NFC Enables Installers to Configure HVAC* Settings via Smartphone App

May 10 – 2021

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(*Heating Ventilation and Air Conditioning)
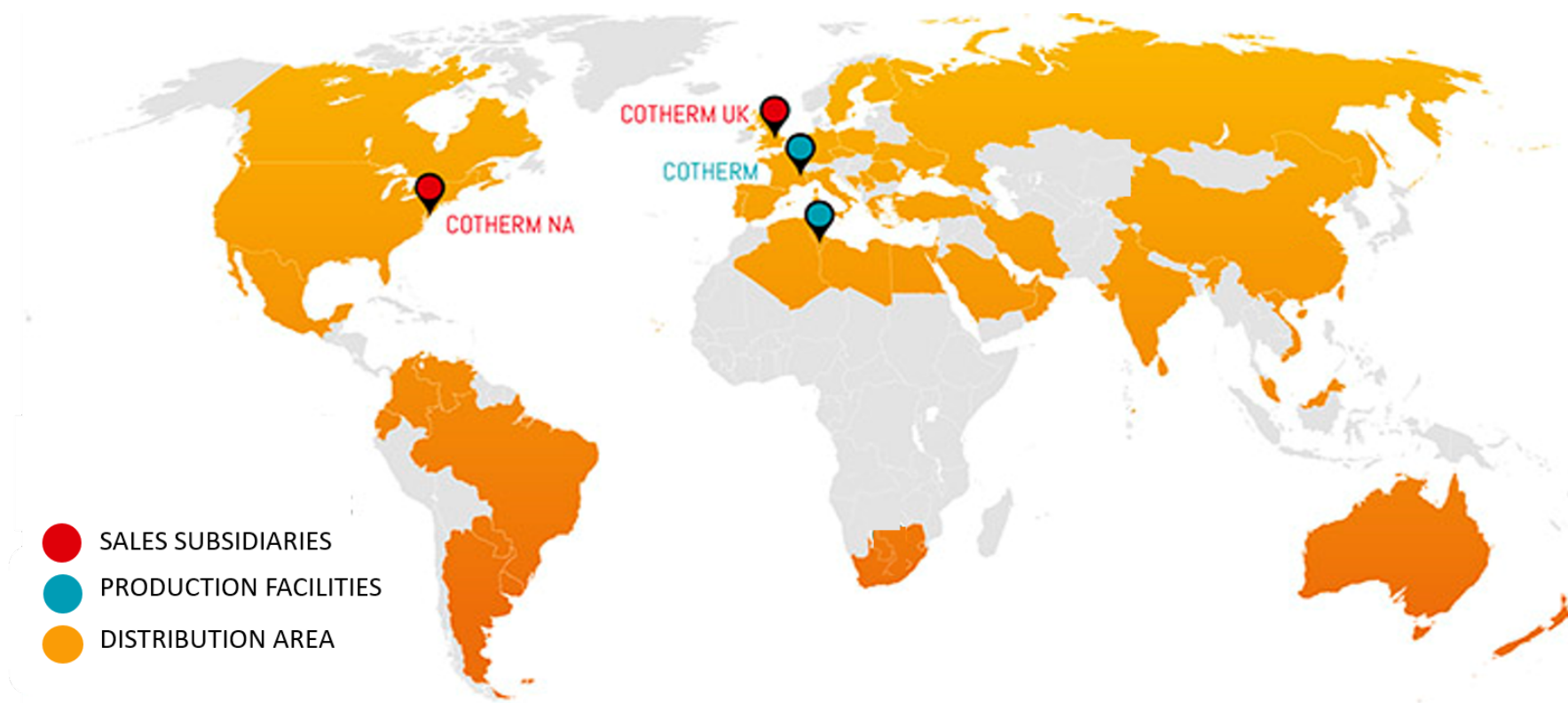
Mission Statement

■■ **Our mission is to design and produce innovative thermal control solutions bringing**

- **Safety**

- **Comfort**

- **Energy savings**

- **Limited environment impact**

to manufacturers and users of appliances for the heating of air and water.

