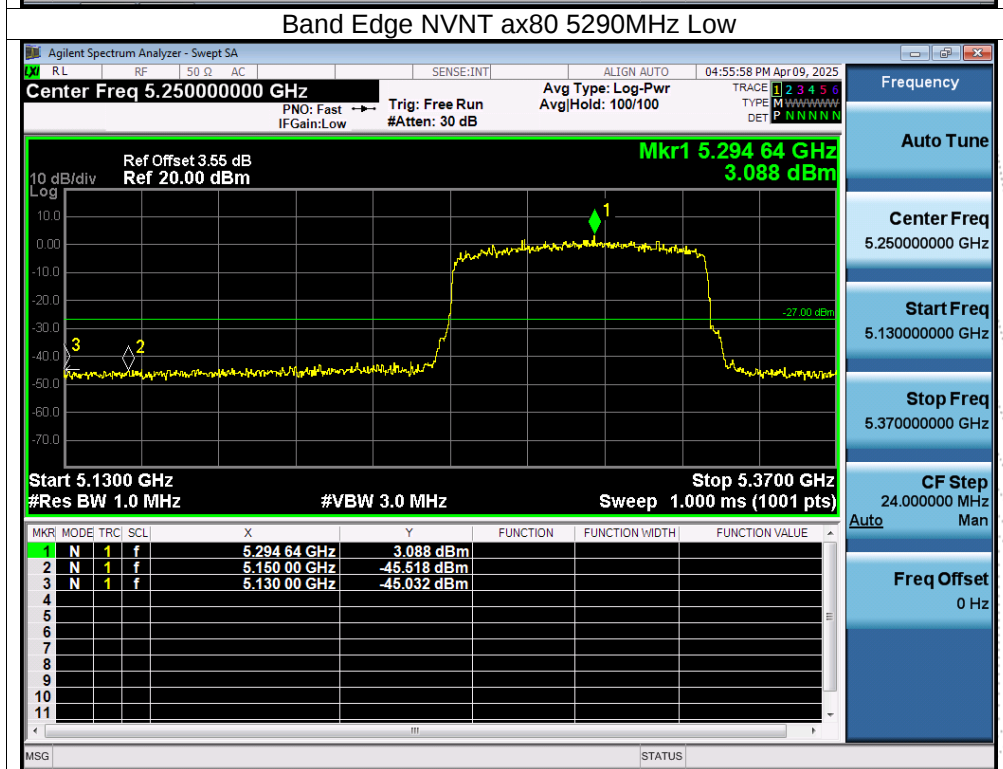
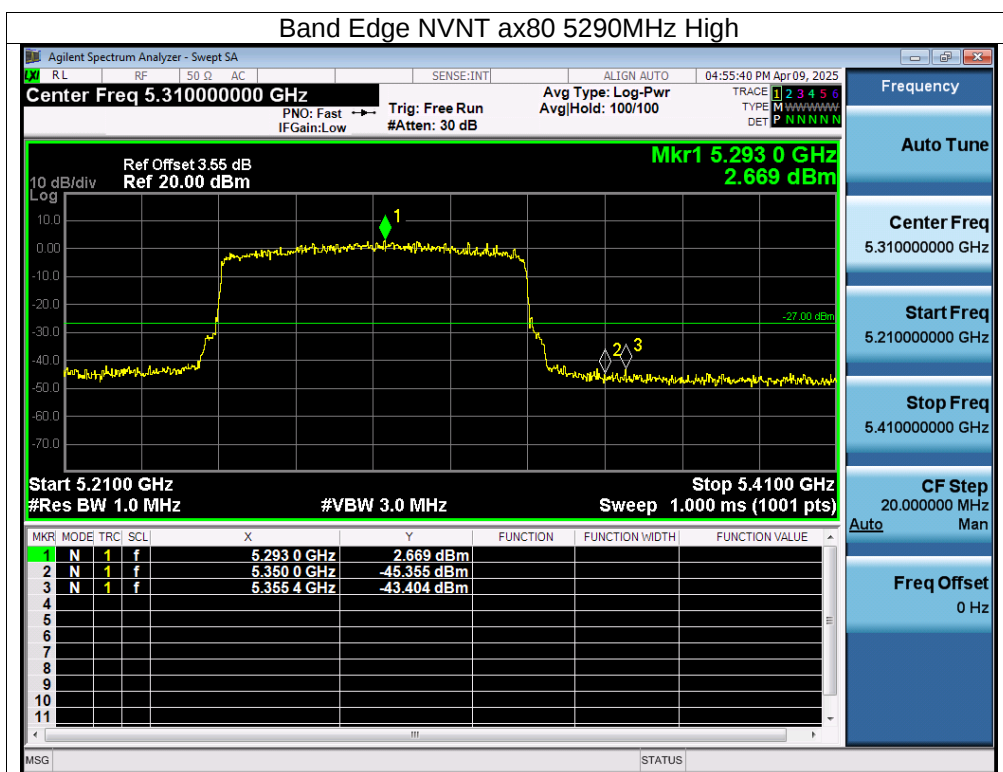
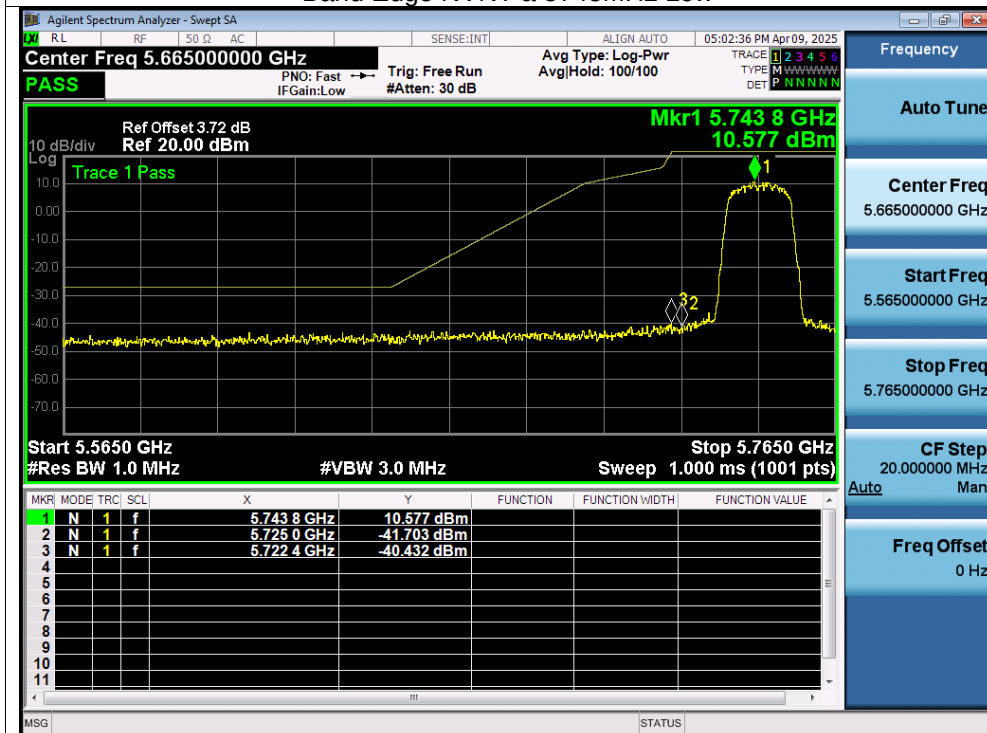


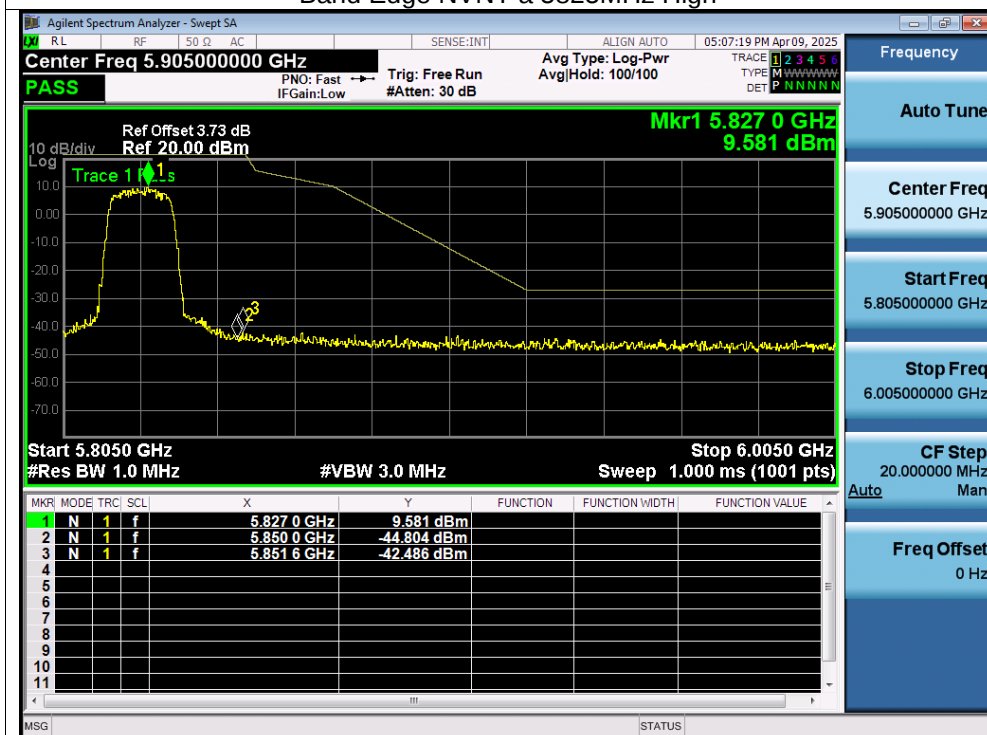


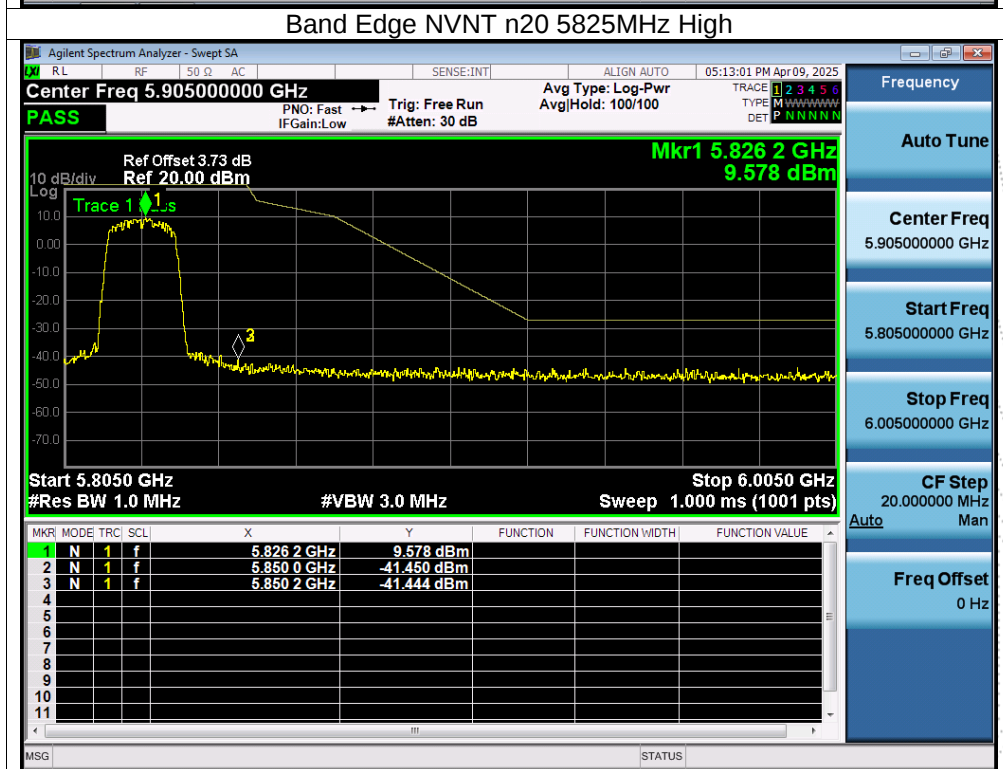
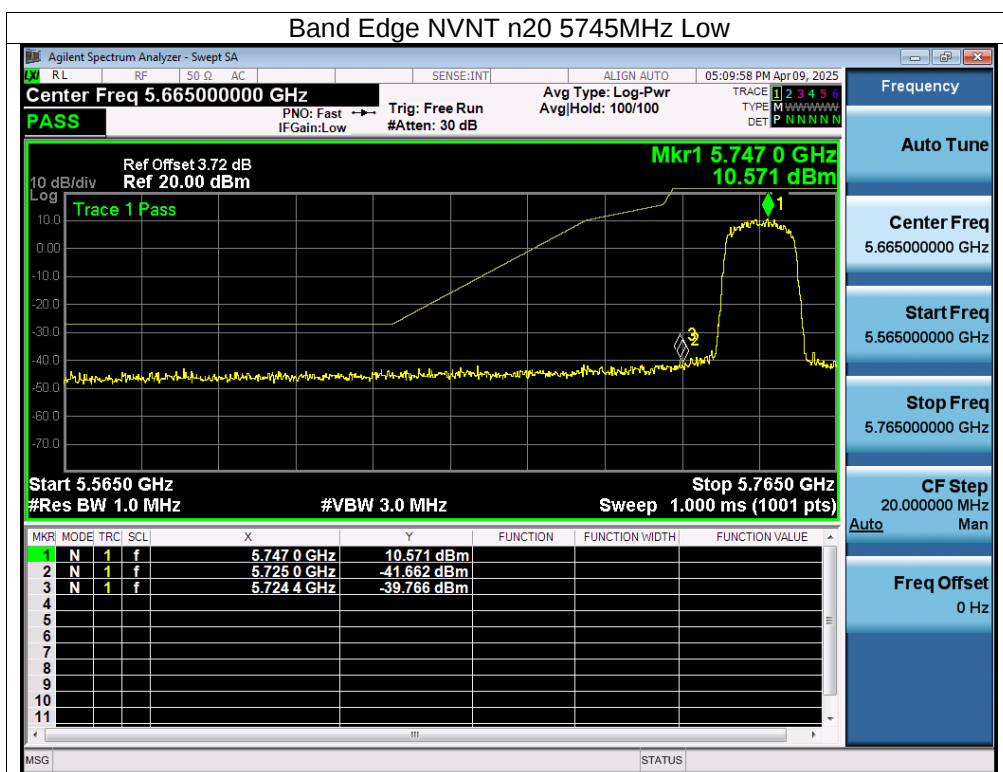
Test Graphs

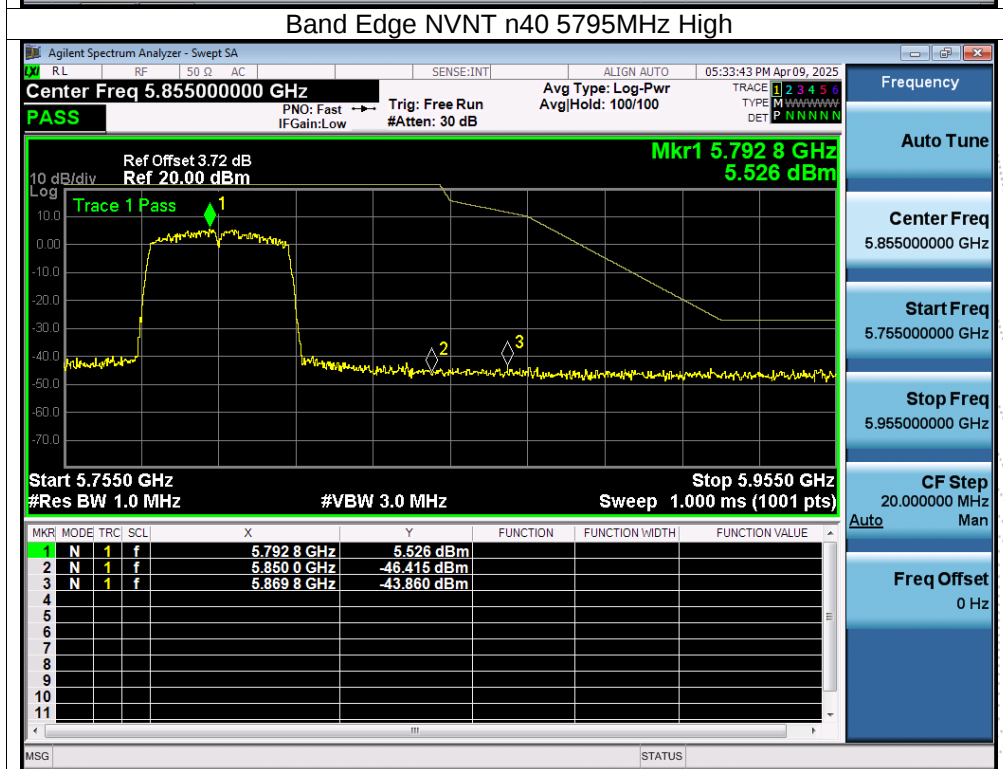
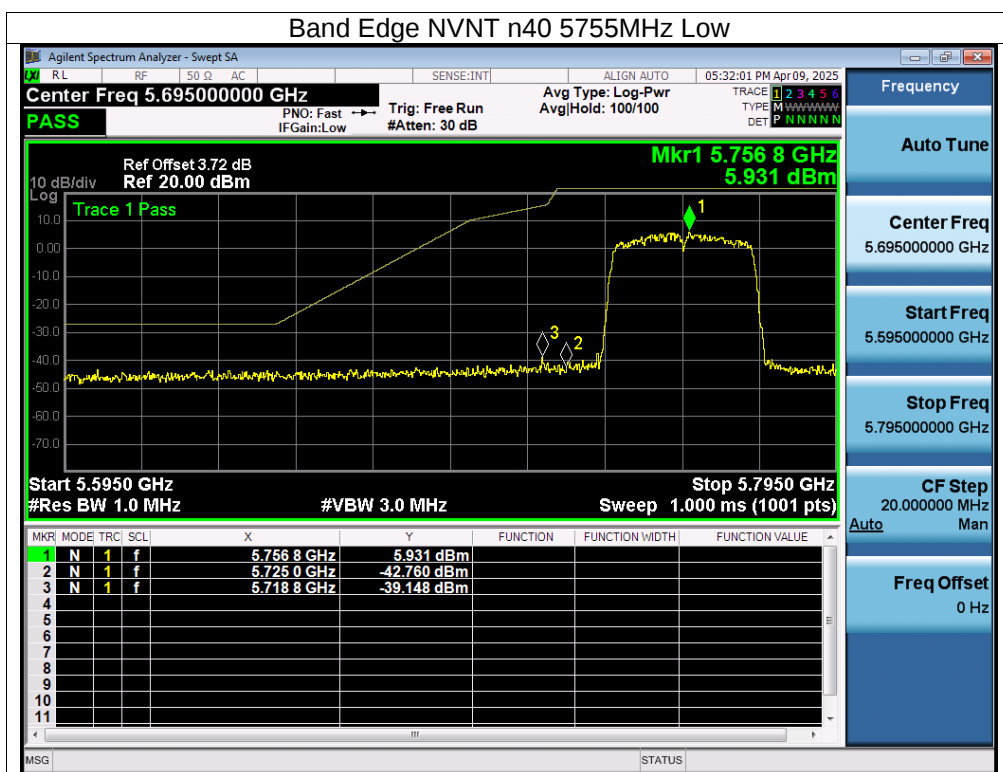
Band Edge NVNT a 5745MHz Low

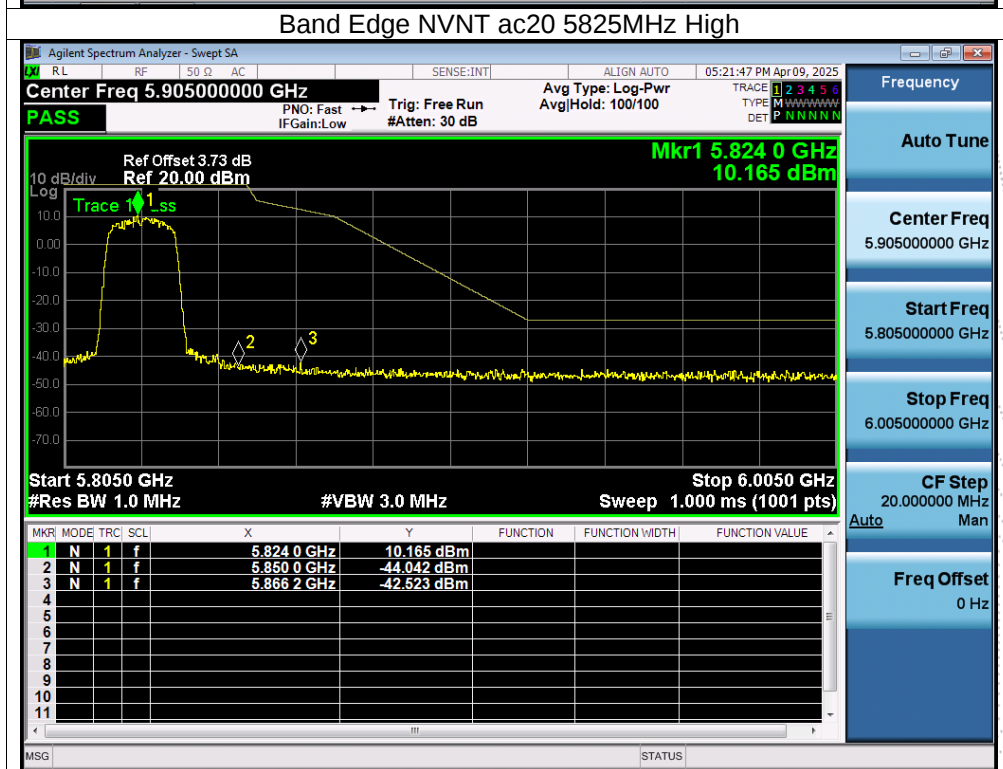
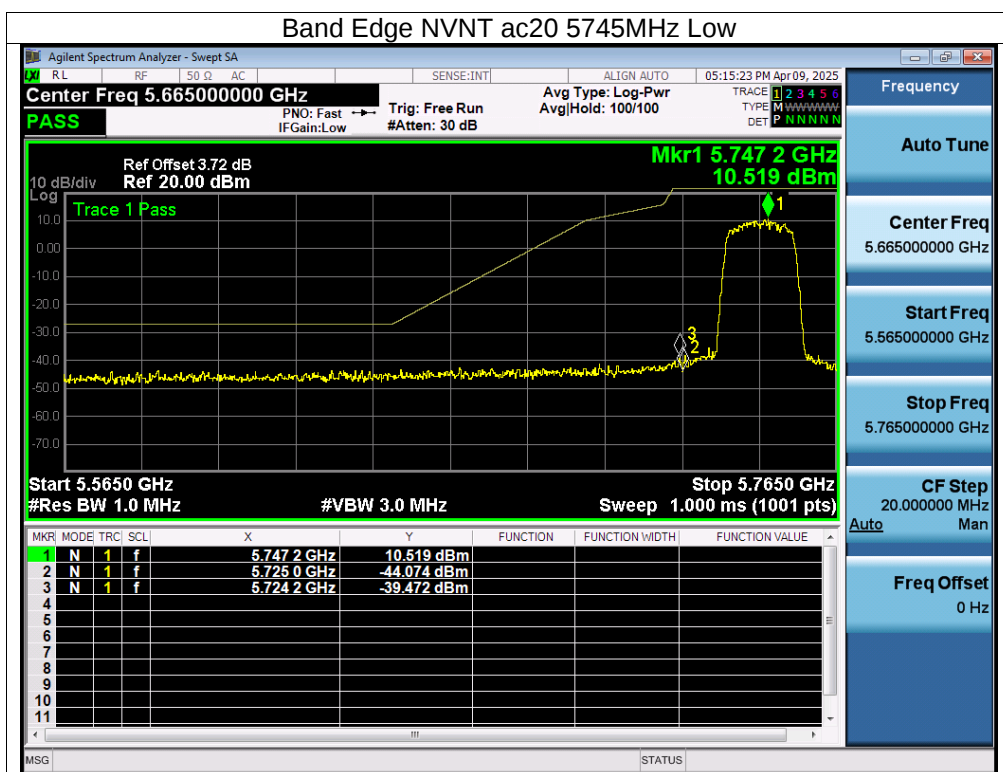


