



**EMC Compliance  
Management Group**  
670 National Avenue  
Mountain View, CA 94043  
Tel. (650) 988-0900  
Fax (650) 988-6647

Competent Body Approval #: 14082  
NVLAP Lab code: 200068-0

## EMI TEST REPORT

On Model: B-4988  
Prepared for Boxer Toys Company Limited

According to FCC Part 15 Class B

*FCC ID #:* KT6B-4988

*Prepared by:* Arcelia Maldonado

*QC Manager:* William F. Scherer

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### **Government Disclaimer Notice**

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## **ADMINISTRATIVE DATA**

*Test Sample* : Adventure Force Talkie

*Model Number* : B-4988

*Part Number* : N/A

*Applicant* : Boxer Toys Company Limited  
Unit 10, 4<sup>th</sup> Floor, Sun Cheong Industrial Bldg.  
1 Cheung Shun St., Cheung Sha Wan,  
Kowloon, Hong Kong

*Manufacturer* : Akamibara Electronics Factory

*Telephone* : (852) 2397-2628

*Fax* : (852) 2393-3246

## **EUT Description**

*Boxer Toys Company Limited model B-4988 (referred to as the EUT in this report) is an Adventure Force Talkie.*

## Test Summary

The Electromagnetic Compatibility requirements on Model B-4988 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests			
Specifications	Description & Test Results	Test Point	Remark
CFR 47 Part 15 Section 15.235	<b>FUNDAMENTAL FREQUENCY</b> – Passed on Vertical Polarization by 9.6 dB at 49.86MHz.	Enclosure	Attachment 1
CFR 47 Part 15 Section 15.209	<b>SPURIOUS Frequency</b> – Passed on Horizontal Polarization by 18.2 dB at 847.62MHz.  <b>MORSE CODE MODE</b> – Passed on Vertical Polarization by 24.9 dB at 47.85725MHz.  <b>RECEIVE MODE</b> – Passed on Vertical Polarization by 24.8 dB at 47.86475MHz.	Enclosure	Attachment 2

### **Test Location**

*EMC Compliance Management Group is located at 670 National Ave., Mountain View, CA 94043, USA.*

### **Accreditation Bodies**

*EMC Compliance Management Group is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.*



*Laboratory Assessment #: 14082, Approved by Assessment Services, A U. K. Competent Body, as meeting the requirements of EN45001 and ISO Guide 25.*



*In compliance with the site registration requirements of Section 2.948 of the FCC Rules to perform EMI measurements for the general public.*



*Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code # 200068-0.*



*Registered in accordance with Japanese VCCI Regulations.*

### **Antenna Requirement 15.203**

*The transmitter uses a permanently connected antenna.*

## Product Labeling

### **BOXER TOYS COMPANY LIMITED**

UNIT 10, 4/F., SUN CHEONG IND. BLDG., 1 CHEUNG SHUN ST., CHEUNG SHA WAN, KLN., HONGKONG  
Tel : (852) 2397-2628 Fax : (852) 2393-3246 E-mail : tlboxer@asiansources.com

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Dec. 13, 1999.

Federal Communications Commission  
Authorization & Evaluation Division  
7435 Oakland Mills Road,  
Columbia, MD 21046,  
USA.

Re : Sample Label

**FCC ID : KT6B-4988**



This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions :

- (1) This device may not cause harmful interference , and
- (2) This device must accept any interference received,  
including interference that may cause undesired operation.

This is to certify that the label shown above will be the production label to be used on production units of model B-4988, FCC ID number : KT6B-4988.

Best Rgds.

A handwritten signature that appears to read 'Anna'.

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Marketing Assistant

**FCC ID #:** KT6B-4988

**Prepared for** Boxer Toys Company Limited

**Prepared by** EMC Compliance Management Group

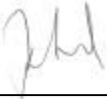
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### ***Equipment Modification***

*To achieve compliance to "FCC Part 15 Class B", the following change(s) were made by EMC Compliance Management Group during compliance testing:*

- a. Added a resistor between L1 and B3.. (for Rx and Morse Code Mode).*
- b. Added 22pf capacitor to ground (at C17).*
- c. Added 33Ohms in series with crystal.*
- d. Added 22pf capacitor to ground (at C14).*

*The above modifications will be implemented in all production models of this equipment.*

