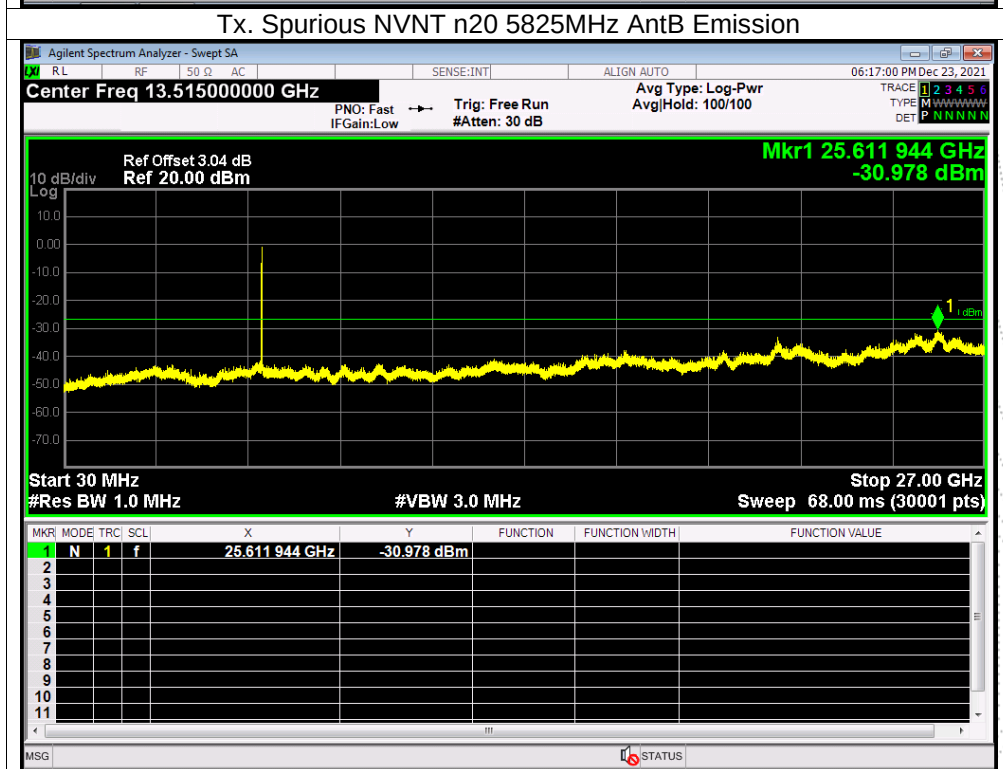
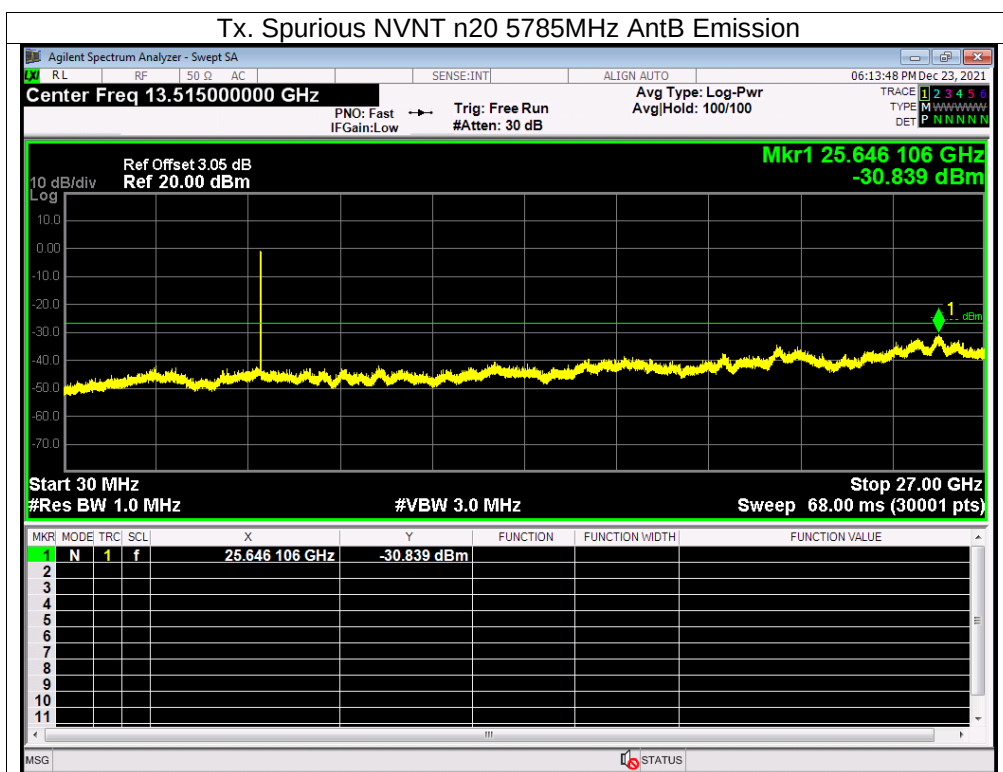
