GTR9 – Draft Preamble of IG GTR9 PH2

Version 1, 04 Sept. 2013

TABLE OF CONTENTS

A. Statement of technical rationale and justification

1. Introduction and General Background

1. At the 36th session of GRSP (7 to 10 Dec. 2004) Japan proposed to evaluate the possibility to replace the EEVC lower legform impactor by a flexible lower legform impactor. For this reason a technical evaluation group (TEG) was established by GRSP.

2. Under the leadership of Japan the TEG prepared a draft proposal submitted by Japan for the May 2011 session of GRSP to introduce the flexible lower legform impactor in the global technical regulation (gtr) No. 9 on pedestrian safety.

3. The representatives of Germany and Japan proposed the development of Phase 2 (PH2) of the global technical regulation (gtr) No. 9 on pedestrian safety. The main objective of PH2 is the development of a draft proposal to amend gtr No. 9 by introducing the flexible pedestrian legform impactor (FlexPLI) as a single harmonized test tool aimed at enhancing the level of protection for the lower legs of pedestrians.

4. The work of the informal working group (IWG) shall not be limited to draft proposals to amend the gtr No. 9, but shall cover the development of a complementary draft proposal to amend Regulation No. 127.

5. The IWG should also review proposals to improve and/or clarify aspects of the legform test procedure.

6. The changes introduced by this amendment are not intended to change the severity of the original requirements significantly. However, with regard to the introduction of the flexible lower legform impactor Contracting Parties and domestic economic integration organisations are able to adopt preferentially a particular tool with superior performance into their national or domestic legislation.

2. Procedural Background

7. At the 49th session, GRSP considered ECE/TRANS/WP.29/GRSP/2011/13 and GRSP-49-15 concerning the introduction of the flexible pedestrian legform (FlexPLI) into the gtr. The expert from the United States of America gave a presentation showing the outcome of a comparison research study conducted in his country between the FlexPLI and the current lower legform. He concluded that additional research, testing and additional

world fleet data is needed to address the injury criteria concerns and to justify the introduction of the FlexPLI. The expert from Japan gave a presentation (GRSP-49-24), showing that the FlexPLI and the current legform have a totally different structure and injury criteria. Therefore, he concluded that direct comparison between the two legforms would take misleading results. GRSP agreed that pending issues should be addressed by an informal group, co-chaired by Germany and Japan and aimed at finalizing proposals for the introduction of the FlexPLI into the gtr and in the draft Regulation on pedestrian safety in the same time.

8. GRSP agreed to seek consent from WP.29 and the Administrative Committee of the 1998 Agreement (AC.3) at its June 2011 session to mandate an informal group on the FlexPLI. GRSP also noted the draft terms of reference of the informal group (GRSP-49-38) and agreed to refer to this group for finalization. Finally, it was agreed to resume consideration on this agenda item on the basis of a revised proposal, if any.

9. At the 154th session of the World Forum for Harmonization of Vehicle Regulations the representative of the United States of America informed AC.3 that, as an outcome of a research study conducted in her country, concerns were expressed by her delegation at the May 2011 session of GRSP on the readiness of the FlexPLI as a test tool. She added that GRSP had agreed that pending issues should be addressed by a reconstituted informal group. The representative of Germany clarified that the informal group, named GTR9-PH2, would be co-chaired and co-sponsored by Germany and Japan with the secretariat tasks assigned to OICA. AC.3 gave consent to mandate the informal group subject to the submission to AC.3 of appropriate terms of references. It was agreed to set up an IWG to solve the pending issues for incorporating the FlexPLI in PH2 of gtr No. 9 and in Regulation No. 127 on pedestrian safety.

10. The chair of GRSP reported of the 49th session where GRSP agreed to seek the consent of WP.29 and AC.3 to mandate a new informal group to solve the pending issues for the incorporation of the FlexPLI in Phase 2 of the UN 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 group, subject to the submission to WP.29 of the appropriate terms of references.

11. The IWG started its work on 3 November 2011 with a constitutional meeting in Bonn (Germany) to draft the terms of references, the rules o procedures, the time schedule and the work plan. At that occasion, the participants agreed with the proposal by the co-sponsors that the IWG would be managed by Germany (Chair), Japan (Vice-Chair) and that the International Organization of Motor Vehicle Manufacturers (OICA) would perform the tasks of the secretariat.

