

EMC training courses

COBHAM

2010 training courses dates

Cobham Technical Services
ERA Technology AccessERA



The electromagnetic environment is becoming ever more complex, and it is the responsibility of the manufacturers and suppliers who market their equipment within the EU to ensure the compliance of their products. Recognised as a world-class authority in EMC, with impressive experience ranging from major capital projects to discreet design solutions, Cobham Technical Services has been pioneering best practice development for more than four decades.

The Art of Designing for EMC

30 November 2010

THIS COURSE ONLY RUNS ONCE EACH YEAR, SO DON'T MISS OUT!

A thorough understanding of all the practical aspects of designing modern electrical and electronic products for EMC compliance will be provided. The course covers techniques and skills designed to ensure products are economically compliant with EMC standards, including filter and shield design, interface and PCB design. Some prior knowledge of EMC is assumed, which would ideally be gained at our Introduction to EMC course.

EMC Measurement Techniques

19 October 2010

THIS COURSE ONLY RUNS ONCE EACH YEAR, SO DON'T MISS OUT!

Based on expert practical experiences, the details of the specific EMC measurement techniques set out in current EMC standards will be covered. Focusing on the test methods for product EMC compliance, the programme will consider test equipment, measurement techniques for both emissions and immunity, repeatability, uncertainty and in-house measurements.

Introduction to EMC

25 February and 21 September 2010

This course will guide you through the product compliance requirements of the EMC Directive and strategies for meeting them. The programme gives an introductory insight into the practical test and design aspects of existing and future products, which are covered in greater detail in our EMC Measurement Techniques and Art of Designing for EMC courses.

ERA Technology Ltd trading as Cobham Technical Services
is a UK Government BIS (formerly known as BERR)
appointed Notified Body for EMC.

Related course

EMC in the Built Environment 22 April 2010
For more information or to book a place on this course,
please visit: <http://shop.era.co.uk>

Ever thought about in-company training?

These courses can also be delivered at your site. To discuss your training requirements,
please call The Events Team on +44 (0)1372 367319.

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Book a place on all three EMC courses at the same time and receive an additional discount

For more information contact
The Events Team on: +44 (0)1372 367319

Your Speakers



**Tony Maddocks - Chief Consultant,
Cobham Technical Services**

Tony has over 30 years' experience working on EMC. He has been responsible for the multi-client Research and Development project on EMC which Cobham Technical Services has operated successfully for many years. He also represents Cobham Technical Services on a number of BSI sub-committees concerned with the development of EMC standards and is the chairman of the UK national committee on EMC.



**Roger Smith - Senior Consultant,
Cobham Technical Services**

Roger has over 30 years' experience in EMC having worked with avionics systems, military and industrial equipment, railway systems and complex installations. His experience includes practical EMC testing, problem investigation, equipment system design and development, calibration and QA.



**David Atkey - EMC Consultant,
Cobham Technical Services**

David specialises in the EMC of complex installations. His experience includes development of cable separation tools for industry, the EMC assessment and management of complex installations, the clearance of equipment for use on aircraft and various other EMC quantitative and qualitative assessments. He has undertaken EMC consultancy for most industry sectors particularly in the areas of defence, the built environment and rail.



**Patrick Collett - Principal Engineer,
Cobham Technical Services**

Patrick is responsible for delivering and carrying out a variety of practical R&D projects. He is involved with clients to give advice on solutions to EMC problems, and regularly provides consultancy in EMC for national and international companies.

