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

**Part 600:
Metrological characteristics for areal
topography measuring methods**

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

*Partie 600: Caractéristiques métrologiques pour les méthodes de
mesure par topographie surfacique*



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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.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

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 standard and is to be regarded as a general GPS standard (see ISO 14638). It influences the chain link F of the chains of standards on areal surface texture and profile 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 describes the metrological characteristics of areal topography methods designed for the measurement of surface topography maps. Several standards (ISO 25178-601, ISO 25178-602, ISO 25178-603, ISO 25178-604, ISO 25178-605 and ISO 25178-606) have already been developed to define terms and metrological characteristics for individual methods. Although we have striven for consistency throughout the series, some slight differences can appear between them. Therefore Technical Committee ISO/TC 213 decided in 2012 to concentrate all common aspects into one standard – this document – and to describe in ISO 25178-601 to ISO 25178-606 only the terms relevant to each individual method. For the existing standards of ISO 25178-601 to ISO 25178-606 it will be necessary to adapt this decision within the next revision. Until then it will be possible to have different definitions for a single term. Further, if any differences between the current ISO 25178-601 to ISO 25178-606 are discovered that give rise to conflict, then parties involved in the conflict should agree how to handle the differences.

NOTE Portions of this document describe patented systems and methods. This information is provided only to assist users in understanding basic principles of areal surface topography measuring instruments. This document is not intended to establish priority for any intellectual property, nor does it imply a license to any proprietary technologies described herein.

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

Part 600:

Metrological characteristics for areal topography measuring methods

1 Scope

This document specifies the metrological characteristics of areal instruments for measuring surface topography. Because surface profiles can be extracted from surface topography images, most of the terms defined in this document can also be applied to profiling measurements.

2 Normative references

There are no normative references in this document.

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 <http://www.electropedia.org/>

3.1 All areal topography measuring methods

3.1.1

areal reference

component of the instrument that generates a reference surface with respect to which the surface topography is measured

3.1.2

coordinate system of the instrument

right handed orthogonal system of axes (x,y,z) consisting of:

- the z -axis oriented nominally parallel to the z -scan axis (for optical systems with z -scan), the optical axis (for non-scanning optical systems) or the stylus trajectory (for stylus or scanning probe instruments);
- an (x,y) plane perpendicular to the z -axis.

Note 1 to entry: See [Figure 1](#).

Note 2 to entry: Normally, the x -axis is the tracing axis and the y -axis is the stepping axis. (Valid for instruments that scan in the horizontal plane.)

Note 3 to entry: See also *specification coordinate system* [ISO 25178-2:2012, 3.1.2] and *measurement coordinate system* [ISO 25178-6:2010, 3.1.1].

Note 4 to entry: Certain types of optical instruments do not possess a physical areal guide.