

EMC TEST REPORT

On Model: SW-2098
Prepared for Boxer Toys Co., Ltd.

According to FCC Part 15 Class B
CERTIFICATION REPORT

<i>FCC ID#:</i>	<i>KT6SW-2098</i>
<i>Prepared by:</i>	<i>Tian Wang</i>
<i>QC Manager:</i>	<i>Michael J. Azar</i>

DECLARATION OF CONFORMITY

According to FCC Part 15

Responsible Party Name : Boxer Toys Co., Ltd.

Address : Unit 10, 4/F., Sun Cheong Industrial Bldg.,
1 Cheung Shun St., Cheung Sha Wan,
Kowloon, Hong Kong

Telephone : (852) 2397-2628

Declares that product : Wrist Watch Walkie Talkie (Receiver Portion)

Model Name : SW-2098

Complies with Part 15 of the FCC Rules.

This device complies with Part 15 of the FCC rules. Operations 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.

Responsible Party:

Date: _____

Phone: _____

Fax: _____

Signature: _____

Test Laboratory:

This is the result of tests, that were carried out from the submitted product sample(s) in conformity with the specification of the respective standards. The certification holder has the right to affix the FCC label on the product complying with the inspection sample.



670 National Ave. Mountain View, CA 94043
650-988-0900 650-988-6647(Fax)



Accreditation #: 200068-0

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ADMINISTRATIVE DATA

Test Sample : SW-2098

Part Number : N/A

Manufacturer : Boxer Toys Co., Ltd.
Unit 10, 4/F., Sun Cheong Industrial Bldg.,
1 Cheung Shun St., Cheung Sha Wan,
Kowloon, Hong Kong

Telephone : (852) 2397-2628

Fax : (852) 2393-3246

EUT Description

Boxer Toys Co., Ltd., model SW-2098 (referred to as the EUT in this report) is Wrist Watch Walkie Talkie

Test Summary

The Electromagnetic Compatibility requirements on Model SW-2098 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.

<i>Emission Tests</i>			
<i>Specifications</i>	<i>Test Results</i>	<i>Test Point</i>	<i>Remark</i>
<i>CFR 47 Part 15 Section 15.235 (a)</i>	<i>Field Strength</i>	<i>Enclosure</i>	<i>Attachment 1</i>
<i>CFR 47 Part 15 Section 15.235 (b) & 15.109</i>	<i>Harmonics Measurement</i>	<i>Enclosure</i>	<i>Attachment 2</i>

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

Oct. 8, 1999.

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

Re : Sample Label

FCC ID : KT6SW-2098



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 SW-2098 , FCC ID number : KT6SW-2098.

Best Rgds.

A handwritten signature in cursive script, appearing to read "Carol Lam".

Carol Lam
c.c. Mr. K. K. Chan
Engineer

System Test Justification

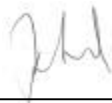
Handset units were tested both horizontal and vertical to give maximized reading.

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 3.6pf capacitor between B & E of Q1.
(Part Number: SMT 1.8pf + 1.8pf)*
- b. Added a 10kW resistor across Crystal (49.86MHz) at push switch. (Part Number: SMT 10kW 0603)*

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



Applicant Signature

PAUL F. Chen

Typed/Printed Name

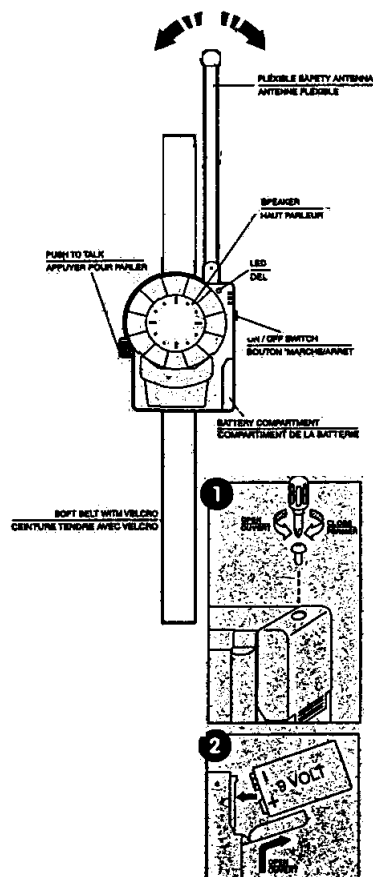
Lab Director

Position

Test System Details

<i>EUT</i>	
<i>Model Number:</i>	<i>SW-2098</i>
<i>Description:</i>	<i>Wrist Watch Walkie Talkie</i>
<i>Manufacturer:</i>	<i>Boxer Toys Co., Ltd.</i>
<i>Support Equipment</i>	
<i>None</i>	

