

Draft Minutes of 3rd Meeting of Flex PLI Technical Evaluation Group (Flex-TEG)

Date: April 24, 2006

Place: BAST (<http://www.bast.de/>) – Bergisch Gladbach, Germany

Participants:

- Atsuhiko Konosu, J-MLIT (JARI) – Chairperson
- Bernard Been, FTSS Europe – Secretary
- Thomas Kinsky, ACEA (GM Europe)
- Oliver Zander, EEVC/Germany (BAST)
- Dirk Uwe Gehring, BGS
- Peter Lessmann, BGS
- Walter Liebers, TUV Rheinland Group
- Robert Fleischhacker, ACEA (Porsche)
- Oskar Ries, ACEA (Volkswagen)
- Iwao Imaizumi, JAMA (Honda)
- Takehiro Inoue, JASTI
- Manfred Zeugner, ACEA(Adam Opel GmbH)
- Benjamin Buenger, ACEA(Adam Opel GmbH)
- Franz Roth, ACEA(Audi AG)

Agenda

1. Welcome
2. Adoption of the draft agenda for 3rd Flex-TEG MT
3. Adoption of the draft minutes for 2nd Flex-TEG MT
4. Information onto the Flex-GT prototype
5. Discussion
 - 5.1. For the Flex-GT prototype
 - 5.2. Scheduling of each task
 - 5.3. Others
6. Confirmation of future action plan
7. Others
8. Closing

1. Welcome

- * The chairperson expressed to the participants his appreciation for attending the 3rd Flex-TEG Meeting and to BAST for providing the meeting place.

2. Adoption of the agenda of 3rd Flex-TEG MT (TEG-019)

- * The draft agenda (TEG-019) that had been transmitted to the participants prior to the 3rd Flex-TEG Meeting was adopted unanimously.

3. Adoption of the draft minutes of 2nd Flex-TEG MT (TEG-018)

3.1. Review of the draft minutes

- * The draft minutes of the 2nd Flex-TEG Meeting (TEG-018) that had been transmitted to the participants in advance were reviewed.
- * Modification of para. 3.2: Autolib ? Autoliv (spelling)
- * Modification of para. 4.1: Addition of "Added support spacer to sustain the core more strongly"
- * Modification of Action 5: new members ? parental body (correction of error)
- * After incorporating the above modifications, the draft minutes of the 2nd Flex-TEG Meeting were finalized (TEG-018-R1).

3.2. Review of the action items

- * The chairperson reported the progress of the action items (TEG-020, TEG-024).
- * Although, in response to ACTION-004, JAMA had declined to disclose the model names of the vehicles used in the JAMA test due to JAMA policy, Mr Kinsky repeated request for disclosure.
- * In response to ACTION-010 (proposal for a repeatability test on Flex-G), Mr Zander stated that the proposal would be withdrawn and that Flex-GT, not Flex-G, would be tested when its development is completed.

[ACTION-011]

Mr Imaizumi will recheck the position of JAMA members on Mr Kinsky's request to disclose the model names of test vehicles.

4. Information on the Flex-GT prototype (Flex-GTa)

- * The chairperson reported the specifications (TEG-021) and injury assessment ability investigation results (TEG-022) of Flex-GTa (prototype of Flex-GT) which had been improved from Flex-G
- * Mr Kinsky commented on the chairperson's report on the investigation results of Flex-GTa's injury assessment ability (TEG-022) as follows: 1) The vehicle model used in simulation and that used in experiment were not identical; 2) Both the pedestrians employed in PMHS reconstruction tests and those in accident reconstruction tests were not AM50 equivalent; 3) The results of TRL-LFI tests would be useful as a reference data.
- * The chairperson replied on Mr Kinsky's comments as follows: 1) Vehicles of the same model will be used in our further study; 2) While the utmost effort will be made to obtain AM50 equivalent data, whether or not such data will be accessible is uncertain. Consequently we are proposing to use the human FEM model for the comparative study; 3) It has a high possibility that JAMA will conduct TRL-LFI tests as well.

- * Mr. Buenger questioned if there was a plan to incorporate a DAS (Data Acquisition System) into Flex.
- * The chairperson replied that there was no plan for that.
- * Mr. Been mentions that the DAS could be designed-in and work with structural replacements in case no on board DAS is used.
- * Mr. Konosu says there is some space in the knee area, however, we have no plan to install a DAS in the Flex because of a budget problem
- * Mr. Kinsky inquired about the data source of the tentative injury criterion value.
- * The chairperson explained of the data source; however, he underlined that the injury criterion value is only a tentative value and that the final value will be established through TEG discussion.

[ACTION-012]

Mr Imaizumi agreed to confirm if JAMA members would be willing to use TRL-LFI as well as Flex in future vehicle tests by JAMA.

