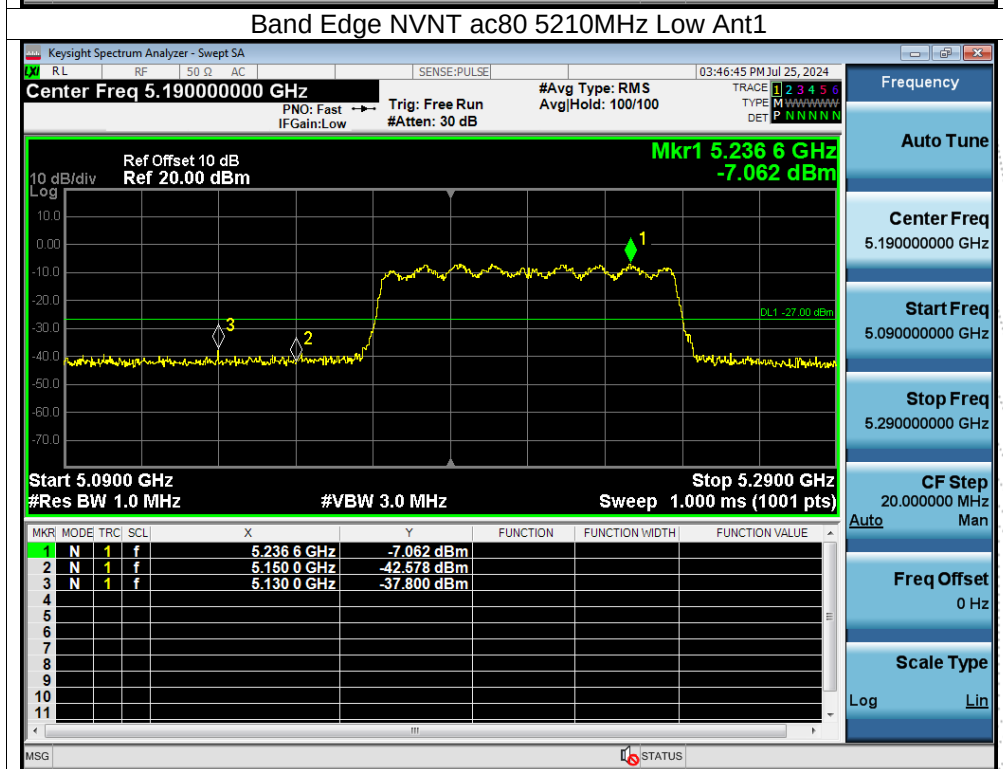
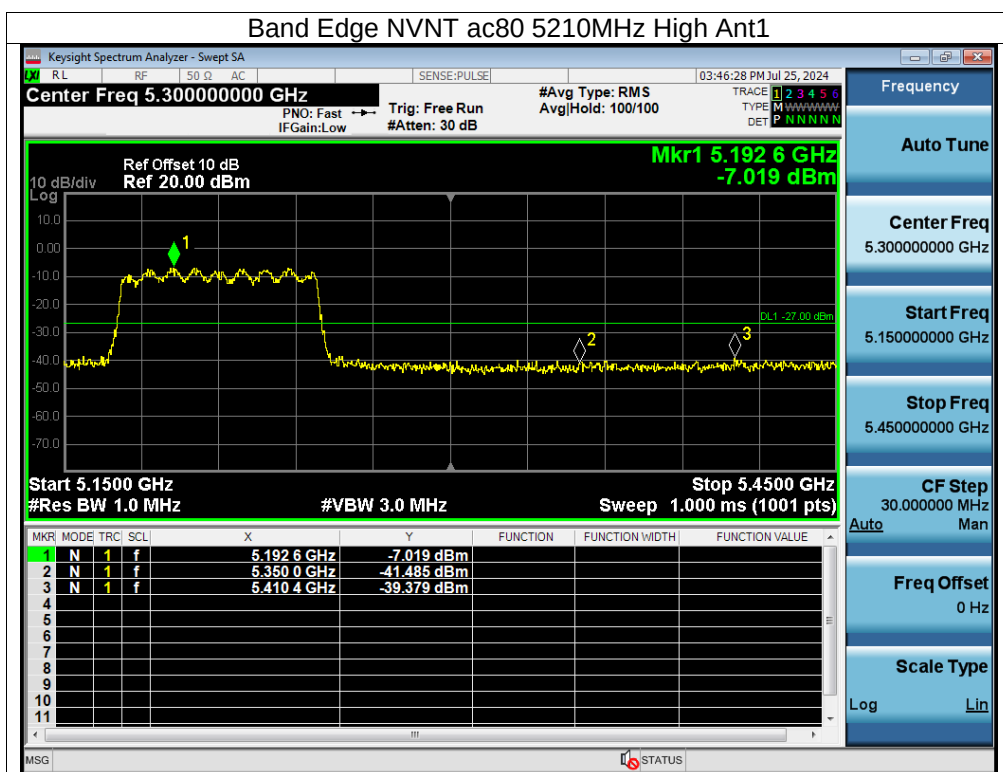
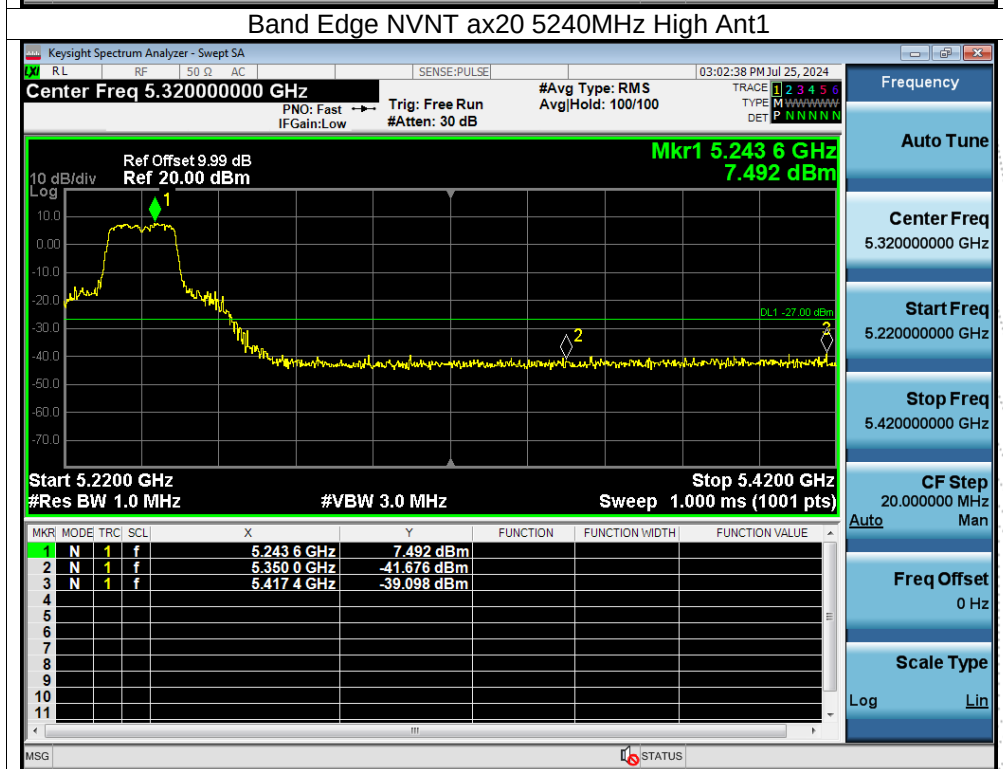
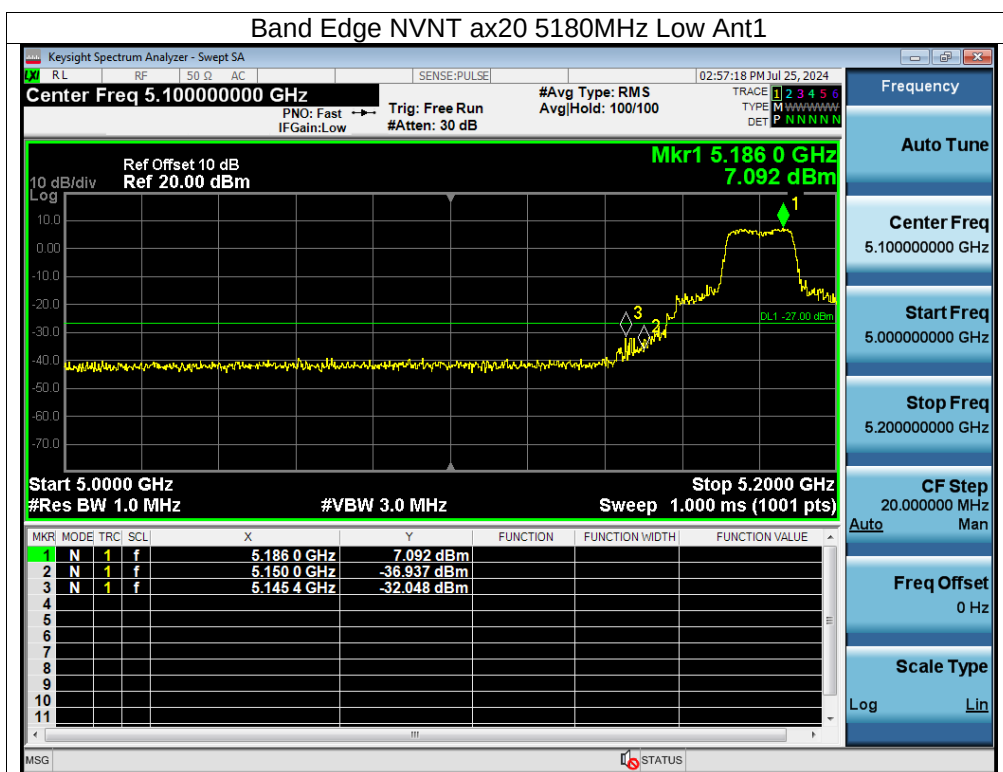
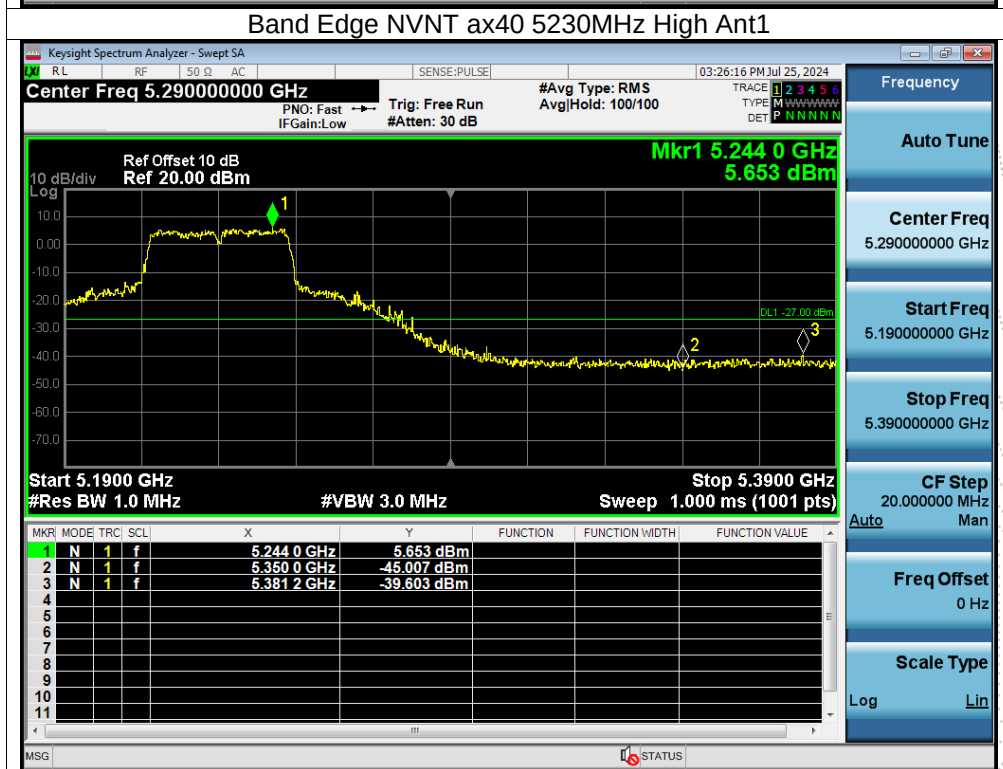
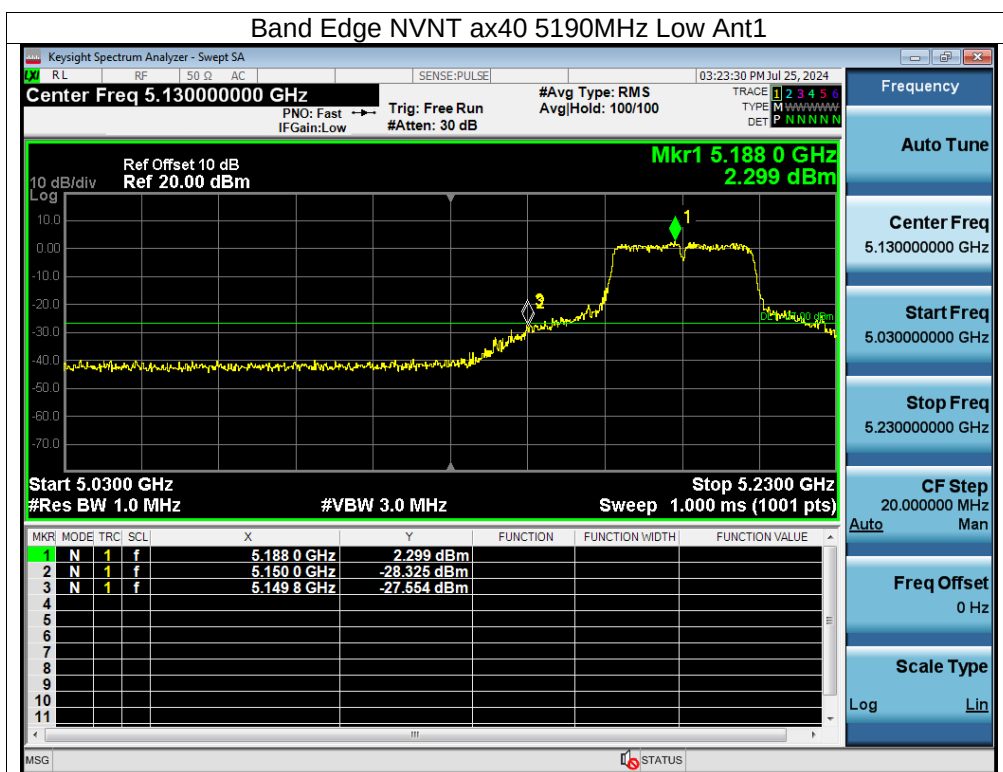
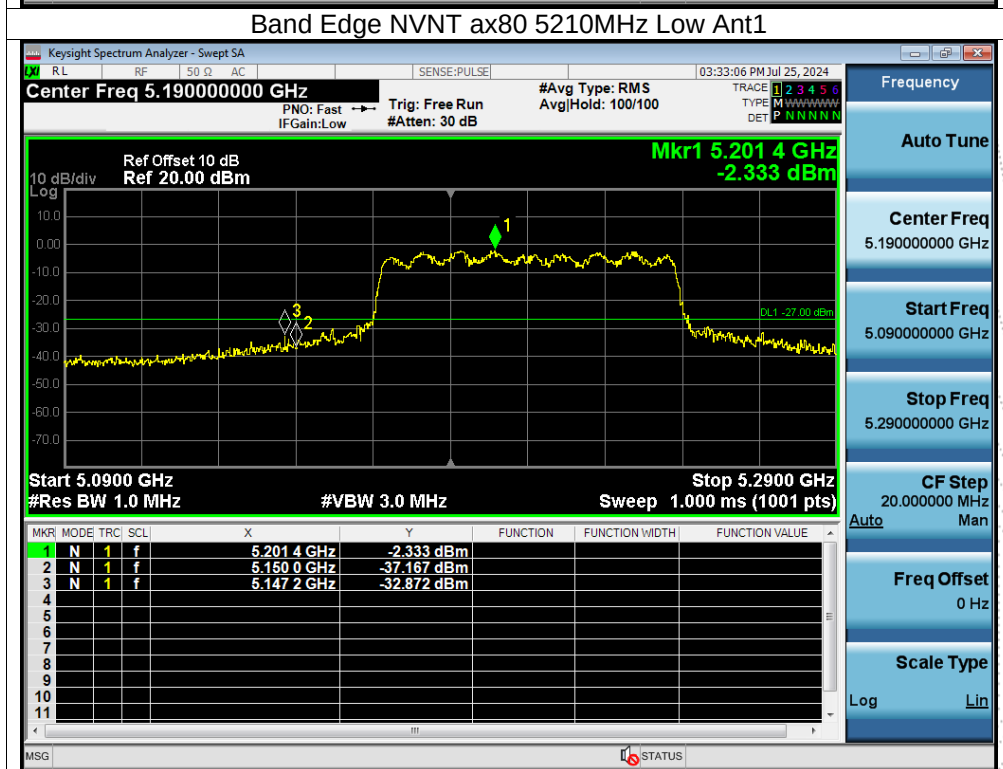
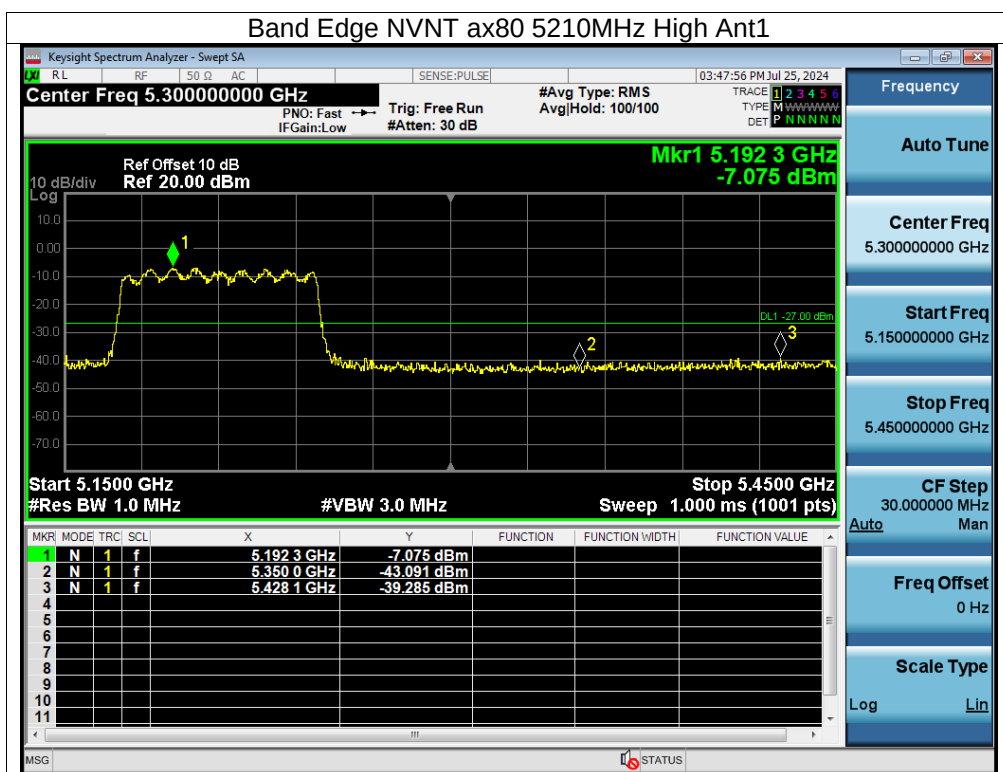