12. At the 155th session of WP.29 and the thirty-third session of AC.3, Germany and Japan informed delegates about the outcome of the constitutional meeting, the management of the group and the ongoing activities of the IWG (document WP.29-155-35). WP.29 and AC.3 noted that the first meeting of the IWG was planned for 1 and 2 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 at its December 2011 session.

13. The first meeting of IWG was held on 1 and 2 December 2011 in Geneva (Switzerland). The technical discussion started and the draft document on the terms of reference, the rules of procedures, the time schedule and the work plan for submission to GRSP in December 2011 was concluded. The first progress report was submitted to the Working Party on Passive Safety (GRSP) in December 2011 and to WP.29 at its 156th session as well as to AC.3 at its thirty-fourth session in March 2012. At its 156th session, the World Forum endorsed in principle the above mentioned terms of references, pending the adoption of the report of the December 2011 session of GRSP. AC.3 also endorsed in principle the terms of reference of the IWG and requested the secretariat to distribute WP.29-156-11 with an official symbol for consideration at the June 2012 session.

14. The second meeting of the IWG took place in Osaka (Japan) on 28 and 29 March 2012. The discussion was focused on the technical aspects including the accident and benefit analysis. High priority was given to discuss the activities on the further development of the certification procedures. As a further work item, a task force was established to initiate the work on the bumper test area for the lower legform impact.

15. The second progress report was submitted to GRSP in May 2012 and to WP.29 for consideration 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 rules of procedures, the time schedule and the work plan were formally adopted. The second progress report (WP.29-157-21) was distributed with an official symbol at the November 2012 sessions of WP.29 and AC.3.

16. The third meeting of the IWG was held on 29 and 30 May 2012 in Paris (France). During the meeting, the experts discussed main topics related to accident data on pedestrian injuries, the cost-benefit assessment and the setup of certification corridors.

17. The fourth meeting of the IWG took place on 17 to 19 September 2012 in Washington DC (United States of America). The group resumed 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 an international Round-Robin vehicle test programme with the FlexPLI.

18. The draft third progress report was submitted to WP.29 at its 158th session and to AC.3 at its thirty-sixth session. 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).

19. The fifth meeting was held on 6 and 7 December 2012 in Bergisch Gladbach (Germany). Main subjects of the discussion during this meeting were a review of the cost-benefit analysis, an exchange of information on the first results of the repeatability and reproducibility of the FlexPLI tests with vehicles and a discussion on the threshold values

for the injury criteria. Furthermore, the IWG agreed to seek the consent of GRSP and WP.29/AC.3 for an extension of the mandate (working schedule) to take all test results into account for the amendment of the gtr.

20. On the development of Phase 2 of the gtr on pedestrian safety (based on the original mandate), delegates noted during the 159th session of WP.29 and the thirty-seventh session of AC.3 that GRSP had adopted the revised terms of reference of the IWG group as reproduced in Annex II to the GRSP report (ECE/TRANS/WP.29/GRSP/52). The World Forum endorsed the extension of the mandate of the IWG until June 2014 (expected adoption at WP.29/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.

21. The third progress report (ECE/TRANS/WP.29/2013/36) was recalled at the 159th session of WP.29 and at the thirty-seventh session of AC.3 together with the amendments proposed by GRSP (WP.29-159-20) at the December 2012 session. 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).

22. The sixth meeting of the IWG took place in Washington DC (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 tests were shared during the discussions.

23. The draft fourth progress report of the group was presented at the 53rd 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.

24. At the 160th session the experts of WP.29 were informed by the representative of the United States that GRSP expected to recommend that Amendment 2 (Phase 2) of the UN GTR on pedestrian safety, aimed at including the FlexPLI and the definition of the head form impact point be included into the UN 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 UN GTR on pedestrian safety on an updated definition of the head form impact point.

25. At the same session of WP.29, the representative of Japan, Vice-Chair of the IWG on Phase 2 of UN 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.

26. The seventh meeting of the IWG was held as a telephone and online meeting on 03 July 2013. The group discussed some specific issues, especially regarding 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.

