

**MINUTES OF THE FOURTH MEETING OF
THE GRSP INFORMAL GROUP ON A POLE SIDE IMPACT GTR**

Held at the Ramada Hotel
112-5, Samsung-Dong, Gangnam-Gu, Seoul
27-28 October 2011

Attendees

Name	Organization
Robert Hogan (Chair)	Department of Infrastructure and Transport (Australia)
Thomas Belcher (Secretary)	Department of Infrastructure and Transport (Australia)
Mark Terrell	Department of Infrastructure and Transport (Australia)
Suzanne Tylko	Transport Canada
Richard Damm	German Federal Ministry of Transport
Mary Versailles	NHTSA, US Department of Transportation
Stephen Ridella	NHTSA, US Department of Transportation
Thomas Spoormans	European Commission
Yoshinori Tanaka	Japan National Traffic Safety and Environment Laboratory
Akito Sakai	JAMA
Akihiko Akiyama	Honda
Koshiro Ono	JARI
Thomas Löw	Audi
Philipp Wernicke	BMW Group
Martin Delin	Volvo Cars
Dr Sascha Pfeifer	German Association of Automotive Industry (VDA)
Ansgar Pott	OICA / Hyundai Motor Europe Technical Center
Seon Ye Kim	Hyundai Motor Company Korea
Seong Soo Haw	Hyundai Motor Company Korea
Min Gi Cho	Hyundai Motor Company Korea
Dr. Jae-Wan Lee	Korea Automobile Testing & Research Institute
Eun-Dok Lee	Korea Automobile Testing & Research Institute
Kim Dae-Up	Korea Automobile Testing & Research Institute
Jongsoo Kim	Korea Automobile Testing & Research Institute
Younghan Youn	KUT
Wontaek Kim	Renault Samsung Motors

By phone / internet

Karsten Hallbauer	TAKATA-Petri AG
Jack Jensen	General Motors
Bruce Donnelly	NHTSA, US Department of Transportation

1. Welcome and Introductions

(Attendees as noted above)

Mr Hogan thanked the Republic of Korea for hosting the meeting and the strong support they had provided the pole side impact GTR informal group to date.

2. Adoption of the Agenda

The agenda circulated by the chairman immediately prior to the meeting was adopted with some minor amendments. It was agreed that the draft agenda items 7.2 and 7.3 would instead be discussed under agenda item 10.4. An additional item 10.2.3 on proposed crash test research to be conducted by Japan was added to the final agenda ([PSI-04-01](#)).

3. Minutes of the Third Meeting and Progress Report to WP29

The minutes ([PSI-04-02](#)) from the third meeting held in Washington DC, USA and circulated by the chairman prior to the meeting were agreed with two amendments:

- Mr Wernicke suggested that it should be noted in the minutes that the group had discussed the improved restraint system coverage likely to be required by the oblique pole side impact test. It was agreed to insert the sentence “It had also been noted earlier in the meeting that an oblique test would ensure an extended coverage area by head protection airbags” under discussion of candidate test procedures in section 7 of the minutes.
- Dr Pfeifer suggested that the number of pole side impact crash fatalities referenced for Germany in the draft minutes should be stated as the 2009 figure rather than an annual figure. It was agreed that the wording would be changed to indicate that pole side impact fatalities in Germany had been decreasing, with 430 pole side impact fatalities recorded in Germany in 2009.

It was agreed that Australia would prepare and submit a progress report for the informal group on a pole side impact GTR to the next meeting of GRSP (December 2011).

4. Joint Australian/Canadian Crash Test Program

Mr Belcher presented a summary of the results of the joint vehicle-to-pole side impact research that had been undertaken by Australia and Canada ([PSI-04-03](#)). It was noted that many of the vehicles tested would have failed a 50% AIS 2+ shoulder injury risk limit, that there was consistently more forward movement of the ribs in the perpendicular pole tests with oblique pole tests producing a more lateral rib deflection response, and that in a majority of cases the injury response values for each vehicle model were higher in the 32 km/h oblique test than the 29 km/h perpendicular test.

5. Safety Need

5.1 French Experts Position Paper

Mr Hogan presented the French experts position on the pole side impact GTR ([PSI-04-04](#)) received by email as a PowerPoint presentation prior to the meeting.

Several members of the group were interested to know what was involved in the French test program. Mr Hogan undertook to find out more details of the test program being initiated by France.

ACTION: Australia to liaise with UTAC regarding details of French test program.

