

Designing for EMI / EMC Compliance

15 – 16 May 2008

An application has been submitted to the New Technology Training Scheme for this program to get endorsed. If successful, eligible participants may obtain up to 50% of training fee refund from NTTS.

Introduction

One of the most critical issues to address in the design and manufacturing of electrical or electronic products is Electromagnetic Interference (EMI) / Electromagnetic Compatibility (EMC) compliance. In today's increasingly compressed product life cycle, the capability to 'design right' early in the development cycle for faster EMC compliance becomes a distinctive competitive advantage of a company.

Jointly organized by Hong Kong Productivity Council, Lexiwave Technology (Hong Kong) Ltd., and the Hong Kong Science and Technology Parks Corporation, this 2-day course aims to provide participants with an insightful training on product design for EMI/EMC compliance from a practical, industrial perspective. The training offers practical knowledge on consumer product EMI/EMC approval process, and current and future regulatory trends. Design techniques pertaining to EMI/EMC compliance of wireless products will be presented by industry experts.

In addition to being led through a systematic, theoretical and practical presentation with case studies on commercial products, participants will also take part in measurement demonstrations on the use of state-of-the-art RF equipment inside the EMC Centre of HKPC.

Who Should Attend

RF Designers, IC Designers, Wireless Product Designers, Field Application Engineers, Design Managers, Business Development Engineers and Managers, and related professionals involved in product EMI/EMC compliance.

Organizers:



Co-organizer:



Supporting Organization:



Please circulate this leaflet to those who are interested.

Advanced & Manufacturing Technology



Course Structure

The course will be conducted by RF experts with rich local and overseas industrial experience and consists of both classroom and laboratory demonstration / practical appreciation sessions.

DAY 1 – Morning Session

EMC Product Evaluation and Certification: Regulations, Standards, and Related Issues

Framework for evaluation and certification of electrical / electronic equipment

- Product liability
- Purpose
- Framework types
- Compliance
- Type-tests and QA system requirement
- Marketing and business

EMC issues

- Equipment evaluation and certification
- Emission and Immunity
- Signal and signal sources - continuous and transient
- Ports - internal and public
- General EUT system configuration

EMC Regulations and Standards

- EMC regulations
- EMC standards

EMC tests

- Emission tests
- Immunity tests
- ESD

Critical issues

- Deviation in interpretation of provisions in standards by different parties
- Limit of emissions
- Performance criteria for immunity tests

DAY 1 – Afternoon Session and DAY 2 – Morning Session

Product Design Techniques for EMC Compliance

Unintentional Radiation

- EMI Source
- EMI prevention and reduction
- Skills in EMI prediction and verification

Intentional Radiation

- circuit design : to prevent and reduce harmonics and spurious emission
- antenna design: radiation pattern
- data pattern and averaging factor

Surge and ESD protection

- behavior of surge and ESD transients
- circuit design and component selection
- printed circuit board design
- mechanical design and conductive plating
- earth connection in AC-DC converter

DAY 2 – Afternoon Session

Equipment Authorization and EMI Measurement Demonstration

Equipment Authorization Process

- FCC Part 15 Devices
- FCC Regulations
- Telecommunication Certification Bodies (TCB) Listed and accredited laboratories Documentations and labels Grantee Code and FRN Certification Process
- Short range devices for EU market
- Mandatory Rules: - R&TTE Directive and EMC Directive Notified bodies Route of compliance - self-declaration or certification

EMI Measurement Demonstration

- Conducted emission measurements
- Radiated emission measurements

About the Instructors

Dr C.M. Yuen received his B.Eng. and Ph.D degrees in Electronic Engineering from the City University of Hong Kong. His research interest is mainly in the design of RF and Microwave circuits for low voltage and low power consumption wireless systems. He has twenty years of experience in RF product design and manufacturing in Hong Kong and Mainland China. Dr Yuen is currently an advisory engineer in the field of HDTV and IPTV.

Mr Henry Lau received his M.Sc. and MBA degrees from UK and USA respectively. He has more than 20 years of experience in designing RF systems, products and RFICs in both Hong Kong and US. He worked for Motorola and Conexant in US as Principal Engineer on developing RFICs for cellular phone and silicon tuner applications. Mr Lau holds four US patents and has two patents pending. He is currently running Lexiwave Technology Ltd., a fabless semiconductor company in Hong Kong and US designing and selling RFICs.

Mr L. Wai received his B.Eng in Avionics and M.Sc. in Electromagnetic Compatibility (EMC) from UK. He has been working for more than twelve years in setting up test facilities, developing test capacities, and maintaining technical competence of EMC test laboratories after working in design and development for switched mode power supplies. He is also experienced in developing and setting up laser classification tests. He is currently the Centre Manager of HKPC EMC Centre.

