



## PRODUCT SAFETY DATA SHEET

**PRODUCTS: L7A2/L6-Ex/L6A-Ex/L160/L170/M2/W2**

### SECTION 1: IDENTIFICATION

<b>PRODUCT NAME</b>	Marine Safety Light Systems L7A2/L6-Ex/L6A-Ex/L160/L170
<b>MANUFACTURERS NAME</b>	<b>DANIAMANT LIMITED</b>
<b>DESCRIPTION</b>	Lithium powered marine safety light systems are designed to be stored for up to five years before use. The battery cells are hermetically sealed, pressurised primary Manganese dioxide lithium and as supplied are electronically protected by a fuse and from external environment by a moulded plastic casing. In this state the units constitute no definable hazard to health. However, disassembly, abuse or destruction of the battery cell will expose the contents and the following Health and Safety Hazards.

### SECTION 2: INFORMATION OF INGREDIENTS

HAZARDOUS COMPONENTS:					
	CAS NUMBER	EC Number	% OPTIONAL	OSHA/PEL	ACGIH TLV 5 TEL
Carbon Black	1333-86-4	215-609-9	2.25%		
Lithium Metal	7439-93-2	231-102-5	3.24%	N/A	N/A
Manganese Dioxide	1313-13-9	215-202-6	40.56%	5mg/m3	5mg/m3
Propylene Carbonate	108-32-7	203-572-1	6.75%	N/A	N/A
1.2 Dimethoxyethane	110-71-4	203-794-9	5.78%	N/A	N/A
Lithium Perchlorate	7791-03-9	232-237-2	1.53%	N/A	N/A
Tetrahydrofuran	109-99-9	203-726-8	5.89%	200 ppm	200 ppm
Reference: Sax's dangerous properties of industrial materials.					
NOTE: These products do not contain asbestos.					

### SECTION 3: HAZARD IDENTIFICATION

<b>LITHIUM METAL:</b>	This is flammable when in contact with water. It reacts violently to produce hydrogen and lithium hydroxide. Use only soda ash, sodium chloride or graphite to extinguish flames.
<b>MANGANESE DIOXIDE:</b>	Poison by intravenous and intratracheal routes moderately toxic by subcutaneous route. Experimental reproductive effects. A powerful oxidiser, flammable by chemical reaction. Must not be heated or rubbed in contact with easily oxidizable matter.
<b>1.2 DIMETHOXYETHANE:</b>	Experimental teratogen. Other experimental reproduction effects readily forms an explosive peroxide. A very dangerous fire hazard when exposed to flame, heat or oxidisers. When heated to decomposition it emits acrid smoke and fumes
<b>LITHIUM PERCHLORATE:</b>	Moderately toxic. Skin, eye and mucous membrane irritant an oxidiser which is incompatible with nitromethane acetone hydrogen and oxygen. When heated to decomposition it emits very toxic fumes.

### SECTION 4: FIRST AID MEASURES

<b>EYES:</b>	Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
<b>INHALATION:</b>	Remove from exposure, rest and keep warm. In severe cases, or if exposure has been great, obtain medical attention.
<b>SKIN:</b>	Drench the skin thoroughly with water. Remove contaminated clothing and wash before re-use. Unless contact has been slight, obtain medical attention.
<b>INGESTION:</b>	Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.
<b>FURTHER TREATMENT:</b>	All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a doctor.
<b>EMERGENCY AND FIRST AID PROCEDURES:</b>	If cell vents, personnel should be evacuated from contaminated areas. Other materials are either inert or have low hazard associated with their exposure.

### SECTION 5: FIRE FIGHTING MEASURES

Copious quantities of a water based foam or dry sand are the only recommended extinguishing media for fires involving cells. IF a fire is in an adjacent area, and cells are packed in their original containers, the fire can be fought based on fuelling material e.g. paper and plastic products. Avoid fume inhalation.

In the case where significant quantities of lithium manganese dioxide batteries have been involved in a fire, account must be taken of the possibility that flammable gases might be evolved should water come into contact with the cold battery residues. These gases might include Acetylene, Hydrogen and Cyanide. It is recommended that ventilation should be maximised should this scenario be realised.

**EXTINGUISHING MEDIA:** Copious quantities of water based foam and dry sand.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

Do not breathe vapours or touch liquid with bare hands. If the skin has come into contact with the electrolyte it should be washed thoroughly with water. Earth or sand should be used to absorb the exudation, seal leaking battery and earth in a heavy-duty polythene bag and dispose of as special waste.

