

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00006AV
Revision No:
2

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 Navigation lights

with type designation(s)

L30001 UNL Universal Navigation Light UNL, L30002 UNL-S Universal Navigation Light (Side-mounted)

Issued to

**Optonaval GmbH
Hamburg, Germany**

is found to comply with the requirements in the following Regulations/Standards:

Regulation (EU) 2022/1157,

item No. MED/6.1. COLREG 72 as amended, Annex I/14, IMO Res. A.694(17), IMO Res. MSC.253(83)

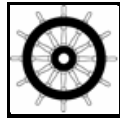
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-06-22**.

Issued at **Hamburg** on **2023-09-15**

DNV local unit:
Hamburg – CMC North/East

Approval Engineer:
Didier Girardin



Notified Body
No.: **0098**

for **DNV GL SE**

Christine Mydlak-Roeder
Head of Notified Body

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Product series:

- L30001 UNL Universal Navigation Light UNL
- L30002 UNL-S Universal Navigation Light (Side-mounted)

The Optonaval Universal Navigation Light represents a modular approach to the wide variety of Navigation Lights, whereby one common hardware and software basis fits all purposes of the different navigation light applications on board of a ship. With its round shape, the light offers the best possible tightness. Different horizontal shaders and LED-Colors define the various light functions, which can be combined in a single housing. The UNL comes with a separate installation base to which the light unit is fixed by a bayonet catch, which allows a near tool-free installation and deinstallation. Most lights are built with fully separate redundant light elements, which switch over automatically in case need.

The UNL carries unique sensor capabilities which measure and record:

- Internal temperature
- Internal humidity (water tightness)
- Brightness of every LED
- Electric flow to every light segment
- Operating hours

Reading these indicators, the light will report an upcoming malfunction long before it occurs and allows for maintenance according to a structured plan rather than emergency repairs.

The UNL is NVG (Night Vision) compatible.

See detailed product list in ANNEX

Compass Safe Distance	standard compass	Steering compass
L30001-00-003	33 cm	14 cm
L30001-00-020	27 cm	15 cm
L30001-00-002	32 cm	19 cm

Application/Limitation

- Each product is to be supplied with its manual for installation, maintenance, and use.
- Electric LED navigation lights on vessels of 20 and more meter length, applicable for 24V voltages
- The navigation lights to be installed in accordance with COLREG 72 as amended and maker's instructions.
- The navigation lights of the Optonaval GmbH to be operated with a navigation light controller from Böning Automationstechnologie GmbH & Co. KG or Optonaval GmbH.
- For data transmission of the health status, Optonaval's Data Gathering Unit is required (already integrated in Optonaval's navigation light controller).
- For a correct functionality of the error detection of Böning's navigation light controller, the tripping current needs to be adjusted to a value of 100 mA.
- For EMC reasons, the connection cables need to be applied with Optonaval's UNL EMC filter if Böning's navigation light controller is used (already integrated in Optonaval's navigation light controller)
- Navigation lamp LED light sources shall not be removed and replaced. Navigation lamp shall be replaced integrally if needed.

Hidden as Confidential
Tested LED

White colour
Optonaval part no.: K61001-06-002
LED – WH
Nichia NVSW219CT

Green colour
Optonaval part no.: K61001-06-004
LED – GN
Oslon LV-CQBP

Red colour
Optonaval part no.: K61001-06-067
LED – RD
Oslon LJ-CKBP

Yellow colour
Optonaval part no.: K61001-06-076
LED – YE
Oslon LCY-CLBP

For more information see document MED_Doc_Prüfspezifikation_Rev_1_8; Annex L.