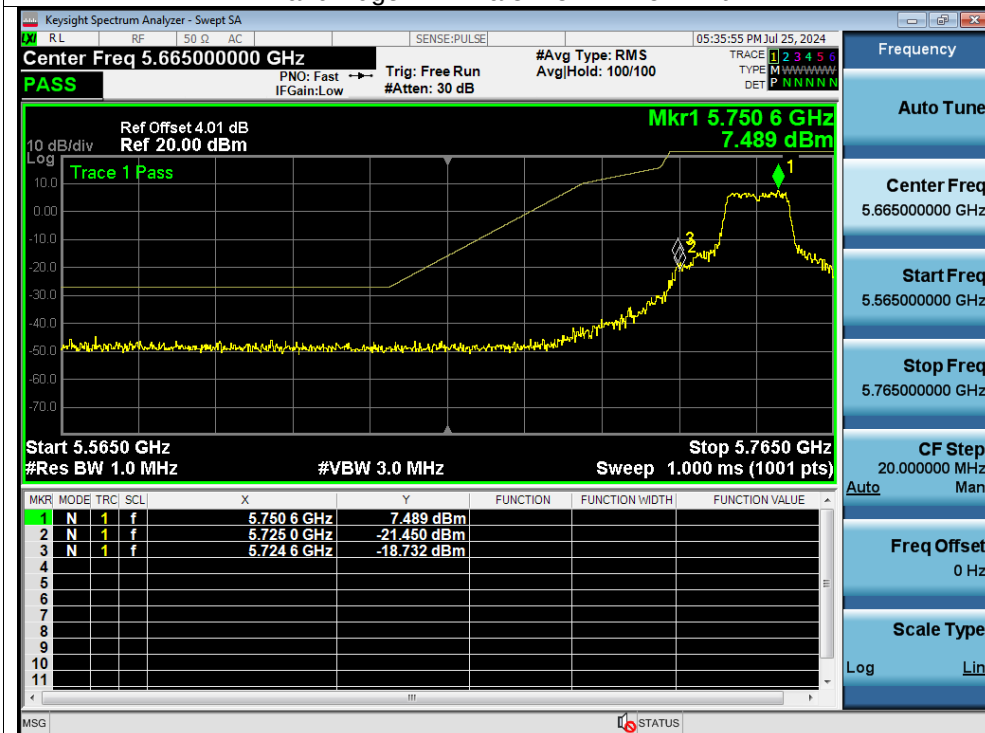




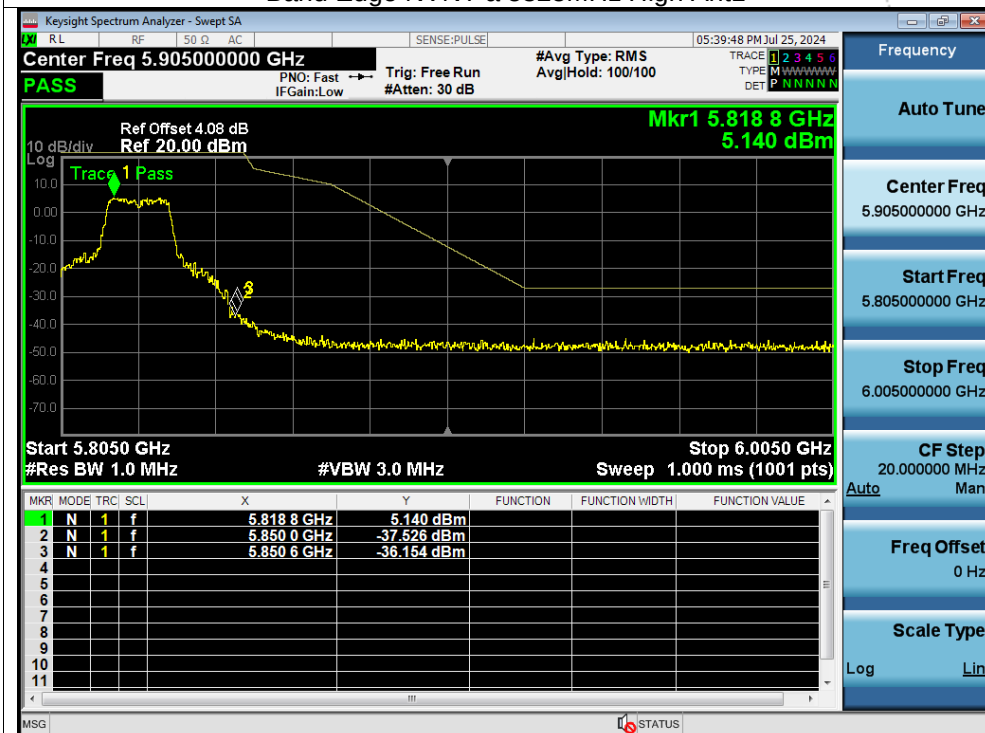
5745-5825MHz

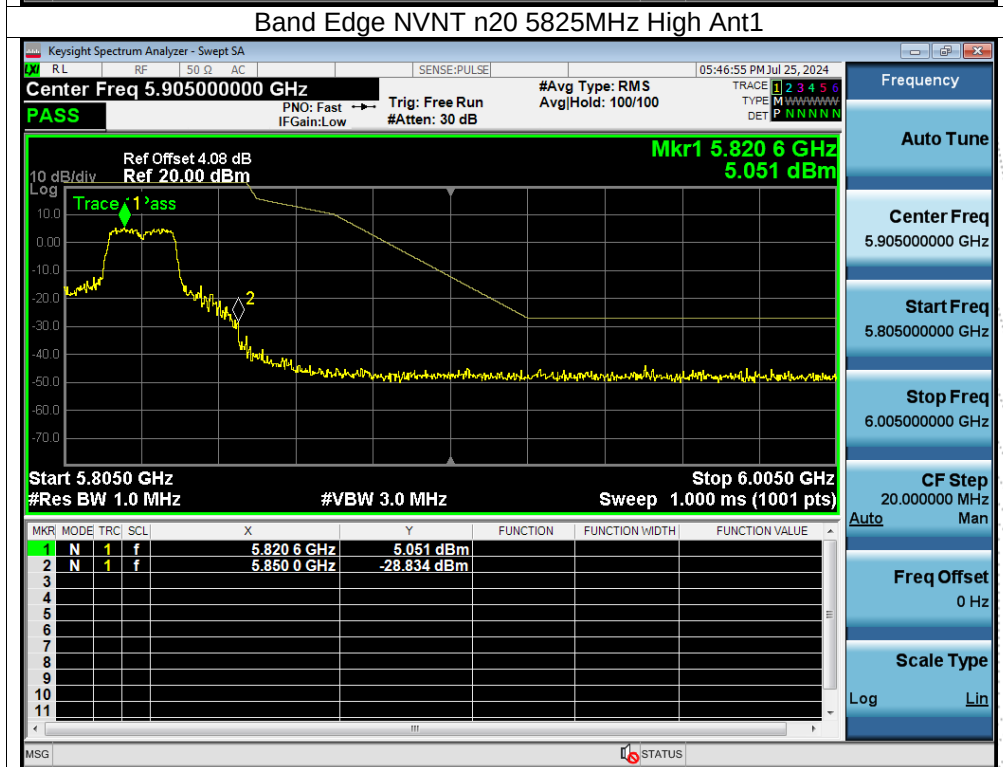
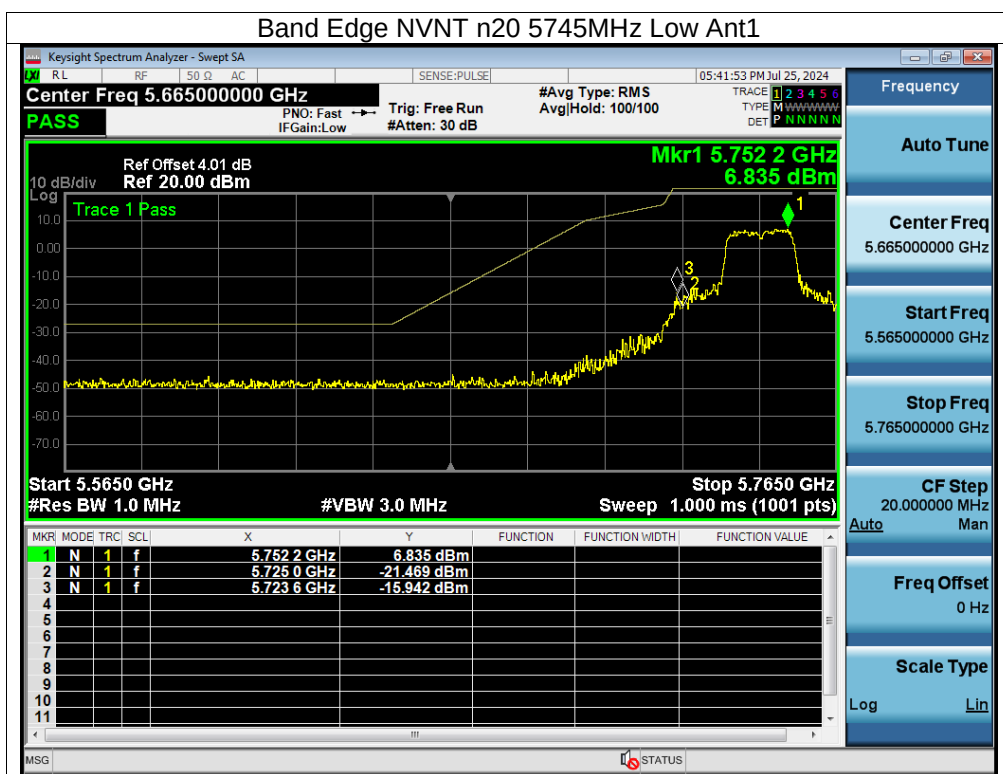
Test Graphs

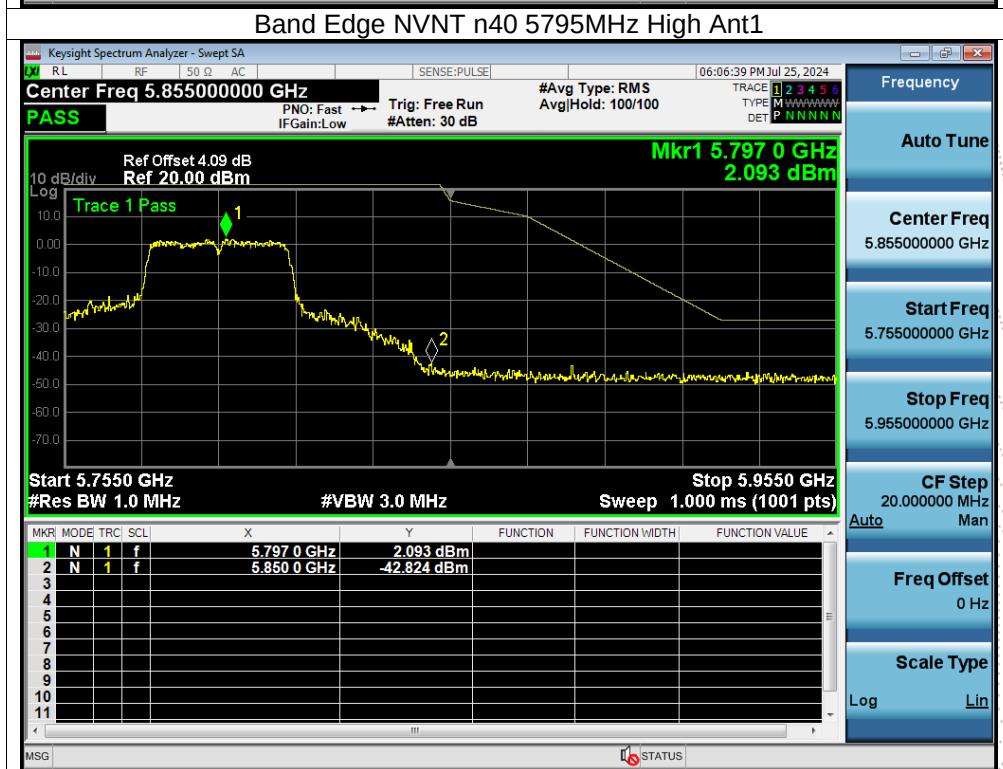
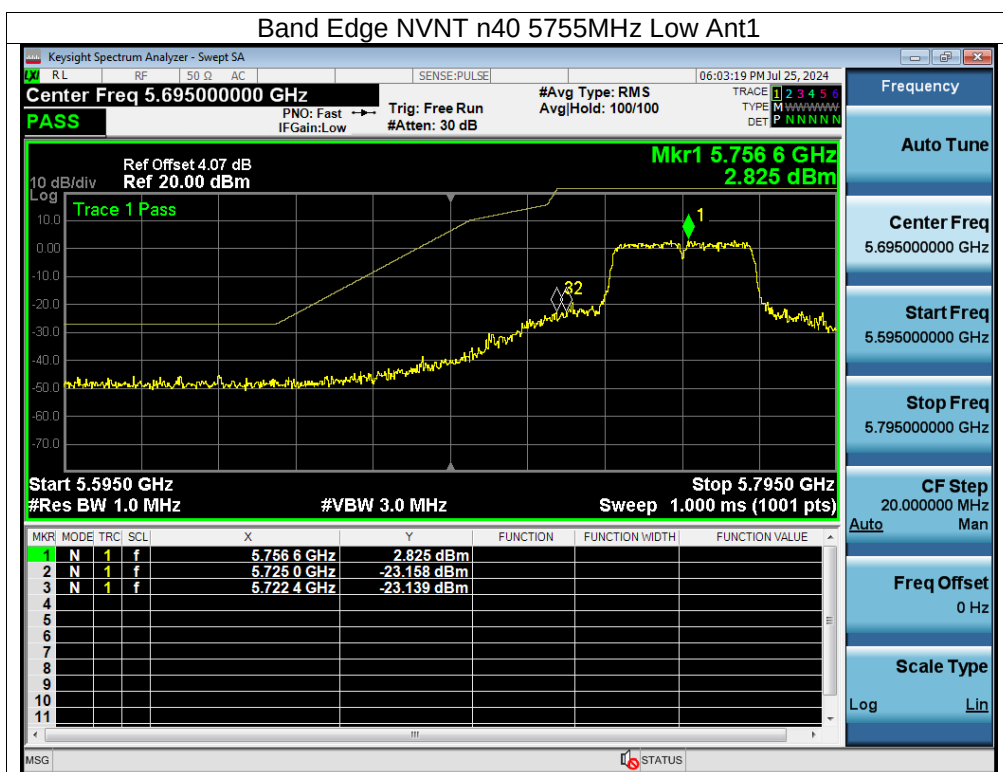
Band Edge NVNT a 5745MHz Low Ant1

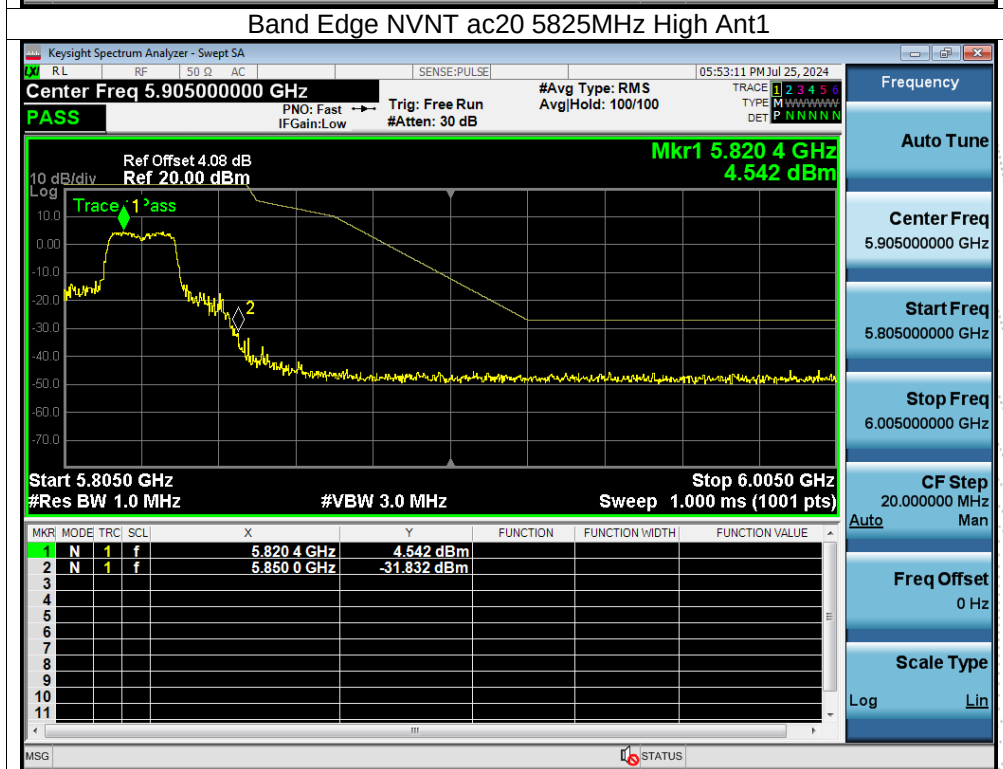
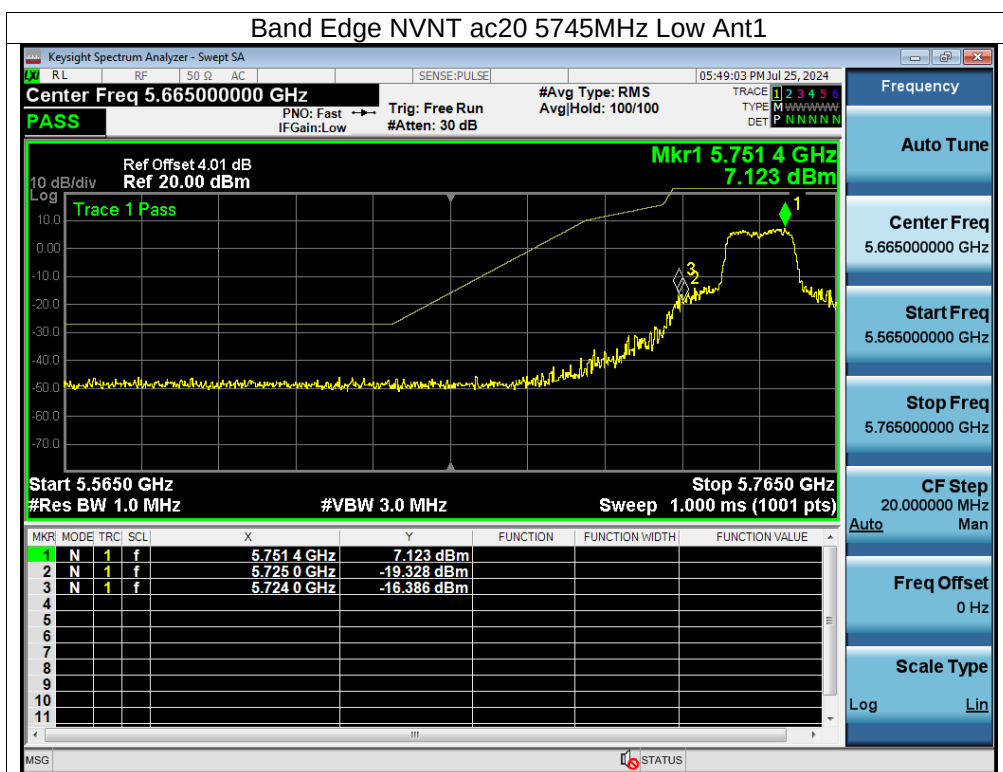


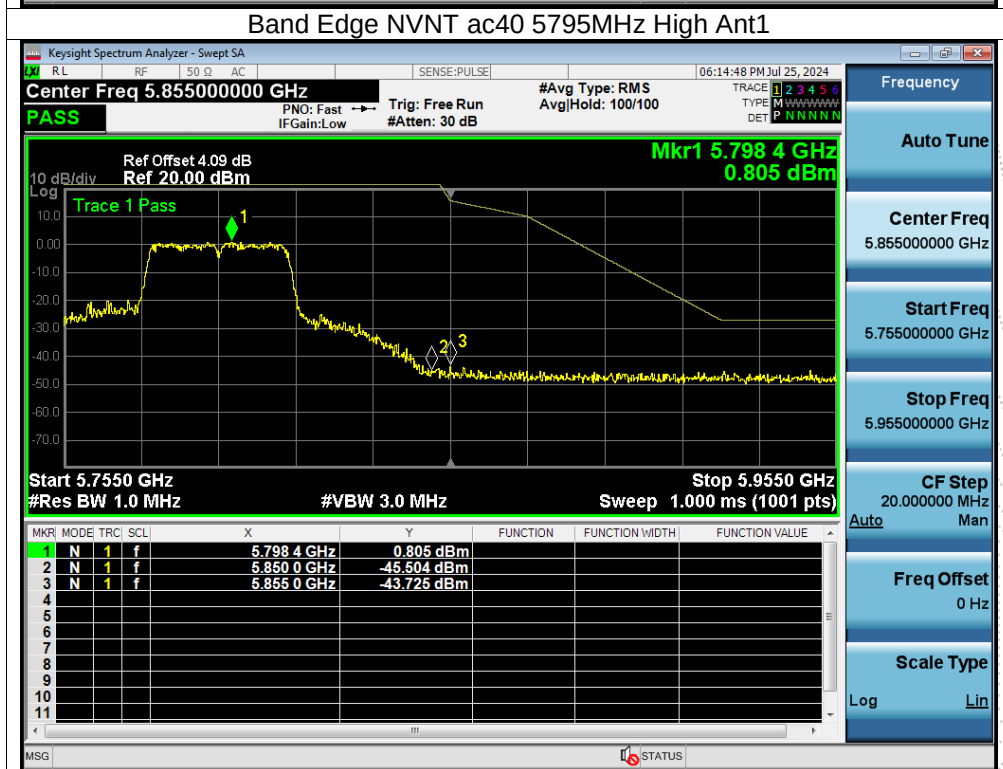
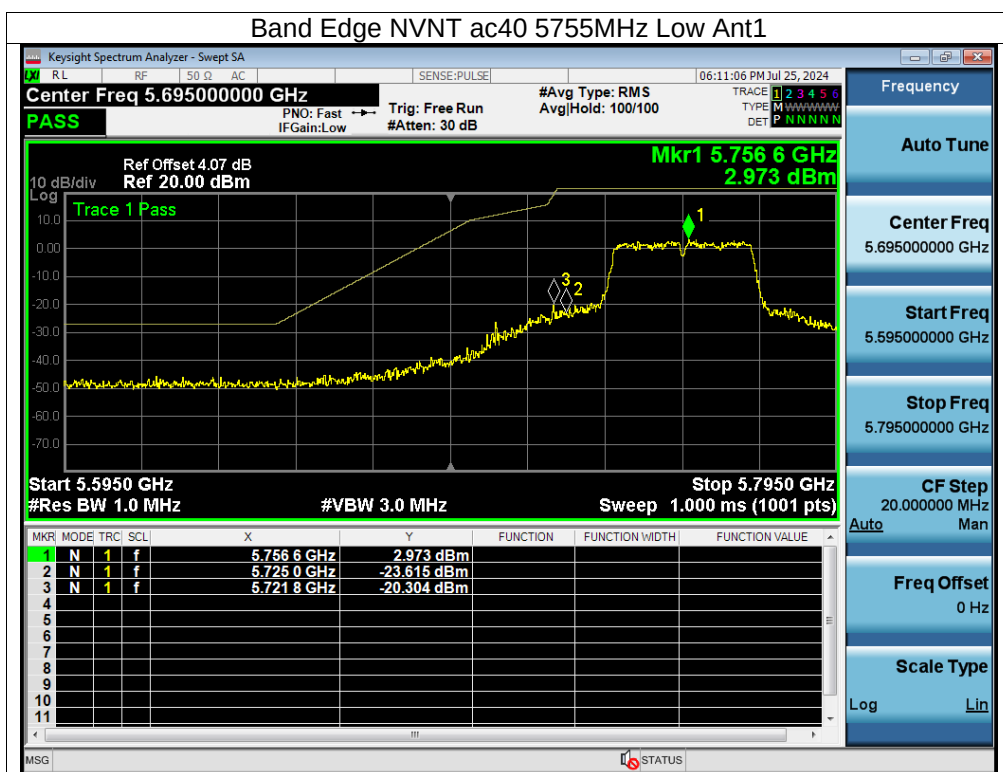
Band Edge NVNT a 5825MHz High Ant1

