

# TEST REPORT

**Applicant:** Cube Electronics Co.,Ltd.

**Address of Applicant:** Room 302, 13th Zhongxing Road, Bantian, Shenzhen 518000, China

**Manufacturer/Factory:** Cube Electronics Co.,Ltd.

**Address of Manufacturer/Factory:** Room 302, 13th Zhongxing Road, Bantian, Shenzhen 518000, China

**Equipment Under Test (EUT)**

**Product Name:** MOTORCYCLE SMART INFOTAINMENT SYSTEM

**Model No.:** HFK HC50

**Trade Mark:** HFK

**FCC ID:** 2BFHY-HC-50

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart E Section 15.407

**Date of sample receipt:** February 26, 2025

**Date of Test:** February 27, 2025-March 28, 2025

**Date of report issued:** March 28, 2025

**Test Result :** PASS \*

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

Authorized Signature:

**Robinson Luo**

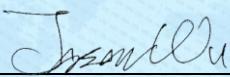
**Laboratory Manager**

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	March 28, 2025	Original

**Prepared By:**



**Project Engineer**

**Date:**

March 28, 2025

**Check By:**



**Reviewer**

**Date:**

March 28, 2025

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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, As power supplied by dc power battery and can't connect to AC main network*
3. *Test according to ANSI C63.10:2013.*

### 4.1 Measurement Uncertainty

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

## 5 General Information

### 5.1 General Description of EUT

Product Name:	MOTORCYCLE SMART INFOTAINMENT SYSTEM
Model No.:	HKF HC50
Test sample(s) ID:	GTS2025020276-1
Sample(s) Status:	Engineer sample
S/N:	5025AA00001-02000
Operation Frequency:	802.11ac(HT40): 5755MHz~5795MHz
Channel numbers:	802.11ac(HT40): 2
Channel bandwidth:	802.11ac(HT40): 40MHz
Modulation technology:	Orthogonal Frequency Division Multiplexing (OFDM)
Antenna Type:	FPC Antenna
Antenna gain:	1.75dBi(Declared by applicant)
Power supply:	DC 9V-36V

Remark:

1. Antenna gain information provided by the customer
2. The relevant information of the sample is provided by the entrusting company, and the laboratory is not responsible for its authenticity.

Test channel	Frequency (MHz)
	802.11ac(HT40)
Lowest channel	5755
Middle channel	--
Highest channel	5795

## 5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
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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
802.11ac(HT40)	13Mbps

## 5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
APPLE	Mobile Phone	IPHONE XR	DX3ZG240KXM7
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	REALTEK 11ac 8821CS SDIO WLAN NIC Massproduction Kit_V5
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	Jun. 22, 2024	Jun. 21, 2027
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. 11, 2024	Apr. 10, 2025
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	Mar. 18, 2025	Mar. 17, 2026
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	Apr. 17, 2023	Apr. 16, 2025
6	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	Apr. 11, 2024	Apr. 10, 2025
7	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov.12, 2024	Nov.11, 2025
8	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	Apr. 11, 2024	Apr. 10, 2025
9	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	Apr. 11, 2024	Apr. 10, 2025
10	Horn Antenna (18GHz-40GHz)	Schwarzbeck	BBHA 9170	GTS691	Jul. 05, 2024	Jul. 04, 2025
11	FSV-Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	Mar. 11, 2025	Mar. 10, 2026
12	Amplifier	/	LNA-1000-30S	GTS650	Apr. 11, 2024	Apr. 10, 2025
13	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS692	Nov. 07, 2024	Nov. 06, 2025
14	Wideband Amplifier	/	WDA-01004000-15P35	GTS602	Apr. 11, 2024	Apr. 10, 2025
15	Thermo meter	JINCHUANG	GSP-8A	GTS643	Apr. 18, 2024	Apr. 17, 2025
16	RE cable 1	GTS	N/A	GTS675	Jul. 02, 2024	Jul. 01, 2025
17	RE cable 2	GTS	N/A	GTS676	Jul. 02, 2024	Jul. 01, 2025
18	RE cable 3	GTS	N/A	GTS677	Jul. 02, 2024	Jul. 01, 2025
19	RE cable 4	GTS	N/A	GTS678	Jul. 02, 2024	Jul. 01, 2025
20	RE cable 5	GTS	N/A	GTS679	Jul. 02, 2024	Jul. 01, 2025
21	RE cable 6	GTS	N/A	GTS680	Jul. 02, 2024	Jul. 01, 2025
22	RE cable 7	GTS	N/A	GTS681	Jul. 05, 2024	Jul. 04, 2025
23	RE cable 8	GTS	N/A	GTS682	Jul. 05, 2024	Jul. 04, 2025
24	EMI Test Software	AUDIX	E3-6.100614a	GTS725	N/A	N/A