- **36M$ turnover**
- **9 millions products/year**
- **80% export: all continents - 60 countries**
- **700 employees**

COTHERM UK

COTHERM

COTHERM NA

- ● SALES SUBSIDIARIES
- ● PRODUCTION FACILITIES
- ● DISTRIBUTION AREA

Our Expertise and Applications

| WATER HEATING | RENEWABLE ENERGIES | HEATING & VENTILATION | INDUSTRIAL | FOOD SERVICE |

Product overview

Full range of thermal controllers

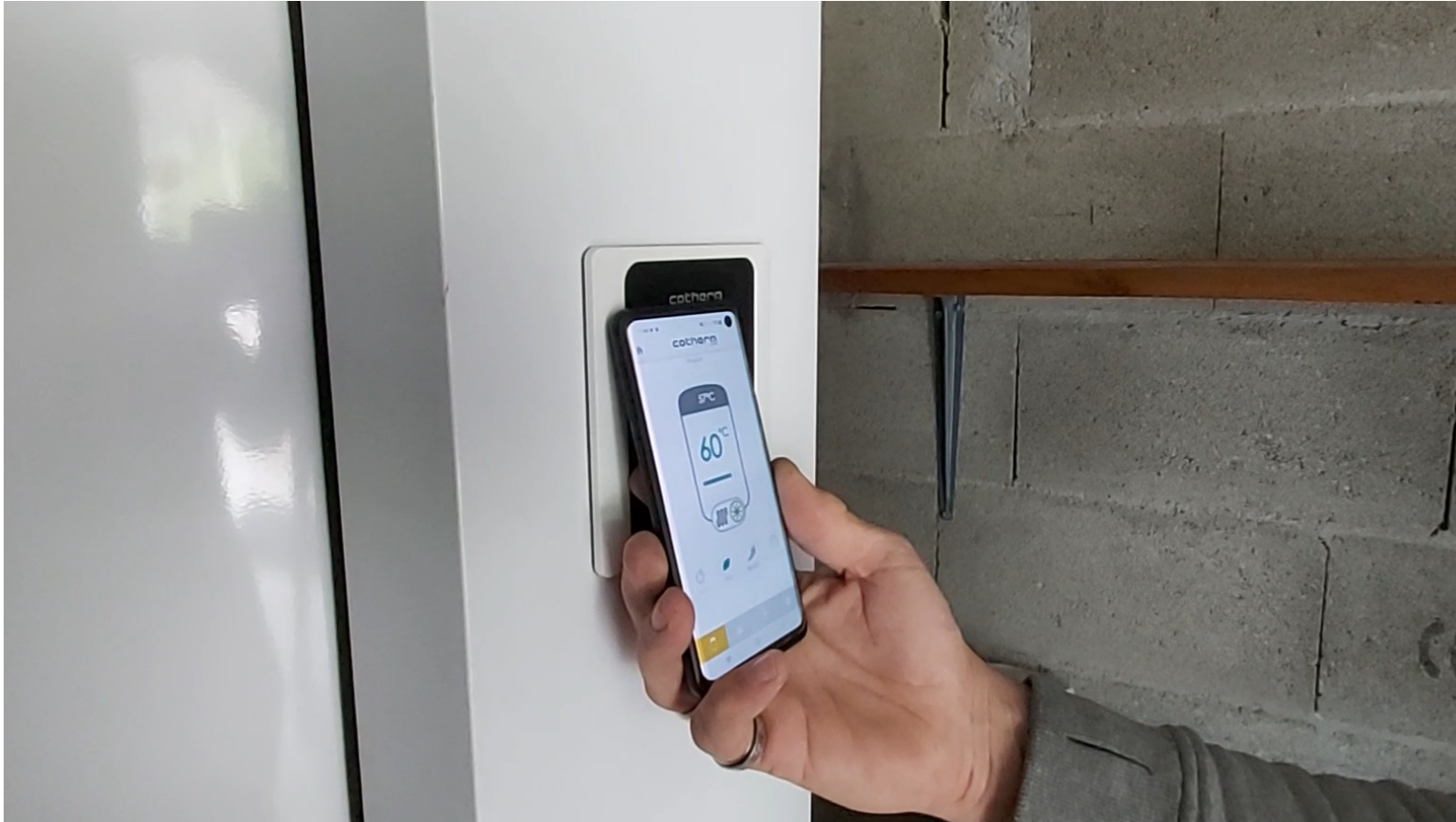**Rod thermostat**

Capillary thermostat

Heating elements

Electronics controllers

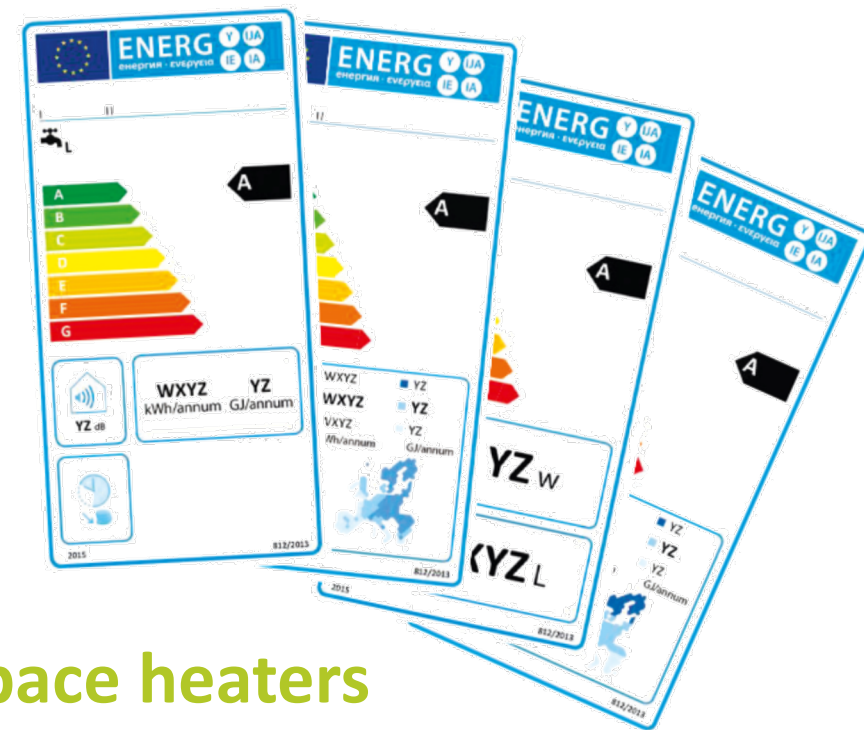## Video : NFC technology vs HVAC products

Why Cotherm consider NFC technology as a solution for HVAC controllers ?

Origine

EU regulation

- **2013 : energy label has been introduced for HVAC products**
- **2015 : Low efficient products banned from market (water heaters, central heaters)**
- **2018: Low efficient product banned from market (Electric heaters)**

Electronic controllers mandatory for electric space heaters

- **Simples controls disappears from the market**
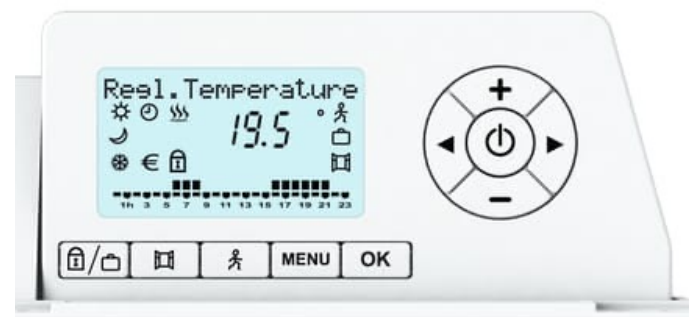- **More Advanced fonctions requested (open window detections, free 24h/7d program, ASC …)**

