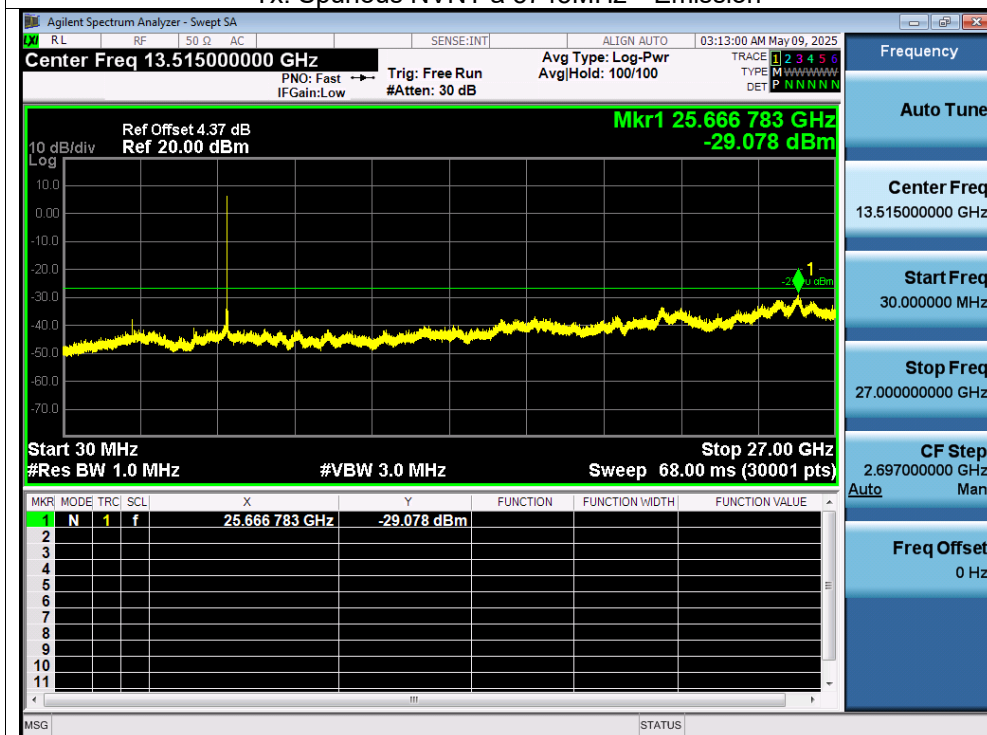
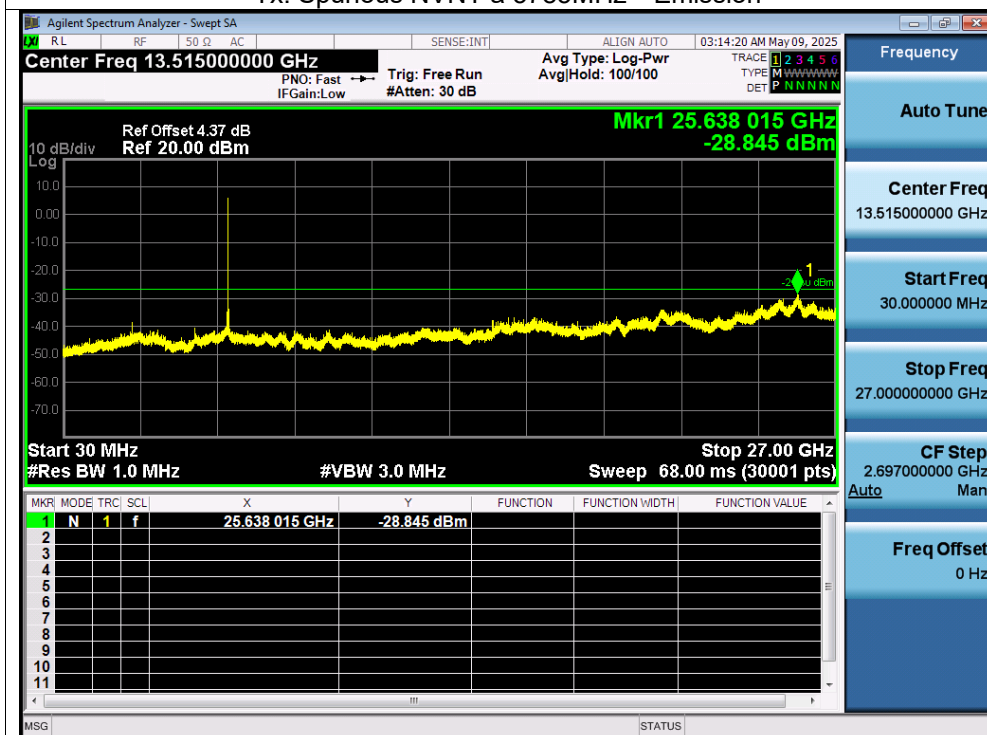


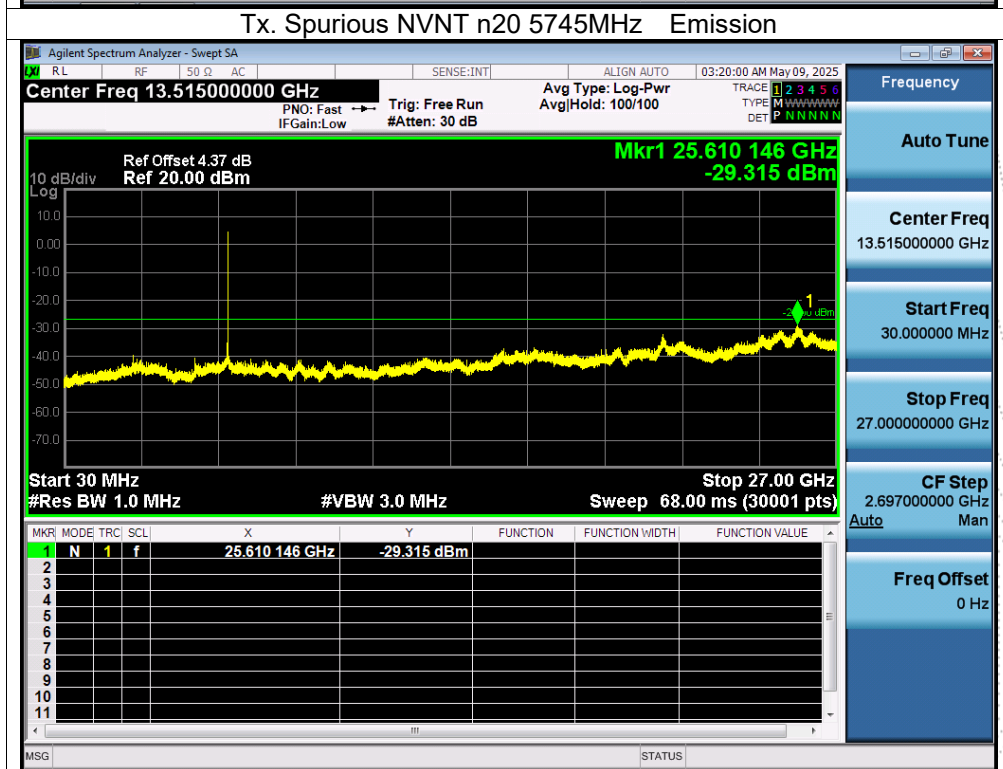
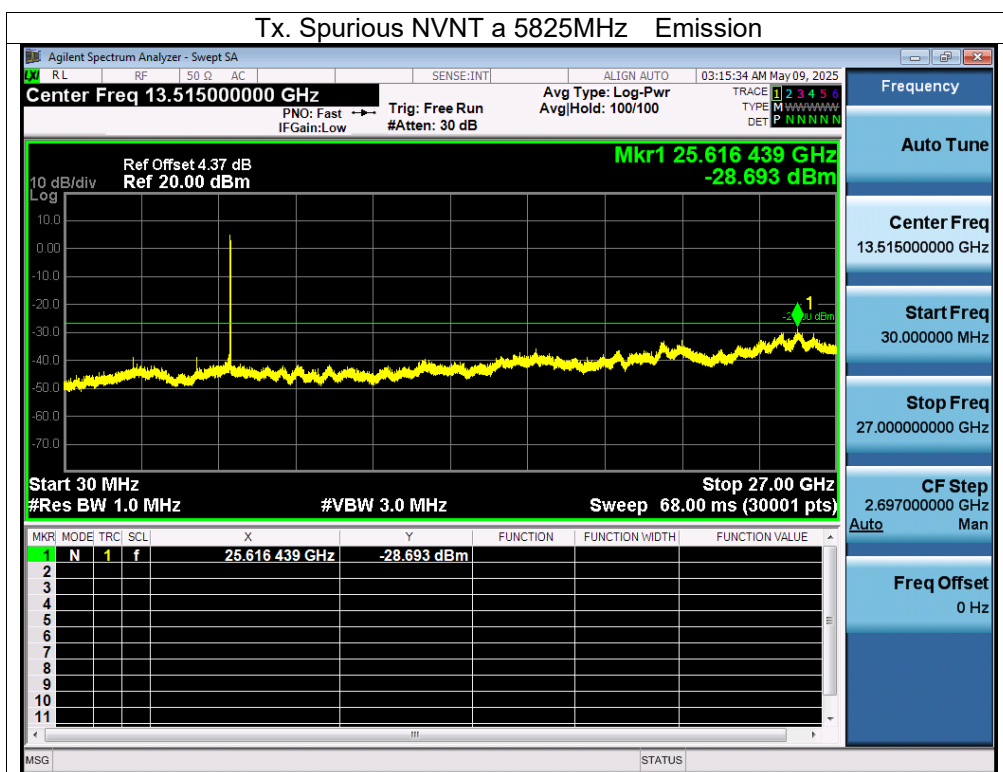
Test Graphs

