

## Certification Authorities for Propulsion Products (CAPP)

### Certification Worklist Item CWI-3 – Novelty of Icing Critical Points Analysis

Date Raised:	1/19/21	Status:	Closed
Initial Release:	12/21/22	Updated:	3/31/22
Raised By:	FAA, EASA, TCCA, ANAC		
SME Team (* denotes lead authority):	<b>ANAC</b>	<b>EASA</b>	<b>FAA</b>
	Antonio Jose Parente de Carvalho Junior	Julien Delanoy *	Philip Haberlen
Subject:	Novelty of Icing Critical Points Analysis - 14 CFR 33.68, CS-E 780, and AMC E 780 Amendment 4		
Related Issue(s): (Identify Discussion Paper number, if any)	None		

#### **Description of Issue(s):**

(Give a brief description of issue(s))

The current EASA SEI list includes SEI #6 – Icing Conditions. This EASA SEI includes a sub-item in relation to the Critical Point Analysis (CPA), which was introduced in AMC E 780 Amendment 4, which is identified as an SEI “until experience of applying the CPA requirements has been gained”.

This SEIs currently result in corresponding involvement of EASA when acting as a Validating Authority.

Paragraph 3.5.10.4 (c) of the Technical Implementation Procedures (TIP) revision 6 of the Bilateral Agreement between EASA and the FAA recognises that: *“the list of SEI should be frequently revised with the goal of reducing the size of the list through targeted harmonization effort”*.

#### **Background:**

(Give a brief background of issue(s))

AMC E 780 amendment 4 and FAR 33.68 amendment 34 have introduced new provisions in relation to CPA.

Because of the novelty of these provisions, EASA has declared an SEI as per paragraph 3.5.10.4(b)(i) of the TIP revision 6 of the Bilateral Agreement between EASA and the FAA.

#### **Proposed Prioritization:**

(Per CAPP Technical Issues List Prioritization schema)

Question	Answer
1. Is there an active working group related to this issue?	No
2. In which documents are there deviations amongst the authorities?	None
3. Was this issue raised by or at the CMT?	Yes, Engine Icing is a CMT Top-3 task.
4. What is the level of impact on projects in the future (i.e. minor, major, critical)?	Major: CPA methodologies are particularly complex and EASA involvement as part of a validation project requires considerable resources.

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5. How many authorities does the issue impact?	All authorities via validation.
6. What is the approximate complexity of the issue (i.e. low, medium, high)?	High

#### **Recommendation and Objectives:**

(The authority or industry member that proposes a CWI provides an initial recommendation to the CAPP. The CAPP, together with CMT may refine the objectives.)

Form a group of Subject Matter Experts to:

- Develop Terms of Reference of a confidence building exercise, whereby one EU, one US and one Canadian TC Holder will present their CPA methodologies to the EASA, FAA and TCCA.
- Organise and set-up the confidence building presentations
- Compare CPA methodologies and assess them against CS-E 780 amendment 4 and its AMC and record the corresponding conclusions.
- Agree that the confidence building exercise has demonstrated the FAA and TCCA capacity to ensure, as a Regulator, adequate CPA methodologies consistent with those described in AMC E 780 amendment 4.
- Consider the observations (and in particular: the identified areas of potential improvements) made following the confidence-building exercise when reviewing CPA methodologies of their respective domestic TC Holders.
- Share amongst the icing SME community, as part of the regular technical exchange forums, any potential gaps and lessons learnt identified during domestic certification projects, such as to improve and to ensure a consistent standard of CPA methods by the TC Holders of those Countries.

#### **(CMT Decision (Phase 1))**

CAPP agreed with SMEs recommendation on 1/21/22 and commits resources to complete the recommendation and objectives stated above.

This CWI is accepted into the CAPP system and the tracking number is CWI-3.

