

FCC ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

UNINTENTIONAL RADIATOR

of

Car Alarm Receiver

FCC ID Number : GOH-PAN06

Trade Name : CODE SYSTEMS, INC.

Model Number : CA-120

Agency Series : N/A

Report Number : C30804402-RP

Date : August 25, 2003

Prepared for :

CODE SYSTEMS, INC.

525 MINNESOTA

TROY MI 48083, USA

Prepared by :

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Lab. Code: 200617-0



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1. VERIFICATION OF COMPLIANCE

COMPANY NAME : CODE SYSTEMS, INC.
525 MINNESOTA
TROY MI 48083, USA

CONTACT PERSON : MR. SHANE WILSON / RETAIL PROGRAM MANAGER

TELEPHONE NO. : 1-248-583-9620

EUT DESCRIPTION : Car Alarm Receiver

MODEL NAME/NUMBER : CA-120

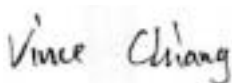
FCC ID : GOH-PAN06

DATE TESTED : August 22, 2003

REPORT NUMBER : C30804402-RP

TYPE OF EQUIPMENT	SECURITY EQUIPMENT (UNINTENTIONAL RADIATOR)
EQUIPMENT TYPE	433.92 MHz Car Alarm Receiver
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.109 / CFR 47, PART 15.107

The above equipment was tested by C&C Laboratory Co., Ltd. for compliance with the requirements set forth in the FCC CFR 47, PART 15. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties. **Warning:** This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Engineering Services, Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by C&C Laboratory Co., Ltd. will constitute fraud and shall nullify the document.



Vince Chiang / Supervisor
C&C Laboratory Co., Ltd.

2. PRODUCT DESCRIPTION

CODE SYSTEMS, INC., Model No: CA-120 is the receiving portion of a multi-purpose security device. The associated transmitter is manufactured by Advance Security Inc., model no: TX552S, FCC ID: H5OT20.

3. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at No. 165 & No. 199, Chung Sheng Road, Hsin Tien City, Taipei, Taiwan R.O.C. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

The measuring instrument which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

4. MEASUREMENT EQUIPMENT USED

Manufacturer	Model Number	Description	Cal Due Date
SCHAFFNER	SCR3501	MEASURE RECEIVER	06/16/04
ADVANTEST	R3132	SPECTRUM ANALYZER	09/17/03
SCHAFFNER	CBL 6112B	ANTENNA	10/01/03
BELDEN	9913	CABLE	10/13/03
SCHAFFNER	CPA9231A	PRE-AMPLIFIER	10/30/03
EMCO	3115	ANTENNA (1-18GHz)	02/24/04
HP	8449B	AMPLIFIER (1-26.5GHz)	02/20/04
HUBER+SUHNER	SUCOFLEX 104	CABLE (1-18GHz)	02/20/04
JYEBAO	LL143	CABLE (1-18GHz)	02/20/04
JYEBAO	LL142	CABLE (1-18GHz)	02/20/04
HP	8566B	EMC ANALYZER (100Hz-22GHz)	06/25/04

5. TEST CONFIGURATION

Set frequency generator to 433.92 MHz. EUT receiving transmission continuously. All the wires are placed on the turn table to their maximum length to simulate the worse emission conditions.

6. TESTS CONDUCTED

CFR 47, 15.109 RADIATED EMISSION TESTS	CONDUCTED AT 3 METERS
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7. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80 cm above the ground screen. Antenna to EUT distance is 3 meters. During the test, the table is rotated 360 degrees to maximize emissions and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

Monitor the frequency range of interest at a fixed antenna height and EUT azimuth. Frequency span should be small enough to easily differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and manipulate cables to produce highest emissions, noting frequency and amplitude.

8. COHERENT TESTS

During Radiated Emission Tests, use a transmitter to emit a frequency of 433.92 to touch off the EUT. Then take down the highest readings.

