

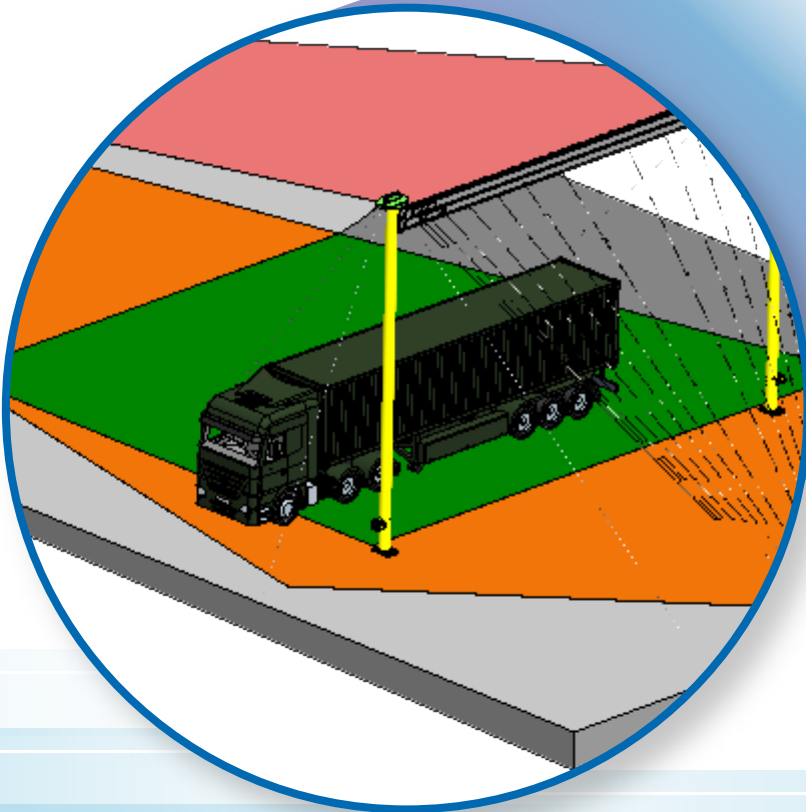
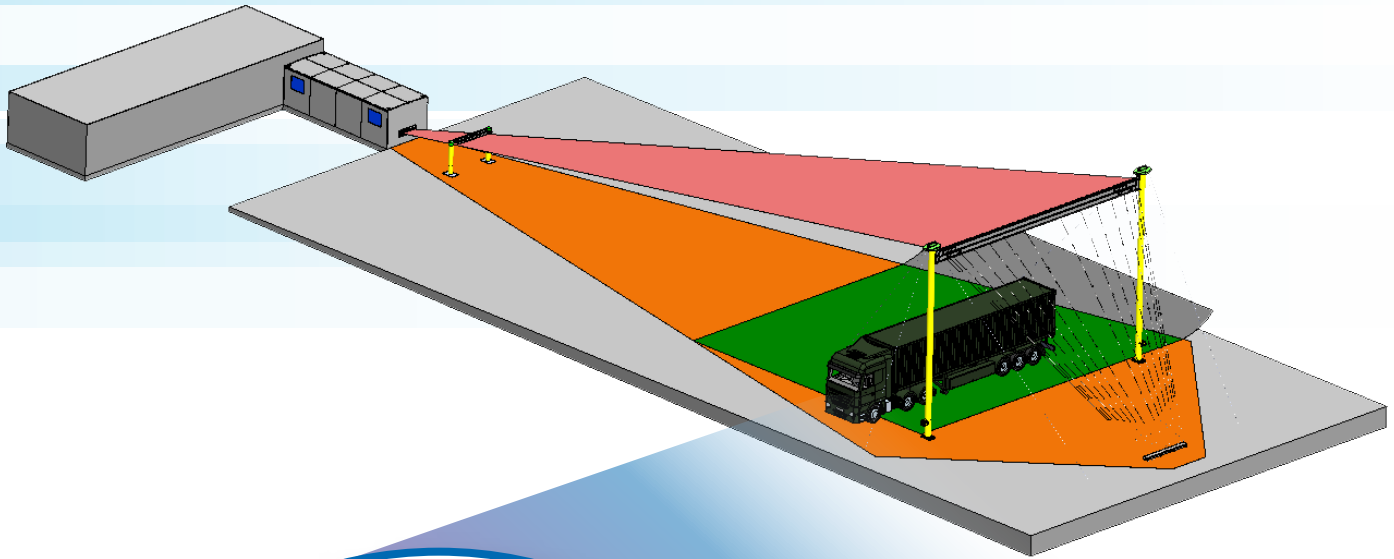


