

EMC TEST REPORT

For

eKids, LLC. / KIDDESIGNS INC.

DISNEY FROZEN II LIGHT AND MUSIC SET

Model No.: FR-300, FR-300.11Mv9M (FR-V111, XX-V111 [XX denotes
the brand name])

Prepared for : eKids, LLC. / KIDDESIGNS INC.
Address : 1299, Main Street, Rahway, NJ 07065, U.S.A.

Prepared By : EMTEK(DONGGUAN) CO., LTD.
Address : -1&2/F., Building 2, Zone A, Zhongda Marine
Biotechnology Reserch and Development Base, No.9,
Xincheng Avenue, Songshanhu High-technology
Industrial Development Zone, Dongguan, Guangdong,
China
Tel : +86-769-22807078
Fax: +86-769-22807079

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Date of Test : July 17, 2019 to July 25, 2019
Date of Report : July 25, 2019

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TEST REPORT DESCRIPTION

Applicant : eKids, LLC. / KIDDESIGNS INC.
Manufacturer : eKids, LLC. / KIDDESIGNS INC.
EUT : DISNEY FROZEN II LIGHT AND MUSIC SET
Model No. : FR-300, FR-300.11Mv9M (FR-V111, XX-V111 [XX denotes the brand name])
Input Rating : DC 3V

Measurement Procedure Used:

EN 55032: 2015+AC: 2016

EN 55035: 2017

(IEC 61000-4-2: 2008, IEC61000-4-3: 2006+A1:2007+A2: 2010)

The device described above is tested by EMTEK(DONGGUAN) CO., LTD. and EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK(DONGGUAN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the EN 55032 and EN 55035 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK(DONGGUAN) CO., LTD.

Date of Test : July 17, 2019 to July 25, 2019

Stella Fan

Prepared by : Stella Fan / Editor

Galen Xiao

Reviewer : Galen Xiao / Supervisor

[Signature] 

Approved & Authorized Signer : Sam Lv / Manager

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	ED190717033E

1. DESCRIPTION OF STANDARDS AND RESULTS

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted Disturbance at Mains Terminals	EN 55032: 2015+AC: 2016	Clause 5	N/A
Radiated Disturbance	EN 55032: 2015+AC: 2016	Clause 5	Pass
IMMUNITY			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic Discharge (ESD)	IEC 61000-4-2: 2008	B	Pass
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3: 2006 +A1: 2007+A2: 2010	A	Pass
Note: 1. N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1 Description of Device (EUT)

EUT : DISNEY FROZEN II LIGHT AND MUSIC SET

Model Number : FR-300, FR-300.11Mv9M (FR-V111, XX-V111 [XX denotes the brand name])
(Note: These models are the same except the model name and appearance. Here FR-V111 was selected for test.)

Trade Mark : N/A

Power Supply for Test : DC 3V

Test Mode : AUX IN ,Play internal music, Mic in

Applicant : eKids, LLC. / KIDDESIGNS INC.

Address : 1299, Main Street, Rahway, NJ 07065, U.S.A.

Manufacturer : eKids, LLC. / KIDDESIGNS INC.

Address : 1299, Main Street, Rahway, NJ 07065, U.S.A.

Factory : DJ Toys

Country of Origin : CHINA

Country of Destination : EU

Date of sample received : July 17, 2019

Date of Test : July 17, 2019 to July 25, 2019

2.2 Description of Support Device

N/A

2.3 Description of Test Facility

Site Description

EMC Lab : Accredited by CNAS, 2018.07.06
The certificate is valid until 2024.07.05
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2006
The Certificate Registration Number is L3150

Registered on Industry Canada, January 13, 2017
The Certificate Number is 9444A

Name of Firm : EMTEK(DONGGUAN) CO., LTD.
Site Location : -1&2/F., Building 2, Zone A, Zhongda Marine Biotechnology Reserch and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

2.3 Measurement Uncertainty

Test Item	Uncertainty
Radiated Emission Uncertainty (3m Chamber)	: 3.34dB (30M~1GHz Polarize: H) 3.32dB (30M~1GHz Polarize: V)
Uncertainty for R/S Test	: 2.10dB(80MHz-200MHz) 1.76dB(200MHz-1000MHz)
Uncertainty for test site temperature and humidity	: 0.6℃ 4%

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1 For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	101415	May 23, 2019	1 Year
2.	Bilog Antenna	Schwarzbeck	VULB9163	9163-143	May 23, 2019	1 Year
3.	Power Amplifier	HP	8447F	EED184	May 23, 2019	1 Year
4.	Cable	N/A	CBL-26	N/A	May 23, 2019	1 Year
5.	Cable	N/A	CBL-26	N/A	May 23, 2019	1 Year
6.	Cable	N/A	CBL-26	N/A	May 23, 2019	1 Year
7.	Signal Analyzer	R&S	FSV30	103040	May 23, 2019	1 Year
8.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1272	May 23, 2019	1 Year
9.	Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	May 23, 2019	1 Year
10.	Cable	H+S	RG 233/U	525178	May 23, 2019	1 Year
11.	Cable	H+S	RG 233/U	528948 WP	May 23, 2019	1 Year
12.	Cable	H+S	RG 233/U	525179	May 23, 2019	1 Year

