

FCC ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

INTENTIONAL RADIATOR

of

Car Alarm Transceiver

FCC ID Number : H5OTR08AM

Trade Name : Advance Security Inc.

Model Number : TRX743

Agency Series : N/A

Report Number : C30602013-RP

Date : June 24, 2003

Prepared for :

Advance Security Inc.

3F, 48 Ta An Street, Hsi Chih,

Taipei Hsien, Taiwan, R.O.C.

Prepared by :

C&C LABORATORY CO., LTD.

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Lab. Code: 200617-0



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1. VERIFICATION OF COMPLIANCE

COMPANY NAME : Advance Security Inc.
3F, 48 Ta An Street, Hsi Chih,
Taipei Hsien, Taiwan, R.O.C.

CONTACT PERSON : Michael Chen / President

TELEPHONE NO. : (886-2) 8648-1688

EUT DESCRIPTION : Car Alarm Transceiver

MODEL NAME/NUMBER : TRX743

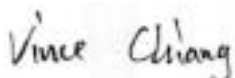
FCC ID : H5OTR08AM

DATE TESTED : June 13, 2003

REPORT NUMBER : C30602013-RP

| TYPE OF EQUIPMENT | SECURITY EQUIPMENT (INTENTIONAL RADIATOR) |
|-----------------------|---|
| EQUIPMENT TYPE | 433.92 MHz Car Alarm Transceiver |
| MEASUREMENT PROCEDURE | ANSI 63.4 / 1992 |
| LIMIT TYPE | CERTIFICATION |
| FCC RULE | CFR 47, PART 15 |

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 C&C Laboratory Co., Ltd. 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

| | |
|-----------------------|---|
| Fundamental Frequency | 433.92 MHz |
| Power Source | 3V Battery |
| Transmitting Time | Periodic \leq 5 seconds |
| Associated Receiver | Model: H5OTR09AM (FCC ID) |

3. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at No. 163-1, 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.

4. MEASUREMENT STANDARDS

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/1992.

5. TEST METHODOLOGY

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

6. MEASUREMENT EQUIPMENT USED

| Manufacturer | Model Number | Description | Cal Due Date |
|------------------------------|---------------------|--------------------|---------------------|
| R&S | ESVS30 | MEASURE RECEIVER | 09/13/03 |
| ADVANTEST | R3132 | SPECTRUM ANALYZER | 09/11/03 |
| SCHAFFNER | CBL 6112B | ANTENNA | 11/11/03 |
| BELDEN | 9913 | CABLE | 10/13/03 |
| SCHAFFNER | CPA9231A | PRE-AMPLIFIER | 10/30/03 |
| ANTENNA (1-18GHz) | 3115 | EMCO | 02/24/04 |
| AMPLIFIER (1-26.5GHz) | 8449B | HP | 02/20/04 |
| CABLE (1-18GHz) | SUCOFLEX 104 | HUBER+SUHNER | 02/20/04 |
| EMC ANALYZER (9KHz-22GHz) | 8593A | HP | 01/09/04 |

7. POWERLINE RFI LIMIT

| | |
|--|--|
| CONNECTED TO AC POWER LINE | SECTION 15.207 |
| CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 KHz TO 30 MHz | SECTION 15.205 AND SECTION 15.209, 15.221, 15.223, 15.225 OR 15.227, AS APPROPRIATE. |
| BATTERY POWER | NO REQUIRED. |

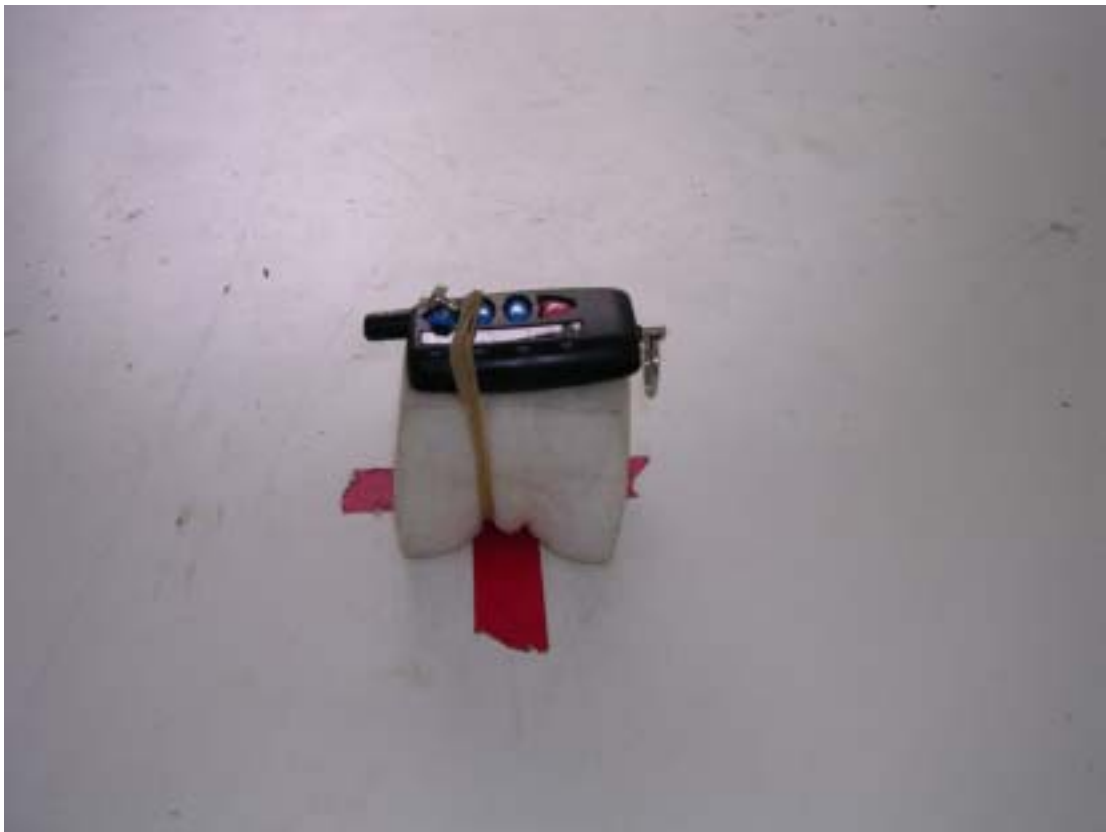
8. RADIATED EMISSION LIMITS

| | |
|--|----------------|
| GENERAL REQUIREMENTS | SECTION 15.209 |
| RESTRICTED BANDS OF OPERATION | SECTION 15.205 |
| PERIODIC OPERATION IN THE BAND 40.66 -40.70 MHz AND ABOVE 70 MHz. | SECTION 15.231 |
| RECEIVER MODE | SECTION 15.109 |

9. SYSTEM TEST CONFIGURATION

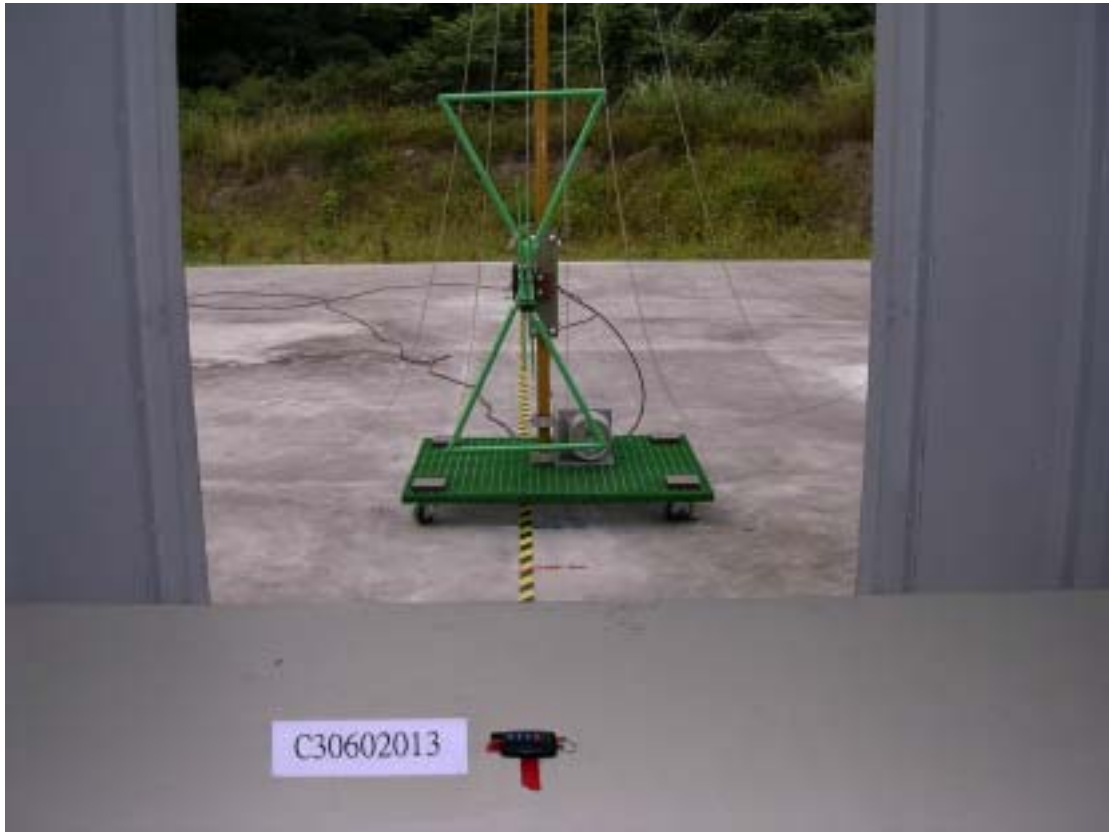
Use a block of foam and combined it with EUT wrapping rubber band around it. This way it can test X.Y, and Z axis. To activate continuous transmission, place a small plastic block between rubber band and EUT push button.

