

Surfing in the SPIRIT1 documentation and software

- [Introduction](#)
- [Documentation folder](#)
- [Drivers folder](#)
- [GUI & GUI folder](#)
 - For use the GUI on the SPIRIT1 KIT (EvaBoard) must be loaded the: **SPIRIT1_CLI.hex** at the **address: 0x08003000**
- [Firmware folder](#)
 - [Example ready to use for STM32L](#)
- [RN0095 - SPIRIT1 development kit](#)
 - The RN0095 **lists the changes, new features**, and recent corrections in release 2.0.0 of the SPIRIT1 development kit. This release note also **provides information on the hardware and MCU supported** by the current kit and it gives the known problems and limitations. Finally, this document traces the updates made to each previous release of the SPIRIT1 development kit.
- [UM1657 - User manual](#)
 - SPIRIT1 development kit graphical user interface (SPIRIT1 DK - **GUI**) which allows checking the SPIRIT1 main performance and easily measure parameters such as sensitivity, output power and main features of the SPIRIT1. It also contains **SPIRIT1 firmware libraries** for **STM32L** and **STM8L** to allow development of SPIRIT1 applications. In addition, it contains a **Wireless M-BUS library** with documentation and example applications to allow development of Wireless M-BUS application based on the SPIRIT1.
- [SPIRIT1 DevKit](#)
- [SPIRIT1 Low Level API](#)
 - This firmware provides a set of APIs to manage the Spirit device using the Spirit Development Kit Eval motherboard and a Virtual Com port driver.

Introduction

STM release the complete [SPIRIT1 API](#) for **STM32L** and **STM8L** MCU families.



For get a complete, DOC, EXAMPLES, etc, for the [SPIRIT1](#) you must install the **SDK** that is [here](#), the name is: **STSW-CONNECT009 Setup for SPIRIT1 design kit**. See below.

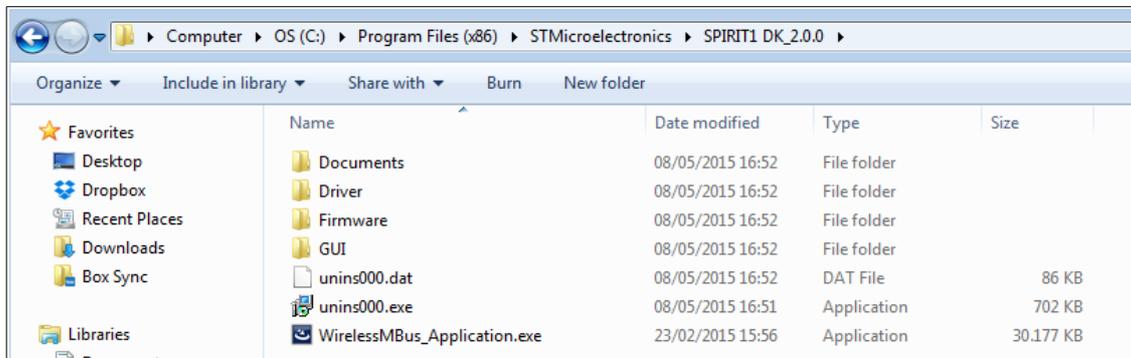
Sample & Buy

[Top](#)

Part Number	Version	Marketing Status	Order From ST
STSW-CONNECT009	2.0.0	Active	Download

[Click here to go on top](#)

After the installation you must see on your PC (**Windows 7**) something like below:



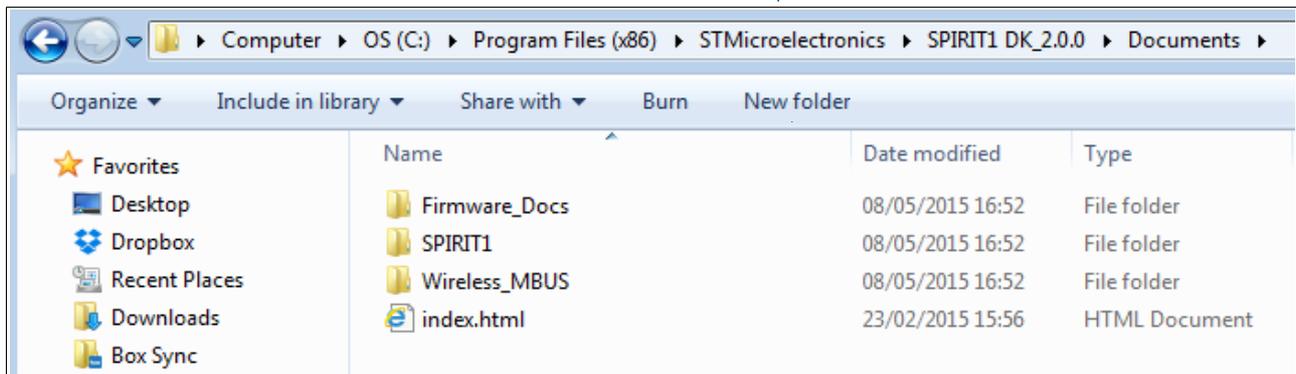
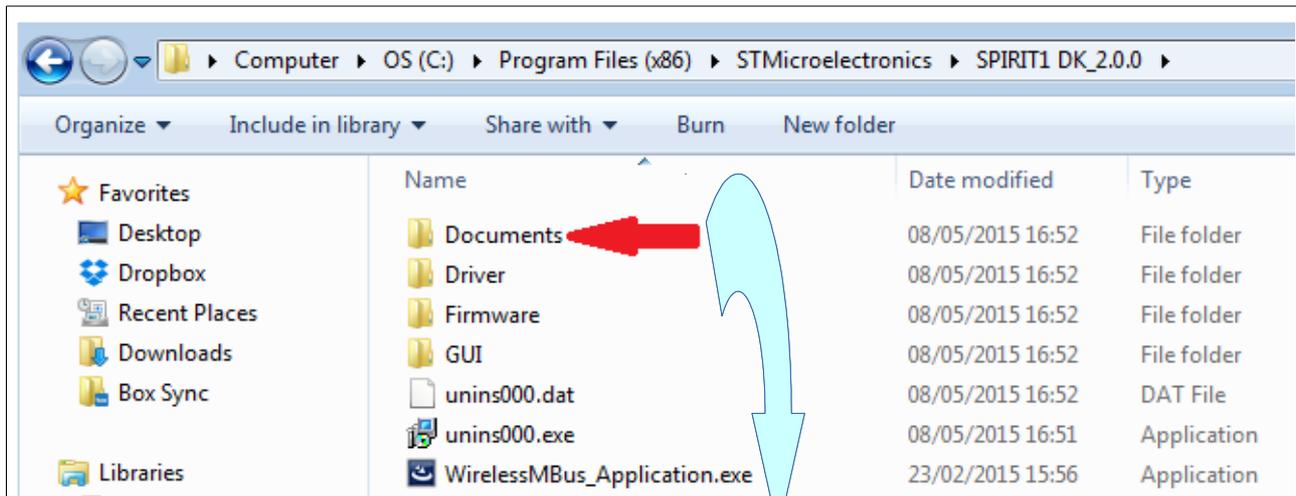
And on the desktop you must see an icon like below:



ATTENTION:

Up to now (May 2015) the SW is not compatible with the new **CUBE** libraries.

