

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00002A5
Revision No:
5

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 Radar equipment (CAT 1, CAT 2)

with type designation(s)
MDC-7012P, MDC-7025P, MDC-7912P and MDC-7925P

Issued to

Koden Electronics Co., Ltd.
Uenohara, Yamanashi, Japan

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

Regulation **(EU) 2023/1667**,

item No. MED/4.64 SOLAS 74 as amended, Reg. V/18, 19, X/3, IMO Res. MSC.36(63)-(1994 HSC Code) 13, IMO Res. MSC.97(73)-(2000 HSC Code) 13, IMO Res. A.278 (VIII), A.694(17), MSC.191(79), 192(79), 302(87), IMO MSC.1/Circ.1349, ITU-R M.1177-4 (04/11)

Manufacturers authorised representative

Koden Elektronik GmbH
Groß-Umstadt, Germany

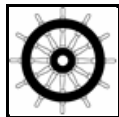
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-09-16**.

Issued at **Hamburg** on **2023-10-19**

DNV local unit:
Augsburg

Approval Engineer:
Jörg Rebel



Notified Body
No.: **0098**

for **DNV GL SE**

Christine Mydlak-Röder
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) 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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

The Koden Radar System is in minimum an assembly of one part out of each of the following component sections, see Table of Combinations for details.

- Scanner
- Transceiver with turning unit
- Display unit
- Operation unit
- Performance monitor
- Power supply
- Junction Box JB-35 for additional NMEA interfaces
- And if required the additional
 - Analogue gyro interface for connection to a synchro-servo
 - Analogue log interface for connection to a pulse log
 - Trackball 8c) or 8d) for remote control
 - C-MAP MAX SD-card (used to display Non Official Charts)

| No. | Designation | Type Designation |
|-----|---|--|
| 1. | X-Band scanner | a) 4 ft, type RW701A-04 b) 6 ft, type RW701A-06 c) 9 ft, type RW701B-09 |
| 2. | X-Band transceiver with turning unit | a) 12 kW, up mast, type RB808P b) 25 kW, up mast, type RB809P |
| 3. | Operation unit | Type MRO-108P |
| 4.1 | Processor unit | Type MRM-108P |
| 4.2 | Processor unit with display PPI 250 mm | Type MRD-108P, 250 mm, colour |
| 5.1 | Display unit PPI 320 mm (CAT 1 and CAT 2) | a) SL231-02.MON.03; Manufacturer NorthInvent b) BPM 723-DA-AC-BZ; Manufacturer Baytek c) DuraVision FDU2603W; Manufacturer EIZO |
| 5.2 | Display unit PPI 250 mm (CAT 2 only) | a) DuraMON 19" LED; b) DuraMON 19" GLASS; Manufacturer a),b) ISIC c) WA190-01.MON.01; d) SL190-02.MON.03; Manufacturer c), d) NorthInvent e) DuraVision FDS1904 f) DuraVision FDS1904T Manufacturer e), f) EIZO |
| 6. | Performance monitor | X-Band Unit, Type KPM-20 |
| 7. | Junction Box | JB-35; Manufacturer Koden |
| 8. | Power supply | a) Type PS-010 ¹ b) Type VL-PSG001; Manufacturer Veinland GmbH ² |
| 9. | Other additional equipment | a) Gyro interface, type S2N; b) Log interface, type L1N; Manufacturer a),b) qwerty-electronik c) Trackball E50-76A31D-M000; Manufacturer NSI d) Trackball B-USBID-XROHS; Manufacturer Mousetrak e) C-MAP MAX SD-card (used to display Non-official charts) ³ |

¹ PS-010 can be used with 4 or 6 ft scanners, but not with 9 ft.

² VL-PSG001 can be used with all scanners.

³ Not to be used for navigation on Convention vessels.

Table of combinations:

| Designation | | Type of RADAR | | | | | | | | | | | Type designation | | | |
|-------------|------------------------|---------------|-----|-----|-----|-----|----|-----|-----|-----|-----|----|------------------|-----------------|----------------|-------|
| | | 1.a | 1.b | 1.c | 2.a | 2.b | 3. | 4.1 | 4.2 | 5.1 | 5.2 | 6. | | 7. | 8.a | 8.b |
| 1.1 | X-Band RADAR MDC-7912P | D | | X | | X | | X | | | X | X | O _A | X _{1c} | O _B | CAT 2 |
| 1.2 | X-Band RADAR MDC-7925P | D | | | X | X | | X | | | X | X | O _A | X _{1c} | O _B | CAT 2 |
| 2.1 | X-Band RADAR MDC-7012P | D | | X | | X | X | | | X | X | X | O _A | X _{1c} | O _B | CAT 2 |
| 2.2 | X-Band RADAR MDC-7025P | D | | | X | X | X | | | X | X | X | O _A | X _{1c} | O _B | CAT 2 |
| 3.1 | X-Band RADAR MDC-7012P | D | | X | | X | X | | X | | X | X | O _A | X _{1c} | O _B | CAT 1 |
| 3.2 | X-Band RADAR MDC-7025P | D | | | X | X | X | | X | | X | X | O _A | X _{1c} | O _B | CAT 1 |

