

**RTCA SC-209 / EUROCAE WG-49**

**ATCRBS / MODE S TRANSPONDER MAINTENANCE**

**JOINT MEETING #10**

**EUROCAE Headquarters**

**28 – 30 June 2010**

**Proposal to Clarify Interrogation Acceptance  
Protocol when DI is Undefined**

**Revision 1**

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**Summary**

The existing requirements for Interrogation Acceptance Protocol are not specific about how a transponder should respond when the DI field contains an undefined value. This has the potential to cause problems in the future when those values are defined. This paper proposes requirements to make transponder behavior deterministic when the DI field is undefined.

## Introduction

The existing requirements for Interrogation Acceptance Protocol are not specific about how a transponder should respond when the DI field contains an undefined value. This has the potential to cause problems in the future when those values are defined. This paper proposes requirements to make transponder behavior deterministic when the DI field is undefined. If left unchanged, vendors will implement various interrogation responses that may be undesirable when the DI codes are defined in the future.

## Proposed Changes to DO-181D

The following paragraphs in DO-181D are shown with existing text in black and proposed text highlighted.

In Figure 2-15, add a decision diamond ~~immediately before the Accept box~~ between States “J” and “X” with the following text: “If Present, DI = 4, 5, 6.” The YES exit to the diamond should point to “Recover” to indicate the interrogation is not accepted. The NO exit to the diamond should continue to the Accept box.

Add bullet d. to paragraph 2.2.19.1.1

d. When the DI field equals 4, 5, or 6, the interrogation **shall not** be accepted.

## Proposed Changes to ED-73C

The following paragraphs in ED-73C are shown with existing text in black and proposed text highlighted.

In Figure 3-15, add a decision diamond ~~immediately before the Accept box~~ between States “J” and “X” with the following text: “If Present, DI = 4, 5, 6.” The YES exit to the diamond should point to “Recover” to indicate the interrogation is not accepted. The NO exit to the diamond should continue to the Accept box.

Add bullet e. to paragraph 3.23.1.1

e. When the DI field equals 4, 5, or 6, the interrogation **shall not** be accepted.

→ It was agreed during the Joint Session of SC-209/WG-49 that the FAA TC will take an action to review the test procedures that will be associated with this change and recommend any changes. ←

### **Proposed Changes to ICAO Doc 9871**

No changes are proposed to Doc 9871.

### **Proposed Changes to ICAO Annex 10 Volume IV**

I reviewed ICAO Annex 10 Volume IV. No changes appear to be necessary as it does not appear to address interrogation acceptance.

### **Recommendation**

The TSG is invited to review the information presented in this Working Paper and make any further recommendations.