Documentation folder

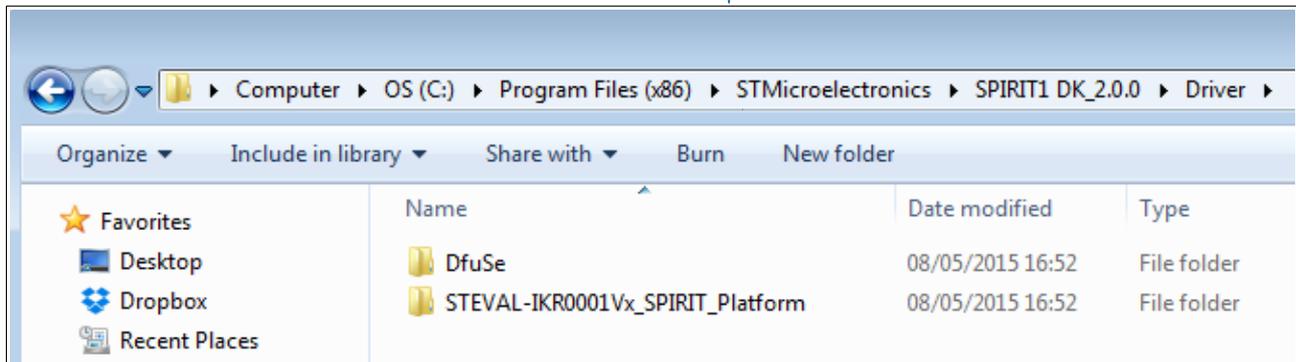
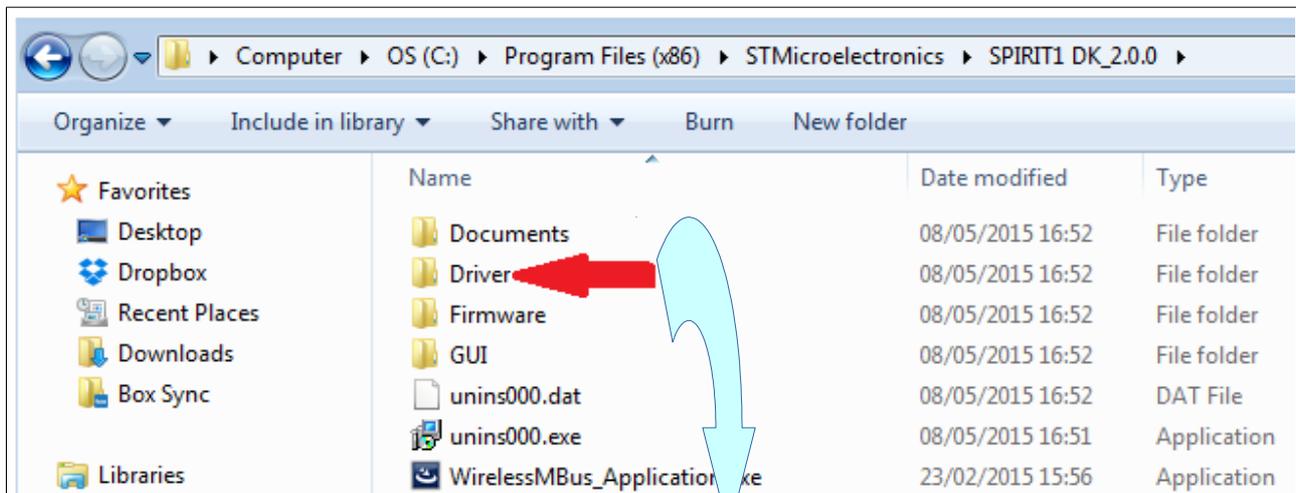


In the **DOCUMENTS** folder there are this subfolders:

- **Firmware_Docs** – that contain the manuals regarding:
 - SPIRIT1-DK_DFU_Bootloader
 - SPIRIT1-Library
 - Wireless_MBUS_Library
- **SPIRIT1** – that contain:
 - Data sheet
 - USER MANUAL of the API
 - A doc of the evaluation boards
 - Application notesPlease, find on www.st.com the last release of the doc above
- **Wireless_MBUS** – that contain some doc regarding WMBUS

Also there is the file **index.html** that is the index of all the contents of the documents folder and related subfolders.

