深圳华通威国际检验有限公司
SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION Co., Ltd

FC TEST REPORT

Report number: TR04110014
Issue date: Nov 27, 2004

The device, as described herewith, was tested pursuant to applicable test procedure and complies with the requirements of:

FCC Rules and Regulations Part 15 Subpart C

Applicant:	**Zhongshan Giordon Audio & Alarm Equipment Co., Ltd** **East Tongxing Road, Dongsheng Town, Zhongshan City, Guangdong, China** **Tel: 86-760-2228786 Fax: 86-760-2828129**
Manufacturer:	**Zhongshan Giordon Audio & Alarm Equipment Co., Ltd** **East Tongxing Road, Dongsheng Town, Zhongshan City, Guangdong, China** **Tel: 86-760-2228786 Fax: 86-760-2828129**
Equipment under test:	**Transmitter of Car Alarm System**
Model number:	**686F**
FCC ID No.:	**SOUGIORDONALARM02**
Laboratory Name:	**Shenzhen Huatongwei International Inspection Co., Ltd** **FCC Registration Number: 662850**
Laboratory Address:	**Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China** **Tel: 86-755-26748099 Fax: 86-755-26748089**

The results in this report are applicable only to the equipment tested.
This report shall not be re-produced except in full without the written approval of Shenzhen Huatongwei International Inspection Co., Ltd.

Compiled by: Peggy Zuo **Checked by:** Jimmy Li

For and on behalf of
Shenzhen Huatongwei International Inspection Co., Ltd.

Authorized by: Irene Zhou
Authorized Signature(s)

Table of Contents

1 General Information

1.1 FCC ID: SOUGIORDONALARM02

1.2 Test Standards

All the test configuration and procedures are strictly according to the requirement of the following standards:

FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators

1.3 EUT(Equipment Under Test) Information

1.3.1 Client Information

Applicant:	**Zhongshan Giordon Audio & Alarm Equipment Co., Ltd**
Address of applicant:	East Tongxing Road, Dongsheng Town, Zhongshan City, Guangdong, China Tel: 86-760-2228786 Fax: 86-760-2828129
Manufacturer:	**Zhongshan Giordon Audio & Alarm Equipment Co., Ltd**
Address of manufacturer:	East Tongxing Road, Dongsheng Town, Zhongshan City, Guangdong, China Tel: 86-760-2228786 Fax: 86-760-2828129

1.3.2 General Description of E.U.T.

Name:	Transmitter of Car Alarm System
Model No.:	686F
Power Supply:	DC 1.5V (Battery)
Product Class:	Low Power Communication Device Transmitter
Working Frequency:	433.92 MHz
Function Modulation:	FSK and FM
Remark:	The EUT is used to emanate and receive control commands.

1.4 Test Uncertainty

Radiated Emission Test: ±4.22dB

1.5 Ambient condition for test

Item	Required	Actual
Temperature (℃)	15~35	22~23
Humidity (%RH)	25~75	50~54
Barometric Pressure (mbar)	860~1060	950~1000

1.6 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

1.7 Test Summary

Test Items	Test Result
Conducted Emission	N/A
Radiated Emission	PASS
Dwell Time	PASS
Emissions Bandwidth	PASS

1.8 Test Location

The device described above is tested by Shenzhen Huatongwei International Inspection Co., Ltd at: Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China

(FCC Registration Number: 662850)

The maximum emission levels emanating from the device are compared to the **FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators** limits for radiated emissions and the measurement results contained in this test report show that EUT is to be technically compliant with FCC requirements.

Shenzhen Huatongwei International Inspection Co., Ltd will assumed full responsibility for the accuracy and completeness of these measurements.

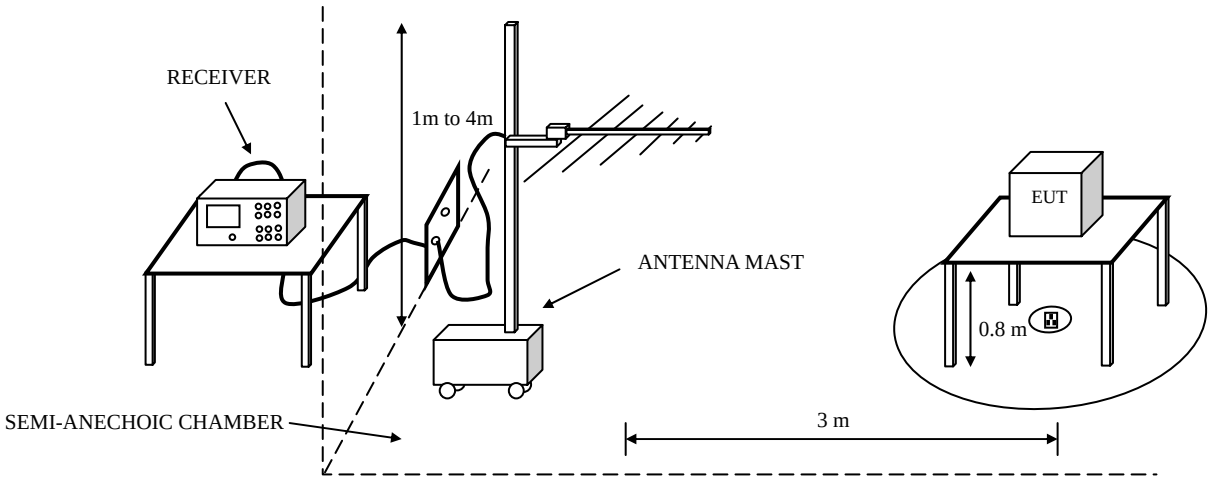
2 Radiated Emission Test

2.1 Test Standards

FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators

According to 15.231 (b), in addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this section shall not be exceed the limits listed in section 2.4.2 of this report.

2.2 Diagram of Test Setup



2.3 Test Equipments Used

EQP. Description	Manufacturer	Model No.	Serial No.	Last Cal
ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2004/11
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2004/11
RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	N/A
TURNTABLE	ETS	2088	2149	N/A
ANTENNA MAST	ETS	2075	2346	N/A
EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	NA	N/A

2.4 Test Description

2.4.1 Configuration of Instruments

Test Receiver Setting:

－Detector: Quasi-Peak

－Band Width:120KHz

－Frequency Range: 30MHz to 1000MHz

－Detector: Peak & Average

－Band Width:1MHz

－Frequency Range: 1000MHz to 5000MHz

Remark: Because the intentional radiator operates below 10GHz, the scanned frequency range is to the tenth harmonic of its fundamental frequency. (Refer to FCC Rules and Regulations Part 15 Subpart A section 15.33)

－Turntable Rotated: 0 to 360 degrees

Antenna Position:

－Height: 1m to 4m

－Polarity: Horizontal and Vertical

Arrangement of EUT:

－During the test, EUT was operated at rating power supply voltage. Maximum emission configuration was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

2.4.2 Radiated Emission Limit

Frequency (MHz)	**Distance (Meters)**	**Field Strengths Limits (dBμV/m)**
30 ~ 88	3	40
88~216	3	43.5
216 ~ 960	3	46
960~1000	3	54
Above 1000	3	54

Remark: (1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

2.4.3 Operating Condition of EUT

The EUT is working with the maximum disturbance during the test.

