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

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Item 13 of the provisional agenda

UN Regulation No. 129 (Enhanced Child Restraint Systems)**Proposal for Supplement 2 to the 04 Series of Amendments to
UN Regulation No. 129 (Enhanced Child Restraint Systems)****Submitted by the expert from the European Association of Automotive
Suppliers^{*,**}**

The text reproduced below was prepared by the expert from the European Association of Automotive Suppliers (CLEPA). It aims to correct some editorial mistakes found in the 04 series of amendments to UN Regulation No. 129. The modifications to the current text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

* This document was scheduled for publication after the standard publication date owing to circumstances beyond the submitter's control.

** In accordance with the programme of work of the Inland Transport Committee for 2024 as outlined in proposed programme budget for 2024 (A/78/6 (Sect. 20), table 20.5), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

I. Proposal

Paragraph 6.3.1.2., amend to read:

"6.3.1.2. The flammability of Enhanced Child Restraint Systems submitted for approval shall be assessed by one of the following methods:
 ... of EN 71-2:2020~~4~~ with a maximum rate ..."

Insert new paragraph 16.13., to read:

"16.13. **As from the official date of entry into force of the 04 series of amendments, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept UN type-approvals under this Regulation as amended by the 04 series of amendments.**"

Paragraphs 16.13. (former) to 16.15., renumber as paragraphs 16.14. to 16.16.

Annex 27, amend to read:

"Annex 27

List of Minimum Contents for the Test Reports included in the Type-Approval Application

This annex contains a list of the minimum content and information that shall be provided in the test reports that are included ~~in the~~ for a new Type Approval Application. **For Type Approval Extensions only the information related to the changes to the ECRS shall be provided.**

How this information is presented in the Type Approval Application shall be the choice of the Technical Service, i.e. the layout, format, order of the information may be changed.

ECRS Description

	ECRS Category (3.2.2.)	Stature Range	Orientation	Attachment
Category 1				
Category 2				
Category 3				
.....				
<hr/>				
6.	<i>General Requirements</i>			
<hr/>				
	Measurement from Cr to load bearing point (Left & Right)			
6.1.2.5.	Integral ECRS			mm
6.1.3.4.	Non-integral ECRS			mm
	Belt remaining on spool			
6.1.2.6.	Integral ECRS			mm
6.1.3.5.	Non-integral ECRS			mm
	If a gauge or fixture is used to verify the required dimensions, instead of recording precise measurements, verification photos of the physical check shall be provided			

6. *General Requirements*

6.2.1.84. **Lap strap Buckle** position when smallest & largest dummies are installed

6.2.1.5. Angle α and β measured with smallest & largest dummies

α 1
β 1
α 2
β 2

If a gauge or fixture is used to verify the required dimensions, instead of recording precise measurements, verification photos of the physical check shall be provided

6. *General Requirements*

	Signed Declaration Received?	Test Report Reference (If applicable)
6.3.1.1. Toxicity Flammability		
6.3.1.2. Flammability Toxicity		

6.3.2.1. *Internal measurement**

Configuration measured:

ISO volume used to confirm external dimensions:

Internal measurements:

Calculated Stature Range	Minimum	cm
	Maximum	cm
Sitting height measurement		mm
Shoulder breadth measurement		mm
Hip breadth measurement		mm
E1) Min shoulder height measurement		mm
E2) Max shoulder height measurement		mm
F1) Min Abdomen depth measurement (If Applicable)		mm
F2) Max Abdomen depth measurement (If Applicable)		mm
G1) Min Upper leg thickness measurement (If Applicable)		mm
G2) Max Upper leg thickness measurement (If Applicable)		mm

*Complete for each different configuration

6.3.2.2. *External measurement**

Configuration measured:

6.3.2.2. *External measurement**

e.g. Lateral Facing, Rearward Facing, Forward Facing Integral, Booster Seat, Booster Cushion

ISO volume used to confirm external dimensions:

ECRS Adjustments that fit within volume (if applicable):

Head rest position

Recline position

Side wing position

Verification photos of physical check

Or

Verification image if checked using CAD drawing

*Complete for each different configuration

6.6.1. *Corrosion*

Test Reference number

Description of parts tested

Description of results:

6.6.2. *Energy Absorption*

Test Reference number

Description of impact site

Measured Acceleration (g)

Site 1

Site 2

Site 3

.....

