



ICS:

Descriptors:

ENGLISH VERSION

**Aerospace series
LOTAR
L ong Term Archiving and Retrieval of digital technical product
documentation such as 3D, CAD and PDM data
Part 115: Explicit CAD assembly structure**

**Série aérospatiale
LOTAR**

**Archivage Long Terme et récupération
des données techniques produits numériques,
telles que CAD 3D et PDM
Partie 115 : Structure d'assemblage CAO explicite**

**Luft- und Raumfahrt
LOTAR**

**Langzeitarchivierung und Bereitstellung
digitaler technischer Produktdokumentationen,
beispielsweise 3D CAD und PDM Daten
Teil 115: Explizite CAD-Baugruppenstrukturen**

This "Aerospace Series" Prestandard has been drawn up under the responsibility of ASD-STAN (The AeroSpace and Defence Industries Association of Europe - Standardization). It is published for the needs of the European Aerospace Industry. It has been technically approved by the experts of the concerned Domain following member comments.

Subsequent to the publication of this Prestandard, the technical content shall not be changed to an extent that interchangeability is affected, physically or functionally, without re-identification of the standard.

After examination and review by users and formal agreement of ASD-STAN, it will be submitted as a draft European Standard (prEN) to CEN (European Committee for Standardization) for formal vote and transformation to full European Standard (EN).

The CEN national members have then to implement the EN at national level by giving the EN the status of a national standard and by withdrawing any national standards conflicting with the EN.

Edition approved for publication

30 April 2012

Comments should be sent within six months
after the date of publication to
ASD-STAN

**Engineering Procedures and
Processes Domain**

Contents

Page

Foreword	2
1 Scope	5
2 Normative references	6
3 Applicability	6
4 Business specifications for the long term archiving and retrieval of the explicit CAD assembly structure.....	7
4.1 Use cases	7
4.1.1 UC1: Full archiving.....	7
4.1.2 UC2: Bottom up and incremental archiving	7
5 Essential information for explicit CAD assembly structure.....	7
6 Definition of Core Model for an explicit CAD assembly structure	9
6.1 Core model STEP AIM level.....	9
7 Verification rules of CAD explicit assembly structure	11
7.1 Rules description	11
7.1.1 Unique CAD assembly structure	11
7.1.2 No orphans.....	11
7.1.3 Acyclic assembly structure	11
7.1.4 Content of the assembly occurrences	12
7.1.5 3D explicit positioning of assemblies and parts.....	12
7.1.6 Identification of parts and assemblies	12
7.2 Definition of verification level for EN 9300-115	12
8 Validation rules of an explicit CAD assembly structure.....	13
8.1 The Purpose of Validation Properties	13
8.2 Validation properties.....	14
8.2.1 Geometric validation properties for assembly structure	14
8.2.2 Assembly Validation Properties	14
8.3 Definition of validation level for EN 9300-115.....	15
8.3.1 Validation level at the ingest	15
8.3.2 Validation level at retrieval	16
Annex A (informative) Recommended archiving scenarios	17
A.1 UC1 Full archiving	17
A.2 UC2 Bottom up / incremental archiving	18

Figures

Page

Figure 1 — Assembly structure and geometric model.....	5
Figure 2 — Example of the scope of the Part 115.....	5
Figure 3 — Archiving overview of the submission information package	7
Figure 4 — Bottom up archiving of the assembly structure.....	7
Figure 5 — Main essential objects of the assembly file to be preserved	9

Figure 6 — Illustration of a quality issue: a file containing multiple assembly structures.....11

Figure 7 — Illustration of a quality issue: a file containing an orphan node.....11

Figure 8 — Illustration of a quality issue: a file containing a cyclic structure.....11

Figure 9 — Illustration of a quality issue: a file containing assembly occurrences with different content12

Figure 10 — Illustration of a quality issue: a file containing assembly occurrences with positioning issue12

Figure 11 — Validation properties along the archiving process13

Figure 12 — Illustration of the geometric validation properties for assembly structure14

Figure 13 — Illustration of the assembly validation property.....14

Figure A.1 — Overview of the full archiving scenarios17

Figure A.2 — Overview of the incremental archiving scenarios18