2.4.4 Test Procedure

EUT is tested in Semi-Anechoic Chamber. EUT is placed on a nonmetal table which is 0.8 meter above a grounded turntable. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level. EUT is set 3 meters away from the center of receiving antenna, The antenna can move up and down from 1 to 4 meter to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set on the test. (Details refer to the relevant sections of the standard ANSI C63.4-1992 'Methods of Measurement of Radio Noise Emissions from Low –Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'.)

2.5 Test Results

Test Results: PASS
Test data see following pages

Remark: When PK reading is less than relevant limit 20dB, the QP reading will not be recorded.

Radiation Measurement Results

a. Fundamental Frequency

Frequency (MHz)	Level (dB μ V/m)	Transd (dB)	Limit (dB μ V/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Polarization
433.926295	78.9	20.2	80.8	1.9	QP	126.0	237.00	Vertical
433.926295	71.5	20.2	80.8	9.3	QP	100.0	173.00	Horizontal

Remark: According to 15.231 (b) (2), as an alternative, compliance with the limits of sperious emissions may be based on the use of measurement instrumentation with a CISPR quasi-peak detector.

b. Harmonic frequency and spurious frequency can be seen in the appendix data pages(from page 16 to 23).

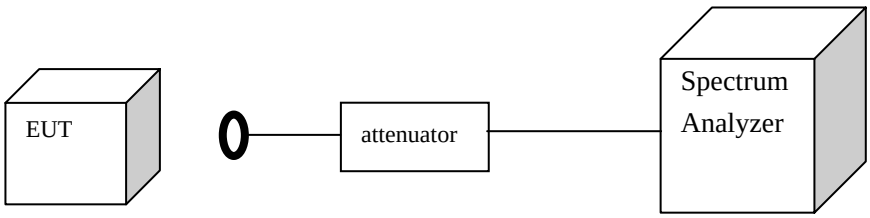
3 Dwell Time

3.1 Test Standards

FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators

According to 15.231 (a), a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

3.2 Diagram of Test Setup



Remark: the attenuator is the built-in part of spectrum analyzer.

3.3 Test Equipments Used

EQP. Description	Manufacturer	Model No.	Serial No.	Last Cal
SHIELDED ROOM	ETS.LINDGREN	RFD-100	2391	N/A
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2004/11

3.4 Test Description

3.4.1 Test Receiver Setting:

RBW (KHz)	VBW (KHz)	Detector	Comment
20	200	Peak	

3.4.2 Operating Condition of EUT

As stated in sec 2.4.3 of this report.

3.4.3 Test Procedure

The EUT was set up per the test configuration figured in Sec 3.2 of this test report to simulate the typical usage per the user's manual.

The transmitter output of EUT was connected to the spectrum analyzer through an attenuator.

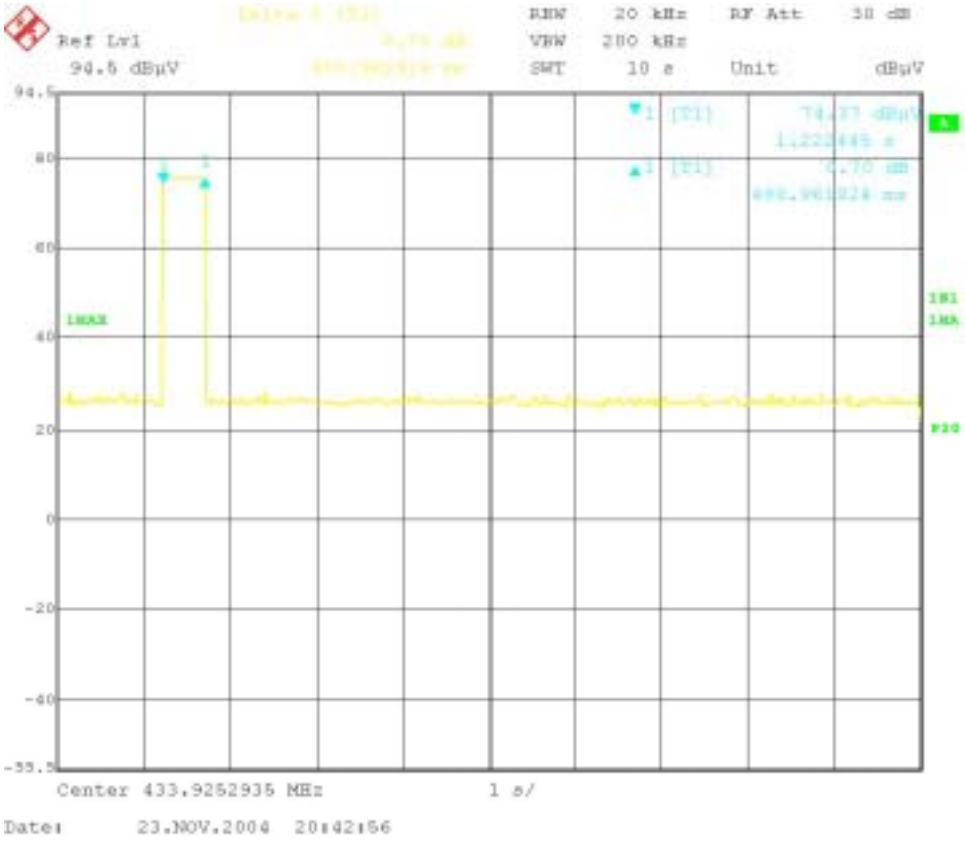
Set the spectrum analyzer into zero span and perform the dwell time bandwidth measurement. Record the dwell time and compare with the required limit.

3.5 Test Results

Test Results: PASS

Test data see following pages

Measurement Data of Dwell Time



4 Bandwidth

4.1 Test Standards

FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators

According to 15.231 (c), the bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

4.2 Diagram of Test Setup

As stated in sec 3.2 of this report.

4.3 Test Equipments Used

As stated in sec 3.3 of this report.

4.4 Test Description

4.4.1 Test Equipment Setting:

RBW (KHz)	VBW (KHz)	Detector	Comment
20	200	Peak	

4.4.2 Operating Condition of EUT

As stated in sec 2.4.3 of this report.

4.4.3 Test Procedure

The EUT was set up per the test configuration figured in Sec 4.2 of this test report to simulate the typical usage per the user's manual.

The transmitter output of EUT was connected to the spectrum analyzer through an attenuator.

