8.SPURIOUS RF CONDUCTED EMISSIONS

8.1CONFORMANCE LIMIT

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

8.2MEASURING INSTRUMENTS

The Measuring equipment is listed in the section 6.3 of this test report.

8.3TEST SETUP

Please refer to Section 6.1 of this test report.

8.4TEST PROCEDURE

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBW= 300KHz to measure the peak field strength , and mwasure frequeny range from 9KHz to 26.5GHz.

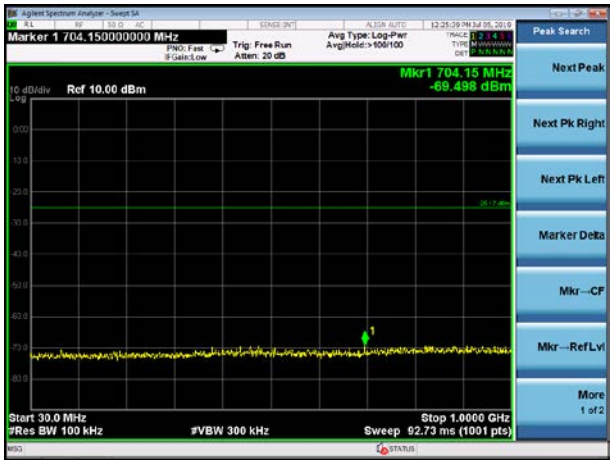
8.5TEST RESULTS

Remark: The measurement frequency range is from 9KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.

