

## GRSP INFORMAL GROUP ON PEDESTRIAN SAFETY

### 9<sup>th</sup> meeting

Geneva, 5-6 December 2005

#### Draft detailed meeting minutes:

##### 1. Welcome

The chairman, Mr Mizuno opened the meeting and welcomed everyone. He showed our appreciation to the chair of the Head Restraint gtr group to provide us the chance to hold this meeting.

In this meeting, we would like to make the necessary progress to finalize our proposal as much as possible. First, we would like to hear the study results which we already assigned, then based on these proposal, we would like to discuss and finalize our proposed gtr.

Mr Mizuno welcomed Mr Newland from Australia who joined us for the first time. He also welcomed Mr Kubota from Japan who succeeded Mr Notsu. Also Czech Republic attended as an observer.

Mr Césari was not able to attend and sent his apologies.

##### 2. Adoption of the agenda INF GR / PS / 152

Mr Kinsky asked to change the order of items 5.3 and 5.4. The agenda was adopted with this amendment.

##### 3. Review of the minutes of the 8<sup>th</sup> meeting INF GR / PS / 144

Mr Van der Plas referred to a small amendment received from OICA. Mr Saul added a small clarification as well. The minutes were adopted with these changes and will be distributed as 144 Rev 1.

##### 4. Review of action items of the 8<sup>th</sup> meeting INF GR / PS / 139

Mr Van der Plas, reminded the group of the documents distributed prior to the meeting and relating to the agenda:

INF GR/PS/147	Actions 1 3 4 6 9 of 8th meeting
INF GR/PS/148	Action 9 of 8th meeting doc FTSS_4[1].5kg_headform
INF GR/PS/149	Adult headform moment of inertia
INF GR/PS/150	Development of a head impact test, Glaeser
INF GR/PS/151	gtr preamble for accelerometer
INF GR/PS/152	Provisional agenda for the 9th meeting
INF GR/PS/153	Explanation of amendments from PS143 to PS143 Rev1
INF GR/PS/154	Handling guide for the TRL leg
INF GR/PS/155	LWRL definition
INF GR/PS/156	Impact angles for headform to windscreen tests
INF GR/PS/157	HIC limits for headform to windscreen tests
INF GR/PS/158	Headform to bonnet tests
INF GR/PS/159	Definition high bumper vehicles
INF GR/PS/160	Revised preamble replacing the preamble in PS/143 Rev 1
INF GR/PS/161	EU proposed amendments to 143 Rev 1
INF GR/PS/162	Explanation of EU proposals to amend R143 Rev 1

##### 5. Remaining open issues

###### 5.1. Definition for high bumper vehicles INF GR / PS / 159

Mr Kinsky referred to last meeting's discussion on how to define a vehicle with a high bumper. From the data found in the vehicle fleets in EU, J, US, it was found there is a certain height that makes it impossible to meet the lower leg test and there is a height as from which a vehicle starts to look as a SUV. These heights are 400

and 500 mm. These are the dimensions proposed. Below 400 mm the lower leg should be used, above 500 mm the upper leg and in between the manufacturer can choose either. This is explained in PS / 159. Mr Doyle agreed on the mandatory application of the use of the upper leg form above 500 mm. He clarified that document PS / 161, and the explanation in PS / 162, is open for discussion. In PS / 161 the 400 mm was raised to 425 mm because of the 25 mm that was added previously for shoe thickness. We have to avoid engineering high bumpers which might be the consequence if we set one limit. Mr Doyle would like to hear some discussion on this 425 mm and 500 mm proposal. Mr Saul said further clarification for the preamble would be the relationship between the injury levels of the lower leg and the injuries can be avoided. The lower leg is looking at knee injuries. The 425 mm to 500 mm would probably encompass a good proportion of the US high bumper fleet. If a big part of the fleet would allow two different impactors, it is uncertain what injuries this can mitigate. In short the upper leg looks at different injuries (femur fraction) so what does this mean for the injury mitigation. The US needs a lot more information before brackets can be deleted. Mr Mizuno said the starting point were leg injuries. The test tool and procedure was defined based on accident data and the injuries that needed to be mitigated. Mr Kinsky said the OICA proposal is based on pure feasibility. From a certain height of the vehicle, it is impossible to add devices to bring the lower leg into rotation and avoid knee injuries. In addition, with SUVs the accident is different. The pedestrian is not sliding over the bonnet but pushed away by the SUV showing less important knee injuries. From a technical point of view it is impossible to bring in a lower part that supports the lower part of the leg. Mr Mizuno concluded that the OICA proposal is based on technical feasibility. SUVs or high bumper vehicles have different counter measures hence the request from industry to have the impactor chosen by the manufacturer depending on the vehicle and thus the countermeasures which were feasible for the car.

