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Report of the Working Party on Passive Safety on its fifty-fourth session

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I. Attendance

1. The Working Party on Passive Safety (GRSP) held its fifty-fourth session in Geneva from 17 to 20 December 2013, chaired by Ms. M. Versailles (United States of America). Experts from the following countries participated in the work following Rule 1(a) of the Rules of Procedure of the World Forum for Harmonization of Vehicle Regulations (WP.29) (TRANS/WP.29/690 and Amend.1): Australia; Belgium; Canada; China; France; Germany; Hungary; India; Italy; Japan; Netherlands; Norway; Poland; Republic of Korea; Russian Federation; South Africa; Spain; Sweden; Switzerland; United Kingdom of Great Britain and Northern Ireland and United States of America. An expert from the European Commission (EC) participated. Experts from the following non-governmental organizations participated: Consumers International (CI); European Association of Automotive Suppliers (CLEPA); Foundation for the Automobile and Society (FIA Foundation); International Motorcycle Manufacturers Association (IMMA) and International Organization of Motor Vehicle Manufacturers (OICA).

2. The informal documents distributed during the session are listed in Annex I to this report.

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRSP/2013/14
Informal document GRSP-54-06

3. GRSP considered and adopted the agenda (ECE/TRANS/WP.29/GRSP/2013/14) proposed for the fifty-fourth session with the new agenda item 22(g), 22(h), 23 and 24 as well as the running order (GRSP-54-06). The list of GRSP informal working groups (IWGs) is contained in Annex VI to this report.

III. Global technical regulation No. 7 (Head restraints) (agenda item 2)

Documentation: ECE/TRANS/WP.29/GRSP/2013/17
ECE/TRANS/WP.29/GRSP/2013/24
Informal documents GRSP-54-05, GRSP-54-18-Rev.1, GRSP-54-23,
GRSP-54-28 and GRSP-54-30

4. The expert from Japan, whose country was the technical sponsor of the UN Global Technical Regulation (UN GTR) No. 7 Phase 2, informed GRSP about the outcome of the last meeting (GRSP-54-30), held on 10-11 September 2013 in (Gothenburg), Sweden, of the informal working group (IWG) developing the draft UN GTR. The expert from Germany, made a presentation (GRSP-54-28) of the workshop held in Bergisch Gladbach (16 July 2013), Germany, aimed at defining a procedure for the test position of the Biofidelic Rear Impact Dummy (BioRID II). He added that as a result of the workshop, experts agreed that the use of the Head Restraint Measuring Device (HRMD) was no longer needed for static assessment and BioRID positioning. He concluded that test procedures and injury criteria would likely be finalized in the next meeting of the IWG scheduled for 4-6 February 2014 in Brussels. The expert from the United Kingdom introduced, for information, the latest stage of the draft UN GTR (ECE/TRANS/WP.29/GRSP/2013/24) and a draft Addendum 1 (GRSP-54-05) to the Mutual Resolution No. 1 (M.R.1). He explained that a revised official proposal of UN GTR would be submitted by the IWG at the May 2014 session of GRSP as well as a final draft addendum to M.R.1.

5. The Chair of GRSP clarified that specification and tolerances for the three-dimensional H-point machine (3-D H) would not yet be part of a draft addendum to the M.R.1 due to the priority given to the BioRID specification. However, GRSP agreed to recommend that the IWG discuss whether the 3-D H should be specific to the UN GTR No. 7 (and UN Regulation No. 17) or whether it should refer to another existing UN GTR and UN Regulation, at least until a draft addendum to the M.R.1 is proposed in the future.

6. The expert from the Netherlands introduced ECE/TRANS/WP.29/GRSP/2013/17, aimed at increasing the height of the head restraint at the front driver seating position, to cover taller occupants, and decreasing the lowest height of head restraints at the front passenger seating positions for reason of visibility. The expert from the United States of America argued (GRSP-54-23) a lack of rationale for both proposed height values. The expert from OICA renewed his concern (GRSP-54-18-Rev.1) that the new measurement procedure would reduce the measured height by 30 mm; and that associated with the new limit of 830 mm would result in increasing the height of the head restraints by 60 mm compared to the current requirements. Finally, GRSP agreed to resume consideration of this agenda item on the basis of final proposals submitted by the IWG and of further justification concerning ECE/TRANS/WP.29/GRSP/2013/17 and to keep GRSP-54-18-Rev.1 and GRSP-54-23 as references.

IV. Global technical regulation No. 9 (Pedestrian safety) (agenda item 3)

A. Phase 2 of the global technical regulation

Documentation: ECE/TRANS/WP.29/AC.3/24
ECE/TRANS/WP.29/GRSP/2011/13
ECE/TRANS/WP.29/GRSP/2013/25
Informal documents GRSP-54-08, GRSP-54-32, GRSP-54-33-Rev.2 and GRSP-54-34-Rev.1

7. The expert from Germany, co-Chair of the IWG on pedestrian safety introduced the draft UN GTR No. 9 Phase 2 (GRSP-54-33) to incorporate the flexible pedestrian legform impactor (FlexPLI), as a result of the last meeting of the IWG held on 16 and 17 December 2013, prior to the GRSP proper session. He explained that the proposal superseded ECE/TRANS/WP.29/GRSP/2011/13, ECE/TRANS/WP.29/GRSP/2013/25 and GRSP-54-08, leaving pending the issues of the Injury Assessment Reference Values (IARVs) for the flexible lower legform to bumper test (para. 5.1.1) and for the tolerance of the FlexPLI mass (paras. 6.3.1.1. and 6.3.1.1.3.). The proposal received comments from the expert of the United States of America (GRSP-54-32) who questioned the lack of information concerning the above-mentioned IARVs. He stated that the draft UN GTR could not be recommended unless Contracting Parties would be allowed to choose appropriate IARVs when transposing the UN GTR into their national legislations. In response, the expert from Germany introduced GRSP-54-33-Rev.2 addressing this concern. The expert from OICA regretted the lack of agreement on this last issue which would result in a number of options, thus hampering harmonization.

8. GRSP recommended ECE/TRANS/WP.29/GRSP/2013/25, as amended by Annex II to this report and adopted the final progress report of the IWG (GRSP-54-34-Rev.1), as reproduced in Annex II. GRSP agreed to seek guidance of the Executive Committee of the 1998 Agreement (AC.3) at its March 2014 session concerning IARVs of para. 5.1.1. and seek endorsement of AC.3 to extend the mandate of the IWG until November 2014 to complete the addendum to M.R.1 to incorporate the FlexPLI. Finally, GRSP requested the secretariat to submit the proposal as draft Amendment 2 to UN GTR No. 9 and its final progress report to AC.3 for consideration and vote at its June 2014 session.

B. Proposal for Amendment 2

Documentation: ECE/TRANS/WP.29/AC.3/31
ECE/TRANS/WP.29/GRSP/2012/2
ECE/TRANS/WP.29/GRSP/2012/14
Informal documents GRSP-54-07-Rev.1, GRSP-54-31

9. The expert from the EC introduced GRSP-54-07-Rev.1 to clarify provisions of the headform tests and superseding ECE/TRANS/WP.29/GRSP/2012/14 (including the final report ECE/TRANS/WP.29/GRSP/2012/2). The expert from the United States of America stated that, as a general issue, the proposal was not evidence-based (GRSP-54-31) and lacked data from the current method. GRSP agreed to resume discussion at its May 2014 session on the basis of more data and requested the secretariat to distribute GRSP-54-07-Rev.1 with an official symbol and to keep GRSP-54-31 as a reference.

V. Harmonization of side impact dummies (agenda item 4)

Documentation: ECE/TRANS/WP.29/AC.3/28

10. The expert from the United States of America, Chair of the IWG on harmonization of side impact dummies, reported orally report on the work progress of the group. She informed GRSP that the drafting of the addendum for the M.R.1 incorporating the 50th percentile World Side Impact dummy (WorldSID) was pending an agreement with ISO to make available the full set of drawings and specifications including the user manual. She finally informed that the 5th percentile female WorldSID dummy needed to be redesigning in some parts, though it was currently still expected to be completed by the end of 2015 as previously reported.

VI. Global technical regulation on electric vehicles (agenda item 5)

11. The expert from the United States of America informed GRSP that the IWG on Electric Vehicle Safety (EVS) was progressing in accordance to the terms of reference (ECE/TRANS/WP.29/2012/121) under the leadership of co-sponsors: United States of America, European Union, China and Japan. He added that the IWG had made good progress at the recent fourth meeting held in Beijing (14-16 October 2013) and had updated the outline table of the draft UN GTR with the proposals submitted by Canada, China, Japan and the United States of America. He clarified that the proposals consisted of research items and timeline as candidates for the UN GTR. Moreover, he informed GRSP that the IWG had also reviewed a draft proposal tabled by the expert from OICA. He added that the IWG had discussed a new idea to establish subgroups to work on specific technical issues that the IWG had identified. He clarified that the subgroups would be expected to provide data and analysis/studies to support the requirements and recommendations to IWG. In the absence of one of the co-sponsors, this approach would be discussed further.

12. Concerning the road map for establishing the UN GTR, he confirmed that the options for completing the UN GTR work in two steps or a single step had been discussed at the November 2013 session of AC.3. At that meeting, the United States of America indicated that it would not accept a two-step approach based on Regulation No. 100, as it did not consider that Regulation to be science-based as required by the 1998 Agreement (see ECE/TRANS/WP.29/1106, para. 104). GRSP agreed to seek guidance from AC.3 on this issue at future sessions of AC.3 if necessary, pending the decision of the IWG on such

guidance. Finally, he informed GRSP that the fifth EVS IWG meeting was scheduled in April 14-16, 2014, in Washington DC.

VII. Crash compatibility (agenda item 6)

13. No new information was provided for this agenda item.

VIII. Regulation No. 11 (Door latches and hinges) (agenda item 7)

Documentation: ECE/TRANS/WP.29/GRSP/2013/16
Informal documents GRSP-54-16

14. The expert from Germany withdrew ECE/TRANS/WP.29/GRSP/2013/16, but with the intention to submit a new proposal to the May 2014 session of GRSP, prepared in cooperation with the experts from Australia and the United Kingdom. The expert from OICA withdrew GRSP-54-16.

IX. Regulation No. 14 (Safety-belt anchorages) (agenda item 8)

Documentation: ECE/TRANS/WP.29/GRSP/2013/4
ECE/TRANS/WP.29/GRSP/2013/15
ECE/TRANS/WP.29/GRSP/2013/18
Informal documents GRSP-54-19-Rev.2

15. GRSP considered and adopted ECE/TRANS/WP.29/GRSP/2013/18, as amended by Annex III to this report and requested the secretariat to submit it to WP.29 and AC.1, for consideration and vote at their June 2014 sessions as draft Supplement 6 to the 07 series of amendments to the UN Regulation.

16. The expert from OICA introduced GRSP-54-19-Rev.2 amending ECE/TRANS/WP.29/GRSP/2013/4, aimed at introducing exemptions under certain conditions for vehicles equipped with one seating position per row. GRSP adopted ECE/TRANS/WP.29/GRSP/2013/4, as amended by Annex III to this report and requested the secretariat to submit it to WP.29 and AC.1, for consideration and vote at their June 2014 sessions as part (see. para. 15) of draft Supplement 6 to the 07 series of amendments to the UN Regulation. Finally, GRSP agreed to resume discussion on ECE/TRANS/WP.29/GRSP/2013/15 at its May 2014 session, excluding paragraph 5.3.8.8. as already agreed with ECE/TRANS/WP.29/GRSP/2013/4.

X. Regulation No. 16 (Safety-belts) (agenda item 9)

Documentation: ECE/TRANS/WP.29/GRSP/2012/25
Informal document GRSP-54-03

17. GRSP agreed to defer discussion on ECE/TRANS/WP.29/GRSP/2012/25 and GRSP-54-03, pending the adoption of the amendment to the 1958 Agreement so as to keep consistency with the future requirements on transitional provisions.

XI. Regulation No. 17 (Strength of seats) (agenda item 10)

Documentation: Informal documents GRSP-54-04 and GRSP-54-20

18. The expert from CLEPA introduced GRSP-54-04, aimed at introducing provisions to define the moment of inertia of the luggage impact test. The expert from Japan

introduced GRSP-54-20 proposing to regulate only the lower limit of the moment of inertia of the test blocks. Following the discussion, GRSP agreed to resume discussion at its May 2014 session on the basis of a revised proposal voluntarily prepared by the expert from CLEPA.

XII. Regulation No. 22 (Protective helmets) (agenda item 11)

Documentation: Informal document GRSP-54-29

19. The expert from the United Kingdom made a presentation on the results of the Safety Helmet Assessment and Rating Programme (SHARP) (GRSP-54-29), carried out by his government. The expert from the EC, raised the issue of safety of riders of electric bikes and of the lack of proper safety helmets to protect them. GRSP agreed to keep this item in the agenda of the next GRSP sessions pending future proposals.

XIII. Regulation No. 29 (Cabs of commercial vehicles) (agenda item 12)

Documentation: ECE/TRANS/WP.29/GRSP/2013/19

20. The expert from OICA introduced ECE/TRANS/WP.29/GRSP/2013/19, proposing a test configuration (A, B and C) for each N vehicle category. GRSP adopted ECE/TRANS/WP.29/GRSP/2013/19 not amended and requested the secretariat to submit it to WP.29 and AC.1, for consideration and vote at their June 2014 sessions as draft Supplement 2 to the 03 series of amendments to the UN Regulation.

XIV. Regulation No. 44 (Child restraint systems) (agenda item 13)

Documentation: ECE/TRANS/WP.29/GRSP/2013/10
ECE/TRANS/WP.29/GRSP/2013/20

21. The expert from Japan re-introduced ECE/TRANS/WP.29/GRSP/2013/10 aimed at extending the range of application of the overturning test on a broader range of Child Restraints Systems (CRS). GRSP adopted the proposal as amended by Annex IV to this report and requested the secretariat to submit it to WP.29 and AC.1, for consideration and vote at their June 2014 sessions as draft Supplement 8 to the 04 series of amendments to the UN Regulation.

22. GRSP also adopted, not amended, ECE/TRANS/WP.29/GRSP/2013/20, introducing some relevant test requirements to ISOFIX size class B1. The secretariat was requested to submit ECE/TRANS/WP.29/GRSP/2013/20 to WP.29 and AC.1, for consideration and vote at their June 2014 sessions as part (see para. 21) of draft Supplement 8 to the 04 series of amendments to the UN Regulation.

