AEEC

Together "We Set the Standard."

To	AEEC Members, Corporate Sponsors and Guests	**Date**	March 23, 2018
From	Paul J. Prisaznuk AEEC Executive Secretary	**Reference**	18-053/AGS-188 lth
Subject	**AEEC General Session**	**Host**	Southwest
When	April 23-26, 2018		
Where	Sheraton Hotel Dallas, Texas		

MEETING AGENDA
AEEC General Session and AMC – Dallas 2018

0830 Monday, Opening Session at the Sheraton Conference Center Second Floor, Lone Star Ballroom B
1330 Monday, AEEC General Session will convene in Lone Star Ballroom A

Time	Monday April 23	Tuesday April 24	Wednesday April 25	Thursday April 26
0830	**1. OPENING SESSION** • Welcome/Introductions • Keynote Address • Awards	**5. DATA COMM** 5a. DataLink Users Forum 5b. DataLink Systems 5c. Air/Ground Comm & Satcom	**9. EFB & NETWORKS** 9a. EFB Users Forum 9b. EFB Subcommittee 9c. NIS Subcommittee	**AEEC Advisory Session** *AEEC ExCom Members only*
1010	Break	Break	Break	Break
1030	**2. JOINT SYMPOSIUM** ***BIG DATA AN INTRODUCTION***	**6. SYMPOSIUM** ***LONG-RANGE COMMUNICATION***	**10. SYMPOSIUM** ***AIRCRAFT CONNECTIVITY***	**AEEC Advisory Session** *AEEC ExCom Members only*
1200	*Lunch – provided by Airline Avionics Institute (AAI)*			
1330	**3. CABIN SYSTEMS** 3a. Ku/Ka-Band Satcom 3b. Cabin Systems 3c. Galley Interfaces 3d. CANbus	**7. DATA COMM & FMS** 7a. IPS Aero 7b. Flight Management 7c. Navigation Database 7d. Aeronautical Databases	**11. SPECIAL TOPICS** 11a. Software Distribution 11b. Fiber Optics 11c. APEX Software 11d. Cockpit Displays	**Adjourn**
1500	Break	Break	Break	
1520	**4. SYMPOSIUM** ***TOPICS TRENDING IN AVIATION***	**8. SYSTEMS & ARCHITECTURES** 8a. SAI Subcommittee 8b. Global Aircraft Tracking 8c. Surveillance / ADS-B	**12. SPECIAL TOPICS** 12a. Software Metrics 12b. ARINC 429 Data Bus 12c. Other Topics	
1800 2300	***Hospitality Suites Open*** ***Tuesday – AAI Reception – 6pm to 8pm***			

AEEC | AMC takes great pride in giving back to the community. ***The Children's Medical Center Dallas*** has been selected as the charity for this event. Please donate generously to this worthy cause.

AEEC EXECUTIVE COMMITTEE 2018

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AIR FRANCE – KLM	**Piet van den Berg** **AEEC Chairman-Elect**
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AEEC EXECUTIVE SECRETARY	**Paul Prisaznuk**

WELCOME TO DALLAS

On behalf of the AEEC Executive Committee, and our host, Southwest Airlines, it is my pleasure to welcome you to Dallas.

It's often said that everything's bigger in Texas and that is certainly true of our host – Southwest Airlines.

Southwest is the nation's largest carrier in terms of originating domestic passengers. It has over 700 aircraft in service and operates approximately 4,000 daily flights.

Southwest operates the largest fleet of Boeing aircraft in the world serving over 100 destinations in the United States and ten additional countries.

This week we salute Southwest and their big Texas hospitality.

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

- *Big Data -- an Introduction*
- *Long-Range Communication Systems*
- *Aircraft Connectivity*
- *Topics Trending in Aviation*

The AEEC provides a collaborative environment for decision making that no single organization could deliver on its own. For 69 years, this is the AEEC.

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

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Your Badge and Registration

Welcome to Dallas. The AEEC | AMC registration desk is open from 2:00pm to 7:00pm on Sunday. It is also open 7:30am to 3:30pm 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:
https://www.aviation-ia.com/conferences/aeec-general-session

Sunday Welcome Reception

Join us for a Welcome Reception outside the Lone Star Ballroom on Sunday, April 22 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: *https://www.aviation-ia.com/conferences/aeec-general-session* 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, April 24 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
AAI website: *www.airlineavionics.org*

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Dallas Guest Program – Sponsored by Southwest Airlines

Dallas Sightseeing

Southwest Airlines has organized two very special events for spouses and guests of the AEEC General Session and Avionics Maintenance Conference. Space is limited.

