Belgian procedure for testing of automated vehicles and how the code of practice contributes to safe testing

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Belgian transport authority
Context

• Political willingness
• Working group organized by the Belgian transport authority (= the federal public service) including:
  – the regional authorities (Flanders, Brussels, Wallonia)
  – the private sector: federations of automobile manufacturers (Febiac) and technological industries (Agoria)
  – the Belgian Road Safety Institute
Point of departure

- Systems are tested extensively prior to tests on public roads
- The testing of new automated vehicle technologies on public roads or in other public places should be facilitated
- Balance between possibilities to test on public roads and road safety to minimise potential risks
The Code of Practice (1)

- UK Department for Transport (2015)
- Guarantee a safe testing environment
The Code of Practice (2)

- No mere guidelines, but minimal conditions
- Approved by Council of Ministers on 15 September 2016
In scope

All kinds of automated vehicles and all levels of automation
• **Principle**: testing of full automation vehicles with a driver or operator on board

• **Exemption**: in locations other than public roads and where the vehicle’s speed is limited to a maximum of 30 km/h

  test operator in remote control
driverless vehicles

Technology of full automation pods and shuttles argues for driverless testing

Royal Decree (in preparation)

Rivium, city of Rotterdam, the Netherlands

CityMobil2, city of San Sebastian, Spain
3 kinds of conditions

• Vehicle safety
• Project health and safety
• Environment
## Vehicle safety

<table>
<thead>
<tr>
<th>MANDATORY</th>
<th>OPTIONAL</th>
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<tbody>
<tr>
<td>Risk analyses and reports of the tests that have been done so far</td>
<td>Additional technological solutions such as vehicle sensor and control systems</td>
</tr>
<tr>
<td>A clear human-machine interface</td>
<td></td>
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<tr>
<td>A data recording device</td>
<td>A video and audio recording system</td>
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<tr>
<td>Compliance with technical inspection</td>
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<tr>
<td>Securing software and data protection</td>
<td>A privacy impact assessment</td>
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### Project health and safety

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Appropriate driving licence</td>
<td></td>
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<tr>
<td>Procedures for training</td>
<td>Internal requirements for training, e.g. additional driving courses</td>
</tr>
<tr>
<td>Procedures to ensure that test drivers are sufficiently alert</td>
<td>Limits for the amount of testing time per day</td>
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<tr>
<td>Banning of alcohol and drugs</td>
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<tr>
<td>Inform the passengers</td>
<td>Testing staff to assist the passengers</td>
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## Environment (1)

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<tbody>
<tr>
<td>The insurance company has to be aware of the testing goals</td>
<td>Information for other road users</td>
</tr>
<tr>
<td></td>
<td>A steward to monitor the behaviour of other road users</td>
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</table>
Environment (2): infrastructure

• Infrastructure: regional administration(s)
• Road authority: regional and local administrations
• Good argumentation of proposed road conditions
• Additional conditions might be imposed, e.g.:
  – only on roads with less dense traffic
  – only during off-peak hours
  – manual mode at highway intersections
Obligations for testing organisations

- Submit audit report of tests on closed test track or private road
- Allow authorities (administrations and police) to assist testing
- Inform emergency services (police)
- Other communication in agreement with authorities
- Before every test trip, the test driver verifies the system and its emergency procedures
Procedure (1)

- Application form
- Crucial documents = risk analyses and reports (summary) of previous tests
- First approval by federal administration followed by regional administration(s), possibly with conditions on use of road infrastructure
- Test report after testing to discuss with the authorities
Procedure (2)

- Mutual recognition across Europe
- GEAR 2030 common building blocks for testing, e.g.:

| **Vehicle safety** | • Vehicle specifications, such as the kind of automation, a data storage system  
|                    | • Software specifications, including cybersecurity  
|                    | • Evidence to guarantee safe testing, including reports of previous tests, both on public and private roads, as well as a risk analysis and risk management strategies |
| **Project health and safety** | Conditions of the driver / operator, such as training, ability to intervene |
| **Environment** | Type of road |
European Truck Platooning Challenge

Positive elements:

• Common discussions between NL / BE authorities and truck manufacturers, including BE participation in tests on closed track in NL
• Risk analyses by an independent body
• Experienced test drivers
• Agreement with police
Conclusions

• Guidance of Code of Practice useful
• No new legislation required, except for driverless testing
• Belgium interesting testbed location
• Pragmatic approach
  - discussion between testing organisation and authorities
  - Code open to evolution (and exemptions)
Download the Code of Practice

www.mobilit.belgium.be

Circulation routière

Véhicules et leurs éléments

Systèmes de transports intelligents (ITS)

Véhicules (semi-)autonomes
Thank you for your attention!

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