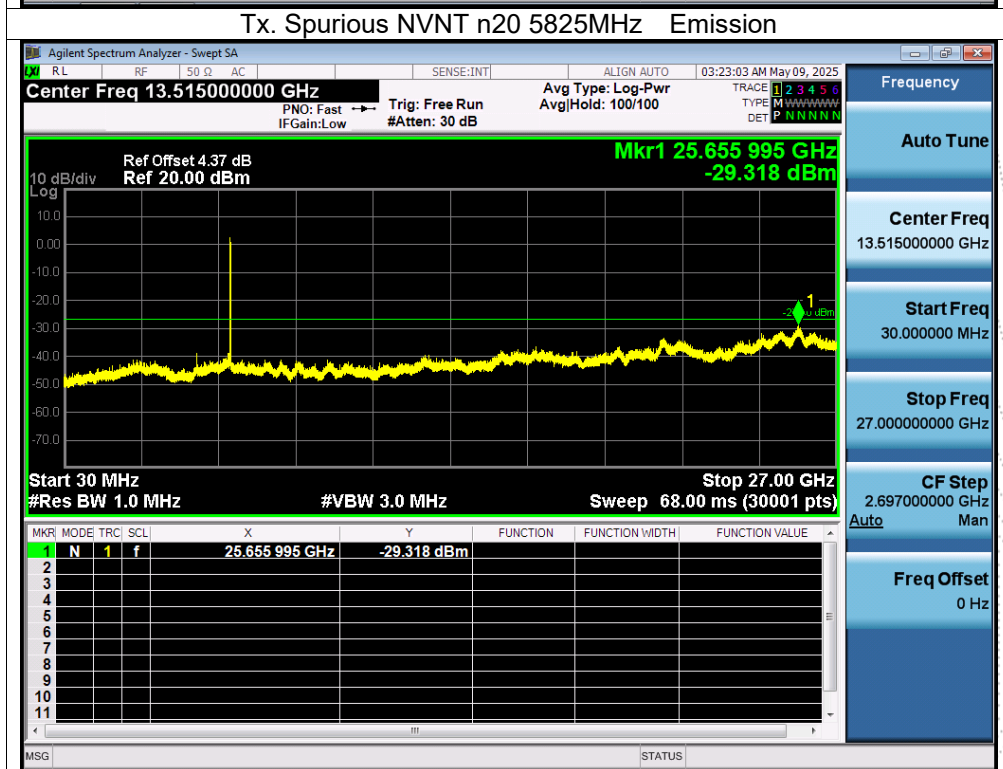
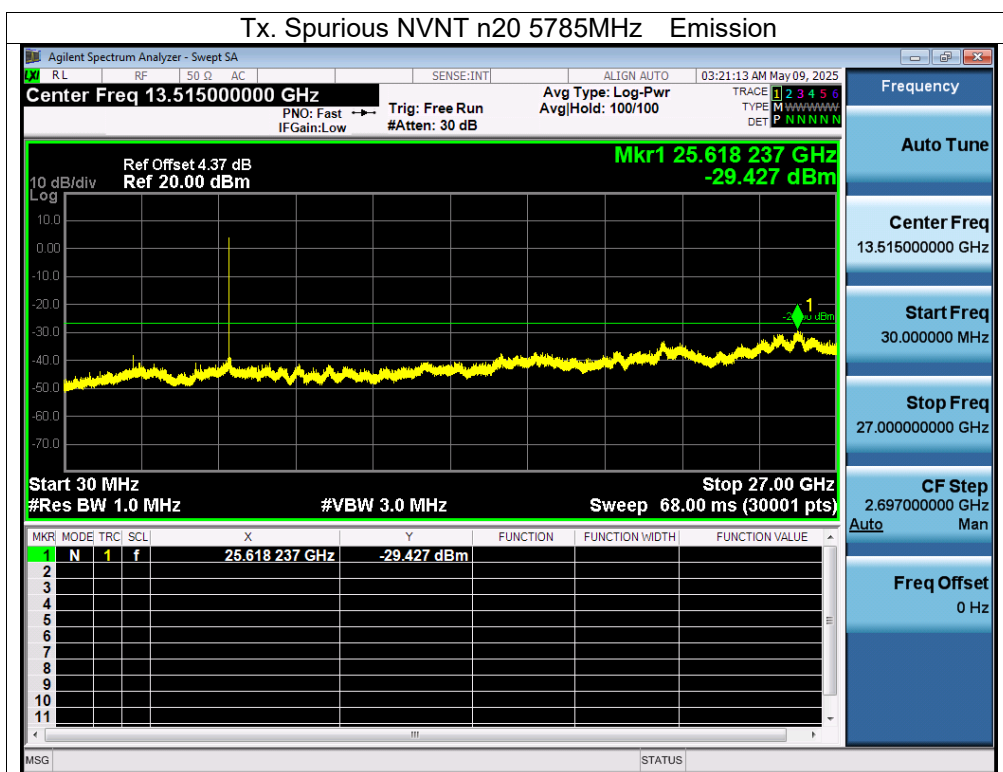
Tx. Spurious NVNT a 5745MHz Emission

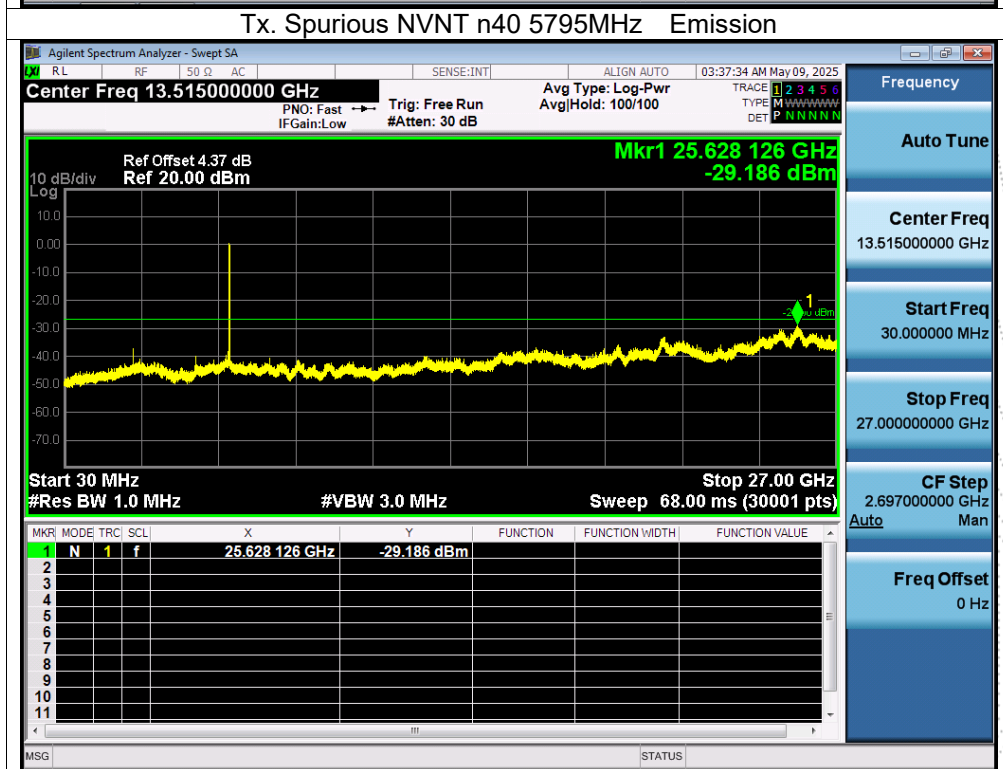
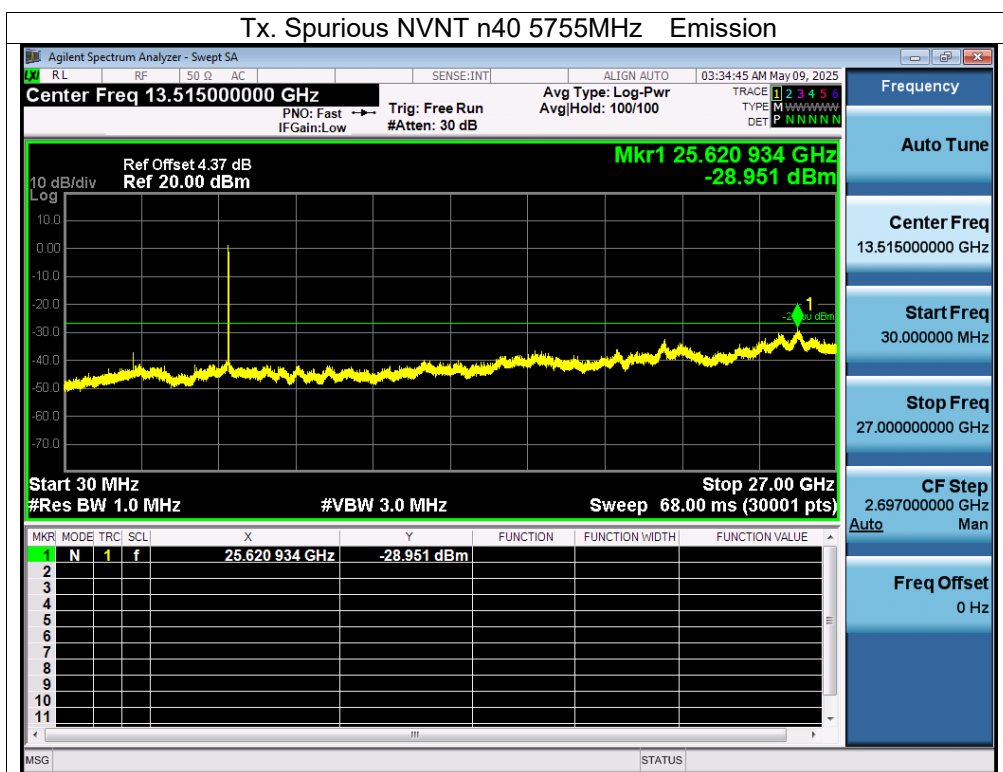


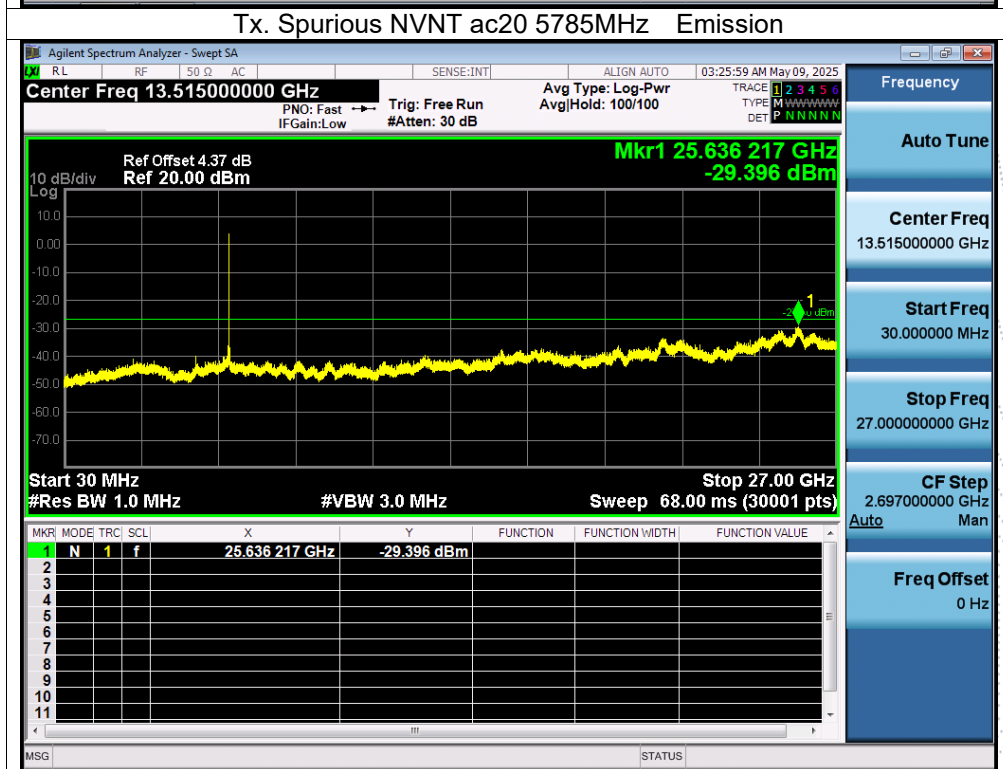
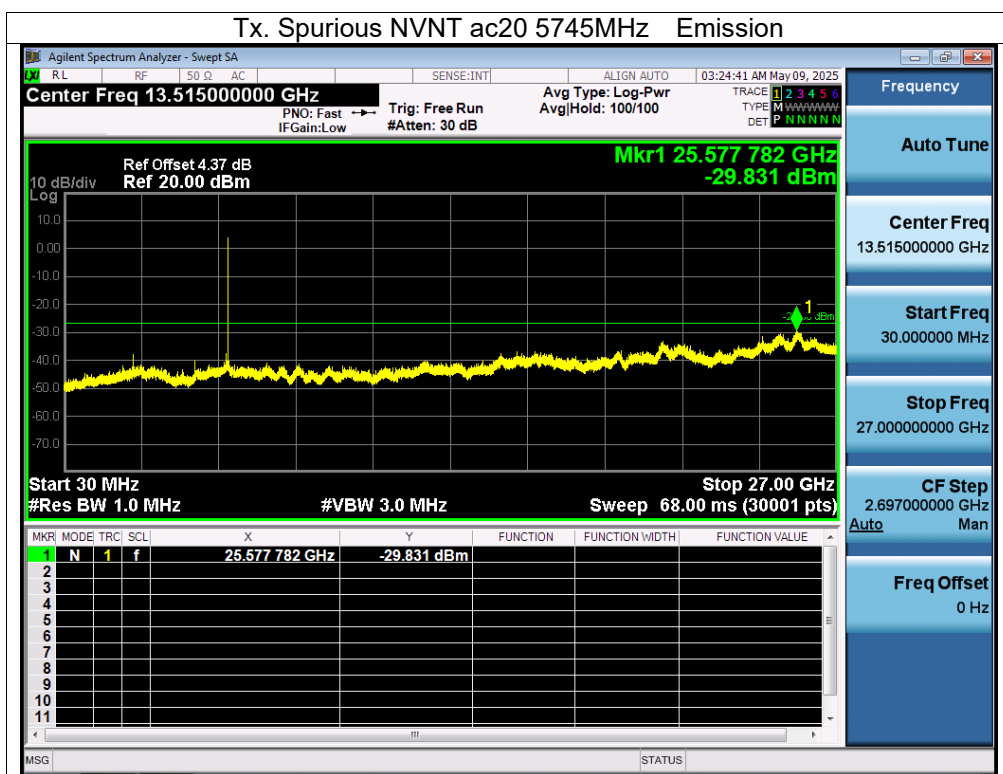
Tx. Spurious NVNT a 5785MHz Emission

