



THIRD WORKSHOP ON PERFORMANCE-BASED COMMUNICATION AND SURVEILLANCE (PBCS)

(Paris, France, 20 to 21 February 2018)

Agenda Item 1: Introduction

a) ICAO Provisions on PBCS

**PROPOSAL FOR AMENDMENT OF THE REGIONAL SUPPLEMENTARY
PROCEDURES, NAT REGION (Doc 7030/5) (Serial No.: EUR/NAT-S 17/07-NAT 2, 3, 4, 5, 6, 7)**

(Presented by ICAO Secretariat)

SUMMARY

*This information paper presents the workshop with Proposal for
Amendment of the Regional Supplementary Procedures, NAT Region (Doc
7030/5) (Serial No.: EUR/NAT-S 17/07-NAT 2, 3, 4, 5, 6, 7)*

1. Action by the meeting

- 1.1. The NAT PBCS Workshop is invited to note the content of the attachment hereafter.

ATTACHMENT

**PROPOSAL FOR AMENDMENT OF THE
REGIONAL SUPPLEMENTARY PROCEDURES,
NAT REGION (Doc 7030/5)**

(Serial No.: EUR/NAT-S 17/07-NAT 2, 3, 4, 5, 6, 7)

a) **Regional Supplementary Procedures:**

Doc 7030/5 – NAT Region.

b) **Proposed by:**

North Atlantic Systems Planning Group

c) **Proposed amendment:**

Editorial Note: Amendments are arranged to show deleted text using ~~text to be deleted~~, and added text with grey shading (text to be inserted).

1. *Insert* the following in **Glossary**:

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RCP	required communication performance
RSP	required surveillance performance
PBC	performance based communication
PBCS	performance based communication and surveillance
PBN	performance-based navigation
PBS	performance based surveillance

...

2. *Modify* and *Insert* the following in **NAT SUPPs, Chapter 2 — Flight Plans, Section 2.1:**

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2.1.5 Required communication performance (RCP) specifications

2.1.5.1 From 29 March 2018, all aircraft authorized for performance-based communication (PBC) and planning to operate in the NAT Region shall insert the appropriate descriptor (P1, P2 and/or P3) in Item 10a of the flight plan to indicate the compliance with the relevant required communication performance (RCP) specification(s).

2.1.6 Required surveillance performance (RSP) specifications

2.1.6.1 From 29 March 2018, all aircraft authorized for performance-based surveillance (PBS) and planning to operate in the NAT Region shall insert relevant required surveillance performance (RSP) specification(s) (e.g RSP180) in Item 18 of the flight plan following the SUR/ indicator.

Editorial Note.— Renumber subsequent paragraphs.

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2.1.1416 Data link services Controller-pilot data link communications (CPDLC)

2.1.1416.1 All aircraft planning to operate in the NAT Region and intending to use ~~data link services~~ controller-pilot data link communications (CPDLC) shall insert the appropriate descriptor (J2, J5 or J7) in Item 10a of the flight plan to indicate FANS 1/A interoperable equipment.

2.1.17 Automatic dependent surveillance – contract (ADS-C)

2.1.17.1 All aircraft planning to operate in the NAT Region and intending to use automatic dependent surveillance — contract (ADS-C) services shall insert the D1 descriptor in Item 10b of the flight plan.

2.1.1518 Automatic Dependent Surveillance – Broadcast (ADS-B)

Editorial Note.— Renumber subsequent paragraphs.

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3. *Insert and modify* the following in **NAT SUPPs, Chapter 3 — Communications** :

3.1 PERFORMANCE-BASED COMMUNICATION (PBC)

(A6, Part I – Chapter 7; A6, Part II – Chapter 2.5; A6, Part III, Sections II and III – Chapter 5; A11 – Chapters 2, 3 and 6; A15 – Chapter 7, P-ATM – Chapters 4 and 5, and Appendix 2)

Note.— Additional guidance can be found in the ICAO Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

3.1.1 Required communication performance (RCP) specifications

3.1.1.1 RCP 240

3.1.1.1.1 RCP 240 is applicable to communication systems used to support the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3.

