Shenzhen Huatongwei International Inspection Co.,Ltd.
Huatongwei 101, No.006, Keji south 12th Road, High-tech zone community, Yuehai Street,
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TEST REPORT

For WiFi-5GHz Band

Report No. ..... :	**CHTW24070028**	Report Verification:
Project No.....:	**SHT2404097802W**	
FCC ID..... :	**ZLZ-TEARQ**	
Applicant's name..... :	**Shenzhen Mindray Bio-Medical Electronics Co.,LTD.**	
Address.....:	Mindray Building, Keji 12th Road South, High-tech Industrial Park, Nanshan,518057 Shenzhen,PEOPLE'S REPUBLIC OF CHINA	
Product Name ..... :	**Diagnostic Ultrasound System**	
Trade Mark .....:	mindray	
Model No. .....:	TE Air	
Listed Model(s) .....:	-	
Standard ..... :	**FCC CFR Title 47 Part 15 Subpart E § 15.407**	
Date of receipt of test sample.....:	May.20, 2024	
Date of testing.....:	May.20, 2024 - Jul.04, 2024	
Date of issue.....:	Jul.05, 2024	
Result..... .....:	**PASS**	

Compiled by (Position+Printed name+Signature):	File administrators Kiki Kong	kong
Supervised by (Position+Printed name+Signature):	Project Engineer Kiki Kong	kong
Approved by (Position+Printed name+Signature):	RF Manager Xu yang	Xu. Yang

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd.**
Address.....:	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China

Contents

1. TEST STANDARDS AND REPORT VERSION

1.1. Test Standards

The tests were performed according to following standards:

– FCC CFR Title 47 Part 15 Subpart E § 15.407: General technical requirements

– ANSI C63.10:2013: American National Standard for Testing Unlicensed Wireless Devices

– KDB789033 D02 v02r01: GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E

1.2. Report version

Revision No.	Date of issue	Description
N/A	2024-07-05	Original

2. TEST DESCRIPTION

Report clause	Test Items	Standard Requirement	Result	Test Engineer
5.1	Antenna Requirement	15.203/15.247(c)	PASS	-
5.2	AC Conducted Emission	15.207	N/A	N/A
5.3	Maximum Conducted Output Power	15.407(a)	PASS	Weixiangyu
5.4	Maximum Power Spectral Density	15.407(a)	PASS*	-
5.5	26dB Bandwidth and 99% Ocuppy bandwith	15.407(a)	PASS*	-
5.6	6dB Bandwidth	15.407(a)	PASS*	-
5.7	Band edge	15.407(b)	PASS	Yifan Wang
5.8	Radiated Spurious Emissions	15.209	PASS	Yifan Wang
5.9	Frequency Stability	15.407(g)	PASS*	-

Note:

– The measurement uncertainty is not included in the test result.

– N/A: Not tested

– * EUT in built a RF module which had been certified(FCC ID:2AC23-WXT8H) by telefication and the report No. is 20240317G03836X-W4 tested by CCIC Southern Testing Co., Ltd, So except the “Radiated Band Edge Emission and Radiated Spurious Emission ” was retested, all other items please refer to the module report 20240317G03836X-W4.

3. SUMMARY

3.1. Client Information

Applicant:	Shenzhen Mindray Bio-Medical Electronics Co.,LTD.
Address:	Mindray Building, Keji 12th Road South, High-tech Industrial Park, Nanshan,518057 Shenzhen,PEOPLE'S REPUBLIC OF CHINA
Manufacturer:	Shenzhen Mindray Bio-Medical Electronics Co.,LTD.
Address:	Mindray Building, Keji 12th Road South, High-tech Industrial Park, Nanshan,518057 Shenzhen,PEOPLE'S REPUBLIC OF CHINA
Factory:	Shenzhen Mindray Bio-Medical Electronics Co.,LTD.
Address:	Mindray Building, Keji 12th Road South, High-tech Industrial Park, Nanshan,518057 Shenzhen,PEOPLE'S REPUBLIC OF CHINA

3.2. Product Description

Main unit information:	
Product Name:	Diagnostic Ultrasound System
Trade Mark:	mindray
Model No.:	TE Air
Listed Model(s):	-
Power supply:	DC 3.85V from battery
Hardware version:	02
Software version:	02
Accessory unit information:	
Battery information:	Model:LP11I003I 1ICP6/29/90 DC 3.85V 1650mAh 6.35Wh

Note:
#:

Probe Model No.:	e5M
Listed Probe Model(s):	i5M\z5M\z5Ms\z5Mt\e5M\e5Ms\e5Mt\a5Mx

TE Air ultrasonic diagnostic system consists of TE Air application software and wireless probe. The general-purpose probes include i5M\z5M\z5Ms\z5Mt\e5M\e5Ms\e5Mt\a5Mx and they all base on a same electrical design. They are used as typical and representative model on the test base on the original difference information list received from design input which base on market requirement. After analysis tiny difference about additional software added which not impact test result and the standard requirement and still covered by e5M.

3.3. Radio Specification Description

Support type[#1]	☒ 802.11a	☒ 802.11n	☒ 802.11ac
	☒ 802.11ax		
Support Bandwidth	20MHz:	802.11n, 802.11a, 802.11ac,802.11ax	
Operation frequency: [#2]	☒ U-NII-1 Band:	5150MHz~5250MHz	
	☐ U-NII-2A Band:	5250MHz~5350MHz	
	☐ U-NII-2C Band:	5470MHz~5725MHz	
	☒ U-NII-3 Band:	5725MHz~5850MHz	
Modulation:	BPSK, QPSK, 16QAM, 64QAM, 256QAM,1024QAM		
Function:	☐ Outdoor AP	☒ Indoor AP	☐ Fixed P2P
	☐ Client		
DFS type:	☒ Master devices	☐ Slave devices with radar detection	☐ Slave devices without radar detection
Antenna technology:	☒ SISO	☐ MIMO	
Antenna type:	FPC Antenna		
Antenna gain:	2.00dBi		

Note:

#1: only show the RF function associated with this report.

#2: Under normal operation of the prototype, U-NII-2A and U-NII-2C will not be used, so U-NII-2A and U-NII-2C are closed through software

3.4. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	Building 7, Baiwang Idea Factory, No.1051, Songbai Road, Yangguang Community, Xili Subdistrict, Nanshan District, Shenzhen, Guangdong, China	
Contact information:	Phone: 86-755-26715499 E-mail: cs@szhtw.com.cn http://www.szhtw.com.cn	
Qualifications	Type	Accreditation Number
	FCC Registration Number	762235
	FCC Designation Number	CN1181

4. TEST CONFIGURATION

4.1. Test frequency list

According to section 15.31(m), regards to the operating frequency range over 10 MHz, must select three channels which were tested. The Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the below .

Band	Test Channel	20MHz	
		Channel	Frequency (MHz)
U-NII-1	CH_L	36	5180
	CH_M	44	5220
	CH_H	48	5240
U-NII-3	CH_L	149	5745
	CH_M	157	5785
	CH_H	165	5825

4.2. Descriptions of Test mode

Preliminary tests were performed in different data rates, final test modes are considering the modulation and worse data rates as below table.

Modulation	Data rate
802.11a	6Mbps
802.11n(HT20)/ 802.11ac(HT20)/802.11ax(HE20)	MCS0

4.3. Test mode

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit.
For AC power line conducted emissions:
The EUT was set to connect with the WLAN AP under large package sizes transmission.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data Recorded in the report.

4.4. Test sample information

Test item	HTW sample no.
RF Conducted test items	-
RF Radiated test items	YPHT24040978001
EMI test items	-

Note:

RF Conducted test items: Maximum Conducted Output Power, Maximum Power Spectral Density , 26dB Bandwidth and 99% Ocuppy bandwith , 6dB Bandwidth ,Frequency Stability

RF Radiated test items: Band edge, Radiated Spurious Emission

EMI test items: AC Conducted Emission

4.5. Support unit used in test configuration and system

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Whether support unit is used?			
✓ No			
Item	Equipment	Trade Name	Model No.
1			
2			

4.6. Testing environmental condition

Type	Requirement	Actual
Temperature:	15~35°C	25°C
Relative Humidity:	25~75%	50%
Air Pressure:	860~1060mbar	1000mbar

4.7. Statement of the measurement uncertainty

No.	Test Items	Measurement Uncertainty
1	AC Conducted Emission	3.21dB
2	Maximum Conducted Output Power	1.07
3	Maximum Power Spectral Density	1.07
4	26dB Bandwidth and 99% Ocuppy bandwith	0.002%
5	6dB Bandwidth	0.002%
6	Radiated Band Edge Emission	4.54dB for 30MHz-1GHz 5.10dB for above 1GHz
7	Radiated Spurious Emission	4.54dB for 30MHz-1GHz 5.10dB for above 1GHz
8	Frequency Stability	0.05ppm

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.8. Equipment Used during the Test

● RF Conducted test item							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Signal and spectrum Analyzer	R&S	HTWE0242	FSV40	100048	2023/08/22	2024/08/21
●	Signal & Spectrum Analyzer	R&S	HTWE0262	FSW26	103440	2023/08/22	2024/08/21
●	Vector signal generator	R&S	HTWE0244	SMBV100A	260790	2024/5/25	2025/5/24
●	Test software	Tonscend	N/A	JS1120	N/A	N/A	N/A

