



## STC Test Report

Date : 2008-08-08

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No. : HM161666

**Applicant (WAS016):**

Playhut Inc.  
368S. Cheryl Lane City of Industry CA 91789 United States

**Manufacturer:**

N/A

**Description of Samples:**

Product: STIX 200  
Brand Name: STIX  
Model Number: 23971  
FCC ID: WBDSTIX23970WS

**Date Samples Received:** 2008-05-06

**Date Tested:** 2008-05-21

**Investigation 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.

**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 4.

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

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### **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**

Playhut Inc.  
368S. Cheryl Lane City of Industry CA 91789 United States

##### **Manufacturer**

N/A

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### **1.3 Equipment Under Test [EUT]**

#### **Description of Sample**

Product:	STIX 200
Manufacturer:	N/A
Brand Name:	STIX
Model Number:	23971
Additional Product Name:	STIX 400
Additional Model Number(s):	23972
Input Voltage:	3Vd.c. ("AA" size battery x 2)

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

The Equipment Under Test (EUT) is a Playhut Inc., STIX 200, the transmission signal is Fixed, point-to-point operation with channel frequency range 2.418-2.475 GHz.

### **1.4 Date of Order**

2008-05-06

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

1 Sample

### **1.6 Test Duration**

2008-05-21

### **1.7 Country of Origin**

China

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### **2.0 Technical Details**

#### **2.1 Investigations Requested**

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2007 Regulations 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	Fail	N/A
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	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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### **3.0 Test Results**

#### **3.1 Emission**

##### **3.1.1 Radiated Emissions**

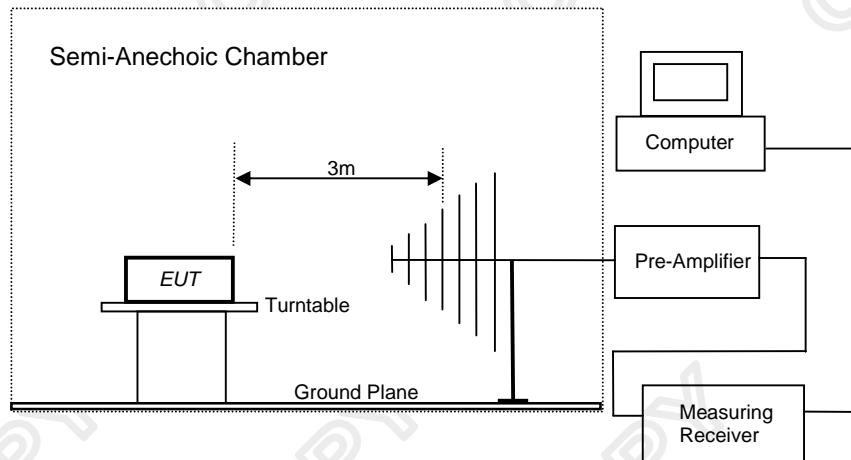
Test Requirement: FCC 47CFR 15.249  
Test Method: ANSI C63.4:2003  
Test Date: 2008-05-21  
Mode of Operation: On mode

#### **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:**



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### Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental	Field Strength of Fundamental Emission [millivolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24-24.25 GHz	250	2500

Results of On mode (Tx, Lowest Channel Frequency): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2418.0	48.0	29.3	77.3	7,328.2	500,000	Vertical
*	4836.0				5,000	Vertical
	7254.0				50,000	Vertical
	9672.0				50,000	Vertical
*	12090.0				5,000	Vertical
	14508.0				50,000	Vertical
	16926.0				50,000	Vertical
*	19344.0				5,000	Vertical
	21762.0				50,000	Vertical
	24180.0				50,000	Vertical

**Emissions detected are more than  
20 dB below the FCC Limits**

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2418.0	26.1	29.3	55.4	588.8	50,000	Vertical

Remarks:

\*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

No further spurious emissions found between lowest internal frequency and 30MHz.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB  
1GHz to 18GHz 5.1dB

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### Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental	Field Strength of Fundamental Emission [millivolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24-24.25 GHz	250	2500

Results of On mode (Tx, Middle Channel Frequency): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2450.0	47.7	29.5	77.2	7,244.4	500,000	Vertical
*	4900.0				5,000	Vertical
	7350.0				50,000	Vertical
	9800.0				50,000	Vertical
*	12250.0				5,000	Vertical
	14700.0				50,000	Vertical
	17150.0				50,000	Vertical
*	19600.0				5,000	Vertical
	22050.0				50,000	Vertical
	24500.0				50,000	Vertical