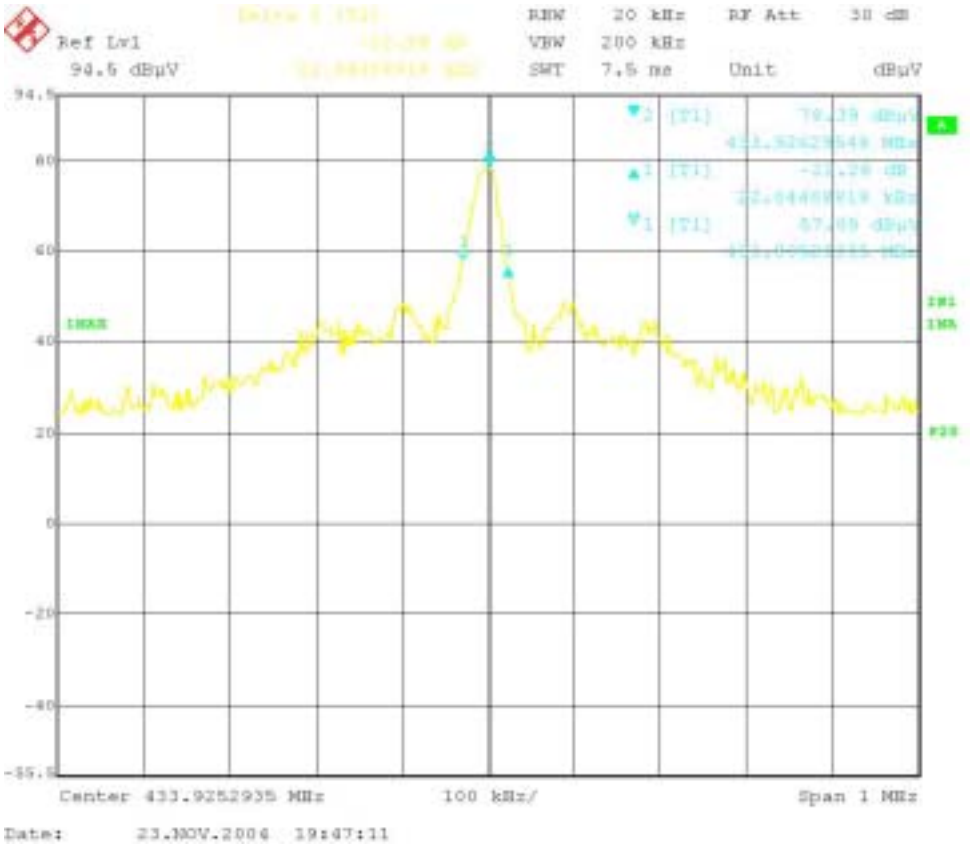
Measure the 20dB bandwidth and compare with the required limit.

