MIL-STD-11991B

DPMC 2025

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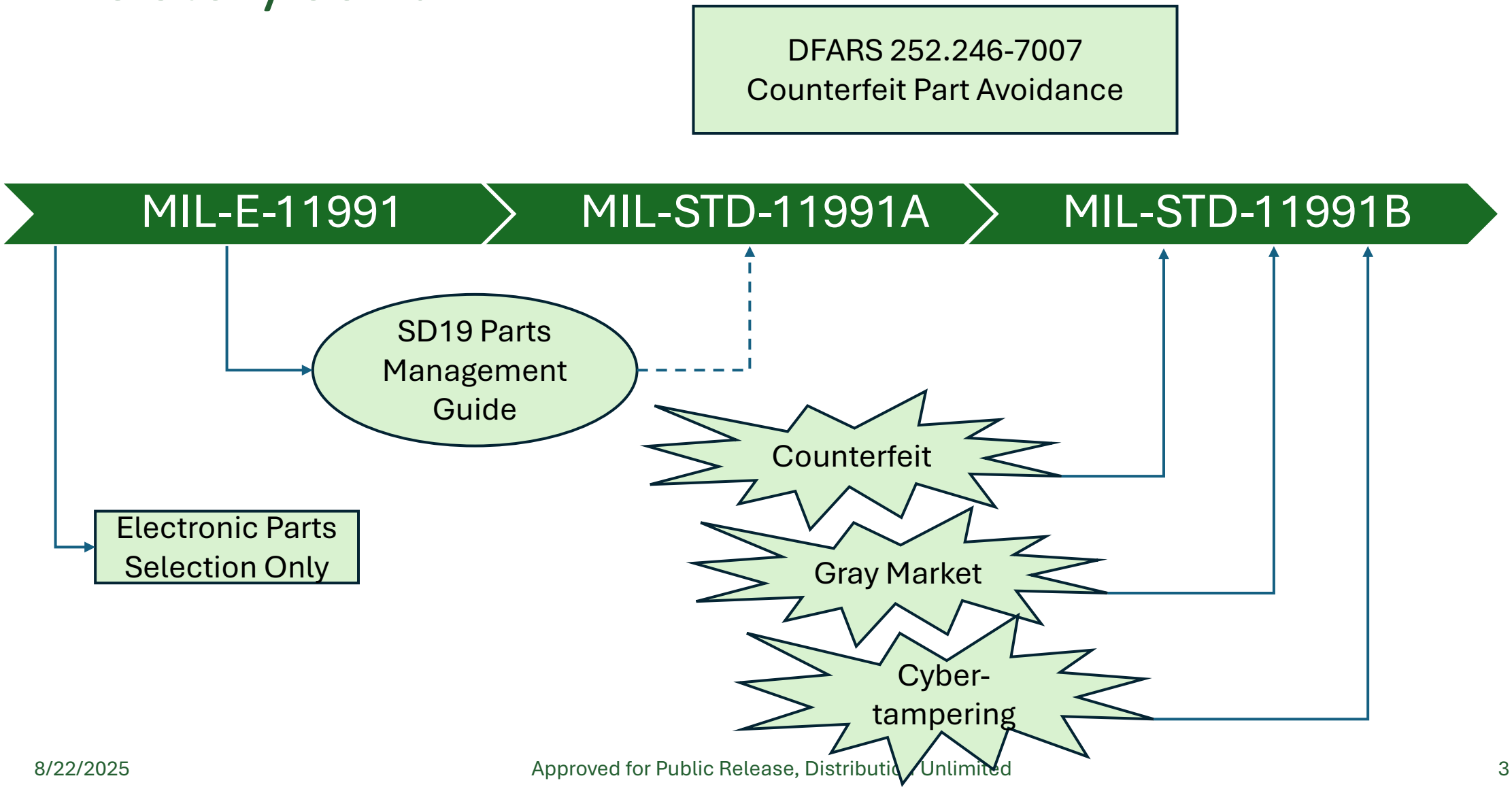
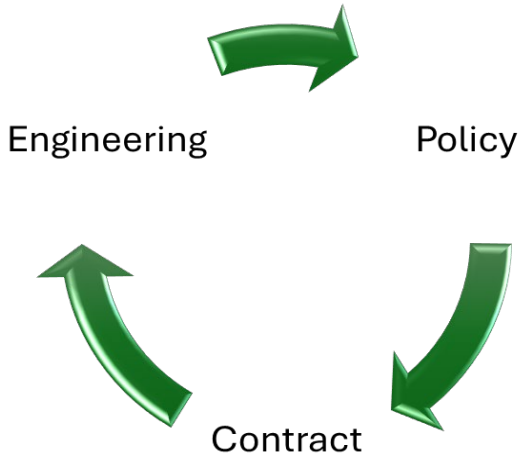
Agenda

- Introduction
- Why “REV B”
- Section Review
- Appendices
- Companion Documents
- Closing & Q&A

The Story So Far



What's new?



