

# FCC PART 15.249

## EMI MEASUREMENT AND TEST REPORT

For

### JOYO Electronics Company Limited

Unit D, 13/F., World Tech Centre, 95 How Ming Street, Kwun Tong, Kowloon, Hong Kong

**FCC ID: R4GJY278T01**

February 15, 2006

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Class II permissive change	<b>Equipment Type:</b> Wireless Baby Monitor
<b>Test Engineer:</b> Kamn Hu	
<b>Report No.:</b> RSZ06012401	
<b>Test Date:</b> January 27, 2006	
<b>Reviewed By:</b> Chris Zeng	
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**Note:** The test report is specially limited to the above company and this particular sample only. It may not be duplicated without prior written consent of Bay Area Compliance Lab Corp. (ShenZhen). This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the US Government.

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## GENERAL INFORMATION

### Product Description for Equipment Under Test (EUT)

The JOYO Electronics Company Limited 's product, model number: JY-278T or the "EUT" as referred to in this report is a Wireless Baby Monitor. The EUT is measured approximately 13.0 cm L x 10.0 cm W x 10.0 cm H, rated input voltage: DC 9 V battery.

Adaptor:

manufacturer: KINGS ELECTRIC CO., LTD. model: 41G-9-500;  
input:230V~50Hz, output: DC 9V 500mA

*\* The test data gathered are from production sample, serial number: JY0512027 provided by the manufacturer, we received EUT on 2006-1-24.*

### Objective

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

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203,15.205,15.207,15.209 and 15.249 rules.

This is the permissive change application of the device. The difference between the original device and the current one is as follows:

	Original CMOS	New CMOS
Manufacture:	OV	OV
Type:	OV7910	OV6910

For the changes made to the device, radiated emission testing was performed.

### 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 Lab Corp. (ShenZhen). 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 radiated and conducted emission measurement 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>

### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
PHILIPS	Color TV PG	PM5418	LO670816	DoC
N/A	Audio Generator	NY2201	N/A	DoC

### External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded AV Cable	0.65	EUT	AV Player
Unshielded Power Cable	1.90	EUT	Adaptor

## **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 provided by Bay Area Compliance Lab Corp. (ShenZhen).

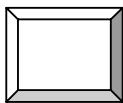
### **Block Diagram/Schematics**

Please refer to the tech.

### **Equipment Modifications**

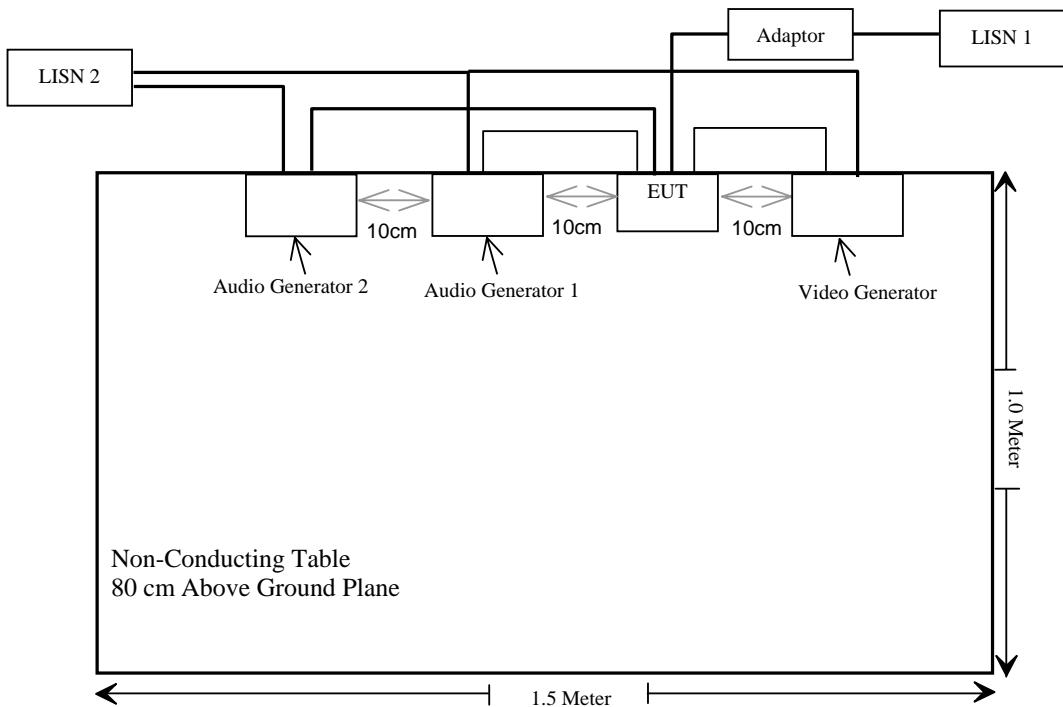
Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

