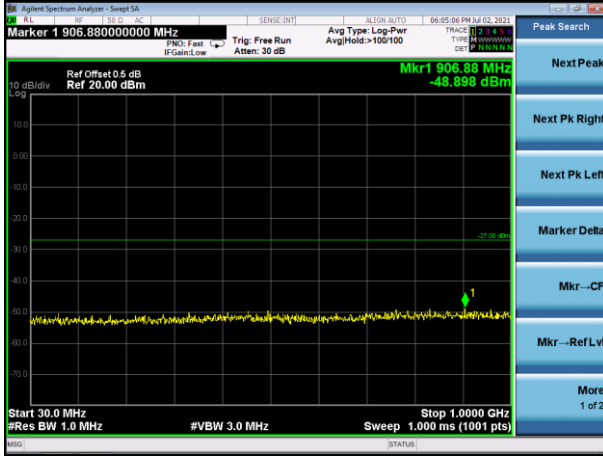
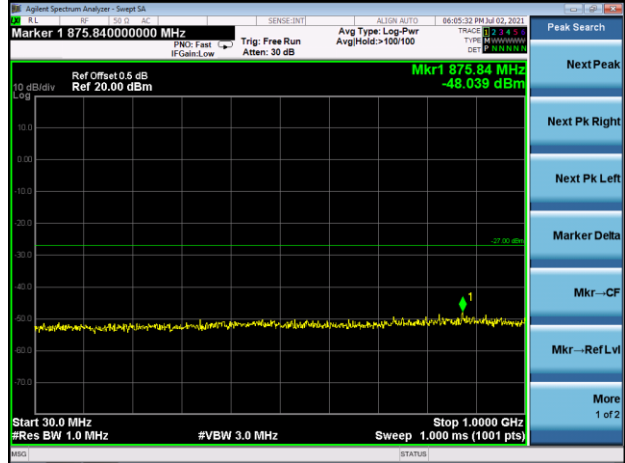


