TEST AND MEASUREMENT SOLUTIONS

TEST SYSTEMS, CHAMBERS, PRODUCTS, ACCESSORIES, AND SERVICES

COMMITTED TO A SMARTER, MORE CONNECTED FUTURE

ETS·LINDGREN®
An ESCO Technologies Company

ANTICIPATING THE NEEDS OF AN EVOLVING UNIVERSE

SOLUTIONS FOR TODAY AND TOMORROW

ETS-Lindgren is the proven leader in test and measurement solutions. Our ability to create real-life test scenarios and solutions enable customers around the globe to verify, measure, isolate, contain, and ultimately bring life-changing products to their markets – faster. Every day, when people use cell phones, drive a car, undergo a medical test, or listen to music, more than likely they are benefitting from the technological investments and innovative systems and components developed by ETS-Lindgren.

For more than 75 years, wherever signals must be generated or interference regulated, ETS-Lindgren has cut across industries and market sectors to create a track record of success making many aspects of modern life possible. Our products validate and set standards in research, development, production, and service in such industries as:

- Acoustics
- Aerospace
- Automotive
- EMC
- Government/Defense
- IT/Telecom
- Medical/Healthcare
- Utilities
- Wireless

We have designed and installed thousands of chambers worldwide and our workforce holds more than 80 patents in shielding, absorber, and related technologies.

As a division of the ESCO Technologies' (NYSE: ESE) portfolio, this worldwide partnership ensures ETS-Lindgren has robust financial backing and resources to invest in operational efficiencies, long-term industry research and development, as well as the best talent in the world.

ETS-Lindgren. Committed to a Smarter, More Connected Future.

CERTIFICATIONS AND ACCREDITATIONS

CERTIFIED COMPANY

ISO 9001:2015

CEDAR PARK ● BANGALORE
BEIJING ● DURANT ● EURA
MINOCQUA ● WOOD DALE

ilac-MRA A2LA ACCREDITED Calibration Laboratory Certificate 1207.01

ilac-MRA A2LA ACCREDITED Testing Laboratory Certificate 1207.02

NVLAP® TESTING NVLAP LAB CODE 100286-0

CTIA The Wireless Association®

3GPP™ A GLOBAL INITIATIVE

LTE

C63®

ETSI

PRODUCT QUICK FINDER

TEST SYSTEMS

The world is changing faster than ever. As our planet becomes increasingly dominated by electronics, the importance of our work in test and measurement grows exponentially and in harmony. As the world's largest provider of market-leading test and measurement solutions and equipment, ETS-Lindgren's test systems are the innovative and investigative forces behind some of the biggest names and revolutions in a myriad of industries. Whether ensuring the performance of mobile networks, delivering the cause and effect of electronic interference for government and utilities, or certifying the compliance standards of radiated emissions in today's ever-evolving automotive sector, ETS-Lindgren is your total solutions partner.

TEST SYSTEMS

TEST SYSTEMS: EMC CHAMBERS, GTEM! ENCLOSURES, and EMCenter™

ETS-Lindgren's test systems for EMC chambers and GTEM! test enclosures provide dependable testing to a wide variety of EMC standards and test requirements. Our experts will integrate your test environment, instrumentation, and software to provide you with a reliable test system with repeatable results.

Commercial EMC Chamber Test Systems

Commercial EMC test system integration simplifies testing in anechoic chambers, including management of towers and turntables.

Automotive Chamber Test Systems

Automotive chamber test systems are semi-anechoic chambers with integrated positioners and are designed for compliance with many industry standards.

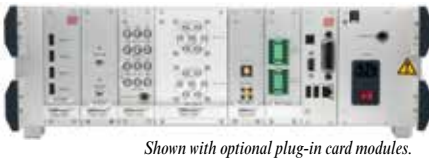
E-Vehicle and E-Motor Chamber Test Systems

E-Motor and E-Vehicle chamber test systems are integrated systems, designed to meet the emerging requirements for performance validation and compliance testing of E-Motors and E-Vehicles. This includes designs supporting both full vehicle and Electric/Electronic Sub-Assembly (ESA) testing.

GTEM! Test Systems

GTEM! test systems are totally integrated test systems that include TEM and EUT coupling functions.

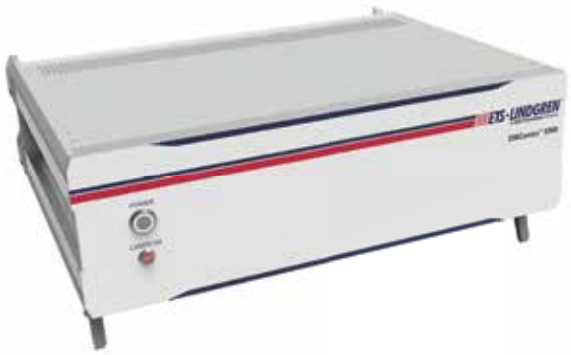
EMCenter Modular RF Platform



Shown with optional plug-in card modules.

EMCenter is a modular platform with an integrated microcontroller, touch screen control, and a backplane that accepts up to seven plug-in card modules, each one with a specialized RF instrument. Everything is contained in a 3U-high chassis that can be used alone on a desktop, or mounted in a rack.

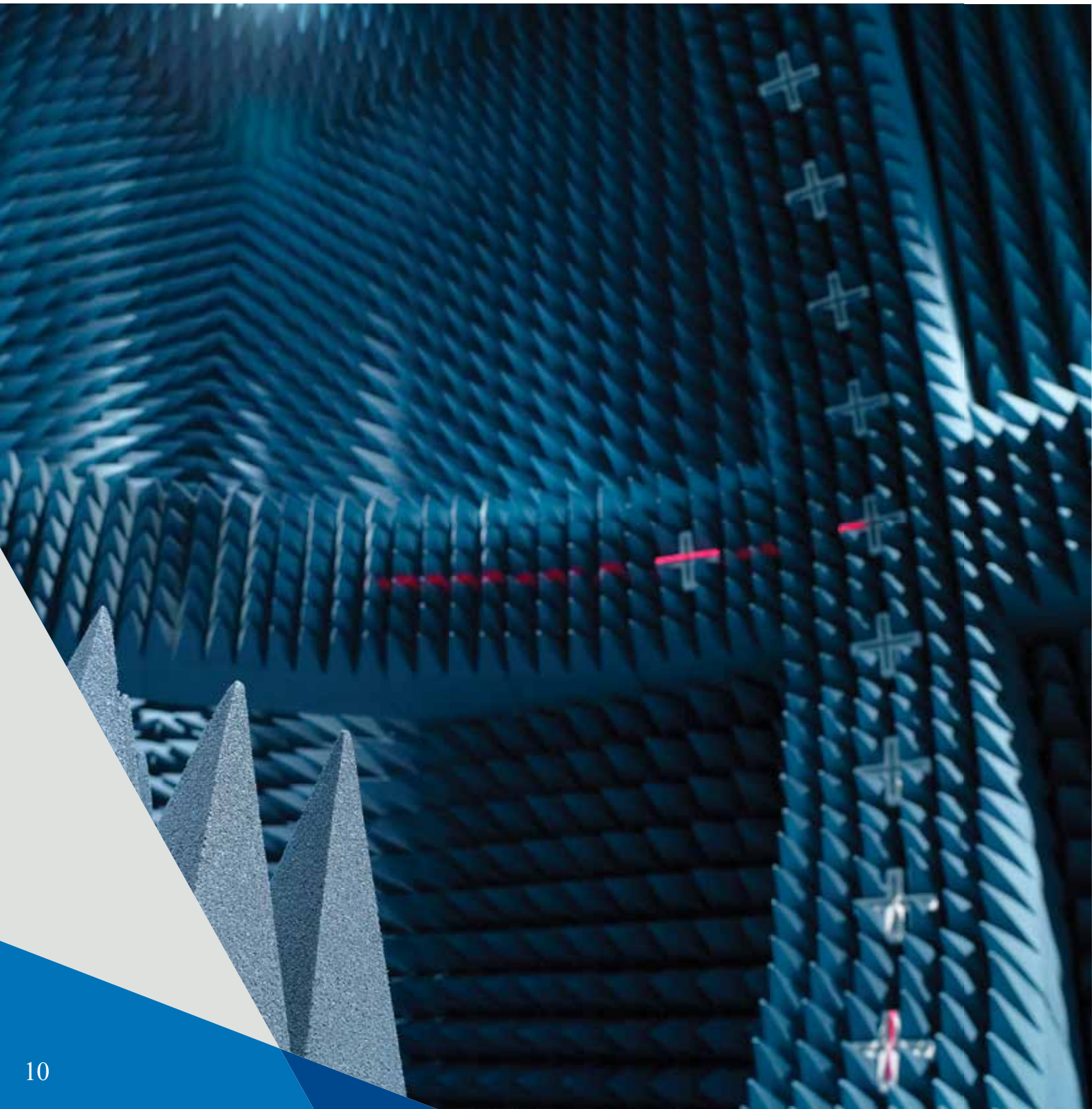
EMCenter EM8 Field Monitor



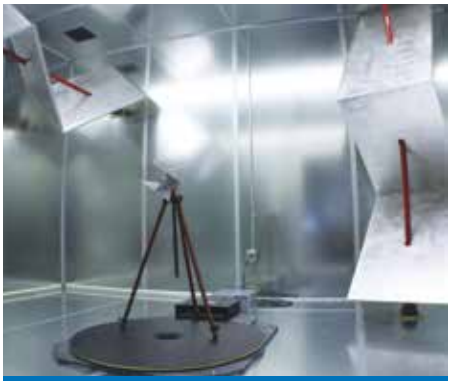
ETS-Lindgren's EMCenter EM8 is capable of significantly higher data collection speeds with the ability to store up to eight instrument plug-in cards, which can all be controlled and used simultaneously.

TEST SYSTEMS:
OTA, APM, MIMO, and SISO CHAMBERS

ETS-Lindgren's Antenna Measurement Systems (AMS) for Wireless and Over-the-Air (OTA) chambers are designed to provide excellent testing performance with easy integration and use. Available in anechoic or reverberation configurations, our experts will integrate your test environment, instrumentation, and software to provide you with a reliable test system with repeatable results.



AMS-7200 Reverberation Chamber Wireless Test Systems

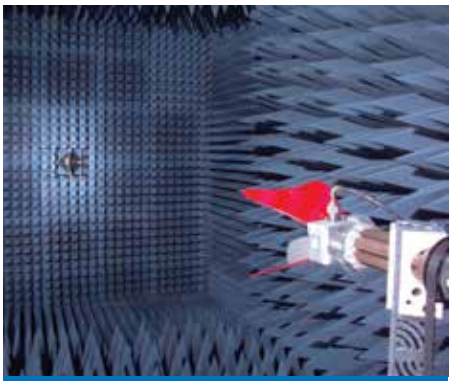


AMS-7200 test systems are designed to perform wireless SISO TRP, TIS as well as MIMO OTA measurements for large form factor devices in a reverberation chamber.

