

FCC PART 15.227
EMI MEASUREMENT AND TEST REPORT

For

HK (Shenzhen) Industries Development CO., Ltd

Flat 615.3/F., Bagua Industries Zone, Bagua 2nd Road Shenzhen 518029, China

FCC ID: R3BTOYABI-TRUCK

June 12, 2006

This Report Concerns: ☒ Original Report	Equipment Type: TOYABI MONSTER TRUCK (Transmitter, Toy Remote Control)
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Report No.: RSZ06051101	
Test Date: May 16, 2006	
Reviewed By: Boni Baniqued	<i>[Signature]</i>
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Note: The test report is specially limited to the above company and this particular sample only.
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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 HK (Shenzhen) Industries Development CO., Ltd.'s product, model number: HK-TV8024 or the "EUT" as referred to in this report is a transmitter of TOYABI MONSTER TRUCK. The EUT is measured approximately 59.0 cm L x 16.0 cm W x 6.5 cm H. rated input voltage: DC 9V battery.

** The test data gathered are from production sample, serial number: 0605005, provided by the manufacturer. We received EUT on 2006-5-11.*

Objective

This Type approval report is prepared on behalf of HK (Shenzhen) Industries Development CO., Ltd 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. 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.

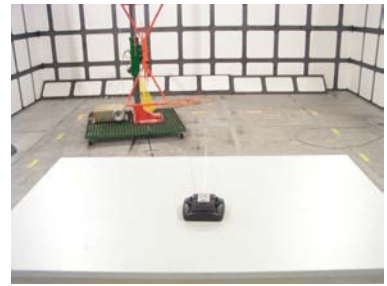
Configuration of Test Setup



Stand View

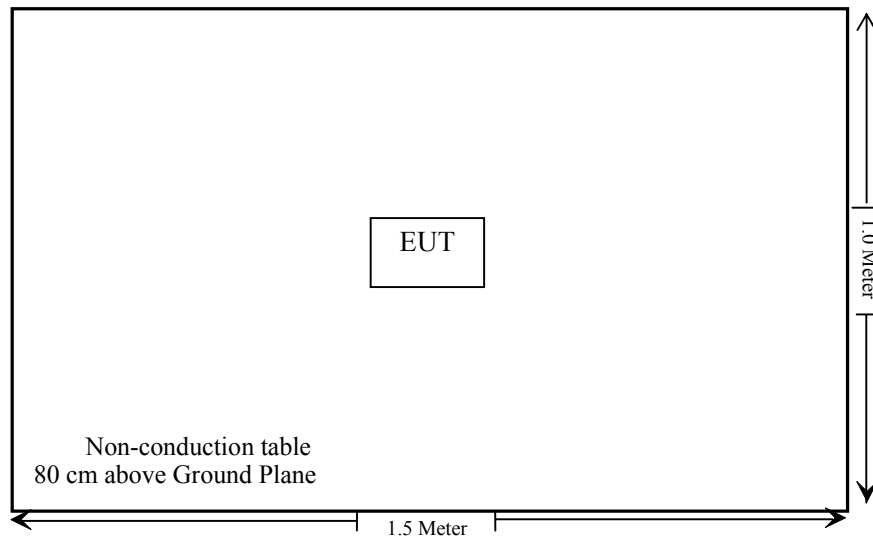


Side View



Lie View

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 Emission Test	Compliant
§15.227(a)	Field Strength	Compliant
§15.227(b)	Out of Band Emission	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.

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

Test Result: Pass

§15.205, §15.209, §15.227(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 15.227 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:

<i>Frequency</i>	<i>RB/W</i>	<i>VB/W</i>	<i>IF B/W</i>
9 kHz-30 MHz	10 kHz	30 kHz	9 kHz
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	2005-8-17	2006-8-17
HP	Amplifier	HP8447E	1937A01046	2005-8-17	2006-8-17
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:

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

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:

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

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.227 & 15.209, with the worst margin reading of:

7.40 dB at 54.285400 MHz in the Vertical polarization.