**Emissions detected are more than  
20 dB below the FCC Limits**

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2450.0	25.6	29.5	55.1	568.9	50,000	Vertical

Remarks:

\*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

No further spurious emissions found between lowest internal frequency and 30MHz.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB  
1GHz to 18GHz 5.1dB

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### Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental	Field Strength of Fundamental Emission [millivolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24-24.25 GHz	250	2500

Results of On mode (Tx, Highest Channel Frequency): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2475.0	47.2	29.7	76.9	6,998.4	500,000	Vertical
*	4950.0				5,000	Vertical
	7425.0				50,000	Vertical
	9900.0				50,000	Vertical
*	12375.0				5,000	Vertical
	14850.0				50,000	Vertical
	17325.0				50,000	Vertical
*	19800.0				5,000	Vertical
	22275.0				50,000	Vertical
	24750.0				50,000	Vertical

**Emissions detected are more than  
20 dB below the FCC Limits**

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dB $\mu$ V/m	Correction Factor dB $\mu$ V/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	E-Field Polarity
2475.0	24.3	29.7	54.0	501.2	50,000	Vertical

Remarks:

\*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

No further spurious emissions found between lowest internal frequency and 30MHz.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB  
1GHz to 18GHz 5.1dB

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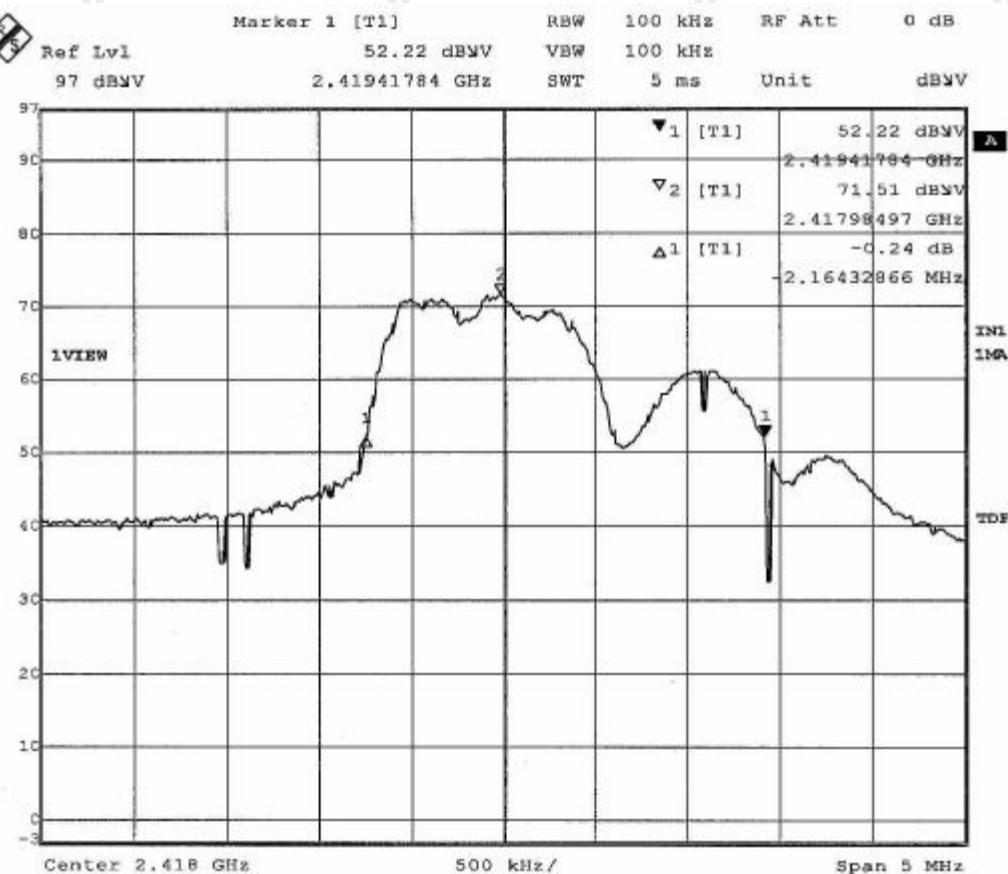
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Lowest Channel Frequency: 2418MHz BW=2.164MHz



