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| Transmitted by the representative of the Russian Federation  | PTI-15**-**0410 September 2019Agenda item 6 |

**Proposals for the draft of general framework of in-service compliance assessment the vehicles and their components**

**1. Four Pillars of the Compliance**

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| **Transport Sustainability** |
| **Safety** | **Security** |
| **CoP** | **In-Service Conformity** | **Market Surveillance** | **PTI/Roadside Inspection** |
| **Legislation** |
| The 1958 Agreement | National Legislation | The 1997 Agreement |  |
| **The legal acts shall be interconnected** |
| **Supervision** |
| Manufacturer | Manufacturer/Type Approval Authority | Contracting Parties | Contracting Parties | Manufacturer/Type Approval Authority |
| The Manufacturer’s Facilities | Automatic remote permanent monitoring |
| **Continuous Compliance** |

**2.** **Principles for in Service Compliance Enforcement**

- a shift towards sustainability of transport systems, where all aspects of vehicle use need to be considered, including safety, the environment, mobility, efficiency, productivity and personal security;

• UN Regulations consider the concept of continuous compliance;

• the third party assessment and inspection;

• risk-analysis approach

• the increased complexity of vehicles and the need for them to be properly maintained throughout their life;

• the opportunities afforded by advanced on-board and off-board measurement systems to reduce the cost of compliance;

• vehicle design and validation methods should demonstrate compliance a vehicle would be expected to perform during a normal operation;

• vehicle self-diagnosis might play a role in continuous compliance, provided it is trustable and impartial;

• access, under well-defined and agreed pre-conditions, to the technical specifications of each individual vehicle and the data needed for objective verification of the functionality of the safety and environment related systems, whether or not the safety and environment-related systems are functioning;

• development of in service compliance vehicle assessment methods for periodical technical inspection and where appropriate, road side inspection;

• role of roadworthiness inspections, including PTI, is to verify in-service vehicle compliance.

**Remark**

Safety of in-use vehicles is not listed in the currently agreed WP29 priorities on automated/autonomous vehicles.

**2.1. Tasks**

2.1.1. Develop definition for:

in-service conformity;

in-service compliance;

vehicle normal in-service conditions;

vehicle normal useful life period

2.1.2. Should PTI prevent unsafety due to wear and tear only?

**3. In-service Conformity** **in Frame of the 1958 Agreement**

**3.1. UN R83**

Scope: **“**In addition, this Regulation lays down rules for **in-service conformity**, durability of pollution control devices and On-Board Diagnostic (OBD) systems”

**9. In-service conformity:**

9.1. Introduction

This paragraph sets out the tailpipe emissions and OBD (including IUPRM)

in-service conformity requirements for vehicles type approved to this Regulation.

9.2. Audit of in-service conformity

9.2.1. The audit of in-service conformity by the Type Approval Authority shall be conducted on the basis of any relevant information that the manufacturer has, under the same procedures as those for the conformity of production defined in the 1958 Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2).

**Information from Type Approval Authority and Contracting Party surveillance testing may complement the in-service monitoring reports supplied by the manufacturer.**

9.2.2. Figures App4/1 and App4/2 of Appendix 4 to this Regulation illustrate the procedure for in-service conformity checking. The process for in-service

conformity is described in Appendix 5 to this Regulation.

9.2.3. As part of the information provided for the in-service conformity control, at the request of the Type Approval Authority, the manufacturer shall report to the Type Approval Authority on **warranty claims, warranty repair works and OBD faults recorded at servicing**, according to a format agreed at type approval.

The information shall detail the frequency and substance of faults for emissions related components and systems. The reports shall be filed at least once a year for each vehicle model for the duration of the period of up to 5 years of age or 100,000 km, whichever is the sooner.

**3.2. UN R49-06**

Annex 8

Conformity of in-service engines or vehicles

2. Procedure for in-service conformity

2.1. The conformity of in-service vehicles or engines of an engine family shall be

demonstrated by testing vehicles on the road operated over their normal driving patterns, conditions and payloads.

The in-service conformity test shall be representative for vehicles operated on their real driving routes, with their normal load and with the usual professional driver of the vehicle.

When the vehicle is operated by a driver other than the usual professional driver of the particular vehicle, this alternative driver shall be skilled and trained to operate vehicles of the category subject to be tested.

2.2. If the normal in-service conditions of a particular vehicle are considered to be

incompatible with the proper execution of the tests, the manufacturer or the Type Approval Authority may request that alternative driving routes and payloads are used.

The testing shall be repeated at least every two years for each engine family

periodically on vehicles over their **useful life** period as specified in paragraph 5.4. of this Regulation.

5.4. Durability and deterioration factors

The manufacturer shall determine deterioration factors that will be used to

demonstrate that the gaseous and particulate emissions of an engine family or

engine- after-treatment system family remain in conformity with the emission

limits set out in paragraph 5.3. over the normal useful life periods set out

below.

The procedures for demonstrating the compliance of an engine system or

engine-after-treatment system family over the normal useful life are set out in

Annex 7.

The mileage and period of time by reference to which the tests for durability of pollution control devices undertaken for type approval and testing of conformity of in-service vehicles or engines are to be carried out shall be the

following:

(a) 160,000 km or five years, whichever is the sooner, in the case of engines fitted to vehicles of category M1, N1 and M2;

(b) 300,000 km or six years, whichever is the sooner, in the case of engines fitted to vehicles of category N2, N3 with a maximum technically permissible mass not exceeding 16 tonnes and M3 Class I, Class II and Class A, and Class B with a maximum technically permissible mass not exceeding 7.5 tonnes;

(c) 700,000 km or seven years, whichever is the sooner, in the case of engines fitted to vehicles of category N3 with a maximum technically permissible mass exceeding 16 tonnes and M3, Class III and Class B with a maximum technically permissible mass exceeding 7.5 tonnes.

5.3. Emission limits

Table 1 provides the emissions limits that apply to this Regulation.

**4. Safety Features of automated driving systems**

**4.1. Safe operation**

**4.1.1. Degradation**

If safety-related functions or system components become hazardous (e.g. unavailable), the automated driving system shall:

• be capable of compensating and transferring the system to a safe condition/state (with acceptable risk);

• ensure a sufficient time frame for the safe transition of control to the vehicle operator.

**4.1.2. Fail-operational (limited to the safety related function or component)**

The loss of safety-related functions or system components shall not lead to a safety-related situation.

**4.2. Safety assessment**

Verification and validation shall be used to ensure that the safety goals are met so as to reach a consistent improvement of the overall safety (monitoring).