# Pelican Products, Inc.

## Flashlight

## 1910, 1920, 2360, 2370, 3715, 3765

**Report No. PELI0005**

Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

# Certificate of Test

**Last Date of Test: February 21, 2012**
**Pelican Products, Inc.**
**Model: 1910, 1920, 2360, 2370, 3715**

## Emissions

| Test Description | Specification | Test Method | Pass/Fail |
|---|---|---|---|
| Radiated Emissions | EN 61000-6-3:2007 +A1:2011 Class B | CISPR 16-2-3:2010 | **Pass** |
| Radiated Emissions | FCC 15.109(g):2012, CISPR 22:1997 Class B | ANSI C63.4:2009 | **Pass** |

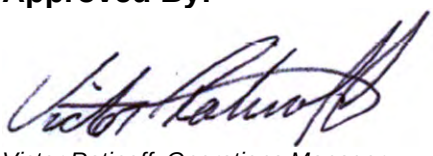
## Immunity

| Test Description | Specification | Test Method | Performance Criteria |
|---|---|---|---|
| ESD | EN 61000-6-1:2007 | IEC 61000-4-2:2008 | **1** |
| Radiated Immunity | EN 61000-6-1:2007 | IEC 61000-4-3:2010 | **1** |
| Magnetic Field Immunity | EN 61000-6-1:2007 | IEC 61000-4-8:2009 | **1** |

## Deviations From Test Standards

**None**

**Approved By:**



*Victor Ratinoff, Operations Manager*

**NVLAP Lab Code: 200676-0**

***This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.***

***Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.***

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

# Certificate of Test

**Last Date of Test: February 7, 2012**
**Pelican Products, Inc.**
**Model: 3765**

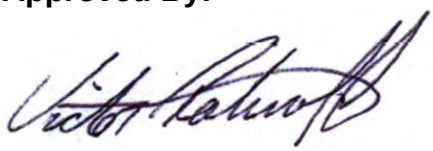
## Emissions

| Test Description | Specification | Test Method | Pass/Fail |
|---|---|---|---|
| Radiated Emissions | FCC 15.109(g):2012, CISPR 22:1997 Class B | ANSI C63.4:2009 | **Pass** |
| Conducted Emissions | FCC 15.107:2012 Class B | ANSI C63.4:2009 | **Pass** |

## Deviations From Test Standards

**None**

**Approved By:**



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# Revision History

| Revision Number | Description | Date | Page Number |
|---|---|---|---|
| 00 | None | | |

# Accreditations and Authorizations

## FCC

Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

## NVLAP

Northwest EMC, Inc. is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

## Industry Canada

Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2, Brooklyn Park: 2834E-1)*

## CAB

Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

## Australia/New Zealand

The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

# Accreditations and Authorizations

## VCCI

Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-3265, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634).*

## BSMI

Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017).

## GOST

Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

## KCC

Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157, Brooklyn Park: US0175)*

## VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

## SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/

# Explanation of NWEMC Performance Criteria

## How important is it to understand performance criteria?

It is the responsibility of the test laboratory to observe the results of the tests that are performed and to accurately report those results. As the responsible party (manufacturer, importer, etc) it is your responsibility to take those results, compare them against the specifications and standards, then, if appropriate make a declaration of conformity. As the responsible party it makes sense that you are fully aware of the requirements, how your device performs when tested to those requirements, and what information is being used to declare conformity.

To better assist you in making those conformity decisions, Northwest EMC has adopted a very simple, yet very clear performance assessment procedure. The following criteria is used when performing immunity or susceptibility tests:

## Performance Criteria 1:

- The EUT exhibited no change in performance when operating as specified by the manufacturer. In this case no changes were observed during the test.
- In most cases this would be equivalent to Performance Criteria A. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, no changes were observed. Basically nothing happened.

## Performance Criteria 2:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment recovered without any operator intervention, once the test signal was removed. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria B. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT was able to recover from those changes without any operator intervention, once the test signal was removed.

## Performance Criteria 3:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment required some operator intervention in order to recover. This intervention may be in the form of changing EUT settings, or even resetting the system. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria C. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT required some sort of operator intervention to recover. There was no permanent damage and the EUT appeared to function normally after completion of test.

## Performance Criteria 4:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment was damaged and would not recover. The data sheets will detail the exact phenomena observed.
- In most cases there is no specific criterion to compare this to; it typically ends the test. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. There was no recovery; the equipment would no longer function as intended.

# Locations



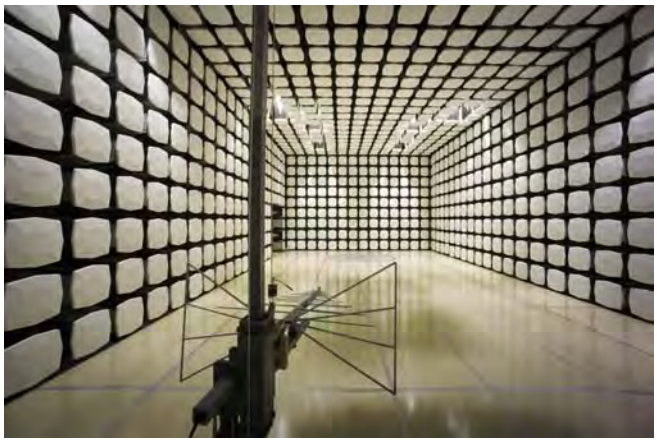
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
Labs SU01-SU07
14128 339th Ave. SE
Sultan, WA 98294
(360) 793-8675

New York
Labs WA01-WA04
4939 Jordan Rd.
Elbridge, NY 13060
(315) 685-0796



# Product Description

## Client and Equipment Under Test (EUT) Information

| | |
|---|---|
| **Company Name:** | Pelican Products, Inc. |
| **Address:** | 23215 Early Avenue |
| **City, State, Zip:** | Torrance, CA 90505 |
| **Test Requested By:** | Laichang Tang |
| **Model:** | 1910, 1920, 2360, 2370, 3715, 3765 |
| **First Date of Test:** | February 7, 2012 |
| **Last Date of Test:** | February 21, 2012 |
| **Receipt Date of Samples:** | February 7, 2012 |
| **Equipment Design Stage:** | Production |
| **Equipment Condition:** | No Damage |

## Information Provided by the Party Requesting the Test

**Functional Description of the EUT (Equipment Under Test):**

Flashlights - models 3715, 1910, 1920, 2360 and 2370 are operated by 4AA alkaline batteries. Model 3765 is operated by 4AA NiMH rechargeable batteries and configured with a charging station.

**Testing Objective:**

Provide testing and documentation necessary to demonstrate compliance with the EMC requirements for the countries and markets specified.

**EUT Photo**


# Product Description




# Configurations

## Configuration 1 PELI0005

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Flashlight | Pelican Products, Inc. | 1910 | None |
| Flashlight | Pelican Products, Inc. | 1920 | None |
| Flashlight | Pelican Products, Inc. | 2360 | None |
| Flashlight | Pelican Products, Inc. | 2370 | None |
| Flashlight | Pelican Products, Inc. | 3715 | None |
| Flashlight | Pelican Products, Inc. | 3765 | None |
| Charging Station | Pelican Products, Inc. | 3766 Charger | None |

| Cables | | | | | |
|---|---|---|---|---|---|
| **Cable Type** | **Shield** | **Length (m)** | **Ferrite** | **Connection 1** | **Connection 2** |
| AC Cable | No | 1.5m | No | AC Cable | AC Mains |
| **PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.** | | | | | |

## Configuration 2 PELI0005

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Flashlight | Pelican Products, Inc. | 3765 | None |
| Charging Station | Pelican Products, Inc. | 3766 Charger | None |

| Cables | | | | | |
|---|---|---|---|---|---|
| **Cable Type** | **Shield** | **Length (m)** | **Ferrite** | **Connection 1** | **Connection 2** |
| AC Cable | No | 1.5m | No | AC Cable | AC Mains |
| **PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.** | | | | | |

## Configuration 3 PELI0005

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Flashlight | Pelican Products, Inc. | 1910 | None |
| Flashlight | Pelican Products, Inc. | 1920 | None |
| Flashlight | Pelican Products, Inc. | 2360 | None |
| Flashlight | Pelican Products, Inc. | 2370 | None |
| Flashlight | Pelican Products, Inc. | 3715 | None |

# Modifications

## Equipment Modifications – Model 3765

| Item | Date | Test | Modification | Note | Disposition of EUT |
|---|---|---|---|---|---|
| 1 | 2/7/2012 | Radiated Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test. |
| 2 | 2/7/2012 | Conducted Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

## Equipment Modifications – Models 1910, 1920, 2360, 2370, 3715

| Item | Date | Test | Modification | Note | Disposition of EUT |
|---|---|---|---|---|---|
| 1 | 2/7/2012 | Radiated Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test. |
| 2 | 2/7/2012 | Magnetic Field Immunity | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test. |
| 3 | 2/20/2012 | Radiated Immunity | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test. |
| 4 | 2/21/2012 | ESD | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

# RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

**MODES OF OPERATION**

All flashlights on.

**POWER SETTINGS INVESTIGATED**

110VAC/60Hz
230VAC/50Hz
Battery

**CONFIGURATIONS INVESTIGATED**

PELI0005 - 1

**FREQUENCY RANGE INVESTIGATED**

| | | | |
|---|---|---|---|
| Start Frequency | 30 MHz | Stop Frequency | 1000 MHz |

**CLOCKS AND OSCILLATORS**

Assumes the highest frequency generated or used in the device or on which the device operates or tunes is <108MHz.

**SAMPLE CALCULATIONS**

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Antenna, Biconilog | EMCO | 3142 | AXK | 4/21/2011 | 12 mo |
| OC08 Cables | N/A | 30MHz-6GHz RE Cables | OCB | 4/4/2011 | 12 mo |
| Pre-Amplifier | Miteq | AM-1551 | AOX | 4/4/2011 | 12 mo |
| Spectrum Analyzer | Agilent | E4443A | AAR | 1/18/2012 | 12 mo |

**MEASUREMENT BANDWIDTHS**

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|---|---|---|---|
| 0.01 - 0.15 | 1.0 | 0.2 | 0.2 |
| 0.15 - 30.0 | 10.0 | 9.0 | 9.0 |
| 30.0 - 1000 | 100.0 | 120.0 | 120.0 |
| Above 1000 | 1000.0 | N/A | 1000.0 |

Measurements were made using the IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements above 1GHz. In that case, a peak detector with a 10Hz video bandwidth was used.

**MEASUREMENT UNCERTAINTY**

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

**TEST DESCRIPTION**

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level was detected. This required the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search was utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT.

Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance was 3 meters or 10 meters. At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna was increased so that the lowest point of the bottom of the antenna cleared the ground surface by at least 25 cm.