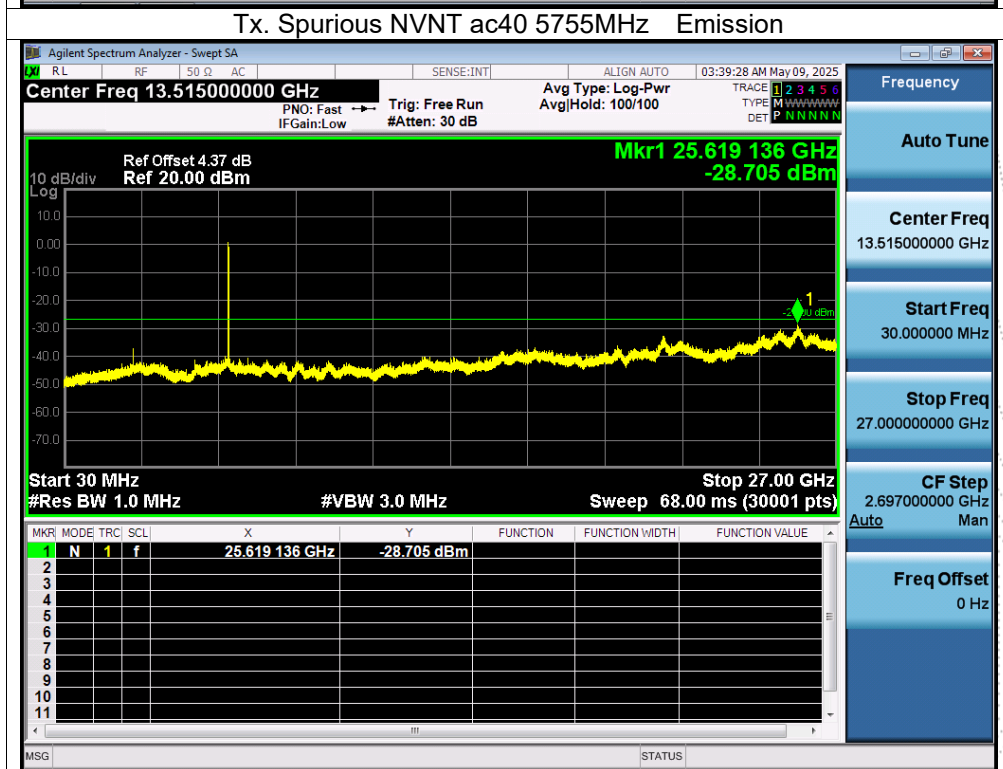
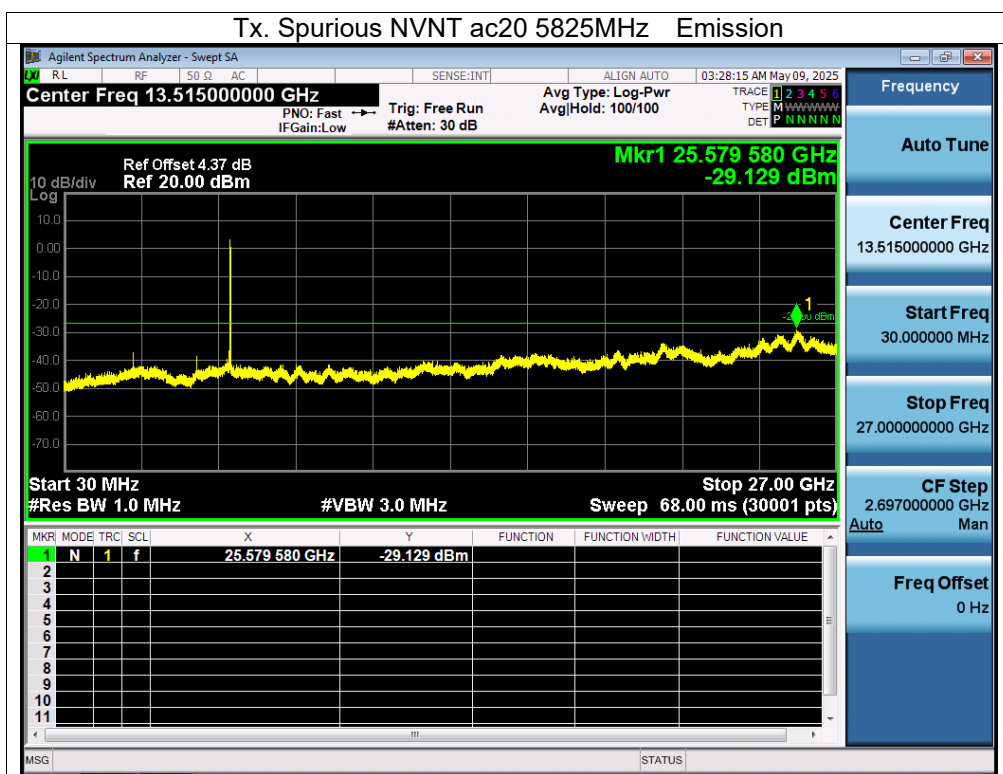


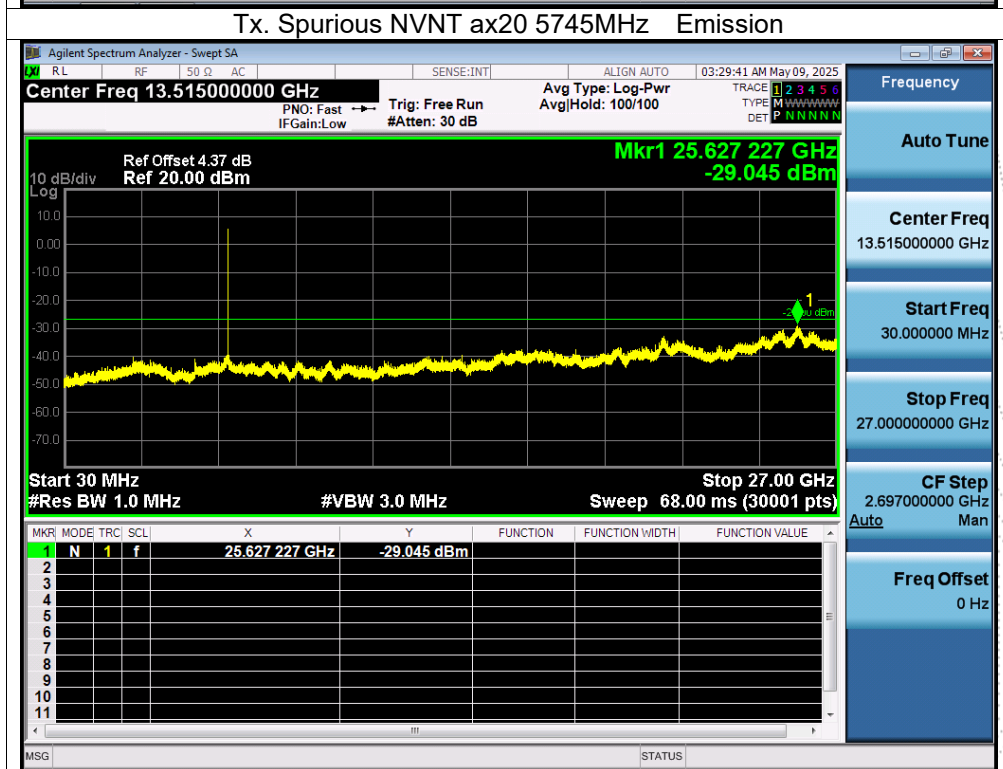
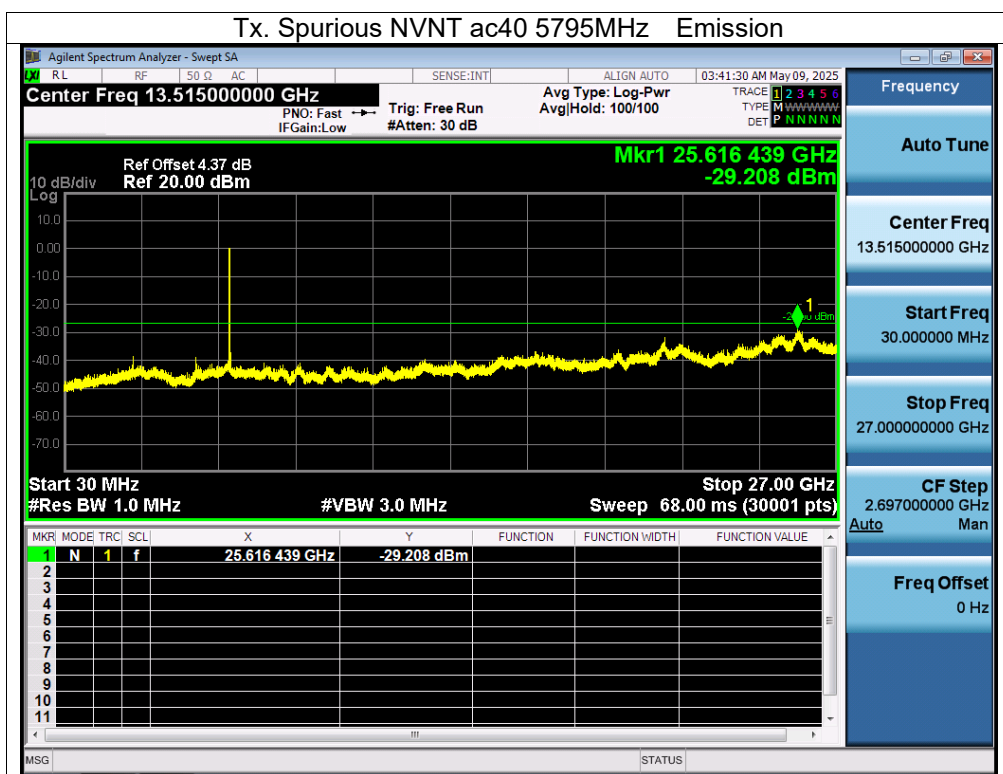


