



# AUTOMOTIVE ELECTRONICS DEPARTMENT

Driving Excellence:  
Your Trusted Partner in Homologation and Engineering Services



# Certification & Homologation Services

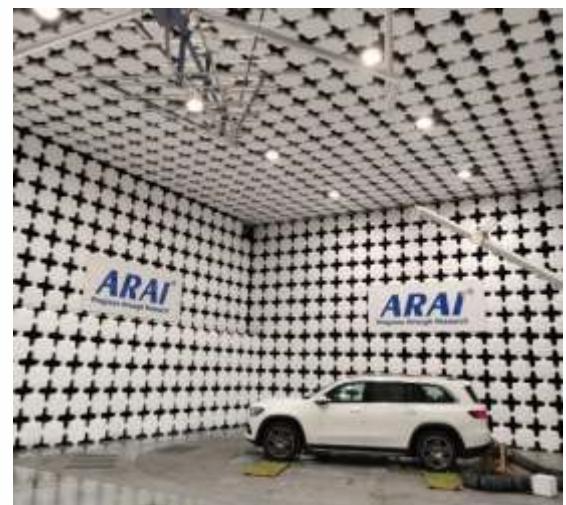
The regulatory environment within the automotive industry is currently undergoing a rapid and intricate transformation, driven by a pressing need to integrate advanced connected and autonomous driving capabilities, while simultaneously transitioning away from traditional combustion engine vehicles to embrace electric and fuel cell electric alternatives. This dynamic shift is presenting unparalleled complexities and challenges within the regulatory sphere.

Our offerings encompass a broad spectrum of certification expertise, a comprehensive array of homologation endeavours, and thorough guidance on regulatory requirements.

- Vehicles, Electronic Sub-Assemblies (ESAs) for Electromagnetic Compatibility (EMC) as per AIS-004 (Part 3)/ECE R10
- Electric Powertrain of Motor Vehicles with respect to safety requirements as per AIS-038, AIS-156
- Electrical Energy Consumption, Range and Power as per AIS-039, AIS-040 and AIS-041
- Safety Requirements of REESS as per AIS-156 and AIS-038.
- Motor Powertrain as per AIS-041
- Vehicle Alarm System (VAS) and Immobilizer as per AIS-076
- Additional Safety Features as per AIS-145
- EVSE as per IS 17017/IEC 61851 series
- Intelligent Transportation Systems (ITS) – Vehicle Location Tracking (VLT) and Emergency Button along with their Backend as per AIS-140/IS 16833.
- LED Destination Board Systems for Buses (LDBS) as per IS 16490
- Construction Equipment Vehicle Testing as per ISO 13766.
- Transportation Testing for Lithium Batteries and Cells as per UN 38.3
- Testing of Lithium Ion Cells as per IS 16893
- Certification/Evaluation as per various Government schemes/initiatives
- Approval of vehicles with regards to Software update and Software updates management system
- Approval of vehicles with regards to Cyber Security and Cyber Security management system



Our test infrastructure complies with global automotive regulatory standards, providing our clients with the most efficient path to achieve market compliance.



# Automotive Electrical and Electronics Components

## Reliability and Validation

### Comprehensive Test Facility for EMC, Safety & Environmental Validation

#### EMC Engineering Services

Vehicle and Component/Sub Assembly Test Facilities are accredited for all major automotive OEM standards as well as regulatory requirements

#### Electromagnetic Field Exposure Measurements

Evaluation of Electromagnetic Field Exposure across various frequency spectrum due to increased use of wireless connectivity, radar sensors, electrification etc.

#### Environmental Engineering Services

Climatic, Vibration, Shock and Combined Environment conditioning as per bespoke OEM standards & international standards to simulate real world conditionsimulate real world condition

#### Highly Accelerated Life Test Facility

To uncover potential weaknesses rapidly by subjecting to stresses beyond operational range