AMS-8100 Anechoic Chamber Wireless Test Systems

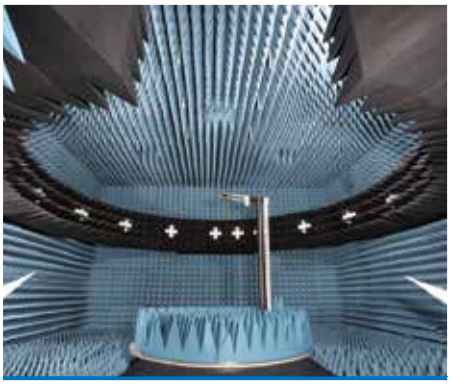
AMS-8100 test systems include a compact, fully anechoic rectangular chamber and are designed for testing general antenna devices.

AMS-8500 Anechoic Chamber Wireless Test Systems



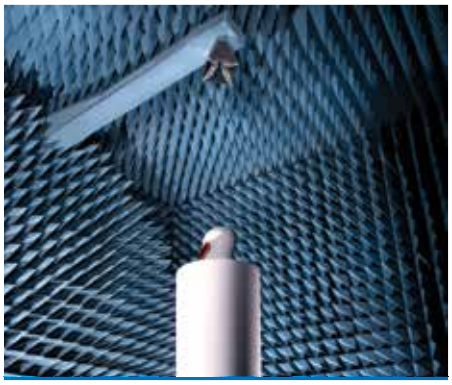
AMS-8500 test systems include a full-sized, fully anechoic rectangular chamber, with a 360° phi/theta Multi-Axis Positioning System (MAPS).

AMS-8700 Anechoic Chamber Wireless Test Systems



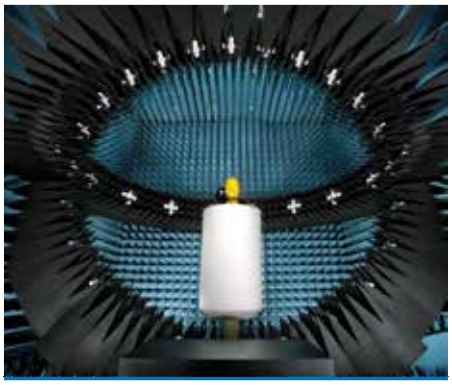
AMS-8700 test systems are fully anechoic chamber test systems for MIMO OTA measurement of wireless devices in a simulated, multi-path environment.

AMS-8800 Anechoic Chamber Wireless Test Systems



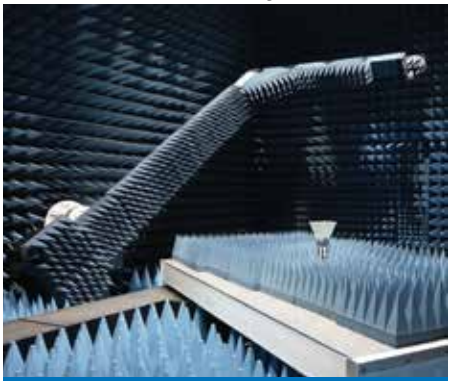
AMS-8800 test systems are fully anechoic rectangular chamber test systems, with a theta rotational arm for spherical scanning of wireless devices.

AMS-8900 Anechoic Chamber Wireless Test Systems



AMS-8900 test systems are a multi-antenna array system in a fully anechoic chamber, designed for high-speed testing of wireless devices. (Above photo shown with MIMO test system option.)

Automotive APM Anechoic Chamber Wireless Test Systems



ETS-Lindgren's Automotive APM test system combines a fully anechoic test chamber with an antenna positioning system to enable testing of full vehicles.

Vehicle Antenna Measurement Arc (VAMA) Anechoic Chamber Wireless Test System

ETS-Lindgren's VAMA test system allows customers to collect data through near-field measurements in a more compact chamber.

TEST SYSTEMS: OTA, APM, MIMO, AND SISO TEST ENCLOSURES

ETS-Lindgren's portable Antenna Measurement Systems (AMS) are designed for ease-of-installation and ease-of-use. These systems are self-contained units that can easily be moved around and between your test labs as required. Our experts will integrate your test environment, instrumentation, and software to provide you with a reliable test system with repeatable results.

AMS-7000 Reverberation Portable Wireless Test Enclosure Test Systems

The AMS-7000 is a Wireless OTA Reverb Antenna Measurement System designed to perform accurate and repeatable SISO and MIMO TRP and TIS measurement. This test enclosure uses two z-fold tuners, a DUT turntable, and a measurement antenna turret to improve isotropicity and homogeneity.

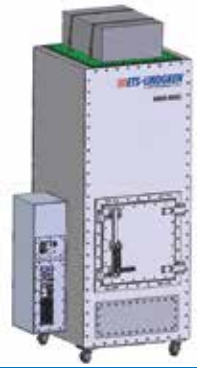
AMS-8040 Reverberation Portable Wireless Test Enclosure Test Systems

The Model AMS-8040 Antenna Measurement System is a self-contained enclosure for performing OTA testing of wireless devices in free space. Measurements supported include pre-certification, design verification, production sample, desensitization, and regression testing.

AMS-8041 Anechoic Portable Wireless Test Enclosure Test Systems

The AMS-8041 Antenna Measurement System is a self-contained enclosure for evaluating wireless device OTA performance. Similar to the AMS-8040 in size, the AMS-8041 adds an RF path to the DUT that provides for passive antenna pattern testing in addition to active OTA measurements.

AMS-8042 Anechoic Portable Wireless Test Enclosure Test Systems



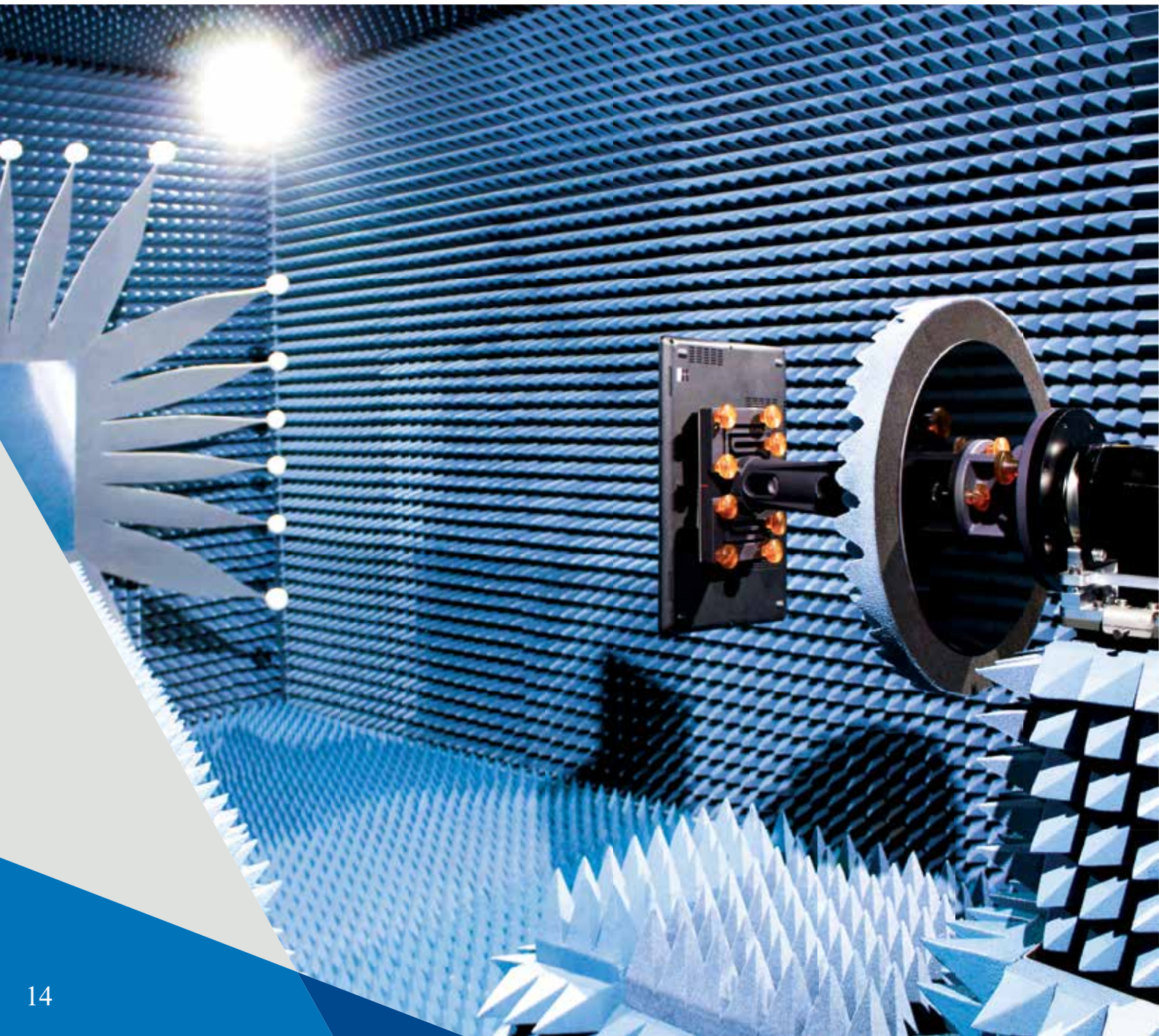
The AMS-8042 Antenna Measurement System supports short-range length OTA testing of automotive RADAR modules and other wireless and mmWave components in a production or R&D environment.

AMS-8050 Anechoic Portable Wireless Test Enclosure Test Systems

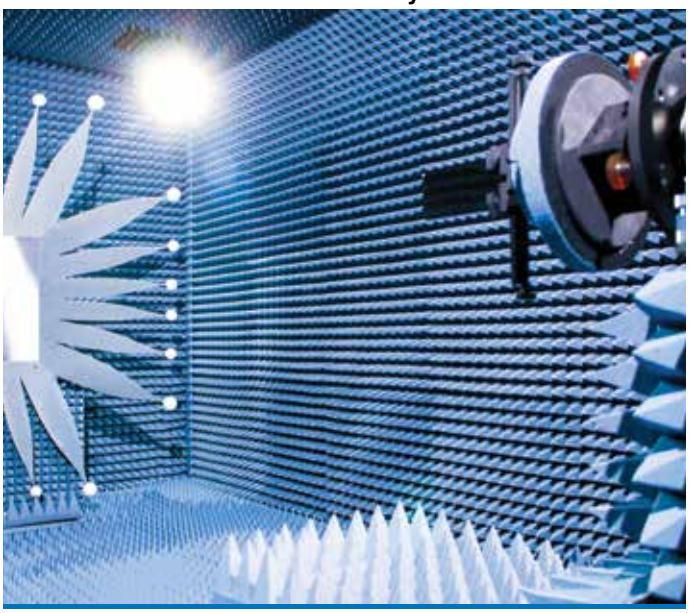
The AMS-8050 Antenna Measurement System utilizes a freestanding reach-in cart configuration that is on casters. Its split-shell design allows a roll-in-place installation through standard doorways and hallways, as well as portability for sharing among labs and work areas.