Means of compliance

3.1.1.1.2 The aircraft operator shall:

- a) implement provisions for receiving the reports of observed performance and taking corrective actions for aircraft identified as not complying with RCP specification(s); and
- b) be authorized by the State of the Operator or the State of Registry, as appropriate, in order to qualify for the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3.

Note.— As of 29 March, 2018, the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3 will be applied in portions of the ICAO NAT Region, as notified in State AIPs.

3.1.1.1.3 The air navigation services providers (ANSPs) shall:

- a) ensure that the communication system satisfies RCP 240 when applying the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3;
- b) establish PBCS monitoring programmes; and
- c) apply the appropriate flight plan designator to determine aircraft eligibility for the application of relevant separation minima.

Note.— As of 29 March, 2018, the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3 will be applied in portions of the ICAO NAT Region, as notified in State AIPs.

Editorial Note.— Renumber subsequent paragraphs.

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3.34 CONTROLLER-PILOT DATA LINK COMMUNICATIONS (CPDLC)

Area of applicability

3.34.1 All aircraft intending to conduct flights in the ~~airspace defined below~~ specified portions of NAT High Level Airspace (HLA) shall be fitted with and shall operate ~~controller pilot data link communications (CPDLC)~~ equipment:

- a) ~~from 7 February 2013, on specified tracks and flight levels within the NAT organized track system (OTS); and~~
- b) ~~from 5 February 2015, in specified portions of NAT minimum navigation specifications (MNPS) airspace.~~

~~— Note 1.— The specified tracks and flight level band within the NAT OTS will be published by the States concerned in national AIPs and identified daily in the NAT track message.~~

~~Note 2.— The specified portions of NAT MNPS HLA and aircraft equipment performance requirements where applicable will be published by the States concerned in national AIPs.~~

Means of compliance

3.34.2 Operators intending to conduct flights within the ~~airspace specified in 3.3.1~~ specified portions of NAT HLA shall ~~obtain CPDLC operational authorization~~ be authorized, where applicable, ~~either from~~ to use CPDLC by the State of Registry or the State of the Operator as appropriate. The State of Registry or the State of the Operator shall verify that the equipment has been certified in accordance with the requirements specified in RTCA DO-258/EUROCAE ED-100 or equivalent, capable of operating outside VHF data link coverage.

3.34.3 The CPDLC services provided within the ~~airspace specified in 3.3.1~~ specified portions of NAT HLA shall comply with the Oceanic Safety and Performance Requirements as specified in RTCA DO-306/EUROCAE ED-122 or equivalent.

~~Note.— Additional guidance can be found in the ICAO Global Operational Data Link Document (GOLD) the Global Operational Data Link (GOLD) Manual (Doc 10037).~~

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4. *Modify* the following in NAT SUPPs, Chapter 4 – Navigation, Section 4.1:

Editorial Note.— Chapter 4 is included for reference and consequential amendments resulting from this proposal for amendment.

4.1 PERFORMANCE-BASED NAVIGATION (PBN)

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4.1.1 Area navigation (RNAV) specifications

4.1.1.1 RNAV 10 (RNP 10)

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4.1.1.1.1 The RNAV 10 (RNP 10) specification shall be applicable to navigation systems used to support the separation minima specified in 6.2.1.1 b), 6.2.1.1 c), 6.2.1.1 d), and 6.2.2.3 a) and 6.2.2.3 c) when published in State AIPs.

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4.1.2 Required navigation performance (RNP) specifications

4.1.2.1 RNP 4

4.1.2.1.1 The RNP 4 specification shall be applicable to navigation systems used to support the separation minima specified in 6.2.1.1 a), 6.2.1.1 b), 6.2.1.1 c), and 6.2.2.3 a) and 6.2.2.2 b) when published in State AIPs...