## SECTION 7: HANDLING AND STORAGE

Handle and store in cool, well-ventilated area. Keep out of direct sunlight.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>HANDLING</b>	Do not short circuit or expose to temperatures above the temperature rating of the battery. Do not recharge, over-discharge, force discharge, immerse, puncture or crush.
<b>STORAGE</b>	Store in a cool place but prevent condensation on cells and batteries. Elevated temperatures can result in shortened battery life and degrade performance. Do not store batteries in high humidity environments for long periods. External corrosion of the Nickel plated can and tags could result in the formation of toxic metal salts. Avoid ingestion, observe personal hygiene wash hands after contact.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE</b>	Light in a plastic housing.
<b>ODOUR</b>	If leaking, smells of medical ether.
<b>STABILITY IN WATER</b>	Product is waterproof.
<b>REACTION WITH WATER</b>	Only if damaged.
<b>FLASH POINT</b>	Not applicable unless individual components exposed.
<b>FLAMMABILITY</b>	Not applicable unless individual components exposed.
<b>RELATIVE DENSITY</b>	Not applicable unless individual components exposed.
<b>SOLUBILITY IN WATER</b>	Not applicable unless individual components exposed.
<b>SOLUBILITY OTHER</b>	Not applicable unless individual components exposed.

## SECTION 10: STABILITY AND REACTIVITY

Hazardous materials are housed within a hermetically sealed unit, under normal conditions this unit is Non-Hazardous.

<b>HAZARDOUS REACTIONS</b>	Lithium metal reacts with water to produce highly flammable gasses.
<b>HAZARDOUS DECOMPOSITION REACTIONS</b>	Toxic fumes, and may form peroxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

<b>SIGNS &amp; SYMPTOMS</b>	NONE, unless battery ruptures. In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Over-exposure can cause symptoms of non-fibrotic lung injury and membrane irritation.
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<b>INHALATION</b>	Lung irritation.
<b>SKIN CONTACT</b>	Skin irritation.
<b>EYE CONTACT</b>	Eye irritation.
<b>INGESTION</b>	Poisoning if swallowed.
<b>GENERALLY AGGREGATED BY EXPOSURE.</b>	In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

## SECTION 12: ECOLOGICAL INFORMATION

<b>MAMMALIAN EFFECTS</b>	None known at present.
<b>ECO-TOXICITY</b>	None known at present.
<b>BIOACCUMULATION POTENTIAL</b>	Slowly bio-degradable.
<b>ENVIRONMENTAL FATE</b>	None known environmental hazards at present.

## SECTION 13: DISPOSAL

<b>DISPOSAL</b>	DO NOT INCINERATE, or subject cells to temperature in excess of 90°C. Such abuse can result in loss of seal, leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations. DO NOT ATTEMPT TO DISMANTLE THIS PRODUCT.
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## SECTION 14: TRANSPORT INFORMATION

<b>UN Hazard Code</b>	Class 9
<b>UN Number</b>	3091
<b>UN Proper Shipping Name</b>	Lithium Metal Batteries Contained in Equipment.
<b>IATA Packing Instructions for air</b>	970, Section II
<b>IMDG Packing instructions for road and sea</b>	P903 Special Provision 188 and 230
<b>Lithium Content</b>	0.6g (Lithium metal cell)

<b>Total Battery Weight</b>	18g (Weight of Individual Cell 18g)
<b>Labelling</b>	As per IATA, IMDG & ADR requirements
<b>Battery Test Criteria</b>	Tested to UN ST/SG/AC.10/11/Rev.5/Amend.1 Criteria III Section 38.3. (Test Certificate available on request). Each cell and battery incorporates a safety venting device. Each cell and battery is equipped with an effective means of preventing external short circuits and reverse current flow.

## SECTION 15: REGULATORY INFORMATION

<b>Risk Phrases</b>	R8 R11 R14/15 R17 R19 R20 R21 R22 R34 R36/37/38 R41	Contact with combustible material may cause fire. Highly flammable Reacts violently with water liberating extremely flammable gases Spontaneously flammable in air. May form explosive peroxides. Harmful by inhalation. Harmful in contact with skin Harmful if swallowed Causes burns. Irritating to respiratory system and skin. Risk of serious damage to the eyes
<b>Safety Phrases</b>	S1/2 S8 S16 S17 S24/25 S26/27 S29 S33 S36 S37 S38 S43 S45	Keep locked up and out of the reach of children Keep away from moisture Keep away from sources of ignition – no smoking. Keep away from combustible material. When using do not eat, drink or smoke. In case of contact with eyes, rinse immediately with plenty of water. Do not empty into drains. Take precautionary measures against static discharges. Wear suitable protective clothing. Wear suitable gloves. In case of insufficient ventilation wear suitable respiratory equipment. In case of fire, see fire-fighting precautions. In case of incident, seek medical attention.

