



**To** AEEC Members, Corporate Sponsors and Guests

**Date** March 24, 2017

**From** Paul J. Prisaznik  
AEEC Executive Secretary

**Reference** 17-037/AGS-185 lth

**Subject** AEEC General Session

**Host**

**When** May 1-4, 2017

**Where** Wisconsin Center  
Hilton Milwaukee, Wisconsin



## MEETING AGENDA

### AEEC General Session & AMC – Milwaukee 2017

The AEEC | AMC Opening Session will convene in the Wisconsin Center Ballroom C at 0830 Monday.  
The AEEC General Session will reconvene in the Wisconsin Center Ballroom B at 1330 Monday.

Time	Monday May 1	Tuesday May 2	Wednesday May 3	Thursday May 4
0830	<b>1. OPENING SESSION</b> <ul style="list-style-type: none"> <li>Welcome/Introductions</li> <li>Keynote Address</li> <li>Awards</li> </ul>	<b>5. DATA COMM</b> <ul style="list-style-type: none"> <li>5a. DataLink Users Forum</li> <li>5b. DataLink, AOC</li> <li>5c. Air/Ground Comm &amp; Satcom</li> </ul>	<b>9. SYSTEMS &amp; ARCHITECTURES</b> <ul style="list-style-type: none"> <li>9a. SAI Subcommittee</li> <li>9b. Surveillance, ADS-B</li> <li>9c. GNSS Evolution</li> </ul>	<b>AEEC Advisory Session</b> <i>AEEC ExCom Members only</i>
1010	Break	Break	Break	Break
1030	<b>2. JOINT SYMPOSIUM</b>  <b>GLOBAL AIRCRAFT TRACKING</b>	<b>6. SYMPOSIUM</b>  <b>COMMUNICATION SYSTEMS</b>	<b>10. SYMPOSIUM</b>  <b>WIRELESS AIRPLANE DATA NETWORKS</b>	<b>AEEC Advisory Session</b> <i>AEEC ExCom Members only</i>
1200	<i>Lunch – provided by AAI</i>			
1330	<b>3. CABIN SYSTEMS</b> <ul style="list-style-type: none"> <li>3a. Ku/Ka-Band Satcom</li> <li>3b. Cabin Systems</li> <li>3c. Galley Interfaces</li> <li>3d. CANbus</li> </ul>	<b>7. DATA COMM &amp; FMS</b> <ul style="list-style-type: none"> <li>7a. IPS Aero</li> <li>7b. AeroMACS</li> <li>7c. Flight Management</li> <li>7d. Navigation Database</li> <li>7e. Aeronautical Databases</li> </ul>	<b>11. SPECIAL TOPICS</b> <ul style="list-style-type: none"> <li>11a. Software Distribution</li> <li>11b. Fiber Optics</li> <li>11c. APEX Software</li> <li>11d. Cockpit Displays</li> </ul>	<b>Adjourn</b>
1500	Break	Break	Break	
1520	<b>4. SYMPOSIUM</b>  <b>TOPICS TRENDING IN AVIATION</b>	<b>8. EFB &amp; NETWORKS</b> <ul style="list-style-type: none"> <li>8a. EFB Users Forum</li> <li>8b. EFB Subcommittee</li> <li>8c. NIS Subcommittee</li> </ul>	<b>12. SPECIAL TOPICS</b> <ul style="list-style-type: none"> <li>12a. Software Metrics</li> <li>12b. ARINC 600 Racking</li> <li>12c. Other topics TBD</li> </ul>	
1800 2300	<b>Hospitality Suites Open</b> <b>Tuesday – AAI Reception - 6pm to 9pm</b>			

AEEC | AMC takes great pride in giving back to the community. **The American Cancer Society** has been selected as the charity for this event. Please donate generously to this worthy cause.

# AEEC EXECUTIVE COMMITTEE

	<p>James McLeroy Chairman</p>		<p>Robert Swanson</p>
	<p>Piet van den Berg</p>		<p>Jürgen Lauterbach</p>
	<p>John Melvin</p>		<p>Brian Gleason</p>
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	<p>Mike Nebylowitsch</p>		<p>Rich Stillwell Chairman-Elect</p>
	<p>Jim Lord</p>		<p>David Setser</p>
	<p>Jean-Francois Saint-Etienne</p>		<p>Jessie Turner</p>
<p><b>Paul J. Prisaznuk – AEEC Executive Secretary &amp; Program Director</b></p>			

## WELCOME TO MILWAUKEE

On behalf of ARINC Industry Activities and SAE Industry Technologies Consortia (ITC) Program, the AEEC Executive Committee, and our host, Carlisle Interconnect Technologies, it is my great pleasure to welcome you to Milwaukee.

Whether you favor the arts, a great culinary feast, motor sports, or an ice-cold brew in the shade, there is something for everyone in Milwaukee.

This week, we recognize and honor our host Carlisle Interconnect Technologies. From its earliest roots as Tensolite, Carlisle has grown to be one of the world's leading designers and manufacturers of high-performance wire and RF cable, optical fiber, contacts, specialty connectors, avionics trays, and other aerospace interconnect components. Carlisle products are found in nearly every system on the aircraft including:

- *Automatic Dependent Surveillance Broadcast (ADS-B)*
- *Connected Cockpit and Electronic Flight Bag (EFB)*
- *Global Positioning System/Multi-Mode Receiver (GPS/MMR)*
- *In-Flight Entertainment (IFE) and Satcom Connectivity*
- *Traffic Alert & Collision Avoidance System (TCAS)*

From its corporate headquarters in St. Augustine, Florida, Carlisle has grown both organically and through the acquisition of specialty connector and cable providers. Here in Milwaukee you might recognize the name, Electronic Cable Specialists (ECS) among the prized acquisitions of Carlisle. ECS became part of the Carlisle family in 2009.

This week's AEEC General Session includes four great symposiums that you won't want to miss:

- *Global Aircraft Tracking*
- *Communication Systems*
- *Wireless Airplane Data Networks*
- *Topics Trending in Aviation*

The AEEC provides a collaborative environment for preparing the ARINC Standards. In the end, the AEEC provides a product that no single organization could deliver on its own. For 68 years, this is the AEEC.



Paul J. Prisaznik  
AEEC Executive Secretary & Program Director  
ARINC Industry Activities



# AEEC GENERAL SESSION 2017



## Your Badge and Registration

Welcome to Milwaukee. The AEEC | AMC registration desk is open from 2:00pm to 7:00pm on Sunday. It is also open 7:45am to 4:00pm on Monday, Tuesday, and Wednesday. If you have pre-registered for the meeting, a name tag will be ready for you. Please be prepared to provide a business card to our registration staff. This will complete the registration process.

An advance copy of the pre-registration list is available at:

<http://www.aviation-ia.com/AeecAmc/index.html>

## Sunday Welcome Reception

Join us for a Welcome Reception in the Monarch Lounge at the Hilton Milwaukee on Sunday, April 30 from 5:00pm to 7:00pm. Attendees and guests are invited to attend.

## Meeting Materials

This agenda and working papers for the meeting are available at: [http://www.aviation-ia.com/aeec/general\\_session/index.html](http://www.aviation-ia.com/aeec/general_session/index.html) two weeks before the meeting.

You are invited to download the documents that you might want to refer to during the meeting. Hardcopies of meeting materials will not be available at the meeting.

## Speak to the Issues

All attendees are invited to participate in the discussion on the floor. Your input will help clarify the issue at hand and assist the AEEC Executive Committee members in their decision making.

When you wish to speak to an issue, please move to one of the floor microphones. When you are recognized, please state your name and affiliation for the record, then proceed with your remarks. Please be aware that your comments are being recorded.

If you cannot hear someone who is speaking, use the standard “speak louder” signal, i.e., raise your hand and move it in a small horizontal circle.

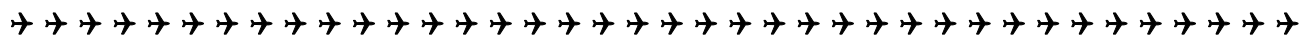
Smart phone users, please set your phone to silent operation when you are in the meeting room. Side conversations should be conducted outside the meeting room, so not to disturb the discussion in progress. Photography of presentation material is not permitted.

## AAI Reception – Tuesday Evening

The Airline Avionics Institute (AAI) cordially invites airline representatives, AAI members, and their guests to the AAI Reception to be held **Tuesday, May 2 starting at 6:00pm.**

Mr. Ray Frelk, AAI Business Manager  
PO Box 320345  
Franklin, Wisconsin 53132  
1-941-313-0471 (mobile)  
Email: [ray@airlineavionics.org](mailto:ray@airlineavionics.org)  
AAI website: [www.airlineavionics.org](http://www.airlineavionics.org)

## AEEC GENERAL SESSION 2017



### Milwaukee Guest Program – Sponsored by CarlisleIT

#### Milwaukee Sightseeing

Carlisle Interconnect Technologies has organized a very special event for spouses and guests of the AEEC General Session and Avionics Maintenance Conference. Space is limited.