4.5 Test Results

Test Results: PASS

Test data see following pages

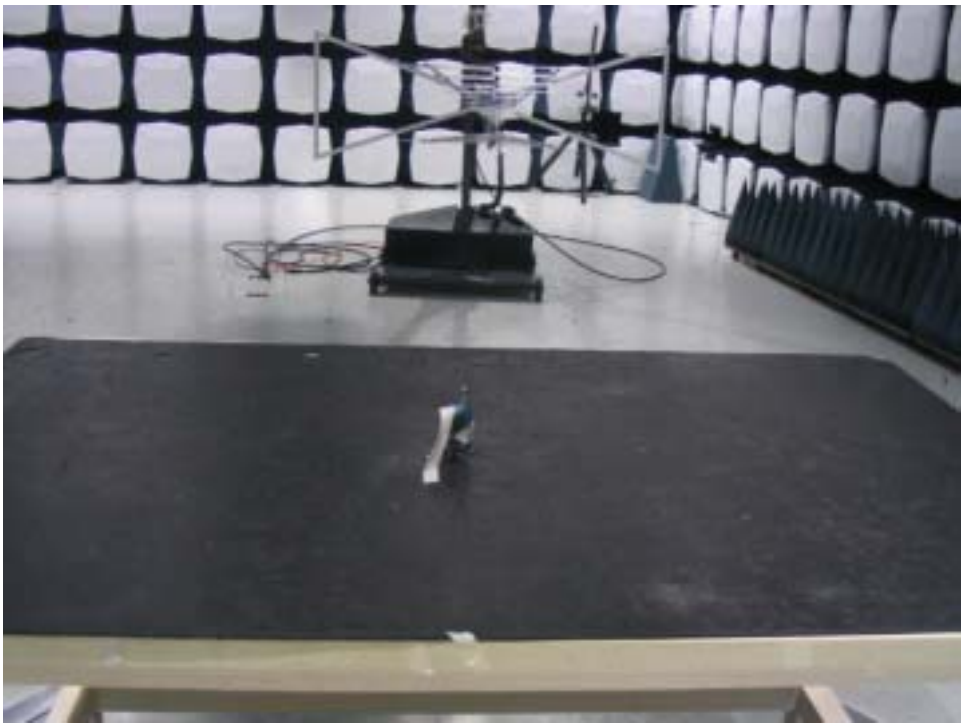
Measurement Data of Bandwidth

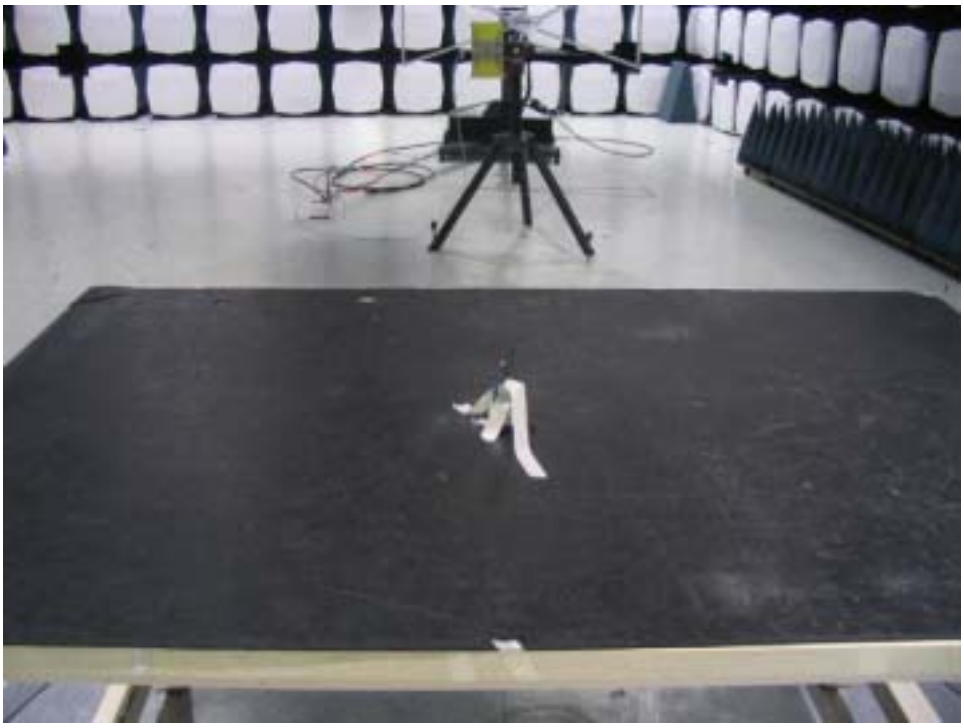


Measured bandwidth is 53.103 KHz＜433.92 MHz×0.25%=1.0848 MHz

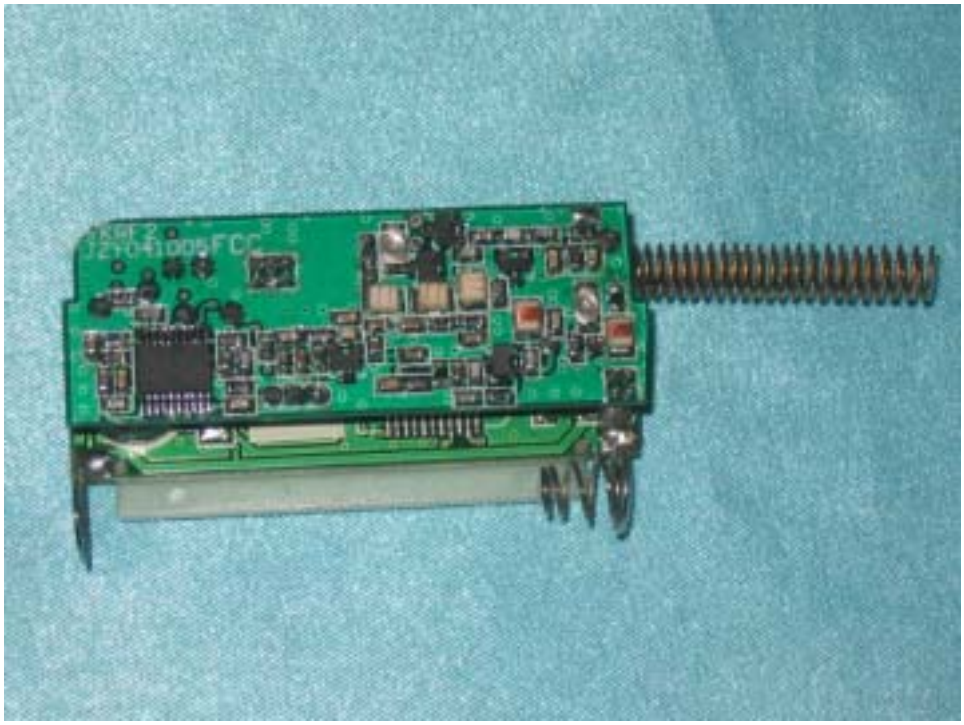
5 Configuration Photographs

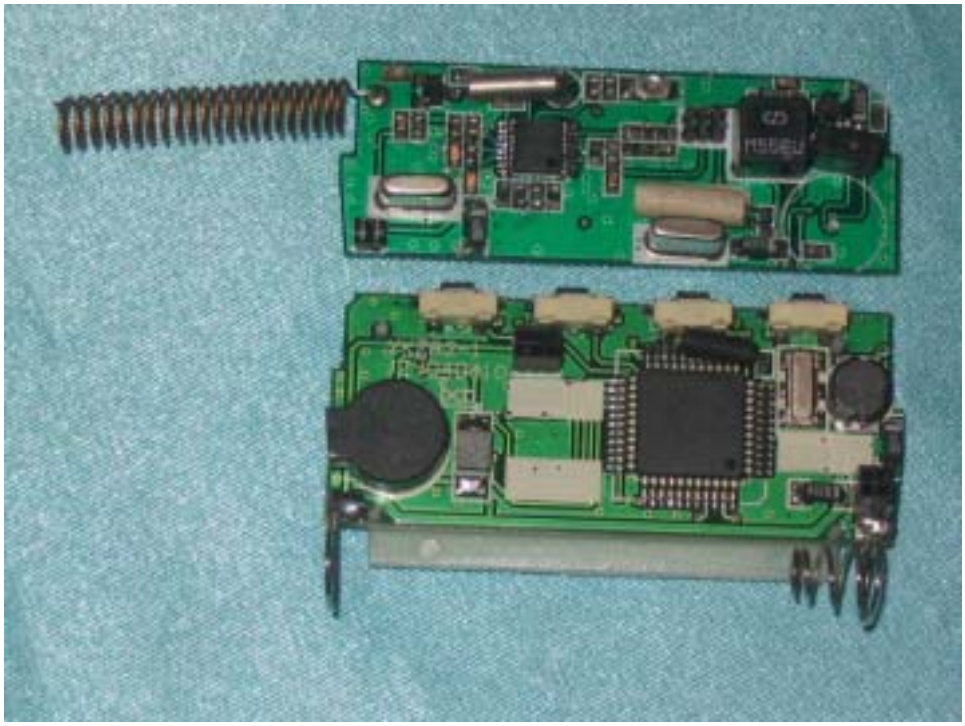
5.1 Photo of Radiated Emission Test