## SECTION 16: OTHER INFORMATION

<b>Disclaimer</b>	This PSDS is provided for information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, the company makes no warranty, either expressed or implied with respect to this information and disclaims all liability from reliance on. It is the shippers responsibility to ensure that they are trained and competent in handling and shipping lithium batteries by all transport modes.
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07 October 2019



COMMERCIAL-IN-CONFIDENCE

# TEST HOUSE CERTIFICATE

CLIENT Daniamant Limited

DOCUMENT 75929802 THC 01 Issue 1

CLIENT'S ORDER NUMBER PC0001483, dated 11.03.2015

INCOMING RELEASE NOTE

Not Released

DATE OF RECEIPT

18 March 2015

EQUIPMENT UNDER TEST (EUT)

Survivor Location Lights, as stated below (x11 units tested)

MODEL/PART NUMBERS(S)

	Description	Model	TSR No *
1	External Raft Light	Rescue Master 2B	001
2	Lifebuoy Light	L170	002
3	Lifebuoy Light	L160	003
4	Lifebuoy Light	L161	004
5	Lifebuoy Light	L162	005
6	Lifebuoy Light	L163	006
7	LED Distress Flare	ODEO Mk.3	007
8	Lifebuoy Light	L90	008
9	Life Raft External Light	RL6	009
10	Lifejacket Light	L6-Ex	010
11	Lifejacket Light	L6A-Ex	011

\* Test Sample Registration Number

TEST SPECIFICATION / ISSUE

EN 60529:1992. Table III, Table VIII and clauses 14.2.8 & 14.3.

DEVIATIONS FROM THE STANDARD

None

DATE OF TEST

19 March 2015

TEST(S) DESCRIPTION

Protection Against Ingress by Immersion in Water (IPX8)

The following test was required by the specification:

1. Immediately prior to the test examine each EUT. Manually switch each EUT to ON and OFF.
2. Immerse each EUT in water and increase the surface air pressure to 5 bar to reproduce the pressure equivalent to an immersion depth of 50 metre. Maintain the immersion for a period of 30 mins.
3. On completion of the test re-examine the units. Note any conspicuous ingress of water. Manually switch each EUT to ON and OFF.

RESULT(S) OF TEST

The test requirements were satisfied on all units.

On completion of the test there was no evidence of water ingress to the following units; 1, 2, 3, 4, 5, 7, 9, 10 & 11. Unit 6 indicated a weight gain of 16 g. Unit 8 indicated a weight gain of 3 g. Water ingress is acceptable provided it does not interfere with the light operation (spec ref 14.3). All units were manually operated satisfactorily after the test, except units 1 and 9 as these units were supplied without a power supply. The client representative subsequently reported that these lights operated satisfactorily. Unit 8 (L90) suffered permanent distortion of the buoyancy chamber after the test. The client's representative advised that the maximum recommended depth to avoid distortion of this unit was exceeded.

This certificate relates only to the actual item/items tested.

Approved by

G M Stephens  
Authorised Signatory



Date 09 April 2015

# EU TYPE-EXAMINATION CERTIFICATE

## EU type-examination Certificate (Module B)

Equipment or Protective System intended for use in potentially explosive atmospheres  
(Directive 2014/34/EU)



EU type examination certificate Nr **ITS11ATEX27239 R.1**

**Product:** L6-Ex & L6A-Ex Life Jacket Lights

**Manufacturer:** Daniamant Ltd.

**Applicant:** Daniamant Ltd.

This product and any acceptable variation thereto are specified in the schedule to this certificate and therein referred to.

INTERTEK ITALIA S.p.A., Notified Body n° 2575 in accordance with article 17 of the Directive 2014/34/EU of the European Parliament and Council of the 26 February 2014, certifies that the equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmosphere, given in Annex II of the Directive.

The examination and tests results are recorded in confidential technical evaluation Intertek Report Nr. 104622298LHD-001, dated 23rd April 2021.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN IEC 60079-0:2018 and EN 60079-11:2012 except in respect of those requirements referred to at item 16 of the Schedule.

If the sign X is placed after the certificate number, it indicates that the product is subject to Special Conditions for Safe Use specified in the schedule to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:



II 2 G Ex ia IIB T3 Gb  
-35°C ≤ Ta ≤ +65°C



**Certificate issue date**

28th April 2021

**Mark Newman**

Certification Officer  
Intertek Italia S.p.A. (NB 2575)

PDR N° 277B

Membro degli Accordi di Mutuo  
Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC  
Mutual Recognition Agreements



This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

**Intertek Italia S.p.A.** Via Miglioli, 2/A - 20063 Cernusco sul Naviglio, Milano - Italy

LFT-EMEA-IT-ATEX-OP-23a (29 August 2019)



## SCHEDULE

EU TYPE EXAMINATION CERTIFICATE NUMBER: ITS11ATEX27239 R.1

### 13. DESCRIPTION OF THE EQUIPMENT OR PROTECTIVE SYSTEM

The L6-Ex and L6A-Ex are illuminating lifejacket safety devices designed for use when the wearer enters the water, the difference between the two models is the method in which the unit is activated, the L6-Ex utilises a pull ring whilst the L6A-Ex has a water activated switch.