Mr Damm stated that the informal group had seen several separate studies on the effectiveness of ESC that had each suggested that ESC would be likely to reduce pole side impact crashes by the order of 30-40%. This means it is important to note that pole/tree side impact crashes will still occur and are likely to continue to be an issue when all vehicles have ESC. Furthermore in Germany there has already been very high voluntary fitment of ESC in the passenger vehicle fleet. Mandatory ESC requirements alone will therefore not completely remove the risk of pole/tree side impacts. It is also important to recognise the pole side impact GTR is an opportunity to reduce the testing effort by agreeing one test procedure, rather than continuing to conduct two different test procedures, ie FMVSS 214 and NCAP.

Mr Hogan expressed the view that the benefits of a pole side impact regulation would not just be limited to pole side impacts, with substantial benefits likely to be obtained in other side impacts as well. Mr Hogan noted that the preamble of the GTR would need to include information on benefits and costs, but that detailed benefit cost analysis would ultimately be the responsibility of the contracting parties considering adoption of the GTR into national legislation.

5.2 Update of Country Safety Need Data

Noting that a considerable amount of detailed information had already been collected and presented to the group, Mr Hogan presented a summary of the high level safety need data collected so far by Australia from contracting parties ([PSI-04-05](#)). Mr Hogan requested that contracting parties address the identified gaps in data.

ACTION: All contracting parties in the Informal Group to check high level safety need data summary presented by Australia and fill gaps in existing data where possible.

Mr Hogan noted that there was detailed insurance industry data available in Australia showing that serious head injuries were costing nearly as much as the willingness to pay cost of a road crash fatality for benefit-cost analysis purposes.

Mr Ridella asked if Australia could look in more detail at the specific types of injuries occurring in side impact crashes. Mr Belcher advised that some detailed injury severity data by body region had been obtained from the study Monash University Accident Research Centre (MUARC) had done of the Australian National Crash In-depth Study (ANCIS) and Victorian Transport Accident Commission (TAC) serious injury crash

cases, and that further detailed AIS injury data by body region may be able to be obtained for Australia in the next phase of the analysis being undertaken by MUARC.

ACTION: Australia to investigate availability of Australian serious and fatal injury data by body region.

Mr Pott suggested there should be more analysis of the differences between the German pole side impact fatality rates and the pole side impact fatality rates in France, the UK and the Netherlands. Germany had a much higher pole side impact fatality rate than other European countries with similar type approval arrangements for vehicles and OICA would like to understand the reasons for these differences.

Mr Damm advised that the German pole side impact fatality data had been determined from national data. Differences in French and German had been known about for some time and it may not be possible to identify all the reasons for these differences. There are also significant differences in the data for different parts of Germany. In less densely populated areas with lots of trees on the roadsides, pole/tree side impact fatality rates are much higher than in urban areas. Germany is confident the German data accurately reflects the pole/tree side impact situation occurring in Germany.

Mr Spoormans stated that data would need to be looked at in detail by contracting parties prior to implementation of a regulation in domestic law, but that the drafting of the regulation should continue in the meantime.

Mr Hogan stated that although there are differences in data between countries he saw much commonality as well. For example side impacts typically account for at least 20% of the road toll in most countries.

It was agreed to continue drafting the regulation in parallel with collection of data to fill gaps in high level safety need data where possible.

5.3 Category 2 Vehicles

Mr Hogan presented a summary of N1 occupant fatalities in pole side impacts, other side impacts and rollovers in Australia ([PSI-04-06](#)). Mr Hogan stated that Australia would like the scope of the GTR to be as wide as was both reasonable and technically feasible. This would mean contracting parties could then consider/justify the case for applying a pole side impact regulation to category 2 vehicles as part of their own regulation impact analysis and associated cost benefit analysis processes.

Mr Hogan and Mr Terrell explained that the composition of the light commercial vehicle fleet in Australia is in many respects more like the USA than Europe. Passenger vehicle derived N1 vehicles and utilities (light pickup trucks) account for a significant proportion of the N1 vehicles in Australia. This means vans account for a much smaller percentage of total N1 vehicles than in Europe.

NHTSA agreed to provide a justification for including Category 2 vehicles in the scope of a pole side impact GTR for the next meeting.

ACTION: NHTSA to present data on inclusion of Category 2 vehicles in PSI GTR at next

meeting.