Test Plot

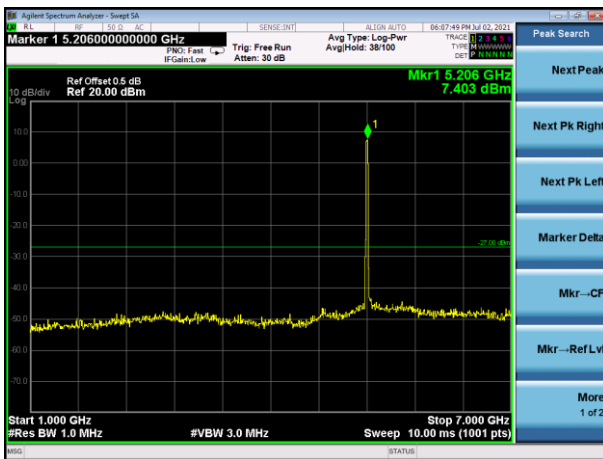
802.11n20 on channel 40



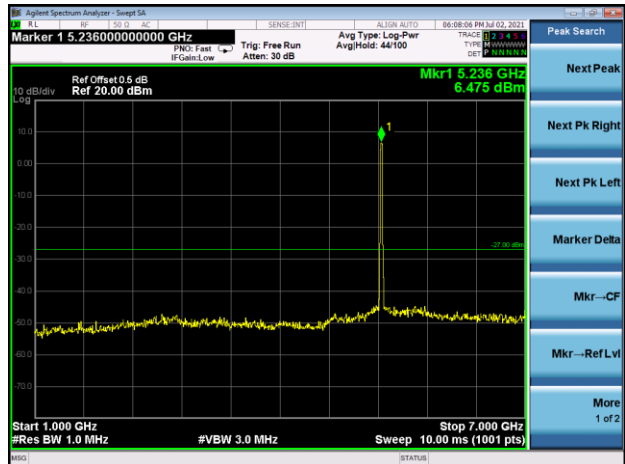
802.11n20 on channel 48



802.11n20 on channel 40



802.11n20 on channel 48



802.11n20 on channel 40

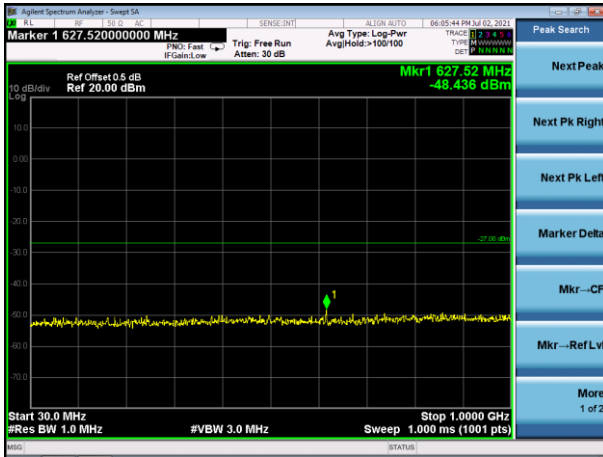


802.11n20 on channel 48

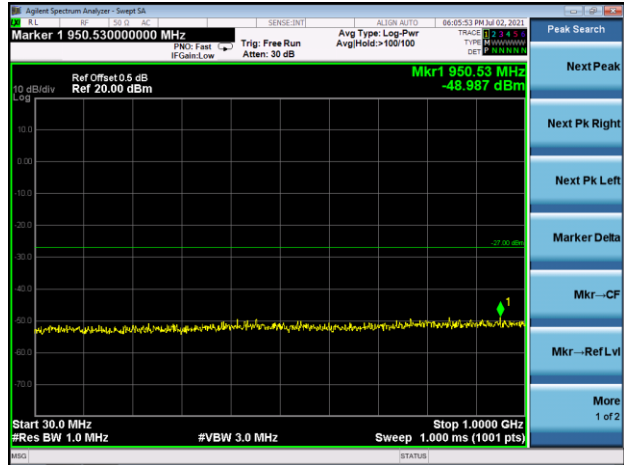


Test Plot

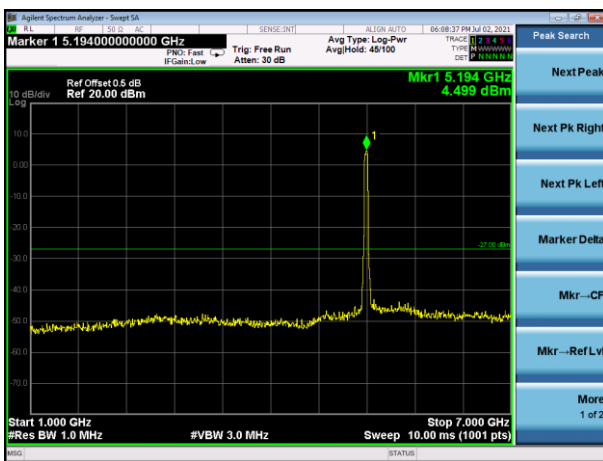
802.11n40 on channel 38



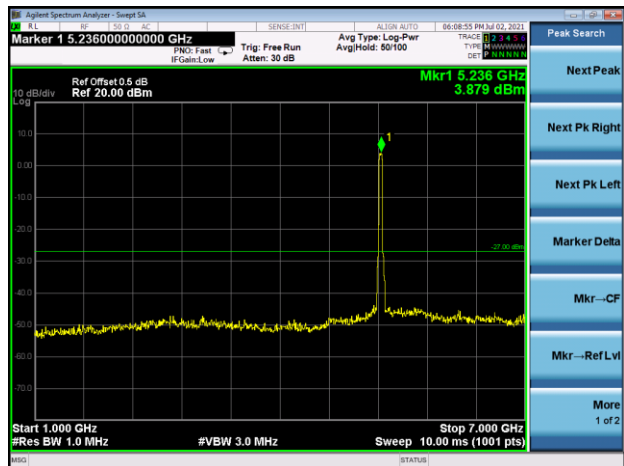
802.11n40 on channel 46



802.11n40 on channel 38



