NVLAP LAB CODE 200707-0

FCC PART 15.227

EMI MEASUREMENT AND TEST REPORT

For

Kong Shing Plastic Manufactory Ltd.

10/F., Silver Tech Tower, 26 Cheung Lee Street,

Chai Wan, Hong Kong

FCC ID: QTX85209333334

Report Type:	Product Type:
Original Report	Radio Control Foam Disc Robot

Test Engineer:	Cookies Bu
Report Number:	RSZ09061807
Report Date:	2009-07-13
Reviewed By:	Merry Zhao EMC Engineer
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Kong Shing Plastic Manufactory Ltd.*'s product, model number: *TT333, TT334* or the "EUT" as referred to in this report is a *Radio Control Foam Disc Robot* The EUT is measured approximately: 29.3 cm L x 7.0 cm W x 3.5 cm H. rated input voltage: DC 3V battery.

** All measurement and test data in this report was gathered from production sample serial number: 0906071 (Assigned by BACL, Shenzhen). The EUT was received on 2009-06-18.*

**Note: The series products, model TT333, TT334, we select TT333 to test, the two models are electrically identical, only model names have difference, which was explained in the attached Declaration Letter.*

Objective

This Type approval report is prepared on behalf of *Kong Shing Plastic Manufactory 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 Laboratories 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 Laboratories 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, China.

Test site at Bay Area Compliance Laboratories 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 21, 2007. 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 Laboratories 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/Standards/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

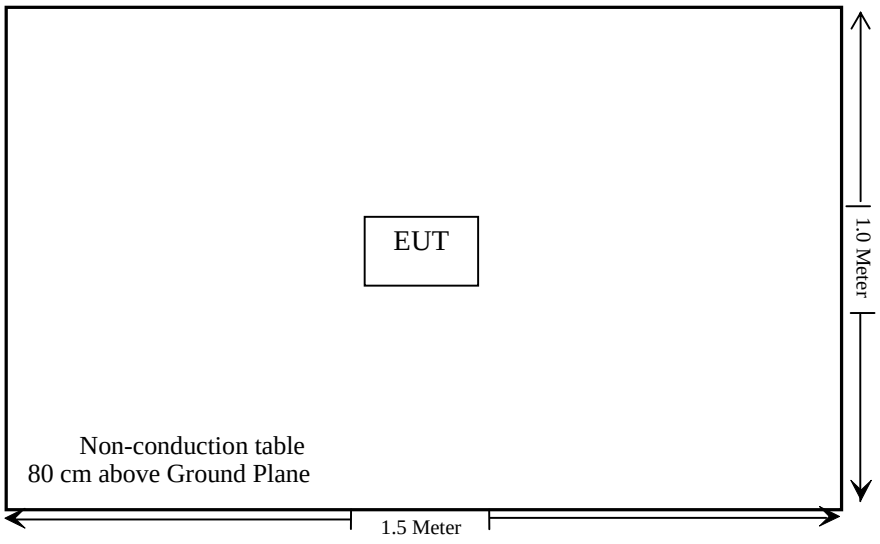
The special Accessories were supplied by manufacturer.

Equipment Modifications

No modifications were made to the unit tested.

Configuration of Test Setup

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
§15.207	Conducted Emissions	N/A *
§15.209, §15.227(a), §15.227(b)	Field Strength	Compliant

Note: N/A* - EUT is powered in battery only.

§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 an integral antenna, fulfill the requirement of this section, please refer to the EUT photos.

Test Result: Compliant

§15.209, §15.227(a) & §15.227 (b) – FIELD STRENGTH

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.

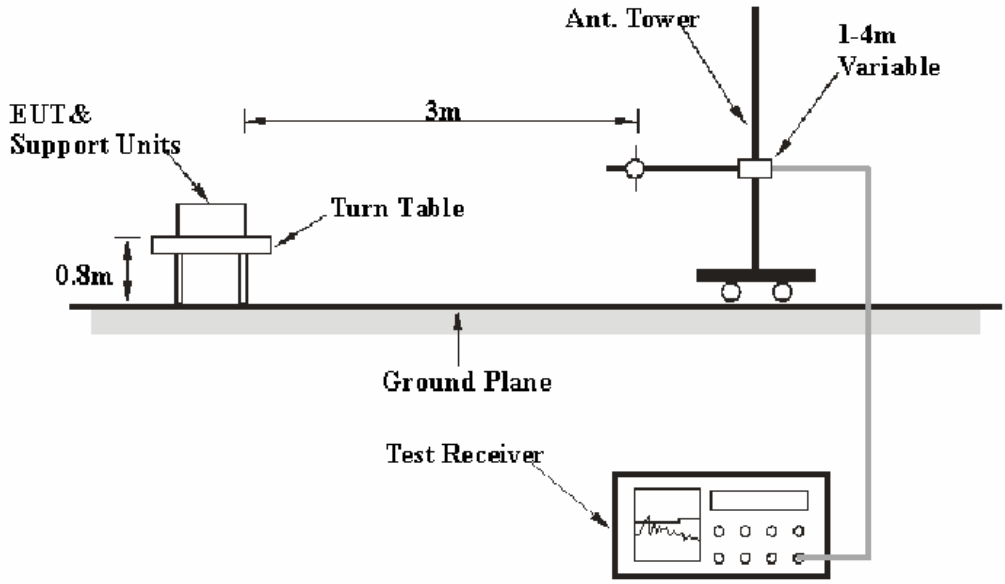
(b), the field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in §15.209.

