AEEC

Together "We Set the Standard."

To	Aviation Industry	**Date**	October 25, 2018
From	P. J. Prisaznuk AEEC Executive Secretary pjp@sae-itc.org tel +1 240-334-2579	**Reference**	18-116/AXX-218 lth

Subject **AEEC Work Program for 2018-2019**
AEEC Mid-Term Session
October 18-19, 2018 – London, England

Summary The AEEC Executive Committee approved five additional project proposals at the AEEC Mid-Term Session in London:

17-002A	Prepare Supplement 8 to **ARINC Specification 631**: *VHF Digital Link (VDL) Mode 2 Implementation Provisions,* adding connectionless VDL Mode 2 capability
17-010A	Prepare Supplement 17 to **ARINC Specification 429**: *Digital Information Transfer System (DITS) Part 2, Discrete Word Data Standards*
18-006	Prepare Supplement 2 to **ARINC Specification 664**: *Aircraft Data Network, Part 1, Systems Concept and Overview*
18-007	Prepare Supplement 3 to **ARINC Specification 818**: *Avionics Digital Video Bus (ADVB)*
18-008	Prepare new **ARINC Project Paper 8xx**: *Onboard Secure Wi-Fi Network Profile Standard*

The statement of work for each of these projects is attached to this document in the form of an APIM (ARINC Proposal to Initiate/Modify an ARINC Standard). As of the date of this letter, 14 AEEC Project Papers and 46 Supplements to existing ARINC Standards are presently in work.

Summary The purpose of this letter is twofold:

1. Actions of the Airlines Electronic Engineering Committee (AEEC) are hereby announced.
2. ARINC Industry Activities invites its Members, Corporate Sponsors, and all interested parties to participate in ARINC Standards development activities.

For additional information on the AEEC work program, contact the AEEC Executive Secretary or visit the AEEC website: *www.aviation-ia.com/aeec*.

cc AEEC Executive Committee, DLK, EFB, IPS, NIS, SAI

Attachment 1

Attachment 1

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 17-002A

Supplement 8 to ARINC Specification 631: *VHF Digital Link (VDL) Mode 2 Implementation Provisions*

Adding Connectionless VDL Mode 2 Capability

1.1 Name of Originator & Organization

Mike Matyas, Boeing

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Datalink (DLK) Systems Subcommittee

Chairman: Bob Slaughter, American Airlines

2.2 Support for the activity (to be confirmed)

Airlines: American Airlines, Delta, Lufthansa, Southwest, TAP Portugal, UPS, United,

Airframe Manufacturers: Airbus, Boeing

Suppliers: Honeywell, Rockwell Collins

Others: Rockwell Collins IMS, SITA OnAir

2.3 Commitment for Drafting and Meeting Participation

Airlines: American Airlines, UPS

Airframe Manufacturers: Airbus, Boeing

Suppliers: Honeywell, Rockwell Collins

Others: Rockwell Collins IMS, SITA

2.4 Recommended Coordination with other groups

DLK Users Forum, RTCA SC-214 VDLSG, EUROCAE WG-92

3.0 Project Scope

This project will create Supplement 8 to ARINC Specification 631.

Supplement 8 will include two sets of changes: [1] VDL Mode 2 air-ground interoperability tests and [2] implementation provisions for the connectionless VDL Mode 2 capability. These changes are intended to further improve VDL Mode 2 operation and performance beyond the changes made with Supplement 7.

Experience with implemented ATN/OSI B1 CPDLC in Europe has shown that VDL Mode 2 air-ground interoperability tests are desirable. Such tests will provide greater assurance that the VDL Mode 2 system will work as intended and allow early detection of potential interoperability issues.

Connectionless VDL Mode 2 will allow airplanes and ground stations to exchange messages without having to establish an explicit connection, similar to how POA (VDL Mode 0/A) works. It will exercise the previously unused connectionless message exchange capability already described in relevant standards, namely the Unnumbered Information (UI) frame defined in ISO 4335/7809 and ICAO Doc 9776 (the "VDL Tech Manual"). Connectionless VDL Mode 2 will be fully compatible with existing VDL Mode 2. Both variants will work on the same frequency at the same time and a particular airplane could use both variants at same time.

