TEST REPORT

Applicant:	Lightcomm Technology Co., Ltd.
Address of Applicant:	UNIT 1306 13/F ARION COMMERCIAL CENTRE,2-12 QUEEN'S ROAD WEST,SHEUNG WAN HK
Manufacturer	Lightcomm Technology Co., Ltd.
Address of Manufacturer	UNIT 1306 13/F ARION COMMERCIAL CENTRE,2-12 QUEEN'S ROAD WEST,SHEUNG WAN HK
Factory:	Huizhou Hengdu Electronics Co.,Ltd.
Address of Factory:	No.8 Huitai Road, Huinan High-tech Industrial Park, Huiao Avenue, Huizhou, Guangdong, China
Equipment Under Test (EUT)	
Product Name:	Car Multimedia System
Model No.:	CAR136, J6CA13, DCA13W, DMCPA13W, AVM13W, CAR106, J6CA10, CAR126, J6CA12, CVS1543-MD
FCC ID:	XMF-CAR136
Applicable standards:	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of sample receipt:	July 13, 2026
Date of Test:	July 14, 2026-August 03, 2026
Date of report issued:	August 03, 2026
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

深圳市环球众一科技有限公司 Global United Technology Services Co., Ltd. 检验检测专用章 Inspection&Testing Services

Robinson Luo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	*August 03, 2026*	*Original*

Tested By:	Jacob. Cai	***Date:***	*August 03, 2026*
	Test Engineer		
Prepared By:	Jason Lu	***Date:***	*August 03, 2026*
	Project Engineer		
Check By:	Robinson Luo	***Date:***	*August 03, 2026*
	Reviewer		

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4 Test Summary

Test Item	Section	Result
Antenna requirement	FCC part 15.203	Pass
AC Power Line Conducted Emission	FCC part 15.207	N/A
Maximum Conducted Output Power	FCC part 15.407(a)(3)	Pass
Channel Bandwidth and 99% Occupied Bandwidth	FCC part 15.407(e)	Pass
Power Spectral Density	FCC part 15.407(a)(3)	Pass
Band Edge	FCC part 15.407(b)(4)	Pass
Spurious Emission	FCC part 15.205/15.209/15.407(b)(4)	Pass
Frequency Stability	FCC part 15.407(g)	Pass

Remarks:

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: Not applicable, The product is for use in a vehicle and is powered only by a battery.*
3. *Test according to ANSI C63.10:2020.*

4.1 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25\times 10^{-8}$
2	Duty cycle	±0.37%
3	Occupied Bandwidth	±3%
4	RF conducted power	±0.75dB
5	RF power density	±3dB
6	Conducted Spurious emissions	±2.58dB
7	AC Power Line Conducted Emission	±3.44dB (0.15MHz ~ 30MHz)
8	Radiated Spurious emission test	±3.1dB (9kHz-30MHz)
		±3.8039dB (30MHz-200MHz)
		±3.9679dB (200MHz-1GHz)
		±4.29dB (1GHz-18GHz)
		±3.30dB (18GHz-40GHz)
9	Temperature test	±1°C
10	Humidity test	±3%
11	Time	±3%

5 General Information

5.1 General Description of EUT

Product Name:	Car Multimedia System
Model No.:	CAR136, J6CA13, DCA13W, DMCPA13W, AVM13W, CAR106, J6CA10, CAR126, J6CA12, CVS1543-MD
Test Model No.:	CAR136
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are appearance color and model name for commercial purpose.	
Test sample(s) ID:	GTS2026070259-1
Sample(s) Status:	Engineer sample
S/N:	Z19597700000016
Operation Frequency:	802.11a/802.11n(HT20)/802.11ac(VHT20): 5745MHz~5825MHz 802.11n(HT40)/ 802.11ac(VHT40): 5755MHz~5795MHz 802.11ac(VHT80): 5775MHz
Channel numbers:	802.11a/802.11n(HT20)/802.11ac(VHT20): 5 802.11n(HT40)/ 802.11ac(VHT40): 2 802.11ac(VHT80): 1
Channel bandwidth:	802.11a/802.11n(HT20)/802.11ac(VHT20): 20MHz 802.11n(HT40)/802.11ac(VHT40): 40MHz 802.11ac(VHT80): 80MHz
Modulation technology:	Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	Glue stick antenna
Antenna gain:	6.25dBi(Declared by applicant)
Power supply:	DC 12V

Disclaimer statement:
1. Antenna gain information provided by the customer, and the laboratory is not responsible for its authenticity.
2. The information in this section is provided by the applicant or manufacturer, GTS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	153	5765MHz	155	5775MHz
157	5785MHz	159	5795MHz	161	5805MHz	163	5815MHz
165	5825MHz						

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	**Frequency (MHz)**		
	802.11 a/n/ac	802.11 n/ac	802.11ac
Lowest channel	5745	5755	
Middle channel	5785		5775
Highest channel	5825	5795	

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate	Mode	Data rate
802.11a	6Mbps	802.11n/ac(HT40)	13Mbps
802.11n/ac(HT20)	6.5Mbps	802.11ac(HT80)	29.3Mbps

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
MEILI	DC POWER SUPPLY	MCH-305A	11121168

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

● **ISED—Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing.

