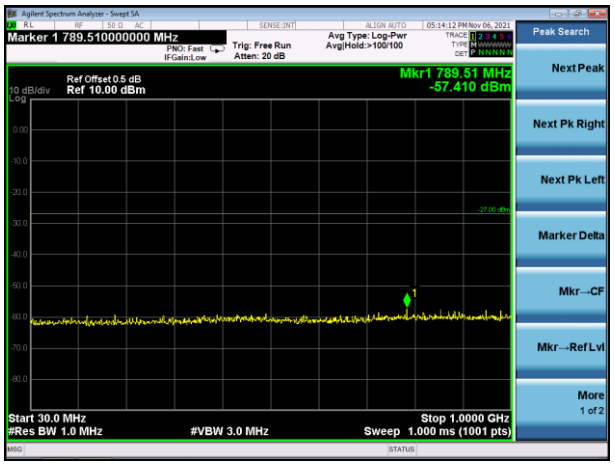
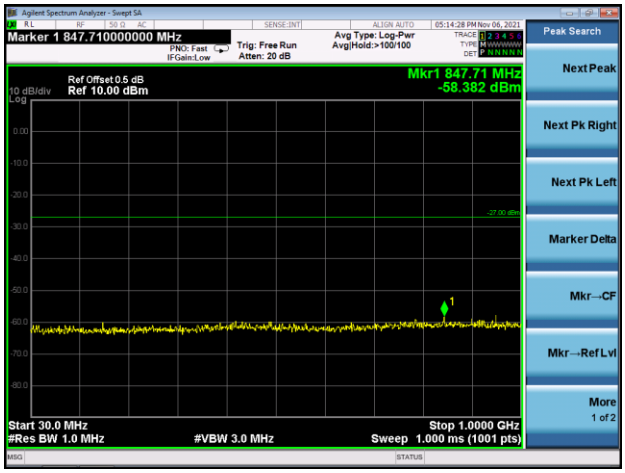
Test Plot

