

DIRECT VISION

ACEA FEEDBACK AND PROPOSAL

29 VRU PROXI

Online

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acea



DIRECT VISION FOR TRUCKS

DOOR STRUCTURE

DIRECT VISION OPTION 3

IMPACT ON DOOR STRUCTURE

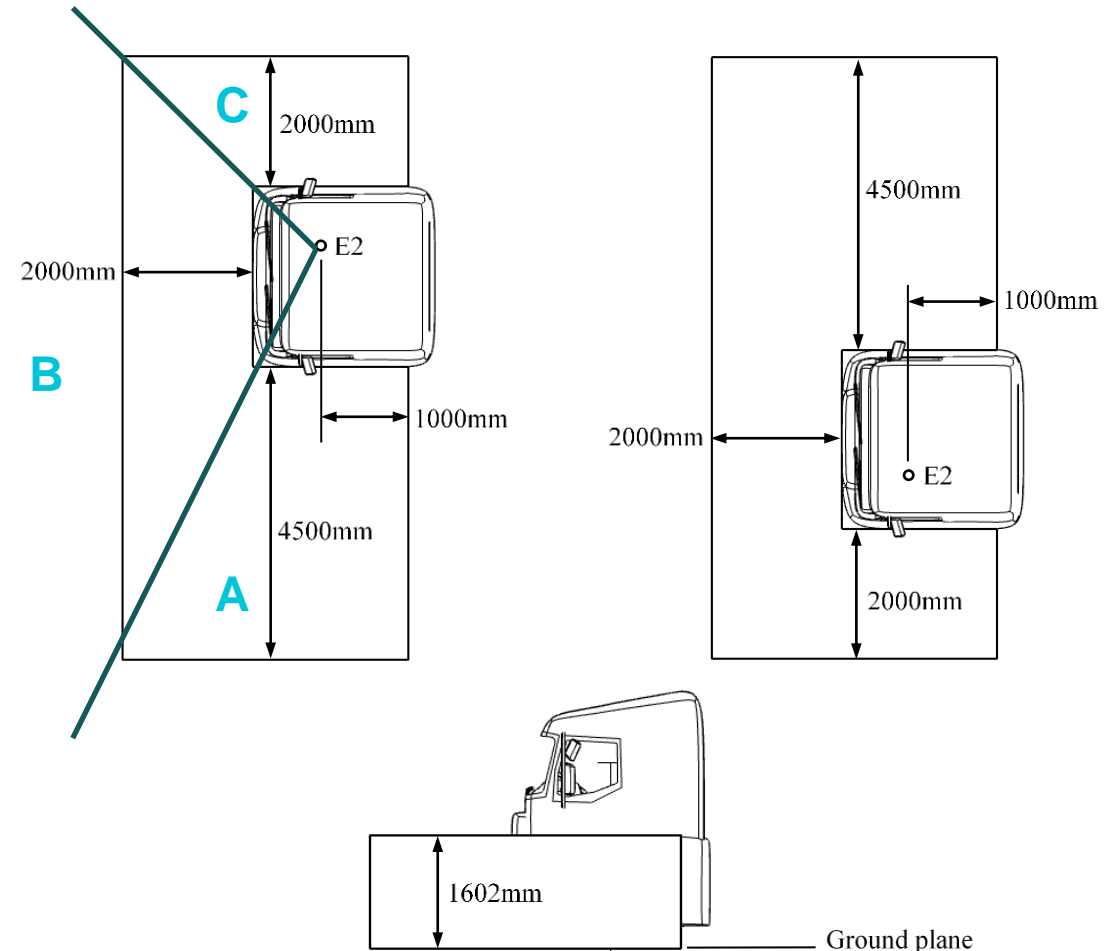
UN ECE R167

New Types 2026-01-07

Existing Types 2029-01-07

Publication date 2023-06-08

	City	Constr.	Highway
	Minimum Volume (m ³) of Direct Vision		
	Level 1	Level 2	Level 3
A Nearside Visible Volume	3.4	Not Specified	Not Specified
B Front Visible Volume	1.8	1.0	1.0
C Offside Visible Volume	2.8	Not Specified	Not Specified
Total Visible Volume	11.2	8.0	7.0



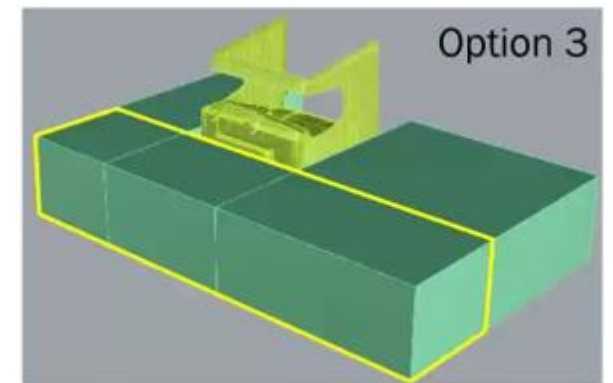
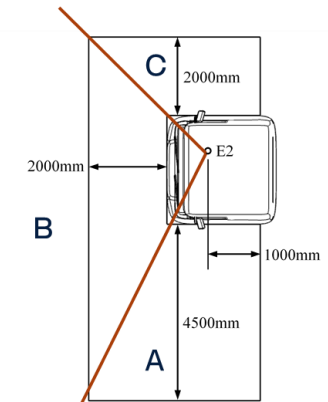
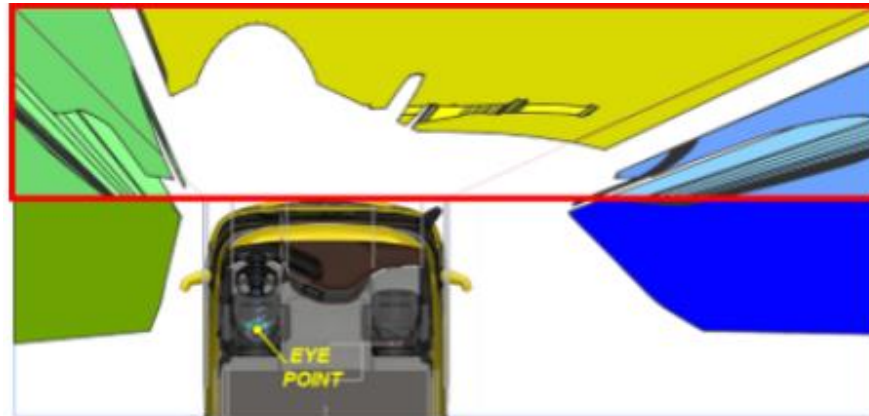
DIRECT VISION OPTION 3

IMPACT ON DOOR STRUCTURE – AMENDMENT 1

Current version of the Direct Vision regulation:
Front view limited by the A-pillar position

