



FCC REPORT

Applicant: Manley Toys Ltd

Address of Applicant: 8/F Hong Kong Spinners Industrial Bldg 818 Cheung Sha Wan Road

Equipment Under Test (EUT)

Product Name: TRUE HERO-R/C DUNE BUGGY

Model No.: 45517

FCC ID: NS645517-0027MHZ

Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.227:2009

Date of Receipt: 17 Nov., 2010

Date of Test: 18-23 Nov., 2010

Date of Issue: 24 Nov., 2010

Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

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3 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	PASS
Field strength of the fundamental signal	15.227 (a)	PASS
Spurious emissions	15.227/15.209	PASS
20dB Bandwidth	ANSI C63.4/15.227	PASS

Remark:

- *Passed: The EUT complies with the essential requirements in the standard.*
- *Failed: The EUT does not comply with the essential requirements in the standard.*
- *Tx: In this whole report Tx (or tx) means Transmitter.*
- *Rx: In this whole report Rx (or rx) means Receiver.*

4 General Information

4.1 Client Information

Applicant:	Manley Toys Ltd
Address of Applicant:	8/F Hong Kong Spinners Industrial Bldg 818 Cheung Sha Wan Road
Manufacturer/Factory:	Zhongshan Fuhai Industrial Co. Ltd.
Address of Manufacturer/Factory:	Dache Industrial Area, Nanlang Town, Zhongshan City, Guangdong, China

4.2 General Description of E.U.T.

Product Name:	TRUE HERO-R/C DUNE BUGGY
Model No.:	45517
Operation Frequency:	27.020MHz
Modulation type:	ASK
Antenna Type:	Integral
Power supply:	DC 9.0V("6F22" size)

4.3 E.U.T Operation mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1008 mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting with interior modulation.

4.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 600491**

Global United Technology Service Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 600491, July 20, 2010.

● **Industry Canada (IC)**

The 3m Semi-anechoic chamber of Global United Technology Service Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

● **CNAS (No. CNAS L3783)**

CNAS has accredited Reliance Technical Service Limited. Shenzhen EMC Laboratory to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing.

4.5 Test Location

All tests were performed at:

Global United Technology Service Co., Ltd.

Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

Tel: 0755-27798480

Fax: 0755-27798960

4.6 Other Information Requested by the Customer

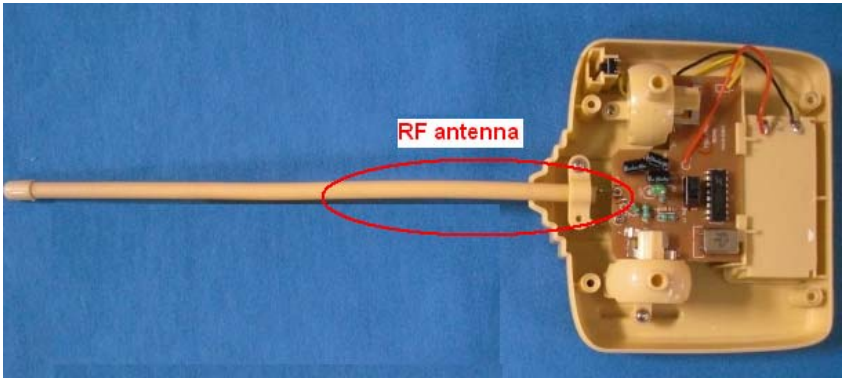
None.

4.7 Test Instruments list

Radiated Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS201	Mar. 30 2010	Mar. 30 2011
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS202	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Sep. 10 2010	Sep. 10 2011
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS204	Sep. 10 2010	Sep. 10 2011
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS205	June 30 2010	June 30 2011
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Coaxial Cable	GTS	N/A	GTS400	Apr. 01 2010	Apr. 01 2011
8	Coaxial Cable	GTS	N/A	GTS401	Apr. 01 2010	Apr. 01 2011
9	Coaxial cable	GTS	N/A	GTS402	Apr. 01 2010	Apr. 01 2011
10	Coaxial Cable	GTS	N/A	GTS407	Apr. 01 2010	Apr. 01 2011
11	Coaxial Cable	GTS	N/A	GTS408	Apr. 01 2010	Apr. 01 2011
12	Amplifier(10KHz-5GHz)	Sonoma Instrument	305-1052	GTS210	Apr. 01 2010	Apr. 01 2011
13	Active Loop Antenna	Beijing Daze	ZN30900A	GTS238	Sep. 10 2010	Sep. 10 2011

