

# FCC&IC REPORT

## (UNII)

**Applicant:** AceAge Inc.

**Address of Applicant:** 26 Ontario Street, Suite 109 Guelph, Ontario, Canada N1E7K1

### Equipment Under Test (EUT)

**Product Name:** Karie Connectivity Module

**Model No.:** AceAge1A, AceAge1B, AceAge1C, AceAge1D, AceAge2A, AceAge2B, AceAge2C, AceAge2D

**Trade mark:** AceAge

**FCC ID:** 2AQKR-P001R1

**Canada IC:** 24087-P001R1

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart E Section 15.407  
RSS-Gen Issue 5 March 2019 Amendment 1  
RSS-247 Issue 2, February 2017

**Date of sample receipt:** 12 Nov., 2019

**Date of Test:** 13 Nov., to 22 Nov., 2019

**Date of report issued:** 10 Dec., 2019

**Test Result:** PASS\*

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

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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## 2 Version

Version No.	Date	Description
00	10 Dec., 2019	Original

Remark: This report was amended on FCC ID: 2AQKR-P001R1 follow FCC Class II Permissive Change. The differences between them as below: Update DDR SDRAM and Flash Memory merchants, update Power connector and power cable, added model AceAge1B, AceAge1C, AceAge1D, AceAge2A, AceAge2B, AceAge2C, AceAge2D. So Radiated Emission Below 1GHz has been retested.

**Tested by:**

*Mike.Ou*

**Date:**

25 Jul., 2018

**Test Engineer**

**Reviewed by:**

*Wimer Zhang*

**Date:**

25 Jul., 2018

**Project Engineer**

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## 4 Test Summary

Test Item	Section in CFR 47	Section in CFR 47	Test Result
Antenna requirement	15.203 & 15.407 (a)	/	Pass
AC Power Line Conducted Emission	15.207	RSS-GEN Section 8.8	N/A
Conducted Peak Output Power	15.407 (a) (1) (iv)	RSS-247 Section 6.2.1.1	Pass*
99% Occupied Bandwidth 26dB Occupied Bandwidth	15.407 (a) (5)	RSS-247 Section 6.2.1.1 RSS-247 Section 6.2.1.2	Pass*
Power Spectral Density	15.407 (a) (1) (iv)	RSS-247 Section 6.2.1.1	Pass*
Band Edge	15.407(b)	RSS-GEN Section 8.10 RSS-247 Section 6.2.1.2	Pass*
Spurious Emission	15.407 (b) & 15.205 & 15.209	RSS-GEN Section 6.13 RSS-247 Section 6.2.1.2	Pass
Frequency Stability	15.407(g)	RSS-Gen section 6.13	Pass*
<p><i>Pass: The EUT complies with the essential requirements in the standard.</i></p> <p><i>Pass*: please refer to the FCC ID: 2AQKR-P001R1</i></p> <p><i>N/A: N/A: Not Applicable.</i></p>			

## 5 General Information

### 5.1 Client Information

Applicant:	AceAge Inc.
Address:	26 Ontario Street, Suite 109 Guelph, Ontario, Canada N1E7K1
Manufacturer	AceAge Inc.
Address:	26 Ontario Street, Suite 109 Guelph, Ontario, Canada N1E7K1

