ISO 15253:2021 (E)

Ophthalmic optics and instruments — Optical and electro-optical devices for enhancing low vision

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Classification

4.1 Optical devices
4.1.1 Distance vision
4.1.2 Near and intermediate vision
4.1.3 Retinal illumination reduction or contrast enhancement
4.2 Electro-optical devices

5 Requirements

5.1 General
5.1.1 Risk assessment and management
5.1.2 Materials
5.1.3 Dimensions and weight
5.1.4 Flammability/Ignitability
5.1.5 Resistance to perspiration
5.1.6 Robustness
5.1.7 Resistance to drop
5.2 Optical devices
5.2.1 Spatial resolution
5.2.1.1 Devices designed for near/intermediate use
5.2.1.2 Devices designed for distance vision
5.2.2 Equivalent power (applies to optical devices designed for near or intermediate use)
5.2.3 Magnification
5.2.3.1 Nominal magnification or trade magnification (applies to all magnifiers)
5.2.3.2 Transverse magnification (applies to stand magnifiers)
5.2.3.3 Angular magnification (applies to telescopes designed for distance use)
5.2.3.4 Uniformity of magnification
5.2.4 Exit image distance (applies to stand magnifiers)
5.2.5 Entrance pupil diameter (applies to telescopes)
5.2.6 Transmittance
5.2.7 Image relocation
5.3 Electro-optical devices
5.3.1 Display size
5.3.2 Ambient temperatures
5.3.3 Image characteristics
5.3.3.1 System resolution
5.3.3.2 Display magnification
5.3.3.3 Display size
5.3.3.4 Electro-optical device field of view
5.3.3.5 Display luminance
5.3.3.6 Contrast ratio
5.3.4 Object (XY) table
5.3.5 Electro-optical device working distance
5.3.6 Text to speech system

5.3.7 Electrical requirements
5.3.7.1 General
5.3.7.2 Electromagnetic compatibility

6 Test methods

6.1 General
6.2 Optical devices
6.2.1 Spatial resolution test
6.2.1.1 Test principle
6.2.1.2 Test set-up
6.2.1.2.1 General
6.2.1.2.2 Magnifiers and telemicroscopes/near-vision telescopes
6.2.1.2.3 Telescopes
6.2.1.3 Test procedure
6.2.1.3.1 Magnifiers and telemicroscopes/near-vision telescopes
6.2.1.3.2 Telescopes
6.2.1.4 Test evaluation
6.2.2 Equivalent power – Magnifiers
6.2.3 Angular magnification – Telescopes
6.2.4 Transverse magnification – Stand magnifiers
6.2.5 Lateral variation of magnification test
6.2.6 Exit image distance – Stand magnifiers
6.3 Electro-optical devices
6.3.1 Display magnification test
6.3.1.1 Equipment
6.3.1.2 Procedure
6.3.2 Uniformity of magnification

7 Information to be provided by the manufacturer

7.1 Marking
7.2 Instructions for use

Annex A (informative) Determination of lateral variation of magnification

A.1 Principle
A.2 Apparatus
A.2.1 Hand and stand magnifiers.
A.2.2 Distance and afocal telescopes.
A.3 Procedure
A.3.1 Magnifier viewing position
A.3.2 Near-vision telescope viewing position
A.3.3 Afocal and distance telescope viewing position
A.4 Assessment
A.4.1 Magnifiers
A.4.2 Near-vision telescopes
A.4.3 Afocal and distance telescopes

Page count: 26