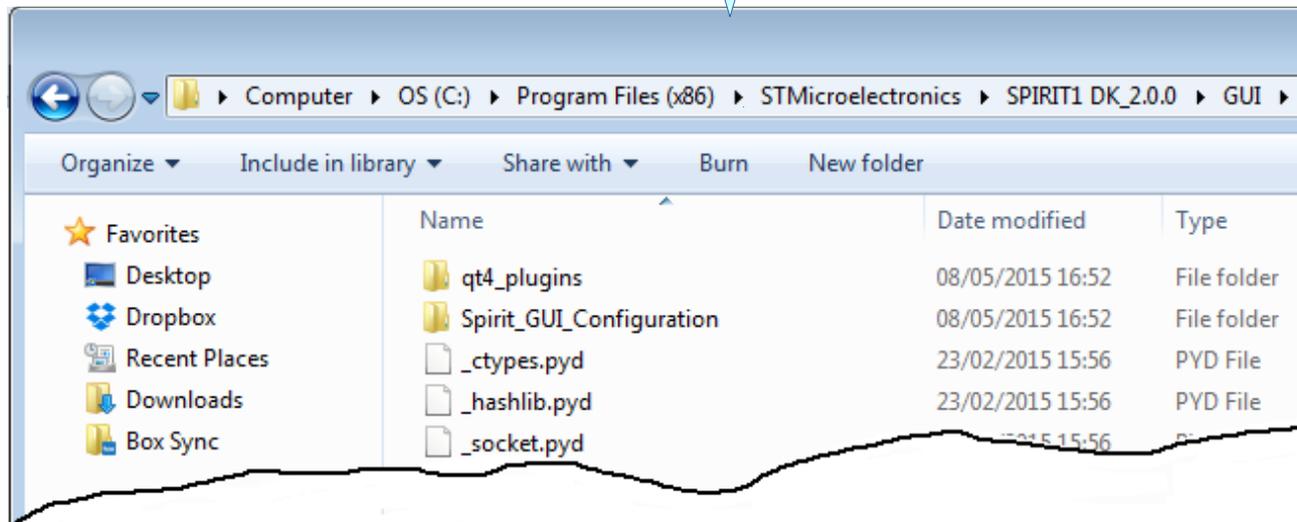
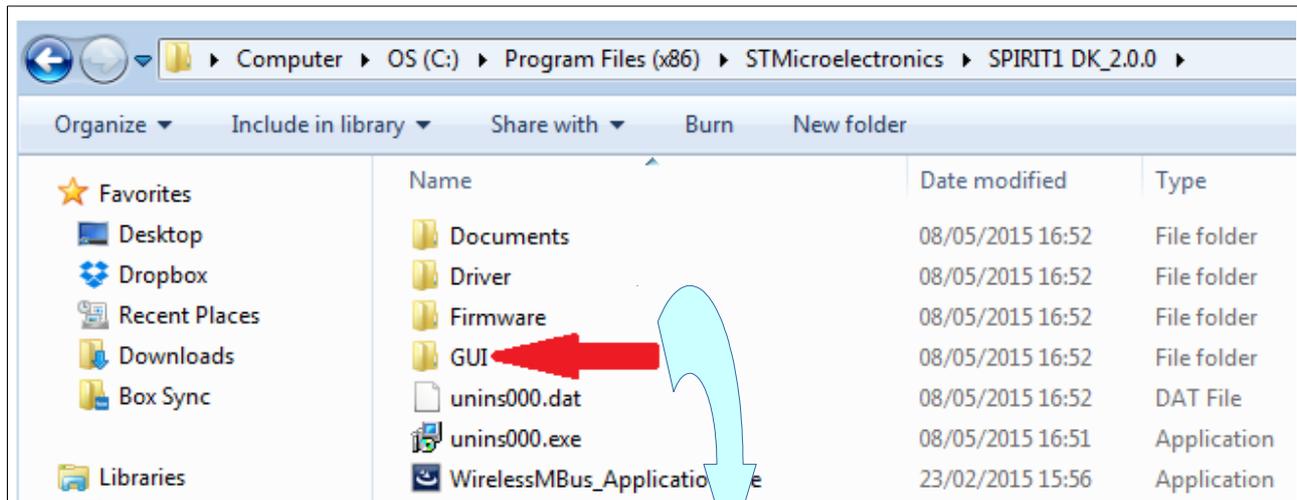
Drivers folder



In the **Driver** folder there are this subfolders:

- **DfuSe** - [USB device firmware upgrade](#) STMicroelectronics extension: contains the demo GUI, debugging GUI, all sources files and the protocol layer ([UM0412](#))
- **STEVAL-IKR0001Vx_SPIRIT_Platform** - Contain the SW utility for SPIRIT1 GUI

GUI & GUI folder



The **GUI** folder contain the GUI for use the SPIRIT1 demo SW.

For details about the way to use the GUI see the **UM1657** manual **section 3** (see [here](#)).

ATTENTION:

For use the GUI on the SPIRIT1 KIT (EvaBoard) must be loaded the:

SPIRIT1_CLI.hex

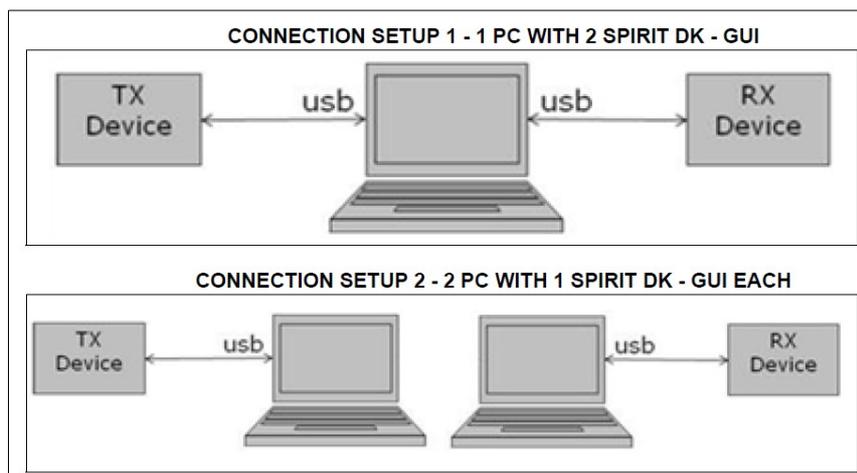
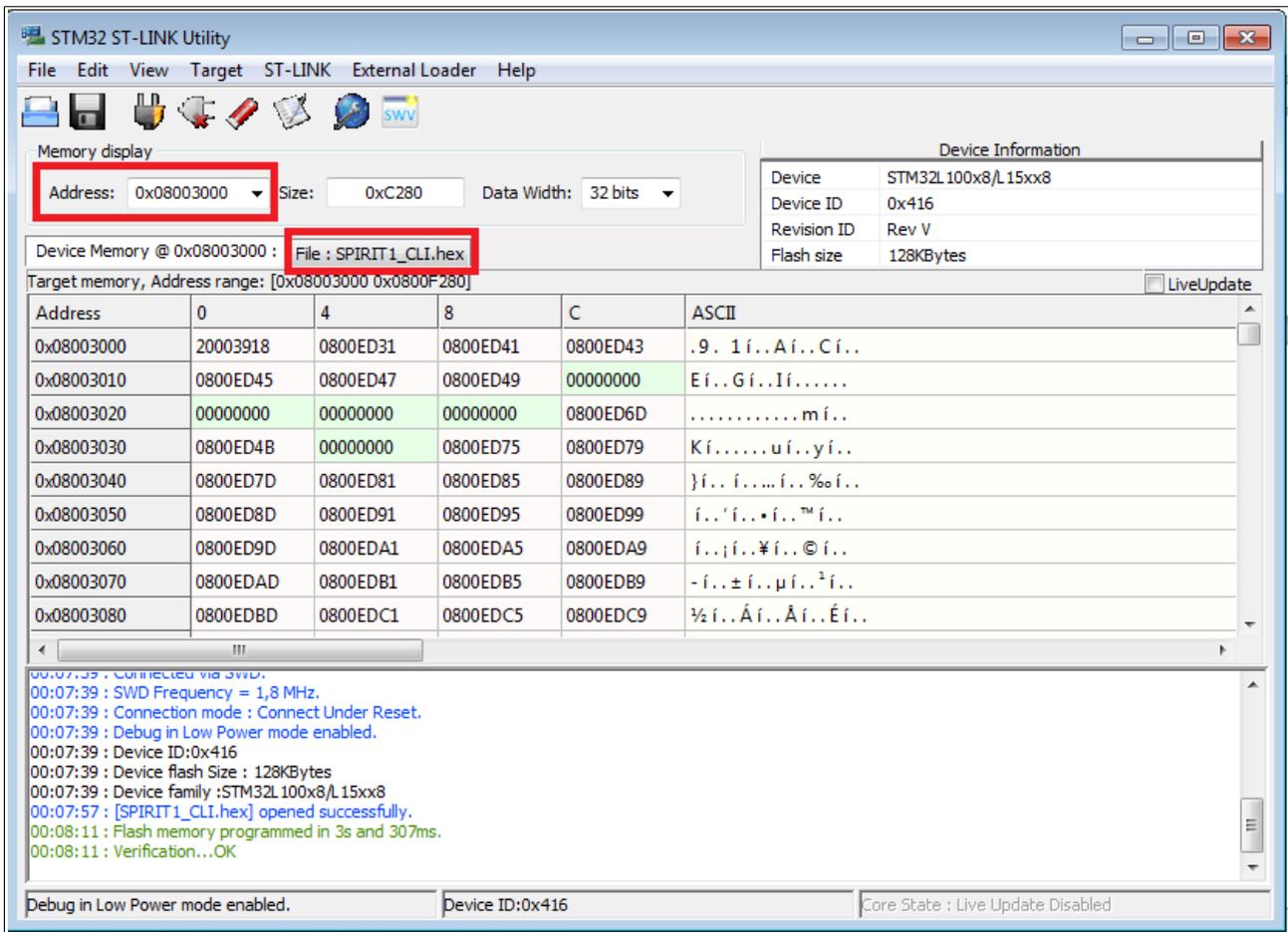
that is here:

- `C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Firmware\Binary`

It is necessary use the **ST-LINK-v2** + **ST-LINK-Utility** and load the SW at the address:

0x08003000

see below.



If you use 1 PC with 2 SPIRIT1_Kit (EvaBoard) at 868Mhz, I suggest the SetUp below.

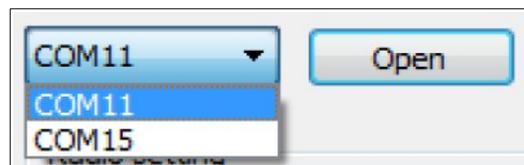
[Click here to go on top](#)

Run the SPIRIT1 DK (see below).

Run twice instance of SPIRIT DK because the need to use 1 PC and 2 SPIRIT1_Kit (EvaBoard)



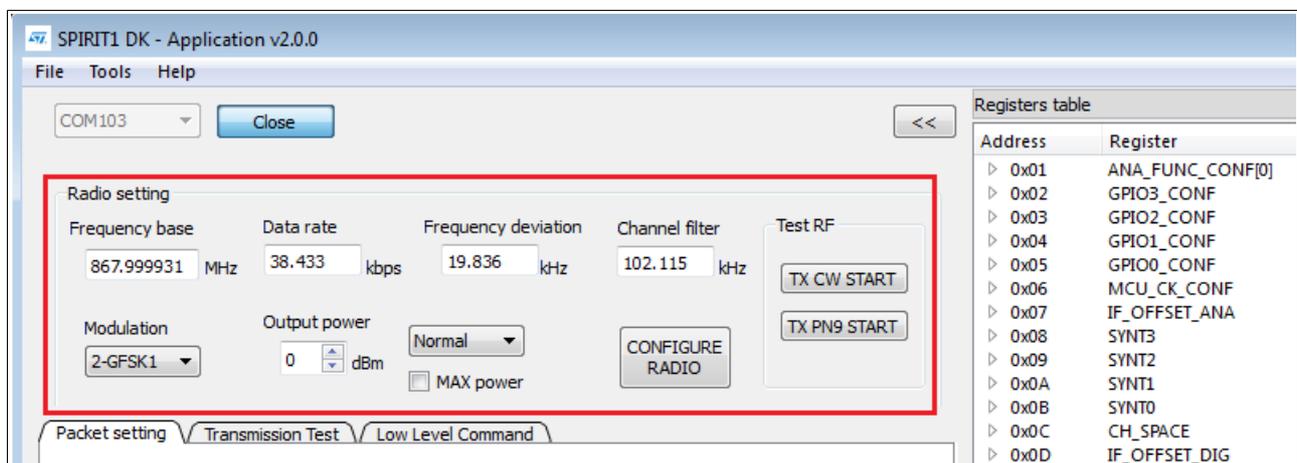
At the top of the main window, the user can **select the appropriate COM** from a drop down list of the COM port available.



Select the COM and next select: **OPEN**

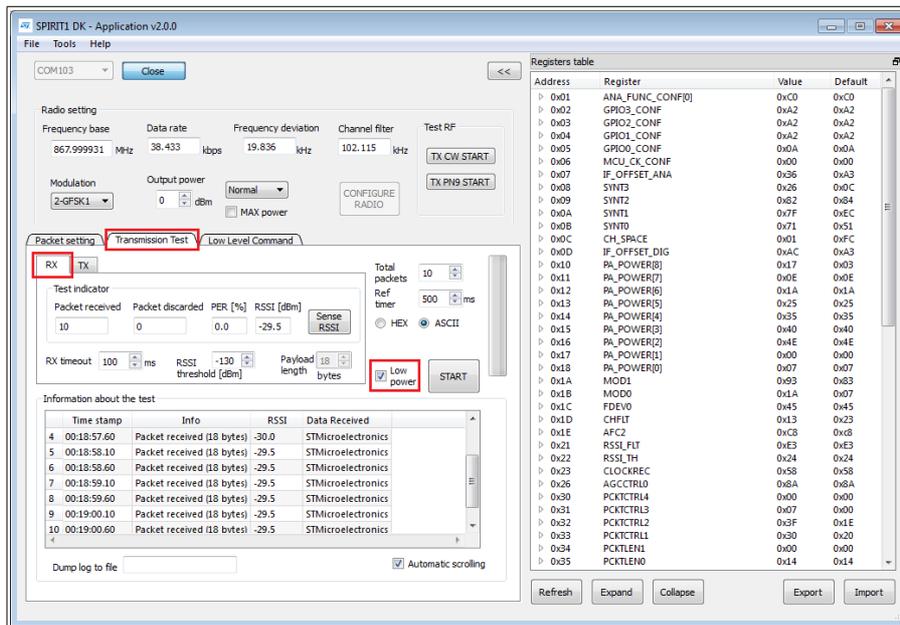
ATTENTION:

If you change some parameters on the red box below, at the end you must press:
Configure radio



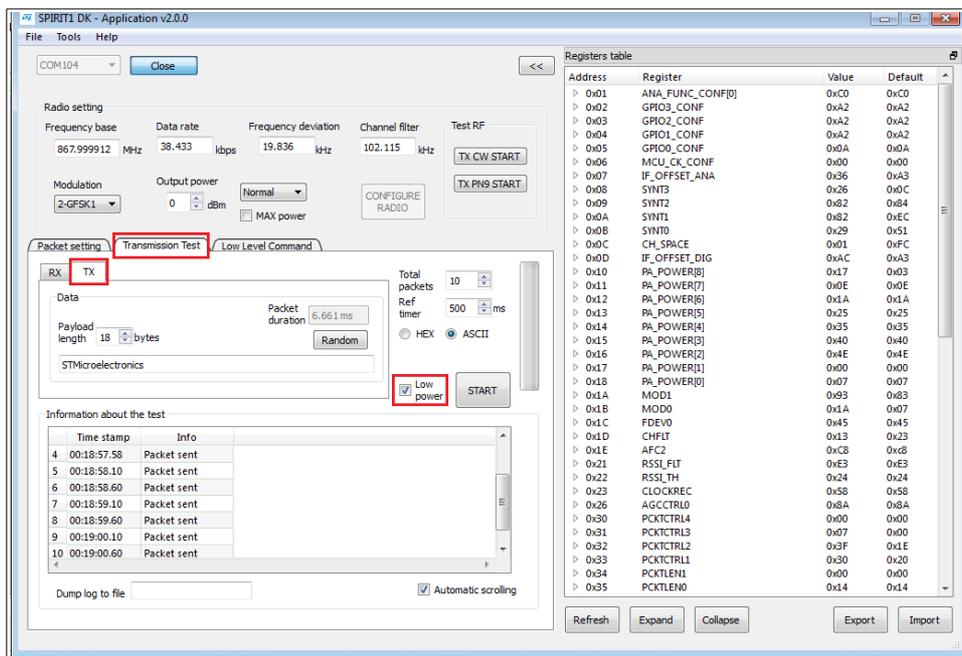
On one SIRIT1_Kit (in my case COM103) choose:

- Transmission Test
- RX
- Low power



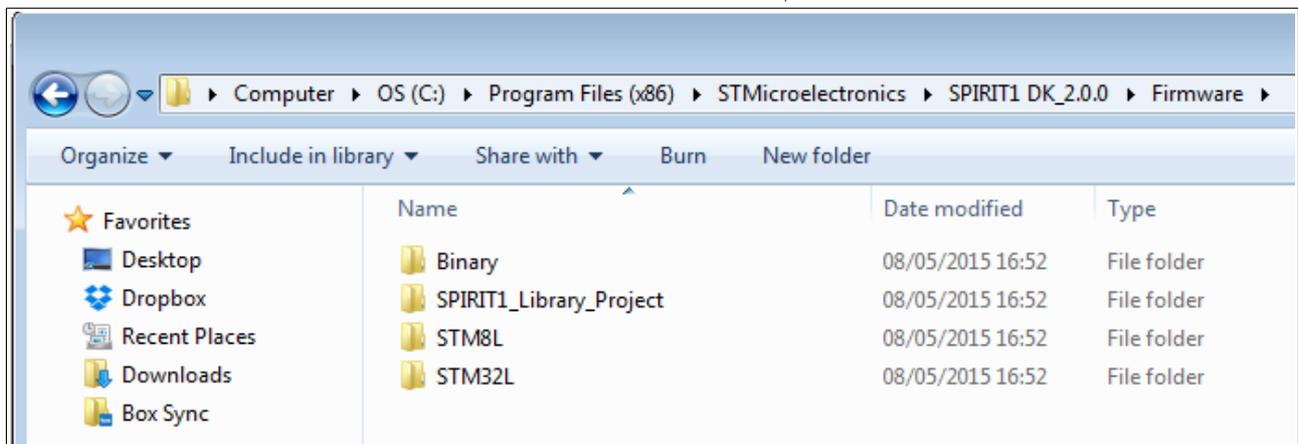
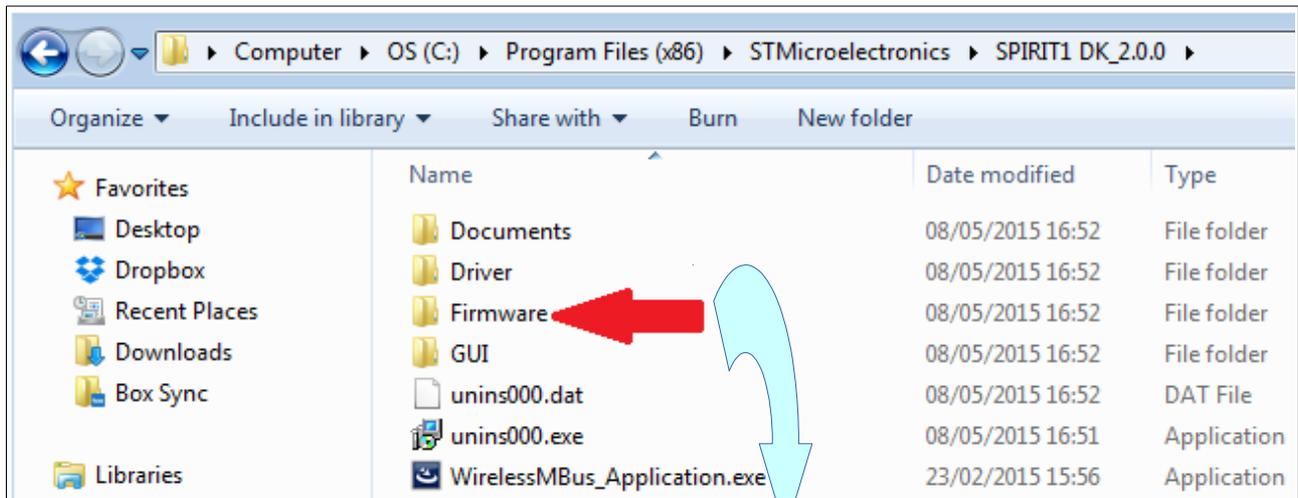
On the other SIRT1_Kit (in my case COM104) choose:

- Transmission Test
- TX
- Low power



Now if you press, on both the GUI, the **START** button, you must see the result of the test. See above the box named: **Information about the test**

