TEST REPORT No: (5211)330-0132

TEST REPORT

To:	**PLAYMIND LTD.**	To:	-
Attn:	Leo Ng / Ken Lee / Chris So / Jillian Lam	Attn:	-
Address:	Rm 413-415, Houston Centre, 63 Mody Road, TST East, Kowloon	Address:	-
Fax:	2375 7439	Fax:	-
E-mail:	leo@playmindltd.com / kenlee@npl2.com / chrisso@npl2.com / jillian@npl2.com	E-mail:	-
Folder No.:	--		
Factory name:	**PLAYMIND LTD.**		
Location:	--		
Product:	RC Pro Buggy Model No: 60060		

Sample No:	(5211)330-0132
Test date:	December 5, 2011
Test Requested:	FCC Part 15 - 2010
Test Method:	ANSI C63.4 - 2009
FCC ID:	A8260060

The results given in this report are related to the tested specimen of the described electrical apparatus.

CONCLUSION: The submitted sample was found to COMPLY with requirement of FCC Part 15 Subpart C.

Authorized Signature:

Reviewed by: Keith Yeung	Approved by: Steven Tsang
Date: December 20, 2011	Date: December 20, 2011

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Location of the test laboratory

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009. An Open Area Test Site and Full Anechoic Chamber (FCC Listed Site, Registration No. 642151) are set up for investigation and located at :

BUREAU VERITAS HONG KONG LIMITED, EMC CENTRE
No. 2106-2107, 21/F., Westin Centre,
26 Hung To Road,
Kwun Tong, Kowloon,
Hong Kong

List of measuring equipment

Radiated Emission

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
EMI TEST RECEIVER	R&S	ESCI	100379	18-OCT-2012
LOOP ANTENNA	ETS-LINDGREN	6502	00102266	07-AUG-2012
BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	16-SEP-2012
OPEN AREA TEST SITE	BVCPS	N/A	N/A	07-JUL-2012
ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	26-OCT-2012
COAXIAL CABLE	SUHNER	N/A	N/A	06-OCT-2012

Remarks:-
N/A : Not Applicable or Not Available

The measurement instrumentation uncertainty would be taking into consideration on each of the test result

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Equipment Under Test [EUT]

Description of Sample:

Model Name:	RC Pro Buggy
Model Number:	60060
Additional Model Number:	60061 / 60062 / 60063 / 60064 / 60065
Additional Model Information:	Declare the Circuit, PCB layout, Electrical parts and outlook of the products are identical to the basic model. Except the model number for difference customer.
Rating:	9Vd.c. (“6F22” size battery x 1)

Description of EUT Operation:

The Equipment Under Test (EUT) is a PLAYMIND LTD. of Radio Control toy. The transmitter is 1 wheel, 1 trigger, 1button and 1 switch and operating at 27.145MHz. It includes 3 channels – A, B & C and they are using the same frequency, the difference is the pattern of pulse train. The worst case was tested and the result is shown in the report The EUT continues to transmit when trigger is being pressed, Modulation by IC, and type is pulse modulation.

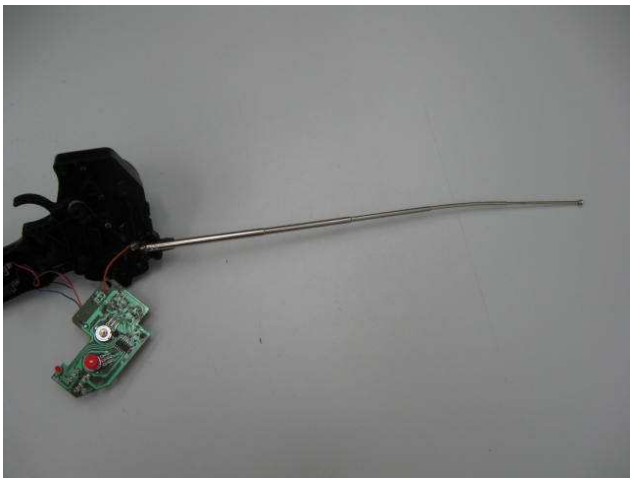
The transmitter has different control:

1. Wheel – control left and right
2. Trigger – control forward and backward
3. On/Off switch – control ON / OFF
4. Channel switch – Channel A/B/C control

Antenna Requirement

The EUT is use of a permanently antenna. The antenna consists of 30cm long metal antenna. The antenna connector is custom-made and not able to found in the market. It also cannot be replaced with other antenna other then the one bundled inside the package. The requirements of S15.203 are met. There are no deviations or exceptions to the specifications. The antenna is not replaceable or user serviceable. There are no deviations or exceptions to the specifications.

