

NAME OF PERSON Dr Michael Ramsbottom

NATIONALITY British

YEAR OF BIRTH 1945

POSITION Principal Engineer

QUALIFICATIONS MIET Member of the Institution of Engineering and Technology
Ph.D., 1974, University of Manchester Institute of Science and Technology. Research Topic "The Transient Switching Behaviour of Fast Thyristors".
M.Sc. 1969, University of Manchester Institute of Science and Technology, Electrical Power Systems.
B.Sc., 1968, University of Salford, Electrical Engineering (Hons).

KEY EXPERIENCE A professional electrical engineer with 30 years experience in consulting and manufacturing industry both in the UK and abroad .
Experience in the railway industry has been gained as a manager and technical expert responsible for the preparation of safety assessments, in particular those covering Electromagnetic Compatibility.
Michael's understanding and familiarity of electrification, rolling stock, signalling and telecommunications allows him to give advice to the client about systems and interface issues and the ability to deal with the detail.
Major project work has been carried out during the last 14 years as a technical expert for the preparation of the EMC safety assessments both in the UK and abroad. This has involved the compilation of the Management Plan, the System Description, the Hazard Log, undertaking Interface Design Reviews, producing the Risk Assessments, identifying route specific solutions to issues using simulations and testing, the testing of equipment and the railway, and the production of the EMC safety case.
The work has covered new rolling stock, signaling, telecommunications, electrification and neighbours adjacent to the railway. A thorough understanding of the application and use of the European standards has been demonstrated in the projects undertaken. Assistance has been given to clients to define interface conditions and criteria for compatibility where there are no standards.
The scope of the work has covered all types of railway systems: surface, underground, high speed, metro, 25 kV and 750 V dc.

EXPERIENCE

June 2002 to date Permarail Limited – Independent Consultant

Currently engaged as EMC Consultants for electrification and rolling stock major projects. Electrification projects for Network Rail and Crossrail autotransformer electrification, Network Rail and London Underground DC substation upgrades and the substation inverter trial for London Underground. A rolling stock project for the new 25 kV EMU's for the Mass Transit Railway in Hong Kong which is being upgraded with a fully automatic transmission based train control system. Three other projects where Permarail has been the EMC consultant have recently entered revenue service. These are the London Underground East London Line including the interfaces with the Network Rail 25 kV AC railway, a South Korean joint venture responsible for the design and build of all E&M systems for a new 30 km 750 V DC light rail driverless train railway and the new dual voltage, dual frequency, Silverliner V IGBT trains delivered to the South Eastern Philadelphia Transit Authority.

Permarail has completed for the BB-CJV, the EMC assessment for the East London Line E&M scope of work covering HV and LV distribution, DC electrification, signalling, telecommunications, the control centre, the depot and the interfaces with neighbouring railways. This work has been carried out according to the Network Rail "yellow book" methodology.

In 2006 Permarail completed the EMC E&M assessment for a joint venture responsible for the Channel Tunnel Rail Link electrification, track, and signalling interfaces to Network Rail.

From 2002 until 2007 we have also completed the EMC safety assessment for new rolling stock of the Vancouver Canada Line driverless trains, Athens Metro, Delhi Metro, TCL line in Hong Kong and Singapore Metro Upgrade. We have carried out a trouble shooting exercise for Jubilee Line of London Underground tunnel telephones involving site measurements, proposing a solution and providing filters for installation.

The scope of the project work undertaken covers all of the railway infrastructure; the power distribution (HV and LV), the electrification, the train, the signalling and telecommunications equipment, interfaces with energy suppliers, neighbours railways and neighbouring third parties. The Electromagnetic compatibility was demonstrated through a methodical approach in accordance with International practice as defined in EN railway standards, Network Rail engineering design practice and London underground best practice. Permarail were involved in the entire EMC cycle from Management Plan, Hazard log,



design review, combined test, train level test and the final EMC assessment report. The work involves compiling the reports for client approval, making agreements about interface criteria with other contractors, performing simulation calculations, writing the train test specification, carrying out EMC tests, managing the hazard log and compiling the final safety assessment. All of the EMC reports have received client approval and the trains/equipment has been successfully introduced into service.

