

**Twenty Ninth Meeting of the
Informal South Pacific ATS Co-ordinating Group
(ISPACG/29)**

**Santiago, Chile
4-6 March 2015**

Agenda Item 6.5 Performance Based Communication and Surveillance (PBCS)

Performance Based Communication and Surveillance (PBCS) Implementation

Presented by Airways New Zealand

SUMMARY

ISPACG 25 in March 2011 agreed to develop a performance based framework for communications and surveillance and APANPIRG conclusion 24/33 requires that APANPIRG sub-groups include in their work program and implementation initiatives consideration of the required communication performance (RCP) and required surveillance performance (RSP) framework. OPLINKP have developed amendments to ICAO Annex and PANS that are scheduled for November 2015 in relation to the implementation of Performance Based Communications and Surveillance (PBCS). Mature PBCS guidance material is also now available in the draft OPLINK amendments to Doc 9869 PBCS Manual. This paper provides an overview of planned changes to Annex and PANS and proposes that ISPACG develop a PBCS implementation plan based on the checklist contained in Appendix 1 of the planned revisions to Doc 9869. The current NAT PBCS implementation plan, and draft Doc 9869 PBCS Manual are included for reference.

1. INTRODUCTION

- 1.1 OPLINKP have completed proposals for amendment to Annex and PANS incorporating PBCS and also completed a significant rewrite of Doc 9869 which has been re-named as the PBCS Manual (refer Attachment 5). The OPLINKP work contains mature material relating to PBCS that will enable ISPACG to move forward on the development of a performance based framework.
- 1.2 At ISPACG 25 in March 2011 ISPACG agreed to a recommendation from FIT 18 to implement a performance based approach for communications and surveillance. While parts of a performance based framework have been implemented such as the monitoring of RCP and RSP performance by some ANSP, and the problem reporting and resolution activities of the ISPACG CRA, considerable work is still needed to implement a full PBCS framework.
- 1.3 Following on from PBCS workshops in Bangkok in 2013 APANPIRG agreed Conclusion 24/33 that requires APANPIRG sub-groups include in their work program and implementation initiatives consideration of the required communication performance (RCP) and required surveillance performance (RSP) framework.

2. DISCUSSION

OPLINKP – Overview of PBCS amendments

- 2.1 Refer Attachment 1 which lists the main PBCS relevant amendments to Annex and PANS. A summary of the amendments follows.
- 2.2 The term RCP, previously defined as “a statement of performance requirements for operational communication in support of specific ATM functions”, has been revised to align the concept of PBC with the concept of PBN. The term RCP is now used in the context of a specification that is applicable to the prescription of airspace requirements, qualification of ATS provision, aircraft capability, and operational use, including post-implementation monitoring (e.g. RCP 240 refers to the criteria for various components of the operational system to ensure an acceptable intervention capability for the controller is maintained. These criteria are detailed in Doc 9869.
- 2.3 The term RSP is used in the context of a specification that is applicable to the prescription of airspace requirements, qualification of ATS provision, aircraft capability, and operational use, including post-implementation monitoring (e.g. RSP 180 refers to the criteria for various components of the operational system to ensure an acceptable surveillance capability for the controller is maintained. These criteria are detailed in Doc 9869.

Annex 6 - Aircraft Operations - Part I – Chapter 7

- 2.3 Where communications or surveillance equipment is required in defined airspace to meet RCP/RSP specifications for PBCS the aeroplane shall:
- be provided with communication/surveillance equipment which will enable it to operate in accordance with the prescribed type(s); and RCP/RSP specification(s);
 - be authorized by the State of the Operator for operations in such airspace and have information relevant to the RCP/RSP specification capabilities listed in the flight manual or other aeroplane documentation, approved by the State of Design or State of Registry; and
 - have information relevant to the RCP/RSP specification capabilities included in the MEL.
- 2.4 Where communications or surveillance equipment is required in defined airspace to meet RCP/RSP specifications for PBCS the state of operator shall ensure that the operator has:
- requirements for normal and abnormal procedures including contingency procedures; flight crew qualification and proficiency requirements, in accordance with appropriate RCP/RSP specifications;
 - training programme for relevant personnel consistent with the intended operations; and
 - appropriate maintenance procedures to ensure continued airworthiness, in accordance with appropriate RCP/RSP specifications.
- 2.5 The State of the Operator shall ensure that adequate provisions exist for:
- receiving the reports of observed communication performance issued by the monitoring programmes established in accordance with Annex 11, and

- taking immediate corrective action for individual aircraft, aircraft types or operators, identified in such reports as not complying with the RCP specification.

Annex 11 – Air Traffic Services Chapter 2

- 2.6 Performance-based communications/surveillance (PBC/PBS) shall be applied to any ATS system change that is predicated on communication performance/surveillance, including the implementation of a reduced separation minimum or new procedure.

