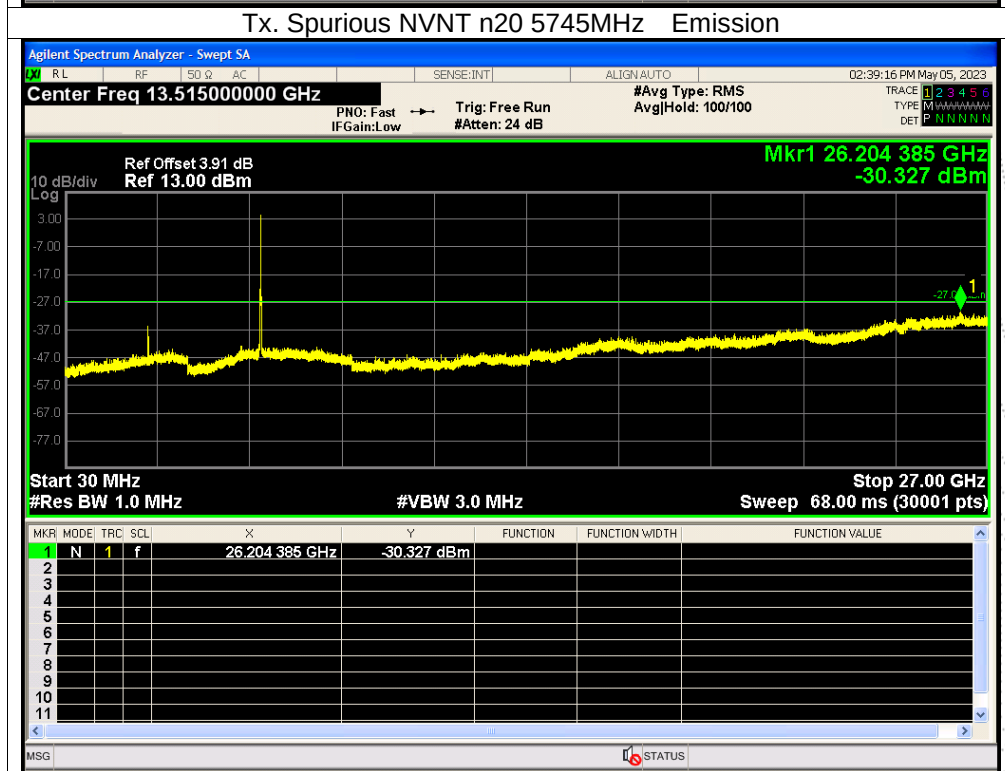
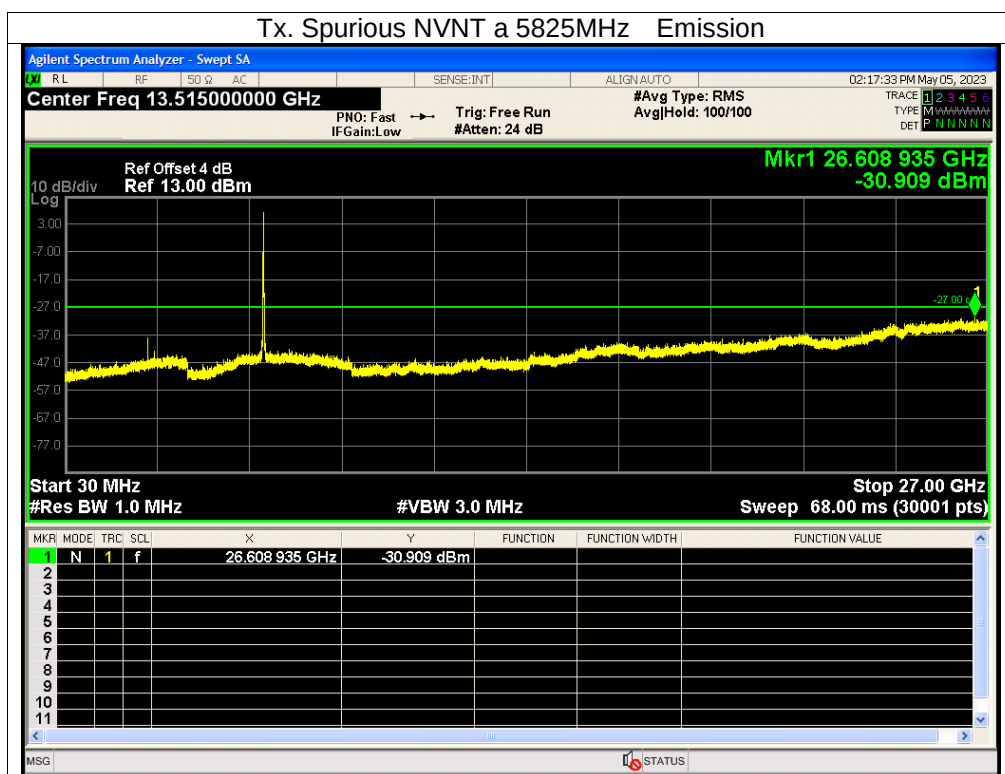
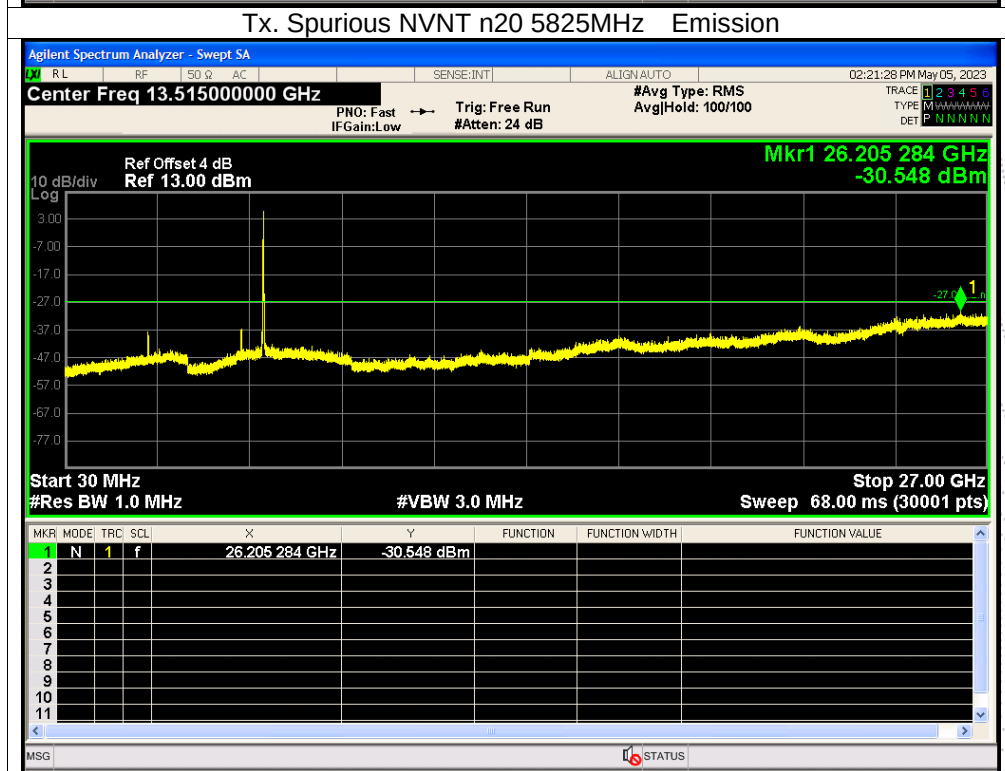
