**RWEG 02 March 2023**

***Item 4. topic 3 -*** ***Moderated by Geert Konings (RDW, NL)***

***Measures concerning future test methods***

***Summary***

**Testing EVs:**

***EV General***

**Participants agreed that we need some minimum requirements to check the EV system quick, simple and easy to test in a practical way** and need to define what the risks of a high-voltage system are (more or less in line with DE proposal). Also need access to vehicle data from OEMs.

How deep do we need to go and have a set of minimum requirements? Participants indicated that we should start at a more general level. Reading out self-diagnosis, equipotential bonding and checking insulation is simple. We have to learn and then add more detailed checks later on. The scope of the inspection should be balanced not to add unnecessary burden for the vehicle owner.

Participants indicated that we should cover the important systems, PTI should remain reasonable, not cover every detail and, for now, it would be sufficient to do tests, for which we do not require new tools.

Some referred to UNECE 97 agreement [Rule no. 4] has provisions on hybrid and EV, and we should make use of that Rule. Some Member States (e.g. FR) have introduced specific test items.

***Battery State of Health (SoH)***

According to EGEA, it makes sense to check SoH, as it is also an environmental issue (i.e. preventing energy waste). Also from the consumer perspective, the battery is a significant part of the value of the vehicle. According to others, there is no simple and quick test today, and a SoH test takes 30-45 minutes.

If we have access to the SoH data, we can learn how batteries behave, after a few years.

EVs often have sensors, but one needs access to the sensors and data. For hybrids, you have diagnostic trouble codes (DTCs) for damage of the battery.

Several Member States indicated that SoH was not relevant for PTI, but about the value of the car and wondered what the pass/fail criteria would be. Others would not consider SoH for PTI today, maybe in the future.

**On this topic, there was no common agreement.**

***Charging cable***

There was discussion whether the charging cable should be part of the PTI. Most common defect is the cable. As it is not mandatory, only visual check if available at the PTI is possible.

***Training of PTI inspectors***

A concern is the issue of qualification of inspectors. A PTI inspector should not be required to look into the high-voltage (HV) system, but inspect it visually. The inspector has to know what to check and what the risks are and how to handle an EV. Most participants agreed that no special training other than walking through the EV items should be required.

**Updates regarding new requirements following GSR**

Member States have different views, but there is **general support for checking safety related software updates**. There is a need to know which update is mandatory, safety relevant, and which is not. It should be clear what SW we are talking about and type-approved SW must always be allowed, unless there is a recall on the SW. DE has solved this at national level (see attached guidance document), however, there is a need to regulate this at EU level.

A suggestion is made to register a SW update in the vehicle register. RXSWIN (i.e. RX Software Identification Number[[1]](#footnote-1)) has to be registered in the CoC, one can update the SW information. This could be used by registration authorities and be reported at PTI. SW numbers and verification numbers are still not available. We need a database on SW versions where OEMs deliver data. Regulation 2019/621 needs to fix this.

However, some scan tools are already optimised for PTI, participants indicated that it would be useful to define a standard PTI scanning tool.

Key problem here is the availability and access via the OBD (some OEMs close the OBD port) to vehicle data. **Member States believe that safety-related data should be available free of charge.**

***ISO 20730-1***

There is a need for standardisation and ISO 20730-1 (ePTI) is an option, but it should ideally be required by type-approval. Using the ISO standard would work for every brand. Today, only a few dozens of data elements are available, which might have to be extended. Only take the relevant content of the ISO standard, and update later if needed. With standardisation, it is also possible to develop a standard PTI scanning tool. ACEA also prefers the use of ISO standard and it should be referenced in the Directive.

***Recall***

One option of monitoring software updates is via recalls, but Member States have different views whether recall should be part of PTI. It is a market surveillance task. It is important that a safety recall be marked as such.

**Euro 7, on-board monitoring (OBM)**

Perhaps it is too early for the discussion, as Euro 7 is not yet in force. **Member States have different views, but there is an interest to check emissions systems and the whether monitoring is accurate**. How to check if e.g. a NOx sensor is tampered. Checking the accuracy of monitoring would allow detecting that a sensor had been tampered and that that information/data could be useful.

When the vehicle is registered, there is still a need to be able to validate that the system is working properly during the PTI.

To check e.g. emission, it would be necessary to check SW integrity and if OBM is working.

It is noted that defects, both through OBM and tailpipe measurements must be checked. Vehicles may show different results in the different checks.

**PN-measurement**

While some States (e.g. SK, NO, IT) are considering introducing PN measurement, others are concerned about the potentially high costs to the owner (DPF-replacement).

SE is looking at it, but states that in winter additives are used in the fuel that can affect a PN-measurement.

In Belgium, there are no huge difference in rejection rates.

Is PN measurement also suitable for petrol engines? It is an issue of equipment design. JRC stated that more research was needed.

Is PN measurement also suitable for Euro 4 and older and can it replace the opacity test? Current PN instruments shut down at 2M particles, but smoke is 10M particles or more. With current instruments, it is thus not possible.

**NOx-measurement**

JRC is developing a procedure to check NOx. The question is whether the engine temperature can be achieved (SCR will not work under 70C). It is important to have very robust procedures. Northern states are not sure about Nordic applicability.

Would it be possible by looking only at OBD? Only a few vehicles (more premium ones) would provide the output and is it possible to check NOx sensors via OBD.

Testing NOx would be desirable if efforts and costs remain reasonable. Equipment costs and time required for inspection as well as costs for vehicle owners should be considered.

**Essential parts of Regulation 2019/621**

Review and update of the Regulation 2019/621 is needed and ISO 20730-1:2021 and ISO 20730-3:2021 should be added.

Manufacturers should provide this information free of charge. Authorities should not be obliged to pay the manufacturer for fulfilling their obligations.

1. *RX Software Identification Number (RXSWIN)" means a dedicated identifier, defined by the vehicle manufacturer, representing information about the type approval relevant software of the Electronic Control System contributing to the Regulation N° X type approval relevant characteristics of the vehicle*. Cf. Definition 2.2 in [E/ECE/TRANS/505/Rev.3/Add.151 (unece.org)](https://unece.org/sites/default/files/2021-03/R156e.pdf) [↑](#footnote-ref-1)