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No. : HM166633

Applicant (NEB001): NEW BRIGHT INDUSTRIAL CO., LTD.

9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET

ROAD, KOWLOON BAY, KOWLOON, H.K.

Manufacturer: NEW BRIGHT INDUSTRIAL CO., LTD.

9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET

ROAD, KOWLOON BAY, KOWLOON, H.K.

Description of Sample(s): Product: Radio Control Toy Transmitter

Brand Name: New Bright
Model Number: G6DBT44-5
FCC ID: G6DBT44-5

Date Sample(s) Received: 2011-04-29

Date Tested: 2011-05-11 to 2011-05-12

Investigation Requested: Perform ElectroMagnetic Interference measurement in

accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2010 and ANSI C63.4:2009 for FCC Certification.

Conclusion(s): The submitted product <u>COMPLIED</u> 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.



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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

NEW BRIGHT INDUSTRIAL CO., LTD. 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, H.K.

Manufacturer

NEW BRIGHT INDUSTRIAL CO., LTD. 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, H.K.



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1.3 Equipment Under Test [EUT] Description of Sample(s)

Product: Radio Control Toy Transmitter

Manufacturer: NEW BRIGHT INDUSTRIAL CO., LTD.

9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD,

KOWLOON BAY, KOWLOON, H.K.

Brand Name: New Bright Model Number: G6DBT44-5

Input Voltage: 3.7Vd.c. (Rechargeable Battery x 1)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a New Bright Industrial Co., Ltd. Radio Control Toy Transmitter. The EUT is a transmitter of radio control toy. The transmitter was operating with 4 buttons, the EUT continues to transmit while button is being on, It is pulse transmitter, Modulation by IC, and type is ASK modulation.

1.4 Date of Order

2011-04-19

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2011-05-11 to 2011-05-12

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: 2010 Regulations and ANSI C63.4:2009 for FCC Certification.

2.2 Test Standards and Results Summary Tables

| EMISSION Results Summary | | | | | | | | | |
|---|------------------|-----------------|----------|------|----------|-----|--|--|--|
| Test Condition | Test Requirement | Test Method | Class / | Te | est Resu | ılt | | | |
| | | | Severity | Pass | Fail | N/A | | | |
| Field Strength of Fundamental & Harmonics Emissions | FCC 47CFR 15.249 | ANSI C63.4:2009 | N/A | | | | | | |
| Radiated Emissions | FCC 47CFR 15.209 | ANSI C63.4:2009 | N/A | | | | | | |

Note: N/A - Not Applicable



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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

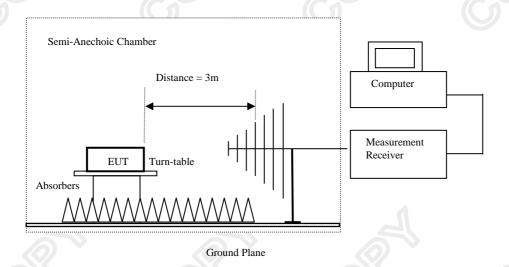
Test Requirement: FCC 47CFR 15.249
Test Method: ANSI C63.4:2009
Test Date: 2011-05-12
Mode of Operation: Tx mode

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:



Absorbers placed on top of the ground plane are for measurements above 1000MHz only.



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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 | Field Strength of Harmonics Emission | | |
|--------------------------------|--|---|--|--|
| [MHz] | [microvolts/meter] | [microvolts/meter] | | |
| 902-928 | 50,000 [Average] | 500 [Average] | | |
| 2400-2483.5 | 50,000 [Average] | 500 [Average] | | |