802.11n40 on channel 46



802.11n40 on channel 38

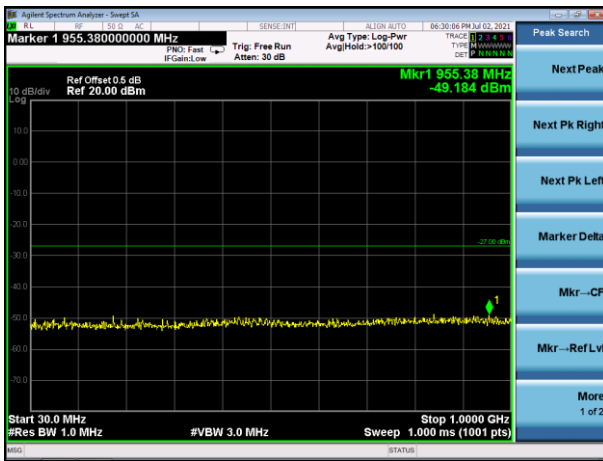


802.11n40 on channel 46

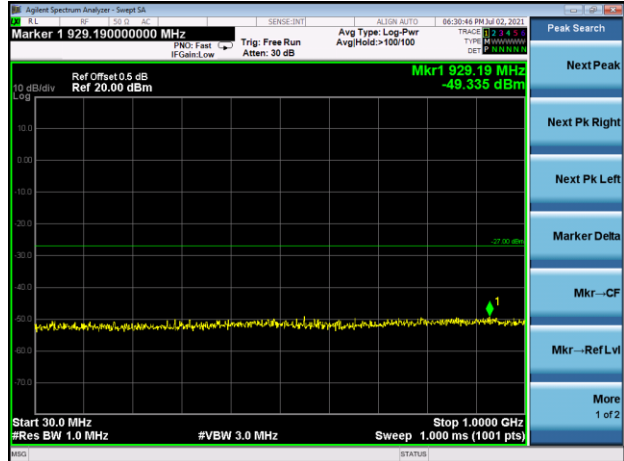


5.8G Test Plot

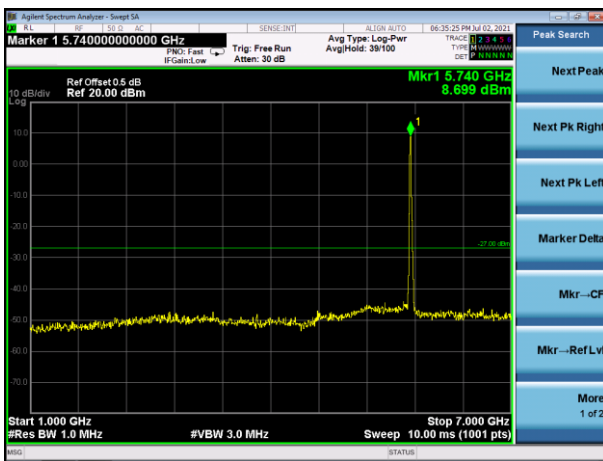
802.11a on channel 149



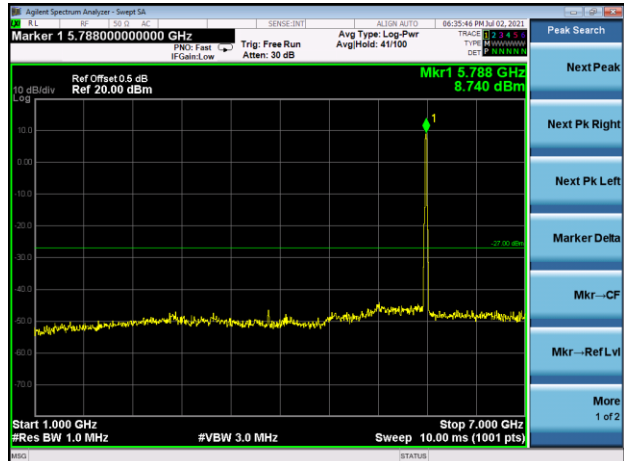
802.11a on channel 157



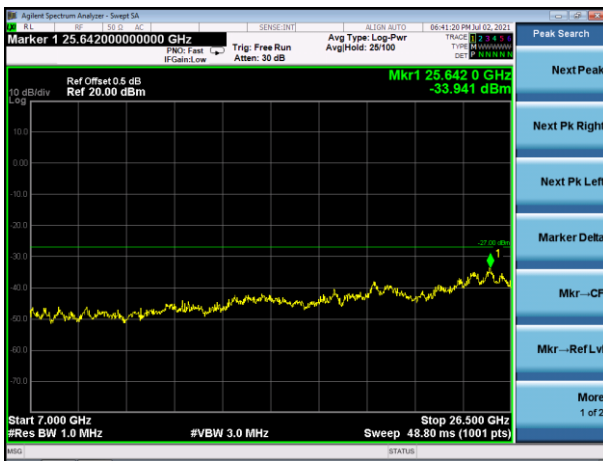
802.11a on channel 149



802.11a on channel 157



802.11a on channel 149

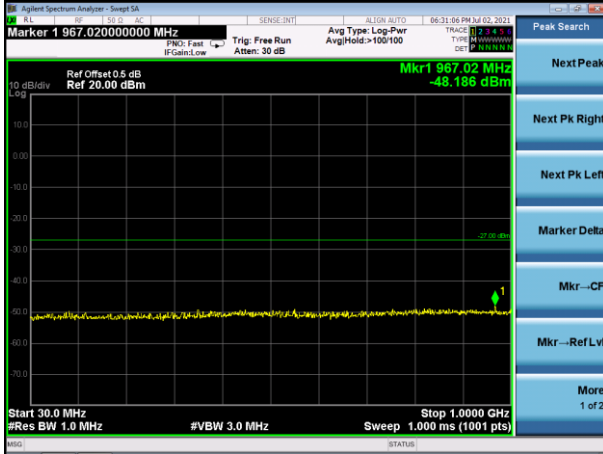


802.11a on channel 157

