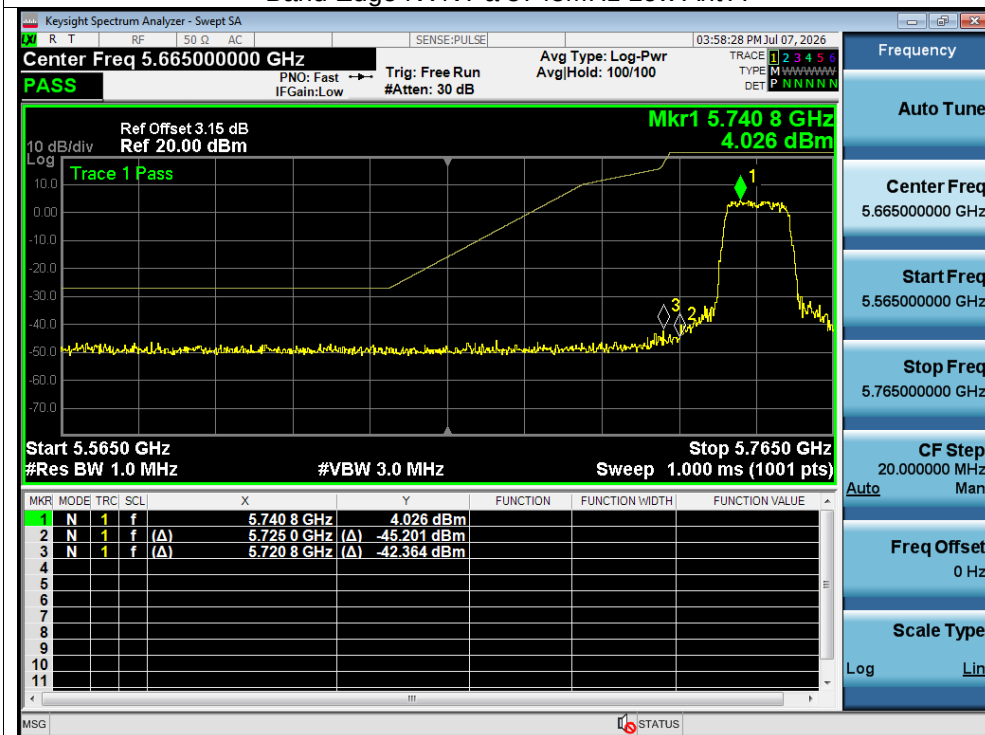


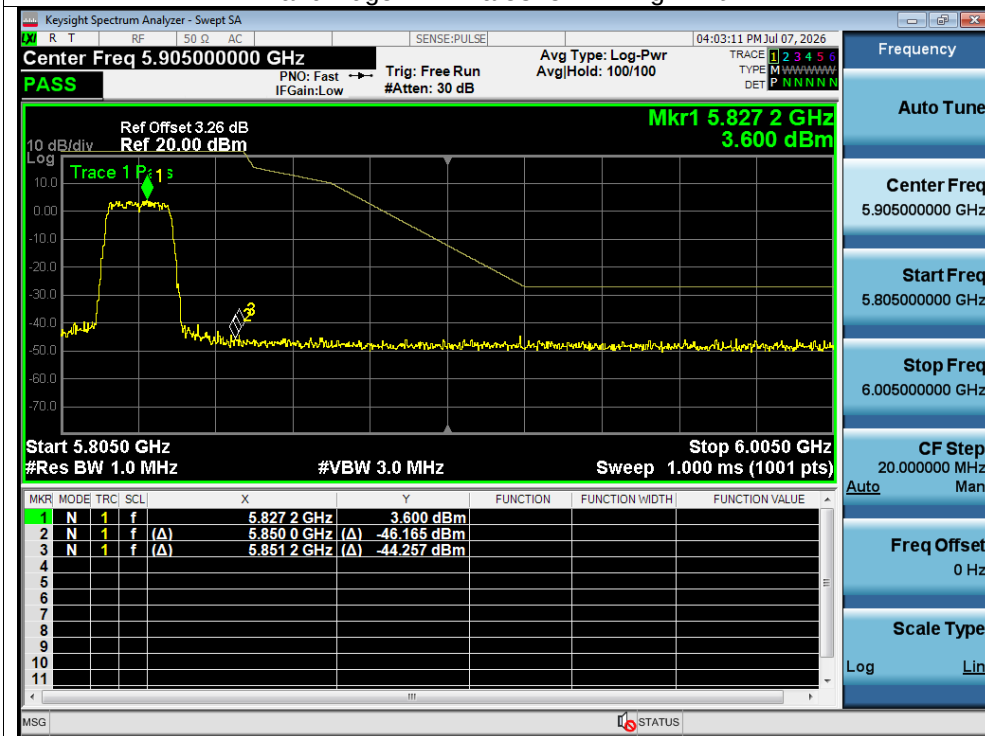
Note: (A)(B)Represent the value of antenna A and B , The worst data is Antenna A, only shown Antenna A.
Antenna A: 5745-5825MHz

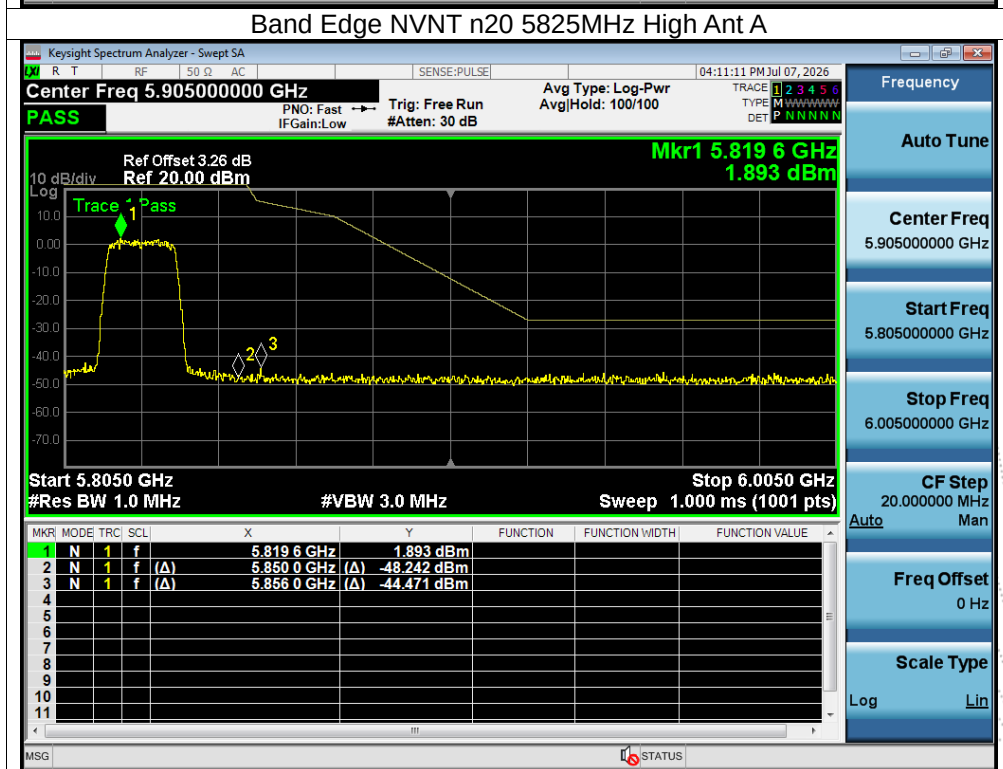
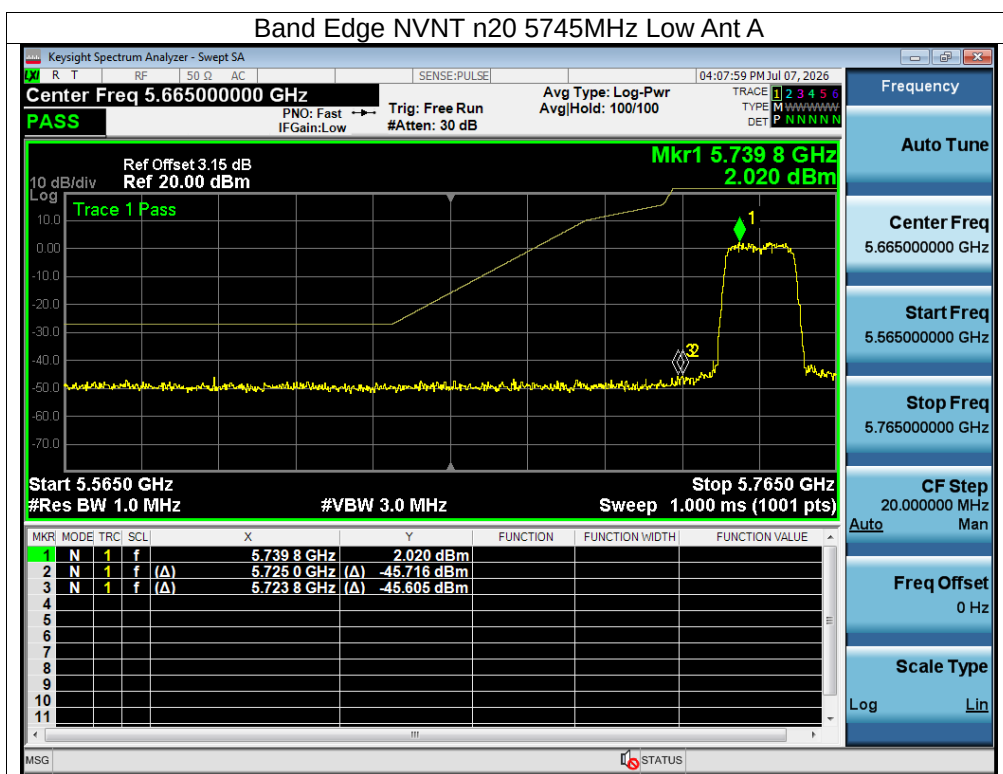
Test Graphs

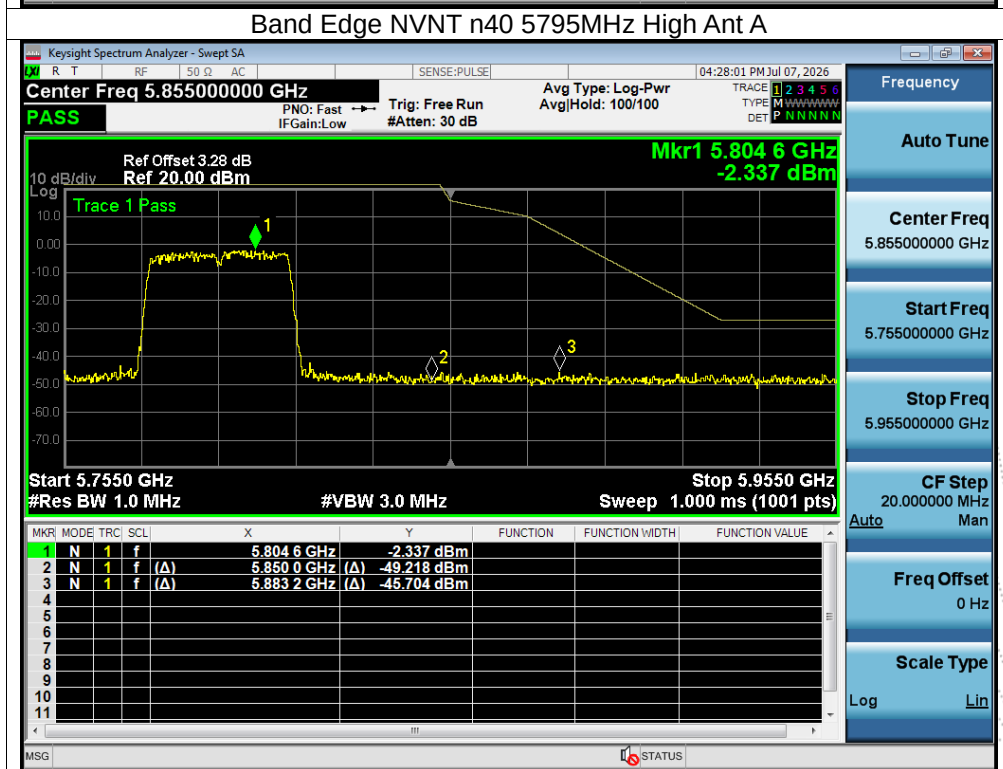
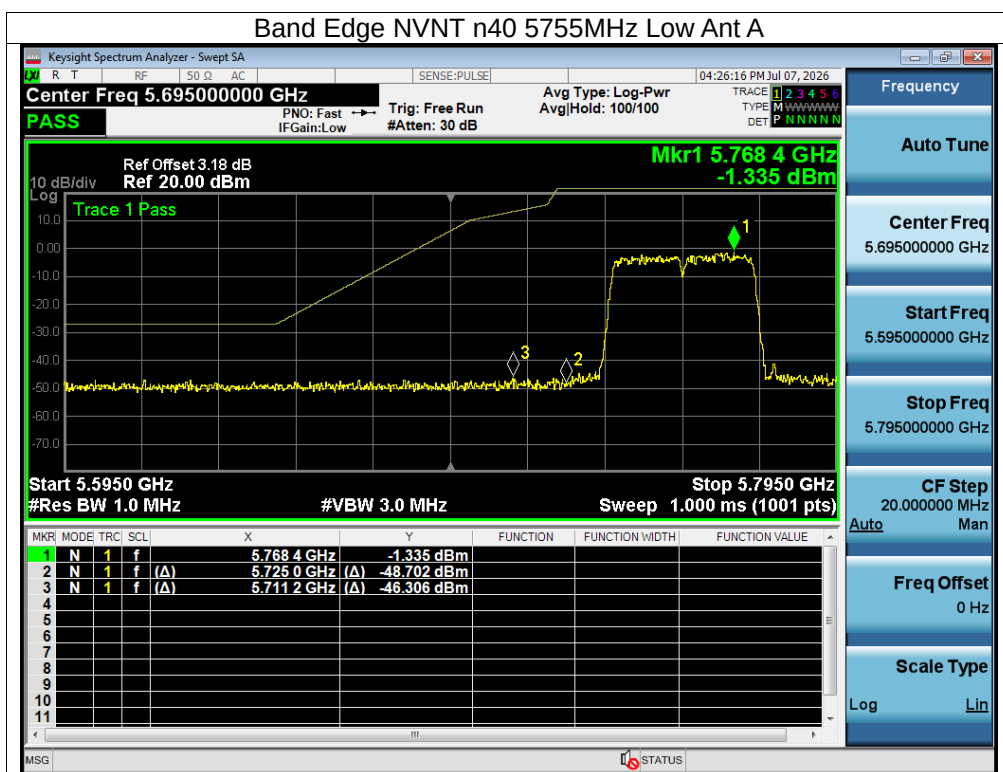
Band Edge NVNT a 5745MHz Low Ant A

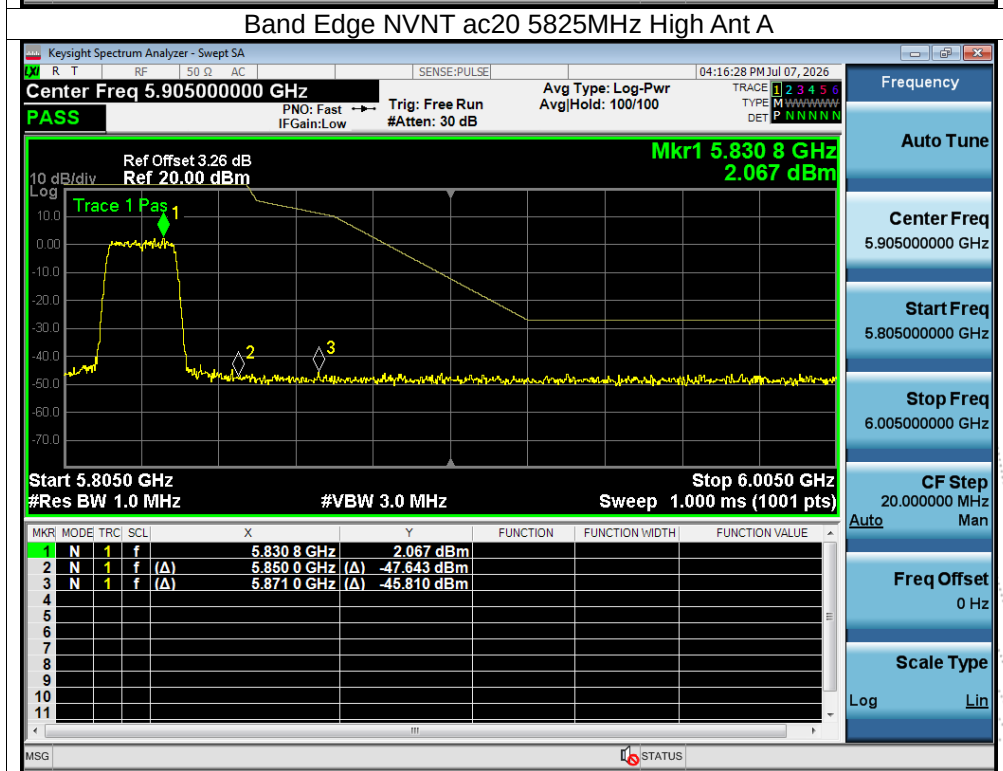
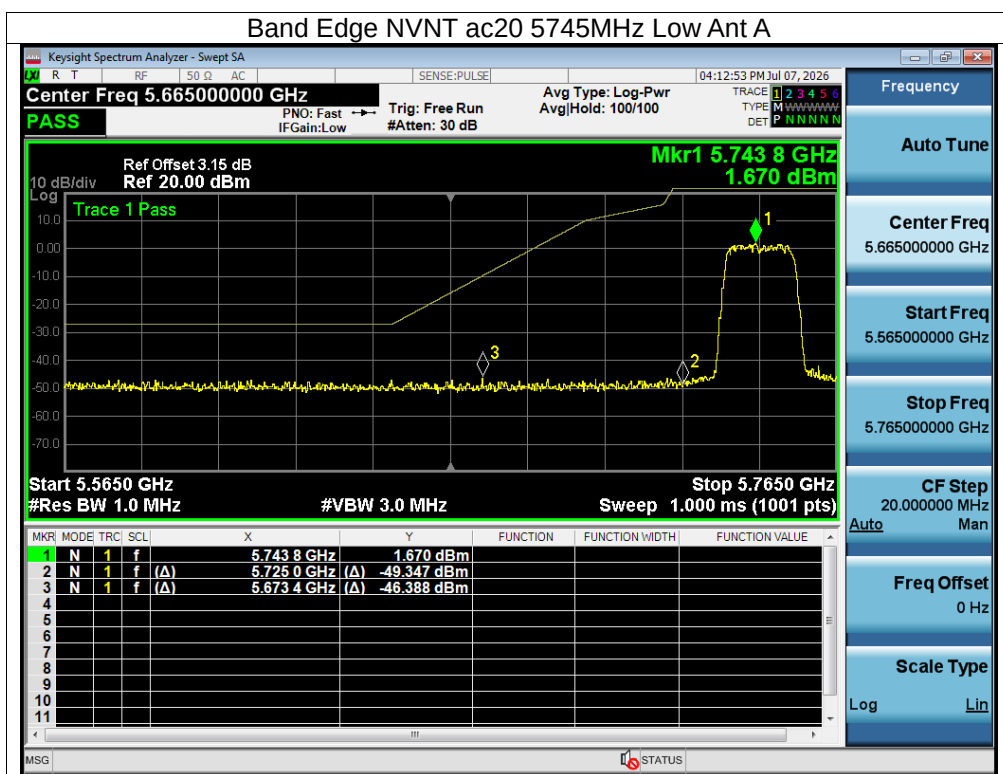


