



## **STC Test Report**

Date : 2008-10-15

Page 1 of 17

No. : HM162436

**Applicant (SUE004):**

Supersonics Electric Company  
Phase II, Block C, 4<sup>th</sup> Floor, Gee Chang Ind. Bldg.,  
108 Lok Shan Road, Kowloon, Hong Kong.

**Manufacturer:**

Supersonics Electronics Toys (Shenzhen) Co., Ltd.  
Block 1 & 2, Xin Tian Village, Xin Feng Ind. Area,  
Guan Lan, Bao An, Shenzhen, China

**Description of Samples:**

Product: Wireless Drum Stick  
Brand Name: Kawasaki  
Model Number: 77201  
FCC ID: II677201

**Date Samples Received:**

2008-08-26

**Date Tested:**

2008-09-03

**Investigation Requested:**

Perform ElectroMagnetic Interference measurement in  
accordance with FCC 47CFR [Codes of Federal Regulations]  
Part 15: 2006 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:**

For additional models details, see page 5

Dr. LEE Kam Chuen,  
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, Taiipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto:hkstc@hkstc.org)



## STC Test Report

Date : 2008-10-15

Page 2 of 17

No. : HM162436

### **CONTENT:**

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

### **The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 3 of 17

No. : HM162436

### **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

**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 4 of 17

No. : HM162436

### **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**

Supersonics Electric Company  
Phase II, Block C, 4<sup>th</sup> Floor, Gee Chang Ind. Bldg.,  
108 Lok Shan Road, Kowloon, Hong Kong.

#### **Manufacturer**

Supersonics Electronics Toys (Shenzhen) Co., Ltd.  
Block 1 & 2, Xin Tian Village, Xin Feng Ind. Area,  
Guan Lan, Bao An, Shenzhen, 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](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 5 of 17

No. : HM162436

### **1.3 Equipment Under Test [EUT] Description of Sample**

Model Name:	Wireless Drum Stick
Manufacturer:	Supersonics Electronics Toys (Shenzhen) Co., Ltd.
Brand Name:	Kawasaki
Model Number:	77201
Additional Brand Name(s):	Disney
Additional Model Number(s):	90602
Input Voltage:	4.5Vd.c ("LR44" size battery x 3)

#### **1.3.1 Description of EUT Operation**

The Equipment Under Test (EUT) is a Supersonics Electric Company, Wireless Drum Stick. The transmitter is a 2 buttons transmitter. The EUT continues to transmit while switched on, It is pulse transmitter, Modulation by IC, and type is pulse modulation.

### **1.4 Date of Order**

2008-08-26

### **1.5 Submitted Sample(s):**

1 Sample

### **1.6 Test Duration**

2008-09-03

### **1.7 Country of Origin**

China

**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 6 of 17

No. : HM162436

### **2.0 Technical Details**

#### **2.1 Investigations Requested**

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2007 and ANSI C63.4:2003 for FCC Certification.

#### **2.2 Test Standards and Results Summary Tables**

<b>EMISSION Results Summary</b>					
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, Taiipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 7 of 17

No. : HM162436

### **3.0 Test Results**

#### **3.1 Emission**

##### **3.1.1 Radiated Emissions (30 – 1000MHz)**

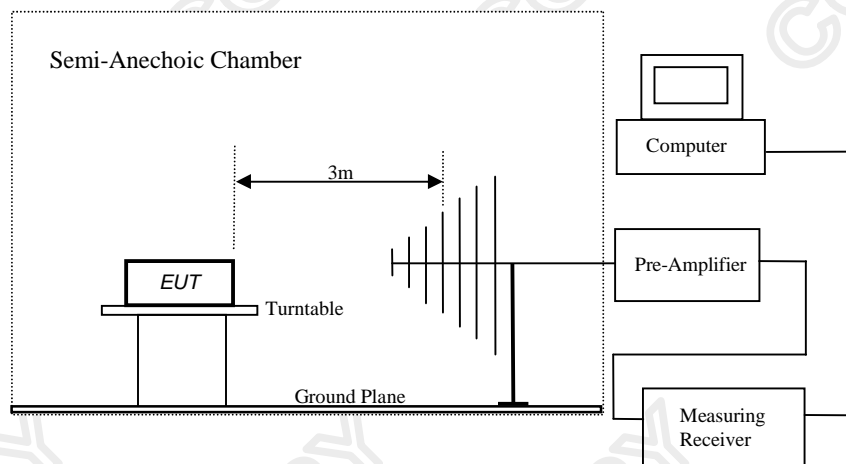
Test Requirement: FCC 47CFR 15.235  
Test Method: ANSI C63.4:2003  
Test Date: 2008-09-03  
Mode of Operation: Tx mode

