



DAT-PL-082/98-02

STC Test Report

Date : 2009-10-14

Page 1 of 17

No. : MH183438

Applicant (DOL003): Kid Galaxy INC
150 Dow Street, Tower2, Unit 425B Manchester,
NH03101,U.S.A.

Manufacturer: Dongguan Lung Cheong Toys Co., Ltd
Zhou Wu Industrial District, Dong Guan City, Guang Dong
Province, China

Description of Samples: Product: Sea Streak RC Boat-orange(27MHz)
Brand Name: Wave Breakers
Model Number: 10166
FCC ID: QEASTREAK27T

Date Samples Received: 2009-09-22

Date Tested: 2009-09-24, 2009-09-25

Investigation Requested: Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2008 and ANSI C63.4:2003 for FCC Certification.

Conclusions: The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks: ----

Dr. LEE Kam Chuen,
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

The Hong Kong Standards and Testing Centre Ltd.

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STC Test Report

Date : 2009-10-14

Page 2 of 17

No. : MH183438

CONTENT:

Cover	Page 1 of 17
Content	Page 2-3 of 17
<u>1.0</u> <u>General Details</u>	
1.1 Test Laboratory	Page 4 of 17
1.2 Applicant Details Applicant Manufacturer	Page 4 of 17
1.3 Equipment Under Test [EUT] Description of EUT operation	Page 5 of 17
1.4 Date of Order	Page 5 of 17
1.5 Submitted Samples	Page 5 of 17
1.6 Test Duration	Page 5 of 17
1.7 Country of Origin	Page 5 of 17
<u>2.0</u> <u>Technical Details</u>	
2.1 Investigations Requested	Page 6 of 17
2.2 Test Standards and Results Summary	Page 6 of 17
<u>3.0</u> <u>Test Results</u>	
3.1 Emission	Page 7-9 of 17
3.2 Bandwidth Measurement	Page 10-11 of 17

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STC Test Report

Date : 2009-10-14

Page 3 of 17

No. : MH183438

Appendix A

List of Measurement Equipment

Page 12 of 17

Appendix B

Duty Cycle Correction During 100 msec

Page 13-15 of 17

Appendix C

Photographs

Page 16-17 of 17

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STC Test Report

Date : 2009-10-14

Page 4 of 17

No. : MH183438

1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate
New Territories, Hong Kong

Telephone: 852 2666 1888

Fax: 852 2664 4353

1.2 Applicant Details

Applicant

Kid Galaxy INC
150 Dow Street, Tower2, Unit 425B Manchester, NH03101.U.S.A.

Manufacturer

Dongguan Lung Cheong Toys Co., Ltd
Zhou Wu Industrial District, Dong Guan City, Guang Dong Province, China

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STC Test Report

Date : 2009-10-14

Page 5 of 17

No. : MH183438

1.3 Equipment Under Test [EUT]

Description of Sample

Product: Sea Streak RC Boat-orange(27MHz)
Manufacturer: Dongguan Lung Cheong Toys Co., Ltd
Brand Name: Wave Breakers
Model Number: 10166
Rating: 9Vd.c(“6LR61” x 1)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Kid Galaxy INC, Sea Streak RC Boat-orange(27MHz). The EUT is a transmitter of radio control toy. The transmitter was operating with button, the EUT continues to transmit while one of the buttons is being pressed, It is pulse transmitter, Modulation by IC, and type is AM modulation.

1.4 Date of Order

2009-09-22

1.5 Submitted Sample(s):

2 Samples

1.6 Test Duration

2009-09-24, 2009-09-25

1.7 Country of Origin

China

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STC Test Report

Date : 2009-10-14

Page 6 of 17

No. : MH183438

2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2008 and ANSI C63.4:2003 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.227	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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STC Test Report

