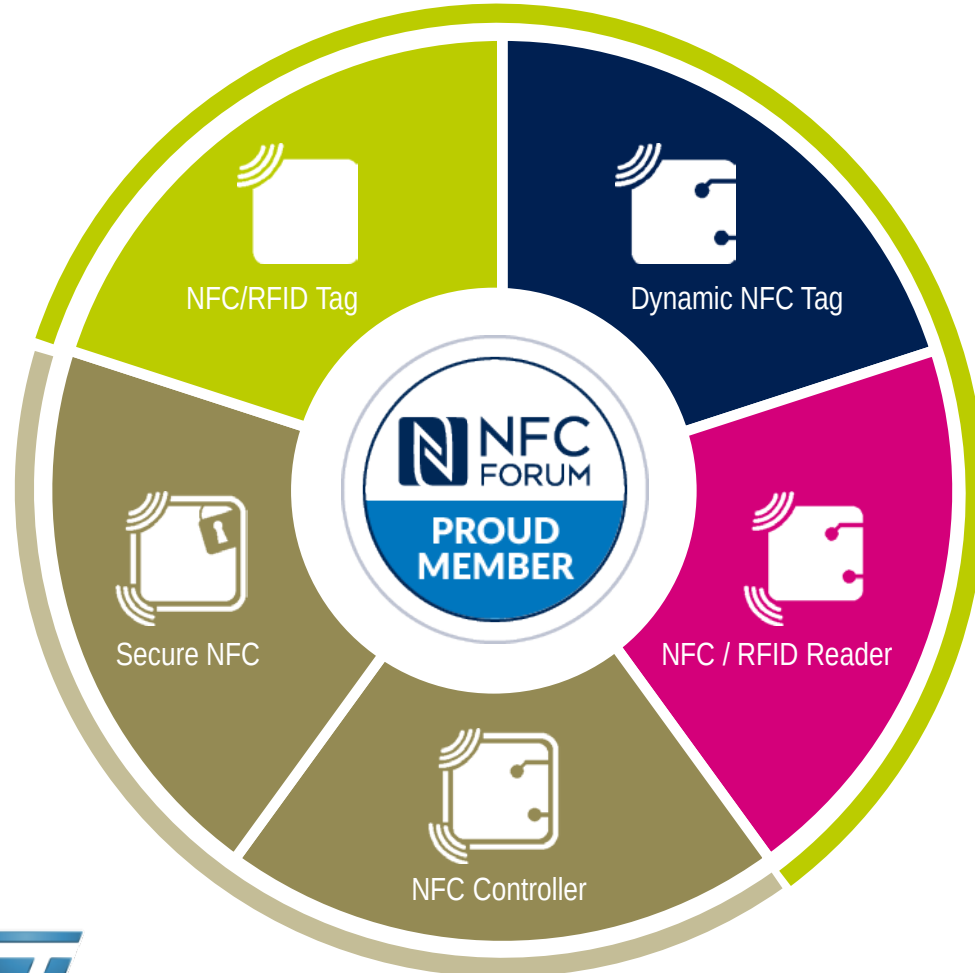


NFC/RFID Tags and Readers



ST NFC Sensor Tag
Form Factor
Reference Design

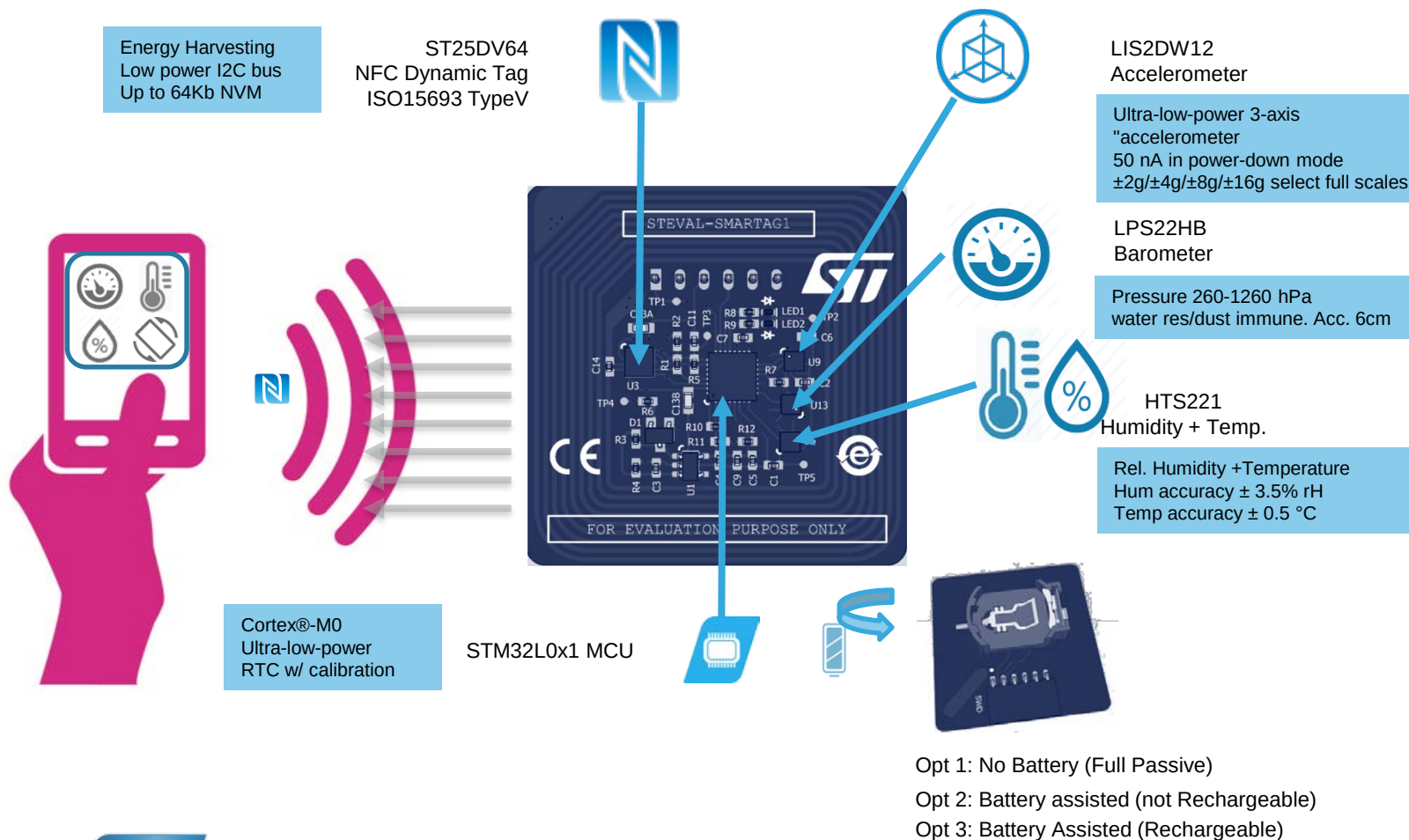
ST NFC Sensor Tag
Open Development
Platform

ST NFC Sensor Tag
Use Cases

ST25 Portfolio /
Evaluation Kits
Overview



NFC Sensor TAG



LOW POWER
LOW COST
EASY TO IMPLEMENT

Featuring ST25DV NFC Dynamic Tag
ISO15693 T5T NFC Forum
Energy Harvesting / Fast Transfer
Mode / Low Power Mode / GPOs

Ideal for : IoT / Supply & Cold-Chain
Management / Smart building, home,
city and Farming / Retail and apparel /
Smart packaging / Medical &
pharmaceutical / Battery less sensing



NFC Sensor TAG - ODE

X-NUCLEO-NFC04A1

ST25DV64
NFC Dynamic Tag
ISO15693 TypeV
Energy Harvesting
Low power I2C bus
Up to 64Kb NVM

X-NUCLEO-IKS01A2



HTS221
Humidity + Temperature
Hum accuracy $\pm 3.5\%$ rH
Temp accuracy $\pm 0.5^\circ\text{C}$



LIS2DW12 Ultra-low-pwr
3-axis accelerometer
50 nA in power-down
 $\pm 2g/\pm 4g/\pm 8g/\pm 16g$ select
full scales



