



## PROPOSAL FOR A DEFINITION OF THE LOWER WINDSCREEN REFERENCE LINE AND JUSTIFICATION

### Definition of the Lower Windscreen Reference Line:

As chapter 3.31. "Windscreen lower reference line" (GR PS 143 rev1)

The „Lower Windscreen Reference Line“ is the geometric trace of the furthest forward Lower Windscreen Reference Points A or B. Reference Points A and B are defined for each lateral position of the windscreen as mentioned below (see Figure X1):

„Lower Windscreen Reference Points A“ are the points 165 mm rearwards along the windscreen from the points of contact between a sphere and the windscreen, while determining the bonnet rear reference line according to paragraph 3.6 (see Figure X2).

„Lower Windscreen Reference Points B“ are the points 82.5 mm rearwards along the windscreen from the points of intersection of lines in vehicle longitudinal planes projected rearwards, inclined  $5^\circ$  upwards with respect to the ground reference plane as defined in paragraph 3.15 and contacting the uppermost surface of the instrument panel (see Figure X3).

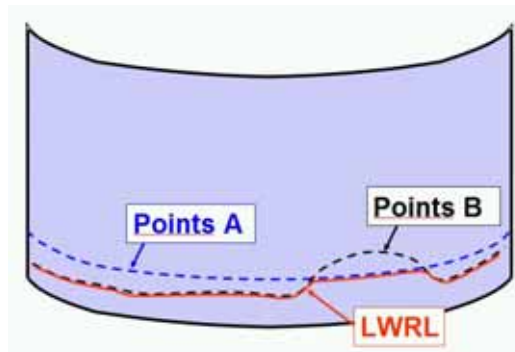


Figure X1: Lower Windscreen Reference Line

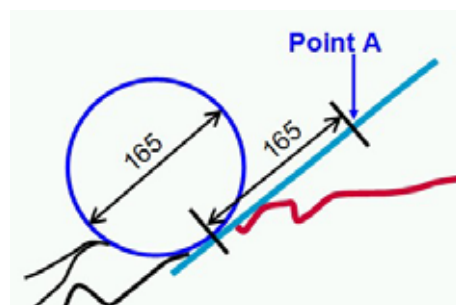


Figure X2: Lower Windscreen Reference Points A

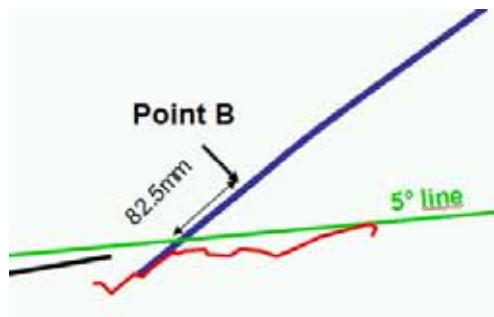


Figure X3: Lower Windscreen Reference Points B

### **Justification:**

Definition of Points A logically applies to the windscreen the procedure which exists to define the rear bonnet reference line.

Definition of Points B takes into consideration the constraints faced by the manufacturers in the very first stage of vehicle concept: driver's field of vision and other primary safety functional requirements such as demist/defrost, etc. These constraints limit the amount of space available between the windscreen and the instrument panel and therefore determine the ability to meet HIC requirements.

The combination of both Points A and B avoids excessively large exemption zones which may otherwise occur for some vehicle shapes.

Given the above unavoidable feasibility constraints this definition is valid only if it is adopted in conjunction with:

- a headform impact angle of  $35^\circ$  from the horizontal
- a relaxation zone of  $1/3$  of the windscreen test area with a HIC limit of 1700
- sufficient lead time to allow for the design of compliant vehicles.