

# EC CERTIFICATE TYPE EXAMINATION (MODULE B)

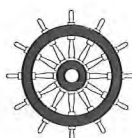
This is to certify that:

DNV GL SE, a Notified Body under the terms of the Marine Equipment Directive 96/98/EC of 20 December 1996, notified by the German Federal Ministry of Transport, Building and Urban Development, did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with the requirements of Marine Equipment Directive (MED) 96/98/EC as amended, subject to any conditions in the schedule attached hereto.

Certificate No.	<b>14 906 - 15 HH</b>
Applicant	<b>Koden Electronic Co., Ltd.</b> <b>5278, Uenohara, Uenohara-shi</b> <b>Yamanashi, 409-0112, JAPAN</b>
Manufacturer	<b>Koden Electronic Co., Ltd.</b> <b>5278, Uenohara, Uenohara-shi</b> <b>Yamanashi, 409-0112, JAPAN</b>
Product Description	<b>Radar equipment CAT 2</b>
Product Name	<b>MDC-79XXP Series, MDC-70XXP Series</b>
Trade Name	<b>MDC-7912P, MDC-7925P, MDC-7012P, MDC-7025P</b>
Specified Standards	<b>IMO Resolution: A.278(VIII), A.694(17), A.813(19), MSC.191(79), MSC.192(79)</b> <b>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</b>
Related Directive	<b>2014/93/EU</b>
Equipment Section	<b>Navigation equipment</b>
Annex A.1 Item No.	<b>A.1/4.35</b>
Date of Issue	<b>2015-09-17</b>
Expiry Date	<b>2020-09-16</b>

**DNV GL SE**

**Notified Body No.: 0098**



*Christine Mydlak-Röder*  
**Christine Mydlak-Röder**

Certificate No: 14 906 - 15 HH

Date of Issue: 2015-09-17

**Schedule of Approval**

**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

**Technical Data**

**Components necessary for operation:**

See Annex

**Approved Software:**

<b>Unit</b>	<b>MRD/MRM-108</b>	<b>MRO-108P</b>
<b>Software</b>	KM-F44	KM-F45
<b>Version</b>	02.xx	01.xx

**Approved Documentation:**

<b>Item</b>	<b>Source</b>	<b>Device</b>	<b>Document No.</b>	<b>Issued</b>
<b>Operation Manual</b>	Koden	MDC-7900P/MDC-7000 Series	0093169006-05x	2015-08-30
<b>Installation Manual</b>	Koden	MDC-7900P/MDC-7000 Series	0092669006-05x	2015-08-30
<b>Quick Reference</b>	Koden	MDC-7900P/MDC-7000 Series	0093169008-00x	2015-02-16

Certificate No: 14 906 - 15 HH

Date of Issue: 2015-09-17

**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

**Remarks**

- none -

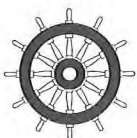
**Limitations on the acceptance or use of the product**

- none -

**Notes:**

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL SE, as the Notified Body, of any modifications or changes to the approved equipment. 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.

An 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.

## ANNEX TO EC TYPE EXAMINATION (MODULE B) CERTIFICATE No.: 14 906 – 15 HH

### List of approved Equipment:

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 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
5.3	Display unit PPI 320 mm	a) JH23T14 MMD-Mxx-AxBA Manufacturer Hatteland b) BPM 723-DA-AC-BZ Manufacturer Baytek c) SL231-02.MON.03 Manufacturer Northinvent
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, 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

<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.

A 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 optional
  - 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

**Table of combinations:**

Designation		Type of RADAR														
		1.a	1.b	1.c	2.a	2.b	3.	4.	5.1	5.2	5.3	6.	7.	8.a	8.b	9.
1.1	X-Band RADAR MDC-7912P	D		X		X	X					X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>
1.2	X-Band RADAR MDC-7925P	D			X	X	X					X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>
2.1	X-Band RADAR MDC-7012P	D		X		X		X	X			X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>
2.2	X-Band RADAR MDC-7025P	D			X	X		X	X			X	X	O <sub>A</sub>	X <sub>1c</sub>	O <sub>B</sub>

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

D = One out of three possibilities is mandatory

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**SUPPLEMENT TO ANNEX**  
**EC TYPE EXAMINATION (MODULE B) CERTIFICATE**  
**No.: 14 906 – 15 HH**

**Statement concerning Spurious Emissions, Out of Band Emissions and the Boundary between both**

The following Radar Transceivers, which form part of the systems noted in this certificate, have been subject to a measurement procedure as detailed in IEC 62388, Ed. 2 (2013), Annex C and the guidelines contained in ITU-R Recommendation RM.1177. This standard defines the test method and requirements that ship-borne radar have to meet in order to comply with Appendix 3 of the Radio Regulations and ITU-R Recommendations SM.1539 and SM.1541.

The results of the measurement procedure were satisfactory and provide sufficient evidence that these Radar Transceivers are compliant with the criteria contained in the standards mentioned above and fulfil the requirements of Maritime Equipment Directive 96/98/EC as last modified by 2014/93/EC.

Table of measured Transceivers:

Type	Model No.	Magnetron
X-Band up Mast	RB808P / 12KW	MAF1565N
X-Band up Mast	RB809P/ 25KW	M1568B

The test report detailing the tests and test results provided by the applicant is:

QinetiQ\_report\_KOD\_X\_202 and KOD\_X\_203 UE v2 – Spurious Emission