All Results <60g

Pass/Fail

6.6.3. *Overtuning**

Test Reference number

ECRS Configuration Integral / Non-integral

RF / FF

Booster Seat / Booster Cushion

ATD

6.6.3. *Overtuning**

Mass Applied (kg)

Rotation	1	2	3	4	Pass/Fail
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ATD Displacement (mm)

*Repeat for each configuration & ATDs

6.6.5. *Resistance to temperature*

Test Reference number

Description of parts tested

Description of results

Dynamic Test Reference using this ECRS

6.7.1. *Buckle Requirements*

6.7.1.2. Enclosed or non-enclosed buckle?

Surface area of button

If a gauge or fixture is used to verify the required dimensions, instead of recording precise measurements, verification photos of the physical check shall be provided

6.7.1.4. *Shoulder strap positioner*

Criteria	Measure	Pass/Fail
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6.7.1.4.1. Force required to close shoulder strap positioner	<15 N	N
6.7.1.4.2. The force required to release the device	<15 N	N
6.7.1.4.3. Height of shoulder strap positioner	<60 mm	mm

6.7.1.7. *Buckle Tests*

Test No.	Criteria	Measure	Pass/Fail
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6.7.1.7.1. Buckle Test under load	<80 N	N	
6.7.1.7.2. Buckle No-load test	40-80 N	N	
6.7.1.8. Buckle Strength Test	>4000 N	N	
	>10000 N		

Clause	Requirement	Measurement	Value
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6.7.4. Straps

Test Reference

6.7.4.1. Width

<i>Clause</i>	<i>Requirement</i>	<i>Measurement</i>	<i>Value</i>
6.7.4.1.1.	The minimum width at the child-restraint straps which make contact with the dummy shall be 25 mm. These dimensions shall be measured during the strap strength test prescribed in paragraph 7.2.5.1. below, <ul style="list-style-type: none"> • without stopping the machine and • under a load equal to 75 per cent of the breaking load of the strap 	min. Width, under load	mm
6.7.4.2.	Strength after room conditioning		
6.7.4.2.1.	On two sample straps conditioned as prescribed in paragraph 7.2.5.2.1., the breaking load of the strap shall be determined as prescribed in Paragraph 7.2.5.1.2. below.	Strap1 [kN] Strap2 [kN]	
6.7.4.2.2.	The difference between the breaking loads of the two samples shall not exceed 10 per cent of the greater of the two breaking loads measured.	Difference [%]	
6.7.4.3.	Strength after special conditioning:		
6.7.4.3.	Water	Water1 [kN]	
6.7.4.3.		Water2 [kN]	
6.7.4.3.		Differ. [%]	
6.7.4.3.	Cold	Cold1 [kN]	
6.7.4.3.		Cold2 [kN]	
6.7.4.3.		Differ. [%]	
6.7.4.3.	Hot	Hot1 [kN]	
6.7.4.3.		Hot2 [kN]	
6.7.4.3.		Differ. [%]	
6.7.4.3.	Light	Light1 [kN]	
6.7.4.3.		Light2 [kN]	
6.7.4.3.		Differ. [%]	
6.7.4.3.	Abrasion	Abrasion1	
6.7.4.3.		Abrasion2	
6.7.4.3.		Differ. [%]	
6.7.4.3.1.	On two straps conditioned as prescribed in one of the provisions of paragraph 7.2.5.2. below (except para. 7.2.5.2.1.), the breaking load of the strap shall be not less than 75 per cent of the average of the loads determined in the test referred to in paragraph 7.2.5.1.	Mean [kN]: >75%	
6.7.4.3.2.	In addition, the breaking load shall be not less than 3.6 kN for the restraints of i-Size Enhanced Child Restraint Systems.		

<i>Clause</i>	<i>Requirement</i>	<i>Measurement</i>	<i>Value</i>
6.7.4.4.	It shall not be possible to pull the complete strap through any adjusters, buckles or anchoring points.	Verification	photos of the physical check shall be provided.
6.7.5.	<i>ISOFIX attachment specifications</i>		
6.7.5.1.	ISOFIX attachments and latching indicators shall be capable of withstanding repeated operations and shall, before the dynamic test prescribed in paragraph 7.1.3. of this Regulation, undergo a test comprising $2,000 \pm 5$ opening and closing cycles under normal conditions of use.		
6.7.5.2.	ISOFIX attachments shall have a locking mechanism which complies with the requirements specified in (a) or (b) as follows:		
6.7.5.2. (a)	Release of the locking mechanism of the complete seat, shall require two consecutive actions, the first of which should be maintained while the second is carried out; or		
6.7.5.2. (b)	The ISOFIX attachment opening force shall be at least 50 N when tested as prescribed in paragraph 7.2.8.		
6.7.6.	<i>Lock-off device</i>		
6.7.6.1.	The lock-off device shall be permanently attached to the Enhanced Child Restraint System.		
6.7.6.2.	The lock-off device shall not impair the durability of the adult belt and shall undergo the temperature test operation requirements given in paragraph 7.2.7.1.		
6.7.6.3.	The lock-off device shall not prevent the rapid release of the child.		
6.7.6.4.	Class A device The amount of slip of the webbing shall not exceed 25 mm after the test prescribed in paragraph 7.2.9.1. below.		
6.7.6.5.	Class B device The amount of slip of the webbing shall not exceed 25 mm after the test prescribed in paragraph 7.2.9.2. below.		
6.3.2.3.	<i>Mass (integral systems)</i>		
	The mass of an integral ISOFIX Enhanced Child Restraint System (including inserts) combined with the mass of the largest child intended to use the Enhanced Child Restraint System shall not exceed 33 kg.	Mass of CRS [kg]	
		Max. Mass of Occupant [kg]	
	For module systems the combined mass of the module & base shall be recorded.	Mass of System [kg]	