LPS22HB Barometer
Pressure 260-1260 hPa
Water res/dust immune.
Acc. 6cm

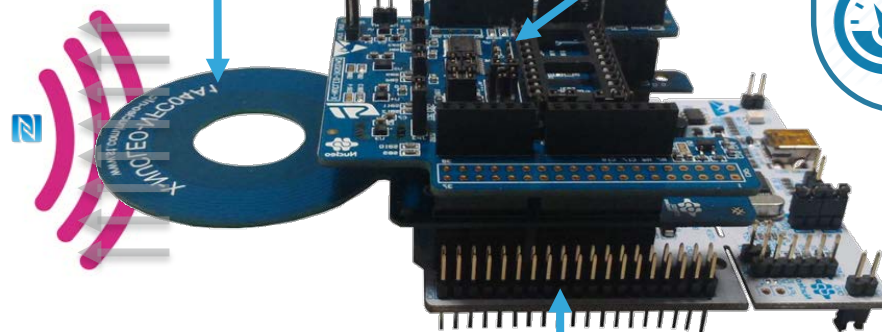
NUCLEO-L053RE

STM32L0x1 MCU
Cortex®-M0
Ultra-low-power
RTC w/ calibration

LOW POWER
LOW COST
EASY TO IMPLEMENT

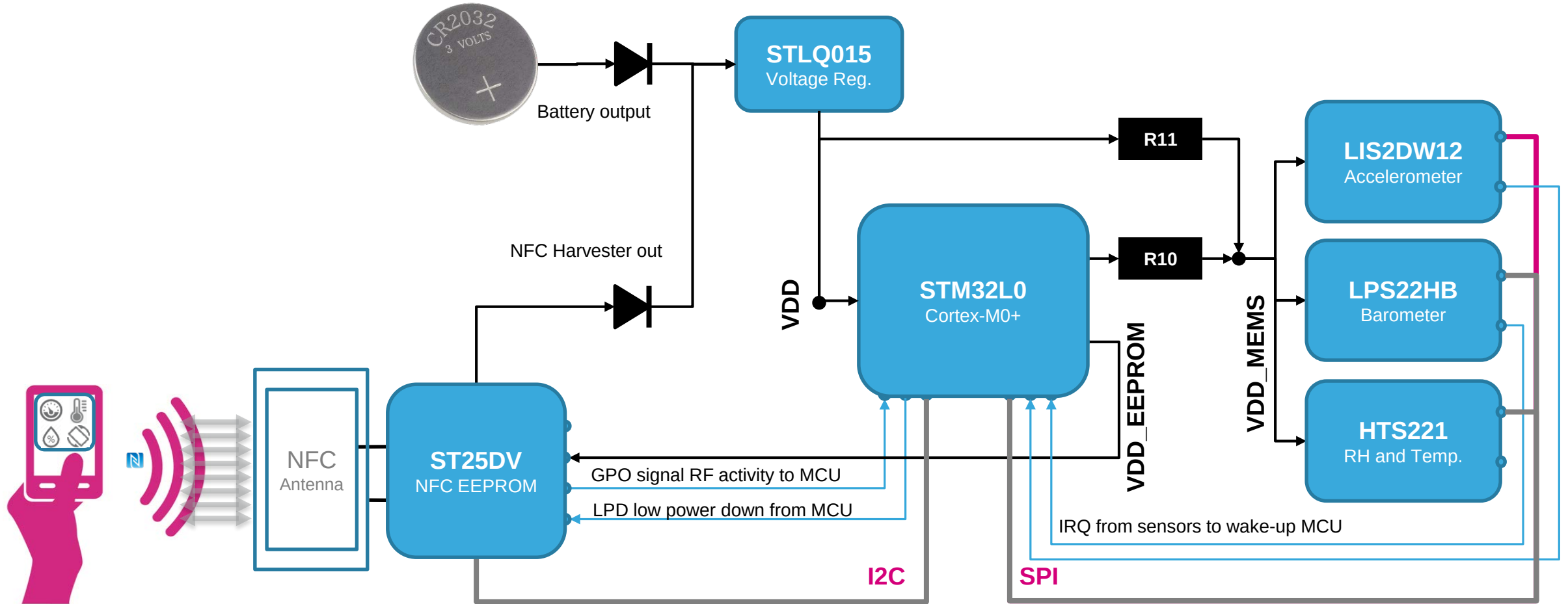
Featuring ST25DV NFC Dynamic Tag
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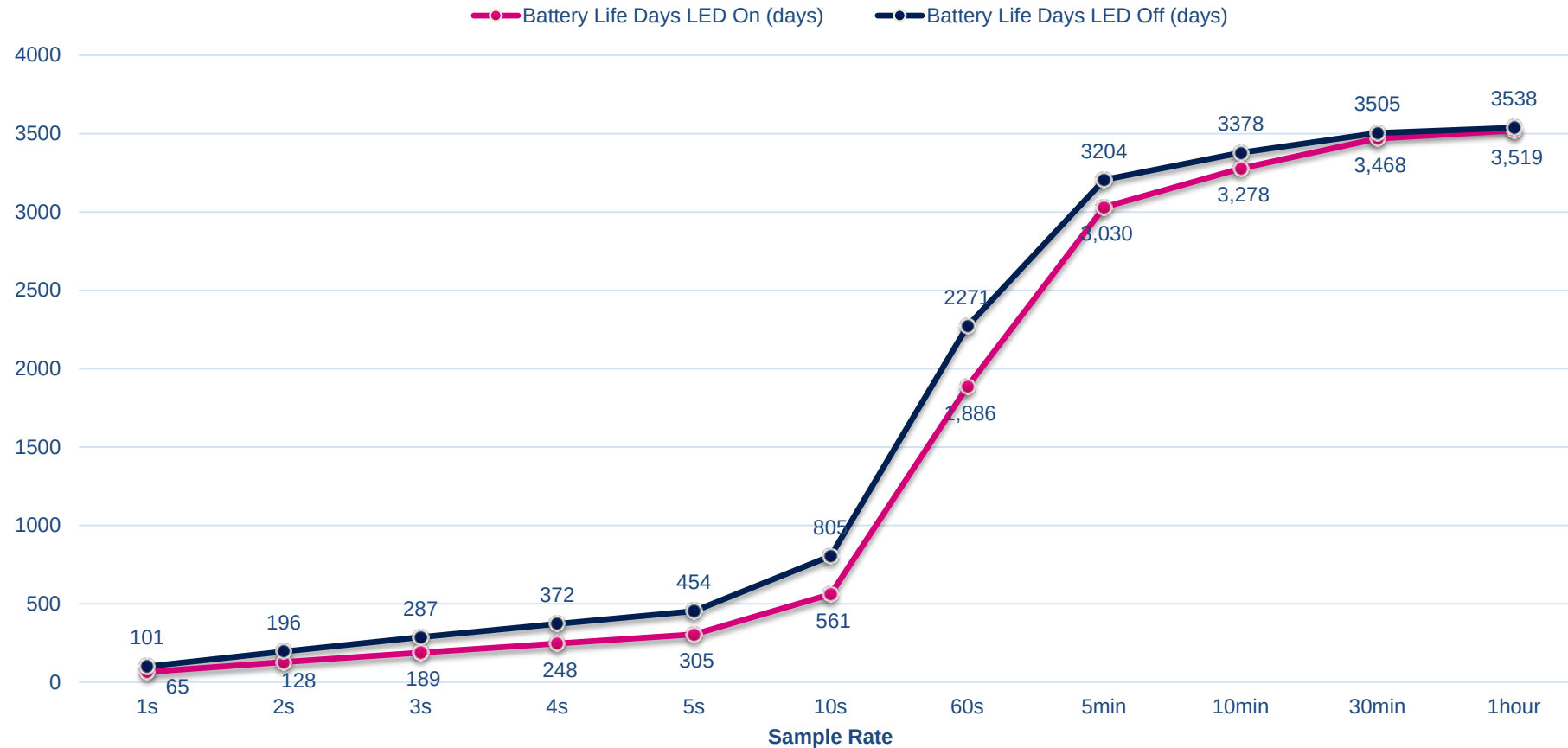
SmartTag Block Diagram

4



Battery Life Profile / Average

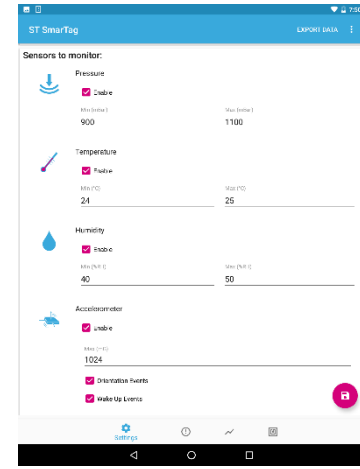
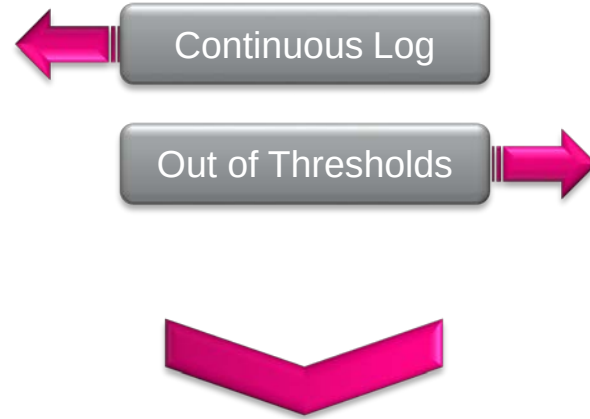
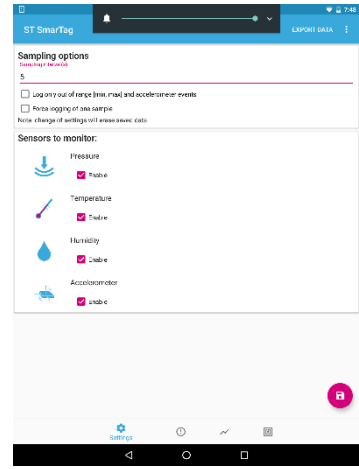
(Ref. CR2032 240mA/h batt.)