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

5.6 Additional Instructions

Test Software	Special test command provided by manufacturer
Power level setup	Default

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Apr. 10, 2026	Apr. 09, 2031
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Apr. 10, 2026	Apr. 09, 2027
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	Apr. 11, 2026	Apr. 10, 2027
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	Apr. 11, 2026	Apr. 10, 2027
6	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	Jul 17, 2026	Jul 16, 2027
7	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov.22, 2025	Nov.21, 2026
8	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	Apr. 10, 2026	Apr. 09, 2027
9	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	Apr. 10, 2026	Apr. 09, 2027
10	Horn Antenna (18GH-40GHz)	Schwarzbeck	BBHA 9170	GTS691	Apr. 11, 2026	Apr. 10, 2027
11	Spectrum analyzer (9kHz-40GHz)	Rohde & Schwarz	FSV40-N	GTS666	Mar. 10, 2026	Mar. 09, 2027
12	Amplifier	/	LNA-1000-30S	GTS650	Apr. 10, 2026	Apr. 09, 2027
13	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS692	Nov. 24, 2025	Nov. 23, 2026
14	Wideband Amplifier	/	WDA-01004000-15P35	GTS602	Apr. 10, 2026	Apr. 09, 2027
15	Thermo meter	JINCHUANG	GSP-8A	GTS643	Apr. 13, 2026	Apr. 12, 2027
16	RE cable 1	GTS	N/A	GTS675	Jul. 17, 2026	Jul. 16, 2027
17	RE cable 2	GTS	N/A	GTS676	Jul. 17, 2026	Jul. 16, 2027
18	RE cable 3	GTS	N/A	GTS677	Jul. 17, 2026	Jul. 16, 2027
19	RE cable 4	GTS	N/A	GTS678	Jul. 17, 2026	Jul. 16, 2027
20	RE cable 5	GTS	N/A	GTS679	Jul. 17, 2026	Jul. 16, 2027
21	RE cable 6	GTS	N/A	GTS680	Jul. 17, 2026	Jul. 16, 2027
22	RE cable 7	GTS	N/A	GTS681	Jul. 22, 2026	Jul. 21, 2027
23	RE cable 8	GTS	N/A	GTS682	Jul. 22, 2026	Jul. 21, 2027
24	CE cable 9	GTS	N/A	GTS683	Jul. 23, 2026	Jul. 22, 2027
25	EMI Test Software	AUDIX	E3-6.100614a	GTS725	N/A	N/A

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Wireless Connectivity Test Set	Anritsu	MT8862A	SN6272327180	Aug. 26, 2025	Aug. 25, 2026
2	Bluetooth Test Set	Anritsu	MT8852B	SN6262097212	Aug. 26, 2025	Aug. 25, 2026
3	EXA Signal Analyzer	Keysight	N9010B	MY60241168	Aug. 26, 2025	Aug. 25, 2026
4	Vector Signal Generator	Keysight	N5182B	MY61250192	Apr. 16, 2026	Apr. 15, 2027
5	Analog Signal Generator	Keysight	N5171B	MY61252573	Aug. 26, 2025	Aug. 25, 2026
6	RF Control Unit and Power Test Unit	Tonscend	JS0806-2	SN21F8060437	Apr. 16, 2026	Apr. 15, 2027
7	Power Control Unit	Tonscend	JS0806-4ADC	SN21C8060386	N/A	N/A
8	Wideband Radio Communication Tester	R&S	CWM500	GTS569	Aug. 26, 2025	Aug. 25, 2026
9	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	Apr. 10, 2026	Apr. 09, 2027
10	Thermo meter	JINCHUANG	GSP-8A	GTS641	Apr. 14, 2026	Apr. 13, 2027
11	Test Software	Tonscend	JS1120-3 V3.5.39	N/A	N/A	N/A

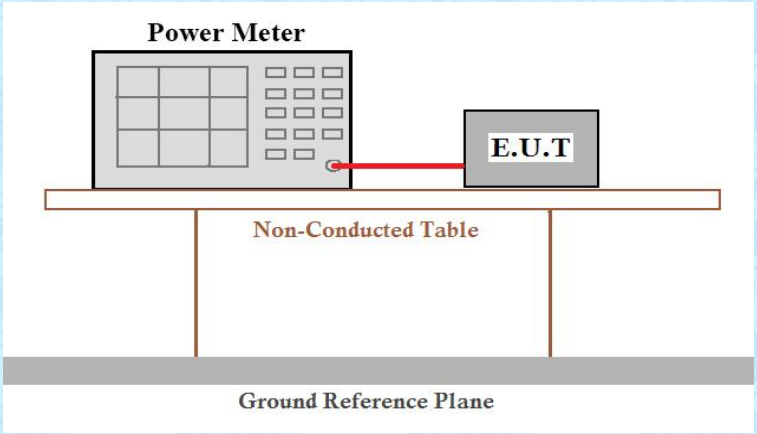
General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Barometer	KUMAO	SF132	GTS647	Jul. 21, 2026	Jul. 20, 2027

