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**Economic Commission for Europe****Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Passive Safety****Sixty-sixth session**

Geneva, 10-13 December 2019

Item 20 of the provisional agenda

**UN Regulation No. 129 (Enhanced Child Restraint Systems)****Proposal for Supplement 3 the 03 series of amendments to  
UN Regulation No. 129 (Enhanced Child Restraint Systems)****Submitted by the experts from the European Association for the  
Coordination of Consumer Representation in Standardization on behalf  
of Consumers International and from Global New Car Assessment  
Program\***

The text reproduced below was prepared by the expert from the European Association for the Coordination of Consumer Representation in Standardization (ANEC) on behalf of Consumers International (CI) and from Global New Car Assessment Program (GlobalNCAP). It proposes to introduce limit values for the chest vertical acceleration of Q-dummies during dynamic testing of Enhanced Child Restraint Systems (ECRS). It is based on GRSP-65-06 distributed during the sixty-fifth session of the Working Party on Passive Safety (GRSP). The modifications to the current text of the UN Regulations are marked in bold for new or strikethrough for deleted characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, Cluster 3.1), the World Forum will develop, harmonize and update UN regulations to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



## I. Proposal

Paragraph 6.6.4.3.1., Table 4, amend (insert row) to read:

"6.6.4.3.1. ...

Criterion	Abbreviation	Unit	Q0	Q1	Q1.5	Q3	Q6	Q10	
Head performance criterion (only in case of contact during in-vehicle testing)	HPC* (15)		600	600	600	800	800	800	
Head acceleration 3 ms	A head Cum3 ms ***	g	75	75	75	80	80	80	
Upper neck tension Force	Fz	N	For monitoring purpose only**						
Upper neck flexion moment	My	Nm	For monitoring purpose only**						
<b>Chest vertical acceleration**</b>	<b>Az</b>	<b>g</b>	<b>30</b>	<b>30</b>	<b>30</b>				
Chest acceleration 3 ms	A chest Cum 3 ms ***	g	55	55	55	55	55	55	
Chest deflection	TBC	mm	NA	For monitoring purpose only**					
Abdominal pressure	P	Bar	NA	NA	1.2	1.0	1.0	1.2	

\* HPC: see Annex 17.

\*\* To be reviewed within 3 years following entry into force of the series 01 of this Regulation.

**Once limit values for Fz and My are introduced, the Az limits become obsolete and can be dropped.**

\*\*\* Cum 3ms means cumulative 3ms value.

..."

## II. Justification

1. The transition from UN Regulation No. 44 to UN Regulation No. 129 brings several changes, a.o.:

- (a) The mandatory use of rearward facing CRS is extended;
- (b) Q-series dummies replaced P-series;
- (c) New requirements – e.g. limits for the head loading – are introduced, and others, e.g. the limit for chest vertical acceleration – should be replaced by more appropriate ones.

2. Regarding the latter, the chest vertical acceleration was used in UN Regulation No. 44 as a workaround to avoid high neck loads, as P-dummies lack sensors in the neck area. Q-dummies are equipped with such sensors, but up to now no limit values could be established.

3. Tests by consumer groups in Europe revealed that some (rearward facing) R129 infant carriers allow a somewhat inclined position resulting in increased neck loads in frontal impacts. Although so far no excessive neck loads were seen, there is a potential risk that products enter the market that offer an even more horizontal transport with undesirably high neck loads as a consequence.

4. The chest vertical acceleration does not allow calculation of a corresponding neck force, but has proven to be able to control these forces sufficiently under UN Regulation No. 44. Therefore, it is proposed to introduce (temporarily) limit values for the chest vertical acceleration until the limits for upper neck tension force and upper neck flexion moment limit values are established and introduced. The criterion is already known by the Technical Services and manufacturers for decades. From accident research we know that babies are very well protected – so the old limit fulfilled its intention.