3.2 For Electrostatic Discharge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	TESEQ	NSG437	409	May 23, 2019	1 Year

3.3 For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Signal Generator	Agilent	N5181A	MY50145187	May 23, 2019	1 Year
2	RF Power Meter. Dual Channel	BOONTON	4232A	10539	May 23, 2019	1 Year
3	50ohm Diode Power Sensor	BOONTON	51011EMC	34236/34238	May 23, 2019	1 Year
4	Field Strength Meter	DARE	RSS1006A	10I00037SO22	May 23, 2019	1 Year
5	50ohm Diode Power Sensor	BOONTON	51011EMC	36164	May 23, 2019	1 Year
6	Power Amplifier	MILMEGA	80RF1000-175	1059345	May 23, 2019	1 Year
7	Power Amplifier	MILMEGA	AS0102-55	1018770	May 23, 2019	1 Year
8	Power Amplifier	MILMEGA	AS1860-50	1059346	May 23, 2019	1 Year
9	Log.-Per. Antenna	Schwarzbeck	VULP 9118E	811	May 23, 2019	1 Year
10	Broad-Band Horn Antenna	Schwarzbeck	STLP 9149	9149-227	May 23, 2019	1 Year
11	Multi-function interface system	DARE	CTR1009B	12I00250SNO72	N/A	N/A
12	Automatic switch group	DARE	RSW1004A	N/A	N/A	N/A

4. RADIATED EMISSION MEASUREMENT

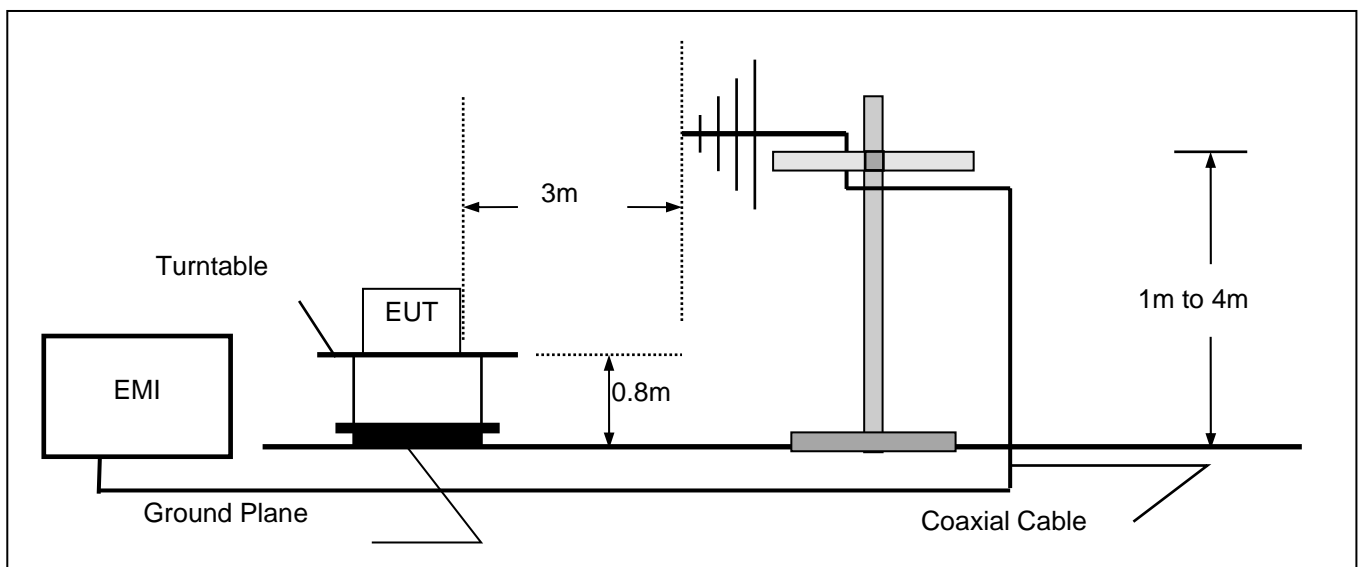
4.1 Block Diagram of Test

4.1.1 Block diagram of connection between the EUT and simulators



(EUT: DISNEY FROZEN II LIGHT AND MUSIC SET)

4.1.2 Block diagram of test setup (In chamber)



(EUT: DISNEY FROZEN II LIGHT AND MUSIC SET)

4.2 Measuring Standard

EN 55032: 2015+AC: 2016

4.3 Radiated Emission Limits

All emanations from a device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Limits below 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.
(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

4.4 EUT Configuration on Test

The EN 55032 regulations test method must be used to find the maximum emission during radiated emission measurement.