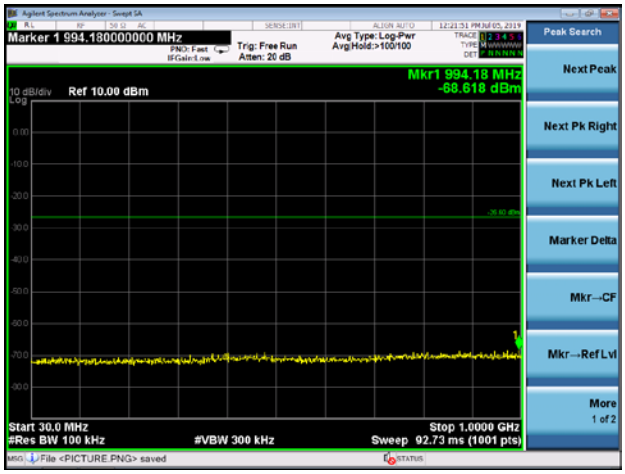
5.2G

Test Plot

802.11a on channel 36



802.11a on channel 40



802.11a on channel 36

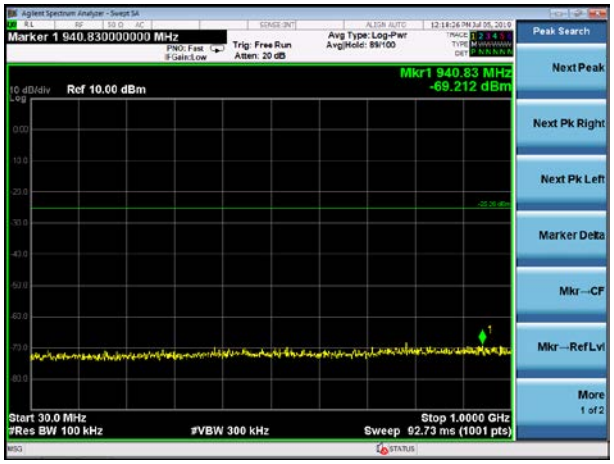
802.11a on channel 40

802.11a on channel 36

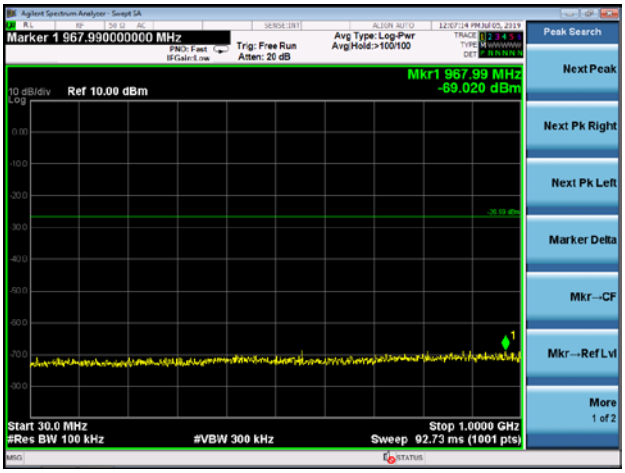
802.11a on channel 40

Test Plot

802.11a on channel 48



802.11n20 on channel 36



802.11a on channel 48

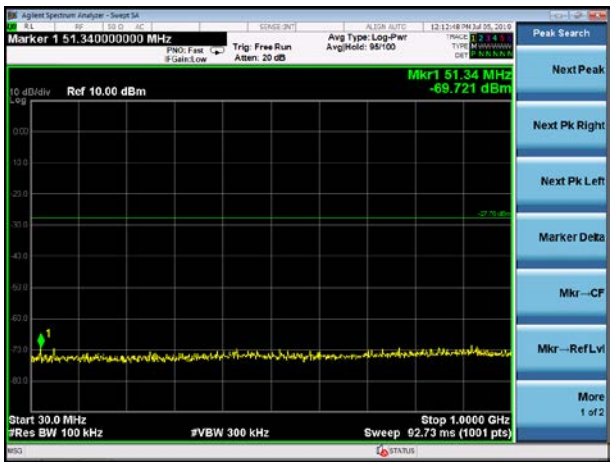
802.11n20 on channel 36

802.11a on channel 48

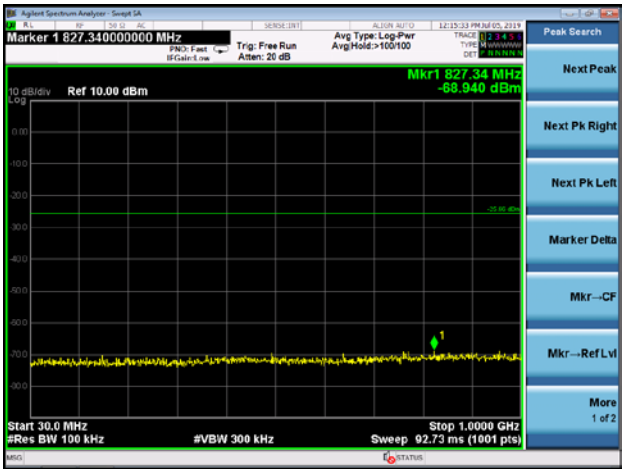
802.11n20 on channel 36

Test Plot

802.11n20 on channel 40



802.11n20 on channel 48



802.11n20 on channel 40

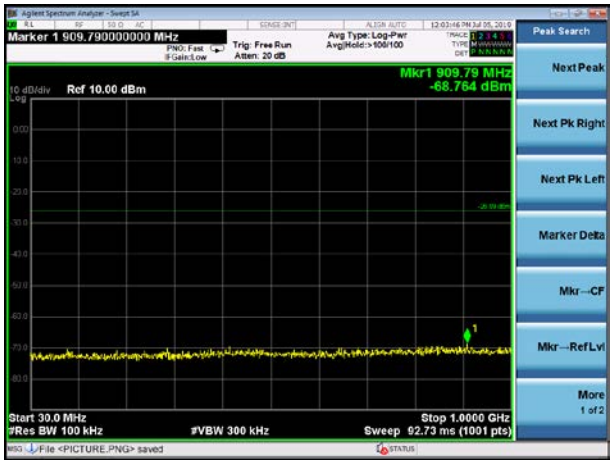
802.11n20 on channel 48

802.11n20 on channel 40

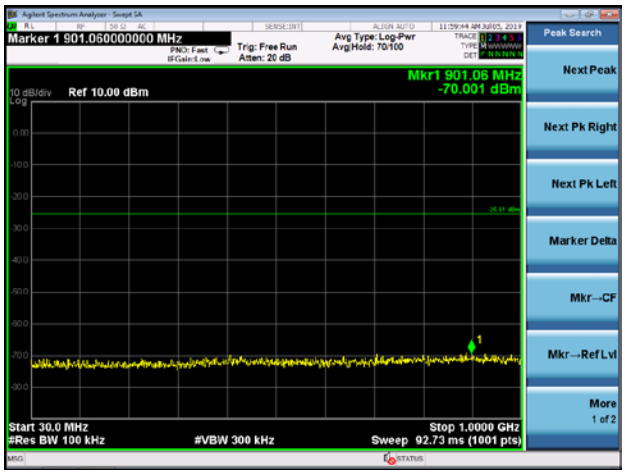
802.11n20 on channel 48

Test Plot

802.11n40 on channel 38



802.11n40 on channel 46



802.11n40 on channel 38

802.11n40 on channel 46

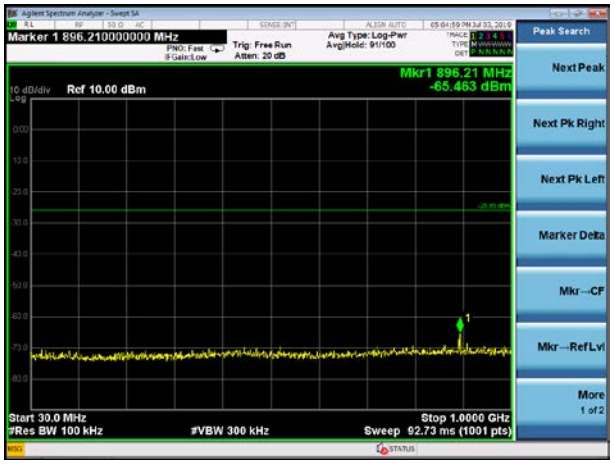
802.11n40 on channel 38

802.11n40 on channel 46

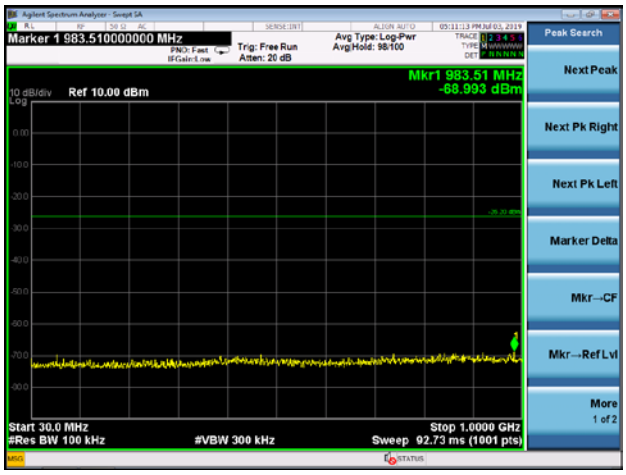
5.8G

Test Plot

802.11a on channel 149



802.11a on channel 157



802.11a on channel 149

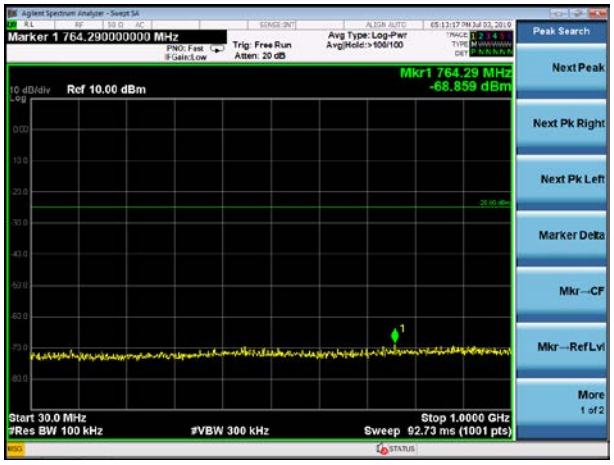
802.11a on channel 157

802.11a on channel 149

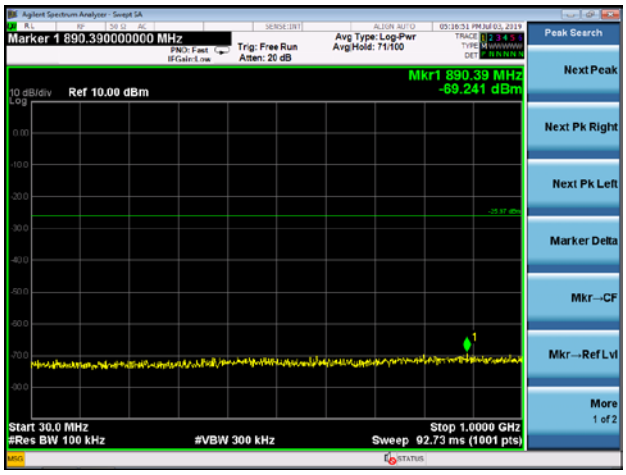
802.11a on channel 157

Test Plot

