EN IEC 62311:2020

ASSESSMENT REPORT

For

Shenzhen Sonoff Technologies Co.,Ltd.

3F & 6F, Bldg A, No. 663, Bulong Rd, Shenzhen, Guangdong, China

Tested Models: M5-3C-80, M5-2C-80, M5-1C-80
Multiple Models: M5-1C-80W, M5-2C-80W, M5-3C-80W, M5-1C-80G, M5-2C-80G, M5-3C-80G

Report Type:	**Product Type:**
Amended Report	SONOFF SwitchMan Smart Wall Switch

Report Number:	DG1220704-29964EA1
Report Date:	2022-07-11
Reviewed By:	Rocky Xiao RF Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	DG1210901-45614E	Original Report	2022-01-07
1	DG1220704-29964EA1	Amended Report	2022-07-11

Note: This is the first amended report application which was based on the original report. The differences between them as following:

1. Change the model to **M5-3C-80, M5-2C-80, M5-1C-80, M5-1C-80W, M5-2C-80W, M5-3C-80W, M5-1C-80G, M5-2C-80G, M5-3C-80G**

2. Reduce the size of the product shell(control part), without change the circuit (Please refer to EUT photos).

The change between the previous equipment and the current equipment is stated and guaranteed by the applicant. The difference between them will not affect the test results, we will keep the test results, test photos, but updated the related EUT photos.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol"▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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DECLARATION LETTER

Shenzhen Sonoff Technologies Co.,Ltd.
Add: 3F & 6F, Bldg A, No. 663, Bulong Rd, Shenzhen, Guangdong, China
Tel: 0755-27955416 Fax: 0755-27955416
E-mail: cert@itead.cc

DECLARATION OF SIMILARITY

Date：2022-07-04
To Whom It May Concern

Dear Sir or Madam:

We, Shenzhen Sonoff Technologies Co.,Ltd., hereby declare that product: SONOFF SwitchMan Smart Wall Switch, The model M5-1C-80W, M5-2C-80W,M5-3C-80W, M5-1C-80G, M5-2C-80G, M5-3C-80G are electrically identical with the model: M5-1C-80 ,M5-2C-80 ,M5-3C-80 which was tested by BACL(Dongguan) with the same electromagnetic emissions and electromagnetic compatibility characteristics.

The following is a description of the differences and declaration similarities between several configurations.

Model	Color	Relay	Gang(s)	PCB Board	
				Power supply board	RF&Control Board
M5-3C-80	black	Relay 1# Relay 2# Relay 3#	three	Different from 2C	Same (The RF part of the 3C series model is the same as the 2C series and 1C series models, but the PCBA of the control board is different.)
M5-3C-80W	white				
M5-3C-80G	golden				
M5-2C-80	black	Relay 4# Relay 5#	two	/	
M5-2C-80W	white				
M5-2C-80G	golden				
M5-1C-80	black	Relay 4# Relay 5#	one	Same as 2C	
M5-1C-80W	white				
M5-1C-80G	golden				

The difference of the relay is described as follows:

Components	Manufacturer	Type/Model	Technical Data
Relay 1#	Shenzhen Golden Electrical Appliance Co Ltd.	Y5-1A -5DH 5DH	5A 250VAC
Relay 2#	Zhejiang Fanhar Electronics Co., Ltd.	W18-1AST-DC5V	DC5V 5A 250VAC
Relay 3#	SUZHOU GEEKO ELECTRICAPPLIANCES CO.,LTD	GK101-1AS-DC5V	5A 250 VAC
Relay 4#	Shenzhen Golden Electrical Appliance Co Ltd.	GI-1A-5LH	DC5V 10A 250VAC

Relay 5#	Zhejiang Fanhar Electronics Co., Ltd.	W11-1A2STLE-H-DC5V	DC5V 10A 250VAC

Except the differences above, we declare the products are electrically identical. We guarantee all the information provided above is true, and notice that we'll bear all the consequences caused by any false information or concealing.

Please contact me should there be need for any additional clarification or information.