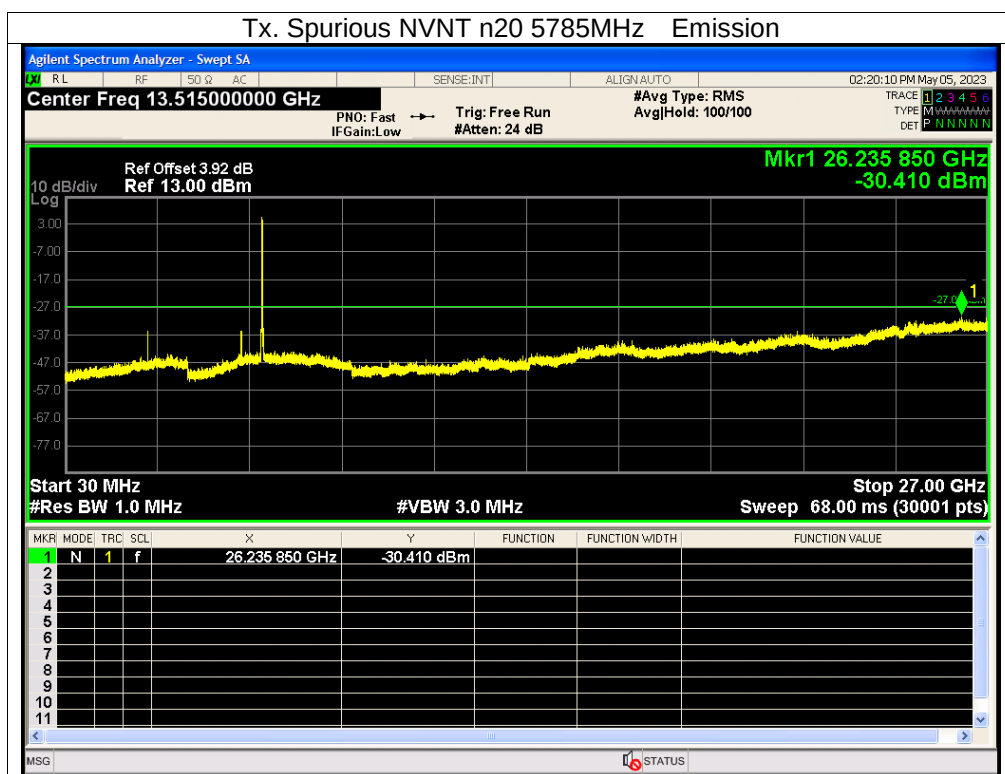
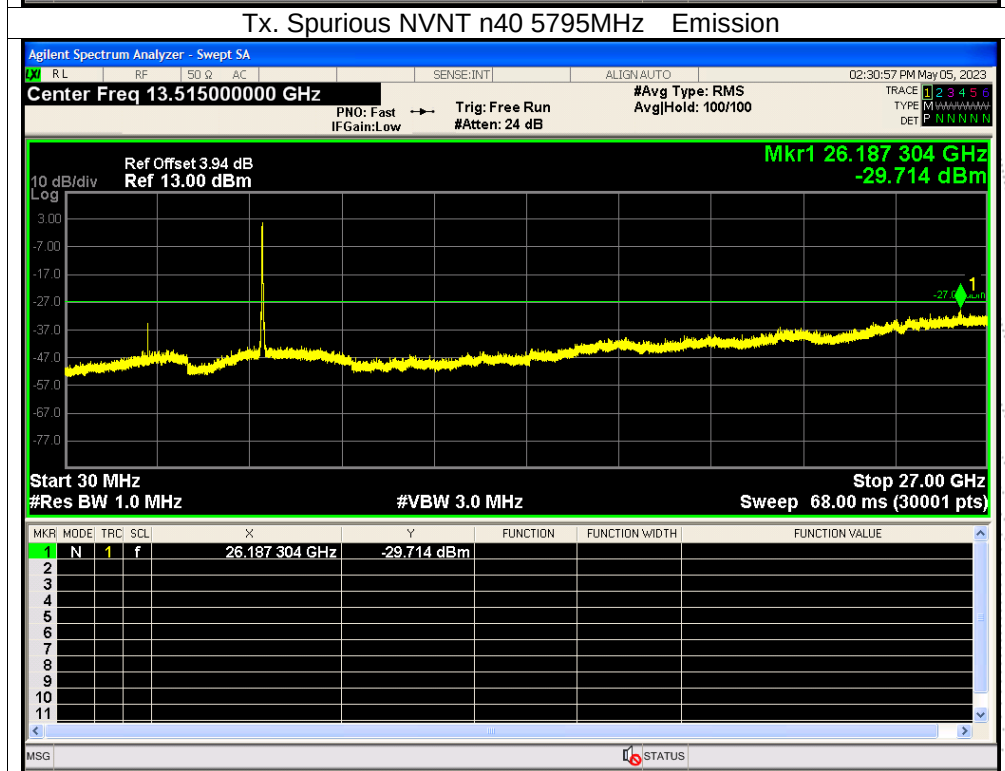