  
\_\_\_\_\_  
*Applicant Signature*

PAUL F. Chen  
Typed/Printed Name

Lab Director  
Position

## ***Test System Details***

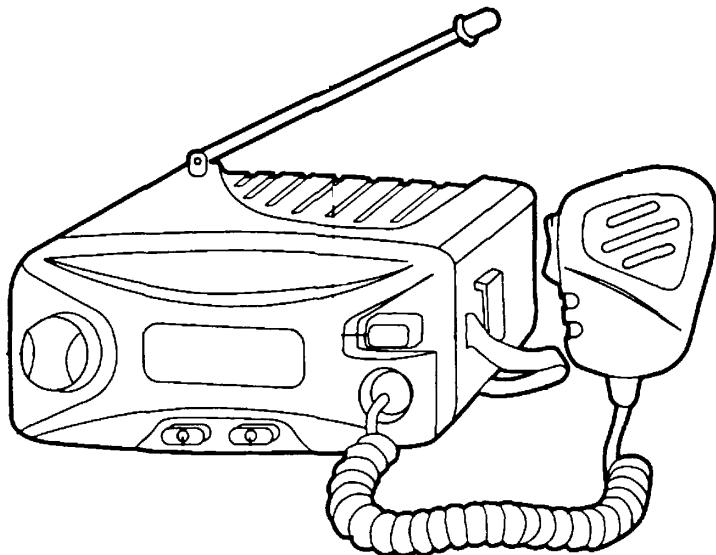
<b><i>EUT</i></b>	
<b><i>Model Number:</i></b>	<b><i>B-4988</i></b>
<b><i>Description:</i></b>	<b><i>Adventure Force Talkie</i></b>
<b><i>Manufacturer:</i></b>	<b><i>Akamibara Electronics Factory</i></b>
<b><i>Support Equipment</i></b>	
<b><i>None</i></b>	

***FCC ID #:*** ***KT6B-4988***

***Prepared for Boxer Toys Company Limited***

***Prepared by EMC Compliance Management Group***

*Configuration of Tested System*



**EUT**

**FCC ID #:** KT6B-4988

**Prepared for** Boxer Toys Company Limited

**Prepared by** EMC Compliance Management Group

**ATTACHMENT 1 - Section 15.235 RADIATED EMISSION TEST RESULTS (204-R-01)**

<b>CLIENT:</b>	Boxer Toys Co., Ltd.	<b>TEST REFERENCE:</b>	CFR 47 Part 15 Section 15.235
<b>EUT MODEL:</b>	B-4988	<b>PRODUCT:</b>	Adventure Force Talkie
<b>SERIAL NO.:</b>	Engineering	<b>EUT DESIGNATION:</b>	Home Use
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	35%
<b>ATM PRESSURE:</b>	1017 Mbar	<b>GROUNDING:</b>	N/A
<b>TESTED BY:</b>	Robert Li	<b>DATE OF TEST:</b>	2000 Apr 03
<b>SETUP METHOD:</b>	ANSI C63.4:1992, CISPR 16-1:1993		
<b>TEST PROCEDURE:</b>	<p>The EUT is set up according to the guidelines of ANSI C63.4:1992 for radiated emissions. An EMI receiver peak scan is made at the frequency measurement range (pre-scan) in an Anechoic chamber. Signal discrimination is then performed and the significant peaks marked. These peaks are then quasi-peaked from 30 MHz to 1GHz at OATs.</p> <p>The following data lists the significant emission frequencies, measured levels, correction factors (including cable and antenna correction factors), and the corrected readings against the limits. Explanation of the Correction Factor is given as follows:</p> <p>FS= RA + AF + CF - AG</p> <p>Where: FS = Field Strength</p> <p>RA = Receiver Amplitude</p> <p>AF = Antenna Factor</p> <p>CF = Cable Attenuation Factor</p> <p>AG = Amplifier Gain</p>		
<b>TESTED RANGE:</b>	30MHz to 1,000MHz on Quasi-peak		
<b>TEST VOLTAGE:</b>	4.5V Battery (before test start)		
<b>RESULTS:</b>	<ul style="list-style-type: none"> <li><b>Fundamental Frequency:</b> The EUT meets the requirements of test reference for Radiated Emissions on vertical polarization by 9.6 dB at 49.86MHz.</li> </ul> <p>The test results relate only to the equipment under test provided by client.</p>		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modification installed by EMC Compliance Management Group test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp $\pm 2.6$ dB		

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## Fundamental Frequency

Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB $\mu$ V/m]	Delta, QP [dB]	3Meters Limits [dB $\mu$ V/m]	Correction Factors [dB/m]
Set-up/Configuration: ANSI C63.4:1992					
49.86	V	70.4	-9.6	80.0	10.1
49.86	H	66.7	-13.3	80.0	10.1
Comments: None					
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.					

Test Equipment	Manufacturer/ Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	HP 85462A	3650A00363	05/21/99	05/21/00
RF Filter	HP 85460A	3704A00349	05/21/99	05/21/00
Antenna	CHASE CBL6112A	2274	11/16/99	11/16/00
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).				

SIGNED: Robert E.

