

**1090-WP30-07
18 – 21 August 2009**

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

ADS-B 1090ES MOPS Maintenance

**WG-3 Meeting #30
SG-1 Meeting #7
Joint Session**

**RTCA Headquarters
Washington DC
18 – 21 August 2009**

**Proposed Requirement for the GPS Antenna Offset
In Response to Action Item 29-02**

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Summary

This Working Paper addresses Action Item 29-02 to produce requirements for the GPS Antenna Offset.
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2.2.3.2.7.2.4.7 “GPS Antenna Offset” OM Code Subfield in Aircraft Operational Status Messages

The “GPS Antenna Offset” subfield is an 8-bit (“ME” bits 33 – 40, Message bits 65 – 72) field in the OM Code Subfield of surface format Aircraft Operational Status Messages that **shall** define the position of the GPS antenna in accordance with the following subparagraphs when Position Offset Applied (§2.2.3.2.7.2.3.7) is set to ZERO (0).

When Position Offset Applied (§2.2.3.2.7.2.3.7) is set to ONE (1), the GPS Antenna Offset subfield **shall** be set to all ZERO (0).

Note: *When Position Offset Applied (§2.2.3.2.7.2.3.7) is set to ONE (1), it means that the GPS antenna position has already been compensated for in the reported latitude and longitude position subfields of the Surface Position Message. Ensuring that the GPS Antenna subfield is set to ZERO in this case ensures that the offset compensation is not performed again by a receiving application.*

a. Lateral Axis GPS Antenna Offset:

“ME” bits 33 through 35 (Message bits 65 through 67) **shall** be used to encode the lateral distance of the GPS Antenna from the longitudinal axis (Roll) axis of the aircraft. Encoding **shall** be established in accordance with Table 2.2.3.2.7.2.4.7.a.

Table 2.2.3.2.7.2.4.7.a: Lateral Axis GPS Antenna Offset Encoding

Lateral Axis GPS Antenna Offset Encoding				
“ME” Bit (Message Bit)			GPS Antenna Offset Along Lateral (Pitch) Axis Left or Right of Longitudinal (Roll) Axis	
33 (65)	34 (66)	35 (67)		
0 = left 1 = right	Encoding		Direction	(meters)
	Bit 1	Bit 0		
0	0	0	LEFT	0 or NO DATA
	0	1		2
	1	0		4
	1	1		6
1	0	0	RIGHT	0 or NO DATA
	0	1		2
	1	0		4
	1	1		6

Notes:

1. Left means toward the left wing tip moving from the longitudinal center line of the aircraft.
2. Right means toward the right wing tip moving from the longitudinal center line of the aircraft.
3. Maximum distance left or right of aircraft longitudinal (roll) axis is 6 meters or 19.685 feet.

b. Longitudinal Axis GPS Antenna Offset:

“ME” bits 36 through 40 (Message bits 68 through 72) **shall** be used to encode the longitudinal distance of the GPS Antenna from the NOSE of the aircraft. Encoding **shall** be established in accordance with Table 2.2.3.2.7.2.4.7.b.

Table 2.2.3.2.7.2.4.7.b: Longitudinal Axis GPS Antenna Offset Encoding

Longitudinal Axis GPS Antenna Offset Encoding					
“ME” Bit (Message Bit)					GPS Antenna Offset Along Longitudinal (Roll) Axis Aft From Aircraft Nose
36 (68)	37 (69)	38 (70)	39 (71)	40 (72)	
Encoding					
Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	(meters)
0	0	0	0	0	0 or NO DATA
0	0	0	0	1	2
0	0	0	1	0	4
0	0	0	1	1	6
0	0	1	0	0	8
*	*	*	*	*	***
*	*	*	*	*	***
*	*	*	*	*	***
1	1	1	1	1	62

Note: Maximum distance aft from aircraft nose is 62 meters or 203.412 feet.