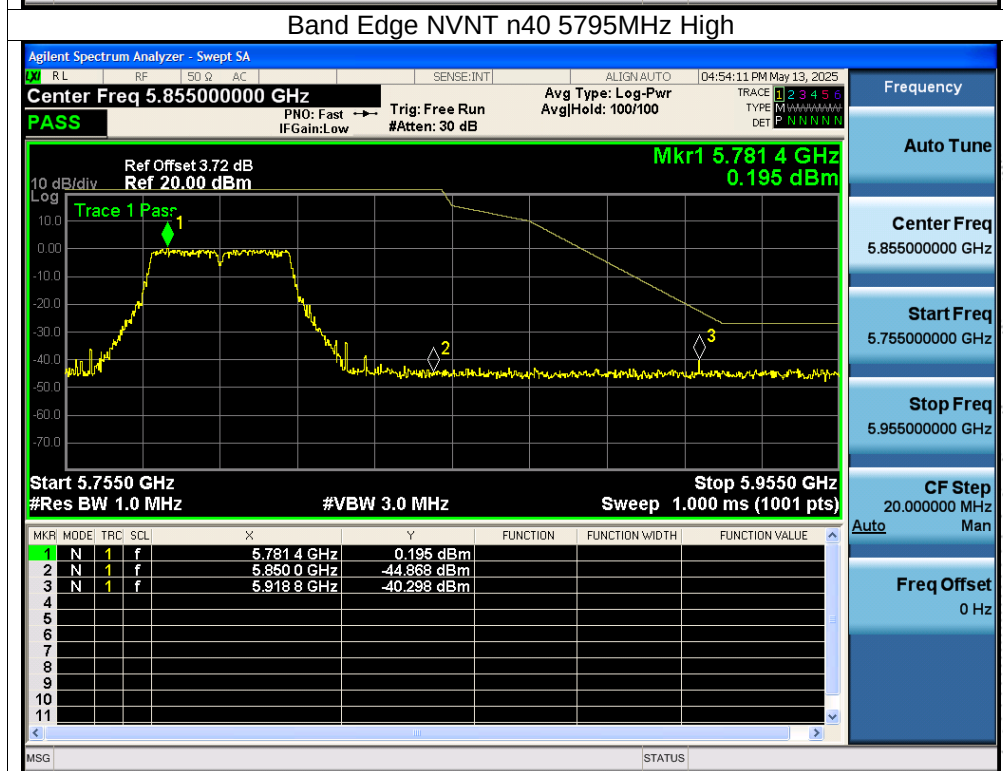
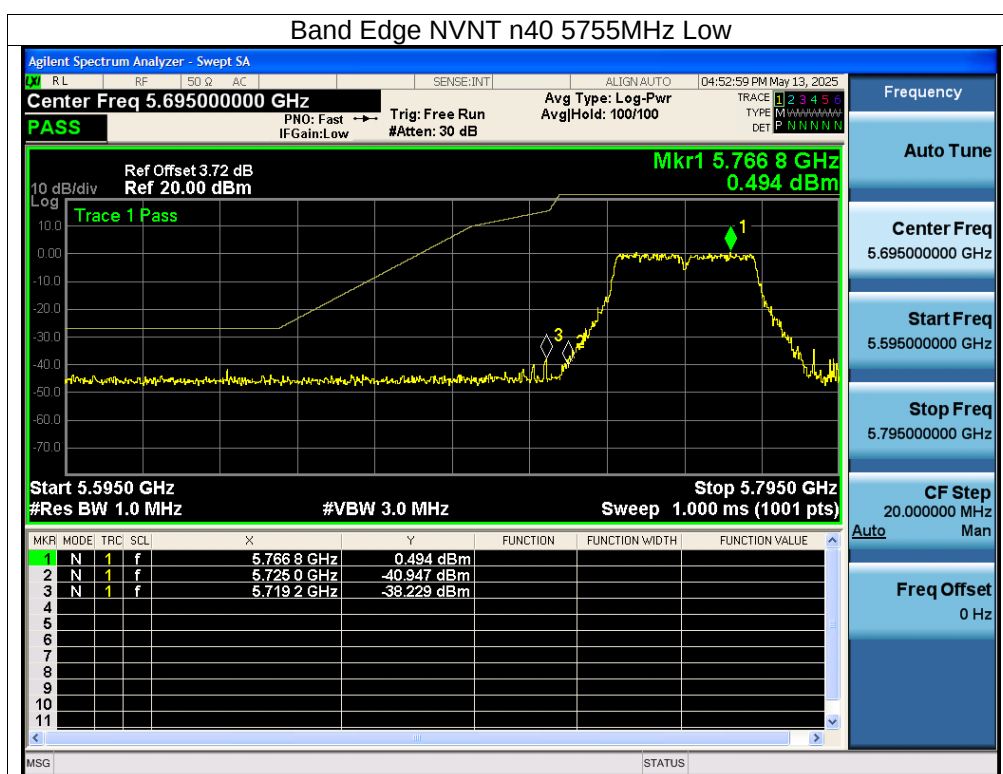
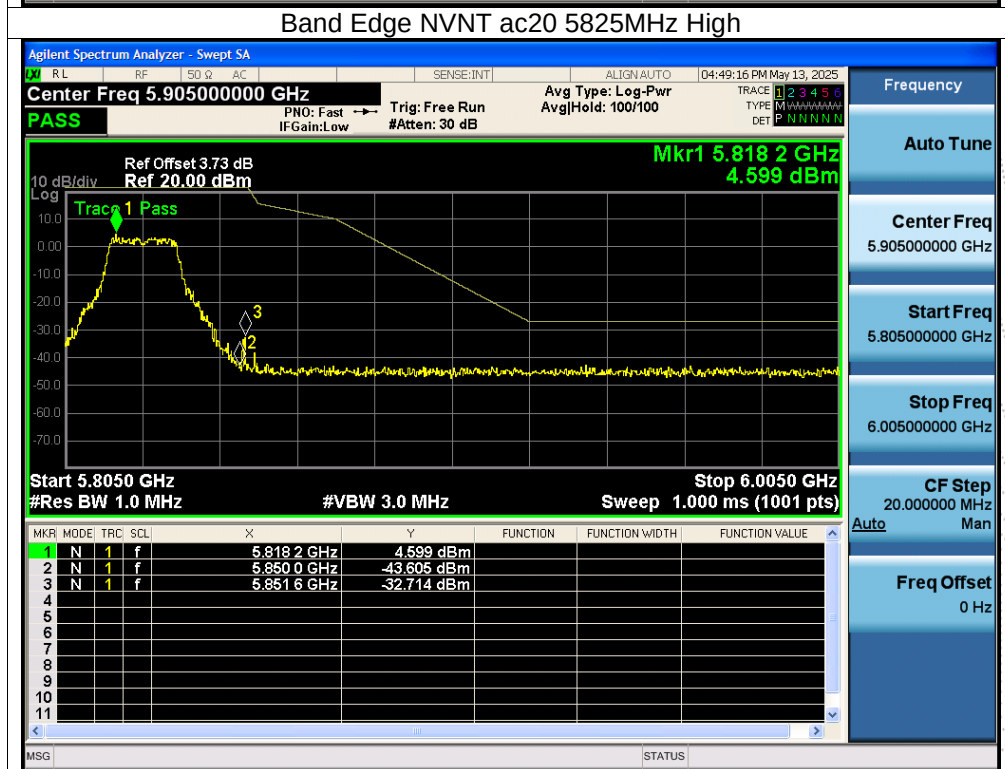
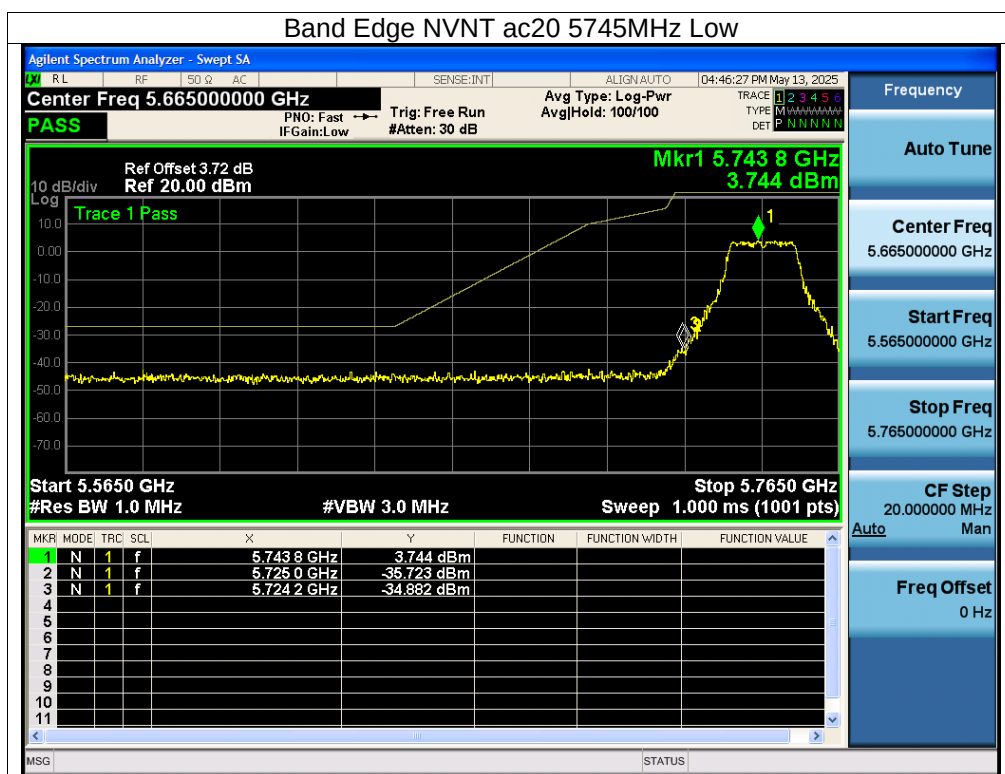
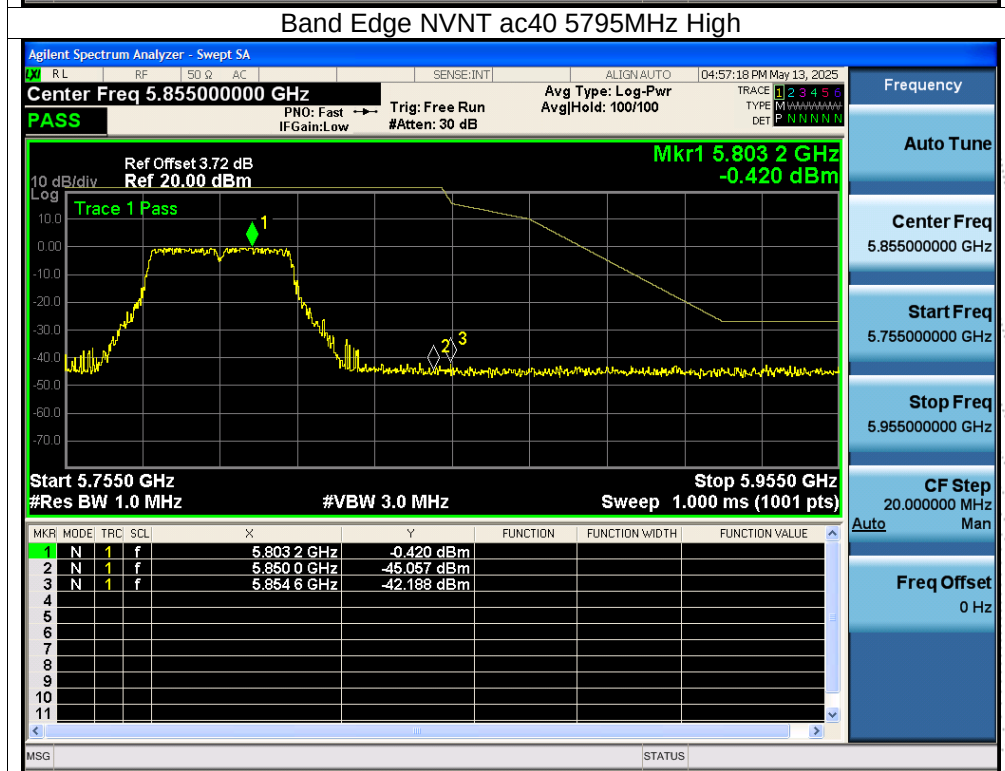
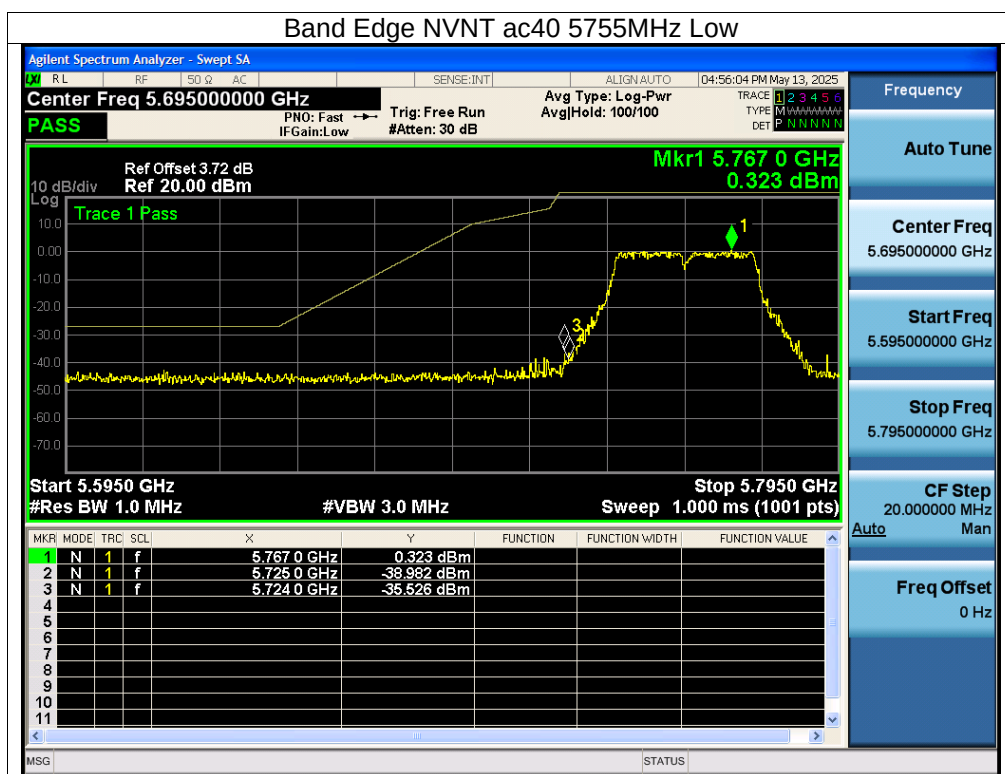
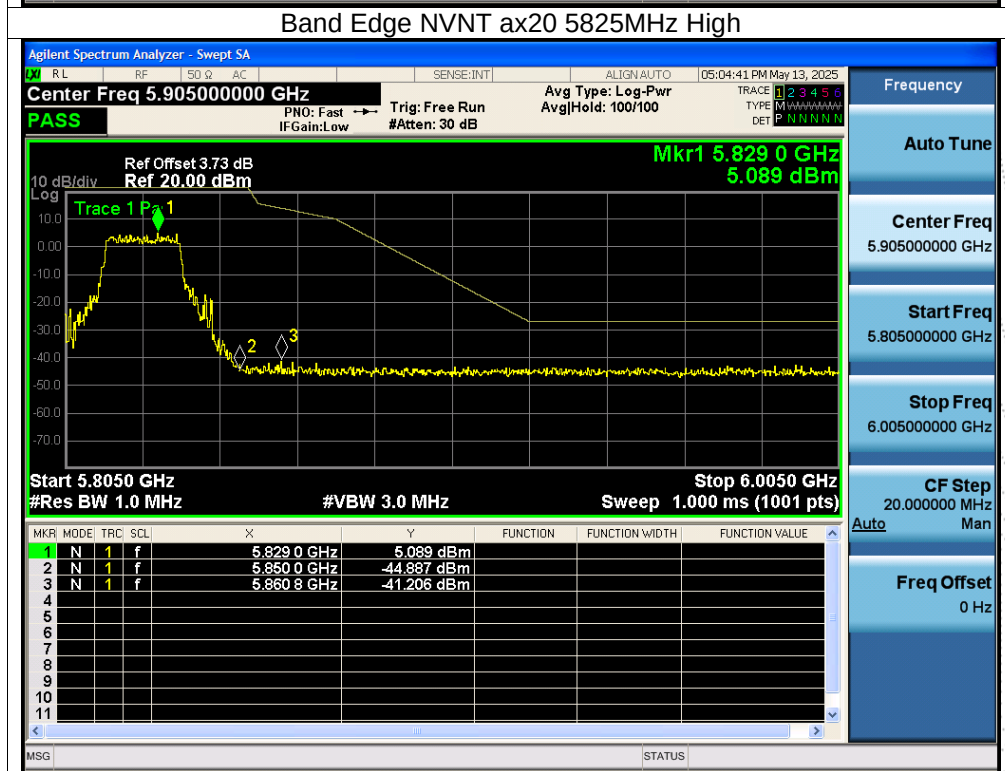
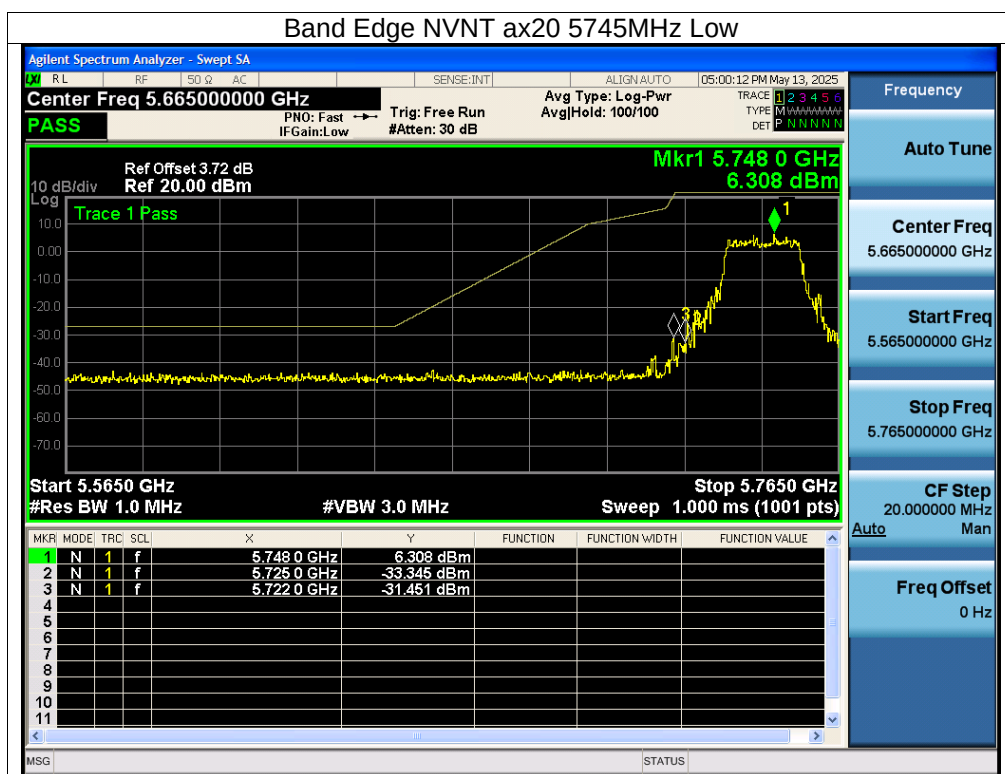
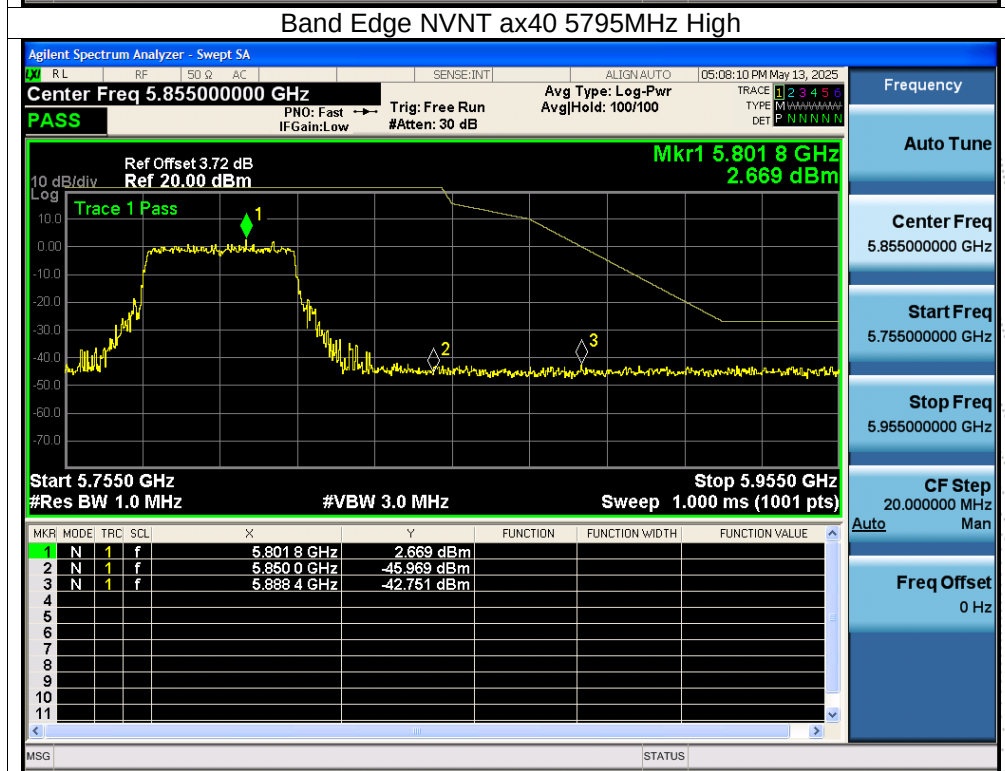
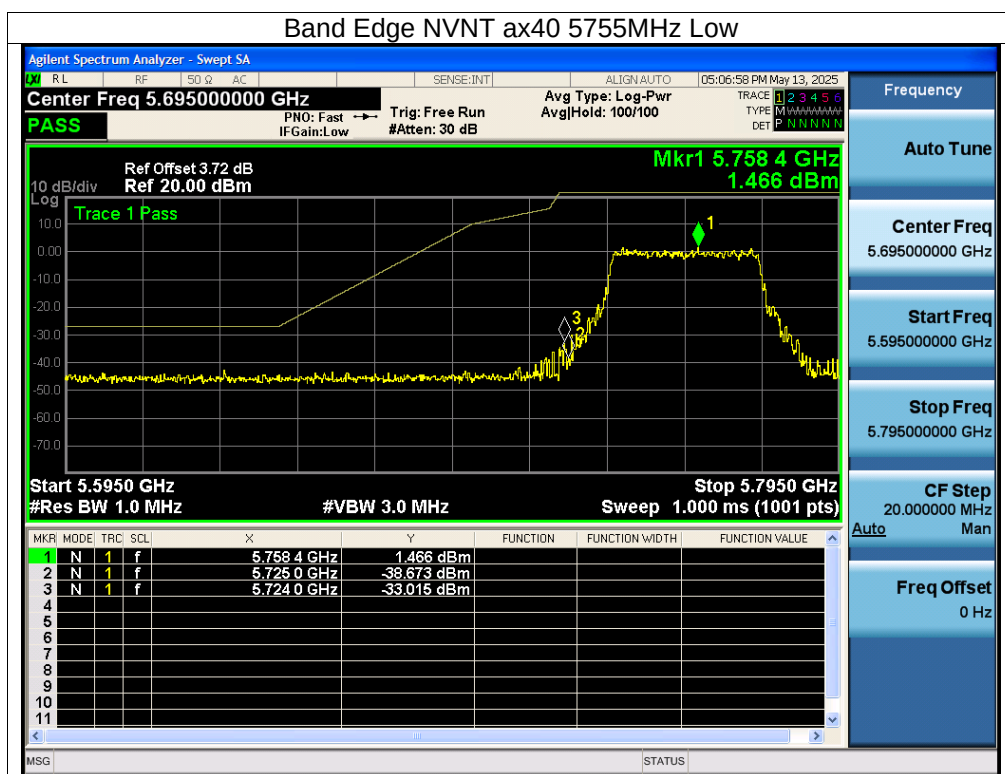












