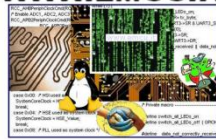
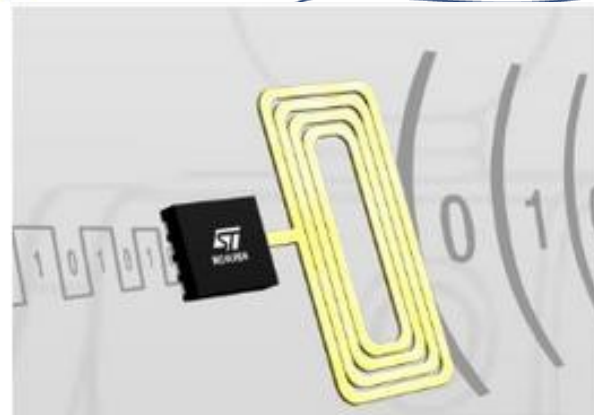




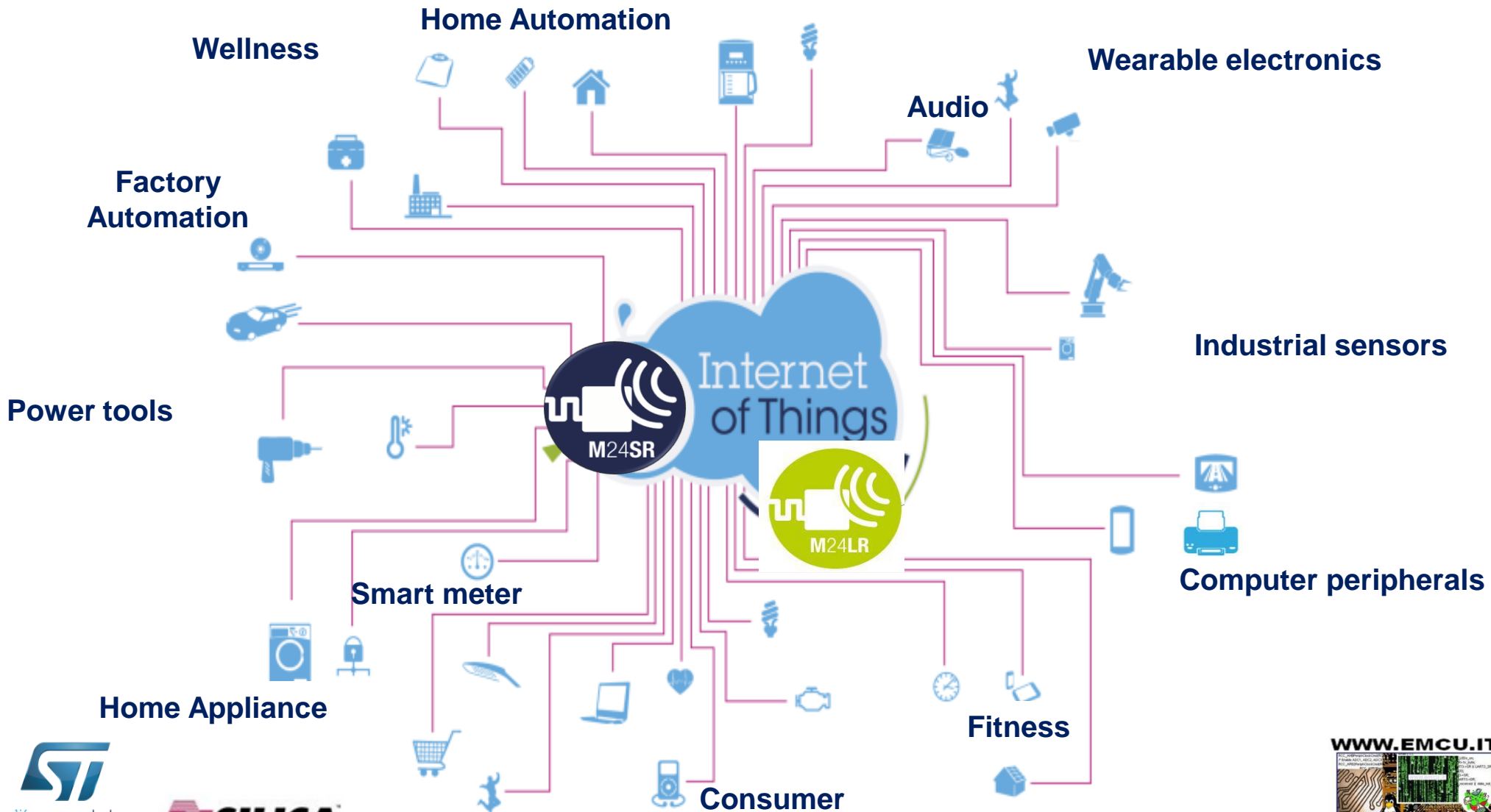
M24SR & M24LR

simple & low cost NFC connection

Apr.2014



Enabling NFC connectivity for a wide range of electronic devices



NFC technology

3

- Near Field Communication, a short range wireless technology operating at 13.56MHz
- Interactive and zero power, enabling convenient connection to the Internet of Things
It is not just for payment !
- Fast growing deployment in Mobile
 - 2014 will see 500 Million NFC handsets in use (source ABIResearch)
 - By 2015, 50% of smartphones compatible with NFC (source Gartner)



ST solutions for NFC / RFID

NFC phone



RFID reader



NFC / RFID tags



NFC phone



RFID reader



I2C and /
or INT



