



Floor Mat to Accelerator Pedal Interaction Evaluation

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.

1.1.1 The purpose of this test is to evaluate potential restrictions of the accelerator pedal by new original equipment driver's floor mats. This test shall be completed for both fixed as well as adjustable pedals if they are an option on the vehicle. This test is also completed for every type of floor mat that is available for the vehicle including any aftermarket accessory mats. This test considers restriction due to the floor mat, which is mis-positioned and/or becomes mis-positioned in the vehicle with a defined boundary limit of 50 mm from nominal. This is based on opinion that the reasonable customer would realize the floor mat is out of position more than the defined boundary limit and would reposition it to approximate nominal. If the floor mat and carpet/floor are designed with mechanical position retention features which also control angle (such as 2 posts or hooks) this can be noted on the report and only the position controlled by these features needs to be evaluated. If the mat has features that control one point on the mat but not the angle (such as one post) evaluations of the mat rotated are to be evaluated.

1.1.2 This evaluation is for accelerator pedal interactions of the driver's floor mat placed at a nominal design position, eight boundary conditions 50 mm from nominal, and 17 intermediate positions. See paragraph 4.3.1.1.2. However, if the floor mat has position and/or angle retention features fewer positions are tested as noted above in paragraph 1.1.1.

1.2 Foreword. Not applicable.

1.3 Applicability. Applies to all GM vehicles with original equipment supplied floor mats.

Note: This test is for vehicle specific new original equipment floor mats only.

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

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 GM, and/or supplier test facilities.

3.2 Equipment.

3.2.1 Metric metal ruler.

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3.2.2 Permanent marker.

3.2.3 Digital camera.

3.2.4 Sharp tool, such as an awl.

3.2.5 Transfer punch or awl, ≈ 1.6 mm (1/16 in) diameter.

3.2.6 Masking tape.

3.3 Test Vehicle/Test Piece.

3.3.1 Production floor mat(s) matching production vehicle.

3.3.2 Production vehicle.

3.4 Test Time.

Calendar time: 0.5 days

Test hours: 4 h

Coordination hours: 2 h

3.5 Test Required Information. Lessons learned from prior floor mat to accelerator pedal interactions. See Pedal or Floor Trim Total Integration Engineer (TIE) for info.

3.6 Personnel/Skills. Basic test technician skills.

4 Procedure

4.1 Preparation.

4.1.1 Carpet and Floor Mat Preparation.

4.1.1.1 Vacuum the driver's side carpet and floor pan area thoroughly prior to performing this procedure.

4.1.1.2 Obtain a new production, driver's floor mat for this vehicle. If necessary vacuum both sides of the floor mat.

4.1.1.3 Turn the driver's floor mat over and check the condition of the underside. Enter the following information on Data Sheet A1, Appendix A:

- If there are nibs, are they in good shape?
- Are any missing?
- Are they bent over instead of standing upright?

4.1.1.4 Even though the floor mat shape may not a perfect rectangle, for this test we will approximate that it is. Make the following measurements:

4.1.1.4.1 Measure the major length of the floor mat. This is the length that exists for the majority of the floor mat.

4.1.1.4.2 Measure the major width of the floor mat. This is the width that exists for the majority of the floor mat.

4.1.1.4.3 Using this length and width, identify the center point of the approximate rectangular floor mat.

4.1.1.5 Using a permanent marker, draw the following lines on the new production, driver's floor mat: (Reference Figure 1). If the Floor Mat has features that control position and angle then skip this section and continue to paragraph 4.1.1.7

4.1.1.5.1 Draw a Cartesian coordinate system using the center point which was just determined. Both the x and y axes should be drawn from one edge of the floor mat to the other.

4.1.1.5.2 Draw a line, which is 5° clockwise from the y-axis. This line should be drawn from the forward edge of the floor mat to the aft edge.

4.1.1.5.3 Draw a line that is 5° counterclockwise from the y-axis. This line should be drawn from the forward edge of the floor mat to the aft edge.