12. Spurious RF Conducted Emissions

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..

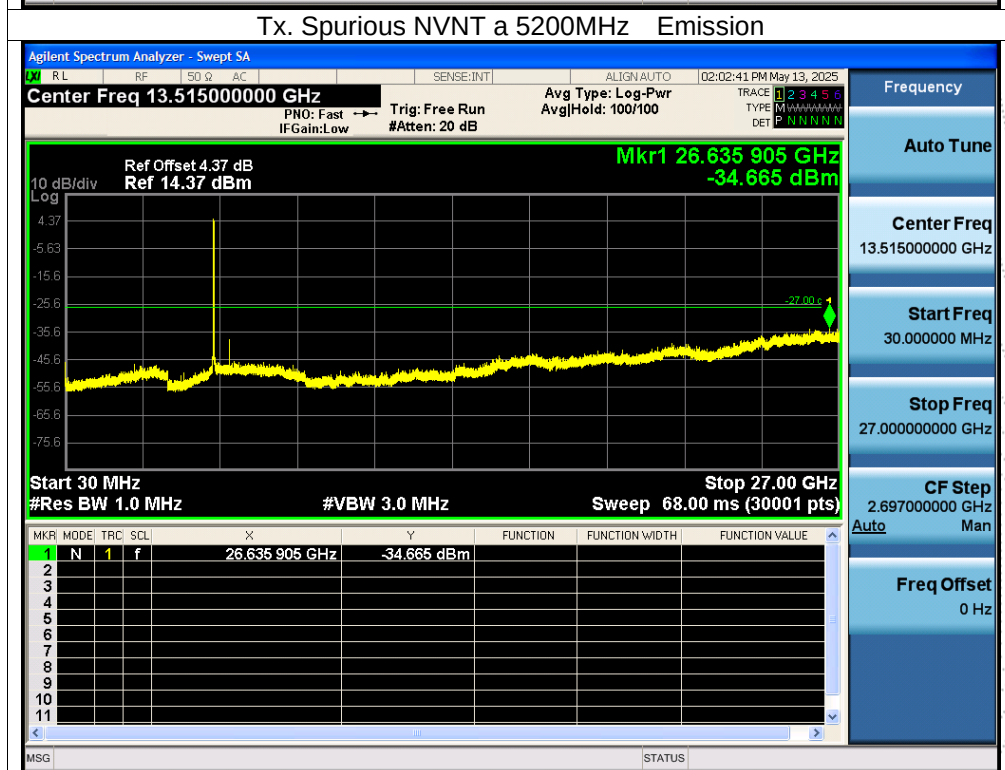
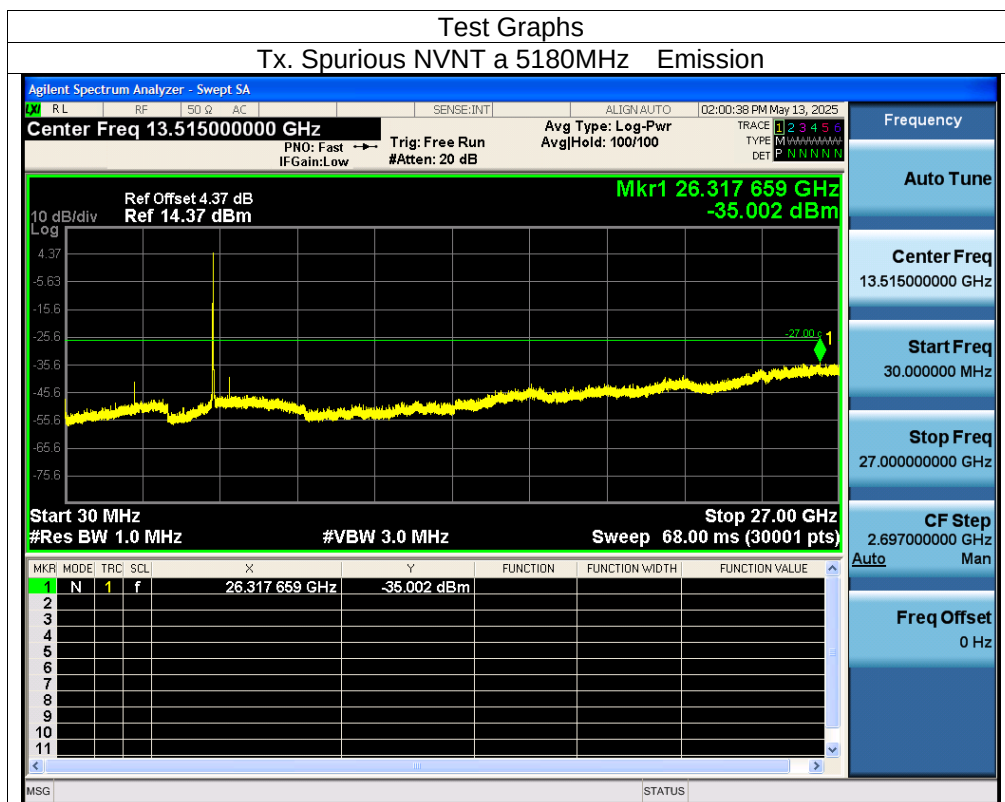
12.3 Test Procedure

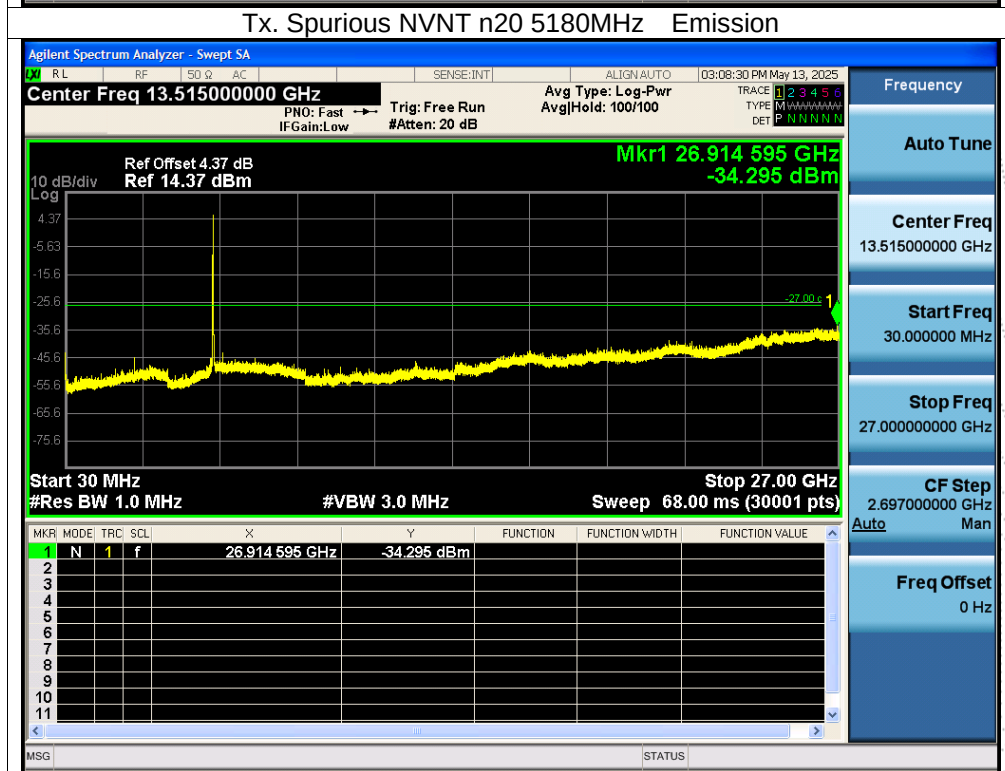
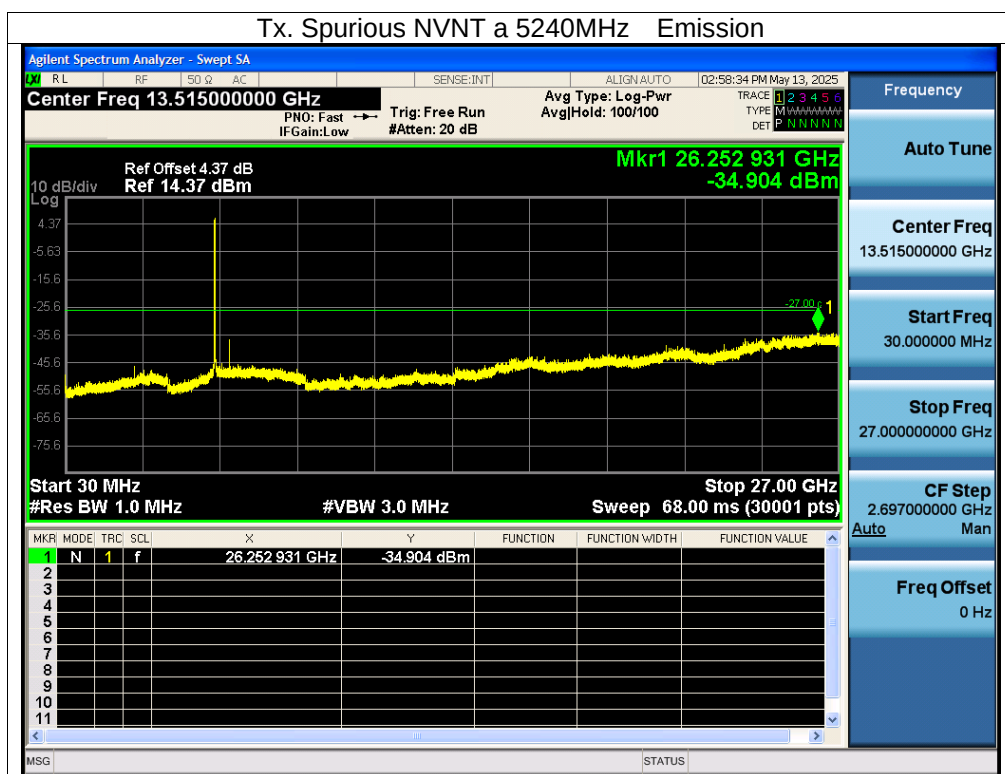
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then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

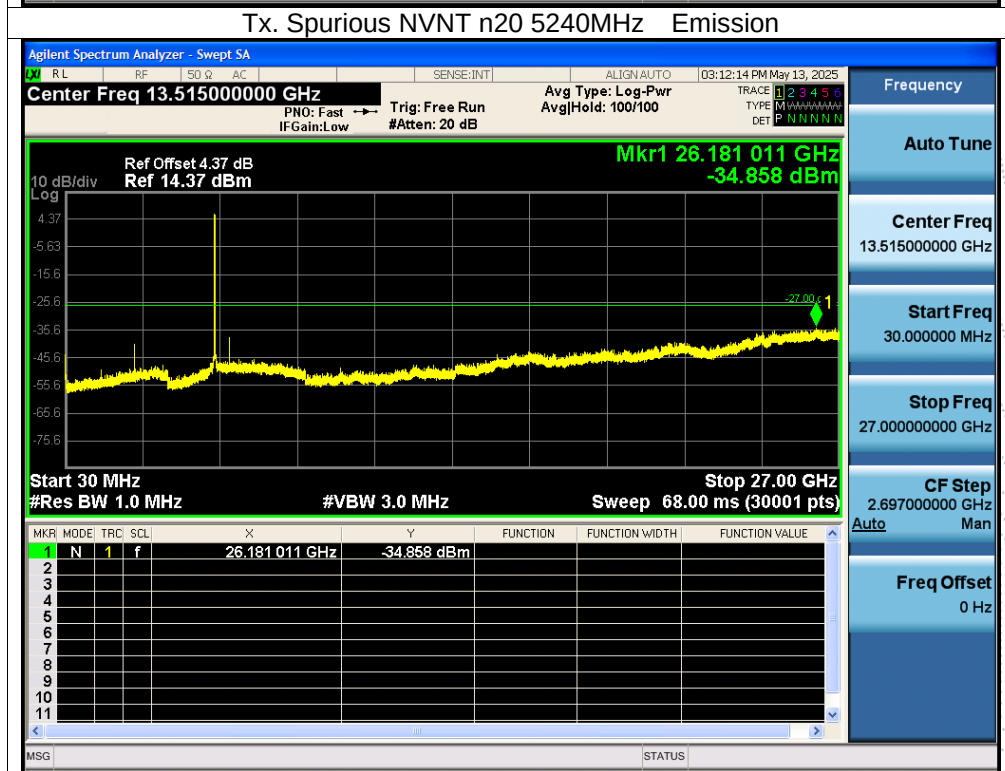
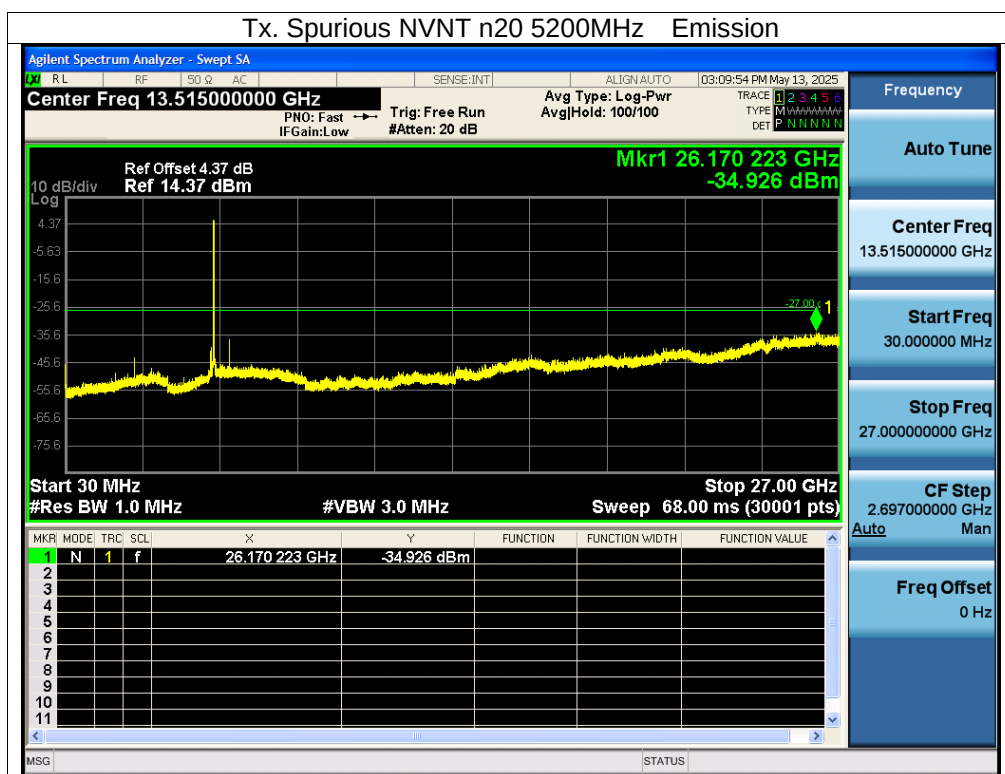
12.4 Test Result