Date : 2009-10-14

Page 7 of 17

No. : MH183438

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

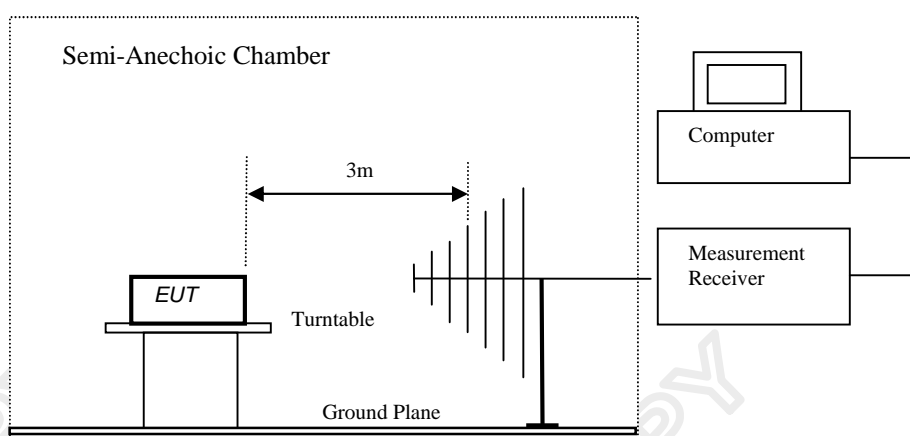
Test Requirement: FCC 47CFR 15.227
Test Method: ANSI C63.4:2003
Test Date: 2009-09-25
Mode of Operation: Communication mode(Tx)

Test Method:

The sample was placed 0.8m above the ground plane on a standard radiated emission test site. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. In the frequency range of 9kHz to 30MHz, The center of the loop antenna shall be 1 meter above the ground and rotated loop axis for maximum reading. The emissions worst-case are shown in Test Results of the following pages.

*: Semi-anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



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STC Test Report

Date : 2009-10-14

Page 8 of 17

No. : MH183438

Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.227]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [$\mu\text{V}/\text{m}$]	Field Strength of Fundamental Emission [Average] [$\mu\text{V}/\text{m}$]
26.96-27.28	100,000	10,000

Results of Communication mode(Tx): PASS

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μV	Correction Factor dB/m	Field Strength dB $\mu\text{V}/\text{m}$	Field Strength $\mu\text{V}/\text{m}$	Limit @3m $\mu\text{V}/\text{m}$	E-Field Polarity
27.145	49.60	18.6	68.2	2,570.4	100,000	Vertical

Field Strength of Fundamental Emissions Average Value							
Frequency MHz	Measured Level @3m dB μV	Adjusted by Duty Cycle dB	Correction Factor dB/m	Field Strength dB $\mu\text{V}/\text{m}$	Field Strength $\mu\text{V}/\text{m}$	Limit @3m $\mu\text{V}/\text{m}$	E-Field Polarity
27.145	45.0	-4.6	18.6	63.6	1,513.6	10,000	Vertical

According to FCC 47CFR15.35, the limit on the radio frequency emissions as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty: 30MHz to 1GHz 5.1dB

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STC Test Report

Date : 2009-10-14

Page 9 of 17

No. : MH183438

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Communication Mode(Tx): PASS

Radiated Emissions Quasi-Peak						
Frequency MHz	Measured Level @3m dB μV	Correction Factor dB/m	Field Strength dB $\mu\text{V/m}$	Field Strength $\mu\text{V/m}$	Limit @3m $\mu\text{V/m}$	E-Field Polarity
65.10	8.8	7.9	16.7	6.8	100	Horizontal
81.43	7.8	8.6	16.4	6.6	100	Vertical
108.60	7.6	8.9	16.5	6.7	150	Vertical
135.73	8.2	7.8	16.0	6.3	150	Vertical
162.87	7.9	10.1	18.0	7.9	150	Vertical
190.02	< 1.0	12.4	< 13.4	< 4.7	150	Vertical
217.16	< 1.0	12.8	< 13.8	< 4.9	200	Vertical
244.31	< 1.0	15.0	< 16.0	< 6.3	200	Vertical
271.45	< 1.0	16.1	< 17.1	< 7.2	200	Vertical

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz
Correction Factor includes Antenna Factor and Cable Attenuation.
Calculated measurement uncertainty: 30MHz to 1GHz 5.1dB

