

PRODUCT SAFETY DATA SHEET

PRODUCTS: L162 and L163

SECTION 1: IDENTIFICATION

PRODUCT NAME	Marine Safety Light Systems L162 and L163
MANUFACTURERS NAME	DANIAMANT LIMITED
	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 Lithium Manganese Dioxide 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%	5 mg/m3	5 mg/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

Lithium Metal:	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.
Manganese Dioxide:	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.
1.2 Dimethoxyethane:	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.

SECTION 4: FIRST AID MEASURES

EYES:	Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
INHALATION:	Remove from exposure, rest and keep warm. In severe cases, or if exposure has been great. Obtain medical attention.
SKIN:	Wash off skin thoroughly with water. Remove contaminated clothing and wash before re-use. Obtain medical attention.
INGESTION:	Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.
FURTHER TREATMENT	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.
EMERGENCY AND FIRST AID PROCEDURES	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

If cells are directly involved in fire, DO NOT USE SAND, DRY POWDER OR SODA ASH, GRAPHITE, METAL CLASS D EXTINGUISHERS OR A FIRE BLANKET. Copious quantities of a water based foam is 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 a water based foam.

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

HANDLING:	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.
STORAGE:	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 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

IN ALL FIRE SITUATIONS:	Use self-contained breathing apparatus.
IN THE EVENT OF A BATTERY CELL LEAKAGE:	Wear gloves, safety glasses and chemical apron.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

HAZARDOUS REACTIONS:

Lithium metal reacts with water to produce highly flammable gasses.

HAZARDOUS DECOMPOSITION REACTIONS:

Toxic fumes and may form peroxides.

SECTION 11: TOXICOLOGICAL INFORMATION

SIGNS & SYMPTOMS:

None, unless battery ruptures. In 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.

INHALATION:

Lung irritant.

SKIN CONTACT:

Skin irritant.

EYE CONTACT:

Eye irritant.

INGESTION MEDICAL CONDITIONS:

Poisoning if swallowed.

GENERALLY AGGRAVATED BY EXPOSURE:

In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

SECTION 12: ECOLOGICAL INFORMATION

MAMMALIAN EFFECTS

None known at present.

ECO-TOXICITY

None known at present.

BIOACCUMULATION POTENTIAL

Slowly bio-degradable.

ENVIRONMENTAL FATE

None known environmental hazards at present.

SECTION 13: DISPOSAL

DISPOSAL	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

UN Hazard Code	Class 9
UN Number	3091
UN Proper Shipping Name	Lithium Metal Batteries Contained in Equipment.
IATA Packing Instructions for air	970, Section II
Packing instructions for road and sea	P903 Special Provisions 230, 188.
Lithium Content	1.56g (Lithium metal battery pack)
Total Battery Weight	50g (Weight of Individual Cell 25g)
Labelling	As per IATA, IMDG and ADR requirements
Battery Test Criteria	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

Risk Phrases	R8 R11 R14/15 R17 R19 R20 R22 R34 R36/37/38 R41	Contact with combustible material may cause fire. Highly flammable. Reacts violently with water liberating extremely flammable gasses. Spontaneously flammable in air. May form explosive peroxides. Harmful by inhalation. Harmful if swallowed. Causes burns. Irritating to eyes, respiratory system and skin. Risk of serious damage to eyes.
Safety Phrases	S1/2 S8	Keep locked up and out of the reach of children. Keep away from moisture.