REVIEWED: William J. Scherer

FCC ID #: KT6B-4988

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**ATTACHMENT 2 - Section 15.209 RADIATED EMISSION TEST RESULTS (204-R-01)**

<b>CLIENT:</b>	Boxer Toys Co., Ltd.	<b>TEST REFERENCE:</b>	CFR 47 Part 15 Section 15.209
<b>EUT MODEL:</b>	B-4988	<b>PRODUCT:</b>	Adventure Force Talkie
<b>SERIAL NO.:</b>	Engineering	<b>EUT DESIGNATION:</b>	Home Use
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	35%
<b>ATM PRESSURE:</b>	1017 Mbar	<b>GROUNDING:</b>	N/A
<b>TESTED BY:</b>	Robert Li	<b>DATE OF TEST:</b>	2000 Apr 03
<b>SETUP METHOD:</b>	ANSI C63.4:1992, CISPR 16-1:1993		
<b>TEST PROCEDURE:</b>	<p>The EUT is set up according to the guidelines of ANSI C63.4:1992 for radiated emissions. An EMI receiver peak scan is made at the frequency measurement range (pre-scan) in an Anechoic chamber. Signal discrimination is then performed and the significant peaks marked. These peaks are then quasi-peaked from 30 MHz to 1GHz at OATs.</p> <p>The following data lists the significant emission frequencies, measured levels, correction factors (including cable and antenna correction factors), and the corrected readings against the limits. Explanation of the Correction Factor is given as follows:</p> <p>FS = RA + AF + CF - AG</p> <p>Where: FS = Field Strength</p> <p>RA = Receiver Amplitude</p> <p>AF = Antenna Factor</p> <p>CF = Cable Attenuation Factor</p> <p>AG = Amplifier Gain</p>		
<b>TESTED RANGE:</b>	30MHz to 1,000MHz on Quasi-peak		
<b>TEST VOLTAGE:</b>	4.5VDC Battery (before test start)		
<b>RESULTS:</b>	<ul style="list-style-type: none"> <li><b>Spurious Frequency:</b> The EUT meets the requirements of test reference for Radiated Emissions on horizontal polarization by 18.2dB at 847.62MHz.</li> <li><b>Morse Code Mode:</b> The EUT meets the requirements of test reference for Radiated Emissions on vertical polarization by 24.9dB at 47.85725MHz.</li> <li><b>Receive Mode:</b> The EUT meets the requirements of test reference for Radiated Emissions on vertical polarization by 24.8dB at 47.86475MHz.</li> </ul> <p>The test results relate only to the equipment under test provided by client.</p>		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modification installed by EMC Compliance Management Group test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp $\pm 2.6$ dB		

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## ***Spurious Mode***

Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB $\mu$ V/m]	Delta, QP [dB]	3Meters Limits [dB $\mu$ V/m]	Correction Factors [dB/m]
Set-up/Configuration: ANSI C63.4:1992					
847.62	H	27.8	-18.2	46.0	23.7
747.90	H	26.2	-19.8	46.0	22.6
747.90	V	26.0	-20.0	46.0	22.6
648.18	V	24.6	-21.4	46.0	21.6
548.46	H	24.0	-22.0	46.0	20.3
398.88	V	20.8	-25.2	46.0	18.1
Comments: None					
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.					

## Morse Code Mode

Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB $\mu$ V/m]	Delta, QP [dB]	3Meters Limits [dB $\mu$ V/m]	Correction Factors [dB/m]
Set-up/Configuration: ANSI C63.4:1992					
47.85725	V	15.1	-24.9	40.0	11.0
47.75500	V	14.6	-25.4	40.0	10.6
49.28550	V	13.6	-26.4	40.0	10.3
49.71300	V	11.8	-28.2	40.0	10.1
50.12525	V	9.6	-30.4	40.0	10.0
47.88125	H	8.3	-31.7	40.0	10.9
Comments: None					
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.					

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## Receive Mode

Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dB $\mu$ V/m]	Delta, QP [dB]	3Meters Limits [dB $\mu$ V/m]	Correction Factors [dB/m]
Set-up/Configuration: ANSI C63.4:1992					
47.86475	V	15.2	-24.8	40.0	11.0
48.70450	V	14.7	-25.3	40.0	10.6
49.23500	V	14.1	-25.9	40.0	10.3
49.66225	V	12.2	-27.8	40.0	10.2
47.73975	H	11.5	-28.5	40.0	11.0
50.07150	V	10.1	-29.9	40.0	10.0
Comments: None					
Note: All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 30 ms sweep time. A video filter was not used.					

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Test Equipment	Manufacturer/ Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	HP 85462A	3650A00363	05/21/99	05/21/00
RF Filter	HP 85460A	3704A00349	05/21/99	05/21/00
Antenna	CHASE CBL6112A	2274	11/16/99	11/16/00
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).				

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REVIEWED: William J. Scheuer

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