNT ac20 5745MHz Low Ant A



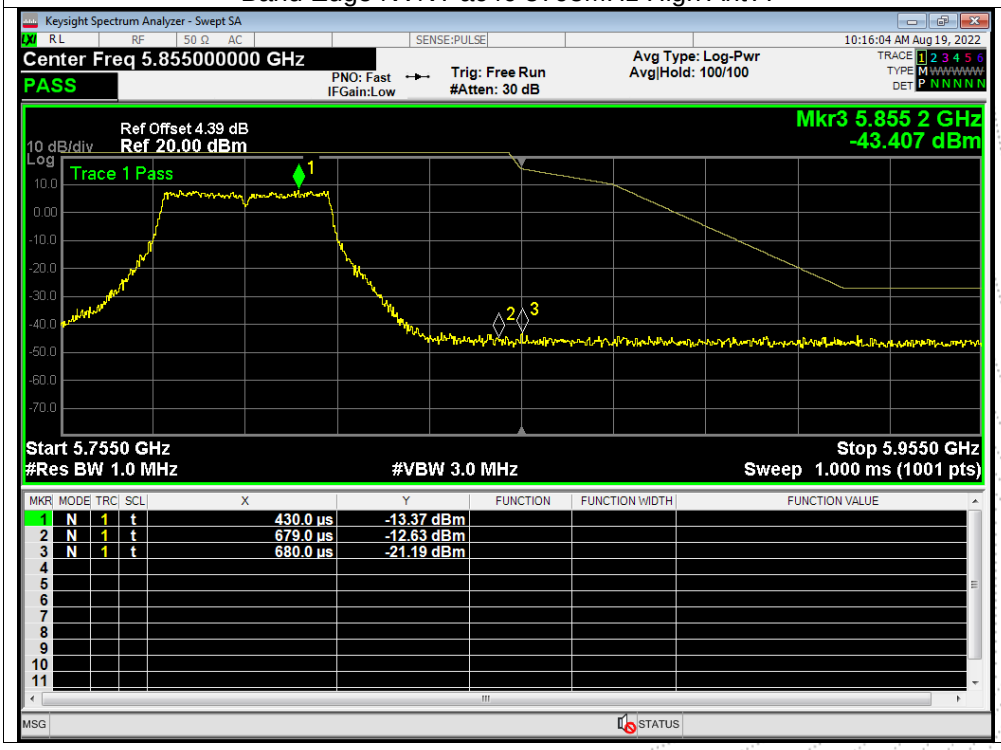
Band Edge NVNT ac20 5825MHz High Ant A



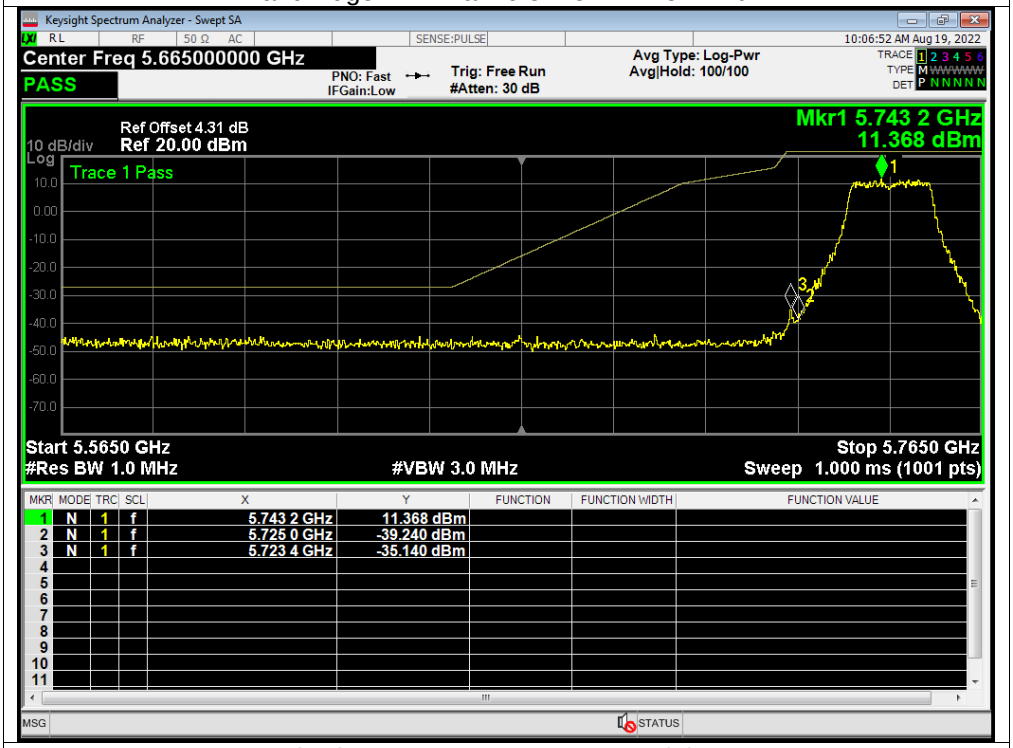
Band Edge NVNT ac40 5755MHz Low Ant A



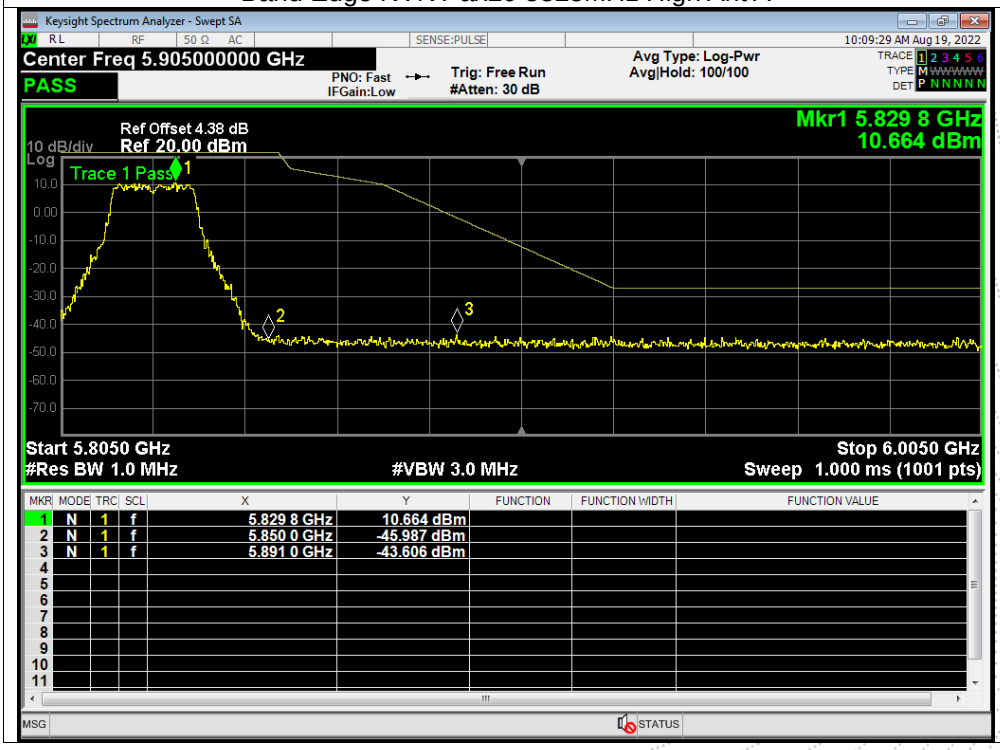
Band Edge NVNT ac40 5795MHz High Ant A



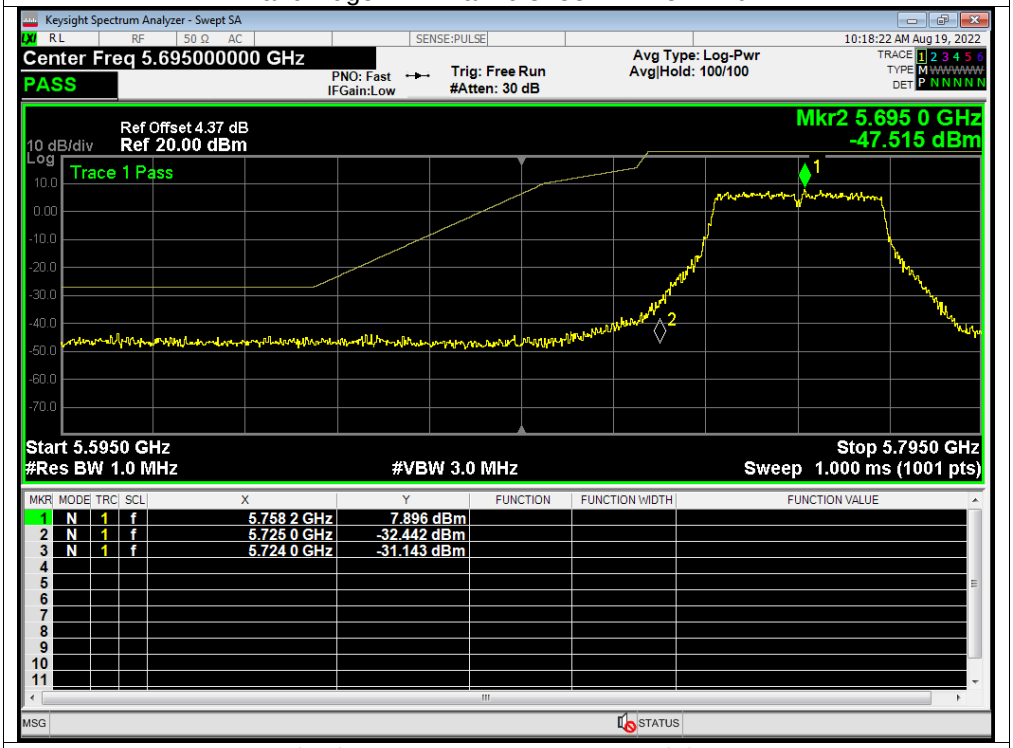
Band Edge NVNT ax20 5745MHz Low Ant A



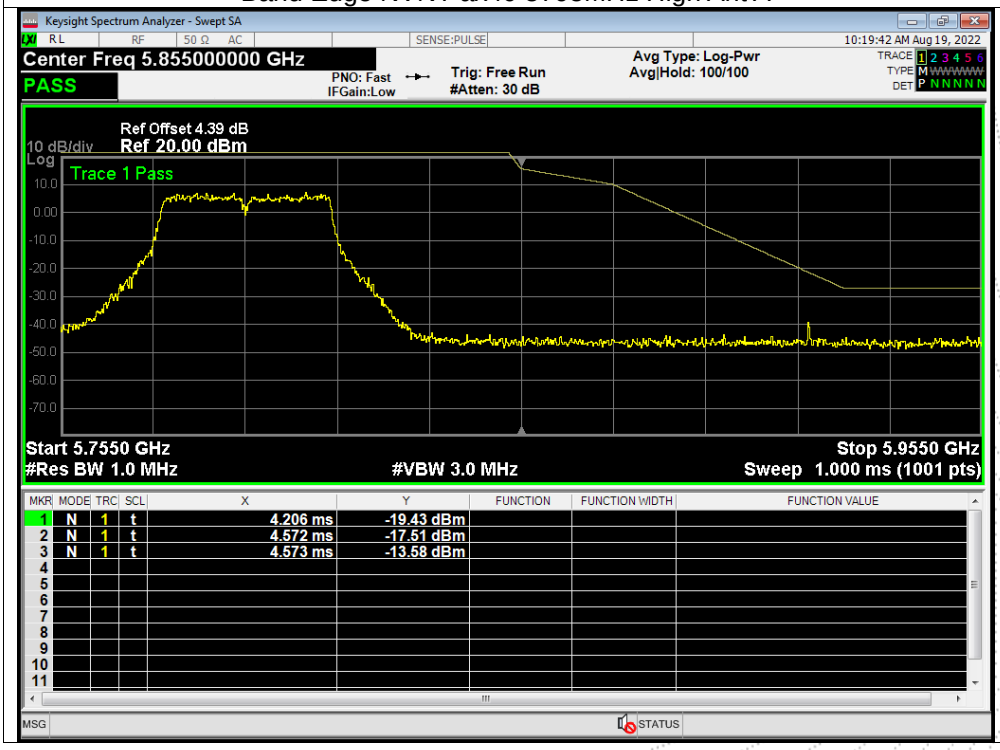
Band Edge NVNT ax20 5825MHz High Ant A



Band Edge NVNT ax40 5755MHz Low Ant A

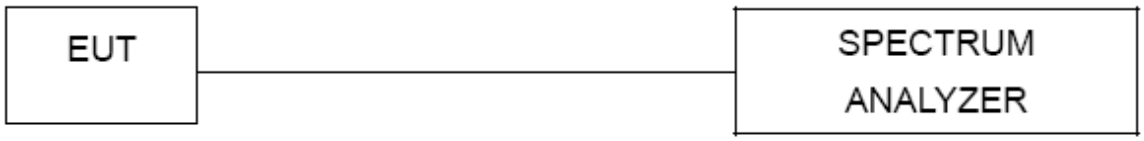


Band Edge NVNT ax40 5795MHz High Ant A



12. Spurious RF Conducted Emissions

12.1 Block Diagram Of Test Setup



