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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 33523.605-2022

**Geometrical product specifications(GPS) - Surface texture:
Areal - Part 605: Nominal characteristics of non-contact (point
autofocus probe) instruments**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents" drafting.

This document is part 605 of GB/T 33523 "Geometric Specification for Products (GPS) Surface Structure Area Law". GB/T 33523

The following parts have been released.

- Part 1. Representation of surface structure;
- Part 2. Terms, definitions and surface structure parameters;
- Part 3. Specification operation set;
- Part 6. Classification of surface structure measurement methods;
- Part 70. Physical measurement standards;
- Part 71. Software measurement standards;
- Part 72. XML file format x3p;
- Part 601. Nominal characteristics of contact (stylus) instruments;
- Part 602. Nominal characteristics of non-contact (confocal chromatic aberration probe) instruments;
- Part 603. Nominal characteristics of non-contact (phase-shift interference microscopy) instruments;
- Part 604. Nominal characteristics of non-contact (coherent scanning interference) instruments;
- Part 605. Nominal characteristics of non-contact (point autofocus probe) instruments;
- Part 606. Nominal characteristics of non-contact (zoom) instruments;

--- Part 701. Calibration and measurement standards for contact (stylus) instruments.

This document is equivalent to Part 605 of the ISO 25178-605:2014 "Geometric Specification for Products (GPS) Surface Structure Area Method.

Nominal Characteristics of Non-Contact (Spot AF Probe) Instruments".

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

With the implementation of the national product quality improvement plan, the unified norms or principles used in the process of product design, manufacturing, measurement and inspection

needs are becoming more and more urgent. The surface structure representation method and related standards in the original product geometric technical specifications can no longer meet the requirements of the product manufacturing process.

Surface quality control requirements in the process.

GB/T 33523 "Geometric Product Specification (GPS) Surface Structure Area Method" is based on the new generation of GPS product geometric specification system, through digital

By means of chemical measurement technology, software analysis technology and metrological evaluation, a new set of recommended national standards for the measurement and analysis of three-dimensional surface structures is constructed.

GB/T 33523 analyzes the method of surface structure measurement on the basis of proposing the surface structure representation method, surface structure parameters and standard operation set, and gives

The measurement technique used and the nominal characteristics of the instrument are shown. In particular, while covering contact measuring instruments, GB/T 33523 focuses on introducing the

A variety of non-contact measuring instruments that have great value in high-precision measurement applications but lack standard support. GB/T 33523 also regulates physical measurement

and software measurement standards, the software file standards and metrological characteristics of surface structure measurements are given. GB/T 33523 realizes from two-dimensional contour measurement to

The breakthrough of three-dimensional surface structure measurement provides metrological test support for the GPS product geometric specification system.

GB/T 33523 is proposed to consist of 14 parts.

--- Part 1. Representation of surface structure. Specifies the use of diagrams in product technical documents (such as drawings, specifications, contracts and reports)

Shaped symbols represent the rules of the surface structure of the region.

--- Part 2. Terms, definitions and surface structure parameters. Specifies the terms, definitions and parameters for the evaluation of surface structure by the area method.

--- Part 3. Specification operation set. It specifies the complete standard operation applicable to the evaluation of surface structure (scale-limited surface) by the area method set.

--- Part 6. Classification of surface structure measurement methods. Specifies the classification system mainly used for surface structure measurement methods, defines

Three types of methods describe the relationship between the three types of methods and give a brief description of the specific methods.

--- Part 70. physical measurement standards. Specifies physical measurements for periodic verification and adjustment of area-based surface structure measuring instruments standard features.

--- Part 71. Software measurement standards. Specifies the S1 and S2 software measurement standards for software calibration of measuring instruments (standard Definition of terms).

--- Part 72. XML file format x3p. Specifies the XML file format x3p for storing and exchanging topography and contour data.

--- Part 601. Nominal characteristics of contact (stylus) instruments. Specifies the standard for surface structure area method contact (stylus) instruments called characteristics.

--- Part 602. Nominal characteristics of non-contact (confocal chromatic aberration probe) instruments. It stipulates the use of white light based on the axial dispersion characteristic

Design and metrological characterization of a non-contact instrument for the measurement of surface structure with a revolutionary confocal chromatic aberration probe.

--- Part 603. Nominal characteristics of non-contact (phase-shift interference microscopy) instruments. Phase shift interferometry (PSI) profile and area specified

Metrological properties of surface structure measurement microscopes.

--- Part 604. Nominal characteristics of non-contact (coherent scanning interference) type

instruments. Specifies the phase for 3D mapping of surface heights

Metrology characterization of dry scanning interferometry (CSI) measurement systems.

--- Part 605. Nominal characteristics of non-contact (point AF probe) instruments. specifies the use of point autofocus probe measurements

Metrological properties of surface structures for non-contact instruments.

--- Part 606. Nominal characteristics of non-contact (zoom) instruments. Specifies the use of variable focus (FV) sensors to measure surface structure

Design and metrological characteristics of non-contact instruments.

--- Part 701. Calibration and measurement standards for contact (stylus) instruments. Specifies the area method surface structure contact (stylus) type instrument

The characteristics of physical measuring tools used as measurement standards, the evaluation methods of residual errors, and the detection methods of calibration, acceptance and periodic verification.

Product Geometry Specification (GPS) Surface Structure

District Code Part 605. Contactless

Nominal characteristics of (point AF probe) type instruments

1 Scope

This document specifies the metrological characteristics of non-contact instruments for measuring surface structures using point autofocus probes.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

ISO 4287 Geometric product specification (GPS) Surface structure profilometry terms, definitions and surface structure parameters [Geomet-texture parameters]

Note. GB/T 3505-2009 Product Geometric Specifications (GPS) Surface Structure Profile Method Terms, Definitions and Surface Structure Parameters (ISO 4287).