

1. VERIFICATION OF COMPLIANCE

COMPANY NAME : MATTEL TOYS, INC.
333 CONTINENTAL BLVD.
EL SEGUNDO, CA 90245, USA

CONTACT PERSON : VLADIMIR SOSNOVSKY / SENIOR ELECTRONIC
ENGINEER, CES

TELEPHONE NO. : (310) 252-2000

EUT DESCRIPTION : RC SKATEBOARD TRANSMITTER

MODEL NAME/NUMBER : 23203 SERIAL NUMBER : 04

BRAND NAME : SKATEBOARD SHANNEN

FCC ID : APB23203-99A2T

DATE TESTED : APRIL 22, 1999

REPORT NUMBER : 99U0200-1

TYPE OF EQUIPMENT	REMOTE CONTROL
EQUIPMENT TYPE	27 MHz TRANSMITTER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.227

The above equipment was tested by Compliance Engineering Services, Inc. for compliance with the requirements set forth in CFR 47, PART 15. This said equipment in the configuration described in this report shows that maximum emission levels emanating from equipment are within the compliance requirements.


MIKE C.I. KUO / VICE PRESIDENT
COMPLIANCE ENGINEERING SERVICES, INC.

2. Product Description

CHASSIS TYPE	PLASTIC
Fundamental Frequency	27.145 MHz
Power Source	9V Battery
Transmitting Time	CONTINUOUS
NO. OF LAYER	1
Local Osc.	27.145 MHz

3. Test Facility

The 3/10/30 meter open area test site and conducted measurement facility used to collect the radiated data is located at 561F Monterey Road, Morgan Hill, California, U.S.A. A detailed description of the test facility was submitted to the Commission on May 27, 1994.

4. Measurement Standards

The site is constructed and calibrated in conformance with the requirements of ANSI C63.4/1992.

5. Test Methodology

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 KHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. (CFR 47 Section 15.33)

6. Measurement Equipment Used

Manufacturer	Model Number	Description	Cal Due Date
H.P.	8568A	Spectrum Analyzer (100Hz - 1.5GHz)	02/2000
EATON	94455-1	Antenna (25 - 200MHz)	10/1999
EMCO	3146	Antenna (200-1000 MHz)	10/1999
H.P.	8447D	Preamplifier (0.1 - 1300 MHz)	09/1999

7. POWERLINE RFI LIMIT

CONNECTED TO AC POWER LINE	SECTION 15.207
CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 KHZ TO 30 MHz	SECTION 15.205 AND SECTION 15.209, 15.221, 15.223, 15.225 OR 15.227, AS APPROPRIATE.
BATTERY POWER	NO REQUIRED.

8. RADIATED EMISSION LIMITS

GENERAL REQUIREMENTS	SECTION 15.209.
RESTRICTED BANDS OF OPERATION	SECTION 15.205
OPERATION WITHIN THE BAND 26.96 - 27.28 MHz	SECTION 15.227

Compliance Engineering Services Inc.

Project No. : 99U7934
Report No. : 990422A1
Date : 04/22/1999
Time : 10:38
Test Engr : JESSE *JS*

>> 3 M RADIATED EMISSION DATA <<

Company : MATTEL TOYS, INC.
Equipment Under Test : RC CAR TRANSMITTER MODEL #23203 RC SKATING
Test Configuration : EUT ONLY
Type of Test : FCC 15.209/15.227
Mode of Operation : TX

