ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
CERTIFICATION TO FCC PART 15 REQUIREMENTS

for

INTENTIONAL RADIATOR

49 MHz R/C POLICE CAR VEHICLE REMOTE CONTROL TRANSMITTER WITH TALK FUNCTION (TRANSMITTER)

MODEL NO: 95189

BRAND NAME: MATCHBOX R/C- RESCUE NET COMMAND CRUISER

FCC ID NO: APB95189-00A4T

REPORT NO: 01U0823-1

ISSUE DATE: JULY 9, 2001

Prepared for
MATTEL MT. LAUREL
6000 MIDATLANTIC DRIVE
MOUNT LAUREL, NJ 08054
USA

Prepared by
COMPLIANCE ENGINEERING SERVICES, INC.
d.b.a.
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561F MONTEREY ROAD
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EXHIBITS

1. VERIFICATION OF COMPLIANCE

COMPANY NAME	:	MATTEL MT. LAUREL 6000 MIDATLANTIC DRIVE MOUNT LAUREL, NJ 08054 USA
CONTACT PERSON	:	BOB SPALINSKI, SENIOR MANAGER R/C DEVELOPMENT
TELEPHONE NO.	:	(856) 840-1388
EUT DESCRIPTION	:	49MHz R/C POLICE CAR VEHICLE REMOTE CONTROL TRANSMITTER WITH TALK FUNCTION (TRANSMITTER)
MODEL NAME/NUMBER	:	95189
BRAND NAME	:	MATCHBOX R/C-RESCUE NET COMMAND CRUISER
SERIAL NUMBER	:	N/A
FCC ID	:	APB95189-00A4T
DATE TESTED	:	JUNE 06, 2001
REPORT NUMBER	:	01U0823-1

TYPE OF EQUIPMENT	RADIO CONTROL
EQUIPMENT TYPE	49.86 MHz TRANSMITTER
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992
LIMIT TYPE	CERTIFICATION
FCC RULE	CFR 47, PART 15.235

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:

PETE KREBILL
ASSOCIATE EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Approved & Released For CCS By:

STEVE CHENG
EMC ENGINEERING MANAGER
COMPLIANCE CERTIFICATION SERVICES

2. PRODUCT DESCRIPTION

CHASSIS TYPE	**PLASTIC**
Fundamental Frequency	**49.86 MHz**
Power Source	**9VOLT BATTERY**
Transmitting Time	**PERIODIC**
Type of Antenna	**PERMANENTLY ATTACHED**
No. of Channel	**1**
NO. OF LAYER	**1**
Associated Receiver	**APB95189-00A4R**

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 - 1.5GHz	8568B	2841A04227	1/18/02
Spectrum Display	HP	85662A	2810A15728	1/18/02
Quasi-Peak Detector	HP9K - 1GHz	85650A	2521A01038	1/18/02
Pre-Amplifier,25 dB	HP0.1 - 1300MHz	8447D (P5)	2944A06550	9/19/01
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1214	8/10/01
Antenna, LP	EMCO200 - 2000MHz	3146	9107-3163	8/10/01
OSCILLATOR	HP	204C	N/A	N/A
SPEAKER	INLAND	PROSOUND 2000	N/A	N/A

7. TEST PROCEDURES AND TEST RESULTS

RADIATED EMISSION TEST: (15.235 (a))

Test Procedure

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 placed in X,Y, and Z position to simulate the actual usage.

2. The turntable was slowly rotated to locate the direction of maximum emission at each EUT position. Once the maximum direction and EUT position was determined, the search antenna was raised and lowered in both vertical and horizontal polarization. The maximum reading so obtained are recorded in the data list below.

Test Result: Peak emission was under average limit. Refer to attached plots.

RADIATED EMISSION TEST: (15.235 (b))

Test Requirement : The field strength between the band edges and up to 10kHz 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 in 15.209, which permits the higher emission levels. All emissions more than 10KHz from the band edges shall be below the levels specified in 15.209.