12.2 Limit

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1)For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2)For transmitters operating in the 5.725-5.85 GHz band(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge..

12.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

12.4 Test Result

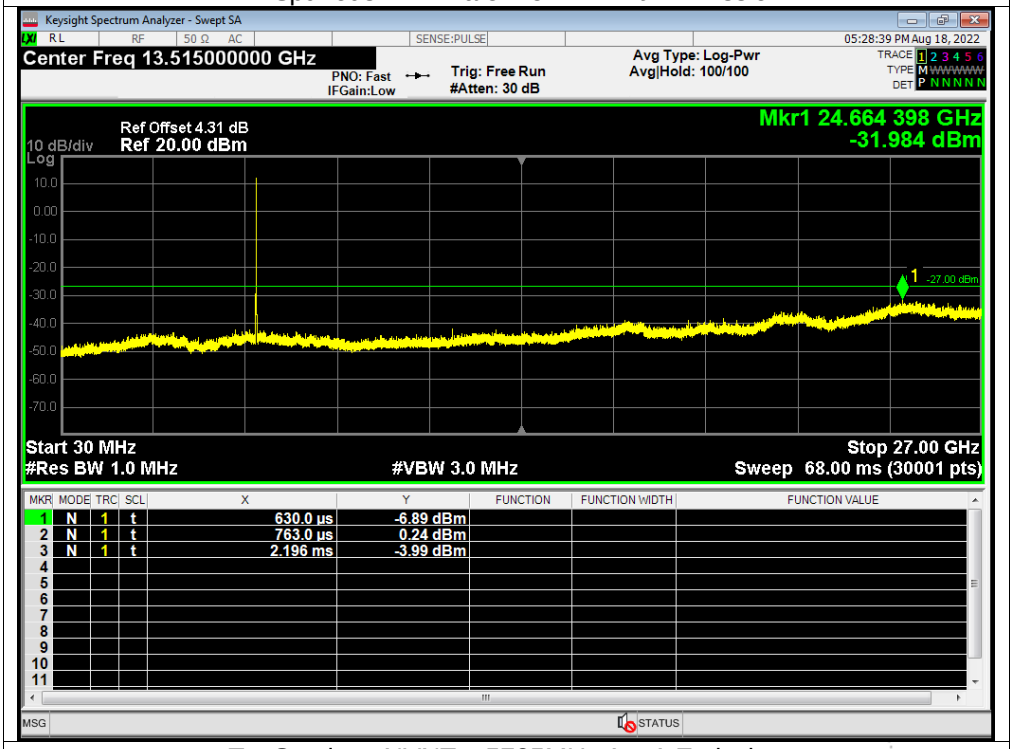
Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.

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

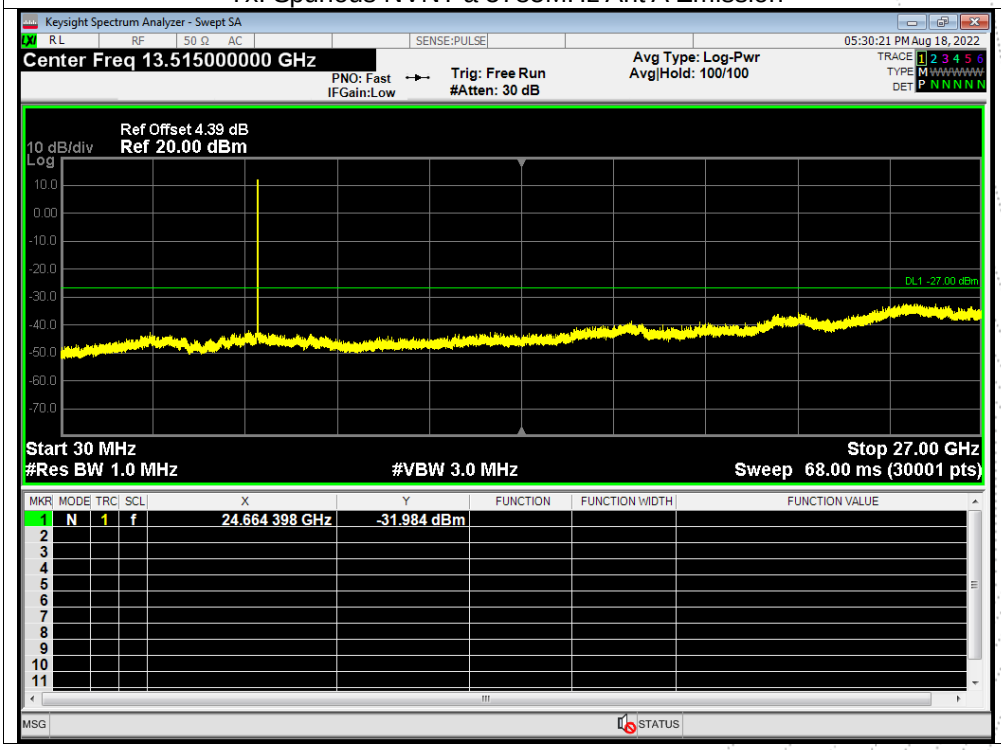
Note: A(B/C/D) Represent the value of antenna A and B/C/D, The worst data is Antenna A, only shown Antenna A.

