

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15, SECTION 227 REQUIREMENTS**

for

INTENTIONAL RADIATOR

RF REMOTE CONTROLLER FOR TOYS

MODEL NO: 47999

BRAND NAME: MINI SHANNEN SKATEBOARD

FCC ID NO: APB47999-02A2T

REPORT NO: 02U1211-1

ISSUE DATE: MARCH 18, 2002

Prepared for

**MATTEL, INC
2031 MARIPOSA AVENUE
EL SEGUNDO, CA 90245
USA**

Prepared by

**COMPLIANCE CERTIFICATION SERVICES
561F MONTEREY ROAD
MORGAN HILL, CA 95037, USA
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1. VERIFICATION OF COMPLIANCE

COMPANY NAME : MATTEL, INC.
2031 MARIPOSA
EL SEGUNDO, CA 90245
USA

CONTACT PERSON : SOSNOVSKY VLADIMIR/SENIOR PROJECT ENGINEER

TELEPHONE NO. : 310-252-5595

EUT DESCRIPTION : RF REMOTE CONTROLLER FOR TOYS

MODEL NAME/NUMBER : 47999

BRAND NAME : MINI SHANNEN SKATEBOARD

SERIAL NUMBER : 1

FCC ID : APB47999-02A2T

DATE TESTED : MARCH 12, 2002

REPORT NUMBER : 02U1121

TYPE OF EQUIPMENT	RADIO 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. **Warning** : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification will constitute fraud and shall nullify the document.

Tested By:



FRANK IBRAHIM
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Approved & Released For CCS By:



MIKE HECKROTTE
CHIEF EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. PRODUCT DESCRIPTION

CHASSIS TYPE	PLASTIC
Fundamental Frequency	27.145 MHz
Power Requirement	ONE 9 VOLT BATTERY
Type of Transmission	CONTINUOUS
Antenna Requirement	PERMANENTLY ATTACHED
Local Osc.	27.145MHz
Type of Antenna	STRAIGHT WIRE ANTENNA
Usage	REMOTE CONTROLLED TOY

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

TEST EQUIPMENTS LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Spectrum Analyzer	HP100Hz - 22GHz	8566B	2140A01296	5/4/02
Spectrum Display	HP	85662A	2152A03066	5/10/02
Quasi-Peak Detector	HP9K - 1GHz	85650A	2811A01335	5/4/02
Pre-Amplifier, 25 dB	HP 0.1 - 1300MHz	8447D (P_1M)	2944A06833	8/21/02
Antenna, BiLog	Phase EMC Ltd.30 - 2000MH	CBL6112	2049	8/2/02
Active Loop Antenna, (10K - 30MHz)	EMCO	6502	9202-2722	2/23/03

7. POWERLINE RFI LIMIT

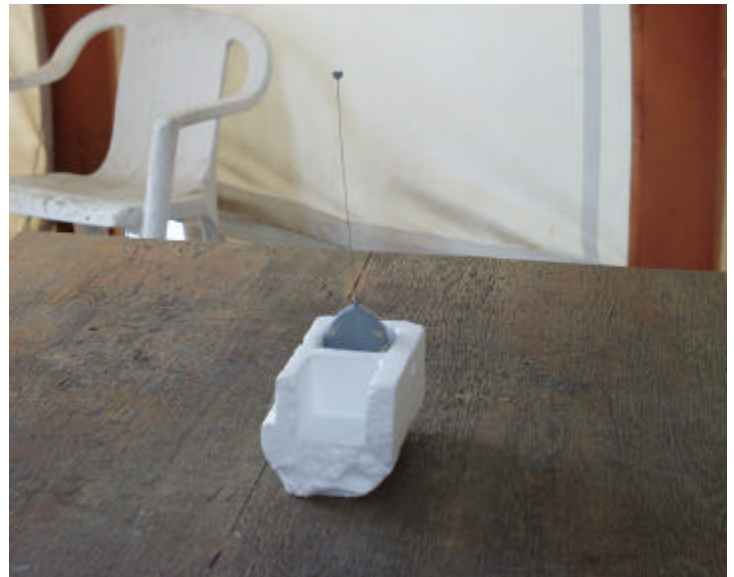
CONNECTED TO AC POWER LINE	SECTION 15.207
CARRIER CURRENT SYSTEM IN THE FREQUENCY RANGE OF 450 KHz TO 30MHz	SECTION 15.205 AND SECTION 15.209, 15.221, 15.223, 15.225 OR 15.227, AS APPROPRIATE.
BATTERY POWER	NOT REQUIRED.