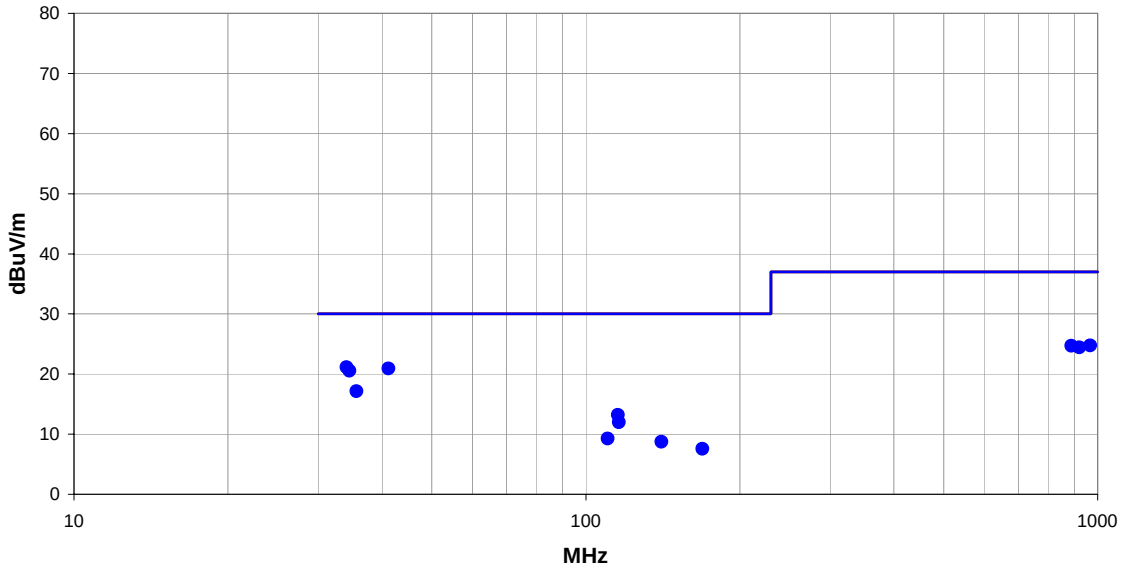
If measurements above 1 GHz were required, the test setup was modified to meet the regulatory requirements for higher frequency measurements. If required, RF absorber was placed on the floor between the measurement antenna and EUT. Measurements were made at a 3 meter test distance with the EUT placed on a 0.8 meter high table. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.

# RADIATED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | PELI0005 | **Date:** | 02/07/12 | | |
| **Project:** | None | **Temperature:** | 15 °C | | |
| **Job Site:** | OC08 | **Humidity:** | 67% RH | | |
| **Serial Number:** | None | **Barometric Pres.:** | 1013 mbar | **Tested by:** | Marty Martin |
| **EUT:** | Flashlight, Models: 1910, 1920, 2360, 2370, 3715, 3765 | | | | |
| **Configuration:** | 1 | | | | |
| **Customer:** | Pelican Products, Inc. | | | | |
| **Attendees:** | None | | | | |
| **EUT Power:** | 110VAC/60Hz | | | | |
| **Operating Mode:** | All flashlights on. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | Model 3765 is equipped with the charging station. Models: 3715, 1910, 1920, 2360 and 2370 are battery operated | | | | |

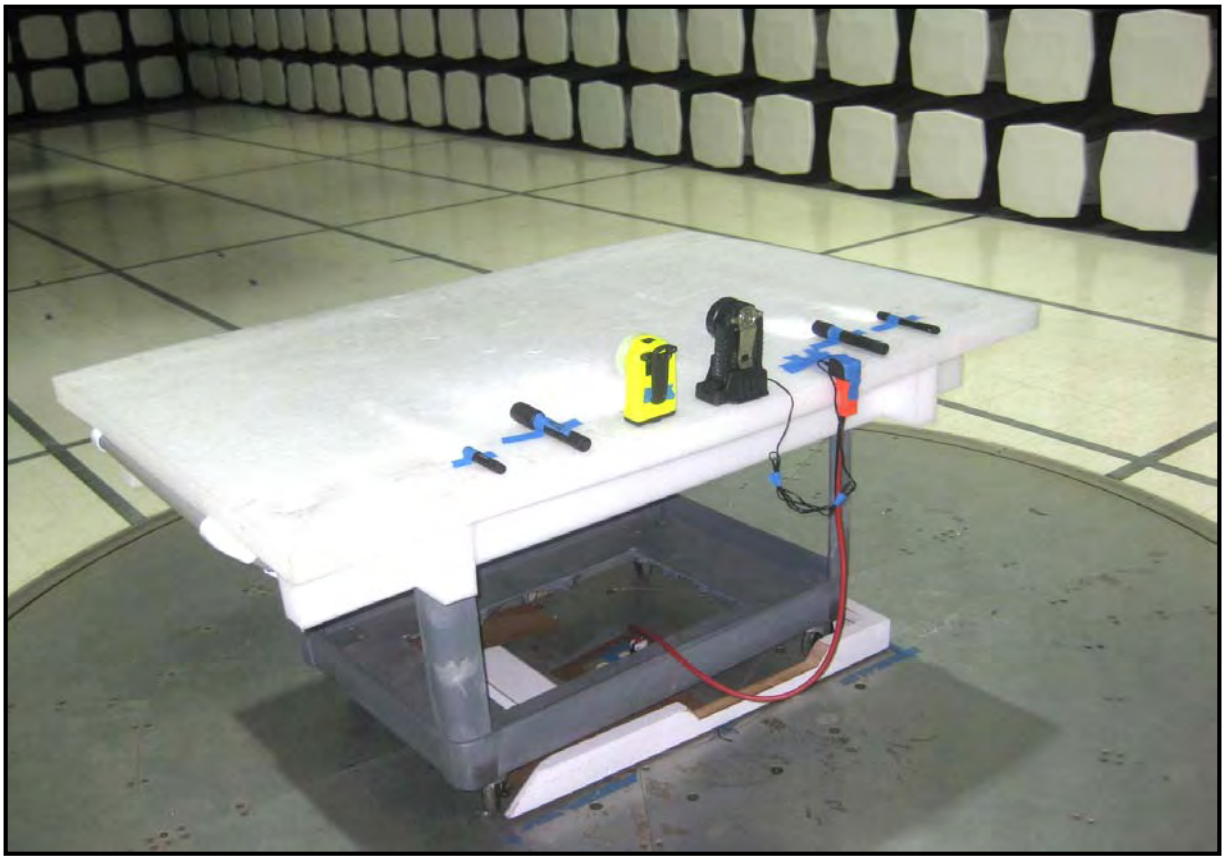
| **Test Specifications** | **Class B** | **Test Method** |
|---|---|---|
| EN 61000-6-3:2007+A1:2011<br>FCC 15.109(g):2012, CISPR 22:1997 | | CISPR 16-2-3:2010<br>ANSI C63.4:2009 |

| **Run #** | 2 | **Test Distance (m)** | 10 | **Antenna Height(s)** | 1-4m | **Results** | Pass |
|---|---|---|---|---|---|---|---|




| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34.079 | 41.0 | -19.9 | 1.8 | 38.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 21.1 | 30.0 | -8.9 |
| 41.165 | 44.4 | -23.5 | 1.5 | 59.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 20.9 | 30.0 | -9.1 |
| 34.532 | 40.7 | -20.1 | 1.5 | 251.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 20.6 | 30.0 | -9.4 |
| 967.493 | 31.0 | -6.2 | 2.0 | 158.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 24.8 | 37.0 | -12.2 |
| 888.126 | 31.3 | -6.6 | 2.5 | 236.0 | 10.0 | 0.0 | Horz | QP | 0.0 | 24.7 | 37.0 | -12.3 |
| 921.231 | 31.2 | -6.8 | 1.5 | 0.0 | 10.0 | 0.0 | Horz | QP | 0.0 | 24.4 | 37.0 | -12.6 |
| 35.649 | 37.9 | -20.8 | 1.0 | 251.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 17.1 | 30.0 | -12.9 |
| 115.644 | 39.7 | -26.5 | 1.0 | 6.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 13.2 | 30.0 | -16.8 |
| 116.055 | 38.5 | -26.5 | 1.0 | 163.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 12.0 | 30.0 | -18.0 |
| 110.396 | 35.4 | -26.1 | 1.0 | -1.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 9.3 | 30.0 | -20.7 |
| 140.505 | 34.7 | -26.0 | 1.0 | 199.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 8.7 | 30.0 | -21.3 |
| 168.959 | 31.2 | -23.6 | 1.0 | 53.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 7.6 | 30.0 | -22.4 |

# RADIATED EMISSIONS



# CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

## MODES OF OPERATION

Flashlight on.

## POWER SETTINGS INVESTIGATED

110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

PELI0005 - 2

## SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

## TEST EQUIPMENT

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| LISN | Solar | 9252-50-24-BNC | LIA | 6/13/2011 | 12 mo |
| Attenuator | Pasternack | 6N10W-20 | AWC | 3/2/2011 | 12 mo |
| High Pass Filter | TTE | H97-100K-50-720B | HFP | 3/8/2010 | 24 mo |
| OC06 Cables | N/A | Telecom Cables | OCP | 4/7/2011 | 12 mo |
| OC06 Cables | N/A | CE Cables | OCM | 4/7/2011 | 12 mo |
| Receiver | Rohde & Schwarz | ESCI | ARF | 4/1/2011 | 12 mo |

## MEASUREMENT BANDWIDTHS

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|---|---|---|---|
| 0.01 - 0.15 | 1.0 | 0.2 | 0.2 |
| 0.15 - 30.0 | 10.0 | 9.0 | 9.0 |
| 30.0 - 1000 | 100.0 | 120.0 | 120.0 |
| Above 1000 | 1000.0 | N/A | 1000.0 |

Measurements were made using the bandwidths and detectors specified. No video filter was used.

## MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

## TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

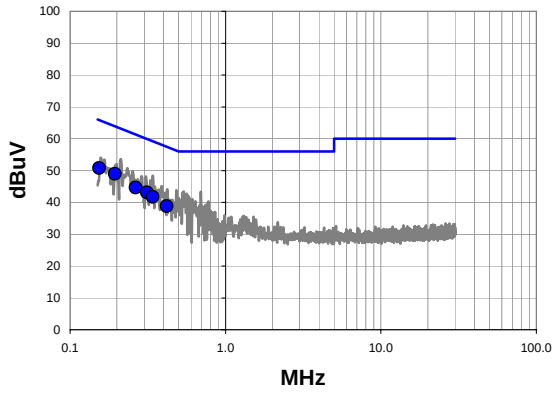
# CONDUCTED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | PELI0005 | **Date:** | 02/07/12 | | |
| **Project:** | None | **Temperature:** | 15 °C | | |
| **Job Site:** | OC06 | **Humidity:** | 68% RH | | |
| **Serial Number:** | None | **Barometric Pres.:** | 1013 mbar | **Tested by:** | Marty Martin |
| **EUT:** | Flashlight, Model: 3765 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Pelican Products, Inc. | | | | |
| **Attendees:** | None | | | | |
| **EUT Power:** | 110VAC/60Hz | | | | |
| **Operating Mode:** | Flashlight on. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | Model 3765 is equipped with the charging station. | | | | |

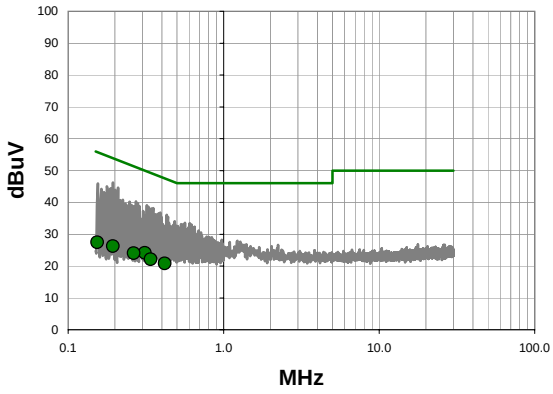
| **Test Specifications** | **Class B** | **Test Method** |
|---|---|---|
| FCC 15.107:2012 | | ANSI C63.4:2009 |

| **Run #** | 3 | **Line:** | Neutral | **Ext. Attenuation:** | 20 | **Results** | Pass |
|---|---|---|---|---|---|---|---|

