



CERTIFICATE OF TYPE APPROVAL (EC Certificate of Type Examination - Module B) (Marine Equipment Directive - 96/98/EC, as amended*1)

Applicant:-
Japan Radio Co., Ltd
C/O Amsterdam Branch
Cessnalaan 40-42
1119 NL Schiphol-Rijk
The Netherlands

Manufacturer:-
Japan Radio Co., Ltd
1-1 Shimorenjaku
5-chome, Mitaka-Shi
Tokyo 181-8510
JAPAN

This is to certify that the applicant has submitted details of a:-

**Electronic Chart Display And Information System (ECDIS)
With Backup, and Raster Chart Display System
(COMMISSION DIRECTIVE 2010/68/EU – ITEM A.1/4.30)**

Of system type known and designated as:-

JRC JAN-2000 Desktop ECDIS Display system

(Comprising component parts and having technical characteristics shown in schedule 1) and that these have been assessed, tested and when used in a combination of component parts as described in the attached schedules, is CERTIFIED as complying with the relevant parts of:

IEC 61174:2008, "Electronic Chart Display And Information System (ECDIS)"

IEC 60945 : 2002 "General Requirements for Marine Navigation Equipment" (Inc. Corr 1:2008)

IEC 62288 : 2008 "Presentation of navigation-related information on shipborne navigational displays"
(being testing standards listed in column 5 of Annex A.1 of Directive 2009/26/EC for Item 4.30)

Note: IEC 62288:2008 covers the presentation standard of all navigational equipment and appropriate assessment for ECDIS equipment has confirmed standards required for IMO Resolution MSC.191 (79).

It is also RECOGNISED that the equipment conforms to performance standards not inferior to those adopted by the International Maritime Organisation, and which are contained in Resolution MSC.232(82), Resolution MSC.191(79) and Resolution A694(17).

SIGNED:

R A Sharp Authorised Signatory

DATE of ISSUE: 14th July 2011

DATE of EXPIRY: 5th March 2014

Certificate Number: QQ-MED-12/08-01R4

**EU/USCG Mutual Recognition Agreement
Council Decision 2004/425/EC**

This equipment category is not yet covered by the MRA

**This Certificate is Valid until expiry date shown, subject to the standard conditions of issue printed on page 4
Japan Radio Co. Ltd are Module D registered with QinetiQ in accord with standard condition 3, ref Certificates DQAS-01/10-JRC002.**

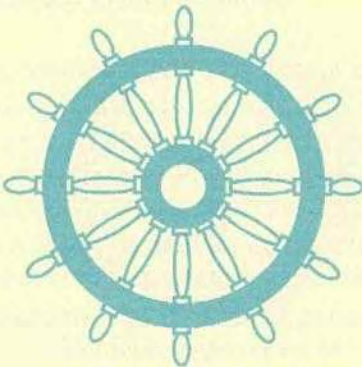


Maritime and Coastguard Agency
The MCA is an Executive Agency of
the Department for Transport.

QinetiQ
Cody Technology Park
Ively Road, Farnborough
Hampshire. GU14 0LX

Under the terms of the United Kingdom Statutory Instrument, No 1957 : 1999, QinetiQ Ltd has been Notified to the European Commission by the Maritime and Coastguard Agency as a Body authorised to conduct Conformity Assessment procedures under the provisions of the European Council Directive 96/98/EC (as amended) on Marine Equipment and issue Certificates of Type Approval.

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Notified Body 0191

Certificate of Type Approval - Schedule 1

JRC, JAN-2000

The applicant declared that the following units when combined form an operational Marine Shipborne ECDIS equipment. The units below have been assessed & tested and satisfactory details of these units were included in the technical file..

SYSTEM comprising of:-

Main Processing Unit	NDC-2000	*1
18.1" Colour LCD Unit	NWZ-147-AC	*1
or 19" Colour LCD Unit	NWZ-173-E	*1
or 23.1" Colour LCD Unit	NWZ-170-E	*1
Keyboard	NCE-7721C or NCE-5163-EA	*1, 2
SOFTWARE	<i>Version</i>	
Process Manager	Ver. 01.00	*3
ECDIS Application	Ver. 02.02	*3, 4
Chart Portfolio	Ver. 02.02	*3, 4
Keyboard	Ver. 0.3.0	*3

----- End of List -----

NOTES:-

- 1 These units form a desktop mounting system.
- 2 Keyboard NCE-5163-EA is a variant of the keyboard used on the JAN-901B/701B without the radar function controls and may be found on newer JAN-2000 ECDIS systems or used for in-service replacement.
- 3 Software Modification: This approval is valid for equipment including subsequent software versions only where written details of such versions have been submitted to and accepted by QinetiQ.
- 4 Software version 02.02 is valid for IHO S-52 Presentation Library edition 3.4.

