



International Civil Aviation Organization

**EIGHTEENTH MEETING OF THE COMMUNICATIONS/NAVIGATION
AND SURVEILLANCE SUG-GROUP (CNS SG/18) OF APANPIRG**

Asia and Pacific Regional Sub-Office, Beijing, China
(21 – 25 July 2014)

Agenda Item 5.1: Discuss RCP/RSP implementation framework

**PROGRESS ON THE WORK OF THE OPERATIONAL
DATA LINK PANEL (OPLINKP) RELATED TO PERFORMANCE BASED
COMMUNICATION AND SURVEILLANCE (PBCS)**

(Presented by the Secretariat)

SUMMARY

This paper presents the progress made by the OPLINKP in relation to the development of ICAO provisions and guidance material regarding the implementation of performance-based communication and surveillance (PBCS).

1. INTRODUCTION

1.1 The attachment to this paper provides information on the status and progress made by the OPLINK Panel in relation to the development of ICAO provisions and guidance material regarding the implementation of performance-based communication and surveillance (PBCS). The attached information paper was prepared by the Secretariat for the first meeting of Flight Operations Panel Working Group (FLTOPSP/WG/1) which was held in Montreal, Canada from 2 to 6 June 2014.

2. ACTION BY THE MEETING

2.1 The meeting is invited to note the information contained in this paper.



INFORMATION PAPER

FLIGHT OPERATIONS PANEL

WORKING GROUP

FIRST MEETING

(FLTOPSP/WG/1)

Montréal, 2 to 6 June 2014

Agenda Item 3 : Update on Panel Coordination Activities

PROGRESS ON THE WORK OF OPERATIONAL DATA LINK PANEL (OPLINKP) RELATED TO PERFORMANCE-BASED COMMUNICATION AND SURVEILLANCE (PBCS)

(Presented by the Secretariat)

SUMMARY

This paper presents the progress made by the OPLINKP in relation to the development of ICAO provisions and guidance material regarding the implementation of performance-based communication and surveillance (PBCS).

1. INTRODUCTION

1.1 The Operational Data Link Panel (OPLINKP) was tasked to amend Manual on Required Communication Performance (Doc 9869) to provide further guidance on the implementation of required communication performance (RCP) provisions (AN Min. 179-9) and further directed by the Air Navigation Commission (ANC) to provide Separation and Airspace Safety Panel (SASP) with assistance in terms of RCP implementation (AN Min. 180-11).

2. BACKGROUND/DISCUSSION

(Performance-based Communication and Surveillance (PBCS) Manual)

2.1 At its first working group of the whole meeting (OPLINKP-WG/WHL/1, October 2010, Montréal), the OPLINKP agreed to rename Doc 9869 as Performance-based Communication and Surveillance (PBCS) Manual to reflect an expanded scope that would include specifications for required

communication performance (RCP) and required surveillance performance (RSP) and the guidance material for post-implementation monitoring.

2.2 At the sixth working group of the whole meeting (OPLINKP-WG/WHL/6, October 2013, Montréal), the OPLINKP discussed and agreed on a working draft version 1.1 of the PBCS Manual as the basis for maturing the document. The draft version 1.1 was composed of Doc 9869 (First Edition) and material from two regional documents (Global Operational Data Link Document (GOLD, Second Edition) and SATCOM Voice Guidance Material (SVGM, First Edition)). The draft table of contents for the PBCS Manual is provided at **Appendix A**.

(Amendment proposals for Annexes and Procedures for Air Navigation Services (PANS))

2.3 At the first working group meeting (OPLINKP-WG/1, March 2013, Montréal), the OPLINKP reviewed and agreed on the proposed amendments to Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes*, Annex 11 — *Air Traffic Services and Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) that introduce the performance-based communication and surveillance (PBCS) framework.

2.4 At the sixth meeting of the working group of the whole (OPLINKP-WG/WHL/6, October 2013, Montréal), the proposed amendments were discussed and modified to clarify that the PBCS framework includes requirements for the air traffic service provision. The OPLINKP agreed to progress the proposed amendments, as modified by the meeting. The summary table of the draft amendment proposals is provided at **Appendix B**.