TEST SYSTEMS: 5G mmWAVE CHAMBERS

ETS-Lindgren's AMS-5700 series supports mmWave active and passive antenna pattern measurements. The models in this series cover a vast spectrum of quiet-zone sizes, frequency ranges, and scanning methods. Large quiet zones are accomplished by utilizing a compact antenna test range (CATR) design using a wave-shaping reflector. Combined-axis designs that move the device under test (DUT) in azimuth and elevation provide highly flexible measurement antenna options, such as variable range length and easy swapping of the antenna to cover wide frequency ranges. Bulky and heavy devices can be best handled by distributed-axis systems where the DUT must only be azimuth-rotated while the measurement antenna moves to scan the elevation axis. ETS-Lindgren provides several models in this series, each optimized to cover particular test variables.

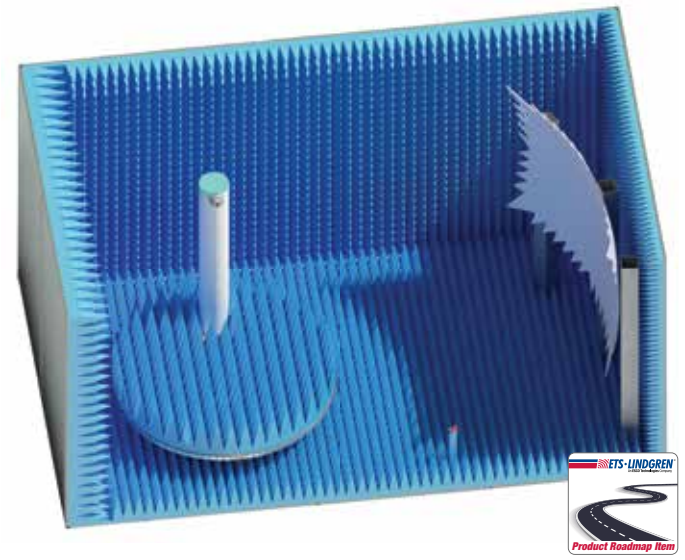


AMS-5703 Anechoic Chamber
5G mmWave Test Systems



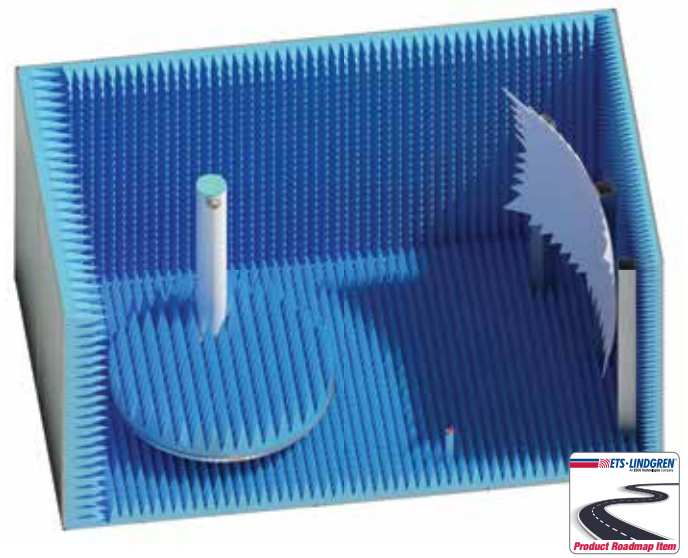
ETS-Lindgren's AMS-5703 is our most popular compact antenna test range (CATR) thanks to its 60 cm QZ and heavy-duty positioning system. This chamber is a favored do-it-all system that handles everything from smart phones to gNodeB base stations comfortably within the QZ.

AMS-5707 Anechoic Chamber
5G mmWave Test Systems



ETS-Lindgren's AMS-5707 is a walk-in indirect far-field CATR with a 100 cm QZ. This chamber can be configured for various measurement frequency ranges specific to the transceiver and antenna system under test. The CATR features a heavy-duty DUT positioner with 100 kg (220 lb) weight handling.

AMS-5708 Anechoic Chamber
5G mmWave Test Systems



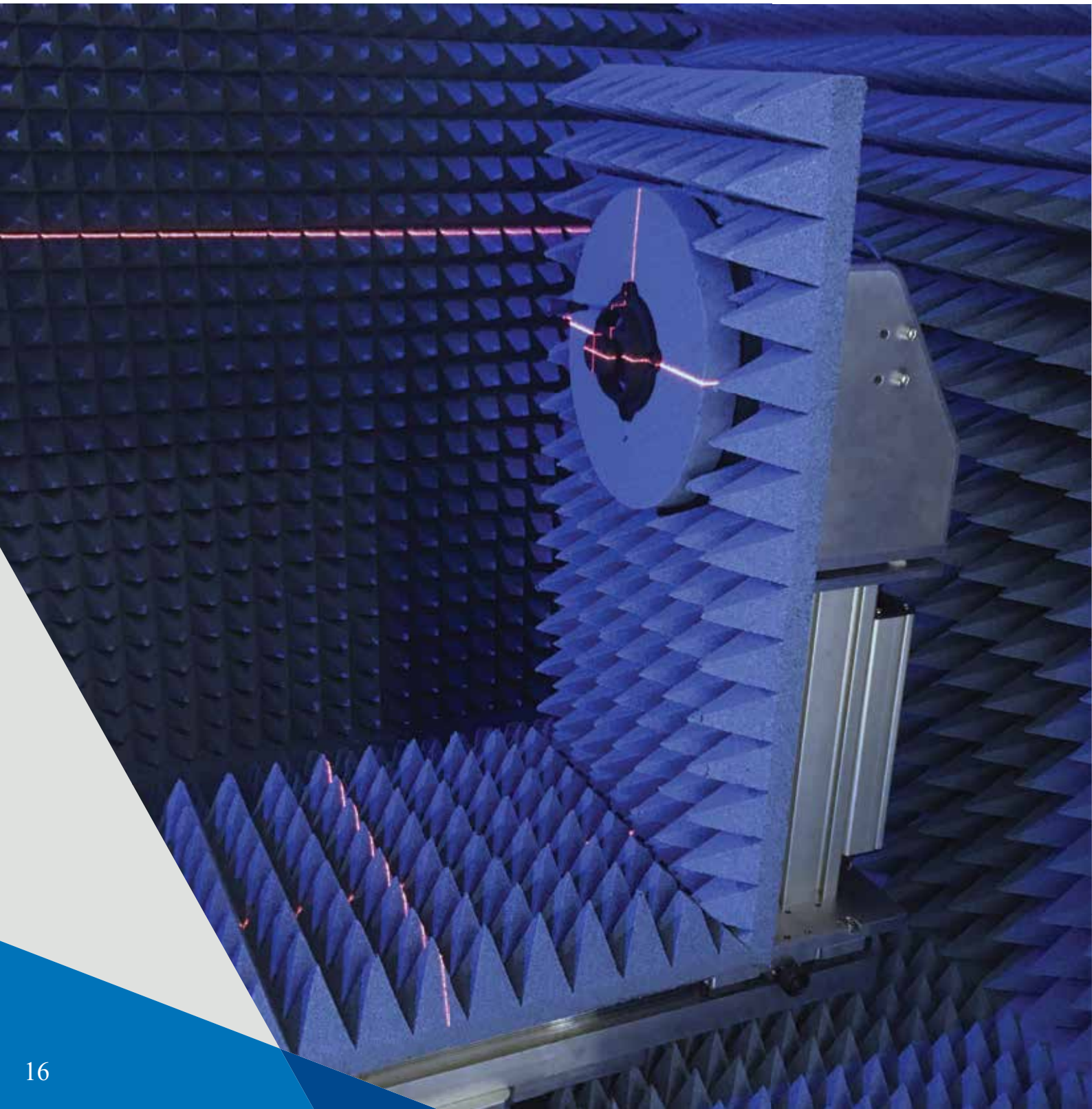
ETS-Lindgren's AMS-5708 is a walk-in indirect far-field CATR with a 150 cm QZ. The chamber can be configured for various measurement frequency ranges specific to the transceiver and antenna system under test. The CATR features a heavy-duty DUT positioner with 100 kg (220 lb) weight handling.

Custom Anechoic Chamber
5G mmWave Test Systems

While the AMS-5700 models cover a high percentage of 5G test requirements, custom systems are a specialty of ETS-Lindgren. Our engineers love a challenge, so if our existing models don't quite cover your requirements, we excel at creating Custom Solutions and adaptations that will.

TEST SYSTEMS:
5G mmWAVE TEST ENCLOSURES

ETS-Lindgren's Antenna Measurement Systems (AMS) for Wireless and Over-the-Air (OTA) chambers are designed to provide excellent testing performance with easy integration and use. Opt for either anechoic or reverberation configurations, and our expert team will seamlessly integrate your test environment, instrumentation, and software. The result is a dependable test system that consistently produces repeatable results.



AMS-5700 Anechoic Portable 5G mmWave Test Enclosure Test Systems

The AMS-5700 is a compact 2D antenna performance measurement system that offers versatility in application and frequency range. It can be moved by cart for easy resource sharing.

AMS-5701 Anechoic Portable 5G mmWave Test Enclosure Test Systems

The AMS-5701 is a distributed-axis spherical-pattern antenna measurement system with a highly flexible application and frequency range. Passive and active antenna pattern tests are supported.

AMS-5702 Anechoic Portable 5G mmWave Test Enclosure Test Systems

The AMS-5702 is a combined-axis far-field measurement test system that provides 3D radiated performance measurements of 5G mmWave wireless devices.

AMS-5704 Anechoic Portable WiGig Test Enclosure Test Systems

The AMS-5704 is a distributed-axis spherical-pattern measurement system targeting the WiGig frequency range. Passive and active antenna pattern tests on WiGig (802.11ay and 802.11ad) devices are supported.

AMS-5705 Anechoic Portable 5G mmWave Test Enclosure Test Systems

The AMS-5705 is an indirect far-field compact antenna test range (CATR) system with a 30 cm QZ. The system meets 3GPP and CTIA quality-of-quiet-zone and phase-validation requirements for 5GNR bands n257 to n262.

AMS-5706 Anechoic Portable 5G mmWave Test Enclosure Test Systems

The AMS-5706 is a reach-in indirect far-field compact antenna test range (CATR) with a 45 cm QZ. This system is a unique approach that slots between a built-in-place chamber and a portable chamber.

AMS-5709 Anechoic Portable 5G mmWave Test Enclosure Test Systems

The AMS-5709 is a 5G FR2 MIMO transceiver performance validation system for CTIA test methods. It houses a measurement antenna array cluster, multi-axis 3D device positioner, and laser-alignment tool to accurately position the device.

PRODUCTS AND ACCESSORIES

ETS-Lindgren is the leading manufacturer of products and accessories for test and measurement. For more than 75 years, we've been building a resume to rival any company in the world with a wide range of high-performance products and accessories renowned for setting the research, development, production, and service standards of any industry we enter. From chambers to test cells, absorbers to antennas, ETS-Lindgren's pioneering products are designed for ease-of-use, reliability, and durability with unparalleled attention to diversity, scale, and precision. At ETS-Lindgren, this is represented in the products we innovate, as well as in the processes we implement.