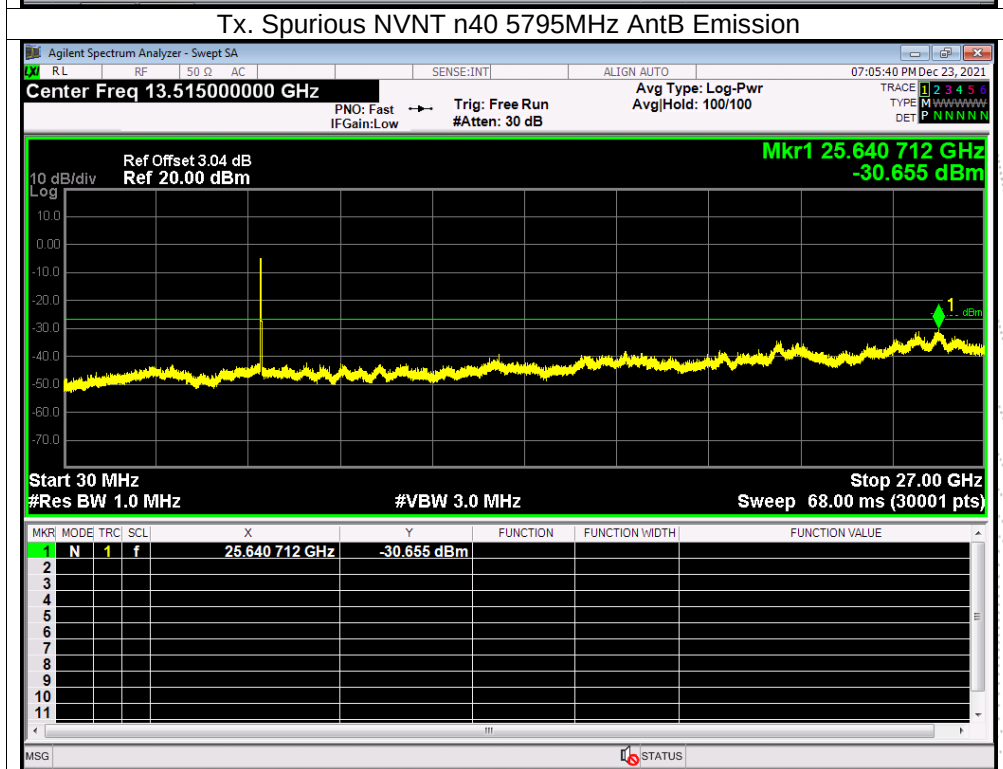
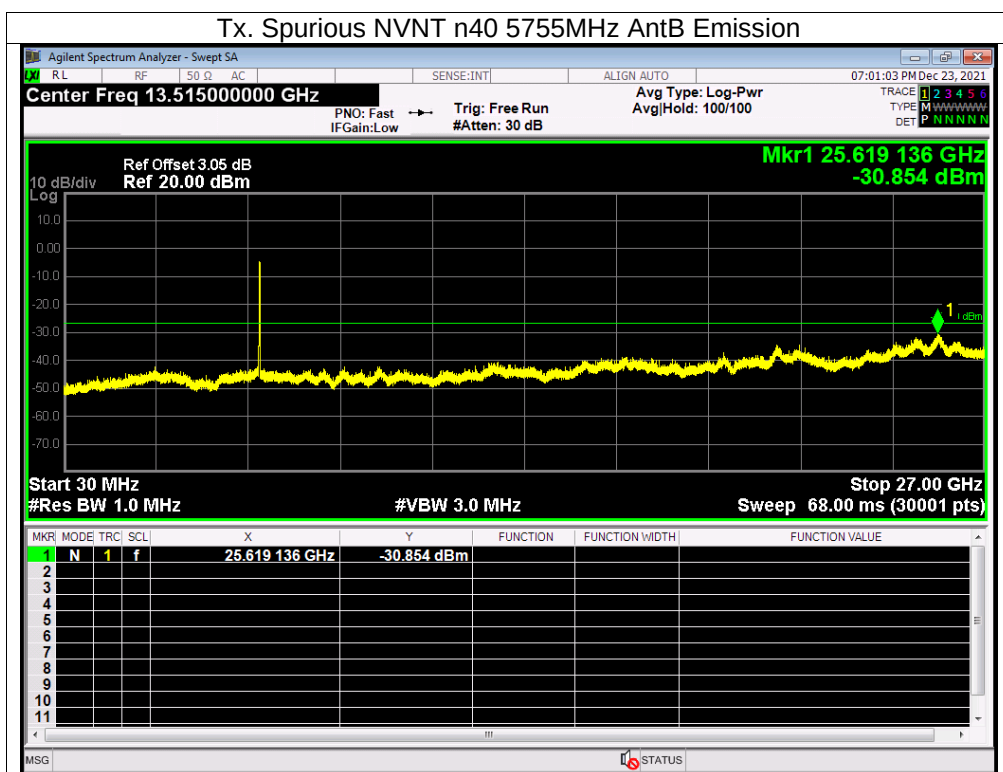
