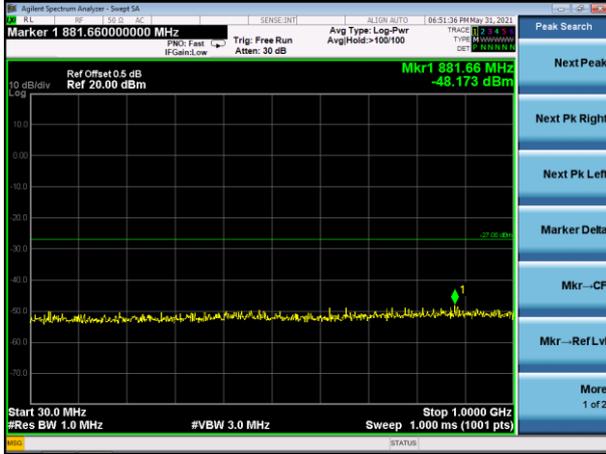
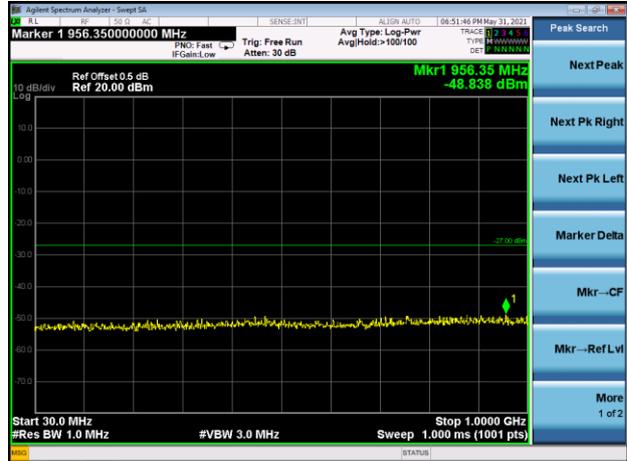


Test Plot

802.11n20 on channel 157



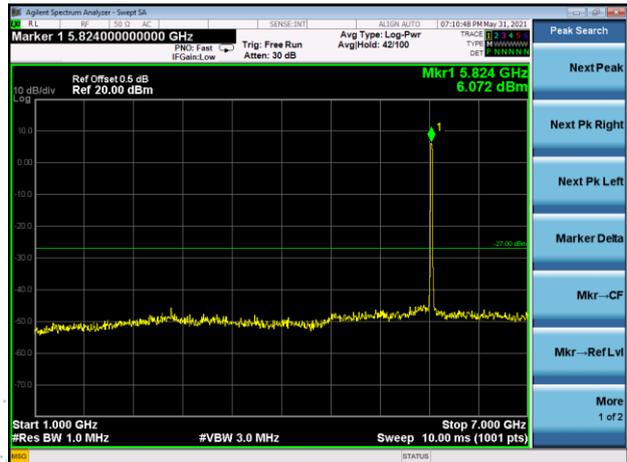
802.11n20 on channel 165



802.11n20 on channel 157



802.11n20 on channel 165



802.11n20 on channel 157



802.11n20 on channel 165

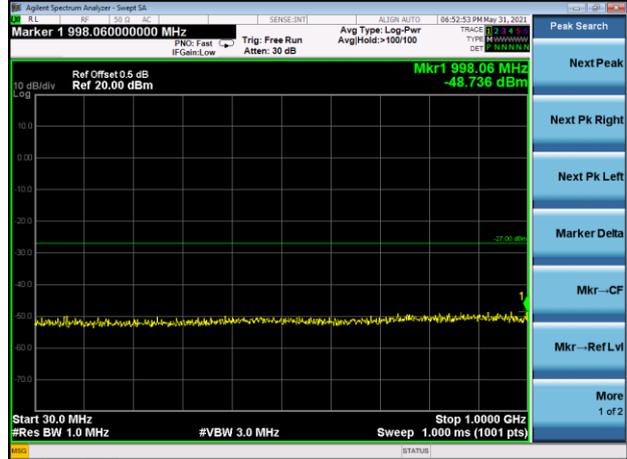


Test Plot

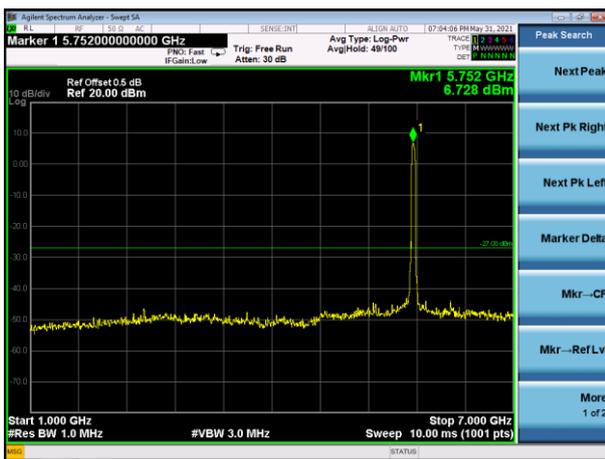
802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151