- **Tuesday, May 2 – Edelweiss Lunch Cruise and Milwaukee City Tour – 10:15 Hilton Hotel Lobby**

For more information:

[http://www.aviation-ia.com/cf/Aeec\\_Amc\\_guest.cfm](http://www.aviation-ia.com/cf/Aeec_Amc_guest.cfm)

### Charity

The AEEC | AMC takes great pride in giving back to the community. **The American Cancer Society** has been selected as the charity for this event. Please consider how fortunate you are to be participating in this conference and, as the basket is passed, please give generously to this worthy cause.

### ARINC Industry Activities Membership

Your membership fees are used to fund the majority portion of the ARINC Standards activities. Airlines that are not yet members of ARINC Industry Activities are invited to join. Your membership enables the AEEC to prepare standards that benefit aviation at large.

For more information:

<http://www.aviation-ia.com/MembershipAndSponsor/index.html>

### ARINC Industry Activities Corporate Sponsorship

Is your organization a Corporate Sponsor? A list of Corporate Sponsors is available at the registration desk and on the ARINC Industry Activities website. If your organization has not signed-up to be an ARINC Corporate Sponsor, we invite you to do so.

Corporate Sponsorship enables you to fully participate in AEEC standards development activities, attend the AEEC/AMC conference for free, and gain access to ARINC Standards and many other valuable products. For more information:

<http://www.aviation-ia.com/MembershipAndSponsor/index.html>

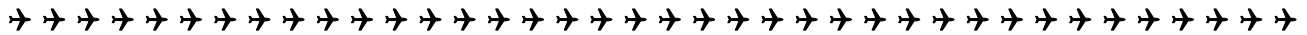
### Doing Business at the AEEC | AMC

Everyone knows the AEEC General Session is an excellent place to meet valuable contacts and to conduct business. There are many opportunities for marketing presentations outside of the ballroom. Marketing and sales pitches inside the meeting rooms are prohibited.

### The AEEC General Session Meeting Report

The AEEC General Session report will be available to our Members and Corporate Sponsors approximately four weeks after the meeting. Others may purchase the AEEC General Session report for a nominal fee.

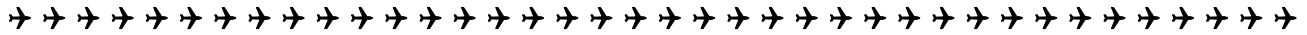
# AEEC GENERAL SESSION 2017



## 1. AEEC/AMC OPENING SESSION

**MONDAY, MAY 1 – 8:30am – WISCONSIN CENTER BALLROOM C**

- AEEC Chairman, James McLeroy, UPS will welcome meeting attendees to the Wisconsin Center in Milwaukee.
- Kris Bauer, United Airlines, Senior Vice President of Technical Operations, will provide the keynote address.
- The AEEC Trumbull Award will be presented by the AEEC Chairman-Elect, Rich Stillwell, United Airlines.
- The Volare Awards will be presented by Ray Frelk, Airline Avionics Institute (AAI).



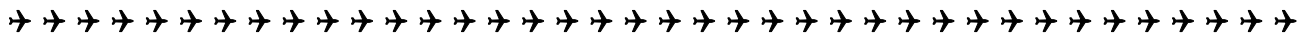
## 2. GLOBAL AIRCRAFT TRACKING

### SYMPOSIUM

*Monday, May 1, Starting at 10:30am*

*Wisconsin Center Ballroom C – (AEEC/AMC Ballroom)*

*Moderators: Jessie Turner, Boeing and Sven Biller, Lufthansa Airlines*



### 3a. Ku/Ka-Band Communications

**ARINC 791, ARINC Project Paper 792**

**Chairman: Peter Lemme, Totaport**

**Secretary: Tom Munns, [thomas.munns@sae-itc.org](mailto:thomas.munns@sae-itc.org)**

**APIM 14-007:** Small Form Factor Ku/Ka-Band Satcom System

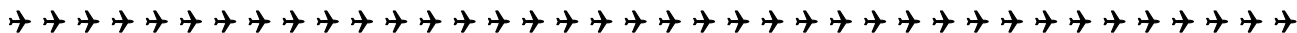
**APIM 16-006:** Broadband Satellite System Installation and Equipment Interfaces

**Goal:** The Ku/Ka Communications Subcommittee is developing standards for broadband non-safety satellite equipment hardware, electrical/electronic interfaces, and network interface protocols for installation onto all commercial transport aircraft.

**Summary:** The status of the following documents will be presented:

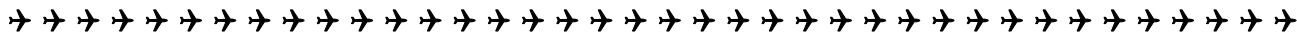
- **ARINC Project Paper 792:** *Second Generation Aviation Ku-Band and Ka-Band Satellite Communication System*, will define Ku-band and Ka-band systems in a modular manner that take advantage of technology improvements to reduce cost, weight, and complexity while enhancing performance of connectivity systems. Antenna installation standards will be developed that offers a simplified antenna mounting standard independent from the underlying airplane fittings or penetrations.
- **Supplement 3 to ARINC Characteristic 791 Part 1:** *Aviation Ku-Band and Ka-Band Satellite Communication System: Physical Installation and Aircraft Interfaces*, will include revising mounting fittings to address installation issues; modifying antenna location and blockage maps for selected single aisle configurations; clarifying labeling of bulkhead penetrations; revising form factor length dimension for the KRFU and KANDU enclosures; updating RTCA DO-160 section and category references; providing guidance on minimum agility to track satellites in taxi, in approach/departure, and enroute; and providing guidance for waveguide installation.

# AEEC GENERAL SESSION 2017



- **Supplement 2 to ARINC Characteristic 791 Part 2: Aviation Ku-Band and Ka-Band Satellite Communication System: Electrical Interfaces and Functional Equipment Description**, will include updating the network interface definition, revising aircraft geometry/blockage to include asymmetric blockage cases, and updating the Management Information Base (MIB).
- The Subcommittee has discussed broadband terrestrial communication using Line-of-Sight (LOS) networks and spectrum availability that may lead to new broadband services. The status of APIM 17-008 proposing standards for terrestrial broadband services operating in Ku-band will be presented.

**AEEC Adoption Item:** (none proposed)



## 3b. Cabin Systems Subcommittee (CSS)

**ARINC 628, ARINC 664, ARINC 800, ARINC 832**

**ARINC Project Paper 648, ARINC Project Paper 820, ARINC Project Paper 836A**

**Chairman: Dale Freeman, Delta Air Lines**

**Co-Chairmen: Rolf Goedecke, Airbus and Gerald Lui-Kwan, Boeing**

**Secretary: Tom Munns, [thomas.munns@sae-itc.org](mailto:thomas.munns@sae-itc.org)**

**APIM 08-011B:** Cabin Enclosures Modular Rack Concept

**APIM 12-004C:** 10 Gb Ethernet Interface (ARINC 664P2)

**APIM 13-014B:** Cabin Connectors and Cables

**APIM 14-001:** Cabin Architecture for Wireless Distribution

**APIM 15-001:** Cabin Passenger Seat Production Testing

**APIM 15-006:** Cabin Wireless Access Point (CWAP) Operational Management

**APIM 16-005:** Cabin Equipment Interfaces

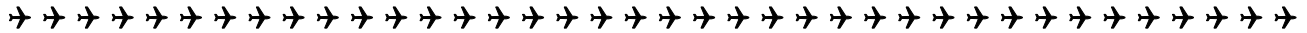
**APIM 16-011:** Next Generation Cabin Data Bus

**Goal:** The objective of this activity is to define a cost-effective cabin infrastructure that will support evolving technologies and enable airlines to install equipment that exceeds passenger expectations. This effort includes interface standards to allow airlines to implement preferred systems for their passengers. Cabin communication, broadband connectivity, wireless distribution, cabin interface protocols, and connector standardization are all components of this activity.