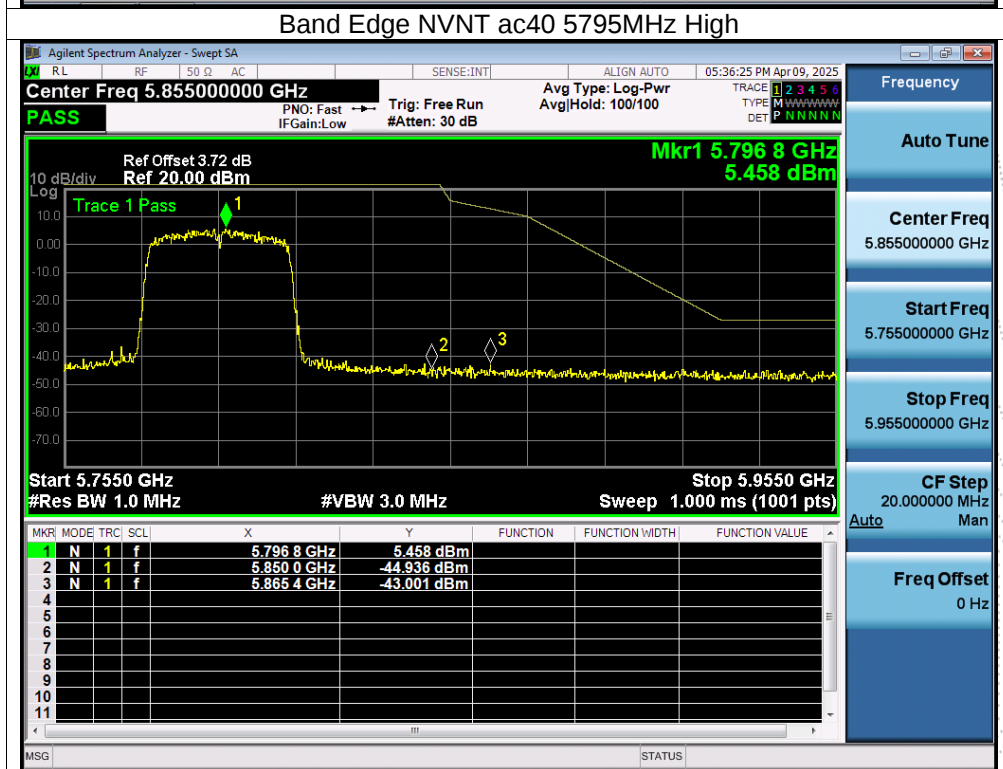
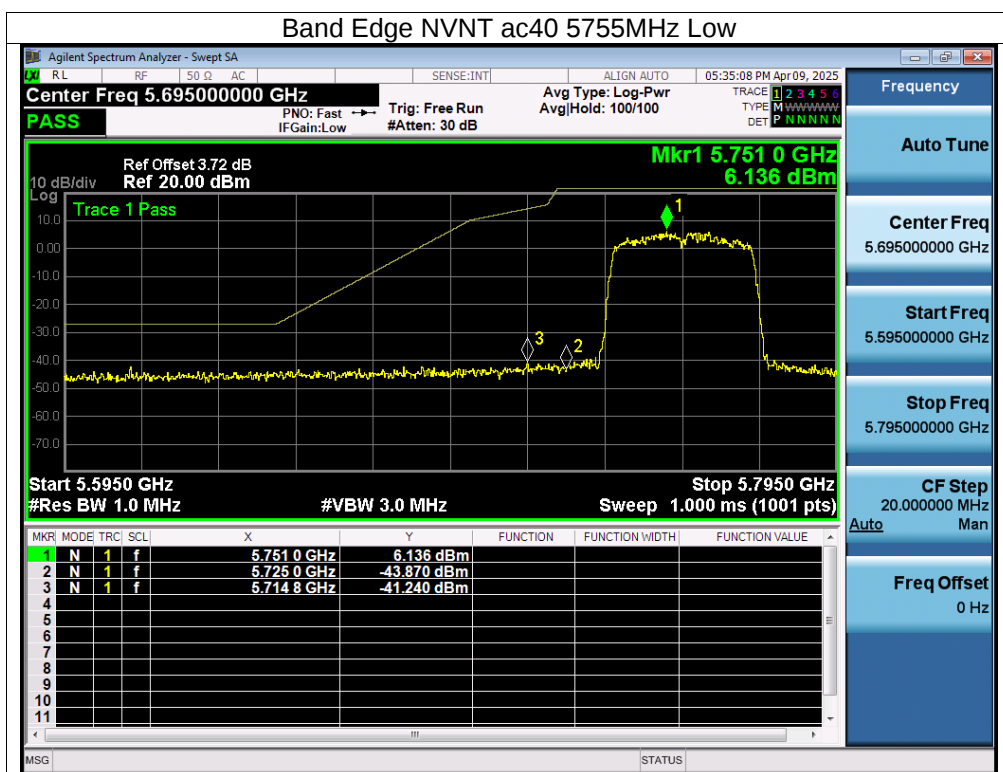
Band Edge NVNT a 5825MHz High

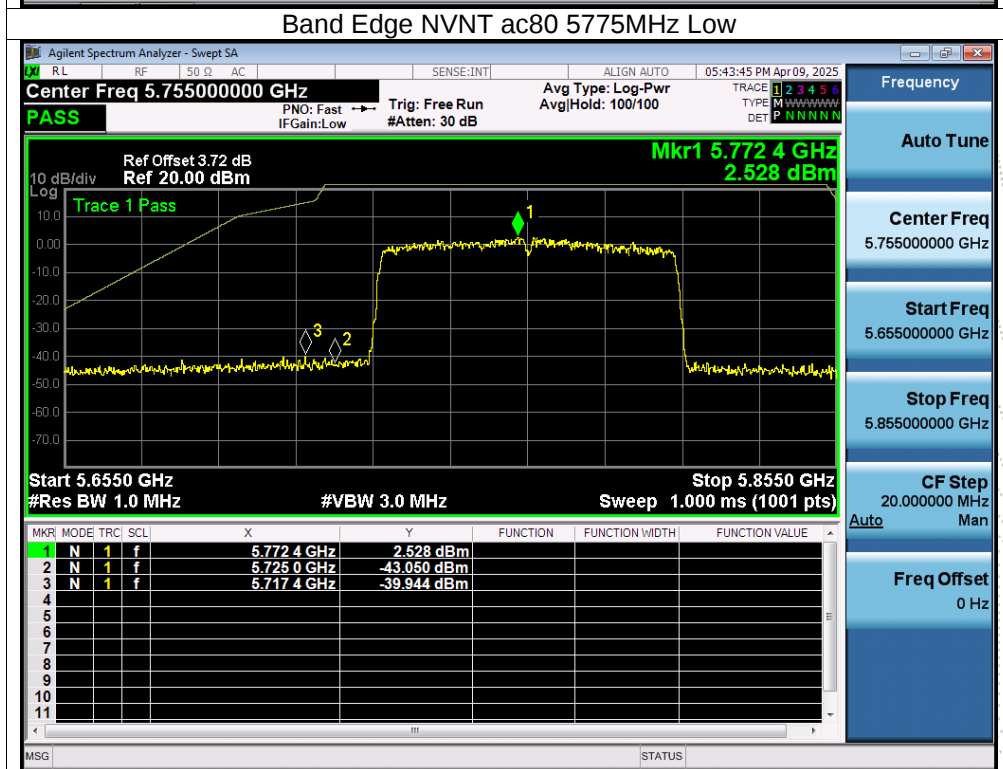
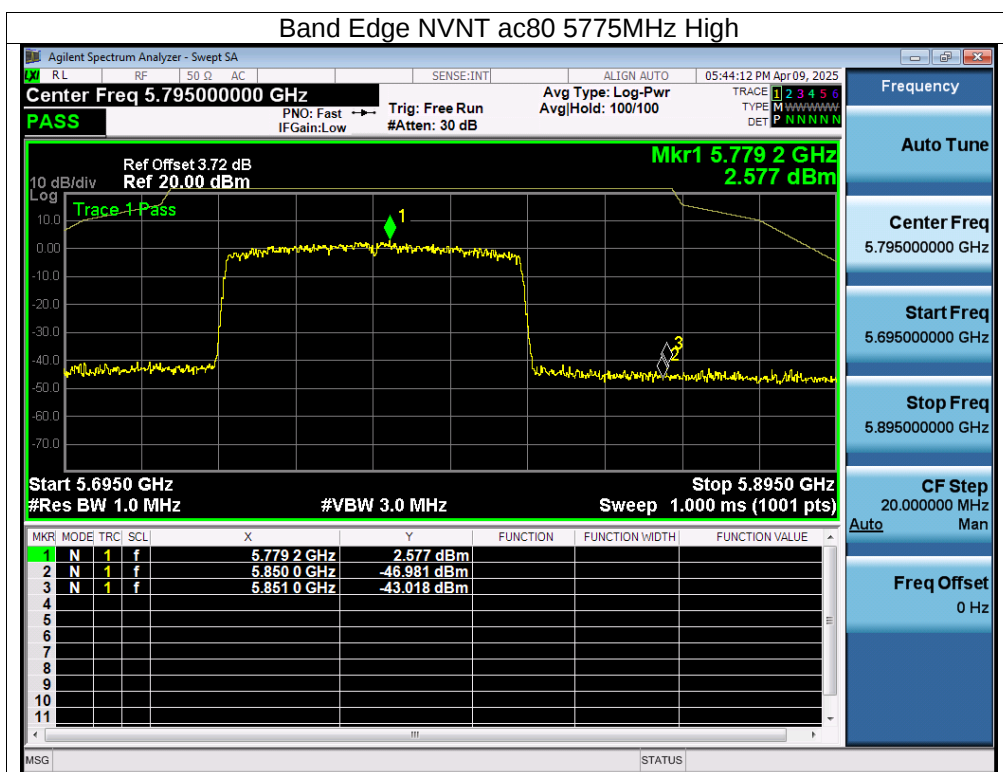


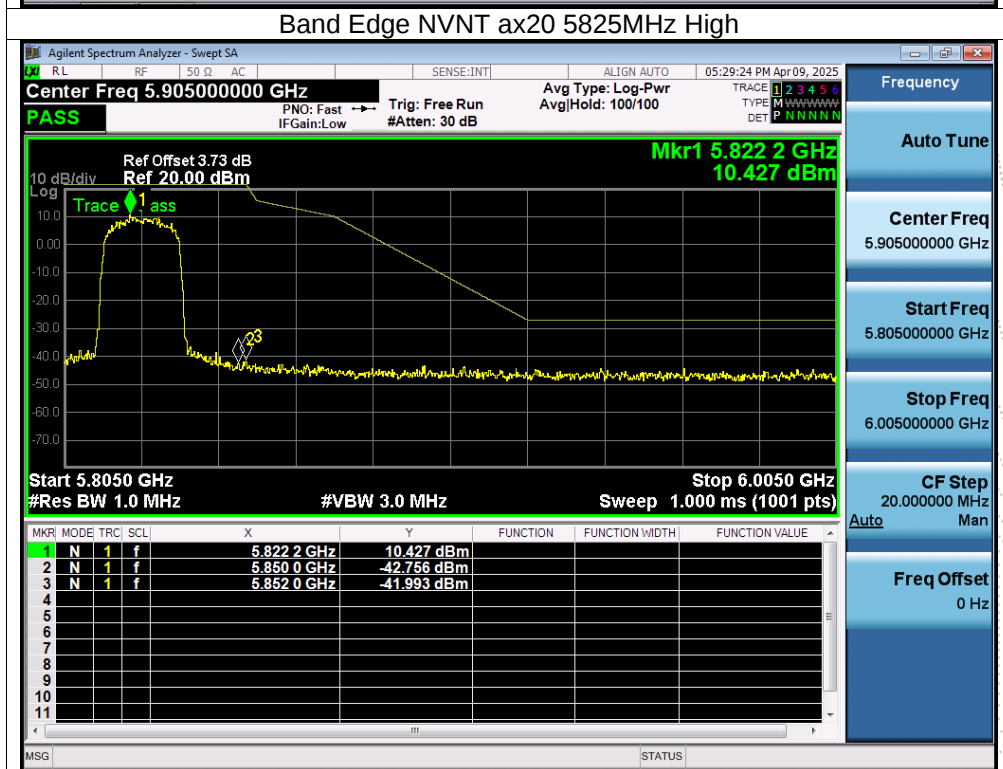
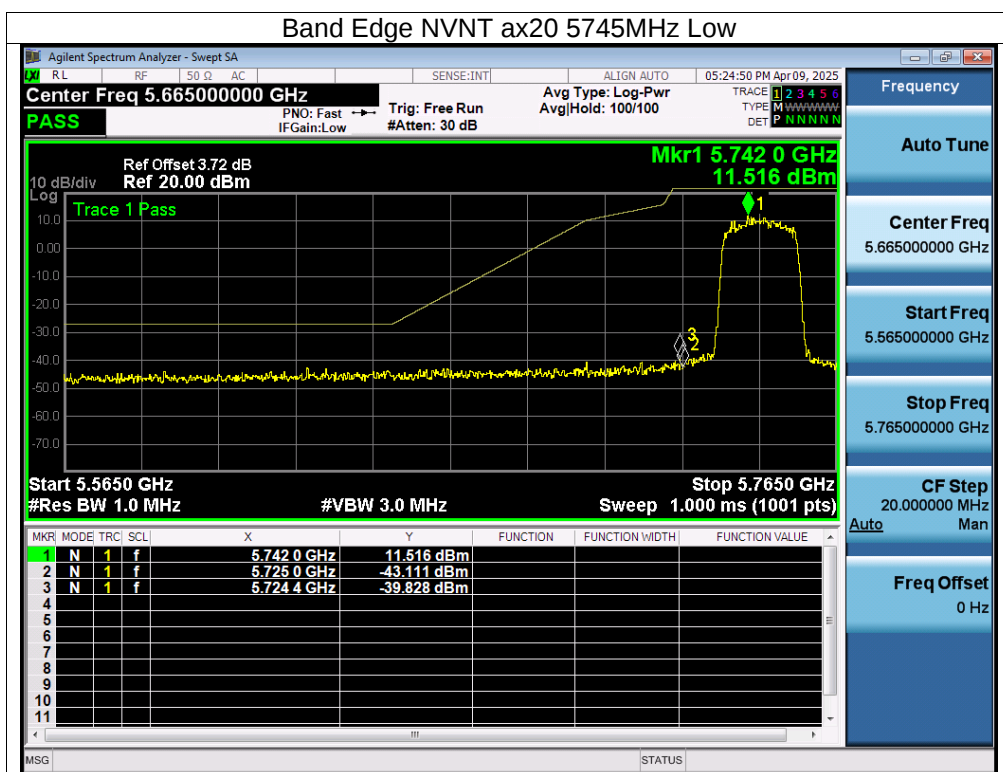


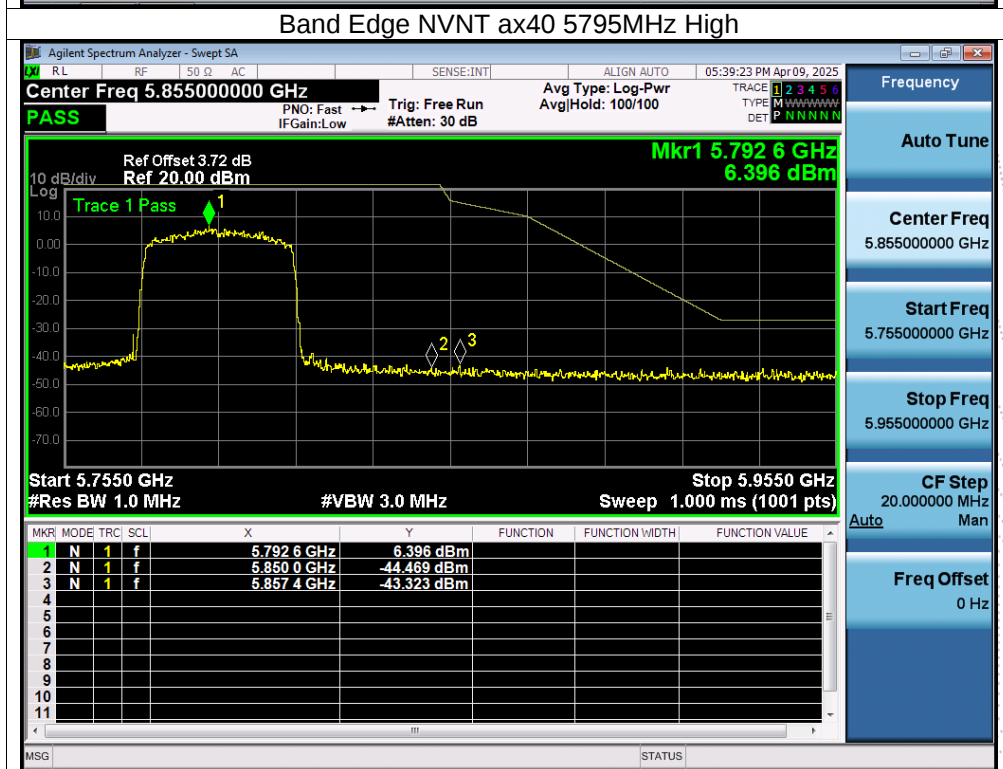
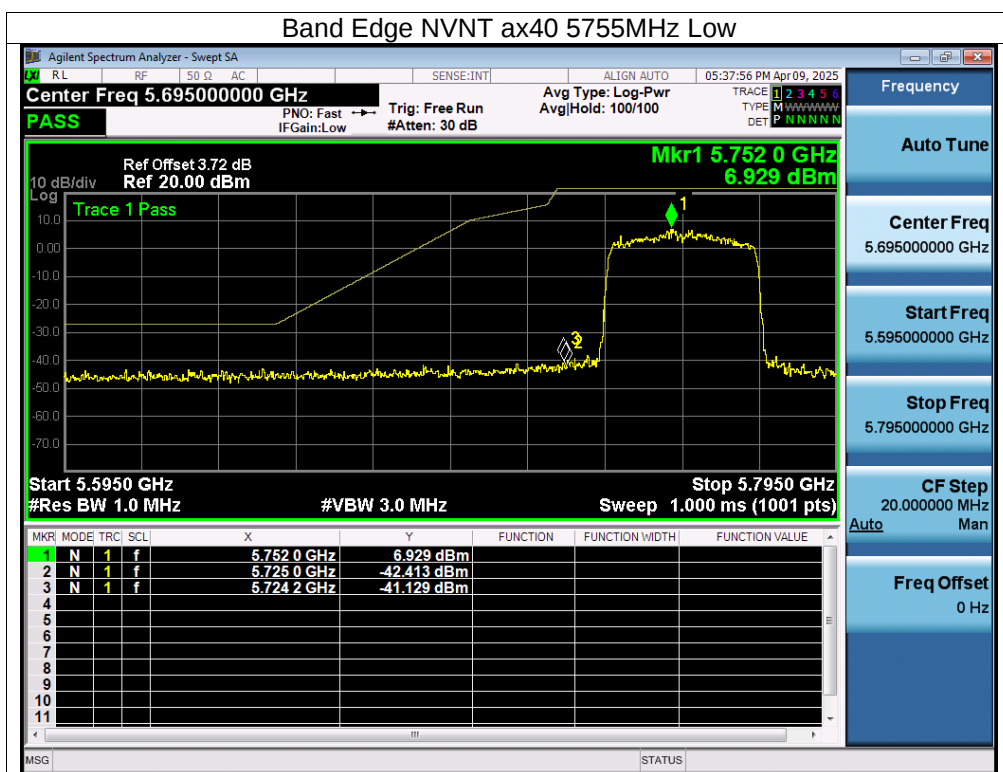


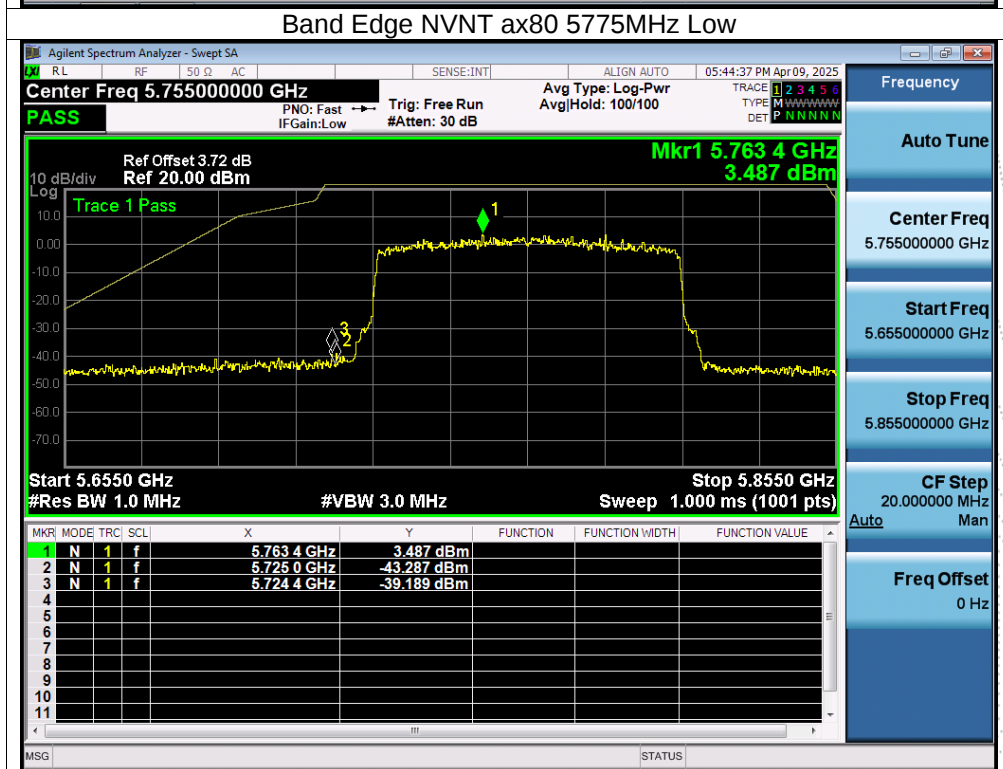
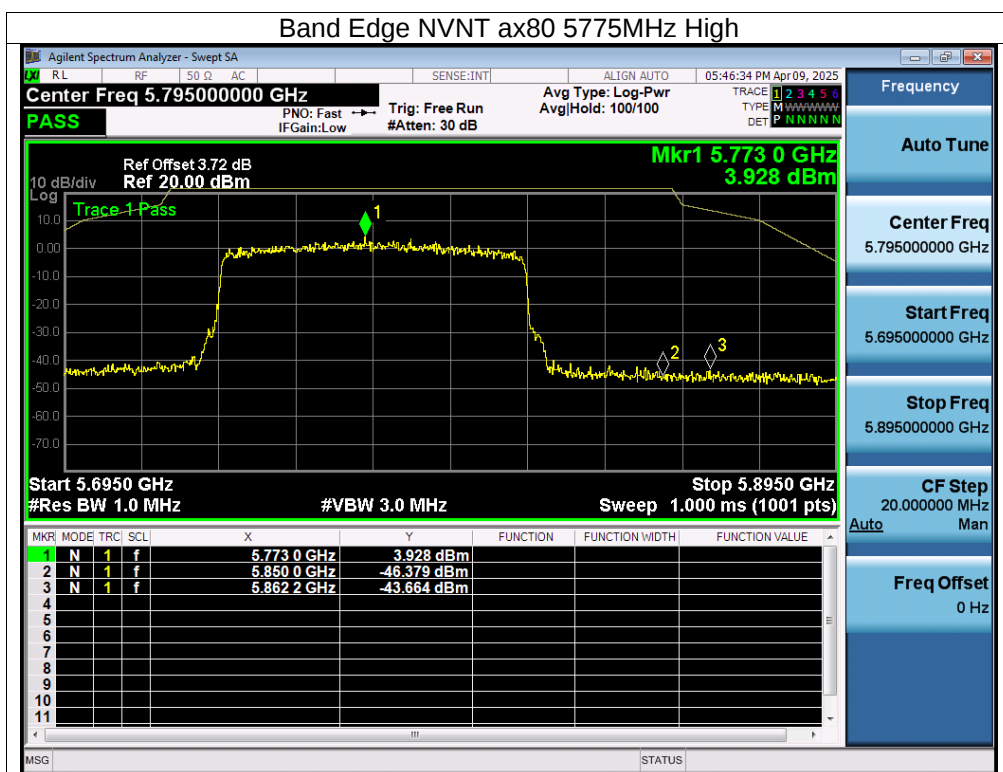












12. Spurious RF Conducted Emissions

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..

(3)For transmitters operating in the 5.25-5.35 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.

