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Ophthalmic optics and instruments - Near reading charts (ISO 7921:2024)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/24

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EUROPEAN STANDARD

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Ophthalmic optics and instruments - Near reading charts (ISO 7921:2024)

Optique et instruments ophtalmiques - Tableaux
d'optotypes utilisés pour la mesure de l'acuité de
lecture en vision de près (ISO 7921:2024)

Augenoptik und ophthalmische Instrumente -
Nahsehschärfetafeln (ISO 7921:2024)

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EN ISO 7921:2024 (E)

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European foreword

This document (EN ISO 7921:2024) has been prepared by Technical Committee ISO/TC 172 "Optics and photonics" in collaboration with Technical Committee CEN/TC 170 "Ophthalmic optics" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2024, and conflicting national standards shall be withdrawn at the latest by August 2024.

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Endorsement notice

The text of ISO 7921:2024 has been approved by CEN as EN ISO 7921:2024 without any modification.



International Standard

ISO 7921

Ophthalmic optics and instruments — Near reading charts

*Optique et instruments ophtalmiques — Tableaux d'optotypes
utilisés pour la mesure de l'acuité de lecture en vision de près*

**First edition
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

ISO 7921:2024(en)

Introduction

This document provides the terms, definitions, and requirements for standardized charts for the assessment of near reading acuity. Reading is a complex visual task that involves more than the mere identification or recognition of individual letters, symbols, or other optotypes. The charts used to assess near reading acuity are intended for the practical purpose of demonstrating whether or not a patient can read sentences or paragraphs of text of a particular size. This document is not meant to replace or supplant standards for visual acuity charts for research or for basic clinical assessments, such as visual acuity measurements before and after cataract surgery.

A patient's reading ability can be labelled using terms such as "difficult" or "easy", or "with errors" or "fluent" or "error-free". Proper assessment of reading ability requires the use of text that is appropriate for the patient, for example, based on the patient's age or educational level. However, the actual determination of a patient's near reading acuity based on these and possibly other factors involves clinical evaluation that is beyond the scope of this document.

This document bases the nominal near reading acuity grade on values given as the logarithm of reading acuity determination (logRAD). LogRAD is similar to the logarithm of minimum angle of resolution (logMAR), used in standard visual acuity testing, in that both are based on the angular size of the test target at a particular viewing distance. However, logRAD specifically depends on the height of lowercase letters, which occur more frequently than uppercase letters, numbers, and symbols in typical text. On the other hand, logMAR is determined by the width of an individual line or the size of a gap. For ease of clinical application, equivalent near reading acuity grades are provided for several common recording notations, including decimal reading acuity, M size, N size, and reduced Snellen fractions.

This document allows for the use of any typeface that is similar in appearance to either of two common typefaces: Times New Roman, a typeface with serifs, which is widely used for printed text; and Helvetica, a sans serif typeface, which is commonly used for both printed charts and electronic displays, such as computer monitors, laptops, and smartphones.

This document applies to the Latin alphabet. It can also apply to similar alphabets, such as Greek and Cyrillic, that can be expressed with typefaces similar to Times New Roman or Helvetica. For other writing systems, such as Arabic, Chinese, Hebrew, Japanese, and Korean, this document can be used as a reference, especially for researchers who wish to demonstrate equivalence of near reading charts using those writing systems with charts using the Latin alphabet.

Ophthalmic optics and instruments — Near reading charts

1 Scope

This document applies to printed, projected, and electronic displays of high-contrast text that are designed for assessment and measurement of near reading acuity under photopic conditions.

The definitions and requirements of this document apply to the Latin alphabet.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3:1973, *Preferred numbers — Series of preferred numbers*

ISO 15004-1, *Ophthalmic instruments — Fundamental requirements and test methods — Part 1: General requirements applicable to all ophthalmic instruments*

IEC 60601-1, *Medical electrical equipment — Part 1: General requirements for basic safety and essential performance*

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