

RF Exposure Evaluation Report


Applicant: AISolution Co., Ltd.

Address of Applicant: 28-4, Samyang-ro 29-gil, Gangbuk-gu, Seoul, South Korea

Equipment Under Test (EUT)

Product Name: KDC180 Bluetooth Barcode Scanner

Model No.: KDC180

Trade mark: 

FCC ID: VH9KDC180

Applicable standards: FCC CFR Title 47 Part 2 Subpart J Section 2.1093

Date of sample receipt: 06 Nov., 2019

Date of Test: 07 Nov., 2019 to 19 Mar., 2020

Date of report issue: 20 Mar., 2020

Test Result: PASS*

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	20 Mar., 2020	Original

Tested by:

Yao Wu
Test Engineer

Date:

20 Mar., 2020

Reviewed by:

Winner Zhang
Project Engineer

Date:

20 Mar., 2020

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4 General Information

4.1 Client Information

Applicant:	AlSolution Co., Ltd.
Address:	28-4, Samyang-ro 29-gil, Gangbuk-gu, Seoul, South Korea
Manufacturer/ Factory:	AlSolution Co., Ltd.
Address:	28-4, Samyang-ro 29-gil, Gangbuk-gu, Seoul, South Korea

4.2 General Description of E.U.T.

Product Name:	KDC180 Bluetooth Barcode Scanner
Model No.:	KDC180
Operation Frequency:	BLE: 2402MHz~2480MHz
Modulation technology:	BLE: GFSK
Antenna Type:	Internal Antenna
Antenna gain:	BLE: -2.19 dBi
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

4.3 Operating Modes

Operating mode	Detail description
BLE mode	Keep the EUT in continuously transmitting in BLE mode

4.4 Additions to, deviations, or exclusions from the method

No

4.5 Laboratory Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC - Designation No.: CN1211 Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551. ● ISED – CAB identifier.: CN0021 The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1. ● CNAS - Registration No.: CNAS L6048 Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048. ● A2LA - Registration No.: 4346.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf
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4.6 Laboratory Location

<p>Shenzhen Zhongjian Nanfang Testing Co., Ltd. Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info@ccis-cb.com, Website: http://www.ccis-cb.com</p>
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5 Technical Requirements Specification in FCC CFR Title 47 Part 2.1093

5.1 Limits

According to 447498 D01 General RF Exposure Guidance v06 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

5.2 Result

Worse case for BLE as below:

[2402MHz: -2.48dBm (0.56 mW) output power]

$(0.56 \text{ mW} / 5\text{mm}) \cdot [\sqrt{2.402(\text{GHz})}] = 0.174 < 3.0$ for 1-g SAR

5.3 Conclusion

The device is exempt from the RF exposure evaluation.

-----End of report-----