**Quasi Peak Data - vs - Quasi Peak Limit**




**Average Data - vs - Average Limit**




Quasi Peak Data - vs - Quasi Peak Limit

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---|---|---|---|---|---|
| 0.194 | 28.8 | 20.1 | 48.9 | 63.9 | -15.0 |
| 0.154 | 30.7 | 20.1 | 50.8 | 65.8 | -15.0 |
| 0.264 | 24.5 | 20.1 | 44.6 | 61.3 | -16.7 |
| 0.312 | 23.0 | 20.1 | 43.1 | 59.9 | -16.8 |
| 0.340 | 21.6 | 20.1 | 41.7 | 59.2 | -17.5 |
| 0.419 | 18.7 | 20.1 | 38.8 | 57.5 | -18.7 |

Average Data - vs - Average Limit

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---|---|---|---|---|---|
| 0.312 | 4.0 | 20.1 | 24.1 | 49.9 | -25.8 |
| 0.419 | 0.7 | 20.1 | 20.8 | 47.5 | -26.7 |
| 0.340 | 2.0 | 20.1 | 22.1 | 49.2 | -27.1 |
| 0.264 | 3.9 | 20.1 | 24.0 | 51.3 | -27.3 |
| 0.194 | 6.1 | 20.1 | 26.2 | 53.9 | -27.7 |
| 0.154 | 7.3 | 20.1 | 27.4 | 55.8 | -28.4 |

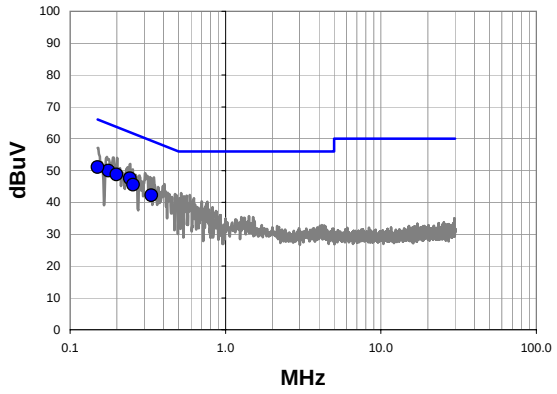
# CONDUCTED EMISSIONS

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | PELI0005 | **Date:** | 02/07/12 | | |
| **Project:** | None | **Temperature:** | 15 °C | | |
| **Job Site:** | OC06 | **Humidity:** | 68% RH | | |
| **Serial Number:** | None | **Barometric Pres.:** | 1013 mbar | **Tested by:** | Marty Martin |
| **EUT:** | Flashlight, Model: 3765 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Pelican Products, Inc. | | | | |
| **Attendees:** | None | | | | |
| **EUT Power:** | 110VAC/60Hz | | | | |
| **Operating Mode:** | Flashlight on. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | Model 3765 is equipped with the charging station. | | | | |

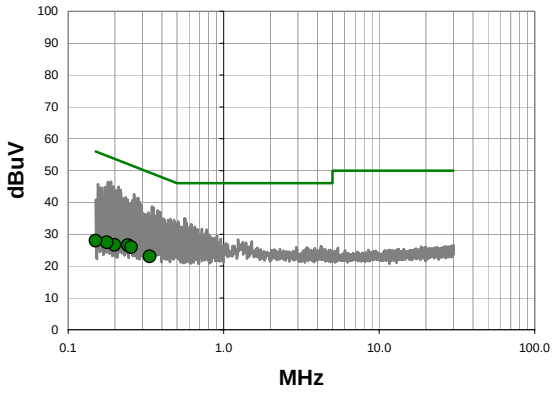
| **Test Specifications** | **Class B** | **Test Method** |
|---|---|---|
| FCC 15.107:2012 | | ANSI C63.4:2009 |

| **Run #** | 4 | **Line:** | High Line | **Ext. Attenuation:** | 20 | **Results** | Pass |
|---|---|---|---|---|---|---|---|

**Quasi Peak Data - vs - Quasi Peak Limit**




**Average Data - vs - Average Limit**



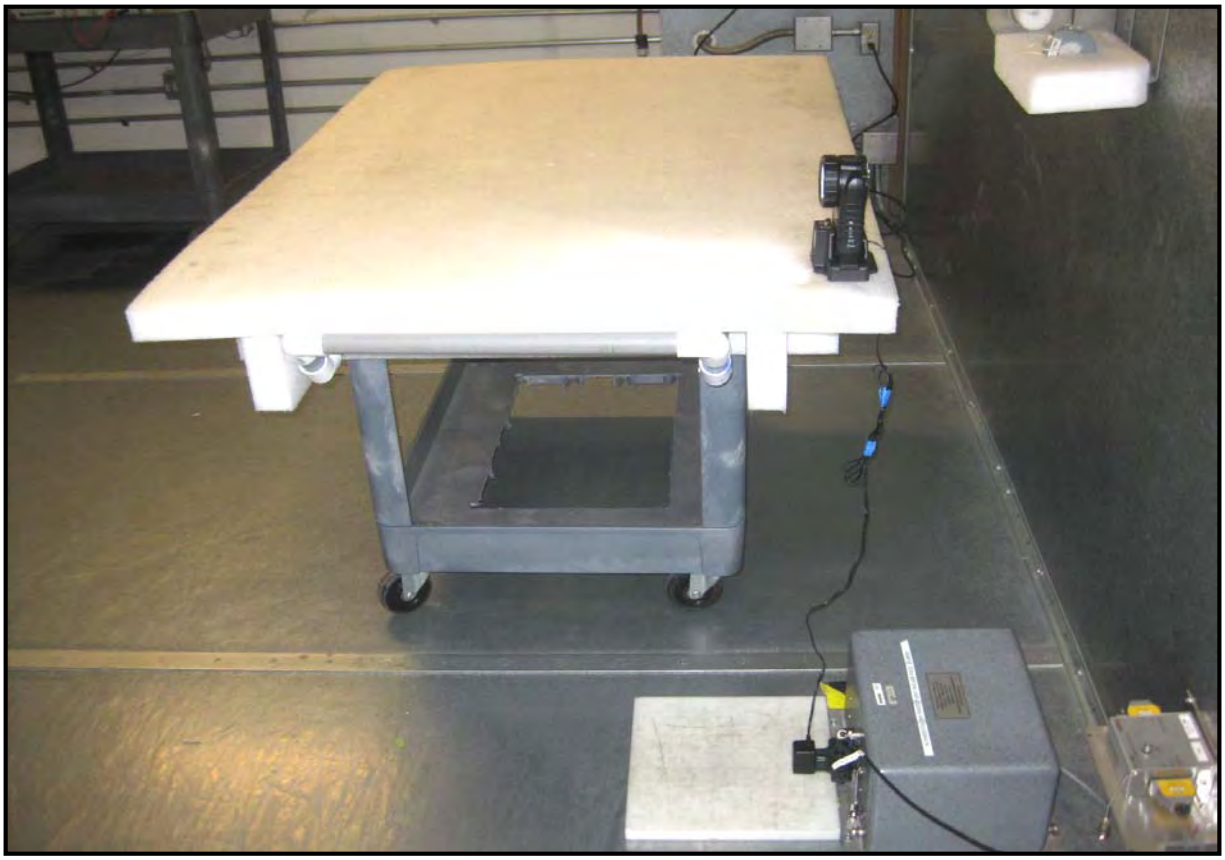

Quasi Peak Data - vs - Quasi Peak Limit

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---|---|---|---|---|---|
| 0.243 | 27.4 | 20.1 | 47.5 | 62.0 | -14.5 |
| 0.177 | 29.9 | 20.1 | 50.0 | 64.6 | -14.6 |
| 0.150 | 31.0 | 20.1 | 51.1 | 66.0 | -14.9 |
| 0.199 | 28.6 | 20.1 | 48.7 | 63.7 | -15.0 |
| 0.254 | 25.4 | 20.1 | 45.5 | 61.6 | -16.1 |
| 0.334 | 22.1 | 20.1 | 42.2 | 59.4 | -17.2 |

Average Data - vs - Average Limit

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|---|---|---|---|---|---|
| 0.243 | 6.4 | 20.1 | 26.5 | 52.0 | -25.5 |
| 0.254 | 5.8 | 20.1 | 25.9 | 51.6 | -25.7 |
| 0.334 | 2.9 | 20.1 | 23.0 | 49.4 | -26.4 |
| 0.199 | 6.5 | 20.1 | 26.6 | 53.7 | -27.1 |
| 0.177 | 7.3 | 20.1 | 27.4 | 54.6 | -27.2 |
| 0.150 | 7.8 | 20.1 | 27.9 | 56.0 | -28.1 |

# CONDUCTED EMISSIONS



# ELECTROSTATIC DISCHARGE

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**MODES OF OPERATION**

Battery powered light on

**POWER SETTINGS INVESTIGATED**

Battery

**CONFIGURATIONS INVESTIGATED**

PELI0005 - 3

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| ESD Gun | Teseq | NSG-437 | IGO | 5/11/2011 | 12 mo |

**TEST DESCRIPTION**

Using the mode of operation and configuration noted within this report, an ESD Immunity test was performed. The EUT was tested using air and contact discharges. The specified number of air discharges was applied to each of the non-conductive surfaces of the EUT as listed in the data sheet. The specified number of contact discharges was applied to each of the conductive surfaces, seams, and control surfaces of the EUT as listed in the data sheet. If a response is detected after discharge, the type of response, discharge level and location are noted. Testing was conducted with the EUT fully cabled. Discharges were made to the connector shells, not to the individual conductors.

NORTHWEST EMC **ESD**

| | | | | | |
|---|---|---|---|---|---|
| EUT: | Flashlight, Model: 1910 | | | Work Order: | PELI0005 |
| Serial Number: | None | | | Date: | 02/21/12 |
| Customer: | Pelican Products, Inc. | | | Temperature (°C): | 20 °C |
| Attendees: | None | | | Relative Humidity: | 38% |
| Project: | None | Config. #: | 3 | Bar. Pres. (mb): | 1012MB |
| Tester: | Jordi Sandvik | Power: | Battery | Job Site: | OC01 |

## TEST SPECIFICATIONS

| | | | |
|---|---|---|---|
| Specification: | EN 61000-6-1:2007 | Method: | IEC 61000-4-2:2008 |

## TEST PARAMETERS

| | | | |
|---|---|---|---|
| ENERGY STORAGE CAPACITOR | 150pf | DISCHARGE RESISTANCE | 330 ohms |
| POLARITY OF OUTPUT VOLTAGE | Positive and Negative | TIME BETWEEN SUCCESSIVE DISCHARGES | >= 1 sec |

## COMMENTS

None

## EUT OPERATING MODES

Battery powered light on

## DEVIATIONS FROM TEST STANDARD

None

## EUT FUNCTIONS MONITORED

Monitored Light for errors in operation.