**Summary:** The status of the following documents will be reported:

- **ARINC Project Paper 648:** *Guidance for Cabin Passenger Seat Testing*
- **Supplement 8 to ARINC Specification 628 Part 1:** *Cabin Management and Entertainment System – Peripherals*
- **Supplement 9 to ARINC Specification 628 Part 2:** *Cabin Management and Entertainment System – Seat Interfaces* to update applicable interfaces for USB 3.1 outlets in passenger seats.
- **Supplement 4 to ARINC Specification 628 Part 9:** *Cabin Equipment Interfaces (CEI), Cabin Information Network (CIN)* to update references to legacy network system components, for example, IEEE 802.11n wireless access points
- **Supplement 3 to ARINC Specification 664 Part 2:** *Aircraft Data Network, Ethernet Physical and Data Link Layer*
- **Supplement 1 to ARINC Specification 800, Part 2:** *Cabin Connectors and Cables: Specification of Connectors, Contacts, and Backshells*
- **Supplement 1 to ARINC Specification 800, Part 3:** *Cabin Connectors and Cables: Specification of Cables*

# AEEC GENERAL SESSION 2017



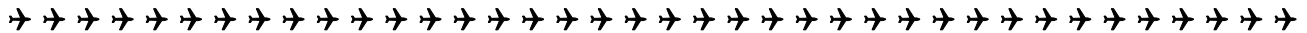
- **Supplement 4 to ARINC Specification 809: 3GCN – Seat Distribution System** to update applicable interfaces for USB 3.1 outlets in passenger seats.
- **ARINC Project Paper 820: Cabin Architecture for Wireless Distribution System**
- **ARINC Project Paper 836A: Cabin Standard Enclosures**
- **ARINC Project Paper 8xx: Cabin Equipment Bus**

**AEEC Adoption Items:** AEEC will consider the following:

- **Draft 2 of Supplement 9 to ARINC Specification 628, Part 2: Cabin Management and Entertainment System – Seat Interfaces** as circulated with AEEC Letter 16-153/CSS-587.
- **Draft 5 of Supplement 1 to ARINC Specification 800, Part 3: Cabin Connectors and Cables, Specification of Cables.**

**APIM Approvals:** AEEC will consider the following:

- **APIM 17-009** proposes the development of traditional form, fit and function standards for a MultiGigabit cabin Wireless Access Point (CWAP) to support a variety of cabin installations. This work is expected to completed in early 2019.



## 3c. Galley Insert (GAIN) Subcommittee

**ARINC 810, ARINC 812A**

**Co-Chairman: Ralph Schnabel, Airbus**

**Co-Chairman: Scott Coburn, Boeing**

**Secretary: Tom Munns, [thomas.munns@sae-itc.org](mailto:thomas.munns@sae-itc.org)**

**Goal:** The GAIN Subcommittee develops and maintains standards pertaining to the physical dimensions and electrical interfaces to galley Inserts.

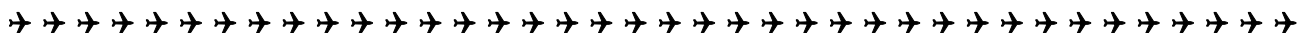
**Summary:** Since the last AEEC General Session, the GAIN Subcommittee has prepared a proposal to extend the current work to document interfaces to CANbus. The status of the following documents will be summarized.

- **ARINC Specification 812A, Part 1: Standard Data Interfaces for Galley Insert (GAIN) Equipment, CAN Communications**, defines digital galley equipment and data protocols.
- **ARINC Specification 812A, Part 2: Standard Interfaces for Galley Insert (GAIN) Equipment, CAN Communications Verification and System Test Guidance**, defines functional test requirements and procedures to verify ARINC 812A Part 1 bus protocol implementation.

**AEEC Adoption Item:** (none proposed)

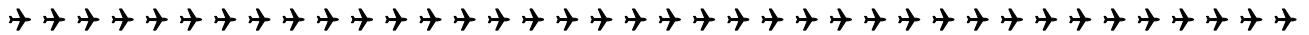
**APIM Approvals:** AEEC will consider the following:

- **APIM 17-007** proposes the development of Supplement 2 to ARINC Specification 812A, Part 1 to (1) Identify and incorporate changes necessitated by production implementation of digital Galley Equipment, (2) update messages based on changes introduced by Supplement 3 to ARINC 825, (3) consider the effect of the new CAN FD protocol on ARINC 812A-compliant components, and (4) Update the XML and XSD support files as required. Supplement 1 to ARINC Specification 812A, Part 2 will be developed to reflect the changes made to Part 1. This work is expected to completed by October 2018.





AEEC GENERAL SESSION 2017



3d. CANbus

ARINC 825

Chairman: Thomas Joseph, GE Aviation

Secretary: Tom Munns, [thomas.munns@sae-itc.org](mailto:thomas.munns@sae-itc.org)

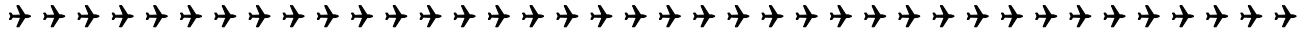
APIM 13-004C: Supplement 4 to ARINC Specification 825: CANbus

Goal: The goal of the CAN Working Group is to standardize provisions of Controller Area Network (CAN) standards for use in aircraft to ensure CAN device interoperability and simplify interoperation of CAN subsystems with other airborne networks.

Summary: The status of the following document will be presented:

- **Supplement 4 to ARINC Specification 825: General Standardization of CAN (Controller Area Network) Bus Protocol for Airborne Use** is expected to define the following:
  - CANbus with Flexible Data-Rate (FD)
  - Timing, Bandwidth Management, Latency, and Jitter
  - Common latency requirements
  - Wire level protocols and other services
  - Implementation conformance matrix

AEEC Adoption Item: (none proposed)

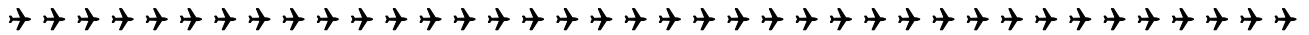


**4. TOPICS TRENDING IN AVIATION  
SYMPOSIUM**

**Monday, May 1 – Starting at 3:20pm**

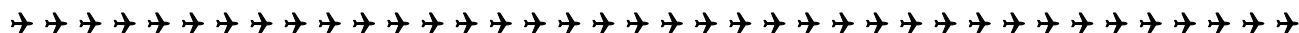
**Wisconsin Center – AEEC Ballroom B**

**Moderator: Jessie Turner, Boeing**



ADJOURN MONDAY

# AEEC GENERAL SESSION 2017



## AEEC GENERAL SESSION

TUESDAY, MAY 2 – 8:30am – WISCONSIN CENTER BALLROOM B

### 5a. Datalink Users Forum

**Co-Chairman: Colin Gallant, British Airways**  
**Co-Chairman: Brian Gleason, Southwest Airlines**  
**Secretary: Vic Nagowski, [vnagowsk@sae-itc.org](mailto:vnagowsk@sae-itc.org)**  
**Secretary: José Godoy, [jose.godoy@sae-itc.org](mailto:jose.godoy@sae-itc.org)**

#### APIM 16-008: Datalink Users Forum

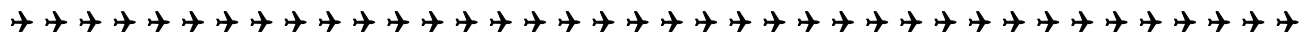
**Goal:** The Datalink (DLK) Users Forum promotes continuous improvements to datalink system performance in a way that maximizes the operational benefit to the user community.

**Summary:** Colin Gallant and Brian Gleason will summarize key discussions in the DLK Users Forum. The DLUF provides coordination among airlines and cargo carriers, civil aviation authorities, air traffic service providers, aircraft manufacturers, avionics suppliers, datalink service providers, and other interested parties.

Economic benefits are obtained through the exchange of technical information and through the resolution of common problems. The DLUF monitors the direction and schedule of Air Traffic Service (ATS) datalink programs. Airline feedback is desired.

Topics presented and discussed by DLUF include:

- FAA Data Comm Program – Tower and Enroute
- European Data Link Services (DLS) Implementation Rule – Mandates and Performance Summaries
- ANSPs CPDL Implementations by NavCanada, NAT UK, and others
- SESAR sponsored ELSA Consortium Report and Recommendations to address nuisance Provider Aborts and other ATN disconnects impacting European CPDLC operation
- Status of VHF Multi-Frequency Deployment in European and US National Airspace System (NAS)
- Performance-based operations Aviation Rulemaking Committee (PARC) Communication Working Group (CWG)
- Aircraft manufacturer and avionic suppliers plans for:
  - FANS
  - ATN/OSI
  - ATN Baseline B
  - ATN/IPS



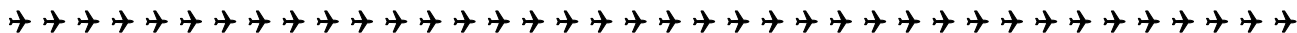
### 5b. Datalink Systems and AOC Message Exchange

**ARINC 618, ARINC 619, ARINC 620, ARINC 622, ARINC 631, ARINC 633**

**DLK Chairman: Bob Slaughter, American Airlines**  
**AOC Chairman: Dirk Zschunke, Lufthansa German Airlines**  
**Secretary: José Godoy, [jose.godoy@sae-itc.org](mailto:jose.godoy@sae-itc.org)**

**APIM 10-013B:** VHF Digital Link Mode 2 Implementation Provisions – ARINC 631  
**APIM 11-011A:** AOC Air-Ground Data and Message Exchange Format – ARINC 633  
**APIM 16-007A:** ATS Data Link Applications over ACARS Air-Ground Network – ARINC 622  
**APIM 16-010:** Datalink Ground System Standard and Interface – ARINC 620

## AEEC GENERAL SESSION 2017



**Goal:** Develop and maintain datalink standards that promote reliable transfer of data between the aircraft and the ground. The Subcommittee meets jointly with RTCA SC-214 VDL Subgroup and EUROCAE WG-92.

