AERONAUTICAL INFORMATION CIRCULAR 20/16

TRIAL IMPLEMENTATION OF 25 NAUTICAL MILE LATERAL SEPARATION MINIMUM IN THE ICAO NORTH ATLANTIC REGION

Introduction

As notified by State letter titled “Implementation planning for RLatSM in the ICAO NAT Region” (issued 30 January 2015 [EUR/NAT 15-0058.TEC]) and Aeronautical Information Circular (AIC) 31/14 “Trial Implementation of Reduced Lateral Separation Minimum in the ICAO North Atlantic Region” (issued on or soon after 12 November 2015), Gander and Shanwick area control centres (ACCs) will commence participation in the trial of a 25 nautical mile (NM) lateral separation minimum in portions of the Gander and Shanwick oceanic control areas (OCA).

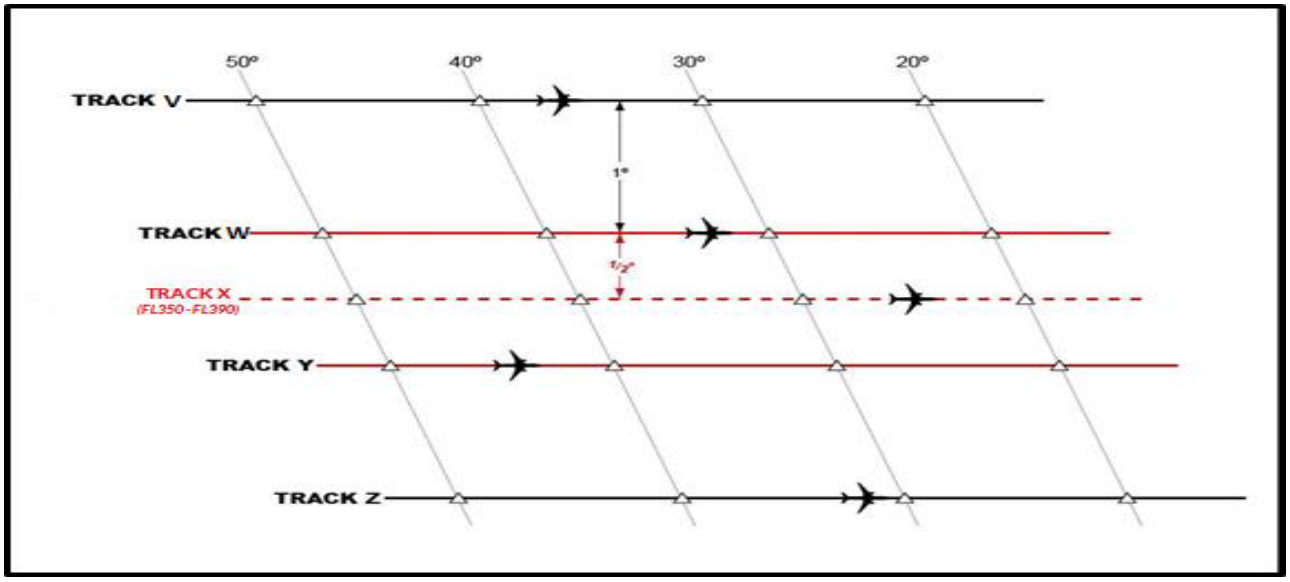
The information provided is intended for publication in the Spring 2017 *Transport Canada Aeronautical Information Manual* (TC AIM – TP 14371E).

Background

Advancements in aircraft avionics and air traffic management flight data processing systems have driven an initiative to analyze whether the lateral separation standard in the current North Atlantic (NAT) minimum navigation performance specification (MNPS) airspace can be reduced to increase the number of route options available and therefore increase capacity at optimum flight levels.

Track spacing for MNPS-approved aircraft is currently one degree of latitude, which equates nominally to 60 NM. The proposed change will reduce lateral separation for eligible aircraft to 25 NM, which can be practically achieved by establishing tracks that are spaced by one-half-degree of latitude. This track spacing initiative is referred to as reduced lateral separation minimum (RLatSM).

RLatSM will be implemented using a phased approach, the first of which will introduce one-half-degree spacing between the two core tracks of the NAT organized track system (OTS) from flight level (FL) 350 to FL 390 inclusive. Phase 2 will expand the implementation throughout the entire NAT OTS.



