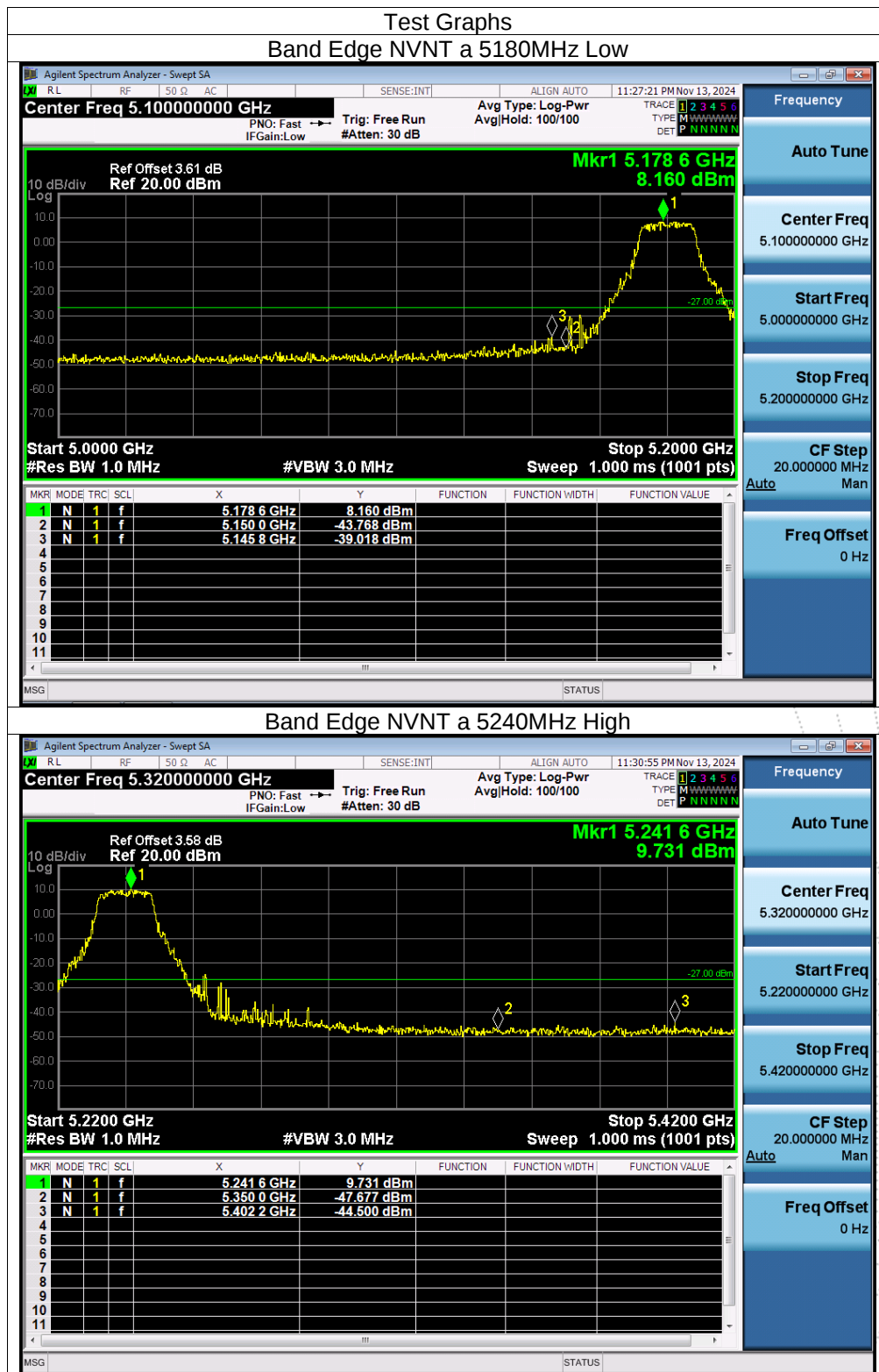
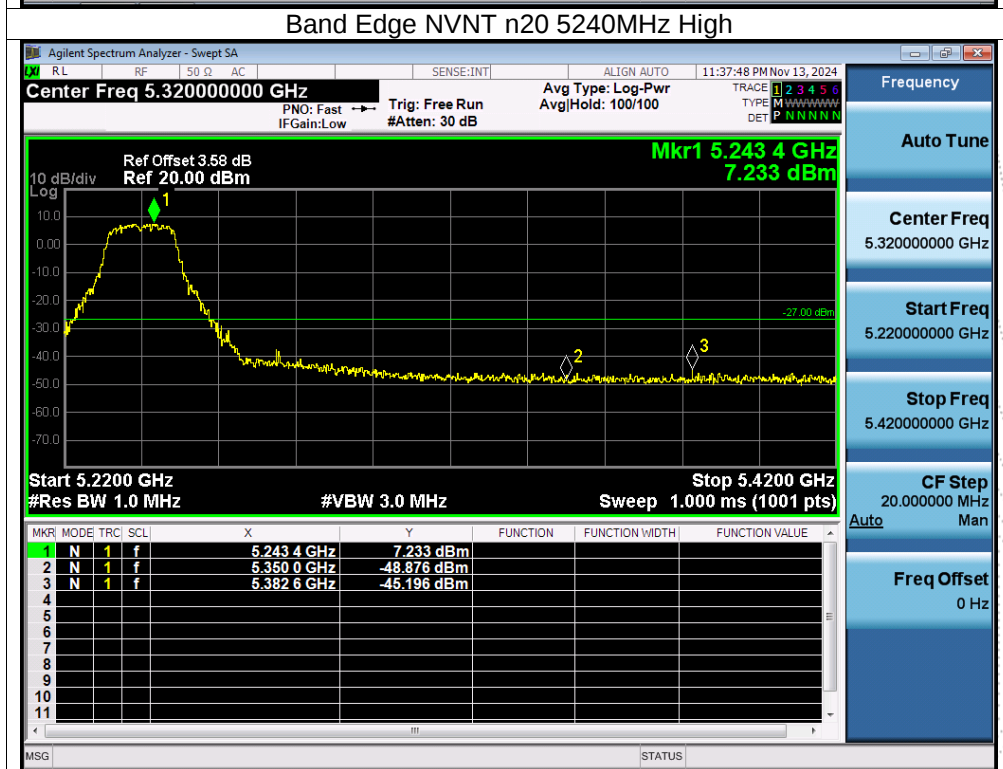
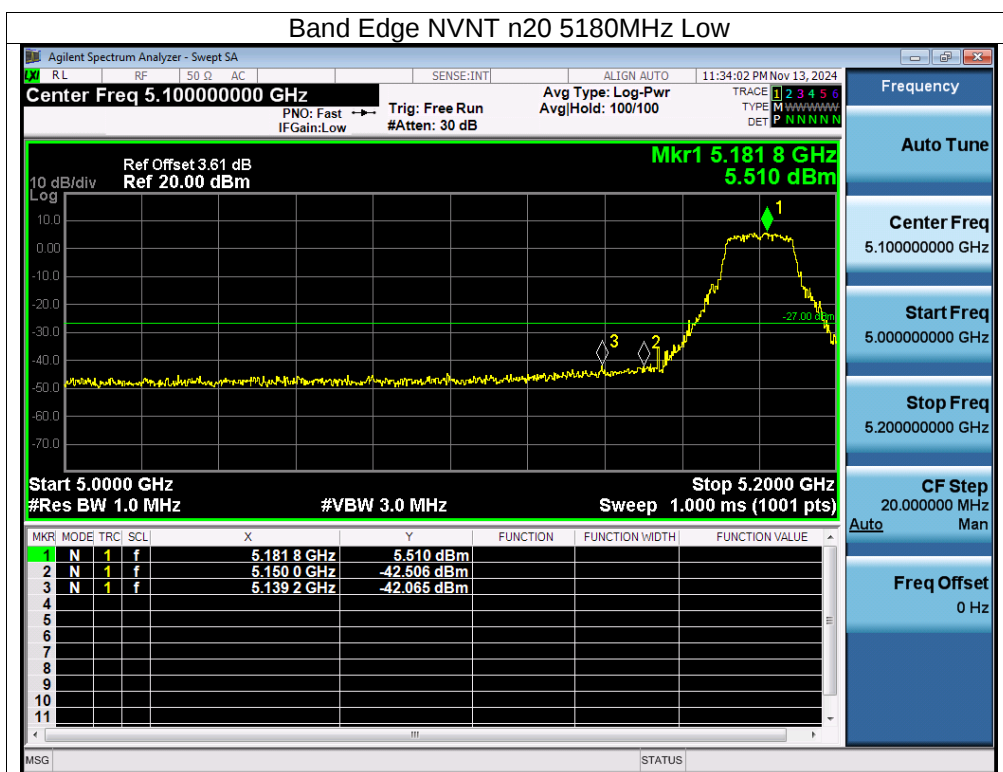
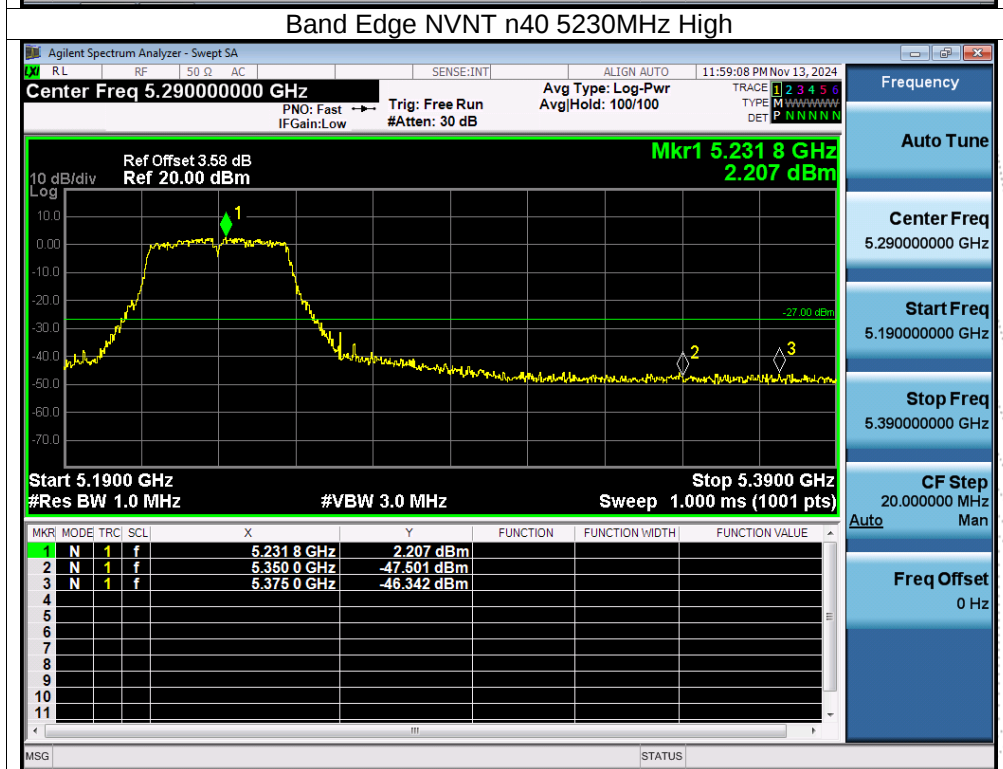
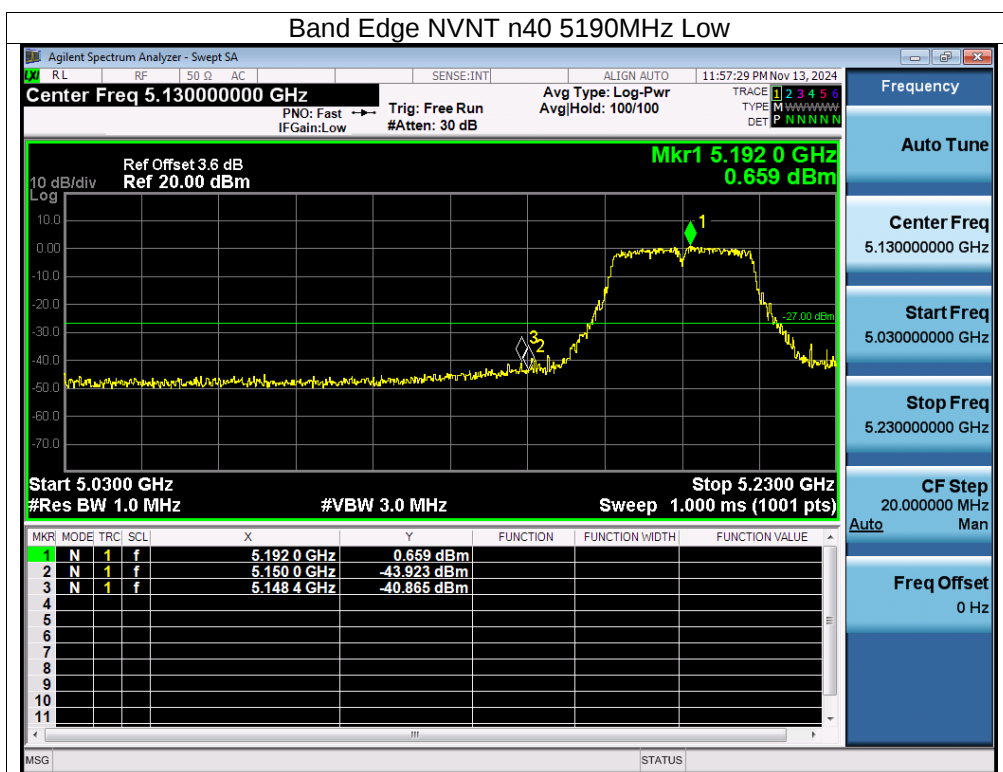
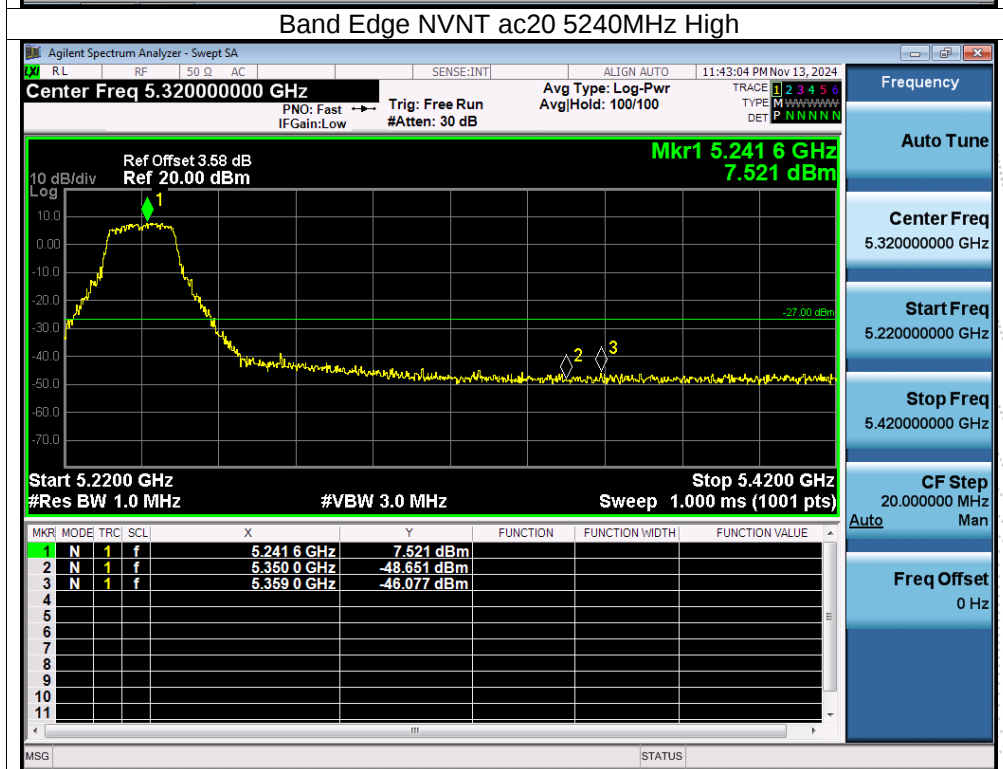
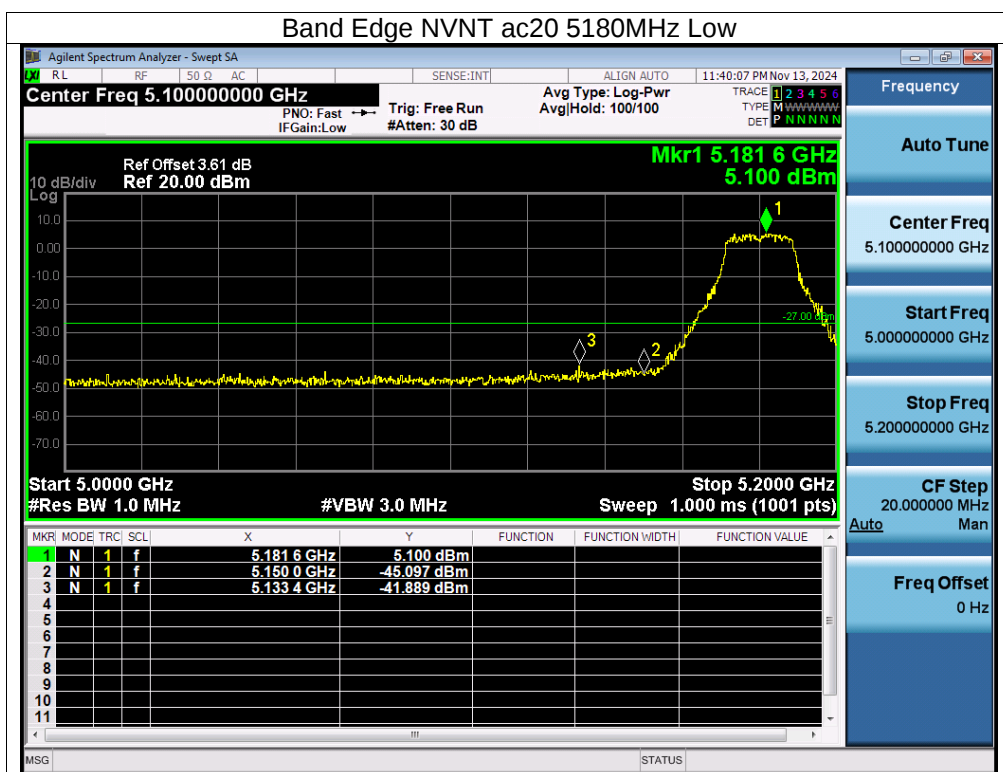


