

FACT™ 3 CHAMBERS

ETS-Lindgren FACT™ (Free-space Anechoic Chamber Test-site) 3 Meter EMC 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™ 3 Meter EMC 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 hybrid absorber and ferrite tile, which require less volumetric space than traditional absorbers. FACT 3 chambers will fit in many existing structures, yet are large enough to perform 4 meter antenna scans above the ground plane. When installed with ETS-Lindgren's LoPro™ or EuroPro™ turntables, pit excavations for motor assemblies are eliminated. ETS-Lindgren FACT 3 chambers are the ideal choice when facility space is limited, but 3 m range testing is required.

Key Features

- **26 MHz - 18 GHz Frequency Range**
- **Full Compliance Testing for Radiated Emissions:**
 - ANSI C63.4
 - FCC Parts 15 and 18
 - EN 50147-2
 - CISPR 11 / EN550011
 - CISPR 16 / EN550016
 - CISPR 22 / EN550022
 - VCCI V-3 / 2003.04
 - SAE J551
 - SAE J1113 (Requires Chamber Modification to Accommodate Full Vehicle)
- **Full Compliance Testing for Radiated Immunity:**
 - IEC 61000-4-3 / EN61000-4-3
 - SAE J551
 - SAE J1113
- **Eligible for FCC 3 Meter Class B Facility Filing**
- **Available Performance Options: (May Require Chamber Modifications)**
 - Standard ± 4.0 dB per ANSI C63.4
 - Standard Plus ± 3.5 dB per ANSI C63.4
 - Premium ± 3.0 dB per ANSI C63.4
- **Available as a Turnkey Package:**
 - Chamber, Tower, Turntable, Antennas, Instrumentation and Software

Features

Performance

ETS-Lindgren FACT 3 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 3 chambers are designed to provide customers with more standardized solutions for different quiet zone diameters and performance options. This will provide users more flexibility to choose which solution works best for their individual needs. The available quiet zone sizes are available up to 2.0 meters in diameter. ETS-Lindgren's Fact 3 chambers can be used to perform full compliance testing for ANSI C63.4, FCC Parts 15 and 18, EN 50147-2, CISPR 11 / EN 55011, CISPR 16 / EN55016, CISPR 22 / EN55022, VCCI V-3/2003.04, SAE J551 and SAE J1113.

ETS-Lindgren guarantees that the performance of Normalized Site Attenuation testing according to ANSI C63.4, is ± 4.0 dB for STANDARD chamber, ± 3.5 dB for STANDARD PLUS chamber and ± 3.0 dB for PREMIUM chamber over the frequency range of 30 MHz to 1 GHz. The guaranteed sVSWR performance for frequency range of 1 GHz to 18 GHz is 6.0 dB, regardless which performance option is selected and better performance is achievable with chamber modifications.

Radiated Immunity Testing

ETS-Lindgren's FACT 3 chambers can also be used to perform full compliance testing for IEC 61000-4-3/EN61000-4-3, SAE J-551 requirements. At FACT 3 range lengths, field uniformity of 0 - 6 dB is achieved in the test aperture over the frequency range of 26 MHz to 18 GHz. At FACT 3 range lengths, test aperture is a vertical plane of 1.5 m x 1.5 m at an elevation of 0.8 m to 2.3 m above the ground plane and field uniformity of 0 - 6 dB is achieved in the test aperture over the frequency range of 80 MHz to 18 GHz, following the field uniformity test procedure of IEC 61000-4-3. Additionally, DuraSorb can safely withstand continuous field intensity of up to 200 V/m and intermittent field intensity of 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 wellknown brands as Rantec absorber, RayProof Series 81 and Euroshield shielding and RF doors, Holaday Probes, 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 "Total Solution, Single Source"™ approach simplifies complex decisions and gives you peace of mind with a single source of responsibility.

Specifications

Electrical Specifications

Frequency Minimum: 26 MHz

Frequency Maximum: 40 GHz

ANSI C63.4 Normalized Site Attenuation: 30 MHz to 40 GHz

Physical Specifications

Overall Structure Dim (H): 6.12 m (20.08 ft)

Overall Structure Dim (L): 9.04 m (29.66 ft)

Overall Structure Dim (W): 6.71 m (22.01 ft)

Shield Room Inner Dim (H): 5.64 m (18.50 ft)

Shield Room Inner Dim (L): 8.53 m (27.99 ft)

Shield Room Inner Dim (W): 6.1 m (20.01 ft)

Internal Working Area (L): 8.12 m (26.64 ft)