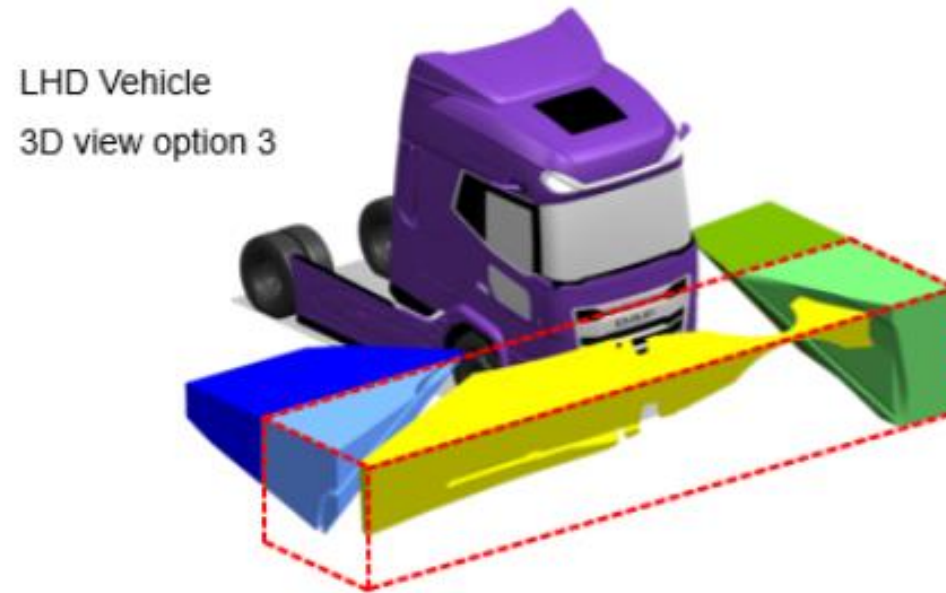
Phase 2:
Improve the regulation – Technical Neutrality.
Placing of A-pillars shall not be limited by the regulation.

ACEA (Manufacturers) has made a proposal which is under discussion and evaluation.



DIRECT VISION OPTION 3

IMPACT ON DOOR STRUCTURE



It's indicated in the VRU proxi meetings that manufacturers will use the option 3 to gain improved results by only lowering the door line and not make direct view improvements to the front.

In the following slides we will show that this will in general not be the case.

DIRECT VISION OPTION 3

IMPACT ON DOOR STRUCTURE



Picture from the R29 testreport issued by SMP (Accredited test institute for R29 test)

TEST ACCORDING TO THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UNECE) REGULATION NO. 29, 03 SERIES OF AMENDMENTS, "CAB OF A COMMERCIAL VEHICLE", FRONT IMPACT, TEST A

After the test the following minimum requirements were fulfilled:

- 5.2 Sufficient survival space remained for driver and passengers.
- 5.3.1 The cab was attached to the chassis frame.
- 5.3.2 The cab doors remained closed.

→ Evaluated with a prescribed dummy



DIRECT VISION OPTION 3

IMPACT ON DOOR STRUCTURE



Picture from the R29
testreport issued by SMP

**TEST ACCORDING TO THE UNITED NATIONS ECONOMIC
COMMISSION FOR EUROPE (UNECE) REGULATION NO. 29,
03 SERIES OF AMENDMENTS, "CAB OF A COMMERCIAL VEHICLE",
FRONT PILLAR IMPACT, TEST B**

After the test the following minimum requirements were fulfilled:

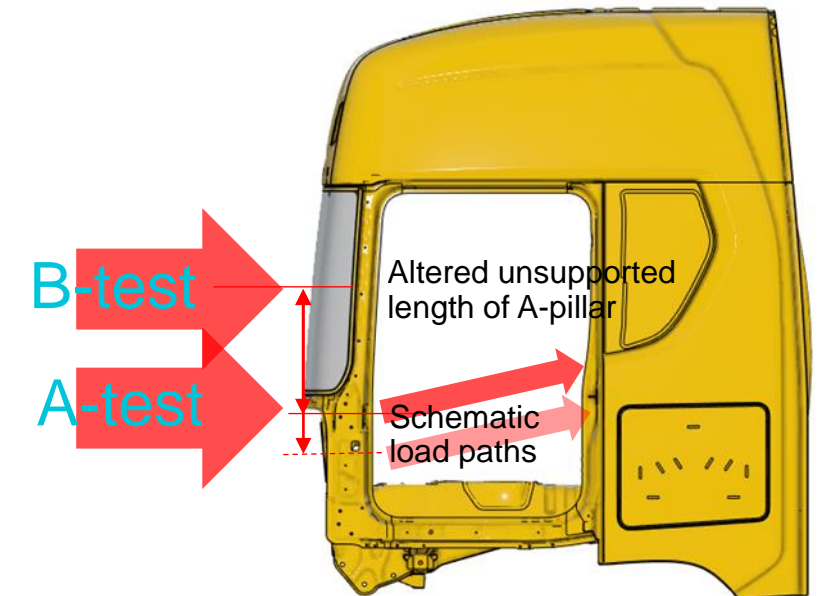
- 5.2 Sufficient survival space remained for driver and passengers.
- 5.3.1 The cab was attached to the chassis frame.
- 5.3.2 The cab doors remained closed.

→ Evaluated with a prescribed dummy

DIRECT VISION OPTION 3

IMPACT ON DOOR STRUCTURE

- The door of a HGV is a structural member.
 - Carries the load at a frontal accident rearwards.
 - Protects the occupants in the cab.
 - Driven by legislation (ECE R29 test A+B).
 - Driven by internal policies for occupant safety (more severe than ECE R29).
 - If door is cut lower the A-pillar needs to be strengthened.
 - The lower the door is cut the more impact on the strength.
 - A longer unsupported part of the A-pillar.
 - Will drive A-pillar dimensions for strength.
 - A larger A-pillar will reduce line of sight.
 - Contra productive or neutral in VRU safety – line of sight?
 - Affecting occupant safety for the worse.





DIRECT VISION FOR TRUCKS
PROPOSAL DESIGN NEUTRAL FRONT LIMIT

DESIGN NEUTRAL FRONT LIMIT

Alternative approach for the GSR Direct vision front limit requirement for innovative vehicle designs replacing paragraph 5.3