● Conducted Emission							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	EMI Test Receiver	R&S	HTWE0111	ESCI	101247	2023/8/22	2024/8/21
●	Artificial Mains	SCHWARZBECK	HTWE0113	NNLK 8121	573	2023/8/18	2024/8/17
●	Protection Network	SCHWARZBECK	HTWE0567	VTSD9561FN	00899	2023/8/18	2024/8/17
●	ISN	FCC	HTWE0148	FCC-TLISN-T2-02	20371	2023/8/18	2024/8/17
●	ISN	FCC	HTWE0150	FCC-TLISN-T8-02	20375	2023/8/18	2024/8/17
●	Test Software	R&S	N/A	EMC32	N/A	N/A	N/A

● Radiated Emission – 9kHz~30MHz							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0127	SAC-3m-02	C11121	2023/04/06	2026/04/05
●	EMI Test Receiver	R&S	HTWE0099	ESCI 7	100900	2023/08/22	2024/08/21
●	Loop Antenna	R&S	HTWE0170	HFH2-Z2	100020	2024/04/08	2027/04/07
●	Test Software	R&S	N/A	EMC32	N/A	N/A	N/A

● Radiated Emission - 30MHz~1GHz							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0127	SAC-3m-02	C11121	2023/04/06	2026/04/05
●	EMI Test Receiver	R&S	HTWE0099	ESCI 7	100900	2023/08/22	2024/08/21
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0119	VULB9163	546	2023/02/22	2026/02/21
●	Pre-Amplifer	SCHWARZBECK	HTWE0295	BBV 9742	/	2024/5/24	2025/5/23
●	Test Software	R&S	N/A	EMC32	N/A	N/A	N/A

● Radiated emission- Above 1GHz							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0122	SAC-3m-01	C11121	2023/04/17	2026/04/16
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2023/08/22	2024/08/21
●	Spectrum Analyzer	R&S	HTWE0385	N9020A	MY54486658	2023/08/22	2024/08/21
●	Horn Antenna	SCHWARZBECK	HTWE0126	BBHA 9120D	1011	2023/02/14	2026/02/13
●	Pre-Amplifer	CD	HTWE0071	PAP-0102	12004	2023/06/15	2024/06/14
●	Broadband Pre-amplifier	SCHWARZBECK	HTWE0551	SCU18F	100855	2024/6/6	2025/6/5
●	Test Software	Audix	N/A	E3	N/A	N/A	N/A

5. TEST CONDITIONS AND RESULTS

5.1. Antenna Requirement

Requirement

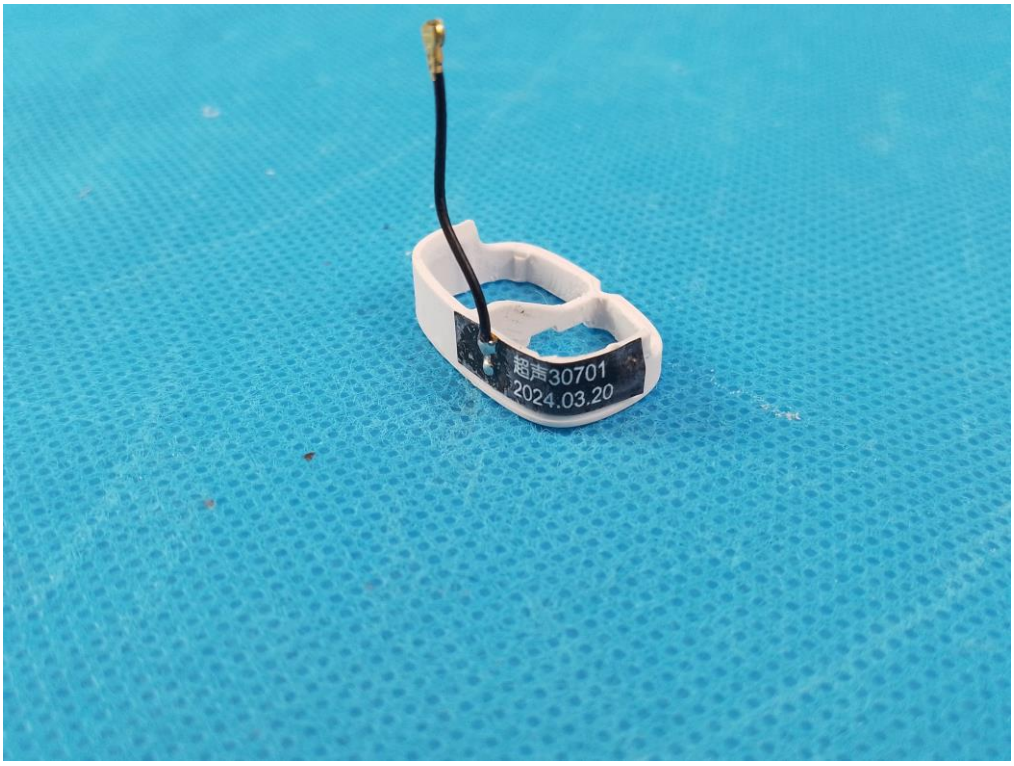
FCC CFR Title 47 Part 15 Subpart C Section 15.203:

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

The antenna type is a FPC antenna, please refer to the below antenna photo.



5.2. AC Conducted Emission

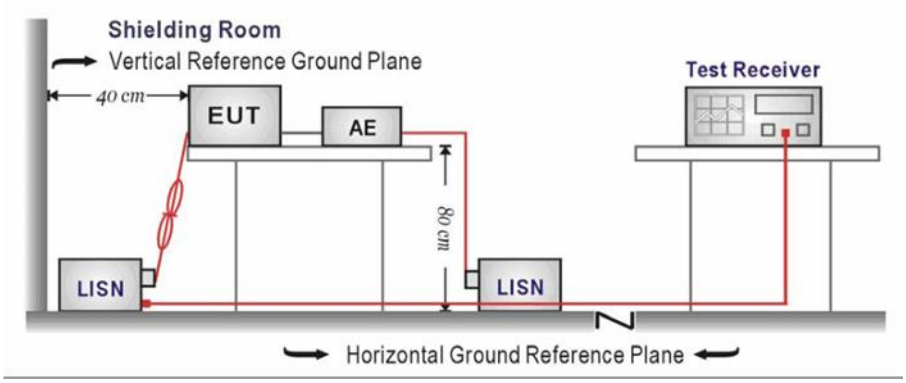
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was setup according to ANSI C63.10 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST MODE:

Please refer to the clause 4.3

TEST RESULT

☐ **Passed** ☒ **Not Applicable**

5.3. Maximum Conducted Output Power

LIMIT

FCC CFR Title 47 Part 15 Subpart E Section 15.407(a):

For the 5.15~5.25GHz band:

- Outdoor AP
  The maximum conducted output power (P_{out}) shall not exceed the lesser of 1W (30dBm).
  if G_{Tx}>6dBi, then P_{out} =30-(G_{Tx}-6). e.i.r.p. at any elevation angle above 30 degrees≤125mW (21dBm)
- Indoor AP
  The maximum conducted output power (P_{out}) shall not exceed the lesser of 1W (30dBm).
  if G_{Tx}>6dBi, then Pout =30-(G_{Tx}-6).
- Point-to-point AP
  The maximum conducted output power (P_{out}) shall not exceed the lesser of 1W (30dBm).
  if G_{Tx}>23dBi, then Pout =30-(G_{Tx}-23).
- Client devices
  The maximum conducted output power (P_{out}) shall not exceed the lesser of 250W (24dBm).
  if G_{Tx}>6dBi, then Pout =24-(G_{Tx}-6).

For the 5.25~5.35GHz band:

The maximum conducted output power (P_{out}) shall not exceed the lesser of 250mW (24dBm) or 11dBm+10 log B, where B is the 26dB emission bandwith in MHz.
if G_{Tx}>6dBi, then P_{out} =24-(G_{Tx}-6).

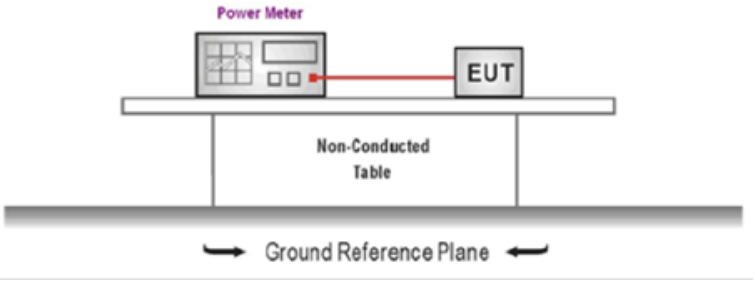
For the 5.47~5.725GHz band:

The maximum conducted output power (P_{out}) shall not exceed the lesser of 250mW (24dBm) or 11dBm+10 log B, where B is the 26dB emission bandwith in MHz.
if G_{Tx}>6dBi, then P_{out} =24-(G_{Tx}-6).

For the 5.725~5.85GHz band:

- Point-to-multipoint systems (P2M)
  The maximum conducted output power (P_{out}) shall not exceed the lesser of 1W (30dBm).
  if G_{Tx}>6dBi, then P_{out} =30-(G_{Tx}-6).
- Point-to-point systems (P2P)
  The maximum conducted output power (P_{out}) shall not exceed the lesser of 1W (30dBm).

