

Solutions for NFC / RFID Tags and Readers



ST25
Simply
More Connected



MMY Product Line at a Glance

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Standard EEPROM

-40 to +85°C Industrial
-40 to +105°C Industrial-Plus
Up to 2Mbits, also in Ultrathin WLCSP

Nb.1 WW EEPROM supplier
for 13 years thanks to
complete portfolio at
competitive price



Automotive EEPROM

-40 to +125°C AEC-Q100 grade 1
-40 to +145°C AEC-Q100 grade 0
Up to 2Mbits, SO8N, TSSOP and WDFNPN8

Nb.1 WW automotive
EEPROM supplier with
more than 45% market
share



NFC Tags and Readers

NFC / RFID Tags
Dynamic NFC Tags
NFC / RFID Readers
UHF Readers

Simply more connected
with NFC / RFID
Tags and Readers



NFC Technology at a Glance

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An interactive technology enabling engagement with IoT devices

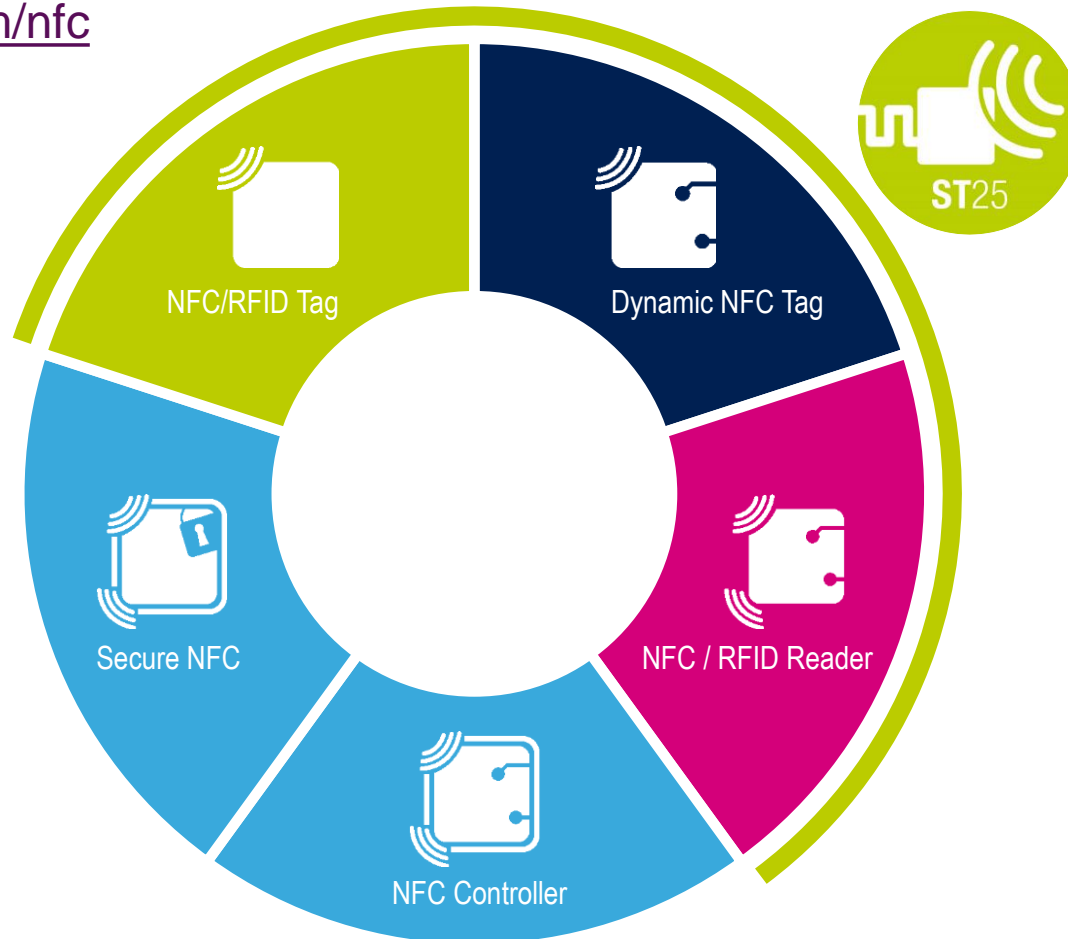


- Near Field Communication, a **short range** wireless technology
 - Operating at **13.56MHz**