Test Data

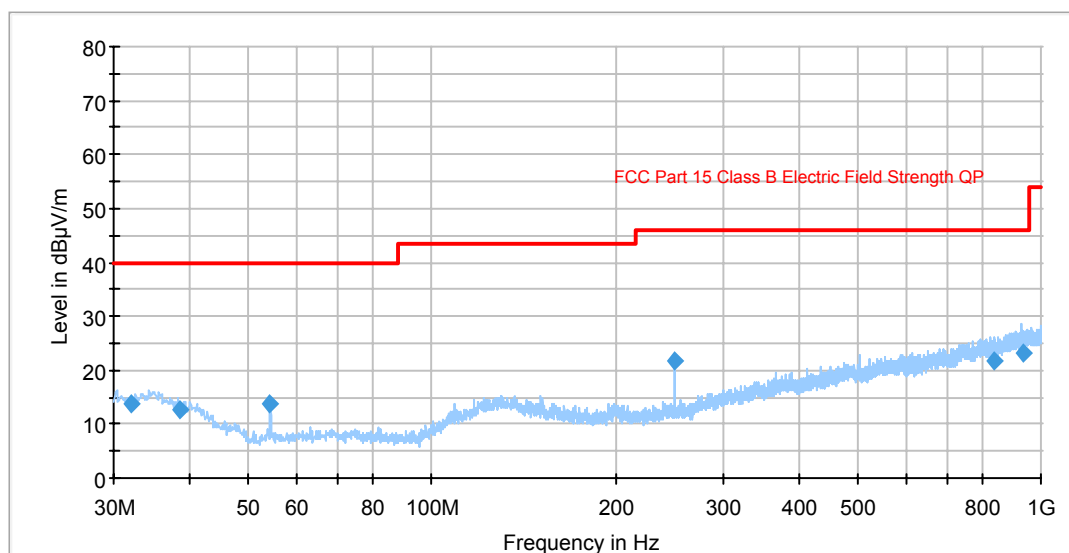
Environmental Conditions

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

Testing was performed by William Chan on 2006-05-16.

Test Mode: Transmitting

Auto Test (FCC 15C) Horizontal



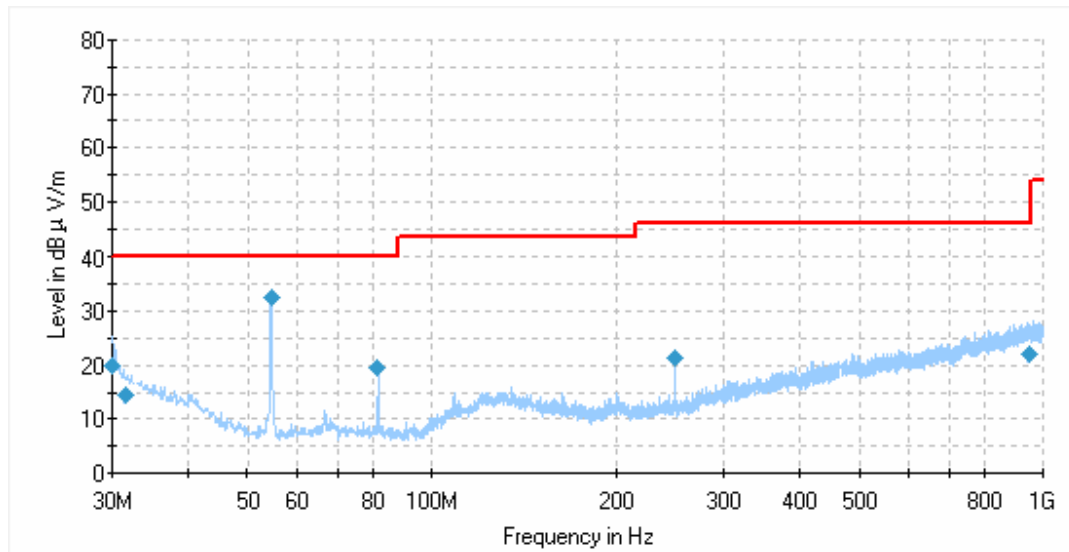
Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity
32.165478	13.6	3000.000	120.000	101.0	H
38.657140	12.8	3000.000	120.000	101.0	H
54.250000	13.6	3000.000	120.000	152.0	H
249.947500	21.8	3000.000	120.000	186.0	H
839.070125	21.8	3000.000	120.000	169.0	H
932.438150	23.1	3000.000	120.000	247.0	H

(Continuation of the "Final Measurement Detector 1" table from column 6.)

Frequency (MHz)	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
32.165478	125.0	-6.8	26.4	40.0
38.657140	243.0	-7.5	27.2	40.0
54.250000	185.0	-9.1	26.4	40.0
249.947500	127.0	-8.2	24.2	46.0
839.070125	0.0	-1.5	24.2	46.0
932.438150	0.0	0.4	22.9	46.0

Auto Test (FCC 15C) Vertical



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity
30.008700	19.9	3000.000	120.000	101.0	V
32.456300	15.2	3000.000	120.000	101.0	V
54.285400	32.6	3000.000	120.000	101.0	V
81.200145	19.6	3000.000	120.000	101.0	V
250.068750	21.2	3000.000	120.000	101.0	V
954.287400	22.4	3000.000	120.000	201.0	V

(Continuation of the "Final Measurement Detector 1" table from column 6.)