## RESULTS

No Anomalies Observed During the Test

| | |
|---|---|
| Meets NWEMC Performance Criteria | 1 |

*Criteria - The EUT exhibited no change in performance when operating as specified by the manufacturer.*

Tested By

### Air Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Green Arrows - No Observation | o | o | o | o | - | - | o | o | - | - |
| | | | | | | | | | | |
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### Contact Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Blue Arrows - No Observations | o | o | o | o | - | - | - | - | - | - |
| Horizontal Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| Vertical Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| | | | | | | | | | | |
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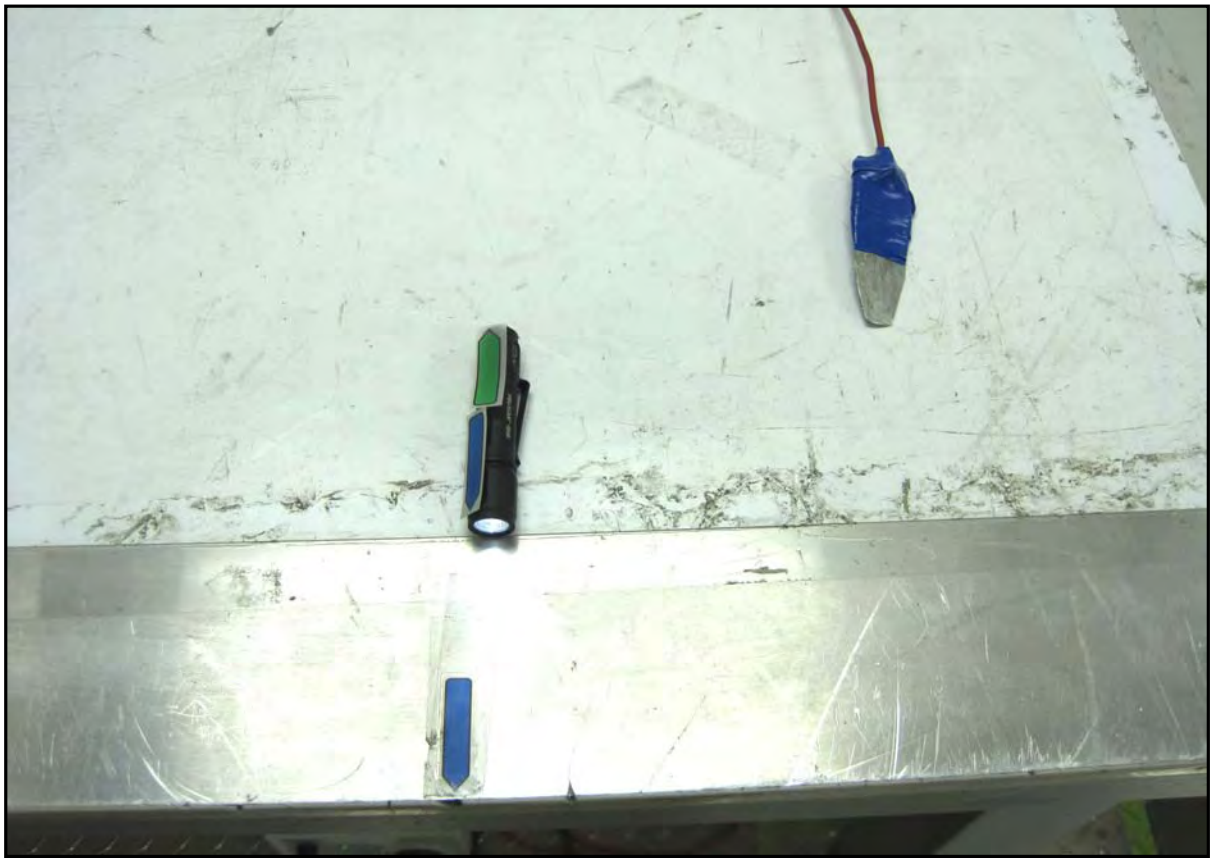
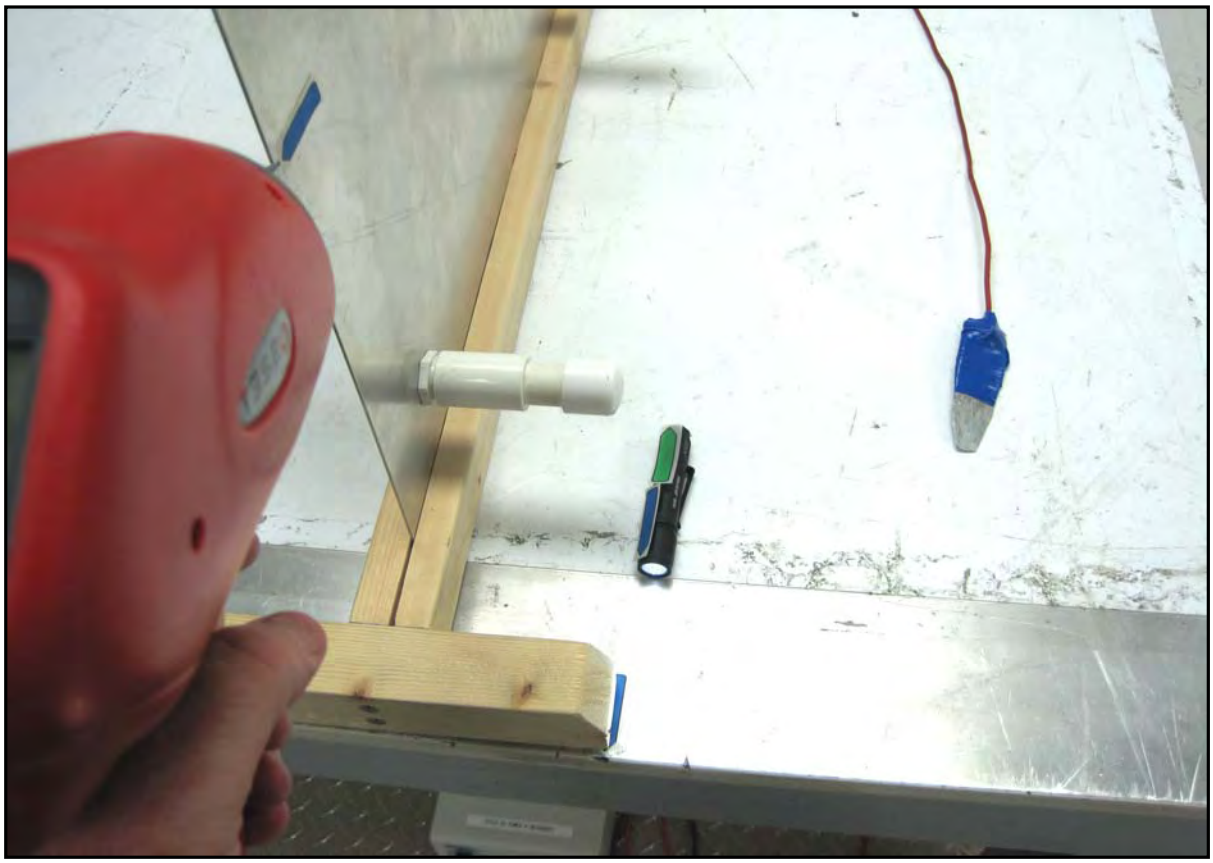
| ITEM # | PHENOMENA OBSERVED |
|---|---|
| | |
| | |
| | |
| | |

Key: - (Dash) = Not Tested o = No EUT response observed





NORTHWEST EMC **ESD**

| | | | | | |
|---|---|---|---|---|---|
| EUT: | Flashlight, Model: 1920 | | | Work Order: | PELI0005 |
| Serial Number: | None | | | Date: | 02/21/12 |
| Customer: | Pelican Products, Inc. | | | Temperature (°C): | 20 °C |
| Attendees: | None | | | Relative Humidity: | 38% |
| Project: | None | Config. #: | 3 | Bar. Pres. (mb): | 1012MB |
| Tester: | Jordi Sandvik | Power: | Battery | Job Site: | OC01 |

## TEST SPECIFICATIONS

| | | | |
|---|---|---|---|
| Specification: | EN 61000-6-1:2007 | Method: | IEC 61000-4-2:2008 |

## TEST PARAMETERS

| | | | |
|---|---|---|---|
| ENERGY STORAGE CAPACITOR | 150pf | DISCHARGE RESISTANCE | 330 ohms |
| POLARITY OF OUTPUT VOLTAGE | Positive and Negative | TIME BETWEEN SUCCESSIVE DISCHARGES | >= 1 sec |

## COMMENTS

None

## EUT OPERATING MODES

Battery powered light on

## DEVIATIONS FROM TEST STANDARD

None

## EUT FUNCTIONS MONITORED

Monitored Light for errors in operation.

## RESULTS

No Anomalies Observed During the Test

| | |
|---|---|
| Meets NWEMC Performance Criteria | 1 |

*Criteria - The EUT exhibited no change in performance when operating as specified by the manufacturer.*

Tested By

### Air Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Green Arrows - No Observation | o | o | o | o | - | - | o | o | - | - |
| | | | | | | | | | | |
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| | | | | | | | | | | |