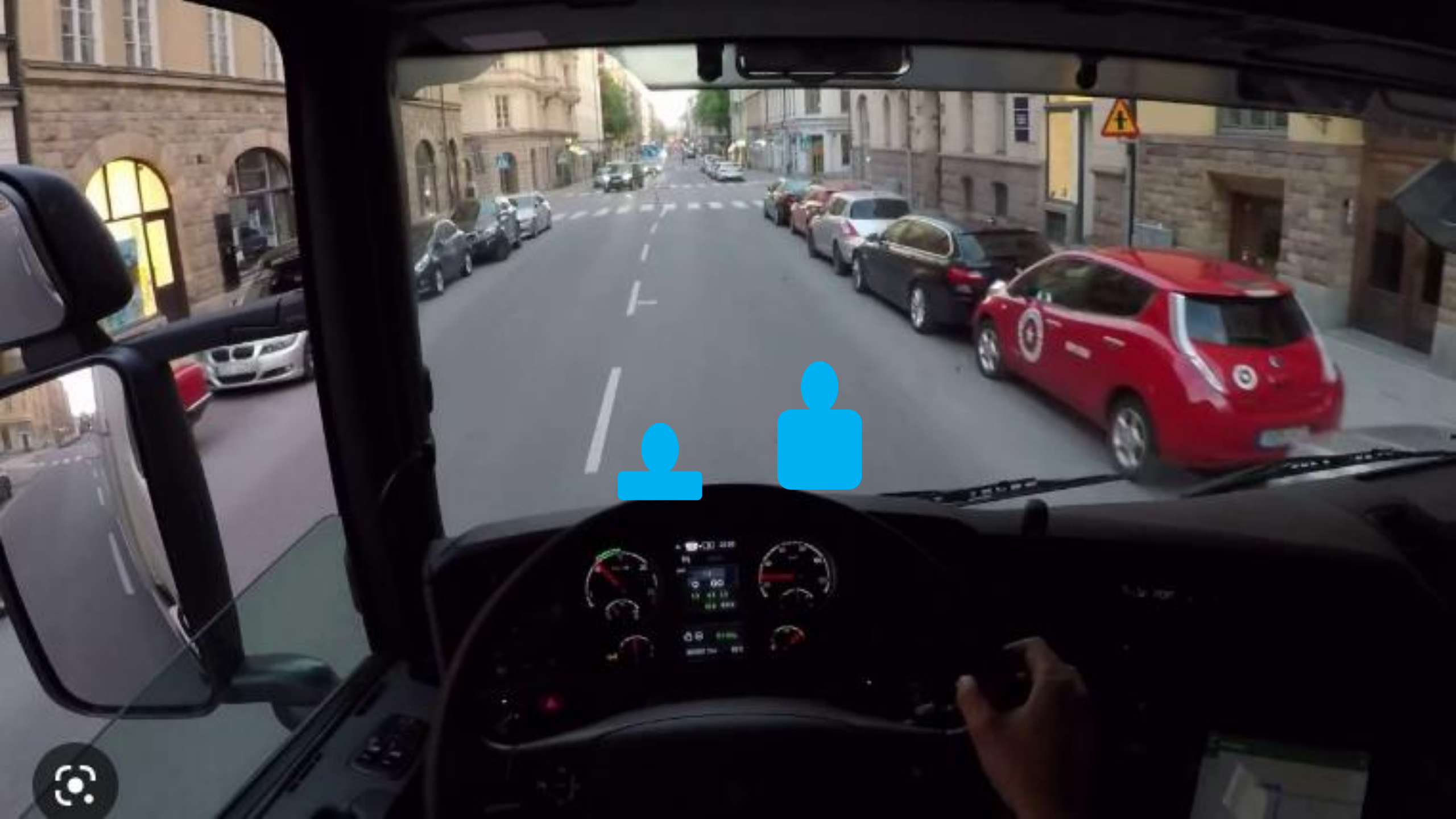
Target to have a design neutral method for frontal view evaluation and where the A-pillar position is not limited by the requirement for frontal view evaluation

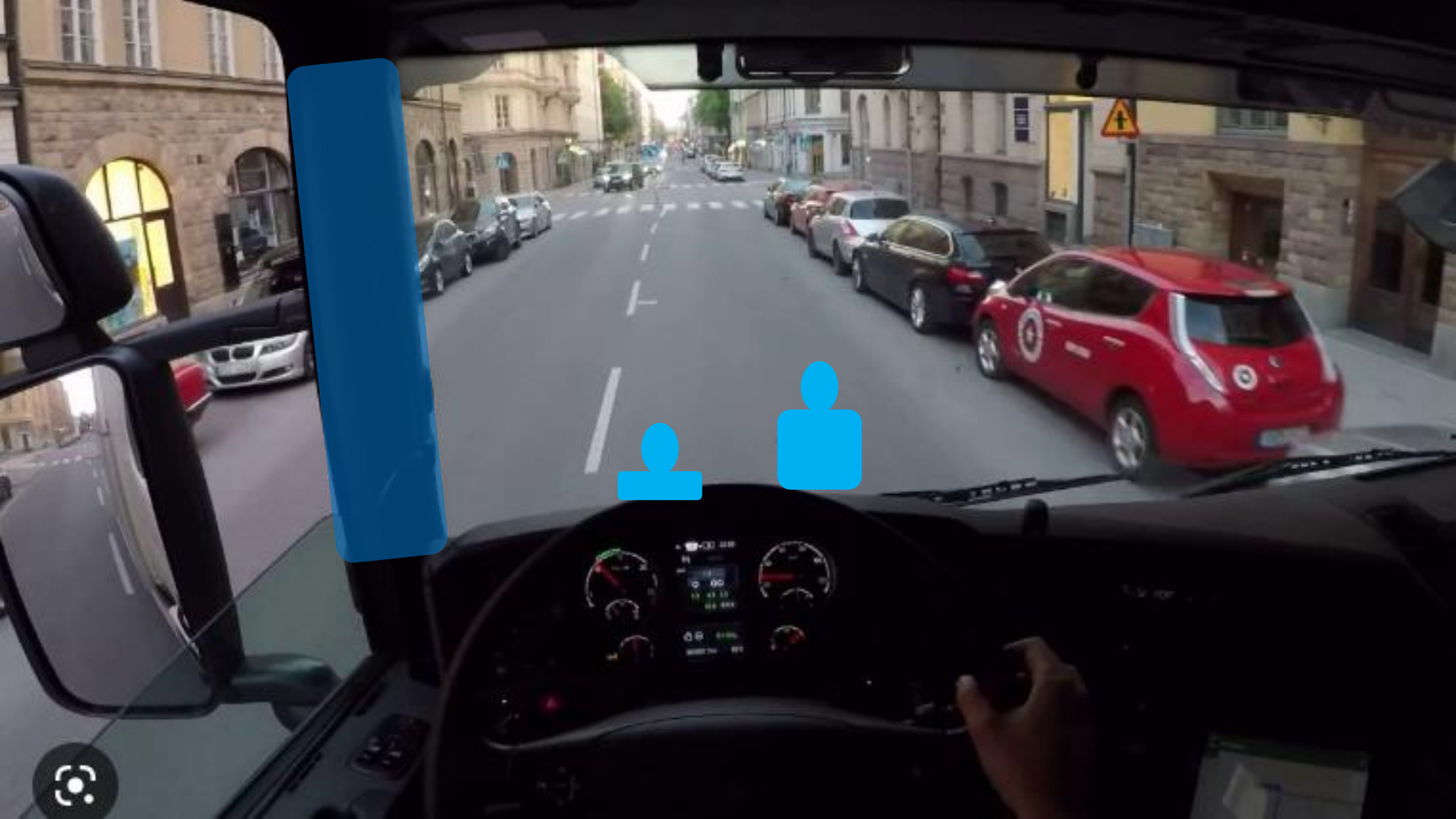
Revised Terms of Reference and Rules of Procedure of the GRSG informal working group on awareness of Vulnerable Road Users proximity in low speed manoeuvres (VRU-Proxi) (para. 16)

