



STC Test Report

Date : 2010-04-08

Page 1 of 19

No. : HM165080

Applicant (MGE001): MGA Entertainment (H.K.) Ltd.
30th Floor, One Kowloon, 1 Wang Yuen Street, Kowloon
Bay, Kowloon, Hong Kong.

Manufacturer: N/A

Description of Sample(s): Submitted samples(s) said to be
Product: Moxie Girlz Magic Snow RC Cruiser –
49MHz
Brand Name: N/A
Model Number: 399490
FCC ID: LU9399490

Date Sample(s) Received: 2010-03-23

Date Tested: 2010-03-26

Investigation Requested: Perform ElectroMagnetic Interference measurement in
accordance with FCC 47CFR [Codes of Federal
Regulations] Part 15: 2009 and ANSI C63.4:2003 for FCC
Certification.

Conclusion(s): 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.

Remark(s): ----

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.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong
Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org



STC Test Report

Date : 2010-04-08

Page 2 of 19

No. : HM165080

CONTENT:

Cover	Page 1 of 19
Content	Page 2-3 of 19
<u>1.0</u> <u>General Details</u>	
1.1 Test Laboratory	Page 4 of 19
1.2 Applicant Details Applicant Manufacturer	Page 4 of 19
1.3 Equipment Under Test [EUT] Description of EUT operation	Page 5 of 19
1.4 Date of Order	Page 5 of 19
1.5 Submitted Sample(s)	Page 5 of 19
1.6 Test Duration	Page 5 of 19
1.7 Country of Origin	Page 5 of 19
<u>2.0</u> <u>Technical Details</u>	
2.1 Investigations Requested	Page 6 of 19
2.2 Test Standards and Results Summary	Page 6 of 19
<u>3.0</u> <u>Test Results</u>	
3.1 Emission	Page 7-9 of 19
3.2 Bandwidth Measurement	Page 10-12 of 19

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 3 of 19

No. : HM165080

Appendix A

List of Measurement Equipment

Page 13 of 19

Appendix B

Duty Cycle Correction During 100 msec

Page 14-16 of 19

Appendix C

Photographs

Page 17-19 of 19

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 4 of 19

No. : HM165080

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

1.2 Applicant Details Applicant

MGA Entertainment (H.K.) Ltd.
30th Floor, One Kowloon, 1 Wang Yuen Street, Kowloon Bay, Kowloon, Hong Kong.

Manufacturer

N/A

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong
Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 5 of 19

No. : HM165080

1.3 Equipment Under Test [EUT]

Description of Sample(s)

Submitted sample(s) said to be

Product: Moxie Girlz Magic Snow RC Cruiser – 49MHz

Manufacturer: N/A

Brand Name: N/A

Model Number: 399490

Input Voltage: 3Vd.c. (“AAA” size battery x 2)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a MGA Entertainment (H.K.) Ltd., Moxie Girlz Magic Snow RC Cruiser – 49MHz. The EUT is a transmitter of radio control toy. The transmitter was operating with 2 buttons, the EUT continues to transmit while button is being on, It is pulse transmitter, Modulation by IC, and type is pulse modulation.

1.4 Date of Order

2010-03-23

1.5 Submitted Sample(s):

1 sample

1.6 Test Duration

2010-03-26

1.7 Country of Origin

China

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 6 of 19

No. : HM165080

2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2009 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
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.235	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.209	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 7 of 19