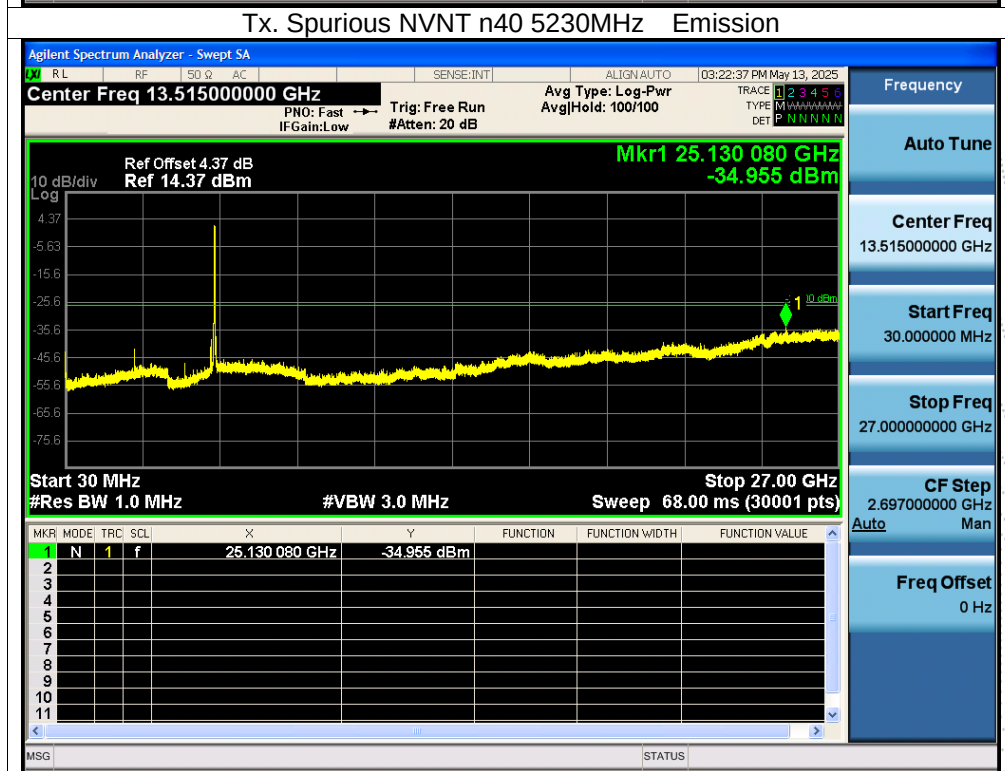
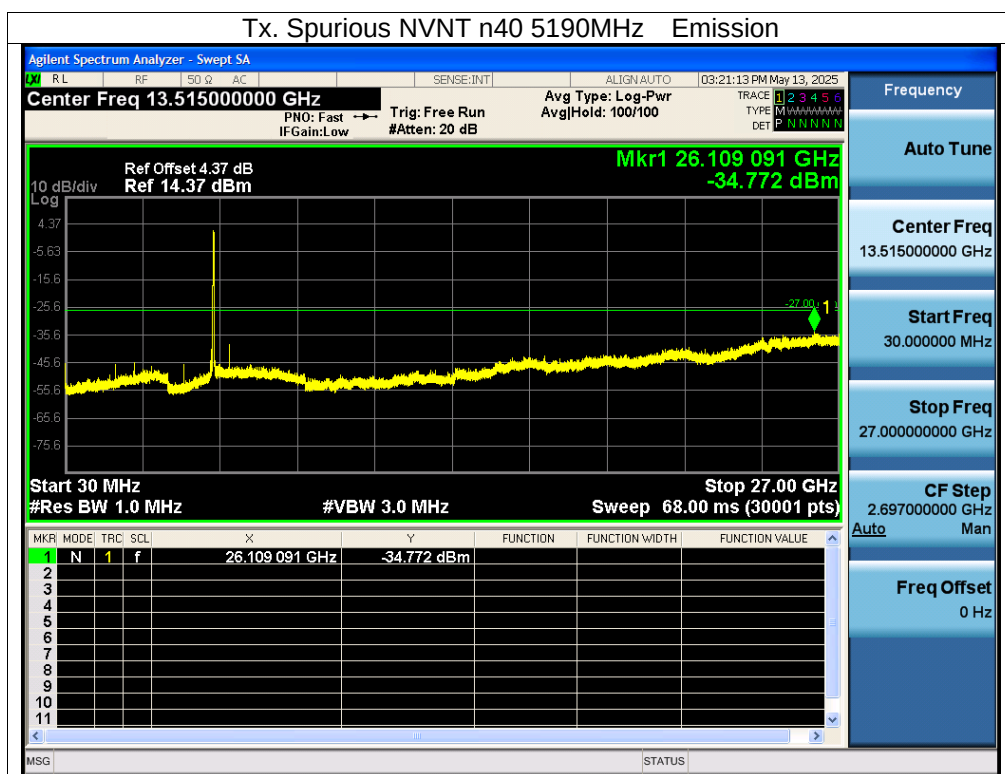
Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandedge measurement data.

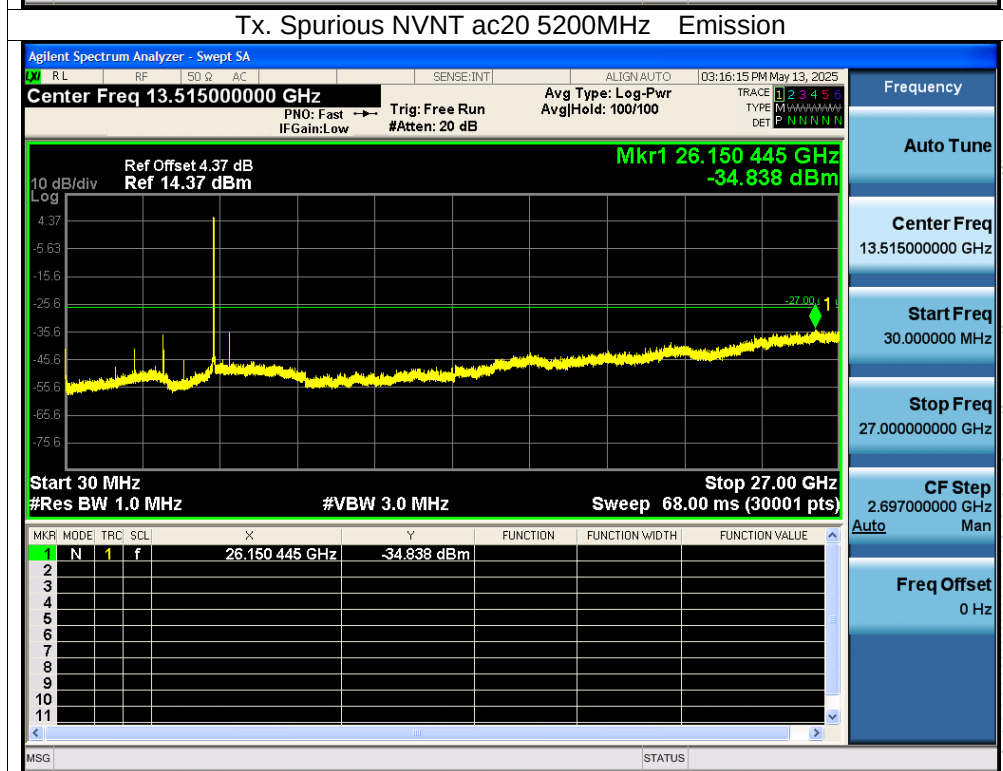
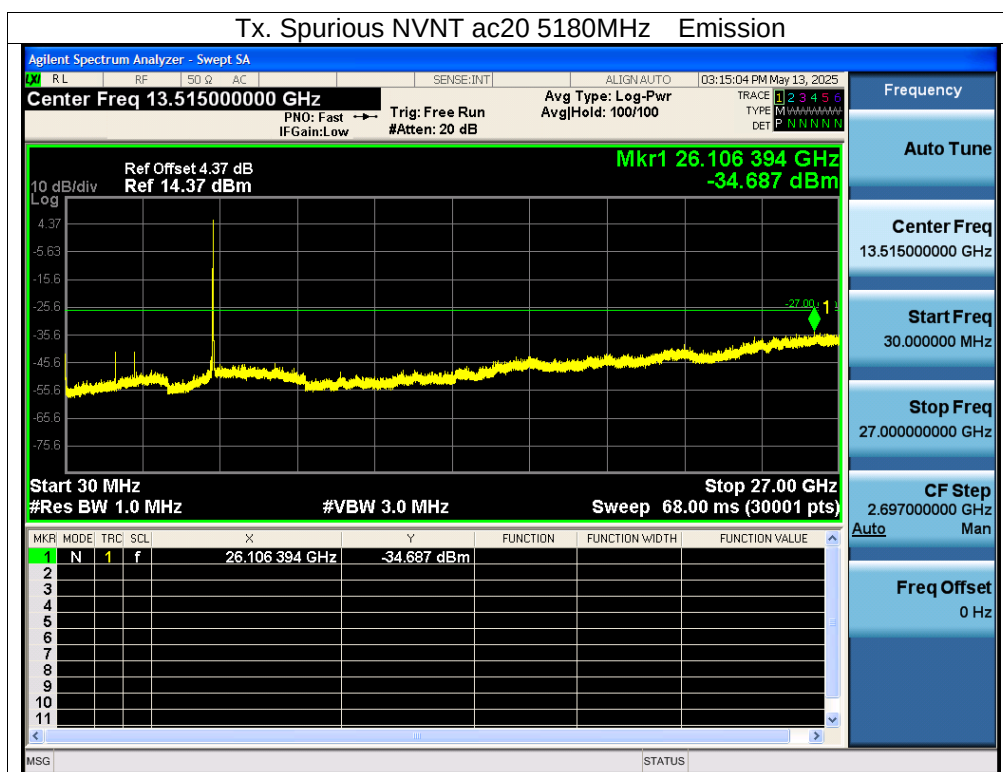
About: 26.5GHz-40GHz, The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

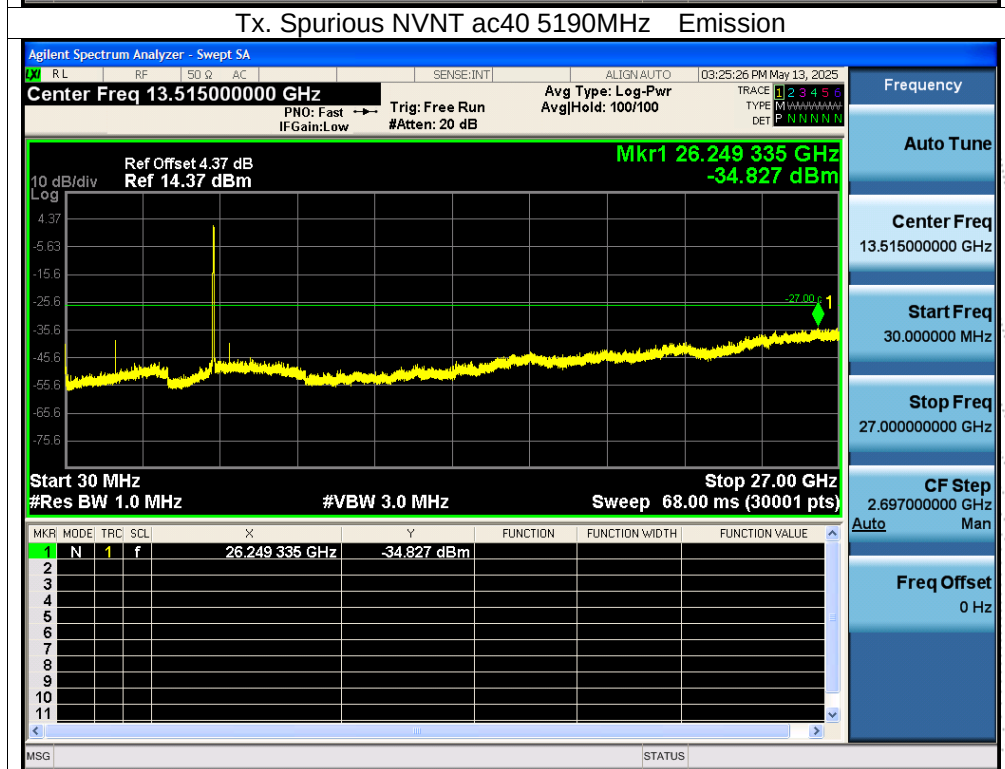
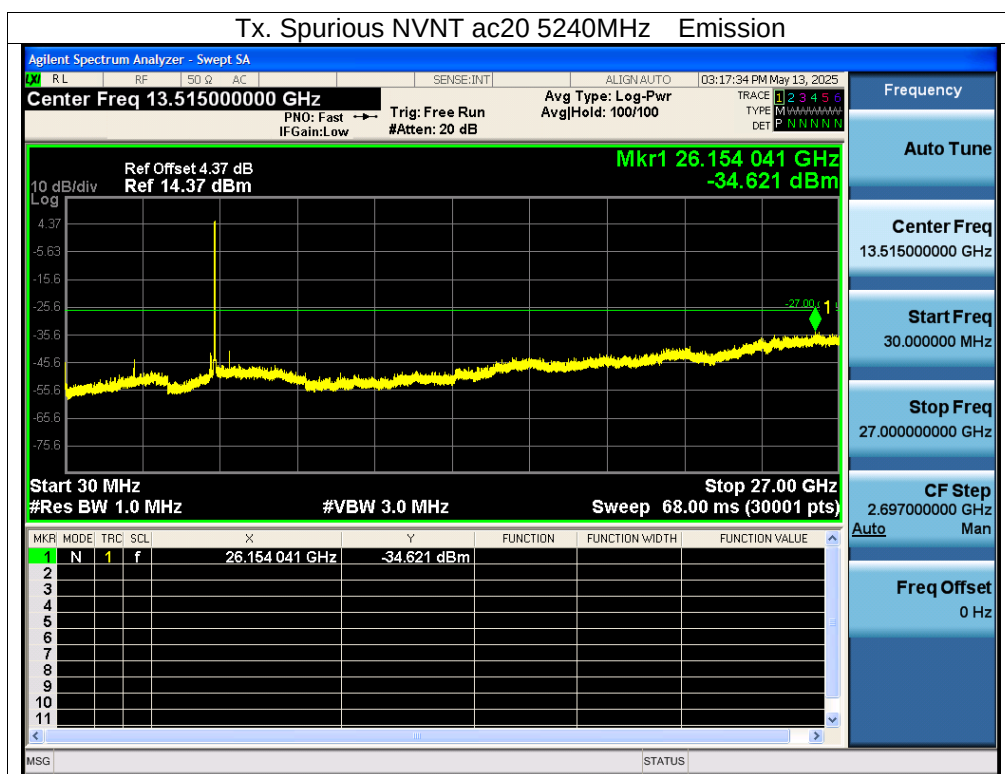


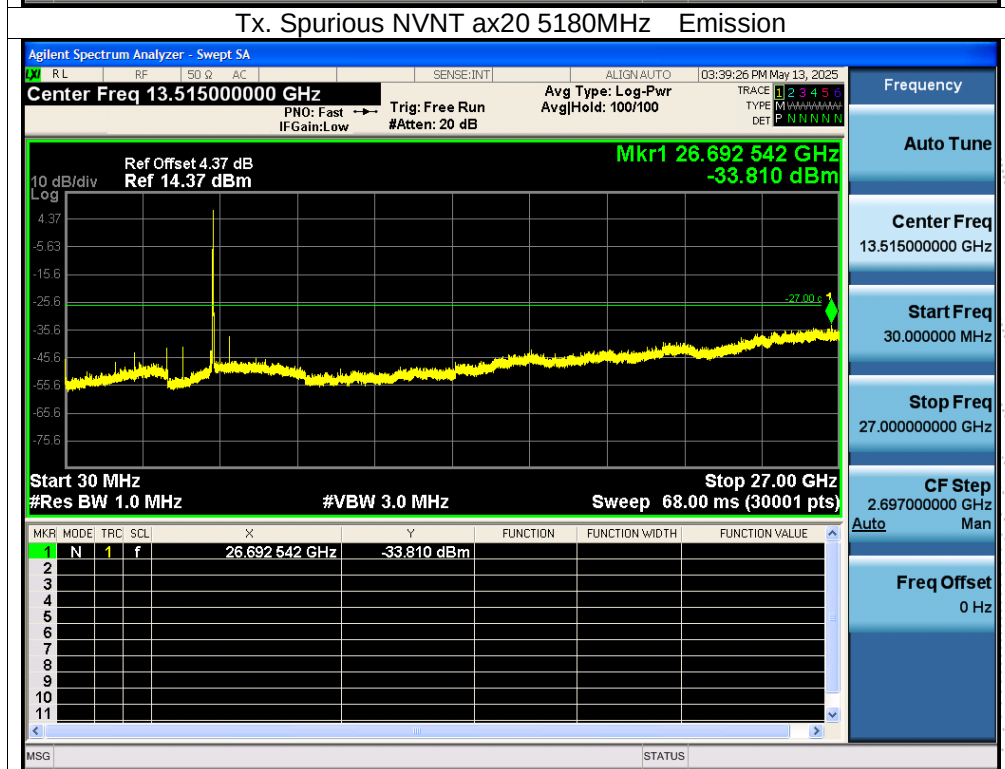
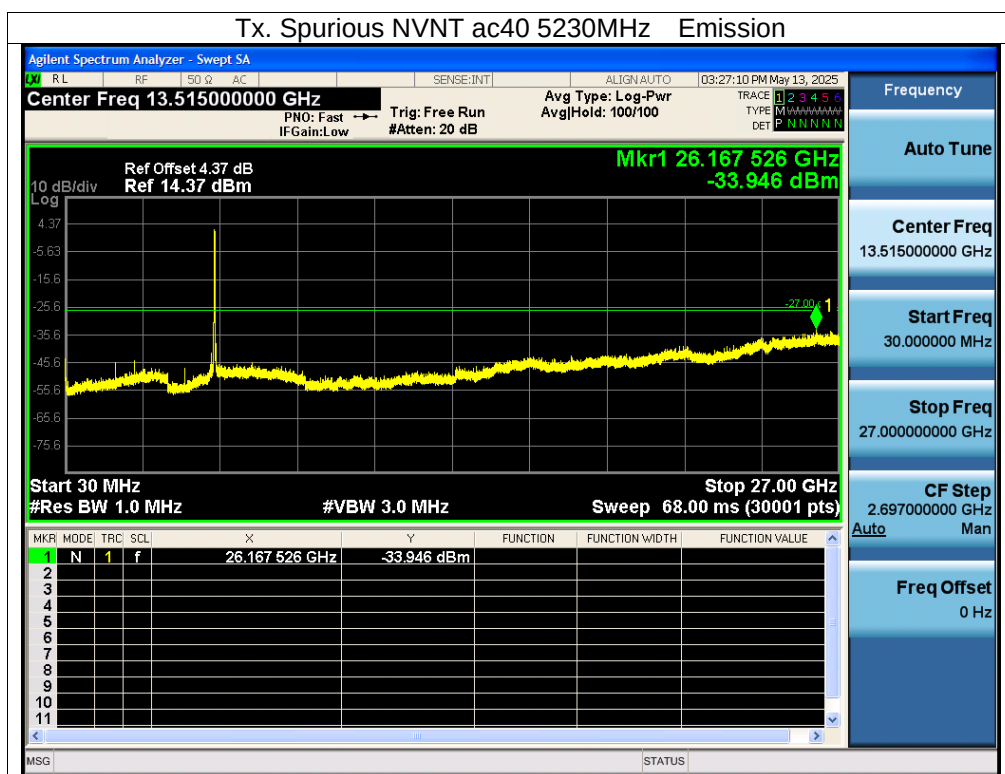


