

# RF EXPOSURE REPORT

|           |                                                                 |
|-----------|-----------------------------------------------------------------|
| Applicant | Consumer Lighting (U.S.) LLC dba GE Lighting, a Savant company. |
| Address   | 1975 Noble Road, Cleveland, Ohio 44112, United States.          |

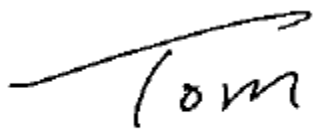
|                                     |                                                                 |
|-------------------------------------|-----------------------------------------------------------------|
| Manufacturer or Supplier            | Consumer Lighting (U.S.) LLC dba GE Lighting, a Savant company. |
| Address                             | 1975 Noble Road, Cleveland, Ohio 44112, United States.          |
| Product                             | C-Start Smart Switch Motion Sensing + Dimmer                    |
| Additional Product                  | C-Start Smart Switch Dimmer                                     |
| Brand Name                          | GE                                                              |
| Model                               | CSWDMOCBWF1NN                                                   |
| Additional Model & Model Difference | CSWDMBLBWF1NN                                                   |
| Date of tests                       | Aug. 21, 2020 ~ Aug. 27. 2020                                   |

☒ FCC Part 2 (Section 2.1091)

☒ KDB 447498 D01

☒ IEEE C95.1

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

|                                                                                     |                                                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Tested by Tom Chen<br>Project Engineer / EMC Department                             | Approved by Glyn He<br>Assistant Manager / EMC Department                                                   |
|  | <br>Date: Sep. 07, 2020 |

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## TABLE OF CONTENTS

|                                                       |   |
|-------------------------------------------------------|---|
| RELEASE CONTROL RECORD .....                          | 3 |
| 1. CERTIFICATION.....                                 | 4 |
| 2. RF EXPOSURE LIMIT .....                            | 5 |
| 3. MPE CALCULATION FORMULA.....                       | 5 |
| 4. CLASSIFICATION .....                               | 5 |
| 5. ANTENNA GAIN .....                                 | 6 |
| 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER..... | 6 |



Test Report No.: FM2008WDG0008

## RELEASE CONTROL RECORD

| ISSUE NO.     | REASON FOR CHANGE | DATE ISSUED   |
|---------------|-------------------|---------------|
| FM2008WDG0008 | Original release  | Sep. 07, 2020 |

## 1. CERTIFICATION

|                            |                                                                 |
|----------------------------|-----------------------------------------------------------------|
| <b>FCC ID:</b>             | PUU-CSWDMXXBWF2NN                                               |
| <b>PRODUCT:</b>            | C-Start Smart Switch Motion Sensing + Dimmer                    |
| <b>ADDITIONAL PRODUCT:</b> | C-Start Smart Switch Dimmer                                     |
| <b>BRAND NAME:</b>         | GE                                                              |
| <b>MODEL NO.:</b>          | CSWDMOCBWF1NN                                                   |
| <b>ADDITIONAL NO.:</b>     | CSWDMBLBWF1NN                                                   |
| <b>TEST SAMPLE:</b>        | Engineering Sample                                              |
| <b>APPLICANT:</b>          | Consumer Lighting (U.S.) LLC dba GE Lighting, a Savant company. |
| <b>STANDARDS:</b>          | FCC Part 2 (Section 2.1091)                                     |
|                            | KDB 447498 D01                                                  |
|                            | IEEE C95.1                                                      |

## 2. RF EXPOSURE LIMIT

### 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> ) | AVERAGE TIME (minutes) |
|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE |                               |                               |                                     |                        |
| 300-1500                                              | ...                           | ...                           | F/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

## 3. MPE CALCULATION FORMULA

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

## 4. CLASSIFICATION

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

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

| Mode | Transmitter Circuit | Peak Gain (dBi) | Antenna Type |
|------|---------------------|-----------------|--------------|
| BT   | Chain 0             | 1.6             | PCB Antenna  |
| WIFI | Chain 0             | 2               | PCB Antenna  |

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

The tuned conducted Average Power (declared by client)

| Mode         | Frequency (MHz) | Target Power (dBm) | Tolerance (dBm) | Lower Tolerance (dBm) | Upper Tolerance (dBm) |
|--------------|-----------------|--------------------|-----------------|-----------------------|-----------------------|
| BT-LE (GFSK) | 2402-2480MHz    | 2                  | +1              | 1                     | 3                     |
| 802.11b      | 2412-2462MHz    | 15                 | +1              | 14                    | 16                    |
| 802.11g      | 2412-2462MHz    | 13                 | +1              | 12                    | 14                    |
| 802.11n HT20 | 2412-2462MHz    | 13                 | +1              | 12                    | 14                    |
| 802.11n HT40 | 2422-2452MHz    | 13                 | +1              | 12                    | 14                    |

The measured conducted Average Power

| Mode         | Frequency (MHz) | Averaged Power (dBm) |
|--------------|-----------------|----------------------|
| BT-LE (GFSK) | 2440            | 1.99                 |
| 802.11b      | 2437            | 14.82                |
| 802.11g      | 2412            | 13.09                |
| 802.11n HT20 | 2437            | 12.79                |
| 802.11n HT40 | 2437            | 13.21                |

| FREQUENCY BAND (MHz) | MAX AVERAGE POWER (dBm) | ANTENNA GAIN (dBi) | DISTANCE (cm) | POWER DENSITY (mW/cm <sup>2</sup> ) | LIMIT (mW/cm <sup>2</sup> ) |
|----------------------|-------------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| BT 2402-2480         | 3                       | 1.6                | 20            | 0.000574                            | 1.0                         |
| WiFi 2412-2462       | 16                      | 2                  | 20            | 0.012552                            | 1.0                         |

## CONCLUSION:

The BT and WLAN can transmit simultaneously, the formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$(0.000574/1) + (0.012552/1) = 0.013126 < 1, \text{ which is less than the "1" limit.}$$

--- END ---