No. : HM165080

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

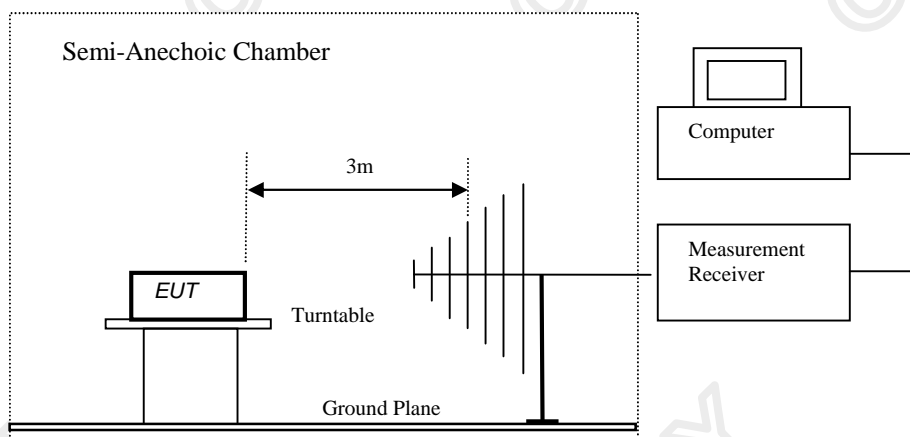
Test Requirement: FCC 47CFR 15.235
Test Method: ANSI C63.4:2003
Test Date: 2010-03-26
Mode of Operation: Tx mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic chamber*. 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. The emissions worst-case are shown in Test Results of the following pages.

*: Semi-anechoic chamber located on the STC (Dongguan) Company Ltd. 68 Fumin Nan Road, Dalang, Dongguan, Guangdong, PRC with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 629686.

Test Setup:



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 8 of 19

No. : HM165080

Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.235]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [$\mu\text{V}/\text{m}$]	Field Strength of Fundamental Emission [Average] [$\mu\text{V}/\text{m}$]
49.82-49.90	100,000	10,000

Results of Tx mode: 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
49.860	66.0	9.4	75.4	5,888.4	100,000	Vertical

Field Strength of Fundamental Emissions Average							
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
49.860	58.6	-7.4	9.4	68.0	2,511.9	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

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 9 of 19

No. : HM165080

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 Tx mode: PASS

Radiated Emissions Quasi-Peak						
Frequency MHz	Measured Level @3m $\text{dB}\mu\text{V}$	Correction Factor dB/m	Field Strength $\text{dB}\mu\text{V/m}$	Field Strength $\mu\text{V/m}$	Limit @3m $\mu\text{V/m}$	E-Field Polarity
99.72	20.2	9.2	29.4	29.5	150	Vertical
149.58	< 1.0	14.4	< 15.4	< 5.9	150	Vertical
199.44	< 1.0	11.9	< 12.9	< 4.4	150	Vertical
249.30	< 1.0	14.4	< 15.4	< 5.9	200	Vertical
299.16	< 1.0	16.3	< 17.3	< 7.3	200	Vertical
349.02	< 1.0	16.7	< 17.7	< 7.7	200	Vertical
398.88	< 1.0	17.3	< 18.3	< 8.2	200	Vertical
448.74	< 1.0	19.1	< 20.1	< 10.1	200	Vertical
498.60	< 1.0	20.6	< 21.6	< 12.0	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

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org



STC Test Report

Date : 2010-04-08

Page 10 of 19

No. : HM165080

3.2 20dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.235
Test Method: ANSI C63.4:2003 (Section 13.1.7)
Test Date: 2010-03-26
Mode of Operation: Tx mode

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.

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong
Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 11 of 19