Test Graphs

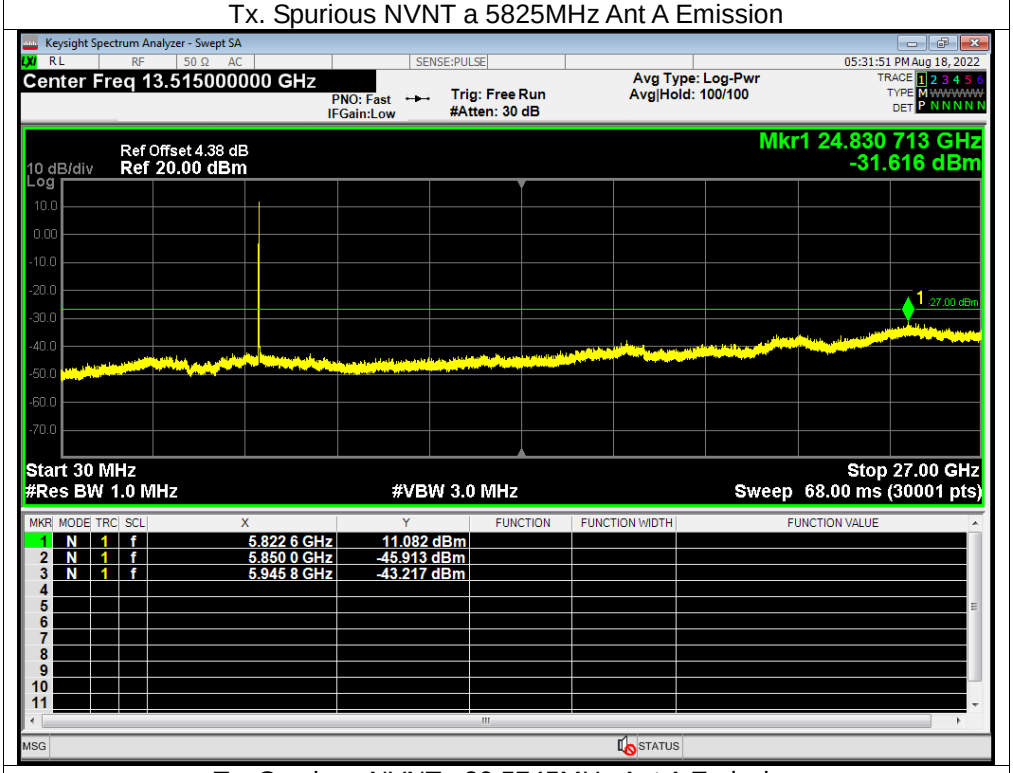
Tx. Spurious NVNT a 5745MHz Ant A Emission



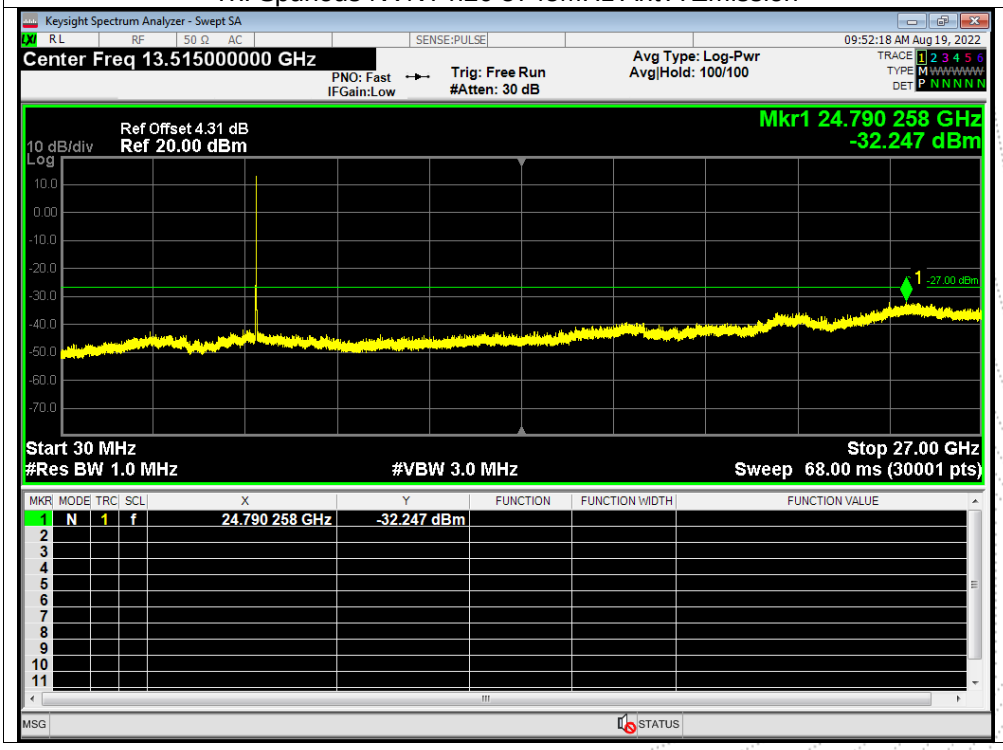
Tx. Spurious NVNT a 5785MHz Ant A Emission



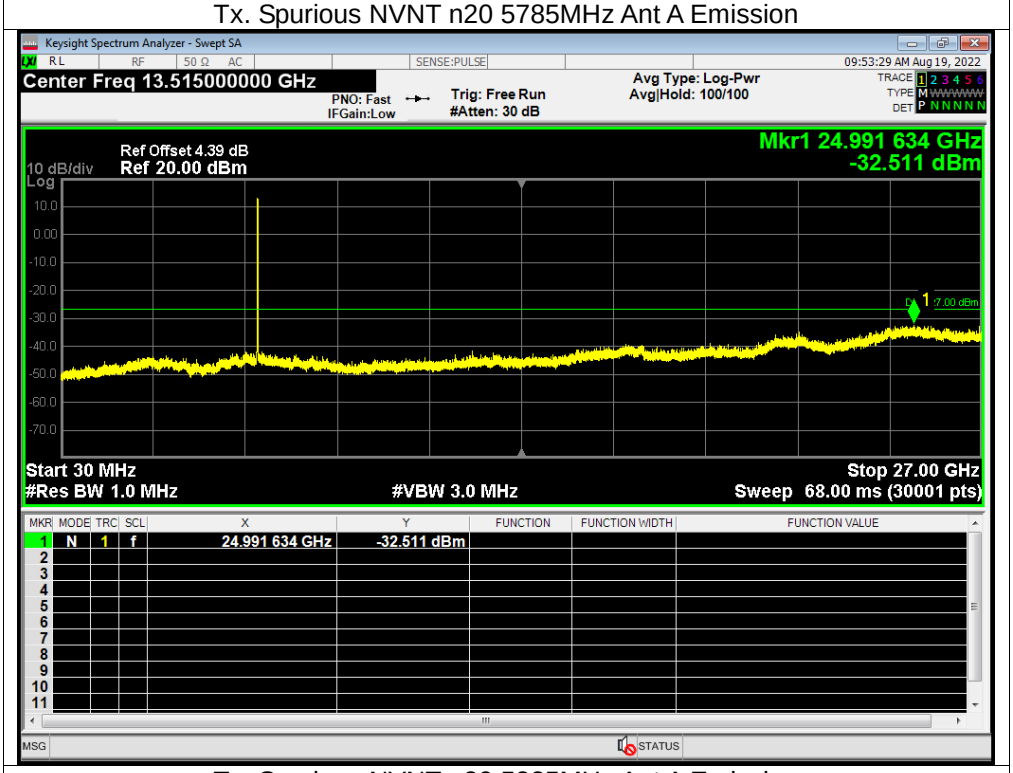
Tx. Spurious NVNT a 5825MHz Ant A Emission



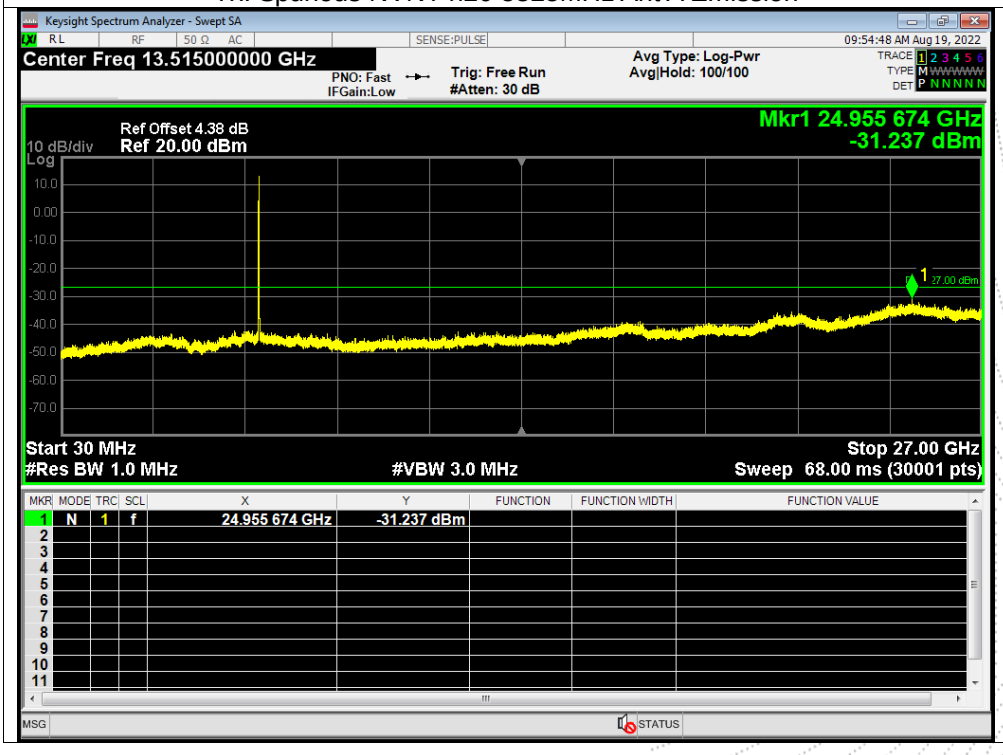
Tx. Spurious NVNT n20 5745MHz Ant A Emission



