

UN Regulation Development on Heavy-Vehicles Direct Vision

Intermediate status of OICA/ACEA position

VRU-PROXI 12



European
Automobile
Manufacturers
Association

OICA/ACEA Position on Direct Vision for M2/M3/N2/N3

OICA/ACEA supports:

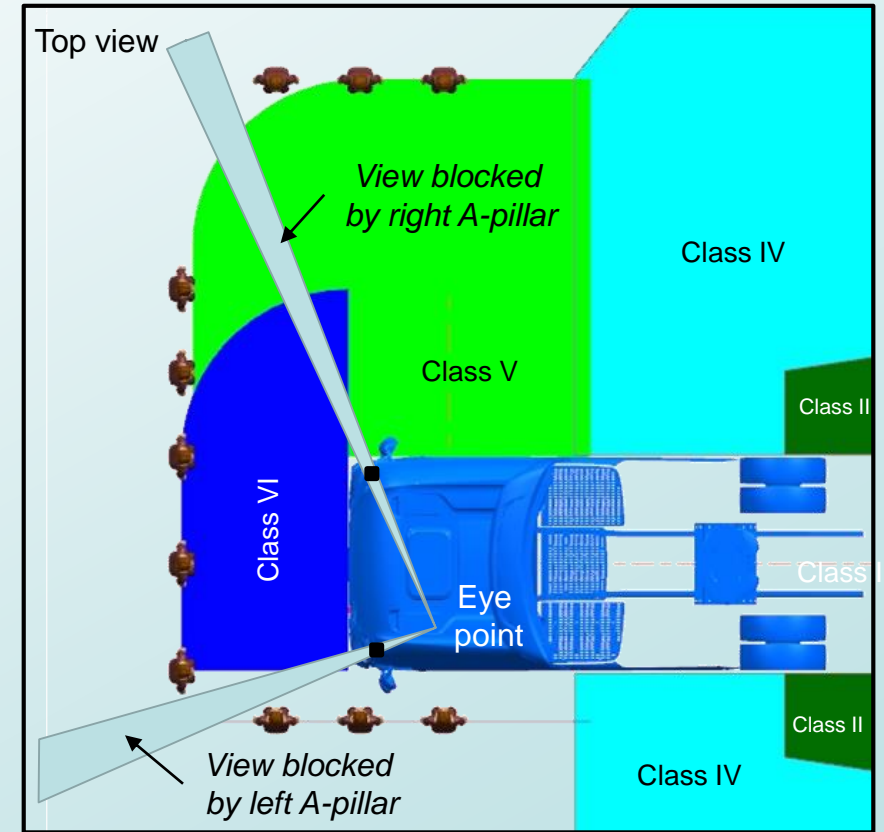
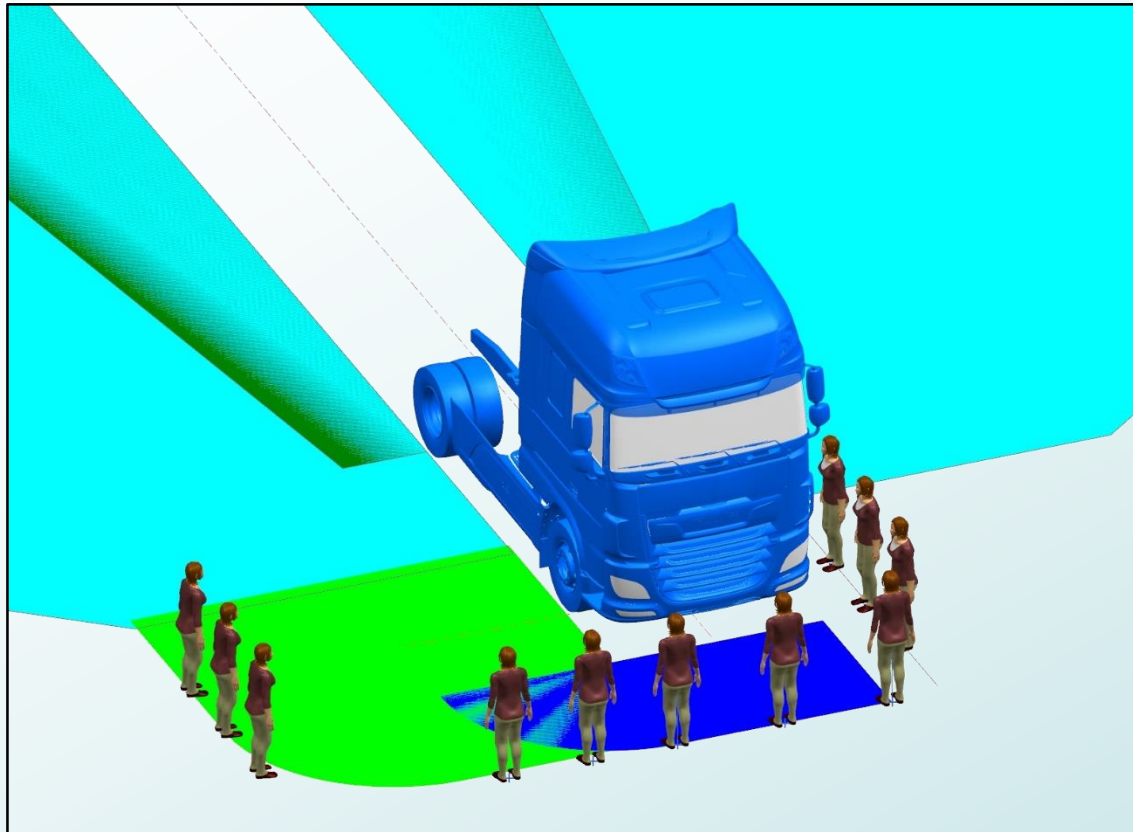
- An objective methodology to evaluate direct vision performance with an acceptable and feasible baseline level
- Regulation based on one direct vision level for all vehicles within a vehicle category (in line with GSR Phase 2 agreement)
- Type approval of vehicle / systems based on the worst case vehicle of the family (whole vehicle model range may be verified by simulation)