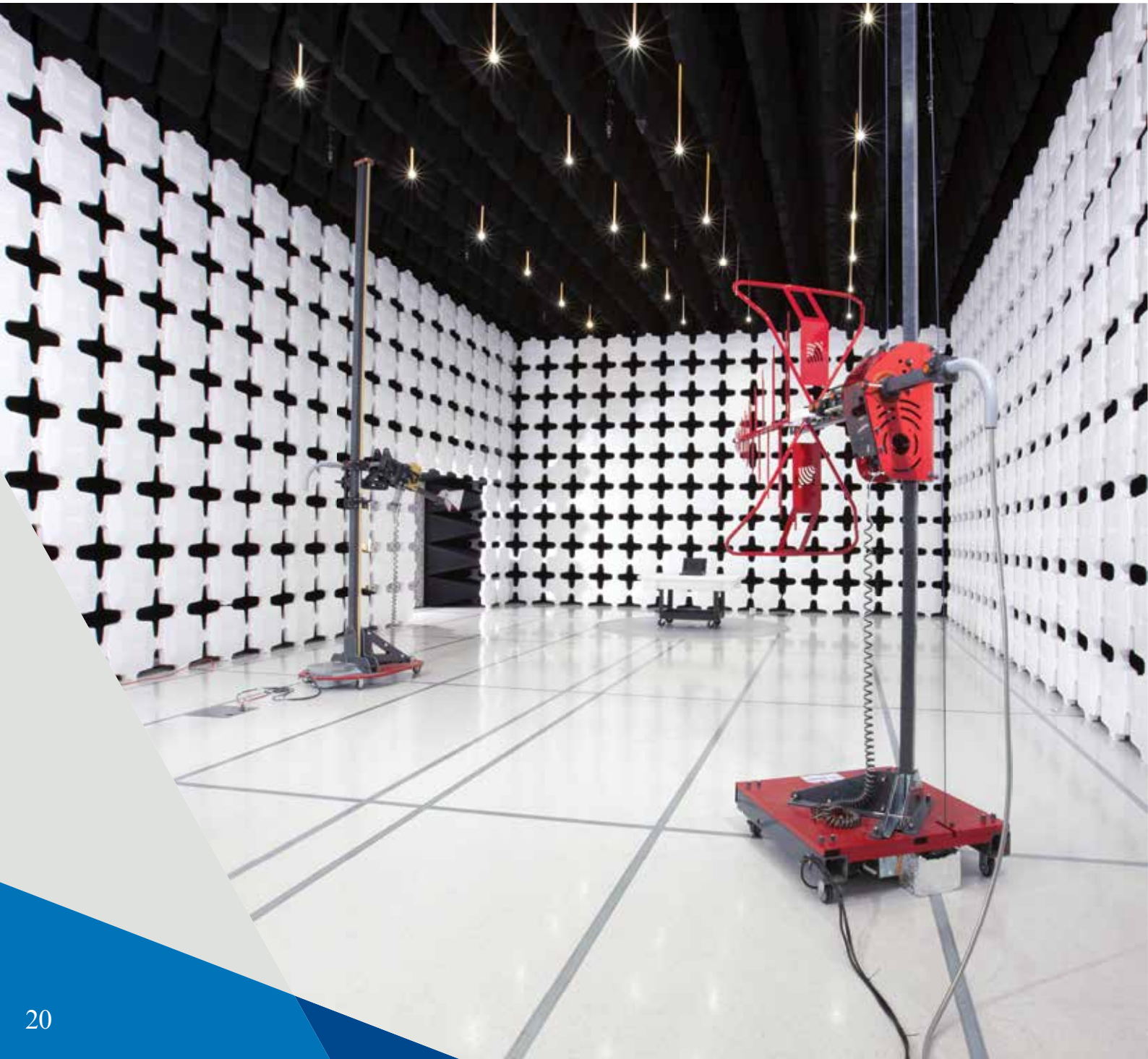
Photo Courtesy of Otokar

PRODUCTS AND ACCESSORIES

CHAMBERS: EMC

ETS-Lindgren's line of EMC chambers has been proven in testing applications for decades. With anechoic, semi-anechoic, and reverberation configurations, our chambers form the basis of your test environment needs.

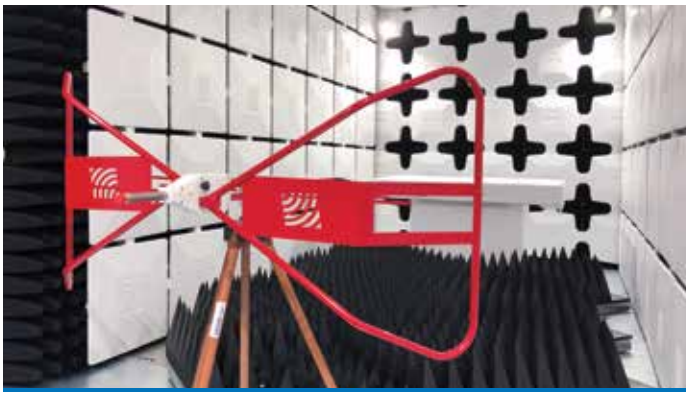
Additionally, we offer a wide variety of systems, services, and components to complement your EMC chamber.



FACT™ EMC Chamber Series

Free-Space Anechoic Chamber Test (FACT) site EMC chambers are semi- or fully anechoic chambers that provide an EMC test environment, ideal for most international commercial EMC test requirements. FACT chambers are available in 3-meter, 5-meter, and 10-meter sizes.

SpaceSaver™ EMC Chamber Series



SpaceSaver EMC chambers are small and compact fully anechoic chambers for pre-compliant emission measurements and fully compliant immunity testing.

Automotive EMC Chamber Series

Automotive chambers are a specialized version of our FACT series of semi-anechoic chambers, designed for full vehicle testing. Please see page 9 for test system information.

E-Motor and E-Vehicle EMC Chamber Series

ETS-Lindgren's E-Motor and E-Vehicle chambers are semi-anechoic chambers designed to meet the emerging requirements for performance validation and compliance testing of E-Motors and E-Vehicles. Please see page 9 for test system information.

MIL-STD EMC Chambers

MIL-STD chambers are designed to test in compliance with a variety of standards, including MIL-STD 461 and DO-160.

SMART™ Series Reverb EMC Chambers

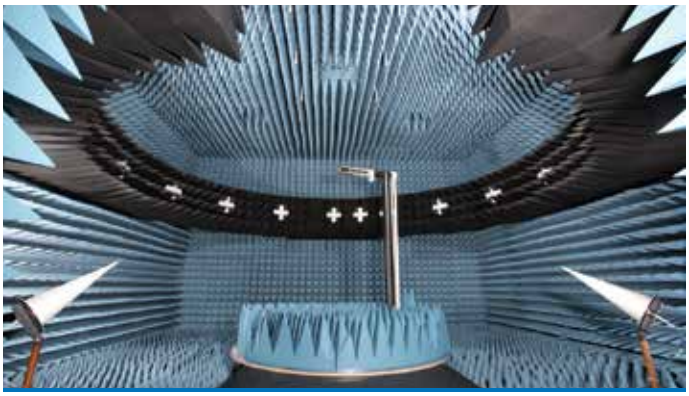
Statistical Mode Averaging Reverberation Test Site (SMART) series of EMC chambers are reverberation chambers designed for creating an electromagnetic environment (EME) for immunity testing.

CHAMBERS: WIRELESS OTA AND APM

ETS-Lindgren is the leader in Wireless Over-the-Air (OTA) and Antenna Pattern Measurement (APM) testing, with fully anechoic and reverberation chambers available.

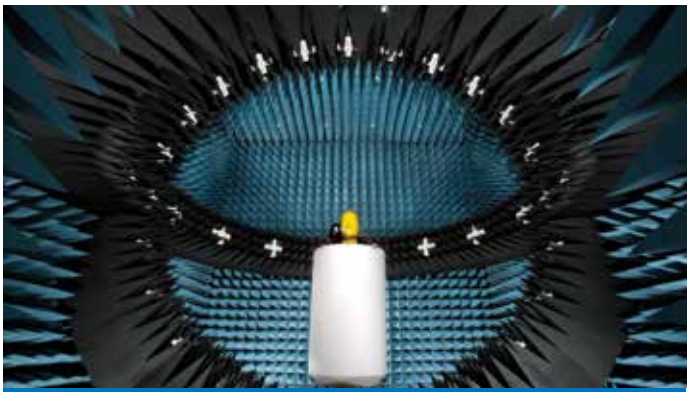
Additionally, we offer a wide variety of systems, services, and components to complement your chamber.

MIMO OTA Measurement Chamber Series



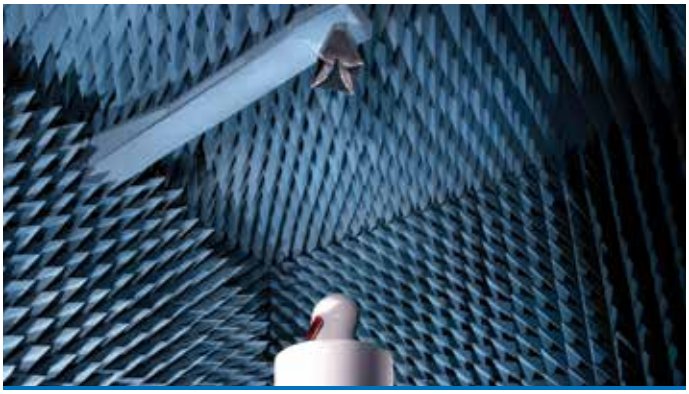
MIMO OTA chambers are ideal for measurement of wireless devices in a fully anechoic, simulated multi-path environment. Please see page 11 for test system information.

Multi-Antenna Array Measurement Chamber Series



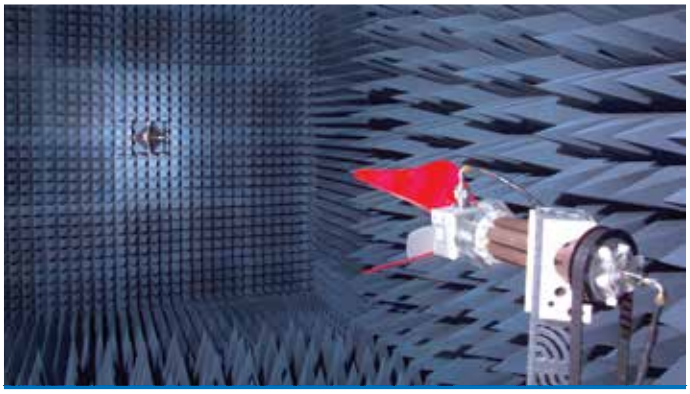
Multi-Antenna Array chambers provide high speed testing of wireless devices in a fully anechoic test environment. Please see page 11 for test system information.

