TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: sid@timcoengr.com

Test Report

Product Name: 49 MHz WIRELESS R/C TRANSMITTER

FCC ID: RCB34149

Applicant:

TOYS "R" US
255 SUMMIT AVENUE
MONTAVALE NJ 07645-1523
USA

Date Receipt: 7/23/2003

Date Tested: 7/24/2003

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TABLE OF CONTENTS LIST

APPLICANT: TOYS "R" US

FCC ID: RCB34149

TEST REPORT CONTAINING:

EXHIBITS CONTAINING:

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Equipment List

Used?	Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
	3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/13/06
X	3/10-Meter OATS	TEI	N/A	N/A	Listed 3/26/01	3/26/04
X	Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 8/31/01	8/31/03
	Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 8/31/01	8/31/03
	Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 8/31/01	8/31/03
	Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CHAR 3/4/01	3/4/03
	Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/15/03	4/15/05
	Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 4/15/03	4/15/05
	Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/15/03	4/15/05
	Silver Tower Spectrum Analyzer	HP	8566B Opt 462	3552A22064 3638A08608	CAL 10/14/02	10/14/04
	Silver Tower RF Preselector	HP	85685A	2620A00294	CAL 10/14/02	10/14/04
	Silver Tower Quasi-Peak Adapter	HP	85650A	3303A01844	CAL 10/14/02	10/14/04
	Silver Tower Preamplifier	HP	8449B	3008A01075	CHAR 1/28/02	1/28/04
	Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
	Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/03
X	Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
	BiconiLog Antenna	EMCO	3143	9409-1043		
X	Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 10/2/01	10/2/03
	Log-Periodic Antenna	Electro-Metrics	EM-6950	632	CHAR 10/15/01	10/15/03
	Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CAL 3/4/03	3/4/05
	Log-Periodic Antenna	Eaton	96005	1243	CAL 5/8/03	5/8/05
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/21/01	3/21/04
	Dipole Antenna Kit	Electro-	TDA-30/1-4	153	CAL	9/26/05

		Metrics			9/26/02	
	Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 2/17/03	2/17/05
	Horn Antenna *(at 3 meters)	Electro-Metrics	EM-6961	6246	CAL 3/31/03	3/31/05
	Horn Antenna *(at 10 meters)	Electro-Metrics	EM-6961	6246	CAL 6/4/03	6/4/05
	Horn Antenna	ATM	19-443-6R	None	No Cal Required	
	Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/01	7/10/03
	Harmonic Mixer with Horn Antenna	Oleson Microwave Labs	M08HW/A	F30425-1	CHAR 4/25/03	4/25/05
	Harmonic Mixer with Horn Antenna	Oleson Microwave Labs	M12HW/A	E30425-1	CHAR 4/25/03	4/25/05
	LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/03
	LISN	Electro-Metrics	EM-7820	2682	CAL 3/12/03	3/12/05
	Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 5/25/99	5/25/01
	Termaline Wattmeter	Bird Electronic Corporation	6104	1926	CHAR 9/7/01	9/7/03
	Oscilloscope	Tektronix	2230	300572	CAL 7/3/03	7/3/05
	System One	Audio Precision	System One	SYS1-45868	CHAR 4/25/02	4/25/04
	Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 1/22/02	1/22/04
	AC Voltmeter	HP	400FL	2213A14499	CAL 10/9/01	10/9/03
	AC Voltmeter	HP	400FL	2213A14261	CHAR 10/15/01	10/15/03
	AC Voltmeter	HP	400FL	2213A14728	CHAR 10/15/01	10/15/03
	Digital Multimeter	Fluke	77	35053830	CHAR 1/8/02	1/8/04
	Digital Multimeter	Fluke	77	43850817	CHAR 1/8/02	1/8/04
	Digital Multimeter	HP	E2377A	2927J05849	CHAR 1/8/02	1/8/04
X	Multimeter	Fluke	FLUKE-77-3	79510405	CHAR 9/26/01	9/26/03
	Peak Power Meter	HP	8900C	2131A00545	CAL 7/2/03	7/2/05
	Power Sensor	Agilent Technologies	84811A	2551A02705	CAL 7/2/03	7/2/05
	Power Meter	HP	432A	1141A07655	CAL 4/15/03	4/15/05
	Power Sensor	HP	478A	72129	CAL	4/15/05