Radiated Open Site Test Set-up (Transmitter Mode)





Radiated Open Site Test Set-Up (Receiver Mode)



10. TEST PROCEDURE

Radiated Emissions, 15.231(4)(b)

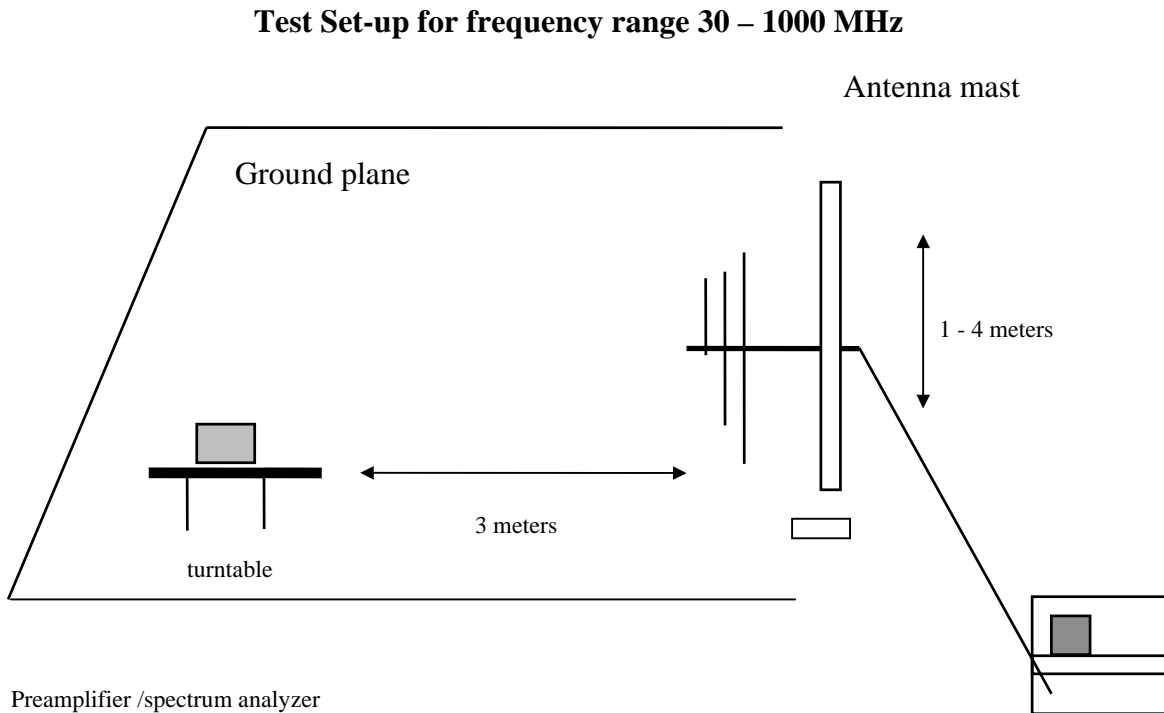


Fig. 1

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3-meters from the EUT.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

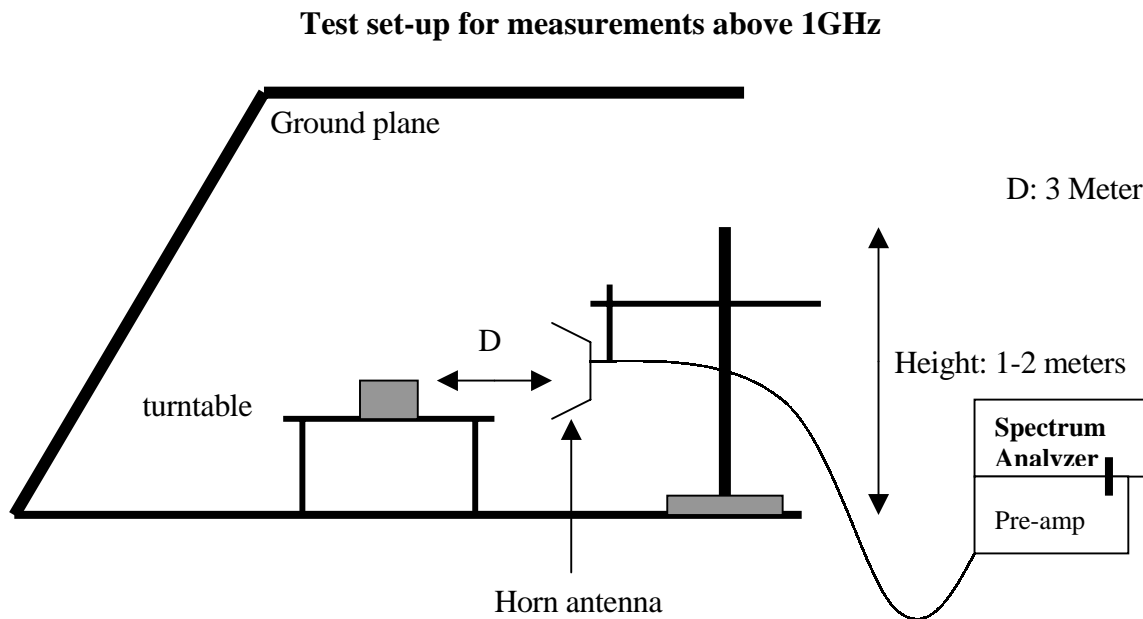


Fig. 2

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 1-meters from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205. The EUT was moved throughout the XY, XZ, and YZ planes to maximize emissions received by the search antenna.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

11. Equipment Modifications

To achieve compliance to FCC Section 15.231 technical limits, the following change(s) were made during compliance testing:

NONE

12. TEST RESULT

| Powerline RFI Class B | Eut | Radiated Emission Limits | Eut |
|--|-----|--------------------------|-----|
| SECTION 15.207 | | SECTION 15.209 | X |
| SECTION 15.205, 15.209, 15.221, 15.223, x 15.225 OR 15.227 | | SECTION 15.205 | |
| BATTERY POWER | X | SECTION 15.231 (b) | X |
| | | SECTION 15.231 (e) | |
| | | SECTION 15.109 | X |

12.1 Maximum Modulation Percentage (M%)

CALCULATION:

$$\text{Average Reading} = \text{Peak Reading (dBuV/m)} + 20 \log (\text{Duty Cycle})$$

In order to determine possible Maximum Modulation percentage, alternations are made to the EUT.
We measured:

WHERE 1 Period = 57.68 mS
 Long pulse = 0.87 mS
 Short pulse = 0.27 mS
 No of Long pulse = 23
 No of Short pulse = 24

$$\text{Duty Cycle} = (N1L1 + N2L2 + \dots + Nn-1Ln-1 + NnLn) / 100 \text{ or } T$$

$$\text{Duty Cycle} = [(23 \times 0.87) + (24 \times 0.27)] / 57.68 = 0.4593 = 45.93 \% \text{ or } -6.7589 \text{dB}$$

