



## **Seat Side Impact Airbag Electrostatic Discharge Test**

### **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 test procedure is to ensure that the side impact airbag Side Impact Airbag (SIAB) system Electrostatic Discharge (ESD) path is grounded through the seat structure in the event that there is no dedicated wire or cable for ESD grounding through the wire harness to the vehicle battery.

**1.2 Applicability.** Applicable to any seat systems with a SIAB system that does not provide grounding through the wire harness to the vehicle battery. Each unique configuration of adjuster type and structure paint coating shall apply.

**1.3 Remarks.**

**1.3.1** This test may be performed on a seat structure on a fixture or seat complete in a vehicle or body-in-white (BIW).

**1.3.2** Seat system may also include a separate bolster with an airbag. For example, a rear seat sedan. The test would apply to that situation.

### **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.**

Seat Subsystem Technical Specification (SSTS).

### **3 Resources**

**3.1 Facilities.** An approved General Motors (GM) certified test lab with an adequate bedplate or equivalent work surface necessary for mounting of the test samples and associated test fixtures.

**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.**

**3.2.1 Multimeter.** A Fluke 1587/1577 Insulation Multimeter, or equivalent, must be used to apply voltage and measure resistance of the seat structure.

**3.2.2 Power Supply.** Supplies Direct Current (DC) power to the motors. This equipment is required to adjust power seats. **Note:** Power supply can be auxiliary or vehicle.

**3.2.3** Bedplate steel platform to support the seat fixture and its attached subsystem.

**GM Confidential**

© Copyright 2017 General Motors Company All Rights Reserved

November 2017

Page 1 of 8

**3.2.4 Fixture.** Rigid mounting blocks, or equivalent, simulating the floor attachment points to mount the seat system in body position on a bedplate. Universal/adjustable fixtures are acceptable, as long as it is made from electrically conductive, non-painted materials.

**Note:** If the fixture is painted, remove paint from a localized area to ensure proper electrical conductivity when performing the grounding check.

### 3.3 Test Vehicle/Test Piece.

**3.3.1 Complete Seat.** The test specimen is a trimmed seat subsystem containing production intent SIAB.

**3.3.2 Vehicle.** Production intent body-in-white (BIW) or vehicle shall include production intent trimmed seat, seat fasteners, carpet, and wire harness.

**Note:** Paint shall not be removed from the body in white to improve electrical conductivity when performing the grounding check.

### 3.4 Test Time.

Calendar time: 1 day

Test time: 2 h

Coordination time: 3 h

**3.5 Test Required Information.** The level of the part shall be provided with the seat. Obtain the seating arrangement drawing or from the Design Release Engineer (DRE), the design position of the seat (seat back angle, cushion frame angle, H-point location, track position, and height adjust position).

**3.6 Personnel/Skills.** The following individuals are necessary to complete this test procedure:

- General Motors Seat Subsystem Validation Engineer (SVE).
- General Motors Seat Design Release Engineer (DRE).
- Test Engineer.
- Test Technician.

## 4 Procedure

### 4.1 Preparation.

**4.1.1 Mounting.** Mount the seat subsystem to the vehicle, BIW, or on the appropriate model mounting blocks or rigid fixture representative of the vehicle body anchor points. Once the seat is mounted to the fixture or body, it may not be removed and re-installed throughout the course of the evaluation.

**4.1.2 Locate Lead.** Remove seat back trim in order to access the inflator attachments. This will be used to connect the positive test lead.

**GM Confidential**

© Copyright 2017 General Motors Company All Rights Reserved

November 2017

Page 2 of 8

**Documents**  
Document Sharing Hub



Figure 1: Image of Inflator Attachment to Seat Back Frame Side Member

**4.1.3 Seat Positioning.** Engage the seat adjuster (tracks and height adjuster) in its design location. Set the seat back frame to the design back angle (measure the back angle on the outboard portion of the seat back). Set all other components to the off position (lumbar, adjustable bolster, etc.)

**4.1.4 Connect Multimeter.** Using the multimeter, connect the positive test lead to one of the inflator attachments (Figure 1), and the negative test lead to the discharge point. In the case of a fixture test, this can be a position on the seat fixture (with paint removed) furthest from the SIAB inflator attachment. In the case of a vehicle test, this can be any vehicle ground away from the seat structure.

#### 4.2 Conditions.

**4.2.1 Environmental Conditions.** Tests are to be conducted in an ambient environment.

**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.

**4.3.1** Adjust seat to the rearmost slide position and lowermost height adjuster position. This is position 1 as shown in Figure 1.

**Note:** The seat shall not be occupied during the test.

**4.3.2** Apply 500 V of DC voltage and measure the resistance in Megaohms.

**4.3.3** Record the voltage and resistance measurements in Table A1 (Appendix A).

**4.3.4** Adjust the seat to the next test position, as shown in Figure 2. Each position along the fore/aft slide shall be  $25 \text{ mm} \pm 5 \text{ mm}$  from the previous starting from the rearmost and ending at the frontmost position. If the seat is equipped with height adjust, measurements shall be taken in the same manner at lowermost, uppermost, and two height positions in between. Follow the pattern as shown in Figure 2. If the seat is fixed, or the SIAB is in a separate bolster, only one position applies.

GM Confidential

© Copyright 2017 General Motors Company All Rights Reserved

November 2017

Page 3 of 8

**AVA** Documents  
Document Sharing Hub