XV. Regulation No. 94 (Frontal collision) (agenda item 14)

Documentation: Informal documents GRSP-54-25, GRSP-54-27 and GRSP-54-40

23. The expert from France, Chair of the IWG on frontal impact, introduced the status report of the group (GRSP-54-40). He informed GRSP that the IWG was ready to submit a proposal for the May 2014 session of GRSP and introduced a first draft for information only (GRSP-54-27). He clarified that the amendment would introduce: (i) a full-width frontal crash test against a rigid barrier at 50 km/h, (ii) a new biomechanical criteria for elderly people (65 years and older) and (iii) the 5th percentile female dummy. The expert

from Japan made a presentation (GRSP-54-25) to show the influence of the diagonal safety-belt path to chest deflection and announced a proposal to address this issue in the framework of activities of the IWG. The expert from France confirmed the importance of the belt position for the thorax deflection and clarified that the current proposal of the IWG addressed both sexes, as well as covering the safety of younger occupants. Finally, GRSP unanimously agreed to resume consideration on this agenda item at its May 2014 session on the basis of a concrete proposal for a new UN Regulation instead of an amendment to UN Regulation No. 94, drafted by the IWG.

XVI. Regulation No. 95 (Lateral collision) (agenda item 15)

A. Proposal for a new Regulation on Pole Side Impact

Documentation: Informal documents GRSP-54-14

24. The expert from Australia introduced, for information to GRSP, a draft proposal (GRSP-54-14) of UN Regulation to transpose the UN GTR on pole side impact into the 1958 Agreement. He urged adopting the proposal in 2014 and that for this task, the IWG on pole side impact was no longer needed. He also underlined that the scope of the proposal was different from that of the UN Regulation No. 95 as well as having different dummies and injury criteria. Therefore, he suggested that the proposal would be a new UN Regulation instead of an amendment to UN Regulation No. 95. GRSP agreed by consensus to resume consideration on this matter at its May 2014 session on the basis of a proposal of a new UN Regulation voluntarily prepared by the expert from Australia.

B. Proposal for amendments

25. No new information was provided for this agenda item.

XVII. Regulation No. 100 (Construction and functional safety of battery electric vehicles) (agenda item 16)

Documentation: Informal documents GRSP-54-13 and GRSP-54-26

26. The expert from Germany, on behalf of the Chair of the IWG on Rechargeable Energy Storage System (REESS) informed GRSP about the work progress of the IWG and introduced for information a first draft amendment to UN Regulation No. 100 (GRSP-54-13). However, GRSP noted that the IWG had not yet decided whether the final proposal would amend UN Regulation No. 100 or would concern a new UN Regulation and that this decision would be taken at its next meeting (on 23 - 24 January 2014, Barcelona, Spain). The expert from Japan introduced GRSP-54-26 suggesting that the IWG exclude vehicle categories L₅, L₆ and L₇ from the proposal, because of the need of more detailed discussion on crashworthiness of such vehicles. GRSP agreed to resume discussion at its May 2014 session on a proposal drafted by the IWG.

XVIII. Buses and coaches (agenda item 17)

27. GRSP agreed to delete this item from the agenda of the next session due to the lack of new information.

XIX. Regulation No. 127 (Pedestrian safety) (agenda item 18)

A. Proposal for Supplement 1 to Regulation No. 127

Documentation: ECE/TRANS/WP.29/GRSP/2011/18
ECE/TRANS/WP.29/GRSP/2011/19
Informal documents GRSP-54-09-Rev.1 and GRSP-54-38

28. With reference to the amendment to UN GTR No. 9 proposed under agenda item 3(b) (see para. 9), the expert from OICA introduced a draft parallel amendment to UN Regulation No. 127 (GRSP-54-09-Rev.1) incorporating GRSP-54-38 and superseding ECE/TRANS/WP.29/GRSP/2011/18 and ECE/TRANS/WP.29/GRSP/2011/19. GRSP adopted GRSP-54-09-Rev.1 as reproduced in Annex V to this report. The secretariat was requested to submit the proposal to WP.29 and AC.1 for consideration and vote at their June 2014 sessions as draft Supplement 1 to the UN Regulation.

B. Proposal for the 01 series of amendments to Regulation No. 127

Documentation: ECE/TRANS/WP.29/GRSP/2011/14
ECE/TRANS/WP.29/GRSP/2011/20
ECE/TRANS/WP.29/GRSP/2013/26
Informal document GRSP-54-15-Rev.1 and GRSP-54-39

29. GRSP considered ECE/TRANS/WP.29/GRSP/2013/26 introducing the FlexPLI provisions into the UN Regulation. GRSP considered and adopted GRSP-54-15-Rev.1 (superseding ECE/TRANS/WP.29/GRSP/2011/14 ECE/TRANS/WP.29/GRSP/2011/20 and ECE/TRANS/WP.29/GRSP/2013/26), as reproduced in Addendum 1 to this report. The secretariat was requested to submit the proposal to WP.29 and AC.1, for consideration and vote at their June 2014 sessions as draft 01 series of amendments to UN Regulation No. 127. GRSP noted that pending values still in square brackets (paras. 1.1. and 1.4. of Annex IV of GRSP-54-15-Rev.1), would be eventually solved at the May 2014 session of GRSP. Finally, the expert from Japan withdrew GRSP-54-39.

XX. Regulation No. 129 (Enhanced child restraint systems) (agenda item 19)

Documentation: ECE/TRANS/WP.29/GRSP/2013/21
ECE/TRANS/WP.29/GRSP/2013/23
Informal documents GRSP-54-24, GRSP-54-35 and GRSP-54-36

30. The expert from France, Chair of the IWG on Enhanced Child Restraint Systems (ECRS), introduced the status report of the progress of his group (GRSP-54-35). He also introduced the draft 01 series of amendments to UN Regulation No. 129 (ECE/TRANS/WP.29/GRSP/2013/23) and GRSP-54-24 amending it. He explained that the proposal would cover Phase 2 of the UN Regulation, introducing provisions for non-integral CRS ("Universal Booster" or "Specific to vehicle Booster"). The expert from Germany expressed reservation to the proposal to discuss within the IWG the use of the Q10 dummy (proposed by the IWG for monitoring purpose only) for ensuring a safer level for children of different ages and heights. Moreover, he proposed modifying transitional provisions to allow CRS type approvals according to both UN Regulations Nos. 44 and 129. GRSP agreed to refer GRSP-54-36 to the IWG, incorporating all the changes to ECE/TRANS/WP.29/GRSP/2013/23 agreed during the session and awaiting a revised official proposal at its May 2014 session. GRSP also considered ECE/TRANS/WP.29/GRSP/2013/21 concerning the configuration of CRS combining a

base attached with ISOFIX anchorages to the vehicle and a shell installed on it. GRSP adopted ECE/TRANS/WP.29/GRSP/2013/21 amended (as reproduced in ECE/TRANS/WP.29/2014/33) and requested the secretariat to submit it to WP.29 and AC.1, for consideration and vote at their March 2014 sessions as draft Supplement 3 to the UN Regulation. GRSP also recommended experts to provide, by the May 2014 session, a draft brochure text as part of coordinated information campaign on UN Regulation No. 129.

XXI. Proposal for a new Regulation on hydrogen and fuel cell vehicles (agenda item 20)

Documentation: ECE/TRANS/WP.29/GRSP/2013/22
Informal documents GRSP-54-01, GRSP-54-02, GRSP-54-12,
GRSP-54-21, GRSP-54-22 and GRSP-54-37

31. The expert from OICA made a presentation (GRSP-54-01) to introduce a draft new UN Regulation on hydrogen and fuel cell vehicles (ECE/TRANS/WP.29/GRSP/2013/22), transposing the UN GTR No. 13 into the 1958 Agreement on the same subject. He also presented GRSP-54-12, introducing some corrections to the proposal and GRSP-54-02 (for information only), highlighting the changes introduced with respect to the UN GTR. The expert from Japan made a presentation (GRSP-54-37) on the main objective of the proposal. He also suggested (GRSP-54-22) a separate UN Regulation, to address liquefied hydrogen storage systems and to allow Contracting Parties to apply impact tests already in use at the national level until the conclusion of Phase 2 of the UN GTR. He finally introduced some corrections (GRSP-54-21) to the text of the proposal. GRSP agreed to resume discussion on this subject at its May 2014 session on the basis of a revised official proposal, voluntarily prepared by the experts from EC and OICA, incorporating comments received by interested parties. GRSP also agreed to keep GRSP-54-21 and GRSP-54-12 in the agenda of the next session for reference only.

XXII. Election of officers (agenda item 21)

32. In compliance with Rule 37 of the Rules of Procedure (TRANS/WP.29/690 and ECE/TRANS/WP.29/690/Amend.1), GRSP called for the election of officers. The representatives of the Contracting Parties, present and voting, elected unanimously Ms. M. Versailles (United States of America) as Chair and Mr. Jae-Wan Lee (Republic of Korea) as Vice-Chair for the sessions of GRSP scheduled in the year 2014.

XXII. Other business (agenda item 22)

A. Exchange of information on national and international requirements on passive safety

33. No new information was provided for this agenda item.

B. 1997 Agreement (Inspections) – Development of Rule No. 2

34. No new information was provided for this agenda item.

C. Quiet Road Transport Vehicles (QRTV)

Documentation: ECE/TRANS/WP.29/AC.3/33

35. No new information was provided for this agenda item and GRSP agreed to remove it from the agenda of the next sessions.

D. Definition and acronyms in Regulations under GRSP responsibilities on the basis of an initiative of the Working Party on Pollution and Energy

Documentation: Informal document GRSP-51-03

36. GRSP recommended that the Chairs of its IWGs send comments to the expert from EC on the provisional list of acronyms (GRSP-51-03). GRSP agreed to resume consideration on this subject for the last time at its May 2014 session.

E. Development of the International Whole Vehicle Type Approval (IWVTA) system and involvement of the Working Parties and involvement of the Working Parties (GRs)

Documentation: ECE/TRANS/WP.29/2014/26
Informal document WP.29-161-17

37. GRSP noted that ECE/TRANS/WP.29/2014/26 was the most update document of the work progress within the IWVTA IWG and that a few issues still needed further consideration by the IWVTA subgroup on the review of the 1958 Agreement. The expert from Japan, GRSP ambassador on IWVTA, introduced WP.29-161-17 explaining the main objective of IWVTA and announced that the next meeting of the IWG was scheduled on 21-24 January 2014 in Sendai, Japan.

F. Highlights of June and November 2013 sessions of WP.29

38. The Secretary reported on the highlights of the 160th and 161st sessions of WP.29 (ECE/TRANS/WP.29/1104 and ECE/TRANS/WP.29/1106).

G. Global technical regulation No. 13 (Hydrogen and fuel cell vehicles)

Documentation: Informal documents GRSP-54-10 and GRSP-54-11

39. GRSP noted the proposal of amendments to UN GTR No. 13 (GRSP-54-10) and the consolidated text of the UN GTR incorporating the amendments proposed, submitted by the expert from EC. The expert from OICA suggested a fast adoption of this proposal (basically corrections to the actual text) since their incorporation in the Phase 2 development of the UN GTR would imply more time. He also suggested a pragmatic approach on Phase 2 concerning harmonized crash test requirements by using those applied for conventional vehicles, rather than specific new ones. The expert from United States of America announced a proposal concerning the development of Phase 2 of the UN GTR to the May 2014 session of GRSP. Moreover, he suggested coordinating efforts to have a single document with all the errors noted by interested parties. GRSP, noted that if the proposal was not addressed as part of Phase 2, the expert from the EC should first submit the proposal to AC.3, requesting authorization to develop the amendment. GRSP agreed to resume consideration on this agenda item at its next session on the basis of revised documents and keep GRSP-54-10 and GRSP-54-11 for reference only.

H. Regulation No. 25 (Head restraints)

Documentation: Informal document GRSP-54-17

40. The expert from OICA introduced GRSP-54-17 to prevent the mandatory compliance of head restraints in more than one UN Regulation. GRSP agreed to resume consideration on this agenda item at its May 2014 session and requested the secretariat to distribute GRSP-54-17 with an official symbol.

XXIII. Tributes (agenda item 23)

41. Learning that Mr. G. Eriksson would no longer participate in future sessions of GRSP, the group acknowledged his valuable contributions to the work of GRSP and wished him all the best in his future activities.

XXIV. Provisional agenda for the next session (agenda item 24)

42. For its fifty-fifth session, scheduled to be held in Geneva from 19 (2.30 p.m.) to 23 (12.30 p.m.) May 2014, GRSP noted that the deadline for submission of official documents to the secretariat was 21 February 2014, twelve weeks prior to the session. Finally, GRSP agreed the following provisional agenda:

1. Adoption of the agenda.
2. Global technical regulation No. 7 (Head restraints).
3. Global technical regulation No. 9 (Pedestrian safety):
 - (a) Phase 2 of the global technical regulation;
 - (b) Proposal for Amendment 3.
4. Global technical regulation No. 13 (Hydrogen and fuel cell vehicles).
5. Harmonization of side impact dummies.
6. Global technical regulation on electric vehicles.
7. Crash compatibility.
8. Regulation No. 11 (Door latches and hinges).
9. Regulation No. 14 (Safety-belt anchorages).
10. Regulation No. 16 (Safety-belts).
11. Regulation No. 17 (Strength of seats).
12. Regulation No. 22 (Protective helmets).
13. Regulation No. 25 (Head restraints)
14. Regulation No. 44 (Child restraints systems).
15. Regulation No. 100 (Battery electric vehicle safety).
16. Regulation No. 127 (Pedestrian safety).
17. Regulation No. 129 (Enhanced child restraint systems).
18. Proposal for new Regulation on hydrogen and fuel cell vehicles.
19. Proposal for a new Regulation on Pole Side Impact.
20. Proposal for a new Regulation on Frontal Impact.
21. Other business:
 - (a) Exchange of information on national and international requirements on passive safety;
 - (b) Definition and acronyms in Regulations under GRSP responsibilities;
 - (c) Development of the International Whole Vehicle Type Approval (IWVTA) system and involvement of the Working Parties;
 - (d) Highlights of the March 2014 session of WP.29.