802.11n40 on channel 159



802.11n40 on channel 151

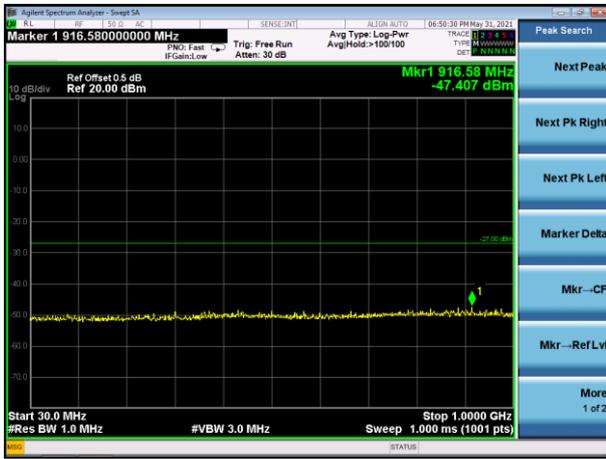


802.11n40 on channel 159

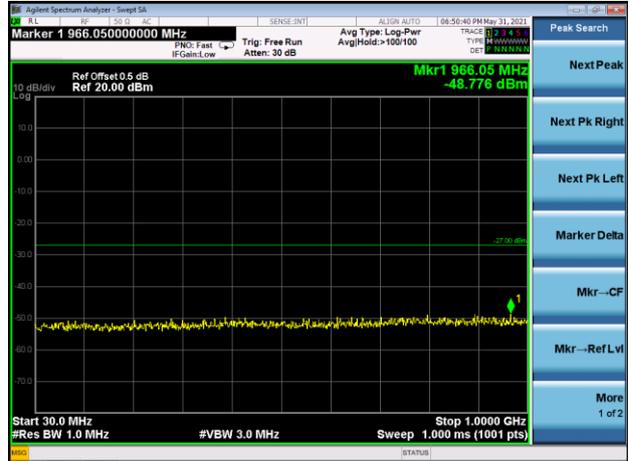


Test Plot

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

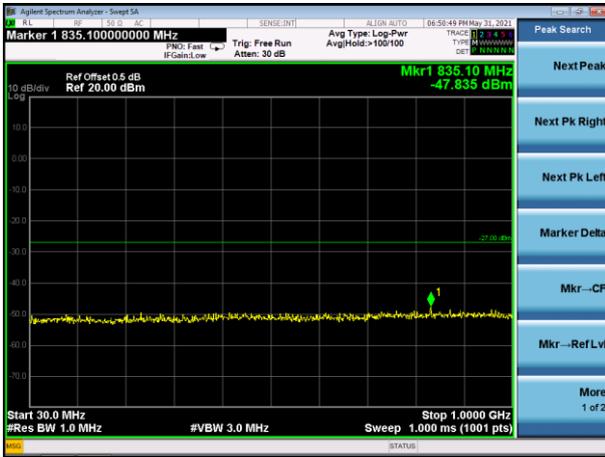


802.11ac20 on channel 157

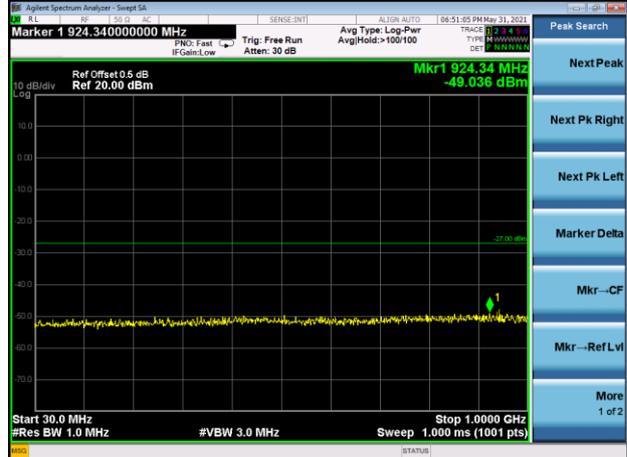


Test Plot

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

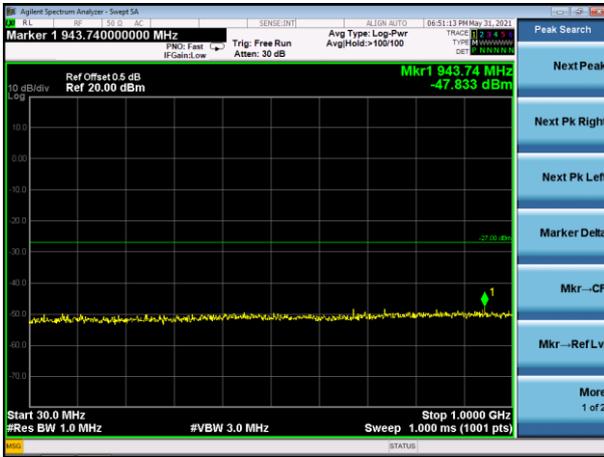


802.11ac40 on channel 151

