



BSI Standards Publication

# Process management for avionics — Counterfeit prevention

Part 1: Avoiding the use of counterfeit,  
fraudulent and recycled electronic  
components

### **National foreword**

This Published Document is the UK implementation of IEC/TS 62668-1:2014. It supersedes PD IEC/TS 62668-1:2012 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/107, Process management for avionics.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2014.  
Published by BSI Standards Limited 2014

ISBN 978 0 580 85313 5  
ICS 03.100.50; 31.020; 49.060

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 July 2014.

### **Amendments/corrigenda issued since publication**

<b>Date</b>	<b>Text affected</b>
-------------	----------------------

---



# TECHNICAL SPECIFICATION



---

**Process management for avionics – Counterfeit prevention –  
Part 1: Avoiding the use of counterfeit, fraudulent and recycled electronic  
components**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE **XB**

---

ICS 03.100.50; 31.020; 49.060

ISBN 978-2-8322-1679-8

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

FOREWORD .....	6
1 Scope .....	8
2 Normative references .....	8
3 Terms, definitions and abbreviations .....	9
3.1 Terms and definitions.....	9
3.2 Abbreviations.....	12
4 Technical requirements .....	14
4.1 General.....	14
4.2 Minimum avionics OEM requirements .....	15
4.3 Intellectual property .....	17
4.3.1 General .....	17
4.3.2 Definition of intellectual property.....	18
4.4 Counterfeit consideration .....	18
4.4.1 General .....	18
4.4.2 Legal definition of counterfeit.....	18
4.4.3 Fraudulent components .....	19
4.4.4 How to establish traceability .....	19
4.4.5 Reasons for the loss of component traceability .....	19
4.5 Why is counterfeit a problem?.....	20
4.5.1 General .....	20
4.5.2 General worldwide activities combating counterfeit issues .....	20
4.5.3 Cultural differences .....	21
4.5.4 Counterfeiting activities and avionics equipment.....	21
4.5.5 Electronic components direct action groups .....	23
4.6 Recycled components .....	24
4.6.1 General .....	24
4.6.2 Why does the avionics industry not use recycled components?.....	24
4.6.3 When do recycled components become suspect and potentially fraudulent? .....	24
4.7 Original component manufacturer (OCM) anti-counterfeit guidelines .....	25
4.7.1 General .....	25
4.7.2 Chinese Reliable Electronic Component Supplier (RECS) audit scheme .....	25
4.7.3 Original component manufacturer (OCM) ISO 9001 and AS/EN/JISQ 9100 Third Party Certification .....	25
4.7.4 Original component manufacturer (OCM) trademarks .....	25
4.7.5 Original component manufacturer (OCM) IP control .....	25
4.7.6 Original component manufacturer (OCM) physical part marking and packaging marking.....	26
4.7.7 The Semiconductor Industries Association Anti Counterfeit Task Force (ACTF) .....	26
4.7.8 USA Trusted Foundry Program .....	27
4.7.9 USA Trusted IC Supplier Accreditation Program .....	27
4.7.10 Physical unclonable function (PUF) .....	27
4.7.11 Original Component Manufacturer (OCM) best practice .....	27
4.8 Distributor minimum accreditations .....	28
4.9 Distributor AS/EN/JISQ 9120 Third Party Certification.....	28
4.10 Franchised distributor network .....	28

