TEST REPORT

Report No.: 16060768HKG-001R1

Kidztech Toys Manufacturing Ltd.

Application
For
Certification
(Original Grant)
(FCC ID: OTM-8856116-27MTX)

Transmitter

This report supersedes previous report with report number 16060768HKG-001 dated June 27, 2016

Prepared and Checked by:	Approved by:
Signed On File Leung Sung Tak, Andy Assistant Engineer	Digitally signed by Koo Wai Ip Location: Intertek Testing Services Hong Kong Ltd. Koo Wai Ip Assistant Supervisor Date: July 25, 2016

GENERAL INFORMATION

Grantee:	Kidztech Toys Manufacturing Ltd.
Grantee Address:	Room 1201, 12/F., Inter-Continental Plaza, 94 Granville Road, Tsim Sha Tsui East, Kowloon, Hong Kong.
Contact Person:	Eric Ho
Tel:	852 2721 8868
Fax:	852 2721 8838
e-mail:	N/A
Manufacturer:	Shantou Chenghai JinJun Toys Co. Ltd.
Manufacturer Address:	Yongxin Industry Zone, Lianshang, Chenghai, Shantou, China
Brand Name:	Kidztech Toys
Model:	88561
Additional Model:	88571, 88581, 88591, 88601, 88611, 88621, 88631, 88641, 88651, 88741, 88781, 88791, 88801, 88811, 88562, 88572, 88582, 88592, 88602, 88612, 88622, 88632, 88642, 88652, 88742, 88782, 88792, 88802, 88812, 5F633F6, 5F633F7, 5F633F8, 058950, 090266, 225105, 897164, 897170, 897156, 771007, 1160486, 1160487, 0004660420
Type of EUT:	Transmitter
Description of EUT:	1/12 R/C Cars
Serial Number:	N/A
FCC ID:	OTM-8856116-27MTX
Date of Sample Submitted:	June 13, 2016
Date of Test:	June 13, 2016 to June 23, 2016
Report No.:	16060768HKG-001R1
Report Date:	July 25, 2016
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

SUMMARY OF TEST RESULT

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, 2014 Edition

Note: 1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the pervisions 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.
3. Please refer TY-S16-0192 Letter issued on July 25, 2016 for amendment/ supersede notification.

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1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a portable 27MHz Transmitter (Controller Unit) for a RC car.
The EUT is powered by 4X1.5V AA batteries. After switch on the EUT, the car can be controlled to move forward/backward and turn right/left by the controller.

The Model: 88571, 88581, 88591, 88601, 88611, 88621, 88631, 88641, 88651, 88741, 88781, 88791, 88801, 88811, 88562, 88572, 88582, 88592, 88602, 88612, 88622, 88632, 88642, 88652, 88742, 88782, 88792, 88802, 88812, 5F633F6, 5F633F7, 5F633F8, 058950, 090266, 225105, 897164, 897170, 897156, 771007, 1160486, 1160487 and 0004660420 are the same as the Model: 88561 in hardware aspect. The models are different in non conductive outer casing only.

Antenna Type: Internal, Integral antenna

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

1.2 Related Submittal(s) Grants

This is a single application for certification of a transmitter.

1.3 Test Methodology

Radiated emission measurements was performed according to the procedures in ANSI C63.10 (2013). All radiated measurements were performed in an 3m Chamber. Preliminary scans were performed in the 3m Chamber 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 3m Chamber facility used to collect the radiated data is located at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., 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 C63.10 (2013).

The device was powered by new 4X1.5V AA batteries.

For maximizing emissions below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 1 meter above the ground, and the antenna polarization was changed. For maximizing emission at and above 30 MHz, 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 report 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 receives / transmits the RF signal continuously.

2.3 Special Accessories

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

2.4 Measurement Uncertainty

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

2.5 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 dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
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 dBµV/m
RR = RA - AG - AV in dBµV
LF = CF + AF in dB

Assume a receiver reading of 52.0 dBµV 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 32 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 52.0 dBµV/m
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
AV = 5.0 dB
RR = 18.0 dBµV
LF = 9.0 dB
FS = RR + LF
FS = 18 + 9 = 27 dBµV/m

Level in µV/m = Common Antilogarithm [(27 dBµV/m)/20] = 22.4 µV/m

3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 27.145 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 19.1 dB

Applicant: Kidztech Toys Manufacturing Ltd. Date of Test: June 23, 2016
Model: 88561
Worst-Case Operating Mode: Transmitting