- ***Tuesday, April 24 – Fort Worth Sundance Square –*** *Departure Time 9:00am Sheraton Hotel Lobby*
- ***Wednesday, April 25 – George W. Bush Presidential Library (Bush 43)*** *[departure time to be announced]*

All guests are invited to register at:
https://www.aviation-ia.com/form/2018-aeec-amc-guest-program-registration

Charity

The AEEC | AMC takes great pride in giving back to the community. ***The Children's Medical Center Dallas*** 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 ARINC Standards development activities and to ensure that your airplanes use the best technical standards possible. Airlines that are not yet members of ARINC Industry Activities are invited to do the right thing and join. Your membership enables the AEEC to prepare standards that benefit aviation at large.

For more information:
https://www.aviation-ia.com/membership

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 this AEEC/AMC conference for free, and gain access to ARINC Standards. For more information:
https://www.aviation-ia.com/membership

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. Non-members and non-sponsors may purchase the AEEC General Session report for a nominal fee.

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1. AEEC | AMC OPENING SESSION

MONDAY, APRIL 23 – 8:30am – SHERATON LONE STAR BALLROOM B

- AEEC Chairman, Rich Stillwell, United Airlines, will welcome meeting attendees to the AEEC General Session.
- Mike Van de Ven, Chief Operating Officer, Southwest Airlines, will provide the keynote address.
- The AEEC Trumbull Award will be presented by the AEEC Chairman-Elect, Piet van den Berg, KLM.
- The Volare Awards will be presented by Ray Frelk, Airline Avionics Institute (AAI).

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2. BIG DATA – AN INTRODUCTION

SYMPOSIUM

Monday, April 23, Starting at 10:30am

Sheraton Lone Star Ballroom B – Joint AEEC/AMC Ballroom

Moderator: Ted McFann, FedEx

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3a. Ku/Ka-Band Communications

ARINC 791, ARINC Project Paper 792
Chairman: Peter Lemme, Totaport
Secretary: José Godoy, *jose.godoy@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 passenger broadband non-safety satellite equipment, 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*, defines a modular satcom system for non-safety services that will take advantage of the latest technology improvements to reduce the size, weight, and complexity of satcom systems. Antenna installation standards offer simplified antenna mounting independent of 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; and providing guidance for waveguide installation.
- **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

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geometry/blockage to include asymmetric blockage cases, and updating the Management Information Base (MIB).

AEEC Adoption Item: The AEEC Executive Committee will consider the following:

- **ARINC Project Paper 792:** *Second Generation Aviation Ku-Band and Ka-Band Satellite Communication System*

The future work program will be presented.

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3b. Cabin Systems Subcommittee (CSS)

ARINC 628, ARINC 664, ARINC 800, ARINC 808, ARINC 809
ARINC Project Paper 648, Project Paper 820, Project Paper 836A, Project Paper 854
Chairman: Dale Freeman, Delta Air Lines
Co-Chairmen: Klaus Friedrich (Fritz) Urban and Gerald Lui-Kwan, Boeing
Secretary: Scott Smith, *scott.smith@sae-itc.org*

APIM 08-011B: Cabin Enclosures Modular Rack Concept
APIM 12-004C: 10 Gbps 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 16-005A: Cabin Equipment Interfaces
APIM 16-011: Next Generation Cabin Data Bus
APIM 17-009: Multi-Gigabit Cabin Wireless Access Point (CWAP)
APIM 17-011: Cabin and Cargo Video Surveillance Equipment
APIM 17-012: Third Generation Cabin Network (3GCN)
APIM 17-013: Cell Phone Modem Standards for IFE

Goal: Define cabin equipment standards 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:

- **Supplement 4 to ARINC Specification 628 Part 0:** *Cabin Management and Entertainment System – Overview*
- **Supplement 8 to ARINC Specification 628 Part 1:** *Cabin Management and Entertainment System – Peripherals*
- **ARINC Project Paper 648:** *Guidance for Cabin Passenger Seat Testing*
- **Supplement 3 to ARINC Specification 664 Part 2**: *Aircraft Data Network, Ethernet Physical and Data Link Layer*
- **Supplements 1 and 2 to ARINC Specification 800, Part 2:** *Cabin Connectors and Cables: Specification of Connectors, Contacts, and Backshells*
- **Supplement 2 to ARINC Specification 808:** *3GCN – Cabin Distribution System*
- **Supplement 4 to ARINC Specification 809:** *3GCN – Seat Distribution System*
- **ARINC Project Paper 820:** *Cabin Architecture for Wireless Distribution System*
- **ARINC Project Paper 836A:** *Cabin Standard Enclosures*
- **ARINC Project Paper 854:** *Cabin Equipment Bus*