6.3.2.3.	<i>Mass (integral systems)</i>		
This mass limit is also applicable for "Specific vehicle ISOFIX" Enhanced Child Restraint Systems.			
6.3.3.	<i>ISOFIX attachments</i>		
6.3.3.2.	Dimensions		
6.3.3.3.	Partial latching indication		
6.3.3.3.	The ISOFIX Enhanced Child Restraint System shall incorporate means by which there is a clear indication that both of the ISOFIX attachments are completely latched with the corresponding ISOFIX lower anchorages.	latch indicator	[Y/N]
6.3.3.3.	The indication means may be audible,	check	[Y/N]
6.3.3.3.	tactile or	check	[Y/N]
6.3.3.3.	visual or	check	[Y/N]
6.3.3.3.	a combination of two or more.	check	[Y/N]
6.3.3.3.	In case of visual indication, it shall be detectable under all normal lighting conditions.	check	[Y/N]
6.3.4.	ISOFIX Enhanced Child Restraint System top tether strap specifications		
6.3.4.1.	Top tether connector		
6.3.4.1.	The top tether connector shall be ISOFIX top tether hook as shown in Figure 3(c), or similar devices that fit within the envelope given by Figure 3(c). Figure 3(c): ISOFIX top tether connector (hook type) dimensions		[Y/N]
6.3.4.2.	ISOFIX top tether strap features		
6.3.4.2.	The ISOFIX top tether strap shall be supported by webbing (or its equivalent), having a provision for adjustment and release of tension.	check	[Y/N]
6.3.4.2.1.	ISOFIX Top tether strap length ISOFIX Enhanced Child Restraint System top tether strap length shall be at least 2,000 mm.	TT strap length [mm]	
6.3.4.2.2.	No-slack indicator The ISOFIX top tether strap or the ISOFIX Enhanced Child Restraint System shall be equipped with a device that will indicate that all slack has been removed from the strap. The device may be part of an adjustment and tension relieving device.	check	[Y/N]
6.3.4.2.3.	Dimensions Engagement dimensions for ISOFIX top tether hooks are shown in Figure 3(c).	check	

6.3.5.1. <i>Support-leg and support-leg foot geometrical requirements</i>	
6.3.5.1.	The support leg, including its attachment to the Enhanced child restraint systems and the support-leg foot shall lie completely within the support leg dimension assessment volume (see also figures 1 and 2 of annex 19 of this Regulation), which is defined as follows:
6.3.5.1. (a)	In width by two planes parallel to the X'-Z' plane separated by 200 mm, and centred around the origin; and
	Width in Y [mm]
6.3.5.1. (b)	In length by two planes parallel to the Z'-Y' plane and positioned at distances of 585 mm and 695 mm forward of the origin along the X' axis; and
6.3.5.1. (b)	min [mm]
	max [mm]
	-> Distances in X
6.3.5.1. (c)	In height by a plane parallel to the X'-Y' plane, positioned at a distance of 70 mm above the origin and measured perpendicular to the X'-Y' plane. Rigid, non-adjustable parts of the support leg shall not extend beyond a plane parallel to the X'-Y' plane, positioned at a distance of 285 mm below the origin and perpendicular to the X'-Y' plane.
6.3.5.1. (c)	min [mm]
	max [mm]
	-> Height in Z
6.3.5.1.	The support-leg may protrude the support-leg dimension assessment volume, providing it remains within the volume of the relevant CRF.
	check
	If a gauge or fixture is used to verify the required dimensions, instead of recording precise measurements, verification photos of the physical check shall be provided
6.3.5.2.	Where incremental adjustment is provided, the step between two locked positions shall not exceed 20 mm.
	Adjustment increments [mm]
6.3.5.2.	The support leg foot assessment volume is defined as follows:
6.3.5.2. (a)	In width by two planes parallel to the X'-Z' plane, separated by 200 mm, and centred around the origin; and
	Width in Y [mm]
6.3.5.2. (b)	In length by two planes parallel to the Z'-Y' plane and positioned at distances of 585 mm and 695 mm forward of the origin along the X' axis; and
	min [mm]
	-> Distances in X
6.3.5.2. (b)	
	max [mm]
6.3.5.2. (c)	In height by two planes parallel to the X'-Y' plane positioned at distances of 285 mm and 540 mm below the origin along the X' axis.
	min [mm]

