

PUBLICATION NW4000-90

Issue 1.1

COMMISSIONING PERFORMANCE TEST AND CERTIFICATION DOCUMENT



VOYAGE DATA RECORDER

NW4000-series

VDR & (S)VDR COMMON DOCUMENT

Installation and Commissioning:

| | |
|-------------|--|
| Date: | |
| Vesselname: | |
| IMO: | |

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List Of Specifications

IEC 61996:1999 Shipborne Voyage Data Recorder - Performance requirements – methods of testing and required test results.

IEC PAS 61996-2 Part 2: (2005-07) Simplified voyage data recorder (S-VDR) – Performance requirements – Methods of testing and required test results

IMO A.658(16): Use and fitting of retro-reflective materials on life-saving appliances

IMO A.662(16): Performance standards for float-free release and activation arrangements for emergency radio equipment

IMO A.694(17): General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids

IMO A.810(19): Performance standards for float-free satellite emergency position-indicating radio beacons (EPIRBs) operating on 406 MHz

IMO A.830 (19): 1995, Code on alarms and indicators

IMO A.861(20): Performance standards for shipborne voyage data recorders (VDRs)

IMO MSC.81(70): Testing of life-saving appliances

IMO MSC.163 (78): Performance standards for shipborne simplified voyage data recorders (S-VDR).

Eurocae: ED56A – Minimum operational performance specification (MOPS) for cockpit voice recorder system

VESA: 1996, Video electronics standards association – Discrete monitor timings standard 1.0, Revision 0.7 (DMTS)

SAE AS8045: 1988, Engineering society for advancing mobility land, sea, air, and space – Minimum performance standard for underwater locating devices – Acoustic-self-powered

IEC 60068-2-27:1987, Environmental testing – Part 2: Tests – Test Ea and guidance: Shock

IEC 60268:1998, Sound system equipment – Part 16: Objective rating of speech intelligibility by speech transmission index

IEC 60936-1:1999, Maritime navigation and radiocommunication equipment and systems – Radar – Part 1: Shipborne radar – Performance requirements – Methods of testing and required test results

IEC 60936-3: Maritime navigation and radiocommunication equipment and systems – Radar – Part 3: Shipborne radar with chart facilities – Methods of testing and required test results

IEC 60945:2002, Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results

IEC 61097-2: 2002, Global maritime distress and safety system (GMDSS) – Part 2: COSPAS SARSAT EPIRB – Satellite emergency position-indicating radio beacon operating on 406 MHz – Operational and performance requirements, methods of testing and required test results

IEC 61097-7:1996, Global maritime distress and safety system (GMDSS) – Part 7: Shipborne VHF radiotelephone transmitter and receiver – Operational and performance requirements, methods of testing and required test results

IEC 61162 (all parts), Maritime navigation and radiocommunication equipment and systems – Digital interfaces

IEC 61260:Electroacoustics – Octave-band and fractional-octave-band filters

IEC 61672 (all parts), Electroacoustics – Sound level meters

IEC 61993-2, Maritime navigation and radiocommunication equipment and systems – Automatic identification systems (AIS) – Part 2: Class A shipborne equipment of the universal automatic identification systems (AIS) – Operational and performance requirements, methods of test and required test results

VESA: 1996 Video electronics standards association - Discrete monitor timings standard 1.0, Revision 0.7 (DMTS)

1. General

The NW-4000 VDR requires a Performance Test (APT) in order to secure IMO compliance.

This test procedure will verify that the NW-4000 (S)VDR and VDR including the Final Recording Medium (FRM) are fully operational and operating within the specifications of the IMO requirements at the time of commissioning. It will also guarantee that the VDR is recording all required data parameters as initially installed, and the data recorded is both secure and correctly stored to the FRM (HSS Capsule).

This document incorporates the NetWave Systems' checklist for Voyage Data Recorders. This document must be completed and returned to NetWave and a copy should be kept on file on the vessel.

THIS DOCUMENT MAY NOT SERVE AS DOCUMENTATION AND CHECKLIST FOR AN ANNUAL PERFORMANCE TEST

1.1 Type approvals

The following certificates are included of this document:

BSH/46162/0020092/07 NW-4000 Type approval for S-VDR
BSH/4612/4290091/07 NW-4000 Type approval for VDR
and includes certification of
US Coast Guard Approval No. 165.150/EC0735/4290091



Bundesrepublik Deutschland
Federal Republic of Germany

Bundesamt für Seeschifffahrt und Hydrographie
Federal Maritime and Hydrographic Agency



