

**Minutes of Meeting**  
**1st Meeting of Flex PLI Technical Evaluation Group (Flex-TEG)**  
**5-6 Sep. 2005**  
**OICA office, Paris**

**Participants:**

- Atsuhiko Konosu, J-MLIT ( JARI ) - Chairman
- Thomas Kinsky, ACEA (GM Europe)
- Bernd Lorenz, Germany (BAST)
- Catherine Masson, EU/EEVC WG17 (INRETS)
- Francois Minne, UTAC
- Wiebe Onvlee, FTSS Europe - Secretary
- Walter Rentschler, ACEA (Porsche)
- Oskar Ries, ACEA (Volkswagen)
- Sven Olav Siems, ACEA (Volkswagen)
- Massaki Tanahashi, JAMA (Honda)
- Birgitta Trommler, ACEA (Volvo Car Corporation)

**Agenda**

1. Welcome
2. Adoption of the draft agenda
3. Confirmation of TOR for this group
4. Information for the Flex-PLI type G
5. Discussion on issues of Flex-PLI
6. Confirmation of future action plan
7. Others
8. Closing

**1. Welcome**

The chairman, Mr Konosu, welcomes all the participants.  
First Technology, Mr. Onvlee will act as secretary of this meeting.

**2. Adoption of the draft agenda**

The draft agenda (TEG-001) that had been mailed to the participants prior to this Flex-TEG Meeting was revised (more detail one) and adopted (TEG-005). This Flex-TEG Meeting was steered according to the revised agenda.

**3. Confirmation of TOR for this group**

**3.1 Delegations**

The representative (registered member) of each organization was verified (See TEG-005 or Annex 1). Later on, the chairman will verify the representatives of the absent organizations.

**[ACTION-001]**

**The chairman will verify the representatives of the organizations that did not attend this Flex-TEG Meeting.**

### 3.2 Tasks

Additional tasks (marked provisional) have been added by the group as items the group finds necessary for the preparation of regulation, these tasks will have to be confirmed by the GSRP WP29.

**Task 1 (original task):**

Evaluation and Modification of the usability, repeatability, reproducibility, and durability of Flex-PLI as a tool for GTR/PS leg form test. Also to show the comparative results of all the above issue between the TRL-LFI and Flex-PLI.

**Task 2 (provisional):**

Review of the Injury Risk Functions of the Flex-PLI

**Task 3 (provisional):**

Technical Feasibility

- Can a car be developed which complies the new threshold/requirement?
- Evaluation of vehicle design and Evaluation of design process.

**Task 4 (provisional):**

Evaluation of Protection Level provided by the Flex-PLI and the new threshold values.

**[ACTION-002]**

**The chairman will obtain approval for the added tasks at the next GRSP meeting.**

### 3.3 Schedule

- A test program will be conducted by JAMA and J-MLIT during the term of from end of Oct. to early Nov.
- This JAMA test program will look at differences between the Flex-PLI 2004 and the latest version of the FLEX-PLI G level (Flex-G).
- Details of the test program at ACEA will be discussed in the next Flex-PLI meeting in November, after study of all available material.
- No details available for the tests at Autoliv or Korea. Action to request both organizations for additional information.
- JARI will make 5-6 Flex-PLI legs available for the test program. These will all be made by the same manufacturer.
- Planning and schedule of Task 1 is reflected in the updated schedule (see Annex 2).
- The task 2 can be performed in the same period as task 1.

- The planning and schedule for tasks 3 and 4 needs will need to be decided at the next meeting.

**[ACTION-003]**

**The chairman would check with Autoliv (Sweden) and Korea on their experiment contents and schedules.**

## **4. Information for the Flex-PLI type G**

### **4.1 General**

Presentation on "General Information for the Flexible Pedestrian Legform Impactor - type G - (Flex-G)" dated September 5-6 2005, was given.

This presentation is available as a separate document (TEG-002).

The main technical improvements of the Flex-G over the previous version flex-PLI 2004 are listed in the presentation.

The group has raised concerns over the possible influence of these improvements on the tests performed in earlier test programs. In general the Flex-G is considered to be more biofidelic [than the previous version Flex-PLI 2004](#). [Durability issues need further research](#).

Information from previous test programs has been presented at ESV 2005 in papers 05-0193, 05-0194 and 05-0106 (TEG-006, 007, 008).

