

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

for

INTENTIONAL RADIATOR

49MHz RC BOAT TRANSMITTER

MODEL NO: 92959

FCC ID NO: APB92959-00A4T

REPORT NO: 00U0578-1

ISSUE DATE: NOVEMBER 30, 2000

Prepared for

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

Prepared by

**COMPLIANCE ENGINEERING SERVICES, INC.
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EXHIBITS

1. Proposed FCC ID Label Format
2. Authorization Letter
3. EUT Photographs
4. Schematic Diagram
5. User Manual

1. VERIFICATION OF COMPLIANCE

COMPANY NAME : MATTEL MT. LAUREL
6000 MIDATLANTIC DRIVE
MOUNT LAUREL, NJ 08054
USA

CONTACT PERSON : VIKAS SINHA, SENIOR PROJECT ENGINEER

TELEPHONE NO. : (856) 840-1279

EUT DESCRIPTION : 49MHz RC BOAT TRANSMITTER

MODEL NAME/NUMBER : 92959

BRAND NAME : R/C HYDRO RACER

SERIAL NUMBER : N/A

FCC ID : APB92959-00A4T

DATE TESTED : NOVEMBER 29, 2000

REPORT NUMBER : 00U0578-1

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.

JESSE SALDIVAR / EMC TECHNICIAN
COMPLIANCE ENGINEERING SERVICES, INC.

T. N. COKENIAS / ENGINEERING DIRECTOR
COMPLIANCE ENGINEERING SERVICES, INC.

2. PRODUCT DESCRIPTION

CHASSIS TYPE	PLASTIC
Fundamental Frequency	49.86 MHz
Power Source	9VOLT BATTERY
Transmitting Time	CONTINUOUS
Type of Antenna	PERMANENTLY ATTACHED
No. of Channel	1
NO. OF LAYER	1
Associated Receiver	APB92959-00A4R

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

Manufacturer	Model Number	Description	Cal Due Date
H.P.	8568B	Spectrum Analyzer (100Hz - 1.5GHz)	03/15/01
SCHAFFNER- CHASE	CBL6112B	Antenna (30-2000 MHz)	12/23/00
BATTERY	N/A	9 VOLT ALKALINE BATTERY	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 is 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 3KHz RES B/W and 100KHz VID B/W and compared to a limit line 26dB below the level measured in 12.235(a) plot $(75.19\text{dBuV/m} - 26\text{dB} = 49.19\text{dBuV/m})$. 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. RADAITED EMISSION TEST SETUP PHOTO





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 #: 00U0578-1
Report #: 001129B1
Date & Time: 11/29/00 9:20 AM
Test Engr: Jesse Saldivar

Company:	Mattel Mount Laurel
EUT Description:	49MHz R/C Transmitter Hydro Racer
Test Configuration :	EUT
Type of Test:	FCC 15.235
Mode of Operation:	TX

Descending

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)
X POSITION OF EUT:											
49.90	90.00	6.16	1.59	29.48	68.27	80.00	-11.73	3mV	0.00	1.00	P
299.17	45.10	13.47	4.19	28.53	34.23	46.00	-11.77	3mV	180.00	1.00	P
349.02	48.70	14.85	4.59	28.75	39.39	46.00	-6.61	3mV	180.00	1.00	P
398.87	44.50	16.24	4.98	28.97	36.75	46.00	-9.25	3mV	270.00	1.00	P
49.86	75.30	7.63	1.59	29.48	55.04	80.00	-24.96	3mH	0.00	3.00	P
299.16	45.00	13.88	4.19	28.53	34.54	46.00	-11.46	3mH	180.00	3.00	P
349.01	44.40	15.22	4.59	28.75	35.46	46.00	-10.54	3mH	270.00	1.00	P
Y POSITION:											
49.85	81.00	6.18	1.59	29.48	59.29	80.00	-20.71	3mV	0.00	1.00	P
299.15	43.10	13.47	4.19	28.53	32.23	46.00	-13.77	3mV	180.00	1.00	P
349.02	44.40	14.85	4.59	28.75	35.09	46.00	-10.91	3mV	270.00	1.00	P
398.87	43.50	16.24	4.98	28.97	35.75	46.00	-10.25	3mV	180.00	1.00	P
49.86	84.60	7.63	1.59	29.48	64.34	80.00	-15.66	3mH	0.00	4.00	P
299.17	48.00	13.88	4.19	28.53	37.54	46.00	-8.46	3mH	270.00	3.00	P
349.03	45.60	15.22	4.59	28.75	36.66	46.00	-9.34	3mH	270.00	3.00	P
Z POSITION:											
49.86	82.60	6.18	1.59	29.48	60.89	80.00	-19.11	3mV	180.00	1.00	P
299.16	44.50	13.47	4.19	28.53	33.63	46.00	-12.37	3mV	180.00	1.00	P
349.03	47.10	14.85	4.59	28.75	37.79	46.00	-8.21	3mV	270.00	1.00	P
398.88	42.40	16.24	4.98	28.97	34.65	46.00	-11.35	3mV	270.00	1.00	P
49.86	83.70	7.63	1.59	29.48	63.44	80.00	-16.56	3mH	180.00	4.00	P
299.17	46.20	13.88	4.19	28.53	35.74	46.00	-10.26	3mH	270.00	4.00	P
349.02	44.10	15.22	4.59	28.75	35.16	46.00	-10.84	3mH	270.00	3.00	P
Total data #: 21											
V.2b											

✓

MKR 49.8100 MHz
39.80 dBμV

MATTEL BANDEDGE
REF 110.0 dBμV
ATTEN 10 dB + 20 dB

hp

10 dB/

OFFSET
7.7
dB

DL
41.9
dBμV

CORR'D



STOP 49.9100 MHz
SWP 30 msec

START 49.8100 MHz
RES BW 10 KHZ

VBW 10 KHZ