### 5.2 General Description of E.U.T.

Product Name:	Karie Connectivity Module
Model No.:	AceAge1A, AceAge1B, AceAge1C, AceAge1D, AceAge2A, AceAge2B, AceAge2C, AceAge2D
Operation Frequency:	Band 1: 5150MHz-5250MHz
Channel numbers:	Band 1: 802.11a/802.11n20: 4, 802.11n40: 2,
Channel separation:	802.11a/802.11n-HT20: 20MHz, 802.11n-HT40: 40MHz
Modulation technology (IEEE 802.11a):	BPSK, QPSK, 16-QAM, 64-QAM
Modulation technology (IEEE 802.11n):	BPSK, QPSK, 16-QAM, 64-QAM
Data speed (IEEE 802.11a):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n-HT20):	MCS0: 6.5Mbps, MCS1:13Mbps, MCS2:19.5Mbps, MCS3:26Mbps, MCS4:39Mbps, MCS5:52Mbps, MCS6:58.5Mbps, MCS7:65Mbps
Data speed (IEEE 802.11n-HT40):	MCS0:15Mbps, MCS1:30Mbps, MCS2:45Mbps, MCS3:60Mbps, MCS4:90Mbps, MCS5:120Mbps, MCS6:135Mbps, MCS7:150Mbps
Antenna Type:	Internal Antenna
Antenna gain:	0.53 dBi
Power supply:	DC 4.2V
Remark:	Model No.: AceAge1A, AceAge1B, AceAge1C, AceAge1D, AceAge2A, AceAge2B, AceAge2C, AceAge2D were identical inside, the electrical circuit design, layout, components used and internal wiring. They only differences is Model Name

Operation Frequency each of channel					
Band 1					
802.11a/802.11n-HT20		802.11n-HT40		/	
Channel	Frequency	Channel	Frequency	/	/
36	5180MHz	38	5190MHz	/	/
40	5200MHz	46	5230MHz		
44	5220MHz				
48	5240MHz				

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:

Band 1					
802.11a/802.11n-HT20		802.11n-HT40		/	
Channel	Frequency	Channel	Frequency	/	/
Lowest channel	5180MHz	Lowest channel	5190MHz	/	/
Middle channel	5200MHz	Highest channel	5230MHz		
Highest channel	5240MHz				

## 5.3 Test environment and test mode

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
<b>Test mode:</b>	
Continuously transmitting mode	Keep the EUT in 100% duty cycle transmitting with modulation.
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:	
<b>Per-scan all kind of data rate, and found the follow list were the worst case.</b>	
Mode	Data rate
802.11a	6 Mbps
802.11n-HT20	6.5 Mbps
802.11n-HT40	13 Mbps

## 5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
DELL	PC	OPTIPLEX745	N/A	DoC
DELL	MONITOR	E178FPC	N/A	DoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC

## 5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±2.22 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±2.76 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.72 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±2.88 dB (k=2)

## 5.6 Related Submittal(s) / Grant (s)

This is an original grant, no related submittals and grants.

## 5.7 Laboratory Facility

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

- **FCC - Registration No.: CN1211**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

- **IC - Registration No.: CN0021**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

## 5.8 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>




## 5.9 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	03-18-2019	03-17-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-18-2019	03-17-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-18-2019	03-17-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-21-2018	11-20-2019
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-18-2019	03-17-2020
Pre-amplifier	CD	PAP-1G18	11804	03-18-2019	03-17-2020
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-18-2019	03-17-2020
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-21-2018	11-20-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-18-2019	03-17-2020
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-18-2019	03-17-2020
Cable	MICRO-COAX	MFR64639	K10742-5	03-18-2019	03-17-2020
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-18-2019	03-17-2020
RF Switch Unit	MWRFTTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTTEST	MTS8200	Version: 2.0.0.0		

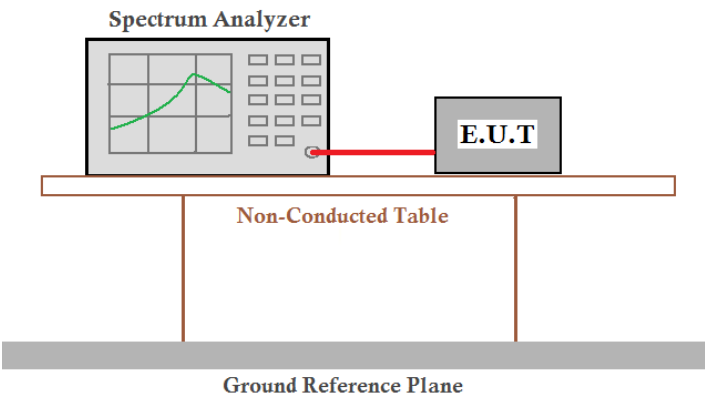
Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-07-2018	03-06-2019
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-07-2018	03-06-2019
LISN	CHASE	MN2050D	1447	03-19-2018	03-18-2019
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2017	07-20-2018
Cable	HP	10503A	N/A	03-07-2018	03-06-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A