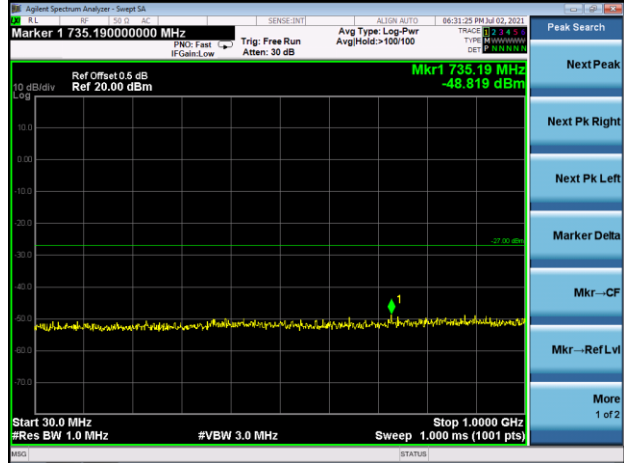


Test Plot

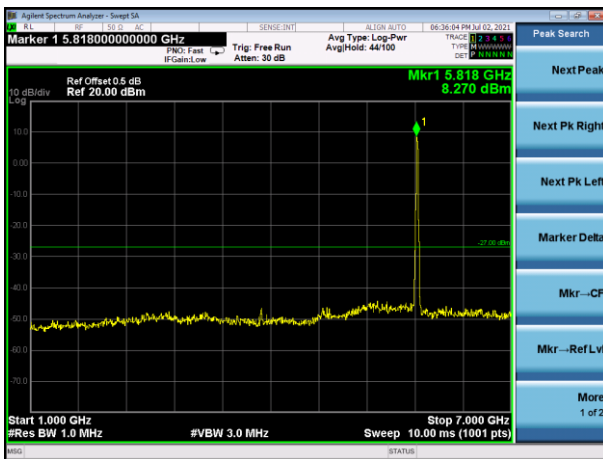
802.11a on channel 165



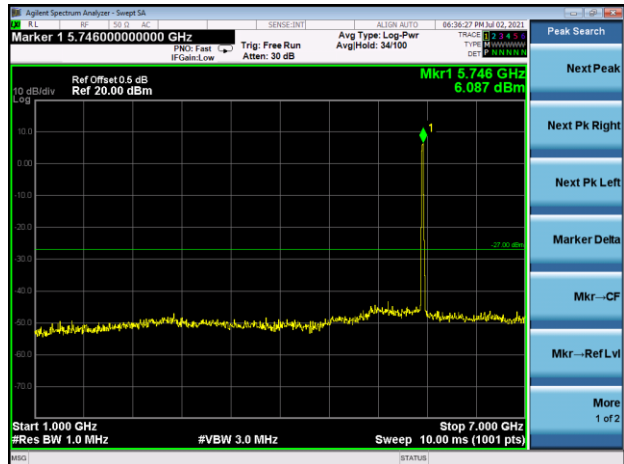
802.11n20 on channel 149



802.11a on channel 165



802.11n20 on channel 149



802.11a on channel 165

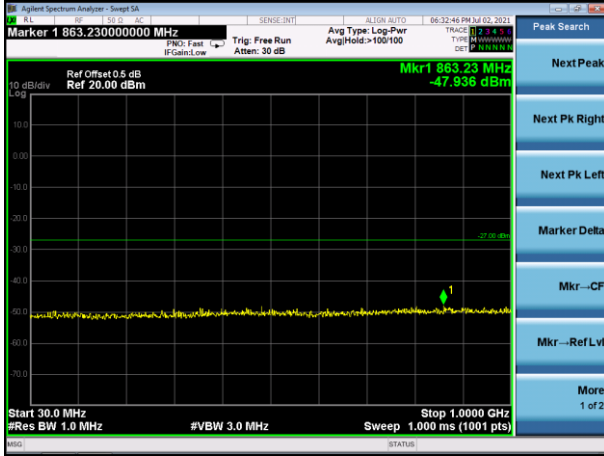


802.11n20 on channel 149

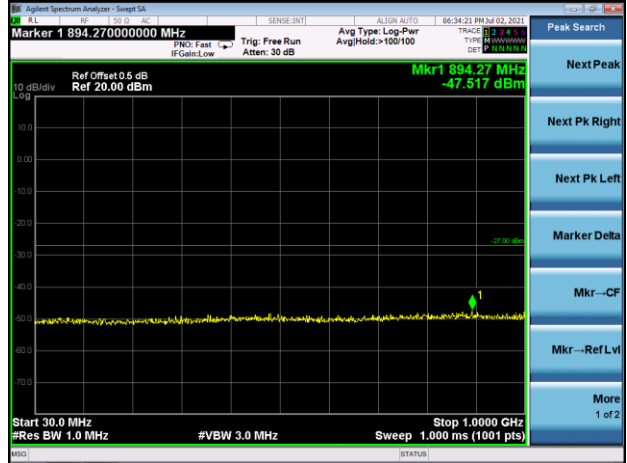


Test Plot

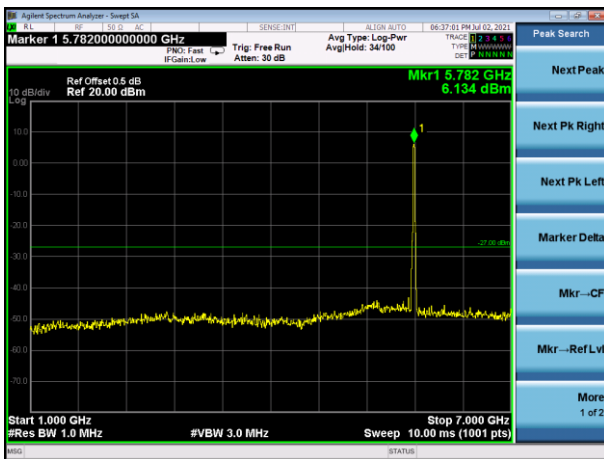
802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157

