TERMS OF REFERENCE
Special Committee (SC) 214
Standards for Air Traffic Data Communication Services
Revision 21

ORIGINAL REQUESTOR:

Organization	Person
FAA – ATC Communications Services	**Jim Eck**

SC LEADERSHIP:

Position	Name	Affiliation	Telephone	email	Change
Co-Chair					
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BACKGROUND:

The PMC established Special Committee 214 (SC-214) on March 22, 2007, named Standards for Air Traffic Data Communication Services. The committee was formed in response to a request from the FAA for a new Special Committee to develop documents in support of the Next Generation Air Transportation System (NextGen) for services in defined environments through 2040.

Datalink Communication System Standards:

RTCA SC-214 is a joint committee with EUROCAE WG-78 and developed the safety, performance and interoperability requirements for the Air Traffic Services (ATS) supported by data communications to be implemented in the United States by the NextGen Data Communications Program and in Europe as part of the Single European Sky ATM Research (SESAR) operational improvements.

SC-214/WG-78 jointly completed Revision A to Baseline 2 ATS Data Communications standards (i.e., DO-350A/ED-228A, DO-351A/ED-229A, DO-352A/ED-230A, and DO-353A/ED-231A) in March 2016. After that, activities with standards for Baseline 2 ATS Data Communications by RTCA SC-214/EUROCAE WG-78 were suspended. EUROCAE WG-78 was reactivated to modify these SPR/INTEROP standards. This work began in summer of 2021.

RTCA SC-214 supported the ISRA with SC-186 regarding Flight Deck-based Interval Management – Spacing (FIM-S) Datalink Standards.

VDL Mode 2 Subnetwork Standards:

RTCA SC-214 is also a joint committee with EUROCAE Working Group 92 (WG-92) and they will work in collaboration with ARINC Industry Activities (IA) Airlines Electronic Engineering Committee (AEEC) Data Link (DLK) Systems Subcommittee to ensure harmony within VDL Mode 2 standards (i.e., DO-224E, DO-281D/ED-92D and ARINC Specification 631-9).

Revise VDL Mode 2 standards to support data communications over the new ATN-IPS network being developed by SC-223/WG-108 and incorporate derived requirements not specified in current published VDL Mode 2 standards to resolve issues discovered from the European Data Link Service (DLS) and FAA Data Comm Program En-Route operations. Europe is working through the Data Link Support Group (DSG) and the FAA Data Comm Program is working through the Data Comm Implementation Team (DCIT) to bridge this gap until the VDL Mode 2 standards can be revised.

DELIVERABLES:

Product	Description	FRAC Completion Due Date*	Change
DO-280B Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (ATN B1 Interop Standard) Change 2	Change	June 2024	May
DO-281D, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer	See MOPS Drafting Guide	December 2024	
DO-224E, Signal-in-Space Minimum Aviation System Performance Standards (MASPS) for Advanced VHF Digital Data Communications	See MASPS Drafting Guide	December 2024	
DO-351B Interoperability Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 Interop Standard) Change 1	Change	June 2024	New

DO-383A, Guidance on VDL Mode 2 Air/Ground Interoperability	Guidance Document	December 2024	
DO-XXX, ATS Data Communication Verification Test Standard	Verify aircraft and ground Implementations	December 2025	

*Note: Final Review and Comment (FRAC) Completion Due Date refers to the date that the committee plenary approves the document after completing the FRAC Process. SCs should submit the final document at least 45 days before the PMC meeting where it will be considered for approval.

SCOPE and COORDINATION:

Datalink Communication System Standards:

SC-214 / WG-78 developed guidance material to define the safety, performance and interoperability requirements for Air Traffic Services (ATS) supported by data communications. The guidance should advance CNS/ATM concepts and support data communication developments for the Next Generation Air Transportation System and the Single European Sky ATM Research (SESAR) initiatives. SC-214/WG-78 shall work jointly and establish close working relationships with the International Civil Aviation Organization (ICAO) panels, regional coordinating groups and other standards organizations as appropriate.

The committee's current work plan includes the following tasks:

Develop Change 2 to DO-280B/ED-110B, Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (ATN B1 Interop Standard).

Develop Change 1 to DO-351B/ED-229B, Interoperability Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 Interop Standard).

Develop an industry standardized verification test to support the development and verification of the datalink systems application layer of an aircraft and/or ground implementation based on the following Interop and SPR Standards:

- DO-258A/ED-100A and DO-350B/ED-228B for FANS 1/A+,
- DO-280B/ED-110B and DO-350B/ED-228B for ATN B1, and
- DO-351B/ED-229B and DO-350B/ED-228B for B2.

VDL Mode 2 Subnetwork Standards:

SC-214 / WG-92 shall collaborate with ARINC IA AEEC DLK Systems Subcommittee to ensure harmony within VDL Mode 2 standards.

The committee's current work plan includes the following tasks:

Develop Revisions to DO-224D, Signal-in-Space Minimum Aviation System Performance Standards (MASPS) for Advanced VHF Digital Data Communications Including Compatibility with Digital Voice Techniques, to improve air/ground interoperation.