## 6 Test results and Measurement Data

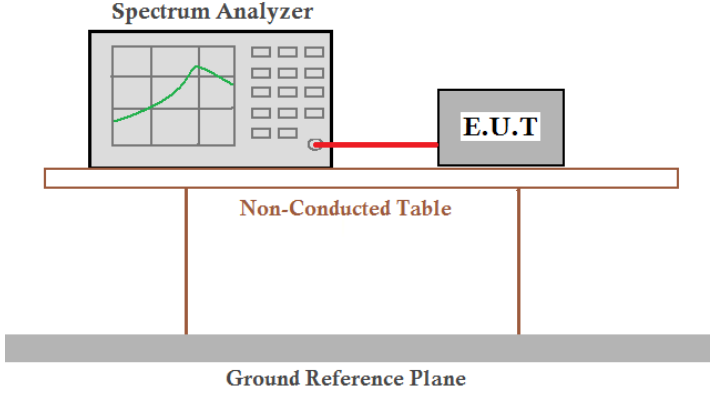
### 6.1 Antenna requirement

<b>Standard requirement:</b>	FCC Part15 E Section 15.203 /407(a)
<p>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.            This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p>	
<b>E.U.T Antenna:</b>	
<p>The WiFi antenna is an Internal antenna which cannot replace by end-user, the best case gain of the antenna is 0.53 dBi.</p>	
	

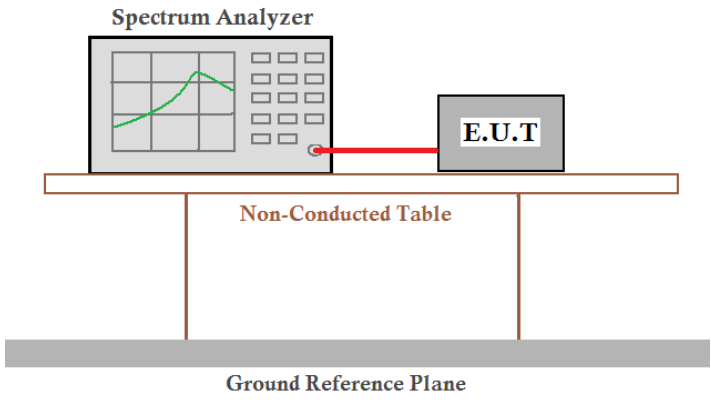
## 6.2 Conducted Output Power

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv), RSS-247 section 6.2.1.1
Test Method:	ANSI C63.10: 2013, KDB789033
Limit:	FCC Band 1: 24dBm IC Band 1: the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10}B$ , dBm, whichever power is less. B is the 99% emission bandwidth in megahertz.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass*, Refer to the FCC ID: 2AQKR-P001R1

## 6.3 Occupy Bandwidth

Test Requirement:	FCC Part15 E Section 15.407 (a) (5) RSS-247 section 6.2.1.1 and section 6.2.1.2
Test Method:	ANSI C63.10:2013 and KDB 789033
Limit:	Band 1: N/A (26dB Emission Bandwidth and 99% Occupy Bandwidth)
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass*, Refer to the FCC ID: 2AQKR-P001R1

## 6.4 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv) , RSS-247 section 6.2.1.1
Test Method:	ANSI C63.10:2013, KDB 789033
Limit:	FCC Band 1: 11 dBm/MHz IC Band 1: The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass*, Refer to the FCC ID: 2AQKR-P001R1