### Contact Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Blue Arrows - No Observations | o | o | o | o | - | - | - | - | - | - |
| Horizontal Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| Vertical Coupling Plane | o | o | o | o | - | - | - | - | - | - |
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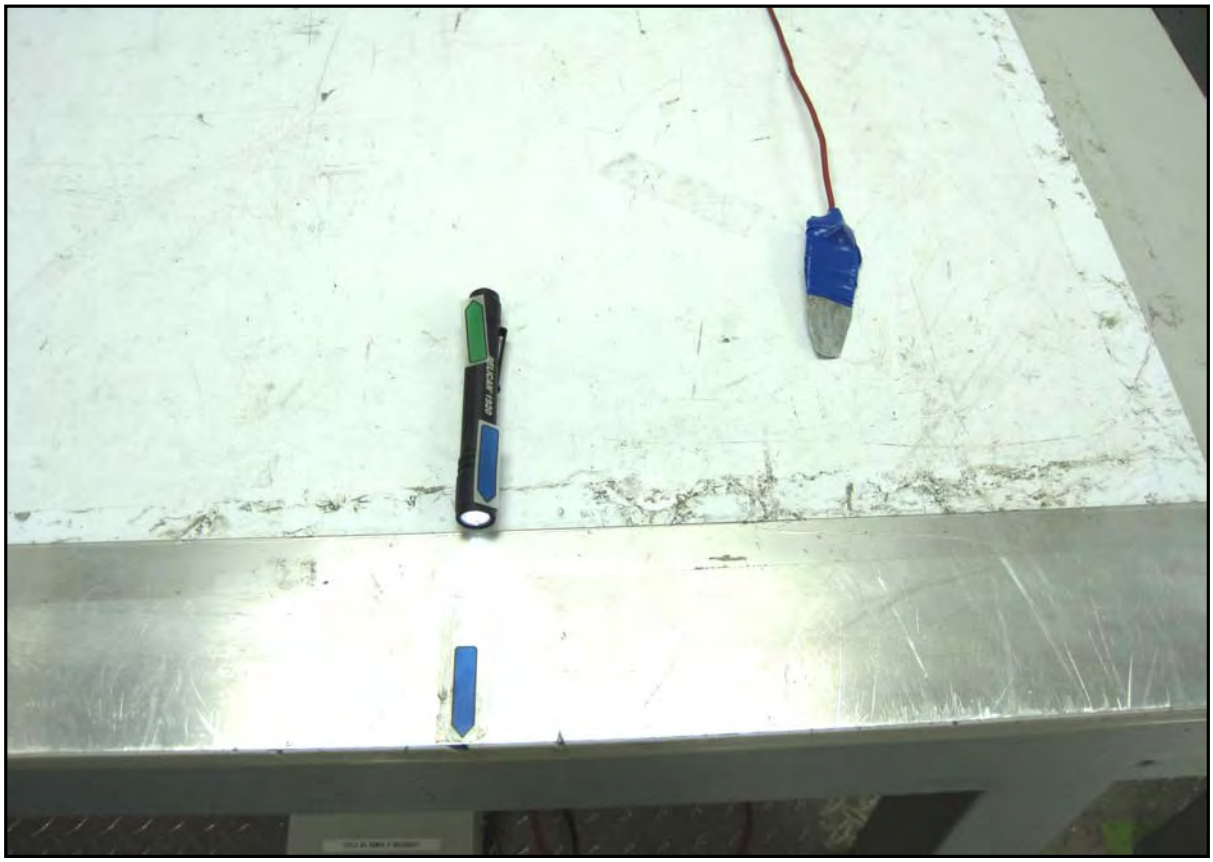
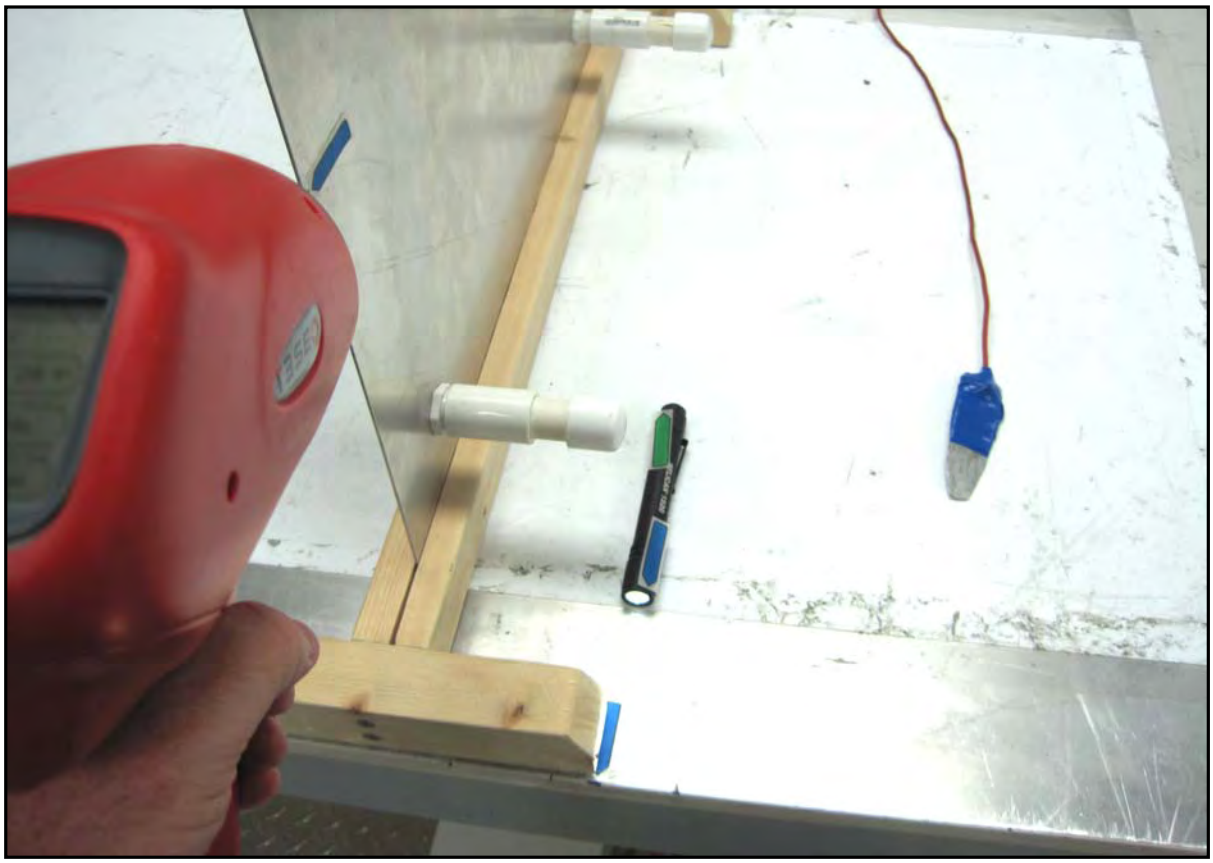
| ITEM # | PHENOMENA OBSERVED |
|---|---|
| | |
| | |
| | |
| | |

Key: - (Dash) = Not Tested o = No EUT response observed





NORTHWEST EMC **ESD**

| | | | | | |
|---|---|---|---|---|---|
| EUT: | Flashlight, Model: 2360 | | | Work Order: | PELI0005 |
| Serial Number: | None | | | Date: | 02/21/12 |
| Customer: | Pelican Products, Inc. | | | Temperature (°C): | 20 °C |
| Attendees: | None | | | Relative Humidity: | 38% |
| Project: | None | Config. #: | 3 | Bar. Pres. (mb): | 1012MB |
| Tester: | Jordi Sandvik | Power: | Battery | Job Site: | OC01 |

## TEST SPECIFICATIONS

| | | | |
|---|---|---|---|
| Specification: | EN 61000-6-1:2007 | Method: | IEC 61000-4-2:2008 |

## TEST PARAMETERS

| | | | |
|---|---|---|---|
| ENERGY STORAGE CAPACITOR | 150pf | DISCHARGE RESISTANCE | 330 ohms |
| POLARITY OF OUTPUT VOLTAGE | Positive and Negative | TIME BETWEEN SUCCESSIVE DISCHARGES | >= 1 sec |

## COMMENTS

None

## EUT OPERATING MODES

Battery powered light on

## DEVIATIONS FROM TEST STANDARD

None

## EUT FUNCTIONS MONITORED

Monitored Light for errors in operation.

## RESULTS

No Anomalies Observed During the Test

| | |
|---|---|
| Meets NWEMC Performance Criteria | 1 |

*Criteria - The EUT exhibited no change in performance when operating as specified by the manufacturer.*

Tested By

### Air Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Green Arrows - No Observation | o | o | o | o | - | - | o | o | - | - |
| | | | | | | | | | | |
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| | | | | | | | | | | |

### Contact Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Blue Arrows - No Observations | o | o | o | o | - | - | - | - | - | - |
| Horizontal Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| Vertical Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| | | | | | | | | | | |
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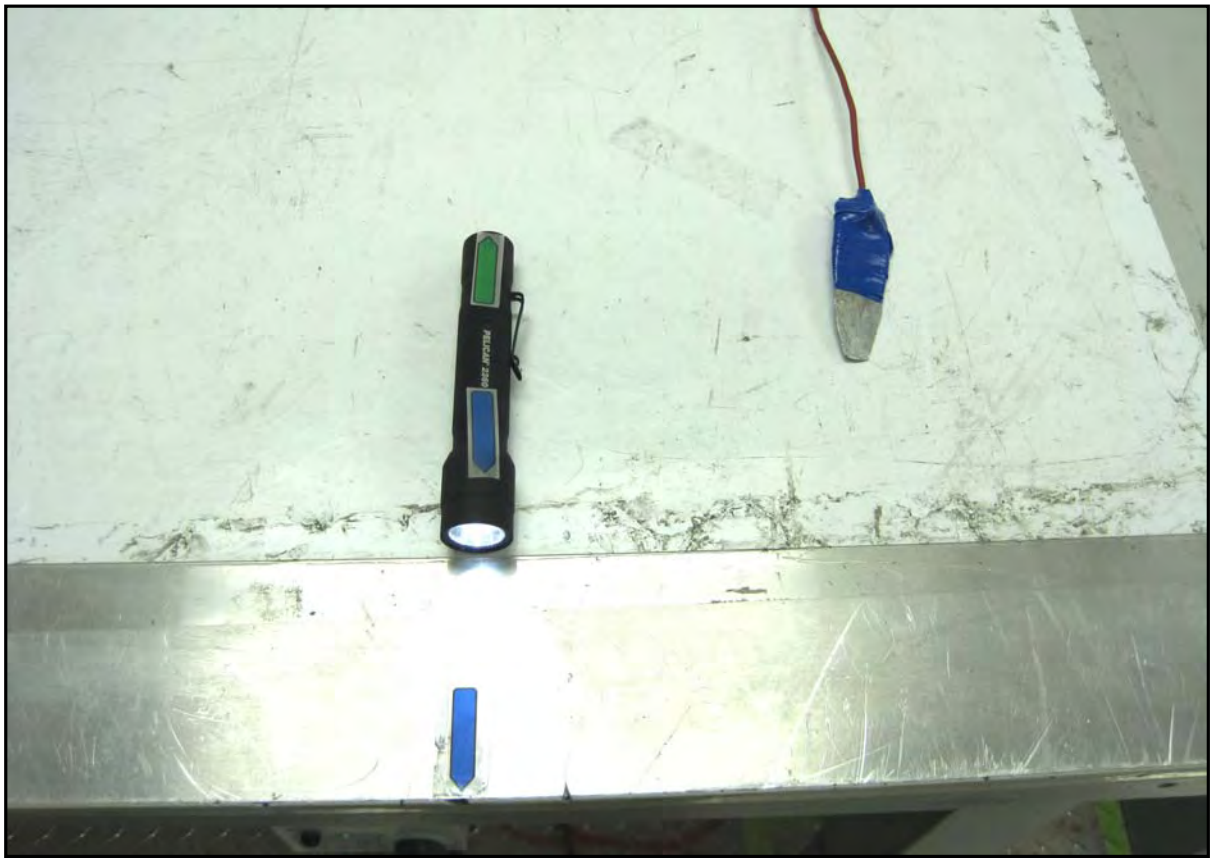
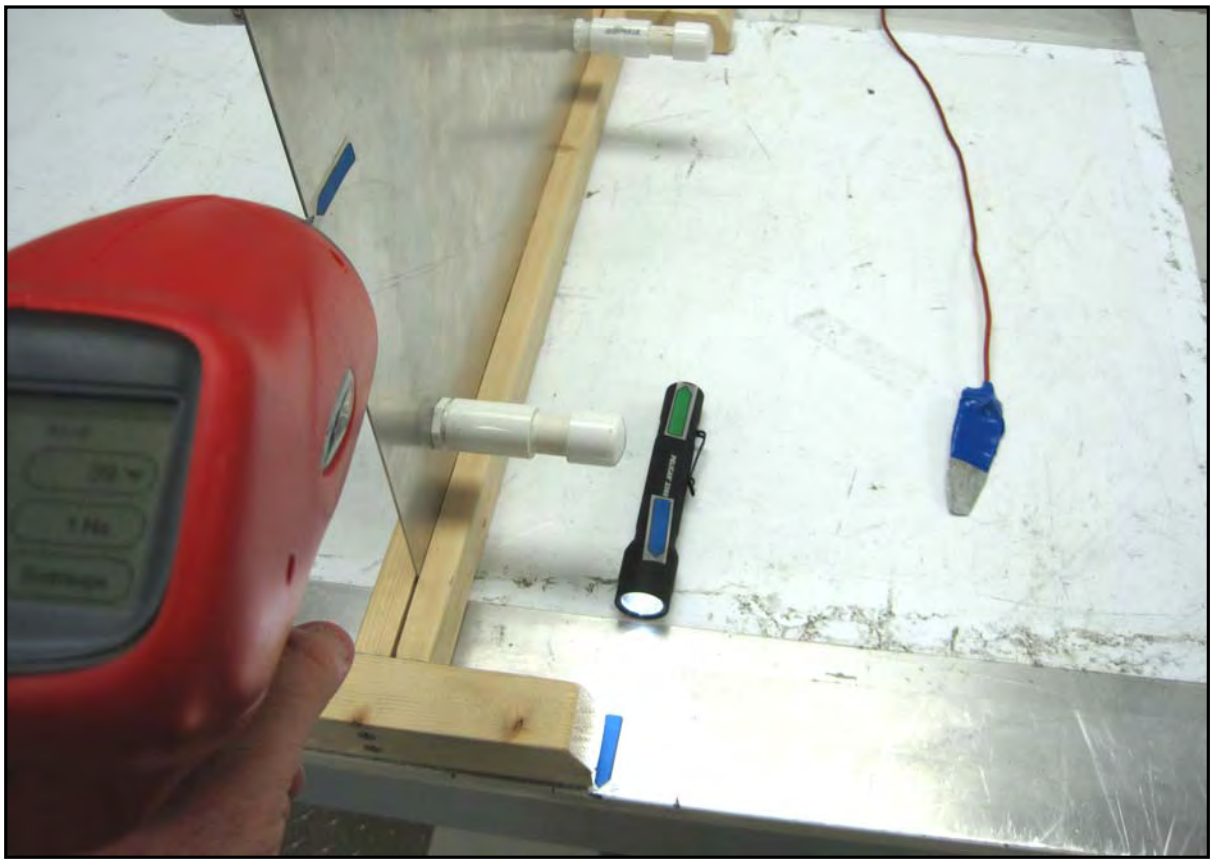
| | | | | | | | | | | |

