

## FCC TEST REPORT

**Product Name** : car alarm system receiver module  
**Trade Name** : avt  
**Model Name** : V500 MMAS  
**FCC ID** : ZCJTPKVSASRF1  
**Serial Number** : N/A  
**Technical Data** : DC 9~18V  
**Report Number** : EESZD03030005-2  
**Date** : Mar. 14, 2011  
**Regulations** : See below

Test Standards	Results
<input checked="" type="checkbox"/> FCC Part 15 Subpart B: 2009	PASS

Prepared for:

**Shenzhen Tongyijia Industrial Develop Co., Ltd.**  
**11/L, HANGDU BUILDING, NO.1006 HUAFU ROAD, SHENZHEN, CHINA**

Prepared by:

**CENTRE TESTING INTERNATIONAL (SHENZHEN) CORPORATION**  
**Building C, Hongwei Industrial Zone, Baoan 70 District,**  
**Shenzhen, Guangdong, China**  
**TEL: +86-755-3368 3362**  
**FAX: +86-755-3368 3385**

Check No.: 57126532

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## TABLE OF CONTENTS

Description	Page
<b>1. GENERAL INFORMATION .....</b>	<b>3</b>
<b>2. TEST SUMMARY .....</b>	<b>4</b>
<b>3. MEASUREMENT UNCERTAINTY .....</b>	<b>4</b>
<b>4. PRODUCT INFORMATION AND TEST SETUP .....</b>	<b>4</b>
<b>5. FACILITIES AND ACCREDITATIONS .....</b>	<b>5</b>
<b>6. RADIATED EMISSION TEST .....</b>	<b>6</b>
<b>APPENDIX 1 PHOTOGRAPHS OF TEST SETUP .....</b>	<b>10</b>
<b>APPENDIX 2 PHOTOGRAPHS OF EUT .....</b>	<b>11</b>

*(Note: N/A means not applicable)*

## 1. GENERAL INFORMATION

**Applicant:** Shenzhen Tongyijia Industrial Develop Co., Ltd.  
11/L, HANGDU BUILDING, NO.1006 HUAFU ROAD,  
SHENZHEN, CHINA

**Manufacturer:** Shenzhen Tongyijia Industrial Develop Co., Ltd.  
11/L, HANGDU BUILDING, NO.1006 HUAFU ROAD,  
SHENZHEN, CHINA

**Equipment Authorization:** Certification

**Product Name:** car alarm system receiver module

**Trade Name:** avt

**Model Name:** V500 MMAS

**Serial Number:** N/A

**Report Number:** EESZD03030005-2

**Date of Test:** Mar. 03, 2011 to Mar. 14, 2011

The results of this test report are only valid for the mentioned equipment under test. The test report with all its sub-reports, e.g. tables, photographs and drawings, is copyrighted. Unauthorized utilization, especially without permission of the test laboratory, is not allowed and punishable. For copying parts of the test report, a written permission by the test laboratory is needed.

The test results of this report relate only to the tested sample identified in this report.

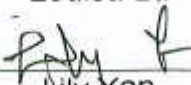
Prepared by :

  
Christy Chen

Reviewed by :

  
Louisa Lu

Approved by :

  
Lily Yan  
Supervisor



Date

Mar. 14, 2011

## 2. TEST SUMMARY

The EUT has been tested according to the following specifications:

Standard	Test Item	Test
FCC 15.107	Conducted Emission	N/A*
FCC 15.109	Radiated Emission	Yes

\* The power supply of EUT is by DC.

## 3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Radiated Emission	4.4

## 4. PRODUCT INFORMATION AND TEST SETUP

### 4.1. PRODUCT INFORMATION

Technical Data: DC 9~18V

### 4.2. TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### 4.3. SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

## 5. FACILITIES AND ACCREDITATIONS

### 5.1. TEST FACILITY

All test facilities used to collect the test data are located at Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

### 5.2. TEST EQUIPMENT LIST

**Instrumentation:** The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

#### Equipment used during the tests:

3M Semi-anechoic Chamber - Radiated Emission Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	07/09/2012
Spectrum Analyzer	Agilent	E4440A	MY46185649	04/09/2011
Biconilog Antenna	ETS-LINGREN	3142C	00044562	07/31/2011
Horn Antenna	ETS-LINGREN	3117	00057407	06/07/2011
Microwave Preamplifier	Agilent	11909A	186871	N/A