Responsible for compiling the EMC safety assessment for new rolling stock of the Delhi Metro. The scope of the work covered both train borne equipment and the interface with signaling, telecommunications, electrification and neighbours. The compatibility was demonstrated through conformity with European standards and compliance with interface criteria in particular those for signaling. Involved in the EMC cycle from Control Plan, Hazard log, combined test, train level test and the final EMC assessment report. The work involved compiling the reports for client approval, making agreements about interface criteria with other contractors, performing simulation calculations, writing the train test specification, assisting with the train tests and managing the hazard log. All of the EMC reports received client approval and the train entered service on schedule. An identical scope of work was carried out for new trains to be delivered to the Athens Metro in time for the 2004 Olympic Games.

August 2000 to 2002

Consultant with Atkins Rail

Involved in the preparation of EMC Safety Assessments and Reports relating to a new signalling system to be installed on the Railtrack 25 kV ac railway. This covered a study of the site specific infrastructure, an appraisal of the new features involved in the design and assessment of the compatibility of new features with the infrastructure. The work involved theoretical predictions and the compilation of test specifications for both laboratory and on site testing to verify the findings of the study. The calculations and measurements required for compiling an EMC safety assessment were defined.

1994 to 2000

Consultant to AEA Technology Rail

Involved in carrying out the technical studies for new rolling stock and signalling systems for use on the Railtrack infrastructure and on London Underground. This work included analytical studies and measurements on the railway and at test installations. The results of the work lead to safety assessments being carried out, in particular those covering compatibility issues between trains and signalling systems. Michael has been responsible for defining the strategy to carry out the work, the management of the tests, the application of computer simulation techniques and the organisation of hazard and risk assessments. The outcome of this work has been the issue of safety certificates to operate new rolling stock and signalling systems.

1992 to 1994

Consultant

Consultant to a company engaged to define a method of assessing the condition of Railtrack Signalling Equipment. Consultant for a rolling stock manufacturer advising upon the application of modern technology to system designs for electric multiple units. Involved in the writing of the procurement specification and undertook the commissioning of a 4 MW traction laboratory power supply.

1989 to 1991

Research and Development Manager, Brush Traction

Managed a team of thirty engineers and technicians carrying out all aspects of electric traction design and testing. This covered the development and testing of a three phase propulsion system for use with Networker type electric multiple units and the construction of a new test facility. Reliability, safety and maintainability studies were carried out for locomotives.

1983 to 1989

General Manager, RJM Solar Technology

Manager of a company involved in the manufacture of electrical systems incorporating photovoltaic panels. Responsible for making decisions about commercial matters, system designs to suit customers applications, tendering, marketing and production planning.

1981 to 1983

Development Manager, Schindler Lifts

Employed as an engineer responsible for a new power electronics development featuring static power converters and microprocessor control. Michael's contribution was the invention, design and testing a new and novel system for the speed control of dc lift motors.

1978 to 1980

Applications Manager, Marconi Electronic Devices

Managed the electrical measurements laboratory and applications group. Responsible for the preparation of technical information for publication, the design and building of test equipment, component testing, the writing of application notes and sub assembly designs in response to enquiries. Supported the marketing activities through frequent visits to clients in Europe, and Asia, presenting lectures and writing articles for technical publications.

1975 to 1977

Research Fellow, European Centre for Nuclear Research

Awarded a three year fellowship to work at the centre. Engaged to work with a group responsible for designing high power supplies for the particle accelerators.

1969 to 1975

Electrical Measurement Engineer, Philips

Responsible for carrying out electrical measurements on development semiconductors, the preparation of technical information for data sheets and application support within Europe.