#### **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 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:**



**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 8 of 17

No. : HM162436

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

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

### Results:

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB $\mu\text{V}$	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
49.86	67.2	9.7	76.9	6,998.4	100,000	Horizontal

Field Strength of Fundamental Emissions Average							
Frequency	Measured Level @3m dB $\mu\text{V}$	Adjusted by Duty Cycle	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
49.86	62.8	-4.40	9.7	72.5	4,217.0	10,000	Horizontal

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 5.2dB

### The Hong Kong Standards and Testing Centre Ltd.

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 9 of 17

No. : HM162436

### 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
Above 960	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:

Radiated Emissions Quasi-Peak						
Frequency MHz	Measured Level @3m dB $\mu\text{V}$	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
99.72	23.1	10.1	33.2	45.7	150	Horizontal
149.58	11.2	10.3	21.5	11.9	150	Horizontal
199.44	< 1.0	11.5	< 12.5	< 4.2	150	Horizontal
249.30	< 1.0	15.9	< 16.9	< 7.0	200	Horizontal
299.16	< 1.0	15.3	< 16.3	< 6.5	200	Horizontal
349.02	< 1.0	17.2	< 18.2	< 8.1	200	Horizontal
398.88	< 1.0	17.3	< 18.3	< 8.2	200	Horizontal
448.74	< 1.0	20.5	< 21.5	< 11.9	200	Horizontal
498.60	< 1.0	20.6	< 21.6	< 12.0	200	Horizontal

### 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 5.2dB

### The Hong Kong Standards and Testing Centre Ltd.

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 10 of 17

No. : HM162436

### **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:	2008-09-03
Mode of Operation:	On 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, Taiipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

