ST25 NFC / RFID solutions for medical & wellness applications
NFC, RFID HF & UHF technologies

Complementary solutions to Wireless Technologies

Communication from 1cm (NFC) to up to 10m (RFID UHF)
### NFC technology

**Near Field Communication**
- Short range contactless communication
- Technology operating at 13.56MHz frequency
- Based on RFID HF ISO14443 & ISO15693 standards

**Interactive and zero power**
- NFC tags powered by phone or RFID reader
- Enabling convenient connection to the Cloud for IoT
- NFC-enabled mobile phone can engage with items by a simple tap

**NFC is developed by NFC Forum**
- Interoperability between devices with NFC Forum certified products
- Standardized use cases (URL web link, Bluetooth handover…)

**Fast growing employment in Mobile phone**
- More than 70% of new phones come with NFC
- NFC is used for Mobile Payment with Android and iOS (ApplePay)
- Apple added in 2019 support of NFC reader / writer mode from iOS13 onward

**Medical & Wellness applications**
UHF technology

Ultra High Frequency
- Long read range wireless technology
- Operating between 840MHz and 960MHz
- Based on the GS1 EPC UHF Gen2 Air interface protocol

Read range and faster data transfer
- Enabling convenient connection to the IoT

UHF is developed by RAIN alliance
- “To enable businesses and consumers to identify, locate, authenticate, and engage items in our everyday world” *

Large volume market
- Cheapest tag to manufacture
- Application of UHF technology covers many markets.
- More than 20 billion tags produced in 2020

* Sentence from rainrfid.org
NFC main use cases & benefits

Configuration & Data logging
- Product configuration and parameter settings through NFC
- Data log transferred, processed and plotted on NFC phone

Servicing & Maintenance
- Contactless access to maintenance records
- Update parameters even if device is powered off thanks to NFC phone
- Quick firmware upgrade via fast transfer mode

Enhanced user experience
- Wireless pairing
- Access to Web Page (URL) or get link for Android (AAR) or iOS application
- E-warranty card & customer registration
- Device control with mobile phone
- User identification & personalized settings

Interactive and zero power technology (Tag powered by Reader)
Convenient product configuration and maintenance
Simple and flexible

Medical & Wellness applications
UHF main use cases & benefits

Real-time patient tracking
- Log & monitor the progress of a person
- Locate people in real time
- Speed up bed turnover to admit more patients efficiently

Asset management
- Locate medical equipments
- Update parameters
- Speed up inventory management

Fast detection and long read range
Possibility of identifying more than 200 tags without constraint of positioning
Cheapest tag to manufacture
Typical NFC Tag Block Diagram & Usage in Medical

Healthcare equipment

ST25T

EEPROM

ST25TV02K / ST25TA02KB

TruST25 digital signature
Passwords
Easy & fast data transfer

Enhanced user experience

Medical & Wellness applications
Typical Dynamic NFC Tag Block Diagram & Usage in Medical

Healthcare equipment

- LCD Panel
- Key Pad
- Battery
- Monitoring Sensors

STM32 MCU

- ST25DV-12C
- EEPROM

I2C fast interface
- Fast Transfer Mode
- Large memory storage

Configuration & data logging
- Servicing & Maintenance
- Enhanced user experience

Medical & Wellness applications
HF / NFC reader

Typical NFC Reader Block Diagram & Usage for Medical

Healthcare equipment

LCD Panel

Key Pad

ST25R

STM32 MCU

SPI

Battery

Monitoring Sensors

ST25R3911B / 12 / 13

High output power
Low power consumption
Automatic antenna tuning

Configuration & data logging
Servicing & Maintenance

Medical & Wellness applications
UHF reader

Typical UHF Reader Block Diagram & Usage for Medical

UHF reader

Wireless module → STM32 MCU → ST25RU

Battery → Monitoring Sensors → SPI

ST25RU3993

- Long read range
- Low power consumption
- Fast read speeds

Real-time patient tracking
Asset management

Medical & Wellness applications
ST25 rich eco-system

- Discovery Kits based on STM32 MCU
- STM32 Nucleo boards ecosystem
- STM32Cube software ecosystem

- Antenna e-design tool
- Schematic, BOM, Gerber
- IBIS models

- PC software tool ST25 SDK
- Mobile Apps ST25 SDK (Android & iOS)

- Documentation
- Training
- Webinar
- MOOC

- NFC only

Medical & Wellness applications
ST25 hardware solutions

Speed-up Evaluation, Prototyping and Design

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Medical & Wellness applications
ST25 SIMPLY MORE CONNECTED

Solutions for NFC / RFID tags & readers