RF EXPOSURE REPORT

Report No.: 17071410-FCC-H

Applicant	Shenzhen Hyleton Technology Co., Ltd.
Product Name	Smart Plug
Model No.	hyleton-312
Serial No.	N/A
Test Standard	FCC 2.1091:2016
Test Date	December 14, 2017 to January 09, 2018
Issue Date	January 09, 2018
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Aarron Liang	David Huang	
Aarron Liang Test Engineer	David Huang Checked By	

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Test result presented in this test report is applicable to the tested sample only

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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CONTENTS

1. REPORT REVISION HISTORY 5

2. CUSTOMER INFORMATION 5

3. TEST SITE INFORMATION 5

4. EQUIPMENT UNDER TEST (EUT) INFORMATION 6

5. FCC §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE) 7

6.1 APPLICABLE STANDARD 7

6.2 TEST RESULT 8

1. Report Revision History

Report No.	Report Version	Description	Issue Date
17071410-FCC-H	NONE	Original	January 09, 2018

2. Customer information

Applicant Name	Shenzhen Hyleton Technology Co., Ltd.
Applicant Add	4F, A3 Building, Fenghuanggang 3rd Industry Park, Xixiang, Bao’ an, Shenzhen, China
Manufacturer	Shenzhen Hyleton Technology Co., Ltd.
Manufacturer Add	4F, A3 Building, Fenghuanggang 3rd Industry Park, Xixiang, Bao’ an, Shenzhen, China

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao’ an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	535293
IC Test Site No.	4842E-1
Test Software	Labview of SIEMIC version 2.0

4. Equipment under Test (EUT) Information

Description of EUT:	Smart Plug
Main Model:	hyleton-312
Serial Model:	N/A
Equipment Category :	DTS
Antenna Gain:	1dBi
Antenna Type:	PCB antenna
Input Power:	N/A
Trade Name :	Hyleton
FCC ID:	2AOHT-HYLETON-312
Type of Modulation:	802.11b/g/n: DSSS, OFDM
RF Operating Frequency (ies):	WIFI: 802.11b/g/n(20M): 2412-2462 MHz
Number of Channels:	WIFI :802.11b/g/n(20M): 11CH
Port:	N/A
Date EUT received:	December 13, 2017
Test Date(s):	December 14, 2017 to January 09, 2018

5. FCC §2.1091 - Maximum Permissible exposure (MPE)

6.1 Applicable Standard

According to §1.1307(b)(1), 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 level in excess of the Commission' s guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
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

f = frequency in MHz

* = Plane-wave equivalent power density

6.2 Test Result

WIFI：

Type	Test mode	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)
Output power	802.11b	Low	2412	4.51	5±1
		Mid	2437	4.68	5±1
		High	2462	4.90	5±1
	802.11g	Low	2412	9.09	9±1
		Mid	2437	9.08	9±1
		High	2462	8.94	9±1
	802.11n (20M)	Low	2412	9.22	9±1
		Mid	2437	9.18	9±1
		High	2462	9.35	9±1

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm^2)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For the antenna manufacturer provide only used limited to ERP/EIRP or radiated spurious emission test. The MPE evaluation as below:

Maximum output power at antenna input terminal: 10(dBm)

Maximum output power at antenna input terminal: 8.913(mW)

Prediction distance: >20 (cm)

Predication frequency: 2462 (MHz) High frequency

Antenna Gain (typical):1(dBi)

The worst case is power density at predication frequency at 20 cm: 0.00003(mW/cm^2)

MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm^2)

0.00003(mW/cm^2) < 1.0 (mW/cm^2)

Result: Pass