



EMP... Electromagnetic Pulse

one of the greatest threats facing technology-driven clients today



Do you remember in the movie *Oceans Eleven* when Las Vegas was rendered powerless by an EMP event? *That could happen at any time.*

Electromagnetic Pulse Protection, A Disaster Planning & Recovery Requirement

Two Types Of Electromagnetic Pulse Can Be Created

There are two types of Electromagnetic Pulse (EMP) threats:
1) Intentional Electromagnetic Interference (IEMI), created by a deliberate electromagnetic weapon attack; and
2) High Altitude Electromagnetic Pulse (HEMP), created by a high-altitude nuclear device detonated in space above a geographic region or country.

Intentional EMP Attacks Have And Will Occur

Terrorist or criminal groups could readily disrupt and damage our way of life by insidiously targeting cities and individual companies with an IEMI weapon. Without causing harm to humans, the effects from an IEMI weapon could disable all electronic devices in a region.

EMP Weapons Are Available On The Internet

An IEMI attack weapon can be purchased or assembled using instructions available on the Internet. They range from a small, hand-held device to a suitcase-contained weapon, and move up to a JOLT generator, which fits on the back of a small trailer.

High-Altitude EMP Would Damage Technology

A HEMP detonated 30 miles or higher above the earth's surface would destroy all electronic devices within the targeted area. This type of event, however, would more than likely not injure anyone or create radiation or collateral blast damage.

Media Coverage Has Been Growing

The opening panel for Data Center World's 2013 conference outlined various threats facing the country's electrical infrastructure, including EMP. Recent articles have also appeared in *The Wall Street Journal*, *Fox News*, the *Washington Examiner* and *Yahoo News*. These articles focus on the impact of EMP and how the U.S. could be thrown into a state of technological chaos.



Without warning, an EMP could permanently destroy all electronic equipment - including hardware, software and data.



An EMP is more catastrophic than a cyber attack.

Governments Are Taking Action

Government organizations are studying the threat and taking action. According to Presidential Policy Directive 21, the U.S. House Armed Services Committee established the EMP Commission in 2001 to assess the threat from potentially hostile states or terrorist parties that have or could acquire EMP weapons. In addition, the state of Maine has recently passed active legislation to ensure power grid protection.

Electronic Equipment Would Not Survive

An EMP would result in a high-intensity pulse of over 10,000 V/m, which is 1,000 times more field than IT equipment is designed to withstand. Every piece of electronic equipment could be damaged beyond repair, resulting in data corruption and permanent software malfunctions. It's also interesting to note that even the most robust aircraft cockpit equipment is only designed to survive field levels up to 7,200 V/m outside the aircraft.

EMP Is An Anonymous Pulse That Attacks Devices

In an EMP event, every device that relies on integrated circuits for operation could be immediately disabled or destroyed. Unlike cyber attacks where "fingerprints" can often be found for forensic analysis, an EMP attacker will not leave any information behind. In fact, studies have shown that an EMP is so rapid that computer log files will not be able to indicate what caused the electronics to shutdown.



EMP Commission Warning:

"Certain types of relatively low-yield nuclear weapons can be employed to generate potentially catastrophic EMP effects over wide geographic areas... It has the capability to produce significant damage to critical infrastructures and thus the fabric of the U.S. society."



Data centers are currently protected against natural disasters, but EMP is an imminent and often overlooked threat.

Red Edge Pulse Protection Provides Certified EMP Shielding

EMP is a significant threat in our modern era and Red Edge Pulse Protection provides certified EMP shielding, a first line of defense for non-government applications. Red Edge protects your equipment and potential points of entry with rock-solid, impenetrable enclosures, doors, filters, ports, vents and piping. With Protection Level 2, Red Edge also provides continuous data operations with independent, uninterrupted power and utilities.