#### Pre Compliance & Full Compliance Support

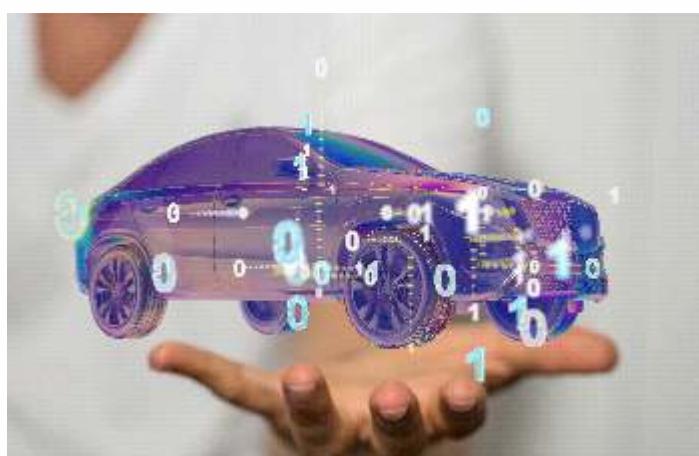
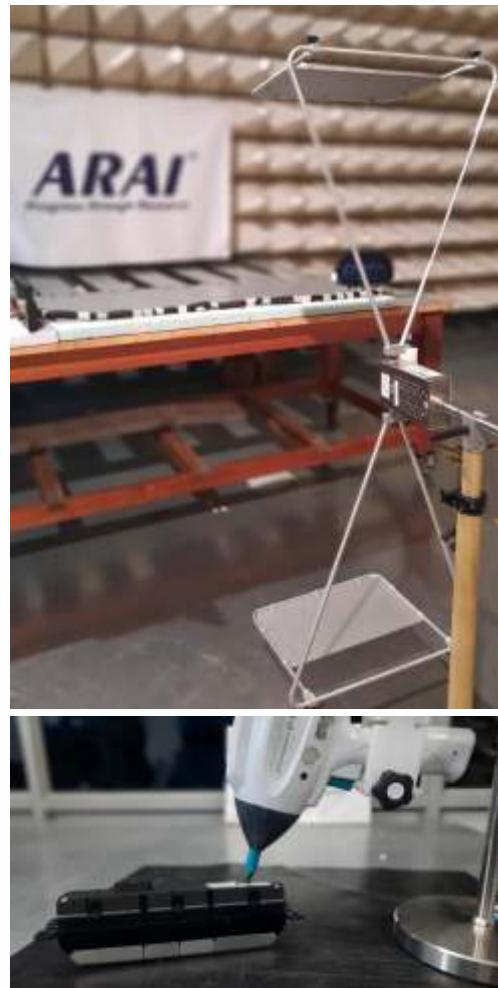
Design Consultancy/Improvement  
Failure Analysis

#### Functional Safety Assessment

Automotive Cyber Security Services

#### Assistance and Reviews during Product Development

Benchmarking Services



# CENTRE OF EXCELLENCE FOR xEV DEVELOPMENT, TESTING AND EVALUATION

## Services & Facilities

Advanced Battery Test Lab  
Comprehensive Cell, Module and Pack Level Tests



Concept Development & Evaluation  
Benchmarking

e-Motor Test Bed with  
Climatic Chamber

Calibration using HIL, Dyno and Road



Component/System Performance -  
Validation and Durability Testing & Certification

System Simulation & Demonstration

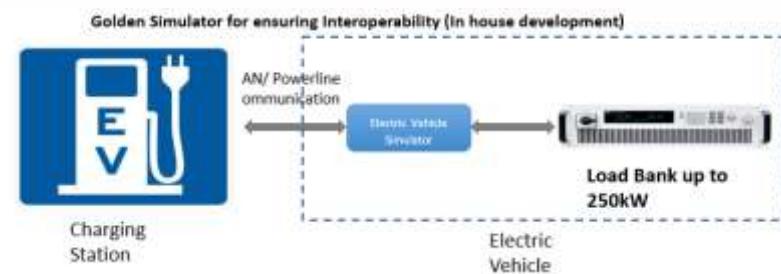
Battery Simulator

Battery Cell Tester



## EV CHARGING – INFRASTRUCTURE SERVICES

- EV Charger Technology know-how Transfer
- EV and EVSE Simulation for Interoperability
- Development of Charger Control Unit for EV
- Charger Testing and Validation
- Grid Compatibility Testing
- OCPP Back End Simulation



ARAI developed AC and  
DC chargers for Indian operations