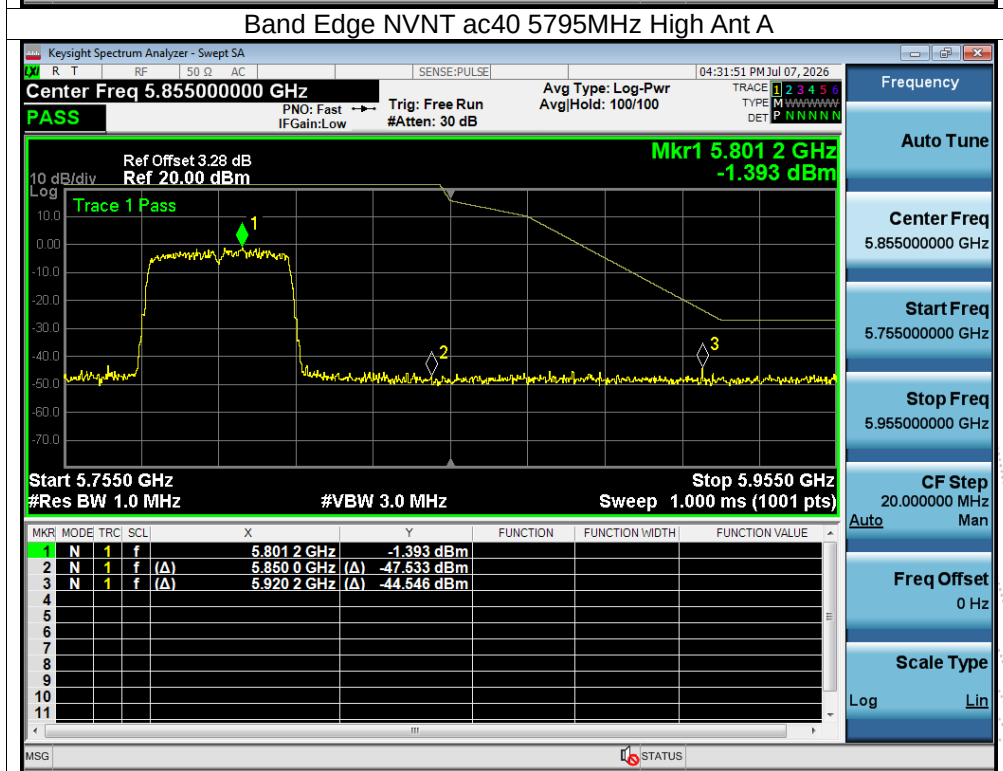
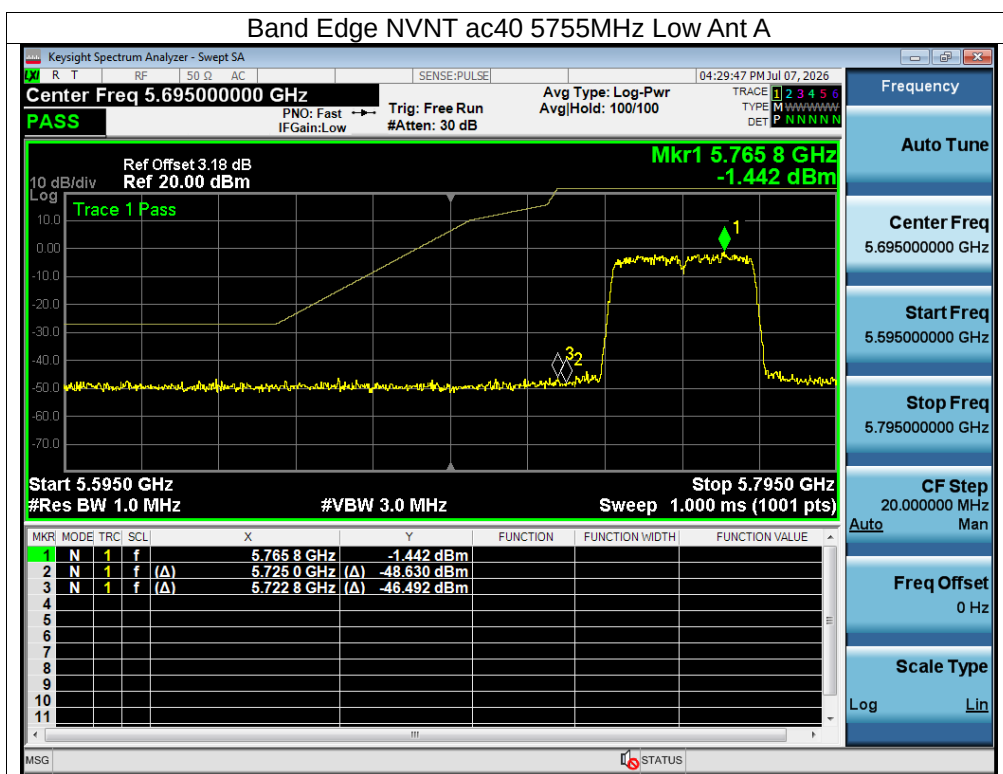
Band Edge NVNT a 5825MHz High Ant A

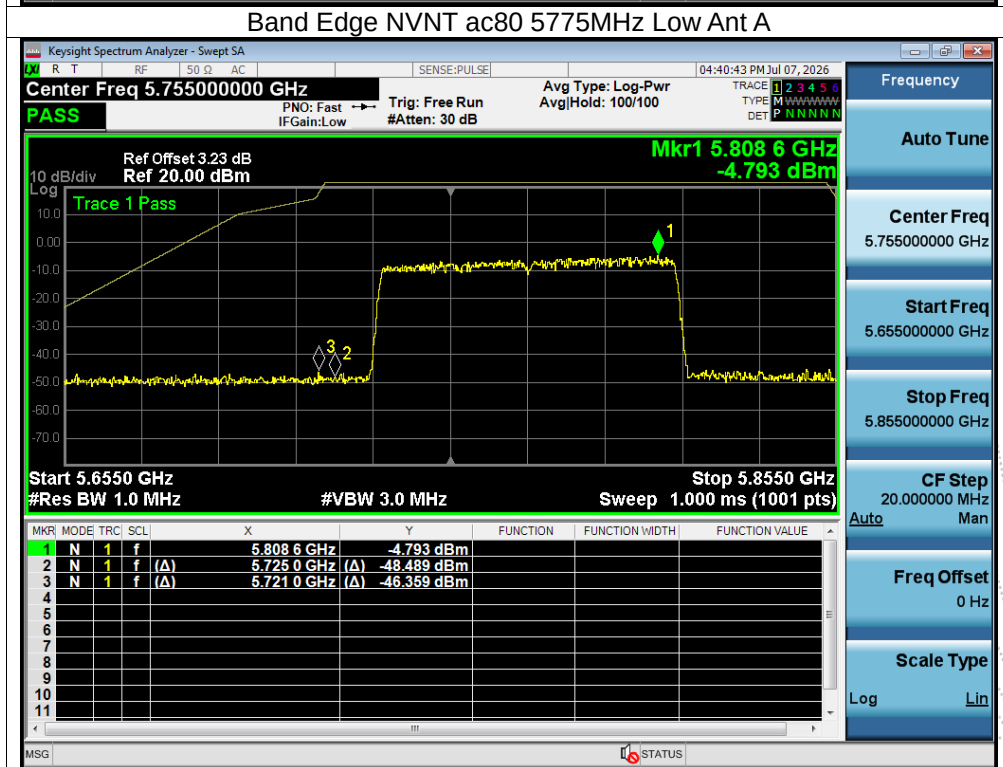
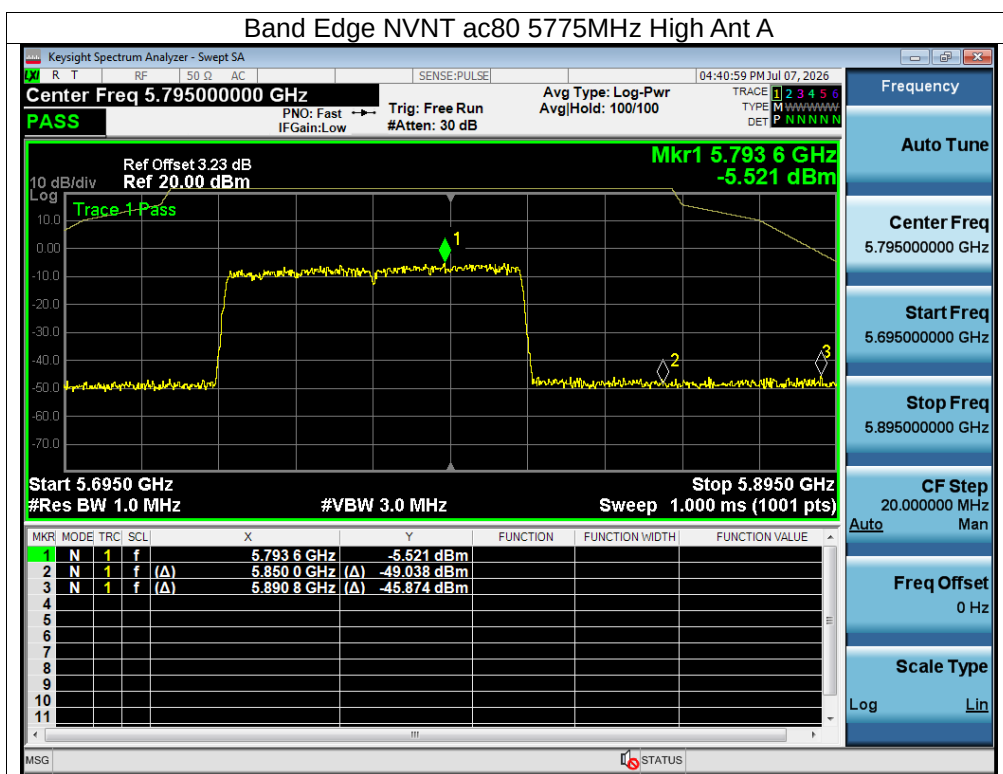


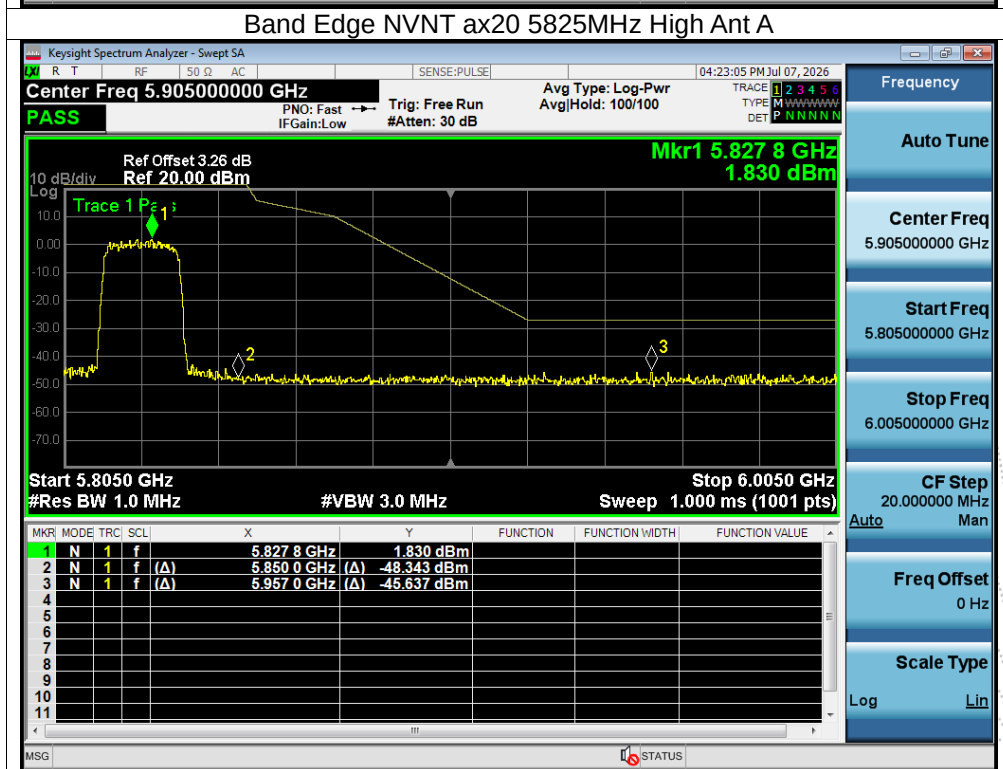
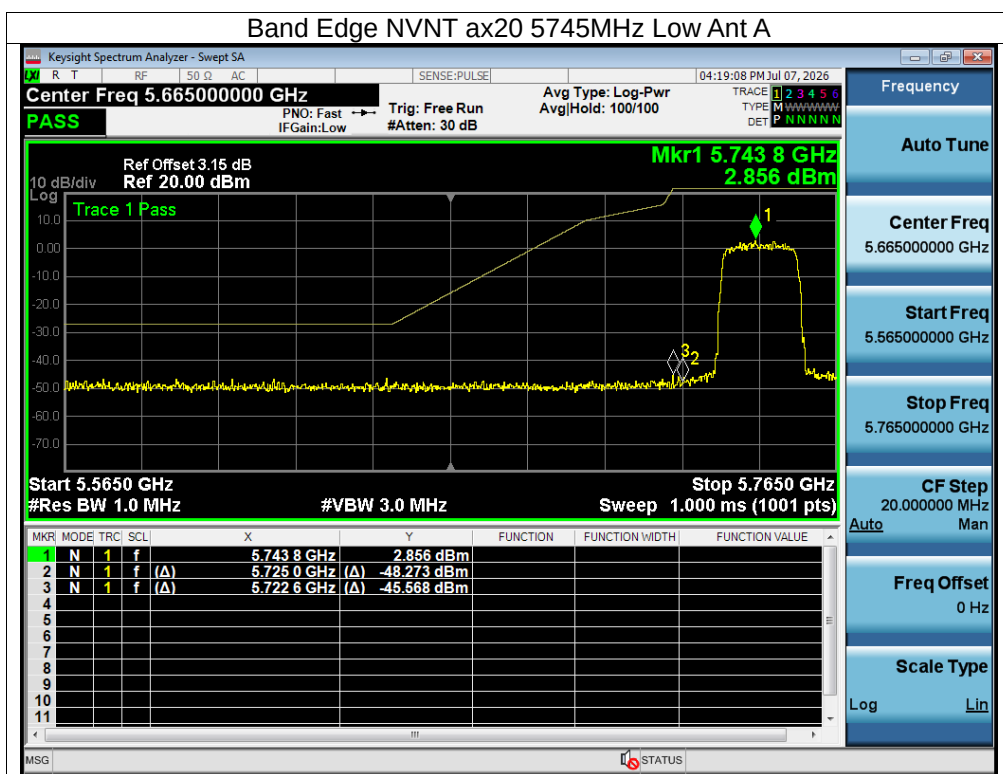


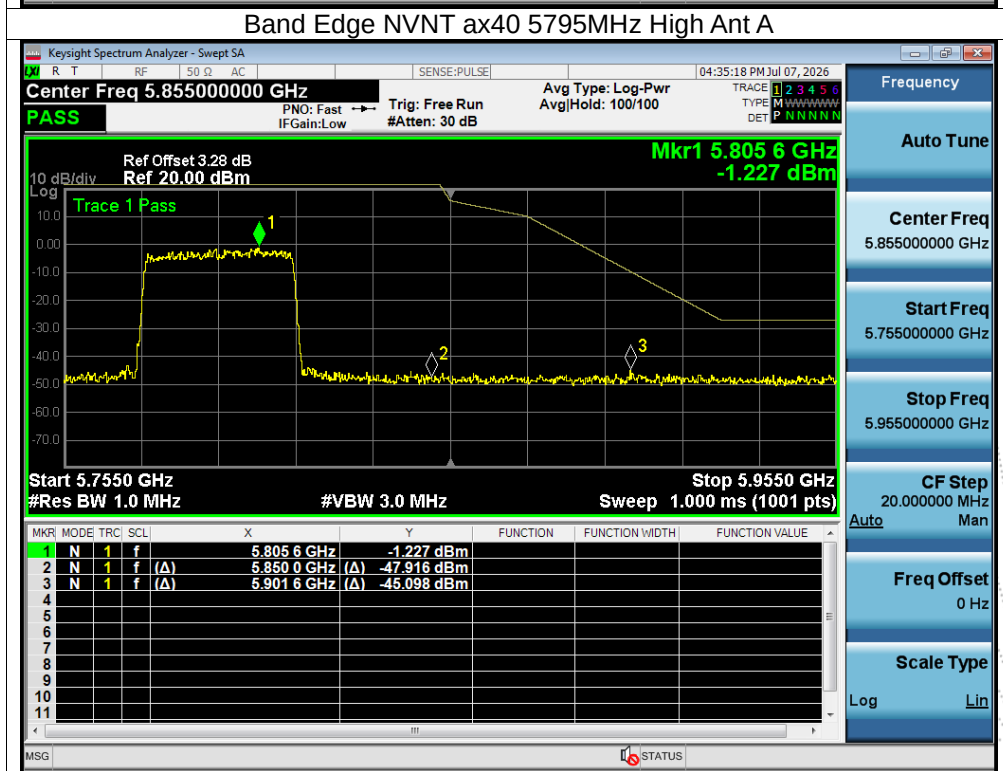
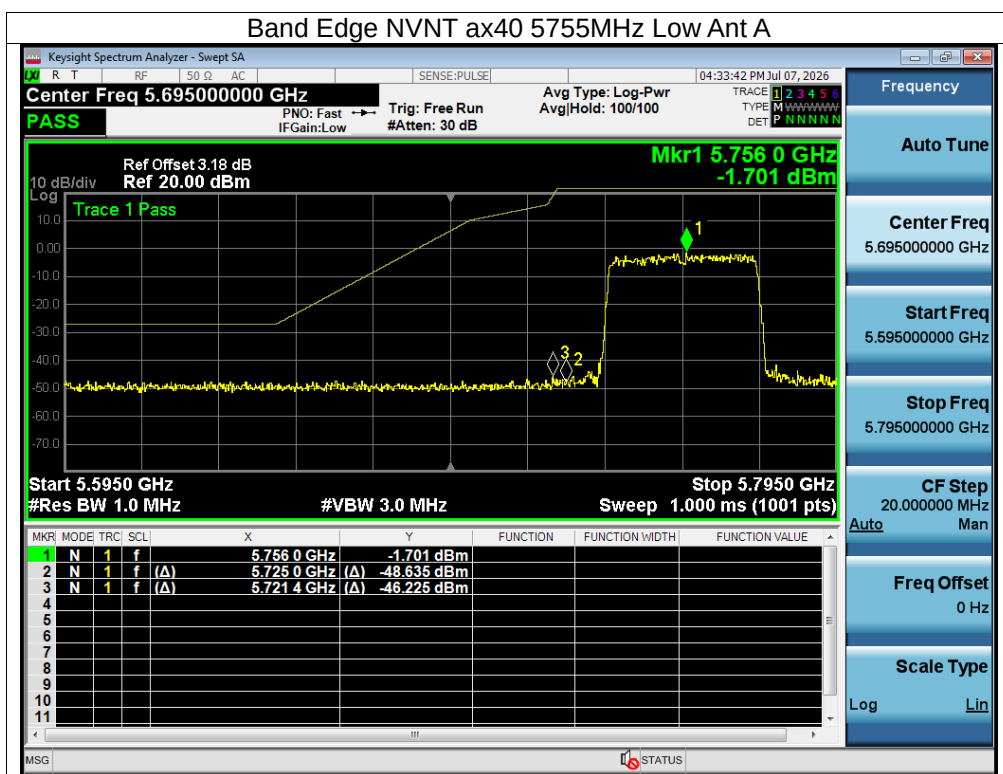