3. Requirements

3.1. Assessment of biofidelity

27. JASIC highlighted the improved biofidelity of the FlexPLI compared to the legform impactor currently used in gtr No. 9. The superior biofidelity was shown at component and assembly level using both, testing and simulation tools. Especially the improvements in the knee and tibia area were presented. For the performance limits a comparison study of the FlexPLI and post-mortem human subject (PMHS) test data was done, showing that the FlexPLI is behaving more human-like with regard to the injury mechanism of the tibia.

28. The biofidelity study was performed with data from Japan and the USA. Some concerns were raised by the Alliance of Automobile Manufacturers regarding the validity of the method used by JASIC in comparing the finite element models with human body models. These concerns were not shared by the expert from Japan.

29. The expert from United Kingdom (UK) expressed that the FlexPLI could have limitations in assessing knee injuries. The expert from Japan explained that both, knee injuries and tibia fractures could be assessed. But during the development it was given higher priority to tibia fractures as the knee injuries are less represented compared to tibia fractures according to the accident data analyses.

30. The informal group revisited received additional information on the superior performance of the FlexPLI compared to the current lower legform impactor.

31. The discussion on the limitations of the FlexPLI in assessing knee injuries was closed pending the submission of new information regarding this subject.

3.2. Assessment of benefit and costs

32. At the starting phase of the IWG participants were asked to provide accident data. This request was also raised at the fiftieth session of GRSP by the Chair of the informal working group. The expert of the United States of America informed the group that they were investigating if information on accidents with pedestrians can be supplied for discussion.

33. The expert from NHTSA informed delegations about a research project in the USA to investigate the accident situation for pedestrians using the Pedestrian Crash Data Study (PCDS) and the German In-Depth Accident Study (GIDAS). The analyses only cover AIS 3-6 injuries, looking at disabling injuries according to the Functional Capacity Index (FCI) based on AIS.

34. According to both data sources, bumper-caused injuries represent up to 40 per cent of all pedestrian injuries. Despite there are notable differences between the two sources regarding the number of injuries to the different body regions the number of injuries to lower extremities are primarily caused by the bumper and is in both cases close to 100 per cent (94 per cent for PCDS and 99 per cent for GIDAS). The presentation also showed the ranking of injured body regions for serious and disabling injuries, with the most frequent combination being the lower extremity to bumper impact.

35. BASt → doc. GTR9-5-19

36. The Japan Automobile Standard Internationalization Centre (JASIC) introduced detailed information on the possible benefit related to tibia injuries that can be expected with the introduction of the FlexPLI. Based on accident data, it was presumed that tibia fractures mainly occur due to indirect loading (approx. 80 per cent). Only in a minor number of cases the fracture of the tibia occurs due to direct loading of the bumper. It was also shown that the most significant improvement can be achieved by mitigation of leg fractures.

37. It was concluded that the FlexPLI can provide improved biofidelity for the tibia and the knee. Relative to the currently used legform impactor the cost savings due to mitigation of tibia fractures were estimated to be 100 million of United States dollars for the United States of America and 50 million of United States dollars for Japan based on calculation models using the annual medical costs for such types of injuries.

38. At the second meeting the experts reviewed again the information from the Japan Automobile Standard Internationalization Centre (JASIC) on the benefit of the FlexPLI, showing a significantly better biofidelity of the FlexPLI compared to the current legform impactor.

39. The expert from OICA explained that the United States of America (USA) accident data used for the study might be processed in another way, as the current procedure in using Abbreviated Injury Scale (AIS) coding might not be correct for pedestrian injuries.

The expert from JASIC admitted that for some cases the AIS coding used for the study was not correct. A modified version of the study was presented showing better results than the original document.

40. At the third and fourth meeting the pedestrian experts reviewed again the information from Japan Automobile Standards Internationalization Center (JASIC) on the benefit of the FlexPLI. The Alliance of Automobile Manufacturers in the United States of America has undertaken an investigation of the methodology that was presented by JASIC. One major concern of the Alliance was that the data used in the JASIC analysis does not correctly reflect the current accident situation in the United States due to the outdated data set and the assumptions for the injury levels taken as a basis for the benefit calculation.