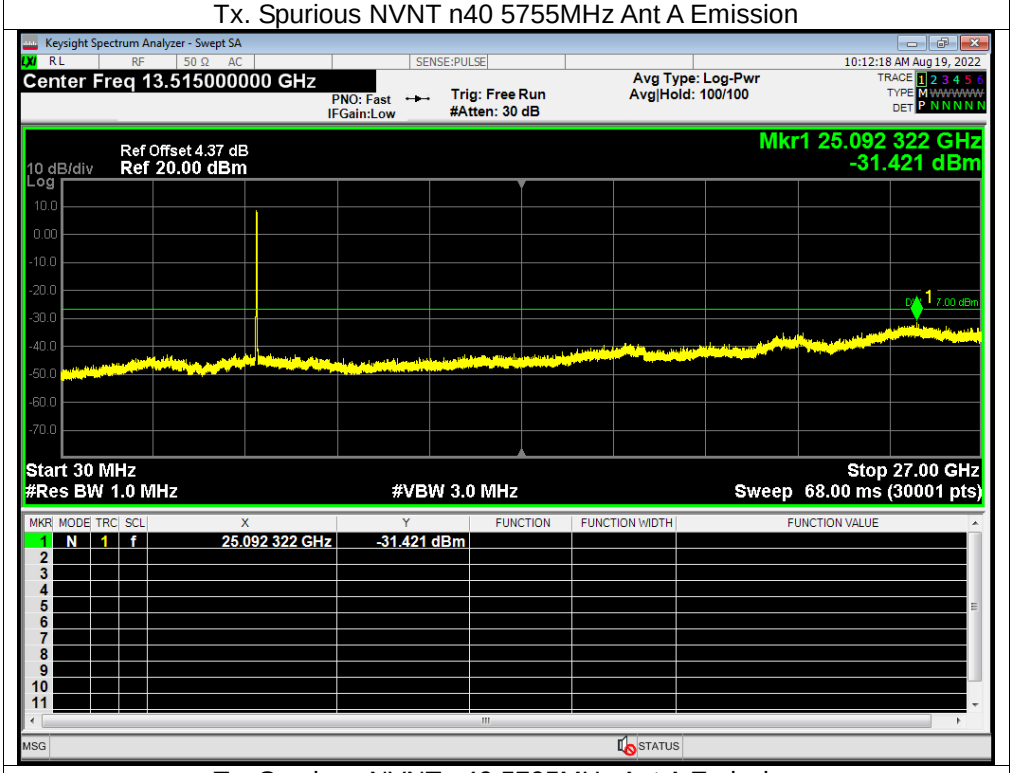
Tx. Spurious NVNT n20 5785MHz Ant A Emission



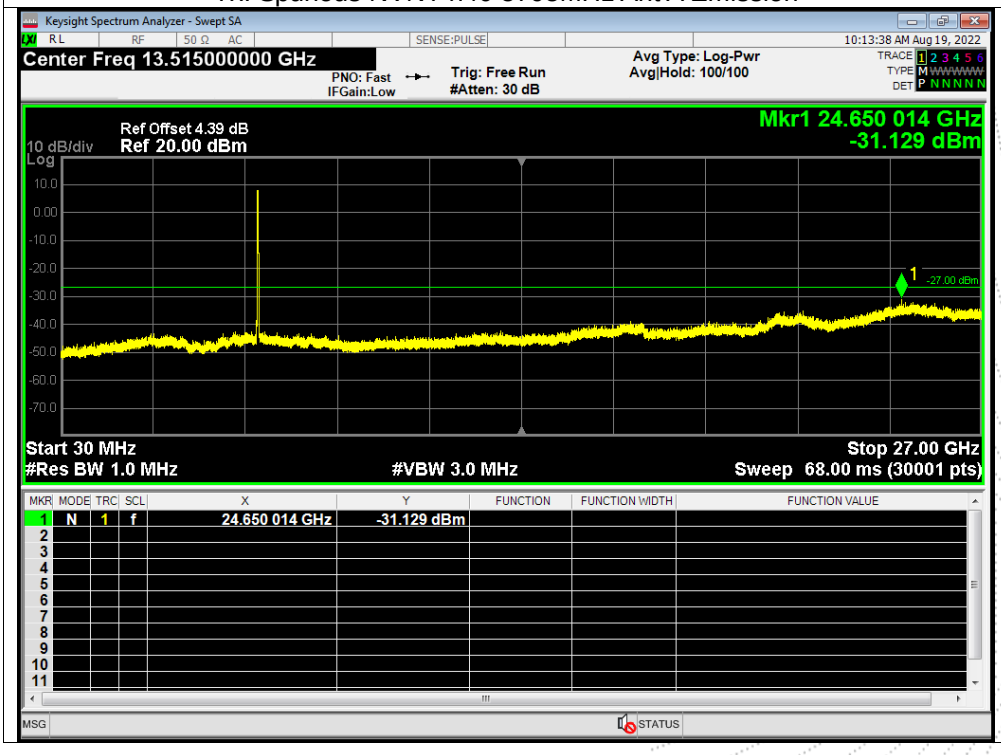
Tx. Spurious NVNT n20 5825MHz Ant A Emission



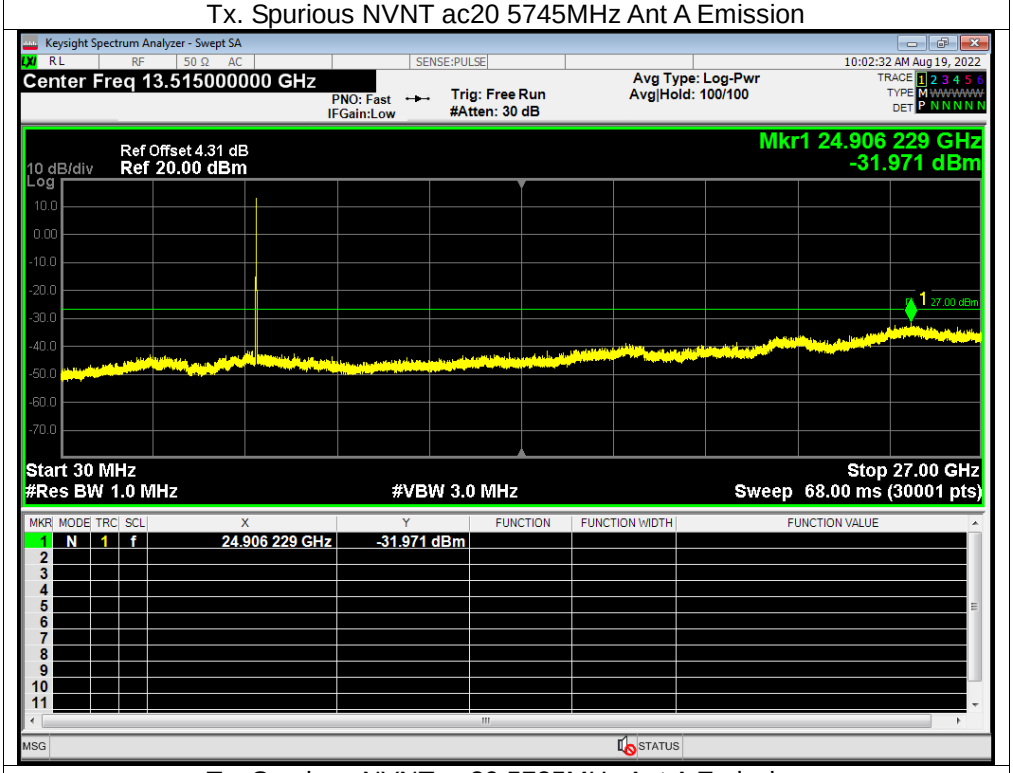
Tx. Spurious NVNT n40 5755MHz Ant A Emission