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STC Test Report

Date : 2009-10-14

Page 10 of 17

No. : MH183438

3.2 20dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.227
Test Method: ANSI C63.4:2003 (Section 13.1.7)
Test Date: 2009-09-24
Mode of Operation: Communication mode(Tx)

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

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STC Test Report

Date : 2009-10-14

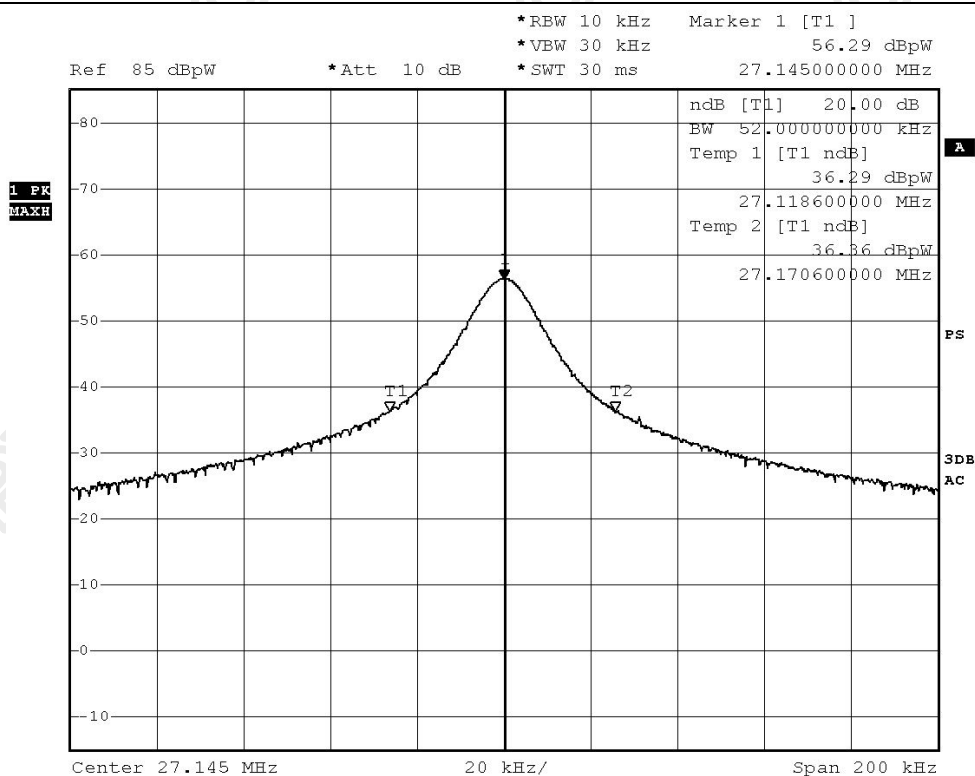
Page 11 of 17

No. : MH183438

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [KHz]	FCC Limits [MHz]
27.145	52.00	within 26.96-27.28

20dB Bandwidth of Fundamental Emission



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STC Test Report

Date : 2009-10-14

Page 12 of 17

No. : MH183438

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Lingren	FACT-3	--	2008/12/01	2011/12/01
EM174	BICONILOG ANTENNA	EMCO	3142B	1671	2008/01/24	2010/01/24
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2009/06/29	2010/06/29
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2009/07/26	2012/07/26

Remarks:-

CM Corrective Maintenance
N/A Not Applicable or Not Available
TBD To Be Determined