9. EQUIPMENT MODIFICATIONS

To achieve compliance to FCC section 15.109, the following change(s) were made during compliance testing:

NOT APPLICABLE

APPENDIX 3

TEST DATA

VERTICAL

REF 80.0 dB μ V

10dB/

A_View

Posi

B_Blank

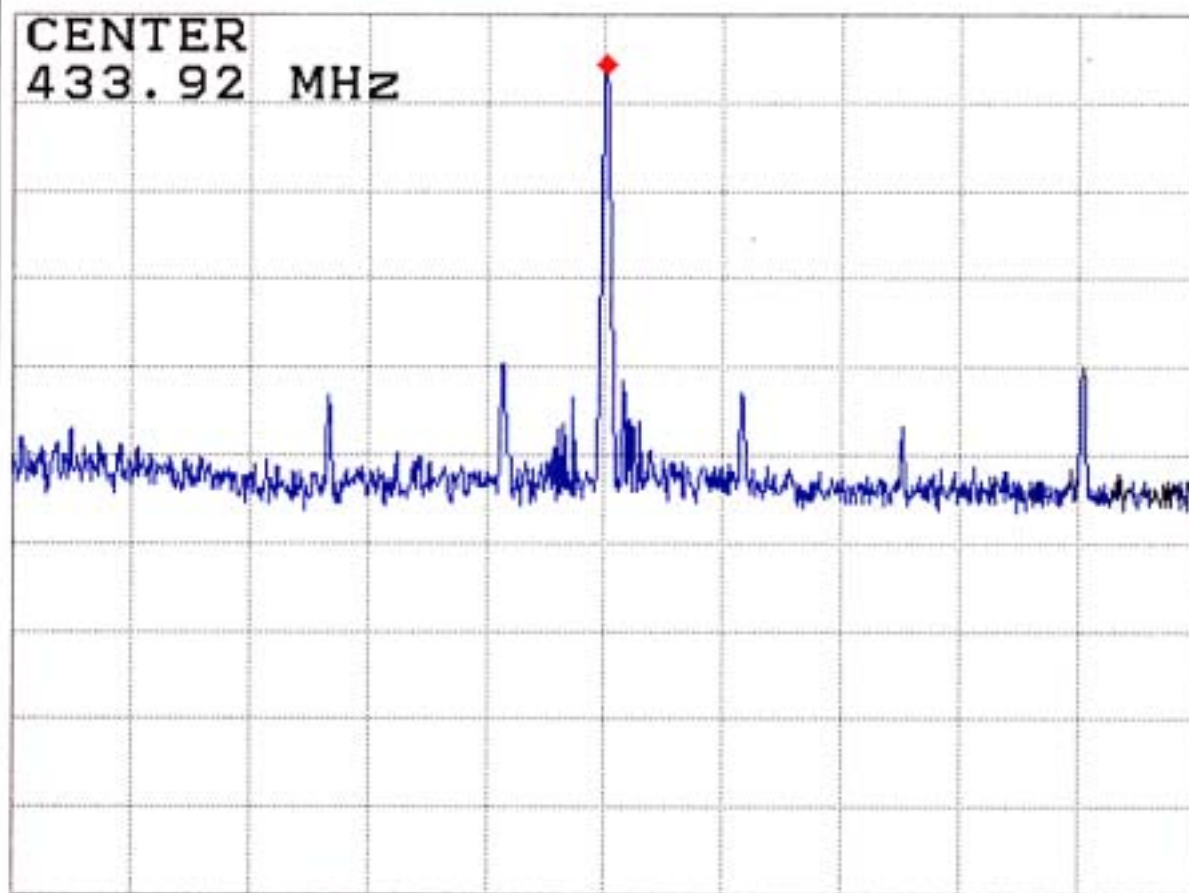
Posi

Fri 2003 Aug 22 10:13

MKR 434.02 MHz