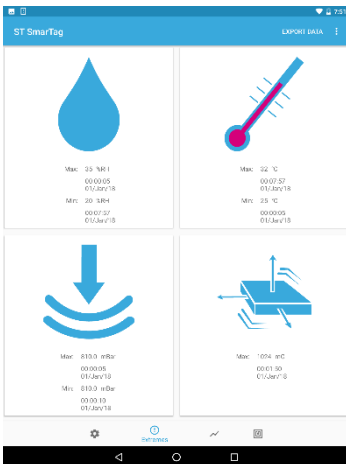
Measuring Condition:

- All sensors are selected (active)
- All sensors values are stored (written) to the NFC DTag each time (at selected sample rate)

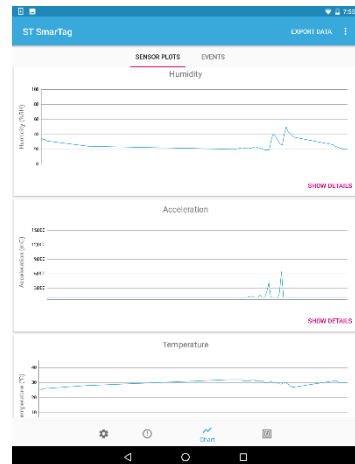
Android App 6



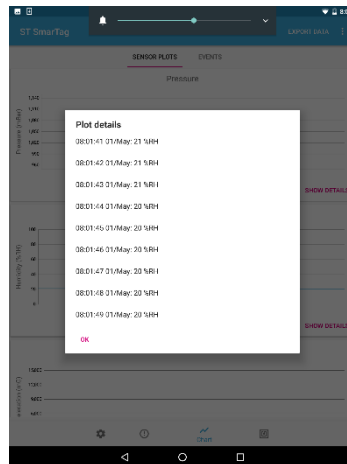
Min Max Rec



Data Plot



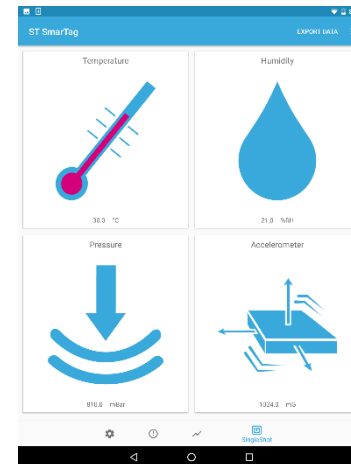
Plot Details



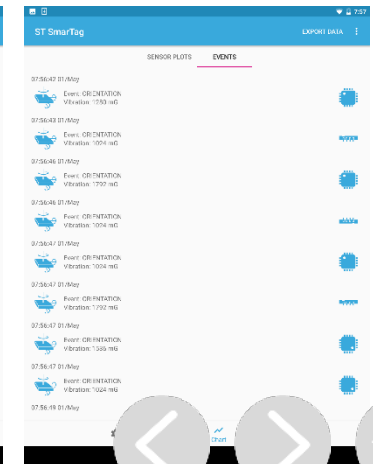
Data Export

Time	Pressure (mBar)	Humidity (%)	Temperature (°C)	Acceleration (g)
01-May-18 07:57	1013	21	18	0.04
01-May-18 08:00	1013	21	18	0.04
01-May-18 08:03	1013	21	18	0.04
01-May-18 08:06	1013	21	18	0.04
01-May-18 08:09	1013	21	18	0.04
01-May-18 08:12	1013	21	18	0.04
01-May-18 08:15	1013	21	18	0.04
01-May-18 08:18	1013	21	18	0.04
01-May-18 08:21	1013	21	18	0.04
01-May-18 08:24	1013	21	18	0.04
01-May-18 08:27	1013	21	18	0.04
01-May-18 08:30	1013	21	18	0.04
01-May-18 08:33	1013	21	18	0.04
01-May-18 08:36	1013	21	18	0.04
01-May-18 08:39	1013	21	18	0.04
01-May-18 08:42	1013	21	18	0.04
01-May-18 08:45	1013	21	18	0.04
01-May-18 08:48	1013	21	18	0.04
01-May-18 08:51	1013	21	18	0.04
01-May-18 08:54	1013	21	18	0.04
01-May-18 08:57	1013	21	18	0.04
01-May-18 09:00	1013	21	18	0.04
01-May-18 09:03	1013	21	18	0.04
01-May-18 09:06	1013	21	18	0.04
01-May-18 09:09	1013	21	18	0.04
01-May-18 09:12	1013	21	18	0.04
01-May-18 09:15	1013	21	18	0.04
01-May-18 09:18	1013	21	18	0.04
01-May-18 09:21	1013	21	18	0.04
01-May-18 09:24	1013	21	18	0.04
01-May-18 09:27	1013	21	18	0.04
01-May-18 09:30	1013	21	18	0.04
01-May-18 09:33	1013	21	18	0.04
01-May-18 09:36	1013	21	18	0.04
01-May-18 09:39	1013	21	18	0.04
01-May-18 09:42	1013	21	18	0.04
01-May-18 09:45	1013	21	18	0.04
01-May-18 09:48	1013	21	18	0.04
01-May-18 09:51	1013	21	18	0.04
01-May-18 09:54	1013	21	18	0.04
01-May-18 09:57	1013	21	18	0.04
01-May-18 10:00	1013	21	18	0.04

