

Overview of SAE EIA933

Requirements for a COTS Assembly
Management Plan

DPMC 2025

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Agenda

- Introduction
- Why EIA933 matters
- Scope and Applicability
- The Standard
- Coming Updates
- The DoD COTS Checklist
- Use Cases
- Closing/Q&A

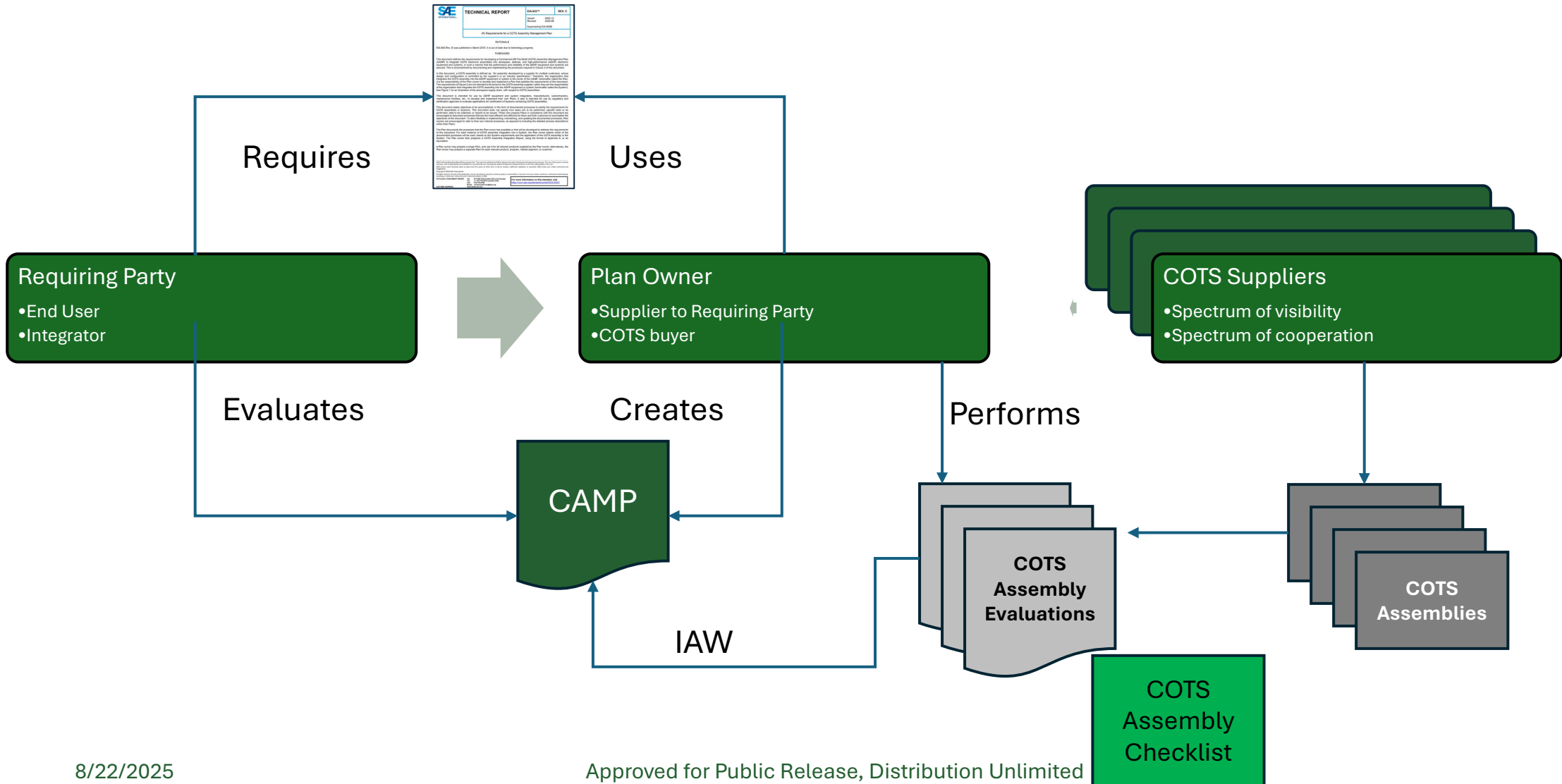
Why EIA933 Matters

- Acquisition Reform
 - 1994 Perry Memo
- Adoption Challenges
 - Regulations and Risks
 - Lifecycle Changes
 - Increased Documentation Requirements
 - Design Change Documentation
 - Environmental Shortfalls

EIA933

- Requirements for a COTS Assembly Management Plan (CAMP)
 - Sets out the Objectives for Plan owners to create overall processes to ensure COTS assemblies are reliable in their applications
 - Sets out what must be considered/included in the COTS assembly evaluation/acceptance process
- Key element of an Electronics Component Management Plan (ECMP) supporting Commercial Aviation

Where does EIA933 fit in the process?