## 6.5 Band Edge

Test Requirement:	FCC Part 15 E Section 15.407 (b), RSS-247 section 6.2.1.2			
Test Method:	ANSI C63.10:2013 , KDB 789033			
Receiver setup:	Detector	RBW	VBW	Remark
	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	RMS	1MHz	3MHz	Average Value
Limit:	Band	Limit (dBuV/m @3m)		Remark
	Band 1	68.20		Peak Value
		54.00		Average Value
Remark: 1. Band 1 limit: $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2 = 68.2 \text{ dB}\mu\text{V}/\text{m}$ , for $\text{EIRP}[\text{dBm}] = -27\text{dBm}$ .				
Test Procedure:	<ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8 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 rotatable 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> </ol>			
Test setup:				
Test Instruments:	Refer to section 5.9 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Pass*, Refer to the FCC ID: 2AQKR-P001R1			

## 6.6 Spurious Emission

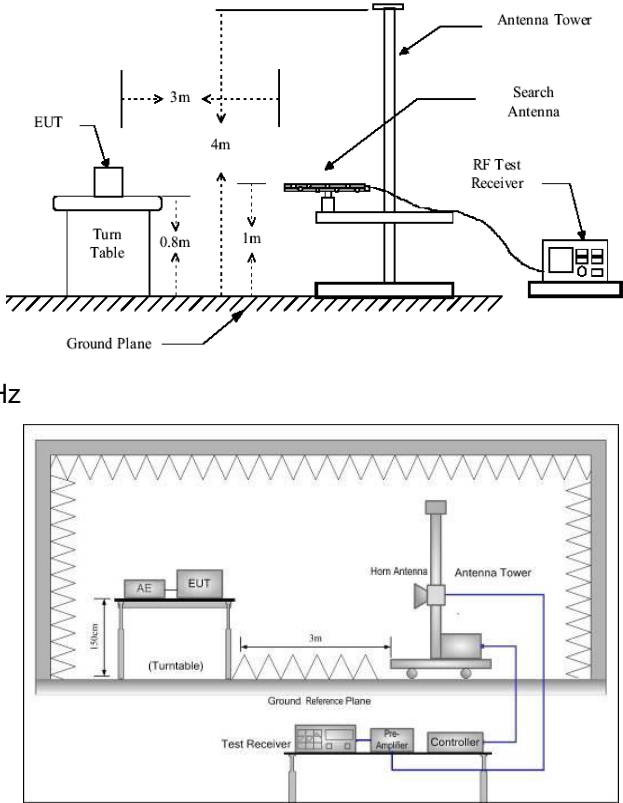
### 6.6.1 Restricted Band

Test Requirement:	FCC Part15 E Section 15.407(b), RSS-GEN section 8.10				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	4.5 GHz to 5.15 GHz and 5.35GHz to 5.46GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency	Limit (dBuV/m @3m)		Remark	
	Above 1GHz	74.00		Peak Value	
		54.00		Average Value	
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> </ol>				
Test setup:					
Test Instruments:	Refer to section 5.9 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Pass*, Refer to the FCC ID: 2AQKR-P001R1				

