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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 34955-2017

**Atmospheric radiation effects -- Guidelines for single event
effects testing for avionics systems**

大气辐射影响 航空电子系统单粒子效应试验指南

(English Translation)

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Foreword

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

This standard uses the translation method identical with IEC 62396-2:2012 "Avionics Process Management Atmospheric Radiation Part 2. Airline Guidelines for single-particle effects in empty electronic systems.

The documents of our country that are consistent with the corresponding international documents that are normative references in this standard are as follows.

Atmospheric radiation - Guidance for the design of single particle effect protection for avionics - IEC 62396-1.

2016, IDT)

This standard compared with IEC 62396-2:2012, mainly made the following editorial changes.

--- The standard name changed to "atmospheric radiation effects of avionics system single-particle effect test guide." this standard is proposed by China Aviation Industry Corporation.

This standard by the National Avionics Process Management Standardization Technical Committee (SAC/TC427) centralized.

This standard was drafted unit. China Aviation Institute of Integrated Technology, Beijing Shengtao Ping Experimental Engineering Technology Co., Ltd., China Aviation Industry First Aircraft Design and Research Institute.

Introduction

This standard avionics system designers, manufacturers of electronic equipment and electronic components and their users to determine the large avionics Gas neutron single particle effect sensitivity method is GB/T 34956-2017 supplement.

This standard provides guidance on the use of single-particle effects data, data sources, and types of accelerated radiation sources used. When no when obtaining single event data, consider using appropriate radiation sources to conduct experiments to obtain single event data for avionics.

This standard also specifies the method of converting data obtained by different radiation sources into a single-particle effect rate for avionics.

Atmospheric radiation affects avionics systems Single particle effect test guidelines

1 Scope

This standard gives a guide to test methods for measuring the sensitivities of single-particle neutron single-particle effects to microelectronic devices. Due to the radiation source used and test methods, so this standard also gives how to use the test data to assess the device and function board at cruising altitude by the atmosphere SEE rate caused by child.

This standard applies not only to the aviation industry, but also to other areas.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

Aeronautical electronic process management - Atmospheric radiation effects - Part 1.

Avionics single particle effect prevention General requirements for design (Process managementforavionics-Atmosphericradiationeffects-Part 1:

Accom-modationofatmosphericradiationeffectsviasingleeventeffectswithionavionicselectroni cequip-ment IEC 62396-3, Avionics process management, effects of atmospheric radiation - Part 3. Single-particle effects of atmospheric radiation in avionics systems Prevention and control optimization system design

[Processmanagementforavionics-Atmosphericradiationeffects-Part 3:

Optis-misingssystemdesigntoaccommodatethesingleeventeffects (SEE)

ofatmosphericradiation] IEC 62396-4, Avionics process management - Atmospheric

radiation effects - Part 4. High-voltage avionics and their potential single particles Process Design Fulfillment - Atmospheric Radiation Effects - Part 4. Guidelines for designing with high voltage aircraft electronics and potential single effects) IEC 62396-5 Avionics Process Management Atmospheric Radiation Effects Part 5. Thermal Neutron Fluence Rates and Their Applications in Avionics Systems Process evaluation guideline (Process management for avionics-Atmospheric radiation effects-Part 5: Guide-lines for assessing the neutron fluxes and effects in avionics systems)

3 Terms and definitions

IEC 62396-1-2012 Terms and definitions apply to this document.

4 Abbreviations

The following abbreviations apply to this document.

ANITA. Neutron radiation sources similar to atmospheric neutron spectra produced by thick targets (TSL, Sweden) [Atmospheric-like Neutrons from thick target (TSL, Sweden)] BL1A, BL1B, BL2C. TRIUMF facilities beam line code (Canada) Beam line designation the the TRIUMF facility (Canada)