The Standard - Overview

Scope

References

Technical Requirements

Administrative Requirements

Terms, Definitions, and Abbreviations

Technical Requirements – Changes Coming

- Traditionally flexible and intentionally non-prescriptive
- Moving to a more explicitly prescriptive document

Understand suitability for application - Checklist

Identify risks

Accept risks or apply mitigations

Document in required artifacts

Operating/Function over Expected Lifetime	3.1	Functionality
	3.2	Operating, Storage and Transportation Environment Stresses
	3.3	Derating
	3.4	Aging
	3.5	Reliability
	3.6	Safety
	3.7	Qualification
System Integration	3.8	Compatibility with System Assembly Process
	3.9	Maintainability and Testability
Supplier Processes	3.10	Supplier Parts Selection Process
	3.11	Configuration Control
	3.12	COTS Assembly Design
	3.13	Quality Assurance
Internal Parts Risk	3.14	Materials
	3.15	Internal Parts
	3.16	Counterfeit Parts and Materials
	3.17	Cyber Security
	3.18	Obsolescence Management

Updating EIA933

- Review and update all requirements – clearer shall statements
- Add BOM capture by visual inspection
- Enhance requirements
 - Cyber risks
 - Counterfeit risks
 - Configuration management
- Add minimum requirements (prescription)
 - Declared Artifacts – what records will be generated/collected?
 - Integrate the DoD COTS Checklist

DoD Checklist

- Can be found in the Parts Management Knowledge Sharing Portal
 - <https://www.dau.edu/cop/PMKSP> - Select the Documents Tab
- Published 2022
 - Government and Industry contributors
- Questionnaire type format
- Guidance and Background Document
 - Describes each questions intent

Demonstrate How the DoD Checklist Works

Checklist Questions & Color Code for Scoring		Product 1 Answers		Product 2 Answers	
80 - 93 (Outstanding) 70 - 79 (Above Acceptable) 50 - 69 (Marginal) 0 - 49 (Unacceptable)		Criticality Ranking	Score	Criticality Ranking	Score
Color Coding for Scores		Yes / No	High / Medium / Low	Yes / No	High / Medium / Low
Overall Product		79.98		51.28	
General Data / Pedigree		Section Score 79.98		Section Score 43.53	
1	Is the item a sole source or multivendor product?	Yes	80.00	N/A	80.00
1.a	If the product is from a sole source, what is the contingency plan if the sole source provider is no longer available?	Yes	80.00	N/A	80.00
2	Is the Original Equipment Manufacturer (OEM) on the procuring contractor's approved suppliers list?	Yes	80.00	No	40.00
2.a	Does the OEM have an approved suppliers list for piece-part procurements?	Yes	80.00	No	40.00
2.b	If so, can a list be provided for evaluation?	Yes	80.00	No	50.00
3	What is the physical location of the factory where final assembly and Acceptance Testing is done?	N/A	80.00	N/A	20.00
3.a	Is all manufacturing performed at the OEM?	No	80.00	N/A	40.00
4	If any manufacturing is performed outside the OEM, name the outside manufacturer(s) and their location(s).	N/A	80.00	N/A	20.00
5	Is the OEM Quality System registered to an ISO standard?	Yes	80.00	No	40.00
5.a	If so, which one? (Are they relevant and adequate for your program's needs?)	Yes	80.00	No	40.00
5.b	Does the OEM have any registrations or certifications other than ISO which would add to demonstrating system performance to you?	Yes	80.00	Yes	40.00
5.c	If so, which one? (Are they relevant and adequate for your program's needs?)	Yes	80.00	No	30.00
6	To what degree of confidence does the assessment and/or qualification of the CGTS item's performance, form, fit, function, interfaces and requirements meet program requirements?	Yes	75.00	N/A	20.00
6.a	Do the interfaces of the CGTS item conform to accepted USG and Industry "Open System" standards?	Yes	80.00	Yes	20.00
7	Is the hardware used in other contractor applications? If so, where?	Yes	80.00	Yes	60.00
8	Does the OEM have a Parts, Materials, and Processes (PPMP) Control Board (PPMPCB) or equivalent adjudication body for the selection and approval of PPMP?	Yes	80.00	No	20.00
An established OEM. The product is used successfully in similar criticality application with no history of issues associated with the product.					

Qualitative Summary Per Section

Approved for Public Release 22-MDA-11068 (10 Feb 22)
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Integrating the DoD COTS Checklist - Challenges

EIA 933

- Requirements for Plan Creation
- Static Document
- Intended for Commercial Aviation applications

DOD COTS Assembly Checklist

- Requirements for COTS Assembly Evaluation
- Active spreadsheet
- Created for DoD and Space

- The two documents have different structures
 - Clearly aligning questions in checklist with EIA933
- Including the checklist questions in EIA933 Appendix
 - Aligning each question to the technical requirements in Section 3
 - Allows the capability to be maintained and continue to evolve

Use Cases

Commercial Airliner Flight Computer Refresh

- EIA933-based CAMP informed supplemental testing
- Authorities accepted in lieu of full DO-254 re-cert

DoD UAV Mission Computer

- Supplemental altitude/temp testing for non-rated assembly
- Limited envelope deployment while rugged variant sourced

LEO Payload Server

- EIA933-based CAMP: Shielding analysis + parts radiation data = risk
- Cold spare architecture = mitigation

Legacy Radar Depot Sustainment

- CAMP specified obsolescence forecasting and monitoring
- EOL awareness 3 years ahead of LTB
- Emergency redesign avoided

Closing

- Takeaways
 - Start early
 - Tailor each CAMP
 - Leverage all available data
 - Continuously evolve



Questions?