Advancing the Autonomous Vehicle Ecosystem

The rapid innovation of advanced driver assistance systems (ADAS) and communication technologies demand a rigorous testing regimen during different stages of the design life cycle. Keysight provides the expertise across these technologies to help you realize your vision of connected mobility.

Automotive Cybersecurity

Test Platform
Validate the robustness of your AV against cyberattacks

Automotive In-Vehicle Network

Validate enhanced-Ethernet, time-sensitive networks

Automotive Ethernet and Automotive SerDes Compliance Test Solution
Ensure data integrity in your in-vehicle networks, engine control unit (ECU) testing, protocols, and automotive connectors

Connected Car

V2X and C-V2X Test Solutions
Perform RF, protocol, and application-layer testing against the evolving standards

Radar Scene Emulator
Test radar-based autonomous driving features

Radar Target Simulator
Perform emission and interference testing to meet industry conformance standards

R2X and C-R2X Test Solutions

Address the test challenges within the automotive development cycle, from module to systems.

System layer
- Requirements analysis
- System design
- Sub-system design
- Module design
- Module implementation
- System test
- Integration test
- Functional test
- Module test
- Sub-system design
- System design
- Requirements analysis
- System layer

Module layer
- Functional test
- Parametric and transport test
- Generation of real signals
- Simulation of real-world scenarios
- Integration with any validation environment
- OTA / antenna test
- Propagation / fading
- Vehicle road testing
- Drive test with prototype vehicle
- Test scenarios on track and real road

Sub-system layer
- ECU mapping / simulation / testing
- Functional test with closed-loop testing
- Functional test with closed-loop testing
- Real-world scenarios
- Integration and sys validation environment
- Lab-to-field / offline / online test

System layer
- Model-in-the-loop testing
- Functional test of module
- Requirement test
- Hardware-in-the-loop
- Iteration
- Trajectory modeling
- Use software to model different scenarios
- System / sub-system design
- System modeling / simulation (RF)
- Modulation / comms / radar

Figure 1. The V-model provides an effective guidance for the design, implementation, integration, and testing of ADAS and AV designs

Get into the fast lane today with the latest technical resources on autonomous driving:
www.keysight.com/find/autonomous-driving

Product specifications and descriptions in this document subject to change without notice.

©Keysight Technologies, Inc. 2019 / 2022, Printed in USA, June 27, 2022   I   7122-1046.EN

PARKING ASSISTANCE
LANE CHANGE ASSISTANCE
ZONE 1
SWITCH
ZONE 2
SWITCH
ZONE 3
SWITCH
ZONE 4
SWITCH
CPU
GPU
POWER STEERING, POWER SEAT CONTROL
TIRE PRESSURE MONITORING
REARVIEW MIRRORS REPLACED WITH CAMERAS
INFOTAINMENT
ADAPTIVE LIGHTING
ANTI-LOCK BRAKING
V2X
CLIMATE CONTROL
POWER TRAIN

LEGEND
CAN
AUTOMOTIVE ETHERNET
100 MBPS
AUTOMOTIVE ETHERNET
1 GBPS
AUTOMOTIVE ETHERNET
10 GBPS
> 10 GBPS SERDES
RADAR LIDAR
CAMERA
IxNetwork
Validate enhanced-Ethernet, time-sensitive networks

Automotive Radar
Signal Analysis and Generation Solutions
Meet quality and performance for automotive radar