## 6.6.2 Unwanted Emissions out of the Restricted Bands

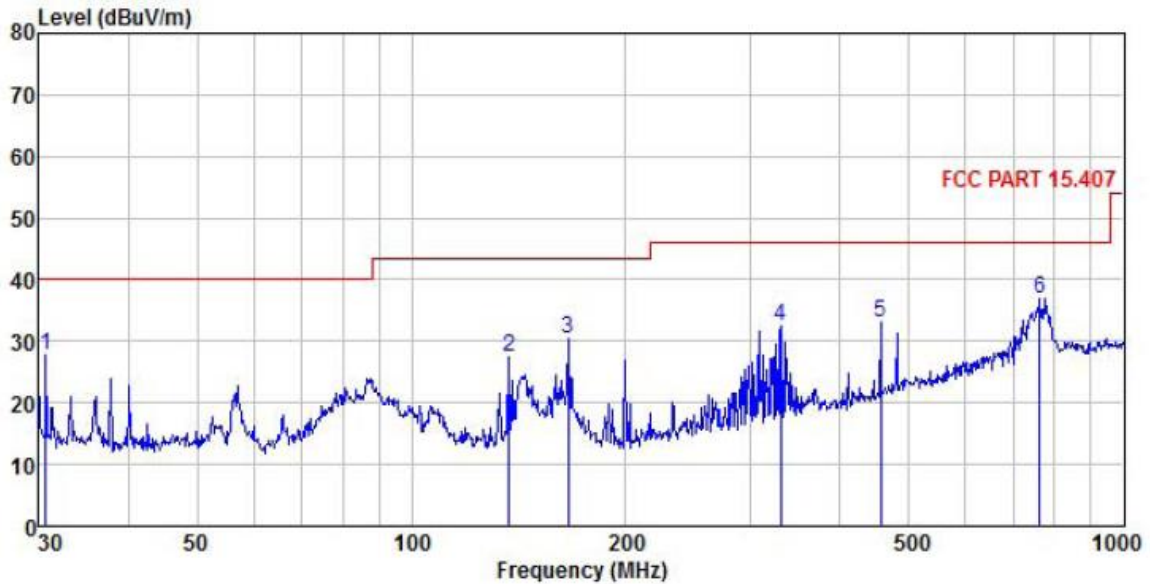
Test Requirement:	FCC Part15 C Section 15.209 and 15.205 RSS-Gen section 6.13 and RSS-247 section 6.2.1.2				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
RMS		1MHz	3MHz	Average Value	
Limit:	Frequency	Limit (dBuV/m @3m)		Remark	
	30MHz-88MHz	40.0		Quasi-peak Value	
	88MHz-216MHz	43.5		Quasi-peak Value	
	216MHz-960MHz	46.0		Quasi-peak Value	
	960MHz-1GHz	54.0		Quasi-peak Value	
	Above 1GHz	68.20		Peak Value	
		54.00		Average Value	
<i>Remark:</i> <i>Above 1GHz limit:</i> $E[dBuV/m] = EIRP[dBm] + 95.2 = 68.2 \text{ dBuV/m, for } EIPR[dBm] = -27dBm.$					
Test Procedure:	<ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) 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> </ol>				
Test setup:	Below 1GHz				



	 <p>Above 1GHz</p>
<p>Test Instruments:</p>	<p>Refer to section 5.9 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.3 for details</p>
<p>Test results:</p>	<p>Passed</p>

**Measurement Data (worst case):**  
**Below 1GHz**

<b>Product Name:</b>	Karie Connectivity Module	<b>Product Model:</b>	AceAge1A
<b>Test By:</b>	Mike	<b>Test mode:</b>	5G WIFI Tx mode
<b>Test Frequency:</b>	30 MHz ~ 1 GHz	<b>Polarization:</b>	Vertical
<b>Test Voltage:</b>	AC 120/60Hz	<b>Environment:</b>	Temp: 24°C Humi: 57%