Connectionless VDL Mode 2 is intended to further address the performance issues seen in Europe by providing greater efficiency and robustness. The greater efficiency of connectionless VDL Mode 2 will increase effective VDL Mode 2 capacity – the limits of which are a valid concern in both Europe and the US – and accordingly its sustainability. Additionally, connectionless VDL Mode 2 will leverage investments already made in VDL Mode 2 (as opposed to starting over with new technology) and be highly beneficial for existing ACARS and ATN/OSI network technology as well as for future ATN/IPS network technology. Boeing, Honeywell, SITA have already performed successful ground and flight trials of IPS-over-connectionless VDL Mode 2. The DLK Subcommittee will define connectionless VDL Mode 2 to carry ACARS messages (AOA packets), ATN/OSI messages (ISO 8208 packets), and ATN/IPS messages (IP packets).

3.1 Planned usage of the envisioned specification

New aircraft developments planned to use this specification: yes ☐ no ☒

- Airbus: (aircraft & date)
- Boeing: To be determined
- Other: (manufacturer, aircraft & date)

Modification/retrofit requirement: yes ☒ no ☐

- Specify: Boeing 787 and 777X, 2020

Needed for airframe manufacturer or airline project: yes ☒ no ☐

- Specify: Boeing 787 and 777X, 2020

Mandate/regulatory requirement: yes ☐ no ☒

- Program and date: (program & date)

Is the activity defining/changing an infrastructure standard? yes ☒ no ☐

- Specify ARINC 631 VDL Mode 2

When is the ARINC Standard required?

~~October 2019~~ **December 2020**

What is driving this date?

This date is driven by the need for the benefits that VDL Mode 2 air-ground interoperability tests and connectionless VDL Mode 2 will bring.

Are 18 months (min) available for standardization work? yes ☒ no ☐

Are Patent(s) involved? yes ☐ no ☒

If YES please describe, identify patent holder: _____

3.2 Issues to be worked

One issue to be worked is whether an airplane should use both existing VDL Mode 2 and connectionless VDL Mode 2 simultaneously as appropriate or use only one variant at a time. Define the best way to perform frequency management when using connectionless VDL Mode 2 and how connectionless VDL Mode 2 will carry ATN/OSI messages. Data security will be addressed.

4.0 Benefits

4.1 Basic benefits

Operational enhancements yes ☒ no ☐

For equipment standards:

a. Is this a hardware characteristic? yes ☐ no ☒

b. Is this a software characteristic? yes ☒ no ☐

c. Is this an interchangeable interface definition? yes ☐ no ☒

d. Is this an interchangeable function definition? yes ☐ no ☒

If not fully interchangeable, please explain:

Air/Ground Interoperability

Is this a software interface and protocol standard? yes ☒ no ☐

Specify: Air/Ground Interoperability

Is this product offered by more than one supplier? yes ☒ no ☐

Universal Avionics, Honeywell, Rockwell Collins, Rockwell Collins IMS, SITA

4.2 Specific Project Benefits

4.2.1 Benefits for Airlines

Benefits for airlines of connectionless VDL Mode 2 include more efficient and robust communication of AOC and ATS messages via VDL Mode 2. As demonstrated in Europe with implemented ATN/OSI B1 CPDLC, current connection-oriented VDL Mode 2 has proven to be less efficient and robust than desired.

For example, ELSA “peer loss of communication” (also known as “N2 events”) will be less likely to occur with connectionless VDL Mode 2 because of antenna diversity. In particular, an airplane will accept uplinks from any ground station of the selected service provider and all ground stations of the selected service provider will accept downlinks from an airplane.

4.2.2 Benefits for Airframe Manufacturers

Benefits for airframe manufacturers of VDL Mode 2 air-ground interoperability tests include greater assurance that VDL Mode 2 systems will perform as intended and early detection of potential interoperability issues. Benefits for airframe manufacturers of connectionless VDL Mode 2 include more efficient and robust communication via VDL Mode 2 that better satisfy the needs of their customers.