41. During the fifth and the sixth meeting the pedestrian experts reviewed further information from the Japan Automobile Standards Internationalization Center (JASIC) and the Federal Highway Research Institute of Germany (BASt) on the calculation of the benefits that would result from the introduction of the FlexPLI. The Alliance of Automobile Manufacturers in the United States of America repeated the concerns that the two approaches presented may not be valid for every market depending especially on the situation of accidents and the vehicle fleet.

42. The IWG finally agreed that this argument may be valid for some regions which would result in the need to undertake, within the individual countries or regions, a cost-benefit analysis using their national or regional data on accidents and the situation of the domestic vehicle fleet to verify the scope of the new provisions and the possible introduction of the FlexPLI in their territory.

3.3. Technical specifications (drawings) and PADI (user manual)

43. Several items were raised in relation to the user manual for the FlexPLI. An updated user manual incorporating the proposals was set up including additional information for a visual inspection of the impactor.

44. Experts were informed that the drawings and specifications of the FlexPLI would be needed before the regulatory text can be approved by GRSP and adopted by WP.29 and AC.3. Humanetics confirmed that this is well known and such information will be submitted to the informal working group accordingly.

45. The expert from OICA asked for a more transparent documentation of the setup of the flexible pedestrian legform impactor. The expert from the Humanetics confirmed that information would be provided if the documentation for the FlexPLI could be made available for the informal group with a disclaimer that it might not be used for commercial purposes.

46. The expert from the UK informed the participants about the on-going activity at WP.29 to set up a repository that would form a kind of library for dummies and other test devices used in regulations. The UK and the USA jointly are preparing a resolution. The idea is to differentiate between information that is needed for test laboratories only, which should be put into the resolution, and information that is needed for the test procedure, which should be put into the respective piece of legislation. The intention is to draft the resolution in a way that allows the application for the UN regulations, under the 1958 and the 1998 Agreements.

47. The IWG was informed about a proposal of the informal working group of global technical regulation No. 7 (gtr7) Phase II on the BioRID where it was agreed that engineering drawings of dummies and dummy parts will be shared but not manufacturing drawings. The current proposal foresees that drawings would be made available during the discussion period only for information purposes covering a disclaimer that it may not be used for commercial purposes. After dummies and dummy parts would have been finally agreed the disclaimers on the drawings would be removed and the engineering drawings will be made available.

48. The Chair informed the participants about the on-going activity at WP.29 to set up a repository for dummies and other test devices used in Regulations. It was noted that a resolution would be introduced, named mutual resolution, which can be used for both legislative frameworks of the vehicle regulations, the 1958 and the 1998 Agreements.

49. The Humanetics provided a full drawing package for the FlexPLI in December 2012. The group discussed the planning to review the drawing package. It was agreed that a comparison of 100 per cent of the parts of one impactor will be done with the drawings. Additionally, the drawings will be checked if they conform to the requirements as defined by the IWG on Head Restraints Phase II, the IWG on Child Restraint Systems and the IWG GTR9-PH2. The review of the drawing package led only to minor remarks for corrections necessary.

50. A further part of the IWG was the review of the user manual to check compliance with the defined requirements. The Humanetics updated the drawings and the user manual with guidance by the IWG. A draft proposal for an addendum to the Mutual Resolution No. 1 (M.R.1) was prepared by the IWG.

3.4. Evaluation of durability

51. OICA has presented information on the long-term durability of the FlexPLI. Several items were mentioned, of which the durability of the bone core material led to extensive discussions. The bone core material suffers during the testing resulting in small cracks of the material. While several experts mentioned that the performance is still acceptable with these minor damages, information was given by the company Bertrandt that deviations in the performance may be seen during calibration of the legform impactor.

Experts will further investigate this issue and present further information on the long-term performance of the leg at the second meeting of the informal working group. Investigations showed no major issue.

52. The representative of the United States of America presented further information on the durability of the FlexPLI. During the comparison tests of the earlier and the current version of the FlexPLI, it was found that the durability had improved for the current version of the impactor and therefore is not a major issue for the moment.