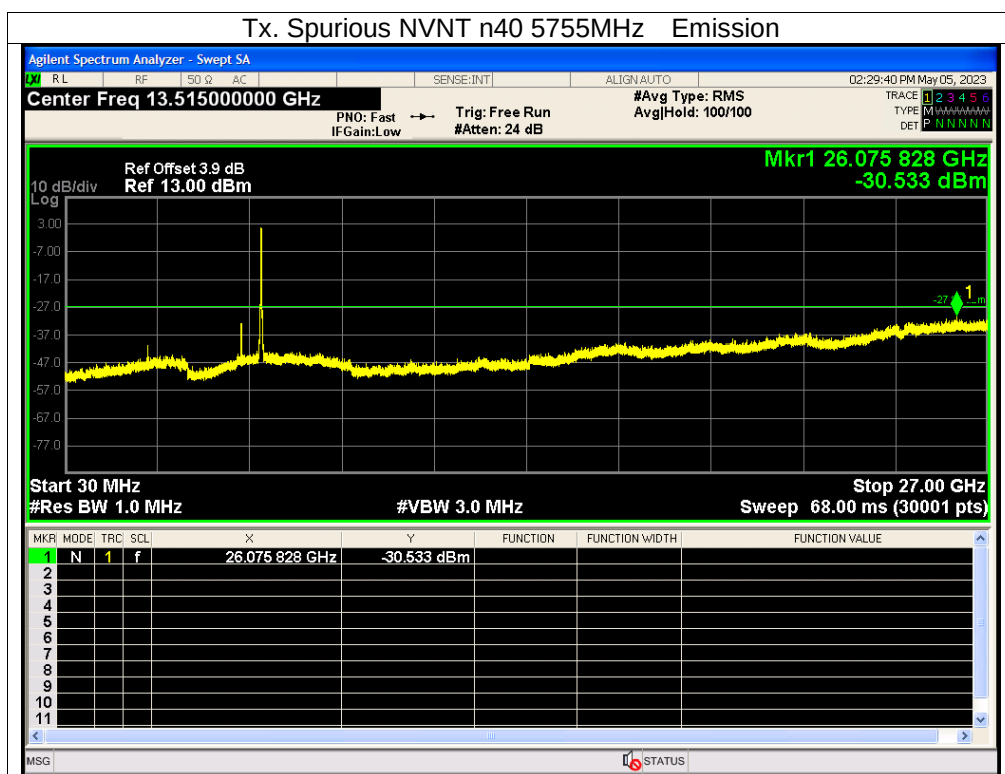
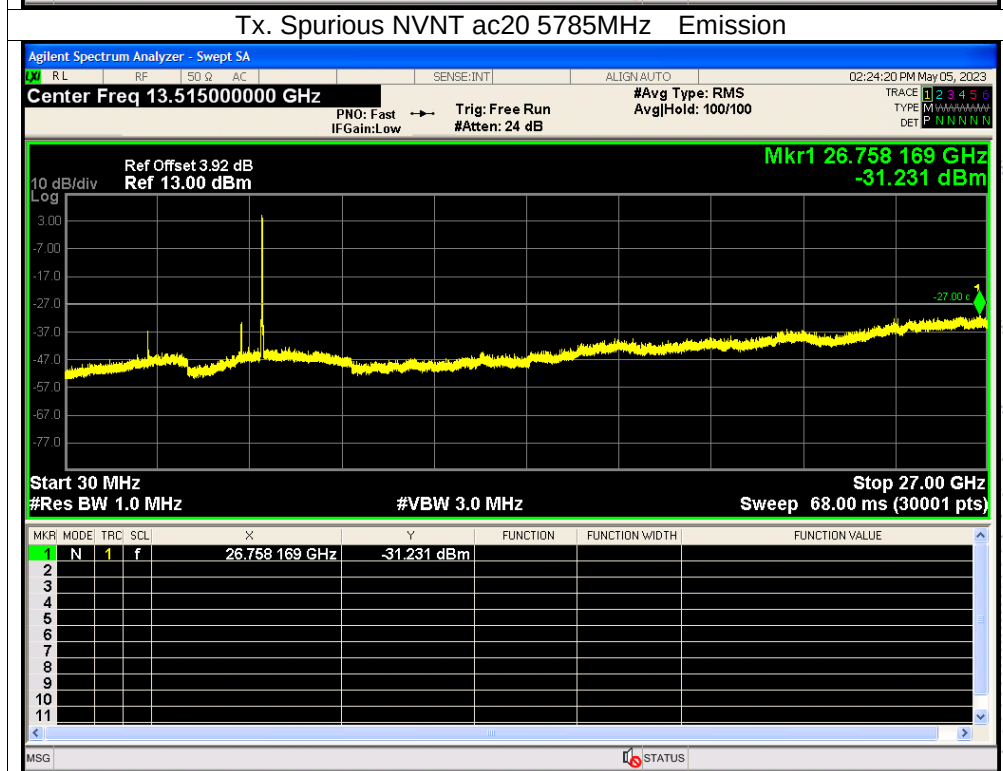
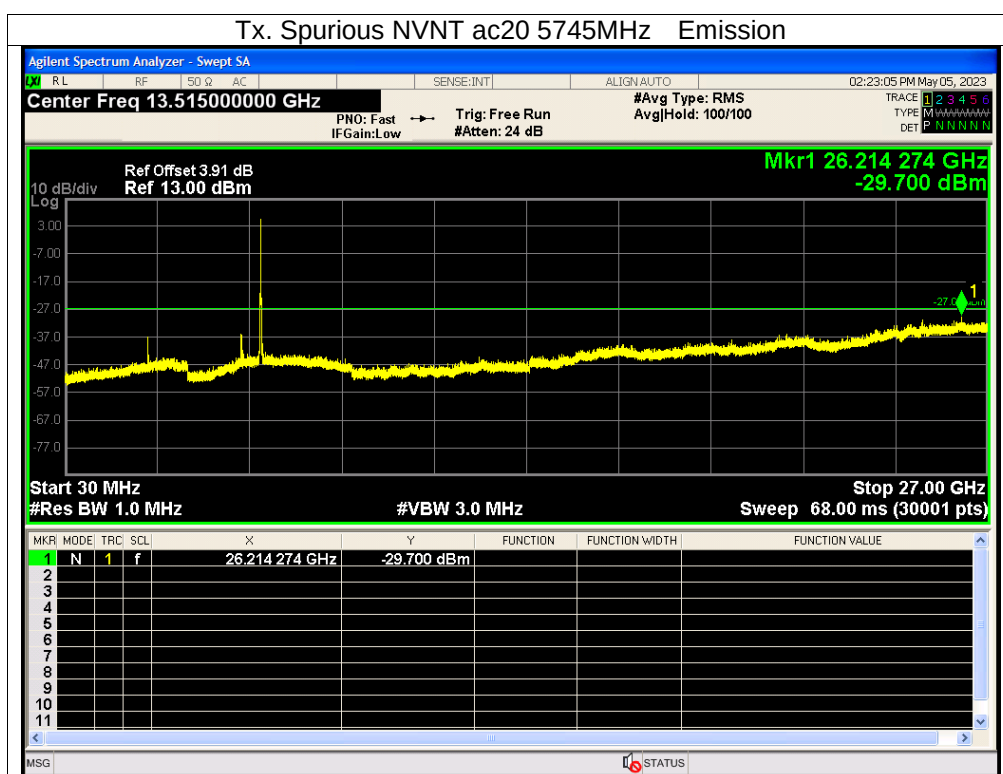