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AEEC Adoption Items: The AEEC Executive Committee will consider the following:

- **Supplement 4 to ARINC Specification 628, Part 0:** Cabin Management and Entertainment System – Overview
- **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
- **ARINC Project Paper 836A:** Cabin Standard Enclosures

APIM Approvals: The AEEC Executive Committee will consider the following:

- **APIM 15-001A** updates the schedule for developing cabin seat testing standards in 2019.
- **APIM 16-011A** expands the scope of the effort to develop standards for a next generation cabin bus to include new cable and connector definitions.
- **APIM 18-001** proposes the development of a fifth-generation cabin network (5CGN).

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3c. Galley Insert (GAIN) Subcommittee

ARINC 812A
Co-Chairman: Ralph Schnabel, Airbus
Co-Chairman: Scott Coburn, Boeing
Secretary: Paul Prisaznuk (acting)

APIM 17-007 – Galley Interfaces

Goal: The GAIN Subcommittee is updating cabin galley equipment standards.

Summary: APIM 17-007 calls for updates to ARINC Specification 812A to accomplish the following:

- Consider updates to ARINC 812A that reflect galley equipment production implementations
- Update CANbus digital messages in accordance with ARINC Specification 825
- Consider the effect of CAN Flexible Data rate (FD) protocol on galley components
- Update the XML and XSD support files as required

The status of the following documents will be summarized.

- **Supplement 2 to ARINC Specification 812A, Part 1:** *Standard Data Interfaces for Galley Insert (GAIN) Equipment, CAN Communications*
- **Supplement 1 to ARINC Specification 812A, Part 2:** *Standard Interfaces for Galley Insert (GAIN) Equipment, CAN Communications Verification and System Test Guidance*

AEEC Adoption Item: (none proposed)

The future work program will be presented.

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3d. CANbus

ARINC 825
Chairman: Thomas Joseph, GE Aviation
Secretary: Paul Prisaznuk (acting)

APIM 13-004C: Supplement 4 to ARINC Specification 825: *General Standardization of CAN (Controller Area Network) Bus Protocol for Airborne Use*

Goal: The CAN Working Group is leveraging CANbus standards and products from the commercial sector for use in avionic systems.

Summary: The CAN Working Group has reached consensus on a mature **Supplement 4 to ARINC Specification 825**. The document provides new content in the following area:

- CANbus with Flexible Data-Rate (FD)
- Timing, bandwidth management, latency, and jitter
- Common latency requirements
- Wire level protocols and other services
- Conformance matrix for CAN implementations

AEEC Adoption Item: The AEEC Executive Committee will consider the following:

- **Supplement 4 to ARINC Specification 825:** *General Standardization of CAN (Controller Area Network) Bus Protocol for Airborne Use*

The future work program will be presented.

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4. TOPICS TRENDING IN AVIATION SYMPOSIUM

Monday, April 23 – Starting at 3:20pm

Sheraton Lone Star Ballroom A

Moderator: Dennis Zvacek, American Airlines

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ADJOURN MONDAY

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AEEC GENERAL SESSION

TUESDAY, APRIL 24 – 8:30am – SHERATON LONE STAR BALLROOM A

5a. Datalink Users Forum

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

APIM 16-008: Datalink Users Forum

Goal: The Datalink Users Forum (DLUF) 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 Datalink 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 and global mandates. Airline feedback is desired.

Topics discussed by DLUF include:

- FAA NextGen 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
- 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 avionics supplier plans for:
    - FANS
    - ATN/OSI
    - ATN Baseline B
    - ATN/IPS

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5b. Datalink Systems and AOC Message Exchange

ARINC 618, ARINC 631, ARINC 758
DLK Chairman: Bob Slaughter, American Airlines
Secretary: José Godoy, *jose.godoy@sae-itc.org*

APIM 17-002: Definition of a connectionless protocol for VDLM2 in ARINC Specification 631
APIM 17-003: Definition of Ethernet interfaces in ARINC Characteristic 758

