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SAFETY AND PERFORMANCE REQUIREMENTS STANDARD FOR AIR TRAFFIC DATA LINK SERVICES IN CONTINENTAL AIRSPACE (CONTINENTAL SPR STANDARD)

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FOREWORD

This guidance document was jointly prepared by Special Committee 189 (SC-189) and the European Organization for Civil Aviation Equipment (EUROCAE) Working Group 53 (WG-53) and approved by the RTCA Program Management Committee (PMC) on April 29, 2004.

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1 INTRODUCTION

This standard provides the operational, safety, and performance requirements (SPR) for the implementation of data link services that support air traffic services (ATS) in continental airspace. It is intended to support the implementation of communication, navigation, and surveillance / air traffic management (CNS/ATM) systems in worldwide application.

This document was developed in accordance with the criteria for SPR standards set forth in RTCA DO-264/EUROCAE ED-78A, "Guidelines for Approval of the Provision and Use of Air Traffic Services Supported by Data Communications." It provides the minimum operational, safety, and performance requirements and allocations based on the results of a coordinated requirements determination process, which includes an operational services and environment information capture, operational safety assessment (OSA), and an operational performance assessment (OPA). As part of the coordinated requirements determination process, these requirements were validated based on operational experience, simulations and analyses. A summary can be found in Appendix B. These requirements are necessary to provide adequate assurance that the elements of the CNS/ATM system, when operating together, will perform their intended function in an acceptably safe manner.

Figure 1-1 provides an overview of the CNS/ATM system and its elements. These elements comprise the aircraft system, the air traffic service provider (ATSP) provisions, and the operator's provisions to use the data link services. The ATSP and the operator's provisions may include third party or contracted communication services, but this standard does not provide any individual requirements for them; requirements may be derived from ATSP requirements.

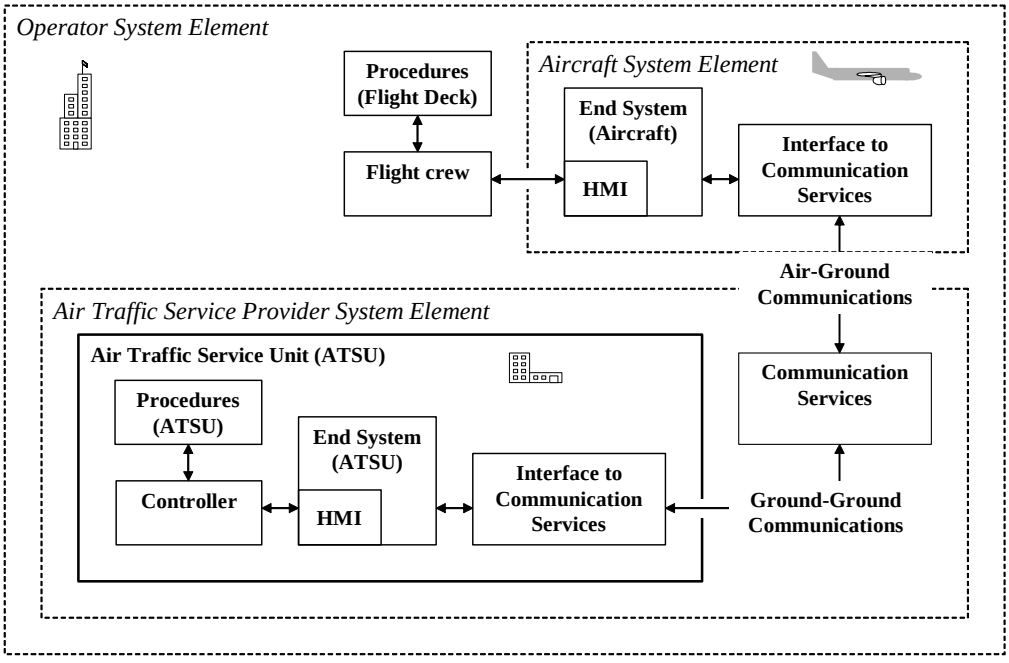


Figure 1-1: Overview of the CNS/ATM system

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1.1 Purpose

This document defines and allocates the set of minimum requirements for the operational, safety, and performance aspects for implementations of data link services supporting ATS in continental airspace. Allocation is done by this SPR standard to the necessary elements of the CNS/ATM system. This SPR standard is intended for use with interoperability requirements (INTEROP) standards, and the guidelines described in RTCA DO-264/EUROCAE ED-78A.

