FranklinWH Technologies Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
aGate X

REPORT NUMBER:
211102597SHA-002

ISSUE DATE:
July 8, 2022

DOCUMENT CONTROL NUMBER:
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TEST REPORT

Report no.: 211102597SHA-002

Applicant:	FranklinWH Technologies Co., Ltd. Room 301, Building 5A Skyworth Innovation Park, No.8 Tangtou 1st Road, Tangtou community Shiyan sub-district , Baoan District, Shenzhen, Guangdong, China
Manufacturer:	FranklinWH Technologies Co., Ltd. Room 301, Building 5A Skyworth Innovation Park, No.8 Tangtou 1st Road, Tangtou community Shiyan sub-district , Baoan District, Shenzhen, Guangdong, China
Manufacturing site:	Mianyang Jiancheng Hengrui Group Co., Ltd, Dongguan Branch. No.19, Shipai Taihe West Road, Shipai town, Dongguan,GuangDong Province China
FCC ID:	2A34J-AGATEX

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:
KDB447498 D01 General RF Exposure Guidance v06 FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:	**REVIEWED BY:**
Project Engineer Sky Yang	Reviewer Wakeyou Wang

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Revision History

Report No.	Version	Description	Issued Date
211102597SHA-002	Rev. 01	Initial issue of report	July 8, 2022

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	aGate
Type/Model:	aGate X
Description of EUT:	Energy storage control system
Rating:	120/240VAC Split
EUT type:	☐ Table top ☒ Floor standing
Software Version:	V10R00B00
Hardware Version:	A05
Sample received date:	November 25, 2021
Date of test:	November 25, 2021 to December 18, 2021

1.2 Technical Specification

Frequency Range:	2412MHz ~ 2472MHz
Support Standards:	IEEE 802.11g
Type of Modulation:	IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Channel Number:	11 Channels for 802.11g
Data Rate:	IEEE 802.11g: Up to 54 Mbps
Channel Separation:	5 MHz
Antenna Information:	5dBi, FPC Antenna

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab Registration code No.: 2042B-1
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

All tests were sub-contracted.

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng Science and Technology Park, Longhua District, Shenzhen, China 518109

Telephone: +86 (0) 755 2823 0888

Fax: +86 (0) 755 2823 0886

All tests were sub-contracted at Shenzhen UnionTrust Quality and Technology Co., Ltd, and conducted by Dylan Zhang

Reviewed and approved by Wakeyou Wang from Intertek Testing Services Shanghai.

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

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IC-Registration No.: 21600-1

The 3m Semi-anechoic chamber of Shenzhen UnionTrust Quality and Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 21600-1.

A2LA-Lab Certificate No.: 4312.01

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	**1**	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density.

Exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

2.2 Assessment Results

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

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

Where S = power density in mW/cm^2

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 211102597SHA-001:
The maximum EIRP = 25.81dBm = 381.07 mW;
Here R is chosen to be 20cm,

$S1 = EIRP/4\pi R^2 = 381.07 / (4 * 3.14 * 20 * 20) = 0.0758\ mW/cm^2 < 1\ mW/cm^2$

The maximum LTE EIRP = 0.244W

$S2 = EIRP/4\pi R^2 = 244.00 / (4 * 3.14 * 20 * 20) = 0.0486\ mW/cm^2 < 0.527\ mW/cm^2$

Results for transmit simultaneously

No.	Configurations	Maximum MPE Value			Limits
		WLAN	LTE	Transmit simultaneously	
1	2.4G WI-FI + LTE	0.0758	0.0486	0.1680	1

Note:
According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

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Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

********** END **********