



ICAO APAC SITF/10 Singapore

Session 1

Update on Australian rule –
aircraft ADS-B OUT equipage
mandate for enroute
surveillance

safe skies for all



Australian Government
Civil Aviation Safety Authority
www.casa.gov.au

Australian ADS-B rule – basic features

- Not an avionics certification scheme
- Is an equipage acceptance scheme for GNSS + ADS-B configurations which have been found acceptable for Australian use in enroute airspace
- Has advisory material for operators information on acceptable equipage and pilot knowledge
- SITF/9 Meeting decisions – ADS-B aircraft approvals by State Regulators not CASA
 - after Dec 2013 all aircraft will be assumed to comply unless detected with non-compliant transmissions

Australian rule for avionics standards and compliance date

- Voluntary ADS-B avionics fitment until December 2013, then mandatory for aircraft flight at/above FL290
- Standards are fully in keeping with ICAO APANPIRG/ADS-B SITF inter-operability and harmonisation Conclusions.
- Existing GNSS and ADS-B installations in most airline aircraft on international service comply (with a few exceptions)
- The exceptions (non-compliant GNSS receivers and ADS-B transponders) are a potential problem area that needs to be controlled by State Regulators – CASA will continue to advise regulators of aircraft with non-compliant transmissions detected
- Main problems are track jumping, incorrect FLTID, incorrect ICAO address

CIVIL AVIATION SAFETY AUTHORITY

CASA ADS-B Rules

- Australian rule first promulgated in 2006.
- Rule was amended Dec 2009 to mandate ADS-B carriage in upper airspace after Dec 2013, take account of SITF/8 Conclusions, also OEM manufacturer, airlines, IATA and ANSP consultation
 - relaxed the GNSS SA Aware (TSO-145/6 or equiv) to a forward fit requirement from June 2012). Understand SEA/6 Meeting concern about this requirement
 - Added AMC 20-24 as approved means of compliance (with GNSS FDE)
 - No rule change since SITF/8 found necessary to date

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Impact of Australian ADS-B mandate

- Mandate applies to both domestic and foreign registered aircraft for flight at/above FL290 from 12 December 2013
- Many international aircraft in this upper airspace already have ADS-B equipment –
 - ~1200 now receiving ADS-B separation service
 - ~ 75% of international airline flights by ADS-B approved aircraft
 - ~ 25% of domestic airline flights by ADS-B approved aircraft
 - ~ 23% of all flight plans are for ADS-B approved aircraft

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ADS-B SITF/9 Meeting decision

- SITF/9 Meeting – ADS-B aircraft approvals by State Regulators not CASA
- Will apply until December 2013
 - after Dec 2013 all aircraft will be assumed to comply unless detected by our ANSP with non-compliant transmissions
- CASA will then inform relevant State regulator of the non-compliance (black-listed aircraft).
- Non-compliant or non-fitted aircraft may not receive ATC clearance for FL290 and above
- Ultimately - CASA compliance action could see cancellation of operator's AOC if safety jeopardised.

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**Current minimum performance criteria for aircraft ADS-B transmissions to support 5NM separation ATC surveillance in Australian airspace
CASA Part 172 Manual of Standards amendment adopted Dec 2010)**

ADS-B quality parameter	Current Minimum requirement 5NM separation
Containment Position Integrity Rc <2 NM and the likelihood of the position error exceeding containment radius of 1e-5	HPL=<2.0 NM corresponds to NUC=>3 or NIC=>4; SIL =>2
95 percentile Position Accuracy < 0.5NM	NUC => 4 (assumed accuracy of <0.5NM) or b) NAC(position) => 5

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CASA website link to the ADS-B rules

- These Civil Aviation Orders have similar text and operate in combination to impose standards for equipment configurations used for ADS-B transmission. They are applicable to all Australian aircraft (CAO 20.18), to foreign aircraft when operating in Australian territory under an Air Operator's Certificate (CAOs 82.1, 82.3 and 82.5), and to foreign aircraft engaged in private operations in Australian territory (CASA legislative instrument 521/09):
- **CAO 20.18 Amendment Order (No 3) 2009 (Aircraft Equipment - basic operational requirements): See section 9B and Appendix XI**
http://casa.gov.au/wcmswrf_assets/main/download/orders/cao20/2018.pdf
- **CAO 82.1 Amendment Order (No 2) 2009 (Conditions on Air Operator's Certificates authorising charter operations and aerial work operations): See paragraph 5.8 and Appendices 3 and 4**
http://casa.gov.au/wcmswrf_assets/main/download/orders/cao82/8201.pdf
- **CAO 82.3 Amendment Order (No 3) 2009 (Conditions on Air Operator's Certificates authorising regular public transport operations in other than high capacity aircraft). See paragraph 10.8 and Appendices 6 and 7.**
http://casa.gov.au/wcmswrf_assets/main/download/orders/cao82/8203.pdf
- **CAO 82.5 Amendment Order (No 3) 2009 (Conditions on Air Operator's Certificates authorising regular public transport operations in high capacity aircraft). See paragraph 10.8 and Appendices 4 and 5.**
http://casa.gov.au/wcmswrf_assets/main/download/orders/cao82/8205.pdf
- **CASA Miscellaneous Instrument 521/09 - Direction - Use of ADS-B in foreign aircraft engaged in private operations in Australian territory.**
http://casa.gov.au/wcmswrf_assets/main/rules/miscinst/2009/casa521.pdf

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- End
- Questions
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