Lab Code: 200707-0

FCC PART 15.229
EMI MEASUREMENT AND TEST REPORT

For

CANHUI TOYS

ZHENXING INDUSTRIAL ESTATE, PUMEI, CHENGHAI DISTRICT, CHINA

FCC ID: UKGBB67-TX40M

September 5, 2006

This Report Concerns:	**Equipment Type:**
☒ Original Report	REMOTE CONTROL SOCCER

Test Engineer:	Charmi Peng
Report No.:	RSZ06082103
Test Date:	September 1-2,2006
Reviewed By:	EMC Manager: Boni Baniqued
Prepared By:	Bay Area Compliance Lab Corp. (ShenZhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China Tel: +86-755-33320018 Fax: +86-755-33320008

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *CANHUI TOYS.*'s product, model number: *BB67-TX(40M)* or the "EUT" as referred to in this report is a *transmitter of REMOTE CONTROL SOCCER* The EUT is measured approximately 9.0 cm L x 9.0 cm W x 8.0 cm H. rated input voltage: DC 9V battery.

** The test data gathered are from production sample, serial number: 0608027, provided by the manufacturer. We received EUT on 2006-8-21.*

Objective

This Type approval report is prepared on behalf of *CANHUI TOYS* in accordance with Part 2, Subpart J, and Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules, sec 15.203, 15.205, 15.209 and sec 15.229.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Lab Corp. (ShenZhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab Corp. (ShenZhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

N/A.

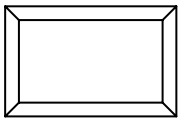
Special Accessories

The special Accessories were supplied by manufacturer.

Equipment Modifications

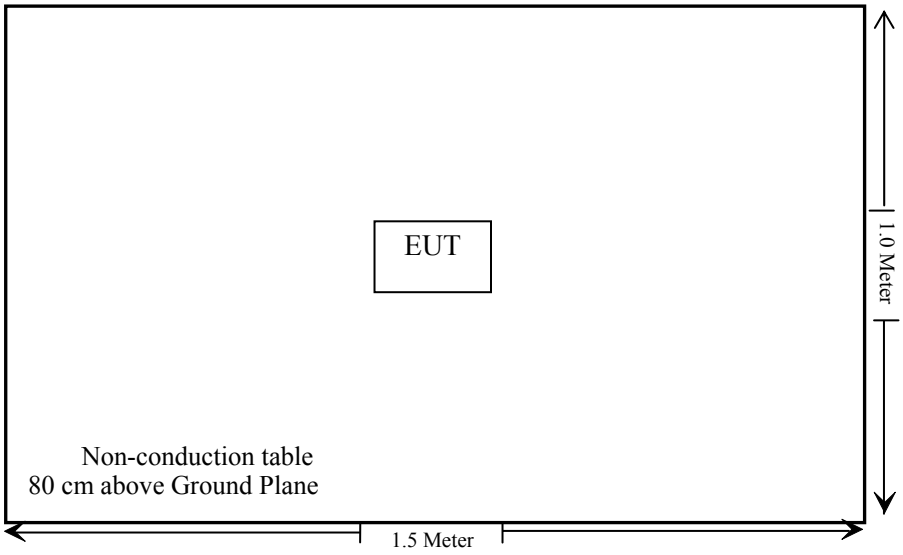
Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

Configuration of Test Setup



EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.205	Restricted Band of operation	Compliant
§15.209	Radiated Emission Test	Compliant*
§15.229(a)	Field Strength	Compliant
§15.229(d)	Frequency stability	Compliant
§15.229(c)	Out of Band Emission	Compliant

* Within measurement uncertainty.

§15.205, §15.209, §15.229(a) - RADIATED EMISSIONS TEST

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is ±4.0 dB.

EUT Setup

The radiated emission tests were performed in the chamber B test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15 Subpart C section 15.229 limits.

EMI Test Receiver Setup

According to FCC Rules, 47 CFR 15.33, the EUT emissions were investigated from 27 MHz to 1000 MHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency	***RB/W***	***VB/W***	***IF B/W***
30 MHz-1 GHz	100 kHz	300 kHz	120 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2006-8-17	2007-8-17
HP	Amplifier	HP8447E	1937A01046	2006-8-17	2007-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2006-4-28	2007-4-28
ETS	Passive Loop Antenna	6512	00029604	2006-4-26	2007-4-26

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter reading. The basic equation is as follows:

Corr. Ampl. = Meter Reading + Antenna Loss + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin =Corr. Ampl – Limit

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.229 & 15.209, with the worst margin reading of:

-2.08dB at **40.68 MHz** in the **Vertical** polarization.

Test Data

Environmental Conditions

Temperature:	22° C
Relative Humidity:	58%
ATM Pressure:	1016mbar

Testing was performed by Charmi Peng on 2006-9-1.