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

9. SYSTEM TEST CONFIGURATION

The EUT was configured for testing in a typical fashion (as a customer would normally use it).



Radiated Open Site Test Set-up

10. EQUIPMENT MODIFICATION

To achieve compliance to FCC Section 15.227 technical limits, the following change(s) were made during compliance testing:

No changes were required in order to achieve compliance to FCC Section 15.227.

11. TEST PROCEDURE AND RESULT

Powerline RFI Limits	Eut	Radiated Emission Limits	Eut
SECTION 15.207		SECTION 15.209	x
SECTION 15.205, 15.209, 15.221, 15.223, x 15.225 OR 15.227		SECTION 15.205	x
BATTERY POWER	X	SECTION 15.227	X

11.1 Radiated Emission Test Procedure and Result

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 meter from the EUT. The EUT was tested for three different orthogonal axes and the worst orientation was determined.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The readings so obtained are recorded in the data listed below.



FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 02U1211-1
Report #: 020312A02
Date & Time: 03/12/02 1:40 PM
Test Engr: Frank Ibrahim

Company: Mattel
EUT Description: 27MHz RF transmitter Remote Controller for toys, model: Mini Shannen # 47999
Test Configuration : EUT stand alone, Transmitting at 27.145 MHz
Type of Test: FCC 15.227
Mode of Operation: Transmitting at 27.145 MHz

03/12/02

Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
271.45	54.10	14.19	2.23	27.05	43.47	46.00	-2.53	3mH	0.00	1.00	QP
271.45	50.20	14.70	2.23	27.05	40.08	46.00	-5.92	3mV	0.00	1.00	P
814.35	42.50	20.97	4.46	28.55	39.38	46.00	-6.62	3mV	0.00	1.00	P
705.77	43.20	20.36	4.02	28.60	38.98	46.00	-7.02	3mH	0.00	1.00	P
542.90	44.60	19.20	3.38	28.47	38.71	46.00	-7.29	3mV	0.00	1.00	P
271.16	48.70	14.19	2.23	27.05	38.06	46.00	-7.94	3mH	0.00	1.00	P



FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 02U1211-1
Report #: 020312A01
Date & Time: 03/12/02 9:47 AM
Test Engr: Frank Ibrahim

Company: Mattel
EUT Description: 27MHz RF transmitter Remote Controller for toys, model: Mini Shannen # 47999
Test Configuration: EUT stand alone, Transmitting at 27.145 MHz
Type of Test: FCC 15.227
Mode of Operation: Transmitting at 27.145 MHz