## Configuration of Test Setup



EUT

## Block Diagram of Test Setup



## SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Compliant
§15.205	Restricted Bands of Operation	Compliant
§15.207(a)	Conduction Emission	Compliant
§15.209(a), §15.249(a), §15.249(c)	Radiated Emission	Compliant*
§15.249(d)	Out of band emission	Compliant

\* Within measurement uncertainty

## **§15.203 - ANTENNA APPLICATION**

### **Standard Applicable**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

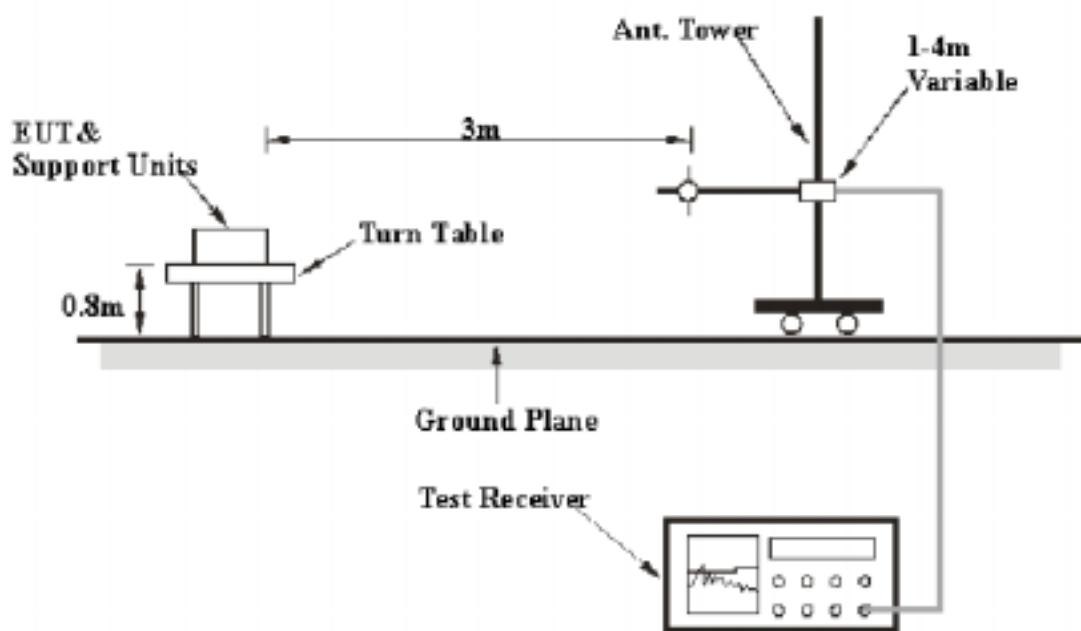
This product has a permanent antenna, fulfill the requirement of this section.

Test Result: Pass

**§15.205 §15.209(a) §15.249(a) - RADIATED EMISSION****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  $\pm 4.0$  dB.

**EUT Setup**

The radiated emission tests were performed in the 3-meter Chamber B, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.249 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adaptor was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

The system was investigated from 30 MHz to 25000 MHz.