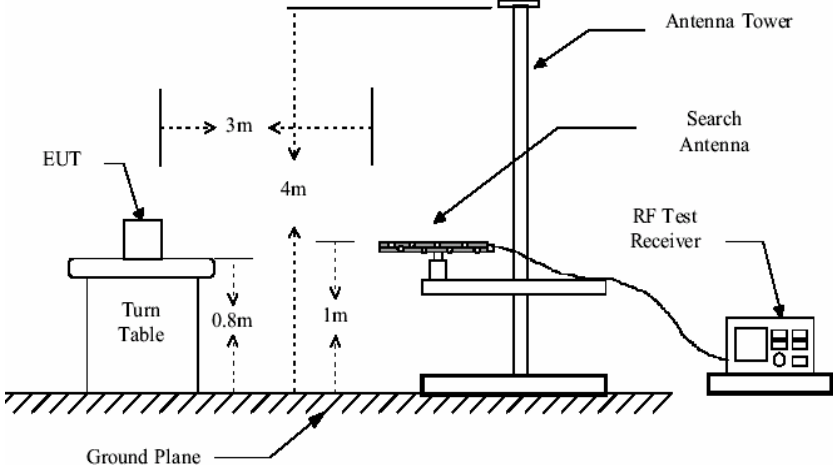
5 Test results and Measurement Data

5.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: <i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i>	
E.U.T Antenna:	
The antenna is integrated on the main PCB and no consideration of replacement. 	

5.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.227 and 15.209			
Test Method:	ANSI C63.4: 2003			
Test Frequency Range:	30MHz to 1000MHz			
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)			
Receiver setup:	RBW=100KHz, VBW=300KHz			
Limit: (Field strength of the fundamental signal)				
	Frequency	Limit (dBuV/m @3m)	Remark	
	26.96MHz~27.28MHz	80.0	Average Value	
100.0		Peak Value		
Limit: (Spurious Emissions)				
	Frequency	Limit (dBuV/m @3m)	Remark	
	30MHz-88MHz	40.0	Quasi-peak Value	
	88MHz-216MHz	43.5	Quasi-peak Value	
	216MHz-960MHz	46.0	Quasi-peak Value	
	960MHz-1GHz	54.0	Quasi-peak Value	
Test Procedure:	1>. The E.U.T and its simulators are placed on a turn table which is 0.8meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.			
	2>. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.			
	3>. Has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows			
	Pre-Test Mode:			
	Axis	X	Y	Z
	Field Strength(dBuV/m)	47.52	49.47	45.68
	Final Test Mode:			
	According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”			
	Y axis			

Test setup:	 The diagram illustrates the test setup. An EUT (Equipment Under Test) is placed on a Turn Table at a height of 0.8m from the Ground Plane. A Search Antenna is mounted on an Antenna Tower at a height of 1m from the Ground Plane. The horizontal distance between the EUT and the Search Antenna is 3m. The vertical distance between the EUT and the Search Antenna is 4m. An RF Test Receiver is connected to the Search Antenna.
Test Instruments:	Refer to section 4.7 for details
Test mode:	Refer to section 4.3 for details
Test results:	Passed

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

Measurement Data
5.2.1 Field Strength Of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
27.020	45.59	11.88	0.60	25.76	32.31	100.00	-67.69	Horizontal
27.020	63.74	8.61	0.60	25.76	47.19	100.00	-49.54	Vertical

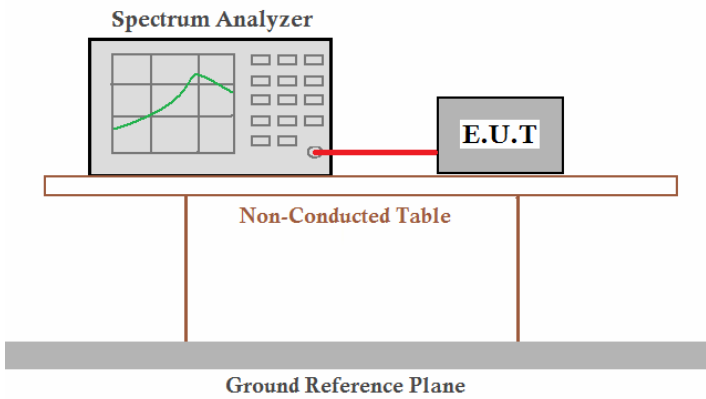
Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
27.020	44.69	11.88	0.60	25.76	31.41	80.00	-48.59	Horizontal
27.020	62.75	11.88	0.60	25.76	49.47	80.00	-30.53	Vertical