Mr Saul presented information (PS / 165) on vehicle testing done together with Transport Canada and included vehicles for sale in the North American and EU market and how they respond to the lower leg requirements. Out of the ten models tested, only one would meet all 3 gtr requirements (European Civic). The necessary information to assess cost / benefit of leg requirements are: the relationship between leg biofidelity, injury parameters and injury risk; current fleet baseline performance; feasibility data and cost to meet leg requirements (any sources besides the TRL report?); and the implications on damageability and other standards / regulations. Some of this information may already be available in various PS reports. If an upper legform which is designed to represent a femur fracture which is AIS2 whilst the lower leg is for knee injuries which are generally AIS3, this is a very critical issue when you calculate the societal cost. If the technical solutions are comparable for both then the femur injury cost / benefit is not as beneficial as the cost / benefit for lower leg injuries. This needs to be addressed in the gtr preamble. We need to focus if we want to have these documents before the January meeting. Otherwise, documentation will have to be provided either by EEVC or others. Mr Mizuno said the injury mitigation for the lower leg was already discussed in the past. Knee injuries are reducing but bone fracture was increasing so it was decided to focus on both. Leg biofidelity and injury limits come from EEVC. Ms Fujita said the current preamble states the impactor needs to be below the knee, this came from the lower leg dimensions and is the source of the 500 mm limit. She questioned where the 400 or 425 mm came from. Also the preamble talks about the lower and upper bumper height and it is confusing to what the 500 mm applies to. Mr Kinsky said the most important measure is to add foam under the bumper to absorb energy. The second measure to protect the knee is a lower support to bring the leg into rotation. With an SUV the vehicle impacts the pedestrian on or above the knee avoiding rotation of the pedestrian over the bonnet and there is no possibility to protect the knee. Also the knee injuries are not the most important. When protecting the lower part of the leg, one needs a support below the bumper and this is not present on SUVs so adding these would eliminate SUVs from the market. Mr Saul said that with high bumper vehicles there is thus no possibility to mitigate knee injuries with undermining its off-road functions. In such a case the upper legform would be selected to certify the bumper. This would then mean that SUVs either transport or run over a pedestrian so what is accomplished by the upper leg test if a pedestrian is run over. So what purpose have the costs necessary to make the vehicle comply with the upper legform tests? Mr Ries said that the legform impactor is not working as intended because there is no support in the lower area. The upper legform test requires the same package of absorption material behind the bumper. This means the protection will be the same for upper leg as for lower leg injuries. The difference is that the test can not be performed with the lower leg. Mr Kinsky said it is also depending on the pedestrian kinematics. If the pedestrian is hit below the knee, the pedestrian rotates around the knee. If the pedestrian is hit above the knee, the pedestrian rotates around the hip. Mr Saul said if we could proof these kinematics and link it to the upper leg test it would be a good rationale. Mr Ries said this is a very difficult question to find the answer for. Mr Mizuno concluded that the industry tries to control the energy absorption but it is not possible to control the pedestrian rotation. The OICA proposal is a compromise resulting from feasibility problems. Mr Mizuno reminded the group that also IHRA is requested to find a better test method and test tool to cover the upper leg test so the proposal is a compromise and a first step. Mr Saul agreed with this understanding and added that IHRA will not be ready in time for this gtr. He is also not sure how this gtr could or should deal with modules and this needs to be decided at AC3. If in the US requirements are set up to pass a bumper requirement, it needs to proven how much injuries are mitigated. If the pedestrian femur is

