



STC Test Report

Date : 2010-06-07

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No. : HM165347

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): Submitted samples(s) said to be
Product: Radio Control Toy Transmitter
Brand Name: NEW BRIGHT
Model Number: G6D24244HKW1
FCC ID: G6D24244HKW1

Date Sample(s) Received: 2010-05-28

Date Tested: 2010-06-02

Investigation Requested: Perform ElectroMagnetic Interference measurement in
accordance with FCC 47CFR [Codes of Federal
Regulations] Part 15: 2009 and ANSI C63.4:2003 for FCC
Certification.

Conclusion(s): 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.

Remark(s): ----

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**

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)

Submitted sample(s) said to be

| | |
|----------------|---------------------------------|
| Product: | Radio Control Toy Transmitter |
| Manufacturer: | NEW BRIGHT INDUSTRIAL CO., LTD. |
| Brand Name: | NEW BRIGHT |
| Model Number: | G6D24244HKW1 |
| 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 EUT is a transmitter of radio control toy. The transmitter were operating with joysticks, the EUT continues to transmit while one of the joysticks is being pressed, It is pulse transmitter, Modulation by IC, and type is pulse modulation.

1.4 Date of Order

2010-05-28

1.5 Submitted Sample(s):

1 sample

1.6 Test Duration

2010-06-02

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: 2009 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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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions (30 – 1000MHz)

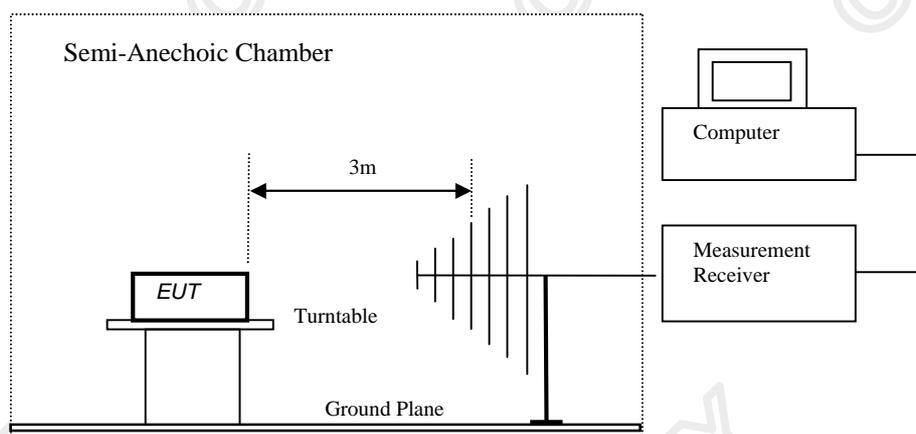
| | |
|--------------------|------------------|
| Test Requirement: | FCC 47CFR 15.235 |
| Test Method: | ANSI C63.4:2003 |
| Test Date: | 2010-06-02 |
| Mode of Operation: | Tx mode |

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 STC (Dongguan) Company Ltd. 68 Fumin Nan Road, Dalang, Dongguan, Guangdong, PRC with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 629686.

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] [$\mu\text{V}/\text{m}$] | Field Strength of Fundamental Emission [Average] [$\mu\text{V}/\text{m}$] |
|---|--|---|
| 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 dB μV | Correction Factor dB/m | Field Strength dB $\mu\text{V}/\text{m}$ | Field Strength $\mu\text{V}/\text{m}$ | Limit @3m $\mu\text{V}/\text{m}$ | E-Field Polarity |
| 49.86 | 60.7 | 9.4 | 70.1 | 3,198.9 | 100,000 | Vertical |

| Field Strength of Fundamental Emissions Average | | | | | | | |
|--|--|------------------------------|---------------------------|---|--|-------------------------------------|------------------|
| Frequency MHz | Measured Level @3m dB μV | Adjusted by Duty Cycle dB | Correction Factor dB/m | Field Strength dB $\mu\text{V}/\text{m}$ | Field Strength $\mu\text{V}/\text{m}$ | Limit @3m $\mu\text{V}/\text{m}$ | E-Field Polarity |
| 49.86 | 55.6 | -5.10 | 9.4 | 65.0 | 1,778.3 | 10,000 | Vertical |