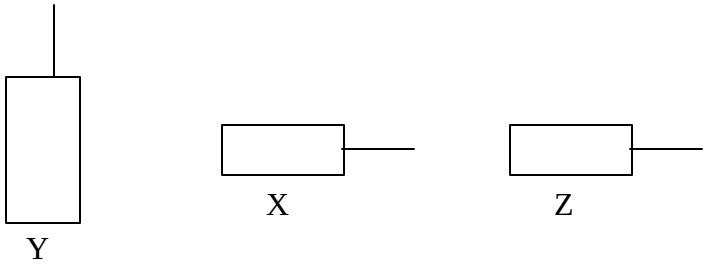
Test Procedure:

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 placed in X, Y, and Z position to simulate the actual usage.

2. The turntable was slowly rotated to locate the direction of maximum direction and EUT position was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. For band edge measurements a plot was taken in that position and orientation with 10KHz RES B/W and 10KHz VID B/W and compared to a limit line 26dB below the level measured in 12.235(a) plot (81.70dBµV/m-26dB = 55.70dBµV/m). For out of band measurements tabular data was taken.

Test results: All emissions were under specified limits. Refer to attached plots and tabular data sheet.

8. SUMMARY



It was tested with talk button depressed and speaker with 2.5KHz tone. Verified as the worst case. Bandedges plot with offset display line at 15.209 limits. Bandedge plots were taken using 100KHz and 100KHz analyzer Bandwidth settings. Using a 100KHz Bandwidth, the emission was artificially spread on the analyzer. 10KHz Bandwidths were used to more accurately show the Bandedge readings. The 100KHz and 10KHz Bandwidth's peak readings of the fundamental were identical. Because the peak readings were identical, the readings using 100KHz Bandwidths are used to show compliance.