| ITEM # | PHENOMENA OBSERVED |
|---|---|
| | |
| | |
| | |
| | |

Key: - (Dash) = Not Tested  o = No EUT response observed





NORTHWEST EMC **ESD**

| | | | | | |
|---|---|---|---|---|---|
| EUT: | Flashlight, Model: 2370 | | | Work Order: | PELI0005 |
| Serial Number: | None | | | Date: | 02/21/12 |
| Customer: | Pelican Products, Inc. | | | Temperature (°C): | 20 °C |
| Attendees: | None | | | Relative Humidity: | 38% |
| Project: | None | Config. #: | 3 | Bar. Pres. (mb): | 1012MB |
| Tester: | Jordi Sandvik | Power: | Battery | Job Site: | OC01 |

## TEST SPECIFICATIONS

| | | | |
|---|---|---|---|
| Specification: | EN 61000-6-1:2007 | Method: | IEC 61000-4-2:2008 |

## TEST PARAMETERS

| | | | |
|---|---|---|---|
| ENERGY STORAGE CAPACITOR | 150pf | DISCHARGE RESISTANCE | 330 ohms |
| POLARITY OF OUTPUT VOLTAGE | Positive and Negative | TIME BETWEEN SUCCESSIVE DISCHARGES | >= 1 sec |

## COMMENTS

None

## EUT OPERATING MODES

Battery powered light on

## DEVIATIONS FROM TEST STANDARD

None

## EUT FUNCTIONS MONITORED

Monitored Light for errors in operation.

## RESULTS

No Anomalies Observed During the Test

| | |
|---|---|
| Meets NWEMC Performance Criteria | 1 |

*Criteria - The EUT exhibited no change in performance when operating as specified by the manufacturer.*

Tested By

### Air Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Green Arrows - No Observation | o | o | o | o | - | - | o | o | - | - |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

### Contact Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Blue Arrows - No Observations | o | o | o | o | - | - | - | - | - | - |
| Horizontal Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| Vertical Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| | | | | | | | | | | |
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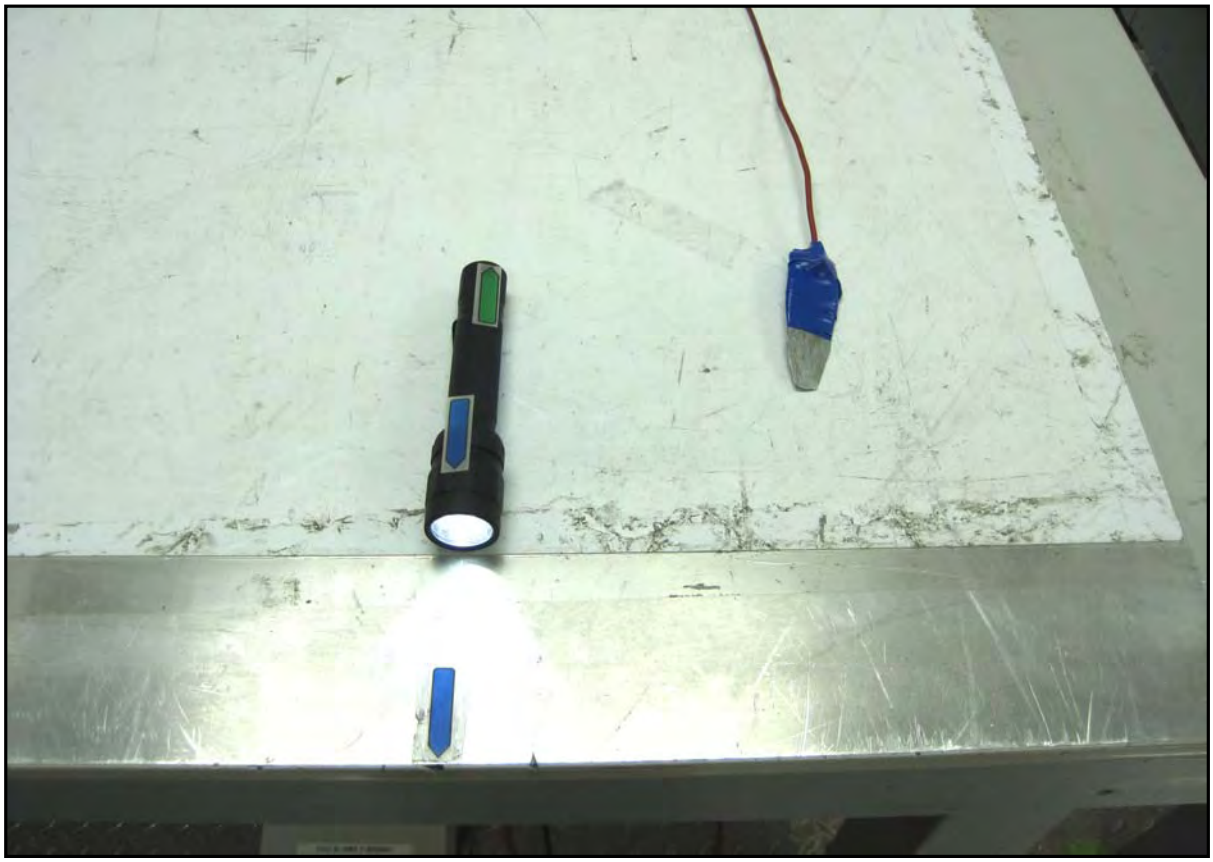
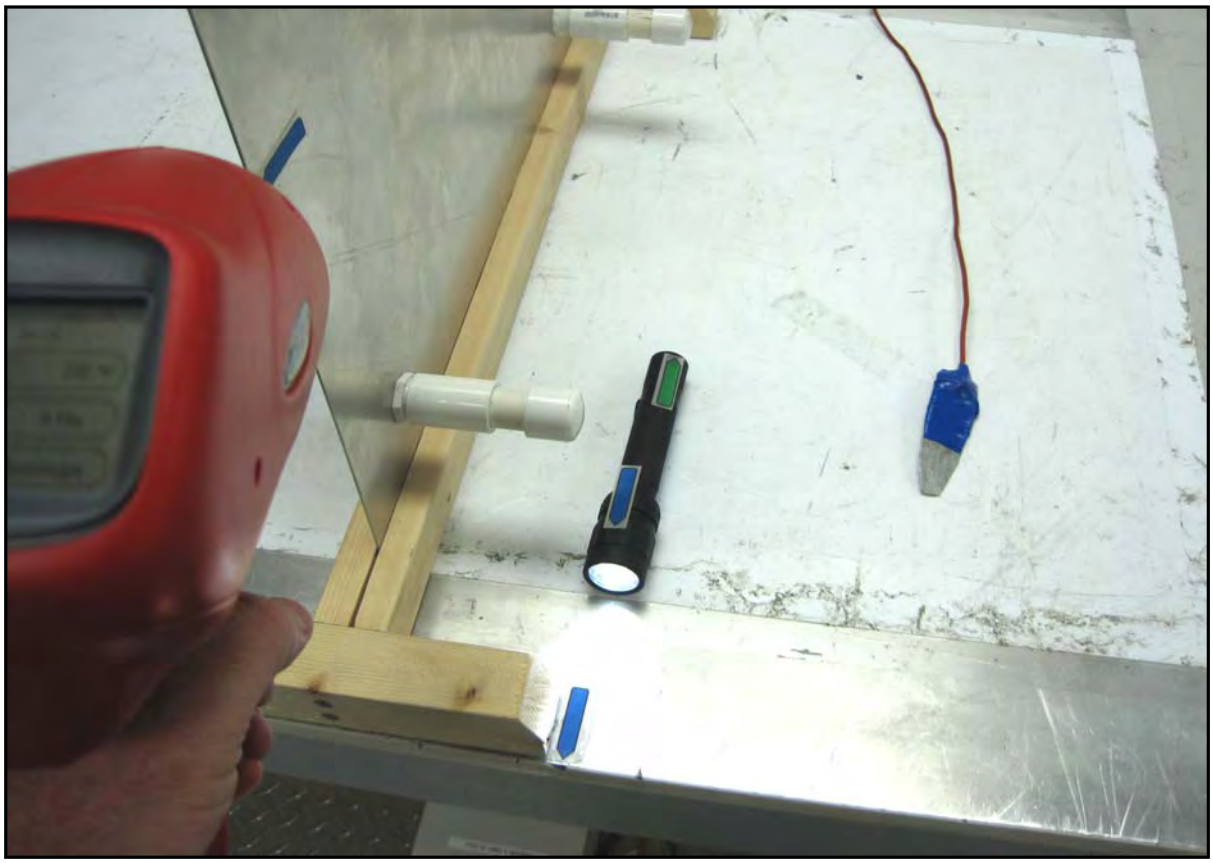
| ITEM # | PHENOMENA OBSERVED |
|---|---|
| | |
| | |
| | |
| | |

Key: - (Dash) = Not Tested  o = No EUT response observed





NORTHWEST EMC

# ESD

| | | | | | |
|---|---|---|---|---|---|
| EUT: | Flashlight, Model: 3715 | | | Work Order: | PELI0005 |
| Serial Number: | None | | | Date: | 02/21/12 |
| Customer: | Pelican Products, Inc. | | | Temperature (°C): | 20 °C |
| Attendees: | None | | | Relative Humidity: | 38% |
| Project: | None | Config. #: | 3 | Bar. Pres. (mb): | 1012MB |
| Tester: | Jordi Sandvik | Power: | Battery | Job Site: | OC01 |

## TEST SPECIFICATIONS

| | | | |
|---|---|---|---|
| Specification: | EN 61000-6-1:2007 | Method: | IEC 61000-4-2:2008 |

## TEST PARAMETERS

| | | | |
|---|---|---|---|
| ENERGY STORAGE CAPACITOR | 150pf | DISCHARGE RESISTANCE | 330 ohms |
| POLARITY OF OUTPUT VOLTAGE | Positive and Negative | TIME BETWEEN SUCCESSIVE DISCHARGES | >= 1 sec |

## COMMENTS

None

## EUT OPERATING MODES

Battery powered light on

## DEVIATIONS FROM TEST STANDARD

None

## EUT FUNCTIONS MONITORED

Monitored Light for errors in operation.