74.31 dB μ V

CENTER
433.92 MHz



CENTER 433.92 MHz

SPAN 50.00 MHz

*RBW 100 kHz

*VBW 100 kHz

*SWP 20 ms

*ATT 10dB

HORIZONTAL

Fri 2003 Aug 22 10:22

REF 80.0 dB μ V

MKR 433.97 MHz

10dB/

A_View

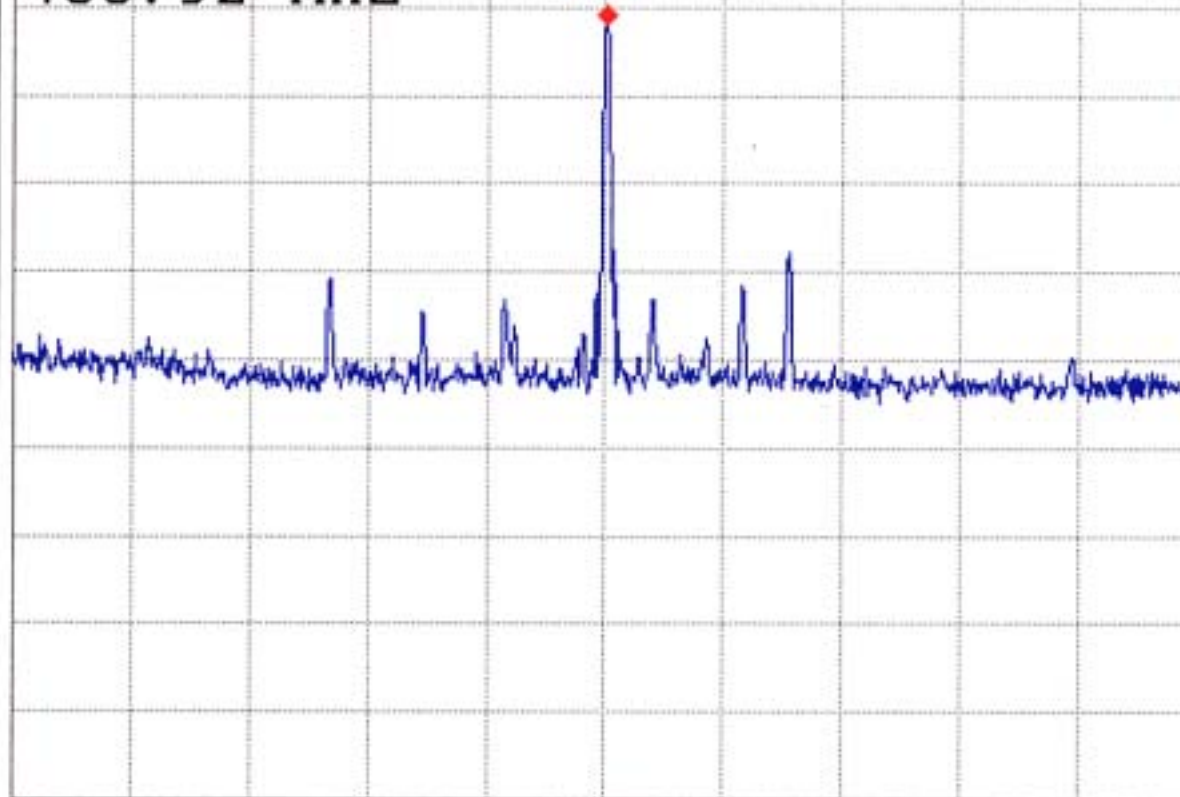
Posi

B_Blank

Posi

69.18 dB μ V

CENTER
433.92 MHz



CENTER 433.92 MHz

