

## **Proposal for 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 document is a consolidation of CLEPA documents GRSP/2020/03, and informal document GRSP-67-16. It includes additional modifications based on feedback received from Contracting Parties. This document is based on documents GRSP-66-11 (Digital User Guide), GRSP-66-12 (Test Report Template) and GRSP-66-13 (Dimension Assessment Method) that were introduced during the sixty-sixth session of the Working Party on Passive Safety (GRSP) (see ECE/TRANS/WP.29/GRSP/66, para. 41). The modifications to the current text of the UN Regulation 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 2020 as outlined in proposed programme budget for 2020 (A/74/6 (part V sect. 20) para 20.37), 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.



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## 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:

*Paragraph 6.3.2.2.1.*, amend to read:

#### "6.3.2.2.1. Integral Class Enhanced Child Restraint Systems

The maximum external dimensions for the width, height and depth of the Enhanced Child Restraint System and if fitted, the locations of the ISOFIX anchorages system, with which its attachments shall engage, shall be defined by the ISOFIX Vehicle Seat Fixture as defined in paragraph 2.17.1. of this Regulation.

- (a) i-Size or Universal Belted Forward facing Enhanced Child Restraint Systems shall fit within the ISO/F2x size envelope for a reduced-height forward-facing toddler CRS;
- (b) i-Size or Universal Belted Rearward facing Enhanced Child Restraint Systems shall fit within the ISO/R2 size envelope for a reduced-size rearward-facing toddler CRS;
- (c) Specific vehicle ISOFIX or Specific vehicle Belted Enhanced Child Restraint Systems shall fit:
  - (i) In vehicle(s) specified in a list or
  - (ii) At least in one of the ISO (R1, R2X, R2, R3, F2X, F2, F3, L1, L2) size envelopes as described in Annex 17 Appendix 2 of UN Regulation No. 16.

When conducting this assessment, the Integral Enhanced Child Restraint System shall be adjusted to the largest size of its declared stature range (height, depth and width dimensions as defined in Annex 18). **When checking the width, the maximum loading allowed on the side of the ISOFIX Vehicle Seat Fixture shall be  $\leq 135$  N.**

If the Enhanced Child Restraint System is capable of being adjusted to different positions of seat surface inclination, the fitting assessment shall be done in at least one position. If other positions of inclination are outside the limits of the applicable size envelope, the user manual shall indicate that the child restraint may not fit in all approved vehicles when used in one of these positions."

*Paragraph 6.3.2.2.2.*, amend to read:

#### "6.3.2.2.2. Booster Seats

The maximum external dimensions for the width, height and depth of the Enhanced Child Restraint System and the locations of the ISOFIX anchorages system if any, with which its attachments shall engage, shall be defined by the i-Size booster fixture as defined in paragraph 2.17.2. of this Regulation.

- (a) i-Size booster seat Enhanced Child Restraint Systems shall fit within the ISO/B2 size envelope;
- (b) Specific vehicle booster seat Enhanced Child Restraint Systems shall fit:
  - (i) In vehicle(s) specified in a list; or
  - (ii) At least in one of ISO/B2 –ISO/B3 size envelope as described in Annex 17, Appendix 5 of UN Regulation No. 16.

When conducting this assessment, the booster seat shall be adjusted to accommodate children of 135 cm stature (height, depth and width dimensions as defined in Annex 18) or to the largest size of its declared stature range if the upper limit is below 135 cm. **When checking the width, the maximum loading allowed on the side of the i-Size booster fixture shall be  $\leq 135$  N.**

The booster seat shall fit within the booster seat fixture in all angles of inclination of the fixture (90°-110°). The Enhanced Child Restraint System may be adjusted between inclination angles or positions to fit within the different booster seat fixture angles.

If other positions of inclination are outside the limits of the applicable size envelope, the user manual shall indicate that the child restraint may not fit in all approved vehicles when used in one of these positions. If the booster seat has a declared stature range above 135 cm, and if it is necessary to adjust the child restraint outside the limits of the applicable size envelope for such adjustments (height, depth and width dimensions), the user manual shall indicate that the child restraint may not fit in all approved vehicles when used in one of these positions.