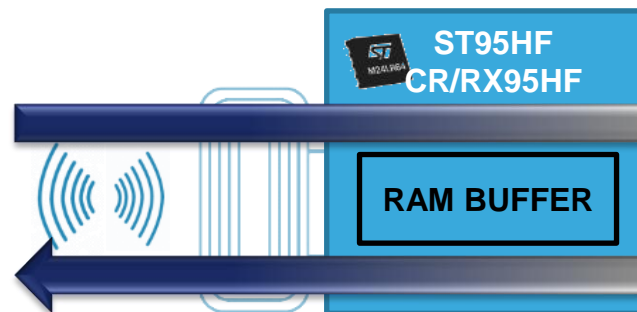
Dynamic
NFC/RFID tags



NFC phone



NFC/RFID tag RFID reader



SPI or
UART



NFC transceivers



ISO/IEC 14443 vs 15693



	ISO/IEC 14443	ISO/IEC 15693
Operating frequency	13.56 MHz	13.56 MHz
Data rate	106 kbit/s	26 kbit/s
Read range distance	Up to 10 cm = proximity	Up to 1m = vicinity
Target application	Payment Passport, ID Access control	Asset tracking Industrial Healthcare
Optimized for	Speed	Range
NFC forum	Compliant	Compatible

Energy harvesting

M 24xR Range



High power RFID reader with large antenna



Up to 1.5 m



M24LR



NFC phone



Up to 5 cm.



M24SR

Mobile operating systems



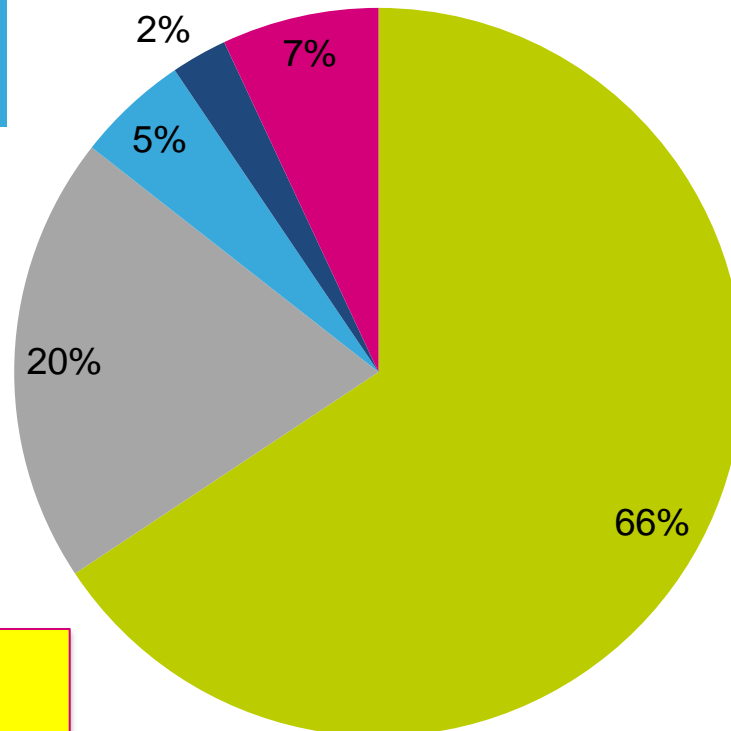
Few models deployed with NFC
 Limited number of NFC Apps
 ISO15693 support to be advised