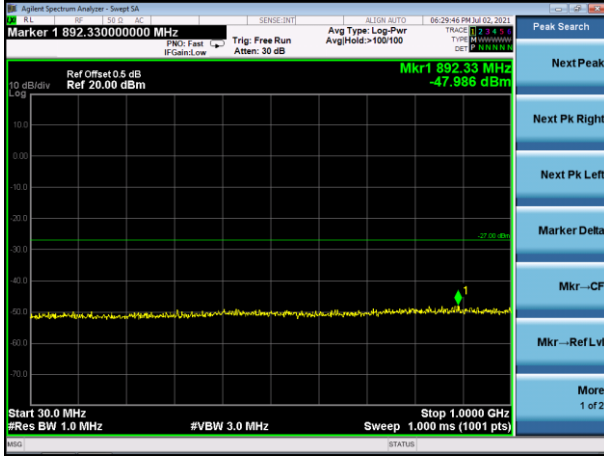


802.11n20 on channel 165

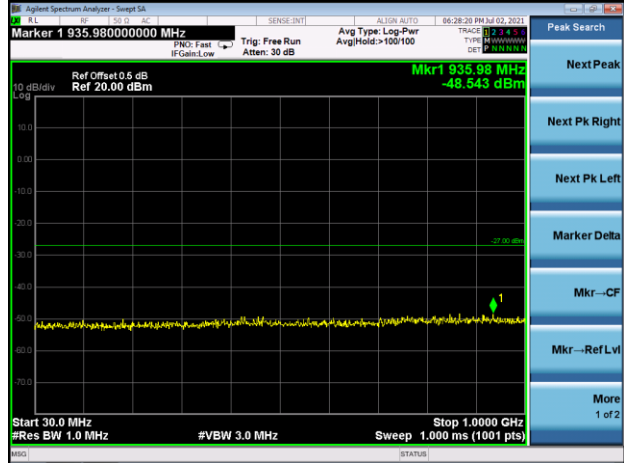


Test Plot

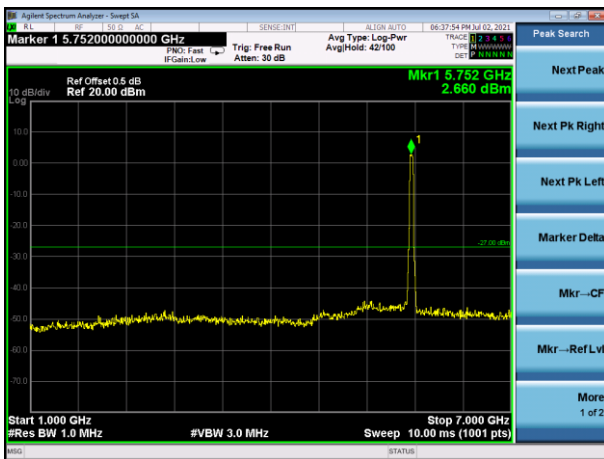
802.11n40 on channel 151



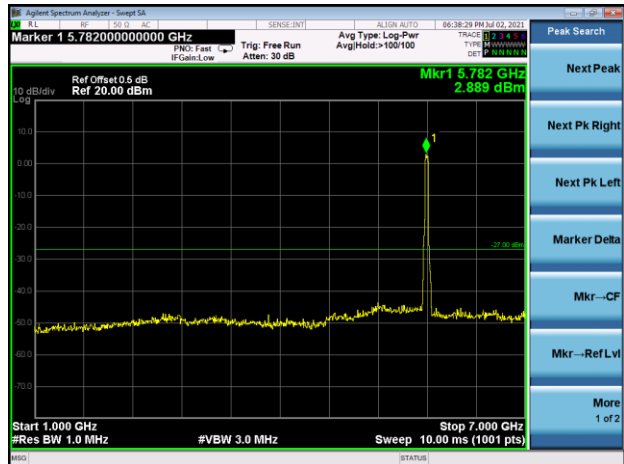
802.11n40 on channel 159



802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151



802.11n40 on channel 159



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 :	DC 12V
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	5180.0082	5180	0.0082	1.5879
		V max (V)	132.00	5180.0198	5180	0.0198	3.8182
		V min (V)	108.00	5180.0066	5180	0.0066	1.2687
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	5180.0107	5180	0.0107	2.0628
		T (°C)	-10	5180.0084	5180	0.0084	1.6135
		T (°C)	0	5180.0078	5180	0.0078	1.5014
		T (°C)	10	5180.0054	5180	0.0054	1.0483
		T (°C)	20	5180.0085	5180	0.0085	1.6355
		T (°C)	30	5180.0118	5180	0.0118	2.2784
		T (°C)	40	5180.0135	5180	0.0135	2.5966
		T (°C)	50	5180.0041	5180	0.0041	0.7990
		T (°C)	60	5180.0104	5180	0.0104	2.0096
		T (°C)	70	5180.0134	5180	0.0134	2.5844
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	5200.0008	5200	0.0008	0.1463
		V max (V)	132.00	5200.0074	5200	0.0074	1.4256
		V min (V)	108.00	5200.0032	5200	0.0032	0.6204
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)	12	T (°C)	-20	5200.00793	5200	0.00793	1.5243
		T (°C)	-10	5200.00312	5200	0.00312	0.6004
		T (°C)	0	5200.01339	5200	0.01339	2.5753
		T (°C)	10	5200.01203	5200	0.01203	2.3136
		T (°C)	20	5200.00435	5200	0.00435	0.8359
		T (°C)	30	5200.00715	5200	0.00715	1.3751
		T (°C)	40	5200.00280	5200	0.00280	0.5393
		T (°C)	50	5200.01334	5200	0.01334	2.5659
		T (°C)	60	5200.00559	5200	0.00559	1.0756
		T (°C)	70	5200.00702	5200	0.00702	1.3495
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	5240.0108	5240	0.0108	2.0648
		V max (V)	132.00	5240.0090	5240	0.0090	1.7248
		V min (V)	108.00	5240.0075	5240	0.0075	1.4396
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	5240.0105	5240	0.0105	2.0046
		T (°C)	-10	5240.0007	5240	0.0007	0.1243
		T (°C)	0	5240.0126	5240	0.0126	2.3961
		T (°C)	10	5240.0073	5240	0.0073	1.3858
		T (°C)	20	5240.0099	5240	0.0099	1.8987
		T (°C)	30	5240.0084	5240	0.0084	1.6009
		T (°C)	40	5240.0127	5240	0.0127	2.4213
		T (°C)	50	5240.0052	5240	0.0052	0.9862
		T (°C)	60	5240.0076	5240	0.0076	1.4547
T (°C)	70	5240.0029	5240	0.0029	0.5486		
Limits				5150-5250 MHz			
Result				Complies			

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 12V
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	5745.00252	5745	0.00252	0.4385
		V max (V)	132.00	5745.00723	5745	0.00723	1.2588
		V min (V)	108.00	5745.01086	5745	0.01086	1.8907
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

