FAS Topic Paper (FTP)

TITLE	REVISION	REVISION DATE
FTP1008 Inconsistency between Tool Qualification Assurance objectives and Tool Planning process objectives for TQL-5	4	19-Jul-2018

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
__**X**_ 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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- DO-178C/ED-12C - Software Considerations in Airborne Systems and Equipment Certification
- DO-278A/ED-109A - Software Integrity Assurance Considerations for Communication, Navigation, Surveillance and Air Traffic Management (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 - Object Oriented Technology and Related Techniques Supplement
- DO-333/ ED-216 - Formal Methods Supplement

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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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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.

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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.