



Electromagnetic compatibility (EMC)

Ensuring compatibility and improving systems safety and reliability

Services

- EMC assurance for critical systems and installations
- Lightning risk assessment and protection
- Earthing and bonding design for safety and EMC
- Human exposure assessment of non-ionizing radiation hazards
- Regulatory compliance consultancy
- Specialist EMC tests and measurements (DC – 40 GHz)
- State of the art electromagnetic modelling
- EMC evaluation for functional safety
- Characterisation of EM environments
- EMC design consultancy

Systems EMC Assurance for the Railway Industry

EMC plays a significant part in the railway industry due to the complexity of the railway systems and the severe EM environment. Failure of systems to operate in this EM environment can lead to poor system reliability which in turn could compromise the safety of passengers and staff.

Sensitive electronic and electrical equipment, systems and installations (including control systems) are legally required to operate satisfactorily in an increasingly complex electromagnetic environment.

To ensure reliable operation, it is essential to show care in the design and installation of equipment and systems with respect to EMC, particularly in the definition of equipment EMC performance, cable management and earthing and bonding. The key is the identification and mitigation of all EMC associated risks to an acceptable level to ensure safe and reliable system operation.

Edif ERA's EMC consultancy services provide access to a wide range of expertise that will reduce the vulnerability of installations and implement bespoke optimum levels of protection.

Edif ERA has been providing EMC services and leading EMC best practices for over 40 years, typically working with clients in the energy, defence, built environment and rail sectors throughout the UK and overseas.

Cross-sector experience includes:

- **Hitachi:** EMC support for Hitachi ETCS system on the Cambrian line
- **Balfour Beatty:** EM survey for F-Bane West, Denmark
- **Shah Gas Development, UAE:** EMC and Lightning Protection Study for the Utilities and Offsite Contract, EPC4
- **Freedom Group:** EMC control plan and survey for Neasden BSP substation
- **Olympic Park – Stratford, UK:** Supplier of EMC management services (Olympic Park and Olympic Village) to the London 2012 Games
- **University of Cambridge Materials Science and Metallurgy Laboratory, UK:** Modelling and measurement services to determine the environment for a suite of electron microscopes

Edif ERA engineers are highly skilled and experienced in electromagnetic compatibility consultancy and provide:

EMC management and technical documentation

Edif ERA provides EMC support to match your project requirements, ranging from initial impact assessments to full control plans and assurance files for complex, business-critical or safety-critical facilities.

Our EMC assurance services include EMC management planning to define the overall EMC strategy adopted throughout the project stages; EMC control documents outlining the analyses; evidence to show that systems and installations have met the essential EMC requirements; complete, structured EMC assurance files for large projects.

We provide support from early concept stages, through procurement, systems integration, installation and final commissioning including qualitative and quantitative EMC risk analyses and management of EMC risk registers. We help you to identify cost-effective EMC mitigation measures that can be adopted to reduce and manage the EMC risks through the definition of the electromagnetic environment and a thorough understanding of the phenomena.

EMC design consultancy

Edif ERA's consultants can assist in identifying EMC design shortfalls for systems and large installations, and can provide bespoke solutions in line with the applications of EMC engineering best practices focusing on critical design issues such as earthing/bonding, cable management and architectural shielding.

Electromagnetic modelling

EM modelling provides an alternative approach to practical measurements which enables the identification of any high risk areas requiring further assessment or control measures. We can create a virtual environment, allowing you to compare design options and implement cost-effective mitigation measures.

Edif ERA can deploy a full suite of EMC software ranging from analytical tools to EM computational simulation for applications varying from traction power, power systems or plant equipment for assessment of interference and induced voltage studies to research laboratories, data centers recording studios and other sensitive equipment.

EMF human exposure risk assessment

With many years of experience in the field of electromagnetism working in the commercial and military domains, Edif ERA provides Human Exposure Risk Assessment quantifying the levels of EM exposure through desktop studies, analytical calculations, simulations and or site survey measurements using advanced state of the art measurement equipment to ensure compliance with the new EMF directive.

Specialist measurements and site surveys

Edif ERA carries out EMC surveys from DC to 40 GHz to characterise the EM environment and determine the suitability of a site at pre/post construction, commissioning and or operation stages. We have mobile facilities including state of the art measurement equipment and regularly carry out overseas surveys on behalf of our clients.



Edif ERA's EMC measurements provide the assurance that an existing EM environments has been quantified and that all related EMC risks have been reduced to acceptable levels. In addition, these measurements can also be used for the diagnosis and troubleshooting of our client's interference problems and for human exposure assessment purposes.

Why Edif ERA?

For critical industries and environments world-wide, we provide technical inspection, engineering and consultancy services to reduce risk, optimise performance and enhance capability, giving our customers the confidence to build successful operations.