Automotive

INVITATION

ROHDE&SCHWARZ
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AUTOMOTIVE TESTING SEMINAR

May 24th 2023
Porto
Fundação Dr. António Cupertino de Miranda

To face the challenges of testing and validating technological innovations in the automotive industry, Rohde & Schwarz Portugal is pleased to invite you to participate in our Automotive Testing Seminar, on the next day:

Thursday, May 24th, 2023, from 9:00 to 17:00
at the Fundação Dr. Antonio Cupertino de Miranda, Porto

For this edition, we will present a whole series of conferences on important current topics, such as:

- Advances in C-V2X and Automotive Communications.
- Automotive Ethernet and Next-Gen In-Vehicle Network Architectures
- Game changing solutions for automotive radar testing
- Cost-effective automotive radome and bumper testing

You will also have the opportunity to talk with our experts during our product demonstrations in the exhibition area.

This seminar will be presented in English.
Participation is free. Limited seating.

Register now. **Click here**

Your team Rohde&Schwarz

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AGENDA

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Time	Program
09:00 – 09:15	**Welcome & Registration**
09:15 – 09:30	**Introduction** Carlos Roxo, Rohde & Schwarz Portugal
09:30 – 10:15	**Automotive Ethernet Testing/ Next Gen In Vehicle Networks** Tommaso Tessitore, Oscilloscope Sales Specialist, Rohde & Schwarz Italy
10:15 – 10:45	**Coffee-Break**
10:45 – 11:30	**Programmable Bidirectional Power Supplies for Testing HV- and LV Automotive Equipment** Angel Roldan, Regional Sales Manager Iberia, EA Elektro-Automatik
11:30 – 12:00	**Test Methods Optimization for Automotive Infotainment Systems** João Queirós, R&D Technical Manager, CONTROLAR
12:00 – 12:45	**Advances in C-V2X and Automotive Communications** Holger Rosier, Technology Manager, Rohde & Schwarz
12:45 – 14:00	**Lunch**
14:00 – 14:45	**Key Connectivity Trends for Automotive – A Rohde & Schwarz Perspective** Colm Mulligen, Market Segment Manager, Rohde & Schwarz
14:45 – 15:30	**Automotive Radar Object Simulation** German Martin, Application Engineer, Rohde & Schwarz Spain
15:30 – 16:00	**Cost-effective Automotive Radome and Bumper Testing** German Martin, Application Engineer, Rohde & Schwarz Spain
16:00 – 17:00	**Demonstrations of Automotive Solutions in the Exhibition Area**

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Automotive Ethernet Testing/ Next Gen In Vehicle Network

Speaker: Tommaso Tessitore, Oscilloscope Sales Specialist, Rohde & Schwarz Italy

Applications such as Autonomous Driving (AD) and 5G connectivity are driving the demand for higher and automotive higher bus speeds and Ethernet such as 2.5/5/10GBASE-T1 is expected to become the de-facto communication standard for in-vehicle networks. During this presentation, we will review these developments and explain how in-vehicle networks will evolve over the next 10 years including domain and zonal controller architecture. We will also discuss test challenges that arise with these new architectures and how to meet them.

Programmable Bidirectional Power Supplies for Testing HV- and LV Automotive Equipment

Speaker: Angel Roldan, Regional Sales Manager Iberia at EA Elektro-Automatik

High- and low-voltage equipment such as on-board chargers, DC-DC converters, traction inverters, battery-management systems as installed in electrical vehicles (HEV, PHEV, BEV) require intensive validation-, performance- and safety testing prior to their integration. EA-Elektro-Automatik's range of programmable bidirectional power supplies are suitable to efficiently test all automotive devices for voltages as of 3,2V through 2000V and currents of up to several thousand Amperes. In load-mode, these are regenerative, so the energy taken from the equipment under test is converted into AC and feed back into the mains supply, reducing the total cost of ownership.

Test Methods Optimization for Automotive Infotainment Systems

Speaker: João Queirós, R&D Technical Manager, CONTROLAR

The increasing complexity of electronics automotive products is driving up the complexity and cost of testing. To ensure product quality, manufacturers must invest in advanced equipment, specialized expertise, and comprehensive testing protocols, which can be expensive and time-consuming. Sequential, parallel, and concurrent test methods are three different approaches for testing that
can be used to improve testing efficiency and effectiveness.

This presentation will show how the concurrent and parallel test methods perform, in comparison with the traditional sequential test method, by using a case study for infotainment End-of-Line (EoL) testing for Visteon. Although the concurrent test method can be a more effective and efficient approach for testing electronics automotive modules, it may require more resources and have a higher initial cost, that can be shortly compensated. Manufacturers may need to consider trade-offs between cost and effectiveness, when deciding which testing method to implement.

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Advances in C-V2X and Automotive Communications
Speaker: Holger Rosier, Technology Manager, Rohde & Schwarz

Cellular-V2X promises to make driving safer, more efficient and it is critical for the implementation of Advanced Driver Assistance Systems (ADAS). However, it also brings new challenges to maintain reliable connectivity between vehicles, infrastructure, pedestrians and other road users and ensure the correct operation of ADAS features. In this presentation, you can learn about the latest developments in LTE and 5G C-V2X standards in accordance with organizations such as 3GPP, ETSI & C-SAE and obtain an overview of the very dynamic regional and global market. In addition, get insights into C-V2X network architecture as well as messaging, RF, protocol and TCU application testing..

Key Connectivity Trends for Automotive – A Rohde & Schwarz Perspective
Speaker: Colm Mulligen, Market Segment Manager, Rohde & Schwarz

We will provide an overview of the key connectivity technologies and some of the main trends which will require investments in the coming years:
- Non Terrestrial Networks (NTN) offer the ability to keep cars connected outside of tradition cellular coverage
- Satellite positionings systems will play an increasing role in support Autonomous driving functions, High Precision GNSS is one example for such a technology to enable reliable positions on lane level
- Next Generation eCall requirements driven by some regions outside Europe, Europe still required 2G and 3G Homologation
- Ultra Wide Band in combination with Bluetooth Low Energy will play an increase role for Vehicle Access and other applications in the coming years
- 5G FR1 gains traction in market but LTE remains as a key technology over the coming decade.

Automotive Radar Object Simulation
Speaker: German Martin, Application Engineer, Rohde & Schwarz Spain

Radar sensor makers and OEMs face different challenges in high-volume manufacturing and final inspection tests of advanced driver assistance systems. The increasing number of radar-based systems per car requires a reliable and flexible test concept to ensure continuous product quality control.

To address these challenges, Rohde & Schwarz offers the R&S®AREG100A automotive radar echo generator, designed especially for production testing of automotive radar sensors. This powerful tool provides reliable and flexible echo generation for both short range and rong range radar sensors tests and can simulate individual radial velocity for each artificial object.
In combination with R&S®QAT100 R&S solutions offers the possibility of generating moving targets without requiring any physical movement ensuring high resolution, high speed and high repeatability.

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Cost-effective Automotive Radome and Bumper Testing
Speaker: German Martin, Application Engineer, Rohde & Schwarz Spain

Accurate testing of radomes and bumpers in the radar frequency range is very important for the automotive industry. Low-quality radomes can cause significant signal impairment, resulting in angular errors, distortions, and strong signal attenuation.

The R&S®QAR provides a unique and powerful way to measure the inhomogeneity of the reflectivity of the radome, making transitions between areas of high and low reflectivity visible and helping to produce radomes with less impact on angular accuracy.
Bumpers, on the other hand, are usually molded out of a single layer of plastic covered by several layers of paint, which can have a significant influence on the transmission loss of the bumper.

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