- * The chairperson reported the results of the TRL-LFI retest (TEG-023) that had been conducted because of the failure to obtain reliable data from the previous test (TEG-015). The data obtained from the retest proved reliable.
- * Mr Gehring inquired about reasons why the previous test had generated unsatisfactory data (on shear displacement and bending angle).
- * The chairperson answered as follows: 1) The cause of unreliable shear displacement data is probably the disconnection (damage) of cables. 2) The likely cause of unreliable bending angle data is loose screws of the potentiometer or an overshooting of the potentiometer itself.

5. Discussion

- * Mr Ries commented that it would take more time for ACEA to review the content of Japan's presentation.
- * The chairperson requested that any TEG members who want to comment on Japan's presentation should transmit their comments to other TEG members by the end of May 2006. (This was agreed by the participating TEG members.)
- * Mr Ries requested that the results of future tests be transmitted to TEG members at least one week prior to the coming Flex-TEG Meeting.
- * Mr Ries inquired if an impact speed of 40 km/h would be applied to future vehicle tests. (ACEA would not start any Flex-GT tests unless the durability of Flex-GT at 40 km/h is confirmed.)

- * The chairperson replied that the prototype Flex-GT_a had been tested at 40 km/h and that Flex-GT, when its development is completed, would also be tested at 40 km/h.
- * Mr Buenger questioned about the pending issue of whether or not it is possible to obtain reliable results from vehicle end (close to the bumper corner) impact tests.
- * The chairperson answered that these tests were scheduled to confirm the questioned issue.
- * Mr Kinsky requested that TEG members be allowed to share the human FE model and the Flex-GT FE model, both of which would be used to finalize the Flex-GT specifications.
- * The chairperson responded that since many of HONDA's findings were involved in these models, it would be necessary to receive consent from HONDA for the sharing of the models.
- * Mr Kinsky explained that the sharing was requested because ACEA would want to calculate and check the analytical results of the two models.
- * Mr Been proposes to request HONDA permission to use the HONDA models exclusively for this purpose and exclusively within the FLEX-TEG group.
- * The chairperson replied that HONDA would be contacted to confirm sharing possibilities.
- * Mr Ries inquired how many units of Flex-GT were scheduled to be released.
- * The chairperson answered that a number of Flex-GT sufficient to perform round robin tests would be produced.
- * Mr Kinsky questioned if there were plans to perform Sedan-1 2004 FE model and human FEM model simulations. (In reference to the fact that the Sedan-1 2001 FE model employed in TEG-022 differed from the model year of the Sedan-1 used in vehicle tests.)
- * Mr Imaizumi stated: Since the mentioned Sedan-1 2004 FE model does not exist, there is no plan to perform Sedan-1 2004 FE model and human FEM model simulations; Therefore, we will change the test car and use the same model year FE model in our further studies.

[ACTION-013]

Each TEG member should review the presentation given at the current (3rd) Flex-TEG Meeting and transmit their comments to other members by the end of May 2006.

[ACTION-014]

Japan should transmit the results of its future tests to TEG members at least one week prior to the coming Flex-TEG Meeting.

[ACTION-015]

The chairperson should check with HONDA if TEG members can share the human FE model and the Flex-GT FE model using for the finalization of Flex-GT specifications.

6. Confirmation of future action plan

- * TEG members basically agreed on the Flex-TEG_Schedule_060424 which means: Finalization of the Flex-GT specifications by mid-June; Fabrication of Flex-GT between mid-June and the latter part of July; Experimentation using Flex-GT in August.

[ACTION-016]

Japan should proceed with its development of Flex-GT according to the above schedule.

7. Others

- * Mr Been questioned about the meanings of sentences in Terms of Reference Flex-TEG Task 3 and Task 4 (TEG-005).
- * Mr Ries explained that Task 3 is to confirm the technical feasibility of vehicles in relation to Flex and the injury criterion value which will be discussed by TEG. , Task 4 is to verify the benefits of introducing Flex into regulations.
- * Mr Been proposed that those sentences ~~are~~ should be rewritten to more clearly indicate what the tasks are. (? Agreed by TEG)

[ACTION-017]

Mr Been will provide new sentences for Tasks 3 and 4 by the next Flex-TEG Meeting.

- * Mr Liebers introduced the TUV-developed catching system for the TRL leg impactor, which is reportedly capable of catching the TRL leg impactor just after the time of impact testing with a vehicle.

8. Closing

- * The chairperson repeated his thanks to the participants and BASt (provider of the meeting place).
- * The next Flex-TEG Meeting will be held in September 2006 (exact date undecided).

Annex 1

Delegations (Appointed members or organizations) (24 April. '06)

Chairperson

A. Konosu (J-MILT/JARI)

Secretariat

B. Been (FTSS-Europe)

Governmental Parties

EU/EEVC, Korean government, J-MLIT

Industrial Parties (related to car product)

ACEA, JAMA

Independent Parties

UTAC, TUV

Dummy Product Makers

FTSS, JASTI

and other interested parties are welcome!

