

## Demonstration kit for the CR95HF 13.56 MHz transceiver IC

Data brief

### Features

- Ready to use printed circuit board
  - CR95HF cut 1.2 multiprotocol transceiver IC
  - STM32F103CB 32-bit microcontroller
  - 47 x 34 mm 13.56 MHz inductive etched antenna and tuning components
  - USB-B connector for communication with host PC and demonstration board powering
  - USB connect/disconnect jumper (must be left in default state)
  - LED indicating the presence of an RFID or NFC tag
  - Microcontroller reset button
  - JTAG connector for microcontroller firmware upgrade and debug
- USB cable
- Demonstration tags
  - ISO15693 tag: LRI2K mounted on a 45 x 75 mm antenna
  - ISO 15693 dual interface EEPROM memory: M24LR64-R mounted on a 15 x 15 mm double side etched antenna
- Associated Firmware and PC software
  - On-board demonstration firmware to communicate with the host PC through the USB bus.
  - The CR95HF development software enable discovery and use of all the functionalities of the CR95HF transceiver.
  - The M24LRXX application software is dedicated to the Dual interface EEPROM and ISO/IEC 15693 contactless tag.



## Description

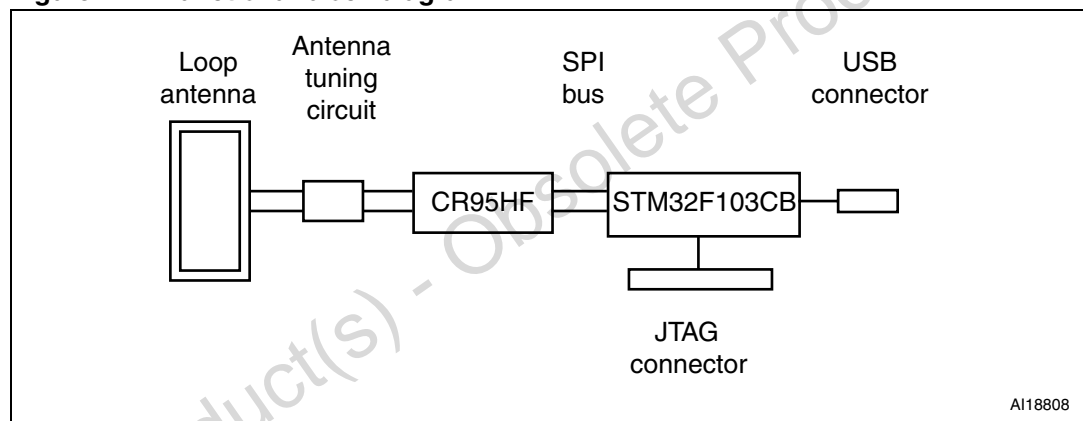
The DEMO-CR95HF-A is a demonstration kit which allows to evaluate the performances of ST CR95HF 13.56 MHz multiprotocol contactless transceiver. It includes a ready-to-use board to interface with the CR95HF host PC demonstration software through an USB interface.

The DEMO-CR95HF-A is powered through the USB bus and no external power supply is required. It includes a CR95HF contactless transceiver, a 47 x 34 mm 13.56 MHz inductive etched antenna and its associated tuning components.

By default, the CR95HF communicates with the STM32F103CB 32-bit MCU via the SPI bus. The interface can then be changed to UART.

At the end of the initialization, the DEMO-CR95HF-A launches a tag tracking operation. When an RFID or NFC tag is identified, the LED is turned on.

**Figure 1. Functional block diagram**



The DEMO-CR95HF-A is delivered with the following firmware and software which can be downloaded from <http://www.st.com>:

- STM32 DEMO-CR95HF-A-application-firmware: on-board demonstration firmware allowing the CR95HF and the host PC to communicate through the USB bus
- M24LRxx\_application\_software: a PC software that manages the communications with the ISO15693 and Dual Interface EEPROM tags.

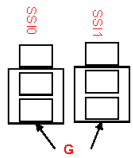
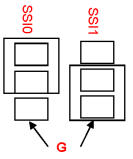
# Hardware configuration

The DEMO-CR95HF-A demonstration board can use either the UART or the SPI as external serial interface. Two solder bridges, SSI0 and SSI1, allow choosing the serial interface (see [Table 1](#)).

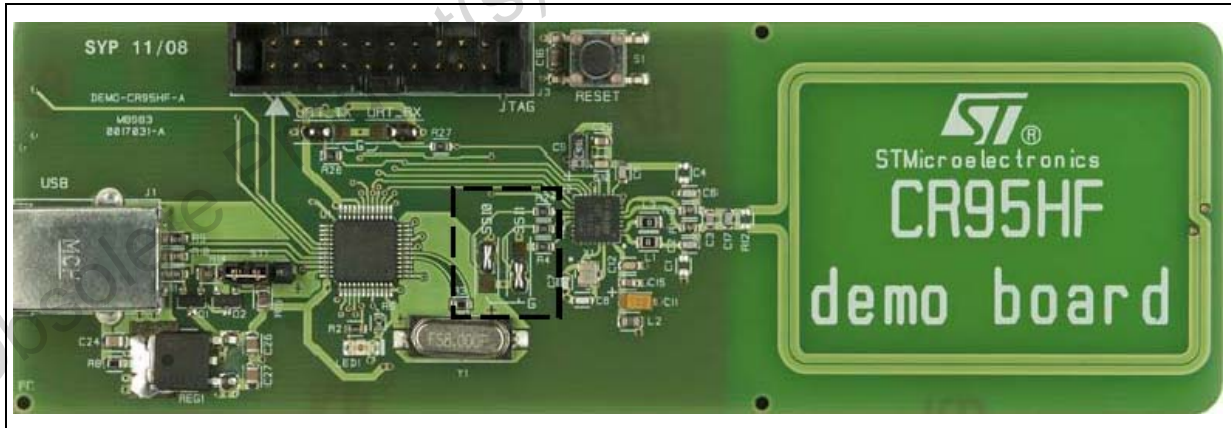
The SPI or UART is then automatically enabled by the CR95HF at power-on.

[Figure 2](#) shows the board configured to use the SPI interface (default configuration).

**Table 1. Solder bridge configuration**

| Hardware configuration   | Serial interface |
|--|------------------|
|   | UART             |
|  | SPI              |

**Figure 2. DEMO-CR95HF-A with SPI selected**



## Revision history

**Table 2. Document revision history**

| Date        | Revision | Changes   |
|-------------|----------|---|
| 22-Apr-2011 | 1        | Initial release.  |
| 25-Jul-2011 | 2        | Changed inductive etched antenna to 47x34 mm.<br>Added <a href="#">Section : Hardware configuration</a> .<br>Updated disclaimer on last page. |
| 10-Sep-2012 | 3        | Updated <a href="#">Features</a> and <a href="#">Description</a> .  |

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