



MPE Test Report

Report No.: LGD-ESH-P22010359B-3

FCC ID: Q4B-TFFD

Product: DLM Wireless Slim Switches

Model: LMSW-610-S, LMSW-611-S, LMSW-622-S, LMSW-641-S

Received Date: Jan.20, 2022

Test Date: Jan.20 to Feb.08, 2022

Issued Date: Feb.08, 2022

Applicant: The Watt Stopper, Inc.

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Manufacturer: SHANGHAI LEGRAND ELECTRICAL CO.,LTD

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Issued By: BUREAU VERITAS ADT (Shanghai) Corporation

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Release Control Record

Issue No.	Description	Date Issued
LGD-ESH-P22010359B-3	Original release	Feb.08, 2022



1 Certificate of Conformity

Product: DLM Wireless Slim Switches

Brand: 

Model: LMSW-610-S, LMSW-611-S, LMSW-622-S, LMSW-641-S

Applicant: The Watt Stopper, Inc.

Test Date: Jan.10 to Jan. 30, 2021

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **BUREAU VERITAS ADT (Shanghai) Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :



, **Date:**

Feb.08, 2022

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Approved by :



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EMC Lab Manager

, **Date:**

Feb.08, 2022

2 General Information

2.1 General Description of EUT

For BLE

Product	DLM Wireless Slim Switches
Brand	
Test Model	LMSW-610-S, LMSW-611-S, LMSW-622-S, LMSW-641-S
Power Rating	3.0Vdc
Modulation Type	GFSK
Modulation Technology	Bluetooth Low Energy 5.0
Operating Frequency	2402MHz ~ 2480MHz
Number of Channel	40
Antenna Type	PCB Antenna
Antenna Connector	--
Antenna Gain	3dBi
Product SW/HW version	10.92/R4
Radio SW/HW version	17.1.0/R3
Test SW version	17.1.0
RF power setting in Test SW	+4dBm

Note:

1. For more details, please refer to the User's manual of the EUT.

For 802.15.4

Product	DLM Wireless Slim Switches
Brand	
Test Model	LMSW-610-S, LMSW-611-S, LMSW-622-S, LMSW-641-S
Power Rating	3.0Vdc
Modulation Type	O-QPSK
Modulation Technology	6LoWPAN
Operating Frequency	2405MHz to 2480MHz
Number of Channel	16
Antenna Type	PCB Antenna
Antenna Connector	--
Antenna Gain	3dBi
Product SW/HW version	10.92/R4
Radio SW/HW version	17.1.0/R3
Test SW version	17.1.0
RF power setting in Test SW	+4dBm

3 RF Exposure

3.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1,500	-	-	F/1500	30
1,500-100,000	-	-	1.0	30

F = Frequency in MHz

3.2 MPE Calculation Formula

Power density (S) is calculated according to the formula:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²

P = transmit power in mW

G = numeric gain of transmit antenna (numeric gain=Log-1(dB antenna gain/10))

R = distance (cm)

3.3 MPE Calculation Formula

The antenna of this product, under normal use condition, is at least 20cm from the body of the user. So the device is classified as Mobile Device.

3.4 Calculation Result of Maximum Permissible Exposure

Frequency Band (MHz)	Max. Conducted output power(dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2402-2480	3.88	3	20	0.0009704	1
2405-2480	3.78	3	20	0.0009483	1

Conclusion:

The calculation result of MPE is less than the limit.

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