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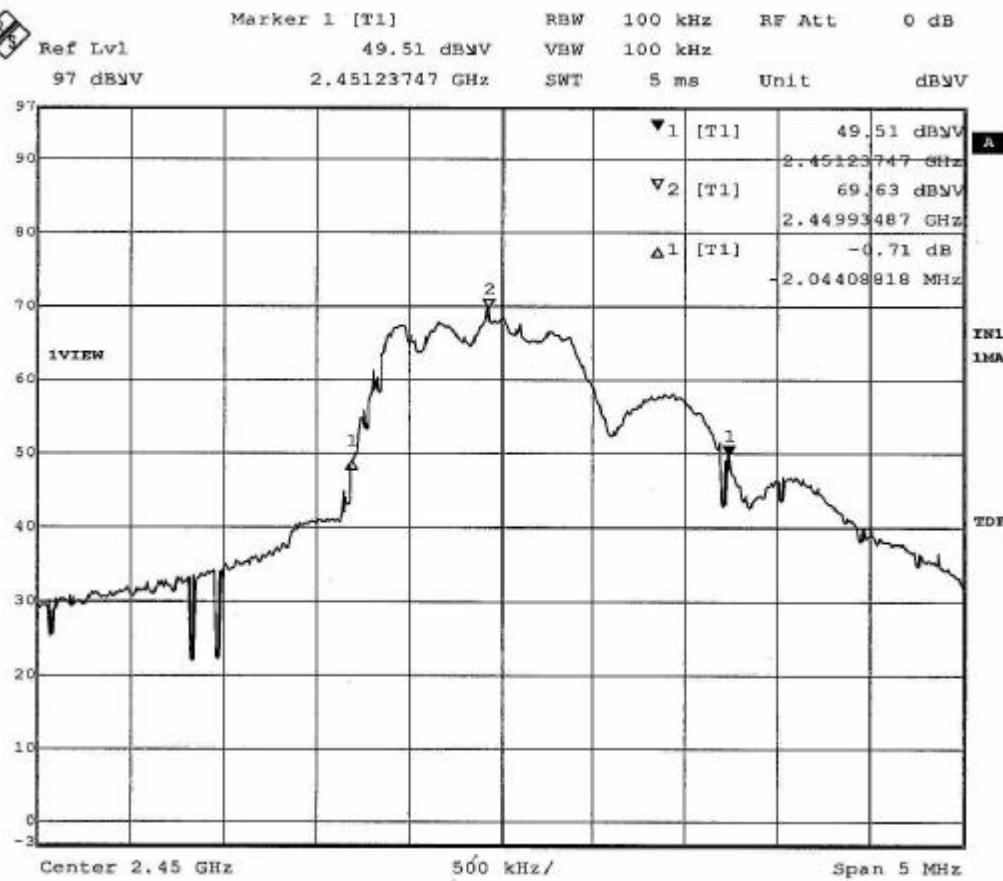
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Middle Channel Frequency: 2418MHz BW=2.164MHz



