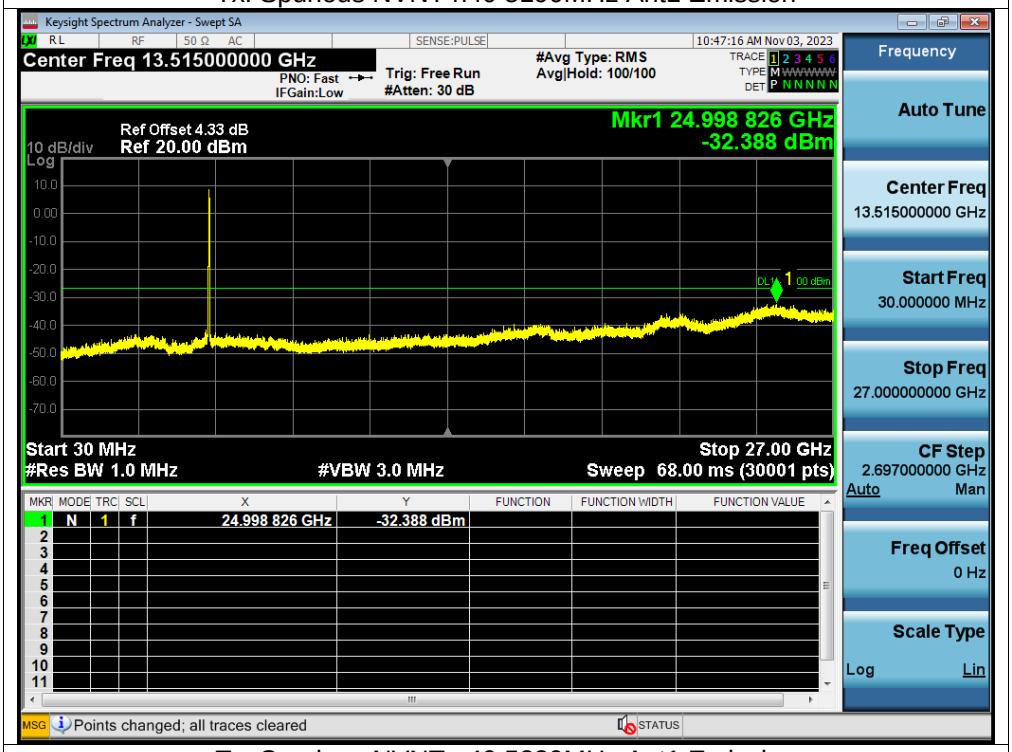
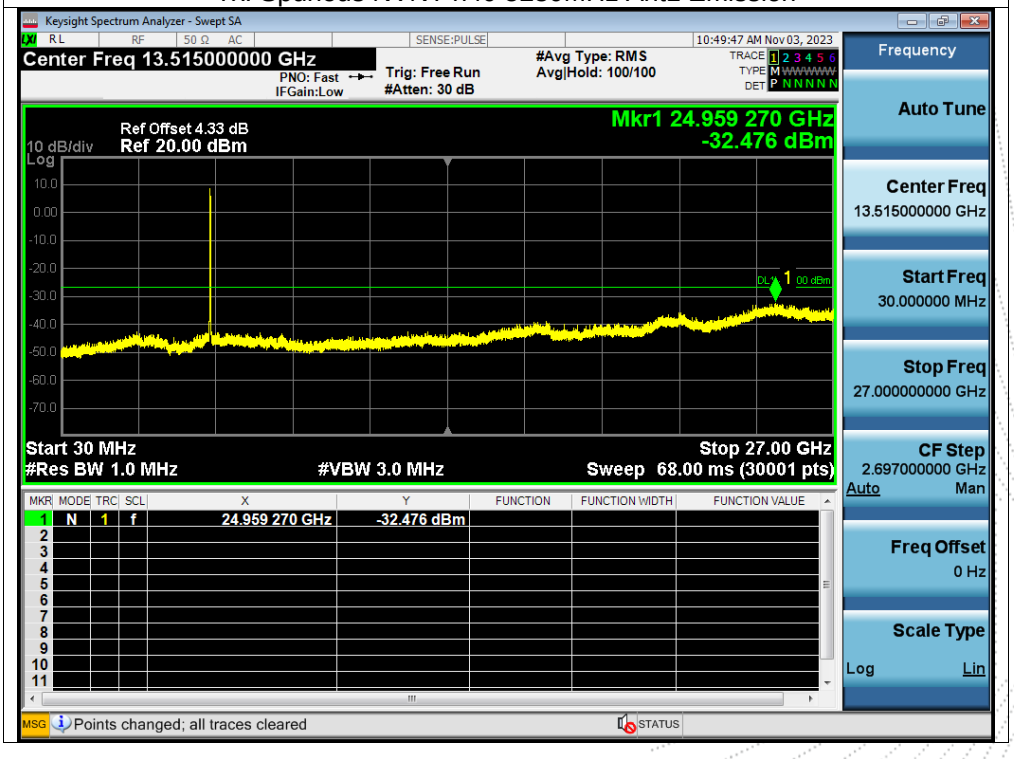
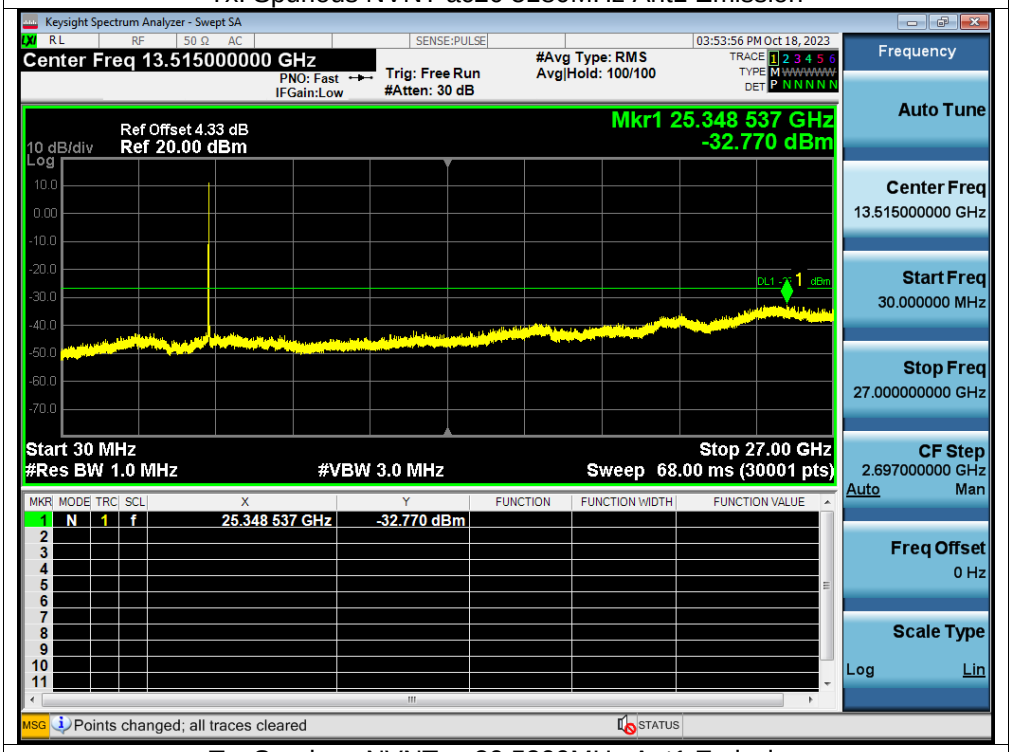
Tx. Spurious NVNT n40 5190MHz Ant1 Emission