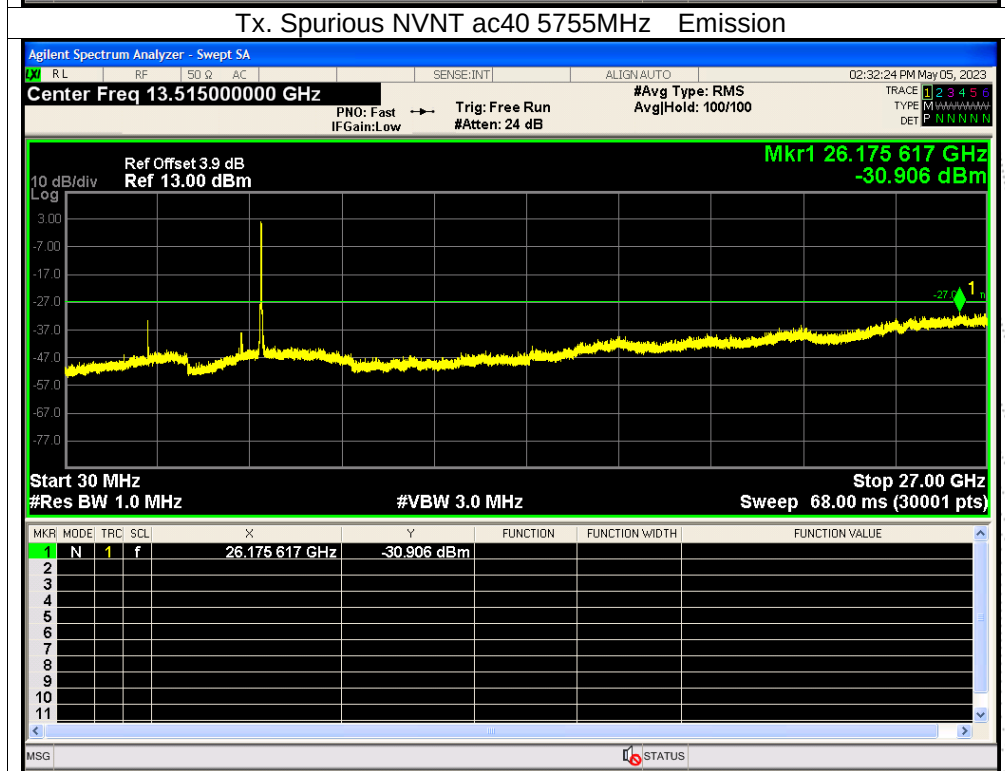
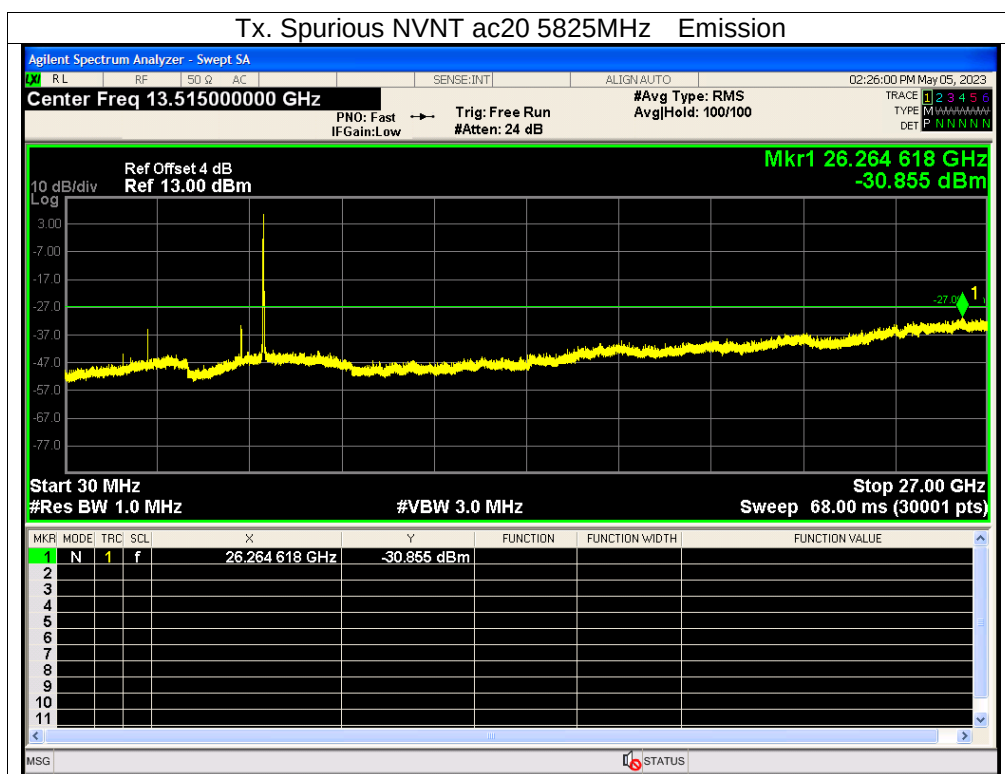


