



REESS rotation tests

CATARC

Standards

GB/T 31467.3-2015

UL2580

- Purpose

- Verify the safety performance of battery in the situation of vehicle rollover

- Object

- DUT is battery pack or system

- Requirement

- Battery pack or system without leakage, shell rupture, fire, or explosion and other phenomena, and maintain a reliable connection, the structure intact, after the test insulation resistance value of not less than $100\ \Omega / V$.

FMVSS 305-2011

- Purpose

- The purpose of this standard is to reduce deaths and injuries during and after a crash that occur because of electrolyte spillage from electric energy storage devices, intrusion of electric energy storage device components into the occupant compartment, and electrical shock

- Object

- This standard applies to passenger cars, and to multipurpose passenger vehicles, trucks, and buses that have a GVWR of 4536 kg or less, that use electrical components with working voltages more than 60 volts direct current(VDC) or 30 volts alternating current (VAC), and whose speed attainable over a distance of 1.6km on a paved level surface is more than 40km/h

- Requirements

S5.1 *Electrolyte spillage from propulsion batteries.* Not more than 5.0 liters of electrolyte from propulsion batteries shall spill outside the passenger compartment, and no visible trace of electrolyte shall spill into the passenger compartment. Spillage is measured from the time the vehicle ceases motion after a barrier impact test until 30 minutes thereafter, and throughout any static rollover after a barrier impact test.

S5.2 *Electric energy storage/conversion system retention.* All components of the electric energy storage/conversion system must be anchored to the vehicle. All component anchorages, including any brackets or structures that transfer loads from the component to the vehicle structure, shall remain attached to the vehicle structure at all attachment locations during and after testing performed pursuant to the procedures of S6 of this standard.

S5.3 *Electrical safety.* After each test, each high voltage source in a vehicle must meet the electrical isolation requirements of subparagraph (a) or the voltage level requirements of subparagraph (b).

(a) The electric isolation between each high voltage source and the vehicle chassis electricity-conducting structure must meet one of the following:

(1) Electrical isolation must be greater than or equal to 500 ohms/volt for all DC high voltage sources without continuous monitoring of electrical isolation during vehicle operation and for all AC high voltage sources; or

(2) Electrical isolation must be greater than or equal to 100 ohms/volt for all DC high voltage sources with continuous monitoring of electrical isolation, in accordance with the requirements of S5.4, during vehicle operation.

(b) The voltage of the voltage source must be less than or equal to 30 VAC for AC components or 60 VDC for DC components.

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- Procedure

- The DUT rotates along X axis 360° with speed of $6^\circ /s$, then rotates in the way of 90° increments, stay 1h at each position, until rotates 360° . Observes 2h.
- The DUT rotates along X axis 360° with speed of $6^\circ /s$, then rotates in the way of 90° increments, stay 1h at each position, until rotates 360° . Observes 2h

FMVSS 305-2011

- Procedure

S6.4 *Post-impact test static rollover*. The vehicle must meet the requirements of S5.1, S5.2, and S5.3, after being rotated on its longitudinal axis to each successive increment of 90 degrees after each impact test specified in S6.1, S6.2, and S6.3.

➤ Summary of test results

- ✓ Reference to GB/T 31467.3-2015 for testing, after a large number of tests, for the normal installation of the test samples, all can meet the requirements of the standard.
- ✓ In the case where the liquid cooling pipe is not properly sealed, the coolant may leak from the liquid cooling pipe.



Thanks