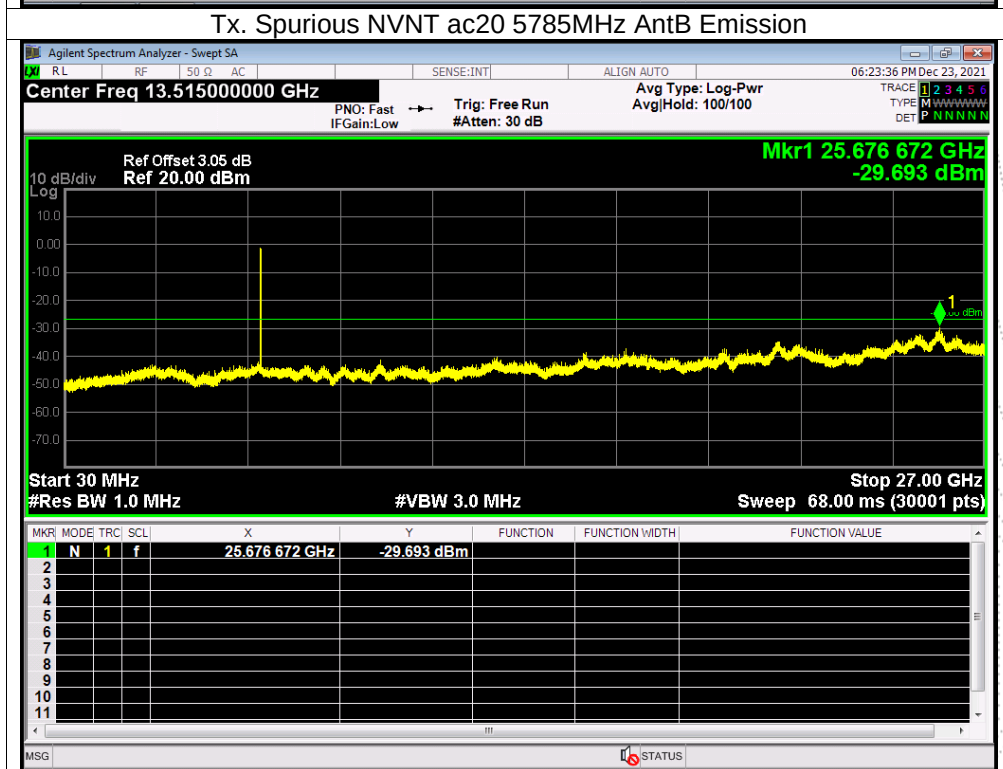
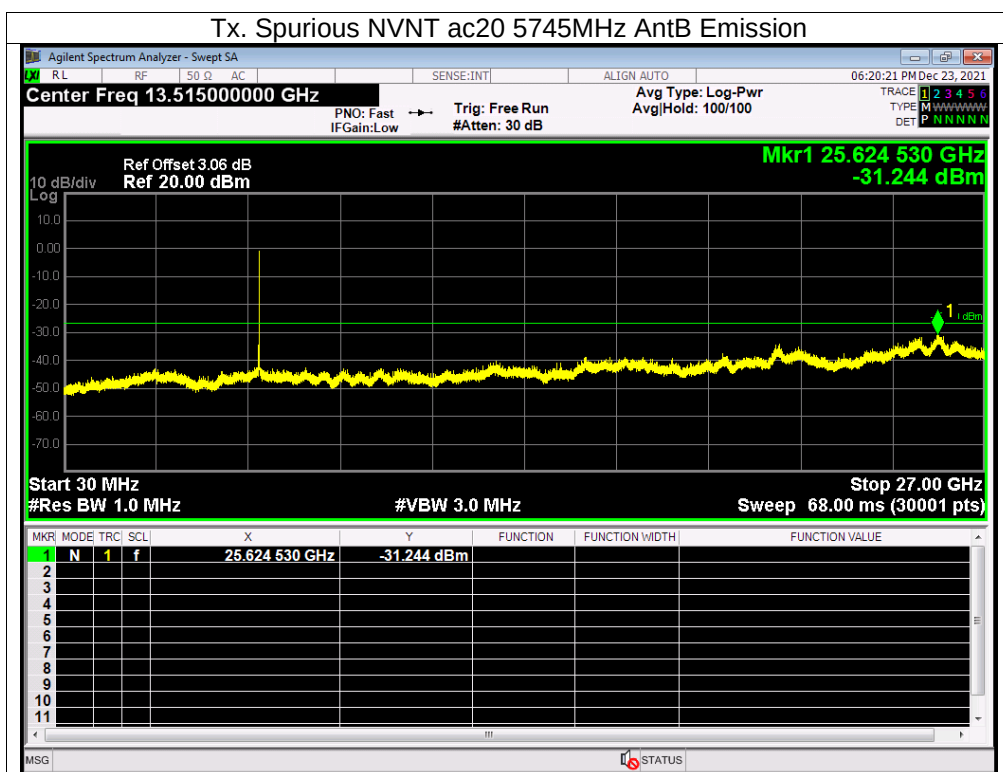