Annex I

[English only]

List of informal documents (GRSP-54-...) distributed without an official symbol during the session

<i>No.</i>	<i>Transmitted by</i>	<i>Agenda item</i>	<i>Language</i>	<i>Title</i>	<i>Follow-up</i>
01	EC/OICA	20	E	Transposition of UN GTR No.13 "Hydrogen and fuel cell vehicles" into a UN Regulation	(a)
02	EC/OICA	20	E	Draft Regulation on hydrogen and fuel cell vehicles	(a)
03	OICA	9	E	Proposal for Supplement 6 to the 06 series of amendments to Regulation No. 16 (Safety-belts)	(c)
04	CLEPA	10	E	Proposal for Supplement 3 to the 08 series of amendments to Regulation No. 17 (Strength of seat)	(a)
05	IWG GTR7 PH2	2	E	Draft Addendum 1 - Specifications for the Construction, Preparation and Certification of the 50th percentile male Biofidelic Rear Impact Dummy, (BioRID-II) anthropometric test device	(c)
06	GRSP Chair	1	E	Running order of the session	(a)
07/ Rev.1	EC	3(b)	E	Proposal for Amendment [2] to global technical regulation No. 9 (Pedestrian safety)	(a)
08	EC/Germany	3(a)	E	Proposal for Amendment [3] to global technical regulation No. 9 (Pedestrian safety)	(a)
09/ Rev.1	OICA	18(a)	E	Draft Supplement 1 to Regulation No. 127 in its original version	(d)
10	EC	22(f)	E	Proposal for amendment to global technical regulation No.13 (Hydrogen and fuel cell vehicles)	(c)

<i>No.</i>	<i>Transmitted by</i>	<i>Agenda item</i>	<i>Language</i>	<i>Title</i>	<i>Follow-up</i>
11	EC	22(g)	E	Proposal for amendment to global technical regulation No.13 (Hydrogen and fuel cell vehicles)	(c)
12	EC/OICA	20	E	Proposal for amendment to ECE/TRANS/WP.29/GRSP/2013/22 (Draft Regulation on hydrogen and fuel cell vehicles)	(c)
13	Chair of REESS IWG	16	E	Proposal for requirements regarding vehicles of category L with electric power train	(a)
14	Australia	15(a)	E	Draft new Regulation No. [X] and 01 series of amendments concerning the approval of vehicles with regard to their pole side impact performance	(a)
15/ Rev.1	OICA	18(b)	E	Consolidated version of the UN Regulation No. 127 including Corr. 1 to the original version, draft Supplement 1 to the original version and the draft 01 series of amendments to the UN Regulation	(d)
16	OICA	7	E	Regulation No. 11 (Door latches and hinges) - Proposal for Supplement 4 to the 03 series of amendments	(a)
17	OICA	22(h)	E	Proposal for Supplement 1 to the 04 series of amendments to UN Regulation No. 25 (Head restraints)	(b)
18/ Rev.1	OICA	2	E	Global Technical Regulation No. 7 (Head restraints) OICA position on head restraint height	(c)
19/ Rev.2	OICA	8	E	Proposed amendments to ECE/TRANS/WP.29/GRSP/2013/15 (Proposal by Germany of Supplement 6 to the 07 series of amendments to Regulation No. 14)	(d)
20	Japan	10	E	Proposal for amendments to GRSP-54-04 (Proposal for Supplement 3 to the 08 series of amendments to Regulation No. 17) (Strength of seat)	(a)
21	Japan	20	E	Proposal for revision of ECE/TRANS/WP.29/GRSP/2013/22	(c)
22	Japan	20	E	Comments for the proposal for revision of ECE/TRANS/WP.29/GRSP/2013/22	(a)
23	USA	2	E	Comments from the United States on ECE/TRANS/WP.29/GRSP/2013/17	(c)

<i>No.</i>	<i>Transmitted by</i>	<i>Agenda item</i>	<i>Language</i>	<i>Title</i>	<i>Follow-up</i>
24	IWG ECRS	19	E	Proposal for amendment to ECE/TRANS/WP.29/GRSP/2013/23 (Draft 01 series of amendments (Phase 2 of the Regulation))	(a)
25	Japan	14	E	Research on Chest Injury Criteria	(a)
26	Japan	16	E	Japan's Position Regarding the REESS	(a)
27	IWG FI	14	E	Proposal of amendments to UN Regulation No. 94	(a)
28	Germany	2	E	Short Report Status of GTR No. 7 BioRID TEG	(a)
29	UK	11	E	Safety Helmet Assessment and Rating Programme (SHARP)	(a)
30	Japan	2	E	Draft 5th progress report of the informal group on Phase 2 of gtr No. 7 (Head restraints gtr Phase2)	(a)
31	USA	3(b)	E	Comments from the United States on ECE/TRANS/WP.29/GRSP/2012/14	(c)
32	USA	3(a)	E	Comments from the United States on ECE/TRANS/WP.29/GRSP/2013/25	(a)
33/ Rev.2	IWG GTR9 PH2	3(a)	E	Draft amendment [2], as updated in the informal working group meeting of 16 – 17 December 2013	(d)
34/ Rev.1	IWG GTR9 PH2	3(a)	E	Draft final report of the informal group on Phase 2 of gtr No. 9 (IG GTR9 - PH2)	(d)
35	IWG ECRS	19	E	UN Regulation N°129 - Status report	(a)
36	Chair of GRSP	19	E	UN Regulation N°129 - Consolidated amendments following the discussion of GRSP 54th session.	(c)
37	Japan	20	E	Scope of the Draft Regulation on Hydrogen and Fuel Cell Vehicles	(a)
38	Japan	18(a)	E	Draft Supplement 1 to Regulation No. 127 in its original version	(a)
39	Japan	18(b)	E	Proposal for amendments to ECE/TRANS/WP.29/GRSP/2013/26 (Proposal of 01 series of amendments to Regulation No. 127)	(a)
40	IWG FI	14	E	Regulation N°94 Status report IWG FI	(a)

Notes:

- (a) Consideration completed or superseded.
- (b) Continue consideration at the next session with an official symbol.
- (c) Continue consideration at the next session as informal document.
- (d) Adopted and to be submitted to WP.29.

Annex II

Draft Amendment 2 to global technical regulation No. 9 (Pedestrian safety – Phase 2)

Amendments adopted to ECE/TRANS/WP.29/GRSP/2013/25 (see para. 8 of this report)

In the text of Statement of technical rationale and justification (Part I),

Delete square brackets from all the text of Part I.

Part A, paragraph 0, amend to read:

"0. Sections 1. to 10. reflect the development of phase 1 of gtr No. 9 and concern the legform test procedure with the lower legform impactor designed by the **European Enhanced Vehicle-Safety Committee (EEVC)** and the upper legform impactor for the high bumper vehicles as well as the headform test procedure."

Part A, section 10. (Appendix), amend to read:

"10. Appendix

...

<i>Number of working paper</i>	<i>Title of informal document</i>
INF GR/PS/1 & Rev 1	Agenda 1st meeting
INF GR/PS/2	Terms of Reference of the GRSP IWG on Pedestrian Safety adopted by GRSP at its thirty first session
INF GR/PS/3	IHRA accident study presentation
INF GR/PS/4 & Rev 1	JMLIT proposed legislation - Comparison of draft regulations
INF GR/PS/5	IHRA feasibility study (doc. IHRA/PS/224 - Chapter 9)
INF GR/PS/6	Japanese proposal for the scope of global technical regulation (gtr) on Pedestrian Protection
INF GR/PS/7	Attendance list 1st meeting
INF GR/PS/8 & Rev 1	Draft Meeting Minutes 1st meeting
INF GR/PS/9 & Rev 1	Report of the First Meeting (Informal Document GRSP-32-07)
INF GR/PS/10	Draft GRSP/Pedestrian Safety Ad hoc Action Plan
INF GR/PS/11	Agenda 2 nd meeting
INF GR/PS/12	Pedestrian Protection In Europe - The Potential of Car Design and Impact Testing (GIDAS Study)
INF GR/PS/13	Pedestrian Protection In Europe - The Potential of Car Design and Impact Testing (GIDAS Presentation)
INF GR/PS/14	Italy 1990 – 2000 [accident data]
INF GR/PS/15	Pedestrians killed in road traffic accidents [UN statistics of road traffic accidents in Europe and North America]
INF GR/PS/16	Pedestrians injury profile evaluation in a hospital-based multicenter polytrauma survey [Spanish accident data]
INF GR/PS/17	European Accident Causation Survey (EACS)
INF GR/PS/18	Draft Meeting Minutes 2nd meeting
INF GR/PS/19	Agenda 3rd meeting
INF GR/PS/20	Canadian Pedestrian Fatalities and Injuries 1990 – 2000
INF GR/PS/21	Data from the Netherlands for the years 1990-2001: Pedestrian and Cyclists Casualties
INF GR/PS/22	Vehicle Category (Proposal for the Scope)
INF GR/PS/23	Draft content preliminary report
INF GR/PS/24	Attendance list 3rd meeting
INF GR/PS/25	Extract from the GIDAS study for pedestrian safety
INF GR/PS/26	ITARDA Leg Injury Data
INF GR/PS/27 & Rev 1	Draft Meeting Minutes 3rd meeting
INF GR/PS/28	Technical feasibility - general
INF GR/PS/29	Study of the Efficiency of Infrastructural Measures for Pedestrian Protection
INF GR/PS/30	Frequency of Pelvis/Femur Fractures for Pedestrians more than 11 Years
INF GR/PS/31	IHRA/PS-WG Pedestrian accident data
INF GR/PS/32	ESV summary paper on IHRA/PS-WG report

INF GR/PS/33	Introduction of the regulation of pedestrian head protection in Japan (Nishimoto/Toshiyuki, 18 th ESV Conference, Nagoya 2003)
INF GR/PS/34	Proposal for a Directive of the European Parliament and the Council relating to the protection of pedestrians and other vulnerable road users in the event of a collision with a motor vehicle and amending Directive 70/156/EEC; Commission of the European Communities, Brussels, February 2003
INF GR/PS/35	List of conflicts with existing legislation requirements
INF GR/PS/36	Draft preliminary report
INF GR/PS/37	Agenda 4th meeting
INF GR/PS/38	Technical prescriptions concerning test provisions for pedestrian safety
INF GR/PS/39 & Rev 1	Vehicle safety standards report 1
INF GR/PS/40	US Cumulative 2002 Fleet GVMR
INF GR/PS/41	Swedish pedestrian fatalities 1994-2002
INF GR/PS/42	Proposal for a new draft gtr concerning uniform provisions for common definitions and procedures to be used in Gtrs (TRANS/WP.29/GRSG/2003/10)
INF GR/PS/43	Vehicles of Category 1-1 in Japan
INF GR/PS/44	Light duty truck
INF GR/PS/45	Analysis of Euro NCAP data
INF GR/PS/46	Development of JAMA / JARI pedestrian child and adult headform impactors
INF GR/PS/47 & Rev 1	Preliminary report to GRSP 33 rd session
INF GR/PS/48 & Rev 1	Draft meeting minutes 4th meeting
INF GR/PS/49	IHRA child head test method
INF GR/PS/50	IHRA adult head test method
INF GR/PS/51	Attendance list 4th meeting
INF GR/PS/52	Provisional agenda for the 5th meeting
INF GR/PS/53	Draft gtr format
INF GR/PS/54	gtr proposal to WP.29
INF GR/PS/55	Proposal for a new draft gtr (Japan)
INF GR/PS/56 & Rev 1	Pedestrian Safety Comparison Table
INF GR/PS/57	Pedestrian Safety GTR Preparation Schedule (Draft)
INF GR/PS/58	Contents of headform test procedure
INF GR/PS/59	Comments on windscreen/A pillars as headform test area
INF GR/PS/60	Document ISO/TC22/SC10/WG2 N613
INF GR/PS/61	IHRA Computer simulation results (document IHRA/PS 237)
INF GR/PS/62	Action plan from 5th meeting
INF GR/PS/63	Attendance list 5th meeting
INF GR/PS/64 & Rev 1	Draft meeting minutes 5th meeting
INF GR/PS/65 & Rev 1	Provisional agenda for the 6th meeting
INF GR/PS/66	Australian NCAP pedestrian report
INF GR/PS/67	CLEPA proposal for a test method - active hood / bonnet systems
INF GR/PS/68	Initial Assessment of Target Population for Potential Reduction of Pedestrian Head Injury in the US (Mallory/Stammen 2004)
INF GR/PS/69 & Rev 1	Proposed draft gtr on pedestrian protection - Transmitted by OICA
INF GR/PS/70	Current Status in Korea for Pedestrian Safety Rule-making Researches
INF GR/PS/71	Possibility to define an impact zone in the windscreen/A-pillar area to fulfil HIC criteria
INF GR/PS/72	Head impact to windscreen
INF GR/PS/73	Re-assessment of headform impactor test parameters
INF GR/PS/74	Specification of headform impactor (document IHRA/PS 270)
INF GR/PS/75	"Active hood" systems test method - CLEPA proposal
INF GR/PS/76	IHRA Discussions on Legform Test - Reviewing the 14th IHRA Meeting Minutes
INF GR/PS/77	UVA dynamic bending corridors for mid-thigh, knee, and Mid-Leg; explained by JARI instead of UVA
INF GR/PS/78	Explanation of the Bio-Rating Method of Maltese M. R. (NHTSA) and Application the Method to Flex-PLI 2003R using UVA Dynamic Bending Corridors for Mid-Thigh, Knee, and Mid-Leg
INF GR/PS/79	[IHRA anthropometric leg proposal]
INF GR/PS/80	IHRA developed/IHRA recommendation to GTR [IHRA/PS/278]
INF GR/PS/81	Schedule for legform impactor for gtr
INF GR/PS/82	Discussion on Injury Threshold for Pedestrian Legform Test
INF GR/PS/83	Action plan / decisions resulting from the 6th meeting
INF GR/PS/84	Draft meeting minutes of the 6th meeting
INF GR/PS/85	Attendance list of the 6th meeting
INF GR/PS/86 & Rev 1/2	Proposed draft gtr on pedestrian protection
INF GR/PS/87	Development of a biofidelic flexible pedestrian leg form impactor [document IHRA PS 273]
INF GR/PS/88	Second interim report to GRSP 35
INF GR/PS/89	A study on the feasibility of measures relating to the protection of pedestrians and other vulnerable road users. Final Report. [European Commission]
INF GR/PS/90	Provisional agenda for the 7th meeting
INF GR/PS/91	Study on Technical Feasibility of EEVC WG17 (Matra/ACEA)