Operator Eligibility and Participation

Aircraft operating on the three published RLatSM tracks (W, X, or Y in the example diagram above), between FL 350 and FL 390 inclusive, will be subject to the RLatSM trial. Other published OTS flight levels are not part of the RLatSM trial.

The trial implementation of RLatSM will occur in NAT MNPS airspace; therefore MNPS approval remains a requirement. Only those operators/aircraft eligible for RLatSM operations will be allowed to operate on designated RLatSM tracks between FL 350-FL 390 (inclusive). All RLatSM tracks and FLs will be uniquely identified in note 3 of the OTS track message

Operators will be eligible to flight plan RLatSM tracks provided the flights are:

a) required navigation performance (RNP) 4 approved;

b) Automated Dependent Surveillance–Contract (ADS-C) equipped; and

c) controller-pilot data link communications (CPDLC) equipped.

The required Communications/Navigation/Surveillance (CNS) systems must be operational and flight crews must report any failure or malfunction of global positioning system (GPS), ADS-C, or CPDLC equipment to air traffic control (ATC) as soon as it becomes apparent.

Contingency and Strategic Lateral Offset Procedures

Contingency procedures applicable in the NAT Region are contained in Chapter 15 (15.2 Special Procedures for In-Flight Contingencies in Oceanic Airspace) of the *Procedures for Air Navigation Services – Air Traffic Management* (Doc 4444), Chapter 9 (Special Procedures) of the *NAT Regional Supplementary Procedures* (SUPPS) (Doc 7030), and Chapter 13 (Special Procedures for In-Flight Contingencies) of the *North Atlantic Operations and Airspace Manual* (NAT Doc 007). Analysis conducted as part of the RLatSM safety assessment has confirmed these procedures remain appropriate for the application of the 25 NM lateral separation minimum. Therefore, no additions or changes to the existing procedures are required.

The strategic lateral offset procedure (SLOP) that distributes aircraft along a route or track centreline with offsets of one or two miles to the right thereof has been implemented as a standard operating procedure in the NAT Region since 2004. Detailed guidance on SLOP application in the NAT Region is contained in Chapter 8 (8.5 Special In-Flight Procedures Strategic Lateral Offset Procedures [SLOP]) of the *North Atlantic Operations and Airspace Manual* (NAT Doc 007). Calculations used in the RLatSM safety assessment demonstrate sufficiency to allow provisions for the application of SLOP up to 2 NM right of track or route centerline where the 25 NM lateral separation minimum is being applied.

Operators may note that current procedures in the Doc 4444 indicates offsets up to 2 NM are only to be used where lateral separations of 30 NM or more are being applied. Based on calculations similar to those conducted for the RLatSM safety assessment, the Doc 4444 SLOP provisions are planned to be amended in 2016 to document that offsets up to 2 NM may be used where lateral separations of 23 NM or more are being applied. Therefore, no additions or changes to the existing SLOP provisions in the NAT Region are required.

Flight Planning

Air traffic services (ATS) systems use Field 10 (Equipment) and Field 18 (Other Information) 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 for RNP 4 authorized and future air navigation systems (FANS) 1/A or equivalent aircraft:

a) Field 10a (Radio communication, navigation and approach aid equipment and capabilities)

- insert "J5" to indicate CPDLC FANS1/A SATCOM (Inmarsat) and/or "J7" to indicate CPDLC FANS1/A SATCOM (Iridium) data link equipment;

b) Field 10b (Surveillance equipment and capabilities)

- insert "D1" to indicate ADS with FANS 1/A capabilities; and

c) Field 18 (Other Information)

- insert the characters "PBN/" followed by "L1" for RNP 4.