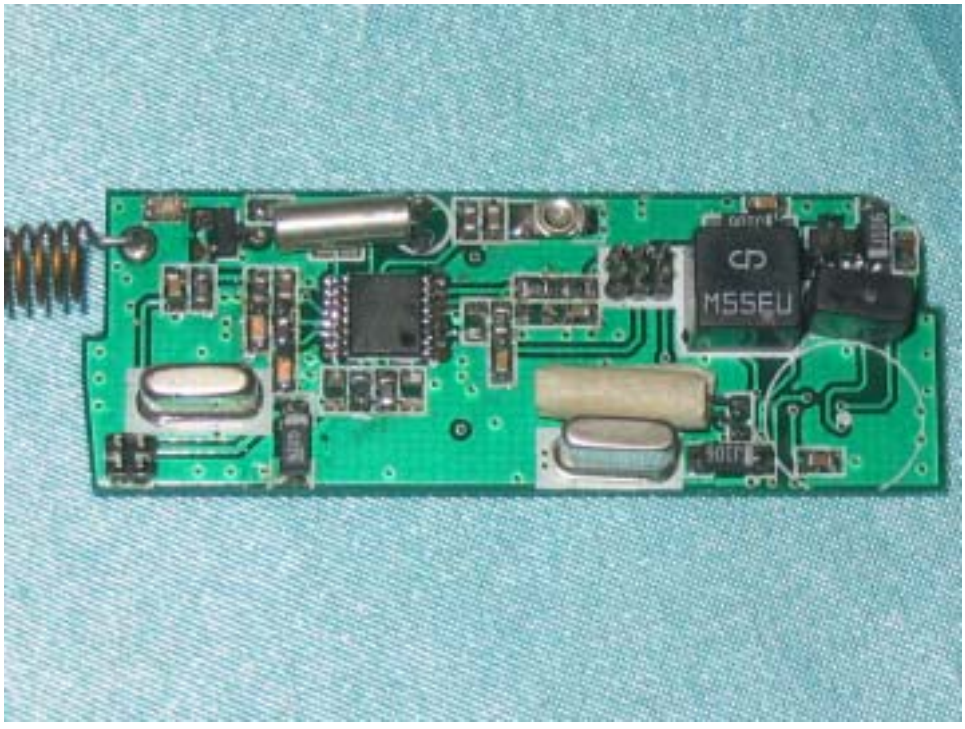




5.2 Outline, framework and Components photos of EUT



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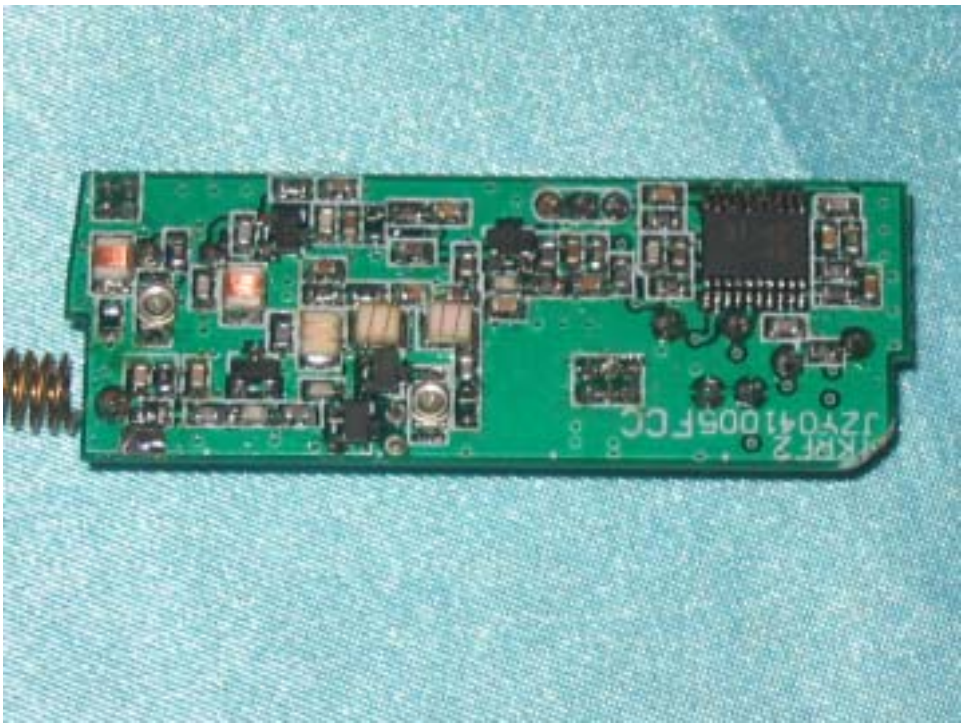
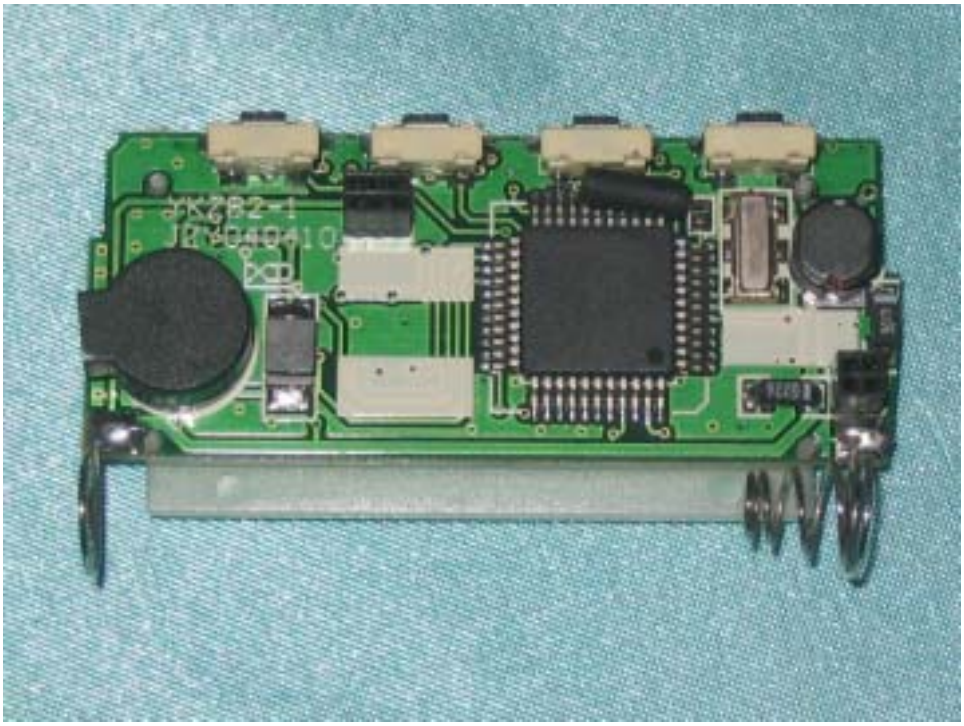
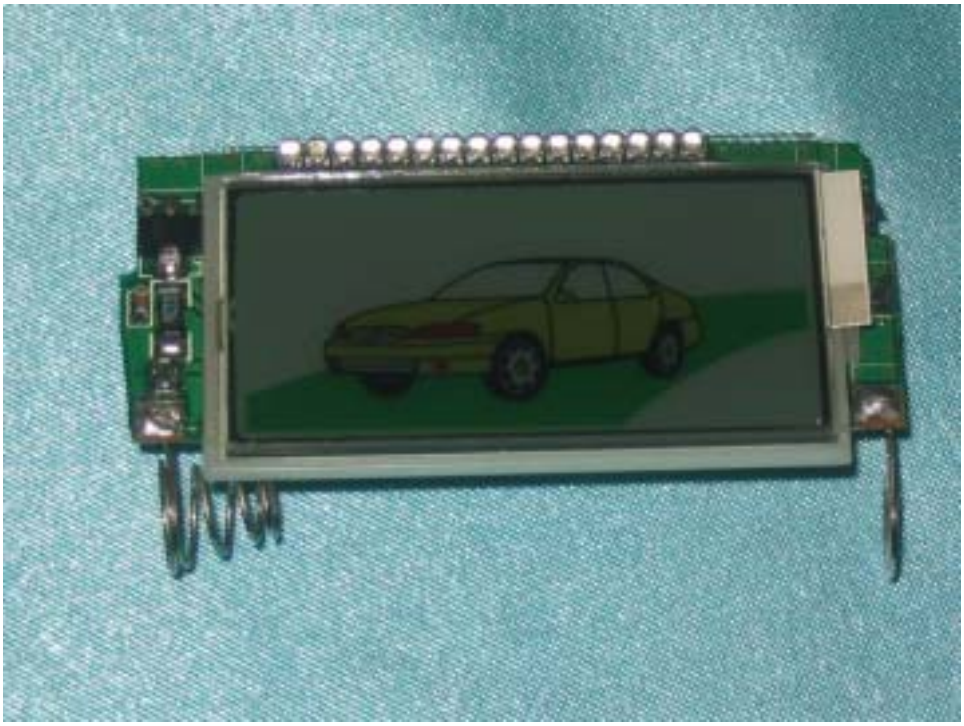






Following pages are the measurement data of EUT (8 pages from page 16 to page 23).