New Additions

- Counterfeit
- Supply
- Cyber

Stronger Definitions

- Suspect counterfeit part
- Supply-chain traceability

Appendix B

- Stand alone roadmap for COTS evaluation

Appendix C

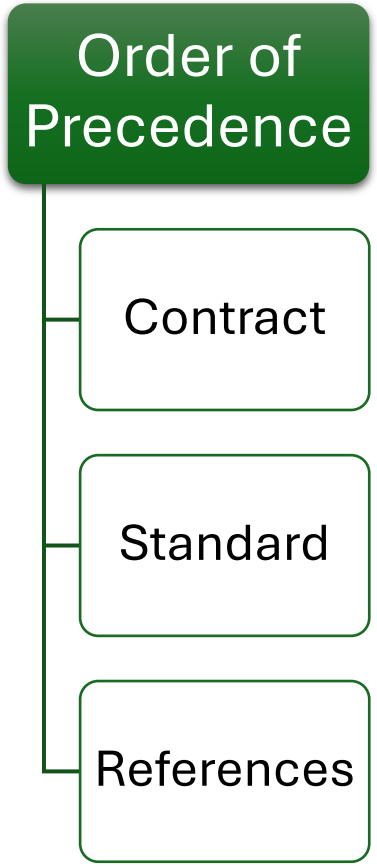
- Expanded prohibited-items list

Explicit Cross-Links

- SD-19
- SD-26

Content – Sections 1 and 2

- Section 1 – Scope
  - This is so important:
  - **All** services
  - **All** acquisition phases
- Section 2 – Applicable Documents
  - More than 150 referenced specifications