(4)For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

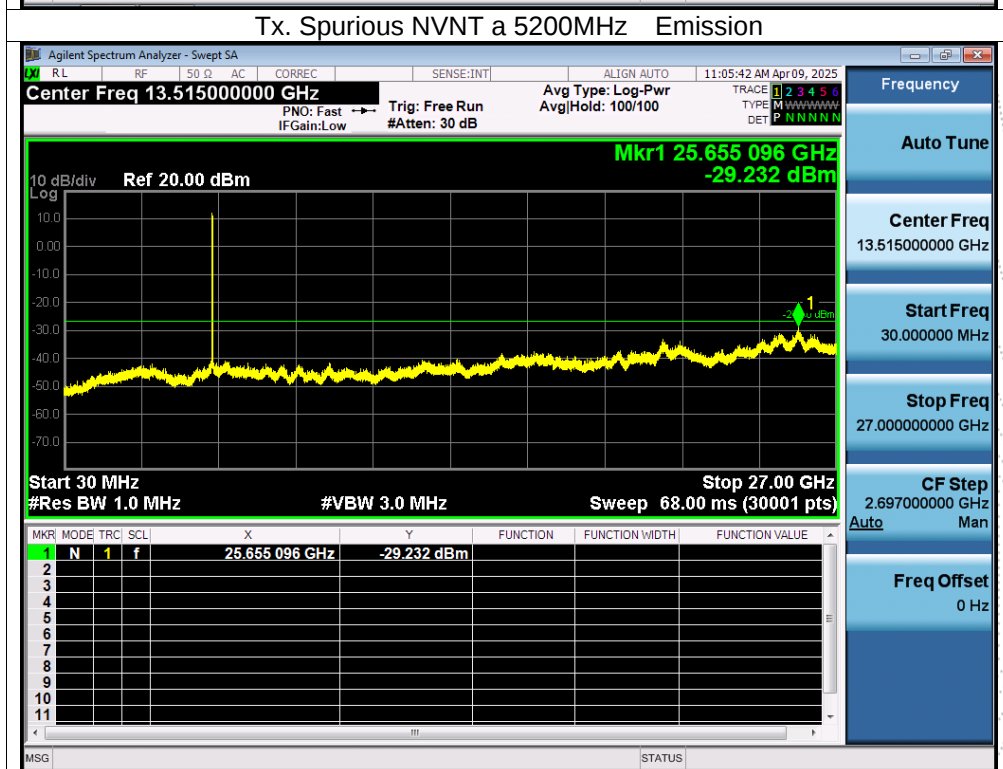
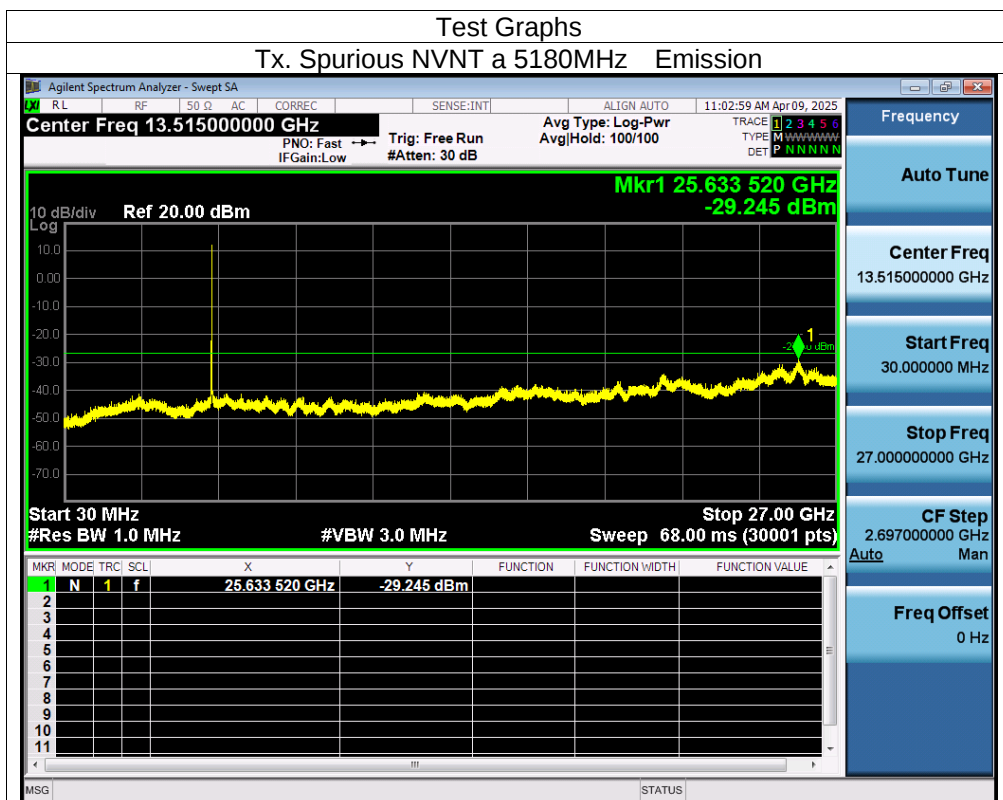
12.3 Test Procedure

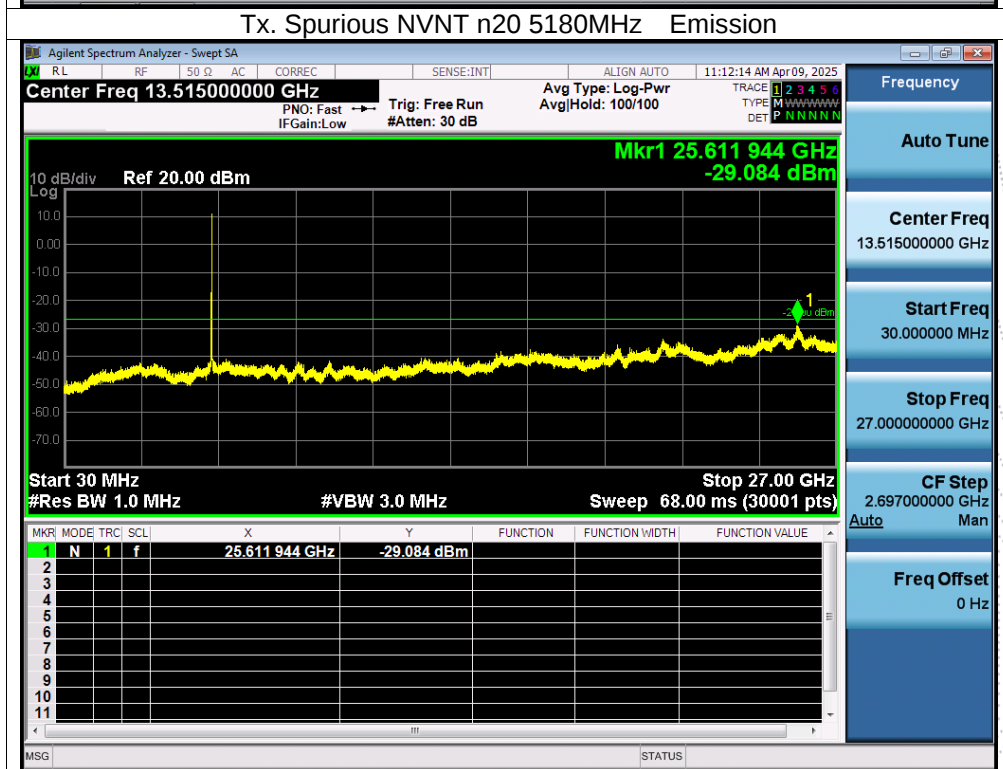
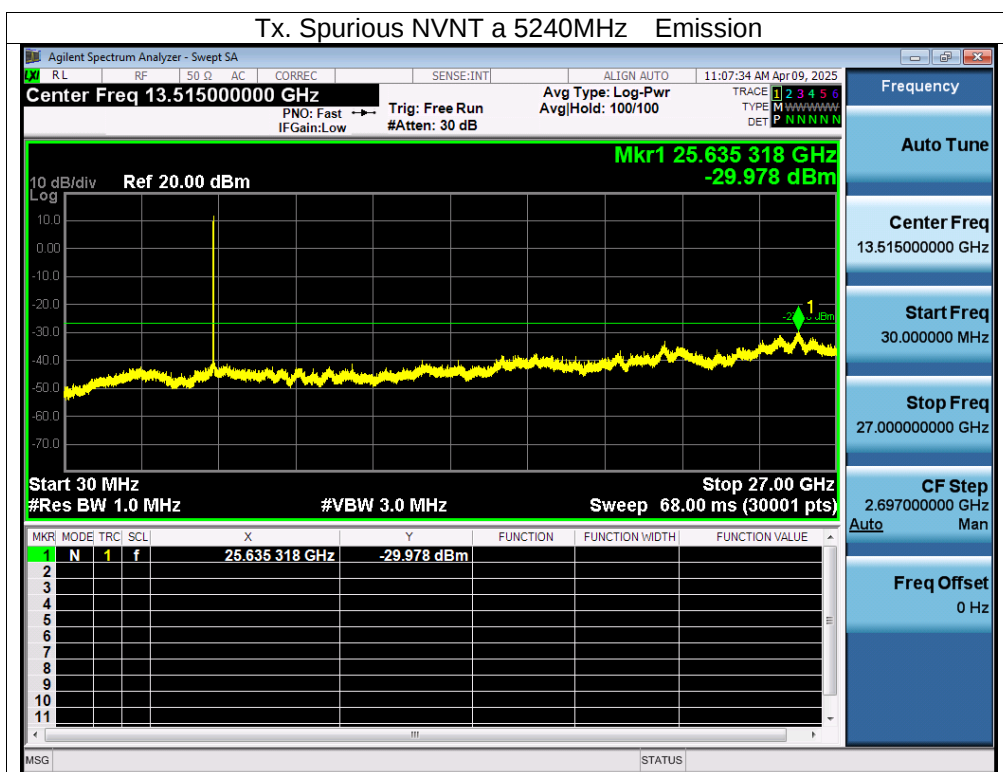
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then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

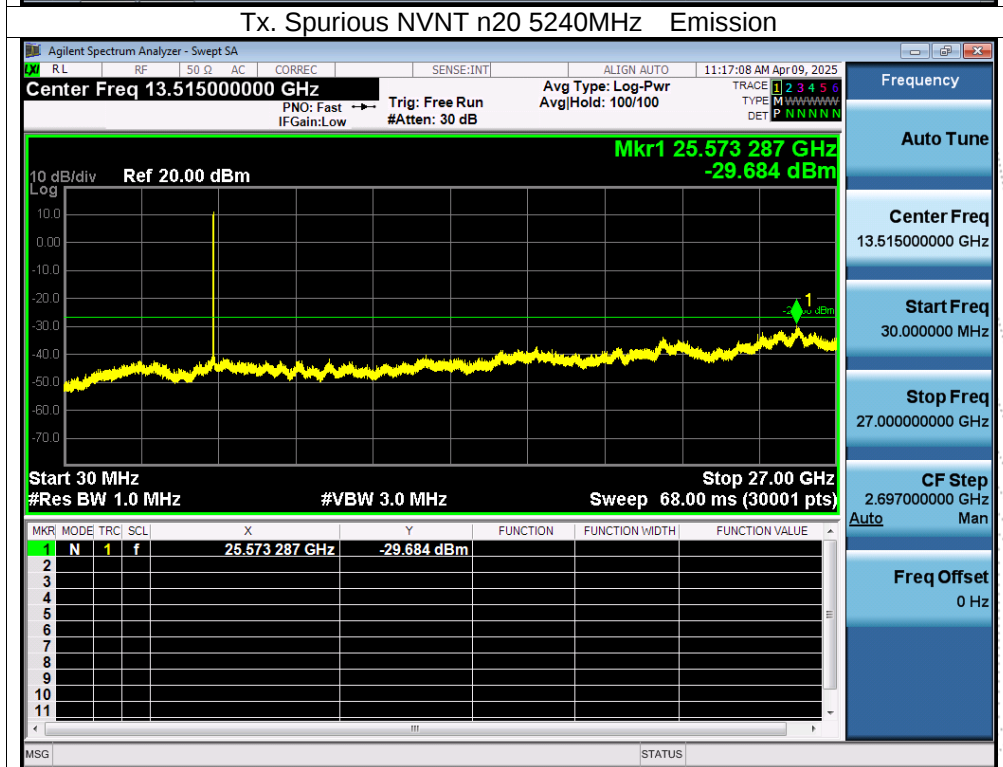
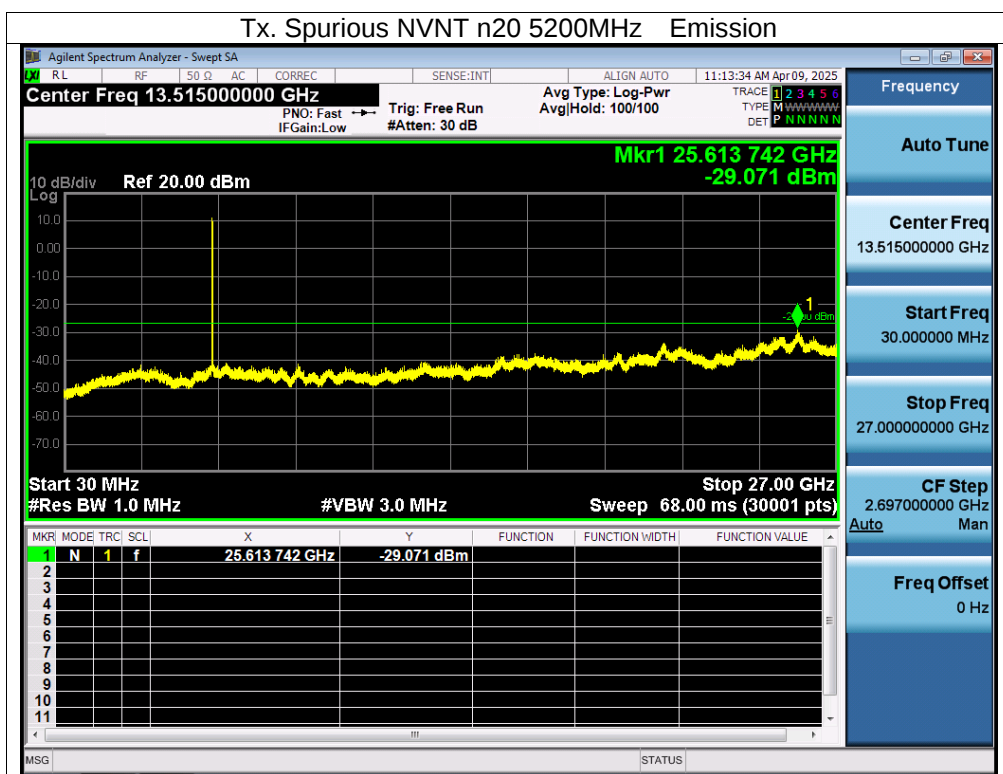
12.4 Test Result

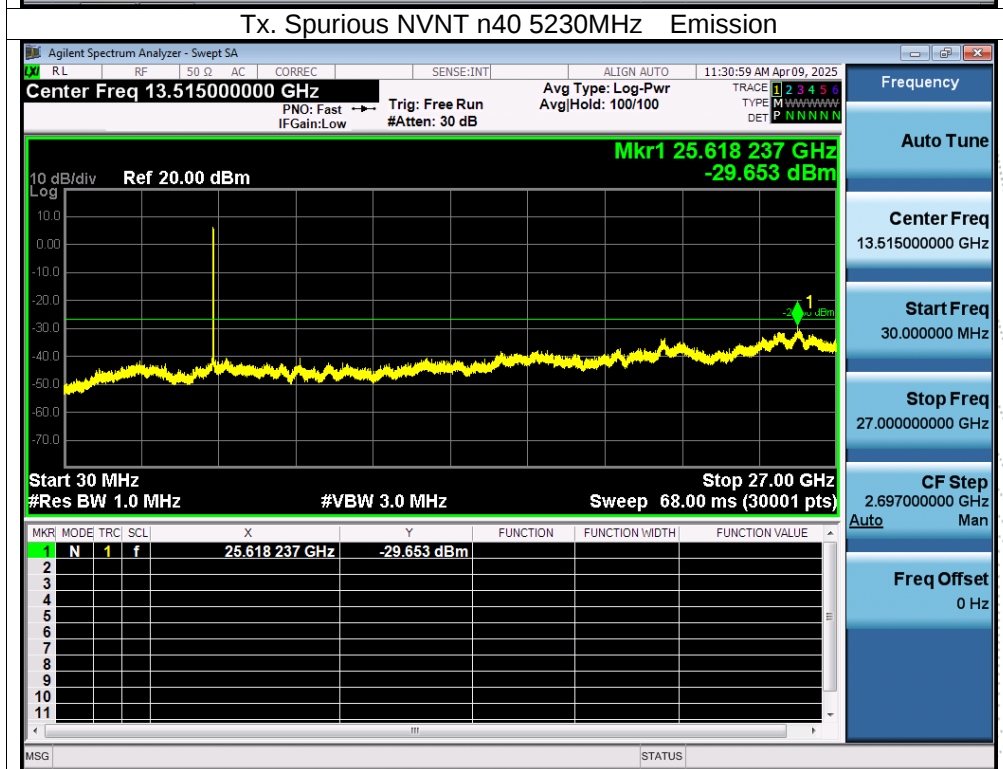
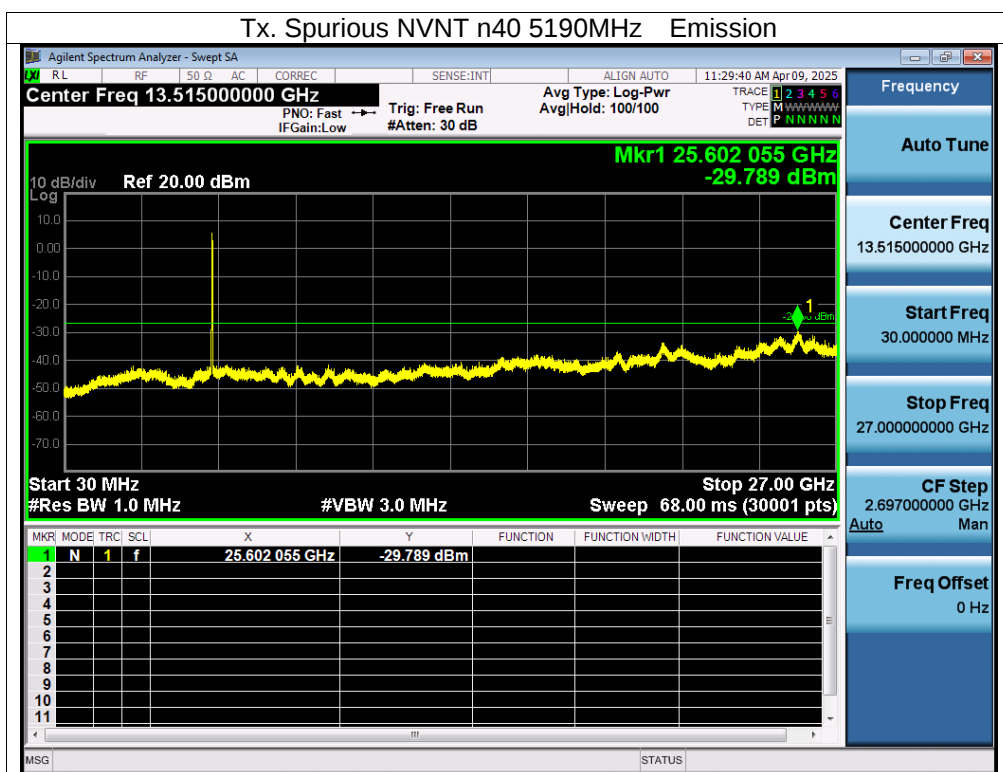
Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandedge measurement data.

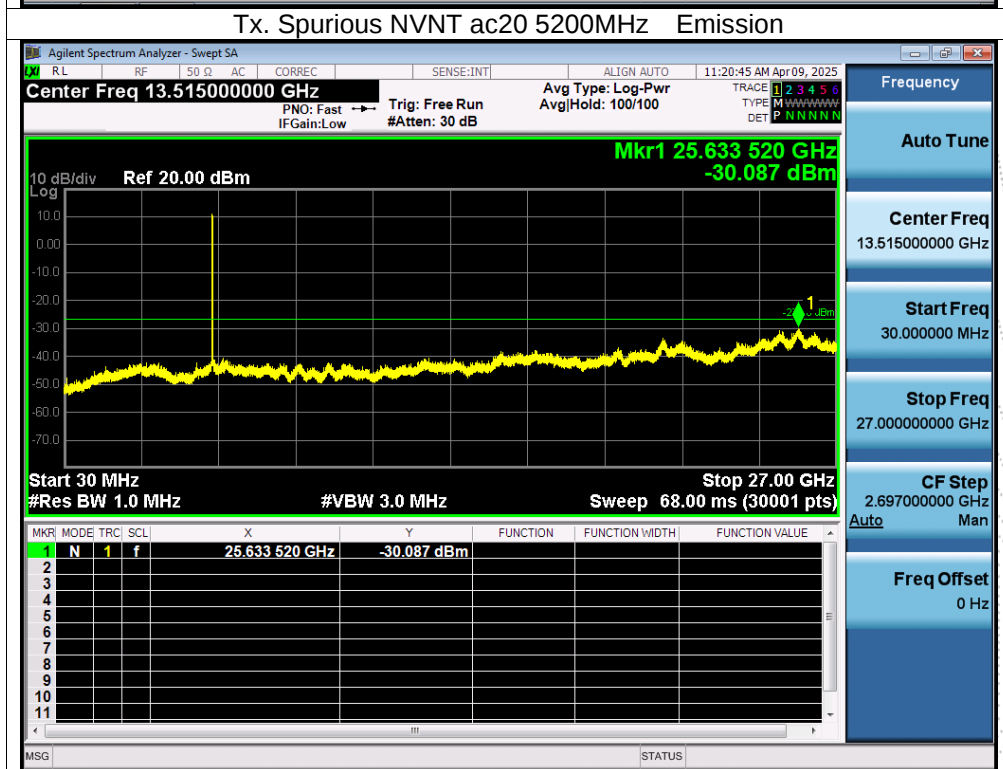
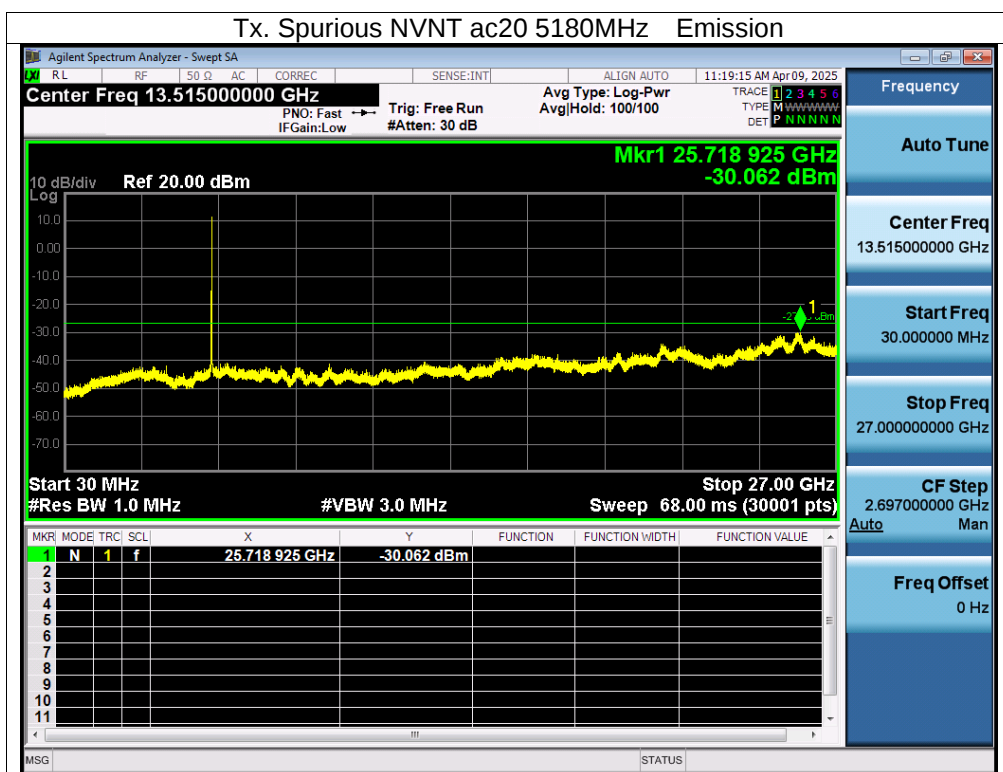
About:26.5GHz-40GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