EUT : DISNEY FROZEN II LIGHT AND MUSIC SET
Model Number : FR-V111

4.5 Operating Condition of EUT

Step 1: Turn on the power.

Step 2: Let the EUT work in test mode (AUX IN ,Play internal music, Mic in) and measure it.

4.6 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meter to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarizations of the antenna are set on test.

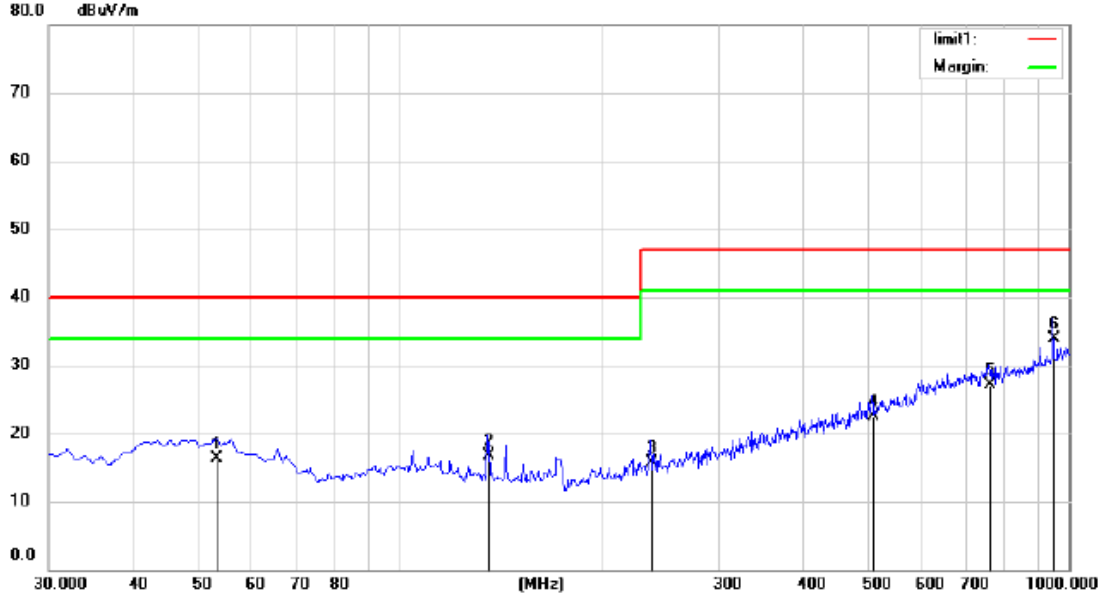
The bandwidth of the Receiver (ESCI) is set at 120kHz.

4.7 Test Results

PASS.

The frequency range from 30MHz to 1000MHz is investigated.

All the worst test mode (Mic in) data are listed in the following pages.