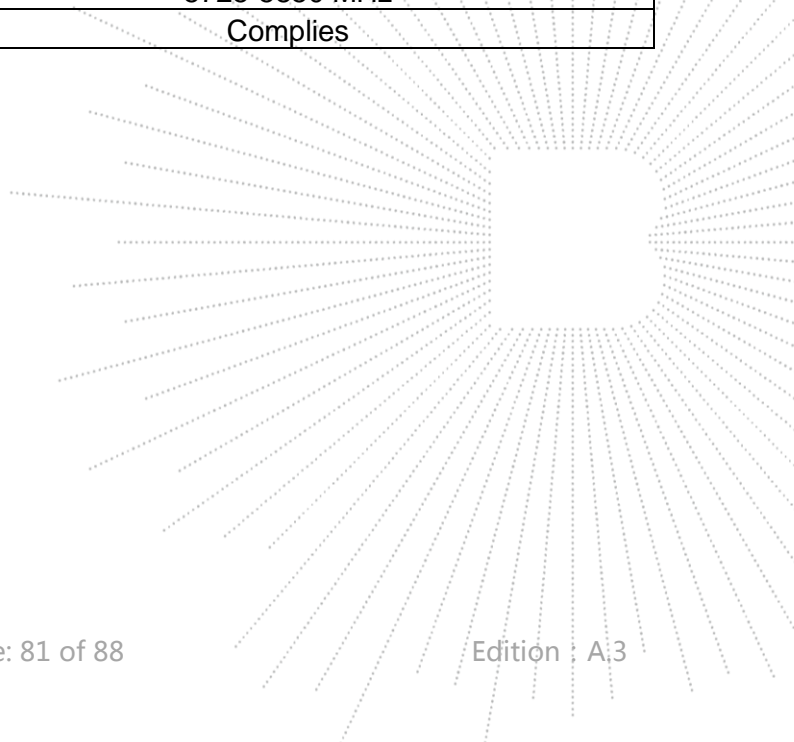
TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	12	T (°C)	-20	5745.00174	5745	0.00174	0.3022
		T (°C)	-10	5745.00169	5745	0.00169	0.2938
		T (°C)	0	5745.00738	5745	0.00738	1.2845
		T (°C)	10	5745.01341	5745	0.01341	2.3342
		T (°C)	20	5745.00977	5745	0.00977	1.7015
		T (°C)	30	5745.00896	5745	0.00896	1.5590
		T (°C)	40	5745.00866	5745	0.00866	1.5082
		T (°C)	50	5745.00144	5745	0.00144	0.2510
		T (°C)	60	5745.00716	5745	0.00716	1.2472
		T (°C)	70	5745.00383	5745	0.00383	0.6672
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	5785.00542	5785	0.00542	0.9366
		V max (V)	132.00	5785.00017	5785	0.00017	0.0301
		V min (V)	108.00	5785.00228	5785	0.00228	0.3939
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	5785.00347	5785	0.00347	0.5995
		T (°C)	-10	5785.00760	5785	0.00760	1.3146
		T (°C)	0	5785.00824	5785	0.00824	1.4241
		T (°C)	10	5785.00933	5785	0.00933	1.6125
		T (°C)	20	5785.01211	5785	0.01211	2.0940
		T (°C)	30	5785.00574	5785	0.00574	0.9928
		T (°C)	40	5785.00124	5785	0.00124	0.2149
		T (°C)	50	5785.00885	5785	0.00885	1.5298
		T (°C)	60	5785.00818	5785	0.00818	1.4134
		T (°C)	70	5785.01236	5785	0.01236	2.1372
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	5825.00779	5825	0.00779	1.3371
		V max (V)	132.00	5825.00323	5825	0.00323	0.5539
		V min (V)	108.00	5825.00369	5825	0.00369	0.6337
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	5825.01011	5825	0.01011	1.7349
		T (°C)	-10	5825.00044	5825	0.00044	0.0751
		T (°C)	0	5825.00233	5825	0.00233	0.4005
		T (°C)	10	5825.00801	5825	0.00801	1.3754
		T (°C)	20	5825.00591	5825	0.00591	1.0143
		T (°C)	30	5825.01089	5825	0.01089	1.8700
		T (°C)	40	5825.00760	5825	0.00760	1.3041
		T (°C)	50	5825.00336	5825	0.00336	0.5773
		T (°C)	60	5825.01218	5825	0.01218	2.0909
		T (°C)	70	5825.00299	5825	0.00299	0.5137
Limits				5725-5850 MHz			
Result				Complies			

