



# CMA Testing and Certification Laboratories

廠商會檢定中心

## TEST REPORT

Report No. : AY0029192(1) Date : May 31, 2019

Application No. : LY014803(5)

Client : Kidztech Toys Manufacturing Limited  
Room 1201, 12/F., Inter-Continental Plaza,  
94 Granville Road, Tsim Sha Tsui East,  
Kowloon, Hong Kong

Sample Description : One(1) item of submitted sample stated to be:

| Sample Description | Model No.                                |
|--------------------|------------------------------------------|
| 1/26 R/C Cars      | 89025, other models see page 3 in detail |

Radio Frequency : 49.860MHz  
Rating : 1 x 9V battery  
No. of submitted sample : One (1) piece (s)  
Sample registration No. : RY008983-001

Date Received : May 17, 2019

Test Period : May 17 2019 – 31 May 2019

Test Requested : FCC 47CFR Part 15 Certification.

Test Method : 47 CFR Part 15 (10-1-18 Edition)  
ANSI C63.10 – 2013

Test Result : See attached sheet(s) from page 2 to 15.

Conclusion : The submitted sample was found to comply with requirement of FCC 47CFR Part 15 Subpart C.

For and on behalf of  
CMA Industrial Development Foundation Limited

Authorized Signature : \_\_\_\_\_

Mr. WONG Lap-pong, Andrew  
Manager

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### 1 General Information

#### 1.1 General Description

The equipment under test (EUT) model 89025 is a remote controlled toys. It operates at frequency band 49.86MHz for transmitter. The oscillation of radio control is generated by a 49.860MHz crystal (Y1) and modulated by encoder TX-2. The EUT is powered by one 9V battery. The EUT contains two control levers to control moving direction and a ON/OFF switch (K1).

The wire antenna is used in EUT and the radio output power is unable to adjust.

Model No.: 89025 / 89021 / 89051 / 89055 / 89071 / 89075 / 89091 / 89095 / 89101 / 89105 / 89111 / 89115 / 89121 / 89125 / 89131 / 89135 / 89181 / 89185 / 89221 / 89225 / 89231 / 89235 / 89241 / 89245 / 89251 / 89255 / 89261 / 89265 / 89281 / 89285 / 89301 / 89305 / 89311 / 89315 / 89331 / 89335 / 89341 / 89345 / 89351 / 89355 / 89381 / 89385 / 89391 / 89395 / 89401 / 89405 / 89411 / 89415 / 89421 / 89425 / 89431 / 89435 / 89481 / 89485 / 89471 / 89475 / 89511 / 89515 / 89451 / 89455 / 89441 / 89445 / 89286 / 89136 / 89246 / 89346 / 5F633F9 are identical in cosmetics, material PCB layout, electrical, mechanical and physical design, including software/firmware and they are difference in non-conductive outer casing of receiver only.

Therefore, only model, 89025 is selected as representative model for testing only.

The brief circuit description is listed as follows:

- |                      |                                                                |
|----------------------|----------------------------------------------------------------|
| - S1-S4 and K1       | and its associated circuit act as switch and control lever.    |
| - U1                 | and its associated circuit act as Encoder.                     |
| - Y1                 | and its associated circuit act as oscillation clock.           |
| - Q1                 | and its associated circuit act as modulator.                   |
| - Q2                 | and its associated circuit act as RF amplifier.                |
| - C1, C2, C3, T1, L1 | and its associated circuit act as Filter and Antenna matching. |
| - ZD1                | and its associated circuit act as Regulator circuit            |

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### 1.2 Location of the test site

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2014. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at:

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2014. A shielded room is located at :

Ground Floor, Yan Hing Centre,  
9 – 13 Wong Chuk Yeung Street,  
Fo Tan, Shatin,  
New Territories,  
Hong Kong.