7 Test results and Measurement Data

7.1 Antenna requirement

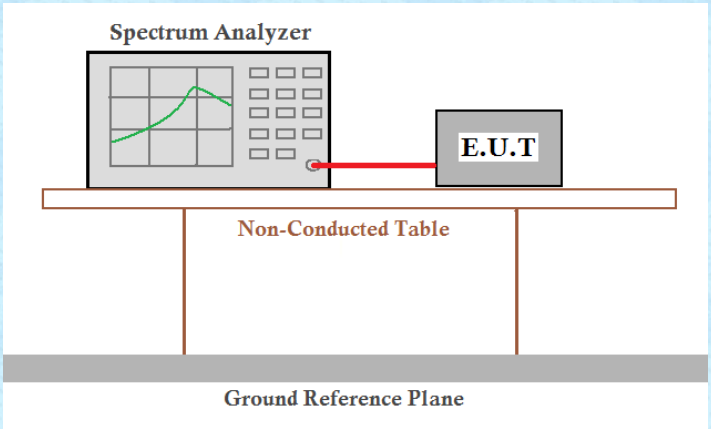
Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling 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.	
E.U.T Antenna:	
The antenna is glue stick antenna, reference to the appendix II for details	

7.2 Maximum Conducted Output Power

Test Requirement:	FCC Part15 E Section 15.407(a)(3)
Test Method:	ANSI C63.10:2020 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	30dBm
Duty Cycle set up:	RBW=VBW=8MHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

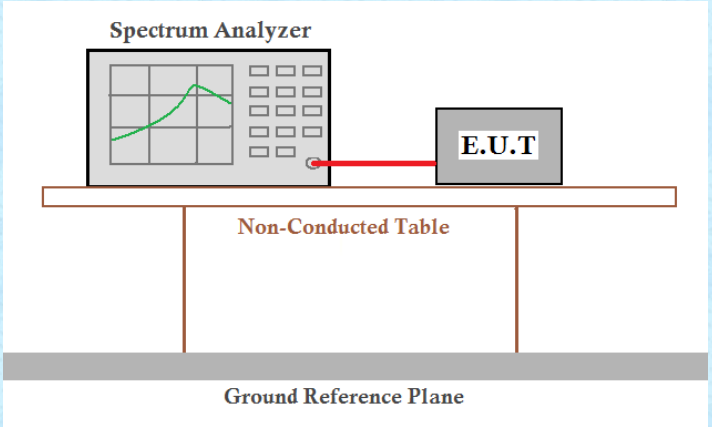
Measurement Data: The detailed test data see Appendix for UNII.

7.3 Channel Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(e)
Test Method:	ANSI C63.10:2020 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	>500KHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix for UNII.

7.4 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407(a)(3)
Test Method:	ANSI C63.10:2020 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	30dBm/500kHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

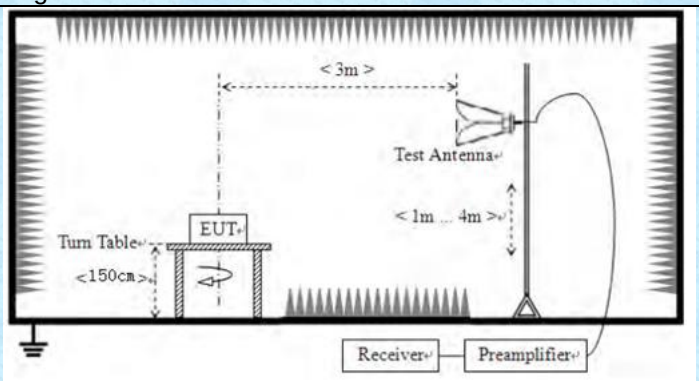
Measurement Data: The detailed test data see Appendix for UNII.

7.5 Band edge

7.5.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10: 2020
Test Frequency Range:	9kHz to 40GHz, only worse case is reported
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
Above 1GHz	Peak	1MHz	3MHz	Peak
	RMS	1MHz	3MHz	RMS

Limit:	All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Test setup:	
Test Procedure:	1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Remarks:

1. *Final Level (dBuV/m) = Reading level (dBuV)+ Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Factor (dB)*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.*
4. *According to KDB 789033 D02v02r01 section G) 1) d),for measurements above 1000 MHz @3m distance, the limit of field strength is computed as follows:*

   E[dBuV/m] = EIRP[dBm] + 95.2;

   E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

   E[dBuV/m] = 10 + 95.2 = 105.2dBuV/m.

   E[dBuV/m] = 15.6 + 95.2 = 110.8dBuV/m.

