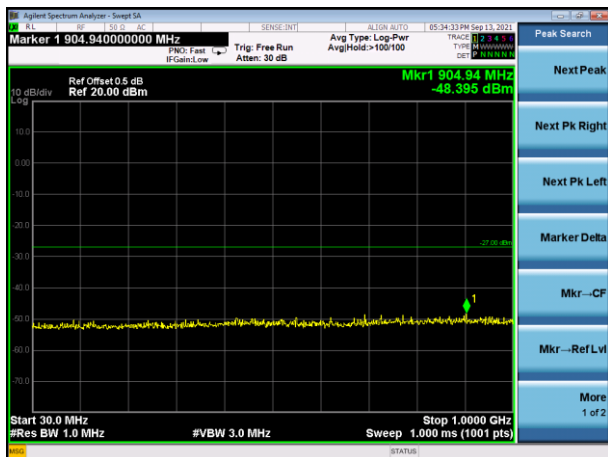
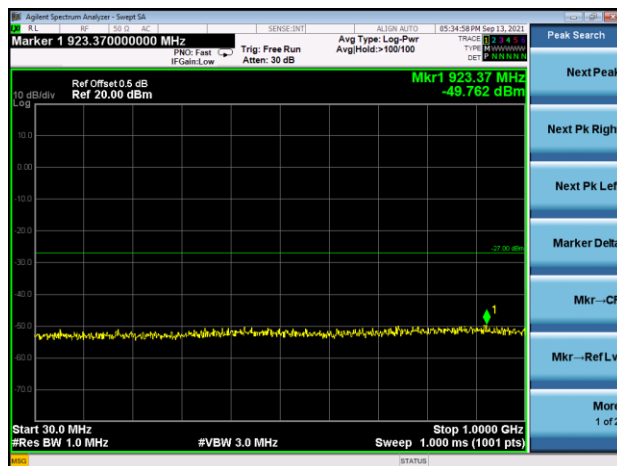


