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Geometrical product specification (GPS) — Filtration —

Part 60: Linear areal filters — Basic concepts

Spécification géométrique des produits (GPS) — Filtrage —

Partie 60: Filtres surfaciques linéaires — Concepts de base

Reference number
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Contents

Page

Foreword ..... **iv**
Introduction ..... **vi**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Basic concepts **3**
4.1 General 3
4.2 Separable weighting functions 3
4.3 Discrete representation of data 4
4.4 Discrete representation of the linear areal filter 4
4.5 Discrete representation of the weighting function 5
5 Linear areal filters **7**
5.1 Filter equations 7
5.2 Discrete convolution 8
5.3 Transfer function 9
5.4 Separable filter banks 11
Annex A (informative) **Concept diagram** **13**
Annex B (informative) **Relationship to the filtration matrix model** **14**
Annex C (informative) **Relationship to the GPS matrix model** **15**
Bibliography **16**

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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

ISO 16610 consists of the following parts, under the general title *Geometrical product specifications (GPS) — Filtration*:

— *Part 1: Overview and basic concepts*

— *Part 20: Linear profile filters: Basic concepts*

— *Part 21: Linear profile filters: Gaussian filters*

— *Part 22: Linear profile filters: Spline filters*

— *Part 28: Profile filters: End effects*

— *Part 29: Linear profile filters: Spline wavelets*

— *Part 30: Robust profile filters: Basic concepts*

— *Part 31: Robust profile filters: Gaussian regression filters*

— *Part 32: Robust profile filters: Spline filters*

— *Part 40: Morphological profile filters: Basic concepts*

— *Part 41: Morphological profile filters: Disk and horizontal line-segment filters*

— *Part 49: Morphological profile filters: Scale space techniques*

— *Part 60: Linear areal filters: Basic concepts*

— *Part 61: Linear areal filters: Gaussian filters*

— *Part 71: Robust areal filters: Gaussian regression filters*

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— *Part 85: Morphological areal filters: Segmentation*

The following parts are planned:

— *Part 26: Linear profile filters: Filtration on nominally orthogonal grid planar data sets*

— *Part 27: Linear profile filters: Filtration on nominally orthogonal grid cylindrical data sets*

— *Part 45: Morphological profile filters: Segmentation*

— *Part 62: Linear areal filters: Spline filters*

— *Part 69: Linear areal filters: Spline wavelets*

— *Part 70: Robust areal filters: Basic concepts*

— *Part 72: Robust areal filters: Spline filters*

— *Part 80: Morphological areal filters: Basic concepts*

— *Part 81: Morphological areal filters: Sphere and horizontal planar segment filters*

— *Part 89: Morphological areal filters: Scale space techniques*

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Introduction

This part of ISO 16610 is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO 14638). It influences chain links C and F of all chains of standards.

The ISO/GPS Matrix model given in ISO 14638 gives an overview of the ISO/GPS system of which this part of ISO 16610 is a part. The fundamental rules of ISO/GPS given in ISO 8015 apply to this part of ISO 16610 and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this part of ISO 16610, unless otherwise indicated.

For more detailed information about the relation of this part of ISO 16610 to the GPS matrix model, see Annex C.

This part of ISO 16610 develops the basic concepts of linear areal filters, which include Gaussian filter, Spline filters, and Wavelet filters.

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Geometrical product specification (GPS) — Filtration —

Part 60:
Linear areal filters — Basic concepts

1 Scope

This part of ISO 16610 sets out the basic concepts of linear areal filters.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16610-1, *Geometrical product specifications (GPS) — Filtration — Part 1: Overview and basic concepts*

ISO 16610-20, *Geometrical product specifications (GPS) — Filtration — Part 20: Linear profile filters: Basic concepts*

ISO 16610-21:2011, *Geometrical product specifications (GPS) — Filtration — Part 21: Linear profile filters: Gaussian filters*

ISO/IEC Guide 99:2007, *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 16610-1, ISO 16610-20, ISO 16610-21, ISO/IEC Guide 99, and the following apply.

3.1
linear areal filter
areal filter which separates surfaces into long wave and short wave components and is also a linear function

Note 1 to entry: If F is a function and X and Y are surfaces then F is a linear function implies $F(aX + bY) = aF(X) + bF(Y)$.

Note 2 to entry: A linear areal filter is for surfaces in a specified coordinate system, for example, planar and cylindrical.

Note 3 to entry: Linear areal filter examples include Gaussian, spline, spline wavelet, and complex wavelet.

3.1.1
linear planar filter
linear areal filter (3.1) which separates planar surfaces into long wave and short wave components, which applies to nominal planar surfaces

Note 1 to entry: A planar surface is open in all directions.

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