

Supplement 5 to the 03 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) to clarify aspects of UN Regulation No. 129. This text amends the text of document GRSP/2020/03, which is based on documents GRSP-66-11 (Digital User Guide) and GRSP-66-12 (Test Report Template) that was introduced during the sixty-sixth session of the Working Party on Passive Safety (GRSP) (see ECE/TRANS/WP.29/GRSP/66, para. 41). These amendments are based on feedback received from stakeholders. The modifications to the formal document are marked in bold for new or strikethrough for deleted characters.

I. Proposal

Contents of the Regulation, amend to read:

".....

Annexes

.....

27 List of Minimum Contents for Type Approval Test Report ~~Template~~"

Text of the Regulation, amend to read:

Insert a new paragraph 8.1., to read:

"8.1. The information ~~contained in the template~~ **defined** in Annex 27 shall be provided in the Type Approval test report."

Paragraph 14.3.16, amend to read:

"14.3.1416. There shall be provisions made so that the instructions can be retained on the child restraint for its life period or in the vehicle handbook in the case of built-in restraints. **This is not a requirement if the manufacturer provides a weblink or QR code with the product to where a digital version of the information can be found.**"

Insert a new Annex 27, to read:

"Annex 27

List of Minimum Contents for Type Approval Test Report ~~Template~~

This Annex contains ~~a template for~~ **a list of the minimum content and** information that shall be provided in the Type Approval test report. How this information is presented in the Type

Approval test report 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
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Category 1

Category 2

Category 3

.....

6. *General Requirements*

6.1.2.5.	Measurement from Cr to load bearing point (Left & Right)			mm
6.1.3.4.				mm
6.1.2.6.	Belt remaining on spool			mm
6.1.3.5.				

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*

6.2.1.4.	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.	Flammability		
6.3.1.2.	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:

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

6.6.1. *Corrosion*

Description of parts tested

~~Photo of Parts Pre-test~~

~~Photo of Parts Post-test~~

Description of results:

6.6.2. *Energy Absorption*

Test Reference number

Description of impact site
(photos)

Measured Acceleration (g)

Site 1

Site 2

Site 3

.....

All Results <60g

Pass/Fail

6.6.3. *Overturing**

Test Reference number

ECRS Configuration Integral / Non-integral

RF / FF

Booster Seat / Booster Cushion

ATD

Mass Applied (kg)

Rotation

1

2

3

4

Pass/Fail

ATD Displacement
(mm)

*Repeat for each configuration & ATDs

6.6.5. *Resistance to temperature*

Test Reference number

Description of parts tested

 6.6.5. *Resistance to temperature*

~~Photo of Parts Pre-test~~

~~Photo of Parts Post-test~~

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

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

Buckle Tests

Test No.

Criteria

Measure

Pass/Fail

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

Measure-ment

Value

6.7.4. Straps

Test Reference

6.7.4.1. Width

6.7.4.1.1. The minimum width at the child-restraint straps which contact the dummy shall be 25 mm. These dimensions shall be measured during the strap strength test prescribed in paragraph 7.2.5.1. below,

- without stopping the machine and

min. Width, under load [mm]

<i>Clause</i>	<i>Requirement</i>	<i>Measure-ment</i>	<i>Value</i>
	• under a load equal to 75 per cent of the breaking load of the strap		
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%	
6.7.4.3.1.			
6.7.4.3.2.	In addition, the breaking load shall be not less than:		
(a)	3.6 kN for Integral Enhanced Child Restraint Systems with an upper stature limit less than or equal to 105 cm	>3.6 kN	

<i>Clause</i>	<i>Requirement</i>	<i>Measure-ment</i>	<i>Value</i>
(b)	5 kN for Integral Enhanced Child Restraint Systems with an upper stature limit greater than 105 cm but less than or equal to 125 cm	>5 kN	
(c)	7.2 kN for Integral Enhanced Child Restraint Systems with an upper stature limit greater than 125 cm	> 7 kN	
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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 ± 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.		
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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.		
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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 CRS	[kg]

<i>6.3.2.3. Mass (integral systems)</i>	
mass of the largest child intended to use the Enhanced Child Restraint System shall not exceed 33 kg.	Max. Mass of Occupant [kg]
For module systems the combined mass of the module & base shall be recorded.	Mass of System [kg]
This mass limit is also applicable for "Specific vehicle ISOFIX" Enhanced Child Restraint Systems.	

6.3.3. ISOFIX attachments

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 0(c), or similar devices that fit within the envelope given by Figure 0(c). Figure 0(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	check	[Y/N]

6.3.3.	<i>ISOFIX attachments</i>	
	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.	
6.3.4.2.3.	Dimensions Engagement dimensions for ISOFIX top tether hooks are shown in Figure 0(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 centered 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	min [mm]
6.3.5.1. (b)		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.	min [mm]
6.3.5.1. (c)		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. 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	check
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:	

6.3.5.1. <i>Support-leg and support-leg foot geometrical requirements</i>			
6.3.5.2. (a)	In width by two planes parallel to the X'-Z' plane, separated by 200 mm, and centered 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 -> Distances in X	min [mm]	
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. -> Height in Z	min [mm]	
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. <i>Support-leg foot dimensions</i>			
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 0(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		

 8.1 *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	
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

8.1 *Minimum Dynamic Test Information (per test)*

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. When assessing the width of ECRS in the vehicle seat fixture, the side wings are allowed a realistic flexion inwards. This amended text clarifies the current procedure and formalises the practice.

2. The addition of Annex 27 containing the list of minimum contents for a Type Approval test report requires the essential measurement information to be provided in the Type Approval test report. How this information is presented in the Type Approval test report shall be the choice of the Technical Service. The aim is to improve the transparency and consistency of Type Approval testing results and ensure that all assessments are carried out.

3. This proposal also reduces the amount of paper that is required for a paper version of child restraint user instructions. It means that a manufacturer can choose to provide the user with a digital form of the bulk of the instructions.
