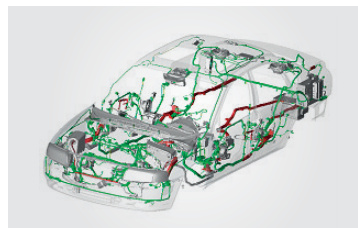# Electronics Development & Validation services

The ever growing complexity of automotive electronics requires new and innovative approaches to design, develop and validate components and systems. IDIADA provides comprehensive, cost effective and efficient solutions to fully satisfy our clients' requirements.

We provide customized and individualized EE services covering all stages of the development V cycle - from the functional requirements to final validation. Our experience in electronics combined with IDIADA's broad knowledge of vehicle level functionalities provides a unique one stop shop for vehicle EE systems.

Electric & Electronic Architecture

- Requirements capture and analysis
- Features analysis
- Power management and distribution
- Definition of vehicle network topology
- Wiring harness benchmark, design and development
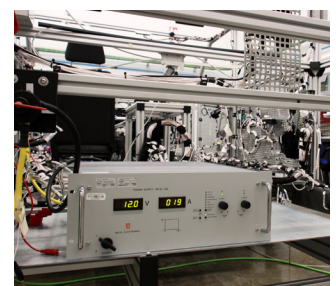- Component and system integration

Software & Rapid Prototyping

- ADAS functions
- Engine management systems
- Infotainment systems
- After-treatment systems
- HEV-EV powertrain controls

- Gateways and BCM
- Design and validation processes according to ISO 26262 for critical safety applications
- Rapid prototype controls using Model Based Design and off-the-shelf prototype ECUs
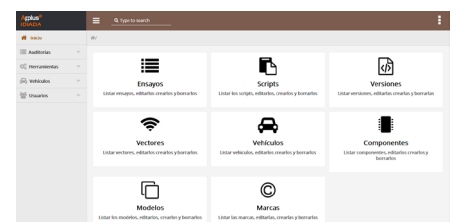

XiL & Vehicle Validation

- SiL & MiL: Simulation tools for engine management, ADAS and vehicle dynamics model and software testing
- HIL: Component and system HIL benches, integration benches for full vehicle architecture and test cases preparation
- Component: Environmental tests of humidity, vibration and temperature; EMC chambers for components and customized break out boxes
- Vehicle: DVP preparation, state of the art proving grounds and test tools: ADAS, ESP, ABS..., full vehicle test facilities: emissions, HEV, climatic chamber, sun simulation, crash lab and EMC
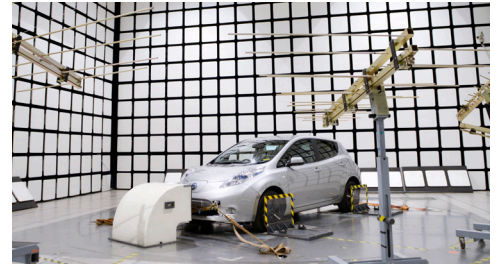- Design, construction and operation of components and HIL integration benches

Functional Safety & Cyber Security

- Concept phase
- System development
- Design and validation processes according to ISO 26262
- Cyber Security penetration tests and Threat Analysis Risk Assessment (TARA)

EMC

- Radiated emission
- Radiated immunity
- EV tests
- Radiated immunity/emission charging mode
- Harmonics and AC power supply fluctuations
- Conducted immunity over DC/AC lines

Infotainment & HMI

- Infotainment architecture design, functional definition and supplier management (requirements management, HMI concept supervision) and functional and integration testing
- HMI design and development: HMI design and system integration and remote monitoring (via smartphone apps)
- New Driving Simulator will provide the perfect conditions for Human Factor approaches (DiL), i.e., Human Machine Interaction design, new dashboard concepts assessments, identification and detection of driver states trials (biotelemetry) and HAD/AD Intention of use and user experience studies.

Vehicle connectivity

- ITS V2X network according to European and American standards (Wi-Fi 802.11p)
- Vehicle connectivity testing (vehicle to cloud, Cyber Security) in a controlled environment.
  Proprietary Mobile Network including new 5G technology
- Testing and validation of ERA-GLONASS and eCall systems for both component and vehicle levels

ADAS & Automated Driving

- Benchmark
- System specifications
- Development
- Prototyping

- Testing
- Integration
- Validation
- FOT- Field Operational Testing

- Supporting the definition of testing methodologies, regulations and standardisation of automated driving vehicles in the world
- IDAPT: multi-purpose development tool for ADAS, connected and autonomous vehicle developments
- Design of proving grounds for automated driving
- Active participation in the most advanced European R&D projects and activities

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www.idiada.com