

## GENERAL ISSUES

### Applicability

1. The application of the requirements of this gtr refers, to the extent possible, to the revised vehicle classification and definitions outlined in the 1998 Global Agreement Special Resolution No. 1 (S.R.1) concerning the common definitions of vehicle categories, masses and dimensions.
2. The group recalled scope discussions which had taken place during the development of gtr No 9 Pedestrian Safety. After considering these issues, it was recommended that the gtr should be drafted to have a wide application to vehicles. To maximize the ability of jurisdictions to effectively address regional differences in pedestrian accident crash characteristics the gtr would establish that if a jurisdiction determines that its domestic regulatory scheme is such that full applicability is inappropriate, it may limit domestic regulation to certain vehicle categories or mass limits. The jurisdiction could also decide to phase-in the requirements for certain vehicles. A footnote was added to the gtr text to make that clear.
3. This approach recognizes that niche vehicles that are unique to a jurisdiction would best be addressed by that jurisdiction, without affecting the ability or need for other jurisdictions to regulate the vehicles. When a Contracting Party proposes to adopt the gtr into its domestic regulations, it is expected that the Contracting Party will provide reasonable cost benefit justification concerning the application of the standard.
4. OICA, in particular, mentioned that two distinct areas need to be reviewed and considered when contracting parties consider the national implementation of this gtr.
  - Vehicle accident statistics.
  - ESC

## REAL WORLD DATA AND ACCIDENTOLOGY

5. Detailed presentations were made throughout the work on the gtr highlighting vehicles involved in pole side impact accident. List of presentation
  - Australia (psi 06.07) - [Cat 2 Vehicle Sales and Safety needs](#).
  - OICA (psi 05.07) - [Pole Side Impact Exemptions](#).
  - BAST (psi 05.04) – [Pole Side Impact accident in Germany](#)
  - OICA (psi 04.10) – [Scope of GTR](#)
  - BAST (psi 03.10) – [Side Impacts with Poles](#)
  - Australia (psi 03.05) – [Passenger Car Side Impact](#)
  - UN-ECE (psi 03.08) – [GTR Scopes and vehicle definitions](#).
  - BMW (psi 02.10) – [Pole Side Impacts Accident and Testing](#).
  - EEVC (psi 01-11) – [Accident data Pole Side Impacts](#)
  - France (psi 02-07) [French Accident data](#).
  - UK (psi xx-xx) - [Accidents, injuries and Safety Priorities for Light goods vehicles in GB](#)
  - OICA (psi xx.xx) (*OICA presentation to be made 8-PSImeeting*) – German Pole Side Impact of LCV's

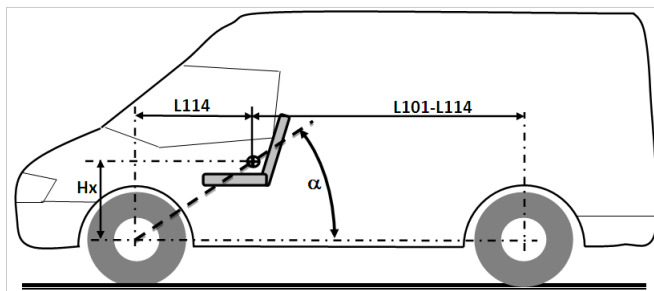
## ELECTRONIC STABILITY CONTROL

6. Presentations were made throughout the work of the gtr 8 groups highlighting the vehicles involved in pole side impact accidents. Electronic Stability Control (ESC) substantially improves the vehicle stability and braking performance in emergency situations and consequently reduces the impact speed of the vehicle when an impact is unavoidable. The fitment of ESC to vehicles has increased significantly recently and in Europe will be almost mandatory to all Cat 1, 1.2 and 2 vehicles by 2013.
7. Crash data studies conducted in the United States of America (U.S.), Europe, and Japan indicate that ESC is very effective in reducing single-vehicle crashes. Studies of the behaviour of ordinary drivers in critical driving situations (using a driving simulator) show a very large reduction in instances of loss of control when the vehicle is equipped with ESC, with estimates that ESC reduces single-vehicle crashes of passenger cars by 34 per cent and single-vehicle crashes of sport utility vehicles (SUVs) by 59 per cent.
8. In 50 of the 179 test runs performed in a vehicle without ESC, the driver lost control. In contrast, in only six of the 179 test runs performed in a vehicle with ESC did the driver lose control. One test run in each ESC operating status had to be aborted. These results demonstrate an 88 per cent reduction in loss-of-control crashes when ESC was engaged. The study also concluded that the presence of an ESC system helped reduce loss of control regardless of age or gender, and that the benefit was substantially the same for the different driver subgroups in the study.
9. There have been a number of studies of ESC effectiveness in Europe and Japan beginning in 2003. All of them have shown large potential reductions in single-vehicle crashes as a result of ESC. Additionally, a preliminary U.S. study published in September 2004 5/ of crash data from 1997-2003 found ESC to be effective in reducing single-vehicle crashes, including rollover. Among vehicles in the study, the results suggested that ESC reduced single vehicle crashes in passenger cars by 35 per cent and in SUVs by 67 per cent.

