

## **Proposal for Supplement 4 to the 03 series of amendments to UN Regulation No. 129 (Enhanced Child Restraint Systems)**

### **Submitted by the expert from CLEPA\***

The text reproduced below was prepared by the experts from the European Association of Automotive Suppliers (CLEPA) to improve the reproducibility of dimensional measurement assessments.

## **I. Proposal**

*Paragraph 6.3.2.2. amend to read:*

"6.3.2.2. External dimensions

The Technical Service conducting the approval tests shall verify that the external dimensions of the Enhanced Child Restraint System conform to the requirements of paragraphs 6.3.2.2.1, 6.3.2.2.2. and 6.3.2.2.3 as applicable **following the procedure defined in 6.3.2.2.4.**

*Insert a new paragraph 6.3.2.2.4:*

"6.3.2.2.4. **Equipment and procedure**

**The maximum external dimensions for the width, height and depth of the Enhanced Child Restraint System, the support leg, the support leg foot and the locations of the ISOFIX anchorages system, if any, shall be assessed using the fixture as described below.**

**External measurement equipment**

The equipment is assembled from the following three components.

- 1] The fixture representing the relevant CRF using the envelopes as specified in Regulation No. 16, Annex 17, Appendix 2.
- 2] The support leg dimension assessment volume, as specified in Annex 19 figure 1 combined with the support leg foot assessment volume, as specified in Annex 19 figure 3.
- 3] The ISOFIX anchorages, represented by two 6 mm by 40 mm round steel bars, fulfilling the requirements of UN Regulation 145.

To allow the placement of the ECRS into the measurement equipment, the side, top and front elements may be designed to be moveable, slideable or removable.

The round steel bars representing the ISOFIX anchorages shall be mounted on the bottom surface of the CRF and rigidly connected to the support leg volume defined in Annex 19 of this document.

The measurement equipment shall be constructed so that component 1 can move relative to components 2 and 3 in the fore aft direction for a travel

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\* In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/254, para. 159 and ECE/TRANS/2016/28/Add.1, cluster 3.1), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

distance of 80mm ±1mm. Components 2 and 3 have a position relative to each other defined in Annex 19.

**Sliding element of component 1:**

It shall be possible to slide one side element of the CRF, including its chamfers, over at least 200mm in the Y direction. In the closed position it reaches the correct size of the relevant CRF. In the open position the sliding element is moved outwards from the relevant CRF position by 200 mm or more.

The sliding side element is defined as follows: all surfaces are visible when looking towards the CRF along the Y axis of the ISOFIX anchorages as defined in Para 6.3.5. and shown in the figures in R16, Annex17, Appendix 2.

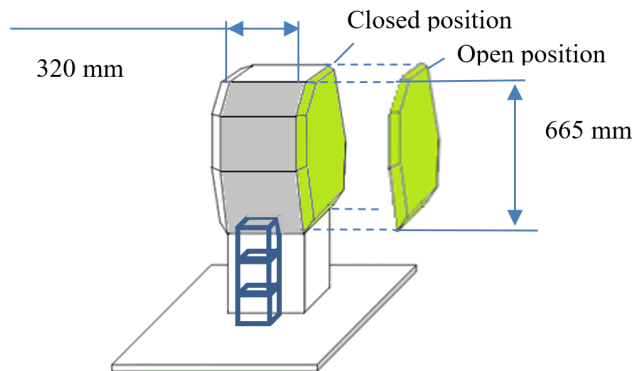


Figure [x] Example of a simplified ISO R2 fixture with the sliding element of component 1 highlighted on the right in open and closed position, and the support leg volume and the support leg foot volume.

To verify the measurement equipment strength, a force of 135 N -0/+15N shall be applied in the centre of each individual surface of the fixture.

Deformation shall not be greater than 2mm +/- 1mm

**Lateral dimension assessment measurement procedure.**

Measure in N and record the maximum force needed to overcome the friction of sliding element (Sliding Friction Force) from the most outward to the specified CRF position, without the ECRS in place.

