Quelles nouvelles solutions pour vos projets LPWAN?

Daniel Derrien

The STM32 portfolio

Five product categories

Wireless MCU

Short- and long-range connectivity

Ultra-low-power MCU

Mainstream MCU

High-performance MCU

32-bit general-purpose microcontrollers: from 75 to 3,360 CoreMark score

Embedded MPU

32- and 64-bit microprocessors





Enabling edge AI solutions

Scalable security

MPU portfolio

MCU portfolio

Communication technologies

sub-GHz connectivity in wireless applications

Smart industries

Smart cities

Smart agriculture

Smart homes

Asset tracking

Low-power, **global coverage, roaming.** Combined with sensing applications (accelerometer, pressure sensors)

Metering

Multiprotocol and low power **10 years from non-rechargeable battery**

Sensor nodes

Ultra-low-power Rx profile (**Rx sniff mode**) radio with combination of proprietary protocol support

Heat cost allocators

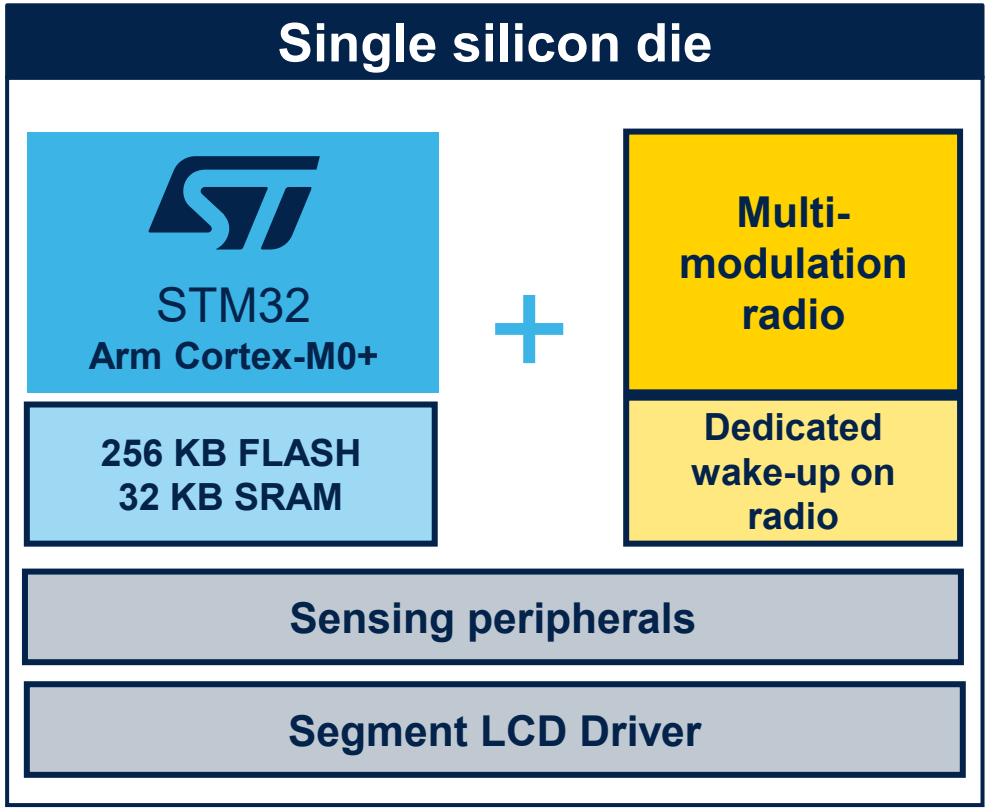
Power efficient radio & LCD driver

STM32 sub-GHz product families

sub-GHz MCU dual core			STM32WL55
sub-GHz MCU single core		STM32WL3x	STM32WLE5
sub-GHz transceiver	1st generation **SPIRIT1**	2nd generation **S2-LP**	
	General-purpose sub-GHz radio	Ultra-low-power sub-GHz radio	
Supported modulation	2 (G)FSK (G)MSK - OOK ASK -	2/4 (G)FSK (G)MSK BPSK (Sigfox) OOK ASK **DSSS + IQ I/F** (STM32WL3 only)	2 (G)FSK (G)MSK BPSK (Sigfox) - - LoRa ®
Supported protocols	M-Bus, LoWPAN	M-Bus, LoWPAN, KNX, sigfox, Wi-SUN, mioty	M-Bus, LoWPAN, KNX, sigfox, Wi-SUN, mioty, LoRaWAN