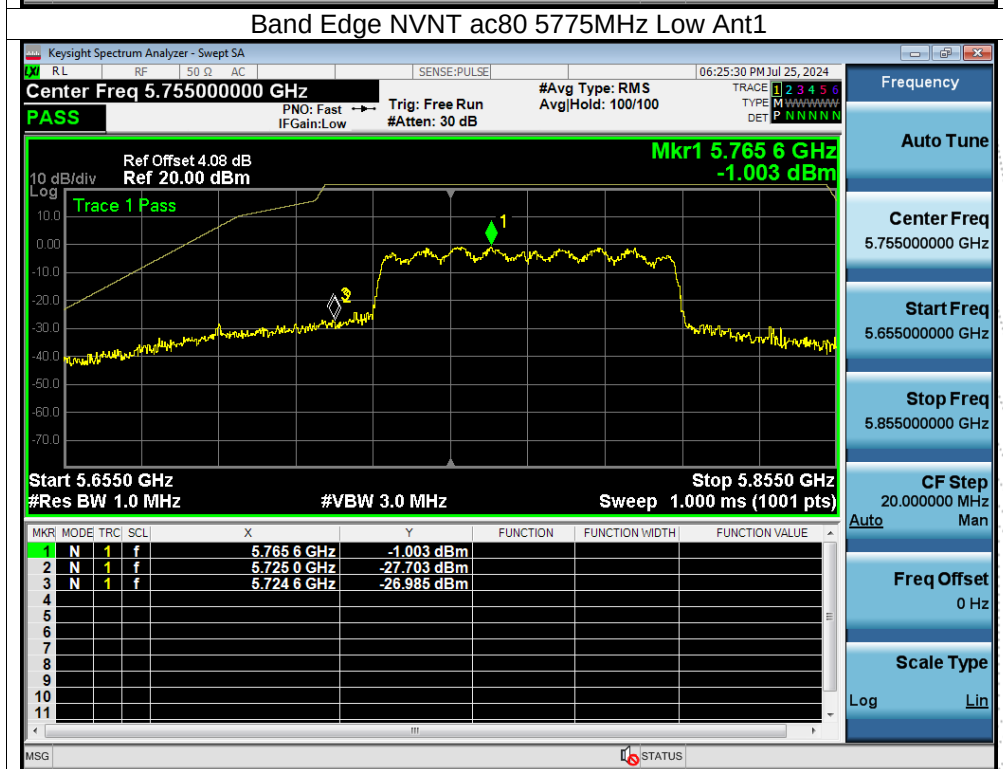
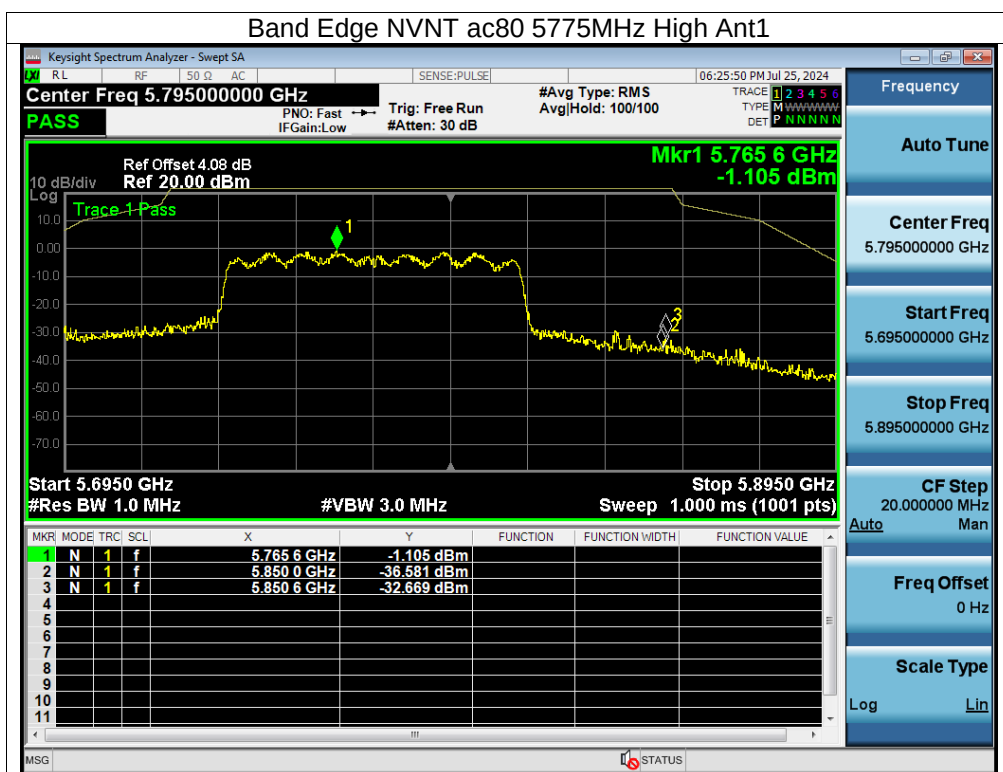


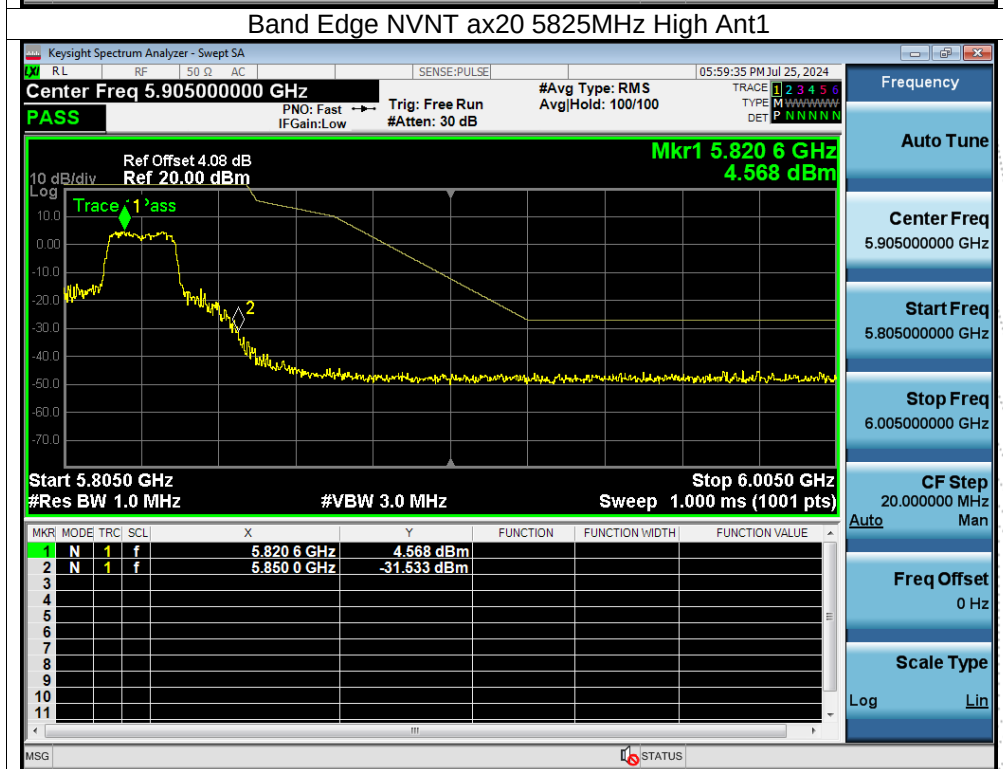
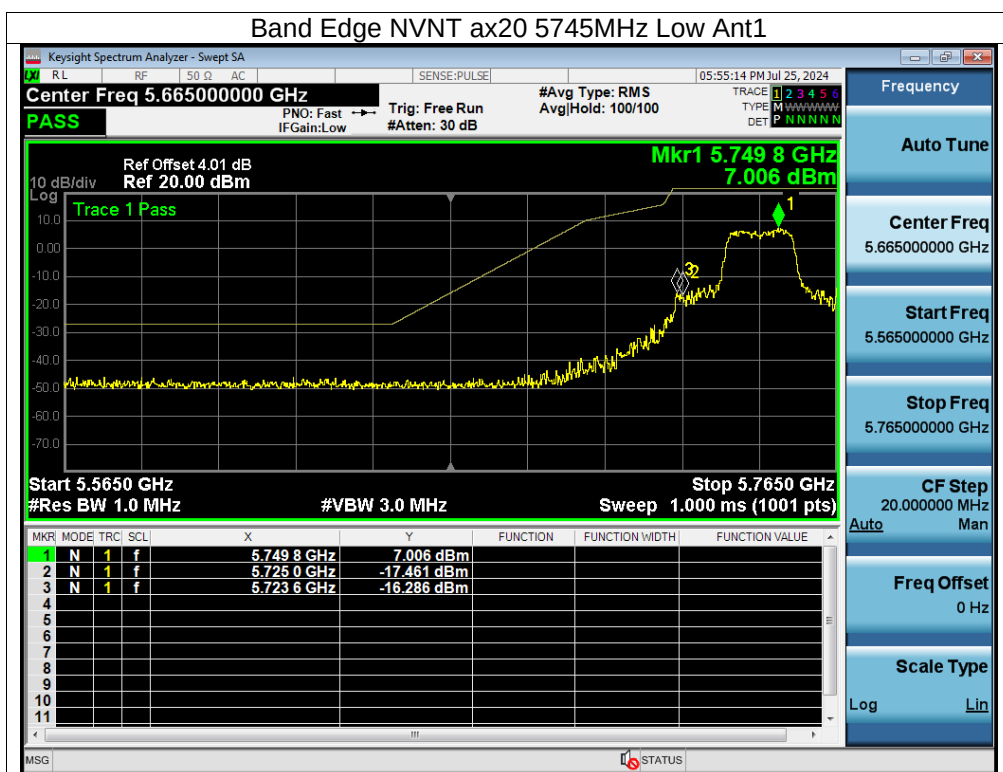


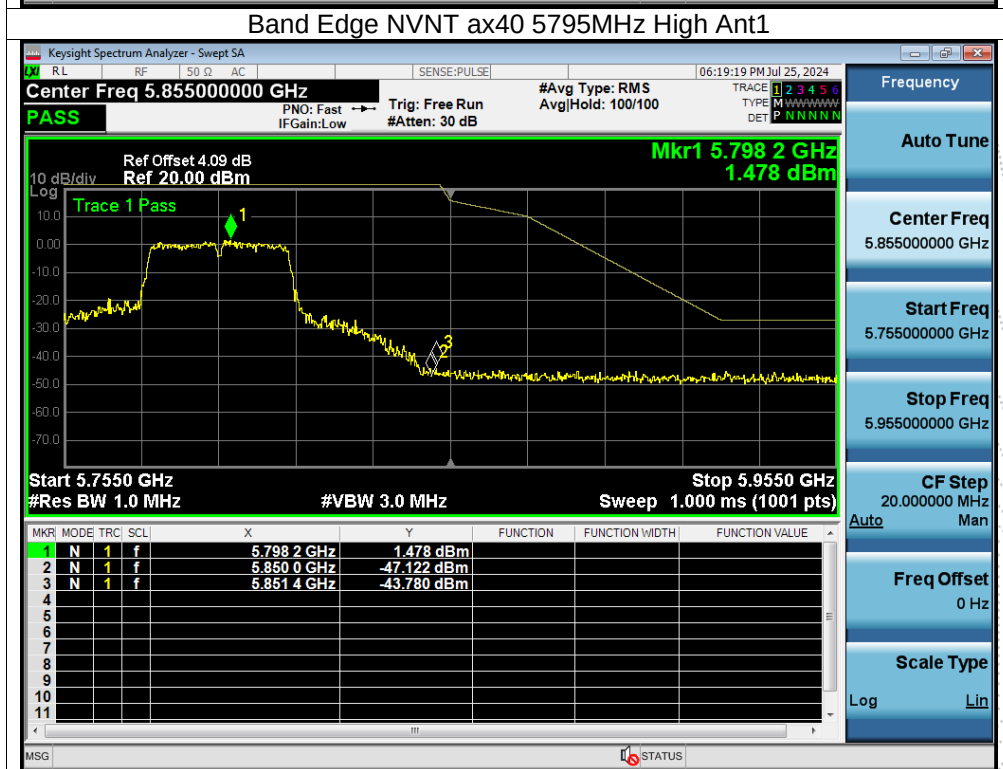
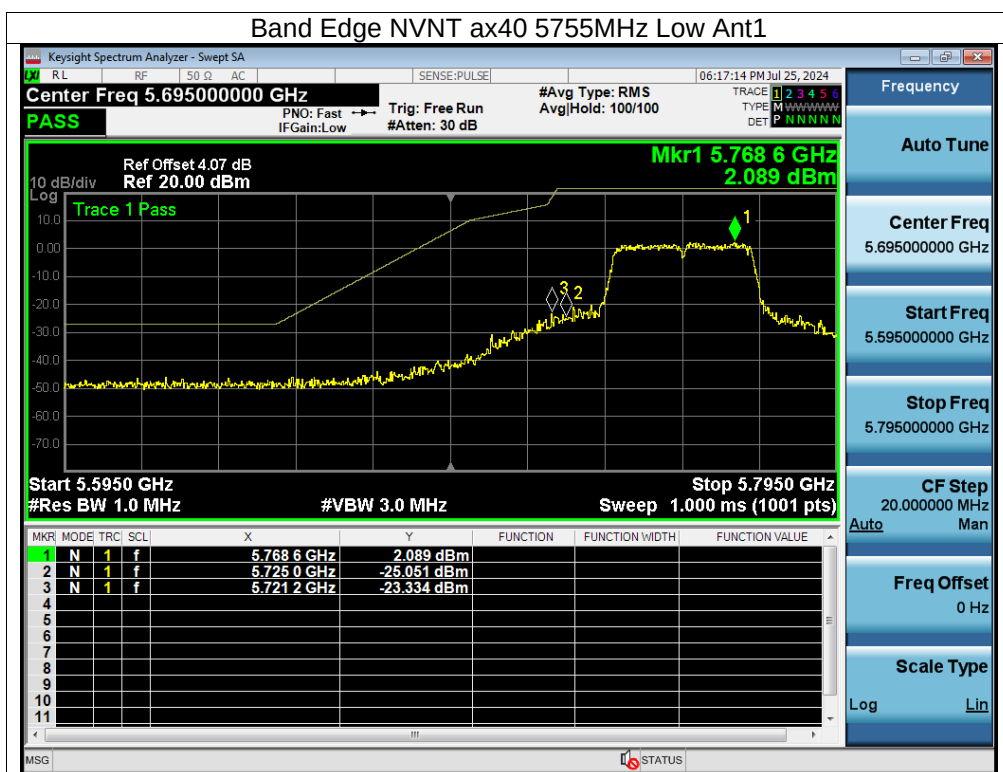


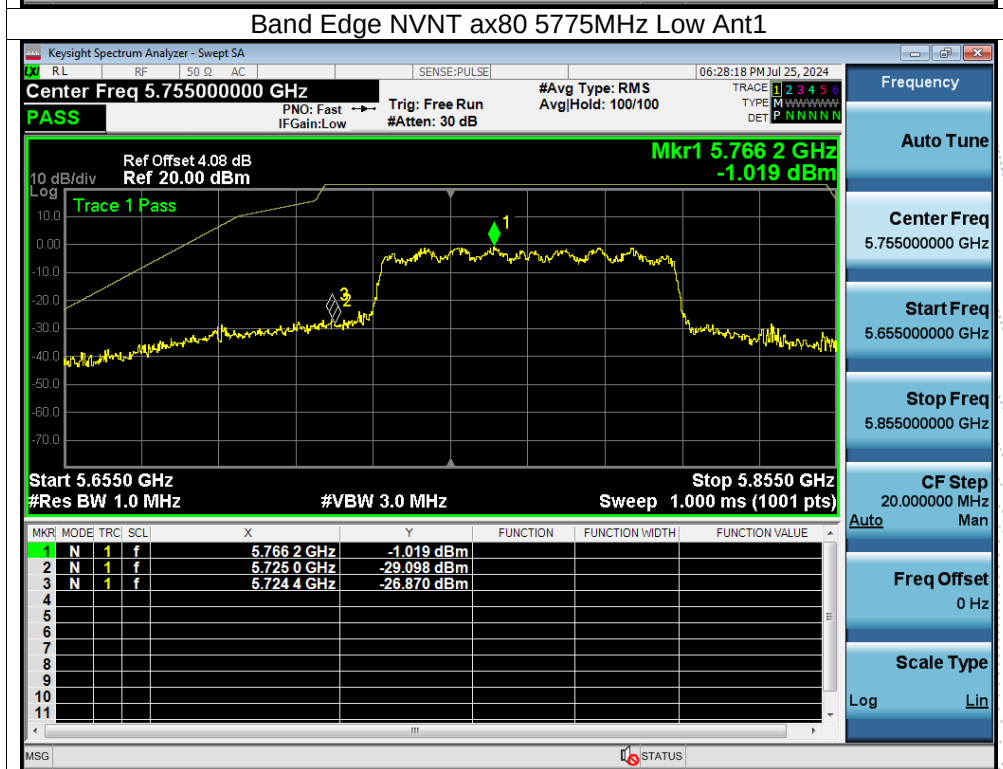
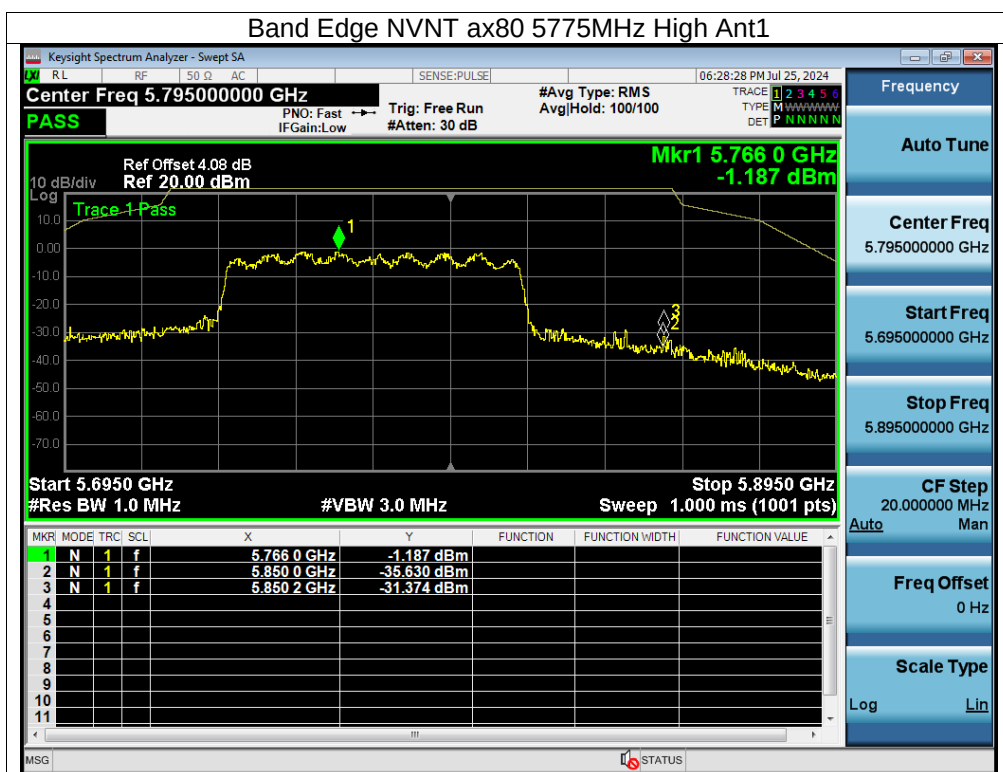












