



Automated Vehicle State Sequence Test Procedure

1 Scope

Note: Nothing in this standard supersedes 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 the Automated Vehicle State Sequence (AVSS) Test is to validate the vehicle state or system power mode and the affects after cycling vehicle through all power modes. Normal operation of electronic control units (ECU) connected to the vehicle network can, at times, be adversely affected by changes in vehicle state or system power mode. These effects often manifest themselves as communications faults with other ECUs on the network, or losses in normal functionality such as input/output (I/O) failures and increased quiescent current draws.

Failures of this type are often due to internal ECU tasks associated with startup, in conjunction with unanticipated interrupts or services which typically accompany network initialization. Changes in vehicle state or system power mode during ECU shutdown can also induce anomalies if such transitions occur during critical periods such as internal hardware entering sleep mode, non volatile memory writes, or other shutdown related "housekeeping" tasks.

The trigger for these types of anomalies typically involves a number of factors that must occur in a critical sequence, and/or within a very narrow window of time. This makes for failure conditions which are extremely intermittent in nature, and particularly difficult to reproduce. It is not unusual to subject test ECUs to hundreds, or even thousands of cycles before the exact set of circumstances required to trigger such an anomaly is reproduced.

Note: The requirements are contained in the vehicle subsystem technical specifications (SSTS), which are provided by that Program platform (see 2.3).

1.2 Foreword. This is a vehicle-level procedure used (for development and/or validation purposes) is to monitor the serial data bus for any serial communication anomalies after the vehicle is in the Off/Asleep Mode.

1.3 Applicability. This procedure is applicable to all vehicles.

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.

- CG2653 Automated Vehicle State Sequence Test
- CG2802 (AVSS) Vehicle Spy Test Scripts
- GM Global Electrical Power Subsystem Technical Specification 14 V Electric Power Generation and Storage (EPGS) SSTS.
- Program specific vehicle technical specification (VTS), system technical specification (STS), and component technical specification (CTS) documents.

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- High Voltage Contactor Control SSTS (Global Hybrid Vehicles)
- Plug In Charging SSTS (Global Hybrid Vehicles)
- Vehicle Start SSTS (Global Hybrid Vehicles)

3 Resources

3.1 Facilities.

3.1.1 The test requires a garage with access to the required equipment is recommended.

3.1.2 The Static System Test requires that the vehicle is stationary, not driven.

3.2 Equipment. Five primary components are required in order to setup and run an AVSS test using this configuration: The personal computer (PC), the Vehicle Spy application, the NeoVI and power supply which is integrated in the Roll Around Cart. The following section provides a brief overview of each component, along with its application.

3.2.1 The AVSS Roll Around Cart. See Figure 1 and Figure 2.



Figure 1: AVSS Roll Around Cart (Front View)

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