Freq.	dBuV	PreAmp	Ant	Cable	dBuV/m	Limit	Margin	Pol	Hgt (m)	Az
V/X POSITION OF EUT:										
Biconical 8909-1079 ; Pre-amp = 8447D-P1 2944A06833:										
27.14	85.84	-26.71	13.20	0.71	73.04	80.00	-6.96	V	1.0	0
54.29	49.20	-26.63	8.57	1.01	32.15	40.00	-7.85	V	1.0	0
81.44	43.80	-26.65	8.15	1.21	26.51	40.00	-13.49	V	1.0	0
108.58	40.30	-26.51	10.78	1.44	26.01	43.50	-17.49	V	1.0	0
LP NSN=X100 ; Pre-amp = 8447D-P1 2944A06833:										
217.18	39.50	-25.96	11.20	2.10	26.84	46.00	-19.16	V	1.0	0
325.76	36.90	-25.89	16.35	2.62	29.98	46.00	-16.02	V	2.0	0
380.06	39.10	-26.16	16.07	2.86	31.87	46.00	-14.13	V	2.0	0
515.77	38.30	-26.77	18.17	3.39	33.09	46.00	-12.91	V	2.0	0
298.59	41.60	-25.76	16.36	2.49	34.69	46.00	-11.31	V	2.0	0
V/Y POSITION OF EUT:										
27.14	77.24	-26.71	13.20	0.71	64.44	80.00	-15.56	V	1.0	180
54.29	43.20	-26.63	8.57	1.01	26.15	40.00	-13.85	V	1.0	0
81.43	40.70	-26.65	8.15	1.21	23.41	40.00	-16.59	V	1.0	0
108.53	37.80	-26.51	10.78	1.44	23.51	43.50	-19.99	V	1.0	0
298.59	42.50	-25.76	16.36	2.49	35.59	46.00	-10.41	V	2.0	0
325.74	40.00	-25.89	16.35	2.62	33.08	46.00	-12.92	V	1.0	0
380.04	39.50	-26.16	16.07	2.86	32.27	46.00	-13.73	V	1.0	0
407.18	42.10	-26.29	16.12	2.98	34.90	46.00	-11.10	V	1.0	0
434.33	44.60	-26.42	16.69	3.08	37.94	46.00	-8.06	V	1.0	0
515.77	44.60	-26.77	18.17	3.39	39.39	46.00	-6.61	V	1.0	0
V/Z POSITION OF EUT:										
27.14	76.60	-26.71	13.20	0.71	63.80	80.00	-16.20	V	1.0	0
54.29	44.00	-26.63	8.57	1.01	26.95	40.00	-13.05	V	1.0	0
81.43	42.10	-26.65	8.15	1.21	24.81	40.00	-15.19	V	1.0	0
108.53	37.90	-26.51	10.78	1.44	23.61	43.50	-19.89	V	1.0	0
298.59	43.40	-25.76	16.36	2.49	36.49	46.00	-9.51	V	1.0	0
407.19	41.00	-26.29	16.12	2.98	33.80	46.00	-12.20	V	1.0	0
515.78	43.80	-26.77	18.17	3.39	38.59	46.00	-7.41	V	1.0	0
H/X POSITION OF EUT:										
27.14	71.96	-26.71	13.26	0.71	59.22	80.00	-20.78	H	1.0	0
54.29	36.90	-26.63	9.58	1.01	20.86	40.00	-19.14	H	1.0	0
81.44	35.10	-26.65	9.42	1.21	19.08	40.00	-20.92	H	1.0	0
108.59	33.90	-26.51	10.40	1.44	19.23	43.50	-24.27	H	1.0	0
298.60	45.70	-25.76	16.22	2.49	38.65	46.00	-7.35	H	1.0	0

434.34	44.72	-26.42	18.12	3.08	39.49	46.00	-6.51	H	1.0	180
461.48	47.90	-26.56	18.11	3.18	42.63	46.00	-3.37	H	2.0	0
488.63	45.10	-26.69	18.09	3.28	39.79	46.00	-6.21	H	2.0	180
515.78	42.89	-26.77	18.31	3.39	37.83	46.00	-8.17	H	1.0	180

H/Y POSITION OF EUT:

27.14	67.21	-26.71	13.26	0.71	54.47	80.00	-25.53	H	1.0	0
54.29	37.30	-26.63	9.58	1.01	21.26	40.00	-18.74	H	1.0	0
108.59	35.40	-26.51	10.40	1.44	20.73	43.50	-22.77	H	1.0	0
217.16	39.60	-25.96	11.44	2.10	27.18	46.00	-18.82	H	2.0	270
298.60	45.90	-25.76	16.22	2.49	38.85	46.00	-7.15	H	1.5	180
325.75	42.26	-25.89	16.79	2.62	35.77	46.00	-10.23	H	1.0	180
407.19	39.39	-26.29	18.13	2.98	34.20	46.00	-11.80	H	1.0	180
434.33	39.73	-26.42	18.12	3.08	34.50	46.00	-11.50	H	1.0	180
461.48	45.49	-26.56	18.11	3.18	40.22	46.00	-5.78	H	1.0	180
515.77	41.48	-26.77	18.31	3.39	36.41	46.00	-9.59	H	1.0	180

H/Z POSITION:

27.14	73.14	-26.71	13.26	0.71	60.40	80.00	-19.60	H	3.0	0
54.29	42.50	-26.63	9.58	1.01	26.46	40.00	-13.54	H	3.0	0
81.44	40.60	-26.65	9.42	1.21	24.58	40.00	-15.42	H	3.0	0
108.59	37.90	-26.51	10.40	1.44	23.23	43.50	-20.27	H	3.0	0
217.16	30.00	-25.96	11.44	2.10	17.58	46.00	-28.42	H	1.0	180
298.60	44.50	-25.76	16.22	2.49	37.45	46.00	-8.55	H	1.5	0
325.74	43.91	-25.89	16.79	2.62	37.42	46.00	-8.58	H	1.0	180
380.04	39.34	-26.16	17.77	2.86	33.81	46.00	-12.19	H	1.0	180
434.33	40.74	-26.42	18.12	3.08	35.51	46.00	-10.49	H	1.0	180
461.48	45.80	-26.56	18.11	3.18	40.53	46.00	-5.47	H	1.0	0
488.63	43.10	-26.69	18.09	3.28	37.79	46.00	-8.21	H	1.0	180
515.76	39.97	-26.77	18.31	3.39	34.90	46.00	-11.10	H	1.0	180

COMPLETED SCAN FROM 30MHz TO 1GHz IN VERTICAL AND HORIZONTAL POLARIZATIONS.
X, Y, Z, POSITIONS OF EUT.

