

A proven system for (EME/RFI) emission and immunity testing that takes you from design qualification to compliance declaration.



GTEM represents Gigahertz Transverse Electromagnetic cell. GTEM! is a trademark of ETS-Lindgren and is used to designate cells of our manufacture. US Patent 4,837,581.

Design Qualification

■ Find and Fix Problems

It's much more cost effective to find problems at the design level than to catch them just before production.

The GTEM! lets you test early and often right in your lab, with everything under your control. You'll know right away what effect a design change or component substitution has on performance levels.

■ Minimize Cost

Does your design put out too much emission? How much (RFI) can it tolerate before it fails?

Know where your design is weak and where is it strong. Know what has to be added and what costs can be taken out. The GTEM! can give you the answers by providing a complete profile of your system.

■ Customer Benefits:

- Reduce development time and cost
- Evaluate design alternatives quickly
- Eliminate over-designing
- Move products faster from design to production

Pre-Compliance Testing

■ Improve the Odds

Will your product pass or fail? If you're testing in an uncharacterized environment with no correlation to the final measurement facility, you're guessing. The truth is, where you test has more influence on measurement results than the resolution of the test instrumentation.

■ Know for Sure

The GTEM! eliminates fudge factors and second-guessing. Emissions measurements are accepted by the FCC for final data submission and have proven correlation to 3, 10, and 30-meter OATS site measurements. Your pre-compliance emission measurement results are the same as final data submission measurement results and the GTEM! can be used for performing IEC immunity measurements too. You know right away if your product is going to pass or fail compliance measurements.

■ Customer Benefits:

- Test in a characterized, correlated environment
- Improve measurement confidence
- Make immunity and emissions measurements
- Be prepared for final compliance testing

Compliance Testing

■ Fast & Simple

The GTEM! is an all-in-one RF shielded test environment that lets you go from emissions to immunity testing with just a change of N connectors. No setting up test gear, no stopping for band breaks, just close the door and test. In less than an hour you can make a 10k point emission sweep and be printing an agency report. Immunity tests take less time too.

■ An Approved Method

Since 1993, the FCC has accepted radiated emissions measurements from GTEM!s for final data submission. Equivalence between GTEM! and OATS measurements have been proven in tests by ANSI C 63 Subcommittee 1. The GTEM! can also be used to make measurements equivalent to IEC 1000-4-20* with the required -0 to +6 dB field uniformity.

■ Customer Benefits:

- Improved test throughput
- Demonstrate correlation to OATS
- Demonstrate correlation to IEC 1000-4-20*
- Make final data submission measurements

* Draft Standard

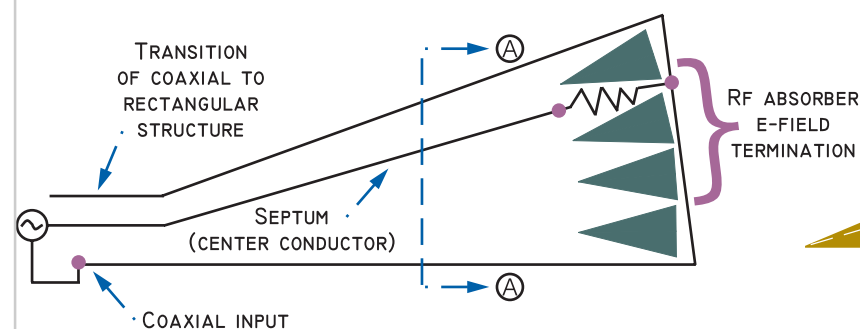


HOW IT WORKS

Brief Explanation

More than 300 GTEM!s have been installed worldwide since 1988. Attempts have been made to imitate the technology, but nothing has achieved the success or acceptance of the GTEM!

Electrically, the GTEM! is a terminated transmission line with a 50 ohm characteristic impedance. The transmission line's outer conductor is flared and expanded into a pyramidal form and the center conductor is a thin flared, wide conductive plate (the septum). The dielectric is air, which gives the GTEM far-field free-space conditions.



A broadband resistive network between septum and back wall provides a 50 ohm termination for current. Fields are terminated in a spherical configuration of anechoic absorbers which match the spherical incident wavefront.