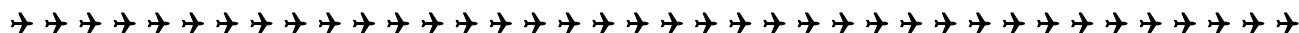
**Summary:** Bob Slaughter, American Airlines, will summarize the activities of the DLK Systems Subcommittee, including the following documents:

- **Supplement 9 to ARINC Specification 618:** *Air-Ground Character Oriented Protocol Specification*. Supplement 9 will define ATS Winds Data for Advanced Interval Management
- **Supplement 5 to ARINC Specification 619:** *ACARS Protocols for Avionic End Systems*. Supplement 5 will define ATS Winds Data for Advanced Interval Management
- **Supplement 9 to ARINC Specification 620:** *Datalink Ground Systems Standard and Interface Specification*. Supplement 9 will provide:
  - DSP routing guidance of messages using an MFI with a Supplementary Address
  - ARINC 429 Labels, Sub-labels, MFIs, and SMIs in support of:
    - Onboard Network System (ONS)
    - AOC Flight Tracking
    - Flight deck based Interval Management Systems
- **Supplement 5 to ARINC Specification 622:** *ATS Data Link Applications over ACARS Air-Ground Network*. Supplement 5 will add ATS Winds to the ATS ACARS definition. ATS Wind Data is essential for future Flight deck based Interval Management System (FIMS) and 4-D Trajectory functionalities.
- **Supplement 7 to ARINC Specification 631:** *VHF Digital Link (VDL) Mode 2 Implementation Provisions*. The DLK Systems Subcommittee has developed a mature Supplement 7 that includes:
  - Multi-frequency Management
    - Autotune, Handoffs, Recoveries
    - Frequency Support List (FSL) Utilization
  - ELSA Consortium recommendations. The recommendations target improving European Data Link Services (DLS) Implementation Rule (IR) operation by diminishing excessive Provider Aborts and other ATN disconnects
  - Ground Requirements to complement Avionics Requirements
  - Guidance on the Allocation of VDLM2 Ground Station Addresses
  - Downlink of perceived Avionics Channel Utilization
- **Supplement 3 to ARINC Specification 633:** *AOC Air-Ground Data and Message Exchange Format* standardizes air-ground and ground-ground Aeronautical Operational Control (AOC) messages for CMU and EFB hosted applications. These AOC messages are provided by different suppliers on different aircraft types. The AOC Working Group is preparing Supplement 3 that adds the following new modeling:
  - Organized Tracks
  - Drift Down Summary
  - Load Sheet XML schemas (developed in coordination with IATA Load Control Working Group)

Supplement 3 expands the following existing Data Structures:

- ATC Flight Plan
  - Alternate Routes
  - Fuel Header
  - Contingency Fuel
  - Fuel Computation
- Minimum Equipment List (MEL)/Configuration Deviation Lists (CDL)
- ETOPS and Multiple Engine Extended Range Operations
- NOTAM

# AEEC GENERAL SESSION 2017



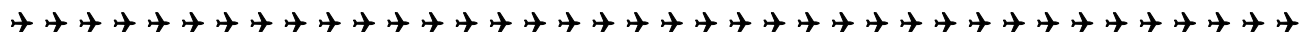
- Upper Air Data Forecast
- Wind Component

**AEEC Adoption Items:** AEEC will consider the following:

- **Supplement 7 to ARINC Specification 631:** *VHF Digital Link (VDL) Mode 2 Implementation Provisions*
- **Supplement 5 to ARINC Specification 619:** *ACARS Protocols for Avionic End Systems*
- **Supplement 5 to ARINC Specification 622:** *ATS Data Link Applications over ACARS Air-Ground Network*

**APIM Approvals:** AEEC will consider the following:

- **APIM 17-002** proposes the definition of a connectionless protocol for VDL-2 to be included in ARINC Specification 631
- **APIM 17-003** proposes an update to ARINC Characteristic 758 Communications Management Unit (CMU) to include Ethernet connectors and interfaces



## 5c. Air/Ground Communications Systems (AGCS)

**ARINC 771, ARINC 781**

**Chairman:** Robert Holcomb, American Airlines

**Secretary:** José Godoy, [jose.godoy@sae-itc.org](mailto:jose.godoy@sae-itc.org)

**APIM 13-011A: ARINC Characteristic 771: Low-Earth Orbiting (LEO) Aviation Satellite Communication System**

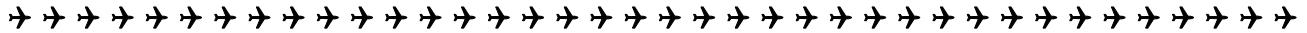
**APIM 16-003: ARINC Characteristic 781: Mark 3 Aviation Satellite Communication System**

**Goal:** The Air-Ground Communications Systems (AGCS) Subcommittee ensures that current and emerging satellite air-ground communication systems are specified based on airline operational requirements and defined for cost-effective implementation based on existing and anticipated aircraft architectures.

**Summary:** A summary of AGCS Subcommittee activities will be presented, including the status of the following documents:

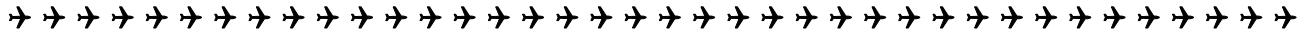
- **Supplement 1 to ARINC Characteristic 771: Low-Earth Orbiting Aviation Satellite Communication System.** Supplement 1 adds high-gain antenna definitions for the faster rates made available by the Iridium NEXT satellite constellation. This complements existing passive and active Low Gain Antenna (LGA) configurations already defined in ARINC Characteristic 771. Cyber security guidance is expanded to protect avionics assets. Crosstalk description is added for Satellite Data Unit (SDU) switching and for determination of the Active/Passive SDU.
- **Supplement 5 to ARINC Characteristic 781: Aviation Satellite Communication Systems** introduces an optional “Enhanced ACARS” service supported by Internet Protocol Security (IPSEC) Virtual Private Network (VPN) and Public Key Infrastructure (PKI) technologies. Supplement 5 harmonizes the interfaces of ARINC 771 and ARINC 781 SDUs. Interchangeability with the Low-Earth Orbiting SDUs is achieved by specifying Ethernet and Fiber interfaces. Supplement 5 also updates the SDU Aircraft Earth Station (AES) Join/Leave Message. The document has been updated to reflect current aircraft installation practices. A cyber security overlay was added.

AEEC GENERAL SESSION 2017



AEEC Adoption Item:

- **Supplement 5 to ARINC Characteristic 781: Aviation Satellite Communication Systems**



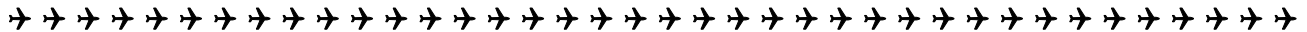
**6. COMMUNICATION SYSTEMS**

**SYMPOSIUM**

**Tuesday, May 2, Starting at 10:30am**

**Wisconsin Center – AEEC Ballroom B**

**Moderator – Dennis Zvacek, American Airlines**



**7a. Internet Protocol Suite (IPS) for Aeronautical Safety Services**

**ARINC Project Paper 658**

**Co-Chairman: Luc Emberger, Airbus**

**Co-Chairman: Greg Saccone, Boeing**

**Secretary: Paul Prisaznuk, [pjp@sae-itc.org](mailto:pjp@sae-itc.org)**

**APIM 15-004: Internet Protocol Suite for Aeronautical Safety Services**

**Goal:** The IPS Subcommittee will prepare a roadmap for the introduction of an Internet Protocol Suite (IPS) in air/ground communication systems considering the current air/ground infrastructure, IPv6, and the need for aviation cyber security.