One Shot EH



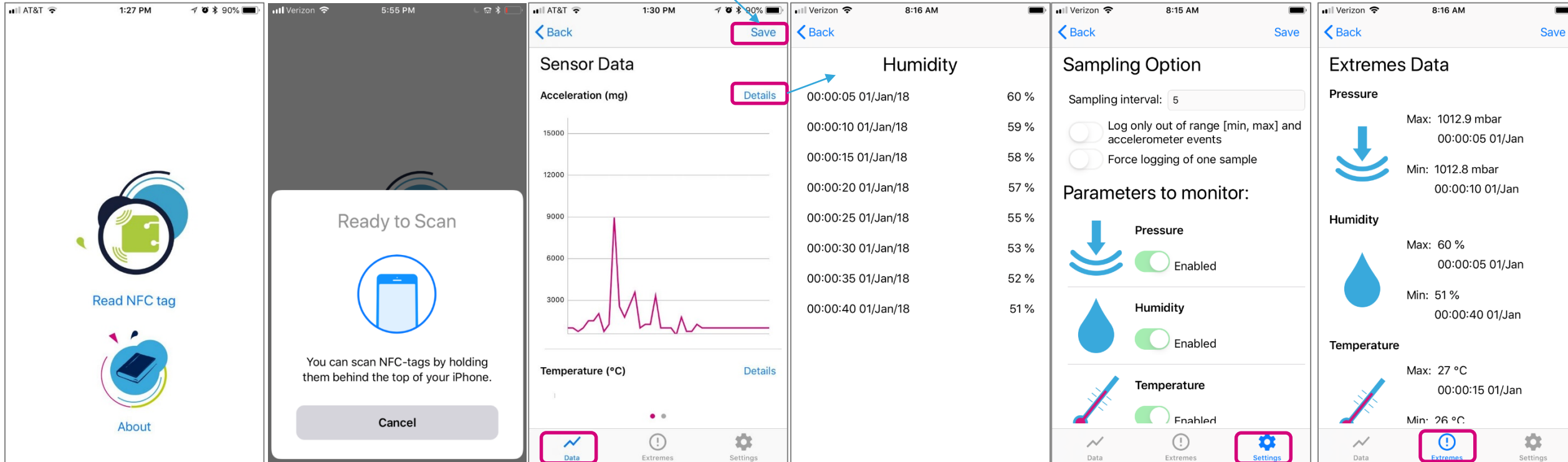
Event Logging



iPhone App

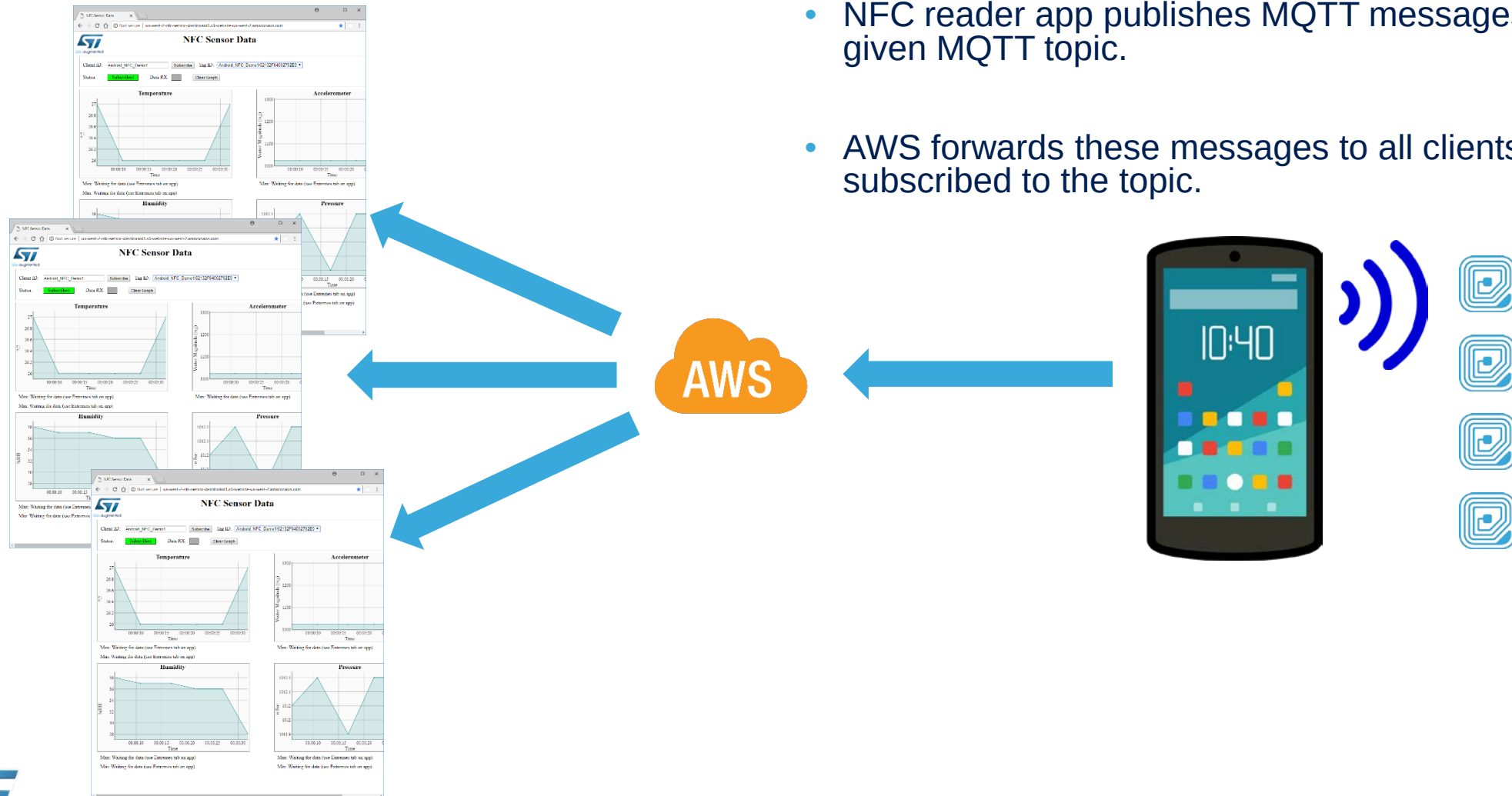
7

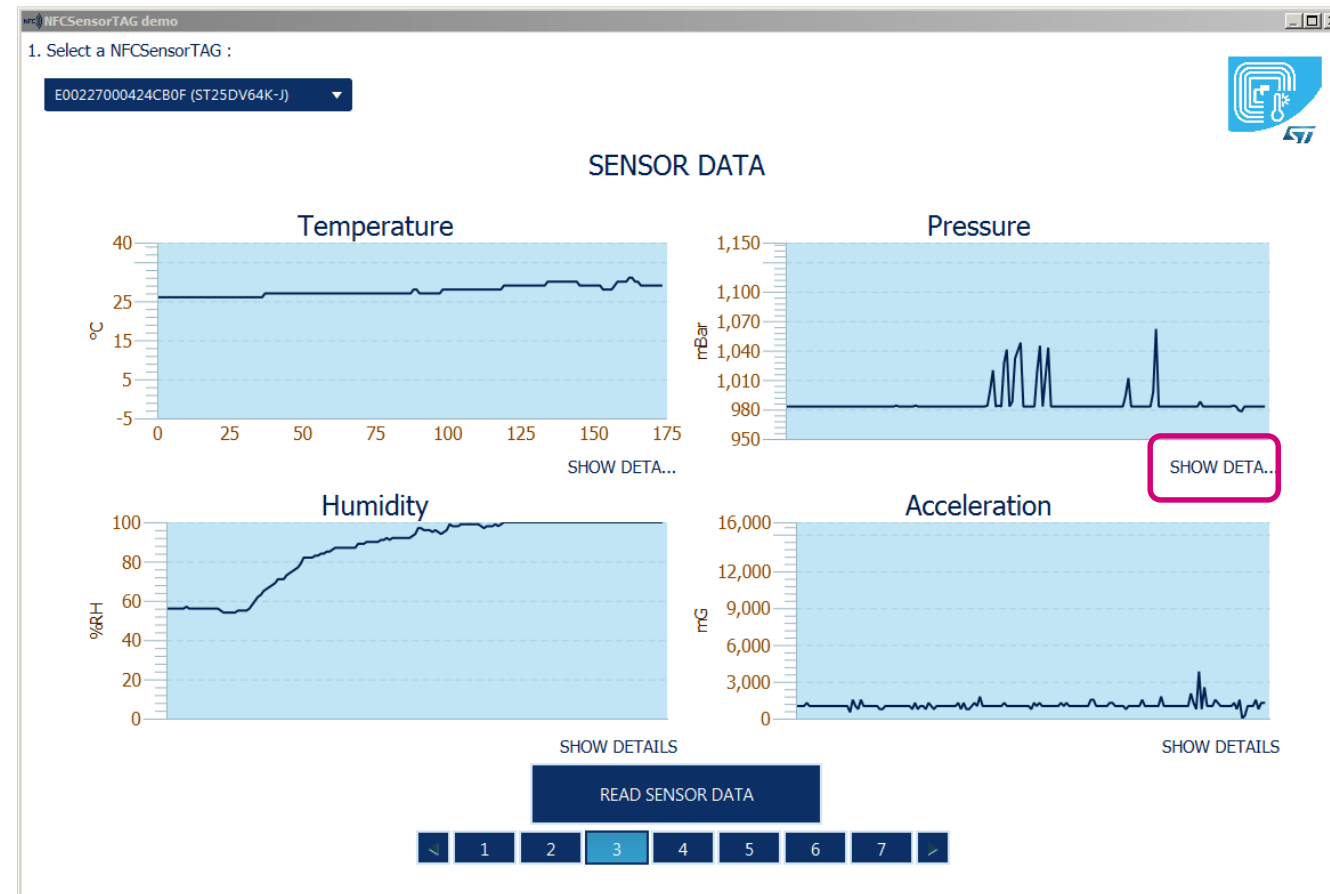
Log File



Cloud Connectivity 8

- NFC reader app publishes MQTT messages to a given MQTT topic.
- AWS forwards these messages to all clients that are subscribed to the topic.



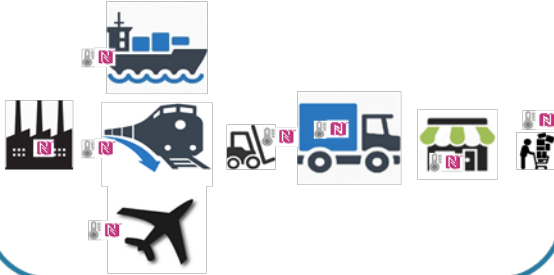


Use Case Example - Summary

10

Supply Chain & QC

- from manufacturing to end user.



Smart building/home/city:

- Environmental and Motion Data
- Building/Constructions Structure



Agriculture & Planting

Humidity, Temperature, light...



Retail/ Fitness

Smart Clothing / Patches: Activity, Temperature, Sweat, mktg...



Healthcare:

Medical patches & loggers: Patient temperature & activity monitoring



Animal tracking

Activity, Temperature, big data monitoring production, health...



Perishable Goods:

Exp. date alert, Shelf/Storage Life Calculation/Condition of goods



Smart Packaging:

Temperature, Vibration Use, ID, ...



And much more...

ST NFC Sensor TAG

NFCSensorTAG is **an NFC-enabled sensor node** that can sense temperature, humidity, pressure, vibration, motion and **transmit the data when triggered by an NFC reader**. It is a **reference platform** that can be scaled down/up based on requirement of final applications and use cases.

An **alternative way to connect** for applications that:

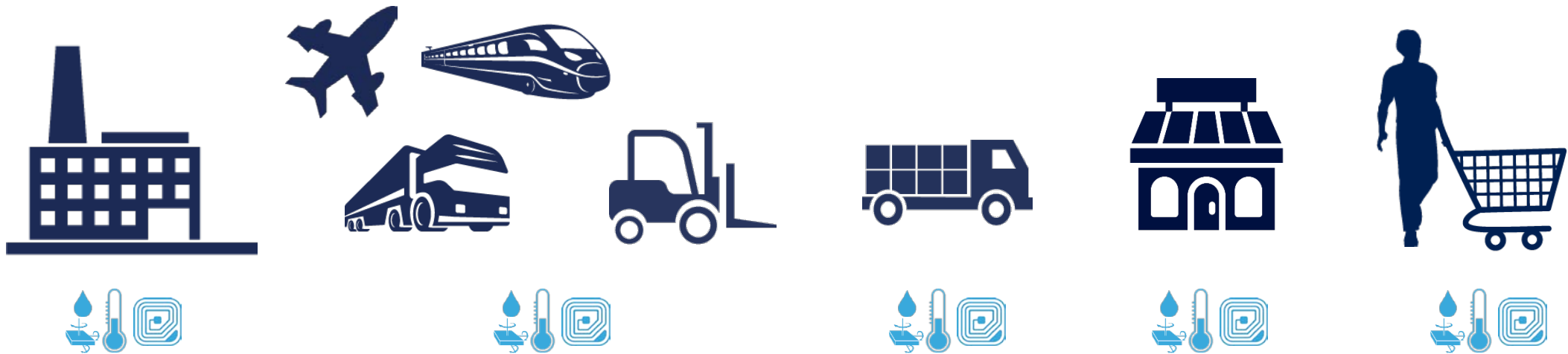
- Are extremely **low POWER** (also full passive) and **low COST**;
- Require small real estate (**reduced BOM**) and **fast implementation**;
- Do **NOT** require **Real-Time Remote** monitoring (Near Field Communication)

ST NFC Sensor TAG Benefits

- **Low Cost** compared to other Wireless Technologies. Reduced BOM (doesn't require RF matching circuitry), Lower cost RF IC, simplified Layout (low-cost PCB), low-cost certification.
- **Low Power**: Ultra Low Power Connectivity, Computing and Sensing Technologies allow long battery life and battery-less operations.
- **Easy to implement**: easy certifications (Passive RF)
- **Flexible**: scalable to the right configuration for many applications
- Enhanced **added-value features** can be implemented through NFC TAGs (ID, Error Logs, Security, FW upgrade...)

Addressing multiple Needs & Markets

Monitoring goods from Manufacturing to the end User



NFC → Secure (Near Field). Interoperability with Smartphone and/or dedicated Reader → Cloud
Temperature, Humidity & Pressure → Monitoring for Goods sensitive to environmental changes
Motion Sensors to detect **Vibrations**, Shocks, Freefall etc...which can damage/alter the goods
Low Power → Passive RF Tag (also battery less operation) / Long lasting battery life
Low Cost → Reduced BOM / Low cost connectivity.
Scalable → easy to add or remove sensors based on use case.

Smart Buildings/Cities

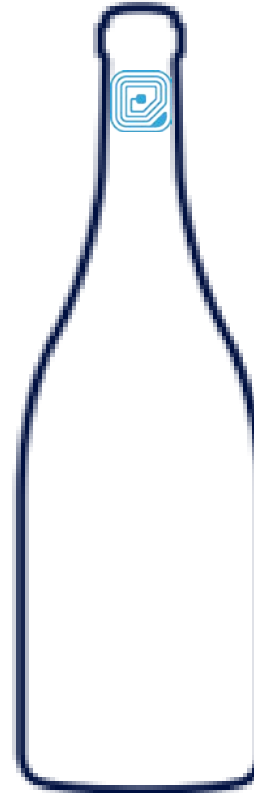
15

- Environmental and Motion Data Monitoring (Smart Badge / Weather Stations...)
- Building/Constructions Structure Monitoring (Vibration alert, Pipe Leaks...)



