

Over-the-Air (OTA) LTE Certification System

Dynamic LTE UE System Testing in a Reference Environment

LTE is now delivering on the promise of high-speed mobile data and with its success has come a demand for higher data rates, greater coverage areas and lower network operational cost. Better device performance is critical to meet these network operation and customer satisfaction needs. LTE performance, usually measured as data throughput, is especially sensitive to the system design in a wireless device. The many interactions between antennas, case design, RF modules, chipsets and firmware together make a dramatic difference in a highly-efficient product capable of high data throughput rates. OTA testing is where these interactions first become apparent, where designers start to really see the full system performance.

Mobile operators worldwide need high performing LTE devices with proven MIMO technology to meet customer expectations. Although standards bodies are still defining 4G MIMO OTA test standards for the industry, leading operators are moving ahead and requiring conformance to their LTE MIMO OTA test plans now.

Integrated Technology Leadership

Spirent and Bluetest have brought together their leadership in complex channel emulation and rich OTA test systems to provide an OTA LTE measurement solution that can quickly evaluate the effectiveness of the entire integrated device.

Primary System Elements:

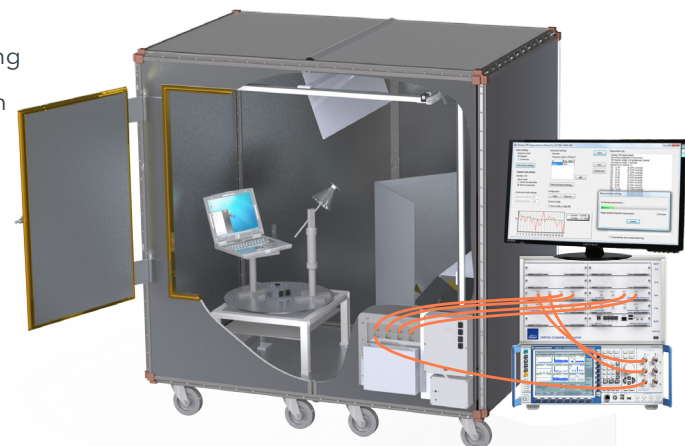
The reverberation chamber provides a dynamic, free-space, reference environment to precisely characterize how well a mobile device with MIMO receives signals and operates in an environment with real-world spatial properties. The Bluetest RTS60/RTS65 provides a rich environment for fast, easy and realistic performance measurements on MIMO devices and is backed by Bluetest's years of experience in OTA reverberation measurement technology.

The channel emulator provides spatial channel characteristics to emulate a wide range of characteristics such as multiple base-station signal correlation, power delay profiles (PDP), Doppler, fading and noise interference. All of these can be quickly applied to the air environment in the chamber. Spirent's Vertex is an industry leading spatial channel emulator that delivers unprecedented ease of use for testing MIMO devices and base-stations in the complex RF environments used in LTE, LTE-Advanced, and next-generation 5G scenarios.

The base station simulator provides all the signaling necessary to set up a call and collect the performance reports from the wireless device.

Features

- Fast LTE Throughput testing
- Flexible channel emulation
- One-button device characterization
- High repeatability
- Automated reporting
- Batch measurement sequencing
- 2x2 and 4x4 MIMO

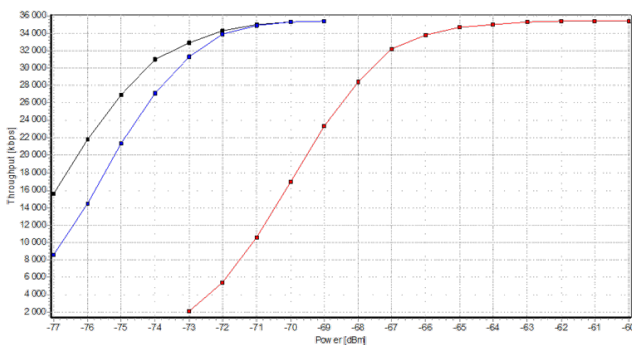
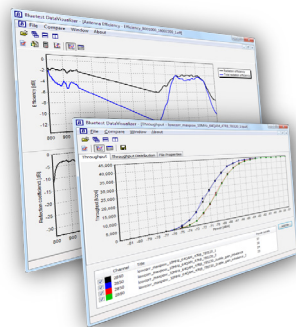


Putting it All Together

With all of this technology, capability and flexibility, it is critical to ensure the overall system is simple to use. The Bluetest Measurement Suite of software has the power to reduce the complexity to a single one-button measurement while providing the flexibility to manage test variables. Multiple measurements can be sequenced and results saved directly into established reporting formats for approved operator test plans.

The Bluetest Data Visualizer provides a fast and convenient interface for viewing and comparing your results.

- Quickly plot data throughput curves
- Compare the performance across multiple devices, bands, and settings
- Save and export in all the most common data, spreadsheet and image formats



Takeaways

- Fast characterization of integrated LTE UE operation
- Efficiently combines reverberation chamber, channel emulation and LTE measurement technologies
- Complex MIMO environment testing with standardized or user defined channel models
- Automated support for operator test plans
- Realistic and configurable channel conditions
- Repeatable OTA reference environment
- For design optimization, performance testing, test plan conformance, standards pre-compliance and compliance measurements
- Additional active and passive measurements available including: TRP, TIS, Wi-Fi throughput, antenna efficiency, diversity gain, MIMO capacity
- Extendable for carrier aggregation measurements
- System supports device measurements for 2G, 3G, LTE and Wi-Fi test standards

System Specifications

Frequency Range	650-6000MHz
Shielding (Isolation)	>100dB
Topologies	SISO, 2x2, 4x4 MIMO
Chamber Dimensions	1.9 x 2.0 x 1.4 m
Test Time LTE TPUT	< 1min/power level (typical)
Standardized Channel Models	NIST, UMi-IS, UMa-IS
Carrier Aggregation	Interband and intraband, up to 16 streams with a single Vertex

Contact Us

For more information, call your Spirent sales representative or visit us on the Web at www.spirent.com/ContactSpirent.

www.spirent.com

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