Photo of Antenna



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TEST REPORT No: (5211)330-0132

Radiated Emissions (Fundamental)

Test Requirement:	FCC Part 15 Section 15.227
Test Method:	ANSI C63.4
Test Date(s):	2011-12-05
Temperature:	20.0 °C
Humidity:	80.0 %
Atmospheric Pressure:	101.0 kPa
Mode of Operation:	Transmission mode
Tested Voltage	9Vd.c. (“6F22” size battery x 1)

Test Procedure:

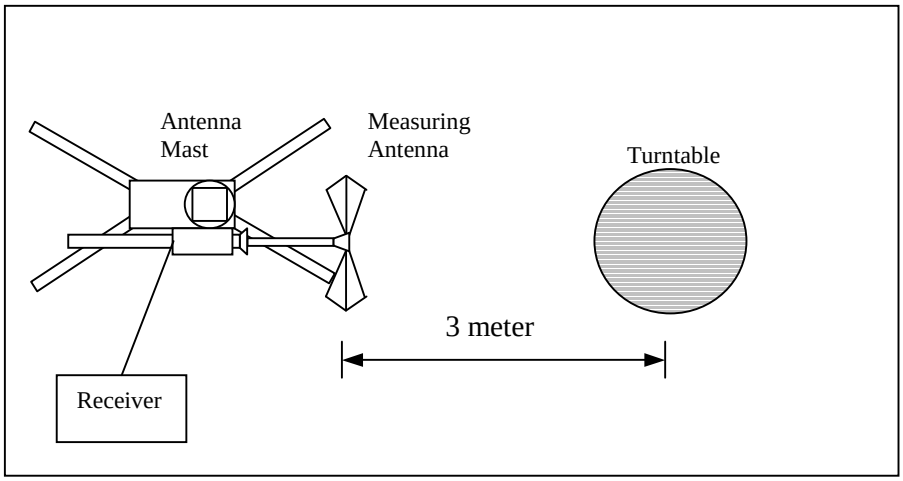
Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2009.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using new battery. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.

Location: The Roof, Westin Centre, 26 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Test Setup: Open Area Test Site



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Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.227]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [μV/m]	Field Strength of Fundamental Emission [Average] [μV/m]
26.96 – 27.28	100,000 (100 dBμV/m)	10,000 (80 dBμV/m)

Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Peak

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.145	V/0°	9.9	35.6	100	-64.4

Detection mode: # Average

Frequency (MHz)	Polarity (H/V) and degree	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
27.145	V/0°	9.9	**15.6	80	-64.4

For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.
**Duty Cycle Correction = 20Log(0.0673) =-23.4dB
Finally, -20dB is taken as the precedence.

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz
VBW = 300KHz

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TEST REPORT No: (5211)330-0132

Radiated Emissions (9kHz – 1GHz)

Test Requirement:	FCC Part 15 Section 15.209
Test Method:	ANSI C63.4
Test Date(s):	2011-12-05
Temperature:	20.0 °C
Humidity:	80.0 %
Atmospheric Pressure:	101.0 kPa
Mode of Operation:	Transmission mode
Tested Voltage	9Vd.c. (“6F22” size battery x 1)

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
1.705-30	300
30-88	100
88-216	150
216-960	200
Above960	500

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Measurement Data

Test Result of (Transmission mode): PASS

Detection mode: Quasi-Peak

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
54.290	H	5.4	20.3	40.0	-19.7
81.435	H	6.5	16.4	40.0	-23.6
108.580	H	12.4	20.2	43.5	-23.3
135.725	H	11.8	21.7	43.5	-21.8
162.870	H	9.0	20.2	43.5	-23.3
190.015	H	8.1	20.3	43.5	-23.2
217.160	H	8.7	21.8	46.0	-24.2
244.305	H	12.1	21.5	46.0	-24.5
271.450	H	13.6	23.2	46.0	-22.8
298.595	H	14.3	25.1	46.0	-20.9