   E[dBuV/m] = 27 + 95.2 = 122.2dBuV/m

Measurement data:

IEEE 802.11a								
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	34.81	32.36	9.72	23.83	53.06	68.20	-15.14	Horizontal
5700	32.66	32.5	9.79	23.84	51.11	105.20	-54.09	Horizontal
5720	28.78	32.53	9.81	23.85	47.27	110.80	-63.53	Horizontal
5725	32.39	32.53	9.83	23.86	50.89	122.20	-71.31	Horizontal
5850	33.76	32.7	9.99	23.87	52.58	122.20	-69.62	Horizontal
5855	30.11	32.72	9.99	23.88	48.94	110.80	-61.86	Horizontal
5875	32.89	32.74	10.04	23.89	51.78	105.20	-53.42	Horizontal
5925	30.51	32.8	10.11	23.9	49.52	68.20	-18.68	Horizontal
5650	30.98	32.36	9.72	23.83	49.23	68.20	-18.97	Vertical
5700	27.70	32.5	9.79	23.84	46.15	105.20	-59.05	Vertical
5720	31.17	32.53	9.81	23.85	49.66	110.80	-61.14	Vertical
5725	32.15	32.53	9.83	23.86	50.65	122.20	-71.55	Vertical
5850	28.71	32.7	9.99	23.87	47.53	122.20	-74.67	Vertical
5855	33.52	32.72	9.99	23.88	52.35	110.80	-58.45	Vertical
5875	29.57	32.74	10.04	23.89	48.46	105.20	-56.74	Vertical
5925	31.18	32.8	10.11	23.9	50.19	68.20	-18.01	Vertical

IEEE 802.11n HT20								
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	28.84	32.36	9.72	23.83	47.09	68.20	-21.11	Horizontal
5700	27.78	32.5	9.79	23.84	46.23	105.20	-58.97	Horizontal
5720	29.22	32.53	9.81	23.85	47.71	110.80	-63.09	Horizontal
5725	29.93	32.53	9.83	23.86	48.43	122.20	-73.77	Horizontal
5850	34.23	32.7	9.99	23.87	53.05	122.20	-69.15	Horizontal
5855	30.41	32.72	9.99	23.88	49.24	110.80	-61.56	Horizontal
5875	33.70	32.74	10.04	23.89	52.59	105.20	-52.61	Horizontal
5925	33.52	32.8	10.11	23.9	52.53	68.20	-15.67	Horizontal
5650	33.46	32.36	9.72	23.83	51.71	68.20	-16.49	Vertical
5700	32.70	32.5	9.79	23.84	51.15	105.20	-54.05	Vertical
5720	33.06	32.53	9.81	23.85	51.55	110.80	-59.25	Vertical
5725	30.87	32.53	9.83	23.86	49.37	122.20	-72.83	Vertical
5850	32.57	32.7	9.99	23.87	51.39	122.20	-70.81	Vertical
5855	33.73	32.72	9.99	23.88	52.56	110.80	-58.24	Vertical
5875	28.64	32.74	10.04	23.89	47.53	105.20	-57.67	Vertical
5925	34.70	32.8	10.11	23.9	53.71	68.20	-14.49	Vertical

IEEE 802.11n HT40								
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	31.62	32.36	9.72	23.83	49.87	68.20	-18.33	Horizontal
5700	30.80	32.5	9.79	23.84	49.25	105.20	-55.95	Horizontal
5720	31.19	32.53	9.81	23.85	49.68	110.80	-61.12	Horizontal
5725	32.05	32.53	9.83	23.86	50.55	122.20	-71.65	Horizontal
5850	28.53	32.7	9.99	23.87	47.35	122.20	-74.85	Horizontal
5855	33.43	32.72	9.99	23.88	52.26	110.80	-58.54	Horizontal
5875	29.92	32.74	10.04	23.89	48.81	105.20	-56.39	Horizontal
5925	31.17	32.8	10.11	23.9	50.18	68.20	-18.02	Horizontal
5650	33.85	32.36	9.72	23.83	52.10	68.20	-16.10	Vertical
5700	30.22	32.5	9.79	23.84	48.67	105.20	-56.53	Vertical
5720	29.88	32.53	9.81	23.85	48.37	110.80	-62.43	Vertical
5725	31.07	32.53	9.83	23.86	49.57	122.20	-72.63	Vertical
5850	34.41	32.7	9.99	23.87	53.23	122.20	-68.97	Vertical
5855	29.88	32.72	9.99	23.88	48.71	110.80	-62.09	Vertical
5875	30.16	32.74	10.04	23.89	49.05	105.20	-56.15	Vertical
5925	33.80	32.8	10.11	23.9	52.81	68.20	-15.39	Vertical

IEEE 802.11ac HT20								
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	31.78	32.36	9.72	23.83	50.03	68.20	-18.17	Horizontal
5700	31.63	32.5	9.79	23.84	50.08	105.20	-55.12	Horizontal
5720	33.06	32.53	9.81	23.85	51.55	110.80	-59.25	Horizontal
5725	33.03	32.53	9.83	23.86	51.53	122.20	-70.67	Horizontal
5850	31.92	32.7	9.99	23.87	50.74	122.20	-71.46	Horizontal
5855	32.75	32.72	9.99	23.88	51.58	110.80	-59.22	Horizontal
5875	33.05	32.74	10.04	23.89	51.94	105.20	-53.26	Horizontal
5925	32.04	32.8	10.11	23.9	51.05	68.20	-17.15	Horizontal
5650	29.92	32.36	9.72	23.83	48.17	68.20	-20.03	Vertical
5700	28.27	32.5	9.79	23.84	46.72	105.20	-58.48	Vertical
5720	29.34	32.53	9.81	23.85	47.83	110.80	-62.97	Vertical
5725	32.63	32.53	9.83	23.86	51.13	122.20	-71.07	Vertical
5850	28.46	32.7	9.99	23.87	47.28	122.20	-74.92	Vertical
5855	28.58	32.72	9.99	23.88	47.41	110.80	-63.39	Vertical
5875	32.06	32.74	10.04	23.89	50.95	105.20	-54.25	Vertical
5925	31.86	32.8	10.11	23.9	50.87	68.20	-17.33	Vertical

