

**IEEE C95.1 2005
KDB 447498 D01 V06
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

802.11bgn WLAN module

Model: AP-WM2017AA

Trade Name: APPRO

Issued to

**APPRO Technology Inc.
13F, No. 66, Zhongzheng Rd., Xinzhuang Dist., New Taipei City, Taiwan.**

Issued by

**Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
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service@ccsrf.com
Issued Date: November 21, 2017**



Testing Laboratory
1309

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	November 21, 2017	Initial Issue	ALL	Allison Chen
01	December 1, 2017	Modify Max tune up power.	P.5, P.7	Allison Chen

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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

Approved by:



Sam Chuang
 Manager
 Compliance Certification Services Inc.

Tested by:



Allison Chen
 Report coordinator
 Compliance Certification Services Inc.

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	802.11bgn WLAN module																
Model	AP-WM2017AA																
Trade Name	APPRO																
Frequency band (Operating)	<input checked="" type="checkbox"/> 802.11b/g/n HT20: 2412MHz ~ 2462MHz <input checked="" type="checkbox"/> 802.11n HT40: 2422MHz ~ 2452MHz <input type="checkbox"/> 802.11a/n HT20: 5180MHz ~ 5700MHz / 5745MHz ~ 5825MHz <input type="checkbox"/> 802.11n HT40: 5190MHz ~ 5670MHz / 5755MHz ~ 5795MHz <input type="checkbox"/> Others																
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others																
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)																
Antenna Specification	WIFI 2.4G	1.04 dBi (Numeric gain: 1.27)															
	Type: FPC Antenna																
Max tune up Power	<table border="1"> <thead> <tr> <th>WIFI</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>IEEE 802.11b mode</td> <td>18.0dBm</td> <td>(63.096mW)</td> </tr> <tr> <td>IEEE 802.11g mode</td> <td>15.0dBm</td> <td>(31.623mW)</td> </tr> <tr> <td>802.11n HT20 mode</td> <td>15.0dBm</td> <td>(31.623mW)</td> </tr> <tr> <td>802.11n HT40 mode</td> <td>16.0dBm</td> <td>(39.811mW)</td> </tr> </tbody> </table>		WIFI			IEEE 802.11b mode	18.0dBm	(63.096mW)	IEEE 802.11g mode	15.0dBm	(31.623mW)	802.11n HT20 mode	15.0dBm	(31.623mW)	802.11n HT40 mode	16.0dBm	(39.811mW)
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802.11n HT40 mode	16.0dBm	(39.811mW)															
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> 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:

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

Changing to units of mW and cm, using:

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

$$d (cm) = d(m) / 100$$

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

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
6	2437	63.096	1.27	20	0.0159	1.000

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
6	2437	31.623	1.27	20	0.0080	1.000

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
6	2437	31.623	1.27	20	0.0080	1.000

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
6	2437	39.811	1.27	20	0.0101	1.000