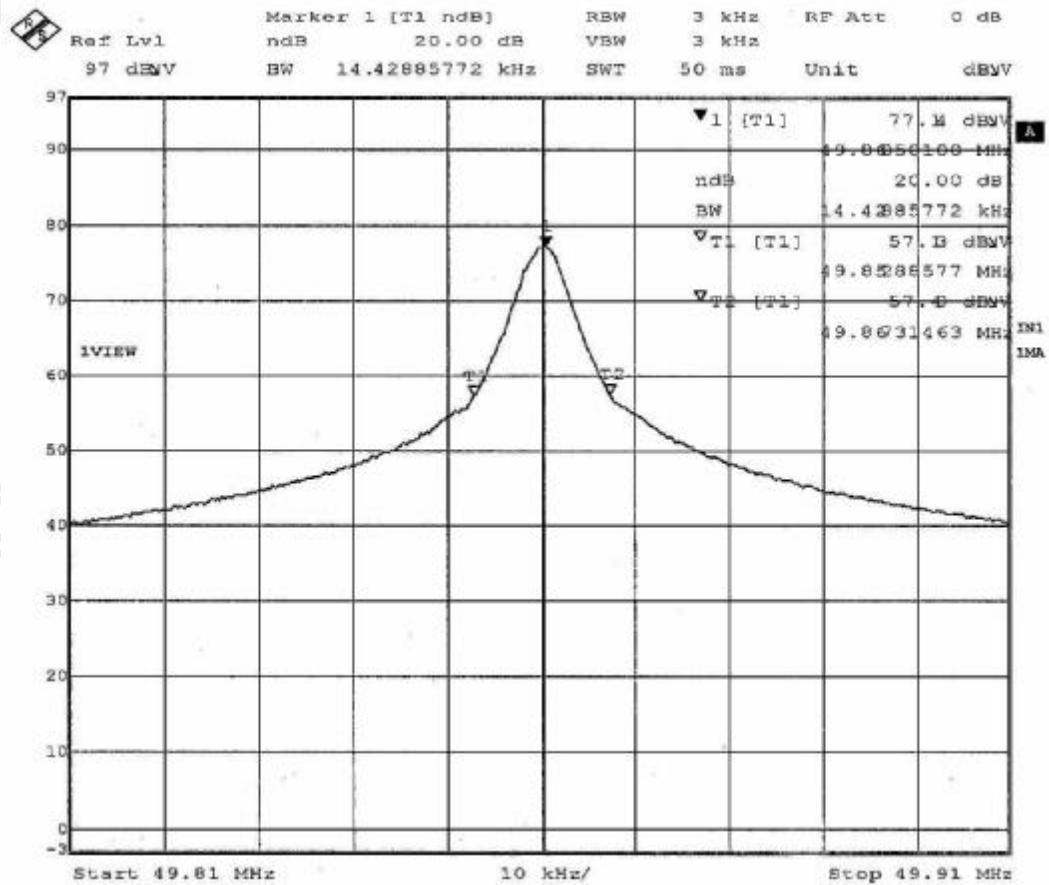
Page 11 of 17

No. : HM162436

### Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [KHz]	FCC Limits [MHz]
49.86	14.43	within 49.82-49.90

### 20dB Bandwidth of Fundamental Emission



### The Hong Kong Standards and Testing Centre Ltd.

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 12 of 17

No. : HM162436

### Appendix A

#### List of Measurement Equipment

##### Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	2006/05/02	2009/05/02
EM174	BICONILOG ANTENNA	EMCO	3142C	00029071	2008/01/24	2009/01/24
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2008/06/16	2009/06/16
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2006/07/26	2009/07/26

#### Remarks:-

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

**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 13 of 17

No. : HM162436

### Appendix B

#### Duty Cycle Correction During 100msec

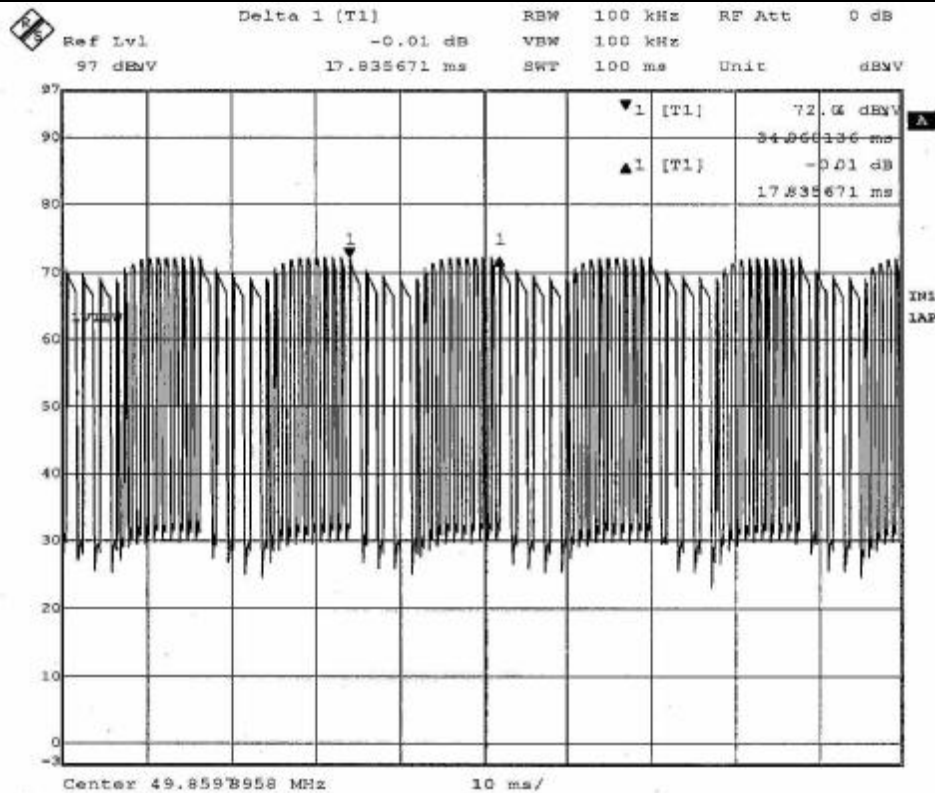
Each function key sends a different series of characters, but each packet period (17.83msec) never exceeds a series of 4 long (1.48msec) and 10 short (0.481msec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered  $(4 \times 1.48) + (10 \times 0.481)$  per 17.83msec = 60.2% duty cycle. Figure A through B show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction =  $20\log(0.602) = -4.4\text{dB}$