802.11a on channel 165



802.11n20 on channel 149



802.11a on channel 165

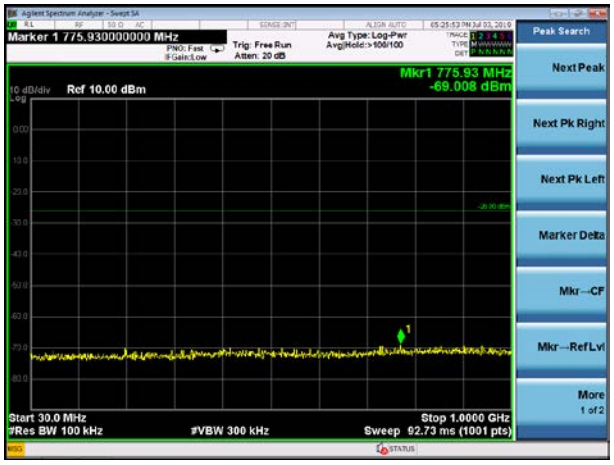
802.11n20 on channel 149

802.11a on channel 165

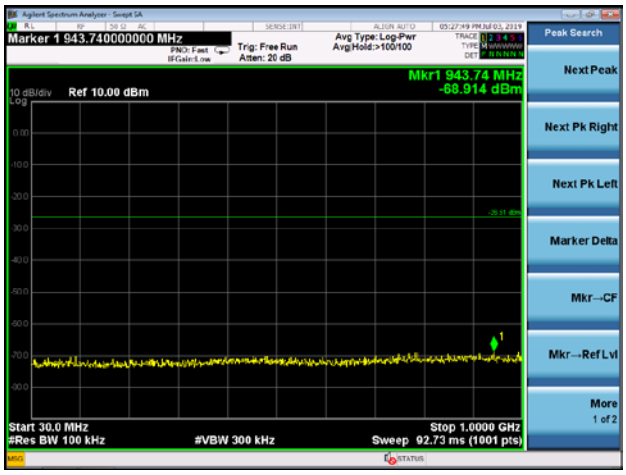
802.11n20 on channel 149

Test Plot

802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157

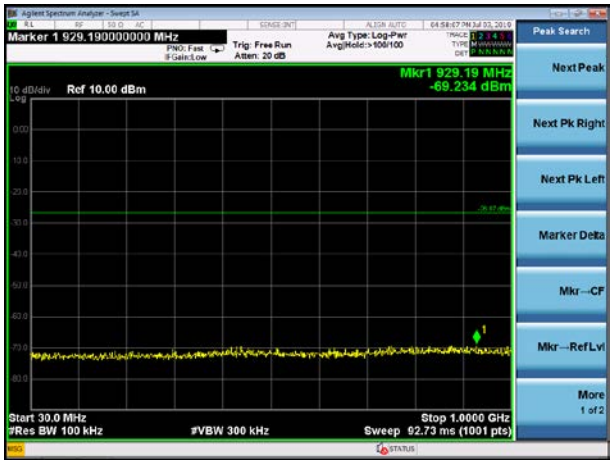
802.11n20 on channel 165

802.11n20 on channel 157

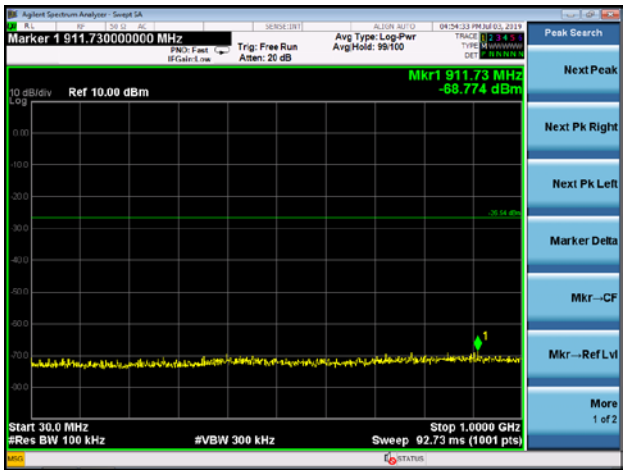
802.11n20 on channel 165

Test Plot

802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151

802.11n40 on channel 159

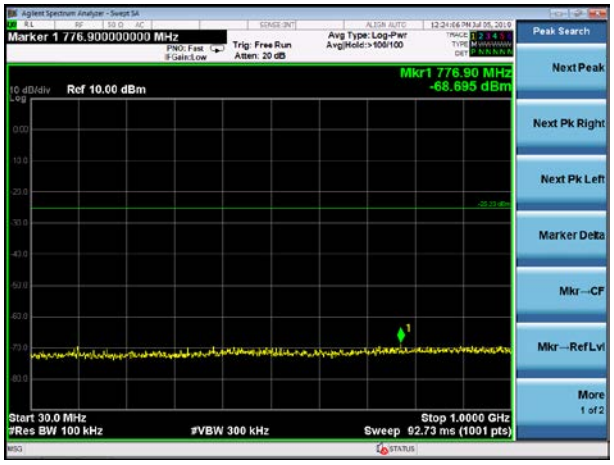
802.11n40 on channel 151

802.11n40 on channel 159

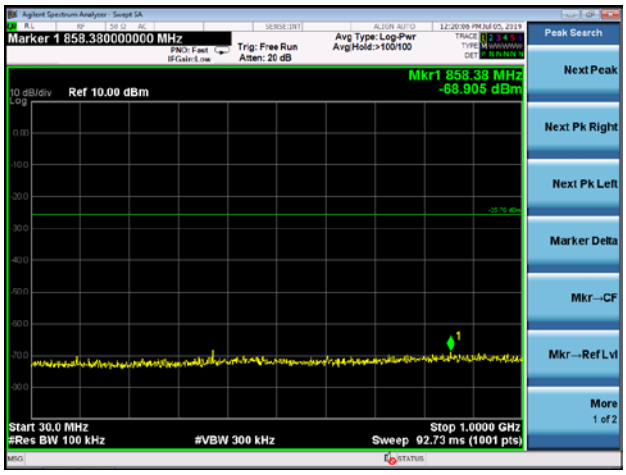
5.2G

Test Plot

802.11a on channel 36



802.11a on channel 40



802.11a on channel 36

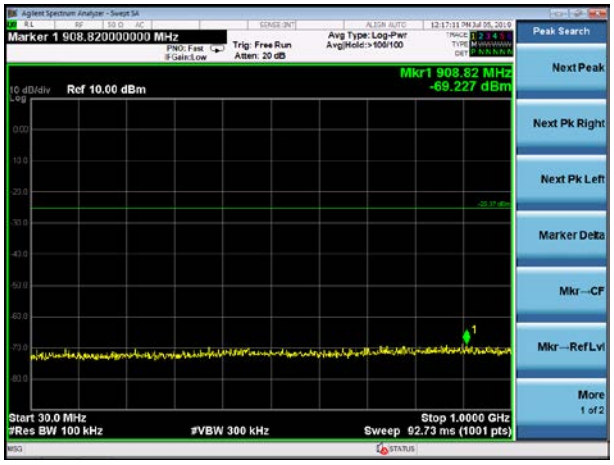
802.11a on channel 40

802.11a on channel 36

802.11a on channel 40

Test Plot

802.11a on channel 48



802.11n20 on channel 36

802.11a on channel 48

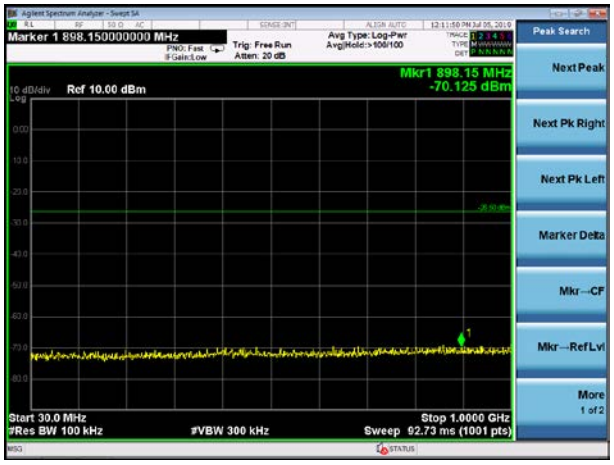
802.11n20 on channel 36

802.11a on channel 48

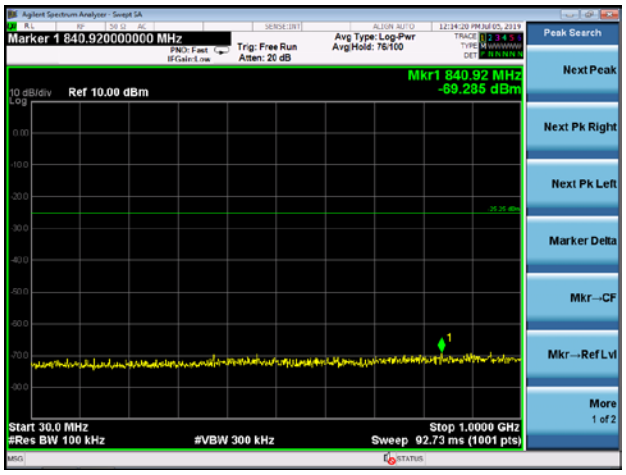
802.11n20 on channel 36

Test Plot

802.11n20 on channel 40



802.11n20 on channel 48



802.11n20 on channel 40

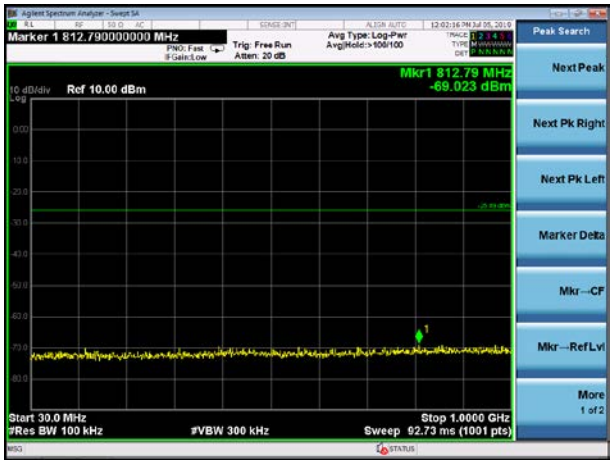
802.11n20 on channel 48

