

INTRODUCTION

The RC1100 reverberation chamber utilizes reflective metal walls, a positioner, and stirrers to create a multipath reflection environment. Controlled movement of the positioner and stirrers results in an electromagnetic field superposition, establishing a quiet zone mathematically.

In contrast to far-field testing, the reverberation chamber eliminates the need for a specific distance between the Device Under Test (DUT) and the probe. This, combined with its smaller size and lower cost compared to an anechoic chamber, makes it suitable for space-limited environments.

Reverberation chamber testing, with continuous sampling, significantly reduces measurement times, especially for a large number of tests. The testing zone's statistically uniform field eliminates the need for specific DUT placement or orientation, simplifying the process and making it more accessible for testing personnel.

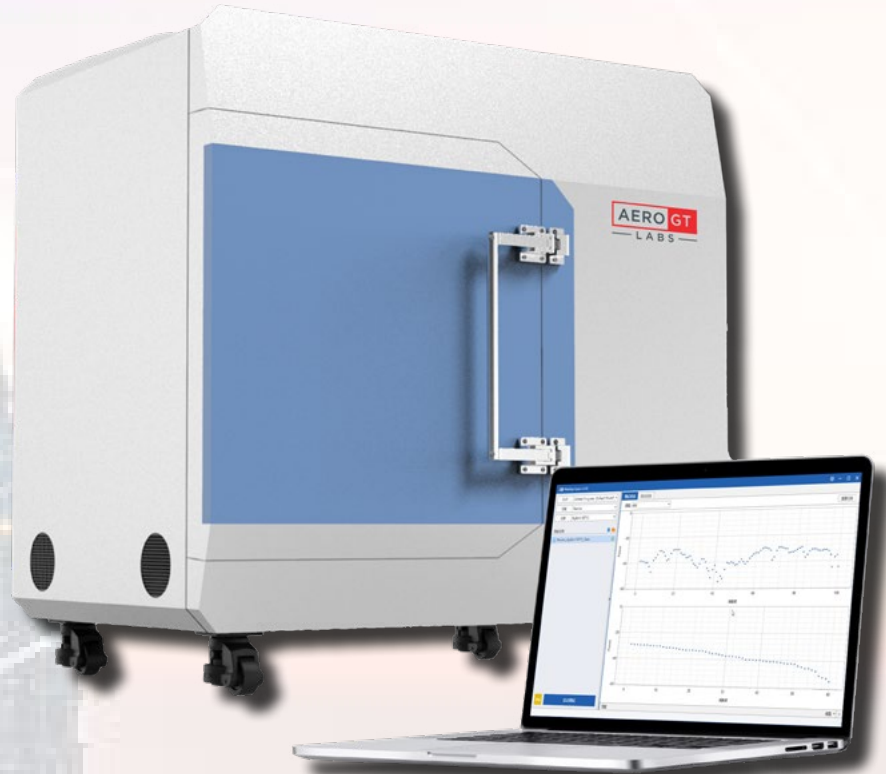


Figure 1: RC1100 Reverberation Chamber

REVERBERATION CHAMBER

- **Size:** Max. DUT dimensions: 0.5 × 0.4 × 0.4 meters
- **Frequency Range:** 0.6 - 7.5GHz

COMPATIBLE WIRELESS STANDARDS:

- 2G/3G/4G/5G(FR1)/Wi-Fi/Bluetooth

COMPATIBLE IOT STANDARDS:

- LTE Cat NB1(NB-IoT)/Cat-M1(e-MTC)

WIRELESS OTA (OVER-THE-AIR) SOFTWARE:

- Supports antenna and OTA testing
- Provides visual data analysis for the wireless performance of devices

TESTING ANTENNA AND ARRAY:

- High-gain high-power testing antenna array for accurate and reliable measurements
- Positioner and wave-transparent fixture for precise positioning of devices during testing

MODULAR STRUCTURE:

- Modular design for flexibility
- Compact size for ease of installation and relocation

TESTING FUNCTIONS:

- SISO (Single Input Single Output) TRP/TIS (Total Radiated Power/Total Isotropic Sensitivity) test
- Passive antenna gain measurement
- Anti-jamming testing: Evaluating the device's ability to operate in the presence of interference

The RC1100 facilitates OTA performance testing for large-sized DUTs and is adaptable for mobile terminals, data modules, smart wearables, etc. In comparison to other reverberation chambers, the RC series, particularly the RC1100, offers the following advantages:

- **Customization Options:** We provide the flexibility to design customized chambers based on customer space, maximizing the quiet zone size even in limited spaces
- **Three-Axis Stirring Design:** We introduced a three-axis stirring reverberation chamber, enhancing testing accuracy. In addition to the rotation of the positioner, horizontal and vertical stirrers can be moved to improve field uniformity
- **Self-Developed Components:** The product is made with self-developed key components, including probe antennas and core testing algorithms, contributing to a high percentage of domestic manufacturing
- **High-Performance Software Platform:** The system utilizes a high-performance software platform designed with the principle of “high cohesion and low coupling,” resulting in enhanced flexibility and stability. This design allows for convenient future system upgrades, such as facilitating customized anti-jamming testing

OTA TEST SOFTWARE

The control and test automation software (see figure 3) operates on the .NET Framework 4.0 platform, ensuring full compliance with CTIA test standards and continuous updates to align with the latest specifications. The software offers versatile applications, adaptable configurations, streamlined test processes, stable operation, and a user-friendly GUI. It caters to diverse test requirements throughout the product life cycle, spanning R&D, pre-certification, conformance, and QA in manufacturing.