Results of Tx mode: Pass

| Field Strength of Fundamental Emissions Quasi-Peak Value | | | | | | | | |
|---|-----------|------------|----------|----------|-----------|------------|--|--|
| Frequency | Measured | Correction | Field | Field | Limit @3m | E-Field | | |
| | Level @3m | Factor | Strength | Strength | | Polarity | | |
| MHz | dΒμV/m | dΒμV/m | dBμV/m | μV/m | μV/m | | | |
| 914.8 | 38.9 | 29.7 | 68.6 | 2,691.5 | 50,000 | Horizontal | | |

| Field Strength of Harmonics Emission | | | | | | | | | |
|--------------------------------------|-----------|----------------|---------------|----------|-----------|------------|--|--|--|
| Peak Value | | | | | | | | | |
| Frequency | Measured | Correction | Field | Field | Limit @3m | E-Field | | | |
| | Level @3m | Factor | Strength | Strength | | Polarity | | | |
| MHz | dBμV/m | dBμV/m | dBμV/m | μV/m | μV/m | | | | |
| 1829.6 | | | | | 5,000 | Horizontal | | | |
| * 2744.4 | | | | | 5,000 | Horizontal | | | |
| * 3659.2 | Emiss | sions detected | are more than | | 5,000 | Horizontal | | | |
| * 4574.0 | 20 | dB below the | e Limits | | 5,000 | Horizontal | | | |
| 5488.8 | | | | | 5,000 | Horizontal | | | |
| 6403.6 | | | | | 5,000 | Horizontal | | | |
| * 7318.4 | | | | | 5,000 | Horizontal | | | |
| * 8233.2 | | | | | 5,000 | Horizontal | | | |
| * 9148.0 | | | | | 5,000 | Horizontal | | | |

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

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.

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

^{*:} Denotes restricted band of operation.



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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 | Field Strength of Harmonics Emission | | |
|--------------------------------|--|---|--|--|
| [MHz] | [microvolts/meter] | [microvolts/meter] | | |
| 902-928 | 50,000 [Average] | 500 [Average] | | |
| 2400-2483.5 | 50,000 [Average] | 500 [Average] | | |

Results of Tx mode: Pass

| Field Strength of Harmonics Emission | | | | | | | | | | |
|--------------------------------------|---------------|----------------|---------------|------------|------------|------------|--|--|--|--|
| | Average Value | | | | | | | | | |
| Frequency | Measured | Correction | Field | Field | Limit @3m | E-Field | | | | |
| | Level @3m | Factor | Strength | Strength | | Polarity | | | | |
| MHz | dBμV/m | dΒμV/m | dΒμV/m | μV/m | μV/m | | | | | |
| 1829.6 | | | | | 500 | Horizontal | | | | |
| * 2744.4 | | | | | 500 | Horizontal | | | | |
| * 3659.2 | Emiss | sions detected | are more than | 1 | 500 | Horizontal | | | | |
| * 4574.0 | 20 | dB below the | e Limits | | 500 | Horizontal | | | | |
| 5488.8 | | | | | 500 | Horizontal | | | | |
| 6403.6 | | | | 500 | Horizontal | | | | | |
| * 7318.4 | | | 500 | Horizontal | | | | | | |
| * 8233.2 | | | | | 500 | Horizontal | | | | |
| * 9148.0 | | | | | 500 | Horizontal | | | | |

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

*: 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.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

1GHz to 18GHz 5.1dB



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Limits for 20dB Bandwidth of Fundamental Emission:

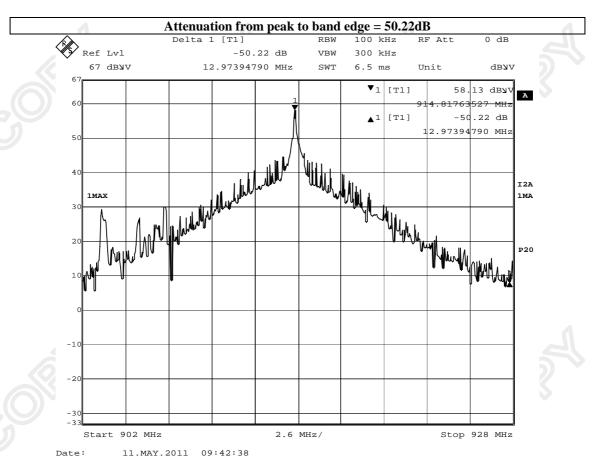
| T D | 20 ID D 1 111 |
|-----------------|----------------|
| Frequency Range | 20dB Bandwidth |
| [MHz] | [MHz] |
| 914.8 | 1.772 |