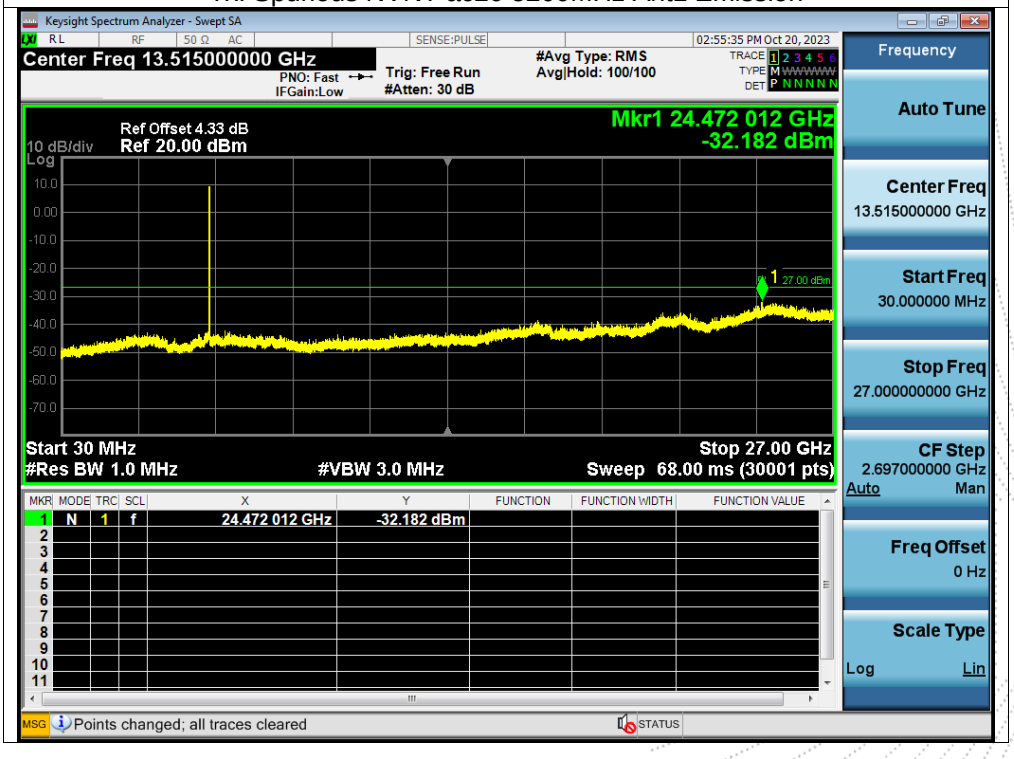
Tx. Spurious NVNT n40 5230MHz Ant1 Emission



Tx. Spurious NVNT ac20 5180MHz Ant1 Emission



Tx. Spurious NVNT ac20 5200MHz Ant1 Emission



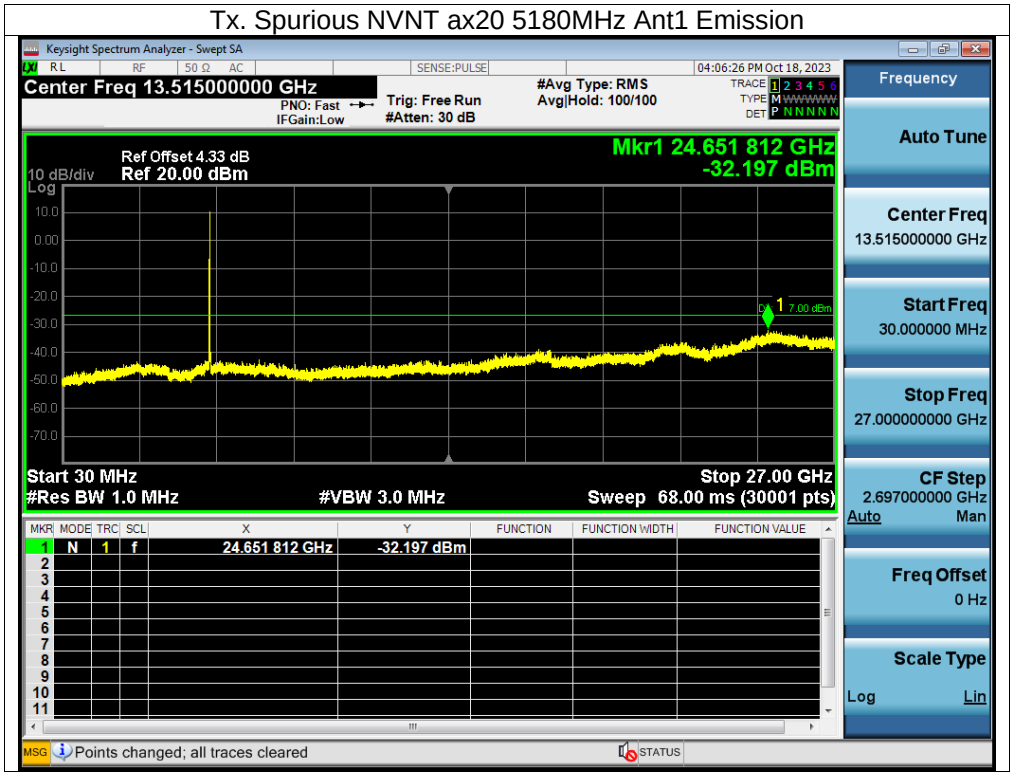
Tx. Spurious NVNT ac20 5240MHz Ant1 Emission