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 31. October 2006 (BGBl. I, p. 2407), 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 **NetWave Systems B.V.**
Address **Lichtenauerlaan 110, 3062 ME Rotterdam, NETHERLANDS**
Manufacturer **NetWave Systems B.V.**
Address **Lichtenauerlaan 110, 3062 ME Rotterdam, NETHERLANDS**
Annex A.1 Item (No & item designation) **4.29 Voyage data recorder (VDR)**
Product Name **NW-4000 series**
Trade Name(s) **NW-4000 series**

| Specified Standard(s) | |
|--|--|
| IEC 61996 (2000), Shipborne voyage data recorder (VDR) | IMO Resolution A.861 (20), Performance standard for shipborne voyage data recorder (VDRs) |
| IEC 60945 (2002), General requirements | IMO Resolution A.894 (17), General requirements of shipborne radio equipment and of electronic navigational aids |
| IEC 61162 (2000), Digital interfaces | |

This certificate remains valid unless cancelled, expired or revoked.

Date of issue: 2007-02-23

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

Expiry date: 2012-02-22

Certificate No.: **BSH/4612/4290091/07**

USCG Approval No.: **165.150/EC0735/4290091**

This certificate consists of 4 pages.



by order

Schulz-Reifer
Schulz-Reifer



This certificate is issued under the authority of the „Bundesministerium für Verkehr, Bau und Stadtentwicklung“.

Components necessary for operation:

See Annex to EC type examination (Module B) certificate No.: BSH/4612/4290091/07

Approval Documentation:

| Item | No. / Version |
|---|---------------------|
| NW4000 - 10 VDR Ship's And Operators Instruction Manual | V 1.8 January 2007 |
| NW4000 - 20 VDR Annual Performance Test and Certification | V 1.0 January 2007 |
| NW4000 - 50 VDR WavePlay Data replay manual | V 1.0 February 2007 |
| NW4000 - 60 VDR Authority Access Manual | V 1.4 January 2007 |

Test reports for IEC60945 and IEC61996 tests, see Annex to EC type examination (Module B) certificate No.: BSH/4612/4290091/07

Limitations on the acceptance or use of the product:

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.

U.S. Coast Guard Approval

This product has been assigned a U.S. Coast Guard Module B number (USCG number) to note type approval to Module B only as it pertains to obtaining U.S. Coast Guard approval as allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Maritime Equipment" signed February 27th, 2004.

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



Bundesrepublik Deutschland
Federal Republic of Germany

Bundesamt für Seeschifffahrt und Hydrographie
Federal Maritime and Hydrographic Agency



Baumusterprüfbescheinigung

type examination certificate no.

Nr. BSH/46162/0020092/07

Die Navigationsausrüstung/ *The navigation equipment:*

Vereinfachter Schiffsdatenschreiber

Simplified Voyage Data Recorder

mit der Typbezeichnung **NW-4000 Series S-VDR**
with the type designation

des Herstellers **NetWave Systems B.V.**
of the manufacturer **Lichtenauerlaan 110, 3062 ME Rotterdam, Netherlands**

zusätzliche Handelsnamen **-/-**
additional trade names

ist nach den folgenden Normen/Standards geprüft worden
has been type-tested in accordance with the following standards

| Norm/Standard | Prüfnorm/Test standard |
|--|--|
| IMO Maritime Safety Committee 163 (78) | IEC 61996-2 (Voyage Data Recorder 2006) Part 2: Simplified Voyage Data Recorder |
| | IEC 60945 (Environmental Conditions 2002) |
| | IEC 61162 (Serial Interface 2000) |
| | |

und wird für den Antragsteller
and has been approved for the applicant

NetWave Systems B.V.

für den nachstehenden Verwendungszweck zugelassen:
for the following application:

Vereinfachter Schiffsdatenschreiber

Simplified Voyage Data Recorder

Die Zulassung berechtigt zur Anbringung der Baumsternummer (Nummer der Baumusterprüfbescheinigung).

With the approval it is granted, that the equipment can be labeled with the type approval number (number of the type approval certificate).

Ausgabedatum: **2007-02-23**
Date of issue:

Ausgegeben **Bundesamt für Seeschifffahrt und**
durch: **Hydrographie**
issued by: **Bernhard-Nocht-Str. 78, 20359 Hamburg**
Germany

Ablaufdatum **2012-02-22**
Expiry date:



Im Auftrag
on behalf
v. Arnim

Diese Baumusterprüfbescheinigung besteht aus 2 Seiten.
This Type examination certificate consists of 2 pages.