12. Spurious RF Conducted Emissions

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

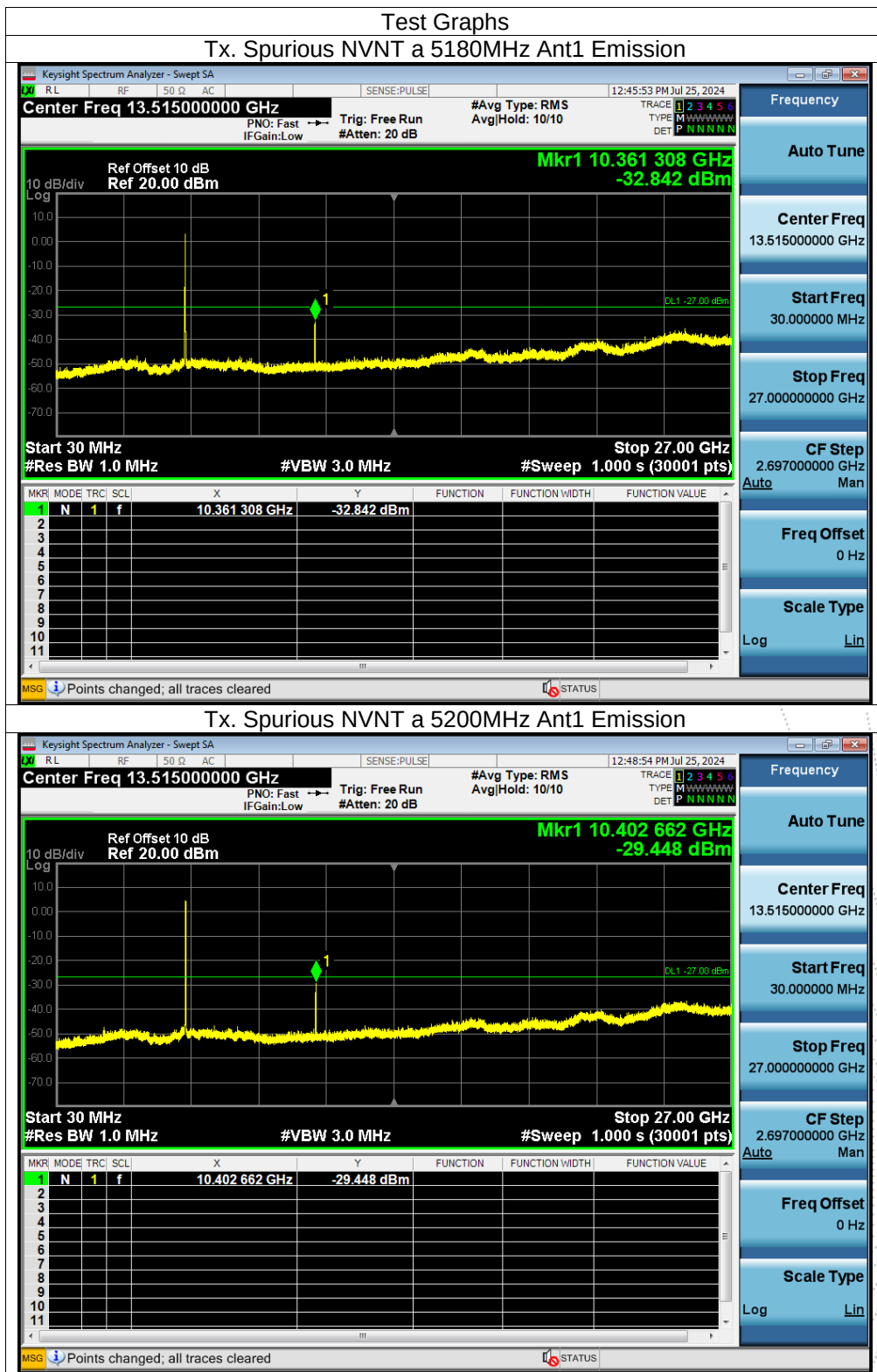
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then 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.

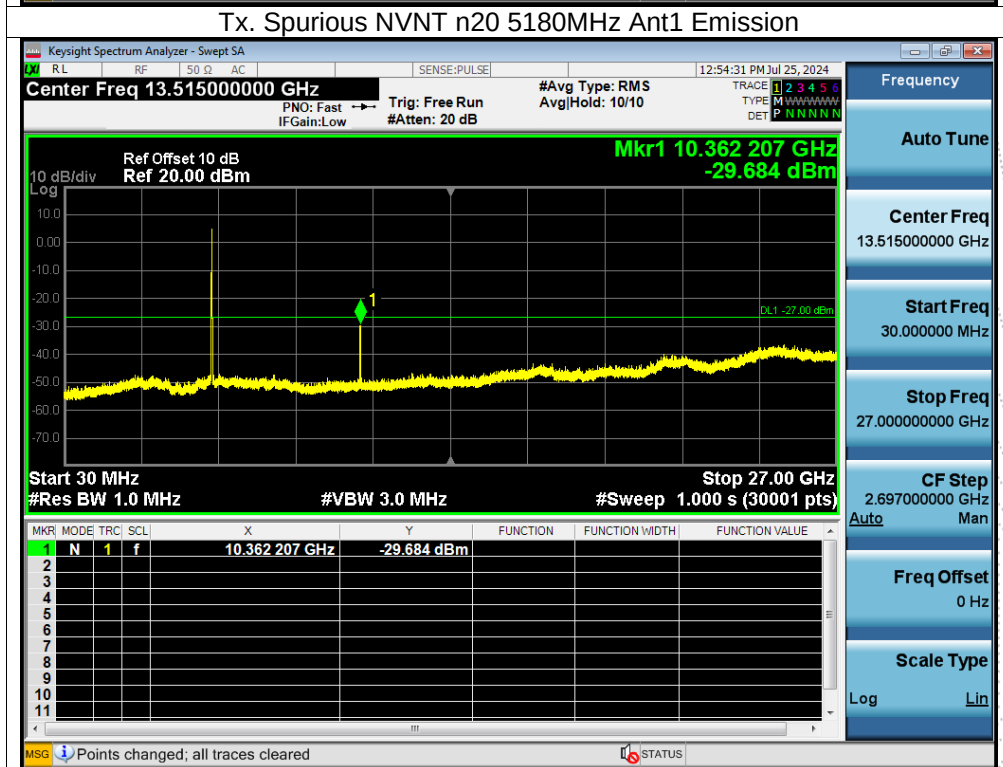
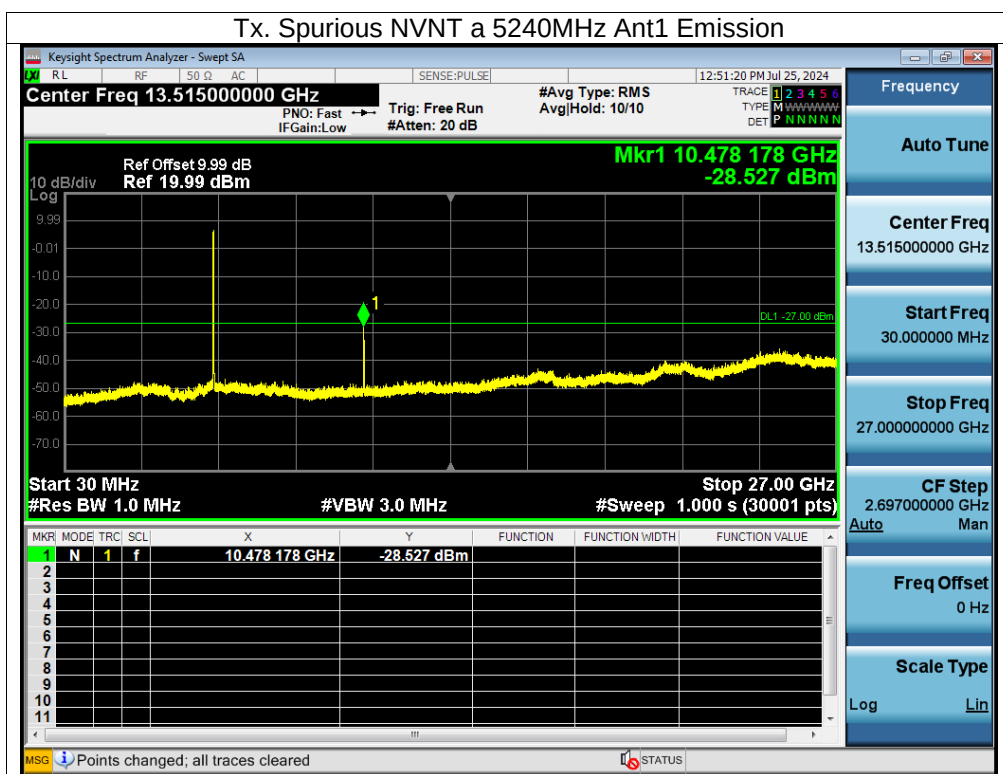
12.4 Test Result

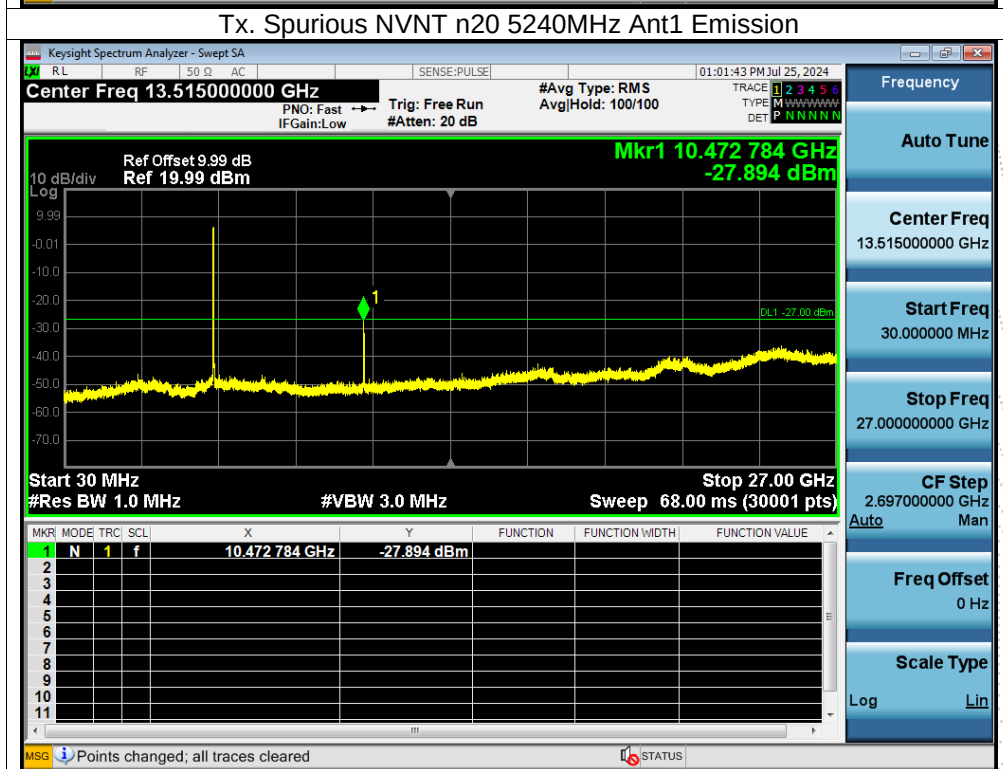
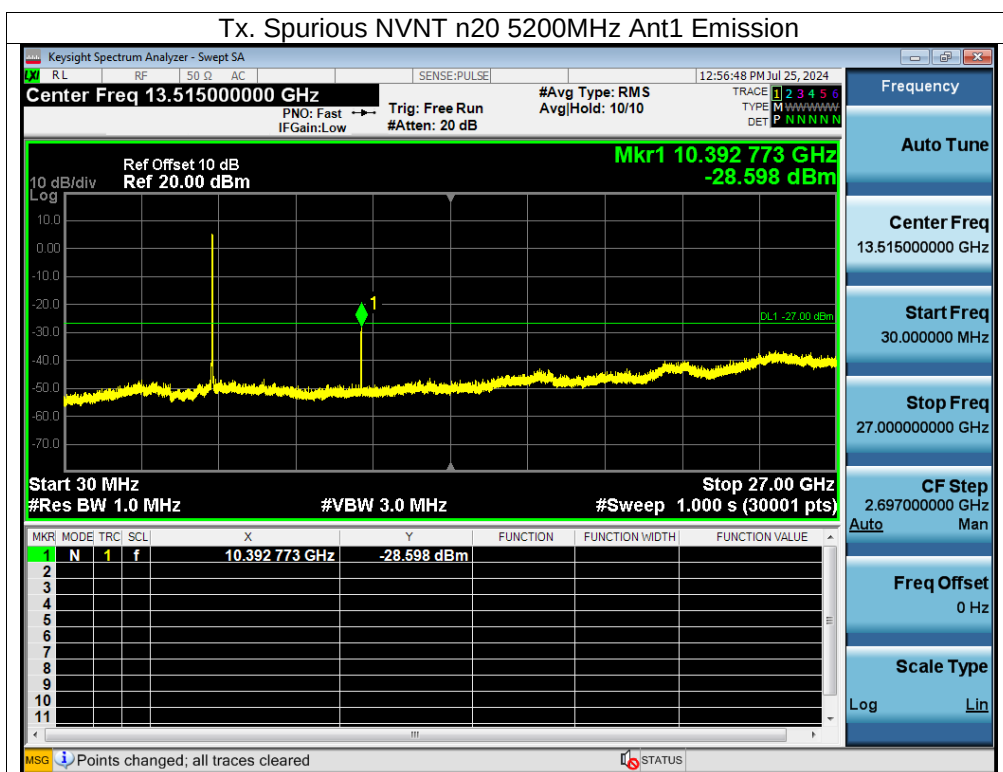
Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandedge measurement data.

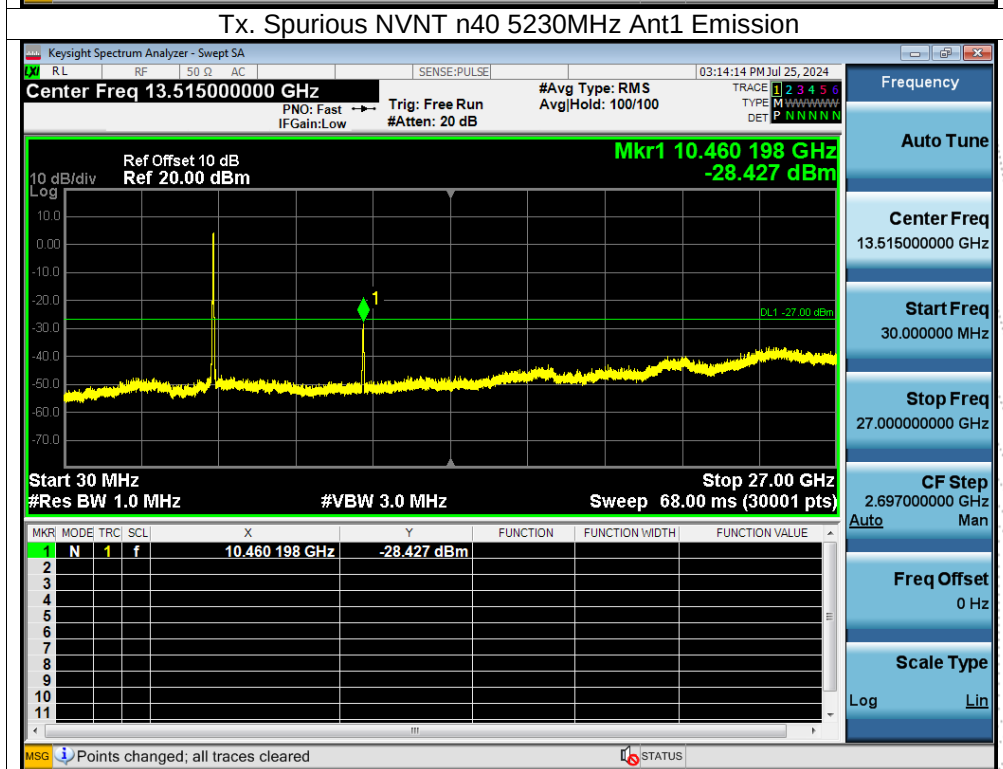
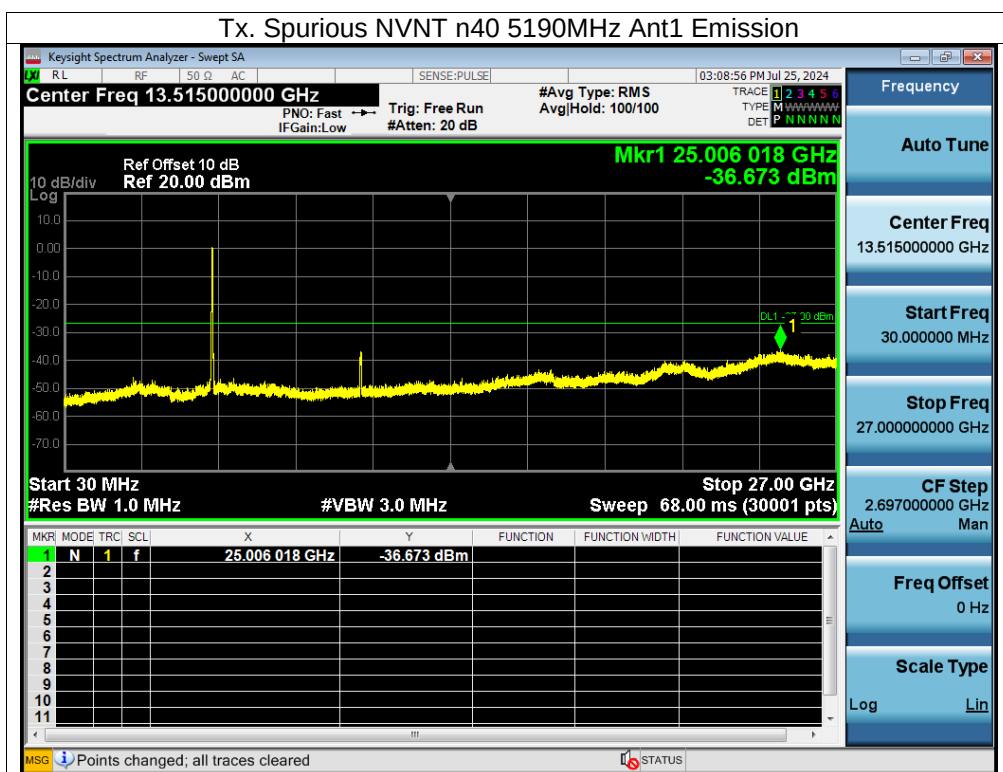
About: 26.5GHz-40GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