Tx. Spurious NVNT ac40 5190MHz Ant1 Emission

Tx. Spurious NVNT ac40 5230MHz Ant1 Emission

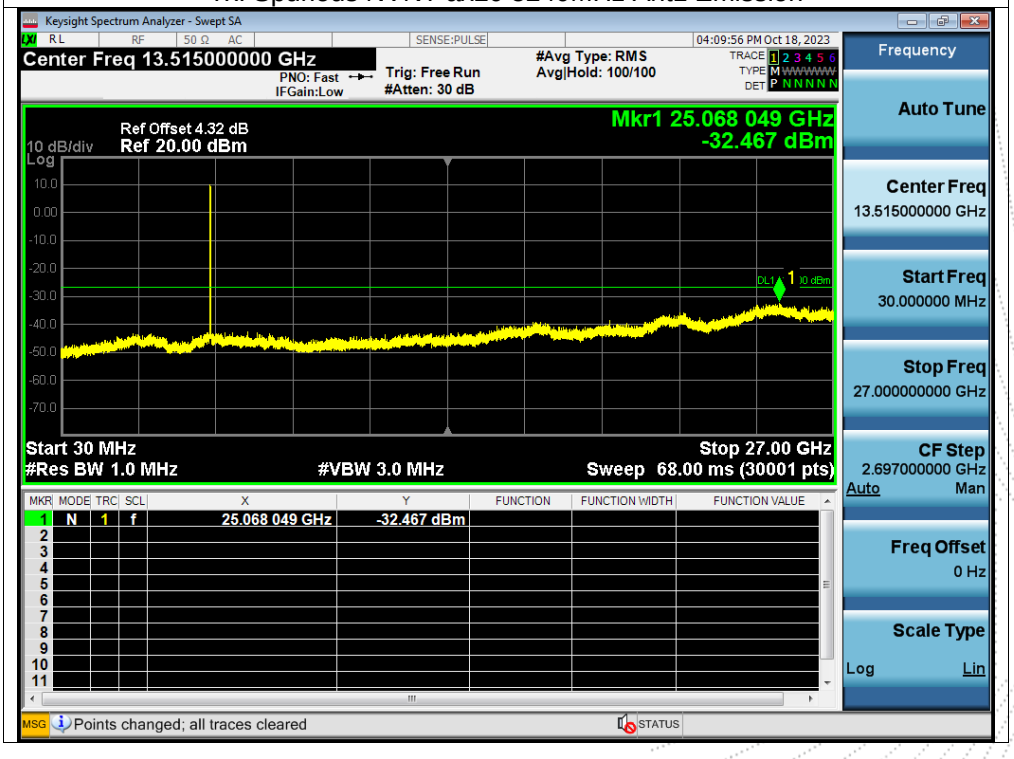
Tx. Spurious NVNT ac80 5210MHz Ant1 Emission

Tx. Spurious NVNT ax20 5180MHz Ant1 Emission



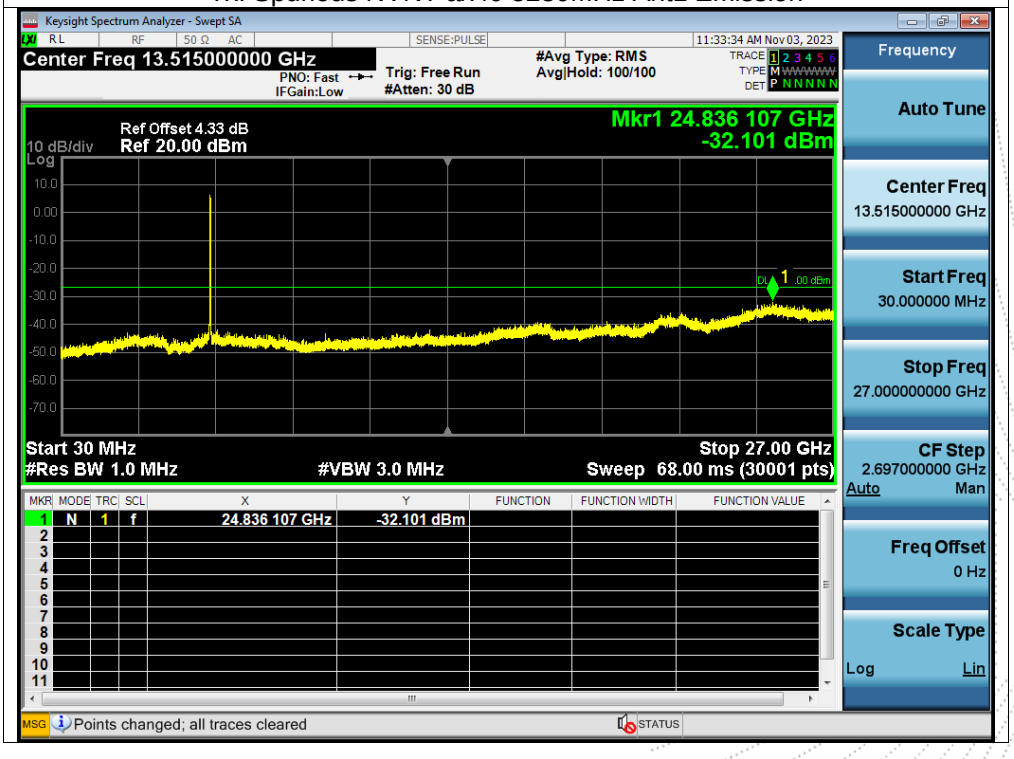
Tx. Spurious NVNT ax20 5200MHz Ant1 Emission

