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Prevention requirements for foreign object debris on spacecraft

航天器多余物预防和控制要求

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. Please note

that some of the contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents. This standard was proposed and managed by the National Aerospace Technology and Application Standardization Technical Committee (SAC/TC425). Drafting organizations of this standard. Beijing Satellite Environmental Engineering Research Institute, Beijing Space Vehicle General Design Department. The main drafters of this standard. Wei Yuee, Zhang Bin, Yi Wangmin, Liu Guangtong, Sun Gang, Zhang Chengli, Liu Xiaozhen, He Yun, Dai Hailin, Meng Wei, Li Bin, Du Ruizhao, Xiao Zhengyi, Motherland, Wang Pengfei, Jia Ruijin. Spacecraft Surplus Prevention and Control Requirements

1 Scope

China's national requirements for preventing foreign object debris on spacecraft. It specifies the terms, definitions and abbreviations and the requirements. Foreign object debris is anything left where it should not be during manufacture, assembly or test - a swarf chip, a washer, a fragment of lock wire, a piece of tape, a hair. On the ground it is a housekeeping matter; in orbit it is a mechanism failure waiting for the moment of weightlessness, when whatever has been resting quietly in a corner floats free and lodges in a bearing, shorts a connector or lands on an optic. The consequences are wholly out of proportion to the object, and the failures are effectively undiagnosable from telemetry. Prevention is entirely procedural: control of what enters a clean area, accounting for tools and hardware, inspection at closure of every compartment, and design that avoids traps where debris can lodge unseen.

This standard specifies the general requirements for the prevention and control of spacecraft redundant objects, as well as the design, assembly, testing, testing, packaging, and transportation of spacecraft. The requirements for the prevention and control of redundant objects in the process of transmission and launch site work (hereinafter referred to as the development process). This standard applies to the prevention and control of redundant objects during the development of spacecraft such as satellites, spacecraft, space stations, and space probes. Stand-alone production The prevention and control of redundant materials in the product development process can be implemented by reference.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 25915.1-2010 Clean room and related controlled environment Part

3.1 Terms and definitions The following terms and definitions defined in

GB/T 29085 apply to this document.

3.1.1 Foreignobjectdebris Substances that enter the product or are generated internally that are not consistent with the product's specified state.

3.1.2 Ground support equipment Related ground equipment used for spacecraft production, testing, experimentation, launching and other activities.

Note. Generally can be divided into two types of ground electrical support equipment and ground mechanical support equipment.

3.2 Abbreviations The following abbreviations apply to this document. AIT

---Assembly, Integration and Test (Assembly, Integration and Test) GSE

---Ground Support Equipment (GroundSupportEquipment)

4.1 General

4.1.1 The goal of spacecraft redundancy prevention and control is to ensure that the spacecraft development process is in good condition, and that the spacecraft is launched, orbited, and returned.