12.2 The Emissions Bandwidth

The bandwidth of the emissions were investigated per 15.231(c)

| Center Frequency | Measured | Limits |
|------------------|--------------------------------|----------------------------|
| 433.92 MHz | 560.0 kHz < (refer to plot) | 433.92MHzX0.25%=1084.8 kHz |

Fri 2003 Jun 13 10:11

REF 90.0 dB μ V

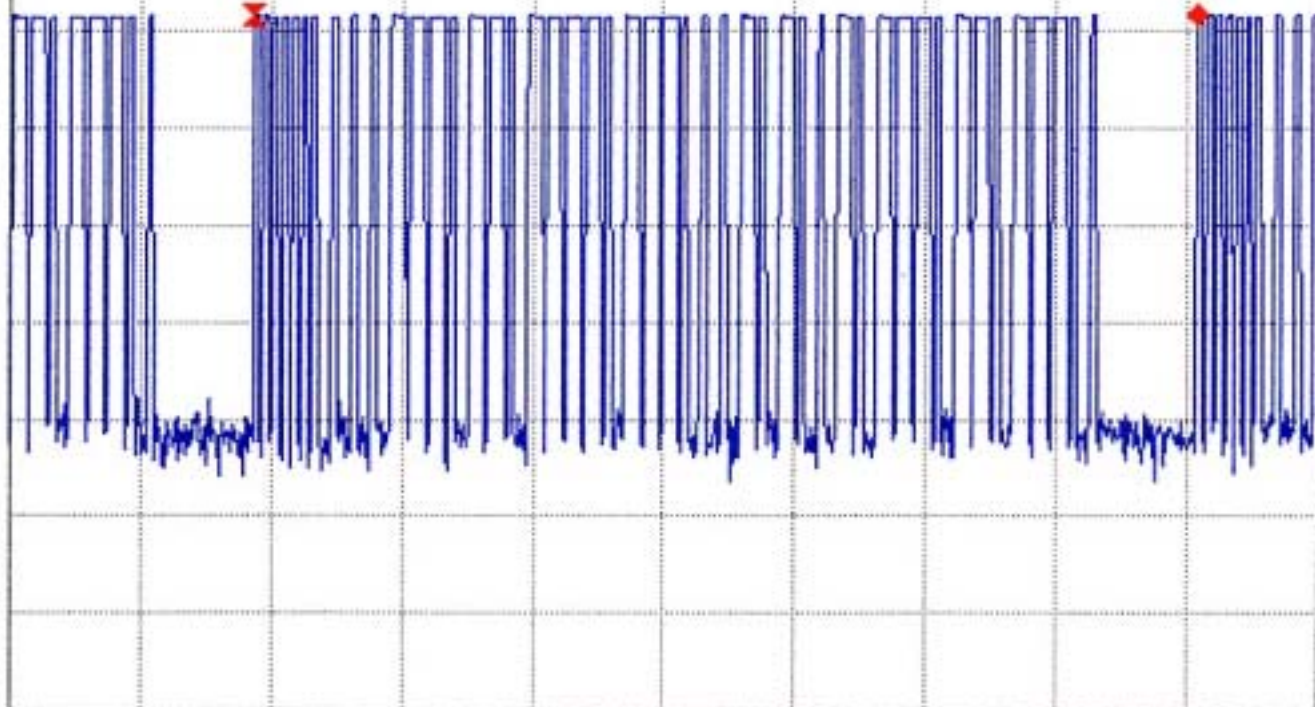
MK Δ 57.68 ms

10dB/

A_Write Posi B_Blank Posi

0.02 dB

DELTA MKR
57.68 ms



CENTER 433.92000 MHz

SPAN 0.000 kHz

*RBW 100 kHz

*VBW 300 kHz

*SWP 80 ms

*ATT 5 dB

Fri 2003 Jun 13 10:29

REF 90.0 dB μ V

MK Δ 870.0 μ s

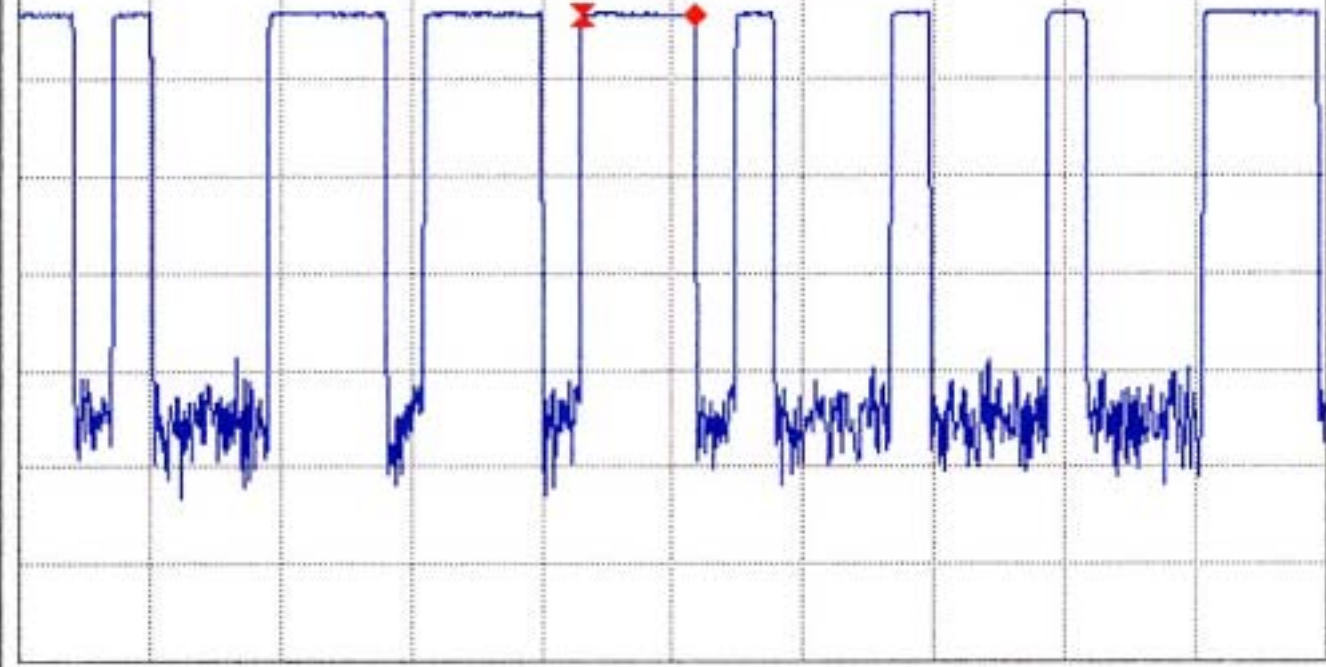
10dB/

