

Workshop & Seminar on Railway Electrical Systems for LRT/MRT Projects

ELECTRICAL ENGINEERING TECHNICAL DIVISION

reported by



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From left to right: Mr. Alex Looi Tink Huey (EETD), Ir. Dr Amir Basha Ismail (EETD), Mr. Yuslizar Daud (SPAD), Ir. Chong Chew Fan (EETD Chairman) and Ir. Amir Hussein bin Jaafar (EETD)



Dr. Ajeet Kumar Pandey's presentation on RAMS management for railway systems

EM'S Electrical Engineering Technical Division (EETD), with the cooperation of the Institution of Railway Signal Engineers (IRSE) – Malaysian Section, held a "One-Day Workshop on Railway Electrical System" on 24 May, 2017, at Wisma IEM, Petaling Jaya, followed by a "One-Day Seminar on Railway Electrical Systems for LRT/MRT Projects in Malaysia" on 25 May.

The workshop had 51 participants while the seminar had 7 invited speakers and 76 participants. They were from the regulatory body, academic institutions, railway industry and other related industries.

The workshop started with Ir. Dr Amir Basha Ismail's presentation on EETD: Railway Electrical Systems Working Group on traction power system designs for AC and DC railways in Malaysia, followed by the fundamentals of train propulsion systems where the working principles of the induction motor and train motion kinematics were explained. He illustrated the use of traction power simulation

software to assess the performance of rail traction loads on public utility (TNB) electrical power supply system.

After this, Prof. Ir. Dr Au Mau Teng from Institute of Power Engineering, Universiti Tenaga Nasional (UNITEN) presented the power system study on railway traction loads to assess the impact of traction loads in term of power quality, adequacy, reliability and safety. He showed the harmonics emission from traction loads and proposed correction measures such as the use of harmonic filter to mitigate harmonic voltage distortion to a permissible level.

In the third part, Dr Ajeet Kumar Pandey from L&T Technology Services spoke on the importance of Reliability, Availability, Maintainability and Safety (RAMS) management for better quality service. He also talked about Electromagnetic Compatibility (EMC), explaining the sources of Electromagnetic (EM) emissions and EM zoning in railway environments.



From left to right: Mr. Wojciech Kolomyjski (ABB) and Ir. Amir Hussein Bin Jaafar (EETD)

The seminar on 25 May aimed to expose participants to railway electrical systems.

Encik Yuslizar bin Daud, Head of Rail Division, SPAD (Suruhanjaya Pengangkutan Awam Darat), gave the keynote address. He explained the role of SPAD and talked about the urban rail development master plan for greater Kuala Lumpur/Klang Valley.

Mr. Aniket Mukhopadhyay from IRSE gave an overview of the Institution of Railway Signal Engineers. Started in the United Kingdom, this professional institution is for those engaged in or associated with railway signalling and telecommunications, train control, traffic management and allied professions. It also offers the IRSE Licensing Scheme which provides assurance on the competence of individuals to carry out

technical safety-critical or safety-related work on signalling and railway telecommunications equipment and systems.

Next, Mr. Bassam Mansour (also from IRSE) presented the 3rd and 4th power rail systems for D.C. electrified railways. The two systems and applications were illustrated and a comparison made between them.

Ir. Dr Amir Basha Ismail presented a case study on the design requirements of power supply and traction power system for a 750V DC rail transit project. The traction power modelling and simulation were used to assess the performance of rail traction loads in the design and operation of a railway infrastructure project.

Then Ir. Dr Aziz Marzuki bin Ahmad Marican from Diagnostic Consultancy & Services gave a brief introduction to earthing, followed by a case study on earthing system analysis for a Light Rail Transit project.

"Traction Power Receptivity for Train Braking Regenerative Energy Recovery System" was the topic choice for Mr. Wojciech Kolomyjski of ABB (ASEA Brown Boveri) Inc. This covered the description of IGBT (Insulated-Gate Bipolar Transistor) Inverter, Energy Storage System and Thyristor Inverter.

The last speaker, Dr Ajeet Kumar, presented "Systems Assurance for Urban Railway Operation", a management approach that ensures systems are designed and developed to meet specified RAMS & EMC requirements. Using a case study, he illustrated the System Assurance implementation and RAM apportionment in MRT/LRT projects. ■

IEM DIARY OF EVENTS

Title: Talk on "Design of Slender Tall Buildings for Wind and Earthquake"

5 September 2017

Organised by : Civil and Structural Engineering Technical Division
 Time : 5.30 p.m. - 7.30 p.m.
 CPD/PDP : 2

Kindly note that the scheduled events below are subject to change. Please visit the IEM website at www.myiem.org.my for more information on the upcoming events.