

PCB design with  
good EMC  
Copenhagen  
27-28 May!

## EMC guru Keith Armstrong will hold a 2 day PCB design seminar in Copenhagen

*We are offering a 2-day seminar on EMC at PCB level with the internationally recognized EMC expert and author, Keith Armstrong. Become an expert in designing PCBs with good EMC during these two training days. The design techniques applies for all industries where PCBs and electronics are used.*

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.



The seminar is suitable for electrical engineers involved in design of PCBs in all industries.

A great Opportunity to ask questions to one of the worlds most experienced experts in EMC and to network with engineering colleagues.

### 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

27-28 May in 2024 08:30—16:30, Huone Conference Center Amager Strandvej 390, Kastrup/Copenhagen

### Price

900 EUR - for 2 days of extensive traing in designing PCBs with good EMC.

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

Click here to register!

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

**EMC seminar**  
**27-28 May in**  
**Copenhagen**

# Program

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## **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); importance of EM mitigation at zone boundaries
- Interface analysis at EM Zone boundaries, including:
  - Filtering
  - Transient and other suppression
  - Board-level shielding (BLS) for EM Zones
- Planes for 0V(GND) and other power rails (PWR)
- Using perimeter guard traces, vias walls or edge-plating
- RF-bonding PCB Reference Planes at EM Zone boundaries
- Power supply decoupling
- Switching power converters (AC/DC, DC/DC, DC/AC, AC/AC)
- Matched transmission line techniques and when to use them
- Layer stacking and trace routing
- Devices with BGA packages and/or multiple DC rails
- Some useful references, sources, and webinars



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

### **08:30 Welcome and Introductions**

- 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

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Adress to the seminar:

Huone Conference Center Amager  
Strandvej 390, Kastrop/Copenhagen

***Certificate of attendance will be issued on request!***