

CHANGE ISSUE – RTCA/DO-242

MASPS for ADS-B

Rev B

Tracking Information (committee secretary only)	
Change Issue Number	73
Submission Date	04/17/03
Status (open/closed/deferred)	CLOSED
Last Action Date	09/15/2010

Short Title for Change Issue:	Clarification needed for Aircraft/Vehicle Length and Width Code
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MASPS Document Reference: DO-242A		Originator Information:	
Entire document (y/n)	N	Name	Gary Furr
Section number(s)	3	Phone	609-485-4254
Paragraph number(s)	3.4.4.6	E-mail	Gary.ctr.furr@faa.gov
Table/Figure number(s)	Table 3-10	Other	garyfurr@hotmail.com

Proposed Rationale for Consideration (originator should check all that apply):	
<input type="checkbox"/>	Item needed to support of near-term MASPS/MOPS development
Y	DO-260()/ED-102() 1090 MHz Link MOPS and SARPs
<input type="checkbox"/>	ASA MASPS
<input type="checkbox"/>	TIS-B MASPS
Y	UAT MOPS and SARPs
<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
Y	Item needed for harmonization with international requirements
Y	Item identified during recent ADS-B development activities and operational evaluations
Y	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	Y	Clarity	<input type="checkbox"/>	Performance	Y	Functional
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Issue Description:

During discussions on the UAT SARPS Technical Manual, it was pointed out by the International community that not all aircraft would fit into a box defined by the inequalities defined for all of the Aircraft/Vehicle Length and Width Code categories shown in Table 3-10 of the ADS-B MASPS (DO-242A), Table 2-35 of the UAT MOPS (DO-282) and Table 2-74 in the new [at the time proposed] 1090 MOPS (DO-260A).

Originator's proposed resolution if any:

It was proposed that a better solution to the A/V L/W Code definition would be to remove the left side of all inequalities for both Length and Width categories in the above mentioned Tables and for decimal A/V L/W Codes 14 and 15 to set the Length to less than some very large number, such as 200 meters.

(Continued on next page.)

Originator’s proposed resolution if any (*continued*):

Following this suggestion, WG-3 discussed this with individuals from WG-6 that were initially responsible for the creation of ADS-B MASPS Table 3-10 and it was agreed that this approach would be acceptable. Therefore, in the [to be] published 1090 MOPS (DO-260A), all of the left side of the inequalities have been removed for both Length and Width categories and for decimal A/V L/W Codes 14 and 15, the Length is set to less than 200 meters. The same needs to be done for DO-242B and DO-282A.

The following is how the “clarified table” is presented in DO-260A:

2.2.3.2.7.2.11 “Aircraft/Vehicle Length and Width Code” Subfield in Aircraft Operational Status Messages

The Aircraft/Vehicle (A/V) Length and Width Code Subfield is a four-bit field (“ME” bits 21 to 24, Message bits 53 to 56) of the Aircraft Operational Status Messages (Subtype=1, for Surface Participants). This field **shall** describe the amount of space that an aircraft or ground vehicle occupies. The A/V Length and Width Code is based on the actual dimensions of the transmitting aircraft or surface vehicle as specified in Table 2-74. Each Aircraft or Vehicle **shall** be assigned the smallest A/V Length and Width Code for which its overall length and width qualify it.

Note: For example, consider a powered glider with overall length of 24 m and wingspan of 50 m. Normally, an aircraft of that length would be in length category 1 (that is, have a length code of 1). But since the wingspan exceeds 34 m, it does not qualify for even the “wide” subcategory (width code = 1) of length category 1. Such an aircraft would be assigned length code = 4 and width code = 1, meaning “length less than 55 m and width less than 52 m.”

Table 2-74: “Aircraft/Vehicle Length and Width Code” Encoding

A/V - L/W Code (Decimal)	Length Code			Width Code	Length Category (meters)	Width Category (meters)
	ME Bit 49	ME Bit 50	ME Bit 51	ME Bit 52		
0	0	0	0	0	L < 15	W < 11.5
1				1		W < 23
2	0	0	1	0	L < 25	W < 28.5
3				1		W < 34
4	0	1	0	0	L < 35	W < 33
5				1		W < 38
6	0	1	1	0	L < 45	W < 39.5
7				1		W < 45
8	1	0	0	0	L < 55	W < 45
9				1		W < 52
10	1	0	1	0	L < 65	W < 59.5
11				1		W < 67
12	1	1	0	0	L < 75	W < 72.5
13				1		W < 80
14	1	1	1	0	L < 200	W < 80
15				1		W ≥ 80

Issue History:

17 April 2003: This Issue Paper was presented to document the proposed change to the Length/Width Codes, which were later adopted in a Change to DO-260A and into Change 1 to DO-242A.

2009: During discussions in the Joint RTCA/EUROCAE sessions related to the production of DO-282B, it was pointed out that at least one major manufacturer interpreted the ALL ZERO encoding case as “No Data or Unknown” as required by long-standing ICAO SARPs requirements for transponders. After discussions in WG-3/SG-1 and WG-5 meetings, it was agreed by all to revise the encoding of the ALL ZERO case to mean “No Data or Unknown” in order to be consistent with ICAO SARPs requirements.

2010: Revisions to DO-242B will need to take into account the original changes in this Issue Paper as well as the changes adopted in DO-260B/ED-102A and DO-282B.

09/15/2010 – Meeting #17

The reconvened WG-6 reviewed this Issue Paper and agreed that it should be closed since this issue has been discussed and dealt with in each of the respective Link MOPS and has been edited into the working draft of DO-242B for combining with DO-289.