4.10.1	General .....	28
4.10.2	Control stock through tracking schemes .....	29
4.10.3	Control scrap .....	29
4.10.4	RECS .....	29
4.11	Non- franchised distributor anti-counterfeit guidelines .....	29
4.11.1	General .....	29
4.11.2	CCAP-101 certified program for independent distributor .....	30
4.11.3	SAE AS6081 .....	30
4.11.4	OEM managed non-franchised distributors .....	30
4.11.5	Brokers .....	30
4.12	Avionics OEM anti-counterfeit guidelines when procuring components .....	30
4.12.1	General .....	30
4.12.2	Buy from approved sources .....	31
4.12.3	Traceable components .....	31
4.12.4	Certificates of conformance .....	31
4.12.5	Plan and buy sufficient quantities .....	32
4.12.6	Use of non- franchised distributors .....	32
4.12.7	Brokers .....	32
4.12.8	Contact the original manufacturer .....	32
4.12.9	Obsolete components and franchised aftermarket sources .....	32
4.12.10	IEC/TS 62239-1 approved alternatives .....	33
4.12.11	Product redesign .....	33
4.12.12	Non traceable components .....	33
4.12.13	OEM anti-counterfeit plans including SAE AS5553 and SAE AS6174 .....	33
4.13	OEM anti-counterfeit guidelines for their products .....	36
4.13.1	IP control .....	36
4.13.2	Tamper-proofing the OEM design .....	36
4.13.3	Tamper-proof labels .....	36
4.13.4	Use of ASICS and FPGAs with IP protection features .....	36
4.13.5	Control the final OEM product marking .....	37
4.13.6	Control OEM scrap .....	37
4.13.7	OEM trademarks and logos .....	37
4.13.8	Control delivery of OEM products and spares and their useful life .....	37
4.13.9	Repairs to OEM products .....	37
4.14	Counterfeit, fraud and component recycling reporting .....	38
4.14.1	General .....	38
4.14.2	USA FAA suspected unapproved parts (SUP) program .....	38
4.14.3	EASA .....	38
4.14.4	UK counterfeit reporting .....	38
4.14.5	EU counterfeit reporting .....	38
4.14.6	UKEA anti-counterfeiting forum .....	38
Annex A (informative)	Useful contacts .....	40
A.1	World Intellectual Property Organization (WIPO) .....	40
A.1.1	General .....	40
A.1.2	What is WIPO? .....	40
A.1.3	WIPO Intellectual Property Services .....	40
A.1.4	WIPO global network on Intellectual Property (IP) Academies .....	42
A.2	Anti-Counterfeiting Trade Agreement (ACTA) .....	44
A.2.1	ACTA .....	44

A.2.2	Global Anti-Counterfeiting Network (GACG).....	44
A.3	World Semiconductor Council (WSC).....	44
A.4	SEMI.....	45
A.5	Electronics Authorized Directory .....	46
A.6	UK .....	46
A.6.1	The UK intellectual property office .....	46
A.6.2	Alliance for IP .....	47
A.6.3	UK Trading Standards Institute .....	47
A.6.4	UK HM Revenue and Customs.....	47
A.6.5	ESCO Anti-counterfeiting Forum (formerly UKEA Anti-Counterfeiting Forum).....	48
A.6.6	Electronic Component Supplier Network (ESCN) .....	48
A.6.7	UK Ministry of Defence .....	48
A.7	Europe.....	48
A.7.1	Europa Summaries of EU Legislation.....	48
A.7.2	Europol, the European Law Enforcement Agency.....	49
A.7.3	European Patent Office .....	49
A.7.4	Europe at OHIM.....	49
A.7.5	European Aviation Safety Agency (EASA) .....	50
A.7.6	IECQ audit schemes .....	50
A.7.7	BEAMA.....	50
A.8	USA.....	50
A.8.1	United States Patent and Trademark Office .....	50
A.8.2	The International Trade Administration, U.S. Department of Commerce.....	51
A.8.3	USA Embassy in China information .....	51
A.8.4	International Intellectual Property Alliance .....	52
A.8.5	The FAA .....	53
A.8.6	FAA Engine Approval.....	53
A.8.7	FAA Aviation Safety Hotline office .....	53
A.8.8	Trusted Access Program Office (TAPO).....	53
A.8.9	Defense Microelectronics Activity (DMEA) .....	53
A.8.10	Independent Distributors of Electronic Association (IDEA) .....	54
A.8.11	ECIA formerly National Electronic Distributors Association (NEDA) .....	54
A.8.12	Components Technology Institute Inc (CTI) .....	55
A.8.13	Defense Logistics Agency (DLA).....	55
A.8.14	DFAR progress.....	55
A.8.15	IAQG .....	56
A.9	China.....	56
A.9.1	State Intellectual Property office of the P.R.C. ....	56
A.9.2	Chinese Patent and Trademark Office .....	56
A.9.3	Chinese Electronic Purchasing Association (CEPA) and the RECS scheme.....	56
A.9.4	China Quality Management Association for Electronics Industry (CQAE) .....	57
A.9.5	Chinalawinfo.Co Ltd., for Law info China .....	57
A.9.6	China Anti-counterfeit Technology Association (CATA).....	58
A.10	Japan – Japanese Patent Office .....	58
A.11	Physical unclonable function .....	58
A.12	The Hardware Intrinsic Security (HIS) initiative .....	59
A.13	Examples of tag provider .....	59

