Regulatory activities of the World Forum for the Harmonization of Vehicle Regulations Contributing to a Sustainable Mobility

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Content

I. Introduction

II. New test cycle and off-cycle test

III. Connected and Automated Vehicles

IV. How do we fit in the current debates and policies?

V. Conclusion
UNECE and vehicle regulations

Social Rules (driving and rest hours)

Drivers’ License

Vehicle Regulations

Road Traffic Rules

Road Signs and Signals

Infrastructure (standards and parameters, tunnel safety, all land modes)

Statistics

Dangerous Goods

The World Forum for Harmonization of Vehicle Regulations (WP.29)

- UNECE Transport Division: secretariat to WP.29 for more than 60 years
- Since 2000, WP.29 is:
  - the unique worldwide regulatory forum for the automotive sector
  - administering three Multilateral UN Agreements

Construction regulations
1958 Agreement - Type Approval Regulations with mutual recognition of the type approvals
1998 Agreement - Global Technical Regulations

In Use PTI regulations
1997 Agreement - Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspection

Incl. their sub-systems and parts
UNECE and vehicle regulations

UNECE is the Economic Commission for Europe. Some of its activities are of global nature (e.g. WP.29). Open to all Nations of the United Nations without any limitation or discrimination.

PS: this map doesn’t show those Countries applying the Regulations unilaterally.
Agenda 2030 - SDGs
Content

I. Introduction

II. New test cycle and off-cycle emissions
   - WLTP
   - RDE

III. Connected and Automated Vehicles

IV. How do we fit in the current debates and policies?

V. Conclusion
WLTP – Global Technical Regulation No. 15

- **Aim:** to replace NEDC
- **New test cycle and more detailed testing procedures**

- **Purpose:**
  - FUEL CONSUMPTION
  - CO₂ EMISSIONS which are directly related to fuel consumption
  - POLLUTANT EMISSIONS
  - ENERGY CONSUMPTION VALUES OF ALTERNATIVE POWERTRAINs as well as the range of electric vehicles

- **Benefits:**
  - Less discrepancies between real / test values
  - CO₂ values for individual vehicles (consideration of optional equipment)
  - More dynamic and realistic acceleration and deceleration
  - A stricter vehicle set-up during the test
WLTP – the making off

• Start: November 2007

• Cycle development on the basis of In-use data collection world wide in 2010

• Applicable for new types since September 2017 + transitional provisions
Real driving emissions

• Lab tests are appropriate for the purpose of compliance (reproducible, precise)
• Recent developments showed the need for a reality check -> Real Driving Emissions

Boundary conditions / limits:
(Normal road conditions)
- Altitude
- Temperature
- Road type mix (city, rural, highways)
- Load
- Road gradient

Compliant
Non compliant
Normalisation
(Outlier elimination)
Content

I. Introduction
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II. Connected and Automated Vehicles (CAVs)
III. How do we fit in the current debates and policies?
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One global vision

In the context of the mega trends
- Urbanization: 54% of the world’s population lives in cities. +66% by 2050 (UN DESA)
- Road safety: 1.2 Mio fatalities per year on roads
- Aging population
- Digitalization
A global vision … with opportunities for synergies

Ministerial declarations quote UNECE’s work or specify ambitions to be realized through WP.29
- G7 Transport Ministers declarations in Germany (2015), Japan (2016) and Italy (2017)
- ICDPPC’s resolution on CAVs quote the WP.29’s guidelines on Cyber Security and Data Protection

UNECE offers forums for all experts to work together
- Many countries rely on UNECE’s working parties’ outcomes to enable progress on sustainable mobility
Automation - New products and new concepts

This car is a passenger car. May be automated.

Is this a passenger car? or a bus? (less than 9 seats)
Not designed for a driver!
How to assess it for safety?

This is a light duty/goods vehicle.
It does not have a driver
It probably has a remote operator
Does it meet regs. requirements?

This is not really a passenger car
This is not really a quadricycle
How to assess it for safety?

Clarity is needed:
• the technical requirements – especially for safety, (Only R79 or new Regulation?)
• the driver/user interaction and interface design,
• defining the level of technology/autonomous capability.

Solving these issues is crucial for manufacturers, governments and users.
UNECE and Automated Driving – Achievements

• WP.29/GRRF - Active safety

Mandate:
• Review 10 km/h limitation ✔
• Work on ACSF ongoing
• Interurban journey ✔
• HMI ongoing
• Can be overridden ✔
• Can be deactivated ✔
• Also address PTI ongoing

Timeline:
• Package 1 (CSF, ACSF Cats A and B1) Completed in 09/2016
• Package 2 (ACSF Cat C / C1 and ESF) Completion by 12/2017?