Configuration of Tested System



ATTACHMENT 1 CFR 15.235 (a) FIELD STRENGTH RESULTS (202R-01)

CLIENT:	Boxer Toys Co., Ltd.	TEST REFERENCE:	CFR 47 Part 15 Section 15.235 (a)
EUT MODEL:	SW-2098	PRODUCT:	Wrist Watch Walkie Talkie
SERIAL NO.:	N/A	EUT DESIGNATION:	Home Use
TEMPERATURE:	29° C	HUMIDITY:	87%
ATM PRESSURE:	1017 Mbar	GROUNDING:	Battery Powered
TESTED BY:	Paul F. Chen	DATE OF TEST:	09/31/99
SETUP METHOD:	ANSI C63.4: 1992, CISPR 16-1:1993		
TEST PROCEDURE:	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 average in the frequency range of 30 MHz to 1GHz at OATS. 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: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain		
TESTED RANGE:	30MHz to 1,000MHz		
TEST VOLTAGE:	9 Volts Battery (<u>before test : 9.13 Volts; after test 9.02 Volts</u>)		
RESULTS:	The EUT meets the requirements of test reference for Radiated Emissions on vertical polarization by 2.0 dB at 44.1125MHz. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There are modifications installed by EMC Compliance Management Group test personnel. Please see attached photo as follows.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

FCC ID #: KT6SW-2098

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Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dBμV/m]	Delta, AVE [dB]	3 Meters Limits [dBμV/m]	Correction Factors [dB/m]
Set-up/Configuration: The RX/TX antenna of EUT was tested at both polarization.					
44.1125	V	38.0	-2.0	40.0	12.9
45.1545	H	35.4	-4.6	40.0	12.9
Note: According to CFR 15.35. All readings are AVERAGED unless stated otherwise, using an IF 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	11/15/98	11/15/99
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:



REVIEWED:



ATTACHMENT 2 CFR 15.235 (b) HARMONICS MEASUREMENT RESULTS

CLIENT:	Boxer Toys Co., Ltd.	TEST REFERENCE:	CFR 47 Part 15 Section 15.235 (b) and 15.109
EUT MODEL:	SW-2098	PRODUCT:	Wrist Watch Walkie Talkie
SERIAL NO.:	N/A	EUT DESIGNATION:	Home Use
TEMPERATURE:	29° C	HUMIDITY:	87%
ATM PRESSURE:	1017 Mbar	GROUNDING:	Battery Powered
TESTED BY:	Paul F. Chen	DATE OF TEST:	09/31/99
SETUP METHOD:	ANSI C63.4: 1992, CISPR 16-1:1993		
TEST PROCEDURE:	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 average in the frequency range of 30 MHz to 1GHz at OATS. 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: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain		
TESTED RANGE:	30MHz to 1,000MHz		
TEST VOLTAGE:	9 Volts Battery (before test : 9.1 Volts; after test 9.02 Volts)		
RESULTS:	The EUT meet the requirements of test reference for Radiated Emissions on horizontal polarization by 1.0 dB at 398.8317MHz. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There are modifications installed by EMC Compliance Management Group test personnel. Please see attached photo as followed.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

FCC ID #: KT6SW-2098

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Frequency [MHz]	Antenna Polarization [V/H]	Corrected Reading [dBμV/m]	Delta, QP [dB]	3 Meters Limits [dBμV/m]	Correction Factors [dB/m]
Set-up/Configuration: The RX/TX antenna of EUT was tested at both vertical and horizontal polarization.					
398.8317	H	45.0	-1.0	46.0	19.9
398.8317	V	44.9	-1.1	46.0	19.9
797.6561	V	44.5	-1.5	46.0	26.5
299.1236	V	44.5	-1.5	46.0	16.2
847.3137	H	43.2	-2.8	46.0	27.2
847.5000	V	43.0	-3.0	46.0	27.2
797.6663	H	41.1	-4.9	46.0	26.5
348.9725	V	37.7	-8.3	46.0	18.1
299.1182	H	37.6	-8.4	46.0	16.2
299.1224	H	37.4	-8.6	46.0	16.2
448.6635	V	36.7	-10.3	46.0	20.8
648.0861	V	36.0	-11.1	46.0	24.3
548.3803	V	31.7	-14.3	46.0	22.7
Note: All readings are Quasi-Peaked unless stated otherwise, using an IF 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	11/15/98	11/15/99
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: _____



REVIEWED: _____