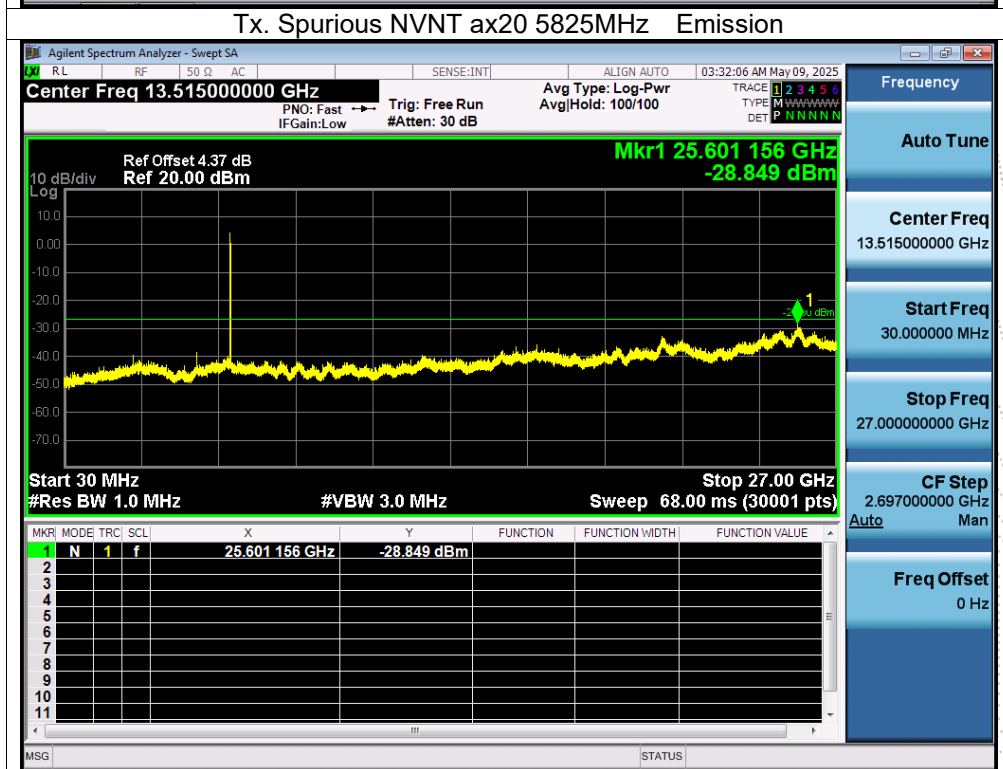
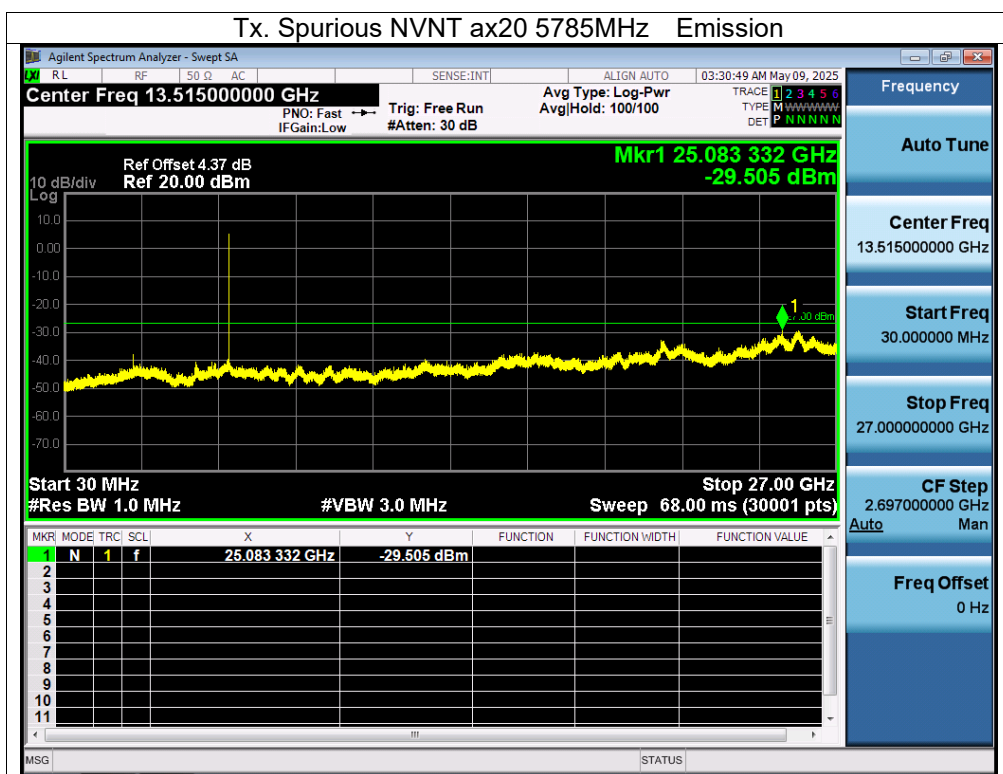


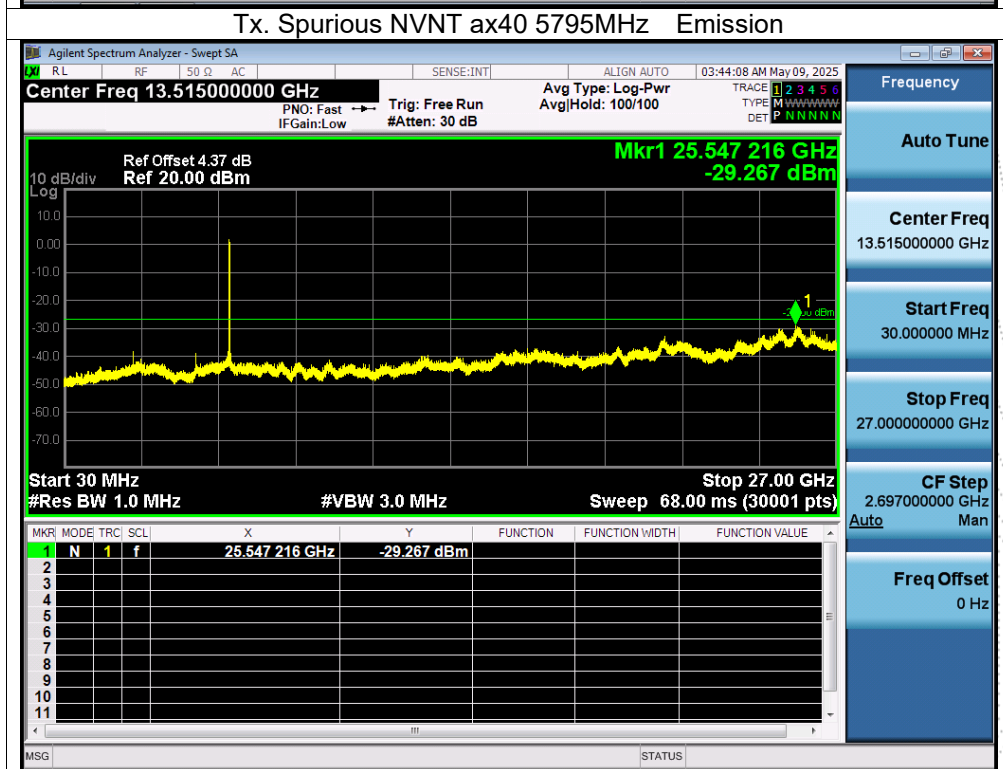
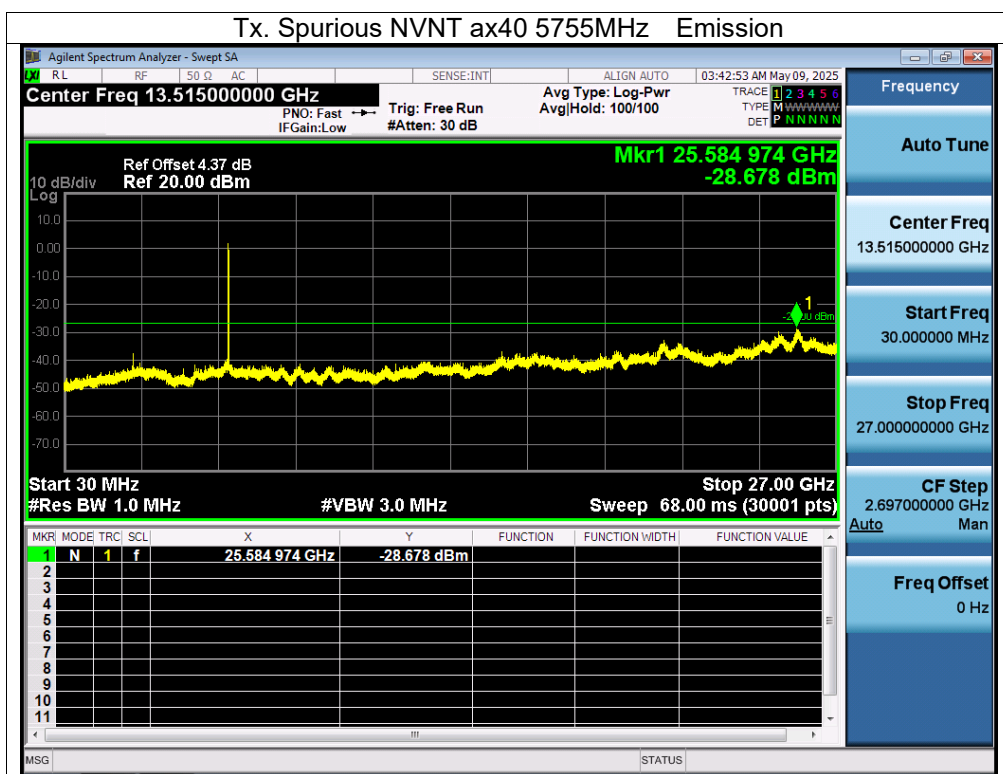






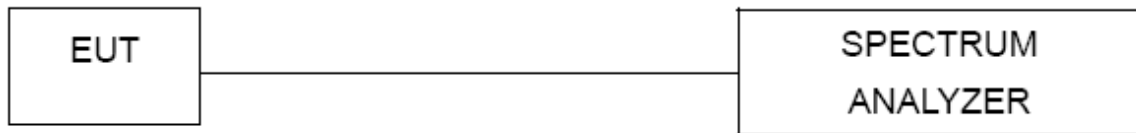






13. Frequency Stability Measurement

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)	21.00	5180.0001	5180	0.0001	0.0193
		V max (V)	24.15	5180.0080	5180	0.0080	1.5444
		V min (V)	17.85	5180.0117	5180	0.0117	2.2587
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)	21	T (°C)	-20	5180.0116	5180	0.0116	2.2394
		T (°C)	-10	5180.0029	5180	0.0029	0.5598
		T (°C)	0	5180.0029	5180	0.0029	0.5598
		T (°C)	10	5180.0070	5180	0.0070	1.3514
		T (°C)	20	5180.0044	5180	0.0044	0.8494
		T (°C)	30	5180.0124	5180	0.0124	2.3938
		T (°C)	40	5180.0038	5180	0.0038	0.7336
		T (°C)	50	5180.0032	5180	0.0032	0.6178
		T (°C)	60	5180.0007	5180	0.0007	0.1351
		T (°C)	70	5180.0076	5180	0.0076	1.4672
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)	21.00	5200.0066	5200	0.0066	1.2692
		V max (V)	24.15	5200.0102	5200	0.0102	1.9615
		V min (V)	17.85	5200.0093	5200	0.0093	1.7885
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)	21	T (°C)	-20	5200.00540	5200	0.00540	1.0385
		T (°C)	-10	5200.00220	5200	0.00220	0.4231
		T (°C)	0	5200.00900	5200	0.00900	1.7308
		T (°C)	10	5200.00490	5200	0.00490	0.9423
		T (°C)	20	5200.00070	5200	0.00070	0.1346
		T (°C)	30	5200.00920	5200	0.00920	1.7692
		T (°C)	40	5200.00780	5200	0.00780	1.5000
		T (°C)	50	5200.00060	5200	0.00060	0.1154
		T (°C)	60	5200.01270	5200	0.01270	2.4423
		T (°C)	70	5200.00790	5200	0.00790	1.5192
Limits				5150-5250 MHz			
Result				Complies			