FCC Accredited Lab (Designation Number: HK0004)  
Conformity Assessment Body Identifier (CABID: HK0002)

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### 1.3 List of measuring equipment

| Equipment            | Manufacturer    | Model No. | Serial No. | Calibration Due Date | Calibration Period |
|----------------------|-----------------|-----------|------------|----------------------|--------------------|
| EMI Test Receiver    | Rohde & Schwarz | ESCI      | 100152     | 31 May 2020          | 1Year              |
| Spectrum Analyzer    | Rohde & Schwarz | FSV40     | 100964     | 11 Sep 2019          | 1Year              |
| Loop Antenna         | EMCO            | 6502      | 00056620   | 29 Oct 2020          | 2Years             |
| Biconical Antenna    | Rohde & Schwarz | HK116     | 837414/004 | 08 Oct 2020          | 2Years             |
| Log Periodic Antenna | TESEQ           | UPA6109   | 43666      | 08 Oct 2019          | 2Years             |
| Coaxial Cable        | Humber+Suhner   | RG 213/U  | N/A        | 08 May 2020          | 1Year              |
| Coaxial Cable        | Humber+Suhner   | RG 214/U  | N/A        | 08 May 2020          | 1Year              |

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### 1.4 Measurement Uncertainty

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95%.

#### Radiated emissions

| Frequency                     | Uncertainty ( $U_{lab}$ ) |
|-------------------------------|---------------------------|
| 30MHz ~ 200MHz (Horizontal)   | 4.59dB                    |
| 30MHz ~ 200MHz (Vertical)     | 4.49dB                    |
| 200MHz ~ 1000MHz (Horizontal) | 4.94dB                    |
| 200MHz ~ 1000MHz (Vertical)   | 4.97dB                    |
| 1GHz ~ 6GHz                   | 4.52dB                    |

### 1.5 Test Summary

| TEST ITEM            | FCC REFERENCE | RESULT |
|----------------------|---------------|--------|
| Fundamental emission | 15.235(a)     | Comply |
| Out-band emission    | 15.235(b)     | Comply |
| Bandwidth            | 15.215(c)     | Comply |

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### 2 Description of the radiated emission test

#### 2.1 Test Procedure

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.10 – 2013.

A non-conductive turntable with dimensions of 1.5m x 0.4m x 0.8m (L x W x H) placed above the reference ground plane. The equipment under test (EUT) was placed at 0.8m height for below 1GHz measurement and 1.5m height for above 1GHz measurement. The test distance is 3m between EUT and receiving antenna. A broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was 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. Additional absorbing material will be placed between the EUT and receiving antenna for above 1GHz measurement.

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 1 m above the ground.

The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.

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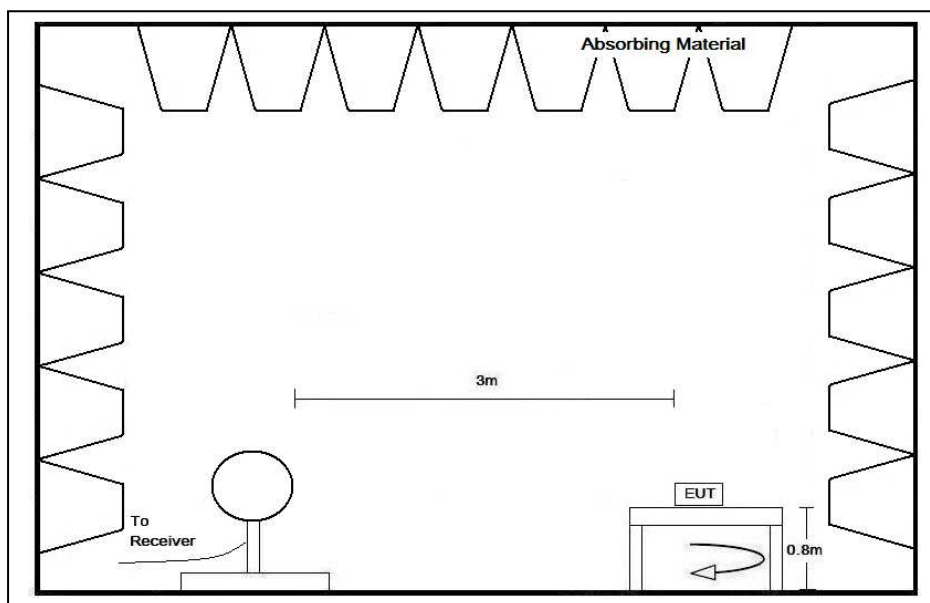
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## TEST REPORT