IEEE 802.11ac HT40								
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	32.86	32.36	9.72	23.83	51.11	68.20	-17.09	Horizontal
5700	33.61	32.5	9.79	23.84	52.06	105.20	-53.14	Horizontal
5720	31.78	32.53	9.81	23.85	50.27	110.80	-60.53	Horizontal
5725	30.17	32.53	9.83	23.86	48.67	122.20	-73.53	Horizontal
5850	34.16	32.7	9.99	23.87	52.98	122.20	-69.22	Horizontal
5855	31.41	32.72	9.99	23.88	50.24	110.80	-60.56	Horizontal
5875	28.04	32.74	10.04	23.89	46.93	105.20	-58.27	Horizontal
5925	28.56	32.8	10.11	23.9	47.57	68.20	-20.63	Horizontal
5650	27.94	32.36	9.72	23.83	46.19	68.20	-22.01	Vertical
5700	33.19	32.5	9.79	23.84	51.64	105.20	-53.56	Vertical
5720	30.09	32.53	9.81	23.85	48.58	110.80	-62.22	Vertical
5725	34.18	32.53	9.83	23.86	52.68	122.20	-69.52	Vertical
5850	30.54	32.7	9.99	23.87	49.36	122.20	-72.84	Vertical
5855	32.28	32.72	9.99	23.88	51.11	110.80	-59.69	Vertical
5875	33.03	32.74	10.04	23.89	51.92	105.20	-53.28	Vertical
5925	29.85	32.8	10.11	23.9	48.86	68.20	-19.34	Vertical

IEEE 802.11ac H80								
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	33.87	32.36	9.72	23.83	52.12	68.20	-16.08	Horizontal
5700	27.77	32.5	9.79	23.84	46.22	105.20	-58.98	Horizontal
5720	34.58	32.53	9.81	23.85	53.07	110.80	-57.73	Horizontal
5725	27.54	32.53	9.83	23.86	46.04	122.20	-76.16	Horizontal
5850	32.73	32.7	9.99	23.87	51.55	122.20	-70.65	Horizontal
5855	27.63	32.72	9.99	23.88	46.46	110.80	-64.34	Horizontal
5875	27.86	32.74	10.04	23.89	46.75	105.20	-58.45	Horizontal
5925	32.28	32.8	10.11	23.9	51.29	68.20	-16.91	Horizontal
5650	28.25	32.36	9.72	23.83	46.50	68.20	-21.70	Vertical
5700	33.00	32.5	9.79	23.84	51.45	105.20	-53.75	Vertical
5720	33.71	32.53	9.81	23.85	52.20	110.80	-58.60	Vertical
5725	32.22	32.53	9.83	23.86	50.72	122.20	-71.48	Vertical
5850	30.90	32.7	9.99	23.87	49.72	122.20	-72.48	Vertical
5855	29.89	32.72	9.99	23.88	48.72	110.80	-62.08	Vertical
5875	28.56	32.74	10.04	23.89	47.45	105.20	-57.75	Vertical
5925	30.54	32.8	10.11	23.9	49.55	68.20	-18.65	Vertical

7.6 Spurious Emission

7.6.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)
Test Method:	ANSI C63.10:2020
Test Frequency Range:	9kHz to 40GHz
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Value
9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	AV	1MHz	3MHz	Average Value
Note: For Duty cycle ≥ 98%, average detector set as above For Duty cycle < 98%, average detector set as below: VBW ≥ 1 / T				

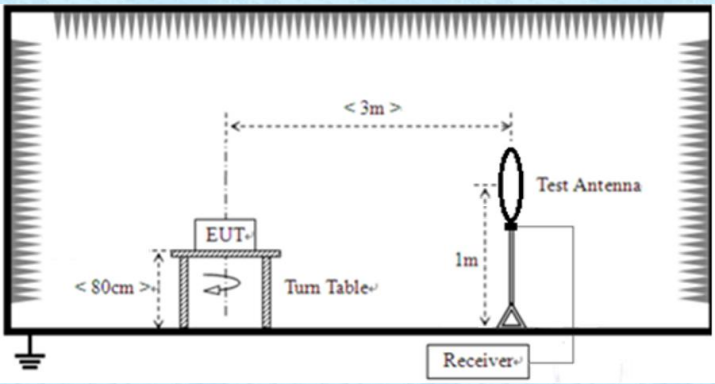
Limit:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