Test Mode: Transmitting

Frequency	Reading	Detector	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Corr. Ampl.	Limit	Margin
MHz	dBuV/m	PK/QP/AV	Degree	Meter	H / V	dB	dB	dB	dBuV/m	dBuV/m	dB
30 -1000 MHz											
40.68	70.40	PK	45	1.0	V	14.30	0.23	27.01	57.92	60.00	-2.08*
40.68	59.11	PK	289	1.0	H	14.30	0.23	27.01	46.63	60.00	-13.37
30.21	23.93	PK	45	1.0	H	24.10	0.37	27.02	21.38	40.00	-18.62
31.50	23.03	PK	0	1.0	V	24.10	0.37	27.02	20.48	40.00	-19.52
81.21	37.91	PK	35	3.8	V	8.40	0.81	26.87	20.25	40.00	-19.75
81.21	36.05	PK	60	1.0	H	8.40	0.81	26.87	18.39	40.00	-21.61
63.53	33.37	PK	180	1.2	V	8.10	0.62	26.91	15.18	40.00	-24.82
63.09	30.22	PK	180	1.2	H	8.10	0.62	26.91	12.03	40.00	-27.97
136.45	26.25	PK	90	1.2	V	14.20	1.87	27.00	15.32	43.50	-28.18
121.97	25.73	PK	35	3.8	V	14.00	1.17	26.58	14.32	43.50	-29.18
121.97	25.61	PK	45	1.2	H	14.00	1.17	26.58	14.20	43.50	-29.30
203.52	25.97	PK	45	1.2	V	12.60	1.92	26.58	13.91	43.50	-29.59
284.97	26.22	PK	180	1.2	H	13.80	2.58	26.34	16.26	46.00	-29.74
203.52	25.69	PK	180	1.2	H	12.60	1.92	26.58	13.63	43.50	-29.87

* Within measurement uncertainty

§15.229 (d)- FREQUENCY STABILITY

Applicable Standard

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
WUHUAN	Temperature & Humidity Chamber	HTP205	20021115	2006-1-2	2007-1-2
Hewlett-Packard	Frequency Counter	5342A	2317A08289	2006-1-26	2007-1-26

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a f Spectrum Analyzer via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the Spectrum Analyzer.

Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

The testing was performed by Charmi Peng on 2006-9-2.

Test Result: Pass

Test Mode: Transmitting

Reference Frequency: 40.68 MHz, Limit: 100 ppm			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapsed	
		MCF (MHz)	PPM Error
50	9	40.681282	31.51426
40	9	40.681263	31.04720
30	9	40.681460	35.88987
20	9	40.681225	30.11308
10	9	40.681400	34.41495
0	9	40.681455	35.76696
-10	9	40.681600	39.33137
-20	9	40.681621	39.84759

Frequency Stability Versus Input Voltage

Reference Frequency: 40.68 MHz, Limit: 100 ppm			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapsed	
		Frequency (MHz)	PPM Error
20	10.3	40.681200	29.49853
20	7.7	40.680800	19.66568

§15.229(c) - Out of Band Emission

EMI Test Receiver Setup

The system was investigated from 40.66 MHz to 40.70MHz.

During the out of band emission test, the EMI test receiver was set with the following configurations:

Frequency	RB/W	VB/W	SWT
40.66 MHz-40.70 MHz	*10 kHz*	*30 kHz*	*Auto*

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2006-8-17	2007-8-17
HP	Amplifier	HP8447E	1937A01046	2006-8-17	2007-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2006-4-28	2007-4-28
ETS	Passive Loop Antenna	6512	00029604	2006-4-26	2007-4-26

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

Reading the emission of 40.66 MHz and 40.70 MHz to ensure that the EUT complied with the FCC PART 15.229.

All data was recorded in the Peak detection mode.

