

## **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.



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	<del>5</del> 9	<del>15</del> 26	June 2017	<del>June 2019</del> 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)***