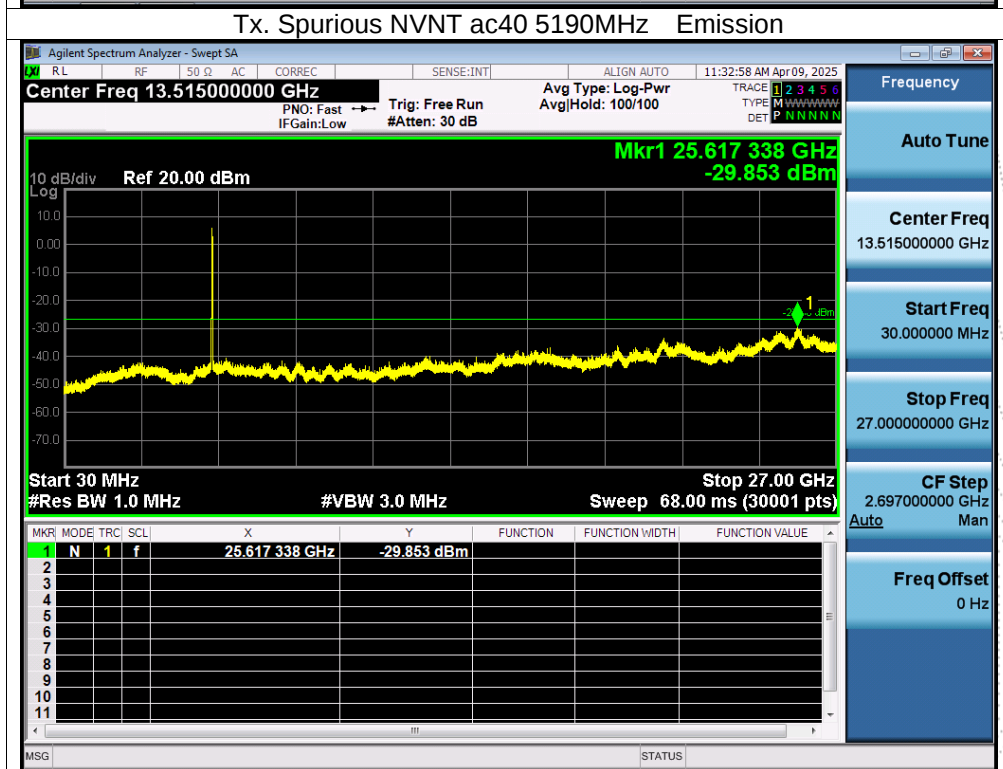
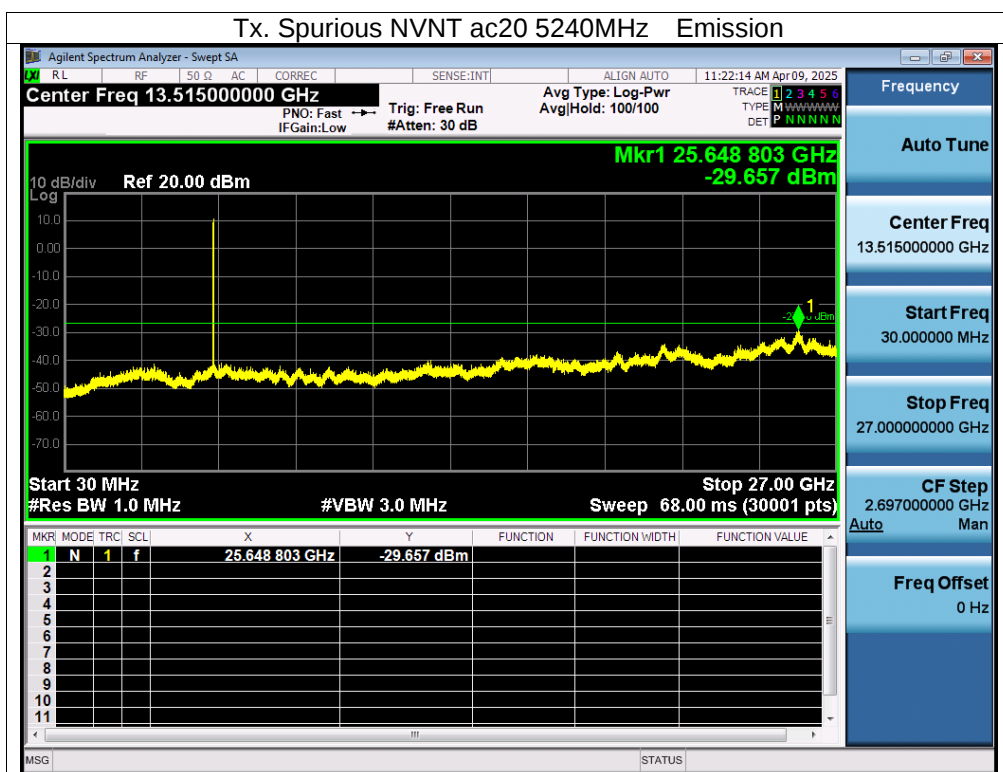


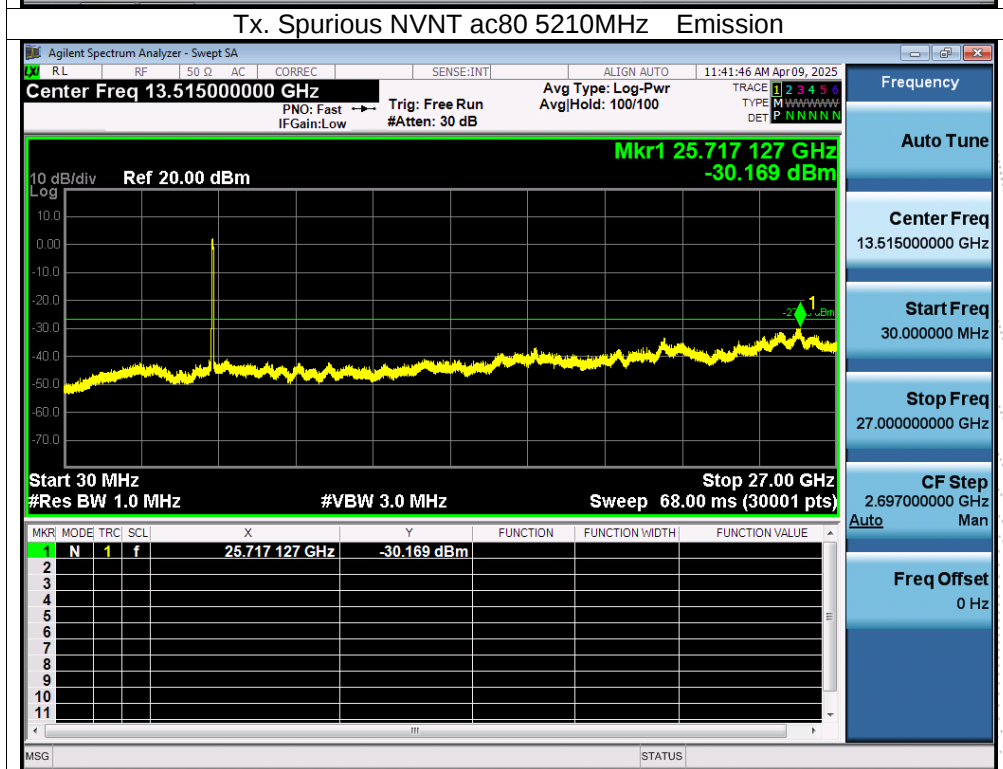
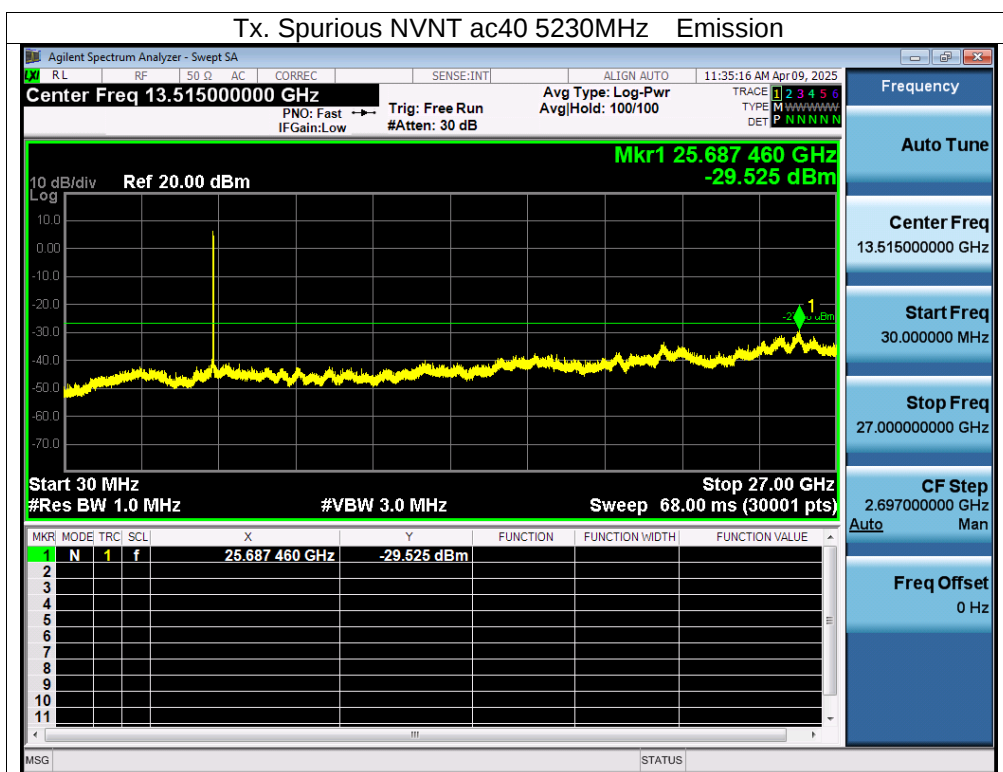


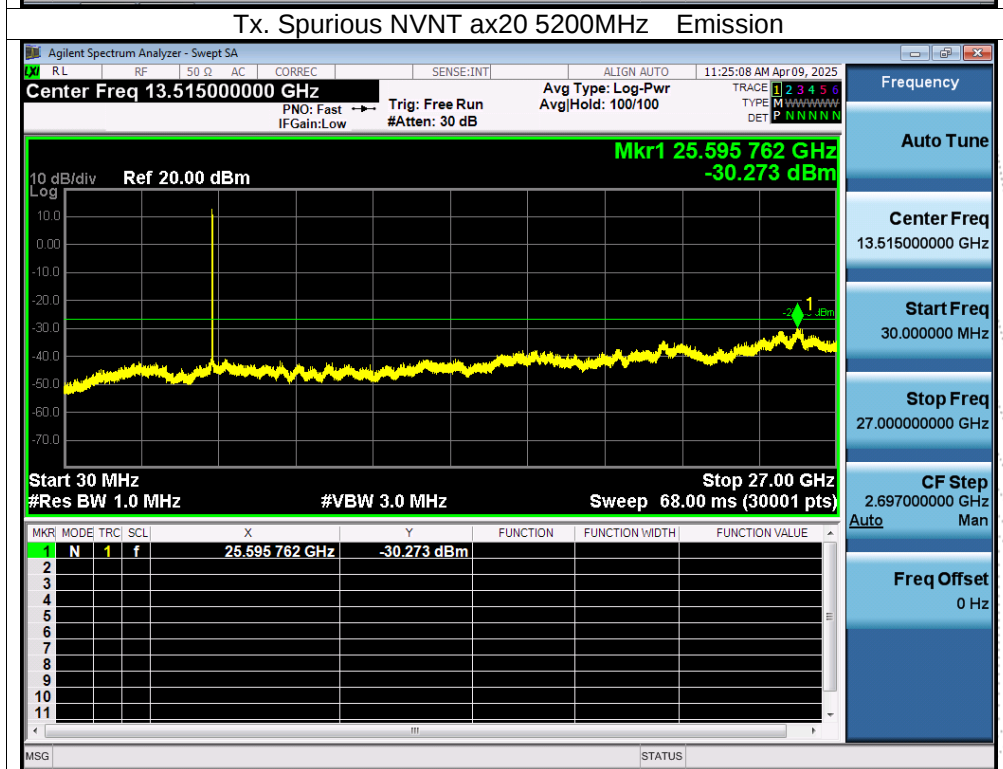
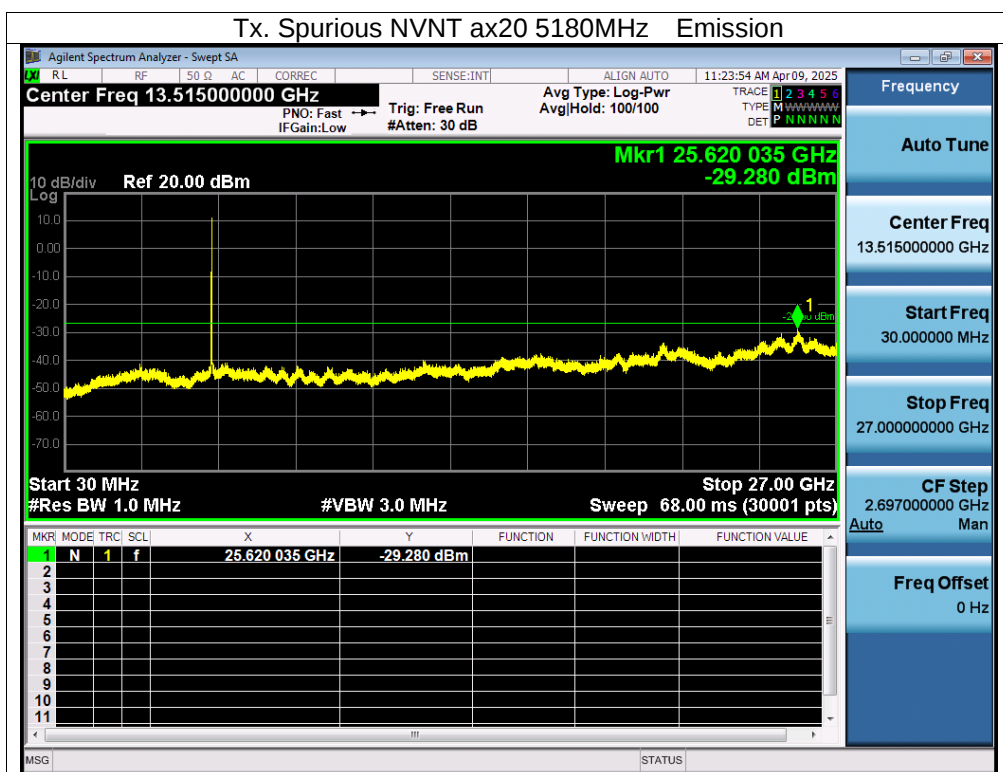


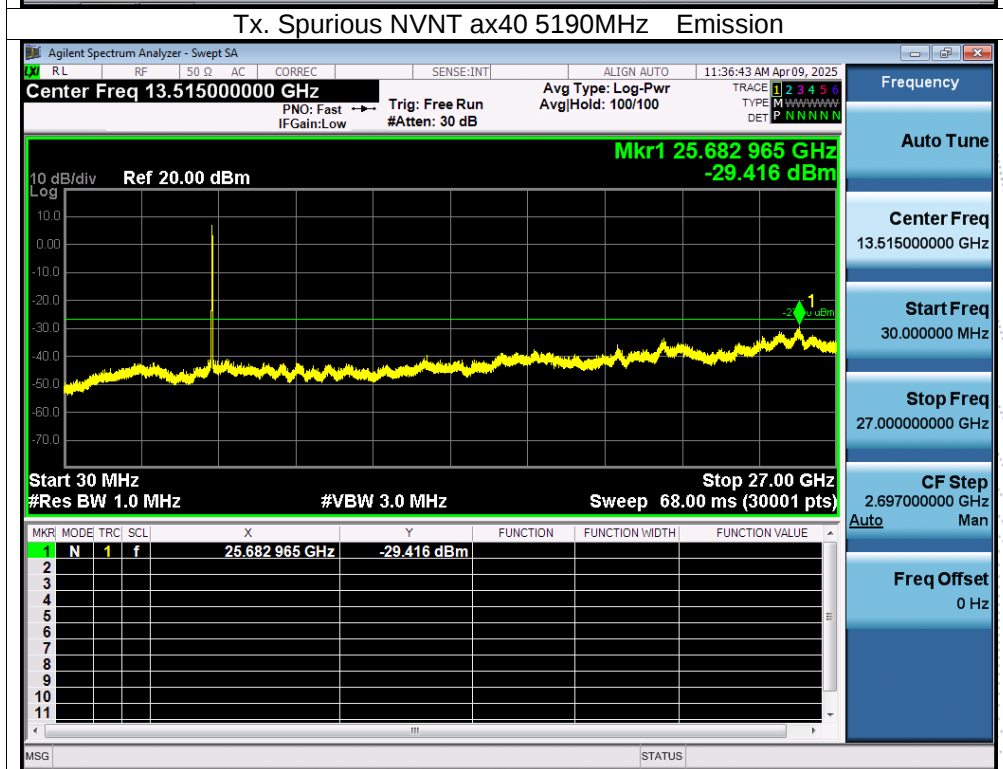
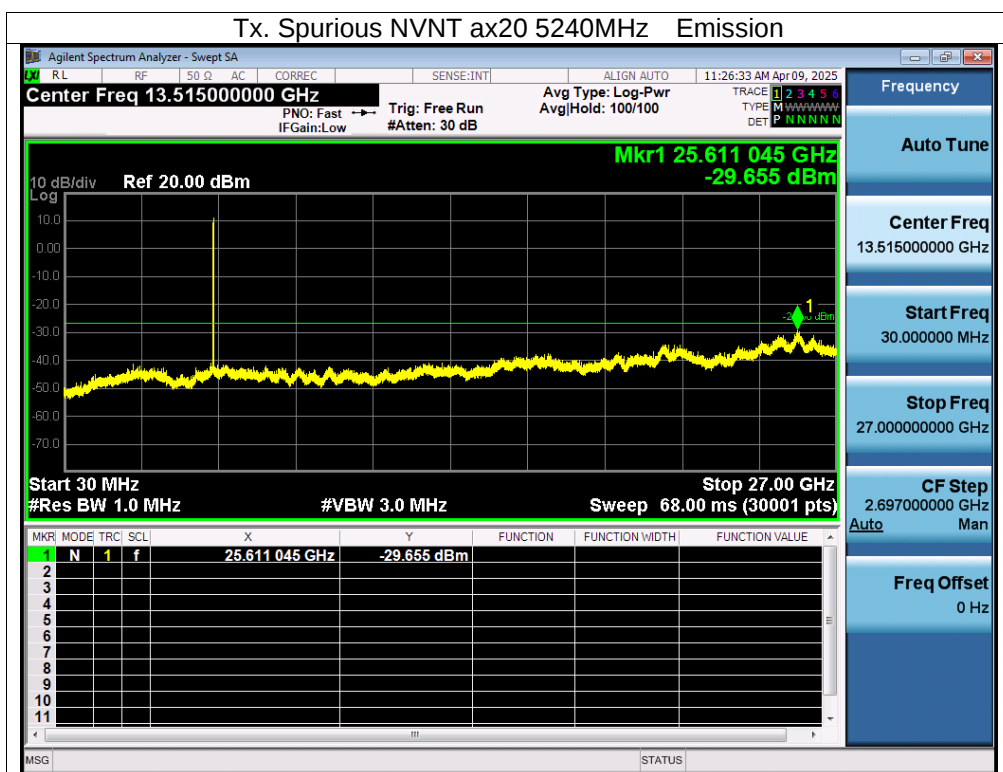


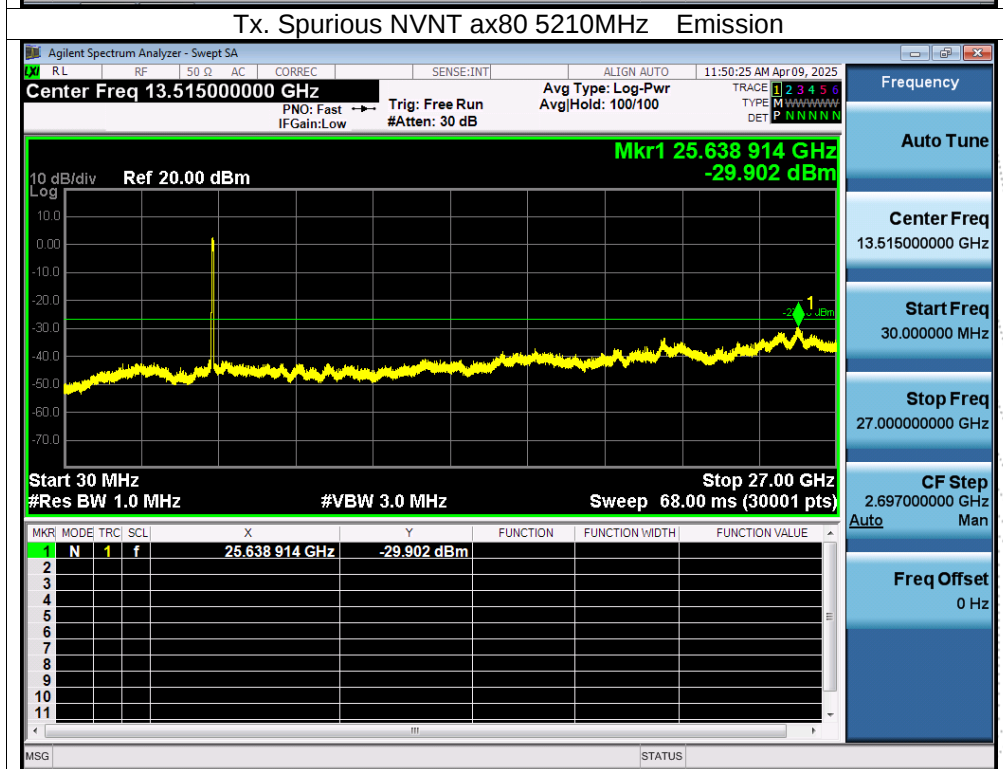
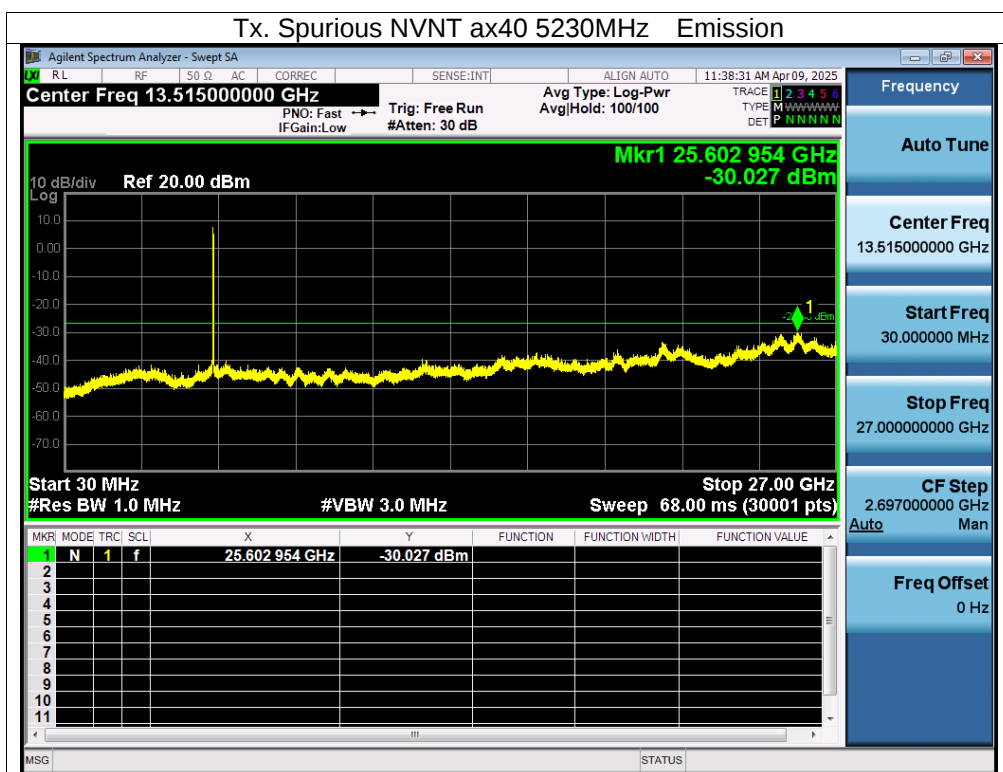






