EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00002A5
Revision no.:
7

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

that the **Radar equipment**

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

issued to
Koden Electronics Co., Ltd.
Uenohara, **Japan**

is found to comply with the Implementing Regulation **(EU) 2024/1975** for
Item no. **MED/4.64** (Row **1 of 1**)
according to the following requirements:
SOLAS 74 Reg. V/19, IMO Res. A.278(VIII), IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.192(79), IMO Res. MSC.302(87), IMO MSC.1/Circ.1349, ITU-R M.1177-4 (04/11), SOLAS 74 Reg. V/18, And for High Speed Craft:SOLAS 74 Reg. X/3, IMO Res. MSC.36(63)-(1994 HSC Code) 13, IMO Res. MSC.97(73)-(2000 HSC Code) 13

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

Date of issue: **2025-06-12**

Expiry date: **2030-06-11**

DNV local unit:
Japan CMC

Approval Engineer:
Kai Möller

Notified Body
no.: **0098**

for **DNV SE**

Digitally Signed By:
Christine Mydlak-Röder

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), 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, and amended by Decision No 1/2023 dated May 26th, 2023.
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 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

Product description

Please see Appendix: Product Description

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

Type Examination documentation

Please see Appendix: Type Examination Documentation

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) incl. Corrigendum 1 (2014)
Note: For interface testing of TTD protocol version one see statement under Application/Limitation.

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.

APPENDIX

Type Examination documentation

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Document No.	Rev.	Title
-	1.0 (2017-04-03)	Report: OstroConsult, MDC-79xxP / MDC-70xxP, Chart Radar Test Report, Non-official Chart Display, §12 of IEC 62388 Ed.2
68-2722A-G206	2009-02-02	Report: Koden, Radar antennas of MDC-2910P / MDC-2920P, Radar Performance tests
BSH/4543/001/434 2803/15-1	2015-09-03	Report: BSH, Radar Test, MDC-79xxP / MDC-70xxPP (-BB) / MDC-7912P / MDC-7925P, IEC 62388 Ed.2, Sec. 6, 15.8.3
2019-OC-MDC-7xxxP-TTD-001	2019-08-21	Report: OstroConsult, Delta-tests acc. to IEC 61162-1 Ed.5
51117-0611010-1	3 (2007-06-27)	Report: Senton, Display, Baytec BPM 723-DA-AC-BZ, IEC 60945, 8.2.2.2+8.3.1.2+8.4.2.4
2023-OC-AIS Simulator	2023-10-19	Report: OstroConsult, AIS Simulator Verification, Tests acc. to IEC 62288 (2021)
0093169006	07A (2024-02-05)	Manual: Koden, Operation manual, MDC-7000P / MDC-7900P Series
-	-	Report: Koden, ANNEX 17/1 + 17/2, MDC-7912P
-	-	Report: Koden, ANNEX 13/1 + 13/2, MDC-7912P
-	-	Report: Koden, ANNEX 11/1 + 11/2, MDC-7912P
-	-	Report: Koden, ANNEX 15/1 + 15/2, MDC-7925P
75-2722A-G203	2015-04-27	Report: Koden, Radar display test, IEC 62288 (Ed. 2) + IEC 60945 (Ed. 4), MDC-79xxP / MDC-70xxP (-BB)
QINETIQ/TEG/MAR/CR1100676	2011-02	Report: Koden, KOD(X)202 and KOD(X)203, Unwanted emission
74-2722A-G217A	2015-04-13	Report: Koden, Target detection performance test with clutter, MDC-7912P / MDC-7925P, Annex
-	-	Report: Koden, ANNEX 19/1 + 19/2, MDC-7912P
75-2722A-G204	2015-04-29	Report: Koden, Interface test MDC-79xxP / MDC-70xxP (-BB), IEC 61162-1 (Ed. 4)
74-2722A-G214A	2015-03-17	Report: Koden, STC/FTC performance test, IEC 62388 (Ed. 2), MDC-7912P / MDC-7925P
-	-	Report: Koden, ANNEX 21/1 + 21/2, MDC-7925P
-	-	Report: Koden, ANNEX 12/1 + 12/2, MDC-7925P
-	-	Report: Koden, ANNEX 16/1 + 16/2, MDC-7925P
75-2722A-G201A	2015-04-30	Report: Koden, Conformance test report, IEC 62388 (Ed. 2), MDC-79xxP / MDC70xxPP
74-2722A-G212A	2015-03-06	Report: Koden, Target detection performance test of MDC-7912P / MDC-7925P
-	-	Report: Koden, ANNEX 20/1 + 20/2, MDC-7912P
-	2015-05-01	Report: Koden, Radar TA, IEC 62388 + IEC 62288 (Ed.2) + IEC61162-1 (Ed. 4) + IEC61162-2 (Ed. 1), MDC-79xxP / MDC-70xxP
BSH/4543/001/434 2803/15-3	2015-08-21	Report: BSH, Assessment Report, MDC-7912P + MDC-7925P
-	-	Report: Koden, ANNEX 22/1 + 22/2, MDC-7925P
-	-	Report: Koden, ANNEX 18/1 + 18/2, MDC-7925P
-	-	Report: Koden, ANNEX 14/1 + 14/2, MDC-7912P