802.11n20 on channel 40

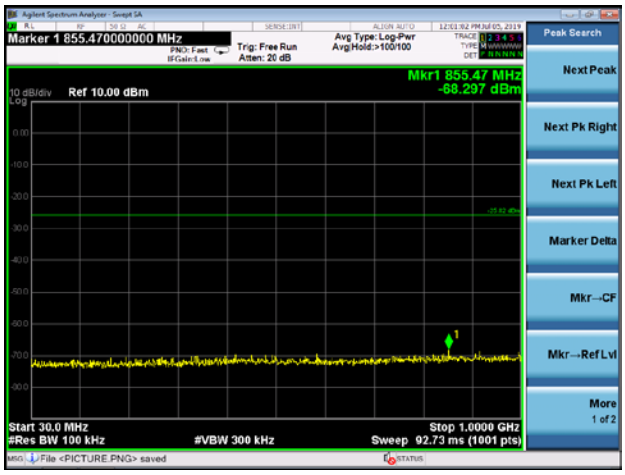
802.11n20 on channel 48

Test Plot

802.11n40 on channel 38



802.11n40 on channel 46



802.11n40 on channel 38

802.11n40 on channel 46

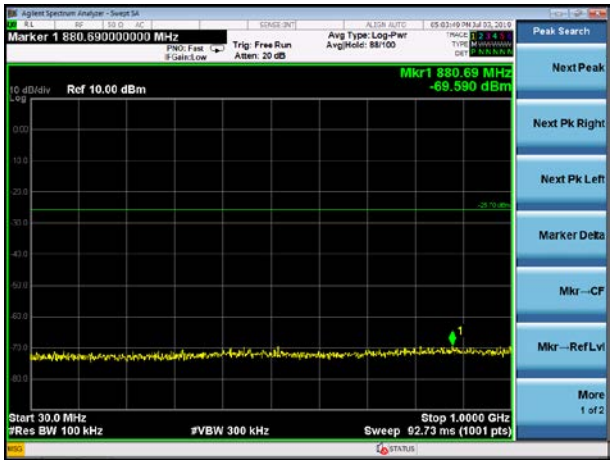
802.11n40 on channel 38

802.11n40 on channel 46

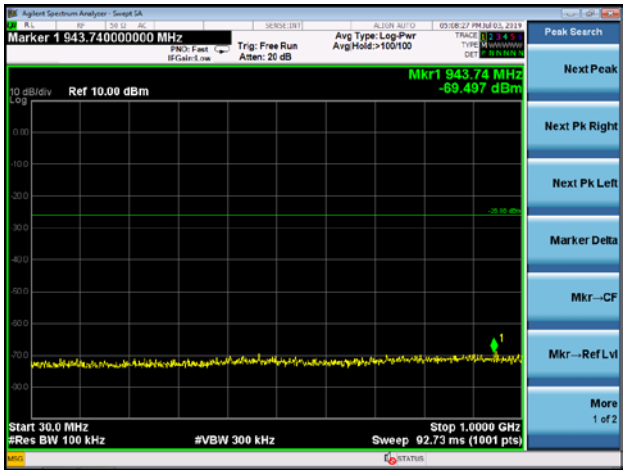
5.8G

Test Plot

802.11a on channel 149



802.11a on channel 157



802.11a on channel 149

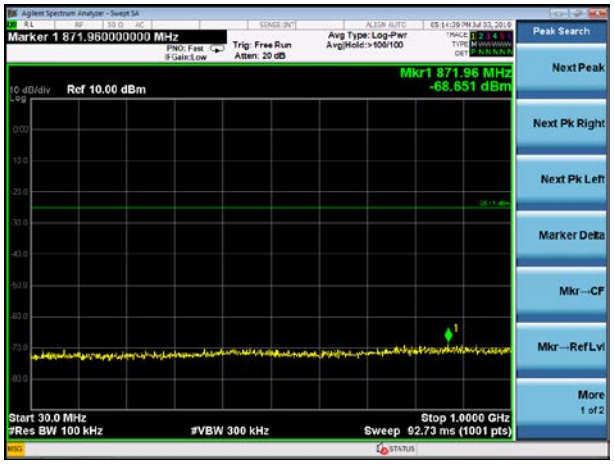
802.11a on channel 157

802.11a on channel 149

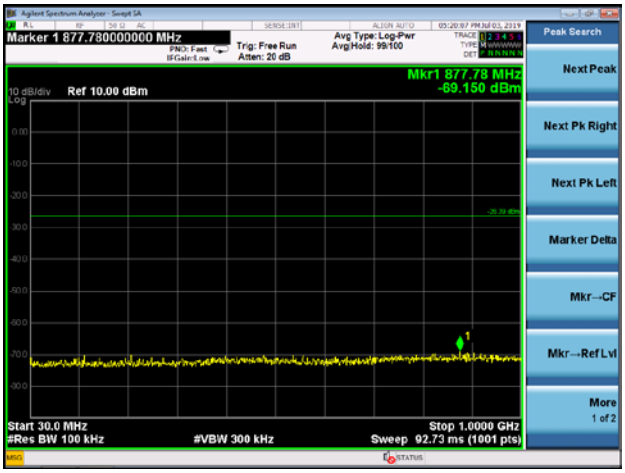
802.11a on channel 157

Test Plot

802.11a on channel 165



802.11n20 on channel 149



802.11a on channel 165

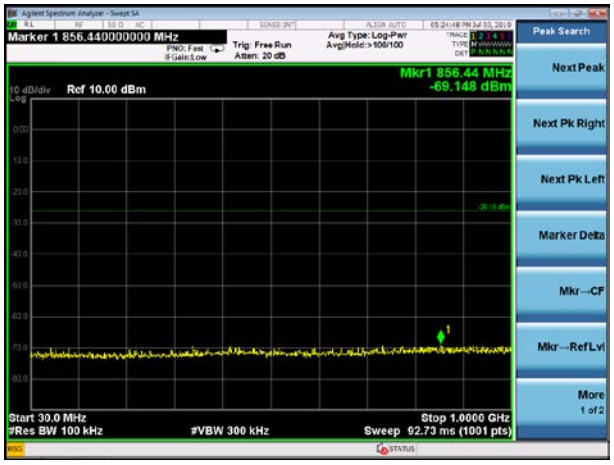
802.11n20 on channel 149

802.11a on channel 165

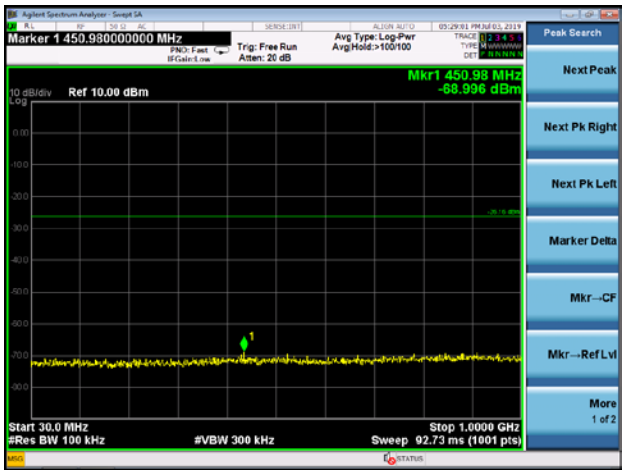
802.11n20 on channel 149

Test Plot

802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157

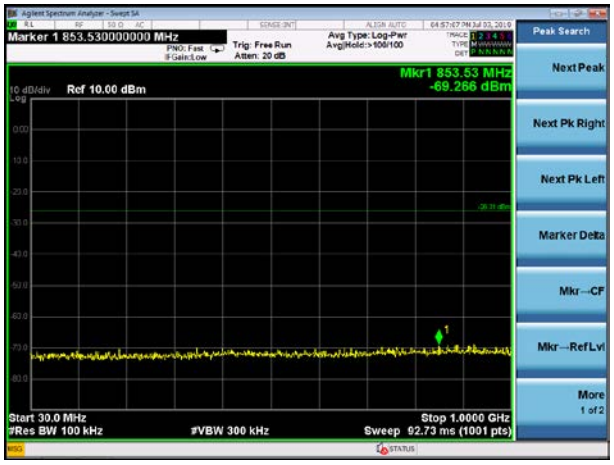
802.11n20 on channel 165

802.11n20 on channel 157

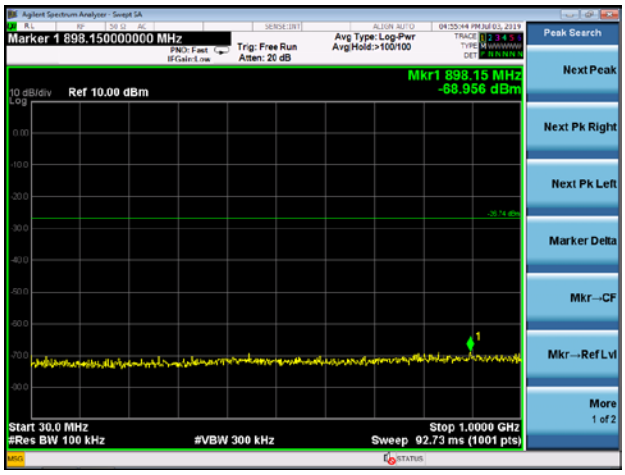
802.11n20 on channel 165

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

9. Frequency Stability Measurement

9.1 LIMIT

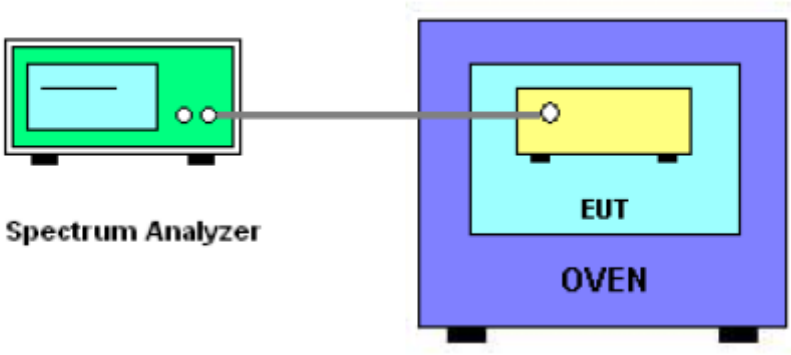
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

9.2 TEST PROCEDURES