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was tested according to KDB789033 Section E-3-b)
2. The maximum conducted output power may be measured using a broadband AVG RF power meter.
3. Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor.
4. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.
5. Record the measurement data.

6. TEST MODE:

Please refer to the clause 4.3

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

Band	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor（dB）	Conducted Output Power (dBm)	Limit (dBm)	Result
I	20	802.11n(HT20)	CH_L	15.51	98.46	0.07	15.58	24.00	Pass
			CH_M	15.39	98.97	0.04	15.43		
			CH_H	15.31	98.97	0.04	15.35		
		802.11ac(VHT20)	CH_L	15.73	98.90	0.05	15.78	24.00	Pass
			CH_M	15.55	98.90	0.05	15.60		
			CH_H	15.46	98.90	0.05	15.51		
		802.11a	CH_L	16.43	99.03	0.04	16.47	24.00	Pass
			CH_M	16.16	98.97	0.04	16.20		
			CH_H	15.97	99.03	0.04	16.01		
		802.11ax(HE20)	CH_L	15.81	98.21	0.08	15.89	24.00	Pass
			CH_M	15.66	98.58	0.06	15.72		
			CH_H	15.55	98.58	0.06	15.61		

NOTE: duty cycle factor =10LOG(1/ duty cycle)

Type	Channel	Conducted Output power (dBm)	module Conducted Output power (dBm)	Deviation
802.11n(HT20)	CH_L	15.58	15.72	-0.14
	CH_M	15.43	15.60	-0.17
	CH_H	15.35	15.55	-0.20
802.11ac(VHT20)	CH_L	15.78	15.93	-0.15
	CH_M	15.60	15.83	-0.23
	CH_H	15.51	15.77	-0.26
802.11a	CH_L	16.47	16.65	-0.18
	CH_M	16.20	16.48	-0.28
	CH_H	16.01	16.29	-0.28
802.11ax(HE20)	CH_L	15.89	16.10	-0.21
	CH_M	15.72	15.94	-0.22
	CH_H	15.61	15.87	-0.26

Note: Deviation= Conducted Output power- module Conducted Output power

and	Bandwidth (MHz)	Type	Channel	Reading (dBm)	Duty cycle (%)	Duty cycle factor（dB）	Conducted Output Power (dBm)	Limit (dBm)	Result
IV	20	802.11n(HT20)	CH_L	15.17	98.97	0.04	15.21	30.00	Pass
			CH_M	15.37	98.90	0.05	15.42		
			CH_H	15.95	98.90	0.05	16.00		
		802.11ac(VHT20)	CH_L	14.76	98.90	0.05	14.81	30.00	Pass
			CH_M	14.92	98.90	0.05	14.97		
			CH_H	14.97	98.90	0.05	15.02		
		802.11a	CH_L	15.97	99.03	0.04	16.01	30.00	Pass
			CH_M	16.05	99.03	0.04	16.09		
			CH_H	16.93	99.03	0.04	16.97		
		802.11ax(HE20)	CH_L	14.95	98.21	0.08	15.03	30.00	Pass
			CH_M	15.05	98.58	0.06	15.11		
			CH_H	15.02	98.58	0.06	15.08		

NOTE: duty cycle factor =10LOG(1/ duty cycle)

Type	Channel	Conducted Output power (dBm)	module Conducted Output power (dBm)	Deviation
802.11n(HT20)	CH_L	15.21	15.40	-0.19
	CH_M	15.42	15.66	-0.24
	CH_H	16.00	16.20	-0.20
802.11ac(VHT20)	CH_L	14.81	15.05	-0.24
	CH_M	14.97	15.18	-0.21
	CH_H	15.02	15.24	-0.22
802.11a	CH_L	16.01	16.27	-0.26
	CH_M	16.09	16.30	-0.21
	CH_H	16.97	17.16	-0.19
802.11ax(HE20)	CH_L	15.03	15.26	-0.23
	CH_M	15.11	15.37	-0.26
	CH_H	15.08	15.29	-0.21

Note: Deviation= Conducted Output power- module Conducted Output power

5.4. Power Spectral Density

LIMIT

FCC CFR Title 47 Part 15 Subpart E Section 15.407(a):

For the 5.15~5.25GHz band:

- Outdoor AP
  The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.
  if G_{Tx}>6dBi, then PSD =17-(G_{Tx}-6).
- Indoor AP
  The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.
  if G_{Tx}>6dBi, then PSD =17-(G_{Tx}-6).
- Point-to-point AP
  The peak power spectral density (PSD) shall not exceed the lesser of 17dBm/MHz.
  if G_{Tx}>23dBi, then PSD =17-(G_{Tx}-23).
- Client devices
  The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.
  if G_{Tx}>6dBi, then PSD =11-(G_{Tx}-6).

For the 5.25~5.35GHz band:

The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.
if G_{Tx}>6dBi, then PSD =11-(G_{Tx}-6).

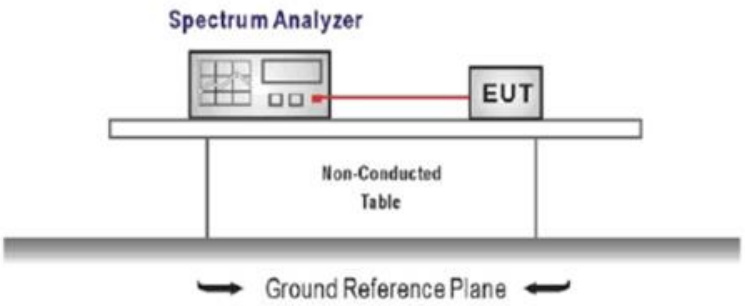
For the 5.47~5.725GHz band:

The peak power spectral density (PSD) shall not exceed the lesser of 11dBm/MHz.
if G_{Tx}>6dBi, then PSD =11-(G_{Tx}-6).

For the 5.725~5.85GHz band:

- Point-to-multipoint systems (P2M)
  The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.
  if G_{Tx}>6dBi, then PSD =30-(G_{Tx}-6).
- Point-to-point systems (P2P)
  The peak power spectral density (PSD) shall not exceed the lesser of 30dBm/500kHz.

TEST CONFIGURATION



TEST PROCEDURE

1. According KDB 789033 D02 – Section F
2. Analyzer was setting as follow:
   Center frequency: test channel
   Span was set to encompass the entire emission bandwidth of the signal
   RBW=1MHz for devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz
   RBW=500kHz for devices operating in the band 5.725-5.85 GHz
   VBW ≥ 3 RBW
   Number of sweep points > 2 x (span/RBW)
   Sweep time = auto
   Detector = Peak
   Trigger was set to free run for all modes, trace was averaged over 100 sweeps
3. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

TEST MODE:

Please refer to the clause 4.3

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

TEST DATA

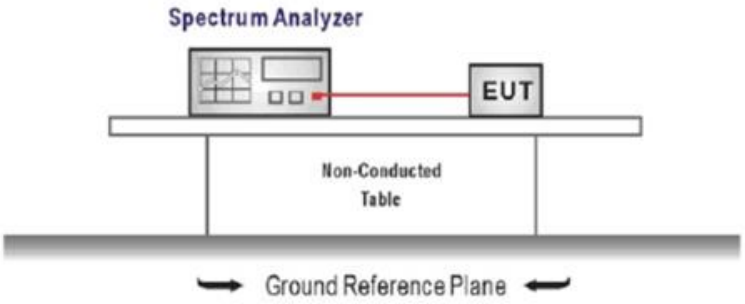
Refer to the appendix report on the section 8

5.5. 26dB bandwidth and 99% Occupy bandwidth

LIMIT

The bandwidth at 26dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in KDB 789033 D02 , and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26dB bandwidth.

TEST CONFIGURATION



TEST PROCEDURE

1. According KDB 789033 D02 – Section C, 26dB bandwidth test as follow
   a) Set RBW = approximately 1% of the emission bandwidth.
   b) Set the VBW > RBW.
   c) Detector = Peak.
   d) Trace mode = max hold.
   e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. According KDB 789033 D02 – Section D, 99% bandwidth test as follow
   a). Set center frequency to the nominal EUT channel center frequency.

   b). Set span = 1.5 times to 5.0 times the OBW.

   c). Set RBW = 1% to 5% of the OBW

   d). Set VBW ≥ 3 RBW

   e). Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

   f). Use the 99% power bandwidth function of the instrument

TEST MODE:

Please refer to the clause 4.3

TEST RESULT

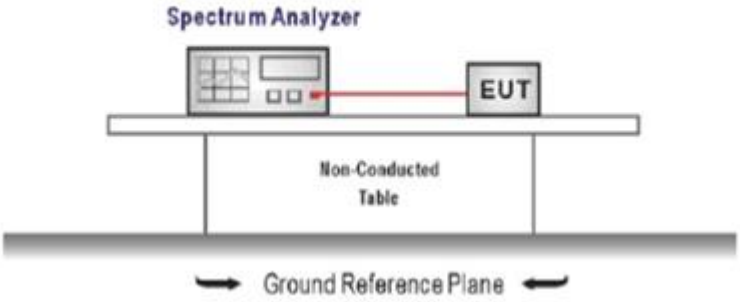
☒ **Passed** ☐ **Not Applicable**

5.6. 6dB Bandwidth

LIMIT

FCC CFR Title 47 Part 15 Subpart E Section 15.407(e)
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz

TEST CONFIGURATION



TEST PROCEDURE

1. C Connect the antenna port(s) to the spectrum analyzer input.
2. Configure the spectrum analyzer as shown below (enter all losses between the transmitter output and the spectrum analyzer).
   Center Frequency =test channel center frequency
   Span=2 x emission bandwidth
   RBW = 100 kHz, VBW ≥ 3 × RBW
   Sweep time= auto couple
   Detector = Peak
   Trace mode = max hold
3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter wave form on the spectrum analyzer.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission, and record the pertinent measurements.