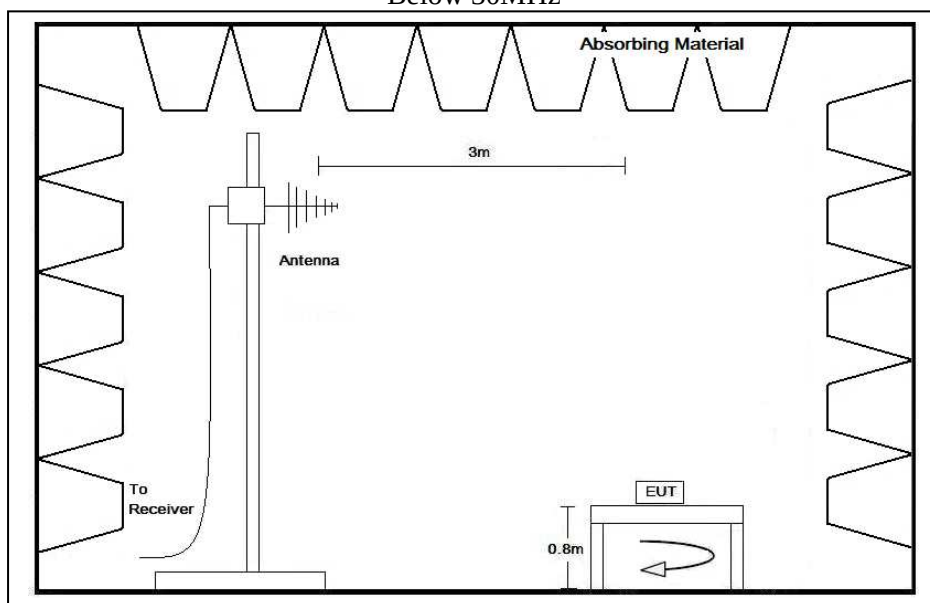
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### 2.2 Test Setup



Below 30MHz



30MHz – 1GHz

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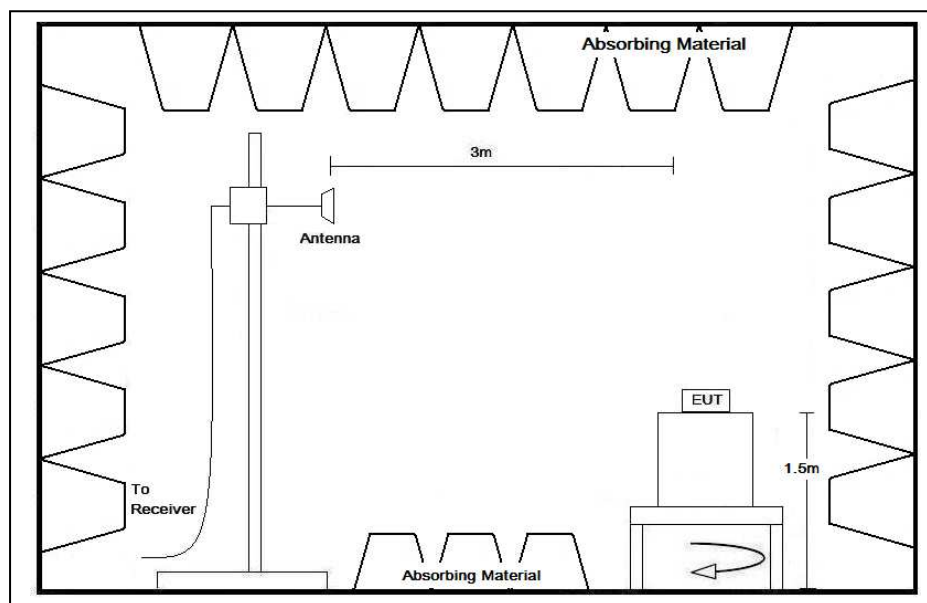
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### 2.2 Test Setup



Above 1GHz

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### 2.3 Test Result

Peak Detector data was measured unless otherwise stated.