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Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	21.00	5240.0010	5240	0.0010	0.1908
		V max (V)	24.15	5240.0114	5240	0.0114	2.1756
		V min (V)	17.85	5240.0017	5240	0.0017	0.3244
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)	21	T (°C)	-20	5240.0008	5240	0.0008	0.1527
		T (°C)	-10	5240.0025	5240	0.0025	0.4771
		T (°C)	0	5240.0100	5240	0.0100	1.9084
		T (°C)	10	5240.0071	5240	0.0071	1.3550
		T (°C)	20	5240.0046	5240	0.0046	0.8779
		T (°C)	30	5240.0005	5240	0.0005	0.0954
		T (°C)	40	5240.0084	5240	0.0084	1.6031
		T (°C)	50	5240.0013	5240	0.0013	0.2481
		T (°C)	60	5240.0102	5240	0.0102	1.9466
		T (°C)	70	5240.0088	5240	0.0088	1.6794
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)	21.00	5745.01190	5745	0.01190	2.0714
		V max (V)	24.15	5745.01080	5745	0.01080	1.8799
		V min (V)	17.85	5745.00220	5745	0.00220	0.3829
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)	21	T (°C)	-20	5745.00160	5745	0.00160	0.2785
		T (°C)	-10	5745.00700	5745	0.00700	1.2185
		T (°C)	0	5745.00010	5745	0.00010	0.0174
		T (°C)	10	5745.00540	5745	0.00540	0.9399
		T (°C)	20	5745.01060	5745	0.01060	1.8451
		T (°C)	30	5745.01190	5745	0.01190	2.0714
		T (°C)	40	5745.00200	5745	0.00200	0.3481
		T (°C)	50	5745.00290	5745	0.00290	0.5048
		T (°C)	60	5745.00570	5745	0.00570	0.9922
		T (°C)	70	5745.00260	5745	0.00260	0.4526
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)	21.00	5785.00930	5785	0.00930	1.6076
		V max (V)	24.15	5785.00510	5785	0.00510	0.8816
		V min (V)	17.85	5785.01040	5785	0.01040	1.7978
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)	21	T (°C)	-20	5785.00370	5785	0.00370	0.6396
		T (°C)	-10	5785.01280	5785	0.01280	2.2126
		T (°C)	0	5785.00720	5785	0.00720	1.2446
		T (°C)	10	5785.01050	5785	0.01050	1.8150
		T (°C)	20	5785.00170	5785	0.00170	0.2939
		T (°C)	30	5785.00690	5785	0.00690	1.1927
		T (°C)	40	5785.00960	5785	0.00960	1.6595
		T (°C)	50	5785.00400	5785	0.00400	0.6914
		T (°C)	60	5785.00180	5785	0.00180	0.3111
		T (°C)	70	5785.01230	5785	0.01230	2.1262
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)	21.00	5825.00240	5825	0.00240	0.4120
		V max (V)	24.15	5825.01050	5825	0.01050	1.8026
		V min (V)	17.85	5825.00500	5825	0.00500	0.8584
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)	21	T (°C)	-20	5825.01030	5825	0.01030	1.7682
		T (°C)	-10	5825.00930	5825	0.00930	1.5966
		T (°C)	0	5825.01310	5825	0.01310	2.2489
		T (°C)	10	5825.00230	5825	0.00230	0.3948
		T (°C)	20	5825.00600	5825	0.00600	1.0300
		T (°C)	30	5825.00870	5825	0.00870	1.4936
		T (°C)	40	5825.00190	5825	0.00190	0.3262
		T (°C)	50	5825.00570	5825	0.00570	0.9785
		T (°C)	60	5825.00330	5825	0.00330	0.5665
		T (°C)	70	5825.00400	5825	0.00400	0.6867
Limits				5725-5850 MHz			
Result				Complies			

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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 = $T_{on} / (T_{on} + T_{off})$

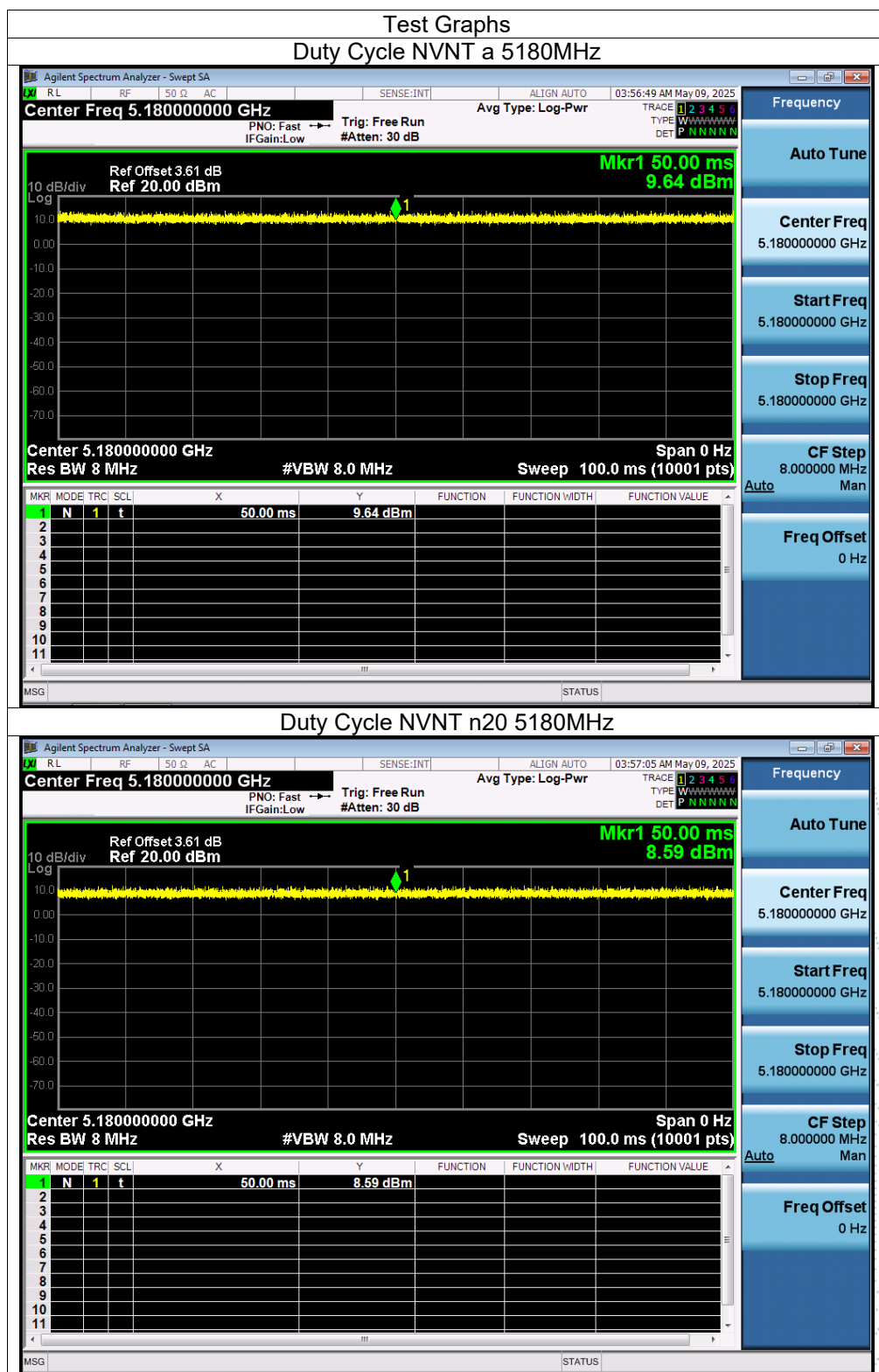
14.3 Test Procedure

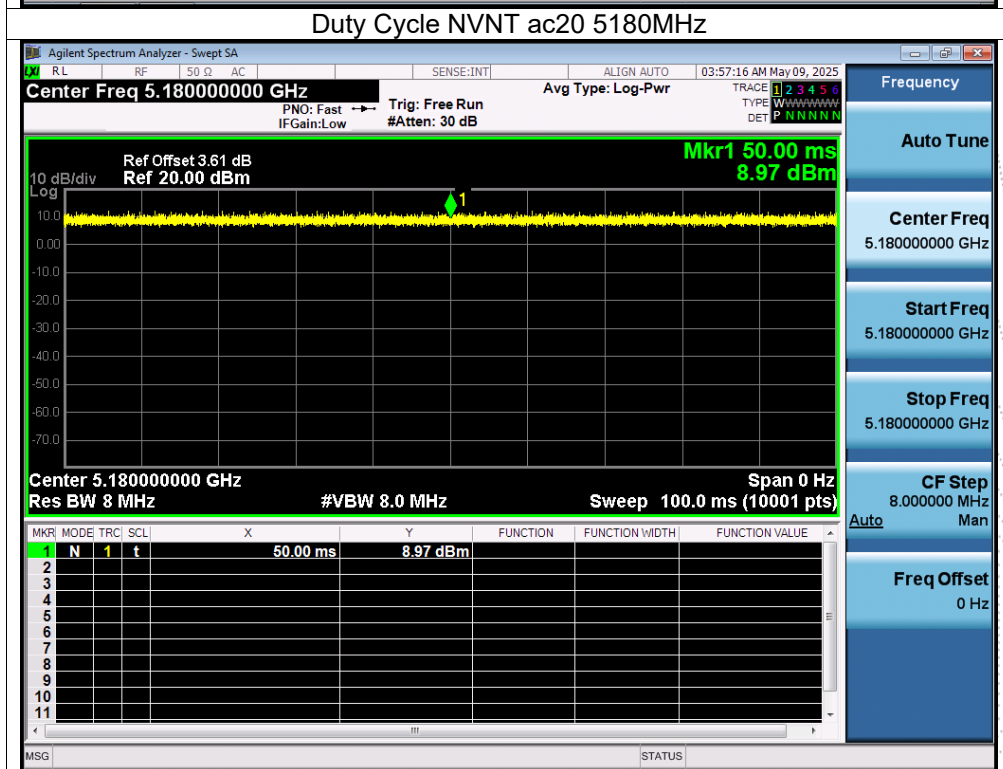
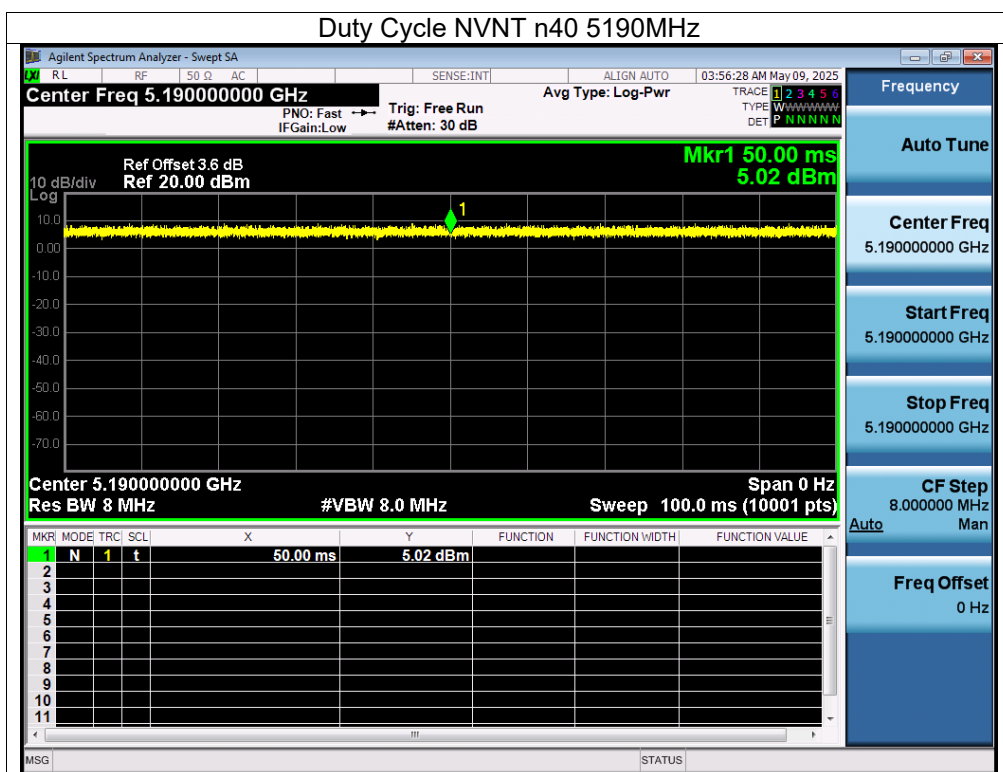
1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

