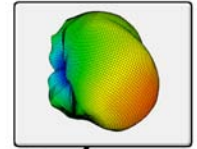


# WiMAX<sup>™</sup> RPT Radiated Performance Test Lab

Antenna Patterns Measured Using EMQuest<sup>™</sup>  
EMQ-100 Antenna Measurement Software in a  
Radiated Performance Test Lab



## FEATURES:

- **Turnkey WiMAX RPT System**
- **Full Size Rectangular Anechoic Chamber**  
7.32 m L x 3.66 m W x 3.66 m H  
(24 ft. x 12 ft. x 12 ft.)  
Frequency Range: 700 MHz - 6 GHz
- **System Integration**
  - Software
  - Hardware
  - Training
  - Optional Audit Assistance



WiMAX RPT Lab

## ETS-LINDGREN'S WiMAX RPT Test Lab

is fully configured for radiated performance testing of IEEE 802.16e WiMAX and WiBro mobile stations, for both WiMAX RPT certification or pre-certification as well as research and development testing. The system can also be configured to test various other 2G, 3G, and 4G wireless devices, as well as WLAN and WPAN technologies such as 802.11/Wi-Fi or Bluetooth. Configuration options are available to support testing of notebooks, PDAs, and other mobile form factor devices, including mobile handsets with a simulated human operator head and hand combination. This system can also be used to perform passive antenna measurements at test distances in both near-and-far-field test conditions for determining more generic antenna properties.

## APPLICATIONS

ETS-Lindgren's WiMAX RPT Test System is designed to provide the user with detailed information on the radiated transmit and receive performance of wireless devices. In addition to the primary performance metrics of Total Radiated Power (TRP) and Total Isotropic Sensitivity (TIS), the Effective

Isotropic Radiated Power (EIRP) and Effective Isotropic Sensitivity (EIS) pattern information can be used to evaluate other antenna performance quantities such as directivity, gain, and efficiency. The ability to test active devices in an over-the-air environment allows evaluation of various interaction factors such as platform desensitization, which can affect the performance of the radio when in use, but are impossible to determine through conducted testing. The use of traceable instrumentation and precision range calibrations allow for reliable comparison of performance data from site to site.

## FEATURES

ETS-Lindgren's EMQuest<sup>™</sup> EMQ-100 Antenna Measurement Software offers fully automated 2D (polar) and 3D (spherical) pattern measurement capabilities as well as frequency response measurements for both passive antennas and active wireless mobile stations (cell phones, notebooks, PDAs, etc.). A wide range of fully parameterized test methods allows extremely versatile testing of both vector and scalar quantities in either transmit or

receive mode. Post-processing capabilities include calculation of antenna properties such as half-power beamwidth, directivity, gain, radiation efficiency, total radiated power, and total isotropic sensitivity. EMQuest also calculates industry specific quantities such as near-horizon partial radiated power and near-horizon partial isotropic sensitivity.

The optional EMQ-105 Network Throughput Tester add-on module provides a range of tests for determining throughput vs. time, throughput vs. attenuation (path loss), and throughput vs. attenuation patterns. With this option, application layer performance can be determined for virtually any wireless networking device.

Advanced graphing capabilities allow acquired data to be displayed in a variety of 2D and 3D formats. Tabular data can be exported to Microsoft Excel<sup>™</sup> spreadsheets. Reports can be exported to PDF files, or saved in RTF format for import to Microsoft Word<sup>™</sup>.

**ABOUT US**

In October 2007, ETS-Lindgren was the first to demonstrate fully automated TRP and TIS testing of active WiMAX devices. In December 2002, ETS-Lindgren became the first CTIA Authorized Test Lab (CATL) for Mobile Station Over-The-Air Performance Testing. We use that same expertise in the manufacture and installation of all of our Over-the-Air Radiated Performance Test Labs. With continued involvement in a wide range of wireless testing standardization efforts, we also remain at the forefront of research and development into electromagnetic and performance testing of all types of antennas and wireless devices. Feel free to contact us with your custom wireless testing needs.

**BASELINE PACKAGE FOR  
WiMAX RPT LAB**

- ETS-Lindgren RF-shielded, Rectangular Anechoic Chamber, 7.32 m L x 3.66 m W x 3.66 m H (24 ft. x 12 ft. x 12 ft.), Including RF Shielding, Absorber and Installation
- Shield Test per MIL-STD-285
- ETS-Lindgren Multi-Axis Positioning System (MAPS<sup>™</sup>) with Medium Duty (SAM Head Phantom and Notebook Mount ) Mast
- Notebook Mounting Adapter for Medium Duty MAPS Mast
- ETS-Lindgren Model 2090 Positioning Controller
- ETS-Lindgren Dynamic Range Extender (DRE) for RPT
- ETS-Lindgren Model 3164-07 Diagonal Dual Polarized Horn Antenna, 700 MHz - 6 GHz, with Antenna Launch System
- ETS-Lindgren Model 3160-04 Standard Gain Horn Antenna, 2.60 GHz - 3.95 GHz, and Mount Kit to 2115 Medium Duty MAPS

- ETS-Lindgren Model 3102 Conical Log Spiral Communications Antenna
- ETS-Lindgren Model 3126 Precision Sleeve Dipoles (one covering 2.3 GHz to 2.7 GHz, one covering 3.3 GHz to 3.8 GHz)
- Calibration Antenna Mount and Cable Kit
- Self Leveling Laser Level with Tripod for Accurate Alignment
- Low Loss RF cables from MAPS to the Feed-through Panel at the Shielding
- ETS-Lindgren EMQuest<sup>™</sup> EMQ-100 Antenna Measurement Software (includes selection of three optional equipment drivers)
- One Extra EMQ-100 Optional Equipment Driver
- Dell OptiPlex<sup>™</sup> Computer with U.S. Version of Microsoft Windows<sup>™</sup> XP Operating System and Microsoft Office Suite with 17" Color Display
- Turnkey Software and Hardware Integration and System Training
- Quiet-Zone Test
- Software Support and Upgrades for 1 Year

**OPTIONAL EQUIPMENT**

- RF test equipment with full integration to RPT Lab. Various options available
- Light Duty MAPS
- Heavy Duty MAPS
- Shielded control room
- ETS-Lindgren Model 3164-05 Quadridge Horn antenna (Frequency Range: 2 GHz - 18 GHz) with antenna set-up panel
- ETS-Lindgren Model HI-6005 or HI-6105 Probe for RPT Quiet Zone Uncertainty Measurement
- ETS-Lindgren Model 3126 Precision Sleeve Dipoles and Model 3127 Resonant Loop Antennas
- Extended Software Maintenance