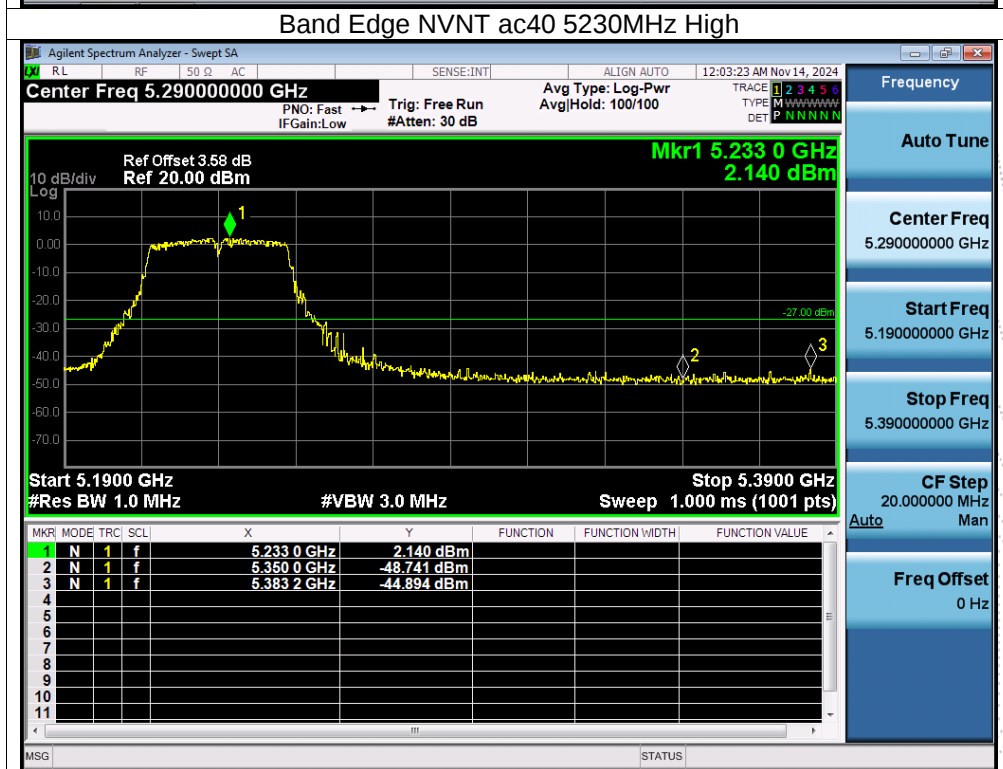
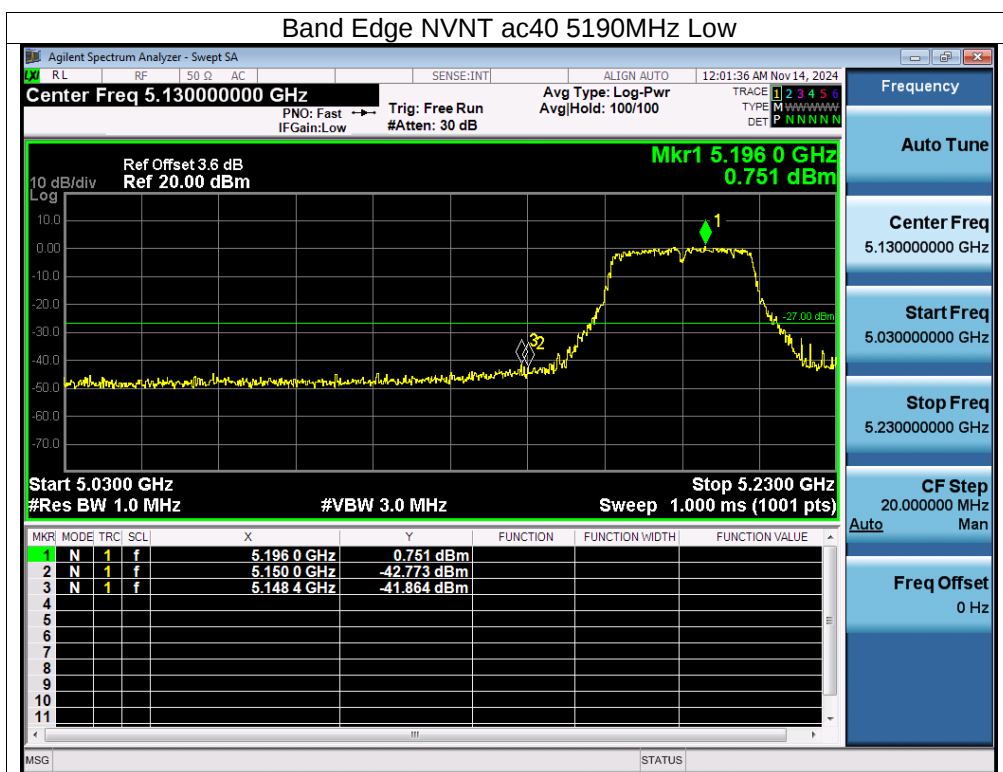
11.5 Test Result

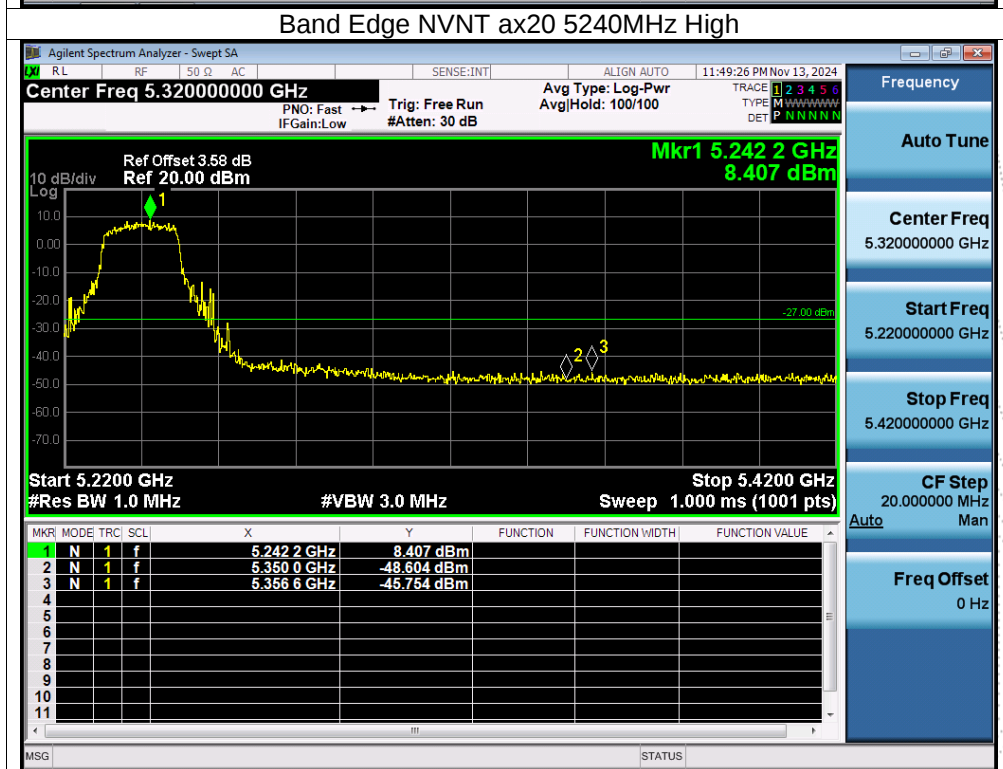
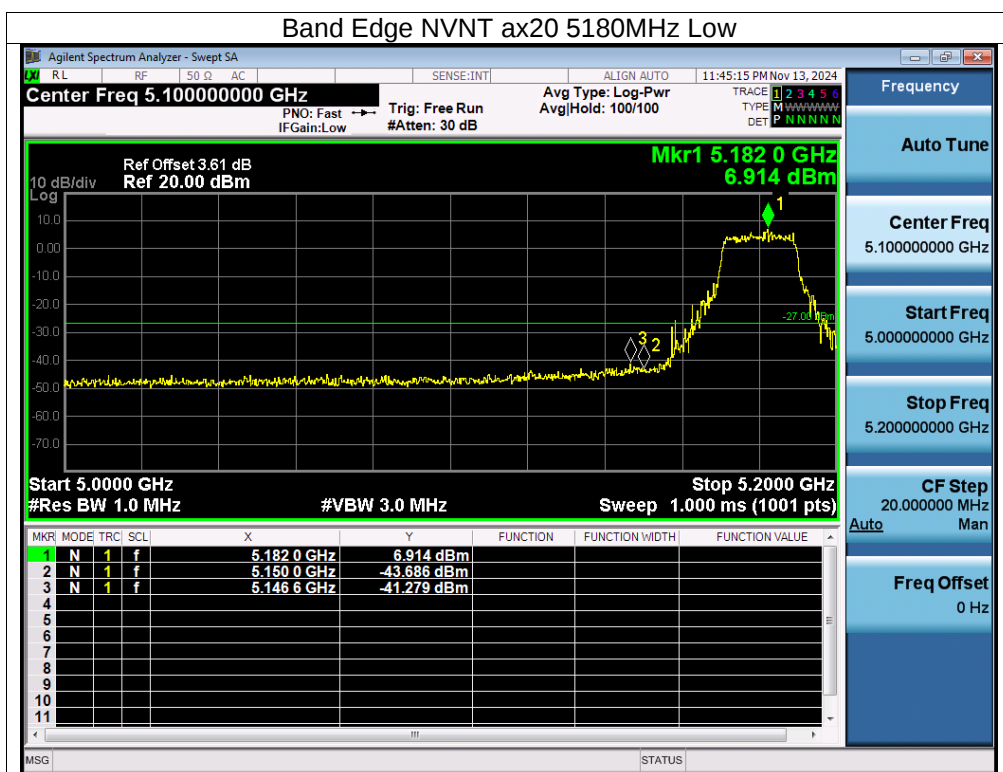


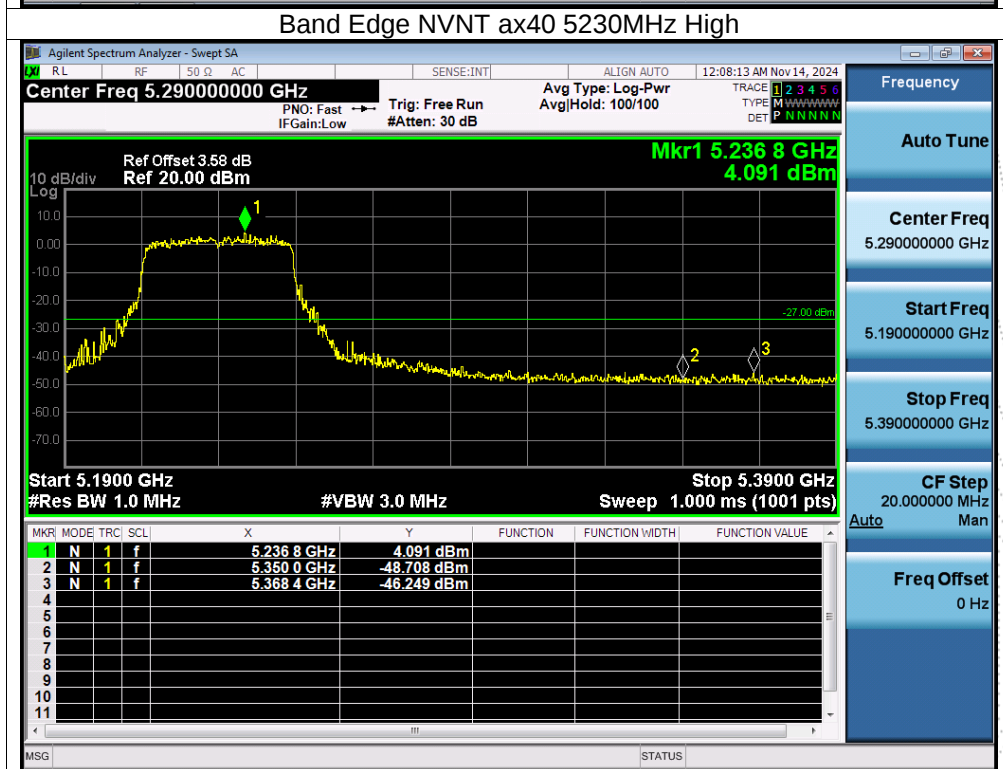
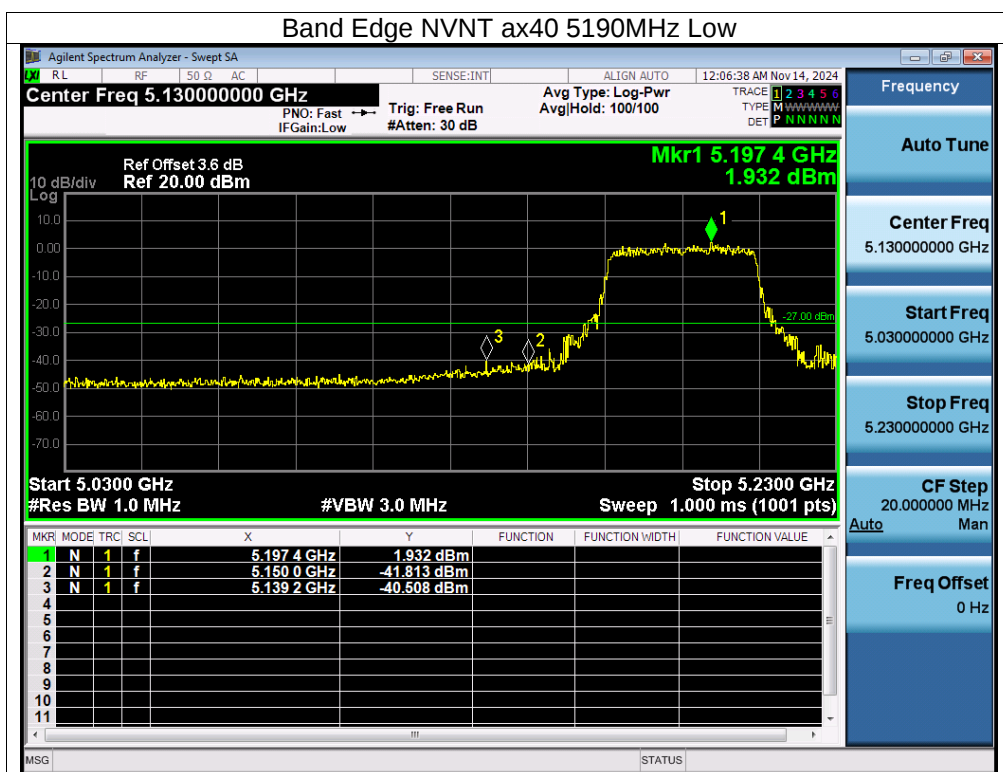




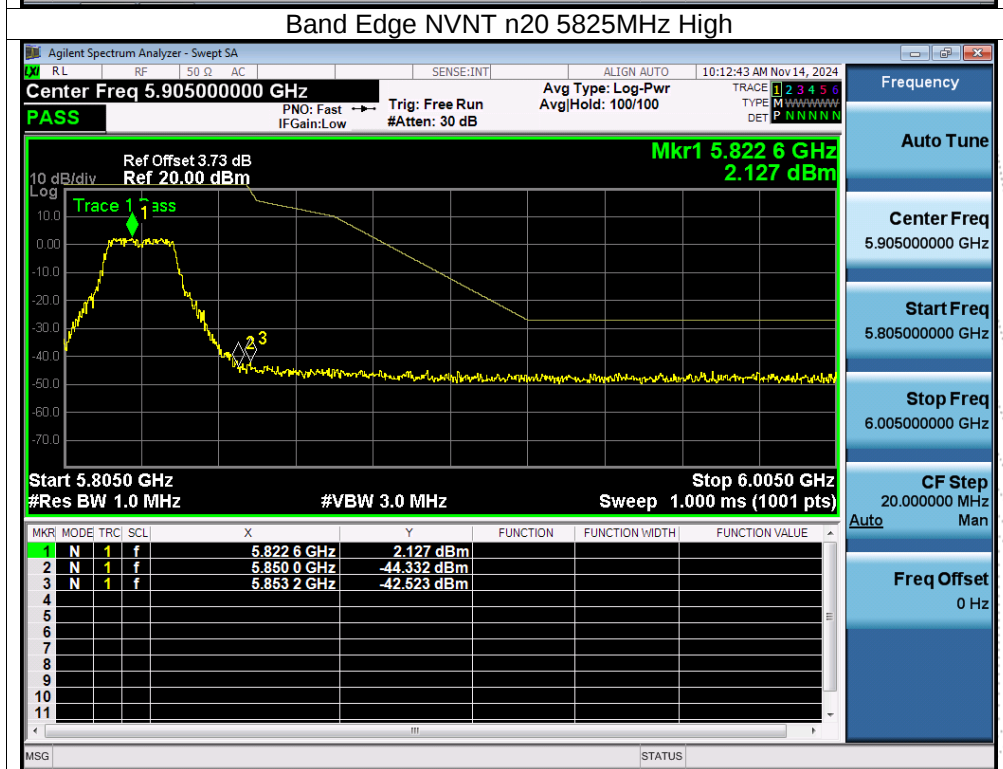
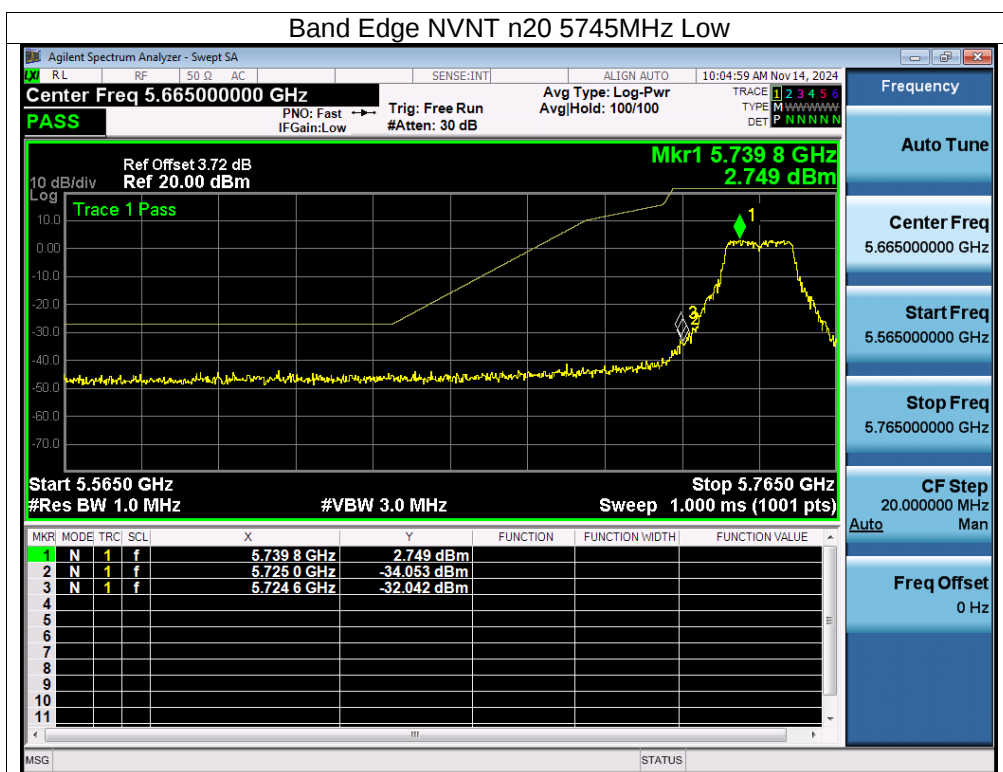