 - Based on the RFID HF standard (ISO14443 & ISO15693)
- **Interactive** and **zero power**, enabling convenient connection to the Internet of Things
 - NFC-enabled mobile phone can engage with items by a simple tap
- NFC is developed by the NFC Forum
 - **Interoperability** between devices
 - **Standardized** use cases (web link, Bluetooth handover,...)
- Fast growing deployment in Mobile phone
 - In 2018, two in three phones to come with NFC
 - NFC is used for ApplePay, and in 2017 Apple announced support of NFC reader mode from iOS11 onward



Covering all NFC application needs and leveraging a rich ecosystem

www.st.com/nfc



ST is a proud Sponsor Member
of the NFC Forum

ST25 Products Families

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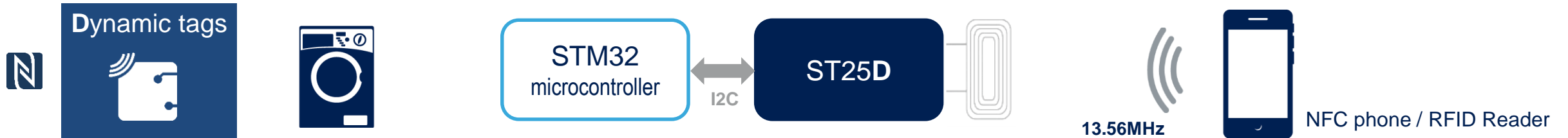
Ticketing, Gaming, Medical, Brand protection, Access control, ...

www.st.com/st25t



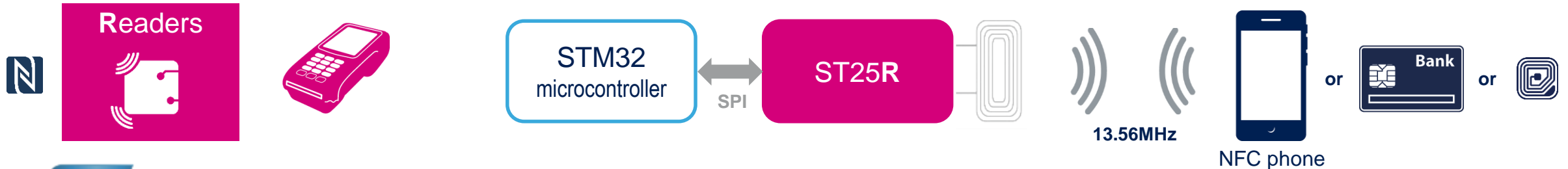
Industrial, Consumer, Metering, Appliance, ... (Fast Transfer Mode and SW upgrade)

