EUROPEAN GARAGE EQUIPMENT ASSOCIATION

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CHECKING ACTUAL CO_2 EMISSIONS AND ACTUAL FUEL OR ENERGY CONSUMPTION

The actual fuel consumption of modern vehicles under real-world driving conditions is still divergent from the laboratory values. That is caused on the one hand by the driving behaviour of individuals and on the other hand by different requirements of the test cycle. In addition, it can also be attributed to the vehicle manufacturers' targeted optimisation of software and hardware in the engine operating points for the test cycles in order to artificially improve CO_2 results.

For this reason, **CITA and EGEA welcome the introduction**, from 1st January 2021, **of an independent and regular check of the difference between laboratory values and real-world CO_2 emissions and energy-consumption values. This is the only way to prevent a further increase in the discrepancy between these measurements and to ensure transparency for consumers.**

CITA and EGEA also welcome the opportunity to evaluate, by 2027, how representative the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) is of real-world traffic conditions as a basis for developing measures to modify regulations.

Regulation (EU) 2018/1832 already provides the basis for monitoring by means of standardised requirements for "on-board fuel and/or energy consumption monitoring devices" (OBFCM) for passenger vehicles and light vans, while Regulation (EU) 2019/1242 provides the same basis for heavy-duty commercial vehicles. Class M1 vehicles must be fitted with such OBFCM devices by 1st January 2021, and class N1 vehicles by 1st January 2022 at the latest.

WHAT DATA WILL BE COLLECTED?

According to (EU) 2019/631 and (EU) 2019/1242, the following data will be collected:

- Vehicle identification number
- Fuel and/or electric energy consumed
- Total distance travelled
- For externally chargeable hybrid electric vehicles, the fuel and electric energy consumed, and the distance travelled distributed over the different driving modes
- Other parameters necessary to assess the representativeness of the consumption values (e.g., software versions of environmentally relevant control units).

HOW WILL THIS DATA BE COLLECTED?

The Commission will use implementing acts to define a procedure for collecting and processing the data. The data is to be provided to the EU Commission at regular intervals. The "OBM Task Force" will support the EU Commission in developing the requirements for a technical solution by the end of 2020.

REQUIREMENTS FOR A TECHNICAL SOLUTION FOR DATA COLLECTION

In the view of CITA and EGEA, a technical solution for recording data and for transmitting it to the EU Commission should meet the following criteria:

- Standardised read-out with little effort
- Safeguarding of data integrity during transmission
- Transparency of data collection for the vehicle owner
- Compliance with data protection and data security
- Independence from special vehicle equipment or contractual agreements between vehicle manufacturers and vehicle owners
- Availability from 2021 for all vehicle models

EVALUATION OF THE READ-OUT FROM THE VEHICLE VIA THE ELECTRONIC VEHICLE INTERFACE (ON-BOARD DIAGNOSTICS, OBD)

According to Regulation (EU) 2018/1832 Annex XXII, the OBFCM device must guarantee standardised and unrestricted access to the data. In UNECE regulation Nr. 83 is defined that this standardized access must fulfil ISO 15031-5.

The so-called "OBD interface" enables standardised communication between vehicles and external test equipment during type approval, periodic technical inspections (PTIs) and repair and maintenance. Since every vehicle with an OBFCM is also required to be fitted with such an interface, it is already possible today to read out the data in all vehicles.

Furthermore, the interpretation of the read-out data is standardized in "SAE J1979". Consequently, all relevant information can be retrieved from the vehicle using any commercially available external test equipment. This wired solution prevents any manipulation of the data during transmission. Data protection and data security are also optimally ensured, as only authorised persons have access to the OBD interface installed in the vehicle.

Therefore, **CITA and EGEA recommend the solution of reading out the data via the standardised electronic vehicle interface.** This is the only way to ensure that data recording and evaluation can begin from 2021.

DATA RECORDING DURING THE PERIODIC TECHNICAL INSPECTION (PTI)

The purpose of the periodic technical inspection is to check the roadworthiness, environmental compatibility, and regulatory compliance of a vehicle. In order to check the environmental compatibility of vehicles with petrol engines or diesel engines, it has been the rule in Europe since 2001 and 2004, respectively, that the engine electronics can be checked via the standardised OBD interface.

Based on Directive 2014/45/EU, many European Union member states are already testing emissions with an exhaust-gas analyser that measures exhaust gas emissions on the tail pipe while also reading out the OBD data (engine speed, engine temperature, error codes, etc.). In addition, some member states already have access to OBD-capable scan tools for the periodic technical inspection, and these will be mandatory in every member state by 2023.

Regardless of the tool used, the OBFCM data and other relevant data, such as fuel and engine type, can be recorded during the periodic technical inspection without any additional expenditure of time.

When it comes to the transmission of data to the relevant authorities, there are generally already standardised interfaces for the transmission of PTI results. These could also be readily used to transmit OBFCM information.

The testing periods for vehicles in the EU member states show that a representative quantity of data could be obtained for all vehicle models within a short time. Almost 40% of the light commercial vehicles registered in the EU have to undergo their first PTI after two years at the latest, and all heavy commercial vehicles after one year. In Germany, for example, around 10% of passenger cars come in for a periodic technical inspection within the first year after registration. After two years, around 20% of passenger cars had undergone a periodic technical inspection. A very broad market coverage will be achieved.

EVALUATION OF “DIRECT” (OVER-THE-AIR) TRANSMISSION

There is currently no technical and standardised solution for a direct transmission. All transmissions of data from vehicles to third parties are based on proprietary solutions or on the so-called “Extended Vehicle Standard” (ISO 20078). This standard is based on the concept that all vehicle data is first encrypted and stored on a manufacturer’s own server before being forwarded to third parties. A secure end-to-end encryption, which direct transmission requires, does not exist in this case. In addition, this concept focuses exclusively on the use of vehicle data for commercial applications (smart services).

Sovereign use cases such as those addressed by Regulations (EU) 2018/1832 and (EU) 2019/1242 were explicitly excluded from the development of the standard, in particular due to data protection considerations. Aside from this, few vehicles are currently fitted with such an interface as standard. If such an interface is installed as standard or as an optional piece of equipment, the vehicle owner first has to sign up for a paid subscription and provide contractual consent to the transmission of data.

In order to ensure the direct transmission of a representative quantity of data to the Commission for all vehicle models, CITA and EGEA believe that the following points are necessary:

- Development of an EN standard under the Vienna Agreement, which provides a definition of direct transmission with end-to-end encryption
- Mandatory introduction of this interface in the type-approval regulations
- Full transparency for the vehicle owner and clarification of the costs for the data transmission with regard to the consumer

SUMMARY

Checking actual CO2 emissions based on the actual fuel or energy consumption can be implemented during PTI by using the electronic vehicle interface (OBD). In the view of CITA and EGEA, the need of gathering that specific data and the requested rapid delivery can be provided in a cost beneficial approach. CITA and EGEA are ready to develop and provide a solution with a representative data quantity for all vehicle models from 2021.

***CITA (www.citainsp.org)**, the International Motor Vehicle Inspection Committee, is the worldwide not-for-profit association of governmental agencies and authorised private companies active on vehicle compliance.*

***EGEA (www.egea-association.eu)**, the European Garage and test Equipment Association, is the European association and political representative in Brussels of the manufacturers of tools and equipment for the repair, servicing and technical inspection of vehicles, as an integral part of supporting the automotive industrial value chain.*

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