4.2.3 Benefits for Avionics Equipment Suppliers

Benefits for avionics equipment suppliers of VDL Mode 2 air-ground interoperability tests include greater assurance that VDL Mode 2 systems will perform as intended and early detection of potential interoperability issues. Benefits for avionics equipment suppliers of connectionless VDL Mode 2 include more efficient and robust communication via VDL Mode 2 that better satisfy the needs of their customers.

5.0 Documents to be Produced and Date of Expected Result

Supplement 8 to ARINC Specification 631, **December 2020** ~~June 2019~~

5.1 Meetings and Expected Document Completion

These meetings will be coordinated by the AEEC staff person assigned to this activity.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
Supplement 8 to ARINC 631	~~5~~ **9**	~~15~~ **26**	June 2017	~~June 2019~~ **Dec 2020**

Proposals for inclusion in Supplement 8 to ARINC 631 will be coordinated through web conference meetings. Final document review will take place as part of the regularly scheduled DLK Systems Subcommittee meetings.

6.0 Comments

6.1 Expiration Date for the APIM

~~December 2019~~ **May 2021**

Completed forms should be submitted to the AEEC Executive Secretary and Program Director, Paul J. Prisaznuk (pjp@sae-itc.org)

Attachment 2

Attachment 2

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 17-010A

Supplement 19 to ARINC Specification 429: *Digital Information Transfer System (DITS)* ***Part 1*** **and,**

Supplement 17 to ARINC Specification 429: ***Digital Information Transfer System (DITS) Part 2, Discrete Word Data Standards***

1.1 Name of Originator and/or Organization

AEEC Executive Secretary

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Group: SAI Subcommittee - Staff activity using email and internet coordination

2.2 Support for the activity

Airlines: **(AEEC ExCom Approved – October 18, 2018)**

Airframe Manufacturers: TBD

Suppliers: TBD

Others: TBD

2.3 Commitment for Drafting and Meeting Participation

Airlines: TBD

Airframe Manufacturers: TBD

Suppliers: TBD

Others: TBD

2.4 Recommended Coordination with other groups

AeroMACS, AGCS, DLK, GNSS, others as determined by new ARINC 429 labels

3.0 Project Scope

3.1 Description

ARINC 429 is the most widely used data transfer medium in aviation. The first version of ARINC 429 was released in 1977 as the so-called “digital aircraft” emerged in the front lines of service. ARINC 429 is a unidirectional bus; two bus pairs comprise a typical ARINC 429 data bus. The bus is viewed to be highly-reliable and relatively easy to implement in all types of avionics equipment.

ARINC receives a steady flow of requests to add new ARINC 429 labels and the associated word formats. These requests typically come from airframe and avionics suppliers. They tend to be related to new airplane development

programs and retrofit programs. These changes are considered normal expansion of the standard. These changes do not change the fundamental protocol, the clocking, or any physical layer characteristic related to ARINC 429 interoperability.

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification yes ☒ no ☐

Specify: Future aircraft

Modification/retrofit requirement yes ☒ no ☐

Specify: future retrofit

Needed for airframe manufacturer or airline project yes ☒ no ☐

Specify: Airbus, Boeing and other airplane programs

Mandate/regulatory requirement yes ☐ no ☒

Program and date: No mandate

Is the activity defining/changing an infrastructure standard? yes ☐ no ☒

When is the ARINC Standard required? 2018

What is driving this date? The desire for clear communication with industry

Are 18 months (min) available for standardization work? yes ☒ no ☐

If NO, please specify solution: Not applicable

Are Patent(s) involved? yes ☐ no ☒

If YES please describe, identify patent holder: Not applicable

3.3 Issues to be worked

Update of ARINC Specification 429 is an AEEC staff activity:

- Collect and organize industry inputs from ARINC website and email
- Consider Global Aircraft Tracking (GAT) inputs as well as inputs from related ARINC Standards
- **Include GAT Discrete Word Definitions for ADT Trigger (Label 202) and Distress Transmitter Status (Label 201)**
- **Survey ARINC Standards produced since the last update to Part 2 (2004) for Discrete Words that should be captured in ARINC 429**
- Determine the appropriateness of requests.
    - Avoid ARINC 429 label duplication
    - Check word formats, bit assignments, LSBs, MSBs, etc. for accuracy
    - Cross-check with ARINC 700-series documents
- Arrange new material in the existing ARINC 429 document structure
- Post drafts to ARINC website and coordinate with industry
- Circulate final draft for comment in advance of the AEEC General Session and solicit comments

