

# TEST REPORT

**Application No.:** SZEM2109008756ET (SGS SZ No.: T52110300121EM)  
**Applicant:** Znatok Group Limited  
**Address of Applicant:** Flat A, 2/F. Lee Man Commercial Building 105 Bonham Strand East Sheung Wan, Hong Kong.  
**Equipment Under Test (EUT):**  
**EUT Name:** ELECTRONIC TOYS  
**Item No.:** #188  
**Standard(s) :** EN 55014-1: 2017+A11:2020  
EN 55014-2: 2015  
**Date of Receipt:** 2021-09-27  
**Date of Test:** 2021-09-30  
**Date of Issue:** 2021-10-08

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu  
EMC Laboratory Manager



<b>Revision Record</b>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2021-10-08		Original

<b>Authorized for issue by:</b>				
		<i>Martin Tang</i>		
		<b>Martin Tang/Project Engineer</b>		
		<i>Eric Fu</i>		
		<b>Eric Fu/Reviewer</b>		



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## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions (30MHz-1GHz)	EN 55014-1: 2017+A11:2020	CISPR 16-2-3	Table 9	Pass
Immunity	EN 55014-2:2015	N/A	Clause 7.1.3 of EN 55014-2	Pass

N/A: Not applicable. Please refer to Section 7 for further details.

The EUT belongs to Category C of EN 55014-1:2017+A11:2020

The EUT belongs to Category I of EN 55014-2:2015



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	3V DC(1.5V x 2 "AA" Size Batteries) 3V DC(1.5V x 2 "AA" Size Batteries)
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### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
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The EUT has been tested as an independent unit.			

### 4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions (30MHz-1GHz)	± 6.1dB
Remark: The $U_{lab}$ (lab Uncertainty) is less than $U_{CISPR}$ (CISPR Uncertainty), so the test results – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.	

#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

Room 105, Building A, Xinlong Technology Industrial Park, No. 50 Fengtang Road, Xintian Community, Fuyong Street, Bao'an District, Shenzhen, China

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None



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## 5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
966 Anechoic Chamber	CRT	N/A	SEM001-13	2019-10-12	2022-10-11
EMI Test Receiver	Agilent	N9038A	SEM004-05	2021-09-18	2022-09-17
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-26	2019-10-14	2022-10-13
Double-Ridged Waveguide Horn	ETS-LINDGREN	3117	SEM003-10	2020-05-27	2023-05-26
Pre-Amplifier	HP	8447D	SEM005-02	2021-09-15	2022-09-14
Pre-Amplifier	HP	8347A	SEM005-07	2020-11-02	2021-11-01
Coaxial Cable	SGS	N/A	SEM035-01	2021-05-17	2022-05-16
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-23	2021-09-14	2022-09-13
Humidity/ Temperature Indicator	MINGGAO	TH607	SEM002-17	2021-09-14	2022-09-13
Barometer	Shanghai Meteorological Industry Factory	DYM3	SEM002-24	2021-09-21	2022-09-20

## 6 Emission Test Results

### 6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN 55014-1: 2017+A11:2020  
 Test Method: CISPR 16-2-3  
 Measurement Distance: 3m

Limit:

FREQUENCY (MHz)	dB( $\mu$ V/m) At 10m	dB( $\mu$ V/m) At 3m
30MHz-230MHz	30	40
230MHz-1GHz	37	47

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

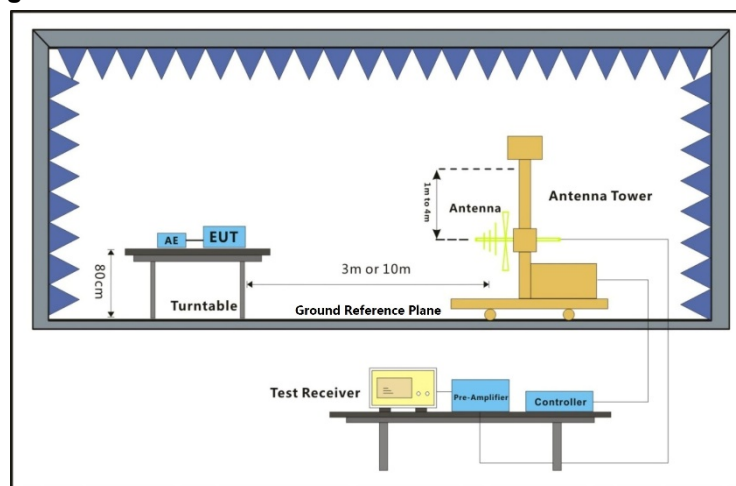
#### 6.1.1 E.U.T. Operation

Operating Environment:  
 Temperature: 22.3 °C Humidity: 51.3 % RH Atmospheric Pressure: 1010 mbar