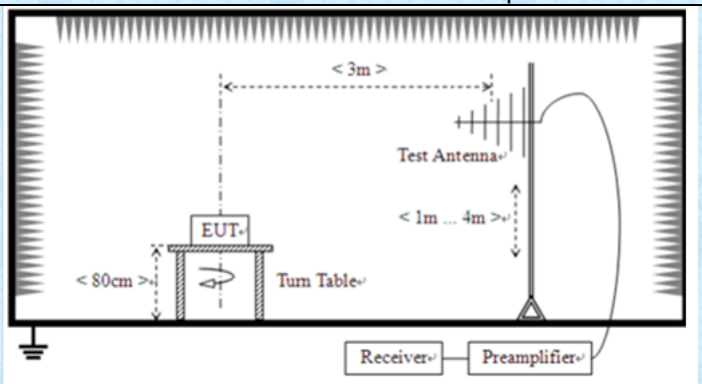
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test setup:

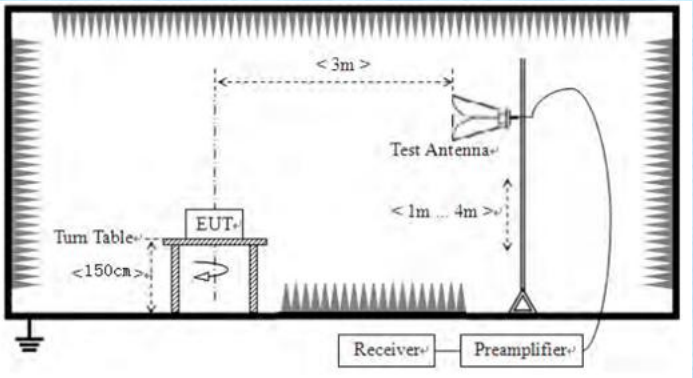
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	DC 12V					
Test results:	Pass					

Remarks:

1. *Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.*

Measurement Data:

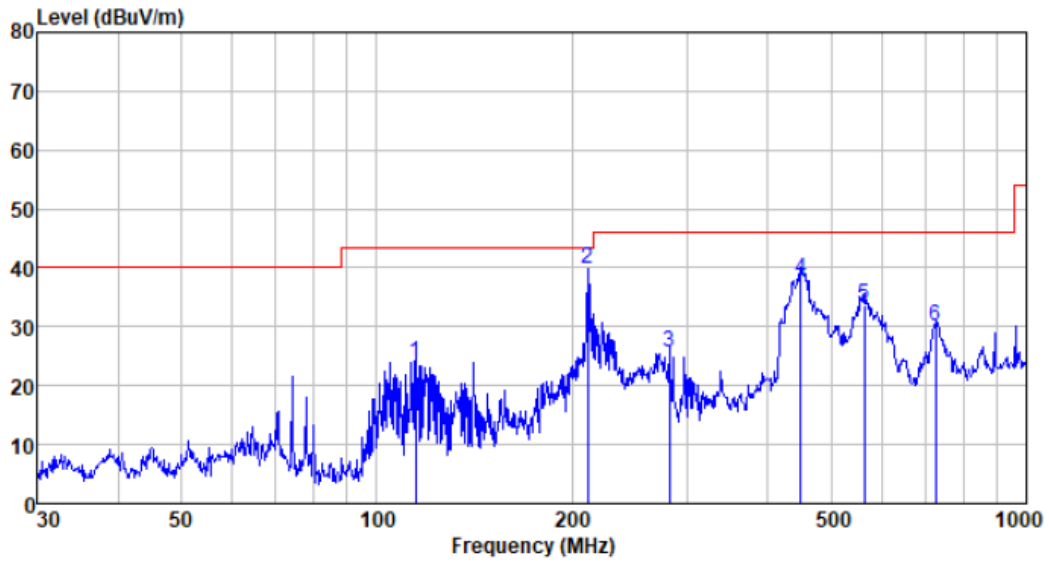
9 kHz ~ 30 MHz

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

Below 1GHz

Pre-scan all test modes, found worst case at 802.11a 5825MHz, and so only show the test result of it.

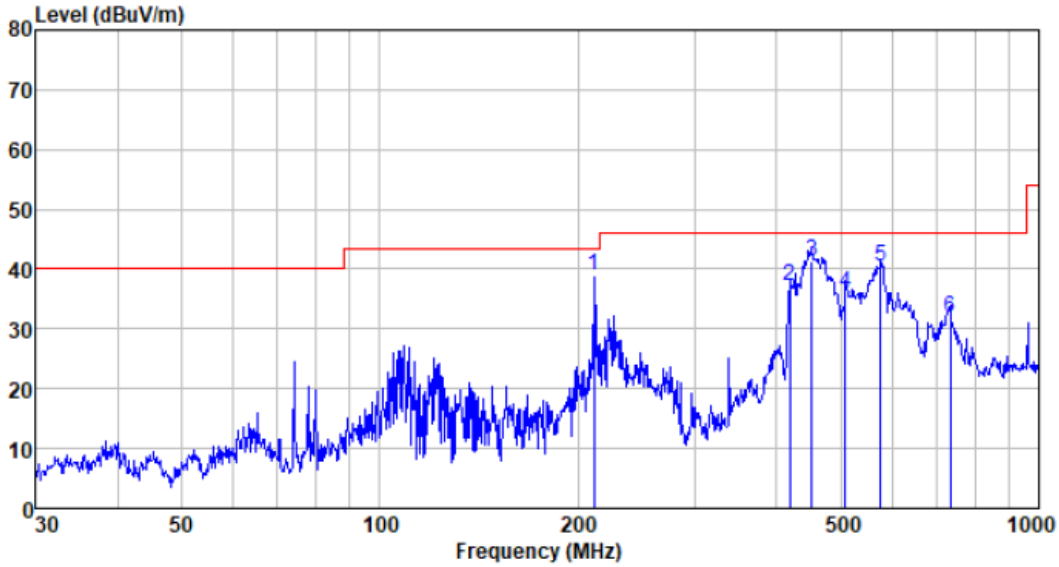
Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	Final level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
114.917	43.43	11.48	2.13	33.26	23.78	43.50	-19.72	QP
211.527	60.02	10.05	2.90	33.07	39.90	43.50	-3.60	QP
281.995	42.59	12.60	3.43	32.93	25.69	46.00	-20.31	QP
449.556	49.80	16.69	4.37	32.74	38.12	46.00	-7.88	QP
562.662	43.04	18.25	4.90	32.52	33.67	46.00	-12.33	QP
724.261	35.61	20.90	5.66	32.15	30.02	46.00	-15.98	QP