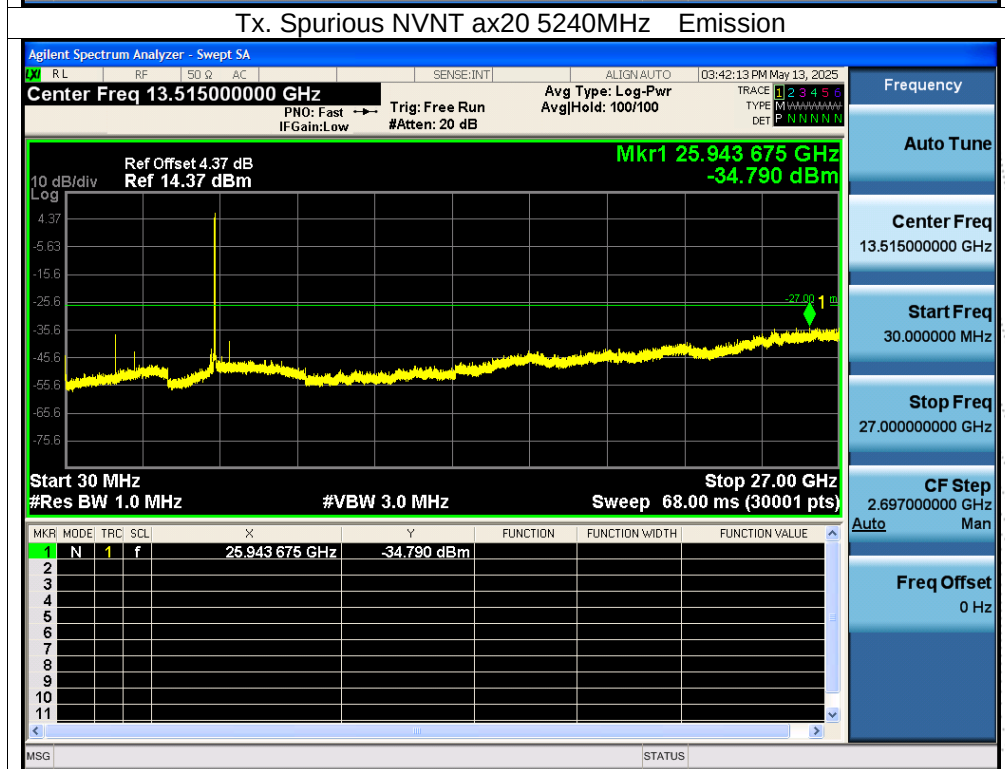
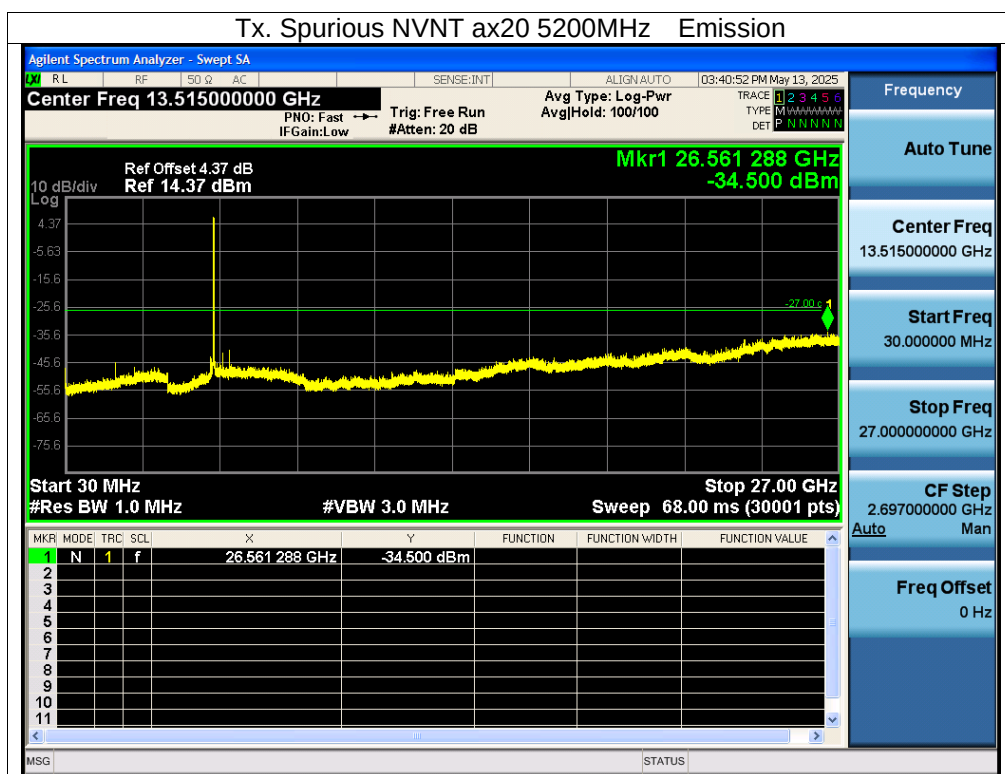


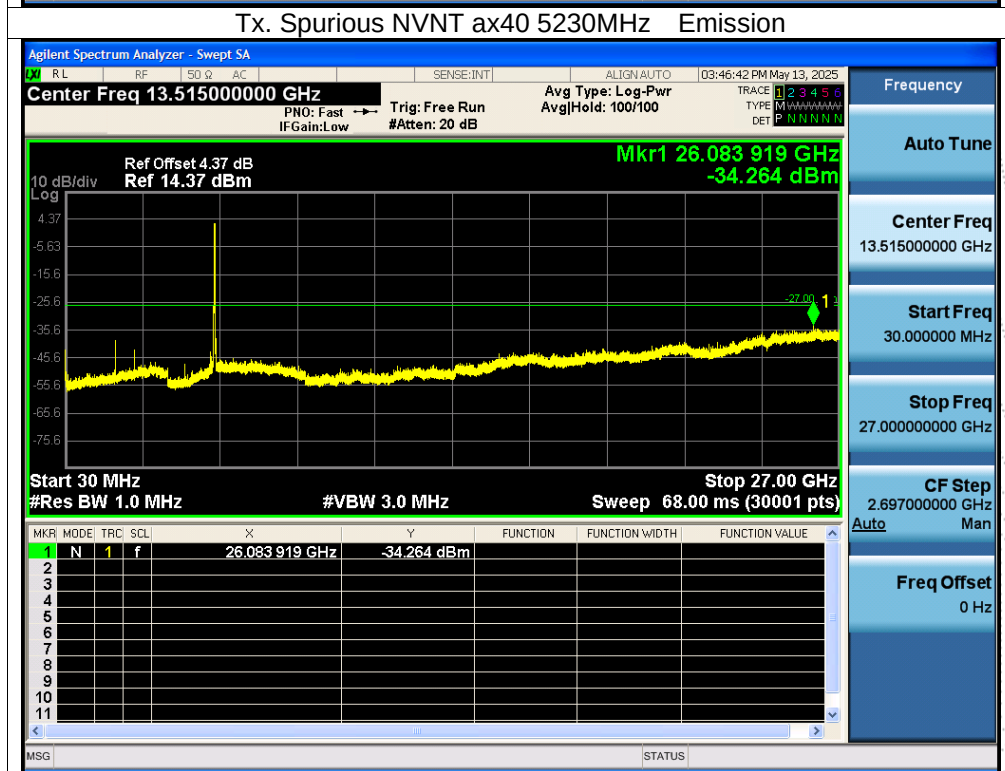
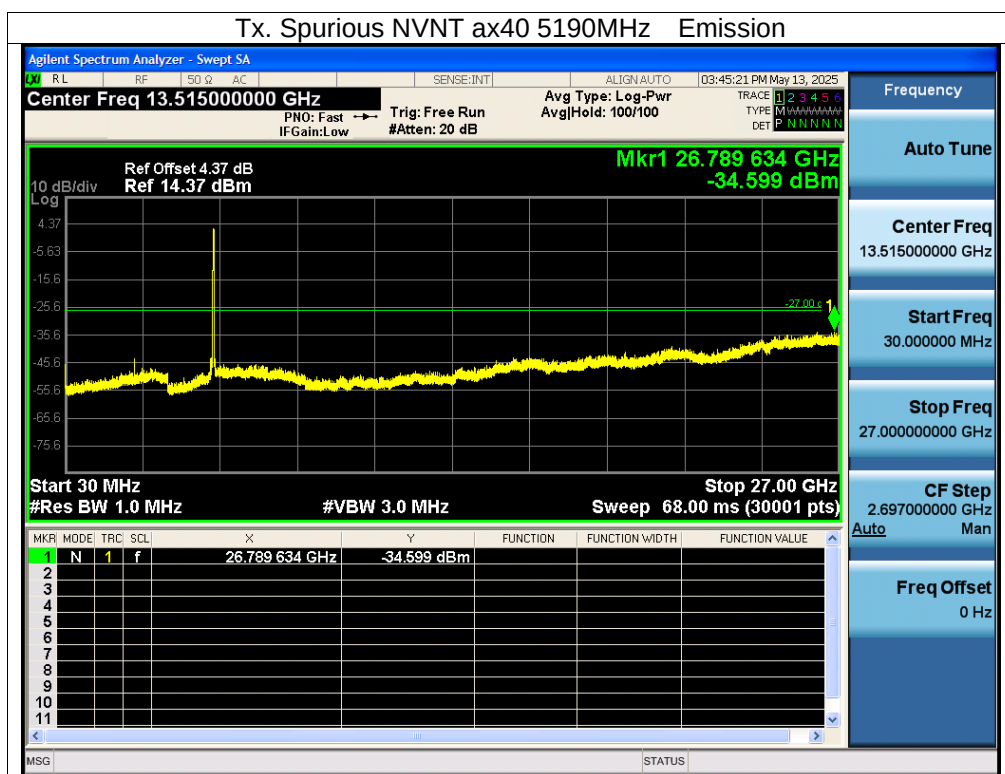






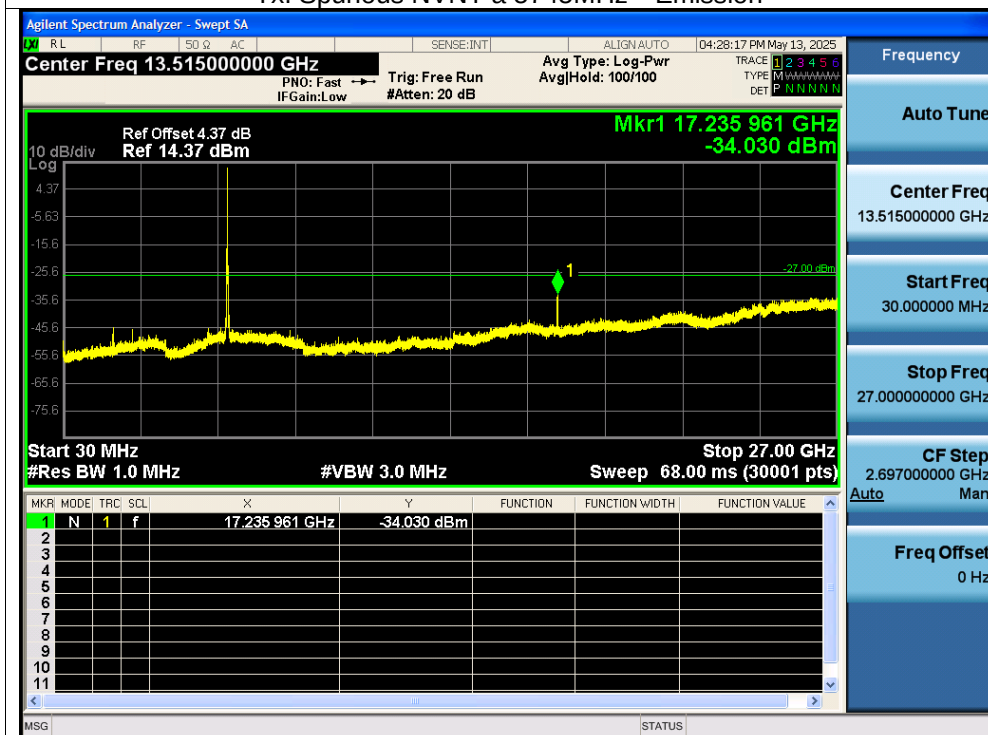




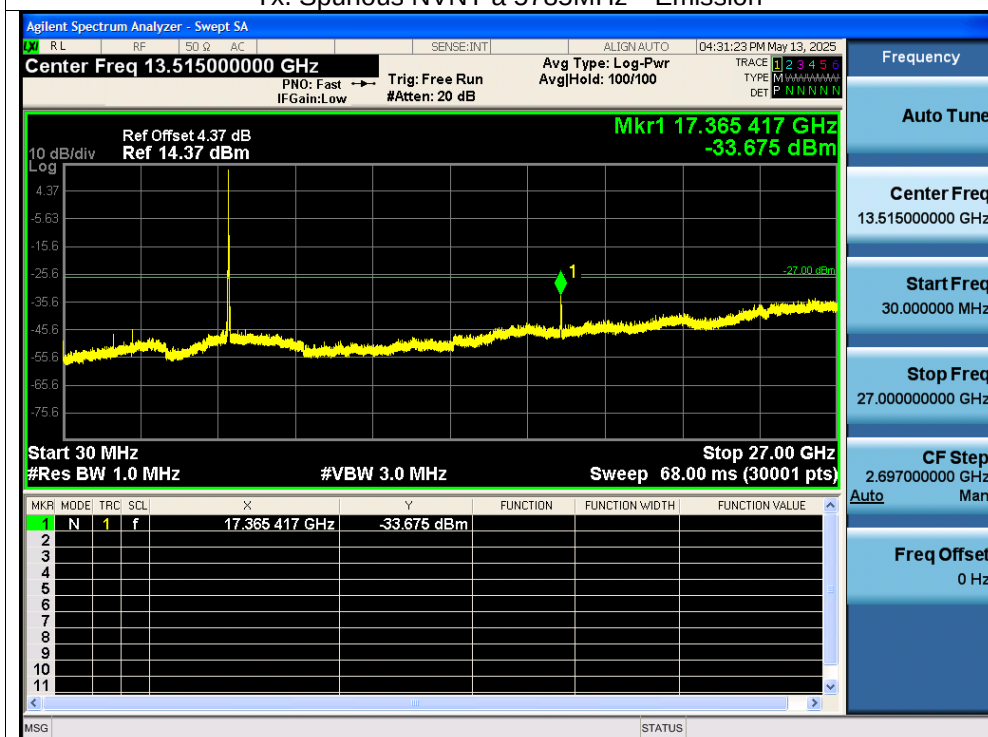


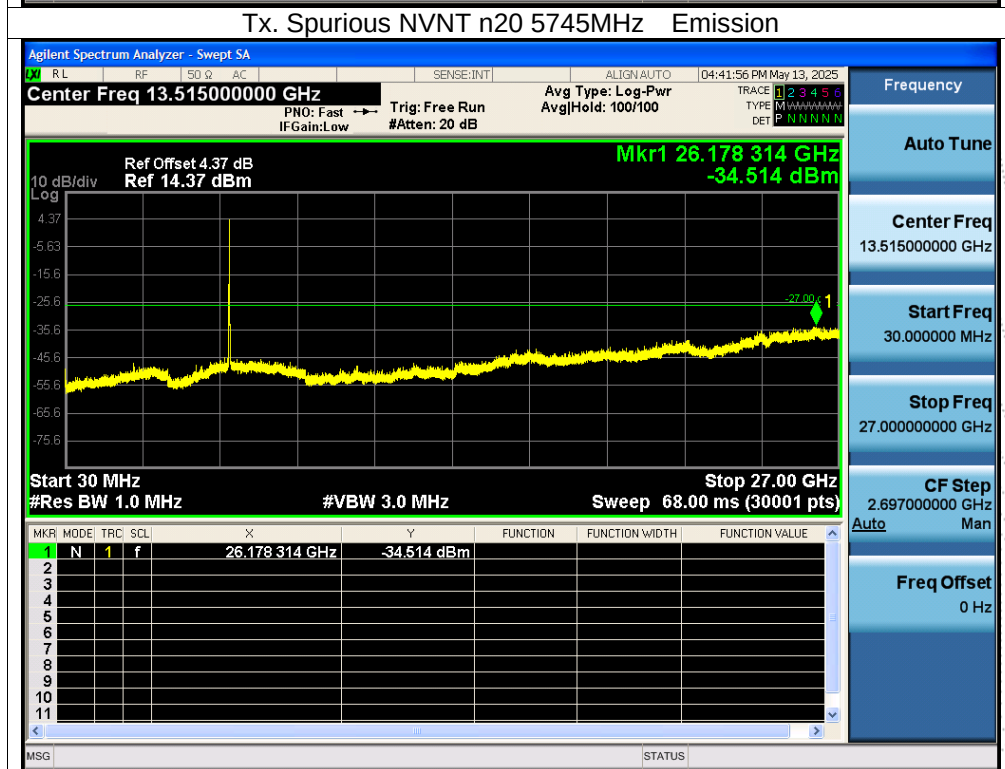
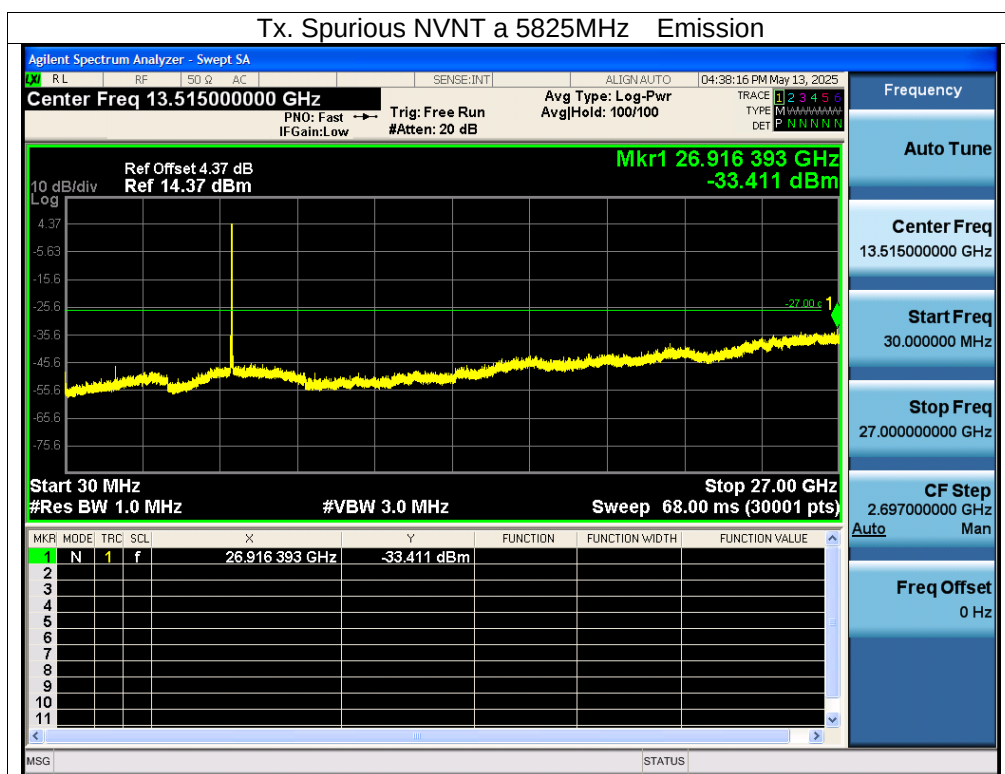
Test Graphs

