

AFS: WSSSYNYX
caas_singaporeais@caas.gov.sg
www.caas.gov.sg

REPUBLIC OF SINGAPORE
AERONAUTICAL INFORMATION SERVICES
CIVIL AVIATION AUTHORITY OF SINGAPORE
SINGAPORE CHANGI AIRPORT
P.O. BOX 1, SINGAPORE 918141

254/13
6TH NOVEMBER

IMPLEMENTATION OF AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR

1 INTRODUCTION

- 1.1 The purpose of this AIP Supplement is to notify airspace users of the implementation of ADS-B exclusive airspace within parts of the Singapore FIR effective 0000UTC, 12 December 2013.
- 1.2 On 28 December 2010, CAAS had published AIC 14/10 to notify aircraft operators on the plan to introduce ADS-B services within parts of the Singapore FIR and to allow aircraft operators to plan ahead their forward purchasing and retrofitting to meet the requirements for ADS-B equipage.

2 ADS-B BASED SURVEILLANCE AIRSPACE AND AIRCRAFT OPERATOR APPROVAL

- 2.1 On and after 0000UTC 12 December 2013, aircraft that operates on ATS Routes L642, M771, N891, M753, L644 and N892 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045223N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E (see **Attachment A**) at or above FL290 must comply with the following:
 - a) aircraft must carry serviceable ADS-B transmitting equipment that has been certified 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) aircraft operator must have the relevant operational approval from the State of Registry.

- 2.2 Aircraft that does not comply with the requirements stipulated in paragraphs 2.1 a) and b) will not be accorded priority in the delineated airspace and flight level assignments would be subjected to air traffic conditions.
- 2.3 ATS Route M904, which was implemented on 12 January 2012, will be excluded from the delineated airspace. The implementation of ADS-B services for ATS Route M904 has been planned for 26 June 2014. This will allow aircraft operators to plan ahead their forward purchasing and retrofitting to meet the requirements for ADS-B equipage.
- 2.4 If an aircraft carries ADS-B transmitting equipment but does not comply with the requirements stipulated in paragraphs 2.1 a) and b), the aircraft must not fly in the delineated airspace unless the equipment is:
- a) deactivated; or
 - b) set to transmit only a value of zero for the Navigation Uncertainty Category (NUCp) or Navigation Integrity Category (NIC).

3 FLIGHT PLANNING REQUIREMENTS

- 3.1 Aircraft operators complying with the requirements stipulated in paragraphs 2.1 a) and b) are to indicate the appropriate ADS-B designator in Item 10 of the ICAO flight plan:
- B1 ADS-B with dedicated 1090 MHz ADS-B “out” capability
 - B2 ADS-B with dedicated 1090 MHz ADS-B “out” and “in” capability
- 3.2 Aircraft operators are to include the aircraft address (24 Bit Code) in hexadecimal format in Item 18 of the ICAO flight plan as per the following example:
- CODE/7C432B
- 3.3 Aircraft Identification (ACID) not exceeding 7 characters must be accurately indicated in Item 7 of the ICAO flight plan and replicated exactly when set in the aircraft avionics (for transmission as Flight ID) as follows:
- either
- a) The three-letter ICAO designator of the aircraft operator followed by the flight number (e.g. SIA123, MAS123, GIA123), when radiotelephony callsign consists of the associated ICAO telephony designator for the aircraft operator followed by the flight number (e.g. SINGAPORE 123, MALAYSIAN 123, INDONESIA 123).
- or
- b) The aircraft registration (e.g. N555AB, 9VABC) when the radiotelephony callsign consists of the aircraft registration.

Important: ACID entered should not have any leading zeros unless it is part of the flight number as indicated in Item 7 of the ICAO flight plan. Hyphens, dashes or spaces are NOT to be used.

4 STATE AIRCRAFT

4.1 The conditions stipulated in this AIP Supplement apply to STATE aircraft intending to operate within the delineated airspace.

5 INFLIGHT CONTINGENCIES

5.1 The pilot-in-command, upon awareness of an onboard ADS-B equipment failure, must inform ATC as soon as possible. ATC would then provide the necessary clearance to ensure separation with other flights operating in the delineated airspace.

6 ATC-PILOT PHRASEOLOGIES

6.1 Aircraft operators and pilots are to note the following phraseologies when operating in the delineated airspace:

	Circumstances	Phraseologies
1	To request the capability of the ADS-B equipment	a) ADVISE ADS-B CAPABILITY; *b) ADS-B TRANSMITTER (data link); *c) ADS-B RECEIVER (data link); *d) NEGATIVE ADS-B * Denotes pilot transmission.
2	To request reselection of aircraft identification	RE-ENTER ADS-B AIRCRAFT IDENTIFICATION
3	To request the operation of the IDENT feature	TRANSMIT ADS-B IDENT
4	To request transmission of pressure-altitude	TRANSMIT ADS-B ALTITUDE
5	To request termination of transponder and / or ADS-B transmitter operation	a) STOP SQUAWK [TRANSMIT ADS-B ONLY]; b) STOP ADS-B TRANSMISSION [SQUAWK (code) ONLY]
6	To request termination of pressure-altitude transmission because of faulty operation	STOP ADS-B ALTITUDE TRANSMISSION [(WRONG INDICATION, or reason)]
7	Confirmation of ADS-B operations	ADS-B TRANSMISSION NOT RECEIVED, CONFIRM ADS-B OPERATIONAL

	Circumstances	Phraseologies
8	To inform an aircraft that its ADS-B transmitter appears to be inoperative or malfunctioning	ADS-B TRANSMITTER APPEARS TO BE INOPERATIVE / MALFUNCTION
9	ATS ADS-B surveillance system ground equipment un-serviceability	ADS-B OUT OF SERVICE (appropriate information as necessary)

7 CANCELLATION

- 7.1 This AIP Supplement will be cancelled when the contents are incorporated into AIP Singapore.

IMPLEMENTATION OF AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR EFFECTIVE 0000UTC, 12 December 2013