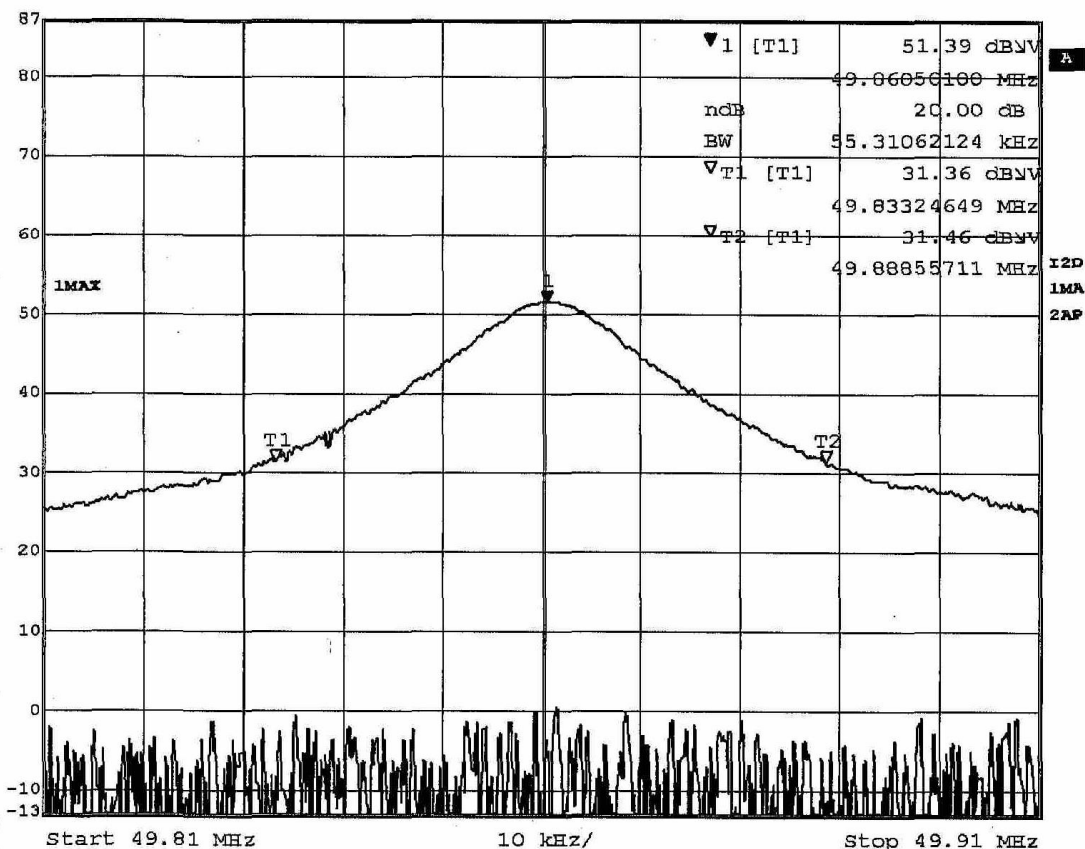
No. : HM165080

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [KHz]	FCC Limits [MHz]
49.86	55.311	within 49.82-49.90

20dB Bandwidth of Fundamental Emission

	Marker 1 [T1 ndB]	RBW	10 kHz	RF Att	0 dB
Ref Lvl	ndB	20.00 dB	VBW	30 kHz	
87 dBV	BW	55.31062124 kHz	SWT	15 ms	Unit dBV