Develop Revisions to DO-281C, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer, to improve air/ground interoperation. DO-281D MOPS is to provide applicable requirements and qualification tests for Equipment Classes supporting a VDL Mode 2 system described in Paragraph 1.2 of DO-281, for instance:

- Class 1 equipment applicable to a VDR, including any requirement(s) allocated to a VDR applicable to support IPS Security Requirements specified in Paragraph 3.3.8 of DO-379
- Class 2 equipment applicable to a CMU or equivalent, capable of connection oriented VDL-M2 data communication messages in support of an ACARS network
- Class 3 equipment applicable to a CMU or equivalent, capable of connection oriented VDL-M2 data communication messages in support of an ATN-OSI network
- Class 4 equipment applicable to a CMU or equivalent, capable of VDL-M2 data communication messages in support of an IPS network

Develop Revisions to DO-383, Guidance on VDL Mode 2 Air/Ground Interoperability to improve air/ground interoperation based on operational experience.

Finally, with the new equipment classes, specific ACARS requirements and tests will be added to the MASPS and MOPS.

ENVISIONED USE OF DELIVERABLES:

The primary use of the committee work products shall be to establish internationally harmonized technical requirements for the development, government acceptance, and certification of aeronautical data link systems in support of the air traffic service as part of the NextGen and SESAR initiatives.

The FAA Air Traffic Organization used the documents developed by SC-214/WG-78 to develop specifications for acquisition of the supporting ground-based infrastructure. Airworthiness and operational authorities intend to use these documents to develop advisory circulars to qualify aircraft and operations that use air traffic data communication services. The ATS authorities intend to use these documents to establish safety and performance requirements, interoperability requirements, and verification tests to qualify related ground-based ATS systems and operations.

SPECIFIC GUIDANCE:

In performing its duties, RTCA SC-214/WG-78 shall:

Develop Change 2 to **DO-280B/ED-110B**, Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (ATN B1 Interop Standard) to:

- Update the ground requirement in section 3.3.7.6.4.10.2 regarding UM79 content;
- Update the ground requirements in Tables 4-3 and 4-5 and associated figures regarding message concatenation in CPDLC end requests.

Develop Change 1 to DO-351B/ED-229B, Interoperability Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 Interop Standard) to:

- Correct errors in the message numbering in the ASN.1 Message Set of ED-229B/DO-351B. This correction is necessary to ensure backwards compatibility between systems compliant to Revision A and Revision B of the Standard;

- Add a new reason code "contract number already in use" to the ADSreject variable;
- Resolve editorial issues in the ASN.1.

Develop **DO-xxx/ED-yyy** to support development and verification of ATN B1, FANS 1/A+, and B2 datalink system application layers against realistic operational scenarios developed per DO-350B/ED-228B.

In performing its duties, RTCA SC-214/WG-92 shall:

Develop **DO-281D/ED-92D** VDL2 MOPS to incorporate VDL2 improvements and connectionless VDL-M2 protocol.

Develop **DO-224E** VDL2 MASPS to incorporate VDL2 improvements and connectionless VDL-M2 protocol.

Develop **DO-383A** Guidance on VDL Mode 2 Air/Ground Interoperability to incorporate guidance clarifications and improvements from operational experience.

SC-214/WG-92 will work in collaboration with AEEC DLK Systems Subcommittee to ensure VDL Mode 2 standards published by EUROCAE and ARINC IA are in harmony with the standards published by RTCA.

Develop Revisions to **ARINC Specification 631**, VHF Digital Link (VDL) Mode 2 Implementation Provisions.

Develop a working paper that will be submitted to ICAO Data Communications Infrastructure Working Group (DCIWG). The content of the paper is to identify the revisions to **ICAO Doc 9776**, Manual on VHF Digital Link (VDL) Mode 2 so the ICAO Standard is in harmony to the VDL Mode 2 Standards that are being developed by RTCA/EUROCAE/ARINC IA.

Coordinate with other organizations as necessary, including but not limited to:

ICC	RTCA Integration and Coordination Committee – Facilitating interworking between SC-214, SC-186, SC-206 and SC-227 as needed
EUROCAE	European Organization for Civil Aviation Equipment – Joint development of deliverables with Working Group 78 and with Working Group 92
FAA	Federal Aviation Administration – Work product requirements
EASA	European Aviation Safety Agency
ICAO	International Civil Aviation Organization – Preparation of Information Papers for consideration by ICAO Panels
EUROCONTROL	European Organization for the Safety of Air Navigation – Work product requirements
AEEC	ARINC Airlines Electronic Engineering Committee – Consultation on revision of VDL Mode 2 MOPS and MASPS.

Initial Documentation – input documents that will be made available to this committee.

Document	Intended Use
DO-350B	Support Verification Test development
DO-351B	Support Verification Test development
DO-352B	Support Verification Test development
DO-353B	Support Verification Test development
DO-224D	Revise to support VDL Mode 2 improvements.
DO-281C	Revise to support VDL Mode 2 improvements.
DO-383	Revise to support VDL Mode 2 improvements.
ED-92C	Revise to support VDL Mode 2 improvements.
ARINC SPECIFICATION 631	Revise to support VDL Mode 2 improvements.
LINK2000+/LIT/Avionics Test Plan	EUROCONTROL verification test for ATN B1
ICAO Doc 9776	Revise to support VDL Mode 2 improvements.
ICAO Doc 9869	Revise to support SPR Standard improvements.
ICAO Doc 10037	Revise to support Interop Standard improvements.

TERMINATION:

When the scope of this Terms of Reference is complete, the committee will recommend either that the committee Sunset, going into Active Monitoring Mode, or spend a period of time in Hiatus. Any change/extension in the committee's work program requires prior PMC approval.