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Report No.: T190219D04-MF

Page 1 / 8
Rev.: 00

**IEEE C95.1 2005
KDB 447498 D03
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091**

RF EXPOSURE REPORT

For

WiFi/BT/GPS RF Module

Model: AK-6630

Trade Name: ASUKA

Issued to

**Asuka Autotronics Inc.
2F, No.12, Prosperity Rd. II, SBIP, Hsinchu, Taiwan**

Issued by

**Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
Issue Date: September 2, 2019**

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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Report No.: T190219D04-MF

Page 2 / 8

Rev.: 00

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 2, 2019	Initial Issue	ALL	Allison Chen



Report No.: T190219D04-MF

Page 3 / 8
Rev.: 00

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION	4
2. LIMIT	5
3. EUT SPECIFICATION.....	6
4. TEST RESULTS	7
5. MAXIMUM PERMISSIBLE EXPOSURE.....	8



Report No.: T190219D04-MF

Page 4 / 8
Rev.: 00

1. TEST RESULT CERTIFICATION

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
IEEE C95.1 2005 KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

Approved by:

Kevin Tsai
Deputy Manager
Compliance Certification Services Inc.

Reporter:

Allison Chen
Report coordinator
Compliance Certification Services Inc.



Report No.: T190219D04-MF

Page 5 / 8
Rev.: 00

2. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

3. EUT SPECIFICATION

EUT	WiFi/BT/GPS RF Module																				
Model	AK-6630																				
Frequency band (Operating)	☒ Bluetooth: 2402MHz-2480MHz ☒ 802.11b/g/n HT20: 2412MHz ~ 2462 MHz ☒ 802.11n HT40: 2422MHz ~ 2452MHz ☐ 802.11a/n HT20: 5180MHz ~ 5240MHz / 5260MHz ~ 5320MHz / 5500MHz ~ 5700MHz / 5745MHz ~ 5825MHz 802.11n HT40: 5190MHz ~ 5230MHz / 5270MHz ~ 5310MHz / 5510MHz ~ 5670MHz / 5755MHz ~ 5795MHz 802.11ac VHT80: 5210MHz / 5290MHz / 5530MHz / 5775MHz ☐ Others																				
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others																				
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm²) ☒ General Population/Uncontrolled exposure (S=1mW/cm²)																				
Antenna Specification	Bluetooth : Antenna Gain : 2.00 dBi (Numeric gain 1.58) WIFI 2.4GHz Antenna Gain : 2.00 dBi (Numeric gain 1.58)																				
Maximum Measurement Average Power	<table><tr><td>Bluetooth:</td><td>6.62 dBm</td><td>(4.592 mW)</td></tr><tr><td>2.4GHz:</td><td></td><td></td></tr><tr><td>IEEE 802.11b Mode:</td><td>11.97 dBm</td><td>(15.740 mW)</td></tr><tr><td>IEEE 802.11g Mode:</td><td>12.75 dBm</td><td>(18.836 mW)</td></tr><tr><td>IEEE 802.11n HT 20 Mode:</td><td>13.70 dBm</td><td>(23.442 mW)</td></tr><tr><td>IEEE 802.11n HT 40 Mode:</td><td>13.91 dBm</td><td>(24.604 mW)</td></tr></table>			Bluetooth:	6.62 dBm	(4.592 mW)	2.4GHz:			IEEE 802.11b Mode:	11.97 dBm	(15.740 mW)	IEEE 802.11g Mode:	12.75 dBm	(18.836 mW)	IEEE 802.11n HT 20 Mode:	13.70 dBm	(23.442 mW)	IEEE 802.11n HT 40 Mode:	13.91 dBm	(24.604 mW)
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IEEE 802.11n HT 40 Mode:	13.91 dBm	(24.604 mW)																			
Maximum tune up power	<table><tr><td>Bluetooth:</td><td>7.50 dBm</td><td>(5.623 mW)</td></tr><tr><td>2.4GHz:</td><td></td><td></td></tr><tr><td>IEEE 802.11b Mode:</td><td>12.50 dBm</td><td>(17.783 mW)</td></tr><tr><td>IEEE 802.11g Mode:</td><td>13.50 dBm</td><td>(22.387 mW)</td></tr><tr><td>IEEE 802.11n HT 20 Mode:</td><td>14.50 dBm</td><td>(28.184 mW)</td></tr><tr><td>IEEE 802.11n HT 40 Mode:</td><td>14.50 dBm</td><td>(28.184 mW)</td></tr></table>			Bluetooth:	7.50 dBm	(5.623 mW)	2.4GHz:			IEEE 802.11b Mode:	12.50 dBm	(17.783 mW)	IEEE 802.11g Mode:	13.50 dBm	(22.387 mW)	IEEE 802.11n HT 20 Mode:	14.50 dBm	(28.184 mW)	IEEE 802.11n HT 40 Mode:	14.50 dBm	(28.184 mW)
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IEEE 802.11n HT 40 Mode:	14.50 dBm	(28.184 mW)																			
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A																				

4. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

Bluetooth:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
78	2480	5.623	1.58	20	0.0018	1

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
11	2462	17.783	1.58	20	0.0056	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	22.387	1.58	20	0.0070	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	28.184	1.58	20	0.0089	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	28.184	1.58	20	0.0089	1

--End of Report--