9. RADIATED EMISSION TEST SETUP PHOTOS

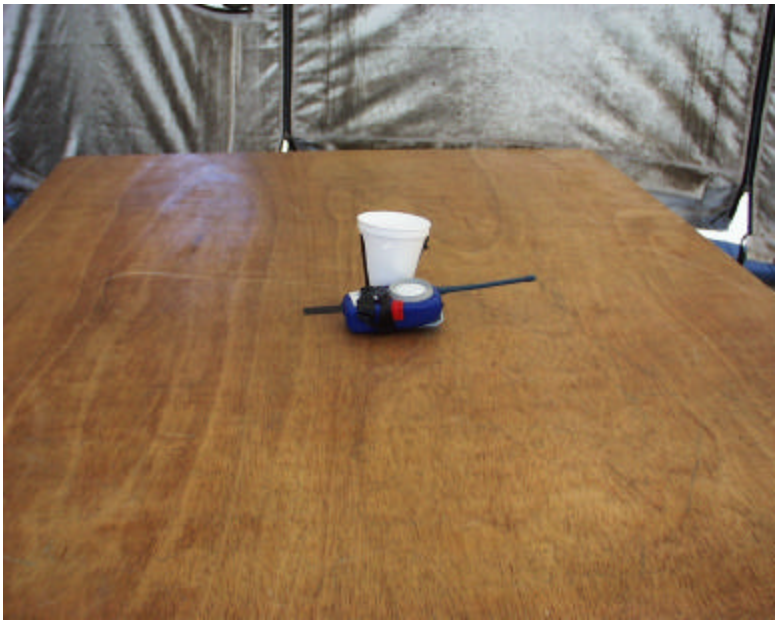
AUDIO X AXIS

AUDIO Y AXIS

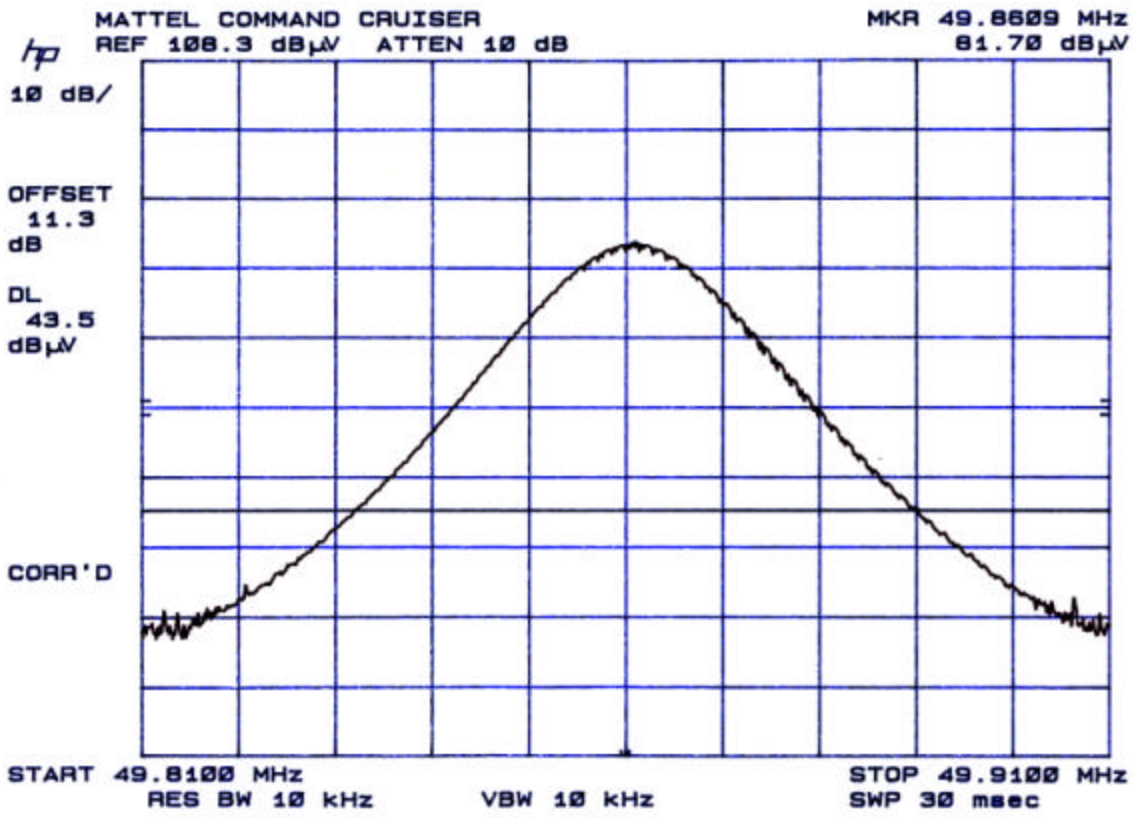
AUDIO Z AXIS

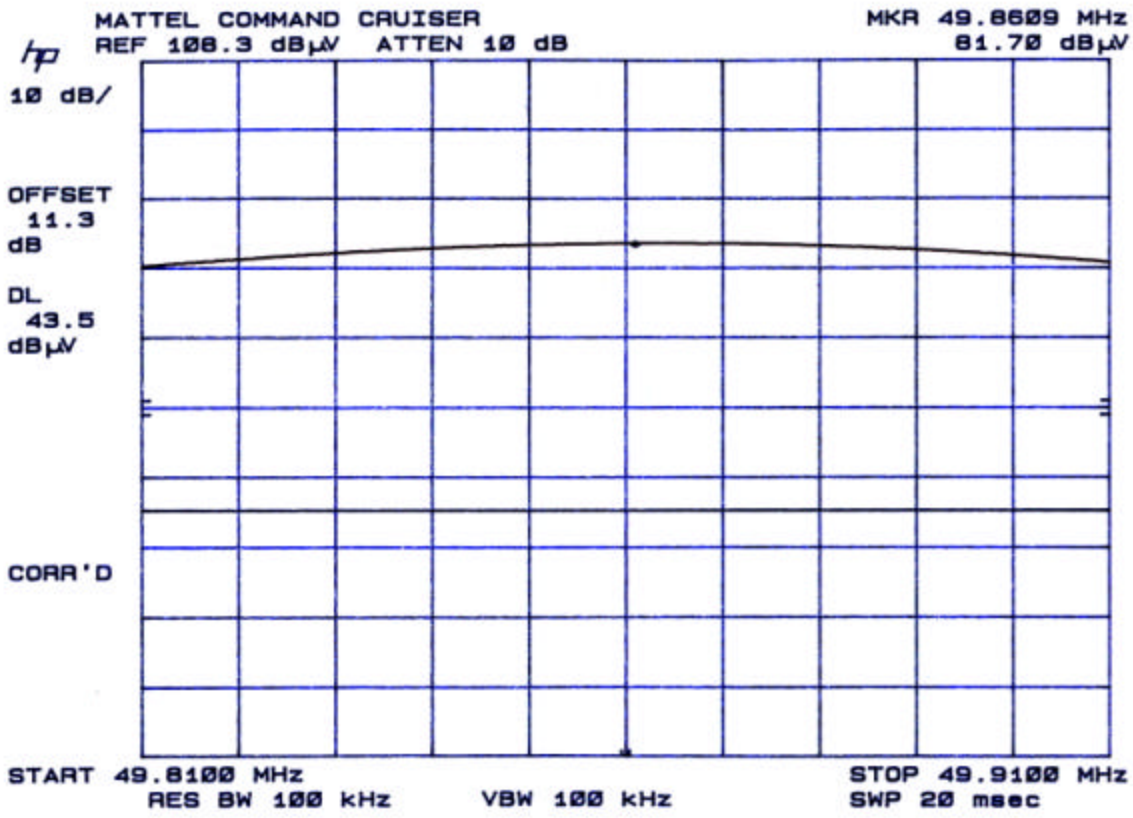
DATA X AXIS

DATA Y AXIS



DATA Z AXIS





COMPLIANCE Certification Services
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Project #: 01U0823
Report #: 010607C1
Date& Time: 06/07/01 2:15 PM
Test Engr: PETE KREBILL

Company: MATTEL MT LAUREL
EUT Description: 49MHZ TX COMMAND CRUISER
Test Configuration : EUT/AUDIO GEN
Type of Test: FCC 15.235
Mode of Operation: TX

○ A-Site ○ B-Site ◉ C-Site ○ F-Site 6 Worst Data

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)
AUDIO Y-AXIS											
49.85	70.40	9.77	1.59	0.00	81.76	100.00	-18.24	3mV	0.00	1.00	P
49.85	59.20	9.77	1.59	0.00	70.56	80.00	-9.44	3mV	0.00	1.00	Av
AUDIO Z-AXIS											
49.85	60.90	9.77	1.59	0.00	72.26	100.00	-27.74	3mH	0.00	2.50	P
49.85	47.00	9.77	1.59	0.00	58.36	80.00	-21.64	3mH	0.00	2.50	Av
AUDIO X-AXIS											