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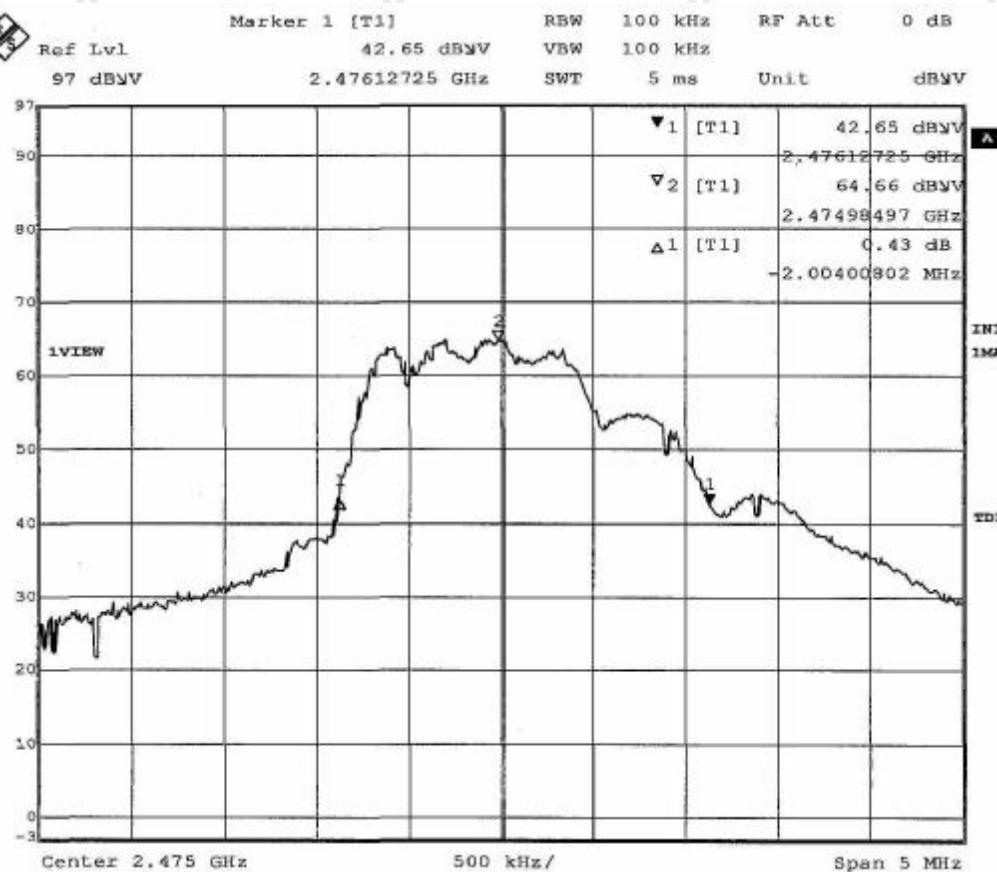
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**Highest Channel Frequency: 2.475MHz BW=2.004MHz**



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### Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency [MHz]	Field Strength [microvolts/meter]	Measurement Distance [meter]
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Radiated Emissions Peak Value					
Emission Frequency MHz	E-Field Polarity	Level @3m dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Level @3m $\mu$ V/m	Limit @3m $\mu$ V/m
4935.0	Vertical	36.5	74.0	66.8	5000.0

Radiated Emissions Average Value					
Emission Frequency MHz	E-Field Polarity	Level @3m dB $\mu$ V/m	Limit @3m dB $\mu$ V/m	Level @3m $\mu$ V/m	Limit @3m $\mu$ V/m
4935.0	Vertical	24.5	54.0	16.8	500.0

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty	:	30MHz to 1GHz	5.2dB
		1GHz to 18GHz	5.1dB

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### 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-Linggren	FACT-3	--	2006/05/02	2009/05/02
EM219	BICONILOG ANTENNA	EMCO	3142C	00029071	2006/08/23	2008/08/23
EM229	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB40	100248	2007/07/20	2008/08/20
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2006/07/26	2009/07/26
EM020	HORN ANTENNA	EMCO	3115	4032	2006/07/11	2009/07/11

##### Remarks:-

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

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### **Appendix B**

#### **Photographs of EUT**

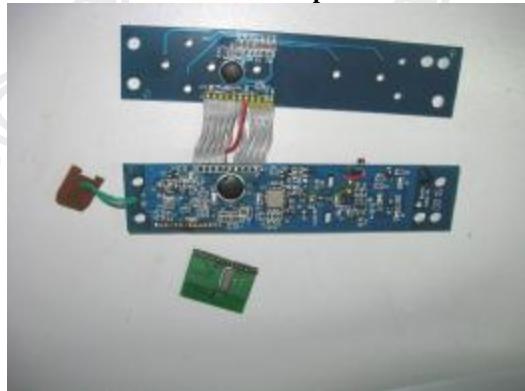
**Front View of the product**



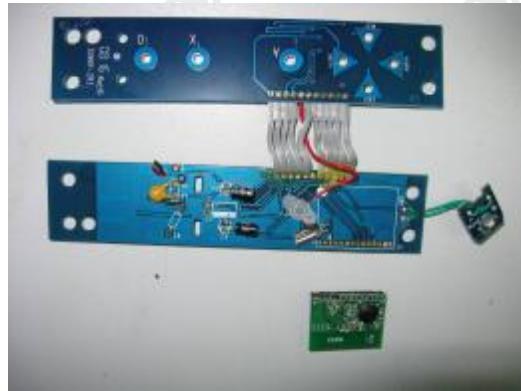
**Rear View of the product**



**Inner Circuit Top View**



**Inner Circuit Bottom View**



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### **Photographs of EUT**

**Measurement of Radiated Emission Test Set Up**



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

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