The Art of Designing for EMC

30 November 2010

- 08.45 Registration and refreshments
- 09.00 **Introduction**
- 09.05 **Environment and requirements**
 - Terms
 - Definitions
 - Disturbances
 - Regulations.
- 09.40 **Equipment design**
 - General principles
 - Concepts
 - Options.
- 10.00 **Sources and coupling mechanisms**
 - Conducted
 - Radiated
 - Transient disturbances
 - Coupling methods
 - Sensitivity levels.
- 10.30 Refreshments
- 10.45 **Suppression and filters**
 - Suppression principles
 - Component characteristics
 - Filter design
 - Transient suppressors.
- 11.45 **Shielding**
 - Shielding principles
 - Enclosure design
 - Cable screens and terminations.
- 12.45 Lunch
- 13.30 **Grounding**
 - Grounding principles
 - Practical systems.
- 13.50 **PCB design**
 - Device selection
 - Layout
 - Multi-layer configurations
 - Interface design.
- 15.00 Refreshments
- 15.15 **Design for ESD immunity**
 - Options for control
 - Protection against direct and indirect discharges.
- 15.55 **Case studies**
 - A few examples of design problems and their solutions.
- 16.15 Close.

SAFETY and EMC Newsletter - SPECIAL OFFER

For designers and suppliers of electrical and electronic products, the **Safety and EMC** Newsletter will keep you up-to-date with worldwide legislation and market requirements. Covering all aspects of compliance from safety to recyclability, this bi-monthly newsletter provides the reader with clear guidance direct from authoritative sources, plus updates on worldwide standards and regulations.

Attend one of these courses and subscribe to six issues of Safety and EMC Newsletter for just £157.50 (normally £225).

EMC Measurement Techniques

19 October 2010

- 08.45 Registration and refreshments
- 09.00 **Introduction to measurements**
 - EMC sources and victims
 - Development of requirements
 - The EMC Directive
 - Harmonised, generic and product specifications.
- 09.45 **Emission measurements**
 - General overview
 - Practical testing consideration.
- 10.00 **Conducted emission measurements**
 - Test equipment
 - Methodology.
- 10.45 Refreshments
- 11.00 **Radiated emission measurements**
 - Test facilities
 - Test equipment
 - Methodology.
- 11.45 **Immunity measurements**
 - General overview
 - Acceptance criteria.
- 12.00 Lunch
- 12.45 **Radiated immunity**
 - Test arrangement
 - Test methodology.
- 13.30 **Conducted immunity**
 - Test arrangement
 - Test methods.
- 14.15 Refreshments
- 14.30 **Transient testing**
 - ESD
 - Transients and surges
 - Voltage variation.
- 15.00 **Measurement techniques in practice**
 - Buildings
 - Railways
 - Equipment.
- 15.40 **COTS**
 - Some considerations.
- 15.55 **Formal and informal measurements**
 - Practical planning for formal testing
 - Measurement uncertainty, repeatability
 - Informal testing applications and limitations.
- 16.30 Close.

Introduction to EMC

25 February and 21 September 2010

- 08.45 Registration and refreshments
- 09.00 **Overview**
 - What is EMC?
 - Definitions
 - Importance
 - EM coupling
 - Source path victim
 - Design and measurement.
- 09.50 **EMC Directive and regulations**
 - Why is EMC necessary?
 - Essential requirements
 - Impact on product design
 - Impact on installations
 - Framework for producing a quality product
 - UK regulations.
- 10.40 Refreshments
- 11.00 **EMC standards**
 - Aim of standards
 - Derivation of levels and limits
 - Principles behind test methods
 - Key elements
 - The standards process and involvement of industry.
- 11.35 **Designing for EMC**
 - The designer's challenge
 - Design principles
 - Devices, printed circuit boards, buildings
 - Suppression.
- 12.30 Lunch
- 13.15 **Question and answer session on designing for EMC**
- 13.30 **EMC testing and measurement**
 - The laboratory environment vs the real world
 - Emissions testing
 - Conducted
 - Radiated
 - Immunity testing
 - ESD
 - RF field
 - Key points to watch
 - In-house vs contracting out
 - Working with EMC laboratories.
- 14.15 Refreshments
- 14.30 **EMC management**
 - Managing the process
 - Roles and responsibilities
 - Control and test plans
 - Suppliers and sub-contractors
 - Documentation
 - Benefits.
- 15.00 **Course review and questions**
- 15.30 **Viewing of anechoic chamber**
- 15.45 Close.