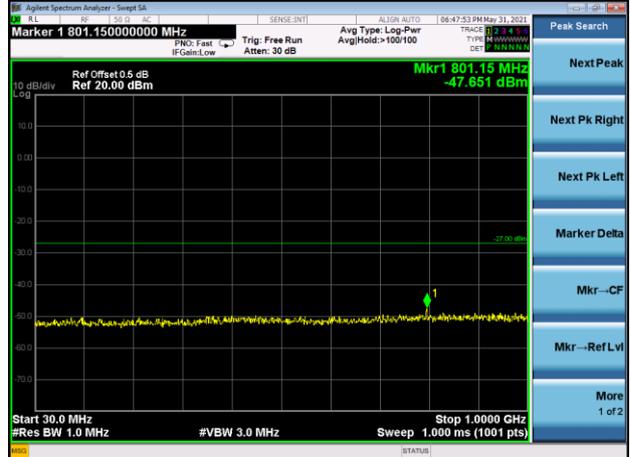


Test Plot

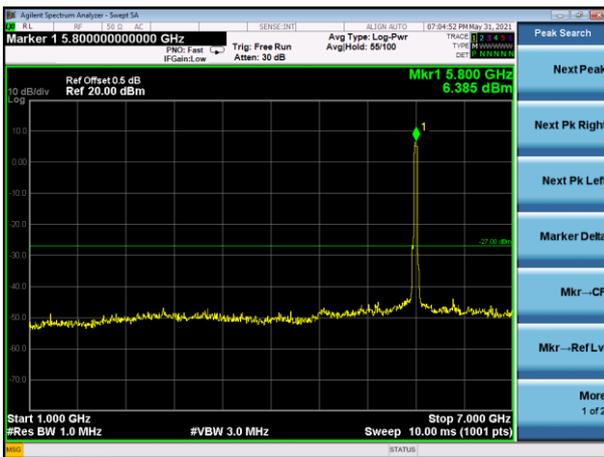
802.11ac40 on channel 159



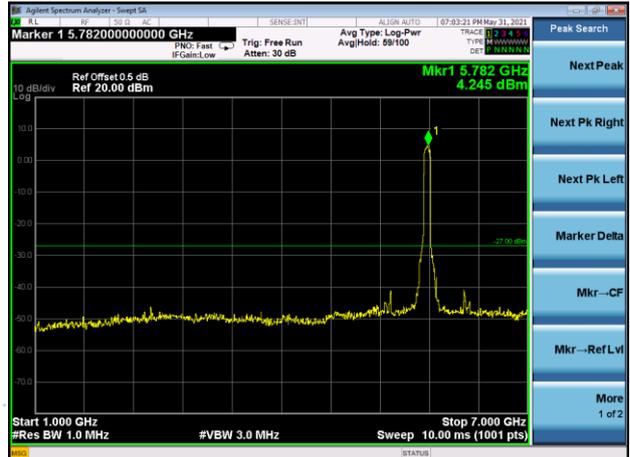
802.11ac80 on channel 155



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 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	5180.0034	5180	0.0034	0.6489
		V max (V)	132.00	5180.0125	5180	0.0125	2.4099
		V min (V)	108.00	5180.0055	5180	0.0055	1.0621
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

