

LOTAR International Project Report for 2020

LOTAR is a project managed under the AIA, ASD-Stan, AFNeT, PDES, Inc. and prostep ivip consortiums. The project goal is to develop, implement, test, pilot, publish and maintain standards designed to provide the capability to archive and retrieve digital product and technical information, including CAD, PDM, Composites, Electrical Harness, MBSE, and CAE. The data defined for archival and retrieval shall be in a standard form that can be read and reused throughout the product lifecycle, independent of changes to the IT environment originally used. The multi-part standard covers the information content as well as the processes required to ingest, store, administer, manage, and access the information. It is published as EN/NAS-9300.

Milestones 2020

Project Management

- Raytheon Technologies joined as a new LOTAR member on the Americas side
- Successful transition of all LOTAR workshops to online meetings to secure project progress despite COVID-19 restrictions

Basic & Common Process Parts (0xx)

- Provided a final draft for ballot of updated part 001 and continued work on parts 002, 003, 005
- Agreement on new way of working for part 007 update
- Agreement on the new structure for Basic & Common Process parts

3D Mechanical CAD w/ PMI (1xx)

- Worked on part 132 covering Structural Joins for Assembly & Installation
- Focused on the development of Recommended Practices for Holes & Fasteners in STEP AP242
- Launched a pilot for 'hole in a part' to validate the related STEP AP242 Edition 2 data model

PDM (2xx)

- Continued to evolve the PDM-IF "as-designed / as-planned" use case with the PDM-IF
- Worked with the PDM-IF to develop requirements around Effectivity within Part 210
- Began working with MBSE and other workgroups to integrate requirements across domains

Composites (3xx)

- Continued work on Part 300 Ed.1 "Fundamentals & Concepts of LTA Composite Design"
- Also worked on the relevant corrections of STEP AP242 Ed.2, such as multiple rosettes in a ply group
- Updated two Recommended Practices documents, which support both LOTAR and AP242 Ed2

Electrical (4xx)

- Contributed to public tests cases of the EWIS Interoperability Forum (EWIS-IF)
- Conducted pilots to illustrate the capability of STEP AP242 Ed.2 to support the associativity between harness topology and associated geometry models
- Updated the roadmap of LOTAR Electrical Harness parts, based on ISO AP242 and EWIS-IF roadmaps

MBSE (5xx)

- Continued the development of the documentation for Parts 500 and 520
- Initiated a Part 520 use case that will archive an FMU model along with a manifest of associated information mapped to AP243 (MoSSEC) format)

Outlook 2021

Project Management

- On the European side, Leonardo will join as a new LOTAR member while SAFRAN will temporarily leave the project due to COVID-19
- Will transition to a mix of physical and online meetings

Basic & Common Process Parts (0xx)

- Release of part 001 and finalize drafts of parts 002, 003 and 005 while start working on the next batch of part updates to be done
- Increase alignment with PDM WG for metadata
- 1st round of updates for part 007 “Terms and References” in new way of working (webpage glossary)
- Update of LOTAR webpage for Basic & Common Process parts

3D Mechanical CAD w/ PMI (1xx)

- The 3D Mechanical CAD WG will continue the pilots to deliver the part 132 Structural joins for assembly & installation.

PDM (2xx)

- The PDM team will complete the work on Parts 210 and 230 regarding Effectivity and prepare the documents for ballot as full LOTAR Parts.
- Work with OAIS and other LOTAR domain working groups on the evolution of the interoperability framework and how it relates to functional architecture and meta-data.

Composites (3xx)

- The Composite WG will submit the LOTAR parts for composite design based on validated recommended practices.
- The WG will start to work on the manufacturing of composite.

Electrical (4xx)

- Preparation of the LOTAR Parts 400 “Fundamental and concepts” and 410 “LT Archiving and retrieval of Electrical Wiring Harness for design & construction”.
- Preparation of new LOTAR AP242 ed2 Electrical pilots, including implementation of new validation properties for end to end quality control.
- Contributions to the 2021 EWIS IF User Group priorities with the preparation of new use cases and test cases, inputs for next EWIS IF Implementer Group Test Rounds.

MBSE (5xx)

- Release documentation for Parts 500 and 520
- Initiate MBSE Implementers Forum, or equivalent, based on outcomes of 2020 use case

Participants

Europe: AFNeT, Airbus, Airbus Defence & Space, Airbus Helicopter, SAFRAN

Americas: Boeing, Embraer, GE, Gulfstream, Lockheed Martin, Raytheon Technologies, Sandia National Laboratories

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