

# AERONAUTICAL INFORMATION CIRCULAR 28/19

## EXPANSION OF ADVANCED SURVEILLANCE ENHANCED PROCEDURAL SEPARATION TRIAL IN THE GANDER OCEANIC CONTROL AREA

(Supersedes AIC 2/19)

### Introduction

The automatic dependent surveillance – broadcast (ADS-B) service, as facilitated by receivers hosted on satellites, has been expanded into oceanic and remote areas previously limited by ground-based air traffic services (ATS) surveillance systems. This makes it possible to maintain a safe, orderly, and expeditious flow of air traffic using smaller air traffic control separation standards than are required today. Used together with the existing ground based ATS surveillance infrastructure, space-based ADS-B permits uninterrupted ATS surveillance for equipped aircraft before, during, and after entry into the North Atlantic (NAT) Region.

With the anticipated expansion of ADS-B availability into oceanic and remote areas, the International Civil Aviation Organization (ICAO) Separation and Airspace Safety Panel (SASP) was tasked to develop proposals for ADS-B separation minima for implementation in oceanic and remote enroute airspace. The proposed minima (described below) can be used between aircraft meeting the specifications for required navigation performance 4 (RNP 4) and required communication performance (RCP) 240 where ADS-B service is provided and controller-pilot data link communications (CPDLC) are available.

On 28 March 2019, Shanwick, Gander and Santa Maria Oceanic Control Areas (OCAs) commenced a trial implementation of the following longitudinal separations. The ATS surveillance-based procedural longitudinal separation was applied as per the *Procedures for Air Navigation Services – Air Traffic Management* (PANS ATM), Doc 4444 proposal for amendment from the ICAO SASP, as paraphrased below:

- a) 17 nautical miles (NM) longitudinal separation of aircraft operating on same track or intersecting tracks provided, that the relative angle between the tracks is less than 90 degrees.
- b) 14 NM provided the relative angle between the tracks is less than 45 degrees.
- c) Opposite-direction aircraft on reciprocal tracks may be cleared to climb or descend to or through the levels occupied by another aircraft provided that the aircraft have reported by ADS-B having passed each other by 5 NM.

**On or soon after 10 October 2019**, Shanwick, Gander and Santa Maria OCAs will commence a trial implementation of 19 NM lateral spacing between parallel or non-intersecting tracks. Operators should not anticipate significant changes to track design on 10 October 2019, as air traffic control (ATC) is expected to only apply 19 NM lateral separation between eligible aircraft pairs along random routes.

### Background

The space-based ADS-B system will consist of a constellation of low earth orbit (LEO) satellites hosting ADS-B receivers. A satellite will receive ADS-B data including position, velocity, and altitude from aircraft, which is then routed through other satellites and down-linked to a satellite operations ground station from where it is on-forwarded to Gander and Shanwick. Santa Maria will use the existing ground-based ADS-B system.

There is no change to non-very high frequency (VHF) direct controller-pilot communications (DCPC) infrastructure or procedures using CPDLC, as contained in the *Global Operations Data Link (GOLD) Manual* (Doc 10037), and *Satellite Voice Operations Manual* (Doc 10038).

Flight crews are expected to comply with normal non-surveillance procedures, which include position reports via voice or automatic dependent surveillance – contract (ADS-C), squawking code 2000 while traversing the NAT Region, and all other operator-specific procedures currently used.

Application of the ATS surveillance-based separations, where direct controller-pilot VHF voice communications are not available, requires aircraft to meet the specifications for RNP 4, RCP 240 and Required Surveillance Performance (RSP) 180 as annotated by the appropriate designator in the ICAO flight plan.

The existing Future Air Navigation System 1/A (FANS 1/A) infrastructure, including ADS-C waypoint change event contracts, vertical and lateral event contracts and CPDLC confirm assigned route [UM137/DM40], will continue to be utilised to extract intent data (NEXT and NEXT+1) from the aircraft flight management system (FMS) as part of conformance monitoring.

