

TEST REPORT N°: BVC-08NOH2016MTHFB

## TEST REPORT

To:	CABEN ASIA PACIFIC LTD	To:	-
Attn:	--	Attn:	-
Address:	9/F, Tal Building, 49 Austin Road, TST, Kowloon, Hong Kong	Address:	-
Fax:	86-755-8831-2343	Fax:	-
E-mail:	--	E-mail:	-

Factory name:	--	Offer:	BVC-08NO12-01MTHHFS
Location:	--	Sample No:	(5208)313-0066



Start date:	November 13, 2008
Finish date:	November 13, 2008
Test Requested:	FCC Part 15 Certification Procedure
Test Method:	ANSI C63.4 – 2003
Re-testing:	NONE

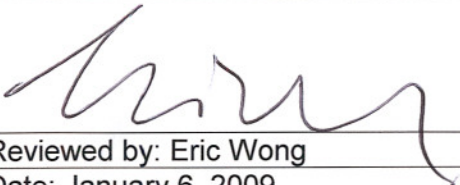
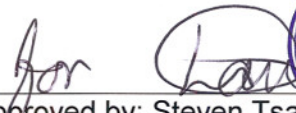
61759 Billy Big Wheels (27.175MHz),  
MODEL: --

FCC ID: MVH04979661759

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: Eric Wong	Approved by: Steven Tsang
Date: January 6, 2009	Date: January 6, 2009



BUREAU VERITAS HONG KONG LIMITED –  
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### Location of the test site

Radiated and Conducted emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003. 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

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATION DUE
M0008	EMI TEST RECEIVER	R&S	ESCI	100379	13-APR-2009
M0012	HF LOOP ANTENNA	SCHAFFNER	HLA 6120	21728	14-NOV-2009
M0011	BILOG ANTENNA	SCHAFFNER	CBL6112D	25229	31-JAN-2009
M0027	OPEN AREA TEST SITE	BVCPS	N/A	N/A	05-JULY-2009
M0028	ANECHOIC CHAMBER	ALBATROSS	M-CDC	80374004499B	09-JULY-2009
M0036	HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D-692	29-JULY-2009
M0037	PREAMPLIFIER	SCHWARZBECK	BBV9718	9718-152	22-JULY-2009
M0050	COAXIAL CABLE 1-18GHz	SUHNER	N/A	N/A	23-JULY-2009
M0029	SPECTRUM ANALYZER	ADVANTEST	R3127	111000909	12-DEC-2008

#### 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: 61759 Billy Big Wheels (27.175MHz)

Model Number: --

Rating: 4.5Vd.c ("AAA" size battery x 3)

#### Description of EUT Operation:

The Equipment Under Test (EUT) is a **CABEN ASIA PACIFIC** of Radio Control toy. The transmitter is a 3 buttons transmitter and operating at 27.1776MHz. The EUT continues to transmit while buttons is being pressed, Modulation by IC, and type is pulse modulation.

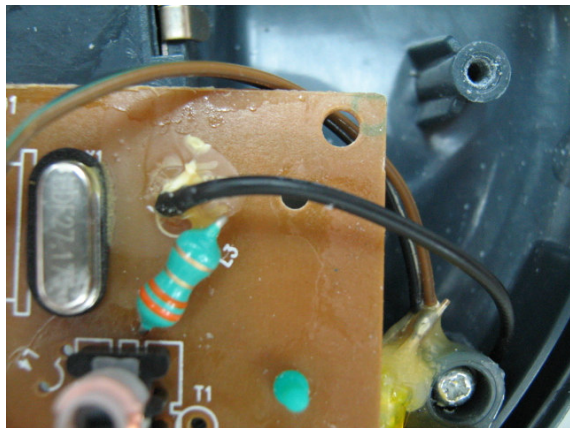
The transmitter has different control:

1. Forward button – Forward control
2. Backward button – Backward control
3. Middle button – Sound

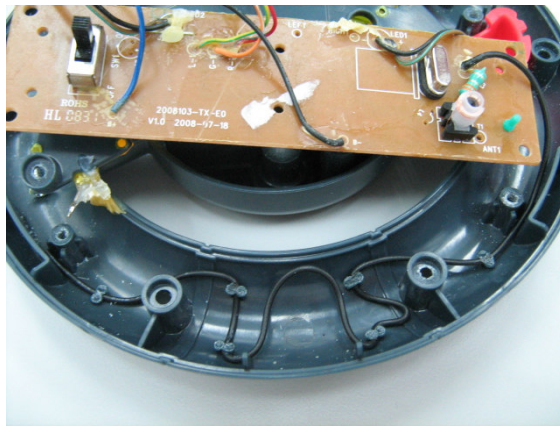
#### Antenna Requirement (Section 15.203)

The EUT is use of a permanently antenna. It is soldered on the PCB. The antenna is not replaceable or user serviceable. There are no deviations or exceptions to the specifications..