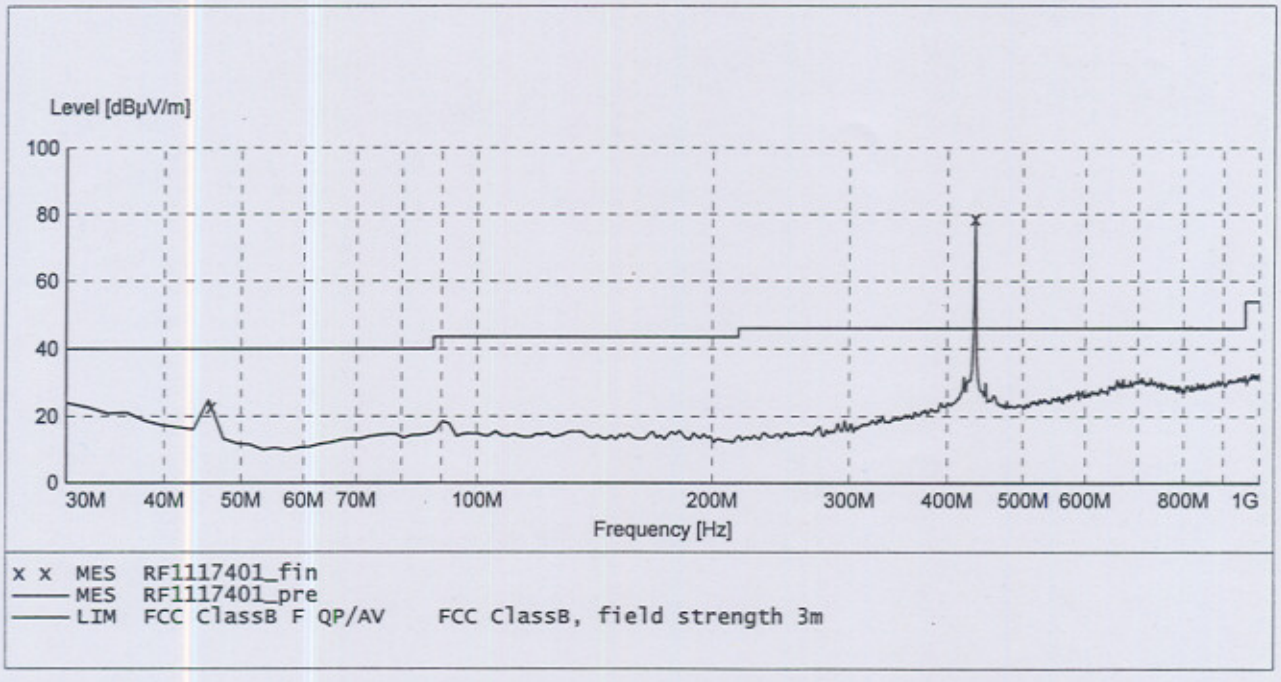
Radiated Emission FCC PART 15 C

EUT:	TRANSMITTER OF CAR ALARM SYSTEM M/N:686F
Manufacturer:	GIORDON
Operating Condition:	TRANSMITTING
Test Site:	3m CHAMBER
Operator:	JACKY
Test Specification:	DC 1.5V
Comment:	Polarisation:V
	Temp:22'C Humi:50%

SCAN TABLE: "test Field(30M-1G)QP"

Short Description: Field Strength(30M-1G)

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	500.0 ms	120 kHz	HL562new



MEASUREMENT RESULT: "RF1117401_fin"

11/22/04 8:56AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
45.833102	22.90	12.2	40.0	17.1	QP	100.0	161.00	VERTICAL
433.926295	78.90	20.2	80.8	1.9	QP	126.0	237.00	VERTICAL

Page 1/1 11/23/04 9:36AM RF1117401

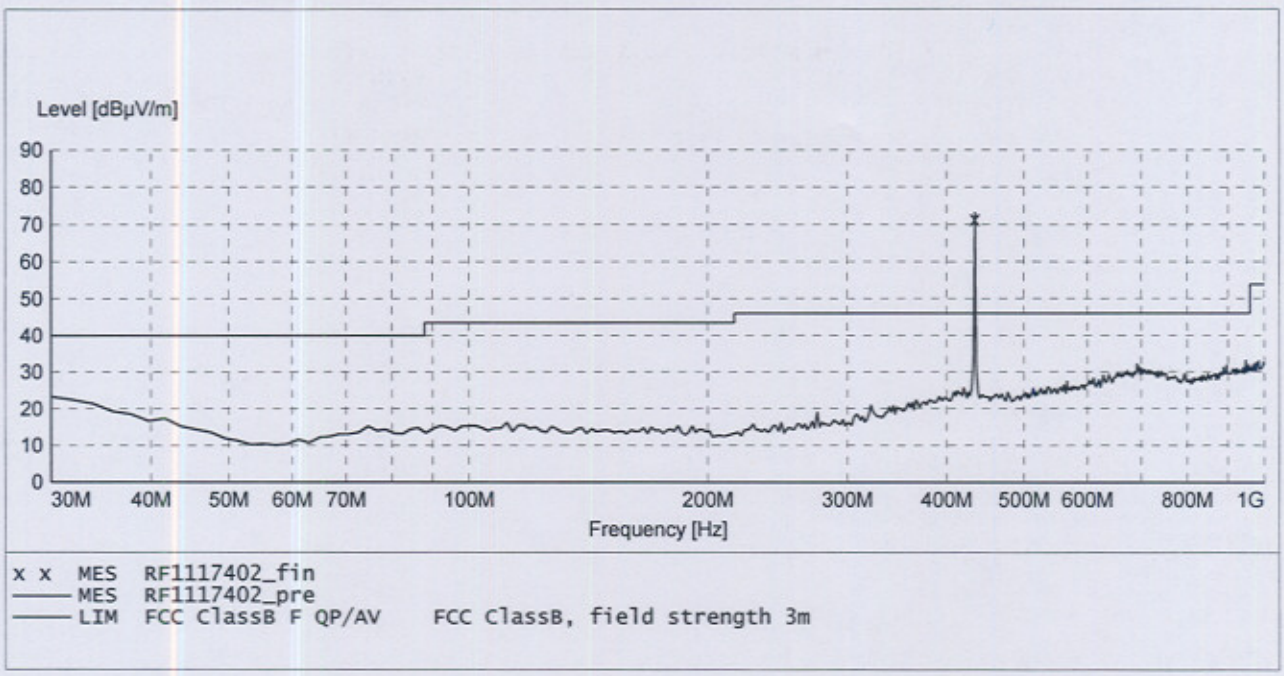
Radiated Emission FCC PART 15 C

EUT:	TRANSMITTER OF CAR ALARM SYSTEM M/N:686F
Manufacturer:	GIORDON
Operating Condition:	TRANSMITTING
Test Site:	3m CHAMBER
Operator:	JACKY
Test Specification:	DC 1.5V
Comment:	Polarisation:H
	Temp:22'C Humi:50%

SCAN TABLE: "test Field(30M-1G)QP"

Short Description: Field Strength(30M-1G)

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	500.0 ms	120 kHz	HL562new



MEASUREMENT RESULT: "RF1117402_fin"

11/22/04 9:12AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
433.926295	71.50	20.2	80.8	9.3	QP	100.0	173.00	HORIZONTAL