TEST MODE:

Please refer to the clause 4.3

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

5.7. Band edge

LIMIT

FCC CFR Title 47 Part 15 Subpart E Section 15.407(b)

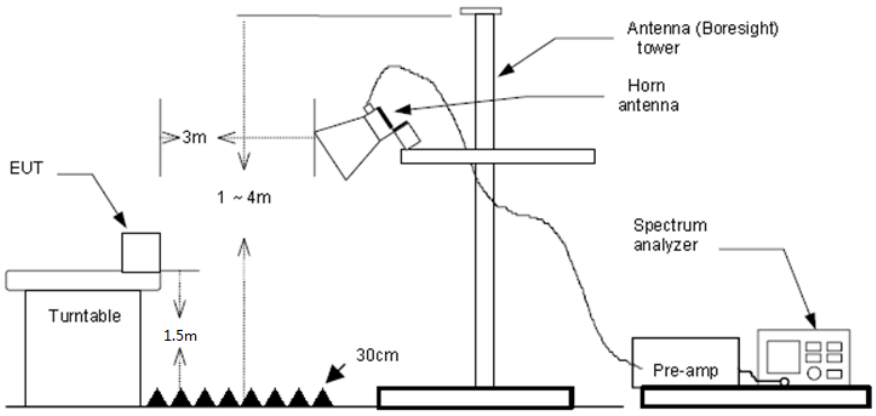
Un-restricted band emissions above 1GHz			
Operating Band	Frequency	EIRP Limit	Value
5150-5250MHz	Above 1GHz	-27dBm/MHz(68.2dBuV/m)@3m	Peak
5250-5350MHz	Above 1GHz	-27dBm/MHz(68.2dBuV/m)@3m	Peak
5470-5725MHz	Above 1GHz	-27dBm/MHz(68.2dBuV/m)@3m	Peak
5725-5850 MHz	1GHz-5.65GHz	-27 dBm/MHz(68.2dBuV/m)@3m	Peak
	5.65GHz-5.7GHz	-27*dBm/MHz to 10dBm/MHz (68.2* dBuV/m to 105.2dBuV/m)	Peak
	5.7GHz-5.72GHz	10*dBm/MHz to 15.6dBm/MHz (105.6*dBuV/m to 110.8dBuV/m)	Peak
	5.72GHz-5.725GHz	15.6*dBm/MHz to 27dBm/MHz (110.8dBuV/m to* 122.2dBuV/m)	Peak
	5.85GHz-5.855GHz	27dBm/MHz to 15.6*dBm/MHz (122.2dBuV/m to110.8* dBuV/m)	Peak
	5.855GHz-5.875GHz	15.6dBm/MHz to 10*dBm/MHz (110.8dBuV/m to 105.2* dBuV/m	Peak
	5.875GHz-5.925GHz	10dBm/MHz to -27*dBm/MHz (105.6dBuV/m to 68.2* dBuV/m)	Peak
	Above 5.925GHz	-27 dBm/MHz(68.2dBuV/m)@3m	Peak

* Increase/Decreases with the linearly of the frequency.

For emission above 1GHz and in restricted band, according to FCC KDB 789033 D02 General UNII Test Procedure, all emission that complies with both the average and peak limits of Section 15.209 is not required to satisfy the -27 dBm/MHz peak emission limit. E[dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

TEST CONFIGURATION

Radiated:



TEST PROCEDURE

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find themaximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:
   RBW=1MHz, VBW=3MHz PEAK detector for Peak value.
   RBW=1MHz, VBW=3MHz RMS detector for Average value.

TEST MODE:

Please refer to the clause 4.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

TEST DATA

U-NII-1	mode: 802.11a	Test channel: CH_L

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	50.71	31.90	6.28	41.04	10.00	57.85	68.20	-10.35	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	39.13	31.90	6.28	41.04	10.00	46.27	54.00	-7.73	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	53.44	31.90	6.28	41.04	10.00	60.58	68.20	-7.62	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	41.96	31.90	6.28	41.04	10.00	49.10	54.00	-4.90	Average

U-NII-1	mode: 802.11a	Test channel: CH_H

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	42.08	31.40	6.33	40.93	10.00	48.88	68.20	-19.32	Peak
2	5459.88	42.17	31.80	6.60	40.84	10.00	49.73	68.20	-18.47	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	31.82	31.40	6.33	40.93	10.00	38.62	54.00	-15.38	Average
2	5459.88	30.98	31.80	6.60	40.84	10.00	38.54	54.00	-15.46	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	42.07	31.40	6.33	40.93	10.00	48.87	68.20	-19.33	Peak
2	5459.88	42.26	31.80	6.60	40.84	10.00	49.82	68.20	-18.38	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	31.50	31.40	6.33	40.93	10.00	38.30	54.00	-15.70	Average
2	5459.88	31.04	31.80	6.60	40.84	10.00	38.60	54.00	-15.40	Average

U-NII-1	mode: 802.11n20	Test channel: CH_L

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	51.73	31.90	6.28	41.04	10.00	58.87	68.20	-9.33	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	39.37	31.90	6.28	41.04	10.00	46.51	54.00	-7.49	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	52.65	31.90	6.28	41.04	10.00	59.79	68.20	-8.41	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	42.38	31.90	6.28	41.04	10.00	49.52	54.00	-4.48	Average

U-NII-1	mode: 802.11 n20	Test channel: CH_H

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	42.93	31.40	6.33	40.93	10.00	49.73	68.20	-18.47	Peak
2	5459.88	42.45	31.80	6.60	40.84	10.00	50.01	68.20	-18.19	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	31.87	31.40	6.33	40.93	10.00	38.67	54.00	-15.33	Average
2	5459.88	30.96	31.80	6.60	40.84	10.00	38.52	54.00	-15.48	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	42.67	31.40	6.33	40.93	10.00	49.47	68.20	-18.73	Peak
2	5459.88	42.73	31.80	6.60	40.84	10.00	50.29	68.20	-17.91	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	31.56	31.40	6.33	40.93	10.00	38.36	54.00	-15.64	Average
2	5459.88	30.87	31.80	6.60	40.84	10.00	38.43	54.00	-15.57	Average

U-NII-1	mode: 802.11ac20	Test channel: CH_L

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	51.80	31.90	6.28	41.04	10.00	58.94	68.20	-9.26	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	39.66	31.90	6.28	41.04	10.00	46.80	54.00	-7.20	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	55.30	31.90	6.28	41.04	10.00	62.44	68.20	-5.76	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	42.45	31.90	6.28	41.04	10.00	49.59	54.00	-4.41	Average

U-NII-1	mode: 802.11 ac20	Test channel: CH_H

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	42.11	31.40	6.33	40.93	10.00	48.91	68.20	-19.29	Peak
2	5459.88	42.52	31.80	6.60	40.84	10.00	50.08	68.20	-18.12	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	31.79	31.40	6.33	40.93	10.00	38.59	54.00	-15.41	Average
2	5459.88	31.00	31.80	6.60	40.84	10.00	38.56	54.00	-15.44	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	42.30	31.40	6.33	40.93	10.00	49.10	68.20	-19.10	Peak
2	5459.88	42.78	31.80	6.60	40.84	10.00	50.34	68.20	-17.86	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	31.79	31.40	6.33	40.93	10.00	38.59	54.00	-15.41	Average
2	5459.88	30.88	31.80	6.60	40.84	10.00	38.44	54.00	-15.56	Average

U-NII-1	mode: 802.11ax20	Test channel: CH_L

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	51.47	31.90	6.28	41.04	10.00	58.61	68.20	-9.59	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	39.85	31.90	6.28	41.04	10.00	46.99	54.00	-7.01	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	56.31	31.90	6.28	41.04	10.00	63.45	68.20	-4.75	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5150.07	42.74	31.90	6.28	41.04	10.00	49.88	54.00	-4.12	Average

U-NII-1	mode: 802.11 ax20	Test channel: CH_H

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	43.41	31.40	6.33	40.93	10.00	50.21	68.20	-17.99	Peak
2	5459.88	41.98	31.80	6.60	40.84	10.00	49.54	68.20	-18.66	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	31.88	31.40	6.33	40.93	10.00	38.68	54.00	-15.32	Average
2	5459.88	30.91	31.80	6.60	40.84	10.00	38.47	54.00	-15.53	Average

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	43.06	31.40	6.33	40.93	10.00	49.86	68.20	-18.34	Peak
2	5459.88	42.75	31.80	6.60	40.84	10.00	50.31	68.20	-17.89	Peak

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Aux dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5350.06	32.00	31.40	6.33	40.93	10.00	38.80	54.00	-15.20	Average
2	5459.88	30.82	31.80	6.60	40.84	10.00	38.38	54.00	-15.62	Average

