ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No. : **W163R-D059**

AGR No. : **A15DA-017**

Applicant : **CIAAT Co., Ltd.**

Address : **40, Pyeongdongsandan-ro 169beon-gil, Gwangsan-gu, Gwangju, Korea**

Manufacturer : **CIAAT Co., Ltd.**

Address : **40, Pyeongdongsandan-ro 169beon-gil, Gwangsan-gu, Gwangju, Korea**

Type of Equipment : **Mobile Photo Printer**

FCC ID. : **2AHLL-CMP-3100W**

Model Name : **CMP-3100W**

Serial number : **N/A**

Total page of Report : **8 pages (including this page)**

Date of Incoming : **January 05, 2016**

Date of issue : **March 29, 2016**

SUMMARY

The equipment complies with the regulation; ***FCC PART 15 SUBPART C Section 15.247***

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

Reviewed by: Jae-Ho, Lee / Chief Engineer, ONETECH Corp.

Approved by: Sung-Ik, Han/ Managing Director, ONETECH Corp.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

EMC Testing Div. : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
W163R-D059	March 29, 2016	Initial Issue	All

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1. VERIFICATION OF COMPLIANCE

Applicant	: CIAAT Co., Ltd.
Address	: 40, Pyeongdongsandan-ro 169beon-gil, Gwangsan-gu, Gwangju, Korea
Contact Person	: Jung Hoon Kim / Manager
Telephone No.	: +82-70-5033-7200
FCC ID	: 2AHLL-CMP-3100W
Model Name	: CMP-3100W
Serial Number	: N/A
Date	: March 29, 2016

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	Mobile Photo Printer
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. GENERAL INFORMATION

2.1 Product Description

The CIAAT Co., Ltd., Model CMP-3100W (referred to as the EUT in this report) is a Mobile Photo Printer. Product specification information described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Mobile Photo Printer
OPERATING FREQUENCY	802.11b/g/n(HT20): 2 412 MHz ~ 2 462 MHz
MAX. RF OUTPUT POWER	802.11b: 8.36 dBm
	802.11g: 1.66 dBm
	802.11n(HT20): 1.56 dBm
MODULATION TYPE	802.11b: DSSS Modulation(DBPSK/DQPSK/CCK) 802.11g/n(HT20): OFDM Modulation(BPSK/QPSK/16QAM/64QAM)
ANTENNA TYPE	PCB Antenna
ANTENNA GAIN	0.9 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	32.768 kHz, 24 MHz, 124 MHz

2.2 Alternative type(s)/model(s); also covered by this test report.

-. None

3. EUT MODIFICATIONS

-. None

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4. MAXIMUM PERMISSIBLE EXPOSURE

4.1 RF Exposure Calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment are f/1500 mW/cm² for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm² for the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm² exposure is calculated as follows:

$E = \sqrt{(30 * P * G)} / d$, and $S = E^2 / Z = E^2 / 377$, because 1 mW/cm² = 10 W/m²

Where

S = Power density in mW/cm², Z = Impedance of free space, 377 Ω

E = Electric filed strength in V/m, G = Numeric antenna gain, and d = distance in meter

Combing equations and rearranging the terms to express the distance as a function of the remaining variable

$d = \sqrt{(30 * P * G) / (377 * 10 S)}$

Changing to units of mW and cm, using P (mW) = P (W) / 1 000, d (cm) = 0.01 * d (m)

$d = 0.282 * \sqrt{(P * G) / S}$

Where

d = distance in cm, P = Power in mW, G = Numeric antenna gain, and S = Power density in mW/cm²

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4.2 EUT Description

Kind of EUT	Mobile Photo Printer	
Operating Frequency Band	☐ Wireless Microphone: 494.000 MHz ~ 501.000 MHz and 498.200 MHz ~ 505.200 MHz ■ WLAN: 2 412 MHz ~ 2 462 MHz ☐ WLAN: 5 180 MHz ~ 5 240 MHz ☐ WLAN: 5 745 MHz ~ 5 825 MHz ☐ Bluetooth: 2 402 MHz ~ 2 480 MHz ☐ Bluetooth BLE: 2 402 MHz ~ 2 480 MHz	
Device Category	☐ Portable (< 20 cm separation) ☐ Mobile (> 20 cm separation) ■ Others	
MAX. RF OUTPUT POWER	WLAN 2.4 GHz Band	Wi-Fi 802.11b (8.36 dBm) Wi-Fi 802.11g (1.66 dBm) Wi-Fi 802.11n_20 MHz (1.56 dBm)
Antenna Gain	2.4 GHz Band [WLAN]	0.9 dBi
Exposure Evaluation Applied	■ MPE ☐ SAR ☐ N/A	

*2.4GHz & 5GHz can not transmit at the same time

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4.3 Calculated MPE Safe Distance

4.3.1 Test data

According to above equation, the following result was obtained.

Operating Freq. Band (MHz)	Operating Mode	Target Power W/tolerance	Max tune up power		Antenna Gain		Safe Distance (cm)	Power Density (mW/cm²) @ 20 cm Separation	Limit (mW/cm²)
		(dBm)	(dBm)	(mW)	Log	Linear			
2 400 ~ 2 483.5	802.11b	8.50 ± 0.5	9.0	7.94	0.9	1.23	0.88	0.0019	1.00
	802.11g	2.00 ± 0.5	2.5	1.78			0.42	0.0004	1.00
	802.11n_ HT20	2.00 ± 0.5	2.5	1.78			0.42	0.0004	1.00

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