

## SMART™ REVERB CHAMBERS SMART™ 200 Reverb Chambers

ETS-Lindgren's SMART™ (Statistical Mode Averaging Reverberation Test-Site) Chambers use the latest developments in proven reverberation technology and experienced chamber design and construction, to create a suitable electromagnetic environment (EME) for immunity, emissions and shielding effectiveness testing.



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SMART chambers operate by using their interior surfaces to reflect internally radiated RF energy. One or more rotating paddles, or tuners, are used to change the cavity boundary conditions during the course of the measurement. This creates fields having statistical isotropy and homogeneity over a large working volume. ETS-Lindgren's tuner design ensures fast settling times and maximum throughput during mode tuning tests.

High data sample throughput can also be achieved using the slow tuner rotation speeds in Stirred mode operation as defined in some of the recent standards.

The reverberation chamber has intrinsic properties of isotropy and homogeneity that provide several unique features for testing. Assuming proper configuration and a given uncertainty level; field measurement results will be the same regardless of where in the room they are taken; reconfiguration of the EUT will have minimal effect on those measurements; EUT measurements made between one or more chambers will be equivalent. The benefits are high measurement repeatability and test result reproducibility.

Adding to the appeal of reverberation chambers is that robust field strengths can be generated using less power than typically required by other test environments. The benefit is that less expensive amplifiers can be used without sacrificing performance. SMART chambers are well suited to simulate the complex EMC of cavities, such as computer rooms, medical equipment rooms, aircraft avionics bays, and vehicle engine compartments. A SMART chamber simulates all wave polarizations and incidence angles during a full test.

ETS-Lindgren understands reverberation chamber technology, and can design a chamber to meet your exact needs. We can work with you to determine the correct chamber volume for achieving frequency range, select interior

finishes to optimize mode density and Q-bandwidth, and recommend the right antenna and amplifier combination for field strength requirements.

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## Key Features

- For Full and Pre-Compliance Testing Including:
  - MIL-STD 461G
  - SAEJ1113/27
  - GMW3097
  - EUROCAE\RTCA DO160F/G
  - FORD FMC 1278
  - IEC 61000-4-21

## Specifications

### Electrical Specifications

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**Frequency Minimum:** 200 MHz

**Frequency Maximum:** 18 GHz (40 GHz)

### Physical Specifications

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**Shield Room Inner Length:** 4.83 m (15.85 ft)

**Shield Room Inner Width:** 3.61 m (11.84 ft)

**Shield Room Inner Height:** 3.05 m (10.01 ft)

**Internal Working Volume Length:** 2.20 m (7.22 ft)

**Internal Working Volume Width:** 1.60 m (5.25 ft)

**Internal Working Volume Height:** 1.50 m (4.92 ft)

## Other Specifications

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- Polyethylene Vapor Barrier, 6 mil
- One ETS-Lindgren 3030 'Z' Fold Tuner, Complete with RF Shielded Mounting Bearing Assembly
- Two Ceiling Mounted LED Strip Light Fixtures (Electrical Distribution not included)
- Installation of Enclosure and ETS-Lindgren Equipment
- One ETS-Lindgren Model EMCenter™ with EMControl™ Device Controller Plug-in Module
- One ETS-Lindgren Motor Base with Rotation Speed of 1 to 12 rpm and Mounting Penetration Hardware
- 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
- One Single-leaf, ETS-Ray Proof 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
- Reverberation Test per IEC 61000-4-21 in Steps from 200 MHz to 1 GHz per the Recommended Procedure
- One Connector Panel, 15.24 cm x 30.48 cm (6 in x 24 in)
- Two Steel Honeycomb Waveguide Air Vents 30.48 cm x 30.48 cm (12 in x 12 in)
- Two Connector Panels, 15.24 cm x 30.48 cm (6 in x 24 in) Dielectric Floor Underlay, 0.32 cm (.125 in) Thick
- ETS-Lindgren Proprietary TILE! Software to Perform EMS Measurements per SAEJ1113/27, GMW3097, MIL-STD 461G and RTCA DO160F/G, IEC 61000-4-21
- One 10 m Fiber Optic Cable
- Modular Shielded Room and Support Structure
- One Door Maintenance Kit