Tx. Spurious NVNT ax20 5240MHz Ant1 Emission

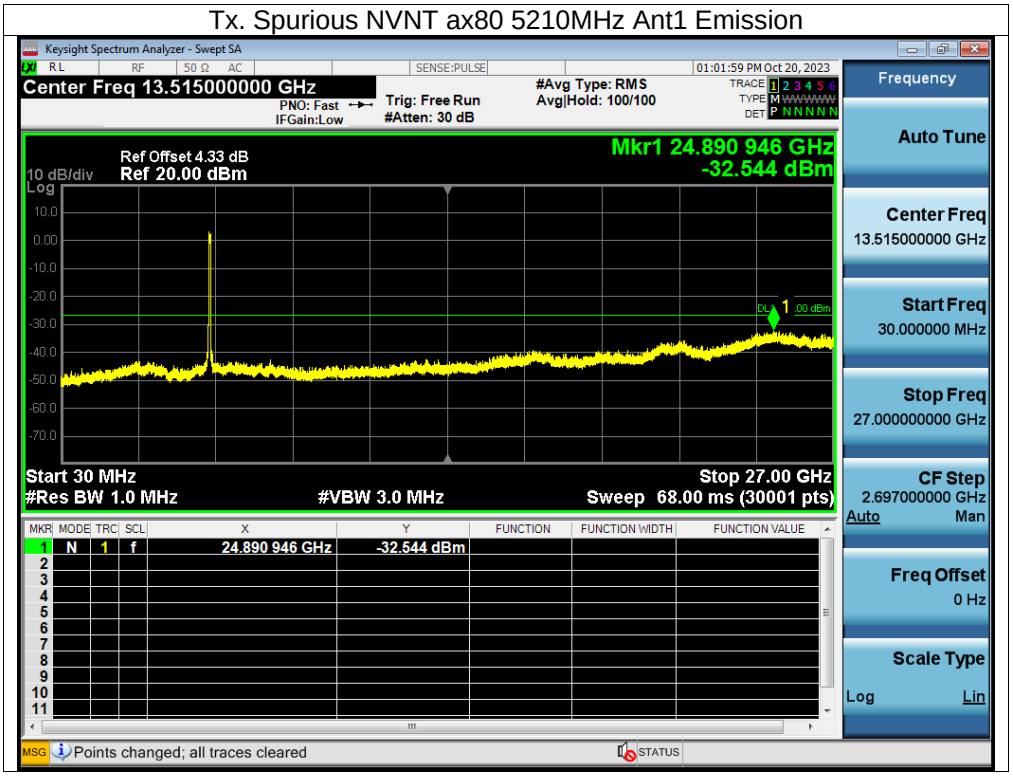


Tx. Spurious NVNT ax40 5190MHz Ant1 Emission

Tx. Spurious NVNT ax40 5230MHz Ant1 Emission



Tx. Spurious NVNT ax80 5210MHz Ant1 Emission



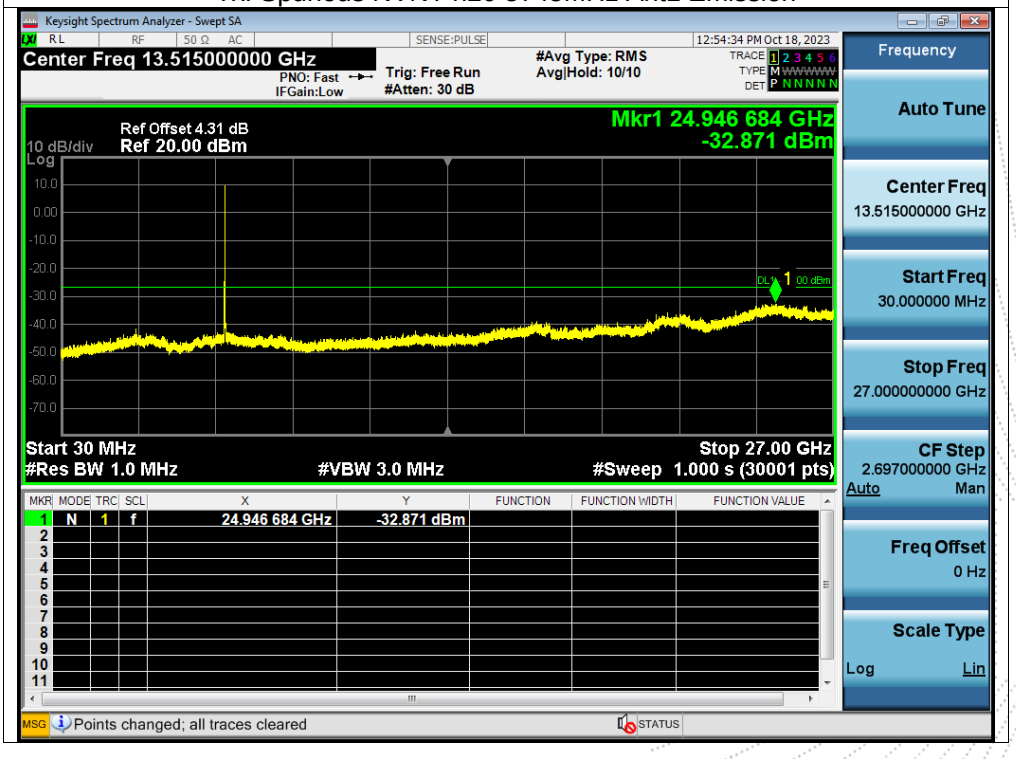
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A, only shown Antenna A.
Antenna A: 5745-58250MHz