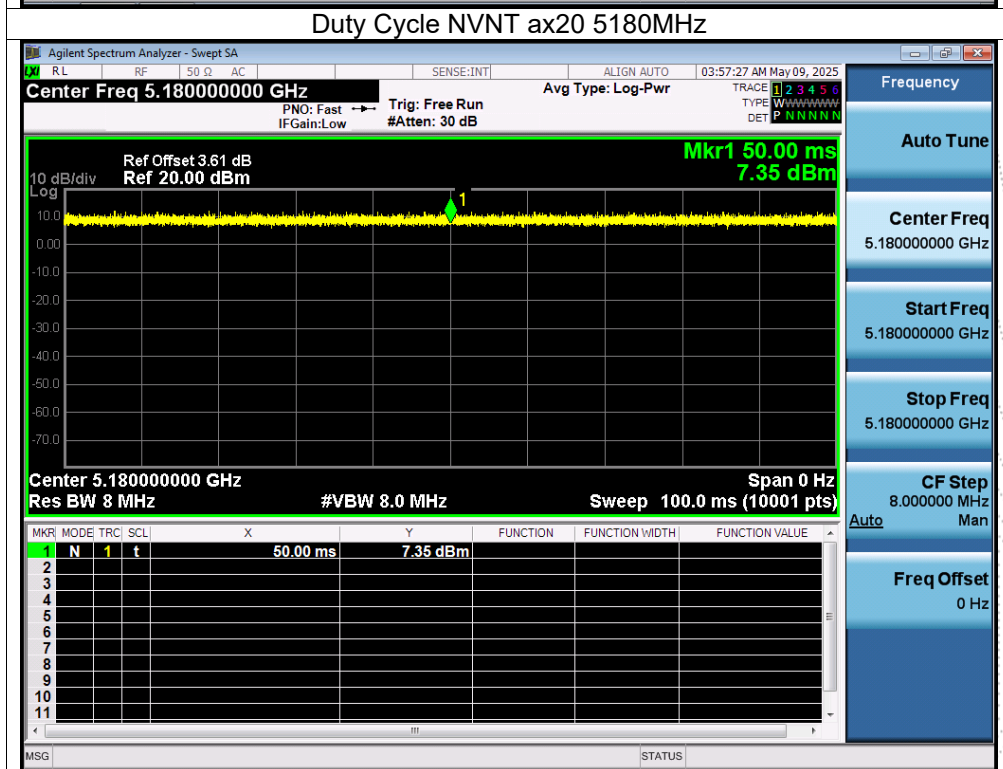
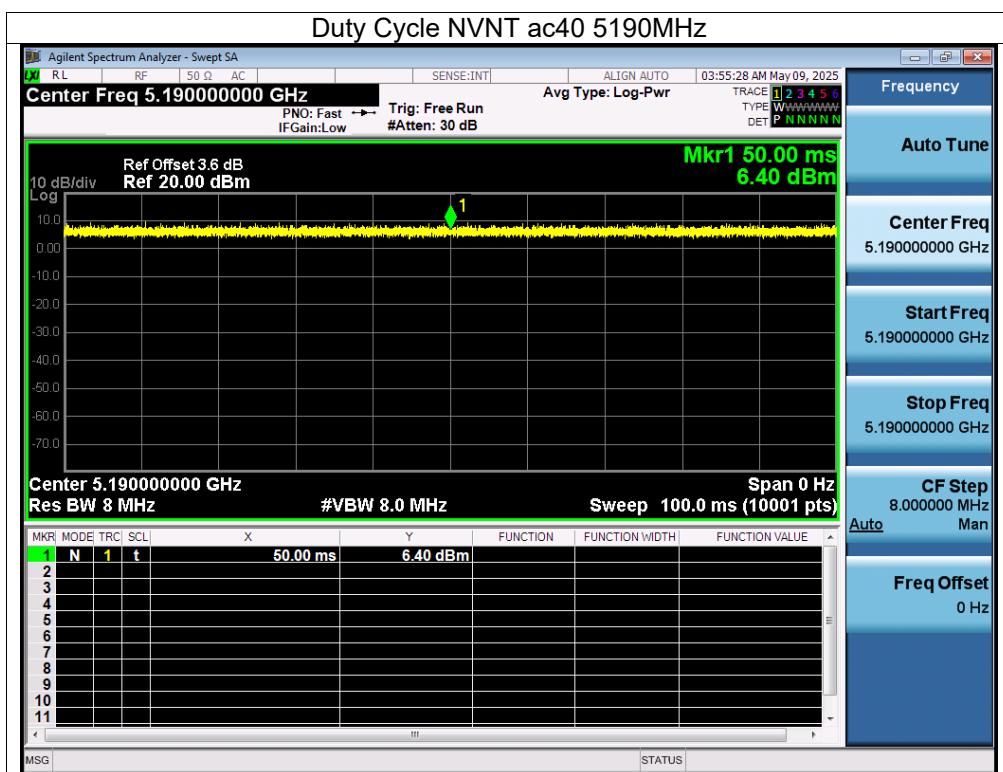
14.4 Test Result