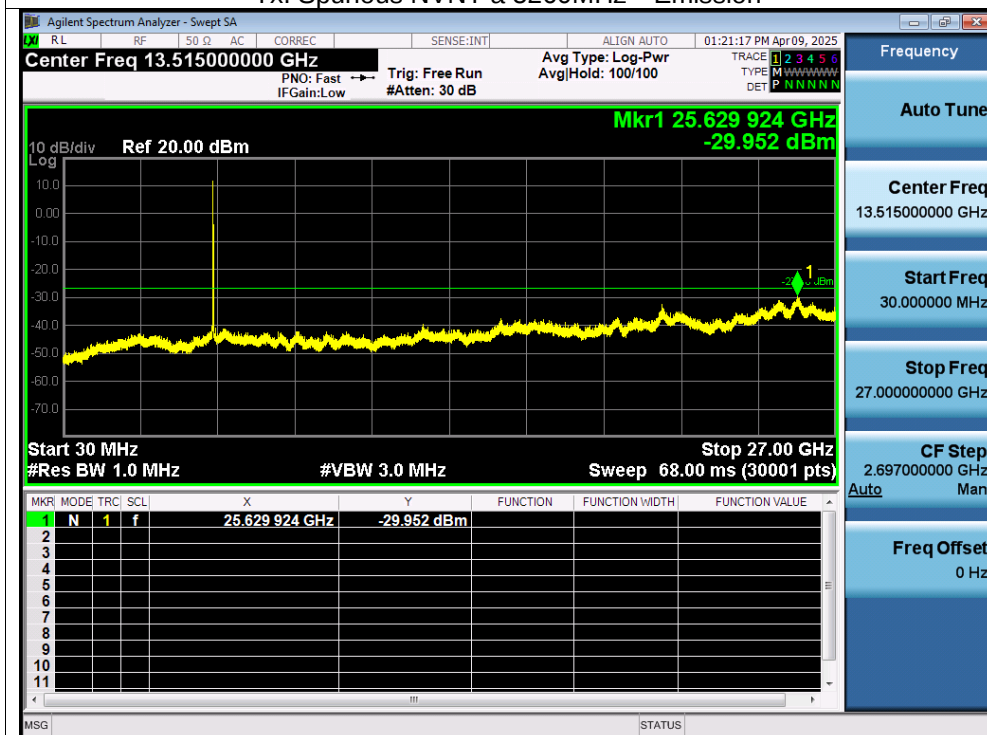




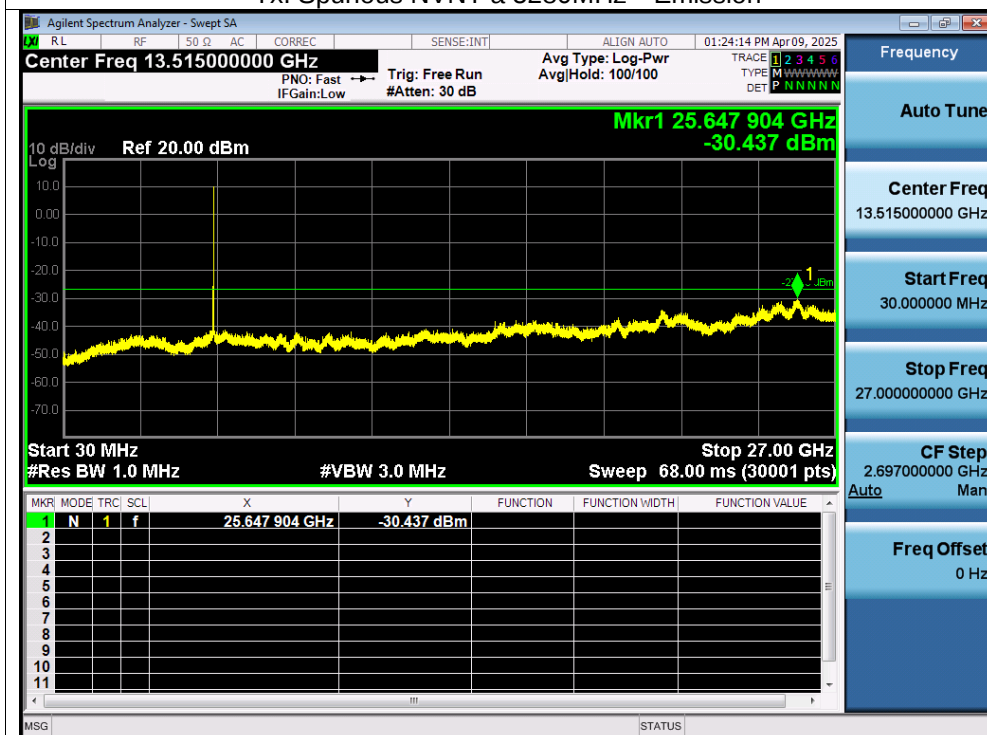


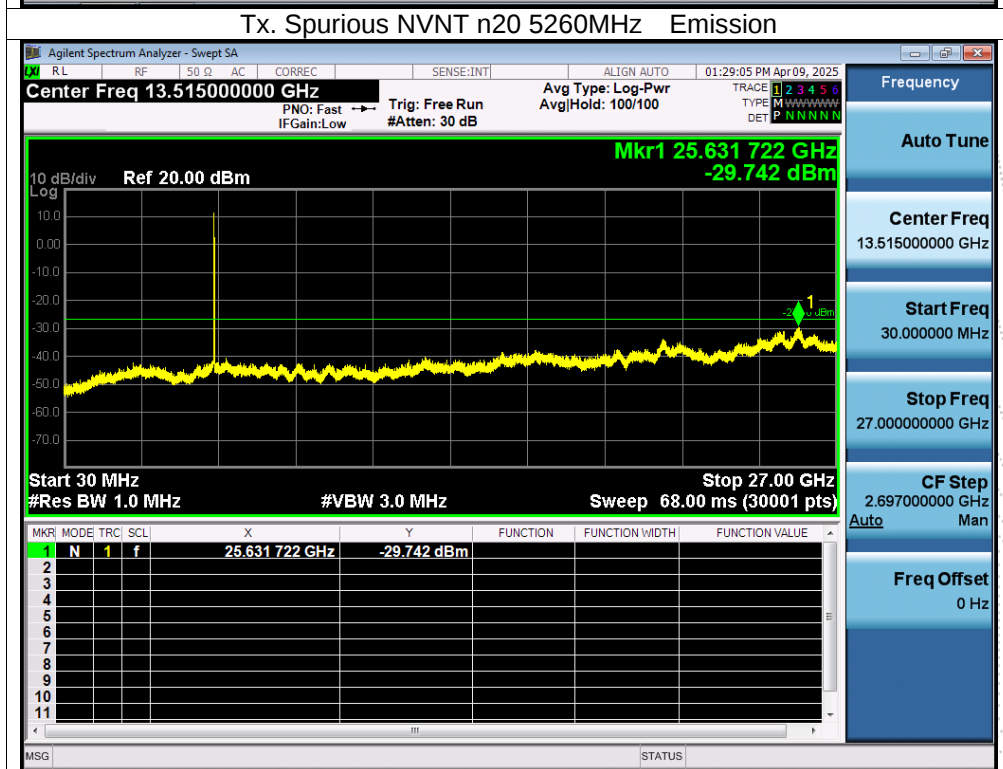
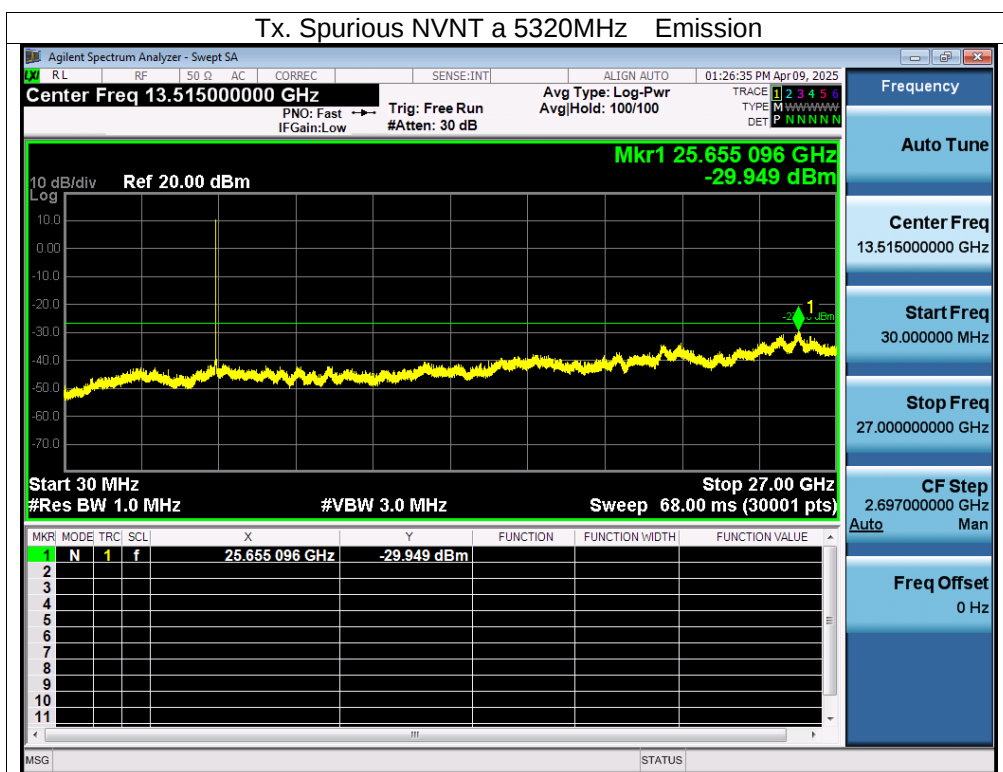
Test Graphs

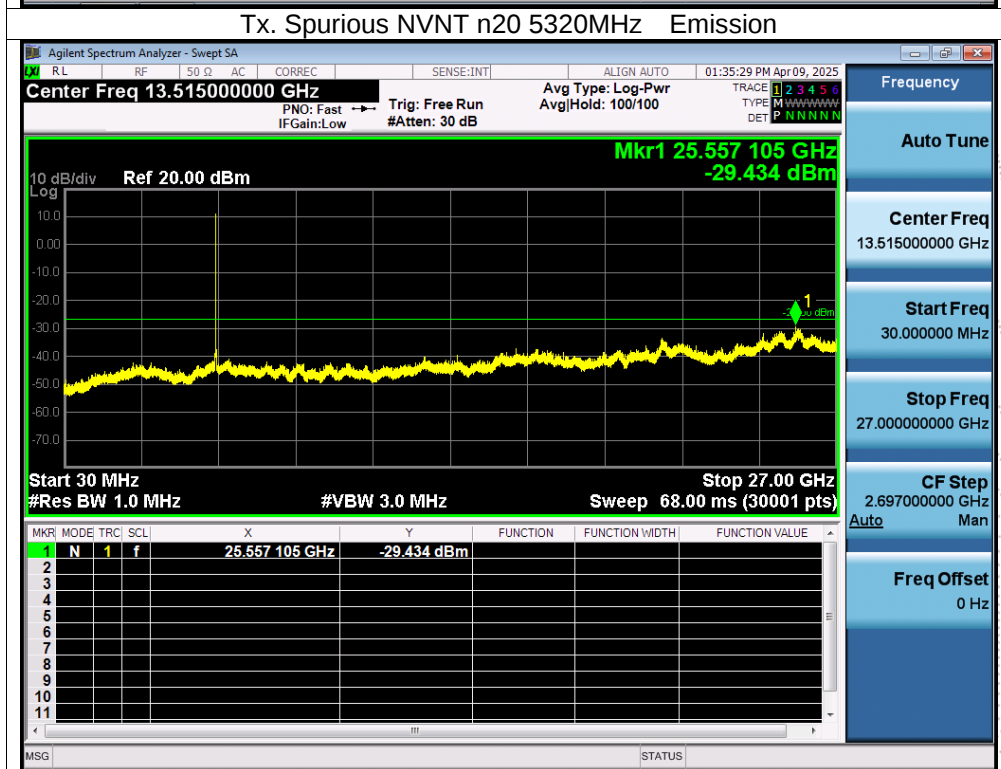
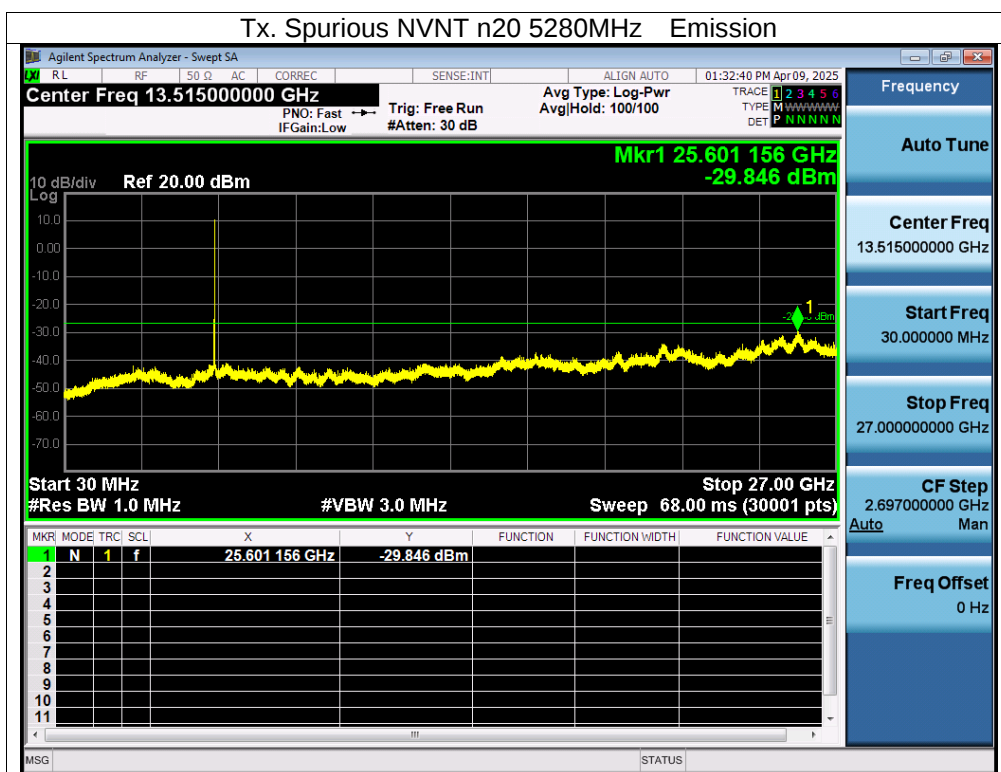
Tx. Spurious NVNT a 5260MHz Emission

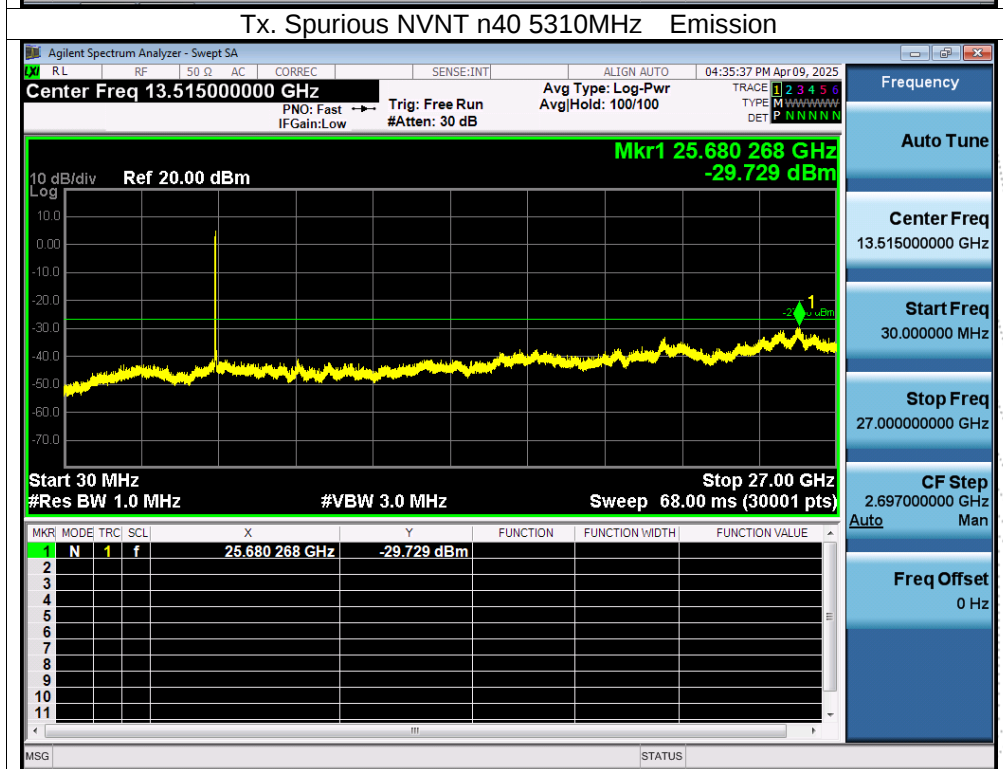
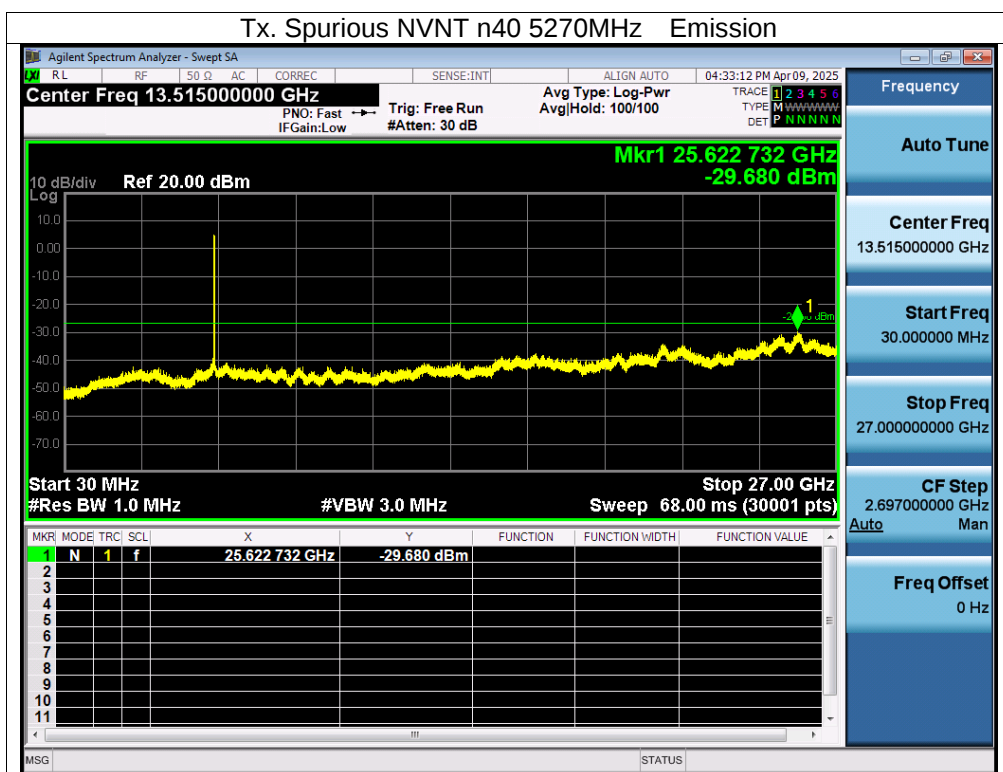


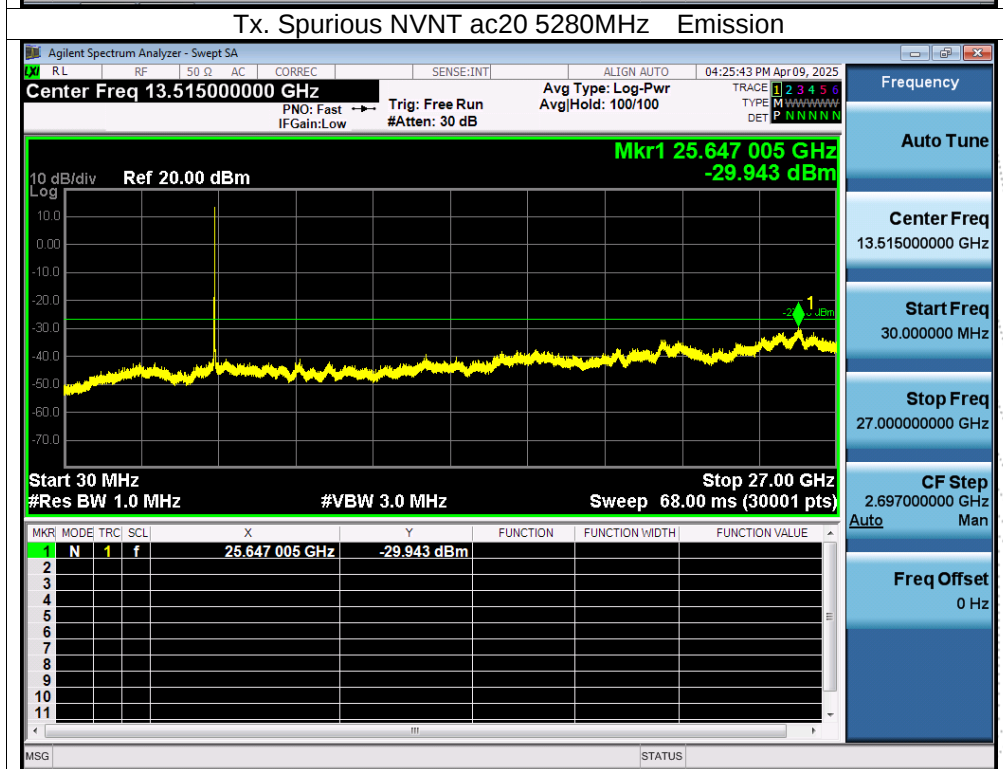
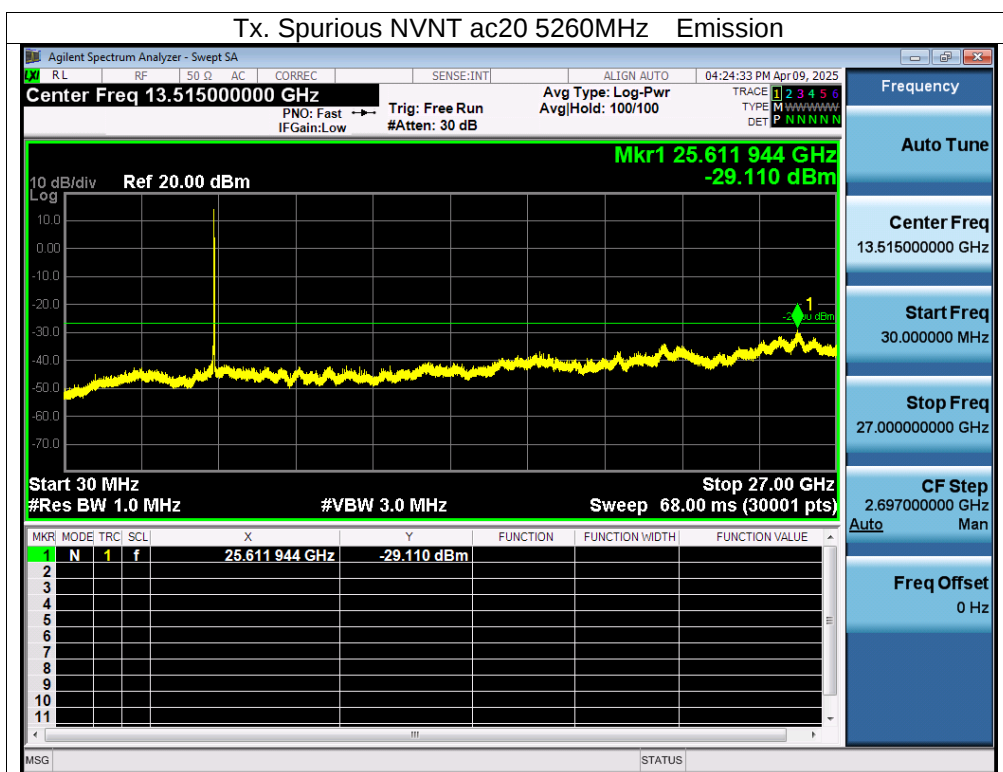
Tx. Spurious NVNT a 5280MHz Emission

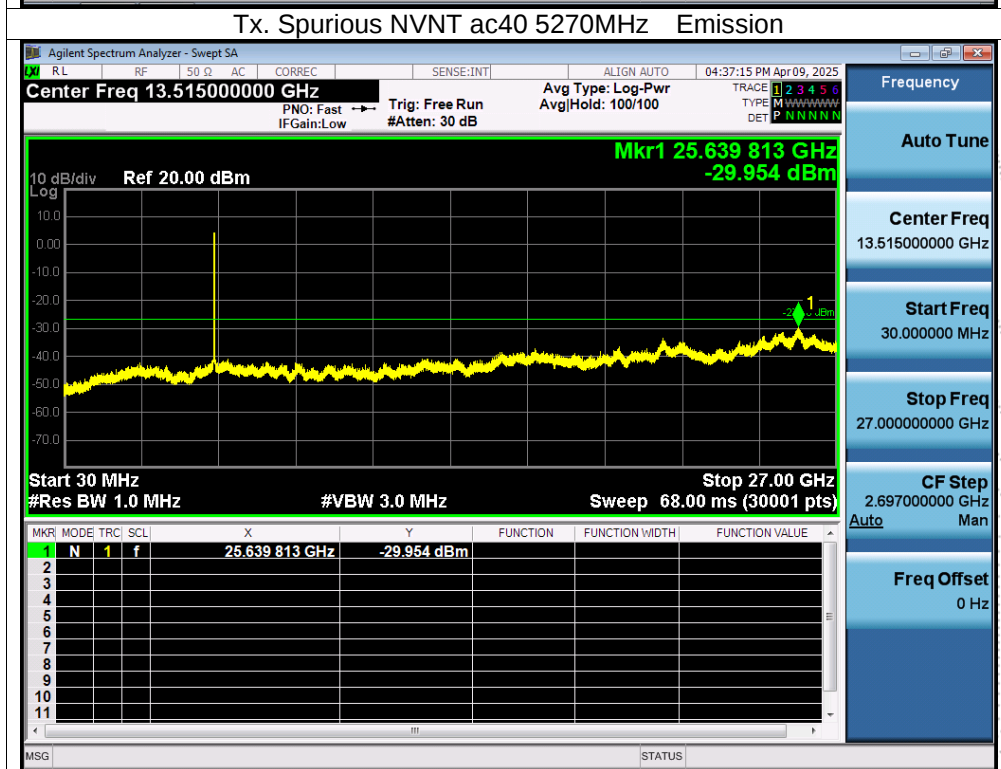
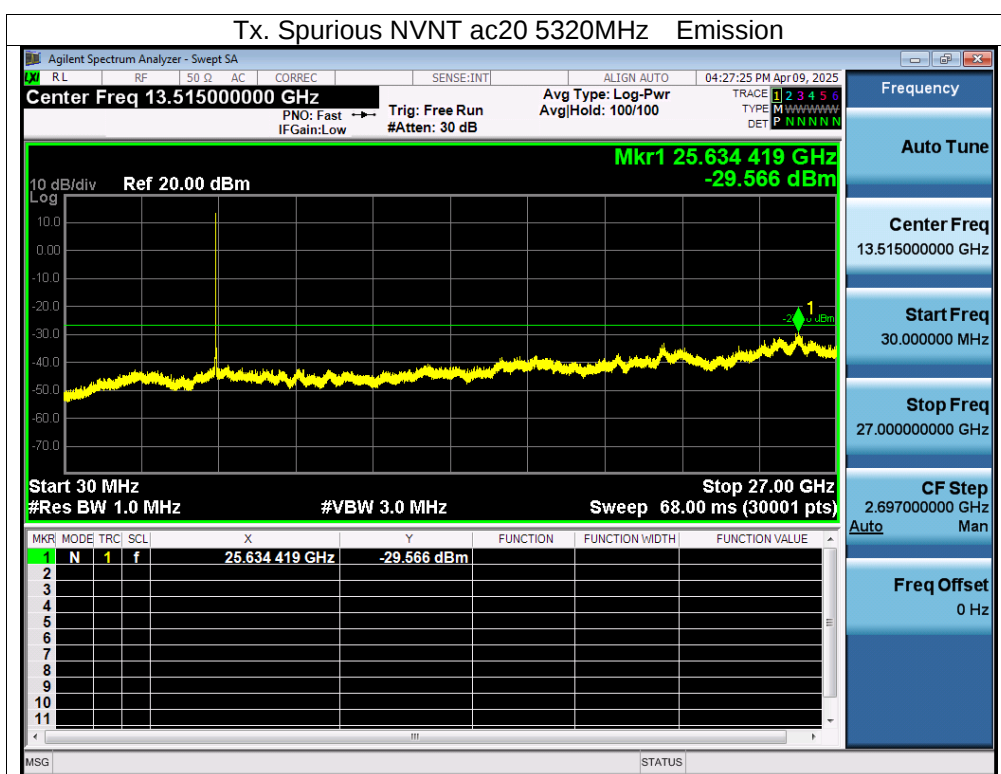


