

International Civil Aviation Organization



**AUTOMATIC DEPENDENT
SURVEILLANCE – BROADCAST SEMINAR
AND FOURTEENTH MEETING OF
AUTOMATIC DEPENDENT
SURVEILLANCE – BROADCAST (ADS-B)
STUDY AND IMPLEMENTATION TASK
FORCE (ADS-B SITF/14)**



Christchurch, New Zealand, 14 – 17 April 2015

Agenda Item 4: Review States' activities and interregional issues on implementation of ADS-B and multilateration

REGIONAL ADS-B REQUIREMENT FOR NEW AIRCRAFT

(Presented by Australia)

SUMMARY

This paper proposes revised wording for an Asia Pacific ADS-B Forward fitment (new Air Transport aircraft only) commencing in 2018 at minimal cost to operators.

1. Introduction

1.1 This paper proposes revised wording for an Asia Pacific ADS-B Forward fitment (new Air Transport aircraft only) commencing in 2018 at minimal cost to operators.

2. Background

2.1 SEA/BOB ADS-B WG/9

The Ninth Meeting of the South East Asia and Bay of Bengal Sub-regional ADS-B Implementation Working Group (SEA/BOB ADS-B WG/9) the Working Group recommended action on the follow-ups to the Air Navigation AN Conf/12 and endorsed the following draft Conclusion regarding the regional ADS-B OUT forward fit mandate commencing from January 2017.

***Draft Conclusion 13/1 – ADS-B OUT Forward Fit (Proposed by SEA/BOB WG/9)**
That, States/Administrations in APAC Region mandate that aircraft with an individual certificate of airworthiness first issued on or after 8 January 2017 (two years after the European forward fitment mandate is effective) be equipped with ADS-B avionics compliant with Version 2 ES (equivalent to RTCA DO260B).*

2.2 ADS-B SITF/13 (Hong Kong 2014) reviewed the recommended actions on the follow-ups to the Air Navigation AN Conf/12 and decided not to endorse the draft Conclusion proposed by the Working Group regarding the regional ADS-B OUT forward fit mandate. Instead, States were encouraged to consider the cost effectiveness of publishing forward fit and retrofit mandates when

planning their transition to ADS-B, and early promulgation of their mandates and transition plans for forward fit and retrofit of ADS-B avionics for aircraft in their airspace.

ADS-B SITF/13 did not endorse the draft SEA/BOB conclusion because of concerns raised about the costs that it would bring to the GA fleet in some States.

Australia presented a revised proposal to CNS SG/18 (WP/34) which addressed the perceived concerns of SITF13 and changed the date to December 2017. The relevant report extract is copied below:

7.32 The meeting recalled that ADS-B SITF/13 meeting decided not endorse a similar draft Conclusion proposed by the Working Group regarding the regional ADS-B OUT forward fit mandate commencing from December 2017 as cost concerns for those aircraft would only fly within non-ADS-B airspace and costly to mandate the requirement for GA aircraft. Japan expressed that time required to consult with stakeholders and also new emerging space based ADS-B technology should also be considered. Pakistan indicated that there was a need to consult with airworthiness experts in this regard. As result of discussion, the meeting refers the proposal to ADS-B SITF for further consideration.

7.33 The meeting encouraged States/Administration to consider cost effectiveness of publishing forward fit and retrofit mandates when planning their transition to ADS-B, and early promulgate their mandates and transition plan for forward fit and retrofit of ADS-B avionics for aircraft in their airspace. Member states of ADS-B study and implementation Task Force was also urged to consult with domestic authority concerned regarding the proposed forward fit mandate and actively participate in discussion of ADS-B SITF/14 meeting on this matter.

CNS SG/18 decided to refer the proposal back to SITF/14. The meeting report notes :

Adequate time has now elapsed to allow adequate consultation. Further, the emergence of space based ADS-B further supports the proposal. Global tracking using ADS-B out will only be possible if all aircraft equip with the proposed ADS-B 1090 technology used by Space based ADS-B.

3. European rulemaking

3.1 The European Commission amendment of the ADS-B fitment regulations delays the “forward fitment” rule from January 2015 to June 2016. i.e. aircraft with an individual certificate of airworthiness first issued on or after 8 June 2016

3.2 The retrofit rule for existing aircraft has been delayed until June 2020.

3.3 The European ADS-B mandate rule is :

“Aircraft operating IFR/GAT in Europe and with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots are required to carry and operate Mode S Level 2s transponder(s) with Mode S Elementary Surveillance (ELS), Enhanced Surveillance (EHS) (for fixed wing aircraft) and ADS-B 1090MHZ Extended Squitter (ES) capabilities.”

See <https://www.eurocontrol.int/spi-ir>

4. Discussion

4.1 There are significant advantages if all new transport and high performance general aviation aircraft in our region equip with ADS-B including :

- Benefits of increased surveillance in areas where there is no radar, increasing efficiency and safety.
- The benefits of surveillance data sharing using ADS-B which does not occur with radar data because of Defence concerns
- The benefits of ADS-B IN
- The benefits of Space based ADS-B reception and possibly Global tracking of airliners using ADS-B OUT technology already installed on many aircraft
- **There are significant advantages for aircraft operators to demand ADS-B capability when purchasing NEW AIRCRAFT. This is likely to be provided at little or possibly no additional cost for many aircraft types (eg Boeing & Airbus) if required at initial delivery. If operators choose to wait then they will incur expensive retrofit cost. A forward fit proposal has no cost impact on aircraft already registered.**

4.2 An Asia Pacific forward fitment requirement aligned with the European requirement would be beneficial for the region.

4.3 With the European and FAA mandates for ADS-B well established, it can be expected that ADS-B fitment to Version 2 ES standard will be part of the default avionics suite for all new aircraft.

4.4 Airlines need clear and early guidance about avionics that is required so that these requirements are passed to the suppliers of new aircraft.

4.5 A revised proposal is proposed in the recommendations which addresses the concerns of ADS-B SITF/13 because it is proposed that only Air Transport and higher performance general aviation aircraft be included. This proposal would signal to the international community that Asia Pacific is using ADS-B, that Asia Pacific is preparing for widespread ADS-B use (including from space) and could utilize ADS-B for Global tracking.

4.6 If ADS-B is to support the future surveillance in our region, then the more aircraft that are equipped, the more effective it will be.

4.7 The lowest cost fitment of ADS-B is during manufacture. Therefore this proposal will allow the avoidance of later retrofit costs. The proposal will bring long term savings to the aviation community without any significant cost in the short term.

4.8 While this proposal represents a baseline position for the Asia-Pacific region, there remains the option for states to regulate to a broader, or earlier, fitment requirement where this is in the best interest of the aviation sector in that state.

5. Recommendation

5.1 The meeting is invited to consider a draft conclusion as follows:

ADS-B OUT Forward Fit

That, States/Administrations in APAC Region mandate that aircraft conducting IFR operations, with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots, with an individual certificate of airworthiness first issued on or after 8 June 2018 (two years after the European forward fitment mandate is effective) be equipped with ADS-B avionics compliant with Version 2 ES (equivalent to RTCA DO260B).