20dB Bandwidth of Fundamental Emission Marker 1 [T1 ndB] RBW 100 kHz RF Att 0 dB 20.00 dB 300 kHz ndB VBW 67 dbyv BW 1.77154309 MHz SWT 6.5 ms Unit dbyv ▼1 [T1] 58.13 dBy 20.00 dB ndF BW 7154309 MH2 $\nabla_{\mathrm{T}1}$ Plant of the state [T1] 38.23 dBV 913.98396794 MHz 915.75551102 MHz 1MAX Start 902 MHz 2.6 MHz/ Stop 928 MHz 11.MAY.2011 09:39:22



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Limits for Radiated Emissions [FCC 47 CFR 15.209]:

| Frequency Range [MHz] | Field strength [microvolts/meter] | Measurement distance [meters] |
|-----------------------|-----------------------------------|-------------------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above960 | 500 | 3 |

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 on mode (9k - 30MHz): PASS

| | Field Strength of Spurious Emissions | | | | | | | |
|-----------|---|------------|----------|----------|-------|----------|--|--|
| | A verage Value | | | | | | | |
| Frequency | Measured | Correction | Field | Field | Limit | E-Field | | |
| | Level | Factor | Strength | Strength | | Polarity | | |
| MHz | $dB\mu V$ | dB/m | dBμV/m | μV/m | μV/m | | | |
| | Emissions detected are more than 20 dB below the FCC Limits | | | | | | | |

Results of Tx on mode (30MHz - 1000MHz): PASS

| Field Strength of Spurious Emissions Quasi-Peak Value | | | | | | | | |
|--|----------|------------|----------|----------|-------|------------|--|--|
| Frequency | Measured | Correction | Field | Field | Limit | E-Field | | |
| | Level | Factor | Strength | Strength | | Polarity | | |
| MHz | dΒμV | dB/m | dBμV/m_ | μV/m | μV/m | | | |
| 30.60 | 0.1 | 18.2 | 18.3 | 8.2 | 100.0 | Horizontal | | |
| 84.80 | 0.1 | 9.1 | 9.2 | 2.9 | 100.0 | Horizontal | | |
| 212.20 | 0.2 | 12.1 | 12.3 | 4.1 | 150.0 | Horizontal | | |
| 798.10 | 0.1 | 24.8 | 24.9 | 17.6 | 200.0 | Horizontal | | |
| 959.60 | 0.5 | 26.8 | 27.3 | 23.2 | 200.0 | Horizontal | | |



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Results of Tx on mode (Above 1000MHz): PASS

| Field Strength of Spurious Emissions | | | | | | | |
|--------------------------------------|----------|------------|----------|----------|---------|------------|--|
| Peak Value | | | | | | | |
| Frequency | Measured | Correction | Field | Field | Limit | E-Field | |
| | Level | Factor | Strength | Strength | | Polarity | |
| MHz | dΒμV | dB/m | dBμV/m | μV/m | μV/m | 11 | |
| 2744.50 | 36.4 | 2.7 | 39.1 | 90.2 | 5,000.0 | Horizontal | |

Results of Tx on mode (Above 1000MHz): PASS

| Field Strength of Spurious Emissions | | | | | | | | | | |
|--------------------------------------|----------|------------|----------|----------|-------|------------|--|--|--|--|
| Average Value | | | | | | | | | | |
| Frequency | Measured | Correction | Field | Field | Limit | E-Field | | | | |
| | Level | Factor | Strength | Strength | | Polarity | | | | |
| MHz | dΒμV | dB/m | dBμV/m_ | μV/m | μV/m_ | | | | | |
| 2744.50 | 16.4 | 2.7 | 19.1 | 9.0 | 500.0 | Horizontal | | | | |