INF GR/PS/92	Equal Effectiveness Study on Pedestrian Protection (TU Dresden/ACEA)
INF GR/PS/93	Design of JAMA/JARI pedestrian headform impactor
INF GR/PS/94	J-NCAP Pedestrian Headform Test - HIC Values in Windshield Impact
INF GR/PS/95	Proposed gtr on Pedestrian Protection - JPN comment on PS-86-Rev 2
INF GR/PS/96	Problem of Undamped Accelerometer in Headform Impact Test - Generation of Abnormal Acceleration in Headform Impact Tests - Causes and Solutions
INF GR/PS/97	Durability and repeatability of headform skin
INF GR/PS/98	IHRA/PS decisions for the IHRA/PS legform test procedures - IHRA/PS Working Group (IHRA PS 310)
INF GR/PS/99	Aging Effect of PVC Headform Skin on the Drop Certification Testing
INF GR/PS/100	OICA proposed amendments to INF/GR/PS/86/Rev.2 J - 28 September 2004
INF GR/PS/101	JAMA Technical Feasibility Study on EEVC/WG17 - Pedestrian Subsystem Test
INF GR/PS/102	Windscreen Tests according to Euro NCAP Protocol (Example)
INF GR/PS/103	[Windscreen & A-pillar testing on one car model]
INF GR/PS/104	Minimum Standard for Type Approval Testing of Active Deployable Systems of the Bonnet / Windscreen Area (CLEPA/OICA)
INF GR/PS/105	Human Biomechanical Responses to support the Design of a Pedestrian Leg Impactor
INF GR/PS/106	Information on the Flexible Pedestrian Legform Impactor (Flex-PLI) from J-MLIT Research
INF GR/PS/107	Knee ligament figure
INF GR/PS/108	Comment for IHRA or GTR regarding Legform Test
INF GR/PS/109	[Flex-PLI as a certification tool]
INF GR/PS/110	DRAFT: Definition of the windscreen reference lines
INF GR/PS/111 & Rev 1	Pedestrian Safety Gtr Preamble [draft and guideline]
INF GR/PS/112	Action plan resulting from the 7th meeting
INF GR/PS/113	Proposed draft gtr on Pedestrian Protection
INF GR/PS/114	Attendance list 7th meeting
INF GR/PS/115 & Rev 1	Draft meeting minutes of the 7th meeting
INF GR/PS/116	Proposed Draft gtr on Pedestrian Protection [working version]
INF GR/PS/117	Proposed Draft gtr on Pedestrian Protection [Proposal for 37th GRSP]
INF GR/PS/118 & Rev 1	Provisional agenda for the 8th meeting
INF GR/PS/119	Proposal from the Chairman to include the history of ISO work in the Preamble under item III. Existing Regulations, Directives, and International Voluntary Standards
INF GR/PS/120	A study on the feasibility of measures relating to the protection of pedestrians and other vulnerable road users - Addendum to Final Report (EC)
INF GR/PS/121	TRANS/WP.29/GRSP/2005/3 incl. amendments of the 37th GRSP session
INF GR/PS/122	GRSP-37-18 - USA Comments on Draft gtr on Pedestrian Head and Leg Protection (TRANS/WP.29/GRSP/2005/3)
INF GR/PS/123	GRSP-37-15 - Japan's Comment to TRANS/WP.29/GRSP/2005/3
INF GR/PS/124	GRSP-37-16 - Flex-PLI Technical Evaluation Group (Flex-PLI TEG) Activities
INF GR/PS/125	Short report on comments received during GRSP-37
INF GR/PS/126	Request for submission of the justifications for PS gtr proposal [task list]
INF GR/PS/127	Pedestrian Protection Phase 2 [EU]
INF GR/PS/128	The need for harmonized legislation on pedestrian protection
INF GR/PS/129	Comparison of the severity between the Japanese regulation based on IHRA and Phase 2 proposal based on EEVC
INF GR/PS/130	Derivation of [head] impact direction; extract from Glaeser 1995
INF GR/PS/131	Analysis of pedestrian accident situation and portion addressed by this gtr
INF GR/PS/132	GTR Head Tests of US Fleet Vehicles
INF GR/PS/133 & Rev.1	Miniature Damped Accelerometer Series Kyowa ASE-A
INF GR/PS/134	Head Impact Tests in the Centre of the Windscreen
INF GR/PS/135	Definition of Windscreen Lower Reference Line
INF GR/PS/136	Action 10 of INF GR/PS/112: Clarification of values upper legform/bumper
INF GR/PS/137	Definition of High Bumper Vehicles
INF GR/PS/138	Economic Appraisal for Technical Regulation on Pedestrian Protection, focused on head protection
INF GR/PS/139	Action items from the 8th meeting
INF GR/PS/140	IHRA Injury Breakdown (All Ages)
INF GR/PS/141 & Rev.1	Certification Standard for Type Approval Testing of Active Deployable Systems of the Bonnet Area
INF GR/PS/142	Relative humidity of Korea
INF GR/PS/143 & Rev.1	Draft gtr based on INF GR/PS/121 as amended during the 8th meeting
INF GR/PS/144 & Rev.1	Draft meeting minutes of the 8th meeting
INF GR/PS/145	Attendance list 8th meeting
INF GR/PS/146	Flex-PLI TEG Activities
INF GR/PS/147	Proposals from Mr Césari for amendments to the preamble as agreed in the action items INF GR/PS/139
INF GR/PS/148	Assessment of the FTSS 4.5 kg aluminium headform as a possible alternative for EEVC WG17
INF GR/PS/149	New Requirement Proposal for the GTR Adult Headform Impactor Specification - Moment of Inertia
INF GR/PS/150	Development of a Head Impact Test Procedure for Pedestrian Protection (Glaeser, 13th ESV Conference, Paris 1991)

INF GR/PS/151	Proposed wording by Japan for the preamble on the headform (damped) accelerometer issue
INF GR/PS/152	Provisional agenda for the 9th meeting
INF GR/PS/153	Explanation of amendments to INF GR/PS/143 resulting in INF GR/PS/143 Rev. 1
INF GR/PS/154 & Rev.1	Handling Guideline for the EEVC WG17 Legform Impactor (Draft) and (Version 1.0)
INF GR/PS/155	Proposal for a Definition of the Lower Windscreen Reference Line and Justification
INF GR/PS/156	Proposal for Impact Angles for Headform to Windscreen Tests and Justification
INF GR/PS/157	Proposal for HIC Limits for Headform to Windscreen Tests and Justification
INF GR/PS/158	Proposal for New Criteria for Headform Impactor to Bonnet Tests and Justification
INF GR/PS/159	Proposal for a Definition of Vehicles with High Bumpers and Justification
INF GR/PS/160	Revised preamble replacing the preamble in doc. INF GR/PS/143 Rev. 1
INF GR/PS/161 & Rev.1	EU proposed amendments to doc. INF GR/PS/143 Rev. 1
INF GR/PS/162	Explanation of EU proposals (in INF GR/PS/161) to amend INF GR/PS/143 Rev. 1
INF GR/PS/163	SUV - Windshield Head Impacts
INF GR/PS/164	Observation of different windscreen glass fracture modes during headform impactor tests
INF GR/PS/165	Leg feasibility testing
INF GR/PS/166	Relaxation zone and GVWR application for US
INF GR/PS/167	EU field data on crossbeam height
INF GR/PS/168	Relationship between HIC15, HIC36, Peak Acceleration and Pulse duration
INF GR/PS/169	Revised Analysis of Pedestrian Accident Situation and Portion Addressed by this GTR
INF GR/PS/170	Draft preamble: Target population for this gtr
INF GR/PS/171	Draft meeting minutes of the 9th meeting
INF GR/PS/172	Attendance list 9th meeting
INF GR/PS/173	Provisional agenda for the 10th meeting
INF GR/PS/174 & Rev.1	-Euro NCAP test results, Phase 12 – 17, lower leg tests - OICA presentation for Jan 2006 meeting
INF GR/PS/175 & Rev.1/2	Lower/Upper Bumper Reference Lines, Data on existing vehicles - OICA presentation for Jan 2006 meeting
INF GR/PS/176 & Rev.1/2	Headform test data - OICA presentation for Jan 2006 meeting
INF GR/PS/177	IHRA/PS Proposal for the Moment of Inertia of gtr Adult/Child Headform Impactors
INF GR/PS/178	Expected life-saving of introducing the GTR Head Protection Regulation in Japan
INF GR/PS/179	Ongoing Researches on Pedestrian Leg Injuries Assessment Performed by INRETS in Relation with EEVC WG 17
INF GR/PS/180	OICA position on the change of the definition of the ble reference line
INF GR/PS/181	Lower Extremity Pedestrian Injury in the US: A Summary of PCDS Data (from IHRA/PS 333)
INF GR/PS/182	Factor causing scatter in dynamic certification test results for compliance with EEVC WG17 legform impactor standard (Matsui/Takabayashi, IJCrash 2004 Vol. 9 No. 1 pp. 5–13)
INF GR/PS/183	OICA position on bonnet leading edge 165 mm exemption zone
INF GR/PS/184	Final draft gtr (without preamble)
INF GR/PS/185	Mr Saul letter dated on 3/1/2006
INF GR/PS/186	NHTSA revision of preamble PS/160
INF GR/PS/187 & Rev.1	EEVC WG17 report December 1998 and with September 2002 updates
INF GR/PS/188	Draft meeting minutes of the 10th meeting
INF GR/PS/189	Attendance list 10th meeting

"

Part B,

Paragraph 133, amend to read:

"133. Sections 1. to 6. reflect ... upper legform impactor **and the test procedure** for the high bumper vehicles **as well as** the headform impactors **and the respective test procedures.**"

Paragraph 135, amend to read:

"135. Under ... (gtr) No. 9 on pedestrian safety.¹ **After the review, GRSP resumed that pending issues should addressed by a reconstituted Informal Working Group (IWG).**"

¹ The final report of the TEG is available as documents ECE/TRANS/WP.29/GRSP/2011/13 and GRSP-49-15, which are listed in document GTR9-C-08 of the constitutional meeting of the IWG and are stored in the section "FlexPLI subgroup" of the first Informal Group on Pedestrian Safety.

Paragraph 137, amend to read:

"137. The work of the **IWG** shall ..."

Paragraph 159, amend to read:

"159. The seventh ...The latter two were agreed in **principle** while a ..."

Insert new paragraphs 160 and 161, to read:

"160. The eighth meeting of the IWG was held on, 9 and 10 September 2013. The meeting was dedicated mainly to discuss the open items like the injury criteria, the femur certification corridors and to review the preamble and the regulatory text of the gtr No. 9.

161. The ninth meeting of the IWG was held on 16 and 17 December 2013. During the meeting open items were discussed and resolved during the final review of the proposed amendment of the text for the gtr and the UN Regulation 127. One pending issue on the performance limits for the injury criteria has to be discussed within GRSP involving all Contracting Parties."

Paragraphs 160 to 189, renumber as paragraphs 162 to 191.

Paragraphs 190 and 191, renumber as paragraph 192 and 193 and amend to read:

"**192.** The IWG...for the **certification** of the FlexPLI.

193. The results...for the **certification** of the flexible legform impactors on the assembly and component level."

Paragraph 192, renumber as paragraph 194.

Paragraph 193, renumber as paragraph 195 and amend to read:

"**195.** The expert ... observed. **The IWG** discussed ..."

Paragraph 194, renumber as paragraph 196.

Paragraph 195, renumber as paragraph 197 and amend to read:

"**197.** The IWG ... However, OICA **showed an example for test results with the FlexPLI against a test rig**, where the output ..."

Paragraph 196, renumber as paragraph 198 and amend to read:

"**198.** JASIC introduced information on the performance and injury criteria for the FlexPLI (**GTR9-1-05r1, GTR9-1-06r1**). The validation ... Performance limits for the tibia bending moment, **the ACL and the MCL proposed by the Technical Evaluation Group (TEG) on FlexPLI** were presented to participants."

Paragraphs 197 and 198, renumber as paragraphs 199 and 200.

Paragraphs 199 to 201, renumber as paragraphs 201 to 203 and amend to read:

"**201.** At the ... FlexPLI **with the final build level used** for the round robin ...

202. In ... request from NHTSA, BAST and JASIC **provided** information on the derivation of the injury risk function using their own **approaches (GTR9-6-08r1, GTR9-6-26)**. Since...

203. From ... density function (**GTR9-6-08r1**)."

Paragraph 202, renumber as paragraph 204.

Paragraph 203 to 205, renumber as paragraphs 205 to 207 and amend to read:

"**205.** At ... function (**GTR9-6-08r1**). At the same ... Congress (**GTR9-6-26**).

206. At the ... information to NHTSA (GTR9-7-07), but an effort ...of the (the IWG (GTR9-8-11).

207. In the investigation ... The dimension of the EEVC legform **impactor** and the ..."

Paragraph 206, renumber as paragraphs 208 and 209 and amend to read:

"208. In ... human injury risk with the aid of human **body computer models** and FlexPLI computer models. ..., provided a human vs. FlexPLI comparison under conditions that match actual gtr tests. **BASt acknowledged the good correlation between the human FE model and the FlexPLI version GTR FE model of the final build level in terms of the tibia loadings; however, the knee correlation especially for the MCL elongation still shows potential for being further improved. The Alliance members indicated that the MCL response correlation between the two simulation models (FlexPLI and human body) would not be considered statistically significant ($R < 0.8$). Therefore, it is proposed that the threshold limits for the MCL based on this analysis should be used as a guide but should not be used as a pass fail criterion.**

209. At ... FlexPLI FE model against the final build level of the actual FlexPLI (GTR9-7-08). The ... the same as those proposed earlier by the TEG. **BASt questioned how the original FlexPLI FE model could be validated against the FlexPLI prototype impactors – i.e. not the mass production model – that were used to establish the first dynamic certification corridors because of the master legs producing slightly different output values than the prototypes in inverse certification tests."**

Paragraph 207, renumber as paragraph 210 and amend to read:

"210. At ... studies **may be** necessary to evaluate the appropriateness of the thresholds for their domestic regions."

Insert new paragraphs 211 and 212, to read:

"211. In order to meet the time line of Phase 2, the United States of America proposed at the ninth meeting of the IWG to include both the current injury threshold values in the gtr as well as the injury risk curves in the regulatory text of the gtr as contracting party options. The injury risk curves would be used by contracting parties selecting that option to determine the injury threshold values based on their domestic benefit assessment. The IWG deferred the discussion on this to GRSP to get all Contracting Parties involved in the discussion and the decision.

212. Contracting Parties agreed at the fifty-fourth session of GRSP to introduce flexibility for Contracting Parties regarding the injury threshold values but limit it to Contracting Party without pre-existing pedestrian protection regulations or standards implemented in their domestic legislation at the time of the establishment of the Phase 2 of Global Technical Regulation No.9. GRSP agreed to keep the data for injury risk curves as reference in the document table in section 7. As an example, for the tibia moment threshold, the injury risk curves can be found in document GTR9-1-06r1."

Paragraphs 208 to 214, renumber as paragraphs 213 to 219.

Paragraphs 215 and 216, renumber as paragraphs 220 and 221 and amend to read:

"220. As ... safety **requirements automobile** manufacturers **may** find it challenging if offering a specific vehicle design. Therefore ... transposition **of the requirements** of gtr No. 9 should be ... on pedestrian **safety for** vehicles and planning the introduction of pedestrian safety requirements.

221. **Without obligation,** it is recommended for Contracting Parties without requirements on pedestrian **safety in** their domestic law, **to use the FlexPLI rather than the EEVC LFI** during the ... of Phase 1 of the gtr No. 9."

Insert new paragraph 222, to read:

"222. The IWG noted that the simultaneous application of the EEVC legform impactor and the FlexPLI in various regulative and consumer rating requirements worldwide can lead to market distortions and an unnecessary burden on manufacturers. Therefore, it is recommended that Contracting Parties implement this amendment for compliance at the earliest possible date as an option at the choice of the car manufacturer. However, in those regions where there is existing legislation relating to legform testing with the EEVC legform impactor, vehicles fulfilling the requirements of Phase 1 of this legislation, already provide protection of the lower leg. Where this is the case, a review of costs and benefits of changing to the use of the Flex PLI may not be justified if it were to require a general redesign of existing vehicle types. Contracting Parties should consider exempting vehicles from meeting FlexPLI requirements when these vehicles were designed and proven to comply with the requirements for the EEVC LFI."