Frequency (MHz)	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
30.008700	333.0	-6.5	20.1	40.0
32.456300	258.0	-7.3	24.8	40.0
54.285400	100.0	-19.1	7.4	40.0
81.200145	186.0	-7.8	20.4	40.0
250.068750	245.0	-9.1	24.8	46.0
954.287400	147.0	-8.4	23.6	46.0

Frequency MHz	Meter Reading dBuV/m	Detector PK/QP/AV	Direction Degree	Height Meter	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier Gain dB	Corr. Ampl. dBuV/m	FCC Part 15.227		
										Limit dBuV/m	Margin dB	
27.145	60.38	PK	0	1.0	H	23.8	0.6	28.8	55.98	100	-44.02	Fundamental
27.145	81.64	PK	0	1.0	V	23.8	0.6	28.8	77.24	100	-22.76	Fundamental
27.145	56.42	AV	0	1.0	H	23.8	0.6	28.8	52.02	80.00	-27.98	Fundamental
27.145	78.02	AV	0	1.0	V	23.8	0.6	28.8	73.62	80.00	-6.38	Fundamental

§15.227(b) - Out of Band Emission

EMI Test Receiver Setup

The system was investigated from 26.8 MHz to 27.3 MHz.

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

Frequency	RB/W	VB/W	SWT
26.8 MHz-27.3 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	2005-8-17	2006-8-17
HP	Amplifier	HP8447E	1937A01046	2005-8-17	2006-8-17
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 26.96 MHz and 27.28 MHz to ensure that the EUT complied with the FCC PART 15.227.

All data was recorded in the Peak detection mode.

Test Data

Environmental Conditions

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

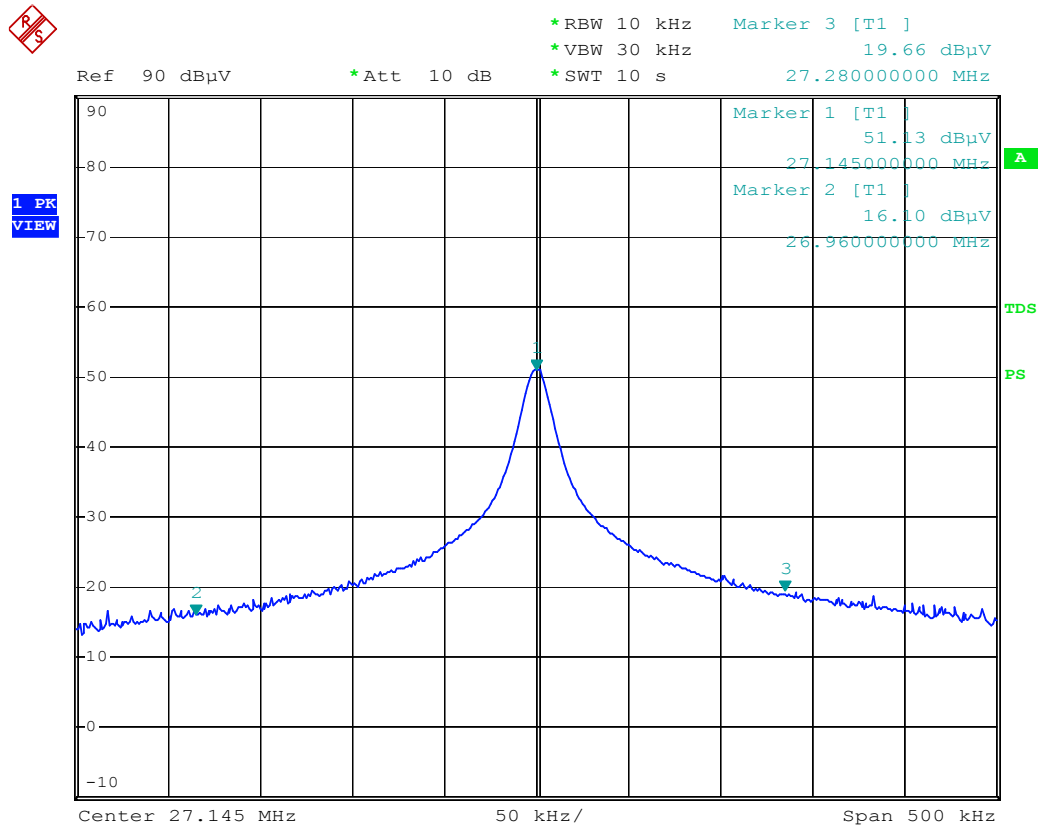
Testing was performed by William Chan on 2006-05-16.

Test Mode: Transmitting

The result has been complied with the 15.227(b), see the following plot:

Frequency MHz	Emission dBμV/m	Limit dBμV/m	Margin dB
26.96	16.10	49.54	-33.44
27.28	19.66	49.54	-29.88

Test Result: Pass



HK TOYABI MONSTER TRUCK HK-TV8024 (27MHz) -- Out of Band

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