rescued but he is still run-over by the car, it will be very difficult to argue for the test. He asked if simulation could be done linking the test to the pedestrian kinematics it would probably be sufficient for inclusion in the preamble. Mr Kinsky said the test was originally proposed by EEVC as they noted the lower leg test was not possible for SUVs and they proposed the upper leg test as being more appropriate. EEVC should provide the real justification. Mr Doyle agreed to ask EEVC as they are the source of the proposal. He added that the 500 mm is an accepted dimension. Now it is demonstrated that there is a grey area below 500 mm. We have to avoid that car bumpers are made higher to go out of the grey area into the above 500 mm area. Mr Mizuno added that bumper height is also important for the compatibility problem, this needs to be kept in mind as well. Mr Mizuno suggested collecting as much as possible justification and then make the final decision. Ms Fujita said that it might be helpful to know how many passenger cars are involved in this issue: 400 or 425 to 500 mm level and above 500 mm. Mr Saul suggested OICA to present such data before next meeting. Mr Castaing said that in EEVC WG15 the geometry of the EU fleet was looked at (PS / 167). The position of the crossbeam of 4 wheel drive and light commercial vehicles is for most of them above 500 mm. Most other cars are within the Part 581 standard (406 mm to 500 mm). The measurements were made to assess structural interaction between cars but can be helpful to give an idea of bumper height. Mr Kinsky said the 4 wheel drive could also be a passenger car and not a SUV. And these numbers are for the crossbeam and not the lower bumper height meaning that this data is above the bumper height. It gives a good idea but can not be fully used. Mr Mizuno added that data on the Japanese fleet is already available.

Mr Kinsky asked if the height of 400 mm is raised to 425 mm why not raise 500 mm to 525 mm. Mr Doyle replied that the intention is to solve the grey area. 400 mm seemed a bit low and keeping into account that the 25 mm was decided anyway. There is no need to change the 500 mm as it was already an agreed figure.

Mr Mizuno concluded to keep the 425 mm to 500 mm proposal in brackets and OICA to study this further. This conclusion was accepted.

