



The Twenty-First Meeting of the Informal South Pacific ATS Coordinating Group (ISPACG/21)

Auckland, New Zealand, 5-8 March 2007

Agenda Item 4: Review progress on Open Action Items
AI 17-6

SAFETY AND PERFORMANCE REQUIREMENTS (SPR) STANDARDS FOR DATA LINK

(Presented by the Federal Aviation Administration)

SUMMARY

This working paper provides an update to ISPACG Action Item 17-6, Safety Performance Requirements (SPR) Standards for Data Link. The Oceanic SPR Standard is complete and final review and consultation (FRAC) started on 12 February 2007. The ISPACG is invited to review the Oceanic SPR Standard against the criteria provided in the FANS Operations Manual (FOM) and submit comments to RTCA SC-189/EUROCAE WG-53 by 6 April 2007.

1 Introduction

1.1 SC-189/WG-53 has recently completed its safety and performance standard for data link services in oceanic airspace (Oceanic SPR Standard). This document has been under final review since 12 February 2007. The comment period ends on 6 April 2007. Comments will be resolved at the 29th meeting of SC-189/WG-53, 10-13 April 2007, in Washington, D.C.

1.2 For more information, contact Tom Kraft (FAA) at tom.kraft@faa.gov or Serge Bagieu (Airbus) at serge.bagieu@airbus.com.

2 Discussion

2.1 The Oceanic SPR Standard is seen as a means to expedite and maximize operational benefits gained from an existing fleet of data link capable aircraft, to expand the provision and use of data link capabilities, where beneficial, and to ensure global harmonization and operational seamlessness of data link implementations.

2.2 The Oceanic SPR Standard is intended to be used globally by air traffic service providers, communication service providers, operators, aircraft and avionics manufacturers, and regulatory authorities to standardize the approvals and implementations. It includes “system-level” safety and performance requirements, and allocations to the elements, e.g., aircraft, communication services, ATS ground system, etc., of the end-to-end system that provides the data link services.

2.3 The standard includes safety and performance requirements based on operational assessments of the data link services supporting separation assurance at 50NM lateral/50NM longitudinal separation (50/50) and 30NM lateral/30NM longitudinal separation (30/30), route conformance monitoring, reroutes, and weather deviations.

2.4 In accordance with ICAO amendments to Annexes 6 and 11, and ICAO Doc 9869, Manual on Required Communication Performance (RCP), RCP types are used to specify the operational criteria in terms of communication transaction time, continuity, availability, and integrity.

2.5 Time requirements are provided separately for surveillance capabilities, including periodic and waypoint position reports, demand reports, and lateral deviation event report. Continuity, availability, and integrity are generally provided for data link services for communication and surveillance.

2.6 Additional operational criteria are provided to include functional capability, for example, the need for certain messages, phraseology, and transaction types; the need for an interactive capability of a voice communication or the air-ground integration capability of a data communication; the need for performance monitoring and alerts, indicating non-compliant performance and time to execute procedures when the data link fails.

2.7 The operational criteria are intended to be used to determine the viability of a particular technology, and to qualify, certify, and approve various parts of an implementation and/or determine eligibility of an operator. The operational criteria are also intended for continued operations to manage the different performance levels needed to provide varying service levels, e.g., 100 NM lateral separation/15 minutes longitudinal separation, 50/50 NM separations, and 30/30 NM separations, to operators with different aircraft capabilities in common airspace.

2.8 RCP type and other operational criteria are key elements to safety management when a change is implemented in air traffic management (ATM) and/or flight operations, and the change is predicated on communication performance. Planned changes that meet this condition include:

- a) Implementation of a reduced separation minimum or a new procedure, that requires a communication capability and performance, e.g., satellite data link, that is better than the communications equipment required for dispatch, e.g., high frequency (HF) voice;
- b) Implementation of varied service levels or multiple separations, such as 100 NM lateral/10 minute longitudinal separations, 50NM lateral/50NM longitudinal (50/50) separations, and 30NM lateral/30NM longitudinal (30/30) separations, in the same airspace, and the use of those services is predicated on operator eligibility and aircraft capability and performance;
- c) Provision and use of a different technology, such as satellite, to provide the preferred, primary, normal, or replacement means for air traffic control (ATC) communications, and the communication equipment required for dispatch does not have the performance to execute contingency procedures needed in the event the primary or normal means fails, e.g., HF voice regression;
- d) Provision and use of mixed technologies, such as FANS 1/A-based ground system implementations providing ATC data communications in common airspace to FANS 1/A aircraft and ATN aircraft; and
- e) Communication capability installed on aircraft whose performance is suitable for use in some airspace, but not in others, e.g., HF data link (HFDL) may be suitable in airspace with 100 NM lateral/10 minute longitudinal separations, but not suitable in airspace with 30/30 separations.

2.9 A number of issues related to the above changes are being investigated by the ISPACG Data Link Working Group, which was formed at the planning meeting, held in August 2006, in Auckland, New Zealand.

3 Recommendation

3.1 The ISPACG is invited to review the Oceanic SPR Standard against the criteria provided in the FANS Operations Manual (FOM) and submit comments to RTCA SC-189/EUROCAE WG-53 by 6 April 2007.

Note: SC-189/WG-53 is planning to submit the Oceanic SPR Standard to RTCA/EUROCAE for approval and publication following satisfactory resolution of all comments at its next meeting 10-13 April 2007.

3.2 The meeting is invited to consider the Oceanic SPR Standard within the terms of reference for the ISPACG Data Link Working Group, and its relevance to the FOM and the data collection criteria for the FANS Interoperability Team (FIT).

3.3 This information paper recommends closure of action item 17-6, and future updates on this activity be provided through reports to the ISPACG via the Data Link Working Group.

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