Proposed changes to the EEC UN Regulations 29

11 September 2008
Paris
Frontal impact (Test A)

Current UNECE R29. 02

Pendulum energy:
- \( N \leq 7.0t \) – 29.4 kJ
- \( N > 7.0t \) – 44.1 kJ

Pendulum:
- dimensions: \( h=800 \) mm; \( l=2500 \) mm
- weight \( m = 1500 \pm 250 \) kg

Frontal Impact - OICA proposal (GRSP/2007/02)

- Impactor size 2500 x 800 mm
- Rigid beams for impactor suspension
- CG: 50 mm below R-point
- CG in median longitudinal plane of truck
- \( N2 > 7.5 \) t GVM and \( N3 \): 50 kJ impact energy
- \( N1 \) and \( N2 \leq 7.5 \) t - Regulation No. 29 series 02
- At least for \( N1 \) vehicles, allow UNECE R33 or UNECE R94 as alternative

Russian Federation (GRSP/2007/14)

Pendulum energy:
- \( N1 \) – [15] kJ
- \( N2 \leq 7.5t \) – [25] kJ
- \( N2 > 7.5t \) and \( N3 \) – 40 kJ

Pendulum:
- dimensions: \( h=600 \) mm; \( l=1000 \) mm
- weight \( m = 1000-1500kg \)

Pendulum position:
- \( c= 50\pm 5 \) mm (50\pm 5 mm below point H (R)),
- chain-hanged pendulum, \( L\geq3500 \) mm, \( b\geq800 \) mm,
- \( a=30 \) mm

Test A may be skipped for \( N1 \) cargo vehicles based on an already tested model that fulfills the requirements of the EEC UN Regulations #94 (or equivalent regulatory documents).
Test A  New proposal
(as proposed by the Russian Federation)

Pendulum energy:
N1 and N2 ≤ 7,5t – Regulation № 29 series 02
N2 > 7,5t and N3 – 78,4 kJ Impact energy;
At least for N1 vehicles, allow UNECE R33 or UNECE R94 as alternative

Pendulum:
- dimensions: h=800 mm; l=2500 mm
  weight m = 2500 – 3000 kg

Pendulum position:
c=50±5mm (50±5 mm below point H (R))
Impact energy

- Regulation №33
- Regulation №94
- Regulation №29, N2>7.5t and N3 (OICA)
- Regulation №29, N2>7.5t and N3 (Russian Federation)
- Regulation №29, series 02

Mass, kg

Impact energy, kJ
A-pillar test (test B)

OICA proposal – new test
(GrSP/2007/02)

90° rollover with subsequent impact (A-pillar test) – to be included in UNECE R29:

Based on Swedish test, with further improvements:
- Steel pendulum ≥ 1,000 kg
- Inclined 45° to vertical, 15° in horizontal XZ plane
- Impact direction: 15° to vehicle longitudinal axis
- Impact energy 30 kJ
Test B  New proposal
(as proposed by the Russian Federation)

Pendulum energy:
N1 and N2 ≤ 7,5t – Regulation № 29 series 02
N2 > 7,5t and N3 – 29,4 kJ Impact energy;

Pendulum:
- dimensions: d=600 mm; l=2500 mm
- weight m ≥ 1000 kg

Pendulum position:
The pendulum shall strike at the point located at the middle of the cabin glass in the vertical plane.
Roof strength testing (Test B)

**Current UNECE R29. 02**

Roof strength test

<table>
<thead>
<tr>
<th>Device</th>
<th>Rigid flat plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load</td>
<td>Equal to max load on front axle(s), max 98 kN</td>
</tr>
</tbody>
</table>

98 kN

**180° rollover – OICA proposal**

(Test C)

(GRSP/2007/02)

Test 1 - dynamic pre-deformation:
- Rigid platen
- Inclined 20° to the vertical
- Energy level: 17.6 kJ
- Direction of the impact: perpendicular to the longitudinal axis of the cab

Test 2 - quasi-static load:
- On same cab as test 1
- Rigid platen
- Force = maximum authorised load front axle(s), ≤ 98 kN
- Direction of the load: vertical

**Russian Federation**

(GrSP/2007/14)

Static load

\[ P = [K] \times PCH \leq 10 \tau, \]

where PCH – full load of the vehicle that falls to the front axle;

K = 2.5 – dynamic load coefficient.

Test B may be skipped for N1 cargo vehicles based on an already tested model that fulfills the requirements of the EEC UN Regulations № 94 (or equivalent regulatory documents).
Test C  New proposal
(as proposed by the Russian Federation)

Static load:
N2 > 7.5t and N3  \( P = K \times \text{PCH} \leq 10\text{t} \),
where PCH – full load of the vehicle that falls to the front axle;
K = 2.5 – dynamic load coefficient.

N1 and N2 \( \leq 7.5\text{t} \) – Regulation № 29 series 02

Back part strength testing (Test C)

Current UNECE R29. 02

Rear wall test

Load:

1,96 kH per tonne payload

Russian Federation
(GrSP/2007/14)

Pendulum energy:
- for N1 Category – 10 kJ
- for N2 Category – 20 kJ
- for N3 Category – 40 kJ

Pendulum:
- dimensions: h=500 mm; l=1600 mm
  weight m = 1000 kg

Pendulum position:
- the center of the strike must coincide with the central axial plane of the back wall and be located in the middle between the floor and the roof of the cabin;
- chain-hanged pendulum, L≥3500 mm, b≥800 mm
Test D  New proposal
(as proposed by the Russian Federation)

N1 and N2 ≤ 7,5t – Regulation № 29 series 02

Pendulum energy:
N2 > 7,5t and N3 – 29,4 kJ

Pendulum:
dimensions: h=500 mm; l=1600 mm
weight m = 1000kg
Thanks for attention!