



COMMERCIAL-IN-CONFIDENCE

STATEMENT OF TEST

CLIENT Daniamant Limited DOCUMENT 75937678 THC 06 Issue 1
 CLIENT'S ORDER NUMBER PC0001732 & PC0001774

INCOMING RELEASE NOTE No delivery documents were supplied
 DATE OF RECEIPT 7 March 2015
 EQUIPMENT UNDER TEST (EUT) Lifeboat Lights, comprising the following;

	Description	Model	Number Tested	Sample ref No
1.	Internal Lifeboat Light	SL500	12	1 to 12 incl.
2.	External Lifeboat Light	SL400	12	13 to 24 incl.

TEST SPECIFICATION / ISSUE
 1. IMO LSA:2010 para 6.12 & 10.1 (Lifeboat Lights).
 2. MSC 70/23/add.1, Annex 6 (Resolution MSC.81(70) clauses 10.1.1.
 3. MSC 89/25/Add.1 Annex 12 [Resolution MSC.323(89)]. (Ambient tests).
 4. MSC 70/23/add.1, Annex 6 (Resolution MSC.81(70) clauses 10.1.3 & 10.1.4)

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.

DATE OF TEST 7 March to 25 May 2017

TEST(S) DESCRIPTION Temperature & Light Tests on the SL400 & SL500 Lifeboat Lights

The following tests were required by the specification:

Test	Description	Test Parameters	Operation
1	Temperature Cycling	24 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 Hot, Cold and Ambient Temperatures.	4 units tested at +65°C (samples 1 to 4 & 13 to 16) 4 units tested at -52°C (samples 5 to 8 & 17 to 20) 4 units tested at +20°C (samples 9 to 12 & 21 to 24).	Stabilise all lights at the test temperature and switch ON all lights. Determine the flash rate of the External lights & record battery voltage.
3	Light Tests (Luminous Intensity)	3 SL500 units tested for Luminous Intensity (Internal samples 1, 5 & 9). 3 SL400 units tested for Luminous Intensity & Flash Rate (External samples 13, 17 & 21).	The test is carried out at the laboratory of OptiConsulting Ltd, Buxton SK17 6UG, UK.

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. The External lights flash rates for all units tested met the test requirements.

Light Tests: The lights met the acceptance criteria for Luminous Intensity and Flash rate.

Reports: Full details of all the tests identified above are fully reported in the associated documents 75937678 Report 01 (Environmental Tests and 75937678 Reports 03 & 04 (Light Tests)

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

Approved by 
 S Boddison
 Authorised Signatory



Date 19 June 2017



COMMERCIAL-IN-CONFIDENCE

STATEMENT OF TEST

CLIENT Daniamant Limited DOCUMENT 75950185 SoT 03 Issue 2
CLIENT'S ORDER NUMBER PC0002105, dated 10.02.2021

INCOMING RELEASE NOTE Not Released
DATE OF RECEIPT 10 February 2021
EQUIPMENT UNDER TEST (EUT) Lifeboat External Light
MODEL/PART NUMBERS(S) SL400
SERIAL NUMBERS(S) Not serialised
TEST SPECIFICATION / ISSUE / DATE EN 60945:1992 +A2:2013 Tables III, VIII & clause 14.2.8 (IPX8)
DEVIATIONS FROM THE STANDARD None
DATE OF TEST 12 February 2021

TEST(S) DESCRIPTION Protection Against the Ingress of Water by Immersion (IPX8)

The following test was required by the specification:

1. Weigh the unit before the test. Provide an external power supply at 24 V and confirm the light operates correctly (50 to 70 flashes per minute). No temperature preconditioning is required. The EUT is immersed in fresh water and is electrically disconnected and switched OFF during the test. The cable terminations were not immersed.
2. Install the EUT into the pressure vessel and immerse the unit below the surface of fresh water. Provide a positive pressure to that equivalent to an immersion at 5 m. Immersion shall be for a period of 30 min (minimum).
3. On completion of the test re-weigh the unit. Examine for any signs of water ingress. Reconnect the electrical supply and confirm the light unit operates satisfactorily.