	S16 S17 S24/25 S26/27 S29 S33 S36 S37 S38 S43 S45	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.
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SECTION 16: OTHER INFORMATION

Disclaimer	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



LITHIUM CELL/BATTERY TEST SUMMARY

IN ACCORDANCE WITH UN MANUAL OF TESTS AND CRITERIA SUB SECTION 38.3.5

SECTION 1: NAME OF CELL/BATTERY	
PRODUCT NAME	Battery for L162 & L163 Lifebuoy Light
SECTION 2: MANUFACTURER OF CELL/BATTERY	
NAME	DANIAMANT LIMITED

SECTION 3: TEST LAB OF CELL/BATTERY	
NAME	TUV SUD PRODUCT SERVICE LTD

SECTION 4: TEST REPORT DETAILS	
TEST REPORT NUMBER	75922374
TEST REPORT DATE	July 2013
SECTION 5: DESCRIPTION OF CELL/BATTERY	
BATTERY/CELL TYPE	LITHIUM METAL
BATTERY/CELL MASS	50 Grams
BATTERY/CELL LITHIUM CONTENT	1.56 Grams
BATTERY/CELL PHYSICAL DESCRIPTION	Lithium Manganese Dioxide battery comprised of two x CR17505 connected in series
BATTERY/CELL MODEL NUMBER	62-003A, 62-004A

SECTION 6: LIST OF TESTS CONDUCTED AND RESULTS

	N/A	PASS	FAIL
T1 – ALTITUDE SIMULATION		X	
T2 – THERMAL TEST		X	
T3 – VIBRATION		X	
T4 – SHOCK		X	
T5 – EXTERNAL SHORT CIRCUIT		X	
T6 – IMPACT/CRUSH	X		
T7 – OVERCHARGE	X		
T8 – FORCED DISCHARGE	X		
ASSEMBLED BATTERY TESTING REQUIREMENTS	UN 38.3.3 (f)		

SECTION 7: REFERENCE TO THE REVISED EDITION OF THE MANUAL OF TESTS AND CRITERIA

UN ST/SG/AC.10/11/Rev 5/Amend 1. Criteria III, Section 38.3 Dated 2011

SECTION 8: NAME AND TITLE OF SIGNATORY

SIGNATURE	
NAME	Clare Palmer
TITLE	Trade Compliance Manager
DATE	26.05.2020

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STATEMENT OF TEST

CLIENT Daniamant Limited DOCUMENT 75941445 SOT 03 Issue 1
CLIENT'S ORDER NUMBER PC0001837, dated 16.01.2018

INCOMING RELEASE NOTE Delivery List, dated 16.01.2018

DATE OF RECEIPT 18 January 2018

EQUIPMENT UNDER TEST (EUT) L162 & L163 Lifebuoy Lights, comprising the following:

	Description	Model	No Tested	Sample Ref No	Test
1	Lifebuoy Light	L162	1	14	Test 1, 2 & 3
2	Lifebuoy Light	L163	1	16	Test 1, 2 & 3

TEST SPECIFICATION / ISSUE

- IMO LSA:2010 para 1.2.1, 10.2.2, 10.4.9 & 10.4.10 (Lifebuoy Lights).
- MSC.1-Circ.980:2001. Sections 2.1.2.2, 2.1.2.3 & 2.1.2.3 (Lifebuoy Lights).

DEVIATIONS FROM THE STANDARD

- The Thermal Cycling Test cold test level specified as -30°C was altered to be a more severe condition at -52°C.
- The Operation requirement to be floating and immersed in water was rescinded by Daniamant email P.Stubbs/G.Shadbolt(TUV) dated 08.02.2018.
- The operation period (Test 2) is extended to 15h to satisfy USCG requirements.

DATE OF TEST 22 January to 15 March 2018

TEST(S) DESCRIPTION Temperature & Light Tests on the L162 And L163 Lifebuoy Lights

The following tests were required by the specification:

Test	Description	Test Parameters	Operation
1	Temperature Cycling	2 units tested for x10 cycles between -52°C to +65°C for 8h at each temperature condition.	The units are switched OFF during the test and are examined and operated before and after the test.
2	Operation at Cold Temperature.	Both units stored for 8h at -52°C and operated at -1°C for 15h. See Deviation 2 above	Stabilise the lights at the test temperature and switch ON all lights. Check the flash rate is between 50-70 flashes per minute. Monitor and record the battery voltage.
3	Light Tests	Each unit tested for Luminous Intensity, Flash Rate/Duration and Chromaticity, at the lowest battery voltage recorded during Test 2.	The test is carried out at the laboratory of OptiConsulting Ltd, Buxton SK17 6UG, UK. . The battery voltages after Test 2 and maintained for the light test were 4.96 V (L162) and 4.92 V (L163).

