



ADS-B

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- ADS-B (OUT) based on Mode-S Extended Squitter (1090ES) is the preferred surveillance technology to replace radar

N.B. Where justified



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- ADS-B implementation worldwide must be harmonized, compatible and interoperable in respect of operational procedures, supporting data link and ATM applications



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- Can be Cost effective solution to
 - Enhance surveillance
 - Replace existing ground infrastructure
- Relies on aircraft equipage
- Ability to data share
 - Can extend own surveillance coverage
 - Reduce coordination issues
 - Potential to apportion costs
- Can be co located with VHF capability

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- Enhanced surveillance solutions offer:
 - More efficient routing
 - Increased airspace capacity
 - Lower cost ATM infrastructure
 - Return on investment

- True operational benefits rely on association with VHF capability

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- Developments on-going
- Need to be harmonised (2020?)



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- New rule making in effect
 - FAA mandate 1 Jan 2020
 - EUR mandate (2017)
- Operational benefits can still be derived in this region in the short term
- Must be compatible with what is already available



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- AUS
 - Fully operational since Dec 2009 (UAP mandate 2013)
- Canada (Hudson Bay/ Minto Sector)
 - Operational since early 2009 (mandate?)
- Both programs make use of current capabilities/ equipage



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- In the short-medium term States wishing to implement ADS-B must ensure compatibility with existing programs
- Part of the agreed ASPAC Regional Strategy for Surveillance endorsed by APANPIRG (recognising both DO-260 and DO-260A until 2020)
- Needs to be supported by DCPC (VHF)
 - To enable radar like separations (i.e. 5nm)



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- Without duplication of radar coverage will need to establish a mandate (exclusivity)
- Must ensure timeline for compliance is appropriate (generally 4-5 years)
- Lead has already been established



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- APANPIRG Conclusion 19/37 (and previous 18/35) urged States to “publish their equipage mandates as soon as possible”



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- Originally formulated in 2007 and amended in 2008
- Calls for publication of aircraft equipage requirements as soon as possible (and no later than 2010)
- Associated mandate no earlier than 2012
- That would give airlines 4-5 years to plan for equipage/ retrofit plans



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- APANPIRG conclusion remains unchanged
- But it is now 2011
- Based on APANPIRG conclusion, earliest mandate for States who have not published any equipage requirements 2015/2016



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- Operational benefits can still be derived in the near term
- ADS-B needs to be operational
- Equipage requirements need to be published
- Radar like separations can be applied between suitably equipped aircraft

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- After a suitable period, priority handling could be introduced before a mandate becomes effective
 - Equipped aircraft get priority
 - Non equipped are not excluded
 - Cannot implement priority handling at the outset
 - Need to allow sufficient time for operators to begin equipping (weight of numbers?)
 - Time frame dependent on circumstances

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- Airlines continue to equip their aircraft with ADS-B (OUT) capability
- Where justifiable by operational/ business cases, ATC replace ground surveillance radar with ADS-B (OUT)
- New implementations consider ADS-B in preference to radar
- ATS ground systems should continue to recognise both DO-260 and DO-260A transponders in the short-medium term
- As a region need to consider timeline for DO-260B



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- Need Certification or Approval of aircraft equipage
- Guidance from APANPIRG available



- Conclusion 21/39

Template for promulgation of ADS-B Avionics Equipage Requirements

That, based on APANPIRG Conclusion 20/54, States intending to implement ADS-B based surveillance service for a defined airspace and having not published regulations be urged to promulgate mandating rule for ADS-B Avionics Equipage Requirements as soon as possible using the following template



On and after dd/mm/yyyy, if an aircraft operates on airways (insert routes).....at or above FLXXX.....(or in defined airspace boundaries at or above FLXXX):

- a) the aircraft must carry serviceable ADS-B transmitting equipment that has been certificated as meeting EASA AMC 20-24, or meets the equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia; and
- b) the aircraft operator must have the relevant operational approval from the State of Registry.



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➤ Conclusion 21/40

That, States be advised to use the guidelines provided in Appendix P to the Report on Agenda Item 3.4 for Airworthiness and Operational Approval for ADS-B Out Avionics Equipage.

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- Robust guidance exists
- Vital need for any State with a plan to implement prior to 2020 to publish their requirements ASAP.

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- Most modern comm aircraft can enable the capability
- Proportion will increase in the short term
 - Fleet refresh
 - State Regional Mandates become valid
- Older aircraft can be extremely costly
- By recognising the existing approvals/ process can reduce burden
 - Reduce costs
 - Reduce administrative process

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- Need to consider the future requirements and migration to revised standards
 - DO-260B
 - SA
- 2020?

Conclusion

- States need to publish their requirements
- Recognise existing standards iaw APANPIRG guidance
- Implement iaw APANPIRG guidance
- Encourage sharing of databases
- Future standards must be harmonised



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Questions?