Smart Packaging 16

- Connect the “Unconnected”
- Temperature, Humidity, Vibration
- Level of Content and Use information
- Good ID / info / Commerce / Experience



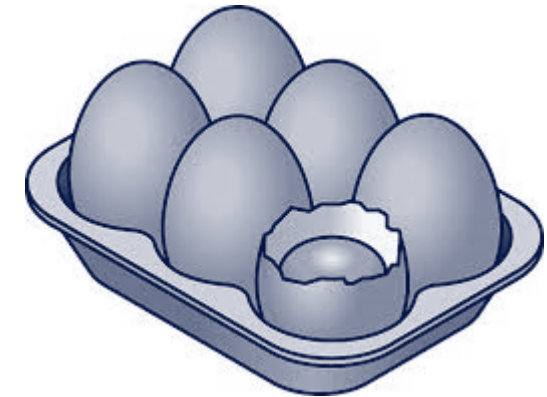
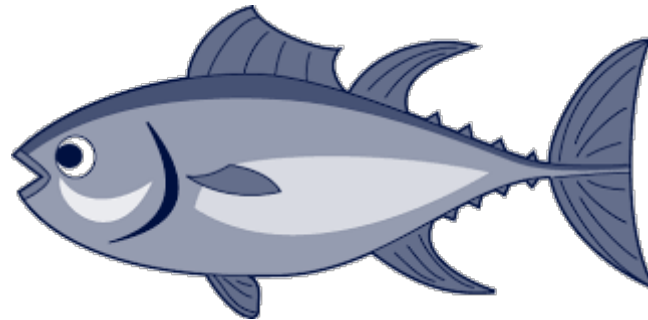
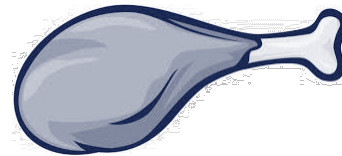
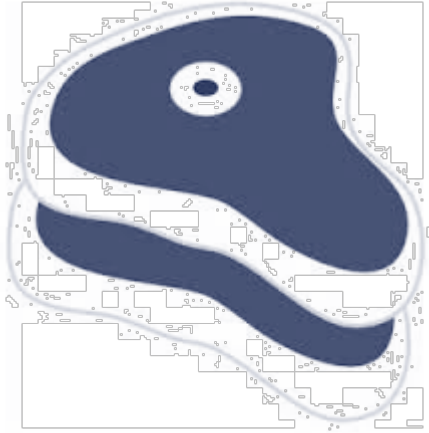
- Temperature Patches (also disposable)
- Patient activity tracker (also disposable)



Perishable Goods

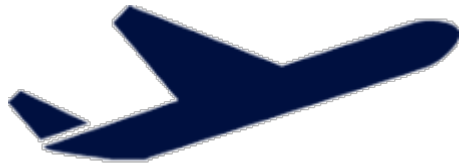
18

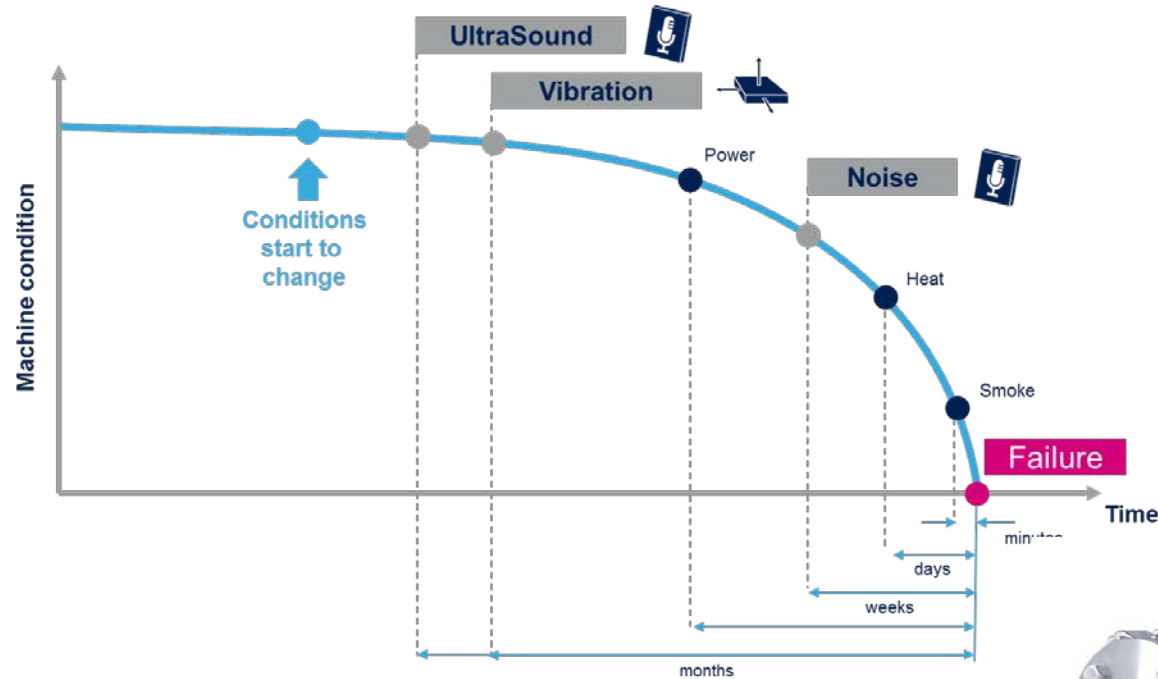
- Condition of goods monitoring
- Shelf/Storage Life Calculation
- Exp. date alert
- Product ID/info/History



Smart Baggage 19

- Baggage Check-in/out
- Baggage ID and Geo-Location
- In-flight condition monitoring





Audio

Microphones to capture noise and for ultrasound emissions

Motion
MEMS Sensors

Environmental
Humidity and Pressure

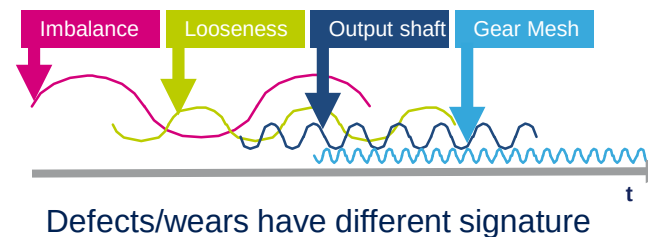
Temp Sensors

Microphone
For Audio and Ultrasound

Vibration
Measurements

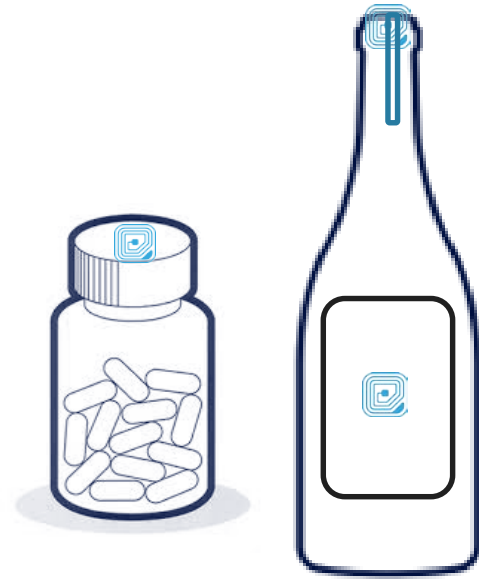


Condition monitoring enables to implement a predictive maintenance strategy by taking regular **vibration measurements** from sensors and comparing them to a baseline to detect health degradation





NFC TAGs – Connecting the Unconnected



LOW POWER (battery-less)
LOW COST
EASY TO IMPLEMENT

Featuring ST25TV NFC Tag
ISO15693 T5T NFC Forum certified.
Tamper Detection, eSignature, Long
Range (100pF tuning Cap), 512b to
64Kbit user memory.



Brand

Protect against
counterfeit and build
brand loyalty.



Distribution

Prevent
Grey Market Activities
and track your goods.



Retail

Manage promotions
remotely and monitor
shelf stock real-time.



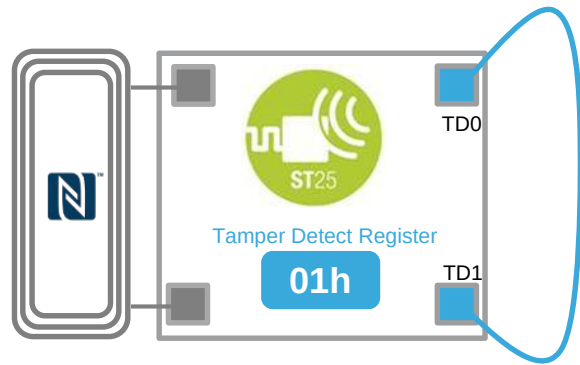
Consumer

Engage consumers
by personalized and
targeted activations.