RESULT(S) OF TEST

The test requirements were satisfied for all tests, as stated below.

Thermal Cycling: A visual examination and performance assessment after the test was reported as satisfactory.
Operation at Temperature: Visual examinations and performance assessments during and after the test were reported as satisfactory. Light flash rates met the requirements and were between 50 to 70 flashes per minute.
Light Tests: Flash rate/duration, Luminous Intensity (≥ 2 cd) and chromaticity were compliant and satisfactory.

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

Approved by 
S Boddison
Authorised Signatory



Date 18 April 2018



Product Service

Choose certainty.
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TEST HOUSE CERTIFICATE

CLIENT	Daniamant Ltd	DOCUMENT	75906891 THC 01 Issue 1
		CLIENT'S ORDER NUMBER	PO 0000613

INCOMING RELEASE NOTE	Declaration of Build Status
DATE OF RECEIPT	18 June 2009
TEST ITEMS	Lifebuoy Lights
NUMBER OF ITEMS TESTED	Four
MODEL/PART NUMBERS	L160, L161, L162 and L163
SERIAL NUMBERS	2, 4, 7, 9

TEST SPECIFICATION	CLAUSE	TEST	RESULT
IEC 60945	Table 5, 9.3	Enclosure Port Magnetic Emissions - Field Strength	Pass
IEC 60945	Table 5, 9.3	Radiated Emissions (Enclosure Port)	Pass
IEC 60945	Table 6, 10.4	Immunity to Radio Frequency Electromagnetic Field (Enclosure Port)	Pass
IEC 60945	Table 6, 10.9	Immunity to Electrostatic Discharge (Enclosure Port)	Pass

DEVIATIONS FROM THE STANDARD Only one side tested for Radiated Immunity due to the small size and construction of the EUTs.

DATE OF TEST 18 June 2009

RESULTS OF TEST

This Certificate relates only to the actual item tested.

The Equipment Under Test (EUT) met the requirements of the applied tests.

RELATED DOCUMENTS CISPR 16-1 : 1999
 IEC 61000-4-2 : 1995
 IEC 61000-4-3 : 1995

Approved by 

 C Gould
 Authorised Signatory



Date 05 November 2009



COMMERCIAL-IN-CONFIDENCE

TEST HOUSE CERTIFICATE

CLIENT Daniamant Limited

DOCUMENT

75929303 THC 01 Issue 2

CLIENT'S ORDER NUMBER

PC0001458, dated 02.02.2015

INCOMING RELEASE NOTE

Not Released

DATE OF RECEIPT

10 February 2015

EQUIPMENT UNDER TEST (EUT)

Survivor Location Lights, as stated below (x9 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	Hand Held LED Distress Flare	ODEO Mk.3	007
8	Lifebuoy Light	L90	008
9	Life Raft External Light	RL6	009

* Test Sample Registration Number

TEST SPECIFICATION / ISSUE

EN 60529:1992. Table III, Table VIII and clause 14.2.7.

DEVIATIONS FROM THE STANDARD

None

DATE OF TEST

11 February 2015

TEST(S) DESCRIPTION

Protection Against Ingress by Immersion in Water (IPX7)

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 so that the lowest point of the EUT is 1000 mm below the surface of the water, and for a duration 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. No water ingress, other damage or detrimental effects were observed or reported during or on completion of the test. When switched ON after the test all lights operated and/or flashed satisfactorily as required and as compared to the operation prior to the test. Items 1 and 9 required the connection of an external battery source before they were operated.

