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Process management for avionics – Aerospace qualified electronic components (AQEC) – Part 1: Integrated circuits and discrete semiconductors

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PROCESS MANAGEMENT FOR AVIONICS – AEROSPACE QUALIFIED ELECTRONIC COMPONENTS (AQEC) –

Part 1: Integrated circuits and discrete semiconductors

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC/TS 62564-1, which is a technical specification, has been prepared by IEC technical committee 107: Process management for avionics.

This second edition cancels and replaces the first edition published in 2009. Its main change consists of adding discrete semiconductors.

The GEIA-STD-0002-001 (June 2006), *Aerospace Qualified Electronic Component (AQEC) Requirements, Volume 1 – Integrated Circuits and Semiconductors*, has served as a basis for the elaboration of this technical specification.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
107/144/DTS	107/157/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in the IEC 62564 series, under the general title *Process management for avionics – Aerospace qualified electronic components (AQEC)*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Aerospace Qualified Electronic Component (AQEC) plans are developed by manufacturers in order to document compliance with AQEC requirements. For AQEC designated components, the intention is to

a) provide AQEC users access to information from the AQEC manufacturers that is necessary for using commercial-off-the-shelf (COTS) products;

b) better enable AQEC users to assess whether these parts are capable of operating reliably in their applications;

c) minimize deviations from the AQEC manufacturers' COTS products;

d) have minimal impact on the AQEC manufacturers' standard operating or business procedures;

e) promote communication between the AQEC manufacturers and users.

PROCESS MANAGEMENT FOR AVIONICS – AEROSPACE QUALIFIED ELECTRONIC COMPONENTS (AQEC) –

Part 1: Integrated circuits and discrete semiconductors

1 Scope

This Part of IEC 62564, which is a Technical Specification, defines the minimum requirements for integrated circuits and semiconductors which are to be designated an "Aerospace Qualified Electronic Component (AQEC)". It applies to integrated circuits and semiconductors exhibiting the following attributes:

a) a minimum set of requirements, or information provided by the part manufacturer, which will allow a standard COTS component to be designated AQEC by the manufacturer;

b) as a minimum, each COTS component (designated AQEC) will have been designed, fabricated, assembled, and tested in accordance with the component manufacturer's requirements for standard data book components;

c) qualification of, and quality systems for, the COTS components to be designated as AQEC shall include the manufacturer's standards, operating procedures, and technical specifications. This information shall be available when requested;

d) components manufactured before the manufacturer has addressed AQEC requirements, but utilizing the same processes, are also considered AQEC compliant;

e) additional desired attributes of a device designated AQEC (that will support AQEC users) are found in Annex B of this technical specification.

NOTE 1 Parts qualified to military specifications (except those identified as being for "logistic support" purposes only) are considered AQEC; the remainder of this technical specification only addresses non-military specification parts.

NOTE 2 Parts qualified to AEC-Q100-Rev G, grade 0 through to grade 3 are considered AQEC. For those applications where a 0 °C to +70 °C temperature range is appropriate, grade 4 is also considered to be AQEC. The user should document that the grade category used is compatible with the application in accordance with their IEC/TS 62239 (due to be replaced by future IEC/TS 62239-1) electronic components management plan (ECMP).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC/TS 62239, *Process management for avionics – Preparation of an electronic components management plan*[1]

IEC/TS 62396-1, *Process management for avionics – Atmospheric radiation effects – Part 1: Accommodation of atmospheric radiation effects via single event effects within avionics electronic equipment*

ISO 9001:2008, *Quality management systems – Requirements*

JESD48, *Product discontinuance*

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1 IEC/TS 62239-1, *Process management for avionics – Management plan – Part 1: Preparation and maintenance of an electronic components management plan,* is currently under study and will supersede IEC/TS 62239.