Test Plot

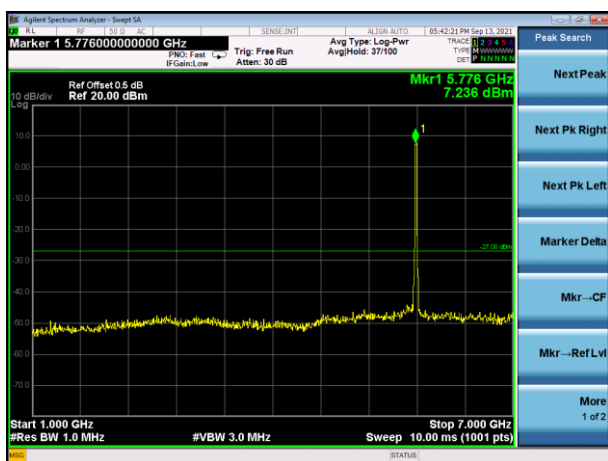
802.11n20 on channel 157



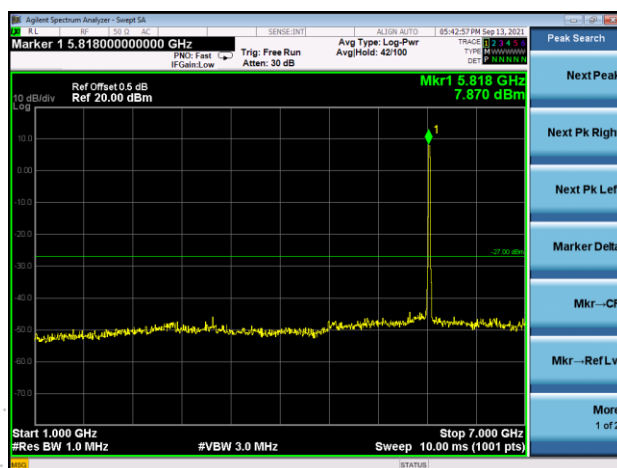
802.11n20 on channel 165



802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157

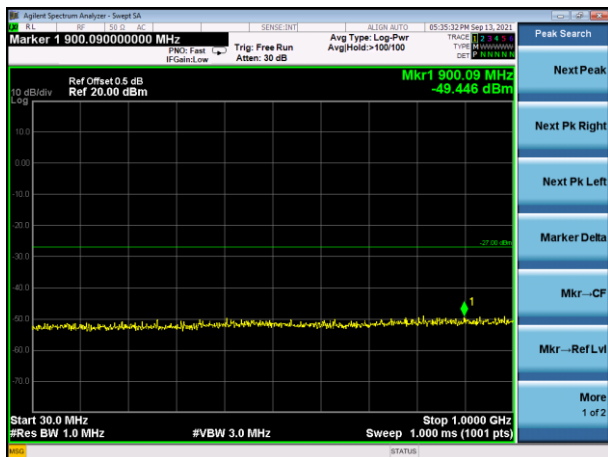


802.11n20 on channel 165

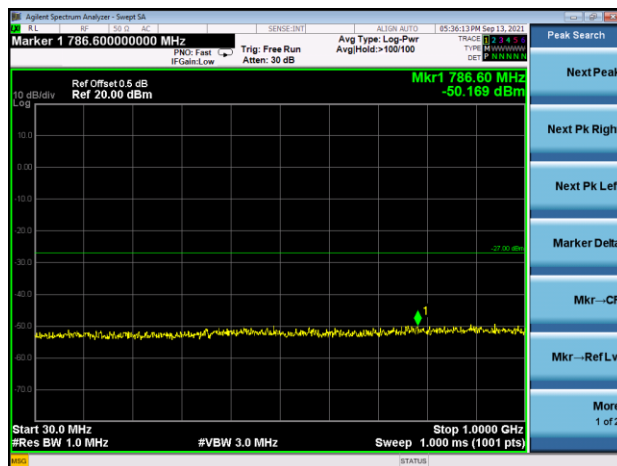


Test Plot

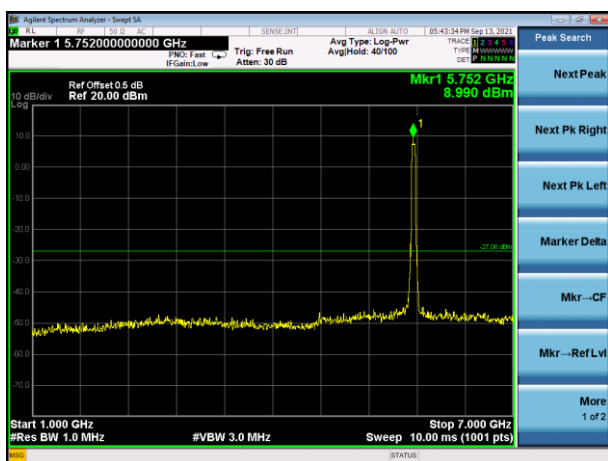
802.11n40 on channel 151



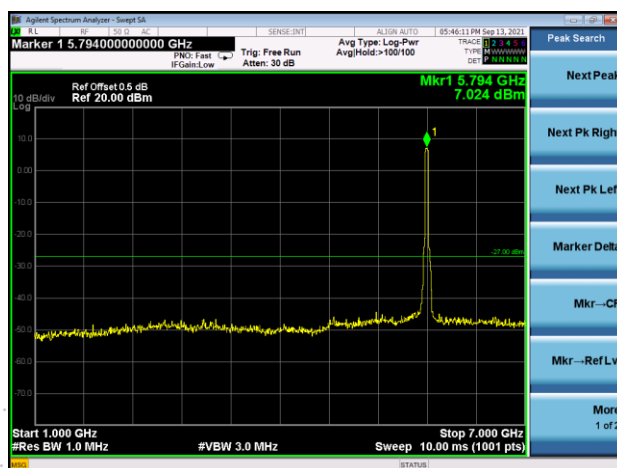
802.11n40 on channel 159



802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151

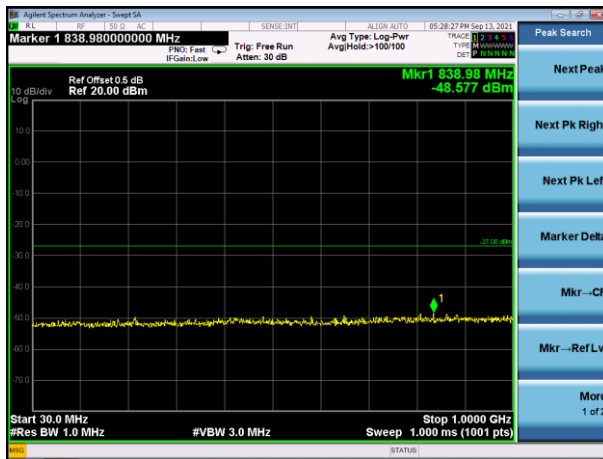


802.11n40 on channel 159

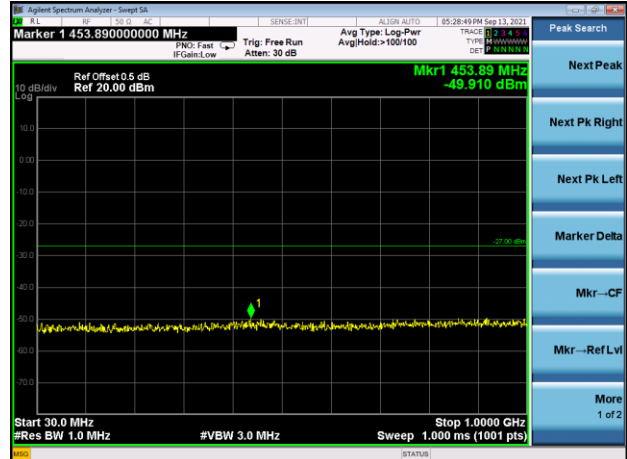


Test Plot

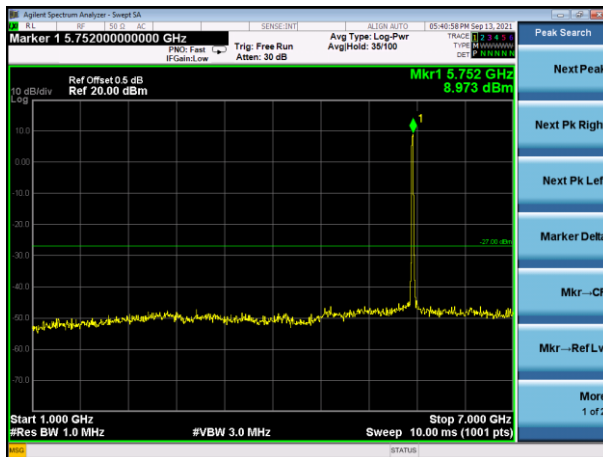
802.11ac20 on channel 149



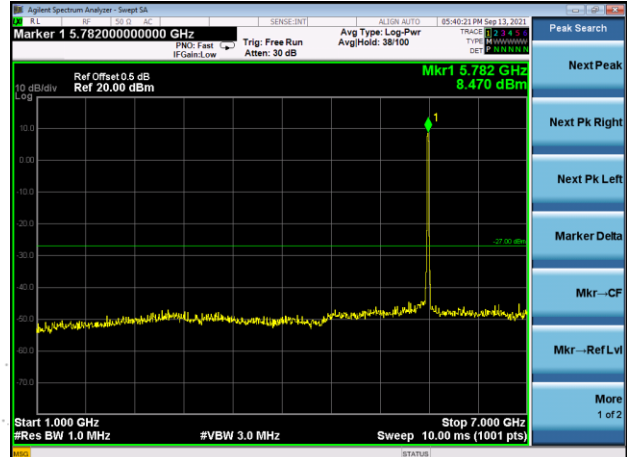
802.11ac20 on channel 157



802.11ac20 on channel 149



802.11ac20 on channel 157



