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TEST REPORT

REPORT NO.: 30464B/2/400F

FCC listed testlab
acc. to Section 2.948 of the FCC - Rules

in compliance with the requirements of
ANSI C63.4 - 1992

Product	:	Mini Carbot
Product Class	:	Low Power Communication Device Receiver
Model	:	90378 (49MHz)
Importer	:	ECHO TOYS LTD

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LABORATORY - REPORT

APPLICANT:	ECHO TOYS LTD
ADDRESS:	Room 1108 Peninsula Centre 67 Mody Road Tsimshatsui East, Kowloon, HONG KONG
DATE OF SAMPLE RECEIVED:	2002-05-13
DATE OF TESTING:	2002-05-15

DESCRIPTION OF SAMPLE:

Product:	Mini Carbot
Product class:	Low Power Communication Device Receiver
Model number:	90378 (49MHz)
Rating:	DC 3V('AA' Size Battery x 2)
Country of Origin:	P.R. CHINA

INVESTIGATIONS REQUESTED:	Measurements to the relevant clauses of F.C.C. Rules and Regulations Part 15 Subpart B – 'Unintentional Radiators'
RESULTS:	See the attached test sheets
CONCLUSIONS	From the measurement data obtained, the tested sample was considered to have COMPLIED with the requirements for the relevant clauses of Federal Communications Commission Rules as specified above.

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Authorized Signature

Remark: Purpose of those tests in this report is to provide the applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under the FCC Equipment Authorization Program. The tests themselves are not Approval Tests

Summary of Test Results

Interference Radiation:

Test result: O.K.
Test data: See attached data sheet

Interference Voltage:

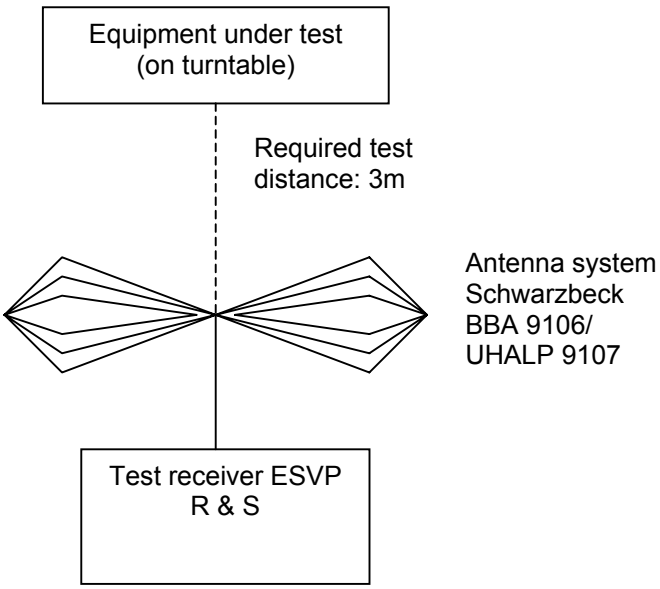
Test result: N.A.
Test data: N.A.

