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PEOPLE'S REPUBLIC OF CHINA**

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**Microscopes - Microscopes with digital imaging displays -
Information provided to the user regarding imaging
performance**

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Table of Contents

Preface	
Introduction	
1 Scope	1
2 Normative reference documents	1
3 Terms and Definitions	1

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 has been modified to adopt ISO 18221.2016 "Microscope digital imaging display imaging performance information provided to users by microscopes".

The technical differences between this document and ISO 18221.2016 and their reasons are as follows.

---The content of the scope has been changed (see Chapter 1) to conform to my country's standard terminology habits;

---Added normative reference to GB/T 22059 (see Chapter 3) to comply with my country's standard technical requirements;

---Replaced ISO 10934-1 and ISO 10934-2 (see Chapter 3) with normatively quoted GB/T 27668 to comply with our national standards

Quasi-technical requirements;

---Formula (8) and formula (9) have been changed to adapt to my country's technical requirements and improve operability (see 8.1 and 8.2).

The following editorial changes have been made to this document.

---Deleted the "Note" in Chapter 3;

---Corrected the serial numbers of mathematical formulas in international standards, changing "(7), (8), (9), (10), (11), (12)" to "(6), (7), (8), (9),

(10), (11)";

---Reference removed.

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

With the development of digital information technology, digital imaging display microscopes are playing an increasingly important role in the field of microscopy and are widely used.

It is used in fields such as scientific research, teaching, medical care and manufacturing, and is often equipped with digital imaging displays in various optical, mechanical and electrical integration equipment.

microscopy system. In the modern optical microscope industry, there are a large number of companies that produce digital imaging display microscopes, and the products have different performance and types.

Many categories. Therefore, the various parameters of digital imaging display microscopes produced by different companies should be standardized and unified so that their related components can be consistent.

Mutual replacement is very beneficial to improving the efficiency of optical microscopes, accelerating scientific research and integrating product development.

In view of the above reasons, in order to improve enterprise production efficiency, promote collaborative production among enterprises, and improve scientific research projects and new product development

To increase the speed of research and development, it is necessary to standardize and normalize the various imaging performance information provided to users by digital imaging display microscopes.

microscope digital imaging display microscope

Imaging performance information provided to users

1 Scope

This document defines the terms and definitions, symbols and abbreviations for imaging performance information provided to users by digital imaging display microscopes, and regulates

The magnification rate, ultimate resolving power, effective magnification range, object field of view, depth of field and the information provided by the manufacturer to the user are specified.

This document applies to the design, manufacturing and quality assessment of digital imaging display microscopes.

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 22059 Microscope magnification values, tolerances and symbols (GB/T 22059-2018, ISO 8039.2014, MOD)

GB/T 27668 Microscope optical microscopy terminology (GB/T 27668-2023, ISO 10934.2020, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 22059 and GB/T 27668 and the following apply to this document.

3.1

An instrument consisting of an objective lens, an image sensor, and a digital display used to display minute details that are invisible to the naked eye.

Note. The system can include image enhancement, image analysis and archiving, etc.

3.2

image sensor

A device that converts optical imaging into digital images.

3.3

digital display

An output device for the visual display of digital images and other information.

3.4

resolving power limit

The maximum spatial frequency that can be distinguished in object space, expressed in lp/mm.

Note. Due to factors such as reduced contrast and moiré pattern, the actual obtained resolution power will always be lower than the ultimate resolution power. Also, it depends on the sensor

The type, structure of the object, lighting and other reasons.

3.5

pixel pitch pixelpitch

The distance between the centers of adjacent pixels (picture elements) in an image sensor or digital display.

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