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

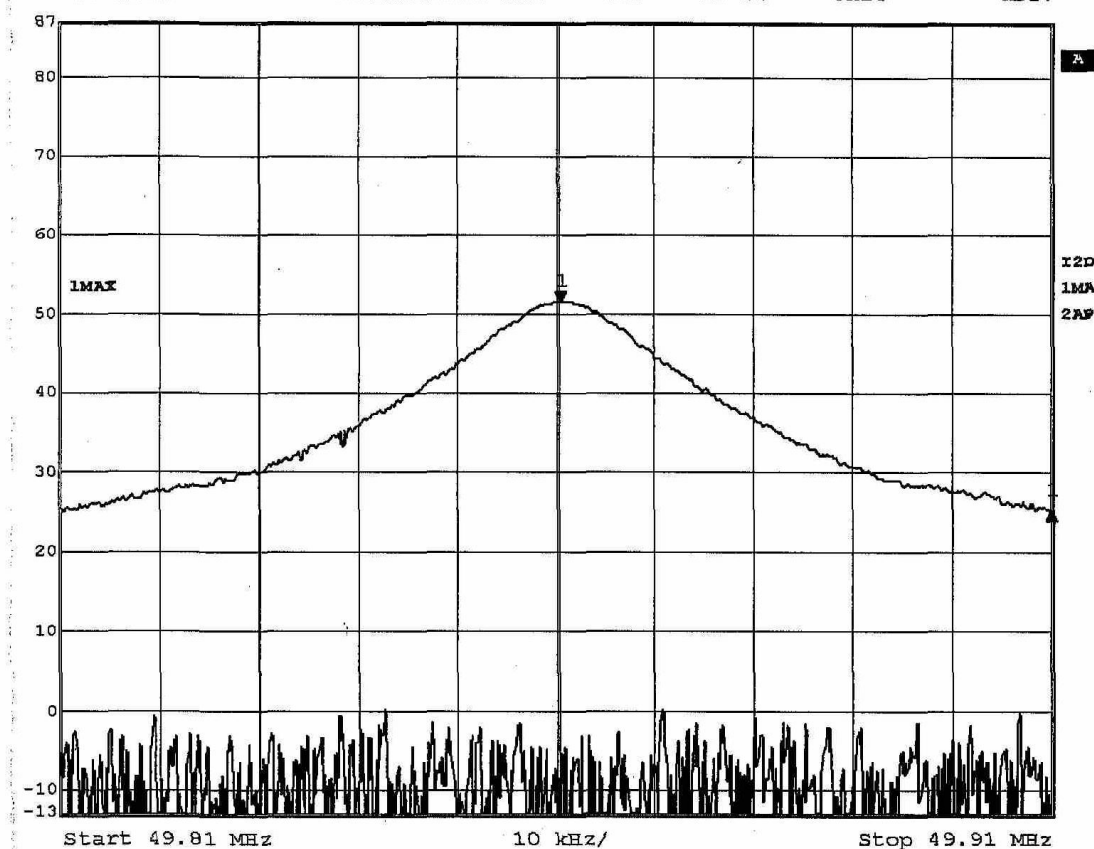
Date : 2010-04-08

Page 12 of 19

No. : HM165080

Attenuation from peak to 10kHz below band edge = 26.18dB > 26dB

	Delta 1 [T1]	RBW	10 kHz	RF Att	0 dB
Ref Lvl	-26.18 dB	VBW	30 kHz		
87 dBμV	49.49899800 kHz	SWT	15 ms	Unit	dBμV



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 13 of 19

No. : HM165080

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM020	HORN ANTENNA	EMCO	3115	4032	2009/09/02	2010/09/02
EM215	MULTIDEVICE CONTROLLER	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
EM194	BICONILOG ANTENNA	EMCO	3142B	1795	2008/09/08	2010/09/08
EM229	EMI Test Receiver	R&S	ESIB40	100248	2009/09/27	2010/09/27