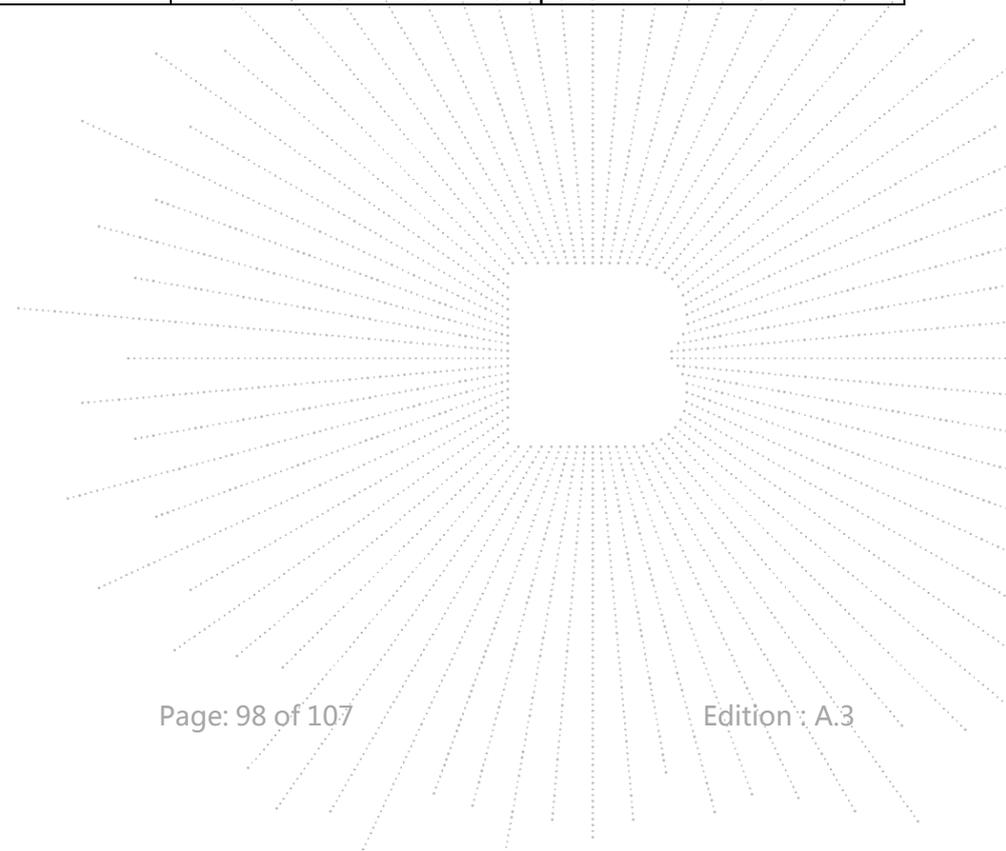
TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5180.0132	5180	0.0132	2.5430
		T (°C)	-10	5180.0106	5180	0.0106	2.0528
		T (°C)	0	5180.0062	5180	0.0062	1.2029
		T (°C)	10	5180.0042	5180	0.0042	0.8125
		T (°C)	20	5180.0069	5180	0.0069	1.3320
		T (°C)	30	5180.0128	5180	0.0128	2.4649
		T (°C)	40	5180.0124	5180	0.0124	2.3979
		T (°C)	50	5180.0080	5180	0.0080	1.5495
		T (°C)	60	5180.0135	5180	0.0135	2.6011
		T (°C)	70	5180.0007	5180	0.0007	0.1366
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	0.1564
		V max (V)	132.00	5200.0074	5200	0.0074	1.4161
		V min (V)	108.00	5200.0049	5200	0.0049	0.9462
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	5200.00864	5200	0.00864	1.6610
		T (°C)	-10	5200.00013	5200	0.00013	0.0260
		T (°C)	0	5200.00720	5200	0.00720	1.3850
		T (°C)	10	5200.00447	5200	0.00447	0.8598
		T (°C)	20	5200.01340	5200	0.01340	2.5772
		T (°C)	30	5200.00621	5200	0.00621	1.1938
		T (°C)	40	5200.01281	5200	0.01281	2.4634
		T (°C)	50	5200.00374	5200	0.00374	0.7193
		T (°C)	60	5200.00430	5200	0.00430	0.8260
		T (°C)	70	5200.00931	5200	0.00931	1.7904
Limits				5150-5250 MHz			
Result				Complies			

