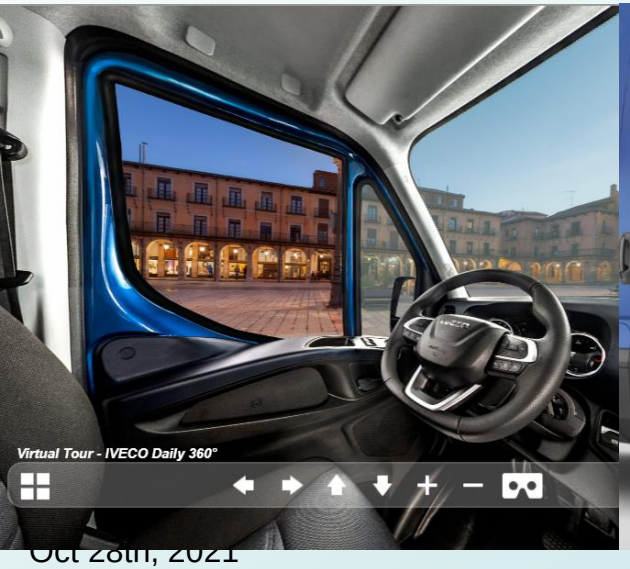
Direct Vision for M2/N2

PROPOSAL FOR TEST-PROCEDURE

Some Examples



Methodology Alignment with UN R-125

How to deal with rear view mirrors and other components mounted to the door structure?

→ Focus of assessment is on windowsill.

Exemptions from assessment of downward vision angle per UN R-125:

- ~~"A" pillars~~ *(not required as measurement would only be up to the A-plr)*
- fixed or movable vents
- side window division bars
- outside radio aerials
- devices for indirect vision, covering the mandatory field of indirect vision
- Embedded or printed "radio aerial" conductors, no wider than 0.5mm

Proposal to add:

- Inside or outside handlebars mounted to the door [panel]

Definition of Assessment Area – Option 1

Proposal to assess the windowsill height between the longitudinal positions of V_2, from the reference position (R-point) to the most forward position of seat travel.
The highest point of the beltline is taken.