Ex : Electric space heaters

Electronic controllers with display

- **LCD display**
- **4 or 5 keys for navigation**
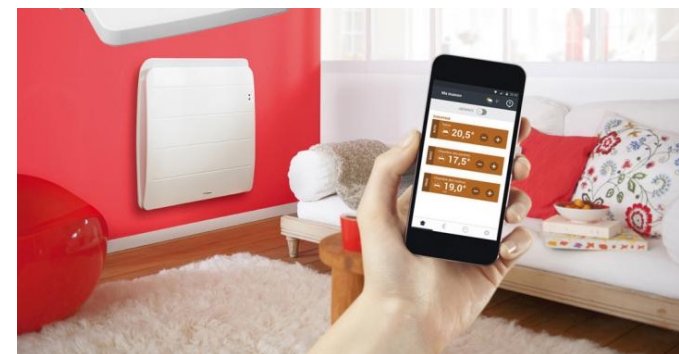- **Core products : 95% of the market**

  ➡ Complex to use

Electonic controllers with connectivity capability

- **LCD display**
- **High end : Bluetooth or Wifi capability**
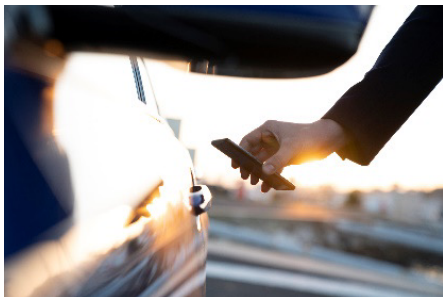
  ➡ Addres high-end consumer

Why considering NFC now ?

◼️ **Wide range of applications – making the technology popular**

Contactless payments

Contactless access
(ex : BMW)

Parameter reading

Transportation

◼️ **Widely available on smartphone**

- **On Android for more since 2013**
- **On IOS since 2015 (limited to payment)**
- **On IOS full profile since September 2019**
- **Affordable**

NFC benefits en HVAC ?
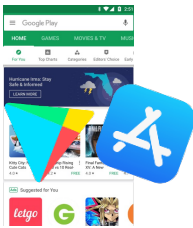
Color user interface
Intuitive and simple

Reliable, standard, popular

Direct redirection to APP store

No pairing

Healthy
No wave

Eco friendly
No use, no power consumption

Date time update
From smartphone

No cloud

Simple multi
configuration for more
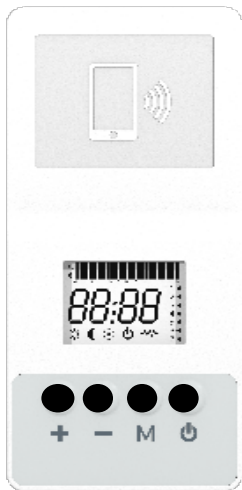than one equipement

