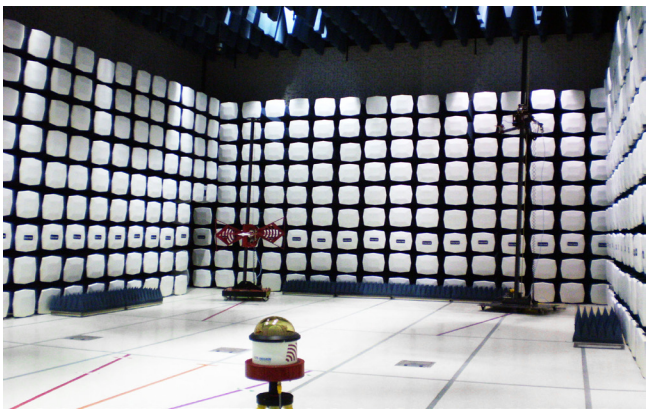
CASE STUDY INTERTEK EXPANDS EMC LABS WITH NEW 10 METER CHAMBER – BOXBOROUGH, MASSACHUSETTS



Intertek is a leading provider of quality and safety solutions serving a wide range of industries around the world. From auditing and inspection, to testing, quality assurance and certification, Intertek is dedicated to adding value to customers' products and processes, supporting their success in the global marketplace. The Intertek story starts with the inception of the modern testing industry, including Thomas Edison's Lamp Testing Bureau in its early days. Now, over 120 years later, the company has evolved with the combined growth of 15 innovative companies. Customers of Intertek include some of the world's leading brands, major global and local companies and governments.

Intertek installed a new ten meter EMC test chamber in a major expansion of the company's EMC testing laboratory in Boxborough, Massachusetts. The company also relocated an existing five meter chamber from its Littleton, Massachusetts facility to the Boxborough facility. ETS-Lindgren received the multi-million dollar contract largely due to the perfect alignment of its core competencies with Intertek's turnkey facilities requirement. ETS-Lindgren, as a vertically integrated company, provided the shielding, absorber, positioning equipment, components and calibration services. "We spent a lot of time upfront with Intertek's engineers in discussing their requirements," said Kevin Baldwin, ETS-Lindgren's Regional Sales Director for Americas East. "We supported Intertek by providing engineering design, drawings, calculations, performance information and schedules before contract award. While this was a time intensive effort, ultimately, it was a good investment that provided Intertek with low risk project execution and on-time completion. That's a huge bonus, especially for a project of this size. For ETS-Lindgren, the time spent up front provided us with a complete understanding of the customer's needs and options we could offer for a very cost-effective chamber design."

EMC Test Chamber Technical Specifications

- A 10 meter, high-performance RF shielded semi-anechoic FACT™ 10-3.0 premium chamber with nominal interior dimensions of 63 ft (19 m) long x 38 ft (12 m) wide x 28 ft (9 m) high and three meter quiet zone.
- Control, amplifier and support rooms are provided as a single chamber with nominal interior dimensions of 35 ft (11 m) long x 8 ft (2.4 m) wide x 8 ft (2.4 m) high.
- Constructed of ETS-Lindgren's popular Series 81™ modular RF-shielded panels with 100 dB performance at 200 kHz (magnetic field), 200 kHz to 50 MHz (electric field), 50 MHz to 1 GHz (plane wave) and 40 GHz (microwave). This performance was tested and guaranteed prior to the installation of system components and absorber.
- Single-leaf 4 ft (1.2 m) wide x 7 ft (2.1 m) high manually operated Double Knife Edge (DKE) RF shielded door.
- Fully automatic pneumatic RF sliding door 10 ft (3 m) x 10 ft (3 m) featuring a micro switch and automated floor plate rated for 10,000 lbs (4,500 kg) for flush chamber access.
- 3 meter (9.84 ft) diameter heavy duty turntable for 4,000 kg (8,800 lbs.) distributed load rating.
- Raised 18 in (457 mm) nominal reflective ground plane with eight 12 in (305 mm) square access hatches.

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- Model 4340 digital CCTV system, complete with PC and display.
- Model 2175 MiniMast II™ antenna tower features a mast section made from one continuous piece of square fiberglass tubing to improve stability during ascent and descent of the antenna.
- Model 2071 bore-sight system with fiber optic signal lines between controller and antenna mast. A centerline air polarization enhances measurement accuracy. The patented system enables direct antenna aim onto the EUT during scanning.
- Accessories include power line filters, light fixtures, wave guide air vents, and connector panels – all specially designed to maintain the RF shielding integrity of the host chamber.

Anechoic Absorber Treatment

Anechoic treatment of the chambers includes 100% coverage of all wall and ceiling surfaces in addition to removable absorber conveniently provided on floor carts as required for immunity testing. ETS-Lindgren's unique engineering and manufacturing process ensures excellent agreement between computed and measured performance. This excellent agreement has been documented between predicted performance and actual measured NSA data.

Key Absorber Features Include

- FerroSorb™ technology: a combination of high-performance FT-1500 ferrite tile panels with FAA-1500 polyurethane EMC absorber on the walls and ceiling. Floor carts feature FS-400 absorber.
- RF power handling of ≥ 200 V/m capability (0.1 Watt/in^2 power density) continuous wave.
- Material composition is high performance combustion limiting polystyrene made from low density styrene foam coated with a thin sheet of semi-rigid polyvinyl chloride foam.
- Fire retardancy is provided in accordance with industry standards NRL Report 8093 (Tests 1, 2 and 3), UL 94 HBF, and others.

Chamber Performance Specifications

- The FACT 10-3.0 chamber achieved NSA performance of +/- 2.8 dB and complies with many global EMC regulatory standards at a ten meter distance, a few of which include:
- FCC, Part 15, 3 meter measurements in accordance with ANSI C63.4 from 30 MHz to 18 GHz
- CISPR 16-1-4 Site VSWR (SVSWR) testing from 1 to 18 GHz for a single 3 meter test range
- IEC 61000-4-3 testing from 80 to 2000 MHz

About ETS-Lindgren

ETS-Lindgren is an international manufacturer of components and systems that measure, shield, and control electromagnetic and acoustic energy. The company's products are used for electromagnetic compatibility (EMC), microwave and wireless testing, electromagnetic field (EMF) measurement, radio frequency (RF) personal safety monitoring, magnetic resonance imaging (MRI), and control of acoustic environments. Headquartered in Cedar Park, Texas, ETS-Lindgren has manufacturing facilities in North America, Europe, and Asia. Additional information about ETS-Lindgren is available at www.ets-lindgren.com. Additional information about ETS-Lindgren's parent company ESCO and its subsidiaries is available at www.escotechnologies.com.

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