EMC and RF assessment solutions

For details about how Cobham Technical Services can help you, please contact: era.emc@cobham.com or call +44 (0)1372 367030

Booking Form

Cobham Technical Services
ERA Technology AccessERA

Please photocopy this form if you wish to register more than one delegate.
Send a second person at a discounted price!

Delegate details

Name <small>Dr Mr Mrs Miss</small>
Job Title
Organisation
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Telephone
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E-mail
<input type="checkbox"/> Please tick if you are happy to receive further information about Cobham Technical Services via e-mail. It is our policy NOT to supply your details to third parties.

Bookings

I wish to make a firm booking for: (please tick)

The Art of Designing for EMC
 30 November 2010 Ref: 31045
EMC Measurement Techniques
 19 October 2010 Ref: 31037
Introduction to EMC
 25 February 2010 Ref: 31003 21 September 2010 Ref: 31029

Fees

Fee rate	Fee	VAT@17.5%	Total	Please tick
Early Booking Rate	£430.00	£75.25	£505.25	
Early AccessERA/ Additional Rate	£387.00	£67.73	£454.73	
Standard Rate	£470.00	£82.25	£552.25	
Standard AccessERA/ Additional Rate	£423.00	£74.03	£497.03	

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Venue:

Your course will take place at Cobham Technical Services, Cleeve Road, Leatherhead, Surrey KT22 7SA, UK. It is a 15 minute walk from Leatherhead main-line station. Visitor car-parking is available on-site. A location map and directions are available at: www.era.co.uk/location.

Early booking rates:

Early booking rates are valid up to one calendar month before the date of the course and can only be claimed at the time of booking.

Additional booking rates:

Additional booking rates are applicable to second and subsequent delegates and may only be claimed at the time of booking.

Did you know?

An AccessERA subscription is an excellent way of accessing technical advice and information in the right format at the right time. All AccessERA subscribers receive a 10% discount on the current course price at time of booking when the booking is made directly with the Events Team. To find out more, please call us on: +44 (0)1372 367076 or e-mail: era.accessera@cobham.com.

Ways to book:

<http://shop.era.co.uk>

Total security is assured and normal booking conditions apply.



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The Events Team, Cobham Technical Services, Cleeve Road, Leatherhead, Surrey KT22 7SA.

* Please note that booking forms received without payment will be considered binding and invoiced automatically.

Enquiries:

Please contact The Events Team by calling: +44 (0)1372 367319 or e-mail: era.events@cobham.com.

How to pay:

Payment must be made before attendance at the event and must be made in £ sterling only. Acceptable methods of payment are by cheque (payable to ERA Technology Ltd), credit card or bank transfer. Bank transfers, free of all charges, can be made to ERA Technology Ltd via: Barclays Bank PLC, PO Box 1824, Wimborne, Dorset, BH21 1YJ; sort code: 20-96-96, account no. 00327433. When paying by bank transfer, please quote the relevant course, reference number and the delegate and company name.

Cancellations and transfers:

Cancellations and transfers must be received in writing. Cancellations and transfers received up to the 15th working day prior to the event will be subject to a charge of 20% of the invoiced course fee + VAT or 20% of the AccessERA credits charged. After this, 15 day deadline transfers cannot be accepted and cancellations will be subject to payment in full or 100% of the AccessERA credits charged. Substitutions can be made at any time.

Cobham Technical Services:

Cobham Technical Services works at the leading edge of advanced technology consultancy and design. The business provides specialist, high value-added, technology-based services including design and development, testing, assessment and expert advice. For further information visit: www.cobham.com/technicalservices.

Please tick here if you would prefer not to receive details about future events or services offered by Cobham Technical Services.

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