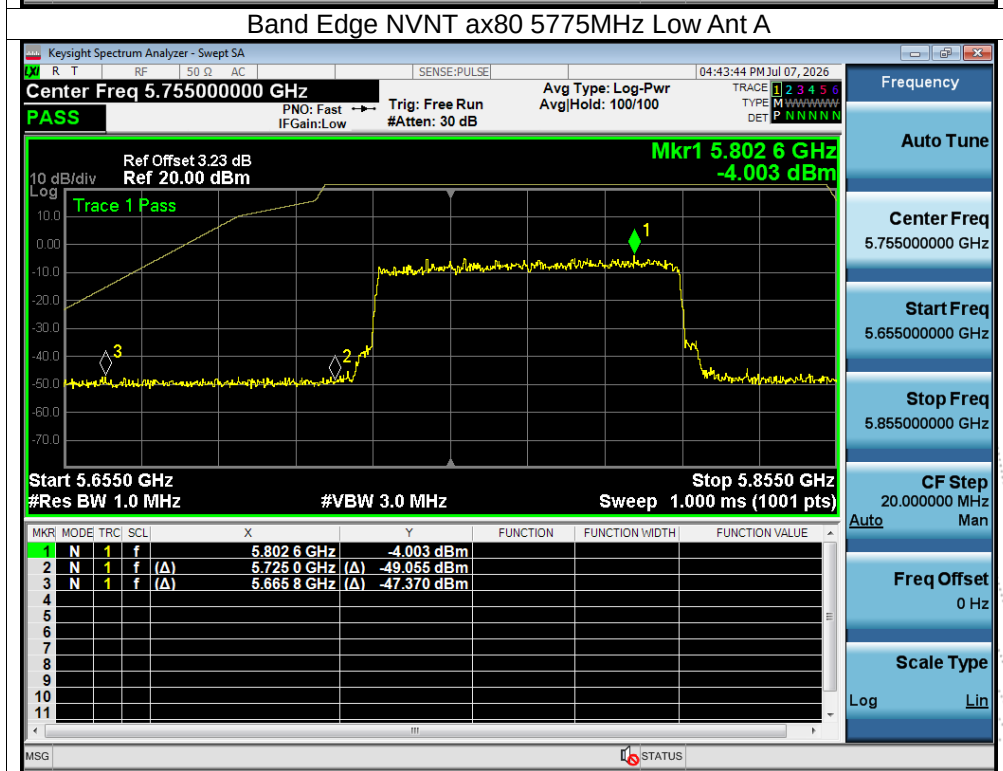
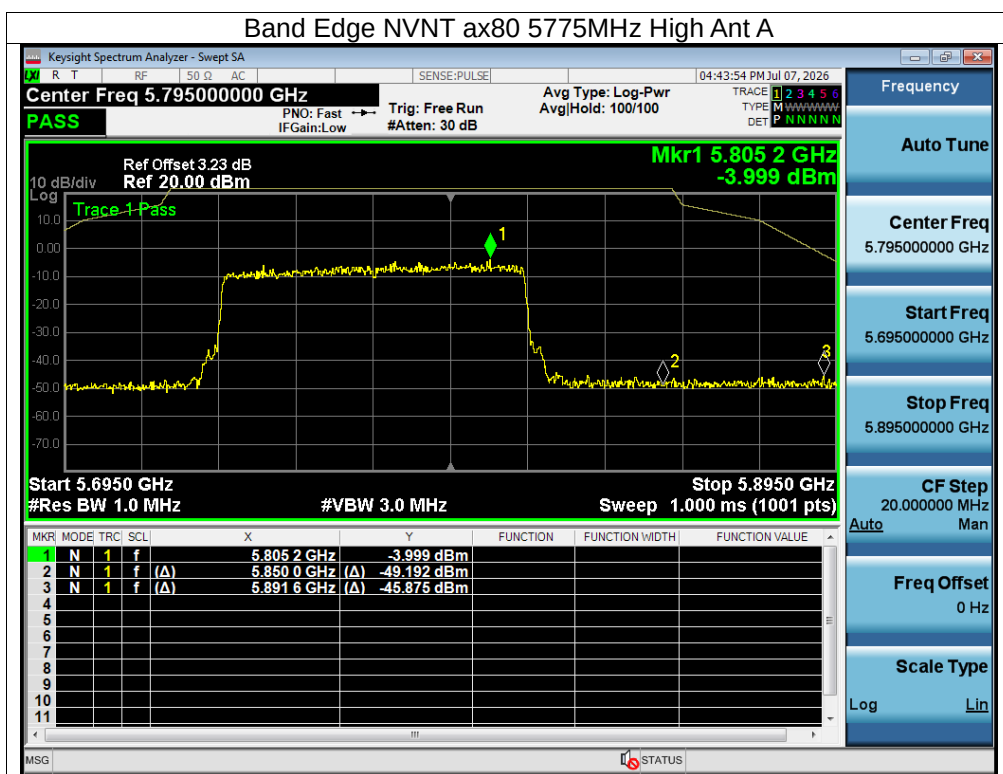












12. Spurious RF Conducted Emissions

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

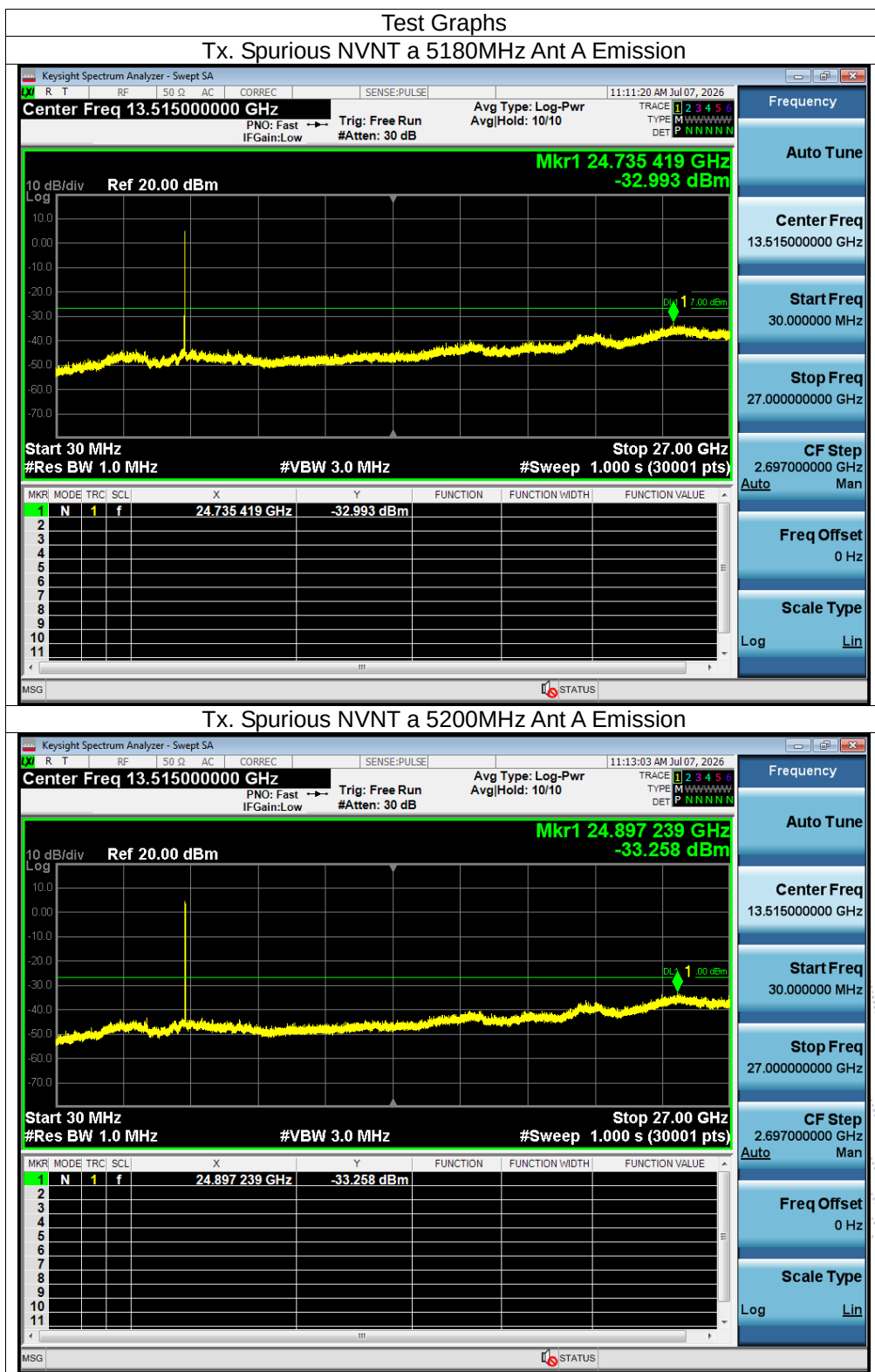
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then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

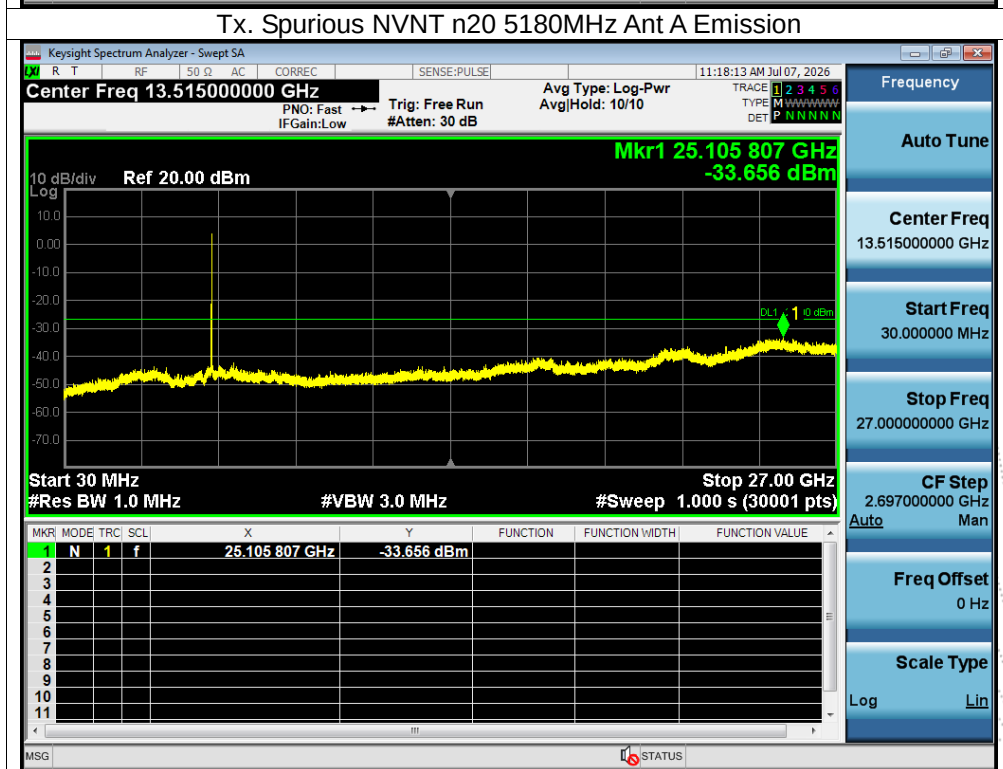
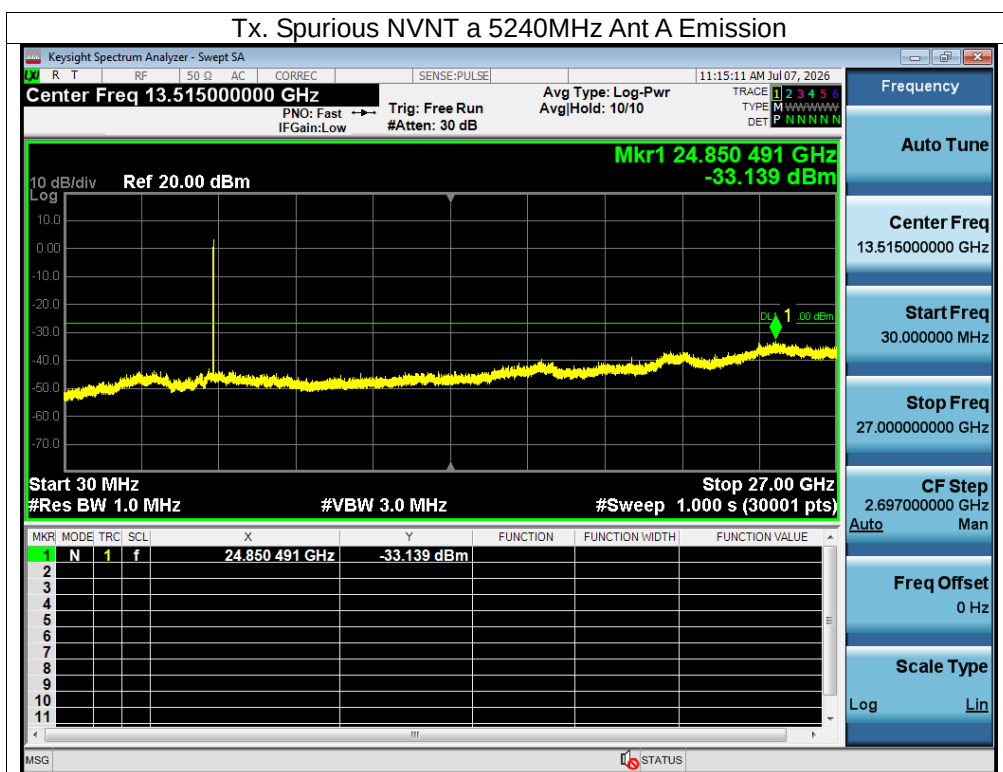
12.4 Test Result

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 band edge measurement data.

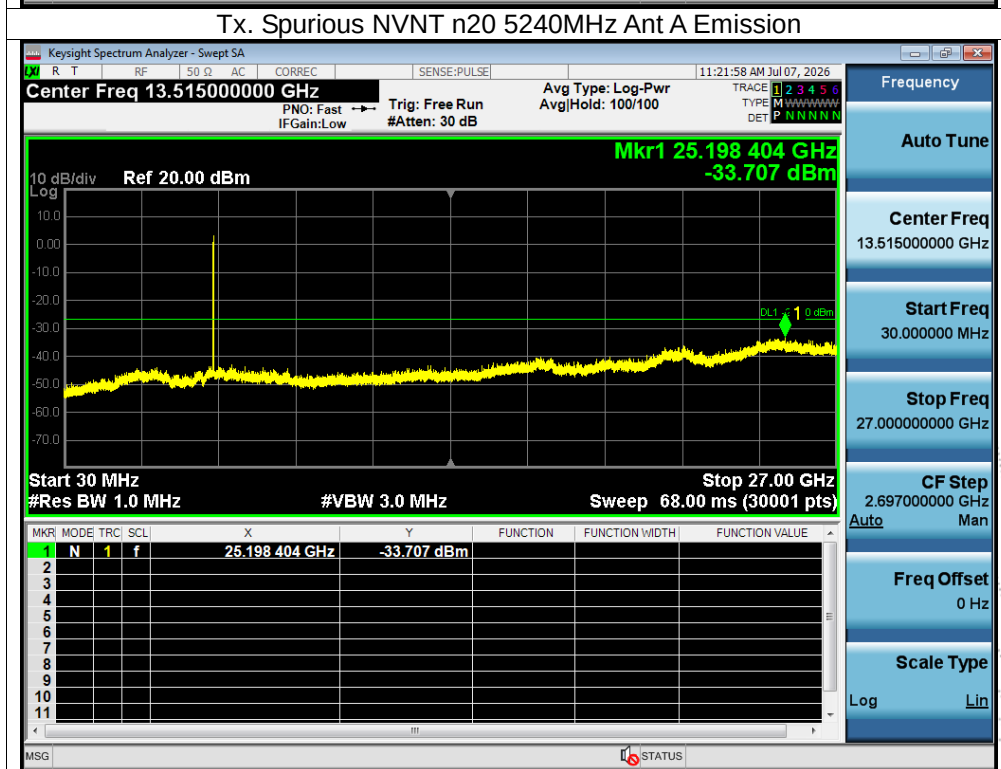
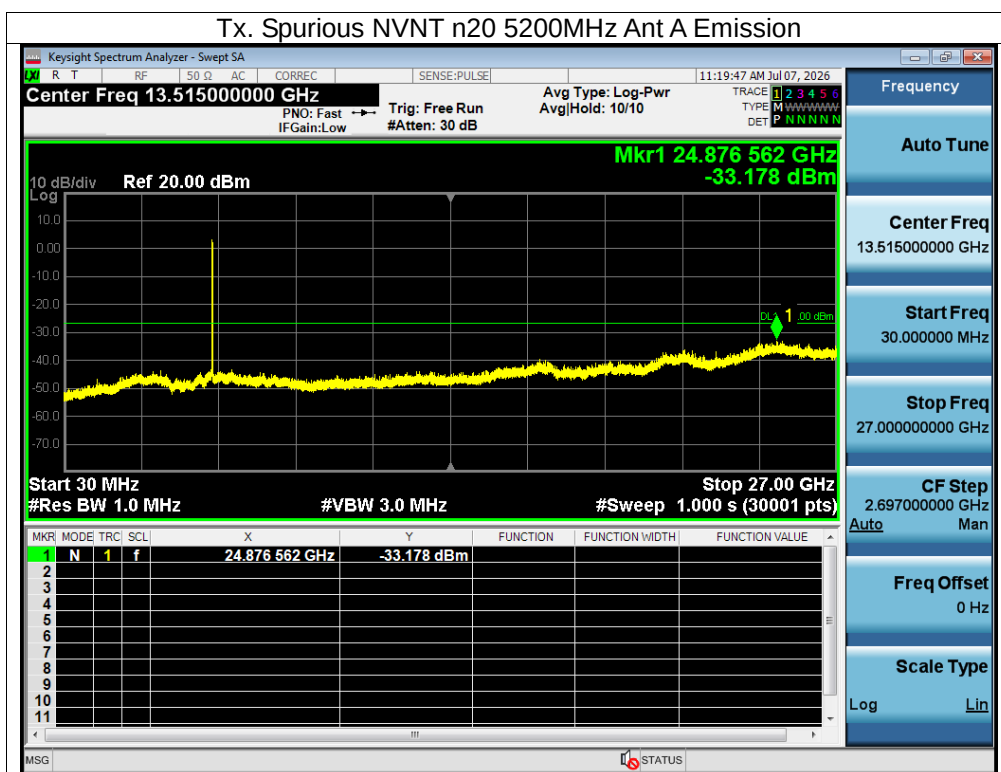
About: 26.5GHz-40GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