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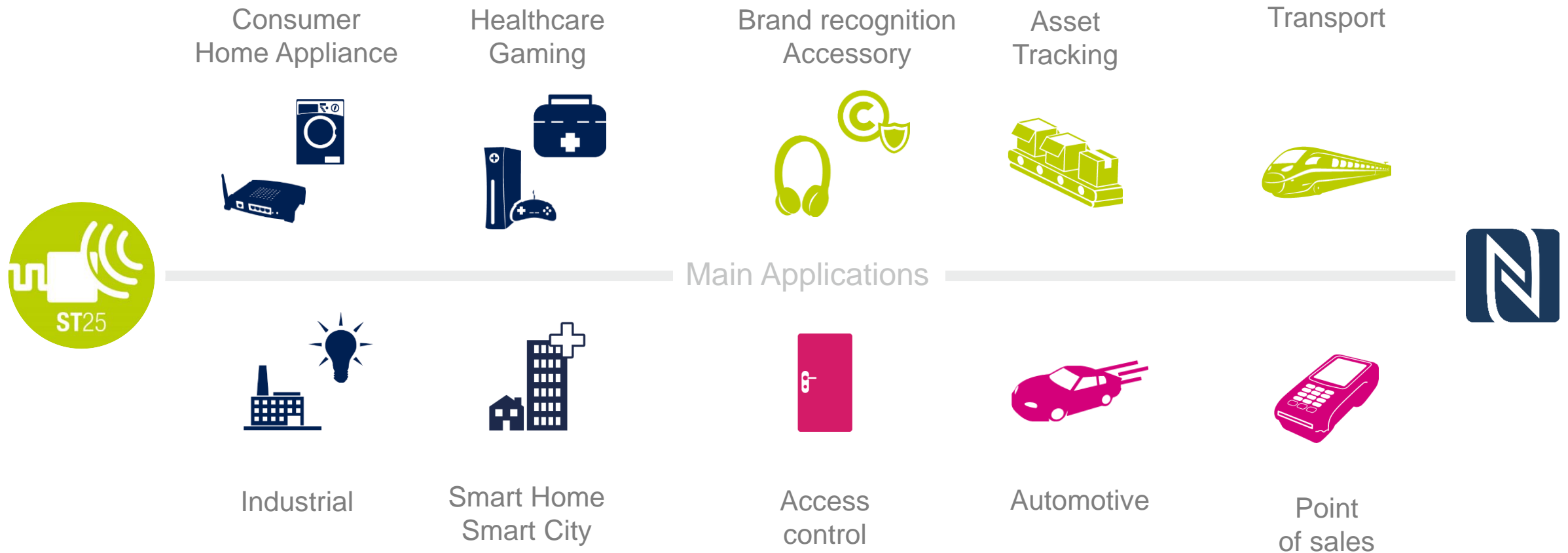
POS & mPOS Terminals, Automotive, Access control, ...

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ST25 Series Enriching Our Lives!

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One product line, many benefits

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Interactivity with NFC phones
With built-in use cases triggering
« Tap & ... »

Always-On, Zero power radio
NFC field, with energy harvesting
capability



Interoperability with
RFID readers

Highly reliable memory
1M cycles
up to 200years retention





ST25 Tags & Dynamic Tags DNA

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Standard
Compliant



NFC Forum
ISO14443A
ISO14443B
ISO15693

Feature-
rich

13.56MHz

I2C interface

Energy Harvesting

Fast Transfer Mode

Digital Signature

20-bit counter

Best-In-
Class
Memory

From 512-bit to 64-Kbit

1M erase-write cycles

Up to 200 years retention

128-bit password

High
Volume &
Quality

In-House manufacturing

Leverage Automotive
EEPROM quality

Leverage Consumer
EEPROM volume














Comprehensive Portfolio



ST25 - Great Interoperability

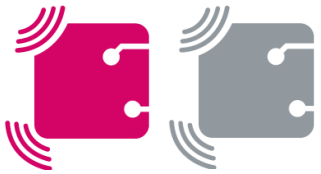
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	Tags			Dynamic tags		
	ST25TV	ST25TA	ST25TB	ST25DV	M24LR	M24SR
NFC Forum			Not for NFC applications (RFID, ticketing)		Legacy product, not focusing on NFC applications	All parameters OK except chaining during write operations (**)
Android			Not for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



ST25 Readers DNA

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Standard Compliant



NFC Forum
ISO14443A/B
ISO15693
ISO18092
ISO18000



High performing HF Readers

13.56MHz

Very High Bit Rate (6.8Mbit/s)
Automatic Antenna Tuning
High Power output (1.4W)
Capacitive wake-up
Temperature -40°C to 125°C

High performing UHF Readers

840-960 MHz

High Rx Sensitivity (-90dBm)
Low noise Voltage Controlled Oscillator
Dense Reader Mode filters
Tag movement detection