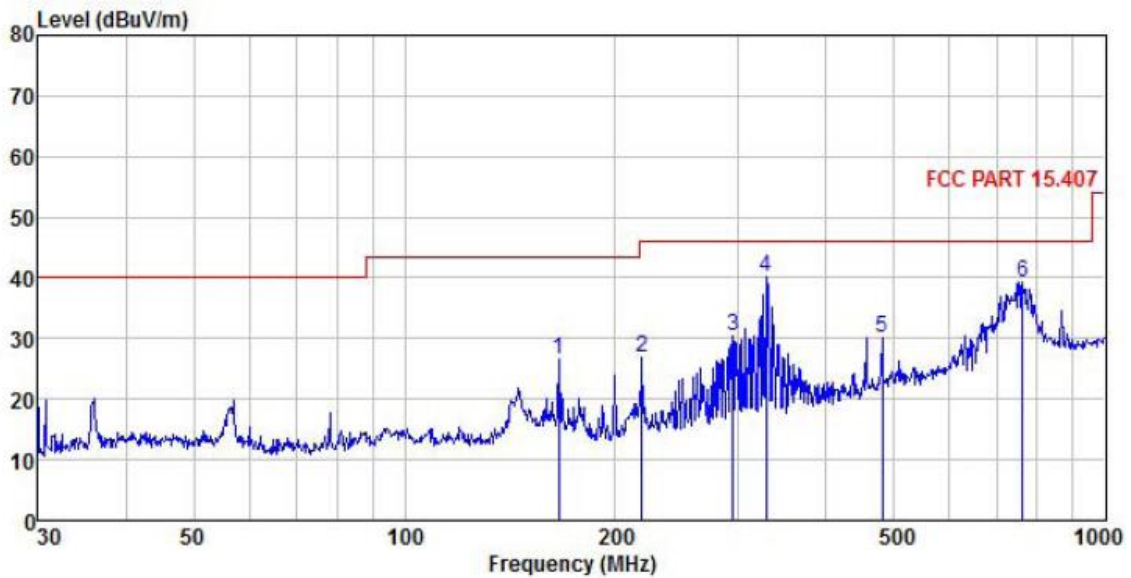


	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	30.638	46.24	10.68	0.78	29.98	27.72	40.00 -12.28 QP
2	136.939	44.57	9.69	2.36	29.29	27.33	43.50 -16.17 QP
3	166.068	47.34	9.49	2.63	29.08	30.38	43.50 -13.12 QP
4	330.195	43.60	14.22	3.04	28.52	32.34	46.00 -13.66 QP
5	455.906	41.87	16.70	3.25	28.88	32.94	46.00 -13.06 QP
6	763.376	40.00	20.88	4.36	28.40	36.84	46.00 -9.16 QP

**Remark:**

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

<b>Product Name:</b>	Karie Connectivity Module	<b>Product Model:</b>	AceAge1A
<b>Test By:</b>	Mike	<b>Test mode:</b>	5G WIFI Tx mode
<b>Test Frequency:</b>	30 MHz ~ 1 GHz	<b>Polarization:</b>	Horizontal
<b>Test Voltage:</b>	AC 120/60Hz	<b>Environment:</b>	Temp: 24°C Huni: 57%

