

ELEVENTH AIR NAVIGATION CONFERENCE

Montreal, 22 September to 3 October 2003

Agenda Item 3: Air traffic management (ATM) performance targets for safety, efficiency and regularity and the role of required total system performance (RTSP) in this respect

3.1 Performance targets for ATM

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ICAO ACTIVITIES ON THE USE OF REQUIRED COMMUNICATION PERFORMANCE (RCP) IN THE PROVISION OF AIR TRAFFIC SERVICES

(Presented by the Secretariat)

SUMMARY

This paper reviews the ICAO activities to develop a concept of required communication performance (RCP) in the provision of air traffic services (ATS).

Action by the Conference is in paragraph 3.

1. INTRODUCTION

1.1 In response to Recommendation 2/2 of the fourth meeting of the Aeronautical Mobile Communications Panel (AMCP/4, Montreal, April 1996), the Air Navigation Commission tasked the Automatic Dependent Surveillance Panel (renamed as the Operational Data Link Panel (OPLINKP) in 2000) to develop the concept of required communication performance (RCP). AMCP/4 had recognized the absence of objective criteria to evaluate communication performance requirements. Furthermore, AMCP/4 saw RCP as a set of parameters, the values of which would determine the operational requirements for communication systems in the various phases of flight. The meeting agreed that there was an urgent need to assess the various technical options of communication systems against such a set of parameters.

2. DISCUSSION

2.1 On 2 March 2000, in response to a review of the fifth meeting of ADSP (ADSP/5, October 1999), the Commission noted that the panel had recognized that there was widespread acceptance of the need for an RCP concept which would provide a framework for the expression of the operational performance necessary for ATS communications. A variety of tasks that were progressed to support this framework included the following:

- a) the need to highlight the flexibility intrinsic in the concept, i.e. the concept could be applied to communications between systems and to communications between the human end-users;
- b) the need to define what aspects of human performance would be taken into account; and
- c) the need to define the parameters — availability, integrity and continuity of function — in greater detail.

2.1.1 ADSP/5 also noted that other issues would need to be further progressed, including legal aspects, timescale for implementation, air traffic control and flight crew procedures, transition issues, and the impact of the application of RCP on certification, performance monitoring and other approval processes. In this regard, the meeting had noted that the joint RTCA Special Committee (SC) 189/EUROCAE Working Group (WG) 53 was progressing a number of these issues.

2.1.2 The panel contended that before the advent of data communication systems for air traffic services (ATS), voice communication systems were assessed on the basis of actual performance as it usually was readily evident when performance became degraded or was unavailable. Channel congestion or unavailability that would delay the communication of the clearance is evident to the controller and crew almost immediately. Other indications, such as routine peak hours of the day and familiarity with component reliability, also provide information to the controller in advance of such events occurring. With data link, however, these indications are not provided in the same way. The acceptance of data communications as a technology for the communications, navigation, and surveillance/air traffic management (CNS/ATM) system, in addition to voice communications, means that a formal method of determining and specifying communication performance suitable for a variety of ATS functions is desired. Such a concept should be seen as a complement to collision risk modelling.

2.2 The work of RTCA SC 189/EUROCAE WG 53 and its role in progressing issues associated with the development of the concept of RCP has been necessarily relevant to the work of the panel. RTCA SC 189/EUROCAE WG 53 had been established in 1996 and comprised representatives with expertise in aircraft and equipment certification, aircraft operations, ATS provision, and communication services provisions. Its objective was to establish safety, performance and interoperability standards and qualification means for CNS/ATM systems. In 1998, the work programme for the joint group was expanded to include application of the operational concept on RCP. The joint group had made considerable progress, including, in 2000, the publication of RTCA DO-264/EUROCAE ED-78A, *Guidelines for Approval of the Provision and Use of Air Traffic Services Supported by Data Communications*. This document provided guidelines for defining the safety, performance, and interoperability requirements for particular air traffic

services. It also contained guidelines for the planning, development, and qualification of related CNS/ATM systems, in order to obtain approval for the provision and use of those services.

2.2.1 RTCA SC 189/WG 53 has continued to develop the guidelines on applying the operational concept of RCP to the technical and some human components of the operational communication process. This has included the first safety and performance requirements (SPR) for initial air traffic data link services in continental airspace. This SPR would include required operational performance parameters, consistent with RCP types, together with allocations for aircraft, service provision, and procedures, for each of the data link services described in the SPR (the SPR document is expected to be issued during 2003).

2.3 On 14 June 2001, the Air Navigation Commission agreed that States and international organizations be consulted on the RCP operational concept developed by OPLINKP.

2.3.1 The replies from States and international organizations were substantive. A majority of them indicated broad support for the operational concept of RCP. While acknowledging that further work would be required to provide States with the necessary detail for applying an RCP type in support of specific air traffic services functions, States nevertheless expected the concept to prove useful in the future. The majority of replies also indicated support, in principle, for the development of a proposal to amend Annex 11 — *Air Traffic Services* to include the concept of RCP, in the context of the additional work being progressed. The Commission agreed to amend the work programme of the OPLINKP to include the review of comments submitted by States and international organizations and develop, as necessary, Standards and Recommended Practices (SARPs), procedures and guidance material, relating to the use of RCP in the provision of air traffic services.

2.3.2 The OPLINK Panel continues to progress the task and is expected to report on its progress at its next panel meeting (OPLINKP/1), tentatively scheduled for 2005.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the ICAO activities to develop a concept of RCP in the provision of air traffic services.

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