Medium of Instruction

Cantonese (with English terminology)

Award of Certificate

A Certificate of Completion will be awarded to participants who have attended all training sessions

Date

15 – 16 May 2008

Time

9:30 – 12:30 (a.m. sessions) & 14:00 – 17:00 (p.m. sessions)

Venue

1/F., HKPC Building, 78 Tat Chee Avenue, Kowloon

Course Fee (including course materials and luncheons)

Normal: HK\$2,500 Early Bird: HK\$2,250 (for those who apply to enroll on / before 18/4/2008)

Application

To enroll, please complete the attached enrolment form and send it together with the appropriate fee to Ms Catherine Lam

PTI, Hong Kong Productivity Council

3/F., HKPC Building, 78 Tat Chee Avenue, Kowloon

(All cheques should be crossed and made payable to 'Hong Kong Productivity Council')

Enquiries

Hong Kong Productivity Council

Tel: 2788 5563 or 2788 5716

Fax: 2788 5567

Email: brian@hkpc.org

Lexiwave Technology (Hong Kong) Limited

Tel: 2144 2592

Fax: 2144 2595

Email: henry.lau@lexiwave.com

Supporting Organizations

Each participants will receive a souvenir from **Rohde & Schwarz Hong Kong Ltd.**, supporting organization of this course.

Enrolment Form 報名表

1. Course 課程 Designing for EMI / EMC Compliance

Course Fee 學費 HK\$2,500 (Normal) / HK\$2,250 (Early Bird)

Duration 日期 15 – 16 May 2008 Course Code 課程編號 40082814

2. Name (English) (Mr/Mrs/Ms*) 姓名 (中文) (先生/女士/小姐*)

Mobile / Pager 手提 / 傳呼機 _____ E-mail Address 電郵地址 _____

3. Organization (English) _____ 公司名稱 (中文) _____

Position 職位 _____

Mailing Address 通訊地址 _____

Tel 電話 (Day 日間) _____ (Night 晚間) _____ Fax 傳真 _____

4. Payment Method 付款方法

(A) By Credit Card (No.): _____ Expiry Date 有效日期 ____ (yy) ____ (mm)
 Please debit my credit card A/C for HK\$ _____ Name of Cardholder _____
 VISA MASTER

Signature _____ Date _____

(B) Enclosed is my cheque of HK\$ _____. Cheque No. _____. (The cheque has to be crossed and made payable to the "Hong Kong Productivity Council.")

** For cheque payment, please send the cheque for the appropriate fee with this completed form to Productivity Training Institute, 3/F., Hong Kong Productivity Council, HKPC Building, 78 Tat Chee Avenue, Kowloon Tong, Kowloon (Attn: Ms. Catherine Lam)

** For reservation (if applicable), please fax the completed form to (852) 2788 5567.

IMPORTANT NOTE 注意:

21.9.07

- Course fee must accompany this form (or its photocopy), otherwise enrolment may be rejected.
報名表(可用影印本)必須連同學費一併繳交, 否則報名可能無效。
- HKPC has adopted a Personal Data (Privacy) Policy. Information about the policy is available at HKPC enrolment counters for collection. You may also contact our Personal Data Controlling Officer for further details.
本局已實施個人資料(私隱)政策, 有關資料單張可於報名處索閱, 或閣下可與本局個人資料管理主任查詢。
- Applicants are encouraged to pay by credit cards, EPS or cheques, if possible. Amount received will be imprinted. Cheques are subject to bank clearance.
本局建議申請者以信用咭、易辦事或支票繳交學費。學費收據以本局機印方為有效, 支票收妥作實。
- Enrolment fee is not refundable unless HKPC is notified in writing of your withdrawal at least 5 working days before the course commences. A handling charge of HK\$200 will also be levied.
除非本局於課程開始前最少五個工作日收到申請者書面通知退學, 否則已繳學費概不退還。申請者申請退還學費需繳交手續費二百元正。
- An applicant may, subject to approval from HKPC, nominate a person to attend the course on his/her behalf.
申請者可提名他人代替其本人出席課程, 惟事先須得本局同意。
- HKPC reserves the right to reject any application in any circumstances and for whatever reasons. Payment of fees should only be construed as conditional acceptance of application.
香港生產力促進局保留在任何情況下及以任何原因拒絕任何入學申請的權利。申請者繳付學費後, 仍須符合入學的所有條件, 其申請方可獲得接納。
- HKPC reserves the right to change the contents, venue and / or time as necessary.
香港生產力促進局保留在任何情況下更改課程內容、授課地點、日期及時間的權利。
- Classes in the morning, afternoon or evening will be cancelled if typhoon signal No. 8 or above OR black rainstorm warning is still hoisted after (or is announced by the Hong Kong Observatory to be hoisted at/after) 6:00 a.m., 11:00 a.m. and 4:00 p.m. respectively. Participants will be notified when the class will be made up as soon as possible.
颱風及黑雨警告: 如課堂時間是在早上(9:00-12:00)、下午(2:00-5:00)或晚間(6:30-9:00), 將在下列情況下取消: (一)八號或以上颱風訊號或黑色暴雨警告訊號在早上 6:00、11:00 或下午 4:00 仍然懸掛; 或(二)香港天文台在早上 6:00、11:00 或下午 4:00 或之後, 宣佈將懸掛八號或以上颱風訊號或黑色暴雨警告訊號。本局將盡早通知學員補課的日期及時間。