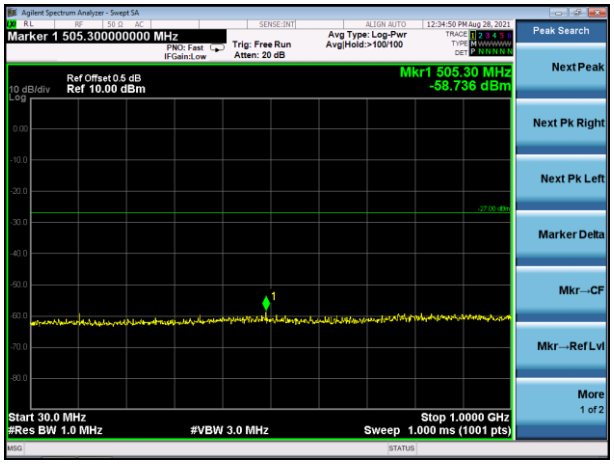
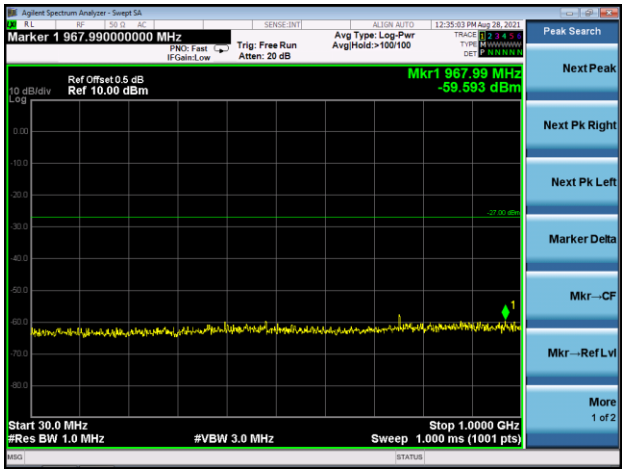
Test Plot

802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157

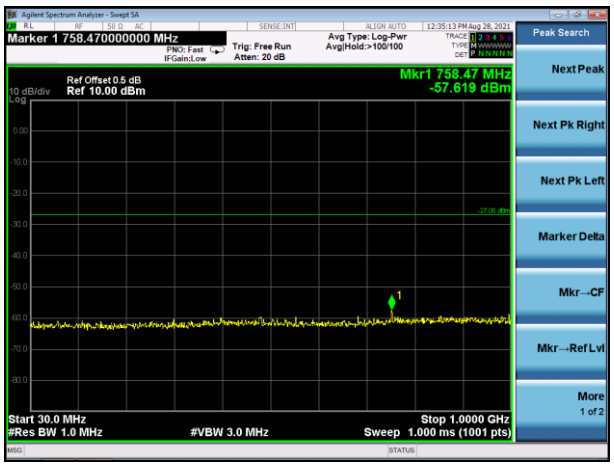
802.11n20 on channel 165

802.11n20 on channel 157

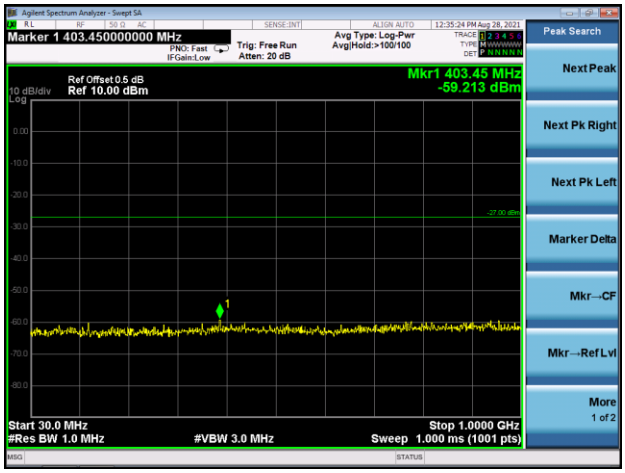
802.11n20 on channel 165

Test Plot

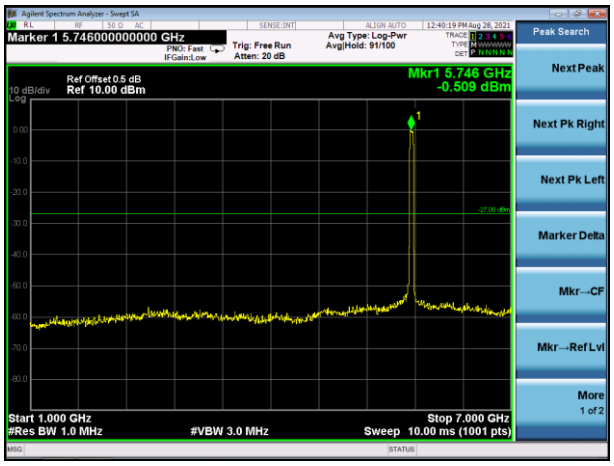
802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151