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	Jul. 12, 2022	Jul. 11, 2027
2	EMI Test Receiver	R&S	ESCI 7	GTS552	Apr. 11, 2024	Apr. 10, 2025
3	LISN	ROHDE & SCHWARZ	ENV216	GTS226	Apr. 11, 2024	Apr. 10, 2025
4	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
5	Thermo meter	JINCHUANG	GSP-8A	GTS642	Apr. 18, 2024	Apr. 17, 2025
6	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	Apr. 11, 2024	Apr. 10, 2025
7	ISN	SCHWARZBECK	NTFM 8158	GTS565	Apr. 11, 2024	Apr. 10, 2025
8	High voltage probe	SCHWARZBECK	TK9420	GTS537	Apr. 11, 2024	Apr. 10, 2025
9	Antenna end assembly	Weinschel	1870A	GTS560	Apr. 11, 2024	Apr. 10, 2025
10	EMI Test Software	AUDIX	E3-6.100622	GTS726	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	MXA Signal Analyzer	Agilent	N9020A	GTS566	Apr. 13, 2024	Apr. 12, 2025
2	EMI Test Receiver	R&S	ESCI 7	GTS552	Apr. 13, 2024	Apr. 12, 2025
3	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	Apr. 13, 2024	Apr. 12, 2025
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	Apr. 13, 2024	Apr. 12, 2025
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	Apr. 13, 2024	Apr. 12, 2025
6	Wideband Power Meter	Keysight	N1924A	GTS673	Apr. 13, 2024	Apr. 12, 2025
7	USB RF Power Sensor	DARE	RPR3006W	GTS569	Apr. 13, 2024	Apr. 12, 2025
8	RF Switch Box	Shongyi	RFSW3003328	GTS571	Apr. 13, 2024	Apr. 12, 2025
9	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	Apr. 18, 2024	Apr. 17, 2025
10	Thermo meter	JINCHUANG	GSP-8A	GTS641	Apr. 18, 2024	Apr. 17, 2025
11	EXA Signal Analyzer	Keysight	N9010B	MY60241168	Nov. 02, 2024	Nov. 01, 2025

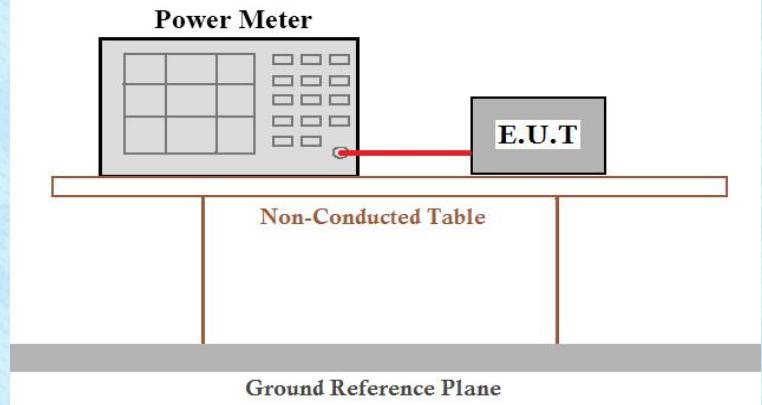
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	KUMAO	SF132	GTS647	Apr. 18, 2024	Apr. 17, 2025