## 5.2. 1/3 – 2/3 head test area INF GR / PS / 158.

Mr Ries explained PS / 158 including a calculation of the relation between the percentage of the relaxation zone for HIC1700 and the saving rate. The OICA proposal shows that it has a higher saving rate than the current existing legislative requirements. Ms Fujita asked where the 1/3 came from, is it based on the TRL study or is it based on worldwide vehicle data. Mr Ries said the idea originated into 2001 as a compromise that the original HIC1000 for the complete area is unfeasible. The compromise was reached in the Industry Agreement and taken over in the Directive. Mr Kinsky added it was a proposal from the Joint Research Committee who was instructed by EC to investigate the proposed Industry Agreement. Mr Saul said that based on his July presentation in last meeting (PS / 132) some further work was done. He presented PS / 166 which is still based on the old gtr speed of 32 km/h but the results should be applicable to the current gtr status of 35 km/h and fixed impact angle. When applying the relaxation zones most tests passed the gtr HIC requirements. He added that the gtr scope would need to be representative to their fleet which partly is above the 2500 kg limit. Both a van and a light truck were included in the test and passed the relaxation zones but would be excluded by the current gtr scope as they have a gross vehicle weight of 3266 kg and 3924 kg. Information needed to assess cost / benefit of head requirements: baseline performance of current fleet and projections to be derived from this gtr (is TRL feasibility information adequate and ok?); cost to meet head requirements; implications on other standards / regulations (effect on centre of gravity of implementation of Phase 1 could be very important from a rollover perspective). Mr Saul added it would be helpful to have graphs similar to the one included in this presentation maybe coming from NCAP or other testing. Mr Ries clarified that the 1/3 – 2/3 were done on a test engineer judgement basis. For legislation all cars need to comply so even if this data seems to indicate there is no problem, it does not mean there is no problem. Mr Saul replied that is why they ask for extra data. Mr Kinsky said that some vehicle models have an advantage to comply with certain requirements. So if under the bonnet there is already a lot of space it is easier. Again, the tests were validated only up to 2500 kg, if the US wants to validate them further up to 3500 kg they should do so. Industry can not give data on the centre of gravity shift based on Phase 1 requirements as this entered into force only 2 months ago on October 1, 2005. Maybe there is more data available in NCAP. Mr Mizuno said that likely there is no disbenefit for other regulations / standards. Industry's proposal already took that into account. Mr Saul said that someone within industry commented that in order to fulfil the requirements for sports vehicles the overall profile has to be increased, this affects the eye ellipse and the seating reference point and thus possibly ultimately the centre of gravity. If this would increase the rollover risk it could offset the pedestrian gains. Ms Fujita added that the preamble needs to discuss the gtr effect on other regulations like CAFE, bumper standards and rollover as we don't want any negative effect on safety. She added it would be helpful to also justify the continued need for the 1/3 issue so data from current vehicle testing is necessary. The need for the 1/3 zone needs to be proven. The same goes for the 1700 limit. Mr Kinsky replied that a lot of this information is already provided in the TRL and industry feasibility studies. Only the JRC study was not included as it is an old study. Mr Doyle said he will look into the JRC report to see if it can be helpful.

Mr Youn said the Korean government would like to keep the current requirements: 1/3 for both the adult and

child protection zone. Mr Ries said the reason for this compromise is again feasibility. Next to the 1/3 area also the HIC 1700 needs to be taken into account. Mr Youn said last week a discussion in Korea happened with industry on the start of the Korean NCAP which would be based on the gtr but the speed would be 40 km/h. The relaxation zone agreed was the current one and the Korean manufacturers agreed to this. Mr Van der Straaten said that the Korean industry is also an OICA member. Discussing K-NCAP or a certification regulation are totally different. Some problems might be acceptable from an NCAP scheme but unacceptable from a certification scheme. Having bad results in NCAP is only a PR problem, having one bad test for certification means a car can not be sold. Mr Youn said the new relaxation zone proposal was not discussed with the government so he can not concede to it today. Mr Doyle said a compromise was reached resulting in the 1/3 – 2/3 split in the current Phase 1 in order to take care of feasibility. This is only for the child headform test on the bonnet. For Phase 2, there are now 2 headform tests on the bonnet which are variable in size depending on the vehicle. In case of 1/3 – 2/3 for each area is a static requirement. It may be that one of the areas is very small and thus result in a feasibility problem. However, it needs to be avoided that the hard points do not move to the child test area when the 1/3 – 2/3 applies to the complete area. Hence the current proposal which is a reasonable approach. Mr Castaing said one should also not compare with NCAP because in homologation tests, always the worst case is tested (biggest engine, ...) whilst NCAP tests only one variant which may be much better.

Mr Kubota agreed with the EU / OICA proposal. Mr Saul said that data needs to be provided and there is indeed concern that hard points should not migrate to the child area. As long as no further data is available it is very difficult to come to a conclusion on this issue.

Mr Mizuno concluded the OICA proposal will be inserted in brackets with reservation from Korea and US and also the need to provide the necessary information.