Firmware folder

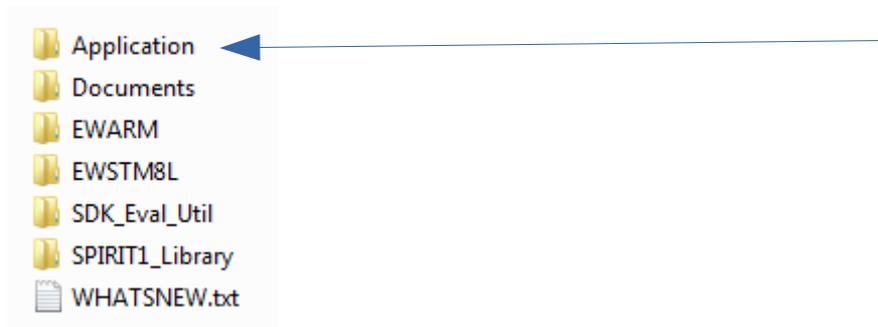


In the **Firmware** folder there are this subfolders:

- **Binary** - This folder contain a ready to use FW for SPIRIT1 demo board.
See below

```
sniffer.hex
SPIRIT1_CLI.hex
SPIRIT1_DK-DFU_Bootloader.hex
SPIRIT1-wmbus_vcom-meter-169.hex
SPIRIT1-wmbus_vcom-meter-868.hex
SPIRIT1-wmbus-gui-169.hex
SPIRIT1-wmbus-gui-868.hex
```

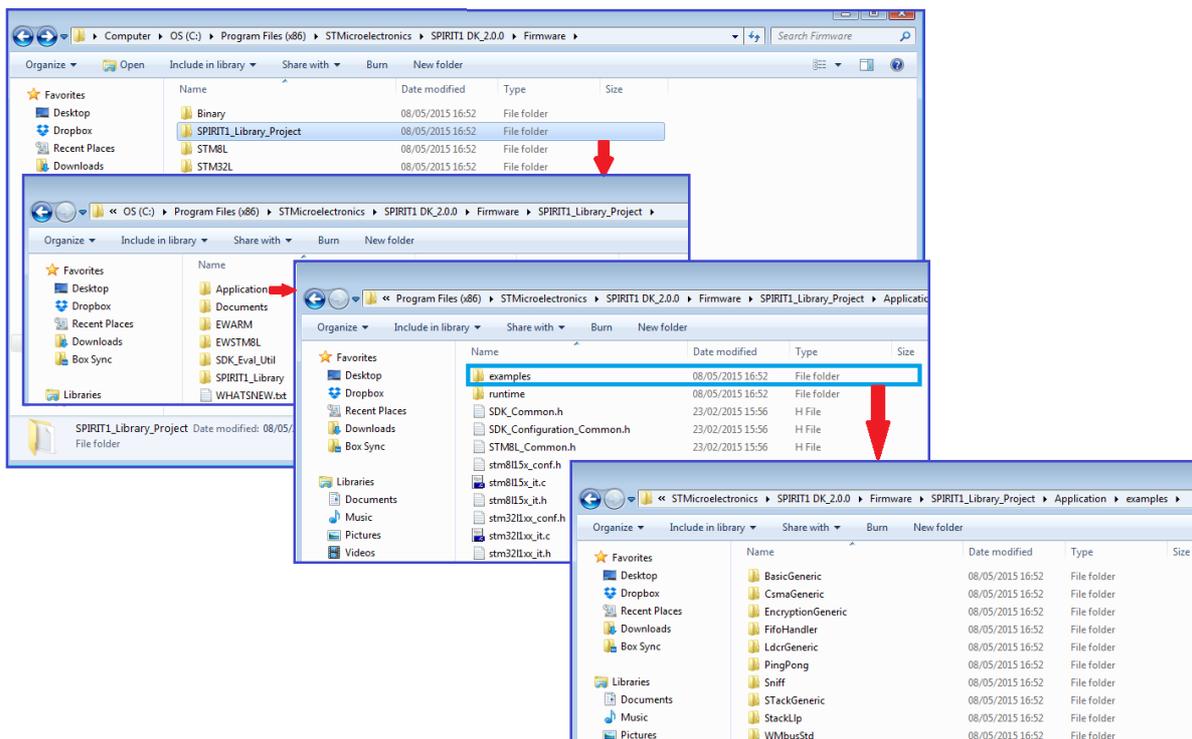
- **SPIRIT1_Library_Project** – This folder contain examples for SPIRIT1 ready to use for IAR compiler.



- Explain in details all folders is too long, so I prefer to highlight some important folders.

NOTE: For using the examples present in the SPIRIT_Library_Project folder is necessary copy the entire folder in a new position, for example in [C:\](#)

- In the folder:
 - **C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Firmware\SPIRIT1_Library_Project\Application\examples** there are a lot of examples, see below.

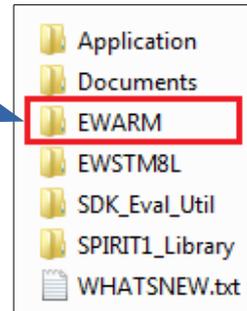


The examples are ready for compile for **STM8L** and **STM32L**.

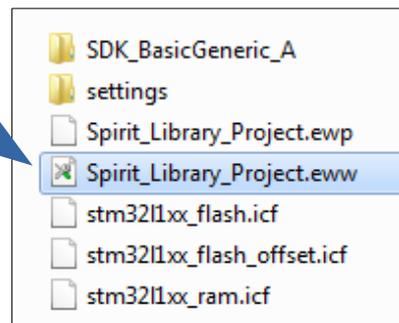
For see how to use the **BasicGeneric** example see my explanation:

[How to use the example A/B \(simple Tx/Rx example\) using the SPIRIT1 SDK ver2.0 and IAR 32KFree](#)