## 7 Test results and Measurement Data

### 7.1 Antenna requirement

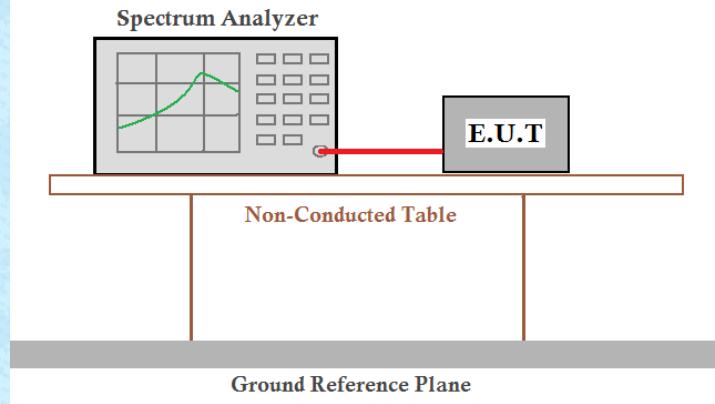
<b>Standard requirement:</b>	FCC Part15 C Section 15.203
15.203 requirement:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique 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.
<b>E.U.T Antenna:</b>	
The antenna is FPC 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 C63.10:2013 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

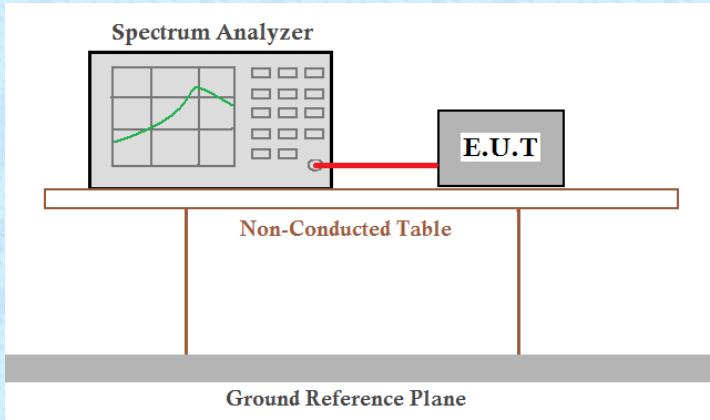
**Measurement Data:** The detailed test data see Appendix.

## 7.3 Channel Bandwidth and 99% Occupied Bandwidth

Test Requirement:	FCC Part15 E Section 15.407(e)
Test Method:	ANSI C63.10:2013 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.

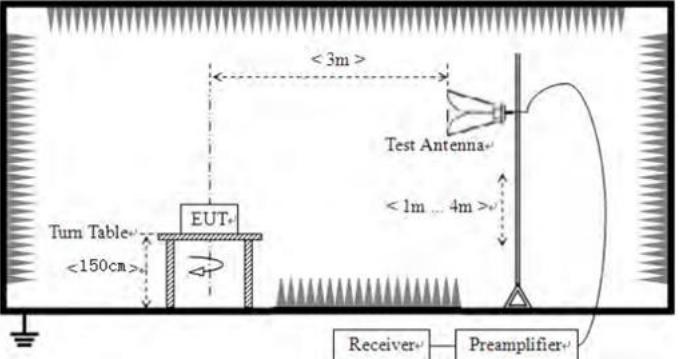
## 7.4 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407(a)(3)
Test Method:	ANSI C63.10:2013 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.