Not NFC yet



200+ models deployed with NFC
 ISO15693 support
 Many other NFC Apps
 ST several Apps for M24LR



■ Android ■ iOS ■ BB10
■ Win8 ■ Others

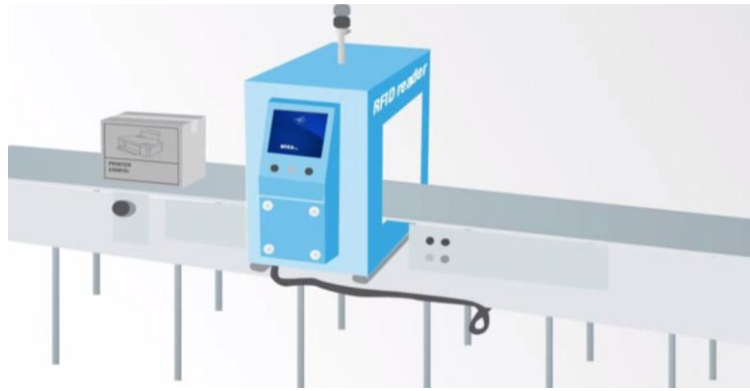


Few models deployed with NFC
 ISO15693 support confirmed
 Limited number of NFC Apps

All NFC phones support ISO14443



Use Cases

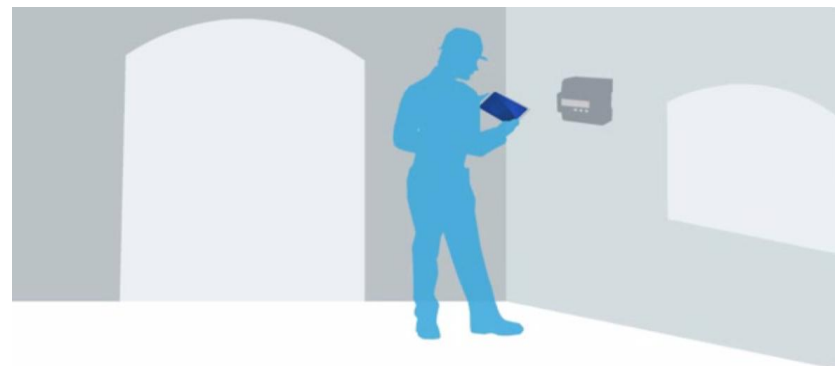


Manufacturing and Logistics

NFC remote programming

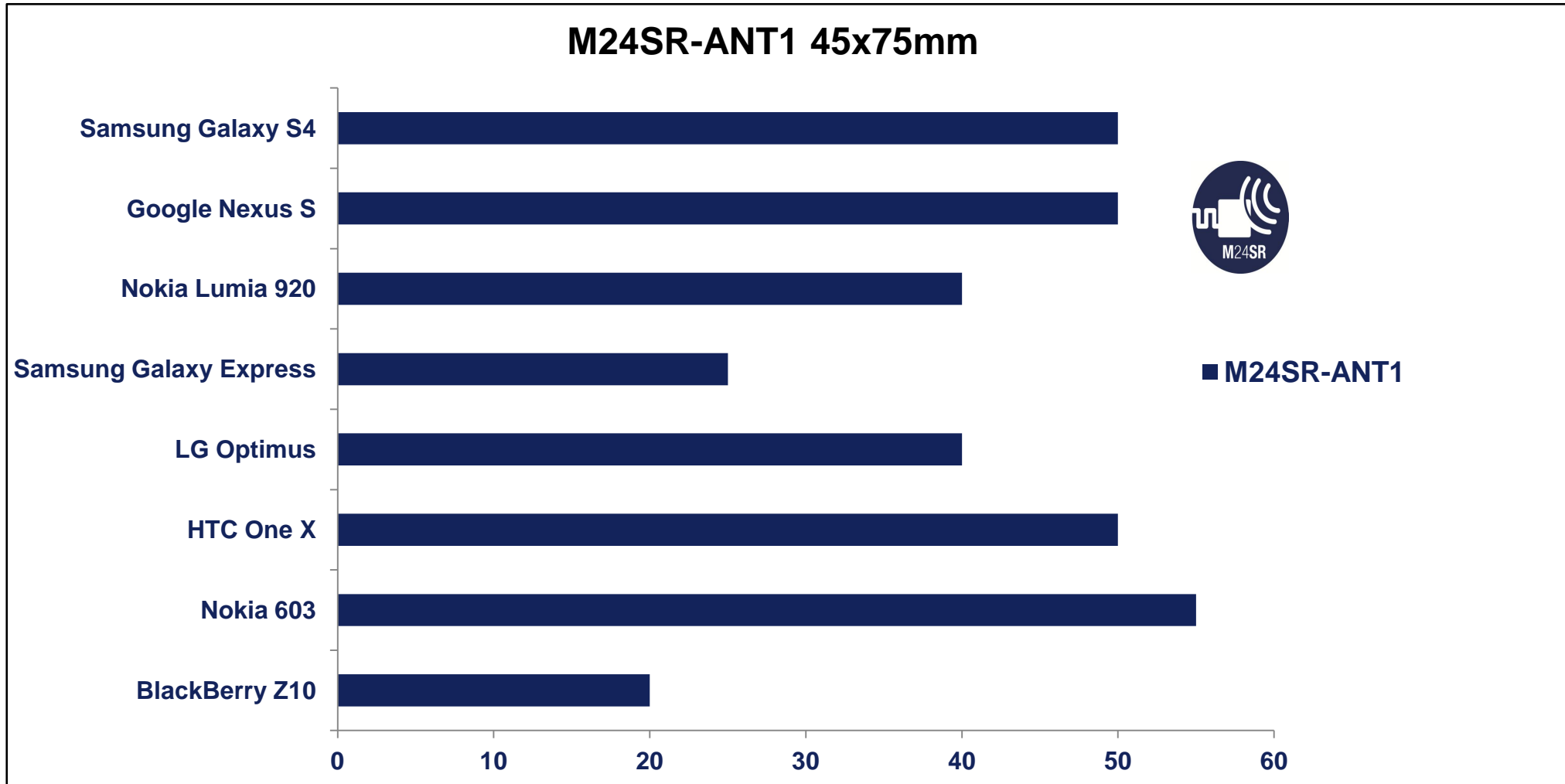


Wireless pairing



Servicing and maintenance

M24SR RF range benchmark



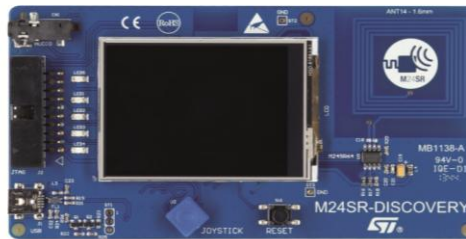
Your NFC design made easy

NFC Android App

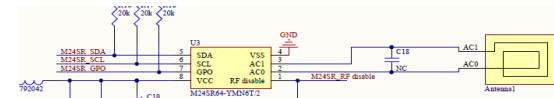


Evaluation boards

M24SR discovery



Technical documentation



e2e community



Home Products Applications Support Sample & Buy

Dynamic NFC / RFID Tags

New	Actions	Created By
Demo CR93HF-A ISO 15963 max range	new	pierefr.andres
[M24R16E] - Question about the WIP/RF_BUSY output pin	new	porcarelli.dani.001
M24R16E-R Dual EEPROM information	new	gumaraes.joo
I2C routine to write NDEF message into M24R04	new	yvan.kamen

Reference antennas



Antenna Design Suite



Welcome, Sylvain my.st.com | My Preferences Antenna Design

eDesignSuite Antenna Design

Geometry	
Turns	12 segments
Antenna Length	mm
Antenna width	mm

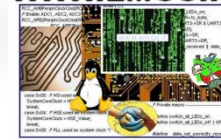
Conductor	
width	mm
spacing	mm
thickness	um

Substrate	
thickness	mm
relative electrical Permittivity [εr]	
Number of Layer	

MCU drivers

```
/* Wait till HSE is ready */  
HSEStartUpStatus = RCC_WaitForHSEStartUp();
```