End of Hidden Text

Type Examination documentation

See annex

Tests carried out

EN 14744 :2005 incl. AC :2006,
EN 60945 :2002 incl. IEC 60945 Corr. 1 : 2008
COLREG 72, Annex I/14
MSC.253(83)
IMO Res.A.694(17)

Marking of product

According to Article 10 of the Council Directive (MED) and including information required by the LSA
Code § 1.2.2.9 and § 1.2.3
Manufacturer name
Type identification
Serial number
Visibility of light in nautical miles

ANNEX
Type Examination documentation

Hidden
 >*****BEGIN OF HIDDEN PART *****>

Report	Rev	Issuing date	EUT	
TR-075-20	IPX7 ¹⁾	2	2020.06.03	L30001-00-003 L30001-00-020 L30002-00-002
Qualification Test Plan	MED_Doc_Prüfspezifikation_Rev_1_7: 2020-05-31			
Test Plan Notes	MED_Doc_Äquivalenzbetrachtung_EUT_Rev_1_0: 2020-05-31			
TR-Notes	MED_Doc_Berichtskommentar_IPX7_Rev_1_0			

Report	Rev	Issuing date	EUT	
TR-089-20	ENV.	1	2020.06.15	L30001-00-003 L30001-00-020 L30002-00-002
Qualification Test Plan	MED_Doc_Prüfspezifikation_Rev_1_7: 2020-12-30 MED_Doc_Prüfspezifikation_Rev_1_7: 2020-05-31 MED_Doc_Prüfspezifikation_Rev_1_6: 2020-03-13 MED_Doc_Prüfspezifikation_Rev_1_5: 2020-03-12 MED_Doc_Prüfspezifikation_Rev_1_4: 2020-03-10 MED_Doc_Prüfspezifikation_2_Rev_1_0: 2020-10-27			
Functional Checks	MED_Doc_Testprotokoll_FC_Rev_1_2: 2020-02-28 MED_Doc_Testprotokoll_FC_Rev_1_3: 2020-03-11 MED_Doc_Testprotokoll_FC_Rev_1_4: 2020-03-24 MED_Doc_Testprotokoll_Sichtprüfung_Rev_1_0: 2020-03-10 MED_Doc_Testprotokoll_Sichtprüfung_Rev_1_1: 2020-03-13 MED_Doc_Testprotokoll_SBP_Rev_1_0: 2020-02-21 MED_Doc_Testprotocoll_FP_Rev_1_3: 2020-03-24			
TR-Notes	MED_Doc_Berichtskommentar_DryHeatOperational_Rev_1_0 MED_Doc_Berichtskommentar_RainAndSpray_Rev_1_0 MED_Doc_Berichtskommentar_SolarRadiation_Rev_1_0			

Note ¹⁾ see IP6X in Report TR-089-20

TR-143-20_V1U	EMC	1	2020.06.09	L30001-00-003
TR-144-20_V1U	EMC	1	2020.06.09	L30001-00-020
145-20_V1U	EMC	1	2020.06.09	L30001-00-002

Photo- und Colorimetric Measurements				
0800S3-454.NL/Optonaval UNL/4-1		2020.05.28	EN 14744 - 2005	L30001-00-003
0800S3-454.NL/Optonaval UNL/4-2		2020.05.28	EN 14744 - 2005	L30001-00-007
0800S3-454.NL/Optonaval UNL/4-4		2020.05.28	EN 14744 - 2005	L30001-00-030
0800S3-454.NL/Optonaval UNL/4		2020.05.28	EN 14744 - 2005	L30002-00-002
0800S3-454.NL/Optonaval UNL/4-6		2020.05.28	EN 14744 - 2005	L30001-00-003
0800S3-454.NL/Optonaval UNL/5		2020.11.04	EN 14744 - 2005	L30001-00-047
Qualification Test Plan	MED_Doc_Prüfspezifikation_Rev_1_7: 2020-05-31			

LED-Aging Reports
MED_Doc_LED-Alterungsnachweis_L30001-00-003_Rev_1_2
MED_Doc_LED-Alterungsnachweis_L30001-00-007_Rev_1_2
MED_Doc_LED-Alterungsnachweis_L30001-00-020_Rev_1_2
MED_Doc_LED-Alterungsnachweis_L30001-00-020_Rev_1_2
MED_Doc_LED-Alterungsnachweis_L30002-00-002_Rev_1_2

