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(48th GRSP, 7 - 10 December 2010,
agenda item 4)

Pedestrian Safety

Request For Clarification: Headform Test Procedure

48th Session of UNECE GRSP,
Geneva, 07 – 10 Dec. 2010

Request For Clarification: Headform Test Procedure

- The latest corrigendum to gtr No. 9 creates some space for interpretation which is not helpful for Technical Services as well as Industry
- OICA therefore request the clarification of our understanding of the test procedure
- It should be noted that the procedure as presented is the one followed by Industry and Technical Services for certification in Europe as well as in Japan

Headform Test Procedure: Current Understanding (1)

- Impact points are selected by Technical Service identifying points of possible risk (underlying structures, engine components, hinges, latches etc.)
- Selected impact points must be within the test area

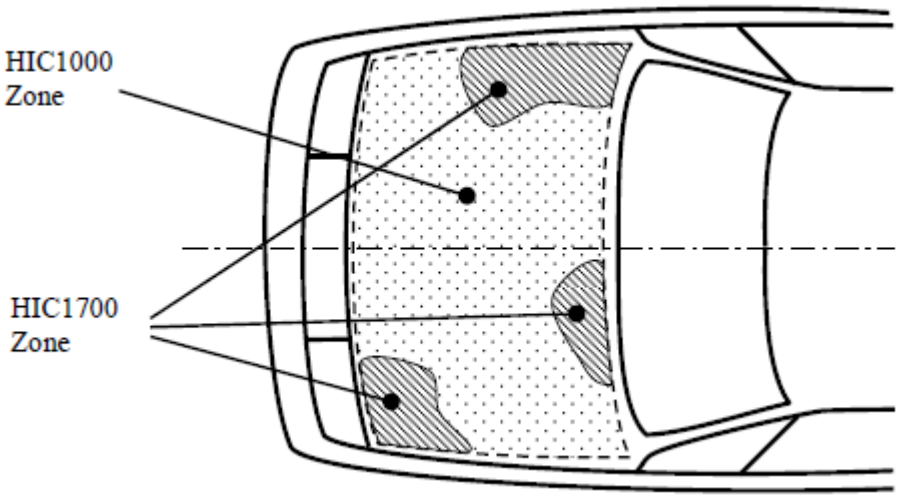


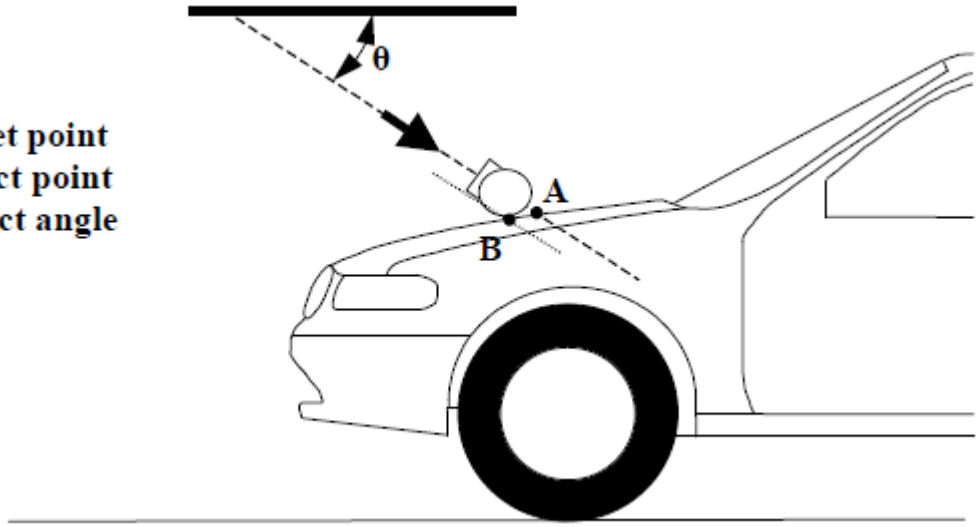
Figure showing a top view of the test area, here split into HIC1000 and HIC1700 zones

Drawing: gtr No. 9, part B, figure 11

Headform Test Procedure: Current Understanding (2)

