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

GB/T 46091-2025

**Ships and marine technology - Virtual reality and simulation
training systems for lifesaving appliances and arrangements**

船舶和海上技术 救生设备及装置的虚拟现实和仿真训练系统

(English Translation)

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Table of Contents

- Preface
- Introduction
- 1 Scope
- 2 Normative References
- 3 Terms and Definitions
- 4 Design
- 5 Safety
- 6 General requirements for training equipment
 - 6.1 General Rules
 - 6.2 Management Mode of Training Equipment
- 7 Training equipment usage
 - 7.1 General Rules
 - 7.2 Categories of Simulation System Training
 - 7.3 Characteristics of the Training Equipment Environment
- Appendix A (Informative) Training Equipment Certificate
- References

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is equivalent to ISO 5476:2023 "Virtual reality and simulation training systems for ship and marine technical lifesaving equipment and apparatus".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Ship Outfitting Standardization (SAC/TC129).

Introduction

This document provides standards for virtual reality (VR) and simulation technologies to support training and maintenance of lifesaving equipment, such as those from the

International Maritime Organization.

Lifesaving equipment as required by Chapter III of the International Convention for the Safety of Life at Sea (SOLAS Convention) of 1974 (IMO).

Virtual reality and simulation technologies have become standard teaching methods in many maritime schools for bridge management and navigation, including ship and mobile applications.

The market for training in offshore drilling rigs (MODUs) and life-saving equipment (LSA) installed on offshore facilities is growing. Trainees...

Interacting with the virtual world can improve and enhance knowledge, skills, and understanding related to various abilities.

This document applies to virtual reality and simulation equipment used for training and drills on the operation and maintenance of lifesaving equipment on board ships, due to the special nature of the operation.

Company policies, inclement weather, sea conditions, operational plans, and port restrictions can limit or constrain the onboard "on-site" training of lifesaving equipment.

Virtual reality and simulation systems training is used for pre-arrival training of seafarers heading to their next mission, as well as training on shipboard lifeboats, life rafts, and other equipment.

The placement of lifeboats, such as free-fall lifeboats and sling-down life rafts, is particularly advantageous, as traditional "on-site" training for these lifesaving devices is influenced by... limit.

Furthermore, technologically advanced and novel lifesaving equipment may not be suitable for the frequency of onboard training and traditional deployments. Because of this...

The unconventional design and deployment of the training equipment utilizes virtual reality and simulation training devices to provide users with necessary and continuous training.

Training in terms of frequency and familiarity is of great value.

Ship and marine technical lifesaving equipment and devices Virtual reality and simulation training systems

1 Scope

This document stipulates that the use of virtual reality and simulation systems to replace on-site training and exercises shall comply with the 1974 International Convention for the Safety of Life at Sea.

The general requirements for life-saving equipment and devices as stipulated in the SOLAS

Convention and the Code for Construction and Equipment of Offshore Mobile Drilling Platforms (MODU Code) the minimum standard for summation. This document is not intended to provide a solution for meeting the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention).

General training plan.

This document aims to provide onboard training and drills required by regulations, as well as additional non-mandatory training for crew members.

Support is provided for the use of training equipment (TD). The training equipment described in this document is intended to replace the use of physical lifesaving equipment during exercises.

And operation, to meet mandatory training requirements.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

pliances(LSA)code, as amended] of life at sea, 1974 (SOLAS 1974), as amended]

3 Terms and Definitions

The following terms and definitions apply to this document.

Augmented reality; AR an augmented reality is created by using computer-based modern high-tech methods to generate additional information that enhances the user's perception of the real world.

The information generated is superimposed onto the real scene through a fusion of physiological senses such as vision, hearing, and touch.

Behavioural realism

The training equipment (3.6) has the ability to reproduce the functional characteristics of the lifesaving equipment.

degree of freedom

With or without considering friction at the contact points, what is the complete description of the motion required for an object to be subject to artificial constraints in space?

The number of independent variables.