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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* will define a simple ACARS over internet Protocol (IP) that will enable operators to take advantage of the benefits of IP. ACARS over IP may provide interim benefits before ATN/IPS services are available.
- **Supplement 8 to ARINC Specification 631:** VHF Digital Link (VDL) Mode 2 Implementation Provisions is under development. Topics include:
    - Implementation provisions for VDL Mode 2 connectionless protocol
    - Potential use of connection-oriented and connectionless protocols simultaneously
    - VDL Mode 2 air-ground interoperability test requirements as recommended by the Enhanced Large Scale ATN (ELSA) Consortium
- **Supplement 4 to ARINC Characteristic 758:** Communications Management Unit (CMU), adding Ethernet hardware interfaces.
    - Define a new CMU connector with Quadrax contacts for Ethernet interfaces
    - Update Section 2, Interchangeability Standard, for the new Ethernet interfaces and references to ARINC Specification 664 Part 2.
    - Add a reference to ARINC 618-9 defining ACARS over IP.

AEEC Adoption Items: (none proposed)

The future work program will be presented.

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5c. Air/Ground Communications Systems (AGCS)

ARINC 771, ARINC 781
Chairman: Robert Holcomb, American Airlines
Secretary: José Godoy, *jose.godoy@sae-itc.org*

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

Goal: The Air-Ground Communications Systems (AGCS) Subcommittee defines broadband satcom safety services and equipment based on airline operational requirements. The satcom equipment is 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 data 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 included to protect avionics assets. Crosstalk description is added for Satellite Data Unit (SDU) switching.
- **ARINC Characteristic 781-7:** *Aviation Satellite Communication Systems* has been published. Inmarsat has proposed that the document be re-opened in 2018 to define voice over IP capabilities and a new diplexer to protect from potential interference from LTE and Ligado terrestrial signals.

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AEEC Adoption Item: The AEEC Executive Committee will consider the following:

- **Supplement 1 to ARINC Characteristic 771:** *Low-Earth Orbiting Aviation Satellite Communication System*

APIM Approvals: The AEEC Executive Committee will consider the following:

- **APIM 18-002** defining voice over IP capability and a new RF diplexer to protect from Inmarsat SBB from potential interference from LTE and Ligado.

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6. LONG-RANGE COMMUNICATIONS SYMPOSIUM

Tuesday, April 24, Starting at 10:30am

Sheraton Lone Star Ballroom A

Moderator: Jessie Turner, Boeing

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

ARINC 658 and ARINC Project Paper 858
Co-Chairman: Luc Emberger, Airbus
Co-Chairman: Greg Saccone, Boeing
Secretary: Paul Prisaznuk, *pjp@sae-itc.org*

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

Goal: The IPS Subcommittee is preparing standards for the introduction of the Internet Protocol Suite (ATN/IPS) in aviation air/ground communication systems considering the current 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 many 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/OSI.

ARINC Report 658: *Internet Protocol Suite (IPS) for Aeronautical Safety Services - Roadmap Document* was published in December 2017. The document serves as a roadmap for the standardization of IPS and it provides the timeline for elements to be standardized. ARINC 658 identifies the proper Standards Development Organization (SDO), to develop and/or update new standards e.g., AEEC, RTCA, EUROCAE, ICAO.

ARINC Project Paper 858: *Internet Protocol Suite (IPS) for Aeronautical Safety Services - technical Requirements* is in development. Topics of discussion include:

- ATN/IPS Architectures - Air and Ground
- Mobility Considerations
- Network and Data Security
- Support for legacy aircraft equipped with ACARS and ATN/OSI
- Transition phase during which ACARS, ATN/OSI, and IPS will co-exist
- ATN/IPS Standardization timelines with ICAO, RTCA, EUROCAE, etc.

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ARINC Standard will be prepared to define the avionics architecture, functions, and an IPS profile.

AEEC Adoption Item: (none proposed)

The future work program will be presented.

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7b. Flight Management Systems (FMS)

ARINC 702A
Chairman: Mike Bakker, GE Aviation
Secretary: Paul Prisaznuk, *pjp@sae-itc.org*

APIM 15-005: Supplement 5 to ARINC Characteristic 702A: *Advanced Flight Management Computer System*

Goal: Prepare 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: A report of **ARINC Characteristic 702A** development activities will be provided:

- ARINC 702A has been updated to support NextGen and SESAR airspace initiatives. Supplement 5 is 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 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: The AEEC Executive Committee will consider the following:

- **Supplement 5 to ARINC Characteristic 702A:** *Advanced Flight Management Computer System*

The future work program will be presented.