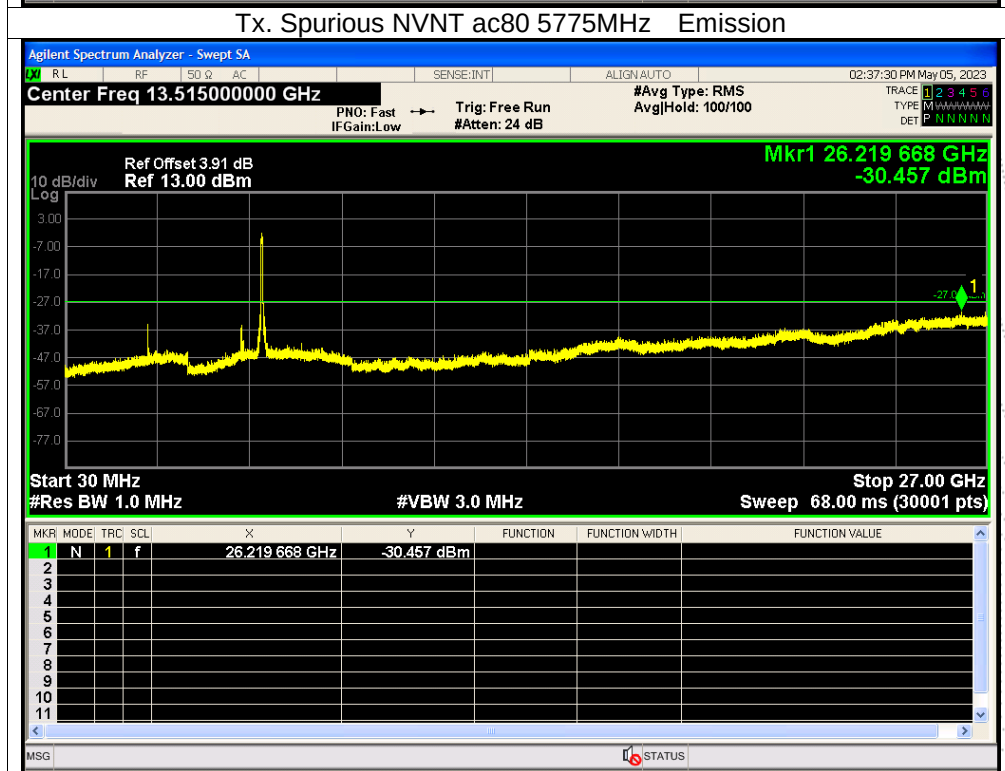
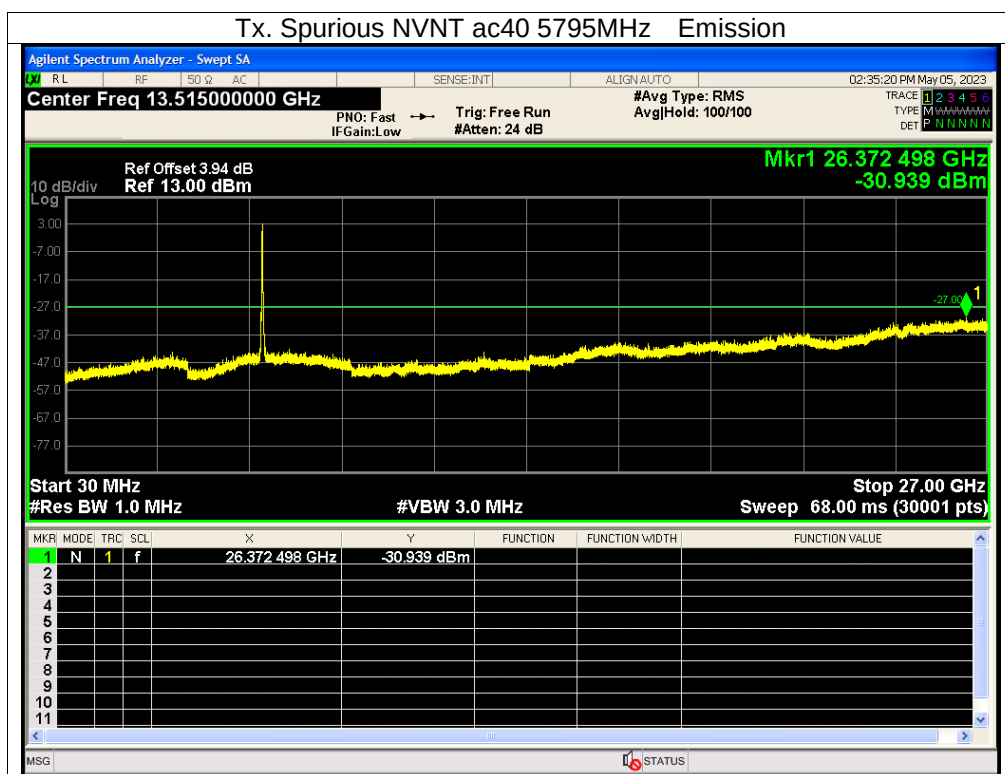