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 Laboratories 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:

Frequency	***RB/W***	***VB/W***	***IF B/W***
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
HP	Amplifier	8447E	1937A01046	2008-11-15	2009-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2008-11-07	2009-11-06
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2009-04-12	2010-04-11
EM Test	Loop Antenna	MS100	303298	2009-03-07	2010-03-07
ETS	Passive Loop Antenna	6512	00029604	2009-03-04	2010-03-04

*** Statement of Traceability:** Bay Area Compliance Laboratories 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 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 = Limit –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:

5.7 dB at **135.703175 MHz** in the **Horizontal** polarization.

Test Data

Environmental Conditions

Temperature:	25° C
Relative Humidity:	55%
ATM Pressure:	101.0kPa

Testing was performed by Cookies Bu on 2009-06-30.

Test Mode: Transmitting

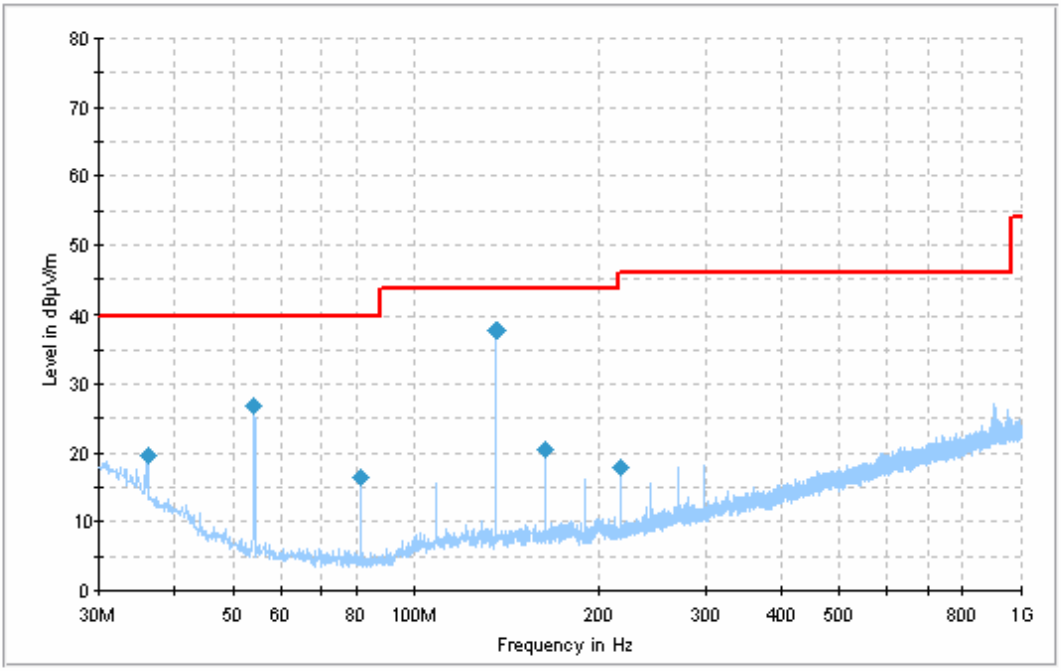
Fundamental Measurement:

Indicated		Table Angle Deg.	Test Antenna		Correction Factor			Cord. Amp. (dBµV/m)	FCC Part 15.227		
Freq. (MHz)	S.A. Reading (dBµV)		Height (m)	Detector (PK/AV)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)		Limit (dBµV/m)	Margin (dB)	Remarks
27.145	78.89	349	1.0	PK	19.7	0.30	25.86	73.03	100	26.97	Fundamental
27.145	75.93	349	1.0	AV	19.7	0.30	25.86	70.07	80	9.93	Fundamental

Note: The above data is the worst case in the all polarity direction.

According to CFR47 Part 15.35, the limit on the radio frequency emissions as measured using instrumentation with peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Spurious Emission



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
135.703175	37.8	210.0	H	83.0	-18.7	43.5	5.7
54.288850	26.8	326.0	H	270.0	-21.2	40.0	13.2
36.183750	19.6	361.0	V	270.0	-12.7	40.0	20.4
162.768750	20.4	345.0	H	153.0	-18.5	43.5	23.1
81.410000	16.4	332.0	H	270.0	-22.2	40.0	23.6
217.088750	18.0	238.0	H	353.0	-14.7	46.0	28.0

Note: The above data is the worst case in the all polarity direction.

Out of Band Emission:

Indicated		Table Angle Degree	Antenna Height (m)	Detector (PK/AV/QP)	Correction Factor			Cord. Amp. (dBµV/m)	Part 15.227 &15.209	
Freq. (MHz)	S.A. Reading (dBµV)				Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)		Limit (dBµV/m)	Margin (dB)
Out of Left Side Band										
25.6582	27.32	132	1.0	QP	20.40	0.29	25.86	22.15	49.5	27.35
Out of Right Side Band										
36.1837	26.27	316	1.5	QP	18.90	0.31	25.88	19.6	40.0	20.40

DECALARATION LETTER

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Product Similarity Declaration

To Whom It May Concern,

We, Kong Shing Plastic Manufactory Ltd., hereby declare that our Radio Control Foam Disc Robot, Model Number: TT334 is electrically identical with the Model Number: TT333 that was certified by BACL. TT333 and TT334 are named differently due to marketing purposes.

Please contact me if you have any question.

Signature:

Print Name: Bruce Lau Lap Fai

Title: Director

Date: June 20th, 2009

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