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7c. Navigation Database (NDB)

ARINC 424
Chairman: Chuong Phung, FedEx
Secretary: Sam Buckwalter, *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 report of **ARINC Specification 424** development activities will be provided:

- 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. The XML schema is being defined in a way that allows it to hold all existing specifications, documentation, and requirements from the existing ARINC Specification 424, as well as additional data expected for growth.

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- The development of an XML schema will be presented along with its status and future work

AEEC Adoption Item: The AEEC Executive Committee will consider the following:

- Draft 3 of Supplement 22 to **ARINC Specification 424:** *Navigation System Database*

APIM Approval: The AEEC Executive Committee will consider the following:

- **APIM 11-005C:** Preparation of draft Supplement 23 to **ARINC Specification 424:** *Navigation System Database*

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

ARINC Project Paper 813, ARINC Specification 814, ARINC Project Paper 815
Chairman: Brian Gilbert, Boeing
Secretary: Peter Grau, *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:

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

AEEC Adoption Items: The AEEC Executive Committee will consider the following:

- **ARINC Project Paper 813:** *Embedded Interchange Format for Terrain Database*
- **ARINC Project Paper 815:** *Embedded Interchange Format for Obstacle Database*
- **Supplement 1 to ARINC Specification 814:** *Extensible Mark-Up Language (XML) Encoding and Compression Standard*

The future work program will be presented.

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8a. Systems Architecture and Interfaces (SAI) Subcommittee

Co-Chairman: Rich Stillwell, United Airlines
Co-Chairman: Reinhard Andreae, Lufthansa
Secretary: Paul Prisaznuk, *pjp@sae-itc.org*

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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 presently 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:

- Monitor global aircraft tracking initiatives
- Review potential aircraft architectures
- Determine need for new ARINC Standards

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.

Fourteen new project proposals have been reviewed and dispositioned in the first quarter of 2018. Many have been assigned and presented by the respective AEEC Subcommittees. One new APIM will be presented by the SAI Subcommittee.

APIM Approval: The AEEC Executive Committee will consider the following:

- **APIM 18-003** calling for an assessment of future Communication, Navigation and Surveillance (CNS) radio system architectures, areas of improvement, integration, and the potential for future ARINC Standards.

The next SAI Subcommittee meeting will be held June 14-15, 2018, in Memphis, Tennessee.

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8b. Global Aircraft Tracking (GAT)

ARINC Project Paper 680 and ARINC Project Paper 681
Chairman: Chuck Adler, Boeing
Secretary: Peter Grau, *peter.grau@sae-itc.org*

APIM 17-004: Autonomous Distress Tracking (ADT)
APIM 17-005: Timely Recovery of Flight Data (TRFD)

Goal: Prepare flight tracking and recovery of data specifications which meet ICAO Annex 6 standards for newly constructed transport category aircraft.

Summary: A summary report of GAT Working Group activities will be provided, including the status of the following documents:

- **ARINC Project Paper 680:** *Autonomous Distress Tracking* is intended to ensure future aircraft will have tracking capabilities enabling their quick location in the event of an accident or loss of communications.
    - Phase 1: Document end-to-end Systems requirements
    - Phase 2: Identify suitable candidate architectures
    - Phase 3: Develop Characteristics

- **ARINC Project Paper 681:** *Timely Recovery of Flight Data* is intended to ensure future aircraft flight data can be quickly recovered to assist in accident investigations. This work package has been approved and expected to commence in 2018.
    - Phase 1: Document end-to-end Systems requirements

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- Phase 2: Identify suitable candidate architectures
- Phase 3: Develop Characteristics

AEEC Adoption Items: (None proposed)

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8c. Traffic Surveillance, ADS-B

Chairman: Jessie Turner, Boeing
Secretary: José Godoy, *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)

The future work program will be presented.

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ADJOURN TUESDAY

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AEEC GENERAL SESSION

WEDNESDAY, APRIL 25 – 8:30AM – SHERATON LONE STAR BALLROOM A

9a. Electronic Flight Bag (EFB) Users Forum

Co-Chairman: Philipp Haller, Austrian Airlines
Co-Chairman: Will Ware, Southwest Airlines
Secretary: Peter Grau, *peter.grau@sae-itc.org*

APIM 09-009C: 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 Security and Connectivity
- EFB Applications and Content Management
- Regulatory Issues

Next EFB Users Forum: The next EFB Users Forum meeting will be hosted by Avionica on May 15-17, 2018 in Miami, Florida.