**Summary:** This project is expected to improve data communication technologies used for NextGen and SESAR airspace initiatives and, in turn, provide a number of benefits to airlines, airframe manufacturers, and avionics suppliers. Airline benefits are expected to accrue in the form of improved data communication performance compared to ACARS and ATN.

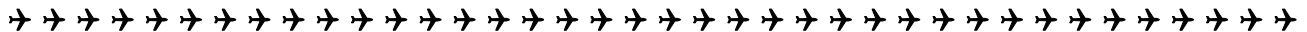
**Step 1 – Roadmap for Standardization and Main Architecture Impacts of IPS**

**ARINC Project Paper 658: Internet Protocol Suite (IPS) for Aeronautical Safety Services - Roadmap Document** is under development. The document will describe the roadmap for the standardization of IPS and the timeline for elements to be standardized. It will also identify the proper Standards Development Organization (SDO), to develop and/or update new standards e.g., ARINC, RTCA, EUROCAE, ICAO. This will include an identification of IPS requirements (performance, information security) and a description of the avionics architecture impacts.

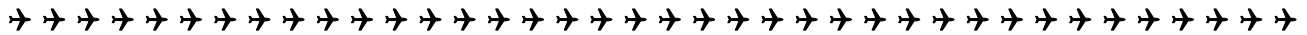
**Step 2 – Development of an ARINC Standard for IPS**

A follow-on activity will be discussed. It is expected that an ARINC Standard will be prepared to define the avionics architecture, functions, and an IPS profile.

**AEEC Adoption Item:** (none proposed)



# AEEC GENERAL SESSION 2017



## 7b. AeroMACS

### ARINC Project Paper 766

Chairman: Tom McGuffin, Honeywell

Secretary: Jose Godoy, [jose.godoy@sae-itc.org](mailto:jose.godoy@sae-itc.org)

#### APIM 11-013A: Airport Surface Communication using AeroMACS

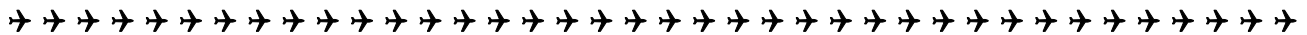
**Goal:** Develop traditional form, fit, function and interface standards for airborne radio equipment compatible with Aeronautical Mobile Airport Communications System (AeroMACS) using the IEEE 802.16-2009 WiMAX protocol expected to be deployed for airport surface communication.

**Summary:** An airborne AeroMACS transceiver standard has been developed. The equipment is intended to support CPDLC, ATC and AOC high-speed airport surface communication while the aircraft is on the ground. AeroMACS is part of the SESAR Master Plan and the FAA NextGen Implementation Plan. AeroMACS is expected to help alleviate VHF airport terminal congestion. AeroMACS will be capable of supporting both safety and non-safety services as defined by RTCA Standards:

- **RTCA DO-345:** *Aeronautical Mobile Airport Communications System (AeroMACS) Profile*
- **RTCA DO-346:** *Minimum Operational Performance Standards (MOPS) for the Aeronautical Mobile Airport Communication System (AeroMACS)*

**AEEC Adoption Item:** AEEC will consider the following:

- **ARINC Project Paper 766:** *AeroMACS Transceiver and Aircraft Installation Standards*



## 7c. Flight Management Systems (FMS)

### ARINC 702A

Chairman: Mike Bakker, GE Aviation

Secretary: Paul Prisaznuk, [pjp@sae-itc.org](mailto:pjp@sae-itc.org)

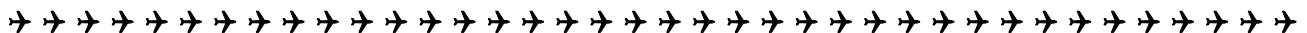
#### APIM 15-005: ARINC 702A Advanced Flight Management Computer System

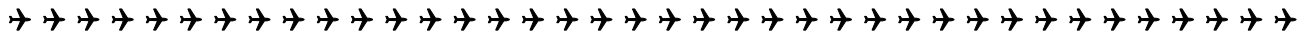
**Goal:** Update Flight Management Computer Standards for emerging airspace requirements to take advantage of advancements in Communication, Navigation and Surveillance (CNS), all with the collective goal to increase the capacity and efficiency of the airspace.

**Summary: ARINC Characteristic 702A:** *Advanced Flight Management Computer System*, is being updated to support NextGen and SESAR airspace initiatives. Supplement 5 will be aligned to the applicable RTCA/EUROCAE standards in support of Performance-Based Navigation (PBN) and Trajectory Based Operations (TBO).

NextGen and SESAR airspace initiatives are part of the larger CNS/ATM evolution. These include enhanced datalink, satellite-based approach procedures, graphical user interfaces (ARINC 661) and others. The results of this project will provide benefits to airlines, including user-preferred trajectories, fuel savings, environmental benefits, and capacity improvements.

**AEEC Adoption Item:** (none proposed)





7d. Navigation DataBase (NDB)

ARINC 424

Chairman: Chuong Phung, FedEx

Secretary: Sam Buckwalter, [sam.buckwalter@sae-itc.org](mailto:sam.buckwalter@sae-itc.org)

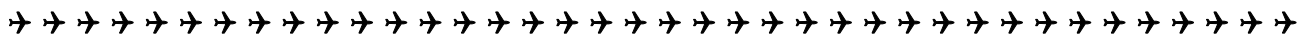
APIM 11-005B: Supplement 22 to ARINC Specification 424: *Navigation System Database*

**Goal:** The project maintains the ARINC 424 Navigation Database Standard. It identifies, evaluates, and documents the necessary standards for use in the air transport industry. This includes traditional ASCII encoding methods and Extensible Markup Language (XML) standards.

**Summary:** A summary report will be provided on **ARINC Specification 424: *Navigation System Database***.

- The NDB presentation will address current updates to ARINC 424 and future implementations.
- The presentation will outline the development of the XML Schema for all types of navigation data. This model is being defined in a way that allows it to hold all existing specifications, documentation, and requirements from ARINC 424, as well as additional data needed for growth. The timeline for development of XML Schema will be presented.

**AEEC Adoption Item:** (none proposed)



7e. Aeronautical Databases – Airport, Terrain and Obstacle Database

ARINC 814, ARINC Project Paper 813, ARINC Project Paper 815

Chairman: Brian Gilbert, Boeing

Secretary: Peter Grau, [peter.grau@sae-itc.org](mailto:peter.grau@sae-itc.org)

APIM 12-006: Terrain and Obstacle Database Definition

APIM 12-007: XML Encoding and Compression Standard

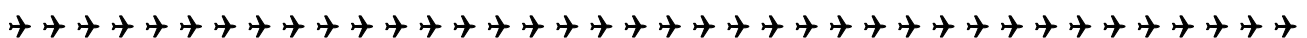
**Goal:** Aeronautical database standards are expected to improve pilot situational awareness in flight and enable future development of synthetic vision. This will improve safety and reduce fuel burn, resulting in lower operating costs.

**Summary:** A summary of ADB Subcommittee activities will be presented, including the status of the following documents:

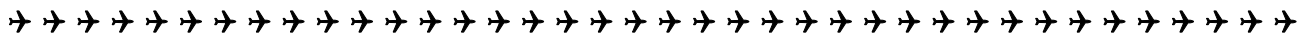
- **Supplement 1 to ARINC Specification 814: *Extensible Mark-Up Language (XML) Encoding and Compression Standard***, will be updated to support the unique requirements of terrain and obstacle databases.
- **ARINC Project Paper 813: *Embedded Interchange Format for Terrain Database*** will be presented. The document is intended to define an open encoding format for terrain data that is directly loadable into airborne systems.
- **ARINC Project Paper 815: *Embedded Interchange Format for Obstacle Database*** will be presented. The document is intended to define an open encoding format for obstacle data that is directly loadable into airborne systems.

The ARINC Standards are being aligned to the latest RTCA Standards:

- **RTCA DO-276B/EUROCAE ED-98: *User Requirements for Terrain and Obstacle Data***
- **RTCA DO-291C/EUROCAE ED-119: *Interchange Standards for Terrain, Obstacle and Aerodrome Mapping Data***.



## AEEC GENERAL SESSION 2017



### 8a. Electronic Flight Bag (EFB) Users Forum

**Co-Chairman: Phillip Haller, Austrian Airlines**

**Co-Chairman: Will Ware, Southwest Airlines**

**Secretary: Peter Grau, [peter.grau@sae-itc.org](mailto:peter.grau@sae-itc.org)**

**APIM 09-009B:** Electronic Flight Bag (EFB) Users Forum

**Goal:** The joint AEEC EFB Users Forum and IATA EFB Task Force provides a venue where interested parties can exchange information, present challenges, and resolve issues being confronted by the industry with this rapidly evolving technology. It coordinates the development of EFB capabilities among airlines, manufacturers, suppliers, and regulators.