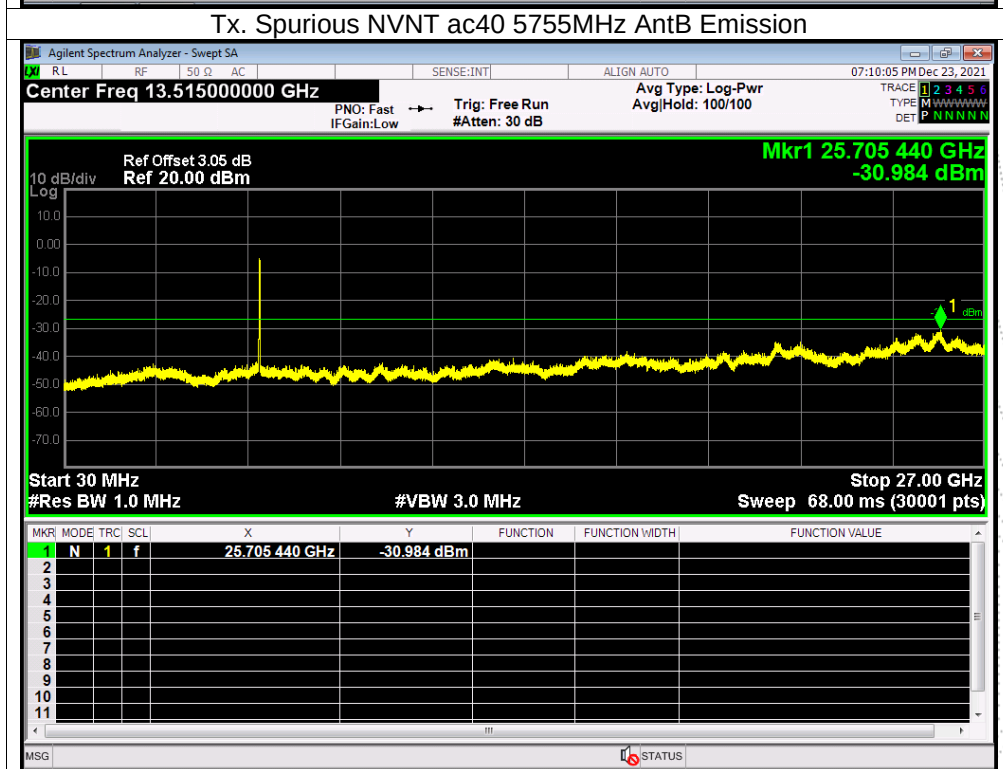
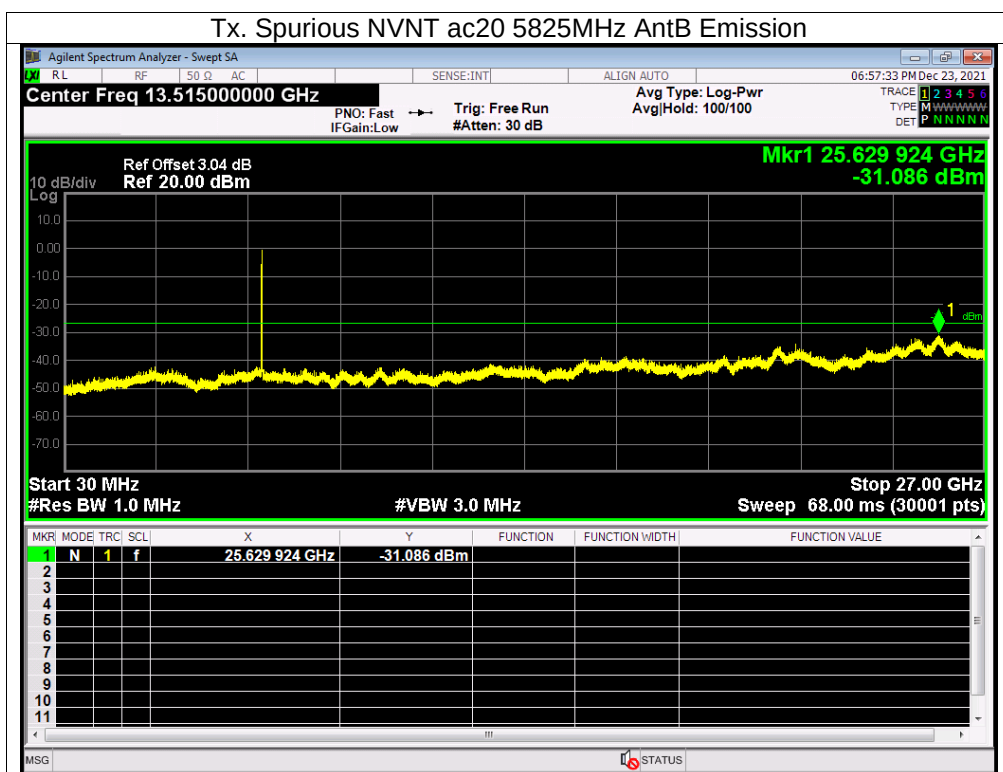