802.11ac20 on channel 149

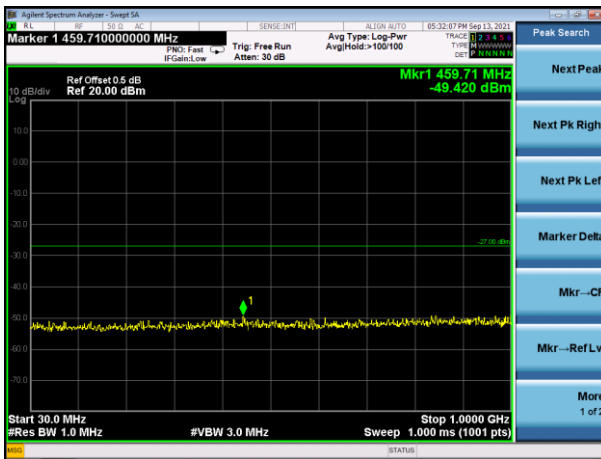


802.11ac20 on channel 157

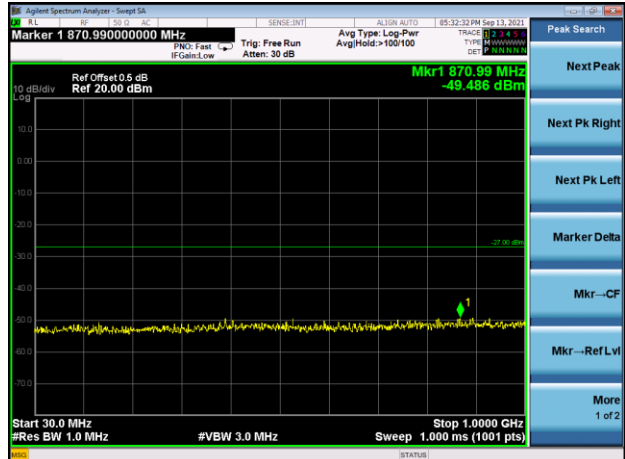


Test Plot

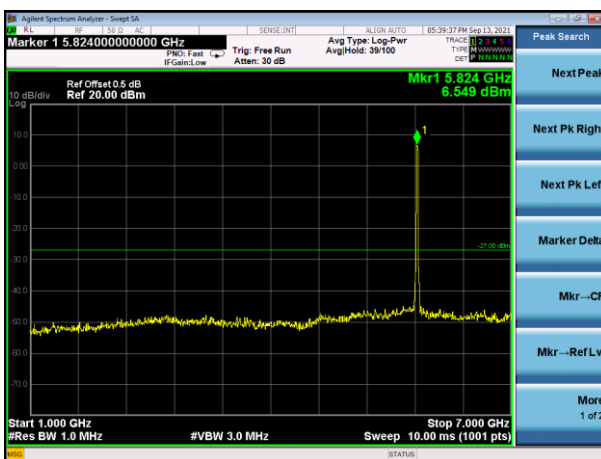
802.11ac20 on channel 165



802.11ac40 on channel 151



802.11ac20 on channel 165



802.11ac40 on channel 151



802.11ac20 on channel 165

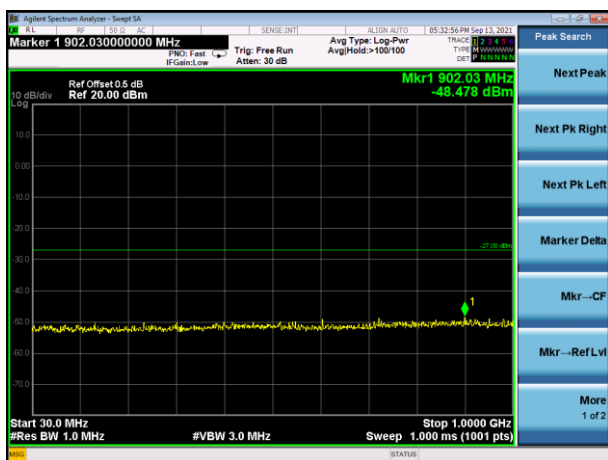


802.11ac40 on channel 151

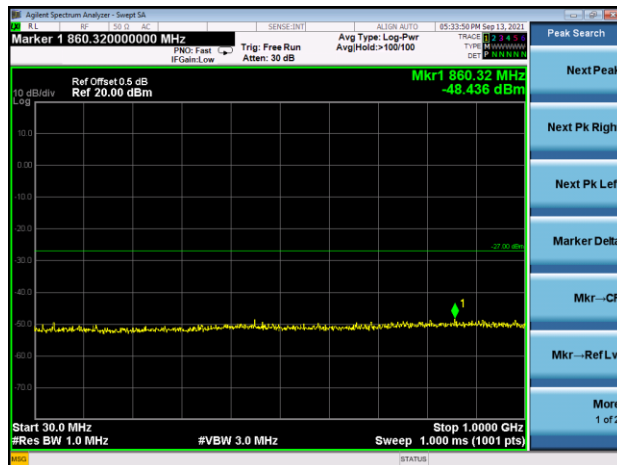


Test Plot

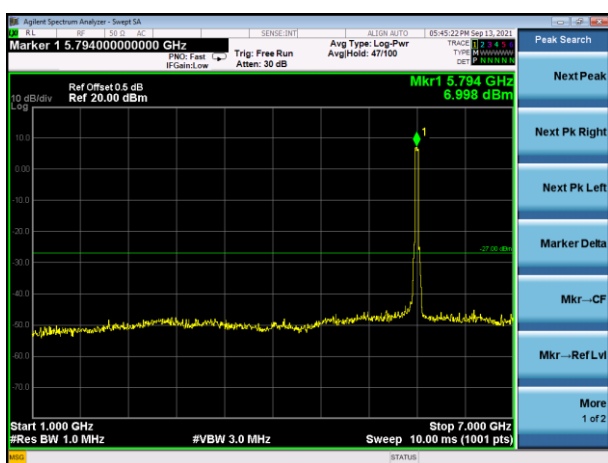
802.11ac40 on channel 159



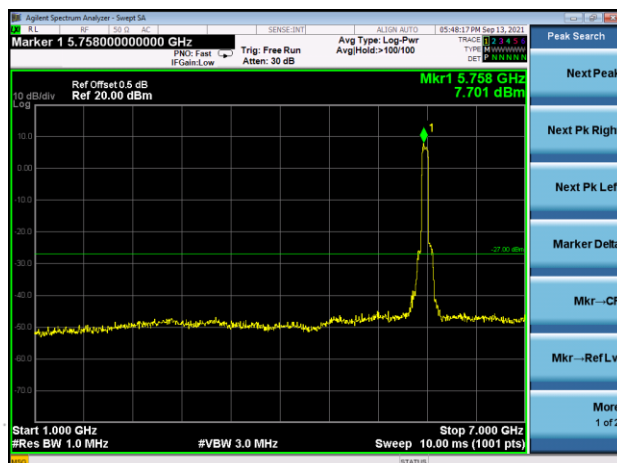
802.11ac80 on channel 155



802.11 ac40 on channel 159



802.11ac80 on channel 155



802.11 ac40 on channel 159



802.11ac80 on channel 155



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 :	AC120V/60Hz
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)	120.00	5180.0041	5180	0.0041	0.7923