- Target points are chosen rearward of the selected impact point, considering the curvature of the headform impactor
- Target points may be outside of the test area

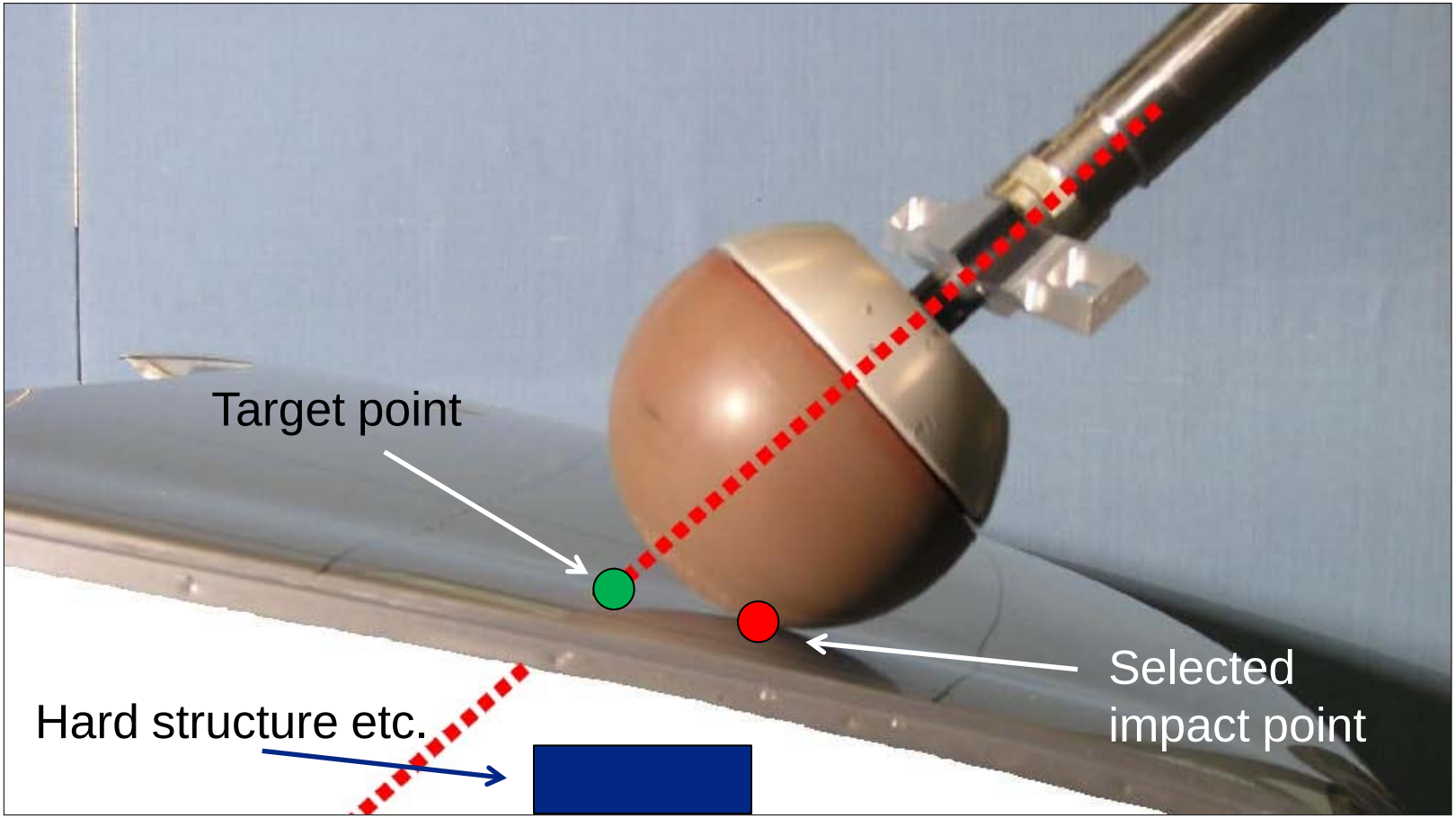
A: Target point
B: Impact point
θ : Impact angle