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

This THC has been up-issued to Issue 2 to correct an incorrect description applied to item 9 (RL6 unit)

Approved by


G Stephens
Authorised Signatory



Date 4 March 2015



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



AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant: Daniamant Ltd

Manufacturer: Daniamant Ltd

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek, Leatherhead, United Kingdom

Control Number: 3195124

Authorized by: 

Ulla-Pia Johansson-Nilsson for
Thomas J. Patterson, Certification Manager



This document supersedes all previous Authorizations to Mark for the noted Report Number.

This Authorization to Mark is for the exclusive use of Intertek's Client and is provided pursuant to the Certification 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 Authorization to Mark. Only the Client is authorized to permit copying or distribution of this Authorization to Mark and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the agreement and in this Authorization to Mark. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

Standard(s):	UL 913 Issued: 2013/12/06 Ed: 8 Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division I, Hazardous (Classified) Locations
Product:	Life Buoy Light
Brand Name:	DANIAMANT LTD L161 or DANIAMANT LTD L163
Models:	L161 (yellow) and L163 (orange)



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

Certificate No.: IECEx ITS 09.0022X

Status: Current

Date of Issue: 2020-11-12

Applicant: Daniamant Ltd

Equipment: Lifebuoy Light L161 & L163

Optional accessory:

Type of Protection: Intrinsic Safety

Marking: Ex ia IIC T4/T3 Ga
IECEx ITS 09.0022X
T3: $-35^{\circ}\text{C} < \text{Ta} < +85^{\circ}\text{C}$
T4: $-35^{\circ}\text{C} < \text{Ta} < +60^{\circ}\text{C}$

Approved for issue on behalf of the IECEx
Certification Body:

A M Smart

Position:

Certification Officer

Signature:
(for printed version)

2020-11-12

Date:

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

The Intertek logo is displayed in a stylized, lowercase font with a small orange dot above the 'i'.



IECEX Certificate of Conformity

Certificate No.: IECEx ITS 09.0022X

Date of issue: 2020-11-12

Issue No: 5

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.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:



IECEx Certificate of Conformity

Certificate No.: IECEx ITS 09.0022X

Date of issue: 2020-11-12

Issue No: 5

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Type L161 and L163 Lifebuoy Light is a high intensity flashing LED light source designed to float on water.

The units comprise a Noryl buoyancy chamber (either yellow or orange according to model number), printed circuit board with batteries and a LED fitted behind a sealed transparent dome shaped lens.

The enclosure houses two series connected lithium cells as power source. The unit is operated by a magnetic tag which is moved to the operating position when the life buoy light is detached from its retaining bracket.

The electronics within the housing is encapsulated in polyurethane resin.

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

SPECIFIC CONDITIONS OF USE: YES as shown below:

The Lifebuoy Lights are housed within plastic enclosures, and may be susceptible to electrostatic charging. When mounted in Zone 0, precautions shall be taken to ensure that electrostatic charging cannot occur.



IECEx Certificate of Conformity

Certificate No.: IECEx ITS 09.0022X

Date of issue: 2020-11-12

Issue No: 5

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1:

- Typographic errors corrected in drawings without changes to content of the drawings.

Issue 2:

- Re-assessments of the Life Buoy Light to the requirements of the latest standards IEC 60079-0: 2011 and IEC 60079-11:2011
- Changes to appropriate documents to reflect the above change.

Issue 3:

- Design of the battery to be used with L163 Lifebuoy light changed.

Issue 4:

- Update to certified drawings list to correct label drawing revision and date error introduced under GB/ITS/ExTR09.0026/01.
- Inclusion of additional options for R2

Issue 5:

- Additional Temperature Class T4 with revised ambient temperature.
- Update to latest version of standards.
- Minor correction to permitted cell types