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9b. Electronic Flight Bag (EFB) Subcommittee

ARINC Project Paper 840A
Co-Chairman: Sonja Schellenberg, Lufthansa
Co-Chairman: Maurice Ingle, American Airlines
Secretary: Peter Grau, *peter.grau@sae-itc.org*

APIM 17-006: Application Control Interface for Tablet Devices

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: Since the last AEEC General Session, the EFB Subcommittee has prepared a proposal to extend the current work on Application Control Interface and developed two new APIMs for consideration. These activities will be summarized including a status report on the following document:

- **ARINC Project Paper 840A:** *Application Control Interface for Tablet Devices.* 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

AEEC Adoption Item: (none proposed)

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APIM Approval: The AEEC Executive Committee will consider the following:

- **APIM 17-006A** with a new scope and schedule for **ARINC Project Paper 840A:** *Application Control Interface for Tablet Devices*.
- **APIM 17-014** proposes a new ARINC Standard to define a consolidated functional interface between EFB software applications and aircraft avionics. The goal is to eliminate the need for mixed-fleet airlines to acquire and maintain multiple versions of the their popular EFB applications. It will also enable software developers to use a standard interface and not be required convert to raw data units to engineering units.
- **APIM 17-015** proposes a new ARINC Standard to define an EFB server intended to support the EFB and other peripherals. The server will offer the following functions:
  - Avionics data interface service
  - Include ACARS messaging and EFB content printing function (currently defined in ARINC 834) by moving these respective specifications into this new standard
  - Define application/service server capabilities

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9c. Network Infrastructure and Security (NIS)

ARINC 842, ARINC Project Paper 848, ARINC Project Paper 686
Chairman: Jeffrey Rae, United Airlines
Secretary: Vanessa Mastros, *vanessa.mastros@sae-itc.org*

APIM 16-004: Guidance for Use of Digital Certificates
APIM 16-014: Broadband Network Interface for Non-Safety Services
APIM 17-001: Roadmap for Transitioning to IPv6

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 Usage of Digital Certificates* realigns references and technology with ATA's Spec 42, best practices and lessons learned through implementation, and includes other international standards.
- **ARINC Project Paper 848:** *Broadband Network Interface for Non-Safety Services* is intended to define a media-independent standard method for secure communications between an aircraft onboard LAN and an enterprise LAN on the ground. Utilizing Virtual Private Network (VPN) technology, tunnels can be established using any combination of onboard LAN and enterprise LAN. This document is set within a context of security defense-in-depth that includes three distinct layers: COTS, Network, and Application.
- **ARINC Project Paper 686:** *Roadmap and Strategy for IPv6 Transition* is intended to be a roadmap strategy which will anticipate the current capability in the coming product developments, recommend candidate end-to-end solutions in the case where IPv4 and IPv6 coexist, plan for address allocation and management, identify ARINC Standards to be updated, and recommend a work program to include time frame estimates. Additionally, this document is intended to provide a common IPv6 strategy for aircraft connectivity is defined to:
  - Anticipate IPv6 capability in the coming product developments
  - Ease the transition from IPv4 to IPv6
  - Recommend candidate solutions in cases where IPv4 and IPv6 coexist
  - Identify security issues and provide recommendations to solve them
  - Develop plan for address allocation and management
  - Be ready when the IPv4 sunset date is reached

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- Identify ARINC Standards to be updated to include IPv6

AEEC Adoption Item: The AEEC Executive Committee will consider the following:

- **Supplement 2 to ARINC Report 842:** *Guidance for Usage of Digital Certificates*

The future work program will be presented.

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10. AIRCRAFT CONNECTIVITY SYMPOSIUM

Wednesday, April 25, Starting at 10:30am

Sheraton Lone Star Ballroom A

Moderator: Jose Almeida, TAP Portugal

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11a. Software Distribution and Loading

ARINC Project Paper 645 and ARINC Project Paper 851
Co-Chairman: Ted Patmore, Delta Air Lines
Co-Chairman: Rod Gates, American Airlines
Secretary: Scott Smith, *scott.smith@sae-itc.org*

APIM 16-002: Common Standards for Software Data Loading and Data Management
APIM 16-015: Ground System definition for e-Enabled Aircraft

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:

- **ARINC Project Paper 645:** *Common Terminology and Functions for Software Distribution and Loading* provides the definitions and terminology for other industry standards to reference. The processes for applying Cyclic Redundancy Codes (CRC) will be provided, as well as reference material on Loadable Software Aircraft Part (LSAP) formats and filenames.
- **ARINC Project Paper 851:** *Software Ground Systems 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.

