



Short Course on Lightning Protection of Aircraft

Wednesday 12 May – Friday 14 May 2010

13/15 Nuffield Way, Abingdon, Oxfordshire, UK

COBHAM

Cobham Technical Services, Lightning Testing & Consultancy is located in Abingdon, Oxfordshire. The company was established in 1972, originally as the Culham Lightning Studies Unit (CLSU). Formerly part of AEA Technology plc, Culham Lightning was acquired by Cobham plc in February 2000. Cobham Technical Services, Lightning Testing & Consultancy is the most comprehensive and experienced company in the UK dealing solely with lightning strikes and protection against lightning. The company is a centre of expertise on the effects of lightning on aircraft. It has:

- High current and high voltage lightning simulators able to meet a variety of international aerospace standards.
- Simulators for equipment and systems testing. Off-site testing of aircraft can be done using transportable systems.
- Experienced staff who provide consultancy on aircraft design and certification.
- Simulation software developed by Cobham Technical Services and validated with data measured on aircraft structures for indirect effects assessments.

Background to the Course

The Lightning Protection of Aircraft Short Course series was started to disseminate to industry the considerable wealth of knowledge gained by us in this important field over the past 30 years. This Short Course is revised and updated each time to include the latest information relevant to present and future aerospace vehicles, and their certification.

Location

The course takes place in Abingdon, which is located 8 miles (13km) south of Oxford, UK.

The course has an interactive group approach, and to maximise the benefit to the attendees, the course numbers are limited to 20.

Outline of subjects covered

- The characteristics of lightning, its interaction with, and its effect on aircraft. Where does the lightning strike the aircraft (zoning)? Lightning threat definition for certification and testing.
- Standards and specifications for civil and military aircraft.
- Procedure for certification.
- Lightning damage to metal and composite aircraft structures. Damage mechanisms and protection against damage.
- Damage and interruption of electrical systems by induced voltages from lightning. How they arise, how they can be determined by simulation and test and how to protect against them.
- Test techniques for the certification of systems and equipment.
- Hazards to fuel systems. How they arise, how protection can be provided for fuel systems and structures and demonstrated by test.
- Lightning damage to antennas and radomes. Protection of dielectrics against puncture and reduction of transients induced on receivers.
- P-Static charging problems of dielectrics including windscreens.
- Simulated lightning demonstrated in the laboratory. Interactive problem solving class.

The Main Lecturers are: John Hardwick, MA (Cantab) PhD Technical Manager

John joined the company in 1983. His areas of expertise are high voltage radome testing, direct and indirect effects and whole aircraft testing.

Stephen Haigh, MA (Oxon) Principal Scientist

Stephen has been at the company since 1986. His areas of expertise include protection of fuel systems from lightning hazards and associated testing techniques, direct and indirect effects and computation of induced transients.

Both John and Stephen are active members of the EUROCAE WG31 committee which addresses standards for lightning testing worldwide.

Lectures are also given by John Percival and other experienced members of the test group at Cobham Technical Services.

Who should attend?

The course is aimed typically at professional engineers working in the field of aerospace design and development, manufacture and certification. It covers the susceptibility of structures and avionics to lightning strikes.

No previous knowledge of the subject of lightning protection is assumed and all concepts will be explained as the lectures proceed. However a basic knowledge and understanding of electrical circuits and mechanics are essential.

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