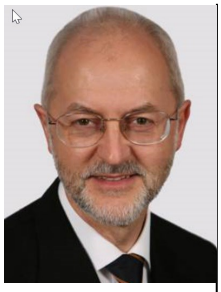
Certificate of attendance will be issued on request!

EMC guru Keith Armstrong will hold a 2-3 day seminar in Helsinki

We are offering a 2-day seminar on EMC at PCB level with the internationally recognized EMC expert and author, Keith Armstrong with the option to attend a third day for EMC at Equipment, System and installation level with EMC expert Chris Nicholas



Keith Armstrong has more than 30 years of experience in EMC, and is the author of numerous books and publications on EMC and PCB/Equipment design. He is the past chairman of the IEE's Professional Group, a member of the IEEE's EMC and Product Safety Societies, and chaired the team that published IEEE Std 1848:2020 on Managing the Functional Safety Risks caused by EMI. Keith will share the latest design techniques for PCBs to reduce the risk of failed EMC tests resulting in delayed product launches.

Chris Nicholas is a graduate of Salford Univ, Lancs.,UK, and has over 35 years in the RF design of military, aerospace, automotive, commercial and retail electronics working for companies involved in equipment/systems design and EMC compliance. Most recently, at Lockheed Martin UK, he set up and managed the Military EMC pre-compliance facility used by their design teams.

A selection of the topics:

- EMC, SI, PI problems caused by ever-faster switching speeds
- EM Zoning (segregation)
- Interface analysis, filtering, suppression
- 0V(GND) and power (PWR) planes
- PCB-chassis RF-bonding, shielding of PCBs
- Power supply decoupling
- Switching power conv.(AC-DC, DC-DC, DC-AC, AC-AC)
- Grounding
- Layer stacking and trace routing
- Devices with BGA packages and/or multiple DC rails
- Cable classification
- And a lot more……..

Click here to register!

Date & place

4-6/10-2023 - 08:30—16:30, Scandic Aviacongress, Helsinki/Vantaa

Price

4-5 October EMC on PCB level (2 days advanced training) - 800 EUR

6 October EMC on System, equipment and installation level - 400 EUR

Price includes 2 days of training, lunches, coffee breaks and course material.

Click here to register!

800EUR for EMC on PCB level Including lunches/coffee breaks

EMC seminar

Scandic Aviacongress

Helsinki

Program

Day 1 - EMC techniques on PCBs with Keith Armstrong

- *08:30 Welcome and Introductions*
- Saving time and money, and the scope and application of these design techniques
- EM Zoning (i.e. circuit segregation), interface analysis, filtering, and suppression
- Planes for 0V(GND) and other power rails (PWR)
- RF-bonding PCB Ref. Planes at EMZ boundaries
- Power supply decoupling
- Switching power converters (AC/DC, DC/DC, DC/AC, AC/AC)
- Matched transmission line techniques
- Layer stacking and trace routing
- Devices with BGA packages and/or multiple DC rails
- Some useful references, sources, and webinars

Day 2 - EMC techniques on PCBs - Advanced level with Keith Armstrong

- When should we use advanced PCB techniques?
- Future trends and their implications
- Guidelines, approximations, simulations, and virtual design for SI, PI and EMC
- Advanced EM Zoning techniques
- Advanced interface filtering and suppression, inc. BLS (board-level shielding) and Metamaterials to 60+ GHz
- Advanced RF-bonding PCB Reference Planes at EMZ boundaries /
- Advanced PCB planes, and co-locating wireless antennas
- The totally shielded board assembly
- Damping the resonances in parallel metal structures, including: Metamaterial methods e.g. Virtual Ground Fence; EBG (Electromagnetic Band Gap); HIS (High Impedance Surface
- Advanced Power Supply decoupling, buried components and Advanced Transmission lines(up to 32 Gbit)
- Microvia (HDI) board manufacturing techniques, 3-D Moulded PCBs, Additive PCB Manufacturing, Chiplets and 'SIF', etc.
- Advanced Crosstalk
- Some final tips & Tricks and useful contacts, sources, and references

The seminar is organized by ***Addmerit AB***

For questions, contact Addmerit: +46 (0)707739799
or E-mail: kurs@meritas.se

400EUR for EMC on Equipment, System and installation
Including lunches/coffee breaks

EMC seminar
Scandic Aviacongress
Helsinki

Program

Day 3(optional) - EMC on Equipment, System and Installation level with Chris Nicholas

Requirements, and making things work profitably

- EMC Directive (2014/30/EU) , UK EMC Regulations & Overview of the overall EMC control procedure
- Lightning protection (e.g. EN 62305) & National Wiring Regulations (e.g. BS7671)

Good EMC practices for general use

- Planning
- Dealing with legacy equipment, systems, installation & Buying equipment; and CE + CE ≠ CE
- Power distribution systems; and power quality for EMC
- Galvanic isolation for EMC & Segregation (EM Zoning)
- Cable classification, segregation, routing & Using Bonding Ring Conductors (BRCs)
- Creating an RF Reference by RF-bonding conductors and/or metalwork
- Reducing the 'accidental RF antenna' efficiency of cables
- Terminating cable shields at EM Zone boundaries, at both ends
- Using Parallel Earth Conductors (PECs) & Reducing EMC problems caused by metal joints (e.g. due to corrosion)
- Some more things to take into account

EM Mitigation Techniques

- Earthing/grounding for both Safety and EMC Zoning & Using Meshed Bonding Networks as RF References
- What to do when EM Zones must be isolated, filtering for EM Zoning & Shielding for EM Zoning
- Shielding large volumes, e.g. rooms, laboratories, buildings, etc.
- RF-bonding filters to shielded EMZs where cables enter/exit & RF-bonding cable shields/screens to shielded EM Zones at entry/exit
- Surge and Lightning protection
- **Maintaining good EMC over the operational lifecycle**

Adress to the seminar:

Scandic Helsinki Aviacongress

Robert Huberin tie 4

01510 VANTAA

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