

AMS-8100 ANTENNA MEASUREMENT SYSTEM

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ETS-Lindgren's AMS-8100 Antenna Measurement System is a compact rectangular test chamber designed for test and measurement of wireless devices. The AMS-8100 is designed for test and measurement applications of small antenna products over the frequency range from 800 MHz to 6 GHz. The operating frequencies can be extended to higher frequencies if required. The system is designed for passive testing of antennas including low-directivity communication antennas used in various devices such as Wi-Fi interfaces and mobile handsets.

5G FR1 Over-The-Air (OTA) test solutions are now available! ETS-Lindgren offers a turnkey package which will enable support for 5G NR SISO non-standalone [NSA] and/or standalone [SA] testing in the FR1 band.

Key Features

- Efficient Over-The-Air (OTA) Measurement for Wireless Devices
- Passive Antenna Measurements
- Frequency Range:
 - 800 MHz to 6 GHz (Standard)
 - 700 MHz to 10 GHz (Optional)
- Modular High Performance Shielded System
- Multi-Axis Positioning System (MAPS) for High Resolution 3D Pattern Testing
- Path Length 2.74 m
- Easy Calibration by User
- EMQuest™ Data Acquisition and Analysis Software

Features

Rectangular Chamber

The AMS-8100 is a rectangular chamber; it is fully-lined with anechoic absorber and designed to provide far-field measurements at a nominal separation distance of 2.74 m (9 ft) . The AMS-8100 includes an ETS-Lindgren 3164-08 open-boundary quad-ridged horn antenna and associated RF-cabling. Extension to higher frequencies is possible by adding optional antennas. Extension of the lower frequency range is possible using other ETS-Lindgren Antenna Measurement Systems and configurations.

Multi-Axis Positioner System (MAPS)

The Multi-axis Positioning System (MAPS) rotates the device under test (DUT) around two orthogonal axes for full spherical coverage. To minimize measurement errors, the vertical support structures are constructed from low-density dielectric material to provide RF transparency during the measurement.

Instrumentation

The system can be configured to perform antenna measurements using a Vector Network Analyzer (VNA). With a VNA, a signal generator and multi-channel receivers are integrated into a single unit with phase lock for both amplitude and phase measurements. Using a properly configured VNA and dual-polarized antenna, both polarizations can be measured simultaneously. Otherwise, an automated RF switch or mechanical polarization control is required to change polarization at each data point. Antenna tests can be performed on stand-alone antennas or on the built-in antenna of a mobile handset or similar embedded device prior to the integration of the RF module.

EMQuest Data Acquisition and Analysis Software

ETS-Lindgren's EMQuest Antenna Measurement Software supports data acquisition in either the great circle-cut or conical-cut test sequence to perform full spherical antenna measurements for Instruments Under Test (IUTs) in either transmit or receive mode. Advanced graphic capabilities allow acquired data to be displayed in a variety of 2D and 3D formats. Tabular data can be exported to Microsoft Excel™ spreadsheets. Reports can be exported to PDF files, or saved in RTF format for import to Microsoft Word™.

Integration

ETS-Lindgren provides custom field installation of the chamber, positioner, antenna, rack with RF cable circuitry and the antenna measurement software.

Training

ETS-Lindgren provides training on operation of the positioner device, controller, and the test and measurement software. The training package will also provide a generic theoretical review of antenna measurement principles.

Specifications

Electrical Specifications

Frequency Range:

- 800 MHz to 6 GHz
- 700 MHz to 10 GHz

Path Length: 2.74 m (9 ft)

Voltage (Hz): 50/60

| Frequency | Quiet Zone Reflectivity Level | Source Antenna Directivity |
|-----------|-------------------------------|----------------------------|
| 1.0 GHz | -35 dBs | 10 |
| 1.9 GHz | -42 dBs | 10 |
| 2.0 GHz | -42 dBs | 10 |
| 6.0 GHz | -50 dB | 15 |
| 800 MHz | -25 dB | 5 |
| 900 MHz | -33 dB | 10 |

| Electric Shielding | Magnetic Shielding | Microwave Shielding | Plane Wave Shielding |
|------------------------------------|---|-----------------------------|-----------------------------|
| 100 dB from 200 kHz through 50 MHz | 20 dB at 1 kHz, increasing to 56 dB at 10 kHz and increasing to 100 dB at 200 kHz | 100 dB from 1 GHz to 10 GHz | 100 dB from 50 MHz to 1 GHz |

Physical Specifications

Test Volume: 30 cm (1 ft) Diameter Sphere

Shield Dimensions (L x W x H): 4.3 m x 2.6 m x 2.6 m (14.11 ft x 8.53 ft x 8.53 ft)

Overall Dimensions: 4.44 m x 2.77 m x 2.82 m (14.58 ft x 9.08 ft x 9.25 ft)

Shielded Door Dimensions: 1.2 m x 2.1 m (3.92 ft x 6.83 ft)

Shield Material: Aluminum

Additional Specifications

- RF-shielded Enclosure
- Waveguide Air Vents on Chamber Ceiling
- Fiber Optic LED Light System
- Connector Panel including one Type N, Two Type SMA and One 3.8 cm (1.5 in) Pipe Penetration with End Caps
- Shield Verification Test in General Accordance with the Test Methods of MIL-STD-285 / IEEE-299 at 1 GHz Plane Wave Field
- Fully Anechoic Absorber Lining
- Power Line Filters
- Dual Polarized Horn Measurement Antenna
- Multi-Axis Positioning System (MAPS) with Positioner Controller
- EMCenter Modular RF Platform for Positioner Controller and Switching
- Five Low Loss RF Cables Including Two Phase Matched Flexible RF Cables from Dual Polarized Antenna to Dual Channel Receiver
- Range Calibration and Ripple Test Mount Kit
- Ferrite Beaded RF Cables for Range Calibration and Passive Antenna Testing
- Antenna Mounting Fixture for Range Calibration
- Free Space and Head & Hand Mount Kit
- Fully Integrated 19" Rack System
- Workstation Computer with Intel® Quad-core Processor
- EMQuest Lite Antenna Measurement Software
- System Integration, Training and Support

Product Options

- 2G/3G Cellular SISO Test Package
- Wi-Fi SISO Test Package
- LTE-SISO Test Package
- LTE-A Carrier Aggregation (2DL/1UL) SISO Test Package
- LTE-A Carrier Aggregation (3DL/1UL) SISO Test Package
- A-GNSS (A-GPS for 2G/3G) Test Package
- A-GNSS (A-GPS for 4G) Test Package
- A-GNSS (A-GLONASS for 4G) Test Package
- Bluetooth Test Package
- Bluetooth Low Energy Test Package
- TD-SCDMA Test Package
- RSE Test Package

The logo for 4TECT, featuring the number '4' in a large, bold, orange font, followed by the letters 'TECT' in a bold, black font.

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The logo for ETS-LINDGREN, featuring a stylized red and white antenna symbol to the left of the text 'ETS-LINDGREN' in a bold, black font, with 'An ESCO Technologies Company' in a smaller font below it.

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