International Standard

ISO 25178-71

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

Part 71: SDF file format

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

Partie 71: Format de fichier SDF

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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 document 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,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 290, *Dimensional and geometrical product specification and verification,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 25178-71:2017), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the version number 2.0 has been added, which incorporates a number of new functionalities (see 5.2.2);

— in version number 2.0, the number of columns and the number of rows of the data matrix is represented as a 4-byte unsigned integer instead of a 2-byte unsigned integer (see 5.2.6 and 5.2.7);

— in version number 2.0, two additional data types are available for data storage: a 1-byte signed integer and a 4-byte floating point (see 5.2.13).

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.

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 links 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 B.

This document is concerned with Type S1 software measurement standards (reference data), and Type S2 software measurement standards (reference software). It also defines the surface data file (SDF) format for reference data.

The SDF format is already used by the industry, in particular, by instrument manufacturers and academia. The basic concept of the SDF format was originally developed for tactile measuring instruments as part of the European Surfstand project and EUR 15178.[6]

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

Part 71: SDF file format

1 Scope

This document specifies Type S1 software measurement standards, reference data, and Type S2 software measurement standards, reference software, for verifying the software of measuring instruments. It also specifies the surface data file (SDF) format of Type S1 software measurement standards for the calibration of instruments for the measurement of surface texture by the profile and areal method as defined in the profile and areal surface texture chain of standards, the chain links F and G.

The SDF format applies to profile and areal topography measurement data extracted with an orthogonal grid (see ISO 14406:2010, 5.2) and equidistant sampling intervals, regardless of the measurement principle.

NOTE Throughout this document, the terms "reference data" and "reference software" are used as substitutes for software measurement standards of Type S1 and Type S2, respectively. In practice, "reference data" is sometimes referred to as "software gauge" or "softgauge".

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/IEC Guide 99, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC Guide 99 and the following apply.

ISO and IEC maintain terminology 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
software measurement standard
reference data or reference software intended to reproduce the value of a measurand with known specification uncertainty, in order to verify the software used to calculate the value of a measurand

3.2
American Standard Code for Information Interchange
ASCII
7-bit character encoding which is congruent with UTF-8 encoding in the first 128 characters

Note 1 to entry: See ISO/IEC 10646.