Section 6, the title, amend to read:

"6. Task Force Bumper Test Area (TF-BTA)"

Paragraphs 217 and 218, renumber as paragraphs 223 and 224 and amend to read:

"223. On request of the expert from the European Commission a discussion on the current bumper test area, mostly for the lower legform impact, took place. The necessity of improving and notably widening the test area on the bumper for the lower legform test was shown as the area of the bumper is quite restricted as a result of angled front fascia designs and protrusions or other features on the fascia of some vehicles that interact with the 60 degree planes that in the current test procedure define the test area. The decision was to discuss the whole subject in detail in a specific task force on the bumper test area (TF-BTA).

224. The IWG agreed to establish such a task force. However it was also agreed, that, depending on the progress of the task force, at a later stage it may be needed to separate the discussion on this subject from that on the FlexPLI. The bumper test area task force would be part of the informal group but it should also not restrict the progress on the FlexPLI as the main subject of the group. The expert of the European Commission chaired the task force's discussions."

Paragraph 219, renumber as paragraph 225.

Paragraph 220, renumber as paragraphs 226 and 227 and amend to read:

"226. The European Commission sought guidance on this topic by commissioning a contractor to investigate the different issues. First results of this work showed that, for the newer vehicles, the test area for the lower legform impact was narrowed. The contractor therefore was requested to further investigate possibilities to solve this issue, in cooperation with stakeholders."

227. In three further meetings from December 2012 to September 2013 first research results were presented, confirming that there is a need to test outside the currently defined narrow test area. However, it was also recognised that tests outside the current bumper test area could lead to other issues which need to be assessed and addressed, if necessary. Notably, the reliability of the test results needs further investigation. Therefore, the issue will be further considered, along with all relevant assessment, to determine if and how the current and new pedestrian lower legform impactors (EEVC LFI, FlexPLI) can be used to test outside the currently defined bumper corners."

Insert new paragraph 228 and new section 7, to read:

"228. It was also recognized that TF-BTA will likely not finalise the necessary assessments in line with the schedule of the IWG concerning the introduction of the FlexPLI and will therefore submit a separate proposal in due course.

7. List of documents discussed in the IWG on gtr No. 9 – Phase 2

Doc. No.	Rev	Name
GTR9-C-01	1	Agenda of the Constitutional Meeting of the IWG on gtr No 9 - Phase 2 (IWG GTR9-PH2)
GTR9-C-02	1	Minutes of the Constitutional Meeting of the IWG GTR9-PH2
GTR9-C-03		Informal document GRSP-49-38: Draft terms of reference for the IWG GTR9-PH2
GTR9-C-04	1	History of Development of the FlexPLI
GTR9-C-05		Review of the FlexPLI TEG Activities
GTR9-C-06		Comments on the Draft Terms of Reference for the IWG PH2(28/10/2011)
GTR9-C-07	1	Final Operating Principles and Terms of Reference for the IWG GTR9-PH2
GTR9-C-08		TEG document matrix
GTR9-1-01	1	Agenda for the 1st meeting of the IWG GTR9-PH2
GTR9-1-02	1	Minutes of the 1st meeting of the IWG GTR9-PH2
GTR9-1-03	1	Document TF-RUCC-K-03-Rev.1: Work plan of Task Force Review and Update of Certification Corridors (TF-RUCC)
GTR9-1-04		FlexPLI Version GTR Prototype SN-02 - Durability Assessment
GTR9-1-05	1	Technical Discussion – Biofidelity
GTR9-1-06	1	Technical Discussion – Injury Criteria
GTR9-1-07	1	Technical Discussion – Benefit
GTR9-1-08	1	FlexPLI GTR Status, 1 – 2 December 2011
GTR9-1-09		Informal document WP.29-155-35: Report to the November session of WP.29 on the activities of the IG GTR9-PH2
GTR9-1-10		Changes to Flex PLI GTR Since Prototype Build, Status Dec. 2010
GTR9-1-11		Scatter of pendulum test results, 09.11.2010
GTR9-1-12		Informal document GRSP-49-23: Update on Pedestrian Leg Testing
GTR9-2-01	1	Agenda for the 2 nd meeting of the IWG GTR9-PH2 - Final
GTR9-2-02	1	Minutes of the 2 nd meeting of the IWG GTR9-PH2 - Final
GTR9-2-03		Proposal for a Modification of the Bumper Test Area for Lower and Upper Legform to Bumper Tests
GTR9-2-04	1	Robustness of SN02 prototype test results - Revision 1
GTR9-2-05		Comparison of Filter Classes for FlexPLI
GTR9-2-06		Technical Specification and PADI
GTR9-2-07	1	Technical Discussion – Benefit (Update of document GTR9-1-07 Rev. 1)
GTR9-2-08		FlexPLI gtr meeting actions
GTR9-2-09		FlexPLI gtr – FE model v2.0
GTR9-2-10	2	FlexPLI Comparison - test experiences with different impactors (completed during the 3rd meeting)
GTR9-2-11		Informal document WP.29-156-11: First progress report of the IWG GTR9-PH2
GTR9-2-12		Re-examination of Number of Pedestrians by Injury Severity
GTR9-2-13		FLEX PLI Update for Alliance of Automobile Manufacturers
GTR9-2-14		Updated Japan Progress Report: Review and Update Certification Test Corridors and Test Methods (added pendulum Test data)
GTR9-3-01	1	Agenda for the 3rd meeting of the IWG GTR9-PH2 - Final
GTR9-3-02	1	Minutes of the 3rd meeting of the IWG GTR9-PH2 – Final
GTR9-3-03		Informal document GRSP-51-15: Draft second progress report of the IWG GTR9-PH2
GTR9-3-04		Flex PLI GTR User Manual Rev. C
GTR9-3-05		FlexPLI Prototype SN04 Robustness Test results
GTR9-3-06		Proposal for a future vehicle test matrix
GTR9-4-01	1	Agenda for the 4th meeting of the IWG GTR9-PH2 - Final
GTR9-4-02	1	Minutes of the 4th meeting of the IWG GTR9-PH2 - Final
GTR9-4-03	3	Status of activity list items
GTR9-4-04		1994 EEVC WG10 Report
GTR9-4-05		1996 EEVC WG10 report to the 15th ESV conference
GTR9-4-06		1998/2002 EEVC WG17 Report
GTR9-4-07		TF-RUCC Activity Report 6 Sept. 2012
GTR9-4-08		Guidelines To Conduct FlexPLI Round Robin Car Test Smoothly and Effectively
GTR9-4-09		FlexPLI Round Robin Test Results

GTR9-4-10		Informal document WP.29-157-16: Proposal for the establishment of Special Resolution No. 2 on description and performance of test tools and devices necessary for the assessment of compliance
GTR9-4-11		Investigation of the Influences of Friction within the Inverse Certification Test Setup
GTR9-4-12		Report addressing the Pedestrian Research performed by JASIC
GTR9-4-13		JP Research Summary: JASIC Flex Injury Estimate
GTR9-4-14		Comparison of FlexPLI Performance in Vehicle Tests with Prototype and Series Production Legforms
GTR9-4-15		Informal document WP.29-157-21: Second progress report of the IWG GTR9-PH2No. 9
GTR9-4-16	1	Pedestrian Lower Extremity Injury Risk - Revision 1
GTR9-4-17		FlexPLI Round Robin Car Test Schedule
GTR9-4-18		FlexPLI vs. EEVC LFI Benefit Estimation
GTR9-4-19		Overview of NHTSA Pedestrian Activities
GTR9-4-20		Validation of pedestrian lower limb injury assessment using subsystem impactors (IRCOBI conference, 12th – 14th Sept. 2012)
GTR9-4-21		OSRP Pedestrian Lower Leg Response Research test series
GTR9-4-22		Checklist for Vehicle Testing
GTR9-5-01	1	Agenda for the 4th meeting of the IWG GTR9-PH2 – Final
GTR9-5-02	1	Minutes of the 5th meeting of the IWG GTR9-PH2 – Final
GTR9-5-03		Pedestrian injuries by source: serious and disabling injuries in US and European cases (Mallory et al. Paper for 56th AAAM Annual Conference)
GTR9-5-04		Flex PLI GTR User Manual Rev. D, Oct. 2012
GTR9-5-05	2	FlexPLI - Round Robin Tests
GTR9-5-06		Informal document WP29-158-28: Draft 3rd progress report
GTR9-5-07	c2	Discussion on Feasibility of FlexPLI Countermeasures
GTR9-5-08		Proposal for Procedure to Process FlexPLI Measurements in Rebound Phase
GTR9-5-09		Applicability Information
GTR9-5-10		FlexPLI Durability Against Larger Vehicles
GTR9-5-11		FlexPLI Repeatability in Car Tests
GTR9-5-12		Experimental Validation of Human and FlexPLI FE Models
GTR9-5-13		FlexPLI vs. EEVC LFI Correlation
GTR9-5-14		Benefit and Cost; Additional Analysis based on GTR9-2-07r1
GTR9-5-15		Moving Ram Friction Effect
GTR9-5-16	1	Round Robin Test Result (E-Leg)
GTR9-5-17		FlexPLI Test Results (SN-03)
GTR9-5-18		Flex PLI Logbook for the IG GTR9-PH2 Round Robin Tests
GTR9-5-19		Estimation of Cost Reduction due to Introduction of FlexPLI within GTR9
GTR9-5-20		Verification of draft FlexPLI prototype impactor limits and application to FlexPLI serial production level
GTR9-5-21		US Round Robin Test Status
GTR9-5-22		Information on vehicle data used in NHTSA's studies
GTR9-5-23	c	Initial comments of OICA representatives to the 5th IWG GTR9-PH2 meeting in response to document GTR9-5-20
GTR9-5-24		Height tolerance for pedestrian protection
GTR9-5-25		Flex PLI Inverse Test Setup - Moving Ram Friction
GTR9-5-26		Investigation of the Influences of Friction within the Inverse Certification Test Setup of the FlexPLI - Lower Legform Impactor
GTR9-5-27		Clarification of Injury Threshold Determination Process Used by JAMA
GTR9-5-28		Operating Principles and Terms of Reference for the IWG GTR9-PH2, updated version 5th meeting
GTR9-5-29		Draft gtr No 9 amendment, version 2012-12-06
GTR9-5-30		Discussion of the Rebound Issue, ACEA comments
GTR9-5-31	1	FlexPLI version GTR drawing package
GTR9-6-01	1	Agenda for the 6th meeting of the IWG GTR9-PH2 - Final
GTR9-6-02	2	Minutes of the 6th meeting of the IWG GTR9-PH2 - Final
GTR9-6-03		FlexPLI Testing: Propelling Accuracy
GTR9-6-04		Guidelines for the development of drawings for a test tool to be added as an Addendum to UN Mutual Resolution No. 1 (M.R.1) - (ECE/TRANS/WP.29/1101)
GTR9-6-05		Schedule to prepare an Addendum for FlexPLI for the M.R.1
GTR9-6-06		FlexPLI gtr User Manual Rev. E 2013
GTR9-6-07		Definition of FlexPLI Biofidelic Assessment Interval
GTR9-6-08	1	Derivation of FlexPLI thresholds
GTR9-6-09		FlexPLI Drawings
GTR9-6-10		FlexPLI Pre- & Post-Test Procedure
GTR9-6-11		Consideration of the Rebound Phase

GTR9-6-12		Validation of Flex-gtr model
GTR9-6-13		Proposal for a wording to consider tolerances of the normal ride height
GTR9-6-14	1	FlexPLI Round Robin Testing
GTR9-6-15	1	Summary JPR Report Evaluating the Methodology and Assumptions Made in Doc. GTR9-5-14 and GTR9-5-19
GTR9-6-16		JPR Report Evaluating the Methodology and Assumptions Made in Doc. GTR9-5-14 and GTR9-5-19
GTR9-6-17		Large Truck/SUV Challenges
GTR9-6-18		FlexPLI Round Robin Test Results
GTR9-6-19	1	FlexPLI Round Robin Test Results
GTR9-6-20		Discussion on Impactor Thresholds
GTR9-6-21		Flex-PLI Rebound Issue: Industry Proposal (Update)
GTR9-6-22		FlexPLI Drawing Review (Surface Level)
GTR9-6-23	2	FlexPLI Drawings Review
GTR9-6-24		Durability Study SN-03
GTR9-6-25		Comments on GTR9-6-15(JP research review of JASIC & BAST FlexPLI injury reduction estimate)
GTR9-6-26		Development of Injury Probability Functions for the Flexible Pedestrian Legform Impactor
GTR9-6-27		Comments on Alliance and JP Research Documents (GTR9-6-15 and GTR9-6-16)
GTR9-6-28		Certification test results of the OEM legform used in document GTR9-6-20
GTR9-7-01	1	Agenda for the 7th meeting of the IWG GTR9-PH2 - Final
GTR9-7-02	1	Minutes of the 7th meeting of the IWG GTR9-PH2 - Final
GTR9-7-03		Draft running order of the provisional agenda
GTR9-7-04		Information on drawing package kindly provided by Humanetics
GTR9-7-05	c	Result of drawing review (surface level)
GTR9-7-06	c	Result of manual review
GTR9-7-07		Injury Probability Function for Tibia Fracture and MCL Failure
GTR9-7-08		Development of Flex-GTR master leg FE model and evaluation of validity of current threshold values
GTR9-7-09		Flex-GTR Master Leg Level Impactor Test Data - Pendulum Test
GTR9-7-10		FlexPLI Logbook - legform SN-01
GTR9-7-11		FlexPLI Logbook - legform SN-03
GTR9-7-12		FlexPLI Logbook - legform E-Leg
GTR9-7-13		FlexPLI Rebound Phase
GTR9-7-14		Detailed review of drawing package and itemized check against master leg impactor SN03
GTR9-7-15		BAST comments on GTR9-7-13:JASIC position on FlexPLI rebound phase
GTR9-7-16	1	Collation of FlexPLI Pendulum Certification Test Results
GTR9-7-17	1	Collation of FlexPLI Inverse Certification Test Results
GTR9-8-01	1	Agenda for the 8th meeting of the IWG GTR9-PH2 - Final
GTR9-8-02		Minutes of the 8th meeting of the IWG GTR9-PH2 - Draft
GTR9-8-03	1	GTR9 – Draft Working Document of IG GTR9 PH2; Version 1, 04 Sept. 2013
GTR9-8-04		GTR9 – Draft Preamble of IG GTR9 PH2; Version 1, 04 Sept. 2014
GTR9-8-05		(not used)
GTR9-8-06		OICA comments on the draft text, based on document GRSP-53-29
GTR9-8-07		Proposed Title Block for Regulation Drawings
GTR9-8-08	1	Comments to JAMA presentation GTR9-7-06c and proposed changes, FlexPLI gtr Manual
GTR9-8-09		Comments to Cellbond Flex PLI Drawing Check Document GTR9-6-23
GTR9-8-10		Comments to JASIC's Comments Provided with Document GTR9-7-05c
GTR9-8-11		Comparison of Effect of Different Approaches on Injury Risk Functions
GTR9-8-12		Possible Influence of Temperature and Humidity on the FlexPLI Behavior
GTR9-8-13		FlexPLI Manual: FlexPLI Preparation before Car Testing
GTR9-8-14		Request for Transitional Provisions for FlexPLI Usage
GTR9-8-15		FlexPLI Biofidelic Assessment Interval (BAI): Open Issues
GTR9-8-16		Change to foam flesh used by EEVC lower & upper legforms
GTR9-8-17		FlexPLI Version gtr - Testing of Vehicles with Different Bumper Systems
GTR9-8-18		Femur Certification Corridors for the Inverse Test (Zero Cross Timing)
GTR9-8-19		Femur Certification Corridors for the Pendulum Test (Zero Cross Timing)
GTR9-9-01	1	Agenda for the 8th meeting of the IWG GTR9-PH2 - Draft
GTR9-9-02		(Minutes of the 9th Meeting, not yet available)
GTR9-9-03		FlexPLI weight tolerances, Reduction of proposed weight tolerances
GTR9-9-04	1	Lower Legform Test Area, Justification of the Need for a Relaxation Zone
GTR9-9-05		Proposal of 01 series of amendments to Regulation No. 127: Transitional provisions
GTR9-9-06		Proposed amendments of the three-point bending certification test figure
GTR9-9-07	1	FlexPLI gtr User Manual Rev. F (Draft) 2013
GTR9-9-08	1	Updates to Flex PLI Manual Rev E to Rev F