DANAK-19/14469	2014-09-05	Report: DANAK, Supplementary Test for Marine Type Approval of Wave monitor
DANAK-19/14271	2014-06-27	Report: DANAK, Test for Marine Type Approval of Ergonomical trackball, panel mount and Ergonomical trackball, desktop, IEC 60945
BSH-4542-002-0072555-14	2014-01-30	Report: BSH, Statement of conformity, Monitor, SL190-02.MON.03
2021-OC-MDC-7000P-M02	2021-07-21	Report: OstroConsult, MDC-7000P (Koden) with monitor FDU2603W from (EIZO), IEC 62288 (Ed.2)
E13034.02	2013-05-13	Report: Nemko, Color Verification Test, Monitor, DuraMON 19" LED, ISIC
PX25885-1	1 (2013-11-05)	Report: Type Approval test of 19" DuraMON LED, Monitor, IEC60945 + IACS E10
2021-OC-MDC-7xxxP-001	2021-07-23	Report: OstroConsult, IEC 62923 Part 1+ Part 2 BAM, MDC7000P / 7900P
514	2007-05-21	Report: BSH, compass safe distance, BPM 723-DA-AC
51117-061101-2	2007-03-12	Report: Senton, Display, Baytec BPM 723-DA-AC-BZ, IEC 60945, 8.7.2
BSH/46162/007055 8/08	2008-02-14	Report: BSH, Flat Panel Display for use as Radar and ECDIS-Monitor, BPM 723-DA-AC-BZ
51117-061077	2006-12-19	Report: Senton, Display, Baytec BPM 723-DA-AC-BZ, IEC 60945, EMC + EMV
2023-OC-MDC-7xxxP-001-1	2023-10-20	Report: OstroConsult, Delta Test Report IEC 62288 (Ed. 3), MDC-7000P / MDC-7900P Series
2024-OC-MDC-7xxxP-AtoN Error Correction	0 (2024-02-06)	Report: Correction Report, MDC-7000P/ MDC-7900P Series, IEC 62288 (Ed. 3)
2024-OC-AtoN IEC62288_3 2_10a Corr	2024-02-12	Report: OstroConsult, IEC 62288 (Ed. 3) - Draft Correction 2024, MDC-7000P / MDC-7900P Series
0093169008-02	2023-10-19	Manual: Koden, Quick Reference, MDC-7000P / MDC-7900P Series
0092669006	07 (2023-10-19)	Manual: Koden, Installation manual, MDC-7000P / 7900P Series
84-2722B-G012	2024-09-03	Report: Koden, Antenna test report RW701C-09
84-2722B-G019	2024-07-11	Report: Koden, Vibration test report RW701C-09, Antenna
1-0619-01-03/08A	2009-03-10	Report: CETECOM, Components equal to MDC2900
3-5792-1-1/09	2009-02-27	Report: CETECOM, Components equal to MDC2900
1-9141/14-01-02	2015-05-18	Report: CETECOM, EMC + EMV, IEC60945
1-9141/14-01-03-A	2015-06-01	Report: CETECOM, Environmental test, IEC 60945
1-9141/14-01-04	2015-05-18	Report: CETECOM, Environmental test, IEC 60945
DELTA-A503175	2005-07-21	Report: DELTA, Amendment to EMC test of "Mouse Track" M-MPIND, DELTA project no. E501359-2
DANAK-198084	2005-09-22	Report: DELTA, Compass safe distance measurements of Trackball, Project no.: A503330-1
DANAK-197136	2003-09-22	Report: DELTA, Type approval testing of MOUSE-TRAK trackball, Project no.: E501359-2
TAA00000UJ	4	TA Certificate: DNV, DuraVision FDS and FDU series
905	2015-06-19	Report: BSH, MDC-7xxx, Compass Safety Distance
-	1 (2015-08-11)	Report: Koden, Wind tunnel test, IEC 62388 (Ed. 2), §15.5, MDC-79xxP / MDC-70xxP
BSH/4543/001/434 2803/14-3	2015-07-20	Report: BSH, Assessment Report Koden MDC-7912P+MDC-7925P
BSH/4543/001/434 2803/15-2	2015-09-10	Report: Koden, MDC-79xxP, IEC 62238 (Ed. 2, Ch.11)

APPENDIX
Product Description

Certificate no.:
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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 RW701C-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	1.a X-Band scanner	1.b X-Band scanner	1.c X-Band scanner	2.a X-Band transceiver with turning unit	2.b X-Band transceiver with turning unit	3. Operation unit	4.1 Processor unit	4.2 Processor unit with display PPI 250 mm	5.1 Display unit PPI 320 mm	5.2 Display unit PPI 250 mm	6. Performance monitor	7. Junction box JB-35	8.a Power supply	8.b Power supply	9. Other optional equipment	Type designation
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