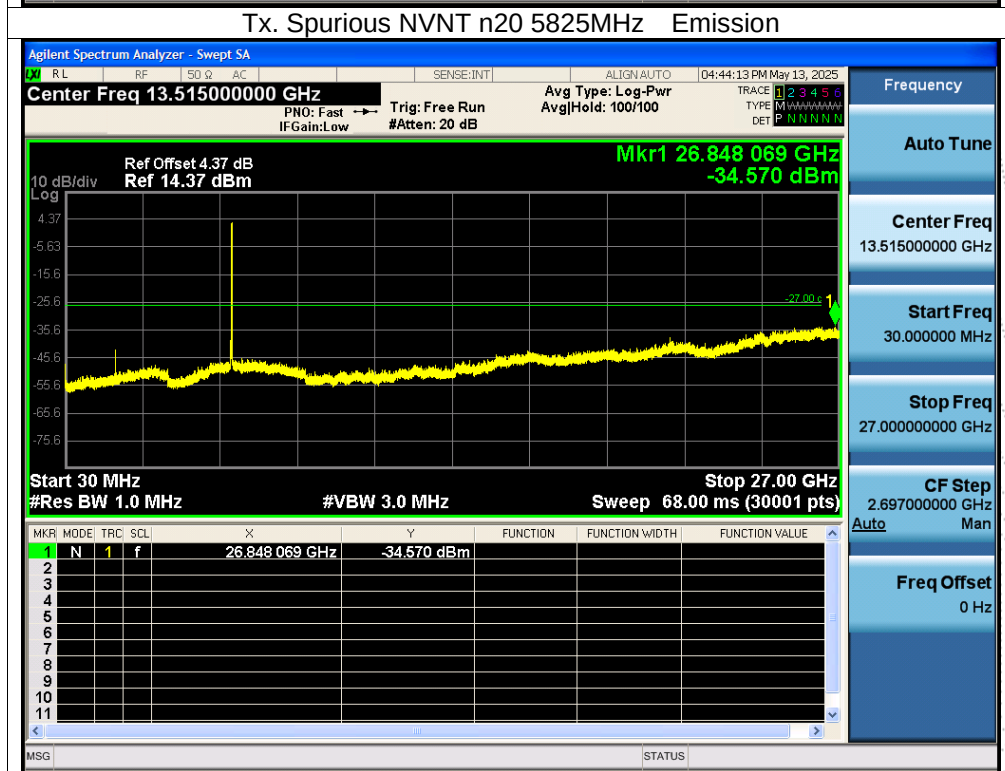
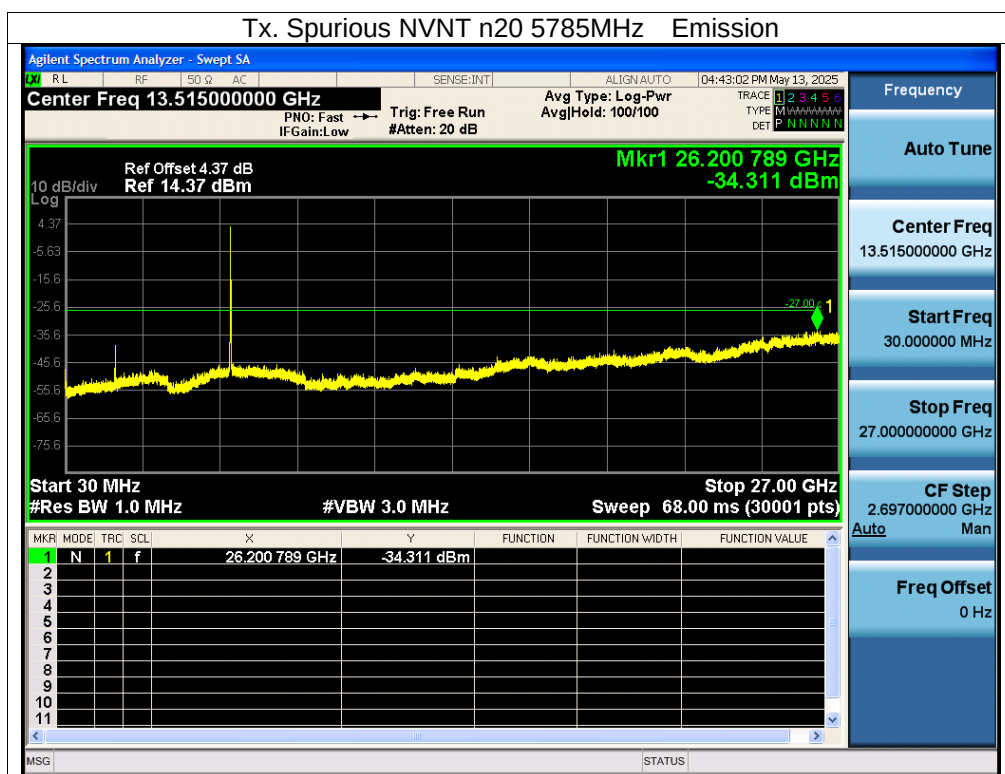
Tx. Spurious NVNT a 5745MHz Emission

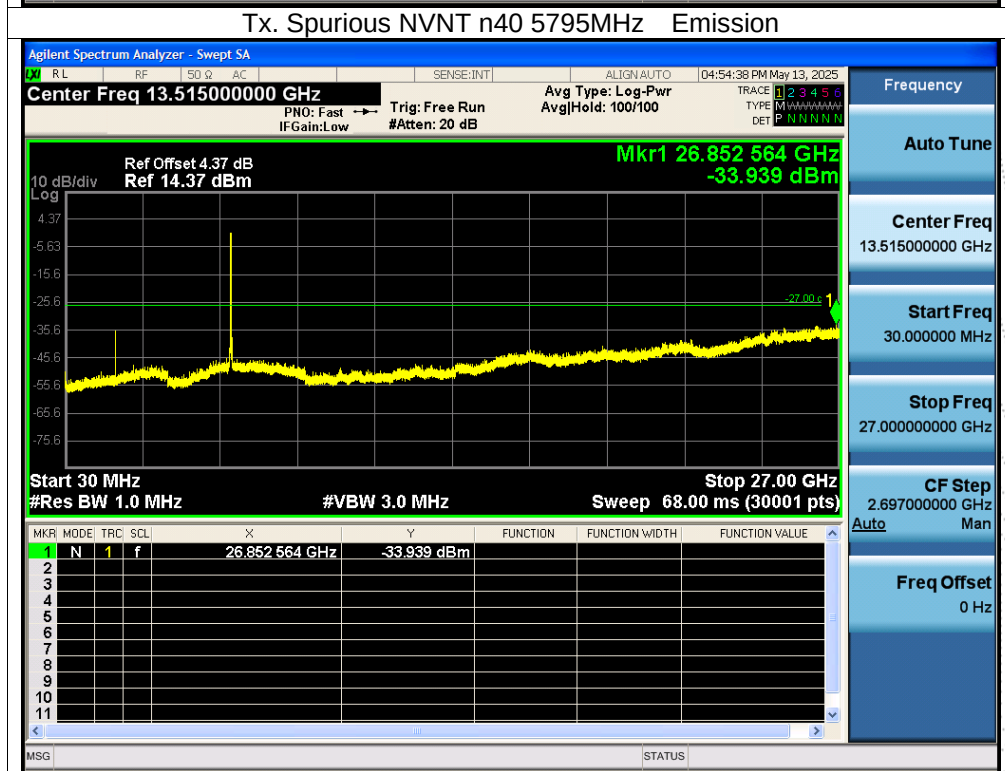
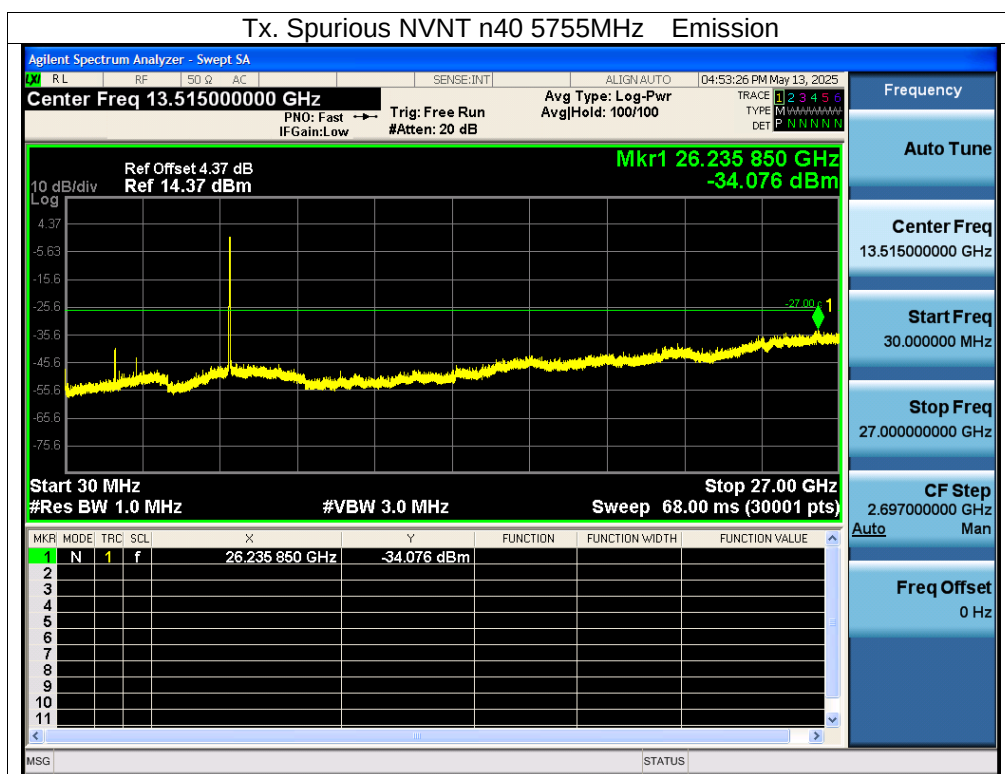


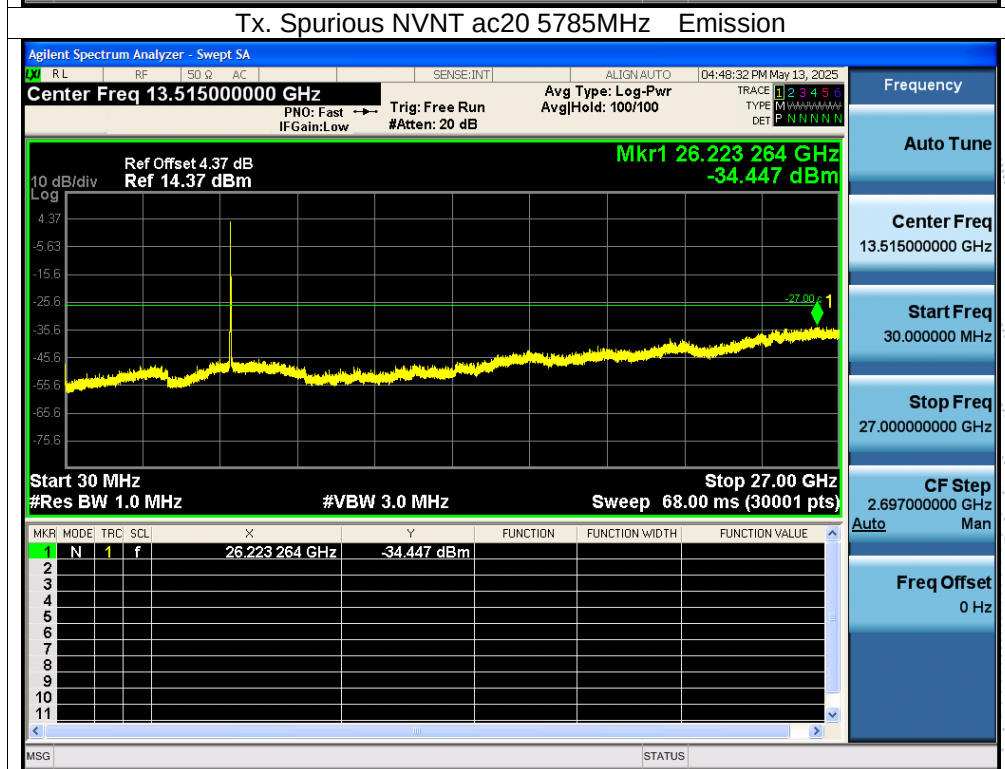
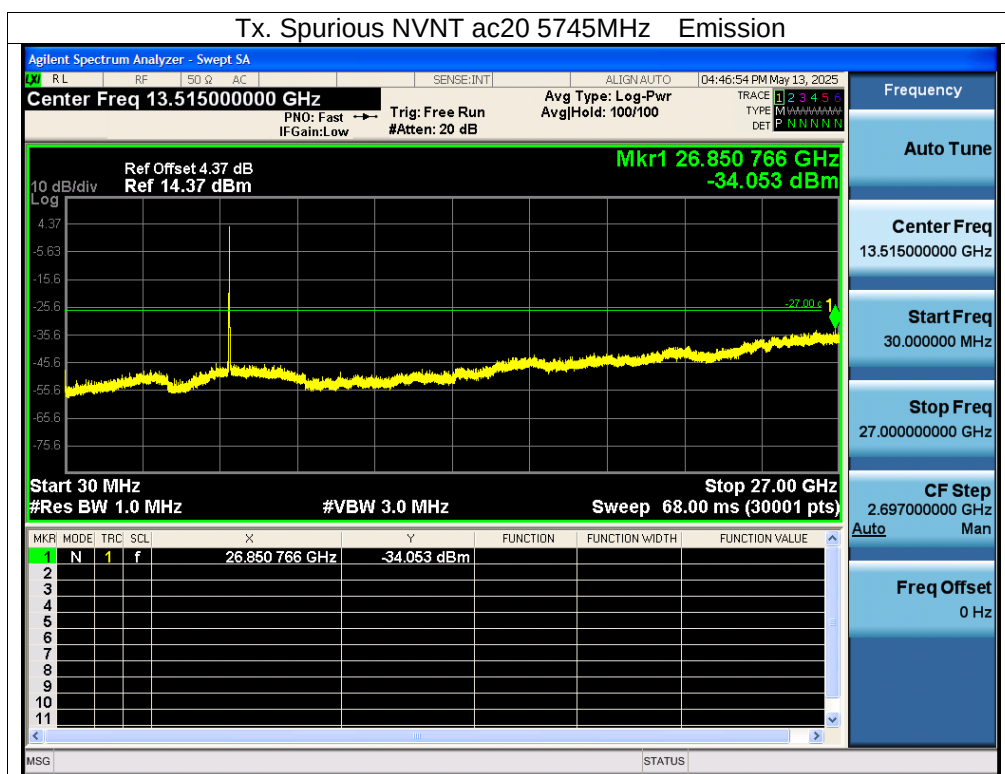
Tx. Spurious NVNT a 5785MHz Emission

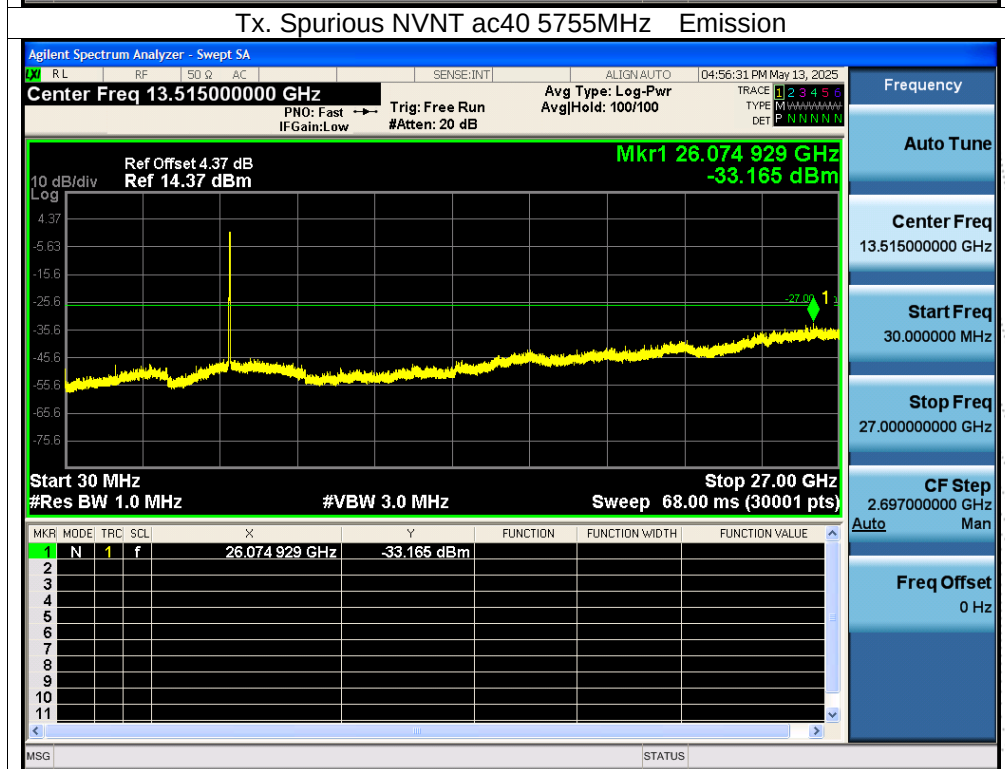
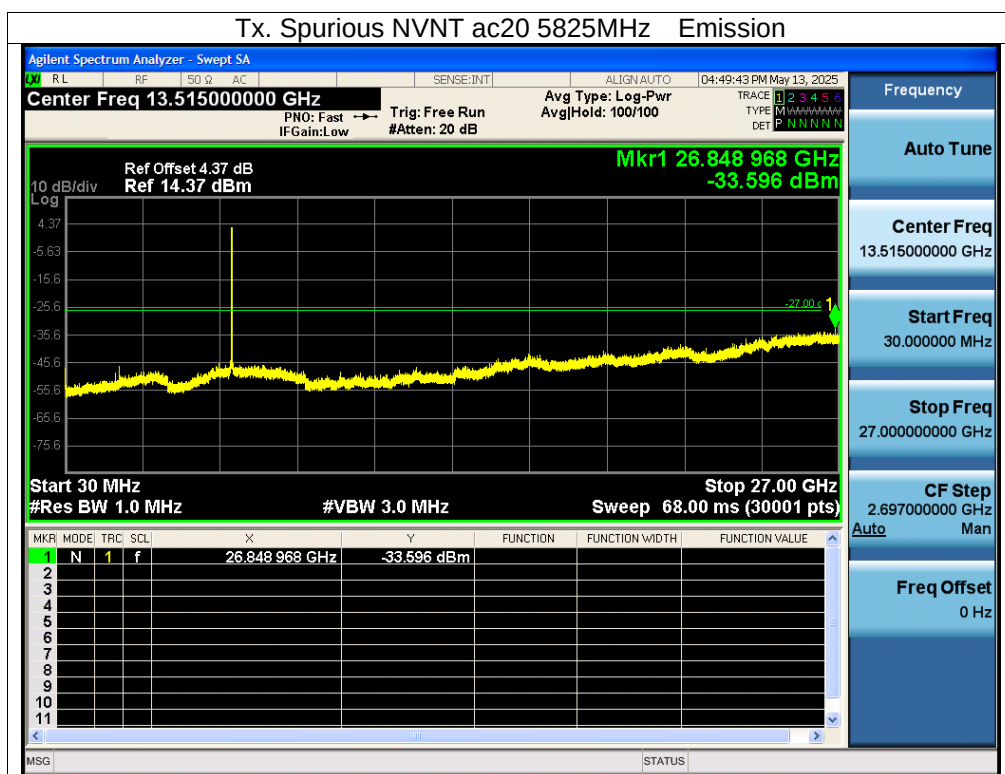