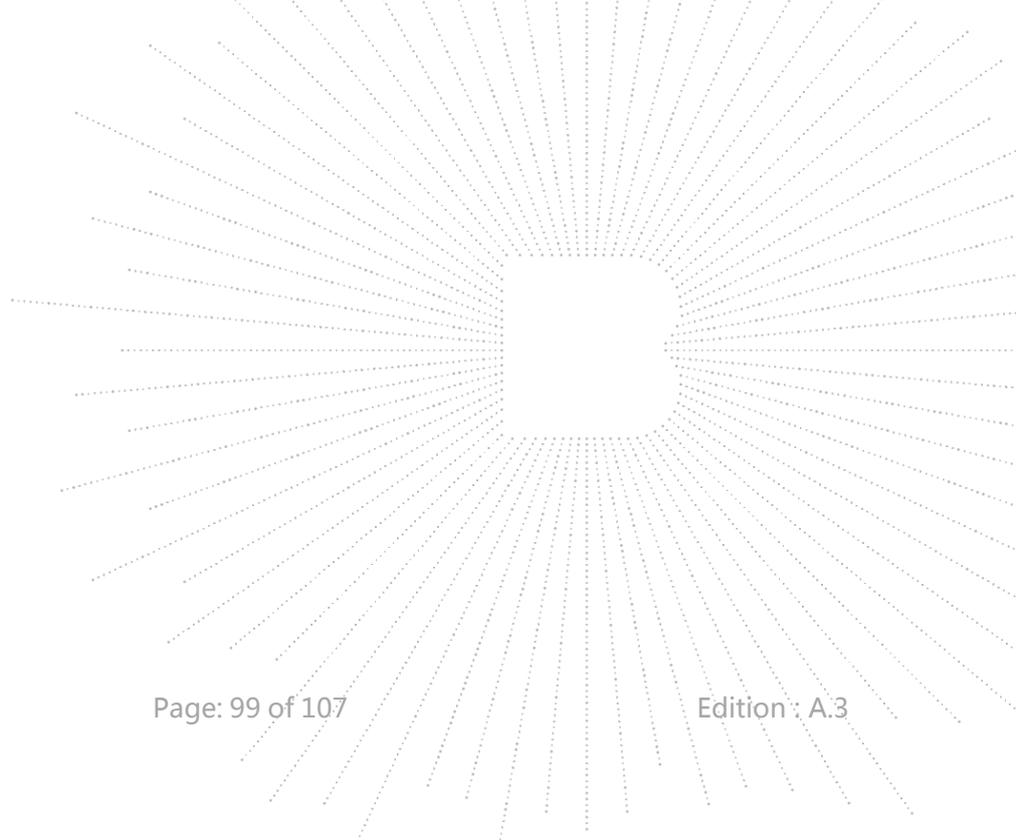


Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5240.0076	5240	0.0076	1.4547
		V max (V)	132.00	5240.0081	5240	0.0081	1.5446
		V min (V)	108.00	5240.0043	5240	0.0043	0.8257
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	5240.0047	5240	0.0047	0.8986
		T (°C)	-10	5240.0045	5240	0.0045	0.8682
		T (°C)	0	5240.0076	5240	0.0076	1.4424
		T (°C)	10	5240.0025	5240	0.0025	0.4823
		T (°C)	20	5240.0044	5240	0.0044	0.8351
		T (°C)	30	5240.0089	5240	0.0089	1.6928
		T (°C)	40	5240.0135	5240	0.0135	2.5853
		T (°C)	50	5240.0005	5240	0.0005	0.0983
		T (°C)	60	5240.0032	5240	0.0032	0.6034
		T (°C)	70	5240.0011	5240	0.0011	0.2122
Limits				5150-5250 MHz			
Result				Complies			



Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	AC120V/60Hz
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	5745.00851	5745	0.00851	1.4819
		V max (V)	132.00	5745.00555	5745	0.00555	0.9664
		V min (V)	108.00	5745.00423	5745	0.00423	0.7369
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	5745.00496	5745	0.00496	0.8635
		T (°C)	-10	5745.00643	5745	0.00643	1.1191
		T (°C)	0	5745.00822	5745	0.00822	1.4302
		T (°C)	10	5745.01231	5745	0.01231	2.1431
		T (°C)	20	5745.00168	5745	0.00168	0.2930
		T (°C)	30	5745.00720	5745	0.00720	1.2535
		T (°C)	40	5745.00071	5745	0.00071	0.1230
		T (°C)	50	5745.00248	5745	0.00248	0.4314
		T (°C)	60	5745.00804	5745	0.00804	1.3988
T (°C)	70	5745.00098	5745	0.00098	0.1708		
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	5785.00538	5785	0.00538	0.9301
		V max (V)	132.00	5785.00704	5785	0.00704	1.2166
		V min (V)	108.00	5785.01174	5785	0.01174	2.0298
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

