International Standard

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Ships and marine technology — Technical requirements and guidelines for seafloor mapping with uncrewed marine vehicles

Navires et technologie maritime — Exigences techniques et lignes directrices pour la cartographie des fonds marins réalisée par des engins sans équipage

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Foreword

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Introduction

Seafloor mapping is a fundamental marine survey activity, which can produce results including bathymetric maps, seafloor topographic maps and geomorphologic maps. Traditional methods of seafloor mapping include single-beam echo sounding and multi-beam echo sounding. Recently, uncrewed surface vehicles (USVs) and uncrewed underwater vehicles (UUVs) have been increasingly employed in seafloor mapping, enriching the technical methods and diversifying the survey platforms. These surveys now cover areas such as estuaries, coastal regions, and the open sea.

Currently, the technology for seafloor mapping using uncrewed marine vehicles has matured and is widely applied in marine oil and gas exploration, seabed mineral resource exploration, offshore engineering design and construction, as well as undersea tunnel and pipeline installation. Recognition of this technology by relevant industries continues to grow. This document concerns the functions and characteristics of uncrewed marine vehicles and the survey instruments they carry, specifically addressing the technical features, application environments, and functional requirements for seafloor mapping with uncrewed marine vehicles.

This document has been developed to standardize the technical design, field survey procedures, data processing and data output for seafloor mapping using USVs or UUVs equipped with single-beam or multi-beam echo sounders. This document aims to enhance the quality of field surveys and the accuracy of seafloor mapping data.