



Certificate No:
TAA000037V

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electronic Chart System (ECS)

with type designation(s)
COSTAL E

Issued to

Telko AS
TJØME, Norway

is found to comply with
See overleaf and tests carried out.

Application :

ECS in accordance with Norwegian Maritime Authority (NMA) RSV 14-2022 and RSV 16-2022

Issued at **Høvik** on **2022-11-06**

for **DNV**

This Certificate is valid until **2027-11-05**.
DNV local unit: **East & South Norway CMC**

Approval Engineer: **Frederik Tore Elter**

Marta Alonso Pontes
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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

COSTAL E Electronic Chart System (ECS), for non SOLAS vessels, consisting of the following components:

| Unit | Components | Remark |
|---|--|---|
| Panel Computer: | HD 16T30 DEC-MG7-3HOH1A or, HD 21T30 DEC-MG7-3HOH1A | <i>Panel computer, including display, processing unit, IEC 61162-1 / LAN interface and power connection.</i> |
| <i>Panel computer to be installed with:</i> | | |
| Keyboard/ Trackball ¹⁾ : | BTC5100C PS/2, or Cherry G84-4100LCMGB-2 or Keytouch Panel QWERTY, <i>and</i> MouseTRAK B-MPIND-XROHS, or MouseTRAK B-USBID-XROHS, or Logitech Trackman Marble – ELK, or Keytouch Panel Trackball, or Cursor Controls E38-16A19D-E003, or Cursor Controls E38-16A19D-E004, or Trackball NSI TBE38NO Keytouch Panel Combo ²⁾ , or NSI RKCT92S2), or TECDIS Keypad3) (Keytouch PN17610415), or RCU-018, or NSI RKTE85B0001-W-MC11 ²⁾ , or Cursor Controls TKB08025A ¹⁾ | ¹⁾ <i>Both keyboard and a trackball are required</i> ²⁾ <i>Combined unit</i> ³⁾ <i>Option</i> |
| Loudspeakers(option): | DNH HP-6, or DNH HPS-6 | <i>Loudspeaker is required only when display unit does not include a buzzer and RCU-018 is not connected.</i> |
| Alarm interface (option): | Telchart Alarm interface, TEA-01 | <i>Power sense relay.</i> |
| Serial Interface: | Hatteland Display PCA100293-1 ⁴⁾ | ⁴⁾ <i>Integrated in Panel Computer HD 16T30 DEC-MG7-3HOH1A or, HD 21T30 DEC-MG7-3HOH1A</i> |
| LAN interface (option): | Intel IQ87-PLH3 Ethernet Switch: Moxa EDS-208A, Moxa EDS-308 and/or Weidmüller IE-SW-BL08-8TX | |
| Software Versions: | | ⁵⁾ <i>May be installed ass tested and found compliant in TECDIS MED-B certification, in line with manufacturer's instructions.</i> |
| TECDIS | 4.8.3.x ⁵⁾ | |
| Presantation Library | 4.0.x ⁵⁾ | |
| Telko Chart Loader | 2.nn ⁵⁾ | |
| OS | Windows 10 | |
| Screen sender | 1.xx ⁵⁾ | |

Application/Limitation

- COSTAL E is to be installed in accordance with manufacturers documentation. The product is based on TECDIS approval MEDB00001B0 with identical software. TECDIS documentation is to be used for equipment operation reference.
- A dual/multiple station installation of COSTAL E may function as equipment Back-up arrangements.
- COSTAL E may optionally be provided with radar overlay functionality.
- COSTAL E may optionally be provided with weather information overlay functionality. ¹⁾
- COSTAL E may optionally be provided with C-Routes routing advisory functionality.
- COSTAL E may optionally be connected to internet via "secure web-tunneling". ¹⁾
- COSTAL E may optionally support uploading of SENC delivery (CM93/3 format) via external link. ¹⁾
- COSTAL E may be optionally provided with C-Map Update Service functionality. ¹⁾
- COSTAL E may be optionally provided with Navtor NavSync chart update functionality. ¹⁾
- COSTAL E may be optionally provided with chart synchronization functionality between COSTAL E stations.
- The COSTAL E monitor may optionally be interconnected with a video source via a separate input port for presentation of video.
- COSTAL E may provide conning information to a separate monitor.
- COSTAL E may be interfaced to either RADAR or AIS, or both, for target presentation.
- The COSTAL E shall be commissioned and tested onboard according to the Installation Manual.
- COSTAL E may receive IEC 61162-1 formatted sentences (as defined in product documentation) on Ethernet in addition to binary image transfer and RTZ route transfer.

