

# AKKA

PASSION FOR  
TECHNOLOGIES



## EMISSION TESTING AND ENGINEERING

### ON THE ROAD AND THE TEST BENCH

Our drive train test bench is used to simulate parameter influences such as route, driving aggression, temperature and fuel on the emissions of vehicles for our customers and, from this, to develop an approach for their sound application.

#### OUR CORE COMPETENCIES

- Basic set up and piping
- Initial WLTC testing (Worldwide Harmonized Light Duty Test Cycle)
- PEMS validation (Portable Emission Measurement System)
- Pre-processing
- Route definition and road testing
- Post-processing
- Reporting
- Calibration support

#### ADDITIONAL DEVELOPMENT SUPPORT

- Transfer of trips to road-to-rig test bench
- Variation of boundary conditions, as well as driver index
- Creation of synthetic cycles for the drive train test bench  
“Worst-case” scenarios/Replacement cycles
- Use of in house tools for driver support and evaluation
- Creation and use of customer-specific tools for the application of emissions
- Application recommendations for sound RDE emissions (Real Driving Emissions)

### OUR VALUES

We provide a whole host of services and use both synergies and our extensive experience to deliver superb results from one provider that meet the highest of standards.

Our strengths include:

- Calibration: Emissions, driveability, OBD and OBD documentation
- Consulting
- Tailored tool development
- Design engineering
- Verification: Certification, height, cold, heat, hybrid/eDrive, HiL/SiL, engine test benches, emission exhaust roller dynamometer test benches, road-to-rig test bench, exhaust gas turbo-charger test bench, EMC testing, HV component testing



Automotive



Aerospace



Railway



Energy



Life Sciences



Telecoms



Space



Services and Informations Systems



Defence



Oil and Gas



Consulting



## OUR EXPERTISE

### EMISSION MEASUREMENT IN DRIVING MODE

- PEMS set up with PN (Particle Numbers)
- Varied route portfolio
- Turnkey delivery of complete package
- PEMS validations

### TOOLS

- Driving style analysis, evaluation and classification tool (driver, traffic) incl. test classification
- Statistical driving cycle analysis and RDE-specific calibration recommendation tool (e.g. EGR)
- RDE post-data processing, evaluation tool



### ROAD-TO-RIG TEST BENCH

- Realistic synthetic RDE journeys
- Variation of load, vehicle mass and temperature
- Slope, slip and friction simulation
- Pedal robot or e-accelerator pedal

## EXAMPLE OF A TURNKEY RDE MEASUREMENT

### VEHICLE SET UP

- Procurement/modification of exhaust gas piping for installation of exhaust flow meter (EFM) and exhaust gas removal
- Procurement/modification of housing for EFM and exhaust gas removal
- Assembly of Gas/PN-PEMS, as well as EFM at/in vehicle and installation of measurement technology
- Approval of test setup by technical service (TÜV/Dekra)

### PRE-PROCESSING

- Load adjustment on certified exhaust roller dynamometer test bench (min./max. overall vehicle resistance)
- Determination of characteristic CO<sub>2</sub> curve, as well as Veline equation via WLTC cycle
- Cross-reference measurement of stationary exhaust gas measurement system (AMA) for portable emission measurement technology

### RDE MEASUREMENT ON THE ROAD

- Testing on a number of different RDE-compliant routes in and around Stuttgart
- Variation of driving and gear skitting dynamics (economical, normal, sporty)

### POST-PROCESSING

- Evaluation of testing program and joint discussion
- Final WLTC testing, incl. cross-reference comparison

### RETRO-MODIFICATION AND RETURN OF VEHICLE