Status Report on Flexible Pedestrian Legform Impactor Technical Evaluation Group (Flex-TEG)

Atsuhiro Konosu
Chairperson of Flex-TEG, Japan
# 1. Delegations (appointed members/parties)

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<tr>
<th><strong>Chairperson</strong></th>
<th>A. Konosu (J-MILT/JARI)</th>
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<tr>
<td><strong>Secretariat</strong></td>
<td>B. Been (FTSS-Europe)</td>
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<td><strong>Governmental Parties</strong></td>
<td>EU/EEVC, Korean government, J-MLIT</td>
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<td><strong>Industrial Parties (related to car product)</strong></td>
<td>ACEA, JAMA</td>
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<td><strong>Independent Parties</strong></td>
<td>UTAC, TUV</td>
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<td><strong>Dummy Product Makers</strong></td>
<td>FTSS, JASTI</td>
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and other interested parties are welcome!
2. Tasks

Task 1: **Evaluation and Modification** of **usability, repeatability, reproducibility, and durability** of Flex-PLI as a tool for GTR/PS legform test. And shows the comparison results of all the above issues between the TRL-LFI (used in the current PS/GTR draft) and Flex-PLI.

Task 2: **Review for Injury Risk Functions**
- Review for injury risk functions/curves related to the Flex-PLI, and propose threshold values.

Task 3: **Technical Feasibility**
- Can develop a car which complies Flex-PLI tests with the proposed threshold values.
- Evaluation of car design and car design process.

Task 4: **Evaluation of Protection Level** provided by the Flex-PLI and the proposed threshold values
- Evaluate protection level provided by the Flex-PLI and the proposed threshold values, and compare with that of the current PS/GTR draft.
3. Term

- Originally planned by end of 2007

  - The time schedule is based on an informal document No.GRSP-36-15.
4. Activities

1\textsuperscript{st} Flex-TEG MT (OICA office, Paris, 5-6 Sep. 2005)

2\textsuperscript{nd} Flex-TEG MT (BASt, Bergisch Gladbach, 22 Nov. 2005)

3\textsuperscript{rd} Flex-TEG MT (BASt, Bergisch Gladbach, 24 April 2006)
4.1 Activities (1st Flex-TEG MT, 5-6 Sep. 2005)

- Confirmation of TOR for this working group
- Introduction for the Flex-PLI type G (Flex-G)
- Test results for the Flex-G (component tests and car tests)
- Discussion
- Confirmation of future action plan

➤ Additional test results are required for detail discussions
4.2 Activities (2nd Flex-TEG MT, 22 Nov. 2005)

- Test results for the Flex-G (repeatability tests, reproducibility tests, and car tests)
- Tour for the Flex-G testing (at BASt/BGS)
- Discussion
- Confirmation of future action plan
  - Usability, Repeatability, Reproducibility of Flex-G is seemed as good in component tests and assembly calibration tests. (those evaluations under car tests are still needed)
  - The Flex-G, however, tends to reach at its knee bending limit (around 20 deg.) in car tests, impact velocities therefore had to be reduced. (In general, Flex-G test results were much more severe than that of Flex-PLI 2004)
  - As a result, enlargement of its knee bending limit is required, especially to conduct high speed impact tests to cars.
4.3 Activities (3rd Flex-TEG MT, 24 April 2006)

- Information on the alpha version of Flex-GT (Flex-GTα)
  - Several modifications are applied onto the Flex-G.
    1) Enlargement of knee bending limit (around 30% increased)
    2) Improvement of its injury assessment ability
- Evaluations on injury assessment ability of Flex-GTα
  1) Comparison of Flex-GTα, Flex-G, and a Human FE Model
  2) Reconstruction Tests on the PMHS Test Using Flex-GTα
  3) Reconstruction Tests on Car-Pedestrian Traffic Accidents Using Flex-GTα
  - This group members are evaluating above results in detail now.
    (by end of May 2006)
- Discussion
- Confirmation of future action plan*
  - Finalize Flex-GT specifications (by mid of June 2006)
  - Develop of Flex-GT 1.0 (by end of July 2006)
  - Conduct initial evaluation tests of Flex-GT 1.0 (by end of Aug. 2006)
  - Will have 4th Flex-TEG MT in Sep. 2006.

* will re-discuss more detail at end of May 2006
## 5. Current Overall Schedule

### Schedule for Flex-TEG Activities

<table>
<thead>
<tr>
<th>8 May 2006</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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<td>Flex-TEG Meeting</td>
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<td>Development (Modification)</td>
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<td>Modification Activities</td>
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<td>Production of Modified Impactor</td>
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<td>Evaluation of Flex-PLI as a Regulatory Test Tool</td>
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<td>Usability</td>
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<td>Durability</td>
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<td>Comparison for above issues (TRL-LFI and Flex-PLI)</td>
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<td>Review of Injury Risk Functions</td>
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<td>Leg (review and propose threshold values)</td>
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<td>Knee (review and propose threshold values)</td>
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<td>Evaluation of Technical Feasibility</td>
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<td>Evaluation of Lower Limb Protection Level (provided by the Flex-PLI with the proposed threshold values)</td>
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### Notes
- Flex-G
- Flex-GTα
- Flex-GT 1.0
- Flex-GTR (usability mod. only)

**will re-discuss more detail at end of May 2006**
Flex-TEG

Thank you for your attention!