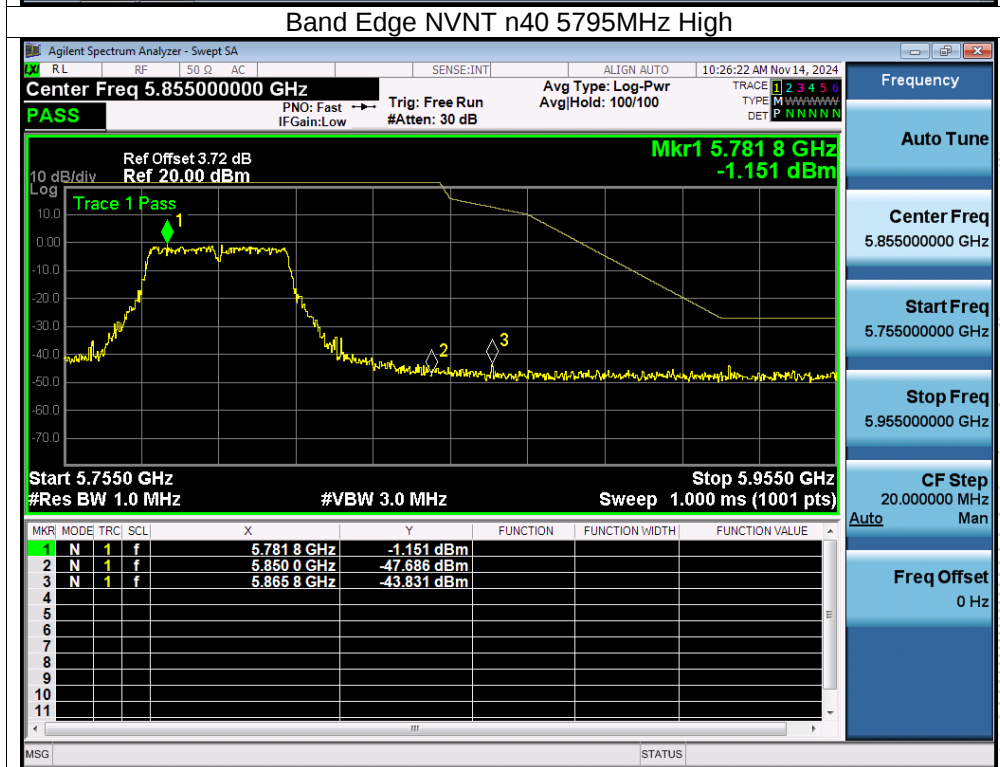
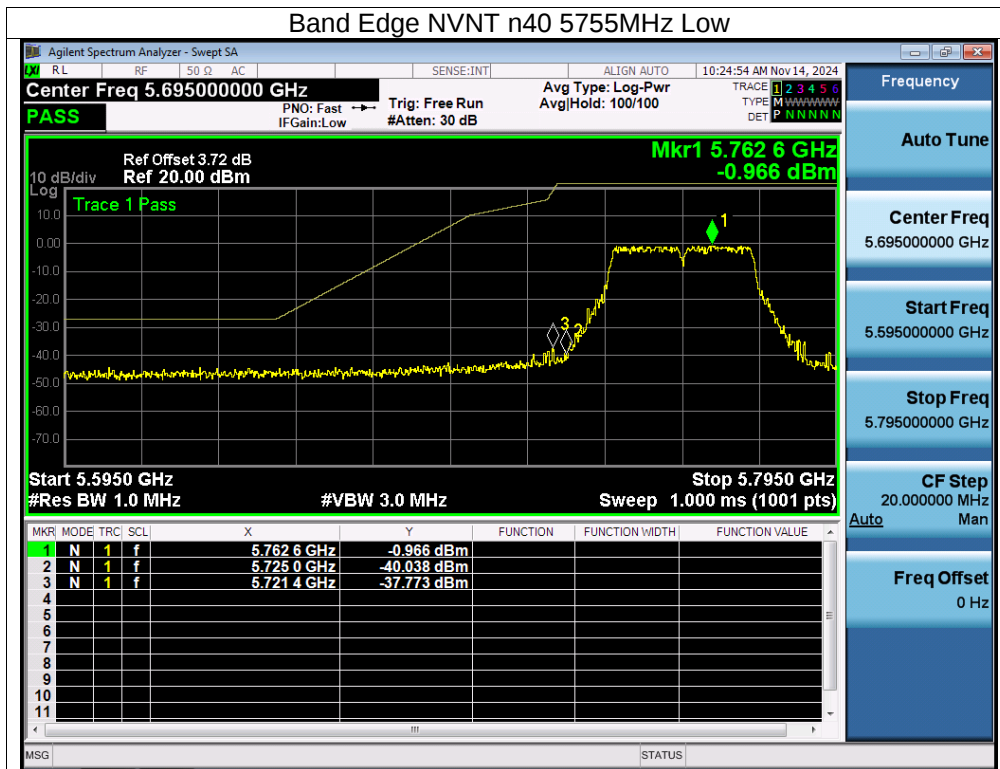


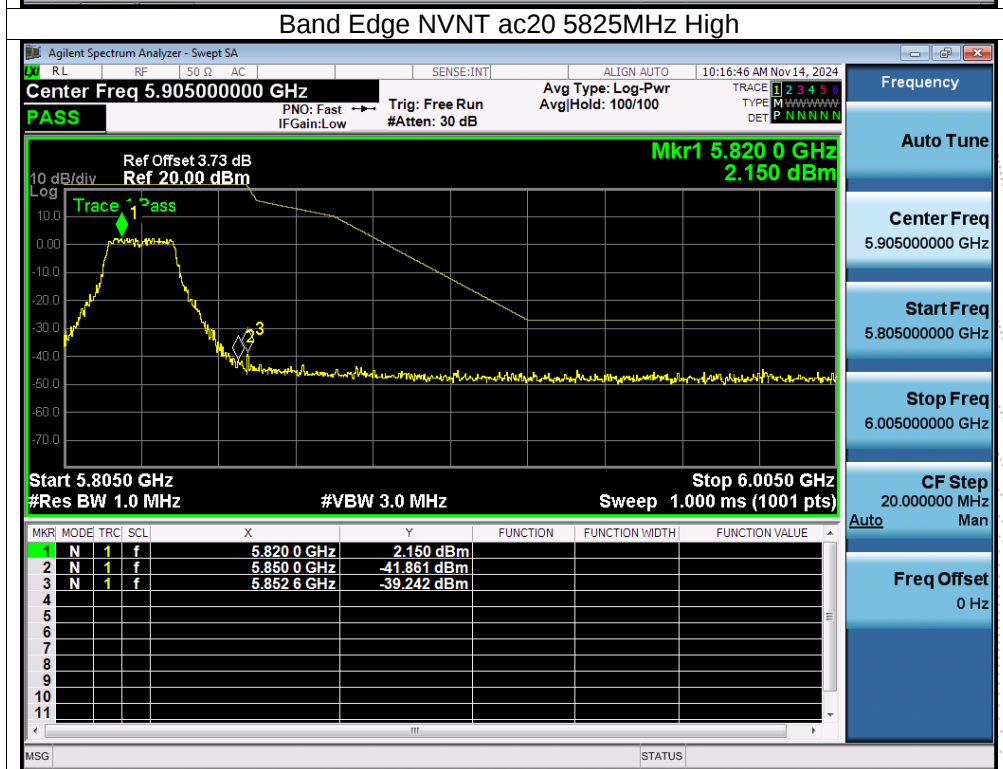
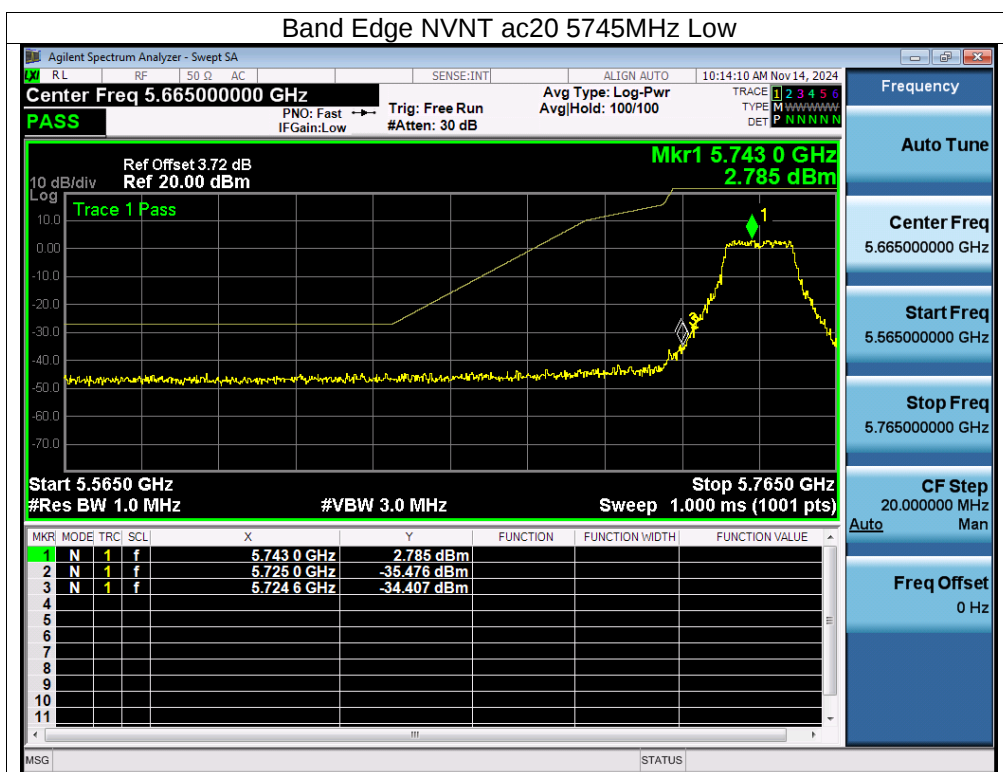


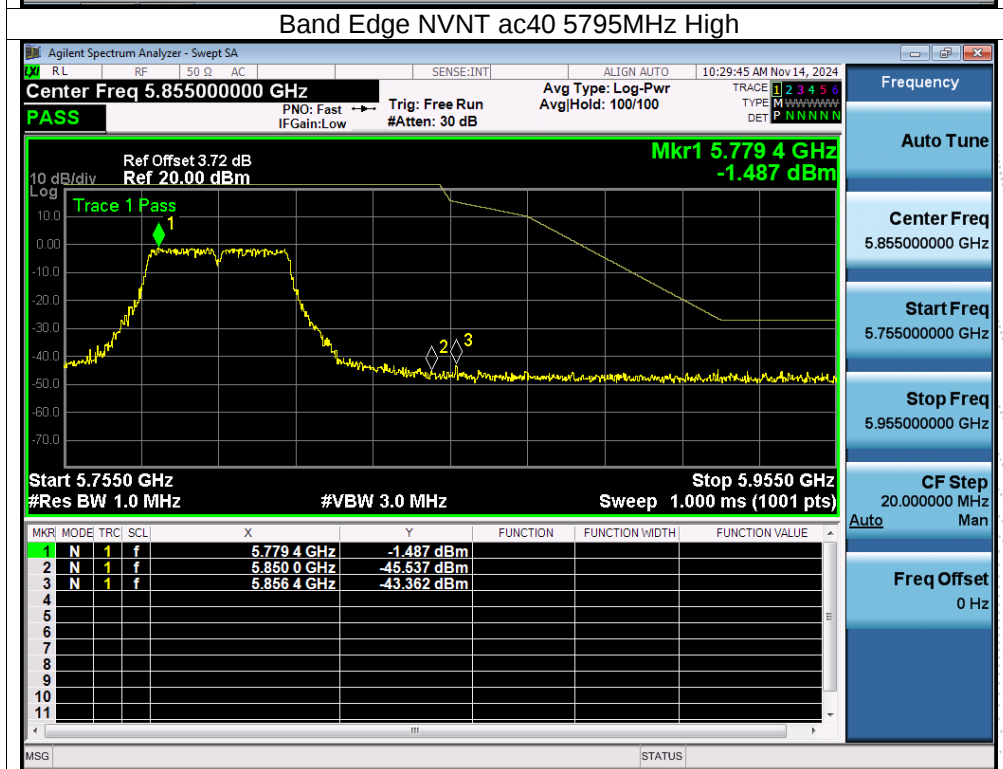
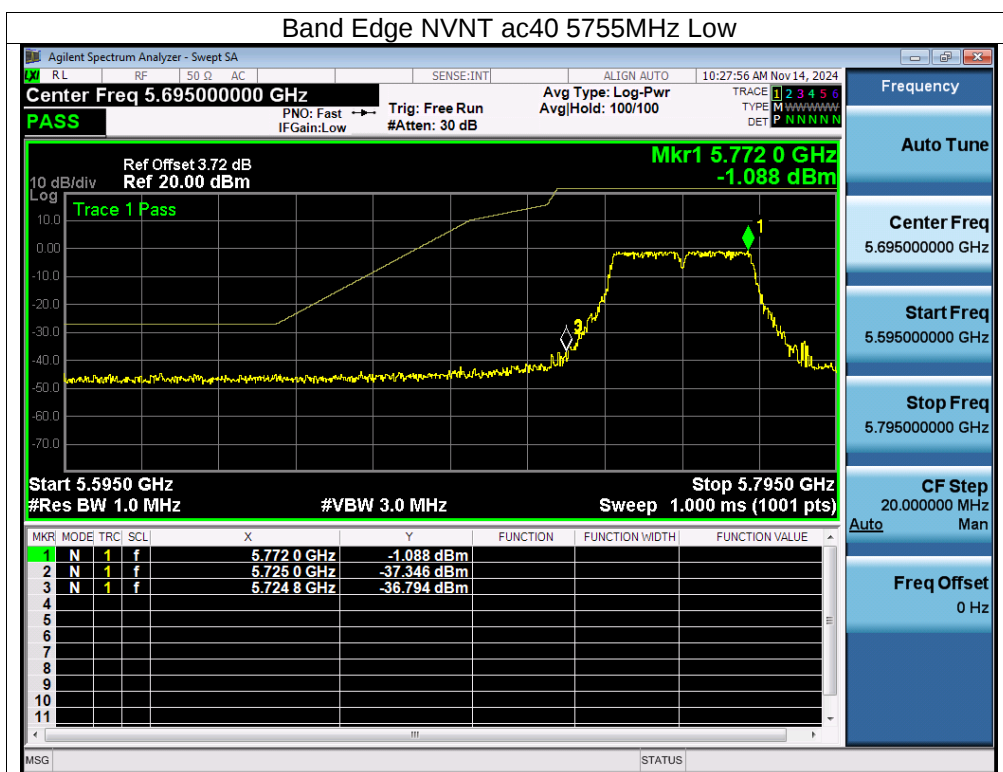


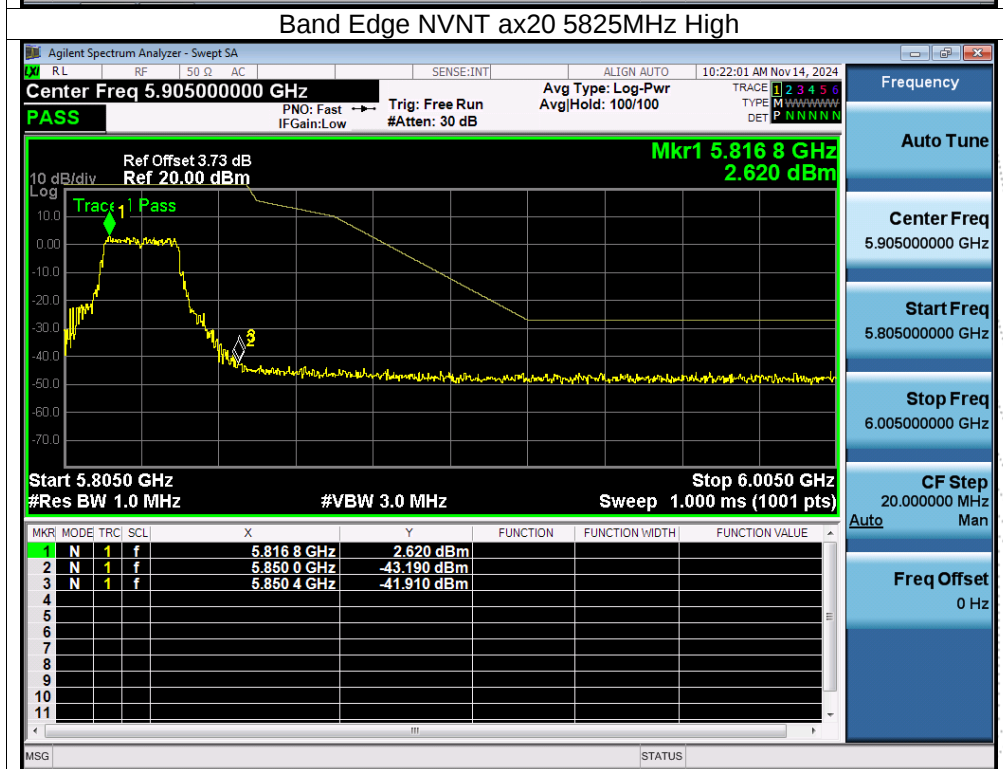
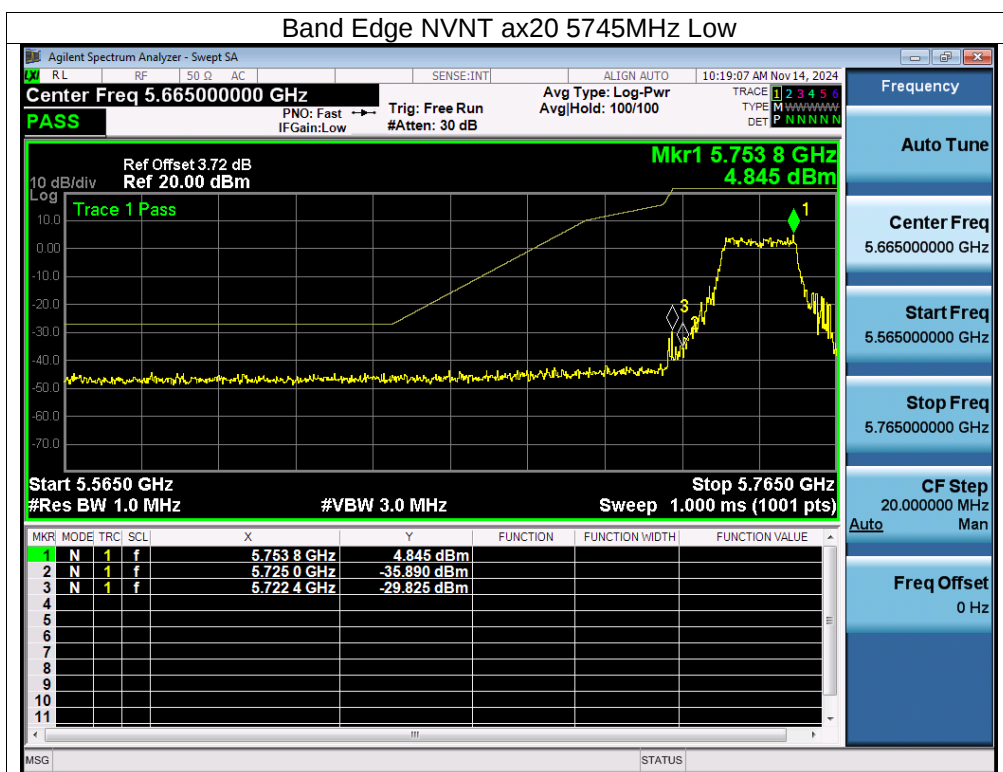