AEEC Adoption Items: The AEEC Executive Committee will consider the following:

- **ARINC Project Paper 645:** *Common Terminology and Functions for Software Distribution and Loading*

APIM Approval: The AEEC Executive Committee will consider the following:

- **APIM 18-004:** Supplement 5 to ARINC Report 665: Loadable Software Standards
- **APIM 18-005:** Supplement 1 to ARINC Specification 843: Aircraft Common Configuration Reporting

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11b. Fiber Optic Interfaces

ARINC 801 through 807
ARINC Project Paper 846
Chairman: Robert Nye, Boeing
Secretary: Scott Smith, *scott.smith@sae-itc.org*

APIM 13-009: Fiber Optic Mechanical Transfer Technology

Goal: Develop ARINC Standards for 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 document has defined a fiber optic Mechanical Transfer contact for use in connectors with frequent disconnect/connect operations and/or in harsh environments.

The work on expanded beam termini and the mechanical transfer ferrule required subsequent efforts to update existing ARINC Standards 802 through 807, including specific material describing the design, testing, installation, and maintenance of connectors and cables. The updated documents include:

- 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*

The FOS is expected to update ARINC Reports 803 and 804 in the near-term with material specific to a 10GbE Physical and Link Layer network for use in the aircraft cabin environment. This activity will support the Cabin Systems Subcommittee and APIM 12-004C.

AEEC Adoption Item: The AEEC Executive Committee will consider the following:

- **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*
- **ARINC Project Paper 846:** *Fiber Optic Ferrule, Mechanical Transfer*

The future work program will be presented.

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11c. Application/Executive (APEX) Software Interface

ARINC 653
Co-Chairman: Pierre Gabrilot, Airbus
Co-Chairman: Gordon Putsche, Boeing
Secretary: Scott Smith, *scott.smith@sae-itc.org*

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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)

- **ARINC Specification 653:** *Part 3A, Conformity Test Specification for Required Services*
- **ARINC Specification 653:** *Part 3B, Conformity Test Specification for Extended Services*

The future work program will be presented.

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11d. Cockpit Display Systems (CDS) Interfaces

ARINC 661
Chairman: Chad Weldon, Rockwell-Collins
Secretary: Peter Grau, *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 Symbology, and Behavior* is intended to ensure growth for CNS/ATM applications and support advanced operational concepts 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)

The future work program will be presented.

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12a. Software Metrics

Chairman: Reinhard Andreae, Lufthansa
Secretary: Paul Prisaznuk, *pjp@sae-itc.org*

APIM 16-001: Software Performance and Reliability

Summary: A report of three industry meetings held during 2017-2018 will be presented.

- A Summary Report was prepared to describe software performance and reliability trends
- Steps that the aviation community should take to foster improvement.
- Current point of view of the airlines, airframe manufacturers, and avionic suppliers that participated in the meetings
- Section 9 of the Summary Report presents open issues and clarifications, i.e., topics where consensus could not be reached. Each stakeholder prepared a dedicated section:
    - Software Suppliers
    - Airframe Manufacturers
    - Airlines/MRO

AEEC Adoption Item: (none proposed)

The future work program will be presented.

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12b. ARINC 429 Data Bus

Secretary: Jose Godoy, *jose.godoy@sae-itc.org*

APIM 17-010: Prepare Supplement 19 to ARINC Specification 429

Goal: Maintain ARINC 429 data bus standards for industry.

Summary: The ARINC Industry Activities staff maintains **ARINC Specification 429:** *Digital Information Transfer System (DITS)* based on industry inputs that are collected and organized in a form that is suitable for inclusion in the standard. Current changes will expand ARINC 429 Label and Data Word formats with no impact on legacy systems. ARINC Specification 429 was last published in 2012. The next planned release will be discussed.

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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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AEEC ADOPTION ITEMS DALLAS (1 OF 2)