>*****END OF HIDDEN PART*****<

Product List

LED Navigation Lights Series UNL & UNL-S		
1	L30001-00-003	UNL - DOUBLE ANCHOR & DOUBLE MASTHEAD LIGHT 360°&225° - 3NM&6NM - WH - CBL BTM
2	L30001-00-004	UNL - DOUBLE ANCHOR & DOUBLE MASTHEAD LIGHT 360°&225° - 3NM&6NM - WH - CBL AFT
3	L30001-00-005	UNL - DOUBLE MASTHEAD LIGHT AFT 225° - 6NM - WH - CBL BTM
4	L30001-00-006	UNL - DOUBLE MASTHEAD LIGHT AFT 225° - 6NM - WH - CBL AFT
5	L30001-00-007	UNL - DOUBLE SIDELIGHT 112.5° - 3NM - GN - CBL BTM
6	L30001-00-008	UNL - DOUBLE SIDELIGHT 112.5° - 3NM - GN - CBL AFT
7	L30001-00-009	UNL - DOUBLE SIDELIGHT 112.5° - 3NM - RD - CBL BTM
8	L30001-00-010	UNL - DOUBLE SIDELIGHT 112.5° - 3NM - RD - CBL AFT
9	L30001-00-011	UNL - STOP LIGHT 135° - 3NM - RD - CBL BTM
10	L30001-00-012	UNL - STOP LIGHT 135° - 3NM - RD - CBL AFT
11	L30001-00-013	UNL - DOUBLE ANCHOR & DOUBLE STERN LIGHT 360°&135° - 3NM - WH - CBL BTM
12	L30001-00-014	UNL - DOUBLE ANCHOR & DOUBLE STERN LIGHT 360°&135° - 3NM - WH - CBL AFT
13	L30001-00-015	DOUBLE NUC/RAM/CBD LOWER 180° - 3NM - RD - CBL BTM
14	L30001-00-016	DOUBLE NUC/RAM/CBD LOWER 180° - 3NM - RD - CBL AFT
15	L30001-00-017	DOUBLE RAM & DOUBLE CBD MIDDLE 180° - 3NM - WH&RD - CBL BTM
16	L30001-00-018	DOUBLE RAM & DOUBLE CBD MIDDLE 180° - 3NM - WH&RD - CBL AFT
17	L30001-00-019	SUEZ UPPER&LOWER 180° - 3NM - RD&WH - CBL BTM
18	L30001-00-020	SUEZ UPPER&LOWER 180° - 3NM - RD&WH - CBL AFT
19	L30001-00-021	SUEZ MIDDLE 180° - 3NM - GN&WH&RD - CBL BTM
20	L30001-00-022	SUEZ MIDDLE 180° - 3NM - GN&WH&RD - CBL AFT
21	L30001-00-023	UNL - DOUBLE STERN LIGHT & SUEZ STOP LIGHT 135° - 3NM - WH&RD - CBL BTM
22	L30001-00-024	UNL - DOUBLE STERN LIGHT & SUEZ STOP LIGHT 135° - 3NM - WH&RD - CBL AFT
23	L30001-00-025	UNL - DOUBLE ANCHOR 360° - 3NM - WH - CBL BTM
24	L30001-00-026	UNL - DOUBLE ANCHOR 360° - 3NM - WH - CBL AFT
25	L30001-00-027	UNL - DOUBLE STERN LIGHT 135° - 3NM - WH - CBL BTM