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty 30MHz to 1GHz 5.1dB



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Appendix A

List of Measurement Equipment

Radiated Emission

| TIWWWWW ZIIIISSIVII | | | | | | | | | |
|---------------------|-------------------------------|--------------|-----------|------------|------------|------------|--|--|--|
| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL | DUE CAL | | | |
| EM020 | HORN ANTENNA | EMCO | 3115 | 4032 | 2009/09/02 | 2011/09/02 | | | |
| 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-Linggren | FACT-3 | | 2008/12/01 | 2011/12/01 | | | |
| EM174 | BICONILOG ANTENNA | EMCO | 3142B | 1671 | 2010/02/09 | 2012/02/09 | | | |
| EM229 | EMI Test Receiver | R&S | ESIB40 | 100248 | 2010/11/02 | 2011/11/02 | | | |
| EM022 | LOOP ANTENNA | EMCO | 6502 | 1189-2424 | 2009/07/26 | 2011/07/26 | | | |

Remarks:-

CMCorrective Maintenance

N/A Not Applicable To Be Determined **TBD**



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Appendix B

Duty Cycle Correction During 100msec

Each function key sends a different series of characters, but each packet period (100msec) never exceeded a series of 2 long (0.601202msec) 2 medium (0.300501msec) and 20 short (0.100200msec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worse case transmit duty cycle would be considered (2x0.601202 msec)+(2x0.300501msec)+(2x0.100200msec) per 100msec = 3.81% duty cycle. Figure A through E shows the characteristics of the pulses train for one of these functions.

Remarks:

Duty Cycle Correction = 20Log (0.0381) =-28.39dB

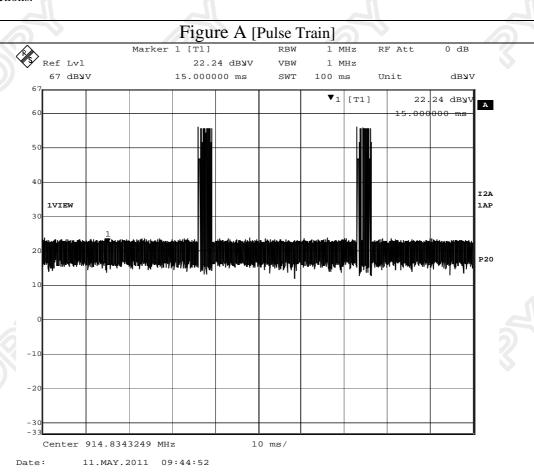
Duty Cycle Correction = -20dB, if the calculation duty cycle correction >-20dB.



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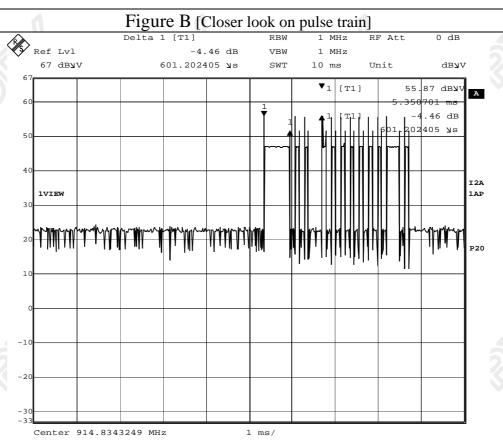
The following figures [Figure A to Figure E] showed the characteristics of the pulse train for one of these functions.