Tx. Spurious NVNT a 5745MHz Ant1 Emission

Tx. Spurious NVNT a 5785MHz Ant1 Emission

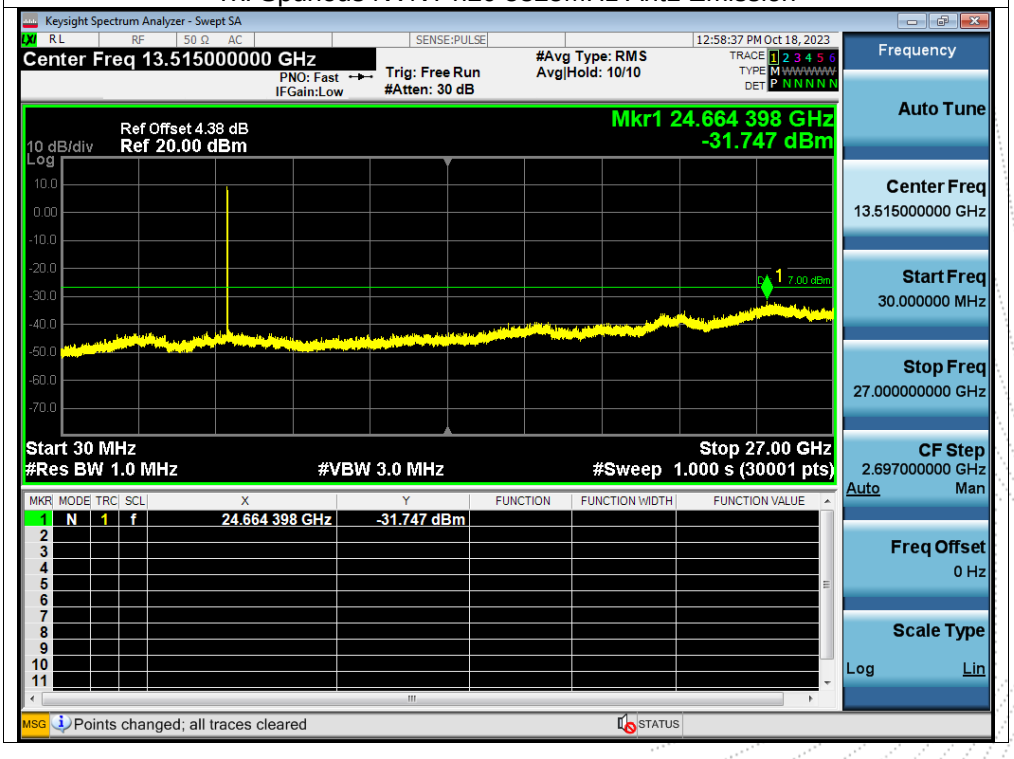
Tx. Spurious NVNT a 5825MHz Ant1 Emission

Tx. Spurious NVNT n20 5745MHz Ant1 Emission



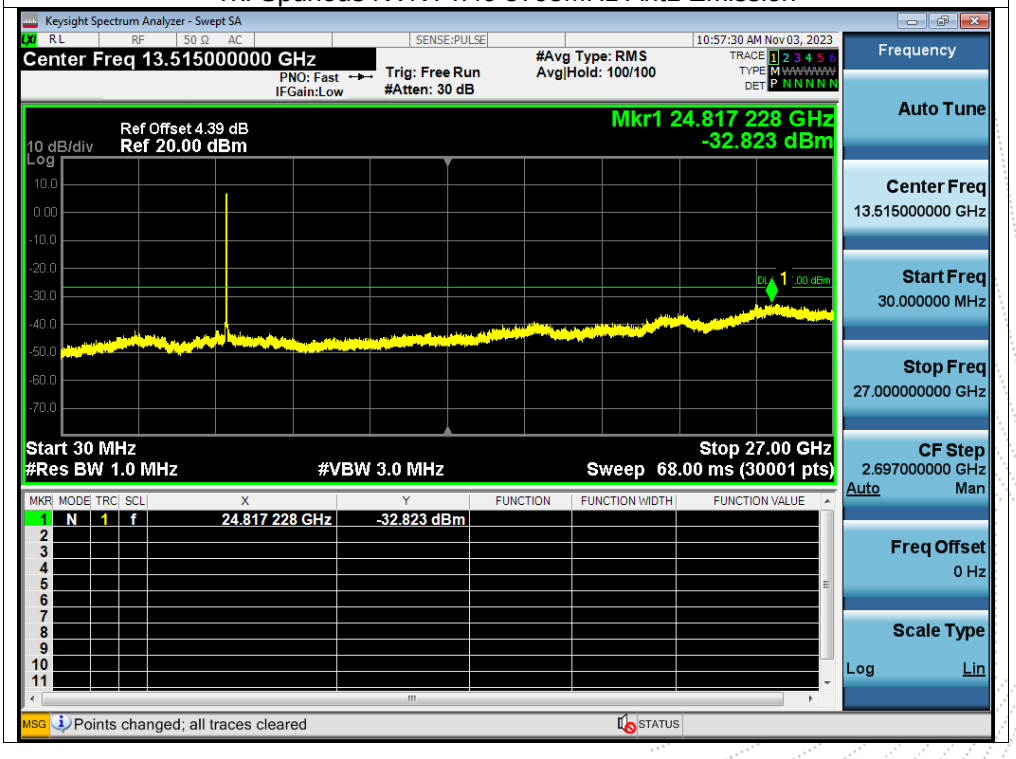
Tx. Spurious NVNT n20 5785MHz Ant1 Emission