A_Write Posi

B_Blank Posi

-0.01 dB

DELTA MKR
870.0 μ s



CENTER 433.92000 MHz

SPAN 0.000 kHz

*RBW 100 kHz

*VBW 300 kHz

*SWP 10 ms

*ATT 5 dB

VERTICAL

REF 90.0 dB μ V

10dB/

A_Write Posi

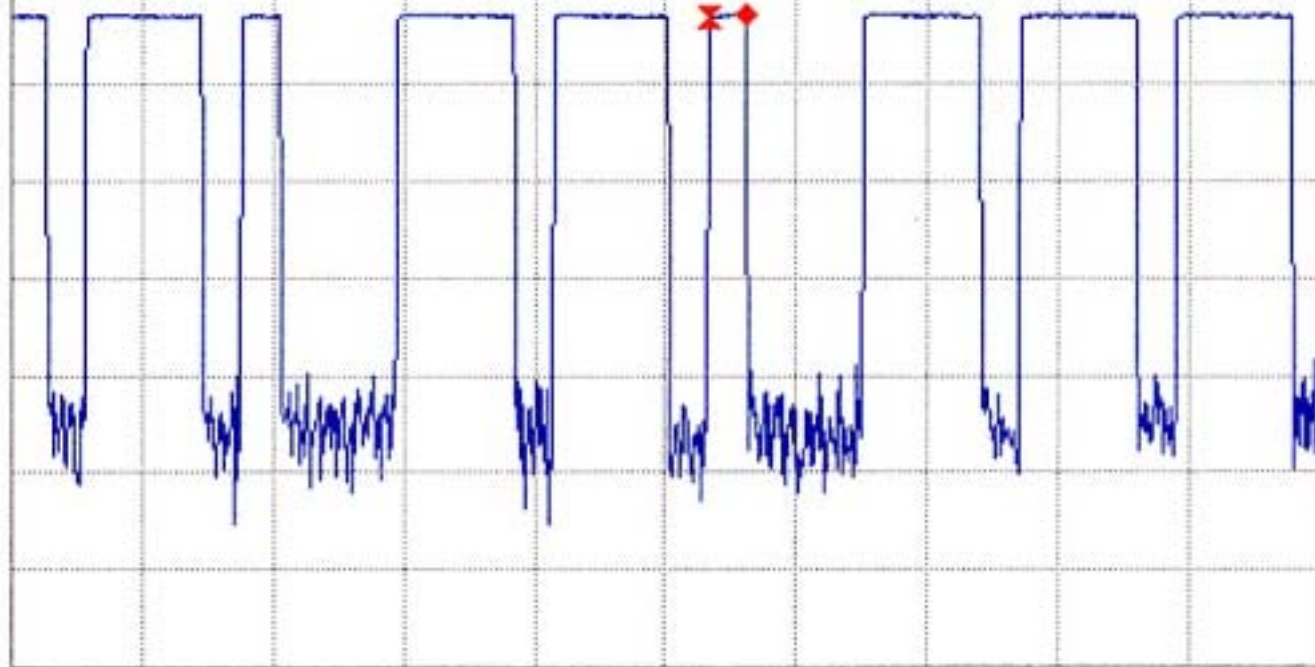
B_Blank Posi

Fri 2003 Jun 13 11:19

MK Δ 270.0 μ s

0.16 dB

DELTA MKR
270.0 μ s



CENTER 433.920000 MHz

SPAN 0.000 kHz

*RBW 100 kHz

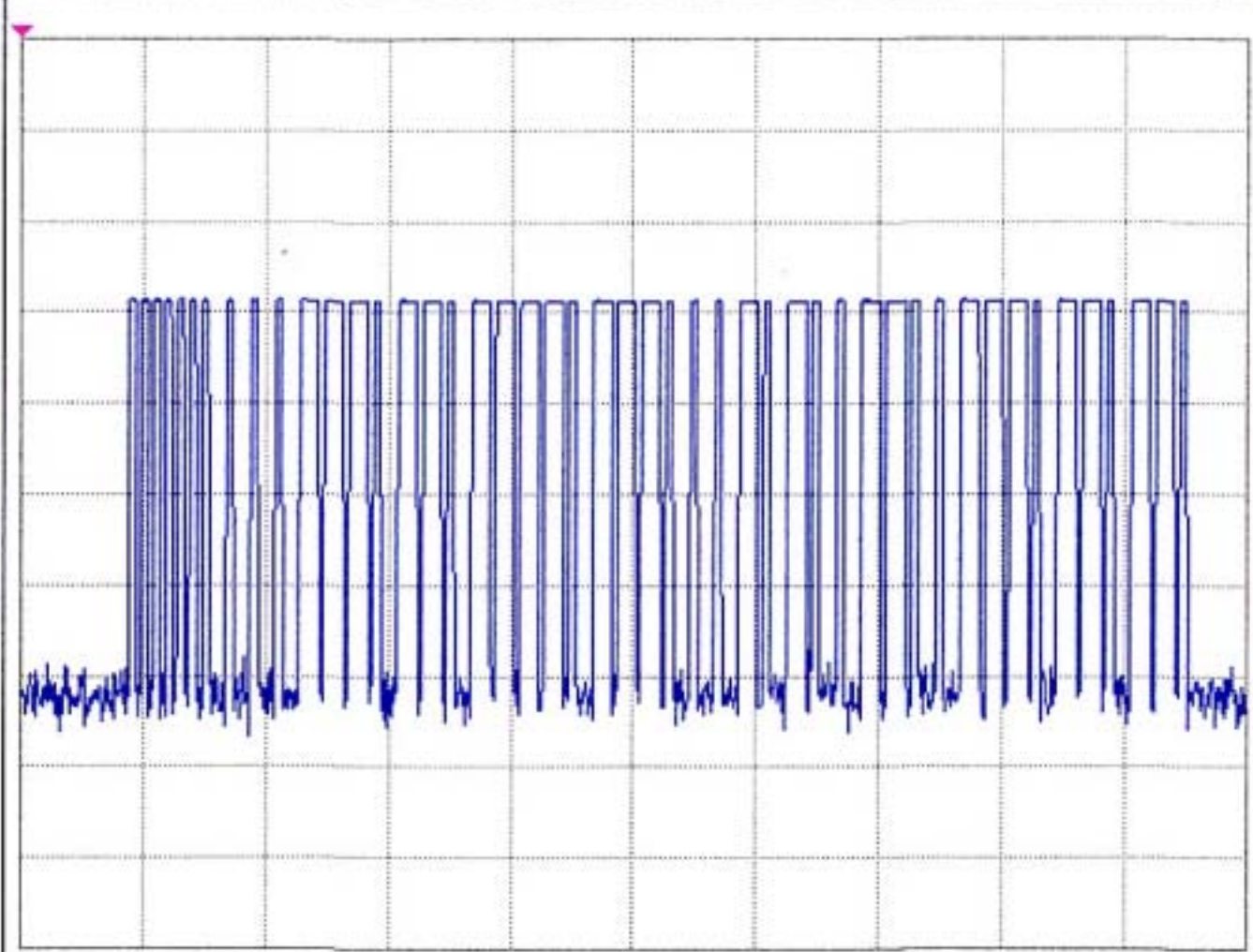
*VBW 300 kHz

*SWP 10 ms

*ATT 5 dB

Fri 2003 Jun 13 10:15

REF 90.0 dB μ V
10dB/ A_Write Posi B_Blank Posi

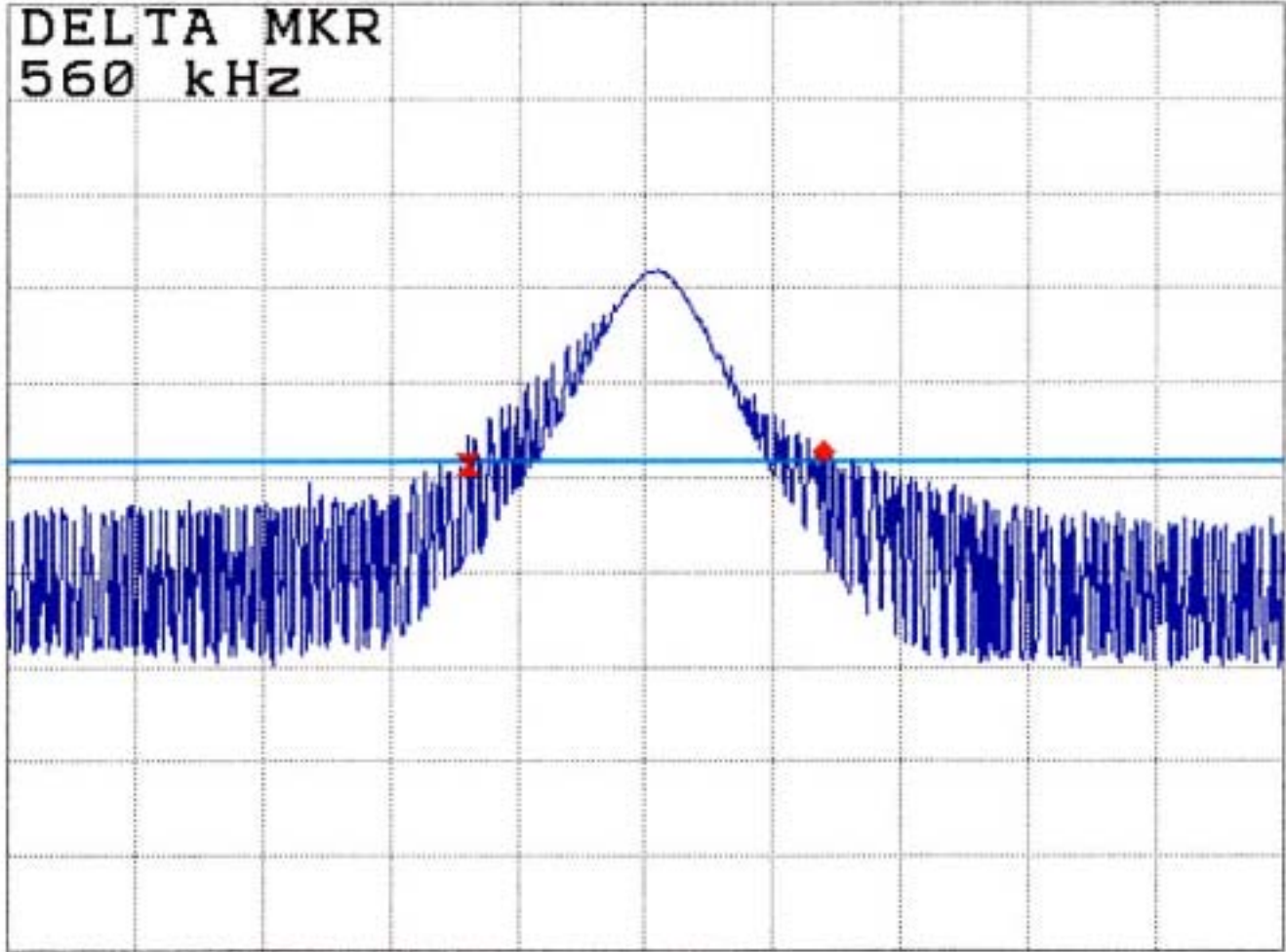


CENTER 433.92000 MHz SPAN 0.000 kHz
*RBW 100 kHz *VBW 300 kHz *SWP 60 ms *ATT 5 dB

