

CAx-IF CAD Round 41J Review / CAE Round 2S Kick-Off Summary

The CAx-IF completed its 41st round of CAD testing at its meeting March 12-15, 2018 in Asheville, NC, USA. Highlights from the meeting include:

- Successfully migrated to AP242 Technical Corrigendum Schema for the Business Object (BO) Model XML
- Received first STEP file for new Composites capabilities
- Received first STEP file for Kinematics
- Joint Meetings with several other teams
 - LOTAR Product and Manufacturing Information (PMI)
 - LOTAR Engineering Analysis and Simulation (EAS)
 - AP242 Edition 2 Manufacturing Module Workshop
- Widespread Technical Discussions
 - Getting ready to test AP242 Edition 2 Draft International Standard next Round

Regarding the results of Round 41J testing:

- AP242 Business Object Model XML assembly structure was successfully tested both within the CAx-IF and also in conjunction with the PDM-IF. All issues encountered were relatively minor.
- Alternative Part Shapes was tested using the sheet metal test case (folded and flat shapes in the same file). Test results were great, and no re-test of this scenario will be done in the next round of testing.
- Composites were tested using an extended AP242 Edition 1 schema. The immediate challenge is to achieve broader participation.
- Kinematic Motion and Mechanism was tested using AP242 XML schema. As with composites, the immediate challenge is to get broader participation.
- The testing of Semantic PMI Representation is certainly a work in progress with mixed results. Numerous updates to the Recommended Practices for this functionality are in the works.

For the upcoming Round 42J of CAD testing, the following functionality is currently in scope:

- Semantic PMI Representation using AP242 Edition 2 DIS with emphasis on Semantic PMI Validation Properties and editable PMI text strings
- PMI Tessellated Presentation focusing on Saved Views, element visibility, and cross-highlighting
- AP 242 Business Object Model XML Kinematics using “Kinematic Motion” approach
- Alternative Part Shapes
- AP 242 Business Object Model Assembly Structure including User Defined Attributes and Assembly Validation Properties
- Composites

The CAE-IF kicked off its second test round (Round 2S), which will mainly focus on translation of CAE output data:

- Nodal displacement and rotation
- Strain and stress tensor field
- 1D- and 2D-element internal forces
- Boundary condition constraint loads
- Grid point loads

The same 4 simple models presented in Round 1S will be re-used for this purpose, and the technical review is scheduled during the CAE-IF/LOTAR meeting in Toulouse, next June. In the meantime, review of the LOTAR EAS WG pilot study #2 has been presented and a proposal for FEA validation properties has been considered.