Certification

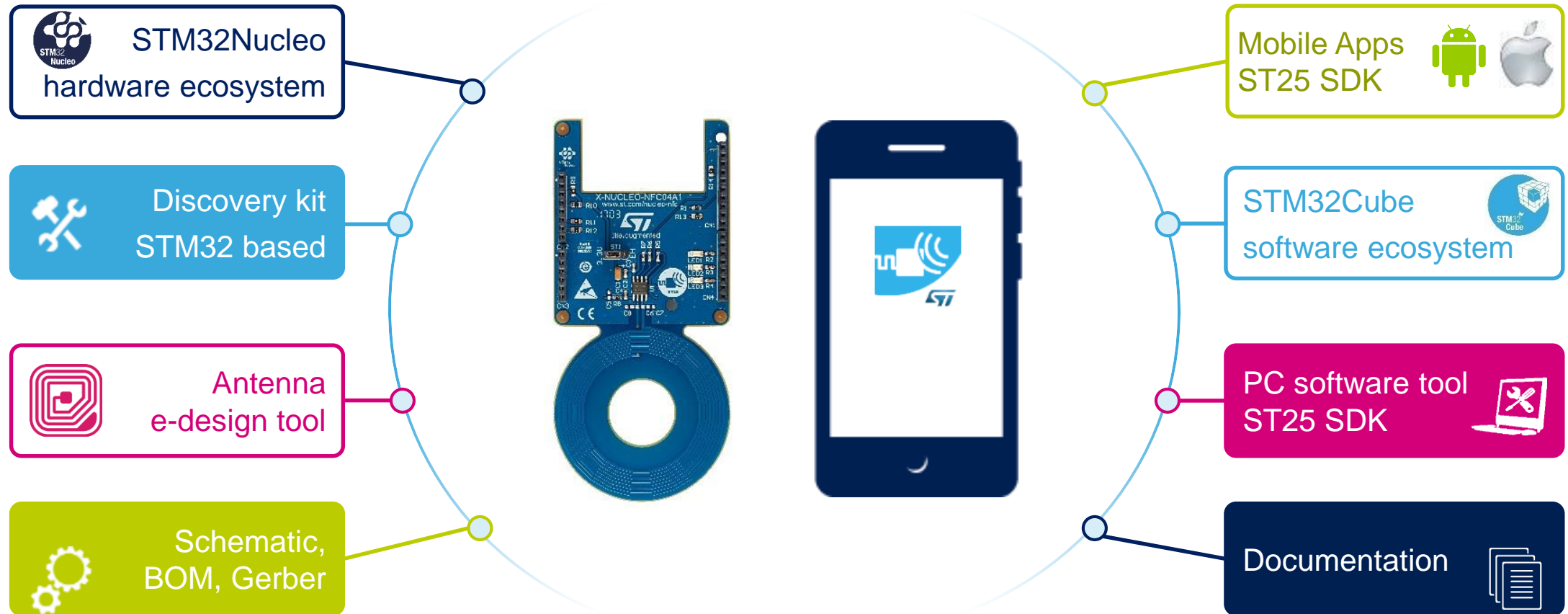
EMVCo
PBOC
Mini-pay
Automotive AEC-Q100

Comprehensive Portfolio

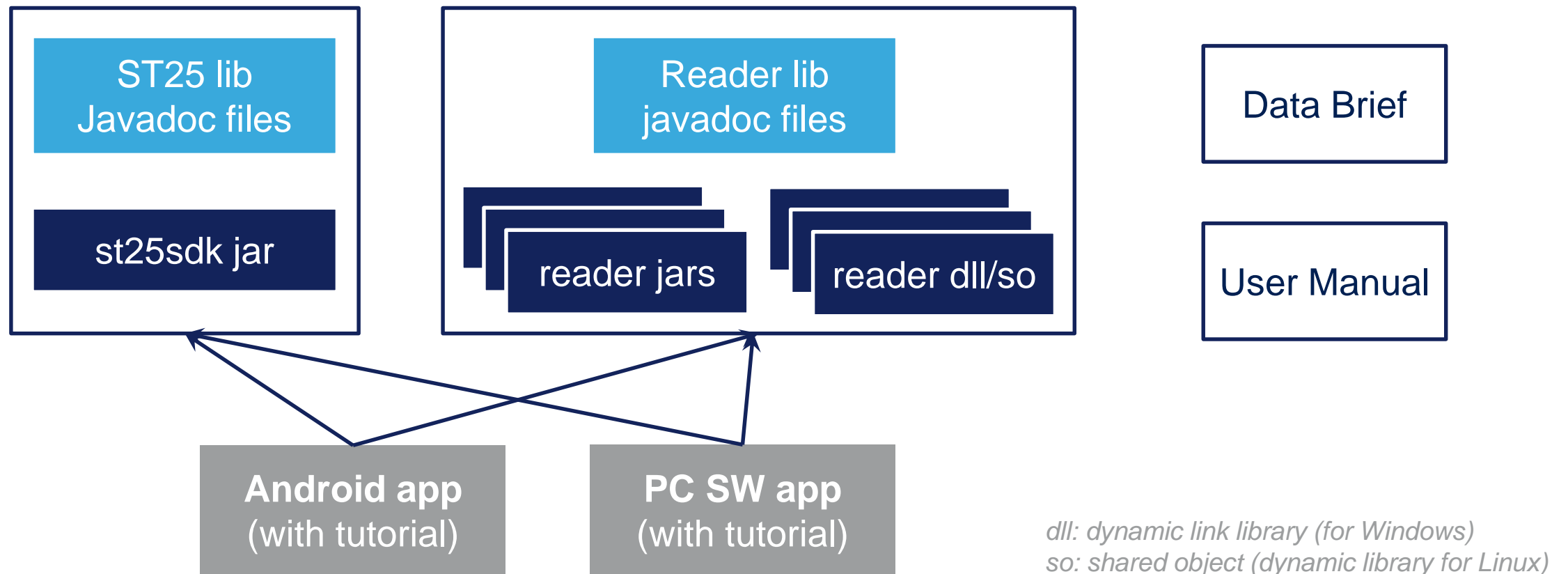
ST25 Eco-system DNA

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Easy-to-use and customer-oriented



