



NVLAP LAB CODE 200707-0



FCC PART 15.227 MEASUREMENT AND TEST REPORT

For

JIA YE PLASTICS TOYS PRODUCTS FACTORY

LAIMEI ROAD GANGKOU ZHOUIPIAN CHENGHAI GUANGDONG CHINA

FCC ID: VLC001

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|---|--|--|
| This Report Concerns: <input checked="" type="checkbox"/> Original Report | | Equipment Type: Radio Control Car , Plane & Boat Multipurpose Toy |
| Test Engineer: | Green Xu <i>Green Xu</i> | |
| Report No.: | RSZ07073001 | |
| Test Date: | 2007-08-30 to 2007-09-20 | |
| Report Date: | 2007-09-20 | |
| Reviewed By: | EMC Manager: Boni Baniqued <i>Boni Baniqued</i> | |
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Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratory Corp. (Shenzhen). This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the Federal Government.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The JIA YE PLASTICS TOYS PRODUCTS Factory's product, model number: 001; 002; 003; 004; 005; 006 or the "EUT" as referred to in this report is a *RADIO CONTROL CAR&PLANE&BOAT MULTIPURPOSE TOY*. The EUT is measured approximately 16.5 cm L x 16.5 cm W x 5.0 cm H. rated input voltage: DC 12V battery.

The series products, model name: 001; 002; 003; 004; 005; 006 have the same circuit diagram, PCB layout, only appearance is different, so, we select 001 to test.

** The test data gathered are from production sample, serial number: 0707049 provided by the manufacturer, we received EUT on 2007-07-30.*

Objective

This Type approval report is prepared on behalf of JIA YE PLASTICS TOYS PRODUCTS FACTORY 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 15.227.

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. (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 Laboratory 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, China.

Test site at Bay Area Compliance Laboratory 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 Laboratory Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



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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 Bay Area Compliance Laboratory Corp. (Shenzhen).

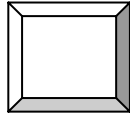
Schematics and Block Diagram

Please refer to the Exhibit D.

Equipment Modifications

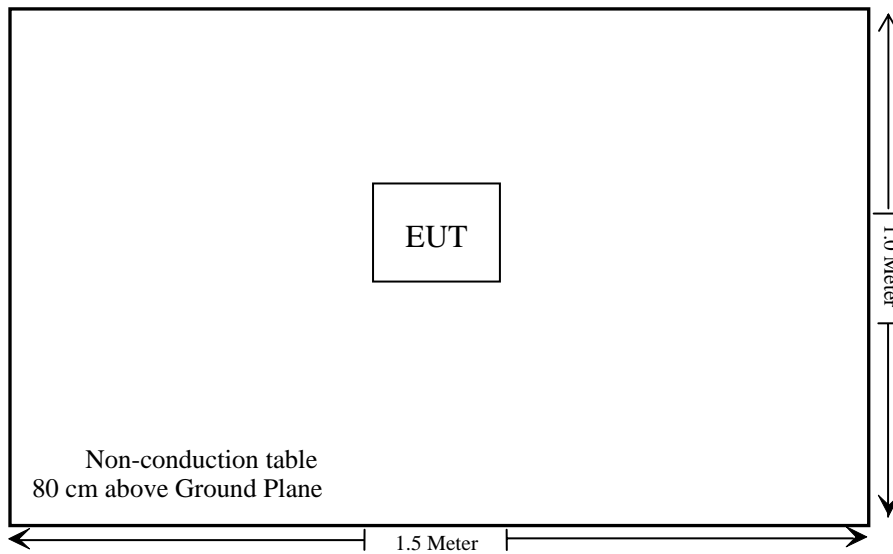
Bay Area Compliance Laboratory Corp. (Shenzhen) has not done any modification on the EUT.

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 Band of operation | Compliant |
| §15.209 | Radiated Emissions Limit | Compliant |
| §15.227(a) | Field Strength | Compliant |
| §15.227(b) | Out of band emissions | Compliant |

§15.203 - ANTENNA REQUIREMENT

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.

Antenna connector construction

The EUT has a permanently attached antenna which, in accordance to the above section, is considered sufficient to comply with the provision of this section.

Result: Compliant. Please refer to the EUT photos.

§15.205, §15.209, §15.227(a) - RADIATED EMISSIONS TEST

Standard Applicable

According to §15.227 (a), the field strength if any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters.

(b), the field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in §15.209.