PHOTOGRAPH OF THE SAMPLE

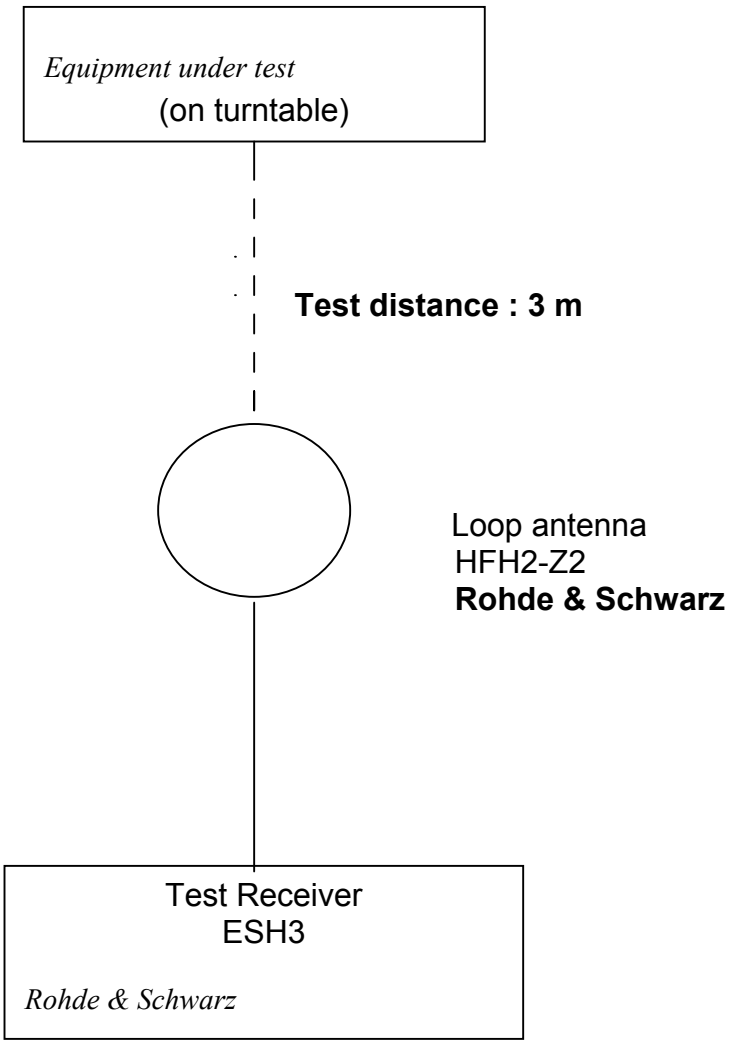
TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Remark
Test Receiver	Rohde & Schwarz	ESH 3	863497/015	10KHz – 30MHz
Test Receiver	Rohde & Schwarz	ESVP	860688/022	25MHz – 1,300 MHz
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127	--	2 x 10A, 50Ω, 50μH 10KHz-30MHz
Antenna System	Schwarzbeck	BBA 9106 / UHALP 9107	--	30MHz – 1000MHz
Antenna Mast System	Schwarzbeck	AM9104	--	Max. 4 meters height
Spectrum Analyzer with Q. Peak	Tektronix	2712	B023006	9KHz – 1.8GHz
Interface for Spectrum 2712	Tektronix	TD3F14A	--	
Test Receiver	Rohde & Schwarz	ESH 3	892580/006	10KHz – 30MHz
Test Receiver	Rohde & Schwarz	ESVP	863512/012	25MHz – 1,300 MHz
Impulse Limiter	Rohde & Schwarz	ESH-3-Z2	--	
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127	--	2 x 10A, 50Ω, 50μH 10KHz-30MHz
Antenna System	Schwarzbeck	BBA 9106 / UHALP 9107	--	30MHz – 1000MHz
Signal Generator	Rohde & Schwarz	SWS 2	879113/42	100KHz – 1040 MHz
Digital Multimeter	Tektronix	DM2510G	DM-2510GTW10555	10KHz – 30MHz
Turntable with Controller	Drehtisch	DT312	--	ϕ120 cm

Radiated Emission Testprocedure (> 30MHz)



Radiated Emission Test Procedure (9kHz – 30MHz)



Unintentional Radiators

Date: 2002-05-21

Measurement of Radiated Emissions

Acc: FCC Part 15 Subpart B

IECC Ref: 30464B/2/400F
Model: 90378 (49MHz)
Applicant: ECHO TOYS LTD

Ser.Nr.: 1

Set under test: Mini Carbot
Connected sets: -
Operating mode: Receiver - Power "On"

Test Equipment
Receiver: ESVP Rohde & Schwarz
Antenna: Schwarzbeck BBA 9106
and UHALP 9107

1. Standby Mode

Frequency (MHz)	Horz. Reading dB(µV)	Vert. Reading dB(µV)	Antenna Factor (dB)	Horiz. Test Result dB(µV/m)	Vert. Test Result dB(µV/m)	Limit dB(µV/m)
30	< 16	< 16	18.4	< 34.4	< 34.4	40.0
47.1	< 16	< 16	12.5	< 28.5	< 28.5	40.0
52.6	< 16	< 16	10.8	< 26.8	< 26.8	40.0
56.6	< 16	< 16	9.5	< 25.5	< 25.5	40.0
100	< 16	< 16	10.3	< 26.3	< 26.3	43.5
300	< 16	< 16	20.0	< 36.0	< 36.0	46.0
500	< 16	< 16	19.7	< 35.7	< 35.7	46.0
700	< 16	< 16	22.4	< 38.4	< 38.4	46.0
1000	< 16	< 16	26.5	< 42.5	< 42.5	54.0