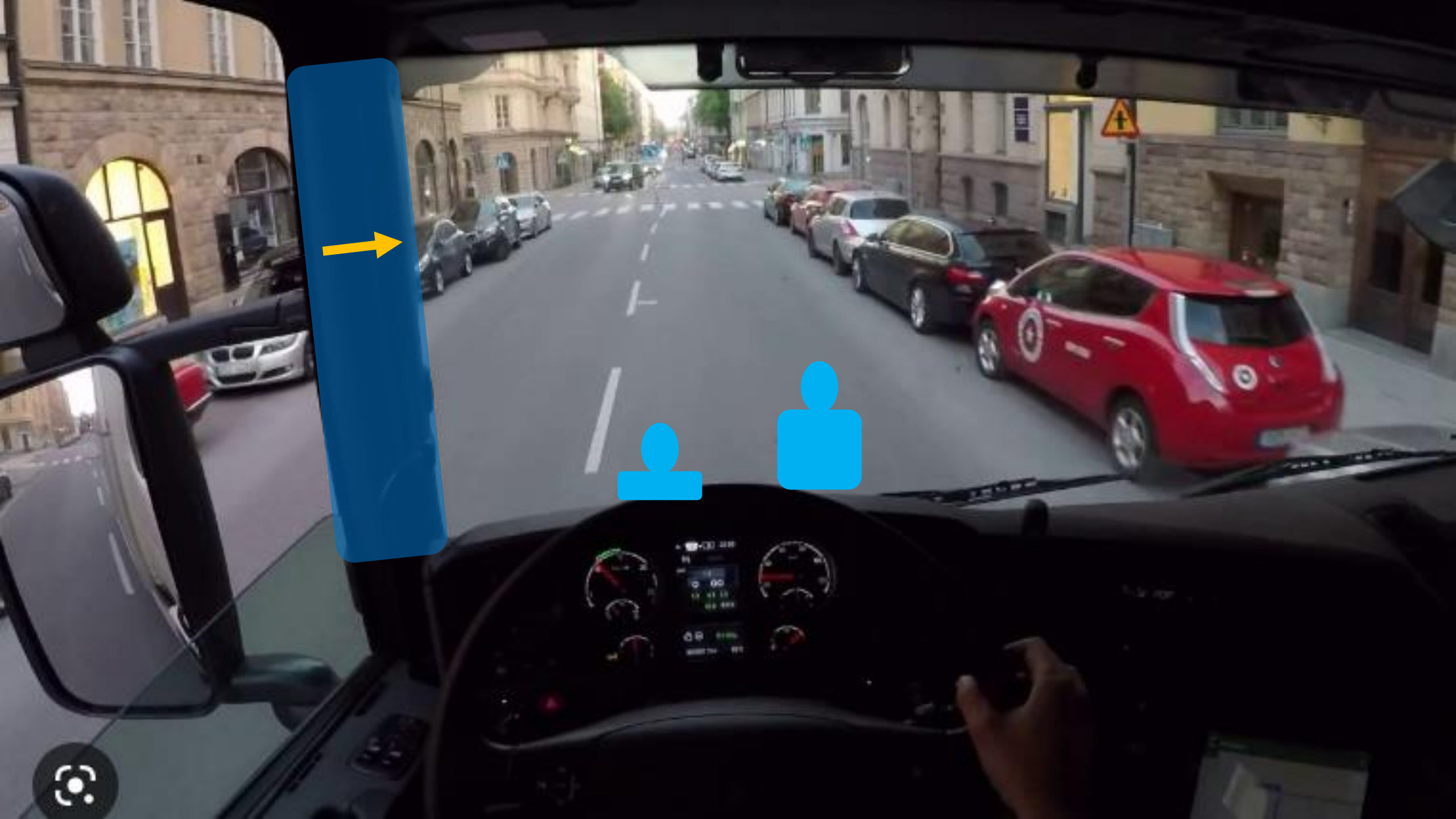
- Phase 2: Amendments

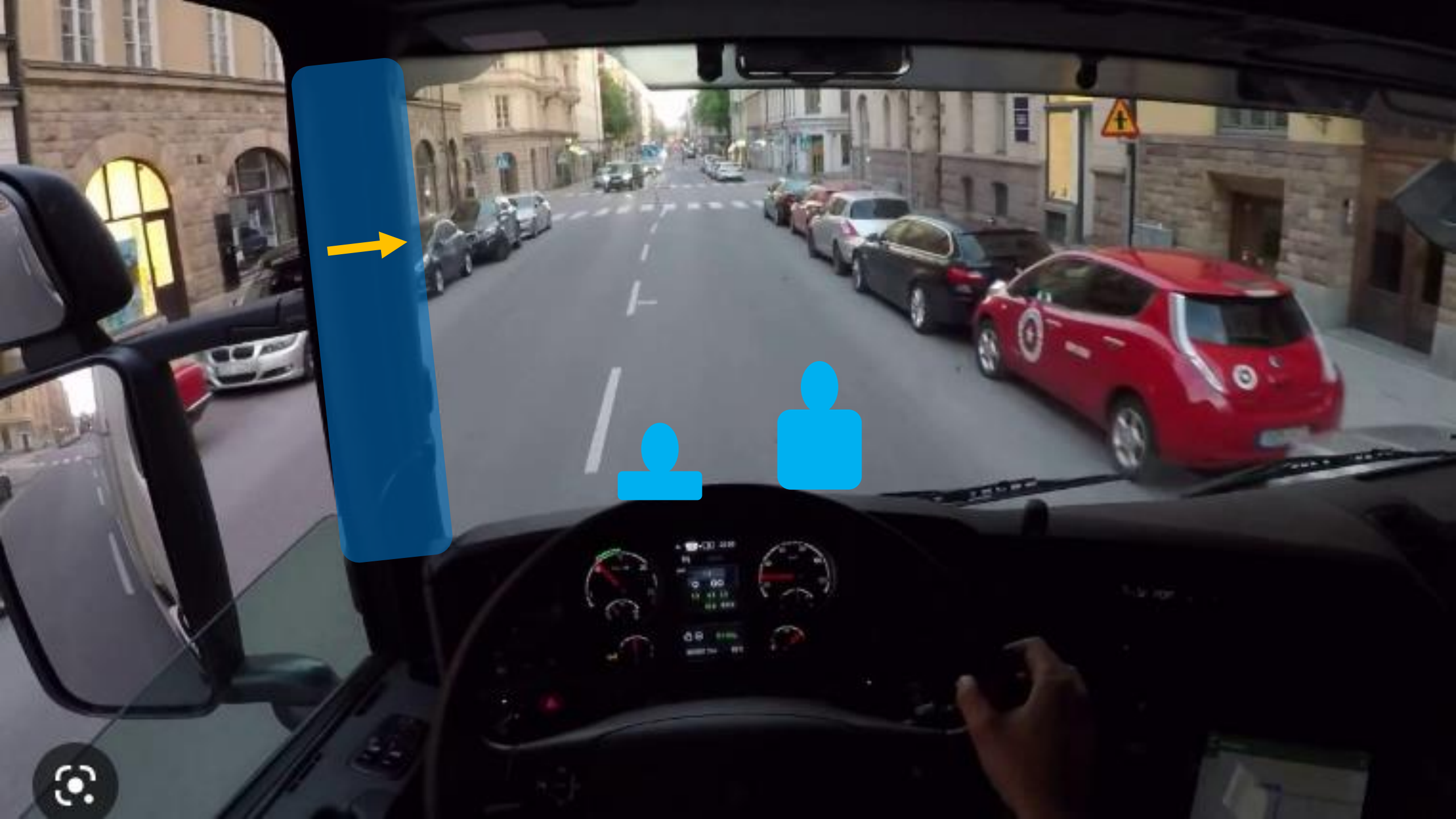
- **Amending the alternative testing method for innovative vehicle designs (e.g. aerodynamic narrow A-pillar designs) by replacing paragraph 5.3. (April 2023 or earlier if possible)**