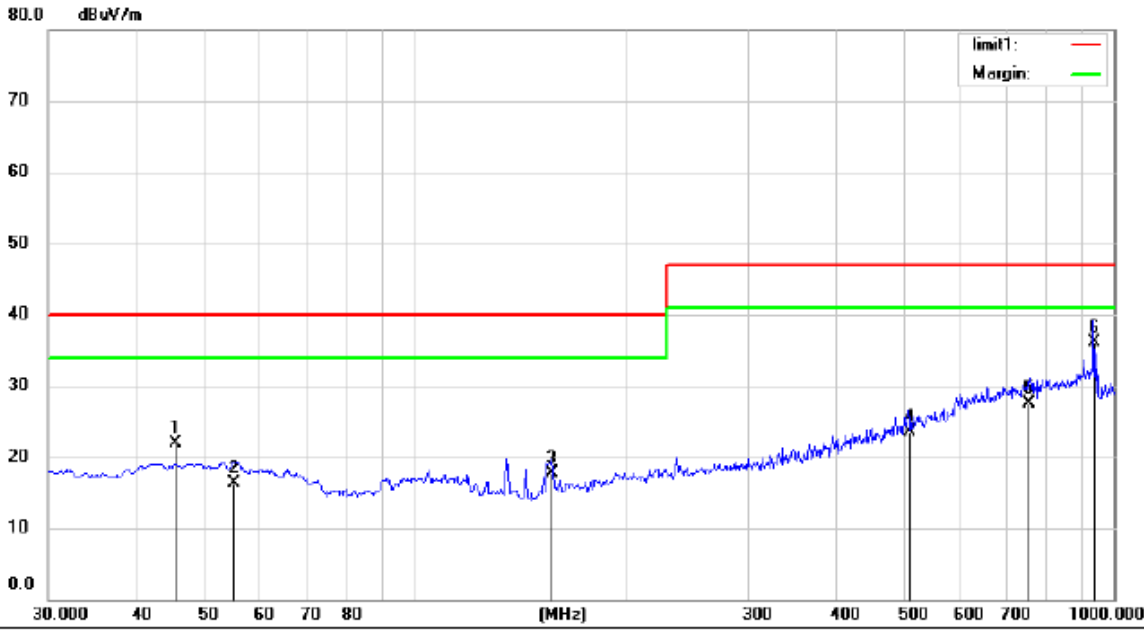


Site Chamber #1 Polarization: *Horizontal* Temperature: 26
 Limit: (RE)EN55032_class B_3m Power: DC 3V Humidity: 55 %
 Mode: MIC IN
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		53.2800	32.00	-15.73	16.27	40.00	-23.73	QP		
2		135.7300	38.18	-21.55	16.63	40.00	-23.37	QP		
3		237.5800	31.72	-15.92	15.80	47.00	-31.20	QP		
4		509.1800	31.10	-8.69	22.41	47.00	-24.59	QP		
5		762.3500	30.60	-3.54	27.06	47.00	-19.94	QP		
6	*	951.5000	34.47	-0.48	33.99	47.00	-13.01	QP		

*:Maximum data x:Over limit !:over margin

Operator: HUANG



Site Chamber #1 Polarization: *Vertical* Temperature: 26
 Limit: (RE)EN55032_class B_3m Power: DC 3V Humidity: 55 %
 Mode: MIC IN
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		45.5347	37.75	-15.79	21.96	40.00	-18.04			QP
2		55.2200	32.32	-15.97	16.35	40.00	-23.65			QP
3		157.0700	38.50	-20.87	17.63	40.00	-22.37			QP
4		509.1800	32.11	-8.69	23.42	47.00	-23.58			QP
5		754.5900	31.12	-3.54	27.58	47.00	-19.42			QP
6	*	937.9200	36.90	-0.82	36.08	47.00	-10.92			QP

*:Maximum data x:Over limit !:over margin Operator: HUANG

5. ELECTROSTATIC DISCHARGE TEST

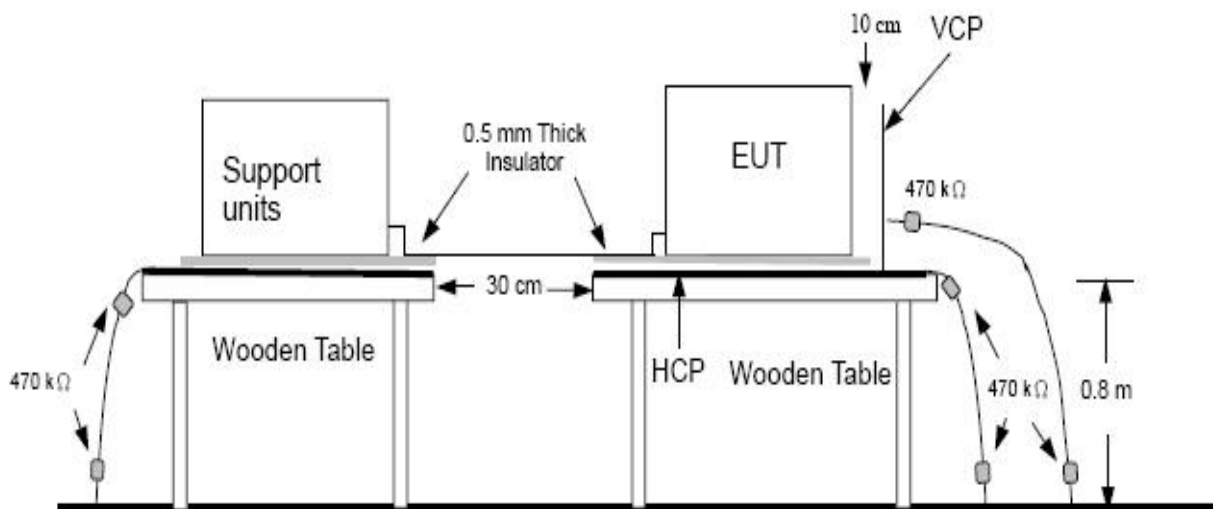
5.1 Block Diagram of Test Setup

5.1.1 Block diagram of connection between the EUT and simulators



(EUT: DISNEY FROZEN II LIGHT AND MUSIC SET)

5.1.2 Block Diagram of ESD Test Setup



Ground Reference Plane

(EUT: DISNEY FROZEN II LIGHT AND MUSIC SET)

5.2 Test Standard

EN 55035: 2017

(IEC 61000-4-2: 2008 (Severity Level: 2 /Contact Discharge: $\pm 4\text{KV}$; Severity Level: 3 / Air Discharge: $\pm 8\text{KV}$))

5.3 Severity Levels and Performance Criterion

5.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

Performance criterion: B

5.4 EUT Configuration

The configuration of EUT is listed in Section 5.1

5.5 Operating Condition of EUT

Step 1: Setup the EUT as shown in Section 5.1.

