

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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## TEST REPORT

Report No.: 13050249HKG-001

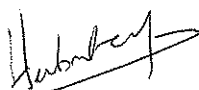
Toy State International Ltd.


Application  
For  
Certification  
(Original Grant)  
(FCC ID: V9Q-60360F27)

Transmitter

Prepared and Checked by:

Approved by:

  
\_\_\_\_\_  
Wong Cheuk Ho, Herbert  
Lead Engineer

  
\_\_\_\_\_  
Chan Chi Hung, Terry  
Assistant Supervisor  
Date: June 10, 2013

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## GENERAL INFORMATION

**Toy State International Ltd.**  
**BRAND NAME: N/A, MODEL: 60361, 60362**  
**FCC ID: V9Q-60360F27**

Grantee:	Toy State International Ltd.
Grantee Address:	Unit 905, 9/F., West Wing, Tsim Sha Tsui Centre, 66 Mody Road, TST East, Kowloon, Hong Kong.
Contact Person:	Jason Ng
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Manufacturer:	ShenZhen Nanling Toys Products Co., Ltd.
Manufacturer Address:	132 Busha Road, Nanling Village, Buji Town, 518114
Brand Name:	N/A
Model:	60361
Additional model:	60362
Type of EUT:	Transmitter
Description of EUT:	Hot Streakz™ R/C – Dodge Viper (60361), Hot Streakz™ R/C – Ford F-150 (60362),
Serial Number:	N/A
FCC ID / IC:	V9Q-60360F27
Date of Sample Submitted:	May 05, 2013
Date of Test:	May 06, 2013 to May 20, 2013
Report No.:	13050249HKG-001
Report Date:	June 10, 2013
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

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## SUMMARY OF TEST RESULT

**Toy State International Ltd.**  
**BRAND NAME: N/A, MODEL: 60361, 60362**  
**FCC ID: V9Q-60360F27**

TEST SPECIFICATION	REFERENCE	RESULTS
Transmitter Field Strength	15.227	Pass

The equipment under test is found to be complying with the following standards:  
FCC Part 15, October 1, 2011 Edition

- Note: 1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.
2. Pursuant to FCC part 15 Section 15.215(c), the 20 dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.

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## 1.0 **General Description**

### 1.1 Product Description

The Equipment Under Test (EUT) is a transmitter of a RC Car operating at 27.145 MHz as dictated by a crystal. The EUT is powered by a 3.0 V DC source (2 x 1.5V “AAA” batteries). The EUT has two control levers to control the receiver to move forward, backward, left and right.

After switching ON the EUT and the receiver of the RC Car, activating the control levers on the EUT can control the receiver moving forward, backward, left turn and right turn.

The Model: 60362 is the same as the Model: 60361 in hardware aspect. The difference in model number serves as marketing strategy.

Antenna Type : External, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

### 1.2 Related Submittal(s) Grants

The receiver for this transceiver is exempted from the Part 15 technical rules per 15.101(b).

### 1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). All radiated measurements were performed in an Open Area Test Site. Preliminary scans were performed in the Open Area Test Site only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **“Justification Section”** of this Application.

### 1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been placed on file with the FCC.

## 2.0 **System Test Configuration**

### 2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2009).

The device was powered by 2 x 1.5V “AAA” batteries.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

### 2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it transmits the RF signal continuously.

### 2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

### 2.4 Equipment Modification

Any modifications installed previous to testing by Toy State International Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Hong Kong Ltd.

### 2.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

### 2.6 Support Equipment List and Description

N/A.

### 3.0 **Emission Results**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

#### 3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG - AV$$

where            FS = Field Strength in dB $\mu$ V/m  
                    RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V  
                    CF = Cable Attenuation Factor in dB  
                    AF = Antenna Factor in dB  
                    AG = Amplifier Gain in dB  
                    AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where            FS = Field Strength in dB $\mu$ V/m  
                    RR = RA - AG - AV in dB $\mu$ V  
                    LF = CF + AF in dB

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$\begin{aligned} RA &= 52.0 \text{ dB}\mu\text{V/m} \\ AF &= 7.4 \text{ dB} & RR &= 18.0 \text{ dB}\mu\text{V} \\ CF &= 1.6 \text{ dB} & LF &= 9.0 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ AV &= 5.0 \text{ dB} \\ FS &= RR + LF \\ FS &= 18 + 9 = 27 \text{ dB}\mu\text{V/m} \end{aligned}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(27 \text{ dB}\mu\text{V/m})/20] = 22.4 \mu\text{V/m}$$

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### 3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 54.290 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

### 3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgment: Passed by 5.7 dB



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Applicant: Toy State International Ltd.  
Model: 60361  
Worst-Case Operating Mode: Transmitting