Wireless MCU combining multiprotocol sub-GHz radio & application features

PACKAGES
- QFN48 6 x 6 mm
- QFN32 5 x 5 mm



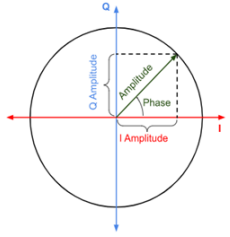
STM32WL3 main radio offers great versatility

STM32WL3 RF system-on-chip

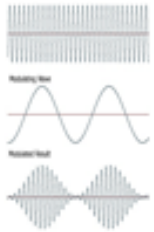
Arm
Cortex®
M0+
64 MHz

Direct radio access

IQ sample interface



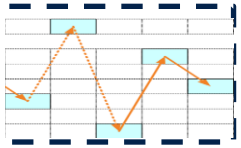
4-(G)FSK up to 600 Kbps
2-(G)FSK
(G)MSK
DBPSK
DSSS
OOK, ASK



Ultra flexible packet handler

Up to +20 dBm Tx output power

Frequency hopping



One single platform

Multiprotocol capability

sub-GHz proprietary

sigfox

mioty

M-Bus wireless

LoWPAN

Wi SUN

KNX RF

802.15.4g

G3-Alliance

PLC-RF hybrid

MIOTY

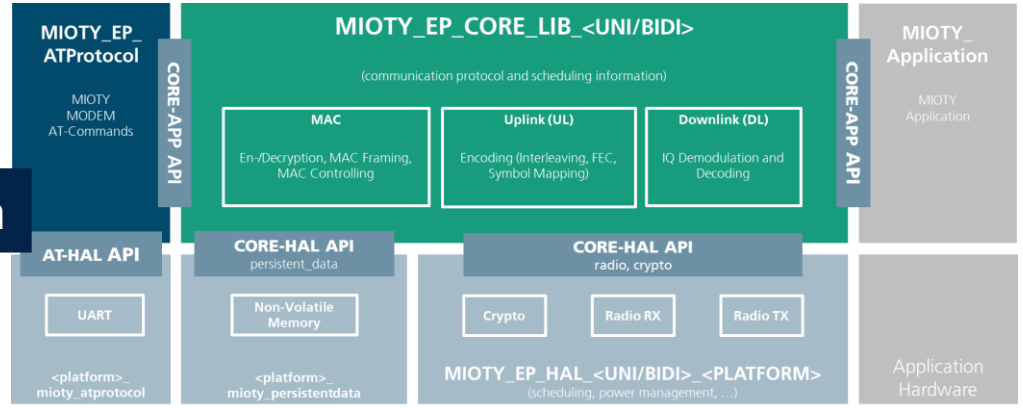
Latest news

STM32WL3x RF SoC ID Card

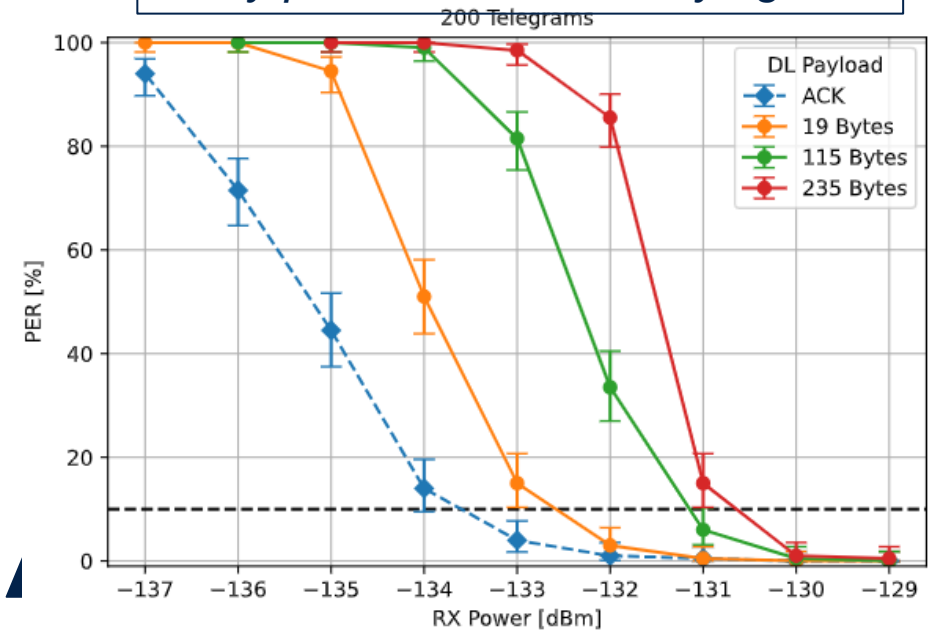
- Cortex-M0+ Single Core – 256kB flash
- 64MHz system clock
- IQ samples interface for mioty Z and A modes (bidirectional)