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STC Test Report

Date : 2009-10-14

Page 13 of 17

No. : MH183438

Appendix B

Duty Cycle Correction During 100msec

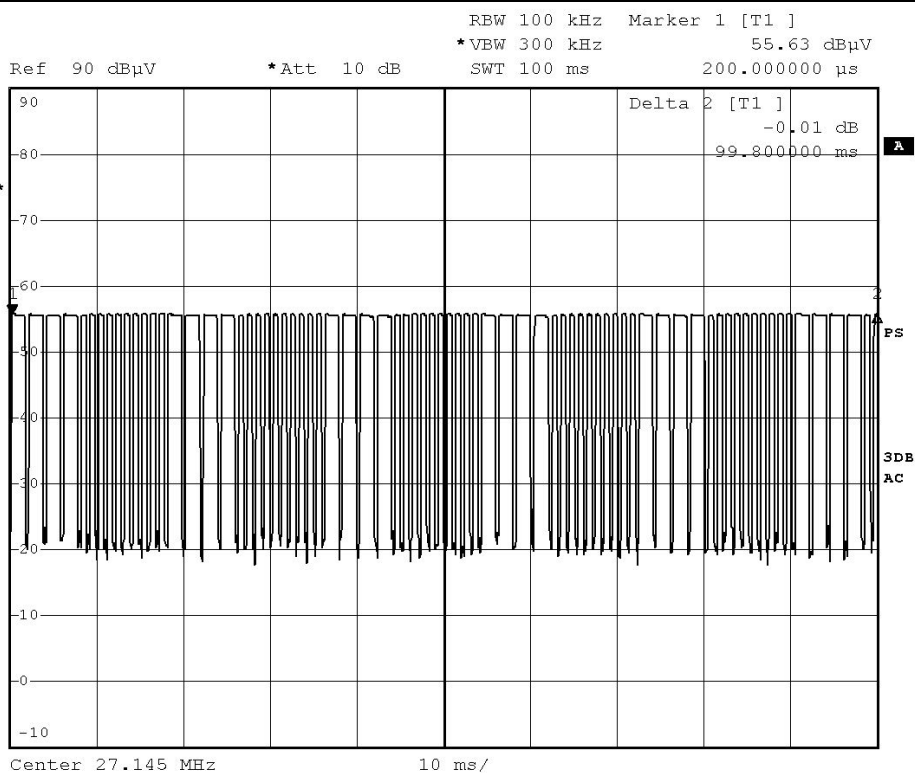
Each function key sends a different series of characters, but each packet period (100msec) never exceeds a series of 24 long pulses (1.47msec) and 52 short pulses (0.45msec). Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $(24 \times 1.47 \text{ msec}) + (52 \times 0.45 \text{ msec})$ per 100msec = 58.68% duty cycle. Figure A through C show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = $20 \text{Log}(0.5868) = -4.6 \text{ dB}$

The following figures [Figure A to Figure C] show the characteristics of the pulse train for one of these functions.

Figure A [Pulse Train]



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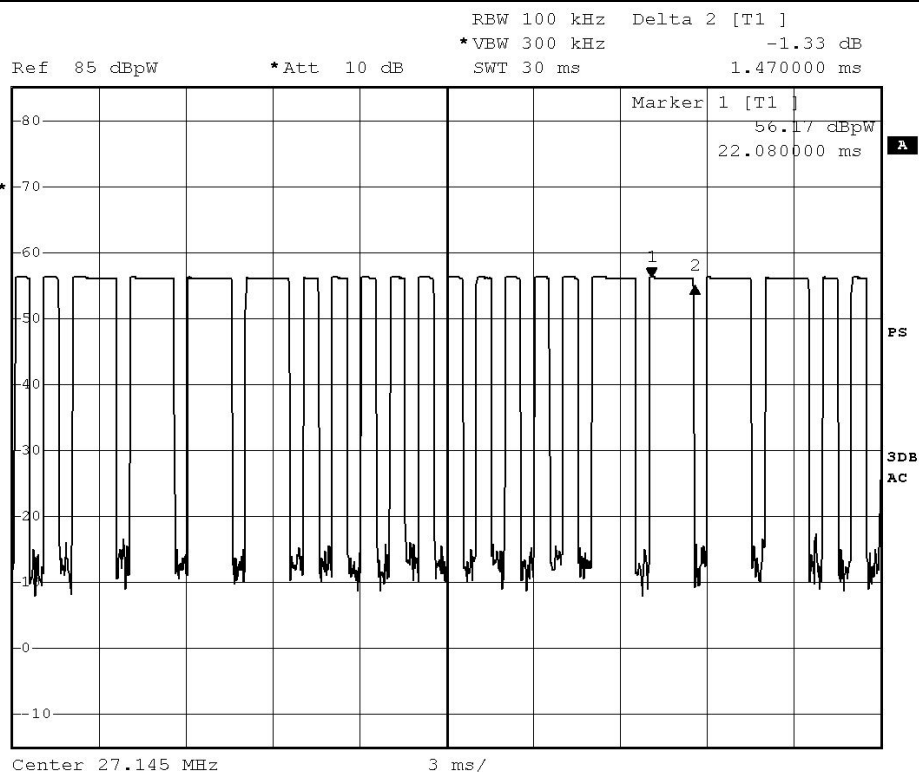
STC Test Report

