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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 44397-2024

Long-term preservation requirements of aviation product 3D model data

航空产品三维模型数据长周期存储要求

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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 is required. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed and coordinated by the National Technical Committee for Aircraft Standardization (SAC/TC 435). This document was drafted by: China Aviation Technology Research Institute, Hefei Jianghang Aircraft Equipment Co., Ltd., AVIC Taiyuan Aviation Instrument Co., Ltd., Beijing Yuanhui Technology Co., Ltd., Shanghai Aircraft Design and Research Institute of Commercial Aircraft Corporation of China, Ltd., Xi'an Aircraft Design Institute of AVIC China Aviation Industry Corporation Limited, China Aviation Industry Corporation Xi'an Aircraft Design and Research Institute, China Electronics Technology Standardization Institute, Beijing Municipal Administration for Market Regulation, China Aviation Industry Development Research Center, China Aviation

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In the long-term storage of digital resources, "long-term" does not mean storing data for only 5 or 50 years, but rather for enterprises and even responsible for the strategic development of the country and constantly responding to the challenges brought by the information market. These challenges come from the rapid changes in software and hardware technologies, The goal of long-term storage of product 3D model data is to diversify storage solutions and express new forms of product and technical publications. Ensure its sustainability over a sufficiently long foreseeable period, i.e. ensure that the data can be accessed, interpreted and reused in the future. Long-term storage of 3D model data of aviation products. An information system for long-term data storage, ensuring data preservation, retrieval and replication between different software platforms or different versions of the same software platform The 3D model data includes source model data set, neutral model data set and lightweight model data set. Model data sets are generally derived from source model data sets. 3D model data used for long-term storage needs to be verified for data quality. To ensure the standardization, integrity and consistency of data. Long-term storage requirements for 3D model data of aviation products

1 Scope

GB/T 44397-2024 sets the requirements for long-term preservation of three-dimensional model data for aviation products. The problem it addresses is real and expensive: an aircraft is in service for forty years or more, its type certificate obliges the manufacturer to retain the definition of every part, and the CAD system that created the model, its file format and often its vendor will not survive that period. Preserving the geometry alone is not enough either, because the model carries the product manufacturing information, the tolerances and annotations that make it the authoritative definition. The standard sets the general principles and then the general requirements: the data requirements covering what must be preserved and in what neutral form, the process requirements for capture, validation and migration, the metadata that must accompany the data, the integrity and authenticity controls, the storage media and their refresh, the format obsolescence monitoring and the periodic verification that preserved models can still be opened and are unchanged. It took effect on 23 August 2024.

This document specifies the general requirements for the long-term storage of 3D model data of aviation products, including data, processes, data quality verification, etc. requirements, as well as detailed requirements for data preparation, data import, data storage, data retrieval and distribution, and data removal. This document is applicable to the long-term storage and retrieval of three-dimensional model data of aviation products, and

can guide the design and development of related systems.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies. in this document.

GB/T 16656.1-2008 Industrial automation systems and integrated product data representation and exchange Part

3 Terms and definitions

The terms and definitions defined in GB/T 16656.1-2008 and the following apply to this document. 3.1 3D model data Complete product definition data consisting of 3D geometric entities, 3D annotations and attributes.

3.2 Long-term archive A data preservation strategy that allows data to be preserved long enough to avoid being affected by technological changes. NOTE Technological changes may include the introduction of new storage media and data formats, or changes in user groups.

3.3 Neutral model The format model generated by converting the original 3D model for heterogeneous CAD exchange.

3.4 Lightweight model A format model that has undergone information filtering and compression.

4 Design model requirements

GB/T 24734.7 Technical product documentation - General rules for digital product definition data - Part

7 Requirements for notes

GB/T 24734.8 Technical product documentation - General rules for digital product definition data - Part

8 Model value and size requirements

GB/T 24734.9 Technical product documentation - General rules for digital product definition data - Part

9 Application of benchmarks

GB/T 24734.10 Technical product documentation - General rules for digital product definition data - Part

10 Application of geometric tolerances

ISO 10303242 Industrial automation systems and integrated product data representation and exchange Part 242: Application protocol. Model-based Three-dimensional engineering management (Industrial automation systems and integration-Product data representation and ex change-Part 242: Application protocol. Managed modelbased 3D engineering) ISO 14739

1 Document management Product Representation Compact (PRC) format for 3D applications Part 1: PRC 10001 [Docu ment management-3D use of Product Representation Compact (PRC) format-Part 1: PRC 10001]