13. Frequency Stability Measurement

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 5V
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)	5.00	5180.0003	5180	0.0003	0.0517
		V max (V)	5.75	5180.0038	5180	0.0038	0.7398
		V min (V)	4.25	5180.0006	5180	0.0006	0.1200
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)	DC 5V	T (°C)	-20	5180.0032	5180	0.0032	0.6200
		T (°C)	-10	5180.0031	5180	0.0031	0.5980
		T (°C)	0	5180.0128	5180	0.0128	2.4646
		T (°C)	10	5180.0053	5180	0.0053	1.0249
		T (°C)	20	5180.0084	5180	0.0084	1.6134
		T (°C)	30	5180.0103	5180	0.0103	1.9911
		T (°C)	40	5180.0065	5180	0.0065	1.2613
		T (°C)	50	5180.0016	5180	0.0016	0.3016
		T (°C)	60	5180.0084	5180	0.0084	1.6164
		T (°C)	70	5180.0084	5180	0.0084	1.6136
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)	5.00	5200.0006	5200	0.0006	0.1091
		V max (V)	5.75	5200.0129	5200	0.0129	2.4887
		V min (V)	4.25	5200.0065	5200	0.0065	1.2436
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)	DC 5V	T (°C)	-20	5200.00372	5200	0.00372	0.7146
		T (°C)	-10	5200.00223	5200	0.00223	0.4285
		T (°C)	0	5200.01008	5200	0.01008	1.9388
		T (°C)	10	5200.01324	5200	0.01324	2.5455
		T (°C)	20	5200.00865	5200	0.00865	1.6629
		T (°C)	30	5200.00530	5200	0.00530	1.0185
		T (°C)	40	5200.00305	5200	0.00305	0.5874
		T (°C)	50	5200.00945	5200	0.00945	1.8179
		T (°C)	60	5200.01331	5200	0.01331	2.5592
		T (°C)	70	5200.00781	5200	0.00781	1.5012
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)	5.00	5240.0041	5240	0.0041	0.7750
		V max (V)	5.75	5240.0114	5240	0.0114	2.1765
		V min (V)	4.25	5240.0038	5240	0.0038	0.7327
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)	DC 5V	T (°C)	-20	5240.0047	5240	0.0047	0.9053
		T (°C)	-10	5240.0123	5240	0.0123	2.3561
		T (°C)	0	5240.0100	5240	0.0100	1.9111
		T (°C)	10	5240.0040	5240	0.0040	0.7676
		T (°C)	20	5240.0025	5240	0.0025	0.4693
		T (°C)	30	5240.0048	5240	0.0048	0.9254
		T (°C)	40	5240.0039	5240	0.0039	0.7421
		T (°C)	50	5240.0113	5240	0.0113	2.1502
		T (°C)	60	5240.0087	5240	0.0087	1.6616
		T (°C)	70	5240.0063	5240	0.0063	1.2116
Limits				5150-5250 MHz			
Result				Complies			

