SGS-CSTC Standards
Technical Services Co., Ltd.

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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399Registration number:282399

FCC ID: QNMSK2650

FCC TEST REPORT

Application No. : 03.06.1007E

Applicant : SPACKEY AUTO ELECTRONIC CO., LTD.

FCC ID : QNMSK2650

Fundamental Frequency : 433.92 MHz

Equipment under Test (EUT):

Name : Auto Security System

Model No. : VB-150

Standards : FCC PART 15, SUBPART C : 2002

Date of Receipt : 24 June 2003

Date of Test : 27 June to 01 July 2003

Date of Issue : 03 July 2003

Test Result :	**PASS ***

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

Authorized Signature:

Kent Hsu
Laboratory Manager
SGS-CSTC Co.,Ltd

2 Contents

3 General Information

3.1 Client Information

Applicant:	SPACKEY AUTO ELECTRONIC CO., LTD.
Address of Applicant:	XIAMAO INDUSTRIAL ZONE 18, BAIYUN DIST., GUANGZHOU CITY CHINA
Name:	Auto Security System
Model No.:	VB-150

3.2 Details of E.U.T.

Power Supply:	6.0V DC (3V x 2 “CR2025” Button Cells)
Power Cord:	N/A-

3.3 Description of Support Units

The EUT was tested as an independent unit.

3.4 Test Location

All tests were performed at:-

SGS-CSTC Standards Technical Services Ltd., Guangzhou Safety & EMC Laboratory, 1/F, Building No. 1, Agriculture Machinery Materials Company Warehouse Ltd., Wushan Road Shipai, Tianhe District, Guangzhou, China. P.C. 510630.

Tel: +86 20 3848 1001

Fax: +86 20 3848 1006

3.5 Other Information Requested by the Customer

None.

3.6 Test Facility

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

- **NVLAP – Lab Code: 200611-0**
  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 2000611-0. Effective through February 2, 2003.
- **ACA**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
  The 3m Semi-anechoic chamber and Shielded Room (11.5m x 4m x 4m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1599 and C-1706 respectively.
  Date of Registration: February 28, 2003. Valid until May 30, 2005
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FINKO**
  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
  SGS-CSTC Standards Technical Services Co., Ltd., 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 282399, May 31, 2002. With the above and NVLAP, SGS-CSTC is an authorized test laboratory for the DoC process.

4 Test Results

4.1 Test Instruments

Description	Manufacturer	Model No.	Asset No.	Date of Cal.
3M Semi-Anechoic Chamber	Frankonia	11.5 x 7.5 x 6 m^3	EMC1001	21-01-2002
Temperature, Humidity & Barometer	Oregon Scientific	BA-888	EMC0003	25-07-2003
3m Semi- Anechoic Chamber	Frankonia	N/A	EMC0501	04-11-2003
EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	EMC0506	17-11-2003
Bilog Type Antenna	Schaffner Chase	CBL6143	EMC0519	01-12-2003
Horn Antenna	ROHDE & SCHWARZ	HF906	EMC0517	01-04-2002
Coaxial cable	SGS	N/A	EMC0514	04-11-2003

4.2 E.U.T. Operation

Input voltage: 6.0V DC (3V x 2 “CR2025” Button Cells)

Operating Environment:

Temperature: 24.0 °C
Humidity: 58 % RH
Atmospheric Pressure: 1012 mbar

EUT Operation:

Test the EUT in On Mode.

4.3 Test Procedure & Measurement Data

4.3.1 Radiated Emissions

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.231
Test Date: 27 June 2003
Measurement Distance: 3m (Semi-Anechoic Chamber)

Requirements:

Fundamental Frequency MHz	Field Strength of Fundamental (dBuV/m @ 3m)	Field Strength of Harmonics and Spurious Emissions (dBuV/m @ 3m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	61.94 to 71.48	41.94 to 51.48
174 to 260	71.48	51.48
260 to 470	71.48 to 81.94	51.48 to 61.94
470 and above	81.94	61.94

The limit for average field strength dBuv/m for the fundamental frequency= 80.83 dBuv/m.
No fundamental is allowed in the restricted bands.
The limit for average field strength dBuv/m for the harmonics and spurious frequencies = 60.83 dBuv/m. Spurious in the restricted bands must be less than 54 dBuv/m or 15.209.
Test Procedure: The procedure uesd was ANSI Standard C63.4-2000. The receive was scanned from 30MHz to 5GHz.When an emission was found,the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes.The worst case emissions were reported.

The following test results were performed on the EUT on 27 June 2003:
Test the EUT in On Mode.

