



MPE Test Report

Report No.: BUMK-ESH-P20122218B-4

FCC ID: 2ANTYB0040

Product: Smart Door Lock

Model: 2354X

Received Date: Dec.29, 2020

Test Date: Dec.29, 2020 to Jan.11.2021

Issued Date: Jan.12.2021

Applicant: HAMPTON PRODUCTS INTERNATIONAL CORP.

Address: 50 Icon, Foothill Ranch CA 92610-3000 USA

Manufacturer: Taiwan Fu Hsing Industrial 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 |
|-----------------------|------------------|-------------|
| BUMK-ESH-P20122218B-4 | Original release | Jan.12.2021 |



1 Certificate of Conformity

Product: Smart Door Lock

Brand: --

Model: 2354X

Applicant: HAMPTON PRODUCTS INTERNATIONAL CORP.


Test Date: Dec.29, 2020 to Jan.11.2021

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

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.

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Project Engineer

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Daniel SUN
EMC Lab Manager



2 General Information

2.1 General Description of EUT

WiFi

| | |
|-----------------------|---|
| Product | Smart Door Lock |
| Brand | -- |
| Test Model | 2354X |
| Model Difference | -- |
| Power Rating | Powered by battery |
| Modulation Type | CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM |
| Modulation Technology | DSSS, OFDM |
| Operating Frequency | 2412MHz-2462MHz |
| Number of Channel | 802.11b, 802.11g and 802.11n (HT20):11 |
| Antenna Type | PIFA Antenna |
| Antenna Connector | -- |
| Antenna Gain | High Ant:3.38dBi; Low Ant:2.71dBi |

Note:

1. For more details, please refer to the User's manual of the EUT.
2. The EUT is matched with two different gain antennas. In addition to the different gain and material (one metal + bracket, the other is FPC + bracket), other characteristics of the antenna are almost the same. They are all PIFA antennas.

BLE

| | |
|-----------------------|-----------------------------------|
| Product | Smart Door Lock |
| Brand | -- |
| Test Model | 2354X |
| Model Difference | -- |
| Power Rating | Powered by battery |
| Modulation Type | GFSK |
| Modulation Technology | Bluetooth Low Energy 4.2&5.0 |
| Operating Frequency | 2402 ~ 2480MHz |
| Number of Channel | 40 |
| Antenna Type | PIFA Antenna |
| Antenna Connector | -- |
| Antenna Gain | High Ant:3.38dBi; Low Ant:2.71dBi |

Note:

1. For more details, please refer to the User's manual of the EUT.
2. The EUT is matched with two different gain antennas. In addition to the different gain and material (one metal + bracket, the other is FPC + bracket), other characteristics of the antenna are almost the same. They are all PIFA antennas.

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) |
|----------------------|----------------------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN 2.4GHz | | | | | |
| 2412-2462 | 16.08 | 3.38 | 20 | 0.0175772 | 1 |
| BLE | | | | | |
| 2402-2480 | 8.10 | 3.38 | 20 | 0.0027987 | 1 |

Conclusion:

The calculation result of MPE is less than the limit.

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