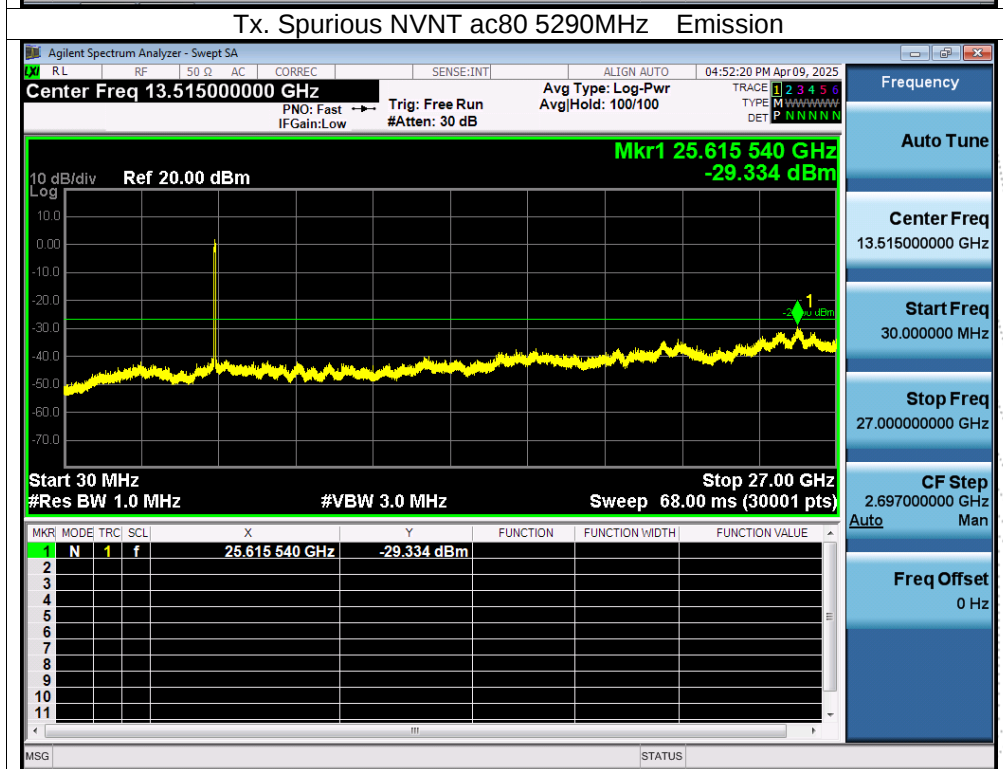
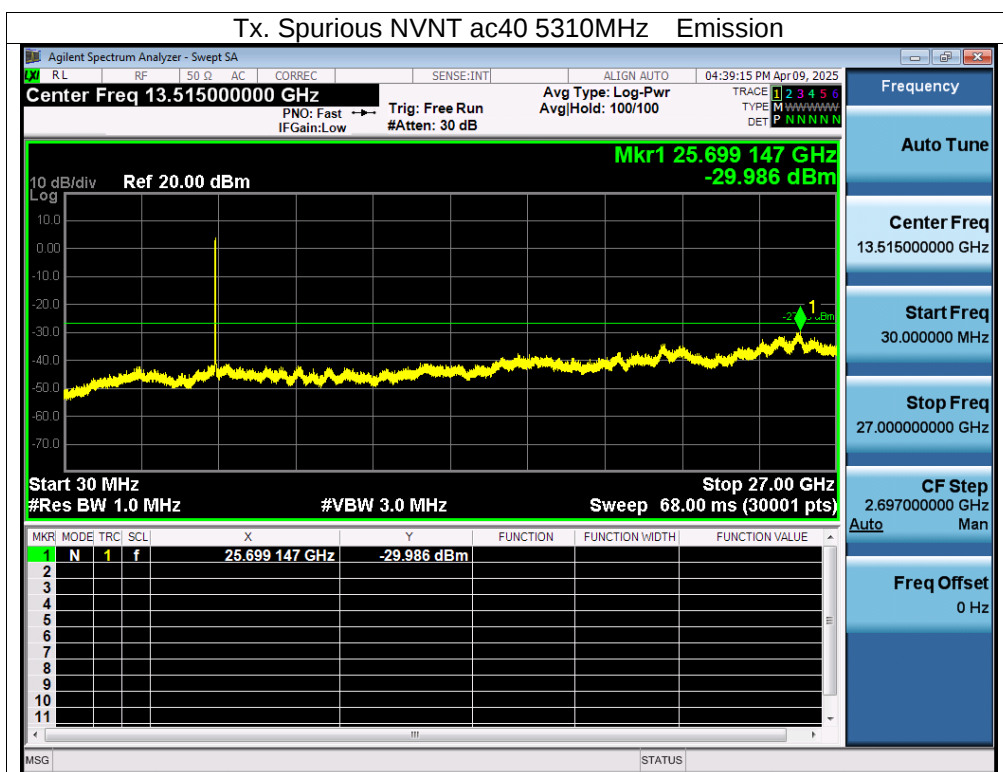


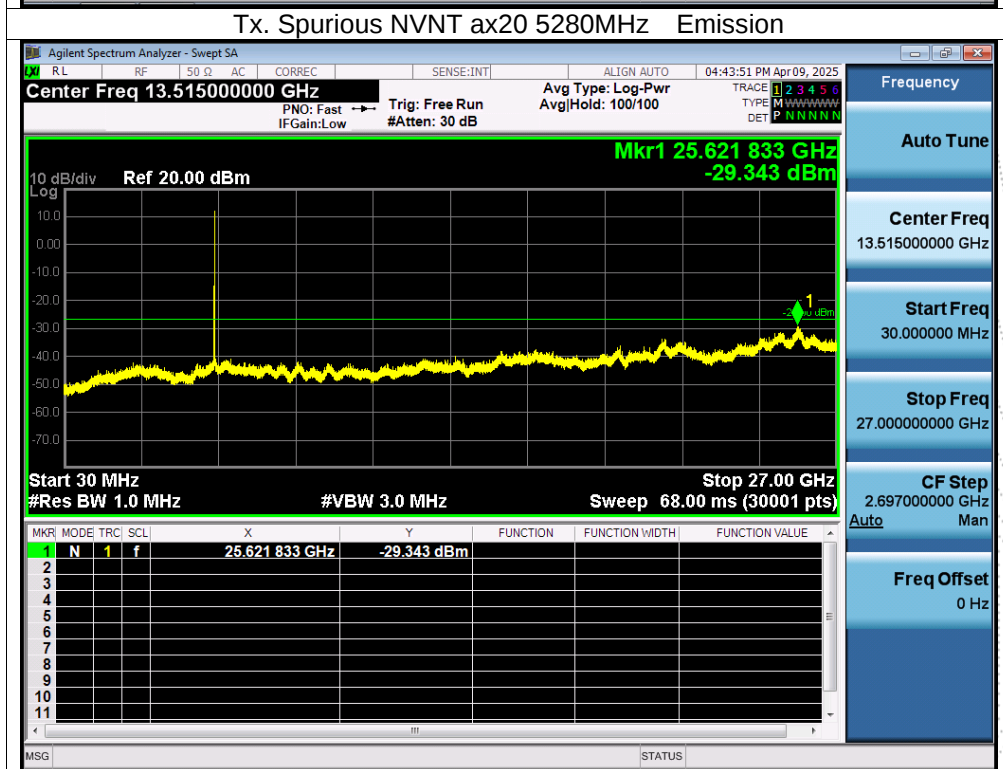
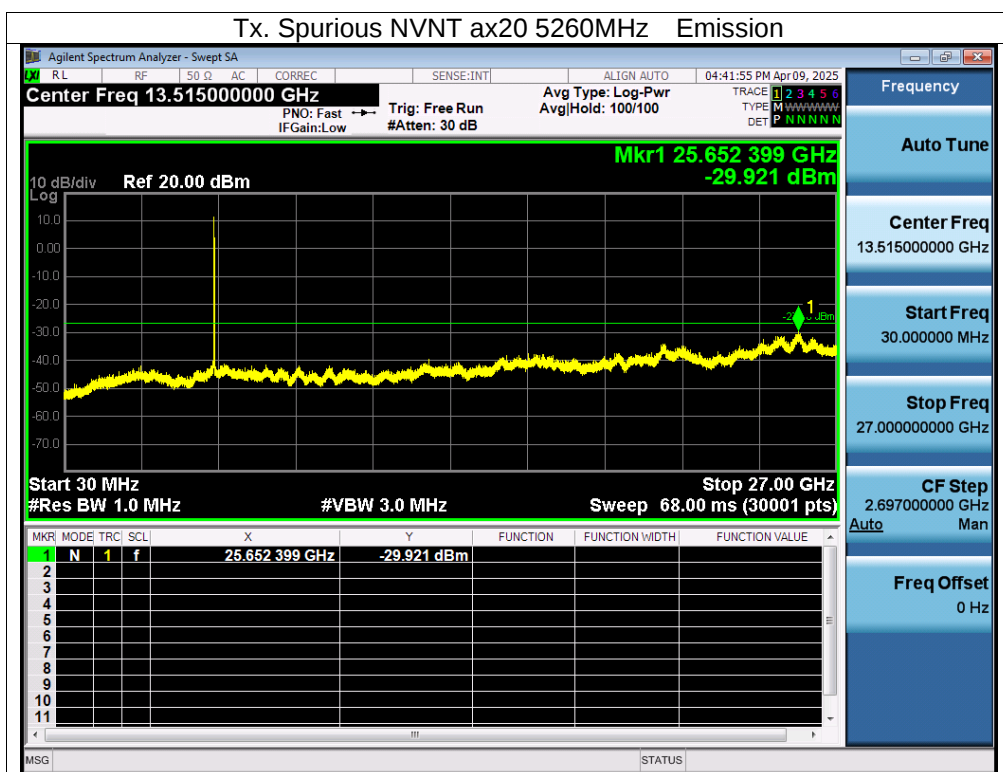


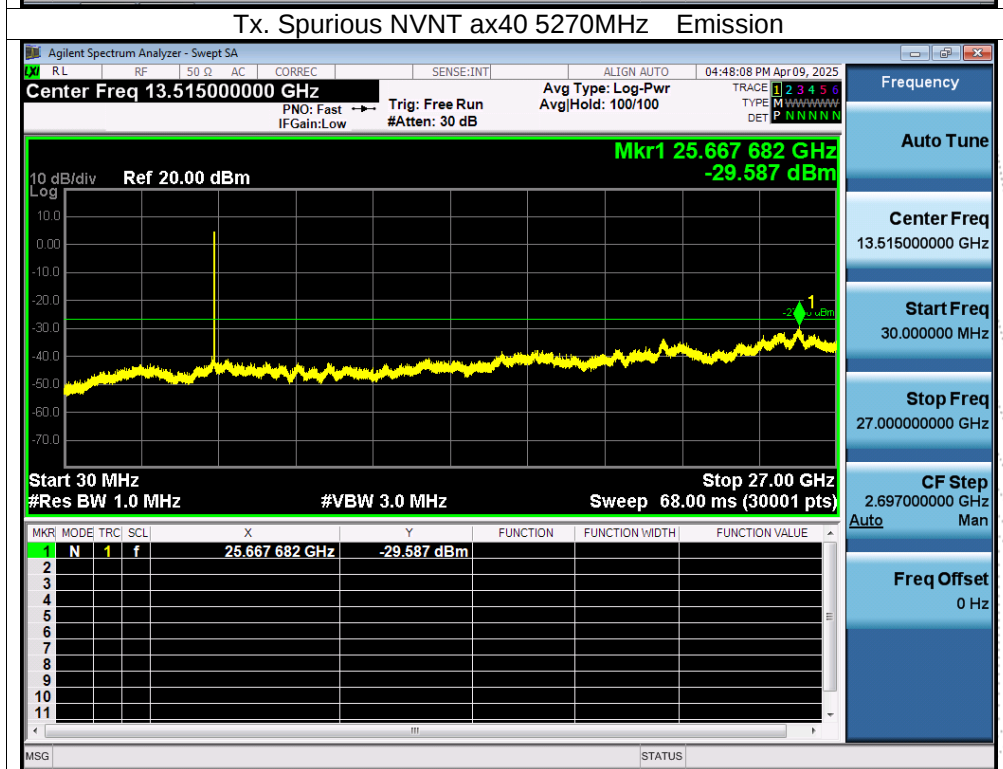
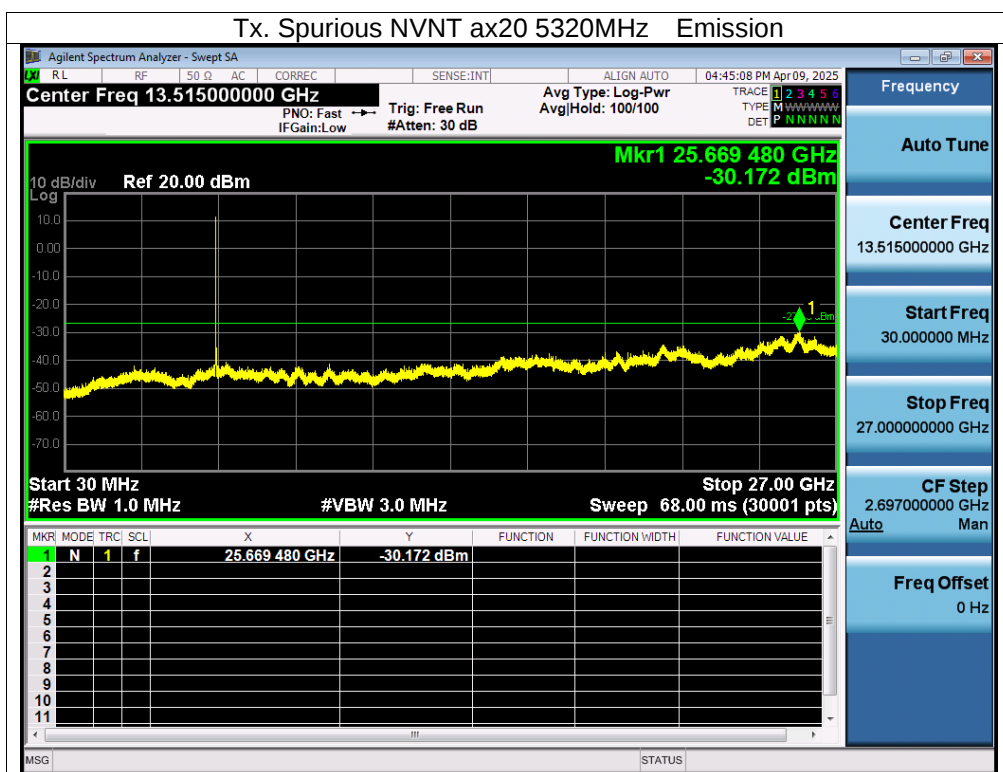


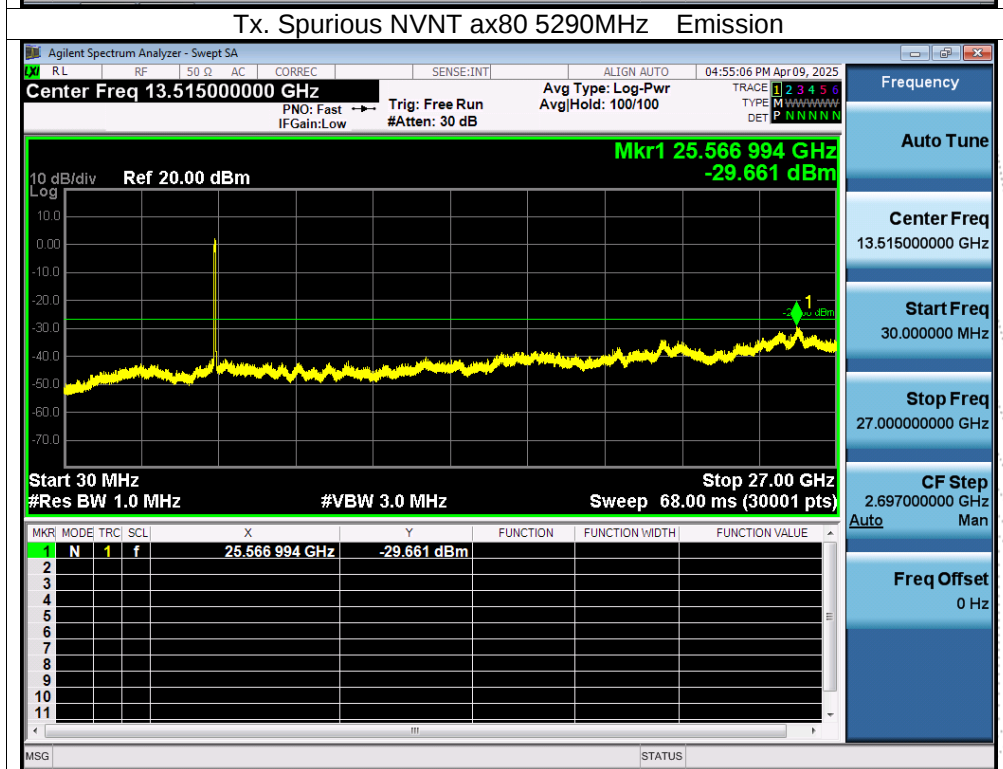
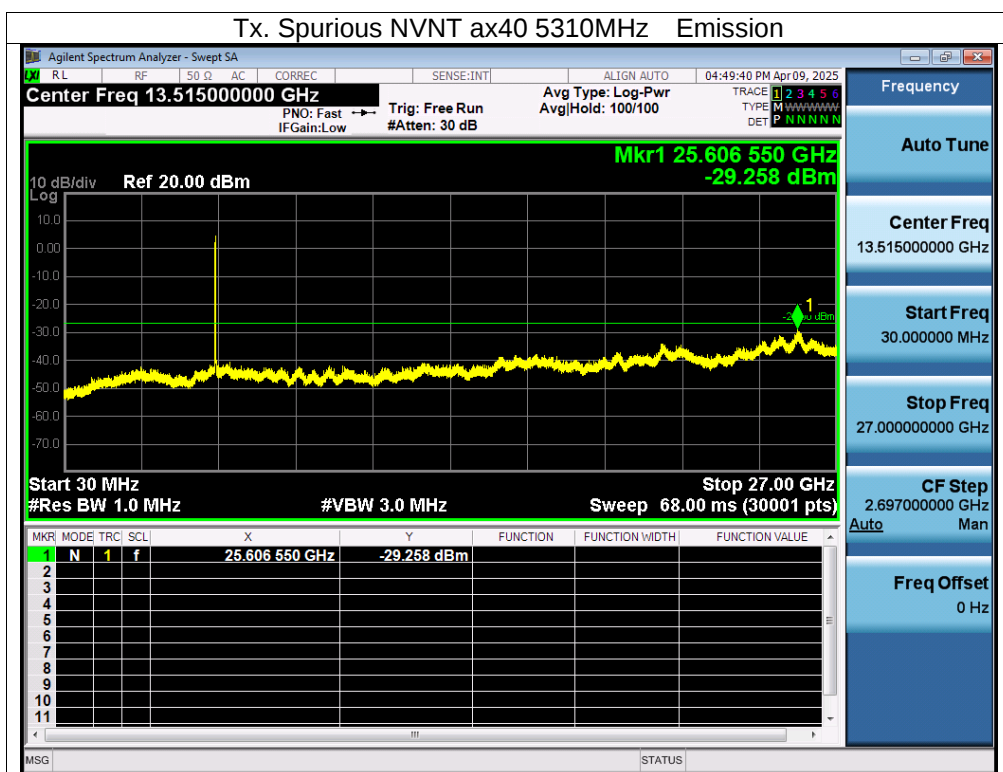






