



Cybersecurity Component Validation Test Procedure

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 specify the Cybersecurity validation test procedures that are required for component level validation testing.

1.2 Applicability. This standard applies to all Electronic Control Units (ECU) that are required to meet GM Cybersecurity Requirements in Appendix F14 of the Statement of Requirements (SOR). These validation procedures contain a maximum of possible test steps. The type and level of requirements vary depending on the ECU implementation (refer to the ECU-specific Cybersecurity Requirements in Appendix F14 of the SOR).

1.3 Remarks. This test shall be performed by the ECU Supplier and shall be audited by GM.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW16832

2.3 Additional References.

- CG4117 In Vehicle Message Authentication Test Procedure (LD)
- CG4577 Secure Memory and Rationality Diagnostic Test Procedure (LD)
- CG4578 Secure Boot Test Procedure (LD)
- CG4579 Fuzz Testing Validation Requirements – Component Level (LD)
- CG5103 Transport Layer Security Test Procedure (LD)
- CG5104 Wireless Fidelity (Wi-Fi) Security Test Procedure (LD)
- CG5105 Bluetooth Security Test Procedure (LD)
- CG5106 Bluetooth Low Energy Security Test Procedure (LD)
- CG5160 Universal Serial Bus (USB) Security Test Procedure (LD)
- CG5161 Removable Media Test Procedure (LD)
- CG5162 Firewall and Packet Filters Test Procedure (LD)
- ECU-specific Component Technical Specification
- CYS3931 Secure Boot Requirements
- CYS5000 Wi-Fi Client Security
- CYS5050 Wi-Fi Access Point Security
- CYS5100 Bluetooth Security
- CYS5150 Bluetooth Low Energy Security

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Documents

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- CYS5300 USB Security Requirements
- CYS5400 Removable Media Security Requirements
- CYS6000 Firewall and Packet Filters Requirements
- CYS8200 Transport Layer Security Requirements
- ECU-specific Open Diagnostic Data Exchange (ODX) file
- GB4002 In-Vehicle Message Authentication Requirement
- GB4008 Secure Diagnostics Requirements
- GB6000 Unified Diagnostic Services Specification
- GB6001 Diagnostic Infrastructure Specification
- GB6080 ODX Authoring Guidelines
- Statement of Requirements (SOR) Appendix F14
- Statement of Requirements (SOR)

(LD) = This procedure has limited distribution. The procedure is provided only if applicable to the ECU per the Cybersecurity Requirements in Appendix F14 of the SOR. It is the Suppliers responsibility to contact the GM Design Release Engineer (DRE) or Component Validation Engineer (CVE) to ensure they have the latest copy at the time of sourcing.

3 Resources

3.1 Facilities.

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.

3.1.3 At the Supplier laboratory, use a bench that allows diagnostic communication between the test tool and the ECU being tested.

3.2 Equipment. The minimum required set of equipment to perform this test procedure includes:

3.2.1 Direct Current (DC) power supply with 60 A minimum capability.

3.2.2 GM-recommended diagnostic automated test tool according to validation tool requirements, as outlined in the respective Statement of Requirements (SOR). Also refer to GMW16832 (CG2486 CANoeOptionDiVa Installation instructions).

3.2.3 Additional real and/or simulated loads, if not part of Supplier bench setup.

3.2.4 Measurement equipment for voltage and current.

3.2.5 A computer capable of running the GM-recommended diagnostic automated test tool software.

3.2.6 Rest of the Bus Simulation (RBS) configurations and required hardware.

3.2.7 Development Programming System (DPS) software and required hardware.

3.2.8 Programmable ECU software with appropriate calibrations.

3.2.9 Data logging software and required hardware.

3.2.10 Message Authentication Code (MAC) Dynamic Link Library (DLL).

3.2.11 Software Debugger.

3.2.12 Fuzzing Tool.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time.

3.4.1 CG4117 In-Vehicle Message Authentication Test Procedure.

Calendar time: (7 to 10) days with automation or (14 to 21) days manually

Test time: (48 to 72) h with automation or (104 to 160) h manually

Coordination time: 8 h

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