Date : 2009-10-14

Page 14 of 17

No. : MH183438

Figure B [Long Pulse]



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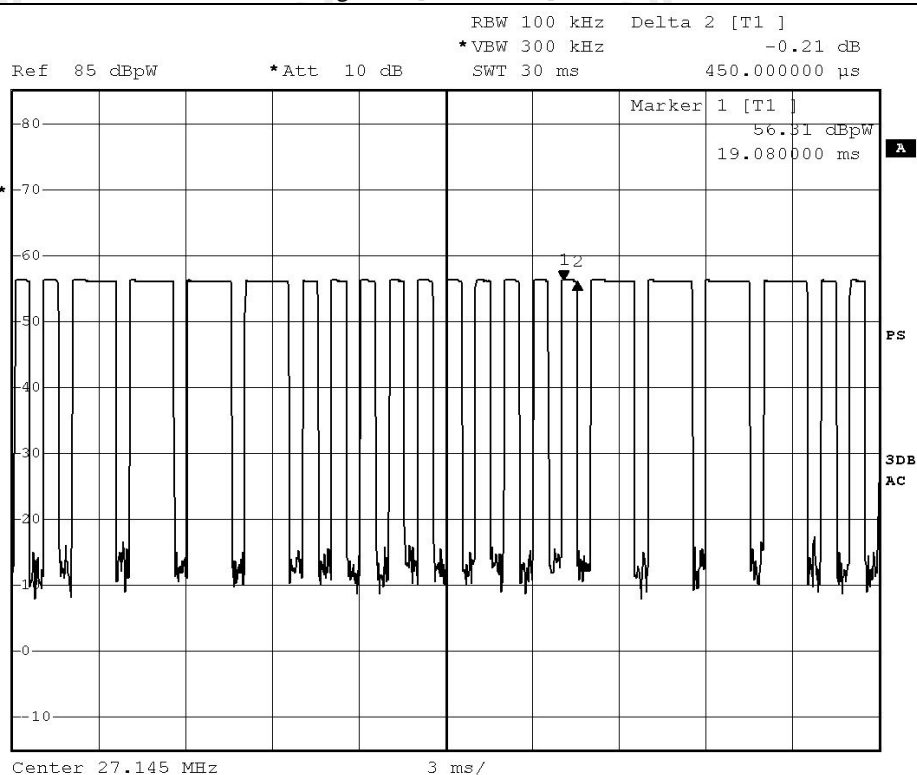
STC Test Report

Date : 2009-10-14

Page 15 of 17

No. : MH183438

Figure D [Short Pulse]



