RTS65

REVERBERATION TEST SYSTEM

IMPROVE YOUR WIRELESS

It has never been easier to verify wireless device performance over-the-air (OTA). Bluetest's RTS65 reverberation test system is designed to optimize the time you spend on measurements. It does not have to be complicated, unless you want it to be. Whether you need support for Bluetooth, WLAN, 2G, 3G, 4G LTE or the latest 5G NR standards, RTS65 covers the whole range of wireless communication. We want you to focus on your results, not the test equipment.

MULTIPATH ENVIRONMENT

The RTS65 consists of a shielded reverberation chamber with reflecting walls. The device under test (DUT) is placed on a turntable. The reflective walls and the turntable in combination with moving reflectors (mode stirrers) create a Rayleigh faded rich isotropic multipath (RIMP) environment inside the chamber. This environment is well-suited for antenna and radio performance evaluation of modern multi-antenna (MIMO) devices. The multipath environment is enabled by default and does not require any additional external equipment. More complex radio environments with Doppler shift, different delay profiles or MIMO channel correlation can be supported by adding an external channel emulator. We support the most popular brands of channel emulators on the market.

Bluetest's years of experience in reverberation chamber technology development has resulted in a well proven, highly accurate and robust OTA test system.

RADIO MEASUREMENTS

The measurements are done using a vector network analyzer or radio communication tester connected to one or several of the chamber measurement antennas. The entire measurement system is controlled by the integrated Bluetest measurement server. Typical measurements include Antenna Efficiency and MIMO/Diversity gain, Total Radiated Power (TRP), Total Isotropic Sensitivity (TIS) and Data Throughput vs Received Power.

MULTIPLE ANTENNAS – EXPANDING APPLICATIONS

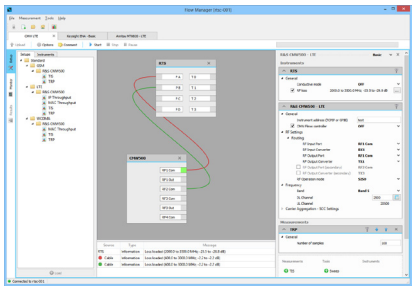
Bluetest's RTS65 can be configured with up to 16 sub-12 GHz and two 50 GHz measurement antennas for maximum flexibility and support of your specific needs. Moving from SISO to realistic evaluation of LTE, WLAN or 5G MIMO devices typically only requires the connection of some additional cables between the chamber and the radio communication tester.

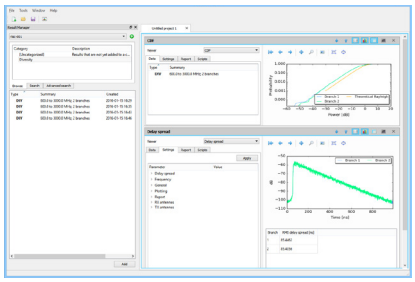
The 16-antenna configuration greatly simplifies testing of devices supporting LTE and 5G operation in multiple bands, with up to 4x4 MIMO. With its 50 GHz capability, devices with 5G operation in FR2 bands such as 28 and 39 GHz can be evaluated. The chamber can even be equipped with a Compact Antenna Test Range (CATR) option for directive measurements such as EIRP and EIS.

