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General requirements for space science experiments

空间科学实验通用要求

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. This standard by the National Science and Space Applications Standardization Technical Committee (SAC/TC312) centralized. This standard was drafted. Institute of Space Applications Engineering and Technology Center, Institute of Biophysics, Chinese Academy of Sciences, Chinese Academy of Sciences Institute of Metal Research, Chinese Academy of Sciences Institute of Mechanics. The main drafters of this standard. Guo Jiong, Zhang Yuhan, warehouse Huai Xing, Luoxing Hong, Hong Qi.

Earth in outer space scientific research, special experimental conditions the ground difficult to obtain. Due to the high cost of space experiments, risk, machine It will be less, for conducting space science experiments formed a constraint. Meanwhile, in space scientific experiments should meet safety and reliability requirements, do not Only to ensure that space science experimental apparatus is working properly, but also to avoid other aircraft and space systems and impact hazards. Specification in the air Carried out between aircraft on scientific experiments, it is very necessary. The standard proposed by the general requirement to carry out scientific experiments in space, standardized space science experiments parties involved in carrying out the experiment activity. General requirements for space science experiments

1 Scope

China's national general requirements for space science experiments. It specifies the general requirements for carrying out scientific experiments in space and standardises the activities of the parties involved in conducting them. Space is where certain experimental conditions exist and cannot be obtained on the ground, which is the whole reason for going. It is also expensive, risky, and rationed: the number of opportunities is small, and an experiment that fails has not merely failed but has consumed an opportunity that will not recur for years. That scarcity is the constraint the standard is written around, and it is why a general requirements document exists at all - the discipline it imposes is the discipline of a resource that cannot be wasted. The second constraint is safety. A space experiment shares a vehicle with other experiments, with systems the mission depends on and, on a crewed flight, with people. So it has to work, and it also has to be shown in advance that it cannot harm anything around it: no uncontained materials, no unmanaged energy, no interference with the vehicle's systems, no hazard to the crew. Those two constraints shape everything the standard contains. It covers the requirements on the experiment proposal and its scientific objective, on the design of the experimental method and apparatus, on the verification and ground testing that must be completed before flight, on the interfaces with the spacecraft, on safety and reliability, on the conduct of the experiment in orbit, and on the handling of the results afterwards - together with the responsibilities of the experimenters, the payload developers and the mission operators, which is the part that turns a set of requirements into a workable arrangement between organisations. Issued on 5 November 2012 and in force since 15 February 2013.

This standard specifies the general requirements for space science experiment on the spacecraft performed the whole process should be met. This standard applies to the use of satellites, spacecraft, space lab, space station and other spacecraft to carry out scientific research experiments. Using rockets and high-altitude balloons and other aircraft as well as on other celestial bodies to carry out scientific research experiments can refer to this standard.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1 Space science experiments spacescienceexperiment The use of scientific research activities carried out in conditions of space.

Note 1. The space science experiments in this standard include space (microgravity) fluid physics and combustion science, space material science, space physics, or empty Experimental research between life science and biotechnology.

Note 2. The condition mainly refers to space microgravity, vacuum, clean, radiation environment and artificial environment on spacecraft conditions of one or more conditions combination.

2.2 Space science experiment spacescienceexperimentalproject After the process of space science experiments project tasks identified, is completed around the relevant target space science experiments carried out within a certain time General work. NOTE. This standard does not occur in the case of ambiguity, referred to the project.

2.3 Space science experimental apparatus spacescienceexperimentalsystem Space science experiments to meet the needs of equipment or experimental systems. NOTE. This standard does not occur in the case of ambiguity, it referred to the experimental apparatus.

2.4 Project management side projectmanagement Science experiments project approval, implementation and acceptance to organize, supervise and coordinate groups.

2.5 Project proponents projectproposer Scientific issues raised required to carry out the corresponding space science experiments and studies of individuals or groups.

Note. The project proponents generally proponents of project proposals, after project approval should also be responsible for the final result of the project.

2.6 Scientific square scientificresearcher Scientific issues surrounding the project, research individuals or groups.

Note. The only science that project proponents and (or) participation in relevant scientific research base of individuals or groups.

2.7 Experimental Device Development Party experimentfacilitydeveloper For the implementation of the project, the development of individual or groups of experimental apparatus.