



General Motors Unified Diagnostic Services (UDS) 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 GM-specific Unified Diagnostic Service (UDS), Bootloader, and Diagnostic Infrastructure requirement 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 Unified Diagnostic Services (UDS) Requirements, Bootloader Requirements, and/or Diagnostic Infrastructure Requirements. These validation procedures contain a maximum of possible test steps. The type and level of requirements vary depending on the diagnostic functionality of the ECU (refer to the ECU-specific Open Diagnostic Data Exchange file).

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.

ISO 14229-1	ISO 14229-3	ISO 14229-5
ISO 14229-2	ISO 14229-4	ISO 22901-1

2.2 GM Standards/Specifications.

None

2.3 Additional References.

- CG2486, CANoeOptionDiVa Installation
- CG3388, General Motors Unified Diagnostic Services (UDS) Validation Test Procedure
- CG3531, GM Diagnostic Infrastructure Global B Validation Procedure - Component Level
- CG3687, General Motors Flash Programming - Bootloader Requirements Test Procedure
- ECU-specific Open Diagnostic Data Exchange (ODX) file
- GB6000, Unified Diagnostic Services Specification (includes reference to ISO 14229-1, ISO 14229-2, ISO 14229-3, ISO 14229-4, ISO 14229-5, and ISO 22901-1)
- GB6001, Diagnostic Infrastructure Specification
- GB6002, Bootloader Specification
- GB6003, Diagnostic Software Implementation Specification
- GB6080, ODX Authoring Guidelines
- GM Supply Power Portal (<http://gmsupplypower.covisint.com>)
- Statement of Requirements (SOR)

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 lab, 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 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.

3.3 Test Vehicle/Test Piece. Not applicable.

3.4 Test Time.

3.4.1 CG3388 General Motors Unified Diagnostic Services (UDS) Validation Test Procedure.

Calendar time: 4 days to 5 days with automation or 12 days to 15 days manually

Test hours: 24 hours to 32 hours with automation or 88 hours to 112 hours manually

Coordination hours: 8 hours

3.4.2 CG3531 GM Diagnostic Infrastructure Global B Validation Procedure - Component Level.

Calendar time: 15 days to 20 days

Test hours: 112 hours to 152 hours

Coordination hours: 8 hours

3.4.3 CG3687 General Motors Flash Programming - Bootloader Requirements Test Procedure.

Calendar time: 5 days to 7 days

Test hours: 32 hours to 48 hours

Coordination hours: 8 hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills.

3.6.1 Familiarity with specified serial data communications protocol and tool set.

3.6.2 Familiarity with Unified Diagnostic Services (UDS) and requirements.

3.6.3 Familiarity with ECU component functionality.

3.6.4 Familiarity with flash programming procedures and tools.

4 Procedure

4.1 Preparation. Not applicable.

4.2 Conditions.

4.2.1 Environmental Conditions. Conditions shall be consistent with those specified in the ECU Functional Requirements.