



Shock Isolated Lightweight Composite Electrical Equipment Enclosure

Introducing a Unique Shipboard Equipment Cabinet for Critical Tactical Applications

The Navy's emphasis on OACE relies heavily on COTS-based equipment. The appropriate environment must be maintained for this COTS equipment, regardless of the extreme conditions experienced in a naval sheltered environment. Isolating COTS equipment from these extreme conditions requires enclosures that are at least as heavy as the payload of the equipment they carry. **Until now...**



The Problem

To meet today's OACE COTS requirements, electrical equipment needs to comply with stringent demands:

- ◆ Weight restrictions
- ◆ Shock load protection
- ◆ Vibration protection
- ◆ Cost
- ◆ Lead time
- ◆ Easy maintenance access
- ◆ Strength

The Solution

Frontier Electronic Systems' new enclosure provides:

- ◆ Light weight
- ◆ OACE compatibility
- ◆ Low cost
- ◆ Short lead time
- ◆ Mission critical equipment cabinet
- ◆ Easy access with a dual-latch door
- ◆ Strong composite materials with superior strength-to-weight ratio

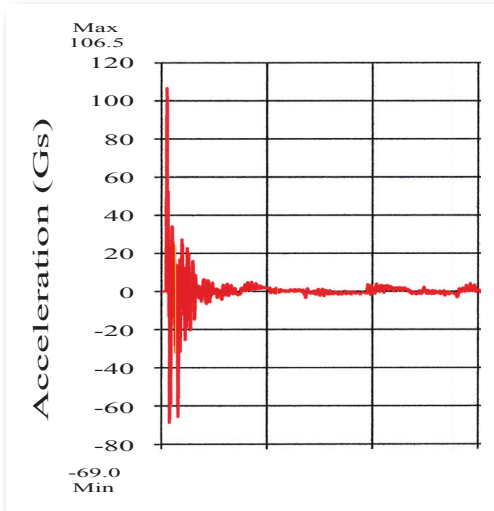
The Evolution

Consider these possibilities:

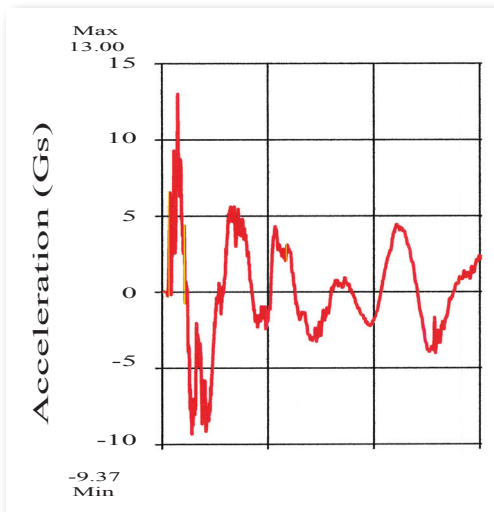
- ◆ Internally Isolated, 6 U to 36 U, 60 to 300 pounds
- ◆ Hard mounted, 6 U to 36 U, 20 to 160 pounds
- ◆ 300 Pound rack weight with 600 pound equipment load

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If your world looks
like this...



Then your equipment
can ride in this...



Designed to Meet:

- ◆ Shock per MIL-S-901D, Grade A, Class I, Type A
- ◆ Vibration per MIL-STD-167-1A, Type I
- ◆ Electromagnetic Interference per MIL-STD-461F
- ◆ Thermal per MIL-STD-810G, Method 501.5, -25 °C to 65 °C
- ◆ Humidity per MIL-STD-810G, Method 507.5
- ◆ Drip Proof per MIL-STD-810G, Method 506.5, Procedure II

Qualified to:

- ◆ D-03-003-007/SF-000, Specification for Design and Test Criteria for Shock Resistant Equipment in Naval Ships, Grade 1 (essential for safety and combat)
- ◆ 80 G Input < 15 G Max Internal Ride
- ◆ 100 G Input < 20 G Max Internal Ride

Why Carbon Fiber?

Carbon fiber is a material that consists of thin fibers (about 0.005–0.010 mm in diameter) of carbon atoms that are bonded together in microscopic crystals. These crystals align parallel to the long axis of the fiber, making the fiber very strong for its size/weight. Thousands of carbon fibers are twisted together to form a yarn, which can be woven into a fabric. The carbon fiber fabric can be coated with a plastic resin and wound or molded to form composite materials in nearly any shape.

Carbon Fiber is extremely strong, but it is less dense than steel or aluminum, so its strength-to-weight ratio is superior to that of metal materials. Other properties of carbon fiber are its low weight, high tensile strength, low thermal expansion, and resistance to mold.