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 × 10_6 ppm and the 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.

9.3 TEST SETUP LAYOUT



9.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously un-modulation transmitting mode.

9.5 TEST RESULTS

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101 kPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX Frequency Band I (5150-5250MHz)		

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	5180.0523	5180	0.0523	-10.0965
		V max (V)	5.75	5180.0324	5180	0.0324	-6.2548
		V min (V)	4.25	5180.0242	5180	0.0242	-4.6718
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5180.0056	5180	0.0056	-1.0811
		T (°C)	-10	5180.0106	5180	0.0106	-2.0463
		T (°C)	0	5180.0324	5180	0.0324	-6.2548
		T (°C)	10	5180.0385	5180	0.0385	-7.4324
		T (°C)	20	5180.0298	5180	0.0298	-5.7529
		T (°C)	30	5180.0212	5180	0.0212	-4.0927
		T (°C)	40	5180.0122	5180	0.0122	-2.3552
		T (°C)	50	5180.0096	5180	0.0096	-1.8533
		T (°C)	60	5180.0416	5180	0.0416	-8.0309
		T (°C)	70	5180.0691	5180	0.0691	-13.3398
Limits				± 20 ppm			
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	5200.0253	5200	0.0253	-4.8654
		V max (V)	5.75	5200.0422	5200	0.0422	-8.1154
		V min (V)	4.25	5200.0691	5200	0.0691	-13.2885