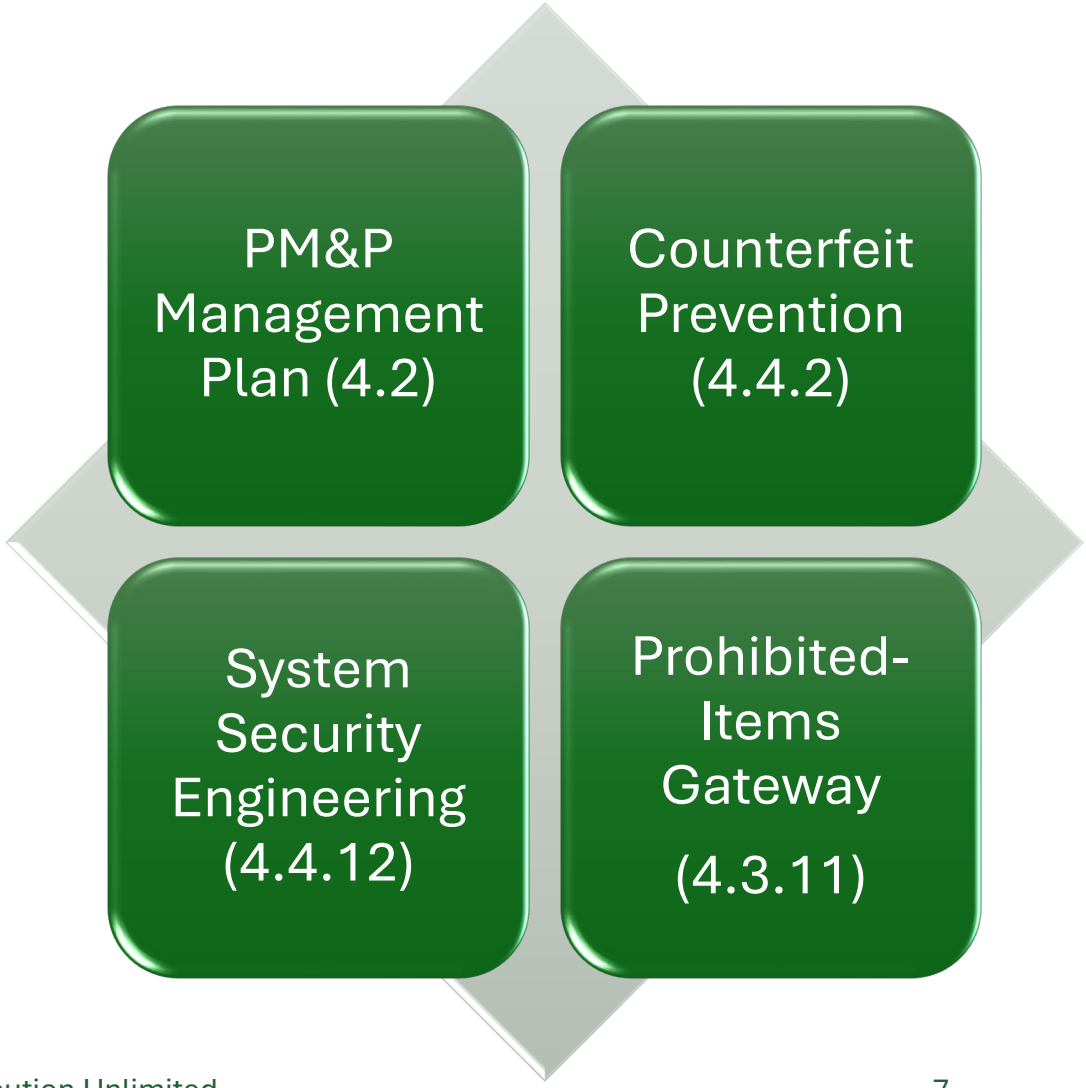
Section 3 – Definitions

- 40+ Definitions
- Notable new definitions:

Counterfeit Part	• Borrowed verbatim from DFARS
Life-cycle Phase	• Growth, Maturity, Decline, Phase-out, Post-production
Uprating	• Using a part beyond its catalog rating

Section 4 – General Requirements

- General
- Parts Materials and Processes
- PM&P Selection
- Life Cycle Management
- COTS Management
- Subcontractor Management



Section 5 – Detailed Requirements

- General
- Parts Requirements
  - By part type
- Materials Requirements
  - By material type
- Process Requirements
  - By process type
- Prohibited PM&P
  - Points to Appendix C

5.2.3 Connectors. Connectors shall be in accordance with MIL-STD-1353 and the requirements contained herein. All connectors selected for the system application shall meet the requirements specified herein, unless otherwise approved by the procuring activity. MIL-HDBK-454 provides connector application information. Connectors shall meet the requirements for the most applicable reference specification and address application considerations in design reviews and change proposals.

5.2.3.1 Press-fit Connectors for Printed Wiring Boards. Press-fit connectors and the related PWBs shall comply with IPC-9797.

Appendices

Appendix A	• Derating
Appendix B	• COTS Management
Appendix C	• Prohibited Items

COTS Management (B.1.1)

Review and Understand vs Application in the System

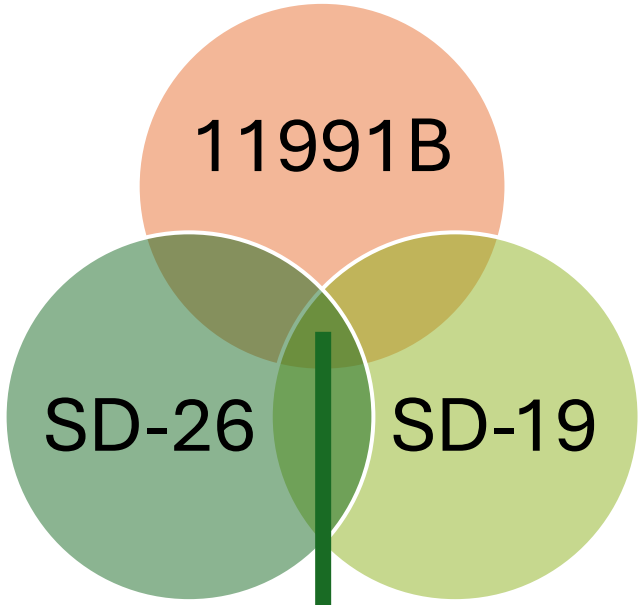
- Design
- Internal Parts
- Materials
- Configuration Control
- Qualification Methods
- Functional Capabilities

→ **Identify Risks** →

Mitigate Risks

- Performance
- Reliability

Companion Documents



SD-19 – Parts Management Guide

- How-to manual for Section 4
- Risk Based part selection
- Early BOM reviews
- Common-part families across platforms

SD-26 – Contracting Guide

- Boiler plate language for 11991B deliverables
- Counterfeit clauses
- Derating tables

- Engineering Change Proposals
- Schedule Variance
- 3-5% Total Cost of Ownership

Case Study: USAF C-130H

- Appendix B audit during digital glass cockpit integration
- Eliminated prohibited BNC Connector
- Swapped to twist-lock style
- Improved predicted MTBF 25%

https://nara.getarchive.net/media/us-air-force-usaf-c-130h-hercules-317th-airlift-group-ag-dyess-air-force-base-5d13bf