Note:

1) A physical disconnection device (e.g. switch) shall be provided in the vicinity of the COSTAL E – and be properly marked. Firewall is to be provided onboard. For ship external data exchange, connection is only towards remote access nodes specified by the Manufacturer.

Type Approval documentation

| DNV No. | Title | Drawing No. | Rev. |
|---------|---|------------------------------|-------------------|
| 20 | Certificate: IEC60945, Hatteland Multi Computer HD 16T30 MMC and HD 21T30 MMC | MRA000002D | Rev.no.2 |
| 19 | Report: TELKO COASTAL E Test Report, with HD 16T30 DEC-MG7-3HOH1A and HD 21T30 DEC-MG7-3HOH1A, Norwegian Maritime Authority RSV 14-2022/RSV 16-2022, IEC 61174 ed.4, IEC 62288 ed.2 | | 30.09.22 Rev-1 |
| 17 | Manual: TELKO Coastal E Installation Manual EN | Software edition: 4.8.3.x | Rev 1.2 |
| 12 | Report: Hatteland - HD 21T30 IEC62288 Flicker test report HD 21T30 MMC | DOC207294-1 | R02 |
| 11 | Report: Hatteland - HD 21T30 IEC 62288 Conformance test report HD 21T30 MMC | DOC207293-1 | R02 |
| 10 | Report: Hatteland - HD 21T30 DEC IEC 62288 Minimum brightness test of EDC | DOC207119-1 | R01 |
| 7 | Report: Hatteland - HD 16T30 DEC IEC62288 Flicker test report HD 16T30 MMC_R02_SIGNED | DOC207285-1 | R02 |
| 6 | Report: Hatteland - HD 16T30 DEC Conformance test report_HD 16T30 MMC_R02 | DOC207276-1 | R02 |
| 5 | Report: Hatteland - HD 16T30 DEC Minimum brightness test of EDC | DOC207119-1 | R01 |

Type Approval documentation TECDIS NPS folder 344.1-0000515

| DNV No. | Title | Drawing No. | Rev. |
|---------|---|-------------|----------|
| 369 | Manual: TECDIS Installation Manual (SW edition 4.8.3.x) | | Rev 3.08 |
| 367 | TECDIS TKB08025A Test Report 25-06-21 | | |
| 366 | Certificate: IEC 60945 DNV: Hatteland Technology AS, Monitors: HD 32T22 MVD, HD 43T22 MVD, HD 55T22 MVD | MRA0000016 | Rev. 2 |