**ANNEX TO
EC TYPE EXAMINATION (MODULE B) CERTIFICATE
No.: BSH/4612/4290091/07**

Components necessary for operation:

| Designation | Type designation: |
|--------------------------------|--------------------------|
| Hardened Storage Server (HSS) | NW-4800 |
| Power Supply Unit (PSU) | NW-4200 |
| Wavenet Interface Module (WIM) | NW-4400 |
| Bridge Control Unit (BCU) | NW-4010 |
| Microphones | NW-4422 |

Approval documentation:

| Item | Test Report No. / Version |
|---|----------------------------------|
| Test Report - IEC61996 Bundesamt für Seeschifffahrt und Hydrographie (BSH) | BSH / 4612 / 429 0091 / 05 |
| Test Report - IEC61996 Efectis Netherland BV (Capsule) | 2006-Efectis-R0726 (Nov 2006) |
| Test Report - IEC61996 Lloyd's Register (Capsule) | 0606882/1 (10.09.2006) |
| Test Report - IEC60945 Telefication (VDR) | 996403 (20.02.2007) |

2.0 Ship's details

Provide all details in the spaces provided below.

| | |
|---|---------------------|
| Vessel Name | |
| <i>IMO No</i> | |
| <i>Shipyard</i> | |
| <i>Flag</i> | |
| <i>Date Keel Laid</i> | |
| <i>GRT</i> | |
| | |
| Voyage Data Recorder | |
| <i>Date of Survey</i> | |
| <i>Model</i> | NW4000-SVDR |
| <i>Serial No (PSU)</i> | |
| <i>Date of Commissioning</i> | |
| <i>HSS capsule serial number</i> | |
| <i>Certification Agent Information:</i> | |
| <i>Name</i> | NetWave Systems BV |
| <i>Address</i> | Lichtenauerlaan 110 |
| | 3062 ME Rotterdam |
| | The Netherlands |
| | |
| | |
| | |
| <i>Installation period (dates)</i> | |

3.0 Reference Documents

- IMO Res. A.861 (20): Recommendation on Performance Standards for Shipborne Voyage Data Recorders
- IEC 61996: Shipborne Voyage Data Recorder (VDR) Performance Requirements – Methods of testing and required test results

4.0 Physical Condition of Equipment

4.1 Final Recording Medium (HSS capsule)

The capsule-assembly needs to be visually inspected for signs of corrosion or water ingress, for proper colour and for the adhesives (text) to be in proper order*.

1. Check if the colourisation (bright orange) and adhesives on the capsule are clearly visible and in proper order.
2. Remove the capsule from the deckmount by unleashing the release mechanism (by hand) without the use of tools if not opened recently.
3. Check the CPU unit for the Green LED to be continuously lit, and the Yellow led and Red LED to be flashing intermittently.
4. Remove the connector from the top of the CPU assembly. An alarm will be generated on the BCU (Storage unavailable), which may be acknowledged.
5. External cabling: check if all deck-laid cabling is in proper order and does not show any signs of degradation.

| | |
|---------------------------------|-------------------|
| Colourisation | Checked / Remarks |
| Adhesives / stickers | Checked / Remarks |
| Release mechanism | Checked / Remarks |
| CPU water ingress (top) | Checked / Remarks |
| Deckmount water ingress | Checked / Remarks |
| Exterior Cabling to HSS Capsule | Checked / Remarks |
| Alarm at removal of HSS Capsule | Checked / Remarks |

6. Replace the CPU unit on the deckmount and fix the release mechanism. (re-connect the SUB-D connector)

4.2 Underwater Locator (acoustic beacon (HSS))

The beacon must be inspected for corrosion and battery fitness and/or expiration date.

1. For the maintenance and survey of the beacon, refer to the manual for the specific beacon, which is one of three models;
 - a. DUKANE DK480 or DK485
 - b. BENTHOS ELP-362 D

| | |
|---------------------------|-------------------|
| Acoustic Beacon Type | Checked / Remarks |
| Battery Expiry Date | Checked / Remarks |
| Acoustic Beacon condition | Checked / Remarks |
| Acoustic Beacon Serial No | Checked / Remarks |

4.3 Physical inspection of Cabinets, Microphones & Cabling

| | |
|---|-------------------|
| Main Cabinet PSU | Checked / Remarks |
| Main Cabinet BCU | Checked / Remarks |
| Main Cabinet WIM ID: WIM1 | Checked / Remarks |
| Main Cabinet WIM ID: | Checked / Remarks |
| Microphone I(ndoor) / (O)utdoor <u>Q</u> Location / recording channel Starboard Side Wing | Checked / Remarks |
| Microphone I(ndoor) / (O)utdoor <u>Q</u> Location / recording channel Port Side Wing | Checked / Remarks |
| Microphone Location / recording channel Chart Table | Checked / Remarks |
| Microphone Location / recording channel Communication Area | Checked / Remarks |
| Microphone Location / recording channel Radar Stand | Checked / Remarks |
| Microphone Location / recording channel Bridge Control Console | Checked / Remarks |
| VHF Location / recording channel VHF Radio | Checked / Remarks |

4.4 System network and communications check

Connect to the VDR to a PC/laptop (refer to section 9.1 of the NW4000-10 Manual) and perform the following checks as also described in the NW4000-10 Manual.

