

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT  
CERTIFICATION TO FCC PART 15 REQUIREMENTS**

*for*

**UNINTENTIONAL RADIATOR**

**RC CAR RECEIVER**

**MODEL: 34337**

**BRAND NAME: HOT ROD ROADSTER**

**FCC ID NO: APB34337-98A4R**

**REPORT NO: 98E7680**

**ISSUE DATE: AUGUST 18, 1998**

*Prepared for*

**MATTEL TOYS, INC.  
333 CONTINENTAL BLVD.  
EL SEGUNDO, CA 90245  
USA**

*Prepared by*

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## TEST DATA

- Fundamental Frequency Plot
- Radiated Emission Data

Proposed FCC ID Label.....	EXHIBIT 1
Agent Authorization Letter.....	EXHIBIT 2
User Manual.....	Attachment A
Block Diagram/Schematics.....	Attachment B

**1. VERIFICATION OF COMPLIANCE**

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

CONTACT PERSON : VLADIMIR BUZGA  
DIRECTOR OF DEVELOPMENT, CES

TELEPHONE NO. : 310-252-2000

EUT DESCRIPTION : RC CAR RECEIVER

MODEL NAME/NUMBER : 34337

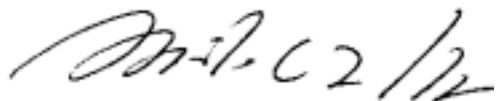
FCC ID : APB34337-98A4R

DATE TESTED : AUGUST 18, 1998

REPORT NUMBER : 98E7680

TYPE OF EQUIPMENT	TOY EQUIPMENT (UNINTENTIONAL RADIATOR)
EQUIPMENT TYPE	SUPERREGENERATIVE RECEIVER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.109

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

MATTEL TOYS INC., Model 34337 is the receiving portion of a remote control toy car. The associated Transmitter is manufactured by MATTEL TOYS INC., Model No: 34337, FCC ID: APB34337-98A4T.

## 3. TEST FACILITY

The 3 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 facilities was submitted to the Commission on May 27, 1994.

The measuring instrument which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

## 4. MEASUREMENT EQUIPMENT USED

Manufacturer	Model Number	Description	Cal Due Date
H.P.	8640B	Signal Generator (0.5 - 1024 MHz)	08/99
H.P.	8566B	Spectrum Analyzer (100Hz - 22GHz)	09/98
EMCO	3146	Antenna (200-1000 MHz)	10/98
H.P.	8447D	Preamplifier (0.1 - 1300 MHz)	09/98
ARA	DRG-18/A	Antenna(1 - 18GHZ)	12/98
H.P.	8449B	Preamplifier (1-26.5GHZ)	03/99

## 5. TEST CONFIGURATION

Fully charged 6.0V NiCd battery pack is used. EUT is placed on center on turn table.

**6. TESTS CONDUCTED**

CFR 47, 15.109 RADIATED EMISSION TESTS	CONDUCTED AT 3 METERS
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**7. CONDUCTED EMISSION TEST PROCEDURE**

The EUT is located so that the distance between the boundary of the EUT and the closest surface to the LISN is 0.8m.

Conducted disturbance shall be measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz shall be investigated.

Set the EMI receiver to PEAK detector setting and sweep continuously over the frequency range to be investigated. Set resolution bandwidth to 9kHz minimum. Connect EMI receiver input cable to LINE 1 RF measurement connection on the LISN. Connect a 50ohm terminator to the unused RF connection on the LISN. For each mode of EUT operation, maximize emissions readings by manipulating cable and wire positions. Record the configuration for each EUT power cord which produces emissions closest to the limit. Repeat the same procedure for LINE 2 of each EUT power cord.

## 8. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80 cm above the ground screen. Antenna to EUT distance is 3 meters. During the test, the table is rotated 360 degrees to maximize emissions and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

Monitor the frequency range of interest at a fixed antenna height and EUT azimuth. Frequency span should be small enough to easily differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and manipulate cables to produce highest emissions, noting frequency and amplitude.

## 9. COHERENT TESTS

During Radiated Emission Tests, H.P. signal generator model no: 8640B ( 0.5- 1024mhz ) was used to radiate unmodulated CW signal to EUT at 49.86MHz. Please refer to radiated emission data no: 980818F3 for six highest readings.

## 10. EQUIPMENT MODIFICATIONS

To achieve compliance to FCC section 15.109, the following change(s) were made during compliance testing:

NOT APPLICABLE

**11. TEST CONFIGURATION PHOTOS (Radiated Emission Test)**

Compliance Engineering Services Inc.

Project No. : 98E7680

Report No. : 980818F3

Date : 08/18/1998

Time : 14:51

Test Engr : PETE K

&gt;&gt; 3 M RADIATED EMISSION DATA &lt;&lt;

Company : MATTEL

Equipment Under Test : 49MHZ RECEIVER

Test Configuration : RUT ONLY

Type of Test : FCC CLASS B

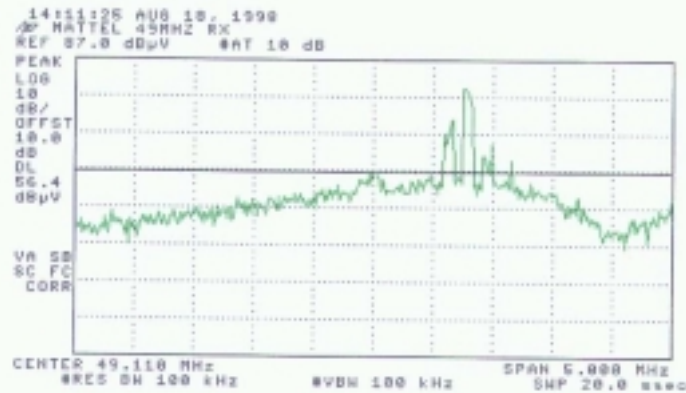
Mode of Operation : RX

Freq.	dBuV	PreAmp	Ant	Cable	dBuV/m	Limit	Margin	Pol	Hgt (m)	Az
49.71	56.30	-31.82	10.80	1.70	36.98	40.00	-3.02	V	1.0	0
48.60	50.20	-31.80	11.00	1.66	31.06	40.00	-8.94	V	1.0	0
50.10	51.10	-31.83	10.72	1.71	31.70	40.00	-8.30	V	1.0	0
49.71	46.10	-31.82	12.15	1.70	28.13	40.00	-11.87	H	1.5	0
50.10	40.20	-31.83	12.01	1.71	22.10	40.00	-17.90	H	1.5	0
48.60	39.60	-31.80	12.53	1.66	21.99	40.00	-18.01	H	1.5	0

Total # of data 6

V. f2.2





PK

Receiver Coherent Test