



STC Test Report

Date : 2008-10-20

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No. : HM162590

Applicant (KIG003):

Kid Galaxy INC
150 Dow Street, Tower2, Unit 425B Manchester,
NH 03101.U.S.A.

Manufacturer:

DONGGUAN LC TECHNOLOGY CO.,LTD.
Qiao LiMgt. District, Changping Town, Dongguan City,
Guangdong Province, China.

Description of Samples:

Product: Coastal Patrol
Brand Name: Wave Breaker – Barracuda
Model Number: 10145
FCC ID: QEABOAT7T

Date Samples Received:

2008-09-30

Date Tested:

2008-10-08

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:

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.

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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

Telephone: 852 2666 1888

Fax: 852 2664 4353

1.2 Applicant Details

Applicant

Kid Galaxy INC
150 Dow Street, Tower2, Unit 425B Manchester,
NH 03101.U.S.A.

Manufacturer

DONGGUAN LC TECHNOLOGY CO.,LTD.
Qiao LiMgt. District, Changping Town, Dongguan City,
Guangdong Province, China.

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1.3 Equipment Under Test [EUT]

Description of Sample

Product: Coastal Patrol
Manufacturer: DONGGUAN LC TECHNOLOGY CO.,LTD.
Brand Name: Wave Breaker – Barracuda
Model Number: 10145
Rating: 9.0Vd.c. (“6F22” size battery x 1)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Kid Galaxy INC, Coastal Patrol. The transmitter is a 2 button transmitter. The EUT continues to transmit while button is being pressed, Modulation by IC, and type is pulse modulation.

1.4 Date of Order

2008-09-30

1.5 Submitted Sample(s):

2 Samples

1.6 Test Duration

2008-10-08

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: 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 | N/A |
| Field Strength of Fundamental Emissions & Spurious Emissions | FCC 47CFR 15.227 | 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 (30 – 1000MHz)

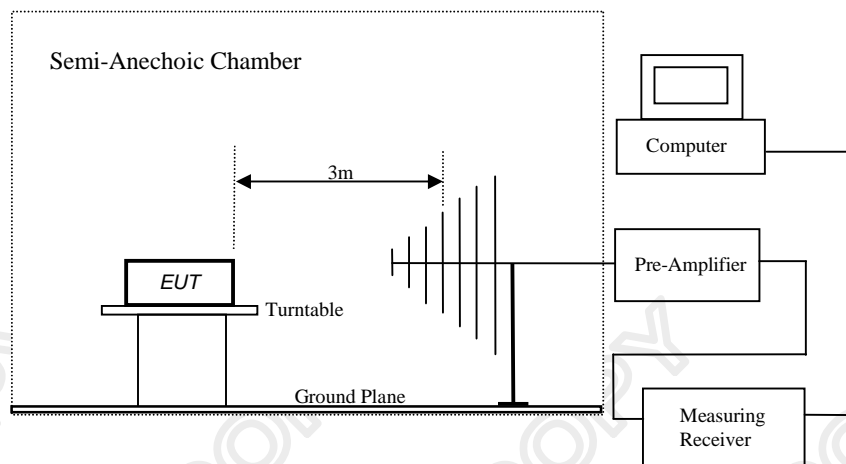
Test Requirement: FCC 47CFR 15.227
Test Method: ANSI C63.4:2003
Test Date: 2008-10-08
Mode of Operation: TX: On Mode (27MHz)

Test Method:

The sample was placed 0.8m above the ground plane on a standard radiated emission test site. 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. In the frequency range of 9kHz to 30MHz, The center of the loop antenna shall be 1 meter above the ground and rotated loop axis for maximum reading. 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 15.227]:

| Frequency Range of Fundamental [MHz] | Field Strength of Fundamental Emission [Peak] [$\mu\text{V}/\text{m}$] | Field Strength of Fundamental Emission [Average] [$\mu\text{V}/\text{m}$] |
|---|--|---|
| 26.96-27.28 | 100,000 | 10,000 |

Results of TX: On Mode (27MHz): 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 |
| 27.145 | 45.60 | 19.2 | 64.8 | 1,737.8 | 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 |
| 27.145 | 41.2 | -4.4 | 19.2 | 60.4 | 1,047.1 | 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 5.2dB

