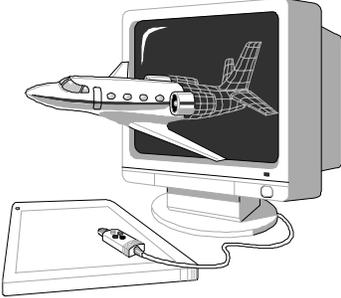


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Software Conformity



Software Conformity



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May 15, 2002



Outline

- **A byte of History**
- **Order 8110.SW Chapter 4 (Draft)**

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History

- **Notion of ASIs teaming with ASEs in finding compliance to RTCA/DO-178B**
- **Confusing Terminology**
 - SW Review
 - SW Conformity Review
 - SW Conformity Inspection
 - SW Conformity Installation Inspection

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History

- **An epiphany**
 - ASI guidance != Assurance
- **Notice 8110.86**
 - Terminology
 - clarified
 - introduced
 - still confused ?
 - Roles & Responsibilities
 - who does what, when

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Outline

- **A byte of History**
- **Order 8110.SW Chapter 4**
 - **Software Conformity (Draft)**

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Software Conformity

- **Based in Rule**
 - **14 CFR Part 21, Section 21.33 Inspection and Tests (b):**
 - *“(2) That materials and products conform to the specifications in the type design; (3) That parts of the products conform to the drawing in the type design; and (4) That the manufacturing processes, construction and assembly conform to those specified in the type design.”*

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Software Conformity

- **When talking software, what is type design?**
 - RTCA/DO-178B invoked by AC 20-115B states, as a minimum:
 - SRD & SDD
 - source & executable code
 - SCI & SAS

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Software Conformity

- **What then, is Conformity to Software Type Design?**
 - Largely assessed as part of technical reviews
 - Defined in chapter 2 of draft Order
- **Two departures**
 - test acceptance
 - Software part conformity inspection
 - installation
 - Software installation conformity inspection

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Test Acceptance Basis

- **FAA Order 8110.4B, Paragraph 2-11f:
Conformity & witnessing of tests**
 - *“The conformity of the test article, test setup, test procedures used, and the validity of the test results must be established for each test conducted to show compliance with a type certification requirement . . .”*

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Software Part Conformity Inspection (SPCI)

- **Type certification requirement**
 - **Test for Certification Credit**
 - system certification test
 - **FAA approved test plan**
 - not the SVP
 - **Examples**
 - environmental qualification
 - system functional tests

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FAA SPCI

- **ASE tasks**
 - **Baseline complies to type design**
 - **LRU test software complies with baseline**
 - **Software artifacts are identified, controlled, & reflect currency**
 - **Qualified tools**
 - **Retention, archival, & retrieval**
 - **FAA Form 8120-10**

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FAA SPCI

- **ASI tasks (per FAA Form 8120-10)**
 - **Build & load files**
 - **Build & load instructions**
 - **LRU integrity check**
 - **Test setup**

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Installation Basis

- **FAA Order 8110.4B, Paragraph 2-11g:
Conformity Inspections**
 - *“A conformity inspection is required to ensure that the product being certificated complies with the type design. . . . An FAA conformity inspection should be successfully conducted before any official FAA tests (ground or flight) are conducted. . . .”*

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Software Installation Conformity Inspection (SICI)

- **Any FAA aircraft level ground or flight test**
 - **Type Inspection Authorization**
- **Objective**
 - **Approved & controlled software load**
 - **System initialization**

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FAA SICI

- **ASE tasks**
 - **Prior SPCI conducted**
 - **Initiate**
 - **FAA Form 8120-10**
 - **Request for Conformity**
 - **FAA Form 8110-1**
 - **Type Inspection Authorization**

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FAA SICI

- **ASI tasks**
 - **Correct software loaded**
 - **Correct hardware installed**
 - **Two methods**
 - **Witness**
 - **Records**

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Summary

- **Software Conformity**
 - **Unit under test**
 - **Documentation**
 - **Installation**
 - **Final configuration**

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