



## **STC Test Report**

Date : 2009-04-28

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No. : HM163396

**Applicant (SUT008):**

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

**Description of Samples:**

Product: Multi-Link 200 Walkie Talkies  
Brand Name: Discovery Kids  
Model Number: 30000  
FCC ID: II630000

**Date Samples Received:**

2009-04-16

**Date Tested:**

2009-04-24

**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:**

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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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### **Appendix A**

List of Measurement Equipment

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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**

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

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

Product:	Multi-Link 200 Walkie Talkies
Manufacturer:	Supersonics Electronics Toys (Shenzhen) Co., Ltd.
Brand Name:	Discovery Kids
Model Number:	30000
Input Voltage:	9Vd.c. ("6F22" size battery x 1)

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

The Equipment Under Test (EUT) is a Supersonics Electronics Toys (Shenzhen) Co., Ltd., Multi-Link 200 Walkie Talkies. The transmitter is a button transmitter. The EUT continues to transmit while button is being pressed. Modulation by microphone and type is amplitude modulation.

### **1.4 Date of Order**

2009-04-16

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

1 Sample

### **1.6 Test Duration**

2009-04-24

### **1.7 Country of Origin**

China

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### **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**

<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

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### **3.0 Test Results**

#### **3.1 Emission**

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

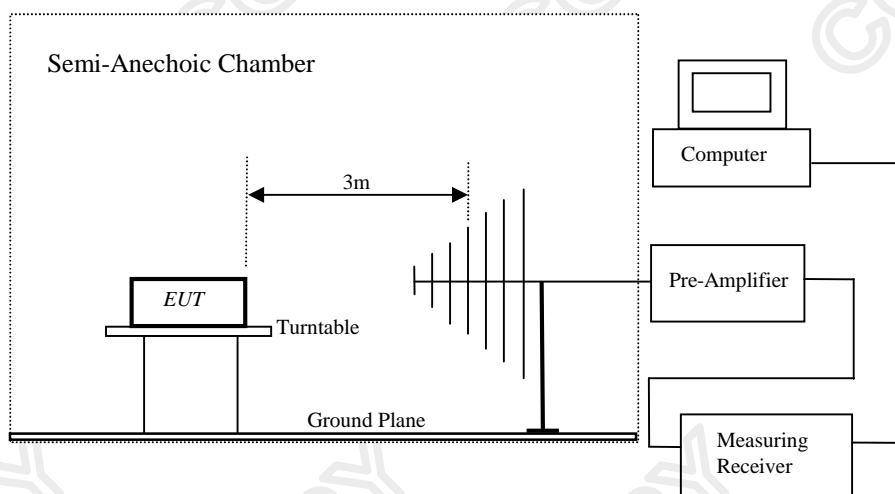
Test Requirement: FCC 47CFR 15.209  
Test Method: ANSI C63.4:2003  
Test Date: 2009-04-24  
Mode of Operation: Tx mode

#### **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:**



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

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [Peak] [μV/m]	Field Strength of Fundamental Emission [Average] [μV/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 dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
49.86	64.9	9.2	74.1	5,069.9	100,000	Vertical

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
49.86	55.8	9.2	65.0	1,778.3	10,000	Vertical

### Remarks:

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.

For effective averaging, the bandwidth of the video filter must be smaller than the resolution bandwidth. The higher the ratio of resolution bandwidth to video bandwidth, the greater the averaging will be recorded. Below setting for HP8572A EMI Receiver.

Resolution Bandwidth                      =3MHz  
Video Bandwidth                              =1Hz

Correction Factor includes Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

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### 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 of Tx Mode: PASS

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	28.2	8.8	37.0	70.8	150	Vertical
149.58	26.8	9.3	36.1	63.8	150	Vertical
199.44	28.4	11.9	40.3	103.5	150	Vertical
249.30	< 1.0	15.9	< 16.9	< 7.0	200	Vertical
299.16	< 1.0	16.9	< 17.9	< 7.9	200	Vertical
349.02	< 1.0	17.2	< 18.2	< 8.1	200	Vertical
398.88	< 1.0	18.8	< 19.8	< 9.8	200	Vertical
448.74	< 1.0	19.7	< 20.7	< 10.8	200	Vertical
498.60	22.9	20.5	43.4	147.9	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 5.2dB

