

Block 15:00-15:45hr

- BOOK OF RECOMMENDATIONS
 - Regulatory framework
 - Intelligent Access Policies

IVECO





(MAN)

CHALMERS

The AEROFLEX project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 769658

SCANIA

🜌 Fraunhofer



Industry

Research

Service and validation	Arplus [⊕] IDIADA	Oriol Flix, homologation engineer automated and connected vehicles
		Xavier Font, homologation engineer powertrain and emissions



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1.1 RULEMAKING PROCEDURE - EU





1.2 RULEMAKING PROCEDURE - UNECE





2.1 RECOMMENDATIONS – AFCV

Aerodynamic Features for the Complete Vehicle

UN Regulation No. 73: Lateral protection devices

(LPD)

(addressed to GRSP)

- Requirements movable lateral protection
- Areas not covering wheel always covered by lateral protection



UN Regulation No. 13: Braking provisions

(addressed to GRVA; UNECE)

- Keep lateral device deployed during type approval process
- Brakes worst performance & Heat dissipation





2.1 RECOMMENDATIONS – AFCV

Aerodynamic Features for the Complete Vehicle

UN Regulation No. 58: Rear Underrun Protection Devices (RUPDs) and their installation



(addressed to MVWG)

- New requirements side panel heights < 2m</p>
- Rear underrun protection devices (deformation test & VRU)
- Combine adjustable ride height and side panels

*VRU : Vulnerable Road Users



2.2 RECOMMENDATIONS – SML

Smart Loading Units

REGULATION (EU) 2019/1213

On board weighting equipment

(addressed to DG MOVE)

 Recommendation on possible interaction between on-board weighting systems and Cargo Volume
 Detection in order to optimize loading protocols and efficiency.





2.3 RECOMMENDATIONS – IFEDS

Innovative Front End Design for more Safety

UN Regulation No. 29: Protection of the occupants of

a commercial vehicle cab

(addressed to GRSP)

New requirements for impact

test – envelope elongated cab



UN Regulation No. 93:

Front Underrun Protective Devices (FUPD)

(addressed to GRSP)

 Evaluation new front end –
 How it will affect frontal collision with pedestrians and other vehicles.



2.3 RECOMMENDATIONS – IFEDS

Innovative Front End Design for more Safety

Vehicle & Road Users Safety

Active Safety



- Inclusion of VRU to UN Reg. No. 131
- Advice new Reg. No. 152 on Blind Spot
 Information System
- Assess ADAS Informal Group of GRVA

Passive Safety



- Future recommendations with EuroNCAP results
- Front end of cabin
- Frontal protection device



2.4 RECOMMENDATIONS – AEMPT

Advanced Energy Management Powertrain

UN Regulation No. 79: Steering equipment

(addressed to IWG MVC; GRVA; UNECE)

Change trailer definition (EMS/MVC):

towed-towing vehicle

Swept area by the rearmost outer edge

UN Regulation No. 13: Braking provisions

(addressed to IWG MVC; GRVA; UNECE)

- Further amendments additional types of towing-trailers
- Time response requirements for towing-trailers (Suppl. 18 to the 11 series – entry into force end Sept. 2021)
- Time response: ≤ 0.4 seconds (for each trailer)





2.4 RECOMMENDATIONS – AEMPT

Advanced Energy Management Powertrain

UN Regulation No. 55: Coupling components

(addressed to IWG MVC; GRVA; UNECE)

- Include vehicle combinations into the definitions (*)
 - Towing centre axle trailer
 - Towing semi-trailer
 - Link-trailer



(*) TBD in next Informal Working Group MVC meeting

UN Regulation No. 100: Electric Powertrain

(addressed to GRPE; UNECE)

- Vehicle Level for installation REESS (**) as component
- Introduce Trailers within the scope E-axles

and/or REESS



(**) REESS: Rechargeable Energy Storage Systems 28.09.2021



Masses & Dimensions

Maximum authorized weights and dimensions in international traffic Directive 96/53/EC as ammended by Directive (EU) 2019/1242

(addressed to European Commission)

AEMPT

- Annex I
 - Include combinations MVC
- Establish limits on:
 - Max authorized length
 - Max authorized height

AFCV

Include new exemptions –

aerodynamic devices length

IFEDS

Include exemption –

elongated cabs out of total length

 To review the contribution of the e-dolly to the requirements of: weight borne by the driving axles of a vehicle combination must not be less than 25 % of the total laden weight of vehicle combination.



AEMPT – Advance Energy Management Powertrain AFCV - Aerodynamic Features for the Complete Vehicle IFEDS – Innovative Front-End Design for more Safety 28.09.2021



Masses & Dimensions

Masses & Dimensions - Regulation (EU) 2019/1982

(addressed to European Commission)

AEMPT

- Include in Scope & Definitions:
 - Dolly/e-dolly
 - Trailer with towing capacity
 - Towing capacity requirements
- These vehicles shall comply with mass of combination formula and manoeuvrability requirements

AFCV

- Inclusion of safety & operation tests, and
 requirements for new aerodynamic devices
- Inclusion of exemptions on lengths.