GENEROUS TEST VOLUME

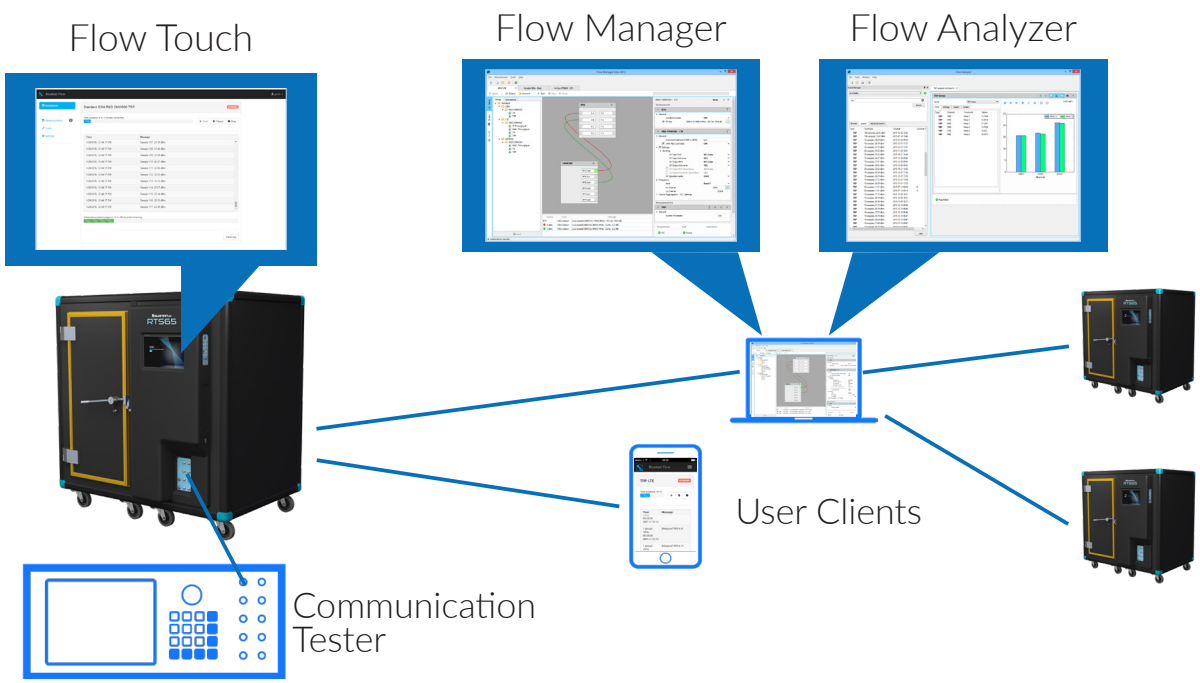
An advantage with the reverberation chamber technology is the large test volume. In RTS65 this volume is typically 0.5 m x 0.5m x 0.5m regardless of measured frequency. The placement and direction of the measured device within the test volume is not critical, allowing easy testing of devices such as laptops and large tablet PCs.

BLUETEST FLOW SOFTWARE PLATFORM





The RTS65 comes with a measurement and analysis software platform: Bluetest Flow. This integrated test environment offers functionality for testing complex wireless solutions. It builds upon years of research and development expertise. The Flow platform consists of *Flow Manager*, *Flow Analyzer* and *Flow Touch*.



FLEXIBLE SYSTEM MANAGEMENT

All measurements are executed by the built-in Flow measurement server. There is no need to be concerned about incompatible computers or conflicting programs that cause time consuming troubleshooting. Measurement configuration is done remotely with Flow Manager installed on any regular office PC. It provides in-depth measurement configuration and setup while retaining direct chamber control. Flow Touch is available on the built-in 19" high resolution touch screen or any mobile device with a web browser and allows you to start, stop and monitor measurements from anywhere.

BASIC OR ADVANCED – IT IS UP TO YOU

Flow Manager combined with Flow Touch provides all the functionality you need for your OTA measurements whether they are basic or advanced. Get started fast with predefined measurement settings according to standards or operator specifications. Intelligent parameters are implemented so that ranges and dependencies are corrected automatically. In Flow Manager, you visually set up the measurements by connecting the cables and instruments, just like you do it in reality. The user interface supports a simplified view for the new user and an advanced view with access to more parameter settings for the experienced user.

BATCH MEASUREMENTS – THE TIME SAVER

For the engineer with a long list of mixed measurements it is possible to build arbitrary measurement sequences and run all of them in one go. You can mix your measurements as you want. Combine measurement types, frequencies, wireless standards and even different instruments. Create batch measurements with TRP, TIS, and then TRP again with a different communication tester.

