

# Keysight Technologies

## Automotive Modeling Challenges



### CHALLENGE 1

Explore the design architecture to account for a time-varying channel as vehicles move in their environment.

#### PAIN

Simulation does not account for the time-varying nature of a channel, or parameters such as propagation loss and doppler shifts, which vary over time.

#### SOLUTION

The SystemVue and STK integrated virtual platform enables dynamic co-simulation analysis. STK provides dynamic 3D scenarios, while SystemVue provides sophisticated Tx/Rx modules.

### CHALLENGE 2

Evaluate design solutions for different driving scenarios.

#### PAIN

It's difficult, and sometimes not even possible, to incorporate the vehicle's environment (e.g., rural, urban, or highway scenarios) into design analysis.

#### SOLUTION

With SystemVue and the STK dynamic channel environment characteristics, many types of automotive driving scenarios and communication links, like Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I), can be included in simulation.

### CHALLENGE 3

Include the antenna's physical effects (e.g., the antenna gain pattern) in the system design.

#### PAIN

A mounted vehicle antenna pattern differs from that of an unmounted antenna pattern because of the effects of the car's body.

#### SOLUTION

SystemVue antenna gain patterns, coupled with vehicle location information provided by STK during simulation, enable a precise accounting of the antenna pattern effects on the communication system's performance.

1. AGI STK Software Technology is only available to select countries.

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