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中国大陆飞行情报区 CPDLC/ADS-C 数据链航路 PBCS 运行要求

The Performance-Based Communication and Surveillance (PBCS) Operational Requirement for Data Link Routes with CPDLC/ADS-C Application in China Mainland Flight Information Regions

1. 序言

1.1 本航空资料通报主要介绍中国民航计划按照国际民航组织（ICAO）要求在空中交通服务数据链航路开展基于性能的通信和监视（PBCS）相关运行的具体要求。

1.2 ICAO 要求在 2018 年 3 月 29 日之前，开展基于性能的通信和监视（PBCS）的实施，对飞行计划中填报 PBCS 能力的航空器开展基于性能的缩小水平间隔。本通报将对中国大陆飞行情报区内数据链航路的 PBCS 实施区域、实施标准和航空运营人要求等情况进行说明。

1.3 与大多数开展 PBCS 实施的国家在洋区开展实施的情况不同，中国大陆飞行情报区内数据链服务航路 PBCS 实施空域为偏远陆地空域。

2. 基于性能的通信和监视（PBCS）介绍

2.1 基于性能的通信（PBC）和基于性能的监视（PBS）是指相应的通信和监视能力基于一定的用于满足空中交通服务要求的性能标准。PBCS 是一种按照所需通信性能（RCP）和所需监视性能（RSP）规范对通信和监视能力开展管理的运行概念，主要应用在使用契约式自动相关监视（ADS-C）和管制员驾驶员数据链通信（CPDLC）的未来空中导航系

1. INTRODUCTION

1.1 This AIC informs aircraft operators of CAAC's plan to implement Performance-Based Communication and Surveillance (PBCS) in accordance with the ICAO provisions on ATS data link routes.

1.2 ICAO endorsed the decision to implement PBCS particularly on the use of ICAO PBCS flight plan indicators to determine aircraft eligibility for performance-based separation not later than 29 March 2018. This AIC sets out the criteria for PBCS and the requirements for operators to continue using data link routes in China mainland FIRs where PBCS applied.

1.3 Unlike most other States that implement PBCS in the oceanic airspace, the data link routes in China airspace are related to operations in remote continental airspace.

2. PERFORMANCE-BASED COMMUNICATION AND SURVEILLANCE (PBCS)

2.1 Performance-Based Communication (PBC) and Performance-Based Surveillance (PBS) refers to communication and surveillance based on performance specifications applied to the provision of air traffic services. PBCS is a concept that enables the management of communication and surveillance capabilities by prescription of RCP and RSP specifications in Future Air Navigation System (FANS

统（FANS 1/A）数据链运行中。

1/A) data link operations using the Automatic Dependent Surveillance-Contract (ADS-C) and Controller Pilot Data-link Communications (CPDLC).

2.2 PBCS 概念提供了一套应用 RCP 和 RSP 规范来确保通信和监视能力达到相应要求、系统整体满足相应性能标准的体系架构。空管系统运行依赖于相应通信和监视性能的运行标准和程序，例如实施缩小间隔，必须参照相应的 RCP 和 RSP 规范。

2.2 The PBCS concept provides a framework to apply RCP and RSP specifications to ensure the acceptable communication and surveillance capabilities and performance of an operational system. The standards and procedures for an air traffic management (ATM) operation that are predicated on communication and surveillance capabilities, such as the application of reduced separation minima, must refer to the appropriate RCP and RSP specification.

2.3 包括参与国、空中导航服务提供者和航空运营人在内的 PBCS 实施框架主要由以下几个重要部分组成:

2.3 The main components that involve the joint participation from States, Air Navigation Service Providers(ANSPs) and aircraft operators under the PBCS implementation framework consist of the following:

(1) 为航空运营人、机载系统和支持的数据链网络运行规定相应的 RCP、RSP 规范，用于支持基于性能的缩小水平间隔的实施;

(1) To prescribe RCP and RSP specifications, for aircraft operators, aircraft systems and infrastructure supporting data link operations, when applying separations predicated on such performance;

(2) 在开展 RCP 和/或 RSP 规范实施的区域/航路，为航空器和运营人颁布所需通信和/或监视能力（涉及航空器机载）运行批准;

(2) Operational approval of aircraft operators for a communication and/or surveillance capability including aircraft equipage for operations where RCP and/or RSP specifications will have to be prescribed;

(3) 在飞行计划中声明航空器的通信和监视能力对应的 RCP/RSP 能力，以及;

(3) Indication of an aircraft's communication and performance capability in the form of RCP / RSP specifications in the flight plan; and

(4) 通过监控项目开展实际通信性能和实际监视性能的评估，并与 RCP/RSP 规范开展对比，确定性能不满足要求的情况需要开展的整改措施，并对相关的问题进行报告、分析和解决。

(4) Monitoring programs to assess actual communication and surveillance performance against RCP and RSP specifications and to determine corrective action to report, analyze and resolve problems.