Fri 2003 Jun 13 10:09

REF 90.0 dB μ V DL 42.0 dB μ V MK Δ 560 kHz
10dB/ A_View Posi B_Blank Posi 1.53 dB

DELTA MKR
560 kHz



CENTER 433.920 MHz SPAN 2.000 MHz
*RBW 100 kHz *VBW 300 kHz SWP 20 ms *ATT 5 dB

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UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 163-1, Chung Sheng Road,
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1029

Project #: C30602013
Report #: C30602013-RP
Date & Time: 2003/06/13
Test Engr: JIMMY CHEN

Company: Advance Security Inc.
EUT Description: TRX743 (433.92 MHz / Car Alarm Transceiver)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: Transmitter Mode

K Site

$$M\% = ((t1+t2+t3+\dots)/T) * 100\% = 45.93 \%$$

$$\begin{aligned} \text{Av Reading} &= \text{Pk Reading} + 20 * \log(M\%) \\ 20 * \log(M\%) &= -6.7589 \end{aligned}$$

| | Freq. (MHz) | Pk Rdg (dBuV) | Av Rdg (dBuV) | AF/AT (dB) | Closs (dB) | Pre-amp (dB) | Level (dBuV/m) | Limit FCC_B | Margin (dB) | Pol (H/V) | Az (Deg) | Height (Meter) |
|---|----------------|------------------|------------------|---------------|---------------|-----------------|-------------------|----------------|----------------|--------------|-------------|-------------------|
| | Button #1: | | | | | | | | | | | |
| X | 433.97 | 59.34 | 52.58 | 27.12 | 3.28 | 29.68 | 53.30 | 80.83 | -27.53 | 3mV | 270 | 1.20 |
| | 867.86 | 43.05 | 36.29 | 32.74 | 5.02 | 28.79 | 45.26 | 60.83 | -15.57 | 3mV | 90 | 1.00 |
| Y | 433.92 | 63.16 | 56.40 | 27.12 | 3.28 | 29.68 | 57.12 | 80.83 | -23.71 | 3mV | 90 | 1.30 |
| | 867.87 | 47.78 | 41.02 | 32.74 | 5.02 | 28.79 | 49.99 | 60.83 | -10.84 | 3mV | 180 | 1.50 |
| Z | 433.94 | 66.68 | 59.92 | 27.12 | 3.28 | 29.68 | 60.64 | 80.83 | -20.19 | 3mV | 0 | 1.00 |
| | 867.87 | 48.66 | 41.90 | 32.74 | 5.02 | 28.79 | 50.87 | 60.83 | -9.96 | 3mV | 180 | 1.10 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| X | 433.93 | 50.88 | 44.12 | 27.12 | 3.28 | 29.68 | 44.84 | 80.83 | -35.99 | 3mH | 90 | 1.00 |
| | 867.87 | 35.42 | 28.66 | 32.74 | 5.02 | 28.79 | 37.63 | 60.83 | -23.20 | 3mH | 90 | 1.20 |
| Y | 433.93 | 51.05 | 44.29 | 27.12 | 3.28 | 29.68 | 45.01 | 80.83 | -35.82 | 3mH | 270 | 1.00 |
| | 867.87 | 40.02 | 33.26 | 32.74 | 5.02 | 28.79 | 42.23 | 60.83 | -18.60 | 3mH | 180 | 1.30 |
| Z | 433.93 | 45.77 | 39.01 | 27.12 | 3.28 | 29.68 | 39.73 | 80.83 | -41.10 | 3mH | 0 | 1.40 |
| | 867.86 | 34.02 | 27.26 | 32.74 | 5.02 | 28.79 | 36.23 | 60.83 | -24.60 | 3mH | 270 | 1.30 |

AF/AT=AF+10dB(ATTENUATOR)
Peak: RBW= 120KHz
VBW= 300KHz
A(Average): Pk Reading - 6.7589dB

Total Data #12

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FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 163-1, Chung Sheng Road,
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1029

Project #: C30602013
Report #: C30602013-RP
Date & Time: 2003/06/13
Test Engr: JIMMY CHEN

Company: Advance Security Inc.
EUT Description: TRX743 (433.92 MHz / Car Alarm Transceiver)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: Transmitter Mode

K Site

$$M\% = ((t1+t2+t3+\dots)/T) * 100\% = 45.93 \%$$

$$\begin{aligned} \text{Av Reading} &= \text{Pk Reading} + 20 * \log(M\%) \\ 20 * \log(M\%) &= -6.7589 \end{aligned}$$

| | Freq. (MHz) | Pk Rdg (dBuV) | Av Rdg (dBuV) | AF/AT (dB) | Closs (dB) | Pre-amp (dB) | Level (dBuV/m) | Limit FCC_B | Margin (dB) | Pol (H/V) | Az (Deg) | Height (Meter) |
|---|----------------|------------------|------------------|---------------|---------------|-----------------|-------------------|----------------|----------------|--------------|-------------|-------------------|
| | Button #2: | | | | | | | | | | | |
| X | 433.94 | 51.06 | 44.30 | 27.12 | 3.28 | 29.68 | 45.02 | 80.83 | -35.80 | 3mV | 180 | 1.10 |
| | 867.87 | 37.34 | 30.58 | 32.74 | 5.02 | 28.79 | 39.55 | 60.83 | -21.28 | 3mV | 270 | 1.00 |
| Y | 433.93 | 53.84 | 47.08 | 27.12 | 3.28 | 29.68 | 47.80 | 80.83 | -33.03 | 3mV | 90 | 1.20 |
| | 867.87 | 42.50 | 35.74 | 32.74 | 5.02 | 28.79 | 44.71 | 60.83 | -16.12 | 3mV | 0 | 1.20 |
| Z | 433.93 | 57.52 | 50.76 | 27.12 | 3.28 | 29.68 | 51.48 | 80.83 | -29.35 | 3mV | 90 | 1.00 |
| | 867.86 | 42.35 | 35.59 | 32.74 | 5.02 | 28.79 | 44.56 | 60.83 | -16.27 | 3mV | 180 | 1.50 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| X | 433.93 | 49.72 | 42.96 | 27.12 | 3.28 | 29.68 | 43.68 | 80.83 | -37.15 | 3mH | 180 | 1.50 |
| | 867.86 | 34.34 | 27.58 | 32.74 | 5.02 | 28.79 | 36.55 | 60.83 | -24.28 | 3mH | 90 | 1.20 |
| Y | 433.93 | 50.88 | 44.12 | 27.12 | 3.28 | 29.68 | 44.84 | 80.83 | -35.99 | 3mH | 0 | 1.50 |
| | 867.86 | 37.42 | 30.66 | 32.74 | 5.02 | 28.79 | 39.63 | 60.83 | -21.20 | 3mH | 270 | 1.30 |
| Z | 433.94 | 45.48 | 38.72 | 27.12 | 3.28 | 29.68 | 39.44 | 80.83 | -41.39 | 3mH | 180 | 1.20 |
| | 867.87 | 33.28 | 26.52 | 32.74 | 5.02 | 28.79 | 35.49 | 60.83 | -25.34 | 3mH | 270 | 1.30 |