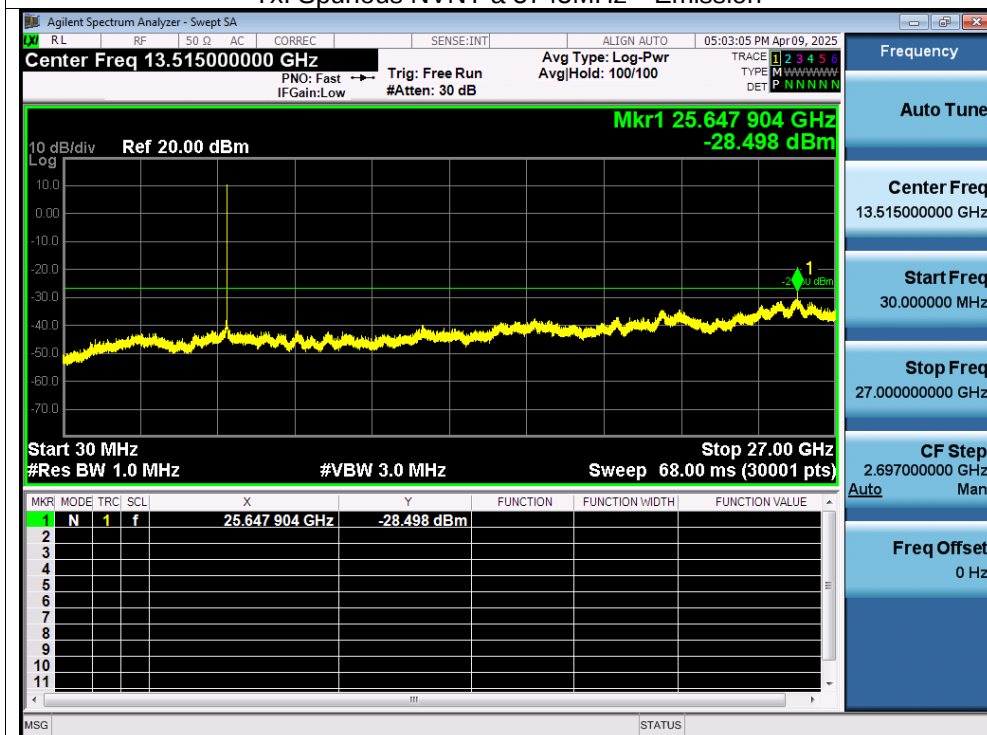




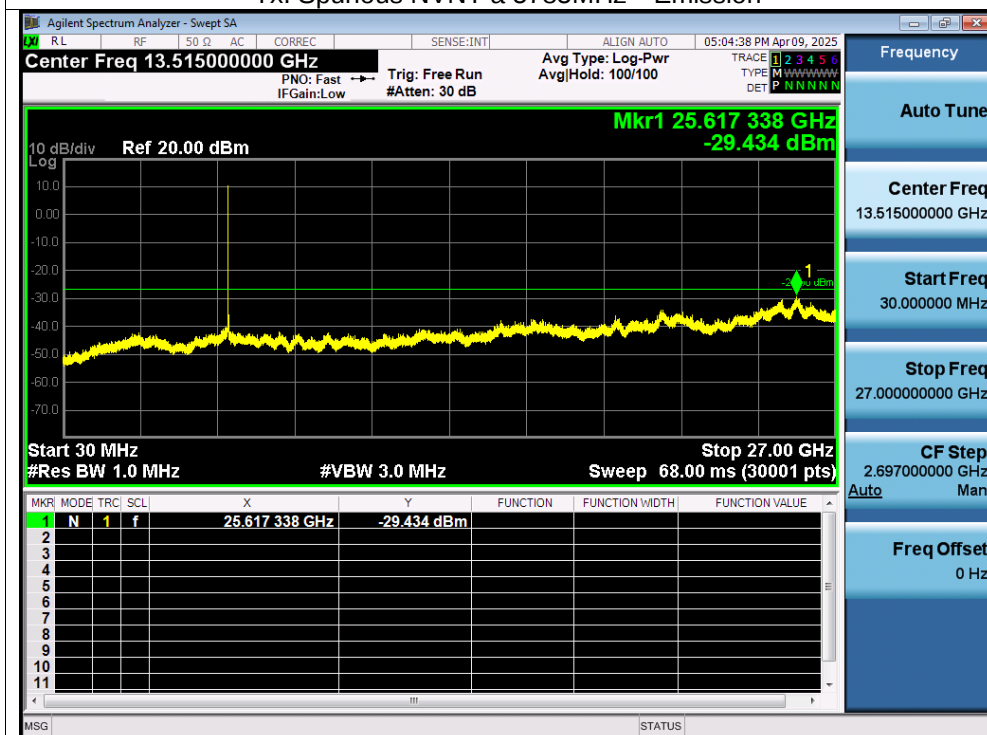


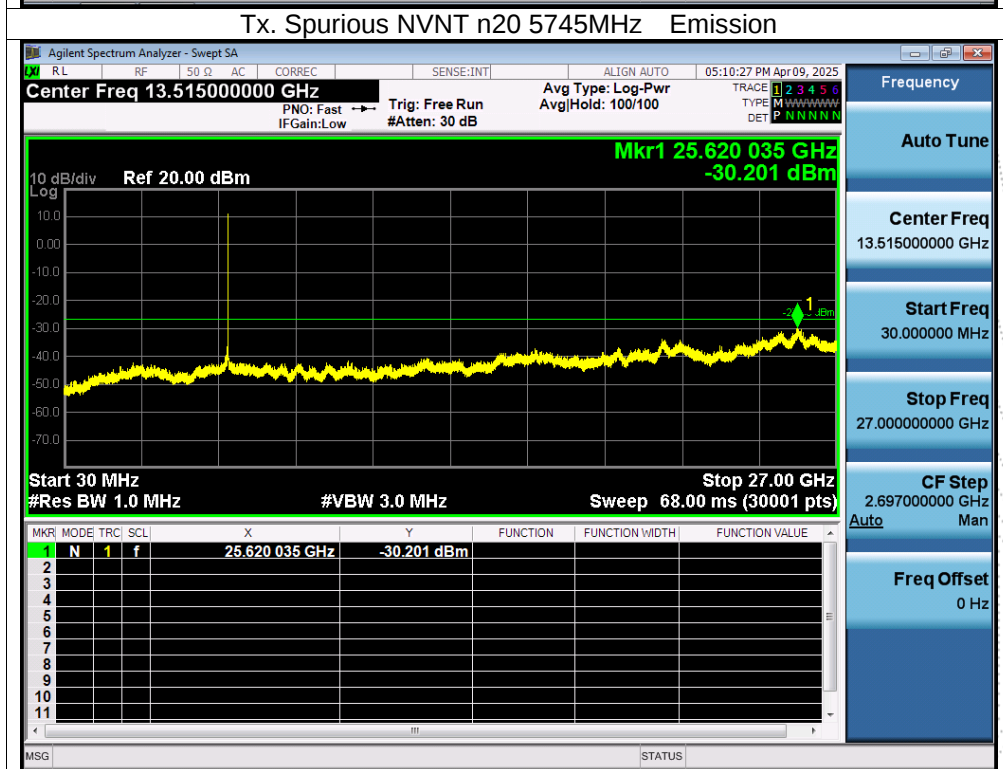
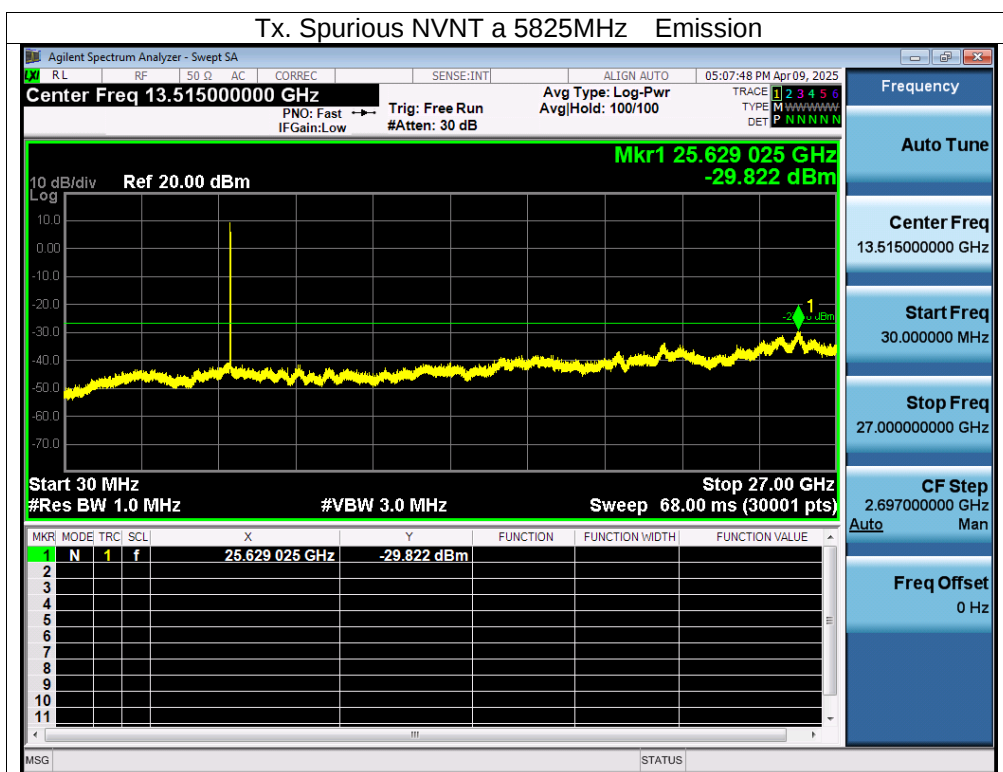
Test Graphs

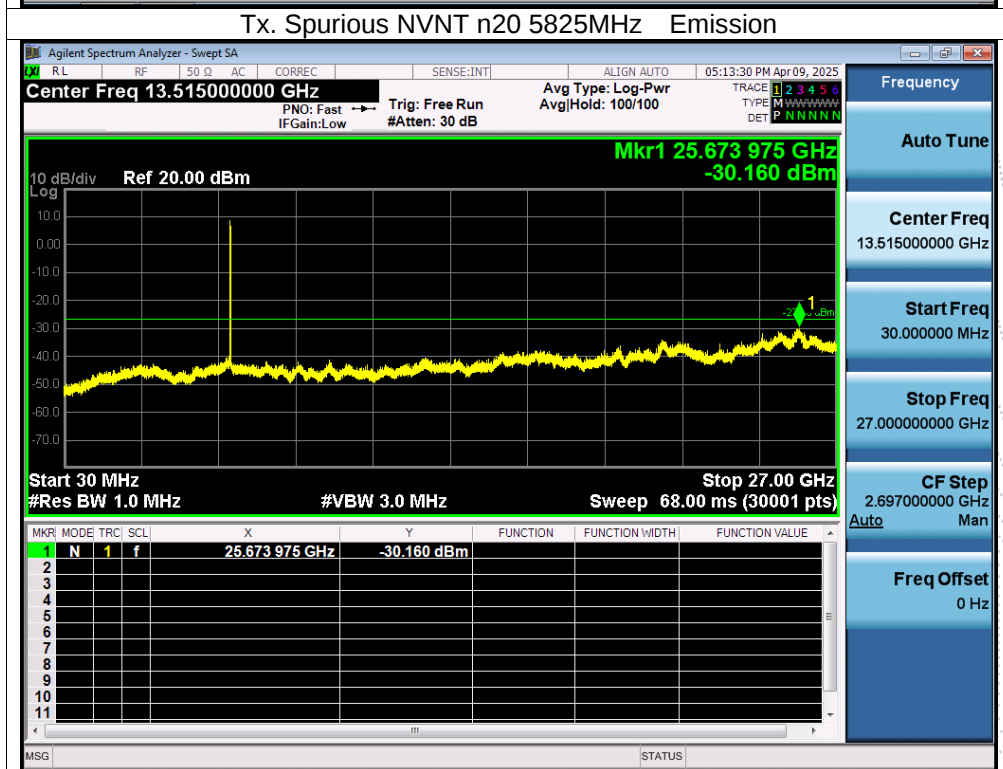
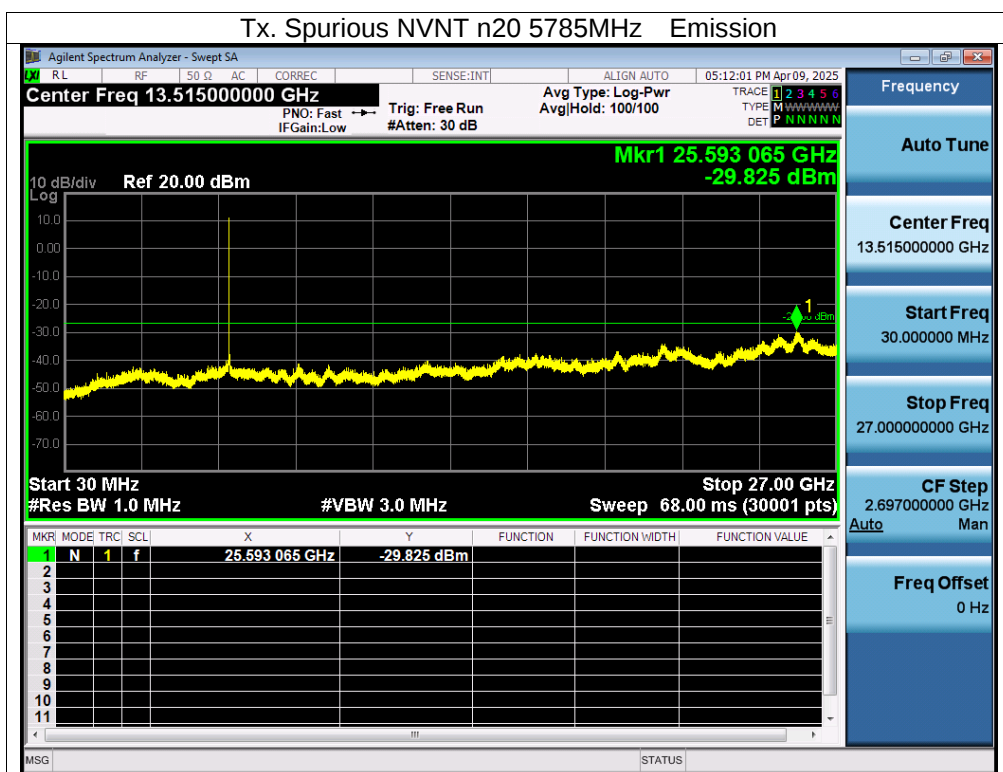
Tx. Spurious NVNT a 5745MHz Emission

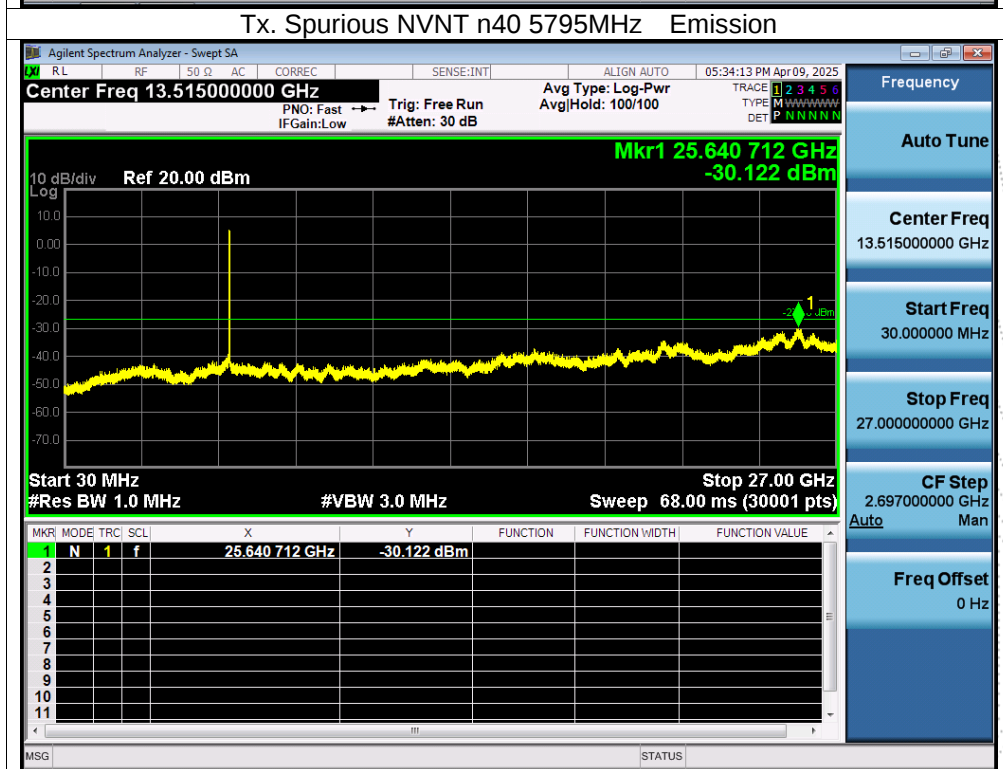
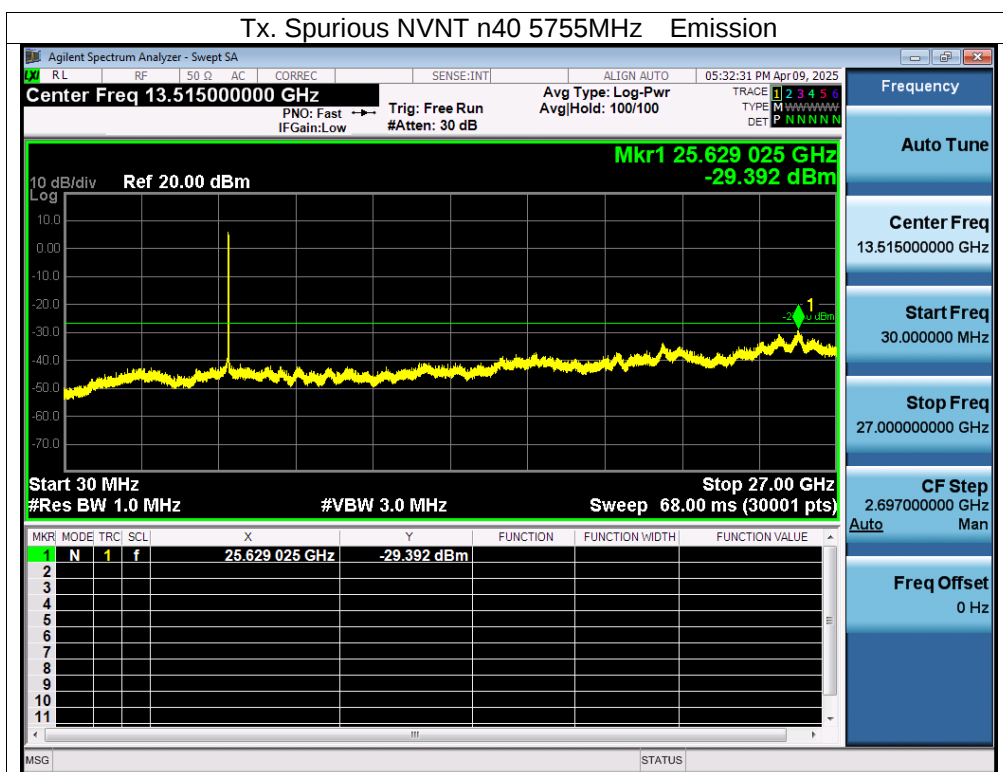


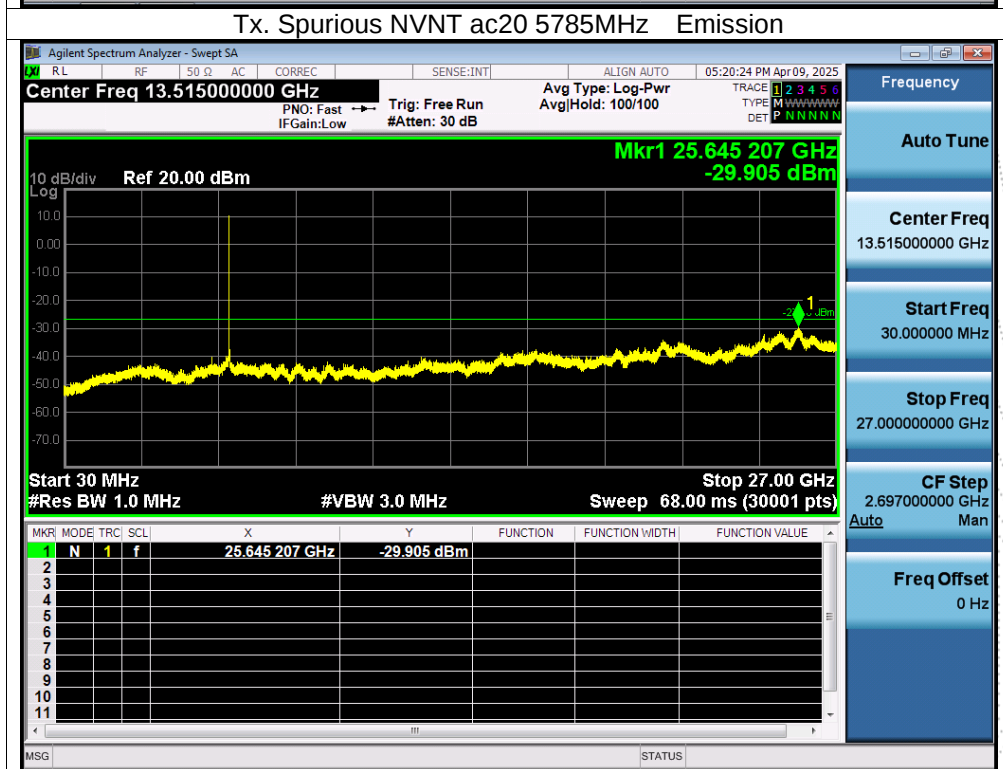
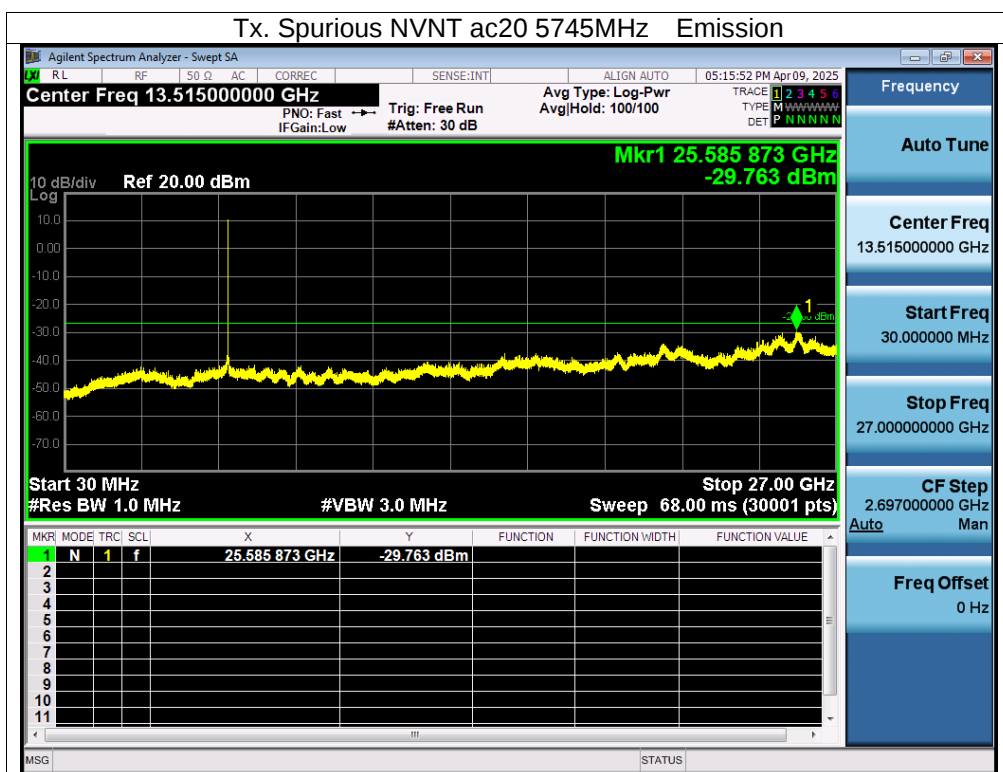
Tx. Spurious NVNT a 5785MHz Emission

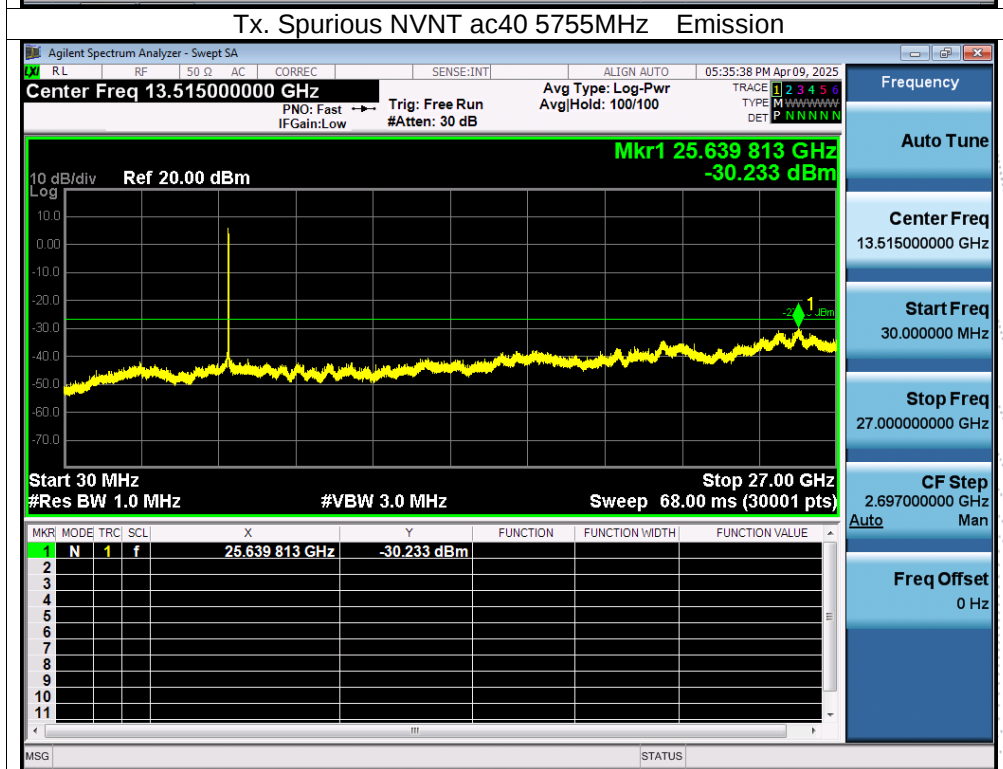
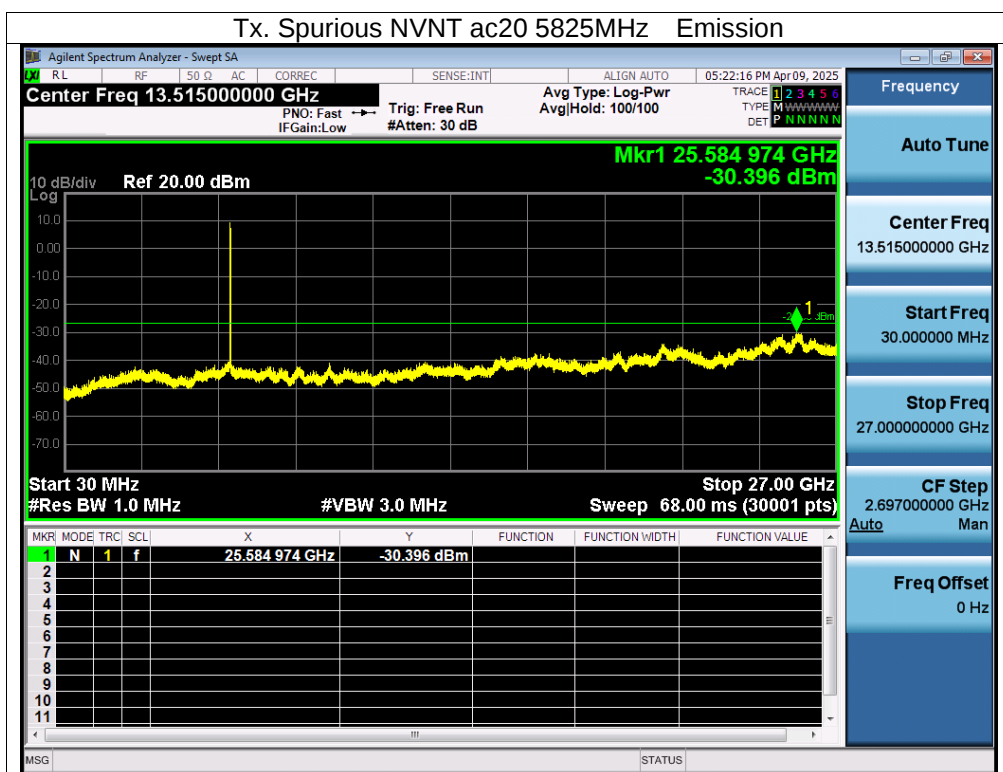


