

## ARINC Project Initiation/Modification (APIM)

- 1.0 Name of Proposed Project** **APIM 19-015**  
Supplement 10 to ARINC Specification 620 – *Datalink Ground System Standard and Interface Specification (DGSS/IS)*
- 1.1 Name of Originator and/or Organization**  
Collin Aerospace IMS
- 2.0 Subcommittee Assignment and Project Support**
- 2.1 Suggested AEEC Group and Chairman**  
Data Links (DLK) Systems Subcommittee, Bob Slaughter, American Airlines
- 2.2 Support for the activity (as verified)**  
Airlines: Alaska Airlines, American Airlines, Delta, FedEx, Southwest Airlines, TAP Portugal, United Airlines, UPS  
Airframe Manufacturers: Airbus, Boeing  
Suppliers: Collin Aerospace, Honeywell, Universal Avionics  
Others: Airtel ATN, Collin Aerospace IMS, L3Harris Technologies, SITAOnAir
- 2.3 Commitment for Drafting and Meeting Participation (as verified)**  
Airlines: American Airlines  
Airframe Manufacturers: Airbus, Boeing  
Suppliers: Collin Aerospace, Honeywell, Universal Avionics  
Others: Airtel ATN, Collin Aerospace IMS, L3Harris Technologies, SITAOnAir
- 2.4 Recommended Coordination with other groups**  
N/A
- 3.0 Project Scope (why and when standard is needed)**
- 3.1 Description**  
Air/ground interoperability issues have affected the Initial Phase of FAA CPDLC En Route Services. One of the identified issues by the Data Comm Implementation Team (DCIT) is 'MAS Fail with Response'.  
A "Message Assurance (MAS) Fail with Response" occurs when an uplink message is believed NOT delivered to the aircraft by the Data Link Ground System, but the message is actually delivered; and sometimes responded to by the Flight Crew.  
The FAA has deemed 'MAS Fail with Response' unacceptable. The Data Comm Implementation Team (DCIT) plans to implement a three-phase plan to address MAS Fail with Response and other data comm message delivery issues. One of the milestones occurs in June 2020, when the addition of the 'Deliver-By Text Element Identifier' (DB TEI) will be implemented by the ground service provider. A new Text Element Identifier (TEI) and two new uplink reject codes are being proposed to allow the message originator to specify a time within which the

message must be delivered by (uplink message lifetime), otherwise the message needs to be intercepted by the DSP.

Supplement 10 to ARINC Specification 620 will document this implementation.

The ground system originating the uplink will append the new DB (Deliver By) TEI to the ARINC 620 Message Header. This TEI will specify the deadline that the uplink must be delivered to the aircraft. If the DSP cannot ensure delivery by the deadline, the message will be discarded.

When the messages are discarded, a reject message will be sent to the ground originator. In such cases, the reject messages will contain one of the following new codes:

<b>Code</b>	<b>Reason for Rejection</b>	<b>Explanation</b>
250	Insufficient Delivery Time	DSP determined it is unable to deliver the message in a timely manner.
314	Insufficient Delivery Attempts	DSP determined a reduced number of standard delivery attempts occurred without ACK.

This will assure that the DSPs do not send a message after a specified time included in the ARINC 620 portion of the message.

This will prevent MAS Fail with Response along with other issues related to late delivery of messages.

Supplement 10 to ARINC Specification 620 will also address the following:

- Correct examples with obsolete MSN format (Honeywell request) Section 3.3.3 – Uplink Message Delivery Confirmation, Table 3.3.2-1
- Clarify ACARS Character Set (Boeing request, like changes proposed for ARINC Specifications 618 and 619) Section 3.2.1 and Appendix E (Tables E-1 and E-2)
- Add Media Advisory Downlink guidance for DSPs Section 5.3.51, Media Advisory – Label SA
- MIAM MFI encoding (Collins Aerospace request)
  - Add “dummy” Supplemental Address to the Message Function Identifier (MFI) Field to allow MIAM MFIs to be recognized by Collins Aerospace

### 3.2 **Planned usage of the envisioned specification**

New aircraft developments planned to use this specification      yes  no

Modification/retrofit requirement      yes  no

Specify:      (aircraft & date)

Needed for airframe manufacturer or airline project      yes  no

This can be used by all aircraft types without aircraft modification

Mandate/regulatory requirement      yes  no

It is an identified issue that can affect the Data Comm as En Route program.

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

Specify      (e.g., ARINC 429)

When is the ARINC standard required?      Oct 2020

What is driving this date?

Required to support FAA En Route waterfall schedule to activate the remaining ATC En Route centers.

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

If NO please specify solution:

Simple revision to ARINC 620 for implementation by Oct 2020.

Are Patent(s) involved?      yes  no

If YES please describe, identify patent holder: \_\_\_\_\_

### 3.3 **Issues to be worked**

Tight schedule.

### 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? (ground system software)      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: ARINC 620 (Ground Standard and Interface Specification)

Product offered by more than one supplier      yes  no

Identify: Collins Aerospace IMS, SITAOnAir

**4.2 Specific project benefits (Describe overall project benefits.)**

**4.2.1 Benefits for Airlines**

Improve FAA En Route program which is beneficial to the Airlines operating domestic FANS 1.

**4.2.2 Benefits for Airframe Manufacturers**

N/A

**4.2.3 Benefits for Avionics Equipment Suppliers**

N/A

**5.0 Documents to be Produced and Date of Expected Result**

Mature draft Supplement 10 to ARINC Specification 620 by May 2020

**5.1 Meetings and Expected Document Completion**

<b>Activity</b>	<b>Mtgs</b>	<b>Mtg-Days (Total)</b>	<b>Expected Start Date</b>	<b>Expected Completion Date</b>
<i>Supplement 10</i>	<i>2</i>	<i>6</i>	<i>Jan 2020</i>	<i>Oct 2020</i>

**6.0 Comments**

Web conferences once a month or as needed.

Supplement 10 will be developed during web conferences and regularly scheduled DLK Systems Subcommittee meetings.

**6.1 Expiration Date for the APIM**

May 2021

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