

RTCA Special Committee 209
ATCRBS / Mode S Transponder

Meeting #4

Honeywell, Olathe, Kansas
18 – 19 October 2006

CP TO CLARIFY THE OPERATION OF THE TEMPORARY ALERT TIMER

Prepared and Presented by Andy Leone
FAA Technical Center

SUMMARY

This WP presents a change proposal to the MOPS in order to clarify the operation of the Temporary Alert Timer.

1.0 Introduction

This paper presents a proposed CP to the MOPS to modify the description of the operation of the Temporary Alert Timer.

2.0 Issuer

There have been occurrences of Mode S ground interrogators observing Mode S transponders that fail to announce the temporary alert for a full 18 seconds after Mode A identity code changes. This creates occasional ATCRBS-Mode S track splits due to differing Mode A codes reported for a given Mode S target. Currently, the requirement contained in paragraph 2.216.2.7 is stated as follows:

“2.2.16.2.7 Flight Status and Vertical Status Protocols (Figure 2-13)

Mode S-equipped aircraft **shall** report details of their flight status. The source of and the rules for such reports are as follows:

- a. Alert – The transponder **shall** transmit the 4096 identification code in ATCRBS Mode A replies and in the ID field of downlink format DF=5. This code can be changed by the pilot, and when a change is made an alert condition **shall** be established. If the identification code is changed to 7500, 7600 or 7700, the alert condition **shall** be permanent. If the identification code is changed to any other value, the alert condition **shall** be temporary and self-canceling after 18 ± 1 seconds (TC timer). The alert condition **shall** be reported in the FS field. The permanent alert condition **shall** be terminated and replaced by a temporary alert condition when the identification code is set to a value other than 7500, 7600 or 7700.”

It is suggested that paragraph 2.2.16.2.7 be modified to read as follows:

“2.2.16.2.7 Flight Status and Vertical Status Protocols (Figure 2-13)

Mode S-equipped aircraft **shall** report details of their flight status. The source of and the rules for such reports are as follows:

- a. Alert – The transponder **shall** transmit the 4096 identification code in ATCRBS Mode A replies and in the ID field of downlink format DF=5. This code can be changed by the pilot, and when a change is made an alert condition **shall** be established. If the identification code is changed to 7500, 7600 or 7700, the alert condition **shall** be permanent. If the identification code is changed to any other value, the alert condition **shall** be temporary and self-canceling after 18 ± 1 seconds (TC timer). The TC timer shall be retriggered and continued

for TC seconds after any change has been accepted by the transponder function. The alert condition **shall** be reported in the FS field. The permanent alert condition **shall** be terminated and replaced by a temporary alert condition when the identification code is set to a value other than 7500, 7600 or 7700.

Note – Retriggering is performed to ensure that the ground interrogator obtains the desired Mode 3/A code before the alert condition is cleared.”

This change will ensure that the alert bit stays active for the full 18 seconds after the last digit is changed.