## FAS Topic Paper (FTP)

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### ABSTRACT/PURPOSE:

This paper addresses and clarifies the inconsistency between TQA objectives described in DO-330/ED-215 Section 8 and Tool Planning process objectives for TQL-5.

### RELATED DO/ED DOCUMENTS:

- DO-178C/ED-12C: SW Airborne Sys & Equip
- DO-278A/ED-109A: SW (CNS/ATM) Systems
- DO-248C/ED-94C: Supporting Information
- **DO-330/ED-215: Software Tool Qualification Considerations**
- DO-331/ED-218: Model Based Development & Verification Supplement
- DO-332/ED-217: OO Technology and Related Techniques Supplement
- DO-333/ED-216: Formal Methods Supplement
- Other

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FAS Team Definition and Goals:

The FAS user group monitors and exchanges information on the application of the following “software document suite” that was developed by joint RTCA/EUROCAE committee SC-205/WG-71:

- DO-178C/ED-12C - Software Considerations in Airborne Systems and Equipment Certification
- DO-248C/ED-94C - Supporting Information
- DO-330/ED-215 - Software Tool Qualification Considerations
- DO-331/ED-218 - Model Based Development & Verification Supplement
- DO-332/ED-217 - Object Oriented Technology and Related Techniques Supplement
- DO-333/ED-216 - Formal Methods Supplement

The goals of the FAS user group are as follows:

1. To share lessons learned in the use of the RTCA/EUROCAE “software document suite” and to encourage good practices and promote the effective use of RTCA’s and EUROCAE’s publications.
2. To develop FAS Topics Papers (FTPs) relative to RTCA’s and EUROCAE’s publications or other related aeronautical software industry topics. These FTPs may include clarification to the “software document suite” or a discussion on a new topic.
3. To identify and record any issues or errata showing the need for clarifications or the need for modifications to the “software document suite”.

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The text contained in this document is not to be construed as guidance, but is to be used for informational or educational purposes only.
Abstract / Purpose of the FAS Topic Paper:

This paper addresses and clarifies the inconsistency between TQA objectives described in DO-330/ED-215 Section 8 and Tool Planning process objectives for TQL-5.

FTP Discussion:

Question from Industry:

Is TQA guidance described in DO-330/ED-215 section 8 applicable to tool qualification level (TQL)-5?

Response from FAS:

TQA guidance described in section 8 is applicable to all TQLs. The objectives that are reflected in subsections 8.1, item b (except for standards) and 8.1, item d are applicable to TQL-5.

However, the objective description wording in subsection 8.1, item b, as shown below, might seem confusing as Annex Table T-1 shows that tool plans and standards are not required for TQL-5 tools.

“Obtain assurance that tool development processes and integral processes, including those of suppliers, comply with approved tool plans and standards”

As described in section 4, the tool qualification planning process includes two “sub-processes”:

1. The tool qualification assessment process described in subsection 4.1 may be part of the software planning process. A related objective is also identified in Annex Table T-0 Objective 1.

The data described in paragraph 10.1.1 (Tool Specific Information in the PSAC) is the output. This data includes the description of the Tool Operational Requirements (TOR) definition process, the tool operation integration process, and tool operational verification and validation (V&V) process, or it needs to provide a reference where these data are provided. It is applicable to all TQLs.

2. The tool planning process is described in subsections 4.3 and 4.4. The applicable objectives are identified in Annex Table T-1. The plans and standards are the outputs. These objectives are not applicable to TQL-5.
The TQA objective is to obtain assurance that all processes are described and consistently applied. That includes the TOR definition process and the tool operational V&V processes.

For TQL-5, these descriptions are provided during the tool qualification assessment process and not the tool planning process. The description of the tool qualification assessment process is provided or referenced in the tool-specific information in the PSAC and not in the tool plans.

Thus in section 8 the term “tool planning process” should be understood as “tool qualification planning process”. Similarly, in section 8 and in Annex Table T-9 tool plans and standards should be understood as including the tool-specific information described in the PSAC.