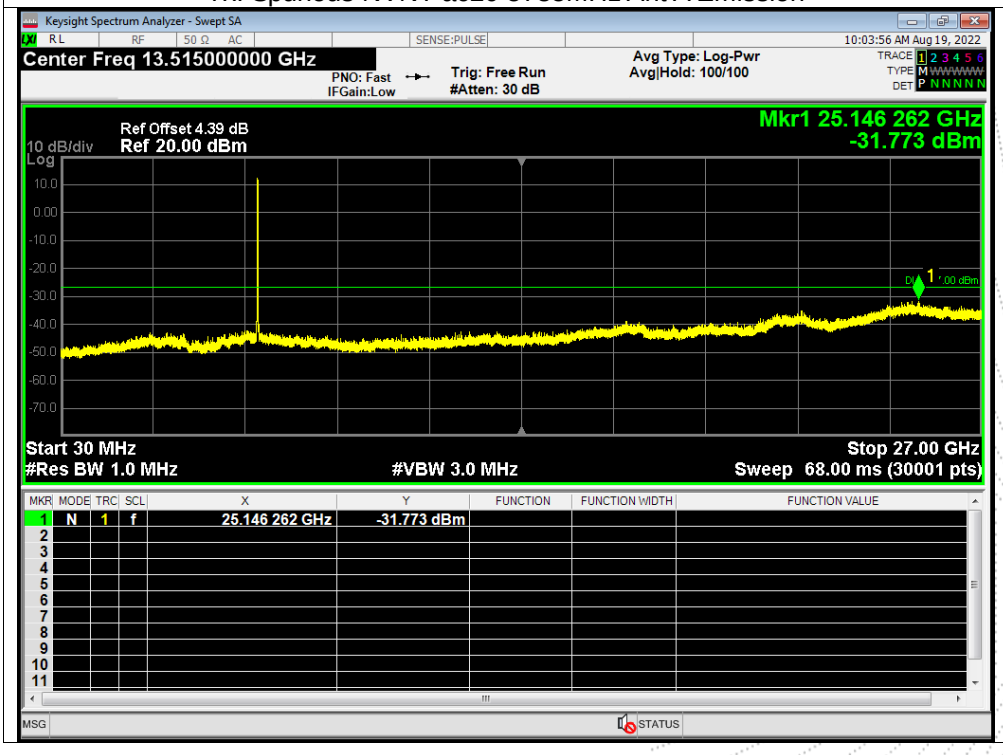
Tx. Spurious NVNT n40 5795MHz Ant A Emission



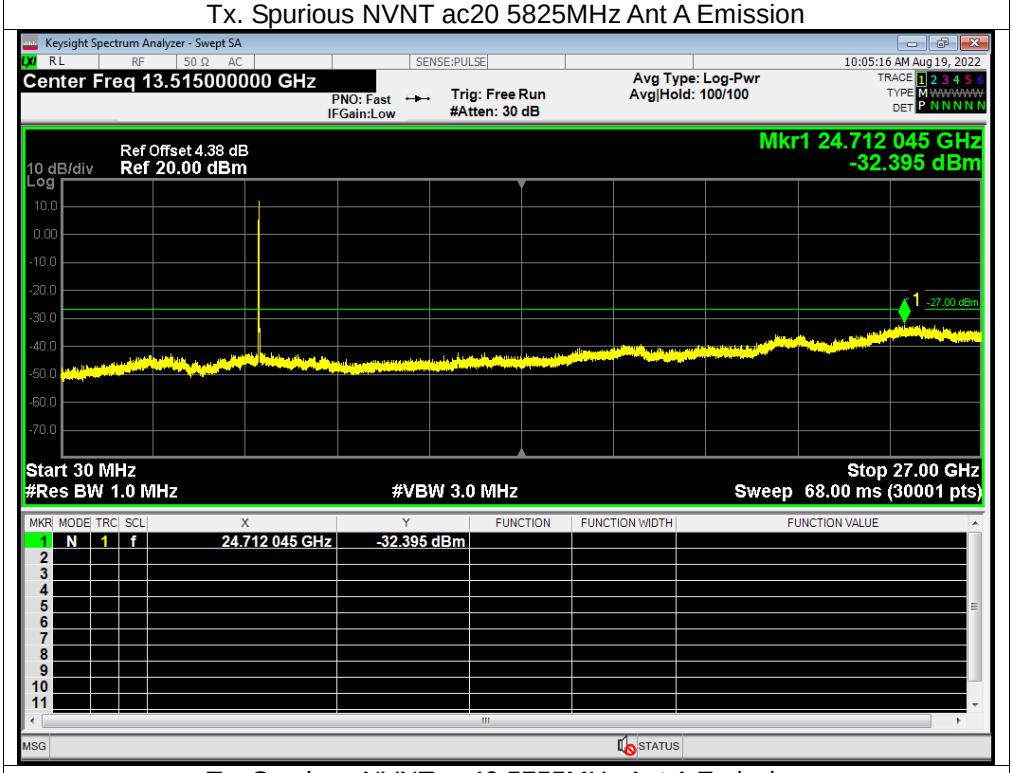
Tx. Spurious NVNT ac20 5745MHz Ant A Emission



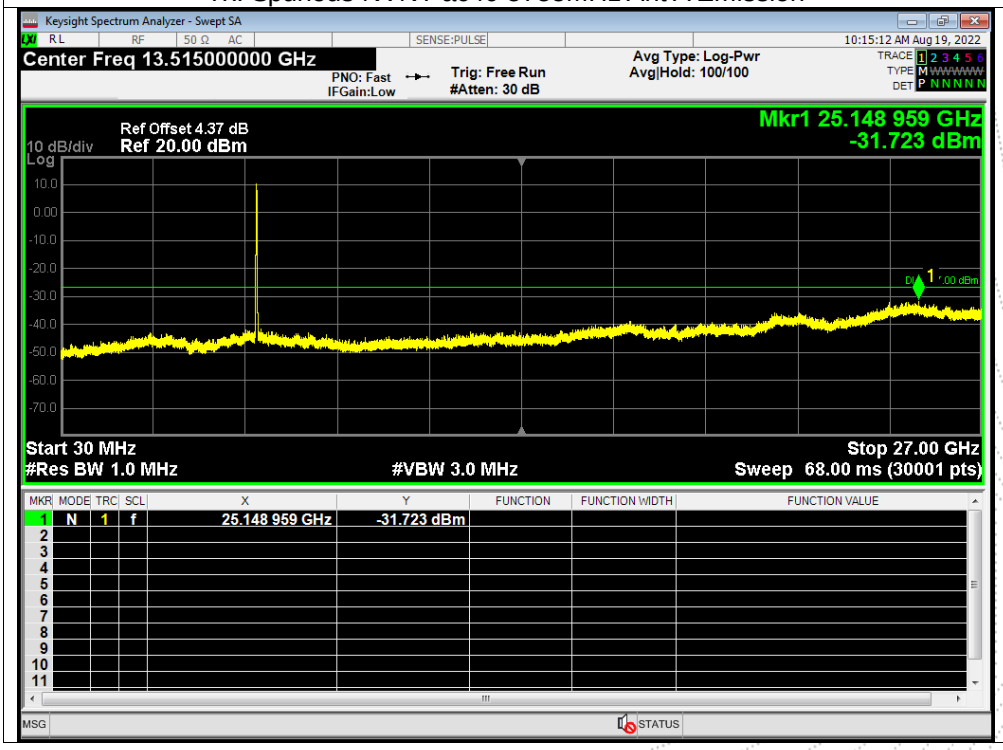
Tx. Spurious NVNT ac20 5785MHz Ant A Emission



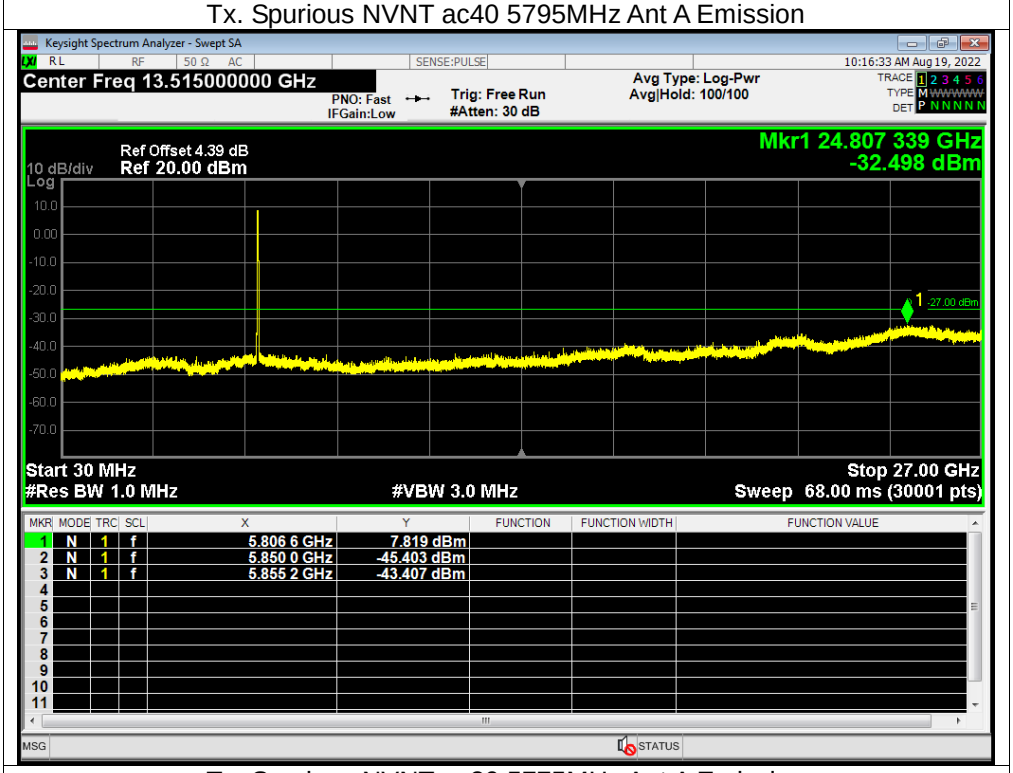
Tx. Spurious NVNT ac20 5825MHz Ant A Emission