## Qualifications to Participate in the Trial

Eligible flights are those that meet the following requirements:

- reduced vertical separation minimum (RVSM) / high level airspace (HLA) approval
- ADS-B, with dedicated 1,090 megahertz (MHz) out capability
- Aircraft meeting the specifications for RNP 4
- Aircraft meeting the specifications of RCP 240 and RSP 180

ATS systems use Field 10 (Equipment) of the standard ICAO flight plan to identify an aircraft's data link and navigation capabilities. The operator should insert the following items into the ICAO flight plan (as per the 2012 flight plan format) for FANS 1/A or equivalent aircraft:

- a) Field 10a (Radio communication, navigation and approach aid equipment and capabilities):
  - insert “J5” to indicate CPDLC FANS 1/A satellite communications (SATCOM) (Inmarsat) or “J7” to indicate CPDLC FANS1/A SATCOM (Iridium) data link equipment;
  - insert “P2” to indicate RCP 240 approval;
- b) Field 10b (Surveillance equipment and capabilities):
  - insert “D1” to indicate ADS-C with FANS1/A capabilities; and
  - B1 or B2 to indicate ADS-B.
- c) Field 18 (Other Information):
  - insert the characters “PBN/” followed by “L1” for RNP4 and SUR/RSP180

Operators do not have to apply to be part of the trial. As long as they meet the qualifications above, they will be participants in the trial.

Gander area control centre (ACC) plans the traffic flow based on aircraft equipage as filed in the ICAO flight plan. To avoid last-minute changes to oceanic clearances it is imperative that operators file in accordance with functioning operational equipage.

## Strategic Lateral Offset Procedures

The strategic lateral offset procedures (SLOP), implemented as a standard operating procedure in the NAT Region since 2004, remain unchanged.

## Contingency Procedures

There are significant revisions to the current *ICAO Doc 4444 Contingency Procedures*. Coincident with the separations listed above, Separation and Airspace Safety Panel (SASP) has proposed changes to *ICAO Doc 4444 Contingency Procedures*. These procedures, along with the revised weather deviation procedures, will be included in a revised version of *North Atlantic Operations and Airspace Manual (NAT Doc 007)* for the duration of the trial and until such time as they are published in *ICAO Doc 4444*. The following are the significant changes to the contingency procedures:

- A reduction in the offset distance to 9.3 km (5 NM) (also included for weather deviation).
- A strong recommendation for pilots to consider a descent below the predominant flow of traffic in a parallel track system where the aircraft's diversion path will likely cross adjacent tracks or routes. A descent below flight level (FL) 290 can decrease the likelihood of: conflict with other aircraft, airborne collision avoidance system (ACAS) resolution advisory (RA) events, and delays in obtaining a revised ATC clearance.

## Trial Period

The trial will run until November 2020 or when the PANS ATM, Doc 4444 proposal for amendment from the ICAO SASP is published, whichever is later. It is anticipated that the amendments will become effective on 5 November 2020.

A review will take place and a decision will be made to implement advanced surveillance-enabled procedural separation (ASEPS) on a permanent operational basis.

## Current Version

The current and updated versions of the NAT Operations, NAT Region Update Bulletins, and related project documents are provided on the ICAO European and North Atlantic (EUR/NAT) Office website:

<[www.icao.int/eurnat](http://www.icao.int/eurnat)>  
EUR/NAT Documents  
NAT Documents

## Further Information

For further information, please contact:

NAV CANADA  
Gander Area Control Centre  
P.O. Box 328  
Gander, NL A1V 1W7  
Attn: Jeffrey Edison, Manager  
ACC Operations

Direct line: 709-651-5223  
E-mail: [edisonj@navcanada.ca](mailto:edisonj@navcanada.ca)



James Ferrier  
Director, Aeronautical Information Management