U-NII-3			mode: 802.11a					Test channel: CH_L		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5650	41.97	31.6	6.53	10	40.75	49.35	68.2	-18.85	Vertical	Peak
5700.007	44.47	31.8	6.61	10	40.73	52.15	105.2	-53.05	Vertical	Peak
5720.045	55.49	31.84	6.68	10	40.73	63.28	110.8	-47.52	Vertical	Peak
5725.011	62.84	31.85	6.7	10	40.72	70.67	122.2	-51.53	Horizontal	Peak
5650	43.61	31.6	6.53	10	40.75	50.99	68.2	-17.21	Horizontal	Peak
5700.007	44.74	31.8	6.61	10	40.73	52.42	105.2	-52.78	Horizontal	Peak
5720.045	55.58	31.84	6.68	10	40.73	63.37	110.8	-47.43	Horizontal	Peak
U-NII-3			mode: 802.11a					Test channel: CH_H		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5849.961	46.74	32.2	6.72	10	40.68	54.98	122.2	-67.22	Vertical	Peak
5875.003	43.38	32.25	6.75	10	40.67	51.71	122.2	-70.49	Vertical	Peak
5925.008	41.72	32.3	6.82	10	40.65	50.19	68.2	-18.01	Vertical	Peak
5849.961	48.22	32.2	6.72	10	40.68	56.46	122.2	-65.74	Horizontal	Peak
5875.003	43.19	32.25	6.75	10	40.67	51.52	122.2	-70.68	Horizontal	Peak
5925.008	42.09	32.3	6.82	10	40.65	50.56	68.2	-17.64	Horizontal	Peak

Remark:

1. *Final Level =Receiver Read level + Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

U-NII-3			mode: 802.11n20					Test channel: CH_L		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5650	42.75	31.6	6.53	10	40.75	50.13	68.2	-18.07	Vertical	Peak
5700.007	51.09	31.8	6.61	10	40.73	58.77	105.2	-46.43	Vertical	Peak
5720.045	61.64	31.84	6.68	10	40.73	69.43	110.8	-41.37	Vertical	Peak
5725.011	68.04	31.85	6.7	10	40.72	75.87	122.2	-46.33	Vertical	Peak
5650	43.39	31.6	6.53	10	40.75	50.77	68.2	-17.43	Horizontal	Peak
5700.007	52.42	31.8	6.61	10	40.73	60.1	105.2	-45.1	Horizontal	Peak
5720.045	63.36	31.84	6.68	10	40.73	71.15	110.8	-39.65	Horizontal	Peak
5725.011	68.42	31.85	6.7	10	40.72	76.25	122.2	-45.95	Horizontal	Peak
U-NII-3			mode: 802.11n20					Test channel: CH_H		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5849.961	61.76	32.2	6.72	10	40.68	70	122.2	-52.2	Vertical	Peak
5875.003	46.61	32.25	6.75	10	40.67	54.94	122.2	-67.26	Vertical	Peak
5925.008	42.44	32.3	6.82	10	40.65	50.91	68.2	-17.29	Vertical	Peak
5849.961	62.63	32.2	6.72	10	40.68	70.87	122.2	-51.33	Horizontal	Peak
5875.003	47.73	32.25	6.75	10	40.67	56.06	122.2	-66.14	Horizontal	Peak
5925.008	41.93	32.3	6.82	10	40.65	50.4	68.2	-17.8	Horizontal	Peak

Remark:

3. Final Level =Receiver Read level + Factor

4. The emission levels of other frequencies are very lower than the limit and not show in test report.

U-NII-3		mode: 802.11ac20						Test channel: CH_L		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5650	43.47	31.6	6.53	10	40.75	50.85	68.2	-17.35	Vertical	Peak
5700.007	55.15	31.8	6.61	10	40.73	62.83	105.2	-42.37	Vertical	Peak
5720.045	66.4	31.84	6.68	10	40.73	74.19	110.8	-36.61	Vertical	Peak
5725.011	76.37	31.85	6.7	10	40.72	84.2	122.2	-38	Vertical	Peak
5650	43.09	31.6	6.53	10	40.75	50.47	68.2	-17.73	Horizontal	Peak
5700.007	59.27	31.8	6.61	10	40.73	66.95	105.2	-38.25	Horizontal	Peak
5720.045	68.94	31.84	6.68	10	40.73	76.73	110.8	-34.07	Horizontal	Peak
5725.011	76.5	31.85	6.7	10	40.72	84.33	122.2	-37.87	Horizontal	Peak
U-NII-3		mode: 802.11ac20						Test channel: CH_H		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5849.961	66.53	32.2	6.72	10	40.68	74.77	122.2	-47.43	Vertical	Peak
5875.003	54.67	32.25	6.75	10	40.67	63	122.2	-59.2	Vertical	Peak
5925.008	42.66	32.3	6.82	10	40.65	51.13	68.2	-17.07	Vertical	Peak
5849.961	68.99	32.2	6.72	10	40.68	77.23	122.2	-44.97	Horizontal	Peak
5875.003	56.04	32.25	6.75	10	40.67	64.37	122.2	-57.83	Horizontal	Peak
5925.008	42.99	32.3	6.82	10	40.65	51.46	68.2	-16.74	Horizontal	Peak

Remark:

5. Final Level =Receiver Read level + Factor

6. The emission levels of other frequencies are very lower than the limit and not show in test report.

U-NII-3	mode: 802.11ax20							Test channel: CH_L		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5650	43.43	31.6	6.53	10	40.75	50.81	68.2	-17.39	Vertical	Peak
5700.007	55.79	31.8	6.61	10	40.73	63.47	105.2	-41.73	Vertical	Peak
5720.045	67.41	31.84	6.68	10	40.73	75.2	110.8	-35.6	Vertical	Peak
5725.011	71.22	31.85	6.7	10	40.72	79.05	122.2	-43.15	Vertical	Peak
5650	43.76	31.6	6.53	10	40.75	51.14	68.2	-17.06	Horizontal	Peak
5700.007	57.11	31.8	6.61	10	40.73	64.79	105.2	-40.41	Horizontal	Peak
5720.045	67.99	31.84	6.68	10	40.73	75.78	110.8	-35.02	Horizontal	Peak
5725.011	72.66	31.85	6.7	10	40.72	80.49	122.2	-41.71	Horizontal	Peak
U-NII-3	mode: 802.11ax20							Test channel: CH_H		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Aux Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Test value	Polarization
5849.961	68.55	32.2	6.72	10	40.68	76.79	122.2	-45.41	Vertical	Peak
5875.003	52.59	32.25	6.75	10	40.67	60.92	122.2	-61.28	Vertical	Peak
5925.008	41.81	32.3	6.82	10	40.65	50.28	68.2	-17.92	Vertical	Peak
5849.961	67.87	32.2	6.72	10	40.68	76.11	122.2	-46.09	Horizontal	Peak
5875.003	54.46	32.25	6.75	10	40.67	62.79	122.2	-59.41	Horizontal	Peak
5925.008	42.23	32.3	6.82	10	40.65	50.7	68.2	-17.5	Horizontal	Peak

Remark:

7. Final Level =Receiver Read level + Factor

8. The emission levels of other frequencies are very lower than the limit and not show in test report.

5.8. Radiated Spurious Emissions

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209 and Part 15 Subpart E Section 15.407

Frequency	Limit (dBuV/m)	Value
0.009 MHz ~0.49 MHz	2400/F(kHz) @300m	Quasi-peak
0.49 MHz ~ 1.705 MHz	24000/F(kHz) @30m	Quasi-peak
1.705 MHz ~30 MHz	30 @30m	Quasi-peak

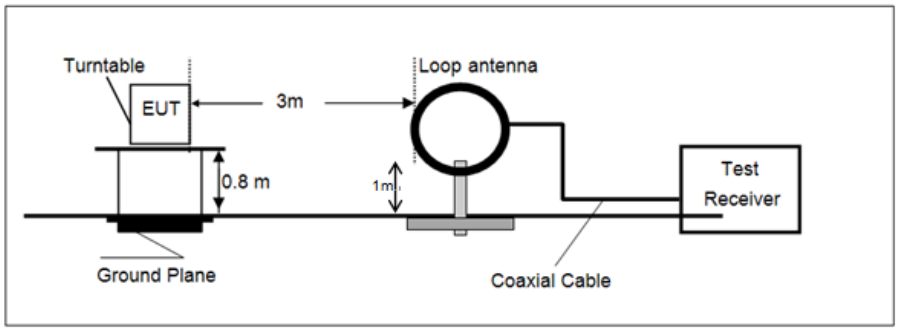
Note: Limit dBuV/m @3m = Limit dBuV/m @300m + 40*log(300/3)= Limit dBuV/m @300m +80,

Limit dBuV/m @3m = Limit dBuV/m @30m +40*log(30/3)= Limit dBuV/m @30m + 40.