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### 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 of Rx Mode: PASS

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
59.00	29.7	8.1	37.8	77.6	100	Vertical
99.72	< 1.0	9.4	< 10.4	< 3.3	100	Vertical
149.58	< 1.0	9.0	< 10.0	< 3.2	100	Vertical
199.44	< 1.0	9.3	< 10.3	< 3.3	100	Vertical
249.30	< 1.0	15.9	< 16.9	< 7.0	200	Vertical
299.16	< 1.0	17.4	< 18.4	< 8.3	200	Vertical
349.02	< 1.0	17.2	< 18.2	< 8.1	200	Vertical
398.88	< 1.0	18.8	< 19.8	< 9.8	200	Vertical
448.74	< 1.0	19.7	< 20.7	< 10.8	200	Vertical
498.60	< 1.0	20.6	< 21.6	< 12.0	200	Vertical

#### Remark:

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

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

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### **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:	2009-04-24
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.

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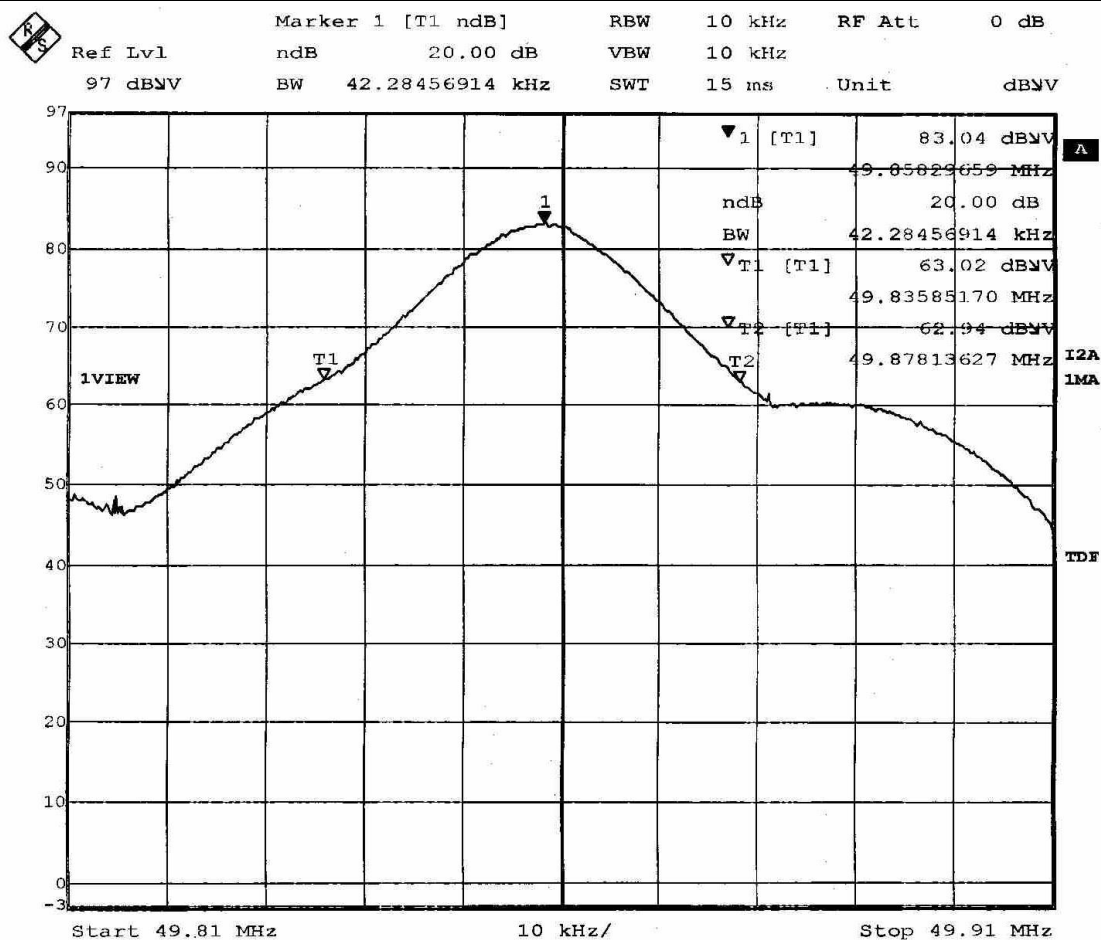
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### Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [KHz]	FCC Limits [MHz]
49.86	42.3	within 49.82-49.90