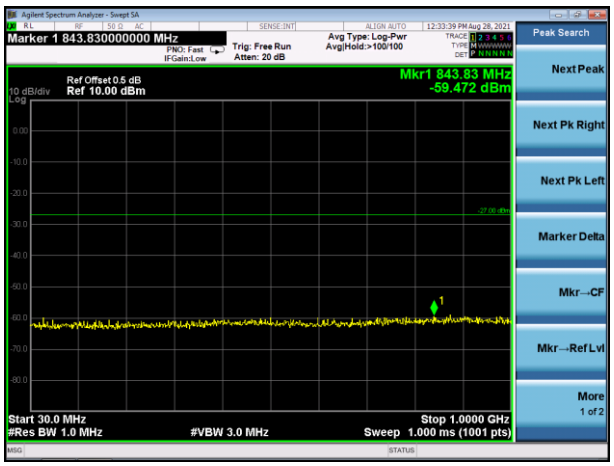
802.11n40 on channel 159

802.11n40 on channel 151

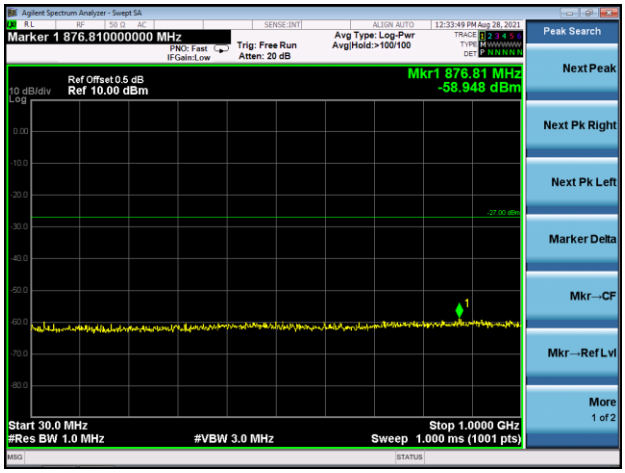
802.11n40 on channel 159

Test Plot

802.11ac20 on channel 149



802.11ac20 on channel 157



802.11ac20 on channel 149

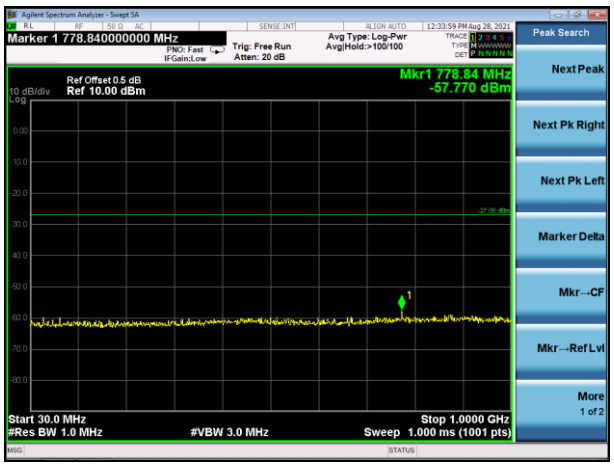
802.11ac20 on channel 157

802.11ac20 on channel 149

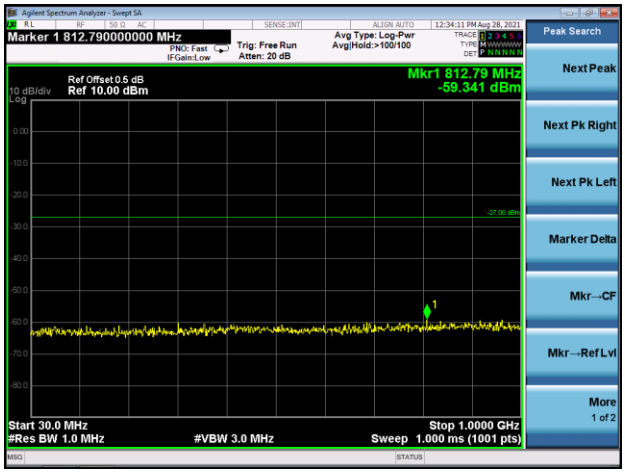
802.11ac20 on channel 157

Test Plot

802.11ac20 on channel 165



802.11ac40 on channel 151



802.11ac20 on channel 165

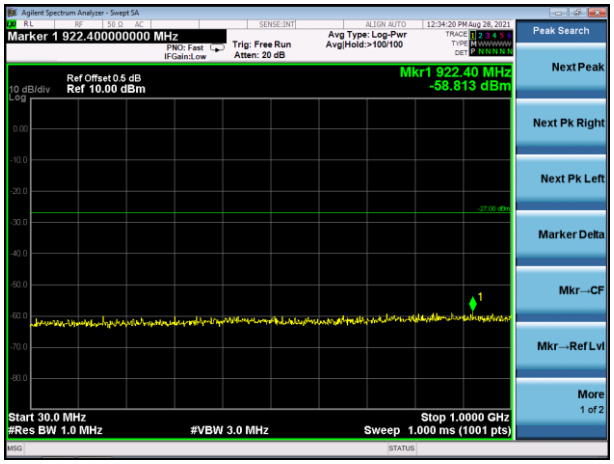
802.11ac40 on channel 151

802.11ac20 on channel 165

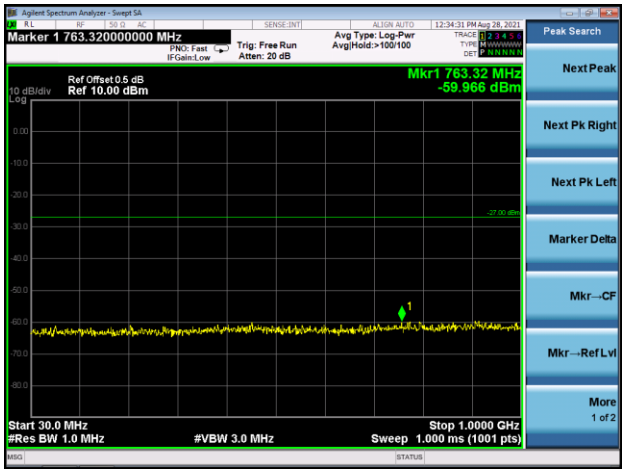
802.11ac40 on channel 151

Test Plot

802.11ac40 on channel 159

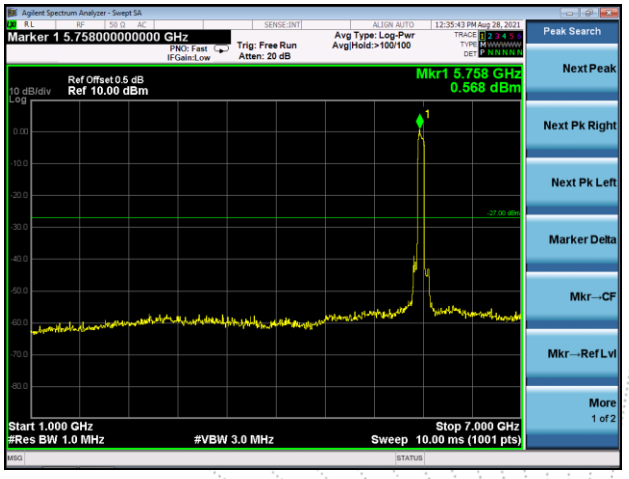


802.11ac80 on channel 155



802.11 ac40 on channel 159

802.11 ac80 on channel 155

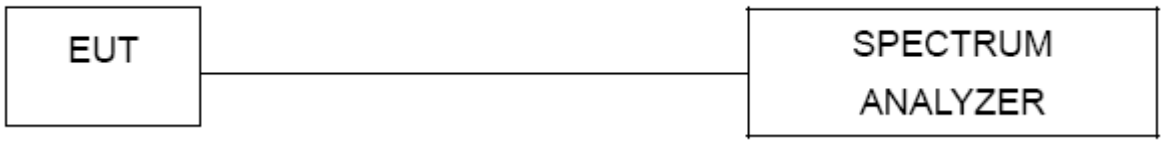


802.11 ac40 on channel 159

802.11 ac80 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. 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 3.8V
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	5180.0174	5180	0.0174	3.3508
		V max (V)	138.00	5180.0144	5180	0.0144	2.7842
		V min (V)	102.00	5180.0176	5180	0.0176	3.3930
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)	120V/60Hz	T (°C)	-20	5180.0122	5180	0.0122	2.3608
		T (°C)	-10	5180.0026	5180	0.0026	0.5049
		T (°C)	0	5180.0021	5180	0.0021	0.4055
		T (°C)	10	5180.0021	5180	0.0021	0.4117
		T (°C)	20	5180.0076	5180	0.0076	1.4690
		T (°C)	30	5180.0014	5180	0.0014	0.2639