Spherical Scanning Measurement Chamber Series



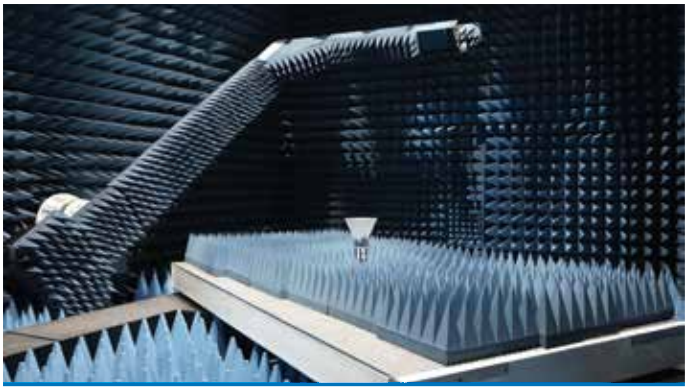
Spherical scanning measurement chambers are fully anechoic rectangular chambers with a theta rotational arm for spherical scanning of wireless devices. Please see page 11 for test system information.

Antenna Pattern Measurement Chamber Series



Antenna Pattern Measurement (APM) chambers are fully anechoic chambers in either a rectangular or tapered chamber configuration, with a 360° phi/theta Multi-Axis Positioning System (MAPS). Please see page 11 for test system information.

Automotive Antenna Pattern Measurement Chamber Series



Automotive Antenna Pattern Measurement (APM) chambers are designed for testing full vehicles in a fully anechoic environment. Please see page 11 for test system information.

CHAMBERS: RF MICROWAVE

ETS-Lindgren has the experience and expertise that RF microwave chambers require. From design to fabrication to installation, ETS-Lindgren's experts assure that your chamber will meet your specific requirements.

Additionally, we offer a wide variety of services and components to complement your RF microwave chamber.

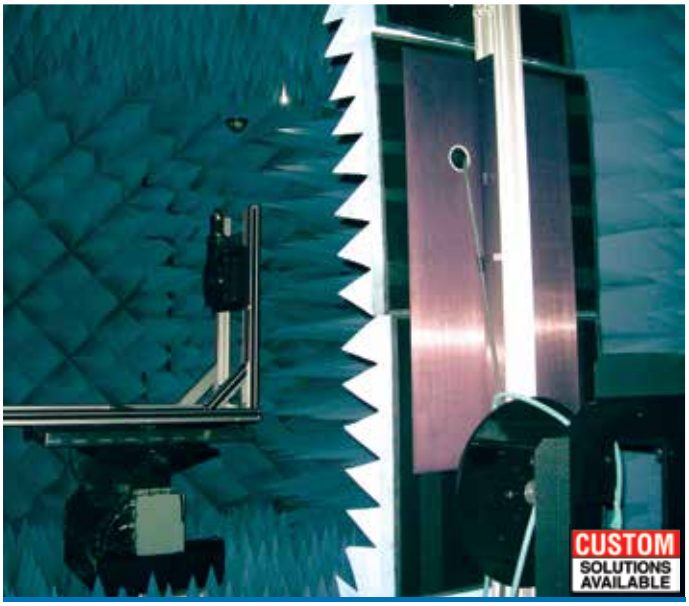
Full Aircraft RF Microwave Chamber Series

Full aircraft chambers are capable of testing full aircraft in a semi-anechoic or fully anechoic test environment. Optional components such as positioning systems and antenna systems are available. Please contact ETS-Lindgren for details.

Satellite and Hardware-in-the-Loop Chamber Series

Satellite chambers are designed for performance testing of satellites in a fully anechoic test environment. Our Hardware-in-the-Loop (HiL) chambers have been designed for testing the functionality of the device in a fully anechoic test environment.

Near-Field Microwave Chamber Series



Near-Field microwave chambers are fully anechoic and designed for the housing of near-field scanners used in the measurement of electrically large antennas.

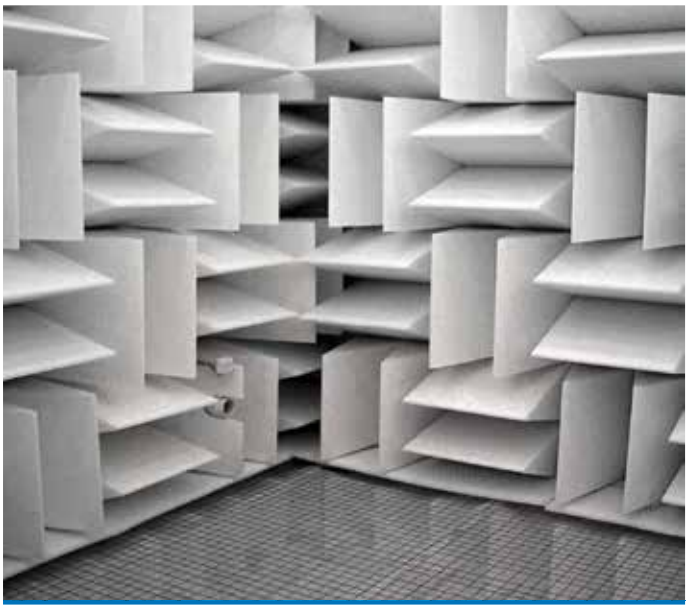
RCS and Antenna Compact Ranges

Radar cross-section (RCS) and antenna compact ranges utilize anechoic material layouts specifically designed to integrate reflectors for radar and large antenna measurements.

CHAMBERS: ACOUSTIC

ETS-Lindgren's acoustic chambers meet the practical and the empirical needs of the test chamber market throughout all phases of design, manufacture, installation, and verification.

Anechoic Chamber Series



Anechoic chambers are precision-grade, free-field chambers measuring sound source directivity, frequency response, and noise emissions.

Hemi-Anechoic Chamber Series

Hemi-anechoic chambers provide a precise, free-field environment used to measure sound sources on a reflecting plane.

Reverberation Chamber Series

Reverberation chambers are designed to produce a non-directional or diffused sound field within the acoustic chamber.

Predictable Field Chamber Series

Predictable field chambers are an economical solution for engineering or survey-grade testing specified by many acoustic standards.

TEST ENCLOSURES

The design and manufacture of ETS-Lindgren's test enclosures is approached with a complete understanding of every component part, the scientific principles of each, and the ability to successfully integrate them for optimal performance. Numerous configurations are offered.

Bench-top Test Enclosures

Bench-top test enclosures offer a general RF test system for small- to medium-sized DUTs in an upright, bench-top configuration. Some models can be customized with filter and feedthrough options.

Copper Bench-top Test Enclosures

Copper bench-top test enclosures offer high performance with copper shielding, designed for fast, convenient EMI/RFI testing and verification.

Portable Test Enclosures

These self-contained, portable test enclosures are designed for testing wireless devices in a development, production, and/or quality assurance environment. Tabletop and rack mount configurations are available.

Portable Test Enclosures

Mini-Reverb test enclosures provide a convenient and affordable reverberation test environment for product design and development applications.

5G Test Enclosures

5G test enclosures are capable of making single axis passive antenna performance measurements for 5G/mmW antennas with or without antenna feed ports. Please see page 17 for test system information.

Compact Shielded Test Enclosures

Compact shielded test enclosures are portable options for making design verification, pre-certification, and production line measurements. Please see page 13 for test system information.

Antenna Measurement Test Enclosures

Antenna measurement test enclosures are fully anechoic, RF test enclosures ideal for antenna pattern measurements. Please see page 13 for test system information.

Small Device Acoustic Test Enclosures

Small device acoustic test enclosures offer affordable options when critical measurements are not required, including measurements for testing acoustic levels of small mechanical and electronic assemblies.

Audiometric Test Booths

ETS-Lindgren makes a variety of test booths for audiometric test applications. Please contact your ETS-Lindgren representative for more information.

Shielded Rack Enclosure (SRE)

ETS-Lindgren Model 5260-SRE protects rack-mounted equipment from RF signals transmitted by external sources while containing any RF noise created by the instrumentation within the enclosure.

GTEM!

Gigahertz Transverse Electromagnetic Mode (GTEM!) Test Enclosures enable users to perform emissions and radiated immunity tests in less time than in an Open Area Test Site (OATS) or in an anechoic chamber.

Attempts have been made to imitate the technology, but nothing has achieved the success or acceptance of the GTEM!.

Model 5402 GTEM! Test Enclosures

Model 5402 GTEM! test enclosures are compact, bench-top, portable test enclosures designed to test smaller DUTs in a portable test environment. Please see page 9 for test system information.

Model 5405 GTEM! Test Enclosures

Model 5405 GTEM! test enclosures are designed for testing small- to medium-sized DUTs. Please see page 9 for test system information.

Model 5407 GTEM! Test Enclosures

Model 5407 GTEM! test enclosures are designed to test medium to large DUTs. Please see page 9 for test system information.

Model 5411 GTEM! Test Enclosures

Model 5411 GTEM! test enclosures are designed for testing large DUTs. Please see page 9 for test system information.

RF SHIELDING

ETS-Lindgren is the proven leader in shielding, with thousands of shielded enclosures installed worldwide. We provide solutions for challenging environments including test and measurement, industrial, government, acoustic, and medical. All shielding products displaying the Red Edge™ logo are certified to provide the highest protection level possible.

For RF shielded doors, please see page 34.

Series 71 Screen RF Shielded Rooms

Series 71 screen rooms provide the benefit of RF shielding in a “hear-through, see-through” testing environment.

Series 81 Shielded Rooms/ Government Shielded Rooms

Series 81 shielded rooms/government shielded rooms are modular steel enclosures, offering high performance shielding for the best attenuation of magnetic and electric fields, as well as plane waves.

Series 101 Pan-Type Shielded Rooms

Series 101 shielded rooms are pan-type modular steel enclosures, offering high performance shielding for the best attenuation of magnetic and electric fields, as well as plane waves.

DEI Series Copper Screen Shielded Rooms

Double Electrically Isolated (DEI) series copper screen shielded rooms provide high shielding performance in a “hear-through, see-through” enclosure.

DEI Government Series Shielded Rooms

DEI government series shielded rooms use a combination of steel and copper and are designed to provide high shielding performance.

Welded Shielded Rooms

Welded rooms utilize welded construction for the most reliable and highest performance available.

TEMPEST/Government Secure Applications Shielded Enclosures

TEMPEST/government application shielded enclosures are designed and constructed to provide security for high threat and classified applications.

Series 101 Pan-Type Anechoic Chamber Shielding

Series 101 Pan-Type shielding is easy-to-install modular shielding, ideal for all test and measurement applications.

Red Edge Series EMP Shielding

Red Edge series EMP shielding provides Pulse Protected System (PPS) protection against EMP events.

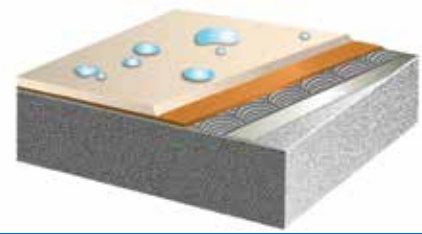
EMI/RFI Shielded Waveguide Air Vents

Shielded waveguide air vents improve airflow and maintain RF shielding effectiveness in industrial and government test environments.

Waveguide Filters (Fiber Optic) and Feedthroughs (Pipe Penetrations)

Both waveguide filters and feedthroughs provide a means of bringing fiber optic cables, and signal lines into a shielded room while maintaining the room’s RF shield integrity.