	Power Meter And Sensor	Bird	4421-107 & 4022	0166 & 0218	4/15/03 CAL 4/16/03	4/16/05
	Digital Thermometer	Fluke	2166A	42032	CAL 1/16/04 1/16/02	1/16/04
	Thermometer	Traulsen	SK-128		CHAR 1/22/04 1/22/02	1/22/04
	Thermometer	Extech	4028	14871-2	CAL 3/7/05 3/7/03	3/7/05
X	Hygro-Thermometer	Extech	445703	0602	CAL 10/4/04 10/4/02	10/4/04
	Frequency Counter	HP	5352B	2632A00165	CAL 11/28/03 11/28/01	11/28/03
	Frequency Counter	HP	5385A	2730A03025	CAL 3/7/05 3/7/03	3/7/05
	Service Monitor	IFR	FM/AM 500A	5182	CAL 11/22/02 11/22/00	11/22/02
	Comm. Serv. Monitor	IFR	FM/AM 1200S	6593	CAL 5/12/04 5/12/02	5/12/04
	Signal Generator	HP	8640B	2308A21464	CAL 2/15/04 2/15/02	2/15/04
	Sweep Generator	Wiltron	6648	101009	CAL 4/15/05 4/15/03	4/15/05
	Sweep Generator	Wiltron	6669M	007005	CAL 3/3/05 3/3/03	3/3/05
	Modulation Analyzer	HP	8901A	3435A06868	CAL 9/5/03 9/5/01	9/5/03
	Modulation Meter	Boonton	8220	10901AB	CAL 4/15/05 4/15/03	4/15/05
	Near Field Probe	HP	HP11940A	2650A02748	CHAR 2/1/03 2/1/01	2/1/03
	BandReject Filter	Lorch Microwave	5BR4-2400/60-N	Z1	CHAR 4/17/05 4/17/03	4/17/05
	BandReject Filter	Lorch Microwave	6BR6-2442/300-N	Z1	CHAR 4/17/05 4/17/03	4/17/05
	BandReject Filter	Lorch Microwave	5BR4-10525/900-S	Z1	CHAR 4/12/05 4/12/03	4/12/05
	Notch Filter	Lorch Microwave	5BRX-850/X100-N	AD-1	CHAR 4/17/05 4/17/03	4/17/05
	High Pass Filter	Unk	3768(5)-400	041	CHAR 12/17/04 12/17/02	12/17/04
	High Pass Filter	Microlab	HA-10N		CHAR 11/17/04 11/17/02	11/17/04
	High Pass Filter	Microlab	HA-20N		CHAR 12/17/04 12/17/02	12/17/04
	Audio Oscillator	HP	653A	832-00260	CHAR 12/1/04 12/1/02	12/1/04
	Audio Generator	B&K Precision	3010	8739686	CHAR 12/1/04 12/1/02	12/1/04
	Frequency Counter	HP	5382A	1620A03535	CHAR 3/2/03 3/2/01	3/2/03

	Frequency Counter	HP	5385A	3242A07460	CAL 3/7/03	3/7/05
	Amplifier	HP	11975A	2738A01969	CHAR 3/1/01	3/1/03
	Egg Timer	Unk			CHAR 2/1/02	2/1/04
	Measuring Tape-20M	Kraftixx	0631-20		CHAR 2/1/02	2/1/04
X	Measuring Tape-7.5M	Kraftixx	7.5M PROFI		CHAR 2/1/02	2/1/04
	Coaxial Cable #51	Insulated Wire Inc.	NPS 2251-2880	Timco #51	CHAR 1/23/02	1/23/04
X	Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 1/24/02	1/24/04
	Coaxial Cable #65	General Cable Co.	E9917 RG233/U	Timco #65	CHAR 1/23/02	1/23/04
	Coaxial Cable #106	Unknown	Unknown	Timco #106	CHAR 1/23/02	1/23/04
	Injection Probe	Fischer Custom Communications	F-120-9A	270	CAL 6/1/01	6/1/03
	Power Line Coupling/Decoupling Network	Fischer Custom Communications	FCC-801-M2-16A	01048	CAL 8/29/01	8/29/03
	Power Line Coupling/Decoupling Network	Fischer Custom Communications	FCC-801-M3-16A	01060	CAL 8/29/01	8/29/03
	VHF/UHF Current Probe	Fischer Custom Communications	F-52	130	CAL 8/30/01	8/30/03
	Passive Impedance Adapter	Fischer Custom Communications	FCC-801-150-50-CDN	01117 & 01118	CAL 8/29/01	8/29/03
	Radiating Field Coil	Fischer Custom Communications	F-1000-4-8/9/10-L-1M	9859	CAL 10/15/98	10/15/00
	EMC Immunity Test System	Keytek	CEMASTER	9810210	CAL 2/1/02	2/1/04
	AC Power Source	California Instruments	1251RP	L05865		
	AC Power Source	California Instruments	PACS-1	X71484		
	Isotropic Field Probe	Amplifier Research	FP5000	22839		
	Isotropic Field Probe	Amplifier Research	FP5000	300103		
	Capacitor Clamp	Keytek	CM-CCL	9811359	No Cal Required	
	Amplifier	Amplifier Research	10W1000B	23117	No Cal Required	
	Field Monitor	Amplifier Research	FM5004	22288	No Cal Required	
	ELF Meter	F. W. Bell	4060	Not Serialized		