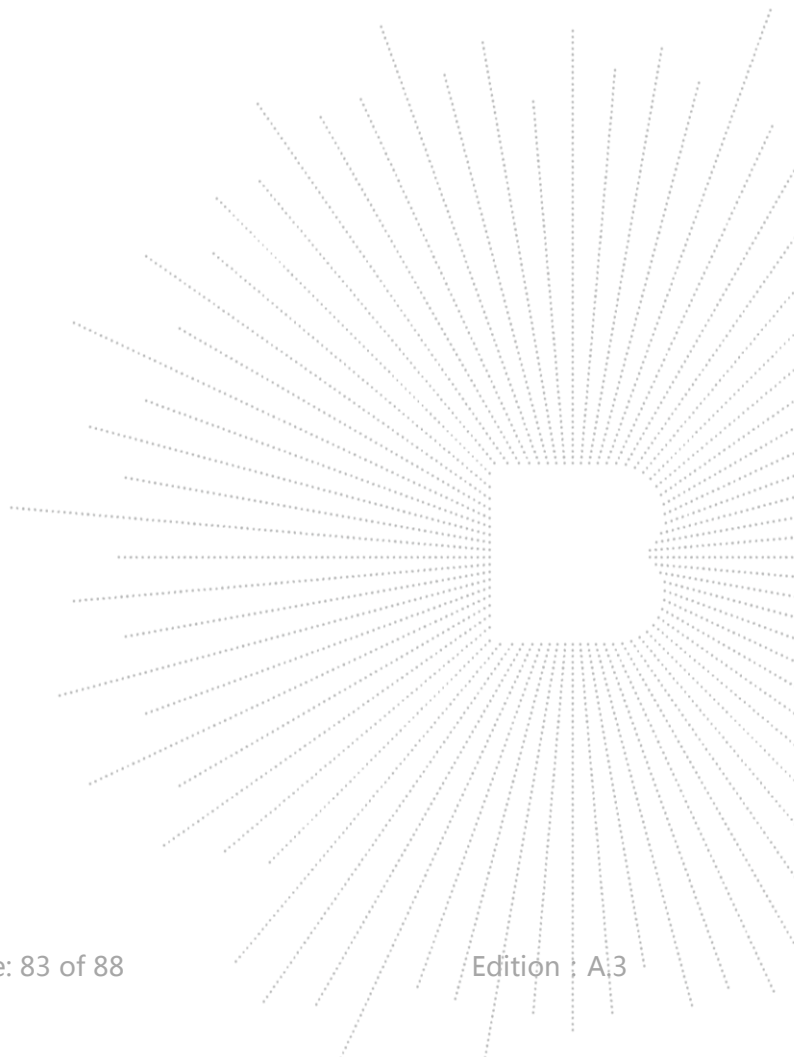
14. ANTENNA REQUIREMENT

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

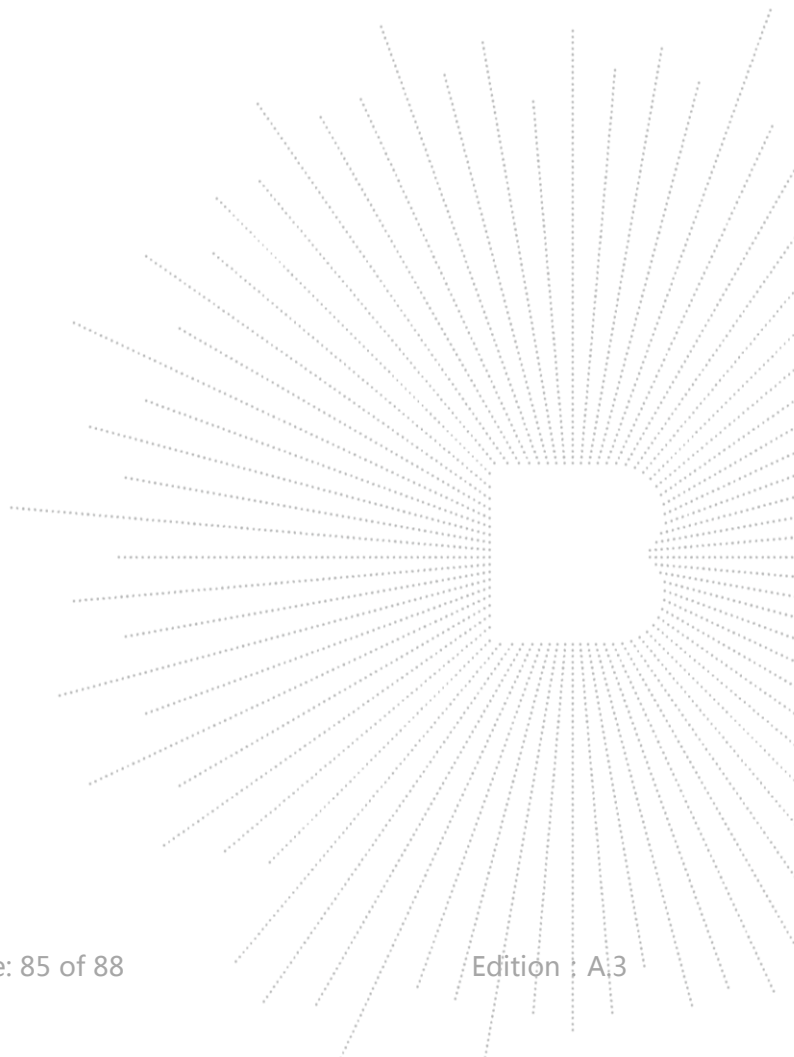
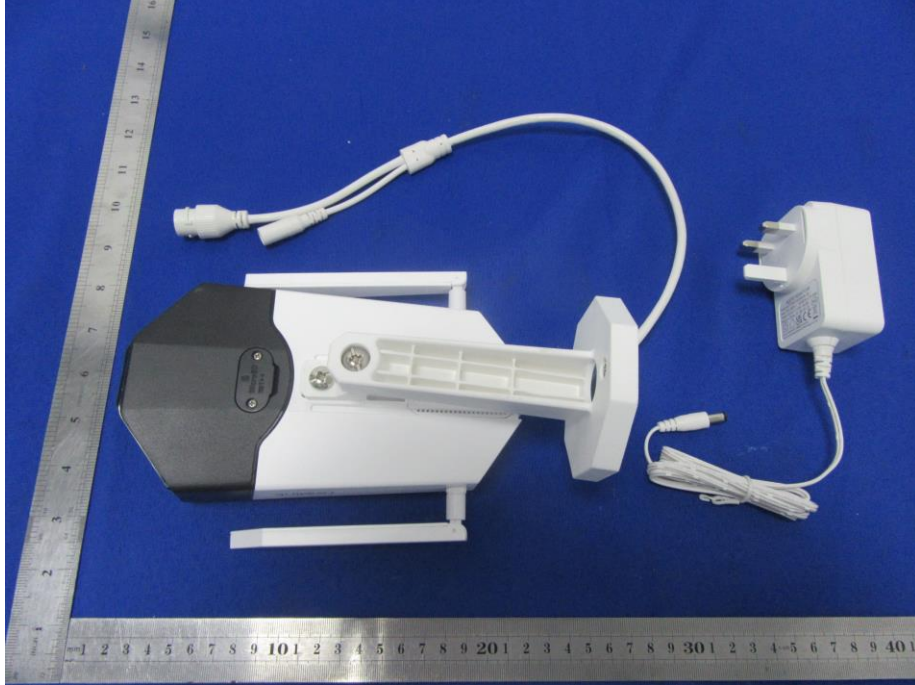
EUT Photo 1