4.1.1.5.4 Draw a line that is 5° clockwise from the x-axis. This line should be drawn from the left edge of the floor mat to the right edge.

4.1.1.5.5 Draw a line that is 5° counter clockwise from the x-axis. This line should be drawn from the left edge of the floor mat to the right edge.

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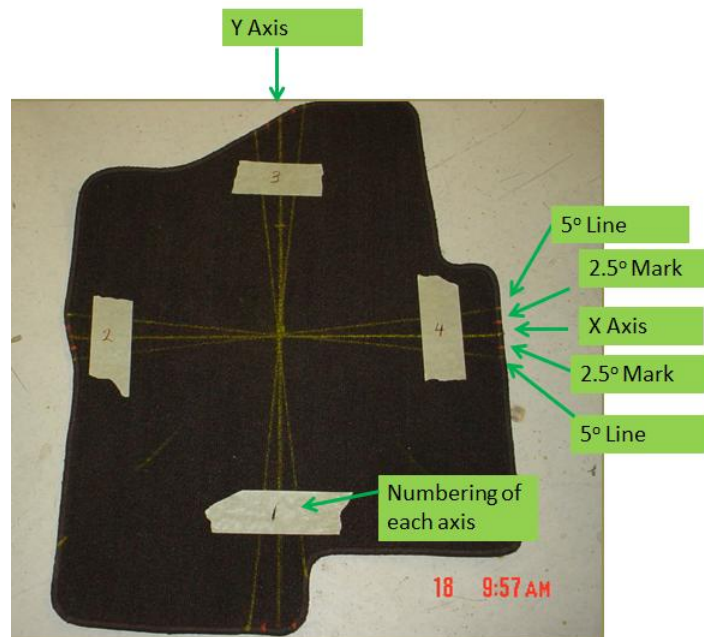
4.1.1.5.6 Make a small mark identifying the 2.5° location on the forward, aft, right, and left edges of the floor mat.

Because the distance between each of the axes and the 5° mark is a small distance, it can be assumed that the 2.5° mark is halfway between the axis and the 5° mark.

4.1.1.5.7 Make the 2.5° mark for both the clockwise and counter clockwise directions.

4.1.1.6 Starting in the aft, right hand corner of the floor mat, number each corner of the floor mat. Start with one and continue numbering in the clockwise direction.

Figure 1: Carpet and Floor Mat Preparation



4.1.1.7 Using digital camera take photos of both sides of the driver's floor mat.

4.1.1.8 Place the floor mat on the carpet in the floor pan area. The floor mat must be placed in design position. If design position is unclear, use a layout drawing to identify this position. (Request floor mat position from floor mat DE.

4.1.1.9 Take additional photos of the floor mat installed in design position.

Note: While performing this test, label these photos with the nomenclature you are using to describe various locations on the floor mat, floor pan, tunnels, wheel well, seat anchors, etc. Take as many photos as necessary to document the nomenclature being used.

4.1.1.10 Using a sharp tool, puncture a hole through the center of the floor mat. The center was determined above. This hole will be used later for rotating the floor mat. Make sure this hole is the same size as the diameter of the transfer punch or awl that will be used to rotate the floor mat. The transfer punch or awl should be ≈ 1.6 mm (1/16 in) diameter.

4.1.2 Adjustable Pedal Preparation.

4.1.2.1 If Adjustable pedals are an option for the vehicle, then they shall be tested as well as the fixed pedals. It shall be determined when the adjustable accelerator pedal is the closest to the floor mat when it is fully depressed. First, adjust the pedals so that they are all the way forward in the vehicle, (farthest from the driver). While holding the accelerator pedal in the fully depressed position, adjust the pedals rearward in vehicle, watching to see when the accelerator pedal is the closest to the floor mat. This will be the position that the pedals should be in while conducting this test procedure.

4.1.3 Vehicle Information. Enter the following information on Data Sheet A1, Appendix A:

- Vehicle description and type.

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