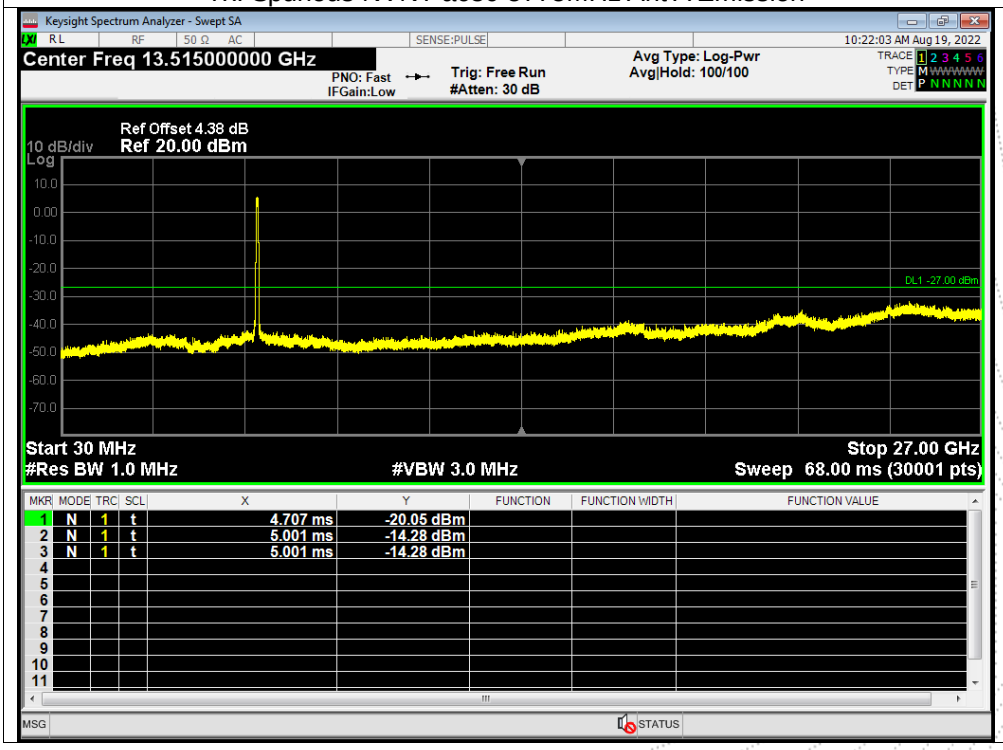
Tx. Spurious NVNT ac40 5755MHz Ant A Emission



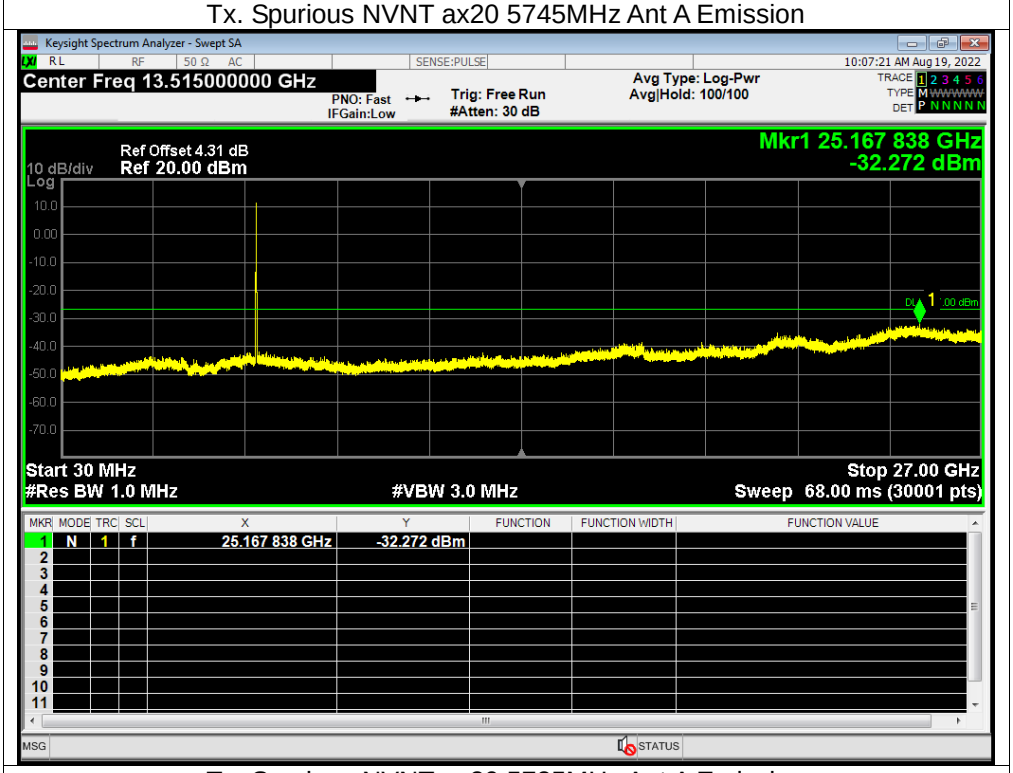
Tx. Spurious NVNT ac40 5795MHz Ant A Emission



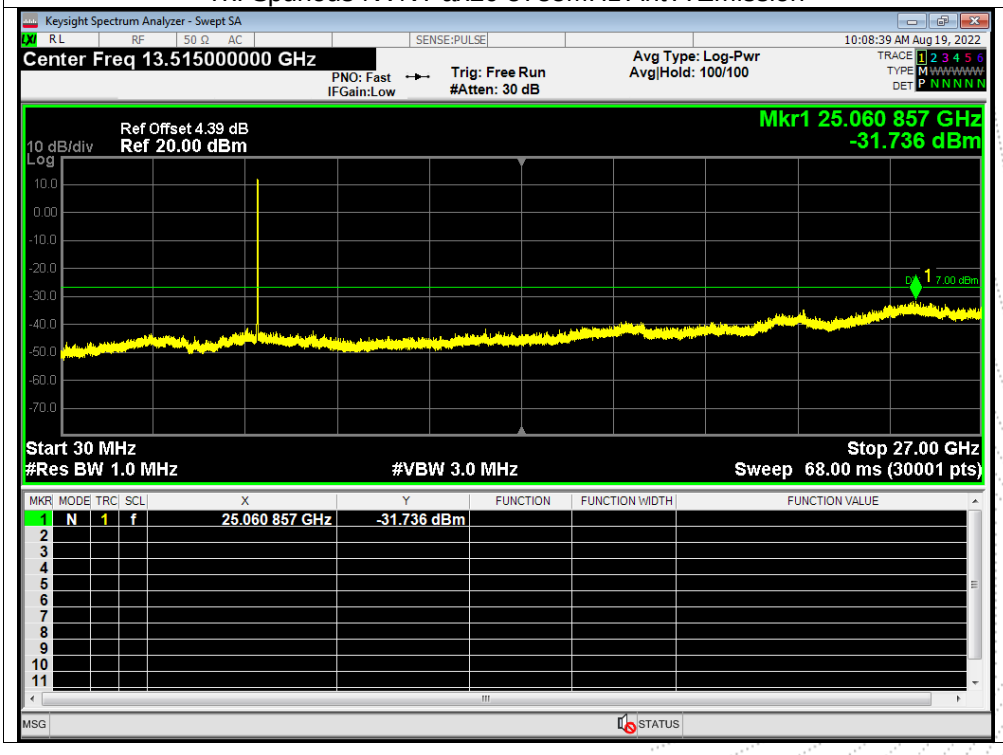
Tx. Spurious NVNT ac80 5775MHz Ant A Emission