Remarks:
Final level(dBuV/m) = Reading level(dBuV) + Antenna factor(dB/m) + Cable loss(dB) - Preamp Factor(dB)

Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	Final level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
211.527	59.12	10.05	2.90	33.07	39.00	43.50	-4.50	QP
419.108	49.77	15.85	4.23	32.77	37.08	46.00	-8.92	QP
452.720	53.16	16.59	4.38	32.74	41.39	46.00	-4.61	QP
508.258	46.95	17.27	4.62	32.68	36.16	46.00	-9.84	QP
574.626	49.27	18.60	4.96	32.49	40.34	46.00	-5.66	QP
734.491	37.44	20.89	5.72	32.13	31.92	46.00	-14.08	QP

Remarks:
Final level(dBuV/m) = Reading level(dBuV) + Antenna factor(dB/m) + Cable loss(dB) - Preamp Factor(dB)

Above 1GHz:

802.11a					Test Frequency: 5745MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11490	28.51	39.40	8.73	36.30	40.34	68.20	-27.86	Horizontal
17235	29.10	41.00	11.37	36.28	45.19	68.20	-23.01	Horizontal
11490	30.01	39.40	8.73	36.30	41.84	68.20	-26.36	Vertical
17235	29.12	41.00	11.37	36.28	45.21	68.20	-22.99	Vertical

802.11a					Test Frequency: 5785MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11570	27.74	39.28	8.77	36.29	39.50	68.20	-28.70	Horizontal
17355	31.32	41.52	11.48	36.26	48.06	68.20	-20.14	Horizontal
11570	32.20	39.28	8.77	36.29	43.96	68.20	-24.24	Vertical
17355	26.44	41.52	11.48	36.26	43.18	68.20	-25.02	Vertical

802.11a					Test Frequency: 5825MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11650	31.35	39.16	8.79	36.27	42.67	68.20	-25.53	Horizontal
17475	27.23	42.30	11.58	36.25	44.20	68.20	-24	Horizontal
11650	30.23	39.16	8.79	36.27	41.46	68.20	-26.74	Vertical
17475	26.75	42.30	11.58	36.25	44.04	68.20	-24.16	Vertical

802.11n(HT20)					Test Frequency: 5745MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11490	33.18	39.40	8.73	36.30	44.32	68.20	-23.88	Horizontal
17235	30.17	41.00	11.37	36.28	45.82	68.20	-22.38	Horizontal
11490	27.69	39.40	8.73	36.30	39.21	68.20	-28.99	Vertical
17235	31.48	41.00	11.37	36.28	46.99	68.20	-21.21	Vertical

802.11n(HT20)					Test Frequency: 5785MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11570	32.95	39.28	8.77	36.29	45.33	68.20	-22.87	Horizontal
17355	30.33	41.52	11.48	36.26	46.78	68.20	-21.42	Horizontal
11570	33.01	39.28	8.77	36.29	45.13	68.20	-23.07	Vertical
17355	26.42	41.52	11.48	36.26	42.74	68.20	-25.46	Vertical

802.11n(HT20)					Test Frequency: 5825MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11650	33.18	39.16	8.79	36.27	44.56	68.20	-23.64	Horizontal
17475	30.86	42.30	11.58	36.25	47.94	68.20	-20.26	Horizontal
11650	30.68	39.16	8.79	36.27	41.99	68.20	-26.21	Vertical
17475	30.15	42.30	11.58	36.25	47.50	68.20	-20.7	Vertical

802.11n(HT40)					Test Frequency: 5755MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11510	29.28	39.40	8.74	36.30	39.93	68.20	-28.27	Horizontal
17265	28.49	41.26	11.40	36.27	44.13	68.20	-24.07	Horizontal
11510	31.57	39.40	8.74	36.30	42.87	68.20	-25.33	Vertical
17265	26.60	41.26	11.40	36.27	41.98	68.20	-26.22	Vertical

