



## **Test of Disabled Vehicle Attachment Point, Towing Device**

### **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.** To determine if the vehicle towing devices meet clearance and performance requirements as defined in:

- R (EU) 1005/2010
- Korean Motor Vehicle Safety Standard (KMVSS) Article 20, Items 1, 2, 4
- Bumper System Subsystem Technical Specification (SSTS) (if bumper mounted)
- Body Structures System SSTS (if underbody mounted)
- Frame/Cradle SSTS (if Frame or Cradle mounted)

This will enable a vehicle to tow or be towed by another vehicle using a tow rope, cable, or towing bar on paved roads.

**Note:** This procedure does not enable the towing device to be used as a trailer hitch, shipping tie-down or vehicle recovery device from a ditch.

**1.2 Applicability.** The applicability of this test procedure is based on which countries the vehicle will be sold in order to meet the government regulations in Europe and Korea.

**1.3 Remarks.** This standard defines the procedure for testing towing devices on the front and rear of the vehicle.

### **2 References**

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

#### **2.1 External Standards/Specifications.**

KMVSS Article 20                      R (EU) No. 1005/2010

#### **2.2 GM Standards/Specifications.**

None

#### **2.3 Additional References.**

- Frame/Cradle SSTS (if Frame or Cradle mounted)
- Body Structures System SSTS (if underbody mounted)
- Bumper System SSTS (if bumper mounted)

### **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.

#### **3.2 Equipment.**

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Page 1 of 6



**Documents**

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- 3.2.1** Tow bar with flange fixation for dynamometer.
- 3.2.2** Dynamometer (measuring range 30 kN, accuracy 100 N).
- 3.2.3** Amplifier with display.
- 3.2.4** Locating device for vehicle.
- 3.2.5** Device for force application, e.g., hydraulic cylinder.
- 3.3 Test Vehicle/Test Piece.** Fully equipped vehicle.
- 3.4 Test Time.**

Calendar time: 5 d

- 3.5 Test Required Information.** Not applicable.
- 3.6 Personnel/Skills.** Not applicable.

## 4 Procedure

- 4.1 Preparation.** Not applicable.

**4.1.1 Data Sheets.** Obtain copies of Data Sheets shown in Appendix A for each tow device to be tested.

**4.1.2 Vehicle Mass.** Obtain Curb and Maximum Gross Vehicle Weight Rating for the test vehicle and record in Appendix A, Data Sheet A1.

**4.1.3 Pre-Test Measurements.** Take measurements of the tow device position and record in Appendix A, Data Sheet A2. Visually check welding points.

### 4.2 Conditions.

**4.2.1 Environmental Conditions.** Not applicable.

**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.

**Note:** Deviations shall have been agreed upon prior to the test.

### 4.3 Instructions.

**4.3.1** Record vehicle type, Maximum Gross Vehicle Weight Rating (GVWR), Tow Device position in Appendix A, Data Sheets A1 and A2.

**4.3.2** Secure the test vehicle to a reference plate and block the suspension. The suspension should be blocked to prevent suspension vertical travel. This can be done by blocking the suspension springs.

**4.3.3** Install front towing lug (if removable type) and hand tighten.

**4.3.4** Take Clearance Measurements defined in Appendix A, Data Sheet A3. The angles are located from the attachment point of the force on the towing device. Record in Data Sheet A3 if there is no contact with vehicle components at the defined angles. If there is contact with vehicle components, record the component and angle at which contact occurs.

**4.3.5** Attach tow bar with dynamometer to towing device of test vehicle.

**4.3.6** Orient the hydraulic cylinder in test direction and attach to the reference plate. Connect the Hydraulic Cylinder to the tow device and dynamometer.

**4.3.7** Connect the dynamometer and amplifier. Check transducing factor and calibrate zero (0) point.

**4.3.8** Increase force slowly until test load (see Appendix A, Data Sheet A4) is achieved; Hold test load for 10 s. Measure the maximum deflection (x, y, z) at the attachment point of the tow bar to the vehicle towing device. Record deflection in Appendix A, Data Sheet A4.

**Note:** All angles shown in Appendix A are measured from the zero/no load/initial position of the towing device.

**4.3.9** After release of load, measure permanent deformation in x, y, z directions and record in Appendix A, Data Sheet A4.

**Note:** All deflections should be measured from the previous position of the tow device.

**4.3.10** Repeat 4.3.8 and 4.3.9 for all load cases in the order listed in Appendix A, Data Sheet A4. If necessary, take photographs for documentation, e.g., attachment point of the force on the towing lug.

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Page 2 of 6