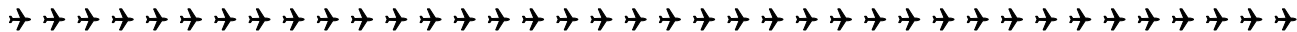
**Summary:** A report of the EFB Users Forum activities will be presented. Topics include:

- Operator Experiences
- EFB System Architectures
- EFB Installation and Connectivity
- EFB Applications and Content Management
- EFB Security
- Regulatory Issues

**Next EFB Users Forum:** The next meeting will be hosted by Austrian Airlines on June 13-15, 2017 in Vienna, Austria.

**APIM Approvals:** AEEC will consider the following:

**APIM 09-009C** will be propose a 3-year extension to the EFB Users Group meeting schedule through 2020.



### 8b. Electronic Flight Bag (EFB) Subcommittee

**ARINC 834, ARINC 840**

**Co-Chairman: Sonja Schellenberg, Lufthansa**

**Co-Chairman: Maurice Ingle, American Airlines**

**Secretary: Peter Grau, [peter.grau@sae-itc.org](mailto:peter.grau@sae-itc.org)**

**APIM 11-012C: Supplement 7 to ARINC Specification 834: *Aircraft Data Interface Function***

**Goal:** This activity prepares standards applicable to EFB installation on all types of aircraft with the goal of maintaining proper isolation of EFB equipment from avionics equipment.

**Summary:** EFB Subcommittee activities will be summarized including a status report on the following document:

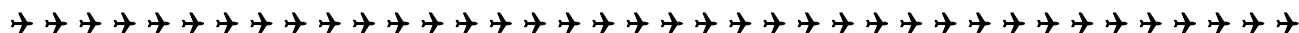
- **Supplement 7 to ARINC Specification 834: *Aircraft Data Interface Function (ADIF)*.**  
The document describes new capabilities which will enable EFB applications to print on both ARINC 740, ARINC 744 and commercially available COTS printers using Ethernet.

**AEEC Adoption Item:** AEEC will consider the following:

- **Supplement to 7 to ARINC Specification 834: *Aircraft Data Interface Function (ADIF)***



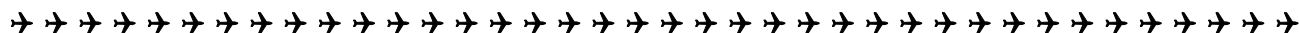
# AEEC GENERAL SESSION 2017



**APIM Approval:** AEEC will consider the following:

**APIM 17-006** proposes an update to **ARINC Specification 840: *Application Control Interface***. The goal is to provide a standard application software interface to improve the user experience for tablet-based EFBs. Topics for inclusion in this standard:

- Inter-application navigation for users
- Blending of multiple applications into a single workflow
- Single data entry with data shared across applications



## 8c. Network Infrastructure and Security (NIS)

**ARINC 842, ARINC Project Paper 848, ARINC Project Paper 852**

**Chairman: Steve Arentz, United Airlines**

**Secretary: Vanessa Mastros, [vanessa.mastros@sae-itc.org](mailto:vanessa.mastros@sae-itc.org)**

**APIM 13-005:** IP Security Data Logging

**APIM 16-004:** Guidance for Use of Digital Certificates

**APIM 16-014:** Broadband Satellite Functional Interface Standard

**Goal:** Develop standards for IP connectivity and security to the aircraft. Enable fleet-wide solutions based on open standards for lower development cost, increased flexibility, higher reliability, reduced complexity, longer lifespan, and ease of configurability and maintenance.

**Summary:** The status of the following documents will be presented:

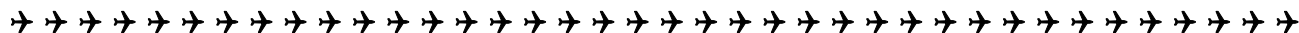
- **Supplement 2 to ARINC Report 842: *Guidance for Use of Digital Certificates***, is being prepared to provide consistency with recently updated ATA Spec 42, best practices and lessons learned through implementation of digital certificates.
- **ARINC Project Paper 848: *Broadband Network Interface for Non-Safety Services*** is intended to define a method for secure communications between each onboard LAN that provides non-safety services peer connections on the ground, while ensuring secure segregation of onboard LANs. Each individual radio may carry traffic from multiple domains. This project intends to standardize the broadband IP network interface between the airplane LAN and the ground infrastructure at the Network level.
- **ARINC Project Paper 852: *Guidance for Security Data Logging in an IP Network Environment*** provides guidelines on security data logging and monitoring, guidelines on methods to process security log data, and guidance on security analysis methods. This document will enable the use of standardized security analysis practices and facilitate the use of a common set of log file data from various aircraft types based on industry best practices, with the goal of ensuring information security.

**AEEC Adoption Item:**

- **ARINC Project Paper 852: *Guidance for Security Data Logging in an IP Network Environment***

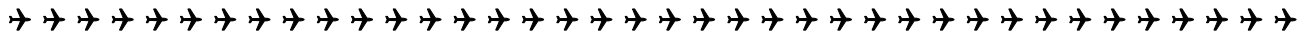
**APIM Approval:** AEEC will consider the following:

- **APIM 17-001** proposes the development of an industry roadmap for the use of the Internet Protocol version 6 (IPv6).



ADJOURN TUESDAY

# AEEC GENERAL SESSION 2017



## AEEC GENERAL SESSION

WEDNESDAY, MAY 3 – 8:30AM – WISCONSIN CENTER AEEC BALLROOM B

### 9a. Systems Architecture and Interfaces (SAI) Subcommittee

**Co-Chairman: Bob Semar, United Airlines**  
**Co-Chairman: Reinhard Andreae, Lufthansa**  
**Secretary: Paul Prisaznuk, [pjp@sae-itc.org](mailto:pjp@sae-itc.org)**

**Goal:** Evolving airspace requirements, NextGen and SESAR, are driving the need for the SAI Subcommittee to develop avionics architecture recommendations and new communications mediums for aircraft in service and for future airplane types.

**Summary:** The SAI Subcommittee is coordinating the development of industry standards for CNS/ATM. This effort builds on the recommendations of **ARINC Report 660B: CNS/ATM Avionics Architectures Supporting NextGen/SESAR Concepts**.

Global Aircraft Tracking requirements are being discussed in the context of delivering the most cost-effective solutions to the airline operators. SAI Subcommittee activities include:

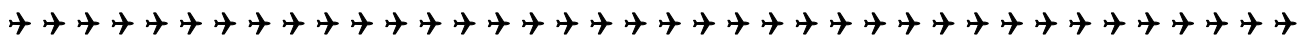
- Reviewing aircraft data network architectures
- Considering the need for avionics software quality and reliability standards
- Monitoring global aircraft tracking initiatives
- Providing recommendations on the need for new ARINC Standards.

#### APIM Approval:

The SAI Subcommittee serves as the focal point for preparing and evaluating new AEEC project proposals and building the industry consensus necessary to ensure successful development of ARINC Standards. Ten new project proposals have been reviewed in the first quarter of 2017. Many have been assigned and presented by the respective AEEC Subcommittees. The following APIMs are presented by the SAI Subcommittee:

- **APIM 17-004** calls for the development of standards for Autonomous Distress Tracking (ADT) in accordance with ICAO Annex 6 recommendations.
- **APIM 17-005** calls for the development of standards for Timely Recovery of Flight Data in accordance with ICAO Annex 6 recommendations.

The next SAI Subcommittee meeting will be held June 13-14, 2017, in Denver Colorado.



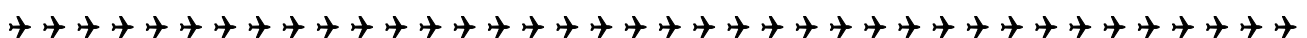
### 9b. Traffic Surveillance, ADS-B

**Chairman: Jessie Turner, Boeing**  
**Secretary: José Godoy, [jose.godoy@sae-itc.org](mailto:jose.godoy@sae-itc.org)**

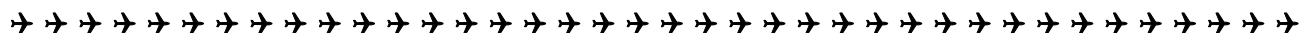
**Goal:** Develop and maintain traffic surveillance standards that advance air traffic management, enhance flight crew situational awareness and ensure safety.

**Summary:** A status report of industry activities, including RTCA SC-147 and RTCA SC-186 activities will be provided. ADS-B applications enhance safety, enable efficient Air Traffic Management, augment flight crew situational awareness, and facilitate time and fuel saving operation at optimum altitudes and flight paths.