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 5.1dB

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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 |
| 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 of Tx mode: PASS

| Radiated Emissions Quasi-Peak | | | | | | |
|----------------------------------|---|------------------------------|---|--------------------------------------|------------------------------|---------------------|
| Frequency MHz | Measured Level @3m dB μV | 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 | 12.4 | 9.2 | 21.6 | 12.0 | 150 | Vertical |
| 149.58 | 9.7 | 9.4 | 19.1 | 9.0 | 150 | Vertical |
| 199.44 | < 1.0 | 11.1 | < 12.1 | < 4.0 | 150 | Vertical |
| 249.30 | < 1.0 | 14.4 | < 15.4 | < 5.9 | 200 | Vertical |
| 299.16 | 9.2 | 15.4 | 24.6 | 17.0 | 200 | Vertical |
| 349.02 | 9.9 | 16.7 | 26.6 | 21.4 | 200 | Vertical |
| 398.88 | < 1.0 | 17.4 | < 18.4 | < 8.3 | 200 | Vertical |
| 448.74 | < 1.0 | 19.1 | < 20.1 | < 10.1 | 200 | Vertical |
| 498.60 | < 1.0 | 20.6 | < 21.6 | < 12.0 | 200 | Vertical |
| 959.60 | 0.5 | 26.8 | 27.3 | 23.2 | 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 5.1dB

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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: 2010-06-02
Mode of Operation: Tx 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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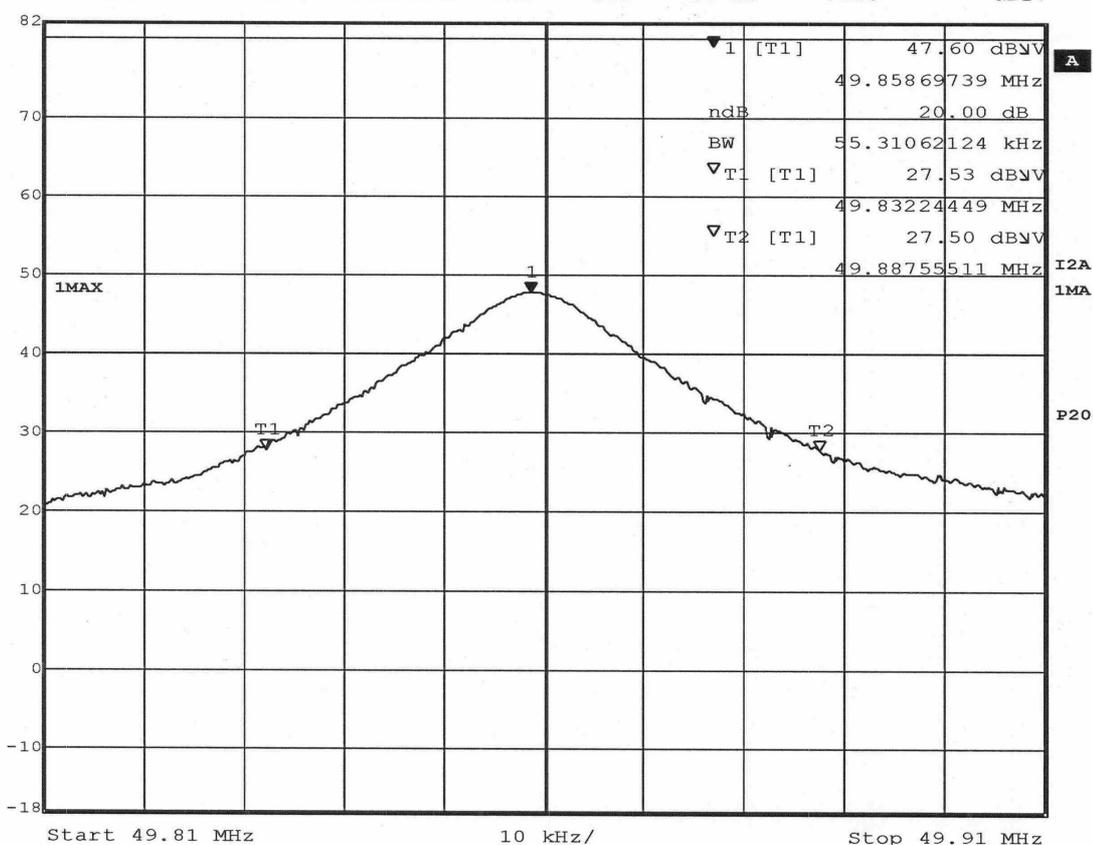
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Limits for 20dB Bandwidth of Fundamental Emission:

| Frequency Range [MHz] | 20dB Bandwidth [KHz] | FCC Limits [MHz] |
|--------------------------|-------------------------|---------------------|
| 49.86 | 49.832 | within 49.82-49.90 |

