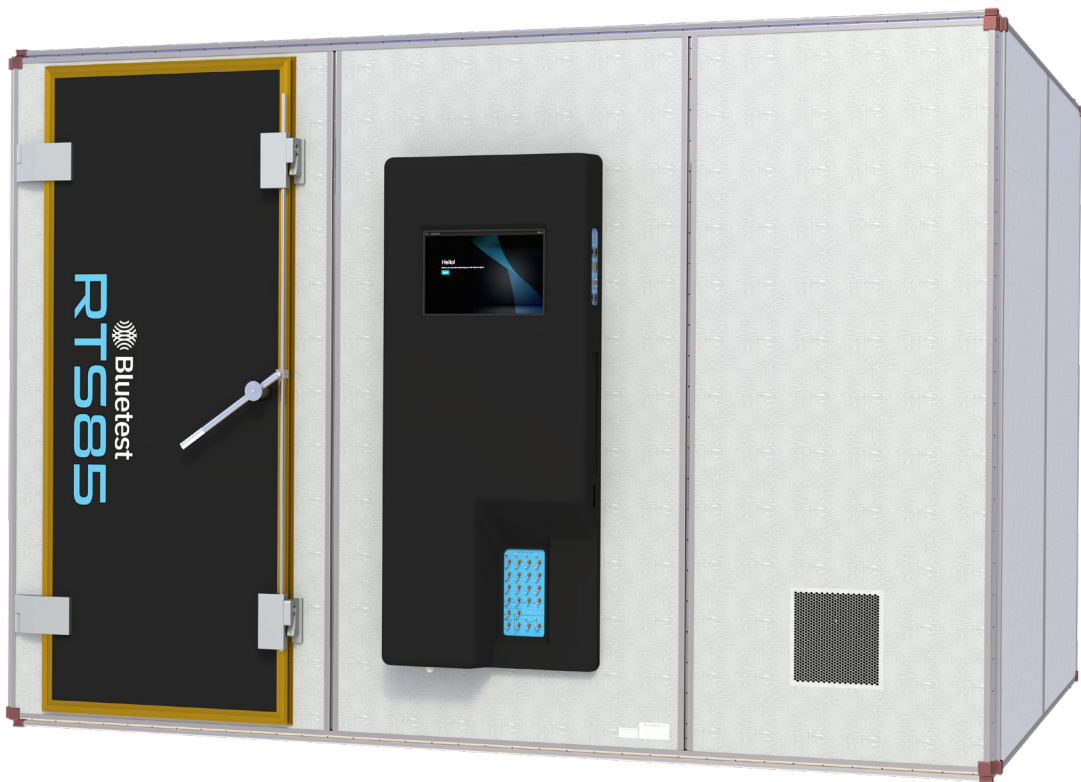




# RTS85

## REVERBERATION TEST SYSTEM



### THE CHAMBER FOR LARGE DEVICES AND 5G

*It has never been easier to verify wireless devices Over-the-Air (OTA). Bluetest's RTS85 reverberation test system and Flow measurement software are designed to provide ease of use and reduce the time you spend on measurements. With a supported frequency range of 450 MHz to 50 GHz it covers the the most commonly used wireless frequency bands including 5G NR. The generous measurement volume supports larger devices such as home appliance and M2M devices. It does not have to be complicated, unless you want it to be. We want you to focus on your radio development and results, not the test equipment.*

## MULTIPATH ENVIRONMENT

The RTS85 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 environment (RIMP) inside the chamber. This environment is very 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 expensive equipment. More complex radio environments with Doppler shift, different delay profiles or MIMO channel correlation can however still be supported by adding an external channel emulator. We support the most popular brands of channel emulators on the market.

Bluetest's long 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 includes 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 RTS85 can be configured with up to sixteen 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.

LTE-Advanced and 5G with carrier aggregation (CA) make it possible to communicate with a device on multiple carriers simultaneously. The 16 antenna configuration can for example support four carriers with 4 x 4 MIMO in four different frequency bands. With its 50 GHz capability the chamber is also ready for 5G NR and the combination of sub-12 GHz LTE carriers and sub-12 GHz or mmWave 5G NR carriers (Non-Standalone).