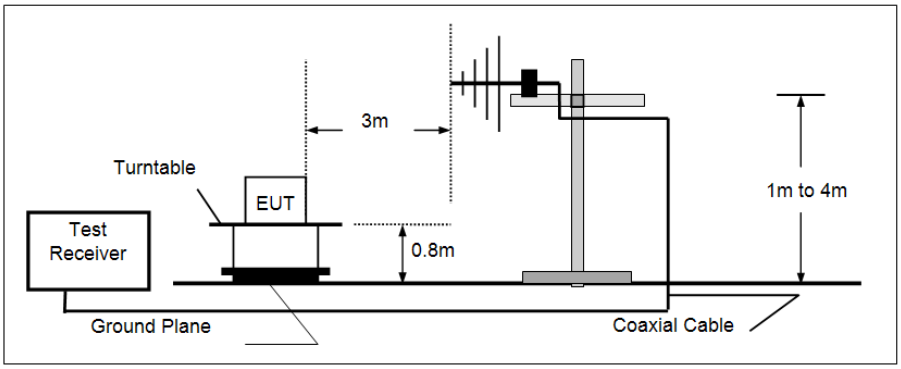
Unwanted emissions below 1GHz and Restricted band emissions above 1GHz		
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

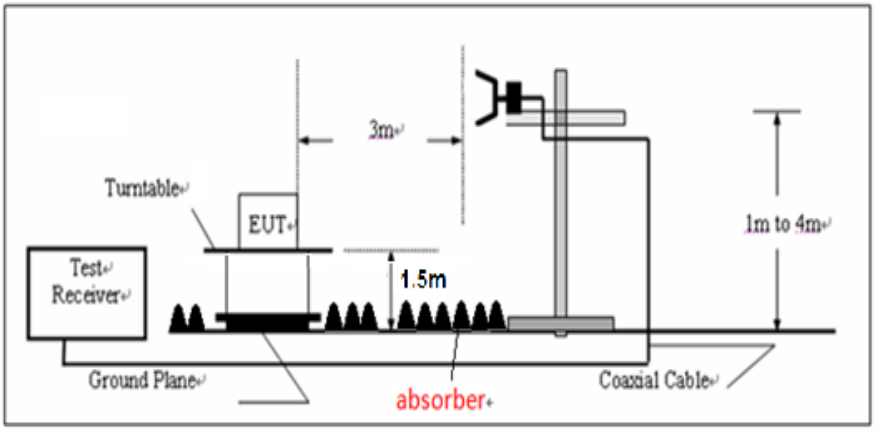
- 9KHz ~30MHz



- 30MHz ~ 1GHz



➢ Above 1GHz



TEST PROCEDURE

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
   a) Span shall wide enough to fully capture the emission being measured;
   b) Below 1 GHz:
      RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
      If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
   c) From 1 GHz to 10th harmonic:
      RBW=1MHz, VBW=3MHz Peak detector for Peak value.
      RBW=1MHz, VBW=3MHz RMS detector for Average value.

TEST MODE:

Please refer to the clause 4.3

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

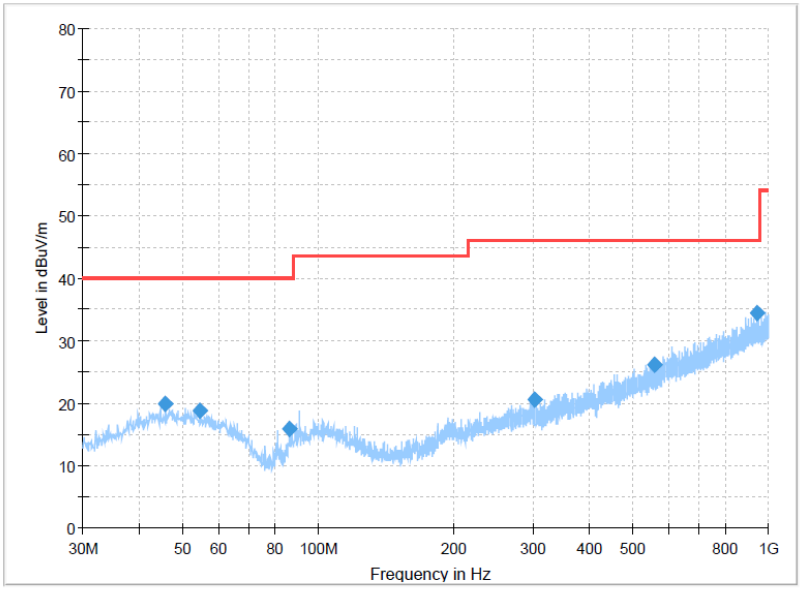
TEST DATA

FOR 9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

FOR 30MHz-1GHz

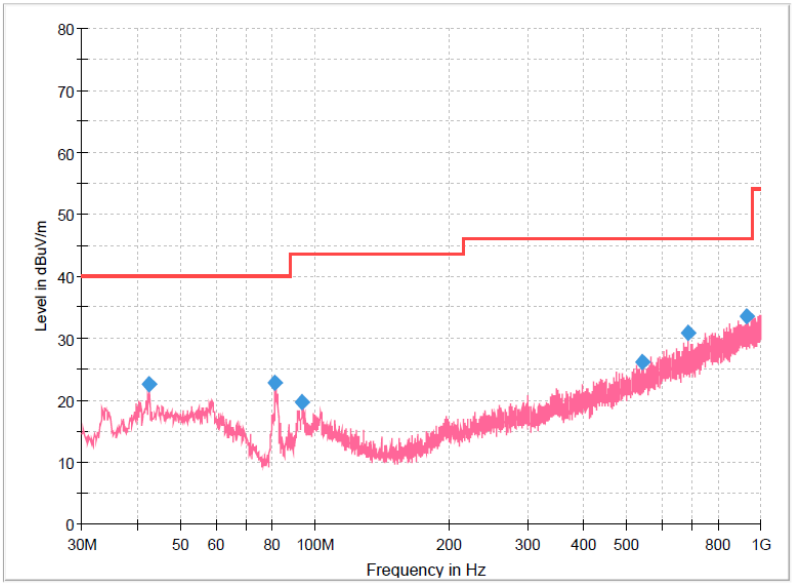
Polarization:	Horizontal



Final_Result

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
45.7625	19.80	40.00	20.20	100.0	H	40.0	-8.4
54.4925	18.72	40.00	21.28	100.0	H	317.0	-8.8
86.5025	15.92	40.00	24.08	100.0	H	325.0	-13.8
303.1763	20.53	46.00	25.47	300.0	H	275.0	-6.9
557.3163	26.18	46.00	19.82	100.0	H	28.0	-0.2
942.6488	34.50	46.00	11.50	300.0	H	326.0	7.5

Polarization:	Vertical



Final_Result

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.4888	22.54	40.00	17.46	100.0	V	0.0	-8.8
81.4100	22.85	40.00	17.15	100.0	V	231.0	-15.3
93.4138	19.60	43.50	23.90	100.0	V	168.0	-11.5
540.3413	26.05	46.00	19.95	100.0	V	293.0	-0.7
687.5388	30.92	46.00	15.08	100.0	V	325.0	2.5
931.2513	33.61	46.00	12.39	100.0	V	199.0	7.4

FOR Above 1GHz

U-NII-1 mode: 802.11a Test channel: CH_L

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2825.19	43.36	28.35	4.49	41.77	34.43	68.20	-33.77	Peak
2	4559.15	39.82	30.74	6.36	41.40	35.52	68.20	-32.68	Peak
3	8002.06	40.60	37.00	8.00	40.81	44.79	68.20	-23.41	Peak
4	10480.59	39.70	39.98	9.75	40.86	48.57	68.20	-19.63	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2875.99	43.45	28.45	4.63	41.74	34.79	68.20	-33.41	Peak
2	5230.96	40.53	31.48	6.33	41.01	37.33	68.20	-30.87	Peak
3	8681.17	40.89	37.66	8.88	41.53	45.90	68.20	-22.30	Peak
4	10453.95	40.08	39.95	9.73	40.77	48.99	68.20	-19.21	Peak

U-NII-1 mode: 802.11a Test channel: CH_M

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2825.19	41.99	28.35	4.49	41.77	33.06	68.20	-35.14	Peak
2	5164.81	38.56	31.81	6.32	41.04	35.65	68.20	-32.55	Peak
3	9322.50	38.76	39.20	9.24	40.95	46.25	68.20	-21.95	Peak
4	11486.41	38.70	40.49	10.35	42.30	47.24	68.20	-20.96	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2905.42	41.98	28.50	4.58	41.71	33.35	68.20	-34.85	Peak
2	5204.40	38.80	31.58	6.31	41.02	35.67	68.20	-32.53	Peak
3	7981.72	39.64	36.96	7.99	40.85	43.74	68.20	-24.46	Peak
4	10400.86	37.56	39.90	9.71	40.60	46.57	68.20	-21.63	Peak

U-NII-1 mode: 802.11a Test channel: CH_H

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2747.18	41.69	27.98	4.38	41.80	32.25	68.20	-35.95	Peak
2	5060.69	39.48	31.76	6.15	41.08	36.31	68.20	-31.89	Peak
3	10400.86	37.87	39.90	9.71	40.60	46.88	68.20	-21.32	Peak
4	11457.21	39.11	40.46	10.33	42.30	47.60	68.20	-20.60	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2832.39	41.80	28.36	4.50	41.77	32.89	68.20	-35.31	Peak
2	7357.33	39.34	36.20	7.72	40.99	42.27	68.20	-25.93	Peak
3	9042.04	40.28	38.08	9.06	41.07	46.35	68.20	-21.85	Peak
4	10534.09	38.10	40.00	9.77	41.04	46.83	68.20	-21.37	Peak

