



International Civil Aviation Organization

**REGULATOR'S WORKSHOP ON ADS-B
AVIONICS EQUIPAGE REQUIREMENTS**

Jakarta, Indonesia, 16 – 17 August 2010



Agenda Item 7: Development of Asia/Pacific Regional ADS-B implementation plan

AIRCRAFT EQUIPAGE REQUIREMENTS

(Presented by IATA)

SUMMARY

This paper discusses aircraft equipage requirements for the near term implementation of ADS-B within the Asia Pacific region

1. INTRODUCTION

1.1 Asia Pacific has been an early supporter of ADS-B with many States in this region developing ADS-B programs in the short/medium term.

1.2 Key to any ADS-B programs are the aircraft equipage requirements enabling the data to be used for operational purposes and to provide the operators with clear guidelines for equipage programs.

2. DISCUSSION

2.1 To enable use of ADS-B in the short/ medium term, it has been well recognised through ICAO forums that it is necessary to utilise existing capabilities rather than waiting for future enhancements. This has been recognised in the APANPIRG endorsed Surveillance Strategy for Asia Pacific which calls for consideration of the mandatory carriage of ADS-B (OUT) and recognising that the equivalent of D0-260 and DO-260A standards should be provided for until 2020.

2.2 The strategy also noted that the 11th Air Navigation Conference had endorsed the use of ADS-B as an enabler of the global air traffic management concept and encouraged States to support cost-effective early implementation of ADS-B applications.

2.3 The provision of ADS-B (when associated with VHF coverage) enables the provision of radar like separations between suitably equipped aircraft. When ADS-B extends surveillance into areas not already covered by radar, it will therefore be necessary to establish an exclusivity arrangement or mandate requiring aircraft to carry suitable ADS-B equipment to enable separation services to be applied.

2.4 This is well accepted by IATA and its member airlines provided the timelines associated with any mandate are appropriate and allow suitable time for compliance without undue penalty including costs.

2.5 Noting these issues APANPIRG adopted Conclusion 18/35 in 2007 which was later revised to Conclusion 19/37 in 2008 as follows:

Conclusion 19/37 –Revised Mandate Regional ADS-B Out Implementation States intending to implement ADS-B based surveillance service, be urged to

- a) determine ADS-B OUT equipage mandates based upon the ability to provide ADS-B OUT separation services;***
- b) expedite the implementation of ADS-B OUT in accordance with the Regional Air Navigation Plan and the provision of separation services based on ADS-B OUT;***
- c) publish their equipage mandates as soon as possible, with a target publication date of no later than 2010 so that operators can plan ahead their forward purchasing and retrofit; and***
- d) choose a date after mid 2012 on which the ADS-B out equipage mandate will become effective in airspace served by ADS-B ground stations with sufficient transition period to enable fleet equipage.***

Note: The implementation would require aircraft equipped with avionics compliant with either;

1) Version 0 ES as specified in Annex 10, Volume IV, Chapter 3, Paragraph 3.1.2.8.6 (up to and including Amendment 82 to Annex 10) and Chapter 2 of the Technical Provisions for Mode S Services and Extended Squitter (ICAO Doc 9871) (Equivalent to DO260) to be used till at least 2020.

Or

2) Version 1 ES as specified in Chapter 3 of the Technical Provisions for Mode S Services and Extended Squitter (ICAO Doc 9871) (Equivalent to DO260A)

2.6 The intent of these timelines was to provide operators sufficient time to plan their equipage with both forward fit and retrofit programs. Effectively the conclusion allows for a minimum of 4-5 years to comply with any equipage mandate.

2.7 This logic remains unchanged and this should be considered the minimum time period required to establish a mandate.

2.8 This does not however mean that the use of ADS-B needs to be delayed until that time. With appropriate procedures in place, ADS-B can be used for the provision of separation services within a relatively short time period for suitably equipped aircraft.

2.9 Further benefit can be derived by the use of priority handling after a suitable time period of operation when priority can be given to suitably equipped aircraft while non-equipped aircraft are also accommodated until such time as the mandate comes into force.

2.10 The development of equipage requirements themselves must also consider the existing arrangements. Currently there are two methods recognising DO-260 and DO-260A by which aircraft can be certified, EASA AMC 20-24 (as used in EUR and Canada) and the approval of airframes in Australia in compliance with CASA CAO 20.18 (as amended). The differences between the two standards are very small although the administrative process varies significantly.

2.11 A large proportion of the International fleet within this region will already be approved under one or both systems. By recognising existing approvals, States within this region can reduce their own certification burdens by endorsing these existing approvals. This not only reduces administrative burden on Regulators but can also substantially reduce costs for both regulators and operators. By recognising these existing arrangements and the sharing of databases, the entire certification process can be streamlined and simplified for the interim period.

2.12 This approach was the subject of much discussion at ADS-B TF/8 which resulted in APANPIRG adopting the following:

Conclusion 20/54 – Regional ADS-B Equipage Requirement

That, States be urged to issue ADS-B authorizations for the interim period 2010-2020 (or until requirements can be harmonized globally) in NRA airspace based on:

- **AMC20-24 certification or**
- **Approval by CASA Australia or**
- **The requirements of the CASA Civil Aviation Order 20.18 Amendment (No. 1) 2009 and Advisory Circular AC21-45**

Note: States that have not yet published regulations should implement necessary regulations that recognize that any one of the above requirements is acceptable and not specify an individual requirement.

Conclusion 20/55 – Forward Fitment Requirements for SA Aware and FDE functionality

That, ICAO recommend States concerned to adopt forward fitment requirements which include Selective Availability (SA) aware and Fault Detection and Exclusion (FDE) functionality as soon as reasonable

2.13 The premise of these conclusions remain valid for implementation plans in the short/ medium term although some of the facts pertaining to Conclusion 20/54 have changed with the revision of the CASA CAO 20.18 in Dec 2009. This will necessitate consideration to revise the conclusion however the basic concept adopted by APANPIRG remains valid.

2.14 That is for States within this region to publish equipage requirements recognising any one of AMC 20-24 or the requirements of CAO 20.18 (revised).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Publish equipage mandates as soon as possible for near term implementation plans (APANPIRG Conclusion 19/37);
- b) Recognise the timeline required of a minimum 4-5 years for establishment of equipage mandates (exclusivity arrangements);
- c) Recognise existing approvals when establishing State regulations (APANPIRG Conclusion 20/54);
- d) Consider arrangements for the sharing of approval database information to simplify processes;
- e) Review existing APANPIRG conclusions for ADS-B and consider the need for any revisions
