



STC Test Report

Date : 2008-07-03

Page 1 of 16

No. : HM162000

Applicant (NEB001): New Bright Industrial Co. Ltd.
9/F, New Bright Building, 11 Sheung Yuet Road
Kowloon Bay Hong Kong China

Manufacturer: New Bright Industrial Co. Ltd.
9/F, New Bright Building, 11 Sheung Yuet Road
Kowloon Bay Hong Kong China

Description of Samples:

| | |
|---------------|-------------------------------|
| Product: | Radio Control Toy Transmitter |
| Brand Name: | New Bright |
| Model Number: | G6D3377HHS |
| FCC ID: | G6D3377HHS |

Date Samples Received: 2008-06-19

Date Tested: 2008-06-26

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: ---

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 E-mail: hkstc@hkstc.org



STC Test Report

Date : 2008-07-03

Page 2 of 16

No. : HM162000

CONTENT:

| | |
|--|------------------|
| Cover | Page 1 of 16 |
| Content | Page 2-3 of 16 |
| <u>1.0</u> <u>General Details</u> | |
| 1.1 Test Laboratory | Page 4 of 16 |
| 1.2 Applicant Details Applicant Manufacturer | Page 4 of 16 |
| 1.3 Equipment Under Test [EUT] Description of EUT operation | Page 5 of 16 |
| 1.4 Date of Order | Page 5 of 16 |
| 1.5 Submitted Samples | Page 5 of 16 |
| 1.6 Test Duration | Page 5 of 16 |
| 1.7 Country of Origin | Page 5 of 16 |
| <u>2.0</u> <u>Technical Details</u> | |
| 2.1 Investigations Requested | Page 6 of 16 |
| 2.2 Test Standards and Results Summary | Page 6 of 16 |
| <u>3.0</u> <u>Test Results</u> | |
| 3.1 Emission | Page 7-9 of 16 |
| 3.2 Bandwidth Measurement | Page 10-11 of 16 |

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STC Test Report

Date : 2008-07-03

Page 3 of 16

No. : HM162000

Appendix A

List of Measurement Equipment

Page 12 of 16

Appendix B

Duty Cycle Correction During 100 msec

Page 13-14 of 16

Appendix C

Photographs

Page 15-16 of 16

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STC Test Report

Date : 2008-07-03

Page 4 of 16

No. : HM162000

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

New Bright Industrial Co. Ltd.
9/F, New Bright Building, 11 Sheung Yuet Road
Kowloon Bay Hong Kong China

Manufacturer

New Bright Industrial Co. Ltd.
9/F, New Bright Building, 11 Sheung Yuet Road
Kowloon Bay Hong Kong China

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STC Test Report

Date : 2008-07-03

Page 5 of 16

No. : HM162000

1.3 Equipment Under Test [EUT]

Description of Sample

Model Name: Radio Control Toy Transmitter
Manufacturer: New Bright Industrial Co. Ltd.
Brand Name: New Bright
Model Number: G6D3377HHS
Input Voltage: 3Vd.c ("AA" size battery x 2)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a New Bright Industrial Co. Ltd., Radio Control Toy Transmitter. The transmitter is a buttons transmitter. The EUT continues to transmit while button is being pressed, It is pulse transmitter, Modulation by IC, and type is pulse modulation.

