ModeS-WP02-11

RTCA Special Committee 209

Working Group #1

Mode S Transponder Development and Maintenance

Meeting #2

RTCA, Washington DC
30 May – 1 June 2007

Proposed Change to BDS Code 5,2 as presented by Don Walker in ICAO ASP Working Paper ASP02-10

Presented by:
Don Walker & Gary Furr

SUMMARY

This Working Paper presents the change to the format of BDS Code 5,2 as agreed to during the ASP TSG meeting in February 2007 for application to ICAO Doc 9871, and documented and presented during the ICAO ASP Working Group of the Whole meeting recently at Eurocontrol Headquarters in Brussels. This change will be applied to the format of BDS Code 5,2 in the proposed draft of Appendix B.

WP ASP02-10
Agenda Item 5.2
7 February 2007

AERONAUTICAL SURVEILLANCE PANEL (ASP)

Working Group Meeting

Brussels, 16 to 20 April 2007

DOC 9871 CP TO CORRECT REGISTER 52_{16}

(Prepared by Don Walker, Honeywell)

SUMMARY

The FOM/Source coding of register 52_{16} incorrectly defines the coding in terms of RNP. The RNP parameter does not define FOM References to RNP should be changed to FOM. This working paper presents a CP to correct the coding of FOM/Source

Proposed change to: Doc 9871

Submit to: Rapporteur ASP Working Group

1. Change No **TBD** Date submitted: April 2007

Title: Doc 9871 CP to Correct Register 52_{16}.

2. List of all relevant ASP WG-B Working Papers: ASP02-10 (This paper)

3. Background: The RNP parameter does not indicate FOM.

4. Need for change:. References to RNP should be changed to FOM.

5. Change: See Attachment.

6. Category: (confirmed by Rapporteur)
   1. Addition - new material e.g. new GICB, MSP, or Broadcast.
   X2. Update - technical change or correction to current document.
   3. Useful - will enhance understanding of the document.
   4. Cosmetic - needed to correct editorial error.

Submitted by: ASP Technical Subgroup
Organisation: ASP
Address: ICAO

Table A-2-82. BDS code 5,2 — Position report fine

MB FIELD

1	STATUS (see 1)
2	MSB
3	FOM/SOURCE
4	
5	LSB
6	MSB = 90/128 degrees
7	
8	
9	
10	
11	
12	
13	LATITUDE FINE
14	
15	
16	
17	
18	
19	Range [0, 180/128] degrees
20	
21	
22	
23	LSB = 90/16 777 216 degrees
24	MSB = 90/128 degrees
25	
26	
27	
28	
29	
30	
31	LONGITUDE FINE
32	
33	
34	
35	
36	
37	Range [0, 180/128] degrees
39	
39	
40	
41	LSB = 90/16 777 216 degrees
42	SIGN
43	MSB = 65 536 ft
44	
45	
46	
47	PRESSURE ALTITUDE
48	OR
49	GNSS HEIGHT (HAE)
50	
51	(as specified by FOM / SOURCE coding)
52	
53	Range [-1 000, 126 752] ft
54	
55	
56	LSB = 8 ft

PURPOSE: To provide a high-precision three-dimensional report on aircraft position when used in conjunction with register 51_{16}. Information on the source of the data is included

FOM/SOURCE coding:
The decimal value of the binary-coded (figure of merit) FOM/SOURCE parameter shall be interpreted as follows:

0 = Loss of navigational capability
1 = ~~RNP~~ FOM 20 (e.g. INS data) pressure altitude
2 = ~~RNP~~FOM 5 (e.g. VOR/DME) pressure altitude
3 = ~~RNP~~ FOM 1 (e.g. DME/DME or GNSS) pressure altitude
4 = ~~RNP~~ FOM 0.5 (e.g. DME/DME or GNSS) pressure altitude
5 = ~~RNP~~ FOM 0.3 (e.g. DME/DME or GNSS) pressure altitude
6= ~~RNP~~ FOM 0.3/125 (e.g. DME/DME or GNSS) pressure altitude
7 = ~~RNP~~ FOM 0.03/50 (ILS, MLS or differential GNSS) pressure altitude
8 = ~~RNP~~ FOM 0.02/40 (ILS, MLS or differential GNSS) pressure altitude
9 = ~~RNP~~ FOM 0.01/15 (ILS, MLS or differential GNSS) pressure altitude
10 = ~~RNP~~ FOM 0.003 (ILS, MLS or differential GNSS) pressure altitude
11 = ~~RNP~~ FOM 1 (e.g. DME/DME or GNSS) GNSS height
12 = ~~RNP~~FOM 0.3/125 (e.g. DME/DME or GNSS) GNSS height
13 = ~~RNP~~ FOM 0.03/50 (ILS, MLS or differential GNSS) GNSS height
14 = ~~RNP~~ FOM 0.02/40 (ILS, MLS or differential GNSS) GNSS height
15 = ~~RNP~~ FOM 0.01/15 (ILS, MLS or differential GNSS) GNSS height

~~where RNP is required navigation performance as defined by ICAO.~~

Note 1.— When GNSS is the source, then the FOM is encoded by the HFOM parameter. When RNP FMS is the source the FOM is encoded by the ANP ~~RNP signifies required navigation performance. Suitable RNP categories have not yet been defined for values below 1; therefore, CPE is used~~.

1) The single status bit (bit 1) shall be set to 0 if any of the three parameters are invalid and is identical to the status bit in register 51_{16}

2) The LATITUDE (fine) and LONGITUDE (fine) parameters are in 2's complement coding so they shall be interpreted in conjunction with the corresponding parameters in register 51_{16}.

3) When GNSS height is contained in bits 42 to 56, the pressure altitude can be obtained from register 51_{16}.

Note 2. — Two's complement coding is used for all signed fields as specified in A.2.2.2.

Note 3. – The Figure of Merit selected is the smallest number that encompasses the HFOM or the ANP.