4.4.1. System Network check

Refer to Section 9.5 (NW4000-10) and perform the observation / test as described

4.4.2. System Device Identification check

Refer to Section 9.6

4.4.3. System Interface Check

Refer to Section 9.7

4.4.4 Power Supply & Data Switch Check

Refer to Section 9.8

4.4.5. Bridge Control Unit Check

Refer to Section 9.9

Refer to 17.5.0 Test Menu - BCU Test an perform the tests as described

4.4.6 Hardened Storage Server (capsule) Check

Refer to Section 9.10 and perform the observation / test as described

| | |
|---|-------------------|
| 4.4.1 System Network | Checked / Remarks |
| 4.4.2 System Device Identification | Checked / Remarks |
| 4.4.3 System Interface | Checked / Remarks |
| 4.4.4 Power Supply & Data Switch | Checked / Remarks |
| 4.4.5 Bridge Control Unit Section 9.9 | Checked / Remarks |
| 4.4.5 Bridge Control Unit Section 17.5.0 Test Menu - BCU Test | Checked / Remarks |
| 4.4.6 Hardened Storage Server | Checked / Remarks |

4.5 Ship's Equipment current condition

Change or Repair to Ship's Equipment

- Confirm that the equipment, that may affect VDR recording, has been functioning properly (ask captain).
- Record details of any remarks or repairs below:
- Confirm that service reports covering changes or repairs are available

5.0 Pre-Existing Alarms

Confirm that no Alarms or Warnings are present at the start of inspection
If applicable, list all errors below (and repair system before continuing certification):

| |
|--|
| |
|--|

6.0 Power Supply

6.1 Battery Condition and Power failure test

1. Remove both covers from the PSU
2. Disconnect the VDR from any primary power source (220VAC and/or 24 DC. Wait for the Power failure alarm and acknowledge this by pressing the ACK button on the BCU.
3. Wait 5 minutes
4. Measure (by making use of a DC volt-meter) the voltage over the + and – poles of the (set of) batteries not to be lower than 23 Volts. If the voltage reads lower, replace with new batteries (Spare kit NW4023).

| | |
|--|-------------------|
| Battery Condition Test | Checked / Remarks |
| Power Fail Alarm Check Remove source of <u>external</u> power. Confirm that the alarm indicating power failure is activated on the Bridge Control Unit. | Checked / Remarks |

7.0 Recorded Data Checks

Via the Web-administrator Status>Channels Page, verify all designated channels are actively recording (green) via the Web-administrator

After having noted all channels to be recording, by replaying the date, to confirm verification on all channels indicated.

| <i>Recording Channel</i> | <i>Channel Number</i> | <i>Equipment Type / model and NMEA message type (ZDA, GGA, etc)</i> |
|---------------------------------|------------------------------|--|
| 1) Date and time | | |
| 2) Ship's position | | |
| 3) Speed | | |
| 4) Heading | | |
| 5) Bridge audio | | |
| 6) Communications audio | | |
| 7) Radar data | | |
| 8) Echo sounder | | |
| 9) AIS | | |
| 10) Main alarms | - | - |
| 11) Rudder order & response | - | - |
| 12) Engine order & response | - | - |
| 13) Bow & stern thrusters | - | - |
| 14) Hull openings (doors) | - | - |
| 15) Watertight & fire door | - | - |
| 16) Wind speed & direction | - | - |

Items 10~16 are only applicable to S-VDR systems where the data is available as NMEA serial information. (acc. To IEC61996 and IEC 61162-1)

7.1 Final Recording Medium Download & Verification

Perform a data-download (refer to Section 16 of the NW4000-10 Manual) and replay the data by making use of the Replay software.

| | |
|--|--------------|
| Data downloaded to (PC directory) | Time (hh:mm) |
| Recorded channels verified for correct representation. | |
| Remarks: | Sign off |

8. VDR Time Synchronization

Confirm that the time on the VDR is synchronized with the external time source being utilized by the VDR (e.g., GPS) by verifying the Configuration>Vessel Data to contain the correct time source and the time displayed on the Bridge Control Unit is in synchronisation with that time source (+- 2 seconds).

| | |
|-----------------------|------------------|
| Time source (channel) | |
| Synchronisation | Checked / Result |

9. Final Observations

Observations or additional notes:

10. Statements

The fields below require the written signature of the certifying technician and vessel's representative, as well as all associated dates.

Date and Location of Performance Test:

NetWave Certified Representative name: _____

NetWave Certified Representative signature: _____

Date: _____

Vessel's Representative name: _____

Vessel's Representative signature: _____

Date: _____