Technical Characteristics

PARAMETER	PROVISION	COMMENT
PRESENTATION DISPLAY TYPE NWZ-147-AC Base model	18.1" Colour LCD	IEC 62288:2008 Category :- Full operational ECDIS display Dedicated Keyboard, Trackerball and on-screen controls allows quick & easy control functions and data entry.
DISPLAYED CHART AREA	292mm x 285mm	Chart Size in Route Monitoring Mode Optional Larger displays:- NWZ-173-E 292mm x 285mm NWZ-170-E 380mm x 354mm
IEC 61162-1 SERIAL (NMEA) PORTS	Listner 4 Talker -3	Conformity to IEC 61162-1:2000. Optional NQD-2888 serial add-in board provides 4 extra ports. Presence & fault check on messages provide warning status
ANALOGUE SIGNAL PORTS	None	Optional NCT-4106 NSK Unit can provide 3 phase step or synchro input port for gyro compass connection.
RADAR INTERCONNECTIONS	None	No Radar Overlay facility.
Back-Up Arrangements (subject to Administrations/Class approval of Ship Operations Plan)	Via Ethernet link to 2nd ECDIS	May form a back-up ECDIS with JAN-701, 901, 901M, 701B, 901B or JAN-2000 running software as listed above. May also Back-up with JMA-900M / 900B Chart Radar operating in ECDIS mode.
TEMPERATURE RANGE Protected & IEC 945 CLASS Exposed	-15°C to +55°C. -25°C to +70°C	-- All units -- None
POWER SOURCE	100-110V or 200-230V AC 50-60Hz	Unit requires manual power-on trigger but restarts without any user re-initialisation to the fully operational state as set before power break. A UPS is an optional addition and may be required for certain installations especially when used as a Back-up ECDIS.

Conditions of Issue of this certificate are printed on page 4.

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Certificate Number QQ-MED-12/08-01R4

Certificates of Type Approval Conditions of Issue

1. Each Certificate will be used in its entirety and not reproduced in part.
2. This certificate remains valid until the date shown (normally 5 years) unless cancelled or revoked, provided:-
 - i) the design and manufacture remain unmodified from the specimen tested and recorded in the Technical Construction File;
 - ii) any conditions contained in the schedule are complied with;
 - iii) Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply;
 - iv) and, the equipment remains satisfactory in service.
3. The mark of conformity may only be affixed to the equipment listed on this certificate and a manufacturer's Declaration of Conformity issued when the production Quality Assurance requirements laid down in Annex B, of the Directive (96/98/EC) is fully complied with and controlled by a written inspection agreement with a Notified Body.
The use of the QinetiQ Notified Body Number (0191) in combination with the Wheelmark implies that the manufacturer is Registered with the QinetiQ Quality Assurance Scheme. A Certificate of Registration is issued to the manufacturer and should be made available on request. The manufacturer is responsible for ensuring that certification renewal and periodic surveillance are maintained.
4. USCG Approval Number, A Mutual Recognition Agreement (MRA) on marine equipment exists between the European Commission and the US Coastguard but only applies to equipment types included in the listing of marine equipment annexed to the MRA. For included equipment a USCG Approval number may be issued. This can be found under the MED certificate number on the first page and should be used on the main identity label of the equipment. Radio and Radar equipment continues to need separate or additional approval by the USA FCC.
5. This certificate does not confer any approval status to this equipment other than defined by, and tested according to the specifications listed on Page 1.
6. The labeling requirements of IMO Resolution A694(17) shall be met. Descriptions of each unit of apparatus forming part of the equipment will be as given on this Certificate. Each unit of equipment will be marked with the minimum safe distance at which it should be mounted from a standard and steering magnetic compass.
7. No unit of apparatus shall be advertised or labeled as "approved" or "certified" on behalf of the Maritime and Coastguard Agency, the Department of Transport or the QinetiQ Group in any sense other than that it is a type that has been assessed as satisfactory against the specification;
8. The manufacturer must advise QinetiQ of any intended changes to the design or production of the equipment which might affect the equipment performance.
9. Minor Modifications to the equipment will be considered on a case-by-case basis. QinetiQ will review any factory test results, in consultation if necessary, with the test facility that conducted the original Type Approval testing on the equipment. QinetiQ will advise the manufacturer if any further testing is required to maintain valid certification.
10. If an equipment manufacturer wishes to have the type approved equipment designated under alternative names (e.g. agent/distributor's name and model number), a separate application should be completed and sent to QinetiQ.

QinetiQ Ltd
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