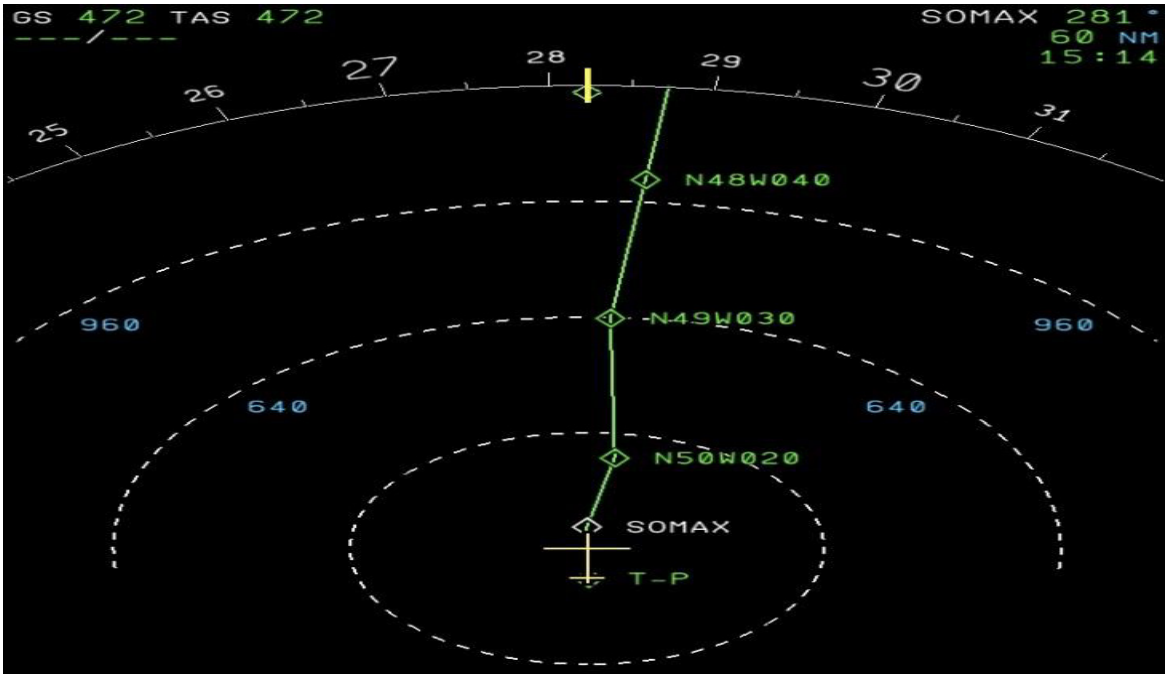
Correct use of the CNS equipment that is indicated in the flight plan

Before entering the NAT, the flight crew should ensure that:

1. the aircraft is logged on for data link capability (J5, J7, D1) filed in the filed flight plan (FPL); and
2. RNP 4 is inserted into the flight management computer (FMC), when RNP 4 capability (L1) has been filed in the FPL. This is necessary to enable aircraft navigation system monitoring and alerting against the required RNP 4 navigation specification.

Verification of Waypoint Degrees and Minutes

Track spacing for RLatSM may involve the use of waypoints consisting of half-degree coordinates. Existing cockpit map display limitations result in truncation of waypoints consisting of latitude/longitude to a maximum of seven characters; minutes of latitude are not displayed. In the example below, the representation would be the same if the flight was operating along whole- or half-degree waypoints (e.g., the N50W020 label in the figure below could represent a whole degree (5000 North) or a half degree (5030 North) of latitude).



As shown below, full 13-character representations of latitude/longitude waypoints can be viewed via the FMC display. To mitigate the possibility for gross navigation errors resulting from incorrect waypoint insertion, it is imperative that established cockpit procedures are followed whereby each pilot independently displays and verifies the degrees and minutes loaded into the FMC for each oceanic waypoint defining the cleared route of flight.

Flight crews are further advised that, should they be notified that ATC systems indicate the aircraft is not flying the cleared route, they should immediately display the full degrees and minutes loaded into the FMC for the NEXT and NEXT + 1 waypoints, and verify against the cleared route before responding.

As a precaution against possible waypoint insertion errors, rerouting of flights onto RLatSM identified tracks containing ½ degree coordinates will only be permitted via CPDLC using Uplink Message UM79, UM80 or UM83. Aircraft will therefore not be rerouted onto ½ degree OTS tracks if ARINC 623 data link or voice is used for the issuance of the oceanic clearance.

Current Version

The current and updated versions of the draft NAT RLatSM plan and associated documents are provided on the ICAO European and North Atlantic Office website:

<www.paris.icao.int>
EUR & NAT Documents
NAT Documents
Planning documents supporting separation reductions and other initiatives

Further Information

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