Informal Group on Frontal Impact

DRAFT meeting minutes of the 21st meeting

June, 11th from 10 am to 5:00 pm

CLEPA - European Association of Automotive Suppliers

Blvd Brand Whitlock 87

BE-1200 Brussels

* 1. **Welcome**
  2. **Roll call**

See attendance list => 

* 1. **Adoption of the agenda**
  2. **Adoption of the Minutes of the last Meeting**

To be discussed at the next meeting (minutes not available yet).

**FRONTAL IMPACT**

**3.1. 53rd GRSP; Frontal Impact Status Report**

See document GRSP-53-25 and GRSP-53-26 (status report and first draft for amended ECE 94).

Timeline: the draft has to be sent to GRSP on September 20th 2013 (in order to be a working document).

Target: Amended text to be adopted in May 2014 GRSP.

Impact assessment group: results to be available by end of 2013.

**3.2. Test Set Configuration - Barrier, Dummy, Criteria Limits (Germany, T. Adolph)**

3.2.1)**FI-21-02e**, FIRST BAST PRESENTATION: Seating positions of the H-III 5% dummy - Test series with the Reference Vehicle

OICA comments that the wording used in the presentation seems to mean that the airbag is aggressive. Consequently, OICA suggests to update this wording so that a reader does not think that having an airbag is worse.

- Discussion on the goal of regulation:

Pierre Castaing confirms that the goal of type approval and regulation is to address the majority of the accidentology and cover the majority of cases (barrier, dummies, speed). When type approving, the technical service has to choose in the range of cars the worst case for a test.

- Discussion on chest acceleration:

BAST (T.Adolph) suggests to add a chest acceleration criteria in addition to the chest deflection, in order to give an idea about the kinematics of the dummy during crash.

Japan (Tanaka San) adds that chest acceleration is not related to the injuries, but with dummy behavior and it might show side effects.

* **Japan will bring some data for the next IG meeting.**

PDB (N.Praxl) explains that chest acceleration is not a good predictor as the serious injuries are coming from deformation and not from acceleration. Chest acceleration is not linked with the injuries (for instance, sports cars may induce very high chest acceleration on the driver without any injury). Need some facts to understand why the presentation concludes that thorax acceleration is an interesting criteria. The fact that the values on chest acceleration are high does not mean that this has an influence.

OICA (BMW, Wolfgang Ogorek Broll) recalls that Canada has removed this criteria completely in the last amendment of CMVSS 208.

Also US NCAP deleted this criteria.

* **OICA will come up with a presentation on this topic for the next IG meeting.**

- Discussion seat adjustment:

BAST (T.Adolph) showed results where one test per seating position was performed. The proposal is to install a 5th passenger at 25% forward of the seat adjustment range, as it seems a more realistic and good average between mid position and full frontal.

OICA notices that the seating position does not have a major influence on the results shown. In other regulations, the seat adjustment is according to the manufacturer’s indication. Maybe we should use the same approach. If not, there might be a position where you cannot install a 5th (due to a combination of adjustment in X and height, as well as steering wheel adjustment).

NL (H.Ammerlaan) and Germany (R.Damm) recommend to check more vehicles before making a decision.

* **OICA will come back at the next IG meeting with more details.**

3.2.2) **FI-21-03e**, SECOND BAST PRESENTATION: Repeatability of the Deformable Element - Test series with the Reference Vehicle

BAST (T.Adolph) introduces the presentation by stating that the intention is not to promote the deformable barrier in this phase.

Discussion between OICA and BAST on the variability of the PDB barrier, of the cars and the limit of 40ms for examinating maximum forces. Sweden would like to see more industry tests.

3.2.3) **FI-21-04e**, THIRD BAST PRESENTATION: Proposal for Changes to the ECE-R 94 to address acceleration induced injuries - Dummy position - Seat position - Injury risk values

CLEPA (C.Sunnevang, Autoliv) comments that the wording used in the presentation could be clarified: acceleration induced means the pulse (acceleration of the car), and not any acceleration on the dummy.

- Discussion on the dummy age and dummy size:

Pierre Castaing recalls that if only the elderly age for the whole scenario is chosen, then car manufacturers would be pushed towards a softer restraint system. The situation of a 35yo male at higher speed (more energy) should also be taken into account. Regulation 94 aims at covering the whole population. As an example in helmets regulation, the compromise chosen for a low pulse (low acceleration) is not necessarily optimized for a higher acceleration.

Regarding the legs of the 5th dummy, OICA (A.Pott) underlines that there is no calibration procedure because they are not used in the US FMVSS 208. If the proposal is to have a 5th in the intrusion test (ODB), the group has to keep in mind that there might be some question marks with the calibration, and repeatability of this leg.

Furthermore, the dummies placements were deeply discussed one year ago. The group had in mind to cover most of our customers. Therefore it was decided not to change the intrusion test (ODB) and therefore to keep both driver and passenger 50th dummies. OICA strongly proposes again not to change the dummies in the ODB test.

OICA (I.Dausse) adds that any change in the ODB protocol would go against harmonization (China, Brazil...).