GTR9-9-09		Max and Min Femur Certification Analysis FlexPLI
GTR9-9-10		FlexPLI Weight Tolerance Review
GTR9-9-11		Reviewed FlexPLI version GTR drawing package
GTR9-9-12		Details of Drawing Updates to Flex gtr No. 9 Regulation Drawings
GTR9-9-13		Flesh Neoprene Corridor FlexPLI
GTR9-9-14		Dimensional Tolerance Review FlexPLI
GTR9-9-15		Confor Foam Change [for EEVC Impactors]
GTR9-9-16		Flex PLI Drawing Review
GTR9-9-17		Legform Tests, Results from Round 2, FlexPLI

"
Text of the Regulation (Part II),

Paragraphs 3.23. and 3.24., remove square brackets

Paragraph 5.1.1., amend to read:

"5.1.1. When ... exceed [22 mm], and ... exceed [13 mm]. The ... exceed [340 Nm].
... a maximum of 264 mm ... not exceed [380 Nm]... is appropriate.²

Paragraph 6.3.1.1., amend to read:

"6.3.1.1. ... of 13.2 ± [0.4 kg]. When fully assembled in the impactor..."

Paragraph 6.3.1.1.3., amend to read:

"6.3.1.1.3. The ... shall be 2.46 ± 0.12 kg and 2.64 ± 0.13 kg ... and skin shall be 4.28 ± 0.21 kg. ... the tibia without the flesh and skin shall be 9.38 [± 0.3] kg. ..."

Figure 15(b), shall be deleted

Insert new Figure 15(b), to read:

"(b) Neoprene sheets

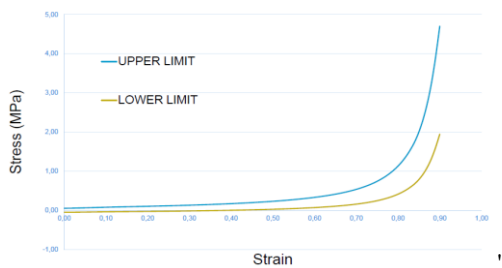


Figure 26, shall be deleted

[² A Contracting Party without pre-existing pedestrian protection regulations or standards implemented in domestic legislation at the time the Phase 2 of Global Technical Regulation No.9 is established in the Global Registry, may decide other injury thresholds for the maximum dynamic medial collateral ligament elongation, the maximum dynamic anterior cruciate ligament and posterior cruciate ligament elongation and the dynamic tibia bending moments in its domestic legislation if it decides that such modification is appropriate.]"

6. GRSP agreed to seek the consent of WP.29 and AC.3 to mandate a new IWG to solve the pending issues for incorporating the Flex-PLI in Phase 2 of the gtr No. 9 and in the draft UN Regulation on pedestrian safety in the same time. The World Forum agreed to set up this IWG, subject to the submission to WP.29 of the appropriate terms of references (ECE/TRANS/WP.29/1091, para. 36 and 100).

II. Objective of the Informal Group

7. The main objective of the IWG on gtr No. 9 – Phase 2 was to develop a draft proposal to amend gtr No. 9 - Phase 2 on pedestrian safety by introducing the Flex-PLI as a single harmonized test tool in order to enhance the safety level of lower leg pedestrian protection.

8. The work of the IWG was not limited to draft proposals to amend gtr No. 9, but covered the development of a complementary draft proposal to amend the draft UN-Regulation No. 127 on pedestrian safety.

9. The IG GTR9-PH2 worked on the items listed in Appendix 1 of the terms of reference (see Annex 1 of this document).

10. The IWG also reviewed further draft proposals to improve and / or clarify aspects of the legform test procedure.

III. Procedural Background

11. At the 154th session of the World Forum for Harmonization of Vehicle Regulations (WP.29) and the thirty second session of the Executive Committee of the 1998 Agreement (AC.3) it was agreed to set up an IWG to solve the pending issues for the incorporation of the FlexPLI in Phase 2 of the gtr No. 9 and in the draft UN Regulation on pedestrian safety, subject to the submission to WP.29 and to AC.3 of appropriate terms of references (document ECE/TRANS/WP.29/1091, paras. 36 and 100).

12. Japan and Germany have informed the World Forum for Harmonization of Vehicle Regulations and the Executive Committee of the 1998 Agreement that this IWG named IG GTR9 - Phase 2 will be co-sponsored by Japan and Germany.

13. The IWG has started its work on 3 November 2011 with a Constitutional Meeting in Bonn, Germany, to draft a document on the terms of references, the operating principles, the schedule and the work plan. At this occasion the participants agreed to the proposal of Japan and Germany that the IWG will be managed by Germany (chair), Japan (vice-chair) and OICA (Secretary).

14. At the 155th session of the World Forum and at the thirty-third session of the Executive Committee of the 1998 Agreement, Japan and Germany have informed delegates about the ongoing activities of the IWG on gtr No. 9 Phase 2 (document WP.29-155-35). The delegates were informed about the constitutional meeting and the management of the group. The information was given that the first meeting was planned for 01 and 02 December 2011 to start the technical discussion and to finalize the draft terms of references as well as the work plan for submission to GRSP in December 2011.

15. The first meeting of the IWG was held on 1 and 2 December 2011 in Geneva, Switzerland. The technical discussion was started and the draft document on the terms of references, the operating principles, the schedule and the work plan for submission to GRSP in December 2011 were finalised. The first progress report was submitted to GRSP in December 2011 and to WP.29 at its 156th session and to AC.3 at its thirty-fourth session in March 2012. At the 156th session WP.29 endorsed in principle the above mentioned terms of references, pending the adoption of the report of the December 2011 session of GRSP. AC.3 endorsed in principle the terms of reference of the informal

working group and requested the secretariat to distribute document ECE/TRANS/WP.29-156-11 with an official symbol for June 2012.

16. The second meeting of the IWG took place on 28 and 29 March 2012 in Osaka, Japan. The discussion was focused on the technical aspects including the accident and benefit analysis. Main priority was also given to discuss the activities on the further development of the certification procedures. For one further work item, a task force was initiated to work on the bumper test area for the lower legform impact.

17. The second progress report was submitted to GRSP in May 2012 and to WP.29 at its 157th session and to AC.3 at its thirty-fifth session in June 2012. During these sessions the first progress report (ECE/TRANS/WP.29/2012/58) and the terms of references including the operating principles, the schedule and the work plan were adopted. The second progress report (document ECE/TRANS/ WP.29-157-21) was distributed with an official symbol for November 2012.

18. The third meeting of the IWG was held on 29 and 30 May 2012 in Paris, France. Main topics discussed during the meeting were related to accident data on pedestrian injuries, the cost benefit assessment and the setup of certification corridors.

19. The fourth meeting of the IWG took place on 17 to 19 September 2012 in Washington, D.C., United States of America. The group carried on the discussions of the third meeting, while the main focus was given to the finalisation of certification corridors and the cost benefit assessment for the introduction of the FlexPLI. Further priority was given to agree on the plan for an international vehicle test programme with the FlexPLI.

20. The draft third progress report was submitted to the 158th session of the World Forum and to the thirty-sixth session of AC.3. AC.3 requested the secretariat to distribute the draft third progress report (WP.29-158-28) with an official symbol for consideration at the next session and adopted the second progress report (ECE/TRANS/WP.29/2012/120).

21. The fifth meeting was held on 6 and 7 December 2012 in Bergisch Gladbach, Germany. Main subjects of this meeting were a review of the cost benefit analysis, an exchange of information based on the first results of the repeatability and reproducibility testing of the FlexPLI with vehicles and a discussion of the threshold values for the injury criteria. Additionally, the IWG agreed to ask GRSP and AC.3 for an extension of the mandate (working schedule) to take all testing results into account for the amendment.

22. At the 159th session of WP.29 and at the thirty-seventh session of AC.3 it was reported that concerning the development of Phase 2 of the gtr on pedestrian safety based on the original mandate (working schedule) GRSP had adopted the revised terms of reference of the informal working group as reproduced in Annex II to the GRSP report. The World Forum endorsed the extension of the mandate of the informal working group until June 2014 (adoption at AC.3) and, in principle, the revised terms of references, pending the adoption of the GRSP report of its December 2012 session at the 160th session of the World Forum in June 2013.

23. The third progress report (ECE/TRANS/WP.29/2013/36) was recalled at the 159th session of the World Forum and the 37th session of AC.3 as amended (WP.29-159-20) at the December 2012 session of GRSP. AC.3 adopted ECE/TRANS/WP.29/2013/36, as amended by Annex III of the report of the World Forum (ECE/TRANS/WP.29/1102).

24. The sixth meeting of the IWG took place in Washington D.C., United States of America from 19 to 20 March 2013. The group agreed on the approach to review the FlexPLI drawing package to prepare the addendum for the Mutual Resolution No. 1 (M.R.1). The review of the controversial discussion on the cost-benefit studies was finalised and the results of the different regions and laboratories on the vehicle repeatability and reproducibility testing were shared for discussions.

25. The draft fourth progress report of the group was presented at the fifty-third session of GRSP. It was added that the group had made good progress and that it was ready to submit an official proposal to the December session of GRSP with possible pending decisions on threshold values of injury criteria. GRSP agreed to resume consideration of this subject on the basis of a proposal submitted by the IWG.

26. At its 160th session, the World Forum was informed by the representative of the United States that GRSP expected to recommend that Amendment 2 (Phase 2) of the gtr on pedestrian safety, aimed at including the Flex-PLI and the definition of the head form impact point be included into the gtr No. 9 test. These provisions would also be included into UN Regulation No. 127. He also announced the submission of an Amendment 1 (Phase 1) to the gtr on pedestrian safety on an updated definition of the head form impact point.

27. At the same session of WP.29, the representative of Japan, Vice-Chair of the IWG on Phase 2 of gtr No. 9, introduced the fourth progress report of the group together with a presentation. He explained that the IWG had made good progress and that an official proposal for incorporating the flexible pedestrian legform impactor would be submitted to the December 2013 session of GRSP. AC.3 adopted the fourth progress report and requested the secretariat to distribute it with an official symbol at its November 2013 session.

28. The seventh meeting of the IWG was held as a telephone and online meeting on 3 July 2013. The group discussed some specific issues, especially on the threshold values for the injury criteria, the definition of the rebound phase and the tolerances of FlexPLI output values during the free-flight phase. The latter ones were agreed in principal while a decision on the threshold values is still pending. A further work item agreed was to perform an analysis on the necessity and possibility to introduce certification corridors for the femur bending moment.

29. The eighth meeting of the IWG was held on 9 and 10 September 2013. The meeting was dedicated mainly to discussion of the open items like the injury criteria, the femur certification corridors and to review the preamble and the regulatory text of the gtr No. 9.

30. The ninth meeting of the IWG was held on 16 and 17 December 2013. During the meeting open items were discussed and resolved during the final review of the proposed amendment of the text for the gtr and the UN Regulation 127. One pending issue on the performance limits for the injury criteria has to be discussed within GRSP involving all Contracting Parties.

31. At the fifty-fourth session of GRSP, Contracting Parties discussed introducing flexibility for Contracting Parties regarding the injury threshold values, but limiting it to Contracting Parties without pre/existing pedestrian protection regulations or standards implemented in domestic legislation at the time the Phase 2 of Global Technical Regulation No. 9. OICA expressed concerns with this approach because it is not fully in line with the global harmonization principles and recommended seeking guidance from AC.3 on this specific matter. GRSP agreed to recommend the draft amendment for Phase 2 of the gtr to the June 2014 session of AC.3 pending its decision whether the proposed wording is acceptable for Contracting Parties to the 1998 Agreement.

Annex 1 - Terms of Reference

A. Introduction

1. GRSP agreed to set up an informal working group on pedestrian safety Phase 2 in order to further develop proposals to amend gtr No. 9 on introducing the Flexible Pedestrian Legform Impactor (Flex-PLI) (ECE/TRANS/WP.29/AC.3/24, ECE/TRANS/WP.29/1079, para. 101).

2. The Flex-PLI Technical Evaluation Group (Flex-TEG) has conducted technical evaluation activities on the Flex-PLI since September 2005. As result of the Flex-TEG activity Japan has submitted proposals for amendments on gtr No. 9 - Phase 2 as well as on the draft UN Regulation on Pedestrian Safety (Phase 2). At the forty-ninth session of GRSP some delegations have expressed outstanding reservations with regard to the introduction of the Flex-PLI and requested setting up an informal working group to discuss related issues and to develop proposals to amend gtr No. 9.

3. GRSP agreed to seek the consent of WP.29 and AC.3 to mandate a new informal working group to solve the pending issues for the incorporation of the Flex-PLI in Phase 2 of the gtr No. 9 and in the draft UN Regulation on pedestrian safety in the same time. The World Forum agreed to set up this informal working group, subject to the submission to WP.29 of the appropriate terms of references (ECE/TRANS/WP.29/1091, para. 36 and 100).

B. Objective of the informal working group

4. The main objective of the informal working group gtr No. 9 – Phase 2 (GTR9-PH2) is to develop a draft proposal to amend the UN global technical regulation No. 9 - Phase 2 on pedestrian safety by introducing the Flex-PLI as a single harmonized test tool in order to enhance the safety level of lower leg pedestrian protection.

5. The work of the informal working group shall not be limited to draft proposals to amend gtr No. 9, but shall cover the development of a complementary draft proposal to amend the draft UN Regulation on pedestrian safety.

6. The informal working group may also review further draft proposals to improve and / or clarify aspects of the legform test procedure.

