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ICAO 24-BIT AIRCRAFT ADDRESSES AND AIRCRAFT IDENTIFICATION REPORTING

1 Introduction

1.1 The provision of Air Traffic Services (ATS) in an SSR Mode S environment, such as in European airspace, relies on a unique ICAO 24-bit aircraft address for selective interrogation of individual aircraft. The 24-bit aircraft address is also an essential element of the airborne collision and avoidance system, ACAS II. The 24-bit aircraft address shall be one of 6,777,214 addresses allocated by ICAO to the State of Registry or common mark registering authority and assigned as prescribed in the Appendix to Chapter 9, Part I, Volume III, ICAO Annex 10.

1.2 In addition, SSR Mode S surveillance requires the reporting of aircraft identification, as stated in AIC 88/2001 (Yellow 65) concerning Mode S airborne equipment requirements. All Mode S equipped aircraft engaged in international civil aviation are required to have this aircraft identification feature in accordance with ICAO Annex 10, Volume IV, Chapter 2, paragraph 2.1.5.2, which prescribes a minimum of a Level 2 transponder capability.

1.3 This Circular provides guidance to ensure consistency regarding 24-bit aircraft addresses and the reporting of aircraft identification relevant to the operational introduction of Mode S Elementary and Enhanced Surveillance. In particular, it aims to ensure the following:

(a) Adherence to the world-wide scheme for assignment of ICAO 24-bit Aircraft Addresses;

(b) correct setting of Aircraft Identification by flight crew.

2 The ICAO 24-Bit Aircraft Address

2.1 Instances occur of incorrect 24-bit aircraft addresses being installed/hard-wired on individual aircraft. This has happened not only on first installation of a Mode S transponder but also when a major modification has been made to the Mode S equipment, and following a change of State of Registration. Incorrect installation, such as setting the address to all zeros or inadvertent duplication of an address, can pose a severe risk to flight safety. In particular, the airborne collision avoidance system, ACAS II, performs on the assumption that only a single, unique 24-bit aircraft address exists per airframe. The performance of ACAS II can be seriously degraded and in some instances disabled if an incorrect or duplicate address is installed on an aircraft.

2.2 Incorrect or duplicated 24-bit aircraft addresses will also undermine the effectiveness of surveillance services based on SSR Mode S.

2.3 It is essential that aircraft operators comply with the aircraft address assignment procedures of the State regulatory authority to which blocks of addresses have been allocated by ICAO. In the UK, the Safety Regulation Group of the CAA administers the assignment procedure.

2.4 The world-wide addressing scheme has been designed so that, at any one time, no address is assigned to more than one aircraft. Only one address can be assigned to an aircraft and it cannot be changed except under exceptional circumstances authorized by the State regulatory authority concerned.

2.5 When an aircraft changes its State of Registry, the previously assigned address is to be relinquished and a new address assigned by the new registering authority.

2.6 It is essential that the aircraft address be periodically verified using the appropriate field test set and also when a major maintenance check has taken place. Such checks must also be conducted when the aircraft has changed registration to ensure that a newly assigned address has been properly set.

3 Correct Setting of Aircraft Identification

3.1 To comply with ICAO airborne equipment requirements, all Mode S transponder equipped aircraft engaged in international civil aviation must incorporate an Aircraft Identification Feature. Correct setting of aircraft identification is essential for the correlation of radar tracks with flight plan data in the ATM and Airport Operator ground systems. Initial operational trials using SSR Mode S have shown that many aircraft are transmitting incorrect aircraft identification, for example BC_1234 instead of ABC1234. Such erroneous settings of aircraft identification prohibit automatic flight plan correlation and, if perpetuated, will severely limit the effectiveness of Mode S to relieve the shortage of SSR codes.

3.2 In accordance with ICAO Doc 8168 (PANS-OPS) Volume I, Part VIII, Chapter 1, paragraph 1.3, flight crew of aircraft equipped with Mode S having an aircraft identification feature shall set the aircraft identification in the transponder. This setting shall correspond to the aircraft identification specified in item 7 of the ICAO flight plan, or if no flight plan has been filed, the aircraft registration.

3.3 Aircraft Identification, not exceeding 7 characters, is to be entered in item 7 of the flight plan **and** set in the aircraft as follows:

Either:

(a) The ICAO three-letter designator for the aircraft operating agency followed by the flight identification, for example BAW213 or JTR25, when;

(i) In radiotelephony, the callsign used consists of the ICAO telephony designator for the operating agency followed by the flight identification, for example SPEEDBIRD 213 or HERBIE 25.

or:

(b) The registration marking of the aircraft, for example EIAKO, 4XBCD or OOTEK, when;

(i) In radiotelephony, the callsign used comprises the registration marking alone, for example EIAKO, or preceded by the ICAO telephony designator for the operating agency, for example SVENAIR EIAKO;

(ii) The aircraft is not equipped with radio.

Note 1: When the Aircraft Identification consists of less than 7 characters, no zeros, dashes or spaces are to be added either between the characters or at the end.

Note 2: Appendix 2 to ICAO Doc 4444 (PANS-ATM) refers. ICAO designators and telephony designators for aircraft operating agencies are contained in ICAO Doc 8585.

4 Further Information

4.1 Further general information or guidance on the UK implementation of SSR Mode S may be obtained from:

Head of Surveillance and Spectrum Management
Directorate of Airspace Policy
Civil Aviation Authority
K6 G6
CAA House
45-59 Kingsway
London
WC2B 6TE

Tel: 020-7453 6530
Fax: 020-7453 6565
E-mail: mode.s@dap.caa.co.uk

4.2 All enquiries about applications for the allocation of ICAO 24-bit Aircraft Addresses for aircraft registered in the UK should be addressed to the following:

Aircraft Registration Section
CAA House
45-59 Kingsway
London
WC2B 6TE

Tel: 020-7453 6666
Fax: 020-7453 6670
E-mail: aircraft.reg@srg.caa.co.uk

4.3 More general information concerning SSR Mode S in the context of the European Air Traffic Management Programme (EATMP) is available at the EUROCONTROL website: http://www.eurocontrol.int/mode_s/

This Circular is issued for information, guidance and necessary action.

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