		T (°C)	40	5180.0128	5180	0.0128	2.4628
		T (°C)	50	5180.0022	5180	0.0022	0.4339
		T (°C)	60	5180.0093	5180	0.0093	1.7896
		T (°C)	70	5180.0106	5180	0.0106	2.0477
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	5200.0028	5200	0.0028	0.5374
		V max (V)	138.00	5200.0051	5200	0.0051	0.9821
		V min (V)	102.00	5200.0003	5200	0.0003	0.0507
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)	120V/60Hz	T (°C)	-20	5200.01143	5200	0.01143	2.1984
		T (°C)	-10	5200.01127	5200	0.01127	2.1670
		T (°C)	0	5200.00584	5200	0.00584	1.1222
		T (°C)	10	5200.00174	5200	0.00174	0.3337
		T (°C)	20	5200.00955	5200	0.00955	1.8370
		T (°C)	30	5200.00512	5200	0.00512	0.9850
		T (°C)	40	5200.00334	5200	0.00334	0.6431
		T (°C)	50	5200.00324	5200	0.00324	0.6236
		T (°C)	60	5200.00405	5200	0.00405	0.7790
		T (°C)	70	5200.00082	5200	0.00082	0.1585
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	5240.0106	5240	0.0106	2.0175
		V max (V)	138.00	5240.0069	5240	0.0069	1.3123
		V min (V)	102.00	5240.0123	5240	0.0123	2.3442
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)	120V/60Hz	T (°C)	-20	5240.0119	5240	0.0119	2.2631
		T (°C)	-10	5240.0083	5240	0.0083	1.5889
		T (°C)	0	5240.0011	5240	0.0011	0.2051
		T (°C)	10	5240.0104	5240	0.0104	1.9770
		T (°C)	20	5240.0046	5240	0.0046	0.8708
		T (°C)	30	5240.0113	5240	0.0113	2.1485
		T (°C)	40	5240.0133	5240	0.0133	2.5406
		T (°C)	50	5240.0056	5240	0.0056	1.0773
		T (°C)	60	5240.0069	5240	0.0069	1.3123
		T (°C)	70	5240.0130	5240	0.0130	2.4856
Limits				5150-5250 MHz			
Result				Complies			

