SGS-CSTC Standards Technical Services Ltd.

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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

FCC TEST REPORT

Application No.: GLEMO040600119RFE

Applicant: ECHO TOYS LTD.

FCC ID: HAP91331R49

Equipment Under Test (EUT):

EUT Name: Microbot

Item No.: 91331

Serial No.: Not supplied by client

Standards: FCC PAR15 SUBPART B

Date of Receipt: 7 June 2004

Date of Test: 16 June 2004

Date of Issue: 23 June 2004

Test Result :	**PASS***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Kent Hsu
Laboratory Manager

2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 15, SUBPART B: 2003	ANSI C63.4.: 2001	Class B	PASS

3 Contents

4 General Information

4.1 Client Information

Applicant:	ECHO TOYS LTD.
Address of Applicant:	ROOM 1108, PENINSULA CENTRE, 67 MODY ROAD, TSIM SHA TSUI EAST, KOWLOON HONG KONG.

4.2 General Description of E.U.T.

EUT Name:	Microbot
Item No.:	91331 (Receiver Part)
Serial No.:	Not supplied by client

4.3 Details of E.U.T.

Power Supply:	Internal Chargeable Batteries for the receiver.
Power Cord:	None

4.4 Description of Support Units

None.

4.5 Standards Applicable for Testing

The customer requested FCC tests as a receiver for 49MHz Toys transmitter.

The standard used was FCC PART 15, SUBPART B, CLASS B (2003)

4.6 Test Location

All tests were performed at: -
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Safety & EMC Laboratory, 1/F, Building No. 1, Agriculture Machinery Materials Company Warehouse Ltd., Wushan Road Shipai, Tianhe District, Guangzhou, China. P.C. 510630.

Tel: +86 20 3848 1001 Fax: +86 20 3848 1006

No tests were sub-contracted.

4.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0. Effective through December 31, 2004.
- **ACA**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorized test laboratory for the DoC process.

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.

5 Equipments Used during Test

Radiated Emission Test in Chamber

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi- Anechoic Chamber	Frankonia	N/A	N/A	16-02-2004	15-02-2005
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	05-11-2003	04-11-2004
3	EMI Test Software	Rohde & Schwarz	ES-K1	N/A	N/A	N/A
4	Coaxial cable	SGS	N/A	N/A	05-12-2003	04-12-2004
5	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	18-01-2004	17-01-2005
6	Horn Antenna	Rohde & Schwarz	HF906	100095	02-04-2002	01-04-2004
7	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	23-12-2003	22-12-2004
8	0.1-1300 MHz Pre-Amplifier	HP	8447D OPT 010	2944A06252	31-05-2003	30-05-2004

General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Temperature, Humidity & Barometer	Oregon Scientific	BA-888	EMC0001 to EMC0004	25-07-2003	24-07-2004
2	DMM	Fluke	73	70681569 or 70671122	23-07-2003	22-07-2004

6 Test Results

6.1 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	FCC Part15 B
Test Method:	Based on FCC Part15 B
Test Date:	16 June 2004
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46.0 dBμV/m between 216MHz & 960MHz
	54.0 dBμV/m zbove 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 57% RH Atmospheric Pressure: 1009 mbar

EUT Operation: Test the EUT in On Mode.

6.1.2 Measurement Data

An initial pre-scan was performed in peak detection mode. Quasi-Peak was performed at the frequencies with maximized peak emission were detected.

The following quasi-peak measurements were performed on the EUT on 16 June 2004:

Frequency (MHz)	Antenna Polarization	Trans. (dB/m)	Receiver QP Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Turntable Angle (°)
327.063	Vertical	17.0	11.3	28.3	46.0	17.7	2.00	98
341.500	Vertical	17.4	14.2	31.6	46.0	14.4	2.15	125
352.625	Vertical	17.7	18.8	36.5	46.0	9.5	2.65	325
364.250	Vertical	18.0	16.8	34.8	46.0	11.2	2.87	247
381.688	Vertical	18.5	12.1	30.6	46.0	15.4	3.65	198
402.188	Vertical	19.0	13.6	32.6	46.0	13.4	2.00	15
223.688	Horizontal	15.0	13.6	28.6	46.0	17.4	1.00	26
260.437	Horizontal	17.3	11.8	29.1	46.0	16.9	1.40	321
274.125	Horizontal	18.1	12.1	30.2	46.0	15.8	2.10	123
310.000	Horizontal	19.3	11.9	31.2	46.0	14.8	2.40	312
350.750	Horizontal	19.0	11.3	30.3	46.0	15.7	2.15	64
369.125	Horizontal	18.9	10.8	29.7	46.0	16.3	3.21	158

1. All readings are Quasi-Peak values.

2. Transducer = Antenna Factor + Cable Loss.

3. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.