

Minutes of the 6th meeting of the Task Force Bumper Test Area (TF-BTA) within the IG GTR9-PH2	
Venue	Offices of the “Organisation Internationale des Constructeurs d’Automobiles” (OICA - International Organization of Motor Vehicle Manufacturers), 4 rue de Berri, 75008 Paris / France
Date	15 May 2014, 10:30 a.m. - 17:00 p.m.
Status: Final	

1. Welcome
(Chair)

The chair, Mr. Broertjes/European Commission, welcomed the attendees at OICA offices in Paris. He thanked Mr. van der Straaten/OICA for providing the meeting room and the dial-in details for the telephone conference and he thanked Mr. Burleigh/Humanetics for organizing the web conference. Mr. Kinsky/General Motors Europe acted as secretary.

2. Roll call of participants

@ OICA offices:

Peter Broertjes/European Commission
 Oliver Zander/BAST
 Dirk-Uwe Gehring/BGS Boehme and Gehring
 Shunsuke Takagi/NTSEL
 Jolyon Carroll/TRL
 Franz Roth/Audi
 Winfried Schmitt/BMW
 Karim Yahia/PSA Peugeot Citroen
 Christian Pinecki/PSA Peugeot Citroen
 Thomas Kinsky/General Motors Europe

@ phone:

Mark Burleigh/Humanetics
 Cort Corwin/Shape
 Sukhi Bilkhu/Mahindra
 Olaf Insel/Volkswagen
 Peter Martin/NHTSA

3. Adoption of the agenda
(all)
(this document)

The agenda was adopted without changes. Mr. Kinsky noted that five documents had been handed in in advance (documents TF-BTA-6-03 to -07) that all cover new proposals for the test area and that therefore all should be discussed under agenda item 6.1. This was agreed.

4. Review of the draft minutes of the 5th Meeting in Brussels

(all)

(document TF-BTA-5-02)

The minutes of the last meeting were adopted without further changes.

5. Review of Open Items from the 5th Meeting

(all)

(Document TF-BTA-5-02, agenda item 7)

The action items agreed in the previous session were individually reviewed (TF-BTA-5-02, agenda item 7) and were all considered closed:

BASt: Double-check whether it is possible to do a case by case assessment for the widening of the test area (see agenda item 5).

Mr. Zander explained that BASt did not carried out a case-by-case analysis since this was considered to be too time consuming and might have slowed down the progress of this group. However, he announced to show some details from accident data that should be able to explain issues with the widening.

TRL: Check how comments on the benefit assessment can be considered appropriately (see agenda item 5).

Mr. Carroll stated that the detailed cost benefit analysis will part of the final report of TRL's activities under the contract of the European Commission. This final report will be available soon. Also, the assessment of the benefit especially for the corner area will be provided. Mr. Schmitt wondered when the report will be available and Mr. Broertjes added that the Commission lately got a draft version and will try to make sure to release the final report soon. *(Note of the secretary: The report is attached here but has also been made available as document TF-BTA-6-09.)*



Bumper_Test_Area_
Final_Report (2).pdf

Industry: Report about the design effects and feasibility issues with regard to the small overlap testing requirements in the US IIHS testing (see agenda item 5).

From the industry's perspective, Mr. Kinsky explained the small overlap currently is a highly competitive subject and that therefore industry may not be able to share all relevant detailed information. However, an existing patent application of GM was shown that underlines that small overlap requirements do not necessarily have to interfere with pedestrian safety requirements or impair the effectiveness. The provided document is public and is added as document TF-BTA-6-08. During the session, Mr. Roth showed similar, but proprietary details for an Audi production vehicle, which were subject to discussion in the group. Given the confidential nature of the information provided, which did indeed confirm that mitigation measures do not necessarily have to be constructed and added to the outboard front bumper areas of the vehicle, the document was not officially submitted

for future reference.

Commission/Industry: Prepare a first draft for a test procedure based on the discussion in this meeting.

It was noted that several proposals were handed in to be discussed in the meeting.

6. Discussion on a new test procedure

6.1. Introduction of a possible new test procedure

(European Commission, all)

Mr. Schmitt provided an overview of document TF-BTA-6-03. He explained that the intention of the document was to summarize the ideas that were derived in the 5th meeting and that industry had been tasked with drafting a workable proposal. However, to have a good basis for discussion, i.e. having a chance to compare different options, the chair had suggested keeping this document as separate document.

Mr. Gehring wondered where the dimensions of the corner gauge came from. Mr. Schmitt responded that the original idea developed in the 5th meeting was to use the same pendulum as used in the US CFR (Code of Federal Regulations) 49 part 581. The dimensions of the surface of this pendulum were considered. Also, on request of Mr. Gehring it was clarified that, in this proposal, the contact of the vehicle fascia with the new corner gauge should be at the centerline of the gauge rather than the complete surface to avoid that e.g. extended wheel arches may be considered at bumper corners.