Step 2: Turn on the power of all equipments.

Step 3: Let the EUT work in test mode (AUX IN ,Play internal music,Mic in) and measure it.

5.6 Test Procedure

5.6.1 Air Discharge

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 25 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

5.6.2 Contact Discharge

All the procedure shall be same as Section 5.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

5.6.3 Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

5.6.4 Indirect discharge for vertical coupling plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

5.7 Test Results

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

EMTEK(DONGGUAN) CO., LTD.

Applicant : eKids, LLC. / KIDDESIGNS INC.	Test Date : July 23, 2019	
EUT : DISNEY FROZEN II LIGHT AND MUSIC SET	Temperature : 24°C	
M/N : FR-V111	Humidity : 53%	
Power Supply : DC 3V	Test Engineer: Lin	
Test Mode : AUX IN ,Play internal music,Mic in	Criterion : B	
Contact Discharge:±2,4KV Air Discharge:±2,4,8KV # For Positive and negative each 10/25 times		
Location	Kind A-Air Discharge C-Contact Discharge	Result
Screw	C	PASS
Gap	A	PASS
HCP	C	PASS
VCP	C	PASS
Plastic enclosure	A	PASS
Button	A	PASS
Remark:	Test Equipment : ESD Tester (TESEQ, 409)	

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

6. RF FIELD STRENGTH SUSCEPTIBILITY TEST

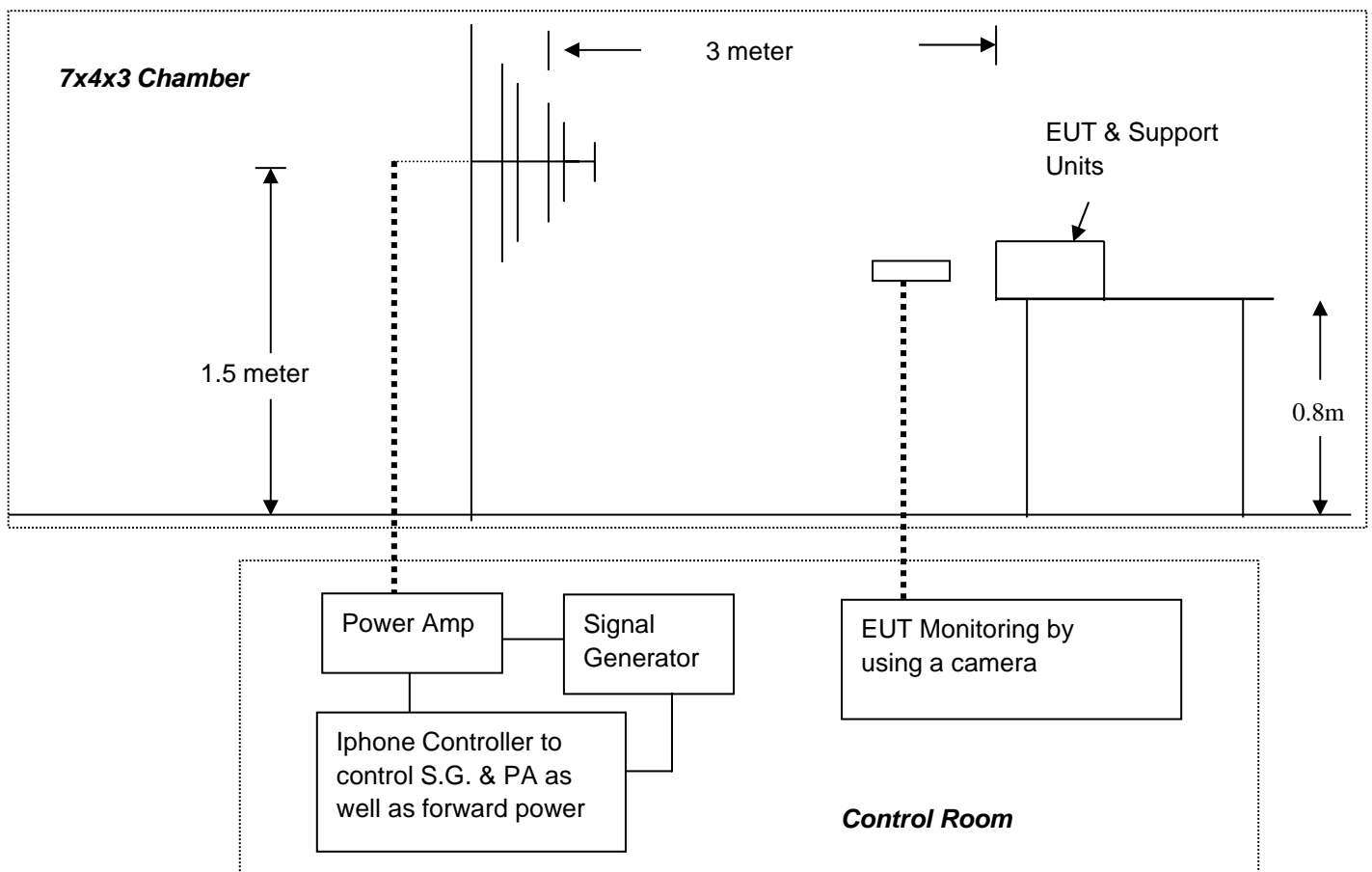
6.1 Block Diagram of Test Setup

6.1.1 Block diagram of connection between the EUT and simulators



(EUT: DISNEY FROZEN II LIGHT AND MUSIC SET)

6.1.2 Block diagram of R/S test set up



(EUT: DISNEY FROZEN II LIGHT AND MUSIC SET)

6.2 Test Standard

EN 55035: 2017

(IEC 61000-4-3: 2006+A1: 2007+A2: 2010 (Severity Level 2, 3V / m))

6.3 Severity Levels and Performance Criterion

