

# 5402 GTEM! Test Cell

Product Image

## Key Features

- For all Phases of EMC Testing:
  - Design Qualification
  - Pre-Compliance
  - Full Compliance IEC 61000-4-3 ANSI C63.4

ETS-Lindgren's Model 5402 GTEM! Test Cell enables users to perform radiated emissions and radiated immunity tests in less time than either an OATS or in a chamber. Beginning with design qualification testing and moving through to pre-compliance testing, full compliance testing, and production sampling, the 5402 GTEM! Test Cell is a time saving device for your test lab. A typical radiated emissions test (10,000 point scan) can be completed in 15 minutes or less, while a typical radiated immunity test can usually be completed in half the normal time.

The GTEM! is based on experience, not experimentation. Originally developed in the EMC Baden (Switzerland) labs of ABB, the cell has been accepted in the EMC community for more than 10 years, and is field proven daily at more than 400 installations worldwide. Measurements made with a GTEM! are accepted for final compliance demonstration by the FCC for Part 15 & 18 radiated emissions testing, and comply with IEC 61000-4-3 Annex D for immunity testing. The GTEM!'s unique tapered shape, offset septum, resistive termination network, and absorber-lined back wall remove performance limitations of TEM cells and boxy enclosures. Electromagnetic wave and RF current termination are smooth and controlled. Field uniformity is +/- 3 dB up to 1 GHz, and +/-4 dB above 1 GHz.

## Product Features

GTEM 5402-SAE and GTEM 5402-SAE-D

The GTEM 5402-SAE and GTEM 5402-SAE-D are special versions of the GTEM 5405. These are fitted with an external hatch on the upper surface to support emission and immunity measurements on Integrated circuits (ICs) to the SAE J1752/3, IEC 61967-2 and IEC 62132-1 standards, in addition to the traditional immunity and emission measurements to the IEC 61000-4-20 standard, with the DUT mounted in the test volume through the side entry door. The 5402-SAE has a 100mm x 100mm hatch with support clamps to accommodate a 100mm x 100mm PCB. The 5402-SAE-D has a larger 150mm x 150mm hatch and can accommodate both 150mm x 150mm PCBs and the smaller 100mm x 100mm boards.

## VSWR Levels

The average VSWR is 2: 1 above 50 MHz, an excellent level at this low frequency for an antenna this size.

## Specifications

### Physical Specifications

- Distributed Load Rating: 100 mm (3.94 in)
- Door Dimension Primary Height: 160.0 mm (6.30 in)
- Door Dimension Primary Width: 230.0 mm (9.06 in)
- Door Dimension Secondary Height: 100 mm (3.94 in)
- Door Dimension Secondary Width: 100 mm (3.94 in)
- Outer Cell w/Base Dimension Height: 0.5 m (1.64 ft)
- Outer Cell w/Base Dimension Length: 1.4 m (4.59 ft)
- Outer Cell w/Base Dimension Width: 0.75 m (2.46 ft)
- Maximum Septum Height<sup>4</sup>: 250.0 mm (9.84 in)
- Septum Height At Door center : 200 mm (7.87 in)
- Highest Accuracy Transverse Test Surface in Center of Cell Height<sup>5</sup>: 83.0 mm (3.27 in)
- Highest Accuracy Transverse Test Surface in Center of Cell Width<sup>5</sup>: 125.0 mm (4.92 in)
- Maximum Recommended Transverse Test Surface in Center of Cell Height<sup>6</sup>: 125.0 mm (4.92 in)

Maximum Recommended Transverse Test Surface in Center of Cell Height<sup>6</sup>: 167.0 mm (6.57 in)  
Approximate Cell Weight: 40.0 kg (88.18 lb)

<sup>4</sup>Measurement taken at rear of test volume.  
<sup>5</sup>From quasi-static E-Field with H=1/3 septum height and W=1/3 septum width.  
<sup>6</sup>From quasi-static E-Field with H=2/3 septum height and W=2/3 septum width.