AF/AT=AF+10dB(ATTENUATOR)
Peak: RBW= 120KHz
VBW= 300KHz
A(Average): Pk Reading - 6.7589dB

Total Data #12

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Test Configuration : EUT ONLY
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Mode of Operation: Transmitter Mode

K Site

$$M\% = ((t1+t2+t3+\dots)/T) * 100\% = 45.93 \%$$

$$\begin{aligned} \text{Av Reading} &= \text{Pk Reading} + 20 * \log(M\%) \\ 20 * \log(M\%) &= -6.7589 \end{aligned}$$

| | Freq. (MHz) | Pk Rdg (dBuV) | Av Rdg (dBuV) | AF/AT (dB) | Closs (dB) | Pre-amp (dB) | Level (dBuV/m) | Limit FCC_B | Margin (dB) | Pol (H/V) | Az (Deg) | Height (Meter) |
|---|----------------|------------------|------------------|---------------|---------------|-----------------|-------------------|----------------|----------------|--------------|-------------|-------------------|
| | Button #3: | | | | | | | | | | | |
| X | 433.93 | 48.27 | 41.51 | 27.12 | 3.28 | 29.68 | 42.23 | 80.83 | -38.59 | 3mV | 180 | 1.20 |
| | 867.87 | 36.84 | 30.08 | 32.74 | 5.02 | 28.79 | 39.05 | 60.83 | -21.78 | 3mV | 90 | 1.00 |
| Y | 433.94 | 51.30 | 44.54 | 27.12 | 3.28 | 29.68 | 45.26 | 80.83 | -35.57 | 3mV | 270 | 1.20 |
| | 867.87 | 41.65 | 34.89 | 32.74 | 5.02 | 28.79 | 43.86 | 60.83 | -16.97 | 3mV | 180 | 1.50 |
| Z | 433.93 | 56.18 | 49.42 | 27.12 | 3.28 | 29.68 | 50.14 | 80.83 | -30.69 | 3mV | 90 | 1.20 |
| | 867.87 | 40.75 | 33.99 | 32.74 | 5.02 | 28.79 | 42.96 | 60.83 | -17.87 | 3mV | 0 | 1.50 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| X | 433.93 | 50.23 | 43.47 | 27.12 | 3.28 | 29.68 | 44.19 | 80.83 | -36.64 | 3mH | 180 | 1.10 |
| | 867.85 | 34.29 | 27.53 | 32.74 | 5.02 | 28.79 | 36.50 | 60.83 | -24.33 | 3mH | 180 | 1.20 |
| Y | 433.95 | 50.05 | 43.29 | 27.12 | 3.28 | 29.68 | 44.01 | 80.83 | -36.82 | 3mH | 90 | 1.00 |
| | 867.87 | 37.12 | 30.36 | 32.74 | 5.02 | 28.79 | 39.33 | 60.83 | -21.50 | 3mH | 270 | 1.30 |
| Z | 433.95 | 43.41 | 36.65 | 27.12 | 3.28 | 29.68 | 37.37 | 80.83 | -43.46 | 3mH | 90 | 1.40 |
| | 867.87 | 33.18 | 26.42 | 32.74 | 5.02 | 28.79 | 35.39 | 60.83 | -25.44 | 3mH | 270 | 1.30 |

AF/AT=AF+10dB(ATTENUATOR)
Peak: RBW= 120KHz
VBW= 300KHz
A(Average): Pk Reading - 6.7589dB

Total Data #12

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Company: Advance Security Inc.
EUT Description: TRX743 (433.92 MHz / Car Alarm Transceiver)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: Transmitter Mode

K Site

$$M\% = ((t1+t2+t3+\dots)/T) * 100\% = 45.93 \%$$

$$Av \text{ Reading} = Pk \text{ Reading} + 20 * \log(M\%)$$

$$20 * \log(M\%) = -6.7589$$

| | Freq. (MHz) | Pk Rdg (dBuV) | Av Rdg (dBuV) | AF/AT (dB) | Closs (dB) | Pre-amp (dB) | Level (dBuV/m) | Limit FCC_B | Margin (dB) | Pol (H/V) | Az (Deg) | Height (Meter) |
|---|----------------|------------------|------------------|---------------|---------------|-----------------|-------------------|----------------|----------------|--------------|-------------|-------------------|
| | Button #4: | | | | | | | | | | | |
| X | 433.94 | 46.84 | 40.08 | 27.12 | 3.28 | 29.68 | 40.80 | 80.83 | -40.02 | 3mV | 270 | 1.30 |
| | 867.88 | 37.34 | 30.58 | 32.74 | 5.02 | 28.79 | 39.55 | 60.83 | -21.28 | 3mV | 90 | 1.00 |
| Y | 433.95 | 53.18 | 46.42 | 27.12 | 3.28 | 29.68 | 47.14 | 80.83 | -33.69 | 3mV | 180 | 1.20 |
| | 867.86 | 42.52 | 35.76 | 32.74 | 5.02 | 28.79 | 44.73 | 60.83 | -16.10 | 3mV | 90 | 1.40 |
| Z | 433.93 | 54.92 | 48.16 | 27.12 | 3.28 | 29.68 | 48.88 | 80.83 | -31.95 | 3mV | 0 | 1.20 |
| | 867.87 | 41.35 | 34.59 | 32.74 | 5.02 | 28.79 | 43.56 | 60.83 | -17.27 | 3mV | 0 | 1.50 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| X | 433.94 | 47.13 | 40.37 | 27.12 | 3.28 | 29.68 | 41.09 | 80.83 | -39.74 | 3mH | 90 | 1.10 |
| | 867.86 | 33.89 | 27.13 | 32.74 | 5.02 | 28.79 | 36.10 | 60.83 | -24.73 | 3mH | 180 | 1.50 |
| Y | 433.94 | 50.73 | 43.97 | 27.12 | 3.28 | 29.68 | 44.69 | 80.83 | -36.14 | 3mH | 270 | 1.00 |
| | 867.86 | 40.23 | 33.47 | 32.74 | 5.02 | 28.79 | 42.44 | 60.83 | -18.39 | 3mH | 180 | 1.20 |
| Z | 433.93 | 45.18 | 38.42 | 27.12 | 3.28 | 29.68 | 39.14 | 80.83 | -41.69 | 3mH | 90 | 1.40 |
| | 867.87 | 35.03 | 28.27 | 32.74 | 5.02 | 28.79 | 37.24 | 60.83 | -23.59 | 3mH | 270 | 1.50 |

AF/AT=AF+10dB(ATTENUATOR)
Peak: RBW= 120KHz
VBW= 300KHz
A(Average): Pk Reading - 6.7589dB

Total Data #12

C&C Laboratory CO., LTD.

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 163-1, Chung Sheng Road,
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1029

Project #: C30602013
Report #: C30602013-RP
Date & Time: 2003/06/13
Test Engr: JIMMY CHEN

Company: Advance Security Inc.
EUT Description: TRX743 (433.92 MHz / Car Alarm Transceiver)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)/FCC 15.209
Mode of Operation: Transmitter Mode