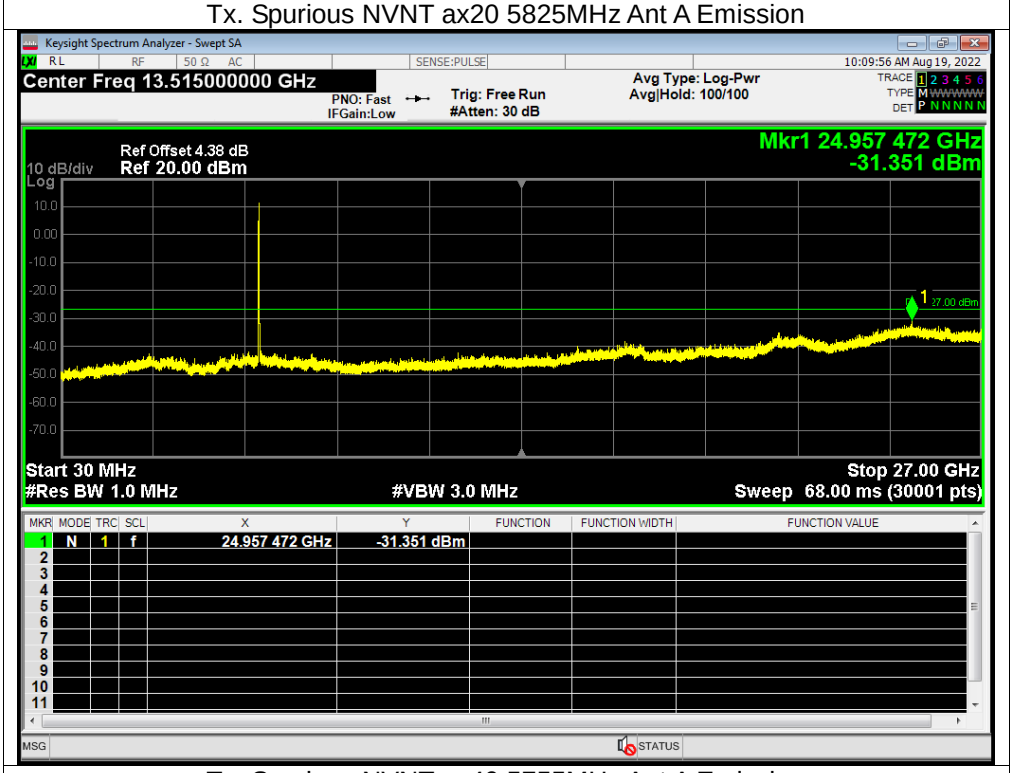
Tx. Spurious NVNT ax20 5745MHz Ant A Emission



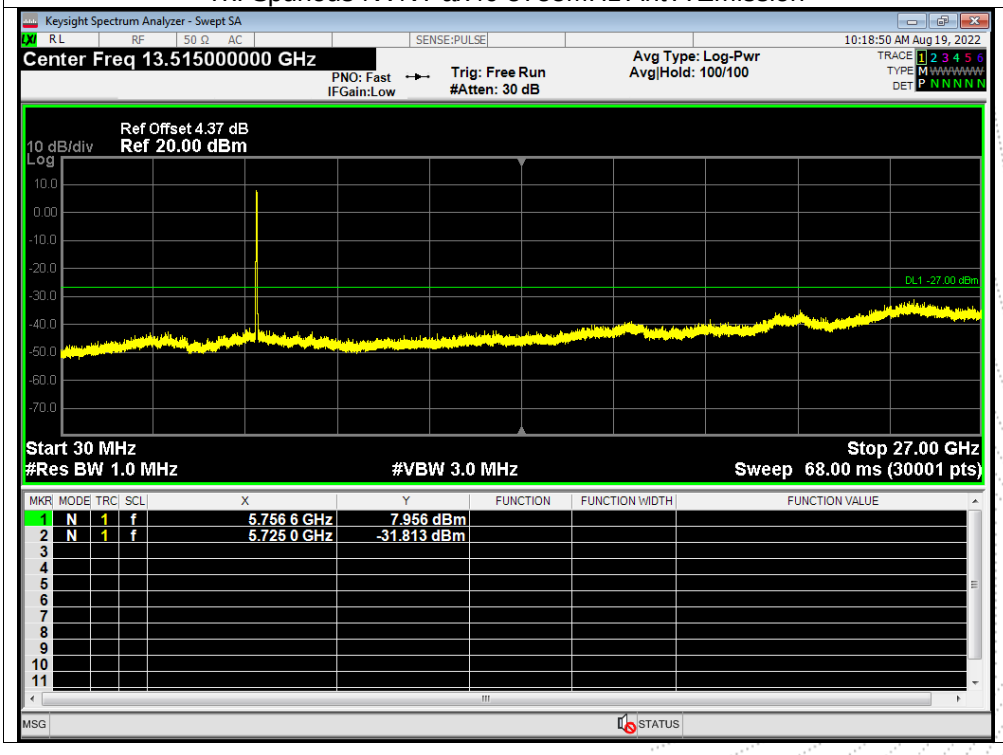
Tx. Spurious NVNT ax20 5785MHz Ant A Emission



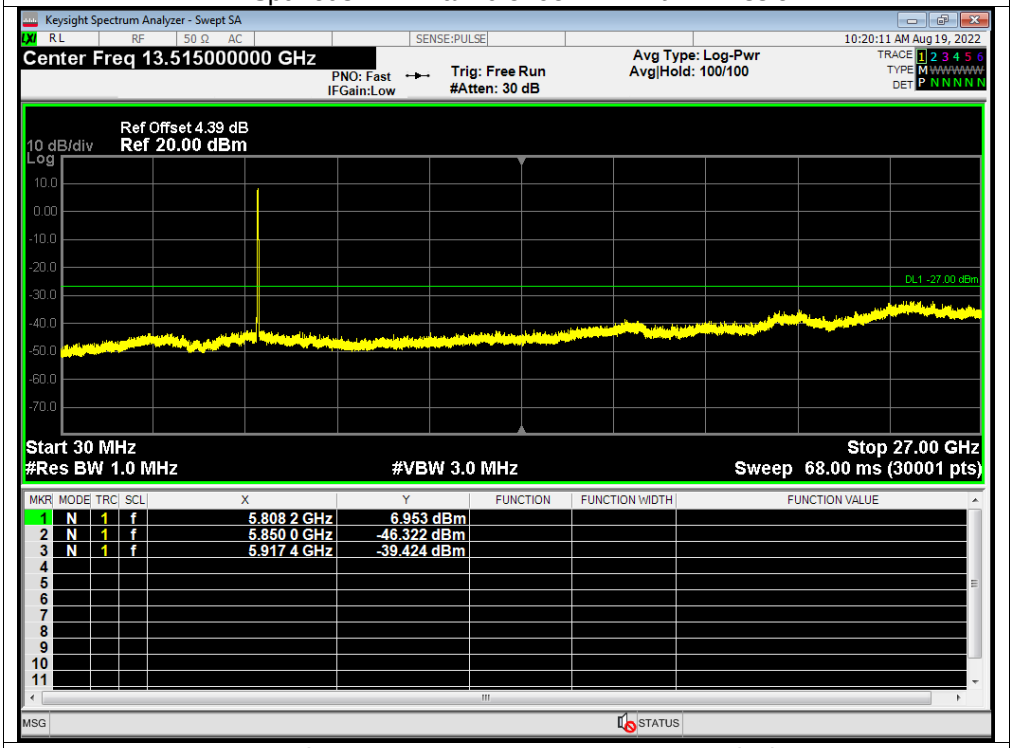
Tx. Spurious NVNT ax20 5825MHz Ant A Emission



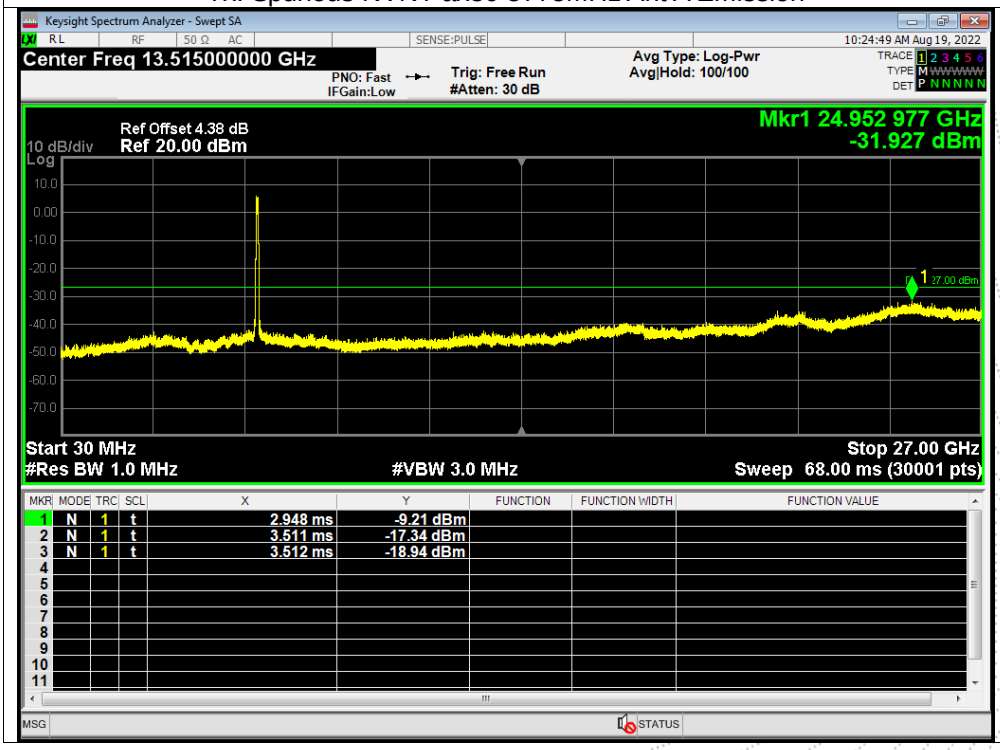
Tx. Spurious NVNT ax40 5755MHz Ant A Emission



Tx. Spurious NVNT ax40 5795MHz Ant A Emission

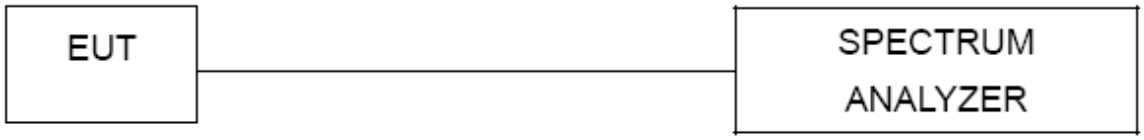


Tx. Spurious NVNT ax80 5775MHz Ant A Emission



13. Frequency Stability Measurement

13.1 Block Diagram Of Test Setup



13.2 Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification)..