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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 |
| 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: On Mode (27MHz): PASS

| Radiated Emissions Quasi-Peak | | | | | | |
|----------------------------------|---|---------------------------------------|---|--------------------------------------|------------------------------|---------------------|
| Frequency MHz | Measured Level @3m $\text{dB}\mu\text{V}$ | Correction Factor dB/m | Field Strength $\text{dB}\mu\text{V/m}$ | Field Strength $\mu\text{V/m}$ | Limit @3m $\mu\text{V/m}$ | E-Field Polarity |
| 54.29 | < 1.0 | 8.9 | < 9.9 | < 3.1 | 100 | Vertical |
| 81.44 | < 1.0 | 8.1 | < 9.1 | < 2.9 | 100 | Vertical |
| 108.58 | < 1.0 | 10.7 | < 11.7 | < 3.8 | 150 | Vertical |
| 135.73 | < 1.0 | 7.8 | < 8.8 | < 2.8 | 150 | Vertical |
| 162.87 | < 1.0 | 9.9 | < 10.9 | < 3.5 | 150 | Vertical |
| 190.02 | < 1.0 | 12.4 | < 13.4 | < 4.7 | 150 | Vertical |
| 217.16 | < 1.0 | 12.8 | < 13.8 | < 4.9 | 200 | Vertical |
| 244.31 | < 1.0 | 15.0 | < 16.0 | < 6.3 | 200 | Vertical |
| 271.50 | 16.7 | 14.5 | 31.2 | 36.3 | 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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3.2 20dB Bandwidth of Fundamental Emission

Test Requirement: FCC 47 CFR 15.227
Test Method: ANSI C63.4:2003 (Section 13.1.7)
Test Date: 2008-10-08
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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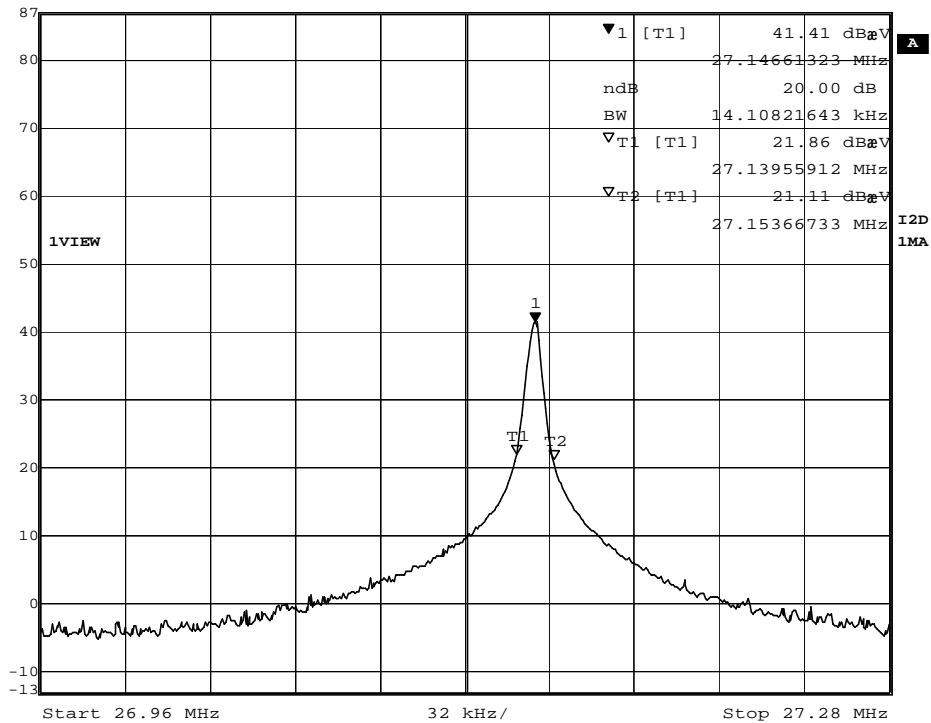
No. : HM162590

Limits for 20dB Bandwidth of Fundamental Emission:

| Frequency Range [MHz] | 20dB Bandwidth [KHz] | FCC Limits [MHz] |
|--------------------------|-------------------------|---------------------|
| 27.145 | 14.1 | within 26.96-27.28 |

20dB Bandwidth of Fundamental Emission

| | | | | |
|-------------------|------|-----------------|--------|------------|
| Marker 1 [T1 ndB] | RBW | 3 kHz | RF Att | 0 dB |
| ndB | VBW | 3 kHz | | |
| Ref Lvl | BW | 14.10821643 kHz | SWT | 90 ms |
| 87 dB μ V | Unit | | | dB μ V |



Date: 8.OCT.2008 12:04:51

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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 |
| EM174 | BICONILOG ANTENNA | EMCO | 3142C | 00029071 | 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

