



Software Validation and Verification Process Tasks and Deliverables

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. The purpose of this standard is to communicate what all software suppliers are required to follow. These requirements are defined in CG2999 for software validation tools and methodologies, in CG3000 for delta tested software change practices and in CG3001 software capability assessment which is used during sourcing considerations and in CG4422, the software verification and validation plan.

1.2 Applicability. All software/firmware for vehicle electrical/electronic components.

1.3 Remarks. Although CG2999, CG3000, CG3001 and CG4422 were distributed with this specification, it is the supplier's responsibility to insure that they have the latest versions of CG2999, CG3000, CG3001 and CG4422.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

2.3 Additional References.

- CG2999
- CG3000
- CG3001
- CG4422

3 Requirements

CG2999 describes GM requirements for Component-level Software Validation and Verification (CSV&V) of automotive Electronic Control Unit (ECU) software.

These requirements are presented in two categories: CSV&V Process and the CSV&V Methods.

The CSV&V Process presents planning, scheduling, submitting deliverables, and assigning responsibilities of stake holders.

The CSV&V Methods presents the details for analysis, validation and verification techniques, testing tools and reporting strategies required of the supplier.

4 Validation

4.1 General. CG3001 is a form used to document how the supplier plans to comply with CG2999. If GM determines that the supplier's in-house resources are not adequate, or that their methods and processes do not

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meet CG2999 requirements, then the supplier will be asked to augment their in-house capabilities with additional resources or outside test houses, and/or update their processes and methodologies.

CG3000 is a form used to document software changes **when full validation will not be conducted**. This information will be used to evaluate the proposed software changes and the required corresponding validation.

CG4422 is the software verification and validation plan template that will be completed by the supplier and provided to the GM Software Validation Subject Matter Expert (SME), per the CG2999 guidelines.

4.2 Validation Cross Reference Index. Software Traceability Matrix as outlined in CG2999.

4.3 Supporting Paragraphs. Not applicable.

5 Provisions for Shipping

Not applicable

6 Notes

6.1 Glossary. Not applicable.

6.2 Acronyms, Abbreviations, and Symbols.

CSV&V Component-level Software Validation and Verification

ECU Electronic Control Unit

SME Subject Matter Expert

7 Additional Paragraphs

Not applicable.

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

GMW17388

9 Release and Revisions

This standard was originated in April 2015. It was first approved by ADV - Electrical Development and Validation, Vehicle Software Integration in June 2015. It was first published in June 2015.

Issue	Publication Date	Description (Organization)
1	JUN 2015	Initial publication.
2	SEP 2016	Added CG4422. (Validation - Electrical Development and Validation, Vehicle Software Integration)

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