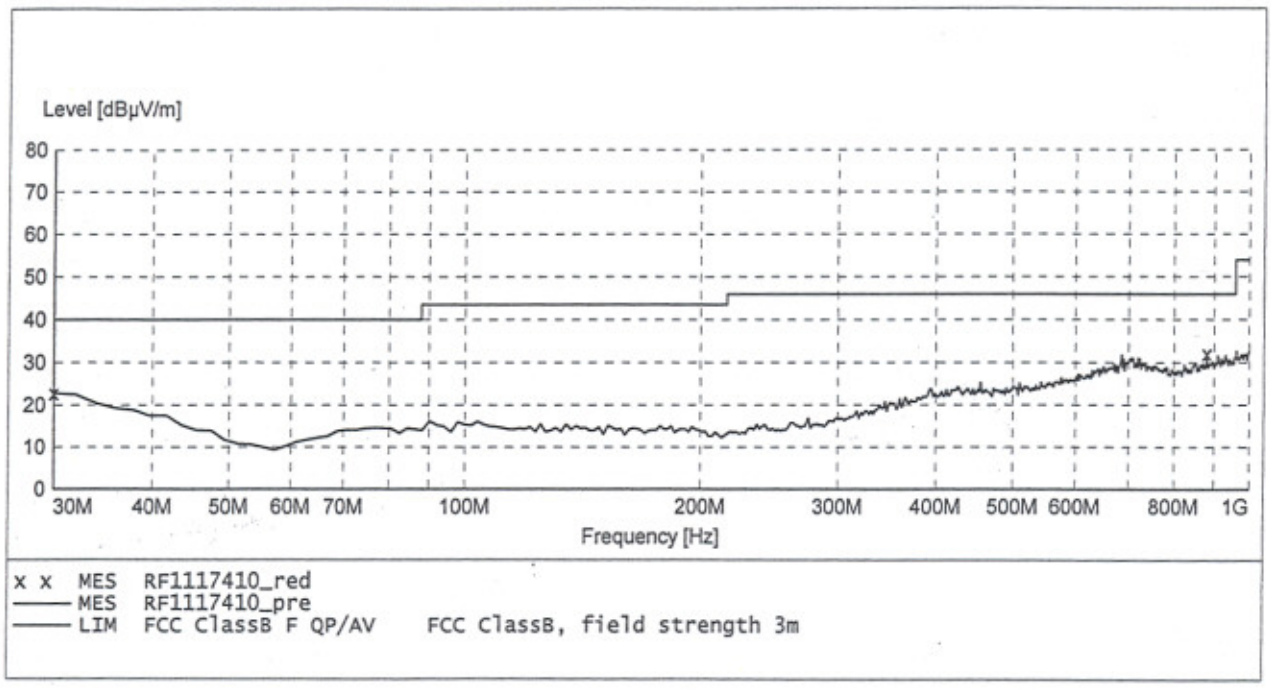
Page 1/1 11/23/04 9:37AM RF1117402

Radiated Emission FCC PART 15 C

EUT:	TRANSMITTER OF CAR ALARM SYSTEM M/N:686F
Manufacturer:	GIORDON
Operating Condition:	STANDBY
Test Site:	3m CHAMBER
Operator:	JACKY
Test Specification:	DC 1.5V
Comment:	Polarisation:H
	Temp:22'C Humi:50%

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562new



Page 1/1 11/23/04 9:46AM RF1117410

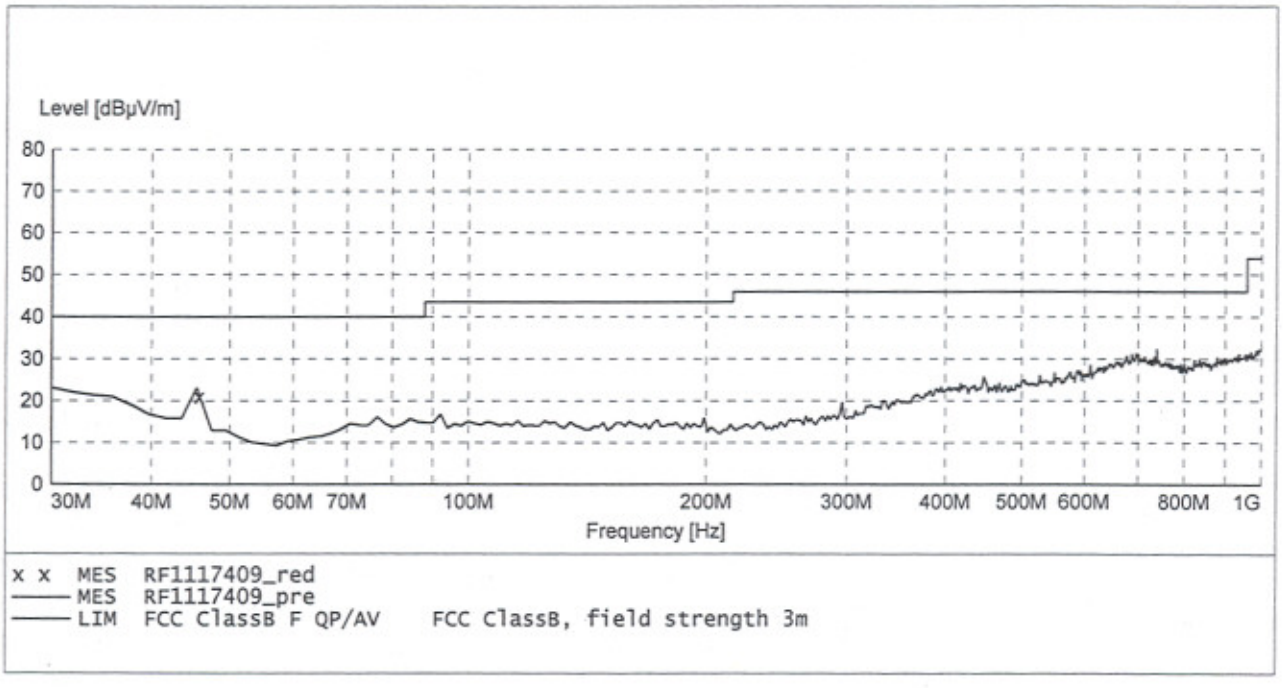
Radiated Emission FCC PART 15 C

EUT: TRANSMITTER OF CAR ALARM SYSTEM M/N:686F
Manufacturer: GIORDON
Operating Condition: STANDBY
Test Site: 3m CHAMBER
Operator: JACKY
Test Specification: DC 1.5V
Comment: Polarisation:V
Temp:22'C Humi:50%

SCAN TABLE: "test Field(30M-1G)"

Short Description: Field Strength(30M-1G)

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562new



MEASUREMENT RESULT: "RF1117409_fin"

11/22/04 1:54PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
45.833102	21.00	12.2	40.0	19.0	QP	100.0	359.00	VERTICAL