## RESULTS

No Anomalies Observed During the Test

| | |
|---|---|
| Meets NWEMC Performance Criteria | 1 |

*Criteria - The EUT exhibited no change in performance when operating as specified by the manufacturer.*

Tested By

### Air Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Green Arrows - No Observation | o | o | o | o | - | - | o | o | - | - |
| | | | | | | | | | | |
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### Contact Discharge

| NUMBER OF DISCHARGES | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ESD TEST LEVEL (kV) | 2 | -2 | 4 | -4 | 6 | -6 | 8 | -8 | 15 | -15 |
| TEST LOCATION | | | | | | | | | | |
| All Blue Arrows - No Observations | o | o | o | o | - | - | - | - | - | - |
| Horizontal Coupling Plane | o | o | o | o | - | - | - | - | - | - |
| Vertical Coupling Plane | o | o | o | o | - | - | - | - | - | - |
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| ITEM # | PHENOMENA OBSERVED |
|---|---|
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Key: - (Dash) = Not Tested  o = No EUT response observed

# RADIATED IMMUNITY

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**MODES OF OPERATION**

All Flashlights on

**POWER SETTINGS INVESTIGATED**

Battery

**CONFIGURATIONS INVESTIGATED**

PELI0005 - 3

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Dual Directional Coupler | Amplifier Research | DC6180A | IRF | 3/3/2011 | 24 mo |
| RF Amplifier | Amplifier Research | 500W1000A | TRQ | NCR | 0 mo |
| Antenna, Log Periodic | EMCO | 3144 | ALK | NCR | 0 mo |
| Power Head | Amplifier Research | PH2000 | SQS | 1/3/2012 | 4 mo |
| Power Head | Amplifier Research | PH2004 | SQF | 5/3/2010 | 24 mo |
| RF Power Meter | Amplifier Research | PM2002 | SPD | 5/3/2010 | 24 mo |
| E-Field Probe Kit | Amplifier Research | FL7006 | IEM | 4/6/2011 | 24 mo |
| Signal Generator | Agilent | N5181A | TGZ | 8/17/2011 | 12 mo |

**TEST DESCRIPTION**

Using the mode of operation and configuration noted within this report, a Radiated RF Immunity test was performed according to IEC 61000-4-3. The field was first established with no EUT present then maintained at the specified level. If an error is detected, the field strength may have been reduced to a level in which the error disappeared. This would be determined as the threshold of susceptibility. The test was conducted using horizontal and vertical antenna orientations.

NORTHWEST EMC

# RADIATED IMMUNITY

| | | | | | |
|---|---|---|---|---|---|
| EUT: | Flashlight, Models: 1910, 1920, 2360, 2370, 3715 | | | Work Order: | PELI0005 |
| Serial Number: | None | | | Date: | 02/20/12 |
| Customer: | Pelican Products, Inc. | | | Temperature (°C): | 14 °C |
| Attendees: | None | | | Relative Humidity: | 67% |
| Project: | None | Config. #: | 3 | Bar. Pres. (mb): | 1012MB |
| Tester: | Luis Flores | Power: | Battery | Job Site: | OC12 |

## TEST SPECIFICATIONS

| | | | |
|---|---|---|---|
| Specification: | EN 61000-6-1:2007 | Method: | IEC 61000-4-3:2010 |
| | | | |

## TEST PARAMETERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Test Level: | >= 3 V/m | Spec. Level: | 3 V/m | Modulation Freq.: | 1kHz | Sides Tested: | X Y and Z |
| Start Frequency: | 80MHz | Stop Frequency: | 1000MHz | Modulation Type: | AM | Polarities Tested: | Horz and Vert |
| Step Size: | 1% | Dwell Time: | 1 Sec. | Modulation Depth: | 80% | Test Distance: | 3m |

## COMMENTS

None

## EUT OPERATING MODES

All Flashlights on

## DEVIATIONS FROM TEST STANDARD

None

## EUT FUNCTIONS MONITORED

Monitored Lights for errors in operation.

## RESULTS

No Anomalies Observed During the Test

No operating frequencies were provided by the client.

| | |
|---|---|
| Meets NWEMC Performance Criteria | 1 |

*Criteria - The EUT exhibited no change in performance when operating as specified by the manufacturer.*

Jose Luis Flores

Tested By

| Frequency (MHz) | Field Strength (Volts/meter) | Antenna Polarity | Side Tested | Phenomena Observed/Comments |
|---|---|---|---|---|
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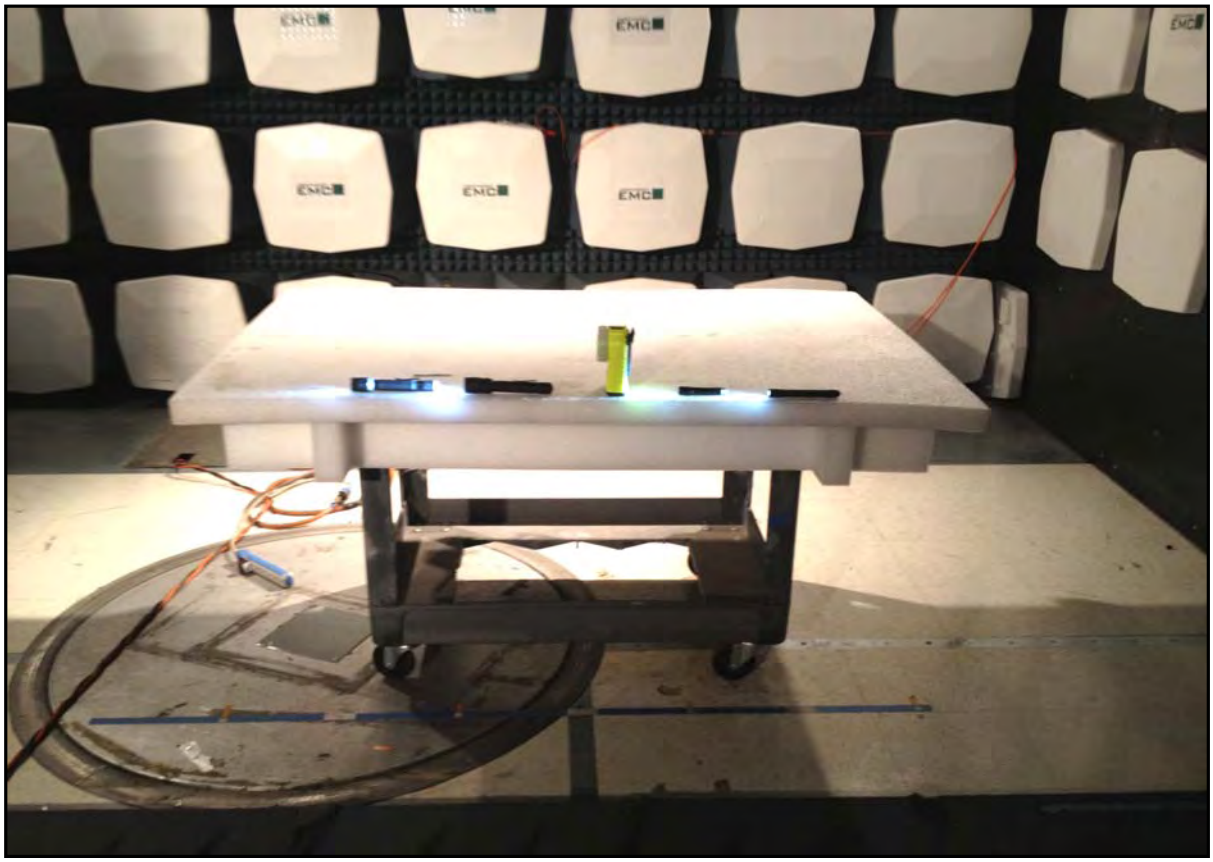
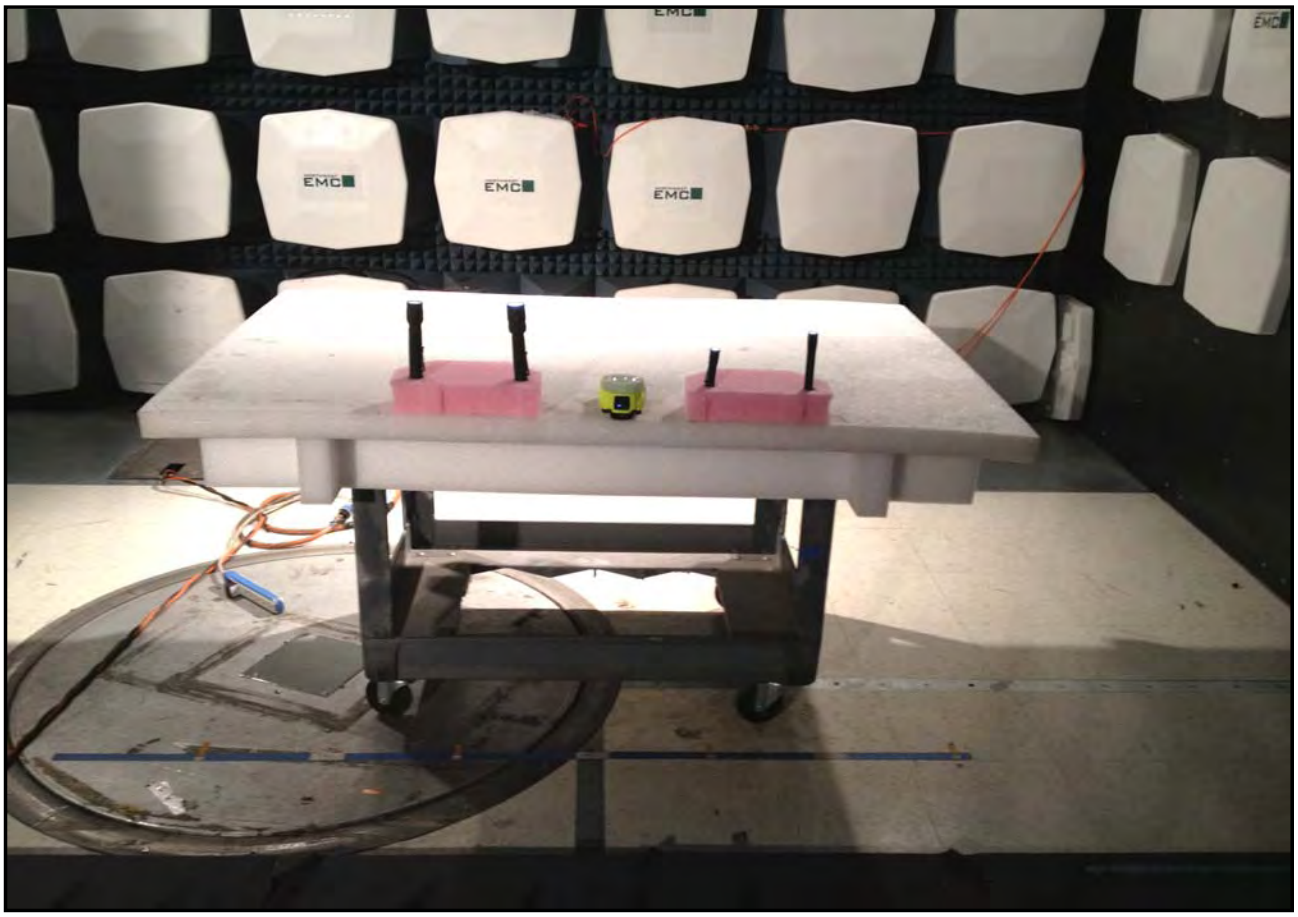
NORTHWEST EMC

# RADIATED IMMUNITY



# RADIATED IMMUNITY



# MAGNETIC FIELD IMMUNITY

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**MODES OF OPERATION**

All flashlights on.