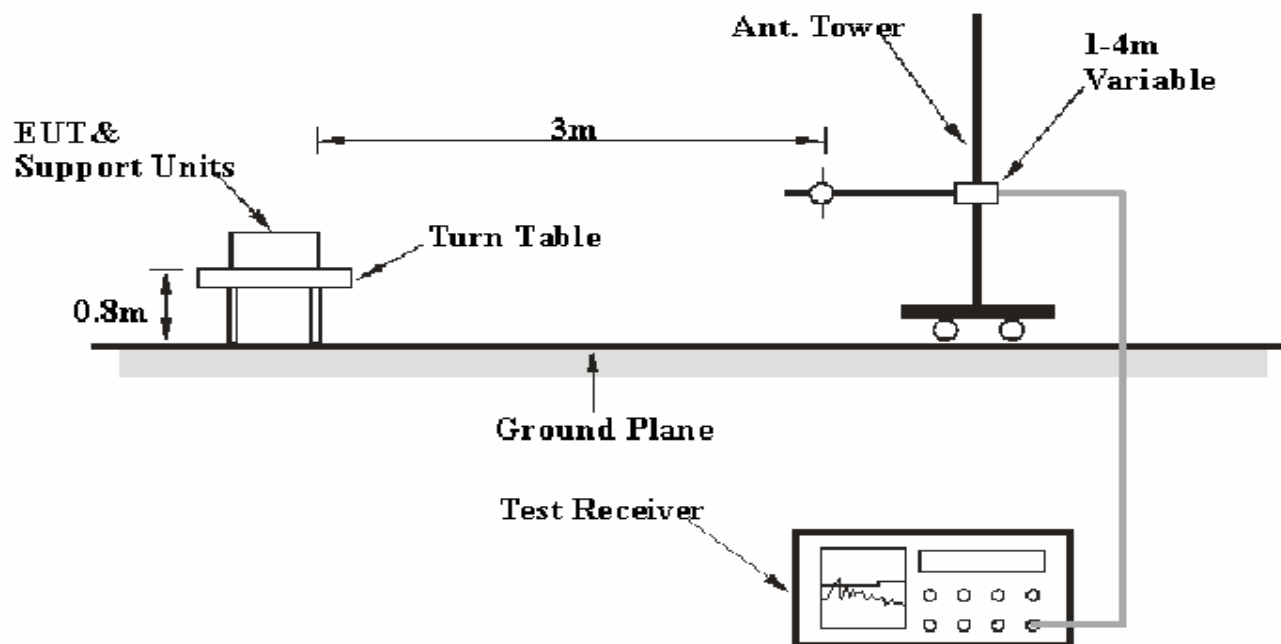
Measurement Uncertainty

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 Laboratory Corp. (Shenzhen) is ± 4.0 dB.

The fundamental data was measured in average and peak detection mode: set the VBW AVE on, then record the data.

EUT Setup



The radiated emission tests were performed in the 3-meter chamber A test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15.227 limits.

EMI Test Receiver Setup

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

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

| <i>Frequency Range</i> | <i>RBW</i> | <i>Video B/W</i> |
|-------------------------------|-------------------|-------------------------|
| Below 30 MHz | 10 kHz | 30 kHz |
| 30 – 1000 MHz | 100 kHz | 300 kHz |

Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---------------------|----------------------|--------------|----------------------|-------------------------|-----------------------------|
| HP | Amplifier | HP8447E | 1937A01046 | 2006-11-15 | 2007-11-15 |
| Rohde & Schwarz | EMI Test Receiver | ESCI | 100035 | 2006-09-29 | 2007-09-29 |
| Sunol Sciences | Broadband Antenna | JB1 | A040904-2 | 2007-08-14 | 2008-08-14 |
| ETS | Passive Loop Antenna | 6512 | 00029604 | 2007-08-25 | 2008-08-25 |

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

Corrected Amplitude & Margin Calculation

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

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

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 maximum limit. The equation for margin calculation is as follows:

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

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.227, with the worst margin reading of:

12.2 dB at 894.419550 MHz in the Vertical polarization, 30 – 1000 MHz
4.13 dB at 27.145 MHz in the Average polarization, Fundamental