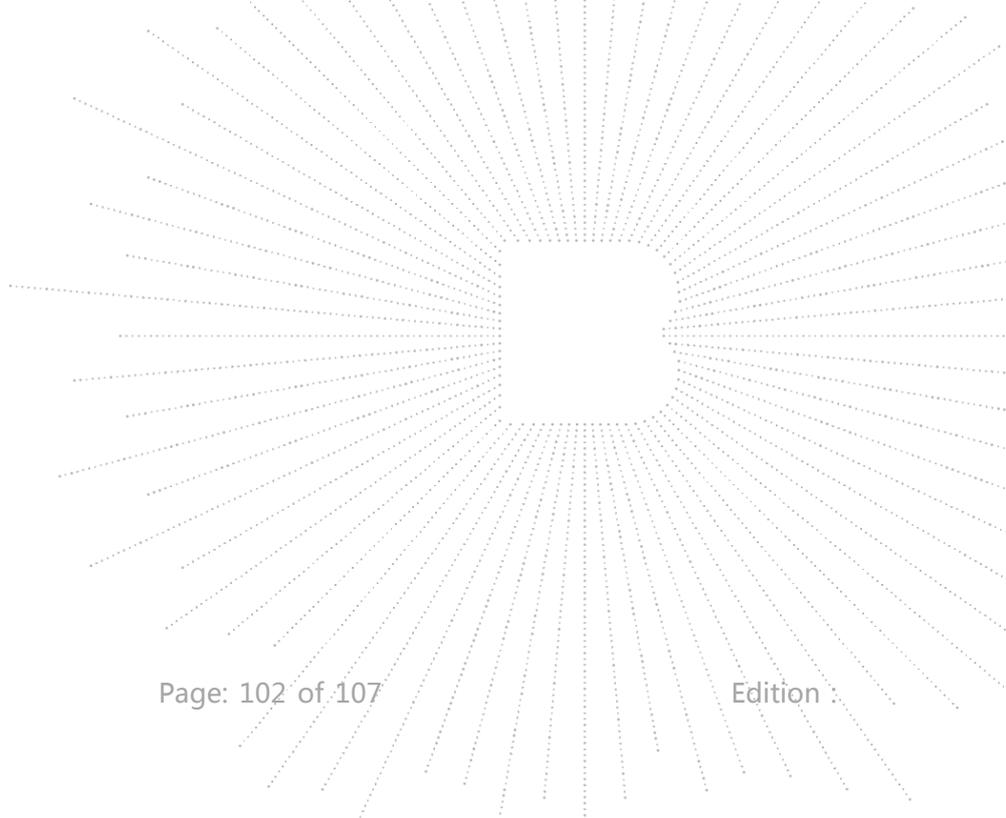
TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5785.00208	5785	0.00208	0.3588
		T (°C)	-10	5785.00225	5785	0.00225	0.3883
		T (°C)	0	5785.00559	5785	0.00559	0.9667
		T (°C)	10	5785.01075	5785	0.01075	1.8577
		T (°C)	20	5785.01305	5785	0.01305	2.2561
		T (°C)	30	5785.00121	5785	0.00121	0.2089
		T (°C)	40	5785.01335	5785	0.01335	2.3069
		T (°C)	50	5785.01023	5785	0.01023	1.7690
		T (°C)	60	5785.01336	5785	0.01336	2.3086
		T (°C)	70	5785.00178	5785	0.00178	0.3084
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	5825.00166	5825	0.00166	0.2843
		V max (V)	132.00	5825.00995	5825	0.00995	1.7090
		V min (V)	108.00	5825.00673	5825	0.00673	1.1546
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	5825.00538	5825	0.00538	0.9231
		T (°C)	-10	5825.00598	5825	0.00598	1.0272
		T (°C)	0	5825.01165	5825	0.01165	2.0001
		T (°C)	10	5825.00453	5825	0.00453	0.7785
		T (°C)	20	5825.00921	5825	0.00921	1.5814
		T (°C)	30	5825.01344	5825	0.01344	2.3077
		T (°C)	40	5825.00335	5825	0.00335	0.5759
		T (°C)	50	5825.00626	5825	0.00626	1.0740
		T (°C)	60	5825.01336	5825	0.01336	2.2927
		T (°C)	70	5825.00074	5825	0.00074	0.1266
Limits				5725-5850 MHz			
Result				Complies			