## 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: 2013				
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 $-27 \text{ dBm/MHz}$ at 75 MHz or more above or below the band edge increasing linearly to $10 \text{ dBm/MHz}$ 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 $15.6 \text{ dBm/MHz}$ 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 $27 \text{ dBm/MHz}$ at the band edge.				
Test setup:					
Test Procedure:	<ol style="list-style-type: none"> <li>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.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>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.</li> <li>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.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>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.</li> <li>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.</li> </ol>				

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 = 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. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
4. All antennas were tested and passed, only ant1 report
5. 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:

$$E[\text{dBuV/m}] = EIRP[\text{dBm}] + 95.2;$$

$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2 \text{ dBuV/m}.$$

$$E[\text{dBuV/m}] = 10 + 95.2 = 105.2 \text{ dBuV/m}.$$

$$E[\text{dBuV/m}] = 15.6 + 95.2 = 110.8 \text{ dBuV/m}.$$

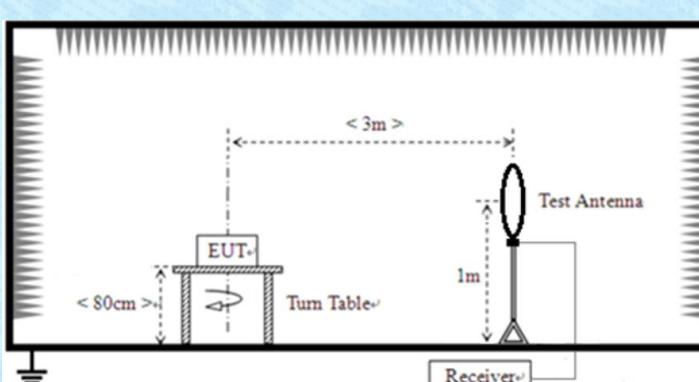
$$E[\text{dBuV/m}] = 27 + 95.2 = 122.2 \text{ dBuV/m}$$

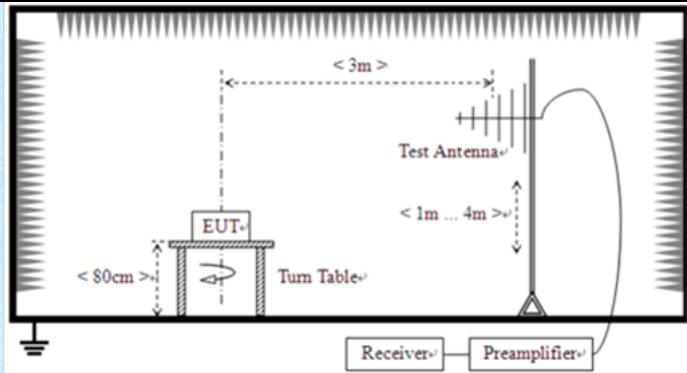
**Measurement data:**

<b>IEEE 802.11ac HT40</b>								
<b>Peak value:</b>								
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	34.35	32.36	9.72	23.83	52.60	68.20	-15.60	Horizontal
5700	34.54	32.5	9.79	23.84	52.99	105.20	-52.21	Horizontal
5720	32.45	32.53	9.81	23.85	50.94	110.80	-59.86	Horizontal
5725	31.43	32.53	9.83	23.86	49.93	122.20	-72.27	Horizontal
5850	34.98	32.7	9.99	23.87	53.80	122.20	-68.40	Horizontal
5855	32.03	32.72	9.99	23.88	50.86	110.80	-59.94	Horizontal
5875	29.40	32.74	10.04	23.89	48.29	105.20	-56.91	Horizontal
5925	29.46	32.8	10.11	23.9	48.47	68.20	-19.73	Horizontal
5650	28.58	32.36	9.72	23.83	46.83	68.20	-21.37	Vertical
5700	34.36	32.5	9.79	23.84	52.81	105.20	-52.39	Vertical
5720	30.88	32.53	9.81	23.85	49.37	110.80	-61.43	Vertical
5725	34.78	32.53	9.83	23.86	53.28	122.20	-68.92	Vertical
5850	32.70	32.7	9.99	23.87	51.52	122.20	-70.68	Vertical
5855	33.64	32.72	9.99	23.88	52.47	110.80	-58.33	Vertical
5875	34.01	32.74	10.04	23.89	52.90	105.20	-52.30	Vertical
5925	31.67	32.8	10.11	23.9	50.68	68.20	-17.52	Vertical

