

RTCA Special Committee 186, Working Group 3
EUROCAE WG-51, SG-1

ADS-B 1090ES MOPS Maintenance

Meeting #25

Eurocontrol Headquarters, Brussels Belgium
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ADS-B ON/OFF control issue proposed clarification

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SUMMARY
<p>This WP proposes to clarify the SARPs by indicating that a separate switch to disable the transmission of ADS-B OUT is not required, and if implemented it implies that the ADS-B OUT state shall be separately provided to the crew.</p>

1. Introduction

Although the analysis of initial applications has not demonstrated the need for a separate ON/OFF switch of the ADS-B OUT function, the provision of a separate On/Off switch of the ADS-B OUT function is again discussed.

The installation of such a switch will introduce other modes of failure and could be disadvantageous.

This WP proposes to clarify the SARPs to state that a separate switch to disable the transmission of ADS-B OUT is not required and if implemented it implies that the ADS-B OUT state shall be separately provided to the crew as recommended by NTSB office.

2. Proposal

It is proposed to add general requirements in Annex 10, Vol. IV, section 2.2 and a specific requirement in chapter 5 as identified below.

2.2 HUMAN FACTORS CONSIDERATIONS

2.2.1 Recommendation.— *Human Factors principles should be observed in the design and certification of surveillance radar, transponder and collision avoidance systems.*

Note.— *Guidance material on Human Factors principles can be found in Doc 9683, Human Factors Training Manual and Circular 249 (Human Factors Digest No. 11 — Human Factors in CNS/ATM Systems).*

2.2.2 Operation of transponder controls

2.2.2.1 Controls which are not intended to be operated in flight shall not be readily accessible to the flight crew.

2.2.2.2 **Recommendation.**—*The operation of controls, intended for use during flight, should be evaluated to ensure they are logical and tolerant to human error. In particular, where transponder functions are integrated with other system controls, the manufacturer should ensure that unintentional transponder mode switching (i.e. an operational state to ‘STANDBY’ or ‘OFF’) is minimised.*

Note. — *This may take the form of a confirmation of mode switching, required by the flight crew. Typically ‘Line Select’ Keys, ‘Touch Screen’ or ‘Cursor Controlled/Tracker-ball’ methods used to change transponder modes should be carefully designed to minimize crew error.*

2.2.2.3 **Recommendation.**—*The flight crew should be aware, at all times, of the operational state of the transponder.*

2.2.2.4 If either the operational state selection or failure warning of the transponder is not visible to the flight crew, any change of the operational state of the transponder shall be annunciated to the flight crew via suitable means.

Note. — An installation evaluation may be required to determine the adequacy of the annunciation means.

5.1 MODE S EXTENDED SQUITTER TRANSMITTING SYSTEM CHARACTERISTICS

5.1.1 ADS-B out requirements

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5.1.1.4 Control of ADS-B out operation.

5.1.1.4.1 Recommendation: Protection against transmission of erroneous data should be satisfied by error detection on the data inputs and the appropriate maintenance of the installation.

5.1.1.4.2 If an independent control of the ADS-B out function is provided, then the operational state of the ADS-B out function shall be indicated to the flight crew, at all times.

Note. — There is no requirement for an independent control for the ADS-B out function.

3. Action

The ICAO Aeronautical Surveillance Panel (ASP) Technical Subgroup (TSG) has reviewed the above proposal during their meeting on 2 – 6 February 2009, and agreed that a SARPs Change Proposal (CP) would be produced to make the above suggested changes in the ICAO SARPs, Annex 10, Vol. IV.

The Working Group is invited to review the proposed change to ICAO Annex 10, Vol. IV and to decide to make any appropriate changes to the 1090ES MOPS.