10. A later peer-reviewed study 6/ of ESC effectiveness found that ESC reduced single vehicle crashes in passenger cars by 34 per cent and in SUVs by 59 per cent, and that its effectiveness was greatest in reducing single-vehicle crashes resulting in rollover (71 per cent reduction for passenger cars and an 84 per cent reduction for SUVs). It also found reductions in fatal single-vehicle crashes and fatal single-vehicle rollover crashes that were commensurate with the overall crash reductions cited. ESC reduced fatal single-vehicle crashes in passenger cars by 35 per cent and in SUVs by 67 per cent and reduced fatal single-vehicle crashes involving rollover by 69 per cent in passenger cars and 88 per cent in SUVs.
11. List of presentation
  - ESC Scope Discussion (esc -008-12) – [Scope and Justification for the Including LCV's](#)
  - EEVC (psi 01-11) – [Accident data Pole Side Impacts](#)
  - EU [Cost Benefit assessment of Prioritisation of Vehicle Safety Technologies.](#)
  - EU [General Safety Regulation Impact assessment.](#)

#### EXEMPTIONS

12. The gtr is recommended to apply to Category 1-1 vehicles with a GVM exceeding 500 kg; and to Category 1-2 and Category 2 vehicles with a GVM exceeding 500 kg but not exceeding 4,500 kg. This approach maximizes the discretion of jurisdictions to decide whether vehicles should be excluded from the gtr for feasibility or practical reasons, or because there is no safety need to regulate the vehicles. The test procedures in the gtr are based largely on the classic “car or SUV” vehicle shape.
13. It is recognised that meeting the technical requirements of this gtr for all vehicles may not be necessary for all contracting parties and unless justifiable, national implementation should reflect this, for instance by only covering vehicle categories that they deem at risk of pole impacts.
14. Even if the exemption of a full category of vehicle cannot be justified it may be possible to further split the vehicle definitions and exempt those vehicles. This was done in gtr No 9 due to technical restraints in the test protocol, but if not justifiable should be exempted during national implementation.
15. One possible exemption which was examined covered generally cargo vehicles or 1-box vans which are shown by accident statistics not to be involved in pole side impacts. It is understood that these vehicles are driven and used differently to normal passenger cars and pick-ups. To reflect this, these vehicles should be excluded from the general scope of this global technical regulation (which would cover all Category 1-1 vehicles, Category 1-2 vehicles with a Gross Vehicle Mass of up to 4,500 kg, and Category 2 vehicles with a Gross Vehicle Mass of up to 4,500 kg). The vehicle types that need to be excluded from the scope of the gtr are robustly characterized as power driven vehicles of Category 1-2 and Category 2 where the angle  $\alpha$ , measured rearwards from the centre of the front axle to the R-point of the driver's seat, is not less than 22 degrees. Furthermore, the ratio between the distances from the drivers R-point to the centre of the rear axle (L101-L114) and the centre of the front axle to the driver's R-point (L114) is greater than or equal to 1.3. OICA provided a presentation PSI-07-XX at the 7<sup>th</sup> meeting of the gtr group detailing vehicle dimensions and showing how these specific measurements can accurately define vehicle types.



L114 and L101 based on SAE J-1100.  
HX not standardized.

#### INTRODUCTION

16. Regarding the applicability of this gtr, it should be noted that the requirements of the gtr are generally more severe than most existing legislation at the time of adoption of the gtr. In addition, many countries do not yet have Pole Side Impact requirements. It is therefore recommended that Contracting Parties implementing this gtr allow adequate lead time before full mandatory application, considering the necessary vehicle development time and product lifecycle.

17. Furthermore, during the development phase of this gtr, the main focus was on vehicles of a GVM of 2,500 kg or less, that are also addressed in all existing legislation. The later extension to other vehicles therefore needs to recognise that some additional lead-time may be necessary, because many current vehicles, exempted from existing national or regional requirements, are now included. In addition, while the test procedures and requirements of this gtr were based on requirements originally developed for "classical" (sedan type) passenger cars, the gtr now also covers vehicles which were not tested for side impact protection because of their R-point height, for which it is recognised that special consideration may be needed.