20dB Bandwidth of Fundamental Emission

| | | | | | |
|---------------|-------------------|-----------------|--------|--------|-----------------|
| | Marker 1 [T1 ndB] | RBW | 10 kHz | RF Att | 10 dB |
| Ref Lvl | ndB | 20.00 dB | VBW | 30 kHz | |
| 82 dB μ V | BW | 55.31062124 kHz | SWT | 15 ms | Unit dB μ V |



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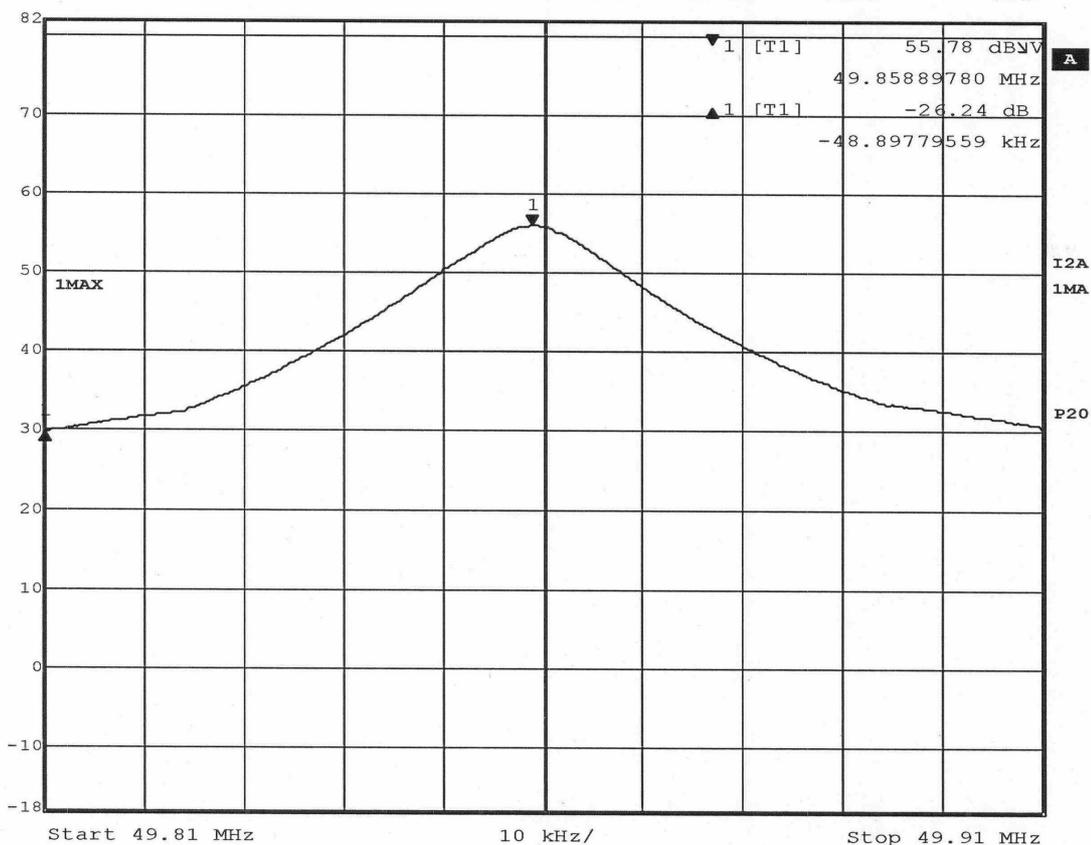
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Attenuation from peak to 10kHz below band edge = 26.24dB > 26dB

| | | | | | |
|---------------|------------------|-----|--------|--------|------------|
| | Delta 1 [T1] | RBW | 10 kHz | RF Att | 10 dB |
| Ref Lvl | -26.24 dB | VBW | 30 kHz | | |
| 82 dB μ V | -48.89779559 kHz | SWT | 15 ms | Unit | dB μ V |