### 5.3. HIC limit for head to windscreen tests INF GR / PS / 157

Mr Ries said PS / 157 is withdrawn due to recent test results. Mr Kinsky presented PS / 163 including 7 impact tests on the windshield of the same vehicle. Every test was performed on the same impact point. The HIC is always  $750 \pm 15\%$  except for two tests where the HIC is 150 and 180 which was accompanied by a very big intrusion. For the lower HIC values, the windscreen started braking immediately after impact whilst for the other tests resulting in higher HIC values a lot of energy was generated by the bounce of the windscreen. The conclusions are that the impact angle is not important, the HIC and intrusion depend on the timing on windscreen fracture and secondary impacts (on the dashboard) due to intrusion are seen as the biggest concern. The test results are unpredictable and the design towards compliance seems impossible. Mr Ries explained PS / 164 on observations of different windscreen glass fracture modes during headform impactor tests and referred to the presentation made last meeting under PS / 134. The document explains why in PS / 134 different HIC limits were found. This is due to the long bending phase and sudden fracture versus immediate fracture upon impact. Again the conclusion is that it is impossible to design for one or another mode as the fracture mode is completely random. The determining parameter could be micro scratches on the windscreen and these are obviously different from windscreen to windscreen and also changes throughout the windscreen life. OICA thus recommends not including windscreen testing in the gtr at this stage. Continued investigations in the windscreen behaviour should be made. The preamble should explain these problems possibly with a suggested deadline for further reviewing studies which are already ongoing (EU APROSYS results expected in 2009). Mr Saul asked if the replaced windscreens were well bonded into the vehicle frame. Secondly, during the last meeting there was a discussion on different types of accelerometers (damped versus undamped), how far can these solve the problem as far as the HIC readings are concerned? Mr Ries replied that the focus was on replicating the same conditions so the windscreen replacement was well done. The damped or undamped accelerometer is unrelated to the bending mode of the windscreen and results in very different HIC outcomes. Mr Kinsky added the windscreen replacements were done in accordance with the manufacturer's specifications. The glue was always given more than 4 hours to settle and the windscreens came from the same batch. Mr Konosu said that from the acceleration graphs presented one was due to the accelerometer damping whilst the other two indeed were different and may be due to the different windscreen bending. He added that J-NCAP does also windscreen testing but does not have enough data to indicate a problem so more research is needed. Mr Mizuno concluded that OICA proposes to delete windscreen for the time being and upon further review and research discuss to insert it. Mr Kinsky added that the research should be done by an independent body (IHRA, EEVC, ...) and of course industry will support this. He said this is very new data due to the building up to the Phase 1 entry into force. Also EURO-NCAP can not provide further data as they do not actually test the windscreen but just rate it. Mr Youn said that the concern is not how glass fractures, the concern is the HIC value and this is low. Mr Kubota said this is a very new proposal and needs first internal study before Japan can comment but he is fearful that the OICA proposal can not be agreed by Japan. Mr Doyle reminded the group that Phase 1 includes windscreen testing for monitoring only and could be used as a source for further information. In Phase 2 there is no requirement for the windscreen test. He added that if the gtr would include a windscreen test, then we would have to work with a module or option in the gtr as the EC does not have the

intention to include windscreen testing in Phase 2. He added that the variability seen was in the good direction. Mr Kinsky said that PS/134 showed HIC values well above the limits set. He added that indeed the interest is the HIC limit and the means to comply is to conduct a series of tests until a windscreen is tested that complies. Additionally the headform impactors were certified for the bonnet testing so the results were trustworthy. The results were discussed with the glazing industry and they can not explain it either. So today industry can not set a requirement for the glazing to make sure the windscreen complies. Mr Saul said the cost benefit studies they made did not include the windscreen testing as they were unsure on how the windscreens could be changed.