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 5V
Test Mode :	TX Frequency(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)	5.00	5745.00089	5745	0.00089	0.1544
		V max (V)	5.75	5745.00682	5745	0.00682	1.1877
		V min (V)	4.25	5745.01047	5745	0.01047	1.8231
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)	DC 5V	T (°C)	-20	5745.01092	5745	0.01092	1.9002
		T (°C)	-10	5745.00976	5745	0.00976	1.6982
		T (°C)	0	5745.00673	5745	0.00673	1.1716
		T (°C)	10	5745.01061	5745	0.01061	1.8461
		T (°C)	20	5745.00545	5745	0.00545	0.9490
		T (°C)	30	5745.00271	5745	0.00271	0.4711
		T (°C)	40	5745.00995	5745	0.00995	1.7326
		T (°C)	50	5745.00617	5745	0.00617	1.0738
		T (°C)	60	5745.01223	5745	0.01223	2.1285
		T (°C)	70	5745.00355	5745	0.00355	0.6174
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)	5.00	5785.00536	5785	0.00536	0.9257
		V max (V)	5.75	5785.00753	5785	0.00753	1.3025
		V min (V)	4.25	5785.00855	5785	0.00855	1.4775
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)	DC 5V	T (°C)	-20	5785.01148	5785	0.01148	1.9839
		T (°C)	-10	5785.00502	5785	0.00502	0.8679
		T (°C)	0	5785.00639	5785	0.00639	1.1042
		T (°C)	10	5785.01104	5785	0.01104	1.9078
		T (°C)	20	5785.00068	5785	0.00068	0.1176
		T (°C)	30	5785.00644	5785	0.00644	1.1138
		T (°C)	40	5785.00121	5785	0.00121	0.2099
		T (°C)	50	5785.01341	5785	0.01341	2.3173
		T (°C)	60	5785.00261	5785	0.00261	0.4509
		T (°C)	70	5785.00579	5785	0.00579	1.0011
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)	5.00	5825.01078	5825	0.01078	1.8507
		V max (V)	5.75	5825.01091	5825	0.01091	1.8734
		V min (V)	4.25	5825.00711	5825	0.00711	1.2207
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)	DC 5V	T (°C)	-20	5825.01014	5825	0.01014	1.7413
		T (°C)	-10	5825.00247	5825	0.00247	0.4247
		T (°C)	0	5825.00663	5825	0.00663	1.1386
		T (°C)	10	5825.01095	5825	0.01095	1.8792
		T (°C)	20	5825.00472	5825	0.00472	0.8110
		T (°C)	30	5825.01162	5825	0.01162	1.9941
		T (°C)	40	5825.00776	5825	0.00776	1.3323
		T (°C)	50	5825.00267	5825	0.00267	0.4578
		T (°C)	60	5825.00176	5825	0.00176	0.3027
		T (°C)	70	5825.00661	5825	0.00661	1.1355
Limits				5725-5850 MHz			
Result				Complies			

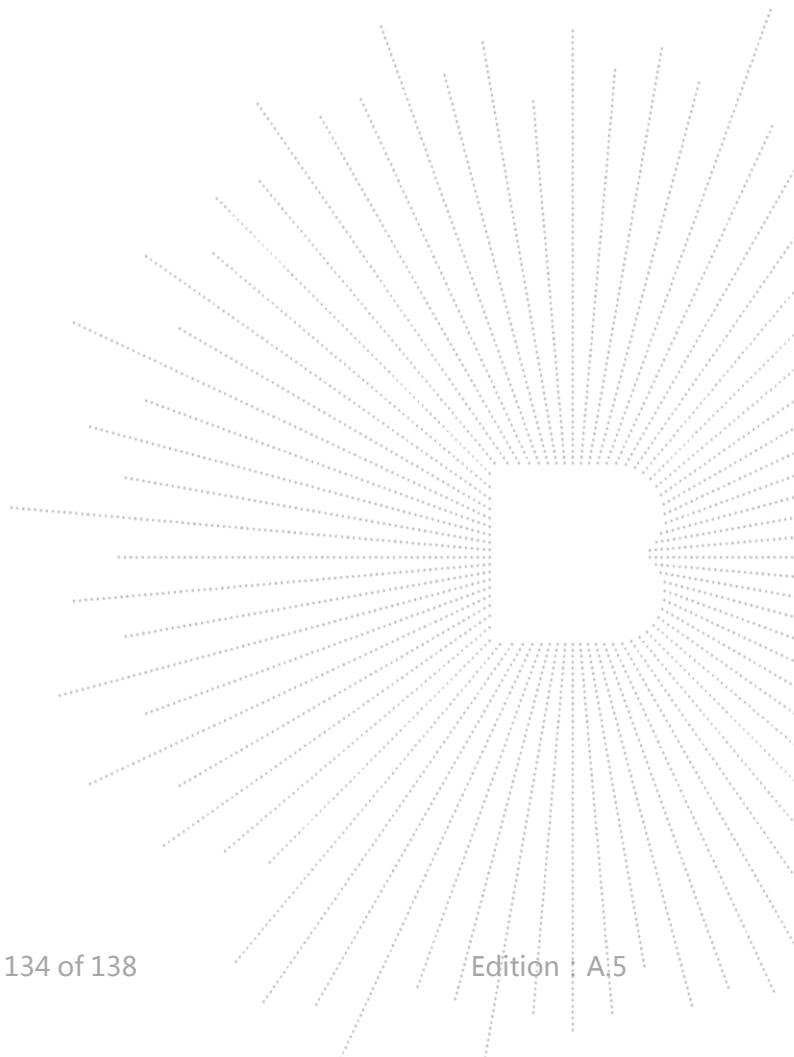
14. Antenna Requirement

14.1 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.