इलेक्ट्रॉनिक्स एवं
सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF
ELECTRONICS AND
INFORMATION TECHNOLOGY

सत्यमेव जयते



A H P Research Centre



Advanced High Power Electromagnetic Research Centre

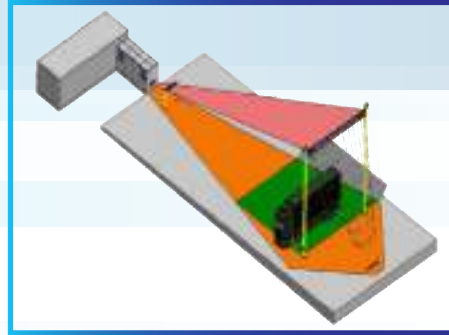
SOCIETY FOR APPLIED MICROWAVE ELECTRONICS ENGINEERING AND RESEARCH

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EMP System

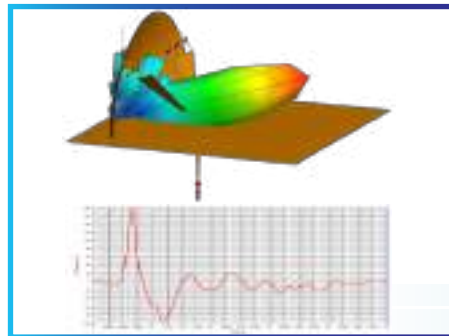


Nation's largest Electromagnetic Pulse (EMP) System:

- EMP is a high-amplitude, short-duration, broadband burst of electromagnetic energy.
- Can cause severe damage to unprotected electronic equipment and systems.
- Typically caused by nuclear detonations at high altitudes (HEMP) or natural events like solar flares.

EMP Research Activities:

- ✓ Advanced research to assess the resilience **of critical electrical** and electronic infrastructure.
- ✓ Enhancing Hardening , **Develop strategies against high-altitude** electromagnetic pulse (HEMP) threats **to safeguard systems** from EMP disruptions and ensure operational continuity.



IEMI Resilience Research:

- Critical for national security and identifying vulnerabilities in defense, communication, and industrial infrastructure.
- Focuses on assessing and mitigating threats from Intentional Electromagnetic Interference (IEMI).

Mobile Testing Platform:

- ✓ Capable of generating electromagnetic fields up to 13 kV/m.
- ✓ Designed to evaluate the immunity of critical infrastructure against IEMI threats.
- ✓ Targets infrastructure such as ships, data centers, and defense installations to ensure resilience and protection against IEMI



Research and Qualification Facility

Research and Qualification Facility for **Mission Critical C4I Systems**

- Identify and Evaluate the robustness of C4I (Command, Control, Communications, Computers, and Intelligence) systems against conducted EMP effects.
- Simulates the impact of EMP on critical systems, ensuring their resilience and operational reliability.
- Research to improve their protection against electromagnetic disturbances.



UNIQUE's OF THE FACILITY

- First-of-Its-Kind Research Center:
- Pioneering research and consultancy in high-power electromagnetic effects.
- Focuses on an advanced, specialized field with minimal open literature available.
- Product Compliance Services:
- Provides compliance services for HEMP (High-Altitude EMP) and IEMI (Intentional Electromagnetic Interference) effects.
- Ensures the resilience of critical systems against electromagnetic pulse threats.
- Elite Group of Nations:
- Among a select group of nations with such specialized facilities.
- These facilities exist in only a few advanced countries worldwide.
- Unique Facility in East Asia:
- The only lab in East Asia, to the best of our knowledge, integrating cutting-edge research with highly specialized testing facilities.



Beneficiaries

Technical Specifications

	EMP	IEMI
Peak electric field (E)	50 kV/m to 100 kV/m	13 KV/m @ 10m 7kv/m@20m
Rise time	1.8 ns to 2.8 ns	≤ 130ps
Equipment under Test Volume	17m × 12m × 3m test volume with 40-ton load	ships, data centers, and defense installations
Pulse Repetition Rate	1 PPM	100 PPS
Pulse Duration	23 ns +/-5ns	450ps

Indian Defence (NAVY, ARMY and AIRFORCE),



- Communication and Electronics Industry.

SAMEER's Role in National Security:

- Plays a pivotal role in strengthening national security through advanced research in high-power electromagnetic effects.
- Ensures critical infrastructure remains operational under extreme electromagnetic attack scenarios, safeguarding defense, communication, and industrial systems from potentially catastrophic failures.
- Reinforces the country's strategic resilience by bridging the gap in global research on EMP threats, in an area where open scientific knowledge is scarce