Mr Mizuno said that modules / options are under discussion at AC3. Mr Doyle replied that for example the upper legform test is today not included in the gtr but is part of the EU requirements for monitoring only. If the gtr needs to be proposed in the EU legislation, it has to include the upper leg to bonnet leading edge test as a module / option. If the windscreen test would be included in the gtr but it is not in the EU legislation this should also be a module / option. Mr Mizuno agreed but added this should be decided at the final stage. Mr Van der Straaten explained that there was no detailed discussion at last AC3 but there was a general agreement that modules / options needs further investigation taking into account transposing gtr's into national legislation. An OICA WP29 document is existing on this since quite some time but discussion is postponed until March AC3. But there is nothing that prevents a Contracting Party to have a monitoring requirement in addition to the gtr. He referred to the example of the gtr on lighting. It is clear however that this is not optimal for harmonisation. So if the gtr does not include the upper leg testing, the EU could specify in addition to the gtr to specify the test for monitoring only.

Mr Saul said the structure of the gtr is crucial (modules / options) and AC3 will not meet until March. Also it is unclear what information will be available between today and January that will help us decide. Mr Doyle explained that if something is not in the gtr and the EC wants to propose as an additional requirement it may lead to a complaint at the WTO. The outcome on modules / options indeed is unclear however, as long as there is disagreement on a certain test we have to work on the basis of modules. Mr Van der Straaten said the 98 Agreement article 7.6 clearly states that if a Contracting Party has mandated a gtr, the Contracting Party may amend the adopted gtr. This means that extra tests for monitoring can be added. Mr Mizuno agreed but said that it is up to governments to decide and especially the EU is important as they are the technical sponsor of this gtr. Mr Mizuno concluded that the proposal is very new so decisions will need to be taken at next meeting.

#### 5.4. Definition for lower windscreen reference line INF GR / PS / 155

Mr Ries explained PS / 155 which merges the principle of the 5° field of view line and the 165 mm sphere principle. He added that the one but last bullet point in the justification is no longer valid due to the unpredictability of the windscreen fracture discussed earlier (PS / 163 and 164). Mr Doyle said that the straight measurement was questioned last meeting. This proposal is a reasonable compromise. Mr Saul asked if this would still be relevant if the windscreen test is taken out. But the proposal in itself is acceptable. Mr Kubota also agreed to the proposal. Mr Mizuno concluded that this proposal is agreed.

#### 5.5. Headform to windscreen impact angles INF GR / PS / 156

Mr Ries explained PS / 156. The angle currently used in Phase 1 was taken and is in line with IHRA simulations. Mr Doyle agreed to the proposal as long as it is a start to gain knowledge. The US, Japan and Korea agreed as well. Mr Mizuno concluded that the document was accepted.

### 6. Review the draft gtr INF GR / PS / 143 Rev1

#### 6.1. Define the remaining open issues for the January meeting

Mr Doyle explained documents PS / 161 and 162 including the proposed amendments to the gtr (PS / 143 Rev 1). PS / 162 explains the changes included in the amended gtr PS / 161. He explained that the Commission was working on the details of the to be proposed Phase 2. As this work came to a final stage, PS / 161 was drafted to assure a parallel approach between the gtr and the EU Phase 2 and the associated Commission Decision. He explained that many amendments relate to style and grammar. Additionally it is proposed to delete a lot of cross referencing especially in the definitions section. Paragraph numbering and diagrams were not looked at in this document. Some areas were highlighted as well. These are the areas which are candidates for becoming part of modules / options. One example of this is the drop test in the certification test which is a different one from the EU certification test. The purpose is to establish a parallelism between the gtr and the EU Phase 2.

Mr Mizuno thanked Mr Doyle for his effort to upgrade the proposal. He added that also some requirements were changed so this will need further discussion. Mr Doyle explained that the change in the requirements are in line with the proposals coming from the feasibility study and will appear in the Commission Decision.