		V max (V)	138.00	5180.0098	5180	0.0098	1.8939
		V min (V)	102.00	5180.0200	5180	0.0200	3.8636
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	5180.0000	5180	0.0000	0.0058
		T (°C)	-10	5180.0085	5180	0.0085	1.6366
		T (°C)	0	5180.0022	5180	0.0022	0.4218
		T (°C)	10	5180.0074	5180	0.0074	1.4325
		T (°C)	20	5180.0039	5180	0.0039	0.7590
		T (°C)	30	5180.0036	5180	0.0036	0.6915
		T (°C)	40	5180.0011	5180	0.0011	0.2092
		T (°C)	50	5180.0062	5180	0.0062	1.2022
		T (°C)	60	5180.0126	5180	0.0126	2.4350
		T (°C)	70	5180.0103	5180	0.0103	1.9949
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	5200.0003	5200	0.0003	0.0657
		V max (V)	138.00	5200.0089	5200	0.0089	1.7154
		V min (V)	102.00	5200.0044	5200	0.0044	0.8521
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)	120	T (°C)	-20	5200.01286	5200	0.01286	2.4737
		T (°C)	-10	5200.01344	5200	0.01344	2.5842
		T (°C)	0	5200.00167	5200	0.00167	0.3213
		T (°C)	10	5200.00602	5200	0.00602	1.1572
		T (°C)	20	5200.00098	5200	0.00098	0.1884
		T (°C)	30	5200.01272	5200	0.01272	2.4468
		T (°C)	40	5200.00120	5200	0.00120	0.2304
		T (°C)	50	5200.00750	5200	0.00750	1.4422
		T (°C)	60	5200.00253	5200	0.00253	0.4872
		T (°C)	70	5200.00436	5200	0.00436	0.8389
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	2.1617
		V max (V)	138.00	5240.0073	5240	0.0073	1.3865
		V min (V)	102.00	5240.0032	5240	0.0032	0.6049
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	5240.0112	5240	0.0112	2.1296
		T (°C)	-10	5240.0108	5240	0.0108	2.0633
		T (°C)	0	5240.0106	5240	0.0106	2.0172
		T (°C)	10	5240.0076	5240	0.0076	1.4425
		T (°C)	20	5240.0103	5240	0.0103	1.9685
		T (°C)	30	5240.0033	5240	0.0033	0.6307