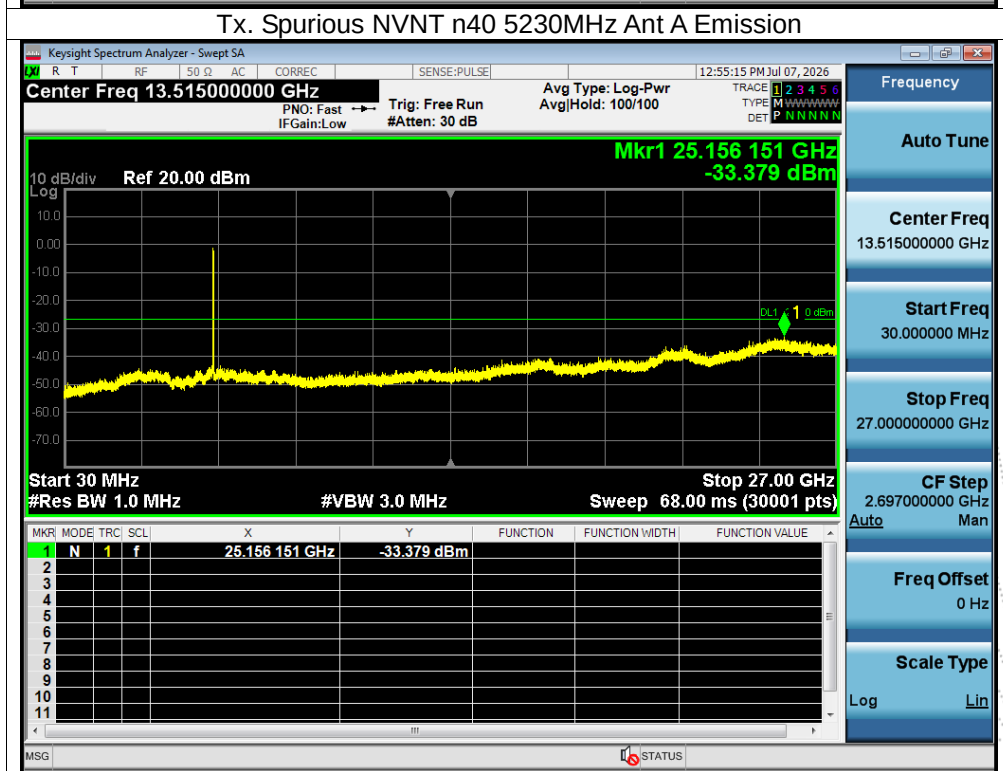
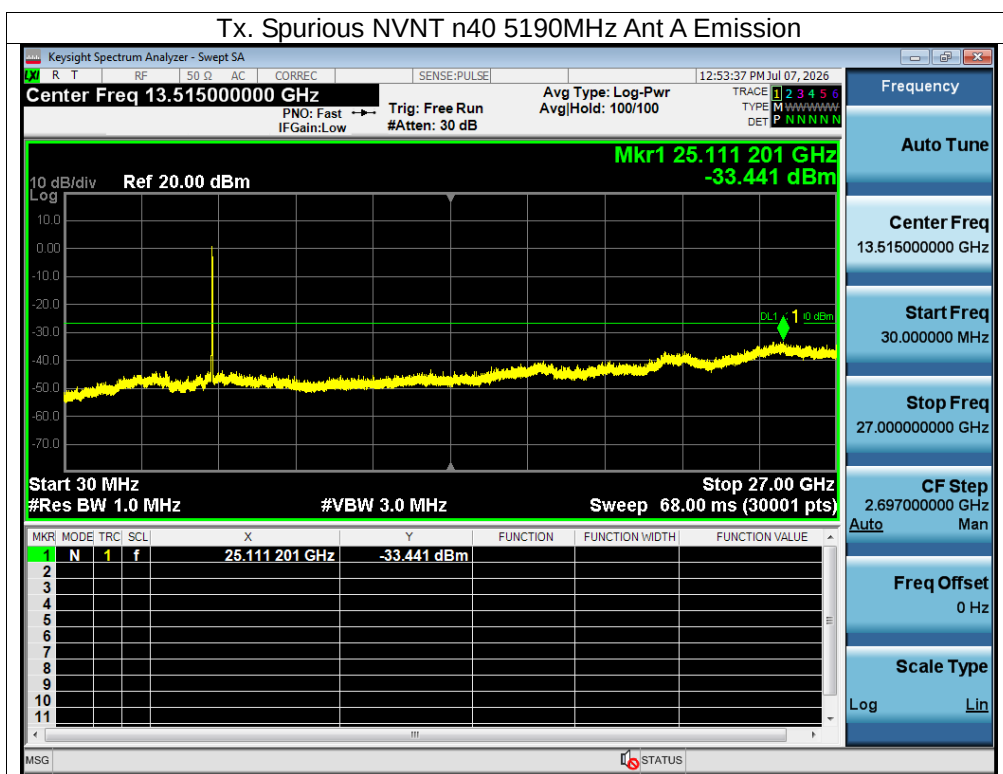
Note: A(B) Represent the value of antenna A and B, The worst data is AntennaA, only shown Antenna A .
Plot. Antenna A: 5180-5240MHz

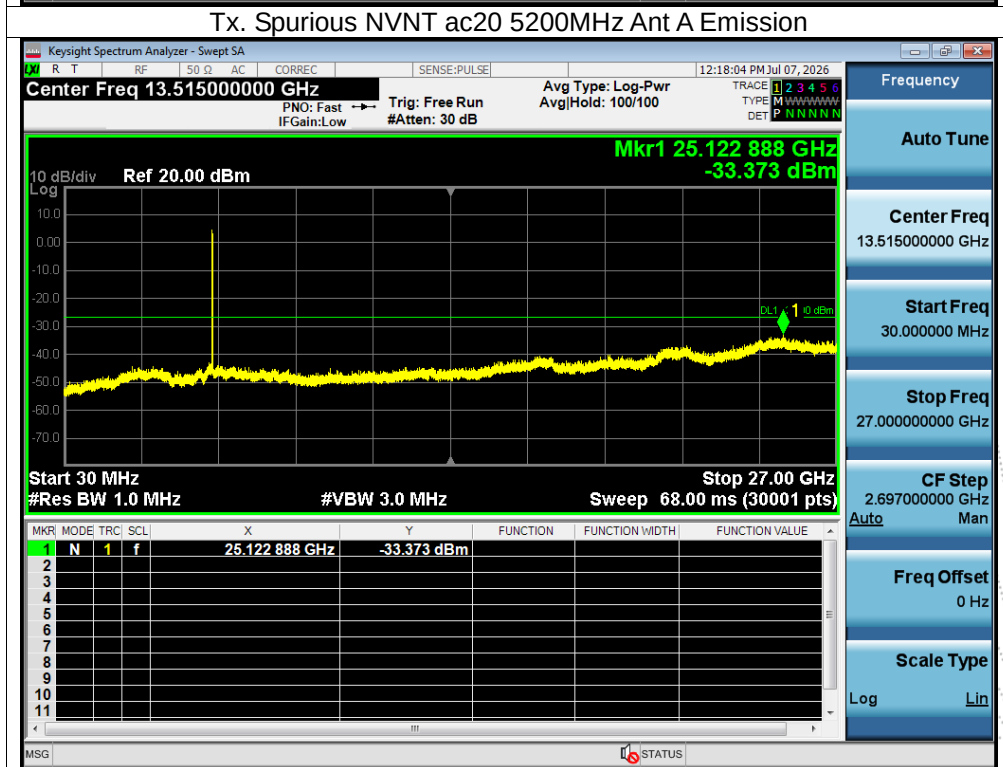
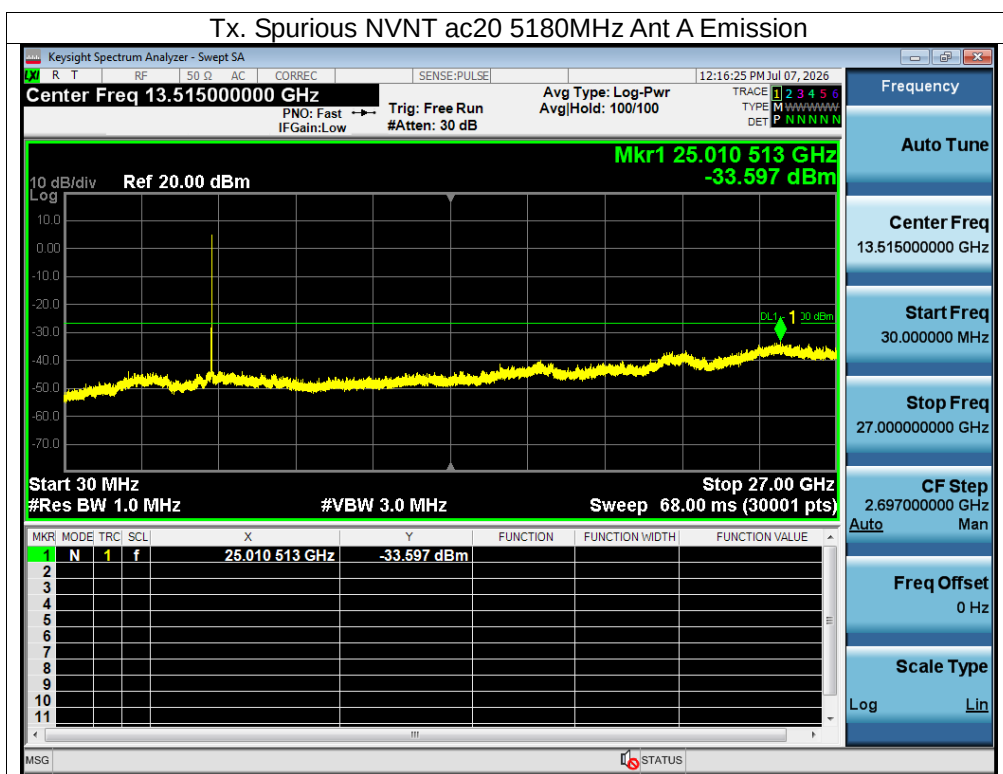


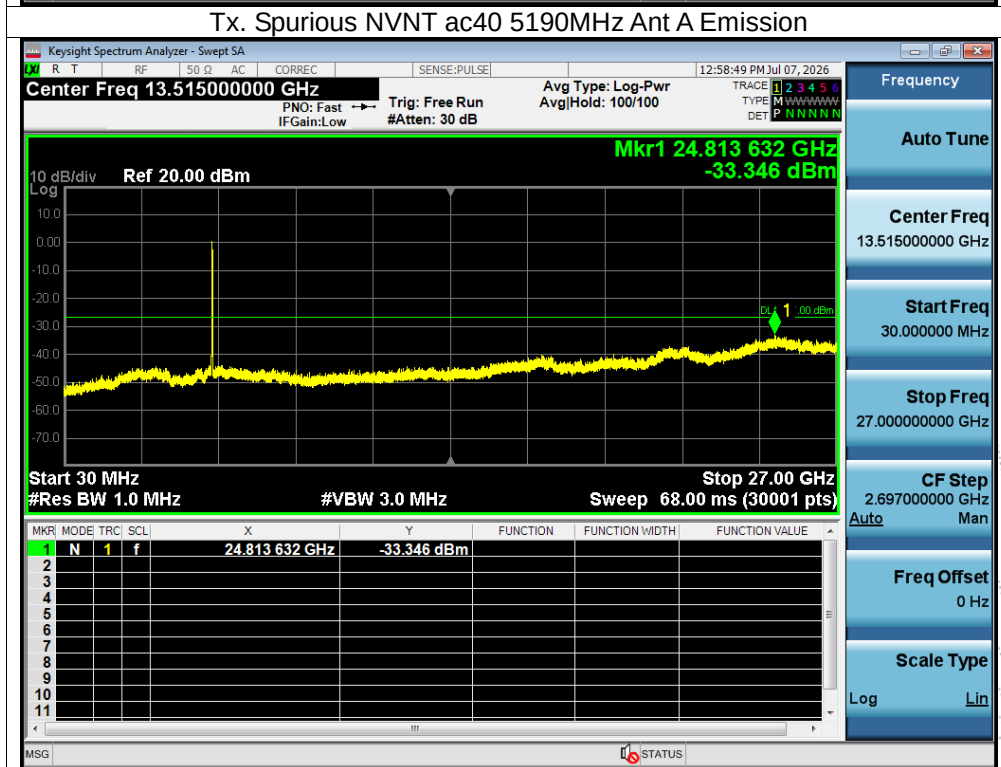
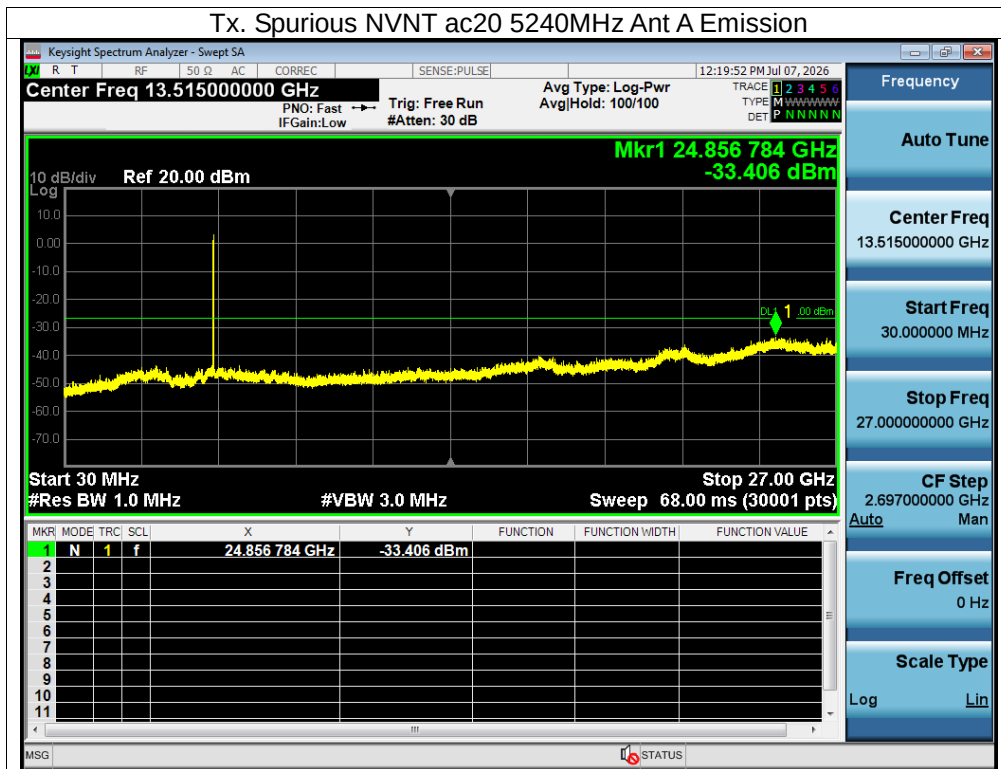


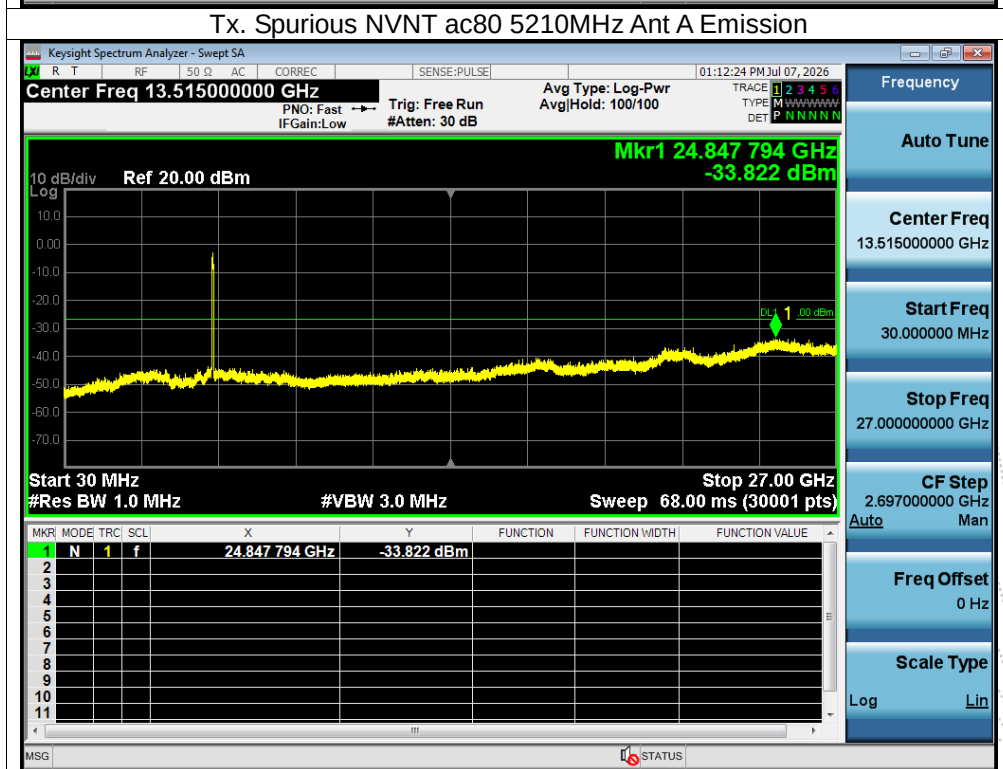
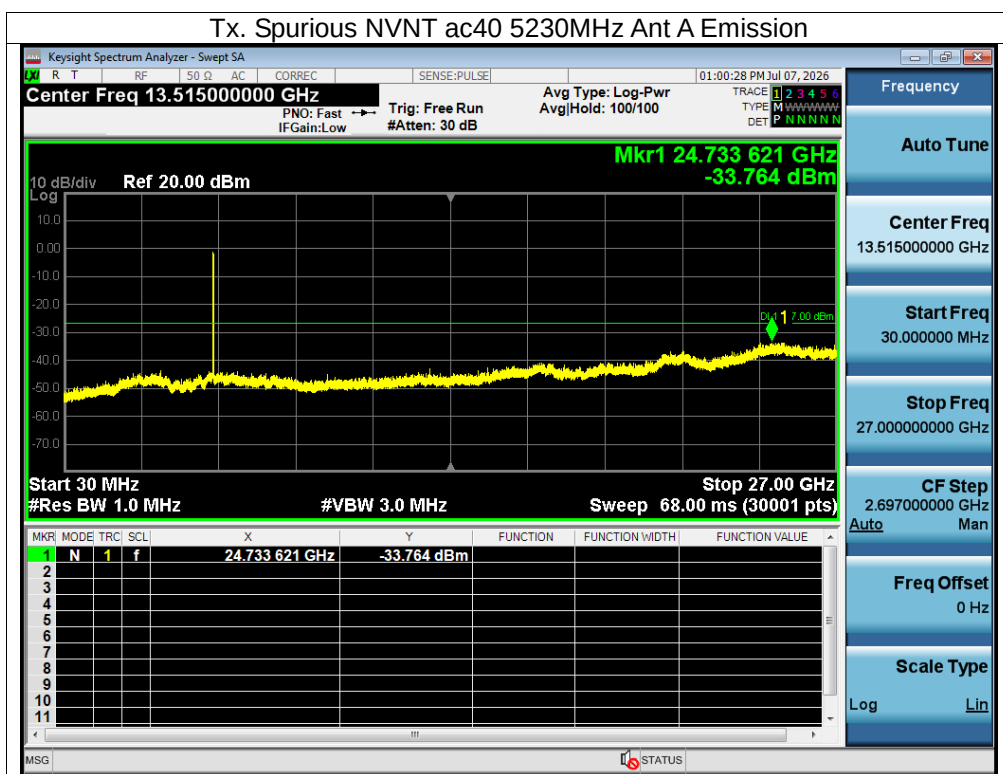
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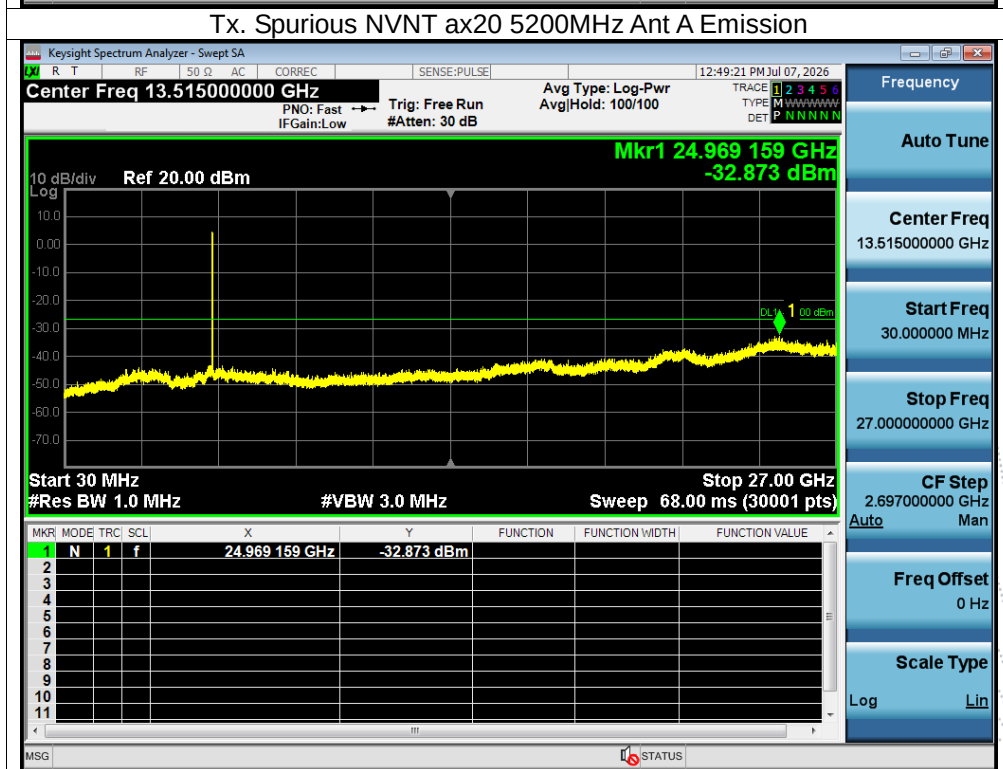
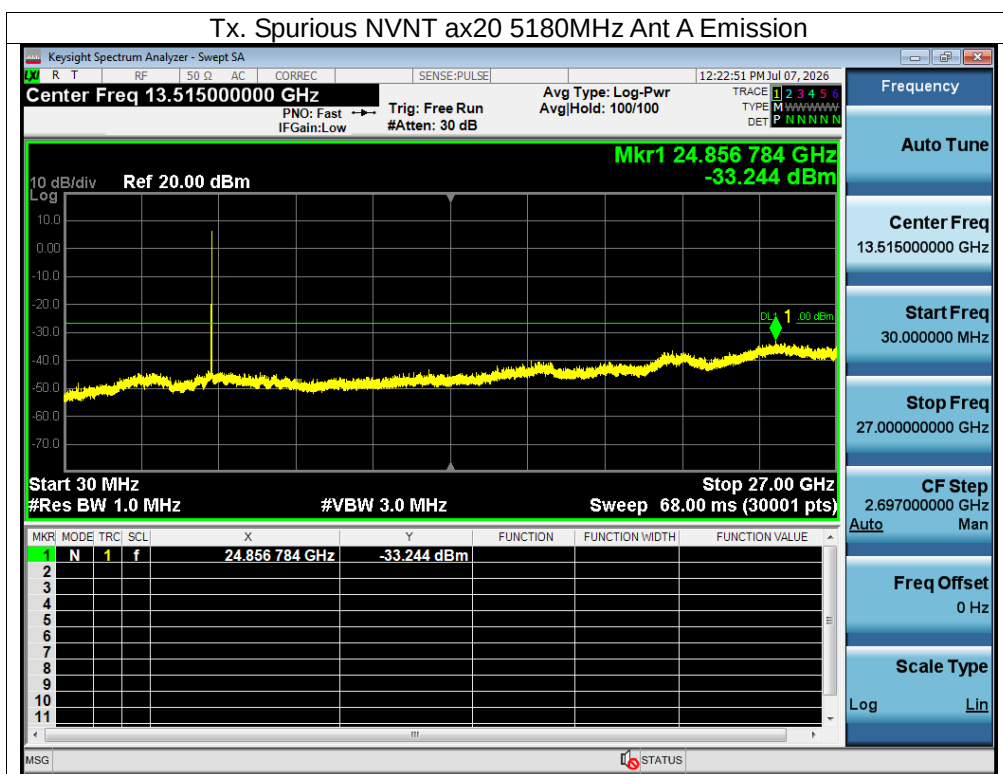