1.4 Date of Order

2008-06-19

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2008-06-26

1.7 Country of Origin

China

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STC Test Report

Date : 2008-07-03

Page 6 of 16

No. : HM162000

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

| 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

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STC Test Report

Date : 2008-07-03

Page 7 of 16

No. : HM162000

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

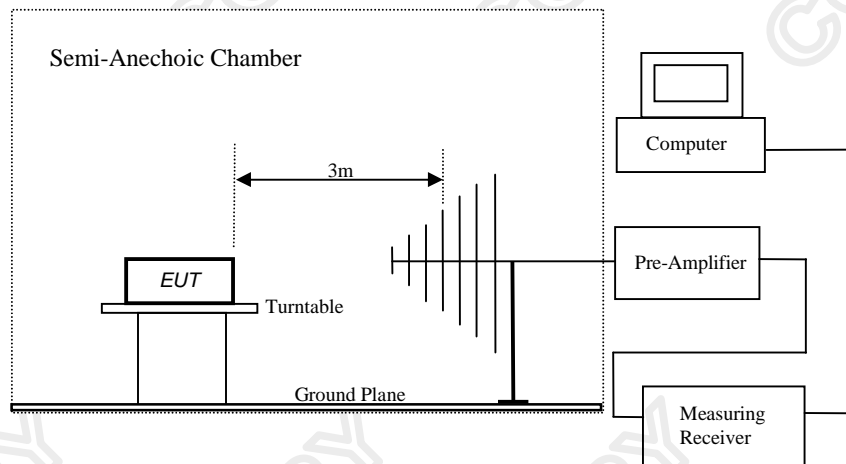
Test Requirement: FCC 47CFR 15.235
Test Method: ANSI C63.4:2003
Test Date: 2008-06-26
Mode of Operation: Tx mode

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 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 : 2008-07-03

Page 8 of 16

No. : HM162000

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 $\text{dB}\mu\text{V}$ | 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 |
| 49.86 | 49.9 | 9.6 | 59.5 | 938.6 | 100,000 | Horizontal |

| Field Strength of Fundamental Emissions Average | | | | | | | |
|--|--|--------------------------------|---|-----------------------------------|-----------------------------------|------------------------------|------------------|
| Frequency MHz | Measured Level @3m $\text{dB}\mu\text{V}$ | Adjusted by Duty Cycle dB/m | Correction Factor $\text{dB}\mu\text{V/m}$ | Field Strength $\mu\text{V/m}$ | Field Strength $\mu\text{V/m}$ | Limit @3m $\mu\text{V/m}$ | E-Field Polarity |
| 49.86 | 48.3 | -1.58 | 9.6 | 57.9 | 785.2 | 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

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STC Test Report

Date : 2008-07-03

Page 9 of 16

No. : HM162000

Limits for Radiated Emissions [FCC 47 CFR 15.209]:

| Frequency Range [MHz] | Quasi-Peak Limits [$\mu\text{V}/\text{m}$] |
|-----------------------|--|
| 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:

| Radiated Emissions Quasi-Peak | | | | | | |
|----------------------------------|---|--|--|---|-------------------------------------|---------------------|
| Frequency MHz | Measured Level @3m $\text{dB}\mu\text{V}$ | Correction Factor dB/m | Field Strength $\text{dB}\mu\text{V}/\text{m}$ | Field Strength $\mu\text{V}/\text{m}$ | Limit @3m $\mu\text{V}/\text{m}$ | E-Field Polarity |
| 99.72 | 20.8 | 10.1 | 30.9 | 35.1 | 150 | Horizontal |
| 149.58 | 24.7 | 10.3 | 35.0 | 56.2 | 150 | Horizontal |
| 199.44 | < 1.0 | 11.5 | < 12.5 | < 4.2 | 150 | Vertical |
| 249.30 | < 1.0 | 15.9 | < 16.9 | < 7.0 | 200 | Vertical |
| 299.16 | 19.3 | 15.3 | 34.6 | 53.7 | 200 | Horizontal |
| 349.02 | < 1.0 | 17.2 | < 18.2 | < 8.1 | 200 | Vertical |
| 398.88 | < 1.0 | 17.3 | < 18.3 | < 8.2 | 200 | Vertical |
| 448.74 | < 1.0 | 20.5 | < 21.5 | < 11.9 | 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 5.2dB

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STC Test Report

Date : 2008-07-03

Page 10 of 16

No. : HM162000

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: 2008-06-26
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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STC Test Report

