SLOVENSKI STANDARD
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Specifikacija geometrijskih veličin izdelka (GPS) - Tekstura površine: ravna - 607. del: Načrtovanje in značilnosti nekontaktnih (konfokalno mikroskopskih) instrumentov (ISO/DIS 25178-607:2026)

Geometrical product specifications (GPS) - Surface texture: Areal - Part 607: Design and characteristics of non-contact (confocal microscopy) instruments (ISO/DIS 25178-607:2026)

Geometrische Produktspezifikation (GPS) - Oberflächenbeschaffenheit: Flächenhaft - Teil 607: Aufbau und Merkmale von berührungslos messenden Geräten (konfokale Mikroskopie) (ISO/DIS 25178-607:2026)

Spécification géométrique des produits (GPS) - État de surface: Surfacique - Partie 607: Conception et caractéristiques des instruments sans contact (microscopie confocale) (ISO/DIS 25178-607:2026)

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DRAFT International Standard

ISO/DIS 25178-607

Geometrical product specifications (GPS) — Surface texture: Areal —

Part 607: Design and characteristics of non-contact (confocal microscopy) instruments

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Spécification géométrique des produits (GPS) — État de surface: Surfacique —

Partie 607: Conception et caractéristiques des instruments sans contact (microscopie confocale)

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

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This second edition cancels and replaces the first edition (ISO 25178-607:2019), which has been technically revised.

The main changes are as follows:

— removal of terms and definitions specified in ISO 25178-600; revision of all terms and definitions for clarity and consistency with other ISO standards documents;

— addition of Clause 4 on instrument requirements, which summarizes normative features and characteristics and which provides an informative flow concept diagram;

— addition of Clause 5 on metrological characteristics;

— addition of Clause 6 on design features, which clarifies the types of instruments relevant to this document;

— revision of Annex A describing the principles of instruments addressed by this document;

— addition of Annex B on metrological characteristics and influence quantities, replacing the normative table of influence quantities with an informative description of common error sources and how these relate to the metrological characteristics in ISO 25178-600.

A list of all parts in the ISO 25178 series can be found on the ISO website.

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.

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Introduction

This document is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO 14638). It influences the chain link F and G of the chains of standards on profile and areal surface texture.

The ISO GPS matrix model given in ISO 14638 gives an overview of the ISO GPS system of which this document is a part. The fundamental rules of ISO GPS given in ISO 8015 apply to this document and the default decision rules given in ISO 14253-1 apply to the specifications made in accordance with this document, unless otherwise indicated.

For more detailed information of the relation of this document to other standards and the GPS matrix model, see Annex C.

This document includes terms and definitions relevant to the confocal microscopy method for the measurement of areal surface topography. Annex A briefly summarizes typical configurations of confocal microscopes and methods to clarify the definitions and to provide a foundation for Annex B, which describes common sources of uncertainty and their relation to the metrological characteristics of confocal microscopes.

NOTE Portions of this document, particularly the informative sections, describe patented systems and methods. This information is provided only to assist users in understanding the operating principles of confocal microscopy. This document is not intended to establish priority for any intellectual property, nor does it imply a license to proprietary technologies described herein.

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Geometrical product specifications (GPS) — Surface texture: Areal —

Part 607: Design and characteristics of non-contact (confocal microscopy) instruments

1 Scope

This document specifies the design and metrological characteristics of confocal microscopy instruments for areal measurement of surface topography. Because surface profiles can be extracted from areal surface topography data, the methods described in this document can also be applied to profiling measurements.

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 25178-600:2019, *Geometrical product specifications (GPS) — Surface texture: Areal — Part 600: Metrological characteristics for areal topography measuring methods*

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3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
confocal microscopy
surface topography measurement method, whereby axial scan through the focus of a microscope's objective provides by spatial optical filtering a series of optically sectioned point images, from which the height of a topography point is determined

Note 1 to entry: As illustrated in Figure 1, the distinct optical sectioning behaviour of the confocal imaging is caused by the reduced signal influence of the light coming from out-of-focus-points or points beside the observed point.

Note 2 to entry: In Figure 1, the optical imaging path is sketched on the base of a microscope with an infinite corrected objective and a tube lens.

Note 3 to entry: There exist different instrumental principles for lateral sampling of a point to provide an areal topography. Different names are listed in Table 1. Usual configurations are explained in Clauses A.3 to A.5.

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