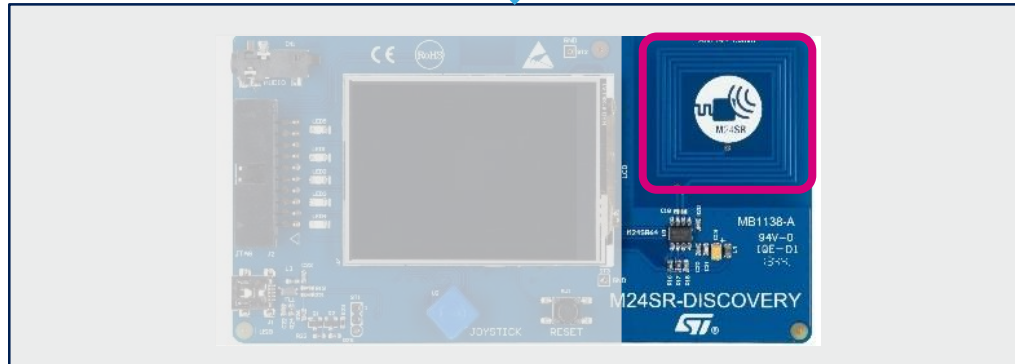
ST25 SDK easy-to-use and customer-oriented



Easy Antenna Integration

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On-board antenna



On-board inductor



Off-board antenna



Sticker tag (inlay)