Place the ECRS into the external measurement equipment with its centre line approximately in the centre of the equipment.

Lock the support leg into its most extended length in the X' direction relative to the ISOFIX anchorages.

Extend the sliding element into the open position on the measurement equipment. Push the sliding element, in the Y direction, towards the closed position until it just contacts the ECRS.

If the measurement device has a width equal to the relevant CRF ±1 mm the external dimension of the ECRS fulfils the requirements.

If the measurement device has a width greater than the relevant CRF  $\pm 1\text{mm}$  a force must be applied to the sliding element to move the element to the position of the relevant CRF.

Apply the force in the centre of the sliding element  $\pm 10\text{mm}$  in a plane parallel to the bottom surface of the measurement equipment.

Measure in N and record the force required to move the sliding element into the correct position for the relevant CRF.

**Requirement:**

The maximum allowable pushing force is the Sliding Friction Force + [135] N.

*Insert new paragraph 6.3.5.5., to read:*

**“6.3.5.5 Support leg and Support leg foot measurement procedure**

When checking the dimensions in paragraphs 6.3.5.1, 6.3.5.2 and 6.3.5.3, if the ISOFIX connector is fixed relative to the position of the support leg in the X' direction then the support leg is assessed in this single position. If the ISOFIX connector can move relative to the support leg in the X' direction then the assessment shall be carried out on the entire adjustable range of the support leg.

If present, the ISOFIX connectors shall be latched to the ISOFIX anchorages.

To assess an ECRS where the ISOFIX connector is fixed relative to the position of the support leg in the X' direction install and check the ECRS as follows:

To assess the support leg foot:

- a) Lock the support leg in its longest extended length in the Z' direction and check that it can extend to reach the 525 mm requirement of 6.3.5.2. (c).
- b) Lock the support leg in its shortest extended length in the Z' direction and check that it can reduce in length to meet the 270 mm requirement 6.3.5.2. (c).

To assess a support leg and the support leg foot:

- c) Over the entire range of all adjustments the support leg and support leg foot shall be checked to stay within the 200 mm width requirement of 6.3.5.1 (a) and 6.3.5.2 (a).
- d) Over the entire range of all adjustments the support leg and support leg foot shall be checked to stay within the 585 mm and the 695 mm X' requirement of 6.3.5.1 (b) and 6.3.5.2 (b).

To assess an ECRS where the ISOFIX connector can move relative to the support leg in the X' direction install and check the ECRS as follows:

To assess the support leg foot:

- a) Lock the support leg in its longest extended length in the Z' direction and check that it can extend to reach the 525 mm requirement of 6.3.5.2. (c).

- b) Lock the support leg in its shortest extended length in the Z' direction and check that it can reduce in length to meet the 270 mm requirement 6.3.5.2. (c).**

To assess a support leg and the support leg foot:

- c) Over the entire range of all adjustments the support leg and support leg foot shall be checked to stay within the 200 mm width requirement of 6.3.5.1 (a) and 6.3.5.2 (a).**
- d) Over the entire range of all adjustments the support leg and support leg foot shall be checked to stay within the 585 mm and the 695 mm X' requirement of 6.3.5.1 (b) and 6.3.5.2 (b)."**

## **II. Justification**

The procedure for the assessment of the external dimensions of the ECRS is currently unclear, with differing results from the Technical Services. As a result, there are currently products in the marketplace that do not fulfil the external dimensional requirements.

This clarified procedure is aimed to improve the repeatability and reproducibility of the assessment of the external dimensions of the ECRS. It does not change any current dimensional requirements relating to the sizes of the body of the ECRS, the support leg or the support leg foot.

This clarified procedure will remove a current safety risk, through misinterpretation of the Regulation, to ensure that 1) the ECRS respects the volume allowed in the vehicle and 2) that support leg and support leg foot will be in the correct zone in the vehicle, on a strong part of the vehicle floor.