### 5.3. LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

## 6. RADIATED EMISSION TEST

### 6.1. LIMITS

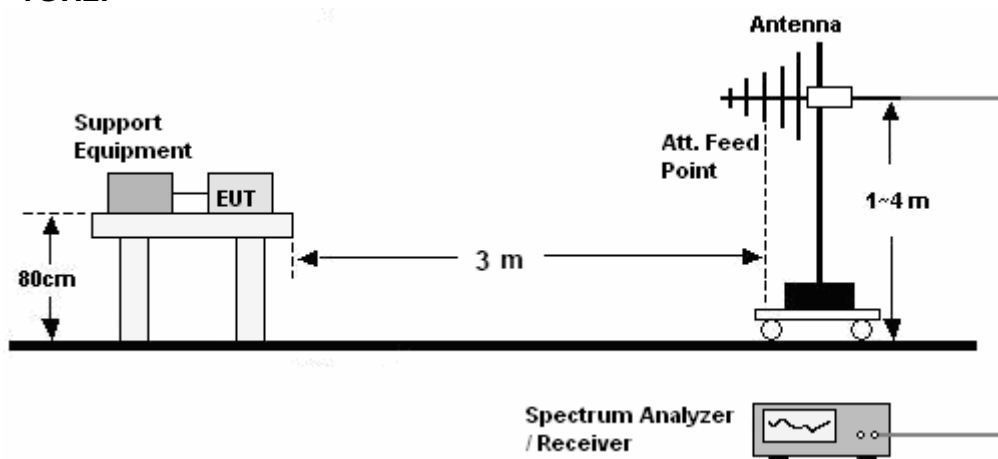
Limits for Class B digital devices

Frequency (MHz)	limits at 3m dB( $\mu$ V/m)
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

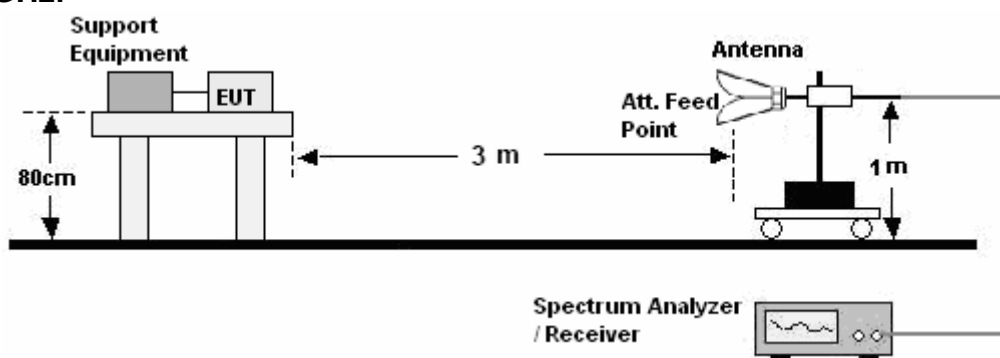
- NOTE:**
1. The lower limit shall apply at the transition frequency.
  2. The limits shown above are based on measuring equipment employing a CISPR quasi-peak detector function for frequencies below or equal to 1000MHz.
  3. The limits shown above are based on measuring equipment employing an average detector function for frequencies above 1000MHz.

### 6.2. BLOCK DIAGRAM OF TEST SETUP

30MHz ~ 1GHz:



Above 1GHz:



### 6.3. PROCEDURE OF RADIATED EMISSION TEST

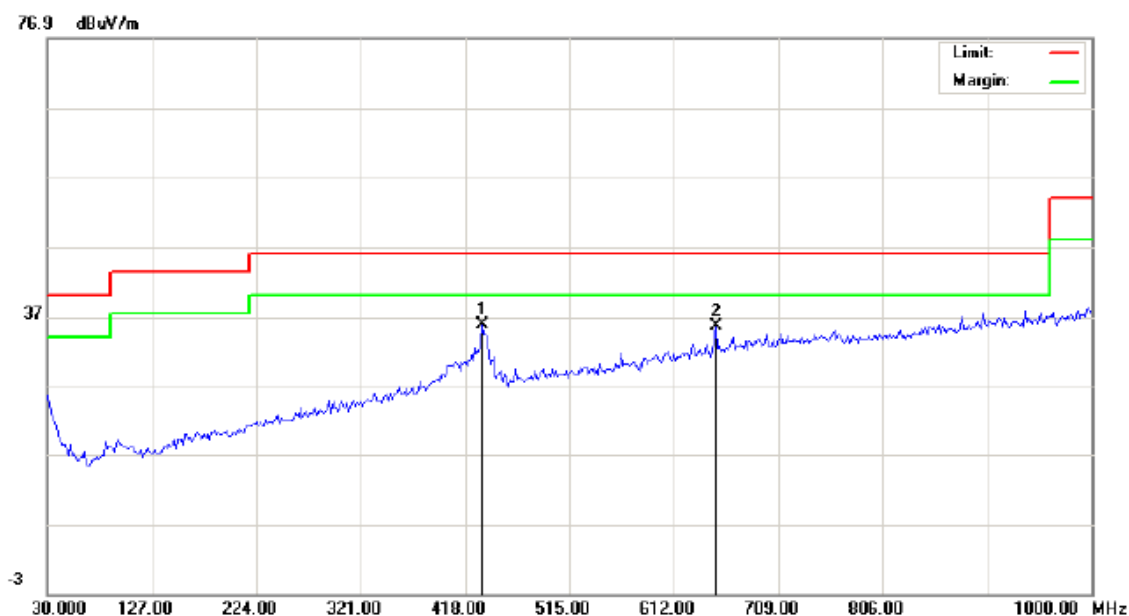
#### 30MHz ~ 1GHz:

- a. The EUT was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where EUT radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

#### Above 1GHz:

- a. The EUT was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where EUT radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

## 6.4. GRAPHS AND DATA



Site site #1

Polarization: **Horizontal**

Temperature: 23

Limit: FCC Class B 3M Radiation

Power: DC 12V

Humidity: 55 %

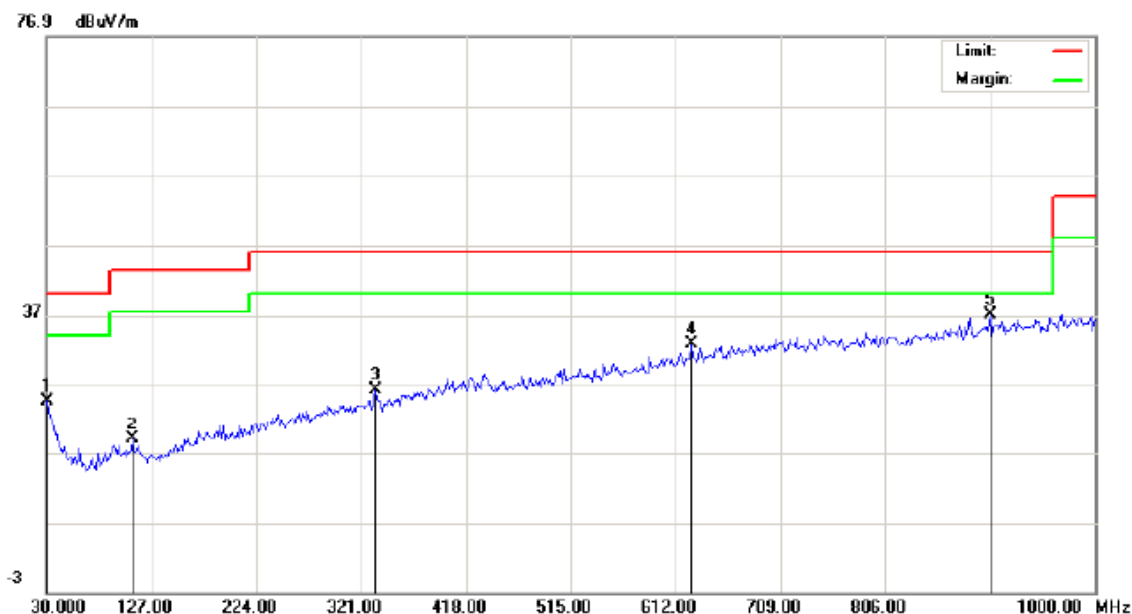
EUT: car alarm system receiver module

M/N: V500 MMAS

Mode: RX

Note:

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	434.1667	16.80			18.92	35.72			46.00		-10.28		P	
2	650.8000	12.06			23.49	35.55			46.00		-10.45		P	



Site site #1 Polarization: **Vertical** Temperature: 23  
 Limit: FCC Class B 3M Radiation Power: DC 12V Humidity: 55 %  
 EUT: car alarm system receiver module  
 M/N: V500 MMAS  
 Mode: RX  
 Note:

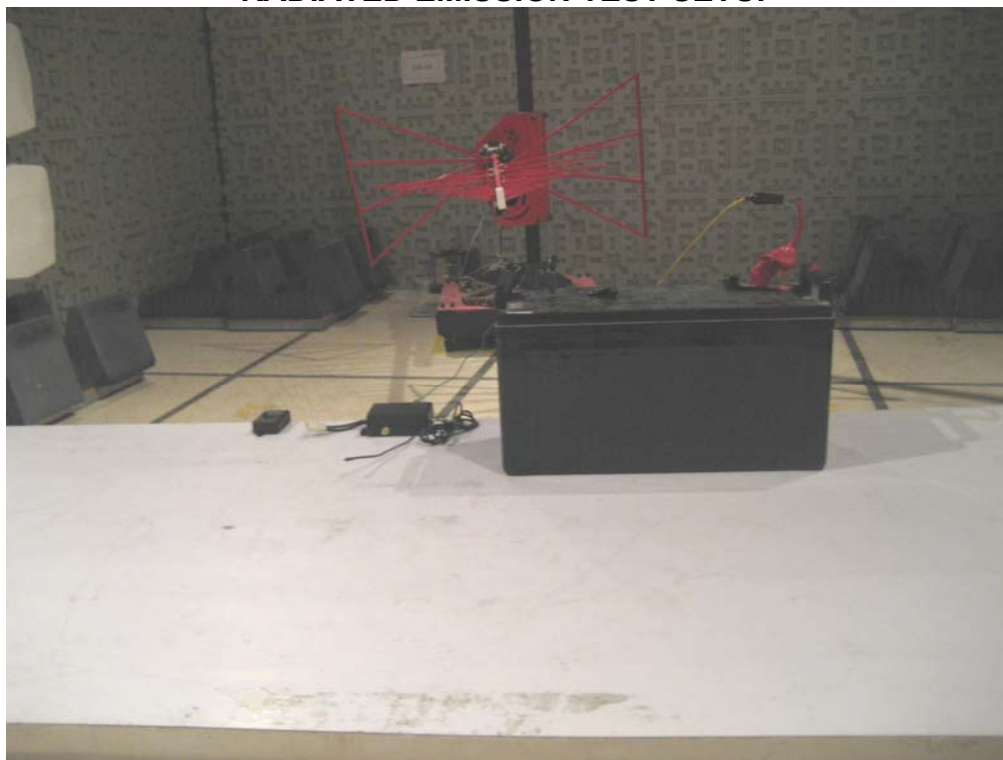
No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	30.0000	6.93			17.63	24.56			40.00		-15.44		P	
2	109.2167	9.12			9.81	18.93			43.50		-24.57		P	
3	333.9332	9.54			16.70	26.24			46.00		-19.76		P	
4	626.5499	10.01			22.87	32.88			46.00		-13.12		P	
5	903.0000	10.29			26.68	36.97			46.00		-9.03		P	

Remark:

The test data above 1GHz are much lower than the limit, and they are not recorded.

## APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

### RADIATED EMISSION TEST SETUP



## APPENDIX 2 PHOTOGRAPHS OF EUT



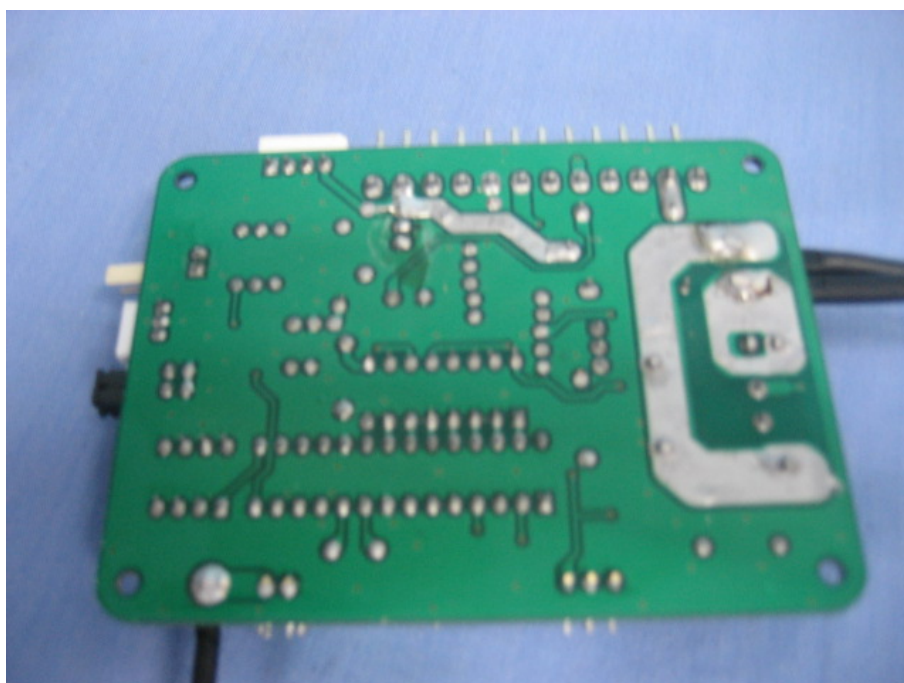
View of EUT-1



View of EUT-2



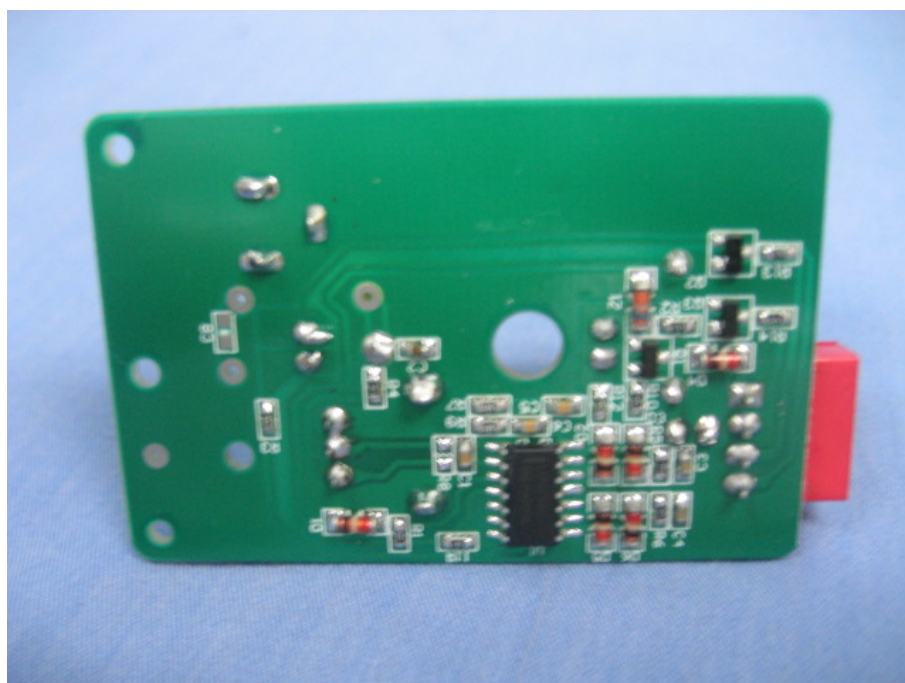
View of internal EUT-1



View of internal EUT-2



View of internal EUT-3



View of internal EUT-4

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