K-Site

| Freq. (MHz) | Pk Rdg (dBuV) | Av Rdg (dBuV) | AF (dB) | Closs (dB) | Pre-amp (dB) | Level (dBuV/m) | Limit FCC_B | Margin (dB) | Pol (H/V) | Az (Deg) | Height (Meter) | Mark (P/Q/A) |
|----------------|------------------|------------------|------------|---------------|-----------------|-------------------|----------------|----------------|--------------|-------------|-------------------|-----------------|
| 1302 | 48.62 | 41.86 | 25.18 | 4.75 | 32.04 | 39.75 | 54.00 | -14.25 | 3mV | 90 | 1.2 | A |
| 1736 | 45.86 | 39.10 | 26.43 | 5.58 | 32.76 | 38.35 | 60.83 | -22.48 | 3mV | 180 | 1.0 | A |
| 2170 | 46.08 | 39.32 | 27.76 | 6.25 | 33.15 | 40.18 | 60.83 | -20.65 | 3mV | 270 | 1.0 | A |
| 2604 | 45.74 | 38.98 | 28.91 | 6.77 | 33.18 | 41.48 | 60.83 | -19.35 | 3mV | 90 | 1.1 | A |
| 3037 | 44.40 | 37.64 | 30.09 | 7.45 | 33.02 | 42.16 | 60.83 | -18.67 | 3mV | 90 | 1.0 | A |
| 3471 | 45.42 | 38.66 | 31.14 | 8.18 | 32.69 | 45.29 | 60.83 | -15.54 | 3mV | 180 | 1.0 | A |
| 3905 | 44.10 | 37.34 | 32.37 | 8.62 | 32.91 | 45.42 | 54.00 | -8.58 | 3mV | 180 | 1.3 | A |
| 4339 | 44.38 | 37.62 | 32.25 | 9.10 | 32.97 | 46.00 | 54.00 | -8.00 | 3mV | 180 | 1.7 | A |
| 1302 | 47.49 | 40.73 | 25.18 | 4.75 | 32.04 | 38.62 | 54.00 | -15.38 | 3mH | 90 | 1.1 | A |
| 1736 | 44.11 | 37.35 | 26.43 | 5.58 | 32.76 | 36.60 | 60.83 | -24.23 | 3mH | 0 | 1.0 | A |
| 2170 | 43.77 | 37.01 | 27.76 | 6.25 | 33.15 | 37.87 | 60.83 | -22.96 | 3mH | 270 | 1.0 | A |
| 2604 | 45.78 | 39.02 | 28.91 | 6.77 | 33.18 | 41.52 | 60.83 | -19.31 | 3mH | 180 | 1.3 | A |
| 3038 | 45.78 | 39.02 | 30.09 | 7.45 | 33.02 | 43.54 | 60.83 | -17.29 | 3mH | 180 | 1.0 | A |
| 3472 | 45.26 | 38.50 | 31.14 | 8.18 | 32.96 | 44.86 | 60.83 | -15.97 | 3mH | 90 | 1.5 | A |
| 3905 | 43.07 | 36.31 | 32.37 | 8.62 | 32.91 | 44.39 | 54.00 | -9.61 | 3mH | 180 | 1.2 | A |
| 4339 | 43.00 | 36.24 | 32.25 | 9.10 | 32.97 | 44.62 | 54.00 | -9.38 | 3mH | 180 | 1.0 | A |

* No other emission were found within 20dB under the limits upto 4.5 GHz.