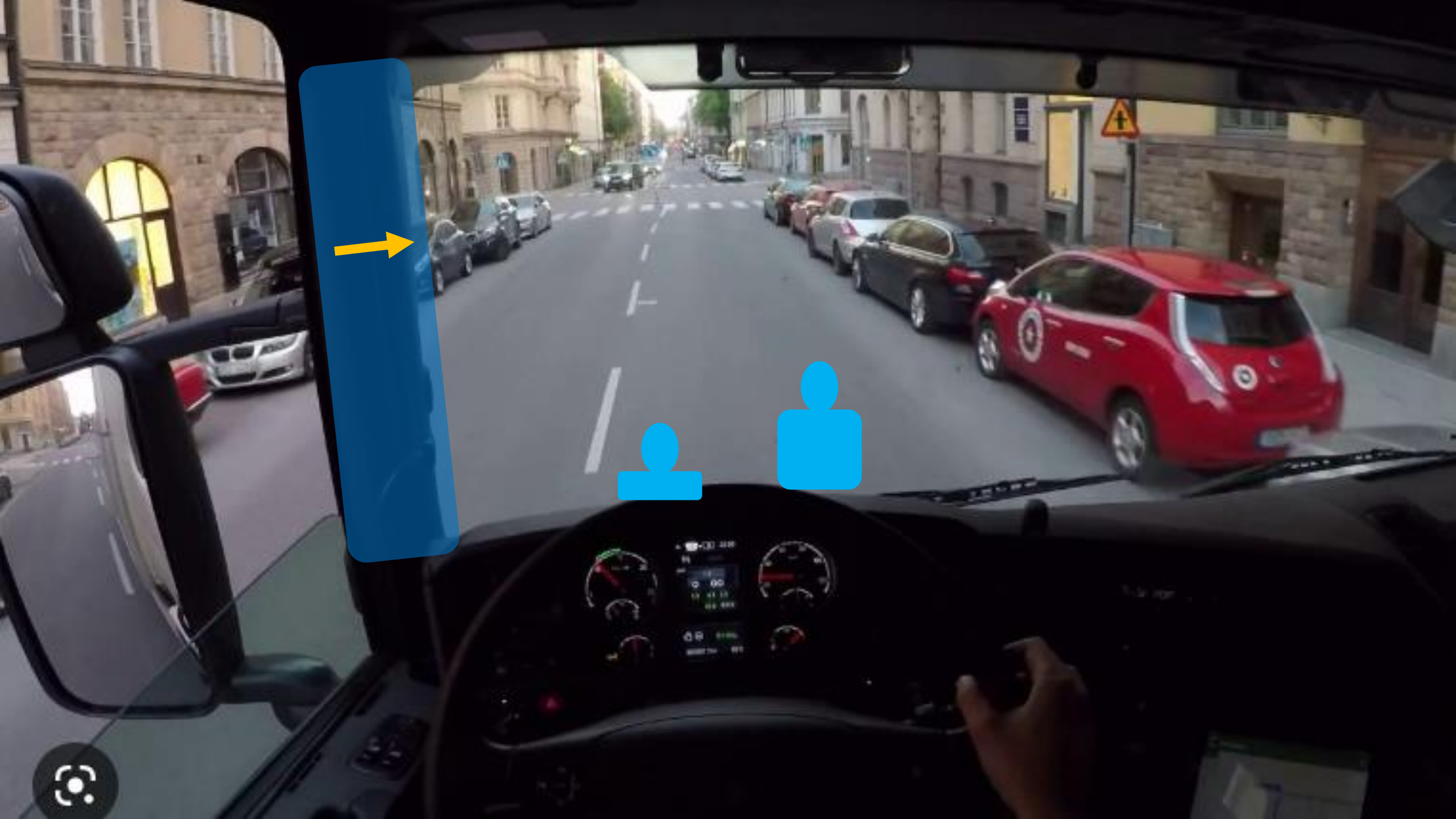


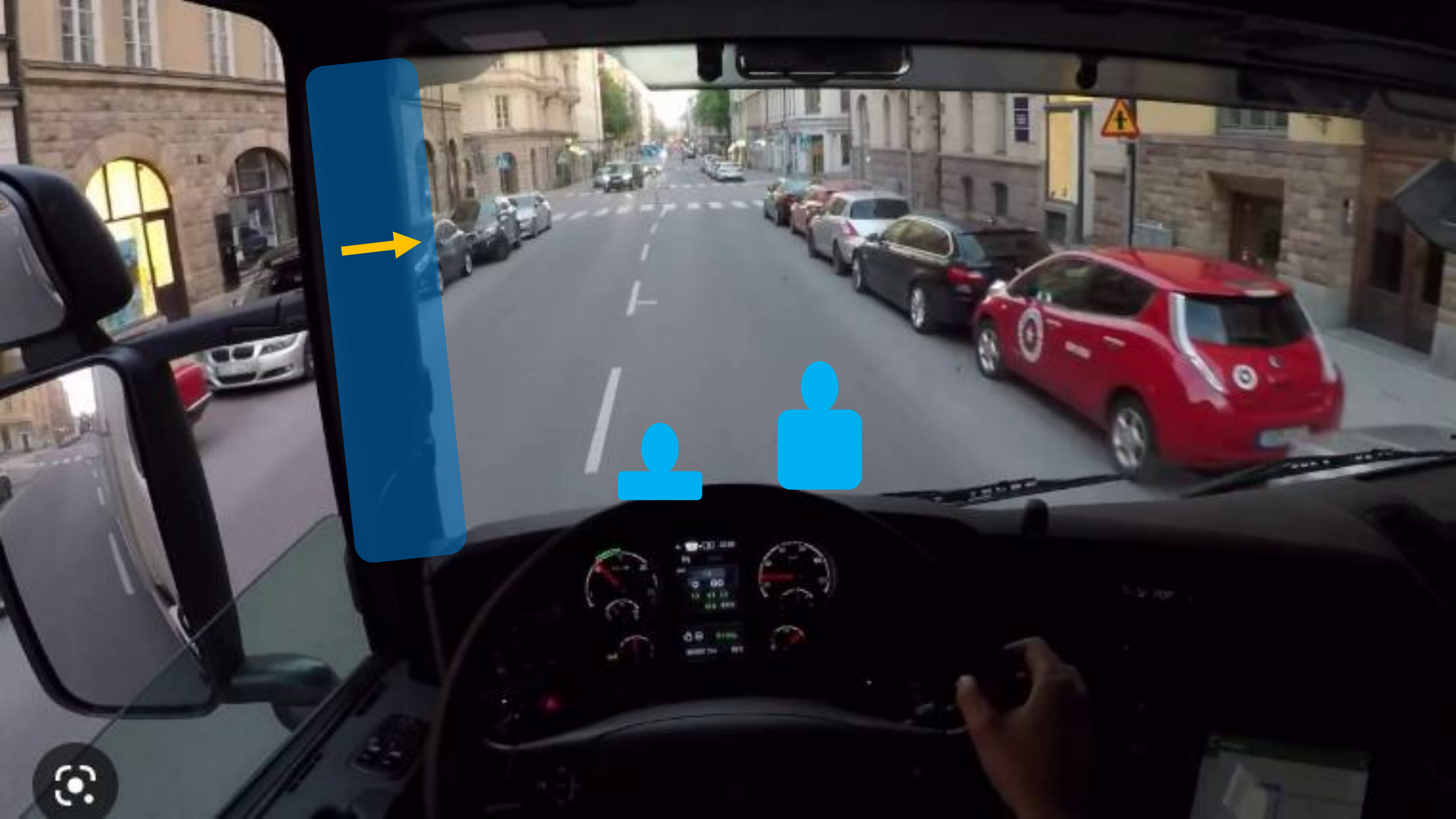


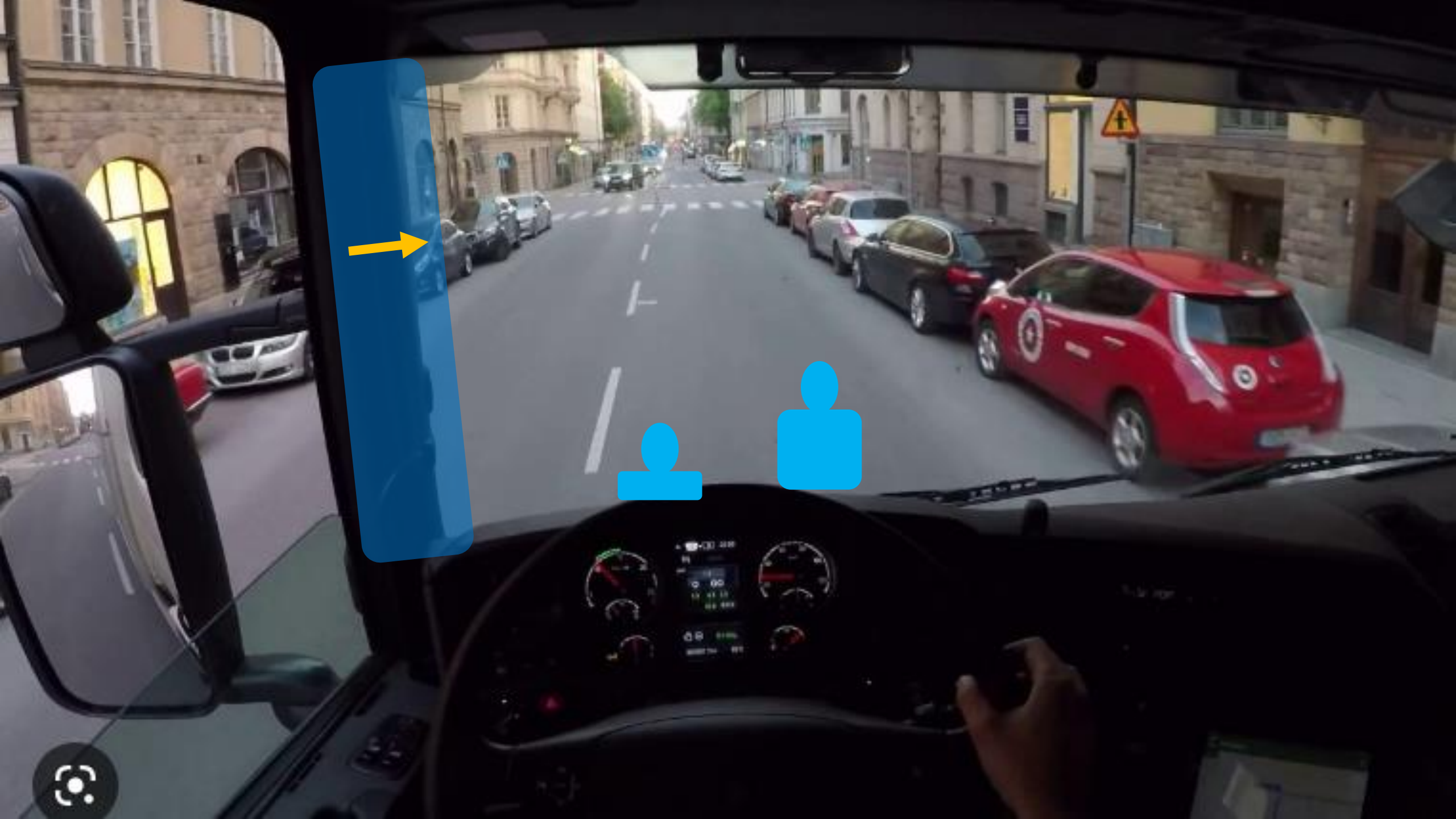


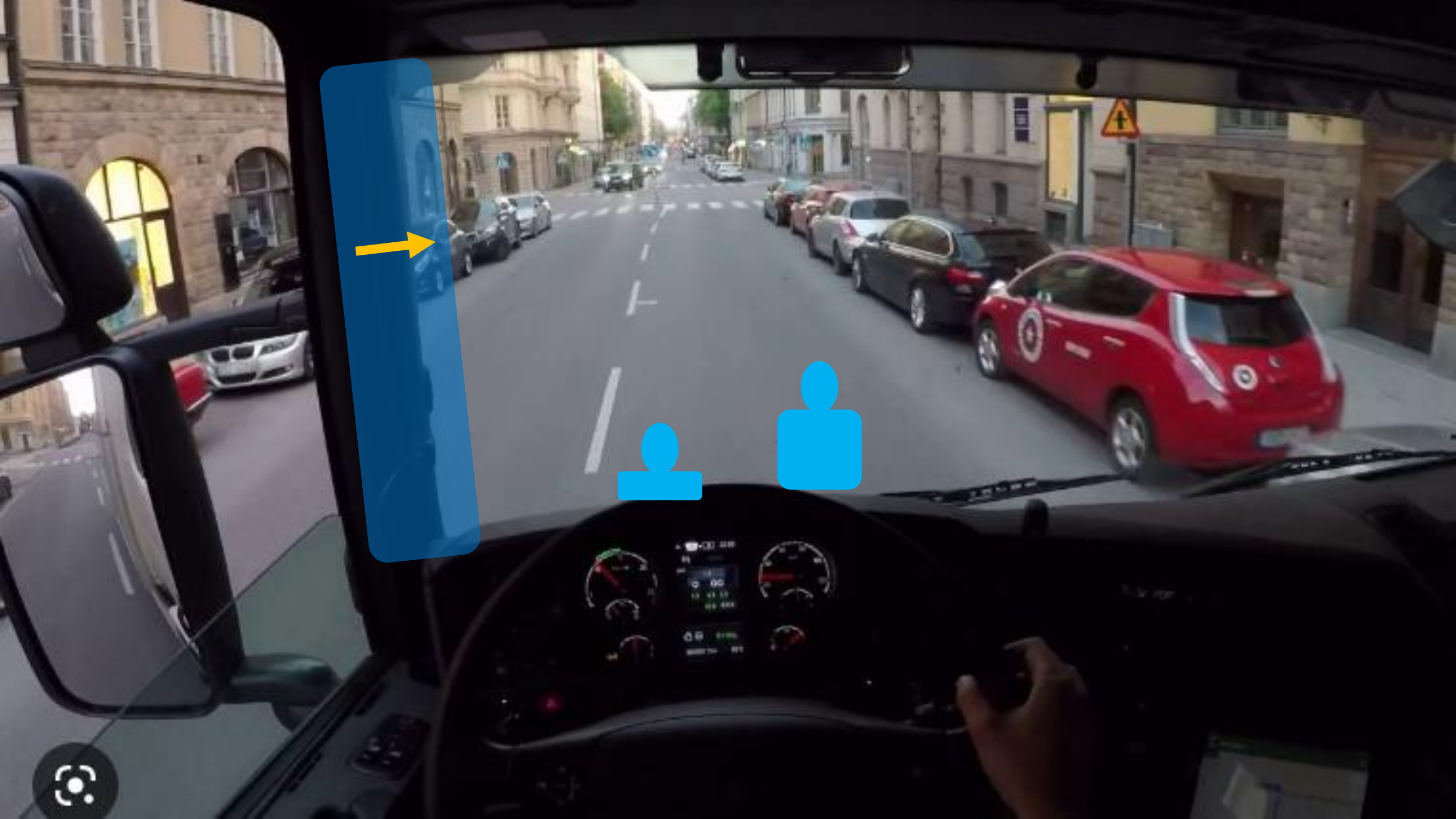








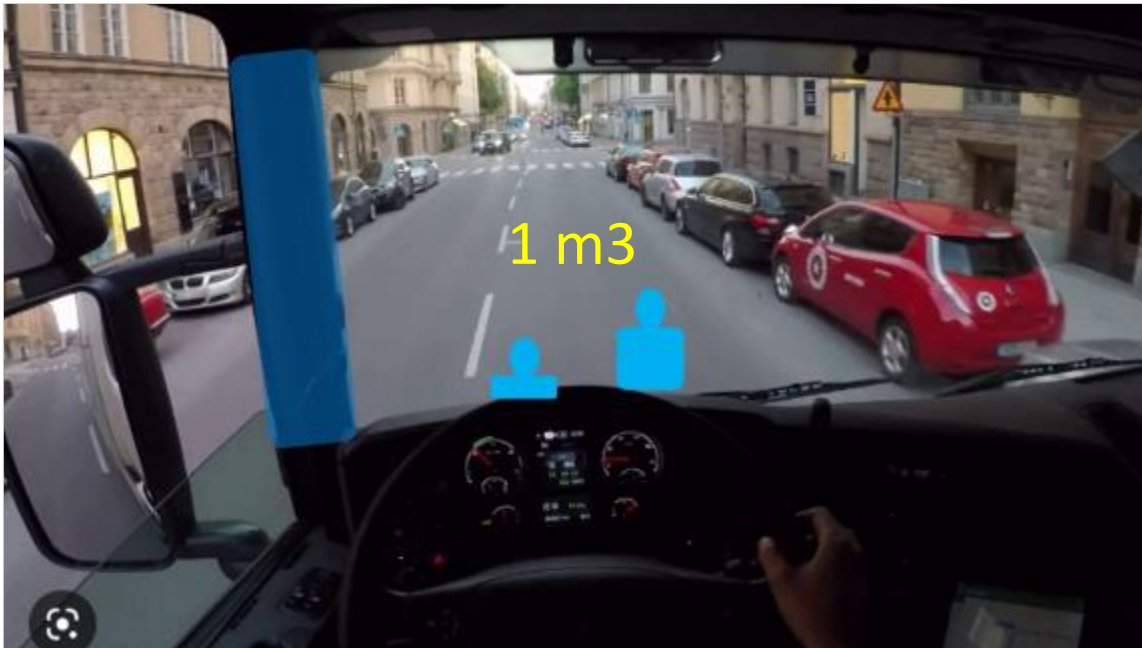




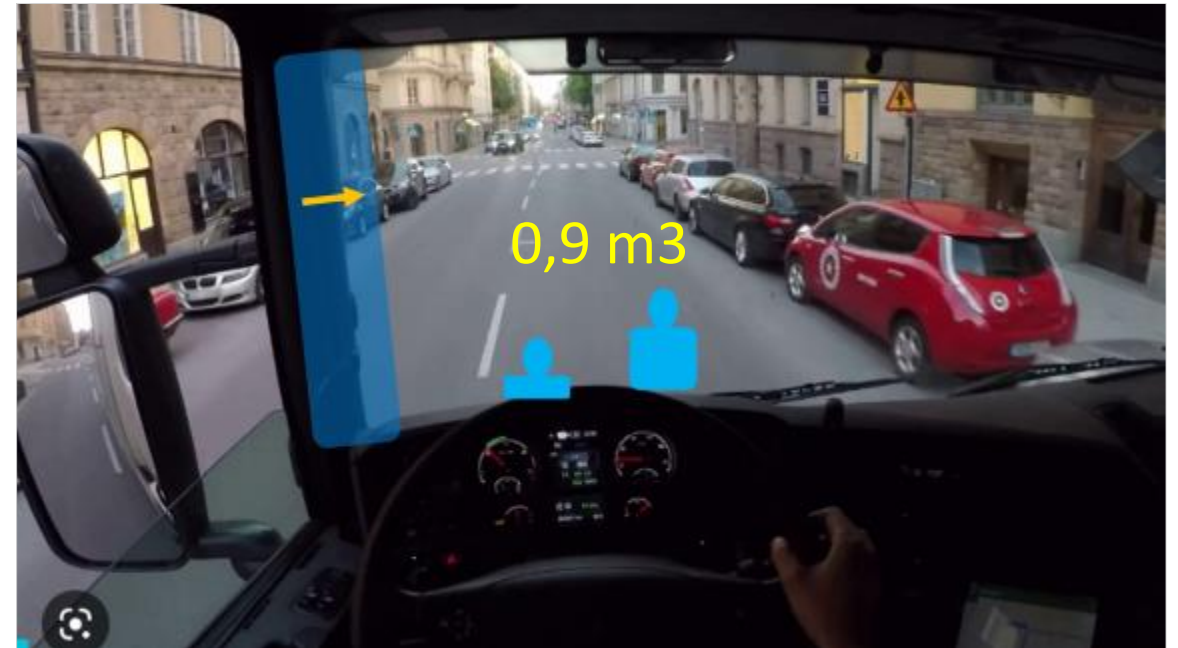


DESIGN NEUTRAL FRONT LIMIT

- Example



Current front limit