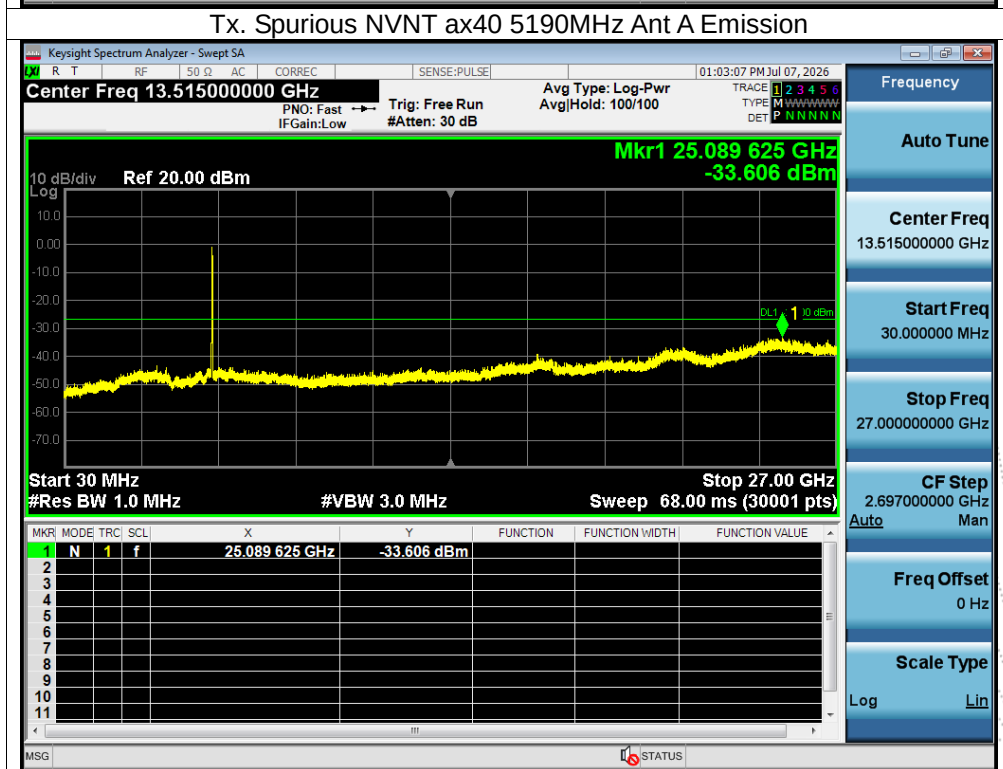
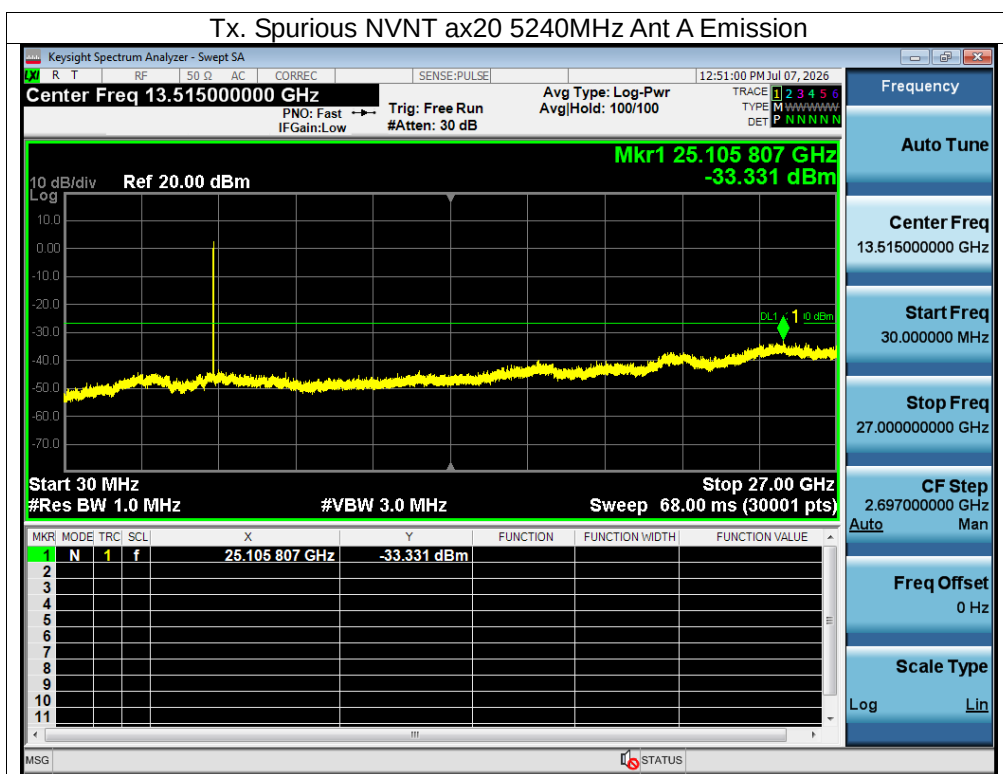


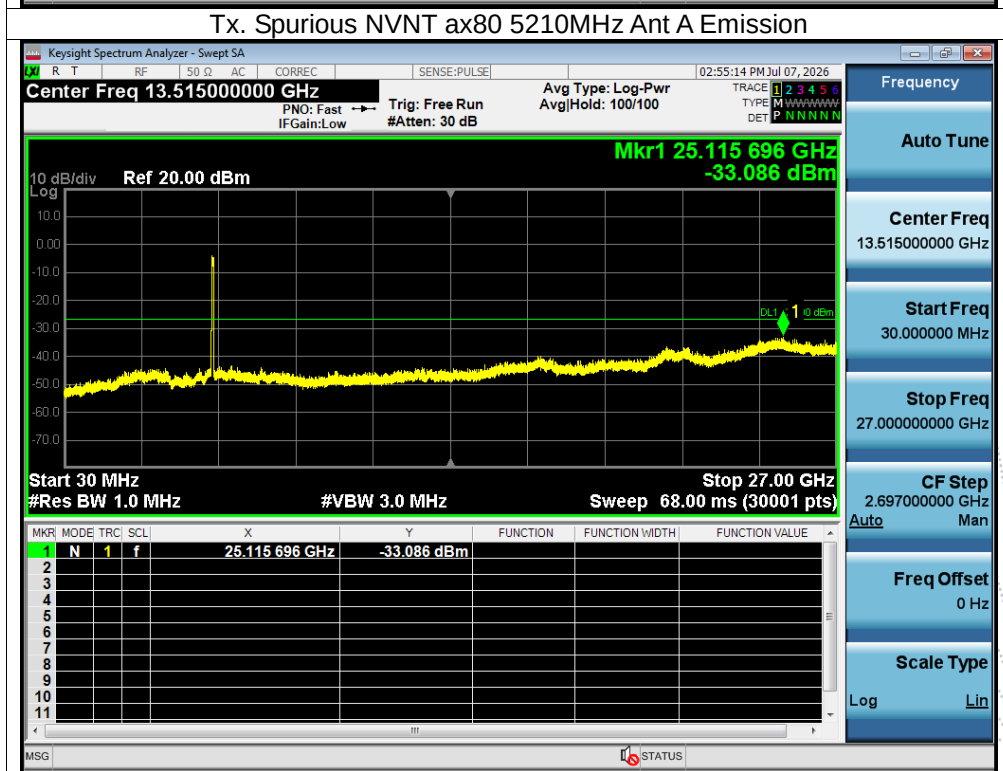
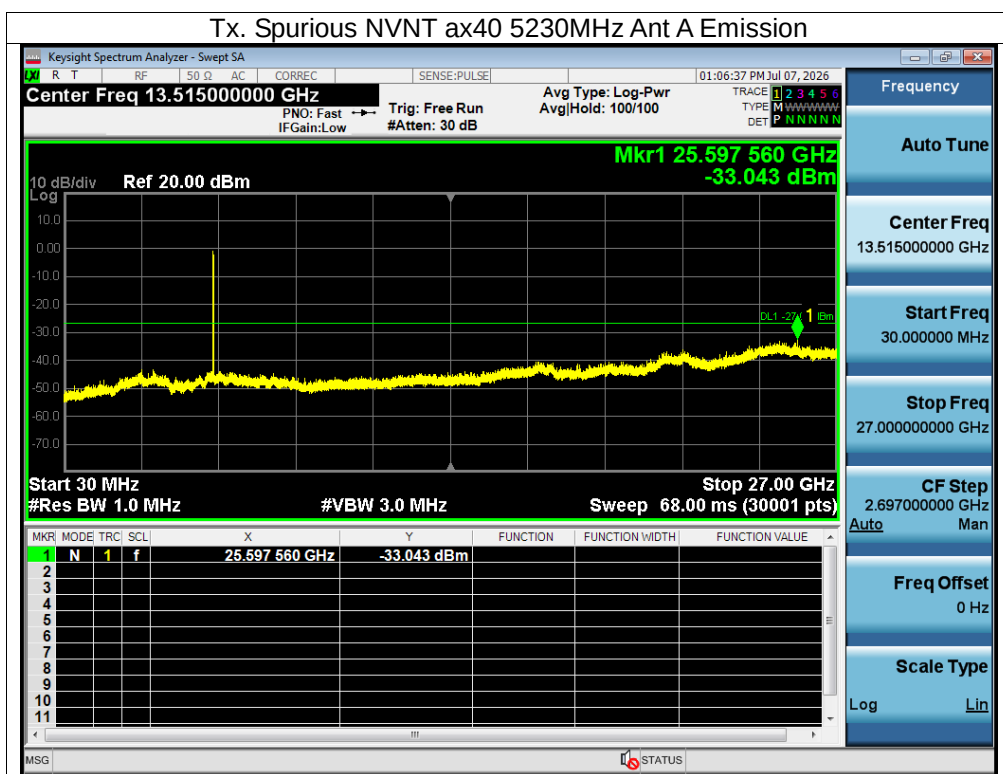