Total data #16
V.2d

P(Peak): RBW=VBW=1MHz
A(Average): Pk Reading -6.7589dB

VERTICAL

REF 80.0 dB μ V

10dB/

A_Max

Posi

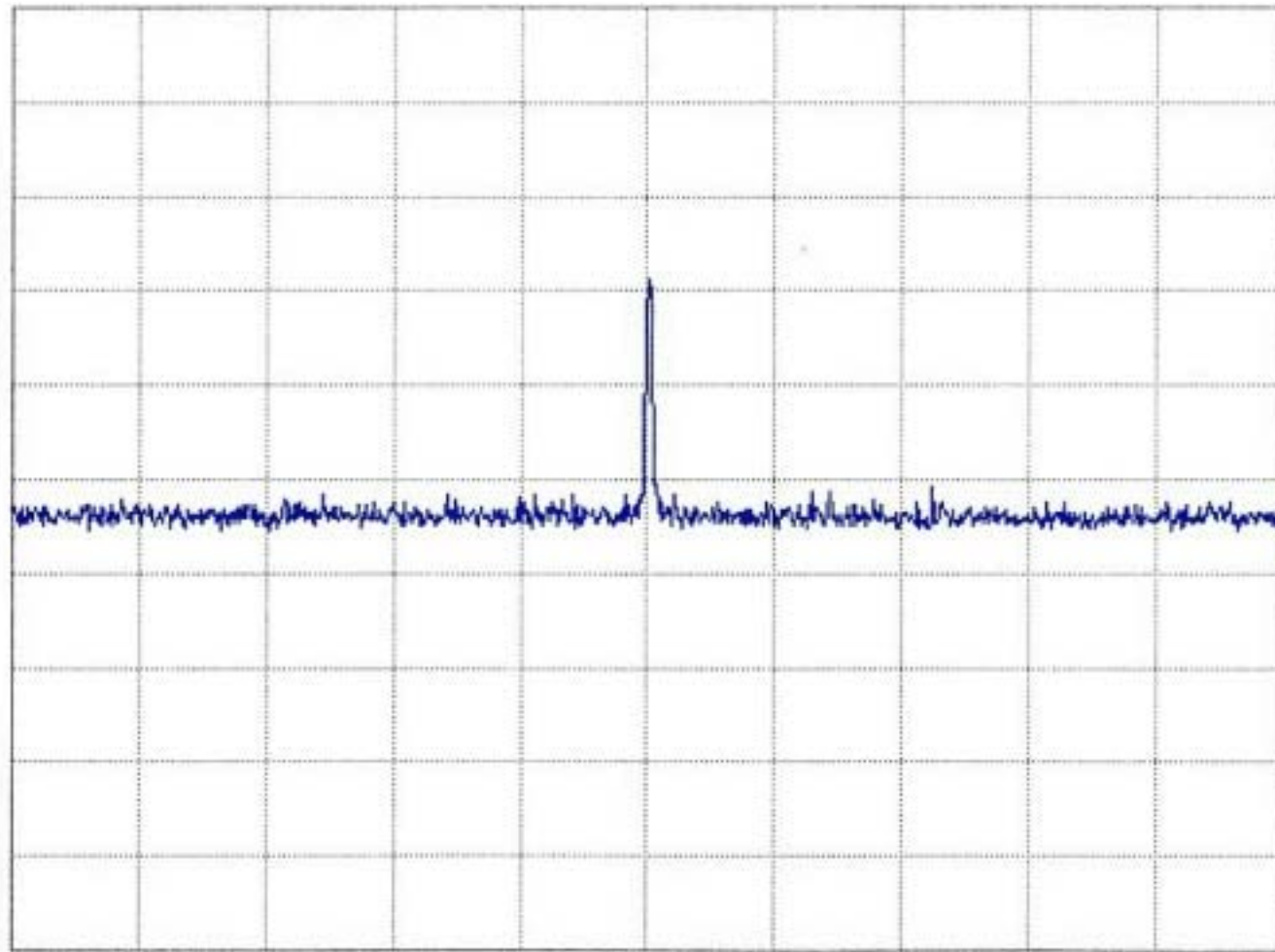
B_Blank

Posi

Fri 2003 Jun 13 11:09

MKR 433.95 MHz

51.36 dB μ V



CENTER 433.92 MHz

SPAN 50.00 MHz

*RBW 100 kHz

*VBW 300 kHz

*SWP 10 ms

*ATT 10dB

HORIZONTAL

Fri 2003 Jun 13 11:04

REF 80.0 dB μ V

MKR 433.96 MHz

10dB/

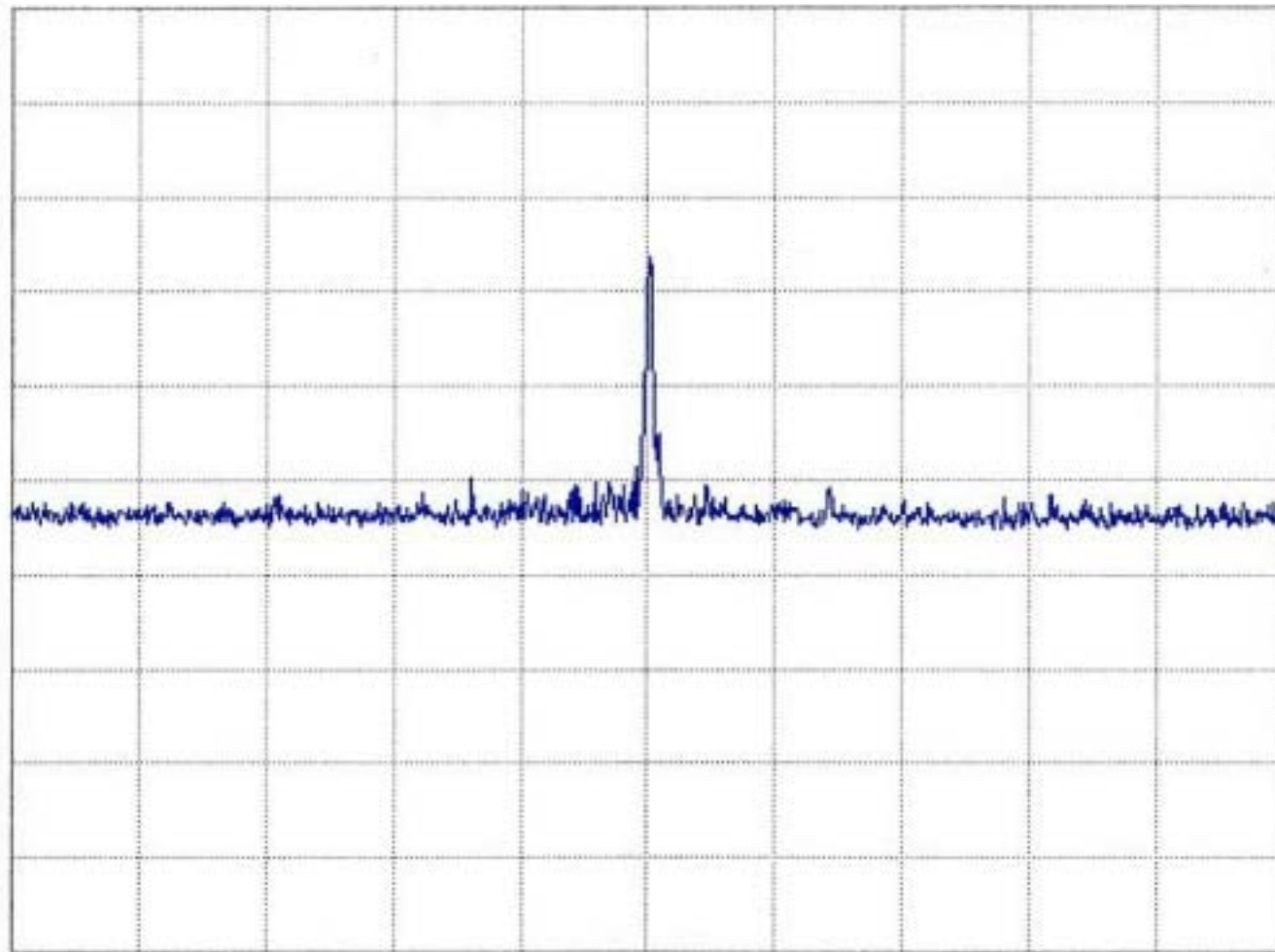
A_View

Posi

B_Blank

Posi

53.25 dB μ V



CENTER 433.92 MHz

SPAN 50.00 MHz

*RBW 100 kHz

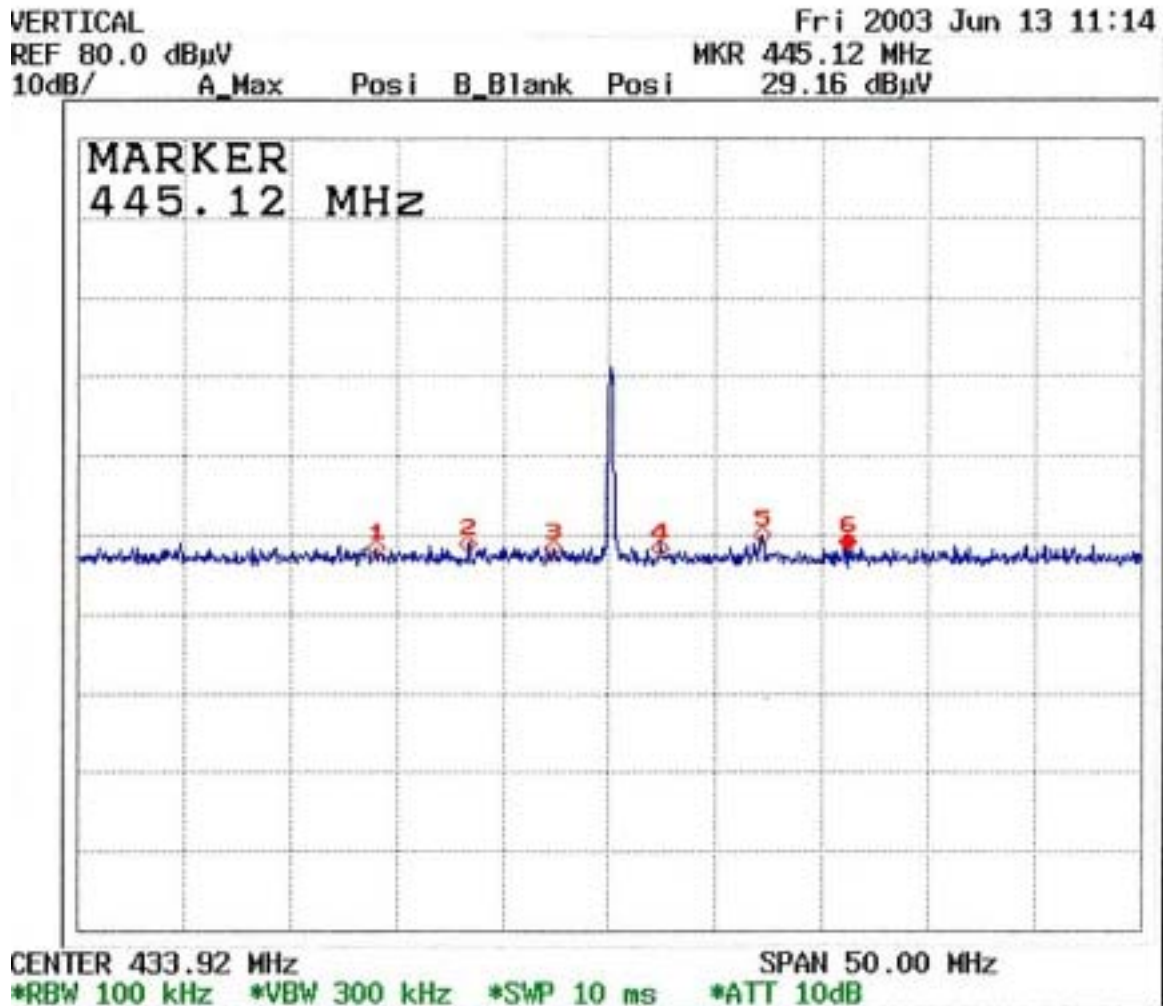
*VBW 300 kHz

*SWP 10 ms

*ATT 10dB

Measurement Result

| | | | |
|------------------------|---------------|---------------------|---------------|
| Operation Mode: | Receiver Mode | Test Configuration: | EUT/TX |
| Fundamental Frequency: | 433.92 MHz | Test Date: | June 13, 2003 |
| Temperature: | 27 | Test By: | Jimmy Chen |
| Humidity: | 65 % | Pol: | Vertical |



| 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) |
|----------------|-----------------|-------------------------|-------------------|-------------------------|-----------------------|---------------------|---------------------|
| 422.970 | V | Peak | 28.27 | 0.45 | 28.72 | 46.00 | -17.28 |
| 427.270 | V | Peak | 28.85 | 0.55 | 29.40 | 46.00 | -16.60 |
| 431.270 | V | Peak | 28.42 | 0.65 | 29.07 | 46.00 | -16.93 |
| 436.270 | V | Peak | 28.47 | 0.77 | 29.24 | 46.00 | -16.76 |
| 441.070 | V | Peak | 29.91 | 0.89 | 30.80 | 46.00 | -15.20 |
| 445.120 | V | Peak | 29.16 | 0.98 | 30.14 | 46.00 | -15.86 |

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

Measurement Result

| | | | |
|------------------------|---------------|---------------------|---------------|
| Operation Mode: | Receiver Mode | Test Configuration: | EUT/TX |
| Fundamental Frequency: | 433.92 MHz | Test Date: | June 13, 2003 |
| Temperature: | 27 | Test By: | Jimmy Chen |
| Humidity: | 65 % | Pol: | Horizontal |



| Freq. (MHz) | Ant.Pol. H/V | DetectorMode (PK/AV) | Reading (dB μ V) | Ant./CL/ Amp. CF(dB) | Actual FS (dB μ V/m) | Limit3m (dB μ V/m) | Safe Margin (dB) |
|----------------|-----------------|-------------------------|-------------------------|-------------------------|-----------------------------|---------------------------|---------------------|
| 425.070 | H | Peak | 28.55 | 0.50 | 29.05 | 46.00 | -16.95 |
| 426.970 | H | Peak | 30.16 | 0.55 | 30.71 | 46.00 | -15.29 |
| 431.020 | H | Peak | 29.43 | 0.64 | 30.07 | 46.00 | -15.93 |
| 432.370 | H | Peak | 29.80 | 0.68 | 30.48 | 46.00 | -15.52 |
| 436.220 | H | Peak | 29.36 | 0.77 | 30.13 | 46.00 | -15.87 |
| 441.070 | H | Peak | 29.17 | 0.89 | 30.06 | 46.00 | -15.94 |

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