



# RF Exposure evaluation

**Product Name** : Smart Wierless Battry machine  
**Brand Name** : N/A  
**Model** : YH-A29S-i-4GNA-vsım  
**Series Model** : N/A  
**FCC ID** : 2BGO4-YH-A29S  
**Applicant** : **Dongguan cloud fox intelligent Co., LTD**  
**Address** : 302, Building 1, No. 17, Longjing Road, Guanjingtou, Fenggang Town, Dongguan City, Guangdong Province, China  
**Manufacturer** : **Dongguan cloud fox intelligent Co., LTD**  
**Address** : 302, Building 1, No. 17, Longjing Road, Guanjingtou, Fenggang Town, Dongguan City, Guangdong Province, China  
**Standard(s)** : 47CFR §1.1310, 47CFR §2.1091  
KDB447498 D01 General RF Exposure Guidance v06  
**Date of Receipt** : July 17, 2025  
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Note: This device has been tested and found to comply with the standard(s) listed, this test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory. This report shall not be reproduced except in full, without the written approval of Guangdong Asia Hongke Test Technology Limited. If there is a need to alter or revise this document, the right belongs to Guangdong Asia Hongke Test Technology Limited, and it should give a prior written notice of the revision document. This test report must not be used by the client to claim product endorsement.



**Report Revise Record**

Report Version	Issued Date	Notes
M1	July 31, 2025	Initial Release

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# 1 GENERAL INFORMATION

## 1.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

## 1.2 General Description of EUT

Product Name:	Smart Wierless Battry machine
Model/Type reference:	YH-A29S-i-4GNA-vsım
Serial Model:	N/A
Power Supply:	DC 3.7V from battery or DC 5V from external circuit
Hardware Version:	N/A
Software Version:	N/A
Sample(s) Status:	AiTSZ-250717003-1(Normal sample) AiTSZ-250717003-2(Engineer sample)
<b>LTE:</b>	
Operation Band:	FDD-LTE: Band 2/4/5/12/13/17/66 TDD-LTE: Band 38/41
Support Bandwidth:	Band 2: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 4: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 5: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz Band 12: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz Band 13: <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz Band 17: <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz Band 66: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 38: <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 41: <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz
Frequency Range:	Band 2:uplink 1850MHz to 1910MHz; downlink 1930MHz to 1990MHz Band 4:uplink 1710MHz to 1755MHz; downlink 2110MHz to 2155MHz Band 5:uplink 824MHz to 849MHz; downlink 869MHz to 894MHz Band 12:uplink 699MHz to 716MHz; downlink 729MHz to 746MHz Band 13:uplink 777MHz to 787MHz; downlink 746MHz to 756MHz Band 17:uplink 704MHz to 716MHz;downlink 734MHz to 746MHz Band 66:uplink 1710MHz to 1780MHz;downlink 2110MHz to 2200MHz Band 38:uplink 2570MHz to 2620MHz;downlink 2570MHz to 2620MHz Band 41:uplink 2555MHz to 2655MHz;downlink 2555MHz to 2655MHz
UE category	Cat. 1
Power Class:	Power Class 3
Modulation Type:	QPSK, 16QAM
Antenna type:	PIFA Antenna
Antenna gain:	LTE Band 2:1.89dBi, LTE Band 4:2.26dBi, LTE Band 5:1.69dBi, LTE Band 12:0.39dBm, LTE Band 13:1.39dBi, LTE Band 17: 0.39dB, LTE Band 66:2.26dBi, LTE Band 38:1.86dBi, LTE Band 41:1.86dBi
<b>Remark:</b> The above DUT's information was declared by manufacturer. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.	

### 1.3 Test Facility

#### Test Laboratory:

**Guangdong Asia Hongke Test Technology Limited**

B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

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

**FCC-Registration No.: 251906 Designation Number: CN1376**

Guangdong Asia Hongke Test Technology Limited 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.

**IC —Registration No.: 31737 CAB identifier: CN0165**

The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

**A2LA-Lab Cert. No.: 7133.01**

Guangdong Asia Hongke Test Technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

### 1.4 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Guangdong Asia Hongke Test Technology Limited's quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Asia Hongke laboratory is reported:

Test	Measurement Uncertainty	Notes
Power Line Conducted Emission	9KHz~30MHz $\pm 1.20$ dB	(1)
Radiated Emission	9KHz~30MHz $\pm 3.10$ dB	(1)
Radiated Emission	30MHz ~1GHz $\pm 3.75$ dB	(1)
Radiated Emission	1GHz~18GHz $\pm 3.88$ dB	(1)
Radiated Emission	18GHz-40GHz $\pm 3.88$ dB	(1)
RF power, conducted	30MHz~6GHz $\pm 0.16$ dB	(1)
RF power density, conducted	$\pm 0.24$ dB	(1)
Spurious emissions, conducted	$\pm 0.21$ dB	(1)
Temperature	$\pm 1^{\circ}\text{C}$	(1)
Humidity	$\pm 3\%$	(1)
DC and low frequency voltages	$\pm 1.5\%$	(1)
Time	$\pm 2\%$	(1)
Duty cycle	$\pm 2\%$	(1)
Bandwidth	$\pm 1.5 \times 10^{-6}$	(1)

The report uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty Multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

## 2 Method of measurement

### 2.1 Applicable Standard

According to §1.1307(b)(1), 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 level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

FCC KDB447498 D01 General RF Exposure Guidance v06: Mobile and Portable Device, RF Exposure, Equipment Authorization Procedures

### 2.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

\*=Plane-wave equivalent power density

## 2.3 MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

## 2.4 Manufacturing Tolerance

### WWAN

Band	Target Power (dBm)	Tolerance (dBm)
LTE BAND 2	23.0	+2/-2dBm
LTE BAND 4	22.0	+2/-2dBm
LTE BAND 5	22.5	+2/-2dBm
LTE BAND 12	22.0	+2/-2dBm
LTE BAND 13	22.5	+2/-2dBm
LTE BAND 17	22.0	+2/-2dBm
LTE BAND 66	22.5	+2/-2dBm
LTE BAND 38	21.0	+2/-2dBm
LTE BAND 41	20.0	+2/-2dBm

## 2.5 MPE Result

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance,  $r = 20\text{cm}$ , as well as the gain of the used antenna, the RF power density can be obtained.

### Standalone Evaluation

Modulation Type	Frequency	Output power with tune_up		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	MHz	dBm	mW				
LTE BAND 2	1850.7	25.0	316.2278	1.89	1.5453	0.09721	1.0000
LTE BAND 4	1710.7	24.0	251.1886	2.26	1.6827	0.08409	1.0000
LTE BAND 5	824.7	24.5	281.8383	1.69	1.4757	0.08274	0.5498
LTE BAND 12	699.7	24.0	251.1886	0.39	1.0940	0.05470	0.4665
LTE BAND 13	779.5	24.5	281.8383	1.39	1.3772	0.07720	0.5197
LTE BAND 17	706.5	24.0	251.1886	0.39	1.0940	0.05470	0.4710
LTE BAND 66	1710.7	24.5	281.8383	2.26	1.6827	0.09435	1.0000
LTE BAND 38	2572.5	23.0	199.5262	1.86	1.5346	0.06092	1.0000
LTE BAND 41	2557.5	22.0	158.4893	1.86	1.5346	0.04839	1.0000

Remark: MPE evaluate distance is 20cm from user manual provide by manufacturer.

## 2.6 Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

\*\*\*\*\* End of Report \*\*\*\*\*