## General Remark:

Although there are many novel developments to assess connected and automated vehicle it seems impossible to represent completely the complexity of all possible traffic scenarios. Moreover, future changes in road traffic regulations cannot be assessed when approving connected and automated vehicles today. Additionally, it is not possible to assess future adaptations to changing traffic conditions at the time of approval. Furthermore, deterioration due to degradation, wear, tampering, or damage cannot be comprehensively determined at the time of approval. In order to check and evaluate road safety (as well as compliance with additional specifications as environmental, communication and data security behaviour), a continuous validation of the performance of connected and automated vehicles in the field must be carried out by the authorities, respectively sovereign public bodies.

For realisation, i.a. driving and environmental data (without reference to persons) must be recorded, transmitted, and evaluated. If safety- or environment-relevant anomalies are detected in the scope of field surveillance, the deactivation of the corresponding automated driving functions can be initiated by the authorities. To reactivate the functionalities, measures (such as hardware upgrades or software updates) can be demanded from the manufacturers.

As stated in the 19 meeting, we strongly support a clear framework document bringing together all testing measures which occur after the registration (1997 agreement), with the measures before the registration of vehicles (1958- and 1998 agreement).

This, however, is not yet sufficiently covered in the wording of the text. Document PTI-19-02 needs a major revision concerning the following points before it could be sent as a draft to the WP.29 .

In the last paragraph of this document, we propose points, which could be sent as provisional document to the next WP.29 before the complete document is ready.

## FSD-ZS sees the following issues with the current PTI-19-02:

1) The approach of this document remains unclear in the text. Currently, any interested party may interpret it differently.

- What would be the (big) picture for the upcoming years?

- How should requirements be defined and brought into the GRs?

- How are the many different points interconnected? A kind of mind map for visualisation is necessary!

- in-service compliance

- in-service assessment

- in-service compliance assessment monitoring

- in-service compliance verification

- in-service performance

- in-service conformity

- compliance (currently circle definition)

- compliance objectives

- monitoring

- performance monitoring

(- field monitoring; see point 2)

- continuous compliance

- PTI

- roadside inspections

- market surveillance

- safety management

2) Def. Monitoring

- A continuous observing must always go along with a regular (periodic) observing!

- In addition, we need to distinguish between in-service monitoring by the manufacturers and field monitoring by the authorities.

3) Def. Performance Monitoring

- As we read it, the approach could be to make self-diagnosis as good as possible in order to make PTI disposable. That must not be the objective.

4) Which would be the responsibilities in the picture?

- States

- Manufacturers

- Others?

- 3-party principle is missing

5) Points not mentioned

- How do these exemplary points fit into the (big) picture?

- OTA

- Software updates

- Cyber security

- Access to necessary vehicle information

- Standards

- Dealing with faults and defects

- Maintenance

- ...

## 6) PTI obsolete?

- "*It is essential for the proper functioning of market surveillance that the compliance of vehicles and their components on the market is verified on the basis of a robust risk-assessment. That verification of compliance, complemented by the establishment of a minimum number of checks on vehicles per year, would also contribute to the effective implementation of the market surveillance obligations.*" (p. 5)

- (Also) this sentence can be understood as "no longer PTI necessary, only market surveillance necessary, plus requirements for TA"

- This understanding would be supported by the definition of Performance monitoring, which is defined as pure malfunction monitoring, together with "OBD information" where is defined that this task should be done by the OBD itself.

- PTI, on the other hand, is an independent test also for the additional tests as mentioned in the next paragraph of this document.

## Objectives of the tests (see 1) - this could be the content of a provisional document to the WP.29

- There is the need to test two categories:

1) Does the vehicle fulfil the requirements

a) defined at the point of TA (-> Market Surveillance) and

b) including new requirements coming up over the life time of the vehicle? (we call this Field

Surveillance) and

2) Does the vehicle fulfil the other requirements:

- general safety

- road safety

- environmental acceptable?

- data protection (as public interest; see "Market surveillance")

For 2), we see two means:

a) periodic inspections, complimented in future by

b) continuous inspections by 3rd parties using OTA-information from vehicles

- Note: 1 b) is especially relevant for automatic/autonomous driving functions. These systems must e.g. be able to follow new traffic rules coming up in the country of use (new signs, new general speed limits, environmental zones, ...