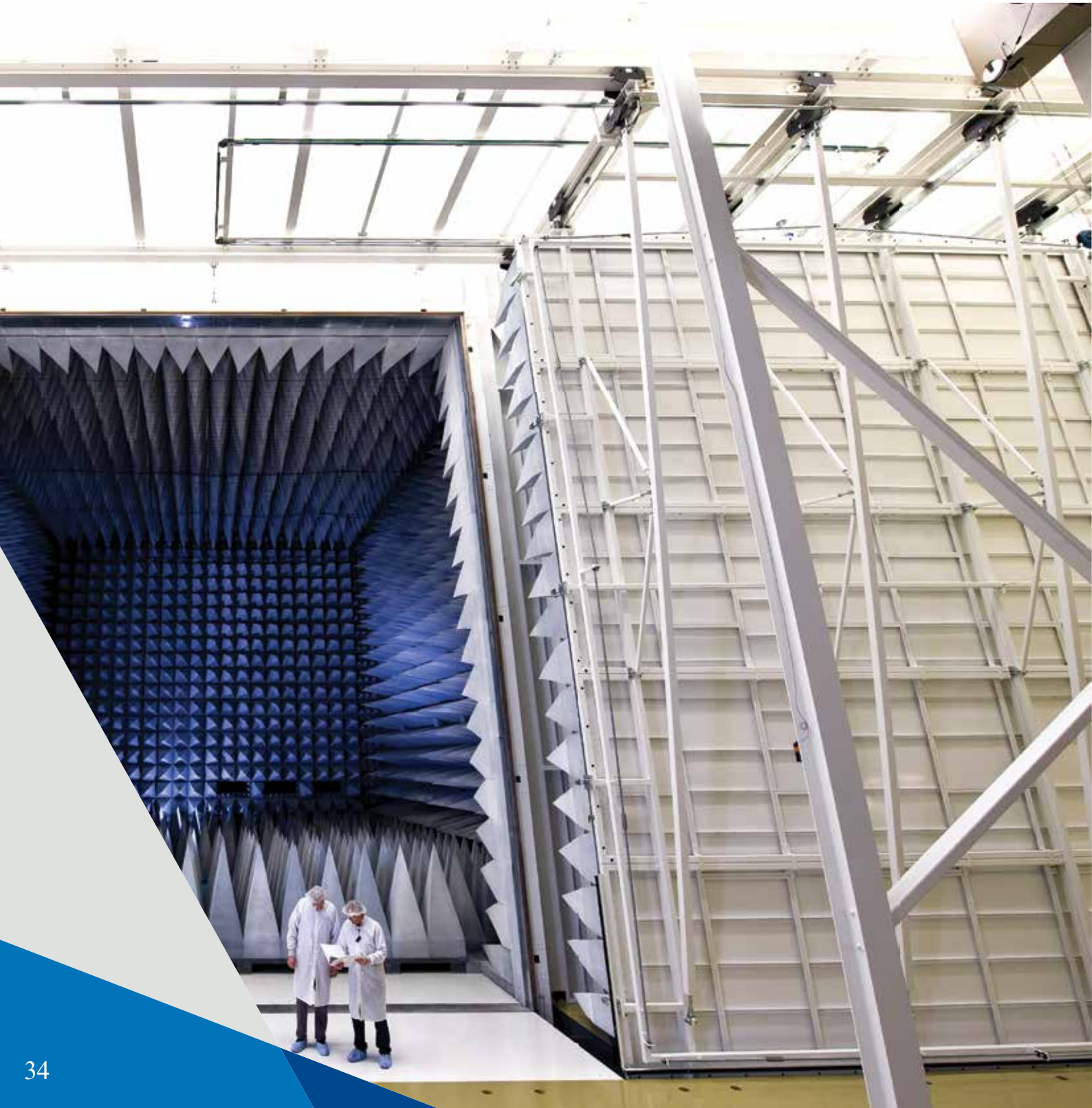
RF Shielded Flooring



RF shielded floors are available in both monolithic and modular cell-type, providing an ideal foundation for all RF shielded rooms.

RF SHIELDED DOORS

ETS-Lindgren is the leading manufacturer of RF shielded doors for the test and measurement, industrial shield, and medical markets. Automatic and manual swing and sliding doors are available in standard configurations. Should you require a customized door solution, please contact your ETS-Lindgren representative for assistance. So, whether it's a single personnel door or a door large enough to accommodate aircraft, ETS-Lindgren has the ideal door solution for your project.



EVO™ Manual Door

EVO Manual Door is designed to provide reliable, low maintenance service for use in a rigorous environment.

EVO™ Air Door

EVO Air Doors offers revolutionary, leading-edge shielded technology in a lightweight, mechanically operated, high performance shielded door.

Single Knife Edge Shielded Swing Door

The Single Knife Edge door's design offers superior reliability, performance and longevity.

Double Knife Edge Shielded Swing Door

The Double Knife Edge door's durable design makes it ideal for frequent use environments.

RFD-60 Shielded Swing Door

RFD-60 doors are high performing swing doors with internal-type recessed hardware and special hinges.

RFD-100 Shielded Swing Door

RFD-100 doors are high performing swing doors that are easy to open/close due to their bearing mechanism design.

RFD-F/A-100 Shielded Swing Door

The RFD-F/A-100 swing door performs up to 40 GHz and can accept an additional load of ferrites and short absorbers.

RFD-AWD Shielded Swing Door

The RFD-AWD provides an all-weather RF door designed for high performance and ease of operation.

Auto-Latching Shielded Swing Door System

Auto-Latching shielded door system maintains a high level of RF shielding effectiveness with auto-latching convenience.

PHD Pneumatic Shielded Hinged Door

PHD doors are pneumatically operated, RF shielded hinged doors suitable for RF shielded chambers and rooms.

SRFSD-100 Shielded Sliding Door

SRFSD-100 shielded doors are designed for chambers and rooms where a very large opening is required.

RFSD-100 Shielded Sliding Door

RFSD-100 doors provide shielding performance up to 40 GHz and can be equipped with ferrite/pyramidal absorber for anechoic chamber requirements.

SSD Shielded Sliding Door

SSD doors are ideal when the maximum door opening is required, but limited space prevents a swing door from being used.

ABSORBER

ETS-Lindgren has an extensive absorber product line, with solutions for EMC and RF microwave applications. Workstations running advanced numerical modeling software are used to develop our absorber products, which are then prototyped and tested to validate predicted results. Along with our standard absorber, ETS-Lindgren has the ability to create customized absorbers with special formulations and physical geometries to meet unique requirements.

DuraSorb™ DSH Series EMC Absorber

DuraSorb EMC absorber is a hybrid polystyrene anechoic absorber, combining broadband performance with rigid, closed cell construction.

FerroSorb™ FS Series EMC Absorber

FerroSorb FS series EMC absorber combines a high performance carbon-loaded foam absorber with precision-manufactured ferrite tile.

Filter Foam EMC Absorber

Filter foam is a medium power EMC absorber available in pyramidal and wedge-type cuts.

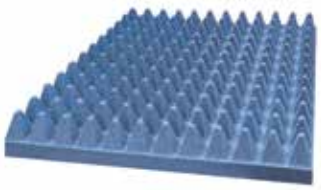
PCL Series EMC and Microwave Absorber

PCL series EMC and microwave absorber is an ultra-broadband absorber and is optimized for MIL-STD-461 applications.

EHP Pyramidal Series Microwave Absorber

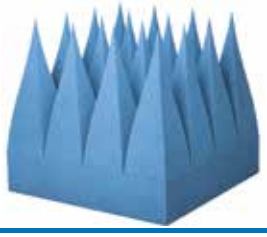
EHP pyramidal microwave absorber is designed for use over a wide frequency range and is suitable for several test applications.

Convex™ Series Microwave Absorber



Convex microwave absorber has a convoluted front surface, creating a gradual transition from free-space to loaded substrate.

CRV Series Microwave Absorber



CRV series microwave absorber is a critical region absorber, optimized for broadband normal incidence reflection suppression.

HP Series Microwave Absorber

HP series microwave absorber is a high power, low flammability absorber that is ideal for high vacuum applications.

Wedge Cut Microwave Absorber

Wedge cut microwave absorber is ideal to use where pyramidal absorbers would generate too much backscatter.

Flat Laminate Microwave Absorber

Flat laminate absorber provides moderate performance and is flexible and easy-to-cut for placement around positioners, near-field scanners, etc.

Walkway Microwave Absorber

Walkway microwave absorber provides a walking surface for personnel and is compatible with anechoic chamber reflection requirements.

Precision Machined Ferrite Tile

Ferrite tile is a high performing, precision machined tile with a tuned dielectric backing layer.

FlexSorb™ Flexible Absorber

FlexSorb allows for increased flexibility without impacting reflective performance, power handling, or fire retardant properties.

POSITIONERS

ETS-Lindgren's antenna towers and turntables were the first commercially available units for EMC measurement applications. In addition to being a leader in positioners for EMC testing, ETS-Lindgren provides positioning systems for antenna pattern measurement and wireless testing.

Bore Sight Antenna Tower

The Model 2171B antenna tower is a reduced footprint tower with bore sight capability, keeping the EUT within the beam of the measurement antenna.

Space-Saving Antenna Tower

The Model 2175 MiniMast™ antenna tower has a space-saving design, ideal for use in compact chambers.

Manual Antenna Tower

The Model 1052 is a manually operated, portable positioner when quick measurements or pre-scans are needed.

Tripod Positioner for Small to Medium Antennas and Probes

The Model 4-TR tripod is a portable and collapsible tripod for small- to medium-sized antennas and probes.

Tripod Positioners for Large Antennas

The Model 7-TR tripod has a wide footprint for physically large antennas. Air polarization and optional cross booms are available.

Manual Turntable

The Model 1062-1.2B is a low profile, manually operated, nonmetallic turntable designed for pre-scan measurements.

Low Profile Turntable

The Model 2165 LoPro™ is a portable turntable that sits virtually flush with the floor. For indoor/outdoor use. 1.2 m diameter. Load rating: 272 kg (600 lb).

Light-Duty Turntable Series

Series 2188 EuroPro™ turntables are indoor, variable speed turntables. 1.2 to 2.0 m diameters, custom units available. Std. load rating: 1,000 kg (2,200 lb).

Medium-Duty Turntable Series

Series 2187 turntables are indoor/outdoor, variable speed turntables. 2.0 to 3.0 m diameters, custom units available. Std. load rating: 1,200 kg (2,645 lb).

Heavy-Duty Turntable Series

Series 2181 turntables are indoor/outdoor, variable speed turntables. 2.0 to 6.0 m diameters, custom units available. Std. load rating: 9,000 kg (19,841 lb).

Single-Axis Light-Duty Positioning System

The Model 2006 is an economical solution for azimuth (polar) pattern measurements of passive and active devices. Std. load rating: 25 kg (55 lb).

Precision Mobile Multi-Axis Positioner System

The Model 2304 provides smooth rotation of a test object in both theta and phi axes in a mobile format for maximum flexibility of use.

Multi-Axis Light-Duty Positioning System

The Model 2112 is a light-duty positioning system, available in custom heights, for testing wireless handsets. Std. load rating: .45 kg (1 lb).