Date : 2008-07-03

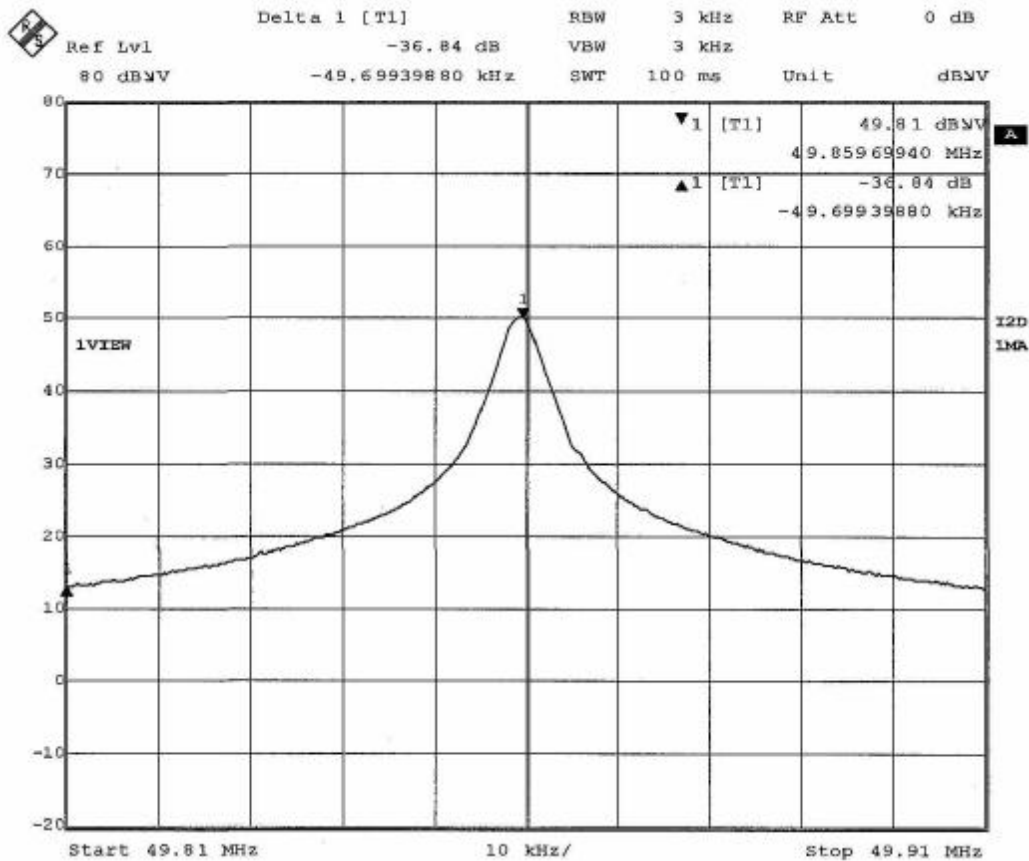
Page 11 of 16

No. : HM162000

Limits for 20dB Bandwidth of Fundamental Emission:

| Frequency Range [MHz] | 20dB Bandwidth [KHz] | FCC Limits [MHz] |
|--------------------------|-------------------------|---------------------|
| 49.86 | 15.05 | within 49.82-49.90 |