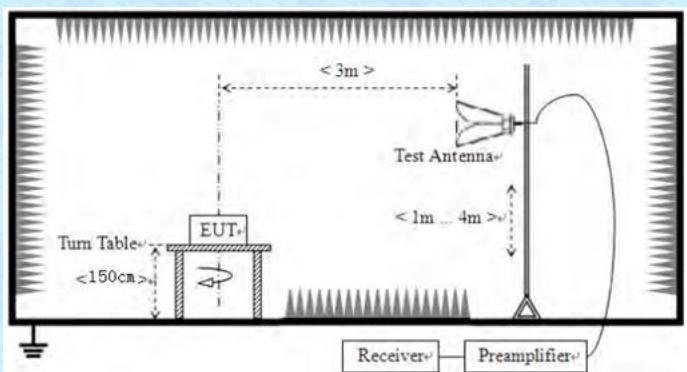
## 7.6 Spurious Emission

### 7.6.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)																												
Test Method:	ANSI C63.10:2013																												
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																								
Note: For Duty cycle $\geq$ 98%, average detector set as above For Duty cycle $<$ 98%, average detector set as below: $VBW \geq 1 / T$																													
Limit:	<table border="1"> <thead> <tr> <th>Frequency (MHz)</th> <th>Field strength (microvolts/meter)</th> <th>Measurement distance (meters)</th> </tr> </thead> <tbody> <tr> <td>0.009-0.490</td> <td>2400/F(kHz)</td> <td>300</td> </tr> <tr> <td>0.490-1.705</td> <td>24000/F(kHz)</td> <td>30</td> </tr> <tr> <td>1.705-30.0</td> <td>30</td> <td>30</td> </tr> <tr> <td>30-88</td> <td>100**</td> <td>3</td> </tr> <tr> <td>88-216</td> <td>150**</td> <td>3</td> </tr> <tr> <td>216-960</td> <td>200**</td> <td>3</td> </tr> <tr> <td>Above 960</td> <td>500</td> <td>3</td> </tr> </tbody> </table>					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
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																											
	<p>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.</p>																												
Test setup:	<p>For radiated emissions from 9kHz to 30MHz</p>  <p>For radiated emissions from 30MHz to1GHz</p>																												



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.:
Test voltage:	AC 120V, 60Hz				
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 is worse case.

