

ICS 47.020.99

CCS U 65



**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 42319-2023**

---

**Ships and marine technology - Guidelines for the operation and  
installation of voyage data recorders(VDR)**

**Issued on: March 17, 2023**

**Implemented on: October 1, 2023**

---

**Issued by: State Administration for Market Regulation, China National  
Standardization Administration**

## Table of Contents

|                                                                           |    |
|---------------------------------------------------------------------------|----|
| Preface                                                                   |    |
| 1 Scope                                                                   | 1  |
| 2 Normative references                                                    | 1  |
| 3 Terms, Definitions and Abbreviations                                    | 2  |
| 3:1 Terms and Definitions                                                 | 2  |
| 3:2 Abbreviations                                                         | 4  |
| 4 VDR interface                                                           | 4  |
| 4:1 General requirements                                                  | 4  |
| 4:2 Interface Requirements for VDR Input Signals                          | 4  |
| 4:3 Main alarm                                                            | 7  |
| 4:4 AIS                                                                   | 7  |
| 4:5 Bridge alarm management interface                                     | 7  |
| 5 Detailed requirements for sensor and VDR interface                      | 7  |
| 5:1 General                                                               | 7  |
| 5:2 Date and time (IEC 61996-1:2013, 4:6:1)                               | 7  |
| 5:3 Ship position (IEC 61996-1:2013, 4:6:2)                               | 8  |
| 5:4 Ship speed (IEC 61996-1:2013, 4:6:3)                                  | 8  |
| 5:5 Heading (IEC 61996-1:2013, 4:6:4)                                     | 8  |
| 5:6 Bridge sound (IEC 61996-1:2013, 4:6:5)                                | 9  |
| 5:7 VHF communication (IEC 61996-1:2013, 4:6:6)                           | 9  |
| 5:8 Radar data display options (IEC 61996-1:2013, 4:6:7)                  | 9  |
| 5:9 ECDIS (IEC 61996-1:2013, 4:6:8)                                       | 11 |
| 5:10 Depth (echo sounder) (IEC 61996-1:2013, 4:6:9)                       | 12 |
| 5:11 Main bridge alarm (IEC 61996-1:2013, 4:6:10)                         | 12 |
| 5:12 Steering commands and responses (IEC 61996-1:2013, 4:6:11)           | 13 |
| 5:13 Host and thruster commands and responses (IEC 61996-1:2013, 4:6:12)  | 14 |
| 5:14 Status of hull openings (doors) (IEC 61996-1:2013, 4:6:13)           | 15 |
| 5:15 Status of watertight doors and fire doors (IEC 61996-1:2013, 4:6:15) | 15 |
| 5:16 Acceleration and hull stress (A:861/5:4:14)                          | 16 |
| 5:17 Wind speed and direction (IEC 61996-1:2013, 4:6:16)                  | 16 |
| 5:18 AIS data (IEC 61996-1:2013, 4:6:17)                                  | 16 |
| 5:19 Rolling motion (IEC 61996-1:2013, 4:6:18)                            | 17 |

