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FCC PART 15.235 TEST REPORT

LOW POWER UNLICENSED TRANSMITTER

Applicant	SCIENTIFIC TOYS, LTD.
Address	RM. 1108, 11/F., BLOCK B, NEW MANDARIN PLAZA 14 SCIENCE MUSEUM ROAD TST KOWLOON HONG KONG
FCC ID	BY33865-49TP
Product Description	49 MHz REMOTE CONTROL TRANSMITTER
Date Sample Received	11/19/2007
Date Tested	11/28/07
Tested By	Richard Block
Approved By	Mario de Aranzeta
Timco Report No.	3613UT7TestReport.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.**



APPLICANT: SCIENTIFIC TOYS, LTD.
 FCC ID: BY33865-49TP
 REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

TABLE OF CONTENTS

GENERAL REMARKS4
REPORT SUMMARY5
TEST ENVIRONMENT.....5
TEST SETUP5
DUT SPECIFICATION6
TEST EQUIPMENT LIST7
TEST PROCEDURES8
RADIATION INTERFERENCE.....9
OCCUPIED BANDWIDTH..... 10

APPLICANT: SCIENTIFIC TOYS, LTD.
FCC ID: BY33865-49TP
REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

GENERAL REMARKS

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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: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

REPORT SUMMARY

Disclaimer	The test results only relate to the item tested.
Applicable Rule(s)	FCC Pt 15.235, ANSI C63.4: 2003
Related Report(s) or Approval(s)	None

TEST ENVIRONMENT

Test Facility	The test sites are located at 849 NW State Road 45 Newberry, FL 32669 USA.
Test Condition:	Temperature: 26°C Relative humidity: 50%

TEST SETUP

Test Exercise (e.g software description, test signal, etc.):	The DUT was placed in continuous transmit mode of operation.
Deviation from the standard(s)	No deviation from the standard(s)
Modification to the DUT:	No modification was made to the DUT.
Supporting Peripheral Equipment	Not applicable. The device is a stand-alone remote control.

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REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

DUT SPECIFICATION

Applicant	SCIENTIFIC TOYS, LTD.		
Description	49 MHz REMOTE CONTROL TRANSMITTER		
FCC ID	BY33865-49TP		
Frequency Range	49.86 – 49.86 MHz		
DUT Power Source	<input type="checkbox"/> 110–120Vac/50– 60Hz		
	<input type="checkbox"/> DC Power		
	<input checked="" type="checkbox"/> Battery Operated Exclusively		
Test Item	<input type="checkbox"/> Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
Type of Equipment	<input type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input checked="" type="checkbox"/> Portable

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REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

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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 REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

TEST PROCEDURES

Spurious Emissions: 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 resolution bandwidth was 100 kHz and the video bandwidth was always greater than the RBW.

Occupied Bandwidth: A small sample of the transmitter output was fed into the spectrum analyzer and the following plot was generated. The vertical scale is set to 10 dB per division.

Formula Of Conversion Factors: The field strength at 3m was established by adding the meter reading of the spectrum analyzer to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB/m. The gain of the preselector was accounted for in the spectrum analyzer reading.

Example:

Freq MHz	Meter Reading dBuV	ACF dB/m	Cable Loss dB	Field Strength dBuV/m @ 3 m
33	20	+10.36	+1.2	= 31.56

ANSI C63.4-2003 Measurement: The DUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The DUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the 10th harmonic of the fundamental.

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.

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FCC ID: BY33865-49TP
REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

RADIATION INTERFERENCE

Rules Part No.: 15.235

Requirements:

Frequency MHz	Limits
Fundamental Frequency	80.0 dB μ V/m measured @ 3 meters
30 – 88	40.0 dB μ V/m measured @ 3 meters
80 – 216	43.5 dB μ V/m measured @ 3 meters
216 – 960	46.0 dB μ V/m measured @ 3 meters
Above 960	54.0 dB μ V/m measured @ 3 meters

Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dB μ V	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dB μ V/m	Margin dB
49.9	49.86	53.7	H	0.97	11.53	66.20	13.80
49.9	49.86	64.7	V	0.97	10.63	76.30	3.70
49.9	99.70	18.1	H	1.40	10.69	30.19	13.31
49.9	99.70	22.0	V	1.40	11.29	34.69	8.81
49.9	149.50	17.5	H	1.75	16.25	35.50	8.00
49.9	149.50	18.1	V	1.75	17.13	36.98	6.52
49.9	199.40	13.5	V	2.10	18.11	33.71	9.79
49.9	199.40	14.6	H	2.10	17.64	34.34	9.16
49.9	249.30	13.4	H	2.35	12.57	28.32	17.68
49.9	249.30	17.3	V	2.35	12.66	32.31	13.69
49.9	299.10	9.7	H	2.60	14.75	27.05	18.95
49.9	299.10	18.6	V	2.60	14.65	35.85	10.15
49.9	349.00	16.6	H	2.85	14.91	34.36	11.65
49.9	349.00	22.8	V	2.85	14.69	40.34	5.67
49.9	398.80	7.9	H	3.09	16.16	27.15	18.85
49.9	398.80	12.0	V	3.09	15.55	30.64	15.36
49.9	448.70	5.7	V	3.29	17.58	26.57	19.43
49.9	448.70	5.7	H	3.29	17.31	26.30	19.70
49.9	498.60	5.8	V	3.49	18.23	27.52	18.48
49.9	498.60	7.9	H	3.49	18.13	29.52	16.48

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 FCC ID: BY33865-49TP
 REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc

OCCUPIED BANDWIDTH

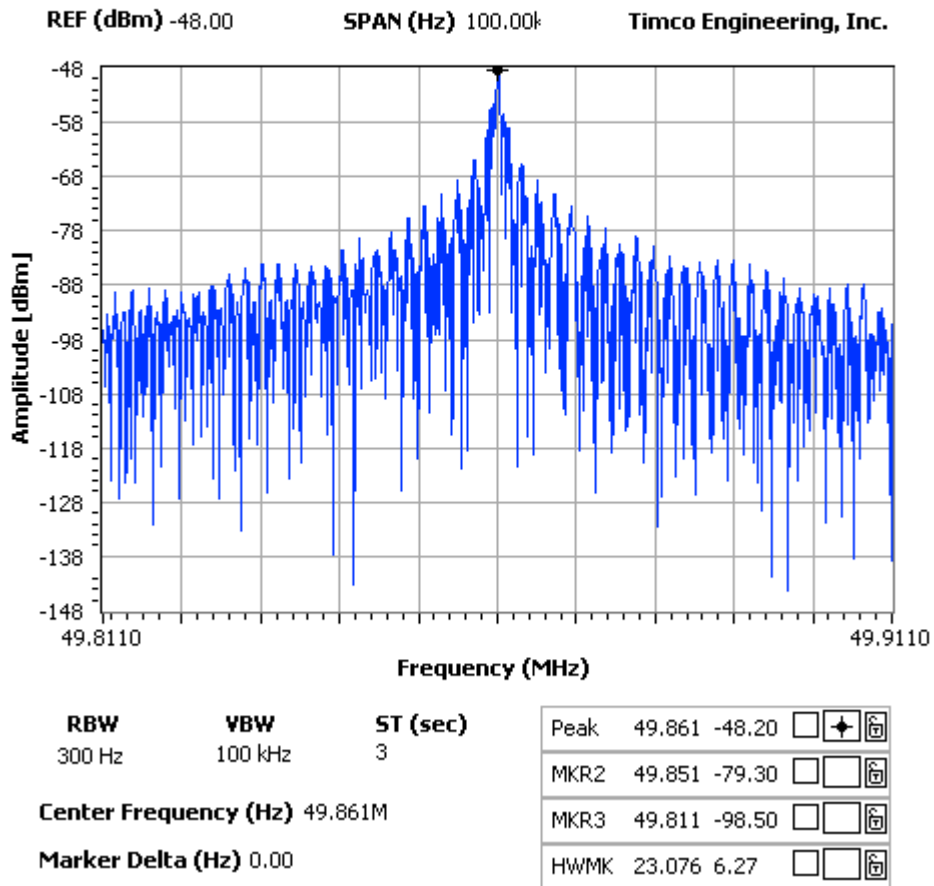
Rules Part No.: 15.235

Requirements: The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the un-modulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

Test Data: Please refer to the following plot.

NOTES:

OCCUPIED BANDWIDTH
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 REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc



TEST SETUP PHOTO

APPLICANT: SCIENTIFIC TOYS, LTD.
FCC ID: BY33865-49TP
REPORT: S\SCIENTIF\3613UT7\3613UT7TestReport.doc