Best Regards,
Signature Stan Li

Name: Stan Lee
Hardware Department Manager

BELOW IS THE ORIGINAL REPORT

EN IEC 62311:2020

ASSESSMENT REPORT

For

Shenzhen Sonoff Technologies Co.,Ltd.

3F & 6F, Bldg A, No. 663, Bulong Rd, Shenzhen, Guangdong, China

Tested Models: M5-3C-86, M5-2C-86, M5-1C-86
Multiple Models: M5-1C-86W, M5-2C-86W, M5-3C-86W, M5-1C-86G, M5-2C-86G, M5-3C-86G

Report Type:	**Product Type:**
Original Report	SONOFF SwitchMan Smart Wall Switch

Report Number:	DG1210901-45614E
Report Date:	2022-01-07
Reviewed By:	Rocky Xiao RF Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	SONOFF SwitchMan Smart Wall Switch
Tested Models:	M5-3C-86, M5-2C-86, M5-1C-86
Multiple Models:	M5-1C-86W, M5-2C-86W,M5-3C-86W, M5-1C-86G, M5-2C-86G, M5-3C-86G
Model Difference:	Refer to DOS
Rated Input Voltage:	AC230V
Serial Number:	M5-3C-86: DG1210901-45614E-RF-S2 M5-2C-86: DG1210901-45614E-RF-S3 M5-1C-86: DG1210901-45614E-RF-S4
EUT Received Date:	2021-09-02
EUT Received Status:	Good

Objective

This report is prepared on behalf of ***Shenzhen Sonoff Technologies Co.,Ltd.*** in accordance with EN IEC 62311:2020, Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz).

The objective is to determine the compliance of EUT with EN IEC 62311:2020.

Test Methodology

All measurements contained in this report were conducted with EN IEC 62311:2020.

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Technical Requirements Specification in EN IEC 62311:2020

General Description of Applied Standards

In general, the basic restrictions shall be used as exposure limits for the assessment of compliance. However, in most cases reference levels are used as limits. Such reference levels for exposure to electric, magnetic and electromagnetic fields are derived from the basic restrictions using realistic worst-case assumptions about exposure. If the reference levels are met, then the basic restrictions will also be met; if the reference levels are exceeded, that does not necessarily mean that the basic restrictions are exceeded. In some situations, it may be possible to show compliance with the basic restrictions directly. It may also be possible to derive compliance criteria that allow a simple measurement or calculation to demonstrate compliance with the basic restrictions. Often these compliance criteria can be derived using realistic assumptions about conditions under which exposures from a device may occur, rather than the conservative assumptions that are the basis for the reference levels.

RF Exposure Evaluation

Limit:

According to EN IEC 62311:2020, the criteria listed in the below table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified table 2 of Council Recommendation 1999/519/EC.

Reference levels for electric, magnetic and electromagnetic fields
(0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field(μT)	Equivalent plane wave power density $S_{eq}(W/m^2)$
0-1 Hz	-	$3{,}2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3{,}2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	250/f	4/f	5/f	-
0,8-3 kHz	250/f	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	0,73/f	0,92/f	-
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1{,}375\ f^{1/2}$	$0{,}0037\ f^{1/2}$	$0{,}0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

Notes:

1. f as indicated in the frequency range column.

Test method

Far Field
The antenna of the product, under normal use condition is at least 20cm away from the body of the user. So, this product under normal use is located on electromagnetic far field between the human body.

Far Field Calculation Formula

$$E = \frac{\sqrt{30PG(\theta,\phi)}}{r}$$

Where:
P= Tune-up average conducted power
G= antenna gain relative to an isotropic antenna
θ,ϕ = elevation and azimuth angles to point of investigation
r= distance from observation point to the antenna

Test Data

RF Mode	Tune-up EIRP		E-Field Strength	Limit	Result
	(dBm)	(mW)	(V/m)	(V/m)	
Wi-Fi	17	50.12	6.13	61	Pass
BLE	1	1.26	0.97	61	Pass

Note: The distance from observation point to the antenna is 20cm.

Conclusion: Compliance

EXHIBIT A – EUT PHOTOGRAPHS

For photos in this section, please refer to report No.: DG1210901-45614E-02 EXHIBIT A.

*******END OF REPORT*******