7. The informal working group GTR9-PH2 shall work on the items listed in Appendix I to this document.

C. Work plan and time schedule

May 2011	Proposal of Draft ToR to GRSP (informal document)
GRSP agreed to seek consent of WP.29 and AC.3 to mandate new IWG on pedestrian protection	
3 November 2011 (Bonn, DE)	Constitutional meeting of the IG GTR9-PH2
November 2011	Report to WP.29 on activities of IG
1-2 December 2011 (Geneva, CH)	First meeting of the IG GTR9-PH2
December 2011	Progress Report to GRSP, submission of Draft ToR to WP.29
March 2012	Progress Report to WP.29 and adoption of ToR by AC.3
28 and 29 March 2012 (Osaka, JP)	Second meeting of the IG GTR9-PH2
May 2012	Progress Report to GRSP
29 - 30 May 2012 (Paris, FR)	Third meeting of the IG GTR9-PH2
June 2012	Progress Report to WP.29
17 - 19 Sept. 2012 (Wash. DC, USA)	Fourth meeting of the IG GTR9-PH2
November 2012	Draft Progress Report to WP.29
6 - 7 December 2012 (Bergisch Gladbach, DE)	Fifth meeting of the IG GTR9-PH2
December 2012	Progr. Report and submission of informal documents to GRSP
March 2013	Progress Report to WP.29
19 - 20 March 2013 (Wash. DC, USA)	Sixth meeting of the IG GTR9-PH2
Draft Progress Report and submission of informal proposal for discussion to GRSP	
June 2013	Progress Report to WP.29
3 July 2013	Seventh meeting (WebEx) of the IG GTR9-PH2
9 - 10 September 2013 (Paris, France)	Eighth meeting of the IG GTR9-PH2

Appendix - Reference Documents used by the Informal Group

All informal documents used by this IWG are listed and available on the UNECE WP.29 website (www.unece.org/trans/main/welcwp29.html).

<i>Doc. No.</i>	<i>Rev</i>	<i>Name</i>
ECE/TRANS/WP.29/GRSP/2011/13		Proposal for Amendment 2 to global technical regulation No. 9 (Pedestrian safety)
GRSP-49-38		Draft terms of reference for the IWG on pedestrian safety phase 2 (IG PS2)
ECE/TRANS/WP.29/1091		Reports of the World Forum for Harmonization of Vehicle Regulations on its 154th session, Administrative Committee of the 1958 Agreement on its forty-eighth session, Executive Committee of the 1998 Agreement on its thirty-second session, Administrative Committee of the 1997 Agreement on its eighth session
GTR9-C-01	1	Agenda of the Constitutional Meeting of the IWG on gtr No 9 - Phase 2 (IG GTR9-PH2)
GTR9-C-02	1	Minutes of the Constitutional Meeting of the IWG on gtr No. 9 – Phase 2 (IG GTR9-PH2)
GTR9-C-03		Informal document GRSP-49-38: Draft terms of reference for the IWG on pedestrian safety phase 2 (IG PS2)
GTR9-C-04	1	History of Development of the FlexPLI
GTR9-C-05		Review of the FlexPLI TEG Activities
GTR9-C-06		Comments on the Draft Terms of Reference for the IWG on Pedestrian Safety Phase 2 (28/10/2011)
GTR9-C-07	1	Final Operating Principles and Terms of Reference for the IG GTR9-PH2
GTR9-C-08		TEG document matrix
GTR9-1-01	1	Agenda for the 1st meeting of the IWG GTR9-PH2
GTR9-1-02	1	Minutes of the 1st meeting of the IWG GTR9-PH2
GTR9-1-03	1	Document TF-RUCC-K-03-Rev.1: Work plan of TF-RUCC
GTR9-1-04		FlexPLI Version GTR Prototype SN-02 - Durability Assessment
GTR9-1-05	1	Technical Discussion – Biofidelity
GTR9-1-06	1	Technical Discussion – Injury Criteria
GTR9-1-07	1	Technical Discussion – Benefit
GTR9-1-08	1	FlexPLI GTR Status, 1 – 2 December 2011
GTR9-1-09		Inf. Doc. WP.29-155-35: Report to the November session of WP.29 on the activities of the IWG GTR9-PH2
GTR9-1-10		Changes to Flex PLI GTR Since Prototype Build, Status Dec. 2010
GTR9-1-11		Scatter of pendulum test results, 09.11.2010
GTR9-1-12		Informal document GRSP-49-23: Update on Pedestrian Leg Testing
GTR9-2-01	1	Agenda for the 2nd meeting of the IWG GTR9-PH2 - Final
GTR9-2-02	1	Minutes of the 2nd meeting of the IWG GTR9-PH2 - Final
GTR9-2-03		Proposal for a Modification of the Bumper Test Area for Lower and Upper Legform to Bumper Tests
GTR9-2-04	1	Robustness of SN02 prototype test results - Revision 1
GTR9-2-05		Comparison of Filter Classes for FlexPLI
GTR9-2-06		Technical Specification and PADI
GTR9-2-07	1	Technical Discussion – Benefit (Update of document GTR9-1-07 Rev. 1)
GTR9-2-08		FlexPLI GTR meeting actions
GTR9-2-09		FlexPLI GTR – FE model v2.0
GTR9-2-10	2	FlexPLI Comparison - test experiences with different impactors (completed during the 3rd meeting)
GTR9-2-11		Informal document WP.29-156-11: First progress report of the IWG GTR9-PH2
GTR9-2-12		Re-examination of Number of Pedestrians by Injury Severity
GTR9-2-13		FLEX PLI Update for Alliance of Automobile Manufacturers
GTR9-2-14		Updated Japan progress report: Review and update certification test corridors and test methods (added pendulum test data)
GTR9-3-01	1	Agenda for the 3rd meeting of the IWG GTR9-PH2 - Final
GTR9-3-02	1	Minutes of the 3rd meeting of the IWG GTR9-PH2 – Final
GTR9-3-03		Informal document GRSP-51-15: Draft second progress report of the IWG GTR9-PH2
GTR9-3-04		Flex PLI GTR User Manual Rev. C
GTR9-3-05		FlexPLI Prototype SN04 Robustness Test results
GTR9-3-06		Proposal for a future vehicle test matrix
GTR9-4-01	1	Agenda for the 4th meeting of the IWG GTR9-PH2 - Final
GTR9-4-02	1	Minutes of the 4th meeting of the IWG GTR9-PH2 - Final
GTR9-4-03	3	Status of activity list items
GTR9-4-04		1994 EEVC WG10 Report
GTR9-4-05		1996 EEVC WG10 report to the 15th ESV conference
GTR9-4-06		1998/2002 EEVC WG17 Report
GTR9-4-07		TF-RUCC Activity Report 6 Sept. 2012
GTR9-4-08		Guidelines To Conduct FlexPLI Round Robin Car Test Smoothly and Effectively
GTR9-4-09		FlexPLI Round Robin Test Results
GTR9-4-10		Informal document WP.29-157-16: Proposal for the establishment of Special Resolution No. 2 on description and performance of test tools and devices necessary for the assessment of compliance
GTR9-4-11		Investigation of the Influences of Friction within the Inverse Certification Test Setup

GTR9-4-12		Report addressing the Pedestrian Research performed by JASIC
GTR9-4-13		JP Research Summary: JASIC Flex Injury Estimate
GTR9-4-14		Comparison of FlexPLI Performance in Vehicle Tests with Prototype and Series Production Legforms
GTR9-4-15		Informal document WP.29-157-21; 2 nd progress report of the IWG GTR9-PH2
GTR9-4-16	1	Pedestrian Lower Extremity Injury Risk - Revision 1
GTR9-4-17		FlexPLI Round Robin Car Test Schedule
GTR9-4-18		FlexPLI vs. EEVC LFI Benefit Estimation
GTR9-4-19		Overview of NHTSA Pedestrian Activities
GTR9-4-20		Validation of pedestrian lower limb injury assessment using subsystem impactors (IRCOBI conference, 12th – 14th Sept. 2012)
GTR9-4-21		OSRP Pedestrian Lower Leg Response Research test series
GTR9-4-22		Checklist for Vehicle Testing
GTR9-5-01	1	Agenda for the 4th meeting of the IWG GTR9-PH2 - Final
GTR9-5-02	1	Minutes of the 5th meeting of the IWG GTR9-PH2 - Final
GTR9-5-03		Pedestrian Injuries By Source: Serious and Disabling Injuries in US and European Cases (Mallory et al. Paper for 56th AAAM Annual Conference)
GTR9-5-04		Flex PLI gtr User Manual Rev. D, Oct. 2012
GTR9-5-05	2	FlexPLI - Round Robin Tests
GTR9-5-06		Informal document WP29-158-28: Draft 3rd progress report
GTR9-5-07	c2	Discussion on Feasibility of FlexPLI Countermeasures
GTR9-5-08		Proposal for Procedure to Process FlexPLI Measurements in Rebound Phase
GTR9-5-09		Applicability Information
GTR9-5-10		FlexPLI Durability Against Larger Vehicles
GTR9-5-11		FlexPLI Repeatability in Car Tests
GTR9-5-12		Experimental Validation of Human and FlexPLI FE Models
GTR9-5-13		FlexPLI vs. EEVC LFI Correlation
GTR9-5-14		Benefit and Cost; Additional Analysis based on GTR9-2-07r1
GTR9-5-15		Moving Ram Friction Effect
GTR9-5-16	1	Round Robin Test Result (E-Leg)
GTR9-5-17		FlexPLI Test Results (SN-03)
GTR9-5-18		Flex PLI Logbook for the IG GTR9-PH2 Round Robin Tests
GTR9-5-19		Estimation of Cost Reduction due to Introduction of FlexPLI within GTR9
GTR9-5-20		Verification of Draft FlexPLI prototype impactor limits and application to FlexPLI serial production level
GTR9-5-21		US Round Robin Test Status
GTR9-5-22		Information on vehicle data used in NHTSA's studies
GTR9-5-23	c	Initial comments of OICA experts to the 5 th IG GTR9-PH2 meeting in response to document GTR9-5-20
GTR9-5-24		Height tolerance for pedestrian protection
GTR9-5-25		Flex PLI Inverse Test Setup - Moving Ram Friction
GTR9-5-26		Investigation of the influences of friction within the inverse certification test setup of the FlexPLI - Lower Legform Impactor
GTR9-5-27		Clarification of Injury Threshold Determination Process Used by JAMA
GTR9-5-28		Operating Principles and Terms of Reference for the IG GTR9-PH2, updated version 5th meeting
GTR9-5-29		Draft gtr No 9 amendment, version 2012-12-06
GTR9-5-30		Discussion of the Rebound Issue, ACEA comments
GTR9-5-31	1	FlexPLI version GTR drawing package
GTR9-6-01	1	Agenda for the 6th meeting of the IWG GTR9-PH2 - Final
GTR9-6-02	2	Minutes of the 6th meeting of the IWG GTR9-PH2 - Final
GTR9-6-03		FlexPLI Testing: Propelling Accuracy
GTR9-6-04		Guidelines for the development of drawings for a test tool to be added as an Addendum to M.R.1 - (ECE/TRANS/WP.29/1101)
GTR9-6-05		Schedule to prepare an Addendum for FlexPLI for the M.R.1
GTR9-6-06		FlexPLI GTR User Manual Rev. E 2013
GTR9-6-07		Definition of FlexPLI Biofidelic Assessment Interval
GTR9-6-08	1	Derivation of FlexPLI thresholds
GTR9-6-09		FlexPLI Drawings
GTR9-6-10		FlexPLI Pre- & Post-Test Procedure
GTR9-6-11		Consideration of the Rebound Phase
GTR9-6-12		Validation of Flex-GTR model
GTR9-6-13		Proposal for a wording to consider tolerances of the normal ride height
GTR9-6-14	1	FlexPLI Round Robin Testing
GTR9-6-15	1	Summary JPR Report Evaluating the Methodology and Assumptions Made in Doc. GTR9-5-14 & GTR9-5-19
GTR9-6-16		JPR Report Evaluating the Methodology and Assumptions Made in Doc. GTR9-5-14 and GTR9-5-19
GTR9-6-17		Large Truck/SUV Challenges
GTR9-6-18		FlexPLI Round Robin Test Results

GTR9-6-19	1	FlexPLI Round Robin Test Results
GTR9-6-20		Discussion on Impactor Thresholds
GTR9-6-21		Flex-PLI Rebound Issue: Industry Proposal (Update)
GTR9-6-22		FlexPLI Drawing Review (Surface Level)
GTR9-6-23	2	FlexPLI Drawings Review
GTR9-6-24		Durability Study SN-03
GTR9-6-25		Comments on GTR9-6-15 (JP Research review of JASIC & BAST FlexPLI Injury Reduction Estimate)
GTR9-6-26		Development of Injury Probability Functions for the Flexible Pedestrian Legform Impactor
GTR9-6-27		Comments on Alliance and JP Research Documents (GTR9-6-15 and GTR9-6-16)
GTR9-6-28		Certification test results of the OEM legform used in document GTR9-6-20
GTR9-7-01	1	Agenda for the 7th meeting of the IWG GTR9-PH2 - Final
GTR9-7-02	1	Minutes of the 7th meeting of the IWG GTR9-PH2 - Final
GTR9-7-03		Draft running order of the provisional agenda
GTR9-7-04		Information on drawing package kindly provided by Humanetics
GTR9-7-05	c	Result of drawing review (surface level)
GTR9-7-06	c	Result of manual review
GTR9-7-07		Injury Probability Function for Tibia Fracture and MCL Failure
GTR9-7-08		Development of Flex-GTR Master Leg FE Model and Evaluation of Validity of Current Threshold Values
GTR9-7-09		Flex-GTR Master Leg Level Impactor Test Data - Pendulum Test
GTR9-7-10		FlexPLI Logbook - legform SN-01
GTR9-7-11		FlexPLI Logbook - legform SN-03
GTR9-7-12		FlexPLI Logbook - legform E-Leg
GTR9-7-13		FlexPLI Rebound Phase
GTR9-7-14		Detailed Review of Drawing Package and Itemized Check against Master Leg Impactor SN03
GTR9-7-15		BAST comments on GTR9-7-13:JASIC position on FlexPLI rebound phase
GTR9-7-16	1	Collation of FlexPLI Pendulum Certification Test Results
GTR9-7-17	1	Collation of FlexPLI Inverse Certification Test Results
GTR9-8-01	1	Agenda for the 8th meeting of the IWG on Gtr No. 9 – Phase 2 (IG GTR9-PH2) - Final
GTR9-8-02		Minutes of the 8th meeting of the IWG on Gtr No. 9 – Phase 2 (IG GTR9-PH2) - Draft
GTR9-8-03	1	GTR9 – Draft Working Document of IG GTR9 PH2; Version 1, 04 Sept. 2013
GTR9-8-04		GTR9 – Draft Preamble of IG GTR9 PH2; Version 1, 04 Sept. 2014
GTR9-8-05		(not used)
GTR9-8-06		OICA comments on the draft text, based on document GRSP-53-29
GTR9-8-07		Proposed Title Block for Regulation Drawings
GTR9-8-08	1	Comments to JAMA presentation GTR9-7-06c and Proposed Changes, FlexPLI GTR Manual
GTR9-8-09		Comments to Cellbond Flex PLI Drawing Check Document GTR9-6-23
GTR9-8-10		Comments to JASIC's Comments Provided with Document GTR9-7-05c
GTR9-8-11		Comparison of Effect of Different Approaches on Injury Risk Functions
GTR9-8-12		Possible Influence of Temperature and Humidity on the FlexPLI Behavior
GTR9-8-13		FlexPLI Manual: FlexPLI Preparation before Car Testing
GTR9-8-14		Request for Transitional Provisions for FlexPLI Usage
GTR9-8-15		FlexPLI Biofidelic Assessment Interval (BAI): Open Issues
GTR9-8-16		Change to foam flesh used by EEVC lower & upper legforms
GTR9-8-17		FlexPLI Version GTR - Testing of Vehicles with Different Bumper Systems
GTR9-8-18		Femur Certification Corridors for the Inverse Test (Zero Cross Timing)
GTR9-8-19		Femur Certification Corridors for the Pendulum Test (Zero Cross Timing)
GTR9-9-01	1	Agenda for the 8th meeting of the IWG on gtr No. 9 – Phase 2 (IG GTR9-PH2) - Draft
GTR9-9-02		(Minutes of the 9th Meeting, not yet available)
GTR9-9-03		FlexPLI weight tolerances, Reduction of proposed weight tolerances
GTR9-9-04	1	Lower Legform Test Area, Justification of the Need for a Relaxation Zone
GTR9-9-05		Proposal of 01 series of amendments to Regulation No. 127: Transitional provisions
GTR9-9-06		Proposed amendments of the three-point bending certification test figure
GTR9-9-07	1	FlexPLI GTR User Manual Rev. F (Draft) 2013
GTR9-9-08	1	Updates to Flex PLI Manual Rev E to Rev F
GTR9-9-09		Max and Min Femur Certification Analysis FlexPLI
GTR9-9-10		FlexPLI Weight Tolerance Review
GTR9-9-11		Reviewed FlexPLI version GTR drawing package
GTR9-9-12		Details of Drawing Updates to Flex PLI gtr No. 9 Regulation Drawings
GTR9-9-13		Flesh Neoprene Corridor FlexPLI
GTR9-9-14		Dimensional Tolerance Review FlexPLI
GTR9-9-15		Confor Foam Change [for EEVC Impactors]
GTR9-9-16		Flex PLI Drawing Review
GTR9-9-17		Legform Tests, Results from Round 2, FlexPLI