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 3.8V
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)	120.00	5745.00296	5745	0.00296	0.5159
		V max (V)	138.00	5745.00892	5745	0.00892	1.5526
		V min (V)	102.00	5745.00266	5745	0.00266	0.4635
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)	120V/60Hz	T (°C)	-20	5745.00095	5745	0.00095	0.1648
		T (°C)	-10	5745.00399	5745	0.00399	0.6939
		T (°C)	0	5745.00795	5745	0.00795	1.3830
		T (°C)	10	5745.00031	5745	0.00031	0.0534
		T (°C)	20	5745.00643	5745	0.00643	1.1200
		T (°C)	30	5745.00476	5745	0.00476	0.8287
		T (°C)	40	5745.00467	5745	0.00467	0.8132
		T (°C)	50	5745.00152	5745	0.00152	0.2642
		T (°C)	60	5745.00131	5745	0.00131	0.2272
		T (°C)	70	5745.01299	5745	0.01299	2.2615
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	5785.00816	5785	0.00816	1.4112
		V max (V)	138.00	5785.01089	5785	0.01089	1.8817
		V min (V)	102.00	5785.00500	5785	0.00500	0.8644
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)	120V/60Hz	T (°C)	-20	5785.01349	5785	0.01349	2.3318
		T (°C)	-10	5785.00558	5785	0.00558	0.9642
		T (°C)	0	5785.00306	5785	0.00306	0.5287
		T (°C)	10	5785.00626	5785	0.00626	1.0813
		T (°C)	20	5785.00943	5785	0.00943	1.6294
		T (°C)	30	5785.01102	5785	0.01102	1.9046
		T (°C)	40	5785.01154	5785	0.01154	1.9952
		T (°C)	50	5785.00045	5785	0.00045	0.0772
		T (°C)	60	5785.00670	5785	0.00670	1.1577
		T (°C)	70	5785.00503	5785	0.00503	0.8696
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	5825.00611	5825	0.00611	1.0489
		V max (V)	138.00	5825.00495	5825	0.00495	0.8502
		V min (V)	102.00	5825.01204	5825	0.01204	2.0671
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)	120V/60Hz	T (°C)	-20	5825.00483	5825	0.00483	0.8288
		T (°C)	-10	5825.00762	5825	0.00762	1.3074
		T (°C)	0	5825.01332	5825	0.01332	2.2871
		T (°C)	10	5825.00096	5825	0.00096	0.1646
		T (°C)	20	5825.01095	5825	0.01095	1.8800
		T (°C)	30	5825.00498	5825	0.00498	0.8551
		T (°C)	40	5825.00912	5825	0.00912	1.5649
		T (°C)	50	5825.01077	5825	0.01077	1.8482
		T (°C)	60	5825.00067	5825	0.00067	0.1144
		T (°C)	70	5825.00957	5825	0.00957	1.6434
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 EUT ANTENNA

The EUT antenna is Internal antenna, The antenna gain is 1.73dBi,fulfill the requirement of this section.

