

RTCA Special Committee 209

ATCRBS / Mode S Transponder MOPS Maintenance

Meeting #10

Held as a Joint Meeting with EUROCAE WG-49

EUROCAE Headquarters

Malakoff, France

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Comments and Proposed Changes for “Change 1 to DO-181D/ED-73C”

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Revision 1

SUMMARY

This Working Paper identifies several issues that I would like for SC-209 to consider as proposed changes in DO-181D/ED-73C for Change 1.

Comments and Clarifications to DO-181D to support Change 1
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The following are either corrections, comments or clarifications to DO-181D to be potentially included in DO-181D, Change 1

1. Paragraph §2.1.7: Flight Crew Control Functions: return the following statement that was in DO-181C:

“Means of selecting the condition in which the transponder is rendered incapable of generating replies to ATCRBS, ATCRBS/Mode S All Call, and Mode S-only All Call interrogations, but continues to generate Mode S squitter transmissions and continues to reply to discretely addressed Mode S interrogations when the aircraft is on the ground.”

I have cited this paragraph to many platform integrators to aid in understanding how a Mode S transponder should work and wish it was still there.

→ SC-209/WG-49 discussed and disagreed with reinserting this into 2.1.7 because DO-181D/ED-73C had previously held several discussions regarding this issue and made specific changes which should not be reversed.

2. Paragraph §2.2.4.2.5(b): Mode S reply delay and Jitter: add to 1st sentence:

“At all RF input levels from MTL to -21 dBm, the first preamble pulse of the reply shall occur 128+/- 0.5 microseconds after the leading edge of the P4 pulse...”

→ SC-209/WG-49 discussed and agreed with the proposed change (ED-73C §3.7.2.b)

3. Paragraph §2.2.19.1.4: Interrogation-Reply Coordination:

a. In the first table, add a Note mark to ATCRBS Mode A, ATCRBS Mode C and ATCRBS/Mode S All-Call interrogations.

b. After the first table add a Note as follows:

“Note : The transponder shall not provide replies while in the on-the-ground state.”

→ SC-209/WG-49 reviewed and discussed and decided that the note should be added and to reference §2.2.18.2.3 instead.

Note: The transponder does not reply when the conditions of §2.2.18.2.3 apply.

4. Paragraph §2.6.6.1(a): Aircraft Identification: The Table: add to Note 3:

“This encoding is a subset of the International Alphabet No. 5 (6 characters versus full 7 characters).”

[This added sentence is for clarification – the 3rd column (IA-5 Encoding with 7 characters) was confusing until I located ICAO Annex Amendment 71 and saw the full encoding. This fact is mentioned in the requirements text but provides value to be repeated again.

→ SC-209/WG-49 discussed and agreed that the references were adequate as written in the existing notes. However, it was agreed that the references to ICAO Amendments should be updated by removing references to the Amendment.