Proposal for Supplement 3 to 03 Series of amendments of Regulation No. 129 (Enhanced Child Restraint Systems)

The text reproduced below is based on ECE/TRANS/WP.29/GRSP/2019/19 that defines the introduction of limit values for chest vertical acceleration of Q-dummies during dynamic testing of Enhanced Child Restraint Systems (ECRS). The modifications to the working document are marked in bold for new and strikethrough for deleted characters.

I. Proposal

Amend Paragraph 6.6.4.3.1. (insert row) to read:

"6.6.4.3.1. Injury assessment criteria for frontal and rear impact as in Table 4.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Abbreviation</th>
<th>Unit</th>
<th>Q0</th>
<th>Q1</th>
<th>Q1.5</th>
<th>Q3</th>
<th>Q6</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head performance criterion (only in case of contact during in-vehicle testing)</td>
<td>HPC* (15)</td>
<td></td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>Head acceleration 3 ms</td>
<td>A head Cum 3 ms ***</td>
<td>g</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Upper neck tension force</td>
<td>Fz</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper neck flexion moment</td>
<td>My</td>
<td>Nm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical chest acceleration**</td>
<td>Az</td>
<td>g</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest acceleration 3 ms</td>
<td>A chest Cum 3 ms ***</td>
<td>g</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Chest deflection</td>
<td>TBC</td>
<td>mm</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abdominal pressure****</td>
<td>P</td>
<td>Bar</td>
<td>NA</td>
<td>NA</td>
<td>1.2</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
</tr>
</tbody>
</table>

*HPC: see Annex 17.
** To be reviewed within 3 years following entry into force of the series 01 of this Regulation.
*** Cum 3 ms means cumulative 3 ms value at 02 Series and 03 Series.
**** Abdominal pressure, the highest recorded value is applicable for injury assessment (i.e., when the right-handed sensors record 1.3 bar and the left-handed sensors record 1.0 bar, the recorded 1.3 bar is to be used for injury assessment).

The vertical component of the acceleration from the abdomen towards the head, "-z", when the measurement procedures defined in paragraph 7.5. of this document are followed, shall not exceed 30 g except during periods whose sum does not exceed 3 ms. The measurement procedures defined in...
paragraph 7.5. of this document follow those of ISO 6487 with SAE J211 sign
convention, as shown in Figure A.

Figure A SAE J21

Amend Paragraph 8.1. to read:

"8.1. The test report shall record the results of all tests and measurements including the following
test data:
(a) ...
(i) The following dummy criteria: HPC, Head acceleration Cum 3 ms, Upper neck tension
force, Upper neck moment, Chest acceleration Cum 3 ms, **Vertical chest acceleration**, 
Chest deflection, Abdominal pressure (in frontal and rear impact), and

..."

II. Justification

To align UN Regulation No. 129 with the description of UN Regulation No. 44, and to recover the
missing part (****) in the working document to Supplement 2 to 03 series.