AERONAUTICAL INFORMATION CIRCULAR 2/19

NOTICE OF PLANNED ADVANCED SURVEILLANCE ENHANCED PROCEDURAL SEPARATION TRIAL IN THE GANDER OCEANIC CONTROL AREA

Introduction

Automatic dependent surveillance – broadcast (ADS-B) service, as facilitated by receivers hosted on satellites, will be expanded into oceanic and remote areas previously limited by ground-based air traffic service (ATS) surveillance systems. This will make 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 will permit 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 or soon after 28 March 2019, Gander, Shanwick, and Santa Maria oceanic control areas (OCAs) will commence a trial implementation of the following longitudinal separations. Application of the ATS surveillance based procedural longitudinal separation will be 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:

- 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.
- 14 NM provided the relative angle between the tracks is less than 45 degrees.
- 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.

A trial implementation of lateral advanced surveillance-enabled procedural separation (ASEPS) will commence no earlier than 6 months after the commencement of the longitudinal separation operational trial. Operators will be advised via aeronautical information circular (AIC) a minimum two Aeronautical Information Regulation and Control (AIRAC) cycles prior to the commencement of the lateral ASEPS implementation trial.

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 will be 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 procedural separations will require that aircraft meet the specifications for RNP 4, RCP 240, and 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 used to extract intent data (NEXT and NEXT+1) from the flight's 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 1090 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 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 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.

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, 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 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 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>
EUR/NAT Documents
NAT Documents

Further Information

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