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# FCC REPORT

Application No.: SZEM1408004671RF (SGS SZ No.:SZTY1408000703EM)

Applicant: NEW-RAY TOYS CO LTD

Product Name: 1/18 R/C Kubota L6060 w/ Loader and Backhoe (w/ Light)

Model No.(EUT): SS-34123

**FCC ID**: 2AC6USS34123

Standards: 47 CFR Part 15, Subpart C (2013)

**Date of Receipt:** 2014-08-28

**Date of Test:** 2014-09-02 to 2014-09-04

**Date of Issue:** 2014-09-17

Test Result: PASS \*

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

### Authorized Signature:



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



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# 2 Version

	Revision Record					
Version	Chapter	Date	Modifier	Remark		
00		2014-09-17		Original		

Authorized for issue by:		
Tested By	Draca Chen	2014-09-04
	(Draca Chen) /Project Engineer	Date
Prepared By	Sade Luo .  (Sade Luo) /Clerk	2014-09-17  Date
Checked By	Emen_Li  (Emen Li) /Reviewer	2014-09-18  Date



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# 3 Test Summary

Test Item	Test Requirement	Test method	Result
Radiated Emission	47 CFR Part 15, Subpart C Section 15.227	ANSI C63.10 (2009)	PASS
Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215	ANSI C63.10 (2009)	PASS



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# 5 General Information

### 5.1 Client Information

Applicant:	NEW-RAY TOYS CO LTD	
Address of Applicant:	Room 1209, Houston Centre, 63 Mody Road, Tsim Sha Tsui,	
	Kowloon	

## 5.2 General Description of EUT

Product Name:	1/18 R/C Kubota L6060 w/ Loader and Backhoe (w/ Light)
Model No.:	SS-34123
Sample Type:	Portable production
Operation Frequency:	27.145MHz
Modulation Type:	AM
Channel Number:	1
Antenna Type:	Integral
Power Supply:	Tx: DC 9.0V 1*9.0V(6LF22*6LR61)
	RX:DC 4.5V 3*1.5V(AA)
Test Voltage:	DC 9.0V new batteries for TX
	DC 4.5V new batteries for RX

### 5.3 Test Environment and Mode

Operating Environment:	Operating Environment:			
Temperature:	24.0 °C			
Humidity:	52 % RH			
Atmospheric Pressure:	1010 mbar			
Test mode:	Test mode:			
Transmitting mode: Keep the EUT in transmitting mode				

## 5.4 Description of Support Units

The EUT has been tested independent unit.

### 5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



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# 5.6 Test Facility

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

#### CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

### VCCI

The 3m Semi-anechoic chamber, Full-anechoic Chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197, G-416, T-1153 and C-2383 respectively.

#### FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services 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 No.: 556682.

### Industry Canada (IC)

Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

### 5.7 Deviation from Standards

None.

### **5.8** Abnormalities from Standard Conditions

None

### 5.9 Other Information Requested by the Customer

None.



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# 5.10 Equipment List

	RE in Chamber				
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2015-06-10
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2015-05-16
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	Coaxial cable	SGS	N/A	SEL0027	2015-05-29
5	Coaxial cable	SGS	N/A	SEL0189	2015-05-29
6	Coaxial cable	SGS	N/A	SEL0121	2015-05-29
7	Coaxial cable	SGS	N/A	SEL0178	2015-05-29
8	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2014-10-24
9	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2014-10-24
10	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2015-05-16
11	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2014-10-24
12	Barometer	ChangChun	DYM3	SEL0088	2015-05-16
13	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2014-10-24
14	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2014-10-24
15	Signal Generator	Rohde & Schwarz	SMY01	SEL0155	2014-10-24
16	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2015-05-16
17	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2015-06-04



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	Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)	
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2015-06-10	
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2014-10-24	
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2015-05-16	
4	8 Line ISN Fischer Custom Communications Inc. FCC-TLISN- T8-02		SEL0162	2014-11-10		
5	Fischer Custom Communications Inc.  FCC-TLISN- T4-02 SEL0		SEL0163	2014-11-10		
6	2 Line ISN	Fischer Custom 2 Line ISN Communications Inc.		SEL0164	2014-11-10	
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2015-05-16	
8	Coaxial Cable	SGS	N/A	SEL0025	2015-05-29	
9	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2014-10-24	
10	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2014-10-24	
11	Barometer	Chang Chun	DYM3	SEL0088	2015-05-16	

Note: The calibration interval is one year, all the instruments are valid.



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# 6 Test Result & Measurement Data

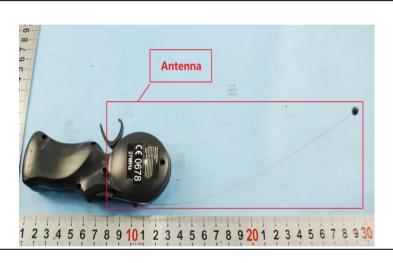
### 6.1 Antenna Requirment

Standard Requirement: 47 CFR Part 15C Section 15.203

15.203 Requirement:

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.

#### **EUT Antenna:**



### 6.2 Radiated Emissions

Test Requirement:	47 CFR Part 15C Section 15.227					
Test Method:	ANSI C63.10: 2009					
Test Site:	3m (Semi-Anechoic Chamb	per)				
ERP Limit:	Carrier Power will not excee	ed 80dBuV/m a	t 3m (Avera	ıge).		
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark	
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak	
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average	and the same
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	Mo.
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak GS	1
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average 4	
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	1/2
	30MHz-1GHz Quasi-p		100 kHz	300kHz	Quasi-peak.	HE
	Above 4011-	Peak	1MHz	3MHz	Peak	
	Above 1GHz	Peak	1MHz	10Hz	Average	



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Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				ge emission limit
Test Procedure:	a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.				