Summary of Current OICA-ACEA Activities

- 1) Find solutions for “eliminating the blind spot to the greatest possible extend” by removing the gap between direct and indirect vision (legal mirror field of views according UN ECE R46)
- 2) Investigate proposals for clear and acceptable direct vision regulation and certification
- 3) Investigate technical possibilities to improve direct vision aiming for elimination of the blind spots and judge what is feasible and can be justified

ACEA Working Group – Truck Safety is developing a proposal for type approval of direct vision with the purpose to create a method to evaluate elimination of blind spots according to GSR Phase 2 until next VRU-Proxi meeting in February 2020.

Eliminating the Blind Spot by using Static Manikins



- Part (t.b.d.) of VRUs shall be visible while standing on outer mirror FoV and at defined distance at driver side
- VRUs closer to vehicle are visible with indirect vision and driver is informed by BSIS and MOIS
- Blocked view by A-pillars shall not be taken into account as these are required for ECE R29 (cab strength)

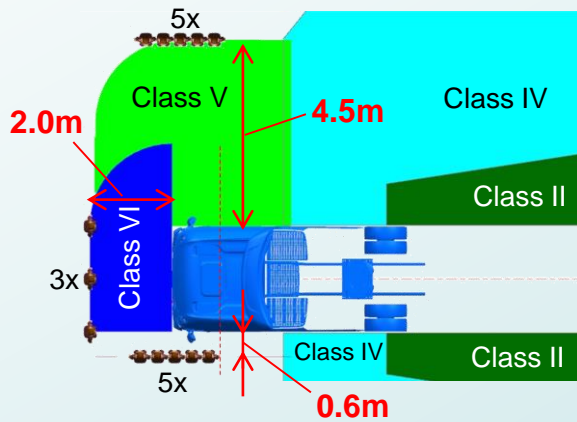
Elimination of Blind Spots correlated to DVS Star Rating

Argumentation of Loughborough Design School (VRU-Proxi-10-07, page 34)

“A 1 star rating means that that average VRU distance for an array of 5 VRU simulations can be seen by the driver (head and shoulders) at a distance less than 4.5m, to the front at a distance of 2m (3 VRUs) and to the right at a distance of 0.6m (5 VRUs). The VRU chosen was a 5th%ile Italian Female on the premise that over 99% of Europeans are taller”

The blind spot is eliminated when the VRUs (H+S) are visible while standing exactly on outer border of indirect vision FoVs and 0.6 m at driver side:

- 5 VRUs at 4.5 m to the near-side
- 5 VRUs at 0.6 m to the off-side
- 3 VRUs at 2.0 m to the front



This situation reflects an average VRU-distance of 2.4 m which corresponds to ~0.6 stars according the correlation in the graph.