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Appendix A

List of Measurement Equipment

Radiated Emission

| EQP NO. | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | LAST CAL | DUE CAL |
|---------|-------------------------------|--------------|-----------|------------|------------|------------|
| EM020 | HORN ANTENNA | EMCO | 3115 | 4032 | 2009/09/02 | 2010/09/02 |
| 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-Lingren | FACT-3 | -- | 2008/12/01 | 2011/12/01 |
| EM194 | BICONILOG ANTENNA | EMCO | 3142B | 1795 | 2008/09/08 | 2010/09/08 |
| EM229 | EMI Test Receiver | R&S | ESIB40 | 100248 | 2009/09/27 | 2010/09/27 |
| EM022 | LOOP ANTENNA | EMCO | 6502 | 1189-2424 | 2009/07/26 | 2011/07/26 |

Remarks:-

CM Corrective Maintenance

N/A Not Applicable

TBD To Be Determined

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Appendix B

Duty Cycle Correction During 100msec

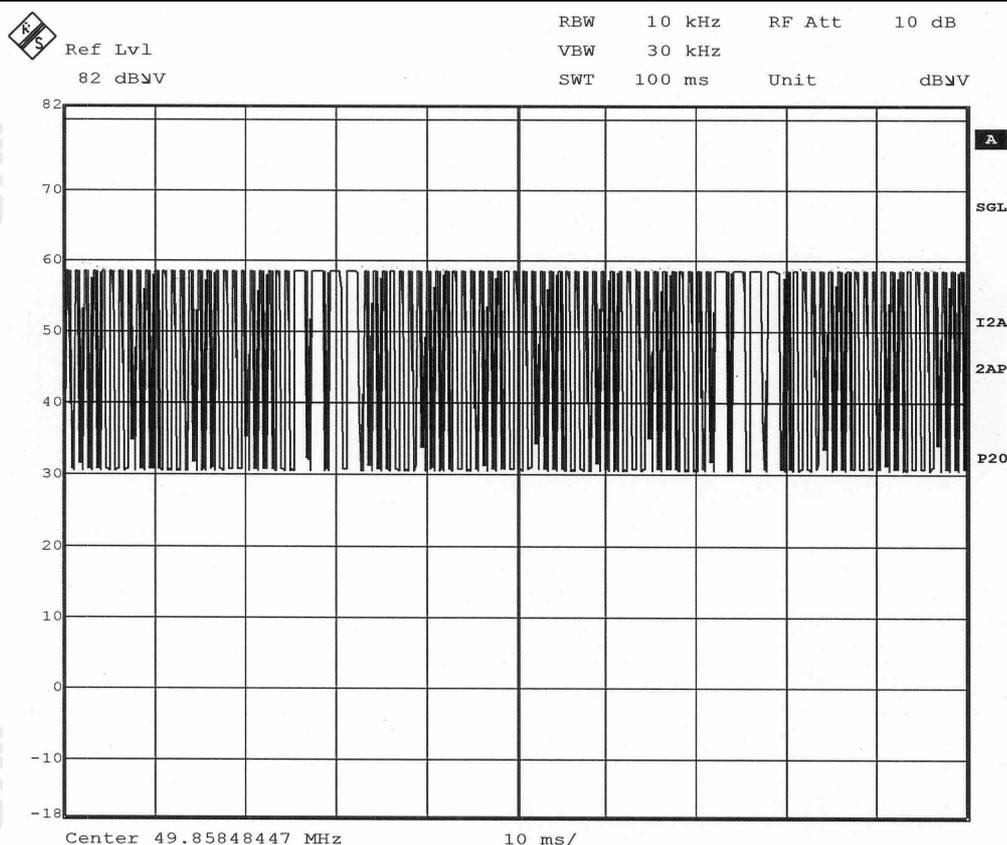
Each function key sends a different series of characters, but each packet period 100msec never exceeds a series of 8 long (1.503msec) and 87 short (501.002μsec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $(8 \times 1.503 \text{ msec}) + (87 \times 0.501002 \text{ msec})$ μsec per 100msec 55.61% duty cycle. Figure A through C show the characteristics of the pulse train for one of these functions.