Agenda Item	Activity	Reference	Title	Pink Pages	Adopted Yes/No
3a	KSAT	18-051/KSAT-034	Draft 3 of ARINC Project Paper 792: *Second-Generation Ku-Band and Ka-Band Aeronautical Mobile Satellite Earth Stations*		
3b	CSS	17-162/CSS-602	Draft 1 of Supplement 4 to ARINC Specification 628: *Cabin Equipment Interface, Part 0, Overview*		
3b	CSS	18-040/CSS-606	Draft 5 of Supplement 3 to ARINC Specification 664: *Aircraft Data Network, Part 2, Ethernet Physical and Data Link Layer*		
3b	CSS	18-039/CSS-605	Draft 5 of Supplement 1 to ARINC Specification 800: *Cabin Connectors and Cables, Part 2, Connectors, Contacts, and Backshells*		
3b	CSS	18-043/CSS-607	Draft 5 of ARINC Project Paper 836A: *Cabin Standard Enclosures*		
3d	CAN	18-048/CAN-015	Draft 2 of Supplement 4 to ARINC Characteristic 825: *General Standardization of CAN (Controller Area Network)*		
5c	DLK	18-052/AGCS-105	Draft 2 of Supplement 1 to ARINC Characteristic 771: *Low-Earth Orbiting Aviation Satellite Communication System*		
7b	FMS	18-046/FMC-121	Draft 2 of Supplement 5 to ARINC Characteristic 702A: *Advanced Flight Management Computer System*		
7c	NDB	18-042/NDT-175	Draft 1 of Supplement 22 to ARINC Specification 424: *Navigation System Database*		
7d	ADB	18-017/ADB-047	Draft 2 of ARINC Project Paper 813: *Embedded Interchange Format for Terrain Databases*		

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AEEC ADOPTION ITEMS DALLAS (2 OF 2)

Agenda Item	Activity	Reference	Title	Pink Pages	Adopted Yes/No
7d	ADB	18-033/ADB-049	Draft 2 of Supplement 1 to ARINC Specification 814: *Extensible Markup Language (XML) Encoding and Compression Standard*		
7d	ADB	18-018/ADB-048	Draft 3 of ARINC Project Paper 815: *Embedded Interchange Format for Obstacle Databases*		
9c	NIS	18-028/NIS-081	Draft 4 of Supplement 2 to ARINC Report 842: *Guidance for Use of Digital Certificates*		
11a	SDL	18-041/SDL-117	Draft 3 of ARINC Project Paper 645: *Common Terminology and Functions for Software Distribution and Loading*		
11b	FOS	18-007/FOWG-180	Draft 1 of Supplement 3 to ARINC Specification 802: *Fiber Optic Cables*		
11b	FOS	18-027/FOWG-241	Draft 2 of Supplement 4 to ARINC Report 803: *Fiber Optic Design Guidelines*		
11b	FOS	18-034/FOWG-183	Draft 2 of Supplement 2 to ARINC Report 804: *Fiber Optic Active Device Specification*		
11b	FOS	18-038/FOWG-184	Draft 4 of ARINC Project Paper 846: *Fiber Optic Interfaces using Mechanical Transfer Technology*		
11c	APEX	18-049/SWM-147	Draft 1 of Supplement 1 to ARINC Specification 653: *Avionics Application Software Standard Interface, Part 3A, Conformity Test Specification for ARINC 653 Required Services*		
11c	APEX	18-050/SWM-148	Draft 1 of ARINC Project Paper 653: *Avionics Application Software Standard Interface, Part 3B, Conformity Test Specification for ARINC 653 Extended Services*		

NEW AEEC PROJECT PROPOSALS (APIMs)				
Agenda Item	**Proposed Activity**	**APIM Number**	**APIM Description**	**Approved Yes/No**
3b	CSS	15-001A	**New ARINC Project Paper 648:** Guidance for Cabin Passenger Seat Testing	
3b	CSS	16-011A	Supplement 2 to **ARINC Specification 800:** Cabin Cables and Connectors for Cabin Bus	
3b	CSS	18-001	**New ARINC Project Paper 8xx:** Fifth Generation Cabin Network (5GCN), plus related Supplements	
5b	DLK	18-002	**Supplements to ARINC 741, ARINC 761, ARINC 781** protecting satcom from LTE and Ligado using DLNAs	
7c	NDB	11-005C	**Supplement 23 to ARINC Specification 424:** Navigation System Database (NDB)	
8a	SAI	18-003	**New ARINC Project Paper 8xx:** Integrated Radio Architecture for CNS	
9b	EFB	17-006A	**ARINC Project Paper 840A:** EFB Application Software Control Interface for Tablet Devices	
9b	EFB	17-014	**New ARINC Project Paper 8xx:** EFB Aircraft Data Interface Function	
9b	EFB	17-015	**New ARINC Project Paper 8xx:** EFB Server with Aircraft Interface Device	
11a	SDL	18--004	**Supplement 5 to ARINC Report 665:** Loadable Software Standards	
11a	SDL	18-005	**Supplement 1 to ARINC Specification 843:** Loadable Software Configuration Reporting	