The radiated emissions are measured from 9kHz to 500MHz (the tenth harmonics)

The worst case configuration is shown on the worst case configuration of test setup photo.

The frequencies from fundamental up to tenth harmonics were investigated, and emissions more 20dB below limit were not reported. Thus, those highest emissions were presented in next pages.

The EUT has been tested in Transmission mode and antenna is fully extended.

It was found that the EUT meet the FCC requirement.

The Receiver (CAR) for this Transmitter (Remove) is under Supplier's Declaration of Conformity procedure.

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### 2.4 Radiated Emission Measurement Data

#### Radiated emission

##### Environmental conditions:

| Parameter            | Recorded value |     |
|----------------------|----------------|-----|
| Ambient temperature: | 25.2           | ° C |
| Relative humidity:   | 53.9           | %   |

| Polarization | Frequency (MHz) | Reading at 3m (dBμV) | Antenna Factor and Cable Loss (dB/m) | Field Strength at 3m (dBμV/m) | Limit at 3m (dBμV/m) | Margin (dB) | Detector Type |
|--------------|-----------------|----------------------|--------------------------------------|-------------------------------|----------------------|-------------|---------------|
| H            | 49.860          | 50.1                 | 11.3                                 | 61.4                          | 80.0                 | -18.6       | PK            |
| V            | 49.860          | 58.6                 | 11.3                                 | 69.9                          | 80.0                 | -10.1       | PK            |
| H            | 99.695          | 19.2                 | 10.2                                 | 29.4                          | 43.5                 | -14.1       | QP            |
| H            | 149.583         | 10.0                 | 13.5                                 | 23.5                          | 43.5                 | -20.0       | QP            |
| H            | 199.391         | 7.5                  | 15.3                                 | 22.8                          | 43.5                 | -20.7       | QP            |
| H            | 249.253         | 11.6                 | 14.5                                 | 26.1                          | 46.0                 | -19.9       | QP            |
| V            | 299.194         | 13.2                 | 14.5                                 | 27.7                          | 46.0                 | -18.3       | QP            |
| V            | 349.015         | 13.0                 | 16.9                                 | 29.9                          | 46.0                 | -16.1       | QP            |
| V            | 398.845         | 14.8                 | 16.9                                 | 31.7                          | 46.0                 | -14.3       | QP            |
| V            | 488.691         | 11.2                 | 20.9                                 | 32.1                          | 46.0                 | -13.9       | QP            |
| H            | 498.554         | 11.5                 | 20.9                                 | 32.4                          | 46.0                 | -13.6       | QP            |

Remark: All other emission below the limit more than 20dB are not reported in this report.

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### 3 Description of the Line-conducted Test

