



Powertrain Benchmarking Services

Applus IDIADA is an independent engineering company in which testing has always been a key activity in our development projects. Our deep knowledge of state-of-the-art vehicle functionalities, attributes, and systems, together with our extensive experience managing first-class laboratories, allows us to make the difference when providing comprehensive powertrain benchmarking services.

By combining objective and subjective methodologies, and integrating test track and chassis dyno with our simulation capabilities, Applus IDIADA is able to provide benchmarking services focused on the customer area of interest among other attributes, as well as on the investigation of new powertrain technologies, offering a highly flexible customer-oriented approach and covering all powertrain technologies on the market (ICE, HEV, PHEV, BEV, FCEV, etc.)

TEAM AND TECHNICAL SCOPE

PROJECT MANAGEMENT:

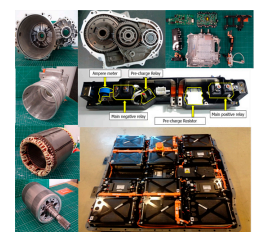
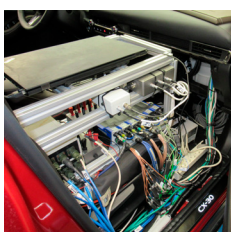
- Research, selection and rental/purchase of benchmarking vehicles
- Logistics and spare parts management
- Committed multidisciplinary team of skilled powertrain engineers and technicians
- International presence in more than 20 countries

VEHICLE CHARACTERIZATION:

- Detailed component and circuit analysis
- Tailored high-voltage systems instrumentation
- ICE systems comprehensive instrumentation
- CAN bus and OBD data acquisition
- Teardown analysis: Bill of materials and design information
- Circuit and connectivity analysis
- Identification of innovative technologies
- Reverse modelling from test data

TESTING CAPABILITIES:

- Complete evaluation of exhaust aftertreatment performance and emissions
- Energy consumption and range evaluation on real road routes and laboratory driving profiles with single time vector data
- Performance characterization: acceleration performance data and metrics assessment (brake regen, de-rate strategies, etc.)
- Driveability assessment and functional analysis
- Efficiency and power specific maps from steady testing
- Thermal management studies (cooling and HVAC performances, thermal regulation) on climatic wind tunnel, test tracks and on field
- AC/DC charging power profiles and efficiencies. High Power Charging at extreme temperatures (-30°C to 50°C)
- Running resistance investigation
- Energy split-up, strategy identification and sensitivity analysis
- Consumption and performance simulation for improvements on the vehicle, components or energy management strategies



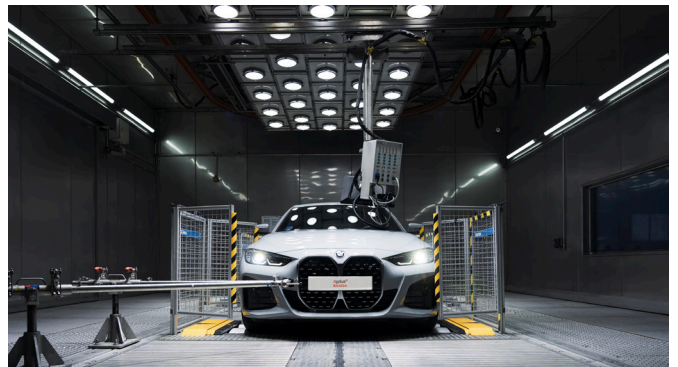
TEST VEHICLES

- Passenger cars (all segments)
- Light commercial vehicles
- Buses and coaches
- Heavy-duty trucks
- ICE, BEV, HEV, PHEV and FCEV powertrains
- Motorcycles
- All kinds of transmission systems
- All kinds of fuel systems



FACILITIES AND EQUIPMENT

- Comprehensive proving ground complex with ideal and stable weather conditions throughout the year
- Full equipped workshop areas for vehicle preparation and instrumentation
- First-class chassis dynamometers and emissions test cells
- Portable emission, fuel, and electric energy measurement systems
- Climatic chamber with 4WD chassis dynamometer and emissions measurement equipment fulfilling worldwide regulations
- Climatic Wind Tunnel with chassis dyno for passenger cars and heavy duty vehicles
- Charge/discharge test equipment for cells, modules, and battery systems
- Dedicated multi-standard charger laboratory
- Tyre rolling resistance laboratory
- Brake emissions test laboratory
- Full capabilities for data logging, external instrumentation, CAN, and OBD acquisition



CONTACT INFORMATION

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