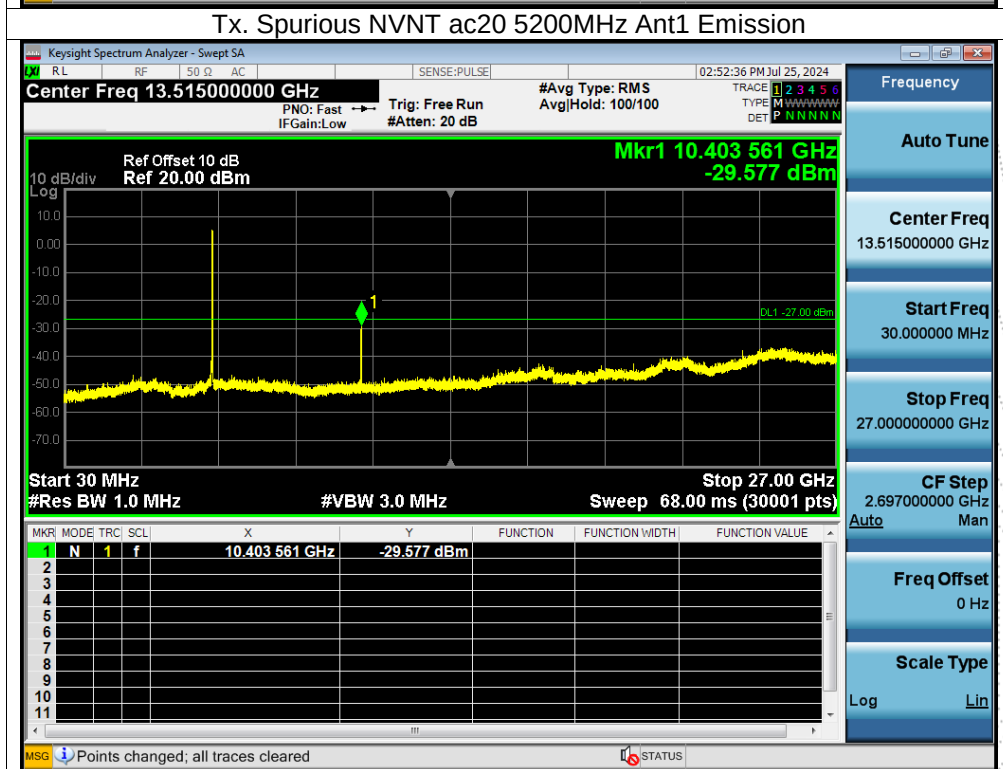
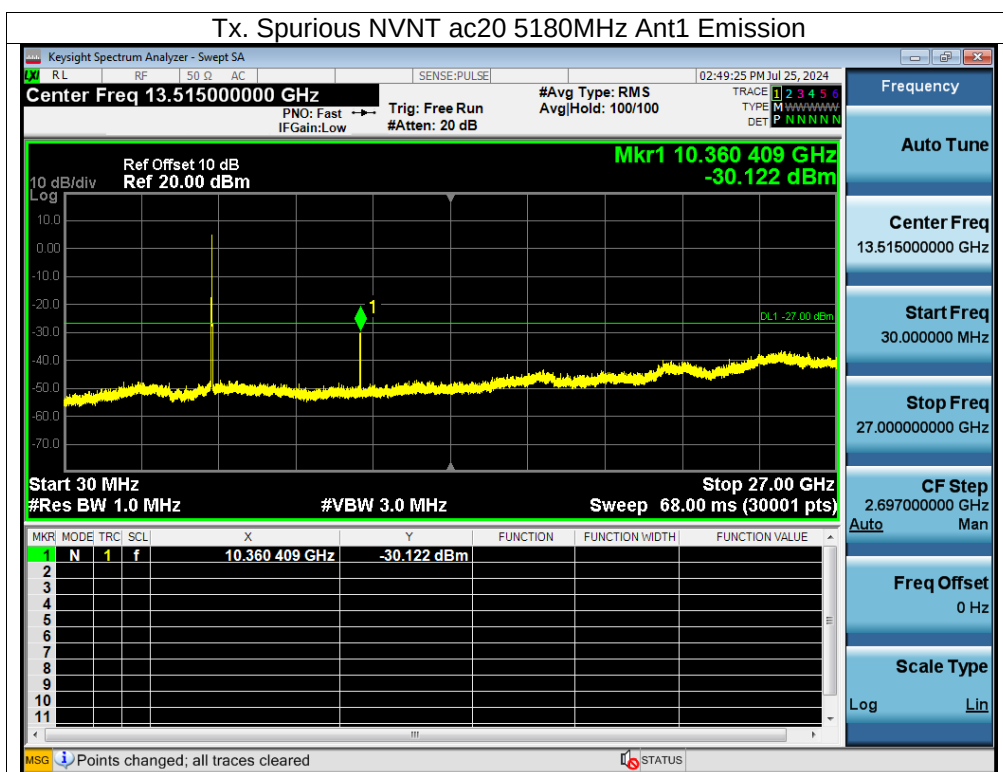
5180-5240MHz

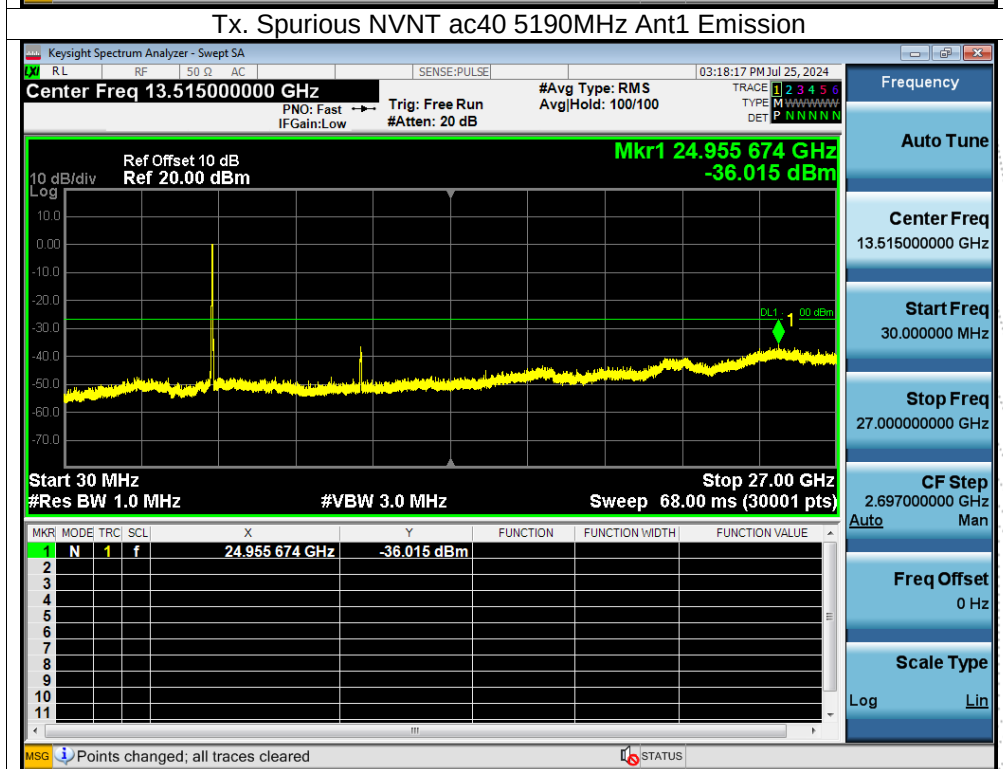
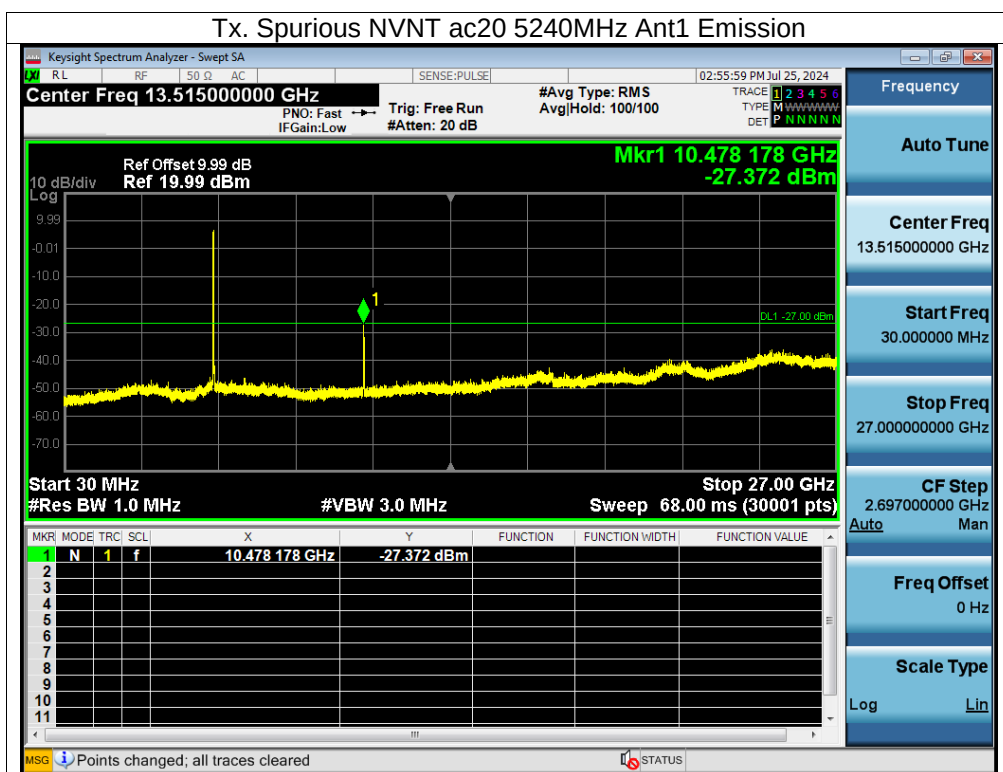


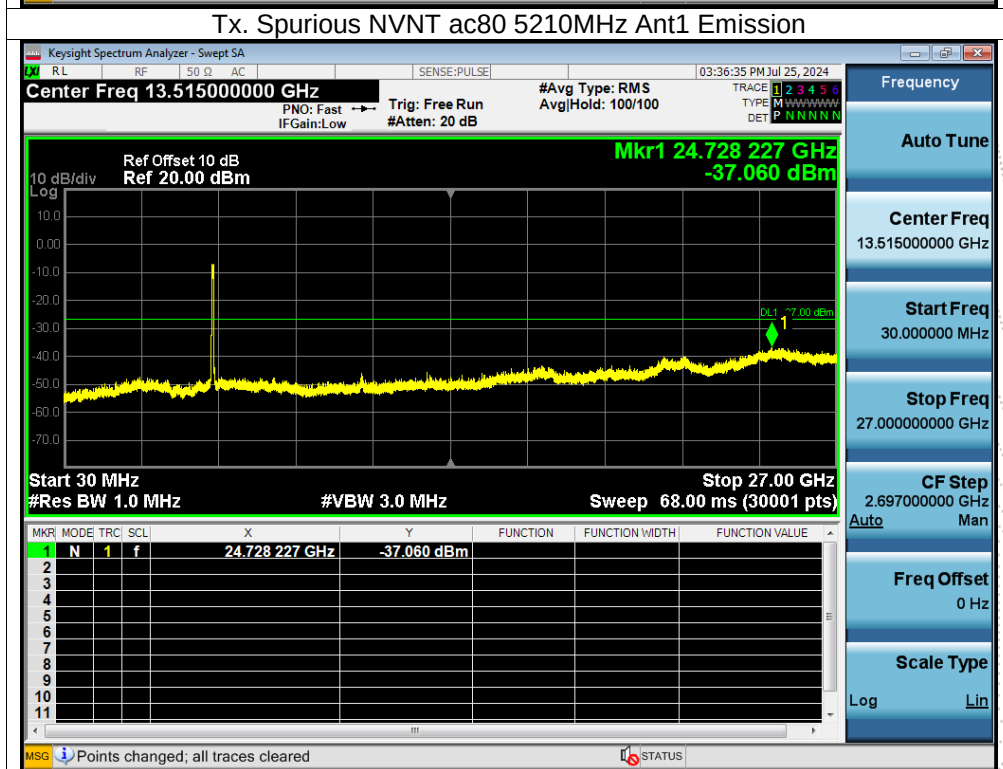
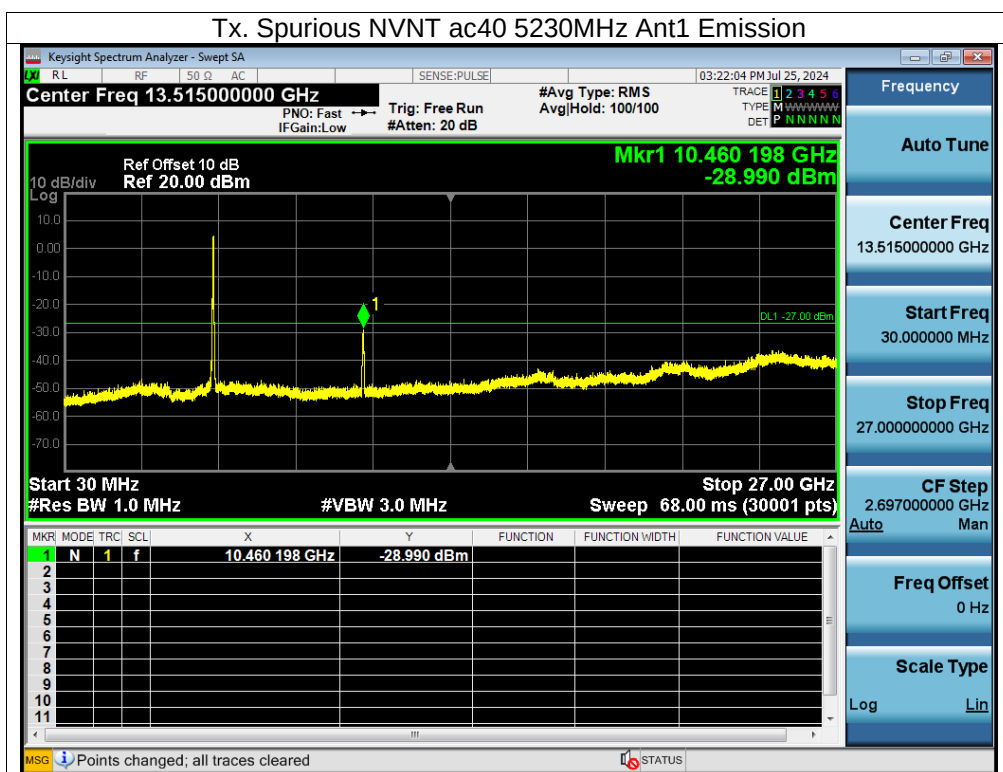


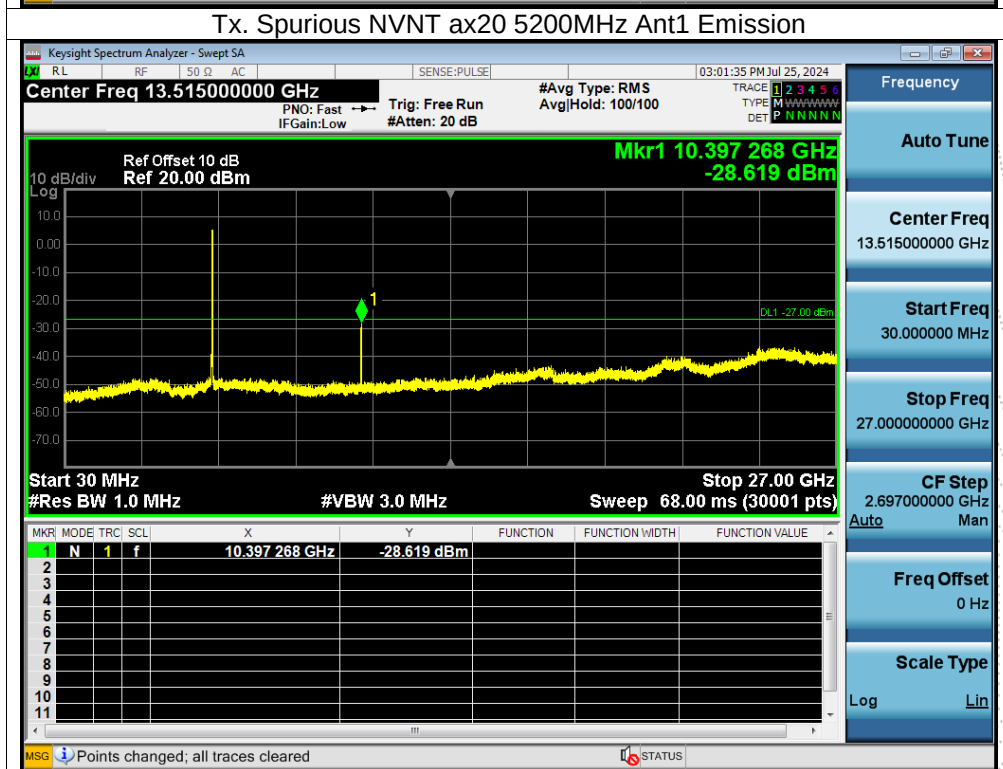
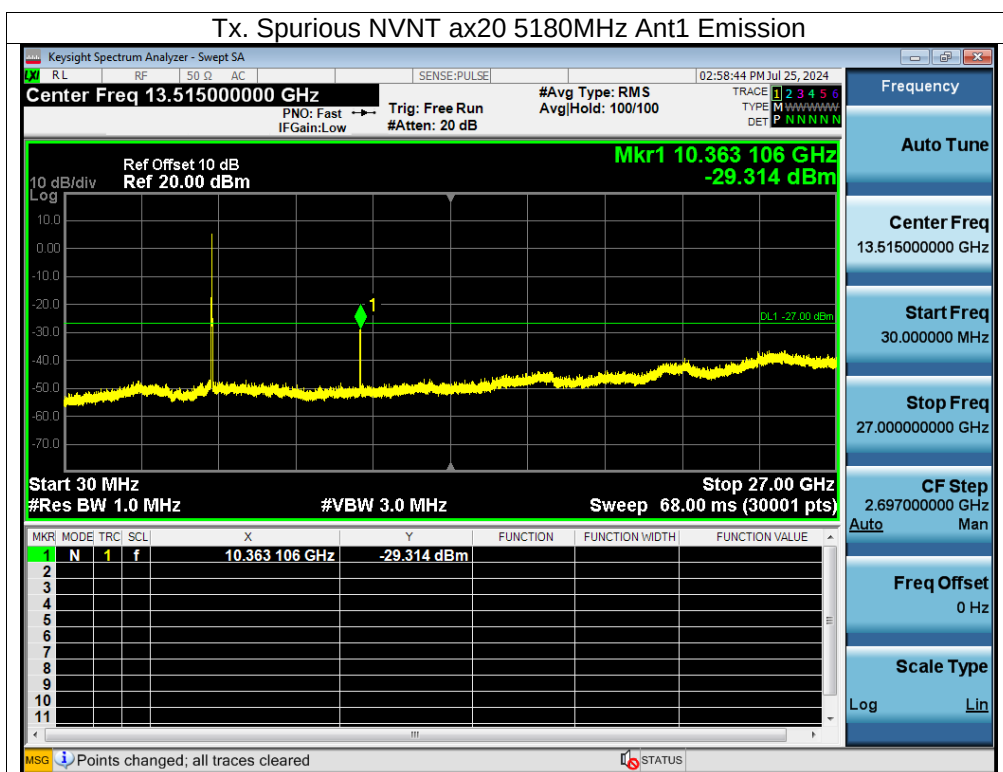


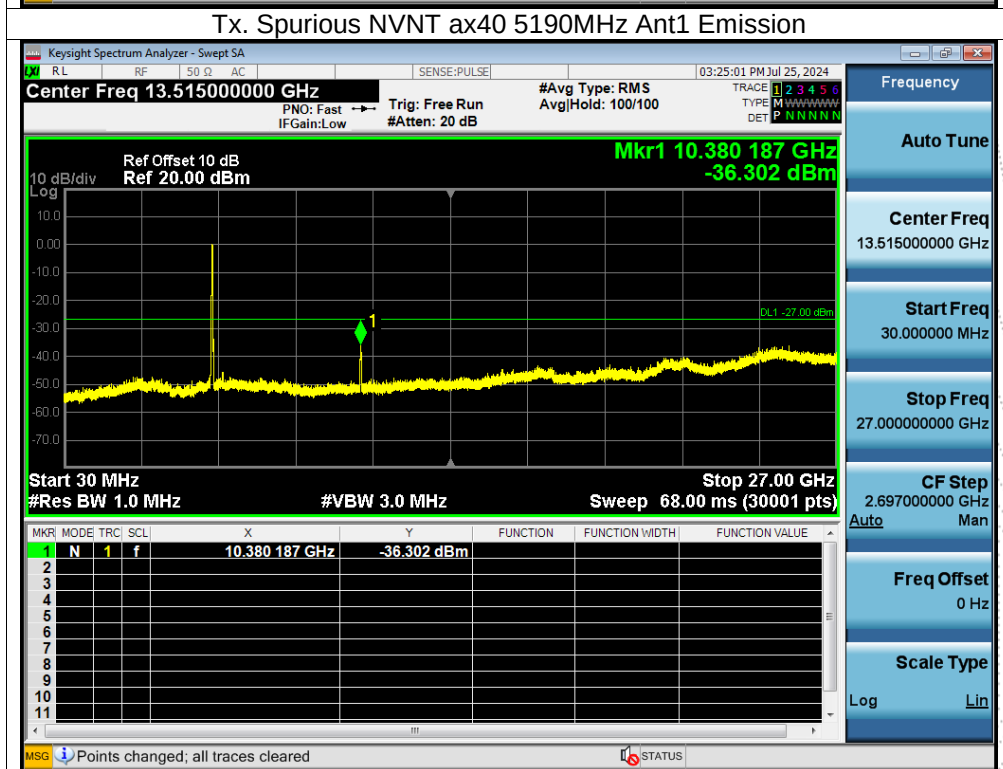
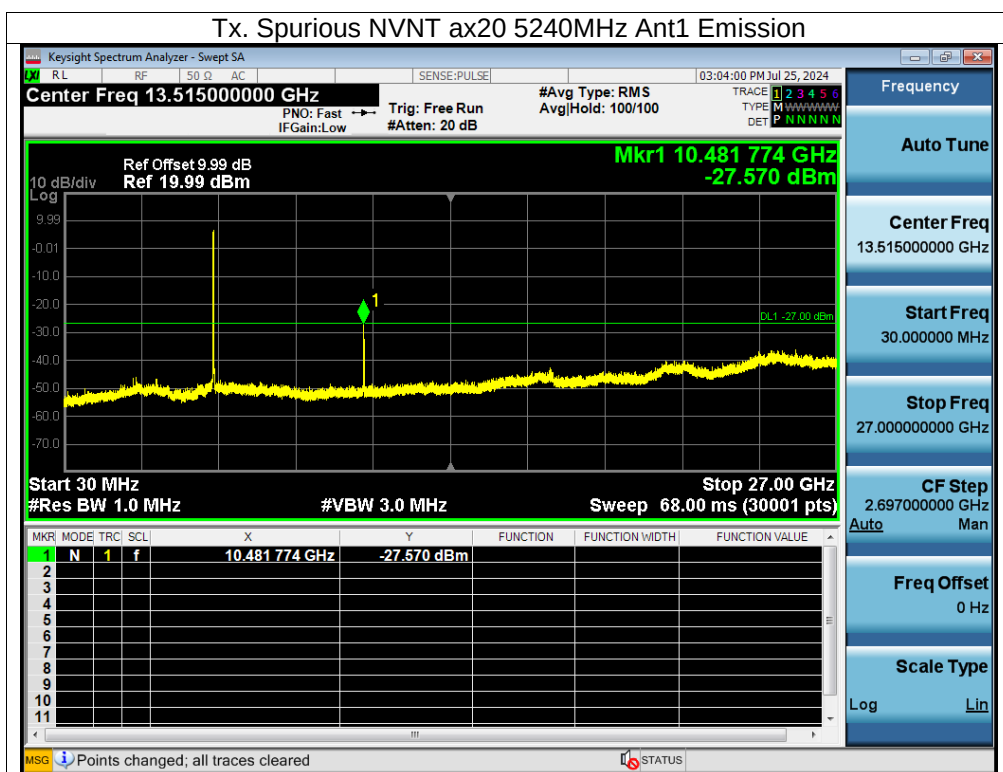