Connection of antenna



Entire antenna





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### Radiated Emissions (Fundamental)

Test Requirement: FCC Part 15 Section 15.227  
Test Method: ANSI C63.4

Test Date(s): 2008-11-13

Mode of Operation: Transmission mode

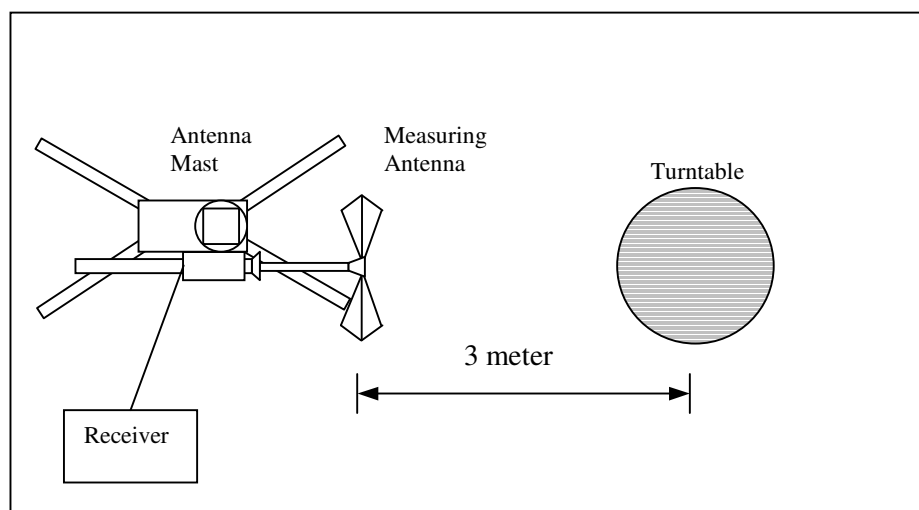
### Test Procedure:

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2003.

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 performed 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 placed 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.

### 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)
27.1776	V, 0°	20.1	56.4	100	-43.6

#### 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)
27.1776	V, 0°	20.1	**49.8	80	-30.2

# For pulse modulated devices and using measuring equipment employing a peak detection mode, properly adjusted for such factor as pulse desensitisation.

\*\*Duty Cycle Correction =  $20\log(0.47) = -6.6\text{dB}$

Note: Field Strength includes Antenna Factor and Cable Loss.

Receiver setting: RBW = 100KHz  
VBW = 300KHz



## TEST REPORT N°: BVC-08NOH2016MTHFB

### Radiated Emissions (9kHz – 1GHz)

Test Requirement: FCC Part 15 Section 15.209  
Test Method: ANSI C63.4

Test Date(s): 2008-11-13

Mode of Operation: **Transmission mode**

#### Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [ $\mu$ V/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)
54.325	V	9.3	25.1	40.0	-14.9
81.5328	V	10.6	21.9	40.0	-18.1
108.7104	H	15.0	21.3	43.5	-22.2
135.888	V	14.9	21.6	43.5	-21.9
163.0656	H	14.8	22.0	43.5	-21.5
190.2432	V	15.0	23.6	43.5	-19.9
217.4208	H	15.9	22.6	46.0	-23.4
244.5984	H	16.3	25.0	46.0	-21.0
271.776	H	19.4	26.8	46.0	-19.2
298.9536	H	21.0	29.4	46.0	-16.6

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 C63.4:2003 (Section 13.1.7)  
Test Date: 2008-11-13  
Mode of Operation: Transmission mode

