

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

*for*

**INTENTIONAL RADIATOR**

**27MHZ RADIO CONTROL TRANSMITTER**

**MODEL NO: 91553-6508-27T**

**BRAND NAME: TYCO RC-AIR REBOUND**

**FCC ID NO: APB91553-02A2T**

**REPORT NO: 02U1192-3**

**ISSUE DATE: MARCH 8, 2002**

*Prepared for*

**MATTEL MT LAUREL  
6000 MIDLANTIC DRIVE  
MT. LAUREL, NEW JERSEY 08054  
USA**

*Prepared by*

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**1. VERIFICATION OF COMPLIANCE**

COMPANY NAME : MATTEL MT. LAUREL  
6000 MIDLANTIC DRIVE  
MT. LAUREL, NEW JERSEY 08054  
USA

CONTACT PERSON : STEVE WEISS/MANAGER ELECTRONIC DESIGN &  
DEVELOPMENT

TELEPHONE NO. : 3856-840-1149

EUT DESCRIPTION : 27MHz RADIO CONTROL TRANSMITTER

MODEL NAME/NUMBER : 91553-6508-27T

BRAND NAME : TYCO RC-AIR REBOUND

SERIAL NUMBER : N/A

FCC ID : APB91553-02A2T

DATE TESTED : FEBRUARY 28, 2002

REPORT NUMBER : 02U1192-3

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:




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THU CHAN  
SENIOR EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

Approved &amp; Released For CCS By:




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MIKE HECKROTTE  
CHIEF EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

## 2. PRODUCT DESCRIPTION

The Air Rebound is a full function radio control transmitter for controlling the movement of a toy vehicle. It is powered by a 9 volt battery and operated at a single fixed frequency of 27.145MHz. The transmitter has two jacks. The left joystick controls clockwise and counter clockwise rotation of the left drive motor. The right joystick controls clockwise and counter clockwise rotation of the right device motor.

CHASSIS TYPE	Plastic
Fundamental Frequency	27.145 MHz
Power Source	One 9Volt Battery
Transmitting Time	Continuous
Type of antenna	15" Wire Whip
Antenna Requirement	Permanently Affixed
Size and Weight	<1.0lbs
Local Osc.	27.145MHz

## 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
Pre-Amplifier, 25 dB	HP0.1 - 1300MHz	8447D (P5)	2944A06550	9/19/02
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1214	8/10/02
Antenna, LP	EMCO200 - 2000MHz	3146	9107-3163	8/10/02
Spectrum Analyzer	HP100Hz - 22GHz	8566B	3014A06685	6/28/02
Spectrum Display	HP	85662A	3026A19146	6/28/02
Quasi-Peak Detector	HP9K - 1GHz	85650A	3145A01654	6/28/02
RF Preselector	HP20Hz - 2GHz	85685A	2817A00756	5/4/02
Antenna Loop (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 antenna was mounted vertically as per normal installation.
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

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**Project #:** 02U1192-2  
**Report #:** 020228C1  
**Date & Time:** 02/28/02 11:13 AM  
**Test Engr:** Thu Chan

**Company:** Mattel Mount Laurel SW  
**EUT Description:** 27MHz Transmitter  
**Test Configuration:** EUT only  
**Type of Test:** FCC 15.227  
**Mode of Operation:** Transmitting

