



Ground Clearance Compliance Test Procedure and Documentation Standard

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. This standard describes the procedure to validate and document the compliancy of GM products to Korea KMVSS Article 5 and Australia ADR 43/04 in terms of ground clearance, between the vehicle and road surface.

1.2 Applicability. This Standard applies to all GM vehicle designed and sold worldwide and must be met regardless of whether the standard is a statutory requirement in the country of sale.

1.3 Remarks. Compliance is demonstrated using Computer Aided Design (CAD) math data, as incorporated in the two (2) GM Standards for ground clearance: Ground Clearance between the Axles VAFRONT-09 and Ground Clearance outside the Axles VAFRONT-10, see 2.3.1.

2 References

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

2.1 External Standards/Specifications.

Korea KMVSS Article 5 Australia ADR 43/04

2.2 GM Standards/Specifications.

None

2.3 Additional References.

CG4774 Ground Clearance Evaluation Report Template

2.3.1 GM Standards for Ground Clearance. Contact the GM Lead Engineer for access, details and/or further instructions.

- VAFRONT-09 Ground Clearance (BTA) Between the Axles located in the Auros database
- VAFRONT-10 Ground Clearance (OTS) Outside the Axles located in the Auros database

3 Parametric Definitions

Not applicable.

4 Process

4.1 Analysis, Development and Validation (A/D/V) Plan. The timing for these ground clearance checks will be at each established Vehicle Architecture Peer Review gates.

4.2 Test Flows. Not applicable.

4.3 Peer Review. Compliancy of each program must be reviewed in the Front Compartment Peer Review by the Vehicle Architecture department.

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5 Requirements

5.1 Regulatory Requirements.

5.1.1 Korea KVMSS Article 5 (Ground Clearance). The ground clearance of a vehicle in the unloaded state between the ground and the parts other than the ground interface shall be > 12 cm.

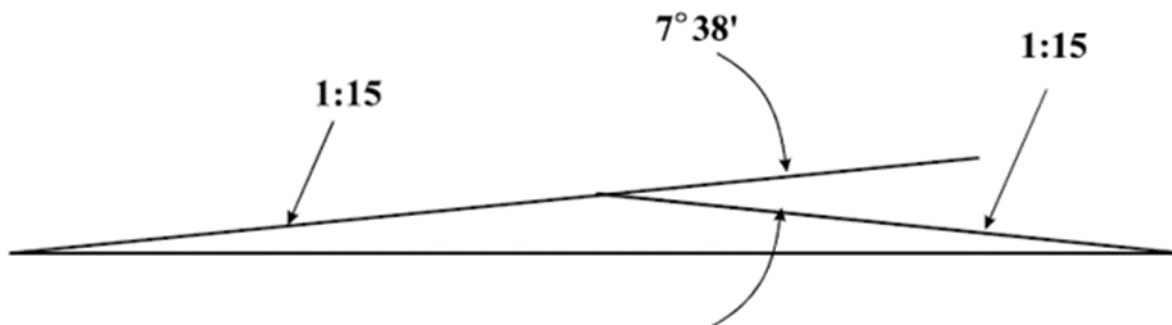
5.2.1 Australia ADR 43/04 (Running Clearance). The "Running Clearance" (see 11.1) of a motor vehicle must not be < 100 mm.

5.2.2 Australia ADR 43/04 (Breakover Angle). Each vehicle, under the conditions of 'Maximum Loaded Test Mass' (Gross Vehicle Mass (GVM) equivalent) must be capable of driving over a 1:15 ramp, as shown in Figure 1, without contact.

Note: Breakover Angle = 7 degrees 38 minutes.

5.2.3 Australia ADR 43/04 (Ground Clearance). The ground clearance of a motor vehicle, for the mid-point between any two (2) consecutive axles, measured from a horizontal road surface to any point on the underside of the vehicle except the tires, wheels, and wheel hubs must, under the conditions of 'Maximum Loaded Test Mass' (GVM equivalent) loading must not be $< (\text{Wheelbase} \times 0.03333)$.

Figure 1: 1:15 Gradient



6 Functional Verification

Not applicable.

7 Analysis

7.1 Tracking Vehicle. Identify the lowest trimmed model for program being checked and turn on all parts (in vehicle assembly position) to be considered for groundline compliance check:

- Lower body structure
- Chassis front and rear suspension
- Cradle and brackets
- Powertrain
- Exhaust system
- Fuel system
- Rocker panel
- Aero panels
- Skid plates

7.2 Gather Reference Point File. Identify and turn on the groundline file.

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