Duty Cycle Correction During 100msec

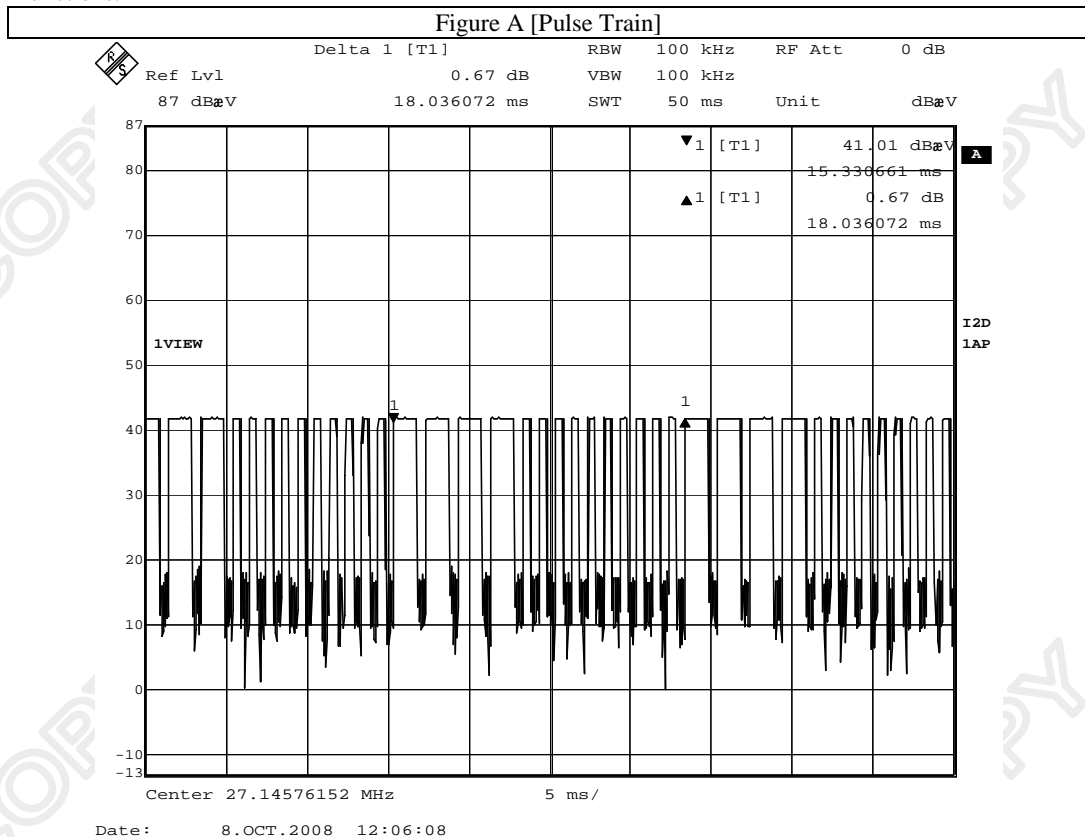
Each function key sends a different series of characters, but each packet period (18msec) never exceeds a series of 4 long (1.5msec) and 10 short (0.481msec) pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered $(4 \times 1.5\text{msec}) + (10 \times 0.48\text{msec})$ per 18msec = 60% duty cycle. Figure A through C show the characteristics of the pulse train for one of these functions.

Remark:

Duty Cycle Correction = $20\text{Log}(0.6) = -4.4\text{dB}$

*Measurement is based on 18msec.

