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Simulation requirements for space control system

航天控制系统仿真要求

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Foreword

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

This standard uses redrafted Law Amendment uses ISO 16781:2013 "Space Control System Simulation System Requirements." the presence of structural changes compared to 2013, listed in Appendix A of this standard and ISO 16781.. This standard and ISO 16781 clauses 2013 no control list.

This standard and ISO 16781:2013 technical differences and their reasons are as follows.

--- Modify the "1" or make statements simple, easy to use as the executive summary, in order to meet the requirements of the standard system and write;

--- Revised ISO 16781:2013 in Table 7 "should be recognized simulation models and facilities have been checking" and "should have been confirmed Simulation Facility After verification, "prepared for the standard in Table 6" should be recognized simulation models

and facilities have been checking "to adapt our technology Article Members and practices.

This standard made the following editorial changes.

--- In order to meet our national standards system and language habits, the standard name will be changed to "space control system simulation requirements";

--- The abbreviations used instead of Chinese Interpretation;

--- Remove the ISO 16781:2013 Annex A (Informative Appendix) "ISO 14300 and ISO 16781 in all stages of the correspondence system";

--- Remove the ISO 16781. Annex B (informative) "2013 control system simulation and design process for each of the chapters listed in the table Relationship";

--- Added Appendix A (informative) "This standard and ISO 16781:2013 Number of reg control list";

--- Added Appendix B (informative) "this standard process control system design and development phase corresponds to the practice of aerospace systems relationship".

The standard proposed by China Aerospace Science and Technology Corporation.

This standard by the National Aerospace Technology and Application of Standardization Technical Committee (SAC/TC425) centralized.

This standard was drafted. Beijing Aerospace Automatic Control Institute.

Introduction

On the spacecraft control system as an important subsystem, can protect the spacecraft attitude stabilization, it required along Orbital flight. Control system simulation can test the system performance, system design verification, fault simulation and implement countermeasures and other tasks. for the simulation of the control system for effective, China's aerospace control system simulation test requests, clear methods and processes, and Launch vehicles, satellites, manned spacecraft and other spacecraft development process has been successfully tested and applied. This standard will aerospace control system simulation the true test of conduct play an effective role in guiding.

Aerospace Control System Requirements

1 Scope

This standard specifies the spacecraft control system simulation purposes, the simulation components and functions, as well as general requirements for simulation concept design, detailed design, Detailed requirements engineering prototype, system integration at different stages of the simulation.

This standard applies to the spacecraft control system simulation, can refer to other areas of use.

2 Terms and definitions

The following terms and definitions apply to this document.

Accuracy

The degree of difference parameter value and its "true value" between.

Controlsystem control system According to the mission and related information, in accordance with predetermined rules and control requirements, spacecraft flight control organic combination of soft and hard Member system.

Equivalent device emulator Equivalent devices spacecraft equipment, has the same kind of device input and output interfaces, and similar dynamic behavior.

Fidelity

The simulation is now level objects of a complex simulation side or the whole state and external behavior.

HILS hardwareintheloopsimulation the simulation of physical access control systems - Part loop simulation carried out.

Mathematical simulation all simulation models are implemented using software emulation.

Real-time simulation of real-timesimulation Real time simulation model of propulsion system to promote the same time simulation.

Reliability Within a given time interval and the given conditions, the ability to complete the required function.

Simulation Using a similar or equivalent system to simulate the real system, or make it behave similar to the performance of the real system.