



Australian Government

Civil Aviation Safety Authority

Instrument number CASA 498/11

I, JOHN FRANCIS McCORMICK, Director of Aviation Safety, on behalf of CASA, make this instrument under regulation 209 (1) of the *Civil Aviation Regulations 1988* (**CAR 1988**).

[Signed John F. McCormick]

John F. McCormick
Director of Aviation Safety

20 December 2011

Amendment of Direction — use of ADS-B in foreign aircraft engaged in private operations in Australian territory

1 Commencement

This instrument commences on the day after registration.

2 Amendment of instrument CASA 521/09

Schedule 1 amends instrument CASA 521/09.

Schedule 1 Amendments

[1] Section 4

after

Schedule 1

insert

and Schedule 1A

[2] Section 4, the Note

substitute

Note 1 Schedule 1 contains directions relating to the carriage and use of automatic dependent surveillance – broadcast (ADS-B) equipment in Australian territory.

Note 2 Schedule 1A contains directions relating to the standards for Mode S transponder equipment in Australian territory.

[3] **Section 5**

before

Schedule 2

insert

Schedule 1A and

[4] **Schedule 1, clause 1, definition of *aircraft address***

substitute

aircraft address means a unique code of 24 binary bits assigned to an aircraft by or under the authority of an NAA for the purpose of air to ground communication, navigation and surveillance.

[5] **Schedule 1, clause 1**

insert

ATC means air traffic control.

EHS DAPs means enhanced surveillance downlink of aircraft parameters.

Mode A is a transponder function that transmits a 4-digit octal identification code for an aircraft when interrogated by an SSR, the code having been assigned to the aircraft by ATC for the relevant flight sector.

Mode A code is the 4-digit octal identification code transmitted by a Mode A transponder function.

Mode C is a transponder function that transmits a 4-digit octal code for an aircraft's pressure altitude when interrogated by an SSR.

Mode C code is the 4-digit octal identification code transmitted by a Mode C transponder function.

Mode S is a monopulse radar interrogation technique that improves the accuracy of the azimuth and range information of an aircraft, and uses a unique aircraft address to selectively call individual aircraft.

SSR means a secondary surveillance radar system that is used by ATC to detect an aircraft equipped with a radar transponder.

[6] **Schedule 1, clause 7**

omit

On and after

insert

Subject to clause 8, on and after

[7] **Schedule 1, clause 7, Note**

omit

[8] Schedule 1, clause 8

omit all words after

aircraft (first occurring)

insert

if:

- (a) the aircraft owner, operator or pilot has written authorisation from CASA for the operation of the aircraft without the ADS-B transmitting equipment; or
- (b) the equipment is unserviceable for a flight, and each of the following applies:
 - (i) the flight takes place within 3 days of the discovery of the unserviceability; and
 - (ii) at least 1 of the following applies for the flight:
 - (A) flight with unserviceable instruments or equipment has been approved by CASA, subject to such conditions as CASA specifies;
 - (B) the unserviceability is a permissible unserviceability set out in the minimum equipment list as approved by the NAA of the State of registration of the aircraft;
 - (C) CASA has approved the flight with the unserviceable equipment and any applicable conditions that CASA has specified in writing have been complied with; and
 - (iii) ATC clears the flight before it commences despite the unserviceability.

[9] After Schedule 1

insert

Schedule 1A Standards for Mode S transponder equipment

- 1 If the aircraft carries Mode S transponder equipment (the *equipment*), the equipment must meet the standards set out in this Schedule.
- 2 The equipment must be of a type that is authorised by:
 - (a) the FAA, in accordance with TSO-C112 as in force on 5 February 1986, or a later version as in force from time to time; or
 - (b) EASA, in accordance with ETSO-C112a as in force on 24 October 2003, or a later version as in force from time to time; or
 - (c) CASA, in accordance with an instrument of approval of the type.

Note 1 CASA Advisory Circular 21-46 provides guidelines on Mode S transponder equipment.

Note 2 If Mode S transponder equipment incorporates ADS-B functionality, the standards set out in Schedule 1 for ADS-B transmitting equipment will also apply to the Mode S transponder equipment.

- 3 The aircraft address entered into the equipment must exactly correspond to the aircraft address assigned to the aircraft by the NAA of the State of registration of the aircraft.
- 4 The equipment must transmit each of the following when interrogated on the manoeuvring area of an aerodrome or in flight:
 - (a) the aircraft address;
 - (b) the Mode A code;
 - (c) the Mode C code;
 - (d) subject to clause 6, the aircraft flight identification in accordance with clause 5.
- 5 The aircraft flight identification must:
 - (a) if a flight notification is filed with ATC for the flight — correspond exactly with the aircraft identification mentioned on the flight notification; or
 - (b) if no flight notification is filed with ATC for the flight — be the aircraft's nationality and registration mark; or
 - (c) be another flight identification directed or approved for use by ATC.
- 6 Mode S transponder transmission of the aircraft flight identification is optional for any aircraft that was first registered in its State of registration before 9 February 2012 (an *older aircraft*). However, if an older aircraft is equipped to transmit, and transmits, an aircraft flight identification then that aircraft flight identification, must be in accordance with clause 5.
- 7 If the equipment transmits any Mode S EHS DAPs, the transmitted DAPs must comply with the standards set out in paragraph 3.1.2.10.5.2.3 and Table 3-10 of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.

Note 1 Paragraph 3.1.2.10.5.2.3 includes 3.1.2.10.5.2.3.1, 3.1.2.10.5.2.3.2 and 3.1.2.10.5.2.3.3.

Note 2 Australian Mode S SSR are EHS DAPs-capable, and operational use of EHS DAPs is to be introduced in Australia. Implementation of Mode S EHS DAPs transmissions that are not in accordance with the ICAO standards may be misleading to ATC. Operators need to ensure that correct parameters are being transmitted.

- 8 If the equipment is carried in an aircraft first registered in its State of registration on or after 9 February 2012:
 - (a) having a certificated maximum take-off weight above 5 700 kg; or
 - (b) that is capable of normal operation at a maximum cruising true air speed above 250 knots;the equipment's receiving and transmitting antennae must:
 - (c) be located in the upper and lower fuselage; and
 - (d) operate in diversity, as specified in paragraphs 3.1.2.10.4 to 3.1.2.10.4.5 (inclusive) of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.

Note Paragraph 3.1.2.10.4.2.1 is recommendatory only.

[10] Schedule 2, clause 3, the heading

omit

28 June 2012

insert

8 December 2016

[11] Schedule 2, clause 3

omit

28 June 2012

insert

8 December 2016

[12] Schedule 2, clause 4, the heading

omit

28 June 2012

insert

8 December 2016

[13] Schedule 2, clause 4

omit

28 June 2012

insert

8 December 2016

[14] Schedule 2, clause 7, the heading

omit

28 June 2012

insert

8 December 2016

[15] Schedule 2, clause 7

omit

28 June 2012

insert

8 December 2016

[16] Schedule 2, clause 8, the heading

omit

28 June 2012

insert

8 December 2016

[17] Schedule 2, clause 8

omit

28 June 2012

insert

8 December 2016