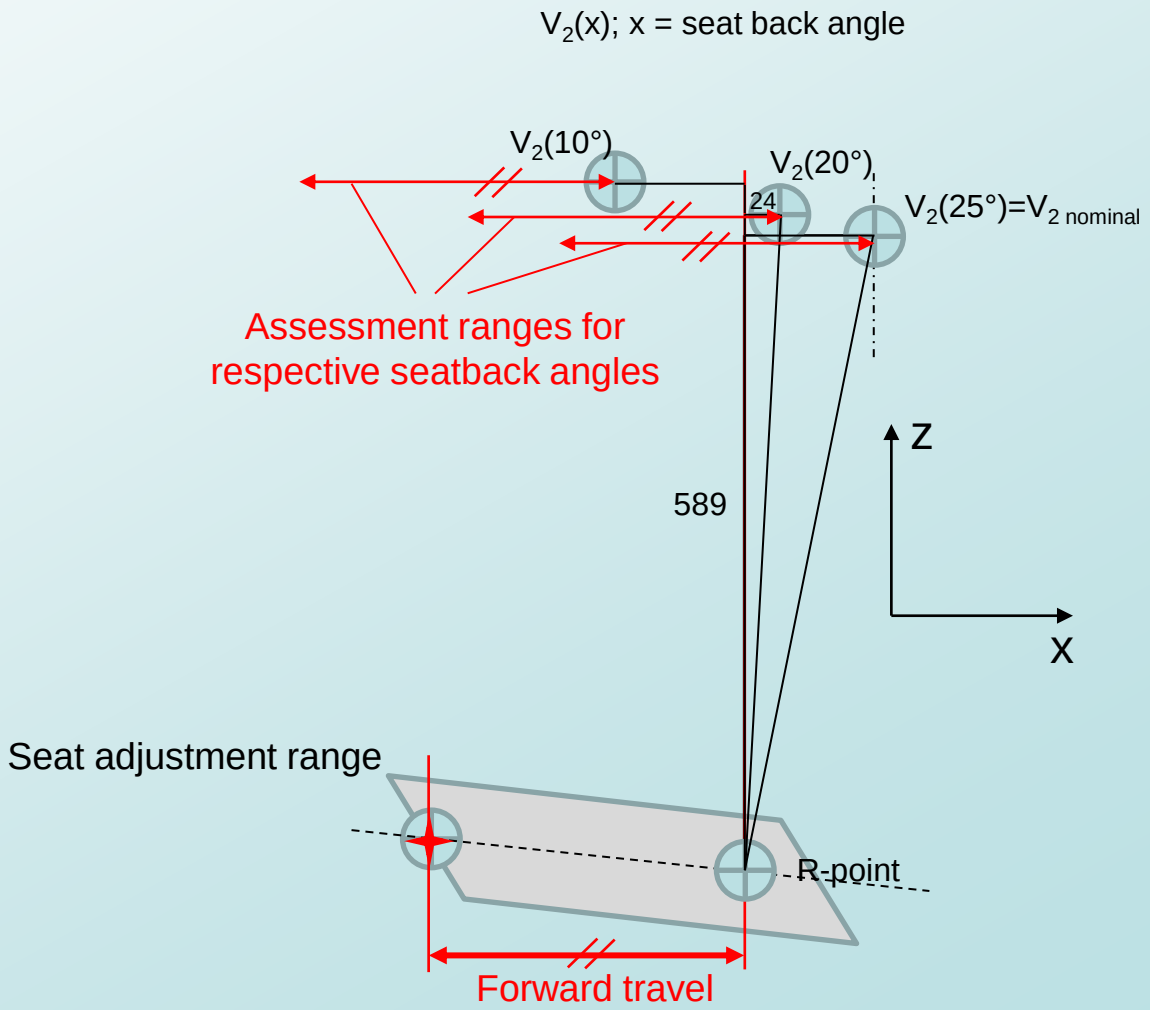
Using the lower V_2 eye-point range assumes a worse-case small driver (where theoretically the more forward positions would be expected to be the more realistic ones).

Advantages of this method:

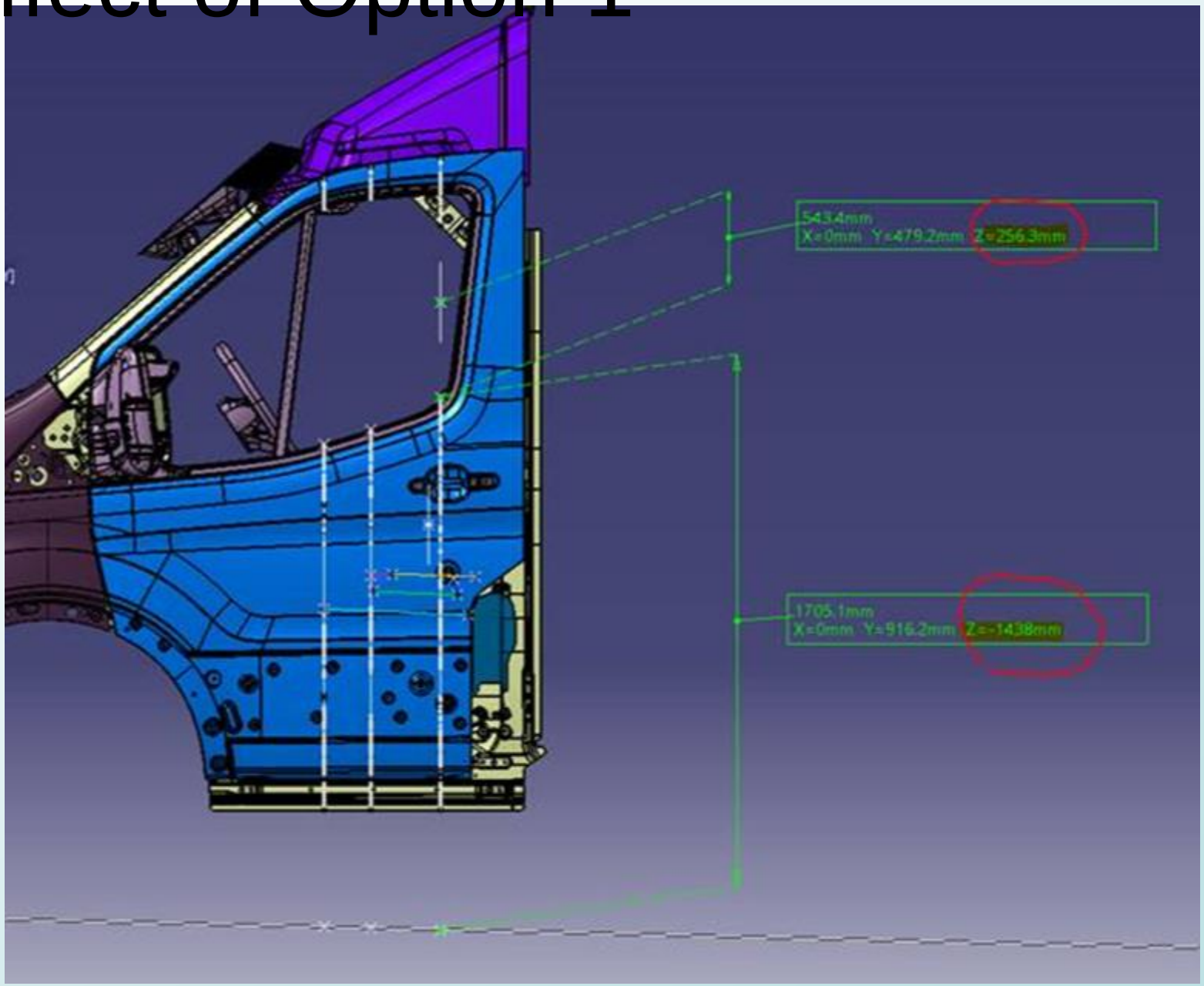
- "side window" and its front and rear ends do not have to be defined, avoiding design-restrictions.
- the beltline height is assessed over a larger section along the side windowsill, making the result more representative.

Disadvantage of this method:

- With proposed height criteria of 1450mm and 260mm leads to too severe requirements, that current vehicles do not meet!



Effect of Option 1



<260!

<1450!

However – considering manufacturing tolerances, it would also be a practical fail!

Definition of Assessment Area – Option 2

Assessment of the beltline height at a more representative eyepoint position. In alignment with UN Regulations UN R-94 or UN R-95, this is assumed to be in the mid-position of the driver's seat travel.

To neutralize the effects of seat height adjustments, the height adjustment position corresponding to the R-point shall be used.

Advantages of this method:

- "side window" and its front and rear ends do not have to be defined, to avoid any design-restrictive definitions.
- Vehicles on the road currently are better able to meet the provisions.
- The method is further simplified to option 1.

References:

ECE-95, Annex 4:

5.5. *The seat containing the dummy, and its elements, if adjustable, shall be adjusted as follows:*