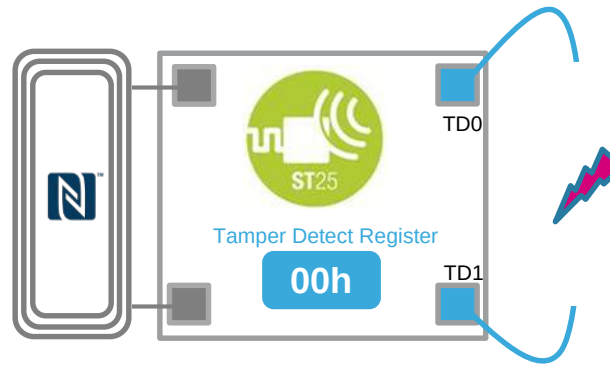


NFC TAGs – Connecting the Unconnected

Temper Detect Function



Not tampered



Tampered

LOW POWER (battery-less)
LOW COST
EASY TO IMPLEMENT

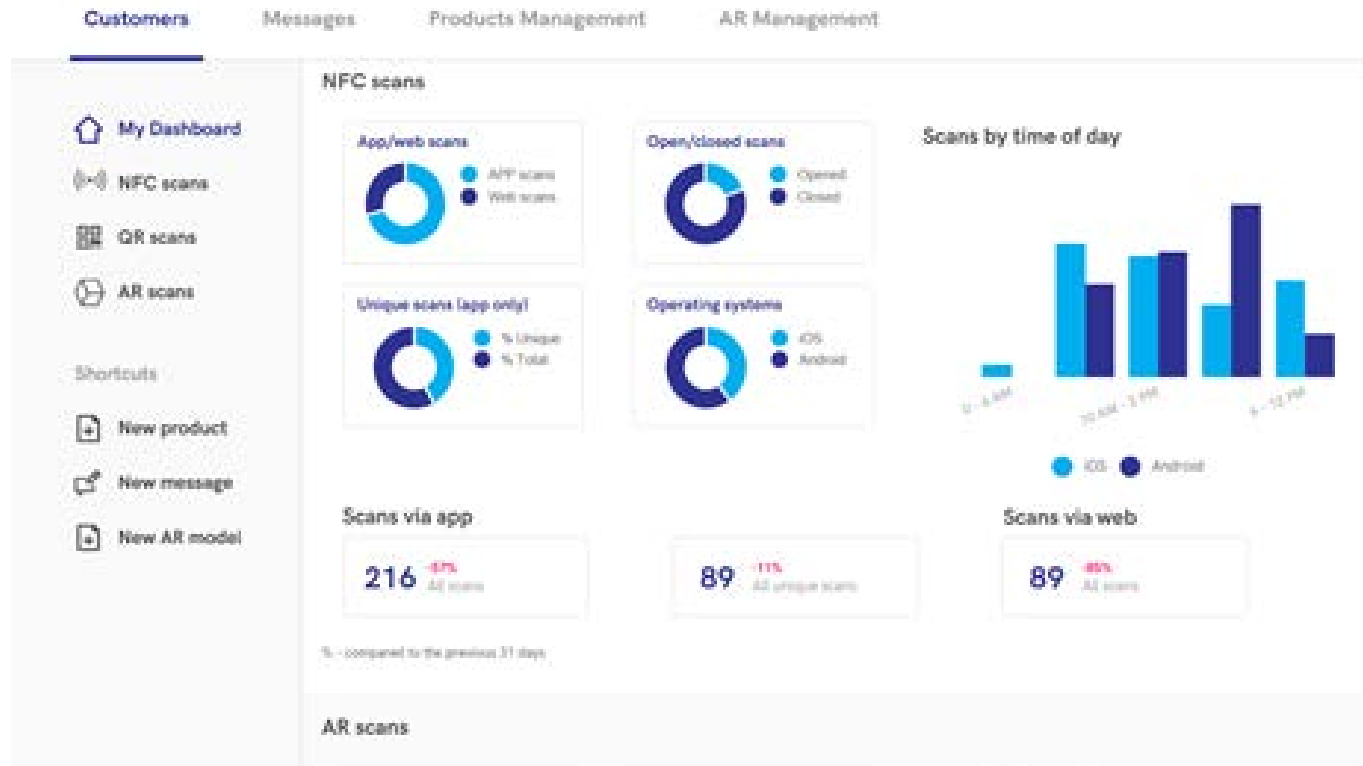
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ISO15693 T5T NFC Forum certified.
Tamper Detection, eSignature, Long
Range (100pF tuning Cap), 512b to
64Kbit user memory.

Ideal for : IoT / Supply Chain / Retail
and apparel / Smart packaging / Brand
Protection / Consumer Engagement /
Medical & pharmaceutical / ...



NFC TAGs – Connecting the Unconnected

Data Management Dashboard



Provided by ST Partners

Featuring ST25TV NFC Tag
Scan counts / Scan by Device, OS,
application, Geo-Location...
Customer communication



Reader + Tag

Accessory Identification

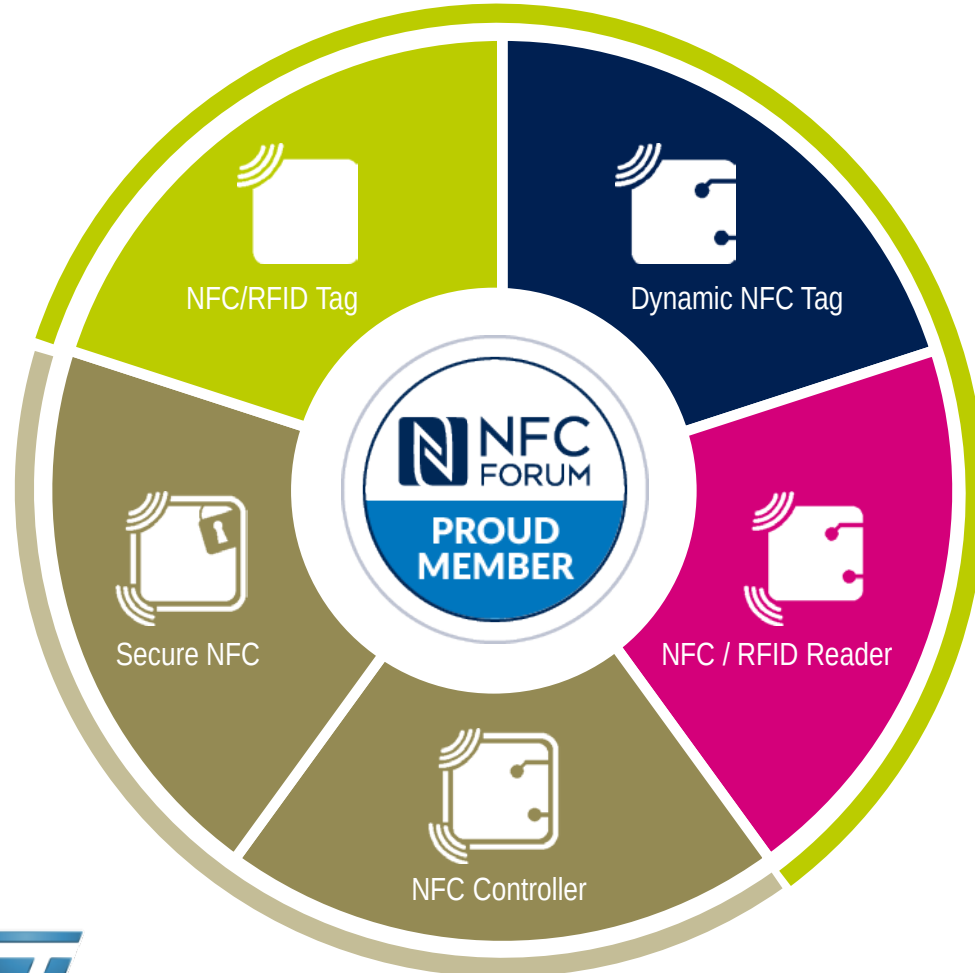
Main Unit (NFC Reader) to
Accessories (NFC Tag)



Enhanced User Experience
Clone detection / Password Protection
/ URL redirect / Product information /
Same product rebuy



NFC/RFID Tags and Readers



NFC/RFID Readers

NFC Dynamic TAGS

NFC/RFID TAG

Evaluation Kits



High-Performance NFC/RFID Readers

ST25R





NFC Comprehensive Solutions

Ticketing, Gaming, Medical, Brand protection, Access control, ...

www.st.com/st25t



Tags

ST25T

13.56MHz



NFC phone / RFID Reader

Industrial, Consumer, Metering, Appliance, ...

www.st.com/st25d



Dynamic tags

STM32
microcontroller

I2C

ST25D

13.56MHz



NFC phone / RFID Reader

Infrastructure, EMVCo, Automotive, Consumer, ...

www.st.com/st25r



Frontends
+
Controllers

STM32
microcontroller

SPI

ST25R

SoC
NCI 2.0

I2C
UART

ST25N

13.56MHz



NFC phone



ST NFC/RFID Front-end Portfolio

	CR95HF	ST25R3912/13	ST25R3911B	ST25R3914/15	ST25R3916/19
Description	Entry-Level Reader	Mid-Range Reader & NFC initiator	High-Perf Reader & NFC Frontend	High-Perf Reader & NFC Frontend for Automotive	Ultimate NFC Frontend
Reader/Writer mode	ISO14443A/B ISO15693 Felica	ISO14443A/B ISO15693 FeliCa	ISO14443A/B ISO15693 FeliCa	ISO14443A/B ISO15693 FeliCa	ISO14443A/B ISO15693 FeliCa
Card emulation mode	Yes (ST95HF)	-	-	-	Yes
P2P mode	-	Yes	Yes	Yes	Yes
RF speed	848kbps	848kbps	6.8Mbps (VHBR)	848kbps	848kbps
Market certification	-	Payment (EMVco, PBOC, mini-pay)	Payment (EMVco, PBOC, mini-pay)	Automotive AEC-Q100 Grade 1	Payment, Automotive AEC-Q100 Grade 1
Advanced features	Ind wake-up	AAT (3913 only) DPO, Ind wake-up	AAT, DPO, Cap & Ind wake-up	AAT (3914) DPO, Cap & Ind wake-up	AAT, DPO, Cap & Ind wake-up
HW Interface	SPI 2Mbps, UART	SPI 6Mbps	SPI 6Mbps	SPI 6Mbps	SPI 6Mbps
SW Interface	Unified Software Library for Frontends				
Power supply	2.7V - 5.5V	2.4V - 5.5V	2.4V - 5.5V	2.4V - 5.5V	2.4V - 5.5V
Output power	0.23W	1.0W	1.4W	1.0W	1.6W
Temperature range	-25°C to +85°C	-40°C to +125°C	-40°C to +125°C	-40°C to +125°C	-40°C to +125°C
Package	QFN32 (5x5 mm)	QFN32 (5x5 mm) / WLCSP (3912 only)	QFN32 (5x5 mm) / Wafer	QFN32 (5x5 mm) / WF	QFN32 (5x5 mm) / WF /WLP

