

RF Exposure Evaluation Report

Applicant: Automotive Data Solutions Inc.

Address of Applicant: 8400 Bougainville Montreal Quebec Canada H4P 2G1

Equipment Under Test (EUT)

Product Name: CAR ALARM

Model No.: TR2350ACT

FCC ID: 2AEPJ-TR2350ACT

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

Date of sample receipt: 21 Mar., 2022

Date of Test: 22 Mar., to 12 Apr., 2022

Date of report issue: 13 Apr., 2022

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 JYT 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 | 13 Apr., 2022 | Original |
| | | |
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Tested by: Mike.ou
Test Engineer

Date: 13 Apr., 2022

Reviewed by: Winner Zhang
Project Engineer

Date: 13 Apr., 2022

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4 General Information

4.1 Client Information

| | |
|-----------------------|--|
| Applicant: | Automotive Data Solutions Inc. |
| Address: | 8400 Bougainville Montreal Quebec Canada H4P 2G1 |
| Manufacturer/Factory: | DONGGUAN PORTMAN ELECTRONIC SCIENCE AND TECHNOLOGY CO., LTD. |
| Address: | NO.10, LUYI 2 ROAD, TANGXIA TOWN, DONGGUAN CITY GUANGDONG PROVINCE |

4.2 General Description of E.U.T.

| | |
|------------------------|---|
| Product Name: | CAR ALARM |
| Model No.: | TR2350ACT |
| Operation Frequency: | 433.92MHz |
| Modulation technology: | FSK |
| Antenna Type: | Helix antenna |
| Antenna gain: | -1.25 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 |
|----------------|---|
| FSK mode | Keep the EUT in continuously transmitting in FSK mode |

4.4 Additions to, deviations, or exclusions from the method

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

4.5 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 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>

4.6 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://www.ccis-cb.com>

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

According to the calculation formula of power :

$$\text{EIRP} = P \cdot G = (E \cdot d)^2 / 30$$

Where:

P = transmitter output power in watts,

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator (unitless),

E = electric field strength in V/m, --- $10((\text{dBuV/m})/20)/106$,

d = measurement distance in meters (m)---3m,

So,

$$P = (E \cdot d)^2 / 30 \cdot G$$

| Frequency (MHz) | Maximum field strength@3m (dBuV/m) | Maximum field strength@3m (V/m) | Antenna Gain (dBi) | Antenna Gain (numeric) | Distance (m) | Output power (mW) |
|-----------------|-------------------------------------|---------------------------------|--------------------|------------------------|--------------|-------------------|
| 433.92 | 92.07 | 0.03 | -1.25 | 0.75 | 3 | 0.36 |

Thus, Worse case for FSK as below:

| Frequency (MHz) | Max Output power (mW) | Min test distance (mm) | Result | Limit of 10-g SAR test exclusion thresholds |
|-----------------|-----------------------|------------------------|--------|---|
| 433.92 | 0.36 | 5 | 0.048 | 7.5 |

5.3 Conclusion

Cuz $0.048 < 7.5$ for 10-g SAR, the device is exempt from the SAR test and satisfies RF exposure evaluation.

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