#### 6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	On mode,keep EUT sounding,lighting and motor running.

#### 6.1.3 Test Setup Diagram





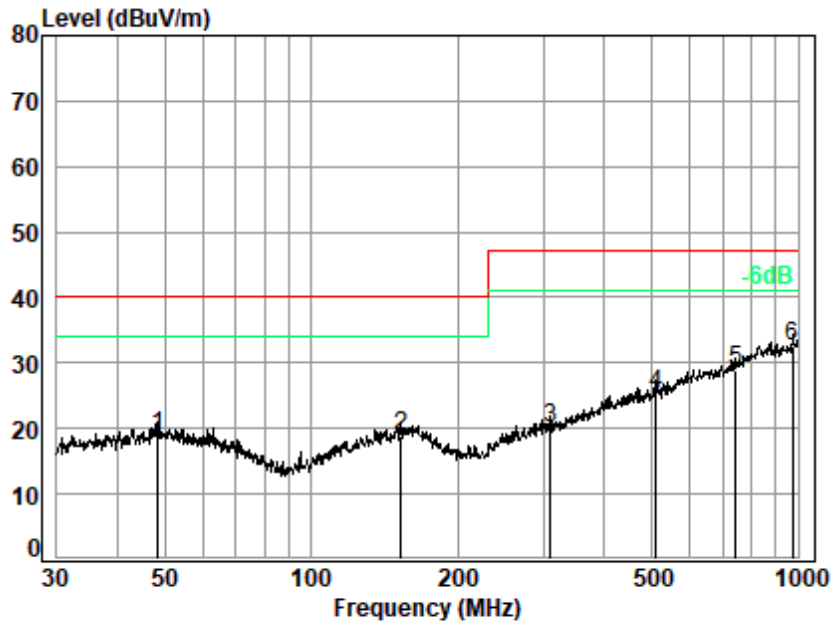
#### 6.1.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