In the discussion it was agreed that wheel arches could under certain conditions be excluded from the test area, provided that they do not widen the vehicle body too much (such as e.g. with free-standing wheel arches). In this context the wheel arches of the Jeep Wrangler were mentioned, as such designs should indeed be included in the assessment.

Mr. Broertjes explained that the EC in principle could agree with the document prepared by industry. However, he suggested extending the height of the corner gauge assessment area to at least the height of the legform impactor (75 mm to 1003 mm above the ground) (see document TF-BTA-6-04; it was noted that the upper height needs to be corrected in this document). Also, the upper and lower bumper reference lines should be added to assure that the front is tested. Mr. Zander wondered why the Upper and Lower Bumper Reference Lines (UBRL and LBRL) should be added. He explained that the reference lines per definition cannot be marked without the corners of the bumper. Mr. Schmitt responded that with the procedure the vehicle front shall be assessed. Omitting the reference lines in the proposed language may result in assigning the corners of the test area to the outside mirrors since they can be contacted with the upper end of the legform impactor at most cars. However, he would clearly not consider the mirrors as vehicle front.

The reference lines (UBRL and LBRL) can be marked in practice in a reasonable manner with

existing definition in regulative language. The behavior of the reference line in the area of the wheelhouses is not relevant for affiliated test procedures. The application of the reference lines is carried out in today's type approval testing and uncertainties in actual testing are not reported.

On request of Mr. Zander, Mr. Broertjes also clarified that the EC wishes to have the test area widened as much as possible and therefore wishes to omit the clause that allows tests only to be conducted 66 mm inside of the bumper corners.

Mr. Zander then pointed out that a pragmatic solution may be to not use corner gauges but e.g. a stick instead of the current planes – this would simplify the proposal and follows the current procedure. Mr. Kinsky reminded that group that this is in line with the original ideas of industry. However, the group had later reflected positively on the approach to consider the assessment area of structural interaction as is applied for the US bumper testing, as usually the outer bumper fascia follows closely the rigid structure bumper beam in that area, as covered by it.

Mr. Takagi presented the proposal of Japan (documents TF-BTA-6-05 and TF-BTA-6-06) and explained that in principle, Japan also can agree with the idea of corner gauges and may consider the other proposals. However, Japan noted that for different vehicle shapes (e.g. narrow front nose but wide front bumper) the widest area is to be assessed, which was not sufficiently safeguarded in all proposals presented, due to certain limitations resulting from the language used.

Mr. Zander presented document TF-BTA-6-07 assessing the proposals already made and concluding that none of them seems to work in the intended way. Therefore, he explained that BAST is still in favor of assessing the entire vehicle width and gave justification by a GIDAS study on pedestrian impact distribution. However, instead of defining the bumper test area by only the vehicle outer contour BAST would rather consider the bumper test area as defined by Euro NCAP, limiting the bumper test area to the ends of the bumper beam or the area defined by the 60 degree planes, whichever area is wider. Mr. Zander then also showed some examples where the bumper beam extends outside the bumper corners as defined via contact points on the vehicle surface. He also explained that the assessment of the bumper beam definition as used by RCAR (Research Council for Automobile Repairs) could serve for the purposes of the TF-BTA. There, the bumper beam is related to the structural cross member under the bumper fascia, protecting the front of the vehicle, but not including any pedestrian protection devices. Mr. Zander concluded presenting BAST's proposal to take over the Euro NCAP procedure, adding the RCAR definition of the bumper beam.

Mr. Kinsky added that also examples are available from industry where the bumper beam does not extend the test area defined by the bumper corners. Unfortunately, these data cannot be shared officially with the whole group, but may be shared on a bilateral basis with all interested experts.

Mr. Broertjes asked what would be the preference of the US: using the bumper beam definition or using corner gauges to define the bumper corners. Mr. Martin replied that probably both might serve the needs of the US. However, he would probably consider the bumper outer contour, as this is the factual contact point with the pedestrian. Mr. Gehring suggested that in fact the bumper beam is considered to be the injurious part, caused by the hard structure. Mr. Martin then wondered whether this would mean that no other parts would cause injuries. Finally, it was agreed that other vehicle parts and fascia could cause injuries as well. However, that the outer contour can be modified easily and therefore should not be the only criterion. Mr. Gehring further explained that Euro NCAP uses both: the width of the bumper beam and the 60° bumper corners, and finally tests the wider of the two test areas.

Mr. Roth brought up that connecting the test area to one vehicle part could be design restrictive. Also, the proposal of BAST was deemed lacking the scientific proof whether or not the outer part of the bumper beam is indeed creating an additional risk for pedestrians. Finally, he noted that detailed data has been provided in the context of the Task Force showing that none of the existing impactors is reliably capable of being used on oblique surfaces.

It was then intensively discussed how the bumper test area could be defined. Mr. Carroll finally proposed to first define which are the injury causing parts and then to decide which test area needs to be chosen to address this. Finally, it may be the case that this area may not be tested due to the limitations of the impactors.