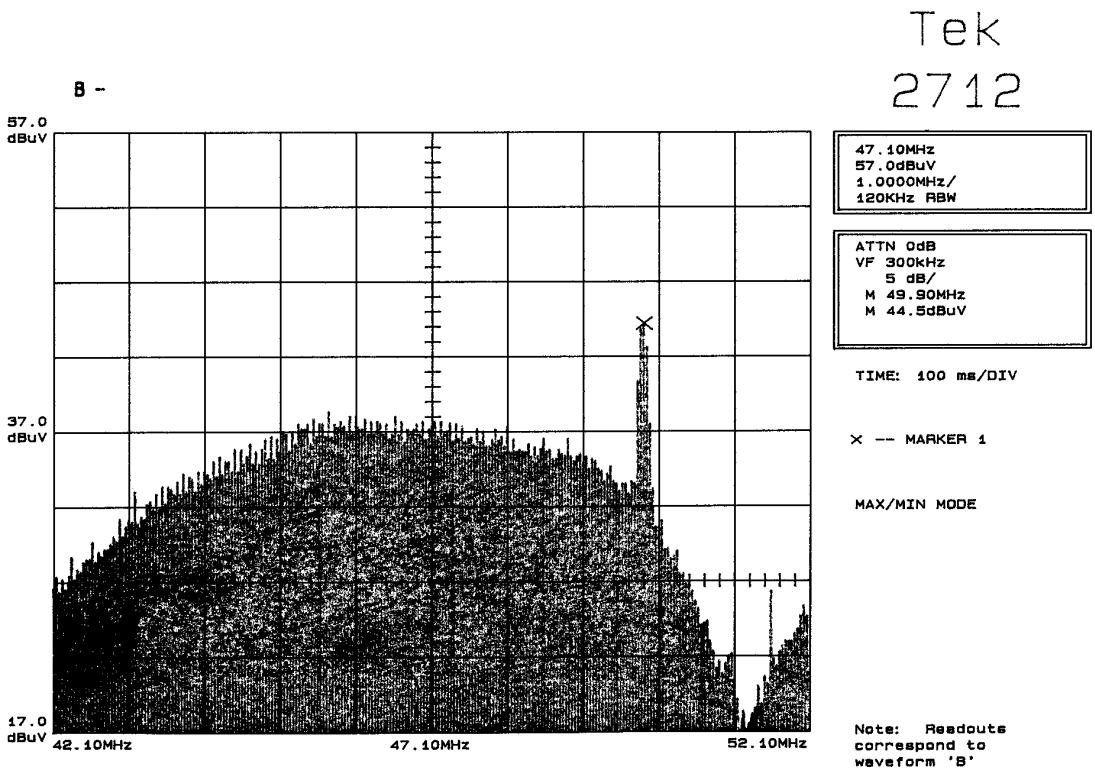
2. Motor running mode (motor noise measurement only)

Frequency (MHz)	Horz. Reading dB(µV)	Vert. Reading dB(µV)	Antenna Factor (dB)	Horiz. Test Result dB(µV/m)	Vert. Test Result dB(µV/m)	Limit dB(µV/m)
30	< 16	< 16	18.4	< 34.4	< 34.4	40.0
50	< 16	< 16	11.7	< 27.7	< 27.7	40.0
100	< 16	< 16	10.3	< 26.3	< 26.3	43.5
300	< 16	< 16	20.0	< 36.0	< 36.0	46.0
500	< 16	< 16	19.7	< 35.7	< 35.7	46.0
700	< 16	< 16	22.4	< 38.4	< 38.4	46.0
1000	< 16	< 16	26.5	< 42.5	< 42.5	54.0

Remark: All frequencies in the required range have been scanned and only those significant and representative readings are reported above.
All emissions not reported above are all well below the limit.

Cohere Plot at fundamental frequency

Sample location: Less than 0.5m from the measuring antenna
Applied signal: - 60dBm (non-modulated, 49.86 MHz)
Remark: Self-cohere



All emissions observed complies with FCC limits.

Notes for Radiation Measurement

1. **Measurement facility:**
   Measurement facility located at Fanling (Hong Kong), placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules.

2. **Distance between the EUT and measuring antenna:**
   3 meters.

3. **Measuring instrumentations:**
   Rohde & Schwarz ESVP Test Receiver (20 - 1300 MHz) with a CISPR weighting QP detector, 6 dB bandwidth set at 120 KHz.

4. **Measuring antenna:**
   Broad-band antenna for the frequency range 30 - 300 MHz and frequency range 300 - 1000 MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the Antenna Factor for measurement data. The antennas are capable of measuring both horizontal and vertical polarizations.

   Loop antenna for the frequency range 9KHz – 30MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the measurement data. The center of the loop 1. m above the ground plane, positioned with its plane vertical at the specified distance and rotated about its vertical axis and placed horizontal for maximum response at each azimuth about the EUT.

5. **Frequency range scanned:**
   The frequency range 30 - 1000 MHz has been scanned. Readings of the highest emissions relating to the limit were reported as above.

6. **Arrangement of EUT:**
   During the test, the sample was operated at rated supply voltage and arranged for maximum emissions. To find the maximum emission, the antenna was raised from 1 to 4 meters and was stopped at the maximum emission point.

7. **Measuring Procedure:**
   In **accordance** with the relevant sections of the American National Standards Institute (ANSI) C63.4-1992 ‘Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz’.