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论文

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### 主动控制技术(ACT)验证机工程飞行仿真系统设计

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### DESIGN OF THE ENGINEERING FLIGHT SIMULATION SYSTEM OF ACTIVE CONTROL TECHNOLOGY(ACT) VERIFYING AIRCRAFT

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摘要

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摘要 研究一种我国自行研制、开发的用于ACT验证机的研制和试飞的多功能工程飞行仿真系统,分析了系统的设计概念、原则和功能要求,提出了面向多功能要求(全数字实时飞行仿真、电传飞控铁鸟台综合试验、飞行训练模拟和工程飞行仿真)的总体设计和总体结构,研究了ACT验证机动力学特性的建模、仿真和提高仿真逼真度的方法。研究和开发了工程飞行仿真的实时管理软件系统和人机(用户)接口。系统应用实践和试飞飞行员的评价表明设计是成功的,是一种性能/价格比高的工程飞行仿真系统。

关键词: 主动控制技术 ACT验证机 飞行仿真 飞行控制 铁鸟 电传操纵

Abstract: This paper studies a multifunction engineering flight simulation system used for ACT verifying aircraft and developed by China, analyzes the design philosophy principles and function requirements of flight simulation systems, and, faced to multifunction requirements (full digit real time flight simulation, fly by wire flight control iron bird integrate experiment, flight training simulation and engineering flight simulation) puts forward an overall design and system structure of the flight simulation system. The authors also study modeling and simulation of flight dynamic character of ACT verifying aircraft and method of increasing fidelity of simulation, study and develop a real time simulation management software system and man machine (user) interface. Application practice and evaluation of fly test pilot indicate that the design of the flight simulation system is successful and ratio of performance over price is high.

Keywords: active control technology ACT verifying aircraft flight simulation flight control iron bird fly by wire

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