Test Mode: 00; Polarity: Horizontal

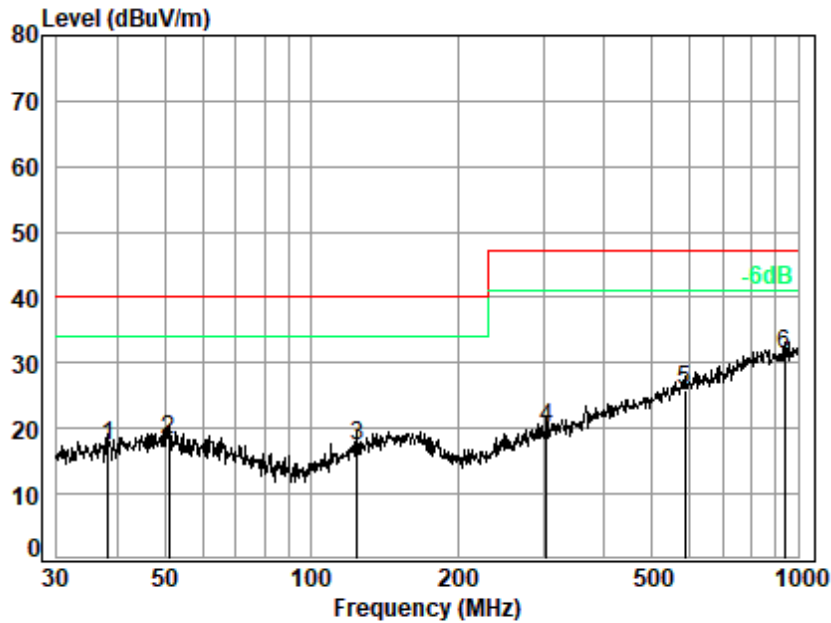


Site : chamber  
Condition: 3m HORIZONTAL  
Job No : 08756ET  
Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	48.5016	0.22	20.00	25.86	24.51	18.87	40.00	-21.13	QP
2	153.2004	0.83	19.33	25.53	24.21	18.84	40.00	-21.16	QP
3	309.9977	1.11	19.80	25.18	24.27	20.00	47.00	-27.00	QP
4	510.0436	1.49	24.00	26.40	26.14	25.23	47.00	-21.77	QP
5	744.8661	1.88	28.00	26.65	25.56	28.79	47.00	-18.21	QP
6 p	975.7529	2.37	30.08	26.07	26.10	32.48	47.00	-14.52	QP



Test Mode: 00; Polarity: Vertical



Site : chamber  
Condition: 3m VERTICAL  
Job No : 08756ET  
Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1	38.2120	0.20	19.13	25.88	23.80	40.00	-22.75	QP
2	50.9420	0.22	19.95	25.86	23.95	40.00	-21.74	QP
3	124.1330	0.93	17.52	25.66	24.61	40.00	-22.60	QP
4	304.6100	1.06	19.64	25.14	24.39	47.00	-27.05	QP
5	586.8437	2.05	25.51	26.75	25.14	47.00	-21.05	QP
6 p	938.8326	2.12	29.88	26.17	25.43	47.00	-15.74	QP



## 7 Immunity Test Results

Test Requirement: EN 55014-2:2015

Test Method: N/A: See Remark Below

There is no need for immunity tests to be performed on this product in accordance with clause 7.1.3 of EN 55014-2 which states:

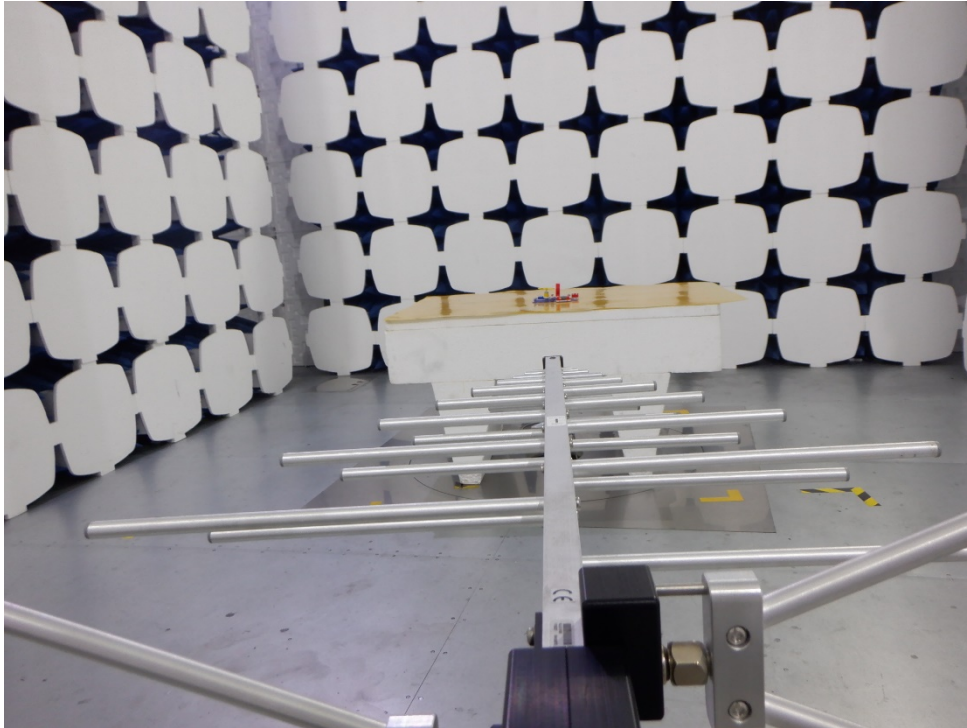
“Regardless of their category, experimental kits intended for education and play are deemed to fulfil the immunity requirements, and are not tested.”



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### 8 Test Setup Photo

#### Radiated Emissions (30MHz-1GHz)



### 9 EUT Constructional Details (EUT Photos)





- End of the Report -