



# RF Exposure Evaluation Report

**Applicant:** Shenzhen VANCH Intelligent Technology Co., Ltd

**Address of Applicant:** Floor 4, Building B west side, QingHu FuAnNa industrial zone, QingNing road 1, LongHua district, Shenzhen, Guangdong, China 518109

**Equipment Under Test (EUT)**

Product Name: UHF RFID Industrial Reader

Model No.: VI-IR610P

FCC ID: 2A3H9VI-IR610P

Applicable standards: FCC CFR Title 47 Part 2 (§2.1091)

Date of sample receipt: 20 Jun., 2022

Date of Test: 21 Jun., 2022 to 02 Feb., 2023

Date of report issue: 03 Feb., 2023

Test Result: PASS

Tested by:

*Mike DU*

Test Engineer

Date:

03 Feb., 2023

Reviewed by:

*Wenwen Zhang*

Project Engineer

Date:

03 Feb., 2023

Approved by:

*Wenwen Zhang*

Manager

Date:

03 Feb., 2023

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

## 1 Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | 03 Feb., 2023 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |

## 2 Contents

|                                                                   | Page     |
|-------------------------------------------------------------------|----------|
| <b>Cover Page .....</b>                                           | <b>1</b> |
| <b>1 Version .....</b>                                            | <b>2</b> |
| <b>2 Contents.....</b>                                            | <b>3</b> |
| <b>3 General Information.....</b>                                 | <b>4</b> |
| 3.1 Client Information .....                                      | 4        |
| 3.2 General Description of E.U.T. ....                            | 4        |
| 3.3 Operating Modes.....                                          | 4        |
| 3.4 Additions to, deviations, or exclusions from the method ..... | 4        |
| 3.5 Laboratory Facility .....                                     | 5        |
| 3.6 Laboratory Location.....                                      | 5        |
| <b>4 Technical Requirements Specification .....</b>               | <b>6</b> |
| 4.1 Limits .....                                                  | 6        |
| 4.2 Test Procedure .....                                          | 6        |
| 4.3 Result .....                                                  | 7        |
| 4.4 Conclusion.....                                               | 7        |

### 3 General Information

#### 3.1 Client Information

|                       |                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:            | Shenzhen VANCH Intelligent Technology Co., Ltd                                                                                     |
| Address:              | Floor 4, Building B west side, QingHu FuAnNa industrial zone, QingNing road 1, LongHua district, Shenzhen, Guangdong, China 518109 |
| Manufacturer/Factory: | Shenzhen VANCH Intelligent Technology Co., Ltd                                                                                     |
| Address:              | Floor 4, Building B west side, QingHu FuAnNa industrial zone, QingNing road 1, LongHua district, Shenzhen, Guangdong, China 518109 |

#### 3.2 General Description of E.U.T.

|                        |                                                                               |
|------------------------|-------------------------------------------------------------------------------|
| Product Name:          | UHF RFID Industrial Reader                                                    |
| Model No.:             | VI-IR610P                                                                     |
| Operation Frequency:   | 902.5 MHz – 927.5 MHz                                                         |
| Modulation technology: | ASK                                                                           |
| Antenna Type:          | Internal Antenna                                                              |
| Antenna gain:          | 2 dBi                                                                         |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

#### 3.3 Operating Modes

| Operating mode    | Detail description                                             |
|-------------------|----------------------------------------------------------------|
| Transmitting mode | Keep the EUT in continuously transmitting in Transmitting mode |

#### 3.4 Additions to, deviations, or exclusions from the method

|    |
|----|
| No |
|----|

### 3.5 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen 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 and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen 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 L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 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>

### 3.6 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTee@lets.com, Website: <http://jyt.lets.com>

## 4 Technical Requirements Specification

### 4.1 Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

| Frequency range (MHz)                                   | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|---------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposures        |                               |                               |                                     |                          |
| 0.3–3.0                                                 | 614                           | 1.63                          | *(100)                              | 6                        |
| 3.0–30                                                  | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | 6                        |
| 30–300                                                  | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300–1500                                                |                               |                               | f/300                               | 6                        |
| 1500–100,000                                            |                               |                               | 5                                   | 6                        |
| (B) Limits for General Population/Uncontrolled Exposure |                               |                               |                                     |                          |
| 0.3–1.34                                                | 614                           | 1.63                          | *(100)                              | 30                       |
| 1.34–30                                                 | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | 30                       |
| 30–300                                                  | 27.5                          | 0.073                         | 0.2                                 | 30                       |
| 300–1500                                                |                               |                               | f/1500                              | 30                       |
| 1500–100,000                                            |                               |                               | 1.0                                 | 30                       |

### 4.2 Test Procedure

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

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

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

R = distance to the centre of radiation of the antenna

### 4.3 Result

| Frequency (MHz) | Maximum Output power (dBm) | Maximum Output power (mW) | Antenna Gain (dBi) | Antenna Gain (numeric) | Distance (cm) | Result (mW/cm <sup>2</sup> ) | Limits for General Population/ Uncontrolled Exposure (mW/cm <sup>2</sup> ) |
|-----------------|----------------------------|---------------------------|--------------------|------------------------|---------------|------------------------------|----------------------------------------------------------------------------|
| 902.5           | 23.62                      | 230.144                   | 2                  | 1.58                   | 20.00         | 0.0726                       | 0.602                                                                      |

Note: Just the worst case mode was shown in report.

### 4.4 Conclusion

The device is exempt from the SAR test and satisfies RF exposure evaluation.

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