ELECTROMAGNETIC PROTECTION & CONTAINMENT

Defending the Physical Layer.

SecureWrap® — a validated, lightweight electromagnetic shielding platform for compute fabric, communications, and critical infrastructure.

CABINET | CABLE | SECURE-ROOM | HPM HARDENING



THE PHYSICAL LAYER THREAT

Modern data centers are the physical substrate of the digital economy, national-security operations, and an expanding set of mission-critical commercial workloads. Their security posture has historically focused on the network layer — perimeter firewalls, intrusion detection, encryption, identity.

But the physical layer — the electromagnetic environment in which signals are actually carried, leaked, and intercepted — has become an increasingly contested attack surface. Side-channel exfiltration via unintentional emanations, RF exploitation, signal interception across cabling and enclosures, and directed-energy and high-power microwave (HPM) threats to critical infrastructure all share a common defense: **physical-layer electromagnetic containment**.

The rise of AI training clusters, ultra-dense compute fabric, and multi-tenant colocation makes containment quality a first-order security requirement — not an afterthought handled at the perimeter.

SUSTAINED ATTENUATION

> 100 dB

Independently validated shielding effectiveness **30 MHz through 1.3 GHz**, with a **127.06 dB peak at 50 MHz** under ASTM D4935-10 (Applus+ Keystone Report 2511-235E Rev. A, January 2026) — orders of magnitude beyond operational EMI stability.

The GT Optics Approach

GT Optics develops SecureWrap®, a validated, commercially produced, lightweight electromagnetic shielding platform designed to address physical-layer threats across the data center fabric. Built on **50+ patents** in nanostructures, micro-optics, and micromirror systems, the same engineered material is applied as a flexible film for retrofit or as a conformable coating for new construction — tuned to the frequency profile of the host environment.

The platform is engineered around the four application classes that data center operators actually manage: server-rack and cabinet shielding, cable-run and penetration treatment, secure-room and NOC hardening, and critical-infrastructure HPM hardening.

ONE PLATFORM · FIVE DOMAINS

DATA CENTERS | SCIFs | AIR & GROUND PLATFORMS | CRITICAL UTILITIES | COMPUTER SYSTEMS

FOUR DATA CENTER APPLICATION CLASSES

APPLICATION	WHAT IT PROTECTS	GT OPTICS CONFIGURATION
Server-Rack & Cabinet Shielding	Rack and cabinet enclosures housing compute, storage, networking, and management hardware — containment of emanations and reduction of co-site coupling.	SecureWrap® film applied to interior enclosure surfaces; coating used where compound geometries make film impractical. Frequency-tuned at the production line.
Cable-Run & Penetration Treatment	Inter-rack cabling, riser pathways, and conduit penetrations that traditionally act as RF leak paths into and out of protected zones.	Conformable SecureWrap® film and connector-boot treatments. No grounded bonding to host structure required per product documentation.
Secure-Room & NOC Hardening	Network operations centers, secure operations rooms, and isolated workload enclaves — commercial environments with SCIF-grade physical-layer requirements.	Wall-system SecureWrap® film or coating applied as in modular SCIF builds. Same material platform; configuration tuned for the host facility.
Critical Infrastructure & HPM Hardening	Power distribution, cooling-control electronics, and primary network ingress / egress — the surfaces an HPM attacker would target.	SecureWrap® film laboratory-tested against HPM weapons with strong results. Formal facility qualification at an accredited lab is scheduled.

WHY GT OPTICS

- **Validated, not promised.** Independently traceable performance figure — 127.06 dB peak at 50 MHz under ASTM D4935-10 (Applus+ Keystone Report 2511-235E Rev. A, January 2026); above 100 dB from 30 MHz through 1.3 GHz.
- **U.S. manufacturing.** Product engineered, built, and tested in the United States by the GT Optics engineering team. Third-party laboratories validate shielding effectiveness across the customizable 40 to 100+ dB range; aligned to NIST SP 800-171.
- **Defensible IP.** 50+ patents in nanostructures, micro-optics, and micromirror systems — foundational IP behind the SecureWrap® physical-layer shielding platform.
- **Material platform consistency.** The same engineered SecureWrap® film and coating system spans server-rack interior shielding, cable-run wraps, secure-room walls, and HPM-relevant hardening — a single qualification pathway.

SCOPE DISCIPLINE

GT Optics has not yet executed validated data center deployments. Independent test data is for the underlying SecureWrap® material under ASTM D4935-10; configuration-specific qualification is performed at integration. No certified directed-energy survival ratings or customer-attributed performance numbers are presented that GT Optics has not measured.

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