



Bundesrepublik Deutschland

Federal Republic of Germany

Bundesamt für Seeschifffahrt und Hydrographie

Federal Maritime and Hydrographic Agency



BUNDESAMT FÜR
SEESCHIFFFAHRT
UND
HYDROGRAPHIE

EC TYPE EXAMINATION (MODULE B) CERTIFICATE

This is to certify that:

Bundesamt für Seeschifffahrt und Hydrographie, specified as a "notified body" under the terms of „Schiffssicherheitsgesetz“ of 9. September 1998 (BGBl. I, p. 2860) modified last 19. December 2002 (BGBl. I, p. 4690), did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with the Navigation requirements of Marine Equipment Directive (MED) 96/98/EC as modified by Directive 2002/75/EC.

Applicant **FURUNO NAVINTRA Oy.**
Address **Olarinluoma 19, P.O. Box 11, 02201 Espoo, FINLAND**

Manufacturer **FURUNO NAVINTRA Oy.**
Address **Olarinluoma 19, P.O. Box 11, 02201 Espoo, FINLAND**

Annex A.1 Item **4.30, Electronic Chart Display and Information System (ECDIS)**
(No & Item designation)

Product Name **EC 1000**

Trade Name(s) **EC 1000, EC 1000B, FEA-2105**

Specified Standard(s)

IMO Resolution A.817(19)	IEC 61174 (2001), ECDIS, Edition 2
IMO Resolution A.694 (17)	IEC 60945 (1996), Environmental conditions, Edition 3
IMO Resolution MSC.97 (73) 13.17.1, 13.8 (2000 HSC Code)	IEC 61162-1 (2000), Serial Interface, Edition 2
SOLAS Regulation V/18.1, V/19.2.1.4, V/19.2.1.5	IEC 61162-2 (1998), Serial Interface, Edition 1

This certificate remains valid unless cancelled, expired or revoked.

Date of issue: 22. May 2003

Issued by: **Bundesamt für Seeschifffahrt und Hydrographie
Bernhard-Nocht-Str. 78, 20359 Hamburg, Germany
Notified body 0735**

Expiry date: ---

Certificate No.: **6579 / 080297 / 2003**

This certificate consists of 2 pages.

by order



Dr. Mathias Jonas
Dr. Mathias Jonas



Components necessary for operation:

See Annex to EC type examination (Module B) certificate No.: 6579 / 080 297 / 2003

Approval Documentation:

BSH Testreport No. 6579 / 080281 / 2002 / S3330

- Operators Manual ECDIS EC 1000
Document No. 801012,
Issue date 15.05.2003, containing references to software version 04.00
- Operators Manual ECDIS EC 1000 with Conning Display and Steering interface
Document No. 801010
Issue dated from 15.05.2003 containing references to software version 04.00
- Technical Manual ECDIS EC 1000 / ECDIS EC 1000B
Document No. 802012
Issue dated from 15.05.2003 containing references to software version 04.00
- Technical Manual ECDIS EC 1000 / ECDIS EC 1000B
with Conning Display and Steering interface
Document No. 802009
Issue dated from 15.05.2003 containing references to software version 04.00

Reports for IEC 60945 tests, see Annex to EC type examination (Module B) certificate No.: 6579 / 080 297 / 2003

Limitations on the acceptance or use of the product:

See Annex to EC type examination (Module B) certificate No.: 6579 / 080 297 / 2003

Places of production:

FURUNO NAVINTRA Oy. (Ltd.)
Olarinluoma 19
02201 Espoo
FINLAND

FURUNO ELECTRIC Co.
Besho-cho Tomoe
Miki-city, 673-0443
JAPAN

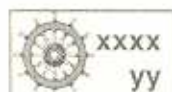
Notes:

The manufacturer shall inform Bundesamt für Seeschifffahrt und Hydrographie, as the notified body, of any modifications to the type-tested product(s) that may affect compliance with the requirements or conditions laid down for use of the product(s).

In case the specified regulations or standards are amended during the validity of this certificate, the product(s) must be re-certified before being placed on board vessels to which such amended regulations or standards apply.

The Mark of Conformity (wheelmark) may only be affixed to the type approved equipment, and a Manufacturer's Declaration of Conformity may only be issued, if the product quality system fully complies with the Marine Equipment Directive and is certified by a notified body against ANNEX B module D, E, or F of the Directive.

Example for the Application of the "Mark of Conformity":



xxxx number of the Notified Body responsible for quality surveillance module
yy Last two digits of the year in which the mark is affixed.

Notice on legal remedies available:

Objection to this document may be filed within one month after notification. The objection must be filed in writing to, or put on record at, Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Str. 78, 20359 Hamburg, Germany

ANNEX TO EC TYPE EXAMINATION (MODULE B) CERTIFICATE No.: 6579 / 080 297 / 2003

Components necessary for operation:

Device	Type	Comments	Conditions
main processing units (alternatively)			
ECDIS electronic unit	EC 1000	Software version: 4.xx to display and use digital chart data in the following formats: <ul style="list-style-type: none"> • S-57 (IHO), • ARCS (UK-HO) • CM-93/2 (C-MAP) and the operation mode CONNING	Optionally one Conning display may be connected to each ECDIS electronic unit in addition to the ECDIS display.
ECDIS electronic unit	EC 1000 B		
Display units (alternatively)			
21" FURUNO CRT Colour-Monitor	FEA-2105	Console- or desktop version	One colour display for each electronic unit
21" CONRAC CRT Colour-Monitor	9521		
21" CONRAC CRT Colour-Monitor	9821 E		
20" CONRAC TFT Colour-Monitor	5120 SCD		
21" Hatteland CRT Colour-Monitor	JH21C06		
19" Hatteland TFT Colour-Monitor	JH19T01 MMD-E		
20" Hatteland TFT Colour-Monitor	JH20T03 MMD-E		
20" Hatteland TFT Colour-Monitor	JH20T04 MMD-E		
23" Hatteland TFT Colour-Monitor	JH23T02 MMD-E		
19" ISIC TFT Colour-Monitor	MON1900M		