U-NII-1	mode: 802.11n20	Test channel: CH_L

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2861.38	43.58	28.42	4.59	41.75	34.84	68.20	-33.36	Peak
2	5230.96	41.66	31.48	6.33	41.01	38.46	68.20	-29.74	Peak
3	7941.19	40.78	36.85	7.97	40.93	44.67	68.20	-23.53	Peak
4	11457.21	40.09	40.46	10.33	42.30	48.58	68.20	-19.62	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2810.85	43.08	28.32	4.46	41.78	34.08	68.20	-34.12	Peak
2	5217.66	41.46	31.53	6.32	41.01	38.30	68.20	-29.90	Peak
3	8083.96	40.52	37.00	8.13	40.64	45.01	68.20	-23.19	Peak
4	11341.14	39.96	40.22	10.25	42.30	48.13	68.20	-20.07	Peak

U-NII-1	mode: 802.11n20	Test channel: CH_M

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3041.64	40.62	28.58	4.65	41.62	32.23	68.20	-35.97	Peak
2	5191.17	39.56	31.65	6.31	41.02	36.50	68.20	-31.70	Peak
3	8166.69	39.39	36.73	8.12	40.55	43.69	68.20	-24.51	Peak
4	10971.98	38.59	40.50	9.99	42.30	46.78	68.20	-21.42	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3143.98	40.40	28.89	4.69	41.60	32.38	68.20	-35.82	Peak
2	5244.30	39.07	31.42	6.34	41.00	35.83	68.20	-32.37	Peak
3	9134.58	38.04	38.44	9.10	41.03	44.55	68.20	-23.65	Peak
4	10374.42	37.94	39.82	9.69	40.65	46.80	68.20	-21.40	Peak

U-NII-1	mode: 802.11n20	Test channel: CH_H

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2980.33	40.56	28.50	4.75	41.66	32.15	68.20	-36.05	Peak
2	5151.68	39.67	31.89	6.28	41.04	36.80	68.20	-31.40	Peak
3	9088.19	39.02	38.25	9.01	41.05	45.23	68.20	-22.97	Peak
4	10944.09	39.07	40.50	9.97	42.30	47.24	68.20	-20.96	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2920.25	41.61	28.50	4.59	41.70	33.00	68.20	-35.20	Peak
2	5230.96	38.78	31.48	6.33	41.01	35.58	68.20	-32.62	Peak
3	7981.72	39.51	36.96	7.99	40.85	43.61	68.20	-24.59	Peak
4	11515.68	38.88	40.47	10.37	42.30	47.42	68.20	-20.78	Peak

U-NII-1	mode: 802.11ac20	Test channel: CHL

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2832.39	43.33	28.36	4.50	41.77	34.42	68.20	-33.78	Peak
2	5230.96	42.67	31.48	6.33	41.01	39.47	68.20	-28.73	Peak
3	8527.85	40.84	37.26	8.51	41.61	45.00	68.20	-23.20	Peak
4	10374.42	39.62	39.82	9.69	40.65	48.48	68.20	-19.72	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5138.58	39.41	31.92	6.24	41.05	36.52	68.20	-31.68	Peak
2	8063.40	39.99	37.00	8.19	40.68	44.50	68.20	-23.70	Peak
3	9251.58	37.82	39.10	9.26	40.98	45.20	68.20	-23.00	Peak
4	11782.55	38.63	39.65	10.55	42.30	46.53	68.20	-21.67	Peak

U-NII-1	mode: 802.11ac20	Test channel: CH_M

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2890.67	41.74	28.48	4.60	41.72	33.10	68.20	-35.10	Peak
2	6203.70	39.57	32.71	7.03	40.60	38.71	68.20	-29.49	Peak
3	7981.72	39.76	36.96	7.99	40.85	43.86	68.20	-24.34	Peak
4	10971.98	38.76	40.50	9.99	42.30	46.95	68.20	-21.25	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2905.42	42.76	28.50	4.58	41.71	34.13	68.20	-34.07	Peak
2	5230.96	42.88	31.48	6.33	41.01	39.68	68.20	-28.52	Peak
3	7981.72	41.67	36.96	7.99	40.85	45.77	68.20	-22.43	Peak
4	10534.09	39.23	40.00	9.77	41.04	47.96	68.20	-20.24	Peak

U-NII-1	mode: 802.11ac20	Test channel: CH_H

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2803.70	41.90	28.31	4.45	41.79	32.87	68.20	-35.33	Peak
2	5217.66	41.02	31.53	6.32	41.01	37.86	68.20	-30.34	Peak
3	8042.90	39.67	37.00	8.19	40.72	44.14	68.20	-24.06	Peak
4	10888.51	38.59	40.48	9.95	42.19	46.83	68.20	-21.37	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2839.61	41.64	28.38	4.52	41.76	32.78	68.20	-35.42	Peak
2	5086.52	37.96	31.92	6.28	41.07	35.09	68.20	-33.11	Peak
3	8002.06	39.90	37.00	8.00	40.81	44.09	68.20	-24.11	Peak
4	10860.83	38.78	40.42	9.93	42.10	47.03	68.20	-21.17	Peak

U-NII-1	mode: 802.11ax20	Test channel: CH_L

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	1367.66	43.54	25.96	3.37	42.00	30.87	68.20	-37.33	Peak
2	2712.44	43.89	27.78	4.37	41.80	34.24	68.20	-33.96	Peak
3	9465.98	39.36	38.97	9.37	40.94	46.76	68.20	-21.44	Peak
4	11370.05	39.97	40.31	10.27	42.30	48.25	68.20	-19.95	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2839.61	43.06	28.38	4.52	41.76	34.20	68.20	-34.00	Peak
2	5191.17	41.75	31.65	6.31	41.02	38.69	68.20	-29.51	Peak
3	7961.43	41.25	36.92	7.98	40.89	45.26	68.20	-22.94	Peak
4	10374.42	40.64	39.82	9.69	40.65	49.50	68.20	-18.70	Peak

U-NII-1	mode: 802.11ax20	Test channel: CH_M

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3168.08	41.32	28.90	4.71	41.60	33.33	68.20	-34.87	Peak
2	5099.49	38.30	32.00	6.26	41.06	35.50	68.20	-32.70	Peak
3	8271.29	40.09	36.46	8.43	40.86	44.12	68.20	-24.08	Peak
4	11486.41	38.29	40.49	10.35	42.30	46.83	68.20	-21.37	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3104.22	41.75	28.81	4.65	41.60	33.61	68.20	-34.59	Peak
2	5244.30	39.26	31.42	6.34	41.00	36.02	68.20	-32.18	Peak
3	9181.20	39.80	38.69	9.24	41.01	46.72	68.20	-21.48	Peak
4	11663.19	39.13	40.05	10.47	42.30	47.35	68.20	-20.85	Peak

U-NII-1	mode: 802.11ax20	Test channel: CH_H

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	1357.25	40.94	25.99	3.80	42.00	28.73	68.20	-39.47	Peak
2	2733.23	43.74	27.90	4.38	41.80	34.22	68.20	-33.98	Peak
3	5125.52	39.22	31.95	6.19	41.05	36.31	68.20	-31.89	Peak
4	10374.42	38.98	39.82	9.69	40.65	47.84	68.20	-20.36	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2920.25	42.74	28.50	4.59	41.70	34.13	68.20	-34.07	Peak
2	5125.52	38.01	31.95	6.19	41.05	35.10	68.20	-33.10	Peak
3	8002.06	41.37	37.00	8.00	40.81	45.56	68.20	-22.64	Peak
4	11633.54	38.91	40.17	10.45	42.30	47.23	68.20	-20.97	Peak

U-NII-3	mode: 802.11a	Test channel: CH_L

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2995.54	42.27	28.50	4.75	41.65	33.87	68.20	-34.33	Peak
2	5125.52	40.81	31.95	6.19	41.05	37.90	68.20	-30.30	Peak
3	8950.44	39.38	37.90	9.05	41.15	45.18	68.20	-23.02	Peak
4	11486.41	40.28	40.49	10.35	42.30	48.82	68.20	-19.38	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2935.15	43.37	28.50	4.62	41.69	34.80	68.20	-33.40	Peak
2	5125.52	40.54	31.95	6.19	41.05	37.63	68.20	-30.57	Peak
3	6478.05	44.67	33.77	7.06	40.66	44.84	68.20	-23.36	Peak
4	11486.41	40.61	40.49	10.35	42.30	49.15	68.20	-19.05	Peak

U-NII-3	mode: 802.11a	Test channel: CH_M

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2854.11	41.82	28.41	4.56	41.75	33.04	68.20	-35.16	Peak
2	5204.40	38.49	31.58	6.31	41.02	35.36	68.20	-32.84	Peak
3	8002.06	39.52	37.00	8.00	40.81	43.71	68.20	-24.49	Peak
4	10534.09	38.00	40.00	9.77	41.04	46.73	68.20	-21.47	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2905.42	41.29	28.50	4.58	41.71	32.66	68.20	-35.54	Peak
2	5125.52	39.04	31.95	6.19	41.05	36.13	68.20	-32.07	Peak
3	8042.90	39.60	37.00	8.19	40.72	44.07	68.20	-24.13	Peak
4	10944.09	39.07	40.50	9.97	42.30	47.24	68.20	-20.96	Peak