|                                                                                                |    |
|------------------------------------------------------------------------------------------------|----|
| 5:20 Configuration (IEC 61996-1:2013, 4:6:19) .....                                            | 17 |
| 5:21 Electronic logbook (IEC 61996-1:2013, 4:6:20) .....                                       | 17 |
| 6 Installation Requirements .....                                                              | 18 |
| 6:1 Required VDR equipment .....                                                               | 18 |
| 6:2 Power supply for VDR and interface .....                                                   | 18 |
| 6:3 Installation of fixed units and self-floating units (IEC 61996-1:2013,5:1:1) .....         | 18 |
| 6:4 Microphone location (IEC 61996-1:2013, 4:6:5) .....                                        | 18 |
| 6:5 Cable connection .....                                                                     | 19 |
| 6:6 Ship detailed documentation .....                                                          | 19 |
| 7 Acceptance testing (commissioning) .....                                                     | 20 |
| 8 Performance Test.....                                                                        | 20 |
| 8:1 General requirements .....                                                                 | 20 |
| 8:2 Operation performance test (IEC 61996-1:2013,5:12) .....                                   | 20 |
| 8:3 Annual Performance Test.....                                                               | 20 |
| 9 Investigative Agency Download and Playback Devices .....                                     | 20 |
| 9:1 General requirements .....                                                                 | 20 |
| 9:2 Investigation agency use information (IEC 61996-1) .....                                   | 20 |
| Appendix A (Informative) Forced Alarm (IEC 61996-1:2013, Appendix B) .....                     | 21 |
| Appendix B (informative) LAN Image Protocol (IEC 61996-1:2013, Appendix E) .....               | 25 |
| Appendix C (Informative) Image Transmission Network (IEC 61996-1:2013, Appendix F) .....       | 29 |
| Appendix D (Informative) ECDIS Display Source Information (IEC 61996-1:2013, Appendix G) ..... | 32 |
| Appendix E (Informative) Manufacturer's Documents (IEC 61996-1:2013,5:5) .....                 | 38 |
| Appendix F (Informative) Performance Test Report (Appendix to IMOMSC:1/Circ:1222) ..           | 40 |
| Reference .....                                                                                | 43 |
| Figure C:1 Network with switches .....                                                         | 29 |
| Figure C:2 Directly connected network .....                                                    | 30 |

## foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents"

drafting:

This document is equivalent to ISO 22472:2016 "Guidelines for the Operation and

Installation of Voyage Data Recorders (VDR) for Ships and Offshore Technology":

The following minimal editorial changes have been made to this document:

- Amended the English standard name of Chapter 2 "IEC 61996-1", added "Part 1:";
- Added "IEC 61996-2" and "SOLAS Convention" in Chapter 2;
- Amend "IEC 61996:2013" in 5:20k) to "IEC 61996-1:2013";
- The format of the voyage data recorder performance test report in Appendix F is changed to the form of pictures;
- The italic text in the full text is changed to italic, and the notes in Chapter 1 are revised:

Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents:

## 1 Scope

This document is intended to provide guidance on the design,

Instructions for installation and operation tests are provided: This document mainly deals with the interface between VDR and external sensors, and is intended for users, shipyards, VDR suppliers

The content of the main technical agreement between suppliers and/or sensor manufacturers when planning installations, and also describes the problems of performance testing and playback

issues, and further put forward detailed requirements for inspection items related to interface and installation: This document does not apply to VDR related performance due to elements and functional requirements:

When it is necessary to replace the existing simple VDR (S-VDR) in whole or in part, this document should be in accordance with IMO MSC:163(78) resolution and

The requirements of IEC 61996-2 provide guidance on the installation of the device:

Note: In the text of this document, for references to MSC:333(90) and IEC 61996-1, brackets are used to indicate the chapter numbers corresponding to IMO resolutions and standards:

## 2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references

For documents, only the version corresponding to the date is applicable to this document;

for undated reference documents, the latest version (including all amendments) is applicable to

this document:

IEC 60945 General requirements for maritime navigation and radiocommunication equipment and systems Test methods and required test results (Mari-

Note: GB/T 15868-1995 Global Maritime Distress and Safety System (GMDSS) general requirements for marine radio equipment and marine navigation equipment test methods and required test results (IEC 60945:1994, IDT)

IEC 61097-7 Global Maritime Distress and Safety System (GMDSS) Part 7: VHF Radiotelephone Transmitters and Receivers for Ships

IEC 61162-1 Digital interfaces for maritime navigation and radiocommunication equipment and systems Part 1: Single microphones and multiple receivers

IEC 61162-2 Digital interfaces for maritime navigation and radiocommunication equipment and systems Part 2: Single microphones and multiple receivers

Note: GB/T 31843:2-2019 Maritime navigation and radio communication equipment and system digital interface Part 2: Single microphone and multiple receiver high

Speed transmission (IEC 61162-2:1998, IDT)

IEC 61162-450 Digital interfaces for maritime navigation and radiocommunication equipment and systems Part 450: Multiple microphones and multiple receivers