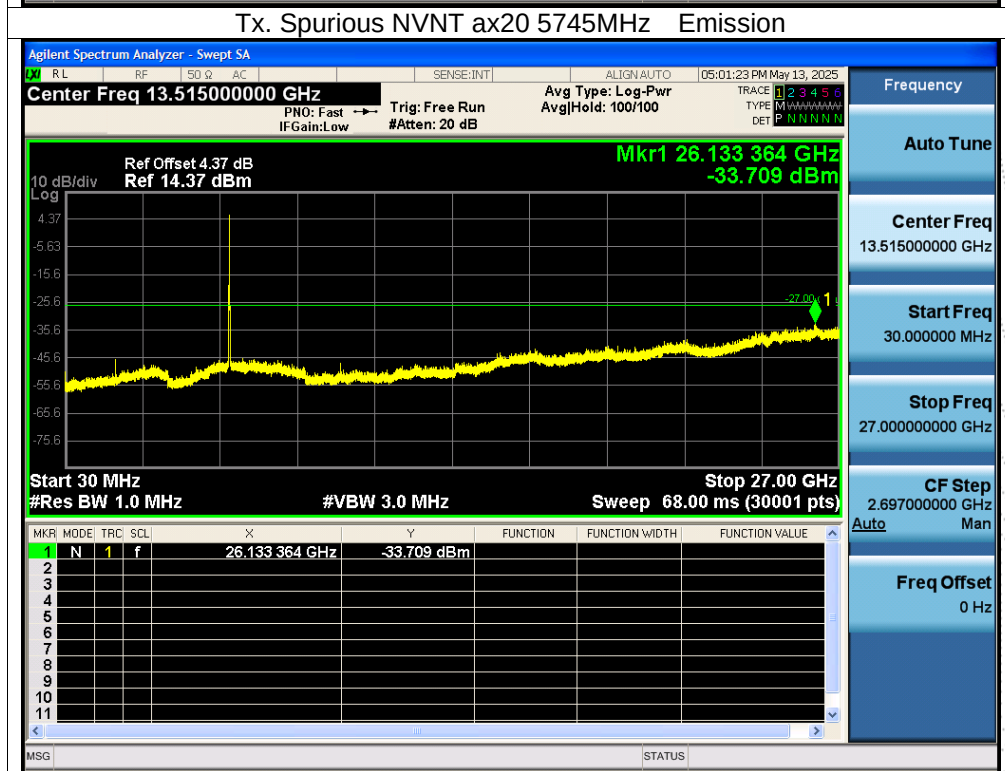
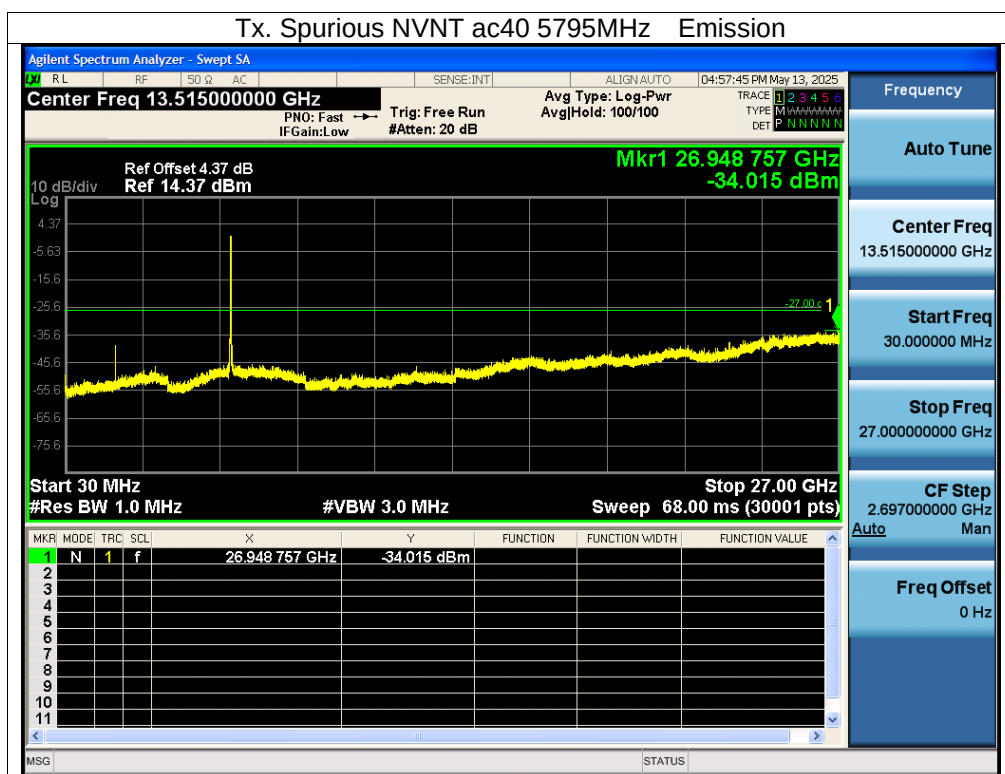


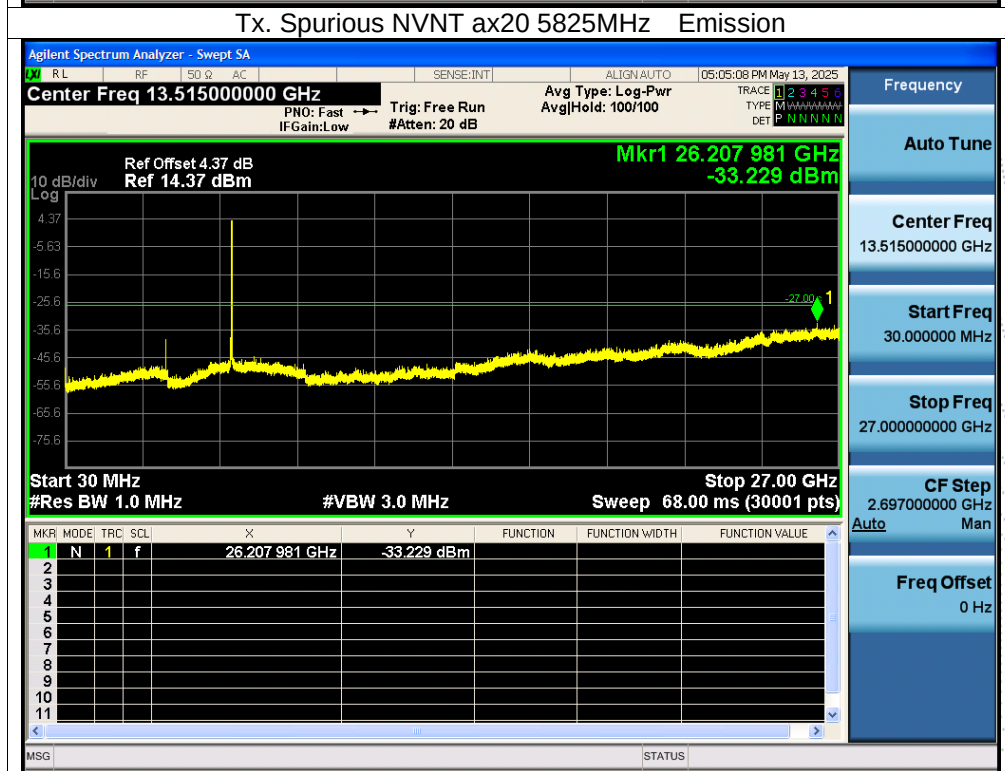
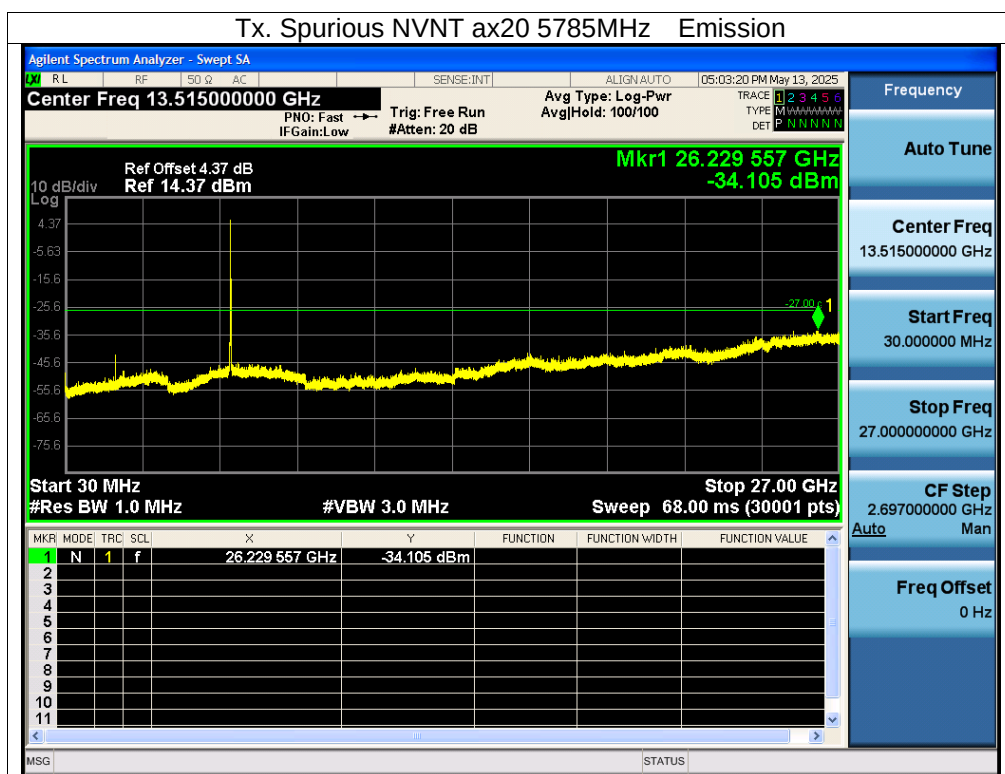


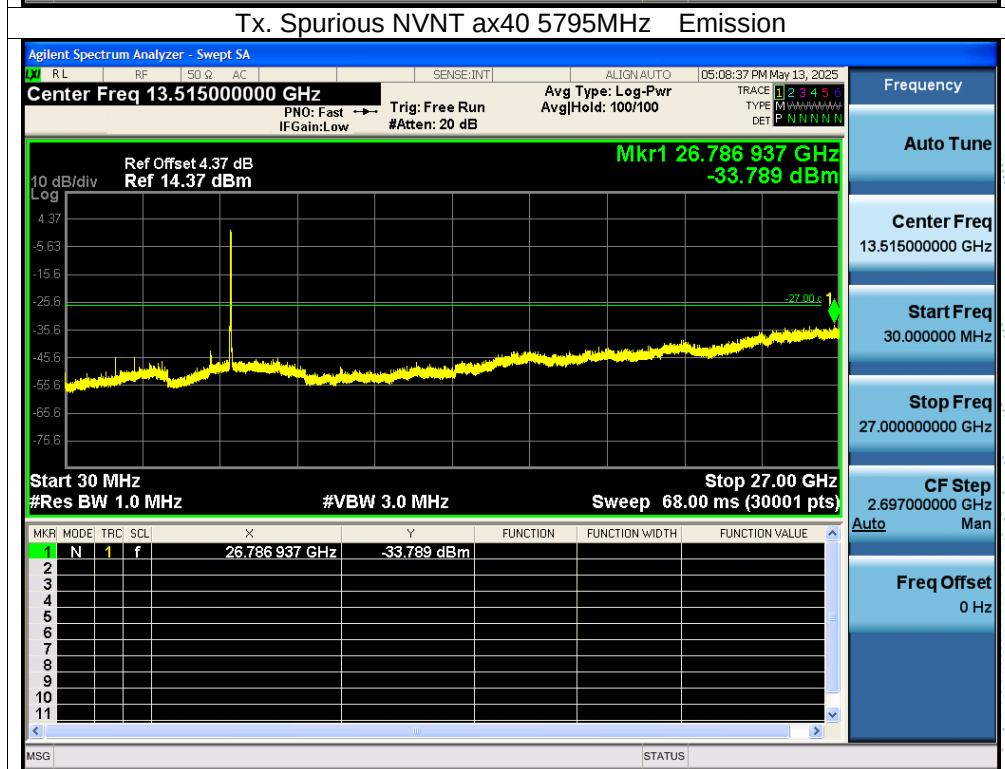
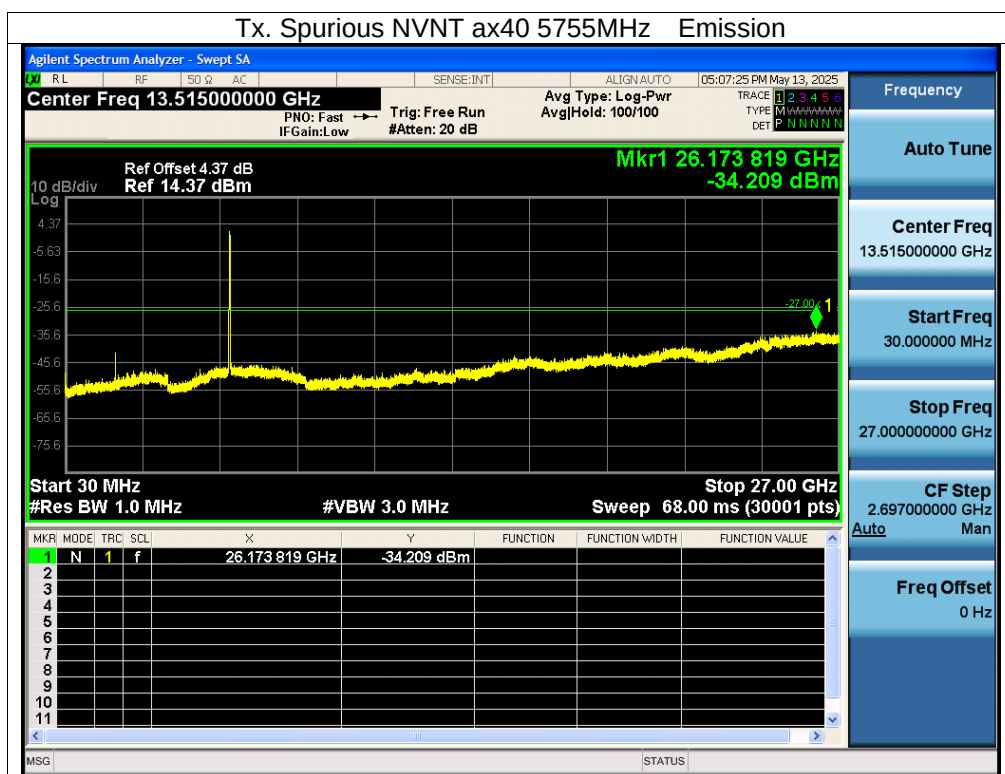












13. Frequency Stability Measurement

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:	AC 120V/60Hz
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)	120.00	5180.0104	5180	0.0104	2.0077
		V max (V)	138.00	5180.0021	5180	0.0021	0.4054
		V min (V)	102.00	5180.0060	5180	0.0060	1.1583
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)	120	T (°C)	-20	5180.0122	5180	0.0122	2.3552
		T (°C)	-10	5180.0006	5180	0.0006	0.1158
		T (°C)	0	5180.0026	5180	0.0026	0.5019
		T (°C)	10	5180.0064	5180	0.0064	1.2355
		T (°C)	20	5180.0008	5180	0.0008	0.1544
		T (°C)	30	5180.0097	5180	0.0097	1.8726
		T (°C)	40	5180.0028	5180	0.0028	0.5405
		T (°C)	50	5180.0088	5180	0.0088	1.6988
		T (°C)	60	5180.0005	5180	0.0005	0.0965
		T (°C)	70	5180.0051	5180	0.0051	0.9846
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)	120.00	5200.0002	5200	0.0002	0.0385
		V max (V)	138.00	5200.0091	5200	0.0091	1.7500
		V min (V)	102.00	5200.0021	5200	0.0021	0.4038
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)	120	T (°C)	-20	5200.00180	5200	0.00180	0.3462
		T (°C)	-10	5200.01320	5200	0.01320	2.5385
		T (°C)	0	5200.01300	5200	0.01300	2.5000
		T (°C)	10	5200.00220	5200	0.00220	0.4231
		T (°C)	20	5200.00730	5200	0.00730	1.4038
		T (°C)	30	5200.00910	5200	0.00910	1.7500
		T (°C)	40	5200.00800	5200	0.00800	1.5385
		T (°C)	50	5200.00870	5200	0.00870	1.6731
		T (°C)	60	5200.00260	5200	0.00260	0.5000
		T (°C)	70	5200.00110	5200	0.00110	0.2115
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)	120.00	5240.0113	5240	0.0113	2.1565
		V max (V)	138.00	5240.0128	5240	0.0128	2.4427
		V min (V)	102.00	5240.0082	5240	0.0082	1.5649
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)	120	T (°C)	-20	5240.0080	5240	0.0080	1.5267
		T (°C)	-10	5240.0055	5240	0.0055	1.0496
		T (°C)	0	5240.0119	5240	0.0119	2.2710
		T (°C)	10	5240.0018	5240	0.0018	0.3435
		T (°C)	20	5240.0087	5240	0.0087	1.6603
		T (°C)	30	5240.0081	5240	0.0081	1.5458
		T (°C)	40	5240.0044	5240	0.0044	0.8397
		T (°C)	50	5240.0008	5240	0.0008	0.1527
		T (°C)	60	5240.0118	5240	0.0118	2.2519
		T (°C)	70	5240.0089	5240	0.0089	1.6985
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	TX (5.8G) Mode Frequency U-NII-3 (5745-5825MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5745.00840	5745	0.00840	1.4621
		V max (V)	138.00	5745.00000	5745	0.00000	0.0000
		V min (V)	102.00	5745.00320	5745	0.00320	0.5570
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5745.00460	5745	0.00460	0.8007
		T (°C)	-10	5745.00700	5745	0.00700	1.2185
		T (°C)	0	5745.00450	5745	0.00450	0.7833
		T (°C)	10	5745.00750	5745	0.00750	1.3055
		T (°C)	20	5745.00120	5745	0.00120	0.2089
		T (°C)	30	5745.00280	5745	0.00280	0.4874
		T (°C)	40	5745.00000	5745	0.00000	0.0000
		T (°C)	50	5745.00720	5745	0.00720	1.2533
		T (°C)	60	5745.00720	5745	0.00720	1.2533
		T (°C)	70	5745.00610	5745	0.00610	1.0618
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5785.00720	5785	0.00720	1.2446
		V max (V)	138.00	5785.00750	5785	0.00750	1.2965
		V min (V)	102.00	5785.00010	5785	0.00010	0.0173
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5785.00770	5785	0.00770	1.3310
		T (°C)	-10	5785.00540	5785	0.00540	0.9334
		T (°C)	0	5785.01350	5785	0.01350	2.3336
		T (°C)	10	5785.01230	5785	0.01230	2.1262
		T (°C)	20	5785.01270	5785	0.01270	2.1953
		T (°C)	30	5785.00860	5785	0.00860	1.4866
		T (°C)	40	5785.00410	5785	0.00410	0.7087
		T (°C)	50	5785.00160	5785	0.00160	0.2766
		T (°C)	60	5785.00720	5785	0.00720	1.2446
		T (°C)	70	5785.00950	5785	0.00950	1.6422
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5825.00770	5825	0.00770	1.3219
		V max (V)	138.00	5825.00330	5825	0.00330	0.5665
		V min (V)	102.00	5825.00640	5825	0.00640	1.0987
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5825.00880	5825	0.00880	1.5107
		T (°C)	-10	5825.00690	5825	0.00690	1.1845
		T (°C)	0	5825.00890	5825	0.00890	1.5279
		T (°C)	10	5825.00600	5825	0.00600	1.0300
		T (°C)	20	5825.01050	5825	0.01050	1.8026
		T (°C)	30	5825.00000	5825	0.00000	0.0000
		T (°C)	40	5825.00890	5825	0.00890	1.5279
		T (°C)	50	5825.00910	5825	0.00910	1.5622
		T (°C)	60	5825.01210	5825	0.01210	2.0773
		T (°C)	70	5825.00260	5825	0.00260	0.4464
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 = $T_{on} / (T_{on} + T_{off})$