Electrical Specifications

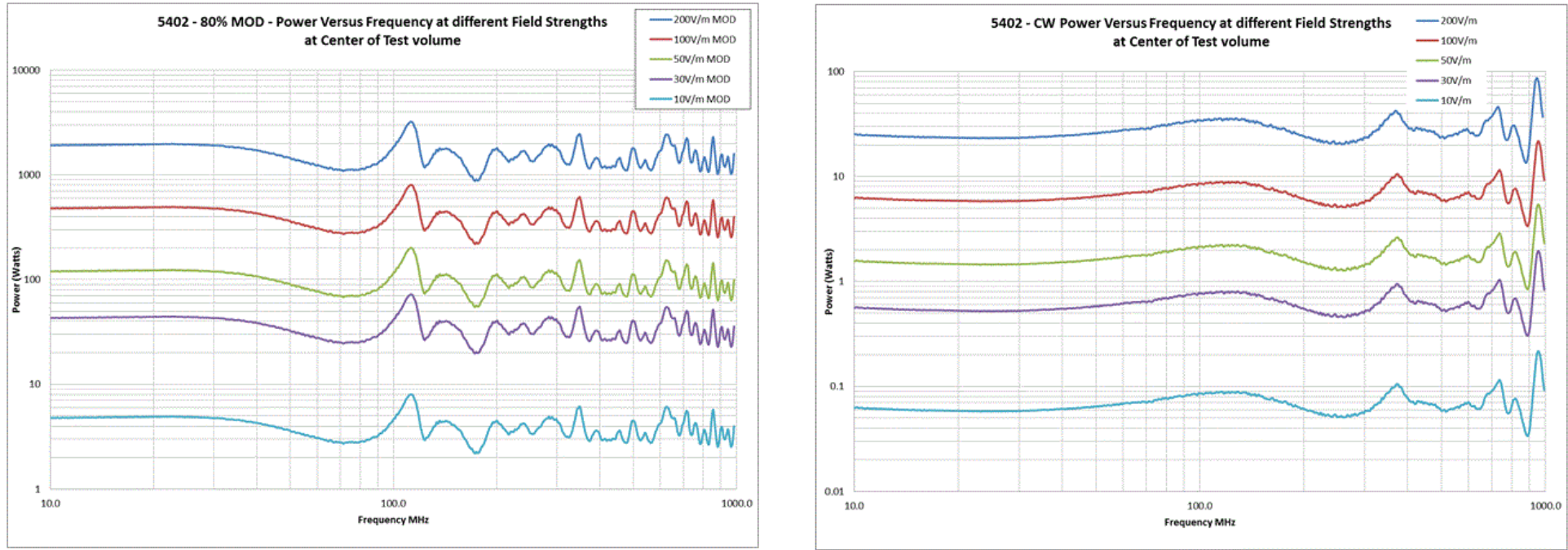
Feed Connector Type: cw 7/16 DIN to N Adapter  
Field Uniformity: f <1 GHz; 0 -6dB  
Frequency: 9 kHz to 5 GHz (RE)<sup>1</sup>; DC - 20 GHz (RI)<sup>2</sup>  
Input Impedance: 50  
Maximum CW Input: 50 W  
Shielding Effectiveness: 10 kHz to 1 GHz From Internal E-Fields 80 dB Minimum  
VSWR Maximum: All Other Frequencies <1.50:1; Characteristic Frequencies <1.75:1  
VSWR Typical: All Other Frequencies 1.30:1; Characteristic Frequencies<sup>3</sup> 1.75:1

<sup>1</sup>Measurement Range - Where Correlation to OATS is Established:  
3 Measurement - 3 Input GTEM-OATS Correlation Algorithm, 30 MHz to 5 GHz  
9 Measurement - 9 Input GTEM -OATS Correlation Algorithm, 9 kHz to 5 GHz  
<sup>2</sup>Low Input VSWR to f <= 20 GHz Available  
<sup>4</sup>Characteristic Frequency: The frequency at which cross-over between the two terminations (the resistor load boards and the RF absorber) occurs.

Product Configuration

Absorber-lined GTEM!  
One Removable Access Port in Floor  
Primary Door; 16 cm x 23 cm (6.3 in x 9.1 in) W x H Clear Opening  
Manual Emissions Correlation Software (on Request)  
7/16" DIN to Type N Adapter  
Individually Characterized with Results of TDR and VSWR Tests  
Completely Assembled  
Manual

Charts



IEC 61000-4-20, All freq data Center Plane  
Test Grid 170mm x 67mm at center point  
Ser No: 07113