Note: X = Mandatory equipment
 X_{1c} = Mandatory if scanner 1.c is used
 O_A = Optional required if on board 24 VDC power supply is not used
 O_B = Optional required for the connection of analogue sensors / remote control / display of Non-official charts
 D = One out of three possibilities is mandatory

Approved Software

| Unit | MRD/MRM-108P | MRO-108P |
|----------|--------------------|--------------------|
| Software | KM-F44 | KM-F45 |
| Version | 05.xx with xx ≥ 02 | 01.xx with xx ≥ 04 |

Application/Limitation

The protocol version one of the TTD message cannot be implemented in all details according to IEC 61162-1 (2016), Clause 8.3.100 because of the prescribed number of bits. In addition, the way of implementing and interpreting negative values is not clearly enough prescribed in this test standard.

Following implementation has been tested and verified deviating from the above mentioned clause.

- CPA: same as parameter "Distance" of protocol version zero
- TCPA: implemented as two's complement, i.e. -81.92 for invalid or N/A values and valid values between -81.91 and +81.91

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: IEC 61162-1 (2016) and IEC 61162-2 (1998)
- Presentation testing: IEC 62288 (2021)
- Bridge alert management testing: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Performance testing: IEC 62388 (2013)

Note: For interface testing of TTD protocol version one see statement under Application/Limitation.

Type Examination documentation

Test reports:

Cetecom test report: 1-0619-01-03A Components equal to MDC2900
 Cetecom test report: 3-5792-1-1-09 Components equal to MDC2900
 Cetecom test report: 1-9141_14-01-02
 Cetecom test report: 1-9141_14-01-03A
 Cetecom test report: 1-9141_14-01-04
 QinetiQ_report_KOD_X_202 and KOD_X_203 UE v2 – Spurious Emission
 Kodен Test Report: 20150811 Wind Tunnel Report
 Kodен test Report: Antenna test report_(MDC29XXP)
 Kodен Test report 75-2722A-G203 (Display test IEC 62288 ed.2)
 Kodен Test report 75-2722A-G204_Test report_IEC61162_1
 Kodен Test report No.74-2722A-G217 (Target Detection with Clutter)
 Kodен Test report No.75-2722A-G201 (Parts of IEC62388 Ed.2 conformity)
 Kodен Test Report No.74-2722A-G212A (Target Detection – Onboard Test)
 BSH.4543.001.4342803.15-1 (Radar Test Report Kodен MDC-79xxP (IEC 62388 Ed.2)) BSH.4543.001.4342803.15-2 (Radar Test Report Kodен MDC-79xxP (IEC 62388 Ed.2)) BSH.4543.001.4342803.15-3 Assessment Report Ed 1.1
 Kodен MDC-7912P + MDC-7925P
 BSH Certificate No. 905 MDC-7xxx Compass Safety Distance
 Non Official Chart Display §12 of IEC62388 Ed.2
 OstroConsult Test Report No. 2019-OC-MDC-7xxxP-TTD-001, 2019-08-21
 OstroConsult Test Report No. 2021-OC-MDC-7xxxP-001, 2021-07-22
 OstroConsult Test Report No. 2023-OC-MDC-7xxxP-001-1, 2023-10-19

Test reports – 3rd party monitors:

DNVGL type approval certificate TAA00000UJ DuraVision FDS1904/FDS1904T/FDU2603W, issued 2019-10-01
 BSH ECDIS 62288-62388 MK2-MK3 signed
 BSH-4542-002-0072555-14 Statement of conformity
 T207236-2 - DANAK 1914469 - North Invent - 19 inch supplementary report
 OstroConsult Test Report No. 2021-OC-MDC-7000P-M02

Test reports – 3rd party trackballs:

T208006- 3 - DANAK 1914271 - NSI bvba
 Test report 501359-2-kp-Mousetrak
 Amendment report a503175 - e501359-2 amendment – Mousetrak
 Compas a503330-Mousetrak

Manuals:

| Item | Source | Device | Document No. | Issued |
|---------------------|--------|----------------------------|---------------|------------|
| Operation Manual | Kodен | MDC-7900P/MDC-7000P Series | 0093169006-07 | 2023-10-19 |
| Installation Manual | Kodен | MDC-7900P/MDC-7000P Series | 0092669006-07 | 2023-10-19 |
| Quick Reference | Kodен | MDC-7900P/MDC-7000P Series | 0093169008-02 | 2023-10-19 |

Marking of product

According to IEC 60945, Sect.4.9:

The product to be marked with following information, where practicable:

- Identification of the manufacturer,
- Equipment type number or model identification under which it was type tested,
- Serial number of the unit,
- Compass safe distance.

Alternatively, the marking may be presented on a display at equipment start-up, and in case of fixed equipment compass safe distance may be given in the equipment manual.

END OF CERTIFICATE