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**Embedded software reliability testing method
(English Translation)**

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Foreword

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

Please note that some of the content of this document may involve patents. Release mechanism of the present document does not assume responsibility for the identification of these patents.

This standard by the National Information Technology Standardization Technical Committee (SAC/TC28) and focal points.

This standard was drafted. China Electronics Standardization Institute, Zhuhai Southern Software Testing Center, Zhuhai XJ Electric Co.

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Shenyang public technical service platform software Limited, Shenzhen City Jiyang Automation Technology Co., Ltd., Hai Botai Yue Zhen Electronic Equipment Manufacturing Co., Ltd., Guangdong Po Wright Medical Technology Co. Shares the company, Shanghai Embedded System Engineering Research Center, Zhuhai gifted special Power Technology Co., Ltd., Shanghai Supercomputer parallel software Limited liability company, the Shanghai Information Technology Co., Ltd. Lu Qixin.

Introduction

Embedded Systems refers to application-centric, computer technology, hardware and software can be tailored to meet the application system functionality, reliability Specialized computer system, cost, size and power consumption strict requirements. Embedded technology is not a separate discipline, it is accompanied by micro the development of electronic technology and computer technology, micro-controller chip more powerful, and embedded micro-controller chip devices and systems more and more and developed. Embedded System includes almost all of the life of electrical equipment, such as. MP3, mobile phones, digital televisions, automobiles, micro Wave oven, digital cameras, elevators, air conditioning, vending machines, industrial automation, instrumentation and medical instruments.

While most software testing methods can be directly or indirectly, for embedded software testing, but embedded software reliability testing and general software reliability testing has a big difference, because the fuzzy boundaries of embedded systems hardware and software features, software, hardware dependencies Strong and dedicated, real-time, high security requirements, is currently for embedded software testing and debugging tools less and so on. These make Embedded software testing test was inheritable poor compared to general purpose computer software.

The standard reference relevant information at home and abroad, and developed with practice and the characteristics of embedded software reliability testing.

Embedded Software Reliability Test Methods

1 Scope

This standard specifies the reliability of the test methods, procedures and guidelines in the embedded software life cycle of software products.

This standard applies to the whole process of embedded software life cycle, it can be used for embedded software reliability growth testing and reliability testing Confirmation testing requirements.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 9386-2008 computer software test documentation specifications GB/T 11457-2006 Information technology - Software engineering terminology GB/T 15532-2008 computer software test specification GB/T 16260.2-2006 Software engineering - Product quality - Part 2. External metrics GB/T 16260.3-2006 Software engineering - Product quality - Part 3. Internal metrics

3 Terms and Definitions

GB/T 11457-2006 define the following terms and definitions apply to this document.

Software Reliability A specific number of units within the nature or specific task execution time probability of failure-free software.

Deviate deviation

Embedded software execution system behavior relative deviation of expected behavior.

Cascade cascaded

Direct action by the initial behavior produced. For example, the cascade deviate cascade failure, the cascade bias.

Failure

System operating behavior deviates from the requirements of the user.

Failure intensity the number of failures per unit time appears.

NOTE: is another way of showing the reliability.

Operation

Continue for some time, and returns control to the end of a logical system of tasks.

Operation and software-related functions or features, for example,