

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB00002A3**  
Revision No:  
**3**

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 2**

with type designation(s)  
**MDC-79XXP Series, MDC-70XXP Series**

Issued to  
**Koden Electronics Co., Ltd.**  
**Uenohara, Yamanashi, Japan**

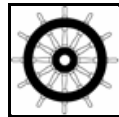
is found to comply with the requirements in the following Regulations/Standards:  
Regulation **(EU) 2020/1170,**  
**item No. MED/4.35. SOLAS 74 as amended, Regulations V/18 & V/19, IMO Res. A.278(VIII),**  
**IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.192(79), IMO Res. MSC.302(87),**  
**ITU-R M.1177-4 (04/11)**

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

This Certificate is valid until **2021-08-29.**

Issued at **Hamburg** on **2020-09-17**

DNV GL local station:  
**Hamburg CMC**



for **DNV GL SE**

Approval Engineer:  
**Jörg Rebel**

Notified Body  
No.: **0098**

**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, and amended by Decision No 1/2018 dated February 18th, 2019.

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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.



Job Id: **344.1-006629-13**  
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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 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.	Processor unit with display PPI 250 mm	Type MRD-108P, 250 mm, colour
5.1	Processor unit	Type MRM-108P
5.2	Display unit PPI 250 mm	a) Type JH19T14MMD-Mxx-AxBA; b) HD19T21 MMD-Mxx-AxBA; Manufacturer a), b) Hatteland c) BPM 719-DA-AC-BZ; Manufacturer c) Baytek d) DuraMON 19" LED; e) DuraMON 19" GLASS; Manufacturer d),e) ISIC f) WA190-01.MON.01; g) SL190-02.MON.03; Manufacturer f), g) NorthInvent h) DuraVision FDS1904 i) DuraVision FDS1904T Manufacturer h), i) EIZO
6.	Performance monitor	X-Band Unit, Type KPM-20
7	Junction Box	JB-35; Manufacturer Koden
8	Power supply	a) Type PS-010 <sup>1</sup> b) Type VL-PSG001; Manufacturer Veinland GmbH <sup>2</sup>

9	Other optional equipment	a) Gyro interface, type S2N; b) Log interface, type L1N; Manufacturer a), b) qwerty-elektronik 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) <sup>3</sup>
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<sup>1</sup> PS-010 can be used with 4 or 6 ft scanners, but not with 9 ft.

<sup>2</sup> VL-PSG001 can be used with all scanners.

<sup>3</sup> Not to be used for navigation on Convention vessels.

Designation		Type of RADAR														
		1.a	1.b	1.c	2.a	2.b	3.	4.	5.1	5.2	6.	7.	8.a	8.b	9.	Type Designation
		X-Band scanner	X-Band scanner	X-Band scanner	X-Band transceiver with turning unit	X-Band transceiver with turning unit	Operation unit	Processor unit with display PPI 250mm	Processor unit	Display unit PPI 250 mm	Performance monitor	Junction box JB-35	Power supply	Power supply	Other optional equipment	Type Designation
1.1	X-Band RADAR MDC-7912P	D	X		X	X			X	X	X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>	CAT2
1.2	X-Band RADAR MDC-7925P	D			X	X	X		X	X	X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>	CAT2
2.1	X-Band RADAR MDC-7012P	D	X		X		X	X	X	X	X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>	CAT2
2.2	X-Band RADAR MDC-7025P	D			X	X		X	X	X	X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>	CAT2

Note: X = Mandatory equipment  
 X<sub>1c</sub> = Mandatory if scanner 1.c is used  
 O<sub>A</sub> = Optional required if on board 24 VDC power supply is not used  
 O<sub>B</sub> = 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	03.xx with xx ≥ 18	01.xx

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## Type Examination documentation

### Approval Documentation

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  
Koden Test Report: 20150811 Wind Tunnel Report  
Koden test Report: Antenna test report\_(MDC29XXP)  
Koden Test report 75-2722A-G203 (Display test IEC 62288 ed.2)  
Koden Test report 75-2722A-G204\_Test report\_IEC61162\_1  
Koden Test report No.74-2722A-G217 (Target Detection with Clutter)  
Koden Test report No.75-2722A-G201 (Parts of IEC62388 Ed.2 conformity)  
Koden Test Report No.74-2722A-G212A (Target Detection – Onboard Test)  
BSH.4543.001.4342803.15-1 (Radar Test Report Koden MDC-79xxP (IEC 62388 Ed.2))  
BSH.4543.001.4342803.15-2 (Radar Test Report Koden MDC-79xxP (IEC 62388 Ed.2))  
BSH.4543.001.4342803.15-3 Assessment Report Ed 1.1 Koden 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

### Approval Documentation (third party monitors)

DNVGL type approval certificate 14 166-15HH BPM 723 08April2015  
DNVGL type approval certificate 14 168-15HH BPM 719 08April2015  
DNVGL type approval certificate TAA00000UJ DuraVision 1904/1904T 24October2016  
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  
DuraMON19LED IEC60945\_IACS E10 PX25885-1 rev. 1 signed  
DuraMON19LED NEMKO 228754 TRF ECDIS r02  
Hatteland Serie 1 eu-ro-mr\_mr-a-1\_date081020131200\_031020181200  
Hatteland Serie X eu-ro-mr\_mr-a-2\_date081020131200\_031020181200

### Approval Documentation (third party trackballs)

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

### Approved Documentation:

Item	Source	Device	Document No.	Issued
Operation Manual	Koden	MDC-7900P/MDC-7000P Series	0093169006-05x	2019-06-12
Installation Manual	Koden	MDC-7900P/MDC-7000P Series	0092669006-05x	2019-06-12
Quick Reference	Koden	MDC-7900P/MDC-7000P Series	0093169008-00x	2016-09-28

## 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

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## Tests carried out

- Environmental and EMC testing: EN 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: EN 61162-1 (2016) and EN 61162-2 (1998)
- Presentation testing: EN 62288 (2014)
- Performance testing: EN 62388 (2013)

### Notes:

1. For interface testing of TTD protocol version one see statement under Application/Limitation.
2. If compliance with IEC 62923-1 (2018) and 62923-2 (2018) is demonstrated, validation of this certificate to be extended to 2025-09-16.

## 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.

According to Article 10 of the Council Directive (MED):

- Wheel mark to be affixed visibly, legibly and indelibly to the product or to its data plate and, where relevant, embedded in its software. Where that is not possible or not warranted on account of the nature of the product, it shall be affixed to the packaging and to the accompanying documents.
- Wheel mark to be affixed at the end of the production phase.

For specific products, manufacturers may use an appropriate and reliable form of electronic tag instead of, or in addition to, the wheel mark.

END OF CERTIFICATE