



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

GB/T 41275.21-2022

**Process management for avionics - Aerospace and defence
electronic systems containing lead-free solder - Part 21:
Guidelines for transition to lead-free electronics**

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3.1 Terms and Definitions

foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 21 of GB/T 41275 "Avionics Process Management for Aerospace and Defense Electronic Systems Containing Lead-Free Solders".

GB/T 41275 has published the following parts.

- Part 2.Reducing the harmful effects of tin;
- Part 3.System performance test methods containing lead-free solder and lead-free pins;
- Part 21.Guidelines for the transition to lead-free electronics.

This document is equivalent to IEC /T S62647-21.2013 "Avionics Process Management Containing Lead-Free Solder Aerospace and Defense Electronics System"

System Part 21.Project Management Lead-Free Electronic Transition Management System Engineering Guidelines, the document type is adjusted from IEC technical specifications to I

country's national standards.

The following minimal editorial changes have been made to this document.

---In order to harmonize with existing standards, the standard name was changed to "Avionics Process Management Containing Lead-Free Solder Aerospace and Defense Electronics System"

System Part 21.Guidelines for Transitioning to Lead-Free Electronics.

Please note that some content of this document may be patented. The issuing agency of

this document assumes no responsibility for identifying patents.

Introduction

GB/T 41275 specifies the management requirements and technical requirements for the realization of lead-free in aerospace, national defense and high-performance electronic systems.

composed of parts.

--- Part 2.Reducing the harmful effects of tin. The purpose is to regulate aerospace, defense and high performance electronic systems to reduce the harmful effects of tin

The technical approach adopted in response.

--- Part 3.Test methods for system performance containing lead-free solder and lead-free pins. The purpose is to specify lead-free solder and lead-free pipes

Performance test methods and test procedures for aerospace, defense, and high-performance electronic systems for feet.

--- Part 21.Guidelines for the transition to lead-free electronics. The purpose is to specify the management or system of the aerospace and defense electronic systems program

A working guide for engineering management to manage the transition to lead-free electronics.

When buyers and suppliers are not carefully coordinated, aerospace, defense and high performance (ADHP) electronics manufacturers can inadvertently

Introduce lead-free elements [including component plating, printed wiring board (PWBs) or printed circuit board (PCB) plating, or assembly solder]. for example,

Component manufacturers will not necessarily change part numbers to identify lead-free plating, especially if the original tin-lead plating has been discontinued.

case. Detailed inspection of parts and documentation is critical when receiving inspection, but may not be sufficient to identify lead-free parts.

Lead-free technology affects any project, whether it is exempt or subject to environmental regulations and is lead-free. lead-free soldering technology

Industrial transformation may affect ADHP programs in one or both of the following ways.

a) If the project needs to implement lead-free technology (contract requirements, environmental regulations, etc.), the project manager/solder system engineer needs to evaluate

The impact of lead-free internal transition on design (product performance using lead-free technology), process (the process of making lead-free products);

b) If the products/systems in the project are purchased off-the-shelf (COTS), it is highly likely that these purchased products contain lead-free solder

components, printed wiring boards (PWBs), printed circuit boards (PCB), or circuit board assemblies (CCAs).

The basic principles described in this document can be used in project management or systems engineering management for any aerospace and high performance project. this document

The appendices in describe the tools that can be used in conjunction with this document.

Appendix A is a matrix of relationships between product tiers and the risks associated with the transition to lead-free.

Appendix B contains links to EU directives referenced in the document.

Appendix C contains a general checklist for project managers dealing with lead-free issues, drawn from the summary of this document.

Appendix D contains a production process evaluation general checklist for assessing supplier compliance with IEC /T S62647-1.

Appendix E is the proposed program language for ensuring the performance, reliability, airworthiness, safety, and certifiability of lead-free products.

This document is formulated in accordance with IEC /T S62647-1 and is used to assist projects to ensure product performance, reliability, airworthiness, safety and availability.

Authentication. It should be noted that project managers, system engineers and their respective organizations and corresponding enterprise institutions need to work together to ensure that they can understand the

All impacts of lead technology introduction, and corresponding risks are mitigated.

In this document, "project management (or manager) or systems engineering management (or manager) or corresponding corporate body" is defined as "project manager".

Project Managers and Systems Engineering Managers (together with their respective organizations), and appropriate corporate bodies, should work together to ensure the introduction of lead-free

All impacts of technology are understood and risks are mitigated accordingly.

Avionics Process Management

Aerospace and Defense Electronic Systems with Lead-Free Solder

Part 21.Guidelines for Transitioning to Lead-Free Electronics

1 Scope

This document specifies the management of the transition of aerospace and defense electronic systems containing lead-free solder at project management or systems engineering management.

requirements to ensure product performance and reliability.

This document is applicable to the aerospace and defense electronic system industries, and other high-performance and high-reliability industries can be used for reference.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

IEC /T S62647-1 Avionics Process Management Aerospace and Defense Electronic Systems Containing Lead-Free Solder Part 1. Lead-Free Control

lead-free solder - Part 1. Preparation for a lead-free control plan)

IEC /T S62647-2 Avionics Process Management Aerospace and Defense Electronic Systems Containing Lead-Free Solders Part 2. Tin Reduction

Note. GB/T 41275.2-2022 Avionics Process Management Aerospace and Defense Electronic Systems Containing Lead-Free Solders Part 2. Reducing the Harmful Effects of Tin

Impact (IEC /T S62647-2:2012, MOD)

3.1 Terms and Definitions

The following terms and definitions apply to this document.

3.1.1

Assemblies

Electronic products that require electrical connections, including soldering of leads or component terminals.

Example. circuit board and connecting wires.

[Source. IEC /T S62647-1:2012, 3.1]