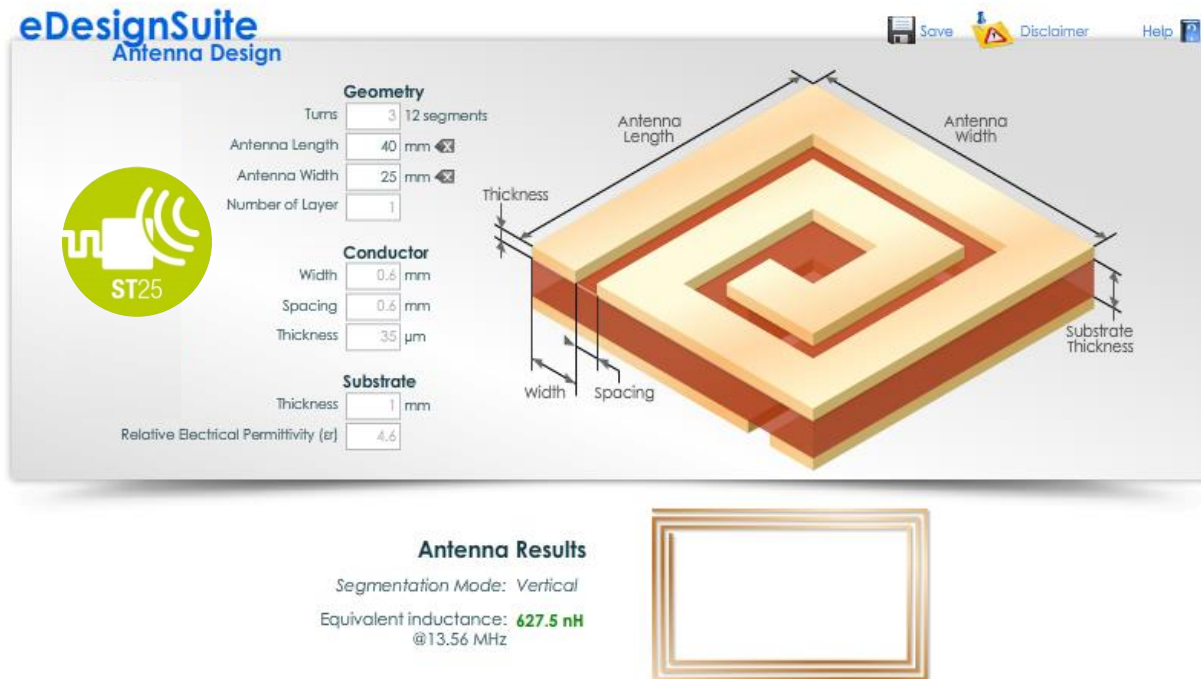


Antenna e-Design and Matching Tools

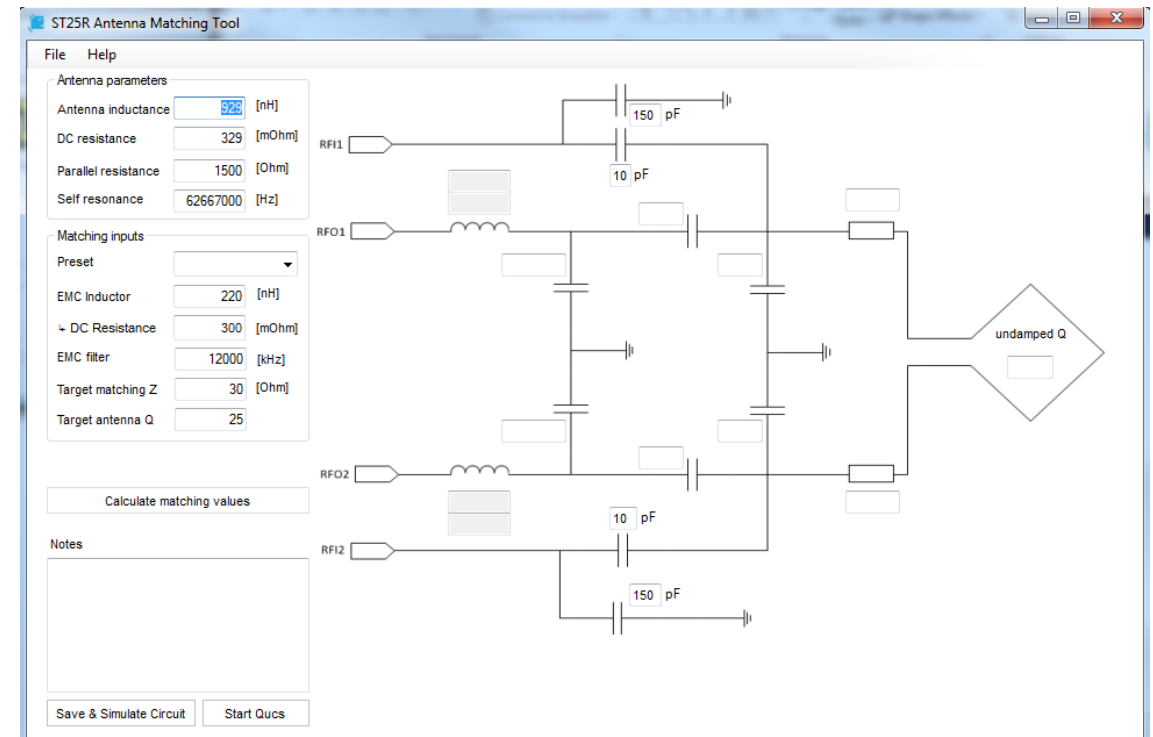
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Fast and easy prototyping