Remarks:-

CM Corrective Maintenance

N/A Not Applicable

TBD To Be Determined

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

Page 14 of 19

No. : HM165080

Appendix B

Duty Cycle Correction During 100msec

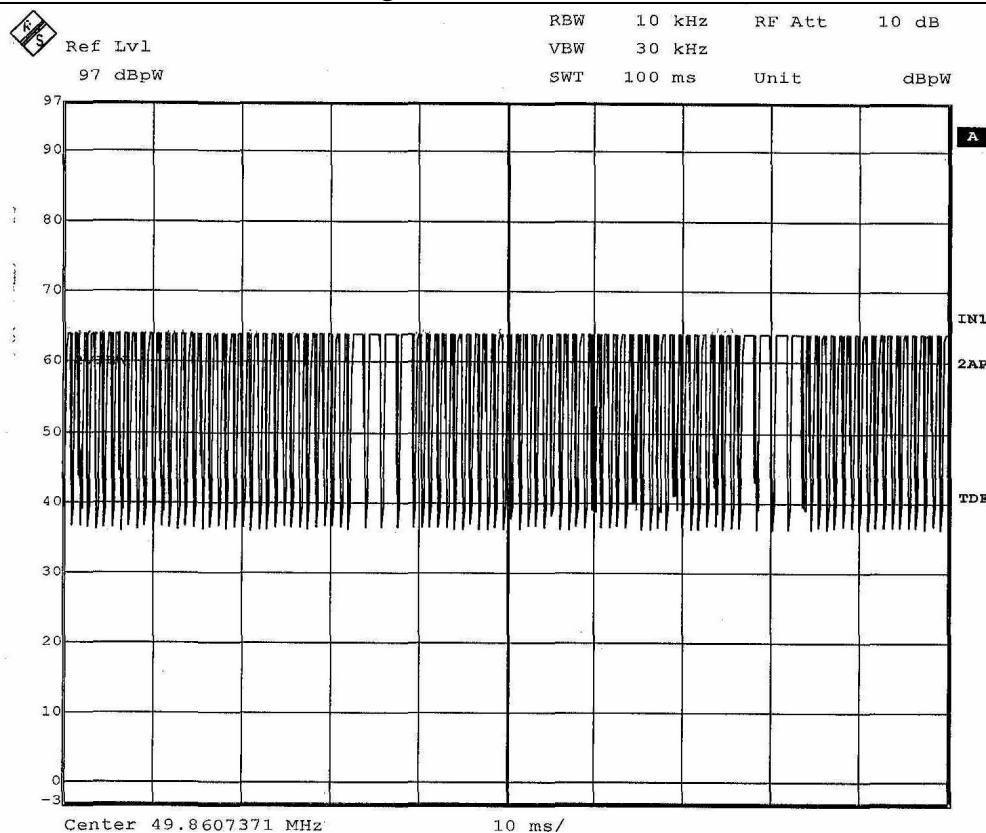
Each function key sends a different series of characters, but each packet period 100msec never exceeds a series of 4 long (1.303msec) and 93 short (400.802μsec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $(4 \times 1.303) + (93 \times 0.400802)$ msec per 100msec 42.49% duty cycle. Figure A through D show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = $20\text{Log}(0.4249) = -7.43\text{dB}$

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

Figure A [Pulse Train]