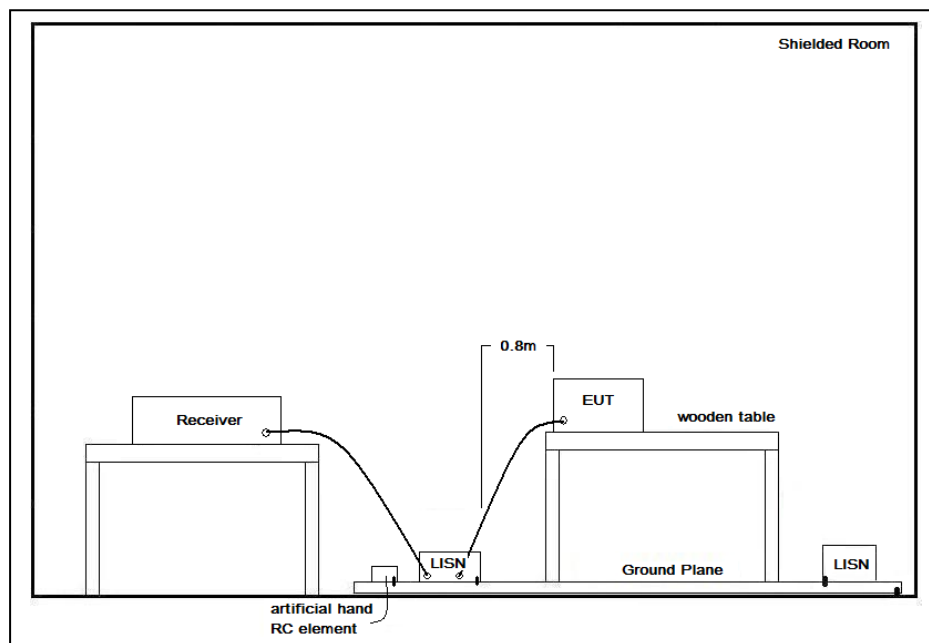
#### 3.1 Test Procedure

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.10 – 2013. The EUT was setup as described in the procedures, and both lines were measured.

#### 3.2 Test Result

No measurement is required as the EUT is a battery-operated product.

#### 3.3 Test Setup



#### 3.4 Graph and Table of Conducted Emission Measurement Data

Not Applicable

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### 4 Supplementary document

The following document were submitted by applicant, and for electronic filing, the document are saved with the following filenames:

| Document                | Filename                       |
|-------------------------|--------------------------------|
| ID Label/Location       | Label Artwork and Location.pdf |
| Block Diagram           | Block Diagram.pdf              |
| Schematic Diagram       | Schematic.pdf                  |
| Users Manual            | User Manual.pdf                |
| Operational Description | Operation Description.pdf      |

#### 4.1 Bandwidth

Appendices A1 is shown the fundamental emission is confined in the specified band. 20dB bandwidth is 9.43kHz and 20dB bandwidth are within the assigned band. It shows that the EUT meets the FCC Part 15.215(c).

And the in-band emission is more than 26dBc within the band 49.81 – 49.91MHz. It shows that the EUT meets the FCC Part 15.235(b).

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### 5 Appendices

A1. Bandwidth Plot 1 page(s)

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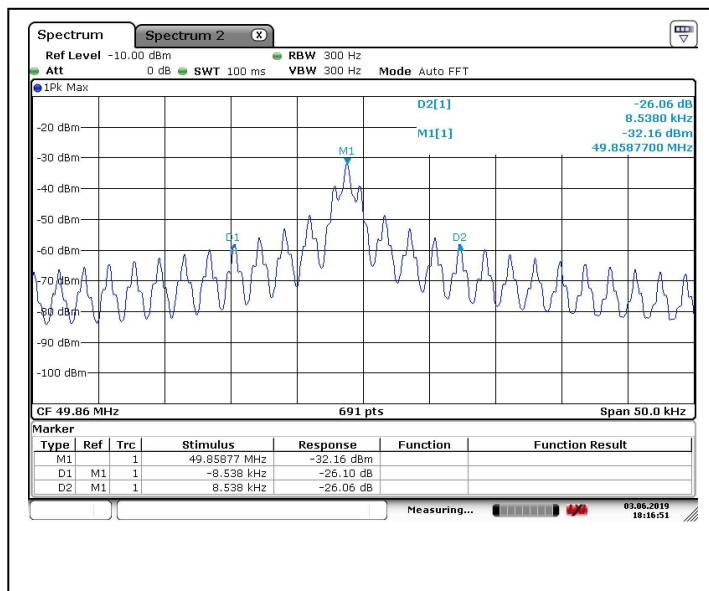
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### A1. Bandwidth Plot



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

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