



# CURRENT STATUS OF ADS-B REGULATIONS

Current and Proposed Rules -- As of 30 July 2009

## Europe

- An EASA rule (AMC20-24) is in place for non-radar airspace (NRA)
  - There is no mandate associated with this; it applies only to aircraft participating in the Pioneer Program
  - Both TSO-C129 and TSO-C145 are acceptable as position sensors
- Ruling for high traffic density radar airspace (RAD) available later in 2009
- ETSO-C166a now available for certification of 1090 MHz ADS-B
- A Draft Implementing Rule (NPRM) for new fixed wing or transport-type state aircraft with MTOW > 5,700 kg or Maximum Cruising Speed TAS > 250 kts stipulates:
  - ADS-B Out equipage to EHS standard after 1 Jan 2012
  - Existing aircraft equipage with ADS-B Out by 4 Feb 2015 (unless locally mandated otherwise, or ceasing operation by 2017)
  - State aircraft equipage with ADS-B Out after 1 Jan 2017 (unless locally mandated otherwise, or ceasing operation by 2020)
  - For small and slow aircraft (MTOW ≤ 5,700 kg and Maximum Cruising Speed TAS ≤ 250 kts), local regulations can be applied to stipulate ADS-B Out equipage, with same dates of applicability as for heavier or faster aircraft
- Going forward, EASA will require compliance with DO-260B MOPS for avionics approval
  - It is uncertain if SA Aware GPS will provide adequate performance. The timing of the Galileo GNSS and existing radar coverage may impact the GPS requirement. At least through 2025, one of two (which is typical for high density radar-controlled airspace) SSR layers will be replaced by ADS-B surveillance, possibly making GPS reliability less of an issue than in other parts of the world

## USA

- TSO authority via TSO-C166a for 1090 MHz approach (all altitudes)
- TSO authority via TSO-C154b for 978 MHz (UAT) approach (only for < 24,000 ft currently)
- Existing NPRM stipulates GPS WAAS required for all ADS-B applications
- GOMEX IFR helicopter ADS-B equipage:
  - Voluntary equipage through March 2010
  - Mandatory equipage from May 2010 through 2020
- Final ADS-B Out rule is expected to be published in April 2010. Likely changes to the NPRM include:
  - Requires performance in accordance with TSO-C166b (1090 MHz) or TSO-C154c (UAT) rather than the previous revisions. These will reference updated DO-260B and DO-282B MOPS, respectively
  - Requires all aircraft in Class A airspace (starting at 18,000 ft) to transmit using 1090 MHz
  - Class E airspace at or below 2,500 ft AGL need not follow ADS-B performance standards Antenna Diversity will not be required in all ADS-B mandated airspace for every aircraft type
  - Navigation positional accuracy (NACp) reduced from 30 meters (NACp ≥ 9) to 0.05 NM
    - Probability [Exceeding Integrity Containment] ≤ 1 x 10EXP(-7) and will be encoded in the NIC rather than the SIL (Probability ≤ 1 x 10EXP(-5) no longer an option)
    - High accuracy and integrity requirements might only be satisfied by a TSO-C145/146 GPS/WAAS sensor and possibly a combined GPS/Inertial sensor. It isn't yet clear if an "SA Aware" GPS will be adequate by itself
  - Latency requirement is changed from 1.5 sec overall to one where Uncompensated Latency ≤ 0.6 sec and Maximum Total Latency ≤ 2.0 sec.
  - Requirement for a broadcast message element indicating "Receiving ATC services" is no longer required
  - Requirement for pilot capability to turn off ADS-B transmissions is no longer required.



## Regarding "Current Regulations – Canada":

- EASA AMC20-24 has been adopted by Transport Canada as the basis for avionics approval for initial ADS-B Out use in the Hudson Bay (NRA)
- Hudson Bay ADS-B is now operational, and the airspace will be exclusionary when enough aircraft comply with AMC20-24

## Australia

- Lower Airspace: No mandate yet, but preferential clearances provided in non-radar airspace by Airservices Australia.
- ADS-B fitment is currently voluntary. If ADS-B equipment does not comply with an approved equipment configuration, however, it must be deactivated before flight in Australian airspace. Approval requires meeting TSO-C166 (DO-260) or TSO-C166a (DO-260A), ATSO-C1004, ATSO-C1005, or an equivalent standard acceptable to CASA.
- Upper Airspace (29,000 ft and above): Starting 12 Dec 2013, CASA-compliant ADS-B equipage is mandatory. Also, if equipment is used anywhere in Australia optionally, it must be compliant.
- CASA permits any TSO-C129/C129a GPS as a positional data source for ADS-B, as well as all C145, through 28 June 2012. After that date, it will require TSO-C145 or a CASA-approved equivalent. Here, "equivalent" can mean equipment having TSO-C129, having FDE (Fault Detection & Exclusion), and which bases computation on the assumption of SA (Selective Availability) being turned off (a.k.a. SA Aware), as it has been since year 2000. This particular requirement means some currently approved configurations will not likely be approved after 28 June 2012.



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