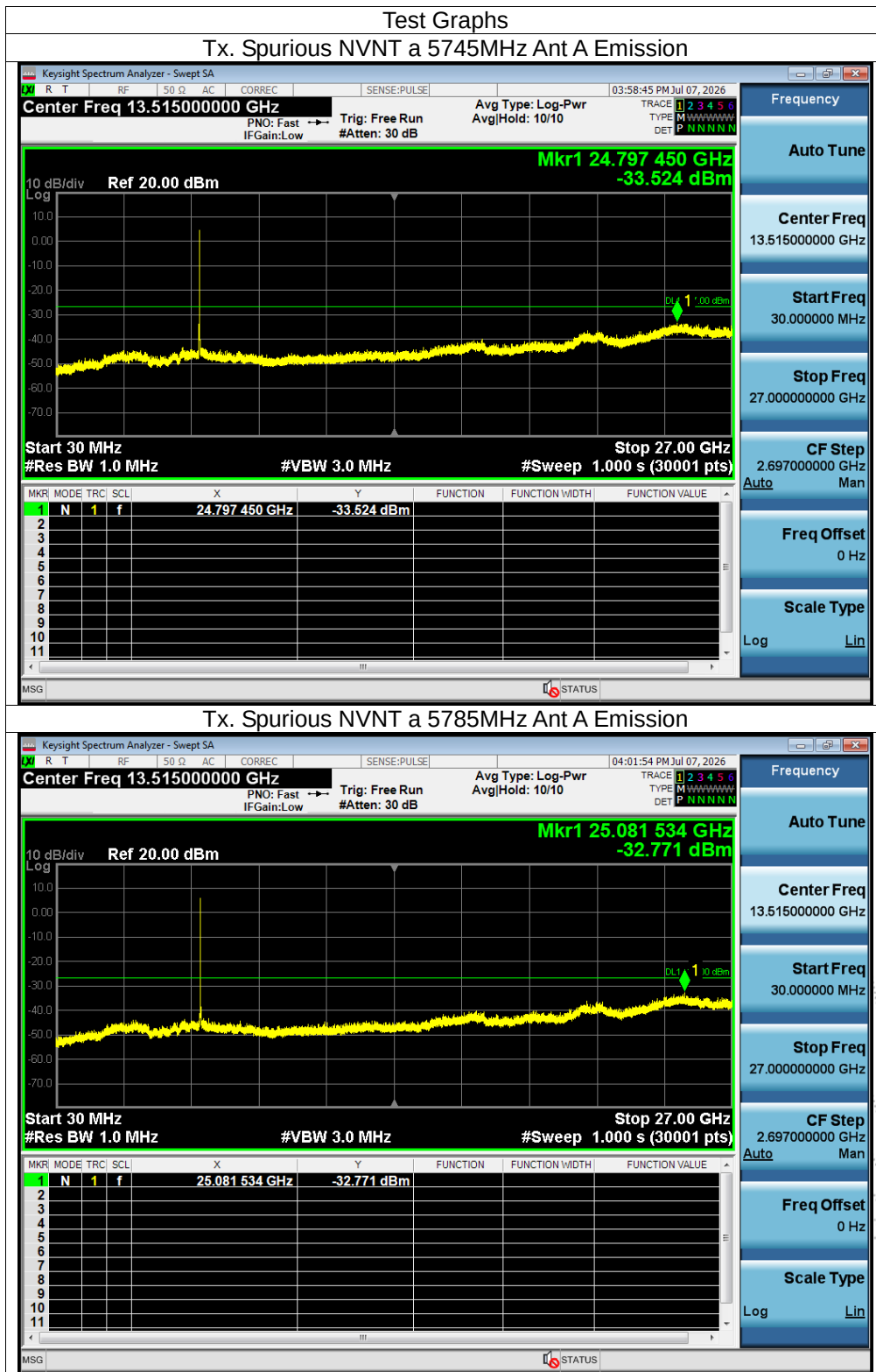


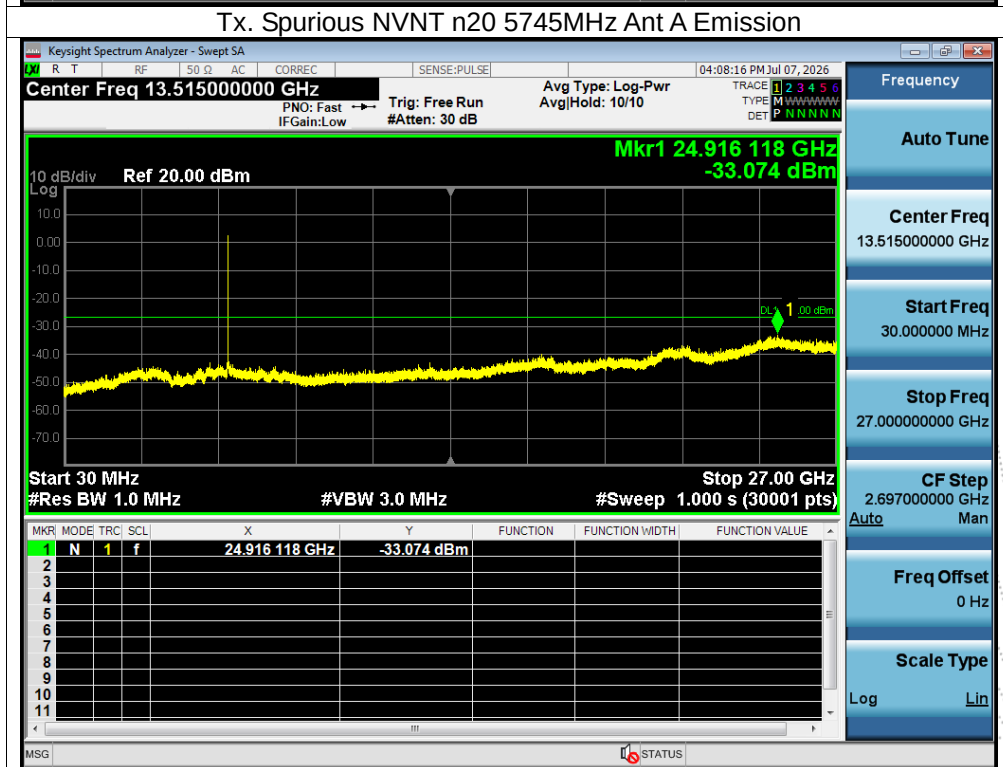
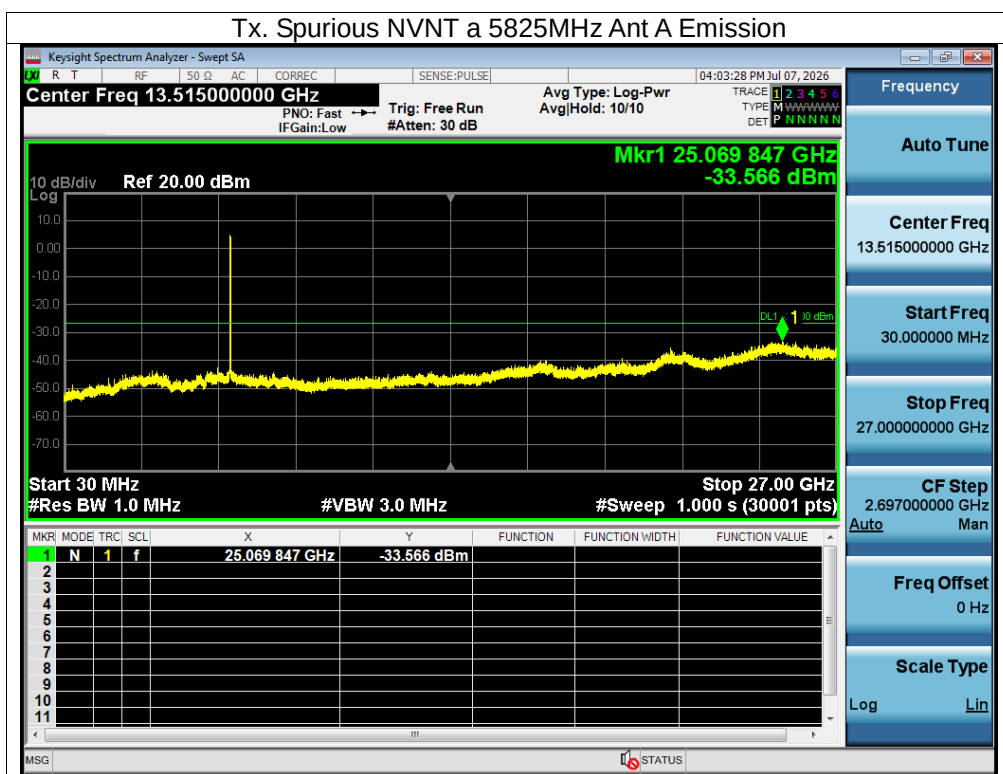
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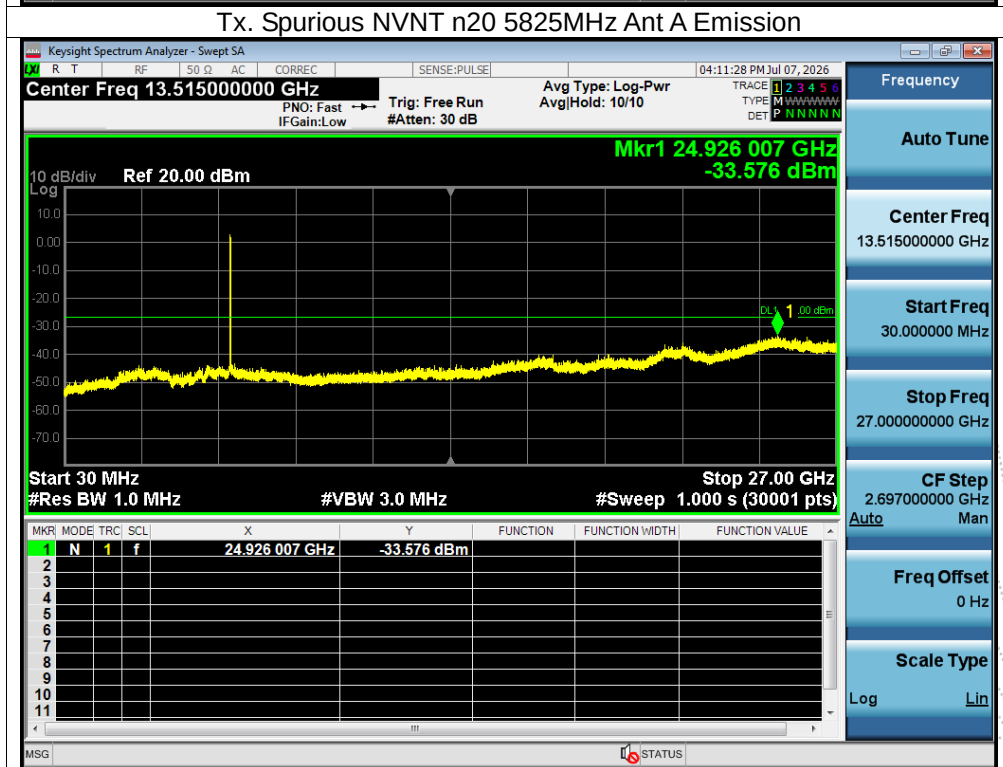
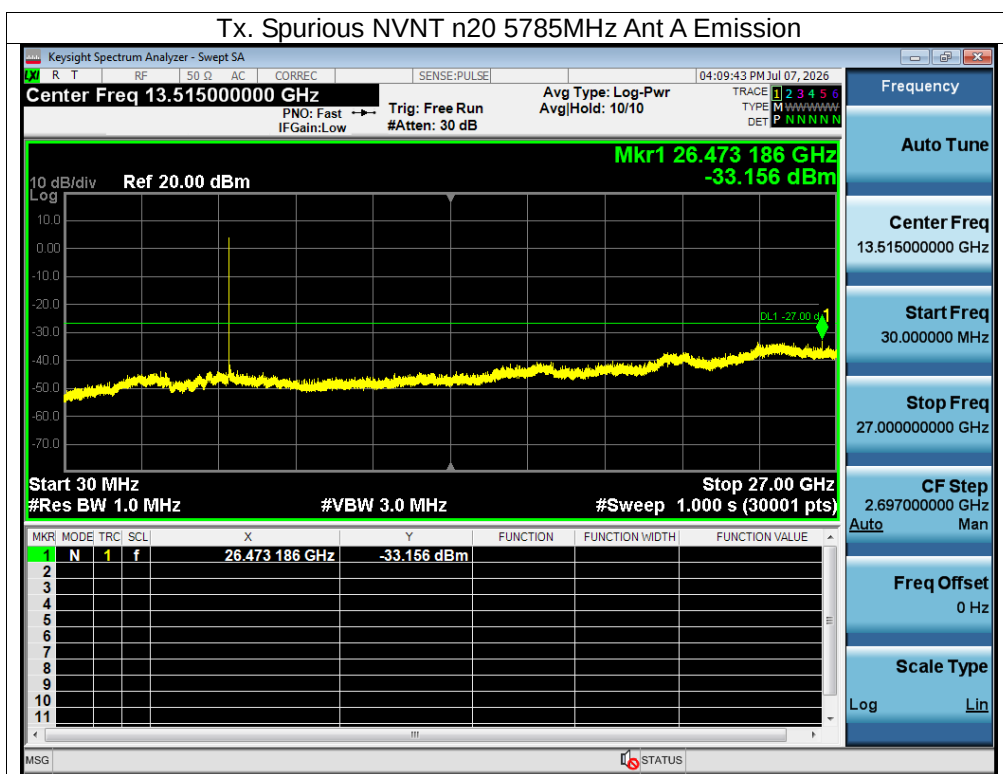


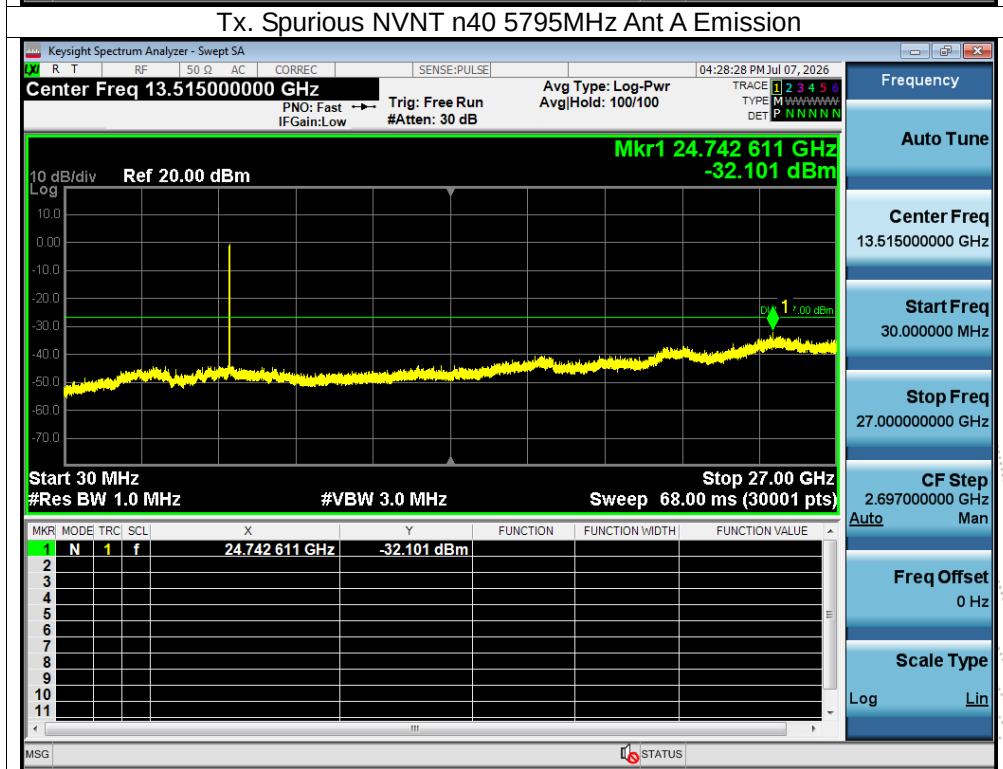
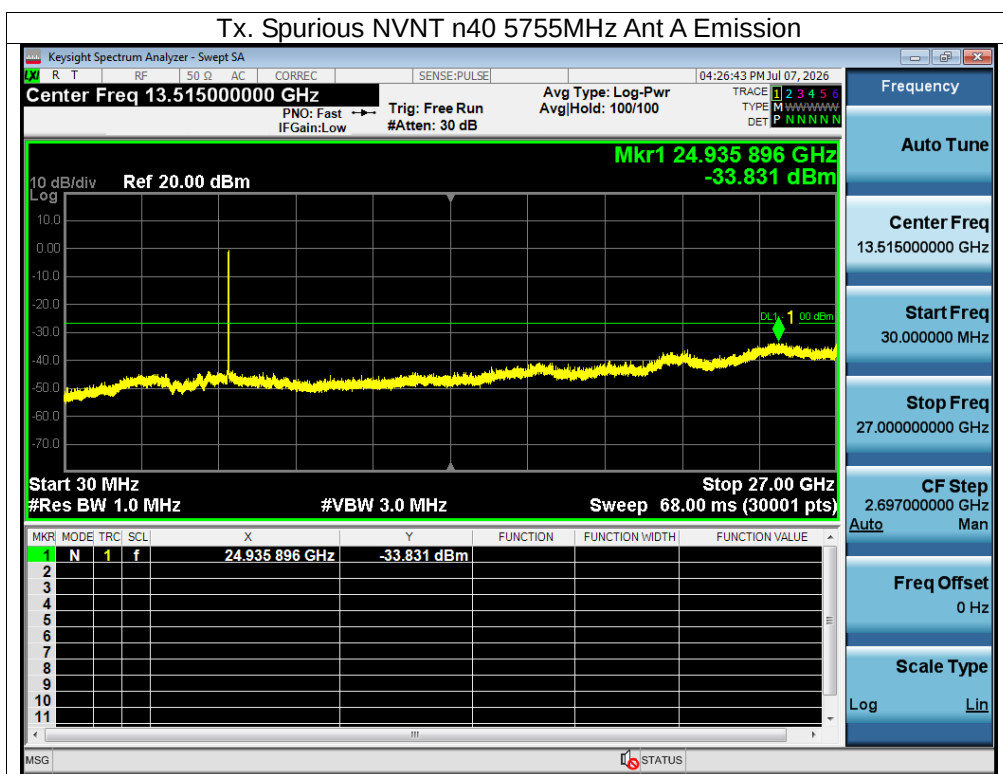


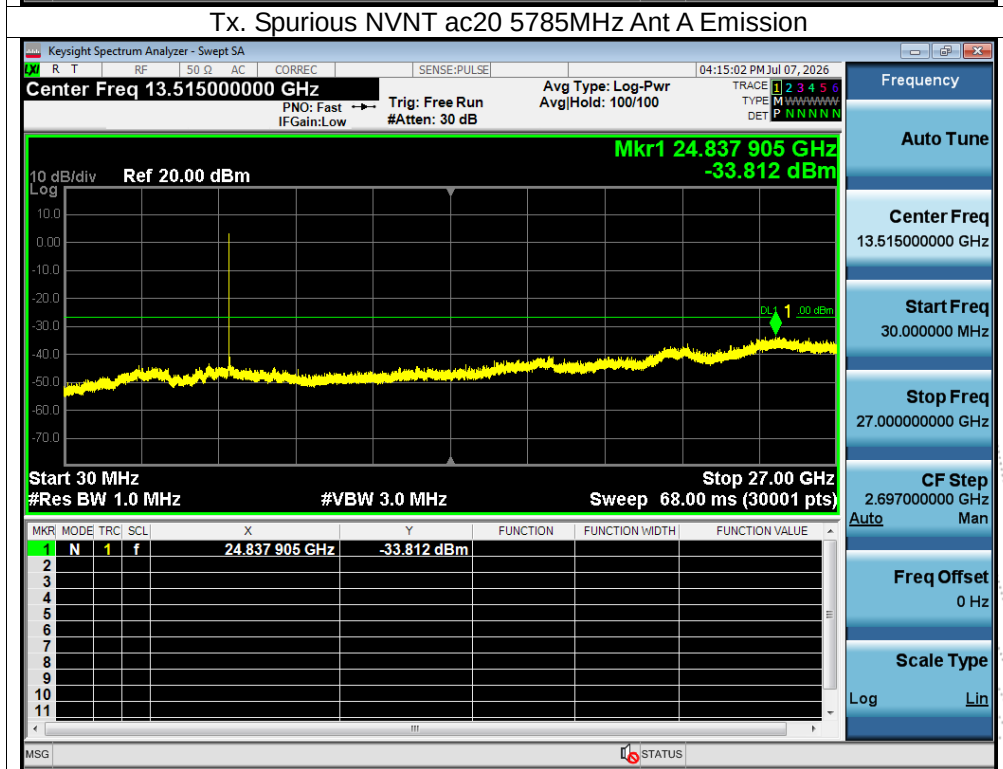
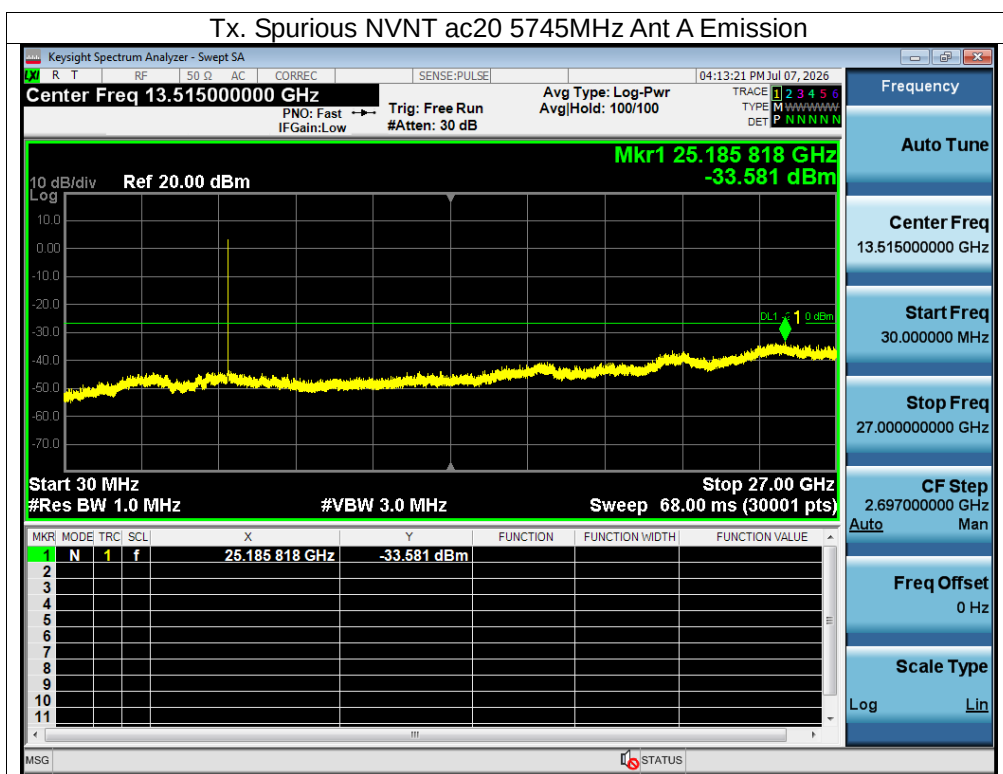
Note: A(B) Represent the value of antenna A and B , The worst data is Antenna A, only shown Antenna A.
Antenna A: 5725-5850MHz

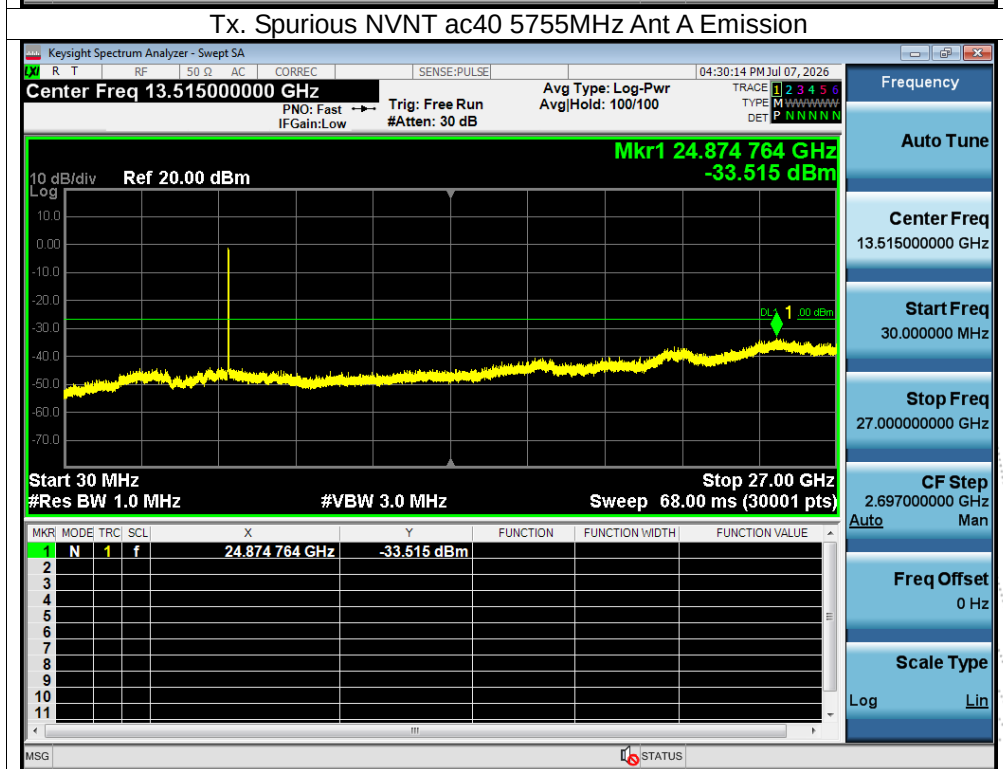
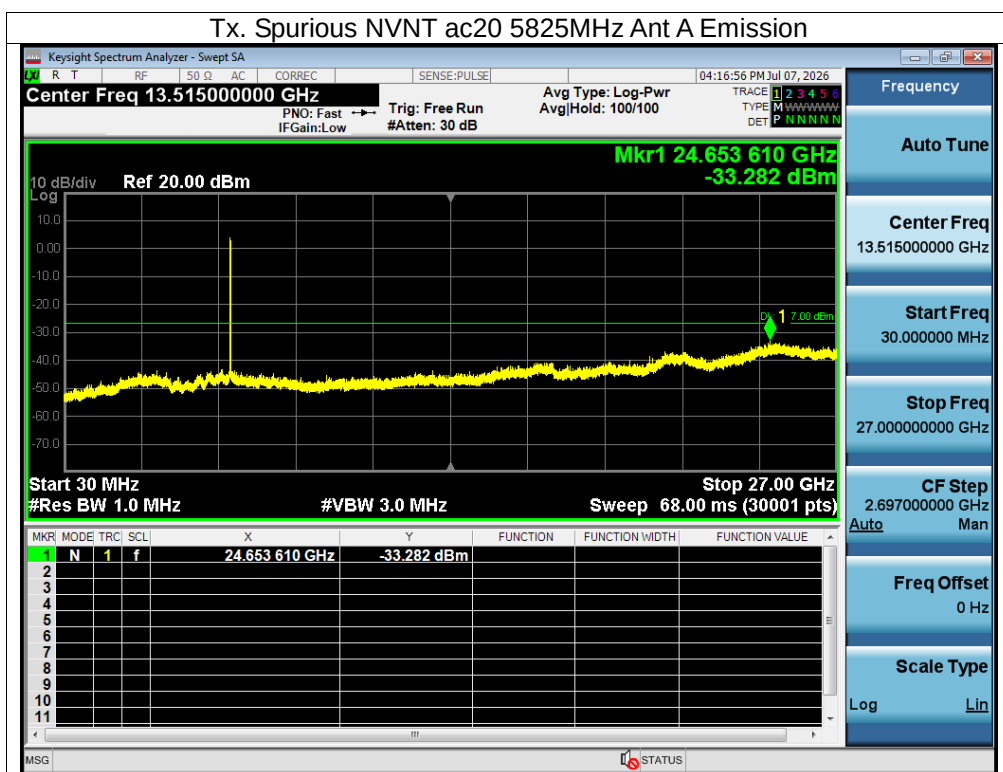


