CAPE ELECTRIC

THE FUTURE OF ELECTRICAL SAFETY IS HERE

EMI/EMC Solutions for critical structures
Protection against HEMP, LEMP, IEMP and NEMP

High-Altitude Electromagnetic Pulse (HEMP) events can severely disrupt electrical and electronic systems. To ensure operational resilience, HEMP Protected Areas (HPAs) are designed to shield critical infrastructures like defence facilities, data centres, and control rooms from electromagnetic disturbances.

How Cape Electric Can Help

Cape Electric provides complete HEMP protection solutions from design to commissioning in compliance with standards.

- **Design & Engineering:** Simulation-based HEMP protection designs integrating shielding, bonding, grounding, and surge suppression.
- **Installation:** Implementation of shielding, filters, surge protective devices, and bonding networks.
- **Testing & Commissioning:** Shielding effectiveness, continuity, and transient performance verification with full compliance documentation.

With deep expertise in EMI/EMC, grounding, and surge protection, Cape Electric delivers turnkey HEMP-resilient systems ensuring safety, reliability, and long-term performance.

Compliance to

- **MIL-STD-188-125-1:** High-Altitude Electromagnetic Pulse (HEMP) Protection For Ground-Based C4i Facilities Performing Critical, Time-Urgent Missions Part 1 Fixed Facilities.
- **MIL-STD-188-124B:** GROUNDING, BONDING AND SHIELDING for Common Long Haul/Tactical Communication Systems Including Ground Based Communications Electronics Facilities and Equipment.
- **MIL-HDBK-419A:** Military Handbook Grounding, Bonding, And Shielding For Electronic Equipment And Facilities Volume 1 Of 2 Volumes Basic Theory.
- **IEC/TS 61000-5-9:** System-level susceptibility assessments for HEMP and HPEM.

- **IEC 61000-5-10:** Guidance on the protection of facilities against HEMP and IEMI.
- **IEC 61000-5-2:** HEMP Protection Concepts.
- **ITU-K-115:** Mitigation methods against electromagnetic security threats
- **ITU-K-81:** High-power electromagnetic immunity guide for telecommunication systems.
- **ITU-K-78:** High altitude electromagnetic pulse immunity guide for telecommunication centres
- **ITU-K-27:** Bonding Configurations and Earthing Inside a Telecommunication Building.
- **ISO/IEC 30129:** Telecommunications bonding networks for buildings and other structures

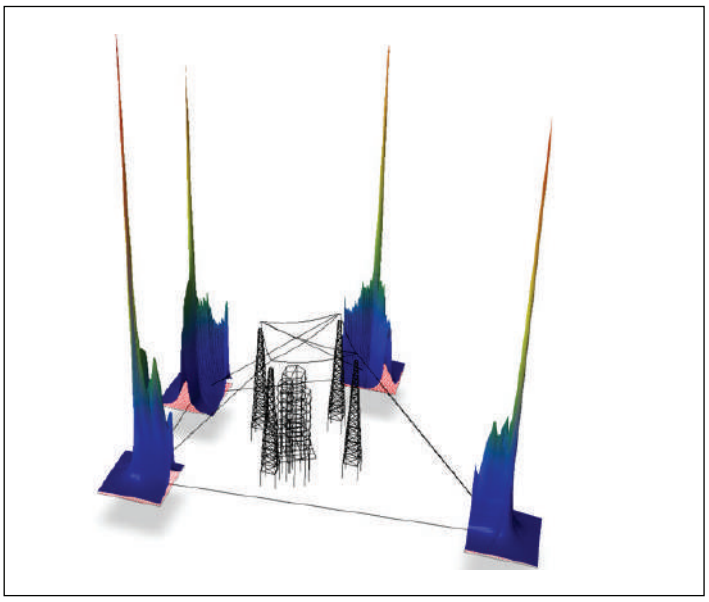
Earthing & Lightning Protection Simulation using Advanced Software

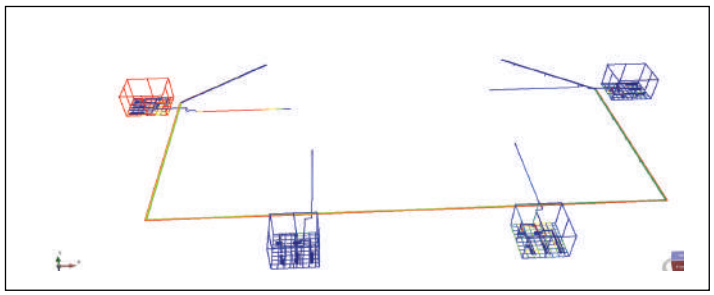
Earthing and Bonding Simulation for Substations, GIS, Industrial and Commercial Installations

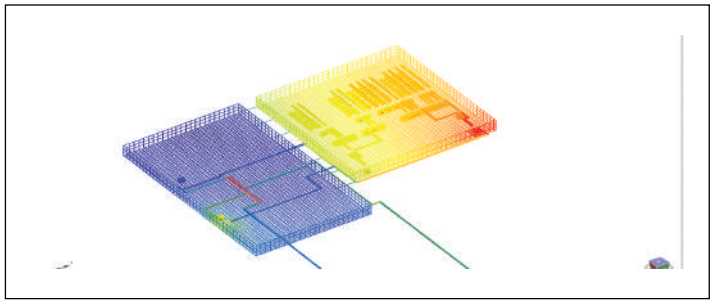
- Calculation of touch voltage and step voltage during fault conditions as per the following standards
    a. IS/IEC 61936-1
    b. BS EN 50522
    c. IEC 60479-1
- Calculation of touch and step voltage due to transfer potentials.
- Simulation of Global earthing system.
- Calculation of transfer potentials and transfer fault current.
- Actual fault condition while using NGR.
- Modelling of EHV, HV and LV electrical systems to study the effects of any electrical faults.
- Soil resistivity analysis such as modelling multi-layer soil models.
- Simulation of stress voltage on the installation and system

EMI and Lightning Study

- HV, EHV interference study on pipelines .
- EMI/EMC simulation for critical infrastructures .
- Study of radiated (electric and magnetic field, coupled currents) and conducted effects from LV, HV and EHV transmission lines / substation / GIS / cables, etc.
- EMF Exposure Assessments for equipment and human safety.
- Lightning Simulation for all installations such as pipelines, transmission lines, substation, GIS, bridges, dams, buildings, etc.
- Effect of direct and indirect lightning current in the structure/installation.







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