Test Data

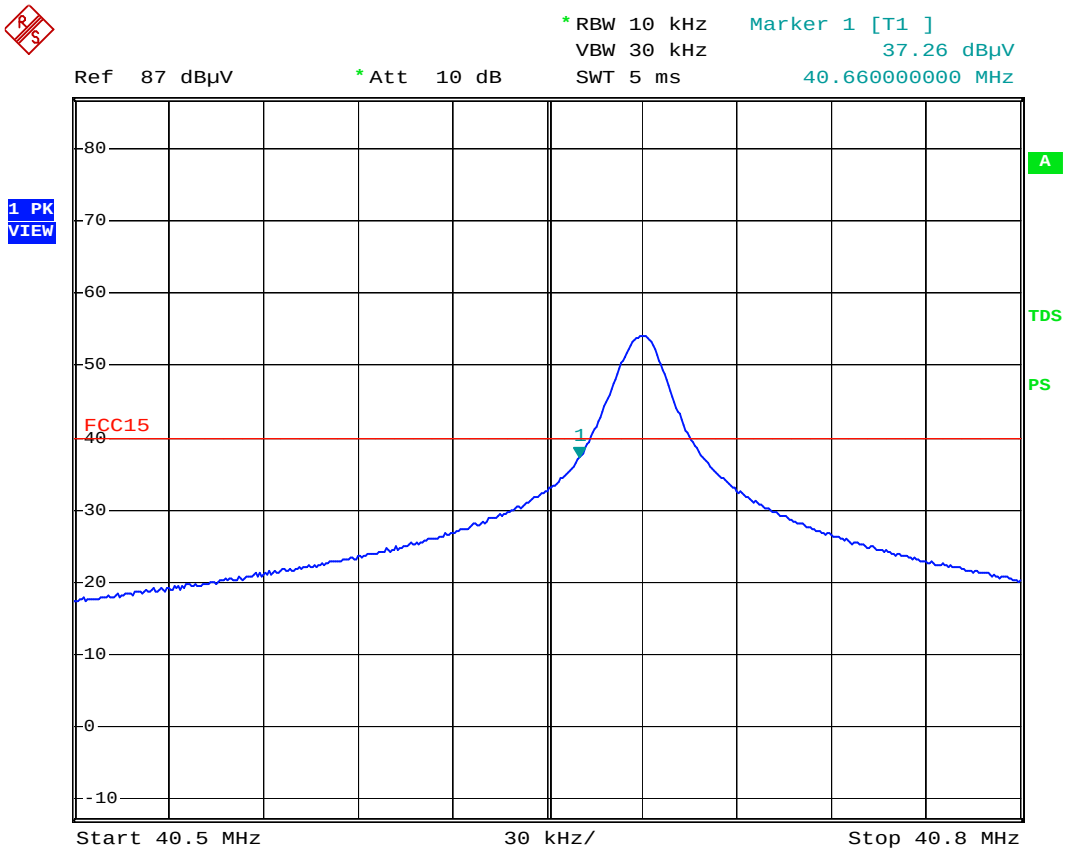
Environmental Conditions

Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1010mbar

Testing was performed by Charmi Peng on 2006-9-1.

Test Mode: Transmitting

The result has been complied with the 15.229(c), see the following plot:



Canhui Out of band emission

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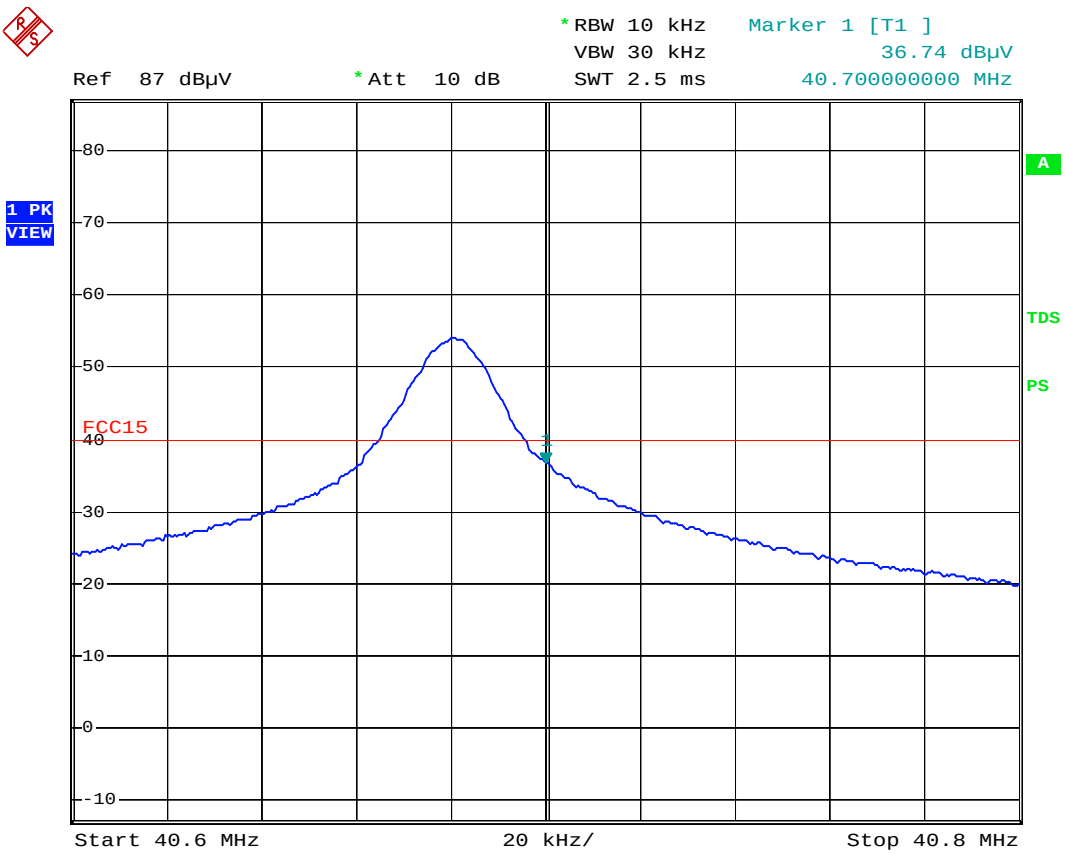

Canhui Out of band emission

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