##### Notes:

- The CMTS approved the overall Icing Task Request Form (TRF) during their 1/19/21 meeting
- The CAPP transitioned to CATA CWI report-out format for consistency
- The overall task was separated into individual subtasks/CWIs in response to CMTS feedback
- Novelty of Icing Critical Points Analysis subtask identified as CWI-3
- Presented all CWIs, including CWI-3, to the CMTS during their 9/28/22 meeting

#### **SME Team Program Plan:**

<b>Milestones and Work Packages (WP)</b>	<b>Deadline</b>	<b>Status</b>
Develop Terms of Reference of a confidence building exercise, whereby one EU, one US and one Canadian TC Holder will present their CPA methodologies to the EASA, FAA and TCCA.	N/A	Complete
Organise and set-up the confidence building presentations	N/A	Complete

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Compare CPA methodologies and assess them against CS-E 780 amendment 4 and its AMC and record the corresponding conclusions.	N/A	Complete
Agree that the confidence building exercise has demonstrated the FAA and TCCA capacity to ensure, as a Regulator, adequate CPA methodologies consistent with those described in AMC E 780 amendment 4  Or, if required, organise additional technical sessions.	N/A	Complete

#### **SME Recommendation (Phase 4 Completion)**

(Recommendations from SME Working Group; may contain links and/or embedded documents)

Since this SEI has been declared, a confidence-building exercise has taken place, during which three Engine Type Certificate (TC) Holders (one European, one US, and one Canadian) have presented a high-level summary of their CPA methodologies.

The Terms of Reference for these confidence-building exercise, the industry presentations and the Authorities comments following the presentations have been collected and stored for future use.

Representatives of the EASA engine and aircraft teams have concluded that, whereas the methodologies differ significantly across the three TC Holders, all seemed to rely on structured and robust processes and result in an equivalent level of safety.

Additionally, Icing Subject Matter Experts of the FAA and TCCA state that their other respective domestic engine TC Holders have developed acceptable CPA methodologies compliant with FAR 33.68 and FAA AC 20-147A, and with AMC E 780 amendment 4.

SMEs concluded that the FAA and TCCA have demonstrated their capacity to ensure, as a Regulator, adequate CPA methodologies consistent with those described in AMC E 780 amendment 4.

As a result, EASA will remove the SEI sub-item associated with CPA (in SEI #6) and to rely on the FAA and on TCCA for determining compliance of the CPA methods as required as part of future initial airworthiness projects.

The SMEs recommend removal of the EASA SEI sub-item of EASA SEI #6 associated with CPA.

EASA, FAA and TCCA recommends to consider the observations (and in particular: identified potential improvement areas) made following the confidence-building exercise when reviewing CPA methodologies of their respective domestic TC Holders in the future.

In addition, the SMEs have agreed to share amongst the icing SME community, as part of the regular technical exchange forums, any good practices, potential gaps, and lessons learnt identified as part of domestic certification projects, such as to improve and to ensure a consistent standard of CPA methods by the TC Holders of those Countries.

#### **Final CMT Position (Phase 5 Completion Target: <Phase 4 + 2 Months>)**

(Explain agreement, dissent or conclusion on the SME recommendation)

All tasks have been successfully completed. This CWI represents an agreement that EASA SEI #6 associated with CPA will be removed. This CWI is closed.

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#### Release of CWI:

CAPP Representative	Name	Signature	Date
ANAC	Marcelo Saito	Marcelo Batista Saito <small>Assinado de forma digital por Marcelo Batista Saito            DN: dc=br, dc=gov, dc=anac, ou=ANAC, ou=SAR, ou=USUARIOS, cn=Marcelo Batista Saito            Dados: 2023.04.17 10:08:58 -03'00'</small>	4/17/2023
EASA	Javier Castillo	CASTILLO O Javier <small>Digitally signed by CASTILLO O Javier            Date: 2023.09.01 17:27:37 +02'00'</small>	1st September 2023
FAA	Robert Ganley	ROBERT J GANLEY <small>Digitally signed by ROBERT J GANLEY            Date: 2023.04.12 08:41:02 -04'00'</small>	4/12/2023
TCCA	Roop Dhaliwal	Dhaliwal, Roop <small>Digitally signed by Dhaliwal, Roop            DN: C=CA, O=GC, OU=TC-TC, OU=NCR-RCN, CN=Dhaliwal, Roop            Reason: I have reviewed this document.            Location:            Date: 2023.04.17 08:48:22-04'00'            Foxit PDF Editor Version: 12.1.1</small>	4/17/2023