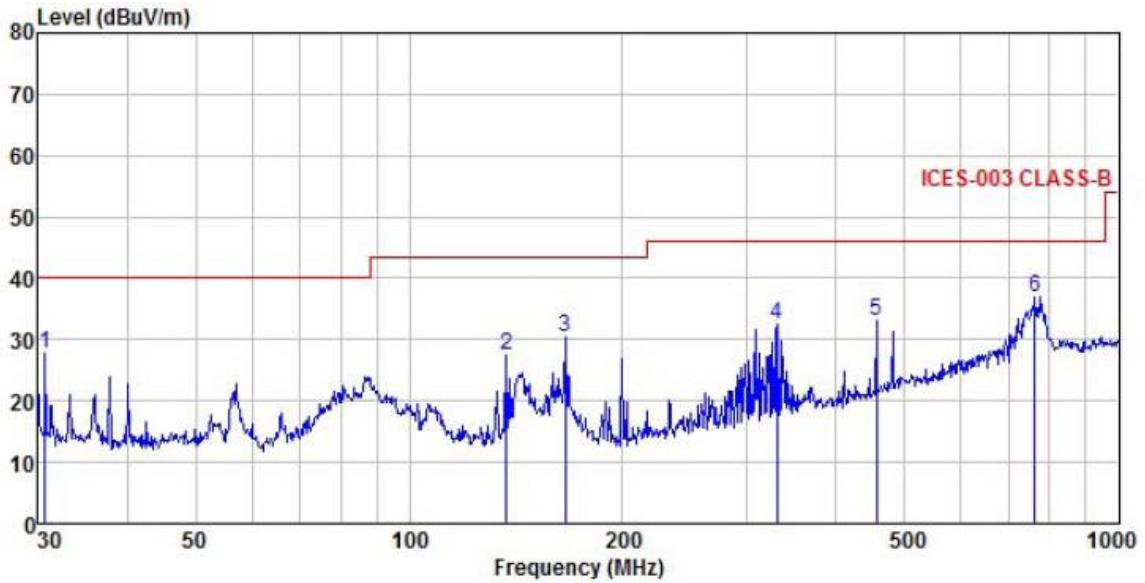


	Read Freq	Antenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	166.068	43.44	9.49	2.63	29.08	26.48	43.50	-17.02	QP
2	218.309	41.33	11.43	2.85	28.72	26.89	46.00	-19.11	QP
3	294.114	42.33	13.52	2.92	28.46	30.31	46.00	-15.69	QP
4	327.887	51.33	14.17	3.03	28.51	40.02	46.00	-5.98	QP
5	480.528	37.95	17.52	3.46	28.92	30.01	46.00	-15.99	QP
6	763.376	42.45	20.88	4.36	28.40	39.29	46.00	-6.71	QP

**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.

<b>Product Name:</b>	Karie Connectivity Module	<b>Product Model:</b>	AceAge1A
<b>Test By:</b>	Mike	<b>Test mode:</b>	5G WIFI Tx mode
<b>Test Frequency:</b>	30 MHz ~ 1 GHz	<b>Polarization:</b>	Vertical
<b>Test Voltage:</b>	AC 120/60Hz	<b>Environment:</b>	Temp: 24°C Humi: 57%