Table 1
Radiated Emissions
Pursuant to FCC Part 15 Section 15.227 Requirement

Polari-zation	Frequency (MHz)	Reading (dBμV)	Pre-Amp (dB)	Antenna Factor (dB)	Average Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	27.145000	61.5	16	15.4	0.0	60.9	80.0	-19.1
V	54.315000	23.3	16	11.0	-	18.3	40.0	-21.7
V	81.420000	18.8	16	7.0	-	9.8	40.0	-30.2
V	106.542500	7.3	16	14.0	-	5.3	43.5	-38.2
V	***113.042500***	***16.8***	***16***	***14.0***	***-***	***14.8***	***43.5***	***-28.7***
V	***116.780000***	***11.6***	***16***	***14.0***	***-***	***9.6***	***43.5***	***-33.9***
V	***131.892500***	***7.2***	***16***	***16.0***	***-***	***7.2***	***43.5***	***-36.3***
V	218.050000	3.0	16	16.0	-	3.0	43.5	-40.5
V	229.425000	4.8	16	17.0	-	5.8	46.0	-40.2
H	***269.335000***	***3.8***	***16***	***20.0***	***-***	***7.8***	***46.0***	***-38.2***

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 30MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205.

6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

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.

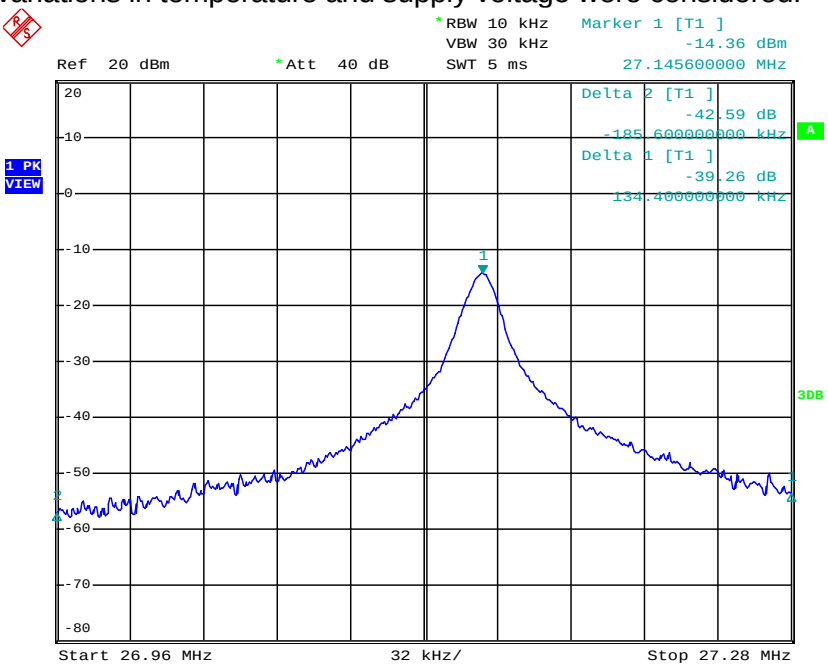
8.0 Miscellaneous Information

The miscellaneous information includes details of the test procedure.

8.1 Measured Bandwidth

The plot shows the fundamental emission is confined in the specified band. And it also shows that the emission is at least 39.26 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.



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.

8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of transmitter operating under the Part 15, Subpart C rules.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately 0.8m in height above the ground plane for emission measurement at or below 1GHz. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axis to obtain maximum emission levels. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Exhibit 8.3.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

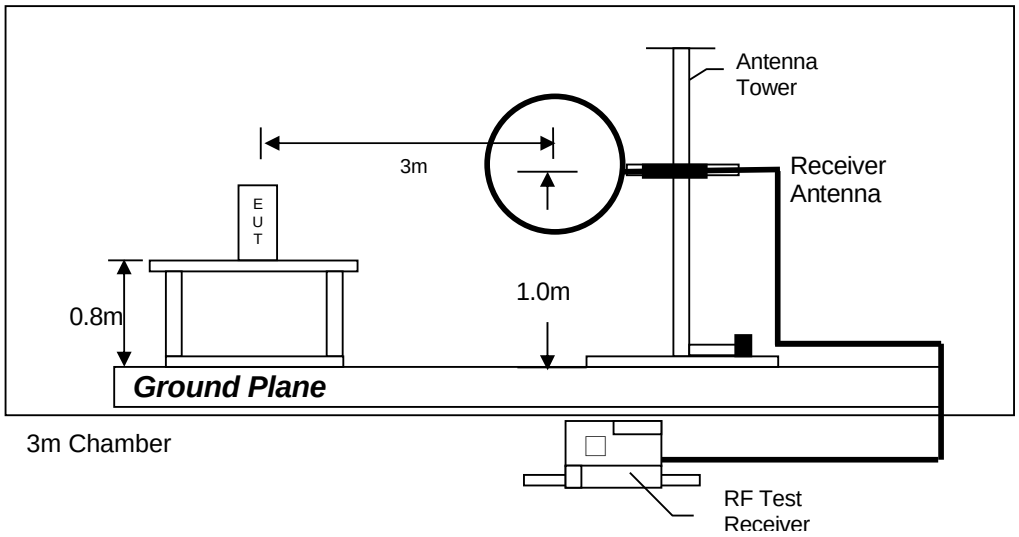
Conducted measurements were made as described in ANSI C63.10 (2013).

