

Seminar:

Electronic Fundamentals for Good EMC

Presented by: **Tim Williams** & **Keith Armstrong**

Wednesday 23rd April 2008
Millennium Stadium, Cardiff



Blackwood Compliance Laboratories are hosting the above training course at the Millennium Stadium in Cardiff.

Tim Williams of Elmac Services and **Keith Armstrong** of Cherry Clough Consultants are two of the top EMC design consultants in the UK. The course covers EMC filtering, cabling, shielding, circuit design and PCB layout techniques.

This all day course was presented at EMCUK 2007 in Newbury where it was hugely successful. It was a sell-out there and places are selling fast for this event also.

Who should attend?

- ▶ Electronic Product Designers
- ▶ PCB Layout Engineers
- ▶ Compliance Managers
- ▶ EMC Test Engineers & Laboratory Managers

Fee:

Just £135 + VAT (includes lunch and coffee breaks)

For multiple delegate bookings from the same organisation, booked at the same time, the following discounts apply:

A 10% discounted rate applies to the second delegate.

A 20% discounted rate applies to any additional delegates.

To reserve your place call **01495 229219** or email training@blackwood-labs.co.uk

About the Presenters

Tim Williams



Elmac Services provides consultancy and training on all aspects of EMC, including design, testing and the application of standards, to companies manufacturing electronic products and concerned about the implications of the EMC Directive.

Tim Williams gained a BSc in Electronic Engineering from Southampton University in 1976. He has worked in electronic product design in various industry sectors including process instrumentation and audio visual control. He was design group leader at Rosemount Ltd before leaving in 1990 to start Elmac Services.

He is the author of "The Circuit Designer's Companion" (2nd edition, Elsevier 2004) and "EMC for Product Designers" (now in its fourth edition, Elsevier 2006), and has presented numerous conference papers and seminars. He is also author of "EMC for Systems & Installations" with Keith Armstrong. He is an EMC technical assessor for UKAS and SWEDAC.

Keith Armstrong



Keith graduated from Imperial College, London, in 1972 with an Honours Degree in Electrical Engineering, has been a member of the IEE (now the IET) since 1977, a UK Chartered Engineer since 1978, and a Group 1 European Engineer since 1988.

Cherry Clough Consultants was started by Keith in 1990 to help companies reduce costs, timescales and warranty costs whilst also complying with the EMC Directive and other regulations world-wide.

Keith has presented many papers, demonstrations, and training courses on EMC, and on EMC for Functional Safety, worldwide, and has also written many articles on these topics.

He chairs the IET's Working Group on "EMC and Functional Safety", and is the UK's authorised representative on the IEC teams working on: IEC 61000-1-2 (EMC & Functional Safety, MT15), and IEC 60601-1-2 (EMC for Medical Devices, MT23).

About us

Blackwood Compliance Laboratories are the only UKAS accredited (No. 2667) laboratory offering Electrical Safety, EMC and EMF testing services in Wales. They are a designated Notified Body under the EMC Directive, 2004/108/EC.

John Davies, Managing Director of Blackwood Compliance Laboratories will be chairing this seminar. John has nearly 20 years experience of EMC testing and is a member of CISPR with active involvement in writing the future multimedia EMC standards.

Course Programme:

Session 1: Shielding

- Theory
- Apertures and seams
- Gaskets
- Shield as Ground
- Cable layout and large enclosures

Session 2: Circuit Design

- Digital
- Analogue (not RF)
- Switch-mode
- Communications
- Optoisolators
- Device selection

Session 3: Filtering and Cabling

- Configuration
- Components
- I/O and mains
- Modes of propagation
- Unscreened cables
- Screened cables
- Transducer and communication interfaces

Session 4: PCB Design

- Segregation
- Interface suppression
- 0V planes
- Decoupling
- Transmission lines
- Layer stacking