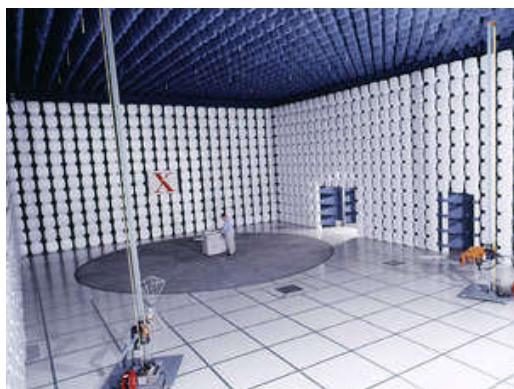


## FACT™ 10 CHAMBERS

ETS-Lindgren FACT™ (Free-space Anechoic Chamber Test-site) 10 Chambers offer semi-anechoic radiated emissions (RE) and fully anechoic radiated immunity (RI) compliance test capability for most international EMC compliance regulations.



ETS-Lindgren FACT™10 Chambers, for Full Compliance testing, offer semi-anechoic radiated emissions (RE) and fully anechoic radiated immunity (RI) compliance test capability for most international EMC compliance regulations. The chamber's small overall size results from the use of brand hybrid absorber and ferrite tile, which require less volumetric space than traditional absorbers. ETS-Lindgren FACT 10

chambers are large enough to perform 6 meter antenna scans above the ground plane. These chambers can also accommodate large diameter turntables for testing substantial EUTs. ETS-Lindgren FACT 10 chambers are the perfect choice when full compliance 10 m range testing is required.

## Key Features

- 26 MHz - 18 GHz Frequency Range
- Full Compliance Testing for  
Radiated Emissions:
  - ANSI C63.4 Parts 15 & 18
  - EN 50147-2
  - CISPR 11/ EN55011
  - CISPR 16/ EN55016
  - CISPR 22/ EN55022
  - Bellcore GR-1089
  - SAE J551
- Full Compliance Testing for  
Radiated Immunity:
  - IEC 61000-4-3/EN61000-4-3
  - ENV 50140
  - SAE J-1113
- Eligible for FCC 3 Meter Class A & B  
(3 m and 10 m test methods) Facility  
Filing
- Choice of 3 m, 4 m or 6 m Quiet  
Zone
- Available as a Turnkey  
Package: Chamber, Tower,  
Turntable,  
Antennas, Instrumentation and  
Software

## Features

### Performance

FACT 10 chambers achieve their broadband performance using a unique arrangement of hybrid and ferrite tile absorber. The design was modeled using the proprietary numerical electromagnetic software responsible for creating chambers that set new standards for anechoic performance.

### Radiated Emissions Testing

ETS-Lindgren's FACT 10 chambers can be used to perform full compliance testing for ANSI C63.4 (FCC part 15 & 18), EN 50147-2, CISPR 11/EN55011, CISPR 16/EN55016, CISPR 22/ EN55022, Bellcore GR-1089, and SAE J551 (component and full vehicle) testing requirements. At 10 m test distance, ETS-Lindgren guarantees a Normalized Site Attenuation (NSA) deviation better than  $\pm 4.0$  dB from theoretical NSA within a cylindrical quiet zone of 3 m, 4 m, and 6 m diameters over the frequency range of 30 MHz to 1 GHz. The quiet zone at 3 m and 5 m test distance is a cylinder up to 2.0 meters in diameter, following the volumetric test procedure of ANSI C63.4. Anticipating tomorrow's requirements, the Durasorb hybrid absorber guarantees NSA performance of better than  $\pm 4$  dB deviation from theoretical NSA from 30 MHz to 1 GHz and sVSWR performance of better than 6 dB from 1 GHz to 18 GHz, using the test method defined in ANSI C63.4/CISPR 16.