Antenna eDesign suite



ST25R antenna matching tool



ST25 Portfolio

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One-stop-shop for Tags and Readers

Tags			Dynamic tags			HF Readers			UHF Readers
ST25TA	ST25TB	ST25TV	M24SR	M24LR	ST25DV	CR95HF ST95HF	ST25R3910	ST25R3911B - ST25R3915	ST25RU3993
ISO14443-A 106kb/s NFC type 4	ISO14443-B 106kb/s	ISO15693 up to 53kb/s NFC type 5	ISO14443-A 106kb/s NFC type 4	ISO15693 up to 53kb/s	ISO15693 up to 53kb/s NFC type 5	ISO14443-A/B ISO15693	ISO14443-A/B ISO15693 FeliCa	ISO14443-A/B FeliCa ISO15693 ISO18092	ISO18000 6c & b Gen2 Protocol
EEPROM 512b-64Kbit 200-year 1Mcycles	EEPROM 512b-4Kbit 40-year 1Mcycles	EEPROM 512b-64Kbit 60-year 100kcycles	EEPROM 2Kbit to 64Kbit 200-year 1Mcycles	EEPROM 4Kbit to 64Kbit 40-year 1Mcycles	256Bytes buffer EEPROM 4Kbit to 64Kbit 40-year 1Mcycles	Reader / Writer Card Emulation	Reader / Writer Limited P2P	Reader / Writer P2P EMVco & PBOC AECQ100	Reader / Writer -90dBm sensitivity Internal VCO
TruST25 128bit password 20bit counter UID Field Detect	32bit counters Lock OTP bits UID	TruST25 64bit password 16-bit counter UID Tamper detect	128bit password RF disable Field Detect	32bit password E-harvesting Field Detect	Fast transfer mode 64bit password E-harvesting Field Detect	-	AAT	VHBR AAT Multi Antenna Dynamic output power	Dense Reader Mode Linear RSSI Automatic PSRR Auto ACK
			I2C 1MHz 2.7V - 5.5V	I2C 400kHz 1.8V - 5.5V	I2C 1MHz 1.8V - 5.5V	SPI & UART 2Mbit/s 2.7V - 5.5V 230mW	SPI 6Mbit/s 2.4V - 3.6V 700mW max	SPI 6Mbit/s 2.4V - 5.5V 1 - 1.4W max	SPI 5Mbit/s 1.65V - 5.5V 0/20dBm Output

10-year Longevity Program

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- For ST25 Tags & ST25DV Dynamic tags, the 10 years longevity commitment starts from the following dates
 - ST25TA series, starting September 1st 2015
 - ST25TB series, starting November 1st 2016
 - ST25DV series, starting January 1st 2017
- For the rest of ST25 products, it will be managed case by case after contacting division
- The 10 years longevity commitment includes the period of notification as set forth in the standard STMicroelectronics end-of-life notification policy (PTN)
- In case of significant volume decrease, technology or manufacturing changes, a switch to a comparable product, another technology or a different manufacturing facility could be decided by STMicroelectronics who will notify customers using the standard STMicroelectronics product/process change policy (PCN)



Solutions for NFC / RFID Tags and Readers



Thank You!