### 20dB Bandwidth of Fundamental Emission



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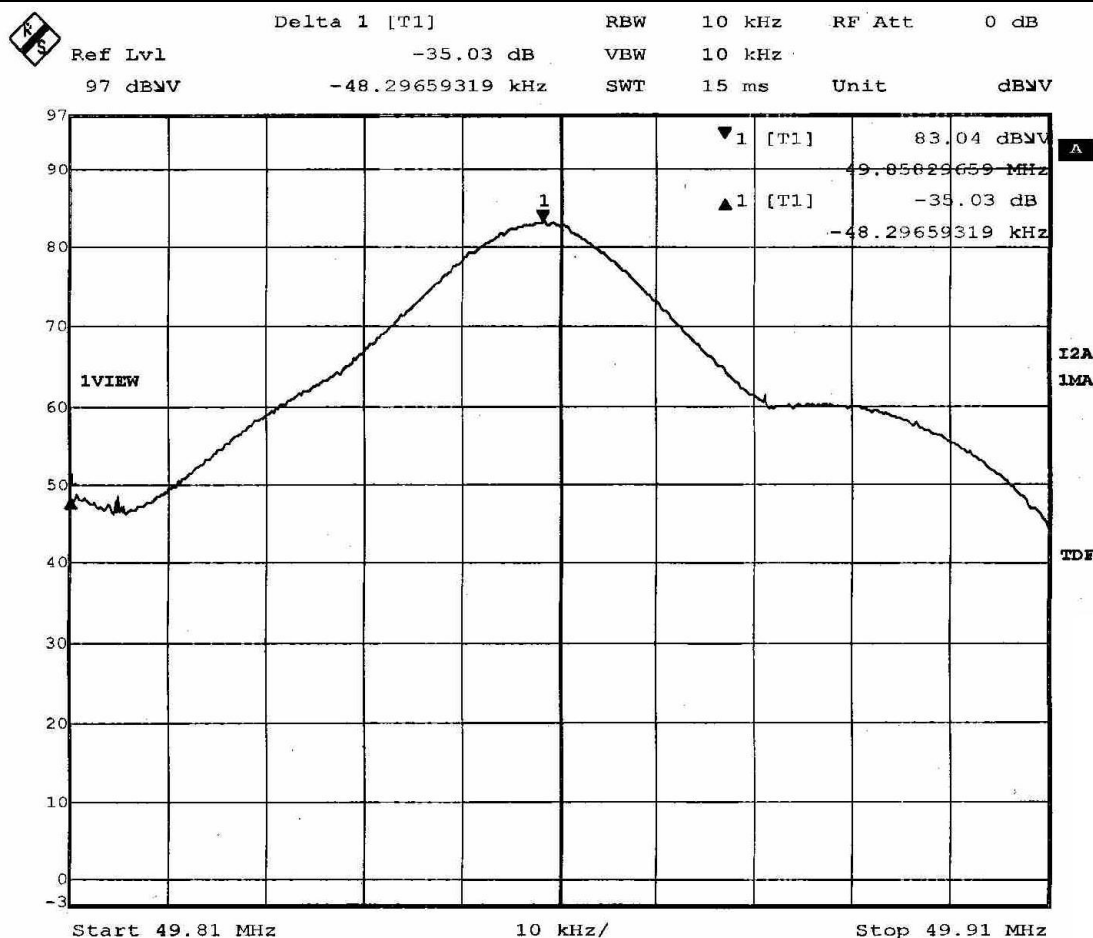
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### 35dB Level Reduction at Band Edge



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### **Appendix A**

#### **List of Measurement Equipment**

##### **Radiated Emission**

<b>EQP NO.</b>	<b>DESCRIPTION</b>	<b>MANUFACTURER</b>	<b>MODEL NO.</b>	<b>SERIAL NO.</b>	<b>LAST CAL</b>	<b>DUE CAL</b>
EM020	HORN ANTENNA	EMCO	3115	4032	2006/07/11	2009/07/11
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	--	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	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