**Measurement Data:**

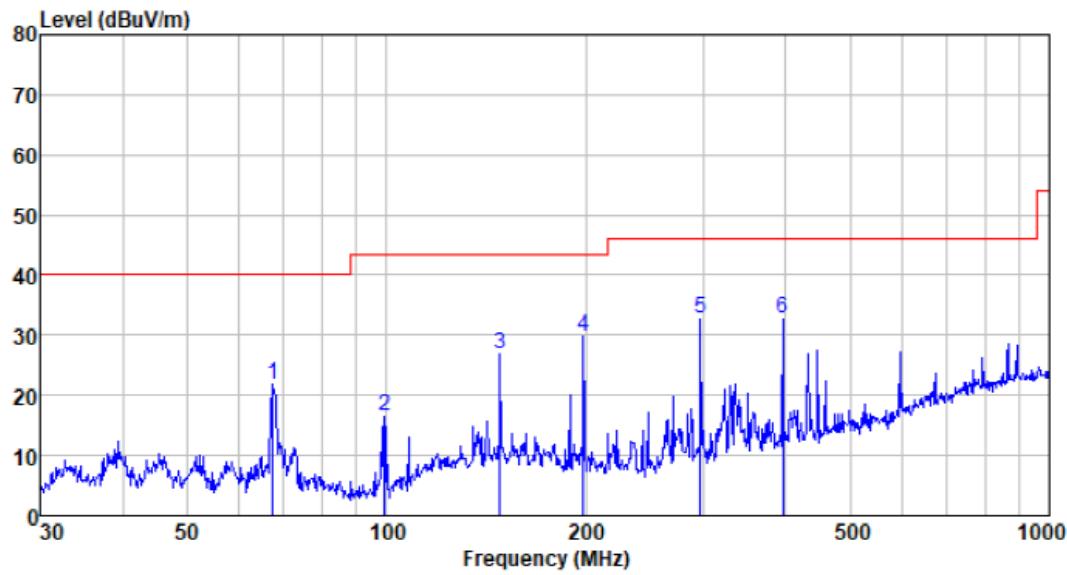
**9 kHz ~ 30 MHz**

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

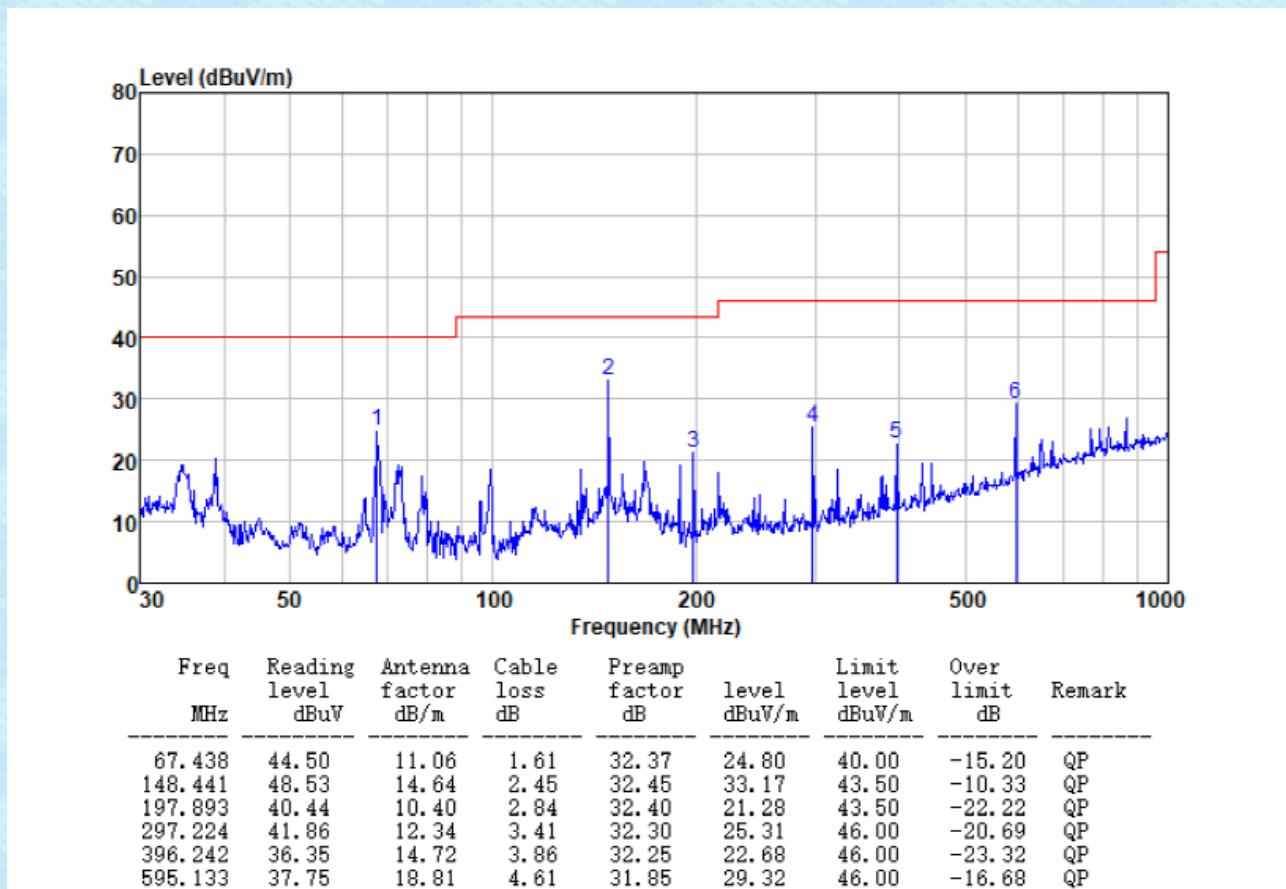
Pre-scan all test modes, found worst case at 802.11ac(VHT40) 5755MHz, and so only show the test result of it.