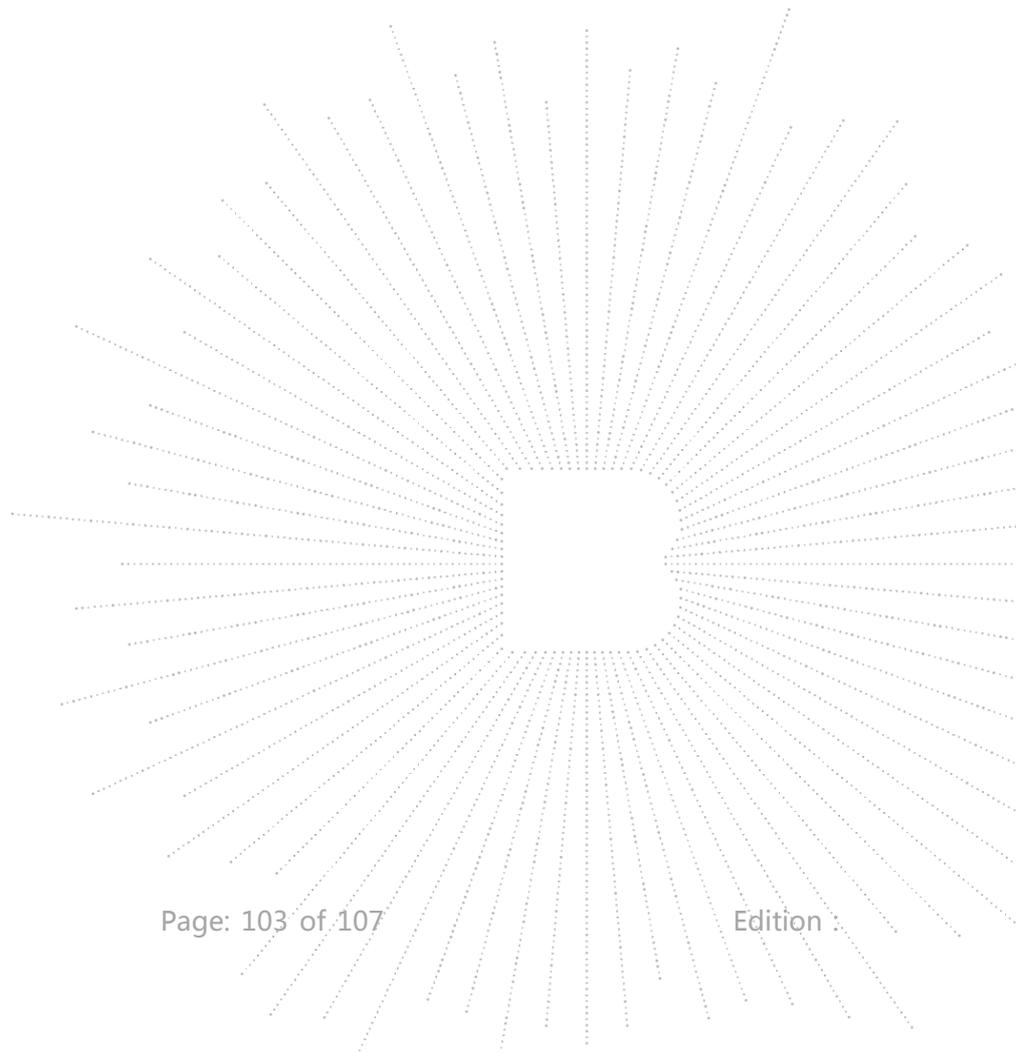
14. ANTENNA REQUIREMENT

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): 5dBi; antenna gain (B): 5dBi). It comply with the standard requirement.

