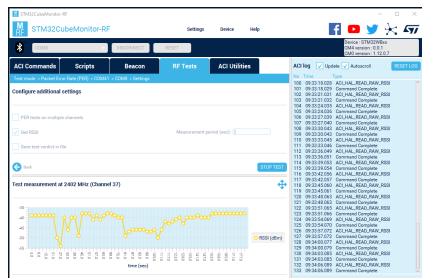


## Wireless performance monitoring and measurement software tool for the STM32WB Series



### Features

- Performs radio frequency tests of **STM32WB Series** microcontroller applications
- Supports STM32WB Series microcontrollers with Bluetooth® Low Energy and 802.15.4 integrated RF transceiver
- Connects to STMicroelectronics reference boards or any other user-developed application using STM32WB Series microcontrollers through UART or USB
- Bluetooth® Low Energy:
  - Sends HCI commands
  - Reads status
  - Supports Direct Test Mode commands
  - Displays remote devices Bluetooth® Low Energy profile
  - Interacts with remote devices Bluetooth® Low Energy services
  - Configures static and dynamic beacons
  - Manages over-the-air (OTA) file transfer and secures software update
- OpenThread:
  - Sends CLI commands
  - Reads status
  - Provides a dynamic list of OpenThread standardized commands
  - Network explorer graphically displays the connections between devices in the Thread® mesh.
  - Uses STM32WB Series microcontrollers as 802.15.4 sniffers to capture data and decode it in Wireshark™
- Batch files, macro record, loop, and variable for automatic test sequence execution
- Multi-OS support: Windows®, Linux®, and macOS®

Product status link

STM32CubeMonRF

**STM32**  
CubeMonitor-RF



### Description

STM32CubeMonitor-RF (**STM32CubeMonRF**) is a software tool allowing the test of the radio performances of STM32WB based hardware devices on Bluetooth® Low Energy and 802.15.4 technologies. It provides a graphical display to verify RF performance, with transmission/reception tests and packet error rate (PER) measurements. Results can be plotted to visualize the evolution of performance over time.

STM32CubeMonitor-RF can be used to learn the various RF protocols supported by the STM32WB devices and build test scripts. It provides a dynamic list of commands with their parameter descriptions to test the protocol sequences manually. The user can test a command sequence without writing any lines of code.

The OpenThread terminal window provides an intuitive way to use the command line. The user can directly type the commands or use the graphical interface to build the commands and set the parameters. STM32CubeMonitor-RF can use an STM32WB board to capture the 802.15.4 frames in the air, and then forward the data to the Wireshark™ tool to decode the information exchanged between devices.

# 1 General information

STM32CubeMonRF runs on STM32WB Series 32-bit microcontrollers based on Arm® Cortex®-M cores.

*Note:* STM32CubeMonitor-RF is specialized for the STM32WB Series. Other STM32 wireless devices like STM32WL Series microcontrollers are tested with [STM32CubeMonitor](#).

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## 1.1 Ordering information

STM32CubeMonRF is available for free download from the [www.st.com](http://www.st.com) website and through the [STM32CubeMX](#) and [STM32CubeIDE](#) software tools.

## 1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to significantly improve the designer's productivity by reducing development effort, time, and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes:

- A set of user-friendly software development tools to cover project development from conception to realization, among which are:
  - [STM32CubeMX](#), a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
  - [STM32CubeIDE](#), an all-in-one development tool with peripheral configuration, code generation, code compilation, and debug features
  - STM32CubeProgrammer ([STM32CubeProg](#)), a programming tool available in graphical and command-line versions
  - STM32CubeMonitor ([STM32CubeMonitor](#), [STM32CubeMonPwr](#), [STM32CubeMonRF](#), [STM32CubeMonUCPD](#)) powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real-time
- [STM32Cube MCU and MPU Packages](#), comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeWB for the STM32WB Series), which include:
  - STM32Cube hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio
  - STM32Cube low-layer APIs, ensuring the best performance and footprints with a high degree of user control over hardware
  - A consistent set of middleware components such as USB Device, STMTouch, STM32\_WPAN (Bluetooth® 5 profiles and services, OpenThread and 802.15.4 MAC services), FatFS and FreeRTOS™ kernel, plus Bluetooth® 5 and Mesh V1.0 profiles and services, ZigBee® 3.0 stack and clusters, OpenThread, Concurrent Bluetooth® 5/Thread®, and HCI and 802.15.4 MAC connectivity services
  - All embedded software utilities with full sets of peripheral and applicative examples
- [STM32Cube Expansion Packages](#), which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
  - Middleware extensions and applicative layers
  - Examples running on some specific STMicroelectronics development boards

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## 2 License

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STM32CubeMonRF is delivered under the *Mix Ultimate Liberty+OSS+3rd-party V1* software license agreement (SLA0048).

For more details about the license agreement of each component, refer to the STM32CubeMonRF release note (RN0104).

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
23-Aug-2018	1	Initial release.
6-Feb-2019	2	Updated Bluetooth® Low Energy feature.
5-Oct-2021	3	Updated: <ul style="list-style-type: none"> <li>Title, <a href="#">Features</a>, and <a href="#">Description</a> to highlight STM32CubeMonitor-RF targets STM32WB Series microcontrollers</li> <li><a href="#">Cover image</a></li> <li><a href="#">General information</a> with added <a href="#">What is STM32Cube?</a> section</li> <li><a href="#">License</a> pointing to release note for tool license scheme</li> </ul>

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