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org



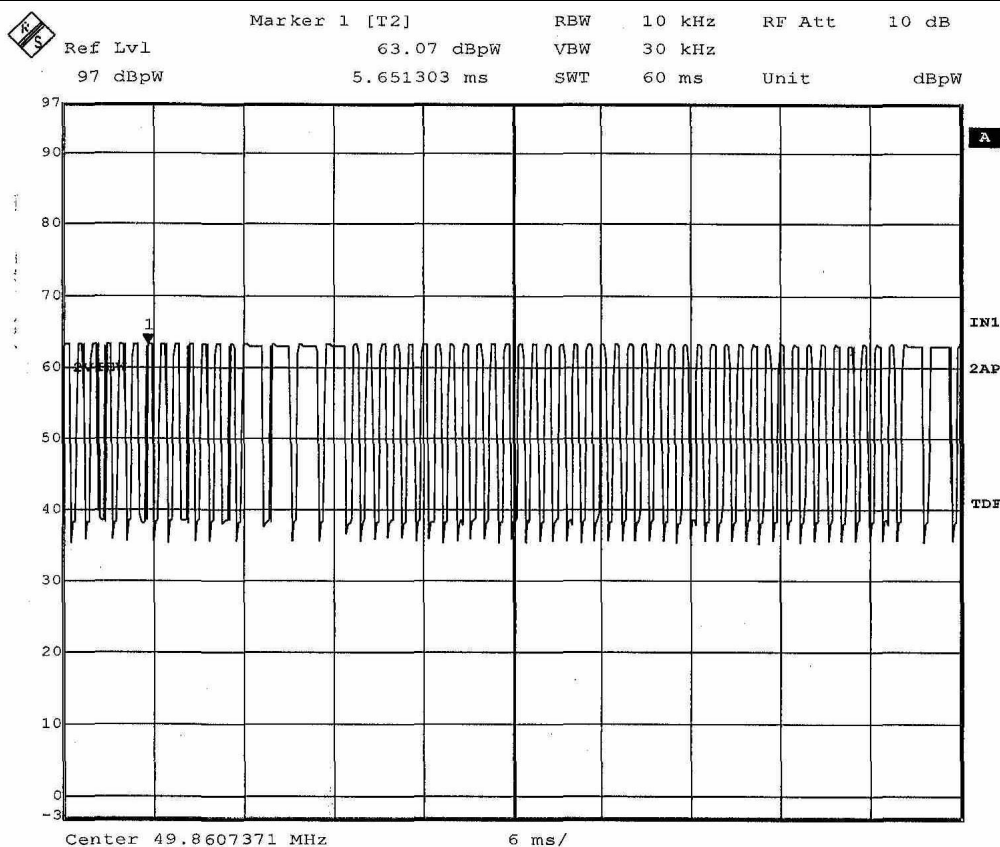
STC Test Report

Date : 2010-04-08

Page 15 of 19

No. : HM165080

Figure B [Closer look on pulse train]



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



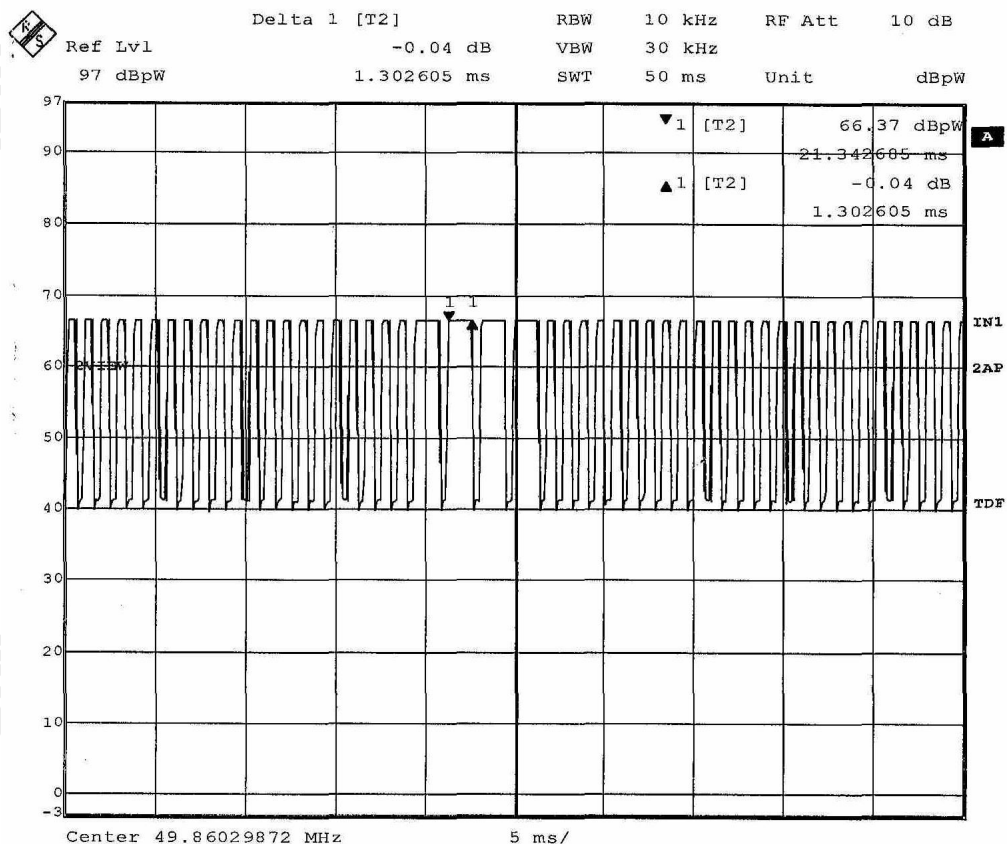
STC Test Report

Date : 2010-04-08

Page 16 of 19

No. : HM165080

Figure C [Long Pulse]