Test Frequency (MHz)	Average (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
433.920	39.8	34.8	80.8	41.0	46.0
867.840	36.0	32.1	60.8	24.8	28.7
1301.760	35.2	33.6	60.8	25.6	27.2
1735.680	36.3	34.5	60.8	24.5	26.3
2169.600	37.2	36.5	60.8	23.6	24.3
2603.520	38.6	37.2	60.8	22.2	23.6
3037.440	41.0	41.5	60.8	19.8	19.3
3471.360	40.2	41.3	60.8	20.6	19.5
3905.280	41.2	40.8	60.8	19.6	20.0
4339.200	43.8	42.5	60.8	17.0	18.3

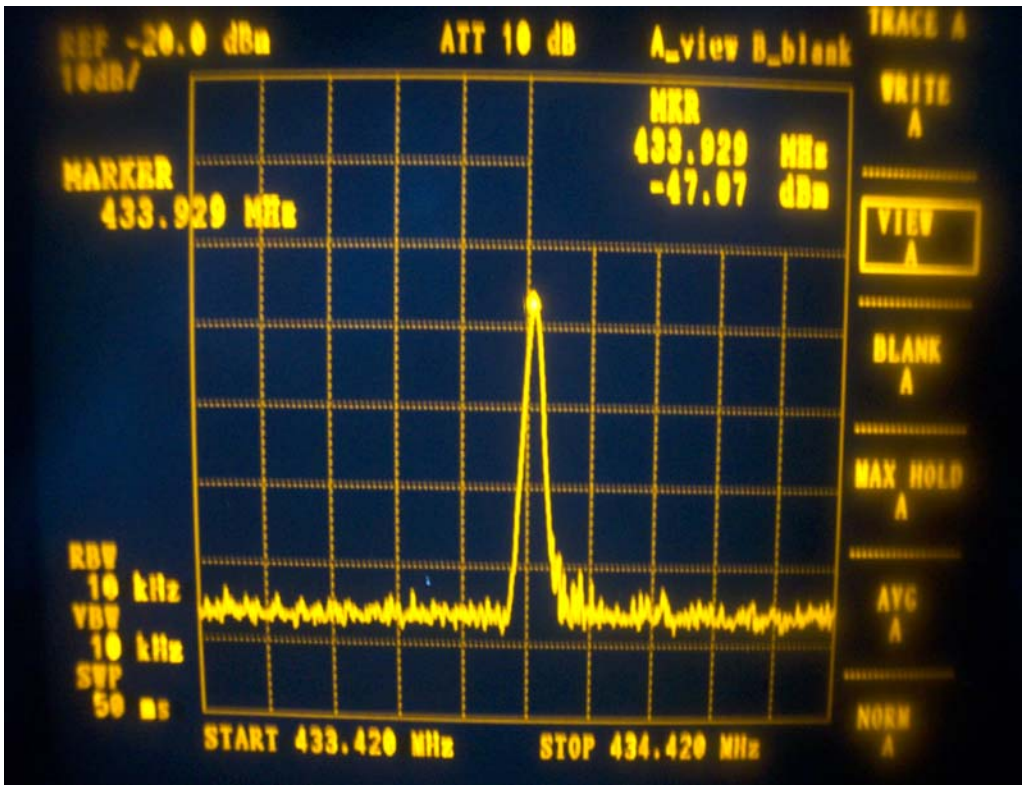
SAMPLE CALCULATION OF LIMIT @ 433.92 MHz:
(470 - 260)Mhz = 210 MHz
(12500 - 3750)uV/m = 8750 uV/m
8750uV/m/210MHz = 41.67 uV/m/MHz
(433.92-260)MHz = 173.92 MHz
173.92 MHz * 41.67 uV/m/MHz = 7247.25 uV/m
(7247.25 + 3750)uV/m = 10997.25 uV/m limit @ 433.92 MHz

TEST RESULTS: The unit DOES meet the FCC requirements.

4.3.2 Occupied Bandwidth

Test Requirement:	FCC Part15 C
Test Method:	Based on FCC Part15 C Section 15.231:
Test Date:	01 July 2003
Requirements:	The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.231.
Method of measurement:	A small sample of the transmitter output was fed into the S\pectrum Analyzer and the attached plot was taken. The vertical is set to –10dB per division. The horizontal scale is set to 100KHz per division.

The graph as below, represents the emissions take for this device.



The results: The unit does meet the FCC requirements.

4.3.3 Calculation Of Duty Cycle:

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.231:
Test Date: 01 July 2003

Method of measurement:

The period of the pulse train is determined by observing it on an oscilloscope or a spectrum analyzer with zero (0) frequency span. A plot is then made of the pulse train with a sweep time of 100 milliseconds. This sweep determines the duration of the pulse train, which in this case is milliseconds. This sweep allows the determination of the number of and type of pulses, i.e. long & short. Plots are then made showing the duration of each type of pulse and its duration. From the 100millisecond Plot the number of a given type of pulse is then multiplied by the duration of that type pulse. This allows the calculation of the amount of time the UUT is on within 100milliseconds.

DUTY CYCLE PLOT – COMPLETE PULSE TRAIN