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## FCC PART 15 B SUBPART B RECEIVER TEST REPORT

Applicant	SCIENTIFIC TOYS, LTD.
Address	RM. 1108, 11/F., BLOCK B, NEW MANDARIN PLAZA 14 SCIENCE MUSEUM ROAD TST KOWLOON HONG KONG
FCC ID	BY33129-49SV
Product Description	49 MHZ REMOTE CONTROL RECEIVER
Date Sample Received	11/19/2007
Date Tested	11/28/2007
Tested By	RICHARD BLOCK
Approved By	MARIO DE ARANZETA
Report Number	3614UT7TestReport.doc
Test Results	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL  
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Certificate # 0955-01



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**GENERAL REMARKS**

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

**Summary**

The device under test does:

- fulfill the general approval requirements as identified in this test report
- not fulfill the general approval requirements as identified in this test report

**Attestations**

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.



Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.  
849 NW State Road 45  
Newberry, Fl 32669

**Authorized Signatory Name:** *Mario de Aranzeta*

Mario de Aranzeta C.E.T.  
Compliance Engineer/ Lab. Supervisor

**Date:** 11/28/07

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## REPORT SUMMARY

Disclaimer	The test results only relate to the item tested.
Applicable Rule(s)	Pt 15.109, Pt 15.107, ANSI C63.4: 2003
Related Report	None

## TEST ENVIRONMENT

Test Facility	Timco Engineering, Inc. 849 NW State Road 45 Newberry, FL 32669 USA.
Test Condition in the laboratory	Temperature: 26°C Relative humidity: 50%

## TEST SETUP SUMMARY

Test Setup Diagram/Description	The DUT was placed on the turntable per setup per ANSI C63.4: 2003. A test set up photo is provided for clarification.
Deviation from the standard/procedure	No deviation
Modification of DUT	No modification

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**DUT SPECIFICATION**

The test results relate only to the items tested.	
<b>DUT Description</b>	49 MHZ REMOTE CONTROL RECEIVER
<b>FCC ID</b>	BY33129-49SV
<b>DUT Power Source</b>	<input type="checkbox"/> 110-120Vac/50- 60Hz
	<input type="checkbox"/> DC Power
	<input checked="" type="checkbox"/> Battery Operated Exclusively
<b>Test Item</b>	<input type="checkbox"/> Prototype
	<input checked="" type="checkbox"/> Pre-Production
	<input type="checkbox"/> Production
<b>Type of Equipment</b>	<input type="checkbox"/> Fixed
	<input type="checkbox"/> Mobile
	<input checked="" type="checkbox"/> Portable
<b>Laboratory Test Conditions</b>	Temperature: 26°C Humidity: 55%
<b>Modifications to DUT:</b>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (explanation below)

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## TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/20/07	3/19/10
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/11/07	5/10/10
Antenna: Biconnical	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Antenna: Biconnical	Eaton	94455-1	1096	CAL 10/11/06	10/11/08
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	CAL 7/18/07	7/18/09
Analyzer Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 5/17/07	5/17/09
Analyzer Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 5/17/07	5/17/09
Analyzer Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 5/17/07	5/17/09
LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/5/06	10/5/08
LISN	Electro-Metrics	EM-7820	2682	CAL 7/23/07	7/23/09
Antenna: Log-Periodic	Eaton	96005	1243	CAL 12/14/05	12/14/07

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## TEST PROCEDURES

**Power line conducted Emission:** The test procedure used was ANSI C63.4-2003. The spectrum was scanned from 0.15 to 30 MHz.

**Radiation Interference:** The test procedure used was ANSI C63.4-2003 using a spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The video bandwidth was always greater than or equal to the RBW.

The frequency was scanned from 30 MHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes when necessary.

**Formula Of Conversion Factors:** The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

**Example:**

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBuV	+ 10.36 dB/m	+0.40 dB	=30.36 dBuV/m @ 3m

**ANSI C63.4-2003 Measurement Procedures:** The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

## RADIATED SPURIOUS EMISSIONS

Rules Part No.: 15.109

### Requirements:

Frequency MHz	Limits
30 – 88	40.0 dB $\mu$ V/m measured @ 3 meters
80 – 216	43.5 dB $\mu$ V/m measured @ 3 meters
216 – 960	46.0 dB $\mu$ V/m measured @ 3 meters
Above 960	54.0 dB $\mu$ V/m measured @ 3 meters

### Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dB $\mu$ V	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dB $\mu$ V/m	Margin dB
49.9	47.56	20.0	V	0.49	10.56	31.05	8.95
49.9	52.11	18.1	V	0.51	10.93	29.54	10.46
49.9	55.42	16.7	V	0.52	11.05	28.27	11.73
49.9	80.23	16.8	V	0.60	7.52	24.92	15.08
49.9	81.73	18.8	V	0.60	7.67	27.07	12.93
49.9	83.26	18.0	V	0.61	7.83	26.44	13.56
49.9	84.79	23.4	V	0.61	7.98	31.99	8.01
49.9	85.46	16.1	V	0.61	8.10	24.81	15.19
49.9	86.19	19.0	V	0.62	8.26	27.88	12.12
49.9	86.58	16.8	V	0.62	8.35	25.77	14.23
49.9	87.37	17.1	V	0.62	8.52	26.24	13.76
49.9	87.74	18.7	V	0.62	8.60	27.92	12.08
49.9	88.09	16.9	V	0.62	8.68	26.20	17.30
49.9	88.50	17.1	V	0.62	8.77	26.49	17.01
49.9	88.89	16.0	V	0.62	8.86	25.48	18.02
49.9	89.29	18.4	V	0.62	8.94	27.96	15.54
49.9	89.65	16.6	V	0.62	9.02	26.24	17.26
49.9	90.79	21.4	V	0.63	9.32	31.35	12.15
49.9	91.19	17.1	V	0.63	9.43	27.16	16.34
49.9	91.58	16.0	V	0.63	9.54	26.17	17.33
49.9	91.94	16.2	V	0.63	9.64	26.47	17.03
49.9	92.31	19.0	V	0.63	9.75	29.38	14.12
49.9	92.69	16.9	V	0.63	9.85	27.38	16.12
49.9	93.12	16.5	V	0.63	9.97	27.10	16.40