26	L30001-00-028	UNL - DOUBLE STERN LIGHT 135° - 3NM - WH - CBL AFT
27	L30001-00-029	TOW LIGHT & DOUBLE STERN LIGHT & SUEZ STOP LIGHT 35° - 3NM - YE&WH&RD - CBL BTM
28	L30001-00-030	TOW LIGHT & DOUBLE STERN LIGHT & SUEZ STOP LIGHT 135° - 3NM - YE&WH&RD - CBL AFT
29	L30001-00-031	DOUBLE TOW LIGHT 135° - 3NM - YE - CBL BTM
30	L30001-00-032	DOUBLE TOW LIGHT 135° - 3NM - YE - CBL AFT
31	L30001-00-033	DOUBLE NUC/RAM/CBD 360° - 3NM - RD - CBL BTM
32	L30001-00-034	DOUBLE NUC/RAM/CBD 360° - 3NM - RD - CBL AFT
33	L30001-00-035	DOUBLE RAM/CBD 360° - 3NM - WH&RD - CBL BTM
34	L30001-00-036	DOUBLE RAM/CBD 360° - 3NM - WH&RD - CBL AFT
35	L30001-00-037	SUEZ UPPER&LOWER 360° - 3NM - RD&WH - CBL BTM
36	L30001-00-038	SUEZ UPPER&LOWER 360° - 3NM - RD&WH - CBL AFT
37	L30001-00-039	SUEZ MIDDLE 360° - 3NM - GN&WH&RD - CBL BTM
38	L30001-00-040	SUEZ MIDDLE 360° - 3NM - GN&WH&RD - CBL AFT
39	L30001-00-041	PANAMA TOP LIGHT 135° - 2NM - BU - CBL BTM
40	L30001-00-042	PANAMA TOP LIGHT 135° - 2NM - BU - CBL AFT
41	L30001-00-043	UNL - DOUBLE NOK LIGHT 360° - 2NM - GN - CBL BTM
42	L30001-00-044	UNL - DOUBLE NOK LIGHT 360° - 2NM - GN - CBL AFT
43	L30001-00-045	DOUBLE MASTHEAD SIGNAL LIGHT 360° - 5NM - WH - CBL BTM
44	L30001-00-046	DOUBLE MASTHEAD SIGNAL LIGHT 360° - 5NM - WH - CBL AFT
45	L30001-00-047	RAM/CBD & DOUBLE TOW LIGHT - 180°&135° - 5NM - WH&RD&YE - CBL AFT
46	L30001-00-051	DOUBLE TOW LIGHT FORE 225° - 3NM - WH - CBL BTM
47	L30001-00-052	DOUBLE TOW LIGHT FORE 225° - 3NM - WH - CBL AFT
48	L30001-00-053	DOUBLE UNDERWATER OPERATING LIGHT 360° - 3NM - GN - CBL BTM
49	L30001-00-054	DOUBLE UNDERWATER OPERATING LIGHT 360° - 3NM - GN - CBL AFT
50	L30001-00-055	MASTHEAD SIGNAL LIGHT & NUC/RAM/CBD 360° - 5NM&3NM - WH&RD - CBL BTM
51	L30001-00-056	MASTHEAD SIGNAL LIGHT & NUC/RAM/CBD 360° - 5NM&3NM - WH&RD - CBL AFT
52	L30001-00-057	RAM/CBD 360° - 3NM - WH&RD - CBL BTM
53	L30001-00-058	RAM/CBD 360° - 3NM - WH&RD - CBL AFT
54	L30001-00-059	DOUBLE ANCHOR & DOUBLE MASTHEAD LIGHT 360°&225° - 3NM&6NM - WH - CBL BTM - Shader
55	L30001-00-060	DOUBLE ANCHOR & DOUBLE MASTHEAD LIGHT 360°&225° - 3NM&6NM - WH - CBL AFT - Shader
56	L30002-00-001	UNL-S - DOUBLE SIDELIGHT 112.5° - 3NM - GN

57	L30002-00-002	UNL-S - DOUBLE SIDELIGHT 112.5° - 3NM - RD
58	L30002-00-004	DOUBLE NUC/RAM/CBD LOWER 180° - 3NM - RD
59	L30002-00-006	SUEZ UPPER&LOWER 180° - 3NM - RD&WH
60	L30002-00-011	UNL-S - DOUBLE SIDELIGHT 112.5° - 3NM – GN (for DEEP BLUE)
61	L30002-00-012	UNL-S - DOUBLE SIDELIGHT 112.5° - 3NM – RD (for DEEP BLUE)