

# Methods for Testing Automobile Lighting, Safety, and Infotainment



## Learn How to Resolve a Test Challenge That's Driving You — Download our Applications e-Kit

[www.keithley.com/automotive/lighting](http://www.keithley.com/automotive/lighting)

Today's automobiles increasingly feature sophisticated and complex lighting, radar, safety, information, and entertainment systems. And, while these technological advances contribute immensely to overall vehicle safety and intelligence, they also introduce new testing challenges that may not previously have been a factor. Download this free applications e-Kit to learn more about these test issues, as well as instrumentation and methods for resolving them, including:

### ■ Developing Critical Safety Systems

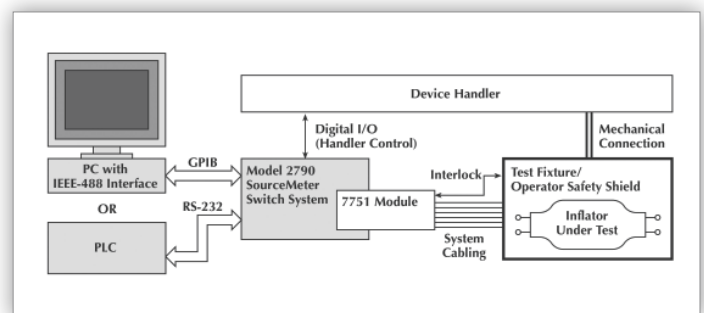
- Collision avoidance and adaptive cruise control system test
- Airbag inflator and seatbelt pre-tensioner actuator test
- Tire pressure monitoring system test
- Controlling electromagnetic interference (EMI) and complying with electromagnetic compatibility (EMC) standards

### ■ Enhancing the Passenger Experience

- Wireless in-vehicle communication and entertainment system development
- Quality audio system design and test
- Production testing for automobile speakers

### ■ Designing High Reliability Lighting Systems

- LED array characterization and test



Typical Dual Inflator Test

# DC and AC Lighting, Safety, and Infotainment Testing Solutions for Today's Automobiles



## Testing LED Headlamps

Series 2600 and Series 2400 SourceMeter® SMU Instruments

- Four quadrant voltage/current sources
- Internal scripting for fast automated testing



## Airbag Inflator Test Solutions

Model 2790 SourceMeter Airbag Test System

- One-box, source-switch-measure solution
- Test four inflators with one setup

## Developing, Testing, and EMC Pre-Compliance Evaluation of RF Safety Systems and RF Communication Systems

Model DPO7000C Digital Phosphor Oscilloscope

- Sample waveforms at rates up to 40Gsamples/second
- Detect random events with 1400 trigger options

MDO4000B Series Mixed Domain Oscilloscopes

- Time-correlated analog, digital, and RF signal acquisitions
- Spectrum analysis bandwidth up to 6GHz

RSA5000B Series Real-Time Spectrum Analyzers

- Capture transients as short as 2.7 $\mu$ s
- 165MHz acquisition bandwidth and 26.5GHz frequency range

SignalVu-PC Vector Signal Analysis Software

- Time-correlated, multi-domain displays
- WLAN transmission power and modulation analysis

## Designing and Testing Automotive Audio Systems

AFG3000C Series Arbitrary Function Generators

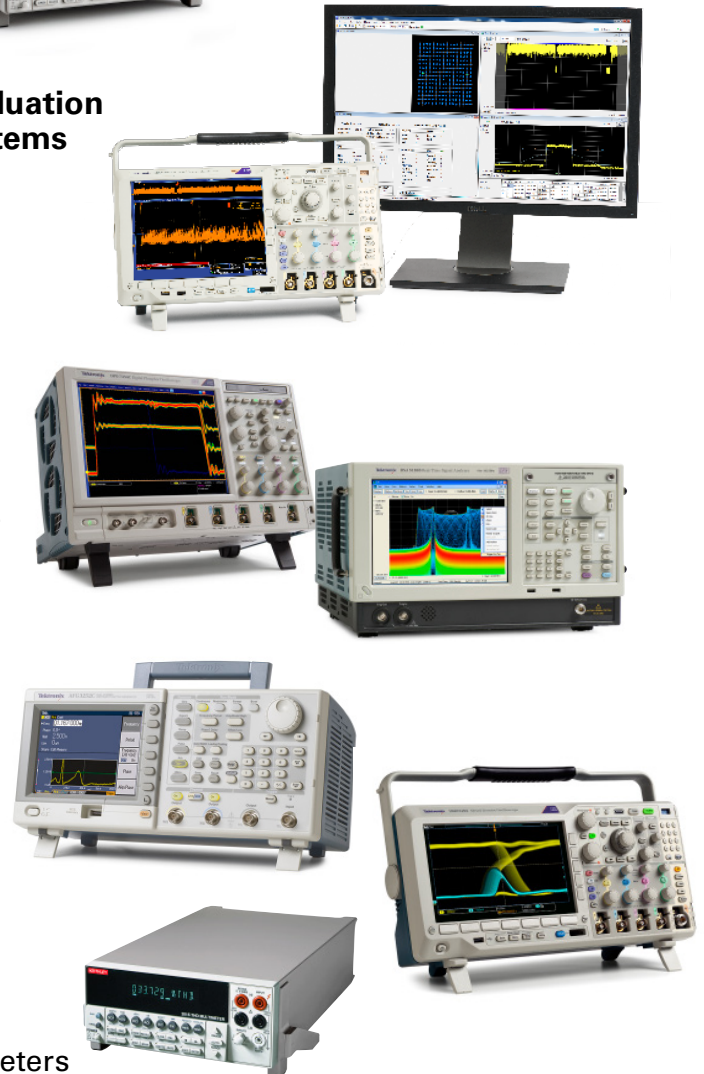
- Two-channel versions for stereo system test
- Arbitrary waveforms up to 128k samples long with sample rates of up to 2Gsamples/s

MDO3000 Series Mixed Domain Oscilloscopes

- Two or four channels with bandwidths up to 1GHz
- Built-in spectrum analyzer with up to 1GHz bandwidth

Model 2015 and Model 2015-P Audio Analyzing Multimeters

- THD, THD + noise, SINAD measurements
- Fast frequency sweeps for fast production testing



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