- A.14 Examples of Tamperproof design companies ..... 60
- A.15 Examples of FPGA Die serialisation ..... 60
- A.16 Examples of NOVRAM manufacturers ..... 60
- A.17 SAE G-19 ..... 60
- A.18 iNEMI..... 62
- Annex B (informative) Examples of aftermarket sources ..... 63
  - B.1 Examples of franchised aftermarket sources ..... 63
  - B.2 Examples of sources of franchised die which can be packaged ..... 63
  - B.3 Examples of third party custom packaging houses which provide aftermarket solutions ..... 63
  - B.4 Examples of emulated aftermarket providers..... 63
- Annex C (informative) Typical example of a RECS certificate..... 64
- Annex D (informative) Flowchart of IEC/TS 62668-1 requirements ..... 65
- Bibliography..... 66
  
- Figure 1 – Suspect components perimeter ..... 19
  
- Table 1 – Anti-counterfeit awareness training guidelines..... 16
- Table 2 – IEC/TS 62668-1 requirements waived if OEM has an approved SAE AS5553A plan..... 34

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

**PROCESS MANAGEMENT FOR AVIONICS –  
COUNTERFEIT PREVENTION –**
**Part 1: Avoiding the use of counterfeit, fraudulent  
and recycled electronic components**

## 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 62668-1, 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 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Update of “fraudulent component” definition, addition of “recycled component” and “suspect component” definitions, and updates of the concerned clauses accordingly.
- b) Addition of counterfeit awareness training as a requirement.
- c) Revision to update all references and web links in the annexes.

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

Enquiry draft	Report on voting
107/226/DTS	107/235/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 62668 series, published under the general title *Process management for avionics – Counterfeit prevention*, can be found on the IEC website.

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.

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

## PROCESS MANAGEMENT FOR AVIONICS – COUNTERFEIT PREVENTION –

### Part 1: Avoiding the use of counterfeit, fraudulent and recycled electronic components

#### 1 Scope

This part of IEC 62668, which is a Technical Specification, defines requirements for avoiding the use of counterfeit, recycled and fraudulent components used in the aerospace, defence and high performance (ADHP) industries. It also defines requirements for ADHP industries to maintain their intellectual property (IP) for all of their products and services. The risks associated with purchasing components outside of franchised distributor networks are considered in IEC/TS 62668-2. Although developed for the avionics industry, this specification may be applied by other high performance and high reliability industries at their discretion.

#### 2 Normative references

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

IEC/TS 62239-1, *Process management for avionics – Management plan – Part 1: Preparation and maintenance of an electronic components management plan*

IEC/PAS 62435, *Electronic components – Long-duration storage of electronic components – Guidance for implementation*

IEC/TS 62668-2, *Process management for avionics – Counterfeit prevention – Part 2: Managing electronic components from non-franchised sources*

ISO 9001, *Quality management systems – Requirements*

AS/EN/JISQ 9100, *Quality Management Systems – Requirements for Aviation, Space and Defense Organizations*

AS/EN/JISQ 9110:2003, *Quality Maintenance Systems – Aerospace – Requirements for Maintenance Organizations*

AS/EN/JISQ 9120, *Quality Management Systems – Requirements for Aviation, Space and Defense Distributors*

GEIA-STD-0016, *Standard for Preparing a DMSMS Management Plan*

IDEA-STD-1010B, *Acceptability of electronic components distributed in the open market*

SAE AS5553A *Counterfeit Electronic Parts; Avoidance, Detection, Mitigation and Disposition*

SAE AS6081 *Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation and Disposition – Distributors Verification Criteria*