Annex to IECEx Certificate of Conformity

Certificate No:	IECEX ITS 09.0022X	Issue No. 5
Annex No. 1		

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
L161 LIFE BUOY LIGHT (ATEX)	62-002A	4	10/12/2009
L163 LIFE BUOY LIGHT USCG + ATEX	62-004A	5	10/12/2009
L161-L163 MAIN PCB	62-117D	1	13/05/2009
L161-L163 PCB ARTWORK	62-117N	1	18/06/2009
L161 PCB PARTS LIST	62-118L	4	30/04/2018
L161 SCHEMATIC	62-118C	2	15/12/2009
L161 PCB ASSEMBLY	62-118D	2	15/12/2009
L163 SCHEMATIC	62-120C	3	15/12/2009
L163 PCB ASSEMBLY	62-120D	3	15/12/2009
L163 PCB PARTS LIST	62-120L	4	30/04/2018
*L161 LABEL	62-124D	13	12/10/2020
*L163 LABEL	62-126D	13	12/10/2020

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

Certificate issued by:

intertek

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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	POSITION INDICATING LIGHTS FOR LIFE-SAVING APPLIANCES : FOR LIFEBOUYS
Description	Self-activated light for use on lifebuoys – Type: "L163"
Specified Standard	TP 14475E IMO Resolution MSC 81(70) Part 1 as amended

**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	23 October 2017	Expiry date	22 October 2022
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Certificate No.	LRTC 0000180	Signed	
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Sheet No	1 of 3	Name	L. Thomas Surveyor to Lloyd's Register EMEA A Member of the Lloyd's Register Group
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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.



Document number	LRTC 0000180
Issue number	1

DESIGN APPRAISAL DOCUMENT

Date 23 October 2017	Quote this reference on all future communications SOUTSO/SFS/TA/LT/WP27423868
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000180

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 No TF015 Revision No 3, September 2017
Installation and Maintenance Instruction, Document No 62-128-001, Issue 08 (C6725)

TEST REPORTS

Test Report No.14-05 "L160, L161, L162 and L163 Life test" dated April 24th 2014, witnessed by TUV product Service Ltd.
Test Report No.75925967 report 01, issue 1 "Temperature cycling test, Luminous intensity test, Chromaticity test, vibration test" dated June 2014, witnessed by TUV product Service Ltd.
Evaluation and test report as per MSC 81(70), dated 09-03A, dated 06/08/2009.
Microbiological test report, report no J-5036, dated 15/10/2013
Alternative cell Able CR123A cell and Able CR17505 test report No 09-10, dated 20/10/2009

CONDITIONS OF CERTIFICATION

1. Maximum installation height: 76 m
2. Lights powered by batteries shall be marked with a means of determining their age or the date by which they are to be replaced Each light is to be marked with the information required by the LSA Code Regulation 1.2.2.9 and 1.2.3
3. For compliance with SOLAS Regulation III/35 and III/36 fully detailed operations and maintenance manuals shall be supplied with each light
4. The arrangements and installation of the lights on board are not part of this design appraisal or certificate and are to be to the satisfaction of the Surveyors attending on board
5. 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
6. 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
7. Production items are to be manufactured in accordance with a quality control procedure and records kept as required by MSC.81(70) Part 2, Paragraph 1.2. Production tests are to be conducted to ensure compliance with SOLAS Chapter III Regulation 5. 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
8. 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



Lloyd's
Register

Lloyd's Register EMEA

71 Fenchurch Street, London, EC3M 4BS
Telephone 020 7423 2416 Fax 020 7423 2053
Email tass@lr.org

Document number	LRTC 0000180
Issue number	1

DESIGN APPRAISAL DOCUMENT

Date 23 October 2017	Quote this reference on all future communications SOUTSO/SFS/TA/LT/WP27423868
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LRTC 0000180

9. 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 (05/2014) EMEA 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

Lijo Thomas

liance is stored

ITION

Daniamant Ltd

Daniamant A/S

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).

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: (b) for lifebuoys

with type designation(s)
L163

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/1.2b. SOLAS 74 as amended, Regulation III/4, III/7, III/22, III/32, III/34 &
X/3, LSA Code, 2000 HSC Code 8

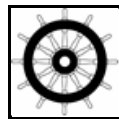
Further details of the equipment and conditions for certification are given overleaf.