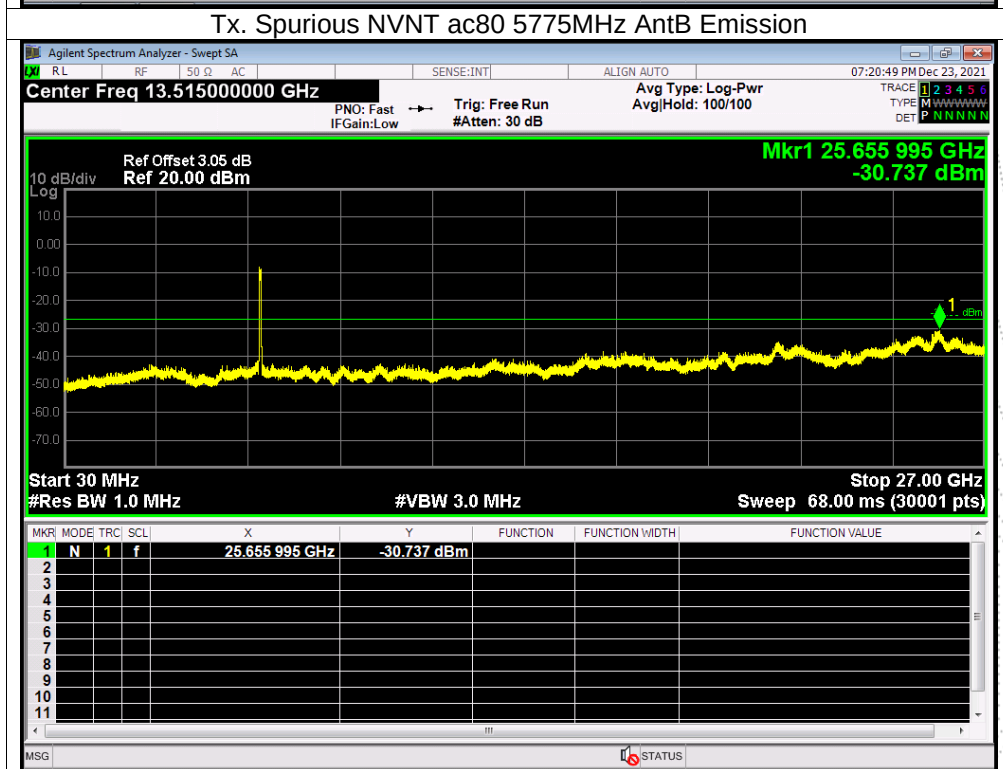
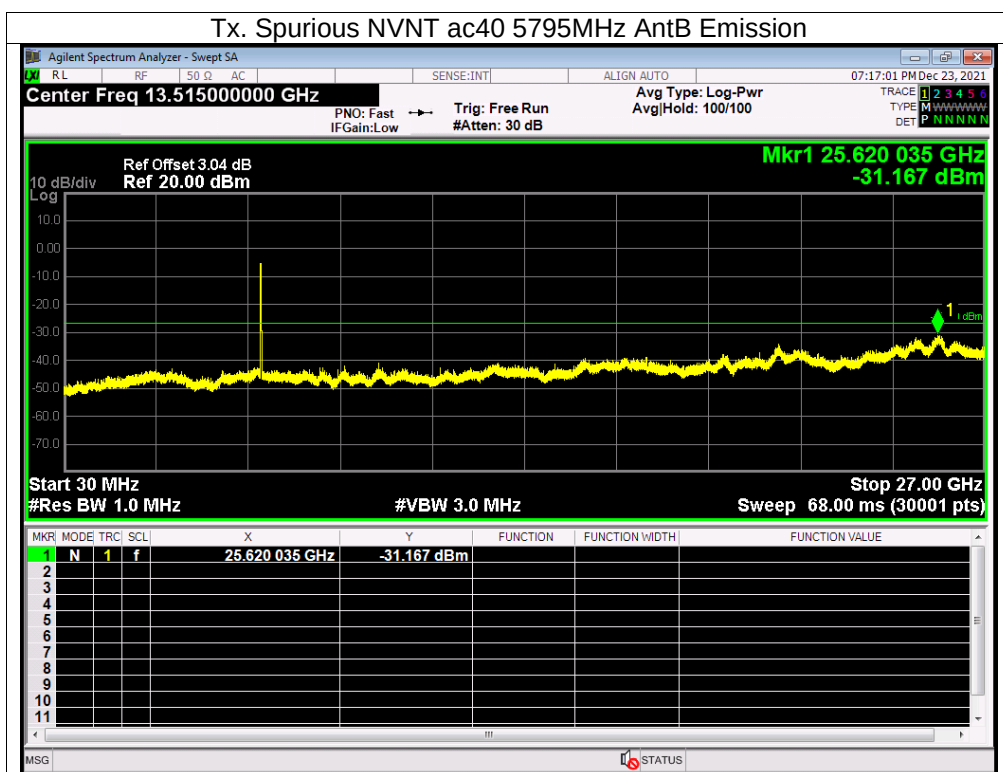












