

Comments to Doc. TRANS/WP.29/GRSP/2003/7

Transmitted by the expert from Germany

Background:

During the 33rd meeting of GRSP a proposal prepared by Belgium has been discussed, but no final decision has been made. For the scheduled discussion during the 34th meeting Germany wants to point out:

ECE- Regulation 21 in the previous versions describes among others in paragraph 5.1. requirements for the design of the surface of an instrument panel, requirements for knobs and levers and the definition of exempted zones round the steering wheel and in front of the inner surface of glazings and round the A- posts.

As no radius requirement has been established for the term „Sharp edge and dangerous roughness“, the Technical Services had made the following explanatory note which is well known since more than two decades:

Explanatory note to paragraph 5.1.1.:

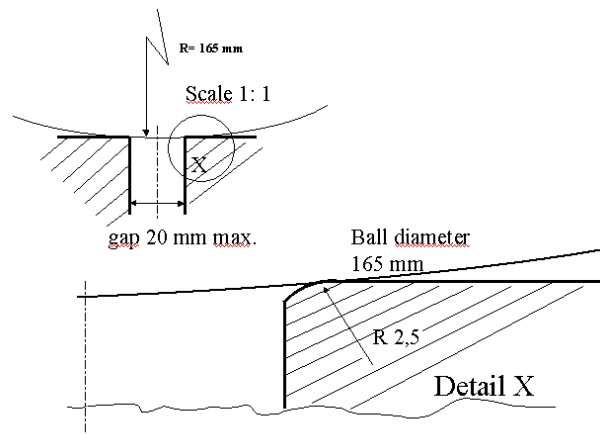
A sharp edge is an edge of a rigid material having a radius of curvature of less than 2.5 mm except in the case of projections of less than 3.2 mm, measured from the panel. In this case, the minimum radius of curvature shall not apply provided the height of the projection is not more than half its width and its edges are blunted.

During the last meeting of the GRSP ad-hoc working group „Interior fittings“ the following procedure for the evaluation of „sharp edges“ has been discussed. For the determination of edges industry and technical services use a hemispherical ball, diameter 165 mm. Edges which can be contacted statically by the ball shall be taken into account.

In case of gaps between adjacent surfaces the following situations can be observed:

Industry demonstrates the fulfilment of the Regulation by showing CAD-sketches in a large scale, that the contacted edge has the required radius of 2.5 mm (in testing area acc. to paragraph 5.1) and 3.2 mm (in testing areas acc. to paragraphs 5.2. and 5.3.)

To simplify the evaluation, the ad-hoc working group „ Interior fittings“ made the proposal, now established in supplement 3 to the 01 series of amendments to Regulation 21, that in such cases the new explanatory note of 2.18. shall be taken into account. If a gap between surfaces of adjacent panels complies with the measures described in the table of the explanatory note to paragraph 5.1.1., the described radii normally used for the evaluation of grills shall be taken into account.



This simplification as shown in the sketch above made it necessary to explain, that **in a new explanatory note to paragraph 2.18.**, that in case of **gaps within the head impact test area** the edges has **been rounded by a minimum radius of 2.5 mm** where the edges can be contacted statically and/or during the head impact test. All impact points shall be evaluated "during" and after the energy dissipation test. If the technical service can observe an edge which has been contacted during the test the radius has been evaluated as "dangerous radius", if the edge has a minimum radius smaller than 2.5 mm. In addition the evaluation of g-level and g-duration time shall be made.

The determination of the impact point can be simply made with the help of a pigmented or dyed ball and by observing the prints on the instrument panel after the test. The use of a high speed camera during the test may be helpful to identify the contact of the edge and the displacement of components. (e.g. edge contact in case of a displacement of a glove compartment cover in relation to the surface of the instrument panel).

To simplify the evaluation if an edge - contacted during the impact test - is dangerous or not, the vehicle manufacturer shall provide as minimum safety provision a radius of at least 2.5 mm.

Justification and recommendation:

As explained above, the position of Germany is to keep the Regulation 21, last version, as it is.

On a long term basis Germany would be in favour to think about the possibility of measurement of force/area values via a force/area indicating sensor during the head impact test in addition to the g-level / duration time measurement with the aim to come to performance criteria instead or in addition to the existing design criteria. It would be desirable to delete general phrases like „avoidance of sharp edges and dangerous roughnesses“ where without having any practical scale a subjective evaluation can only be made.

GRSP may decide to add the content of the informal document to the existing explanatory notes.