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: 344.1-009923-1
Certificate No: MEDB0000612

Product description

Self-activated lights for use on lifebuoys – Type L163

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.

Maximum installation Height: 76 m.

Type Examination documentation

Technical file doc. No. TF015, revision 03, September 2017

Installation and Maintenance Instruction, 62-128-001 Issue 08 (C6725)

Test report No	Title	Date
14-05	"L160, L161, L162 and L163 Life test", witnessed by TUV product service Ltd	2014-04-24
J-5036	Microbiological test report	2013-10-15
09-10	Alternative cell CR123A cell and Able CR17505	2009-10-20
75925967, report 01, Issue 1	"Temperature cycling test, Luminous intensity test, Chromatic test, Vibration test", witnessed by TUV product service Ltd	2014-06
	"Evaluation and test report per MSC 81(70), dated 09-03A"	2009-08-06

Tests carried out

-IMO Resolution MSC.81(70), part 1, as amended

-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 161.110/EC0098/ MEDB0000612

END OF CERTIFICATE



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

Coast Guard Approval Number: 161.010/29/0

Expires: 09 March 2025

FLOATING ELECTRIC WATER LIGHT

DANIAMANT LIMITED

Daniamant L163 flashing floating electric water light.

A strobe floating electric light to be attached to a lifebuoy.

Meets the requirements of ANSI/UL 1196. Meets the requirements of UL 913, sixth edition, for Intrinsically Safe Apparatus for use in Class I, II, III, Division 1, Hazardous (Classified) Locations.

Identifying Data: Daniamant Ltd. Dwg #62-004A, Issue 4, dtd 11/05/2009; TUV-witnessed Daniamant Test Report 09-11, Issue 2, dtd 02/24/2010; Intertek Test Report 3181261CRT-001t, dtd 04/02/2010.

Extends certificate dated March 09, 2015, updated certificate verbiage.

*** 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 09th DAY OF
MARCH 2020, 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."

TEST CERTIFICATE

CLIENT: TÜV SÜD Product Service

CERTIFICATE NUMBER 13063/01 Issue 02

CUSTOMER ORDER NUMBER 10010649

TÜV REFERENCE 75929303

PAGE 1 OF 2

DATE OF RECEIPT

17 February 2015

EQUIPMENT SUPPLIER

Daniamant Limited

TEST ITEM(S)

TSR	Identity	Description	Quantity	PTL ID
010	Rescue Master 2B	Life Raft Light	1	19486
011	L170	Lifebuoy Light	1	19487
012	L160	Lifebuoy Light	1	19489
013	L161	Lifebuoy Light	1	19490
014	L162	Lifebuoy Light	1	19491
015	L163	Lifebuoy Light	1	19492
016	ODEO Mk.3	Hand Held LED Distress Flare	1	19493
017	L90	Lifebuoy Light	1	19494
018	RL6	Life Raft External Light	1	19495

TEST SPECIFICATION / ISSUE

BS EN 60529:1992 +A2:2013 IP6X Cat 1

DATE OF TEST

18 February 2015

TEST(S) APPLIED

Protection Against Solid Foreign Objects, Dust-Tight

Initially the units were examined for apertures and openings allowing penetration of a 1mm diameter probe applied with a force of 1 N.

Prior to testing a vacuum of 19.9 mbar was applied to each item individually, the airflow was below measurable therefore an 8 hour test was required. A 19.9 mbar vacuum was applied to each of the units for the duration of the test. The test conditions were as follows:

Dust Grade: BS EN 60529 Talc Test Dust

Concentration: 2 kg/m³

Duration: 8 hrs

Temperature/Humidity: 26 °C / 35% rh

TEST CERTIFICATE

CLIENT: TÜV SÜD Product Service

CERTIFICATE NUMBER 13063/01 Issue 02

CUSTOMER ORDER NUMBER 10010649

TÜV REFERENCE 75929303

PAGE 2 OF 2

RESULT(S) OF TEST

IP6X

There were no apertures permitting entry with a 1 mm diameter probe when using a force of 1 N.