6.3.1 Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

Performance criterion: A

6.4 EUT Configuration

The configurations of EUT are listed in Section 6.1.

6.5 Operating Condition of EUT

Step 1: Setup the EUT as shown in Section 6.1.

Step 2: Turn on the power of all equipments.

Step 3: Let the EUT work in test mode (AUX IN ,Play internal music,Mic in) and measure it.

6.6 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80 - 1000 MHz,1800MHz,2600MHz 3500MHz, 5000MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	1 Sec.

6.7 Test Results

PASS.

These test result outsourced to EMTEK(SHENZHEN) CO., LTD.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

EMTEK(SHENZHEN) CO., LTD.

Applicant :	eKids, LLC. / KIDDESIGNS INC.	Test Date :	July 23, 2019
EUT :	DISNEY FROZEN II LIGHT AND MUSIC SET	Temperature :	24℃
M/N :	FR-V111	Humidity :	53%
Field Strength :	3 V/m	Criterion :	A
Power Supply :	DC 3V		
Frequency Range :	80 - 1000MHz,1800,2600,5000 MHz		
Test Engineer :	Lin		
Modulation :	<input checked="" type="checkbox"/> AM <input type="checkbox"/> Pulse <input type="checkbox"/> none 1 KHz 80%		
Test Mode :	AUX IN ,Play internal music,Microphone in		
	Frequency Range : 80 - 1000MHz,1800,2600,5000 MHz		
Steps	1 %		
	Horizontal	Vertical	
Front	PASS	PASS	
Right	PASS	PASS	
Rear	PASS	PASS	
Left	PASS	PASS	
<p>Test Equipment :</p> <ol style="list-style-type: none"> 1. Signal Generator : N5181A (Agilent) 2. Power Amplifier : 80RF1000-175 (MILMEGA)& AS0102-55 (MILMEGA)& AS1860-50 (MILMEGA) 3. Log.-Per. Antenna: VULP 9118E(SCHWARZBECK) 4. Broad-Band Horn Antenna: STLP 9149 (SCHWARZBECK) 5. RF Power Meter. Dual Channel : 4232A (BOONTON) 6. Field Strength Meter: RSS1006A (DARE) 			
Note:			

