



GM Automotive Open System Architecture (AUTOSAR) Configuration Test Specification

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 indicate the GM specific Automotive Open System Architecture (AUTOSAR) software configuration test procedures that are required for Electronic Control Unit software configuration (ECUc) validation.

1.2 Applicability. This standard applies to all Electronic Control Units (ECU) that are required to meet the following Global B (GB) electrical architecture specifications from the GM Statement of Requirements (SOR). Consult the designated GM Design Release Engineer (DRE).

- GB5140 Local Interconnect Network (LIN) Master Software Implementation Specification,
- GB5201 Controller Area Network (CAN) Software Implementation Specification,
- GB5401 Ethernet Software Implementation Specification,
- GB6003 Diagnostic Software Implementation Specification,
- GB8003 AUTOSAR Configuration Parameter Definition requirements, and/or,
- GB8004 AUTOSAR Specification Addendum Required Request for Change (RfC) List.

1.3 Remarks. The AUTOSAR methodology invokes the concept of "software by configuration". As a result, a successful implementation of AUTOSAR in an ECU is largely dependent on correct configuration. Furthermore, it is also important that all ECUs in a vehicle are configured to be compatible with each other. The complete ECUc file provides indication of functional variations to the GM requirement that could be addressed before the actual bench integration activity.

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.

- ARDiff Architecture Extensible Markup Language (ARXML) Comparison Software (from GM Supply Power Portal at Uniform Resource Locator (URL) <http://gmsupplypower.covisint.com>)
- AUTOSAR Module (MOD) ECU Configuration Parameters (ARXML) file (from the AUTOSAR Portal at URL <http://www.autosar.org/>)
- ECU-specific Initial AUTOSAR ECUc ARXML File (from the designated GM DRE)
- ECU-specific Complete AUTOSAR ECUc ARXML File (generated from the compilation of the preceding file with additional supplier configurations)
- GB5140 LIN Master Software Implementation Specification

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Documents
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- GB5201 CAN Software Implementation Specification
- GB5401 Ethernet Software Implementation Specification
- GB6003 Diagnostic Software Implementation Specification
- GB8003 AUTOSAR Configuration Parameter Definition
- GB8004 AUTOSAR Specification Addendum Required RfC List
- Statement of Requirements (SOR)

3 Resources

3.1 Facilities. Typical of an engineering office.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment. A computer capable of running ARDiff ARXML Comparison Software. See 3.5.3.

Note: Alternative test facilities and equipment may be used only in the instance where an ARXML code generation output file does not exist. The reason why an ARXML code generation output file does not exist shall be reviewed among the designated GM DRE and Component Validation Engineer (CVE) and an alternate method of validation shall be decided.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time.

Calendar time: 3 d

Test hours: 2 h

Coordination hours: 22 h

3.5 Test Required Information.

3.5.1 ECU-specific Initial AUTOSAR ECUC ARXML File. The initial file contains the GM DRE provided messages matrix, diagnostic services, and preconfigured Basic Software (BSW) module.

3.5.2 ECU-specific Complete AUTOSAR ECUC ARXML File. The complete file contains all AUTOSAR BSW parameters along with data dictionary and diagnostic services as configured by the supplier.

3.5.3 ARDiff ARXML Comparison Software. ARDiff is an AUTOSAR ARXML files comparison software tool that identifies network details and AUTOSAR configuration changes between the initial AUTOSAR ECUC file that is provided by GM compared to the complete ECUC file that is generated by the supplier.

3.6 Personnel/Skills.

3.6.1 Familiarity with ARXML files.

3.6.2 Familiarity with AUTOSAR concepts, requirements, and data flow.

4 Procedure

4.1 Preparation.

4.1.1 Acquire the ARXML Files. The ECU-specific Initial AUTOSAR ECUC ARXML File is supplied by the designated GM DRE. The ECU-specific Complete AUTOSAR ECUC ARXML File is generated by the supplier of the ECU.

4.1.2 Acquire ARDiff ARXML Comparison Software. See GM Supply Power Portal (URL: <http://gmsupplypower.covisint.com>), "Automated Tools" in the "Secure File Exchange" (SFX) section.

4.2 Conditions.

4.2.1 Environmental Conditions. Typical of an engineering office.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

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