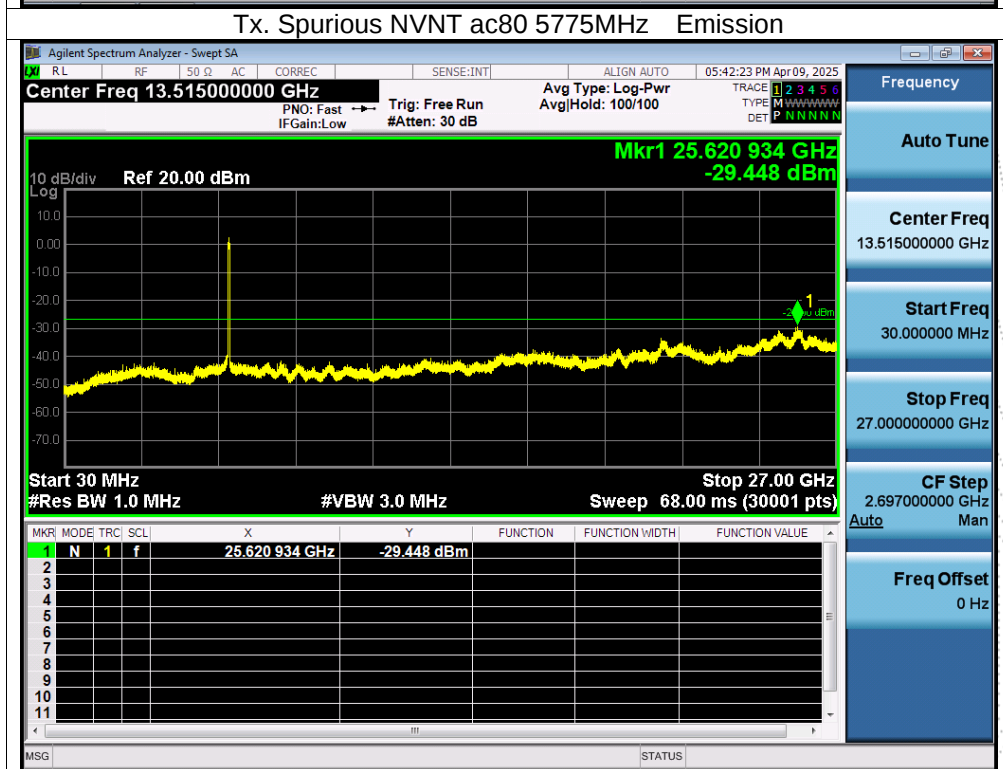
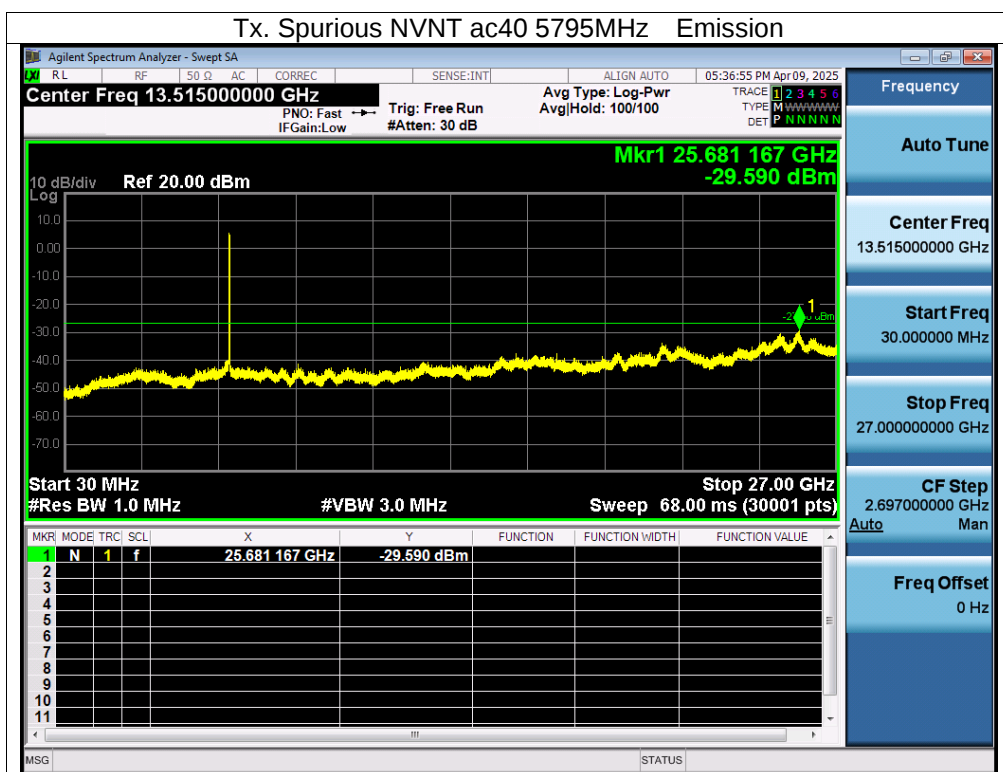


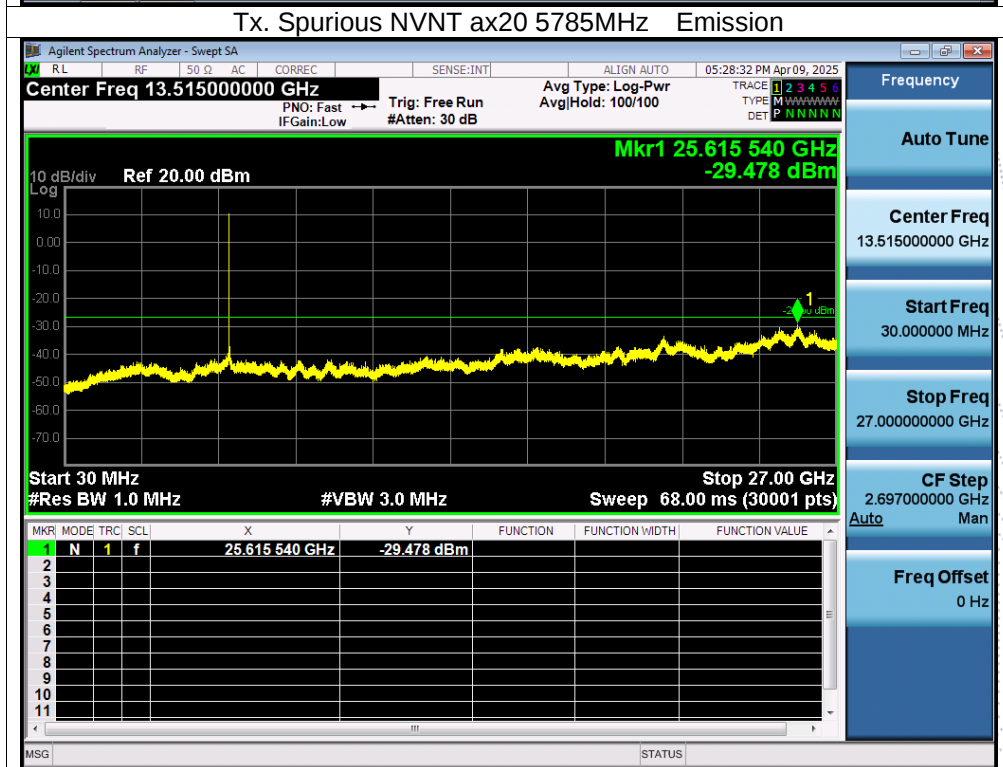
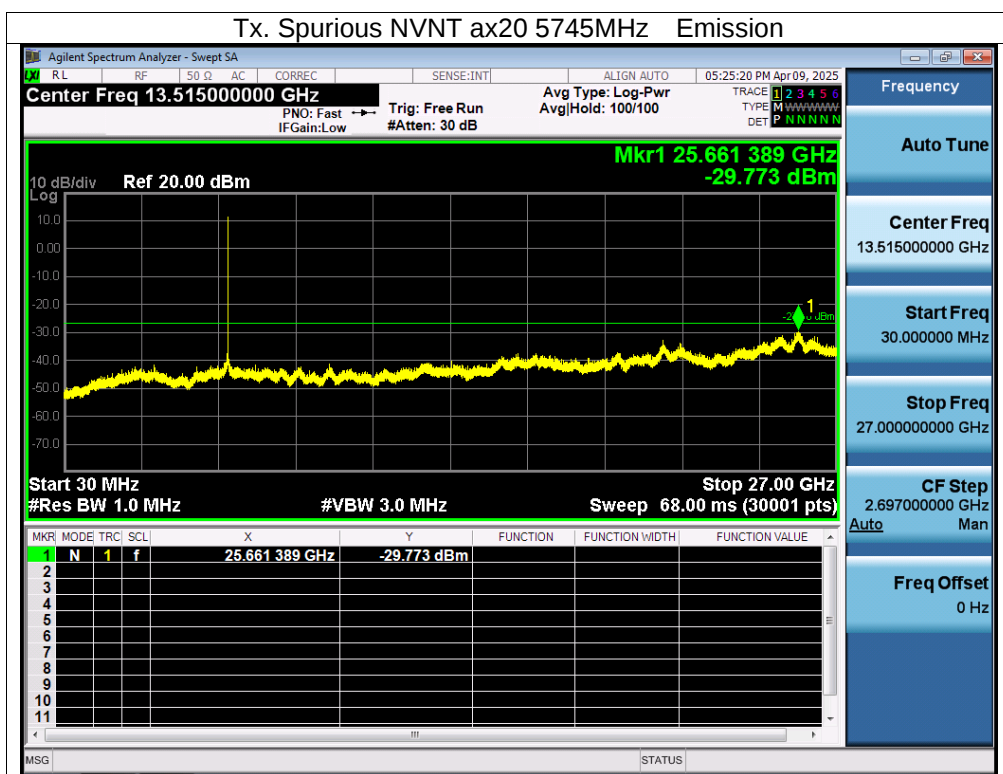


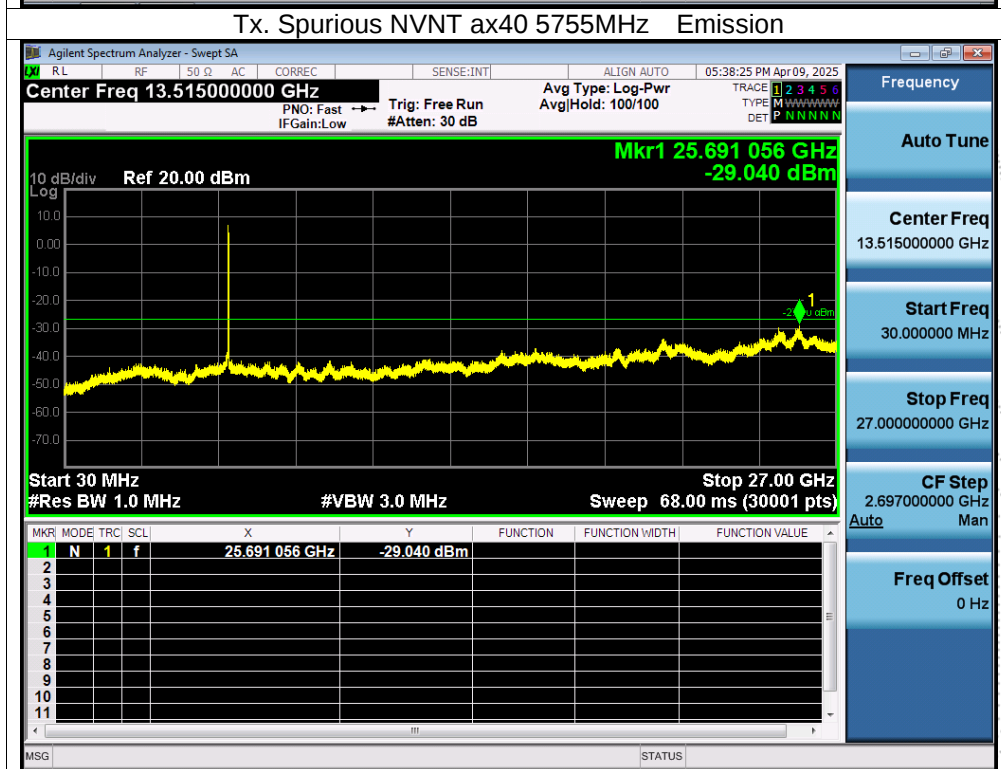
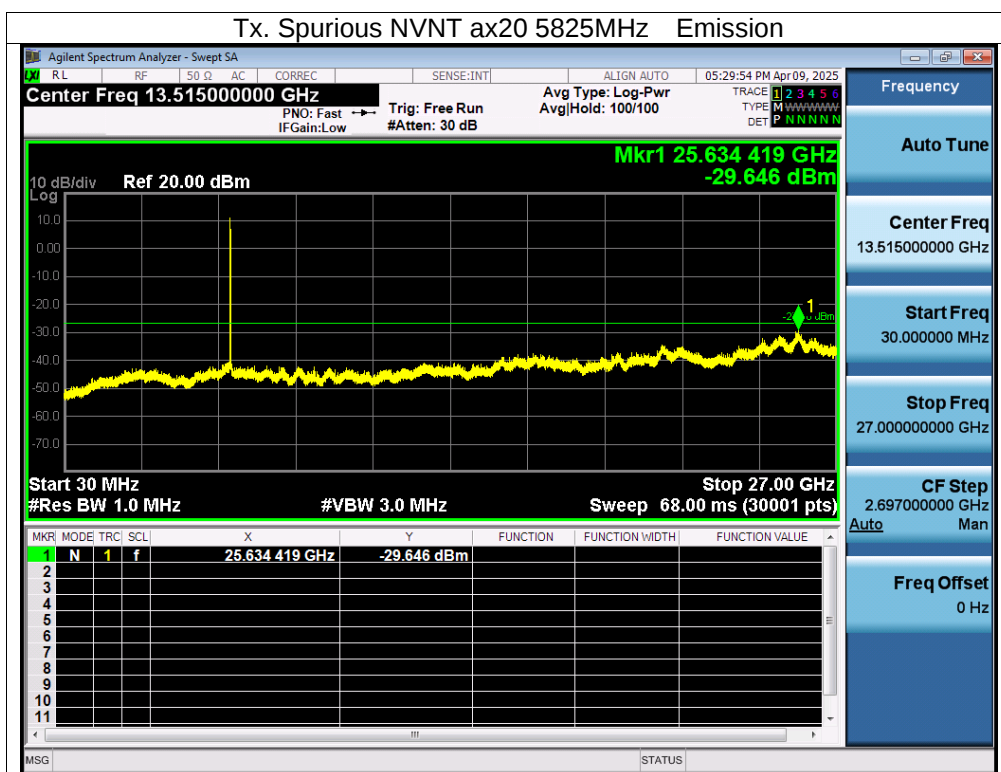


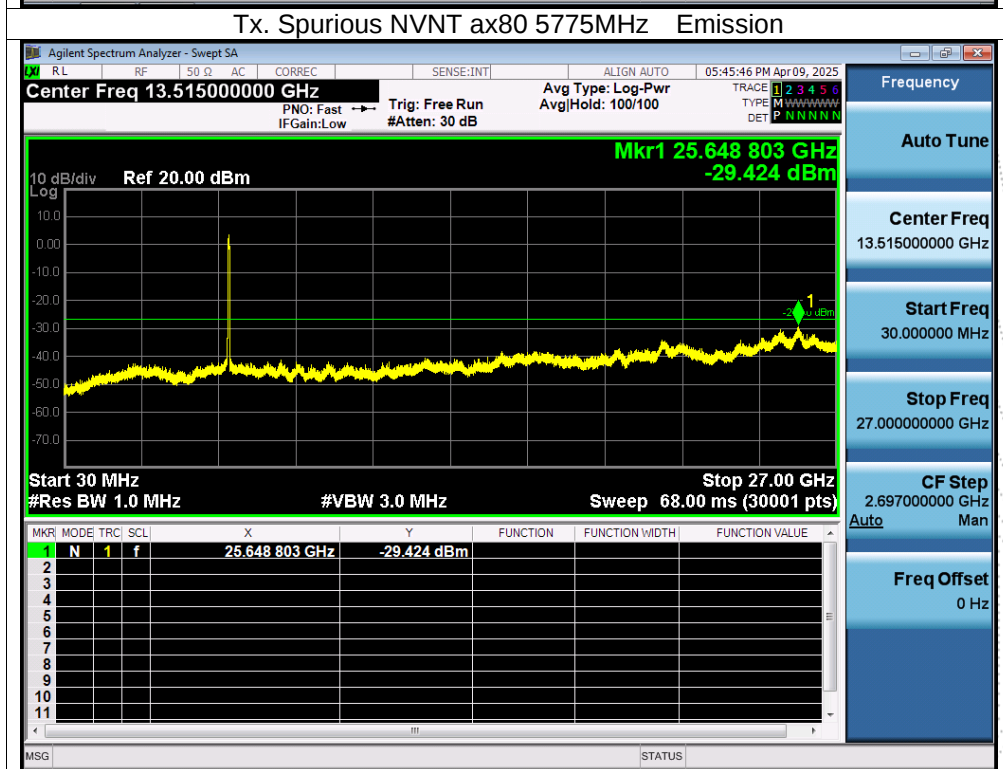
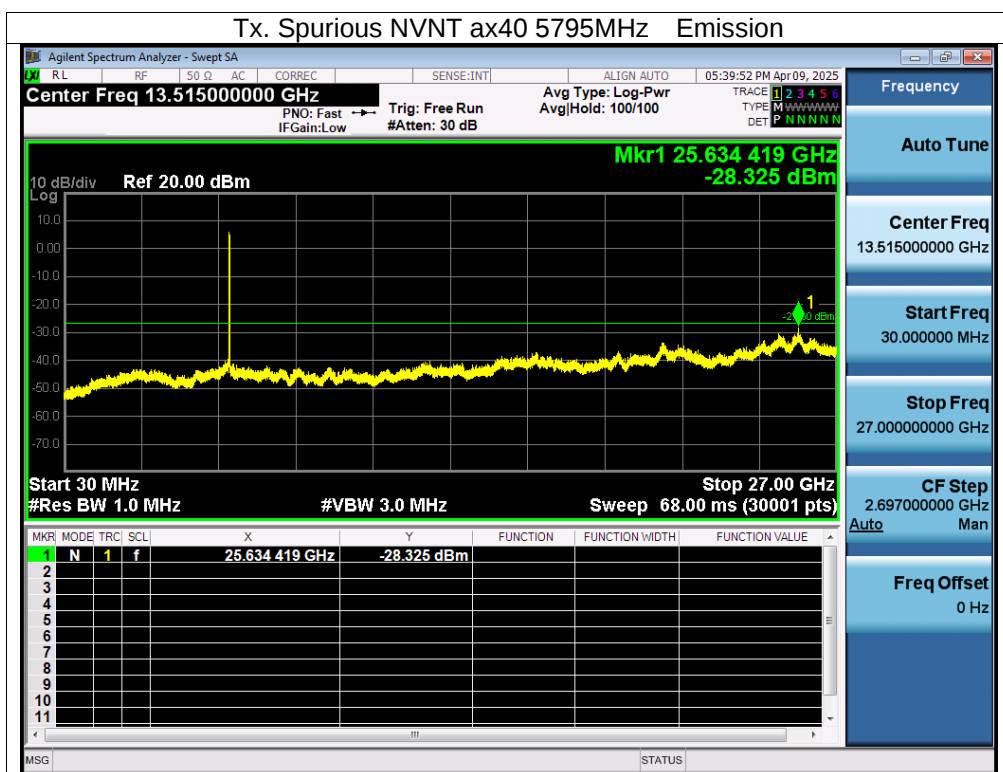












13. Frequency Stability Measurement

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°C ~ 70°C .

13.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.3V
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)	3.30	5180.0041	5180	0.0041	0.7915
		V max (V)	3.80	5180.0002	5180	0.0002	0.0386
		V min (V)	2.81	5180.0086	5180	0.0086	1.6602
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)	3.3	T (°C)	-20	5180.0045	5180	0.0045	0.8687
		T (°C)	-10	5180.0034	5180	0.0034	0.6564
		T (°C)	0	5180.0104	5180	0.0104	2.0077
		T (°C)	10	5180.0069	5180	0.0069	1.3320
		T (°C)	20	5180.0061	5180	0.0061	1.1776
		T (°C)	30	5180.0010	5180	0.0010	0.1931
		T (°C)	40	5180.0010	5180	0.0010	0.1931
		T (°C)	50	5180.0021	5180	0.0021	0.4054
		T (°C)	60	5180.0128	5180	0.0128	2.4710
		T (°C)	70	5180.0095	5180	0.0095	1.8340
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)	3.30	5200.0050	5200	0.0050	0.9615
		V max (V)	3.80	5200.0064	5200	0.0064	1.2308
		V min (V)	2.81	5200.0121	5200	0.0121	2.3269
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)	3.3	T (°C)	-20	5200.00780	5200	0.00780	1.5000
		T (°C)	-10	5200.00640	5200	0.00640	1.2308
		T (°C)	0	5200.01100	5200	0.01100	2.1154
		T (°C)	10	5200.01240	5200	0.01240	2.3846
		T (°C)	20	5200.00620	5200	0.00620	1.1923
		T (°C)	30	5200.01030	5200	0.01030	1.9808
		T (°C)	40	5200.00360	5200	0.00360	0.6923
		T (°C)	50	5200.00840	5200	0.00840	1.6154
		T (°C)	60	5200.01230	5200	0.01230	2.3654
		T (°C)	70	5200.00360	5200	0.00360	0.6923
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)	3.30	5240.0043	5240	0.0043	0.8206
		V max (V)	3.80	5240.0082	5240	0.0082	1.5649
		V min (V)	2.81	5240.0000	5240	0.0000	0.0000
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)	3.3	T (°C)	-20	5240.0114	5240	0.0114	2.1756
		T (°C)	-10	5240.0126	5240	0.0126	2.4046
		T (°C)	0	5240.0035	5240	0.0035	0.6679
		T (°C)	10	5240.0109	5240	0.0109	2.0802
		T (°C)	20	5240.0047	5240	0.0047	0.8969
		T (°C)	30	5240.0028	5240	0.0028	0.5344
		T (°C)	40	5240.0009	5240	0.0009	0.1718
		T (°C)	50	5240.0054	5240	0.0054	1.0305
		T (°C)	60	5240.0127	5240	0.0127	2.4237
		T (°C)	70	5240.0000	5240	0.0000	0.0000
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.3V
Test Mode:	TX (5.3G) Mode Frequency U-NII-2A (5260-5320MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.30	5260.0001	5260	0.0001	0.0190
		V max (V)	3.80	5260.0067	5260	0.0067	1.2738
		V min (V)	2.81	5260.0118	5260	0.0118	2.2433
Limits				5250-5350 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.3	T (°C)	-20	5260.0023	5260	0.0023	0.4373
		T (°C)	-10	5260.0129	5260	0.0129	2.4525
		T (°C)	0	5260.0049	5260	0.0049	0.9316
		T (°C)	10	5260.0021	5260	0.0021	0.3992
		T (°C)	20	5260.0095	5260	0.0095	1.8061
		T (°C)	30	5260.0115	5260	0.0115	2.1863
		T (°C)	40	5260.0018	5260	0.0018	0.3422
		T (°C)	50	5260.0072	5260	0.0072	1.3688
		T (°C)	60	5260.0049	5260	0.0049	0.9316
		T (°C)	70	5260.0025	5260	0.0025	0.4753
Limits				5250-5350 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.30	5280.0030	5280	0.0030	0.5682
		V max (V)	3.80	5280.0135	5280	0.0135	2.5568
		V min (V)	2.81	5280.0051	5280	0.0051	0.9659
Limits				5250-5350 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.3	T (°C)	-20	5280.00950	5280	0.00950	1.7992
		T (°C)	-10	5280.00210	5280	0.00210	0.3977
		T (°C)	0	5280.00030	5280	0.00030	0.0568
		T (°C)	10	5280.00870	5280	0.00870	1.6477
		T (°C)	20	5280.01150	5280	0.01150	2.1780
		T (°C)	30	5280.00710	5280	0.00710	1.3447
		T (°C)	40	5280.00720	5280	0.00720	1.3636
		T (°C)	50	5280.00180	5280	0.00180	0.3409
		T (°C)	60	5280.00320	5280	0.00320	0.6061
		T (°C)	70	5280.00300	5280	0.00300	0.5682
Limits				5250-5350 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.30	5320.0105	5320	0.0105	1.9737
		V max (V)	3.80	5320.0008	5320	0.0008	0.1504
		V min (V)	2.81	5320.0131	5320	0.0131	2.4624
Limits				5250-5350 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.3	T (°C)	-20	5320.0015	5320	0.0015	0.2820
		T (°C)	-10	5320.0063	5320	0.0063	1.1842
		T (°C)	0	5320.0111	5320	0.0111	2.0865
		T (°C)	10	5320.0108	5320	0.0108	2.0301
		T (°C)	20	5320.0002	5320	0.0002	0.0376
		T (°C)	30	5320.0121	5320	0.0121	2.2744
		T (°C)	40	5320.0092	5320	0.0092	1.7293
		T (°C)	50	5320.0112	5320	0.0112	2.1053
		T (°C)	60	5320.0079	5320	0.0079	1.4850
		T (°C)	70	5320.0124	5320	0.0124	2.3308
Limits				5250-5350 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 3.3V
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)	3.30	5745.01160	5745	0.01160	2.0191
		V max (V)	3.80	5745.00040	5745	0.00040	0.0696
		V min (V)	2.81	5745.00330	5745	0.00330	0.5744
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)	3.3	T (°C)	-20	5745.00360	5745	0.00360	0.6266
		T (°C)	-10	5745.00430	5745	0.00430	0.7485
		T (°C)	0	5745.00480	5745	0.00480	0.8355
		T (°C)	10	5745.00040	5745	0.00040	0.0696
		T (°C)	20	5745.00440	5745	0.00440	0.7659
		T (°C)	30	5745.00510	5745	0.00510	0.8877
		T (°C)	40	5745.01050	5745	0.01050	1.8277
		T (°C)	50	5745.00330	5745	0.00330	0.5744
		T (°C)	60	5745.00470	5745	0.00470	0.8181
		T (°C)	70	5745.00510	5745	0.00510	0.8877
Limits				5725-5850 MHz			
Result				Complies			