13. Frequency Stability Measurement

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	5180.0100	5180	0.0100	1.9339
		V max (V)	138.00	5180.0131	5180	0.0131	2.5231
		V min (V)	102.00	5180.0140	5180	0.0140	2.7033
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)	12	T (°C)	-20	5180.0014	5180	0.0014	0.2786
		T (°C)	-10	5180.0130	5180	0.0130	2.5055
		T (°C)	0	5180.0008	5180	0.0008	0.1574
		T (°C)	10	5180.0075	5180	0.0075	1.4516
		T (°C)	20	5180.0112	5180	0.0112	2.1697
		T (°C)	30	5180.0012	5180	0.0012	0.2356
		T (°C)	40	5180.0133	5180	0.0133	2.5737
		T (°C)	50	5180.0051	5180	0.0051	0.9820
		T (°C)	60	5180.0130	5180	0.0130	2.5054
		T (°C)	70	5180.0113	5180	0.0113	2.1806
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	5200.0006	5200	0.0006	0.1115
		V max (V)	138.00	5200.0054	5200	0.0054	1.0445
		V min (V)	102.00	5200.0049	5200	0.0049	0.9410
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)	12	T (°C)	-20	5200.01078	5200	0.01078	2.0723
		T (°C)	-10	5200.00402	5200	0.00402	0.7739
		T (°C)	0	5200.00987	5200	0.00987	1.8987
		T (°C)	10	5200.00412	5200	0.00412	0.7917
		T (°C)	20	5200.00357	5200	0.00357	0.6869
		T (°C)	30	5200.00241	5200	0.00241	0.4632
		T (°C)	40	5200.00766	5200	0.00766	1.4733
		T (°C)	50	5200.00477	5200	0.00477	0.9173
		T (°C)	60	5200.01197	5200	0.01197	2.3017
		T (°C)	70	5200.01113	5200	0.01113	2.1399
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	5240.0038	5240	0.0038	0.7296
		V max (V)	138.00	5240.0043	5240	0.0043	0.8233
		V min (V)	102.00	5240.0043	5240	0.0043	0.8261
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)	12	T (°C)	-20	5240.0098	5240	0.0098	1.8742
		T (°C)	-10	5240.0089	5240	0.0089	1.7010
		T (°C)	0	5240.0092	5240	0.0092	1.7597
		T (°C)	10	5240.0071	5240	0.0071	1.3576
		T (°C)	20	5240.0049	5240	0.0049	0.9376
		T (°C)	30	5240.0074	5240	0.0074	1.4150
		T (°C)	40	5240.0057	5240	0.0057	1.0877
		T (°C)	50	5240.0013	5240	0.0013	0.2542
		T (°C)	60	5240.0097	5240	0.0097	1.8528
		T (°C)	70	5240.0017	5240	0.0017	0.3150
Limits				5150-5250 MHz			
Result				Complies			