Tx. Spurious NVNT n20 5825MHz Ant1 Emission



Tx. Spurious NVNT n40 5755MHz Ant1 Emission

Tx. Spurious NVNT n40 5795MHz Ant1 Emission

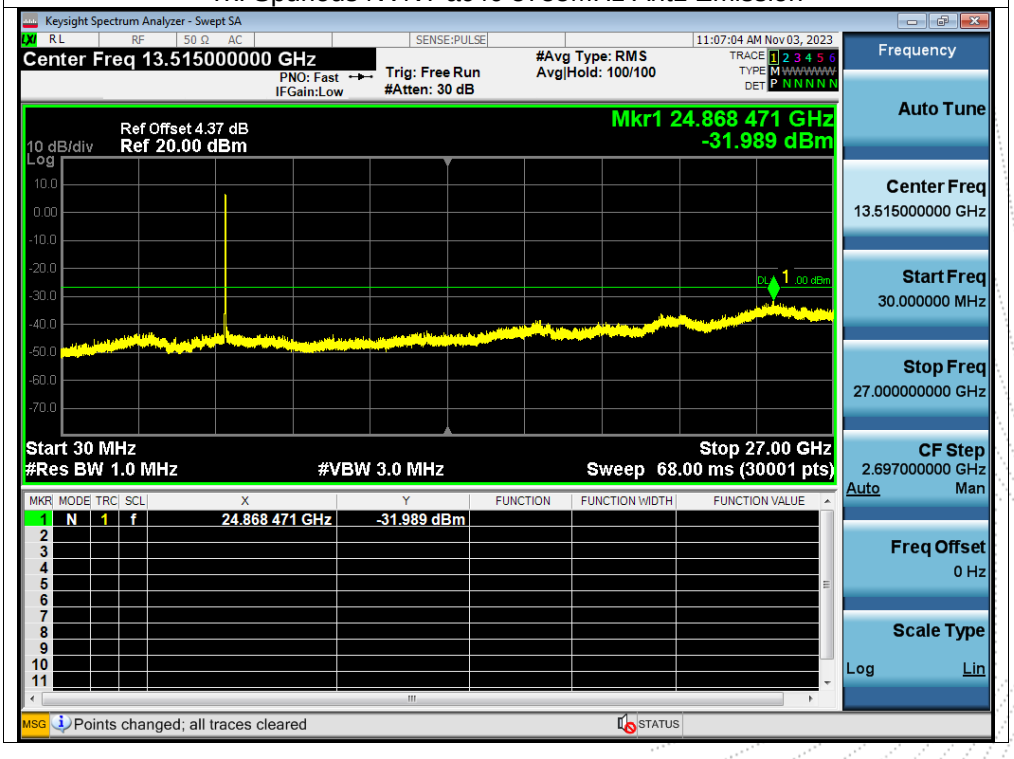


Tx. Spurious NVNT ac20 5745MHz Ant1 Emission

Tx. Spurious NVNT ac20 5785MHz Ant1 Emission

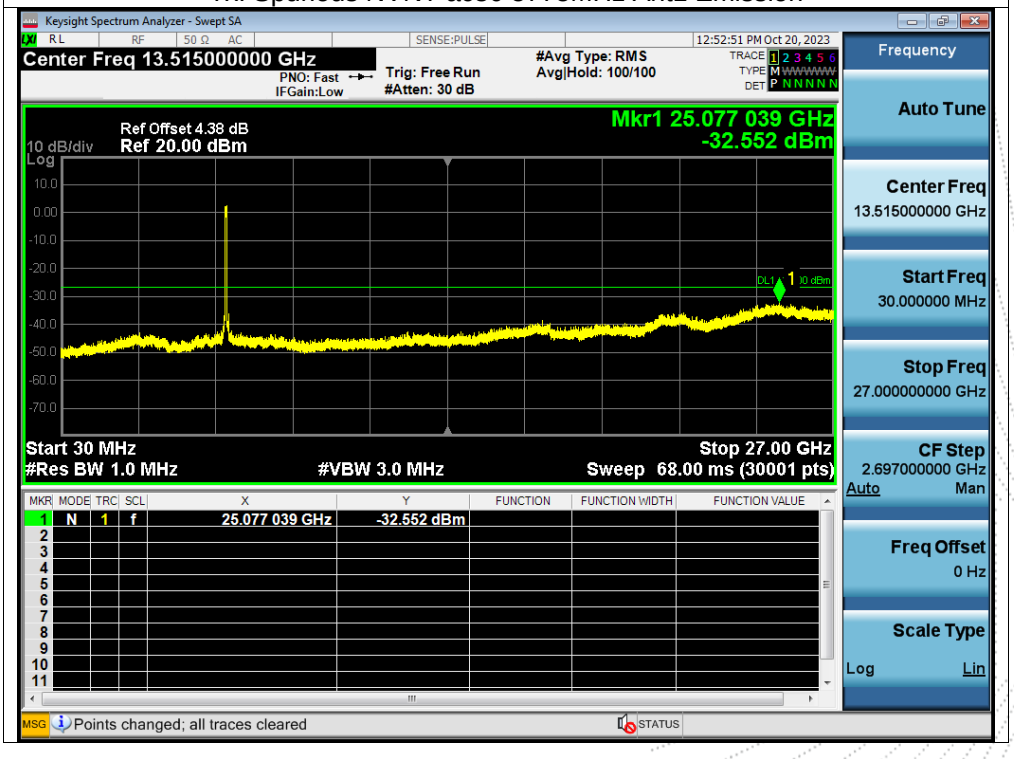
Tx. Spurious NVNT ac20 5825MHz Ant1 Emission

Tx. Spurious NVNT ac40 5755MHz Ant1 Emission



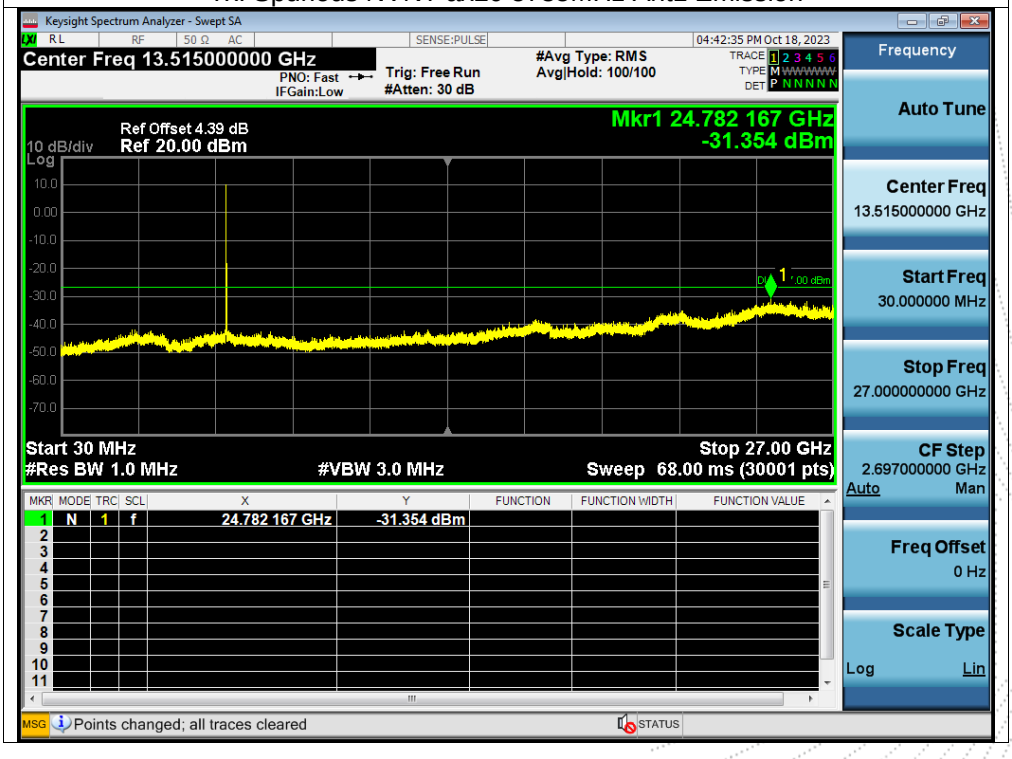
Tx. Spurious NVNT ac40 5795MHz Ant1 Emission

