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Aerospace series - Modular and open avionics architectures - Part 004: Packaging

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Aerospace series - Modular and Open Avionics Architectures - Part 004: Packaging

Série aérospatiale - Architectures Avioniques
Modulaires et Ouvertes - Partie 004 : Packaging

Luft- und Raumfahrt - Modulare und offene
Avionikarchitekturen - Teil 004: Paketierung

This European Standard was approved by CEN on 2 December 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 4660-004:2019) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2020, and conflicting national standards shall be withdrawn at the latest by February 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 4660-004:2011.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 4660-004:2019 (E)**Introduction**

The purpose of this MOAA standard is to define a set of open architecture standards, concepts & guidelines for Advanced Avionics Architectures (A3).

The three main goals for the MOAA Standards are:

- reduced life cycle costs;
- improved mission performance;
- improved operational performance.

The MoAA standards are organised as a set of documents including:

- a set of agreed standards that describe, using a top down approach, the Architecture overview to all interfaces required to implement the core within avionics system;
- the guidelines for system implementation through application of the standards.

The document hierarchy is given hereafter: *(in this figure the document is highlighted)*.

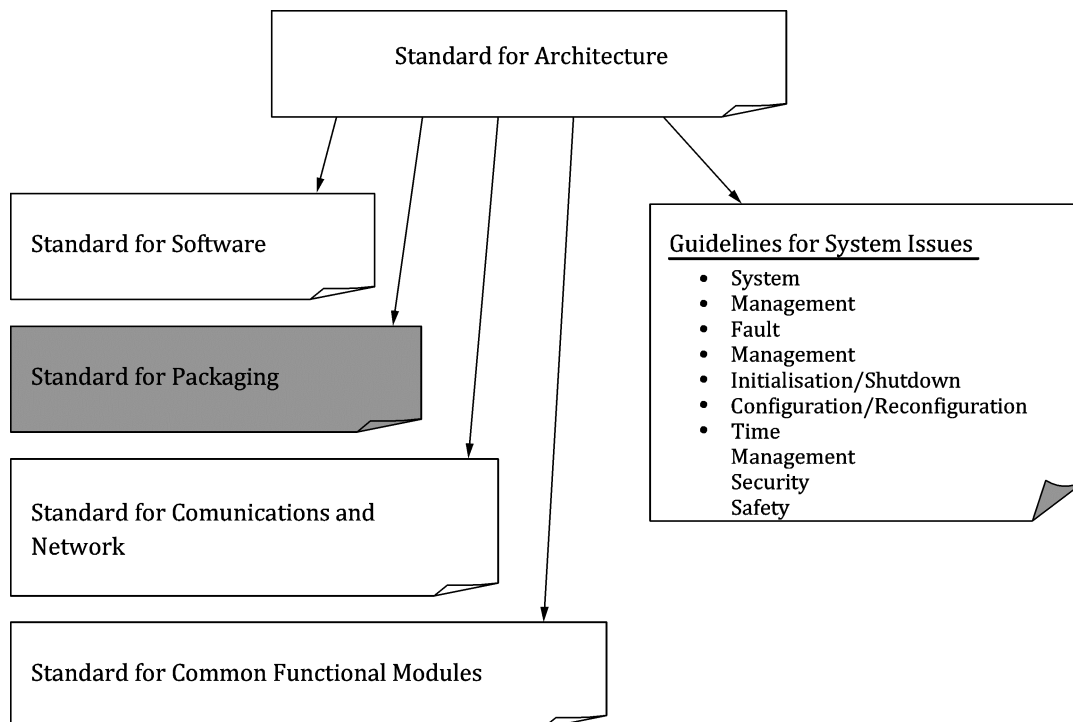


Figure 1 — MOAA Standard Documentation Hierarchy

1 Scope

This European standard establishes uniform requirements for Packaging for the Common Functional Modules (CFM) within an Integrated Modular Avionic (IMA) system. It comprises the module physical properties and the Module Physical Interface (MPI) definitions together with guidelines for IMA rack and the operational environment.