VHBR: Very High Baud Rate
P2P: Peer to Peer mode
AAT: Automatic Antenna Tuning
AWS: Active Wave Shaping

Cap & Ind wake-up: Capacitive & Inductive wake-up
VHBR: Very High Baud Rate
DPO: Dynamic Power Output
DSA: Drive Slope Adjustment

ALM Active Low Modulation
NCI NFC Controller Interface
ANS: Active Noise Suppression





Key Use Cases

Accessory IDs



Automotive



Payment Terminals



Access Control (Physical/Logical)



Gaming / Entrainment



Smart Home / Smart Building



Peer-to-Peer



NFC + Qi



FW Upgrade / Streaming



Transport





ST25R UHF Readers

ST25RU3993

ST25RU3980

Description	UHF RFID Reader for Mobile and Fast Moving Consumer Goods applications	UHF RFID Reader for Mobile and Fast Moving Consumer Goods applications
Contactless interface	ISO18000-6c/b	ISO18000-6c
Market certification	EPC Gen 2	-
Sensitivity	-90dBm	-90dBm
Advanced features	Internal VCO Dense Reader Mode Linear RSSI & Phase Bit Automatic PSRR regulation Auto ACK	Internal VCO Dense Reader Mode Linear RSSI & Phase Bit Automatic PSRR regulation Auto ACK
Interface	SPI 5Mbps	SPI 5Mbps
Power supply	1.65V – 5.5V	1.65V – 5.5V
Output power	0dBm / 20dBm	0dBm
Temperature range	-40 to +85°C	-40 to +85°C
Package	48-pin QFN (7x7mm)	48-pin QFN (7x7mm)

VCO: Voltage Controlled Oscillator
RSSI: Received Signal Strength Indicator

PSRR: Power Supply Rejection Ratio
ACK: ACKnowledge



NFC/RFID Dynamic Tags ST25D





NFC Comprehensive Solutions

Ticketing, Gaming, Medical, Brand protection, Access control, ...

www.st.com/st25t



Tags

ST25T

13.56MHz



NFC phone / RFID Reader

Industrial, Consumer, Metering, Appliance, ...

www.st.com/st25d



Dynamic tags

STM32
microcontroller

I2C

ST25D

13.56MHz



NFC phone / RFID Reader

Infrastructure, EMVCo, Automotive, Consumer, ...

www.st.com/st25r



Frontends
+
Controllers

STM32
microcontroller

SPI

ST25R

SoC
NCI 2.0

I2C
UART

ST25N

13.56MHz



NFC phone

or



or





Product Line-up by Key Features

	M24SR	M24LR	ST25DV
Contactless Interface	ISO14443A / NFC T4	ISO15693 / NFC	ISO15693 / NFC T5
RF range	Short range (up to 10cm)	Long range (up to 1m)	Long range (up to 1m)
RF speed	106kbps	26kbps	26kbps
Serial Interface	I2C @1MHz	I2C @400kHz	I2C @1MHz
Fast Transfer mode	No	No	Yes (256B buffer)
Energy Harvesting	No	Yes	Yes
Digital output	Open-Drain GPO	Open-Drain GPO	OD or CMOS GPO
Extra features	RF Disable	-	RF Disable-Sleep / Low Power Down Mode
Memory format	EEPROM (preformatted NDEF file)	EEPROM data	EEPROM data
Memory size	2 / 4 / 16 / 64-Kbit	4 / 16 / 64-Kbit	4 / 16 / 64-Kbit
Data protection	Password 128-bit	Password 32-bit	Password 64-bit
Temperature range		-40°C to +85°C	
Package	SO8 / TSSOP8 / FPN8 / SBN12 / FPN12* / WLCSP10 *		
Availability		In production	



Key Use Cases

In-Line Customization

(no cable, no power needed @ factory or warehouse)

IDs Storage

(SN/manufacturing history)

Static and Dynamic Wireless Pairing

Commissioning

(to home/private network)

Transfer Settings

(by users or installers)

Data/Event Logging

Smart Sensing

(full or Semi-Passive)

Battery Less Operations

FW Upgrade Maintenance



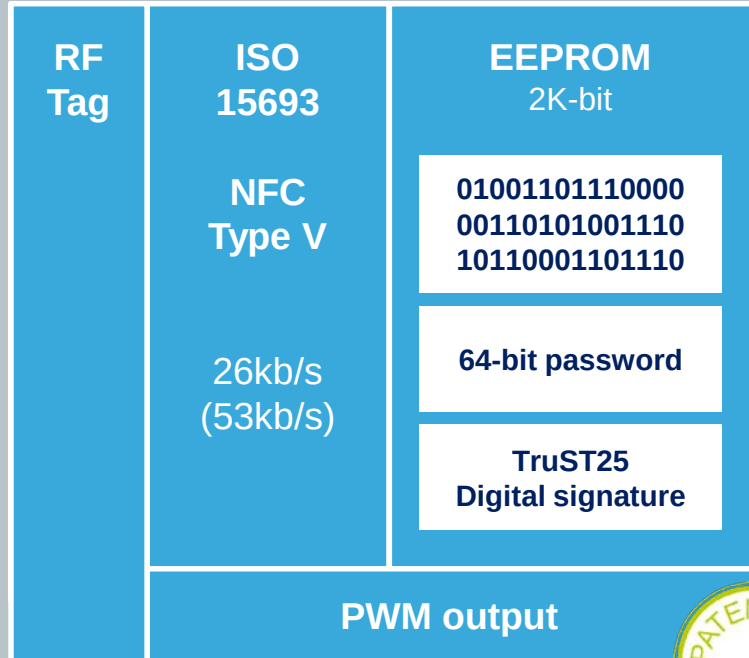
Smart **Sensing**, Smart **Home**, Smart **Packaging**, **Cold Chain/Logistic** Monitoring, **Medical Patches**, Smart **Clothing**, Smart **City**, Smart **Meters**, Smart **Accessories/Refills**, Figurine **Gaming**,



ST25DV-PWM Dynamic NFC Tag



ST25DV02K-W1 / -W2



SO8



TSSOP8



Use cases

- Industrial applications like Lighting LED driver, Motor control

Key Features

- ISO15693 and NFC Type V
- 2K-bit memory
- Up to 2 PWM signal (push pull)
- Up to 15 bits resolution (62.5ns resolution step)
- Power Supply 1.8V - 5.5V
- 40°C to +105°C (PWM) temperature range
- TruST25 digital signature



Key Benefits

- 2 in 1 chip, putting NFC connectivity with PWM functionality
- Cost optimized solution to address low end Lighting market
 - Significant BOM reduction as no MCU is required to drive the system



NFC/RFID Tags

ST25T



NFC Comprehensive Solutions

Ticketing, Gaming, Medical, Brand protection, Access control, ...

www.st.com/st25t



Tags

ST25T

13.56MHz



NFC phone / RFID Reader

Industrial, Consumer, Metering, Appliance, ...

www.st.com/st25d



Dynamic tags

STM32
microcontroller

I2C

ST25D

13.56MHz



NFC phone / RFID Reader

Infrastructure, EMVCo, Automotive, Consumer, ...

www.st.com/st25r



Frontends
+
Controllers

STM32
microcontroller

SPI

ST25R

SoC
NCI 2.0

I2C
UART

ST25N

13.56MHz



NFC phone

or



or





NFC Forum Standards

NFC specification
→ **Upper layer SW**



NDEF (NFC Data Exchange Format)

NFC Forum
Type 2 and Type 4

NFC Forum
Type 5 *

RFID HF ISO standards
→ **HW / SW protocol**



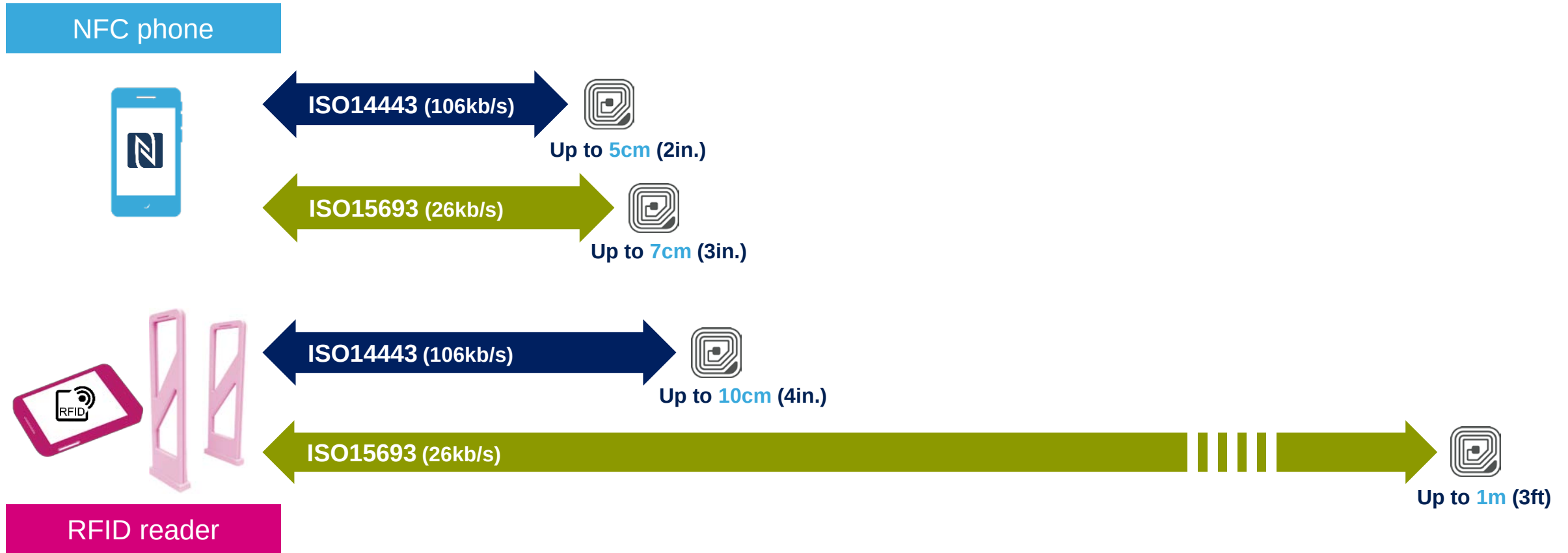
ISO14443
Type A and Type B
« Short Range »
106kbps