### **4.2 Preparation**

Presentation on "Preparation Manual for the Flex-G Testing" dated September 5-6 2005, was given. The presentation explained the necessary preparations for an experiment using a Flex-G: 1) a Flex-G launching surface, 2) conversion connector cable, 3) bridge box for a 350-ohm distortion gauge, and 4) calibration test jig for the dynamic assembly.

This presentation is available as a separate document (TEG-003).

### **4.3 Test Results from BAST**

Test results from the BAST were presented in document TEG-004. These tests have been conducted in September 2005. Issues reported in the documents.

## **5. Discussion on issues of Flex-PLI**

- The group requires all the information to be made available for evaluation and test program preparation.
- The preliminary tests at BAST showed that the knee joint has a limited range of motion.
- This limited range of motion was also shown in the Flex-2004 version of the FLEX-PLI.

- Mr Ries questioned if it would be possible to remodel the Flex-G so as to expand its knee bendable limit from the current 20 degrees to some 25-30 degrees.
- The chairman responded that, given the current knee structure and dimensions, the approximately 20-degree bending motion was the greatest bending angle possible.
- Mr Ries stated that, if the knee structure easily allows the bendable limit to be reached, it would be difficult to know from the test results to what extent the vehicle ought to be modified.
- The chairman related that in actual vehicle development a computer simulation model (posing no bendable limit issues) can be utilized.
- The chairman requested to use the current Flex-G knee structure during the evaluation activity phase 2, as it is difficult to change the bendable limit of the Flex-G at present.
- A request was made to JAMA to disclose the car type used in the tests shown in the ESV paper 05-0106. Action point Mr. Tanahaashi.

**[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.**

## **6. Confirmation of future action plan**

### **6.1 Test schedule (who, what, when, how)**

The test series will be carried out by JAMA and J-MLIT, in the coming weeks. Results of these tests will determine the focus and content of the test program by ACEA which has been re-scheduled to December or January. The test programs at Autoliv and Korea will be discussed later with each representative. UTAC expressed their interests to conduct Flex-G test at their laboratory.

Details of the test programs all of the above will be discussed further at the next meeting in November 2005.

### **6.2 Review and Modification schedule**

It was decided that, in principle, the results of all the future Flex-G experiments be reported to the Flex-TEG meeting where the members would discuss any necessary Flex-G modifications.

## **7. Others**

### **7.1 Parental body of the Flex-TEG meeting**

In discussions to identify the parental body of the Flex-TEG confederal body, Flex-TEG members were divided into those who considered GRSP to be the parental body and those who viewed the GTR Informal Pedestrian Meeting as the parental body. In fact, the minutes of GRSP permits the two different interpretations. It was decided that the parenthood issue would be verified at the next GRSP and other relevant meetings.

**[ACTION-005]**

**The chairman would confirm the parental body of the Flex-TEG Meeting at the next GRSP and other meetings.**

**7.2 Treatment of Flex-TEG Information Material**

A general consensus was reached that the Flex-TEG meeting is basically a public confessional body belonging to GRSP. Consequently the Flex-TEG members agreed to present at the next GRSP meeting a proposal for disclosing Flex-TEG information material via GRSP's website.

**[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.**

**7.3 Date and venue of the 2nd Flex-TEG meeting**

Next meeting will be on the 22<sup>nd</sup> of November 2005, at BAST, Cologne, Germany. The meeting will start at 10.00 hr.

**8. Closing**

The chairman repeated his thanks to the participants for attending the 1st Flex-TEG meeting.