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC 120V/60Hz
Hrst Mode :	TX Frequency(5745-5825MHz)		

Voltage vs. Frequency Stabilit

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5745.00605	5745	0.00605	1.0536
		V max (V)	138.00	5745.00961	5745	0.00961	1.6723
		V min (V)	102.00	5745.00730	5745	0.00730	1.2709
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)	12	T (°C)	-20	5745.01319	5745	0.01319	2.2966
		T (°C)	-10	5745.01186	5745	0.01186	2.0636
		T (°C)	0	5745.00169	5745	0.00169	0.2944
		T (°C)	10	5745.00711	5745	0.00711	1.2371
		T (°C)	20	5745.00324	5745	0.00324	0.5644
		T (°C)	30	5745.00674	5745	0.00674	1.1738
		T (°C)	40	5745.00737	5745	0.00737	1.2836
		T (°C)	50	5745.00490	5745	0.00490	0.8530
		T (°C)	60	5745.00532	5745	0.00532	0.9263
		T (°C)	70	5745.01104	5745	0.01104	1.9218
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	5785.01101	5785	0.01101	1.9036
		V max (V)	138.00	5785.00517	5785	0.00517	0.8945
		V min (V)	102.00	5785.01048	5785	0.01048	1.8112
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)	12	T (°C)	-20	5785.00028	5785	0.00028	0.0483
		T (°C)	-10	5785.00814	5785	0.00814	1.4070
		T (°C)	0	5785.00181	5785	0.00181	0.3135
		T (°C)	10	5785.00534	5785	0.00534	0.9229
		T (°C)	20	5785.00755	5785	0.00755	1.3042
		T (°C)	30	5785.00090	5785	0.00090	0.1550
		T (°C)	40	5785.01135	5785	0.01135	1.9626
		T (°C)	50	5785.00858	5785	0.00858	1.4825
		T (°C)	60	5785.00421	5785	0.00421	0.7284
		T (°C)	70	5785.01130	5785	0.01130	1.9537
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	5825.00160	5825	0.00160	0.2738
		V max (V)	138.00	5825.00707	5825	0.00707	1.2144
		V min (V)	102.00	5825.01034	5825	0.01034	1.7744
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)	12	T (°C)	-20	5825.00065	5825	0.00065	0.1112
		T (°C)	-10	5825.00940	5825	0.00940	1.6132
		T (°C)	0	5825.00052	5825	0.00052	0.0890
		T (°C)	10	5825.00344	5825	0.00344	0.5905
		T (°C)	20	5825.01061	5825	0.01061	1.8213
		T (°C)	30	5825.00324	5825	0.00324	0.5557
		T (°C)	40	5825.00663	5825	0.00663	1.1384
		T (°C)	50	5825.00032	5825	0.00032	0.0544
		T (°C)	60	5825.00406	5825	0.00406	0.6964
		T (°C)	70	5825.00124	5825	0.00124	0.2124
Limits				5725-5850 MHz			
Result				Complies			