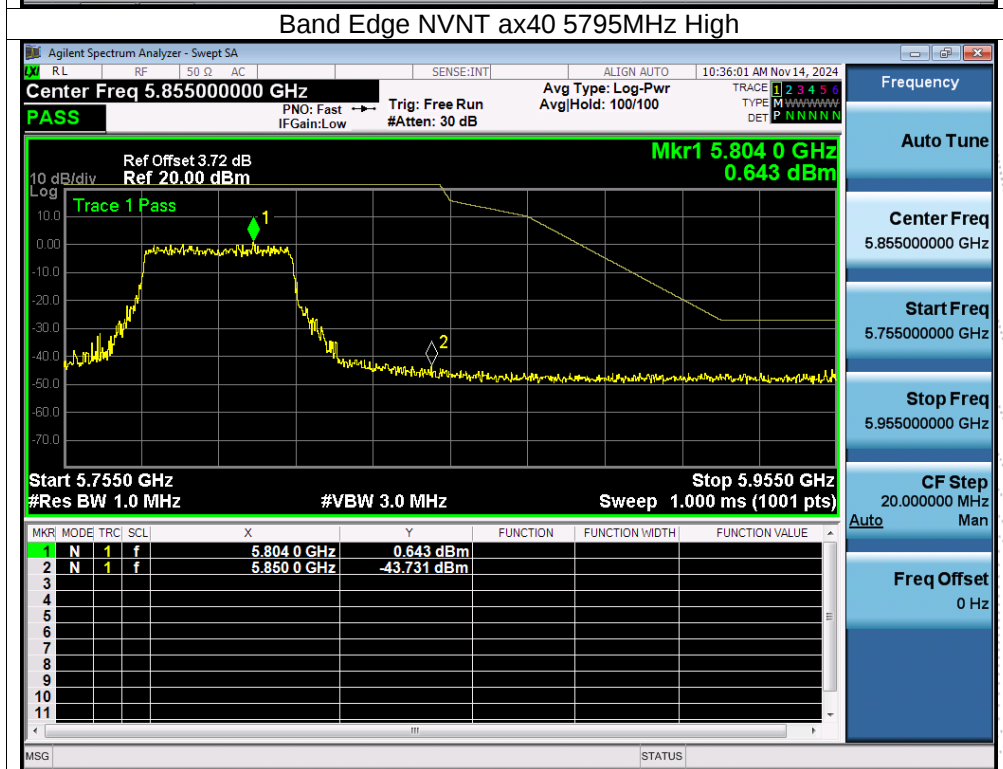
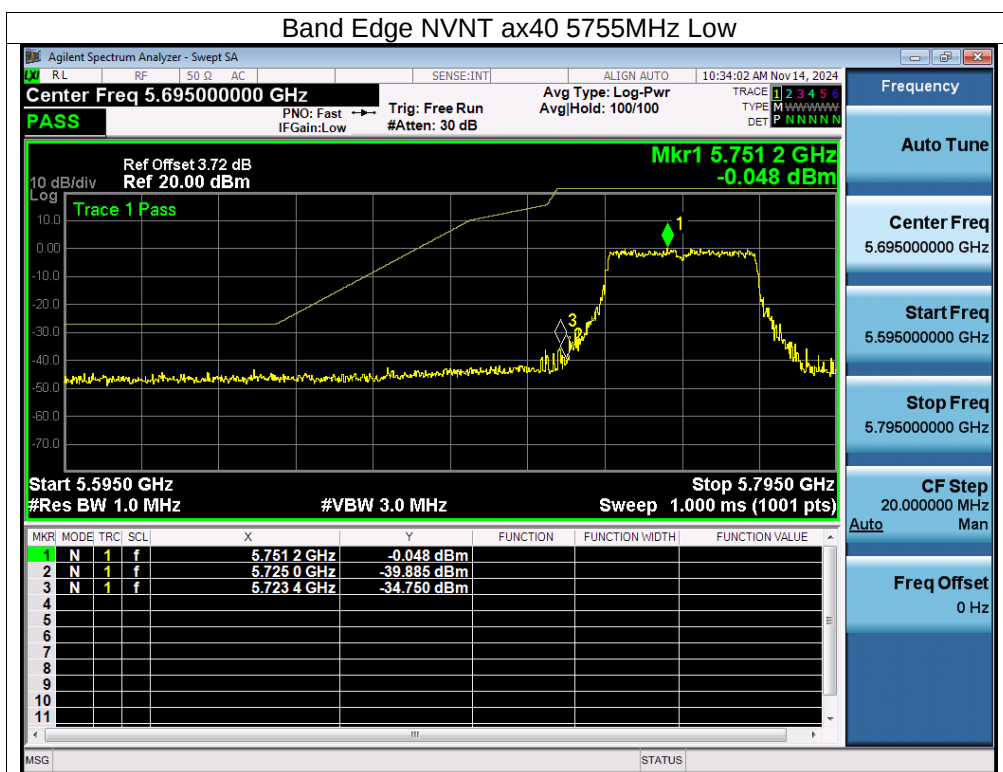












12. Spurious RF Conducted Emissions

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.

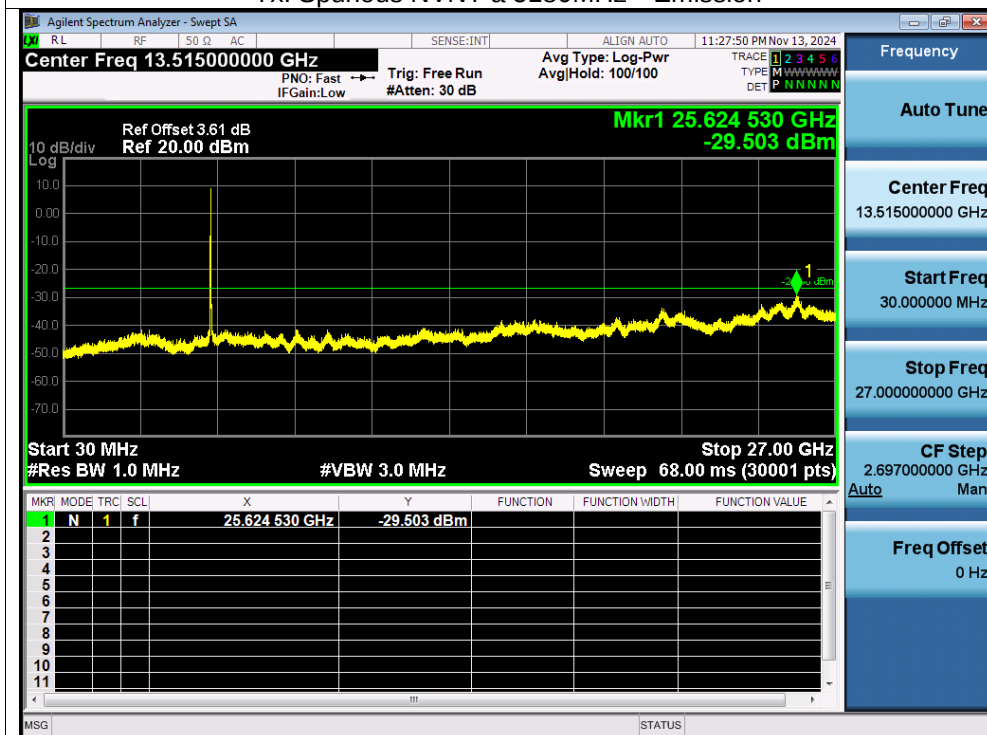
12.4 Test Result

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 band edge measurement data.

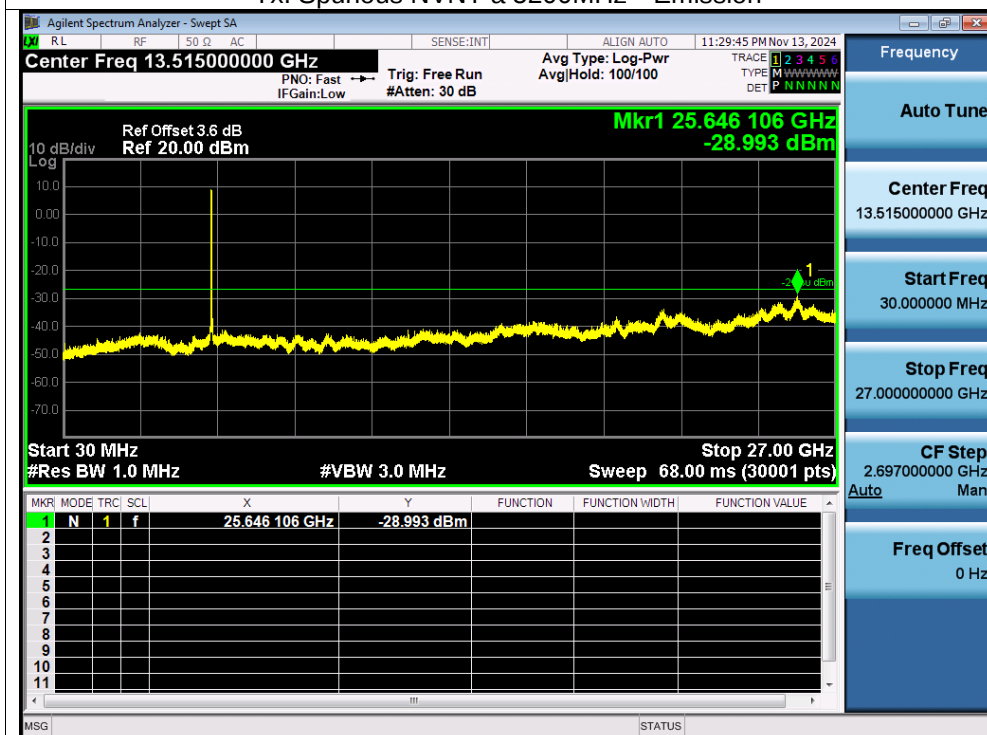
About: 26.5GHz-40GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

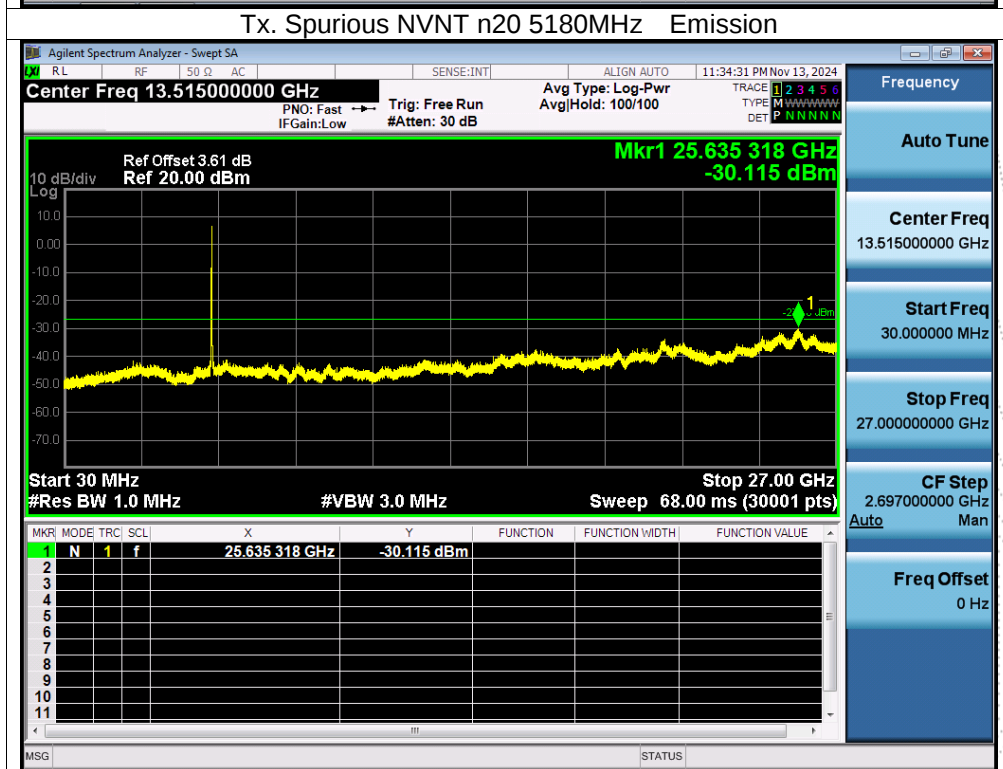
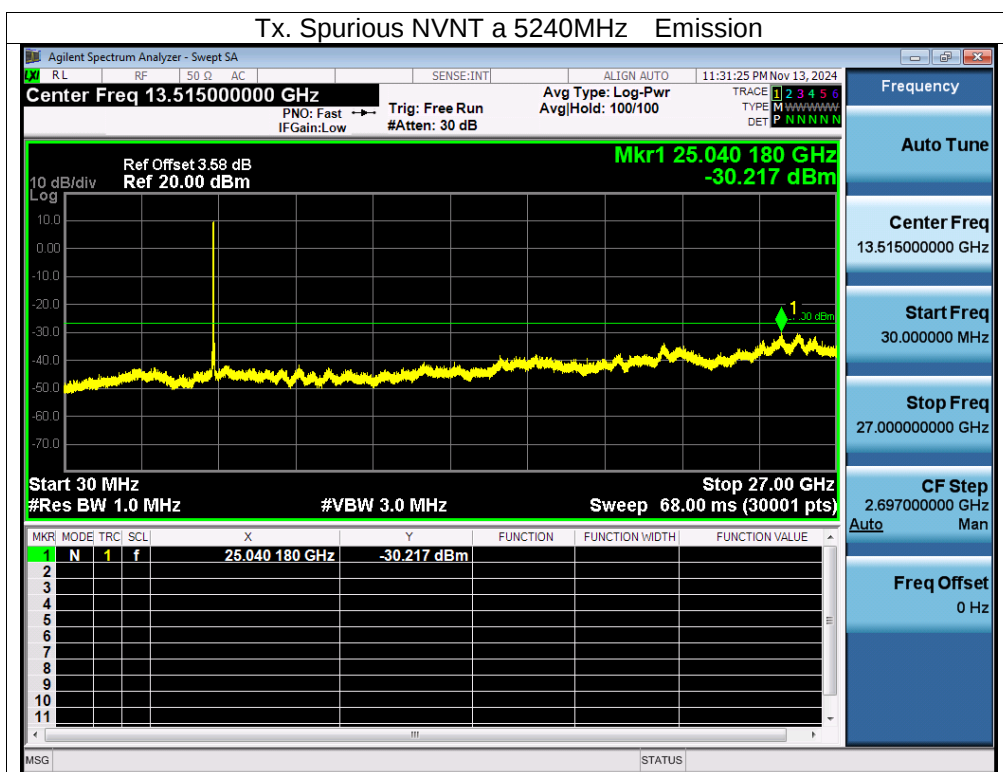
Test Graphs

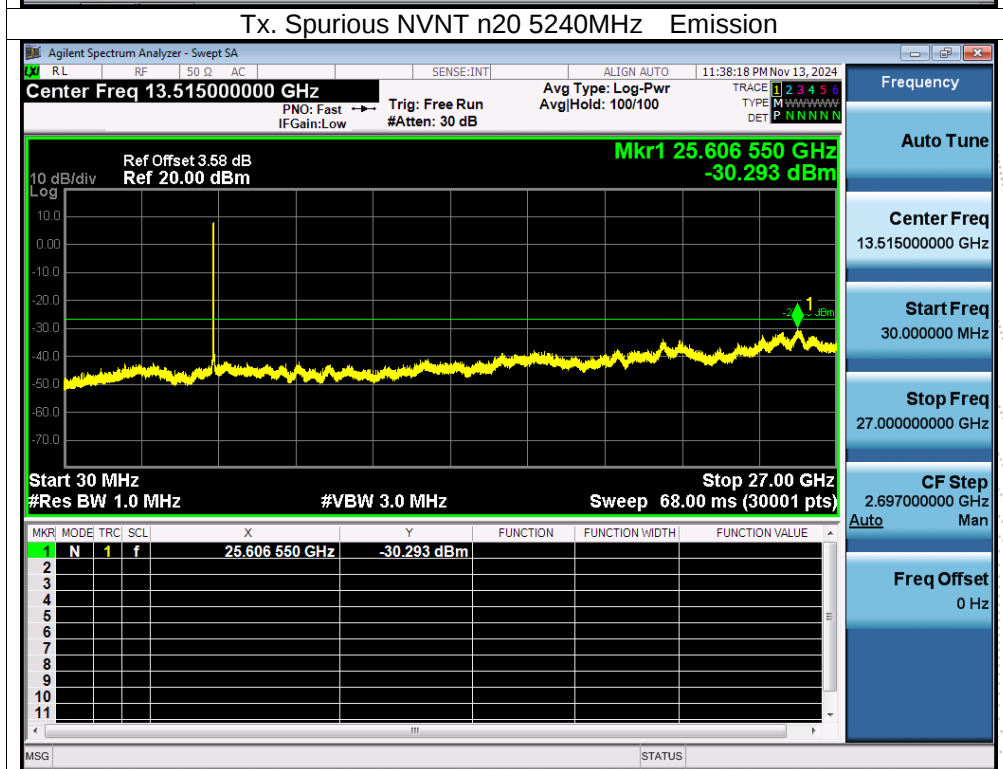
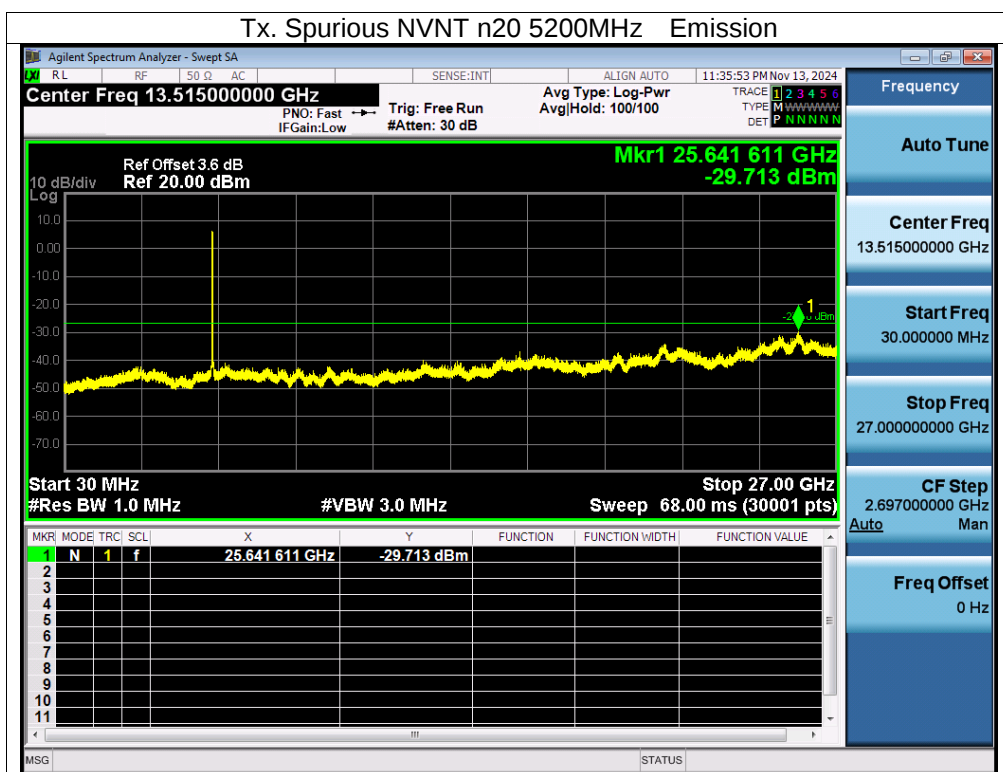
Tx. Spurious NVNT a 5180MHz Emission