(PBCS concept of operations)

2.5 At the OPLINKP-WG/2, the OPLINKP reopened the discussion on the PBCS concept of operations based on the result of preliminary coordination conducted within the Secretariat and a proposed amendment to the *Regional Supplementary Procedures* (Doc 7030), North Atlantic (NAT) in support of reduced longitudinal separation minima (RLongSM). Following extensive discussions, the OPLINKP reached the general understanding and consensus on the PBCS concept, which should:

- a) involve end-to-end performance, with different allocations to players involved in the system (air navigation service provider (ANSP), communication service provider (CSP) including sub-network service provider and aircraft operator), not limited to equipage of aircraft;
- b) be global and flexible enough to embrace various scenarios (different type of communication technologies and provided services, traffic density, etc.);
- c) involve a mechanism that can provide ANSP with some level of assurance about the performance of aircraft operations (monitoring itself is not enough).
- d) be supported by a clear set of performance requirements (or specifications) targeted to different parties involved, against which the performance level can be measured;
- e) be supported by monitoring activities to ensure continued performance improvement; and

2.6 The meeting also reiterated the importance of clear guidance material in order to describe the above-mentioned concept of PBCS and to assist contracting States in the implementation of relevant provisions. In concluding the discussions regarding PBCS, the OPLINKP agreed to put the utmost priority on the development of the PBCS Manual to clarify the concept of PBCS, prescribe performance

specifications and provide necessary guidance material. It was also agreed that the proposed amendments to Annexes and PANS referred in paragraph 2.4 be modified as necessary to make them aligned with the improved draft PBCS Manual.

(Coordination with FLTOPSP)

2.7 An OPLINKP PBCS drafting group is working on improving the contents of the PBCS Manual and proposed amendments to Annexes and PANS. The OPLINKP is planning to submit mature proposals to FLTOPSP in due course (preferably prior to the next FLTOPSP meeting in October) for its consideration and comments. The mature proposals will include amendments to Annexes 6, 11, PANS-ATM, and Doc 9869 (PBCS Manual).

2.8 OPLINKP will review the final proposals at its next meeting scheduled from 6 to 17 October 2014. The proposals for amendments to Annexes and PANS will then, if consensus is reached, be refined for presentation to the ANC in early 2015, proposing applicability date of November 2016.

APPENDIX A

PROPOSED TABLE OF CONTENTS FOR PERFORMANCE-BASED COMMUNICATION AND SURVEILLANCE MANUAL (DOC 9869)

Reference	Description of work
Foreword	Propose a “new” Foreword. Proposed amendment will take information from Chapter 1 and include updated information for historical background, scope and purpose, status, implementation, references, changes to the document, and amendments to Doc 9869, similar to Foreword provided in GOLD and SVGM.
Chapter 1	Propose to rename “Introduction” to “Terms and Definitions.” Current material will be a consideration for the Foreword. Proposed amendment include terms and definitions from Appendix A provided in baseline document. Review to include definitions of terms, abbreviations and acronyms that are used in the document. Further refinement of terms and inclusion of other terms may be included on a case by case basis, as agreed.
Chapter 2	Propose to rename “Overview of RCP” to “Performance-based communication and surveillance (PBCS) concept.” Proposed amendment will expand to provide information on the PBCS concept, including an overview, development of RCP/RSP specifications, prescribing an RCP/RSP specifications, complying with RCP/RSP specifications, and application of PBCS and RCP/RSP specifications.
Chapter 3	Propose to rename “Determining an RCP Type” to “RCP/RSP specifications.” Proposed amendment will expand to provide guidance on RCP/RSP specifications, including existing specifications, criteria for new specifications, operational assessment in the development of new specifications and application in standards (e.g., SASP for separation minima predicated on communication and surveillance performance).
Chapter 4	Propose to rename “Prescribing an RCP Type” to “Applying RCP/RSP specifications.” Proposed amendment will expand guidance to applying RCP/RSP specifications, such as through prescription to communication and surveillance capability supporting specific ATM operations (e.g. some separation minima) in specific airspace (per Annex 11), associated operational authorizations (per Annex 6) and post-implementation monitoring (per Annex 6 (Operator) and Annex 11 (ANSP)).
Chapter 5	Propose to rename “Complying with an RCP type” to “Complying with RCP/RSP specifications.” Proposed amendment will expand guidance to complying with RCP/RSP specifications, including initial State approvals for aircraft systems, ANSP systems and operator, and continued operations post-implementation.
Appendix A	Glossary of Terms. Proposed amendment will include definition of terms as Chapter 1 of the document and Appendix A would be deleted .
Appendix B	New material taken from GOLD and SVGM and includes RCP specifications. These specifications could be considered guidance or a requirement depending on the context in which they are prescribed.
Appendix C	New material taken from GOLD and SVGM and includes RSP specifications. These specifications could be considered guidance or a requirement depending on the context in which they are prescribed.
Appendix D	New material taken from GOLD and includes guidance on post-implementation monitoring at ANSP, regional and inter-regional levels. Includes guidance for participation from operators and other affected parties to address analysis of problems identified and corrective action. Requires review and update.
Appendix E	New material taken from SVGM and includes guidance on post-implementation monitoring at ANSP, regional and inter-regional levels. Includes guidance for participation from operators and other affected parties to address analysis of problems identified and corrective action. Requires review and update.

