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Guidelines for the product maturity of aerospace equipment

航天单机产品成熟度定级规定

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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 of Standardization Documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing agency of this document is not responsible for identifying patents. This document was proposed and managed by the National Aerospace Technology and Application Standardization Technical Committee (SAC/TC425). Drafting organizations of this document. China Aerospace Science and Technology Corporation, China Aerospace Standardization Institute, Beijing Tracking and Communication Technology Research Institute Research institute. The main drafters of this document. Wang Weidong, Han Tianlong, Li Qiang, Li Hongru, Lu Hongwei, Yang Shidong, Wang Xikui, Shang Qian. Regulations on the maturity rating of aerospace stand-alone products

1 Scope

China's national guidelines for assessing the product maturity of aerospace equipment. It specifies the terms and definitions, the general provisions and the classification. Product maturity is the companion concept to technology readiness and answers a different question. Technology readiness asks whether a technology works; product maturity asks whether this particular item, made by this supplier on this production line, is a settled product - whether its design has stopped changing, whether its process is under control, whether enough have been made and flown to establish its reliability, and whether its failures are understood. A technology can be entirely mature while a specific implementation of it is not, and that distinction is where programmes are surprised: a component bought as flight-proven turns out to have been made once, by hand, by an

engineer who has since left. Grading maturity explicitly is how a procurement can distinguish the two.

This document specifies the maturity level, grading conditions and grading procedures of aerospace stand-alone products. This document is applicable to the product maturity grading of aerospace stand-alone aircraft. The maturity rating of other products can be used as reference.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to This document.

GB/T 29076 Implementation requirements for zeroing quality problems of aerospace products

GB/T 32455 Terminology for launch vehicles

3 Terms and definitions

The following terms and definitions defined in GB/T 29076 and GB/T 32455 apply to this document.

3.1 Aerospace equipment It has relatively independent structure and function, and has aerospace equipment, instruments and devices with clear external interfaces.

3.2 Productmaturity A measure of product maturity, based on the design, production, and use of the product, its quality, reliability, and applicability measure.

3.3 Technical status configuration The functional and physical characteristics specified in the technical documents and achieved in the product.

3.4 Quality problem zero qualityproblemcloseloop For product design, production, and use of faults, accidents, defects, and unqualified issues, analyze the problem production from a technical and management perspective. The reason and mechanism of health, and take corrective measures and preventive measures to eliminate the problem fundamentally and avoid closed-loop activities where the problem occurs repeatedly.

4 General

4.1 In principle, the product maturity level assessment work is carried out step by step for the new research aerospace stand-alone products from low to high to determine the product maturity. For existing products that have completed the development work in the early stage, preliminary confirmation can be made based on the relevant evidence

materials of the product's previous design, production, and use activities. Determine the product maturity level currently achieved by the product, and at the same time sort out the related work that needs to be supplemented. Formally determining the maturity level of existing products Prior to this, relevant supplementary work should be completed and the necessary supporting materials should be provided to ensure that the standard requirements are met.

4.2 Prior to the maturity rating of aerospace stand-alone products, the product should have a clear technical status.