

TECHNICAL SPECIFICATION

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



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2011 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

TECHNICAL SPECIFICATION

IEC/TS 62564-1 Ed. 2.0 - Preview only Copy via ILNAS e-Shop

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

R

ICS 03.100.50; 31.020; 49.060

ISBN 978-2-88912-675-0

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms, definitions and abbreviations	7
3.1 Terms and definitions	7
3.2 Abbreviations	8
4 Technical requirements	9
4.1 AQEC plan	9
4.2 AQEC documentation	9
4.2.1 General	9
4.2.2 AQEC data sheet.....	9
4.2.3 Material content.....	10
4.2.4 AQEC visibility.....	10
4.2.5 AQEC life expectancy	10
4.2.6 Device technology	10
4.2.7 SEE data.....	10
4.2.8 Termination finish.....	11
4.2.9 Third party part numbers	11
4.3 AQEC performance	11
4.3.1 Performance.....	11
4.3.2 Functional parameters.....	12
4.3.3 Known limitations.....	12
4.4 Quality system certification.....	12
4.5 Component qualification and re-qualification	12
4.6 AQEC quality assurance and reliability monitoring.....	13
4.7 Product Change Notification (PCN)	13
4.8 Last Time Buy (LTB) notification.....	13
4.9 Obsolescence management	13
4.10 Counterfeit prevention	13
4.11 User or customer guide	13
Annex A (informative) AQEC material content and construction table.....	15
Annex B (informative) Additional desired data.....	17
Bibliography.....	19

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PROCESS MANAGEMENT FOR AVIONICS –
AEROSPACE QUALIFIED ELECTRONIC COMPONENTS (AQEC) –****Part 1: Integrated circuits and discrete semiconductors**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

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.

Withdrawn