14. Antenna Requirement

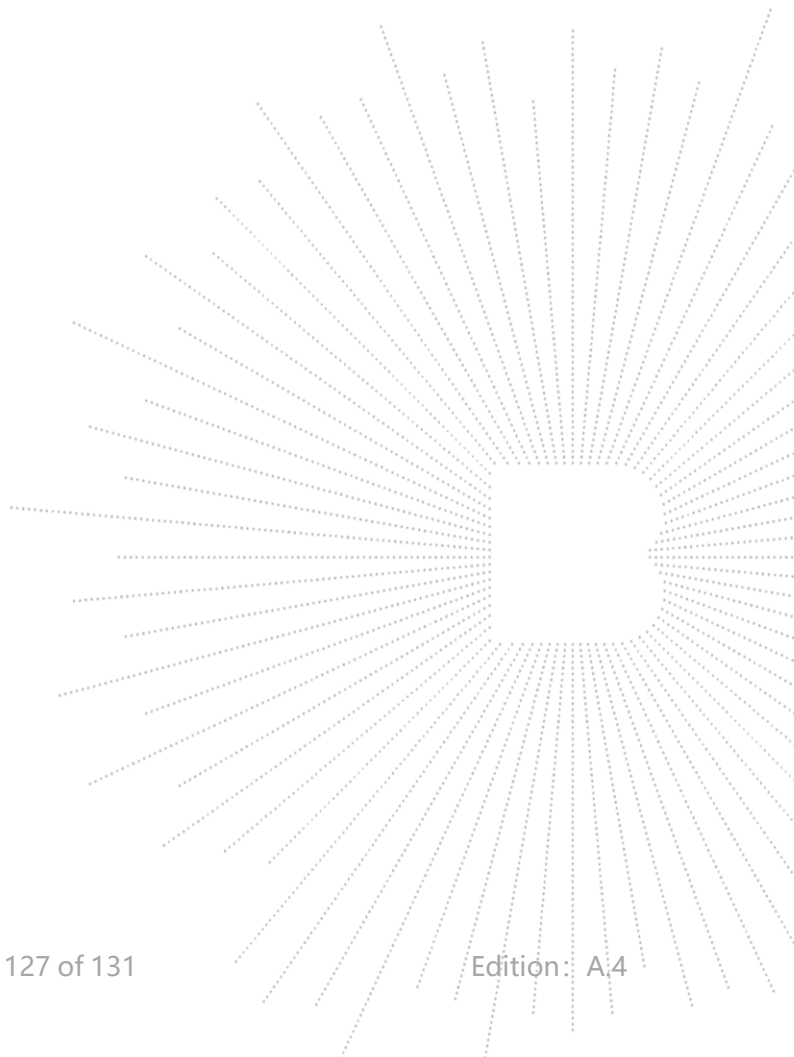
14.1 Limit

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 (A): 2.66dBi; antenna gain (B) : 3.01dBi). It comply with the standard requirement.

The EUT antenna is Internal antenna (antenna gain (A): 5.02dBi; antenna gain (B) : 4.65dBi). It comply with the standard requirement.



15. EUT Photographs

EUT Photo 1



EUT Photo 2

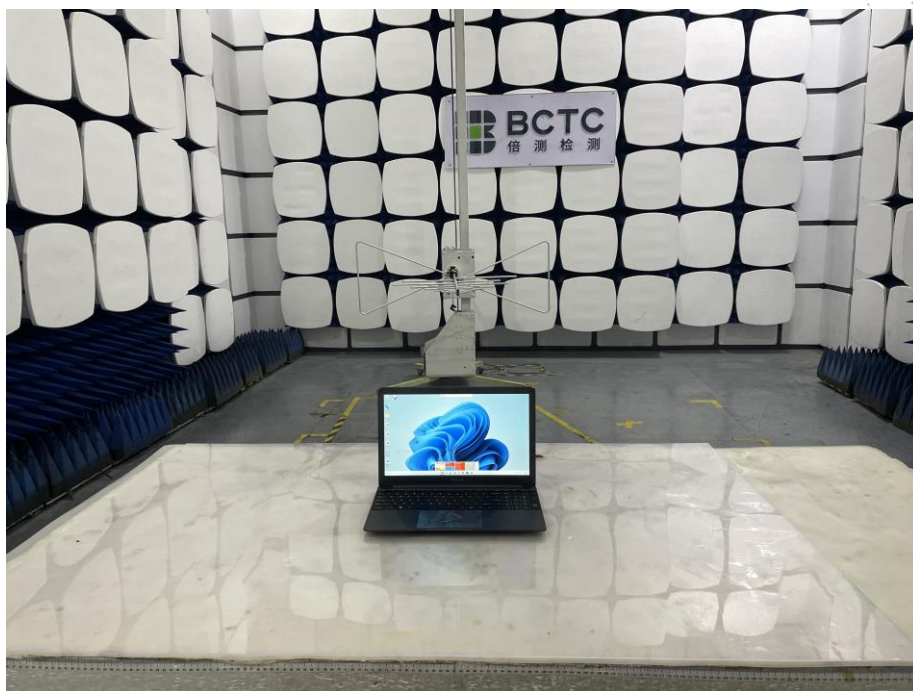


16. EUT Test Setup Photographs

Conducted Measurement Photos



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 stamp of laboratory.
- 4.The test report is invalid without signature of person(s) testing and authorizing.
- 5.The test process and test result is only related to the Unit Under Test.
- 6.The quality system of our laboratory is in accordance with ISO/IEC17025.
- 7.If there is any objection to 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, Tangwei, 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 *****