### Radiated Immunity Testing

ETS-Lindgren's FACT 10 chambers can also be used to perform full compliance testing for IEC 61000-4-3/EN61000-4-3, ENV 50140 and SAE J-1113 requirements. At FACT-10™ range lengths, field uniformity of 0, + 6 dB is achieved in the test aperture over the frequency range of frequency range of 80 MHz to 18 GHz. The test aperture is a vertical plane 1.5 m x 1.5 m at an elevation of 0.8 m to 2.3 m above the ground plane, following the field uniformity test procedure of IEC 61000-4-3. An optional absorber treatment package is available which permits radiated immunity testing at frequencies up to 18 GHz with 0, +/- 6 dB field uniformity, following the test procedure of IEC 61000-4-3. Additionally, DSH1250H can safely withstand continuous field intensity up to 200 V/m and intermittent field intensity up to 500 V/m. This safely exceeds the field intensity requirements of most commercial RI tests.

### Turnkey Systems

ETS-Lindgren is an integrated manufacturer producing such well known brands as DSH1250H, Series 81 and Euroshield shielding and RF doors, EMCO antennas, towers, turntables, and test accessories. All of our products are designed to work together for maximum efficiency and performance. In addition to providing performance, our approach simplifies complex decisions and gives you peace of mind with a single source of responsibility.

## Specifications

### Electrical Specifications

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**Frequency Minimum:** 26 MHz

**Frequency Maximum:** 18 GHz

**Absorber Type:** EHP-18CL Absorber; FS-1500; FT-100; FT-100c; FT-2000

**IEC 1000-4-3 Field Uniformity:** 0+6 dB; 1.5 m x 1.5 m (3.92 ft x 3.92 ft); 26 MHz to 18 GHz; 75% 16 Points

### Physical Specifications

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- **FACT 10-3.0 Plus**
  - Modular RF-shielded enclosure with nominal inside shield dimensions of 63'-6" x 37'-9 ½" x 27'-9 ½" (19.35m x 11.52m x 8.47m)  
Note: Height measured above the ground plane raised floor
  - Estimated overall chamber dimensions of 65'-4" x 40'-0" x 31'-8" (19.91m x 12.19m x 9.65m)
- **FACT 10-3.0 Premium**
  - Modular RF-shielded enclosure with nominal inside shield dimensions of 63'-6" x 37'-9 ½" x 27'-9 ½" (19.35m x 11.52m x 8.47m)  
Note: Height measured above the ground plane raised floor
  - Estimated overall chamber dimensions of 65'-4" x 40'-0" x 31'-8" (19.91m x 12.19m x 9.65m)
- **FACT 10-4.0 Standard**
  - Modular RF-shielded enclosure with nominal inside shield dimensions of 65'-5" x 35'-11" x 21'-10" (19.94m x 10.95m x 6.65m)
  - Estimated overall chamber dimensions of 67'-3" x 38'-1" x 25'-9" (20.50m x 11.61m x 7.85m)
- **FACT 10-4.0 Plus**
  - Modular RF-shielded enclosure with nominal inside shield dimensions of 65'-5" x 39'-10" x 27'-10" (19.94m x 12.14m x 8.48m)
  - Estimated overall chamber dimensions of 67'-3" x 42'-0" x 31'-9" (20.50m x 12.80m x 9.68m)
- **FACT 10-4.0 Premium**
  - Modular RF-shielded enclosure with nominal inside shield dimensions of 65'-5" x 39'-10" x 27'-10" (19.94m x 12.14m x 8.48m)
  - Estimated overall chamber dimensions of 67'-3" x 42'-0" x 31'-9" (20.50m x 12.80m x 9.68m)
- **FACT 10-6.0 Plus**
  - Modular RF-shielded enclosure with nominal inside shield dimensions of 71'-6" x 43'-6" x 27'-10" (21.79m x 13.26m x 8.48m)
  - Estimated overall chamber dimensions of 73'-4" x 45'-8" x 31'-9" (22.35m x 13.92m x 9.68m)