In applying PBC, RCP/RSP specifications types shall be prescribed by States. When applicable, the RCP/RSP specification(s) type(s) shall be prescribed on the basis of regional air navigation agreements.

Note.— In prescribing an RCP/RSP specification, limitations may apply as a result of communication infrastructure constraints or specific communication functionality requirements.

- 2.7 The prescribed RCP specification type shall be appropriate to the air traffic services provided.

Note.— Applicable guidance on performance-based communication and implementation is RCP types and associated procedures will be published in the Performance-Based Communication and Surveillance Manual on Required Communication Performance (RCP) (Doc 9869).

Annex 11 – Air Traffic Services Chapter 3

- 2.8 Where RCP/RSP specifications are applied, programmes shall be instituted for monitoring the performance of the infrastructure and the participating aircraft against the appropriate RCP and/or RSP specifications, to ensure that operations in the applicable airspace continue to meet safety objectives. The scope of monitoring programmes shall be adequate to evaluate communication or surveillance performance.

Note.— Guidance material relating to RCP and RSP specifications and monitoring of communication and surveillance performance is contained in the Performance-Based Communication and Surveillance (PBCS) Manual (Doc 9869).

- 2.9 When applicable, arrangements shall be put in place, through interregional agreement, for the sharing between regions of data and/or information from monitoring programmes.

Note.— Applicable guidance on performance-based surveillance and implementation is published in the Performance-Based Communication and Surveillance Manual (Doc 9869).

Annex 11 – Air Traffic Services Chapter 6

- 2.10 Where an RCP specification has types have been prescribed by States for performance-based communication ATM functions, ATS units shall, in addition to the requirements specified in 6.1.1.1, be provided with communication equipment which

will enable them to provide ATS in accordance with the prescribed RCP specification(s) type(s).

Note.— Information on performance-based communication RCP and associated procedures, and guidance concerning implementation the approval process, are will be contained in the Performance-Based Communication and Surveillance (PBCS) Manual on Required Communication Performance (RCP) (Doc 9869) (in preparation). This document also contains a list of references to other documents produced by States and international bodies concerning communication systems and RCP.

Annex 15 – AIS

- 2.11 Definitions updated to support provision in AIP when prescribing specifications for PBCS.
- 2.12 Appendix 1 - AIP was updated to support provision for PBCS in Annex 6, Annex 11 and the PANS-ATM. RCP/RSP specifications are included in the AIP and associated with communication and surveillance capabilities supporting air traffic services.

PANS-ATM

Chapter 4 – General provisions for ATS

- 2.13 An operator shall, prior to departure ensure that, where the flight is intended to operate where an RCP specification type is prescribed, an appropriate operational RCP/RSP approval has been granted, and that all conditions applying to that approval will be satisfied



Appendix 2 – Flight Plan

- 2.14 Item 10 – Equipment and Capabilities. Add designators for RCP:P1-CPDLC RCP 400; P2-CPDLC RCP 240; P3-SATVOICE RCP 400
- 2.15 Item 18 – Other Information. Add appropriate RSP designator using SUR/

Annex 15 – AIS

- 2.16 Consequential changes to support provision for PBCS in Annex 6, Annex 11, and PANS-ATM.

PBCS – Implementation Checklist

- 2.17 OPLINKP have included a checklist in Appendix A of the revised Doc 9689 that provides guidelines on the steps required to implement PBCS. Refer Attachment 2.
- 2.18 The checklist is organised as follows:
 - Group A tasks – State/Region preparation;
 - Group B tasks – ANSP general project development and management;
 - Group C tasks – ANSP implementation activities – ATS service provision;

- Group D tasks – Aircraft operator, Aircraft type/system (airworthiness) eligibility; and
- Group E tasks – All stakeholders – post-implementation monitoring.

2.20 We think that an ISPACG PBCS implementation plan based on the checklist from Doc 9869 will focus stakeholders on the steps required to implement an effective PBCS framework in the region. An early proposed draft of such a plan is included at Attachment 4.

2.20 The current NAT PBCS plan is included at Attachment 3 as an example.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Note the proposed changes for Annex and PANS-ATM regarding PBCS.
- b) Agree the need for an ISPACG PBCS implementation plan.
- c) Allocate resources to draft and maintain the plan.

Attachment 1: OPLINKP – Selected PBCS Amendments to Annex and PANS.

Attachment 2: PBCS Implementation Plan Checklist

Attachment 3: NAT PBCS Implementation Plan Version 2015-1

Attachment 4: Draft ISPACG Implementation Plan.

Attachment 5: Draft Doc 9869 PBCS Manual