

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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

with type designation(s)
MDC-70XXP Series

Issued to

Koden Electronics Co., Ltd.
5278 Uenohara, Uenohara-shi, Yamanashi , 409-0112 Japan

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

Regulation **(EU) 2017/306,**
item No. MED/4.34. 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)

Manufacturers authorised representative

Koden Elektronik GmbH
Am Gewerbepark 15, 64823 Gross-Umstadt, Germany

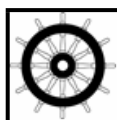
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2020-09-16.**

Issued at **Hamburg** on **2017-03-28**

DNV GL local station:
Hamburg

Approval Engineer:
Harald Bluhm



Notified Body
No.: **0098**

for **DNV GL SE**

Sven Dudzsus
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.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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



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)

Application/Limitation

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	12 kW, up mast, type RB808P 25 kW, up mast, type RB809P
3.	Operation unit	Type MRO-108P
4.1	Processor unit	Type MRM-108P
4.2	Display unit PPI 320 mm	JH23T14 MMD-Mxx-AxBA Manufacturer Hatteland BPM 723-DA-AC-BZ Manufacturer Baytek SL231-02.MON.03 Manufacturer Northinvent
5.	Performance monitor	X-Band Unit, Type KPM-20
6.	Junction Box	JB-35 manufacturer Koden
7.	Power supply	a) Type PS-010 ¹ b) Type VL-PSG001, Manufacturer Veinland GmbH ²
8.	Other additional equipment	a) Gyro interface, type S2N, Manufacturer qwerty-electronik b) Log interface, type L1N, Manufacturer 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	X-Band scanner															
1.b	X-Band scanner	D														CAT1
1.c	X-Band scanner			X		X	X	X	X	X	X	O _A	X _{1c}	O _B		CAT1
2.a	X-Band transceiver with turning unit				X	X	X	X	X	X	X	O _A	X _{1c}	O _B		CAT1
2.b	X-Band transceiver with turning unit				X	X	X	X	X	X	X	O _A	X _{1c}	O _B		CAT1
3.	Operation unit															
4.1	Processor unit															
4.2	Display unit PPI 320 mm															
5.	Performance monitor															
6.	Junction box JB-35															
7.a	Power supply															
7.b	Power supply															
8.	Other optional equipment															

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	03.xx	01.xx

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

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
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-7000 Series	0093169006-05x	2016-12-22
Installation Manual	Koden	MDC-7900P/MDC-7000 Series	0092669006-05x	2015-08-30
Quick Reference	Koden	MDC-7900P/MDC-7000 Series	0093169008-00x	2015-02-16

Tests carried out

IMO Resolution: A.278(VIII), A.694(17), A.813(19), MSC.191(79),
MSC.192(79), MSC.302(87)
ITU-R M.1177-4, EN 62388 Ed.2.0, 2013, EN 62288 Ed.2.0, 2014,
EN 60945 Ed.4.0, 2002 incl. Corr.1, 2008,
EN 61162-1 Ed.4.0, 2010, EN 61162-2 Ed.1.0, 1999



Job Id: **344.1-006629-2**
Certificate No: **MEDB00002A5**

Marking of product

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