ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project
APIM 19-002
Update Bus Speed for Cabin Seat Networks and prepare:

- Supplement 4 to ARINC Specification 485: Cabin Equipment Interfaces, Part 1, Head End Equipment Protocol
- Supplement 5 to ARINC Specification 485: Cabin Equipment Interfaces, Part 2, Physical Layer – In-Seat Protocol

1.1 Name of Originator and/or Organization
Scott McMillan, Crane Aerospace and Electronics

1.2 Suggested AEEC Group and Chairman
Cabin Systems Subcommittee, Dale Freeman, Delta Air Lines

1.3 Support for the activity (as verified)
Airlines: Delta Air Lines
Airframe Manufacturers: Airbus, Boeing
Suppliers: Crane Aerospace and Electronics, TE Connectivity, Amphenol, KID-Systeme, Panasonic Avionics Corp, Recaro
Others:

1.4 Commitment for Drafting and Meeting Participation (as verified)
Airlines: Delta Air Lines
Airframe Manufacturers: Airbus, Boeing
Suppliers: Crane Aerospace and Electronics, TE Connectivity, Amphenol, KID-Systeme, Panasonic Avionics Corp, Recaro
Others:

1.5 Recommended Coordination with other groups
(List other AEEC subcommittees or other groups.)

2.0 Project Scope (why and when standard is needed)

2.1 Description
The ARINC 485 In-Seat Network currently specifies use of low-speed bus (9.6 kbps). This APIM would add the option of high-speed bus (115 kbps).

2.2 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

- Airbus: All Aircraft with seats using ARINC 485
- Boeing: All Aircraft with seats using ARINC 485
- Other: All Aircraft with seats using ARINC 485
Modification/retrofit requirement
Specify: All Aircraft with seats using ARINC 485

Needed for airframe manufacturer or airline project
Specify: (aircraft & date)

Mandate/regulatory requirement
Program and date: (program & date)

Is the activity defining/changing an infrastructure standard?
Specify: ARINC 485, Parts 1 and 2

When is the ARINC standard required?

What is driving this date?
Are 18 months (min) available for standardization work?
If NO please specify solution:

Are Patent(s) involved?
If YES please describe, identify patent holder:

2.3 Issues to be worked

In ARINC 485, Part 1:
• Update Section 2.2.4, Bus Timing, to define two bus speeds.
• Update Section 2.2.4.1, High-Speed Bus Timing, to specify high-speed bus.
• Update Section 2.2.4.2, Low-Speed Bus Timing, to specify low-speed bus.

In ARINC 485, Part 2:
• Update Section 2.1, Physical Layer, Bullet 4 to specify both the low-speed rate and the high-speed rate.
• Update Section 2.2.4, Bus Timing, to specify two bus speeds.

3.0 Benefits

3.1 Basic benefits
Operational enhancements
For equipment standards:
(a) Is this a hardware characteristic?
(b) Is this a software characteristic?
(c) Interchangeable interface definition?
(d) Interchangeable function definition?
If not fully interchangeable, please explain:

Is this a software interface and protocol standard?
Specify:

Product offered by more than one supplier
Identify: (company name)
3.2 Specific project benefits (Describe overall project benefits.)

3.2.1 Benefits for Airlines
Airlines would benefit from a more responsive and faster in-seat communication bus.

3.2.2 Benefits for Airframe Manufacturers
Airframe manufacturers will benefit from increased reliability and functionality.

3.2.3 Benefits for Avionics Equipment Suppliers
Suppliers could design increased functionality and communication capabilities into their products and services.

4.0 Documents to be Produced and Date of Expected Result
Supplement 4 to ARINC Specification 485: Cabin Equipment Interfaces, Part 1, Head End Equipment Protocol
Supplement 5 to ARINC Specification 485: Cabin Equipment Interfaces, Part 2, Physical Layer – In-Seat Protocol

4.1 Meetings and Expected Document Completion
The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mtgs</th>
<th>Mtg-Days (Total)</th>
<th>Expected Start Date</th>
<th>Expected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supp 4 to ARINC 485, Part 1</td>
<td>2</td>
<td>6</td>
<td>May 2019</td>
<td>Apr 2020</td>
</tr>
<tr>
<td>Supp 5 to ARINC 485, Part 2</td>
<td>2</td>
<td>6</td>
<td>May 2019</td>
<td>Apr 2020</td>
</tr>
</tbody>
</table>

Reflects all CSS meetings responsible for several APIMs in work. In addition to the proposed meetings identified above, the CSS will have virtual meetings to develop preliminary pin assignments and connector definitions.

5.0 Comments
None.

5.1 Expiration Date for the APIM
October 2020

**Completed forms should be submitted to the AEEC Executive Secretary.**