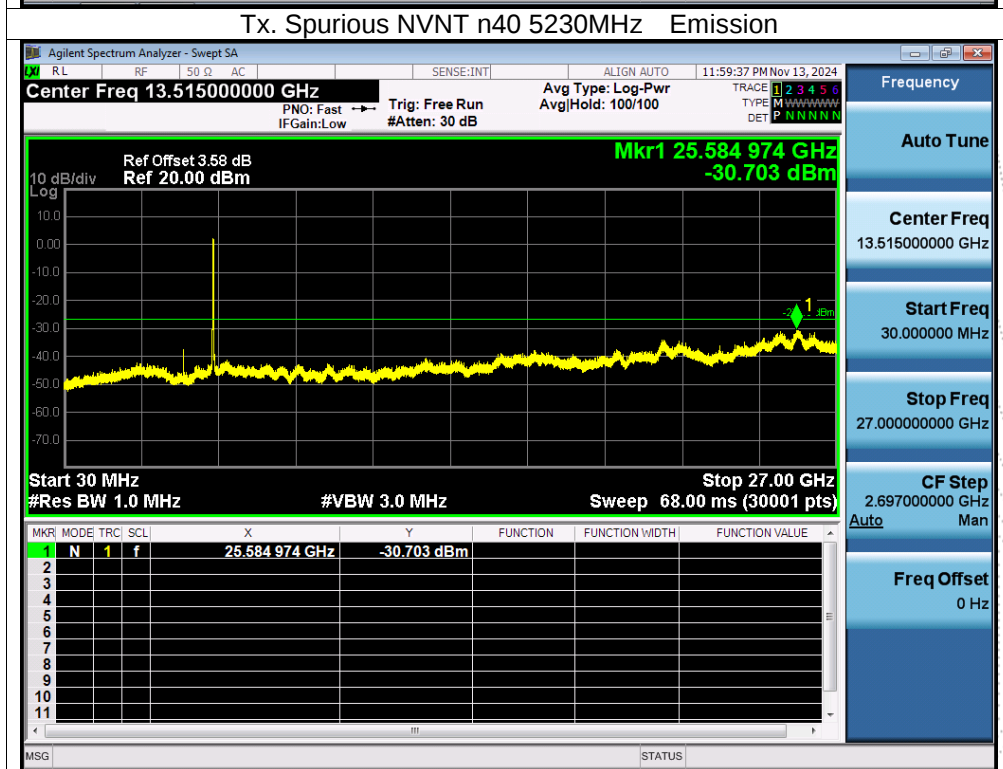
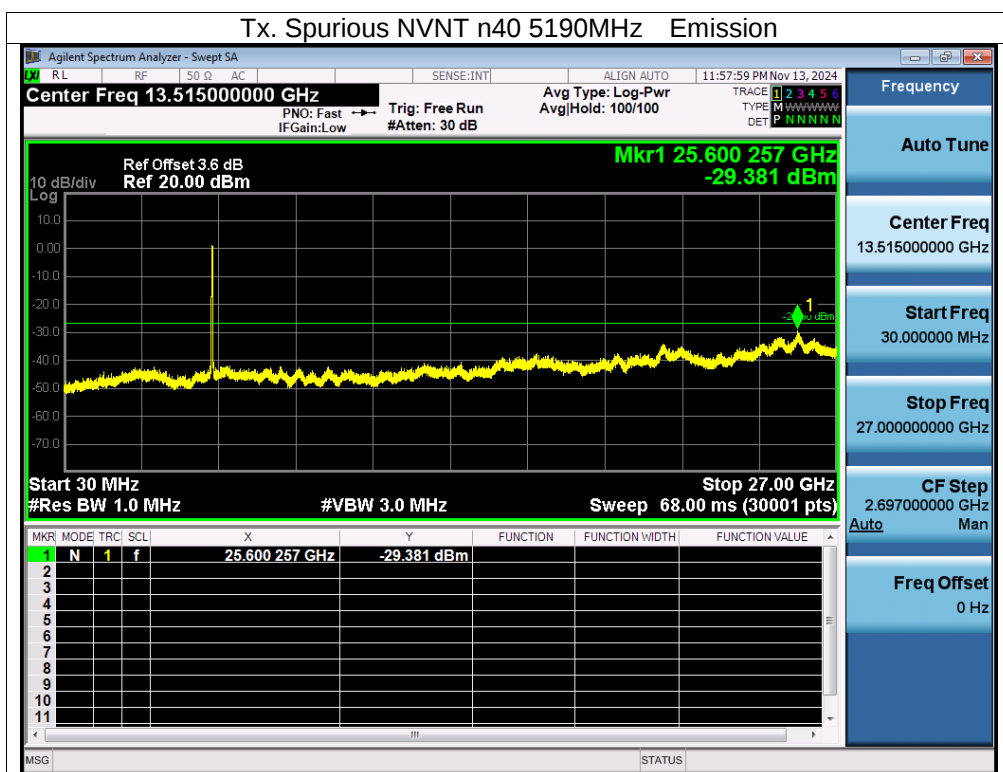


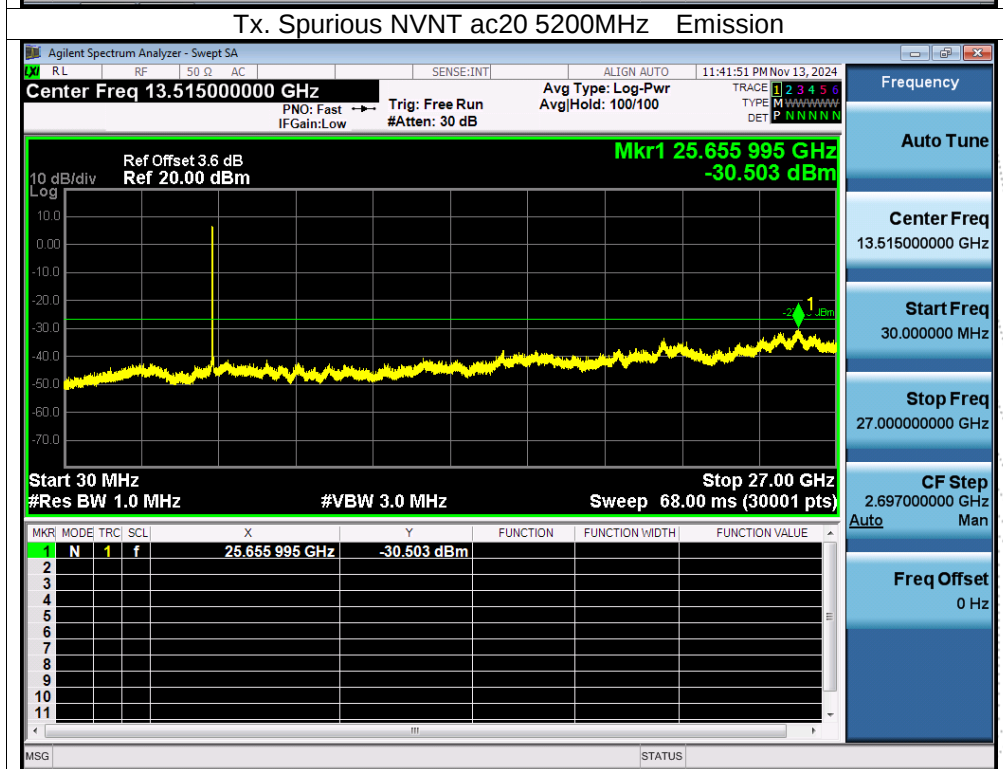
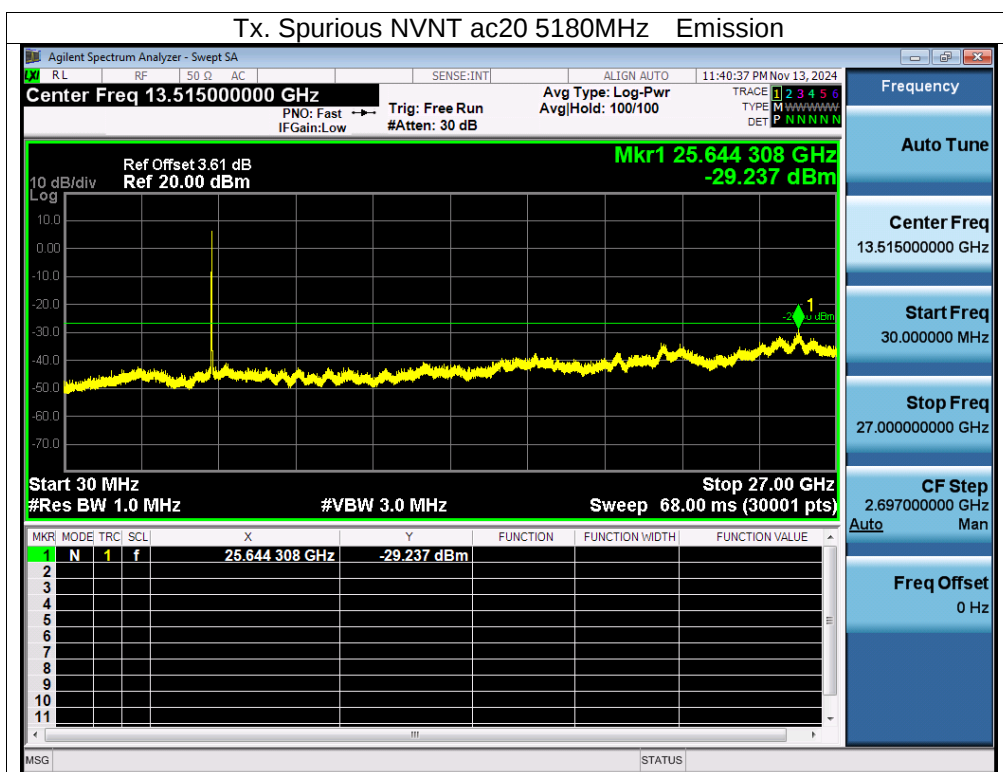
Tx. Spurious NVNT a 5200MHz Emission

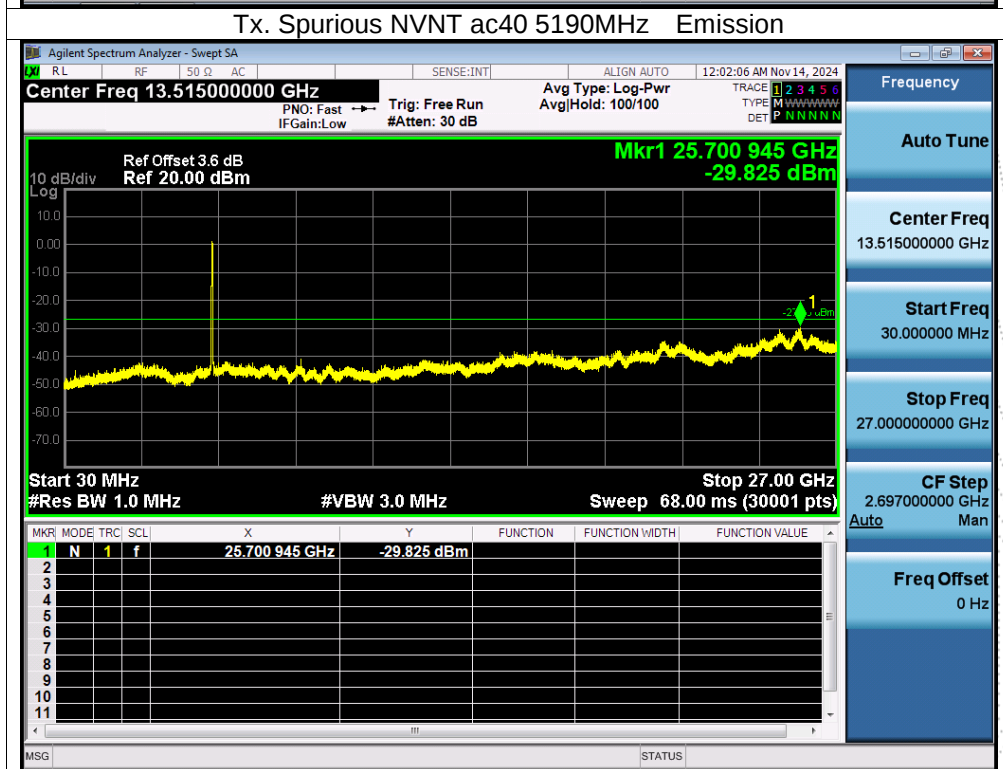
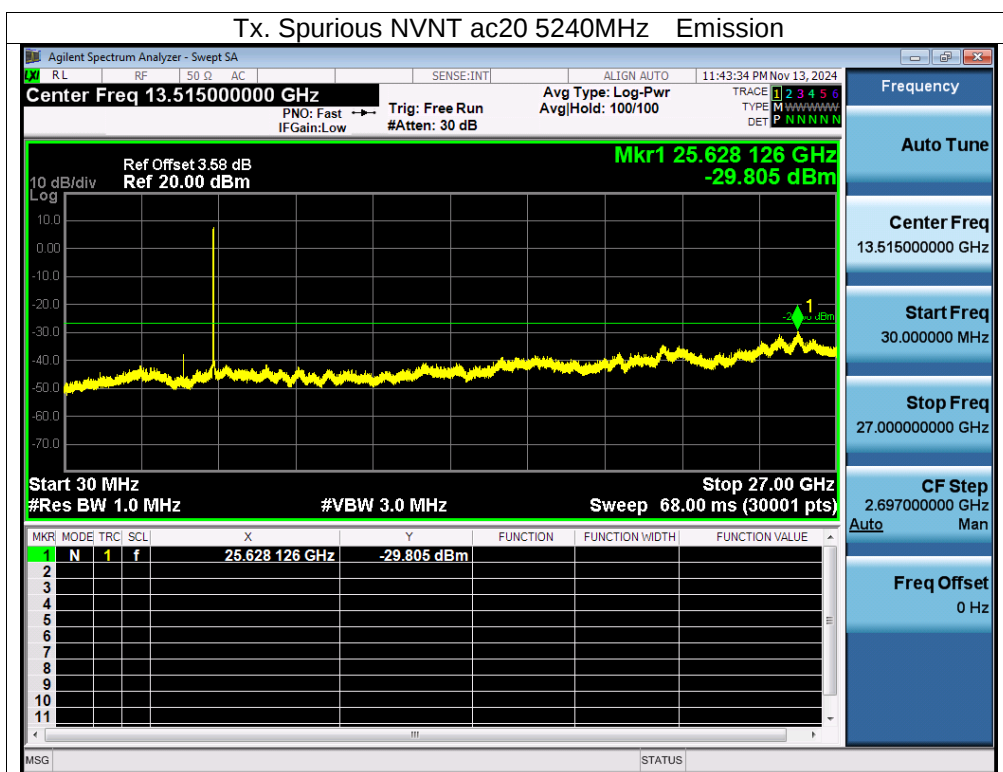


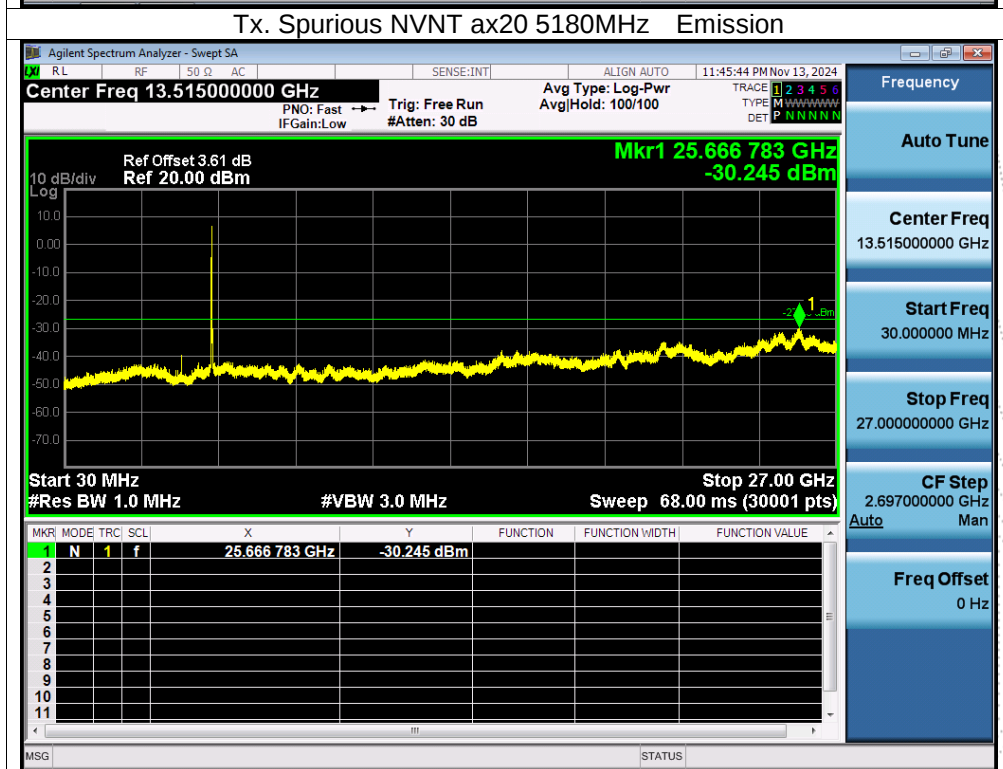
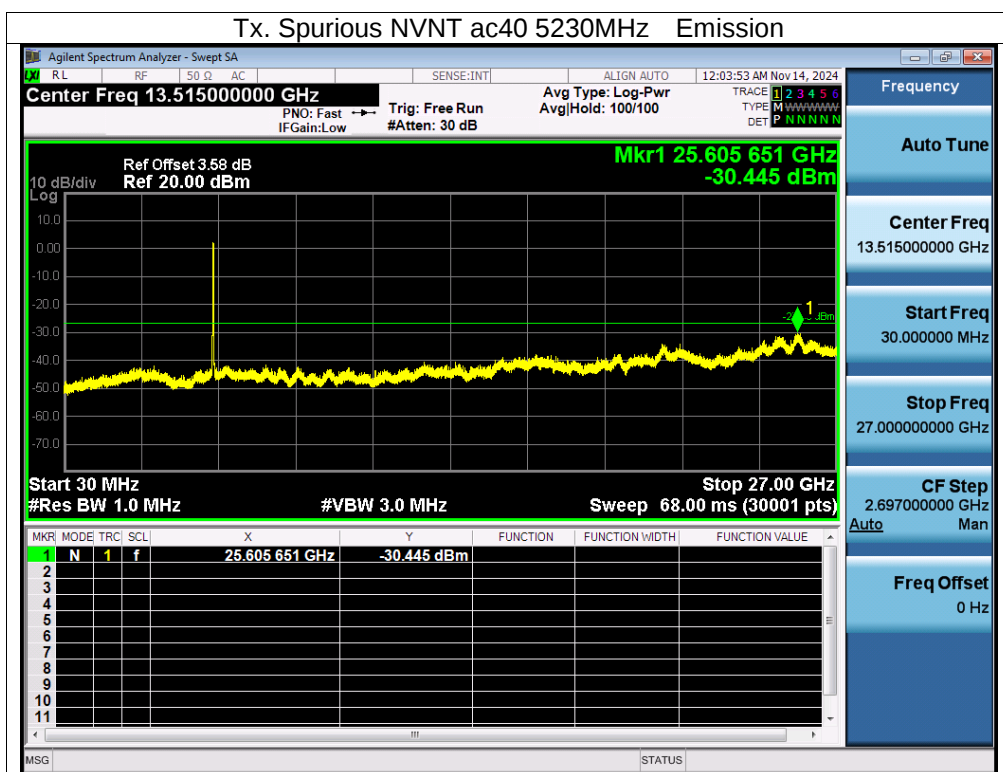