Total # of data 57

V. a2.2

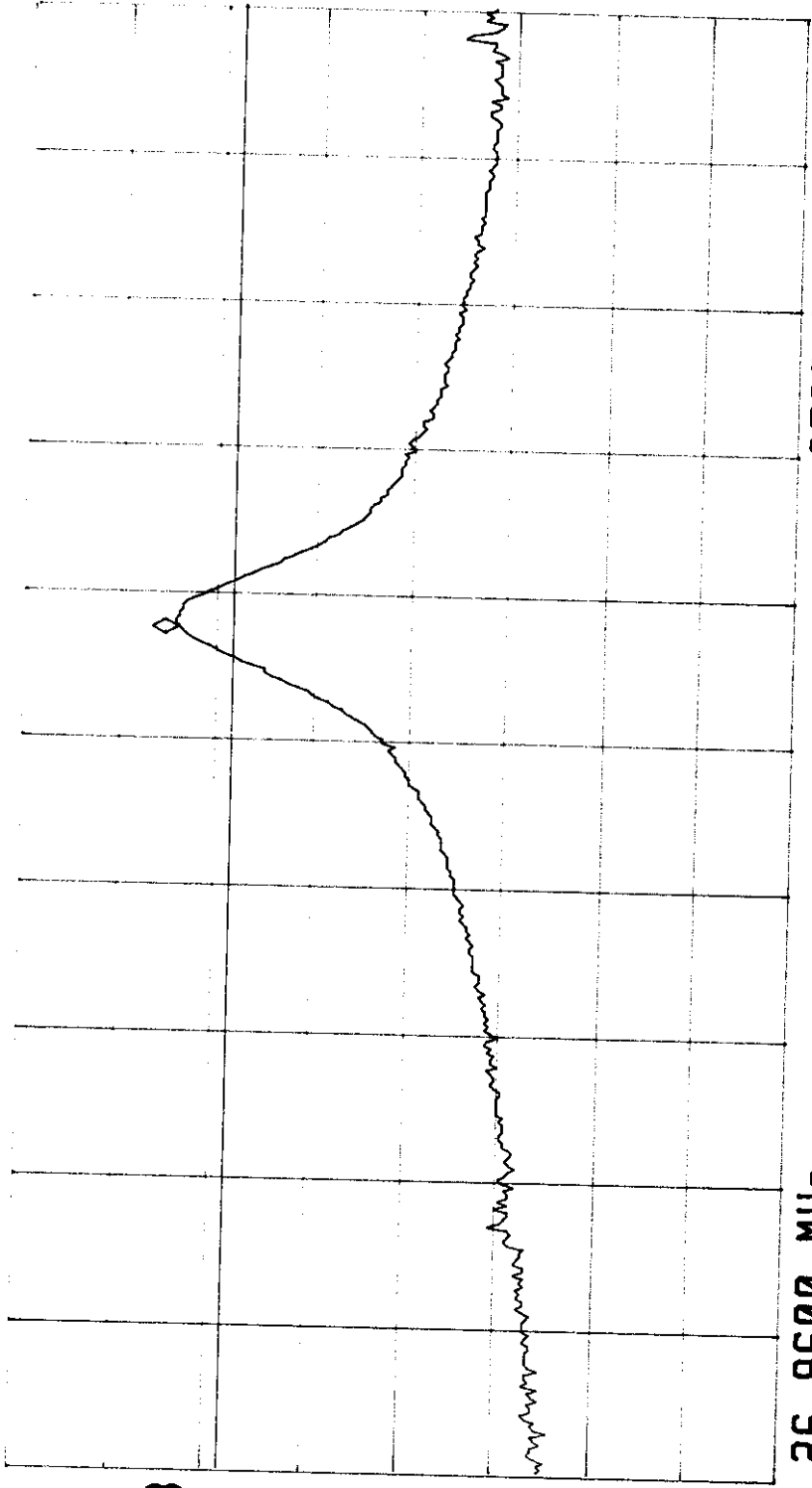
14:41:01 22 APR 1999

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 27.1440 MHz
85.84 dB μ V

REF OFFST 10.0 dB
REF 102.0 dB μ V

LOG 10
dB/
#ATN
10 dB

DL 80.0
dB μ V
VA SB
SC FC
CORR



START 26.9600 MHz
#IF BW 10 kHz
STOP 27.2800 MHz
SWP 30.0 msec
AUG BW 10 kHz

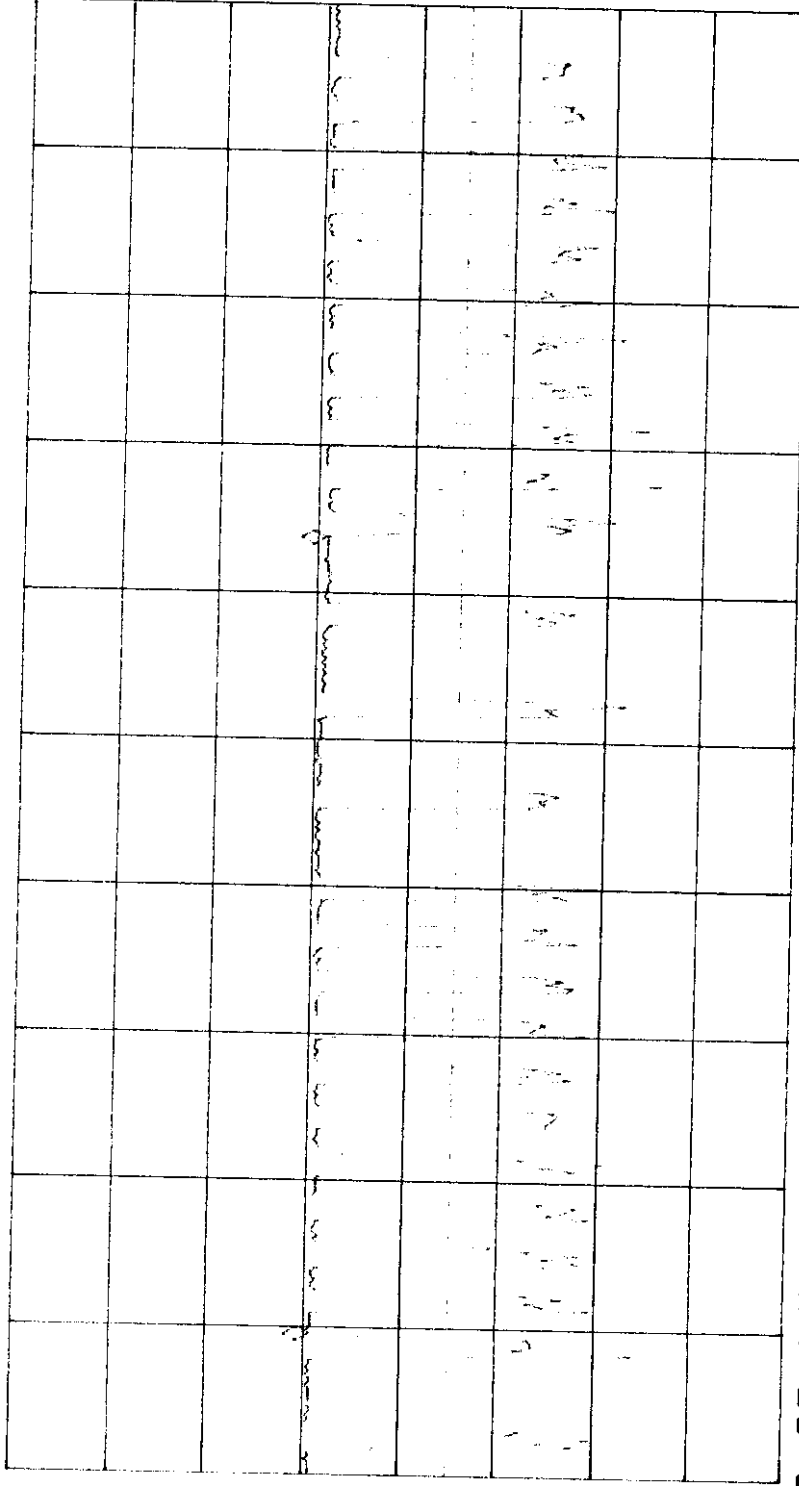
12:14:26 22 APR 1999

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRA 10.850 msec
