



FCC RF Exposure Evaluation

FOR

Huamao Zongheng Control Technology (Suzhou) Co., Ltd

High frequency reader/writer

Test Model: AU3 IHR-3006-TCP

Additional Model No.: Please Refer to Page 6

Prepared for : Huamao Zongheng Control Technology (Suzhou) Co., Ltd
Address : Room 1301, Science and Technology Plaza, Qianjin East Road,
Kunshan Development Zone, Jiangsu Province

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : March 05, 2025
Number of tested samples : 2
Sample No. : A250226040-1, A250226040-2
Serial number : Prototype
Date of Test : March 05, 2025 ~ March 20, 2025
Date of Report : March 21, 2025



**RF Exposure Evaluation****Report Reference No.** : LCSA03045049EB**Date of Issue** : March 21, 2025**Testing Laboratory Name** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Address** : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China**Testing Location/ Procedure** : Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing method ☐**Applicant's Name** : Huamao Zongheng Control Technology (Suzhou) Co., Ltd**Address** : Room 1301, Science and Technology Plaza, Qianjin East Road, Kunshan Development Zone, Jiangsu Province**Test Specification****Standard** : ANSI C95.1-2019
FCC KDB publication 447498 D01 General 1 RF Exposure
Guidance v06
FCC CFR 47 part1 1.1310
FCC CFR 47 part2 2.1091**Test Report Form No.** : TRF-4-E-214 A/0**TRF Originator** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Master TRF** : Dated 2011-03**Shenzhen LCS Compliance Testing Laboratory Ltd. All rights reserved.**

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Test Item Description : High frequency reader/writer**Trade Mark** : WELLAUTO**Test Model** : AU3 IHR-3006-TCP**Ratings** : DC 12-36V or DC 48V by POE**Result** : Positive**Compiled by:**

Diamond Lu/ Administrator

Supervised by:

Jack Liu/ Technique principal

Approved by:

Gavin Liang/ Manager



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RF Exposure Evaluation

Test Report No. :	LCSA03045049EB	<u>March 21, 2025</u> Date of issue
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Test Model.....	: AU3 IHR-3006-TCP
EUT.....	: High frequency reader/writer
Applicant.....	: Huamao Zongheng Control Technology (Suzhou) Co., Ltd
Address.....	: Room 1301, Science and Technology Plaza, Qianjin East Road, Kunshan Development Zone, Jiangsu Province
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: Huamao Zongheng Control Technology (Suzhou) Co., Ltd
Address.....	: Room 1301, Science and Technology Plaza, Qianjin East Road, Kunshan Development Zone, Jiangsu Province
Telephone.....	: /
Fax.....	: /
Factory.....	: Huamao Zongheng Control Technology (Suzhou) Co., Ltd
Address.....	: Room 1301, Science and Technology Plaza, Qianjin East Road, Kunshan Development Zone, Jiangsu Province
Telephone.....	: /
Fax.....	: /

Test Result	Positive
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The 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.





Revision History

Report Version	Issue Date	Revision Content	Revised By
000	March 21, 2025	Initial Issue	---





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1. Product Information

EUT	High frequency reader/writer
Test Model	AU3 IHR-3006-TCP
Additional Model No.	AU3 IHR-3001-232, AU3 IHR-3001-485, AU3 IHR-3001-IOL, AU3 IHR-3002-232, AU3 IHR-3002-485, AU3 IHR-3002-IOL, AU3 IHR-3004-COM, AU3 IHR-3004-EIP, AU3 IHR-3004-CCL, AU3 IHR-3004-ECT, AU3 IHR-3004-PNT, AU3 IHR-3004-IOL, AU3 IHR-3006-COM, AU3 IHR-3006-EIP, AU3 IHR-3006-CCL, AU3 IHR-3006-ECT, AU3 IHR-3006-PNT, AU3 IHR-3006-IOL, AU3 IHR-3007-COM, AU3 IHR-3007-TCP, AU3 IHR-3007-EIP, AU3 IHR-3007-CCL, AU3 IHR-3007-ECT, AU3 IHR-3007-PNT, AU3 IHR-3007-IOL, AU3 IHR-3011-COM, AU3 IHR-3011-TCP, AU3 IHR-3011-EIP, AU3 IHR-3011-CCL, AU3 IHR-3011-ECT, AU3 IHR-3011-PNT, AU3 IHR-3011-IOL, AU3 IHR-M3021, AU3 IHR-M3022, AU3 IA-2001, AU3 IA-2002, AU3 IA-2011, AU3 IA-2012
Model Declaration	PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Ratings	DC 12-36V or DC 48V by POE
Hardware Version	/
Software Version	/
RFID	
Operating Frequency	13.56MHz
Modulation Type	ASK
Antenna Description	Internal Antenna, 0dBi(Max.)
Exposure category	General population/uncontrolled environment
EUT Type	Production Unit
Device Type	Mobile Devices





2. Evaluation method and Limit

Systems operating under the provisions of FCC 47 CFR 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. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.

3.2 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 ²)	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 ²)*	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 ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100)*	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	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

4. 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

Note: In the report, evaluation/test results are only relevant to the sample being tested.



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5. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Radiation Uncertainty	9KHz~30MHz	±3.10dB	(1)
	30MHz~200MHz	±2.96dB	(1)
	200MHz~1000MHz	±3.10dB	(1)
	1GHz~26.5GHz	±3.80dB	(1)
	26.5GHz~40GHz	±3.90dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

6. Conducted Power

Test Procedure

TX frequency range: 13.56MHz, Limit: $1824/13.56=60.77\text{V/m}$

Device category: Mobile device (Distance: 20cm)

Max. Field Strength: 30.15dBuV/m @3m

@20cm=@3m+40*log(3/0.2)= 77.19dBuV/m

For 13.56MHz: $77.19\text{dBuV/m}=10^{(77.19/20)}/10^6=0.0072\text{V/m}<60.77\text{V/m}$

7. Conclusion

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

8. Description of Test Facility

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

Test Firm Registration Number: 254912.

.....THE END OF REPORT.....



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