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5200.0635	5200	0.0635	-12.2115
		T (°C)	-10	5200.0528	5200	0.0528	-10.1538
		T (°C)	0	5200.0437	5200	0.0437	-8.4038
		T (°C)	10	5200.0924	5200	0.0924	-17.7692
		T (°C)	20	5200.0632	5200	0.0632	-12.1538
		T (°C)	30	5200.0125	5200	0.0125	-2.4038
		T (°C)	40	5200.0734	5200	0.0734	-14.1154
		T (°C)	50	5200.0416	5200	0.0416	-8.0000
		T (°C)	60	5200.0322	5200	0.0322	-6.1923
		T (°C)	70	5200.0423	5200	0.0423	-8.1346
Limits				± 20 ppm			
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	5240.0136	5240	0.0136	-2.5954
		V max (V)	5.75	5240.0415	5240	0.0415	-7.9198
		V min (V)	4.25	5240.0093	5240	0.0093	-1.7748
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TESE CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max Deviation (MHz)	Max Deviation (ppm)
V nom (V)	5	T (°C)	-20	5240.0094	5240	0.0094	-1.7939
		T (°C)	-10	5240.0036	5240	0.0036	-0.6870
		T (°C)	0	5240.0143	5240	0.0143	-2.7290
		T (°C)	10	5240.0856	5240	0.0856	-16.3359
		T (°C)	20	5240.0114	5240	0.0114	-2.1756
		T (°C)	30	5240.0125	5240	0.0125	-2.3855
		T (°C)	40	5240.0063	5240	0.0063	-1.2023
		T (°C)	50	5240.0074	5240	0.0074	-1.4122
		T (°C)	60	5240.0057	5240	0.0057	-1.0878
		T (°C)	70	5240.0101	5240	0.0101	-1.9275
Limits				± 20 ppm			
Result				Complies			

