

# 1 Cover Page

## RF Exposure Evaluation Report

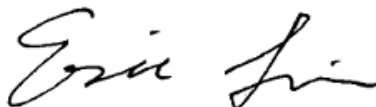
**Application No.:** KSCR2208001592AT  
**FCC ID:** 2AVK2AT10L4LDB-3007  
**Applicant:** Airtouch (Shanghai) Intelligent Technology Co., Ltd  
**Address of Applicant:** 11F, Building 4, Lane 388 Shengrong Rd, Pudong New District, Shanghai City, China  
**Manufacturer:** Airtouch (Shanghai) Intelligent Technology Co., Ltd  
**Address of Manufacturer:** 11F, Building 4, Lane 388 Shengrong Rd, Pudong New District, Shanghai City, China

### Equipment Under Test (EUT):

**EUT Name:** Millimeter wave radar module  
**Model No.:** AT10L4LDB-3007  
**Trade mark:** airtouching  
**Standard(s) :** FCC Rules 47 CFR §2.1093  
**Date of Receipt:** 2022-08-31  
**Date of Test:** 2022-09-02 to 2022-09-25  
**Date of Issue:** 2022-09-28

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

\* In the configuration tested, the EUT complied with the standards specified above.



Eric Lin  
Laboratory Manager

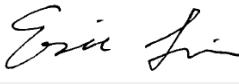


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| Revision Record |             |            |        |
|-----------------|-------------|------------|--------|
| Version         | Description | Date       | Remark |
| 00              | Original    | 2022-09-28 | /      |
|                 |             |            |        |
|                 |             |            |        |

|                          |  |                                                                                     |  |
|--------------------------|--|-------------------------------------------------------------------------------------|--|
| Authorized for issue by: |  |                                                                                     |  |
|                          |  |    |  |
|                          |  | Eric_Liu/Project Engineer                                                           |  |
|                          |  |  |  |
|                          |  | Eric Lin /Reviewer                                                                  |  |



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## 3 General Information

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

|               |                  |
|---------------|------------------|
| Power supply: | DC 3.5V – DC 12V |
|---------------|------------------|

### 3.2 Technical Specifications

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| Test voltage:         | DC 5V                                           |
| Number of Channels:   | 1                                               |
| Frequency:            | 10.5-10.55GHz                                   |
| Modulation Technique: | CW                                              |
| Antenna Type:         | Patch Antenna                                   |
| Output Power:         | PK: 98.83dBuV/m @3m<br>Average: 91.01dBuV/m @3m |



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## Compliance Certification Services (Kunshan) Inc.

Report No.: KSCR220800159202

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### Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

### 3.3 Test Facility

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

#### • CNAS

Compliance Certification Services (Kunshan) Inc. is accredited by the China National Accreditation Service for Conformity Assessment (CNAS). Registration No. CNAS L4354

#### • A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

#### • FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

#### • ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

#### • VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.



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## 4 FCC Radiofrequency radiation exposure limits

Test exemptions apply for devices used in general population/uncontrolled exposure environments, according to the SAR-based, or MPE-based exemption thresholds.

### 4.1 Blanket 1 mW Blanket Exemption

The 1 mW Blanket Exemption of §1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

The 1-mW blanket exemption applies at separation distances less than 0.5 cm, including where there is no separation. This exemption shall not be used in conjunction with other exemption criteria other than those for multiple RF sources in paragraph §1.1307(b)(3)(ii)(A).

The 1-mW exemption is independent of service type and covers the full range of 100 kHz to 100 GHz, but it shall not be used in conjunction with other exemption criteria or in devices with higher-power transmitters operating in the same time-averaging period. Exposure from such higher-power transmitters would invalidate the underlying assumption that exposure from the lower-power transmitter is the only contributor to SAR in the relevant volume of tissue.

### 4.2 MPE-based Exemption

General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

**Table B.1—Thresholds For Single RF Sources Subject to Routine Environmental Evaluation**

| RF Source Frequency |   |           | Minimum Distance   |   |                    | Threshold ERP                        |
|---------------------|---|-----------|--------------------|---|--------------------|--------------------------------------|
| $f_L$ MHz           |   | $f_H$ MHz | $\lambda_L / 2\pi$ |   | $\lambda_H / 2\pi$ | W                                    |
| 0.3                 | — | 1.34      | 159 m              | — | 35.6 m             | 1,920 R <sup>2</sup>                 |
| 1.34                | — | 30        | 35.6 m             | — | 1.6 m              | 3,450 R <sup>2</sup> /f <sup>2</sup> |
| 30                  | — | 300       | 1.6 m              | — | 159 mm             | 3.83 R <sup>2</sup>                  |
| 300                 | — | 1,500     | 159 mm             | — | 31.8 mm            | 0.0128 R <sup>2</sup> f              |
| 1,500               | — | 100,000   | 31.8 mm            | — | 0.5 mm             | 19.2R <sup>2</sup>                   |

Subscripts L and H are low and high;  $\lambda$  is wavelength.  
From §1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.

The table applies to any RF source (i.e. single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria



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apply at separation distances from any part of the radiating structure of at least  $\lambda/2\pi$ . The thresholds are based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.

For mobile devices that are not exempt per Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in §1.1310 is necessary if the ERP of the device is greater than  $ERP_{20cm}$  in Formula (B.1) [repeated from §2.1091(c)(1); also in §1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of  $\lambda/4$  or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

| Limit calculation |                |                      |                  |
|-------------------|----------------|----------------------|------------------|
| Frequency range   | Frequency(MHz) | $R(\lambda/2\pi)(m)$ | Threshold ERP(W) |
| 1500~100000MHz    | <b>10525</b>   | 0.0045               | 0.0004           |

Max power=91.01 dBuV/m @3m=-4.29 dBm=0.00037 W

**--End of the Report--**



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