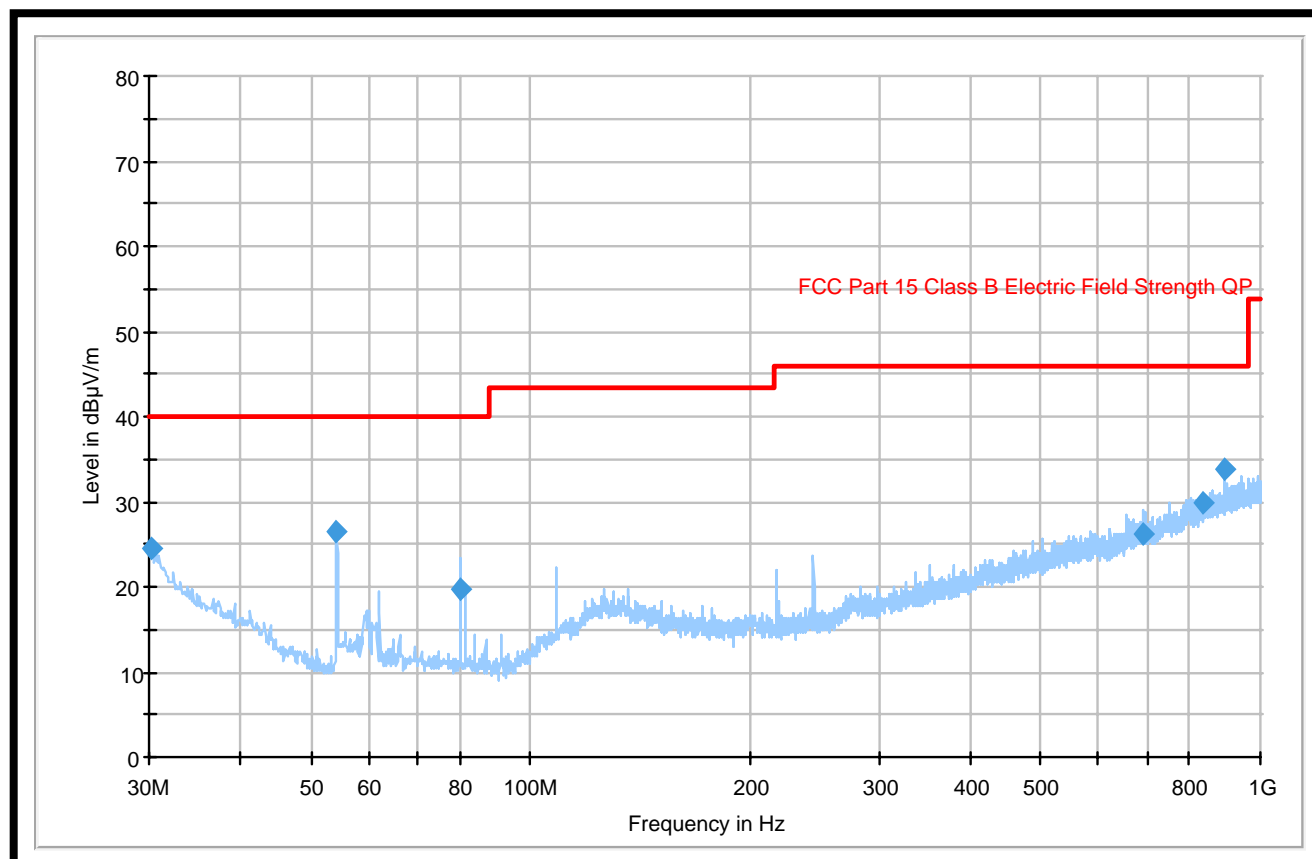
Test Data

Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 25 °C |
| Relative Humidity: | 53 % |
| ATM Pressure: | 101.0 kPa |

The testing was performed by Green Xu on 2007-08-30.

Test mode: Transmitting



| Frequency (MHz) | Quasi Peak (dBμV/m) | Antenna Height (cm) | Polarity (H/V) | Turntable Position (deg) | Corr. (dB) | Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------|---------------------|----------------|--------------------------|------------|----------------|-------------|
| 894.419550 | 33.8 | 211.0 | V | 243.0 | 4.2 | 46.0 | 12.2 |
| 54.290575 | 26.3 | 100.0 | V | 325.0 | -16.4 | 40.0 | 13.7 |
| 30.204112 | 24.6 | 400.0 | V | 180.0 | -2.6 | 40.0 | 15.4 |
| 835.932200 | 29.8 | 196.0 | V | 217.0 | 3.3 | 46.0 | 16.2 |
| 692.228425 | 26.2 | 119.0 | V | 246.0 | 0.3 | 46.0 | 19.8 |
| 80.016700 | 19.8 | 400.0 | V | 19.0 | -15.8 | 40.0 | 20.2 |

Fundamental emissions:

| Indicated | | Table Degree | Ant. Height (m) | Detector (PK/AV) | Correction Factor | | | Corrd. Amp. (dBuV/m) | FCC Part 15.227 | | |
|-------------|-------------------------|--------------|-----------------|------------------|--------------------|-----------------|---------------|----------------------|-----------------|-------------|------|
| Freq. (MHz) | Receiver Reading (dBuV) | | | | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. (dB) | | Limit (dBuV/m) | Margin (dB) | Note |
| 27.145 | 70.50 | 12 | 1.2 | AV | 31.80 | 0.37 | 26.80 | 75.87 | 80 | 4.13 | Fund |
| 27.145 | 71.63 | 12 | 1.2 | PK | 31.80 | 0.37 | 26.80 | 77.00 | 100 | 23.00 | Fund |

§15.227(b) – OUT OF BAND EMISSIONS

Standard Applicable

According to §15.227(b), the field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in §15.209.

Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|---------|---------------|------------------|----------------------|
| Rohde & Schwarz | EMI Test Receiver | ESCI | 100035 | 2006-09-29 | 2007-09-29 |
| HP | Amplifier | HP8447E | 1937A01046 | 2006-11-15 | 2007-11-15 |
| HP | Preamplifier | 8449B | 3008A00277 | 2006-09-29 | 2007-09-29 |
| Sunol Sciences | Broadband Antenna | JB1 | A040904-2 | 2007-08-14 | 2008-08-14 |

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

Test Data

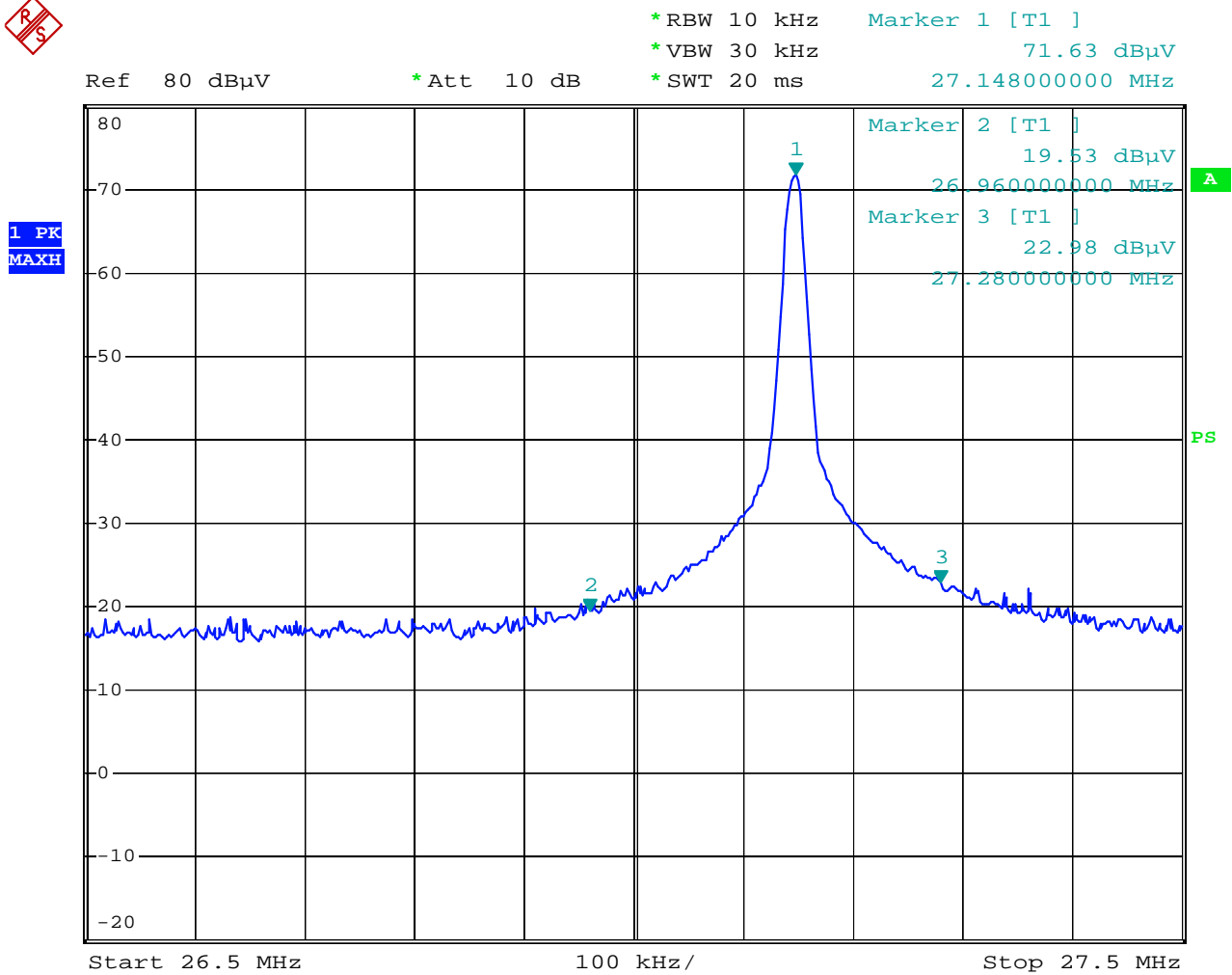
Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 25 °C |
| Relative Humidity: | 53 % |
| ATM Pressure: | 101.0 kPa |

The testing was performed by Green Xu on 2007-09-20.

Test Mode: Transmitting

Result: Compliant, please refer to the following plot.



Band edge (27.125MHz)

Date: 20.SEP.2007 11:52:25

***** END OF REPORT *****