

Software Metrics Working Group

Standardization of Avionics Software Performance and Reliability Metrics

January 17, 2017



Together "We set the standard."

Paul J. Prisaznuk AEEC Executive Secretary and Program Director

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AEEC Software Metrics Working Group

- Software Metrics Working Group of the SAI Subcommittee
 - Chairman: Reinhard Andreae, Lufthansa: Reinhard.Andreae@dlh.de
 - APIM 16-001 calls for the development of software reliability metrics that will improve the performance of avionics software, i.e., software equivalent of MTBF or MTBUR.
- Goal: Define measurable parameters that can be used to improve the reliability and overall performance of avionics systems.
 - Software type inclusive, e.g., software used in Aircraft Control (AC), Airline Information Systems (AIS) and Passenger Information and Entertainment Systems (PIES) domains.
- Subscribe to SAI mail list:
 - http://mailman.sae-itc.org/mailman/listinfo
- ARINC: Paul Prisaznuk: pjp@sae-itc.org

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- Phased approach as follows:
- Phase 1: "Define the Problem Space" -- December 2017
 - Investigate categories of software failures to monitor, define potential software quality metrics, and agree to the scope of the proposed standard.
 - Phase 1 will identify the proposed metrics and provide recommendations as to how they might be captured.
 - APIM 16-001 will be updated at the end of Phase 1 status report provided to AEEC Executive Committee
- Phase 2: Prepare the ARINC Standard

Organization and Meeting Plan

Product/Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
Phase 1 kickoff / work plan	Three 2-day meetings	6	Jan 2017	Dec 2017
Phase 2 (TBD) as determined by Phase 1	TBD			

Next web conference: Tues, March 7 First in-person meeting: 3 days Frankfurt, Germany - hosted by Lufthansa March 14-16, 2017

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- Briefings for today:
 - <u>Boeing Launa Molsberry</u>
 - Etihad Marc-Christian Reichle
 - GE Aviation Matt Rossmiller
 - Honeywell Tom Snider and Amy Rahr
 - Rockwell-Collins Johnson Wang and Richard Hackett
 - Others TBA

ARINC point of contact ...

Paul J. Prisaznuk

Executive Secretary & Program Director Airlines Electronic Engineering Committee (AEEC) ARINC Industry Activities

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Thank You

Subscribe to SAI mail list: http://mailman.sae-itc.org/mailman/listinfo

Backup Slides

Industry Editors and the AEEC Consensus Process

- Industry Editors are an important extension of the ARINC Industry Activities staff.
 Drafts are prepared using established guidelines that ensure due process.
- You are encouraged to support your Industry Editors by providing timely inputs, participating in web conferences, etc.
- In return the Industry Editors provide material for review that reflects the consensus of industry.
- > These drafts are *subject to review* by the Subcommittee and/or Working Group.



AEEC | AMC 2017

May 1-4, 2017 Milwaukee Convention Center Hilton Hotel



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AEEC Executive Committee

Chairman – James McLeroy, UPS Executive Secretary, Paul Prisaznuk

Data Link Users Forum

Co-Chairman – Colin Gallant, BAW Co-Chairman – Brian Gleason, SWA

Data Link Systems

Chairman – Bob Slaughter, AAL

Internet Protocol Suite (IPS) for Aeronautical Safety Services

Co-Chairman – Luc Emberger. Airbus Co-Chairman – Greg Saccone, Boeing

> AGCS - Air/Ground Communication Systems

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AeroMACS Chairman – Tom McGuffin, Honeywell

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Flight Management Computer System (FMS) Chairman - Mike Bakker - GE Aviation

Navigation Data Base (NDB) Chairman – Chuong Phung, FedEx

Aeronautical Data Bases (ADB) Chairman – Brian Gilbert, Boeing

Cockpit Display Systems (CDS) Chairman – Chad Weldon, Rockwell Collins

Application/Executive (APEX) Software

Co-Chairman – Gordon Putsche, Boeing Co-Chairman – Pierre Gabrilot, Airbus

GNSS

Chairman – Julien Sanscartier, CMC

CANbus Chairman – Tom Joseph, GE Aviation Electronic Flight Bag Users Forum Co-Chairman – Phillip Haller, AUS Co-Chairman – Will Ware, SWA

Electronic Flight Bag (EFB)

Co-Chairman – Sonja Schellenberg, DLH Co-Chairman – Maurice Ingle, AAL

AOC Messaging

Chairman - Dirk Zschunke, DLH

Network Infrastructure and Security (NIS) Chairman – Steve Arentz, UAL

> Fiber Optics (FOS) Chairman – Robert Nye, Boeing

Software Distribution and Loading (SDL) Co-Chairman – Rod Gates, AAL Co-Chairman – Ted Patmore, DAL

Software Metrics

Chairman – Reinhard Andreae, DLH

Cabin Systems

Chairman – Dale Freeman, DAL Gerald Lui-Kwan, Boeing Rolf Goedecke, Airbus

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12 Projects Approved - AEEC Mid-Term Session

- 1. APIM 16-001 New ARINC 6xx, Standardization of Avionics Software Performance and Reliability Metrics
- 2. APIM 16-009 ARINC 653, Application Software Standard Interface
- 3. APIM 16-010 ARINC 620, Datalink Ground System Standard and Interface
- 4. APIM 16-011 New ARINC 8xx, Next Generation Cabin Data Bus (ARINC 485 replacement)
- 5. APIM 16-013 ARINC 743, GNSS Sensor, GNSS Landing System Sensor Unit (GLSSU) and ARINC 755 MMR
- 6. APIM 16-014 New ARINC 8xx, Broadband Network Interface for non-Safety Services
- 7. APIM 16-015 New ARINC 8xx, eEnabled Aircraft Ground System for Managing and Distributing Software Parts
- 8. APIM 16-007A ARINC 622, ATS Data Link Applications over ACARS ATS Winds for Advanced Interval Management
- 9. APIM 13-014B ARINC 800, Cabin System Connectors and Cables
- 10. APIM 12-004C ARINC 664, Fiber Optic 10 GbE Cabling and Connectors for Cabin
- 11. APIM 08-011B New ARINC 836A, Cabin Standard Enclosures
- 12. APIM 10-013B ARINC 631, VDL-2 Implementation Provisions

NOTE: This list yields 16 additional ARINC Standards in work (43 + 16 = 59)

Thank You

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