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**NATIONAL STANDARD OF THE
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**Additive manufacturing-Requirements for data quality of
three-dimensional process model**

增材制造 三维工艺模型数据质量要求

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Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

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This document was drafted by: Huazhong University of Science and Technology, OECHSLER Plastic Products (Taicang) Co., Ltd., Yanqi Lake Basic Manufacturing Technology Research Institute (Beijing) Co., Ltd., Guangzhou Zhongwang Longteng Software Co., Ltd., Shandong Sanda Huatian Software Co., Ltd., Ocean University of China, Shenzhen Jinshi 3D Printing Technology Co., Ltd., Xi'an National Institute of Additive Manufacturing Co., Ltd., Guangdong Hanbang Laser Technology Co., Ltd., Shandong University of Science and Technology, Nanjing University of Science and Technology, Wuxi Inspection, Testing and Certification Research Institute, Shandong Chuangrui Laser Technology Co., Ltd., Xi'an Jiaotong University, China Electronics The Tenth Research Institute of Science and Technology Group Corporation, Shared Equipment Co., Ltd., and China Machinery Productivity Promotion Center Co., Ltd:

The main drafters of this document: Zhang Lichao, Hu Huanbo, Yan Chunze, Xue Lian, Zhang Junfei, Wei Wei, Liu Yonghui, Jiang Zexing, Wang Mingming, Niu Liuhui, Wang Xiebin, Liu Tingting, Chang Bai, Lu Zhongli, Guo Wenhua, Yuan Bo, Xue Ruili, Li Haibin:

Data quality requirements for additive manufacturing 3D process models

1 Scope

This document specifies the data processing process, data quality and quality inspection requirements for additive manufacturing three-dimensional process models:

This document is suitable for data quality inspection of additive manufacturing 3D process models:

2 Normative reference documents

GB/T 35351

GB/T 39331-2020

3 Terms and definitions

The terms and definitions defined in GB/T 35351 and the following apply to this document:

3:1 In additive manufacturing, it is a collection of triangular patches that represent the geometric elements, constraint elements and engineering element information of the formed part: 3:2 triangle mesh A collection of continuous triangular patches used to express the surface geometric features of a three-dimensional model: 3:3 topology Adjacency relationships between triangular patches in a triangular mesh: 3:4 slicing A collection of two-dimensional contour data obtained after the three-dimensional process model is discretized in the machining direction:

4 Data processing process

4:1 The three-dimensional process model data processing process should comply with the provisions of Chapter 4 of GB/T 39331-2020:

4:2 The three-dimensional process model should include complete triangular mesh information on the surface of the formed part, and may also include information such as material, color, structure, etc: of the formed part:

Information, this information is stored as STL format files or AMF format files (see GB/T 35352):

4:3 Before slicing processing, the process model data quality should be checked: For the three-dimensional process model that meets the quality requirements, perform slice acquisition Obtain two-dimensional contour data, plan the additive manufacturing forming path based on this data, and finally obtain formed parts that meet the requirements; for products that do not meet the quality requirements For the required three-dimensional

process model, slicing will obtain incorrect two-dimensional contour data (see Appendix A), thus affecting the accuracy and shape of the formed parts:

characteristics, even causing the manufacturing process to fail:

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