The equipment comprises of a printed circuit board, lithium battery, light emitting diode and in the case of the L6-Ex a reed switch, the enclosure for the device is comprised of two plastic parts.

The electronics within the housing are encapsulated in epoxy resin, battery used in the device is not replaceable and non-rechargeable.

Intrinsic safety is maintained by the limitation of current, power, inductance and capacitance and the use of specified batteries.

CE Marking shall be accompanied by the identification number of the Notified Body responsible for surveillance of production.

### 14. DRAWINGS AND DOCUMENTS

TITLE	DOCUMENT Nr	LEVEL	DATE
L6A-Ex LIFEJACKET LIGHT	79-350A	02	02/03/2011
L6-Ex PCB ASSEMBLY	79-311B	02	13/09/2011
L6-Ex & L6A-Ex CIRCUIT DIAGRAM	79-311C	03	06/05/2011
L6-Ex PCB ITEMS LIST	79-311L	06	24/08/2011
L6-Ex PCB	79-312D	01	11/11/2010
L6A-Ex FAMILY TREE	79-350F	02	03/03/2011
L6A-Ex PCB ASSEMBLY	79-351B	02	13/09/2011
L6-Ex LIFEJACKET LIGHT	79-310A	03	24/08/2011
L6A-Ex PCB ITEMS LIST	79-351L	06	28/08/2011
L6-Ex FAMILY TREE	79-310F	02	02/03/2011
L6-Ex PCB Gerber Files	79-312N	06	13/09/2011
*L6-Ex and L6A-Ex LABEL BOTTOM	79-354D	7	08/04/2021
EPOXY RESIN PX439XS	99-151-XXXD	01	02/03/2011

Note: An \* is included before the title of documents that are new or revised.

Copies of the above listed documents are kept at Intertek Italia S.p.A. archive.





## SCHEDULE

**EU TYPE EXAMINATION CERTIFICATE NUMBER: ITS11ATEX27239 R.1**

### 15. SPECIAL CONDITIONS FOR SAFE USE

None.

### 16. ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

The relevant essential Health and Safety Requirements have been identified and assessed in Intertek Testing and Certification Report Nr. 104622298LHD-001, dated 23rd April 2021.

### 17. ROUTINE (FACTORY) TESTS

None

### 18. DETAIL OF CERTIFICATE CHANGES

#### **21st May 2019 (R.0)**

Initial release by Intertek Italia S.p.A. (NB 2575) on transfer from Intertek Testing and Certification Ltd. (NB0359)

#### **28th April 2021 (R.1)**

Update to certification standard EN IEC 60079-0:2018 and consolidation of previous test reports into report Nr. 104622298LHD-001. Addition of UKCA marking and UKEX certificate number to the marking.

# UK-TYPE EXAMINATION CERTIFICATE

**Product or Protective Systems Intended for Use in Potentially Explosive Atmospheres**

**UKSI 2016:1107 (as amended) – Schedule 3A, Part 1**

**UK-Type Examination Certificate Number: ITS21UKEX0129 Issue 0**

**Product:** L6-Ex & L6A-Ex Life Jacket Lights

**Manufacturer:** Daniamant Ltd.

This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

Intertek Testing and Certification Limited, Approved Body number 0359, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential report 104622298LHD-001, dated 23rd April 2021.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN IEC 60079-0:2018 and EN 60079-11:2012 except in respect of those requirements referred to within item 14 of the Schedule.

If the sign “X” is placed after the certificate number, it indicates that the product is subject to the special conditions of use specified in the Schedule to this certificate.

This UK-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:



II 2 G Ex ia IIB T3 Gb

-35°C ≤ Ta ≤ +65°C

**Certification Officer:** \_\_\_\_\_

M Newman

**Date:** \_\_\_\_\_

28th April 2021

## SCHEDULE:

UK-Type Examination Certificate Number: ITS21UKEX0129 Issue 0

### 11. Description of Product or Protective System

The L6-Ex and L6A-Ex are illuminating lifejacket safety devices designed for use when the wearer enters the water, the difference between the two models is the method in which the unit is activated, the L6-Ex utilises a pull ring whilst the L6A-Ex has a water activated switch.

The equipment comprises of a printed circuit board, lithium battery, light emitting diode and in the case of the L6-Ex a reed switch, the enclosure for the device is comprised of two plastic parts.

The electronics within the housing are encapsulated in epoxy resin, battery used in the device is not replaceable and non-rechargeable.