Remarks:

Duty Cycle Correction = $20\text{Log}(0.5561) = -5.097\text{dB}$

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

Figure A [Pulse Train]



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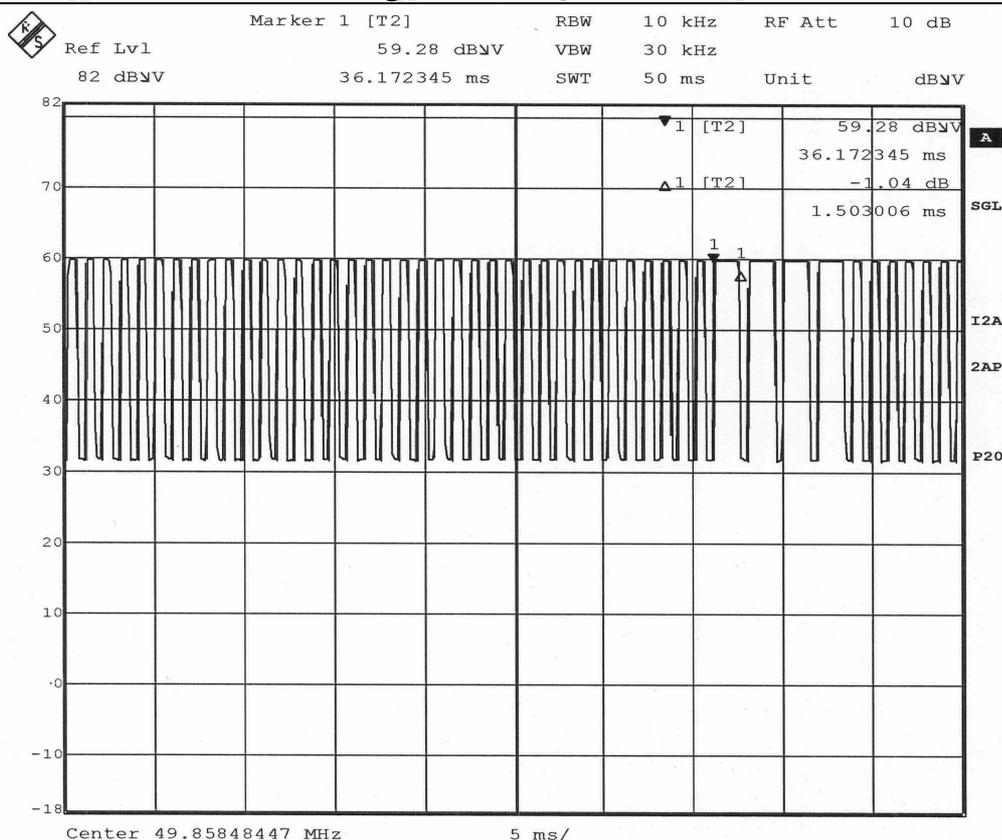
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Figure B [Long Pulse]



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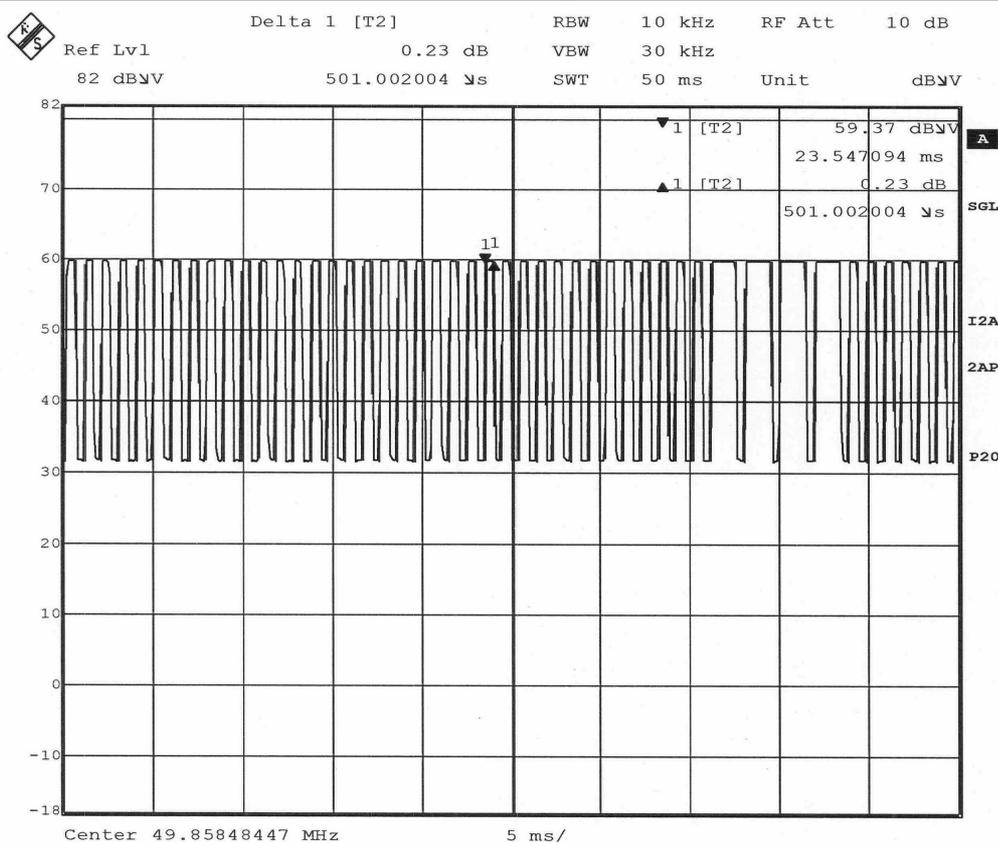
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Figure C [Short Pulse]