3.5. Test procedure

53. BASt, JASIC and OICA presented proposals to define the rebound phase for the test with the FlexPLI. While JASIC and OICA were of the opinion that a definition can currently not be introduced into gtr No. 9, BASt showed a procedure to define a Biofidelic Assessment Interval (BAI). The IWG finally agreed to introduce an assessment interval as it appears currently to be the most appropriate way to determine in an objective way the maxima of the measurements.

54. OICA presented a proposal for the definition of the vehicle setup in terms of riding height. The proposal to cover tolerances in built-up, adjustment and alignment of a test vehicle in actual testing is recommended to include the concept of the primary reference mark. The definitions shall give clear guidelines and definitions needed to be able to perform the approval test during the type approval of vehicles and verification testing for self-certification.

55. BASt and OICA proposed to define the tolerance of FlexPLI output values during the free-flight phase for vehicle tests. Based on a proposal of BASt a definition for the free flight phase was introduced in the amendment.

3.6. Certification tests

56. The IWG agreed to install a task force reviewing and updating the certification corridors (TF-RUCC) chaired by Japan to resolve issues with the current certification test procedures. Certification tests were performed with several legforms in a limited number of labs to check the performance of the flexible pedestrian legform impactors. The objective of the task force was to prepare a recommendation for the informal working group on the certification procedures and the corridors to be used for the calibration of the FlexPLI.

57. First results during testing showed a good and repeatable performance of the three flexible pedestrian legform impactors tested. A round robin certification test series confirmed a stable performance of the legform impactors. The task force has finalised the

work and succeeded in proposing updated certification corridors to be used for the calibration of the flexible legform impactors on the assembly and component level.

58. The corridors were agreed by the informal group as final. It was also indicated that an evaluation of the stability of performance of the flexible legform impactors will be done during vehicle testing.

3.7. Review of test results

59. The expert from OICA introduced results of impactor to vehicle tests. He added that the results were quite promising but for some peak values a deviation of up to 20 per cent was observed. A discussion took place if the impactors as well as the vehicles would really be comparable as the test results presented were generated during a period of several years (2009 to 2011), while the impactors and the vehicles may have undergone some changes.

60. The Concept Tech GmbH presented information on the influence of friction with regard to the test device used for inverse testing. Further information on the influence of friction on the test device used for inverse testing was shown by the different laboratories that investigated their test apparatus. Based on the presentations and the conclusions, the IWG agreed on the limit for the friction of test devices for inverse testing.

3.8. Evaluation of reproducibility and repeatability

61. The IWG started an international Round-Robin vehicle test programme in September 2012. The vehicle testing was finalised by March 2013. Results were presented by test houses from Europe, Korea and the United States of America. Apart from minor issues, the results of the different test houses showed a stable performance of the legform impactors with a good repeatability. Problems in durability did not occur during vehicle testing. During the vehicle tests at BASt, the lower test results with the master legs compared with the test results with former flexible legform impactors, but tested with the same cars, led to discussions about the threshold values for the injury criteria. However OICA showed results of vehicle tests with the FlexPLI, where the output values were not lower than the results during the tests with the former flexible legform impactors. The IWG finally agreed to keep the limit values for the injury criteria unchanged.

3.9. Performance / injury criteria and threshold values

62. JASIC introduced information on the performance and injury criteria for the FlexPLI. The validation of criteria for the tibia fracture and the medial collateral ligament (MCL) and anterior cruciate ligament (ACL) failure was presented in detail and compared to the legform impactor currently used in gtr No. 9. The results are mainly based on data coming from different sources of specimen testing. From this data a probability function

for the injury risk was developed. Performance limits for the tibia bending moment, the criteria ACL and MCL were presented to participants.

63. The expert from the United States of America raised some concerns regarding the injury thresholds that were chosen for the FlexPLI in relation to the EEVC legform impactor. With the ability of the flexible impactor it may be possible to achieve better protection with more stringent criteria. The United States of America does not see a necessity to just achieve a protection level that is comparable to the EEVC legform impactor. The National Highway Traffic Safety Agency (NHTSA) will investigate this in more detail.