Frequency (MHz)	Polarity (H/V)	Antenna Factor and Cable Loss (dB/m)	Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
54.290	V	5.4	20.5	40.0	-19.5
81.435	V	6.5	16.7	40.0	-23.3
108.580	V	12.4	19.8	43.5	-23.7
135.725	V	11.8	21.6	43.5	-21.9
162.870	V	9.0	20.0	43.5	-23.5
190.015	V	8.1	20.3	43.5	-23.2
217.160	V	8.7	21.8	46.0	-24.2
244.305	V	12.1	21.4	46.0	-24.6
271.450	V	13.6	23.0	46.0	-23.0
298.595	V	14.3	25.2	46.0	-20.8

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 120KHz
VBW = 120KHz

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26dB Bandwidth of Fundamental Emission

Test Requirement:	FCC 47 CFR 15.227
Test Method:	ANSI C63.4:2009
Test Date:	2011-12-05
Temperature:	20.0 °C
Humidity:	80.0 %
Atmospheric Pressure:	101.0 kPa
Mode of Operation:	Transmission mode
Tested Voltage	9Vd.c. (“6F22” size battery x 1)

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Limits for 26dB Bandwidth of Fundamental Emission:

Frequency [MHz]	26dB Bandwidth [KHz]	Limits [MHz]
27.1424	93.44	within 26.96 – 27.28

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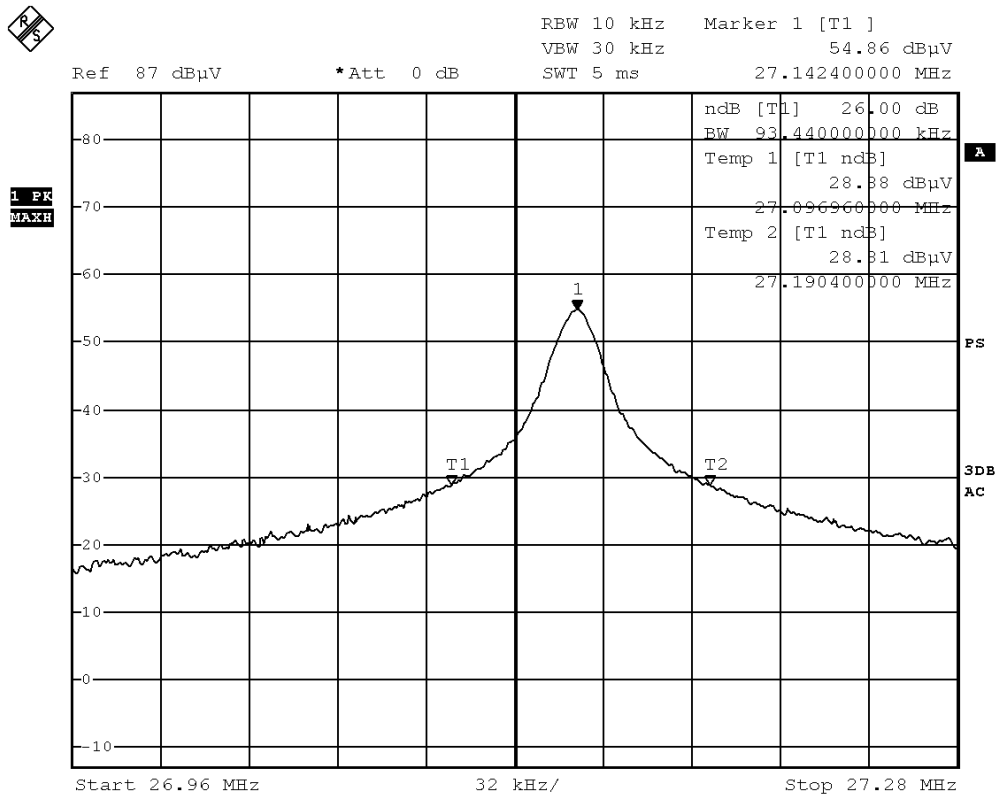
Measurement Data :

Test Result of 26dB Bandwidth of Fundamental Emission: PASS



Date: 5.DEC.2011 15:03:51

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Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (89.2msec) never exceeds a series of (6.0msec) pulses. Assuming any combination of short and long pulses maybe obtained due to encoding the worst case transmit duty cycle would be considered (6.0msec) per 89.2msec = 6.73% duty cycle.
Figure A through B shows the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = 20Log(0.0673) = -23.4dB
Finally, -20dB is taken as the precedence.