6. Examination of Possible Test Procedures

6.1 WorldSID Update

Ms Versailles summarized the outcomes of the Harmonization of Side Impact Dummies Informal Group (WorldSID group) meeting held the day prior to this PSI GTR meeting. In particular it was noted that the finalisation of the WorldSID 50th and 5th dummies were progressing on different timelines and that the WorldSID group had a busy work schedule to complete for the 5th female throughout 2012/13.

Mr Hogan asked whether there had been any progress regarding differing views within the group on the suitability of the WorldSID 50th shoulder design. It was advised that there had been many emails exchanged on the subject since the Washington DC meeting of the WorldSID group and that the matter had also been discussed within EuroNCAP.

ACTION: Mr Wernicke (BMW Group) to liaise with UK regarding the shoulder load/design issue.

6.2 Inclusion of 5th Percentile Female in the GTR

Mr Hogan summarized the feedback Australia had received regarding the suitability of a number of options proposed for addressing the time gap between the readiness of the WorldSID 50th male and the anticipated readiness of the WorldSID 5th female (the options and responses received are summarized in [PSI-04-07](#)).

Mr Hogan noted that the development of the WorldSID 5th female was a way behind the WorldSID 50th male and that a number of contracting parties had expressed an interest in being able to implement the WorldSID 50th male in regulation as soon as reasonably possible. However it is also important to recognise that the US already has a pole side impact regulation which includes both a 50th percentile adult male dummy and a 5th percentile adult female. This means it would be unrealistic to expect the US to agree to a regulation that would require the US to remove pole side impact performance requirements for a 5th percentile adult female dummy from its own national legislation. Mr Hogan noted that the draft GTR text ([PSI-04-13](#)) circulated by Australia prior to the meeting was an example of how a first phase of a PSI GTR drafted according to option 7 may look.

Ms Versailles stated that a pole side impact GTR would need to specify a 75 degree oblique impact angle and include suitable provisions for testing with a 5th percentile female for the US to be able to agree to the GTR. A key impediment to a two phase approach from the US perspective was that the Informal Group Terms of Reference (TOR) did not currently provide a mandate for WorldSID 5th percentile female requirements to be included in a second phase. Under the current TOR, once requirements for a WorldSID 50th percentile male were agreed, the Informal Group would not have a mandate to consider the WorldSID 5th percentile female in a second phase. The US would need certainty that a WorldSID 5th percentile female would be added in a second phase. An amendment to the TOR would therefore likely be required for the US to be able to support a two phase approach.

Mr Damm and Mr Spoormans both stated that it was currently unclear whether 5th female requirements would ultimately be included in a UN Regulation, but supported the group seeking an amendment to the TOR to include 5th female requirements in the second phase of a GTR.

Mr Pott suggested that the 5th female might best be handled in a second phase by including a module for the 5th female. A 5th female side impact dummy was not used widely in many countries and pole side impact performance requirements for two dummies would require more justification than one dummy.

A module would allow contracting parties to adopt harmonized regulatory pole side impact performance requirements for the 50th male only; or adopt the agreed harmonized requirements for the 50th male as well as additional second phase 5th percentile female module requirements.

It was agreed that the group would proceed with drafting GTR regulatory text in a two phase approach – WorldSID 50th first, followed by WorldSID 5th in a second phase, when ready.

For a two phase approach, it was agreed the Informal Group would require amended TOR to provide for a second phase of work on the WorldSID 5th female. Such an amendment to the TOR would require agreement by GRSP and WP 29, and justification for work on the 5th female would also need to be included in the PSI GTR preamble.

ACTION: Australia to propose an amendment to the Informal Group's Terms of Reference (TOR), to GRSP in December 2011.

7. Angle of Impact

Mr Belcher presented an analysis of Australian National Crash In-depth Study (ANCIS) pole/tree side impact cases by angle of impact ([PSI-04-08](#)). Mr Belcher noted that severe injuries were most likely to have occurred for angles of impact between 60 and 90 degrees, with 75 degrees bisecting this range. The case data, although small in sample size, further supported similar analyses previously completed by NHTSA and BAST. The detailed field crash case data suggested a 75 degree pole side impact test angle was a reasonable choice. Furthermore Australian/Canadian pole side impact test results with RibEye presented earlier ([PSI-04-03](#)) had indicated that the WorldSID 50th male dummy was better suited to 75 degree pole side impact than 90 degree pole side impact.

8. Establishment of Countermeasures (available and prospective technologies)

Discussions were reserved for future meetings.