64. The IWG started to discuss the injury threshold values at its fifth meeting. The experts agreed smoothly on the injury criteria, but had an in-depth discussion on the threshold values for the different injury criteria and the injury probability that is chosen using risk curves. While BASt proposed to lower the threshold values, OICA was supportive of keeping the threshold values as proposed by the Technical Evaluation Group (TEG) on FlexPLI. At the sixth meeting, OICA presented further test data obtained by using their FlexPLI with the same build level as the "master legs" used for the Round-Robin testing. These tests showed a higher output values than those measured with the three master legs during vehicle tests. The decision about the threshold values was postponed until a later stage of the work.

65. add description for injury risk curves (two methods: BASt and JASIC)

3.10. Evaluation of vehicle countermeasures

66. During the fifth and sixth IWG meeting, information on the technical feasibility and possible vehicle countermeasures was provided by OICA, JASIC and the US National Highway Traffic Safety Administration (NHTSA). OICA informed the IWG that the feasibility may be a problem for some small volume products for which currently no detailed information on the performance with the FlexPLI was available.

67. Automakers from the United States of America explained that, for some heavier trucks and Sport Utility Vehicles (SUV), there would be a conflict between the customer requests for the US-market and the pedestrian bumper requirements. The IWG agreed that, for some markets, it may be necessary to further consider the scope of the gtr and to review, for specific vehicles, the lead time for the transposition of gtr No. 9 into regional or national law.

3.11. Other items

Finite element models

68. CLEPA requested information on the development of finite element models for the FlexPLI. It was decided that the informal working group would not develop such models but would serve as a platform for a regular exchange of information on this subject. This task was started at the second meeting of the informal working group.

69. The expert from the Humanetics informed participants about the status of the work to develop a finite element model for the FlexPLI. Currently a model is available for purchase. The further development of the model is currently stopped and would be restarted as soon as the status of the impactor is final.

4. Key elements of the amendment

To be added

5. Recommendations and Limitations for introducing the flexible lower legform impactor

Cost-benefit domestic regions proposal:

[At the 6th meeting of the informal working group, the United States of America noted that while it would be in a position to agree with the injury risk curves within the timeline of the amendment 2 of this gtr, it may not be in a position to agree to injury risk values without delaying the timeline. The United States of America suggested that, given that benefits-costs may vary depending on the fleets of different countries, the gtr should include only the injury risk curves, with Contracting Parties to choose appropriate injury assessment reference values (IARVs) when implementing the gtr in national legislation.]

[While the informal working group rejected the suggestion of including only the injury risk curves, it is understood that the United States of America will conduct a full analysis of the impacts of the IARVs of the gtr. The United States will be conducting fleet testing with the FlexPLI to evaluate the benefits. It will also examine possible incremental improvements, such as the effect of lowering injury threshold values. These efforts could result in future recommendations to adjust the injury risk values and other aspects of this gtr.]

Lead time recommendations

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

7.

xx. On request of the expert from the European Commission a discussion on the current bumper test area for the lower legform impact was started. A first meeting took place to discuss this subject separately. The necessity of improvements to the test procedure for the lower legform test was shown, as the area of the bumper tested is quite limited due to some design features on the front of some vehicles that interact with the current test procedure. The decision was to discuss the whole subject in detail in a specific task force on the bumper test area.

xx. The informal working group agreed to install such a task force. However it was agreed, that depending on the progress of the task force on the bumper test area, it might be needed at a later stage to separate the discussion on this subject from the discussion on the FlexPLI. The discussion on the bumper test area would be part of the informal group but it would finally not delay any decision on the main subject of the group, the introduction of the flexible pedestrian lower legform impactor. The expert of the European Commission became the Chairman of this task force.

xx. A first web meeting of the task force took place on 4 September 2012, where a work plan and an action list to be worked on were adopted. The task force was expected to forward, if possible, a proposal to update the lower legform test procedure within the gtr No. 9 to the informal group, to improve the procedure for the lower legform test. The TF-BTA will assess all information available and provided.

xx. 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. It was recognised that tests outside the current bumper test areas would lead to problems and that the reliability of the test results would be questionable. This issue will be further considered and an assessment would be planned, if the current pedestrian lower legform impactors (EEVC PLI, FlexPLI) can be used to test the current bumper corners.

Further information to be added
