Your challenges
Regulators around the world are setting new and more stringent standards for automotive fuel efficiency and vehicle emissions that can contribute to the formation of greenhouse gases (GHGs).

For vehicle and component manufacturers, a principle challenge comes from the need to address emissions and fuel efficiency requirements that can vary widely from jurisdiction to jurisdiction. At the same time, further increases in vehicle fuel efficiency standards and more stringent limits on potentially harmful emissions present critical innovation challenges for manufacturers.

Why is emissions and fuel efficiency testing so important?
Complying with the varying emission standards is increasingly important for the following reasons:

- It eases the regulatory type approval or certification process for automotive manufacturers.
- It helps bring to market more energy-efficient vehicles based on innovative technologies.
- It provides consumers with more environmentally-friendly vehicles.

Therefore, the assessment of vehicle and engine performance under a range of simulated real-world conditions to test the emission and fuel efficiency is not only important for evidence of compliance with performance standards but also during the product development process. For example:

- Early testing to identify potential technical solutions, evaluate the relative effectiveness and help determine the best overall approach to achieve reduced emissions and increased fuel efficiency.
- Random testing conducted on production run samples to ensure that finished systems and parts perform in accordance with design specifications. Such post-production testing may also be required for conformity of production (CoP) documentation.
Which testing types help to ensure emissions and fuel efficiency?

The actual tests performed for emissions and fuel efficiency testing can vary depending on the technology and the applicable regulatory requirements. The evaluation usually includes testing that measures overall engine efficiency performance, the effectiveness of catalytic converters, particle traps and other emissions control devices, and a system’s response to alternative fuels.

WLTP

In addition to these tests, the Worldwide Harmonized Light Vehicles Test Procedure (WLTP), which is applicable in 11 countries including the EU, China, Japan, India and Korea, mandates the use of harmonised test procedures that can evaluate emissions and fuel efficiency in a consistently repeatable and reproducible manner. Specific assessments under the WLTP include exhaust gases concentrations, particulate mass and particulate number, CO₂ emissions, fuel and electrical energy consumption and electrical operating range. Testing cycles are generally determined by vehicle class (Class 1, 2 or 3), which are defined by the vehicle’s power/weight ratio.

RDE

The European Union’s recently enacted Real Driving Emissions (RDE) regulations also require the use of a portable emissions measuring system (PEMS) to measure vehicle pollutant emissions under actual driving conditions.

How can test procedures and frameworks be harmonised?

Although the WLTP and RDE regulations try to harmonise emissions testing procedures, actual testing policies and approaches may differ between individual testing laboratories, and between testing labs in different countries, potentially resulting in different test outcomes for the same vehicle.

TÜV SÜD’s Round Robin Tests

To address the challenges of achieving compliance with the WLTP and the RDE, TÜV SÜD works with partner testing laboratories in South Korea, China and Taiwan to closely harmonise emissions testing procedures. The goal of TÜV SÜD’s round robin testing program is to minimise the number of variables that can affect testing outcomes, thereby helping to ensure consistency in emissions results generated by multiple laboratories testing the same vehicle.

Testing laboratories that participate in the round robin tests have agreed to adopt standardised policies and procedures to ensure individual tests are conducted in the same manner, regardless of which laboratory is conducting the test. Testing laboratory personnel are also rigorously trained on testing protocols so that they perform testing in accordance with the established requirements to achieve consistent data, while reducing time and cost.
**Addressing the WLTP & RDE compliance challenge:**

**TÜV SÜD’s Round Robin Tests**

To achieve a substantially harmonised emissions testing procedure, TÜV SÜD conducts Round Robin Tests. This tests ensure that the multiple laboratories within the international TÜV SÜD network generate consistent results while testing the same vehicle according to the WLTP and RDE regulations.

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**WHERE DO THEY TAKE PLACE?**

TÜV SÜD owned and partner testing laboratories in China, South Korea and Taiwan.

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**WHAT ARE OUR GOALS?**

To reduce the number of variables that can affect testing outcomes and to ensure consistency in emissions results generated by participating laboratories testing the same vehicle.

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**ADVANTAGES AND CUSTOMER BENEFITS**

<table>
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<th>Standardisation across laboratories</th>
<th>Minimisation of human error</th>
<th>Minimisation of external impacts</th>
<th>Enhanced data consistency</th>
<th>Time &amp; cost savings</th>
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<tr>
<td>Harmonisation of testing policies and procedures</td>
<td>Intensive staff training that prevents different testing results</td>
<td>Creation of same framework conditions</td>
<td>Automotive manufacturers receive more consistent data on vehicle performance</td>
<td>Quicker and cheaper process in obtaining global regulatory approval for new vehicle models</td>
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**How can we help you?**

TÜV SÜD’s accredited, state-of-the-art testing facilities are located near major automotive development centres around the world. Each testing facility is equipped to conduct all essential emissions and fuel efficiency tests required for passenger and commercial vehicles and motorcycles in accordance with industry requirements, as well as national regulations and international standards, including the EU’s RDE regulations and the WLTP.

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With the results of the TÜV SÜD round robin tests we can offer worldwide harmonised emissions and fuel efficiency testing procedures and ease market access for global manufacturers. TÜV SÜD’s technical experts are also well-versed in the latest automotive and engine advances, and can assist you in your efforts to bring new technologies to market.
Our emission testing services
TÜV SÜD emissions and fuel efficiency testing services include:

- **Real driving emissions (RDE) testing**
  Correlation tests using portable measuring equipment and real road tests, consistent with the requirements of the EU’s RDE regulations.

- **Worldwide harmonized light vehicles test procedures (WLTP)**
  Testing and certification of new vehicle types starting in 2017 for CO₂ and exhaust emissions.

- **InMotion testing**
  This includes vehicle measurement on the road, route digitisation and validation of speed profile, and real-life driving simulation under reproducible conditions.

Your business benefits

- **Save time and money** – by obtaining comparable emissions testing results through internationally harmonised test procedures.

- **Minimise risks** – by ensuring compliance with regulatory requirements and industry standards for automotive emissions and fuel economy.

- **Access multiple markets** – by streamlining the homologation process and gaining multi market access within a single project while working together with an international expert and laboratory network.

- **Gain a sustainable, competitive edge** – by leveraging TÜV SÜD’s automotive industry expertise to develop innovative automotive products of the highest possible quality.

Why choose TÜV SÜD?
For more than 100 years, TÜV SÜD has been the preferred testing and certification partner for automobile and automotive component manufacturers worldwide. Our state-of-the-art testing facilities, combined with our global network of technical experts, can provide your company with a single source solution for achieving compliance with all applicable regulatory requirements, standards and voluntary industry schemes. In addition, TÜV SÜD technical professionals are actively involved in international standards development activities, providing our clients with the most up-to-date knowledge of current and future requirements.

The TÜV SÜD brand and our distinctive blue octagon mark are instantly recognised around the globe as symbols of quality and safety, and will increase customer confidence in your brand.

Choose certainty. Add value.
TÜV SÜD is a premium quality, safety, and sustainability solutions provider that specialises in testing, inspection, auditing, certification, training, and knowledge services. Represented in over 850 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East, Asia, and Africa. By delivering objective solutions to our customers, we add tangible value to businesses, consumers, and the environment.

Related services

- International homologation and type approval
- Multi-regulation management
- CCC mark for the Chinese market
- Brazil INMETRO certification