Tx. Spurious NVNT ac80 5775MHz Ant1 Emission



Tx. Spurious NVNT ax20 5745MHz Ant1 Emission

Tx. Spurious NVNT ax20 5785MHz Ant1 Emission

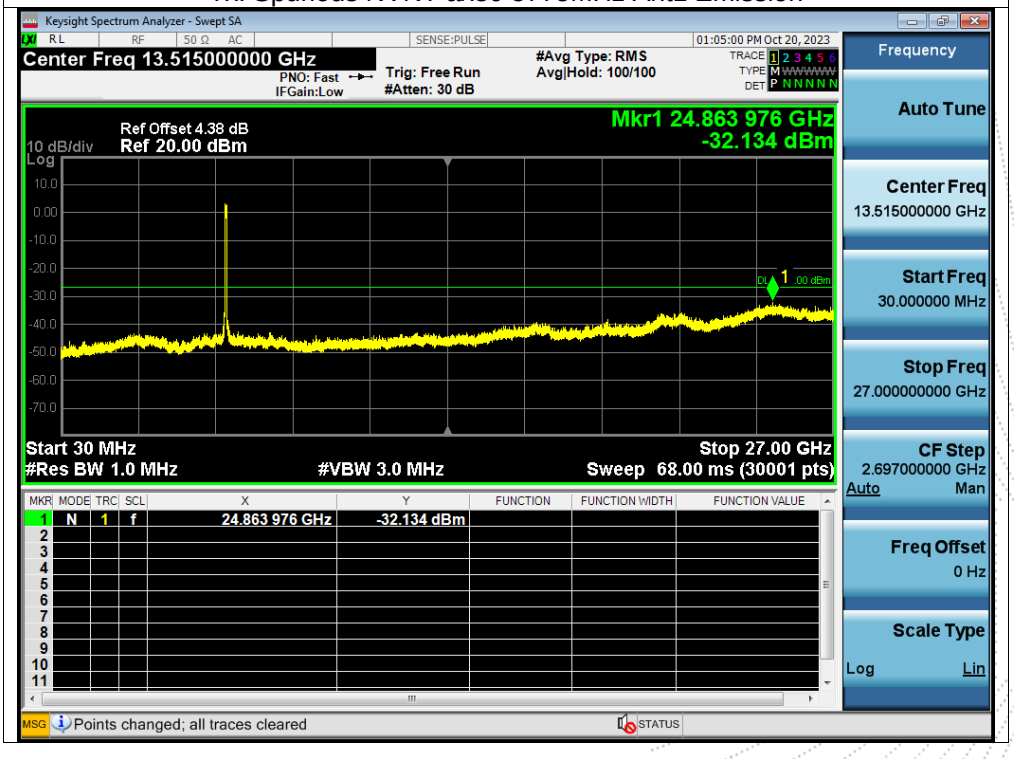


Tx. Spurious NVNT ax20 5825MHz Ant1 Emission

Tx. Spurious NVNT ax40 5755MHz Ant1 Emission

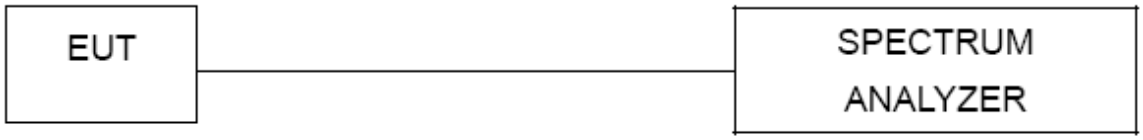
Tx. Spurious NVNT ax40 5795MHz Ant1 Emission

Tx. Spurious NVNT ax80 5775MHz Ant1 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. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 106 ppm and he limit is less than ±20ppm (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°C~70°C.