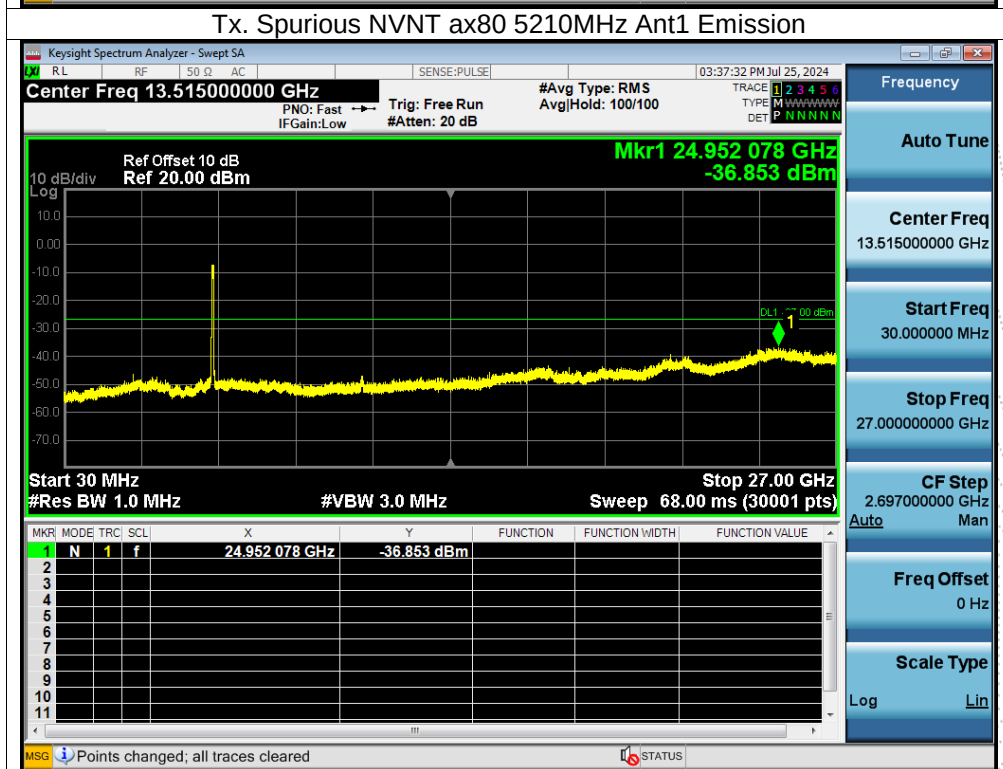
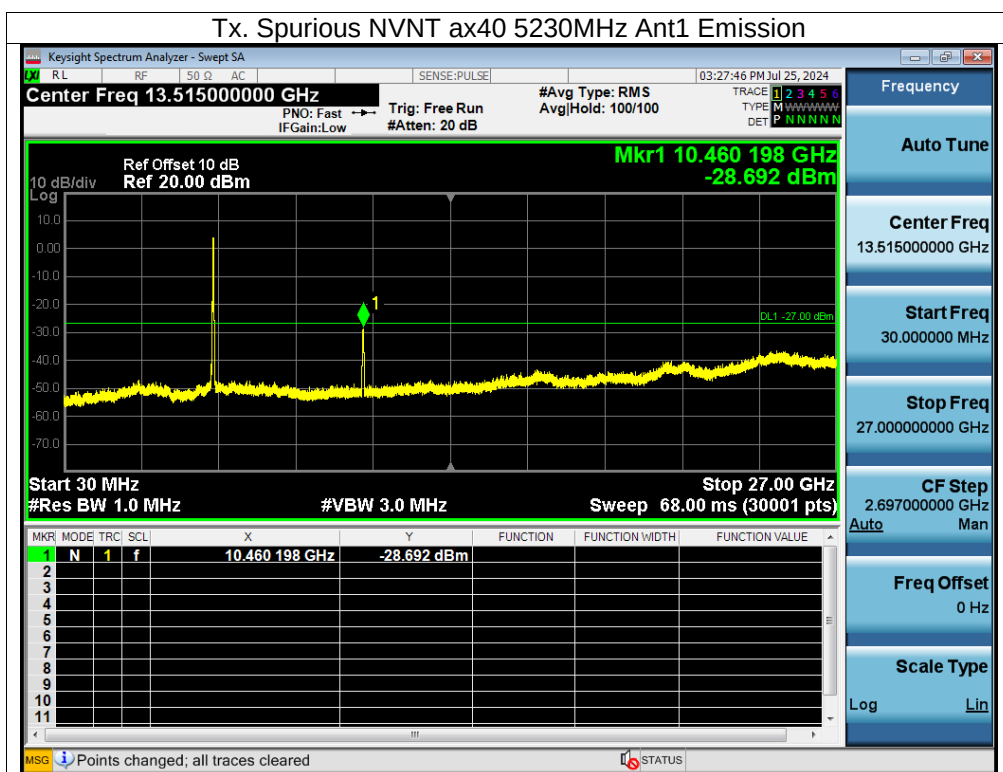




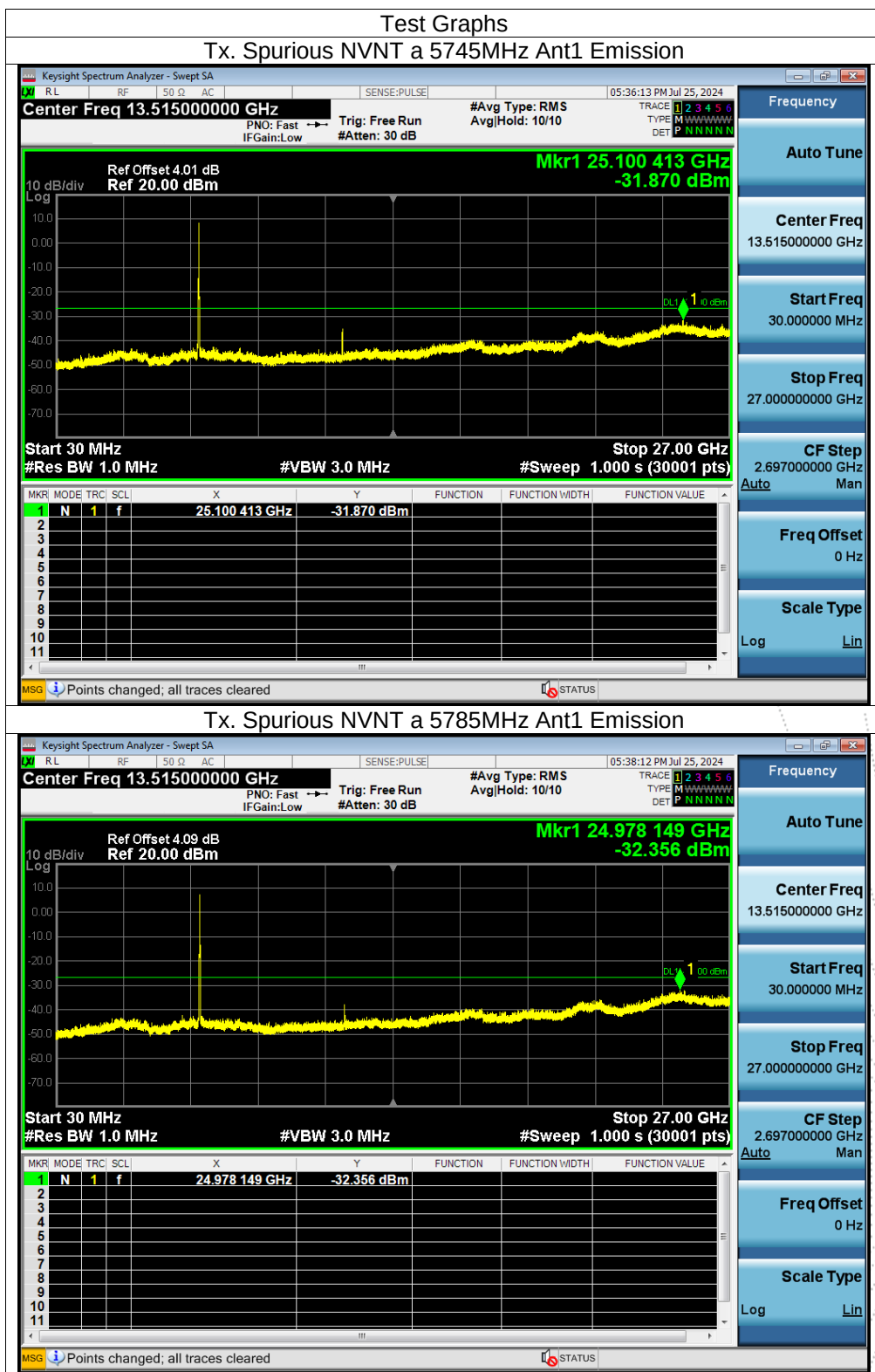


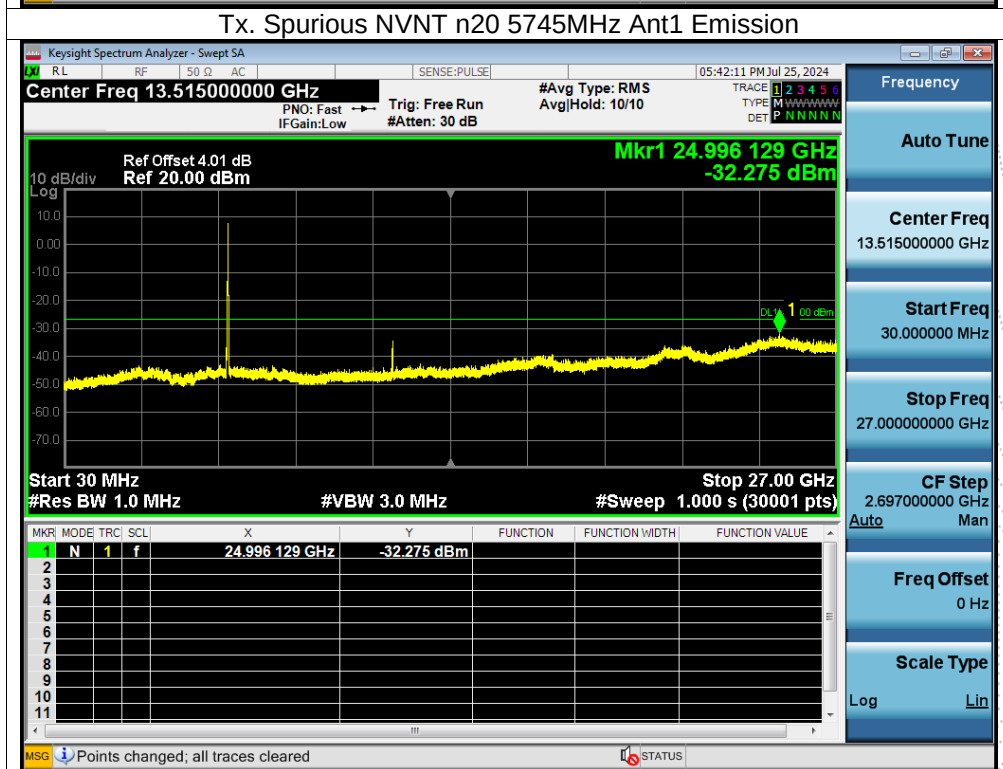
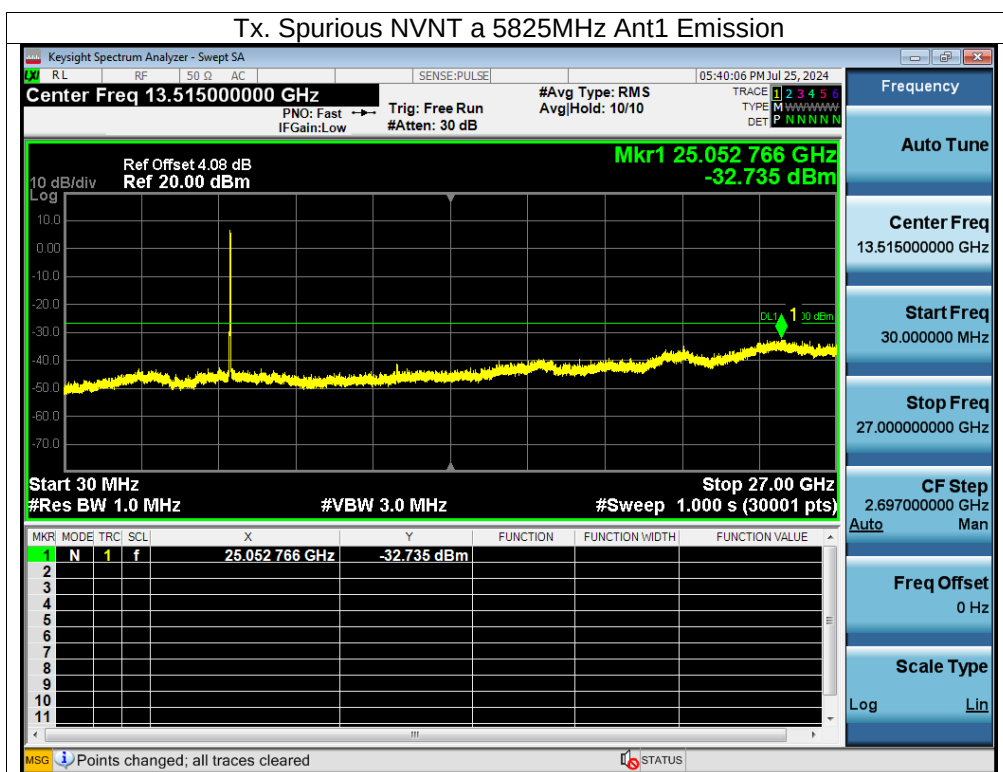


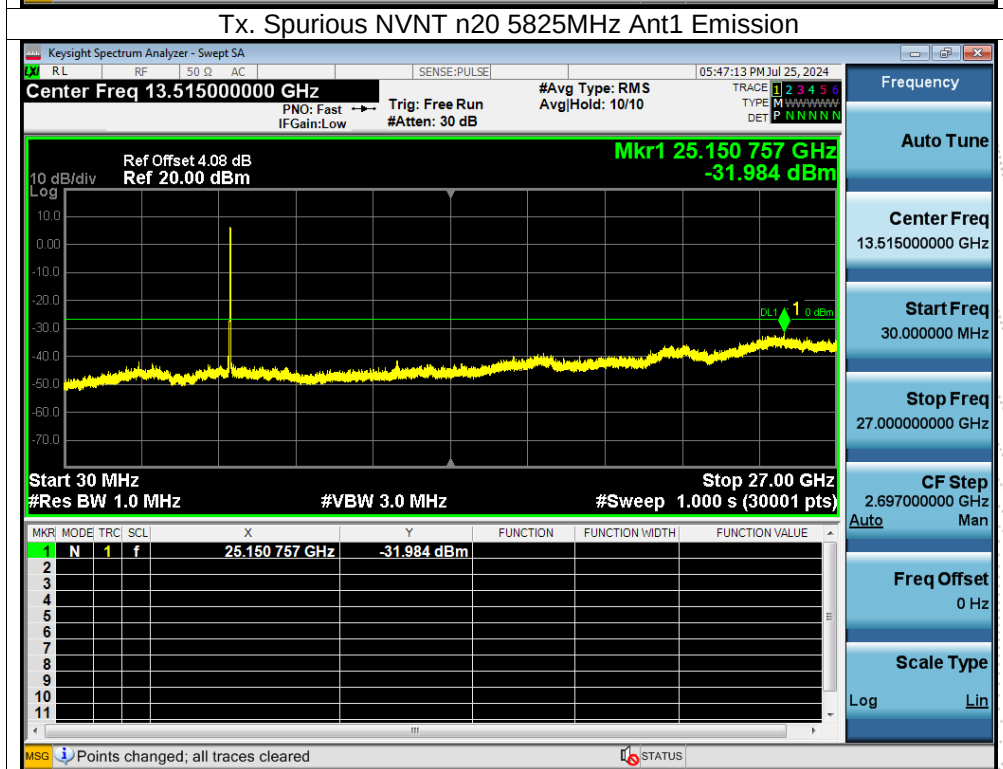
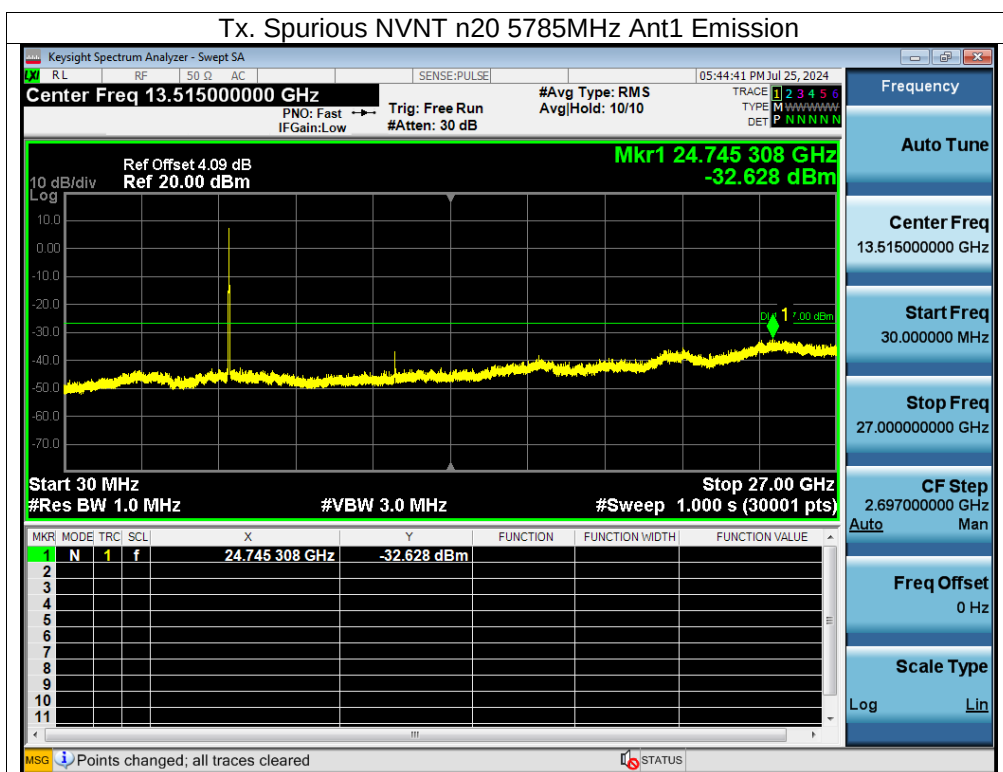