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

<b><i>Frequency Range</i></b>	<b><i>RBW</i></b>	<b><i>Video B/W</i></b>
30 – 1000 MHz	100 kHz	300 kHz
1000 MHz – 25000 MHz	1MHz	3 MHz

## Test Equipment List and Details

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2005-8-17	2006-8-17
HP	Amplifier	HP8447E	1937A01046	2005-8-17	2006-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2005-4-28	2006-4-28
HP	Spectrum analyzer	8593A	2919A00242	2005-2-28	2006-2-28
HP	Preamplifier	8449B	3008A00277	2005-8-17	2006-8-17
SUNOL SCIENCES	Horn Antenna	DRH-118	A052604	2005-7-20	2006-7-20

\* **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

For the radiated emissions test, the adaptor power cord was connected to the AC floor outlet.

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.

From the audio generator connect to the speaker, the distance between the EUT and the speaker was 10 cm.

## 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:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Standard Limit}$$

## Test Results Summary

According to the data in the following table, the EUT complied with the [FCC Part 15.249](#), with the worst margin reading of:

**-1.6 dB at 30.85 MHz** in the **Vertical** polarization.

## Test Data

### Environmental Conditions

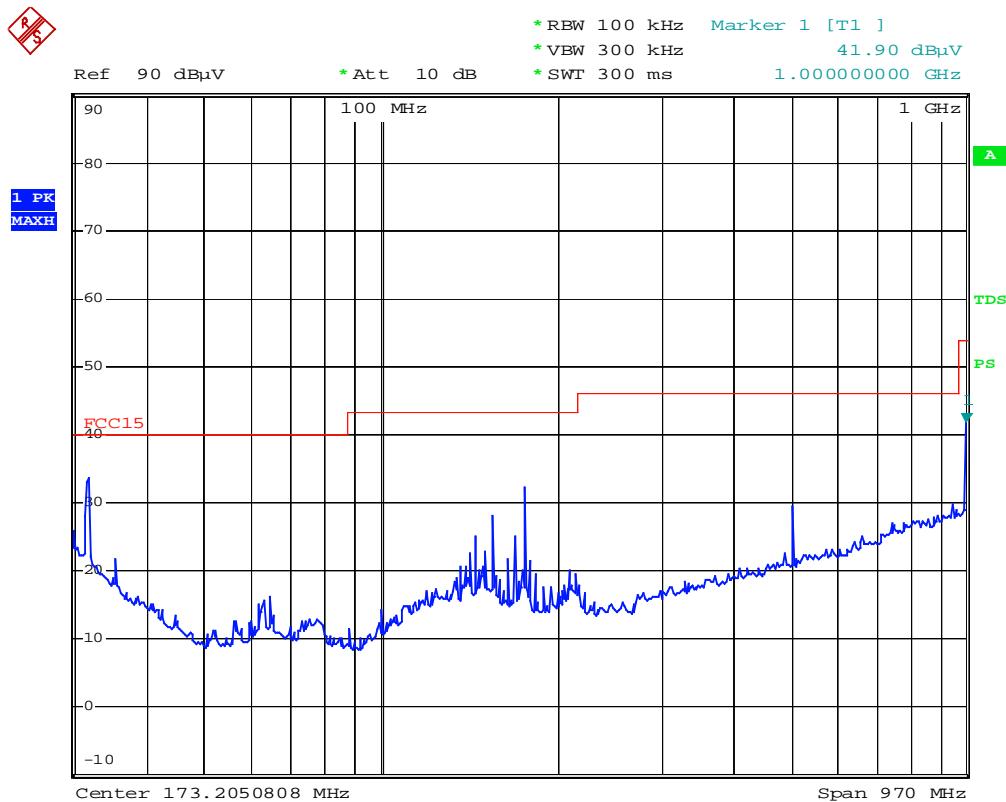
Temperature:	23 ° C
Relative Humidity:	53%
ATM Pressure:	1000mbar