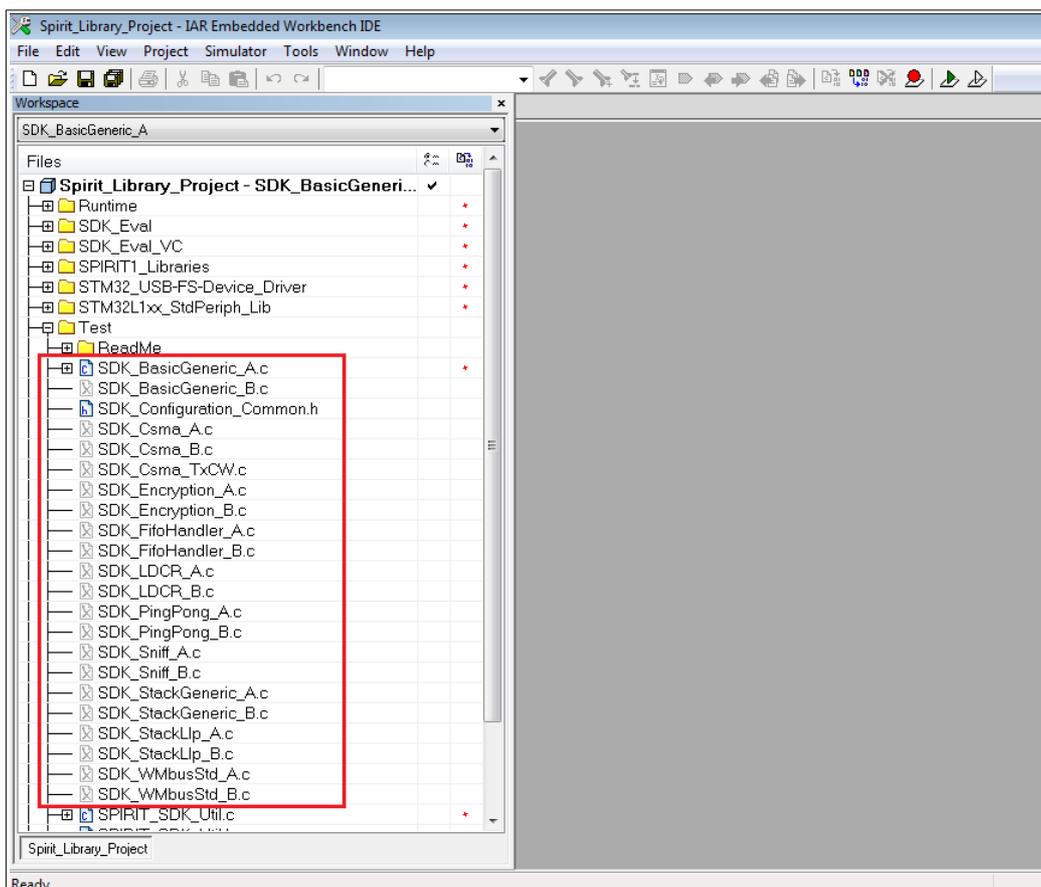
- In general to use an example for STM32L you must enter in the folder:
C:\...\SPIRIT1_Library_Project\EWARM



and double click on:
Spirit_Library_Project.eww
(IAR project)



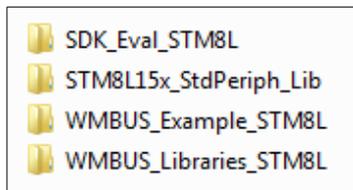
After this you must see something like below.



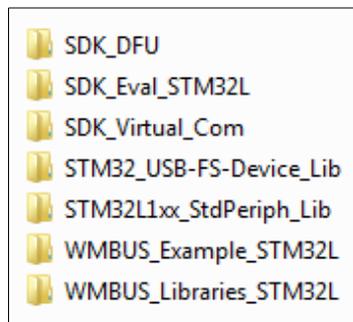
In the red box there are all the examples ready to use on **SPIRIT1 evaboards**.
Of course, you must include a single example at a time.

For see how to include or exclude an example [see this tutorial](#) at [pg.4](#)
(*Select (include) and deselect (exclude) the file from IAR project*)

- **EWSTM8L** – This folder is similar to the EWRAM but for **STM8L**
- **SDK_Eval_Util** – This folder contain src files and inc files for SPIRIT1 evaiboard
- **SPIRIT1_Library** – This folder contain src files and inc files for SPIRIT1
- **WHATSNEW.txt** - This file explain the main changes of the last SPIRIT1 library
- **STM8L** – Contain the SDK, Library and WMBUS files for **STM8L**



- **STM32L** – Contain the DFU, SDK, Library, WMBUS, etc files for **STM32L**



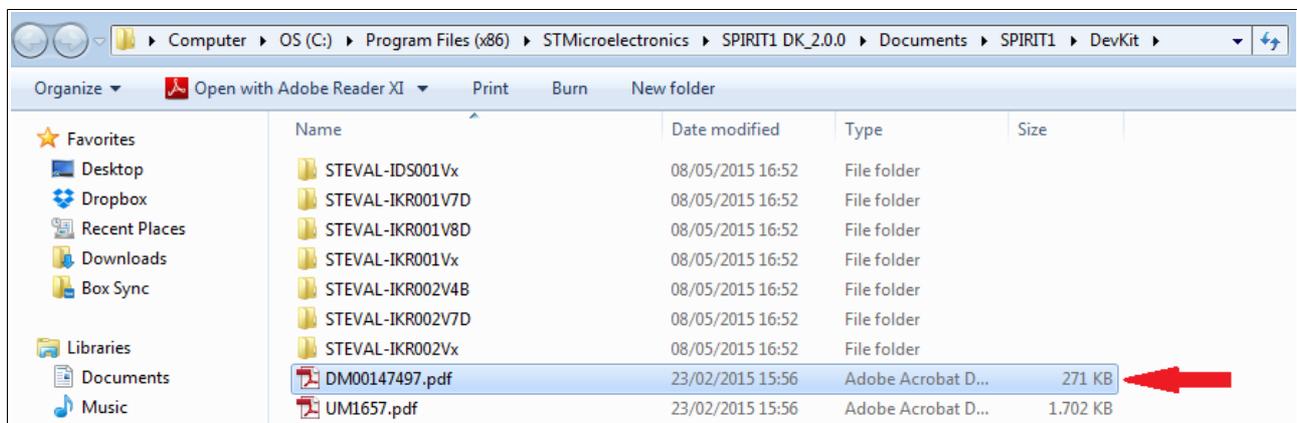
RN0095 - SPIRIT1 development kit (or EvaBoard)

The RN0095 lists the changes, new features, and recent corrections in release 2.0.0 of the SPIRIT1 development kit. This release note also provides information on the hardware and microcontrollers supported by the current kit and it gives the known problems and limitations. Finally, this document traces the updates made to each previous release of the SPIRIT 1 development kit.

The **RN0095** is in the folder:

- C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Documents\SPIRIT1\DevKit

and is named: **DM00147497**, see below the red arrow.



