

**Evaluation kit for ST95HF transceiver for NFC**

Data brief

**Features**

- Ready to use printed circuit board with ST95HF 13.56 MHz transceiver 32 lead 5x5 mm VFQFPN package:
  - Reader mode: ISO/IEC 14443 Type A; ISO/IEC 15693; ISO/IEC 18092.
  - Card Emulation mode: ISO/IEC 14443 Type A.
  - Peer To Peer mode: ISO/IEC 14443 Type A.

The ST95HF also supports the detection, reading and writing of NFC Forum Type 1, 2, 3 and 4 tags.

- STM32F103RGT6 64LQFP 32-bits microcontroller, with 1 Mbytes of Flash memory.
- 47 x 34 mm with 4 turn. 13.56 MHz inductive antenna etched on PCB and associated tuning circuit.
- Mini USB connector for board powering.
- 5 different color LEDs indicating the presence of RF field and protocol used to communicate.
- JTAG connector for microcontroller firmware downloads and debug.
- Joystick for menu selection.
- LCD color screen (320\*200pixels).
- USB cable: Type A / mini B

**Figure 1. EVAL ST95HF RF transceiver board pictures Top and bottom**

# 1 Description

The EVAL-ST95HF kit is created to evaluate features of the ST-Microelectronics ST95HF.

This component is a 13.56 MHz near field communication transceiver which could be used in two modes as well in Tag emulation as NFC Reader. So we could use two ST95HF Eval board face to face.

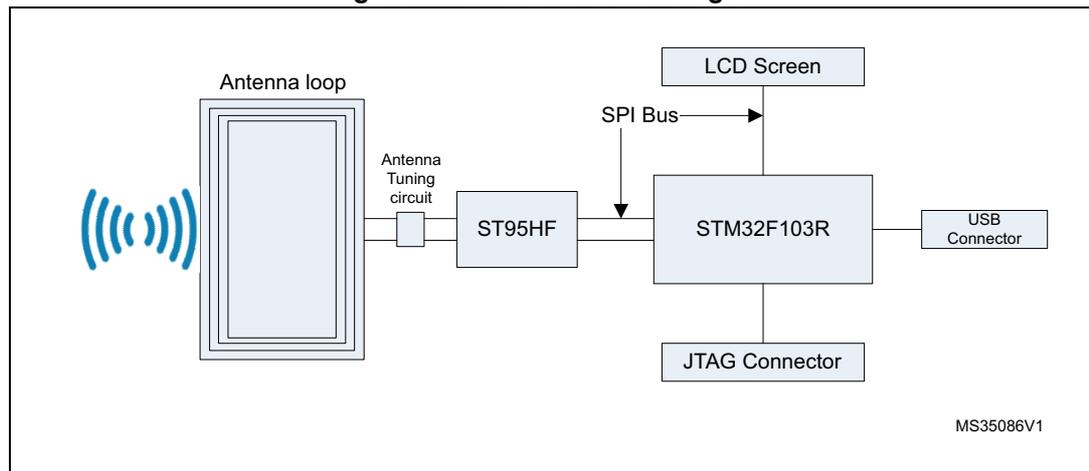
The EVAL-ST95HF board is powered through the USB bus. It consists of a ST95HF transceiver on a 47 x 34 mm -4 turn and 13.56 MHz inductive etched antenna and its associated tuning circuit components. The ST95HF communicates with the STM32F103RGT6 and LCD screen via SPI bus.

In Tag emulation mode it could be used with NFC Reader (NFC smartphone, CR95HF or with another ST95HF) to exchange NDEF messages (URI, VCARD, URL) or establish a P2P communication. Communication protocol is based on ISO/IEC 14443 Type A.

In reader mode the ST95HF supports ISO/IEC 14443 Type A and B communication, ISO/IEC 15693 and ISO/IEC 18092 protocols.

The mode could be selected on screen by using a joystick.

**Figure 2. Functional block diagram**



## 2 Evaluation kit environment

The EVAL-ST95HF kit includes hardware and software components.

- ST Microelectronic Tag samples as LRI2k pairing card, LRI64k keyfob, LRI64k token.
- EVAL-ST95HF Hardware (MB1145): schematics, BOM, Gerber files.
- STM32-EVAL-ST95HF-application-firmware: Complete description of the firmware can be found in documentation posted on ST web site.

All the material for the use can be downloaded from the web site <http://www.st.com>.

### 3 Revision history

Table 1. Document revision history

Date	Revision	Changes
19-Jun-2014	1	Initial release.

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