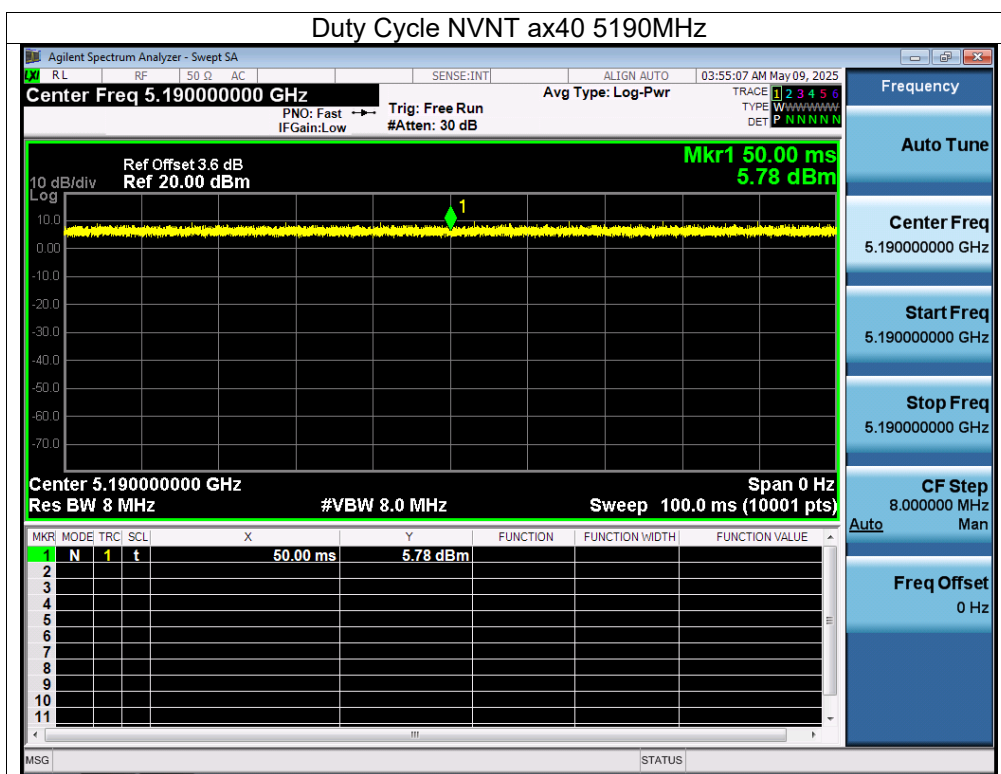
5.1G

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

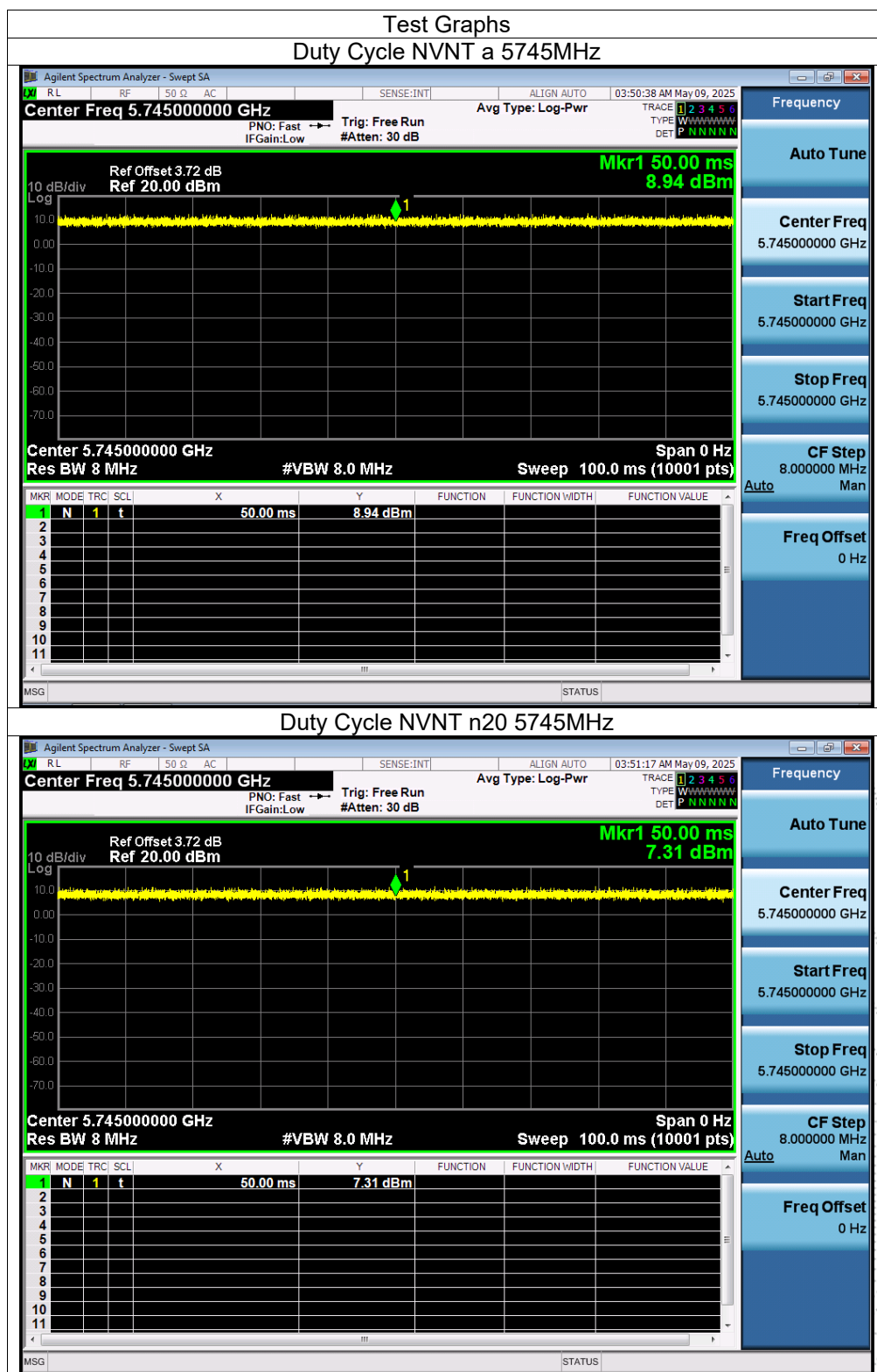


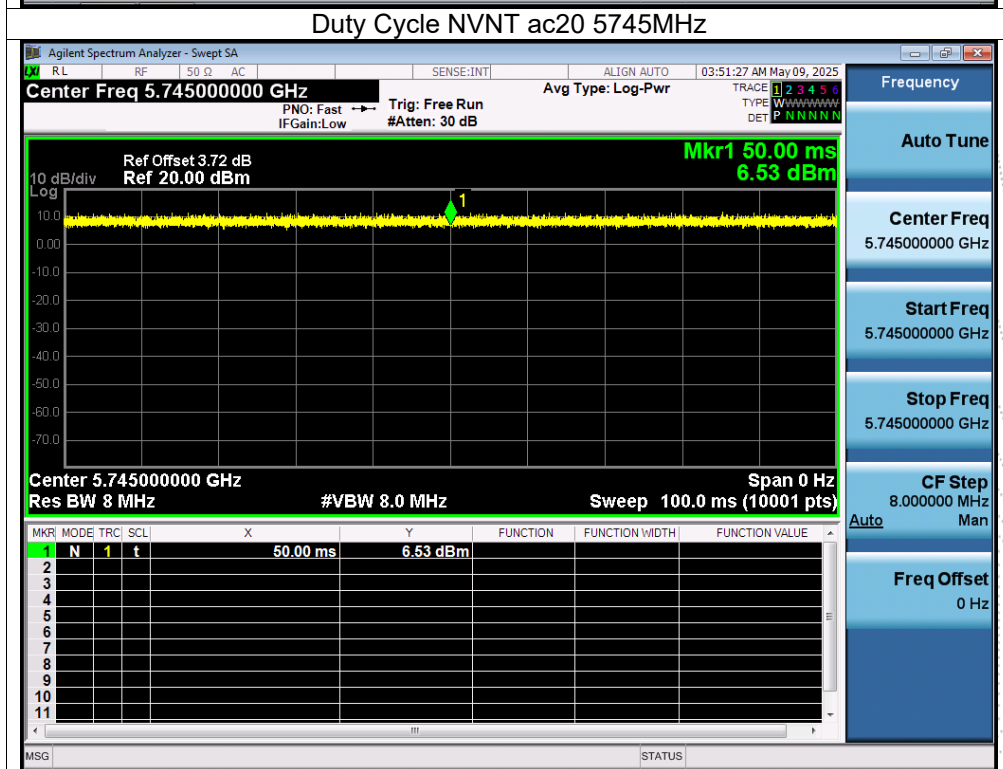
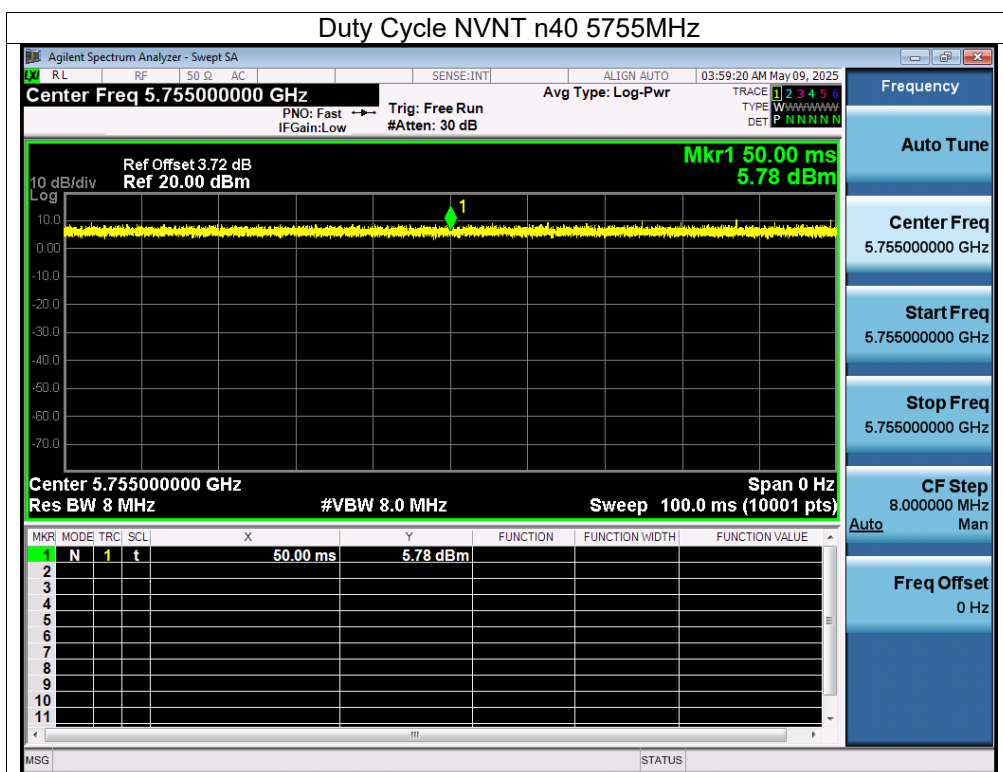


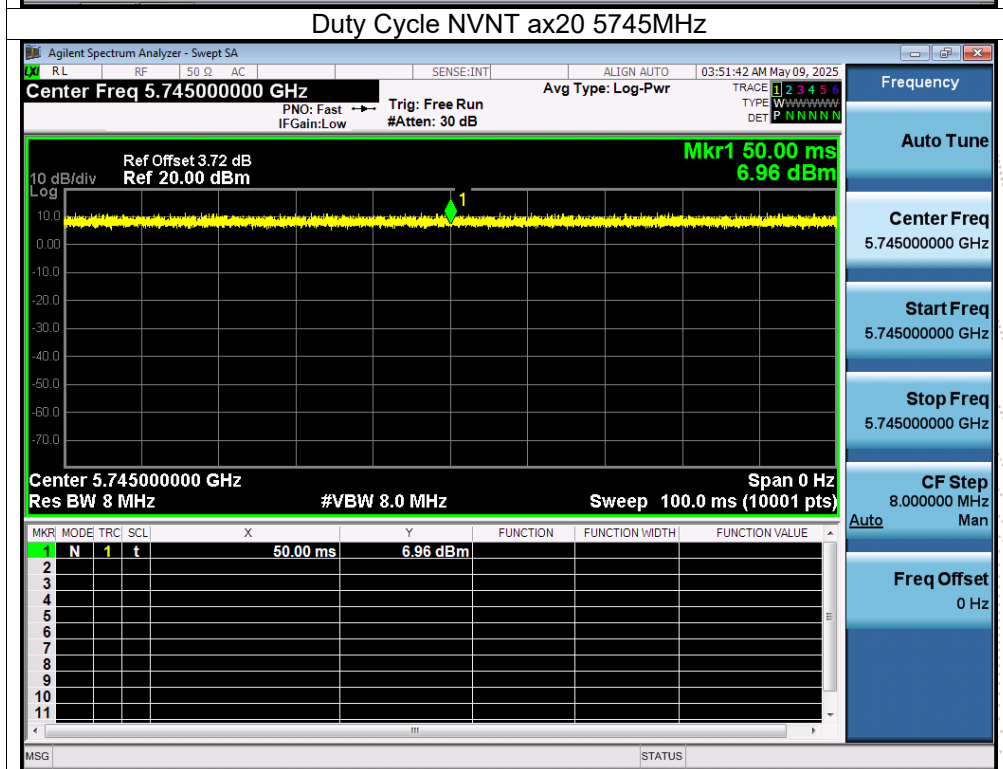
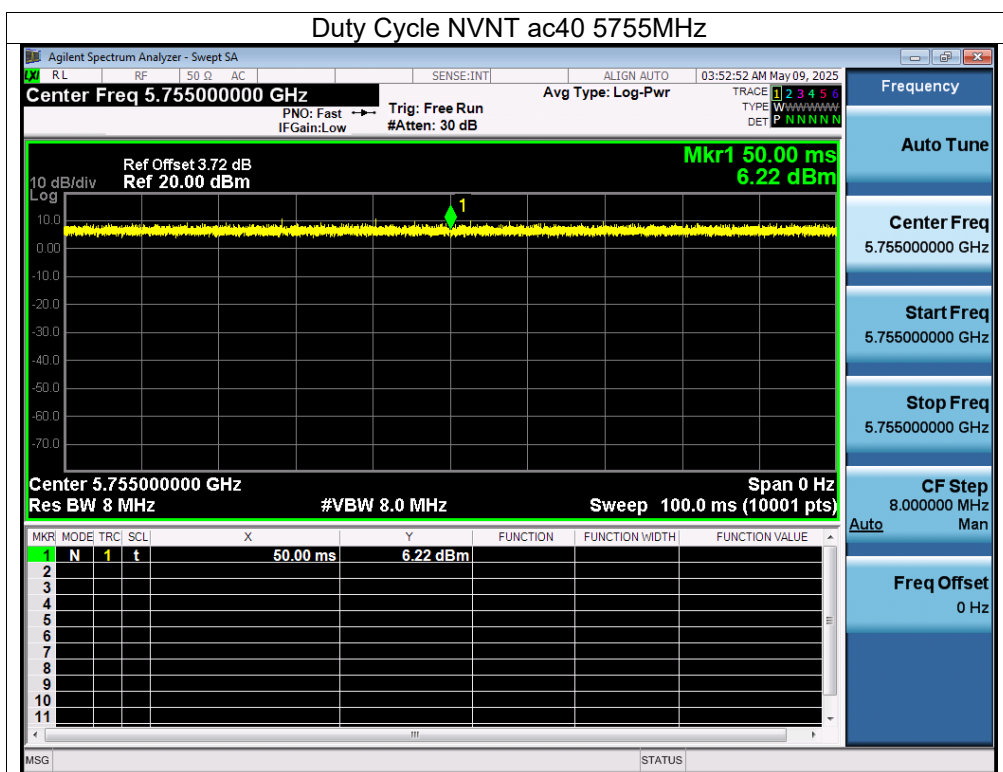