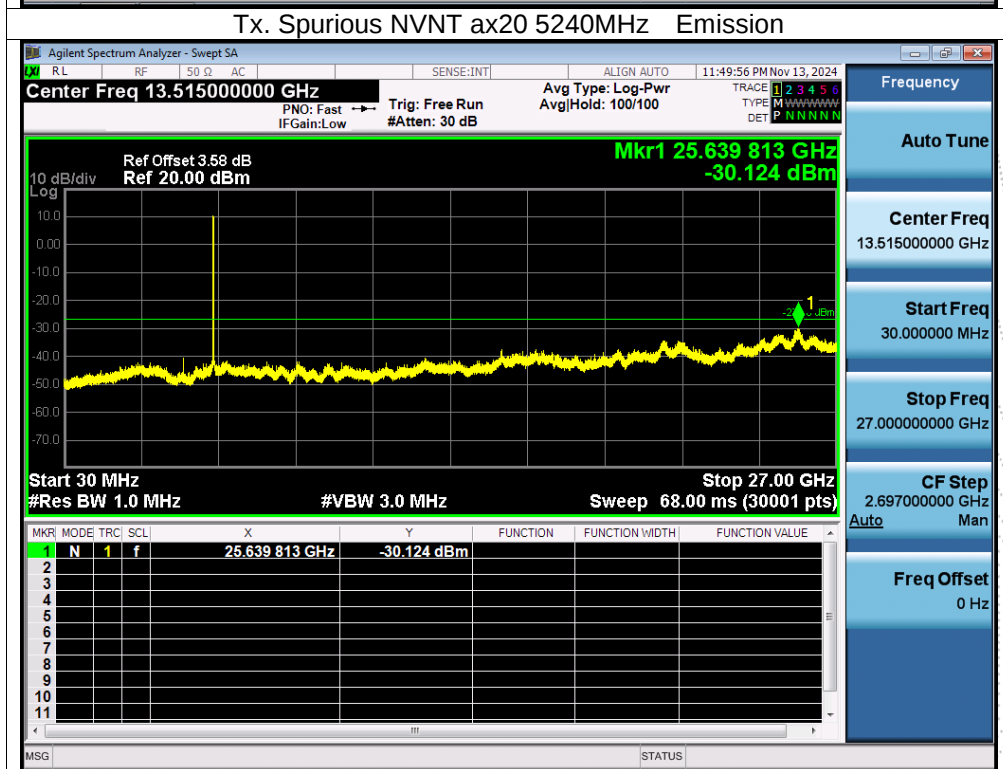
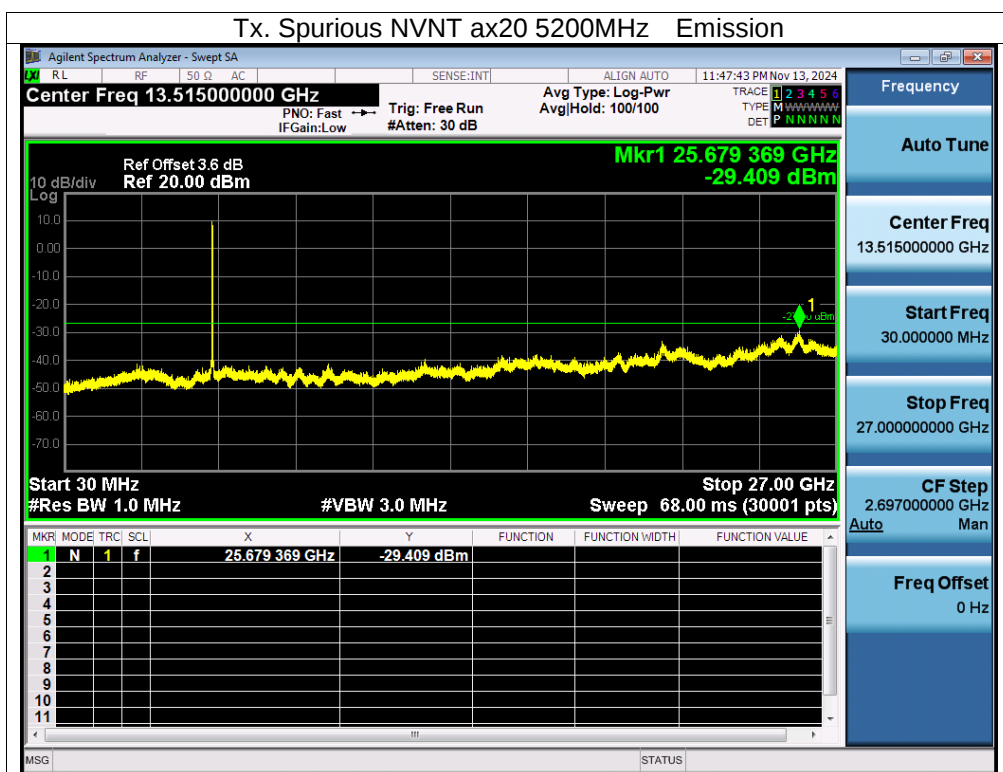


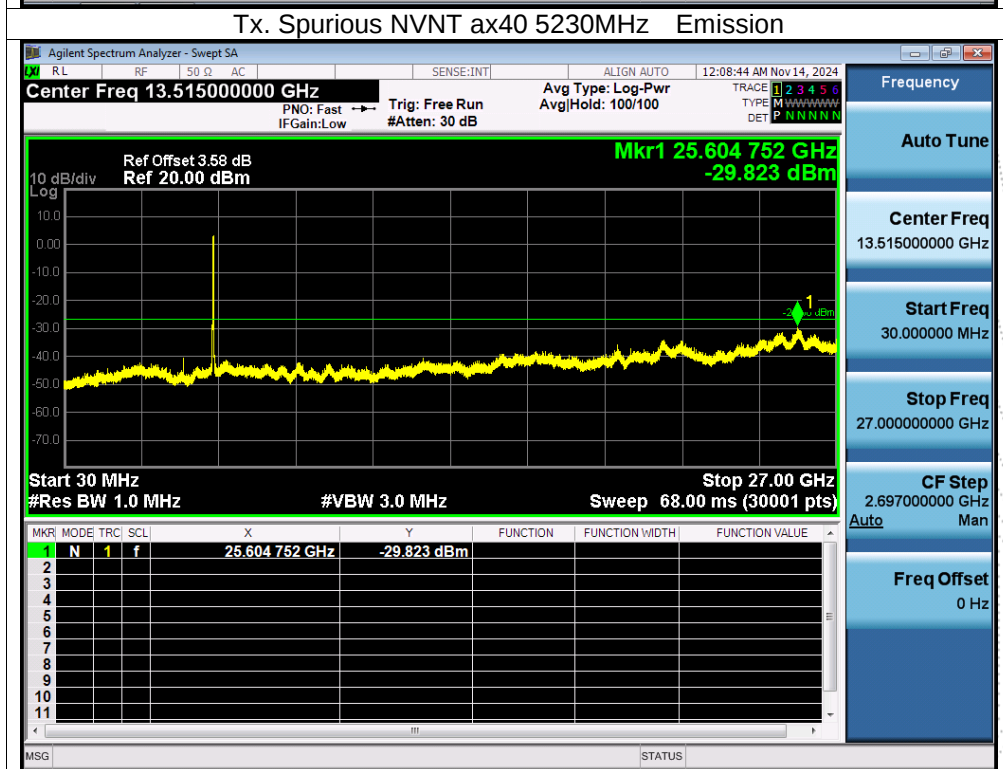
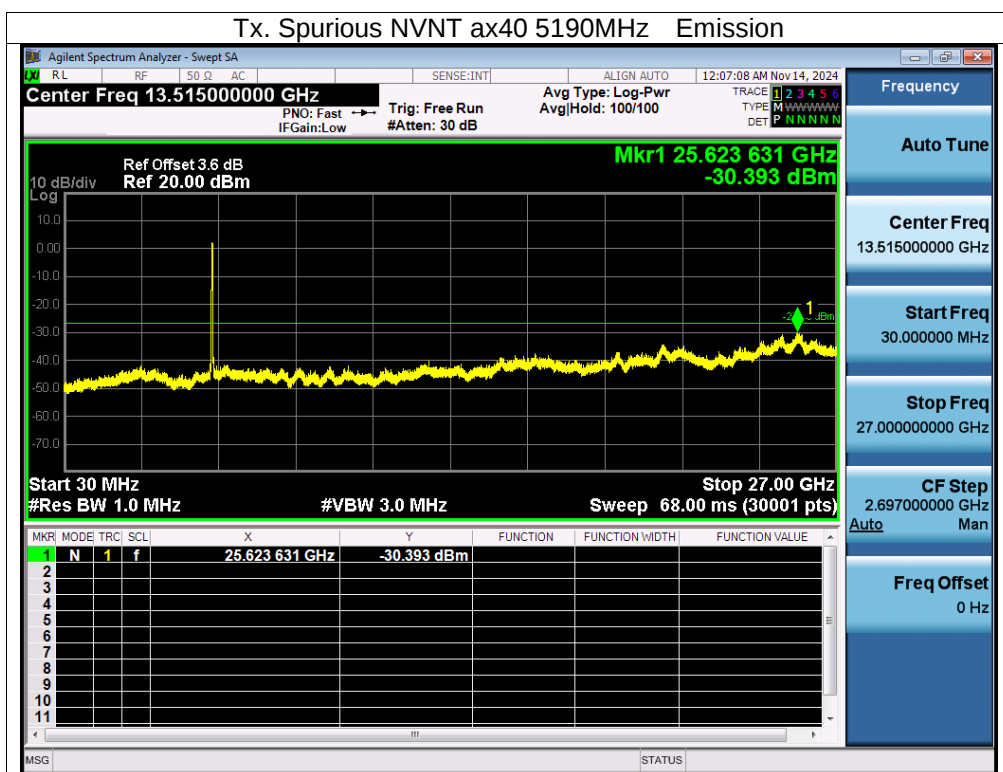






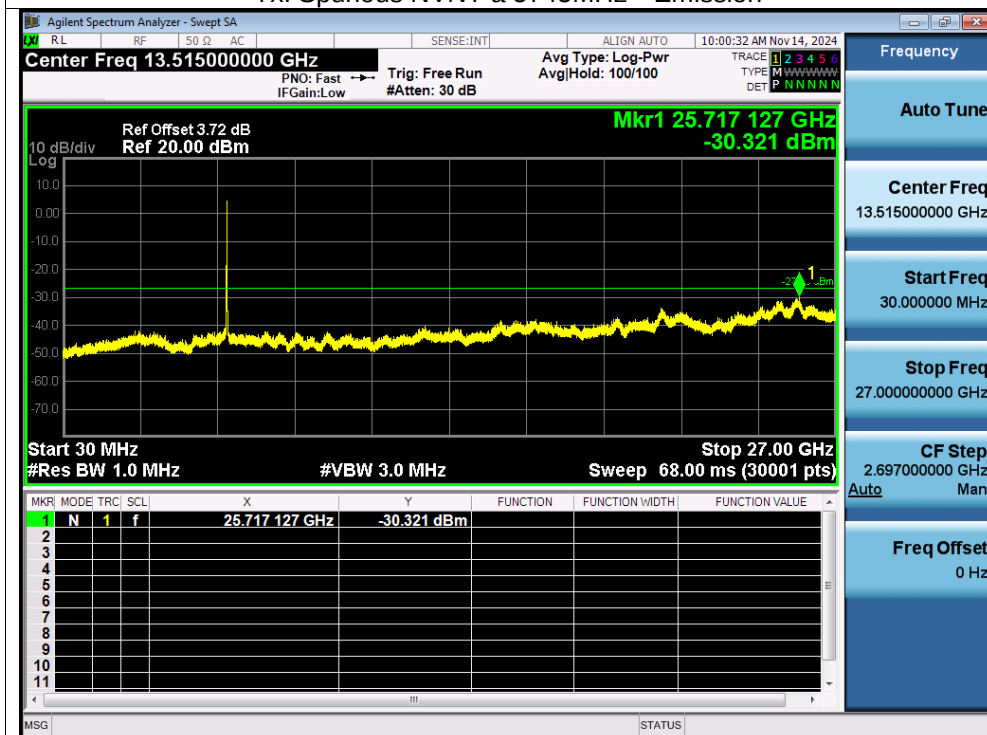




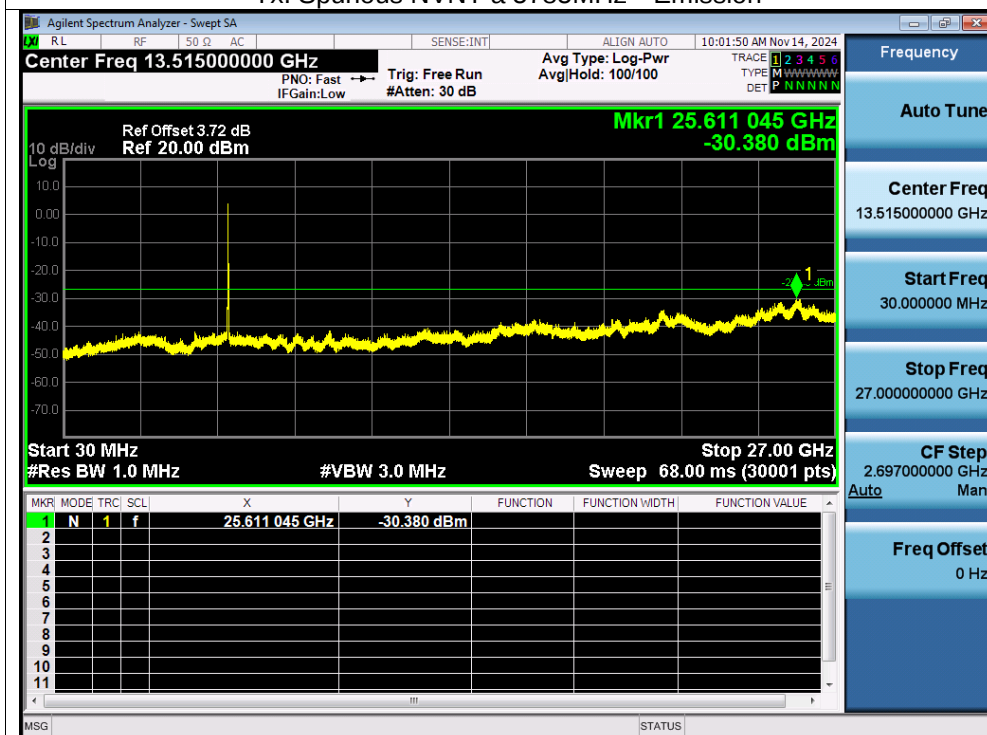


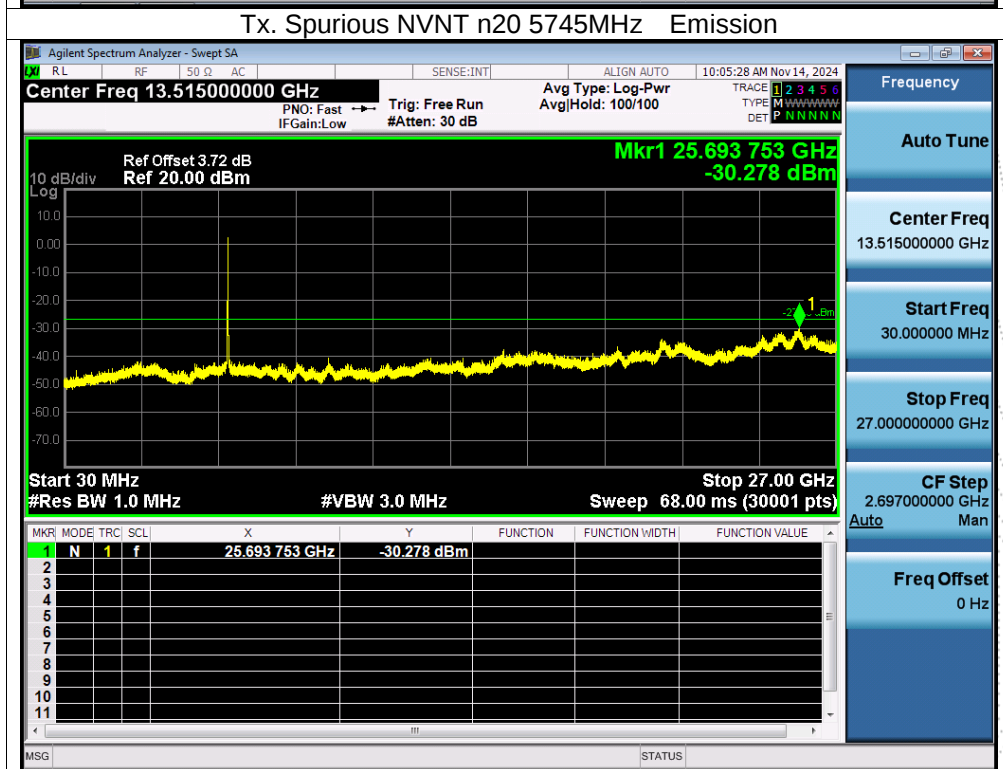
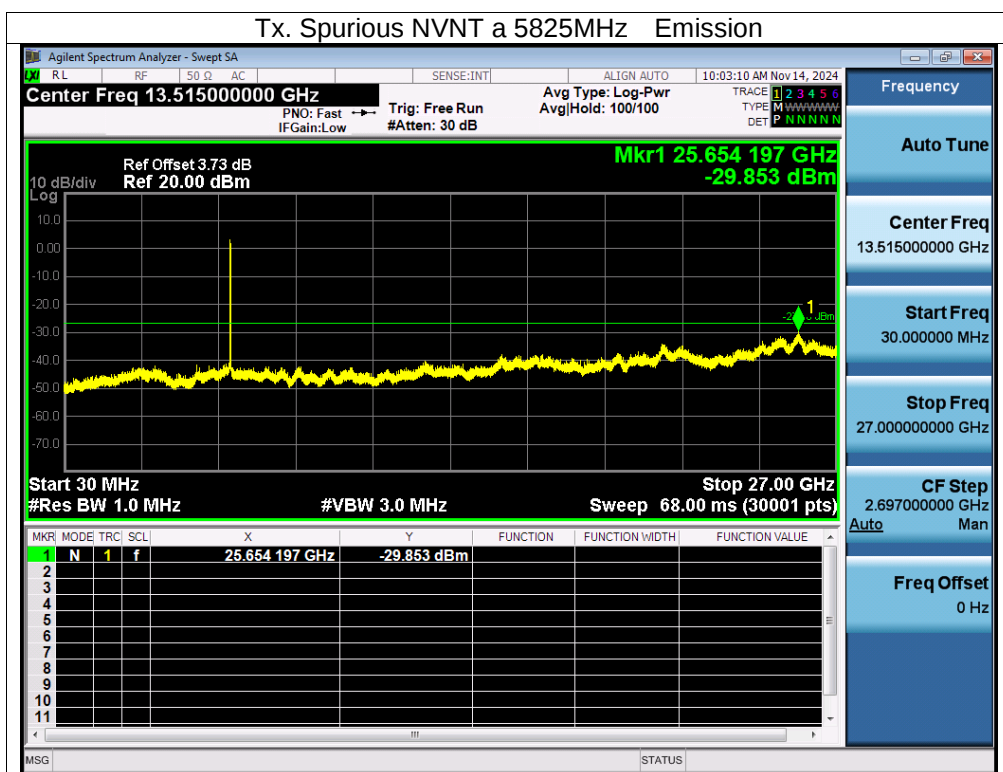
Test Graphs