Mr Doyle explained the PS / 162 item by item. Mr Lukaszewicz asked the reason behind preferring HPC over HIC. Mr Doyle said there is no preference as such but the term whatever it is should be used consistently. The definition of both is the same. Mr Doyle repeated that the proposal is a clarification and an attempt to align it with the Phase 2. If there are additional changes to make this of course can be done. However, the modules / options are not included in the text and if these are decided the format of the text may need substantial revision

without changing the content of the text. Mr Doyle said that this group asked previously on WP29 / AC3 guidance and answers are slow. Instead we could include in the text that certain parts are as an option. If WP29 / AC3 later on decides not to use options, then this option can be easily taken out. It would avoid a big revision. Mr Van der Straaten understands the problems raised by Mr Doyle but sees a timing problem. AC3 is after the gtr January meeting and it is even doubtful that AC3 will be able to decide on such an important and difficult issue in one meeting. So we have to decide ourselves on the use of modules which we hopefully do not need. Mr Mizuno said that the idea is to finalise the document during the January meeting. He concluded that this group should decide on how the gtr will be structured. The aim should of course be to have as much harmonisation as possible. He requested all participating governments to be ready to decide during the January meeting. Mr Van der Straaten said in order to have a successful meeting in January everyone needs to be good prepared. When do we need modules? Regulations are not needed to collect data so tests for monitoring only should not be the cause for modules. Modules could be used if some parties absolutely want a particular test in the regulation and another does not. Is this group faced with such a situation? So far not which is why there is currently no need to warrant the use of modules. Mr Saul agreed with this analysis. Also with the new PS / 161 and 162 this needs to be studied carefully as many of the paragraphs were already agreed upon last meeting. He agreed that tests for monitoring only do not have a place in Regulations. If modules are included there needs to be data that shows the need for these modules and this data does not exist. So at this stage it is not possible to give a position. The question is how to proceed from here. We have PS / 143 Rev 1 and there is PS / 161. We have to decide which document to use for our continued work. If we start deviating more, we will run into troubles especially with the timing we are faced with. Mr Mizuno said that for the editorial changes probably PS / 161 is better. For the other amendments everyone needs to study them. Mr Mizuno suggested continuing discussions based on PS / 161. Mr Doyle clarified that PS / 161 is not new as most changes are minor editorial changes. The fundamental changes are the inclusion of the high bumper definition and the windscreen testing and additionally the requirements for the bumper and the relaxation figures. Other than that it is the same document as PS / 143 Rev 1. If it is reviewed in that manner progress can be made. It was agreed to use PS / 161 as basis for further discussions.

Mr Ries said that item 26 in PS / 162 is a fundamental change. He questioned why these new numbers were proposed as they have been decided before. Mr Doyle replied that the original gtr content was based on the EU Directive. The recommendation based on feasibility resulted in the new figures and the exemption zone would allow for an extra 25%. Mr Yamaguchi said that PS / 101 concluded the acceptable level is 7,4 kN. And the new value is not normalised so he requested to review the proposal based on PS / 101. Mr Ries added that last meeting the draft of EU Phase 2 was used as basis. Mr Doyle replied this proposal has been updated since and this is reflected in PS / 161. Mr Mizuno said the purpose is harmonisation with EU Phase 2 so we should consider the new proposed values. He requested OICA to use the time between now and next meeting to further evaluate and discuss the proposal. Mr Van der Straaten agreed but recommended that many changes are readily acceptable. If we could progress this meeting as much as possible, this would be helpful for the next meeting. Mr Mizuno said that PS / 161 will be used for further discussions. Mr Saul asked not to dive into the document today as he needs more time for study. Mr Van der Straaten said to tentatively agree already on many points and NHTSA can check before the January meeting if it is fully acceptable or not.

Mr Tanahashi said that item 25 in PS / 162 is also completely new, and the 200 g value is completely new, so what is the actual reason. Mr Doyle replied that this is a proposal and it can be reviewed. The standard approach was taken that the exemption on a figure is 25%. 170 g plus 25% brings it around 200 g. If the group agrees that 250 g is acceptable for everyone, this is agreeable.