14.2 Test Result

The EUT antenna is Internal antenna (antenna gain: 1 dBi). It comply with the standard requirement.



15. EUT Photographs

EUT Photo 1



EUT Photo 2

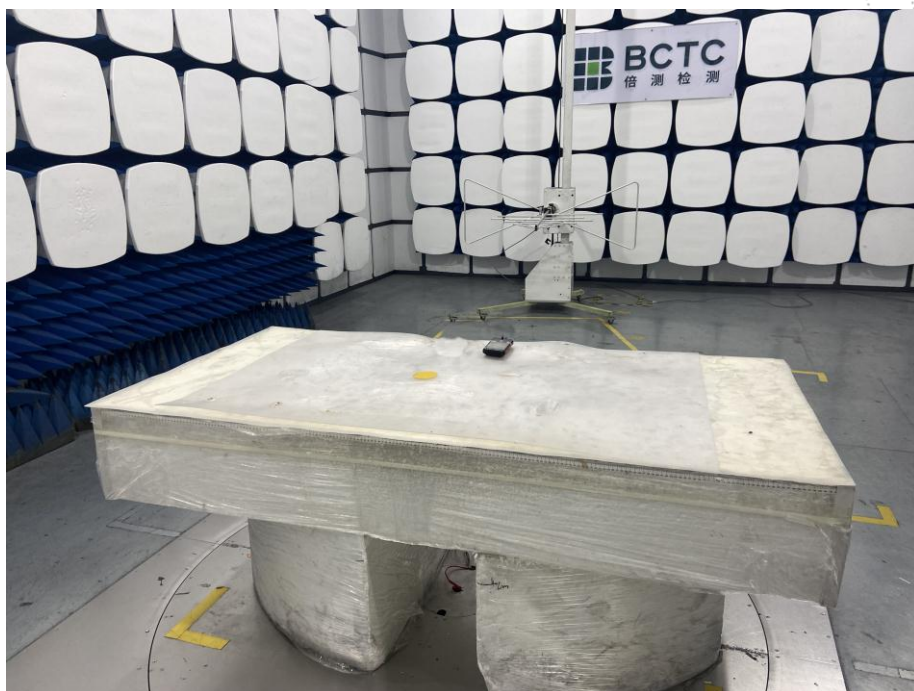


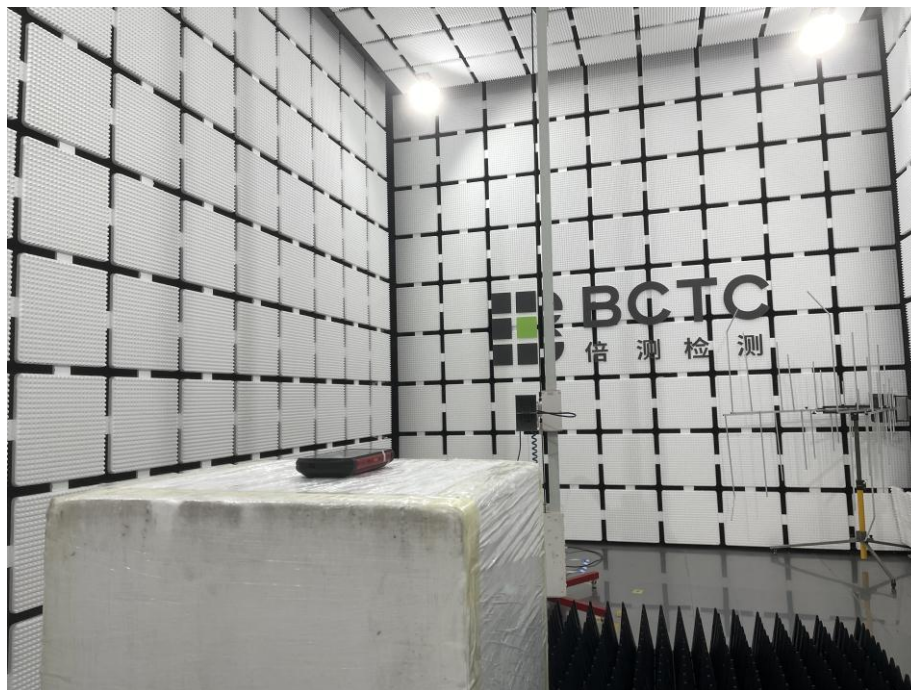
16. EUT Test Setup Photographs

Conducted Measurement 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 test report without CMA mark is only used for scientific research, teaching, enterprise product development and internal quality control purposes.
8. The quality system of our laboratory is in accordance with ISO/IEC17025.
9. 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>

E-Mail : bctc@bctc-lab.com.cn

******* END *******