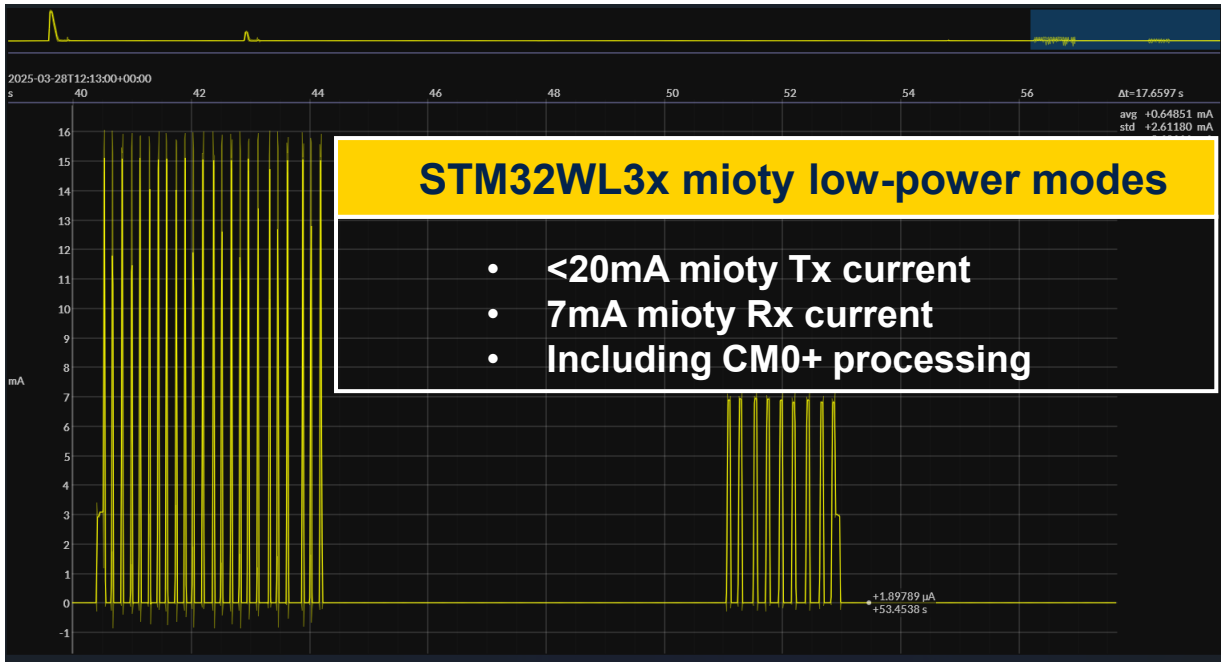
Sw integration

Fraunhofer



Mioty packet Rx sensitivity figures





STM32WL3x mioty low-power modes

- <20mA mioty Tx current
- 7mA mioty Rx current
- Including CM0+ processing

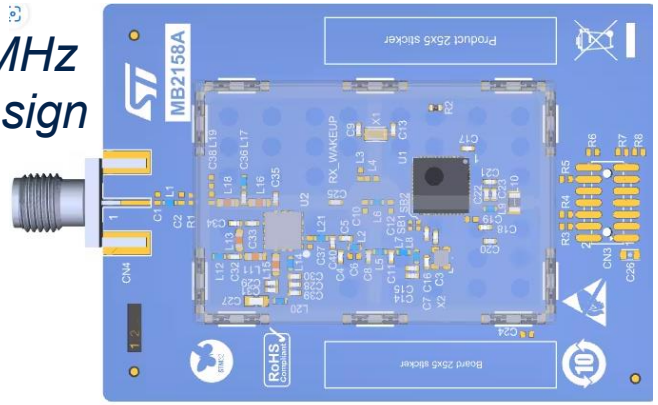