EUT Photo 2



EUT Photo 3

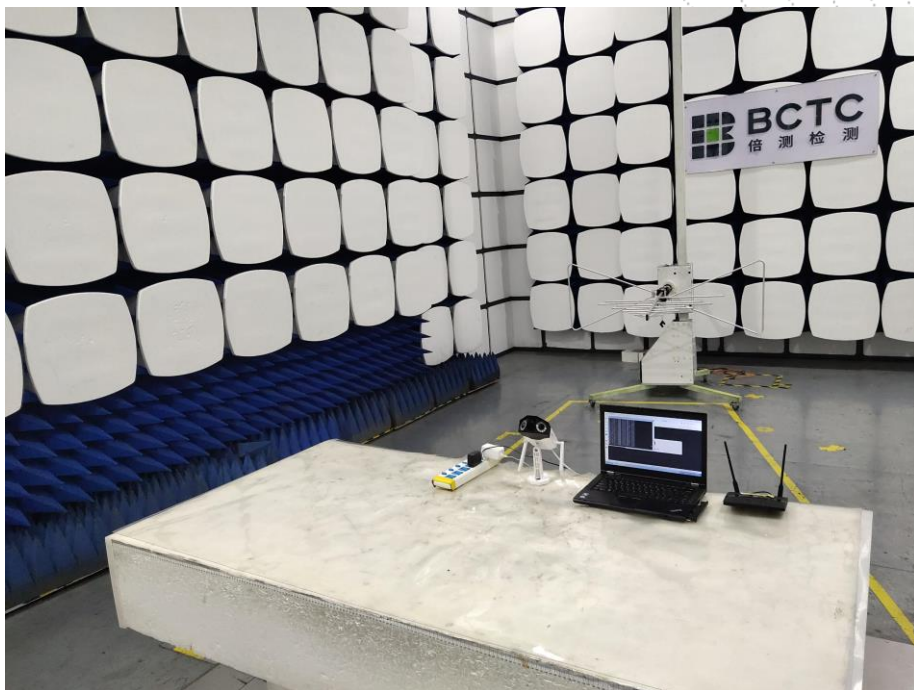


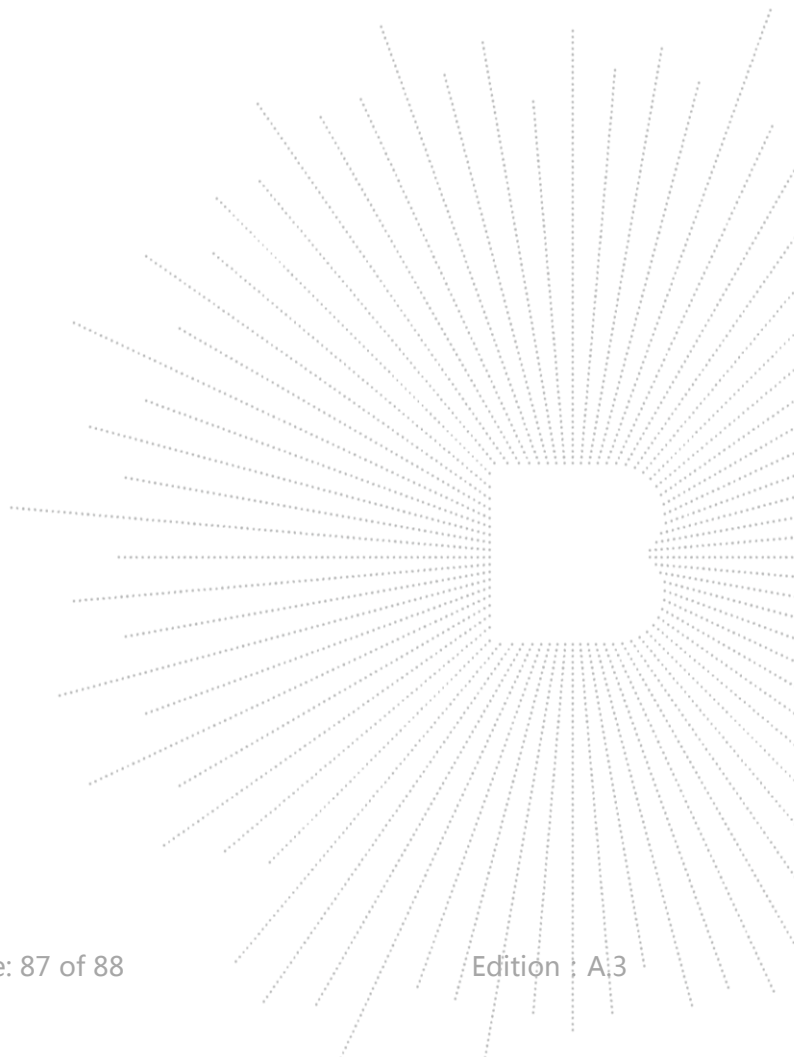
16. EUT TEST SETUP PHOTOGRAPHS

Conducted Measurement Photos



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 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 *****