Annex III

Draft amendments to Regulation No. 14

Amendments adopted to ECE/TRANS/WP.29/GRSP/2013/18 (see para. 15 of this report)

Paragraph 2.32., amend to read:

- "2.32. *"i-Size seating position"* means a seating position, if any defined by the vehicle manufacturer, which is designed to accommodate **i-Size** child restraint systems, **and** fulfils the requirements defined in this Regulation."

Amendments adopted to ECE/TRANS/WP.29/GRSP/2013/4 (see para. 16 of this report)

Paragraph 5.3.8.7., amend to read:

- "5.3.8.7. **Notwithstanding the provision of the paragraph 5.3.8.1., convertible vehicles as defined in Annex 7, paragraph 8.1. of the Consolidated Resolution on the Construction of Vehicles (R.E.3) shall be fitted with at least two ISOFIX low anchorages. In case where an ISOFIX top tether anchorage is provided on such vehicles, it shall comply with the suitable provisions of this Regulation.**"

Insert new paragraph 5.3.8.8., to read:

- "5.3.8.8. **Notwithstanding paragraph 5.3.8.1., if a vehicle is only equipped with one seat position per row, only one ISOFIX position is required in the passenger position. However where it is not possible to install even the smallest forward-facing ISOFIX fixture (as defined in Regulation No. 16, Appendix 2, of Annex 17) in the passenger seating position then no ISOFIX position shall be required, provided that a "vehicle specific" child restraint system is available for that vehicle.**"

Paragraphs 5.3.8.8. and 5.3.8.9. (former), renumber as paragraphs 5.3.8.9. and 5.3.8.10.

Annex IV

Draft amendments to Regulation No. 44

Amendments adopted to ECE/TRANS/WP.29/GRSP/2013/10 (see para. 21 of this report)

Paragraph 8.1.2.1., amend to read:

"8.1.2.1. The manikin shall be equipped with **either of the load application devices as appropriate and described in Annex 23**. Place the manikin in the restraints installed in accordance with this Regulation and taking into account the manufacturer's instructions and with the standard slack as specified in paragraph 8.1.3.6. below, applied for all systems identically."

Annex V

Draft amendments to Regulation No. 127

Adopted on the basis of GRSP-54-09-Rev.1 (see para. 28 of this report)

Paragraph 2.1., amend to read:

- "2.1. "Adult headform test area" ... The area is bounded:
- (a) **in the front, by a Wrap Around Distance (WAD) of 1,700 or a line 82.5 mm rearward of the bonnet leading edge reference line, whichever is most rearward at a given lateral position;**
 - (b) **at the rear, by a WAD 2,100 or a line 82.5 mm forward of the bonnet rear reference line, whichever is most forward at a given lateral position; and**
 - (c) **at each side, by a line 82.5 mm inside the side reference line.**

The distance of 82.5 mm is to be set with a flexible tape held tautly along the outer surface of the vehicle."

Insert a new paragraph 2.9., to read:

- "**2.9. "Bonnet top test area" is composed of the child headform test area and the adult headform test area as defined in paragraphs 2.14. and 2.1. respectively."**

Paragraphs 2.9. and 2.10.(former), renumber as paragraphs 2.10 and 2.11.

Paragraph 2.11. (former), renumber as paragraph 2.12. and amend to read:

- "~~2.11~~**2.12. "Bumper test area" ... intersecting points 66 mm inside the defined corners of the bumper. This distance is to be set with a flexible tape held tautly along the outer surface of the vehicle."**

Paragraph 2.12.(former), renumber as paragraph 2.13.

Paragraph 2.13. (former), renumber as paragraph 2.14. and amend to read:

- "~~2.13~~**2.14. "Child headform test area" ... The area is bounded:**
- (a) **in the front, by a WAD 1,000 or a line 82.5 mm rearward of the bonnet leading edge reference line, whichever is most rearward at a given lateral position;**
 - (b) **at the rear, by a WAD 1,700 or a line 82.5 mm forward of the bonnet rear reference line, whichever is most forward at a given lateral position; and**
 - (c) **at each side, by a line 82.5 mm inside the side reference line.**

The distance of 82.5 mm is to be set with a flexible tape held tautly along the outer surface of the vehicle."

Paragraphs 2.14. to 2.21, renumber as paragraphs 2.15. to 2.22.

Paragraph 2.22. (former), shall be deleted.

Figure 7, shall be deleted.

Figure 8 (former), renumber as Figure 7.

Insert new paragraphs 2.26. to 2.26.2. and new figures 8A and 8B, to read:

"2.26. "Measuring point"

The measuring point may also be referred to as "test point" or "impact point". In all cases, the result of the test shall be attributed to this point, independent of where first contact occurs.

2.26.1. "Measuring point" for the headform test means a point on the vehicle's outer surface selected for assessment. The measuring point is where the headform's profile contacts the vehicle's outer surface cross section in a vertical longitudinal plane through the centre of gravity of the headform (see Figure 8A).

2.26.2. "Measuring point" for the lower legform to bumper test and the upper legform to bumper test is located in the vertical longitudinal plane through the central axis of the impactor (see Figure 8B).

Figure 8A

Measuring point in the vertical longitudinal plane through the center of the headform impactor (see paragraph 2.26.1.)²

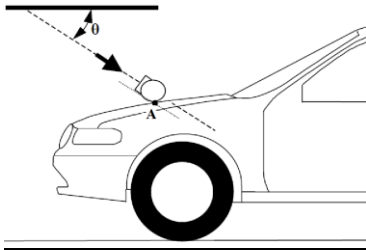
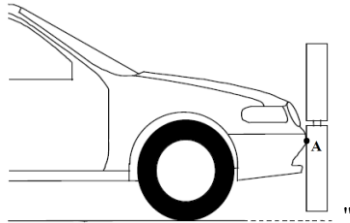


Figure 8B

Measuring point in the vertical longitudinal plane through the central axis of the legform impactor (see paragraph 2.26.2.)



Paragraphs 2.26 to 2.28., renumber as paragraphs 2.27. to 2.29.

Paragraph 2.29. (former), shall be deleted.

Paragraph 5.2.1., amend to read:

"5.2.1. Child and Adult Headform Tests:

When tested .. thirds of the **bonnet top test area.** ..."

Annex 5,

Paragraph 1.4., amend to read:

² Remark: due to the spatial geometry of the bonnet top, the first contact may not occur in the same vertical longitudinal or transverse plane which contains measuring point A.

"1.4. The selected **measuring** points shall be ... area as defined in **paragraph 2.12.**"

Paragraph 1.5., amend to read:

"1.5. A minimum ... The selected **measuring** points shall be a minimum of 132 mm apart **horizontally**, and a ..."

Paragraph 1.10., amend to read:

"1.10. **For the lower legform testing, a horizontal and vertical impact tolerance of ± 10 mm shall apply. The test laboratory may verify at a sufficient number of measuring points that this condition can be met and the tests are thus being conducted with the necessary accuracy.**"

Paragraph 2.4., amend to read:

"2.4. The selected **measuring** points shall be ... paragraph 2.12."

Paragraph 2.5., amend to read:

"2.5. A minimum ... The selected **measuring** points shall be a minimum of 132 mm apart **horizontally**, and a ..."

Paragraph 2.6., amend to read:

"2.6. The direction ... is $\pm 2^\circ$.

At the time of first contact the impactor centre line shall be vertically midway between the upper bumper reference line and the lower bumper reference line with a ± 10 mm tolerance and the impactor vertical centre line shall be positioned laterally with the selected impact location with a tolerance of ± 10 mm. The test laboratory may verify at a sufficient number of measuring points that this condition can be met and the tests are thus being conducted with the necessary accuracy."

Paragraph 3.3.1., amend to read:

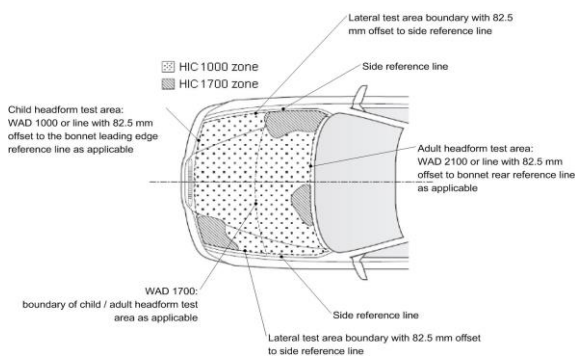
"3.3.1. The acceleration ... The **measuring point on the** front structure of ..."

Paragraph 3.4.1., amend to read:

"3.4.1. The manufacturer ... **top test area** where the HIC ..."

Annex 5, Figure 3, amend to read:

"Figure 3
Example of marking of HIC1000 zone and HIC1700 zone



Paragraphs 3.4.2. to 3.4.4., amend to read:

"3.4.2. Marking of the "bonnet top test area" as well as "HIC1000 zone" and ...

3.4.3. The areas ... by the **measuring point**.

3.4.4. The calculation of the **surface of the bonnet top test** area as ..."

Paragraph 3.5., amend to read:

"3.5. **Measuring points** – Particular specifications

... if a number **of measuring points** have been selected ...remaining is too small to select **another measuring point** while maintaining the minimum spacing **between points**, then less ..."

Paragraphs 4.3. to 4.5., amend to read:

"4.3. The selected **measuring points** for the child/small adult headform impactor **shall be a minimum of 165 mm apart and within the child headform test area as defined in paragraph 2.14.**

These minimum ... vehicle.

4.4. No **measuring point** shall be .. outside the test area.

4.5. **For the child headform testing, a longitudinal and transversal impact tolerance of ± 10 mm shall apply. This tolerance is measured along the surface of the bonnet. The test laboratory may verify at a sufficient number of measuring points that this condition can be met and the tests are thus being conducted with the necessary accuracy."**

Paragraphs 5.3. to 5.5., amend to read:

"5.3. **The** selected **measuring points** on the bonnet for the adult headform impactor shall **be a minimum of 165 mm apart and within the adult headform test area as defined in paragraph 2.1.**

These minimum ... vehicle.

5.4. No **measuring point** shall be ... outside the test area.

5.5. **For the adult headform testing, a longitudinal and transversal impact tolerance of ± 10 mm shall apply. This tolerance is measured along the surface of the bonnet. The test laboratory may verify at a sufficient number of measuring points that this condition can be met and the tests are thus being conducted with the necessary accuracy."**

Annex 6, replace "calibration" with "certification" throughout the text of the Annex.

Annex VI

[English only]

List of GRSP informal working groups

<i>Informal working group</i>	<i>Chair</i>	<i>Expiry date of the mandate [pending WP.29 decision]</i>	<i>Secretary</i>
Frontal Impact (FI)	Mr. Pierre Castaing (France) Phone : +33 1-69801750 Fax : +33 1-69801719 email : pierre.castaing@utac.com	December 2014	
Harmonized side impact dummies	Ms. Marisol Medri (USA) Phone : +1 202 366 6987 Fax : +1 202 493 29 90 email : marisol.medri@dot.gov	December 2015	
Head Restraints (GTR7-Phase 2)	Mr. Bernard Frost (UK) Phone : +44-(0)207 9442107 Fax : +44-(0)207 9449623 email : bernie.frost@dft.gsi.gov.uk	December 2015	OICA
Hydrogen and fuel cells subgroup safety (SGS)	Mr. Kazuyuki Narusawa (Japan) Phone : +81 4-22413218 Fax : +81 4-22768604 email : narusawa@ntsel.go.jp	Expired	USA
Child Restraint Systems (CRS)	Mr. Pierre Castaing (France) Phone : +33 1-69801750 Fax : +33 1-69801719 email : pierre.castaing@utac.com	December 2014	
Pedestrian Safety (GTR9-Phase 2)	Mr. Richard Damm (Germany) Tel.: +49 (0) 228 99 300 4302 Fax: +49 (0) 228 99 300 807 4302 email: richard.damm@bmvbs.bund.de	[November 2014]	
Pole Side Impact (PSI)	Mr. Robert Hogan (Australia) Phone : +61 2 62 74 72 66 Fax : +61 2 62 74 74 77 email : robert.hogan@infrastructure.gov.au	March 2014	
Electric Vehicle Safety (EVS)	Mr. N. Nguyen (USA), (vice-chaired by the European Union and China) Phone: +1 202 366 69 34 Fax: +1 202 493 29 90 email : nha.nguyen@dot.gov	December 2014	Japan
Rechargeable Energy Storage Systems (REESS)	Mr. G. Kellermann (Germany) Phone : +49 228 300 43 04 Fax : +49 228 300 807 43 04 email : gerd.kellermann@bmvbs.bund.de	November 2014	OICA