- Resolve any final comments over web conference and/or email coordination
- No in-person meetings necessary

4.0 Benefits

4.1 Basic benefits

Operational enhancements? yes ☒ no ☐

For equipment standards:

a. Is this a hardware characteristic? yes ☐ no ☒

b. Is this a software characteristic? yes ☒ no ☐

c. Interchangeable interface definition? yes ☒ no ☐

d. Interchangeable function definition? yes ☒ no ☐

If not fully interchangeable, please explain: Not applicable

Is this a software interface and protocol standard? yes ☒ no ☐

Specify: ARINC 429

Product offered by more than one supplier yes ☒ no ☐

Identify: TBD

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

The benefits to airlines are visible in the form of a standardized avionics data bus interface. This benefit is evident in new aircraft development and in retrofit.

4.2.2 Benefits for Airframe Manufacturers

Airframe manufacturers' benefit from standardized interwiring in the production of aircraft.

4.2.3 Benefits for Avionics Equipment Suppliers

The benefit to avionics equipment suppliers is to re-use a standardized bus interface on a multitude of avionics products and systems.

5.0 Documents to be Produced and Date of Expected Result

Supplement 19 to ARINC Specification 429: Digital Information Transfer System (DITS) in April 2018.

5.1 Meetings and Expected Document Completion

The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
Supp 19 to ARINC 429 **Part 1**	0	0	Oct 2017	April 2018
Supp 17 to ARINC 429 Part 2	**0**	**0**	**Oct 2018**	**Apr 2019**

6.0 Comments

None

6.1 Expiration Date for the APIM

October **2019**

Completed forms should be submitted to the AEEC Executive Secretary and Program Director, Paul J. Prisaznuk (pjp@sae-itc.org)

Attachment 3

Attachment 3

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 18-006

Supplement 2 to ARINC Specification 664: *Aircraft Data Network, Part 1, Systems Concept and Overview*

1.1 Name of Originator and/or Organization

ARINC Industry Activities staff

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Staff activity using email and internet coordination

2.2 Support for the activity

Airlines: (AEEC ExCom Approved – October 18, 2018)

Airframe Manufacturers: TBD

Suppliers: TBD

Others: TBD

2.3 Commitment for Drafting and Meeting Participation

Airlines: TBD

Airframe Manufacturers: TBD

Suppliers: TBD

Others: TBD

2.4 Recommended Coordination with other groups

AGCS, DLK, NIS, SAI

3.0 Project Scope

3.1 Description

ARINC Specification 664 defines a ruggedized version of Ethernet for use in avionics networks. The first version of ARINC 664 was released in 2001. It is based on IEEE Std 802.3, Information Technology Exchange Between Systems. ARINC 664 deviates from the IEEE standards to meet environmental and regulatory requirements.

ARINC 664 is widely used on Airbus and Boeing programs starting with the A380 (certified in 2006) and many programs since that time.

ARINC Industry Activities has received comments (attached to this APIM).

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification yes ☒ no ☐

Specify: Future aircraft

Modification/retrofit requirement yes ☒ no ☐

Specify: future retrofit

Needed for airframe manufacturer or airline project yes ☒ no ☐

Specify: Airbus, Boeing and other airplane programs

Mandate/regulatory requirement yes ☐ no ☒

Program and date: No mandate

Is the activity defining/changing an infrastructure standard? yes ☐ no ☒

When is the ARINC Standard required? 2018

What is driving this date? The desire for clear communication with industry

Are 18 months (min) available for standardization work? yes ☒ no ☐

If NO, please specify solution: Not applicable

Are Patent(s) involved? yes ☐ no ☒

If YES please describe, identify patent holder: Not applicable

3.3 Issues to be worked

ARINC Specification 664 Part 1 update is an AEEC staff activity:

- Collect and organize industry inputs
- Prepare and coordinate initial draft Supplement 2
    - Include industry inputs
    - Remove any ambiguities
    - Verify document references
    - Update acronym list
    - Update document format
- Circulate draft and solicit comments from industry
- Coordinate with industry including web conference as necessary
- Circulate final draft for comment in advance of the AEEC General Session and solicit comments
- Resolve any final comments over web conference and/or email coordination
- No in-person meetings necessary

4.0 Benefits

4.1 Basic benefits

Operational enhancements? yes ☒ no ☐

For equipment standards:

a. Is this a hardware characteristic? yes ☐ no ☒

b. Is this a software characteristic? yes ☒ no ☐

c. Interchangeable interface definition? yes ☒ no ☐

d. Interchangeable function definition? yes ☒ no ☐

If not fully interchangeable, please explain: Not applicable

Is this a software interface and protocol standard? yes ☒ no ☐

Specify: ARINC 664

Product offered by more than one supplier yes ☒ no ☐

Identify: TBD

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

The benefits to airlines are visible in the form of a standardized avionics data bus interface. This benefit is evident in new aircraft development and in retrofit.

4.2.2 Benefits for Airframe Manufacturers

Airframe manufacturers' benefit from standardized interwiring in the production of aircraft.

4.2.3 Benefits for Avionics Equipment Suppliers

The benefit to avionics equipment suppliers is to re-use a standardized bus interface on a multitude of avionics products and systems.

5.0 Documents to be Produced and Date of Expected Result

Supplement 2 to ARINC Specification 664: *Aircraft Data Network, Part 1, Systems Concept and Overview* in April 2019.

5.1 Meetings and Expected Document Completion

The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
Supp 2 to ARINC 664, Part 1	0	0	Oct 2018	April 2019 or Oct 2019

6.0 Comments

None

6.1 Expiration Date for the APIM

October 2019

Completed forms should be submitted to the AEEC Executive Secretary and Program Director, Paul J. Prisaznuk (pjp@sae-itc.org)

Attachment 4

Attachment 4

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 18-007

Supplement 3 to ARINC Specification 818: *Avionics Digital Video Bus (ADVB)*

1.1 Name of Originator and/or Organization

ARINC Industry Activities staff

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Group: Digital Video Working Group of SAI Subcommittee

Staff activity using web conference and email coordination

2.2 Support for the activity

Airlines: FedEx

Airframe Manufacturers: Boeing

Suppliers: Great River Techology, Inc., Cotsworks LLC, Elbit Systems, Aviage Systems, others TBD

2.3 Commitment for Drafting and Meeting Participation

Airlines: FedEx

Airframe Manufacturers: Boeing

Suppliers: Great River Techology, Inc., Cotsworks LLC, Elbit Systems, Aviage Systems, others TBD

2.4 Recommended Coordination with other groups

SAI

3.0 Project Scope

3.1 Description

ARINC Specification 818: *Avionics Digital Video Bus (ADVB)* defines a ruggedized version of ANSI Fiber Channel Audio Visual (FCAV). The first version of ARINC 818 was released in 2006. ARINC 818 goes beyond the ANSI standard version of FCAV to define aviation profile capable of meeting environmental and regulatory requirements.

ARINC 818 is widely used on Airbus and Boeing programs starting with the B787 and many programs since that time.

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification yes ☒ no ☐

Specify: Future aircraft

Modification/retrofit requirement yes ☒ no ☐

Specify: future retrofit

Needed for airframe manufacturer or airline project yes ☒ no ☐

Specify: Airbus, Boeing and other airplane programs

Mandate/regulatory requirement yes ☐ no ☒

Program and date: No mandate

Is the activity defining/changing an infrastructure standard? yes ☐ no ☒

When is the ARINC Standard required? 2019

What is driving this date? The desire for clear communication with industry

Are 18 months (min) available for standardization work? yes ☒ no ☐

If NO, please specify solution: Not applicable

Are Patent(s) involved? yes ☐ no ☒

If YES please describe, identify patent holder: Not applicable

3.3 Issues to be worked

Supplement 3 to ARINC 818 will include the definition of new material as follows:

1. Add 10x speed as the highest 8b/10b encoded rate. Develop 64/66b encoding and ordered sets for all speeds above that. Addition of 12x is [TBD].
2. Add material defining the latency budget for an ARINC 818 device in transmit and receive modes, e.g., latency of lines, frames, time. Define verification criteria that is testable.
3. Define a display emulation mode. This is for test equipment to accurately model receivers in terms of line or frame buffers. Define what parameters are needed and how this is triggered.
4. Define Dense Wavelength Division Multiplexing (DWDM) header and/or Coarse Wavelength Division Multiplexing (CWDM) header
5. Update fault detection encoding and the CRC in ARINC 818.

In summary:

- Collect and organize industry inputs
- Prepare initial draft Supplement 3
- Circulate final draft for comment in advance of the AEEC General Session and solicit comments
- Resolve any final comments over web conference and/or email coordination

4.0 Benefits

4.1 Basic benefits

Operational enhancements? yes ☒ no ☐

For equipment standards:

a. Is this a hardware characteristic? yes ☐ no ☒

b. Is this a software characteristic? yes ☒ no ☐

c. Interchangeable interface definition? yes ☒ no ☐

d. Interchangeable function definition? yes ☒ no ☐

If not fully interchangeable, please explain: Not applicable

Is this a software interface and protocol standard? yes ☒ no ☐

Specify: ARINC 818

Product offered by more than one supplier yes ☒ no ☐

Identify: TBD

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

The benefits to airlines are visible in the form of a standardized digital video bus interface. This benefit is evident in new aircraft development and in retrofit.

4.2.2 Benefits for Airframe Manufacturers

Airframe manufacturers' benefit from standardized interwiring in the production of aircraft.

4.2.3 Benefits for Avionics Equipment Suppliers

The benefit to avionics equipment suppliers is to re-use a standardized bus interface on a multitude of avionics products and systems.

5.0 Documents to be Produced and Date of Expected Result

Supplement 3 to ARINC Specification 818: *Avionics Digital Video Bus (ADVB)*

5.1 Meetings and Expected Document Completion

The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
Supp 3 to ARINC 818	0	0	Oct 2018	April 2019

6.0 Comments

None

6.1 Expiration Date for the APIM

October 2019

Completed forms should be submitted to the AEEC Executive Secretary and Program Director, Paul J. Prisaznuk (pjp@sae-itc.org)

Attachment 5

Attachment 5

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 18-008

Onboard Secure Wi-Fi Network Profile Standard

1.1 Name of Originator and/or Organization

Jeffrey Rae – United Airlines

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Network Infrastructure and Security (NIS) Subcommittee – Jeffrey Rae

2.2 Support for the activity (as verified)

Airlines: Alaska Airlines, American Airlines, El Al Israel Airlines, FedEx, Lufthansa Airlines, United Airlines

Airframe Manufacturers: Airbus, Boeing,

Suppliers: Astronautics Corp. of America, Astronics (TBC), AstroNova (TBC), Esterline Avionics, GE Aviation, GoGo, Honeywell, Miltope, Lufthansa Technik, Panasonic, Rockwell Collins, SatAuth, Teledyne Controls, Thales, UTAS (TBC), ZII, Zodiac Actuation Systems

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: Alaska Airlines, American Airlines, El Al Israel Airlines, FedEx, Lufthansa Airlines, United Airlines

Airframe Manufacturers: Airbus, Boeing,

Suppliers: Astronautics Corp. of America, Astronics (TBC), AstroNova (TBC), Esterline Avionics, GE Aviation, GoGo, Honeywell, Miltope, Lufthansa Technik, Panasonic, Rockwell Collins, SatAuth, Teledyne Controls, Thales, UTAS (TBC), ZII, Zodiac Actuation Systems

2.4 Recommended Coordination with other groups

Cabin Systems, EFB, KSAT, SAI, SDL

3.0 Project Scope (why and when standard is needed)

3.1 Description

Airlines require a secure method for operational client devices to connect and transmit encrypted data across onboard WLAN networks. A standard wireless network profile (based on network security best practices) for crew and operational connections to onboard WLAN networks is required to support consistency across airlines, IFE/IFC and airframe suppliers.