7. PHOTOGRAPH

7.1 Photo of Radiation Emission Measurement



7.2 Photo of Electrostatic Discharge Test

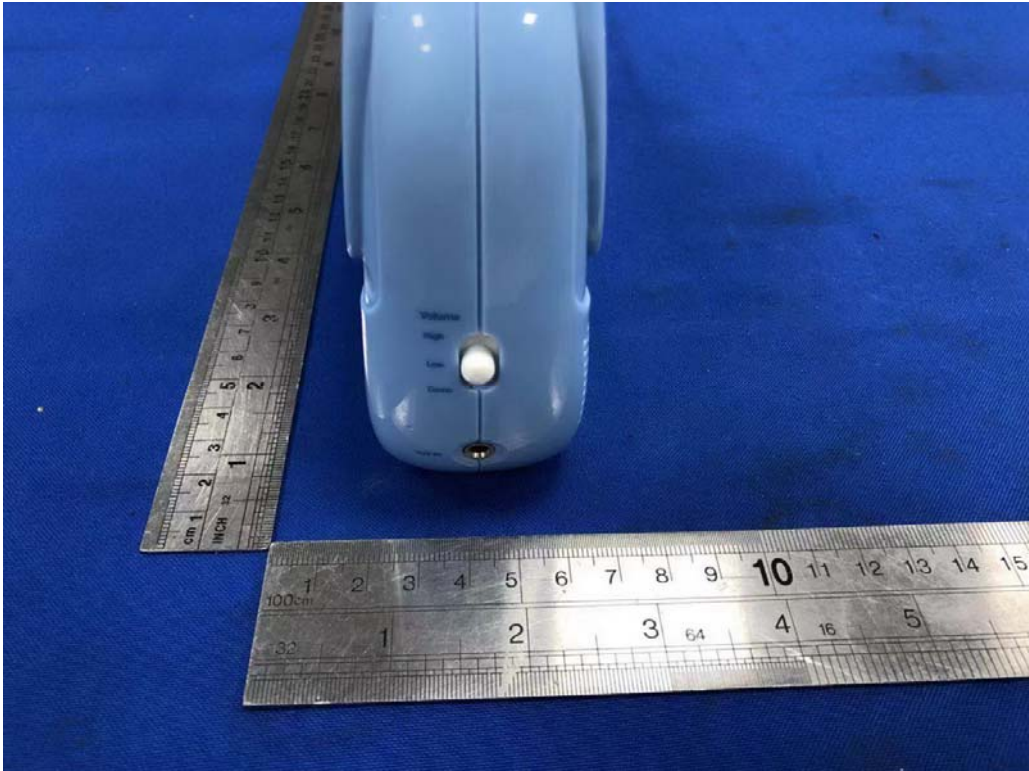


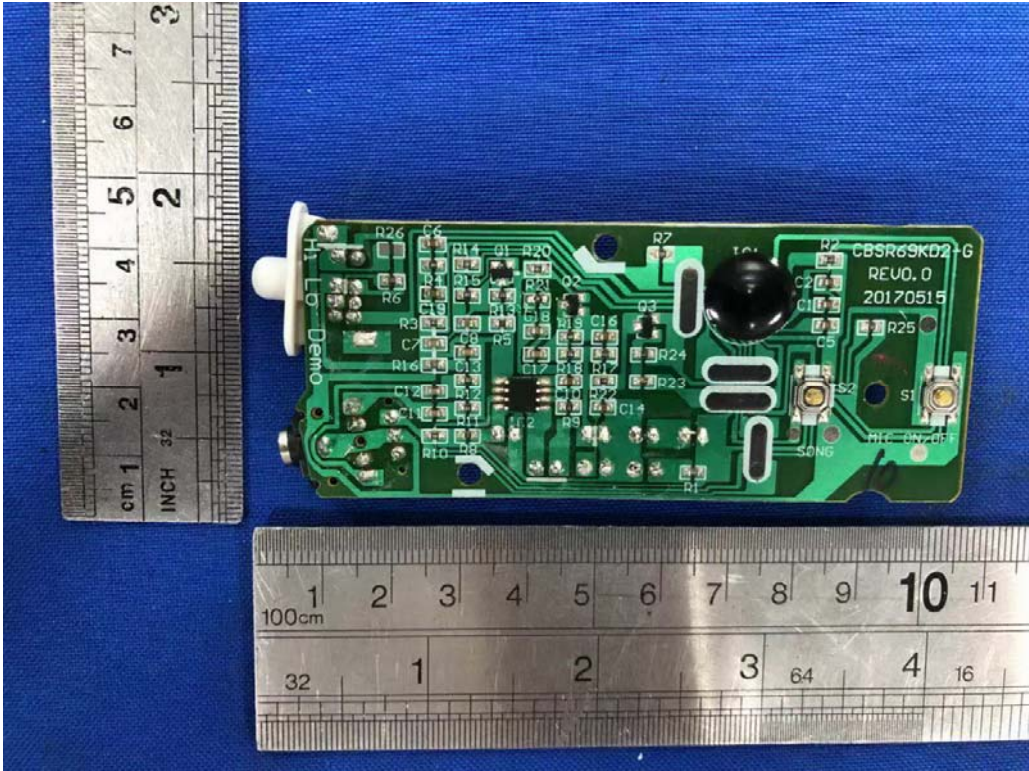
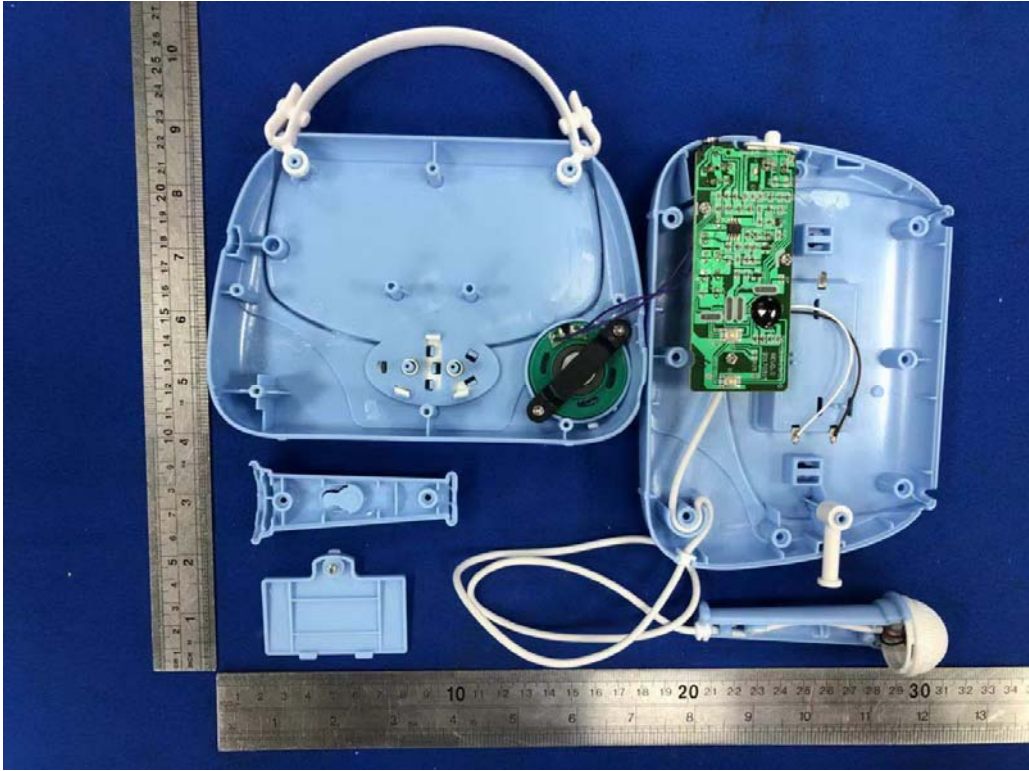
7.3 Photo of RF Field Strength susceptibility Test