49.85	60.20	9.77	1.59	0.00	71.56	100.00	-28.44	3mH	0.00	3.00	P
49.85	52.50	9.77	1.59	0.00	63.86	80.00	-16.14	3mH	0.00	3.00	Av
AUDIO Y-AXIS noise floor readings											
149.50	43.90	11.24	2.72	26.97	30.88	43.50	-12.62	3mV	0.00	1.00	P
249.76	41.70	12.82	2.27	26.52	30.26	46.00	-15.74	3mV	0.00	1.00	P
299.16	41.20	15.50	2.49	26.41	32.78	46.00	-13.22	3mV	0.00	1.00	P
349.48	40.70	15.84	2.70	26.74	32.50	46.00	-13.50	3mV	0.00	1.00	P
398.88	41.30	16.13	2.92	27.07	33.28	46.00	-12.72	3mV	0.00	1.00	P
448.74	40.70	17.13	3.11	27.39	33.56	46.00	-12.44	3mV	0.00	1.00	P
498.60	40.40	18.15	3.31	27.71	34.15	46.00	-11.85	3mV	0.00	1.00	P
199.4MHz and 99.7MHz are at TV and FM broadcast frequencies.											
AUDIO Y-AXIS ± 10KHz from band edge 26dBc											
49.82	37.60	9.78	1.59	0.00	48.97	55.76	-6.79	3mV	0.00	1.00	P
49.90	37.50	9.74	1.59	0.00	48.83	55.76	-6.93	3mV	0.00	1.00	P
DATA Y-AXIS											
49.85	67.40	9.77	1.59	0.00	78.76	100.00	-21.24	3mV	0.00	1.00	P
49.85	54.00	9.77	1.59	0.00	65.36	80.00	-14.64	3mV	0.00	1.00	Av
Total data #: 17											
V.2b											