

PROPOSAL FOR AMENDING Reg. 44 – CRS
(Description of test)

Transmitted by the expert from the Netherlands

Amend par. 8.4. to read:

8.4. Registration of dynamic behaviour

8.4.1. In order to determine the behaviour of the manikin and its displacements, all dynamic tests shall be registered according the following conditions:

8.4.1.1 Filming and recording conditions:

- the frequency shall be at least 1000 frames per second;
- the test shall be recorded on cine film, video or digital data carrier;

8.4.1.2 Set up conditions of camera's:

camera's offering side view and where applicable top view shall be used, taking account of the following:

- the camera's optical axis has to be perpendicular to the direction of travel of the sled with an accuracy of $\pm 2,5$ degrees;
- an out of plane motion¹ shall not lead to a photogrammetric underestimation of displacement measurements. Therefore the set up condition shall be such that out of plane motion is always directed to the side view camera's;
- an offset of the manikin² shall not lead to photogrammetric underestimation of displacement measurements.

8.1.4.3 Performance of the registration proces:

- in order to evaluate the performance of the filming and recording media a distortion index shall be assessed according ISO 8721, edition 1987; during the static assessment the distortion index shall not exceed the value of 1 %;
- in case of camera's that run with the sled, the camera support shall have sufficient rigidity. Therefore it shall be proven by means of a dynamic assessment according a curve within the hatched area shown in Annex 7 – Appendix 1 and passing through a maximum of $26 G \pm 1 G$ that a change in accuracy does not lead to exceeding the limits that count for the static assessment above;

8.4.2 Analysing recordings:

- suitable calibration markings shall be mounted firmly on the trolley or in the vehicle structure so that the displacement of the manikin can be determined. The reference length used for scaling shall be determined with an accuracy of $\pm 2,5$ mm, the reference length shall be at least 1000 mm.

¹ In case of three point belts the chosen shoulder attachment (left or right) will lead to a rotation of the upper torso and head towards the belted shoulder.

² Par.8.1.3.6.3.3 allows positioning up to 80 mm out of the centre.

Amend par.9.1. to read (additions are fat printed)

- 9.1. The test report shall record the results of all tests and measurements (**including the deceleration curve and the registration of the time (in msec) when the head of the manikin reaches its maximum displacement during the performance of the dynamic test**), and the trolley speeds, the place occupied by the buckle during the tests, if it can be varied, and any failure of breakage.

JUSTIFICATION

The prescribed camera set out conditions are meant to facilitate a more consistent way of registering head displacements, which will become of even more importance because of new technologies of child restraint systems coming up.