#### 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:

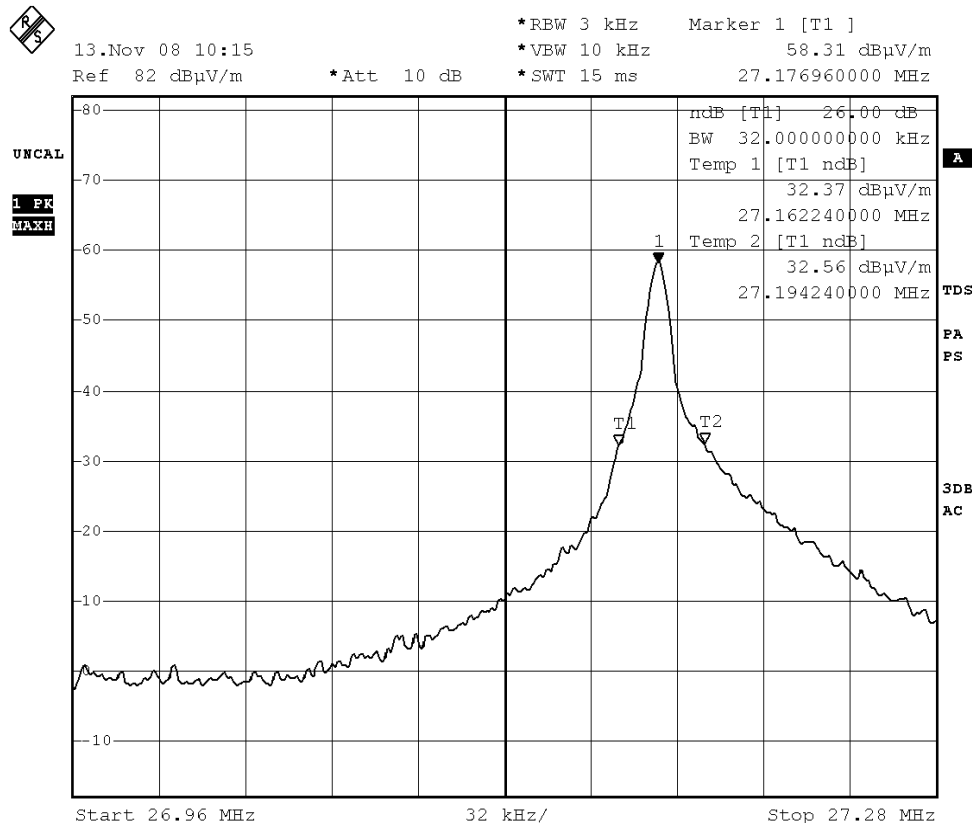
Frequency [MHz]	26dB Bandwidth [KHz]	FCC Limits [MHz]
27.17696	32.0	within 26.96-27.28



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## Measurement Data :

### Test Result of 26dB Bandwidth of Fundamental Emission: PASS



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### Duty Cycle Correction During 100msec:

Each function key sends a different series of characters, but each packet period (20.4msec) never exceeds a series of 4 long (0.9msec) and 12 short (0.5msec) pulses. Assuming any combination of short or long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered  $(4 \times 0.9\text{msec}) + (12 \times 0.5\text{msec})$  per 20.4msec = 47% duty cycle. Figure A and C show the characteristics of the pulse train for one of these functions.

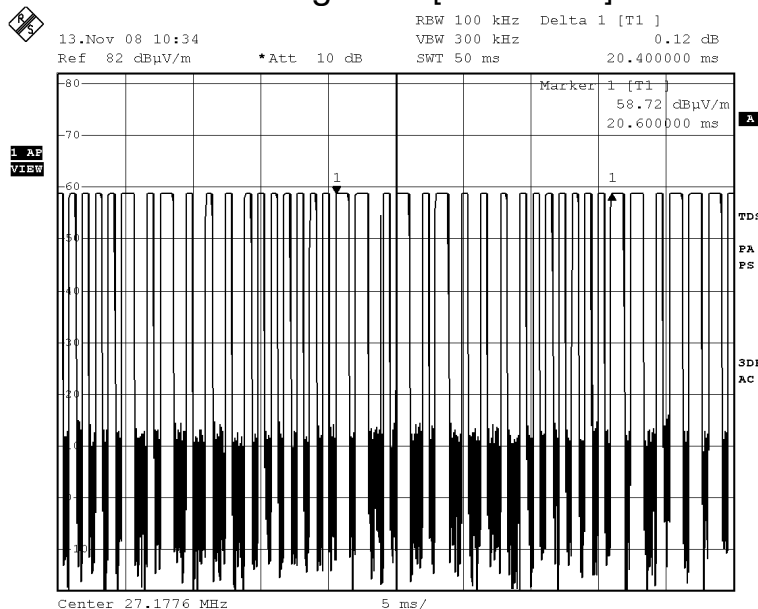
Remarks:

Duty Cycle Correction =  $20\text{Log}(0.47) = -6.6\text{dB}$

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

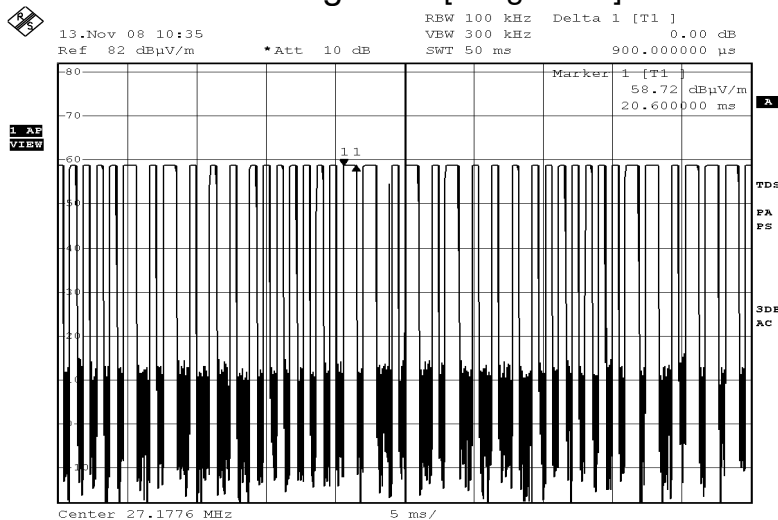
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### Figure A [Pulse Train]