Design neutral limit

Values used are only an example





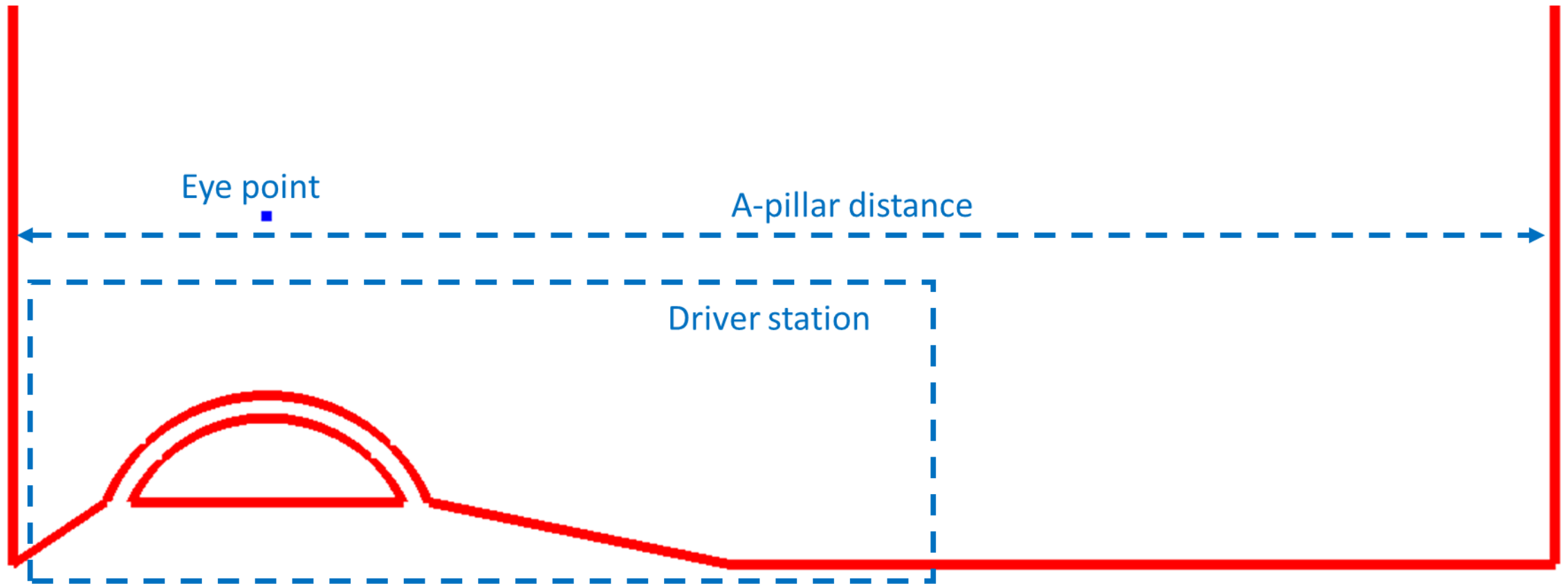


A-pillar distance

Driver station

DESIGN NEUTRAL FRONT LIMIT

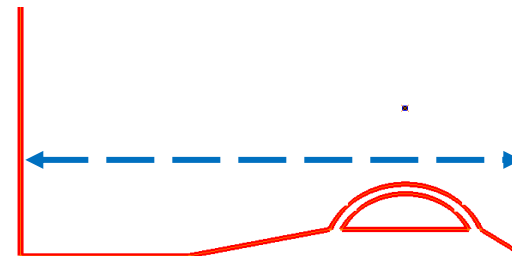
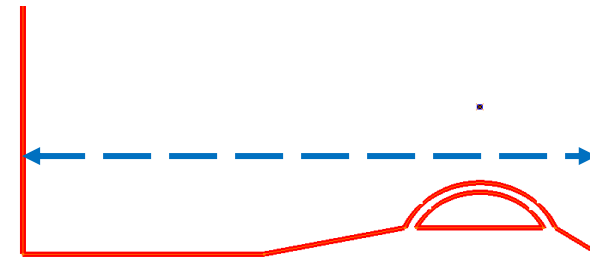
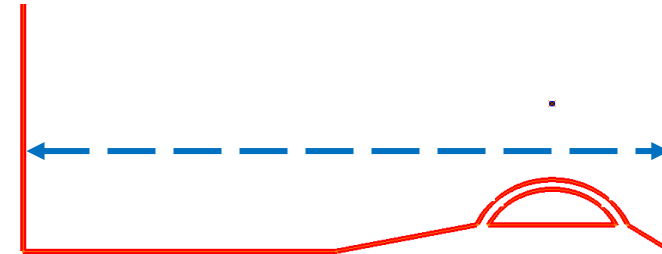
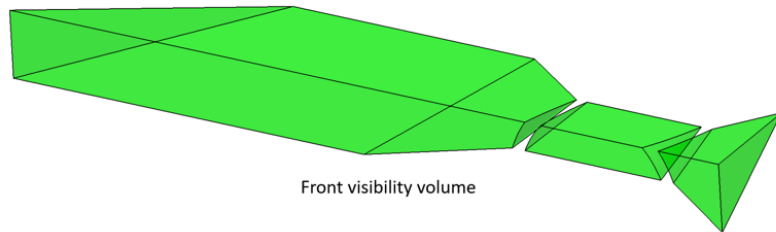