13.3 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 106 ppm and he limit is less than ±20ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is -20°C~70°C.

13.4 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC120V/60Hz
Test Mode:	TX (5.8G) Mode Frequency U-NII-3 (5745-5825MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5745.00858	5745	0.00858	1.4933
		V max (V)	138.00	5745.00294	5745	0.00294	0.5123
		V min (V)	102.00	5745.00377	5745	0.00377	0.6559
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5745.01335	5745	0.01335	2.3236
		T (°C)	-10	5745.00276	5745	0.00276	0.4801
		T (°C)	0	5745.00071	5745	0.00071	0.1233
		T (°C)	10	5745.00432	5745	0.00432	0.7517
		T (°C)	20	5745.00566	5745	0.00566	0.9858
		T (°C)	30	5745.00458	5745	0.00458	0.7979
		T (°C)	40	5745.00436	5745	0.00436	0.7583
		T (°C)	50	5745.00881	5745	0.00881	1.5340
		T (°C)	60	5745.01272	5745	0.01272	2.2144
		T (°C)	70	5745.00071	5745	0.00071	0.1243
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency:5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5785.00772	5785	0.00772	1.3346
		V max (V)	138.00	5785.00086	5785	0.00086	0.1487
		V min (V)	102.00	5785.01245	5785	0.01245	2.1516
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency:5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5785.00987	5785	0.00987	1.7068
		T (°C)	-10	5785.00959	5785	0.00959	1.6585
		T (°C)	0	5785.00651	5785	0.00651	1.1254
		T (°C)	10	5785.00417	5785	0.00417	0.7212
		T (°C)	20	5785.00866	5785	0.00866	1.4967
		T (°C)	30	5785.00305	5785	0.00305	0.5279
		T (°C)	40	5785.00806	5785	0.00806	1.3938
		T (°C)	50	5785.00128	5785	0.00128	0.2207
		T (°C)	60	5785.00694	5785	0.00694	1.1996
		T (°C)	70	5785.01051	5785	0.01051	1.8169
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency:5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5825.01226	5825	0.01226	2.1039
		V max (V)	138.00	5825.00741	5825	0.00741	1.2720
		V min (V)	102.00	5825.00963	5825	0.00963	1.6530
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency:5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5825.00796	5825	0.00796	1.3660
		T (°C)	-10	5825.00439	5825	0.00439	0.7528
		T (°C)	0	5825.00247	5825	0.00247	0.4234
		T (°C)	10	5825.00235	5825	0.00235	0.4027
		T (°C)	20	5825.01086	5825	0.01086	1.8644
		T (°C)	30	5825.00872	5825	0.00872	1.4967
		T (°C)	40	5825.00732	5825	0.00732	1.2572
		T (°C)	50	5825.00728	5825	0.00728	1.2503
		T (°C)	60	5825.00966	5825	0.00966	1.6580
		T (°C)	70	5825.00129	5825	0.00129	0.2207
Limits				5725-5850 MHz			
Result				Complies			

14. Duty Cycle Of Test Signal

14.1 Standard Requirement

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

14.2 Formula

Duty Cycle = Ton / (Ton+Toff)

14.3 Test Procedure

1.Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

14.4 Test Result

Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	100	0	0
NVNT	a	5200	100	0	0
NVNT	a	5240	100	0	0
NVNT	n20	5180	100	0	0
NVNT	n20	5200	100	0	0
NVNT	n20	5240	100	0	0
NVNT	n40	5190	100	0	0
NVNT	n40	5230	100	0	0
NVNT	ac20	5180	100	0	0
NVNT	ac20	5200	100	0	0
NVNT	ac20	5240	100	0	0
NVNT	ac40	5190	100	0	0
NVNT	ac40	5230	100	0	0
NVNT	ac80	5210	100	0	0
NVNT	ax20	5180	100	0	0
NVNT	ax20	5200	100	0	0
NVNT	ax20	5240	100	0	0
NVNT	ax40	5190	100	0	0
NVNT	ax40	5230	100	0	0
NVNT	ax80	5210	100	0	0

15. Antenna Requirement

15.1 Limit

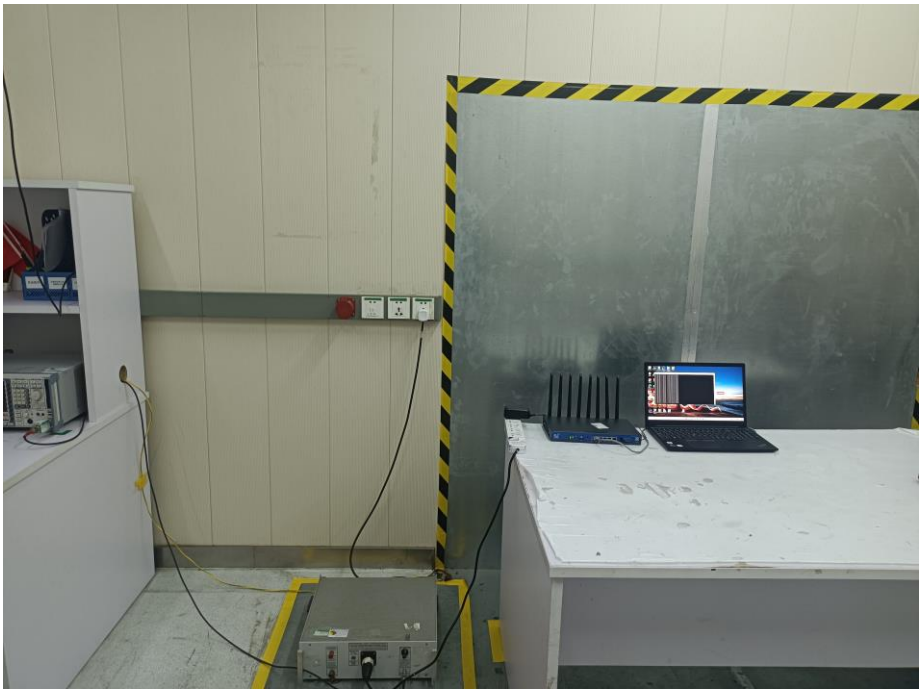
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.2 Test Result

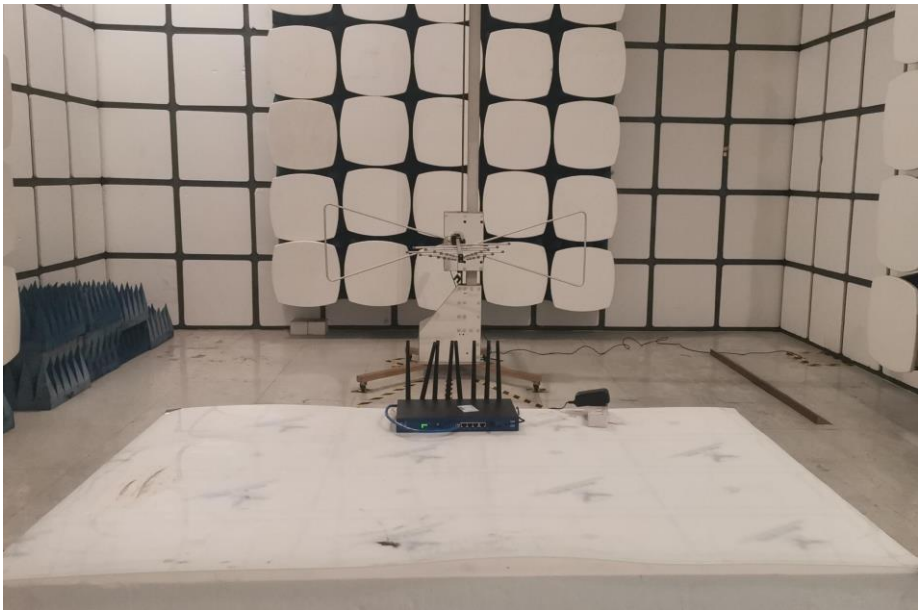
The EUT antenna is External antenna. It complies with the standard requirement.

16. EUT Test Setup Photographs

Conducted emissions



Radiated Measurement Photos



STATEMENT

1.The equipment lists are traceable to the national reference standards.

2.The test report can not be partially copied unless prior written approval is issued from our lab.

3.The test report is invalid without stamp of laboratory.

4.The test report is invalid without signature of person(s) testing and authorizing.

5.The test process and test result is only related to the Unit Under Test.

6.The quality system of our laboratory is in accordance with ISO/IEC17025.

7.If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:
1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL：400-788-9558

P.C.: 518103

FAX：0755-33229357

Website：http://www.chnbctc.com

E-Mail：bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※