☐ A-Site

☐ B-Site

☒ C-Site

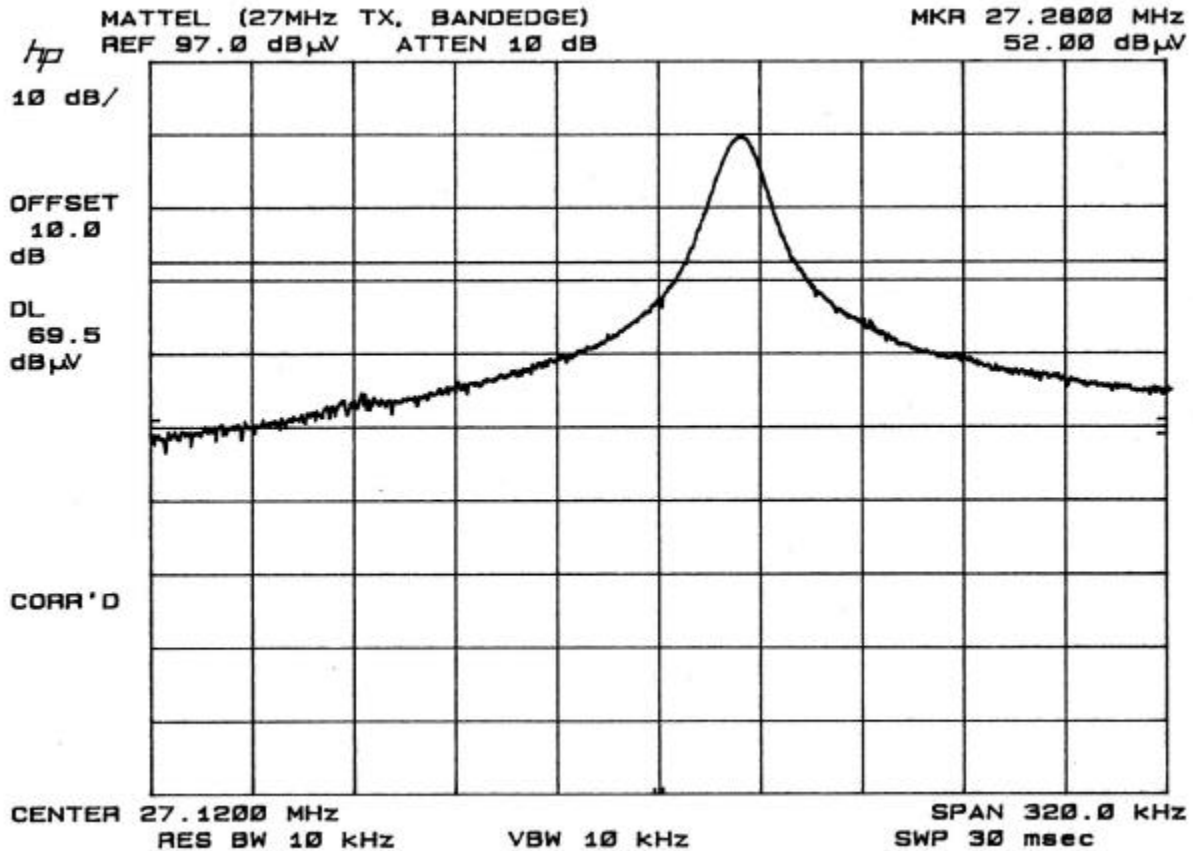
☐ F-Site

☐ 6 Worst Data

☐ Descending

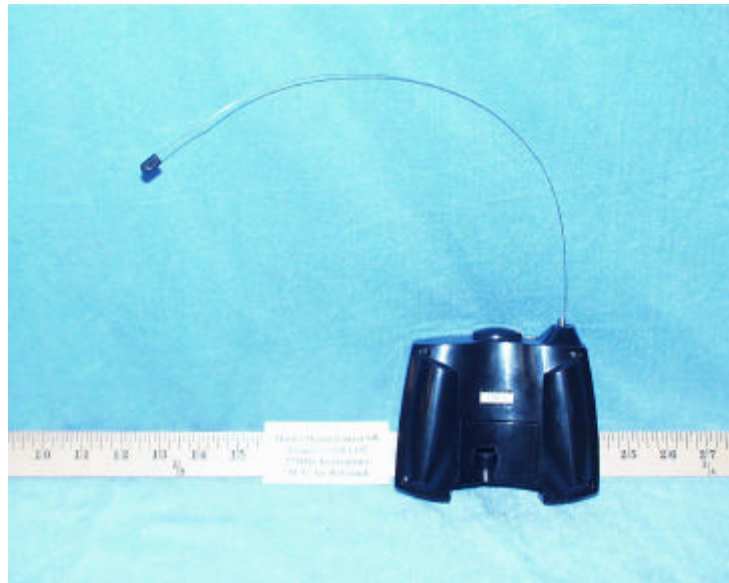
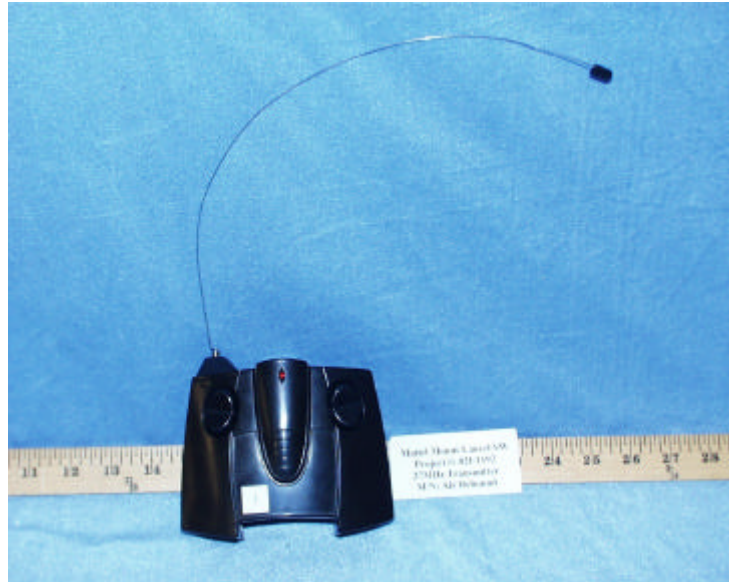
Freq.	Reading	AF	Closs	Correct	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	Dist	(dBuV/m)	FCC_B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
Fundamental measurement:											
27.15	62.90	9.00	0.76	0.00	72.66	100.00	-27.34	3mH	0.00	1.00	P
27.15	52.50	9.00	0.76	0.00	62.26	80.00	-17.74	3mH	0.00	1.00	Av
27.15	76.50	9.00	0.76	0.00	86.26	100.00	-13.74	3mV	180.00	1.00	P
27.15	66.50	9.00	0.76	0.00	76.26	80.00	-3.74	3mV	180.00	1.00	Av
Bandedge measurement:											
26.96	36.20	9.00	0.76	40.00	5.96	29.50	-23.54	3mV	0.00	1.00	P
27.28	42.00	9.00	0.76	40.00	11.76	29.50	-17.74	3mV	0.00	1.00	P
Above readings were using Loop Antenna for the measurement.											
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)
133.64	54.50	14.55	1.51	27.19	43.38	43.50	-0.12	3mV	180.00	1.00	P
133.64	54.10	14.55	1.51	27.19	42.98	43.50	-0.52	3mV	180.00	1.00	QP
121.65	53.00	11.68	1.41	27.25	38.84	43.50	-4.66	3mV	180.00	1.00	P
173.88	48.00	17.17	1.76	27.03	39.91	43.50	-3.59	3mV	180.00	1.00	P
171.65	46.00	17.37	1.75	27.04	38.08	43.50	-5.42	3mV	180.00	1.00	P
167.66	45.00	17.72	1.72	27.05	37.38	43.50	-6.12	3mV	180.00	1.00	P