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

Figure A [Pulse Train]



**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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



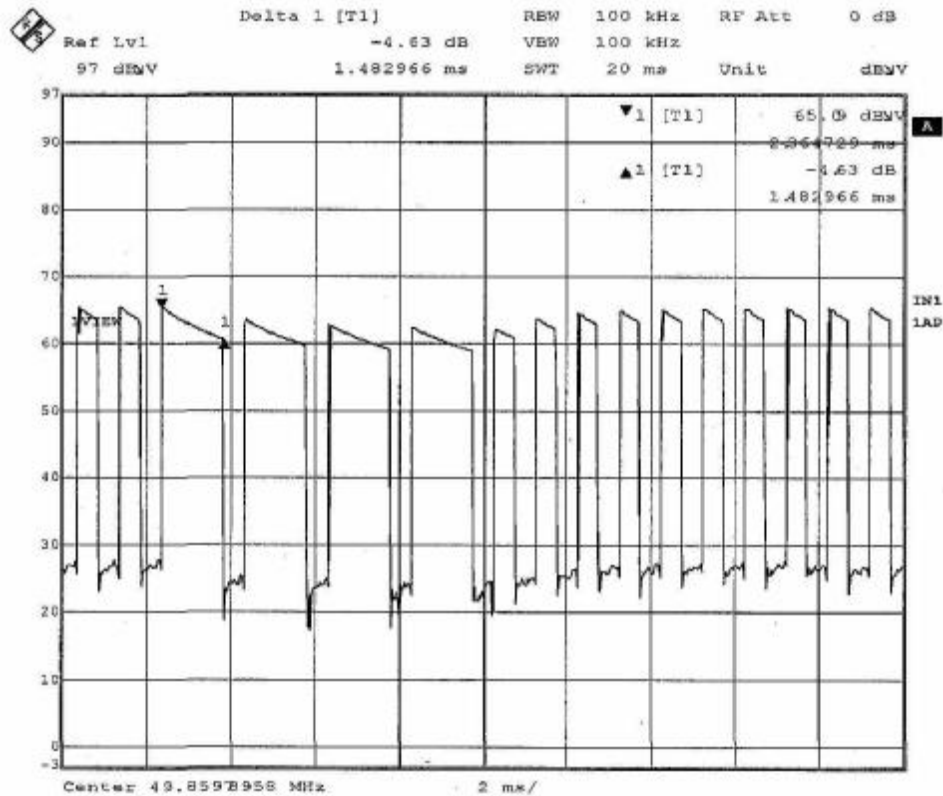
## STC Test Report

Date : 2008-10-15

Page 14 of 17

No. : HM162436

Figure B [Long Pulse]