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TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD 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 300 kHz. The ambient temperature of the UUT was 80°C with a humidity of 76%.

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 = FS
33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-1992 10.1.7 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.

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APPLICANT: TOYS "R" US

FCC ID: RCB34149

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.235

REQUIREMENTS: CARRIER FREQUENCY WILL NOT EXCEEDS 80 dBuV/m AT 3M.
OUT-OF-BAND EMISSIONS SHALL NOT EXCEED:

30 - 88 MHz 40.0 dBuV/M MEASURED AT 3 METERS
88 - 216 MHz 43.5 dBuV/M
216 - 960 MHz 46.0 dBuV/M
ABOVE 960 MHz 54.0 dBuV/M

TEST DATA:

Emission Frequency MHz	Meter Reading dBuV	ANT. POLARITY	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
49.86	43.6	H	0.79	11.63	56.02	23.98
49.86	55.5	V	0.79	11.63	67.92	12.08
99.72	14.7	H	0.80	10.50	26.00	17.50
99.72	17.6	V	0.80	10.50	28.90	14.60
149.58	9.7	H	0.90	15.77	26.37	17.13
149.58	10.2	V	0.90	15.77	26.87	16.63
199.46	10.5	V	1.19	16.63	28.32	15.18
199.46	11.4	H	1.19	16.63	29.22	14.28
249.31	13.5	H	1.40	12.53	27.43	18.57
249.31	14.4	V	1.40	12.53	28.33	17.67
299.16	16.0	H	1.40	14.68	32.08	13.92
299.16	21.3	V	1.40	14.68	37.38	8.62
349.03	16.7	H	1.40	14.42	32.52	13.48
349.03	25.1	V	1.40	14.42	40.92	5.08
398.92	9.8	H	1.60	15.88	27.28	18.72
398.92	19.8	V	1.60	15.88	37.28	8.72
448.75	9.2	H	1.60	16.74	27.54	18.46
448.75	13.7	V	1.60	16.74	32.04	13.96
498.61	9.6	H	1.60	18.20	29.40	16.60
498.61	10.5	V	1.60	18.20	30.30	15.70

SAMPLE CALCULATION: FSdBuV/m = MR (dBuV) + ACFdB.

TEST PROCEDURE: The procedure used was ANSI STANDARD C63.4-1992. The spectrum was scanned from 30 MHz to 1000 MHz. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The UUT was tested in 3 orthogonal planes.

TEST RESULTS: THE UNIT DOES MEET THE FCC REQUIREMENTS.

PERFORMED BY: NAM NGUYEN **DATE:** 7/24/2003

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APPLICANT: TOYS "R" US

FCC ID: RCB34149

NAME OF TEST: 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 unmodulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

THE GRAPH ON THE NEXT PAGE REPRESENTS THE EMISSIONS TAKEN FOR THE DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was taken. The vertical scale is set to 10 dB per division. The horizontal scale is set to 10 kHz per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: NAM NGUYEN **DATE:** 7/24/2003

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OCCUPIED BANDWIDTH PLOT