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



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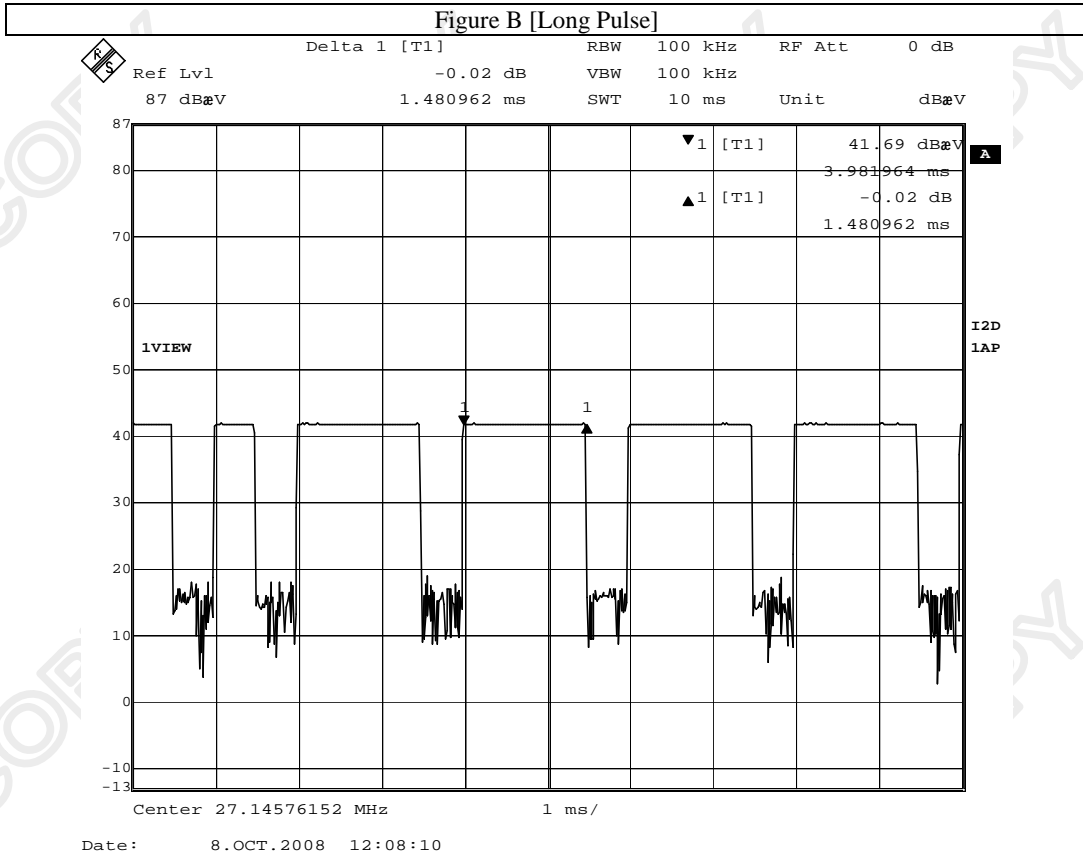


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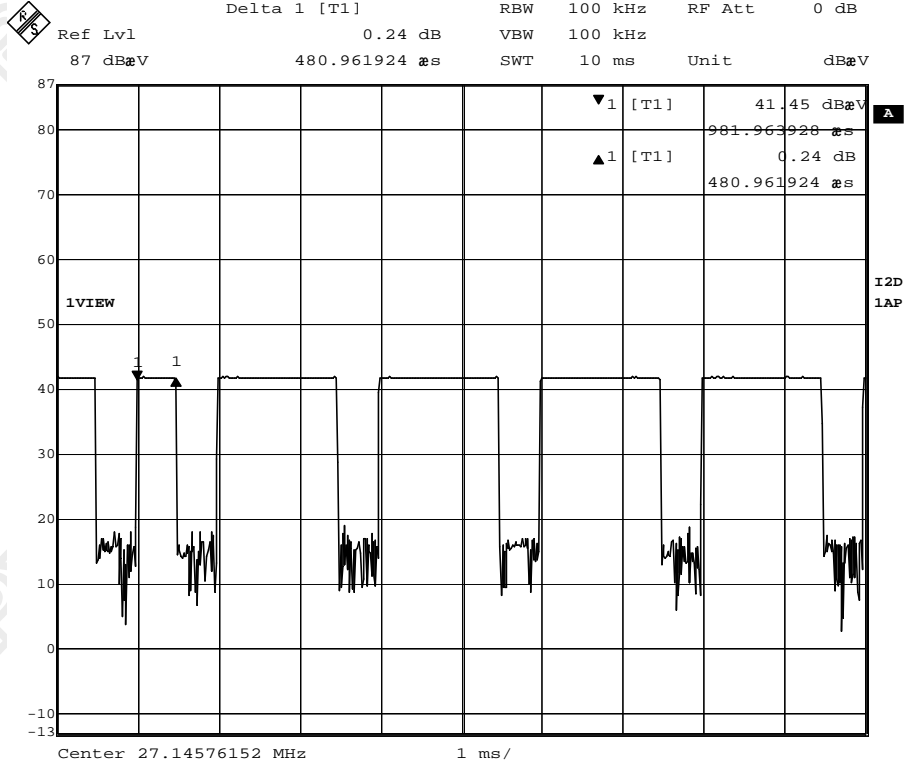
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Figure C [Short Pulse]



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Appendix C

Photographs of EUT

Front View of the product



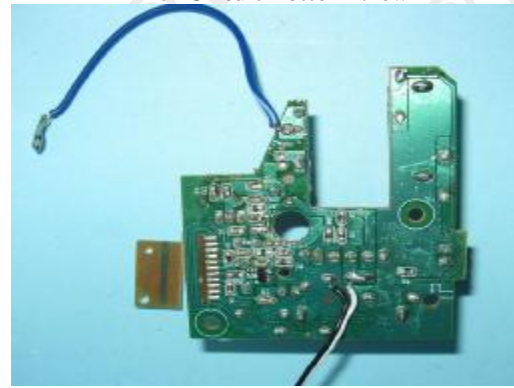
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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