Following principles of automation, efficiency, and comprehensiveness, the reverberation chamber software system is divided into two parts: calibration and testing.

The calibration software facilitates comprehensive calibration for each signal link in the hardware system, consolidating calibration data into pathloss files required by the testing software. User-friendly and efficient, it serves as an ideal assistant tool for calibration personnel.

The testing software integrates chamber, positioner, stirrers, instruments, and other hardware components, enabling seamless control, communication, and data processing throughout the testing process. Noteworthy advantages include quick configuration, one-click testing, real-time viewing of report charts, and synchronized monitoring of system status.

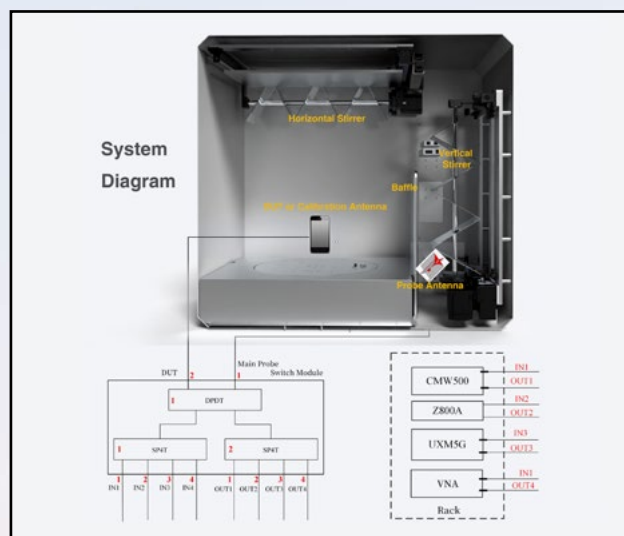


Figure 2: Chamber Interior View

Key testing items encompass Gain, Efficiency, TRP, TIS, and 4x4 Throughput. Here are some other notable features.

- Customizable test steps, angles, and configurations based on user preferences
- Utilization of built-in templates with preconfigured parameters compatible across different instruments and test platforms, ensuring simplicity and preventing operational errors
- Batch processing function for creating task lists, enabling continuous and automated unattended tests
- Comprehensive management of raw test data and log files, ensuring traceability and non-modifiability of the test process.
- Inclusion of a variety of test assistant functions, such as anti-drop-call, auto-recall, and abnormal situation warnings, enhancing the reliability and smoothness of test processes
- Flexibility for arbitrary selection of test points to review all associated test data



Figure 3: OTA Test Software

TECHNICAL SPECIFICATIONS

Model Name	RC1100
Frequency Range	0.6 - 7.5GHz (Option 1-50GHz)
Shielding	≥70dB
Power (W)	160 - 220 (Typical)
Exterior Dimensions (mm)	1193 × 1134 × 840 (L × H × W)
Max. DUT Size (mm)	500×400×400 (L×H×W)
Max. DUT Weight (kg)	15
Test Accuracy (dB)	≤1.5(1~7.5GHz)

RC1100

Hardware	Shielding enclosure and door, stirrers, wideband antenna, RF switch module and cables, positioner, system controller and fixture
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TESTING SOFTWARE MODULES AND TESTING ITEMS

Basic Control Software	Including system control, instrument driver and passive test
GSM/CDMA	TRP/TIS
WCDMA	TRP/TIS
TD-SCDMA	TRP/TIS
Wi-Fi	TRP/TIS
LTE SISO (FDD/TDD)	TRP/TIS
5G FR1 SISO (NSA/SA)	TRP/TIS
Bluetooth	TRP/TIS
NB-IoT/Cat-M	TRP/TIS

INSTRUMENTS SUPPORTED

VNA	Keysight, R&S, Anritsu etc.
Wireless Test Set	Keysight UXM E7515A/B, Keysight 8960 (E5515C), R&S CMW500, CMX500@CMU200, Anritsu MT8820C/8821, MT8860C, MT8000, StarPoint SP6010

SERVICE & TECHNICAL SUPPORT

System Calibration	Annual service during warranty period
Product Warranty	Free upgrades for 12 months
Software Upgrade	Free upgrades for 12 months



47623 Lakeview Blvd, Fremont, CA 94538
Phone: 510-438-9548 | E-mail: info@toyotechus.com
<http://www.toyotechus.com>

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