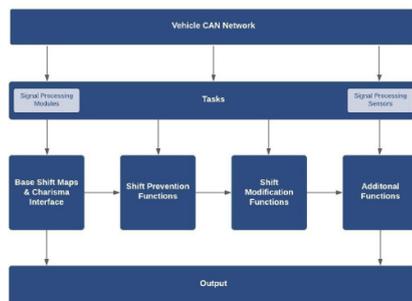
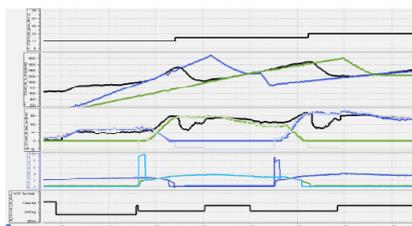


## Transmission Calibration



Transmission software



Data analysis

### Vehicle Drivetrain Optimisation

With a rich heritage and wealth of experience in developing high performance powertrains from concept through to production, MAHLE challenges the view that performance and economy and competing objectives.

By drawing on our involvement with many modern powertrains currently in the marketplace, MAHLE Powertrain are able to combine a deep understanding of each component; with a holistic, whole-system engineering approach that recognises the complex interactions that can occur between them. Through honing our skills and extending our knowledge, MAHLE Powertrain is able to extract the full potential from every component and control system. We are recognised throughout the industry as experts in powertrain development and calibration providing the foundation for our ability to deliver the optimum solutions for vehicle performance, emissions and driveability.

### Capabilities

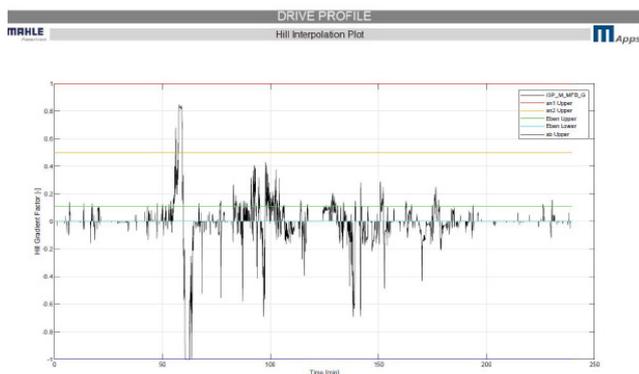
- Adaptive shift strategy calibration
- Emissions & RDE optimisation of transmissions functions for all markets
- OBD calibration & development
- Engine interface & calibration expertise
- All vehicle powertrain configurations
- Conventional IC Engine
- Mild hybrid
- Plug-in hybrid electric vehicle
- Electric vehicles
- Comprehensive testing & validation support
- Project management from concept to production ready calibration
- Supplier management of shift quality requirements



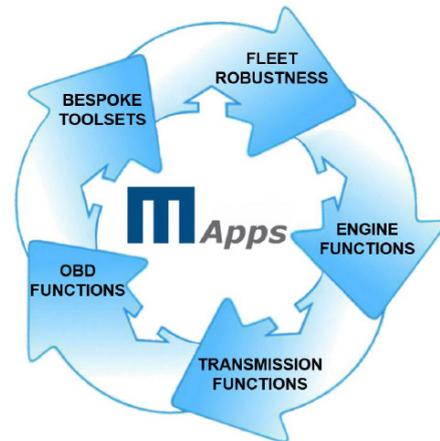
Driveability, emissions & OBD expertise  
Powertrain development & validation

## Robustness

- MAHLE Applications (MApPs) toolset developed to integrate into all phase of transmission development program to support key work packets
  - › Transmissions calibration & development
  - › Development & validation of OBD functionality
  - › Shift energy management
  - › Evidence gathering to support legislative compliance
  - › Support decisions for new requirements & features
  - › Tailored to customer requirements & can cover PHEV & BEV applications
- Transmissions & driveline hardware
  - › Thermal validation & calibration
  - › Instrumentation & validation of components for in vehicle testing



MApps hill interpolation analysis



MAHLE Applications

## Summary

MAHLE Powertrain's transmissions calibration team provides expertise in driveability, emissions and OBD, as well as whole powertrain development and validation. We take a 'no-compromise' approach, delivering the maximum performance, highest efficiency and best durability for the lowest emissions and at the lowest cost.