



中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



RF EXPOSURE EVALUATION

Applicant: AKUVOX (XIAMEN) NETWORKS CO., LTD.

Address: 10/F, No.56 Guanri Road, Software Park II, Xiamen 361009, China

FCC ID: 2AHCR-R29CV3

Product Name: Door Phone

Standard(s): 47 CFR §1.1310, 47 CFR §2.1091
447498 D01 General RF Exposure Guidance v06

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR230740683-00F

Date Of Issue: 2023/12/11

Reviewed By: Julie Tan
Title: RF Engineer

Julie Tan

Approved By: Sun Zhong
Title: Manager

Sun Zhong

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

This report cannot be reproduced except in full, without prior written approval of the Company.

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk “★”.

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230740683-00F	Original Report	2023/12/11

1.1 Applicable Standard

According to subpart §1.1310, 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.

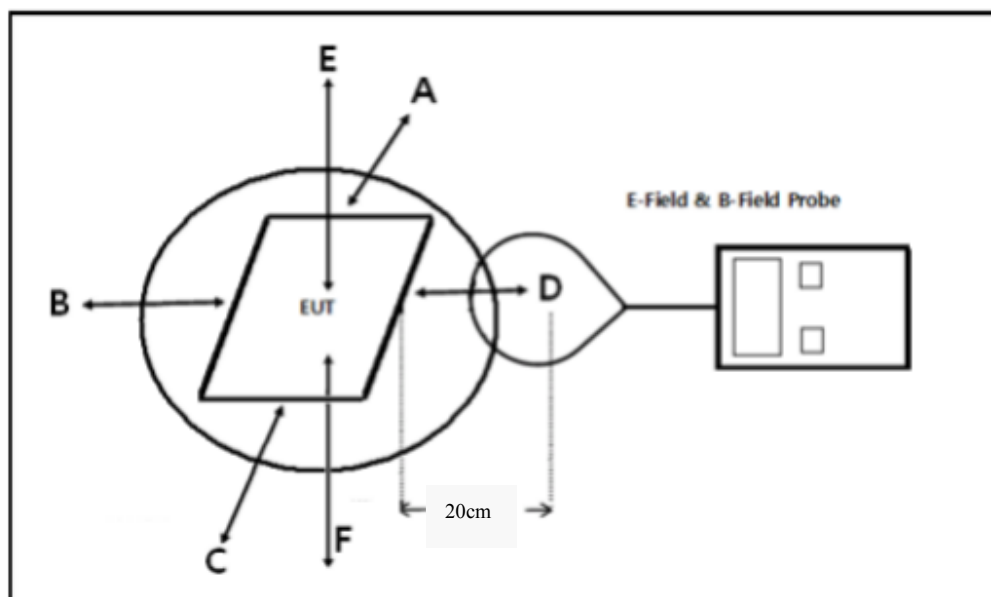
Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (Mw/cm ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	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;

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

1.2 Block Diagram of Test Setup For RFID



Test Procedure:

H-Field & E-Field Probe instrument was used to test and record magnetic and electric fields in five directions A, B, C, D and E at a distance of 20cm from EUT.

1.3 Calculation formula For Power Density:

Prediction of power density at the distance of the applicable MPE limit

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

1.4 Test Data For 128kHz RFID:

Serial Number:	28EX-1	Test Date:	2023/12/11
Test Site:	RF	Test Mode:	Transmitting
Tester:	Vic Du	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.2	Relative Humidity: (%)	50	ATM Pressure: (kPa)	100.9
----------------------	------	---------------------------	----	---------------------------	-------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Narda	Electric and Magnetic Field Probe-Analyzer	EHP-200AC	180ZX10204	2021/06/07	2024/06/06

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

H-Field Strength:

Frequency Range (kHz)	Position A (A/m)	Position B (A/m)	Position C (A/m)	Position D (A/m)	Position E (A/m)	Limit (A/m)
128	0.164	0.169	0.1645	0.17	0.1583	1.63

Note: Test with 15cm distance from the center of the probe(s) to the edge of the device, 20 cm for top test.

E-Field Strength:

Frequency Range (kHz)	Position A (V/m)	Position B (V/m)	Position C (V/m)	Position D (V/m)	Position E (V/m)	Limit (V/m)
128	0.5557	0.4598	0.4436	0.509	0.4793	614

Note: Test with 15cm distance from the center of the probe(s) to the edge of the device, 20 cm for top test.

Note: according to KDB 680106 D01 Wireless Power Transfer v04 clause 3.2, for all RF devices, the MPE limits between 100 kHz to 300 kHz are to be considered the same as those at 300 kHz in Table 1 of § 1.1310, that is, 614V/m and 1.63 A/m, for the electric field and magnetic field, respectively.

1.5 Power Density Calculation:

Operation Modes	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
Bluetooth BDR/EDR	2402-2480	-2.3	0.59	0	1.00	20.00	0.0001	1.0
Bluetooth LE	2402-2480	-2.3	0.59	-1.5	0.71	20.00	0.0001	1.0
2.4G Wifi	2412-2462	-2.3	0.59	15.0	31.62	20.00	0.0037	1.0
Note: The Above Parameters were provided by the manufacturer.								

Operation Modes	Frequency (MHz)	Antenna Gain		EIRP including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
NFC(13.56MHz)	13.56	/	/	-29.0	0.001	20.00	<<0.0001	0.98
Note: 1. The Above Parameters were provided by the manufacturer. 2. *NFC field strength is 65.93BμV/m @ 3m = -29.27 dBm(0.001mW) EIRP.								

Simultaneous transmission:

BDR/EDR can't transmission simultaneously with BLE and 2.4G Wifi, but 128kHz RFID , NFC, Bluetooth /2.4G Wifi can transmission simultaneously:

$$S_{2.4G\ Wifi}/S_{limit-2.4G\ Wifi} + S_{NFC}/S_{limit-NFC} + H_{RFID}/H_{limit}$$

$$=0.0037/1+0.0001/0.98+0.17/1.63$$

$$=0.108$$

$$< 1.0$$

Result: The device meet FCC MPE at 20 cm distance

TEST SETUP PHOTOGRAPHS

Right Side	 A photograph showing the right side of the test setup. A yellow measuring tape is positioned horizontally above the device. The device is a silver-colored unit with a black screen displaying a grid pattern. To the right of the device is a white rectangular component labeled 'EMIP-200'.
Bottom Side	 A photograph showing the bottom side of the test setup. A yellow measuring tape is positioned horizontally above the device. The device is a silver-colored unit with a black screen displaying a grid pattern. To the right of the device is a white rectangular component labeled 'EMIP-200'.
Left Side	 A photograph showing the left side of the test setup. A yellow measuring tape is positioned horizontally above the device. The device is a silver-colored unit with a black screen displaying a grid pattern. To the right of the device is a white rectangular component labeled 'EMIP-200'.

Top Side	
Front Side	

===== END OF REPORT =====