**SGS-CSTC Standards Technical Services Co., Ltd.**
**Shenzhen Branch**

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# RF Exposure Evaluation Report

| | |
|---|---|
| **Application No.:** | SZEM1704002817CR |
| **Applicant:** | Huizhou Artsun Industrial Company Limited |
| **Manufacturer:** | VOLANT ROC ELECTRONICS TECH CO., LTD |
| **Factory** | VOLANT ROC ELECTRONICS TECH CO., LTD |
| **Product Name:** | CAR Bluetooth MP3 |
| **Model No.(EUT):** | VM-201 |
| **Trade mark:** | AUTO DRIVE |
| **FCC ID:** | 2ALU4DX201A01 |
| **Standards:** | 47 CFR Part 1.1307 (2016) |
| | 47 CFR Part 1.1310 (2016) |
| **Date of Receipt:** | 2017-04-07 |
| **Date of Test:** | 2017-04-13 to 2017-05-03 |
| **Date of Issue:** | 2017-05-09 |
| **Test Result :** | **PASS*** |

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

Authorized Signature:


Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

# 2 Version

| Revision Record | | | | |
|---|---|---|---|---|
| **Version** | **Chapter** | **Date** | **Modifier** | **Remark** |
| 01 | | 2017-05-02 | | Original |
| | | | | |
| | | | | |

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|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| **Tested By** | |  | | 2017-05-09 |
| | | **Bill Chen /Project Engineer** | | **Date** |
| **Checked By** | |  | | 2017-05-09 |
| | | **Eric Fu /Reviewer** | | **Date** |

# 3 Contents

# 4 General Information

## 4.1 Client Information

| | |
|---|---|
| Applicant: | Huizhou Artsun Industrial Company Limited |
| Address of Applicant: | No.2,Floor 14th,Unit one,Ruihe Commercial Square,No.1 Yandayi Road, Henan'an District,Huizhou City 516007, Guangdong, China |
| Manufacturer: | VOLANT ROC ELECTRONICS TECH CO., LTD |
| Address of Manufacturer: | QianLi Industrial Park, Sandong Town, Huizhou City 516001,Guangdong Province,China |
| Factory: | VOLANT ROC ELECTRONICS TECH CO., LTD |
| Address of Factory: | QianLi Industrial Park, Sandong Town, Huizhou City 516001,Guangdong Province,China |

## 4.2 General Description of EUT

| | |
|---|---|
| Product Name: | CAR Bluetooth MP3 |
| Model No.: | VM-201 |
| Trade Mark: | AUTO DRIVE |
| Bluetooth Version: | V4.0 dual mode |
| Sample Type: | Fixed Product |
| For BT Classic: | |
| Operation Frequency: | 2402MHz~2480MHz |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS) |
| Modulation Type: | GFSK, π/4DQPSK, 8DPSK |
| Number of Channel: | 79 |
| Antenna Type and Gain: | Type : Integral<br>Gain : 0.5dBi |
| For BT BLE: | |
| Operation Frequency: | 2402MHz~2480MHz |
| Modulation Type: | GFSK |
| Number of Channel: | 40 |
| Antenna Type and Gain: | Type : Integral<br>Gain : 0.5dBi |
| Power Supply: | DC input 12V-24V |

## 4.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

## 4.4 Test Facility

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

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

## 4.5 Deviation from Standards

None.

## 4.6 Abnormalities from Standard Conditions

None.

## 4.7 Other Information Requested by the Customer

None.

# 5 RF Exposure Evaluation

## 5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

## 5.1.2 Limits

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:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

### 5.1.3 EUT RF Exposure

For BT Classic:

The Max Conducted Peak Output Power is 4.69dBm in middle channel(2.480GHz);

4.69dBm logarithmic terms convert to numeric result is nearly 2.94mW

According to the formula. calculate the test exclusion thresholds:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (2.94mW / 5 mm ) x √2.480GHz = 0.93①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.

For BT BLE:

The Max Conducted Peak Output Power is 7.6dBm in middle channel(2.480GHz);

7.6dBm logarithmic terms convert to numeric result is nearly 5.75mW

According to the formula. calculate the test exclusion thresholds:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (5.75mW / 5 mm ) x √2.480GHz = 1.81①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.