165.47	43.50	17.91	1.70	27.06	36.05	43.50	-7.45	3mV	180.00	1.00	P
161.88	43.00	18.23	1.67	27.08	35.83	43.50	-7.67	3mV	180.00	1.00	P
159.55	44.50	18.39	1.66	27.09	37.46	43.50	-6.04	3mV	180.00	1.00	P
153.00	44.00	18.30	1.60	27.12	36.79	43.50	-6.71	3mV	180.00	1.00	P
127.45	51.00	12.75	1.46	27.21	38.00	43.50	-5.50	3mV	180.00	1.00	P
119.44	51.50	11.52	1.39	27.26	37.15	43.50	-6.35	3mV	180.00	1.00	P
32.96	46.00	11.43	0.79	27.55	30.68	40.00	-9.32	3mV	180.00	1.00	P
39.15	51.00	11.78	0.83	27.54	36.08	40.00	-3.92	3mV	180.00	1.00	P
65.16	53.00	8.15	0.96	27.44	34.66	40.00	-5.34	3mV	180.00	1.00	P
67.37	57.00	8.08	0.98	27.44	38.62	40.00	-1.38	3mV	180.00	1.00	P
73.18	51.00	8.47	1.03	27.42	33.08	40.00	-6.92	3mV	180.00	1.00	P
79.36	55.50	9.39	1.08	27.41	38.56	40.00	-1.44	3mV	180.00	1.00	P
173.86	48.00	17.17	1.76	27.03	39.91	43.50	-3.59	3mV	180.00	1.00	P
179.64	46.00	16.14	1.77	26.99	36.92	43.50	-6.58	3mV	180.00	1.00	P
81.43	45.00	9.72	1.09	27.40	28.40	40.00	-11.60	3mV	180.00	1.00	P
217.16	46.00	12.18	1.99	26.80	33.37	46.00	-12.63	3mV	180.00	1.00	P
271.45	44.00	14.29	2.36	26.65	34.00	46.00	-12.00	3mV	180.00	1.00	P
226.40	44.00	12.60	2.05	26.76	31.89	46.00	-14.11	3mV	180.00	1.00	P
No other emissions were found up to 1GHz											
Total data #: 30											
V.2c											

