

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technological

Development District, Guangzhou, China 510663

Telephone: +86 (0) 20 82155555 Fax: +86 (0) 20 82075059 Email: ee.guangzhou@sgs.com Report No.: GZEM190801489204

Page: 1 of 11

TEST REPORT

Application No.: GZEM1908014892CR

Applicant: GE Lighting

Address of Applicant: Nele park, Cleveland, OH 44112

Manufacturer: GE Lighting

Address of Manufacturer: Nele park, Cleveland, OH 44112

Factory: Nanchang Innotech Techonology Co.,Ltd

Address of Factory: No.399, Rule Lake Avenue, Nanchang Airport Economic Zone, Nanchang,

China

Equipment Under Test (EUT):

EUT Name: Smart Switch

Model No.: CSWONBLPWF1, CSWONBLTWF1. ¤

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

HVIN: CSWONBLPWF1T, CSWONBLTWF1T

Trade Mark: GE

Standard(s): 47 CFR Part 1.1307, Part 1.1310

Date of Receipt: 2019-08-07

Date of Test: 2019-08-13 to 2019-08-19

Date of Issue: 2019-08-24

Test Result: Pass*

Kuhe . Jian

Kobe Jian EMC Laboratory Manager

检验检测专用章 spection & Testing Services

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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^{*} In the configuration tested, the EUT complied with the standards specified above.



Report No.: GZEM190801489204

Page: 2 of 11

Revision Record						
Version Chapter Date Modifier Remark						
01		2019-08-24		Original		

Authorized for issue by:		
Tested By	Kevin zhang	2019-08-13 to 2019-08-19
	Kevin_Zhang /Project Engineer	Date
Checked By	Ridey Liu	2019-08-24
	Ricky_Liu /Reviewer	Date



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Report No.: GZEM190801489204

Page: 3 of 11

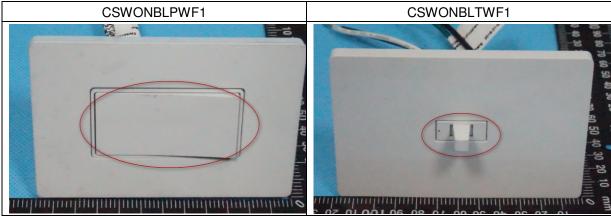
2 Test Summary

Radio Spectrum Technical Requirement						
Item	Standard	Method	Requirement	Result		
RF Exposure	47 CFR Part 1.1307, Part 1.1310	CFR 47 Part 1.1310	CFR 47 Part 1.1310	Pass		

¤ Declaration of EUT Family Grouping:

Model No.: CSWONBLPWF1, CSWONBLTWF1

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on the button.



Model CSWONBLPWF1 and CSWONBLTWF1 have the same Wi-Fi and Bluetooth modules. Therefore only one model CSWONBLTWF1 was tested in this report.

Model No.:	HVIN:	
CSWONBLPWF1	CSWONBLPWF1T	
CSWONBLTWF1	CSWONBLTWF1T	



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Report No.: GZEM190801489204

Page: 4 of 11

3 Contents

			Page
1	Cov	er Page	1
2	Test	Summary	3
3	Con	tents	4
4	Gen	eral Information	5
	4 1		
	4.2	Description of Support Units	5
	4.3		
	4.4		
	4.5		
	4.6		
	4.7	Abnormalities from Standard Conditions	8
5	Radi	io Spectrum Technical Requirement	9
	5.1	RF Exposure	g
	5.1.1	Information ails of E.U.T. scription of Support Units assurement Uncertainty st Location st Facility viation from Standards normalities from Standard Conditions pectrum Technical Requirement Exposure Fest Requirement: Caclulation Method Conclusion aphs T Constructional Details	
	5.1.2		
	5.1.3		
6	Phot	tographs	11
	6.1	EUT Constructional Details	11



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Report No.: GZEM190801489204

Page: 5 of 11

General Information

4.1 Details of E.U.T.

Power Supply: AC 120V 60Hz Test Voltage: AC 120V 60Hz

Cable: GROUND cable (unshielded, 20cm)

> NEUTRAL cable (unshielded, 20cm) LINE cable (unshielded, 20cm)

LOAD cable (unshielded, 20cm)