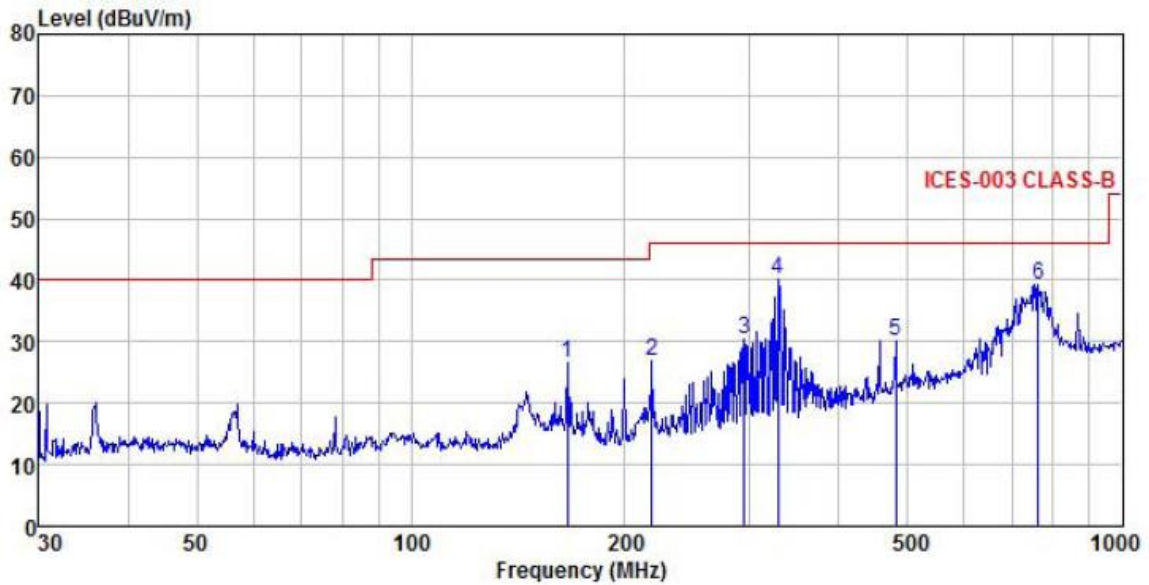


	Read	Antenna	Cable	Preamp	Level	Limit	Over	Remark
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.638	46.24	10.68	0.78	29.98	27.72	40.00	-12.28 QP
2	136.939	44.57	9.69	2.36	29.29	27.33	43.50	-16.17 QP
3	166.068	47.34	9.49	2.63	29.08	30.38	43.50	-13.12 QP
4	330.195	43.60	14.22	3.04	28.52	32.34	46.00	-13.66 QP
5	455.906	41.87	16.70	3.25	28.88	32.94	46.00	-13.06 QP
6	763.376	40.00	20.88	4.36	28.40	36.84	46.00	-9.16 QP

**Remark:**

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

<b>Product Name:</b>	Karie Connectivity Module	<b>Product Model:</b>	AceAge1A
<b>Test By:</b>	Mike	<b>Test mode:</b>	5G WIFI Tx mode
<b>Test Frequency:</b>	30 MHz ~ 1 GHz	<b>Polarization:</b>	Horizontal
<b>Test Voltage:</b>	AC 120/60Hz	<b>Environment:</b>	Temp: 24°C Humi: 57%



	ReadAntenna	Cable Preamp	Limit	Over					
Freq	Level	Loss	Line	Limit	Remark				
MHz	dBuV	dB/m	dB	dB					
1	166.068	43.44	9.49	2.63	29.08	26.48	43.50	-17.02	QP
2	218.309	41.33	11.43	2.85	28.72	26.89	46.00	-19.11	QP
3	294.114	42.33	13.52	2.92	28.46	30.31	46.00	-15.69	QP
4	327.887	51.33	14.17	3.03	28.51	40.02	46.00	-5.98	QP
5	480.528	37.95	17.52	3.46	28.92	30.01	46.00	-15.99	QP
6	763.376	42.45	20.88	4.36	28.40	39.29	46.00	-6.71	QP

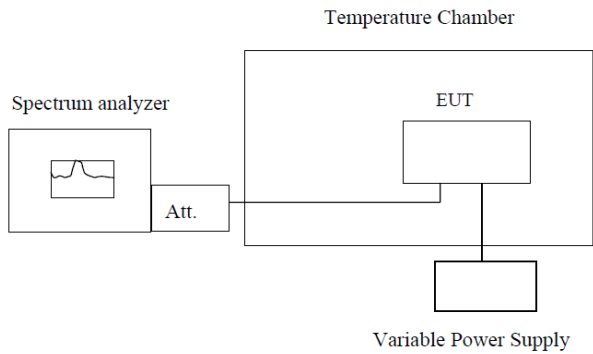
**Remark:**

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.

**Above 1GHz:**

Pass\*, Refer to the FCC ID: 2AQKR-P001R1

## 6.7 Frequency stability

Test Requirement:	FCC Part15 E Section 15.407 (g), RSS-Gen section 6.13
Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
Test setup:	 <p style="text-align: center;">Temperature Chamber</p> <p style="text-align: center;">Spectrum analyzer      Att.      EUT</p> <p style="text-align: center;">Variable Power Supply</p> <p><b>Note :</b> Measurement setup for testing on Antenna connector</p>
Test procedure:	<ol style="list-style-type: none"> <li>1. The EUT is installed in an environment test chamber with external power source.</li> <li>2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.</li> <li>3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.</li> <li>4. When temperature is stabled, measure the frequency stability.</li> <li>5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.</li> </ol>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass*, Refer to the FCC ID: 2AQKR-P001R1



## 8 EUT Constructional Details

Reference to the test report No. CCISE191108001

-----End of report-----