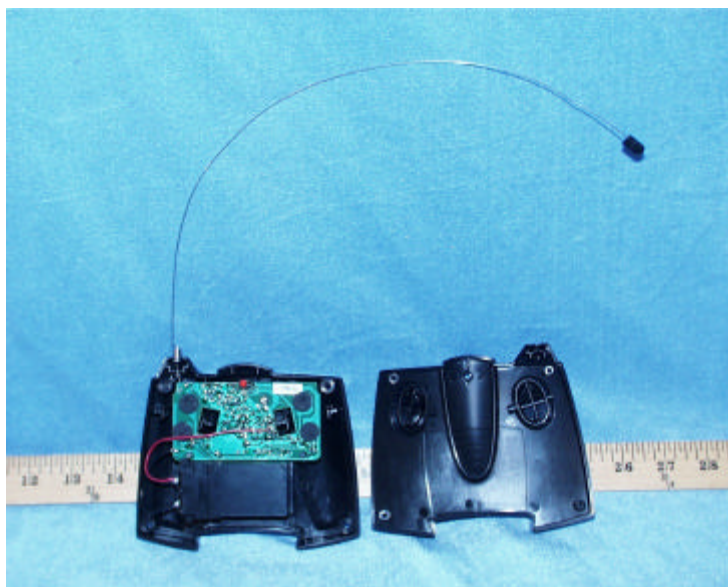


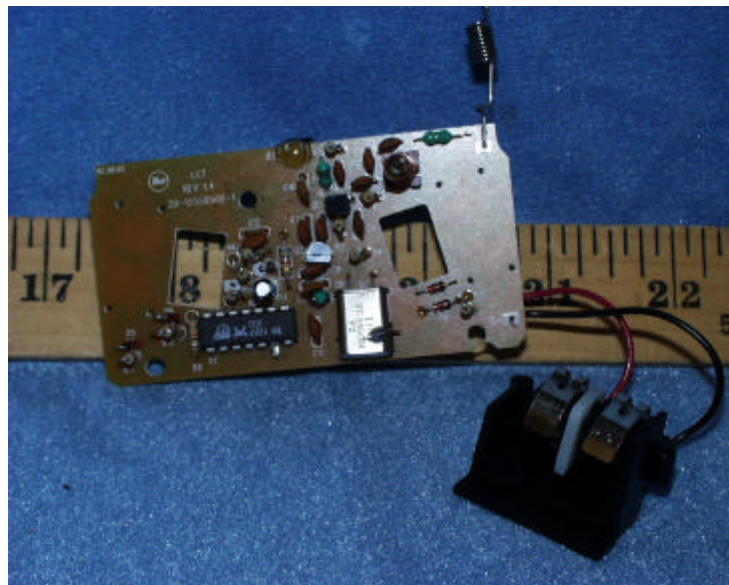
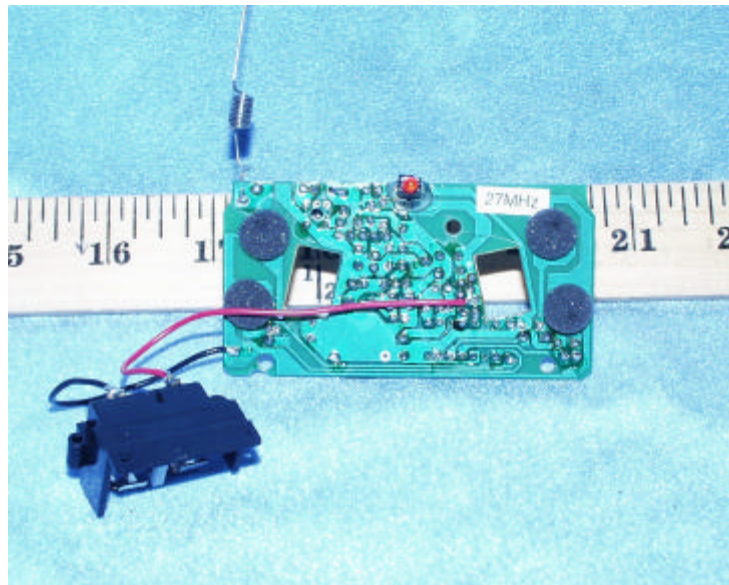


## 12. Appendix

### 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**