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**TEST DATA CONTD.**

<b>Tuned Frequency MHz</b>	<b>Emission Frequency MHz</b>	<b>Meter Reading dBuV</b>	<b>Ant. Polarity</b>	<b>Coax Loss dB</b>	<b>Correction Factor dB</b>	<b>Field Strength dBuV/m</b>	<b>Margin dB</b>
49.9	93.83	18.9	V	0.63	10.17	29.70	13.80
49.9	182.67	15.3	H	0.83	16.67	32.80	10.70
49.9	191.38	18.2	H	0.87	17.27	36.34	7.16
49.9	191.47	18.1	V	0.87	17.61	36.58	6.92
49.9	196.74	17.3	H	0.89	17.13	35.32	8.18
49.9	197.11	17.0	V	0.89	17.23	35.12	8.38
49.9	201.77	17.0	H	0.90	12.05	29.95	13.55
49.9	201.85	17.4	V	0.90	11.91	30.21	13.29
49.9	224.70	15.8	H	0.95	11.45	28.20	17.80
49.9	227.64	17.2	V	0.96	11.23	29.39	16.61
49.9	229.04	18.2	H	0.96	11.49	30.65	15.35
49.9	237.22	15.5	H	0.97	11.86	28.33	17.67
49.9	237.70	15.3	V	0.98	11.84	28.12	17.88

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**POWER LINE CONDUCTED INTERFERENCE**

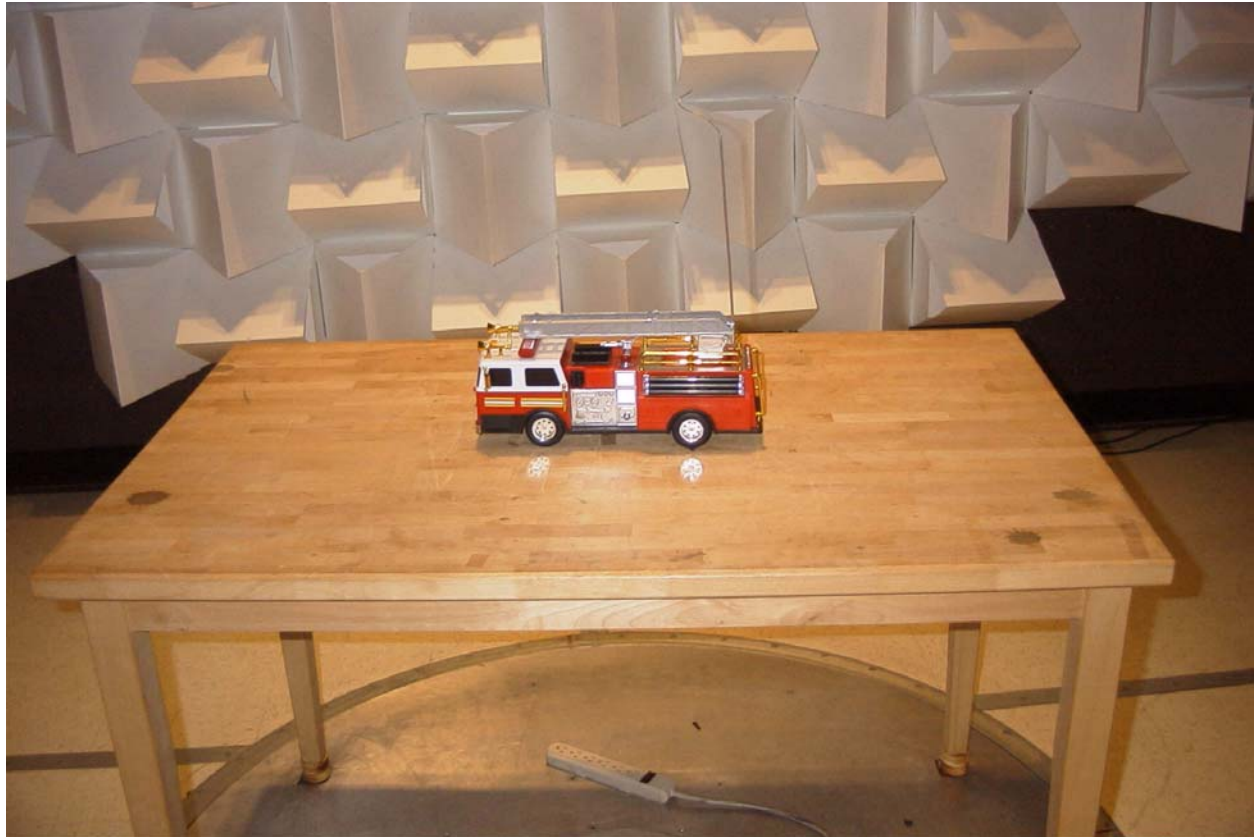
**Rules Part No.:** Part 15.107

**Requirements:**

Frequency (MHz)	Quasi Peak Limits (dBuV)	Average Limits (dBuV)
0.15 – 0.5	66 – 56 *	56 – 46 *
0.5 – 5.0	56	46
5.0 – 30	60	50
* Decrease with logarithm of frequency		

**Test Data:** Not applicable. Battery operated device.

**RADIATED EMISSIONS TEST SETUP PHOTO**



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