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5. *Insert and modify* the following in NAT SUPPs, Chapter 5 — Surveillance :

5.1 PERFORMANCE-BASED SURVEILLANCE (PBS)

(A6, Part I – Chapter 7; A6, Part II – Chapter 2.5; A6, Part III, Sections II and III – Chapter 5; A11 – Chapters 2, 3 and 6; A15 – Chapter 7, P-ATM – Chapters 4 and 5, and Appendix 2)

Note.— Additional guidance can be found in the ICAO Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

5.1.1 Required surveillance performance (RSP) specifications

5.1.1.1 RSP 180

5.1.1.1.1. RSP 180 is applicable to surveillance systems used to support the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3.

Means of compliance

5.1.1.1.2 The aircraft operator shall:

- a) implement provisions for receiving the reports of observed performance and taking corrective actions for aircraft identified as not complying with RSP specification(s); and
- b) be authorized by the State of the Operator or the State of Registry, as appropriate, in order to qualify for the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3.

Note.— *As of 29 March, 2018, the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3 will be applied in portions of the ICAO NAT Region, as notified in State AIPs.*

5.1.1.1.3 The air navigation services providers (ANSPs) shall:

- a) ensure that the surveillance system satisfies RSP 180 when applying the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3;
- b) establish PBCS monitoring programmes; and
- c) apply the appropriate flight plan designator to determine aircraft eligibility for the application of relevant separation minima.

Note.— *As of 29 March, 2018, the separation minima specified in 6.2.1.1 a), 6.2.1.1 b) and 6.2.2.3 will be applied in portions of the ICAO NAT Region, as notified in State AIPs.*

Editorial Note.— *Renumber subsequent paragraphs.*

5.45 AUTOMATIC DEPENDENT SURVEILLANCE – CONTRACT (ADS-C)

Area of applicability

5.45.1 All aircraft intending to conduct flights in the airspace defined below the specified portions of NAT High Level Airspace (HLA) shall be fitted with and shall operate automatic dependent surveillance—contract (ADS-C) equipment:

- a) from 7 February 2013, on specified tracks and on specified flight levels within the NAT organized track system (OTS); and
- b) from 5 February 2015, in specified portions of NAT minimum navigation specifications (MNPS) airspace.

— *Note 1.*— *The specified tracks and flight level band within the NAT OTS will be published by the States concerned in national AIPs and identified daily in the NAT track message.*

Note 2.— *The specified portions of NAT MNPS HLA and aircraft equipment performance requirements, where applicable, will be published by the States concerned in national AIPs.*

Means of compliance

5.45.2 Operators intending to conduct flights within the airspace specified in 5.4.1 the specified portions of NAT HLA shall obtain an ADS-C operational authorization be authorized, where applicable, either from to use ADS-C by the State of Registry or the State of the Operator as appropriate. The State of Registry or the State of the Operator shall verify that the equipment has been certified in accordance with the requirements specified in RTCA DO-258/EUROCAE ED-100 or equivalent, capable of operating outside VHF data link coverage.

5.45.3 The data-link ADS-C services provided within the NAT airspace the specified portions of NAT HLA shall comply with the Oceanic Safety and Performance Requirements as specified in RTCA DO-306/EUROCAE ED-122 or equivalent. Conformance monitoring shall provide alerts to the controller when reports do not match the current flight plan, and the following ADS contracts shall be used:

- a) ADS periodic contracts at an interval consistent with safety requirements and published by the States concerned in national AIPs; and
- b) ADS event contracts that include the following event types:
 - 1) lateral deviation event (LDE) with a lateral deviation threshold of 9.3 km (5 NM) or less;
 - 2) level range deviation event (LRDE) with a vertical deviation threshold of 90 m (300 ft) or less; and
 - 3) waypoint change event (WCE) at compulsory reporting points.

Note.— Additional guidance can be found in the ICAO Global Operational Data Link Document (GOLD) the Global Operational Data Link (GOLD) Manual (Doc 10037).