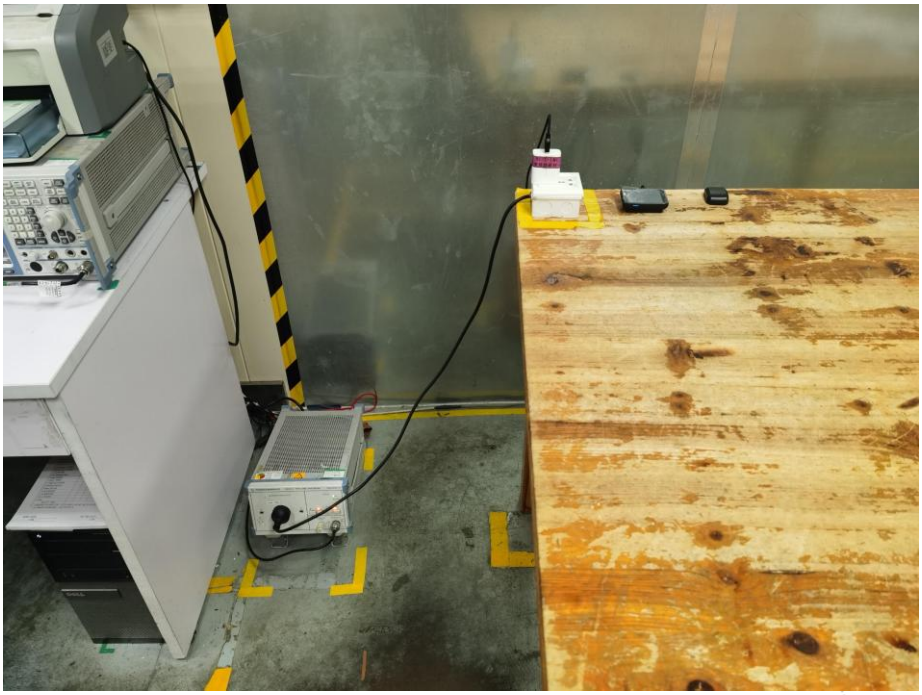
15. EUT PHOTOGRAPHS

EUT Photo 1

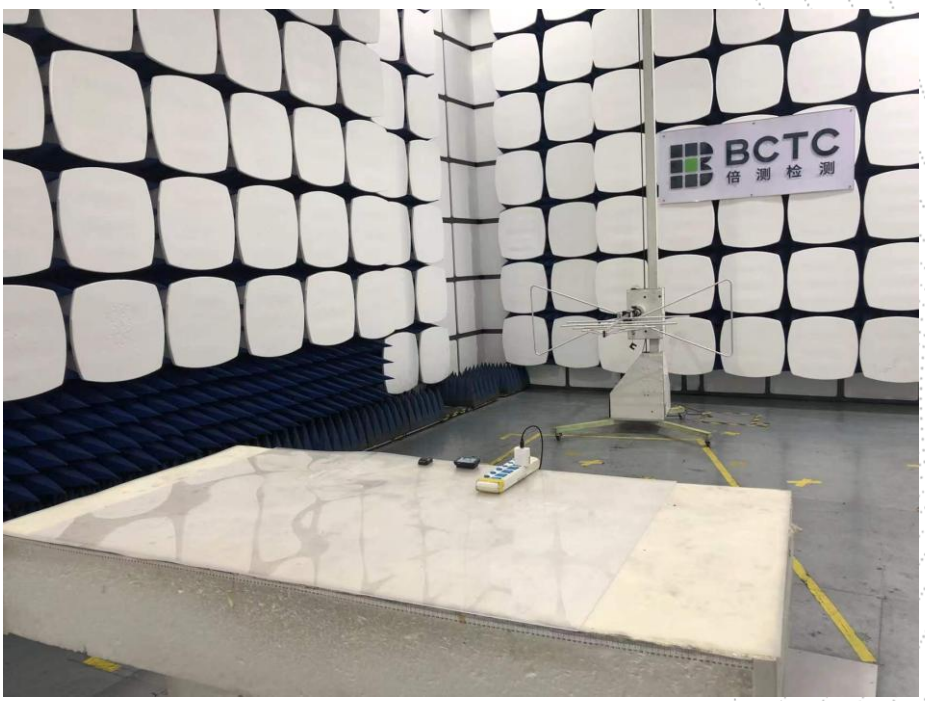
EUT Photo 2

16. EUT TEST SETUP PHOTOGRAPHS

Conducted Emission Photos



Radiated Measurement Photos




BCTC
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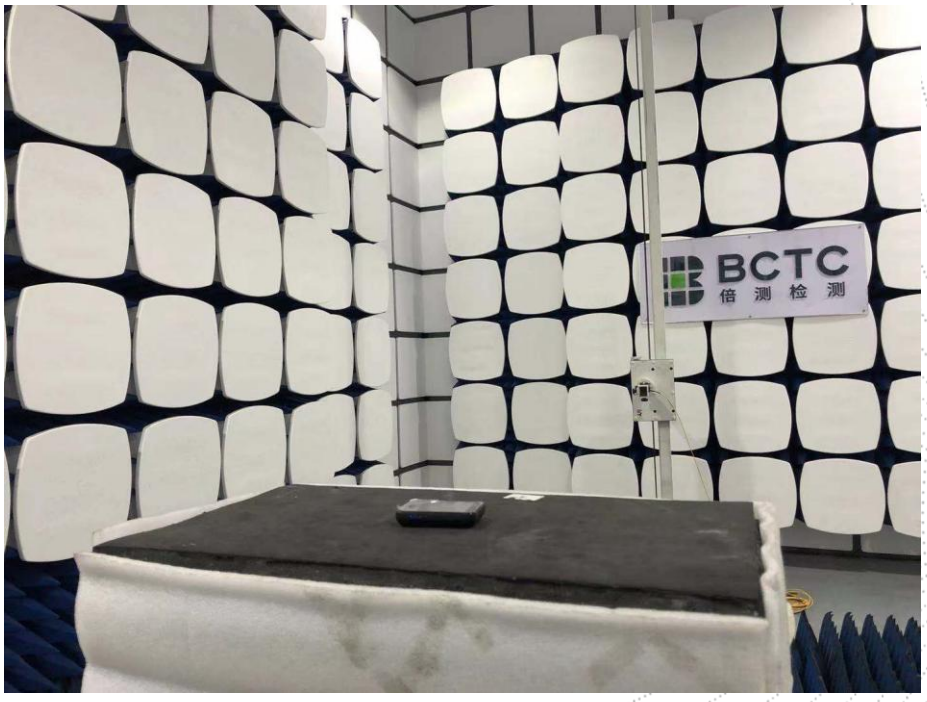
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STATEMENT

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

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P.C.: 518103

FAX：0755-33229357

Website：http://www.chnbctc.com

E-Mail：bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※