

ARINC Project Initiation/Modification (APIM)

- 1.0 Name of Proposed Project** **APIM 16-007A**
Air Traffic Services (ATS) Wind Service Standardization
Supplement 5 to ARINC Specification 622: *ATS Data Link Applications over ACARS Air-Ground Networks*
And related changes to:
- **Supplement 9 to ARINC Specification 618: *Air/Ground Character-Oriented Protocol Specification***
 - **Supplement 5 to ARINC Specification 619: *ACARS Protocols for Avionic End Systems***
 - **Supplement 9 to ARINC Specification 620: *Data Link Ground System Standard (also see APIM 16-010)***
- 1.1 Name of Originator and/or Organization**
Boeing and Airbus
- 2.0 Subcommittee Assignment and Project Support**
- 2.1 Suggested AEEC Group and Chairman**
Group: Data Link Systems Subcommittee
Note: If possible, handle review and discussion of items via teleconference.
Chairman: Bob Slaughter, AA
- 2.2 Support for the activity**
Airlines: American, United, UPS, Alaska,
Airframe Manufacturers: Boeing, Airbus
Suppliers: GE Aviation, Honeywell, Rockwell Collins, Thales
Others: FAA
- 2.3 Commitment for Drafting and Meeting Participation**
Airlines: N/A
Airframe Manufacturers: Boeing, Airbus
Suppliers: GE Aviation, Honeywell, Rockwell Collins, Thales
Others: FAA
- 2.4 Recommended Coordination with other groups**
RTCA SC-214

3.0 Project Scope

3.1 Description

Air Traffic Service Wind Service would allow for the transmission of wind and temperature gradient information to aircraft by an Air Traffic Control Center (ATCC). It is designed to support Interval Management and 4-D trajectory functions.

In order to provide the ATS wind service with minimal impact to the airborne equipment, the implementation described in the joint Boeing and Airbus paper was created.

In the proposed implementation, the existing Airline Operational Communication (AOC) (ARINC 702A) message format would be utilized for transmitting ATS winds. The main addition is the use of the ACARS supplemental address to identify the Originator (i.e. ATC).

This implementation would utilize existing air/ground message formats described in ARINC Specification 620.

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification yes no

Specify: TBD

Modification/retrofit requirement yes no

Specify: If airlines want to take advantage of ATS winds services, then they must retrofit the capability via enabling the existing AOC communication feature within the Flight Management Computer/Function (FMC/FMF).

Needed for airframe manufacturer or airline project yes no

Specify:

Mandate/regulatory requirement yes no

Program and date: No mandate

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

Specify:

When is the ARINC Standard required? 2018

What is driving this date?

Standard development is required to support ATN baseline 2 implementation. Development of ATS wind service standards is also required to facilitate development of standards for the FIM function.

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

The work to be done consists of two tasks as follows:

1) Prepare Supplement 5 to ARINC 622 to include the proposed ATS winds functionality.

2) Review document for editorial changes as needed (e.g., update document references, etc.).

3) Coordinate changes, as required, for ARINC Specifications 618, 619, and 620). Note: Since this feature is envisioned for future architectures, no change is presently planned for ARINC Characteristic 758.

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:

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 benefit for Airlines is expected to come from enhanced airspace capability using existing aircraft technology. There will be minimal impact to Avionics resulting in minimal cost to the operator. Additionally, since the technology being utilized has been in service for a long time, it is a mature technology which is

already available on most older model aircraft. This will reduce the impact on retrofit aircraft.

This enables FIM development without major changes to the aircraft to support ATS wind uplinks.

4.2.2 Benefits for Airframe Manufacturers

The benefit to the airframe manufacturer will be the capability to use existing standards and capability to offer ATS wind service enhancement. By using existing capability, there will be minor impact to production and retrofit aircraft models. Only required change would be to enable AOC wind feature within the current FMC/FMF if not already enabled.

4.2.3 Benefits for Avionics Equipment Suppliers

Avionics equipment supplier benefits will be similar to the airframe manufacturer benefits. Due to the minimal impact to existing Avionics equipment, there will be minimal impact to the suppliers.

5.0 Documents to be Produced and Date of Expected Result

Supplement 5 to ARINC Specification 622 to include Air Traffic Services Wind Service information.

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 |
|---|------|------------------|---------------------|--------------------------|
| Addition of ATS Wind Services implementation section to ARINC 622 Make associated changes to ARINC 618, 619 and 620 | 3 | 3 | Feb 2016 | Dec 2016 |

These are intended to be virtual meetings with the interested parties.

6.0 Comments

None

6.1 Expiration Date for the APIM

December 2016

May 2017