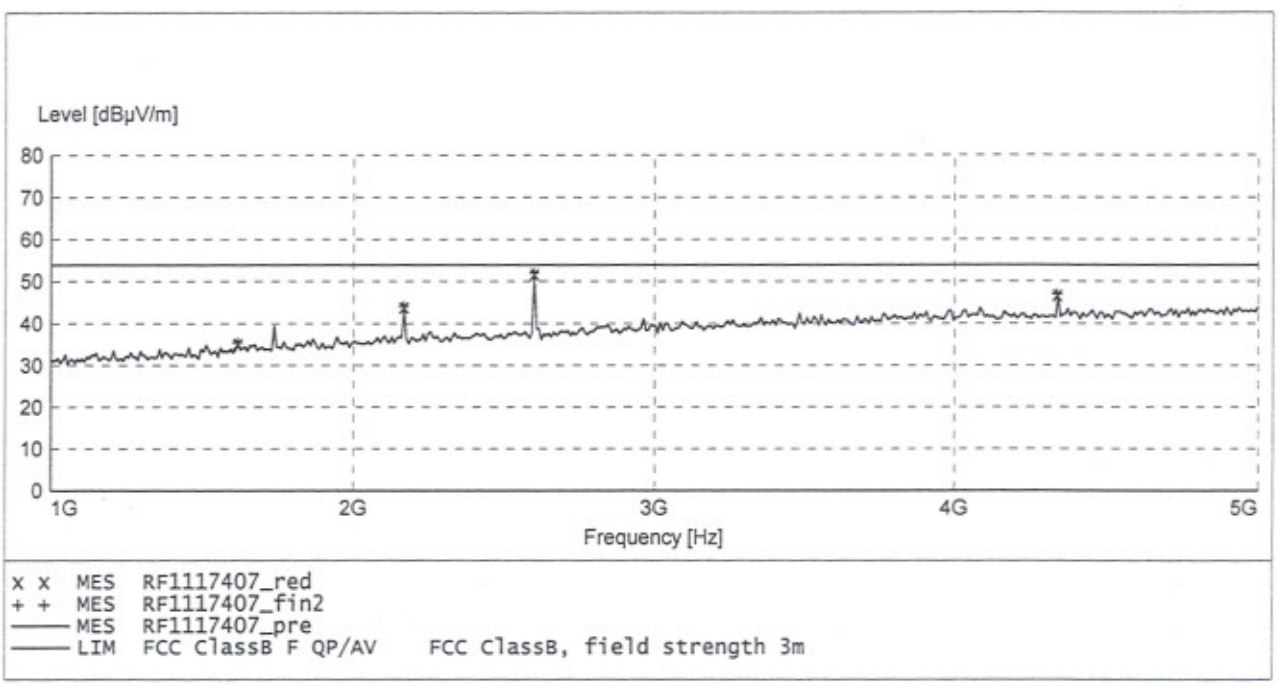
Page 1/1 11/23/04 9:46AM RF1117409

Radiated Emission FCC PART 15 C

EUT: TRANSMITTER OF CAR ALARM SYSTEM M/N:686F
Manufacturer: GIORDON
Operating Condition: TRANSMITTING
Test Site: 3m CHAMBER
Operator: JACKY
Test Specification: DC 1.5V
Comment: Polarisation:H
Temp:22'C Humi:50%

SWEEP TABLE: "test (1G-18G) P"

Short Description: Start Frequency	Stop Frequency	Detector	Field Strength Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	HF906



MEASUREMENT RESULT: "RF1117407_red"

11/22/04 10:35AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1617.234469	35.40	-7.2	53.9	18.5	PK	100.0	220.00	HORIZONTAL
2169.631477	44.10	-4.4	53.9	9.8	PK	100.0	96.00	HORIZONTAL
2603.557777	51.90	-2.7	53.9	2.0	PK	100.0	96.00	HORIZONTAL
4339.262955	46.90	2.2	53.9	7.0	PK	100.0	210.00	HORIZONTAL

Page 1/2 11/23/04 9:44AM RF1117407

MEASUREMENT RESULT: "RF1117407_fin2"

11/29/04 3:37PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1617.234469	35.40	-7.2	53.9	18.5	AV	100.0	220.00	HORIZONTAL
2169.631477	44.10	-4.4	53.9	9.8	AV	100.0	96.00	HORIZONTAL
2603.557777	51.90	-2.7	53.9	2.0	AV	100.0	96.00	HORIZONTAL
4339.262955	46.90	2.2	53.9	7.0	AV	100.0	210.00	HORIZONTAL

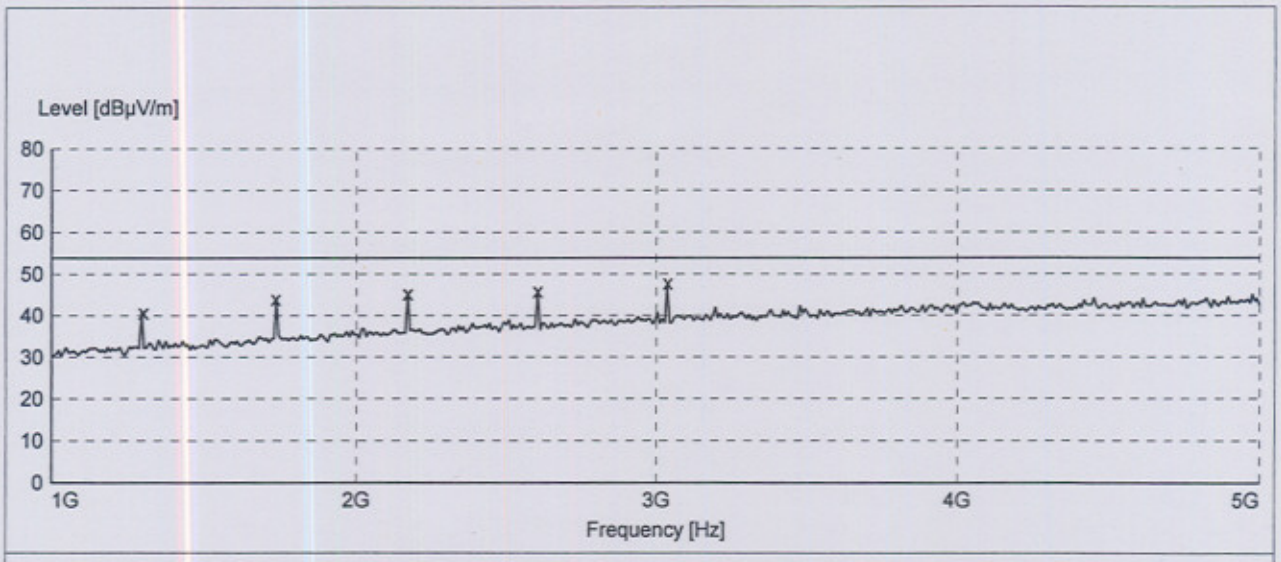
Page 2/2 11/23/04 9:44AM RF1117407

Radiated Emission FCC PART 15 C

EUT: TRANSMITTER OF CAR ALARM SYSTEM M/N:686F
Manufacturer: GIORDON
Operating Condition: TRANSMITTING
Test Site: 3m CHAMBER
Operator: JACKY
Test Specification: DC 1.5V
Comment: Polarisation:V
Temp:22'C Humi:50%

SWEEP TABLE: "test (1G-18G) P"

Short Description: Start Frequency	Stop Frequency	Detector	Field Strength Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	HF906



MEASUREMENT RESULT: "RF1117408_red"

11/22/04 10:52AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1301.888864	40.80	-8.6	53.9	13.1	PK	100.0	162.00	VERTICAL
1735.851819	44.10	-6.5	53.9	9.8	PK	100.0	59.00	VERTICAL
2169.814744	45.40	-4.4	53.9	8.5	PK	100.0	119.00	VERTICAL
2603.777288	46.00	-2.7	53.9	7.9	PK	100.0	189.00	VERTICAL
3037.740684	47.90	-1.1	53.9	6.0	PK	100.0	104.00	VERTICAL

Page 1/2 11/23/04 10:07AM RF1117408

MEASUREMENT RESULT: "RF1117408_fin"

11/22/04 10:06AM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1301.888864	38.60	-8.6	53.9	15.3	AV	100.0	162.00	VERTICAL
1735.851819	41.60	-6.5	60.8	19.2	AV	100.0	59.00	VERTICAL
2169.814744	41.90	-4.4	60.8	18.9	AV	100.0	119.00	VERTICAL
2603.777288	44.00	-2.7	60.8	16.8	AV	100.0	189.00	VERTICAL
3037.740684	46.80	-1.1	60.8	14.0	AV	100.0	104.00	VERTICAL

Page 2/2 11/23/04 10:07AM RF1117408