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101 kPa	Test Voltage ：	AC 120V/60Hz
Test Mode ：	TX Frequency(5745-5850MHz)		

TESE CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max Deviation (MHz)	Max Deviation (ppm)
V nom (V)	20	V nom (V)	5.00	5745.00226	5745	0.00226	-0.3934
		V max (V)	5.75	5745.00630	5745	0.00630	-1.0973
		V min (V)	4.25	5745.00093	5745	0.00093	-0.1625
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability
Temperature vs. Frequency Stability

TESE CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max Deviation (MHz)	Max Deviation (ppm)
V nom (V)	5	T (°C)	-20	5745.01256	5745	0.01256	-2.1859
		T (°C)	-10	5745.00187	5745	0.00187	-0.3263
		T (°C)	0	5745.00846	5745	0.00846	-1.4723
		T (°C)	10	5745.00529	5745	0.00529	-0.9207
		T (°C)	20	5745.00805	5745	0.00805	-1.4004
		T (°C)	30	5745.00680	5745	0.00680	-1.1840
		T (°C)	40	5745.00381	5745	0.00381	-0.6635
		T (°C)	50	5745.01215	5745	0.01215	-2.1150
		T (°C)	60	5745.01267	5745	0.01267	-2.2055
		T (°C)	70	5745.00237	5745	0.00237	-0.4130
Limits				± 20 ppm			
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	5785.00739	5785	0.00739	-1.2769
		V max (V)	5.75	5785.00034	5785	0.00034	-0.0583
		V min (V)	4.25	5785.00149	5785	0.00149	-0.2584
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TESE CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max Deviation (MHz)	Max Deviation (ppm)
V nom (V)	5	T (°C)	-20	5785.00835	5785	0.00835	-1.4430
		T (°C)	-10	5785.00329	5785	0.00329	-0.5678
		T (°C)	0	5785.00728	5785	0.00728	-1.2583
		T (°C)	10	5785.01305	5785	0.01305	-2.2555
		T (°C)	20	5785.00919	5785	0.00919	-1.5891
		T (°C)	30	5785.00377	5785	0.00377	-0.6521
		T (°C)	40	5785.00032	5785	0.00032	-0.0556
		T (°C)	50	5785.01266	5785	0.01266	-2.1876
		T (°C)	60	5785.00296	5785	0.00296	-0.5125
		T (°C)	70	5785.00232	5785	0.00232	-0.4003
Limits				± 20 ppm			
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	5825.00131	5825	0.00131	-0.2254
		V max (V)	5.75	5825.01266	5825	0.01266	-2.1738
		V min (V)	4.25	5825.00167	5825	0.00167	-0.2862
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TESE CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max Deviation (MHz)	Max Deviation (ppm)
V nom (V)	5	T (°C)	-20	5825.00636	5825	0.00636	-1.0920
		T (°C)	-10	5825.01269	5825	0.01269	-2.1777
		T (°C)	0	5825.00839	5825	0.00839	-1.4401
		T (°C)	10	5825.01193	5825	0.01193	-2.0477
		T (°C)	20	5825.00093	5825	0.00093	-0.1588
		T (°C)	30	5825.00747	5825	0.00747	-1.2824
		T (°C)	40	5825.00356	5825	0.00356	-0.6110
		T (°C)	50	5825.00816	5825	0.00816	-1.4013
		T (°C)	60	5825.00632	5825	0.00632	-1.0846
		T (°C)	70	5825.01210	5825	0.01210	-2.0778
Limits				± 20 ppm			
Result				Complies			

10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

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.

