



OnStar Barrier Test Procedure

1 Scope

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. To test the OnStar system's ability to initiate and sustain an OnStar collision call, and then transmit the correct data after a vehicle incident that had caused an airbag deployment or near airbag deployment message to be transmitted on the vehicle serial bus. These tests include a planned event that will launch an airbag deployment or near airbag deployment as required by Notice of Action (NOA) 57 and other crashworthiness requirements.

1.2 Foreword. This procedure is to be used in conjunction with procedures used by the test facility. It does **not** take precedence over them.

1.3 Applicability. This procedure applies to all vehicles equipped with OnStar.

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.

- NOA 57
- OnStar Component Technical Specification (CTS)
- System Diagnostic Specification

3 Resources

3.1 Facilities.

3.1.1 A crash test facility capable of conducting barrier impacts.

3.1.2 The OnStar Call Center (OCC) to capture emergency call data.

3.2 Equipment.

3.2.1 Off-board Instrumentation. The voltage should be read and recorded by the data acquisition system connected to the OnStar module. This monitoring is for cases of loss of primary vehicle and Backup Battery (BUB) power during the test event.

3.2.2 CAN Analyzer Tool (CAT) or Similar. The device shall have the capability to read and record all serial data transmitted through the duration of the test.

3.2.3 Vehicle Communication Platform (VCP) Unit. Proper installation of the system, hardware and latest software version are required.

Note: The OnStar supplier Design Release Engineer (DRE) shall check the software and hardware versions when verifying proper vehicle setup. Due to fast changing hardware and software, the version installed in the vehicle may not be updated. When this occurs, the OnStar supplier DRE will supply an updated version of the module for the test. Decisions to update the module will be at the discretion of both the GM and supplier

OnStar DREs. If the module is altered/updated, the OnStar supplier DRE must notify the Test Facility Technician/Engineer to flag the module for return.

3.2.4 A DigiKey RHA-2.0K-ND or similar.

3.3 Test Vehicle/Test Piece. A test vehicle with instrumentation and content as described in 3.3.1 thru 3.3.3.

3.3.1 Test Vehicle Instrumentation. A test vehicle instrumented to monitor the supplied voltage to the Vehicle Communication Platform (VCP), using the pins designated in 3.3.1.1 thru 3.3.1.3.

3.3.1.1 For Voltage-Battery (V-Batt), either J1-15 or J1-16 can be used as assembled inside the module.

3.3.1.2 For Ground (GND), either J1-7 or J1-8 can be used as assembled inside the module.

3.3.1.3 Voltage Backup Battery (VBUB) power in J1-14 and VBUB return in J1-13 shall be monitored throughout the test event.

Note: The voltage supply should be monitored via the unused pins rather than splicing an instrumentation probe into an existing power feed wire if possible.

3.3.2 An OnStar System. The test vehicle must contain a properly installed and operating OnStar system. The OnStar and vehicle content includes 3.3.2.1 thru 3.3.2.6.

3.3.2.1 OnStar three button keypad.

3.3.2.2 Vehicle microphone.

3.3.2.3 Global Positioning System (GPS) antenna and coaxial cable.

Note: Dependent upon the vehicle model, the GPS antenna may be combined with a cellular antenna to a single coaxial solution.

3.3.2.4 Bluetooth/cellular antenna if applicable.

3.3.2.5 Sensing Diagnostic Module (SDM) to broadcast an Airbag Crash Notification (ACN) or Advanced Airbag Crash Notification (AACN) message across the vehicle's serial data communication bus when a vehicle impact has warranted an ACN or AACN message.

3.3.2.6 Functioning audio system.

Note: It is not required that the radio clock is set to the proper time.

3.3.3 A Power Supply. The OnStar system shall be supplied electrical power by a fully charged production intent battery and wire harness assembly.

3.4 Test Time.

Calendar time: 2 days

Test hours: 16 hours

Coordination hours: 4 hours

3.5 Test Required Information.

3.5.1 The BUB is to be installed prior to testing to determine if it will be a requirement for the specific vehicle model.

3.5.2 If the vehicle battery is to be disconnected for test setup, the BUB must be unplugged before the vehicle battery is disconnected to prevent the BUB from becoming exhausted.