OLD evaboard version



NEW evaboard version

[Click here to go on top](#)

UM1657 - User manual

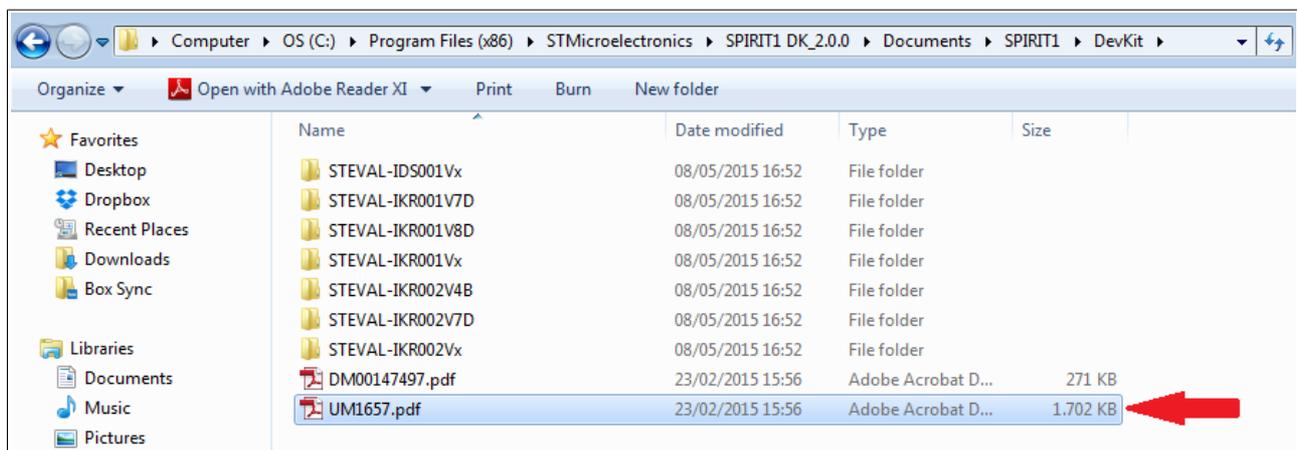
UM1657 is SPIRIT1 development kit graphical user interface (SPIRIT1 DK - **GUI**) which allows checking the SPIRIT1 main performance and easily measure parameters such as sensitivity, output power and main features of the SPIRIT1.

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In addition, it contains a **Wireless M-BUS library** with documentation and example applications to allow development of Wireless M-BUS application based on the SPIRIT1.

UM1657 is in the folder:

- **C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Documents\SPIRIT1\DevKit**
see below the red arrow.



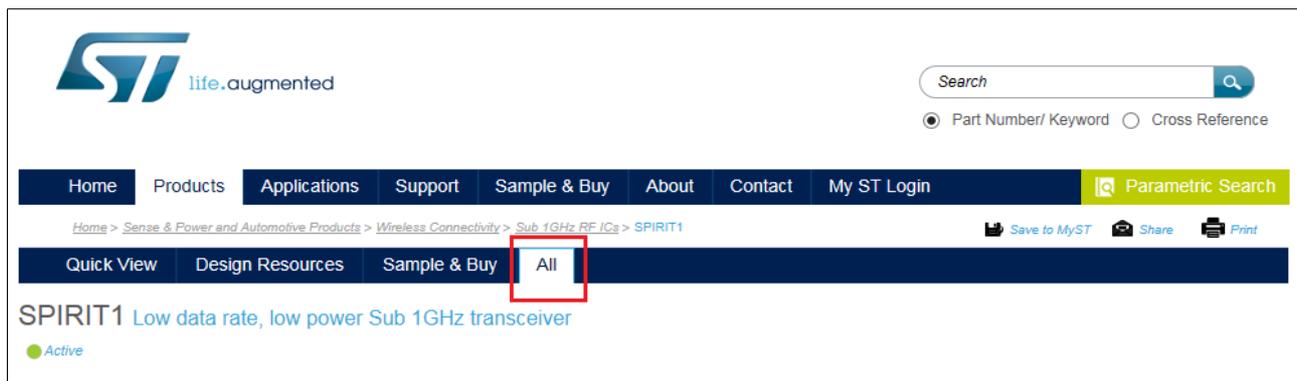
SPIRIT1 DevKit

In the folder:

- C:\Program Files (x86)\STMicroelectronics\SPIRIT1
DK_2.0.0\Documents\SPIRIT1\DevKit

there are the complete doc regarding the SPIRIT1 development kit.

For the last release of this kit go [here](#) and select **ALL**, see below.



The screenshot shows the STMicroelectronics website interface. At the top left is the ST logo with the tagline 'life.augmented'. A search bar is located at the top right. Below the search bar is a navigation menu with options: Home, Products, Applications, Support, Sample & Buy, About, Contact, My ST Login, and Parametric Search. A breadcrumb trail indicates the current location: Home > Sense & Power and Automotive Products > Wireless Connectivity > Sub 1GHz RF ICs > SPIRIT1. The 'All' filter is highlighted in a red box. Below the navigation bar, the product title 'SPIRIT1 Low data rate, low power Sub 1GHz transceiver' is visible, along with an 'Active' status indicator.

Scroll the page down until the section: **Related Tools and Software**
here there are the last doc of evaboards and SW, see below.

Related Tools and Software	
Part Number	Description
STEVAL-IKR001V2	SPIRIT1 - Low Data Rate Transceiver - 315 MHz - FULL KIT
STEVAL-IKR002V4B	SPIRIT1 - low data rate transceiver - 868 MHz - DAUGHTER BOARD - integrated balun
STEVAL-IKR002V7D	SPIRIT1 - Low Data Rate Transceiver - 169 MHz - DAUGHTER BOARD - range extender
STEVAL-IKR002V5D	SPIRIT1 - Low Data Rate Transceiver - 915 MHz - DAUGHTER BOARD
STEVAL-IKR001V2D	SPIRIT1 - Low Data Rate Transceiver - 315 MHz - DAUGHTER BOARD
STEVAL-IKR002V4D	SPIRIT1 - Low Data Rate Transceiver - 868 MHz - DAUGHTER BOARD
STEVAL-IKR002V3D	SPIRIT1 - Low Data Rate Transceiver - 433 MHz - DAUGHTER BOARD
STEVAL-IKR002V2D	SPIRIT1 - Low Data Rate Transceiver - 315 MHz - DAUGHTER BOARD
STEVAL-IKR002V1D	SPIRIT1 - Low Data Rate Transceiver - 169 MHz - DAUGHTER BOARD
STEVAL-IKR002V5	915 MHz - FULL KIT

[Click here to go on top](#)

SPIRIT1 Low Level API

The SPIRIT1 Low Level API manual is in the folder:

- **C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Documents\SPIRIT1\Firmware_Library**

This firmware provides a set of APIs to manage the Spirit device using the Spirit Development Kit Eval motherboard and a Virtual Com port driver.

This document provides a description of Spirit Low Level APIs from a general point of view and a more detailed view of the Spirit1_Libraries.

To have more details the user should consult the **doxygen** documentation available in the **.chm** file, see in the folders below:

- **C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Documents\Firmware_Docs**
- **C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Documents\SPIRIT1\Firmware_Library**
- **C:\Program Files (x86)\STMicroelectronics\SPIRIT1 DK_2.0.0\Firmware\SPIRIT1_Library_Project\Documents**