20dB Bandwidth of Fundamental Emission



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STC Test Report

Date : 2008-07-03

Page 12 of 16

No. : HM162000

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 |

Remarks:-

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

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STC Test Report

Date : 2008-07-03

Page 13 of 16

No. : HM162000

Appendix B

Duty Cycle Correction During 100msec

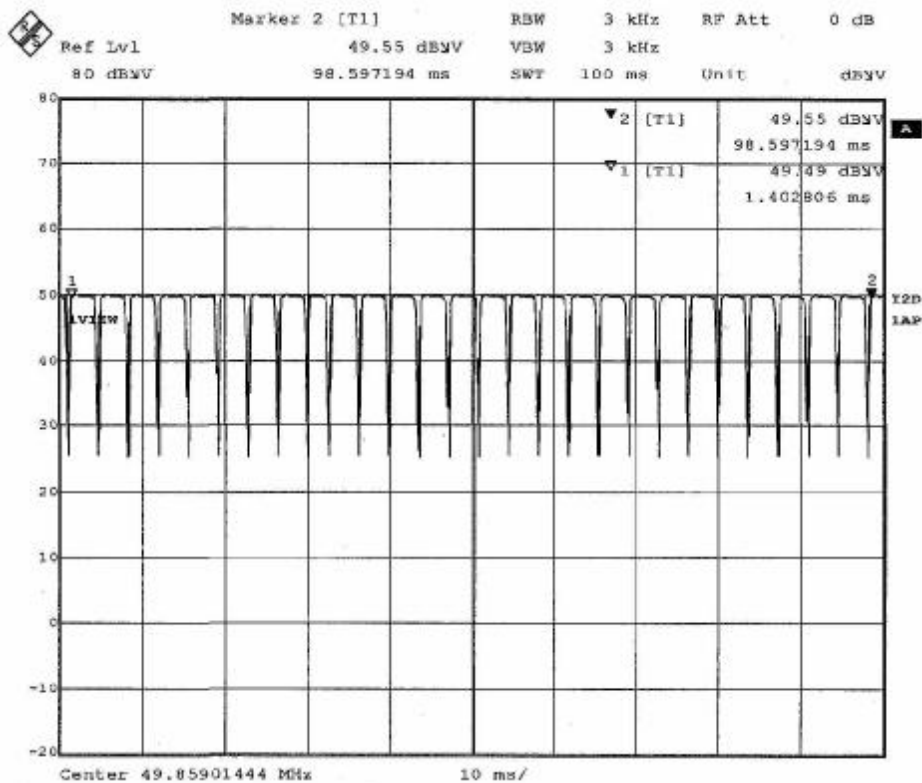
Each function key sends a different series of characters, but each packet period (100msec) never exceeds a series of 27 short (3.086msec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $27 \times 3.086 \text{ msec}$ per $100 \text{ msec} = 83.32\%$ duty cycle. Figure A through B show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = $20\text{Log}(0.833) = -1.58\text{dB}$

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

Figure A [Pulse Train]



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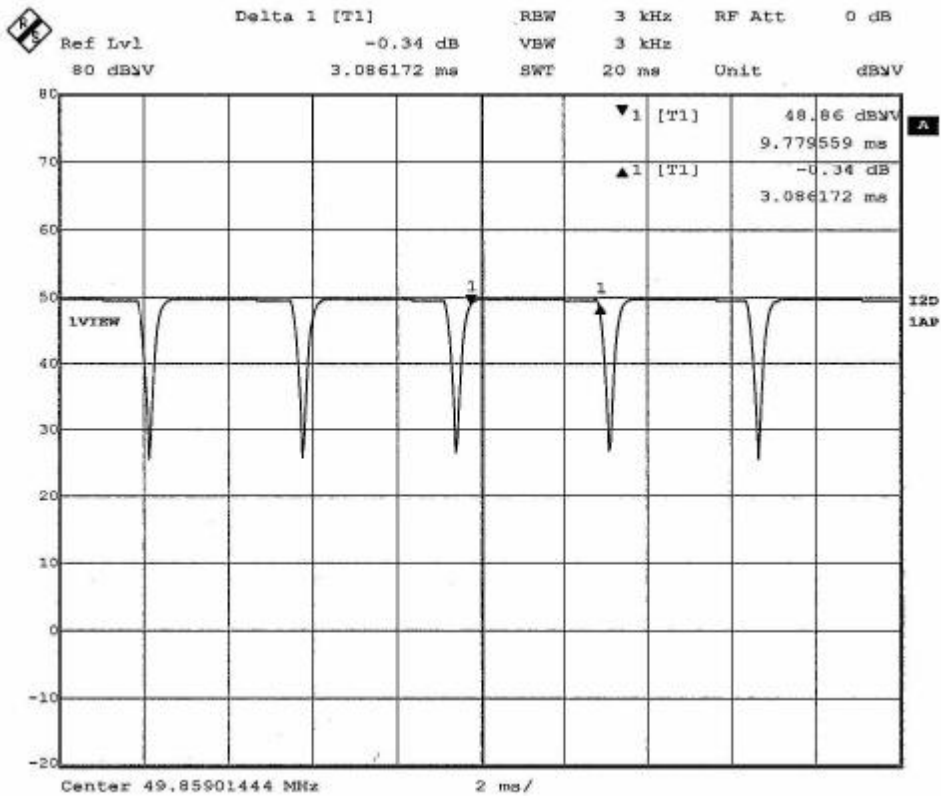
STC Test Report