In such cases, an Enhanced Child Restraint System shall still be categorised as an i-Size booster seat for the entire declared stature range, including statures above 135 cm, provided it fits within the applicable size envelope when adjusted for a child of 135 cm stature. If the maximum child stature that fits within the envelope is less than 135 cm, the booster seat shall be categorised as specific vehicle for statures included in the declared range that no longer fit within the envelope."

Paragraph 7.5., amend to read

"7.5. The measuring procedures shall correspond to those defined in the latest version of ISO 6487 **with the SAE J211 sign convention**. The channel frequency class shall be:

Table 10

Type of measurement	CFC( $F_H$ )	Cut-off frequency ( $F_N$ )
Trolley acceleration	60	see ISO 6487Annex A
Belt loads	60	see ISO 6487Annex A
Chest acceleration	180	see ISO 6487Annex A
Head acceleration	1 000	1 650 Hz
Upper neck force	1 000	
Upper neck moment	600	
Chest deflection	600	
Abdominal pressure	180	

The sampling rate should be a minimum of 10 times the channel frequency class (i.e. in installations with channel frequency class of 1,000, this corresponds to a minimum sampling rate of 10,000 samples per second per channel)."

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 8.1., renumber as 8.2. and amend to read:

"8.2. The **conformity of production (CoP) and production qualification** test report shall record the results of all tests and measurements including the following test data:

- (a) The type of device used for the test (acceleration or deceleration device),

- (b) The total velocity change,
- (c) The trolley speed immediately before impact only for deceleration sleds,
- (d) The acceleration or deceleration curve during all the velocity change of the trolley and at least 300 ms,
- (e) The time (in ms) when the head of the manikin reaches its maximum displacement during the performance of the dynamic test,
- (f) The place occupied by the buckle during the tests, if it can be varied, and
- (g) The name and address of the laboratory where tests have been performed,
- (h) And any failure or breakage,
- (i) The following dummy criteria: HPC, Resultant head acceleration Cum 3ms, Upper neck tension force, Upper neck moment, Resultant chest acceleration Cum 3ms, Chest deflection; Abdominal Pressure (in frontal and rear impact); and
- (j) Adult safety-belt bench installation forces.
- (k) The minimum and maximum approved stature range for all categories of ECRS;
- ~~(l) The internal dimensions according to Annex 18, for all categories of ECRS;~~
- ~~(m) For booster cushions the minimum stature with corresponding sitting height according to paragraph 6.1.3.6"~~

*Paragraphs 8.2. to 8.4.(former), renumber as 8.3. to 8.5.,*

*Paragraph 14.1., amend to read:*

"14.1. Each Enhanced Child Restraint System shall be accompanied by ~~instructions in the language of the country where the device is sold with the following content:~~ **information for its use. The information can be provided to the user, either:**

- **In a physical form fulfilling requirements 14.2 and 14.3. or**
- **In a digital form fulfilling requirements 14.2, 14.3 and 14.4."**

*Paragraph 14.2., shall be deleted*

*Insert a new paragraph 14.2., to read:*

**"14.2. The following information shall be provided in the language of the country where the device is sold:"**

*Paragraphs 14.2.7. to 14.2.9., shall be deleted*

*Paragraphs 14.2.10. and 14.2.11.(former), renumber as paragraphs 14.2.7 and 14.2.8.*

*Insert new paragraphs 14.2.9. and 14.2.10., to read:*

**"14.2.9. For integral forward facing Enhanced Child Restraint Systems, the following information shall be clearly visible on the exterior of the packing:**

**"IMPORTANT - DO NOT USE BEFORE THE CHILD'S AGE EXCEEDS 15 MONTHS (Refer to instruction)".**

**14.2.10. For integral Enhanced Child Restraint Systems that can be used forward and rearward facing, the following information shall be clearly visible on the exterior of the packing:**

**"IMPORTANT – DO NOT USE FORWARD FACING BEFORE THE CHILD’S AGE EXCEEDS 15 MONTHS (Refer to instruction)".**

Paragraphs 14.3. and 14.3.1., amend to read:

- "14.3. The instructions for use shall include the following points **and be available in the language of the country where the device is sold:**
- 14.3.1. The "Size range" **for each configuration** and for integral Enhanced Child Restraint System the maximum occupant mass for which the device is intended:"

Paragraph 14.3.3., shall be deleted

Insert new paragraphs 14.3.3. to 14.3.5., to read:

- "14.3.3. The method of installation shall be illustrated by photographs and/or very clear drawings;**
- 14.3.4. The user shall be informed that the rigid items and plastic parts of an Enhanced Child Restraint System shall be located and installed so that they are not liable, during everyday use of the vehicle, to become trapped by a movable seat or in a door of the vehicle;**
- 14.3.5. The user shall be advised to use carry-cots perpendicular to the longitudinal axis of the vehicle;"**

Paragraphs 14.3.4. to 14.3.15., renumber as paragraphs 14.3.6. to 14.3.17.

Paragraph 14.3.16, amend to read:

- "14.3.16. 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 new paragraphs 14.4. to 14.4.4., to read:

- "14.4. Digital instructions**  
**At minimum, the Enhanced Child Restraint System must shall be accompanied with a physical "Quick-Start Guide" that includes the following information:**
- 14.4.1. The "Size range" for each configuration, and for integral Enhanced Child Restraint Systems, the maximum occupant mass for which the device is intended.**
- 14.4.2. A weblink or QR code with the product to where a digital version of the information detailed in 14.3. can be found. The CRS manufacturer shall ensure that a printed version is available on request without time limit.**
- 14.4.3. For specific categories of Enhanced Child Restraint Systems, information on the applicable vehicle, in a weblink or QR Code with the product to a digital version.**
- 14.4.4. The address in a physical or a digital version to which the customer can write to obtain further information on fitting the Enhanced Child Restraint System in specific cars. The digital version shall be edited in a printable format"**

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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.

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*ECRS Description*

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ECRS Category (3.2.2.)	Stature Range	Orientation	Attachment
Category 1			
Category 2			
Category 3			
.....			

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6. *General Requirements*

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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

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6. *General Requirements*

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6.2.1.4.	<del>Photographs of b</del> Buckle position when smallest & largest dummies are installed	
6.2.1.5.	Angle $\alpha$ and $\beta$ measured with smallest & largest dummies	$\alpha$ 1 $\beta$ 1 $\alpha$ 2 $\beta$ 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

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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**

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6.3.2.2. *External measurement\**

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Verification image if checked using CAD drawing

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\*Complete for each different configuration

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6.6.1. *Corrosion*

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Test Reference number

Description of parts tested

~~Photo of Parts Pre-test~~

~~Photo of Parts Post-test~~

Description of results:

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6.6.2. *Energy Absorption*

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Test Reference number

Description of impact site  
(photos)

Measured Acceleration (g)

Site 1

Site 2

Site 3

.....

All Results <60g

Pass/Fail

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6.6.3. *Overtuning\**

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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)

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\*Repeat for each configuration & ATDs



**6.6.5. Resistance to temperature**

**Test Reference number**

**Description of parts tested**

~~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**

<b>6.7.1.4. Shoulder strap positioner</b>	<b>Criteria</b>	<b>Measure</b>	<b>Pass/Fail</b>
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<b>6.7.1.4.1. Force required to close shoulder strap positioner</b>	<b>&lt;15 N</b>	<b>N</b>	
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<b>6.7.1.4.2. The force required to release the device</b>	<b>&lt;15 N</b>	<b>N</b>	
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<b>6.7.1.4.3. Height of shoulder strap positioner</b>	<b>&lt;60 mm</b>	<b>mm</b>	
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<b>Buckle Tests</b>	<b>Test No.</b>	<b>Criteria</b>	<b>Measure</b>	<b>Pass/Fail</b>
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<b>6.7.1.7.1. Buckle Test under load</b>		<b>&lt;80 N</b>	<b>N</b>	
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<b>6.7.1.7.2. Buckle No-load test</b>		<b>40-80 N</b>	<b>N</b>	
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<b>6.7.1.8. Buckle Strength Test</b>		<b>&gt;4000 N</b> <b>&gt;10000 N</b>	<b>N</b>	
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<b>Clause</b>	<b>Requirement</b>	<b>Measure-ment</b>	<b>Value</b>
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<b>6.7.4.</b>	<b>Straps</b>		
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**Test Reference**