9. Benefit Cost Analysis

9.1 Possible Industry Survey

Mr Terrell informed the group that a subset of members had been sent a preliminary spreadsheet survey on costs and that Australia had received some initial feedback.

At this point three options were proposed. The first option was a detailed spreadsheet survey identifying specific costs such as airbags, control modules, structure and dummy costs. The second option was for industry to provide overall costs, without identifying specific components of cost. The third option was for the PSI Informal Group to simply use the costs NHTSA had used in the US FMVSS 214 pole test regulatory impact analysis.

Mr Löw and Mr Pott advised that cost data was very much in the field of competition and that industry/OICA would need to discuss internally to establish how cost data could best be reported. Options discussed included the reporting of average costs and the provision of commercial-in-confidence data to Australia to be reported without identifying costs by specific manufacturers and vehicle models. Mr Pott agreed that OICA would hold internal discussions to determine the most appropriate way in which vehicle manufacturers could provide pole side impact GTR cost data. The possibility of using EEVC data as well as NHTSA data was also discussed.

ACTION: OICA to provide feedback on the most suitable form of the PSI GTR countermeasure costs survey.

Mr Spoormans suggested that this type of cost data can sometimes be gathered from a number of different sources – vehicle manufacturers are not necessarily the only source of the required cost data.

10. Drafting of a GTR

10.1 Proposed Scope/Application of GTR

10.2 Possible Exemptions

Ms Versailles presented a list of vehicle types currently excluded from the pole side impact test requirements of FMVSS 214 ([PSI-04-09](#)). Ms Versailles noted that many of these exemptions may well be unique to the US market, which is why there was likely to be the need to leave some flexibility for individual contracting parties to determine the vehicle types to be exempted from the pole side impact GTR requirements at the time of application in national legislation.

Mr Pott presented a summary ([PSI-04-10](#)) of vehicles that would be covered by the draft pole side impact GTR scope ([PSI-03-08](#)) presented by Australia at the Washington DC meeting. Mr Pott described how the use of category 2 commercial vehicles is really quite different in different parts of the world. In the USA and Australia, pick-up trucks (utilities in Australia) are the most common category 2 vehicles, while in other parts of the world flat front vans are the more commonly used category 2 vehicles. OICA would prefer flat fronted category 1-2 and category 2 vehicles to be excluded from the scope of the GTR. Allowing such exemptions to be determined at the time of application in

national legislation could mean countries not involved in the drafting of the GTR may neglect to exempt vehicles that should have otherwise been exempted.

It was agreed that OICA would draft an exemption proposal for flat fronted vehicles, in a similar way as had been done for GTR 9, to be presented at the next meeting.

ACTION: OICA to draft proposed exemption clause wording for category 1-2 and category 2 vehicles for the PSI GTR.

ACTION: Australia to investigate whether it can provide a breakdown of N1 vehicle types involved in pole side impacts and other side impacts.

Mr Tanaka stated Japan's support for the GTR and presented a Japanese research plan for Kei-cars ([PSI-04-11](#)). Japan was investigating two options; exempting vehicles less than 1500 mm in width, or applying a pole side impact test performance requirement at a technically feasible speed between 26 km/h and 32 km/h. Japan would conduct two pole side impact tests to investigate the feasibility of applying pole side impact performance requirements to Kei-cars. One 75 degree oblique pole test with a WorldSID 50th percentile adult male dummy would be conducted on a Kei-car at 32 km/h. For comparison, a 75 degree oblique pole test of the same vehicle would then be conducted at 26 km/h (also using a WorldSID 50th percentile adult male dummy).

Mr Hogan commended the approach Japan were taking, stating that the research planned by Japan could be used to identify whether it was more appropriate to include a full exemption for Kei-cars or apply different injury criteria and/or modify the test speed, which might be preferable.

Ms Tylko asked if the Kei-cars to be tested by Japan were fitted with side airbags, and if they were required to meet any regulatory side impact crash test performance requirements. Mr Tanaka advised that the vehicles to be tested were fitted with side airbags and were required in Japan to meet UNECE R95.

ACTION: Japan to brief the Informal Group on the outcomes of pole side impact testing of a Kei-car model at the next meeting in March 2012.

10.3 Outline of Preamble

Mr Terrell presented an outline of a preamble to a pole side impact GTR ([PSI-04-12](#)).

Mr Hogan requested volunteers to contribute to the drafting of the preamble. Ms Versailles volunteered NHTSA to contribute to any sections that relate to their own national legislation (e.g. FMVSS 214 pole test). Mr Hogan then suggested that he would similarly seek input from within EEVC to contribute text on the statistical analysis EEVC had done which was suitable for inclusion in the preamble to the GTR.