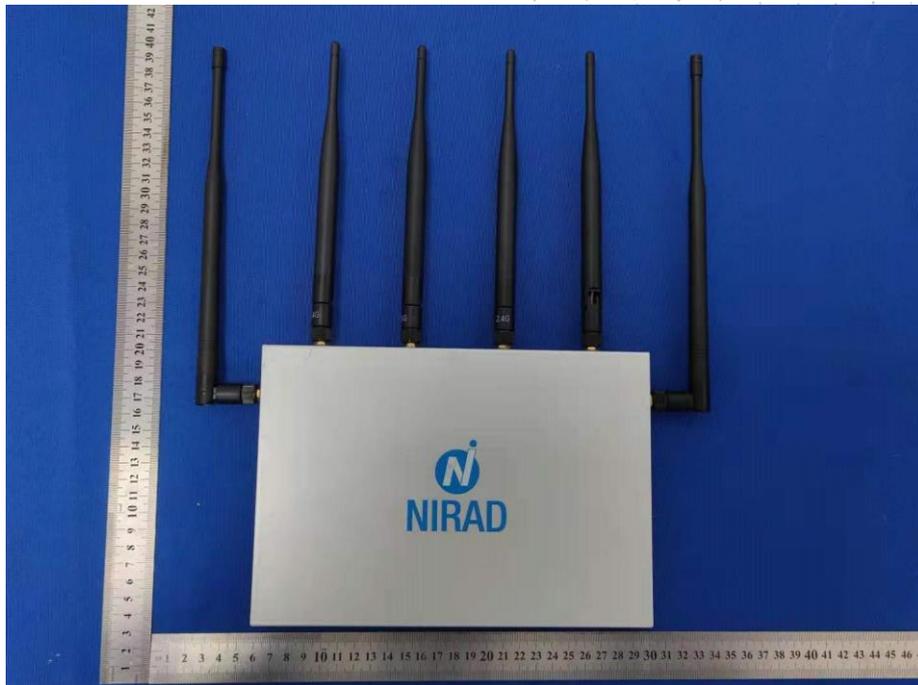


15. EUT PHOTOGRAPHS

EUT Photo 1

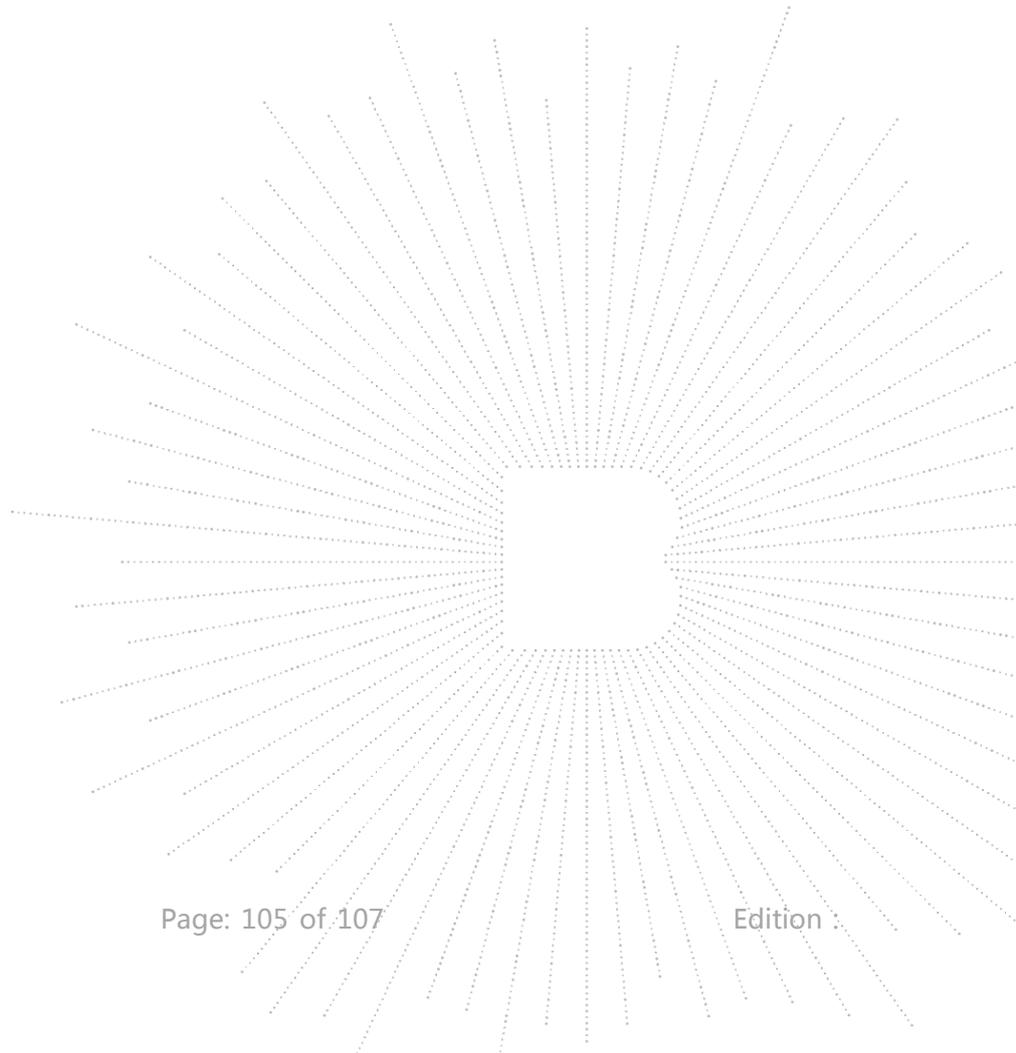


EUT Photo 2

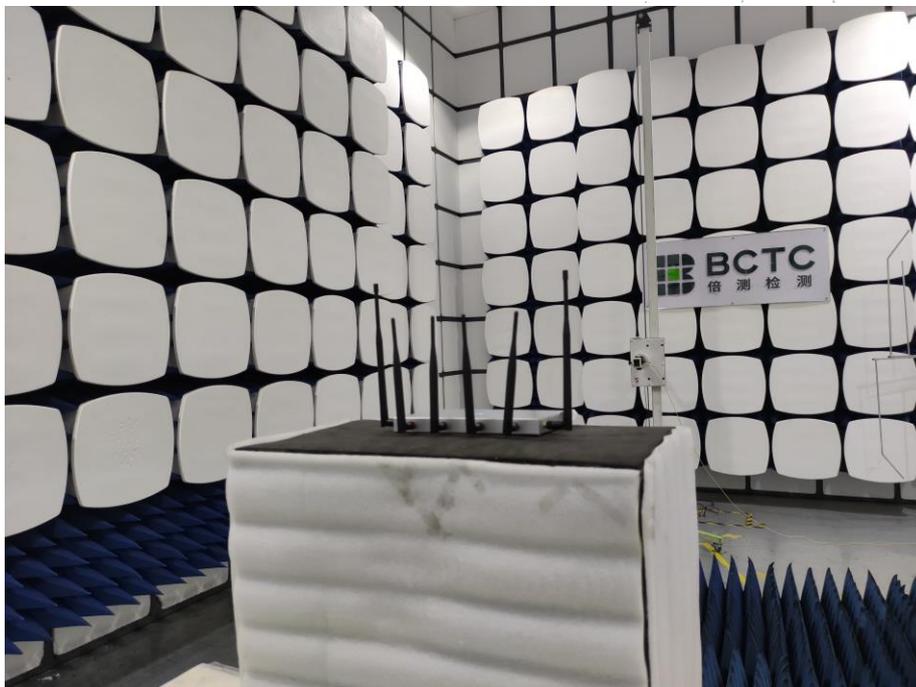


16. EUT TEST SETUP PHOTOGRAPHS

Conducted Measurement Photos



Radiated Measurement Photos



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:

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P.C.: 518103

FAX : 0755-33229357

Website : <http://www.chnbctc.com>

E-Mail : bctc@bctc-lab.com.cn

***** END *****