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TEST REPORT

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To:	GUANGDONG FEILUN TECHNOLOGY INDUSTRIAL CO., LTD.	f To:		-
Attn:	SHAONA CAI	Attn:		-
Address:	LAIMEI INDUSTRIAL, FENGXIANG CHENGHAI, SHANTOU CITY, GUANGDONG, CHINA	Addre	SS:	-
Fax:		Fax:		-
E-mail:		E-ma	il:	-
Folder No.:				
Factory name:	GUANGDONG FEILUN	TECHNOLO	GY INDUSTI	RIAL CO., LTD
_ocation:	LAIMEI INDUSTRIAL, FENGXIANG	CHENGHAI, S	HANTOU C	ITY, GUANGDONG, CHINA
Product:	Toy RC Monster Spinni	ing Car V Clea Aodel No.: 164		under Tumbler
	Ĩ	San	nple No:	(5211)337-0093
		Te	st date:	December 23, 2011 to December 29, 2011
		Test R	Requested:	FCC Part 15 - 2010
		Test	Method:	ANSI C63.4 - 2009
	THUNDER	FC	CC ID:	Z6QFL164585427
The results	given in this report are related to the tes	sted specimer	n of the des	cribed electrical apparatus.
CONCLUSION:	The submitted sample was found to CO	OMPLY with re	equirement	of FCC Part 15 Subpart C.
	Authorized	I Signature:		
(Qu)			r ka	J.S.
			oveg by: Steven Tsang	
Date: January	18, 2012	Date: Januar	ry 18, 2012	
BUREAU VERITAS Kowloon Bay Offic 1/F Pacific Trade C 2 Kai Hing Road, H Kowloon,HONG K Tel: +852 2331 086 Fax: +852 2331 086 www.cps.bureauver	ce of our name or trademark Centre, herein. The results set for Kowloon Bay, includes all of the tests re ONG additional testing of the shall be in writing and shall be shall be in writing and shall constitute your unque	k, is permitted only with o th in this report are not nec sample was taken or any equested by you and the re- samples or to notify us of all specifically address the	our prior written permi cessarily indicative or r similar or identical pro- esults thereof. You sha any errors or omission issue you wish to raise	of this report to or for any other person or entity, or us ission. Our report is limited to the test samples identifie epresentative of the statistical quality or characteristics of oduct unless specifically and expressly noted. Our report all have thirty days from receipt of this report to reques ns relating to our report, provided, however, such notic . A failure to raise such issue within the prescribed tim port, the tests conducted and the correctness of the report



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

Radiated Emission

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:Toy RC Monster Spinning Car V Clear Wheels/Thunder TumblerModel Number:1645854Rating:9Vd.c. ("6F22" size battery x 1)

Description of EUT Operation:

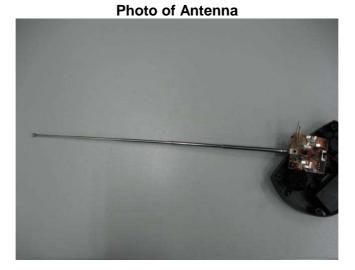
The Equipment Under Test (EUT) is a GUANGDONG FEILUN TECHNOLOGY INDUSTRIAL CO., LTD of Radio Control toy. It is 2 sticks, 1 switch and 1 button transmitter and operating at 27.141MHz. The EUT continues to transmit while sticks are being pushed or pulled, Modulation by IC, and type is pulse modulation.

The transmitter has different control:

- 1. Left stick left motor control
- 2. Right stick right motor control
- 3. Action button car stand up control
- 4. ON/OFF switch ON/OFF control

Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. The antenna consists of 20.0cm long signal wire. It is soldered on the PCB. The antenna is not replaceable or user serviceable. The requirement of S15.203 are met. There are no deviations or exceptions to the specifications.



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Radiated Emissions (Fundamental)

Test Requirement:	FCC Part 15 Section 15.227
Test Method:	ANSI C63.4
Test Date(s): Temperature: Humidity: Atmospheric Pressure: Mode of Operation: Tested voltage:	2011-12-29 21.0 °C 63.0 % 100.8 kPa Transmission mode 9Vd.c. ("6F22" size battery x 1)

Test Procedure:

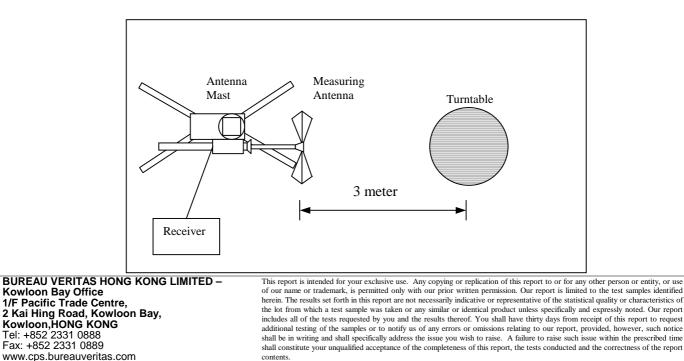
Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 - 2009.

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



contents.