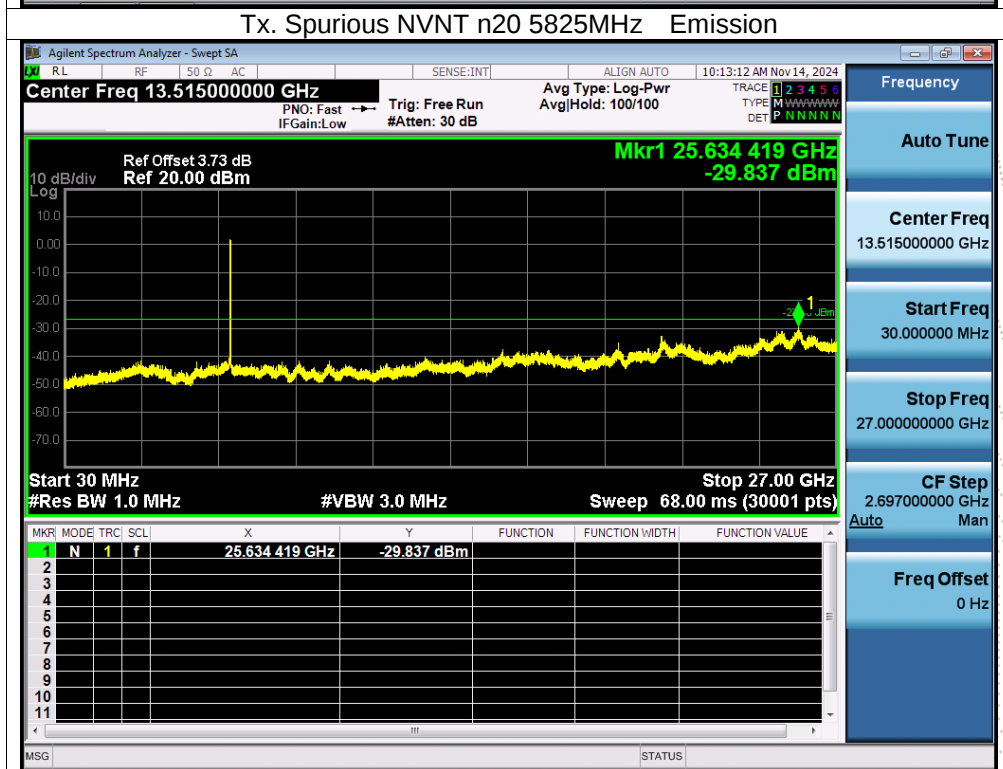
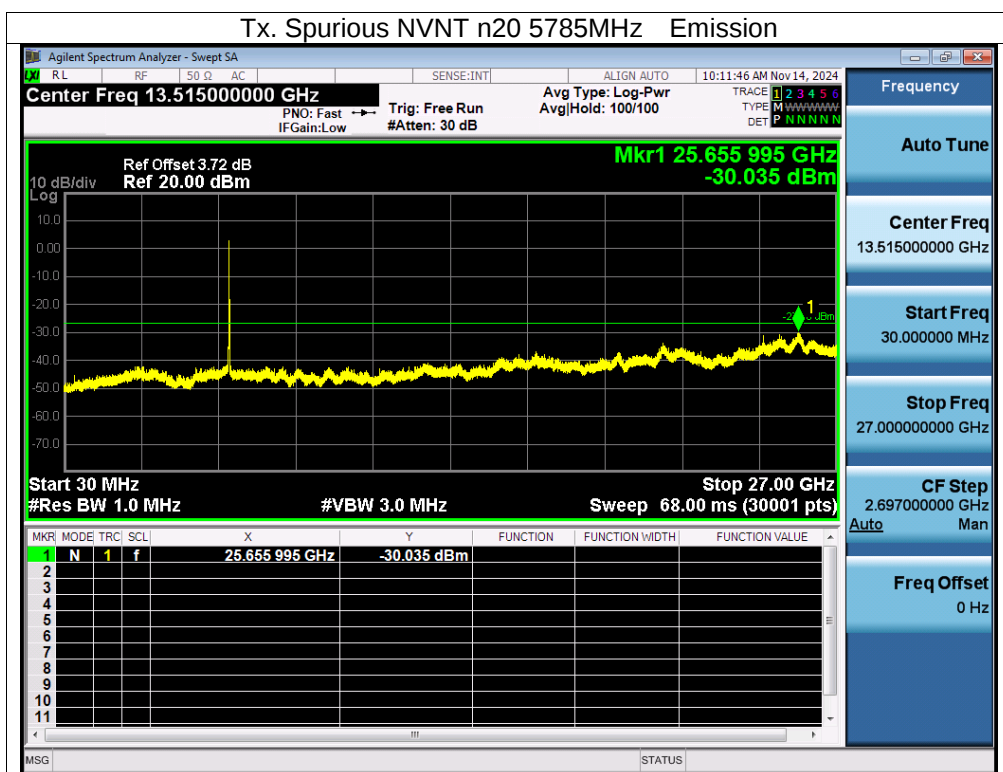
Tx. Spurious NVNT a 5745MHz Emission

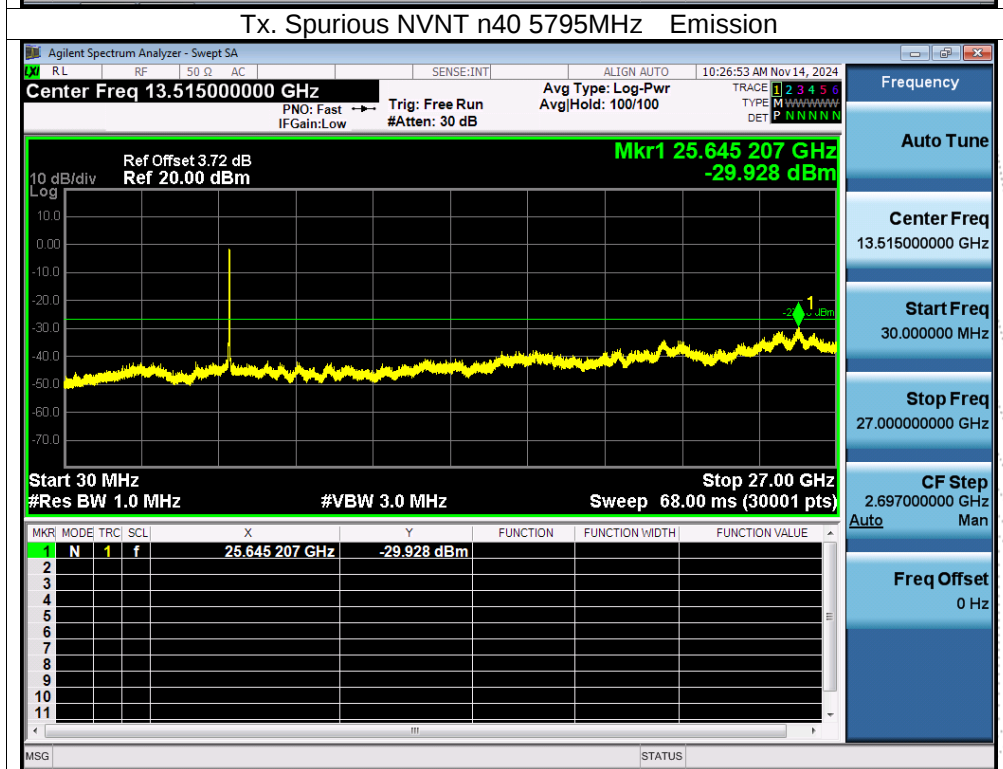
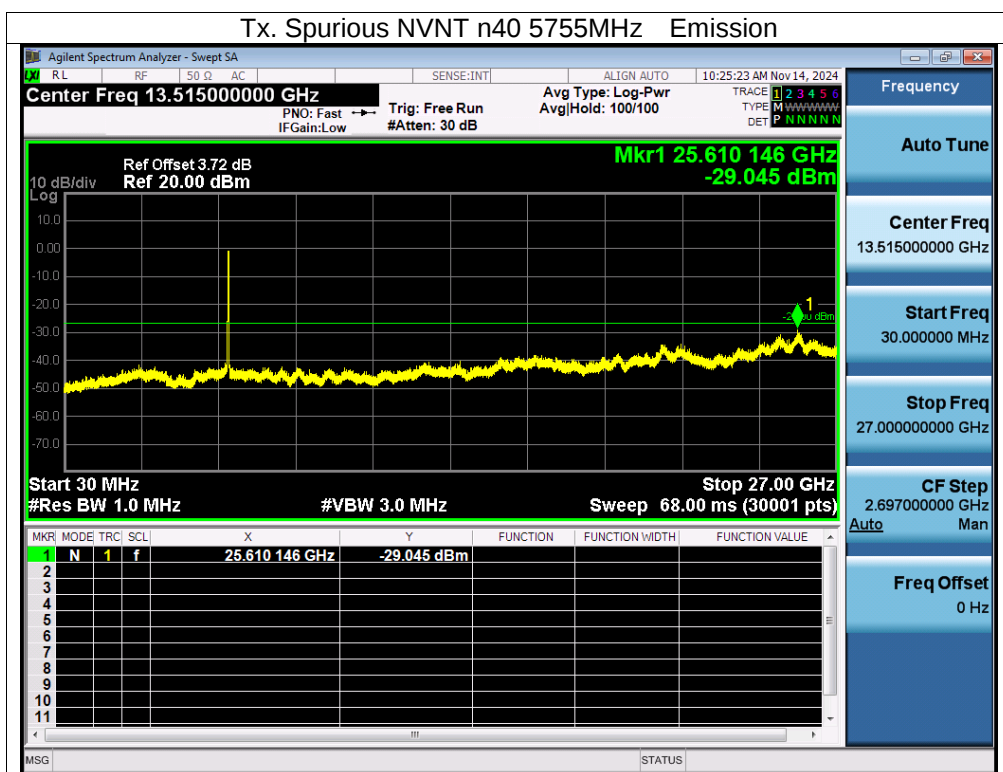


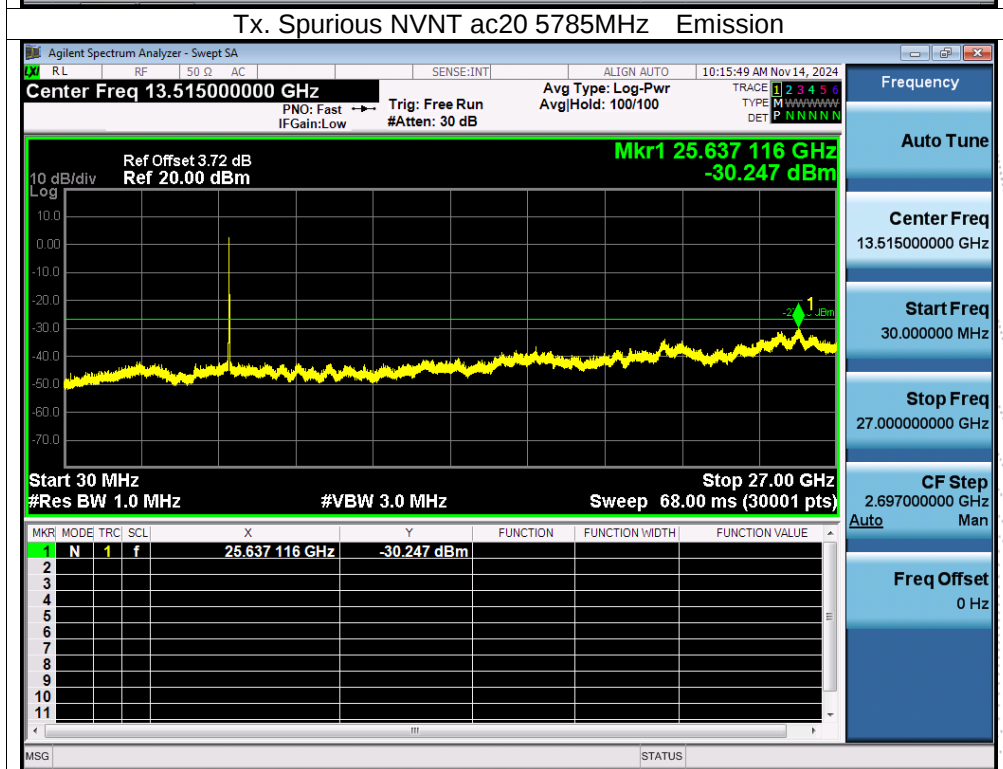
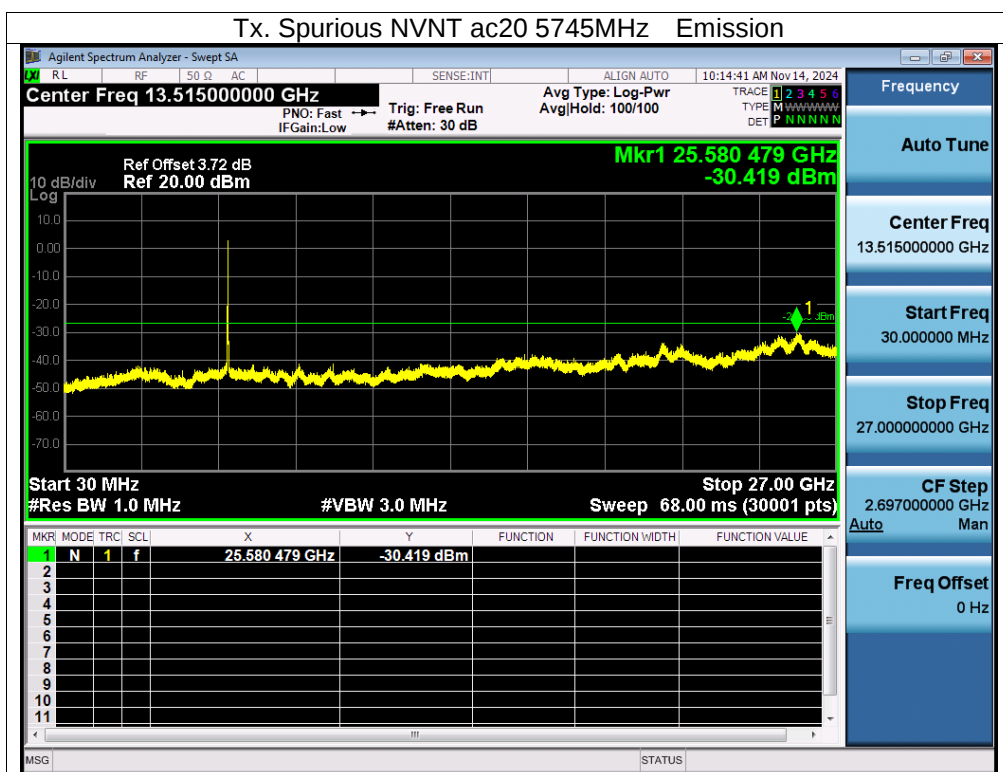
Tx. Spurious NVNT a 5785MHz Emission

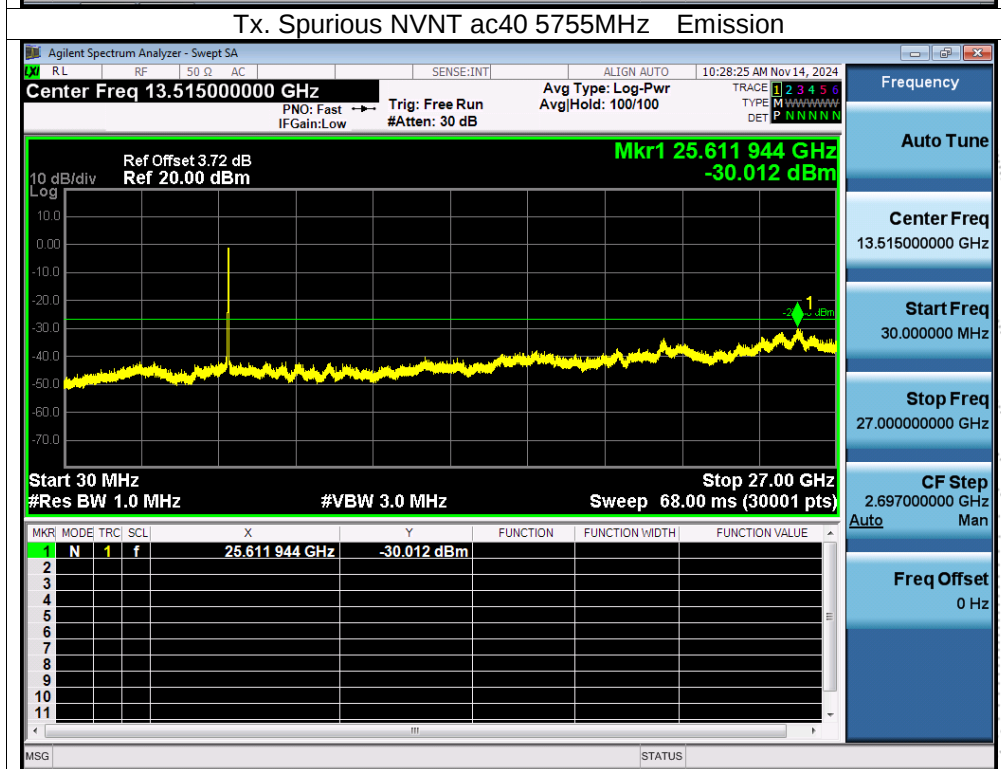
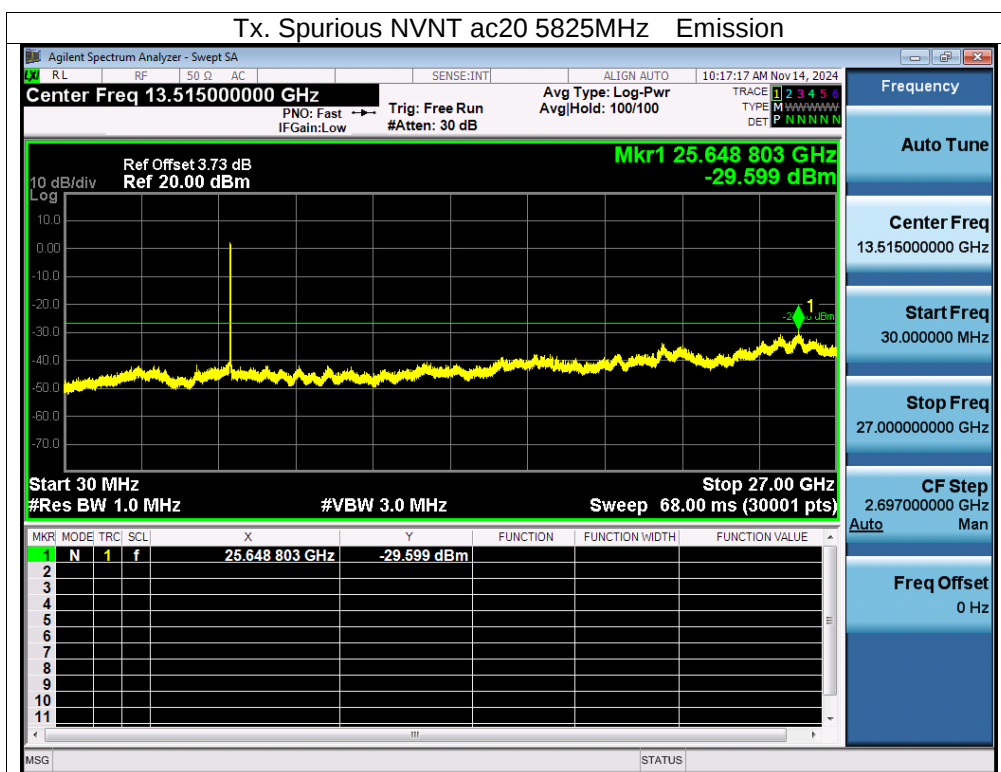