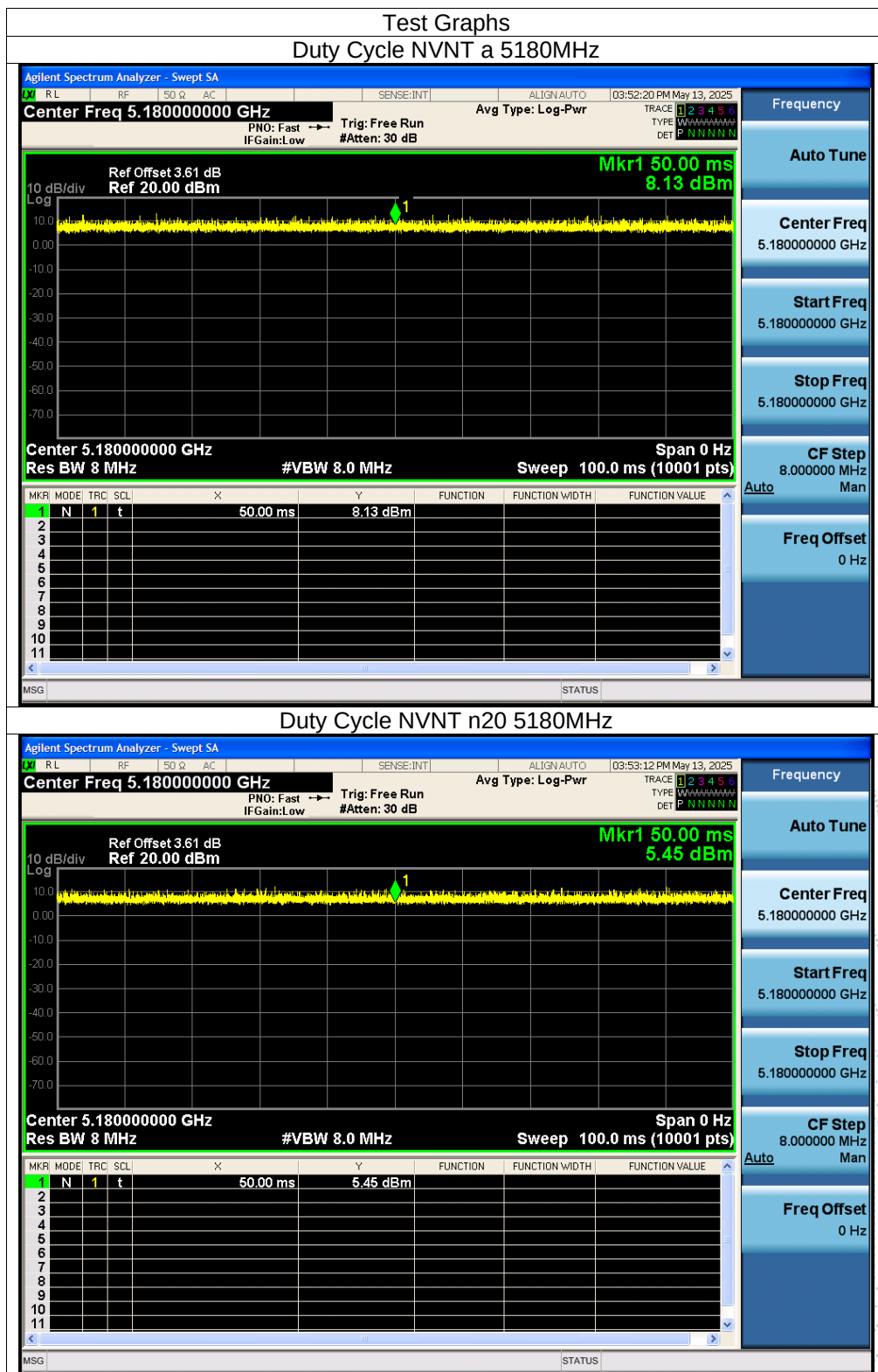
14.3 Test Procedure

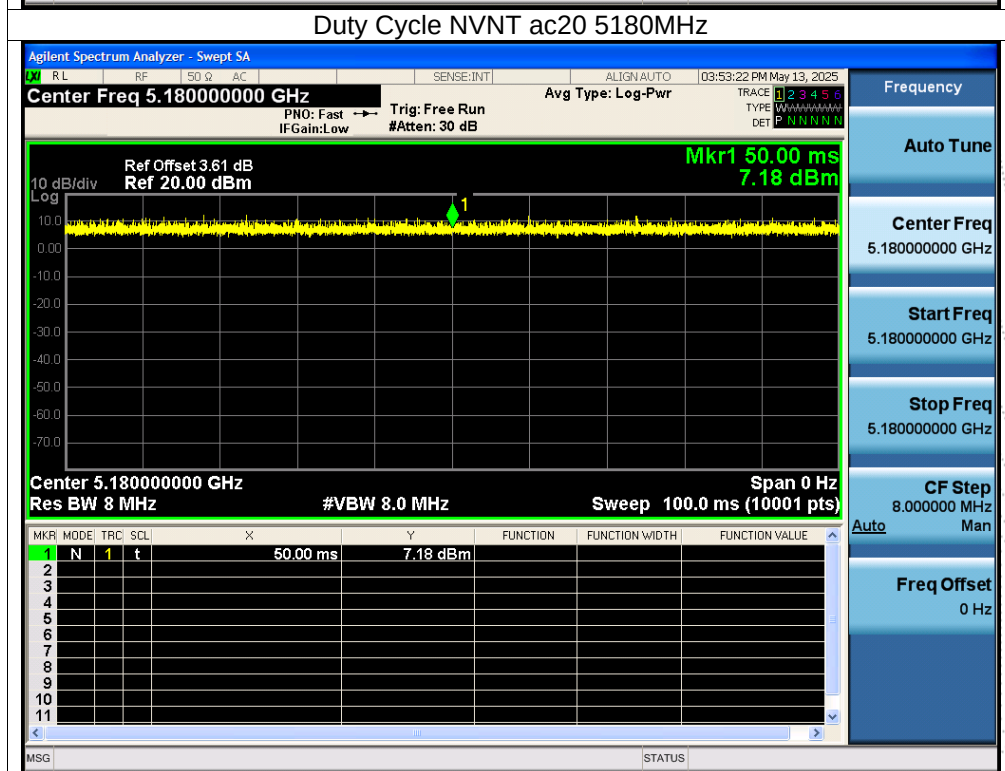
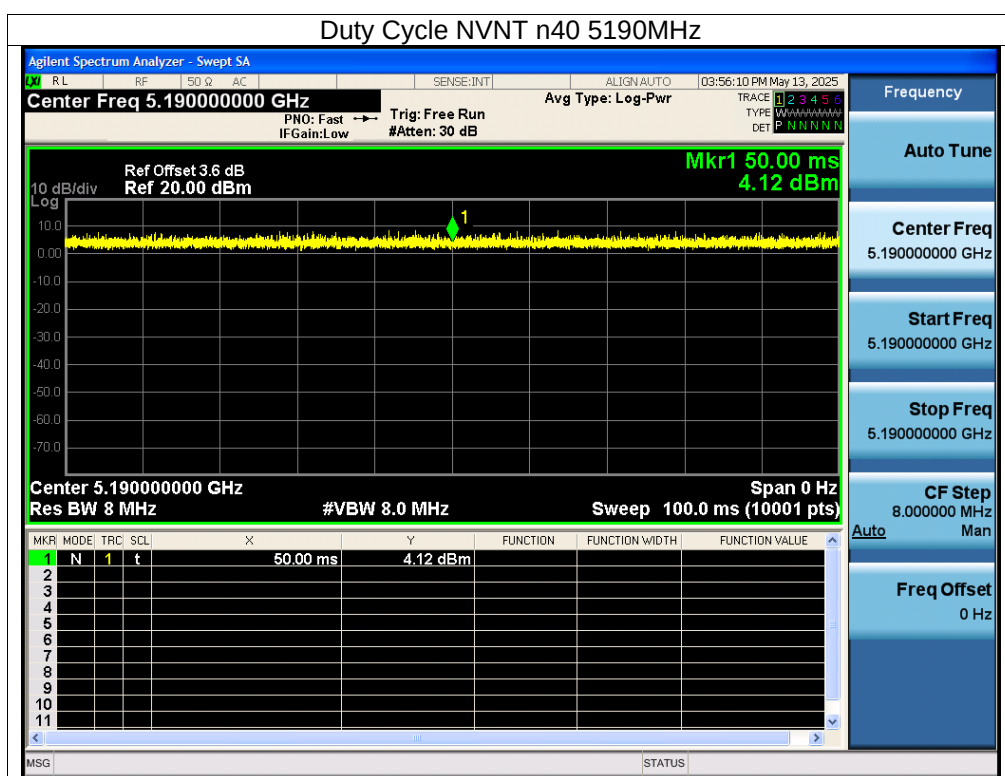
1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

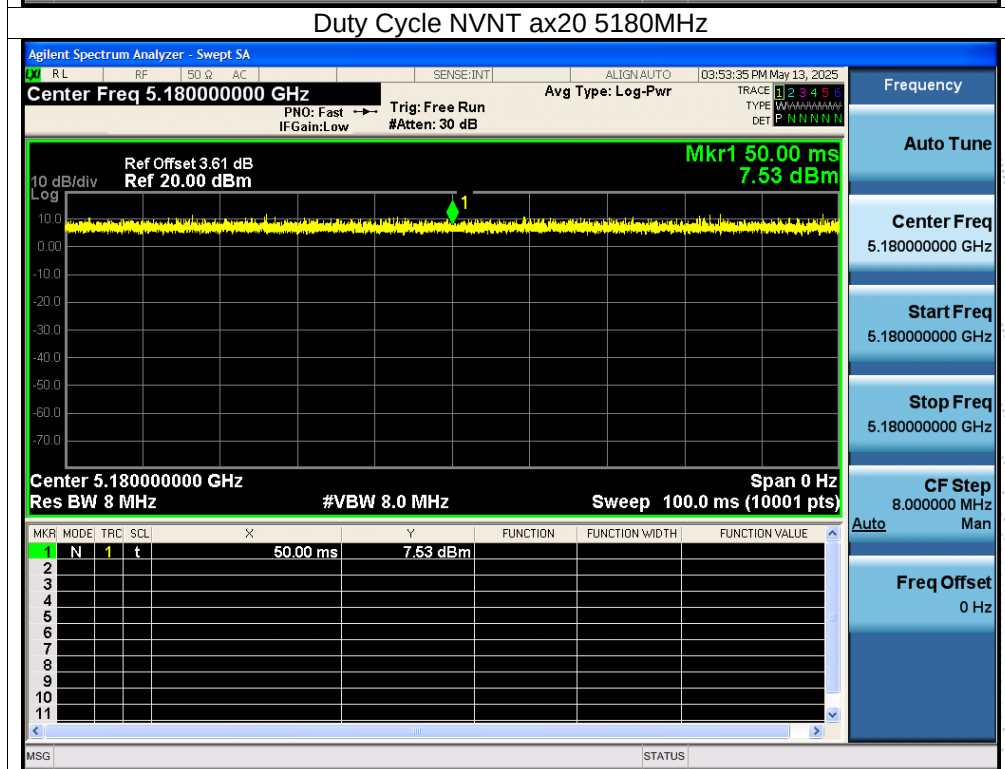
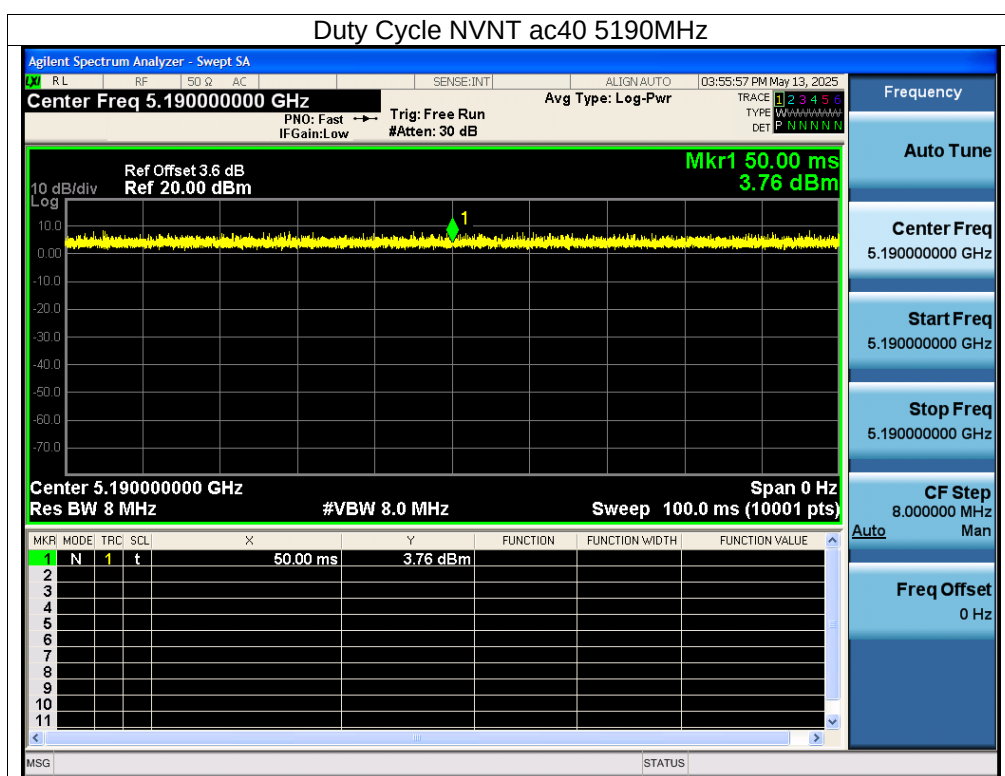
14.4 Test Result

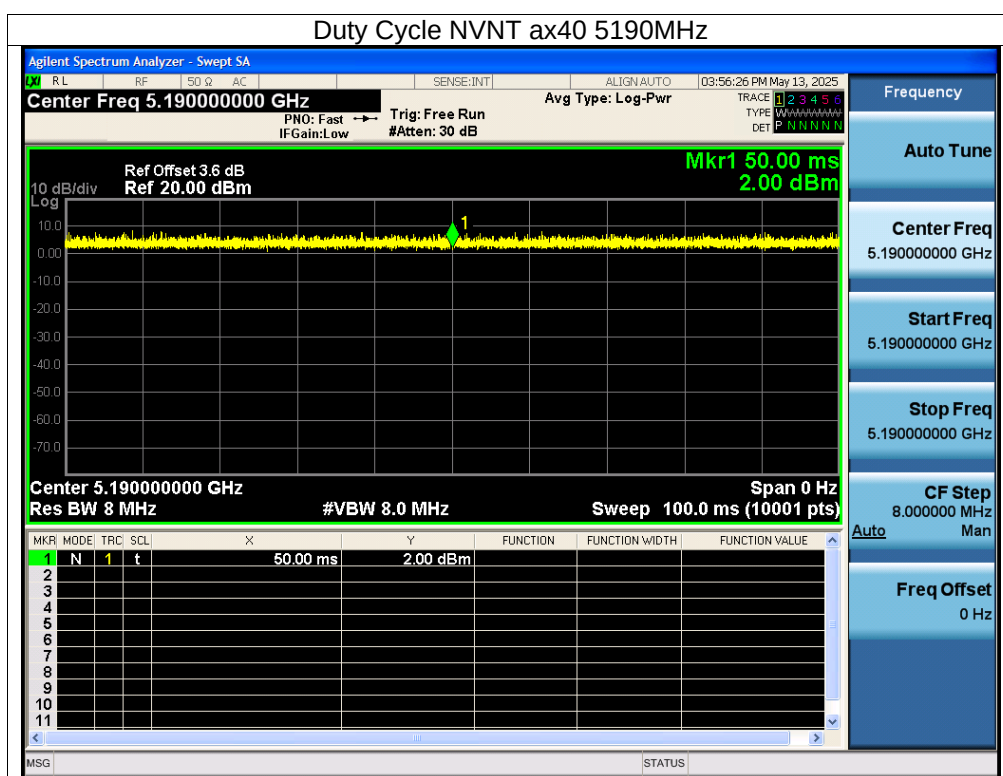
5.1G

Condition	Mode	Frequency (MHz)	Duty Cycle (%)
NVNT	a	5180	100
NVNT	n20	5180	100
NVNT	n40	5190	100
NVNT	ac20	5180	100
NVNT	ac40	5190	100
NVNT	ax20	5180	100
NVNT	ax40	5190	100