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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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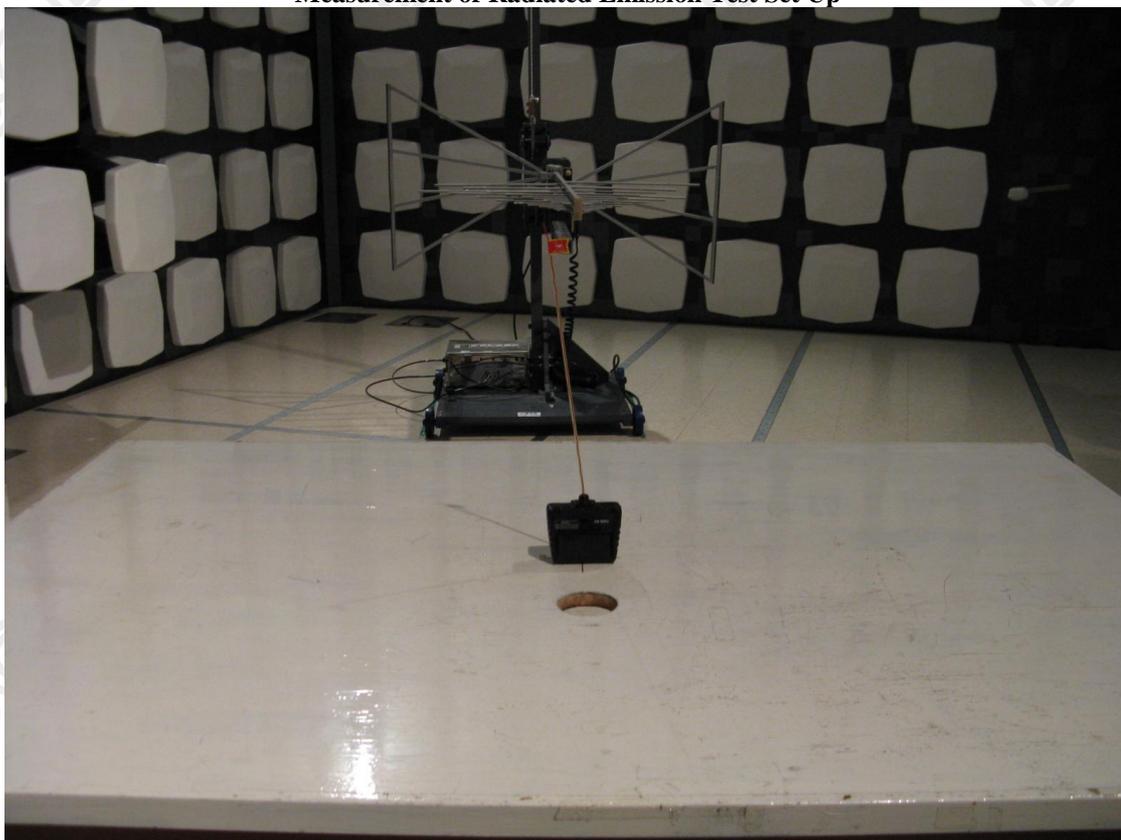
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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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