During emissions measurements, E-fields from the EUT are read and measured as voltages at the GTEM!s connector by an analyzer. Measurements are made while the EUT is placed in three orthogonal positions; Xzy, Yzx, and Zxy. For immunity measurements, the output of a 50 ohm amplifier is coupled at the GTEM!s connector.

Electrical Specifications

Model Numbers: 5402, 5405, 5407, 5411, 5317

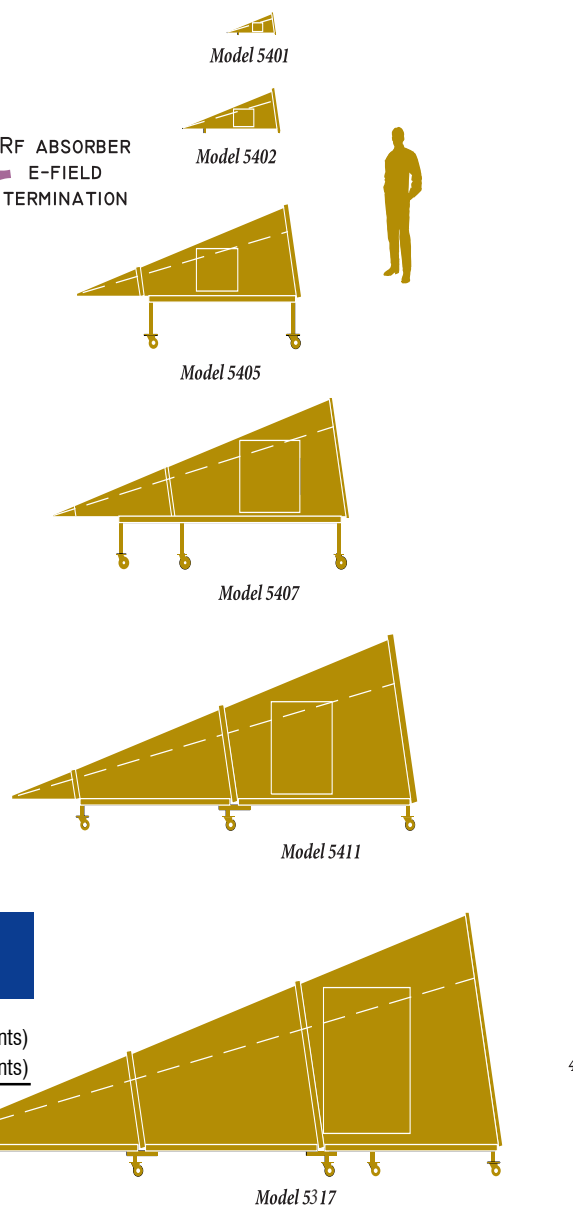
Frequency Range	Input Impedance	VSWR Maximum	Field Uniformity
RE Tests: 9 kHz - 5 GHz ¹	50 Ω	≤ 1.75:1	≤ 1 GHz, 0 - 6 dB (75% points)
RI Tests: DC - 20 GHz ²		≤ 1.75:1	≤ 1 GHz, 0 - 6 dB (75% points)

¹ Measurement range - where correlation to OATS is established:
² 3 measurement - 3input GTEM-OATS Correlation Algorithm, 30 MHz - 5 GHz

Configurations

The GTEM! can be used with your existing instrumentation, or ordered as an integrated system. A number of options for specific requirements are also available.

What size GTEM! do you need? The smallest GTEM! is perfect for microelectronics; the largest will test a tabletop PC.



About ETS-Lindgren

ETS-Lindgren is the proven world leader for components and systems that measure, shield and control electromagnetic energy. We provide solutions for EMI/RFI/EMF test and measurement applications as well as medical, industrial and governmental RF shielding requirements. Our product line ranges from simple bench-top diagnostic tools to fully integrated turnkey facilities.

ETS-Lindgren has more than 75 years of combined company experience and expertise. We were formed by joining a number of leading companies that pioneered many of today's widely accepted products and practices in our industry. Not surprisingly, ETS-Lindgren continues to maintain its reputation as a leader and innovator today.

As part of ESCO Technologies Corporation, we have the financial strength to meet our commitments, both today and tomorrow. A leading supplier of engineered products for growing industrial and commercial markets, ESCO is a New York Stock Exchange listed company (symbol ESE) with headquarters in St. Louis, Missouri.

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