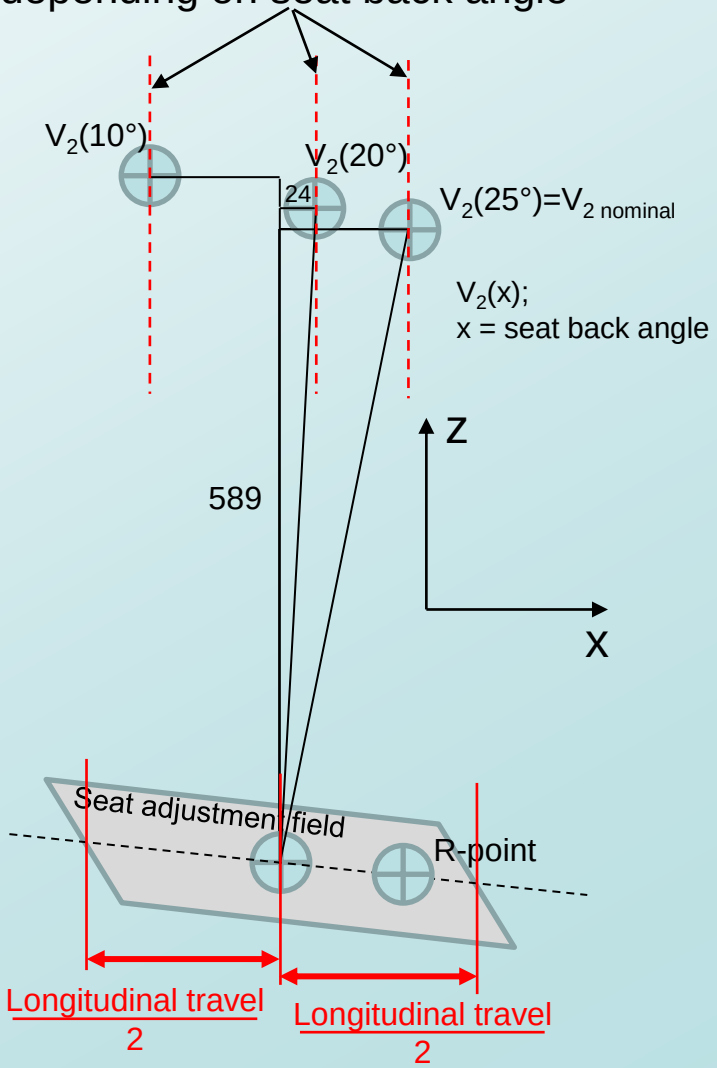
5.5.1. The longitudinal adjustment device shall be placed with the locking device engaged in the position that is nearest to midway between the foremost and rearmost positions; if this position is between two notches, the rearmost notch shall be used.

ECE-94, Annex 3:

1.4.3.11.1. Position of front seats

Seats adjustable longitudinally shall be placed so that their "H" Point, determined in accordance with the procedure set out in Annex 6 is in the middle position of travel or in the nearest locking position thereto, and at the height position defined by the manufacturer (if independently adjustable for height). In the case of a bench seat, the reference shall be to the "H" Point of the driver's place.

X-coordinates of beltline height assessment, depending on seat back angle



Assessment Procedure and Text for Compliance to UN R-125

How can compliance to UN R-125 for an M2/N2 vehicle be demonstrated when the scope for R-125 only allows M1/N1 vehicles? We may want to align the corresponding text with the example from UN R-29…

Essential Characteristics within UN R-125:

5. *Brief description of vehicle: .....*
6. *Data to enable the identification of reference Point "R" of the seating position designated for the driver in relation to the primary reference marks: .....*

→ Within UN R-125 the relative position of the R-point to the vehicle structure is seen as the most critical parameter. So the vehicle to be considered compliant to UN R-125 requires:

- R-point within the same range as vehicle certified to UN-R125
- Driver's cab design similar regarding lower edge of driver's 180° field of view.

Compliance to UN R-125: Proposal

Definition section:

2.XX. "Vehicles of category N2 and M2 derived from M1 or N1" means those vehicles of N2 and M2 category which, forward of the B-pillars, have the same general structure and shape [incl. position of R-point and position/design of glazing,] as a pre-existing M1 or N1 category vehicle."

Specification Text:

However, vehicles of category M2 and N2, derived from M1 or N1 approved to Regulation No. 125, may be considered to have satisfied the requirements on direct vision.