**Horizontal:**



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
67.438	41.52	11.06	1.61	32.37	21.82	40.00	-18.18	QP
99.180	37.84	9.22	1.92	32.50	16.48	43.50	-27.02	QP
148.441	42.15	14.64	2.45	32.45	26.79	43.50	-16.71	QP
197.893	48.92	10.40	2.84	32.40	29.76	43.50	-13.74	QP
297.224	49.45	12.34	3.41	32.30	32.90	46.00	-13.10	QP
396.242	46.35	14.72	3.86	32.25	32.68	46.00	-13.32	QP

Vertical:



**Above 1GHz:**

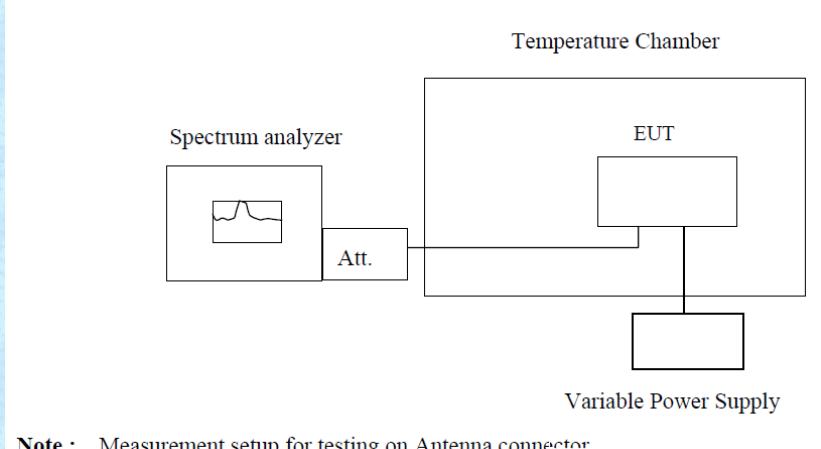
802.11ac(HT40)					Test Frequency: 5755MHz			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
11510	28.08	39.40	8.74	36.30	39.92	68.20	-28.28	Horizontal
17265	30.42	41.26	11.40	36.27	46.81	68.20	-21.39	Horizontal
11510	33.41	39.40	8.74	36.30	45.25	68.20	-22.95	Vertical
17265	31.28	41.26	11.40	36.27	47.67	68.20	-20.53	Vertical

802.11ac(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	33.93	39.22	8.77	36.28	45.64	68.20	-22.56	Horizontal
17385	25.61	41.78	11.51	36.26	42.64	68.20	-25.56	Horizontal
11590	30.69	39.22	8.77	36.28	42.40	68.20	-25.80	Vertical
17385	26.70	41.78	11.51	36.26	43.73	68.20	-24.47	Vertical

**Notes:**

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor
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 C63.10:2013, 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:	 <p style="text-align: center;"><b>Note :</b> Measurement setup for testing on Antenna connector</p>
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	5755	1	-3.23	<=20	PASS
		5795	1	-2.44	<=20	PASS
NTHV	Carrier	5755	1	-3.55	<=20	PASS
		5795	1	-2.42	<=20	PASS
HTLV	Carrier	5755	1	-3.91	<=20	PASS
		5795	1	-3.64	<=20	PASS
LTHV	Carrier	5755	1	-4.34	<=20	PASS
		5795	1	-4.42	<=20	PASS
LTLV	Carrier	5755	1	-4.72	<=20	PASS
		5795	1	-4.53	<=20	PASS

## 8 Test Setup Photo

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

## 9 EUT Constructional Details

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

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