## Additional Specifications

- 3 m Quiet Zone
  - Design and fabricate RF-shielded enclosure, interior nominal shield-to-shield dimensions of 18.78 m L x 11.56 m W x 8.93 m H (61.6 ft x 37.8 ft x 29.3 ft) includes 45.72 cm (18 in) raised floor.
- 4 m Quiet Zone:
  - Design and fabricate RF-shielded enclosure, interior nominal shield-to-shield dimensions of 19.42 m L x 12.17 m W x 8.93 m H (63.6 ft x 39.8 ft x 27.8 ft) includes 45.72 cm (18 in) raised floor.
- 6 m Quiet Zone:
  - Design and fabricate RF-shielded enclosure, interior nominal shield-to-shield dimensions of 21.82 m L x 13.28 m W x 9.10 m H (71.5 ft x 43.5 ft x 29.8 ft) includes 60.96 (24 in) raised floor.
- Two Access Hatches in Raised Floor
- Dielectric Vapor Barrier and Masonite Underlayment
- Model 2175 MiniMast™ Electrically Powered Air Polarization Boom Tower with 20 m Cable and Fiber Optic Feed-through
- One RF-shielded Penetration for Airline to MiniMast (Compressed Air is Responsibility of Customer)
- Two Door Maintenance Kits
- One Threaded Brass Ground Stud 1.27 cm (0.5 in) Diameter x 12.7 cm (5 in) Long
- One Single-leaf, Series 201, Recessed Contact Mechanism (RCM), Manually Operated, RF-Shielded Personnel Door, .91 m x 2.13 m (3 ft x 7 ft) Clear Opening
- FT-1500 on the Doors
- Raised, Reflective Ground Plane, 45.72 cm (18 in)
- Model 2090 Dual Device Controller
- Four "N" Type Connectors
- Design and Fabricate RF-shielded Enclosure, Interior Nominal Shield-to-shield Dimensions of 18.81 m L x 11.56 m W x 6.97 m H, (61.71 ft x 37.93 ft x 22.87 ft) includes 45.72 cm (18 in) Raised Floor
- Four Single Line, 100 Amp, 60 Hz, Power-line Filters (Wiring not included)
- Two 2 x 30 Amp, 60 Hz Power-line Filters for Turntable (Wiring not included)
- FS-1500 Hybrid Absorber for all Four Walls up to the 9th Row
- Light Reflective Covers for the FS-1500, Hybrid Absorber on the Chamber Walls
- Sixteen Pieces of EHP-18PCL Pyramidal Absorber on an Area of the Floor for Radiated Immunity Testing from 1 GHz up to 40 GHz
- FT-100 from the 9th Row to Ceiling for all Four Walls
- Installation of the Enclosure and Absorber
- One RFSD-F-100 Automatic, Sliding RF-shielded Equipment Door
- 3.18 mm (.125 in) Vinyl Floor Tile
- Four Waveguide Vents, 60.96 cm x 30.48 cm (24 in x 12 in)
- Field Uniformity Calibration per IEC 61000-4-3 from 26 MHz to 1 GHz (Optional Test from 1 GHz to 18 GHz)
- Seismic Structural Design Calculations and Certification
- One Connector Panel, 30.48 cm x 60.96 cm (12 in x 24 in)
- One Fiber Optic Penetration Kit
- One Design Review at Customer's Location
- 2081-3.03 Electrically Powered, 3 m Turntable with Cable and Fiber Optic Feed-through
- Normalized Site Attenuation Test per ANSI C63.4 from 30 MHz to 1 GHz (Optional Test

- One 3.81 cm (1.5 in) Pipe Penetration with Flange Nuts and Cap
- Shield Test per MIL-STD-285, One Frequency Test at 1 GHz
- Twelve High-hat Light Fixtures with Integral Waveguide Air Vents (Electrical Distribution not included)
- Guaranteed Performance and a Five-year Limited Warranty, One-year Warranty on Doors, Filters and Moving Parts; Two-year Warranty on Optional ETS-Lindgren Equipment

## Product Options

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- Shielded control room, 4.87 m x 3.05 m x 2.44 m (16 ft x 10 ft x 8 ft)
- Compact-sized shielded control room, 3.66 m x 3.05 m x 2.44 m (12 ft x 10 ft x 8 ft)
- Shielded amplifier room, 2.44 m x 2.44 m x 2.44 m (8 ft x 8 ft x 8 ft)
- CCTV monitoring system
- Intercom system
- Fire detection and suppression system
- 3.18 mm (1/8") anti-static vinyl floor tile
- Extra filtering
- Company logo screen printed onto white end caps
- Immunity interlock switch
- Electrical distribution
- Heating, ventilation, and air conditioning (HVAC) system
- Seismic structural design calculations and certification
- Normalized Site Attenuation measurement up to 18 GHz and 40 GHz
- Field uniformity measurement up to 18 GHz
- Assistance in preparation of FCC filing paperwork (Class B)