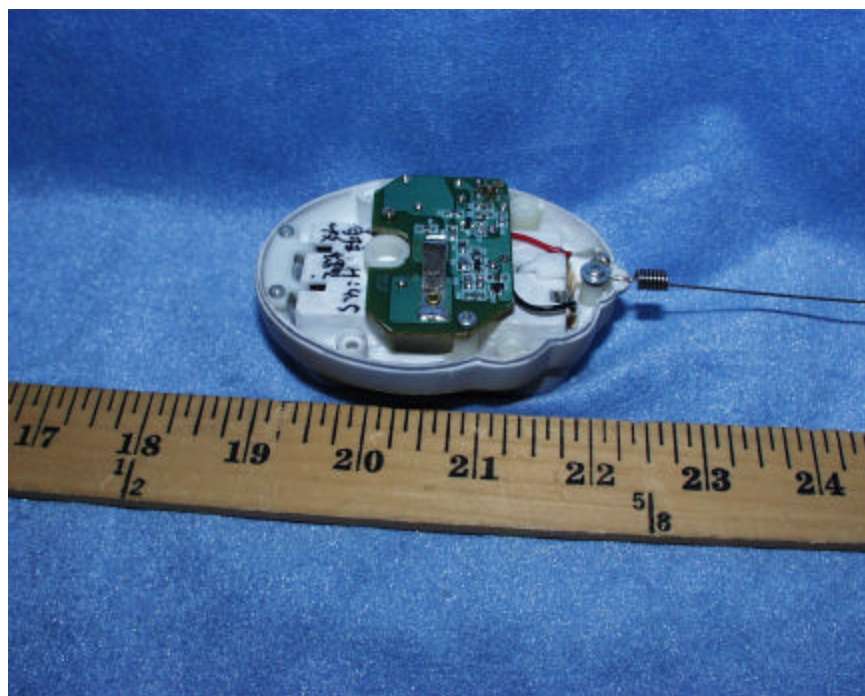
☒ A-Site ☐ B-Site ☐ C-Site ☐ F-Site

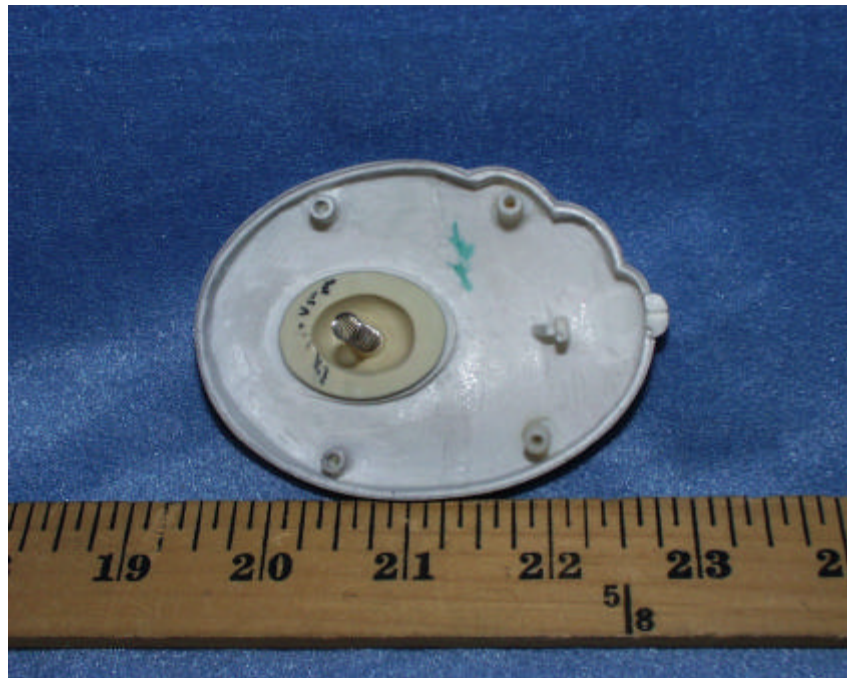
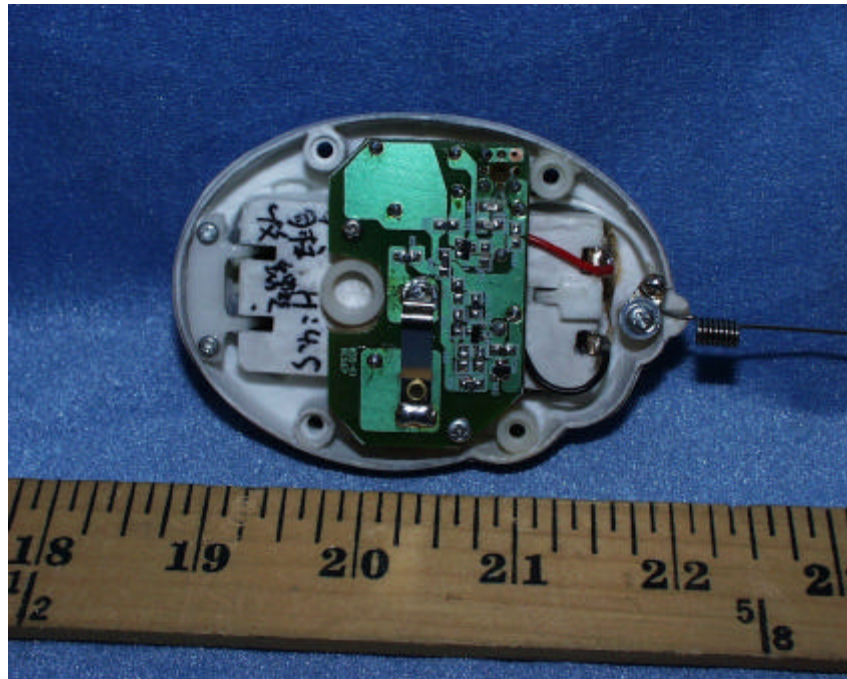
Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
27.15	98.70	9.00	0.74	27.66	80.78	100.00	-19.22	3m	0.00	1.00	P
27.15	81.70	9.00	0.74	27.66	63.78	80.00	-16.22	3m	0.00	1.00	Av
EUT at X axis, Loop antenna at 180 degrees CCW											
27.15	97.60	9.00	0.74	27.66	79.68	100.00	-20.32	3m	0.00	1.00	P
27.15	80.70	9.00	0.74	27.66	62.78	80.00	-17.22	3m	0.00	1.00	Av
EUT at Y axis, Loop antenna at 270 degrees CCW											
27.28	59.20	9.00	0.74	27.66	1.28	29.54	-28.26	3m	0.00	1.00	P
26.95	54.90	9.00	0.74	27.66	36.98	29.54	-32.56	3m	0.00	1.00	P
Note: Distance Factor for 26.95MHz and 27.28MHz is -40dB											