802.11n(HT40)					Test Frequency: 5795MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11590	31.54	39.22	8.77	36.28	42.59	68.20	-25.61	Horizontal
17385	28.19	41.78	11.51	36.26	44.72	68.20	-23.48	Horizontal
11590	31.37	39.22	8.77	36.28	41.98	68.20	-26.22	Vertical
17385	29.86	41.78	11.51	36.26	46.16	68.20	-22.04	Vertical

802.11ac(VHT20)					Test Frequency: 5745MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11490	31.04	39.40	8.73	36.30	42.35	68.20	-25.85	Horizontal
17235	28.52	41.00	11.37	36.28	43.67	68.20	-24.53	Horizontal
11490	30.46	39.40	8.73	36.30	41.65	68.20	-26.55	Vertical
17235	31.09	41.00	11.37	36.28	46.70	68.20	-21.5	Vertical

802.11ac(VHT20)					Test Frequency: 5785MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11570	30.62	39.28	8.77	36.29	41.90	68.20	-26.3	Horizontal
17355	27.84	41.52	11.48	36.26	44.45	68.20	-23.75	Horizontal
11570	27.68	39.28	8.77	36.29	39.36	68.20	-28.84	Vertical
17355	31.26	41.52	11.48	36.26	47.52	68.20	-20.68	Vertical

802.11ac(VHT20)					Test Frequency: 5825MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11650	31.18	39.16	8.79	36.27	42.74	68.20	-25.46	Horizontal
17475	29.01	42.30	11.58	36.25	46.57	68.20	-21.63	Horizontal
11650	27.78	39.16	8.79	36.27	39.41	68.20	-28.79	Vertical
17475	25.95	42.30	11.58	36.25	43.48	68.20	-24.72	Vertical

802.11ac(VHT40)					Test Frequency: 5755MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11510	28.40	39.40	8.74	36.30	39.05	68.20	-29.15	Horizontal
17265	30.62	41.26	11.40	36.27	46.26	68.20	-21.94	Horizontal
11510	33.56	39.40	8.74	36.30	44.86	68.20	-23.34	Vertical
17265	31.55	41.26	11.40	36.27	46.93	68.20	-21.27	Vertical

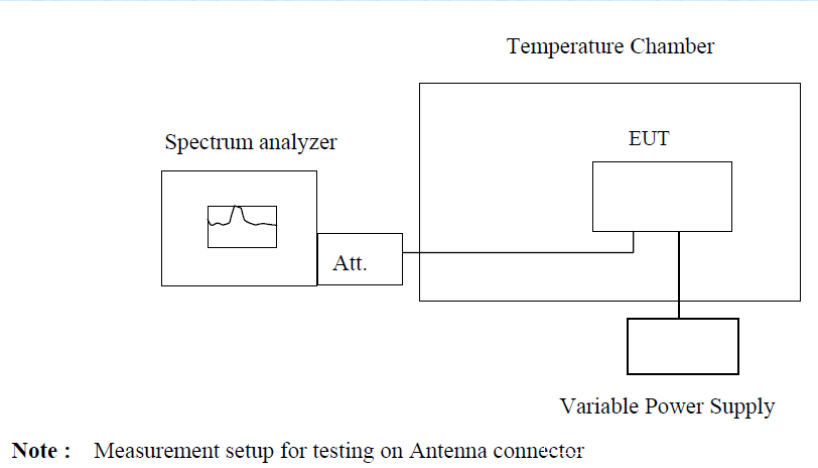
802.11ac(VHT40)					Test Frequency: 5795MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11590	34.06	39.22	8.77	36.28	45.29	68.20	-22.91	Horizontal
17385	25.63	41.78	11.51	36.26	42.56	68.20	-25.64	Horizontal
11590	30.71	39.22	8.77	36.28	42.35	68.20	-25.85	Vertical
17385	26.72	41.78	11.51	36.26	43.70	68.20	-24.5	Vertical

802.11ac(VHT80)					Test Frequency: 5775MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11550	28.56	39.34	8.76	36.29	40.17	68.20	-28.03	Horizontal
17325	27.87	41.52	11.45	36.26	44.45	68.20	-23.75	Horizontal
11550	27.80	39.34	8.76	36.29	39.52	68.20	-28.68	Vertical
17325	25.87	41.52	11.45	36.26	42.41	68.20	-25.79	Vertical

Notes:

1. The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Level(dBuV/m)=Reading level(dBuV)+Antenna Factor(dB/m)+Cable Loss(dB)-Preamp Factor(dB)
2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.
3. If the test result on peak is lower than the limit more than 20dB, then average measurement needn't be performed.

7.7 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)
Test Method:	ANSI C63.10:2020, FCC Part 2.1055
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
Test Procedure:	The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.
Test setup:	
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data:

Test Condition	Test Mode	Test Frequency [MHz]	Ant	Result [ppm]	Limit [ppm]	Verdict
NTNV	Carrier	5745	1	-0.25	<=20	PASS
		5755	1	-2.43	<=20	PASS
		5775	1	-2.11	<=20	PASS
		5785	1	-2.85	<=20	PASS
		5795	1	-1.01	<=20	PASS
		5825	1	-2.93	<=20	PASS

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

------END------