RESULT(S) OF TEST

The test requirements were satisfied. No water ingress was observed inside the lens of the light unit, and no other damage or detrimental effects were reported following examination on completion of the test. The weight of the unit was unchanged after the test. The light unit operated correctly after the test.

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

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2007, clause 4.4.3 and 4.5.1.

Approved by

G M Stephens
Authorised Signatory

Date 12 May 2021



TEST CERTIFICATE

CLIENT: TÜV SÜD Product Service

CERTIFICATE NUMBER 21511/01 Issue 01

CUSTOMER ORDER NUMBER 2600015218

TÜV REFERENCE 75950185

DATE OF RECEIPT

22 February 2021

EQUIPMENT SUPPLIER

Daniamant Ltd

TEST ITEM(S)

Description	Model №	Serial №	PTL ID
External Lifeboat Light	SL-400	Not Serialised	33569
Internal Lifeboat Light	SL-500	Not Serialised	33570

TEST SPECIFICATION / ISSUE

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

DATE OF TEST

24 February 2020

TEST(S) APPLIED

Protection Against Solid Foreign Objects, Dust-Tight

Prior to the testing the two units were function tested as per the customers instructions by connecting a 24v power supply. The units performed satisfactorily; the SL400 repeatedly flashed at a rate of approximately 1 per second, the SL500 remained continuously on.

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

Prior to testing a 19.9 mbar vacuum was applied to each unit, the air flow was below measurable on both the SL400 & SL500, therefore a test period of 8 hours was required. Both units were tested simultaneously. The test conditions were as follows:

Dust Grade: BS EN 60529 Talc Test Dust

Concentration: 2 kg/m³

Duration: 8 hrs

Temperature/Humidity: 17.9°C / 46.8% rh



TEST CERTIFICATE

CLIENT: TÜV SÜD Product Service

CERTIFICATE NUMBER 21511/01 Issue 01

CUSTOMER ORDER NUMBER 2600015218

TÜV REFERENCE 75950185

RESULT(S) OF TEST

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IP6X

There were no apertures permitting entry with a 1mm diameter probe when using a force of 1N on either unit under test.

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

The units were powered prior to internal inspections, and the function checks are reported as satisfactory when a 24v power supply was applied; the SL400 repeatedly flashed at a rate of approximately 1 per second, the SL500 remained continuously on.

As per the customers instructions the units were opened for inspection. This involved a destructive method of removing the top cap of each unit. There was no visible dust ingress into either unit.

The SL-400 and SL-500 Lifeboat lights meets the requirements of BS EN 60529:1992 +A2:2013 IP6X Category 1.

Approved by
Greg Spicer, MEng
Managing Director
Date: 12 April 2021

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: (a) for survival craft and rescue boats

with type designation(s)
SL-400

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/1.2a. SOLAS 74 as amended, Regulation III/4, III/34 & X/3, LSA Code I & IV,
1994 HSC Code 8, 2000 HSC Code 8

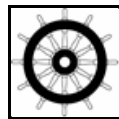
Further details of the equipment and conditions for certification are given overleaf.

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: 344.1-009938-1
Certificate No: MEDB000061H

Product description

Manually controlled flashing position indication lights for survival craft – Type SL-400

Application/Limitation

The SL-400 position indication lamp is intended for motorized survival craft and to be connected to the crafts 12V electrical system.

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. TF021, revision 02

Installation and Maintenance Instruction SL-400 survival craft External Light, Doc. No 24-113 Issue 01 (C6645).

Test report No	Title	Date
75934622, Report 01, issue 3	IMO Resolution MSC81(70) testing of SL400 Lifebuoy lights, witnessed byTUV product service Ltd.	2017-07
75934622, Report 02, issue 1	Optical testing of SL400 Lifebuoy lights witnessed by TUV product service Ltd.	2017-05
E10024.00	Vibration test, Nemko Report	2010-01-27
E10091.00	Rain and water tightness test, Nemko Report	2010-04-09
6P06382	Solar radiation test	2016-07-30
6P05666	Fire tests on SL-400	2016-08-09
15702, Issue 2	Moulded growth test	2016-07-21

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 161.101/EC0098/ MEDB000061H

END OF CERTIFICATE