



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY NINTH MEETING OF THE ASIA/PACIFIC
AIR NAVIGATION PLANNING AND IMPLEMENTATION
REGIONAL GROUP (APANPIRG/29)**

Bangkok, Thailand, 3 to 5 September 2018

Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.4: CNS

STATUS TOWARDS COMMISSIONING SPACE-BASED ADS-B

(Presented by ICCAIA)

SUMMARY

Aireon is approaching the commissioning their Space-Based Automatic Dependent Service – Broadcast (ADS-B) service

Strategic Objectives:

- A: **Safety** – Enhance global civil aviation safety*
- B: **Air Navigation Capacity and Efficiency**—Increase the capacity and improve the efficiency of the global aviation system*
- E: **Environmental Protection** — Minimize the adverse environment effects of civil aviation activities.*

1. INTRODUCTION

1.1 Aireon is soon to go operational with its space-based ADS-B service. This service will enable surveillance improvements across the globe improving safety and efficiency. This paper provides a status update.

2. DISCUSSION

2.1 The Aireon Space-based ADS-B system will go live at the end of 2018.

2.2 The system will have 66 ADS-B receivers in low earth orbit providing global surveillance coverage of all ADS-B capable aircraft that transmit 125 watts from a top antenna. Almost all ADS-B equipped airliners already have this capability.

2.3 The system has been providing test data for more than a year and performance has exceeded expectations. Update rates, coverage and latency performance are exceeding the targets set.

2.4 A total of 75 satellites have been produced, 66 for operational orbit, 9 as in orbit spares and 6 as ground spares. 65 satellites have already been launched in space. Another SpaceX launch in Q4 2018 will complete the constellation.

2.5 Extensive commissioning activity including testing, certification, training is underway.

2.6 The European Safety Agency (EASA) will certify the system as a suitable ATC surveillance source. EASA is examining the system, the company procedures, processes and safety case and will provide ongoing oversight of the operational service. EASA has already completed three of four planned audits and certification is expected in Q1 2019.

2.7 Although beyond initial design expectations, the system is providing coverage from general aviation aircraft with bottom mount antennas. Aireon intends to quantify the performance of this capability more carefully after commissioning and may be able to offer performance guarantees for bottom mounted antennas after that is completed.

2.8 Initial customers include

- ASECNA: Agency for the Safety of Air Navigation in Africa and Madagascar
- ATNS: South Africa
- CAAS: Singapore
- eNAV: Italy
- NAV CANADA
- Naviair: Denmark
- Dutch Caribbean
- UK NATS
- Irish Aviation Authority (IAA)
- Seychelles CAA
- Isavia: Iceland

2.9 NAV CANADA expects to commence operational trials in late 2018. Other ANSP's will follow in early 2019.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to note the near term commissioning of the Aireon Space-Based ADS-B service and the potential of this capability to significantly improve safety and efficiency of air traffic management.

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