Annex 3

List of documents

Document number	Document name	Dated [dd/mm/y]
TEG-001	Agenda for 1st Meeting of Flex PLI Technical Evaluation Group.doc	1/9/2005
TEG-002	Flex-G_General_Information_050904.pdf	5/9/2005
TEG-003	Flex-G_Preparation_Manual_050904.pdf	5/9/2005
TEG-004	2005.09.02 - BAST Flex-G Test Programme.pdf	2/9/2005
TEG-005	Revised Agenda for 1st Flex-G_MT.pdf	6/9/2005
TEG-006	2005_06_ESV_JAMA-Flex.pdf	21/4/2005
TEG-007	2005_06_ESV_JMLIT-Flex.pdf	21/4/2005
TEG-008	2005_06_ESV_NHTSA_TRL-Flex.pdf	10/3/2005
TEG-009	Attendance list 1 st Flex-PLI Meeting	6/9/2005
TEG-010	DRAFT Minutes 1st Flex PLI meeting_051011.pdf	11/10/2005
TEG-010-R1	Modified_Minutes 1st Flex PLI meeting_051122.pdf	22/11/2005
TEG-011	Agenda for 2nd Meeting of Flex-TEG.pdf	22/11/2005
TEG-011-R1	Modified_Agenda for 2nd Meeting of Flex-TEG.pdf	22/11/2005
TEG-012	Flex-G_Minor_Modifications_onto_SN01_051122.pdf	22/11/2005
TEG-013	Flex-G_Repeatability_and_Reproducibility_for_Thigh_Le g_Knee.pdf	22/11/2005
TEG-014	Flex-G_Assembly_Test_Results_and_Tentative_Corridors _051122.pdf	22/11/2005
TEG-015	Report_on_Flex-G_Car_Test_Results_051122_final.pdf	22/11/2005
TEG-016	Flex-TEG_Schedule_051115.pdf	22/11/2005
TEG-016-R1	Flex-TEG_Schedule_051122.pdf	22/11/2005
TEG-017	Attendance list 2nd Flex-PLI .pdf	22/11/2005
TEG-018	DRAFT Minutes 2nd Flex-TEG_060228.pdf	28/2/2006
TEG-018-R1	FINAL Minutes 2nd Flex-TEG_060424.pdf	24/4/2006
TEG-019	Draft Agenda for 3rd Meeting of Flex-TEG_060327.pdf	24/4/2006
TEG-020	Status Report on Action Items_060424.pdf	24/4/2006
TEG-021	Flex-GT-alpha_General_Information_060424.pdf	24/4/2006
TEG-022	Flex-GT-alpha_Injury_Assessment_Ability_060424.pdf	24/4/2006
TEG-023	TRL-LFI_Retry_Test_060424.pdf	24/4/2006
TEG-024	Flex-GT-alpha_Typical_Dynamic_Assembly_Calibration_ Test_Result_060424.xls	24/4/2006
TEG-025	Attendance list 3rd Flex-TEG_060424.pdf	24/4/2006
TEG-026	DRAFT Minutes 3rd Flex-TEG	24/4/2006

Annex 4: List of Actions

Action number	Action	Dated [dd/mm/y]
ACTION-001	The chairman will verify the representatives of the organizations that did not attend this Flex-TEG Meeting.	06/09/2005
ACTION-002	The chairman will obtain approval for the added tasks at the next GRSP meeting.	06/09/2005
ACTION-003	The chairman would check with Autoliv (Sweden) and Korea on their experiment contents and schedules.	06/09/2005
ACTION-004	Mr. Tanahashi to inform the group if manufacture will allow disclosure of detailed model information per test shown in ESV paper 05-0106.	06/09/2005
ACTION-005	The chairman would confirm the parental body of the Flex-TEG Meeting at the next GRSP and other meetings.	06/09/2005
ACTION-006	The chairman would present at the GRSP meeting a proposal for releasing Flex-TEG information material to the public through the GRSP website.	06/09/2005
ACTION-007	The Chairman will send the properties of the materials of the pads used in the assembly dynamic calibration tests to the Flex-TEG members.	22/11/2005
ACTION-008	The Chairman will disclose waveform data of typical assembly calibration tests (digital data) to the Flex-TEG members.	22/11/2005
ACTION-009	Japan: will make improvements to movable range of knee of Flex-G	22/11/2005
ACTION-010	BAST/BGS: will run confirmation tests on repeatability and reproducibility of Flex-G in assembly state.	22/11/2005
ACTION-011	Mr Imaizumi will recheck the position of JAMA members on Mr Kinsky's request to disclose the model names of test vehicles.	24/4/2006
ACTION-012	Mr Imaizumi agreed to confirm if JAMA members would be willing to use TRL-LFI as well as Flex in future vehicle tests by JAMA.	24/4/2006
ACTION-013	Each TEG member should review the presentation given at the current (3rd) Flex-TEG Meeting and transmit their comments to other members by the end of May 2006.	24/4/2006
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ACTION-016	Japan should proceed with its development of Flex-GT according to the above schedule.	24/4/2006
ACTION-017	Mr Been will provide new sentences for Tasks 3 and 4 by the next Flex-TEG Meeting.	24/4/2006