SPAN 50.00 MHz

*RBW 100 kHz

*VBW 100 kHz

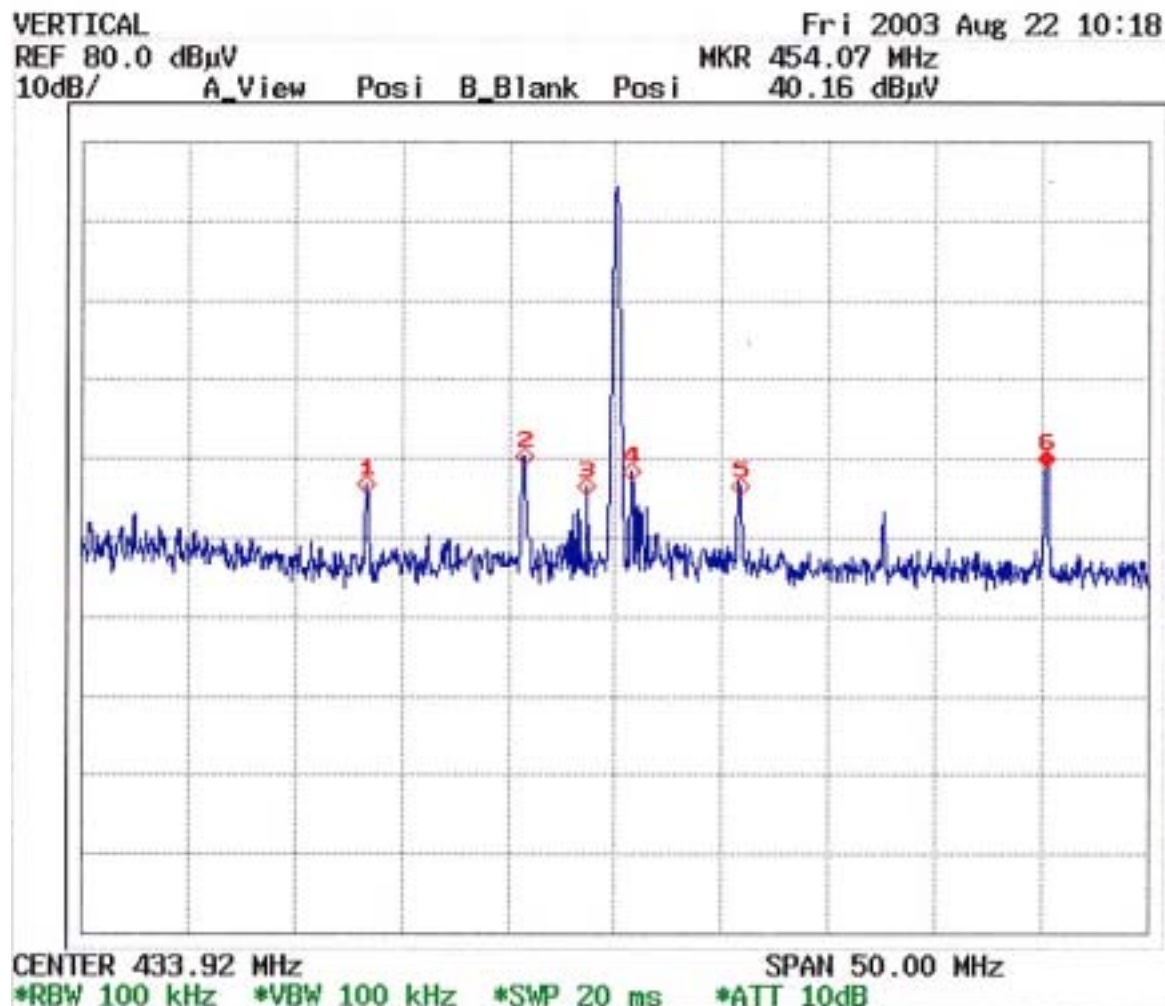
*SWP 20 ms

*ATT 10dB

Measurement Result

Operation Mode: Normal Mode
Fundamental Frequency: 433.92 MHz
Temperature: 28 °C
Humidity: 60 %

Test Configuration: EUT/RX
Test Date: August 22, 2003
Test By: Jimmy Chen
Pol: Vertical