Device	Type	Comments	Conditions
Display units (alternatively)			
20" ISIC TFT Colour-Monitor	MON2000M	Console- or desktop version	For use as display unit for the operation as CONNING and / or: as slave display unit without operating unit
23" ISIC TFT Colour-Monitor	MON2300M	Console- or desktop version	
17.4" TFT Colour Monitor	JH17T01 MMD	Console- or desktop version	
15" TFT Colour Monitor	JH15T03 MMD	Console- or desktop version	
Operating units (alternatively)			
ECDIS control panel	301050	Console- or desktop version	Each ECDIS electronic unit has to be equipped with one ECDIS operating and control panel (operating unit).
Additional devices			
Sensor interface connection box	A-ADAPTER		at least 1 (one) up to 2 (two) for each ECDIS electronic unit
Sensor interface connection box	B-ADAPTER		optional 1 (one) for each ECDIS electronic unit

Approval documentation:

Testreport BSH No. 6579/080 281/2002/S3330	
Testreport Furuno Labotech International Co., Ltd., No. FLI 12-02-033, 30.08.2002	
Testreport Furuno Labotech International Co., Ltd., No. FLI 12-99-024, 06.10.1999	
Testreport Furuno Labotech International Co., Ltd., No. FLI 12-99-035, 25.10.1999	
Testreport BSH No. 6542/080 168/00,	Display unit (9821 E)
Testreport BSH No. 6542/080 143/99	Display unit (9521)
Testreport BSH No. 6542/080 208-0/01,	Display unit (JH21C06)
Testreport BSH No. 6542/080 286/2002/S3330,	Display unit (JH23 T02 MMD-E)
Testreport BSH No. 6542/080 282/2002/S3330,	Display unit (JH20 T04 MMD-E)
Testreport BSH No. 6542/080 263/2002/S3330,	Display unit (JH19 T01 MMD-E)
Testreport BSH No. 6542/080 278/2002/S3330,	Display unit (MON1900M)
Testreport BSH No. 6542/080 255/2002/S3330,	Display unit (MON2000M)
Testreport BSH No. 6542/080 277/2002/S3330,	Display unit (MON2300M)
Testreport BSH No. 6542/080 297-1/2002/S3330,	Display unit (JH17T01 MMD)
Testreport BSH No. 6542/080 297-2/2002/S3330,	Display unit (JH15T03 MMD)

Limitations on the acceptance or use of the product:**System interfaces:**

Data exchange with sensors, additional devices, external data receiver via:

Interface connection box type A-ADAPTER

as a minimum 3 (three) up to 8 (eight) serial interfaces for reception and transfer of data from connected sensors and radar devices according to IEC 61162-1 (Edition 2, 2000) and IEC 61162-2 (Edition 1, 1998)

and optional in addition via:

Interface connection box type B-ADAPTER

for reception and transfer of analogue data from connected sensors and radar devices according the relevant equipment standards in use.

1. for reception of sensor data at least delivered by the following sources:

1.1. for the reception of sensor data from one up to three

radio navigation receiver assessed as conform with requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:

- geographic position,
- status of geographic position,
- speed and course over ground

1.2. for the reception of sensor data from a

gyro compass assessed as conform with requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information,

- gyro compass heading

- 1.3. for the reception of sensor data from a speed and distance measurement device assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:
- speed over ground
 - and /or
 - speed through the water
2. and optional for the receiving of data from the following sensor devices:
- 2.1 to receive data from an echo sounder assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:
- water depth
- 2.2 to receive environmental information from appropriate sensor devices transmitting data according IEC 61162-1 (Edition 2, 2000):
- wind speed and wind direction
- 2.3. to receive data from one up to three: Radar/ARPA device assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:
- track data of ARPA targets,
 - own ship data,
- 2.4 to receive and display of Radar-video signals from one up to three of the following Radar devices:
- RADAR/ARPA devices of company Furuno Electric Co. Ltd., Japan assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined:
- Furuno FAR 28x5
 - Furuno FR 21x5

2.5 to receive and display data from one

AIS Transponder assessed as conform with requirements of Marine Equipment Directive (MED) 96/98/EC as modified by Directive 2002/75/EC and marked as defined there which transmits the following information:

- Information about other ships within the operating area received by AIS,
- information about aids to navigation within the operating area received by AIS,

Note: AIS information to be displayed according IMO guideline SN/Circ.217, 11. July 2001

2.6 for the data exchange with up to three additional Electronic chart display and information system (ECDIS) type: EC 1000
via local system area network connection (Ethernet):

- chart data,
- track data,
- system data.

3. and optional to send data for:

- geographic position,
- status of geographic position,
- own ship data,
- water depth,
- wind speed and wind direction.

Backup arrangements:

In order to continue ships navigation in the case of a primary system failure the following back up arrangements are allowed:

- Installation of a second system, of identical type EC 1000 providing at least one (1) up to eight (8) system interfaces, independently connected to a position sensor according 1.1 via one interface connection box type A-ADAPTER and connected to the primary system for transmission of route data.