



Virtual Key/Car Sharing

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 procedure is to outline the tests that are required to be performed for virtual key/car sharing.

1.2 Applicability. This standard is applicable to all vehicles with Global A and Global B electrical architecture that have virtual key/car sharing.

1.3 Remarks. This is a system level procedure that can be used for development and/or validation purposes.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3104 GMW3122

2.3 Additional References.

- CG4764 Virtual Key/Car Sharing
- Program specific Vehicle Technical Specification (VTS) (ID), Subsystem Technical Specification (SSTS) and/or Component Technical Specification (CTS) documents available from the electronic Statement of Requirements (eSOR)

(ID) = This standard is limited to internal distribution within General Motors and shall not be distributed outside this company. Contact the GM Lead Engineer for further instructions.

3 Resources

3.1 Facilities. The testing is to be completed at a vertical system bench facility.

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. Serial data monitoring device and software, such as NeoVI/VehicleSpy from Intrepid Control Systems, www.intrepidcs.com, or CANoe from Vector, www.vector.com.

3.3 Test Vehicle/Test Piece. A vertical system bench built from the latest build phase with the latest released production intent electrical parts, software, and calibrations.

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3.4 Test Time.

Calendar time: 20 d ^{Note 1}

Test time: 120 h

Coordination time: 40 h

Note 1: Not including any functional design reviews or Captured Test Fleet (CTF) Monitoring.

3.5 Test Required Information. Note applicable.

3.6 Personnel/Skills. Subsystem Test Engineer with the following:

- Access to the test facilities and equipment.
- Ability to operate the required test equipment.
- Understanding of serial data and the system level functionality of the program being tested. See GMW3104 and GMW3122.

4 Procedure

4.1 Preparation.

4.1.1 The serial data bus should be monitored in all tests.

4.1.2 The vertical system bench under test should be completely updated to the latest wiring, hardware, and software prior to starting the testing. Revision levels for each module's hardware and software should be documented.

4.2 Conditions. As noted in CG4764.

4.2.1 Environmental Conditions. Not applicable.

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.

4.3 Instructions. Follow the test steps found in CG4764.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. For each requirement tested, the test engineer is to document "Pass", Not applicable ("N/A") or "Failed" in the results column of the test procedure (CG4764). The test True/False criteria should be "True" if the step is completed **and** any expected results occur. The criterion is "False" if the step is not completed **or** the expected results do not occur. See the program specific Vehicle Technical Specification (VTS), Subsystem Technical Specification (SSTS) and Component Technical Specification (CTS) documents.

Note: The VTS, SSTS, and CTS should correspond to the levels that are being implemented on the program being tested.

5.3 Test Documentation. A copy of the test procedure (CG4764) with results may be included with the evaluation report as supporting documentation. Comments should be entered in the procedure or a separate report if the criterion is determined to be "False". All criteria that are marked "False" should be discussed with the Vehicle Software Integration Engineer (VSIE) in order to determine whether a failure report needs to be written. All unusual actions, perceivable by the tester, that occur during testing should be noted. Such actions include, but are not limited to, Instrument Panel Cluster (IPC) telltales on/off, lighting flickers, Diagnostic Trouble Codes (DTC) set, Driver Information Center (DIC) warnings, or improper chimes. All issues should be root-caused and communicated to the appropriate Design Release Engineer (DRE). Issues should be documented using the appropriate tracking system complete with root cause and supporting data.

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site

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