Wize support

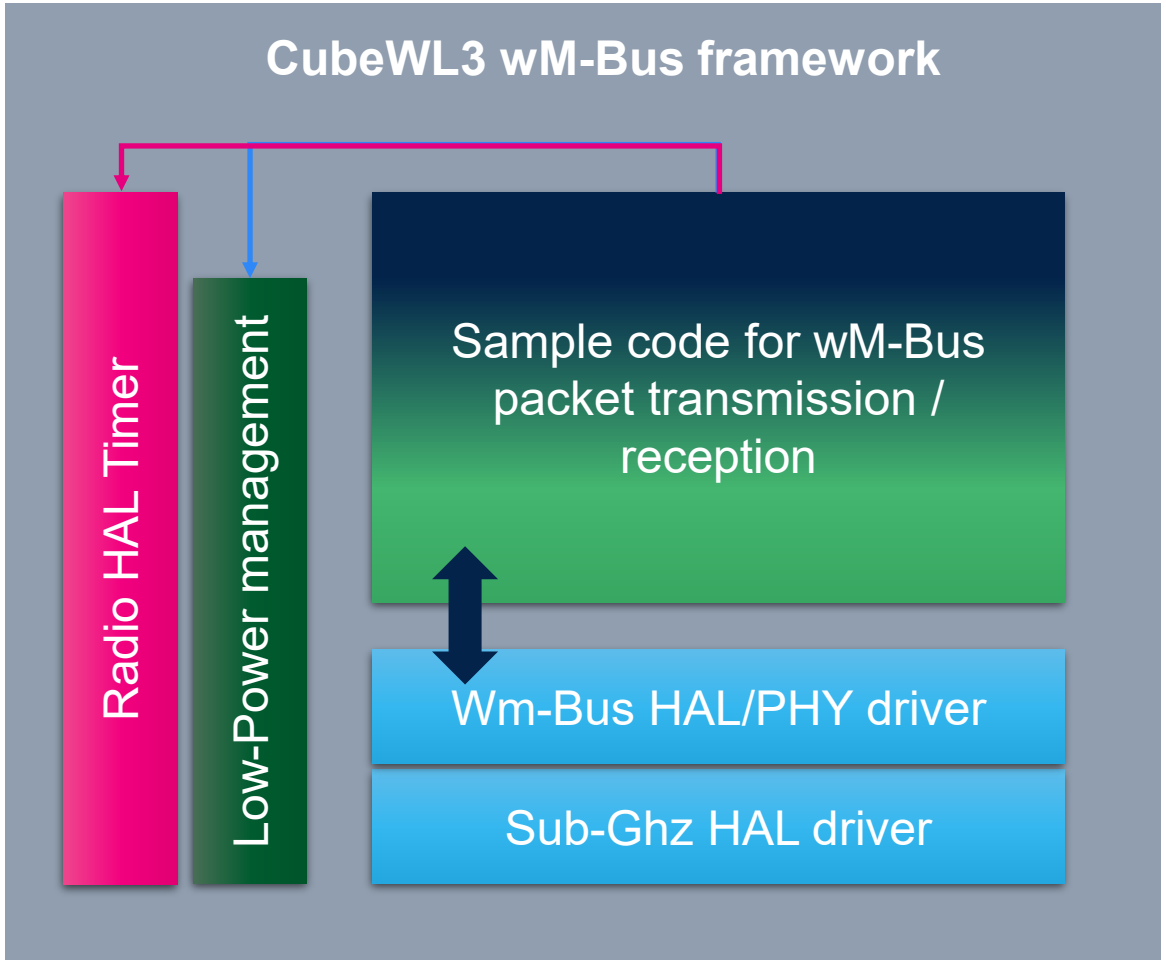
Latest news

STM32WL3x RF SoC ID Card

- 169MHz band support
- Flexible radio / 2 & 4-GFSK support
- wM-Bus N-modes driver available
- +27dBm Tx output power with external PA
- QFN32 & QFN48 packages