		T (°C)	40	5240.0057	5240	0.0057	1.0793
		T (°C)	50	5240.0065	5240	0.0065	1.2377
		T (°C)	60	5240.0087	5240	0.0087	1.6639
		T (°C)	70	5240.0105	5240	0.0105	2.0061
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	AC120V/60Hz
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)	120.00	5745.01017	5745	0.01017	1.7700
		V max (V)	138.00	5745.00052	5745	0.00052	0.0906
		V min (V)	102.00	5745.00144	5745	0.00144	0.2507
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

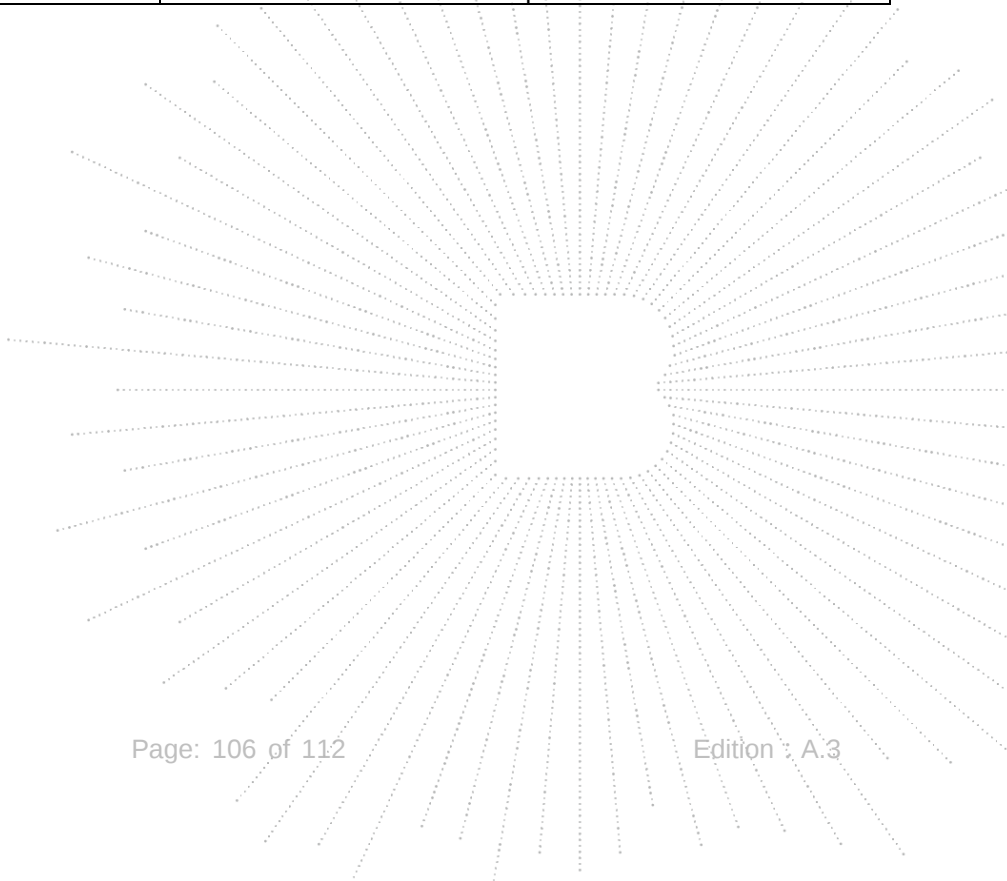
TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5745.01350	5745	0.01350	2.3507
		T (°C)	-10	5745.01284	5745	0.01284	2.2345
		T (°C)	0	5745.00129	5745	0.00129	0.2241
		T (°C)	10	5745.00125	5745	0.00125	0.2170
		T (°C)	20	5745.00642	5745	0.00642	1.1175
		T (°C)	30	5745.00546	5745	0.00546	0.9509
		T (°C)	40	5745.00519	5745	0.00519	0.9031
		T (°C)	50	5745.00424	5745	0.00424	0.7385
		T (°C)	60	5745.00416	5745	0.00416	0.7239
		T (°C)	70	5745.00303	5745	0.00303	0.5273
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	5785.00869	5785	0.00869	1.5018
		V max (V)	138.00	5785.00026	5785	0.00026	0.0455
		V min (V)	102.00	5785.00360	5785	0.00360	0.6223
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	5785.00897	5785	0.00897	1.5513
		T (°C)	-10	5785.00144	5785	0.00144	0.2497
		T (°C)	0	5785.00198	5785	0.00198	0.3420
		T (°C)	10	5785.00716	5785	0.00716	1.2375
		T (°C)	20	5785.00238	5785	0.00238	0.4110
		T (°C)	30	5785.01076	5785	0.01076	1.8607
		T (°C)	40	5785.01119	5785	0.01119	1.9345
		T (°C)	50	5785.00222	5785	0.00222	0.3835
		T (°C)	60	5785.01010	5785	0.01010	1.7451
		T (°C)	70	5785.00357	5785	0.00357	0.6166
Limits				5725-5850 MHz			
Result				Complies			