3. 中国大陆飞行情报区数据链服务航路实施基于 RCP240 和 RSP180 的运行

3.1 中国空域数据链航路将于 2018 年 3 月 29 日零时（UTC）开展 PBCS 运行。具体实施要求如下:

3.2 实施空域/航路:

中国大陆飞行情报区内提供 CPDLC/ADS-C 数据链服务的空域/航路，具体包括：L888（SANLI-XKC 航段）、Y1、Y2。实施空域/航路的主备用通信监视方式，RCP/RSP 规范应用情况以及对应的纵向间隔标准等详细信息请参见 ENR 3.3.2.4 附录 A。

3.3 航空运营人要求

(1) 航空运营人应当依据相关政策在航空公司注册国或航空器注册国取得 CPDLC 和 ADS-C 运行资质。

(2) 在 CPDLC/ADS-C 作为主用通信/监视手段的地区，管制单位在上述航路对于同时具备 RCP240 和 RSP180 能力的两架航空器之间可以执行缩小纵向间隔标准。但是，在以上航路运行时，并不强制要求航空器必须具备 RCP240 或 RSP180 运行能力。两架航空器之间如果任一航空器不具备 RCP240 或 RSP180 能力，则管制单位将在相关航空器之间执行程序管制最低间隔标准。

4. 飞行计划

航空器运营人应确保在 ICAO 飞行计划中填写相应内容体现航空器的 PBCS 运行能力，填写方法需依据 ICAO PANS-ATM Doc4444（2016 年，第 16 版，下同）附录 2 的具体要求填写。

3. COMMENCEMENT OF RCP240 AND RSP180 SPECIFICATIONS ON DATA LINK ROUTES IN MAINLAND OF CHINA

3.1 From 1803290000(UTC), the PBCS implementation will be applied on data link routes in China mainland airspace as follows:

3.2 Airspace of application:

The data link routes that provide CPDLC/ADS-C service in the China mainland airspace include: L888 (SANLI-XKC), Y1 and Y2. Please refer to attachment A of ENR 3.3.2.4 for the primary/alternate communication and surveillance means, RCP/RSP specification, and the longitudinal separation minima applied on above-mentioned routes.

3.3 Operator Eligibility

(1) The operators should obtain CPDLC and ADS-C operational approval in accordance with policies established by the State of Registry or State of the Operator.

(2) In the area where CPDLC/ADS-C is the primary means of communication/surveillance on above mentioned routes, reduced longitudinal separation may be applied between the aircraft with a specific operation approval of RCP240 and RSP180. However, RCP240 and RSP180 are not mandated for flying on these routes. If either or both aircraft do not have RCP240 or RSP180 approval, the ATS units will apply procedural separation minimum between them.

4. FLIGHT PLANNING

The operator shall ensure that the appropriate information to denote PBCS capabilities is included in the ICAO flight plan and to adhere to the provisions stated in Appendix 2 of ICAO PANS-ATM Doc4444 (Sixteenth Edition, 2016, the same below).

5. 运行监控

5.1 为了确保航空器运行能够持续满足 PBCS 要求，需要在 PBCS 实施后建立长期充分的监控机制。中国大陆地区已建立数据链质量问题报告机制，涉及中国大陆地区数据链航路的问题质量报告，空管部门和航空运营人可参照 ENR 3.3.2.4 第 8 章“数据链质量问题报告机制”及附录 B 开展问题报告。

5.2 中国民航还将按照 ICAO 要求开展数据链航路的性能分析，并根据需要向相关的空管部门、航空运营人和 ICAO 亚太地区未来空中航行系统互用性工作组（FIT-Asia）通报分析结果和性能不满足运行要求的情况。

6. 其他信息

6.1 在特定区域开展基于 RCP/RSP 规范空中交通服务实施的 PBCS 指导材料，请参见 ICAO 相关要求以及对附件 4、6（第 I, II, III 部分），附件 10（第 II, III 卷）附件 11、15 以及 Doc4444 关于 PBCS 的修订，包括新的标准和建议措施（SARPS）和以下手册：基于性能的通信和监视手册（Doc 9869）和全球运行数据链手册（Doc 10037）。

6.2 中国地区数据链航路开展 PBCS 相关事宜咨询可联系：

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5. OPERATION MONITORING

5.1 Adequate monitoring of flight operations shall be conducted to assist in the assessment of continuing compliance of aircraft with PBCS requirements. China mainland has established data link problem reporting mechanism. The ATS units and operators can submit data link problem report for China mainland data link problems according to the procedures specified in Chapter 8 ‘Data link problem reporting mechanism’ and Attachment B of ENR 3.3.2.4.

5.2 CAAC will conduct ongoing PBCS monitoring and performance analysis and provide results and PBCS non-compliance to relevant ANSPs, operators and ICAO FANS Interoperability Team Asia(FIT-Asia) meeting on request.

6. ADDITIONAL INFORMATION

6.1 Guidance material on the application of performance-based communication and performance-based surveillance, which prescribes RCP/RSP to an air traffic service in a specific area, is contained in ICAO Provisions and amendments to Annexes 4, 6 (Parts I, II, III), 10 (Volumes II, III), 11, 15, PANS-ATM (Doc 4444) and PANS-ABC (Doc 8400) on PBCS, including new Standards and Recommended Practices (SARPS) and related guidance material, Performance-Based Communication and Surveillance (PBCS) Manual (Doc 9869) and Global Operational Data Link (GOLD) Manual (Doc 10037).

6.2 For more information of PBCS and data link operations on data link routes in China, please contact:

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