Case Study: Patriot Radar Digitization

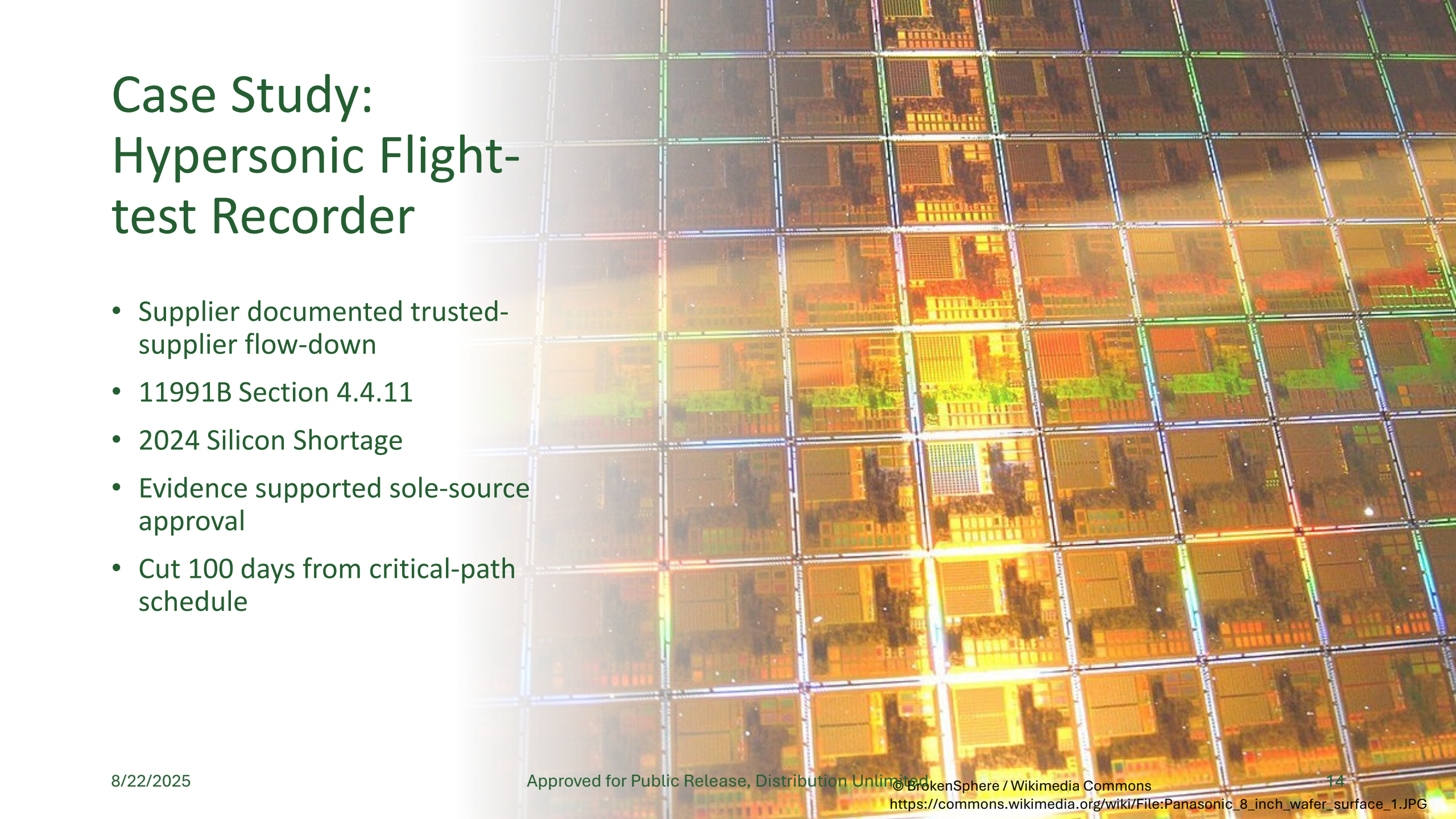
- GaN power-amp modules overheated
- Appendix A tables showed only 8% voltage headroom
- Added thermal mitigation
  - Copper Spreaders
  - Rerouted airflow
- Avoided $3M schedule slip

Case Study: Navy Shipboard Power Modules

- Aluminum Electrolytic Caps Flagged
- Appendix C: Leakage Risk
- Replaced with Polymer Caps
- 12% predicted MTBF increase
- Confirmed after 1000hrs sea-trial

Case Study: Hypersonic Flight-test Recorder

- Supplier documented trusted-supplier flow-down
- 11991B Section 4.4.11
- 2024 Silicon Shortage
- Evidence supported sole-source approval
- Cut 100 days from critical-path schedule



Closing

- Take Aways:
  - Start Early
  - Use the MIL-STD and build one plan to rule them all
  - Leverage appendices
  - Continuously evolve the plan and make sure everything is DOCUMENTED **AND** ACCEPTED

Questions?

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