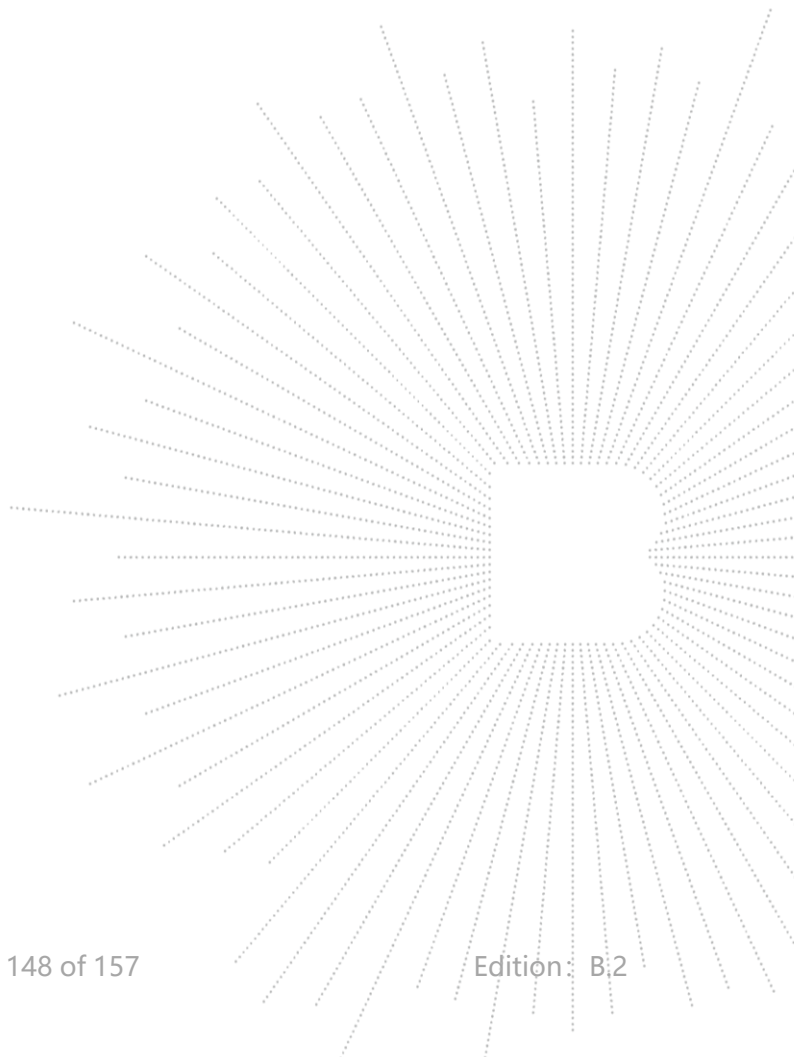


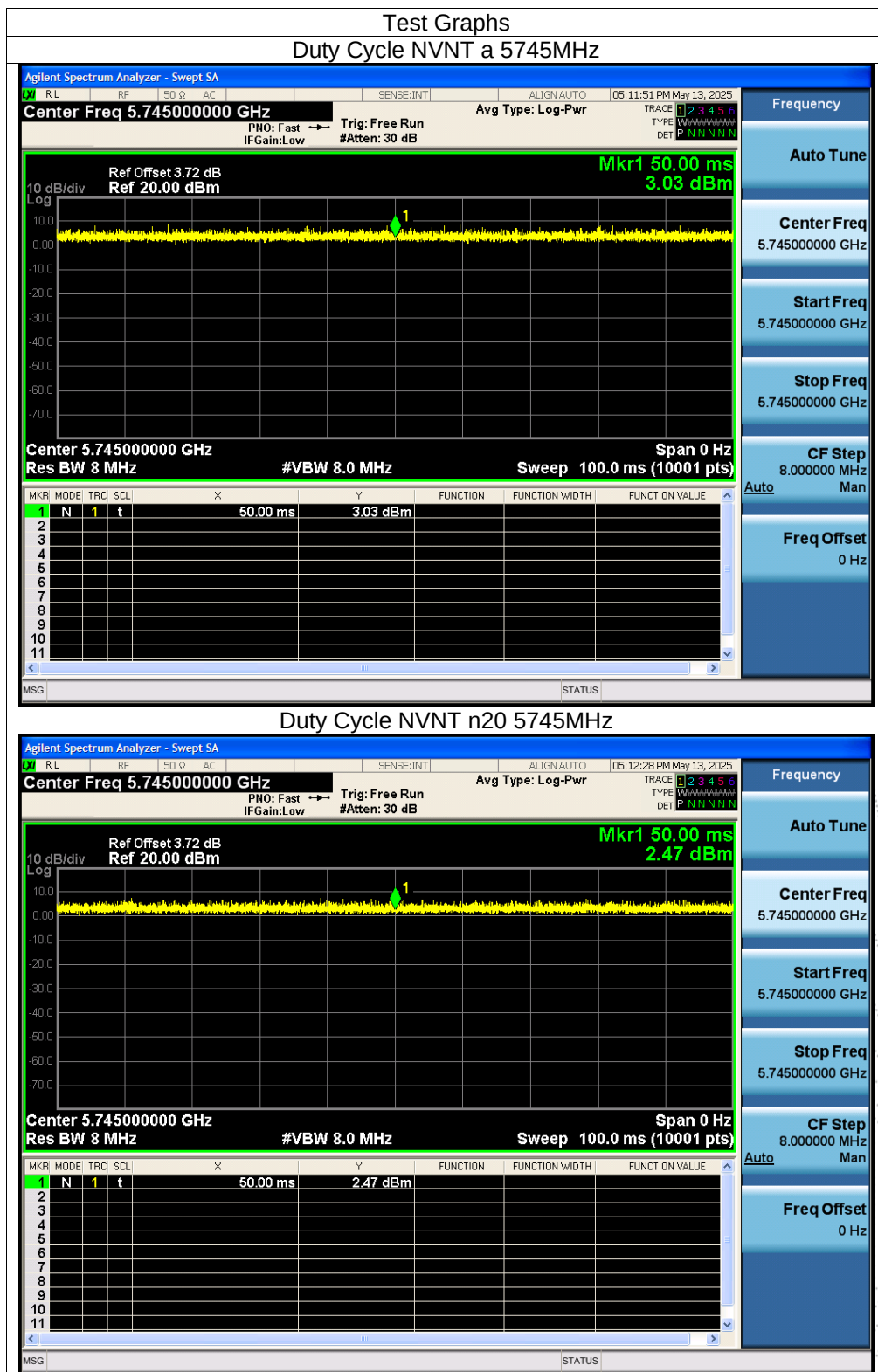


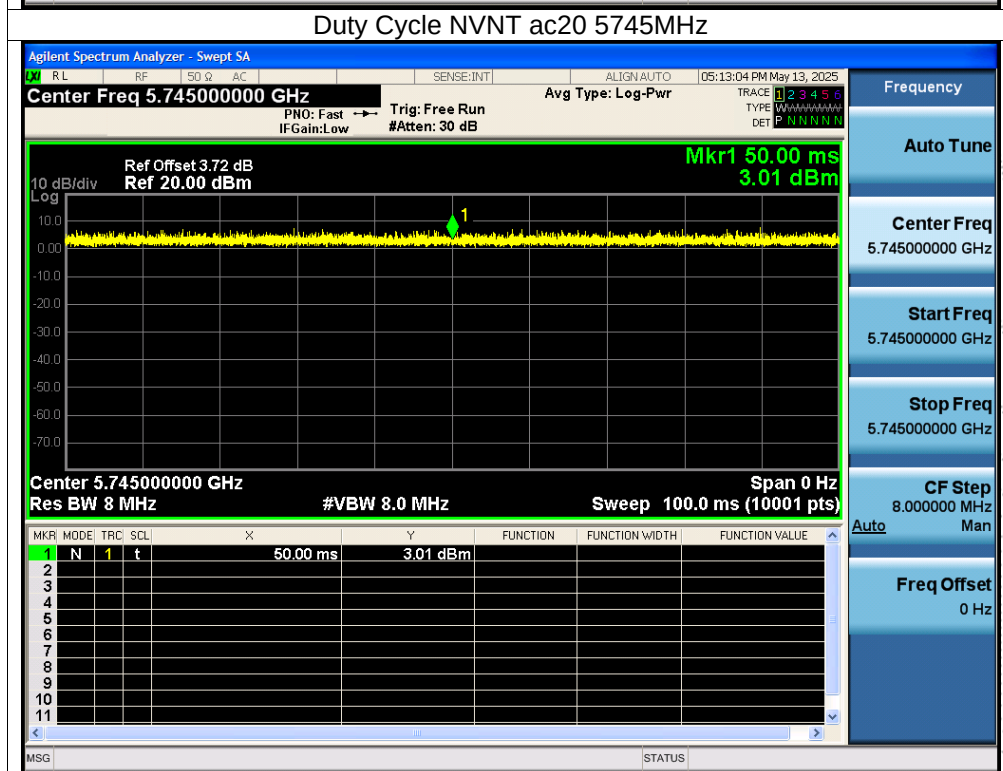
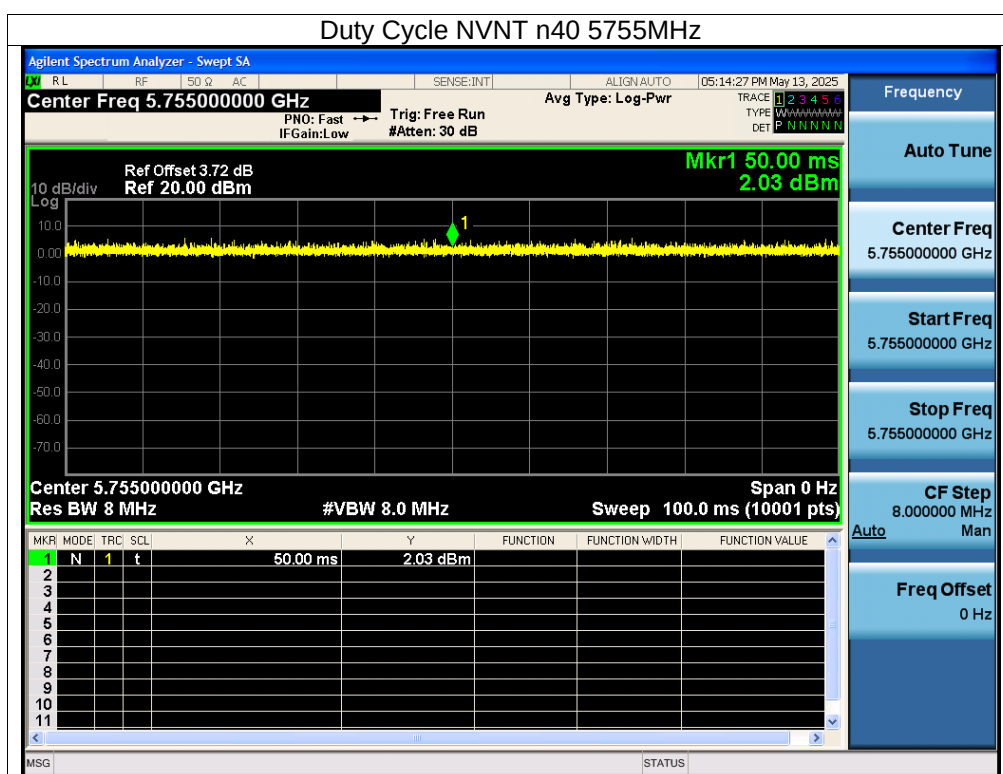


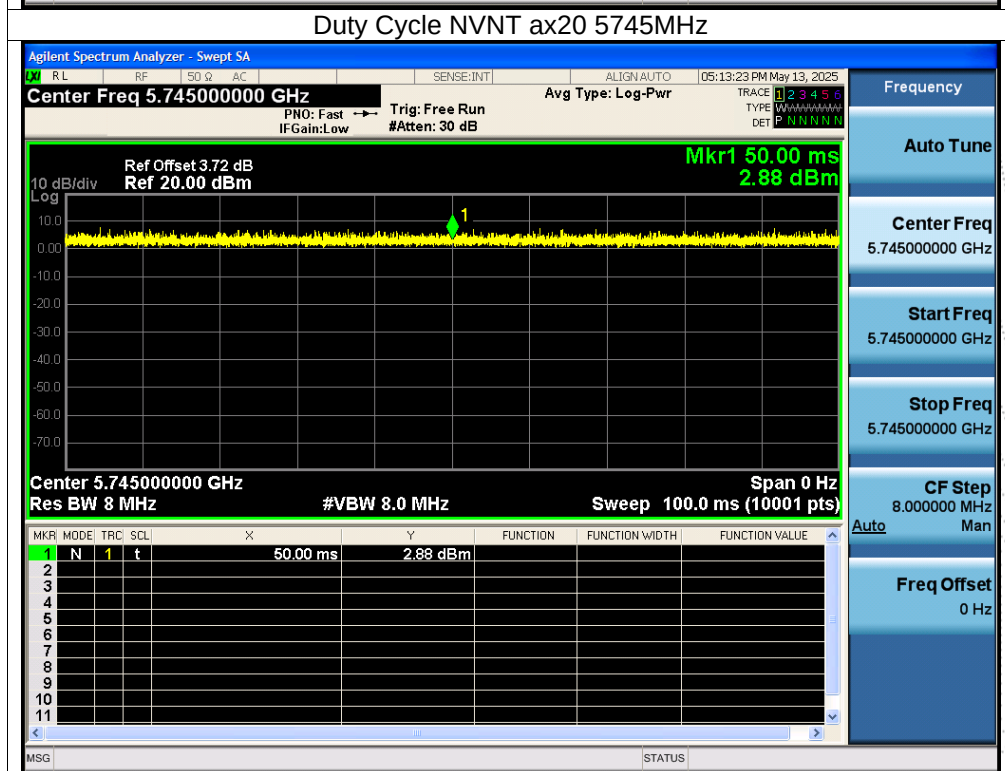
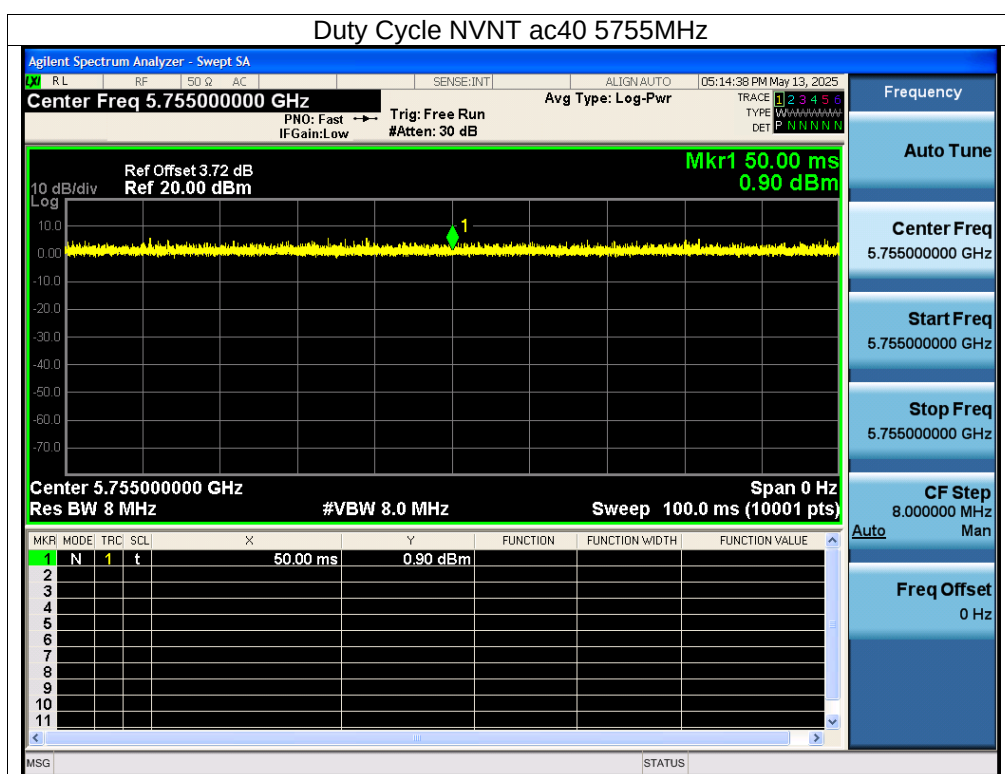
5.8G

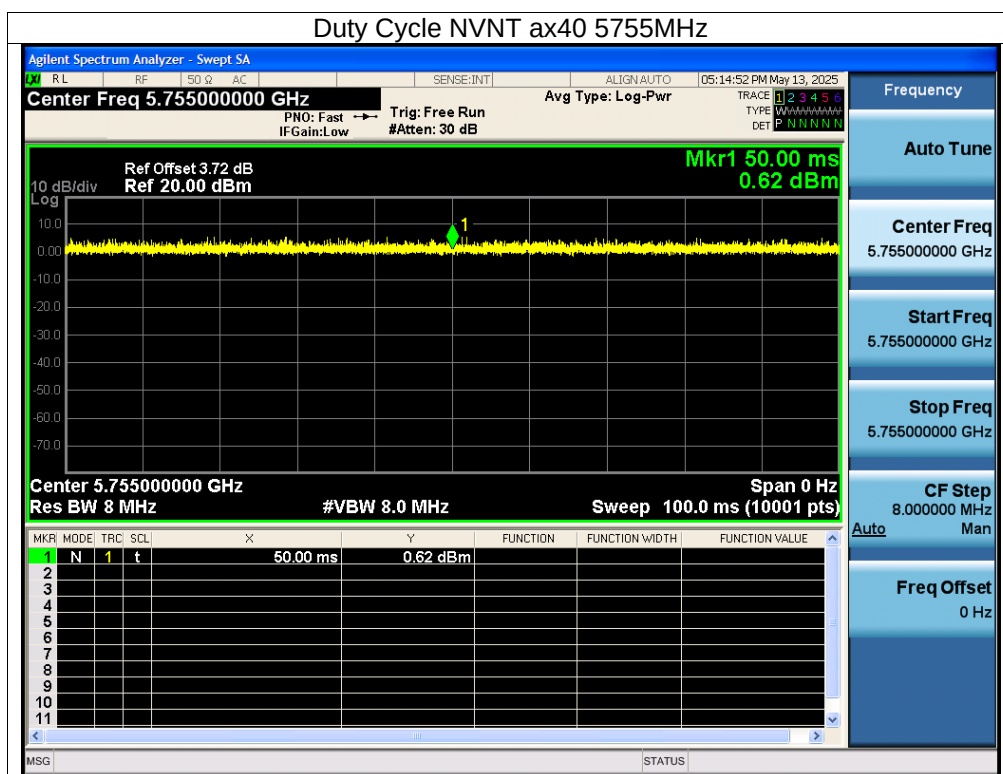
Condition	Mode	Frequency (MHz)	Duty Cycle (%)
NVNT	a	5745	100
NVNT	n20	5745	100
NVNT	n40	5755	100
NVNT	ac20	5745	100
NVNT	ac40	5755	100
NVNT	ax20	5745	100
NVNT	ax40	5755	100











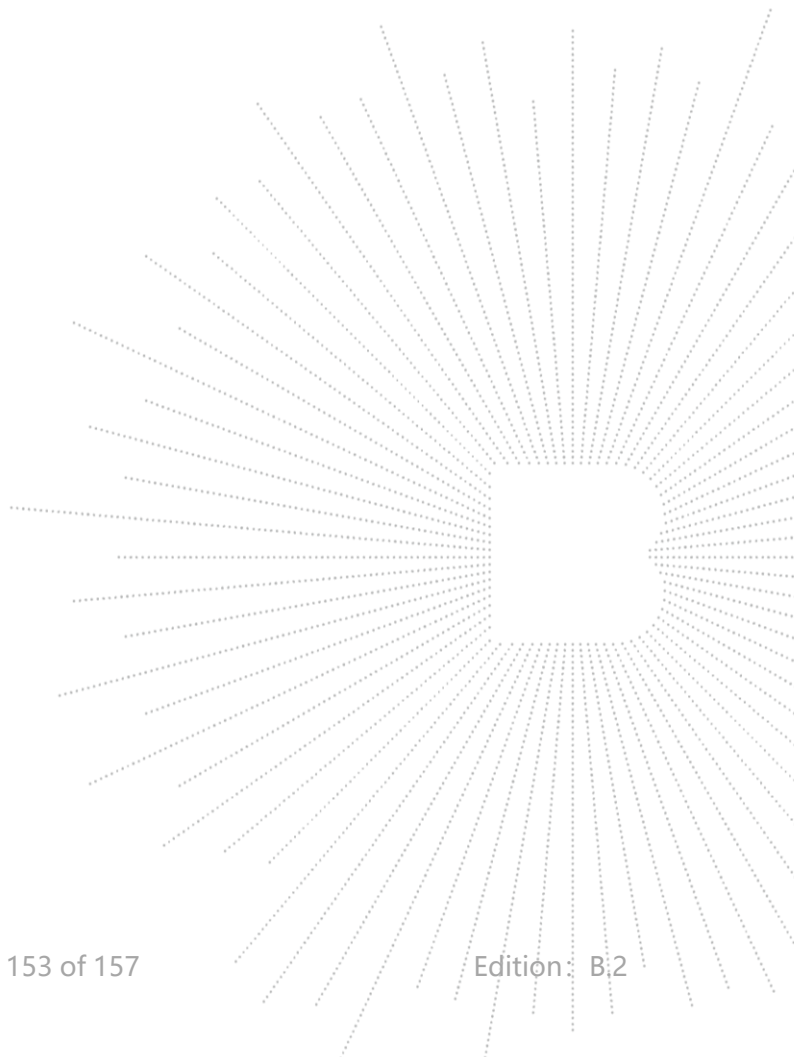
15. Antenna Requirement

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 FPC antenna, antenna connector type is IPEX, fulfill the requirement of this section.



16. EUT Photographs

EUT Photo 1



EUT Photo 2



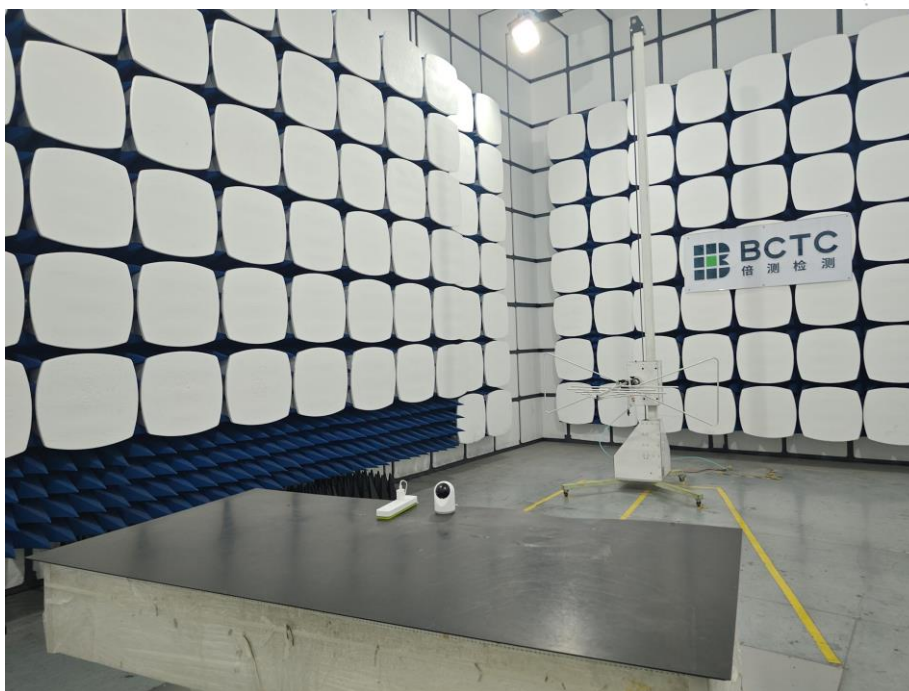
NOTE: Appendix-Photographs Of EUT Constructional Details.

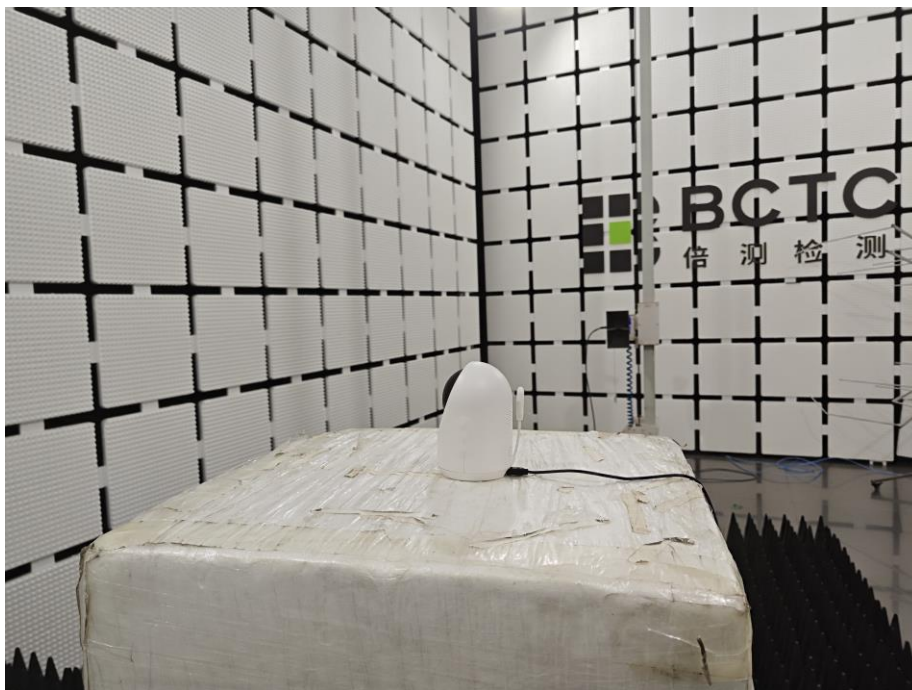
17. EUT Test Setup Photographs

Conducted Emissions Photo



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.

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

※※※※※ END ※※※※※