10.4 Draft Regulation

Mr Belcher presented the draft pole side impact GTR regulatory text circulated by Australia prior to the meeting ([PSI-04-13](#)). Changes were made and agreed as the group worked through the document.

ACTION: Canada (Ms Tylko) to advise ISO pole side impact test procedure document reference.

ACTION: OICA to advise contact details of appropriate expert(s) for Australia to contact regarding possible electrical safety requirements for the PSI GTR.

ACTION: Australia to provide updated word version (with track changes from meeting discussions) of draft PSI GTR to members of the Informal Group.

ACTION: Members to provide written feedback/comments on updated draft PSI GTR (provided by Australia under action item 11) by 20 February 2012.

ACTION: Canada (Ms Tylko) to check wording of clauses 5.4 and 5.5 of draft PSI GTR.

10.5 Commencement Timing

Mr Hogan asked for views on the most appropriate commencement timing for a pole side impact GTR.

Ms Tylko suggested it may be best to agree suitable commencement timing, at the time the regulatory text requirements were agreed.

Mr Pott requested advice on commencement timing be included in the preamble of the GTR so that implementation dates in national legislation could be harmonized by the contracting parties.

11.Future Work and Timetable

Discussions were reserved for future meetings (included as a standing item on the agenda).

12.Other Business

Agenda standing item for any other business informal group members may wish to discuss. No other business discussed at this meeting.

13.Next Meetings

Mr Hogan advised that the next meeting would be held in conjunction with meetings of the GTR 7 (phase 2) and the Harmonization of Side Impact Dummies working groups in London in the week beginning 19 March 2012.

ACTION: Australia to liaise with NHTSA and UK regarding details of PSI, WorldSID and GTR 7 Informal Groups meetings in week starting 19 March 2012 and advise members.

SUMMARY OF ACTIONS

1. Australia to provide a written progress report to the next meeting of GRSP.
2. Australia/Canada to provide NHTSA with data on the Australian/Canadian crash test program.
3. Australia to liaise with UTAC regarding details of French test program.
4. All contracting parties in the Informal Group to check high level safety need data summary presented by Australia and fill gaps in existing data where possible.
5. Australia to investigate availability of Australian serious and fatal injury data by body region.
6. Mr Wernicke (BMW Group) to liaise with UK regarding shoulder load/design issue.
7. OICA to provide feedback on the most suitable form of the PSI GTR countermeasure costs survey.
8. NHTSA to provide feedback from its analysis regarding mass and crash benefits.
9. Japan to brief the Informal Group on the outcomes of pole side impact testing of a Kei-car model at the next meeting in March 2012.
10. Australia to liaise with India regarding the PSI GTR and potential options for Kei-cars.
11. Australia to investigate whether it can provide a breakdown of N1 vehicle types involved in pole side impacts and other side impacts.
12. NHTSA to present data on inclusion of Category 2 vehicles in PSI GTR at next meeting.
13. OICA to draft proposed exemption clause wording for category 1-2 and category 2 vehicles for the PSI GTR.
14. Amend draft PSI GTR to allow contracting parties to continue to apply any pre-existing domestic pole side impact requirements for any 5 th percentile adult female side impact dummy prior to inclusion of WorldSID 5 th percentile adult female requirements in the GTR.
15. Amend the Informal Group's Terms of Reference (TOR), and include text in draft PSI GTR preamble, to provide for a second phase of work on the WorldSID 5 th female. Amendment to TOR will require agreement by GRSP and WP 29 and justification for work on the 5 th female will need to be provided in the preamble.
16. Canada to advise ISO pole side impact test procedure document reference (CLOSED).
17. OICA to advise contact details of appropriate expert(s) for Australia to contact regarding possible electrical safety requirements for the PSI GTR (CLOSED).
18. Australia to provide updated word version (with track changes from meeting discussions) of draft PSI GTR to members of the Informal Group.
19. Members to provide written feedback/comments on updated draft PSI GTR (provided by Australia under action item 11) by 20 January 2012. [NB: Later amended to 3 February 2012]
20. Canada to check wording of clauses 5.4 and 5.5 of draft PSI GTR.
21. Australia to liaise with NHTSA and UK regarding details of PSI, WorldSID and GTR 7 Informal Groups meetings in week starting 19 March 2012 and advise members.