The following figures [Figure A to Figure B] show the characteristics of the pulse train for one of these functions.

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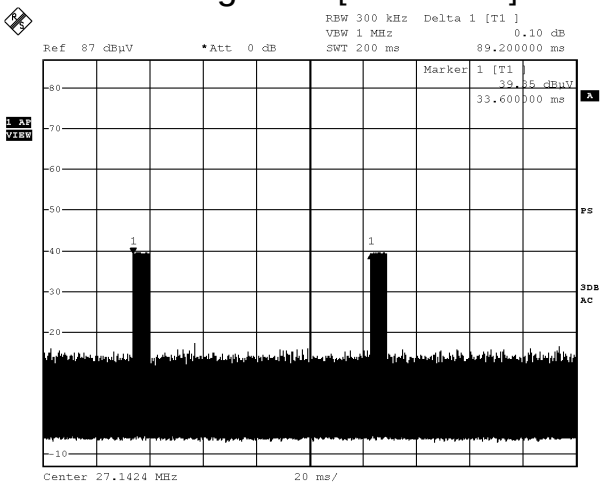
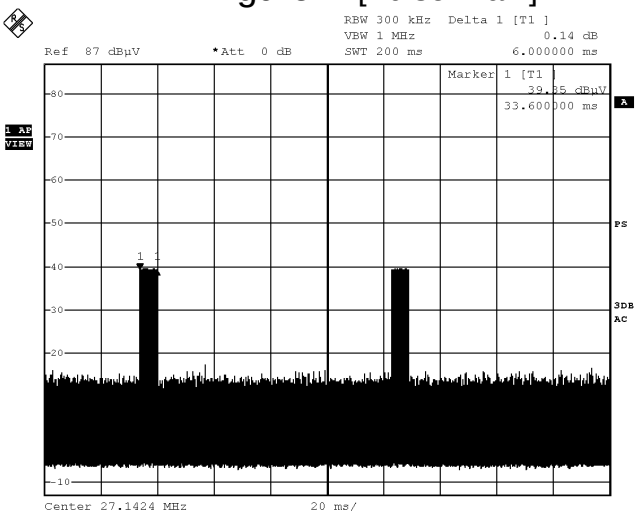
Figure A [Pulse Train]



Date: 5.DEC.2011 15:05:07

Figure B [Pulse Train]



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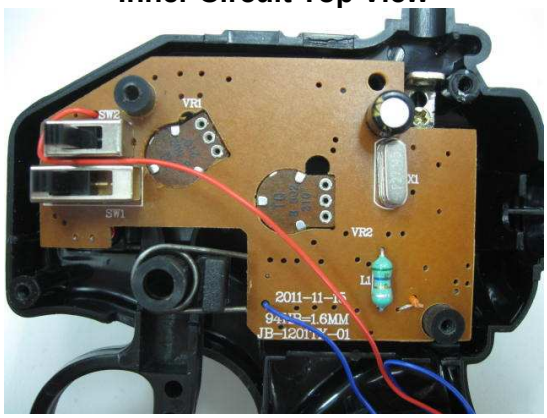
Photographs of EUT

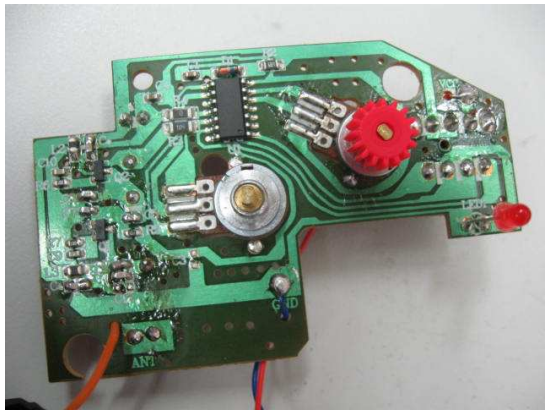
Front View of the product

Rear View of the product

Inner Circuit Top View



Inner Circuit Bottom View



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Battery compartment

Battery Cover

Front View of the product (Internal)

Rear View of the product (Internal)

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Measurement of Radiated Emission Test Set Up

******* End of Report *******

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