Multi-Axis Medium-Duty Positioning System

The Model 2117 is a medium-duty positioning system, available in custom heights, for medium-weight DUTs. Std. load rating: 11.3 kg (25 lb).

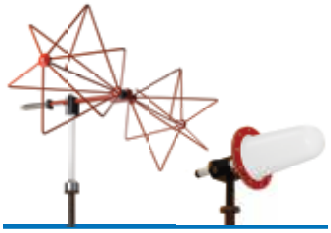
Multi-Axis Heavy-Duty Positioning System

The Model 2122 is a heavy-duty positioning system, available in custom heights, for heavier DUTs and phantom mounts. Std. load rating: 35 kg (75 lb).

ANTENNAS

ETS-Lindgren's antennas are designed with the latest computational modeling tools, manufactured with exacting precision, and are individually tested, characterized, and/or calibrated in our A2LA accredited lab.

Biconical and Mini-Bicon Series



The Biconical and Mini-Bicon series are omnidirectional broadband antennas for use in EMC measurement and spectrum monitoring.

BiConiLog™ Series

The BiConiLog series of antennas are extremely broadband EMC antennas for pre-scan and compliance measurements.

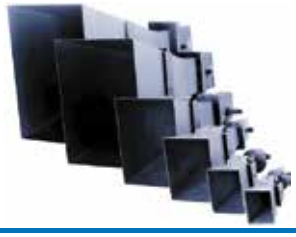
Log Periodic Series

Log periodic antennas are high gain, low VSWR broadband antennas for EMC measurements and applications where directivity is required.

Conical Log Spiral Antenna

The conical log spiral antenna is broadband and circularly polarized for sensing or generating circularly polarized waves.

Standard Gain, Octave and Conical Horn Series



Standard gain/octave horns are high gain, linearly polarized and ideal as reference antennas for immunity testing and sources for tapered chambers.

Double-Ridged Waveguide Horn Series

Double-Ridged waveguides, one of ETS-Lindgren's most popular antenna series, are high gain, multi-octave, linearly polarized horns.

Open Boundary Quad-Ridge Horn Series

Our open boundary quad-ridge horns are multi-octave, dual linearly polarized and high gain, making them ideal for sensing two orthogonal field components.

Field Generating Pyramidal Horn Series

Field generating pyramidal horns are optimized to generate the highest power density in the near field.

TEM Horn Antennas

The Model 3166 and 3167 TEM Horn Antennas generate homogeneous fields for immunity testing per the IEC/EN 61000-4-39 standard.

Tuned Dipole Series

The "original" EMC antenna. These tuned dipoles are accepted by many as the most precise for EMC measurements.

Precision Sleeve Dipole and Resonant Loop Series

Precision sleeve dipoles and resonant loops are designed to meet the CTIA 0.2 dB azimuth symmetry requirements for the ripple test and calibration.

Log and Magnetic Field Coil Series

Log and magnetic field coils are shielded and unshielded, active and passive coils and loop antennas, for ELF to HF ranges.

Electric Monopole (Rod) Series

Electric monopoles (rods) are active and passive short monopole-type antennas for ELF to HF ranges, and ideal for MIL-STD and CISPR 25.

Pre-Amplifiers

ETS-Lindgren offers some of our most popular, EMC emission antennas with pre-amplifiers. For best performance, these are calibrated as a single unit.

Custom Antenna Solutions

ETS-Lindgren can custom design, test, manufacture, and calibrate the antenna solution that best fits your needs.

Individual Calibration

Our EMC antennas are calibrated at our A2LA accredited lab in accordance with the appropriate standards. Please see page 59 for information.

PROBES AND MONITORS

ETS-Lindgren's probes provide excellent, reliable performance and meet or exceed the requirements for Health & Safety, Automotive, MIL-STD, and Commercial EMC standards.

ETS-Lindgren's E-Field probes can be monitored using either the original EMCenter or our new EM8 high speed controller with one EMSense™ plug-in card for each probe. These EMSense model numbers vary depending on your probe type, so please contact us for the best possible solution.

Battery Powered E-Field Probe Series

ETS-Lindgren's battery powered E-Field probes enable fast and accurate EMF measurements with industry-leading performance specifications. For added ease of use, batteries are field-replaceable.

EMSense™ Laser Powered E-Field Probe Series

ETS-Lindgren's laser-powered EMSense Electric Field Probes embody the latest innovations in isotropic sensor design, low noise and miniaturized electronics.

Low Frequency Health and Safety Meter Series

Our low frequency Health and Safety meters provide accurate measurements of electromagnetic fields in low frequency applications.

Microwave Oven Survey Meter Series

Available in handheld, bench-top and area monitors, ETS-Lindgren's series of microwave oven survey meters provide accurate microwave oven leakage measurements.

Fiber Optic Converters

Fiber optic converters allow a PC to be used for quick processing of data from ETS-Lindgren's EMF probes. Please see page 47 for ProbeView EMF software information.

Probe Stands

Designed for accurate and repeatable probe positioning when performing field uniformity calibrations, ETS-Lindgren's probe stands are both easy-to-use and durable.

EMCenter Field Monitor

The EMCenter with optional EMSense probe control plug-in card provides easy gathering and processing of data from all ETS-Lindgren EMC E-Field probes.

EMCenter EM8 Field Monitor

ETS-Lindgren's EMCenter EM8 is capable of significantly higher data collection speeds with the ability to store up to eight instrument plug-in cards, which can all be controlled and used simultaneously.

Current Probe Series

ETS-Lindgren's current probes accurately measure current flowing on a wire or bundle of wires, without requiring a direct connection to the conductor(s).

AMPLIFIERS

ETS-Lindgren offers a wide range of RF power amplifiers for any EMC test application. These amplifiers produce excellent output power levels, while maintaining an efficient performance level.

Automotive Amplifier Series

Automotive power amplifiers are designed primarily for automotive applications that include ISO 11451-2 testing requirements.

Commercial EMC Amplifier Series

Commercial EMC amplifiers are designed primarily for commercial applications, including IEC/EN 61000-4-3 and IEC/EN 61000-4-6 test requirements.

DO-160 Amplifier Series

RTCA DO-160 power amplifiers are ideal for component testing to RTCA DO-160 requirements.

MIL-STD Amplifier Series

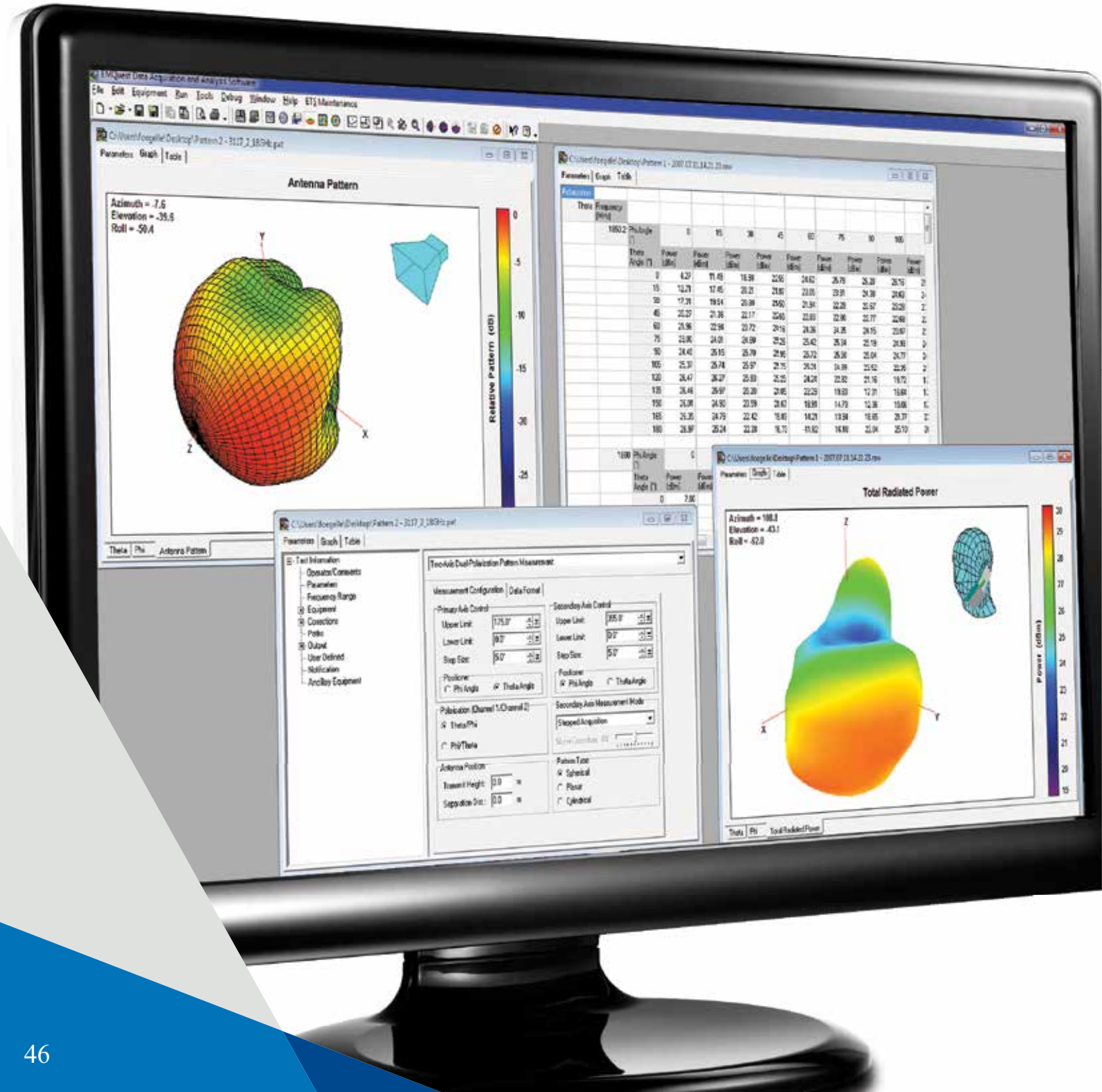
MIL-STD power amplifiers are designed primarily for military applications that include MIL-STD-461 CS114 testing requirements.

EMField™ Generator

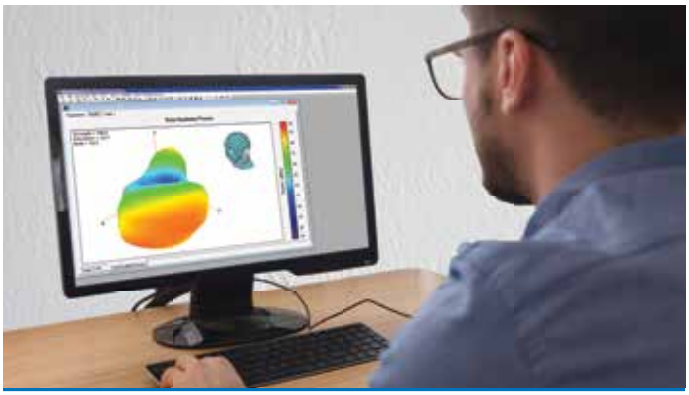
The EMField is a unique, integrated solution for radiated immunity testing, including IEC/EN 61000-4-36. It combines an amplifier, directional couplers, and an antenna array into one remarkable, simplified design. Virtually all of the generated power is converted into usable field strength.

