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

GB/T 35439-2017

**General requirements for the safety, reliability and
maintainability assurance of space station application payloads**

空间站应用有效载荷安全性、可靠性与维修性保证通用要求

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard proposed by the Chinese Academy of Sciences. This standard by the National Space Science and Application Standardization Technical Committee (SAC/TC312) centralized. This standard was drafted by the Chinese Academy of Sciences Space Applications Engineering and Technology Center. The main drafters of this standard. Wang Gong, Wang Wei, Fang Xuan, Fu Hongyong, Liu Yue, Shi Jianming, Liu Yifei. Space Station Applications Payload Security, Reliability General requirements for maintainability and warranty

1 Scope

China's national standard for assuring the safety, reliability and maintainability of the application payloads carried on a space station. Payloads are built by universities, institutes and companies who are experts in their science and not in spaceflight, and they are installed in a vehicle where a failure is not confined to the experiment. A payload that overheats, outgasses, short-circuits, releases a fluid or produces a sharp edge is a hazard to the crew and to the station, and unlike a satellite instrument it will be handled by people. That is why safety assurance is imposed as a requirement on the payload developer rather than left to the station operator to catch. Maintainability belongs in the same document for a reason peculiar to crewed platforms: a payload that fails on an uncrewed satellite is lost, whereas one on a station can be repaired, reconfigured or replaced - but only if it was designed so that a person in gloves can get at it.

This standard specifies the space station application payload product classification criteria, as well as by product category implementation of security, reliability and Maintainability (Safety, Reliability and Maintainability, hereinafter referred to as SRM) to ensure the general requirements of the work. This standard applies to the space station, manned spacecraft, cargo spacecraft and other spacecraft to support the space mission to carry out the payload. its His space application task payload can refer to the use of this standard.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 30114.1 Space science and its terms - Part 1. Basic commonality GJB451 Reliability Maintainability Glossary GJB1909 Reliability Dependency Maintenance Dependability Demonstration Aeronautical engineering terms for manned spacecraft QJ1408 space product reliability assurance requirements QJ2236 space product safety assurance requirements QJ3124 space product maintenance warranty requirements

3 Terms and definitions

GB/T 30114.1, GJB451, GJB2496 as defined by the following terms and definitions apply to this document.

3.1 Space application payload spaceapplicationpayloads Instrument and equipment systems that are loaded on the spacecraft platform for performing specific scientific experiments, scientific exploration and applied research.

3.2 SRM guarantee safety, reliability and maintainabilityassurance In order to make people believe that products meet the required safety, reliability and maintenance requirements, in the product development, production and use of the whole process, A series of planned and organized SRM management, design and analysis, verification and evaluation of technical and management activities to ensure that products The best cost-effective to complete the required tasks.

Note. SRM warranty is a category of product warranty.

3.3 Riskassessmentcode; RAC A measure that takes into account the consequences of a risk event and the degree of risk that is likely to occur.

Note. The hazard risk assessment matrix is often used to characterize the ordinate, which is the probability of a risk occurring and the abscissa is a serious consequence of the risk.

4 SRM guarantees the basic principles

Payload SRM guarantees work according to the following basic principles.