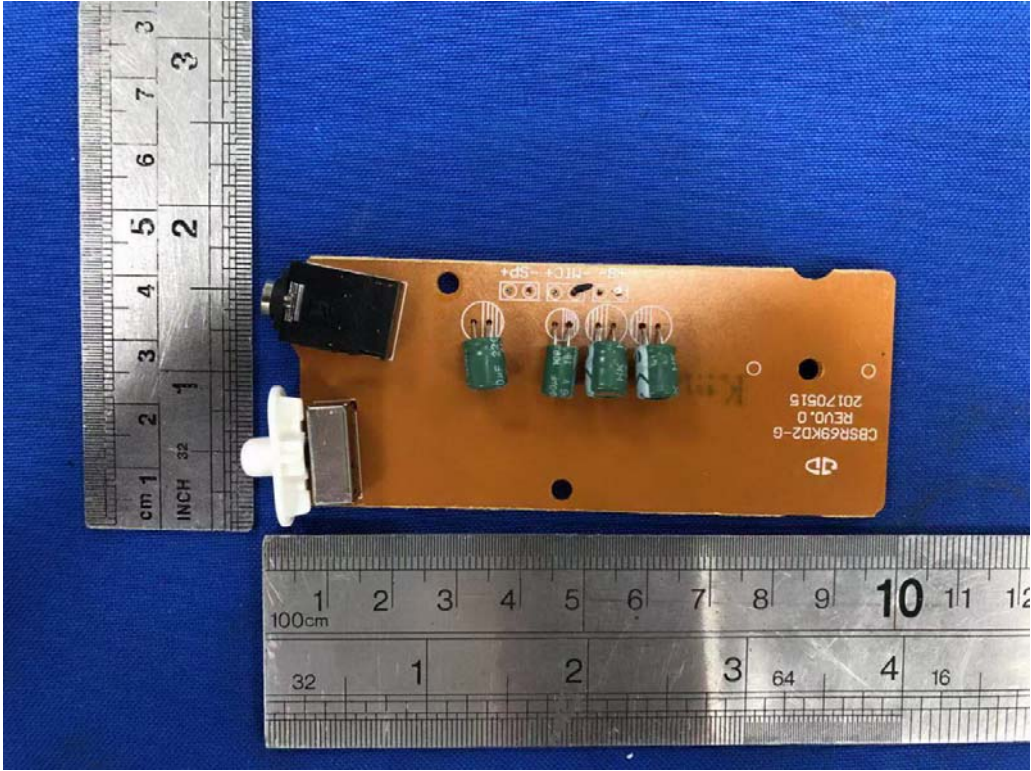


APPENDIX I (Photos of EUT)









-----The end-----