13.4 Test Result

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 12V
Test Mode:	TX (5.1G) Mode 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)	12.00	5180.0117	5180	0.0117	2.2491
		V max (V)	13.80	5180.0071	5180	0.0071	1.3674
		V min (V)	10.20	5180.0211	5180	0.0211	4.0718
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	5180.0135	5180	0.0135	2.6155
		T (°C)	-10	5180.0087	5180	0.0087	1.6884
		T (°C)	0	5180.0084	5180	0.0084	1.6262
		T (°C)	10	5180.0093	5180	0.0093	1.7996
		T (°C)	20	5180.0121	5180	0.0121	2.3312
		T (°C)	30	5180.0098	5180	0.0098	1.8849
		T (°C)	40	5180.0047	5180	0.0047	0.9143
		T (°C)	50	5180.0125	5180	0.0125	2.4174
		T (°C)	60	5180.0129	5180	0.0129	2.4840
		T (°C)	70	5180.0021	5180	0.0021	0.4053
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)	12.00	5200.0040	5200	0.0040	0.7641
		V max (V)	13.80	5200.0078	5200	0.0078	1.4949
		V min (V)	10.20	5200.0010	5200	0.0010	0.1940
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)	12	T (°C)	-20	5200.00831	5200	0.00831	1.5984
		T (°C)	-10	5200.00118	5200	0.00118	0.2268
		T (°C)	0	5200.01151	5200	0.01151	2.2137
		T (°C)	10	5200.01352	5200	0.01352	2.5992
		T (°C)	20	5200.00976	5200	0.00976	1.8777
		T (°C)	30	5200.00508	5200	0.00508	0.9765
		T (°C)	40	5200.00931	5200	0.00931	1.7908
		T (°C)	50	5200.00961	5200	0.00961	1.8478
		T (°C)	60	5200.01247	5200	0.01247	2.3982
		T (°C)	70	5200.00391	5200	0.00391	0.7528
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)	12.00	5240.0116	5240	0.0116	2.2063
		V max (V)	13.80	5240.0123	5240	0.0123	2.3441
		V min (V)	10.20	5240.0000	5240	0.0000	0.0006
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	5240.0084	5240	0.0084	1.5966
		T (°C)	-10	5240.0077	5240	0.0077	1.4633
		T (°C)	0	5240.0091	5240	0.0091	1.7336
		T (°C)	10	5240.0106	5240	0.0106	2.0259
		T (°C)	20	5240.0111	5240	0.0111	2.1182
		T (°C)	30	5240.0028	5240	0.0028	0.5342
		T (°C)	40	5240.0072	5240	0.0072	1.3659
		T (°C)	50	5240.0003	5240	0.0003	0.0552
		T (°C)	60	5240.0133	5240	0.0133	2.5460
		T (°C)	70	5240.0105	5240	0.0105	1.9994
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	DC 12V
Test Mode:	TX (5.8G) Mode Frequency U-NII-3 (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)	12.00	5745.00830	5745	0.00830	1.4443
		V max (V)	13.80	5745.00311	5745	0.00311	0.5420
		V min (V)	10.20	5745.00255	5745	0.00255	0.4431
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	5745.01018	5745	0.01018	1.7723
		T (°C)	-10	5745.01267	5745	0.01267	2.2050
		T (°C)	0	5745.00991	5745	0.00991	1.7253
		T (°C)	10	5745.00389	5745	0.00389	0.6772
		T (°C)	20	5745.00906	5745	0.00906	1.5771
		T (°C)	30	5745.00424	5745	0.00424	0.7379
		T (°C)	40	5745.00313	5745	0.00313	0.5450
		T (°C)	50	5745.00381	5745	0.00381	0.6629
		T (°C)	60	5745.00488	5745	0.00488	0.8499
		T (°C)	70	5745.01261	5745	0.01261	2.1949
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)	12.00	5785.00691	5785	0.00691	1.1944
		V max (V)	13.80	5785.01266	5785	0.01266	2.1876
		V min (V)	10.20	5785.00936	5785	0.00936	1.6183
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	5785.00859	5785	0.00859	1.4854
		T (°C)	-10	5785.00746	5785	0.00746	1.2891
		T (°C)	0	5785.00903	5785	0.00903	1.5612
		T (°C)	10	5785.00899	5785	0.00899	1.5534
		T (°C)	20	5785.00152	5785	0.00152	0.2626
		T (°C)	30	5785.00445	5785	0.00445	0.7688
		T (°C)	40	5785.00961	5785	0.00961	1.6605
		T (°C)	50	5785.00274	5785	0.00274	0.4745
		T (°C)	60	5785.00214	5785	0.00214	0.3703
		T (°C)	70	5785.00193	5785	0.00193	0.3330
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)	12.00	5825.01144	5825	0.01144	1.9635
		V max (V)	13.80	5825.01069	5825	0.01069	1.8351
		V min (V)	10.20	5825.01016	5825	0.01016	1.7449
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	5825.00341	5825	0.00341	0.5846
		T (°C)	-10	5825.01055	5825	0.01055	1.8119
		T (°C)	0	5825.00442	5825	0.00442	0.7592
		T (°C)	10	5825.00265	5825	0.00265	0.4541
		T (°C)	20	5825.01307	5825	0.01307	2.2443
		T (°C)	30	5825.01154	5825	0.01154	1.9813
		T (°C)	40	5825.00846	5825	0.00846	1.4517
		T (°C)	50	5825.00839	5825	0.00839	1.4401
		T (°C)	60	5825.00794	5825	0.00794	1.3625
		T (°C)	70	5825.00760	5825	0.00760	1.3045
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 = Ton / (Ton+Toff)

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 (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	AntA	100	0	0
NVNT	a	5200	AntA	100	0	0
NVNT	a	5240	AntA	100	0	0
NVNT	n20	5180	AntA	100	0	0
NVNT	n20	5200	AntA	100	0	0
NVNT	n20	5240	AntA	100	0	0
NVNT	n40	5190	AntA	100	0	0
NVNT	n40	5230	AntA	100	0	0
NVNT	ac20	5180	AntA	100	0	0
NVNT	ac20	5200	AntA	100	0	0
NVNT	ac20	5240	AntA	100	0	0
NVNT	ac40	5190	AntA	100	0	0
NVNT	ac40	5230	AntA	100	0	0
NVNT	ac80	5210	AntA	100	0	0
NVNT	ax20	5180	AntA	100	0	0
NVNT	ax20	5200	AntA	100	0	0
NVNT	ax20	5240	AntA	100	0	0
NVNT	ax40	5190	AntA	100	0	0
NVNT	ax40	5230	AntA	100	0	0
NVNT	ax80	5210	AntA	100	0	0

15. Antenna Requirement

15.1 Limit

15.203 requirement:
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, or §15.221. Further, this requirement does not apply to intentionalradiators 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.

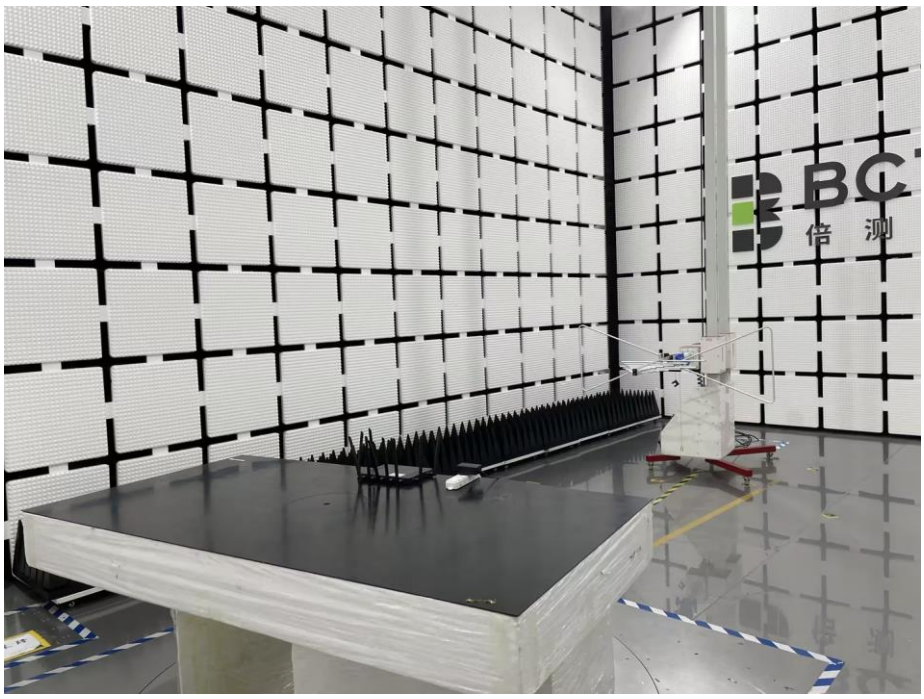
15.2 Test Result

The EUT antenna is external antenna, not using a standard antenna jack or electrical connector for antenna replacement, 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 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

E-Mail：bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※