

**RTCA Special Committee 209 and EUROCAE WG-49
ATCRBS / Mode S Transponder MOPS Maintenance**

**Joint Plenary Session
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**DO-181E Draft Final Review and Comment (FRAC) and
ED-71E Wider Consultation (WC) Draft Comments**

**Proposed Changes for Event-Driven Squitter Descriptions
Provided in Conjunction with Comments from Raytheon**

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The Event-Driven squitter process for single event messages such as the Type 23 “TEST” messages is straight forward in that each message is simply inserted in register 0A₁₆ and then transmitted. The Extended Squitter Aircraft Status message requirements increased significantly in DO-260B without an associated adjustment to DO-181E. That is, while the necessary requirements exist in DO-181E they are spread across the document without a roadmap. Understanding is made more challenging with much of the process requirements in DO-260B. This paper proposes two changes to increase comprehension of the total Event-Driven squitter process without adding or changing the formal requirements themselves.

The two changes are:

1. Proposed change is to clarify the Event-Driven process by providing a summary description of the end-to-end operation included as an additional note in §2.2.23.1.3.h as follows (additions to current text highlighted):

- h. Event-Driven Squitter Rate. The event-driven squitter...

Note: 1. *The squitter transmission rate...*

2. *The only Event-Driven squitter message defined in this MOPS is the Aircraft Status message, see §2.2.23.2. As defined in RTCA DO-260B [EUROCAE ED-102A], Aircraft Status Subtype=1 Emergency Priority and Mode A Code and Subtype 2 TCAS RA Broadcast message rates are determined by message content (see DO-260B Table 2-79), which along with Event-Driven message priority and message lifetime-limit requirements determine the message type and rate of filling of Aircraft Status GICB Register 61₁₆. On being filled, Register 61₁₆ information is immediately applied to Event-Driven Register 0A₁₆ to initiate an Event-Driven squitter transmission. It is noted that accessing Register 61₁₆ will always provide current Aircraft Status information content whereas accessing Register 0A₁₆ provides Event-Driven information that may include “TEST” or other Event-Driven messages in the future. Both Registers 61₁₆ and 0A₁₆ functional processes involve deterministic and stochastic components that determine the final Event-Driven squitter transmission rate and timing, see DO-260B Appendix R. It is noted in Appendix R that for the current requirements of DO-260B and by association this MOPS (§2.2.23.2) regarding Event-Driven message rates, implementation of functionality to specifically perform Event-Driven rate limiting (to 2 per second averaged over 60 seconds) is unnecessary.*

2. It is also recommended that the Aircraft Status Message title in the body of §2.2.23.2 be revised to reflect the scope of the message’s two Subtype components consistent with RTCA DO-260B language as follows:

BDS Code 6,1 Extended Squitter Aircraft Status messages comprising the Emergency/Priority Status and Mode A Code (Subtype 1) message and the 1090ES TCAS Resolution Advisory (RA) Broadcast Message (Subtype 2) ...

- End of Proposal-