Data confidentiality

Traceability
Factory setting
Installater parameter

Affordable
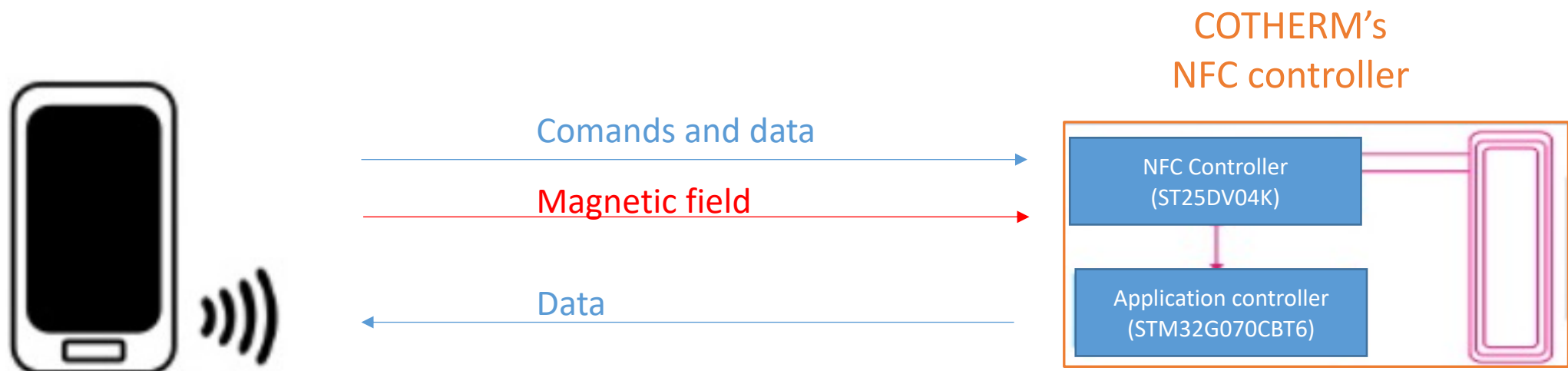competitive

First integration for lectric heaters

or

Display board

+

Background power board

NFC Mode used

COTHERM's
NFC controller

Comands and data

Magnetic field

Data

NFC Controller
(ST25DV04K)

Application controller
(STM32G070CBT6)

- **13,56MHz Interface**

- **ISO 14443 A/B, ISO 15693 and NFC Forum compliance**

- **Reader mode: reader/writer drives the communication with controller**
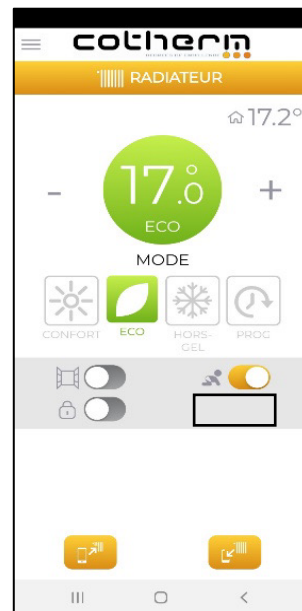
Read/Write operating mode

1 READ

READ key touch and follow instructions

or

Approach the smartphone to the device (automatic reading)
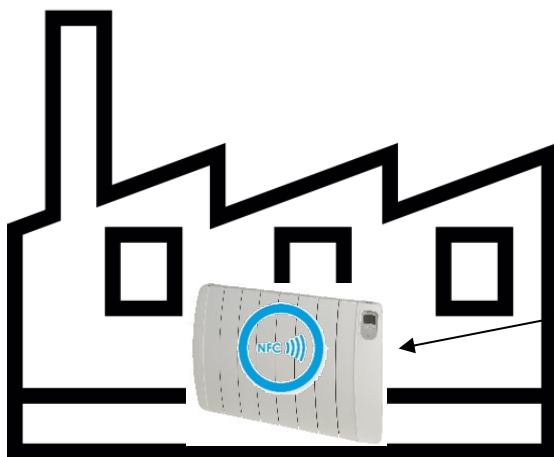
2 CHOSE

3 WRITE

WRITE key touch and follow instructions

NFC : No contact

Industrial side : ▪ **Energy harvesting** → **read/Write without power and contact**