Mr Mizuno asked everyone to study the changes in detail in order to finalise discussions next meeting based on PS / 161.

## 6.2. Assign tasks for the drafting of the regulatory text and the preamble

Mr Van der Plas gave an overview of the remaining open issues:

- High bumper definition: EEVC to supply the rationale for the upper leg to bumper test; change in pedestrian kinematics if hit above or below the knee; OICA to supply the fleet composition of 400 mm or 425 mm to 500 mm and above 500 mm bumper height
- 1/3 – 2/3 relaxation zones for head testing on the bonnet: Effect of EU Phase 1 on centre of gravity; JRC report to be supplied by EC.
- Windscreen testing: all to review new data provided by OICA.
- PS / 161 to be used as basis for further discussions: everyone to review proposed amendments.
- NHTSA to finalise study on gtr application and cost / benefit for inclusion in preamble.

## 7. Cost effectiveness studies from Contracting Parties

Mr Saul presented PS / 169 revising PS / 131 which analyses the pedestrian accident and gtr application. The purpose is to have an agreement on the approach before preparing the text of the preamble. Mr Mizuno said that the

data includes AIS2-6 but the countermeasures are also beneficial for higher speeds. How is this taken into account. Mr Saul agreed there area maybe AIS5 or 6 injuries above 40 km/h that may be reduced to AIS 4. This is included in a second presentation. For the US cost / benefit will try to make those estimates based on more data. Mr Saul showed a preliminary approach on the cost / benefit calculation based on the limited US data. The presentation was not yet forwarded to the secretariat as it needs to be passed through the NHTSA economists first. The basic data used came from PCDS and NCSA. The total target population is 1287 pedestrian fatalities split ¼ for bonnet and ¾ for the windscreen. As they do not see any countermeasures that can be applied to the windscreen so the effectiveness is applied only to the hood impact area. They used the improvements of the Honda Civic and the percentage reduction in HIC and the associated cost and applied a cost to the head injuries. This was applied to the tests performed in PS / 166. Based on this the equivalent life saved will be calculated. Mr Van der Straaten explained that the draft preamble already includes some text. Different approaches give different results as everything depends on the baseline. So one should be cautious not to base decisions on one calculation. Mr Saul agreed and said this needs further discussion in the January meeting. Mr Youn said that only 6,2% fatalities are related to the hood and an impact speed up to 40 km/h. The test data is based on 32 km/h which is very low. So the calculation may underestimate the benefits.

Mr Mizuno asked for data from the other Contracting Parties similar to what was just presented by the US.

#### 8. Presentation of informal document to GRSP/38

Mr Mizuno explained that the latest status of the discussions will be explained to GRSP based on the official document distributed during the May GRSP (TRANS/ WP29/GRSP/2005/3). It will also be explained what changes were made related to the official document.

#### 9. Next meeting

January 16-19, 2006. The meeting will finish on January 19 at 17 pm.

Alliance of Automobile Manufacturers, 1401 Eye Street, N.W., Suite 900 – Washington, D.C. Office

It was suggested to start with the preamble part which would allow OICA to have a separate premeeting.

#### 11. A.O.B.

Mr Mizuno thanked everyone for his attendance.

List of new documents:

INF GR/PS/163	Windscreen impact testing
INF GR/PS/164	Windscreen fracture modes
INF GR/PS/165	Leg feasibility testing
INF GR/PS/166	Relaxation zone and GVWR application
INF GR/PS/167	EU field data on crossbeam height
INF GR/PS/168	HIC15 vs HIC36 headaccel analysis
INF GR/PS/169	Revising PS 131 ~ Analysis of Pedestrian Accident and gtr Application
INF GR/PS/170	Target population for this gtr
INF GR/PS/171	Draft meeting minutes of the 9th meeting
INF GR/PS/172	Attendance list 9th meeting