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**Road vehicles - Collection of accident data for
evaluation of occupant restraint performance**

道路车辆 评价乘员约束性能的事故数据收集

(ISO 6546:2018, MOD)

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Road vehicles - Collection of accident data for evaluation of occupant restraint performance

1 Scope

This standard specifies the collection of vehicle data, seat and restraint data, occupant data, occupant injury data, child restraint system data for evaluating occupant restraint performance.

This standard applies to accident data collection for evaluating the performance of passenger restraint systems for passenger cars and trucks.

This standard does not apply to the evaluation of deformation, intrusion, structural design related to the structural performance of the whole vehicle.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 39424.1-2020 Road vehicle - Traffic accident analysis - Part 1: Terminology (ISO 12353-1:2020, MOD)

ISO 13218:1998 Road vehicles - Child restraint systems -Report form for accidents involving child passengers

3 Terms and definitions

The terms and definitions defined in GB/T 39424.1-2020 are applicable to this document.

4 Vehicle data

Vehicle data includes accident data such as vehicle identification information, vehicle state before collision, collision mode, vehicle damage/intrusion, collision object, collision severity parameters, as well as but not limited to occupant restraint related data:

detachable headrest, split headrest, embedded headrest, active headrest, etc.);

- b) The configuration of the active headrest (activated);
- c) Other neck protection systems (activated);
- d) The exact position of the headrest in each adjustable direction during the collision;
- e) The distance from the junction of the seat cushion and the backrest to the top of the headrest;
- f) The horizontal position of the headrest during the collision;
- g) Damage to the headrest and its causes;
- h) The angle between the seat cushion and the horizontal plane;
- i) The angle between the backrest and the vertical surface (before and after the collision): the counterclockwise direction from the backrest to the vertical surface is positive, whilst the opposite direction is negative;
- j) Seat fabric material, whether to use seat cover and seat cover material;
- k) Whether the seat slide rail is damaged and its damage status.

5.4 Evaluation of knee protection system

For the evaluation of the knee protection system, the following information shall be recorded:

- a) The type of knee protection (such as knee pads, airbags);
- b) The deformed position of the knee space;
- c) The deformation corresponding to the collision (whether it is in contact with the occupant);
- d) The position where the occupant's knee touches.

5.5 Steering column and steering wheel

For the steering column and steering wheel, the following information shall be recorded:

- a) The type of steering column and steering wheel (such as diameter, number of spokes, whether it is equipped with energy absorbing device);

- q) The configuration and activation status of the inflatable seat belt;
- r) The configuration and activation status of the pre-collision seat belt pretensioner;
- s) The function type of the seat belt system (non-early warning, early warning, pre-early warning).

5.7 Use of seat belt restraint

For the use of seat belt restraint, the following information shall be recorded:

- a) The correctness of the use of seat belt system;
- b) The wearing type of the seat belt system (active, passive, etc.);
- c) The basis for judging whether to use seat belts;
- d) The failure of the seat belt during the collision (if it fails);
- e) The results of the investigation into the use of seat belts in the police report.

5.8 Airbag system

The number of airbags in each seat position and their deployment shall be recorded, including the following information for each airbag:

- a) Type of airbag (unequipped, original, replaced, refurbished).
- b) The size of the air bag, in centimeters (for the oval airbag, measure its long axis and short axis dimensions; for the round airbag, measure its diameter; for the square airbag, measure its length and width).
- c) Activation and pop-up conditions.
- d) The activable status of airbag as set by the user;
- e) Airbag position:
 - 1) The middle position of the steering wheel;
 - 2) Dashboard;
 - 3) The lower part of the dashboard (knee airbag);
 - 4) Side doors, rear roof side panels;
 - 5) Side of the seat (inside/outside);
 - 6) The position of the occupant's head on the upper side beam;

- a) Height and weight;
- b) Age and gender;
- c) The specific dimensions of the occupant (such as sitting height, hip-to-knee length, knee-to-foot length, arm length, etc.);
- d) Past medical history (cardiovascular, hearing, etc.) and previous physical condition or disability.

6.2.2 Occupant clothing

The following occupant clothing information shall be recorded:

- a) The style and material of the top (length, thickness);
- b) The style and material of the bottom garment (length, thickness);
- c) Shoes (size and heel height).

6.2.3 Occupant body posture

The following occupant body posture information shall be recorded:

- a) Operations that may cause the occupant to leave the position (such as braking) before the collision;
- b) Occupant posture (sitting, lying, kneeling, standing);
- c) The position of the occupant's torso and head relative to the normal posture during the collision;
- d) The position of the lower limbs of the occupant at the time of the collision;
- e) The position of the upper limbs of the occupant at the time of the collision;
- f) The rotation of the occupant's head during the collision;
- g) Whether the occupant supports his/her body with his arms;
- h) Whether the occupant supports his/her body with his legs;
- i) The rotation of the occupant's body during the collision;
- j) The position of the occupant after the collision;
- k) Vision aids (glasses, contact lenses) used;
- l) Items placed on the hands or legs of the occupant.

7.2.1 Internal injury-causing contacts

The following information shall be recorded:

- a) Knee pads;
- b) Seat cushions and seat backs.

7.2.2 Constraint system's injury-causing contacts

The following information shall be recorded:

- a) Constraint system components, such as webbing;
- b) The airbag on the driver's side (front airbag, side airbag, side air curtain, etc.);
- c) Airbags on the front passenger side (front airbags, side airbags, side air curtains, etc.);
- d) Rear airbags (front airbags, side airbags, side air curtains, etc.).

7.2.3 Indirect contacts

Records shall include the gas filled in the airbag or other conditions.

7.2.4 Other injury-causing contacts

For an in-depth accident investigation, all other injury-causing contacts shall also be recorded.

8 Child restraint system

According to the investigation content of road vehicle accidents involving child restraint systems given by ISO 13218:1998, the following information shall be recorded:

- a) The brand and model of the child restraint system (CRS).
- b) The type of child restraint system (including built-in or add-on).
- c) Installation situation:
 - 1) Orientation (forward, backward, other);
 - 2) Whether it is consistent with the manufacturer's preset orientation;
 - 3) The compatibility between the child and the child restraint system.

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