Relation between impact point and target point

Drawing: gtr No. 9, part B, figure 6

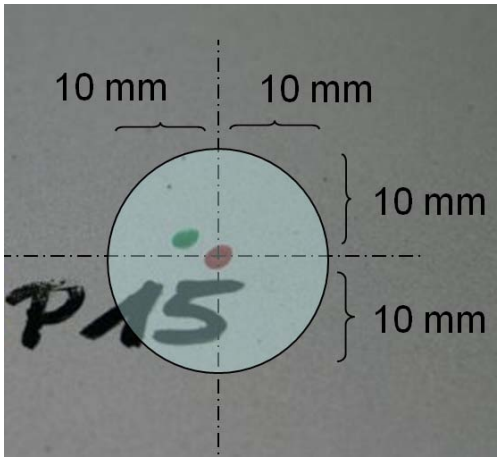
Headform Test Procedure: Impact vs. Target Point



Photograph: BGS Boehme & Gehring

Headform Test Procedure: Current Understanding (3)

- Selected impact point and target point are in the same vertical longitudinal plane (see figure at the page before)
- Point of first contact has to be within 10 mm tolerance to the selected impact point
- This tolerance is assessing the accuracy of conducting the test



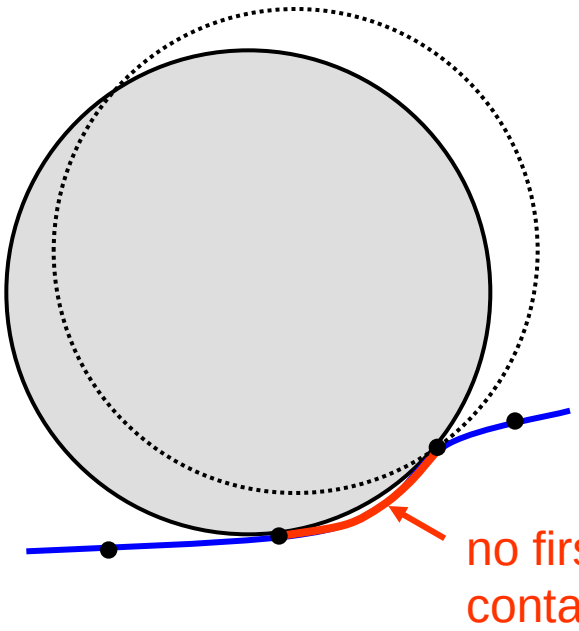
Example: Selected impact point vs. point of first contact

Photograph / graphics: TUV Rheinland

Headform Test Procedure: Current Understanding (4)

- However, the point of first contact can only be within this distance when the surrounding area in the lateral plane is nearly flat
- In case of lateral “jumps” in an x-plane (transverse vertical plane) the point of first contact may differ more than 10 mm
- Also, it can be physically impossible to hit the selected impact point or more than one points of first contact may occur

Drawing: TUV Rheinland



Example for a “jumping” bonnet surface in an x-plane (looked at the vehicle surface from the front)

Headform Test Procedure: Current Understanding (5)

- It is common practice to nevertheless adjust the center-plane of the headform towards the selected impact point as well as the target point resulting from this
- Physically, it may be possible in some cases to adjust the propelling device for the headform to an “intended point of first contact” but this may create issues with glancing blows, selected impact points laying outside the test area or other difficulties
- Some technical services are used to assess the first point of contact in advance and to apply the 10 mm tolerance to the “intended point of first contact” assessing the accuracy

Headform Test Procedure: Impact vs. First Contact Point

Photograph: BGS Boehme & Gehring

Request For Clarification: Headform Test Procedure

- It is the understanding of OICA that the change adopted with corrigendum 2 to gtr No. 9 was NOT intended to change this understanding of the headform test procedure
- It is also our understanding that the above mentioned corrigendum just intends to assure that, at the point of first contact, the criterion (HIC max. 1000 or 1700) has to be met for that zone where the headform finally had hit the vehicle surface
- OICA would volunteer to draft a wording that better clarifies this, if necessary

Thank you!