Discussion returned to the need of a 66 mm allowance inside the test area. Industry representatives explained that a certain structure as well as a certain interaction with this structure is needed to control the behavior of the impactor. In addition, the intention originally was to assess the test area, which can be 'guaranteed' in terms of testing stability with an offset of half a legform diameter. The same logic applies to the headform test, and in all cases testing closer to the borderlines causes the risk of glancing blows. For Euro NCAP, this may be of less importance since it just influences a rating. However, for mandatory legislation it is important to make sure that the compliance tests provide reliable and stable results. Mr. Martin added that for the US it is important to have testing (as well as compliance rating) be conducted reliably. However, obviously there are vehicles where the 66 mm are not needed and do not influence the test results and for those vehicles it should be considered to delete the allowance. Mr. Takagi supported the need of the allowance. Mr. Broertjes wondered whether it could be decreased to the hard parts of the impactor, which means a diameter of 84 mm for the FlexPLI and 70.5 mm for the EEVC legform impactor (i.e. the diameter divided by two, for the allowance area).

After some further discussion, Mr. Broertjes noted that finally a decision needs to be made by the contracting parties in Geneva. Therefore, he proposed to draft a proposal that can cover both, the new definition of the bumper corners and the consideration of the bumper beam. Discussions could then be held with the experts in Geneva, also allowing more interaction with Contracting Parties that are not participating in the Task Force on a

frequent basis.

Mr. Martin wondered whether the whole front end could be considered as potential test area. At the time when the 60° bumper corners were defined they covered indeed the whole front. A new test tool, e.g. a pedestrian dummy, may allow testing the whole front in the future. Today, a tendency can be seen that the test areas are defined according to the impactor abilities. Several attendees noted that this may need more detailed research in the future. Mr. Broertjes further pointed out that the EC is looking for a quick solution that avoids unwarranted narrowing of test areas as result of certain vehicle designs.

Mr. Takagi noted that Japan had not yet had the time to assess BAST's proposal. However, if the idea will again be brought up, for instance at the December 2014 GRSP session, Japan will consider it further.

6.2. Definition of the new tests area details (all)

See discussion under agenda item 6.1.

6.3. Preferably: decision on the test procedure for supply to UNECE GRSP (European Commission, all)

Mr. Broertjes proposed to draft a document for the December 2014 GRSP session. The document should contain the proposal to use the corner gauge and, in square brackets, the additional text to use the bumper beam hard structure for defining the test area. He proposed BAST to prepare their detailed argumentation for the inclusion of the bumper beam definition for that meeting.

Also, Mr. Broertjes explained again that the EC prefers the introduction linked to the FlexPLI as a supplement to the respective series of amendments. Mr. Takagi noted that the proposal will contain a widening of the test area. According to the Geneva rules, this represents a major technical change, which actually requires a series of amendments. Mr. Broertjes responded that, however, an enforcement together with the FlexPLI is also sound from a technical point of view and that industry could already consider the requirements. However, this of course depends on the discussion in and the decision of GRSP.

Mr. Zander wondered whether a document could already be presented at the following week's GRSP in Geneva to speed up processes. Mr. Kinsky noted that this could be helpful. Mr. Broertjes apologized that he would this time not be able to make a presentation of the status to inform GRSP, as he would not be able to attend due to other work related commitments.

After some discussion it was agreed and confirmed by the group that Mr. Kinsky could provide a short update on the activities of the group on behalf of the chair, clearly

mentioning:

- The idea to use a corner gauge to define the bumper corner,
- The additional request to also use the bumper beam,
- The discussion that the corner gauge is an indicator at the outer surface that can be easily identified and that the bumper beam could be seen as injury causing but may create issue for manufacturers,
- The idea of the US to include the whole front end,
- The idea to decrease the offset area to 42 mm for FlexPLI,
- That the amendments should apply to the FlexPLI only and should enter into force together with the FlexPLI requirements,
- That the status of the group may need to be clarified.

Mr. Zander volunteered to prepare an informal document in advance of the session. However, he noted that he also needed to double-check with the German representative beforehand. Mr. Carroll offered to help with proofreading the document if this would be wished for. It was finally agreed that Mr. Kinsky and Mr. Carroll would work together with Mr. Zander to prepare a first draft for the official text, with in addition a short presentation explaining the details mentioned above. Mr. Kinsky would take the responsibility to present everything in a neutral way at the GRSP session, on behalf of the chair.

(Note of the secretary: The presentation was held and the draft wording was forwarded to the May 2014 GRSP session, the documents are available as informal documents GRSP-55-40 and GRSP-55-41. Mr. Kinsky expresses his sincere apologies that the late comments of Mr. Zander could not be taken into consideration for integration, as they arrived at the time when the item was already subject to the ongoing discussion in GRSP. It is noted that Mr. Zander therefore expressed his explicit reservations with respect to the presented documents).

7. Review of action list, if needed
(Secretary)

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8. Miscellaneous items, if any
(all)

None.

9. Next meeting, if needed

The chair noted that, for the time being, it may happen that no further meeting is needed. If needed, a web meeting can be organized on short notice.