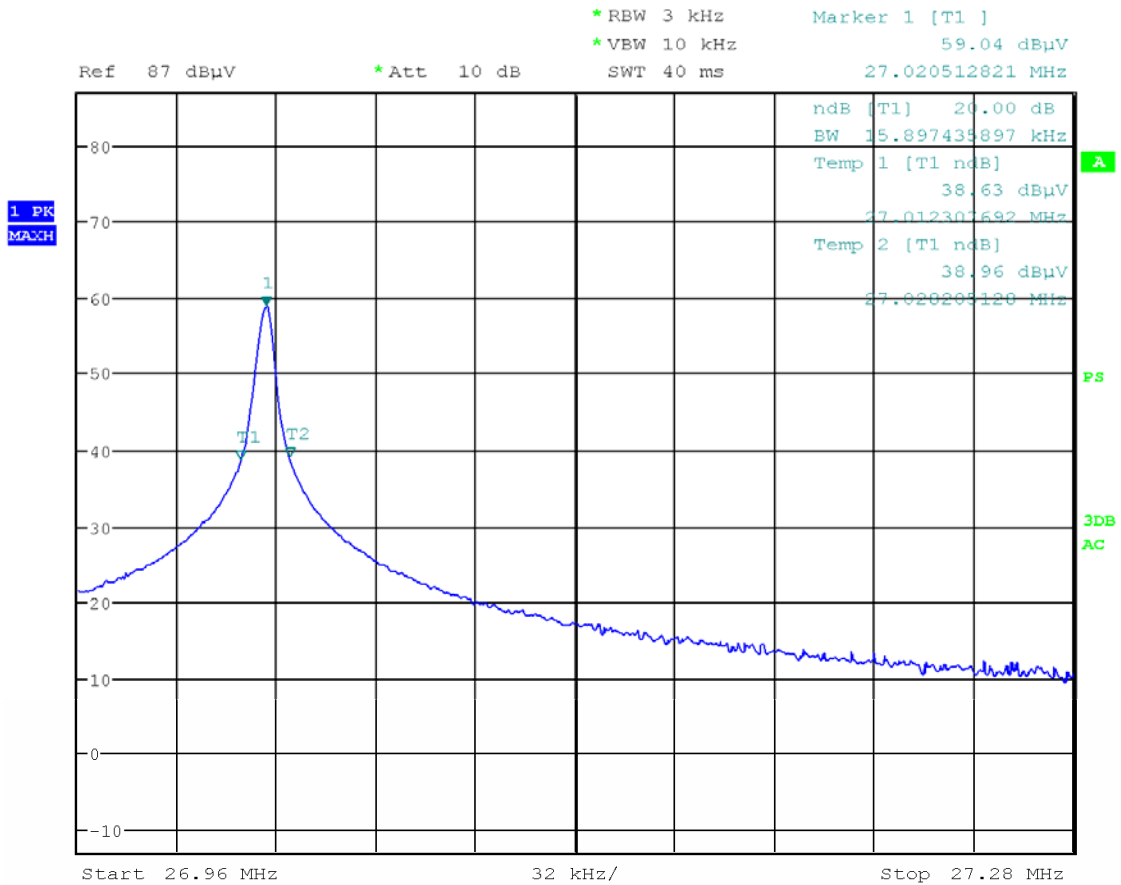
5.2.2 Spurious Emissions

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
36.020	34.31	12.64	0.63	25.74	21.84	40.00	-18.16	Horizontal
97.882	25.69	13.06	1.14	25.67	14.22	43.50	-29.28	Horizontal
214.754	25.68	14.05	1.84	25.61	15.96	43.50	-27.54	Horizontal
334.340	26.55	16.68	2.14	25.58	19.79	46.00	-26.21	Horizontal
509.123	25.37	21.72	2.43	25.55	23.97	46.00	-22.03	Horizontal
36.020	52.09	9.37	0.63	25.74	36.35	40.00	-3.65	Vertical
54.047	36.14	10.94	0.68	25.71	22.05	40.00	-17.95	Vertical
90.586	34.27	12.03	1.07	25.67	21.70	43.50	-21.80	Vertical
261.126	38.01	10.30	1.98	25.60	24.69	46.00	-21.31	Vertical
269.941	38.08	11.80	2.00	25.59	26.29	46.00	-19.71	Vertical

5.3 20dB Bandwidth

Test Requirement:	FCC Part15 C Section 15.227
Test Method:	ANSI C63.4:2003
Receiver setup:	RBW=3KHz, VBW=10KHz, detector: Peak
Limit:	Emissions from the intentional radiator shall be confined within the frequency range of 26.96MHz~27.28MHz.
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -26dB upper and lower frequency points. 4. Read the frequency delta value between the -20dB upper and lower frequency points.
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 4.7 for details
Test mode:	Refer to section 4.3 for details
Test results:	Passed

Test plot as follows:



Date: 23.NOV.2010 09:43:04