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STC Test Report

Date : 2009-10-14

Page 16 of 17

No. : MH183438

Appendix C

Photographs of EUT

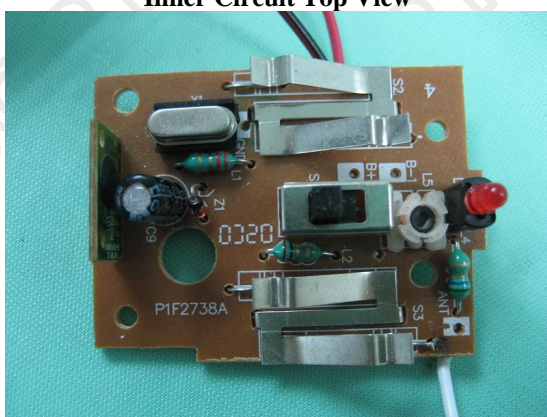
Front View of the product



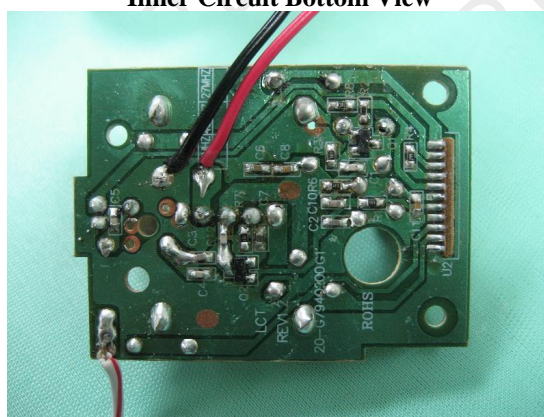
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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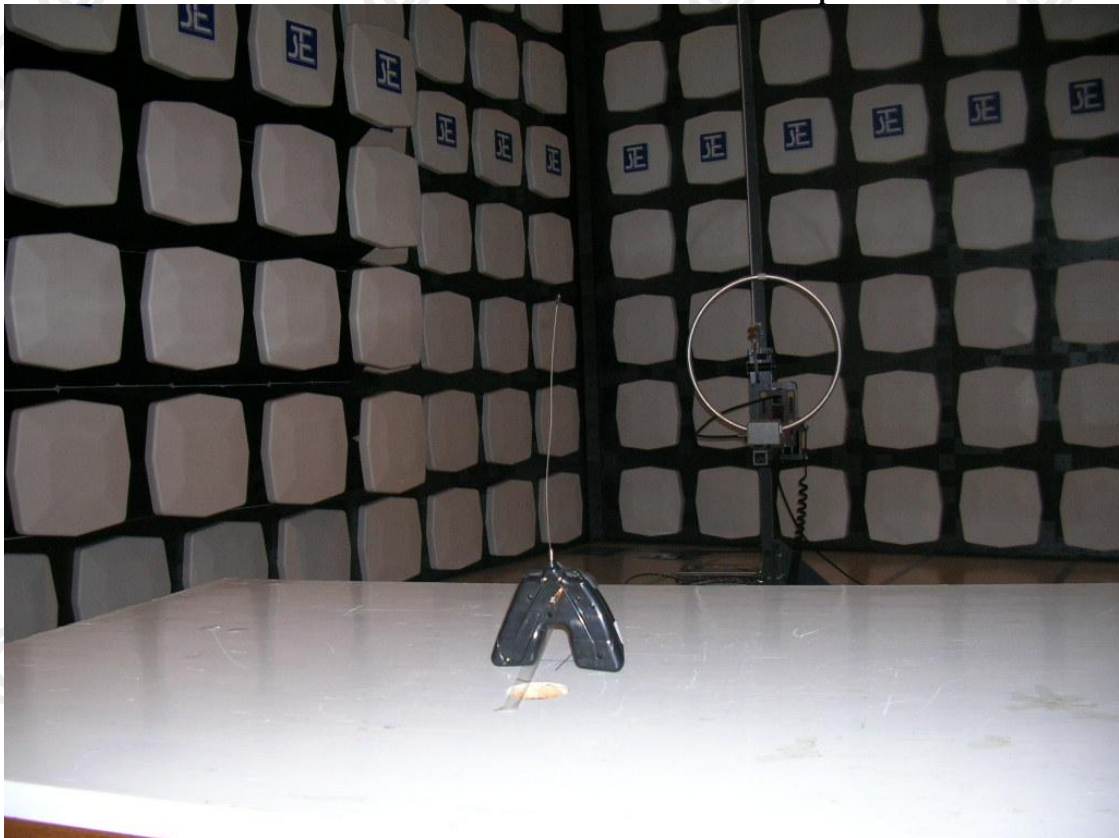
Date : 2009-10-14

Page 17 of 17

No. : MH183438

Photographs of EUT

Measurement of Radiated Emission Test Set Up



***** End of Test Report *****

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