Note: Based on RTCA DO-264/EUROCAE ED-78A, INTEROP and SPR standards provide recommendations intended for government organizations, conference of governments, or agencies having statutory jurisdiction over the use and provision of data link services. These recommendations are for use by such government organizations to enunciate official policy related to such matters in aeronautical information publications (AIPs), notices to airmen (NOTAMs), airplane flight manuals (AFMs), and operator specifications.

1.2 Scope

This document includes the definition of data link services, the environmental conditions relevant to the implementation of those data link services in continental airspace, and the operational, safety, and performance requirements for using the data link services. The data link services are:

a) Data Link Initiation Capability (DLIC)

b) Data link services for ATC communications:

   1) ATC Communication Management (ACM)

   2) ATC Clearance (ACL)

   3) ATC Microphone Check (AMC)

   4) Departure Clearance (DCL)

   5) Downstream Clearance (DSC)

c) Flight Information Service (FIS):

   1) Data Link Automatic Terminal Information Service (D-ATIS)

d) Data link services for surveillance

   1) Flight Plan Consistency (FLIPCY)

Note 1: The scope is limited to the requirements for operational data link services and related ATS functions when operations, safety, and performance are relevant to the air traffic services. Assumptions for the environment and other ATS functions may be stated when necessary to establish the operational, safety and performance requirements for the data link services that are within the scope of the document.

Note 2: This SPR standard is intended to provide the basis for demonstrating that an implemented system, considering its inherent design and technologies, can meet the relevant operational, safety, and performance requirements for the data link services described in this document. It is not intended to limit the use of an

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implementation only to the data link services and operational context defined herein. However, in cases where it is intended to support additional or define new data link services, the operational, safety and performance requirements for such operational contexts and/or new data link services will need to be established as a basis for approval qualification of the implemented systems.

Note 3: Requirements related to securing data link services that would provide for protection against malicious or intentional behavior causing harm are beyond the scope of this document.

Note 4: Requirements related to the recording of data communications for accident/incident investigation purposes are beyond the scope of this document.

1.3 Relationships to other documents

1.3.1 ICAO material

This SPR standard considers International Civil Aviation Organization (ICAO) material. Terminology used in this standard is consistent with ICAO use.

This SPR standard provides the results of operational assessments on data link services that supplement the communication equipment required by ICAO Annex 6. These data link services support, in part, the provision and use of ATS governed by ICAO Annexes 2, 10 and 11. The extent to which these data link services can support ATS is described in Section 2 of this document.

ICAO Annex 2, Rules of the Air, Annex 10, Aeronautical Telecommunications - Volume II (Communications Procedures including those with PANS status), and Annex 11, Air Traffic Services include Standards and Recommended Practices (SARPs) for the provision and use of ATS. Unless explicitly stated, this SPR standard assumes the provision and use of ATS are implemented in accordance with these SARPs.

ICAO Doc 4444, Procedures for Air Navigation Services - Air Traffic Management (PANS-ATM), and Doc 8400, ABC - ICAO Abbreviations and Codes, are complementary to the SARPs and include the ICAO procedures for the provision and use of ATS. This SPR standard uses these documents to align data link service descriptions with ICAO procedures for ATS communication.

ICAO Annex 15, Aeronautical Information Services provides SARPs relating to the publication in AIPs of lists of significant differences between local procedures and the related ICAO procedures. When local procedures are different from ICAO procedures, this SPR standard provides the means to assess the impact of those differences on the data link services and publish appropriate procedures and other relevant information in the AIP.

ICAO Annex 6, Operation of Aircraft, Part I - International Commercial Air Transport – Aeroplanes, includes SARPs for aircraft operations that are relevant to this SPR standard, including flight crew training and recording of data link communications. ICAO Doc. 8168, OPS - Aircraft Operations Volume I (Flight Procedures) include the flight procedures related to SARPs contained in Annex 6. Unless explicitly stated otherwise, this SPR standard assumes that the aircraft system relevant to the use of data link services is operated in accordance with these SARPs.

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