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.1). .

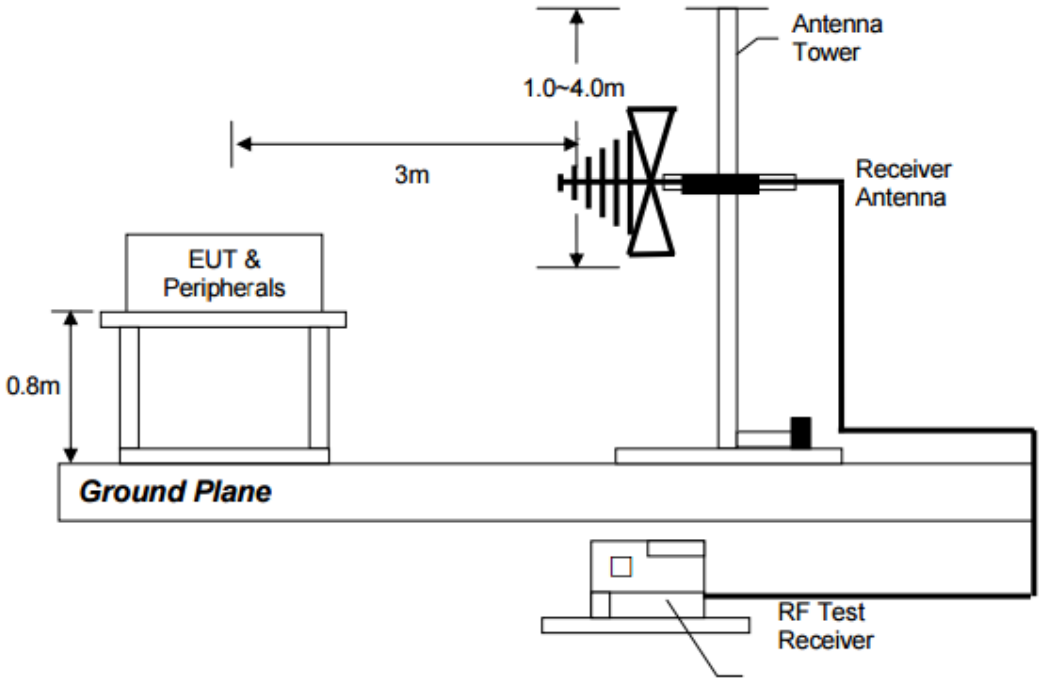
Transmitter measurements are normally conducted at a measurement distance of three meters. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

8.4.1 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 30MHz



Test setup of radiated emissions from 30MHz to 1GHz

9.0 **Equipment List**

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer	BiConiLog Antenna
Registration No.	EW-3156	EW-2466	EW-3061
Manufacturer	R&S	R&S	EMCO
Model No.	ESR26	FSP30	3412E
Calibration Date	Nov. 03, 2015	Sep. 16, 2015	Jul. 22, 2015
Calibration Due Date	Nov. 03, 2016	Aug. 20, 2016	Jul. 22, 2016

Equipment	Double Ridged Guide Antenna	Active Loop H-field
Registration No.	EW-1133	EW-0191
Manufacturer	EMCO	ELETROMETRIC
Model No.	3115	EM-6876
Calibration Date	Nov. 05, 2015	Mar. 11, 2016
Calibration Due Date	May 05, 2017	Sep. 11, 2017

2) Bandedge Measurement

Equipment	Spectrum Analyzer
Registration No.	EW-2249
Manufacturer	R&S
Model No.	FSP30
Calibration Date	Nov. 27, 2015
Calibration Due Date	Nov. 27, 2016

END OF TEST REPORT