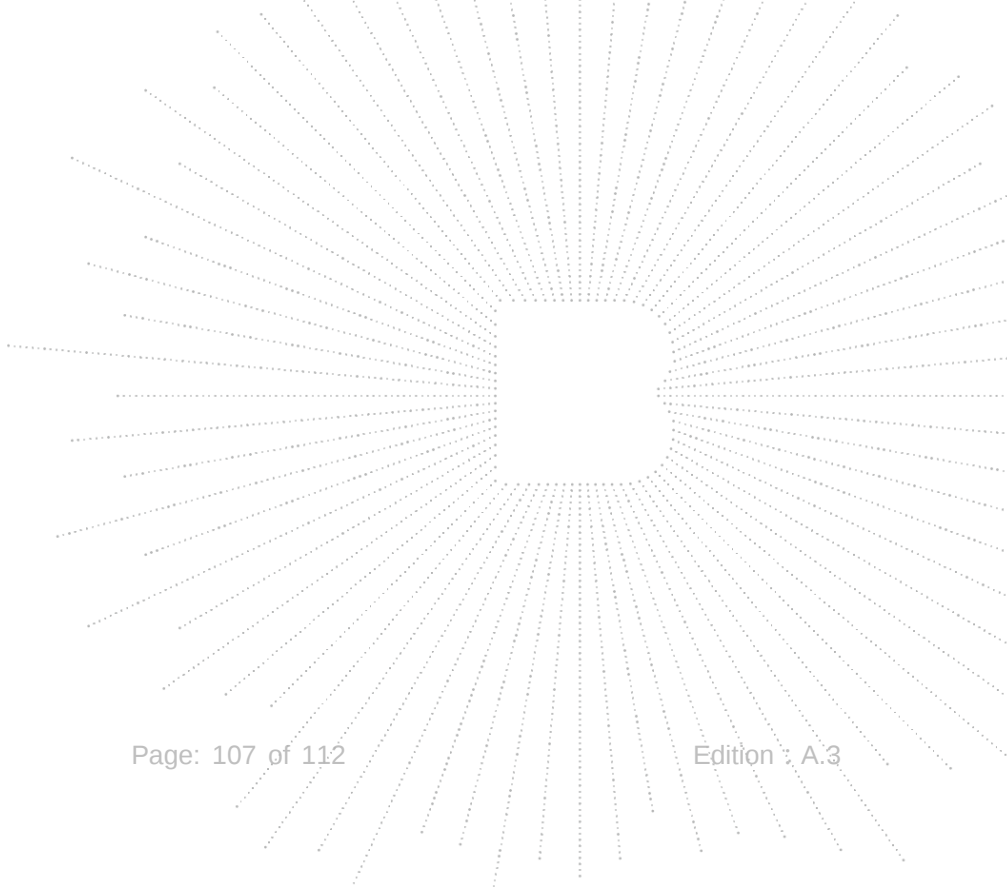


Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5825.00723	5825	0.00723	1.2418
		V max (V)	138.00	5825.00519	5825	0.00519	0.8909
		V min (V)	102.00	5825.00422	5825	0.00422	0.7247
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	5825.00529	5825	0.00529	0.9074
		T (°C)	-10	5825.00812	5825	0.00812	1.3936
		T (°C)	0	5825.01342	5825	0.01342	2.3035
		T (°C)	10	5825.00598	5825	0.00598	1.0263
		T (°C)	20	5825.01032	5825	0.01032	1.7714
		T (°C)	30	5825.00142	5825	0.00142	0.2445
		T (°C)	40	5825.01184	5825	0.01184	2.0331
		T (°C)	50	5825.00274	5825	0.00274	0.4701
		T (°C)	60	5825.00720	5825	0.00720	1.2357
		T (°C)	70	5825.00778	5825	0.00778	1.3363
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

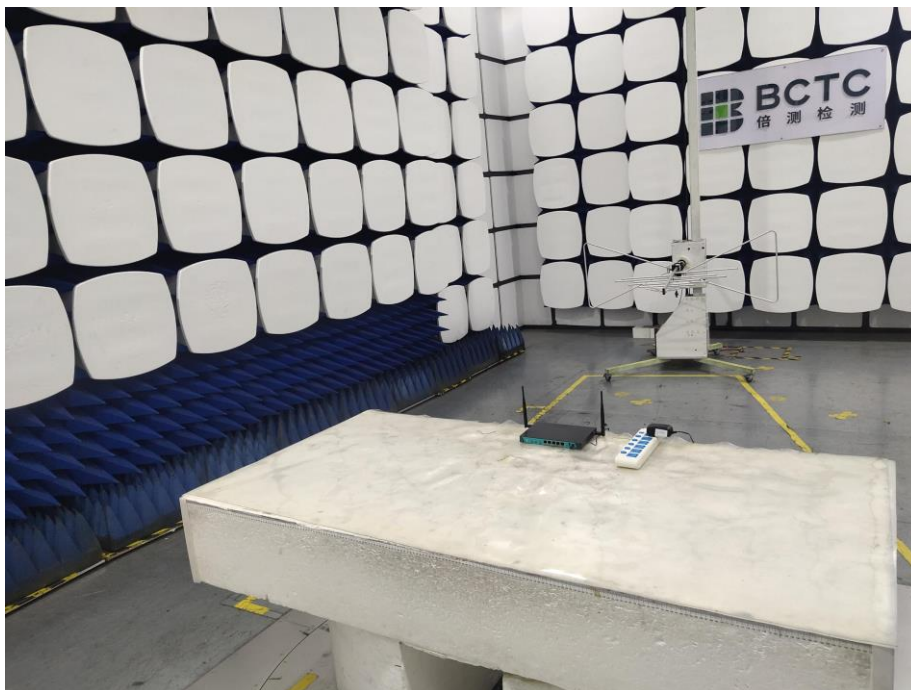
The EUT antenna is External antenna (antenna gain (A): 2dBi; antenna gain (B): 2dBi). It comply with the standard requirement.

15. EUT Photographs**EUT Photo 1****EUT Photo 2**

16. EUT TEST SETUP Photographs

Conducted 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** *****