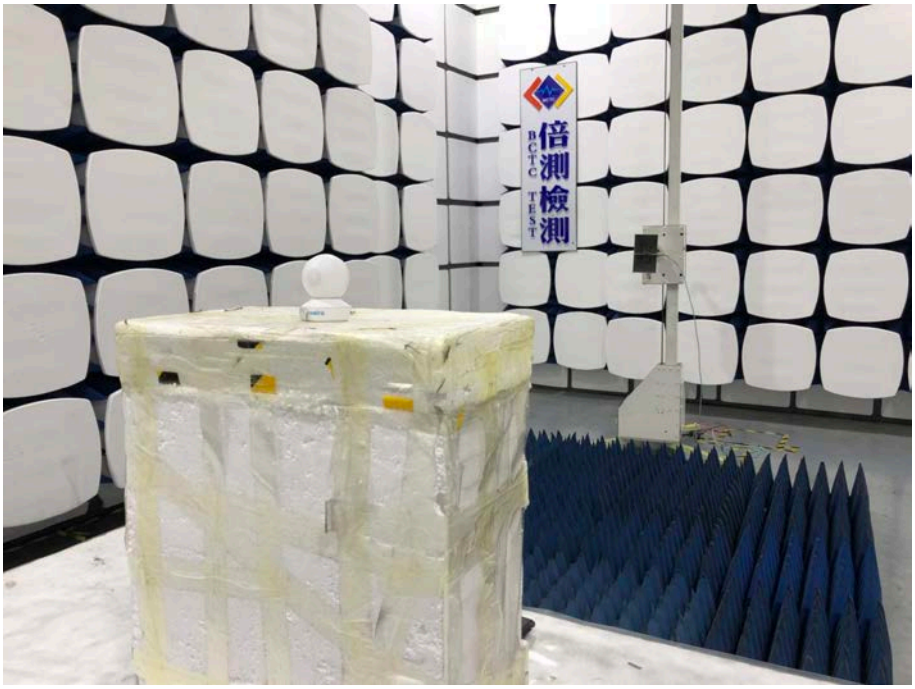
10.2 EUT ANTENNA

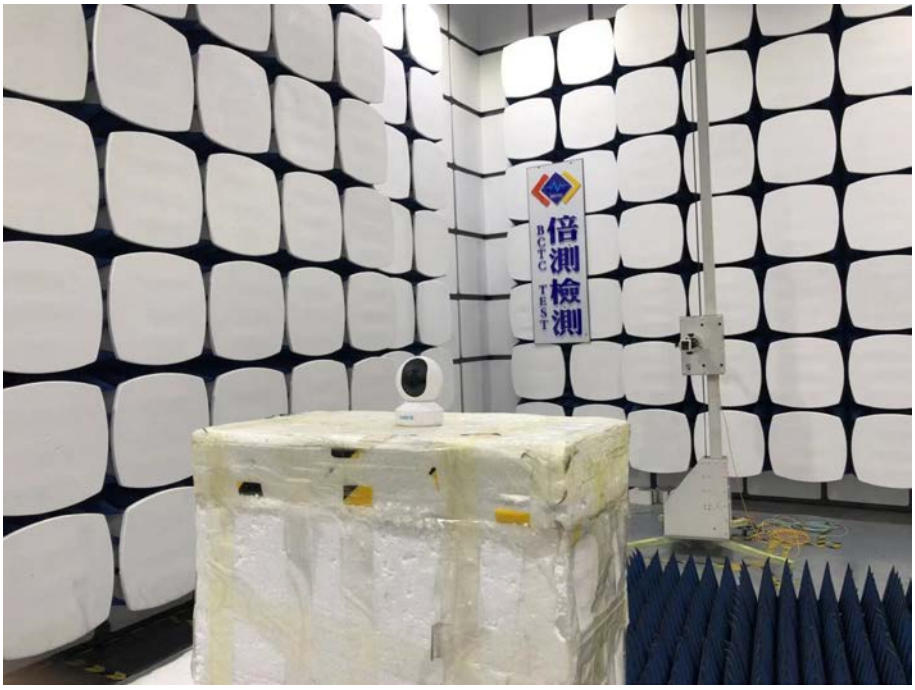
The EUT antenna is permanent attached FPCB antenna(antenna gain:8.23dBi). It comply with the standard requirement.

11. EUT TEST PHOTO

Conducted Measurement Photos

Radiated Measurement Photos

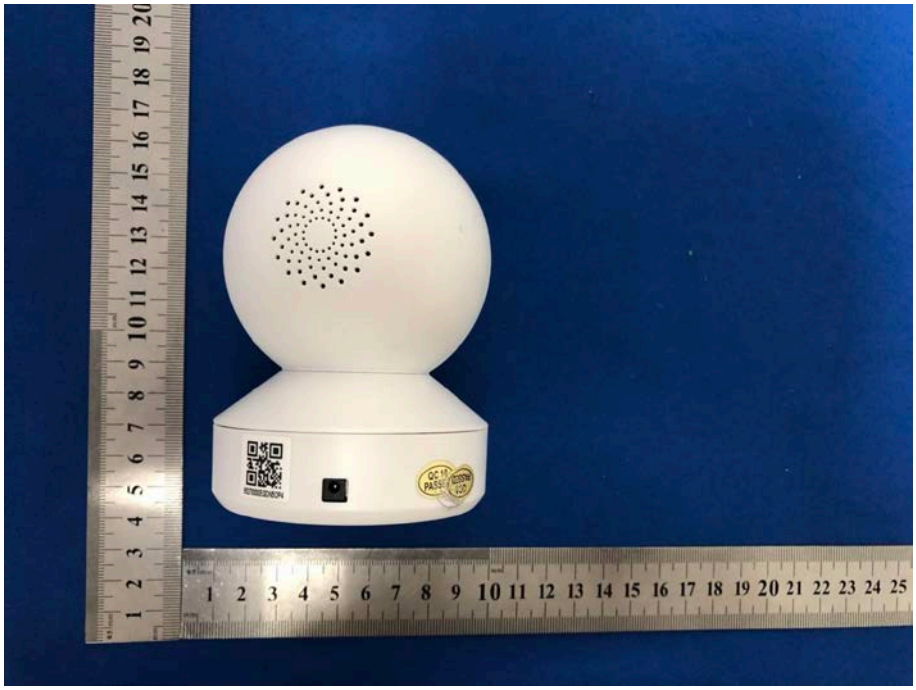

倍测检测
BCTC TEST


倍测检测
BCTC TEST

12. EUT PHOTO


reolink


AC/DC ADAPTOR
Model:DCT12W050100US-B0
Input:100-240V~ 50/60Hz 0.3A max.
Output:5.0V ⎓ 1.0A
LISTED
I.T.E/A.V. POWER SUPPLY
E502633
Made in China
Zhuzhou Dachuan Electronic Technology Co.,Ltd.



******* END OF REPORT *******