APPENDIX B

SUMMARY OF PROPOSED AMENDMENTS TO ANNEXES 6, PART I, 11 AND PANS-ATM

No.	Documents	Descriptions of Proposed Amendments	
1	Annex 6, Annex 11 and PANS-ATM	Introduction of PBC and PBS Concept	<p>Performance-based communication (PBC). ATS communication services and capability based on performance requirements for aircraft traffic service provision, aircraft and flight operations along an ATS route, on an instrument approach procedure or in a designated airspace.</p> <p><i>Note.— Communication performance requirements are allocated to system components in an RCP specification in terms of communication transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.</i></p> <p>Performance-based surveillance (PBS). ATS surveillance services and capability based on performance requirements for air traffic service provision, aircraft and flight operations along an ATS route, on an instrument approach procedure or in a designated airspace.</p> <p><i>Note.— Surveillance performance requirements are allocated to system components in an RSP specification in terms of surveillance data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.</i></p>
		Revise existing terms and/or add new terms	<ul style="list-style-type: none"> - Replace “RCP (Type)” with “RCP Specification” - Add RSP specification
		Revise existing notes and/or add new notes regarding Manual	<ul style="list-style-type: none"> - Replace the existing notes that refer to RCP Manual (Doc 9869) with PBCS Manual (Doc 9869) - Add additional notes, where appropriate, that refer to PBCS Manual (Doc 9869)
2	Annex 6, 7.1 (Communication Equipment)	Revise requirements regarding RCP operations	<ul style="list-style-type: none"> - Add requirements for operational authorization (aircraft performance, continued airworthiness, crew procedures - Add requirements for evaluation of continued operational safety, including a requirement to participate in monitoring programmes administered by ATS providers (see Annex 11 PfA)
3	Annex 6, Appendix 6	Revise contents of OPSPEC	<ul style="list-style-type: none"> - Add RCP and RSP specifications for PBCS operations
4	Annex 6, new paragraph (Surveillance Equipment)	Add requirements for surveillance equipment and RSP operations	<ul style="list-style-type: none"> - Add requirement for equipage of aircraft to add surveillance equipment - Add requirements for operational authorization (aircraft performance, continued airworthiness, crew procedures - Add requirements for evaluation of continued operational safety, including a requirement to participate in monitoring programmes administered by ATS providers (see Annex 11 PfA)
5	Annex 11, 2.8 (RCP)	Revise existing provisions	<ul style="list-style-type: none"> - Replace RCP provisions with PBC in a similar manner as done in PBN provisions - Add recommendation to promote the implementation of PBC when ATS (e.g. separation minima) is predicated on communication performance.
6	Annex 11, new paragraph (PBS operations)	Add provisions on PBS operations	<ul style="list-style-type: none"> - Replace RCP provisions with PBC in a similar manner as done in PBN provisions - Add recommendation to promote the implementation of PBS

No.	Documents	Descriptions of Proposed Amendments	
			when ATS (e.g. separation minima) is predicated on surveillance performance.
7	Annex 11, new paragraph	Add provisions on performance monitoring against RCP and RSP	<ul style="list-style-type: none"> - Add a provision to require a monitoring programme, at the State level and regional levels, to assess the performance of the infrastructure and the participating aircraft against the RCP and/or RSP specifications. - The existing provision to share information from monitoring programmes among regions, through inter-regional agreement, would also apply to the PBCS monitoring programme. - (Note: modelled after RVSM provisions for height keeping performance monitoring)
8	Annex 11, 3.9 (Provision of radar and ADS-B)	Revise the existing provisions	<ul style="list-style-type: none"> - Add requirements for provision of surveillance equipment in ATS units which will enable them to provide ATS in accordance with the prescribed RSP specifications.
9	Annex 11, 6.1 and 6.2	Revising the existing provisions	<ul style="list-style-type: none"> - Revise requirements for provision of communication equipment in ATS units which will enable them to provide ATS in accordance with the prescribed RCP specifications.
10	PANS-ATM, Appendix 2	Revise the flight plan	<ul style="list-style-type: none"> - Define the P1 and P2 descriptor in Item 10 for RCP 400 and RCP 240 - Revise the definition of the J3 descriptor in Item 10 to include "Mode 0" - Revise definitions for the NAV/, COM/, DAT/ and SUR/ indicators and related notes for consistency

— END —