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### **Appendix B**

#### **Photographs of EUT**

**Front View of the product**



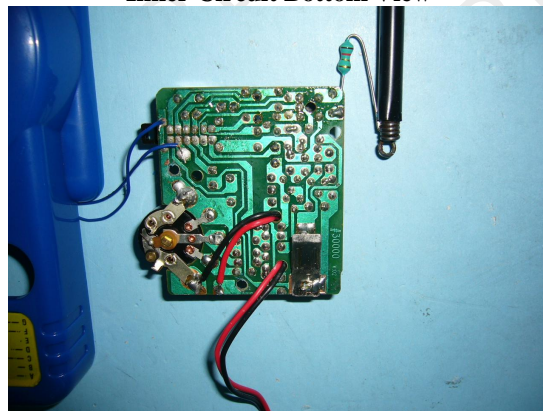
**Rear View of the product**



**Inner Circuit Top View**



**Inner Circuit Bottom View**



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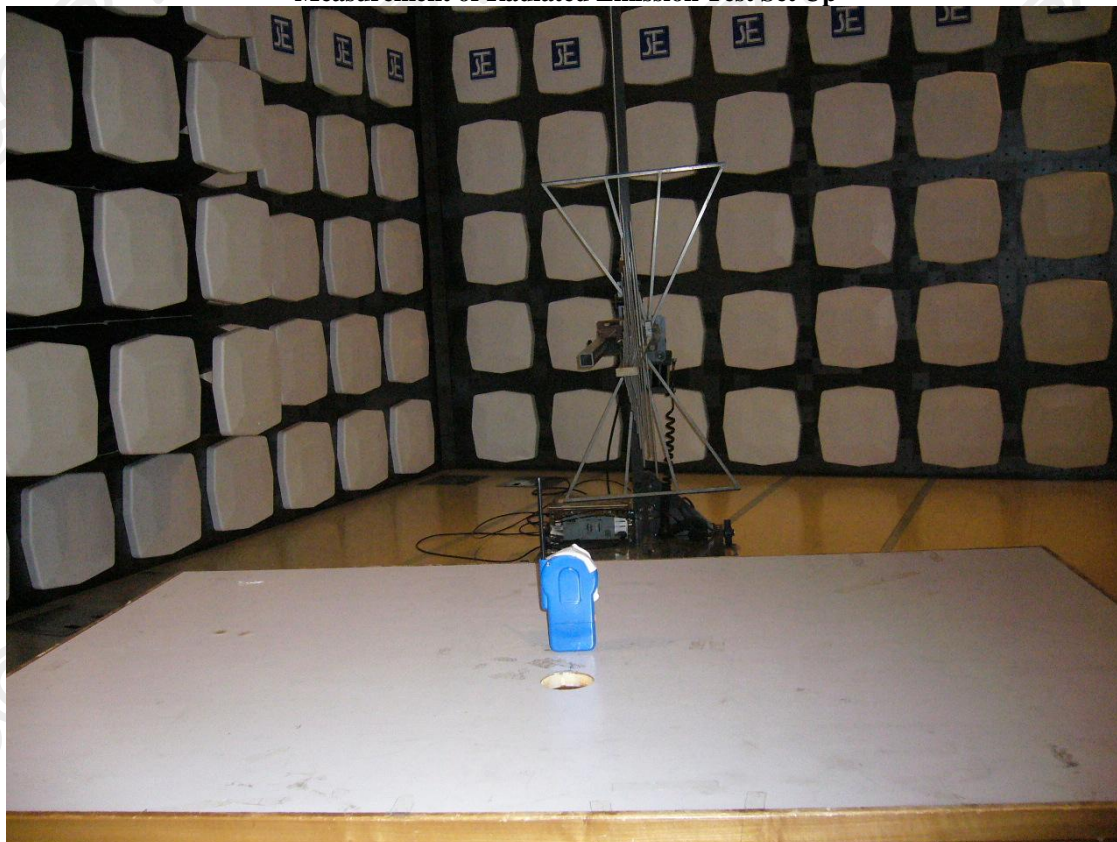
Date : 2009-04-28

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### **Photographs of EUT**

**Measurement of Radiated Emission Test Set Up**



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

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