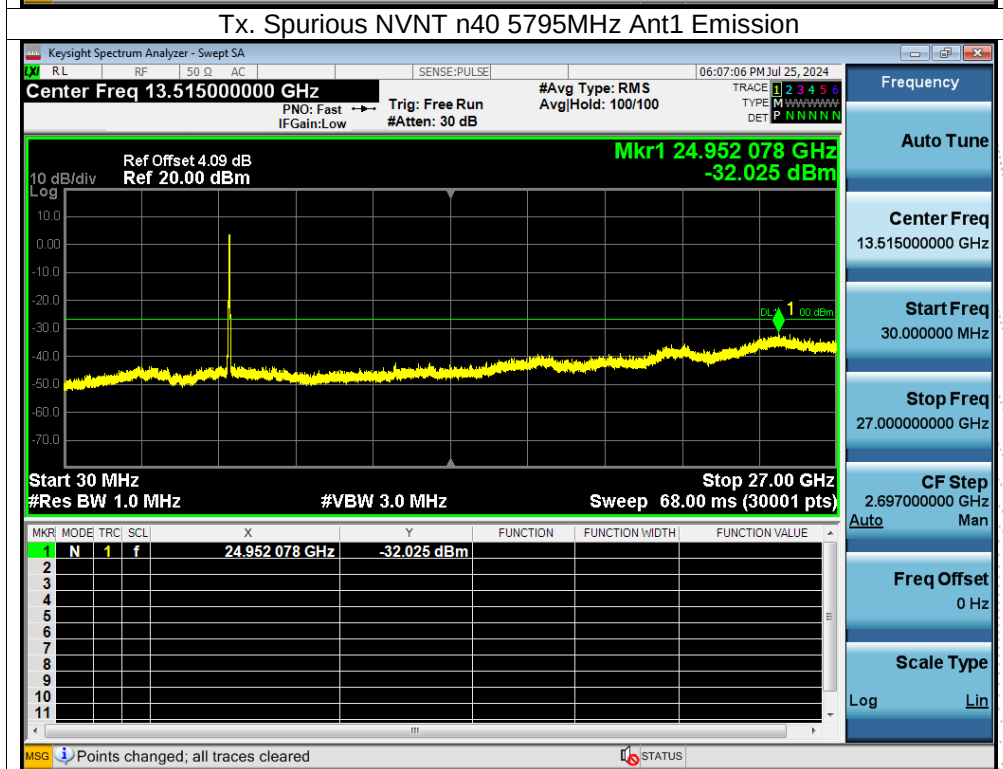
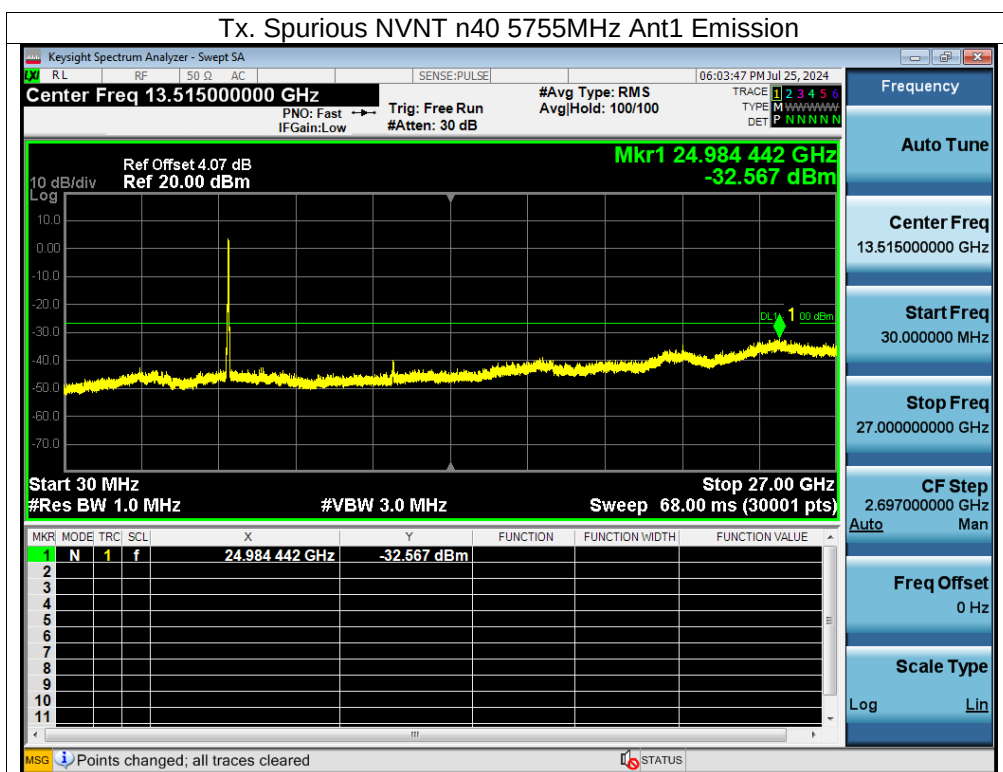


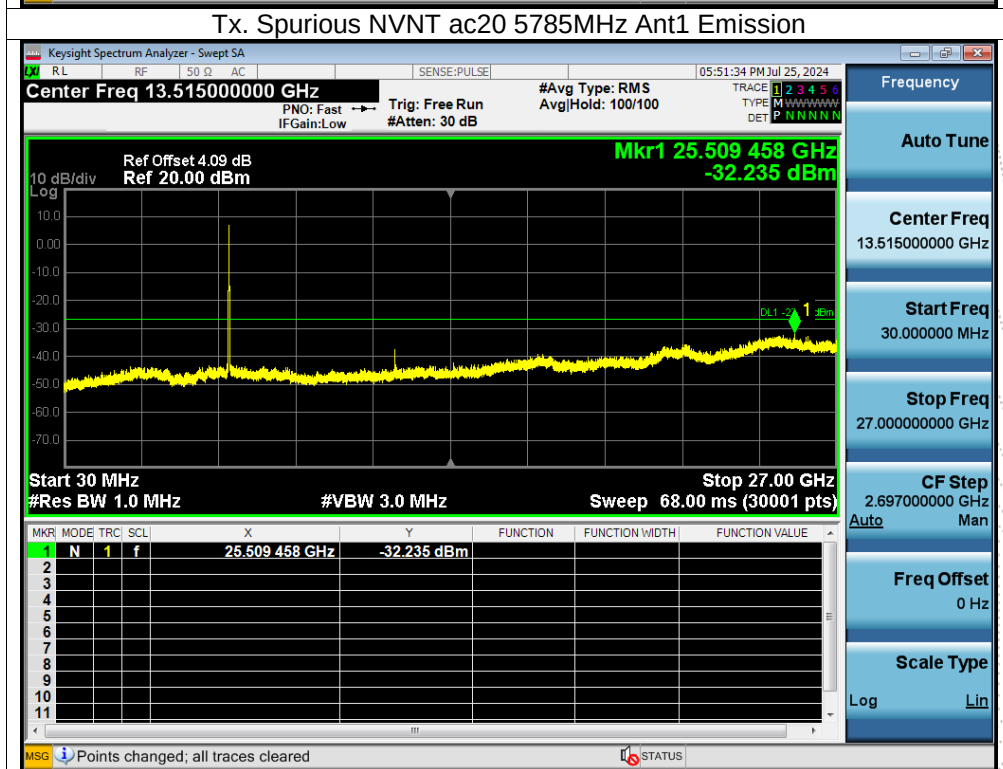
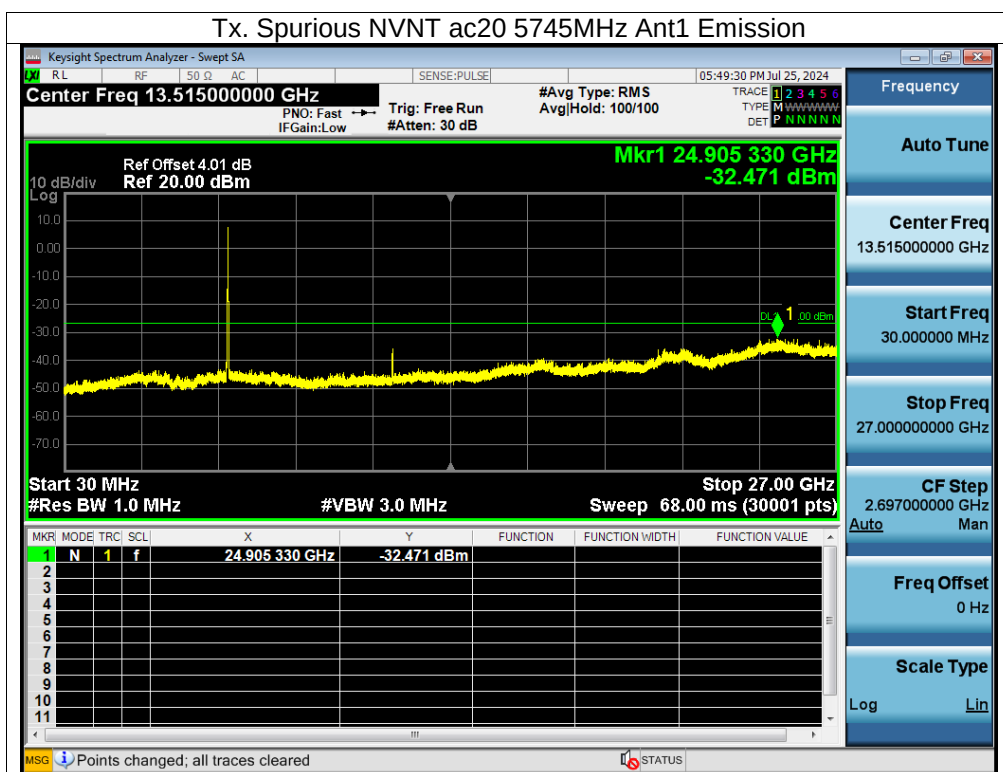
5745-58250MHz

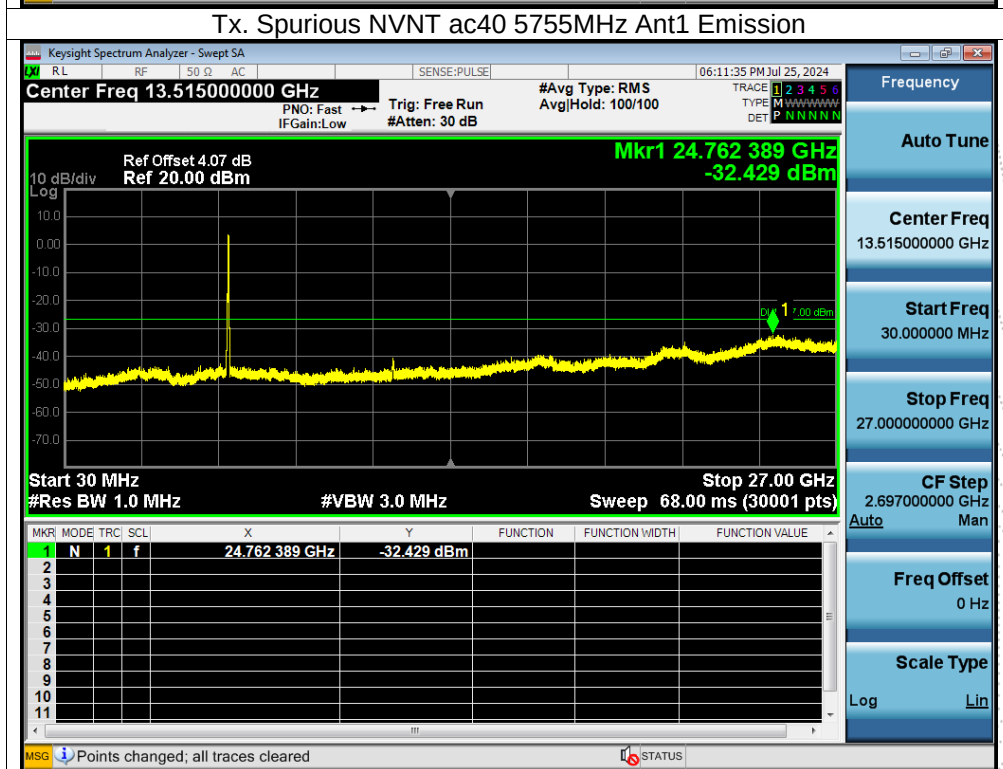
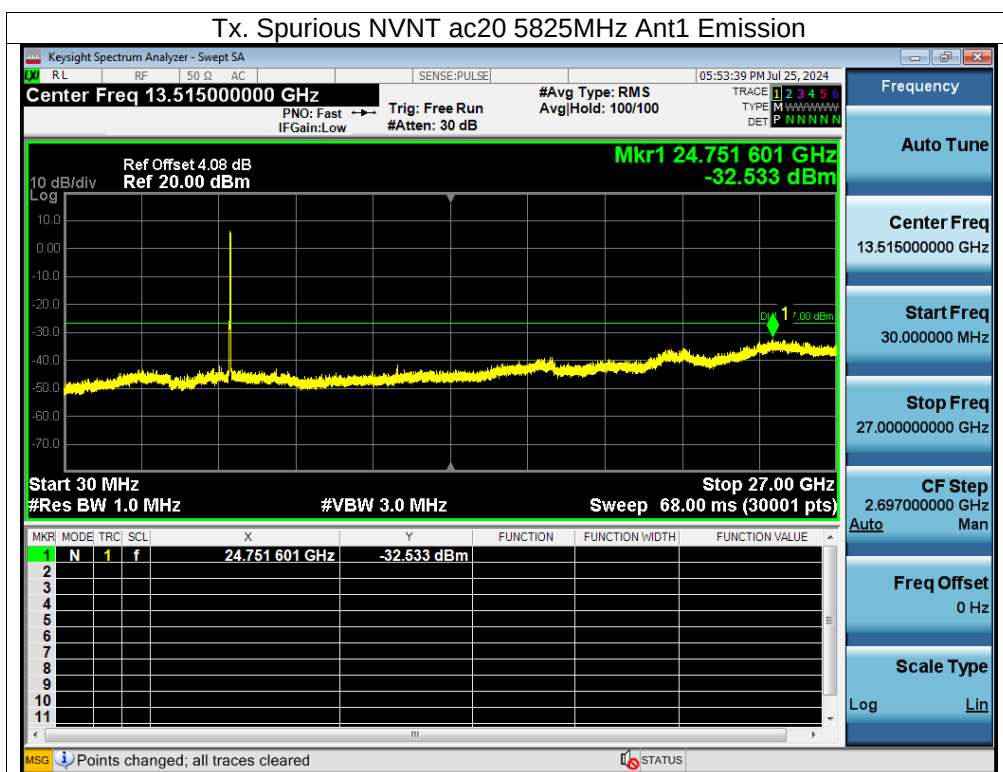


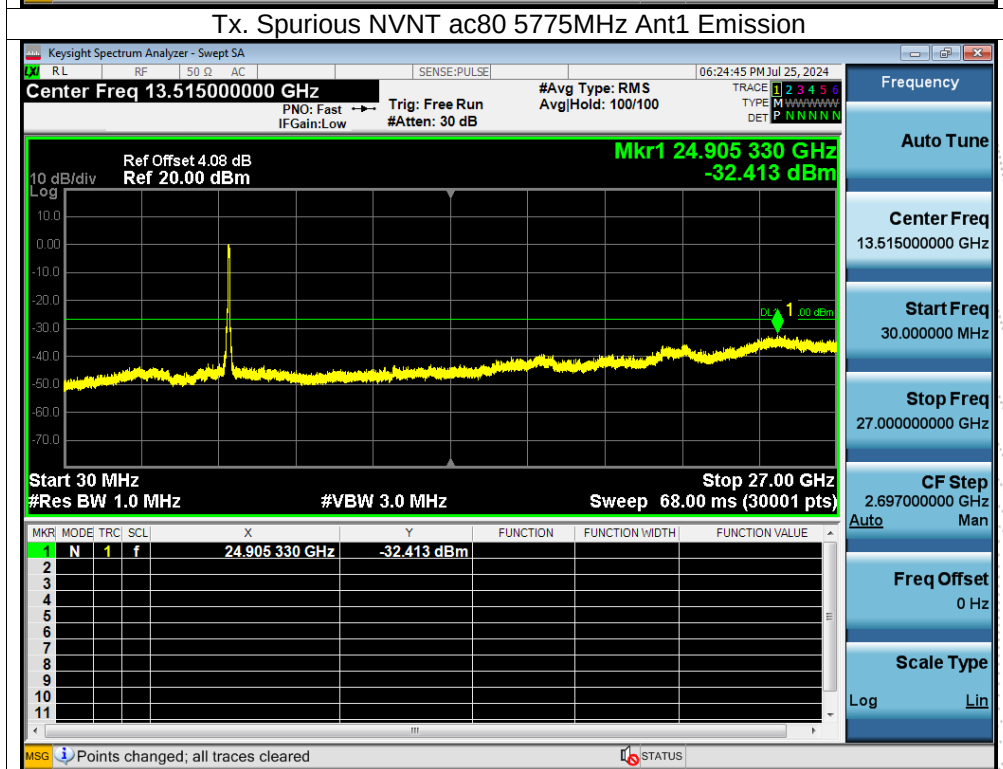
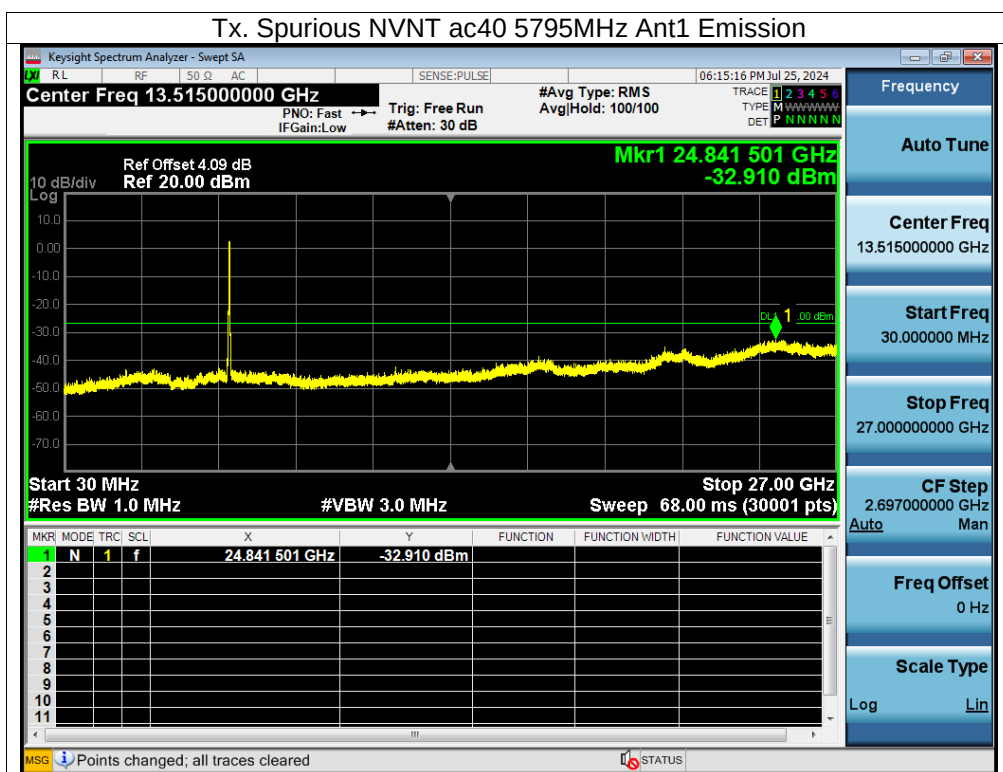


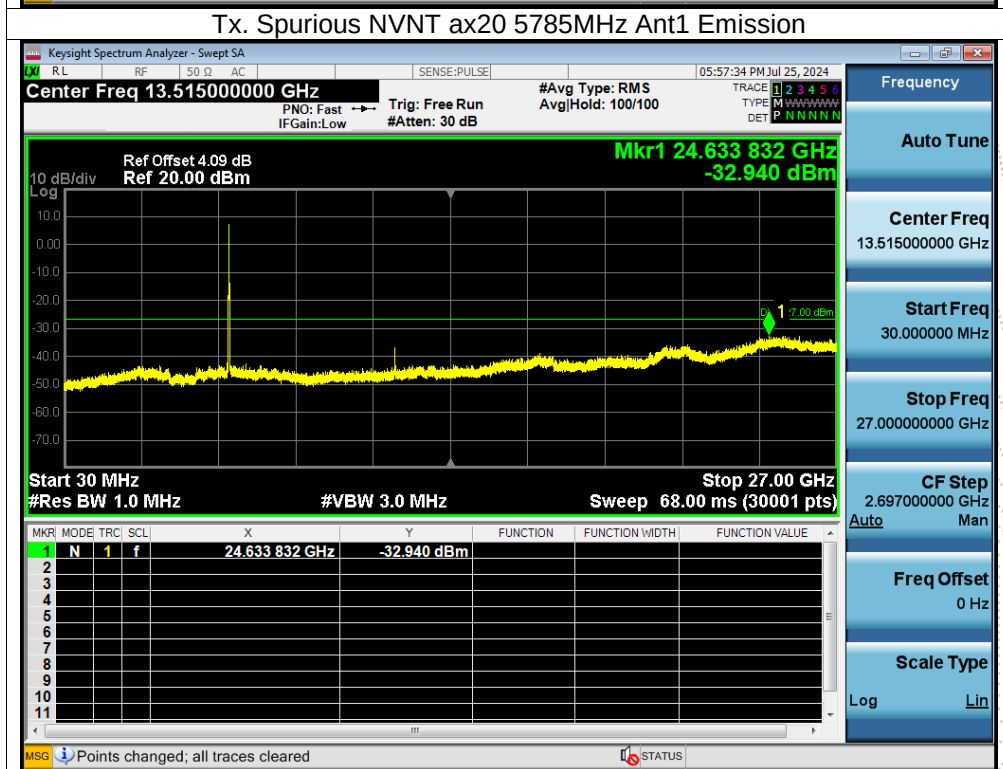
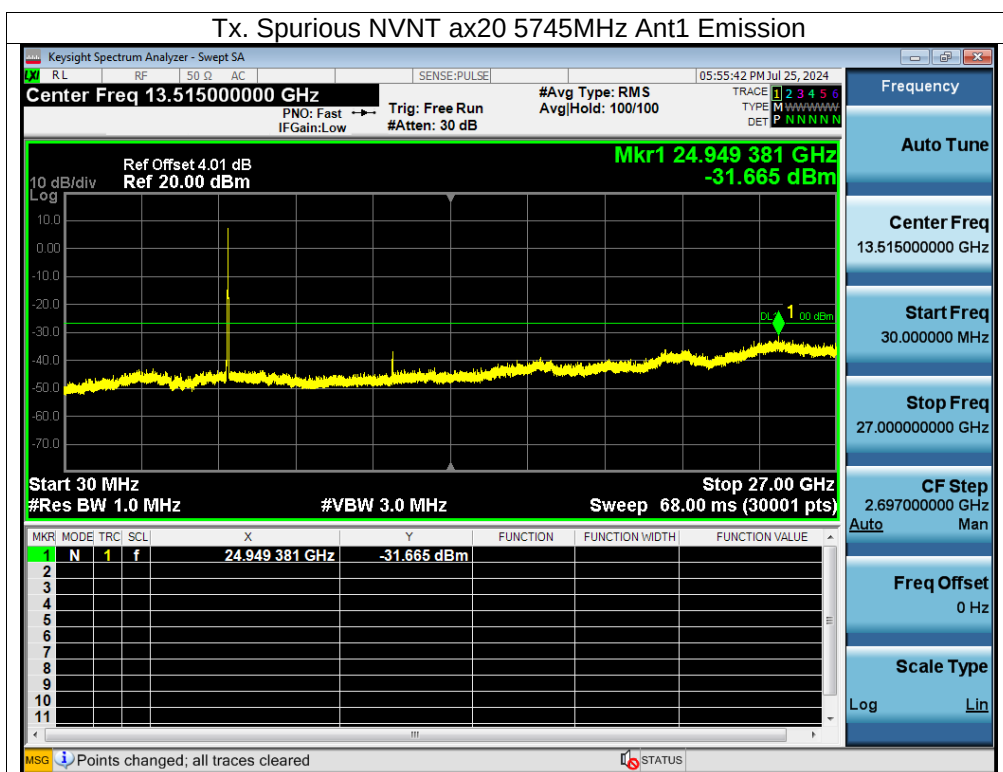