6.3.5.1. *Support-leg and support-leg foot geometrical requirements*

-> Height in Z

6.3.5.2. (c)		max [mm]	
6.3.5.2.	It shall be permissible for the support-leg to be adjustable beyond the height limits in the Z' direction (as indicated by key 6 in Figure 3 of Annex 19), providing that no parts extend beyond the limiting planes in the X' and Y' directions.	check	[Y/N]

6.3.5.3. *Support-leg foot dimensions*

6.3.5.3.	The dimensions of the support-leg foot shall meet the following requirements:		
6.3.5.3. (a)	Minimum support-leg contact surface shall be 2,500 mm ² , measured as a projected surface 10 mm above the lower edge of the support-leg foot (see Figure 3(d));	Contact Surface	[mm ²]
6.3.5.3. (b)	Minimum outside dimensions shall be 30 mm in the X' and Y' directions, with maximum dimensions being limited by the support-leg foot assessment volume;	min X'	[mm]
		min Y'	[mm]
6.3.5.3. (c)	Minimum radius of the edges of the support-leg foot shall be 3.2 mm.	Radius	[mm]
	If a gauge or fixture is used to verify the required dimensions, instead of recording precise measurements, verification photos of the physical check shall be provided		

~~8.4~~ *Minimum Dynamic Test Information (per test)*

- Test Facility Name & Address
- Test Reference Number
- ECRS Configuration (e.g. integral harness, non-integral booster seat)
- ECRS Orientation (e.g. Forward Facing, Rearward Facing, Lateral Facing)
- Recline Position (if applicable) (e.g. Upright, Reclined)
- Attachment Method (e.g. seat belt, ISOFIX, ...)
- Buckle Position (if applicable)
- Support Leg Length (if applicable)
- Top Tether Position (if applicable)
- Installation Belt Forces (if applicable) N
- Test Dummy

8.4 Minimum Dynamic Test Information (per test)

Sled Type (Deceleration/Acceleration)	
Impact Speed	km/h
Total Velocity Change	km/h
Stopping Distance (deceleration only)	mm
Maximum Head Horizontal Excursion	mm
Time it occurs	ms
Maximum Head Vertical Excursion	mm
Time it occurs	ms
D-E plane exceedance?	
HPC	
Resultant Head acceleration Cum 3ms	g
Upper neck tension force (Fz+)*	N
Upper neck flexion moment (My+)*	Nm
Resultant Chest acceleration Cum 3ms	g
Chest deflection (in frontal and rear impact)	mm
Abdominal Pressure (in frontal and rear impact)	bar
Breakage of parts?	

* The measurement procedures shall follow those of ISO 6487 with SAE J211 sign convention."

II. Justification

1. Supplement 9 to the 03 series of amendments to UN Regulation No. 129 (ECE/TRANS/WP.29/2023/51) updated the reference to European Standard (EN) 71-2 for the assessment of the flammability of Enhanced Child Restraint Systems. Unfortunately, a mistake was made with the date of the EN standard, which was written as EN 71-2: 2021 instead of EN 71-2:2020. This proposal corrects the mistake.

2. The 04 series of amendments to UN Regulation No. 129 (ECE/TRANS/WP.29/2023/109) specifies transitional provisions for the acceptance of type-approvals issued according to preceding versions of the regulation. These transitional provisions are consistent with the principles and examples set out in the UN Guidelines (ECE/TRANS/WP.29/1044/Rev.3). However, the 04 series of amendments do not specify the date from which Contracting Parties are obliged to grant or accept type-approvals to the 04 series. Although the official date of entry into force for a new series may imply that Contract Parties are obliged to grant or accept type-approvals, this proposal states this explicitly and in accordance with the example set out in the UN Guidelines.

3. Supplement 8 to the 03 series of amendments to UN Regulation No. 129 (ECE/TRANS/WP.29/2023/128) amended Annex 27 (minimum content of type-approval

test reports) to clarify that only information related to the changes to the Enhanced Child Restraint Systems (ECRS) is required in the report for a type-approval extension. However, this change was missing from the 04 series of amendments, which appears to have been written from an earlier version of the 03 series of amendments (i.e., pre-Supplement 8). This proposal updates Annex 27 to be consistent with the latest version of the 03 series of amendments. It also corrects some editing mistakes and omissions in Annex 27.