Factory

- ➢ Late customization
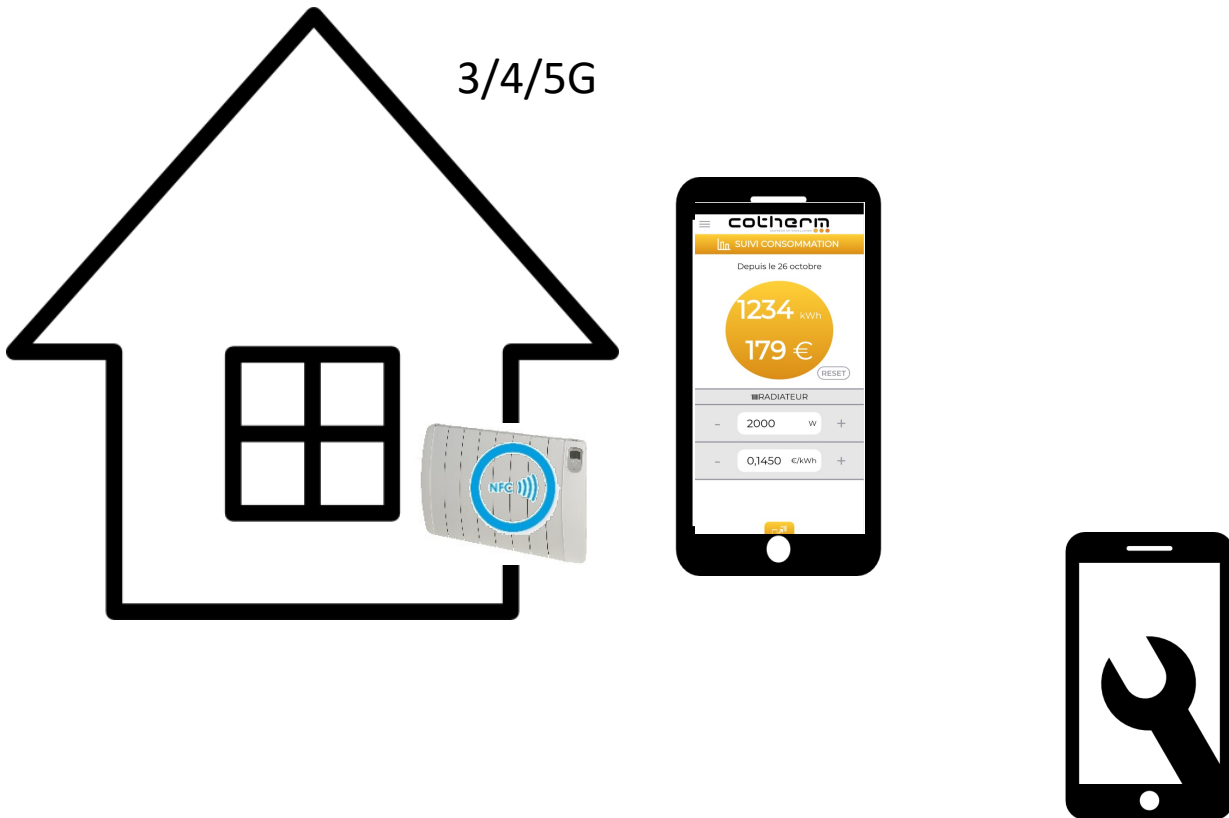- ➢ Features selection
- ➢ Parameters

- • Serial number
- • model
- • Parametrer (power)
- • @ internet
- • …

OEM added value

- • Bring innovation to the market
- • APP based solution without cloud
- • Improved after sale service
- • Push usage recommendation to end user
- • Direct FAQ service
- • Facilitate installer configuration
- • Product traceability
- • Personalization by distribution channel with limited inventory

At household

End user

- E- diagnostic and Link to FAQ
- Correct E-user Manuel
- Makes real energy saving
- Gets advices and information from manufacturer
- Data protection
- Control over third party maintenance

Installateur

- Dedicated APP
- Installation scenario (time saving)
- e-diagnostic
- No access to end-user Wifi network
- Confidentiality guaranty to end-user
- Historical data possible
- Cloud service possible

3/4/5G

Questions ?

Enhance Energy **Efficiency**

Guarantee **Reliability**

Accelerate Energy **Transition**

MERCI
THANK YOU

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🌐 **www.cotherm.com**

NFC Principle

- **Communication is based on magnetic field**

- **The smartphone generates an alternating magnetic field (carrier frequency) that powers the tag**

- **The smartphone modulates the carrier frequency to provide information to the tag**

- **The tag modulates reader's field to provide answer to the reader**

Tag

Inductive coupling

Smartphone

Alternating magnetic field