

MASPS for ADS-B Rev. A

| Tracking Information (committee secretary only) | |
|---|---------|
| Change Issue Number | 30 |
| Submission Date | 3/21/01 |
| Status (open/closed/deferred) | DEFERED |
| Last Action Date | 7/19/01 |

| | |
|-------------------------------|---------------------|
| Short Title for Change Issue: | Definition of ADS-B |
|-------------------------------|---------------------|

| MASPS Document Reference: | | Originator Information: | |
|---------------------------|-------|-------------------------|------------------------|
| Entire document (y/n) | | Name | Stephen Heppe |
| Section number(s) | | Phone | 703-589-1522 |
| Paragraph number(s) | 1.2.1 | E-mail | Steveheppe@adsi-m4.com |
| Table/Figure number(s) | | Other | |

| Proposed Rationale for Consideration (originator should check all that apply): | |
|--|--|
| <input type="checkbox"/> | Item needed to support of near-term MASPS/MOPS development |
| | DO-260/ED-102 1090 MHz Link MOPS Rev A |
| | ASA MASPS |
| | TIS-B MASPS |
| | UAT MOPS |
| <input type="checkbox"/> | Item needed to support applications that have well defined concept of operation |
| | Has complete application description |
| | Has initial validation via operational test/evaluation |
| | Has supporting analysis, if candidate stressing application |
| X | Item needed for harmonization with international requirements |
| | Item identified during recent ADS-B development activities and operational evaluations |
| X | MASPS clarifications and correction item |
| | Validation/modification of questioned MASPS requirement item |
| | Military use provision item |
| | New requirement item (must be associated with traffic surveillance to support ASAS) |

| | | | | |
|--|---|---|--------------------------------------|-------------------------------------|
| Nature of Issue: | <input checked="" type="checkbox"/> Editorial | <input checked="" type="checkbox"/> Clarity | <input type="checkbox"/> Performance | <input type="checkbox"/> Functional |
| <u>Issue Description:</u> | | | | |
| <p>The definition of ADS-B, provided in the current version of the MASPS, appears to ignore the ability of current ADS-B systems to accommodate tailored operations (e.g., with squat switches, mode selects based on pilot action, pairwise information requests between participating aircraft, and RF commands from ADS-B ground surveillance elements). These tailoring functions are fully consistent with the <i>automatic</i> nature of ADS-B.¹ These tailoring functions are also consistent with the <i>dependent</i> nature of ADS-B (it depends on on-board navigation systems and on-board transmission systems). All three ADS-B systems under consideration incorporate various means to tailor their operations versus operating domain (e.g., a squat switch to identify ground ops), various on-condition events or modes or operation (which may involve pilot selection of certain modes), or by RF request/command from a peer ADS-B station.</p> | | | | |

¹ My dictionary defines *automatic* as “Capable of moving, operating, etc., at least partially, without human control or attention, as a machine.”

Originator's proposed resolution:

The attached suggested changes clarify the definition consistent with current English usage and extend the description consistent with current operating concepts developed in RTCA, EUROCAE and ICAO.

SUGGESTED CLARIFICATION OF ADS-B DEFINITION (S. Heppe; 18-Mar-01)

ADS-B is a function on an aircraft or a surface vehicle ~~operating within the surface movement area~~ that periodically broadcasts its state vector (horizontal and vertical position, horizontal and vertical velocity) and other information. ADS-B is *automatic* because ~~no external stimulus is required to elicit a transmission~~ it operates predominantly without human control or attention; it is *dependent* because it relies on on-board navigation sources and on-board ~~broadcast~~ transmission systems to provide *surveillance* information to other users. It is *broadcast* because the information is transmitted (and hence may be used) over a wide area. The aircraft or vehicle originating the broadcast may or may not have knowledge of which users are receiving its broadcast; any user, either aircraft or ground-based, within range of this broadcast, may choose to receive and process ADS-B surveillance information. The operating mode of an ADS-B transmitter (its transmit rate, frequency channel or channels, mix of message types, etc) may depend on current aircraft state (including status words or commands from other onboard systems) and aircraft operating domain (airborne/surface). For ADS-B systems which include a receive capability, the operating mode may also depend on the surrounding traffic environment as determined by received surveillance data (e.g., target vehicle proximity and traffic density), peer station requests, or commands received over the RF. ADS-B supports improved use of airspace, reduced ceiling/visibility restrictions, improved surface surveillance, and enhanced safety such as conflict management.

Working Group 6 Deliberations:

May 24, 2001: This Issue Paper was reviewed by the ad hoc group at their May 2001 meeting. It was agreed that this IP be submitted to the plenary since it requests a change to fundamental definition of ADS-B. The final status of this IP will be based on the plenary discussion on this topic.

July 19, 2001: This Issue Paper was discussed briefly at the July WG6 meeting. Due to lack of response from the June plenary, it was decided that this Issue Paper is DEFERED until such time that SC-186 feels the definition of ADS-B should be revisited.