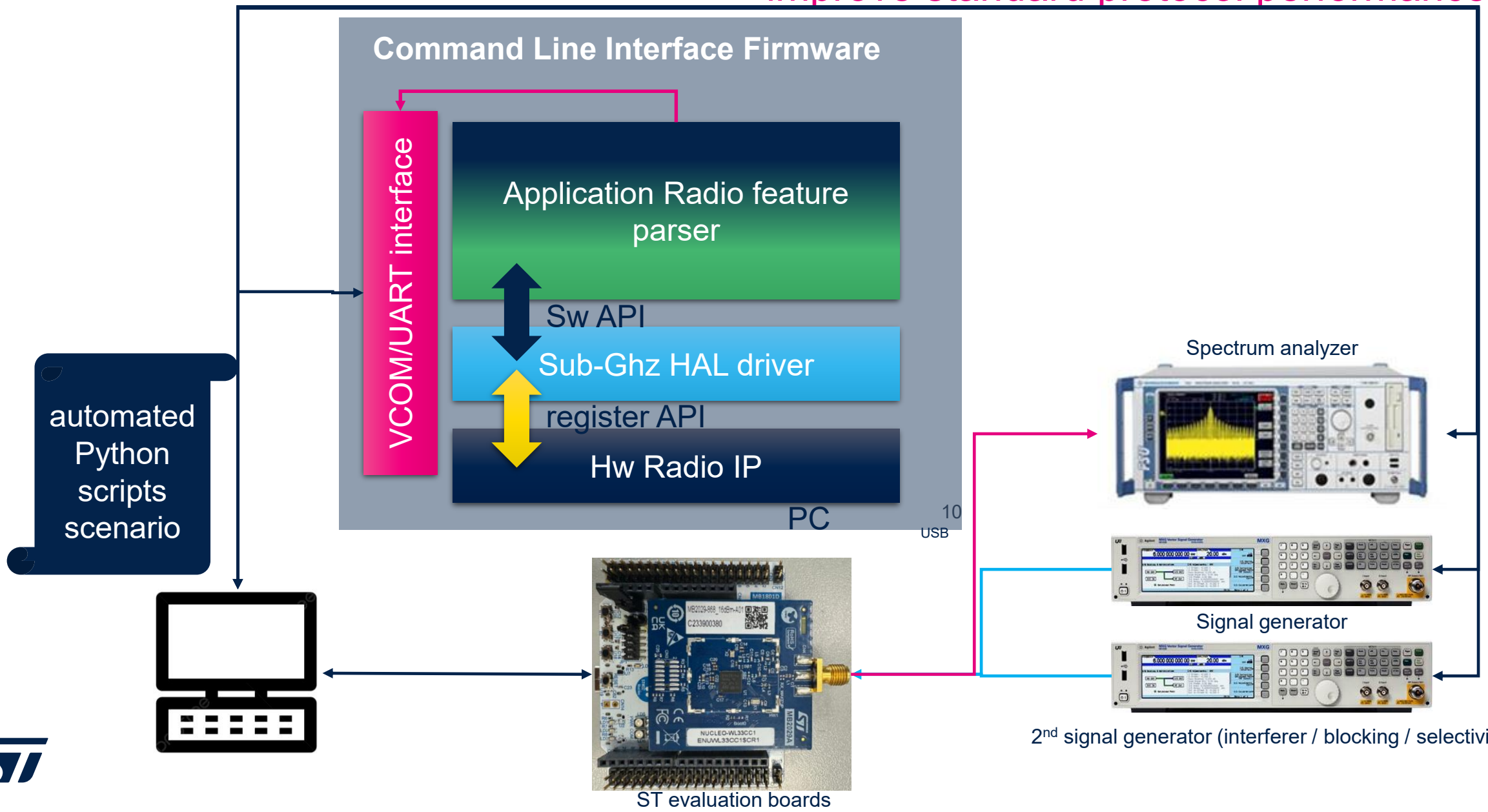
QFN48 169MHz reference design





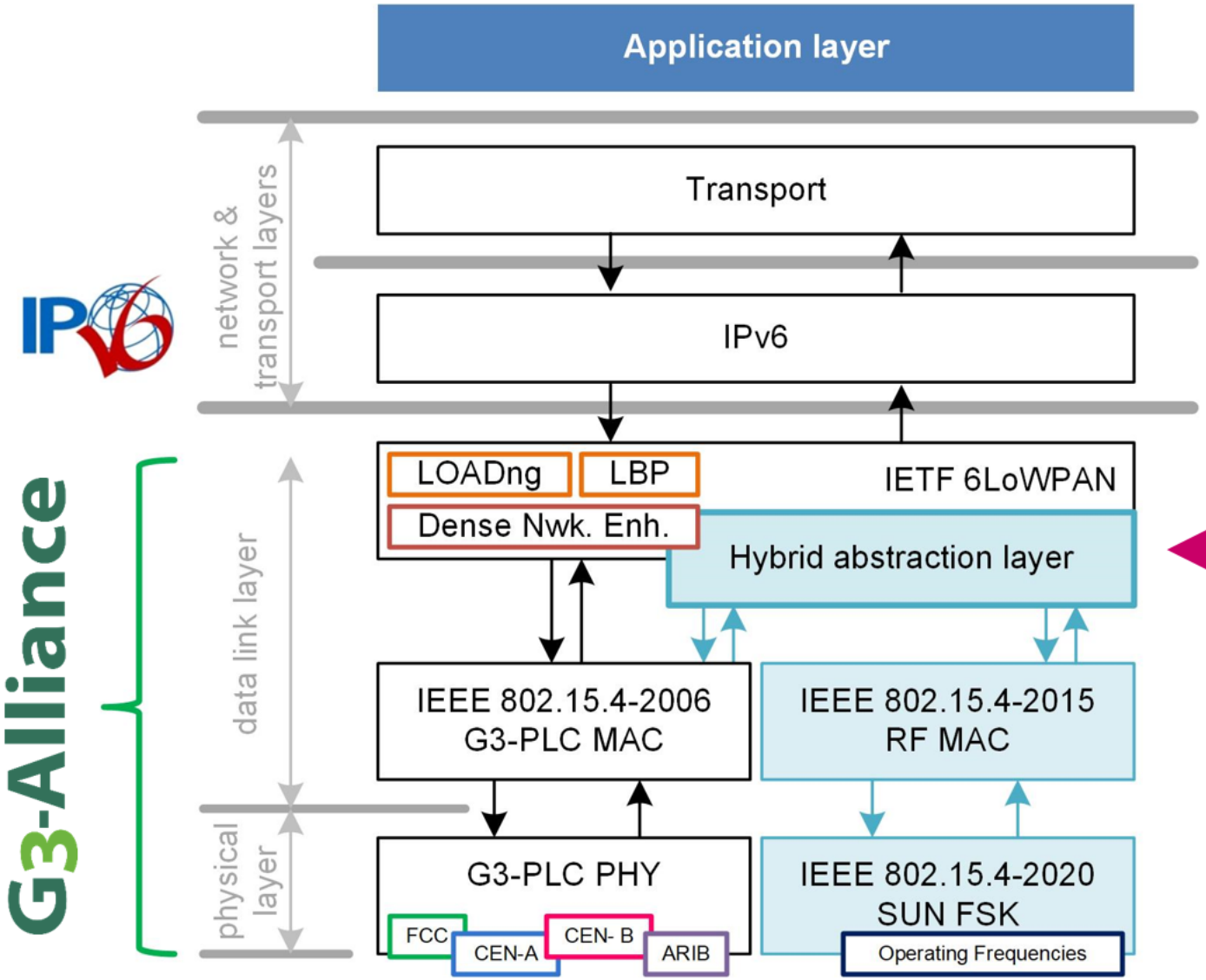
Automated radio test bench

improve standard protocol performances



The G3-Hybrid solution

Target protocol stack



Fully backwards compatible with any G3-PLC network

Switching between wireless and wired media is decided dynamically above the hybrid abstraction layer which provides appropriate services to the 6LoWPAN-based adaptation layer

