

EMISSION MEASUREMENTS IN THE AUTOMOTIVE SECTOR

EMISSION MEASUREMENTS - LEGAL OBLIGATIONS

BACKGROUND

To obtain type approval and ensure registration in the European Union (EU), new vehicles must comply with **emission standards** (termed EURO classes). New passenger cars have had to pass an emission test known as the New European Driving Cycle (NEDC) in order to obtain type approval for the European market since the 1990s. The NEDC dates back to the late 1960s and was originally not intended to reflect real-world driving performance. As a result, a **growing discrepancy** has emerged between the outcome of the **emissions test** in the type-approval process and the **actual emissions** that occur.

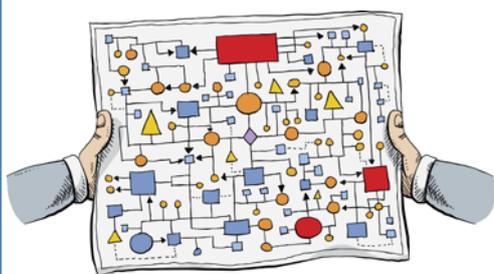


FOCUS OF THE STUDY

[This study](#) looks at the **discrepancy in NOx emissions** between **type-approval tests** and **real-world driving**. It examines the legal stakeholder **obligations** with regard to **emission measurements** in the European type-approval process and offers insights into the practical implementation of type-approval procedures throughout the EU.

KEY FINDINGS

1. Highly complex legislation



The legal framework as regards emission measurements in the EU automotive sector is highly complex and consists of **many individual regulatory acts** and **cross references**. Legal requirements furthermore **lack clarity and precision** and leave too much **room for interpretation**, especially as regards **technical provisions**. **Only expert teams of manufacturers or technical services** have a complete overview and thus legislation is **heavily influenced by industry players**.

2. Current type approval system has weaknesses

Commercial relationships between stakeholders may give rise to **conflicts of interest**: Car manufacturers (OEMs) can choose from 28 different type-approval authorities and more than 300 technical services; **selection criteria** seem to include, inter alia, processing period, post-conformity audit rate, conflict-free cooperation and costs. **Some technical services** (responsible for testing or supervising tests) are **partly owned by the OEMs** or integrated into a national type-approval authority. **Expertise and financial resources vary greatly** between EU type-approval authorities, consequently also **quality standards** provided do. In the event of non-conformity, member states are **unable to take proper action** if they have not issued the type approval; this de facto hampers voluntary market surveillance programmes.

3. Inadequate testing

The currently used **driving cycle** NEDC does **not represent real-world driving** emissions. The **conventional testing methods** used in the type-approval process are **unable to detect illegal defeat devices**. Imprecise legal requirements lead to **vehicle optimisation on the test bench**.



In-service-conformity verification for passenger cars is **based on laboratory tests** at the manufacturer's test facilities. There is **no legal basis** for **mandatory testing under real-world driving conditions** by an **independent** third party. Additional voluntary market surveillance programs are rare due to high costs and lack of competence.

4. Recommendations

Streamline existing legislation and regulations:

- Provide a **clear structure** with **well-defined responsibilities** for member states, type-approval authorities, OEMs and technical services with specific competences;
- Set clear **quality standards** for the **type-approval process** as regards staff expertise and working process, e.g. harmonised fees, charging system, processing periods;
- Reduce the conflict of interest arising from commercial relationship by letting **type-approval authorities** (not the OEMs) **commission the technical services**. Technical services should have to conduct tests in their own independent facilities.



New WLTP test cycle:

- Clearly specify and provide **adequate definitions** of the **boundary conditions** that represent real-world driving conditions in the EU in the newly applied Worldwide Harmonized Light Vehicle Test Procedure (WLTP);
- Eliminate **conformity factors**, introduced to allow vehicles to emit higher emissions in real-world driving situations, over time.

Independent in-service-conformity (ISC) tests:

- **Re-test** vehicle emissions by **independent organisations**, such as environmental agencies and independent laboratories, using **PEMS** (portable emission measurement systems) in **real driving boundary conditions** that are representative for **normal vehicle use** in Europe.
- Ensure **funding** through a small registration fee **to finance ISC** in a manner that guarantees representative emission testing for the European vehicle fleet;
- Have the OEMs **publish the test results** for vehicles as well as vehicle test settings.

Impose clear sanctions on OEMs that fail to comply with emission legislation at EU level

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