International Civil Aviation Organization

The Third Meeting of Automatic Dependent Surveillance – Broadcast (ADS-B) Study and Implementation Task Force (ADS-B TF/3)

Bangkok, 23-25 March 2005

Agenda Item 4: Review States' activities on trials and demonstration of ADS-B

POSSIBLE IN TRAIL CLIMB PROCEDURE TRIAL USING ADS-B

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SUMMARY

Australia and NASA have been discussing the possibility of trialling ADS-Based In Trail Climb/Descent procedures

1 BACKGROUND

1.1 Australia and NASA have been discussing the possibility of a trial of In Trail Climb (ITC) procedures, based on the earlier FAA approved TCAS In Trail climb procedure, but using ADS-B.

1.2 Current FAA ITC procedures allow a trailing aircraft to climb through another aircraft based on the pilot of the trailing aircraft reporting that he is separated from the lead aircraft based on observation of a TCAS cockpit traffic display.

1.3 Some difficulties were experienced with the FAA approved procedure leading to it not being widely applied. The major difficulty was that pilots had to ensure the identity of the aircraft displayed on their TCAS display. TCAS typically displays position and altitude but no identity. The ITC procedure required the lead aircraft being requested to turn off the ATC transponder. The in trail aircraft observed the transponder switch off and switch back on – and this was used as the identification process.

1.4 The use of ADS-B and its display on cockpit displays resolves this by displaying the broadcast flight ID.

2 PROPOSAL BEING CONSIDERED

2.1 NASA, CASA and Airservices Australia together with Australian operators are examining the possibility of trialling the use of ADS-B In Trail Climb. Its main future application would be in oceanic airspace which does not have high quality, high update surveillance capability.

2.2 The objectives of the trial would be to collect data to support the further widespread applicability of the procedure. Initially it is proposed that the trial could take place in transcontinental airspace which is

currently managed procedurally. The traffic density is low. The procedures would be regulated by the Australian regulator since the airspace concerned is only domestic airspace. This airspace also has direct VHF communications between the controller and trial aircraft, and would allow data from then existing Upper Airspace ADS-B ground stations to be recorded for analysis. These ADS-B ground stations are expected to be operational in 2005, with the last few ground stations being completed in the first quarter of 2006. Data gathered would be used to underpin the safety case for the second phase of the trial.

2.3 A second phase of the trial could be conducted in Oceanic airspace – probably the South Pacific, but Indian Ocean airspace, at least in the Australian FIR, might also be considered

2.4 It is proposed that training for controllers and any necessary CASA operational approvals for the trial could be completed to allow a trial potentially in the second half of 2006.

2.5 The team is looking for a commercial carrier that might agree to fit necessary equipment. Electronic Flight Bag (EFB) or Updated TCAS displays may be used as suitable display of “ADS-B in” information to allow a trial to be conducted.

2.6 It is envisaged that other parties would be kept informed e.g. ALPA, IFALPA, ISPACG

3 Conclusion

3.1 The meeting is invited to note the consideration of an Australian In Trail Climb procedure trial. Members are invited to provide any comments on the proposal.
