Aircraft systems are required to operate in severe electromagnetic environments without degradation in performance which could compromise safety.

EMC protection measures can add to costs, aircraft weight, design complexity and maintenance tasks. Often it is difficult to ascertain how well the protection measures are performing until late in the programme when certification testing occurs. This can result in last-minute design changes with significant impact on cost and completion deadlines.

RINA Consulting’s EMC design and assessment services give you access to engineers with extensive expertise and backgrounds. We will work with you to identify project risks, find optimal solutions and provide evidence for certification that satisfies today’s rigorous systems engineering requirements.

We have been proactively developing and providing pragmatic solutions to aircraft EMC programmes for over forty years. We focus on areas of risk over the complete product or platform design and operation lifecycle, recommending cost effective designs and addressing EMC protection.

We have fully mobile facilities that can be deployed worldwide and rapidly mobilise our measurement team and equipment to the client sites. We are flexible and adaptive to changes in time frames and will work with our clients to provide the best available test solutions and quality of results.

**OUR SERVICES**

- EMC management and control
- EMC design consultancy
- EMC testing and specialist measurements
- EMC risk analysis and mitigation
- HIRF & HIRTA
- PEDS & T-PEDs
- RADHAZ (HERO, HERF, HERP)
- E3 protection support and mitigation measures
- EED and flammable atmospheres assessment
Our engineers are highly skilled in EMC/HIRF/HIRTA, including LLSC, LLSF, BCM and BCI, together with PED IPL and T-PED susceptibility, testing and consultancy.

EMC MANAGEMENT
We can provide early risk reduction for EMC, including the provision of EMC Control and Certification/Verification Plans as well as identifying mitigation measures. This reduces the risk of Electromagnetic Interference (EMI) problems at later stages when changes can have significant cost and programme implications.

We offer through-life support from early concept and design stages, through procurement, systems integration, development, certification upgrades & modification. We cover the complete Electromagnetic Environmental Effects discipline.

EMC DESIGN CONSULTANCY
Our EMC design consultants identify issues affecting airframe and wiring shielding including:
- Screen termination methods
- Equipment grounding and bonding
- Specification of test environments for equipment based on aircraft design
- Cable segregation planning and antenna placement

EMC protection measures have an impact on cost, weight and maintenance, so achieving the right balance is paramount to a successful design.

We work with our clients to ensure that design approaches are consistent with achieving compatibility and minimising the risk of changes due to EMI. In order to achieve this, we consider the whole aircraft and apply our detailed knowledge of EM environments, typical aircraft characteristics and our understanding of potential shortfalls of legacy design approaches.

HIRF/HIRTA, PED & T-PED TESTING
RINA Consulting carries out aircraft EMC testing for a range of EM phenomena including HIRF and the environments from PEDs/T-PEDs. Our mobile facilities are regularly deployed to carry-out testing at our clients’ facilities around the globe. We understand that programme timescales are often challenging and are prepared to work flexibly to meet your requirements. Our testing is performed using software controlled test equipment which provides real-time data analysis and minimises the test duration.

STANDARDS & GUIDANCE
RINA Consulting carries out whole aircraft tests and assessments with reference to standards and guidance documents such as:
- FAA AC 20-158, SAE ARP 5583, EUROCAE ED-107
- DEF STAN 59-411, MIL-STD-464
- EUROCAE ED-130, ED-239, RTCA DO-307, DO-294

ABOUT RINA CONSULTING
RINA Consulting is the engineering consultancy division of the RINA Group, and provides a wide range of services to critical industry sectors including oil & gas, power, renewables, space & defence, steel, and transport & infrastructure sectors.

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