**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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



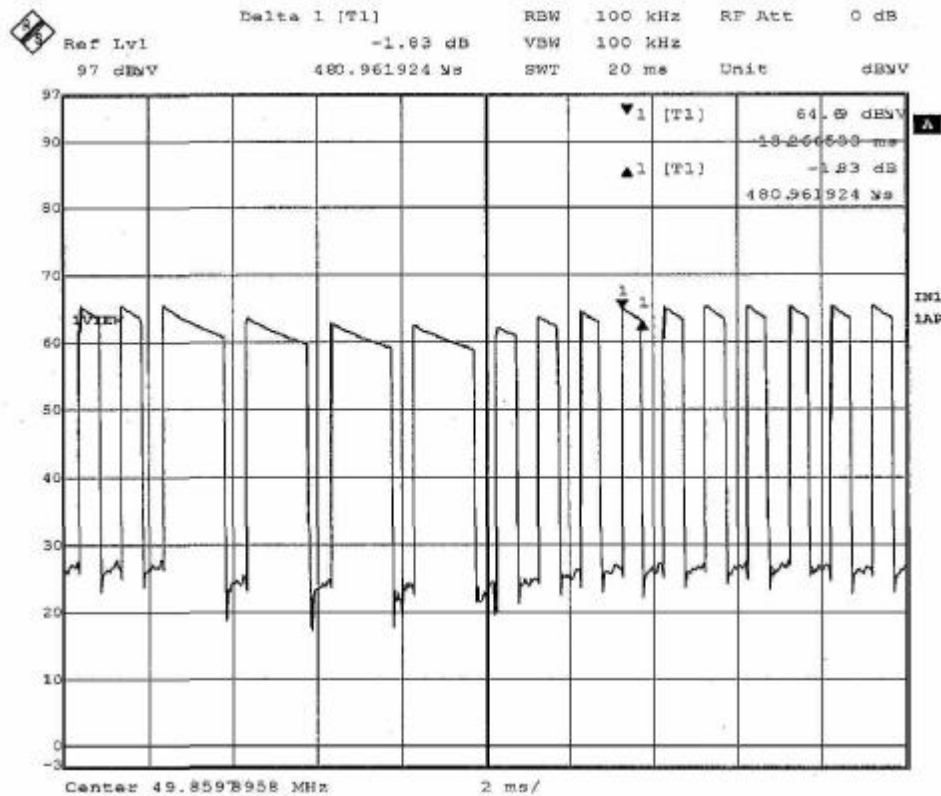
## STC Test Report

Date : 2008-10-15

Page 15 of 17

No. : HM162436

Figure B [Short Pulse]



**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 16 of 17

No. : HM162436

### **Appendix C**

#### **Photographs of EUT**

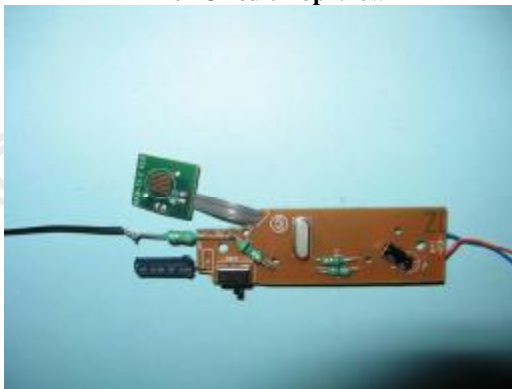
**Front View of the product**



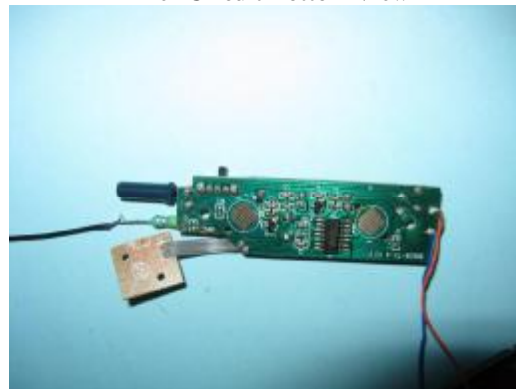
**Rear View of the product**



**Inner Circuit Top View**



**Inner Circuit Bottom View**



**The Hong Kong Standards and Testing Centre Ltd.**

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

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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 : 2008-10-15

Page 17 of 17

No. : HM162436

### **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, Taiipo Industrial Estate, N.T., Hong Kong

Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: [www.hkstc.org](http://www.hkstc.org) E-mail: [hkstc@hkstc.org](mailto: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