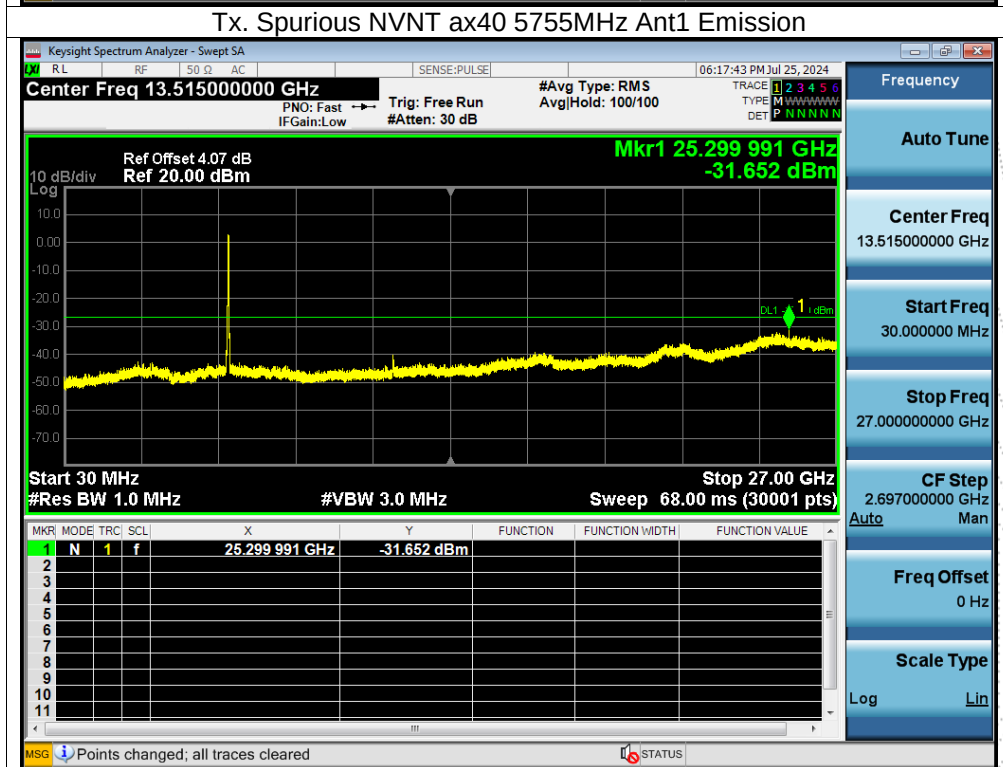
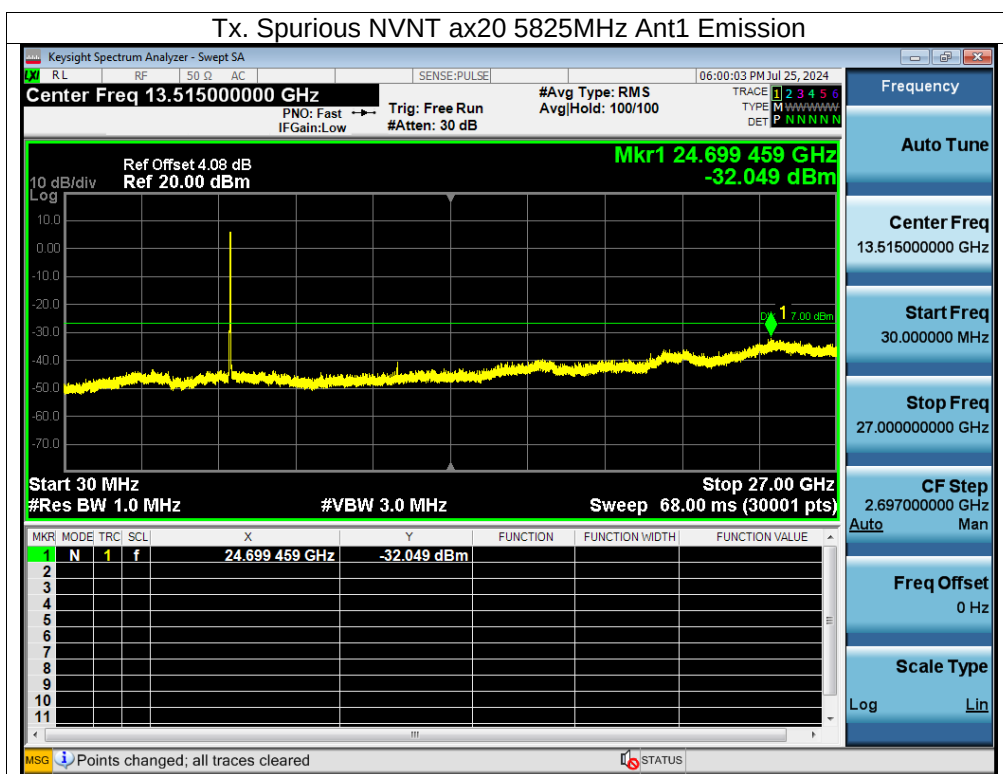


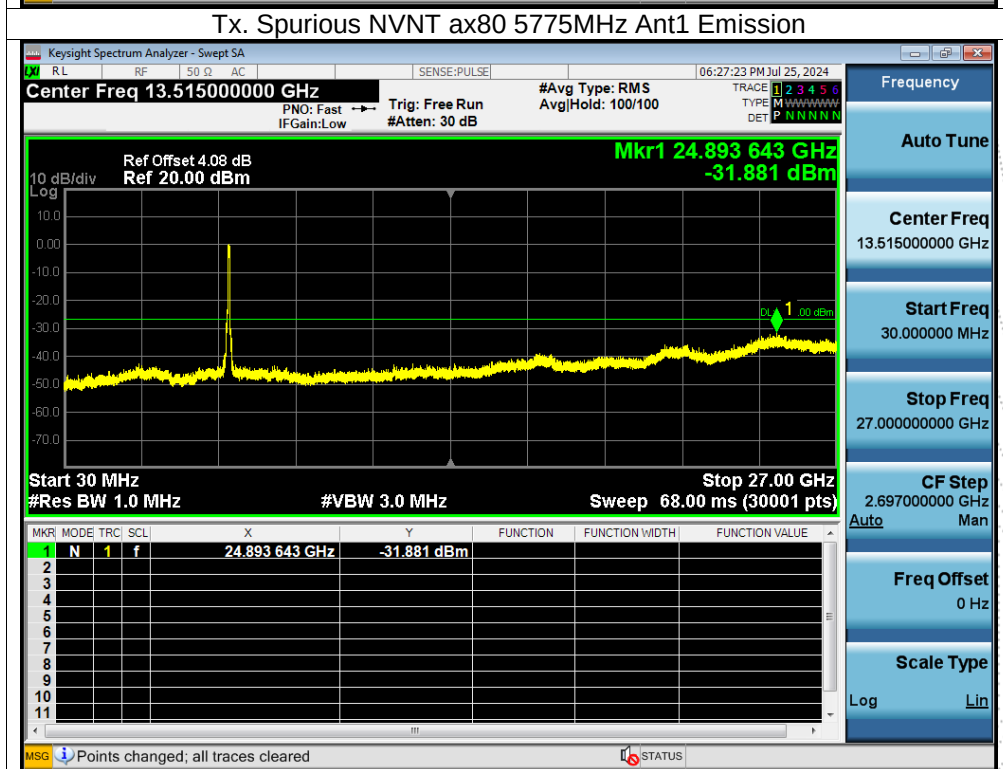
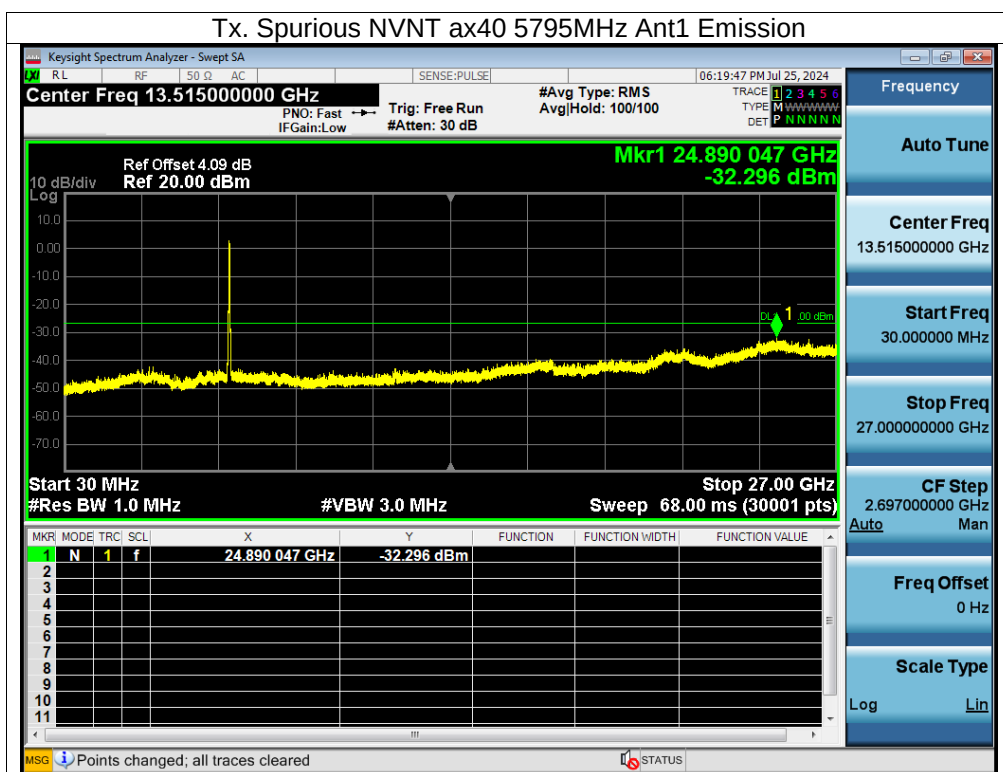






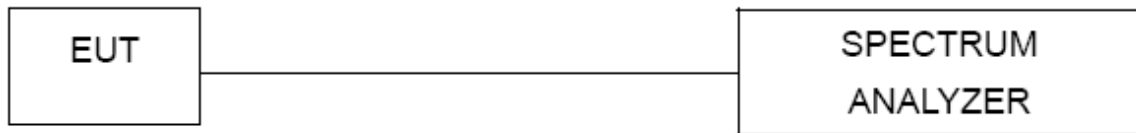






13. Frequency Stability Measurement

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. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and he limit is less than ± 20 ppm (IEEE 802.11n specification).
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 $-20^\circ\text{C} \sim 70^\circ\text{C}$.

13.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.7V
Test Mode:	TX (5.1G) Mode Frequency U-NII-1 (5180-5240MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5180.0202	5180	0.0202	3.8934
		V max (V)	4.26	5180.0161	5180	0.0161	3.1014
		V min (V)	3.15	5180.0157	5180	0.0157	3.0250
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5180.0119	5180	0.0119	2.3013
		T (°C)	-10	5180.0053	5180	0.0053	1.0292
		T (°C)	0	5180.0100	5180	0.0100	1.9243
		T (°C)	10	5180.0036	5180	0.0036	0.6913
		T (°C)	20	5180.0102	5180	0.0102	1.9609
		T (°C)	30	5180.0033	5180	0.0033	0.6392
		T (°C)	40	5180.0120	5180	0.0120	2.3085
		T (°C)	50	5180.0022	5180	0.0022	0.4158
		T (°C)	60	5180.0070	5180	0.0070	1.3457
		T (°C)	70	5180.0057	5180	0.0057	1.1015
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5200.0049	5200	0.0049	0.9475
		V max (V)	4.26	5200.0044	5200	0.0044	0.8451
		V min (V)	3.15	5200.0080	5200	0.0080	1.5453
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5200.01006	5200	0.01006	1.9353
		T (°C)	-10	5200.00280	5200	0.00280	0.5391
		T (°C)	0	5200.00803	5200	0.00803	1.5442
		T (°C)	10	5200.01352	5200	0.01352	2.5994
		T (°C)	20	5200.00712	5200	0.00712	1.3692
		T (°C)	30	5200.00944	5200	0.00944	1.8152
		T (°C)	40	5200.00954	5200	0.00954	1.8341
		T (°C)	50	5200.00428	5200	0.00428	0.8236
		T (°C)	60	5200.01252	5200	0.01252	2.4085
		T (°C)	70	5200.00702	5200	0.00702	1.3499
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5240.0088	5240	0.0088	1.6854
		V max (V)	4.26	5240.0035	5240	0.0035	0.6600
		V min (V)	3.15	5240.0051	5240	0.0051	0.9656
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.7	T (°C)	-20	5240.0104	5240	0.0104	1.9938
		T (°C)	-10	5240.0016	5240	0.0016	0.3096
		T (°C)	0	5240.0114	5240	0.0114	2.1772
		T (°C)	10	5240.0003	5240	0.0003	0.0573
		T (°C)	20	5240.0008	5240	0.0008	0.1578
		T (°C)	30	5240.0010	5240	0.0010	0.1858
		T (°C)	40	5240.0110	5240	0.0110	2.1037
		T (°C)	50	5240.0001	5240	0.0001	0.0270
		T (°C)	60	5240.0088	5240	0.0088	1.6789
		T (°C)	70	5240.0045	5240	0.0045	0.8580
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.7V
Test Mode:	TX (5.8G) Mode Frequency U-NII-3 (5745-5825MHz)		

Voltage vs. Frequency Stabilit

TEST CONDITIONS				Reference Frequency:5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.70	5745.00496	5745	0.00496	0.8627
		V max (V)	13.80	5745.01088	5745	0.01088	1.8936
		V min (V)	10.20	5745.00436	5745	0.00436	0.7598
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)	3.7	T (°C)	-20	5745.00166	5745	0.00166	0.2882
		T (°C)	-10	5745.01126	5745	0.01126	1.9606
		T (°C)	0	5745.01298	5745	0.01298	2.2598
		T (°C)	10	5745.00846	5745	0.00846	1.4725
		T (°C)	20	5745.01162	5745	0.01162	2.0228
		T (°C)	30	5745.00541	5745	0.00541	0.9419
		T (°C)	40	5745.00971	5745	0.00971	1.6905
		T (°C)	50	5745.00565	5745	0.00565	0.9841
		T (°C)	60	5745.00525	5745	0.00525	0.9132
		T (°C)	70	5745.00354	5745	0.00354	0.6165
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)	3.70	5785.00475	5785	0.00475	0.8205
		V max (V)	4.26	5785.01180	5785	0.01180	2.0394
		V min (V)	3.15	5785.00278	5785	0.00278	0.4805
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)	3.7	T (°C)	-20	5785.01029	5785	0.01029	1.7780
		T (°C)	-10	5785.00505	5785	0.00505	0.8730
		T (°C)	0	5785.00452	5785	0.00452	0.7812
		T (°C)	10	5785.00075	5785	0.00075	0.1305
		T (°C)	20	5785.00197	5785	0.00197	0.3407
		T (°C)	30	5785.01292	5785	0.01292	2.2337
		T (°C)	40	5785.00331	5785	0.00331	0.5723
		T (°C)	50	5785.00463	5785	0.00463	0.8006
		T (°C)	60	5785.00363	5785	0.00363	0.6280
		T (°C)	70	5785.00173	5785	0.00173	0.2994
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)	3.70	5825.01266	5825	0.01266	2.1734
		V max (V)	4.26	5825.01261	5825	0.01261	2.1655
		V min (V)	3.15	5825.00859	5825	0.00859	1.4753
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)	3.7	T (°C)	-20	5825.00962	5825	0.00962	1.6522
		T (°C)	-10	5825.00866	5825	0.00866	1.4866
		T (°C)	0	5825.00179	5825	0.00179	0.3076
		T (°C)	10	5825.00951	5825	0.00951	1.6329
		T (°C)	20	5825.00435	5825	0.00435	0.7472
		T (°C)	30	5825.01097	5825	0.01097	1.8832
		T (°C)	40	5825.00940	5825	0.00940	1.6143
		T (°C)	50	5825.00471	5825	0.00471	0.8089
		T (°C)	60	5825.00058	5825	0.00058	0.0992
		T (°C)	70	5825.01020	5825	0.01020	1.7514
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 = $T_{on} / (T_{on} + T_{off})$

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

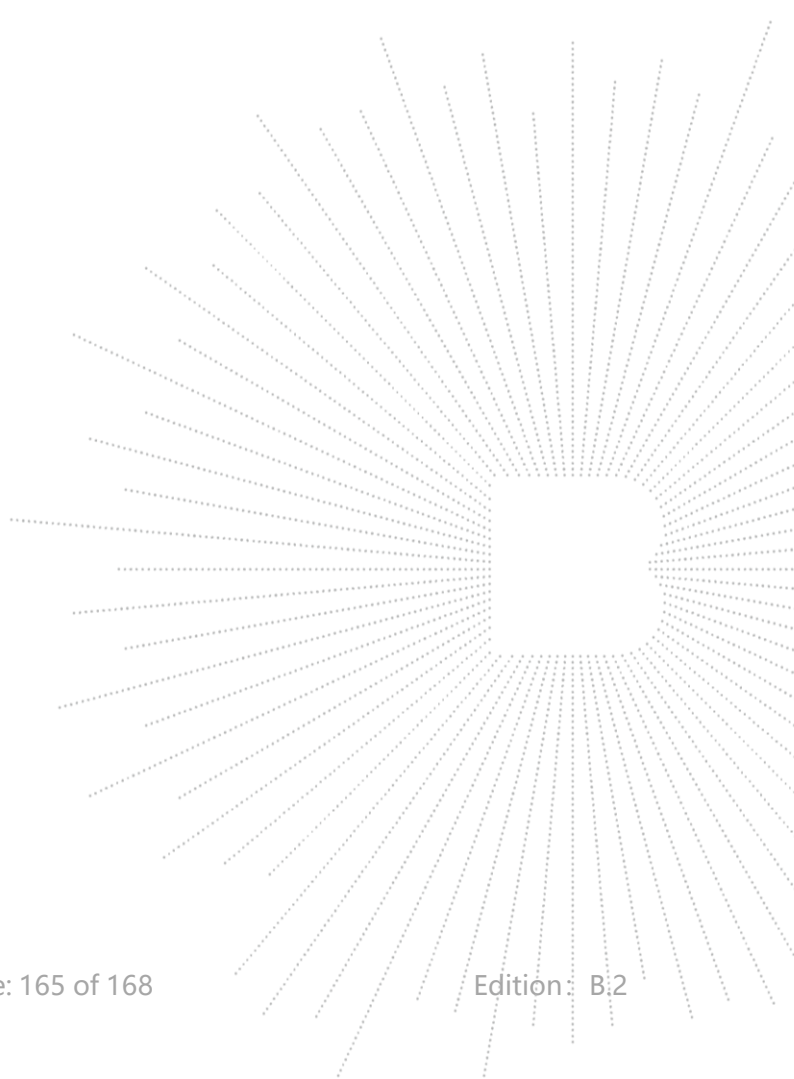
15. Antenna Requirement

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 internal antenna, fulfill the requirement of this section.



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 the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test 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, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Website: <http://www.chnbctc.com>

Consultation E-mail: bctc@bctc-lab.com.cn

Complaint/Advice E-mail: advice@bctc-lab.com.cn

***** END *****