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



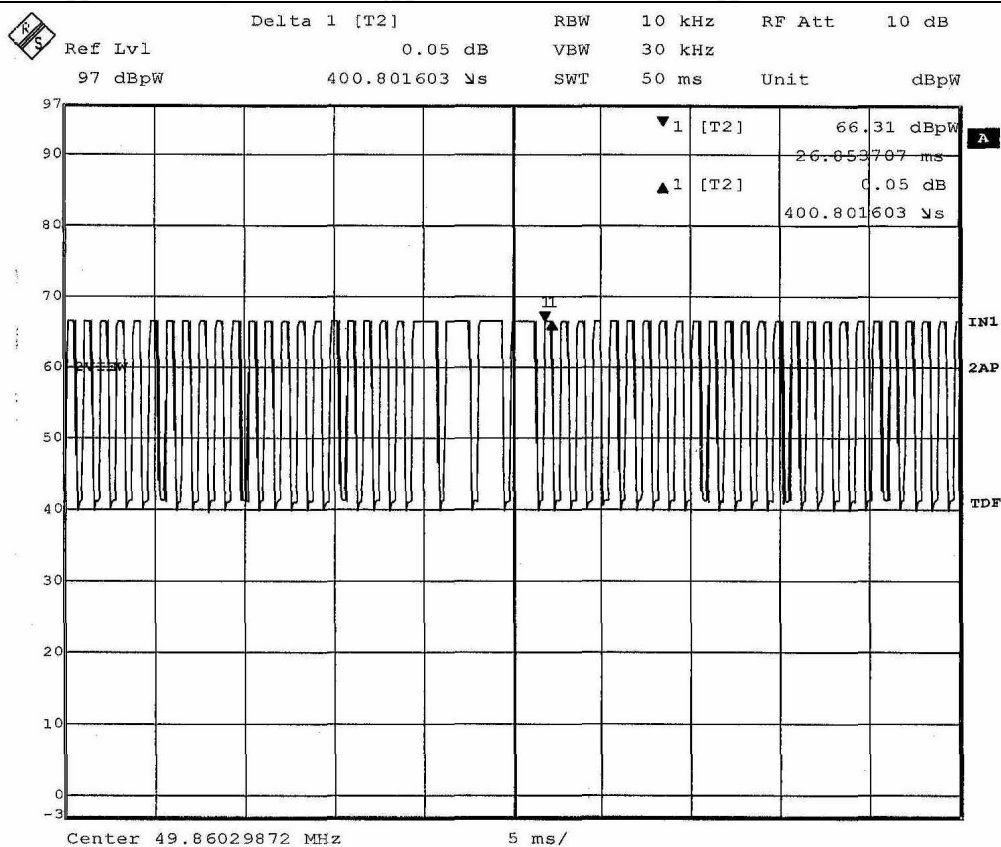
STC Test Report

Date : 2010-04-08

Page 17 of 19

No. : HM165080

Figure D [Short Pulse]



