Solutions to the failed system of vehicle testing

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The current system of emissions testing is not fit for purpose

Divergence of average real-world and test CO2 emissions

Comparison of real-world and test NOx emissions

T&E, 2013

ICCT, 2012
The introduction of WLTC only addresses a limited range of issues

Largely resolved

• Test cycle more representative
• Test procedures for ICE vehicles much more robust

To be resolved

• Date of introduction in EU
• Conversion of 2021 targets
• Administrative procedures in EU
• Hybrid and electric vehicle testing
• Phase 1b procedures

Unresolved

• Significant gaps between test and real-world emissions (>20%)
• Equivalent performance of production cars not guaranteed
• Testing framework inadequate
• Inappropriate basis for good consumer information
A strengthened framework to ensure environmental regulations are met on the road is essential.

| Type approval framework | • European Type Approval Authority with oversight of National Type Approval and Testing Authorities  
  • OEMs responsible for performance of the vehicle on the road for 5 years / 100k km |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Type Approval           | • Strengthened system of testing under WLTP  
  • No contractual relationships between OEMs and National Type Approval and Testing Authorities |
| Production conformity   | • 20% inspection regime including whole vehicle tests  
  • Performance within 4% of type approval for CO2 and air pollution emissions |
| In-service conformity   | • On-road vehicle PEMS testing and performance requirements for CO2 and air emissions |
| Periodic technical inspection | • Avoidance of OBD  
  • Strengthening of testing methods  
  • Real-world measurement of vehicle fuel economy? |
| Driver information      | • On-board information  
  • Car buyer information  
  • Advertising standards |
Real-world driving emissions tests must reflect the range of conditions experienced on the road and how the car is used

- “Typical driving” (normal boundary conditions) based upon WLTC parameters
  - Large number of tests (small families)
  - Testing of vehicles up to 5 years / 100k km
  - 2 tests with and without use of auxiliary equipment
- “Extreme driving” (extended boundary conditions):
  - High altitude, slopes, low temperatures, high speeds and instantaneous accelerations
  - Limited number of tests (larger families)
- Testing for full suite of air pollutants and CO$_2$
- Testing using PEMS
- EMROAD approach to adjust for driving style
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Conclusions

• The current system of emissions testing in the EU is not fit for purpose
• The introduction of WLTC only addresses a limited range of issues
• A strengthened framework to ensure environmental regulations are met on the road requires improvements to:
  – The framework and system of type approval
  – Increased conformity of production checks including whole vehicle tests
  – On-road in service conformity checks for vehicles up to 5 years old and 100k km using PEMS
  – Strengthened periodic technical inspection tests
• The European Commission is presently only focused on the introduction of WLP for CO2 and RDE for NOx emissions

"I'm sorry, It failed on a dodgy magic tree"