The characteristics addressed by the Packaging Standard are:

Interchangeability:

- For a given cooling method all modules conforming to the packaging standard will function correctly when inserted into any rack slot conforming to the standard for the cooling method.
- All modules conforming to the Module Physical Interface (MPI) definitions for connector, IED and cooling interface will function correctly when inserted into any rack slot conforming to the same MPI definition.

Maintainability:

- All modules are easily removable at first line.
- No special tools required at first line.
- No manual adjustment is necessary when installing modules. No tool is required for installation or removal of the modules.
- Mechanical keying is provided that prevents insertion of a module into a rack slot that may cause an unsafe condition.

The Module Physical Interface definition, contained within this standard, does not include the properties of the signalling used in the optical interface (e. g. wavelength). These are covered in EN 4660-003.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 2101, *Aerospace series — Chromic acid anodizing of aluminium and wrought aluminium alloys*

EN 2284, *Aerospace series — Sulphuric acid anodizing of aluminium and wrought aluminium alloys*

EN 2437, *Aerospace series — Chromate conversion coatings (yellow) for aluminium and aluminium alloys*

EN 4165 (all parts), *Aerospace Series — Connectors, electrical, rectangular, modular — Operating temperature 175 °C continuous*

EN 4660-001, *Aerospace series — Modular and Open Avionics Architectures — Part 001: Architecture*

EN 4660-002, *Aerospace series — Modular and Open Avionics Architectures — Part 002: Common Functional Modules*

EN 4660-004:2019 (E)

EN 4660-003, *Aerospace series — Modular and Open Avionics Architectures — Part 003: Communications/Network*

EN 4660-005, *Aerospace series — Modular and Open Avionics Architectures — Part 005: Software*

ASAAC2-GUI-32450-001-CPG Issue 01, *Final Draft of Guidelines for System Issues*¹

— *Volume 1 — System Management.*

— *Volume 2 — Fault Management.*

— *Volume 3 — Initialisation and Shutdown.*

— *Volume 4 — Configuration / Reconfiguration.*

— *Volume 5 — Time Management.*

— *Volume 6 — Security.*

— *Volume 7 — Safety.*

ARINC 600, *Air transport avionics — Equipment interfaces*²

ARINC 650, *Integrated Modular Avionics Packaging and Interfaces*²

ARINC 836, *Cabin Standard Enclosures — Modular Rack Principle (MRP)*²

VITA 46, *VPX: Baseline*³

Def Stan 03-18, *Chromate Conversion Coatings (Chromate Filming Treatments) Grades: Standard and Brushing for Aluminium and Aluminium Alloys*⁴

Def Stan 03-24, *Chromic Acid Anodizing of Aluminium and Aluminium Alloys*⁴

Def Stan 03-25, *Sulphuric Acid Anodizing of Aluminium and Aluminium Alloy*⁴

BS 5599, *Specification for hard anodic oxidation coatings on aluminium and its alloys for engineering purposes*⁵

MIL-C-26074E, *Coatings, Electroless Nickel Requirements*⁶

MIL-A-8625E, *Anodic Coatings for Aluminium and Aluminium Alloys*⁶

MIL-C-81706, *Chemical Conversion Materials for Coating Aluminium and Aluminium Alloys*⁶

MIL-C-5541, *Chemical Conversion Coatings on Aluminium and Aluminium Alloys*⁶

1 In preparation at the date of publication of this European standard.

2 Published by: ARINC, www.aviation-ia.com/product-categories.

3 Published by: VMEbus International Trade Association (VITA), www.vita.com/Standards.

4 Published by: UK Ministry of Defence, www.dstan.mod.uk.

5 Published by: British Standards Institution (BSI), www.bsigroup.com.

6 Published by: DoD National (US) Mil. Department of Defense <http://www.defenselink.mil/>.

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