**AEEC Adoption Item:** (none proposed)



## AEEC GENERAL SESSION 2017



### 9c. Global Navigation Satellite System (GNSS)

ARINC 743, ARINC 755

Co-Chairman: Julien Sanscartier, Esterline CMC Electronics

Co-Chairman: Francois Tranchet, Airbus

Secretary: Jose Godoy, [jose.godoy@sae-itc.org](mailto:jose.godoy@sae-itc.org)

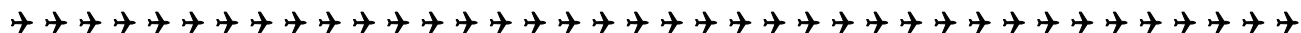
**APIM 16-013:** Update of GNSS Standards to Support VHF Data Broadcast and Ground-Based Augmentation

**Goal:** Update Global Navigation Satellite System (GNSS) Standards to support airline operational needs.

**Summary:** The evolution of GNSS satellite constellations and efforts within RTCA SC-159 will be presented. The GNSS Subcommittee has been reactivated to update several GNSS equipment standards intended to support Ground-Based Augmentation Systems (GBAS) and Space-Based Augmentation Systems (SBAS). The standards include:

- **Supplement 6 to ARINC Characteristic 743A:** *Global Navigation Satellite System (GNSS) Sensor*
- **Supplement 1 to ARINC Characteristic 743B:** *GNSS Landing Systems Sensor Unit (GLSSU)*
- **ARINC Project Paper 743C:** *GLSSU with VHF Data Broadcast (VDB) Receiver*
- **Supplement 5 to ARINC Characteristic 755:** *Multi Mode Receiver (MMR) – Digital.*

**AEEC Adoption Item:** (none proposed)

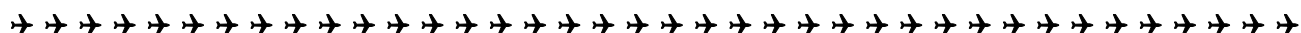


## 10. WIRELESS AIRPLANE DATA NETWORKS

**Wednesday, May 3, Starting at 10:30am**

**Wisconsin Center AEEC Ballroom B**

**Moderator: Steve Sword, Rockwell Collins**



### 11a. Software Distribution and Loading

ARINC Project Paper 849, ARINC Project Papers 6xx and 8xx

Co-Chairman: Ted Patmore, Delta Air Lines

Co-Chairman: Rod Gates, American Airlines

Secretary: Scott Smith, [scott.smith@sae-itc.org](mailto:scott.smith@sae-itc.org)

**APIM 13-007:** Software Data Loading Specification for the Avionics Shop Environment

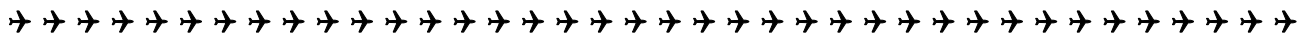
**APIM 16-002:** Common Standards for Software Data Loading and Data Management

**APIM 16-015:** eEnabled Aircraft Ground System for Managing and Distributing Software Parts

**Goal:** Develop and maintain software data loading standards that will minimize resources and the time required to securely transfer databases and software to an aircraft.

**Summary:** A summary of SDL Subcommittee activities will be provided, including the status of the following documents:

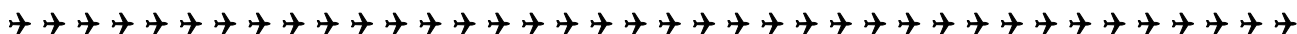
# AEEC GENERAL SESSION 2017



- **ARINC Project Paper 6xx:** *Compendium of Software Distribution and Loading Information* provides guidance to airlines, airframe manufacturers, aircraft equipment suppliers, and others information that is specific to data, software, and ground tools used in civil aviation. It is intended to be a single reference for common software and data management terminology, security checks, and philosophy.
- **ARINC Project Paper 8xx:** *Ground System Definition for e-Enabled Aircraft* will provide guidance for airlines that operate two or more aircraft fleets from different airframe manufacturers. Airlines desire a single ground system to manage all aircraft software and data with common processes and security, regardless of source.
- **ARINC Project Paper 849:** *Data Loading Specification for Aircraft Components* will provide guidelines that are expected to enable shop loading of aircraft software parts. Modern avionics may require stimulus from other systems to allow operational or database loading, and must be emulated in an avionics repair facility environment.

**AEEC Adoption Items:** AEEC will consider the following:

- **ARINC Project Paper 849:** *Guidance for Supplying Off-Aircraft Component Software Loading Specification Requirements*



## 11b. Fiber Optic Interfaces

**ARINC 801 through 807**

**ARINC Project Paper 846**

**Chairman: Robert Nye, Boeing**

**Secretary: Scott Smith, [scott.smith@sae-itc.org](mailto:scott.smith@sae-itc.org)**

**APIM 13-009:** Fiber Optic Mechanical Transfer Technology

**Goal:** The goal is to develop ARINC Standards pertinent to fiber optic interfaces. These standards define physical characteristics, design guidelines, component criteria, and testing and maintenance procedures for fiber optic components and interfaces. The objective is to promote a high-level of fiber optic interface performance while minimizing the costs of procurement, installation, and maintenance.

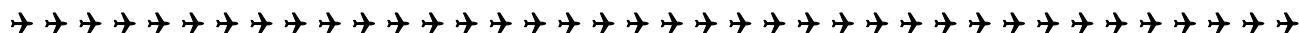
**Summary:** A summary of FOS activities will be provided, including the status of the following documents:

- **ARINC Project Paper 846:** *Fiber Optic Mechanical Transfer Termini*. This project intends to define a fiber optic Mechanical Transfer contact for use in connectors with frequent disconnect/connect operations and/or in harsh environments.

A subsequent effort to update existing ARINC Standards 801 through 807 will be discussed. This will include new material describing the design, testing, installation, and maintenance of connectors and cables. The updated documents may include:

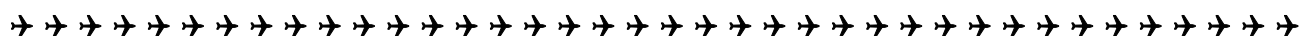
- Supplement 4 to **ARINC Specification 801:** *Fiber Optic Connectors*
- Supplement 3 to **ARINC Specification 802:** *Fiber Optic Cables*
- Supplement 4 to **ARINC Report 803:** *Fiber Optic Design Guidelines*
- Supplement 2 to **ARINC Report 804:** *Fiber Optic Active Device Specification*
- Supplement 5 to **ARINC Report 805:** *Fiber Optic Test Procedures*
- Supplement 6 to **ARINC Report 806:** *Fiber Optic Installation and Maintenance*
- Supplement 4 to **ARINC Report 807:** *Fiber Optic Training Requirements*

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APIM 12-004C is a project initiated by the AEEC Cabin Systems Subcommittee. The FOS is expected to update ARINC Reports 803 and 804 with material specific to a 10GbE Physical and Data Link Layer network for use in the aircraft cabin environment.

**AEEC Adoption Item:** (none proposed)



## 11c. Application/Executive (APEX) Software Interface

### ARINC 653

**Co-Chairman:** Pierre Gabilot, Airbus

**Co-Chairman:** Gordon Putsche, Boeing

**Secretary:** Scott Smith, [scott.smith@sae-itc.org](mailto:scott.smith@sae-itc.org)

**APIM 16-009:** Avionics Application Software Standard Interface

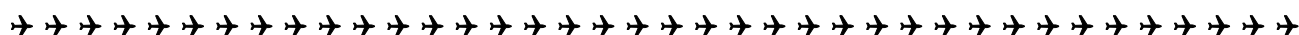
**Goal:** Develop and maintain **ARINC Specification 653: Avionics Application Software Standard Interface** that defines a standard interface between avionics application software and Real Time Operating Systems (RTOS).

**Summary:** ARINC 653 is used extensively on civil and military aircraft produced by Airbus, Boeing, and others. Avionics suppliers have expressed the desire to use ARINC 653 RTOS on regional, business, and private aircraft. ARINC 653 enables application software to be developed concurrently and independent of the RTOS. This will enable avionics functional updates to be made with minimal impact on the underlying computing platform.