SOFTWARE

ETS-Lindgren software products are developed by professionals with the knowledge gained from designing, installing and supporting EMC, EMF, and wireless test software applications.



EMQuest™ Antenna Measurement Software



EMQuest antenna measurement software offers a wide range of fully parameterized test methods for measuring basic antenna performance metrics, as well as testing both radiated and conducted performance of various wireless devices in both SISO and MIMO test configurations.

TILE!™ Totally Integrated Laboratory Environment EMC Software

TILE! Software allows you to manage test sequences, with a drag-n-drop simplicity. TILE! Software is an integrated approach to designing, performing, reporting, and archiving EMC tests that can utilize an array of existing and new instruments.

VisionTRX™ Visual Monitoring System

VisionTRX allows automated visual monitoring of test subjects during exposure to the required electromagnetic field strengths. Functioning either independently or seamlessly with TILE! Software, VisionTRX provides extensive time-saving capabilities with vast potential in your lab.

VALET™ Voice-Activated Interface

ETS-Lindgren's Voice-Activated Lab Environment (VALET) delivers tomorrows measurement systems today. Using a custom voice-activated interface, VALET provides the highest level of hands-free convenience, efficiency, and control for your test environment.

ProbeView™ II EMF Probe Software

ProbeView II graphical analysis tool for real-time or post-measurement data sets reads data from EMF probes and offers user-selectable viewing options (numeric or graphical), selectable logging, simultaneous display of peak-hold and current field strength data, and graphical representations of field strength versus time.

Software Maintenance Support Program

ETS-Lindgren offers a maintenance support program for both TILE! and EMQuest software. Please see page 59 for program information.

FILTERS: POWERLINE

ETS-Lindgren has a wide selection of general requirement, special application, and custom powerline filters in a broad range of configurations, performances, and power levels. ETS-Lindgren filters may be ordered with transient suppressors for improved protection against voltage transients.

All ETS-Lindgren filters are manufactured in our Cedar Park, Texas facility.

LRX Series Single Line Filters

LRX series single line filters are individual circuit filters, providing superior performance for stringent requirements.

LRX Series Dual Line Filters

LRX series dual line filters provide superior performance for stringent requirements in a dual line, single phase filter.

LPRX Series Wall-Mount Filters

LPRX series filters are multiple circuit filters providing superior performance for stringent requirements in a wall-mounted configuration.

LFPRX Series Floor-Stand Filters

LFPRX series filters are multiple circuit filters, providing superior performance for stringent requirements in a floor-stand configuration.

LRW Series Single Line Filters

LRW series single line filters provide moderate performance for standard requirements.

LRW Series Dual Line Filters

LRW series dual line filters provide moderate performance for standard requirements.

LRE Series Multiple Line Filters

LRE series filters are multiple line, commercial filters, providing moderate performance for standard requirements. These filters are available in two, three, and four circuits.

N900X Series Multiple Line Filters

N900X series filters are very high performing EMC, Tempest and government secure application filters, with low power dissipation.

FILTERS: EMP

ETS-Lindgren's EMP filters protect against damage to electronic equipment and loss of data caused by a sudden and intense Electromagnetic Pulse (EMP) and High-Altitude Electromagnetic Pulse (HEMP).

Manufactured using Red Edge Technology, these EMP filters are acceptance tested to MIL-STD-188-125 by Little Mountain Test Facility at Hill Air Force Base in Ogden, Utah, a facility owned by the U.S. government and managed by Boeing. Our EMP filters are also listed by ETL to UL 1283.

All ETS-Lindgren filters are manufactured in our Cedar Park, Texas facility.

REDEDGE™ PULSE PROTECTION

OGDEN, UTAH
Little Mountain
TEST FACILITY
HILL AFB
SHOCK • VIBRATION • ELECTROMAGNETIC • RADIATION

ETL LISTED
Intertek

LRX Series Single Line Filters

LRX series single line filters are individual circuit filters, providing superior performance for stringent requirements.

LRX Series Dual Line Filters

LRX series dual line filters provide superior performance for stringent requirements in a dual line, single phase filter.

LPRX Series Wall-Mount Filters

LPRX series filters are multiple circuit filters providing superior performance for stringent requirements in a wall-mounted configuration.

LFPRX Series Floor-Stand Filters

LFPRX series filters are multiple circuit filters, providing superior performance for stringent requirements in a floor-stand configuration.

HEMP Series Two Line

HEMP filters are single unit, EMP powerline pulse protection filters available in three individually filtered lines with ratings of 277/480 VAC, 10 A to 1250 A.

HEMP Series Three Line

HEMP filters are single unit, EMP powerline pulse protection filters available in four individually filtered lines with ratings of 277/480 VAC, 10 A to 1250 A.

HEMP Series Four Line

HEMP filters are single unit, EMP powerline pulse protection filters available in four individually filtered lines with ratings of 277/480 VAC, 10 A to 1250 A.

FILTERS: TELEPHONE, COMMUNICATION, CONTROL, SIGNAL LINE

ETS-Lindgren manufactures the widest variety of telephone, communication, data, control, and signal line filters for an extensive range of applications. All filters may be ordered with transient suppressors for improved protection against voltage transients.

All ETS-Lindgren filters are manufactured in our Cedar Park, Texas facility.

LTC Series Dual or Multi-Line Filters: Control Systems

LTC series filters for control systems are two to 12 line LTC filters for in and outbound signal, sensor, voice, and data communication. 10Ω, 40Ω, and 100Ω models available.

LTC Series Dual or Multi-Line Filters: Digital Systems

LTC series filters for digital systems are two to 12 line LTC filters for in and outbound signal, sensor, voice, and data communication. 20K, 1M, and 10M baud models available.

LTC Series Dual or Multi-Line Filters: P.A./Alarm Systems

LTC series filters for P.A./alarm systems are two to 12 line LTC filters for use with P.A. or alarm systems. 8Ω, 16Ω, 140Ω, and 5000Ω models available.

LTC Series Dual or Multi-Line Filters: Security Systems

LTC series filters for security systems are two to 12 line LTC filters for in and outbound signal, sensor, voice, and data communication. 20Ω model available.

LTC Series Dual or Multi-Line Filters: Signal and Sensors

LTC series filters for signal and sensors are two to 12 line LTC filters for in and outbound signal, sensor, voice, and data communication. 100Ω, 200Ω and 300Ω models available.

LTC Series Dual or Multi-Line Filters: Telephone Lines

LTC series filters for telephone lines are two to 12 line LTC filters for either digital or voice/analog POTS. 10K, 56K, and 128K baud models available for digital, 600Ω voice/analog POTS model available.

LTC Series Dual or Multi-Line Filters: Specialty

LTC series for specialty applications are ideal for communication lines entering and/or leaving shielded, computer, communication terminal, and information facilities.

LPTC Series Panels and Cabinets for Filters

LPTC series panels and cabinets are specifically designed for dual circuit LTC filters.

ACCESSORIES

ETS-Lindgren provides a wide range of test and measurement accessories for EMC, wireless, RF microwave, and acoustic markets.

Product Cases

Provides a safe way to store and ship delicate equipment. Moisture and chemical resistant, these cases are designed to have uniform wall strength.

Camera Systems

ETS-Lindgren offers shielded cameras for visual monitoring of areas where EMI field strengths are present.

LED Chamber Lighting

LED High Hat lighting offers RF noise-free operation, low heat, and long life. For new or existing EMC, microwave, wireless, or acoustic test chambers.

Fiber Optic Chamber Lighting

Fiber optic chamber lighting is a cost-effective solution for illuminating the interior of anechoic chambers with cool, white light.

Copper-Top Test Benches

Copper-Top test benches are test tables designed with an integrated copper top for MIL-STD testing.

Low Reflection EUT Tables

Low reflection EUT tables are lightweight and designed to produce low reflection in EMC test environments.

Phantom Hand Only Kits

These hands mount directly to the positioning device. Available grips include mono block and slide for voice, fold for voice, data mode, and PDA devices.

Phantom Head and Hands Kits

Low reflection EUT tables are lightweight and designed to produce low reflection in EMC test environments.

Phantom Head and Hands Kits

These hands mount directly to the positioning device. Available grips include mono block and slide for voice, fold for voice, data mode, and PDA devices.

SERVICES

ETS-Lindgren, the leader in Test Solutions, is also the leader in Service Solutions. From education to consulting, product testing to calibration, ETS-Lindgren has dedicated experts committed to the success of our customers. ETS-Lindgren understands how downtime can impact our customers' development, production, and testing schedules. Let ETS-Lindgren assist in maintaining your chambers and training your employees to ensure optimal utilization of your assets.

SERVICES

SERVICES

ETS-Lindgren employs more than 800 professionals at locations in the Americas, Europe, the Middle East, and Asia. In addition, we have a global network of independent representatives and distributors reaching into almost every corner of the world. Our customers benefit with local service and support from specialists who are backed by the global resources of ETS-Lindgren.

Engineering and Consulting

ETS-Lindgren has the in-house experts that can design integrated systems, manufacture custom components, perform site surveys (including EMI and vibration), and oversee project management.

Testing Services

ETS-Lindgren offers both acoustic and wireless product testing at our Cedar Park, Texas facility. Our experts will ensure that your testing is done thoroughly and accurately in our accredited labs.

ETS-U™ Educational Programs

From basics to more advanced topics, ETS-Lindgren offers the ETS-U Educational Program. Topics include EMC, Wireless OTA, MIL-STD, and Medical.

Product Calibration

Our A2LA accredited calibration facility can perform calibration on most manufacturers' EMC antennas, current clamps, probes, LISNs, cables, and attenuators.

Calibration Service Plus!™ Program

With Calibration Service Plus!, ETS-Lindgren will handle all of the scheduling and logistics involved with calibrating your antennas, probes, LISNs, current clamps, couplers, and attenuators.

Product Repair

ETS-Lindgren offers repair of most components, including antennas, probes, and current clamps. On-site repair is also available for positioners, doors, and chambers.

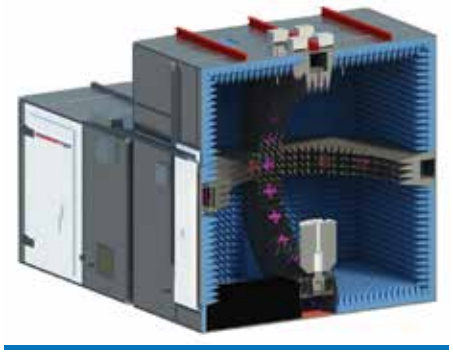
Software Maintenance Program

For TILE! and EMQuest users, we offer a maintenance program which includes features such as support, software updates, enhancements, and online user group access.

Field Services

Our field services are a global network of personnel available for chamber maintenance and repair, positioner maintenance and repair, site surveys, on-site chamber testing, calibration, and training.

Building Information Modeling (BIM) Design Services



Our BIM experts can design a virtual model, allowing our customers to visualize a completed project before it begins. This results in a reduction of construction delays, rework, and unnecessary expenses.

Sales and Support Offices

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