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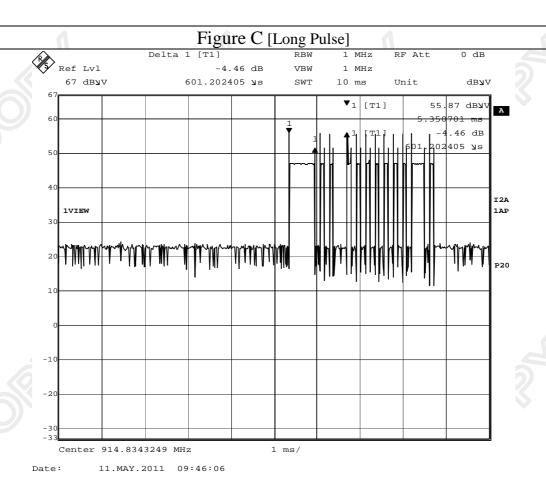


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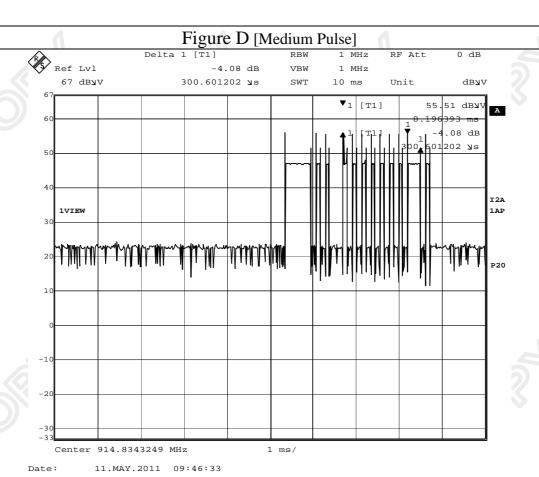
The Hong Kong Standards and Testing Centre Ltd.

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



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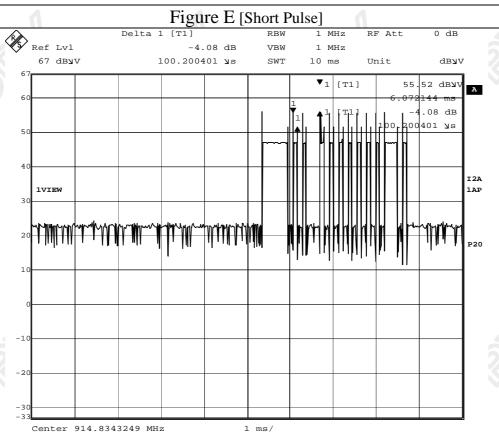
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Appendix C

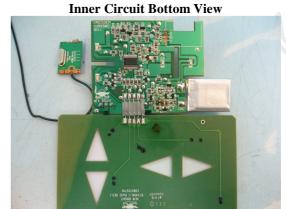
Photographs of EUT





Inner Circuit Top View





The Hong Kong Standards and Testing Centre Ltd.

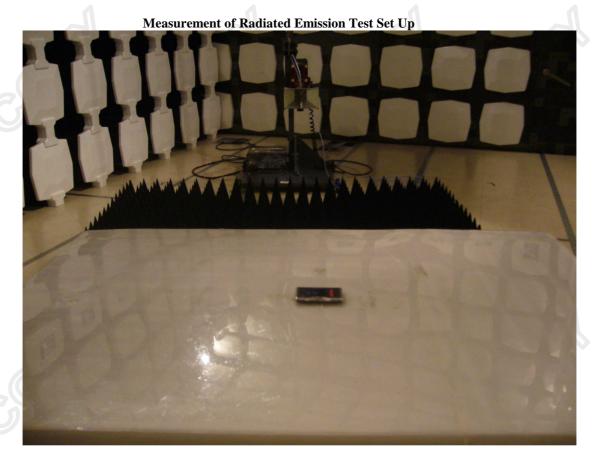
10 Dai Wang Street, Taipo Industrial Estate, N.T., Hong Kong
Tel: (852) 2666 1888 Fax: (852) 2664 4353 Homepage: www.hkstc.org E-mail: hkstc@hkstc.org



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Photographs of EUT



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

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