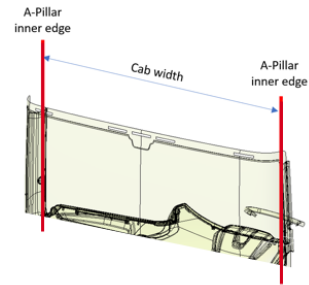
- Generic Shape



DESIGN NEUTRAL FRONT LIMIT

- How is it done

The A-pillars are moved inwards step by step and the corresponding front volume is measured



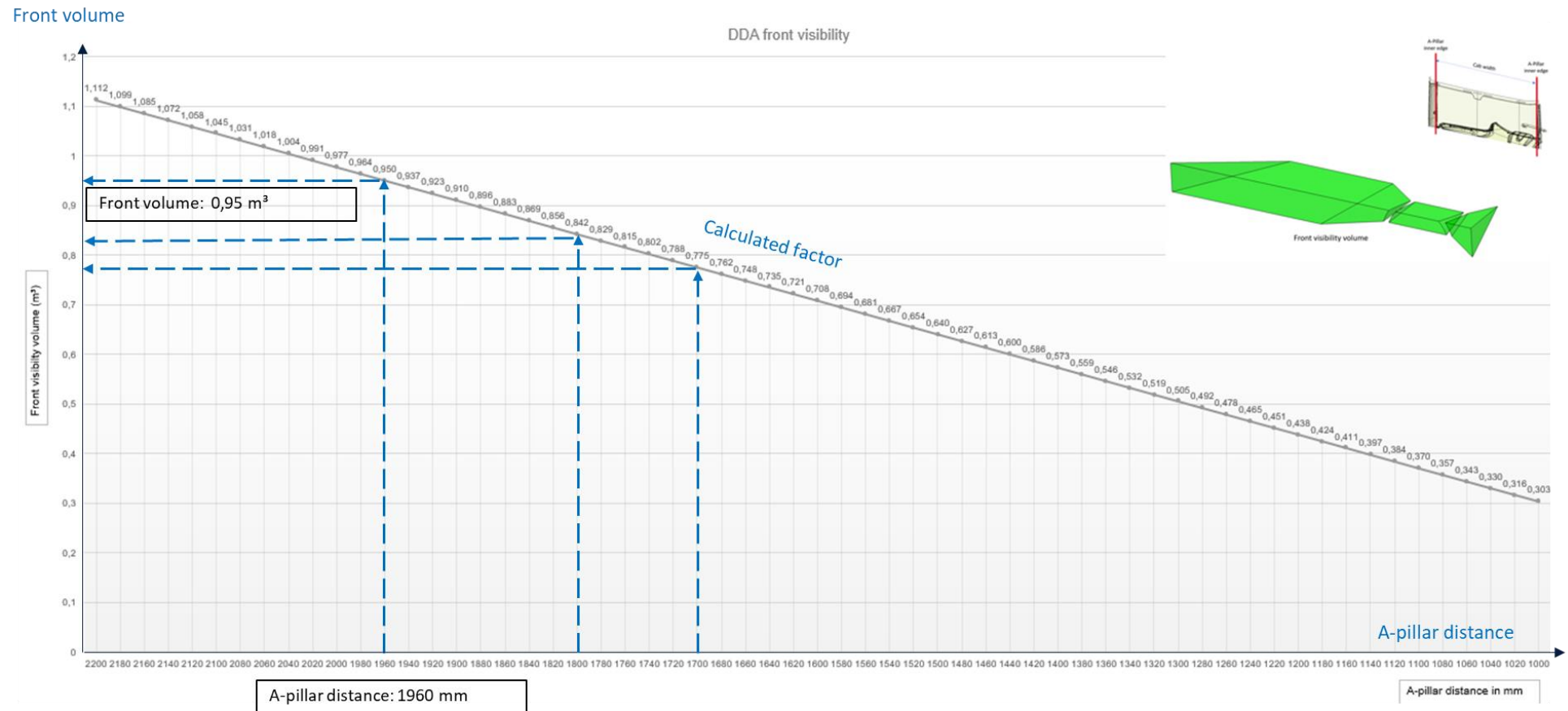
DESIGN NEUTRAL FRONT LIMIT

- **Baseline**
- Front volume starting point: 1 m³
- Cab height: Constant
- Baseline for A-pillar distance: to be defined
 - A-pillar distance: outer or inner measurement
 - New players entering the market
 - Based on the generic cab model

Further investigation is needed

DESIGN NEUTRAL FRONT LIMIT

- Result





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