Intrinsic safety is maintained by the limitation of current, power, inductance and capacitance and the use of specified batteries.

### 12. Report Number

Intertek Report: 104622298LHD-001, dated 23rd April 2021.

### 13. Special Conditions of Certification

(a). Special Conditions of Use

- None

(b). Conditions of Manufacture

- None

### 14. Essential Health and Safety Requirements (EHSRs)

The relevant Essential Health and Safety Requirements (EHSRs) have been identified and assessed in Intertek Report: 104622298LHD-001, dated 23rd April 2021.

## SCHEDULE:

UK-Type Examination Certificate Number: ITS21UKEX0129 Issue 0

### 15. Drawings and Documents

Title:	Drawing No.:	Rev. Level:	Date:
L6A-Ex LIFEJACKET LIGHT	79-350A	02	02/03/2011
L6-Ex PCB ASSEMBLY	79-311B	02	13/09/2011
L6-Ex & L6A-Ex CIRCUIT DIAGRAM	79-311C	03	06/05/2011
L6-Ex PCB ITEMS LIST	79-311L	06	24/08/2011
L6-Ex PCB	79-312D	01	11/11/2010
L6A-Ex FAMILY TREE	79-350F	02	03/03/2011
L6A-Ex PCB ASSEMBLY	79-351B	02	13/09/2011
L6-Ex LIFEJACKET LIGHT	79-310A	03	24/08/2011
L6A-Ex PCB ITEMS LIST	79-351L	06	28/08/2011
L6-Ex FAMILY TREE	79-310F	02	02/03/2011
L6-Ex PCB Gerber Files	79-312N	06	13/09/2011
L6-Ex and L6A-Ex LABEL BOTTOM	79-354D	7	08/04/2021
EPOXY RESIN PX439XS	99-151-XXXD	01	02/03/2011



Product Service

Choose certainty.  
Add value.

COMMERCIAL-IN-CONFIDENCE

# TEST HOUSE CERTIFICATE

<b>CLIENT</b>	Daniamant Ltd	<b>DOCUMENT</b>	75914530 THC 01 Issue 1
		<b>CLIENT'S ORDER NUMBER</b>	PC0000957
		<b>ORDER NUMBER DATE</b>	04 July 2011

<b>INCOMING RELEASE NOTE</b>	75914530/41
<b>DATE OF RECEIPT</b>	11 July 2011
<b>TEST ITEMS</b>	Lifejacket Lights
<b>NUMBER OF ITEMS TESTED</b>	3
<b>MODEL NUMBERS</b>	L6-EX; L6A-EX; L7A2
<b>PART NUMBERS</b>	79-310; 79-350; 77-400
<b>DRAWING NUMBERS</b>	79-310A; 79-350A; 77-400A
<b>SERIAL NUMBERS</b>	10; 45; 100
<b>TEST SPECIFICATION/ISSUE/DATE</b>	<b>CLAUSE</b> <b>TEST</b>
IEC 60945: C1 2008	Clause 10, Table 6,      Radiated Immunity, 80MHz – 2GHz @ 10V/m, sub-clause 10.4              80%AM @ 400Hz
<b>DEVIATIONS FROM THE STANDARD</b>	None
<b>DATE OF TEST</b>	11 July 2011

**SYSTEM CONFIGURATION**

Due to the size of the EUTs, all three were placed within the calibrated uniform field and tested simultaneously. The L6-EX was activated by pulling the ring attached to the switch to put it in the ON position. The L6A-EX and the L7A2 units were activated by submersing their sensor/switch in a small amount of water.

Correct operation of the EUT's during the test was checked by monitoring the beacon lights using a CCTV system and checking that the lights remained lit and that there was no apparent change in light intensity or flashing rate.

**RESULTS OF TEST**

The Equipment Under Test (EUT) met the requirements of the specification for the test applied.

**RELATED DOCUMENT**

This Certificate relates only to the actual item tested

IEC 61000-4-3 : 2006

Approved by   
 .....  
**D C West**  
 Authorised Signatory



Date 21 July 2011  
 .....



U. S. Department of Homeland Security  
**United States Coast Guard**  
**Certificate of Approval**

Coast Guard Approval Number: 161.112/82/0

Expires: 19 December 2021

LIFEJACKET LIGHT (SOLAS)

DANIAMANT LTD

Model L6A-Ex automatic water-activated flashing lifejacket light.

Power source is a non-replaceable lithium-manganese battery with expiration date 5 years after date of manufacture. Light is intrinsically safe per IECEx ITS 11.0008X marking.

Evaluated, tested and found to be in compliance with the IMO LSA Code (Res. MSC.48(66), as amended through Res. MSC.218(82)), and Res. MSC.81(70), as amended through Res. MSC.226(82).