A status report will be provided, ARINC 653 consists of:

- **ARINC Specification 653: Part 0, Overview of ARINC 653**
- **ARINC Specification 653: Part 1, Required Services**
- **ARINC Specification 653: Part 2, Extended Services**
- **ARINC Specification 653: Part 3A, Conformity Test Specification for Required Services**
- **ARINC Specification 653: Part 3B, Conformity Test Specification for Extended Services**
- **ARINC Specification 653: Part 4, Subset Services**
- **ARINC Specification 653: Part 5, Core Software Recommended Capabilities**

**AEEC Adoption Item:** (none proposed)



## 11d. Cockpit Display Systems (CDS) Interfaces

### ARINC 661

**Chairman:** Chad Weldon, Rockwell-Collins

**Secretary:** Peter Grau, [peter.grau@sae-itc.org](mailto:peter.grau@sae-itc.org)

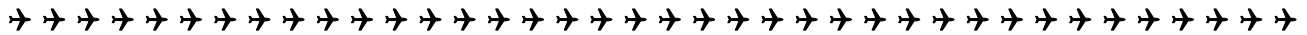
**APIM 08-004C:** ARINC 661 Cockpit Display System Interface Standard

**Goal:** Prepare flight deck display interface standards for new airplane development programs that focus on transport category aircraft: business, regional, general aviation, and military aircraft.

**Summary:** A summary report of CDS Subcommittee activities will be provided, including the status of the following documents:

- **Supplement 7 to ARINC Specification 661: Cockpit Display System Interface to User Systems, Part 1, Avionics Interfaces, Basic Symbolology, and Behavior** is intended to ensure growth for CNS/ATM applications and support advanced operational concepts

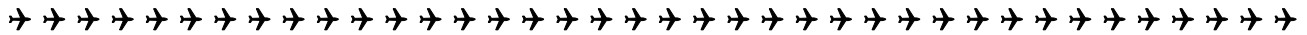
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that will increase aviation safety, capacity, and efficiency. Supplement 7 will add widget structure meta-definition and three-dimensional vision capability.

- **ARINC Project Paper 661:** *Cockpit Display System Interfaces to User Systems, Part 2, User Interface Markup Language for Graphical User Interfaces* is a new document being prepared to allow developers to specify the interface, look, and behavior of any ARINC 661 Graphical User Interface (GUI).

**AEEC Adoption Item:** (none proposed)



## 12a. Software Metrics

**Chairman:** Reinhard Andreae, Lufthansa

**Secretary:** Paul Prisaznuk, [pjp@sae-itc.org](mailto:pjp@sae-itc.org)

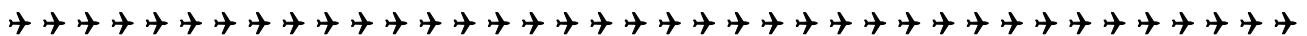
### APIM 16-001: Software Performance and Reliability

**Goal:** The goal is to improve the performance of avionics software through the development and acceptance of software performance metrics.

**Summary:** One meeting has been held. A summary report of key issues will be presented.

- What information will a supplier need to have in hand to analyze a system performance issue or event?
- How are the events, observations and related data collected and forwarded to parties responsible for analytics?
- Develop and analyze use cases
- Provide guidelines on how to prepare product support agreements in a way that uses the quality parameters to improve software quality and reliability.
- What is the scope of the problem and how can it be improved?

**AEEC Adoption Item:** (none proposed)



## 12b. ARINC 600 Racking

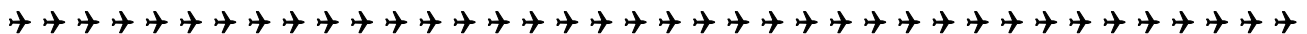
**Secretary:** Scott Smith, [scott.smith@sae-itc.org](mailto:scott.smith@sae-itc.org)

**Goal:** This staff project maintains ARINC 600 packaging standards for industry.

**Summary:** **Supplement 20 to ARINC Specification 600:** *Air Transport Avionics Equipment Interfaces* was prepared as a routine update, collecting several improvements identified by industry since the last publication of ARINC 600 in 2011.

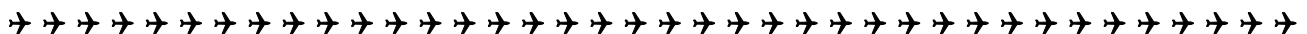
**AEEC Adoption Item:** AEEC will consider the following:

- **Supplement 20 to ARINC Specification 600:** *Air Transport Avionics Equipment Interfaces*

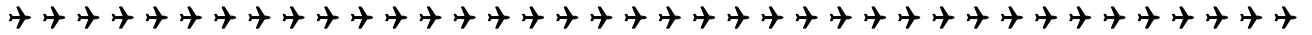


## 12c. Other Topics

The AEEC Chairman will entertain any other topics of discussion from the floor.



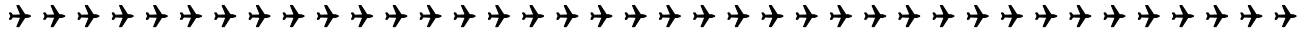
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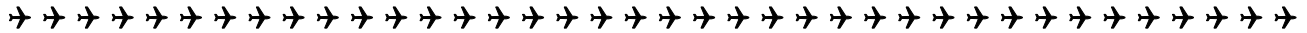
## **13. Announcements and Adjournment**

The dates and location of the 2018 AEEC | AMC will be announced.

The AEEC Chairman will adjourn the AEEC General Session.



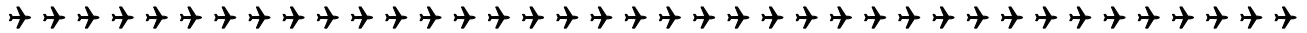
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<b>AEEC ADOPTION ITEMS – MILWAUKEE</b>					
<b>Agenda Item</b>	<b>Activity</b>	<b>Reference</b>	<b>Title</b>	<b>Pink Pages</b>	<b>Adopted Yes/No</b>
3b	CSS	16-153/CSS-587	Draft 2 of Supplement 9 to <b>ARINC Specification 628: Cabin Equipment Interfaces, Part 2, Seat Interfaces</b>		
3b	CSS	17-034/CSS-593	Draft 5 of Supplement 1 to <b>ARINC Specification 800: Cabin Connectors and Cables, Part 3, Specification of Cables</b>		
5b	DLK	17-026/DLK-150	Draft 1 of Supplement 5 to <b>ARINC Specification 619: ACARS Protocols for Avionic End Systems</b>		
5b	DLK	17-027/DLK-151	Draft 4 of Supplement 5 to <b>ARINC Specification 622: ATS Data Link Applications over ACARS Air-Ground Network</b>		
5b	DLK	17-025/DLK-149	Draft 7 of Supplement 7 to <b>ARINC Specification 631: VHF Digital Link (VDL) Mode 2 Implementation Provisions</b>		
5c	AGCS	17-036/AGCS-098	Draft 1 of Supplement 7 to <b>ARINC Characteristic 781: Mark 3 Aviation Satellite Communications System</b>		
7b	AMX	17-030/AMX-009	Draft 5 of <b>ARINC Project Paper 766: AeroMACS Transceiver and Aircraft Installation Standards</b>		
8b	EFB	17-041/EFB-066	Draft 2 of Supplement 7 to <b>ARINC Specification 834: Aircraft Data Interface Function (ADIF)</b>		
8c	NIS	17-029/NIS-073	Draft 6 of <b>ARINC Project Paper 852: Guidance for Security Data Logging in an IP Network Environment</b>		
11a	SDL	17-038/SDL-109	Draft 2 of <b>ARINC Project Paper 849: Guidance for Supplying Off-Aircraft Component Software Loading Specification Requirements</b>		
12b	NIC	17-007/NIC-218	Draft 1 of Supplement 20 to <b>ARINC Specification 600: Air Transport Avionics Equipment Interfaces</b>		



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<b>AEEC PROJECT PROPOSALS – APIMs</b>				
<b>Agenda Item</b>	<b>Proposed Activity</b>	<b>APIM Number</b>	<b>APIM Description</b>	<b>Approved Yes/No</b>
3b	CSS	17-009	Supplement 6 to <b>ARINC Specification 628, Part 1</b> Cabin Wireless Access Point (CWAP) for GbE	
3c	GAIN	17-007	Supplement 1 to <b>ARINC Specification 812A</b> Galley Equipment Interfaces to CANbus	
5b	DLK	17-002	Supplement 8 to <b>ARINC Specification 631</b> to introduce connectionless VDL Mode 2 variant	
5b	DLK	17-003	Supplements 4 and 5 to <b>ARINC Characteristic 758</b> to add Ethernet interfaces for future growth	
8a	EFB	09-009C	EFB Users Forum – 3-year project extension	
8b	EFB	17-006	Supplement 3 to <b>ARINC Specification 840: EFB</b> Application Control Interface (ACI)	
8c	NIS	17-001	New <b>ARINC Project Paper 8xx: IPv6</b> Roadmap Document	
9a	SAI	17-004	New <b>ARINC Project Paper 8xx: Autonomous</b> Distress Tracking	
9a	SAI	17-005	New <b>ARINC Project Paper 8xx: Timely Recovery</b> of Flight Data	