ANALYSIS AND COMPARISON

The integrated result database collects all results in one place and enables intuitive and powerful search functions using Bluetest Flow Analyzer.

Organize your results by adding metadata to them in the form of tags or additional DUT information. You can combine results and make customized comparison plots. Export your data and create HTML reports from any kind of results. Multiple results can be combined from different devices, wireless standards, and measurements types and then exported into one single report. The high resolution chamber camera adds the possibility to document your measurement and attach the picture or video with the result. Your legacy files can also be imported to Flow Analyzer and the result database.

WIRELESS FORMATS

The system is continuously updated to support the latest wireless standards. Established standards such as Bluetooth, WLAN, and LTE continue to release new versions with added functionality, and the new 5G NR standard is evolving rapidly. With the introduction of 16 12 GHz measurement ports, RTS65 is now ready to evaluate WiFi 6E & 7 operation in the 6-7.125 GHz domain. Legacy standard such as 2G and 3G will remain supported for many years to come. The Flow measurement software works together with all commonly used communication testers and vector network analyzers.

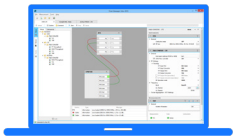
FLOW PLATFORM OVERVIEW

FLOW TOUCH

Flow Touch is a touch interface that can be used on any device with a web browser. Flow Touch allows you to control and monitor your measurements remotely. Starting, stopping and pausing the measurements are just a few examples of the possibilities. Flow touch comes with the touch screen included in your RTS.

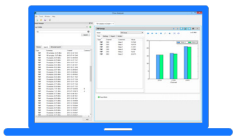
FLOW MANAGER

Flow Manager is the desktop client in which you configure your measurements. You set up your measurements, create batches and add multi-parameter sweeps. Define your measurements as you want whether you are a new or experienced user. You are guided in Flow Manager by the built in manual.



FLOW ANALYZER

Flow Analyzer is the result and data processing tool that gives you endless opportunities to plot your data as you want. Search in the built-in database and compare your measurements. Create your own design for plots and graphs, put them in a report format and export your results.



CALIBRATION

Calibration of the system is easily done by yourself in less than 15 minutes and is normally only performed when changing chamber load or chamber configuration. The same way you reuse the measurement setup you can reuse different calibration data, thereby reducing overall test time and increasing productivity.

DUT INTERFACING

The chamber design supports multiple DUT power and communication interface options. The device can, if not operated on battery, be powered with AC power, DC power or through a USB charger interface. Ethernet, USB and RS-232 interfaces enable wired communication with the device. Up to four interfaces can be mounted in the standard turntable.

SUPPORTING ACCESSORIES

We have a wide range of accessories to assist you with your measurements. Accessories including low loss holders and other fixtures are available to simplify the measurement setup. Every single accessory is designed to optimize the accuracy and repeatability of the measurements.

SERVICE & MAINTENANCE

We will not leave you after the installation of your RTS65. System operation training is tailored to your level of experience as well as previous knowledge of our systems and software. After-installation service offers include measurement customizations, upgrades, as well as software and hardware maintenance plans. Our support and service solutions provide an upgrade path for both hardware and software platforms to ensure that the capabilities of your RTS65 stay ahead of tomorrow's wireless technologies.

TECHNICAL SPECIFICATIONS

General		
Frequency Range	650 MHz – 12 GHz (50 GHz w. 5G option)	
Measurement Antennas	650 MHz - 12 GHz	Up to 16
	12 GHz - 50 GHz	Up to 2
Shielding	650 MHz - 6 GHz	Typ.>100 dB
	6 GHz - 12 GHz	Typ.>90 dB
	12 GHz - 50 GHz	Typ.>80 dB
Power Consumption	Typical 80-140 W (depending on installed options)	
Weight	700 kg (1540 lb) (depending on installed options)	
External Dimensions	Width: 1945 mm (76.6")	
	Height: 2000 mm (78.9")	
	Depth: 1440 mm (56.7")	

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