-.39 dB

REF OFFST 10.0 dB
REF 102.0 dB μ V

LOG
10
dB/
#ATN
10 dB

DL
56.9
dB μ V
SA WB
SC FS
CORR



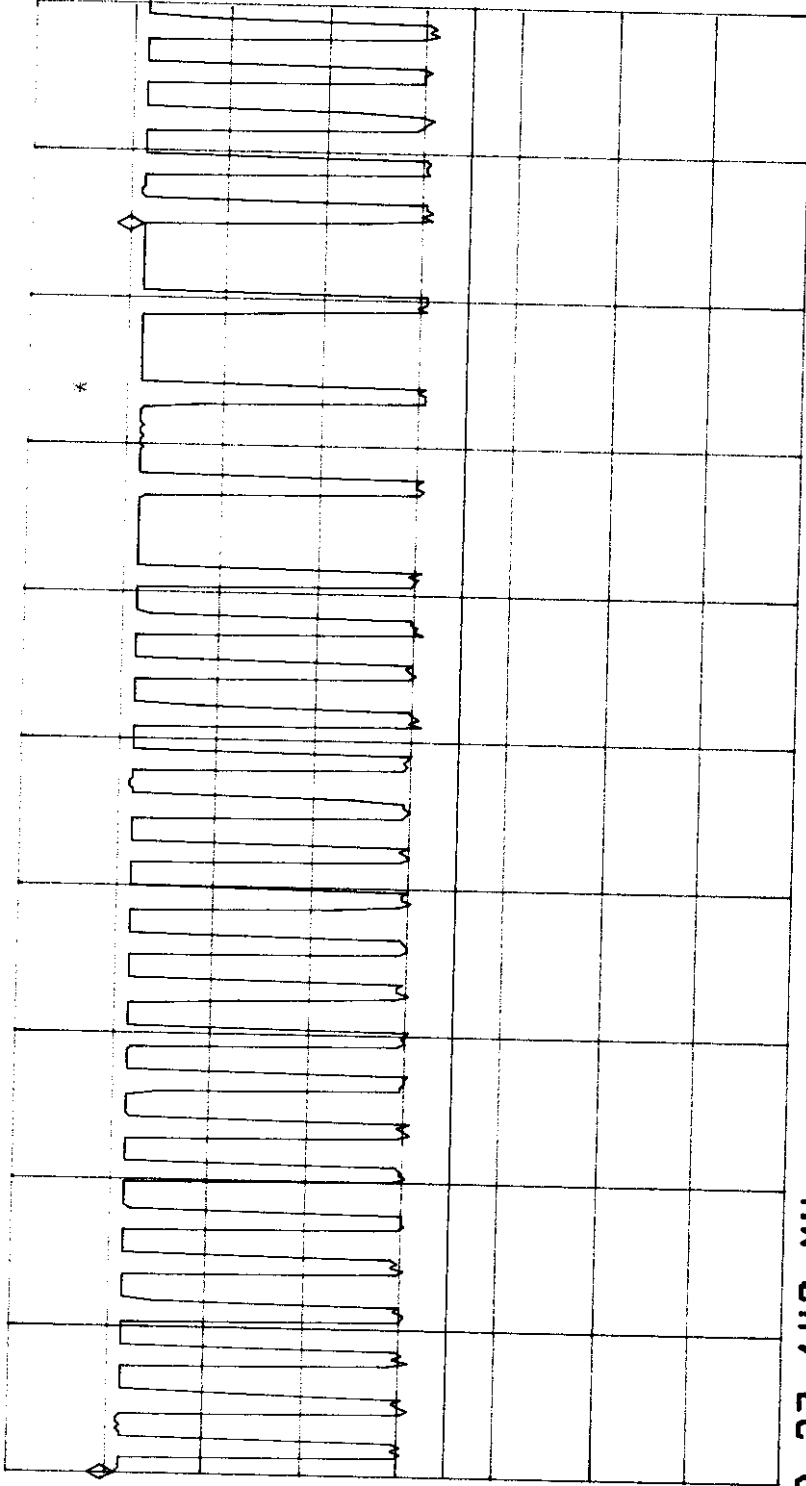
CENTER 27.145 MHz
#IF BW 100 kHz
#AUG BW 100 kHz
#SWP 20.0 msec
SPAN 0 Hz

13:36:23 22 APR 1999

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 17.000 msec
-.14 dB

LOG REF 92.0 dBμV

10
dB/
#ATN
10 dB



DL
46.9
dBμV
WA SB
SC FS
CORR

CENTER 27.140 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

#SWP 20.0 msec

SPAN 0 Hz