Must be marked: 161.112/82/0 and "SOLAS".

Identifying Data: Document No. TF017 (Rev. 02) and associated drawings and documents as referenced thereon, McMurdo Evaluation and Test Report No. 010-05 dated July 25, 2005, and Daniamant Report No. 11-08 dated October 20, 2011.

Approval valid only for equipment produced at the above manufacturing location.

Production test report in accordance with 46 CFR 159.007-11 and 161.012-13 due annually in December.

Extends certificate dated December 19, 2011, updates document list.

\*\*\* End \*\*\*

THIS IS TO CERTIFY THAT the above named manufacturer has submitted to the undersigned satisfactory evidence that the item specified herein complies with the applicable laws and regulations as outlined on the reverse side of this Certificate, and approval is hereby given. This approval shall be in effect until the expiration date hereon unless sooner canceled or suspended by proper authority.

GIVEN UNDER MY HAND THIS 19<sup>th</sup> DAY OF  
DECEMBER 2016, AT WASHINGTON D.C.



B. A. BALDWIN  
Chief, Lifesaving and Fire Safety Division  
BY DIRECTION OF THE COMMANDANT

**TERMS:** The approval of the item described on the face of the Certificate has been based upon the submittal of satisfactory evidence that the item complies with the applicable provisions of the navigation and shipping laws and the applicable regulations in Title 33 and/or Title 46 of the Code of Federal Regulations. The approval is subject to any conditions noted on this Certificate and in the applicable laws and regulations governing the use of the item on vessels subject to Coast Guard inspection or on other vessels and boats.

Consideration will be given to an extension of this approval provided application is made 3 months prior to the expiration date of this Certificate.

The approval holder is responsible for making sure that the required inspections or tests of materials or devices covered by this approval are carried out during production as prescribed in the applicable regulations.

The approval of the item covered by this certificate is valid only so long as the item is manufactured in conformance with the details of the approved drawings, specifications, or other data referred to. No modification in the approved design, construction, or materials is to be adopted until the modification has been presented for consideration by the Commandant and confirmation received that the proposed alteration is acceptable.

**NOTICE:** Where a manufacturer of safety-at-sea equipment is offering for sale to the maritime industry, directly or indirectly, equipment represented to be approved, which fails to conform with either the design details or material specifications, or both, as approved by the Coast Guard, immediate action may be taken to invoke the various penalties and sanctions provided by law including prosecution under 46 U.S.C. 3318, which provides:

"A person that knowingly manufactures, sells, offers for sale, or possesses with intent to sell, any equipment subject to this part (*Part B. of Subtitle II of Title 46 U.S.C.*) and the equipment is so defective as to be insufficient to accomplish the purpose for which it is intended, shall be fined not more than \$10,000, imprisoned for not more than 5 years or both."



Lloyd's  
Register

Transport  
Canada  
Safety and Security



## CERTIFICATE OF TYPE APPROVAL ISSUED ON BEHALF OF TRANSPORT CANADA

This is to certify that

The product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations with regards to the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by Transport Canada to issue the relevant certificates, licences, permits etc.

**Manufacturer**                      Daniamant Limited

**Type**                                      LIFEJACKET LIGHTS

**Description**                            Position Indicating flashing light for lifejackets - Type: "L6-Ex and L6A-Ex"

**Specified Standard**                IMO Resolution MSC 81(70) Part 1 as amended by resolution MSC.226 (82), MSC.200(80) and MSC.323(89)

**The attached Design Appraisal Document forms part of this certificate.  
This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.**

Date of issue                      21 November 2016                      Expiry date                      20 November 2021

Certificate No.                      LRTC 0000107                      Signed                      

Sheet No                              1 of 3                      Name                              L. Thomas  
Surveyor to Lloyd's Register EMEA  
A Member of the Lloyd's Register Group

**Note:**

**This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid Certificate.**

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.





Page	2 of 3
Document number	LRTC 0000107
Issue number	1

**DESIGN APPRAISAL DOCUMENT**

Date	Quote this reference on all future communications
3 November 2016	SOUTSO/SFS/TA/LT/WP27423868

**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000107**

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

**EXAMINED DOCUMENTATION**

Technical File -TF017, Rev 02.

Installation and Maintenance Instruction for L6A-Ex, Document No 79-353-001, Issue 7.

Installation and Maintenance Instruction for L6-Ex, Document No 79-317-001, Issue 7.

**TEST REPORTS**

Microbiological test, report serial no. J-5036, dated 15/10/2013.

L6-Ex and L6A-Ex Lifejacket Lights Evaluation and Test Report, Report No: 11-08, dated 16 August 2011.

L6A Lifejacket Lights Evaluation and Test Report, Report No: 010-05, dated 25 July 2005.