ST87M0x NB-IoT & GNSS Industrial Modules

Robust Industrial Cellular IoT Connectivity

Smart Metering

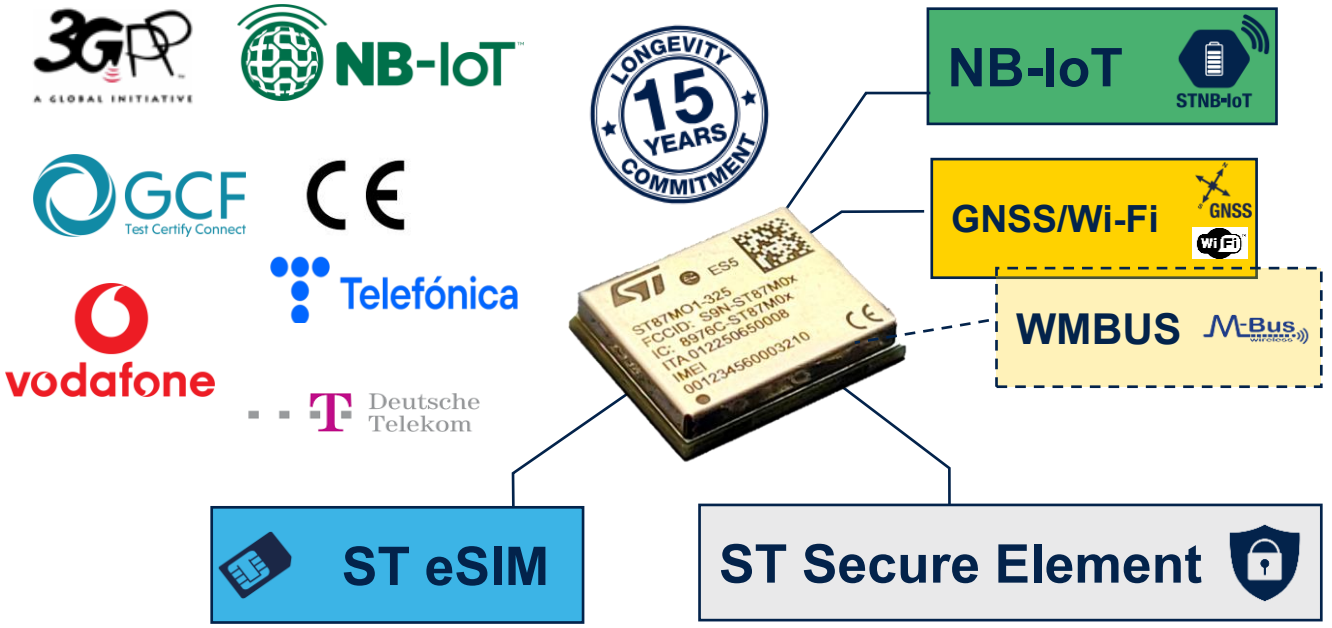
Smart Industry

Application Areas

Asset Tracking

Smart City / Building

5G ultra-low power solution for massive IoT



- **Turn-key, 3GPP certified**, **Vodafone**, **Telefonica** approved
- Ideal for **remote monitoring, control and geo-localization**

NB-IOT Customer application request

As a highly reconfigurable platform, ST87M01 can be adjusted to fit various customer's requirements

Estimation of the energy used with more than 90% accuracy:

- It does not waste any energy to measure it
- It gives indication of battery depletion
- It helps predictive maintenance

Easy access to the performance of network radio link:

- Customer can optimize the policy of data collection
- Optimize the energy consumption

