

# TEST REPORT

**Reference No.**..... : WTD23D04093079W004  
**FCC ID** ..... : QCV-S1611011  
**Applicant**..... : Budderfly INC  
**Address**..... : 2 Trap Falls Rd. Ste. 310 Shelton, Connecticut 06484, United States  
**Manufacturer** ..... : CME Electronics Technology Co., LTD  
**Address**..... : Suite B, 18th Floor, Jingwangem No. 303, Qinglv Road South,  
Gongbei, Zhuhai 519020, Guangdong Province, China  
**Product**..... : Multi-Way Switch  
**Model(s)** ..... : S1611011  
**Standards**..... : FCC 47CFR Part 2 Subpart J Section 2.1091  
**Date of Receipt sample** .... : 2023-05-04  
**Date of Test** ..... : 2023-05-04 to 2023-06-07  
**Date of Issue**..... : 2023-06-15  
**Test Result**..... : **Pass**

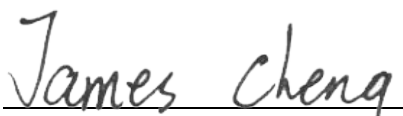
**Remarks:**

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

**Prepared By:**  
**Waltek Testing Group Co., Ltd.**

Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China  
Tel: +86-769-2267 6998  
Fax: +86-769-2267 6828

Compiled by:

  
James Cheng / Project Engineer

Approved by:

  
Deval Qin / Designated Reviewer

## 2. Contents

|                                                         | Page |
|---------------------------------------------------------|------|
| 1 COVER PAGE.....                                       | 1    |
| 2. CONTENTS .....                                       | 2    |
| 3. REVISION HISTORY .....                               | 3    |
| 4. GENERAL INFORMATION.....                             | 4    |
| 4.1. GENERAL DESCRIPTION OF E.U.T.....                  | 4    |
| 4.2. DETAILS OF E.U.T.....                              | 4    |
| 4.3. TEST FACILITY .....                                | 5    |
| 4.4. SUBCONTRACTED.....                                 | 5    |
| 4.5. ABNORMALITIES FROM STANDARD CONDITIONS .....       | 5    |
| 5. TEST SUMMARY .....                                   | 6    |
| 6. RF EXPOSURE.....                                     | 7    |
| 6.1. REQUIREMENTS.....                                  | 7    |
| 6.2. THE PROCEDURES / LIMIT .....                       | 7    |
| 6.3. MPE CALCULATION METHOD .....                       | 8    |
| 6.4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION..... | 8    |

3. Revision History

| Test Report No.    | Date of Receipt Sample | Date of Test                   | Date of Issue | Purpose  | Comment | Approved |
|--------------------|------------------------|--------------------------------|---------------|----------|---------|----------|
| WTD23D04093079W004 | 2023-05-04             | 2023-05-04<br>to<br>2023-06-07 | 2023-06-15    | Original | -       | Valid    |

## 4. General Information

### 4.1. General Description of E.U.T.

|                      |                         |
|----------------------|-------------------------|
| Product:             | Multi-Way Switch        |
| Model(s):            | S1611011                |
| Model difference:    | N/A                     |
| BT Version:          | V4.2                    |
| Wi-Fi Specification: | 802.11b/g/n HT20/n HT40 |
| Hardware Version:    | HWV1.1                  |
| Software Version:    | SWV 1.14.3              |

### 4.2. Details of E.U.T.

|                        |                                                                                                                     |
|------------------------|---------------------------------------------------------------------------------------------------------------------|
| Operation Frequency:   | Bluetooth: 2402-2480MHz<br>BLE: 2402-2480MHz<br>Wi-Fi: 802.11b/g/n HT20: 2412~2462MHz<br>802.11n HT40: 2422~2452MHz |
| Max. RF output power:  | Bluetooth: 12.03dBm<br>BLE: 9.65dBm<br>Wi-Fi: 20.54dBm                                                              |
| Modulation Technology: | Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK<br>BLE: GFSK<br>Wi-Fi: DSSS, OFDM                                             |
| Antenna installation:  | PCB Antenna                                                                                                         |
| Antenna Gain:          | 3.71dBi                                                                                                             |
| Ratings:               | Incandescent: 1600W/120V<br>LED/CFL: 1400W/120V, 3300W/277V<br>Std. Ballast: 800W/120V, 1200W/277V                  |

#### 4.3. Test Facility

The test facility has a test site registered with the following organizations:

**ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.**

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files.

Registration number 7760A, October 15, 2016.

**FCC Designation No.: CN1201. Test Firm Registration No.: 523476.**

Waltek Testing Group 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 number 523476, September 10, 2019.

#### 4.4. Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

#### 4.5. Abnormalities from Standard Conditions

None.

## 5. Test Summary

| Test Items                                                        | Test Requirement | Result |
|-------------------------------------------------------------------|------------------|--------|
| Maximum Permissible Exposure<br>(Exposure of Humans to RF Fields) | FCC Part 2.1091  | PASS   |

## 6. RF Exposure

Test Requirement: FCC 47CFR Part 2 Subpart J Section 2.1091

Evaluation Method: FCC 47CFR Part 1 Subpart I Section 1.1310,  
KDB 447498 D01 General RF Exposure Guidance v06

### 6.1. Requirements

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 levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

### 6.2. The procedures / limit

Table 1 to § 1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)

| Frequency range (MHz)                                           | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|-----------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(i) Limits for Occupational/Controlled Exposure</b>          |                               |                               |                                     |                          |
| 0.3-3.0                                                         | 614                           | 1.63                          | *(100)                              | ≤6                       |
| 3.0-30                                                          | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | <6                       |
| 30-300                                                          | 61.4                          | 0.163                         | 1                                   | <6                       |
| 300-1,500                                                       |                               |                               | f/300                               | <6                       |
| 1,500-100,000                                                   |                               |                               | 5                                   | <6                       |
| <b>(ii) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3-1.34                                                        | 614                           | 1.63                          | *(100)                              | <30                      |
| 1.34-30                                                         | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | <30                      |
| 30-300                                                          | 27.5                          | 0.073                         | 0.2                                 | <30                      |
| 300-1,500                                                       |                               |                               | f/1500                              | <30                      |
| 1,500-100,000                                                   |                               |                               | 1                                   | <30                      |

f = frequency in MHz. \* = Plane-wave equivalent power density.

### 6.3. MPE Calculation Method

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

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = output power 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)

From the peak EUT RF output power, the minimum mobile separation distance, R=20cm, as well as the gain of the used antenna, the RF power density can be obtained

### 6.4. Radio Frequency Radiation Exposure Evaluation

| Band      | Antenna Gain (dBi) | Antenna Gain (numeric) | Max. Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|-----------|--------------------|------------------------|------------------------------|------------------------|-------------------------------------|-----------------------------|
| Bluetooth | 3.71               | 2.350                  | 12.03                        | 15.96                  | 0.007460                            | 1.0                         |
| BLE       | 3.71               | 2.350                  | 9.65                         | 9.23                   | 0.004312                            | 1.0                         |
| 2.4G WIFI | 3.71               | 2.350                  | 20.54                        | 113.24                 | 0.052927                            | 1.0                         |

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
2. Chose the maximum power to do MPE analysis.
3. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.

#### Conclusion:

RF Exposure is FCC compliant.

=====End of Report=====