Note: It is the responsibility of the GM Test Facility Technician/Engineer, as directed by the OnStar supplier DRE, to tag the vehicle "BUB not Connected", and to securely reconnect the BUB once the vehicle battery is reconnected for test. This tag shall be affixed to the vehicle battery cable where the battery power was disconnected, and the tag removed once the BUB is reconnected. If the BUB is not connected, the OnStar Light Emitting Diode (LED) will be red and shall be corrected by proper BUB connection.

3.5.3 Requirements of the GM Test Facility Technician/Engineer.

3.5.3.1 Notify the OnStar supplier DRE of the need for a properly installed module into the test vehicle.

3.5.3.2 Supply the OnStar supplier DRE the Vehicle Identification Number (VIN).

3.5.3.3 Assist the OnStar supplier DRE in installing the OnStar module into the test vehicle.

3.5.3.4 Record the type of vehicle being tested.

3.5.3.5 Record the type of test being conducted.

3.5.3.6 Record the test number.

3.5.4 Requirements of the OnStar Supplier DRE. The OnStar supplier DRE shall supply the GM Test Facility Technician/Engineer with the following information about the OnStar module being used during testing.

3.5.4.1 The phone number of the module.

3.5.4.2 The Station Identifier (STID) of the module.

3.5.4.3 The authentication code of the module.

3.5.4.4 The OnStar account number.

3.5.4.5 The Electronic Serial Number (ESN) or Mobile Electronic Identification Number (MEID) of the module.

3.6 Personnel/Skills.

3.6.1 GM Test Facility Technician/Engineer.

3.6.2 GM OnStar Engineer.

3.6.3 GM Telematics Subsystem Lead Validation Engineer.

3.6.4 OnStar Supplier DRE.

Note: The OnStar supplier DRE is responsible for preparation of the OnStar module(s) for testing. Therefore, the OnStar supplier DRE is required to have the knowledge and equipment to properly set up and verify that the module is ready for test.

4 Procedure

4.1 Preparation for OnStar Verification Testing.

4.1.1 Regions with Supporting Cellular Infrastructure and OCC Services (typically North America).

Note: The OnStar supplier DRE is responsible for 4.1.1.2 thru 4.1.1.7.9, and any additional support the test site may require.

4.1.1.1 Testing Hours of OCC Test & Development (T&D) Operations. OCC T&D hours of operation are 7:30 AM to 11:30 AM and 12:30 PM to 4:00 PM Eastern Standard Time (EST). Any NOA 57 testing should occur during those hours.

4.1.1.2 Hardware and Software. The OnStar module must be assembled with current hardware and software.

4.1.1.3 Phone Number. The OnStar module must have a valid working phone number. Set the established Geographic Mobile Identification Number (GEO MIN)/Mobile Directory Number (MDN) by appropriate means based on the network the vehicle will be tested in as described in 4.1.1.3.1 thru 4.1.1.3.3.

4.1.1.3.1 For North American cellular environments that support Over the Air Service Provisioning (OTASP), using digit dial, dial *22890.

4.1.1.3.2 For 500 MDN, dial *22891.

4.1.1.3.3 Wait until phone programming is completed successfully. Do not continue with testing until all phone programming issues have been resolved.

4.1.1.4 OnStar Module Enrollment. The OnStar module must be enrolled with the OnStar T&D Call Center.

Note: If an enrollment form is needed, contact the GM Telematics Subsystem Lead Validation Engineer.

4.1.1.4.1 The OnStar T&D Call Center will supply the account number.

4.1.1.4.2 Verify that the OnStar T&D Call Center has account flagged as an AACN or an ACN test to ensure that log files are saved and forwarded for further evaluation.

4.1.1.4.3 Keep a record of all test required information.

4.1.1.5 Configure. Configure the OnStar module with OnStar T&D (full configuration) before taking to the test site.

Note: This may be accomplished in a test fleet vehicle or on a test bench.

4.1.1.6 Disable. Disable outgoing call barring, and set personal calling minutes to postpaid.

Note: This cannot be done for a 500 MDN.

4.1.1.7 Recheck Functionality. Although performed during configuration, perform checks as described in 4.1.1.7.1 thru 4.1.1.7.9 for functionality.

4.1.1.7.1 Emergency Standard Configured Mobile number 1: 1-866-423-6968.