ISO15693
« Long Range »
26kbps

(*) ISO15693 integrated in NFC Forum specifications in October 2015 as NFC Forum type 5 (aka type V)



Typical NFC / RFID Range



- ISO14443 (NFC Forum Type 2 & Type 4) is called « **short range** » standard while with higher RF speed
- ISO15693 (NFC Forum Type 5) is called « **long range** » standard



ST25T NFC/RFID Tags Product Line-up

Key Features	ST25TA512/02K	ST25TV512/02K
Interface	ISO14443A Type 4 NFCF	ISO15693 Type 5 NFCF
Memory size	512b/2Kb	512b/2Kb (2xUser Memory Area/64 blocks of 4B)
RF Tuning Cap	50 pF	23 / 99.7pF
Data rate	106Kbps	up to 53kbps
UID	64bit	64bit
Data protection UM	128bit PSW	2x32/1x64bit encrypted PSW
Counter	20bit (W/R)	16bit (W/R)
eSignature TruST25	256b Register	256b Register
Tamper Detect	NA	√
Kill / Privacy Mode	NA	√
Electrical Article Surveillance	NA	√
AFI / DSFI	NA	√



Product Line-up by Key Features

Smart Factory



Inventory Management



Register Warranty, Web redirect

(customer engagement/ commerce)



Clone Detection



Tap & **Download** or **Launch APK**



Static Wireless Pairing



Accessories IDs + Usage monitoring



Check-in into Games



Product information



Item Check-in/Out



Ticketing



Smart **Packaging**, Smart **Clothing**,
Smart **City**, **Accessories** and
Refills, Smart **Buildings**, Figurine
Gaming, **Transport**, Smart
Library/Retail,....



ST25 Certification & Interoperability

	 ST25T			 ST25D		
	Tags			Dynamic tags		
	ST25TV	ST25TA	ST25TB	ST25DV	M24LR	M24SR
NFC Forum			Not for NFC applications (RFID, ticketing)		Legacy product, not focusing on NFC applications	All parameters OK except chaining during write operations (**)
Android			Not for NFC applications (RFID, ticketing)			
iOS			Not for NFC applications (RFID, ticketing)			

(*) M24LR: 04E interoperable with iOS11 - 16E and 64E not iOS. ST25DV16K or ST25DV64K as replacement product for iOS interoperability

(**) Chaining during write operations is not used by Smartphones



Ecosystem & Evaluation Kits



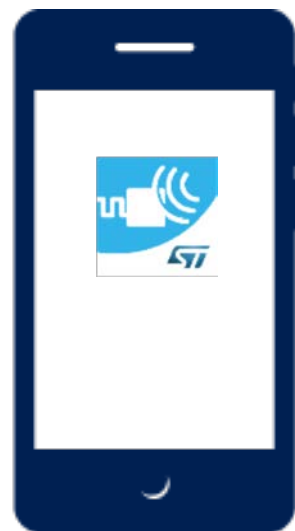
Ecosystem

 STM32Nucleo
hardware ecosystem

 Discovery kit
STM32 based

 Antenna
e-design tool

 Schematic,
BOM, Gerber



Mobile Apps
ST25 SDK  

STM32Cube
software ecosystem 

PC software tool
ST25 SDK 

Documentation 



ST25TA Evaluation Boards & Kits

Cloud ST25TA eval board

- ST25TA02KB-P NFC/RFID tag IC
- UDFPN5 package
- 18mm diameter 12 turns antenna
- 256-Byte (2-kbit) NDEF EEPROM
- Configurable GPO (Field Detection) with connector on PCB



CLOUD-ST25TA02KB

ST25TV eSeal Board

- ST25TV02K NFC/RFID tag IC
- UDFPN5 package
- 48x39 mm 9-turn antenna
- Custom Fast read access up to 53 Kbit/s
- Featuring Tamper detect loop



ST25TV-eSeal

ST25T tag bag



ST25-TAG-BAG-E



ST25DV-I2C Evaluation Boards

ST25DV-I2C Discovery kit

- ST25DV04K Dynamic NFC tag IC
- 40x24mm 10 turns antenna (ANT Class5)
- STM32F405 MCU
- 2.4" TFT LCD Touch screen
- I2C & SWIP connectors
- Daughter board connector



ST25DV-DISCOVERY

ST25DV-I2C Nucleo shield

- ST25DV04K Dynamic NFC tag IC
- Ø54mm 8 turns single layer antenna etched
- Energy harvesting, Low Power mode, GPO
- Compatible with STM32 Nucleo boards
- I2C interface to MCU & Powered through Arduino™ connector



X-NUCLEO-NFC04A1

ST25DV-I2C Antenna kit

- ST25DV04K Dynamic NFC tag IC
- Ready-to-use PCB including:
- 45x75mm (ST25DV_Discovery_ANT_C1)
- 18x24 mm (ST25DV_Discovery_ANT_C6)
- Energy Harvesting output (Vout)
- Mates with ST25Dx_Discovery MBoard



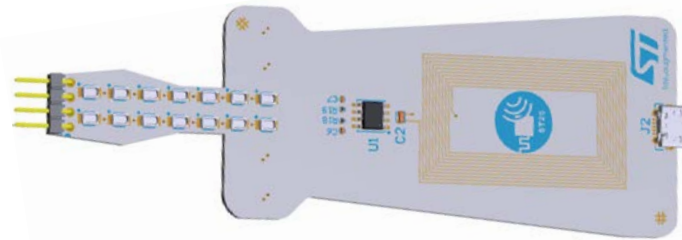
ANT-1-6-ST25DV



ST25DV-PWM Evaluation Board

ST25DV-PWM Discovery kit

- ST25DV02K-W Dynamic NFC tag IC
- 49x26mm 8 turns antenna
- PWM frequency and duty cycle through Android App or PC Software
- Duty cycle illustration with LED ramp
- Connector to ST25DV-DISCOVERY kit to monitor the PWM signal on display



ST25DV-PWM-eSET



ST25R3911B Evaluation Boards

ST25R3911B Discovery kit

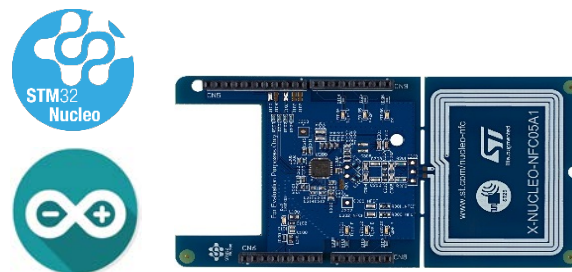
- ST25R3911B HF reader / NFC initiator IC
- 105x52mm 2 turns antenna and associated VHBR tuning circuit
- STM32L476RET6 32-bit MCU
- Micro-USB connector
- Additional UART / I²C Host interfaces, as well as NFC SPI and JTAG/SWD points



ST25R3911B-DISCO

ST25R3911B Nucleo shield board

- ST25R3911B HF reader / NFC initiator IC
- 47x34mm 4 turns antenna
- Compatible with STM32 Nucleo boards
- Equipped with Arduino™ UNO R3 connector



X-NUCLEO-NFC05A1

ST25R3911B EMVCo Demo kit

- ST25R3911B HF reader / NFC initiator IC
- 65x74mm 2 turns antenna etched on PCB
- STM32L476 32-bit MCU
- Micro-USB connector
- Comprehensive Device Test Environment (DTE) for EMVCo Level 1 FW control
- S-Touch controller



ST25R3911B-EMVCO



ST25R3916 Evaluation Boards

ST25R3916 Discovery kit

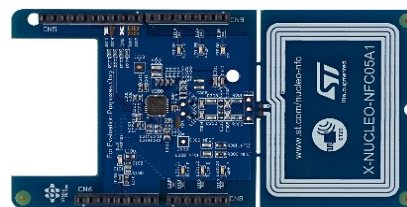
ST25R3916-DISCO Antenna
Gerber, BOM, Altium
ST25R3916 DISCO GUI + new Tag Editor PC GUI
ST25R3916 DISCO FW



ST25R3916-DISCO

ST25R3916 Nucleo shield board

- X-NUCLEO-NFC06A1 HW
- Databrief, User Manual, Schematic, Gerber, BOM, Altium
- X-NUCLEO- NFC06A1 FW



X-NUCLEO-NFC06A1

ST25R3916 EMVCo Demo kit

- ST25R3916-EMVCo-RD
- Databrief, User Manual, Schematic, Gerber, BOM, Altium
- ST25R3916 EMVCo L1 GUI
- ST25R3916 EMVCo L1 FW
- ST25R3916 EMVCo L2 FW
- EMVCo Cookbook
- EMVCo L2 Demo App



ST25R3916-EMVCO