802.11ac20 on channel 165



802.11ac40 on channel 151



802.11ac20 on channel 165

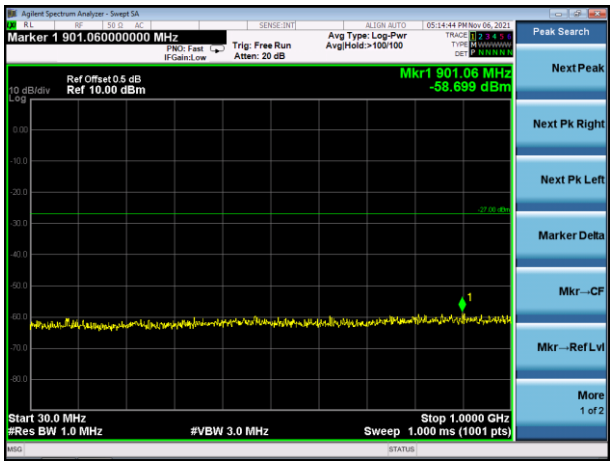
802.11ac40 on channel 151

802.11ac20 on channel 165

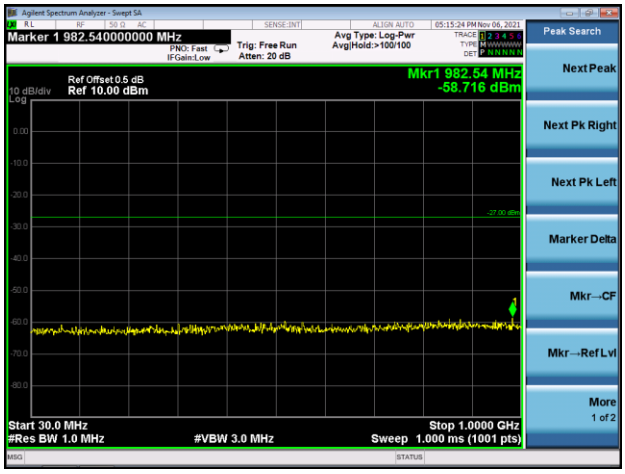
802.11ac40 on channel 151

Test Plot

802.11ac40 on channel 159



802.11ac80 on channel 151



802.11ac40 on channel 159

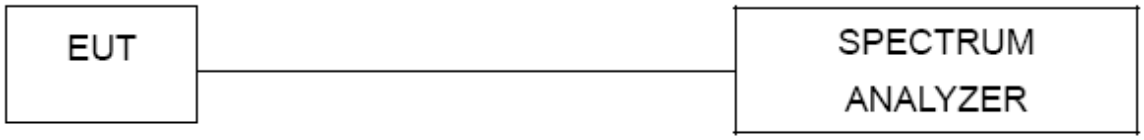
802.11ac80 on channel 151

802.11ac40 on channel 159

802.11ac80 on channel 151

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 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	5180.0136	5180	0.0136	2.6158
		V max (V)	5.75	5180.0204	5180	0.0204	3.9345
		V min (V)	4.25	5180.0146	5180	0.0146	2.8222
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	5180.0047	5180	0.0047	0.9093
		T (°C)	-10	5180.0113	5180	0.0113	2.1787
		T (°C)	0	5180.0071	5180	0.0071	1.3701
		T (°C)	10	5180.0060	5180	0.0060	1.1666
		T (°C)	20	5180.0130	5180	0.0130	2.5036
		T (°C)	30	5180.0110	5180	0.0110	2.1306
		T (°C)	40	5180.0124	5180	0.0124	2.3933
		T (°C)	50	5180.0036	5180	0.0036	0.7000
		T (°C)	60	5180.0049	5180	0.0049	0.9520
		T (°C)	70	5180.0081	5180	0.0081	1.5667
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	5200.0081	5200	0.0081	1.5509
		V max (V)	5.75	5200.0052	5200	0.0052	1.0042
		V min (V)	4.25	5200.0009	5200	0.0009	0.1734
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	5200.00015	5200	0.00015	0.0290
		T (°C)	-10	5200.00332	5200	0.00332	0.6393
		T (°C)	0	5200.00539	5200	0.00539	1.0374
		T (°C)	10	5200.00843	5200	0.00843	1.6205
		T (°C)	20	5200.01015	5200	0.01015	1.9522
		T (°C)	30	5200.00130	5200	0.00130	0.2491
		T (°C)	40	5200.00842	5200	0.00842	1.6185
		T (°C)	50	5200.01226	5200	0.01226	2.3579
		T (°C)	60	5200.01152	5200	0.01152	2.2147
		T (°C)	70	5200.01252	5200	0.01252	2.4081
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	5240.0002	5240	0.0002	0.0420
		V max (V)	5.75	5240.0044	5240	0.0044	0.8453
		V min (V)	4.25	5240.0087	5240	0.0087	1.6522
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	5240.0124	5240	0.0124	2.3747
		T (°C)	-10	5240.0002	5240	0.0002	0.0311
		T (°C)	0	5240.0129	5240	0.0129	2.4643
		T (°C)	10	5240.0038	5240	0.0038	0.7226
		T (°C)	20	5240.0130	5240	0.0130	2.4757
		T (°C)	30	5240.0081	5240	0.0081	1.5451
		T (°C)	40	5240.0114	5240	0.0114	2.1766
		T (°C)	50	5240.0020	5240	0.0020	0.3809
		T (°C)	60	5240.0106	5240	0.0106	2.0228
		T (°C)	70	5240.0135	5240	0.0135	2.5794
Limits				5150-5250 MHz			
Result				Complies			

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 5V
Hzst 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)	5.00	5745.00472	5745	0.00472	0.8209
		V max (V)	5.75	5745.00741	5745	0.00741	1.2901
		V min (V)	4.25	5745.00927	5745	0.00927	1.6131
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	5745.00361	5745	0.00361	0.6288
		T (°C)	-10	5745.00762	5745	0.00762	1.3271
		T (°C)	0	5745.00444	5745	0.00444	0.7725
		T (°C)	10	5745.00189	5745	0.00189	0.3281
		T (°C)	20	5745.01299	5745	0.01299	2.2608
		T (°C)	30	5745.01296	5745	0.01296	2.2557
		T (°C)	40	5745.00633	5745	0.00633	1.1023
		T (°C)	50	5745.00367	5745	0.00367	0.6385
		T (°C)	60	5745.00441	5745	0.00441	0.7679
		T (°C)	70	5745.00533	5745	0.00533	0.9283
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	5785.01198	5785	0.01198	2.0711
		V max (V)	5.75	5785.01063	5785	0.01063	1.8368
		V min (V)	4.25	5785.01222	5785	0.01222	2.1121
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	5785.00080	5785	0.00080	0.1385
		T (°C)	-10	5785.00746	5785	0.00746	1.2902
		T (°C)	0	5785.00073	5785	0.00073	0.1261
		T (°C)	10	5785.00897	5785	0.00897	1.5503
		T (°C)	20	5785.01355	5785	0.01355	2.3418
		T (°C)	30	5785.00108	5785	0.00108	0.1868
		T (°C)	40	5785.00357	5785	0.00357	0.6174
		T (°C)	50	5785.00899	5785	0.00899	1.5545
		T (°C)	60	5785.00592	5785	0.00592	1.0231
		T (°C)	70	5785.00490	5785	0.00490	0.8476
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	5825.01324	5825	0.01324	2.2729
		V max (V)	5.75	5825.00911	5825	0.00911	1.5647
		V min (V)	4.25	5825.01112	5825	0.01112	1.9090
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	5825.01067	5825	0.01067	1.8318
		T (°C)	-10	5825.01267	5825	0.01267	2.1751
		T (°C)	0	5825.00879	5825	0.00879	1.5098
		T (°C)	10	5825.00941	5825	0.00941	1.6157
		T (°C)	20	5825.00358	5825	0.00358	0.6143
		T (°C)	30	5825.01209	5825	0.01209	2.0759
		T (°C)	40	5825.01059	5825	0.01059	1.8175
		T (°C)	50	5825.01096	5825	0.01096	1.8822
		T (°C)	60	5825.00986	5825	0.00986	1.6925
		T (°C)	70	5825.00037	5825	0.00037	0.0637
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 Chip Antenna (antenna gain:1dBi). 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


BCTC
倍 测 检 测

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** ※※※※※