Passengers' personal devices are outside the scope of this activity.

WLAN networks may consist of shared-purpose inflight entertainment system networks operating in the PIES domain, dedicated aircraft cabin wireless networks or localized AID devices operating in the AIS domain.

Client devices requiring connections to these networks may consist of electronic flight bags, flight attendant mobile devices, onboard IoT devices, AID devices (acting as clients) and maintenance devices.

A defined wireless network profile standard adhering to security best practices would benefit both airlines and suppliers. This standard would also improve security postures of all operational onboard WLAN networks.

3.1.1 Planned usage of the envisioned specification

Note: New airplane programs must be confirmed by manufacturer prior to completing this section.

New aircraft developments planned to use this specification yes ☒ no ☐

Airbus: (aircraft & date TBD)

Boeing: (aircraft & date TBD)

Other: (manufacturer, aircraft & date)

Modification/retrofit requirement yes ☐ no ☒

Specify: (aircraft & date)

Needed for airframe manufacturer or airline project yes ☒ no ☐

Specify: United Airlines / In service Aug 2018

Mandate/regulatory requirement yes ☐ no ☒

Program and date: (program & date)

Is the activity defining/changing an infrastructure standard? yes ☐ no ☒

Specify (e.g., ARINC 429)

When is the ARINC standard required? April 2020

What is driving this date? United Airlines projects

Are 18 months (min) available for standardization work? yes ☒ no ☐

If NO please specify solution: _____

Are Patent(s) involved? yes ☐ no ☒

If YES please describe, identify patent holder: _____

3.2 Issues to be worked

The following areas will be developed and defined as part of an Onboard Secure Wi-Fi Network Profile Standard:

- Cockpit Crew, Cabin Crew, and Maintenance mobile device configuration
- IoT device configuration
- Onboard WLAN network configuration
- Assessment of new published WLAN standards (WPA3)
- Device and onboard infrastructure certificate/key management (CRL update, certificate management, filtering, etc.)
- Onboard authentication configuration and policies
- Certificate revocation management
- Wireless device removal/theft on aircraft per user group

- Network isolation and segmentation when on shared network (integration in an overall connectivity / security concept (as context information, not the focus of the standard)

Notes:

1. Several profiles and solutions may be identified for each use case
2. Some devices may connect to different WLANs and should avoid need for multiple certificates

4.0 Benefits

4.1 Basic benefits

Operational enhancements yes ☒ no ☐

For equipment standards:

(a) Is this a hardware characteristic? yes ☐ no ☒

(b) Is this a software characteristic? yes ☒ no ☐

(c) Interchangeable interface definition? yes ☒ no ☐

(d) Interchangeable function definition? yes ☒ no ☐

If not fully interchangeable, please explain: _____

Is this a software interface and protocol standard? yes ☒ no ☐

Specify: _____

Product offered by more than one supplier yes ☒ no ☐

Identify: Multiple

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

Airlines will benefit from a standard method for mobile crew devices to connect securely to onboard WLAN networks. Configuration across disparate IFE/IFC suppliers and/or airframe manufacturers will reduce complexity and assure adherence to security best practices for operational mobile device authentication and encryption within onboard WLAN networks.

4.2.2 Benefits for Airframe Manufacturers

Airframe manufacturers are able to design standardized equipment configuration applicable to multiple airlines.

4.2.3 Benefits for Avionics Equipment Suppliers

Avionics suppliers are able to design standardized equipment configurations applicable to multiple airlines.

5.0 Documents to be Produced and Date of Expected Result

ARINC Project Paper xxx to be prepared per the table in the following section.

5.1 Meetings and Expected Document Completion

The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
ARINC Project Paper xxx	3-4	3-4	Oct 2018	Apr 2020

Web conferences will be held.

6.0 Comments

(none)

6.1 Expiration Date for the APIM

October 2020

Completed forms should be submitted to the AEEC Executive Secretary and Program Director, Paul J. Prisaznuk (pjp@sae-itc.org)