Understand characteristics of 48V systems and how innovations in hardware layout design will optimize EMC design of 48V power electronics.

Gain insights into different EMC simulation methods and techniques to deal with future EMC challenges of dual voltage system 12V/48V and connected vehicles.

Learn how to improve EMI immunity of C2C and C2X communication in connected vehicles and how to control EMI of video display signals, ethernet and data booster.

Discuss optimized grounding and antenna system integration strategies of 48V and other dual voltage systems.

Find out about partnerships between OEMs and their suppliers and discover potential for standardizations.

Meet the following experts amongst others:

Chairman
Prof. Dr.-Ing. Michael Hillgärtner
Fachbereich Elektrotechnik und Informationstechnik
FH Aachen, Germany

Dr.-Ing. Amir Geranmayeh,
EMC Design & Hardware Architecture,
Continental Automotive GmbH,
Germany

Dr. Salah Benhassine,
Specialist in EMC Numerical Simulation,
Peugeot S.A., France

Dr. Wolfgang Pfaff,
Automotive Electronics, Committee work, OEM (AE/EMC-P1),
Robert Bosch GmbH, Germany

Participating companies and institutions:
- Peugeot S.A. • Continental Teves AG & Co. OHG • Robert Bosch GmbH
- IAV GmbH • Infineon Technologies AG • MBtech EMC GmbH
- Mooser EMC Technik GmbH • GERAC • FH Aachen • University of Kassel
Dear colleague,

The trends for hybridization and more connectivity in the car to improve fuel efficiency, comfort and active safety are leading to debates about the design of e/e architectures and the selection of power electronics. OEMs are asked to develop new antenna and grounding strategies to deal with the increased voltage level and number of e/e components in the vehicle architecture.

It gives me great pleasure to introduce our 1st International conference on electromagnetic compatibility of future cars from the 27th to the 29th of April 2015 in Berlin, Germany.

At these two conference days and in-depth workshop day you will have the opportunity to exchange and discuss experiences on simulation and design of 48V power supply, high voltage systems and connected cars to ensure the compliance of future cars with standards and requirements for electromagnetic compatibility and radio frequency. Meet international colleagues from leading companies, such as PSA, Continental and Bosch to identify opportunities in and challenges of ensuring electromagnetic compatibility today and in future.

I look forward to meeting you in April in Berlin!

Kind regards,

Saleem Serri Najari
Project Manager
08:30 Registration & networking morning coffee

Who is Who
Learn about your peers. Discover who else is participating in the conference. The matchmaking wall will help you identify the delegates you want to meet at the conference.

09:00 Opening remarks by conference chairman
Prof. Dr. Michael Hillgärtner, FH Aachen, University of Applied Sciences, Germany

09:30 Electromagnetic compatibility of future cars – challenges and ways of solving them
• EMC requirements of modern vehicles
• Challenges: Electrification of functions and powertrains
• Normative regulations
Prof. Dr. Michael Hillgärtner, FH Aachen, University of Applied Sciences, Germany

Experiences in EMC testing
10:10 EMC testing of high voltage components in hybrid- and electrical vehicles
• Requirements
• Challenges
• Test methods
• Examples
Dr. Uwe Reinhardt, General Manager, Mooser EMC Technik GmbH, Germany

10:50 Speed networking
Get in touch with the other conference guests in quick paced 1-1 meetings – make sure you bring a stack of business cards.

11:20 Refreshment break & networking

11:50 Challenges of EMC testing hybrid vehicles
• Vehicle testing modes
• Monitoring equipment
• Optimizing EMC testing
• EMC testing with wireless communication
Martin Herriegel, Staff specialist, MBtech EMC GmbH, Germany

12:30 Networking luncheon

EMC modelling and simulation
14:00 Relevant electromagnetic techniques to reduce hybrid vehicle emission levels
• Methodology of modeling hybrid car systems
• EMC numerical simulations and measurement results of the 48V systems
• Orientation and implementation of relevant EMC numerical simulation
• Studying realistic cases of full hybrid car system
Dr. Salah Benhassine, Specialist in EMC & RF Numerical Simulation, PSA (Peugeot Citroen Automobiles), France

14:40 Full wave modeling for EMC simulation of infotainment systems
• Immunity to a uniform far-field (TEM-cell, Stripline)
• Susceptibility on near-field of radiating antennas
• Radiated emission (EMI) of video display signals
• Conducted emission from switching regulators
• Electrostatic discharge paths on multilayer PCB
Dr.-Ing. Amir Geranmayeh, EMC Design & Hardware Architecture, Continental Automotive GmbH, Germany

15:20 Refreshment break & networking

15:50 Panel Discussion:
Grounding optimization and antenna integration strategies to avoid EMI
• Handling different type of car materials in the EMC design (carbone fibres, composites, etc.)
• Improvements in EMC design of the whole system as the key
• Requirement for an optimized integration of antenna system
• Managing challenges of grounding in dual voltage systems

16:30 End of conference day one and closing remarks by Prof. Dr. Michael Hillgärtner

18:00 Informal evening get-together
IQPC invites you to a networking reception with drinks. This is an excellent opportunity for you to meet the other attendees and make new business contacts.
Join us for an informal evening event!