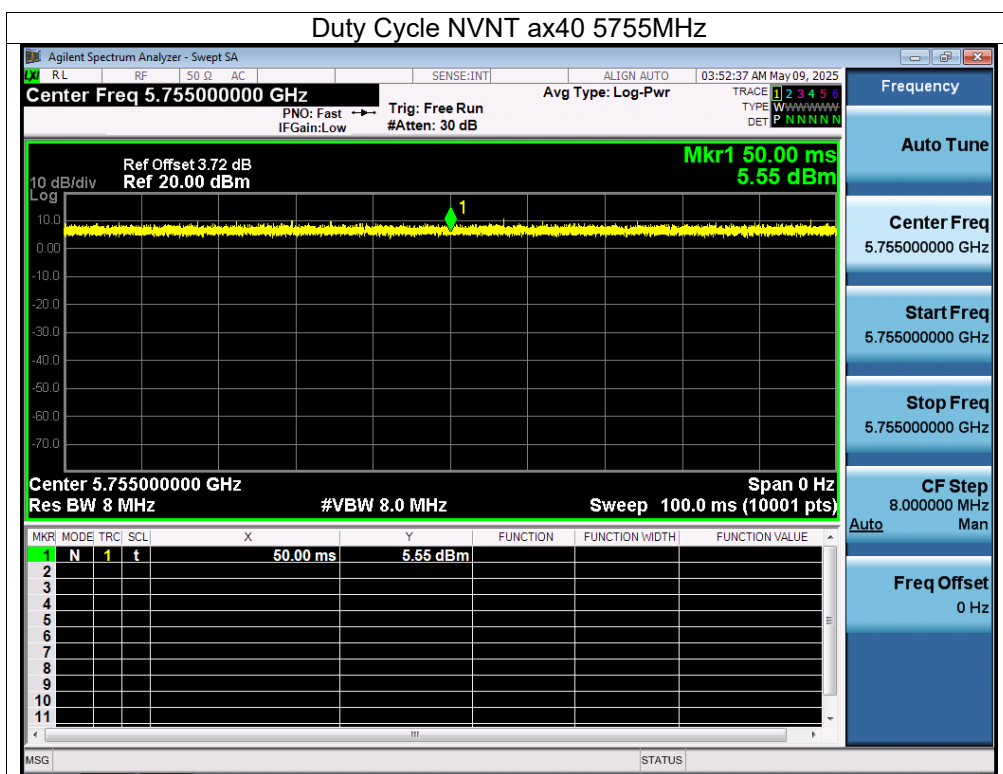


Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)
NVNT	a	5745	100	0
NVNT	n20	5745	100	0
NVNT	n40	5755	100	0
NVNT	ac20	5745	100	0
NVNT	ac40	5755	100	0
NVNT	ax20	5745	100	0
NVNT	ax40	5755	100	0









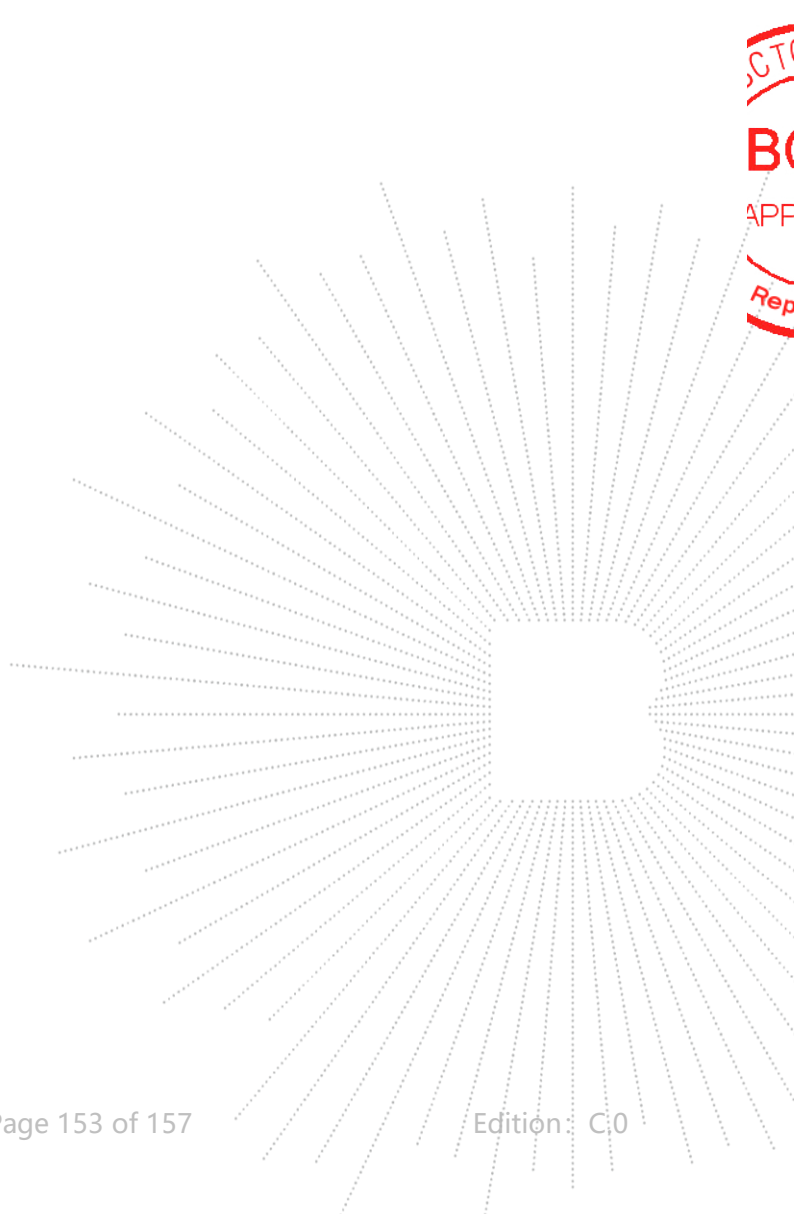
15. Antenna Requirement

15.1 Limit

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

15.2 Test Result

The EUT antenna is Internal antenna. It comply with the standard requirement.

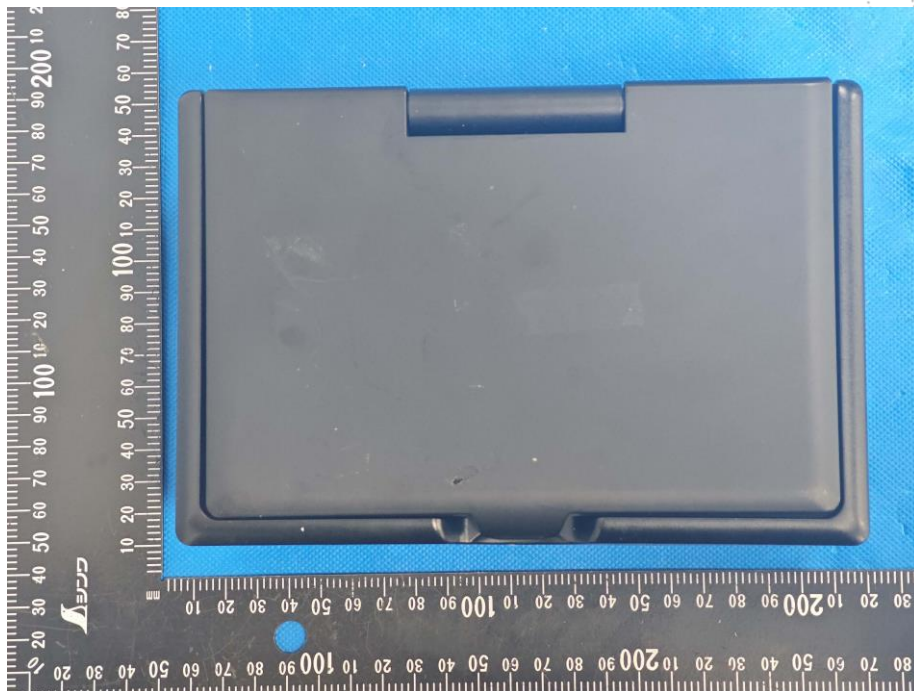


16. EUT Photographs

EUT Photo 1



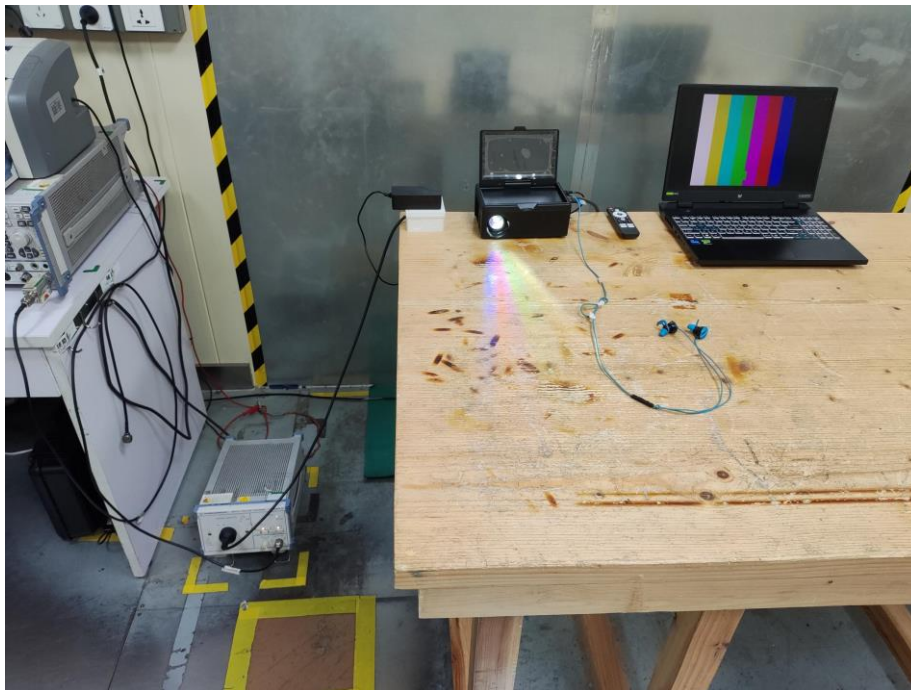
EUT Photo 2



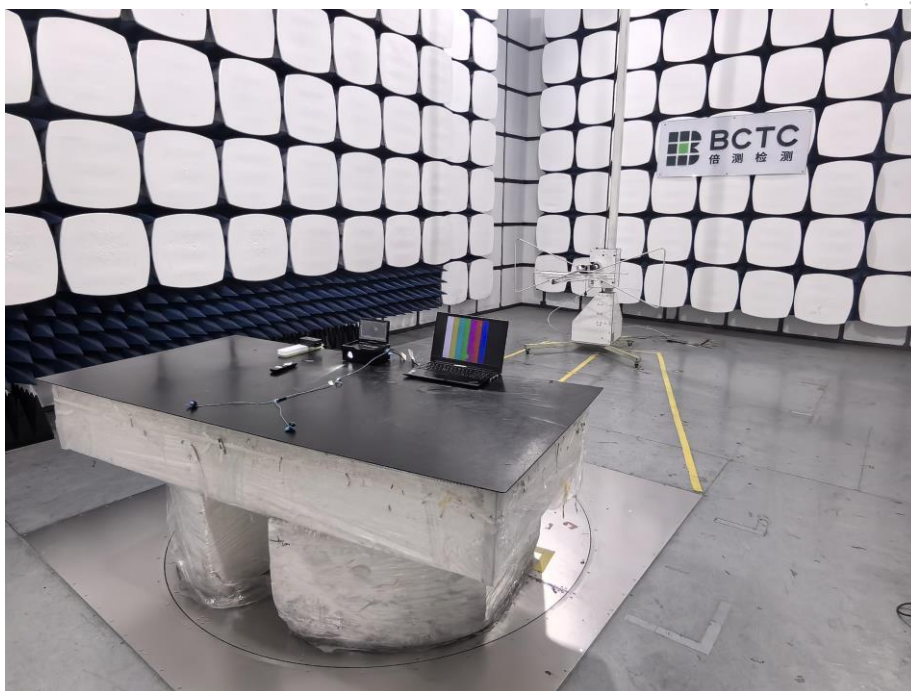
NOTE: Appendix-Photographs Of EUT Constructional Details.

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.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

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

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

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

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