| DNV No. | Title | Drawing No. | Rev. |
|---------|--|---------------------------|-------------------|
| 312 | Report: IEC60945 MS TESTING: Test Report Marine Type Approval Testing - Selected depts only Coursor Controls Silicone Rubber Keyboard with Ergonomic Trackball | TL18136 | Issue 1 |
| 310 | Report: IEC60945 Force: Test for marine type approval of RKTE85 keyboard | 119-29851-1 | |
| 309 | Report: MS Testing, IEC60945: Marine Type Approval Testing Cursor Controls Ltd. TKB08025A/RKTS13F2041-W-MC1 USB Keypad | TL20074A | Issue 3 |
| 308 | Report: MS Testing, IEC60945: Test Report Marine Type Approval Testing Salt Mist Cursor Controls Ltd. TKB08025A/RKTS13F2041-W-MC1 USB Keypad | TL20074 | Issue 2 |
| 307 | Report: MS Testing, IEC60945: Test Report Ingress Protection Cursor Controls Ltd. TKB08025A/RKTS13F2041-W-MC1 USB Keypad | TL20074 | Issue 2 |
| 302 | Report: Telko IEC 62923-1:2018, IEC 62923-2:2018 and IEC 61162-450:2018 TECDIS Test Report | | 19th of June 2021 |
| 242 | Certificate: Moxa Ethernet Switch EDS-208A | TAA000006N | Revision 1 |
| 241 | Moxa and Weidmuller equivalence statement | | |
| 238 | EDS-200A Corrosion Waiver (Moxa Switch) | | |
| 223 | Report: TELKO Conformance test of TECDIS with IEC61174, IEC61162-450 and IEC61162-1 for RTZ route plan exchange | | 2 |
| 208 | Report: DELTA - IEC 60945 - Corrosion - Salt Mist test | 117-21066 - DANAK-1918104 | |
| 207 | Report: IEC 60945 Test for Marine Type Approval E38-16A19D-E003 Trackball right-handed and E38-16A19D-E003 Trackball left handed | T208006-2 - DANAK 1914159 | |
| 181 | EDS-308 309 316 series DNV Test Report | | |
| 163 | Manual: TECDIS Manual EN Full | | 4.00 beta 4 |
| 158 | Report: TECDIS IEC 61162-1 for NRM-NRX-NSR test report - signed | | |
| 151 | Report: Confirmace test of TECDIS with IHO test data sets for ECDIS (S-64) - Signed | | |
| 150 | Report: Confirmace test of TECDIS with IEC61174 ed-4 - Signed | | |
| 138 | Report: Witnessed Conformance Test of TECDIS with IEC 61162-450 (receiving IEC 61162-1 sentences) | | |
| 137 | Quick reference guide - 61162-450 in TECDIS | | 1 |
| 135 | TECDIS IEC 61162-450 serial input validation | | 1 |
| 134 | Quick reference guide - TelkoTranslator 1_0 | | 1 |
| 128 | Manual: Telko Conning User Manual | | 1 |
| 124 | Report: Conformance test or TECDIS binary image transfer with IEC61162-450 | | |
| 123 | Report: Conformance test of TECDIS with IEC62288 2nd edition | | |
| 121 | TECDIS Conning installation for fall-back arrangements | | |
| 97 | Statement from ITAC - trackball B-MPIND-XROHS REV C | | 2015-08-10 |
| 96 | Report: EMC testing og USB Mouse - Track IEC60945 | SP05980 | 2015-11-03 |
| 92 | LAN and Serial interface documentation | IQ87-PLH3 and MAX3535E | |
| 84 | Interconnection test of Moxa Multiport Serial board -IEC61162 | 20316 | 0 |
| 83 | TECDIS Keypad Conformance test w/video switch | 2014.03.04 | 1 |
| 80 | Installation notes - TECDIS Keypad EN | 25.02.2014 | 1.1 |
| 78 | DNV Environmental & EMC test report: Keytouch | 2008-3425 | 2 |
| 77 | IEC60945 - Test Report: enix-2067/3076/3000/2077 | Nemko E12134.04 | |
| 57 | Conformance test of chart synchronization and new updating means dated 27. June 2013 | 27. June 2013 | 1 |
| 56 | TECDIS Synchronization User Guide 27. June 2013 | 27. June 2013 | 1 |
| 55 | TECDIS Synchronization Installation Guide 25. June 2013 | 25. June 2013 | 1 |
| 53 | TECDIS Operator Manual | | 2.3 |
| 43 | TECHNICAL REP - HATTELAND DISPLAY AS - EMC AND ENVIRONMENTAL TESTING OF MARITIME COMPUTER HT C01 STD-D100 | DNV 2010-3243 | 4 |

| DNV No. | Title | Drawing No. | Rev. |
|---------|--|-------------|------|
| 38 | EMC and Environmental type testing of QWERTY keyboard and cursor control L50 Trackball | 2009-3482 | 1 |
| 28 | TYPE TESTING OFHM20T07 MIL-E1 Rev. 1 - 2007-3008.pdf | | |
| 26 | JH19T12MMD-AA1-AAAC Technical Report 2008-3143.pdf | | |
| 21 | TECDIS conformance test report | | 3 |
| 3 | Telko - S63 Loader Manual (User Guide) EN | TELKO S63 | 1 |

Tests carried out

- Performance testing: IEC 61174 (2015)*
- Performance testing, presentation: IEC 62288 (2014)*
- Environmental testing: IEC 60945 (2002) incl. Corr. 1 (2008)
- Serial interface testing: IEC 61162-1 (2016)
- Bridge alert management (BAM): IEC 62923-1 (2018) and IEC 62923-2 (2018)

**As amended by NMA RSV-14-22/-16-22*

Marking of product

The Manufacturer and Type Designation to be applied to the equipment in a clearly visible location. In addition, the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

Periodical assessment

Periodical assessment is to be performed after 2 years and after 3.5 years, alternatively be performed annually together with MED-B/MED-D audit for TECDIS ECDIS.

A renewal assessment will be performed at renewal of the certificate. The scope of the periodical/renewal assessment is to verify that the production quality conditions stipulated for the type approval are complied with and that no alterations are made to the product design or its components and/or materials without appraisal by the Society.