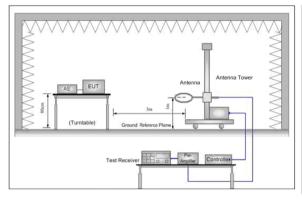
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be retested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.



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### **Test Setup:**



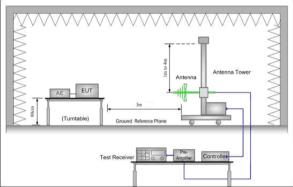


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

Test Mode:	Transmitting mode	
	Remark: Pre-scan the operation mode at forward, backward, right turn and left turn mode, and found the forward mode was the worst case.	
Instruments Used:	Refer to section 5.10 for details	
Test Result:	Pass	

#### 27.145MHz Mode

Test Procedure: For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.10: 2009. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

### **Test Result:**

#### Intentional emission

Test Frequency	Peak (d	dΒμV/m)	Limits	Margin (dB)	
(MHz)	Vertical	Horizontal	(dBµV/m)	Vertical	Horizontal
27.145	61.79	51.27	100.00	-38.21	-48.73

Test Frequency	Average	(dBµV/m)	Limits	Margin (dB)		
(MHz)	Vertical	Horizontal	(dBµV/m)	Vertical	Horizontal	
27.145	54.02	44.49	80.00	-25.98	-35.21	

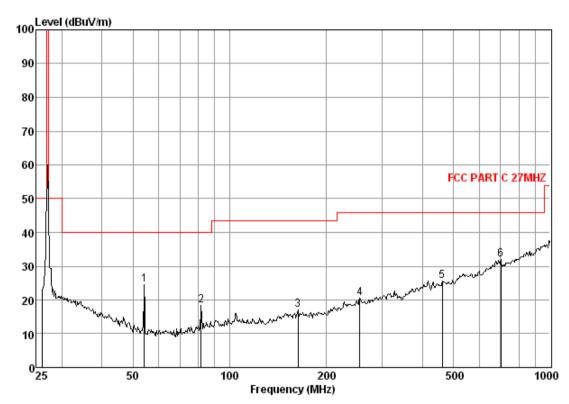
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# Out of Band Emissions Vertical



Condition: FCC PART C 27MHZ 3m 3142C VERTICAL

Job No. : 4671RF Mode : TX

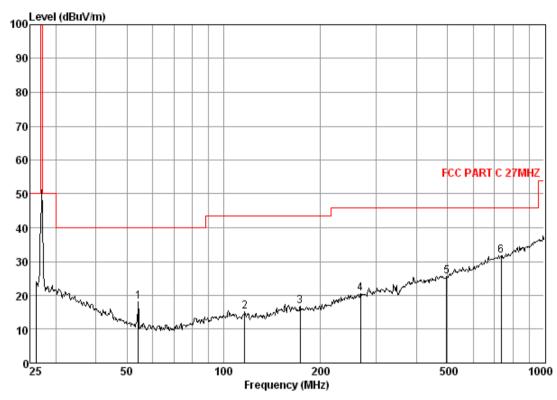
	Freq			Preamp Read Factor Level				Over Limit
•	MHz	d₿	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2 3 4 5 6	54.25 81.70 163.45 254.47 460.86 701.78	0.80 1.10 1.34 1.70 2.45 2.90	8.06 7.87 9.57 12.39 17.29 21.60	26. 85 26. 52 27. 50	32.91	20. 53 25. 66	40.00 43.50 46.00 46.00	-15.57 -21.71 -26.53 -25.47 -20.34 -14.09



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#### **Horizontal**



Condition: FCC PART C 27MHZ 3m 3142C HORIZONTAL

Job No. : 4671RF Mode : TX

> CableAntenna Preamp Read Limit Over Loss Factor Factor Freq Level Level Line Limit MHz ₫B dB/m ₫B dBuV dBuV/m dBuV/m 54.25 0.80 8.06 27.28 36.60 18.18 40.00 -21.82 1 2 116.41 1.25 8.15 27.09 32.98 15.29 43.50 -28.21 43.50 -26.57 173.39 9.64 1.36 26.80 32.73 16.93 4 1.76 46.00 -25.57 12.66 26.49 32.50 20.43 267.96 5 496.15 2.59 17.80 27.68 32.95 25.66 46.00 -20.34 733.55 27.37 34.59 3.00 21.63 31.85 46.00 -14.15

### Remark:

- 1) 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
- 2) The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



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# 6.3 Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.215 (C)			
Test Method:	ANSI C63.10: 2009			
Limit:	Operation within the band 26.960 – 27.280 MHz			
Requirement :	Intentional radiators operating under the alternative provisions to the general			
	emission limits, as contained in §§15.217 through 15.257 and in subpart E			
	of this part, must be designed to ensure that 20dB bandwidth of the			
	emission, or whatever bandwidth may otherwise be specified in the specific			
	rule section under which the equip compliance with the 20dB attenuation			
	specification may base on measurement at the intentional radiator's			
	antenna output terminal unless the intentional radiator uses a permanently			
	attached antenna, in which case compliance shall be deomonstrated by			
	measuring the radiated emissions.			
Test Setup:				
	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane			
Test Mode:	Transmitting mode			
Instruments Used:	Refer to section 5.10 for details			
Test Result:	Pass			



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### **Test Result:**