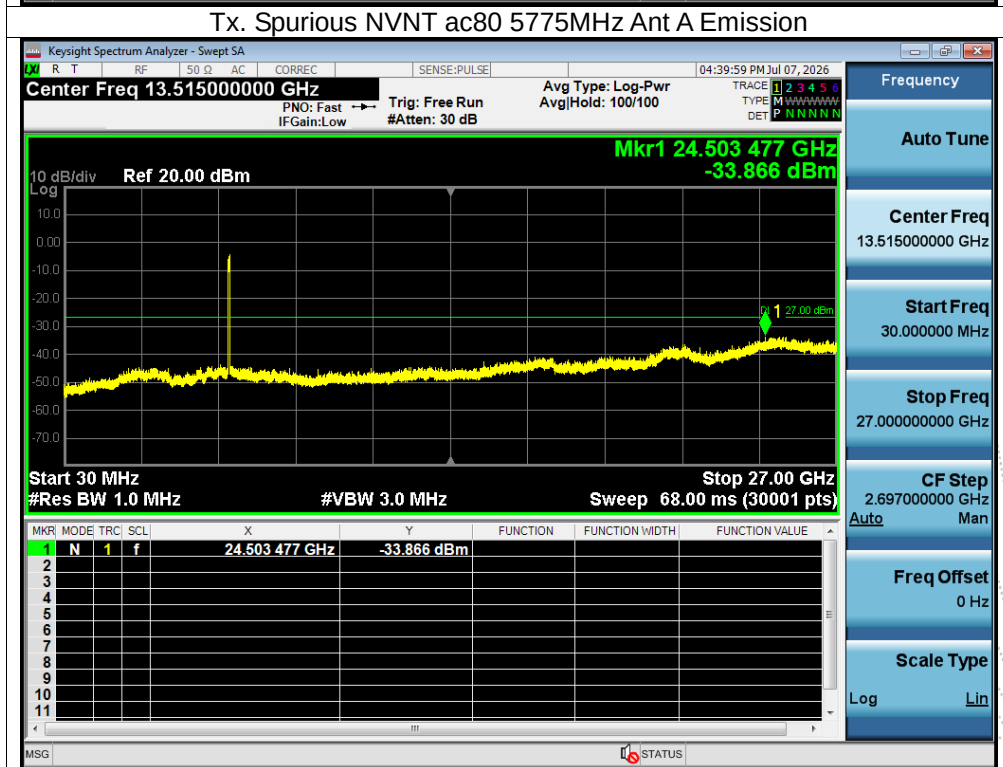
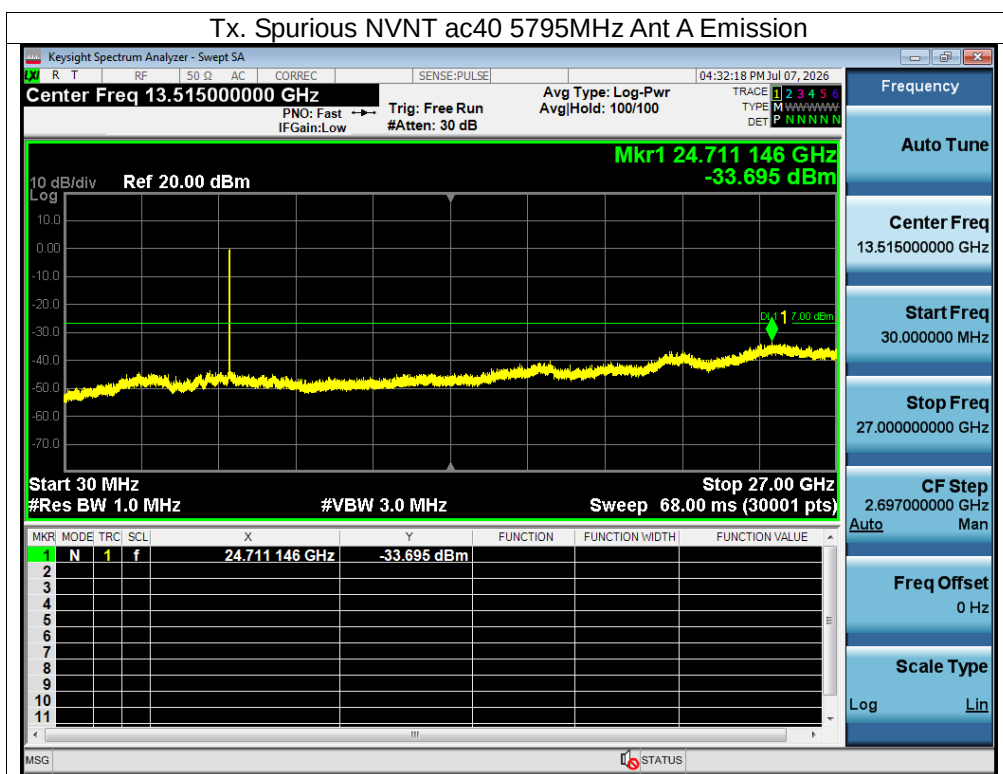


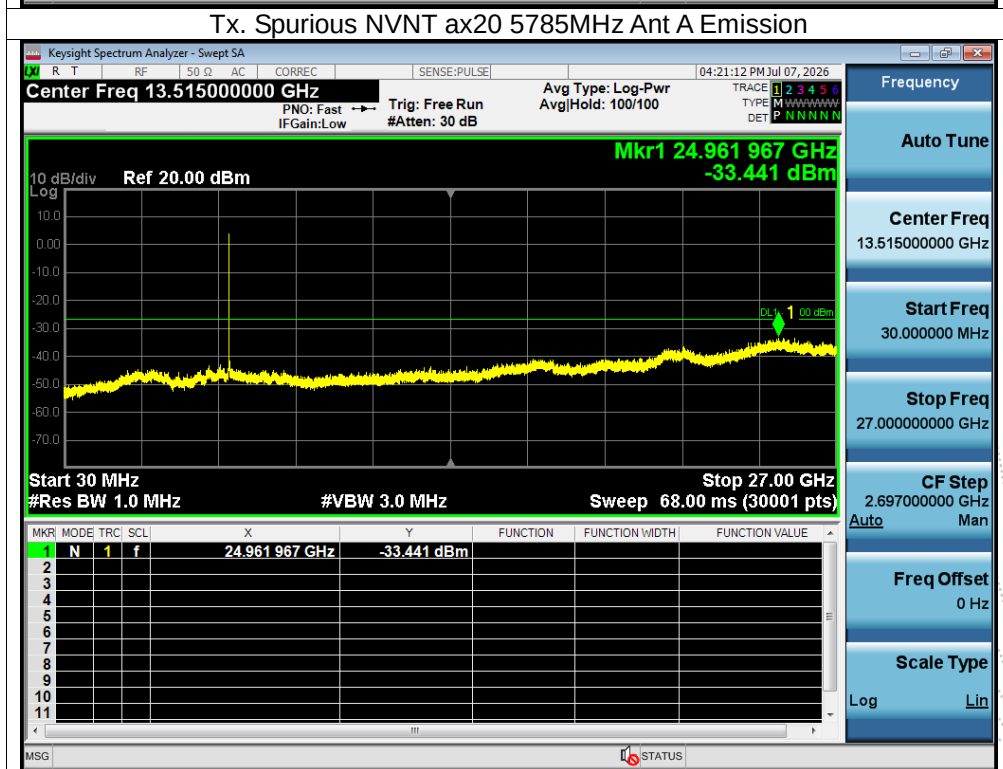
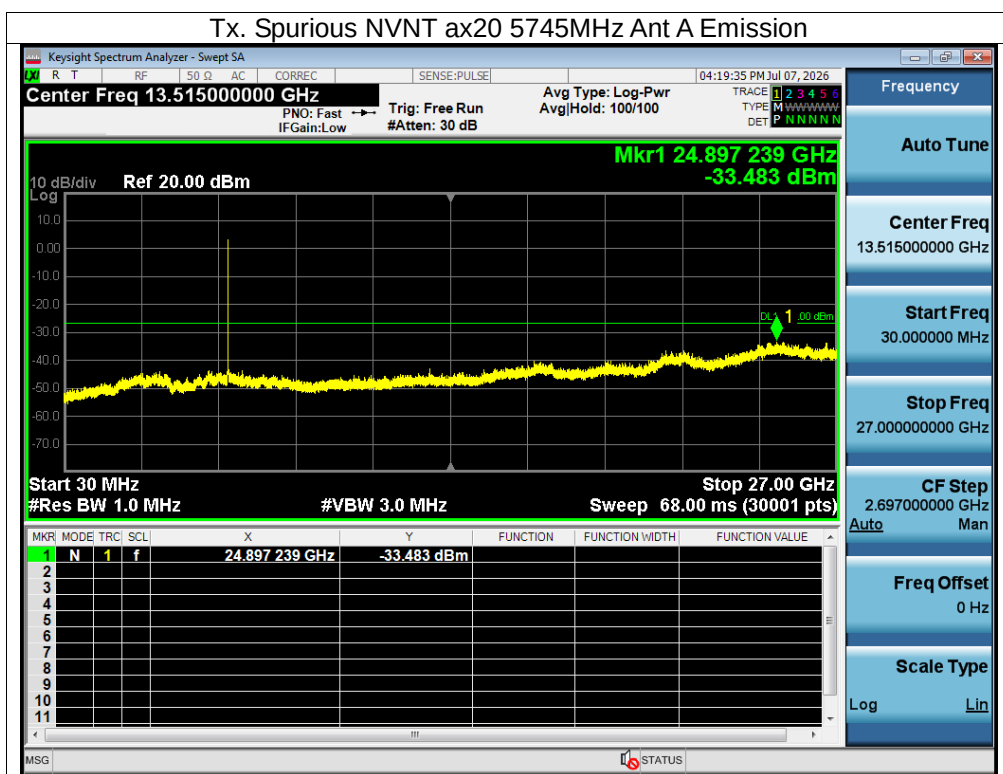


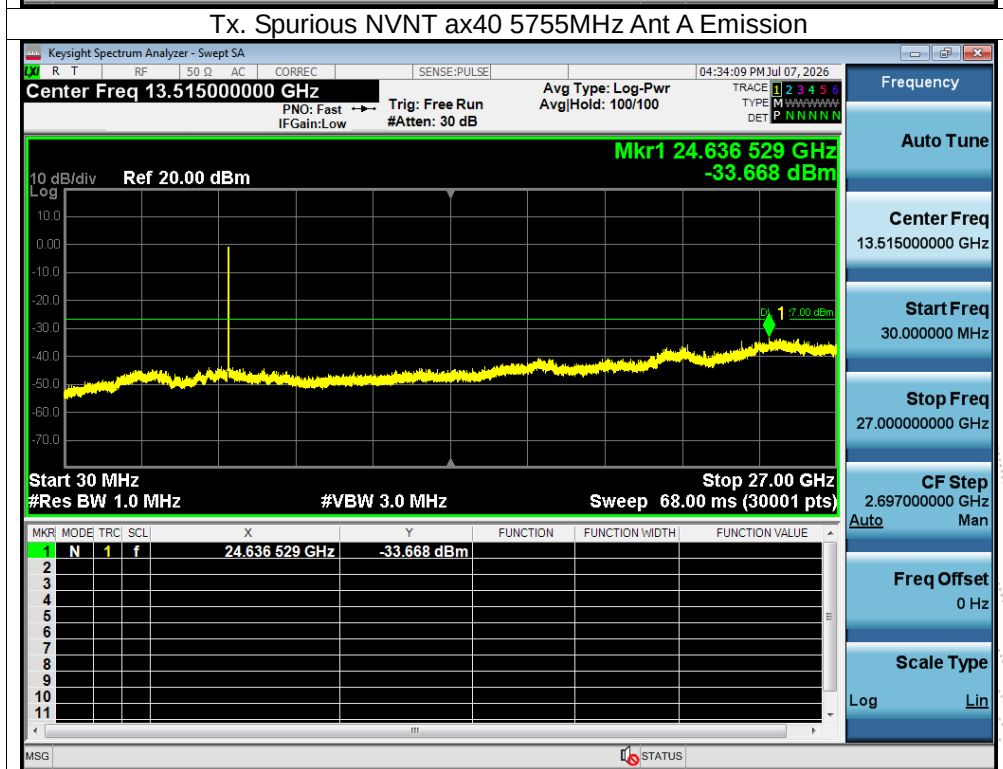
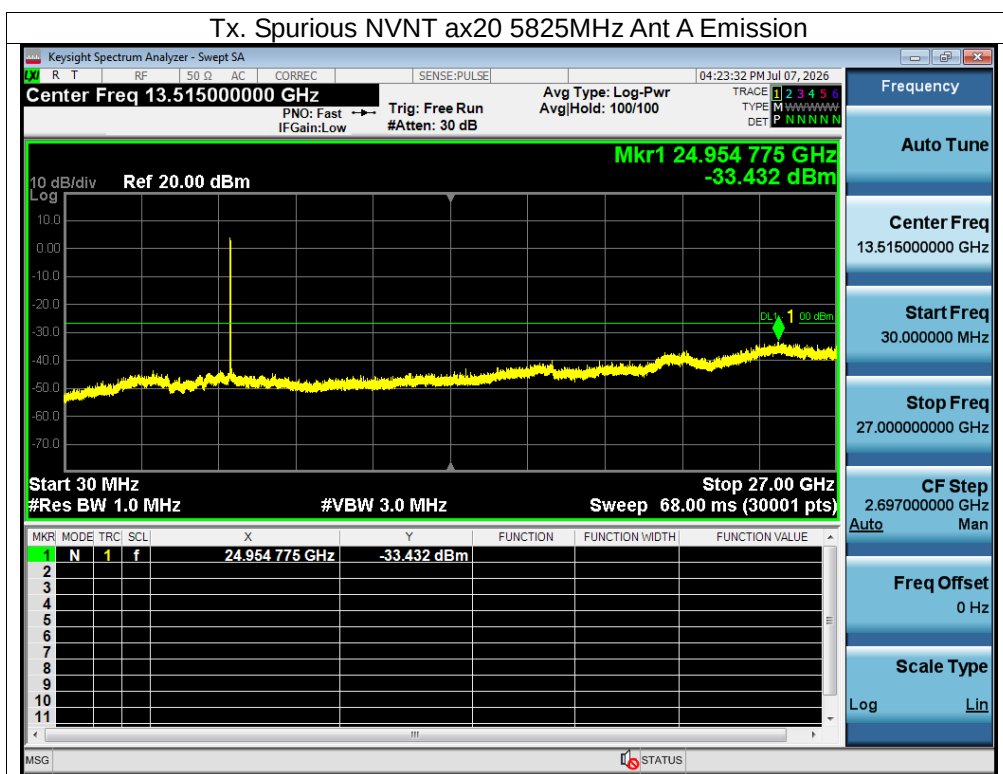


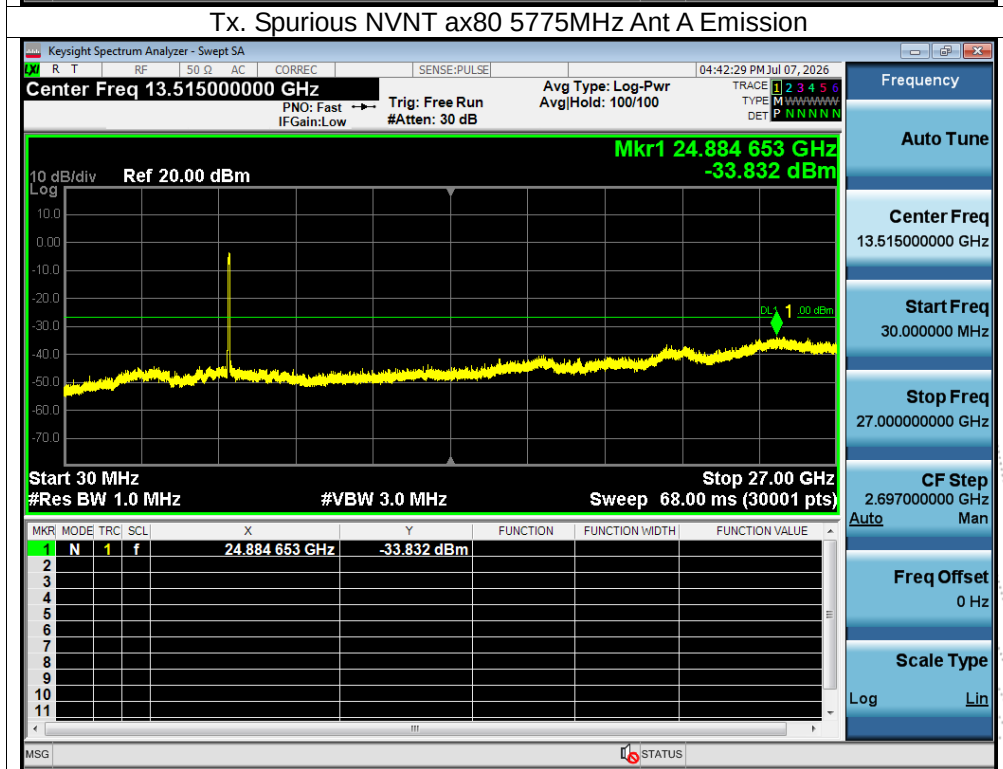
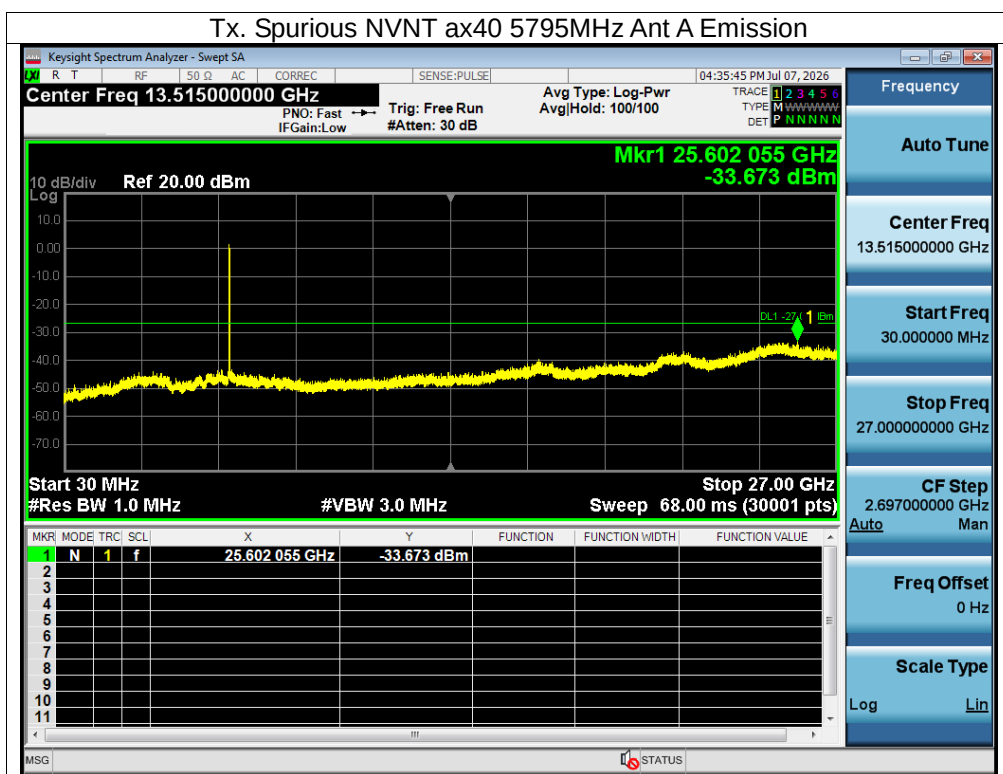








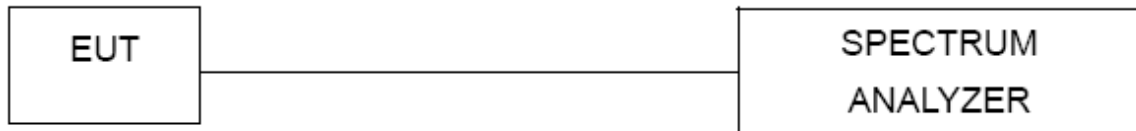




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13. Frequency Stability Measurement

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 802.11nspecification).
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 $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$.