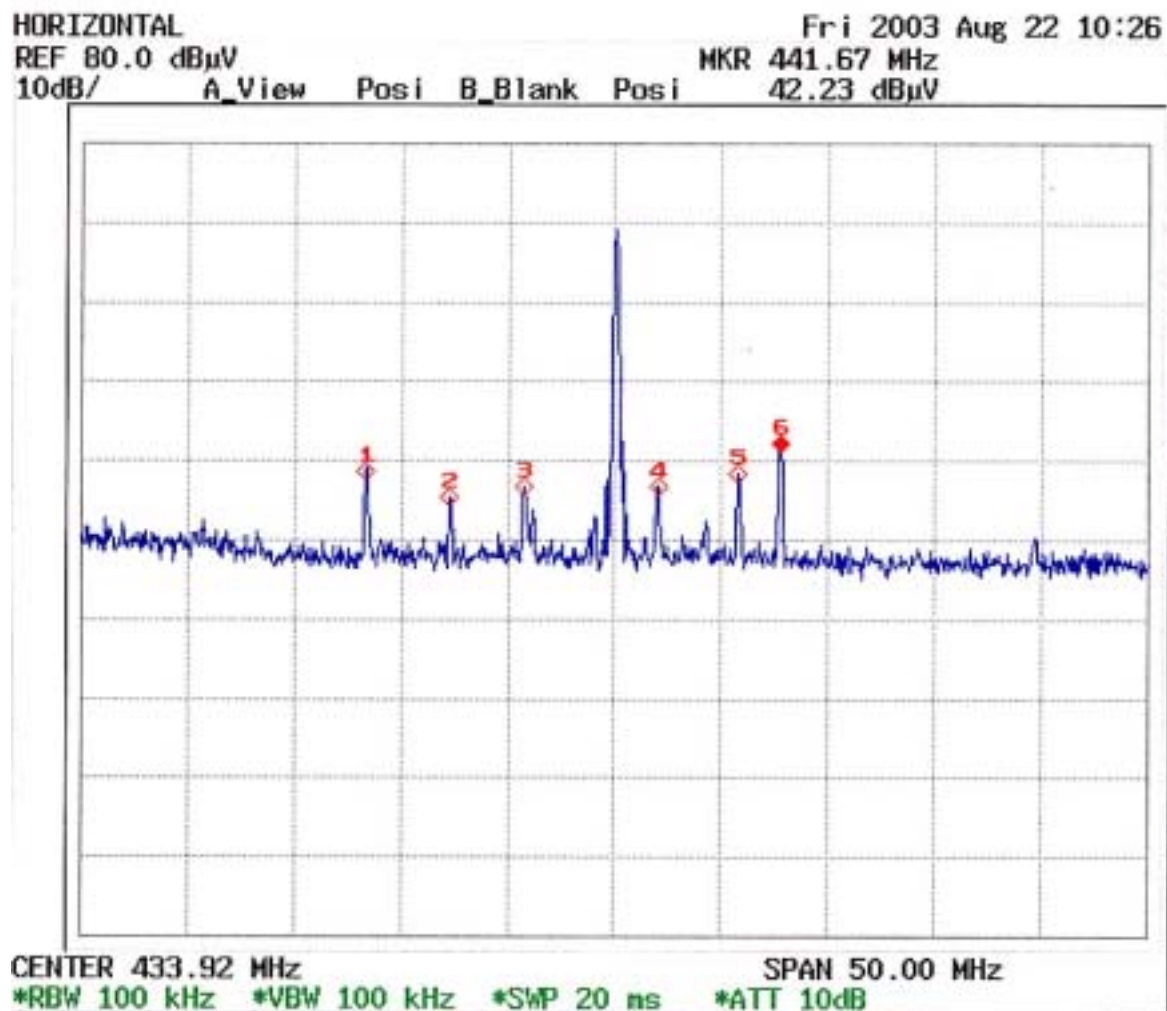
Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBμV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBμV/m)	Limit3m (dBμV/m)	Safe Margin (dB)
422.270	V	Peak	36.91	-2.95	33.96	46.00	-12.04
429.620	V	Peak	40.20	-2.75	37.45	46.00	-8.55
432.570	V	Peak	36.47	-2.67	33.80	46.00	-12.20
434.670	V	Peak	38.37	-2.61	35.76	46.00	-10.24
439.770	V	Peak	36.48	-2.48	34.00	46.00	-12.00
454.070	V	Peak	40.16	-2.18	37.98	46.00	-8.02

No other emissions were found within 20dB below the limits from 30-2000MHz.

Measurement Result

Operation Mode: Normal Mode
Fundamental Frequency: 433.92 MHz
Temperature: 28 °C
Humidity: 60 %

Test Configuration: EUT/RX
Test Date: August 22, 2003
Test By: Jimmy Chen
Pol: Horizontal



Freq. (MHz)	Ant.Pol. H/V	DetectorMode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
422.270	H	Peak	38.79	-2.95	35.84	46.00	-10.16
426.170	H	Peak	35.45	-2.84	32.61	46.00	-13.39
429.620	H	Peak	36.92	-2.75	34.17	46.00	-11.83
435.970	H	Peak	36.69	-2.58	34.11	46.00	-11.89
439.720	H	Peak	38.30	-2.48	35.82	46.00	-10.18
441.670	H	Peak	42.23	-2.42	39.81	46.00	-6.19

No other emissions were found within 20dB below the limits from 30-2000MHz.