IFEDS

In case of elongated cabs of > 0.5 meters of

frontal extension, evaluation of new

exemptions on the maximum length of the vehicle.

AEMPT – Advance Energy Management Powertrain AFCV - Aerodynamic Features for the Complete Vehicle IFEDS – Innovative Front-End Design for more Safety 28.09.2021



CO2 Emissions and Fuel Consumption of HDV

CO2 emissions and fuel consumption of HDV - Regulation (EU) 2017/2400

(addressed to JRC; European Commission)

AEMPT

Include trailers in the calculation of

CO2 emissions and FC

- Electrical components:
 - Coming amendment will introduce e-components (e-axles, REESS, etc)
 - Include e-trailers



EC'



CO2 Emissions and Fuel Consumption of HDV

CO2 emissions and fuel consumption of HDV - Regulation (EU) 2017/2400

(addressed to JRC; European Commission)



AFCV

- Include CO2 calculation vehicle combinations
- Include new solutions aerodynamic test performance
- Aerodynamics (% CdxA reduction):
 - Compare results between trailers fitted and not fitted with aero-devices
 - Establishing standard values to aero-devices, setting a % of air drag coefficient improvement



AFCV - Aerodynamic Features for the Complete Vehicle



Book of Recommendations

Industry

Research



Karel Kural, senior project lead at HAN

Service and validation





VISION 2030

THE INTELLIGENT ACCESS POLICIES 8 AEROFLEX Safe and efficient transportation Ensure Equitable Access of Vehicles to the Infrastructure by Digitalization AEROFLEY conversion consorrant Activity and intervention prove transport efficiency up to 33%. The

AEROFLEX - FINAL EVENT

SAFETY FIRST

Rara, het is groen en je hoort 'm n

H.N. POST & ZONEN

00% elektrisch



Need for approach to introduce new generation of freight vehicles



Intelligent Access Policies as approach to facilitate deployment of the new generation road freight vehicles whilst ensuring the operational safety and compatibility with the infrastructure and the environment



Intelligent Access Policies - A regulatory framework using in vehicle technology to ensure the **right vehicle** with the **right cargo**, operates on the **right road**, at the **right time** to secure minimum impact on environment, infrastructure, human health & safety, and **society**



AEROFLEX - FINAL EVENT

AEROFLEX Matching infrastructure and vehicle characteristics using Performance Based Standards & Real time information



Infrastructure Static data

- Lane and/or bridge width
- Cornering space and road slope
- Accident history

Dynamic data

- Real-time daily traffic
- Real time information on other road users, parked cars, cyclists.... etc.
- Weather condition



Vehicle

Static data

- Low-speed manoeuvrability
- High-speed stability
- Emission class

Dynamic data

- Real-time position
- Weight carried per axle (Infrastructure impact)

•••

IAP









Stakeholder clusters and their needs



Users – IAP can significantly contribute to enhancement . of the logistic process through better ability to plan, forecast, and interact with other transport modes.

Planners and owners - IAP can be used as tool for road authorities which can better monitor the real load pattern of the pavement and bridges.

Telematics **providers** should work together to develop linkages/Application Programming Interface between the various systems so the right data can be disclosed;

Policymakers need to act as frontrunners who should support small local (national based) pilots.

The role of the **facilitator** is seen crucial for gaining the trust of all involved stakeholders.

AEROFLEX - FINAL EVENT







Key success factors

IAP as enabler for other developments

- IAP can be a great enabler towards CO₂-footprint reduction from road freight transport;
- IAP can speed-up implementation of new technology (such as electric/hybrid vehicles, or teleoperation) which may impose specific requirements on the infrastructure;
- Data exchange
 - Data exchange between the stakeholders is essential to deploy the IAP framework.
 - Integrity for monitoring and exchanging the data is essential for the trust of logistic operators







- The awareness of IAP on pan-European level needs to be created through webinars, knowledge and technological platforms, and European research and innovation projects.
- It has been agreed upon the stakeholder cluster of users that IAP can significantly contribute to **enhancement of the logistic process** through better ability to plan, forecast, and interact with other transport modes.
- One of the biggest challenges identified for the global implementation is the harmonization of policies and infrastructure design codes among all 27 EU jurisdictions. The preferred approach in Europe should be bottom-up;
- The role of the facilitator is seen crucial for gaining the trust of all involved stakeholders.
- Establish solid governance structure for the national-based facilitators, as they will be primarily in charge of running the IAP schemes.



28.09.2021



Next steps towards deployment



enabled by IAP



Handing over IAP initiatives









The research leading to these results has received funding from the European Union