Date : 2008-07-03

Page 14 of 16

No. : HM162000

Figure B [Pulse period]



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STC Test Report

Date : 2008-07-03

Page 15 of 16

No. : HM162000

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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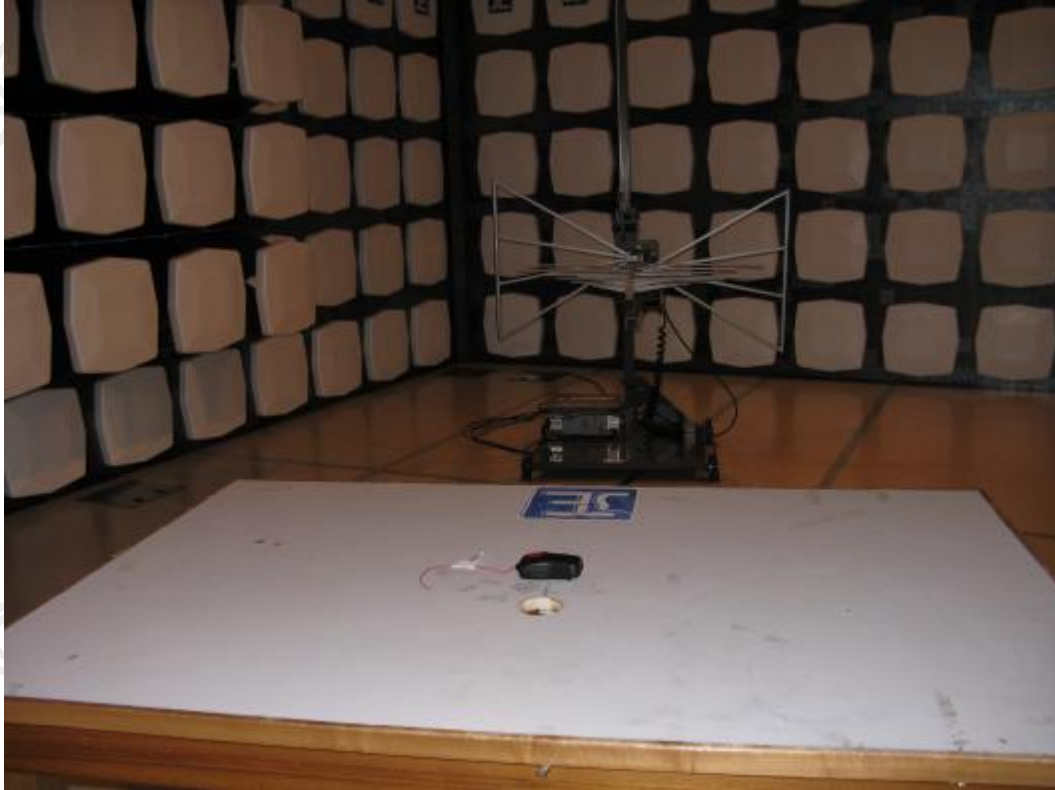
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Page 16 of 16

No. : HM162000

Photographs of EUT

Measurement of Radiated Emission Test Set Up



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