NOTICE OF EXPANSION OF ATS SURVEILLANCE SERVICES IN THE EDMONTON FLIGHT INFORMATION REGION (FIR)

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 (ATC) separation standards than those required today. Used together with the existing ground-based ATS surveillance infrastructure, space-based ADS-B will permit uninterrupted ATS surveillance for equipped aircraft operating over Northern Canadian Airspace in the Edmonton flight information region (FIR).

Phased Approach

On or soon after 25 March 2019, the Edmonton area control centre (ACC) will use space-based ADS-B signals to augment the existing ground-based ADS-B service, using the current 5 nautical miles (NM) separation within existing very high frequency (VHF) / ADS-B surveillance airspace (Figure 1).
On or soon after 30 April 2019, the Edmonton ACC will expand the use of 5 NM ATS surveillance separation, using space-based ADS-B signals, to all airspace within the Edmonton FIR where VHF communications are available. (Figure 2).

On or soon after 7 October 2019, the Edmonton ACC will begin applying the following separation minima using ATS surveillance systems, where VHF voice communication is not available, by means of space-based ADS-B ATS surveillance signals in pair with controller-pilot data link communications (CPDLC). (Figure 3):

- 14 NM longitudinal separation, provided the relative angle between the tracks is less than 45 degrees.
- 17 NM longitudinal separation, provided the relative angle between the tracks is less than 90 degrees.
- 19 NM lateral separation between parallel or non-intersecting tracks.
- 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 that they passed each other by 5 NM.
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 the Edmonton ACC.

There will be no change to non-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), and all other operator-specific procedures currently used.

Application of the ATS surveillance-based procedural separations will require that aircraft meet the specifications for required navigation performance 4 (RNP 4) and required communication performance (RCP) 240 and required surveillance performance (RSP) 180, as annotated by the appropriate designator in the International Civil Aviation Organization (ICAO) flight plan.

Qualifications to Participate

Eligible flights are those that meet the following requirements:

- ADS-B, with dedicated 1090 MHz out capability
- Aircraft meeting the specifications for RNP 4
- Aircraft meeting the specifications of RCP 240
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 Future Air Navigation System 1/A (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) or “J7” to indicate CPDLC FANS1/A SATCOM (Iridium) data link equipment. To be eligible for the space-base ADS-B with CPDLC separations, flights must maintain an active J5/J7 connection. Edmonton ACC will monitor all active datalink connections to ensure compliance.
   - Insert “P2” to indicate RCP 240 approval;

b) **Field 10b (Surveillance equipment and capabilities):**
   - Insert “D1” to indicate ADS with FANS1/A capabilities
   - Insert “B1” or “B2” to indicate ADS-B.

c) **Field 18 (Other Information):**
   - Insert “PBN/” followed by “L1” for RNP4 and SUR/RSP180

**Service Limitations North of 72° North**

In Edmonton FIR, Inmarsat satellite coverage has limitations in the north, so flights operating only with Inmarsat equipment may experience unreliability north of 72° North (N). There is no Inmarsat satellite coverage north of 80° N, so flights will not be able to use satellite voice communications (SATVOICE) services in this area using Inmarsat. Iridium SATVOICE services are available north of 80° N. Operators of aircraft that are equipped with both Inmarsat and Iridium modems should ensure that they switch to the Iridium system before operating north of 72° N.

Based on these service area limitations, operators are advised that Iridium-equipped flights (J7 in the ICAO flight plan) will be eligible for the space-based ADS-B with CPDLC separations in the entirety of the Edmonton FIR. For flights that are Inmarsat only (J5 in the ICAO flight plan), the separation would be available only within Inmarsat coverage.

**Contacts**

For further information, please contact:

NAV CANADA  
Attn: Noel Dwyer, Manager  
International Coordination  
Tel.: 613-563-7211

James Ferrier  
Director, Aeronautical Information Management