<b>6.7.4.1.</b>	<b>Width</b>		
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<b>6.7.4.1.1.</b>	<b>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,</b>	<b>min. Width, under load</b>	
	<b>• without stopping the machine and</b>	<b>[mm]</b>	

<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]:	
6.7.4.3.1.		>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.:		
(a)	<del>3.6 kN for Integral Enhanced Child Restraint Systems with an upper stature limit less than or equal to 105 cm</del>	>3.6 kN	

<i>Clause</i>	<i>Requirement</i>	<i>Measure-ment</i>	<i>Value</i>
(b)	<del>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</del>	<del>&gt;5 kN</del>	
(e)	<del>7.2 kN for Integral Enhanced Child Restraint Systems with an upper stature limit greater than 125 cm</del>	<del>&gt;7 kN</del>	
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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	Mass of CRS	[kg]

6.3.2.3. *Mass (integral systems)*

the 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 Child Restraint System shall be	check	[Y/N]

6.3.3.	<i>ISOFIX attachments</i>	
	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.	<b>Dimensions</b> Engagement dimensions for ISOFIX top tether hooks are shown in Figure 0(c).	<b>check</b>
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	min [mm]
6.3.5.1. (b)	and 695 mm forward of the origin along the X' axis; and	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	min [mm]
6.3.5.1. (c)	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.	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.	<b>check</b>
	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:	

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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]

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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 <sup>2</sup> , measured as a projected surface 10 mm above the lower edge of the support-leg foot (see Figure 0(d));	Contact Surface [mm <sup>2</sup> ]	
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		

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8.1 *Minimum Dynamic Test Information (per test)*

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Test Facility Name & Address

Test Reference Number

**8.1 Minimum Dynamic Test Information (per test)**

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<b>ECRS Configuration (e.g. integral harness, non-integral booster seat)</b>	
<b>ECRS Orientation (e.g. Forward Facing, Rearward Facing, Lateral Facing)</b>	
<b>Recline Position (if applicable) (e.g. Upright, Reclined)</b>	
<b>Attachment Method (e.g. seat belt, ISOFIX, ...)</b>	
<b>Buckle Position (if applicable)</b>	
<b>Support Leg Length (if applicable)</b>	
<b>Top Tether Position (if applicable)</b>	
<b>Installation Belt Forces (if applicable)</b>	<b>N</b>
<b>Test Dummy</b>	
<b>Sled Type (Deceleration/Acceleration)</b>	
<b>Impact Speed</b>	<b>km/h</b>
<b>Total Velocity Change</b>	<b>km/h</b>
<b>Stopping Distance (deceleration only)</b>	<b>mm</b>
<b>Maximum Head Horizontal Excursion</b>	<b>mm</b>
<b>Time it occurs</b>	<b>ms</b>
<b>Maximum Head Vertical Excursion</b>	<b>mm</b>
<b>Time it occurs</b>	<b>ms</b>
<b>D-E plane exceedance?</b>	
<b>HPC</b>	
<b>Resultant Head acceleration Cum 3ms</b>	<b>g</b>
<b>Upper neck tension force (Fz+)<sup>#</sup></b>	<b>N</b>
<b>Upper neck flexion moment (My+)<sup>#</sup></b>	<b>Nm</b>
<b>Resultant Chest acceleration Cum 3ms</b>	<b>g</b>
<b>Chest deflection (in frontal and rear impact)</b>	<b>mm</b>
<b>Abdominal Pressure (in frontal and rear impact)</b>	<b>bar</b>
<b>Breakage of parts?</b>	

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<sup>#</sup>The measurement procedures shall follow those of ISO 6487 with SAE J211 sign convention."

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## 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. The consumer may request a physical version of the user instructions if they cannot access the digital version of the user instructions.
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