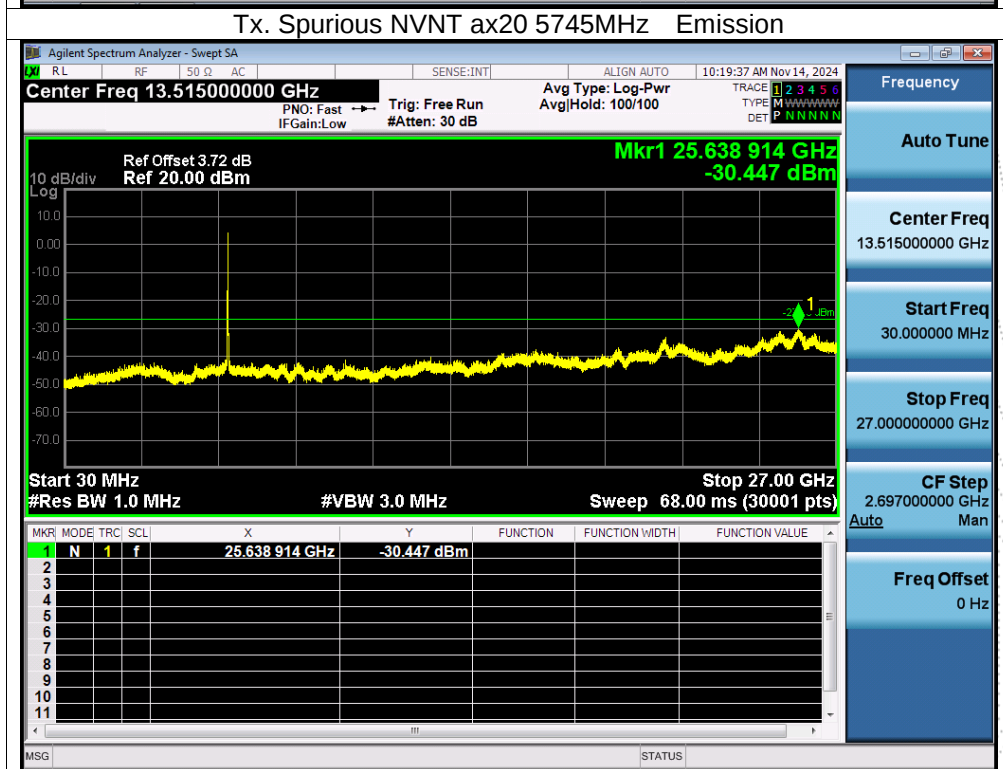
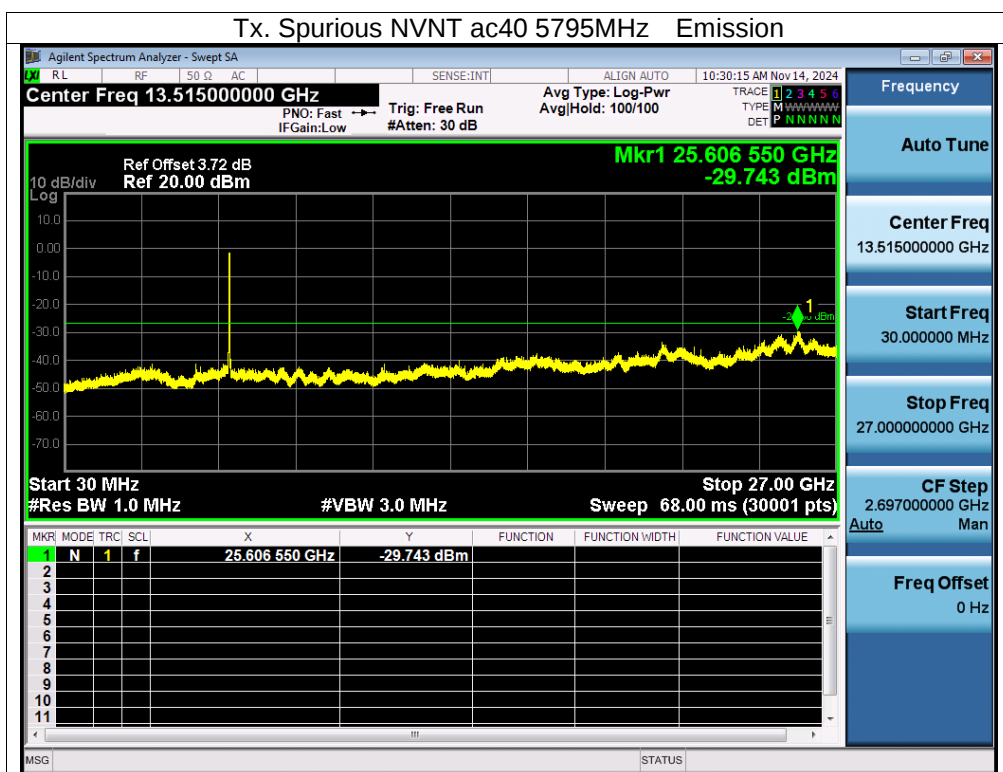


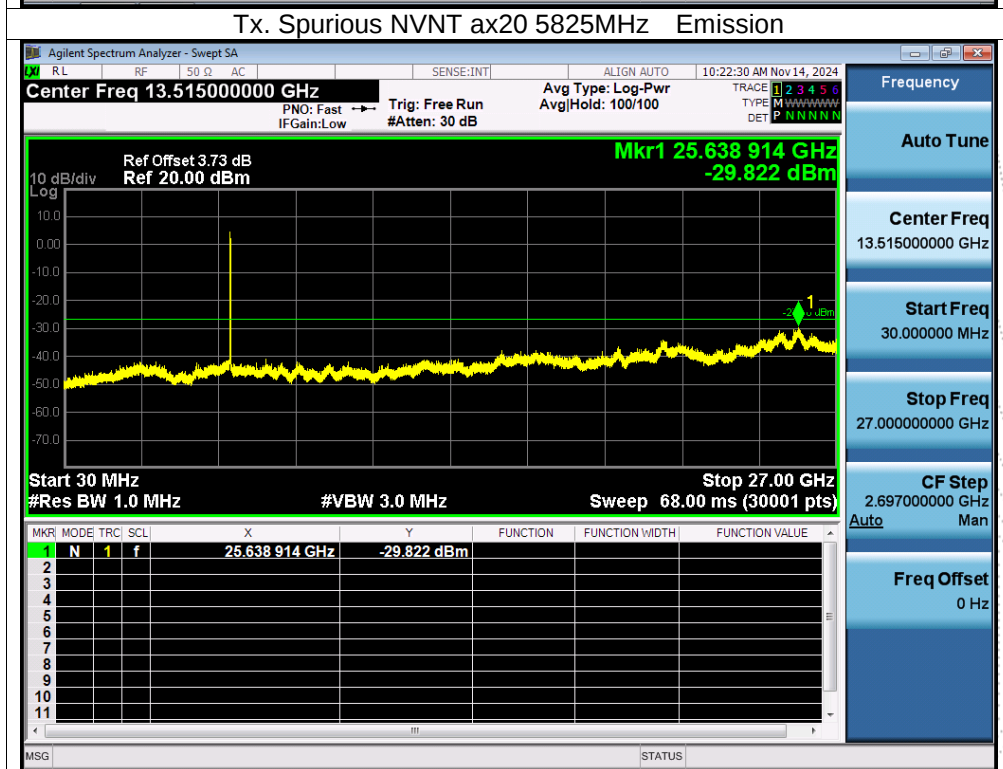
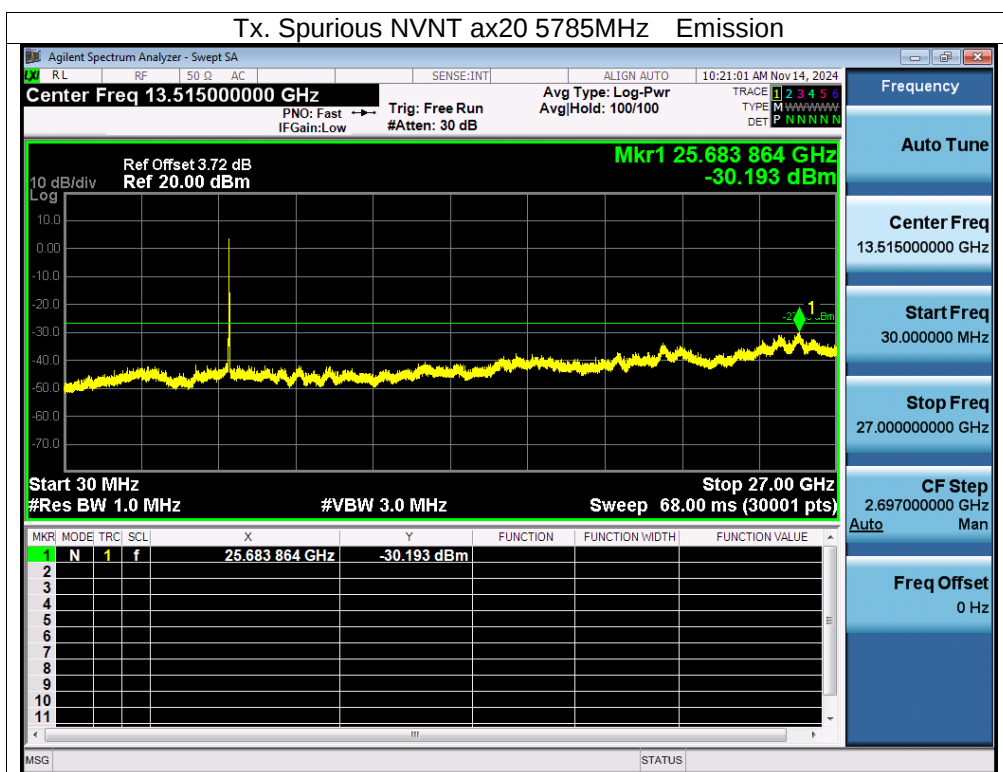


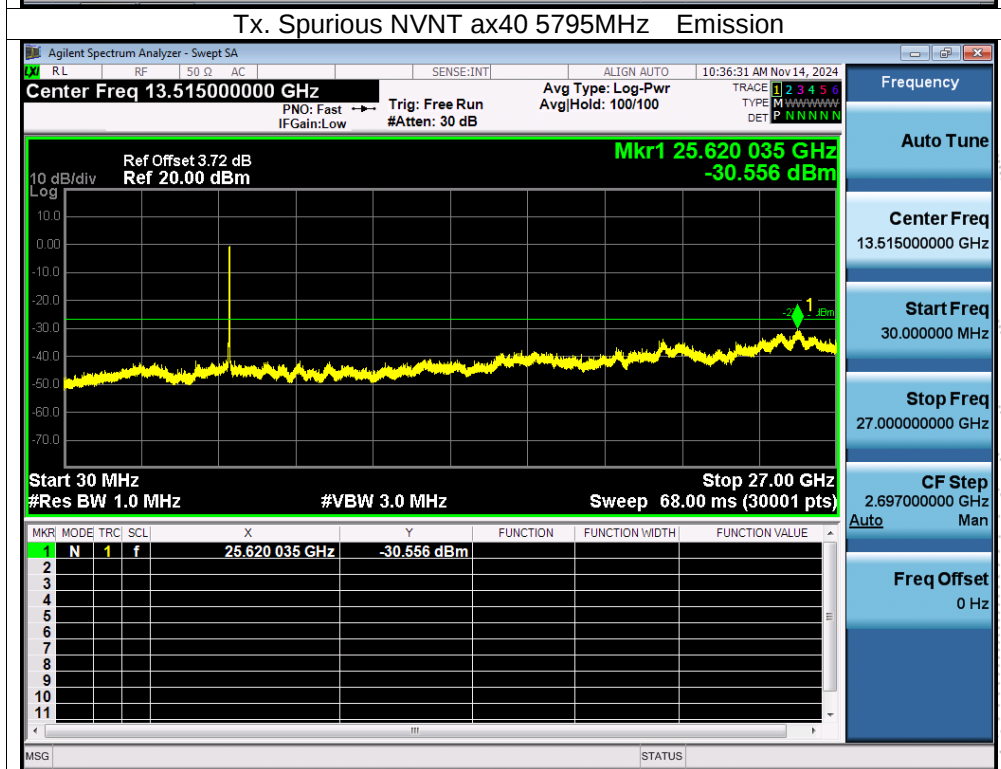
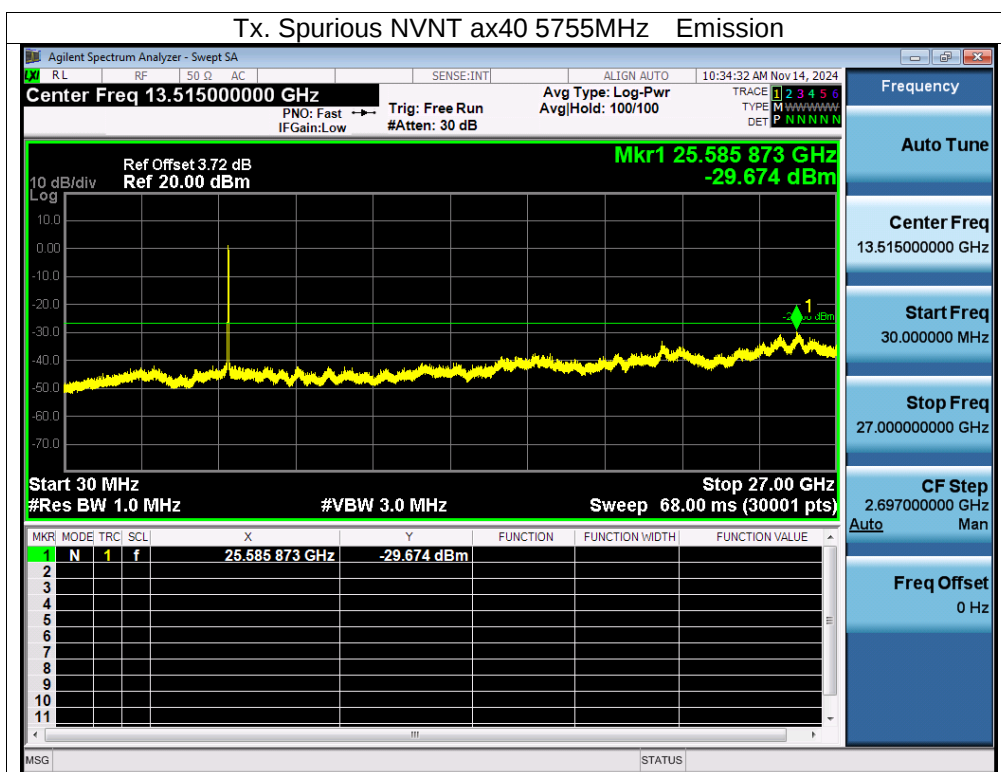












13. Frequency Stability Measurement

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. 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 3.8V
Test Mode:	TX 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)	3.80	5180.0038	5180	0.0038	0.7336
		V max (V)	4.37	5180.0042	5180	0.0042	0.8108
		V min (V)	3.23	5180.0072	5180	0.0072	1.3900
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)	3.8	T (°C)	-20	5180.0078	5180	0.0078	1.5058
		T (°C)	-10	5180.0008	5180	0.0008	0.1544
		T (°C)	0	5180.0075	5180	0.0075	1.4479
		T (°C)	10	5180.0063	5180	0.0063	1.2162
		T (°C)	20	5180.0010	5180	0.0010	0.1931
		T (°C)	30	5180.0069	5180	0.0069	1.3320
		T (°C)	40	5180.0109	5180	0.0109	2.1042
		T (°C)	50	5180.0120	5180	0.0120	2.3166
		T (°C)	60	5180.0076	5180	0.0076	1.4672
		T (°C)	70	5180.0044	5180	0.0044	0.8494
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)	3.80	5200.0054	5200	0.0054	1.0385
		V max (V)	4.37	5200.0065	5200	0.0065	1.2500
		V min (V)	3.23	5200.0049	5200	0.0049	0.9423
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5200.01320	5200	0.01320	2.5385
		T (°C)	-10	5200.00640	5200	0.00640	1.2308
		T (°C)	0	5200.00710	5200	0.00710	1.3654
		T (°C)	10	5200.01270	5200	0.01270	2.4423
		T (°C)	20	5200.01260	5200	0.01260	2.4231
		T (°C)	30	5200.01250	5200	0.01250	2.4038
		T (°C)	40	5200.00010	5200	0.00010	0.0192
		T (°C)	50	5200.01190	5200	0.01190	2.2885
		T (°C)	60	5200.00610	5200	0.00610	1.1731
		T (°C)	70	5200.00770	5200	0.00770	1.4808
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)	3.80	5240.0095	5240	0.0095	1.8130
		V max (V)	4.37	5240.0069	5240	0.0069	1.3168
		V min (V)	3.23	5240.0022	5240	0.0022	0.4198
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)	3.8	T (°C)	-20	5240.0059	5240	0.0059	1.1260
		T (°C)	-10	5240.0001	5240	0.0001	0.0191
		T (°C)	0	5240.0045	5240	0.0045	0.8588
		T (°C)	10	5240.0073	5240	0.0073	1.3931
		T (°C)	20	5240.0106	5240	0.0106	2.0229
		T (°C)	30	5240.0022	5240	0.0022	0.4198
		T (°C)	40	5240.0106	5240	0.0106	2.0229
		T (°C)	50	5240.0112	5240	0.0112	2.1374
		T (°C)	60	5240.0131	5240	0.0131	2.5000
		T (°C)	70	5240.0129	5240	0.0129	2.4618
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.8V
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)	3.80	5745.00430	5745	0.00430	0.7485
		V max (V)	4.37	5745.00450	5745	0.00450	0.7833
		V min (V)	3.23	5745.01030	5745	0.01030	1.7929
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)	3.8	T (°C)	-20	5745.00450	5745	0.00450	0.7833
		T (°C)	-10	5745.00140	5745	0.00140	0.2437
		T (°C)	0	5745.00730	5745	0.00730	1.2707
		T (°C)	10	5745.00630	5745	0.00630	1.0966
		T (°C)	20	5745.00430	5745	0.00430	0.7485
		T (°C)	30	5745.00020	5745	0.00020	0.0348
		T (°C)	40	5745.00330	5745	0.00330	0.5744
		T (°C)	50	5745.01330	5745	0.01330	2.3151
		T (°C)	60	5745.00760	5745	0.00760	1.3229
		T (°C)	70	5745.00170	5745	0.00170	0.2959
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)	3.80	5785.00320	5785	0.00320	0.5532
		V max (V)	4.37	5785.00910	5785	0.00910	1.5730
		V min (V)	3.23	5785.00320	5785	0.00320	0.5532
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)	3.8	T (°C)	-20	5785.01250	5785	0.01250	2.1608
		T (°C)	-10	5785.00960	5785	0.00960	1.6595
		T (°C)	0	5785.00680	5785	0.00680	1.1755
		T (°C)	10	5785.00410	5785	0.00410	0.7087
		T (°C)	20	5785.00720	5785	0.00720	1.2446
		T (°C)	30	5785.00530	5785	0.00530	0.9162
		T (°C)	40	5785.00690	5785	0.00690	1.1927
		T (°C)	50	5785.00940	5785	0.00940	1.6249
		T (°C)	60	5785.01240	5785	0.01240	2.1435
		T (°C)	70	5785.01140	5785	0.01140	1.9706
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)	3.80	5825.01080	5825	0.01080	1.8541
		V max (V)	4.37	5825.01140	5825	0.01140	1.9571
		V min (V)	3.23	5825.00360	5825	0.00360	0.6180
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)	3.8	T (°C)	-20	5825.00380	5825	0.00380	0.6524
		T (°C)	-10	5825.01300	5825	0.01300	2.2318
		T (°C)	0	5825.00950	5825	0.00950	1.6309
		T (°C)	10	5825.00280	5825	0.00280	0.4807
		T (°C)	20	5825.00000	5825	0.00000	0.0000
		T (°C)	30	5825.01190	5825	0.01190	2.0429
		T (°C)	40	5825.01050	5825	0.01050	1.8026
		T (°C)	50	5825.00510	5825	0.00510	0.8755
		T (°C)	60	5825.01030	5825	0.01030	1.7682
		T (°C)	70	5825.01240	5825	0.01240	2.1288
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

5.1G

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