L6 Lifejacket Lights Evaluation and Test Report, Report No: 006-01, dated 03,04,05 October 2001.

Environmental testing, report No 75914530, report 01, issue 1, dated 10 August 2011.

**CONDITIONS OF CERTIFICATION**

1. Lights powered by batteries shall be marked with a means of determining their age or the date by which they are to be replaced
2. Each light is to be marked with the information required by the LSA Code Paragraph 1.2.2.9 and 1.2.3
3. The lifejacket type where the subject design of light is fitted should be tested in accordance with IMO Resolution MSC.81(70), I/10.3.3 to confirm the adequacy of their means of attachment
4. For compliance with SOLAS Regulation III/35 and III/36 fully detailed operations and maintenance manuals shall be supplied with each light
5. Lights which have reached their date of replacement shall be disposed of safely with due regard to their lithium batteries
6. The arrangements and installation of the lights on the lifejacket on board are not part of this design appraisal or certificate and are to be to the satisfaction of the Surveyors attending on board
7. If the specified standards are amended during the validity of this certificate, this product type is to be re-approved prior to it being supplied to vessels to which the amended standards apply
8. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure compliance with SOLAS Regulation III/5
9. Production tests are to be conducted in accordance with the applicable requirements of IMO Resolution MSC.81(70), Part 2, Paragraph 1.2. This does not preclude any further testing to additional requirements of the Marine Administration of the country where the ship is registered (i.e. the flag state) or those acting on behalf of that Administration



Page 3 of 3
Document number LRTC 0000107
Issue number 1

**DESIGN APPRAISAL DOCUMENT**

Date 3 November 2016	Quote this reference on all future communications SOUTSO/SFS/TA/LT/WP27423868
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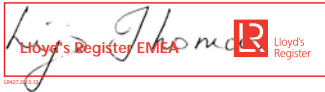
**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000107**

10. All instructions or markings that accompany life-saving appliances or are printed directly on the appliances must be in both English and French, as per Canadian procedures for approval of life-saving appliances and fire safety systems, equipment and products document no. TP 14612E (05/2011) paragraph 2.2.1.3. However, independent signage can be accepted in lieu of the instructions or marking required in paragraph 2.2.1.3 if it is in both English and French, highly visible (size, colour, posting location), water and weather proof and posted at each muster station and where the appliance is stored
11. Should a change of Place of Production from that stated below be required i.e. where the stages of manufacture/assembly/testing of this product take place, the new Place of Production is to be advised to us prior to the change taking place. This Certificate will require to be updated for Approval to be maintained

**PLACES OF PRODUCTION**

Daniamant Limited

Daniamant ApS



Lijo Thomas  
Senior Specialist  
Statutory Fire & Safety  
Southampton Technical Support Office, Marine & Offshore  
Lloyd's Register EMEA

**Supplementary Type Approval Terms and Conditions**

*This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).*



# IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION  
IEC Certification System for Explosive Atmospheres

Certificate No.: IECEX ITS 11.0008

Status: Current

Issue No: 3

Date of Issue: 2021-04-28

Applicant: Daniamant Ltd

Equipment: L6-Ex and L6A-Ex

Optional accessory:

Type of Protection: Intrinsic Safety "i"

Marking: IECEX ITS 11.0008  
Ex ia IIB T3 Gb  
-35°C ≤ Ta ≤ +65°C

Approved for issue on behalf of the IECEX  
Certification Body:

Mark Newman

Position:

Certificate Officer

Signature:  
(for printed version)

Date:

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1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.

Certificate issued by:

Intertek Testing & Certification Limited



# IECEX Certificate of Conformity

Certificate No.: IECEx ITS 11.0008

Date of issue: 2021-04-28

Issue No: 3

Manufacturer: Daniamant Ltd

Additional  
manufacturing  
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

#### STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

This Certificate does not indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.



# IECEX Certificate of Conformity

Certificate No.: IECEx ITS 11.0008

Date of issue: 2021-04-28

Issue No: 3

## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The L6-Ex and L6A-Ex are illuminating life jacket safety devices designed for use when the wearer enters the water. The difference between the two models is the method in which the unit is activated, the L6-Ex utilises a pull ring whilst the L6A-Ex has a water activated switch.

The equipment comprises of a printed circuit board, a lithium battery, a light emitting diode and in the case of the L6-Ex a reed switch. The enclosure for the device is comprised of two plastic parts. The electronics within the housing is encapsulated in epoxy resin. The battery used in the device is not replaceable and non rechargeable.

Intrinsic safety is maintained by the limitation of current, power, inductance and capacitance and the use of specified batteries.

SPECIFIC CONDITIONS OF USE: NO



# IECEX Certificate of Conformity

Certificate No.: IECEx ITS 11.0008

Date of issue: 2021-04-28

Issue No: 3

## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 0:

Original Issue.