*The testing was performed by Kamn Hu on 2006-1-26.*

*Test mode: Transmitting*

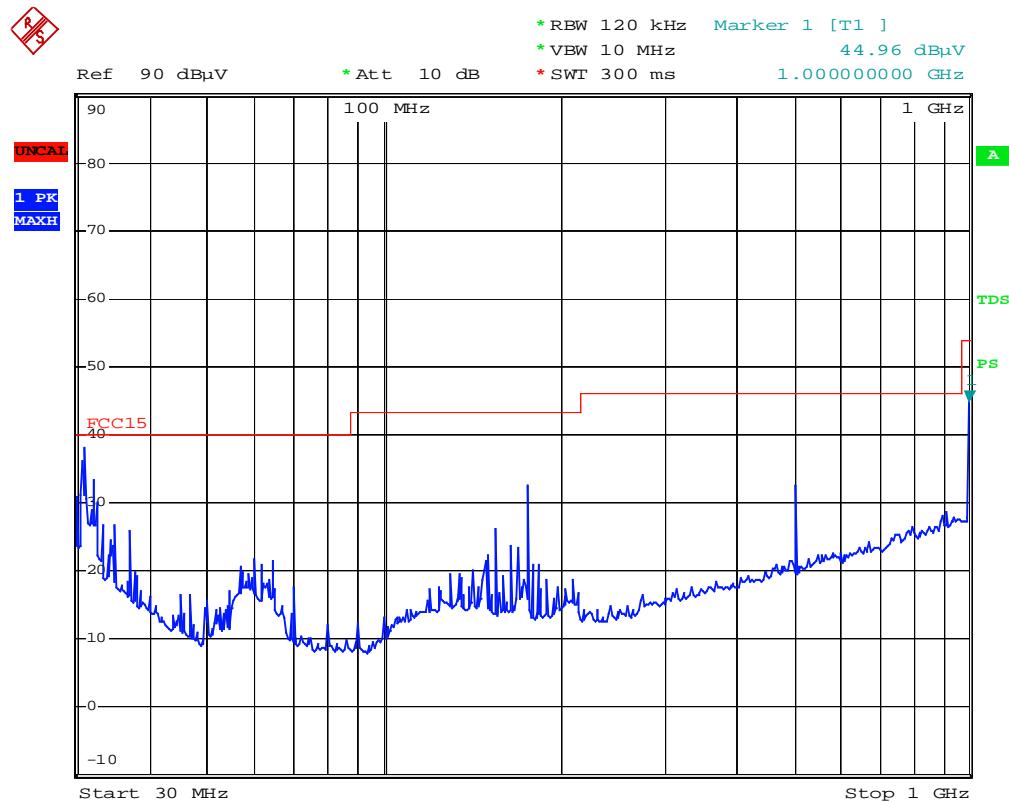
Frequency MHz	Meter Reading dBuV/m	Detector	Direction Degree	Height Meter	Polar	Antenna Loss dB	Cable loss dB	Amplifier Gain dB	Corr. Ampl. dBuV/m	FCC Part 15.249	
										Limit dBuV/m	Margin dB
30.85	42.5	QP	90	1.0	V	24.1	0.6	28.8	38.4	40.0	-1.6*
30.64	40.1	PK	180	2.0	V	24.1	0.6	28.8	36.0	40.0	-4.0
31.72	37.9	PK	45	2.0	H	24.1	0.6	28.8	33.7	40.0	-6.3
31.95	37.6	PK	60	1.5	V	24.1	0.6	28.8	33.5	40.0	-6.5
1000.00	45.0	PK	45	2.0	V	23.8	3.7	27.6	44.9	54.0	-9.1
175.65	47.7	PK	60	2.0	V	11.9	1.2	28.2	32.6	43.5	-10.9
175.65	47.5	PK	270	1.0	H	11.9	1.2	28.2	32.4	43.5	-11.1
1000.00	42.0	PK	90	1.5	H	23.8	3.7	27.6	41.9	54.0	-12.1
502.94	40.6	PK	60	1.0	V	18.0	2.4	28.6	32.4	46.0	-13.6
154.82	42.4	PK	60	2.0	H	13.1	1.1	28.4	28.2	43.5	-15.3
502.94	37.7	PK	45	2.0	H	18.0	2.4	28.6	29.5	46.0	-16.5
145.35	39.2	PK	45	1.5	H	13.4	1.1	28.5	25.2	43.5	-18.4

\* Within measurement uncertainty



JOYO JY-278T H

Date: 26.JAN.2006 16:31:06



JOYO JY-278T V

Date: 26.JAN.2006 17:00:20