

TERMS OF REFERENCE
Special Committee (SC) 214
Standards for Air Traffic Data Communication Services
 Revision 14

ORIGINAL REQUESTOR:

Organization	Person
FAA – ATC Communications Services	Jim Eck

SC LEADERSHIP:

Position	Name	Affiliation	Telephone	email	Change
Co-Chair					
RTCA SC-214	Claire Robinson	Universal Avionics	773-590-1231	crobinson@uasc.com	Spectralux
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Secretary	Dongsong Zeng	The MITRE Corporation	703-983-6470	dzeng@mitre.org	

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 2025.

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 until further notice. SC-214/WG-78 will reconvene, if necessary, to revise the standards for Baseline 2 after SESAR’s Very Large-Scale Demonstration (VLD) and FAA’s NextGen 4-Dimensional Trajectory (4DT) completes their activity to demonstrate and validate Baseline 2 standards. A future TOR revision will be created when SC-214/WG-78 reconvenes to provide committee work plan and task to develop revisions of published SPR and Interop standards.

VDL Mode 2 Subnetwork Standards:

RTCA SC-214 is 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 631-8).

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-281D, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 2 Physical Link and Network Layer	See MOPS Drafting Guide	December 2022	December 2020
DO-224E, Signal-in-Space Minimum Aviation System Performance Standards (MASPS) for Advanced VHF Digital Data Communications	See MASPS Drafting Guide	December 2022	December 2020

*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. SC-214/WG-78 has no task to accomplish until the joint committee is reconvened.

VDL Mode 2 Subnetwork Standards:

SC-214 / WG-92 shall collaborate with ARINC AEEC DLK Systems Sub Committee 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 transmitting data communication messages over an ACARS network
- Class 3 equipment applicable to a CMU or equivalent capable of transmitting data communication messages over an ATN-OSI network
- Class 4 equipment applicable to a CMU or equivalent capable of transmitting data communication messages over an ATN-IPS network

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 ATIS authorities intend to use these documents to establish safety and performance requirements and interoperability requirements to qualify related ground-based ATIS systems and operations. FAA is envisioned to use these documents to provide guidance in AC 20-140 and AC 90-117.

SC-214/WG-92 to develop DO-224E and DO-281D so FAA Certification may use these documents to establish a revision to TSO-C160A.

SPECIFIC GUIDANCE:

In performing its duties, RTCA SC-214 shall:

Develop **DO-281D/ED-92D** VDL2 MOPS to incorporate VDL2 improvements of connectionless operation.

Develop **DO-224E** VDL2 MASPS to incorporate VDL2 improvements of connectionless operation.

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-224D	Revise to support VDL Mode 2 improvements.
DO-281C	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.
ICAO Doc 9776	Revise to support VDL Mode 2 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.