RF Exposure Evaluation Report

Product	:	Mi Smart Plug (Wi-Fi)
Trade mark	:	MI
Model/Type reference	:	ZNCZ03CM
Serial Number	:	N/A
Report Number	:	EED32K00049902
FCC ID	:	2APA9-HMI205A
Date of Issue	:	Apr. 03, 2018
Test Standards	:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01v06
Test result	:	PASS

Prepared for:

Shanghai Imilab Technology co., LTD
F5, Building 3, No. 401, Caobao Rd, Xuhui Dist,
Shanghai, P.R. China.

Prepared by:

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Date:	Apr. 03, 2018		Check No.:3319521119

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2 Version

Version No.	Date	Description
00	Apr. 03, 2018	Original

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4 General Information

4.1 Client Information

Applicant:	Shanghai Imilab Technology co., LTD
Address of Applicant:	F5, Building 3, No. 401, Caobao Rd, Xuhui Dist, Shanghai, P.R. China.
Manufacturer:	Shanghai Imilab Technology co., LTD
Address of Manufacturer:	F5, Building 3, No. 401, Caobao Rd, Xuhui Dist, Shanghai, P.R. China.
Factory:	Dongguan Aohai Power Technology Co., Ltd
Address of Factory:	Aohai Technology Park, No.6 Zhenlong Road East, Jiaoyitang, Tangxia, Dongguan, China

4.2 General Description of EUT

Product Name:	Mi Smart Plug (Wi-Fi)
Model No.(EUT):	ZNCZ03CM
Trade Mark:	MI
EUT Supports Radios application	WiFi 802.11b/g/n(20MHz), 2412-2462MHz

4.3 Product Specification subjective to this standard

Frequency Range:	WiFi 802.11b/g/n(20MHz), 2412-2462MHz
Modulation Type:	SSS; OFDM
Sample Type:	Fixed production
Test Power Grade:	(manufacturer declare)Backoff:0.00db
Test Software of EUT:	(manufacturer declare) ESP Series Modules FCC&CE Test Tool V2.2.2.0.exe
Antenna Type:	PCB Antenna
Antenna Gain:	-3dBi
Power Supply:	AC 120V, 60Hz
Test Voltage:	AC 120V, 60Hz
Hardware version of the sample:	(manufacturer declare) B
Firmware version of the sample:	(manufacturer declare)1.3
Conducted Peak Output Power:	25.75dBm
	The Conducted Peak Output Power data refer to the report EED32K00049901
Sample Received Date:	Mar. 14, 2018
Sample tested Date:	Mar. 14, 2018 to Apr. 03, 2018
The tested samples and the sample information are provided by the client.	

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101
Telephone: +86 (0) 755 3368 3668 Fax:+86 (0) 755 3368 3385
No tests were sub-contracted.

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30
30–300	27.5	0.073	0.2	30
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the centre of radiation of the antenna

EIRP = P*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation

Antenna Gain: -3dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power(dBm)	Gain (dBi)	EIRP* (dBm)	EIRP (mW)	R (cm)	S (mW/cm^2)	Limit (mW/cm^2)	Result
Highest	2462	25.75	-3	22.75	188.37	20	0.038	1.0	Pass

Note: Refer to report No. EED32K00049901 for EUT test Max Conducted Peak Output Power value.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32K00049901 for EUT external and internal photos.

*** End of Report ***

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