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

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**Robotics - Performance criteria and related test methods for
service robots - Part 2: Navigation**

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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 Part 2 of GB/T 38834 "Performance Specifications and Test Methods for Robotic Service Robots". GB/T 38834

The following sections have been published.

---Part 1. Wheeled robot movement;

---Part 2.Navigation;

---Part 3.Operation.

This document is equivalent to ISO 18646-2:2019 "Performance Specifications and Test Methods for Robotic Service Robots Part 2.

navigation".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

GB/T 38834 "Performance Specifications and Test Methods for Robotic Service Robots" aims to standardize the performance and test methods of service robots.

The law is intended to consist of four parts.

---Part 1.Wheeled robot locomotion. The purpose is to specify the motion performance characteristics and test methods of wheeled robots.

---Part 2.Navigation. The purpose is to specify the navigation performance characteristics and test methods of mobile service robots.

---Part 3.Operation. The purpose is to specify the operational performance characteristics and test methods of service robots.

---Part 4.Waist Support Robot. The purpose is to specify the support performance characteristics and test methods of lumbar support robots.

Robot service robot performance specifications and their

Test Methods Part 2.Navigation

1 Scope

This paper describes methods for specifying and evaluating the navigation performance of mobile service robots. Navigation performance in this paper is measured by pose accuracy

Judged against repeatability and ability to detect and avoid obstacles. Other navigation performance test methods are available but are not covered by this document.

in the file.

The performance and related test methods in this document are only applicable to mobile platforms in contact with the traveling surface. ISO 9283 applies to the performance of operating machines

Can evaluate.

This document is intended for indoor environments only. However, as stated in Appendix A, the test is applicable to robots used in outdoor environments.

This document does not apply to the verification and validation of safety requirements. This document does not cover the safety requirements for test personnel during the test.

2 Normative reference documents

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

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

this document.

GB/T 12643-2013 Robots and Robot Equipment Glossary (ISO 8373.2012, IDT)

ISO 7176-13 Wheelchairs-Part 13.Determination of coefficient of friction of test surfaces (Wheelchairs-Part 13.Determination of

Note. GB/T 18029.13-2008 Wheelchairs Part 13.Determination of test surface friction coefficient (ISO 7176-13.1989, IDT)

3 Terms and definitions

The terms and definitions defined in GB/T 12643-2013 and the following apply to this document.

ISO and IEC maintain the following terminology databases for standardization at the following URL.

3.1

robot robot

A programmable actuator that has a certain degree of autonomy and moves within its environment to perform expected tasks.

Note 1.The robot includes a control system and a control system interface.

Note 2.Dependent on the intended use, robots can be classified as industrial robots or service robots (3.4).

[Source. GB/T 12643-2013, 2.6, modification---"Actuator for two or more programmable axes" is replaced by "programmable

"executive agency" alternative]

3.2

mobile robot mobilerobot

Based on self-controlled, mobile robots (3.1).

Note. The mobile robot can be a mobile platform (3.3) with or without a manipulator.

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