## RTS85 Applications

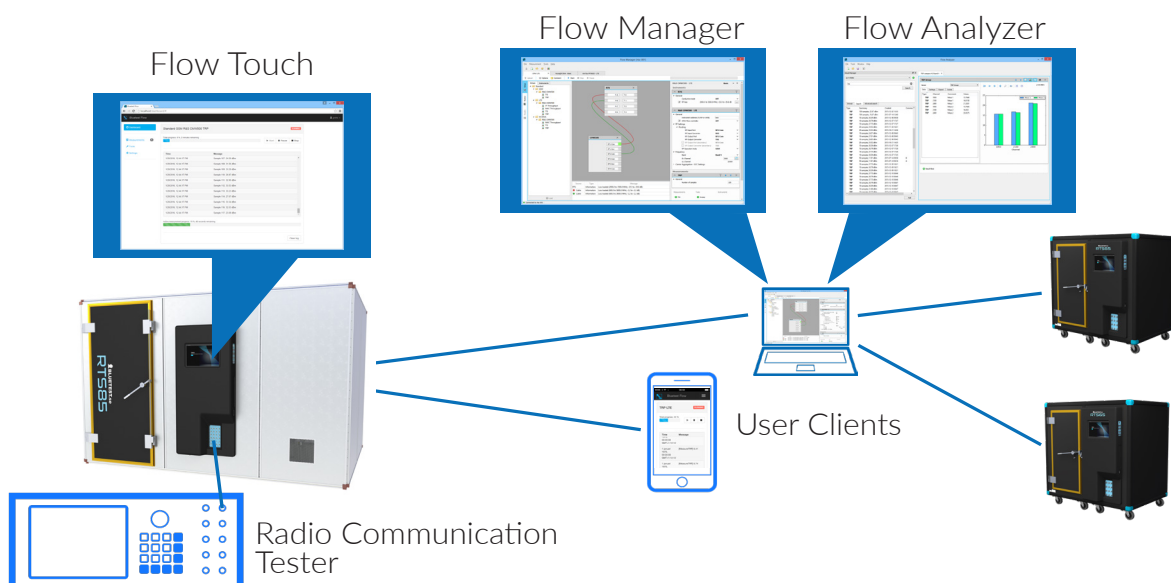
- Large form factor devices
- 5G NR FR1 and FR2 measurements
- Devices with frequencies down to <450 MHz
- Automotive sub-systems
- Connected home appliances and other IoT devices

## LARGE TEST VOLUME

A usable test volume of up to 1.2m x 1.2m x 1.5m enables measurements on both small and large wireless devices. The standard turntable has a diameter of 0.6m supporting most small and medium sized devices. An optional heavy duty 1.2m turntable makes it possible to measure the wireless performance also on heavier or more bulky test objects such as larger TV screens, M2M devices or smart home appliances. Other areas where a larger test volume is beneficial is when testing wireless car subsystems or car antennas.

## BLUETEST FLOW SOFTWARE PLATFORM

The RTS85 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 Bluetest 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.

## EASY OR ADVANCED – IT IS UP TO YOU

Flow Manager combined with Flow Touch provides all the functionality you need for your OTA measurements whether it is advanced or basic. Get started fast with predefined measurement settings according to standard bodies or operator specifications. Intelligent parameters are implemented so that ranges and dependencies are corrected automatically. In Flow Manager, you visually setup 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 advanced and 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 another communication tester.

## ANALYSIS AND COMPARISON

The integrated result database collects all results in one place and enables easy and powerful search functions using Bluetest Flow Analyzer. Organize your results by adding metadata to them in 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, 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.

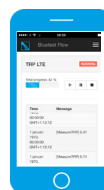
## WIRELESS FORMATS

Whether you need support for Bluetooth, WLAN, 2G, 3G, 4G LTE or the latest 5G NR standards, we cover the whole range of wireless communication and the most commonly used communication testers and vector network analyzers.

## FLOW PLATFORM OVERVIEW

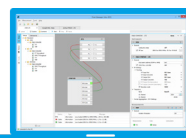
### FLOW TOUCH

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. Start, stop and pause the measurements are just a few examples of the possibilities. Flow touch comes with the touch screen included in your RTS.



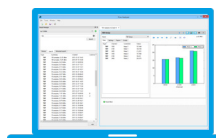
### FLOW MANAGER

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 beginner or advanced 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 using the vector network analyzer 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. This minimizes disturbing down time for calibration.

## 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 enables wired communication with the device and up to 4 interfaces can be mounted in the standard turntable.

## SUPPORTING ACCESSORIES

Bluetest provides a wide range of smart accessories to improve and simplify the work with your measurements. Check out our website for more details.





## SERVICE & MAINTENANCE

We will not leave you after the installation of your RTS85. System operation training is tailored to your level of experience as well as previous knowledge of our systems and software. After-installation service offers includes for example measurement customizations, upgrades, or 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 RTS85 stay ahead of tomorrow's wireless technologies.

## TECHNICAL SPECIFICATIONS

Model	RTS85
Frequency Range	450 MHz - 12 GHz (50 GHz w. 5G option)
Measurement Antennas	
450 MHz - 12 GHz	4, 8 or 16
6 GHz - 50 GHz	Up to 2
Shielding	
450 MHz - 6 GHz	Typ.>100 dB
6 GHz - 50 GHz	Typ.>80 dB
Power Consumption	Typical 160-220 W (depending on installed options)
Weight	1500 kg (3333 lb) (depending on installed options)
External Dimensions	Width: 3500 mm (137.8") Height: 2300 mm (90.6") Depth: 2690 mm (105.9")
Turntable size	0.6 m or 1.2 m (optional)
Chamber uncertainty	0.3 dB (STD)
Repeatability	0.1 dB (STD)

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