Date: 13.NOV.2008 10:34:23

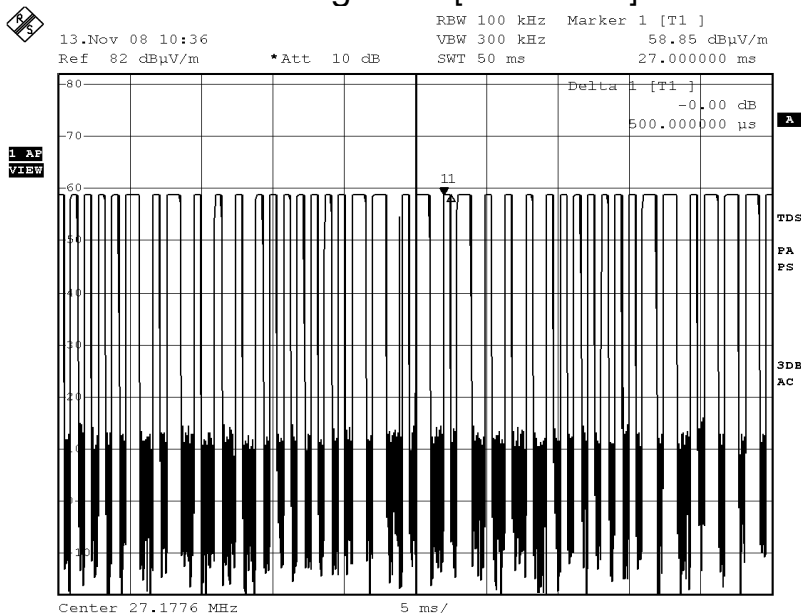
### Figure B [Long Pulse]



Date: 13.NOV.2008 10:35:25

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**Figure C [Short Pulse]**



Date: 13.NOV.2008 10:36:19

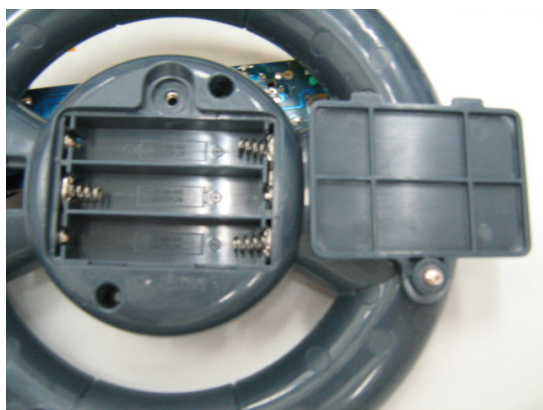
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### Photographs of EUT

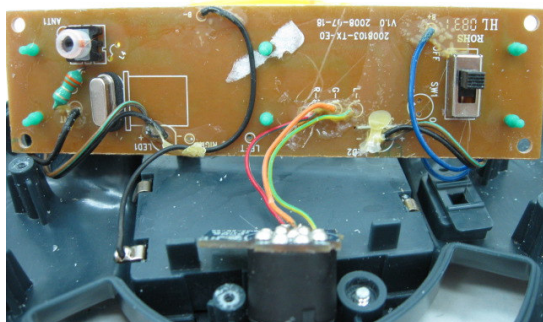
**Front View of the product**



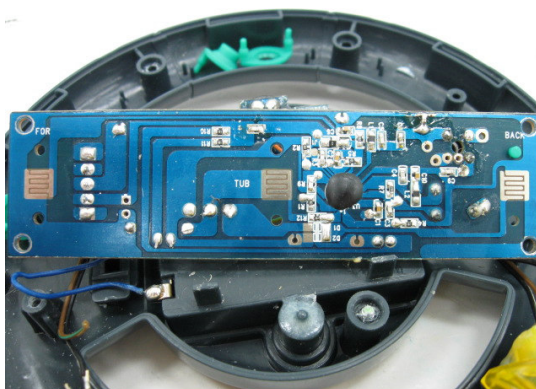
**Rear View of the product**



**Inner Circuit Top View**



**Inner Circuit Bottom View**





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**Measurement of Radiated Emission Test Set Up**



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