Former POTUS said:
“… and if you talk to Larry Page and others their general attitude, understandably, is, “The last thing we want is a bunch of bureaucrats slowing us down as we chase the unicorn out there.”
UNECE and Automated Driving – Next Steps

• Level 2 – Continue to accompany technical progress / “Disruptions”
  – Normal regulatory activities
• Level 3 / 4 – reasonably proactive
  – Roadmap & Strategy discussed in the Task Force (under the IWG on ITS/AD)
  – Can we regulate what does not exist yet?
• Address additional challenges
  – Cyber security and Data Protection
    • Guidelines adopted
    • Task Force ongoing (under the IWG on ITS/AD)
• Provide answers – Technology impact on existing system and its rules
  – Traffic safety – work done at WP.1 incl. coordination with WP.29
  – Liability, insurances etc. even though systems not harmonized – Through data recorders etc.
  • ...
The vehicle connectivity keeps every one busy...

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<th>Various standards on connectivity</th>
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<td>- USA: NPRM V2V etc.</td>
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<td>- EU:</td>
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<td>+ DG Growth Gear 2030</td>
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First UN Regulation on Connectivity
AECS ("UN eCall")

**AECS:**
Structure of the draft Regulation:
1. Requirements for the device (Supplier)
2. The installation of the device in a car (OEM)
3. = 1+2 simultaneously (OEM)

It doesn't address:
1. The communication modules
2. The data transmission

GNSS may be approved by the applicant

Draft adopted in May 2017

Potential adopt in November 2017
Content

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IV. How do we fit in the current debates and policies?
   - Infrastructure
   - Diesel
   - Electrification of the mobility
   - Shared EvCAVs

V. Conclusion
Infrastructure (1)

Road relevant initiatives exist in order to increase the sustainability of transport and encourage modal shifting:
- Speed limit reduction
- Capacity reduction in favor of other transport modes

When deciding for such initiatives:
Question 1: how much pollution and GHG emissions for the infrastructure transformation?
Question 2: how long is the transition face until the transformation is effective?
Question 3: how much pollution and GHG emission during the transition phase until the transformation is effective?
Question 4: How long does it take to compensate the negative impact of the transformation and the transition?

The modal shifting to be organized
→ avoiding sub-optimal vehicle operation modes

(Vehicles will be tuned according to WLTP and not for heavy congestion or low speeds)
Infrastructure (2)

Example: projection of road and train traffic increase until 2030

Investing in infrastructure
Not only in road construction
Also in other modes
Also in their maintenance
Seems to be a necessity
More than ever
Initiatives at city levels vs. internal Harmonization

➔ We assume these local initiatives are successful
  – We encourage the local experts to share their expertise at international level

• Leverage the benefits (pollution and global warming don’t know borders)

Worldwide harmonization for the business sector means:

- Harmonized requirements – economies of scale
- Simpler export (less/no technical barrier)
- Less uncertainty about market acceptance – “safe harbor”

For Countries and their citizens, it means:

- State of art technology
- Interoperability
- Facilitated border crossing
- Facilitate mobility
Diesel

Pro’s
- There is “still” a demand
- Still make sense for SUVs
- Fuel economy (CO2 emissions)

Cont’s
- PM emissions
- NOx emissions
- “Defeat device case”
- Real driving emissions (?)

Real capability of the technology?
- Unknown yet due to the regulatory differences so far (market distortion)
  (The regulatory gap between gasoline and diesel is “about” to be closed with EURO 6)

Should we ban a specific technology?
- Those advocating for this measure won’t guaranty the benefits of such a measure
- Not good regulatory practice – usually: we shall regulate the performance and not the technology
- Might work for cars. More difficult for heavy vehicles.

Conclusion:
Electrification of the mobility?

Pro’s
- Pollution not generated in city centers
- Less noise
- Fun to driver

Con’s
- Battery production
- Cost
- Charging time and range
- Well to wheel consideration - Electric production mix
  • Not harmonized

Conclusion: positive, possible, but challenging
Shared, electric, connected and automated vehicles

UNECE and WP.29 contribute to make this vision affordable, efficient and safe through technical requirements

Challenges: technical, legal, market acceptance
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Sustainable transport system

- Regulations – Subventions – Tax – Market distortion
- Consuming transport – private – market economy
- Competitive & addressing consumers needs

What ever it will be, please count on UNECE and WP.29 to provide harmonized and technical answers
THANK YOU VERY MUCH FOR YOUR ATTENTION

UNECE

http://www.unece.org/trans

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