Internal Working Area (W): 6.1 m (20.01 ft)

Internal Working Area (H): 5.48 m (17.98 ft)

Additional Specifications

- ETS-Lindgren FT-1500 on Non-critical Areas of Side-walls and Ceiling
- Dielectric Vapor Barrier and Masonite Underlayment
- One RF-shielded Penetration for Airline to MiniMast™ (Compressed Air is Responsibility of Customer)
- Design and Fabricate RF-shielded Enclosure, Interior Nominal Shield-to-shield Dimensions of 8.5 m L x 6.1 m W x 5.4 m H, (28 ft L x 20 ft W x 19ft H) includes 15.24 cm (6 in) Raised Floor
- Sixteen Pieces of ETS-Lindgren FT-100c Ferrite Tile Panels for an Area of the Floor for Radiated Immunity Testing up to 1 GHz
- Installation of the Enclosure and Absorber
- ETS-Lindgren 2090 Dual Device Controller
- ETS-Lindgren FT-1500 for Full Coverage of Transmit End-wall
- Two "N" Type Connectors
- Three 2 x 30 Amp, 60 Hz Power-line Filters for Lights and EUT (Wiring not included)
- Sixteen Pieces of ETS-Lindgren EHP-18PCL Pyramidal Absorber on an Area of the Floor for Radiated Immunity Testing from 1 GHz up to 40 GHz
- 3.18 mm (1/8") Vinyl Floor Tile
- Guaranteed Performance and a Five-year Limited Warranty; One-year Warranty on Doors, Filters and Moving Parts; Two-year Warranty on Optional ETS-Lindgren's Equipment
- Raised Reflective Ground Plane, 15.24 cm (6 in)
- One Door Maintenance Kit
- Four Waveguide Vents, 30.48 cm x 30.48 cm (12 in x 12 in)
- One Single-leaf, Series 201, Recessed Contact Mechanism (RCM), Manually Operated, RF-shielded Door, 1.2 m x 2.13 m (4 ft x 7 ft) High
- Field Uniformity Calibration per IEC 61000-4-3 from 26 MHz to 1 GHz (Optional Test from 1 to 40 GHz)
- ETS-Lindgren 2075-2 MiniMast™ Electrically Powered Air Polarization Boom Tower with 20 m Cable and Fiber Optic Feed-through
- Light Reflective Covers for FS-400 and FS-600 Absorber
- ETS-Lindgren FS-600, Hybrid Absorber on Specular Critical Regions of Side-walls
- One Fiber Optic Penetration Kit
- One Threaded Brass Ground Stud 1.27 cm (0.5 in) diameter x 12.7 cm (5 in) Long
- Normalized Site Attenuation Test per ANSI C63.4-2000 from 30 MHz to 1 GHz (Optional Test from 1 to 40 GHz)
- Two Access Hatches in Raised Floor, 45.72 cm x 45.72 cm (18 in x 18 in)
- ETS-Lindgren 2087-2.03 Electrically Powered, 2 m Turntable with Cable and Fiber Optic Feed-through
- One Connector Panel, 15.24 cm x 91.44 cm (6 in x 36 in) Clear Opening
- ETS-Lindgren FS-400, Hybrid Absorber Full Coverage of End-wall Behind Turntable and Specular Region of Ceiling
- 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

Product Options

Chamber Options

- Fully Integrated Test System to Meet the Requirements Of A Particular Test Standard
- Shielded Control Room
- Shielded Amplifier Room
- Model LDT-1.5 Low Dielectric Table
- 30 cm (12 in) and 45 cm (18 in) Raised Floors
- Low Profile Door Sill
- Sliding Door
- CCTV Monitoring System
- Intercom System
- Fire Detection And Suppression System

- Anti-static Vinyl Floor Tile
- Additional RF Filtering
- Company Logo Screen Printed Onto White Caps
- Immunity Interlock Switch
- Electrical Distribution
- Heating, Ventilation, And Air Conditioning (HVAC) System
- Seismic Structural Design Calculations And Certification

Chamber Acceptance Testing Options

- FU Test per IEC 61000-4-3 From 80 MHz to 1 GHz
- FU Test per IEC 61000-4-3 From 1 GHz to 18 GHz
- NSA Test (3 meter) per ANSI C63.4/CISPR 16-1-4 From 30 MHz to 1 GHz
- NSA Test (5 meter) per ANSI C63.4/CISPR 16-1-4 From 30 MHz to 1 GHz
- sVSWR Test per CISPR 16-1-4/ANSI C63.4 From 1 GHz to 18 GHz

