Evolution of Regulation ECE R94
Frontal Impact

Proposed by France

GRSP Informal Group on Frontal Impact
23 november 2012
Brussels
Test Package combining a Full Width Test associated to an Offset Test

Full Width to provide:
• acceleration severity for assessing restraint system

Offset Test to provide:
• intrusion severity for assessing occupant compartment
• structural interaction severity for assessing front end structure
### ECE R94 amendments: phasing

<table>
<thead>
<tr>
<th>Development phase</th>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Till 2014</td>
<td>Till 2018*</td>
</tr>
</tbody>
</table>

**Under agreement**

- 1958

**Assessment**

- Self Protection
- Self Protection + Partner protection

**Scope**

- Compartment + Restraint systems
- Compartment Front end + Restraint Systems

**Test Configuration**

- Offset + Full width
- Offset + Full width

**Dummies**

- HIII
- THOR

*depends on THOR availability

- Phase 1: priority to restraint system
- Phase 2: priority to body structure
# ECE R94 Amendments: Details

<table>
<thead>
<tr>
<th></th>
<th>PHASE 1</th>
<th></th>
<th>PHASE 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FW</strong></td>
<td><strong>OFFSET</strong></td>
<td><strong>FW</strong></td>
<td><strong>OFFSET</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BARRIER</strong></td>
<td>RIGID (fixed)</td>
<td>EEVC (fixed)</td>
<td>RIGID (fixed)</td>
<td>PDB (fixed / mobile)</td>
</tr>
<tr>
<td>(S)everity (km/h)</td>
<td>50</td>
<td>42 &lt; (S) &lt;52</td>
<td>50</td>
<td>(S) &gt;= 50</td>
</tr>
<tr>
<td>Test Speed (km/h)</td>
<td>50</td>
<td>56</td>
<td>50</td>
<td>60 / tbd</td>
</tr>
<tr>
<td>Overlap (%)</td>
<td>100</td>
<td>40</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Structural criteria</td>
<td>none</td>
<td>current</td>
<td>none</td>
<td>tbd</td>
</tr>
<tr>
<td><strong>DUMMIES</strong></td>
<td>HIII</td>
<td>HIII</td>
<td>THOR</td>
<td>THOR</td>
</tr>
<tr>
<td><strong>SIZE</strong></td>
<td>50 eme</td>
<td>50 eme</td>
<td>50 eme</td>
<td>50 eme</td>
</tr>
<tr>
<td>Restraint criteria</td>
<td>Current + DEQ</td>
<td>Current + DEQ</td>
<td>tbd</td>
<td>tbd</td>
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<tr>
<td>limits</td>
<td>tbd</td>
<td>tbd</td>
<td>tbd</td>
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</tr>
</tbody>
</table>
ECE R94 Amendment: Phase 1

➢ Full Width test configuration

   • rigid wall:
     - stable and accurate
     - worldwide accepted.

   • 50% HIII dummy for driver and passenger front seats
     - average of population
     - regulatory accepted

   • introduction of improved dummy performance criteria (DEQ) to promote restraint system for females and elderly.

➢ Offset test configuration

   • introduction of improved dummy performance criteria (DEQ) to promote restraint system for females and elderly.
Full Width test configuration:

• 50% THOR dummy with new criteria
  ➢ promote restraint systems

Offset test configuration:

• Update test (deformable element, test speed, overlap, fixed/mobile, dummies, criteria, limits ...):
  ➢ improve partner protection
  ➢ promote self protection
  ➢ promote force mismatch