U-NII-3	mode: 802.11a	Test channel: CH_H

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3064.96	40.81	28.66	4.64	41.60	32.51	68.20	-35.69	Peak
2	6379.86	39.90	33.32	7.15	40.60	39.77	68.20	-28.43	Peak
3	7961.43	39.58	36.92	7.98	40.89	43.59	68.20	-24.61	Peak
4	10427.37	37.37	39.93	9.72	40.69	46.33	68.20	-21.87	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2832.39	41.65	28.36	4.50	41.77	32.74	68.20	-35.46	Peak
2	6544.35	39.35	34.08	7.12	40.70	39.85	68.20	-28.35	Peak
3	7800.94	40.70	36.20	7.81	41.22	43.49	68.20	-24.71	Peak
4	10805.68	38.76	40.31	9.91	41.92	47.06	68.20	-21.14	Peak

U-NII-3	mode: 802.11n20	Test channel: CH_L

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2832.39	42.80	28.36	4.50	41.77	33.89	68.20	-34.31	Peak
2	5086.52	40.48	31.92	6.28	41.07	37.61	68.20	-30.59	Peak
3	7941.19	40.78	36.85	7.97	40.93	44.67	68.20	-23.53	Peak
4	11663.19	39.99	40.05	10.47	42.30	48.21	68.20	-19.99	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2796.57	43.49	28.28	4.43	41.79	34.41	68.20	-33.79	Peak
2	5125.52	40.23	31.95	6.19	41.05	37.32	68.20	-30.88	Peak
3	8022.46	40.67	37.00	8.07	40.76	44.98	68.20	-23.22	Peak
4	10427.37	39.03	39.93	9.72	40.69	47.99	68.20	-20.21	Peak

U-NII-3	mode: 802.11n20	Test channel: CH_M

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2747.18	42.39	27.98	4.38	41.80	32.95	68.20	-35.25	Peak
2	5060.69	39.50	31.76	6.15	41.08	36.33	68.20	-31.87	Peak
3	8063.40	39.05	37.00	8.19	40.68	43.56	68.20	-24.64	Peak
4	10916.26	39.12	40.50	9.96	42.28	47.30	68.20	-20.90	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2965.19	42.16	28.50	4.70	41.67	33.69	68.20	-34.51	Peak
2	6219.51	40.39	32.74	7.06	40.60	39.59	68.20	-28.61	Peak
3	8002.06	39.94	37.00	8.00	40.81	44.13	68.20	-24.07	Peak
4	10348.05	38.47	39.74	9.68	40.70	47.19	68.20	-21.01	Peak

U-NII-3	mode: 802.11n20	Test channel: CH_H

Polarization: Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2803.70	40.86	28.31	4.45	41.79	31.83	68.20	-36.37	Peak
2	5047.83	39.38	31.69	6.09	41.08	36.08	68.20	-32.12	Peak
3	7961.43	39.46	36.92	7.98	40.89	43.47	68.20	-24.73	Peak
4	10427.37	38.18	39.93	9.72	40.69	47.14	68.20	-21.06	Peak

Polarization: Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2832.39	42.76	28.36	4.50	41.77	33.85	68.20	-34.35	Peak
2	5191.17	38.90	31.65	6.31	41.02	35.84	68.20	-32.36	Peak
3	8506.17	40.91	37.21	8.42	41.55	44.99	68.20	-23.21	Peak
4	11545.04	38.99	40.41	10.39	42.30	47.49	68.20	-20.71	Peak

U-NII-3	mode: 802.11ac20	Test channel: CH_L

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2935.15	42.05	28.50	4.62	41.69	33.48	68.20	-34.72	Peak
2	5365.83	40.74	31.46	6.37	40.91	37.66	68.20	-30.54	Peak
3	9228.06	40.06	38.97	9.28	40.99	47.32	68.20	-20.88	Peak
4	11515.68	40.43	40.47	10.37	42.30	48.97	68.20	-19.23	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2846.85	43.03	28.39	4.54	41.76	34.20	68.20	-34.00	Peak
2	5073.59	39.97	31.84	6.22	41.07	36.96	68.20	-31.24	Peak
3	7489.60	41.86	36.20	7.63	41.08	44.61	68.20	-23.59	Peak
4	11486.41	40.72	40.49	10.35	42.30	49.26	68.20	-18.94	Peak

U-NII-3	mode: 802.11ac20	Test channel: CH_M

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2782.37	41.90	28.19	4.41	41.80	32.70	68.20	-35.50	Peak
2	5125.52	39.62	31.95	6.19	41.05	36.71	68.20	-31.49	Peak
3	7301.36	39.57	36.10	7.76	40.97	42.46	68.20	-25.74	Peak
4	10400.86	38.26	39.90	9.71	40.60	47.27	68.20	-20.93	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3249.76	40.56	28.60	4.78	41.60	32.34	68.20	-35.86	Peak
2	5099.49	38.73	32.00	6.26	41.06	35.93	68.20	-32.27	Peak
3	8063.40	39.86	37.00	8.19	40.68	44.37	68.20	-23.83	Peak
4	12303.62	39.13	39.19	10.92	41.99	47.25	68.20	-20.95	Peak

U-NII-3	mode: 802.11ac20	Test channel: CH_H

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3579.82	40.58	29.26	5.10	41.60	33.34	68.20	-34.86	Peak
2	5099.49	38.60	32.00	6.26	41.06	35.80	68.20	-32.40	Peak
3	8042.90	40.13	37.00	8.19	40.72	44.60	68.20	-23.60	Peak
4	11515.68	38.58	40.47	10.37	42.30	47.12	68.20	-21.08	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3112.13	40.73	28.82	4.66	41.60	32.61	68.20	-35.59	Peak
2	5177.97	38.65	31.73	6.32	41.03	35.67	68.20	-32.53	Peak
3	9181.20	39.86	38.69	9.24	41.01	46.78	68.20	-21.42	Peak
4	11486.41	38.76	40.49	10.35	42.30	47.30	68.20	-20.90	Peak

U-NII-3	mode: 802.11ax20	Test channel: CH_L

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2912.82	43.64	28.50	4.57	41.71	35.00	68.20	-33.20	Peak
2	5086.52	39.99	31.92	6.28	41.07	37.12	68.20	-31.08	Peak
3	8083.96	41.03	37.00	8.13	40.64	45.52	68.20	-22.68	Peak
4	11486.41	39.65	40.49	10.35	42.30	48.19	68.20	-20.01	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	5151.68	40.15	31.89	6.28	41.04	37.28	68.20	-30.92	Peak
2	7413.73	41.52	36.20	7.84	41.02	44.54	68.20	-23.66	Peak
3	8484.55	42.47	37.11	8.42	41.49	46.51	68.20	-21.69	Peak
4	11486.41	40.83	40.49	10.35	42.30	49.37	68.20	-18.83	Peak

U-NII-3	mode: 802.11ax20	Test channel: CH_M

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2839.61	41.99	28.38	4.52	41.76	33.13	68.20	-35.07	Peak
2	5164.81	38.73	31.81	6.32	41.04	35.82	68.20	-32.38	Peak
3	7413.73	40.54	36.20	7.84	41.02	43.56	68.20	-24.64	Peak
4	9346.26	39.03	39.20	9.26	40.94	46.55	68.20	-21.65	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3064.96	41.68	28.66	4.64	41.60	33.38	68.20	-34.82	Peak
2	5112.49	39.74	31.97	6.22	41.06	36.87	68.20	-31.33	Peak
3	7451.57	40.72	36.20	7.83	41.05	43.70	68.20	-24.50	Peak
4	10400.86	38.53	39.90	9.71	40.60	47.54	68.20	-20.66	Peak

U-NII-3	mode: 802.11ax20	Test channel: CH_H

Polarization:	Horizontal

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	3168.08	41.48	28.90	4.71	41.60	33.49	68.20	-34.71	Peak
2	5086.52	38.74	31.92	6.28	41.07	35.87	68.20	-32.33	Peak
3	7961.43	39.68	36.92	7.98	40.89	43.69	68.20	-24.51	Peak
4	11283.55	38.24	40.08	10.20	42.30	46.22	68.20	-21.98	Peak

Polarization:	Vertical

Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	2733.23	42.30	27.90	4.38	41.80	32.78	68.20	-35.42	Peak
2	5086.52	38.51	31.92	6.28	41.07	35.64	68.20	-32.56	Peak
3	8002.06	39.33	37.00	8.00	40.81	43.52	68.20	-24.68	Peak
4	10400.86	38.14	39.90	9.71	40.60	47.15	68.20	-21.05	Peak

Remark:

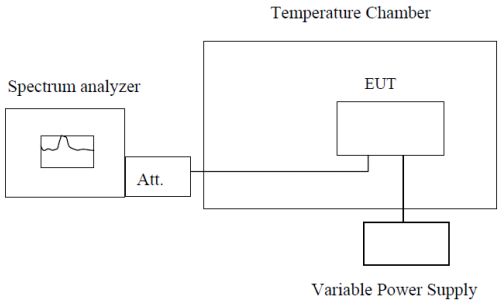
1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *Measuring frequencies from 1 GHz to 40GHz.*

5.9. Frequency stability

LIMIT

Within Operation Band

TEST CONFIGURATION



Note : Measurement setup for testing on Antenna connector

TEST PROCEDURE

1. The equipment under test was connected to an external power supply.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to –20℃. After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached..

TEST MODE:

Please refer to the clause 4.3

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

6. TEST SETUP PHOTOS

Refer to the test report No. CHTW24070026

7. EXTERNAL AND INTERNAL PHOTOS

Refer to the test report No. CHTW24070026

--------End of Report--------