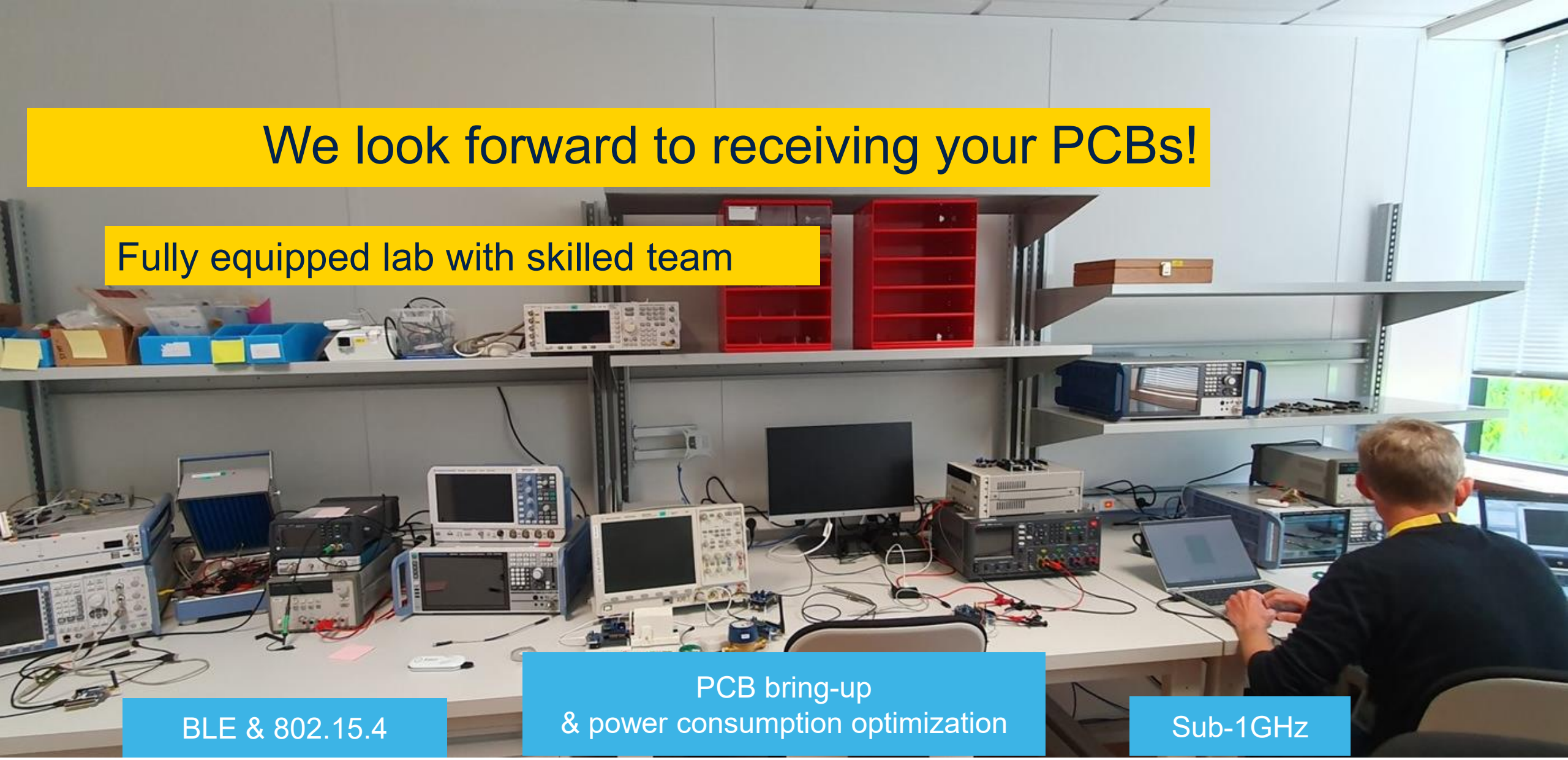
Smart city

Asset tracking

Smart metering

We look forward to receiving your PCBs!

Fully equipped lab with skilled team



BLE & 802.15.4

PCB bring-up
& power consumption optimization

Sub-1GHz

Bluetooth® THREAD LoRa™ sigfox

matter zigbee Wi Fi NFC M-Bus wireless

Our technology starts with You

Find out more at www.st.com