WiFi

Antenna Gain 0dBi

Antenna Type Integrated Antenna

Channel Spacing 5MHz

Modulation Type 802.11b: DSSS (CCK, DQPSK, DBPSK)

802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)

Number of Channels 802.11b/g/n(HT20):11

802.11n(HT40):7

Operation Frequency 802.11b/g/n(HT20): 2412MHz to 2462MHz

802.11n(HT40): 2422MHz to 2452MHz

Bluetooth

Antenna Gain 0dBi

Antenna Type Integrated Antenna

Channel Spacing 2MHz **GFSK** Modulation Type Number of Channels 40

Operation Frequency 2402MHz to 2480MHz

4.2 Description of Support Units

The EUT has been tested as an independent unit.



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Report No.: GZEM190801489204

Page: 6 of 11

4.3 Measurement Uncertainty

No.	Item Measurement Uncertainty		
1	Radio Frequency ±5.5 x 10-8		
2	Duty cycle		
3	Occupied Bandwidth		
4	RF Conducted power	±0.68dB	
5	RF Power Density	±1.50dB	
6	Conducted Spurious Emissions	±1.04dB	
7	RF Radiated Power	±4.5dB (below 1GHz)	
/	nr nadiated rower	±4.8dB (above 1GHz)	
8	Dedicted Courieus Emission Test	±4.5dB (30MHz-1GHz)	
0	Radiated Spurious Emission Test	±4.8dB (1GHz-18GHz)	
9	Temperature	±0.4℃	
10	Humidity ±1.3%		
11	Supply Voltages	±1.5%	
12	Time	±3%	

4.4 Test Location

All tests were performed at:

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No tests were sub-contracted.



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Report No.: GZEM190801489204

Page: 7 of 11

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● NVLAP (Lab Code: 200611-0)

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● CNAS (Lab Code: L0167)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

● FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

◆ FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

● Industry Canada (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

● VCCI (Registration No.: R-12460, C-12584, G-10449 and T-11179)

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-10449 and T-11179 respectively.

● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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Report No.: GZEM190801489204

Page: 8 of 11

4.6 Deviation from Standards

4.7 Abnormalities from Standard Conditions



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Report No.: GZEM190801489204

Page: 9 of 11

5 Radio Spectrum Technical Requirement

5.1 RF Exposure

5.1.1 Test Requirement:

CFR 47 Part 1.1310

Limit:

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/cm²)	Averaging time (minutes)		
	(A) Limits for Oc	cupational/Controlle	ed Exposure			
0.3-3.0	614	1.63	*100	6		
3.0-30	1842/f	4.89/f	*900/f²	6		
30-300	61.4	0.163	1.0	6		
300-1,500			f/300	6		
1,500-100,000			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/f²	30		
30-300	27.5	0.073	0.2	30		
300-1,500			f/1500	30		
1,500-100,000			1.0	30		

f = frequency in MHz

5.1.2 Caclulation Method

 $E (V/m)=(30*P*G)^{0.5}/d$ Power Density: $Pd(W/m^2)=E^2/377$

E=Electric Field (V/m)

P=Peak RF output Power (W)

G=EUT Antenna numeric gain (numeric)

d= Separation distance between radiator and human body (m)

The formula can be changed to

 $Pd = (30*P*G)/(377*d^2)$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.



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^{* =} Plane-wave equivalent power density



Report No.: GZEM190801489204

Page: 10 of 11

5.1.3 Conclusion

For WIFI

Antenna Gain: 0dBi

Refer to report No. GZEM190801489203, the max. peak output power is 20.92dBm @11G, 2462MHz

Mode	Channel	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit
11G	2462MHz	20.92	123.595	0.02459	1.0

For Bluetooth

Antenna Gain: 0dBi

Refer to report No. GZEM190801489202, the max. peak output power is 8.394dBm @2480MHzs

Mode	Channel	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit
BLE	2480MHz	8.394	6.909	0.00137	1.0

The Bluetooth and WIFI modules can simultaneous transmit at frequency 2.4GHz band, and the max. rate of MPE is 0.02459/1 + 0.00137/1 = 0.02596 < 1

So the device is exclusion from SAR test.



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Report No.: GZEM190801489204

Page: 11 of 11

6 Photographs

6.1 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for GZEM1908014892CR.

-- End of Report--



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