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

Date : 2010-04-08

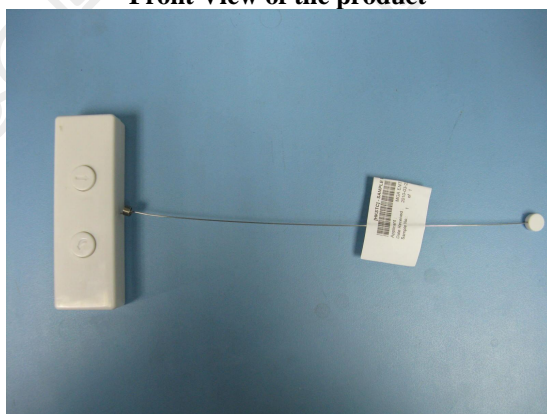
Page 18 of 19

No. : HM165080

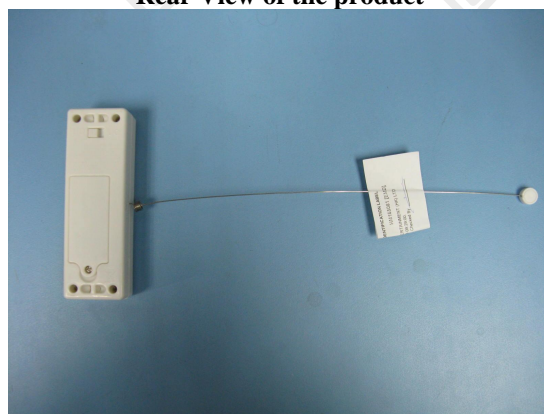
Appendix C

Photographs of EUT

Front View of the product



Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage



STC Test Report

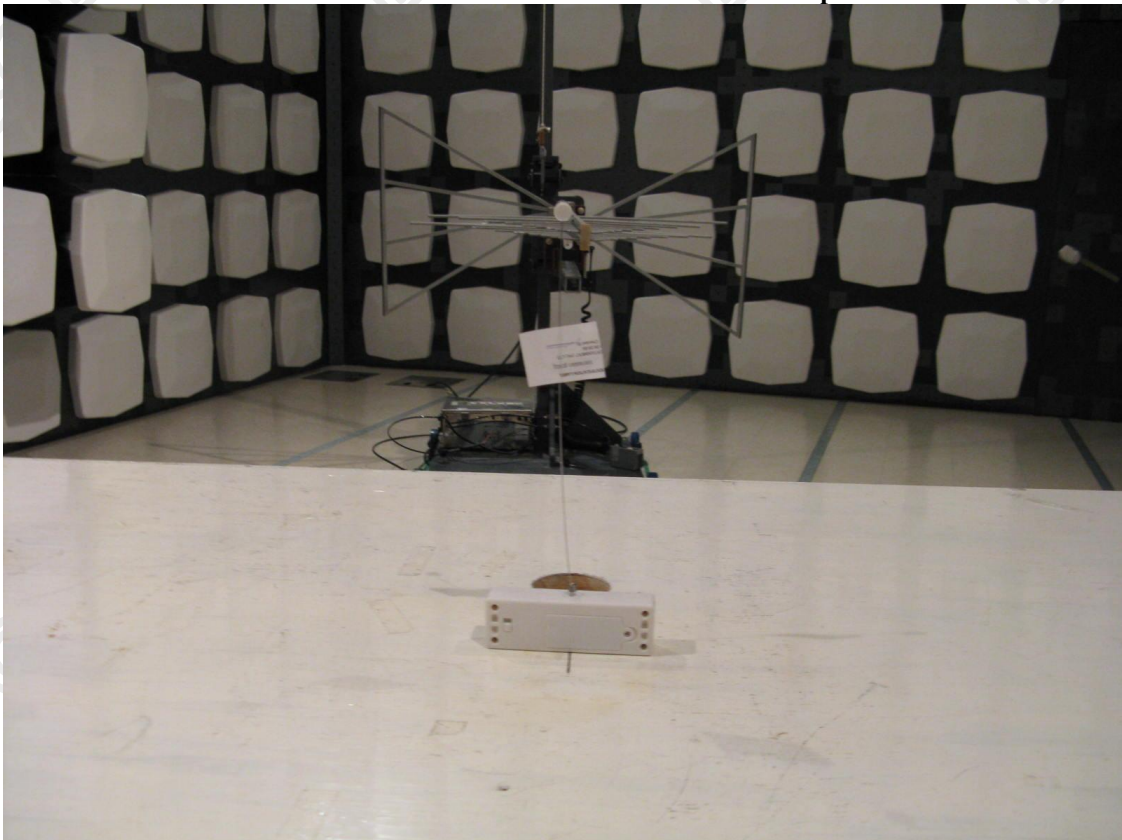
Date : 2010-04-08

Page 19 of 19

No. : HM165080

Photographs of EUT

Measurement of Radiated Emission Test Set Up



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

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org

This report shall not be reproduced unless with prior written approval from The Hong Kong Standards and Testing Centre Ltd.
For Conditions of Issuance of this test report, please refer to the overleaf or Homepage