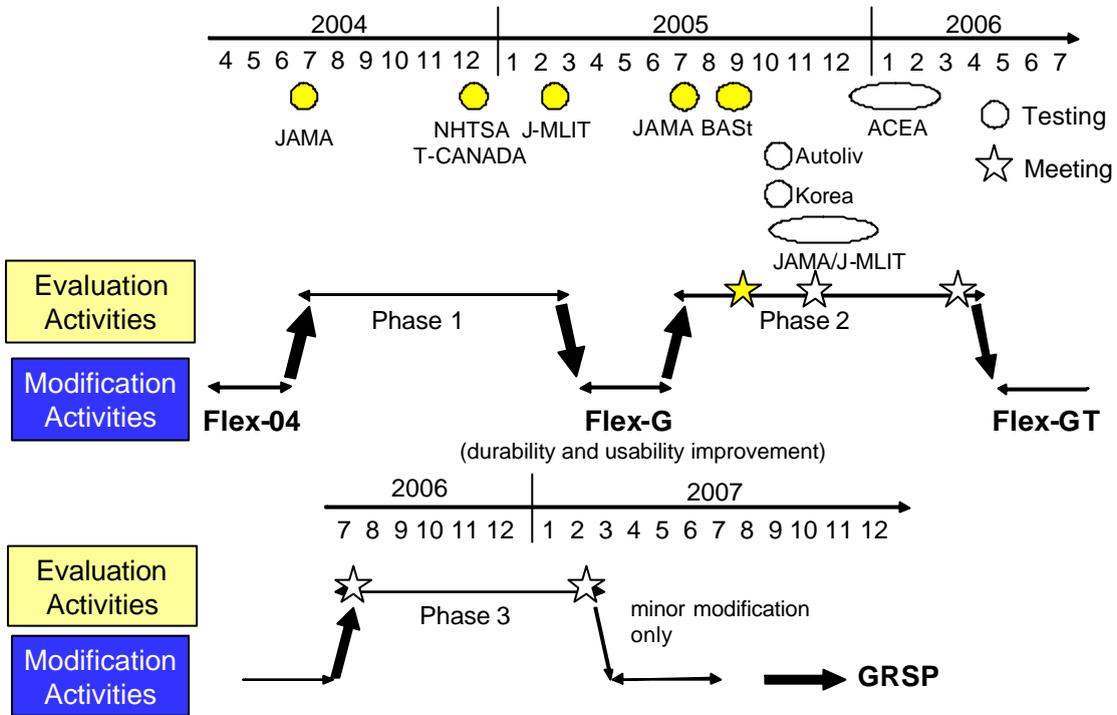
## Annex 1

### Delegations (appointed members from each organization) (6 Sep. '05)

<b>Governmental Parties</b>		
EU/EEVC	D. Cesari C. Masson	INRETS
Germany	B. Lorenz O. Zander	BASt
NHTSA/Transport Canada		
Korea	J.-W. Lee Y.-H. Youn	KATRI Korea Univ. of Tech.- Education
MLIT of Japan	A. Konosu	JARI
<b>Industrial Parties (related to car product)</b>		
OICA / ACEA	O. Ries	Volkswagen
OICA / ACEA	S. O. Siems	Volkswagen
OICA / ACEA	T. Kinsky	GM-Europe
OICA / ACEA	R. Fleischhacker W. Rentschler	Porsche
OICA/ JAMA	<a href="#">M. Tanahashi</a>	<a href="#">JAMA/HONDA</a>
CLEPA	R. Fredriksson	Autoliv Sweden
Alliance		
KAMA		
<b>Independent Parties</b>		
UTAC	F. Minne	
TUV		
<b>Dummy Manufacturers</b>		
First Technology Safety Systems	W. Onvlee	FTSS-Europe

## Annex 2

### Schedules (6 Sep. '05)



### Annex 3 List of documents

Document number	Document name	Dated [dd/mm/y]
TEG-001	TEG-001_Agenda for 1st Meeting of Flex PLI Technical Evaluation Group.doc	1/9/2005
TEG-002	TEG-002_Flex-G_General_Information_050904.pdf	5/9/2005
TEG-003	TEG-003_Flex-G_Preparation_Manual_050904.pdf	5/9/2005
TEG-004	TEG-004_2005.09.02 - BASt Flex-G Test Programme.pdf	2/9/2005
TEG-005	TEG-005_Revised Agenda for 1st Flex-G_MT.pdf	6/9/2005
TEG-006	TEG-006_2005_06_ESV_JAMA-Flex.pdf	21/4/2005
TEG-007	TEG-007_2005_06_ESV_JMLIT-Flex.pdf	21/4/2005
TEG-008	TEG-008_2005_06_ESV_NHTSA_TRL-Flex.pdf	10/3/2005
TEG-009	TEG-009_Attendance list 1st Flex-PLI Meeting	6/9/2005
TEG-010	TEG-010_DRAFT Minutes of Meeting, 1st Meeting of Flex PLI Technical Evaluation Group (Flex-TEG)	7/10/2005

## Annex 4 List of Actions

<b>Action number</b>	<b>Action</b>	<b>Dated</b> [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