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.

Address: No.88, Yucai Rd., Gangshan Dist.,Kaohsiung City 820, Taiwan R.O.C.

Issued By: BUREAU VERITAS ADT (Shanghai) Corporation

Lab Address: No. 829, Xinzhuan Road, Shanghai, P.R.China (201612)

ACCREDITED
Test Lab
Cert 2343.01

Table of Contents

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.

Prepared by : Yuan Zhang , **Date:** Jan.12.2021

Yuan ZHANG

Project Engineer

Approved by : , **Date:** Jan.12.2021

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/cm^2

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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