**POWER SETTINGS INVESTIGATED**

Battery

**CONFIGURATIONS INVESTIGATED**

PELI0005 - 3

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Programmable Power Supply | Hewlett-Packard | 6843A | THB | 2/8/2011 | 24 mo |

**TEST DESCRIPTION**

Using the mode of operation and configuration noted within this report, a Power Frequency Magnetic Field Immunity test was performed. The tests are intended to demonstrate the immunity of equipment when subjected to power frequency magnetic fields related to the specific location and installation condition of the equipment (e.g. proximity of equipment to the disturbance source). The power frequency magnetic field is generated by power frequency current in conductors or, rarely, from other devices (e.g. leakage or transformers) in the proximity of equipment.

# MAGNETIC FIELD IMMUNITY

| | | | | | |
|---|---|---|---|---|---|
| EUT: | Flashlight, Models: 1910, 1920, 2360, 2370, 3715 | | | Work Order: | PELI0005 |
| Serial Number: | None | | | Date: | 02/07/12 |
| Customer: | Pelican Products, Inc. | | | Temperature (°C): | 14 °C |
| Attendees: | None | | | Relative Humidity: | 67% |
| Project: | None | Config. #: | 3 | Bar. Pres. (mb): | 1012MB |
| Tester: | Marty Martin | Power: | Battery | Job Site: | OC03 |

## TEST SPECIFICATIONS

| | | | |
|---|---|---|---|
| Specification: | EN 61000-6-1:2007 | Method: | IEC 61000-4-8:2009 |
| | | | |

## TEST PARAMETERS

| | |
|---|---|
| TEST LEVEL: | 3 A/m |
| TEST FREQUENCY: | 50Hz & 60Hz |
| | |

## COMMENTS

None

## EUT OPERATING MODES

All flashlights on.

## DEVIATIONS FROM TEST STANDARD

None

## EUT FUNCTIONS MONITORED

Monitored Lights for errors in operation.

## RESULTS

No Anomalies Observed During the Test

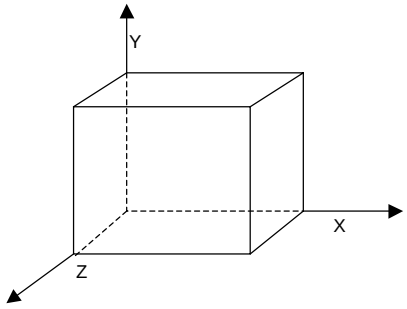
| | |
|---|---|
| Meets NWEMC Performance Criteria | 1 |

*Criteria - The EUT exhibited no change in performance when operating as specified by the manufacturer.*

Marty Martin

Tested By

| | Results |
|---|---|
| X | o |
| Y | o |
| Z | o |




| Item # | PHENOMENA OBSERVED |
|---|---|
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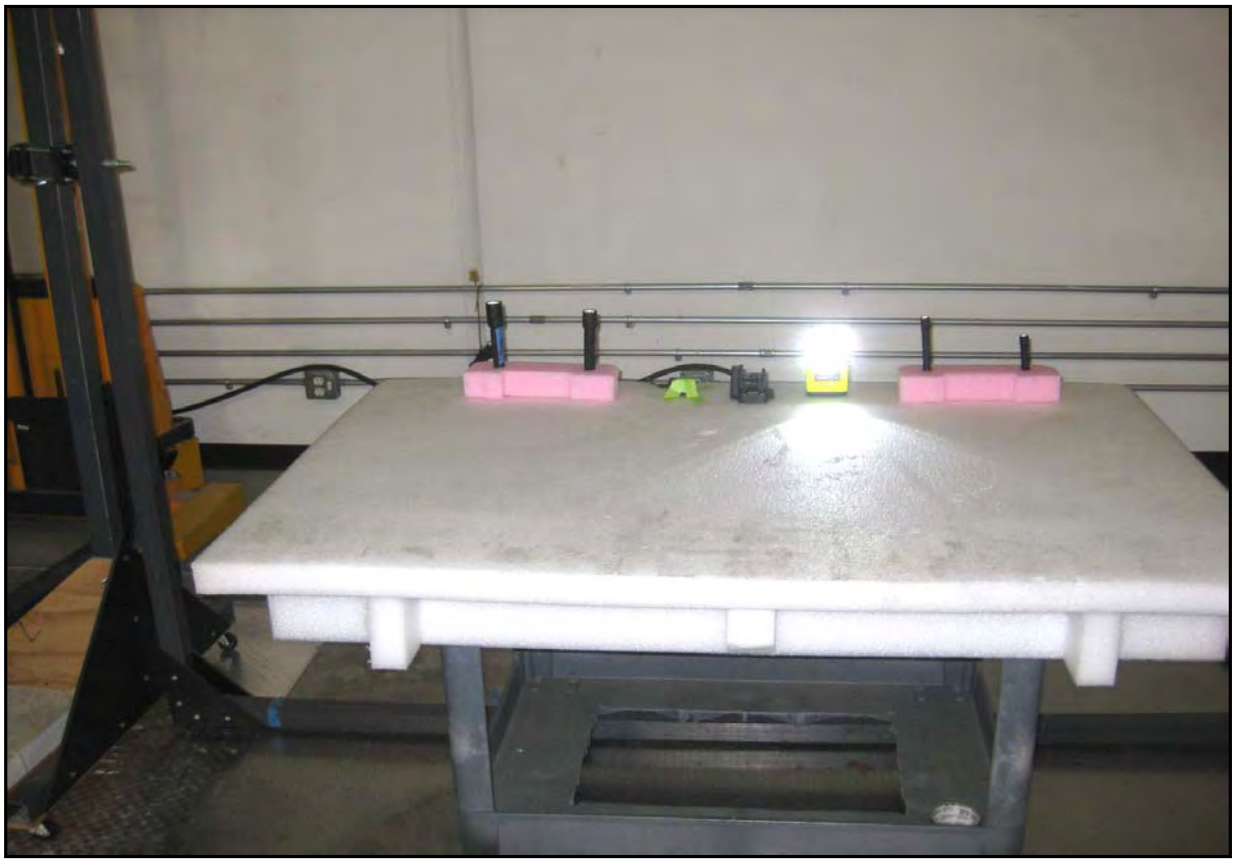
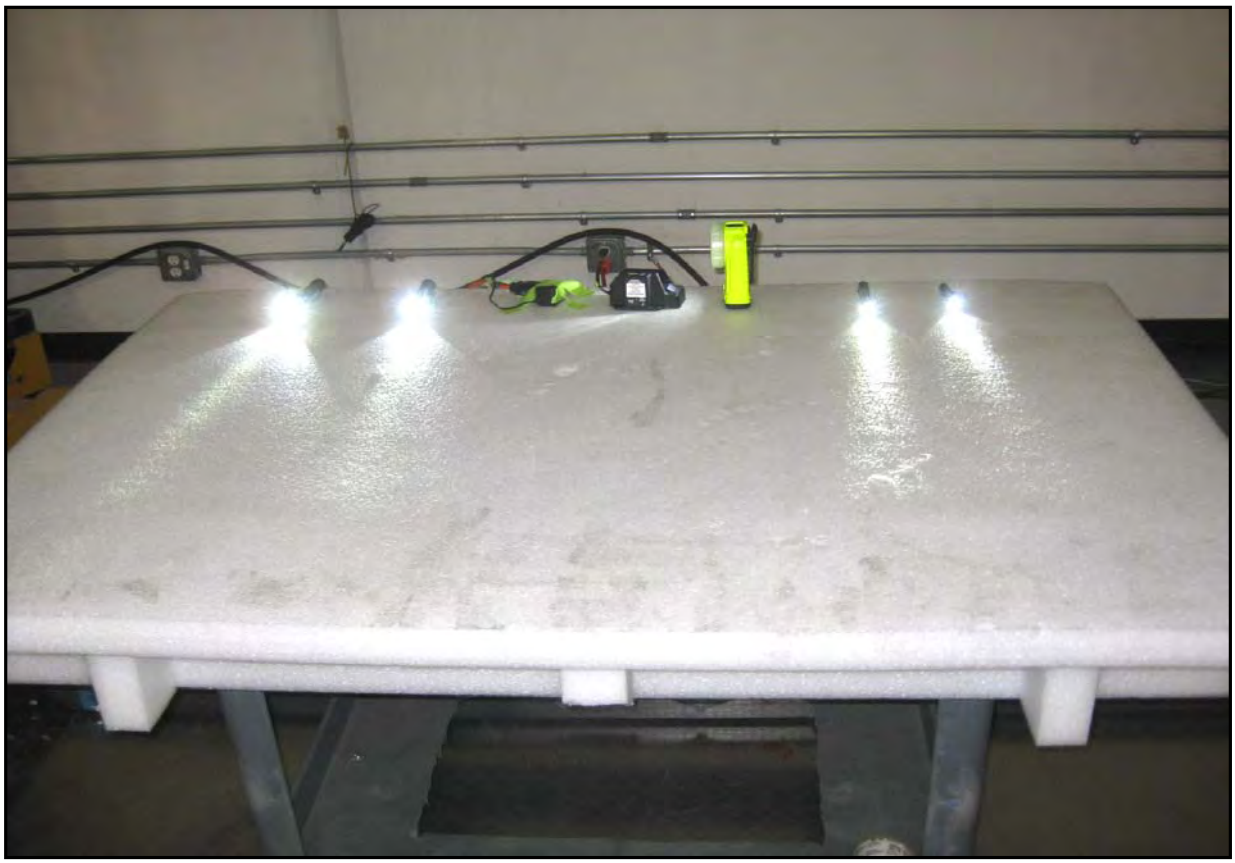
Key: *o = No EUT response observed* *- = Not tested*

NORTHWEST EMC

# MAGNETIC FIELD IMMUNITY





# MAGNETIC FIELD IMMUNITY