Pierre Castaing states that going to an extremely low chest deflection with HIII rodpot would go to the limit of confidence of measurement of the rodpot system, and could lead to less coverage of the real world. He recalls that the group already decided to keep the chest deflection criteria for 5th HIII dummy at 45yo:

chest deflexion: 34mm corresponding to 50% risk, 5th, 65

**chest deflexion: 45mm corresponding to 50% risk, 5th, 45**

An alternative could be to keep the 45mm for the 5th dummy, and stating that it is for 65yo with higher than 50% risk.

**3.3. Geometric alignment**

## 3.3.1. Proposal for R42 based geometric assessment (Germany, R. Damm)

**FI-21-06e** Germany (R.Damm) explains the target of the proposal, which is to test the front structure capability to absorb energy in horizontal and vertical directions, in a given range of height (400 to 500mm). That means not only geometrical alignment but also some energy absorption, not only in one point, but several ones.

The impactor is based on Regulation 42, but with some changes (Regulation 42 is a damageability standard and has a completely different purpose). The energy level is to be defined. A decision on the speed is still in discussion, values advanced from 10 to 25km/h.

*Modifications in draft R94 provided by Germany:*

*Annex 3A, Annex 3B and Annex 11 + new definitions in section 2 + amendments in section 5.*

§5.3 : specifications for front protection test :

5.3.1. Energy absorbed by the « bumper » height: tbd

5.3.2. max deformation< X mm, no rupture allowed

Annex 3B: test front protection device: either pendulum or moving barrier.

Annex 11: Striker: Or a medium sized mass = constant?

shifting the Striker and/or the vehicle height

Open questions:

- **number of vehicles for the test** (6 tests in total, 4 tests in front at different Y, and 2 in the corners, 2 for unladen mass, 2 at 400mm, and 2 at 500mm height: need for 4 cars). R. Damm proposes that the car manufacturer performs numerical simulations for all prescribed tests, and then the TA services test physically just one or 2 points (at TA choice), like in other regulations.

- **mass**: do we keep the same procedure as in R42 testing, or is it possible to find a common (constant) mass for the impactor?

- **the values chosen** for this test should not lead to more rigid structures, as it was already explained that increased car deceleration had a negative effect on the body (OICA, M.Delin).

- these constraints would have to be analysed in combination with **pedestrian requirements** (OICA, J.Abraham).

Impact assessment:

Pierre Castaing suggests that the impact assessment group could work on it.

Next step:

R.Damm will take the comments onboard. This part of the regulation will be included in the draft in order to have only one document. Reactions on this proposal are to be shared quickly in order to be ready in September.

* **All participants can provide comments before the summer holiday.**

## 3.3.1. Japan presentation on R93 for SEAS

**FI-21-05e** Presentation by Tanaka San.

NL (Hans Ammerlaan) notices that the Japanese proposal is focusing on secondary structure, on a certain force and on a certain height, using absolute values, whereas the German proposal considers the whole vehicle.

Pierre Castaing comments that the German proposal does not test SEAS (too far away: due to its shape, the pendulum would hit the crossbeam before the SEAS). It does not give criteria for secondary systems, also able to provide a good interaction in compatibility cases.

Pierre Castaing also wonders whether the use of a “pendulum for SEAS” with a different shape in the German proposal could be added.

One possibility of combining the two tests could be:

* German proposal. If you pass, ok (PEAS in right area, with good energy absorption).
* If you fail: Japanese proposal. If you pass, ok. (SEAS interacts in the right area and absorbs part of the energy).

The German proposal could exclude multi load path solutions. Germany (R.Damm) explains that the goal is not to promote one load path when proposing to have the protecting zone in one area. The German proposal is not prohibiting a second load path. Every car would have to fulfil the common interaction zone in the German proposal, while the Japanese proposal would only check the lower structure of the SEAS: only a minority of cars would be tested.

* **OICA is asked by the Chairman to bring data for the next meeting: given a level of energy to be absorbed (German proposal), what would be the effects on vehicles?**

**3.4. Validation of assessment, criteria and limits (All)**

## 3.3.1. Presentation on THOR status

Presentation by Cecilia Sunnevang

**3.5. Updating of the test configurations matrix (protocols and criteria)**

An updated version of the table will be circulated. VTI (R.Thomson) suggests that the bio-mechanical sub-group (chaired by X.Trosseille) could gather the positions on lines 5 to 8.

OICA (J.Abraham) mentions that the word “passenger” will have to be clear in order to avoid misunderstanding if there is no passenger in the front, or if there are 3 seats in the front.

=>proposal “front outboard seating position”.

NL (H.Ammerlaan) wishes to make clear that, when talking about a set adjustment range, it is necessary to consider the total travel of the seat (rearmost driving position, ie the R point, so the middle is taken from this part).

* **Action for all before: provide comments on this table before July 19th in order to have a consolidated document to be circulated before the next meeting.**

**3.6. Proposition of ECE R94 text amendment.**

**4. AOB**

Next meeting FI in BAST on 19th September (CRS on the 18th)