

## Summary of the LOTAR International Workshop

### December 6<sup>th</sup> to 6<sup>th</sup>, 2016 – Darmstadt, Germany

23 on-site participants plus an additional 5 persons via teleconference. Parallel meeting with the CAx Implementor Forum.

#### Project Management

- Preparation of the 2016 LOTAR annual report, to be published in the LOTAR web site.
- Preparation of a joined conference call in Q1 2017 for the purpose of LOTAR project status report with the American and European sponsoring associations (AIA and PDES, Inc., ASD, and ProSTEP iViP),
- Preparation of launch by AIA and ASD Stan of three joined ballots in January 2017: part 007 Ed.3 “Terms and References”, part 020 “Governance and Preservation Planning”, and part 120 Ed.2 “CAD 3D Explicit Geometry with Presentation of Product and Manufacturing Information”.
- Consolidation of the 2017 LOTAR International project and budget plan, and formal approval by the present LOTAR members.
- Preparation of a conference call in Feb. 2017 (target) with AIA – ASD to propose a joint workshop in Sept. 2017 for the “governance and road mapping of the product information interoperability standards used by the American and European A&D industries”.
- Summary of [STEP AP239 Ed3 Nov. meeting](#). The meeting has allowed to clarify the budget plan for 2017, and to adjust the project scope and schedule. Target to deliver the Committee Draft in in Q3 2017. Start of discussion on the activity model and conceptual model. Preparation of contracts to support the final harmonization for PDM/CM and Requirement, Validation & Verification between AP239 ed3 and AP242 ed2. Joined meeting with the STEP new architecture WG for common SysML modelling guidelines shared with other STEP standards. Planned meeting on the 8<sup>th</sup> – 10<sup>th</sup> of March 2017, before the PDES Inc offsite.
- Status of the [STEP AP 242 ed2 project](#). Presentation of the status of progress of the different WGs. Target to finalize the DIS documentation beginning of Q3 2017, sending for ballot to ISO end of Sept. 2017. Contribution of the AP242 ed2 project to the proof of concept on the “STEP New Architecture”, based on the use of SysML; ongoing actions to define the collaborative methods of development on the web of STEP standards based on SysML. During the preparation of pilots for “additive manufacturing part and build information”, identification of the need of update of the AIM (Application Interpreted Model).
- Overview of the A&D PLM Action Group activities related to LTA standards: summary of the objectives, membership rules and current members list, 2016 goals and priorities. Specific focus on the recommendations for long term archiving standards. LOTAR proposals of common actions with the A&D PLM Action Group.
- Summary of the [CAx Implementer Forum](#): review of the “in progress” recommended practices; summary of the upcoming test round (next 4 months), focused on: - Semantic 3D PMI associated with graphic presentation, - composite plies definition (explicit surfaces), - alternative part shape (sheet metal use case, and tessellated shape with several LODs), - and recommended practices for AP242 BO model XML assembly structure.
- Status of [PDM Implementer Forum](#). Presentation of the 2017 project plan, with focus on exchange of user defined attributes, explicit configured product structures, and generic method to exchange parametrised / customized PDM information. Overview of the STEP AP242 XML Recommended Practices published or in development.
- Follow up of standards in development of interest for LOTAR: overview of the Seattle Oct. demo on 3D MB Manufacturing, based on STEP AP238 e2 – STEP-NC, QIF V2, and MTConnect, to support 3D NC machining and link with 3D inspection. Invitation to contributions to the AP209 ed3 project by EPM Jotne and Lockheed Martin: summary of the proposed AP209 ed. 3 scope, plan to prepare the ISO “New Work Item” (May 2017). Planned start of conference calls in January 2017 to finalize the AP209 ed3 white paper including the project plan.
- Next LOTAR workshop: 13<sup>th</sup> – 15<sup>th</sup> of March 2017, Gaithersburg (MD), USA, hosted by PDES Inc.

## **WG “LOTAR of CAD mechanical and PMI” (Parts 1XX):**

- Discussion concerning testing on the 3D geometry with Curved Triangles based on STEP AP242 ed2, to be included in part 110 edition3.
- Discussed creating an edition 2 of Part 115 “Assembly structure”. This will require a significant effort which will begin June 2017. It will take into account the new edition of STEP P21 edition 3, which provides more functionalities.
- There was a proposal to acquire more Assembly PMI test cases for Part 125. NIST is working on a large assembly test case that may be available for use. Reviewed and edited Part 125 Assembly PMI.
- The team had a discussion on the Holes and Fastener/Joint definition during the meeting. The workgroup is going to create a test model for the interim until the NIST model is available.
- Joint session with the CAX-IF, where the following topics were discussed: Equivalence Validation, Digital Twin from Design to Manufacturing, and Quality control.

## **WG “LOTAR of PDM information” (Part 2XX):**

- No meeting; waiting for the results of the PDM harmonization between AP242 E2 and AP239 E3.

## **WG “LOTAR of Composite design” (Part 3XX):**

- Short meeting held on Wednesday, December 7th.
- The team worked on the LOTAR part 300 “fundamental and concepts” and part 310 “advanced composite structure”; target to send for ballot part 300 and 310 end of 2017.
- EPM Jotne presented status on the XML AP242 recommended Practice for composite design.
- Reviewed composite requirements to the CAX-IF. Need to update the Recommended Practices for Validation Properties (Flattened body and core samples).

## **WG “LOTAR of Electrical Harness” (Part 4XX)**

- Joined meeting with the AP242 ed2 electrical harness team; continuation of comments resolution raised during the AP242 ed2 CD ballot; review of potential extensions and enhancements for AP242 e2 DIS.
- Review of the content of AP242 ed2 pre-DIS to cover the essential information requested by the LOTAR Elec. Harness WG. Identification of request of enhancements in the AP242 ed2 Electrical Harness tutorial, to be used as input for the future CAX-IF “Electrical harness” recommended practices.
- Review of the status of progress of the LOTAR AP242 ed2 CD Elec. Harness pilots of CT CoreTechnologie (CATIA V5 - AP242 ed2 interface) and Datakit (NX - AP242 ed2 interface). Action to preparation a public test case in NX, similar to the CATIA V5 test case.
- Preparation of the next actions for Q1 2017: organization of a conference call with electrical software vendors and preparation of start of the CAX-IF “Electrical” WG in Q4 2017.

## **WG “LOTAR of Engineering Analysis and Simulation” (Part 6XX)**

- Updated the timing and objective of the 2nd invitation for a presentation of LOTAR EAS activities to CAE vendors and service providers
- Refined the scope of the current pilot with the involved parties.
- Delivered to the vendors involved in the pilot an overview of STEP AP209 standard and related documents and an insight on Nastran bulk data format.
- Reviewed with Bob Lipman the testing capabilities of STEP File Analyzer for the needs of the pilot study and CAE IF (FEA inputs and results).
- Proposed scope and planning for a 2nd LOTAR EAS pilot (FEA results, starting Q3 2017)
- Reviewed and commented the STEP AP209 ed3 scope proposal