

MASPS for ADS-B Rev. A

Tracking Information (committee secretary only)	
Change Issue Number	45
Submission Date	07/12/01
Status (open/closed/deferred)	CLOSED
Last Action Date	8/16/01

Short Title for Change Issue:	Short-term Intent Parameters
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MASPS Document Reference:		Originator Information:	
Entire document (y/n)	yes	Name	Richard Barhydt, NASA
Section number(s)	2.1.2.3.2, 2.1.2.3.3, 2.1.2.3.3.1, 2.1.2.3.3.2, 3.4.3.3, 3.4.3.3.1	Phone	(757) 864-2065
Paragraph number(s)		E-mail	r.barhydt@larc.nasa.gov
Table/Figure number(s)	Tables 3-6, 3-7	Other	Intent Subgroup, WG4

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

Nature of Issue:	<input type="checkbox"/> Editorial	<input checked="" type="checkbox"/> Clarity	<input type="checkbox"/> Performance	<input type="checkbox"/> Functional
<u>Issue Description:</u>				
<p>This Issue Paper replaces IP26, "Format for Incorporating Short and Long-term Intent Information". IP26 may be closed.</p> <p>Intent information can be divided into short-term and long-term categories. Short-term intent describes the path to the next TCP (if one is available) and includes desired heading or track and target altitude. If the flight director is on and/or the autopilot is engaged, short-term intent is almost always available. Long-term intent exists when a TCP defines the end point of the current path segment. Successive TCP's, when part of an FMS flight plan, are also considered to be long-term intent. Some paths are open-ended and have no associated long-term intent. Examples include the Altitude Hold and Heading/Track Hold modes, controlled by the Mode Control Panel. This proposal only addresses short-term intent parameters, although it may be extended in future revisions to include long-term intent.</p>				

Originator's proposed resolution:

This short-term intent proposal has been developed to coincide with DO-242 Section 2.1.2.3.2 (Current Intent) and the Mode S Downlink of Airborne Parameters (DAP) initiative. Target altitude as described in this proposal carries the same definition as that provided in the ICAO SCRSP Document (April 2001) that clarifies the DAP target altitude parameter. Target source and mode indicators described below are also compatible.

Proposed short-term intent parameters include: Desired heading or track, target altitude, lateral and vertical target source and mode indicators. Target source indicators provide the aircraft system or source that drives the altitude and heading/track targets. These options include the mode control panel, flight management system, and the current state value. This information may be used by the receiving aircraft to assess confidence in the stability of intent values. For example, MCP targets may be more likely to change, given the tactical nature of MCP-based control. Mode indicators provide confirmation that the aircraft has captured or is maintaining the broadcast target state. Aircraft in a transitional trajectory are considered to be acquiring the target state. Mode indicators could be used by the receiving entity (aircraft or ATC) to indicate conformance to the broadcast path. Status bits may also be included to confirm that the above information consists of current data, but would not provide information on path conformance. Space is reserved for turn radius and additional conformance validity bits currently under study.

This proposal requires the transmitting aircraft to determine the appropriate targets based on information from various aircraft systems, current flight modes, and aircraft performance. Processing this data prior to broadcast should reduce the probability of incorrect path re-construction by the receiving entity. These short-term intent parameters are valid whether or not the current path segment has a defined end point (TCP).

Working Group 6 Deliberations:

July 19, 2001: The Issue Paper received extensive discussion at the July WG6 meeting. While WG6 originally agreed to continue with its plan to place long-term intent into an appendix and address short-term intent within the MASPS body, a telephone conference with members of WG1 concluded with the agreement to meet with WG1 in an attempt to find a way to address all intent information and TCPs within the MASPS text.

August 16, 2001: A joint meeting of WG1 and WG6 was held August 15 & 16 regarding how intent information and TCPs should be addressed in DO-242A. The results of this meeting were initial proposals of two reports that would be able to transmit all available information for short-term intent (Target State Reports) and TCPs/long-term intent (Trajectory Change Report). WG6 will draft a white paper fully defining this proposal and present it to the other SC186 WGs. Target schedule for the white paper is the December plenary. Since both short-term and long-term intent will now be addressed in DO-242A, **it was agreed to CLOSE this Issue Paper and re-open IP26.**

August 30, 2001: An initial draft of the Intent White Paper was reviewed at the August WG6 meeting.

For further WG6 deliberations on this subject, please refer to IP26.