Issue 1:

Re-assessments of the L6-Ex and L6A-Ex Light to the requirements of the standards IEC 60079-0: 2011 and IEC 60079-11:2011  
Equipment level protection "Ga" changed to "Gb" and Group IIC changed to Group IIB  
Changes to appropriate documents to reflect the above change.

Issue 2:

Revision of certified drawings to correct mistakes introduced under GB/ITS/ExTR11.0007/01.

Issue 3:

Assessment to IEC 60079-0:2017 Ed. 7

Minor ammendment / clarification to IEC 60079-11:2011 Ed. 6 assessment.



## Annex to IECEx Certificate of Conformity

<b>Certificate No:</b>	<b>IECEx ITS 11.0008</b>	<b>Issue No. 3</b>
<b>Annex No. 1</b>		

<b>Technical Documents</b>			
<b>Title:</b>	<b>Drawing No.:</b>	<b>Rev. Level:</b>	<b>Date:</b>
*L6-Ex & L6A-Ex Label Bottom	79-354D	7	2021-04-08
L6A-Ex LIFEJACKET LIGHT	79-350A	02	02/03/2011
L6-Ex PCB ASSEMBLY	79-311B	02	13/09/2011
L6-Ex & L6A-Ex CIRCUIT DIAGRAM	79-311C	03	06/05/2011
L6-Ex PCB ITEMS LIST	79-311L	06	24/08/2011
L6-Ex PCB	79-312D	01	11/11/2010
L6A-Ex FAMILY TREE	79-350F	02	03/03/2011
L6A-Ex PCB ASSEMBLY	79-351B	02	13/09/2011
L6-Ex LIFEJACKET LIGHT	79-310A	03	24/08/2011
L6A-Ex PCB ITEMS LIST	79-351L	06	24/08/2011
L6-Ex FAMILY TREE	79-310F	02	02/03/2011
L6-Ex PCB Gerber Files	79-312N	06	13/09/2011
EPOXY RESIN PX439XS	99-151-XXXD	01	02/03/2011

Note: An \* is included before the title of documents that are new or revised.

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Position indicating lights for life-saving appliances: (c) for lifejackets

with type designation(s)  
L6-Ex and L6 A-Ex

Issued to  
**Daniamant Ltd**  
Portsmouth, Hampshire, United Kingdom

is found to comply with the requirements in the following Regulations/Standards:  
Regulation (EU) 2019/1397,  
item No. MED/1.2c. SOLAS 74 as amended, Regulation III/4, III/7, III/22, III/26, III/32,  
III/34 & X/3, LSA Code, 2000 HSC Code 8

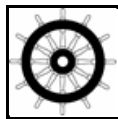
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until 2024-10-10.

Issued at Hamburg on 2019-10-11

DNV GL local station:  
Denmark CMC

Approval Engineer:  
Nicolay Horn



Notified Body  
No.: 0098

for DNV GL SE

Gerhard Aulbert  
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as **allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment"**, signed February 27th, 2004.

The mark of conformity may only be affixed to the above **type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body.** The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.



Job Id: 344.1-009917-1  
Certificate No: MEDB000060W

## Product description

Flashing lifejacket lights, Type L6-Ex and L6 A-Ex

## Application/Limitation

Lights powered by batteries shall be marked with means of determining their age or the date by which they are to be replaced.

For compliance with SOLAS Regulation III/35 and III/36, fully detailed operations and maintenance manuals shall be supplied with each light.

## Type Examination documentation

Technical file doc. No. TF017, revision 02

Installation and Maintenance Instruction for L6A-Ex lifejackets lights, Document No 79-353-001 Issue 7

Installation and Maintenance Instruction for L6-Ex lifejackets lights, Document No 79-317-001 Issue 7

Test report No.	Title	Date
006-01	L6 Lifejacket Evaluation and Test Report	2001-10-3,4,5
010-05	L6A Lifejacket Lights Evaluation and Test Report	2005-07-25
11-08	L6-Ex and L6A-Ex Lifejacket Lights Evaluation and Test Report	2011-08-16
J-5036	Microbiological test	2013-10-15
75914530, report 01, issue 1	Environmental testing	2011-08-10

## Tests carried out

-IMO Resolution MSC.81(70), part 1, as amended by resolution MSC.226(82), MSC200(80) and MSC.323(89).

-IEC 60945:2002 incl. IEC 60945 Corr. 1 (2008)

## Marking of product

To be marked with information requested by the LSA Code Paragraph 1.2.2.9 and 1.2.3

- Manufacturer name
- Type identification
- Serial or Lot number
- Date of expiry
- USCG Approval Number: USCG 161.112/EC0098/ MEDB000060W

END OF CERTIFICATE