6. Modify the following in NAT SUPPs, Chapter 6 — Air Traffic Services, Section 6.2:

6.2 SEPARATION

6.2.1 Lateral

(~~A11 Attachment B~~; P-ATM – Chapter 5)

6.2.1.1 Minimum lateral separation shall be:

- a) 42.6 km (23 NM) between aircraft operating within the control area of the Gander Oceanic FIR, Reykjavik Oceanic FIR and Shanwick Oceanic FIR. This minima is applied in accordance with 5.4.1.2.1.6 b) of the PANS-ATM and provided that the following conditions are met:
 - 1) communication – CPDLC RCP 240 in accordance with 3.1.1.1;
 - 2) navigation – RNP 4 in accordance with 4.1.2.1; and
 - 3) surveillance – ADS-C RSP 180 in accordance with 5.1.1.1.
- ab) 55.5 km (30NM) between aircraft operating within the control area of the New York Oceanic East FIR and Santa Maria Oceanic FIR provided that the following conditions are met:
 - 1) communication – CPDLC RCP 240 in accordance with 3.1.1.1;
 - 2) navigation – RNP 4 specification in accordance with the provisions of 4.1.2.1; and
 - 2) communication – CPDLC shall be monitored against RCP 240; and
 - 3) surveillance – ADS-C shall be monitored against ADS-C RSP 180 in accordance with 5.1.1.1.

Editorial Note.— Renumber subsequent paragraph.

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6.2.2 Longitudinal (P-ATM – Chapter 5)

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6.2.2.32 Minimum longitudinal separation based on time between non-turbo-jet aircraft shall be 30 minutes.

~~6.2.2.23 Minimum longitudinal separation based on distance between turbo jet aircraft~~ Performance-based longitudinal separation minima shall be:

a) 93 km (50 NM) between aircraft operating within the control area of the New York Oceanic East FIR and Santa Maria Oceanic FIR in accordance with the provisions in 5.4.2.9 of the PANS-ATM and provided that the following conditions are met:

- 1) communication – CPDLC RCP 240 in accordance with 3.1.1.1;
- ~~2)~~ navigation – RNP 10 or RNP4 specification in accordance with the provisions of 4.1.1.1 or 4.1.2.1, respectively; and
- 2) communication – CPDLC shall be monitored against RCP 240; and
- 3) surveillance – ~~ADS-C shall be monitored against ADS-C~~ RSP 180 in accordance with 5.1.1.1.

~~—Note—Guidance concerning RCP and RSP specifications, application and performance requirements can be found in the Global Operational Data Link Document (GOLD).~~

b) 55.5 km (30 NM) between aircraft operating within the control area of the New York Oceanic East FIR and Santa Maria Oceanic FIR in accordance with the provisions in 5.4.2.9 of the PANS-ATM and provided that the following conditions are met;

- 1) communication – CPDLC RCP 240 in accordance with 3.1.1.1;
- ~~2)~~ navigation – RNP4 specification in accordance with the provisions of in accordance with 4.1.2.1; and
- 2) communication – CPDLC shall be monitored against RCP 240; and
- 3) surveillance – ~~ADS-C shall be monitored against ADS-C~~ RSP 180 in accordance with 5.1.1.1.

c) 5 minutes between aircraft operating in the Gander Oceanic FIR, Reykjavik Oceanic FIR, Shanwick Oceanic FIR and Santa Maria Oceanic FIR provided that the following conditions are met;

- 1) communication – CPDLC RCP 240 in accordance with 3.1.1.1;
- 2) navigation – RNP 10 or RNP4 in accordance with 4.1.1.1 or 4.1.2.1; and
- 3) surveillance – ADS-C RSP 180 in accordance with 5.1.1.1.

Note.— Guidance concerning RCP and RSP specifications, application and performance requirements can be found in the Global Operational Data Link Document (GOLD)

~~6.2.2.3 Minimum longitudinal separation based on time between non turbo jet aircraft shall be 30 minutes.~~

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7. *Insert the following in NAT SUPPs, Chapter 7 — Safety Monitoring, Section 7.2:*

7.2 AIRSPACE MONITORING

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7.2.4 PBCS

7.2.4.1 Adequate monitoring shall be conducted to assess continuing compliance of the communication and/or surveillance systems with the prescribed RCP and/or RSP specifications.

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Editorial Note.— Renumber subsequent paragraph.

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