13.4 Test Result

Temperature:	23.6 °C	Relative Humidity:	50%
Pressure:	101KPa	Test Voltage:	DC 11.4V
Test Mode:	TX (5.1G) Mode Frequency U-NII-1 (5180-5240MHz)		

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

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	11.40	5180.0114	5180	0.0114	2.2048
		V max (V)	13.11	5180.0095	5180	0.0095	1.8267
		V min (V)	9.69	5180.0192	5180	0.0192	3.7009
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 (DV)	11.4	T (°C)	-20	5180.0111	5180	0.0111	2.1474
		T (°C)	-10	5180.0014	5180	0.0014	0.2716
		T (°C)	0	5180.0116	5180	0.0116	2.2308
		T (°C)	10	5180.0103	5180	0.0103	1.9922
		T (°C)	20	5180.0058	5180	0.0058	1.1206
		T (°C)	30	5180.0005	5180	0.0005	0.0909
		T (°C)	40	5180.0095	5180	0.0095	1.8355
		T (°C)	50	5180.0079	5180	0.0079	1.5219
		T (°C)	60	5180.0114	5180	0.0114	2.2022
		T (°C)	70	5180.0093	5180	0.0093	1.8019
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)	11.40	5200.0083	5200	0.0083	1.6055
		V max (V)	13.11	5200.0121	5200	0.0121	2.3327
		V min (V)	9.69	5200.0059	5200	0.0059	1.1302
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 (DV)	11.4	T (°C)	-20	5200.00942	5200	0.00942	1.8113
		T (°C)	-10	5200.00268	5200	0.00268	0.5162
		T (°C)	0	5200.00548	5200	0.00548	1.0530
		T (°C)	10	5200.00643	5200	0.00643	1.2358
		T (°C)	20	5200.00464	5200	0.00464	0.8914
		T (°C)	30	5200.00091	5200	0.00091	0.1747
		T (°C)	40	5200.00165	5200	0.00165	0.3179
		T (°C)	50	5200.00742	5200	0.00742	1.4263
		T (°C)	60	5200.00768	5200	0.00768	1.4774
		T (°C)	70	5200.00818	5200	0.00818	1.5734
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)	11.40	5240.0082	5240	0.0082	1.5620
		V max (V)	13.11	5240.0094	5240	0.0094	1.7978
		V min (V)	9.69	5240.0081	5240	0.0081	1.5378
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 (DV)	11.4	T (°C)	-20	5240.0084	5240	0.0084	1.5960
		T (°C)	-10	5240.0093	5240	0.0093	1.7659
		T (°C)	0	5240.0095	5240	0.0095	1.8059
		T (°C)	10	5240.0125	5240	0.0125	2.3853
		T (°C)	20	5240.0040	5240	0.0040	0.7554
		T (°C)	30	5240.0050	5240	0.0050	0.9534
		T (°C)	40	5240.0018	5240	0.0018	0.3486
		T (°C)	50	5240.0106	5240	0.0106	2.0239
		T (°C)	60	5240.0021	5240	0.0021	0.4024
		T (°C)	70	5240.0081	5240	0.0081	1.5363
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	23.6 °C	Relative Humidity:	50%
Pressure:	101KPa	Test Voltage:	DC 11.4V
Test Mode:	TX (5.8G) Mode Frequency U-NII-3 (5745-5825MHz)		

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

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency:5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	11.40	5745.01100	5745	0.01100	1.9141
		V max (V)	13.11	5745.00951	5745	0.00951	1.6556
		V min (V)	9.69	5745.00416	5745	0.00416	0.7247
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 (DV)	11.4	T (°C)	-20	5745.00530	5745	0.00530	0.9221
		T (°C)	-10	5745.00810	5745	0.00810	1.4093
		T (°C)	0	5745.00427	5745	0.00427	0.7432
		T (°C)	10	5745.00353	5745	0.00353	0.6137
		T (°C)	20	5745.00986	5745	0.00986	1.7168
		T (°C)	30	5745.00999	5745	0.00999	1.7382
		T (°C)	40	5745.00987	5745	0.00987	1.7173
		T (°C)	50	5745.01195	5745	0.01195	2.0793
		T (°C)	60	5745.00885	5745	0.00885	1.5412
		T (°C)	70	5745.00504	5745	0.00504	0.8771
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)	11.40	5785.00788	5785	0.00788	1.3616
		V max (V)	13.11	5785.00004	5785	0.00004	0.0062
		V min (V)	9.69	5785.00478	5785	0.00478	0.8259
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

Temperature vs. Frequency Stability				Reference Frequency: 5785MHz			
TEST CONDITIONS				f	fc	Max.	Max.
						Deviation	Deviation
				(MHz)	(ppm)		
V nom (DV)	11.4	T (°C)	-20	5785.00266	5785	0.00266	0.4591
		T (°C)	-10	5785.00412	5785	0.00412	0.7119
		T (°C)	0	5785.00196	5785	0.00196	0.3388
		T (°C)	10	5785.01174	5785	0.01174	2.0287
		T (°C)	20	5785.00292	5785	0.00292	0.5048
		T (°C)	30	5785.00124	5785	0.00124	0.2142
		T (°C)	40	5785.00104	5785	0.00104	0.1790
		T (°C)	50	5785.00629	5785	0.00629	1.0866
		T (°C)	60	5785.00874	5785	0.00874	1.5110
		T (°C)	70	5785.00392	5785	0.00392	0.6781
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)	11.40	5825.00846	5825	0.00846	1.4523
		V max (V)	13.11	5825.00578	5825	0.00578	0.9922
		V min (V)	9.69	5825.00390	5825	0.00390	0.6689
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 (DV)	11.4	T (°C)	-20	5825.00712	5825	0.00712	1.2216
		T (°C)	-10	5825.01291	5825	0.01291	2.2161
		T (°C)	0	5825.00790	5825	0.00790	1.3568
		T (°C)	10	5825.00809	5825	0.00809	1.3894
		T (°C)	20	5825.00374	5825	0.00374	0.6427
		T (°C)	30	5825.00582	5825	0.00582	0.9984
		T (°C)	40	5825.00319	5825	0.00319	0.5480
		T (°C)	50	5825.01142	5825	0.01142	1.9602
		T (°C)	60	5825.00674	5825	0.00674	1.1572
		T (°C)	70	5825.00480	5825	0.00480	0.8249
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 = $T_{on} / (T_{on} + T_{off})$

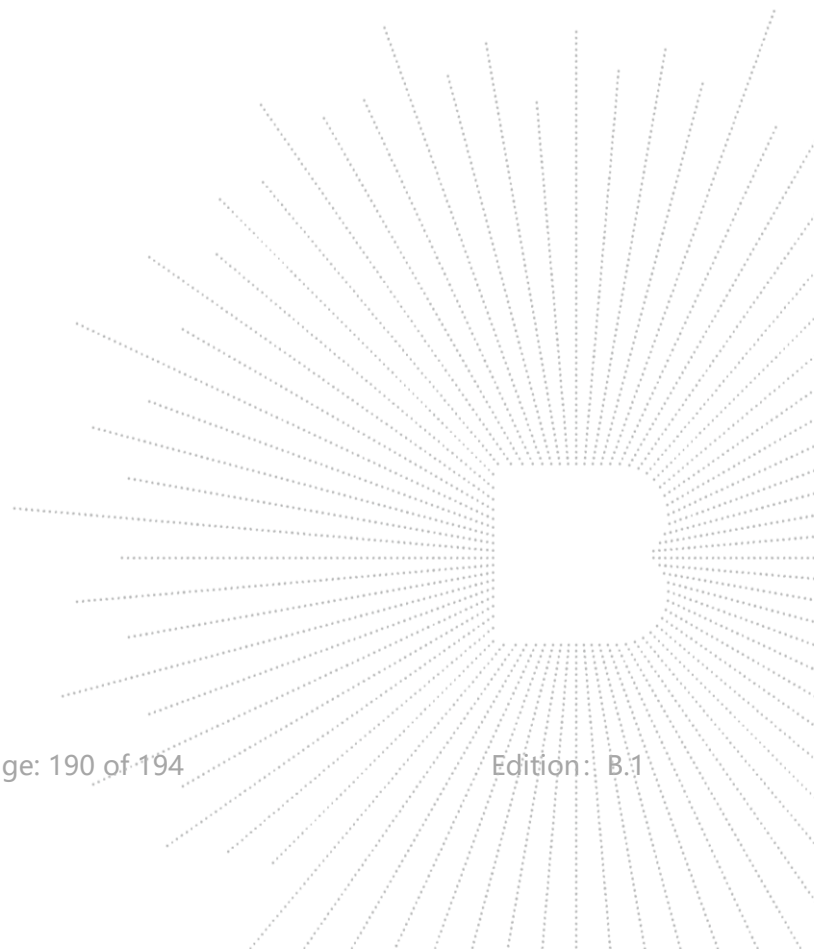
14.3 Test Procedure

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

14.4 Test Result

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)
NVNT	a	5180	AntA	100
NVNT	a	5200	AntA	100
NVNT	a	5240	AntA	100
NVNT	n20	5180	AntA	100
NVNT	n20	5200	AntA	100
NVNT	n20	5240	AntA	100
NVNT	n40	5190	AntA	100
NVNT	n40	5230	AntA	100
NVNT	ac20	5180	AntA	100
NVNT	ac20	5200	AntA	100
NVNT	ac20	5240	AntA	100
NVNT	ac40	5190	AntA	100
NVNT	ac40	5230	AntA	100
NVNT	ac80	5210	AntA	100
NVNT	ax20	5180	AntA	100
NVNT	ax20	5200	AntA	100
NVNT	ax20	5240	AntA	100
NVNT	ax40	5190	AntA	100
NVNT	ax40	5230	AntA	100
NVNT	ax80	5210	AntA	100

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)
NVNT	a	5745	AntA	100
NVNT	a	5785	AntA	100
NVNT	a	5825	AntA	100
NVNT	n20	5745	AntA	100
NVNT	n20	5785	AntA	100
NVNT	n20	5825	AntA	100
NVNT	n40	5755	AntA	100
NVNT	n40	5795	AntA	100
NVNT	ac20	5745	AntA	100
NVNT	ac20	5785	AntA	100
NVNT	ac20	5825	AntA	100
NVNT	ac40	5755	AntA	100
NVNT	ac40	5795	AntA	100
NVNT	ac80	5775	AntA	100
NVNT	ax20	5745	AntA	100
NVNT	ax20	5785	AntA	100
NVNT	ax20	5825	AntA	100
NVNT	ax40	5755	AntA	100
NVNT	ax40	5795	AntA	100
NVNT	ax80	5775	AntA	100



15. Antenna Requirement

15.1 Limit

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

15.2 Test Result

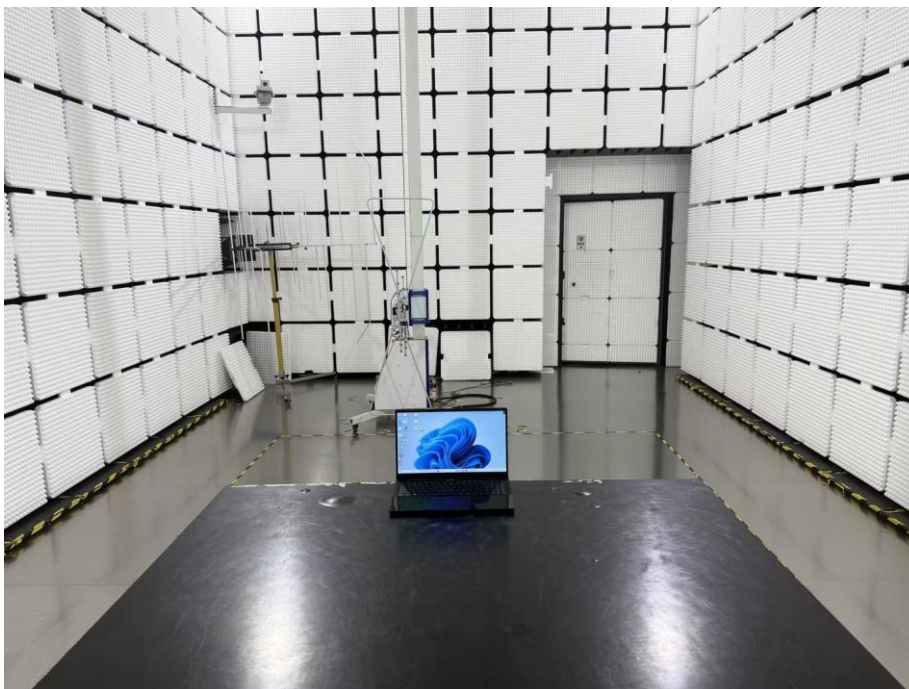
The EUT antenna is internal antenna, fulfill the requirement of this section.

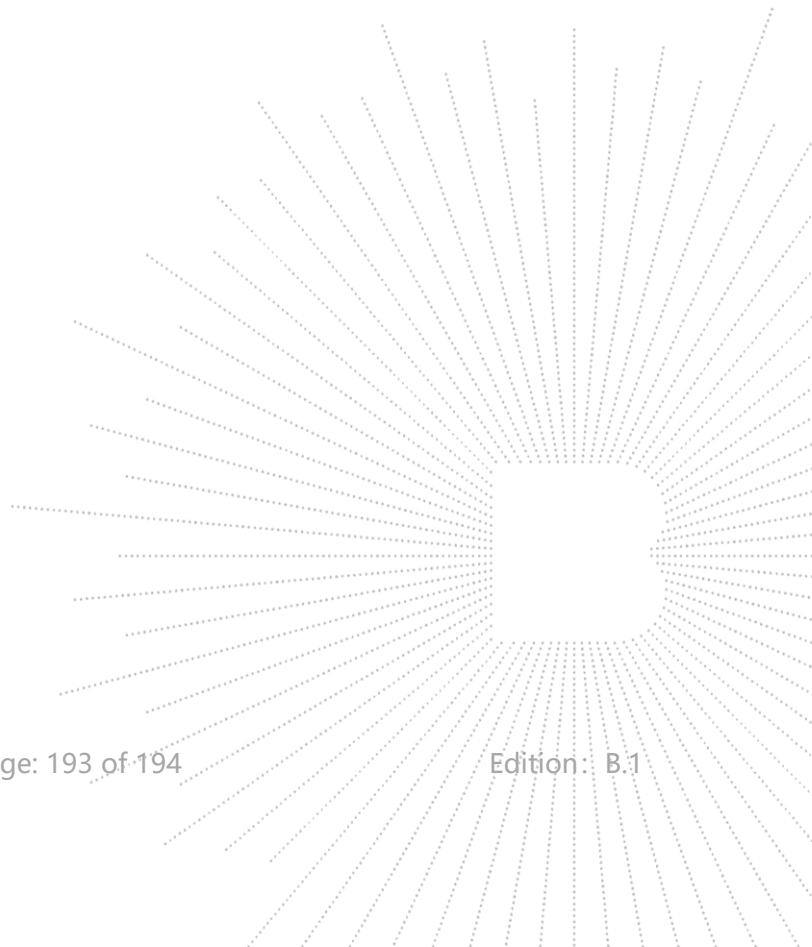
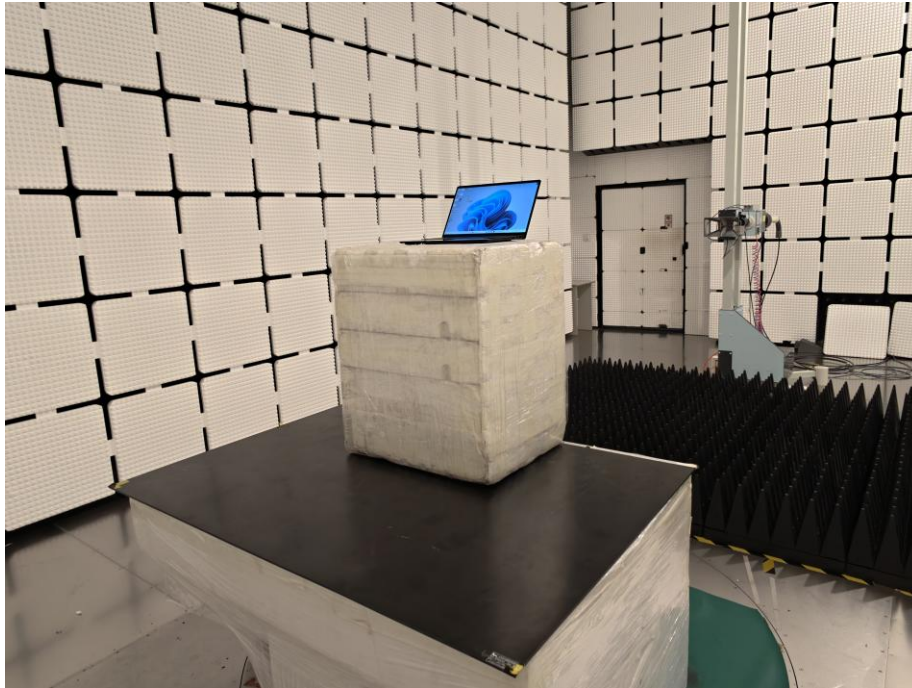
16. EUT Test Setup Photographs

Conducted emissions



Radiated Measurement Photos





STATEMENT

1. The equipment lists are traceable to the International System of Units (SI)
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/IEC 17025:2017.
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.

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***** END *****