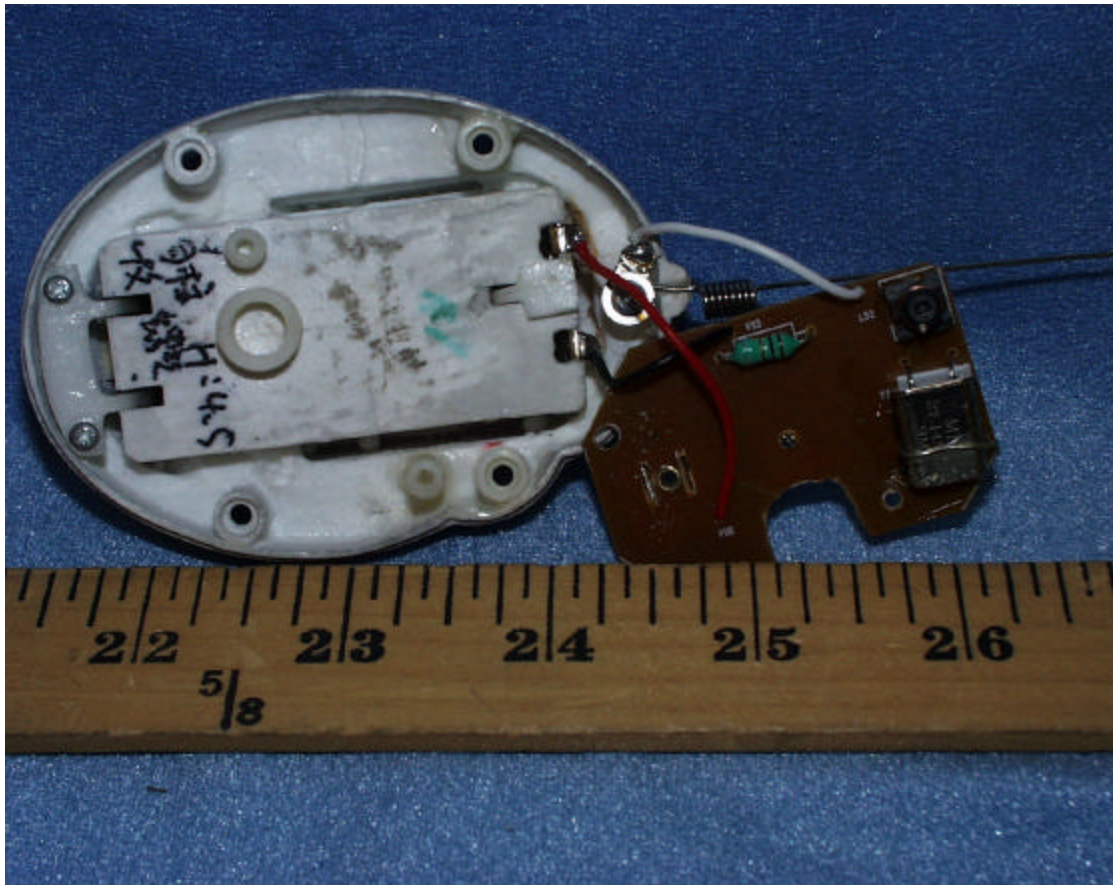
12. Appendix

External & Internal Photos









Schematics

Please refer to attached sheets.

Block Diagram

Please refer to attached sheets.

User Manual

Please refer to attached sheets.

END OF REPORT