Date of Test: 10 May 2013

Table 1

**Radiated Emissions**  
**Pursuant to FCC Part 15 Section 15.277 Requirement**

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Average Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	27.145	68.1	16	15.4	0.0	67.5	80.0	-12.5
V	54.290	39.3	16	11.0	-	34.3	40.0	-5.7
H	81.435	43.1	16	7.0	-	34.1	40.0	-5.9
H	108.580	36.6	16	14.0	-	34.6	43.5	-8.9
H	135.725	36.4	16	14.0	-	34.4	43.5	-9.1
H	162.870	34.2	16	16.0	-	34.2	43.5	-9.3
H	190.015	33.9	16	16.0	-	33.9	43.5	-9.6
H	217.160	33.0	16	17.0	-	34.0	46.0	-12.0
H	244.305	30.5	16	20.0	-	34.5	46.0	-11.5
H	271.450	27.9	16	22.0	-	33.9	46.0	-12.1

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative sign in the column shows value below limit.
4. Loop antenna is used for the emissions below 30 MHz.
5. Horn antenna is used for the emissions over 1000MHz.

#### 4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.pdf and internal photos.pdf.

#### 5.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

#### 6.0 **Technical Specifications**

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

#### 7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

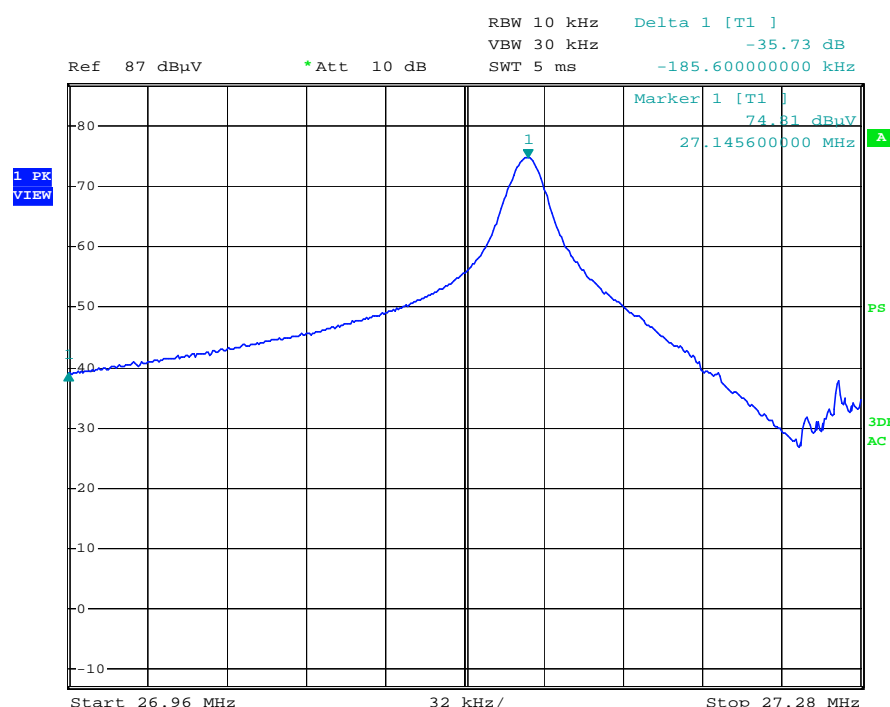
## 8.0 Miscellaneous Information

The miscellaneous information includes details of the test procedure and measured bandwidth / calculation of factor such as pulse desensitization and averaging factor.

### 8.1 Measured Bandwidth

The plot which shows the fundamental emission is confined in the specified band. And it also shows that the emission is at least 35.7 dB below the carrier level at the band edge (26.96 and 27.28 MHz). It meets the requirement of Section 15.227(b).

Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designed (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.



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## 8.2 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device. Since the transmitter transmits the RF signal continuously.

## 8.3 Calculation of Average Factor

The average factor is not applicable for this device as the transmitted signal is a continuously signal.

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## 9.0 **Equipment List**

### 1) Radiated Emissions Test

Equipment	EMI Test Receiver	Active Loop H-field	Biconical Antenna
Registration No.	EW-2666	EW-0191	EW-0954
Manufacturer	R&S	EMCO	EMCO
Model No.	ESCI7	6502	3104C
Calibration Date	May 21, 2012	Jan. 30, 2013	Apr. 30, 2013
Calibration Due Date	May 21, 2013	Jul. 30, 2014	Oct. 30, 2013

Equipment	Spectrum Analyzer	Log Periodic Antenna
Registration No.	EW-2188	EW-0447
Manufacturer	AGILENTTECH	EMCO
Model No.	E4407B	3146
Calibration Date	Nov. 05, 2012	Feb. 08, 2012
Calibration Due Date	Nov. 05, 2013	Aug. 08, 2013

### 3) Bandedge Measurement

Equipment	Spectrum Analyzer
Registration No.	EW-2466
Manufacturer	R&S
Model No.	FSP30
Calibration Date	Jul. 06, 2012
Calibration Due Date	Jul. 06, 2013