ETS-Lindgren, The Foremost EMP Solutions Expert

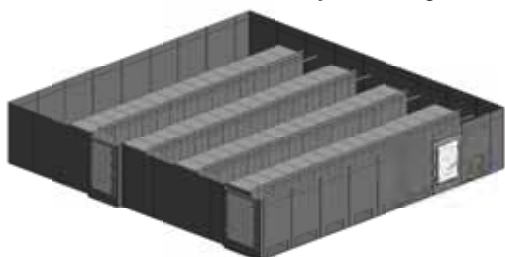
ETS-Lindgren is an innovator of systems and components for the detection, measurement and management of electromagnetic, magnetic, and acoustic energy. With more than 30 years of experience in design engineering, project management and building implementation worldwide, ETS-Lindgren is the preeminent provider of integrated EMP solutions.

- 800 employees worldwide
• On-site design, engineering and project management expertise with more than 30 years of experience
• Over 200,000 filters manufactured to date

A member of the ETS-Lindgren team, Dr. William Radasky is also known internationally for his dedication and comprehensive studies regarding the impact of HEMP and IEMI. He has earned an IEEE Life Fellow Award for his contributions to understanding high-power electromagnetic effects on electrical equipment and for developing mitigation methods to protect commercial facilities from these threats.



Red Edge Pulse Protection products have been tested and certified by Little Mountain Test Facility, the premier, state-of-the-art survivability and reliability HEMP testing center used by the U.S. government.



Our Building Information Modeling (BIM) capabilities allow us to plan and predict the performance of our solutions prior to implementation.

EMP protection is critical for disaster planning and recovery.

Critical infrastructure businesses need to consider EMP protection.

As defined by the Department of Homeland Security

- Telecommunications
• Financial Services
• Security Services
• Electricity Generation, Transmission & Distribution
• Public Health, Health Records
• Gas Production, Transport & Distribution
• Oil and Oil Product Production, Transport & Distribution
• Agriculture, Food Production & Distribution
• Water Supply
• Heating
• Transportation

Have you considered EMP Planning and Protection?

Enabling Your Success™



An ESCO Technologies Company

Certified EMP Disaster Protection

State-of-the-art pulse protected systems are your first line of defense for non-government applications.



EMP Protected Environments

Plus, Independently Protected Power And Utilities



Protection Level 1
Survival of Data & Equipment

With EMP protected enclosures and treated points of entry, your data and processing equipment will survive. Although the power, cooling, and utilities in an unprotected host facility may not be immediately available, your equipment will remain safe. Your data equipment will be fully operable when the power, cooling and utilities are restored.



Protection Level 2
Survival & Continuous Operations

If an EMP event occurs, your data and processing equipment will continuously operate with a fully independent and protected power and utility source. This unit may be located inside your suite or outside the existing data center facility. Your data processing will not be interrupted with Protection Level 2.



Modular Panel Systems

modular systems
pan-formed systems
welded systems



Waveguide Vents

HVAC
generator exhaust
equipment cooling



Doors

manual
semi-automatic
sliding



Waveguide Penetrations

plumbing
cooling
fire protection



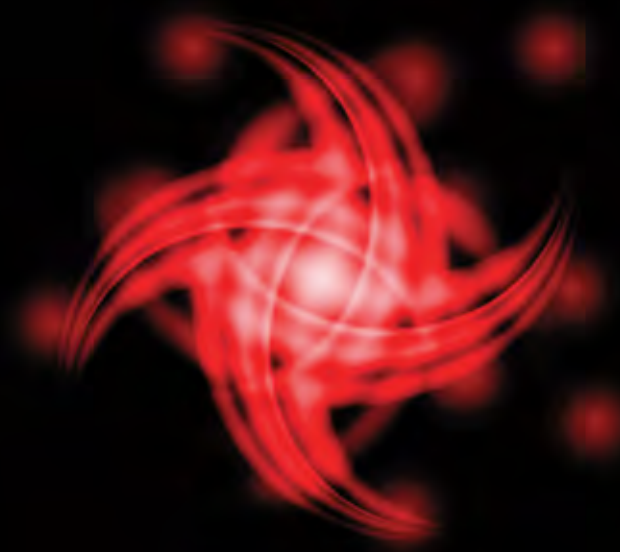
Filters

power line
10 amps - 1,200 amps
signal line



Fiber Optic Penetrations

data
telecommunications
fire safety
security



The EMP Protection Experts

REDEGE[™]
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