On completion of the dust test excess dust was removed by light brushing, no conspicuous damage was noticed on the exterior of the units.

Instructions were supplied by the customer to perform functional assessment on the units (with the exception of 010 & 018). All lights performed satisfactorily.

Each unit was opened for inspection, where necessary the units were cut open; there was no visible dust ingress into the Survivor Location Lights.

COMPLIANCE

The Survivor Location Lights conform to the standard required by BS EN 60529:1992 +A2:2013 IP6X Category 1.



Approved by
G J Spicer, MEng
Managing Director

Date: 04 March 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 **ITS09ATEX26366X R.1**

Product: L161 & L163 Lifebuoy 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. G102157894 dated November 2015; Nr. G103001678 dated December 2017; Nr. G103493255LHD-001 issue 1 Dated April 2018, Nr. 104386278LHD-001 Issue 1 Dated 2nd December 2020.

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 1 G Ex ia IIC T3/T4 Ga
T3 = -35°C ≤ Ta ≤ +85°C
T4 = -35°C ≤ Ta ≤ +60°C

Certificate issue date

11 December 2020



Fabrizio Massei
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: ITS09ATEX26366X R.1

13. DESCRIPTION OF THE EQUIPMENT OR PROTECTIVE SYSTEM

The DANIAMANT LTD L161 and L163 Lifebuoy Lights are high intensity flashing LED light sources designed to float on water.

The units comprise a buoyancy chamber (either yellow or orange according to model number), printed circuit board with batteries and a LED fitted behind a sealed transparent dome shaped lens.

The enclosure houses two series connected lithium cells as power source. The unit is operated by a magnetic tag which is moved to the operating position when the life buoy light is detached from its retaining bracket.

The electronics within the housing is encapsulated in polyurethane resin.

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
L161 LIFE BUOY LIGHT (ATEX)	62-002A	4	10/12/2009
L163 LIFE BUOY LIGHT USCG + ATEX	62-004A	5	10/12/2009
L161-L163 MAIN PCB	62-117D	1	13/05/2009
L161-L163 PCB ARTWORK	62-117N	1	18/06/2009
L161 PCB PARTS LIST	62-118L	4	30/04/2018
L161 SCHEMATIC	62-118C	2	15/12/2009
L161 PCB ASSEMBLY	62-118D	2	15/12/2009
L163 SCHEMATIC	62-120C	3	15/12/2009
L163 PCB ASSEMBLY	62-120D	3	15/12/2009
L163 PCB PARTS LIST	62-120L	4	30/04/2018
*L161 LABEL	62-124D	13	12/10/2020
*L163 LABEL	62-126D	13	12/10/2020

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: ITS09ATEX26366X R.1

15. SPECIAL CONDITIONS FOR SAFE USE

The enclosure may present an electrostatic hazard. When positioned in a Zone 0 hazardous area, the user must take precautions to ensure electrostatic charging cannot occur.

16. ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

The relevant essential Health and Safety Requirements have been identified and assessed in Intertek Report Nr. 104386278LHD-001 Issue 1 Dated 2nd December 2020.

17. ROUTINE (FACTORY) TESTS

None.

18. DETAIL OF CERTIFICATE CHANGES

11 December 2020 (R.1):

To permit the following changes under Intertek Project No. G104386278:

- Update to latest version of standards.
- Revision to allow Temperature Class T4 for the maximum ambient temperature range of $-35^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ in addition to the existing Temperature Class, T3 and ambient temperature range.
- Minor correction to the permitted cell types.

The following drawings were updated as part of this variation:

TITLE	DOCUMENT Nr	LEVEL	DATE
L161 LABEL	62-124D	13	12/10/2020
L163 LABEL	62-126D	13	12/10/2020