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

Frequency Range of	Field Strength of	Field Strength of
Fundamental	Fundamental Emission	Fundamental Emission
	[Peak]	[Average]
[MHz]	[µV/m]	[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)
27.141	V/0°	9.9	41.5	100	-58.5

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)
27.141	V/0°	9.9	**37.0	80	-43.0

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(0.597) =-4.5dB

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz VBW = 300KHz

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Radiated Emissions (9kHz - 1GHz)

Test Requirement: FCC Part 15 Section 15.209

Test Method: ANSI C63.4

Test Date(s):	2011-12-29
Temperature:	21.0 °C
Humidity:	63.0 %
Atmospheric Pressure:	100.8 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	Quasi-Peak Limits
[MHz]	[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)
54.282	Н	5.4	21.6	40.0	-18.4
81.423	Н	6.5	16.1	40.0	-23.9
108.564	Н	12.4	19.6	43.5	-23.9
135.705	Н	11.8	22.6	43.5	-20.9
162.846	Н	9.0	21.8	43.5	-21.7
189.987	Н	8.1	21.7	43.5	-21.8
217.128	Н	8.7	24.6	46.0	-21.4
244.269	Н	12.1	23.8	46.0	-22.2
271.410	Н	13.6	26.0	46.0	-20.0
298.551	Н	14.3	27.9	46.0	-18.1

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)
54.282	V	5.4	21.9	40.0	-18.1
81.423	V	6.5	16.4	40.0	-23.6
108.564	V	12.4	19.8	43.5	-23.7
135.705	V	11.8	22.7	43.5	-20.8
162.846	V	9.0	22.0	43.5	-21.5
189.987	V	8.1	22.0	43.5	-21.5
217.128	V	8.7	24.9	46.0	-21.1
244.269	V	12.1	24.1	46.0	-21.9
271.410	V	13.6	26.3	46.0	-19.7
298.551	V	14.3	27.2	46.0	-18.8

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(s):	2011-12-23
Temperature:	21.0 °C
Humidity:	63.0 %
Atmospheric Pressure:	100.8 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.

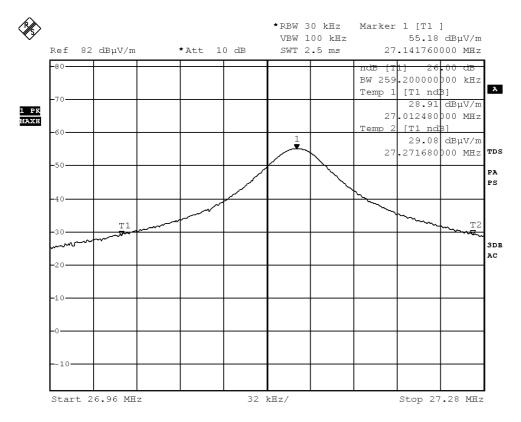
Limits for 26dB Bandwidth of Fundamental Emission:

Frequency	26dB Bandwidth	Limits
[MHz]	[KHz]	[MHz]
27.14176	259.2	within 26.96 – 27.28



Measurement Data :

Test Result of 26dB Bandwidth of Fundamental Emission: PASS



Date: 23.DEC.2011 13:04:09

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Duty Cycle Correction During 100msec:

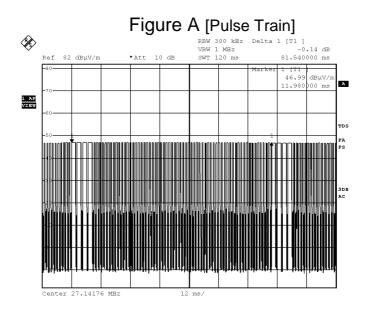
Each function key sends a different series of characters, but each packet period (81.54 msec) never exceeds a series of 4 long (1.62msec) and 64 short (0.66msec) pulses. Assuming any combination of short and long pulses maybe obtained due to encoding the worst case transmit duty cycle would be considered (4x1.62msec)+(64x0.66msec) per 81.54msec = 59.7% duty cycle. Figure A through C shows the characteristics of the pulse train for one of these functions.

Remarks:

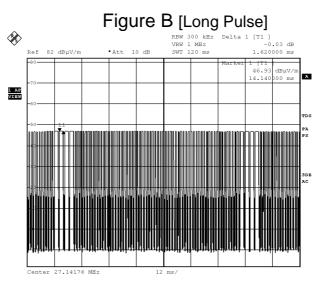
Duty Cycle Correction = 20Log(0.597) = -4.5dB

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





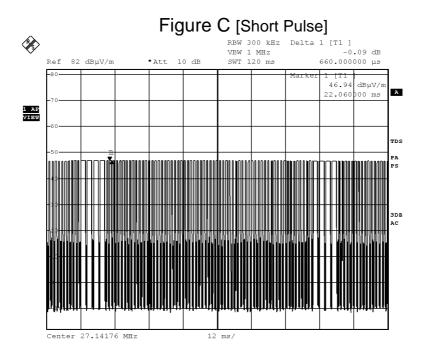
Date: 23.DEC.2011 13:07:18



Date: 23.DEC.2011 13:07:45

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Date: 23.DEC.2011 13:08:02

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Photographs of EUT

Front View of the product



Inner Circuit Top View

Rear View of the product



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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