To Register | T +49 (0)30 20 91 33 88 | F +49 (0)30 20 91 32 10 | E eq@iqpc.de | www.emc-48V.com/PM
08:50 Registration & networking morning coffee

09:20 Opening remarks and summary of the result of Conference Day one by Prof. Dr. Michael Hillgärtner, FH Aachen, University of Applied Sciences, Germany

09:30 Multi voltage level systems, EMC and costs - a special triangle relationship
• EMC in complex systems
• When to start with EMC? EMC in the V Modell
• Cost-pusher and hidden costs - need of an honest cost discussion
• 80% of success = EMC optimized Grounding System
Dipl.-Ing. (FH) Martina Kreutz, Department Manager EMC and Antenna, IAV GmbH, Germany

EMC requirements and standardization for 48V

10:10 EMC Simulation of 48V Systems
• System overview and design process
• EMC Concept
• System Design & Integration
Dr. Jan Hansen, Automotive Electronics, EMC Simulation Team, Robert Bosch GmbH, Germany
Co-author
Roland Eidher, Electromagnetic Compatibility, Automotive Electronics, Robert Bosch GmbH, Germany

10:50 Refreshment break & networking

11:20 Standardization and regulation for e-mobility 48V and beyond
• Standards and legal requirements for actual and future cars and their charging systems
• Impact on actual and future EMC standardization through electrical drive concepts
Dr. Wolfgang Pfaff, Automotive Electronics, Committee work, OEM (AE/EMC-P1), Robert Bosch GmbH, Germany

12:00 Impact of 12V/48V DC/DC converter on conducted emissions
• Conducted emissions
• Structure and control of 12V/28V DC/DC converters
• Operating point and parameter variation
• Multi-phase converter
• Switching frequency impact
• Experimental setup and experimental results
Prof. Dr. Ludwig Brabetz, University of Kassel, Germany
Co-authors
Dr. Mohamed Ayeb and Aman Niknejad (M.Sc., Dipl.-Ing.), University of Kassel, Germany

12:40 Networking luncheon

14:10 EMC challenges in 48V and high voltage systems from semiconductor perspective
• EMC requirements for 48V and high voltage systems
• Consideration of 48V and high voltage system architecture and applications
• EMC characteristic of semiconductors for 48V and high voltage systems
• Analysis of disturbance sources in 48V and high voltage systems
• Consideration of electrical transients in 48V and high voltage applications
• Challenges and perspective solutions for future vehicles
Dr. Frank Klotz, Principal EMC & Head of Automotive, Power EMC Center, Infineon Technologies AG, Germany

14:50 - 17:20 Interactive Afternoon Workshop
Partnerships between European OEMs and their suppliers for optimized EMC design
• Learn how direct communication and collaboration between OEMs and suppliers will lead to optimization in hardware design of the different layouts and better understanding of future challenges and innovative solutions
• The workshop offers a platform for a lively discussion and open exchange of opinions and experiences of both OEMs & suppliers

The following aspects will be covered:
• How to do the modeling
• What kind of technical study could be covered using numerical simulation
• Comparative study: Benchmarks, software usage

Dr. Salah Benhassine, Specialist EMC & RF Numerical Simulation, PSA (Peugeot Citroen Automobiles, France

15:50 Refreshment break & networking

17:20 End of conference day two and closing remarks by conference chairman Prof. Dr. Hillgärtner

5 Reasons to Join Automotive IQ:
• Membership is FREE
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Workshop Day | Wednesday, 29 April 2015

11:30 Networking luncheon
12:30 Registration

13:00 - 16:00 Interactive Workshop

**System EMC prediction in conception phase using the MKME (Modified Kron’s Method for EMC) method**

- Learn how to transform the real system into an abstract network and recognize canonical structures to project these structures into objects of a cellular topology
- Making the system of equations from this network, studying and / or solving numerically the system of equations
- Learning by doing: Illustrate the technique with various simple examples

*Participants of this workshop are required to bring their Laptops with them and pre-install Python2.7 and its packages numpy – pylab*

For further questions please contact us anytime!

Olivier Maurice,
Research and Development Engineer,
GERAC, France

16:00 End of interactive workshop day

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3rd International Conference

**Automotive Power Supply Systems**

24 - 26 November 2015 | Hilton Düsseldorf, Germany

If you are interested in participating, please contact:

Sarah Ruddat
Divisional Director
Telephone: +49 (0)30 20 913-436
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Electromagnetic compatibility of future cars

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Venue and Accommodation

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The title of the separately bookable Workshop on Wednesday, 29 April 2015:
System EMC prediction in conception phase using the MKME (Modified Kron’s Method for EMC)

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