IBIS model



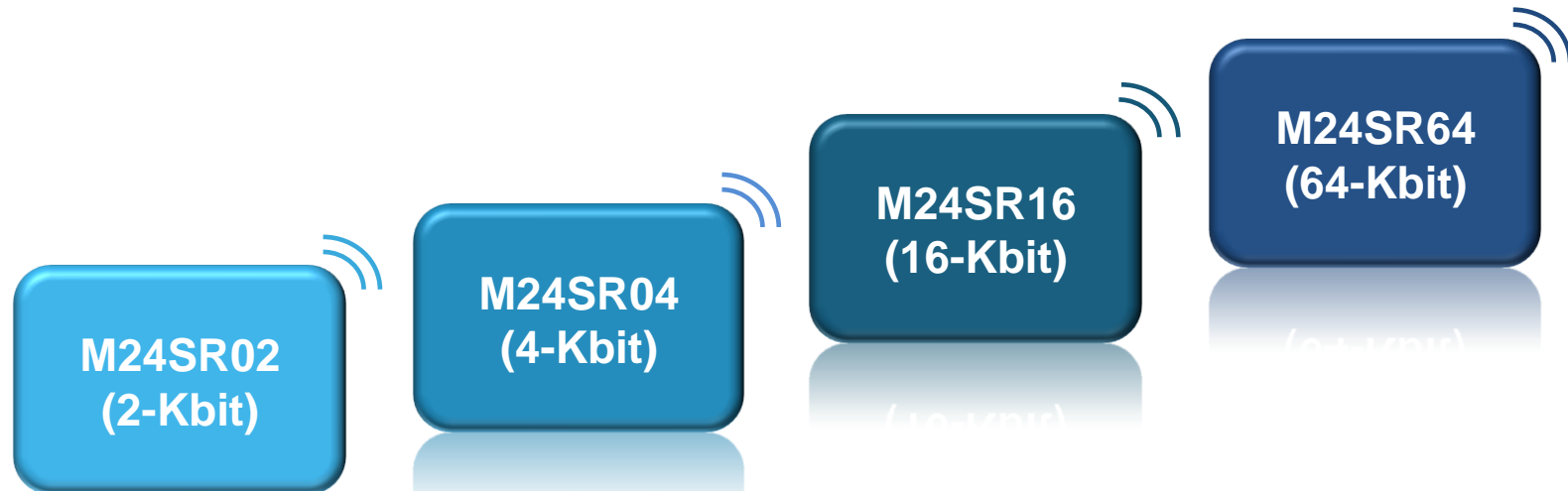
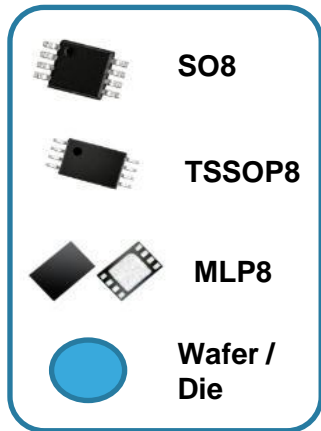


- **Comprehensive portfolio**

- Memory Density: 2-Kbit, 4-Kbit, 16-Kbit and 64-Kbit
- Package Choices

- **RF interface**

- NFC type 4
- Passive RF



- **Serial Interface: high speed I2C**

- 1MHz
- 2.7-5.5V

- **Programmable Interrupt pin**

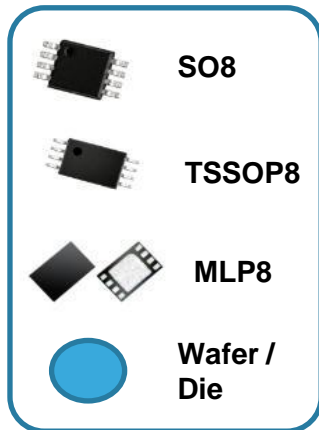


- **Comprehensive portfolio**

- Memory Density: 4-Kbit, 16-Kbit and 64-Kbit
- Package Choices

- **RF interface**

- Long range, passive RFID
- NFC (ISO15693)



- **Serial Interface: low-power I2C (1.8V-5.5V)**

- **Energy Harvesting from RF**



- **Comprehensive portfolio**

- NFC transceiver
- NFC reader
- NFC receiver

Pin-to-pin compatibility across portfolio

- **RF interface**

- ISO14443
- ISO15693
- Felica



- **Serial Interface:**

- SPI
- UART

For more info contact:
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