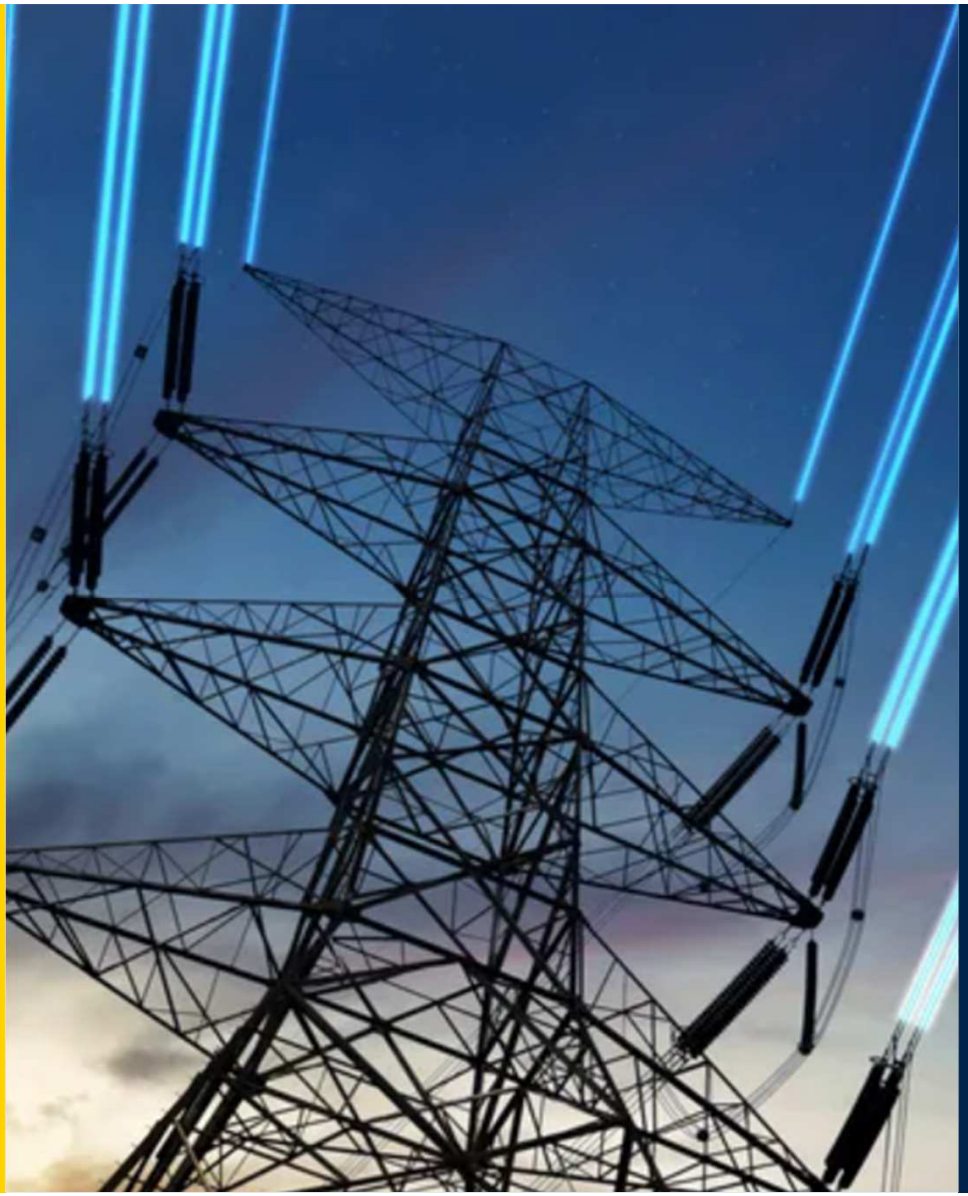


G3-Hybrid Solution
The future of AMI is now

José Ricardo de Freitas

Applications Manager
AME – APMS

Bueno Aires 27-Aug-2026

We are creators and makers of technology



One of the world's largest integrated device manufacturing semiconductor companies

~49,000 employees
of which ~**9,500** in R&D

$11.8 billion revenues
in 2025

Over **80** sales & marketing offices serving over **200,000** customers across the globe

14 main manufacturing sites

Signatory of the United Nations Global Compact (UNGC)
Member of the Responsible Business Alliance (RBA)

As of December 31, 2025

Global presence



ST leadership in Smart Grid

ST field-proven technology solutions covering all Smart Grid building blocks



- Anti-tamper
  Environmental sensors
- Microcontrollers
- PLC, RF NAN / HAN
  Energy Metering ICs
- Power conversion
- Relay Drivers
  Motor Drivers
- Operational Amplifiers

185+ million smart meters with ST inside

Rank #1 in **Power Line Communication**

High accuracy metrology solutions **deployed worldwide** meeting most stringent local and international standards

30+ years experience in **Smart Grid** with key utilities, manufacturers, industrial alliances and standardization bodies

Most field-proven, integrated, high-performance, flexible and future-proof solutions in the market

Driving standards

meters and more OPEN TECHNOLOGIES · PRIME ALLIANCE · G3-Alliance · IEC · CENELEC · ITU

Hybrid PLC+RF technology evolution



Hybrid PLC+RF evolution
Enabling higher-coverage and additional applications

Protocol stack fully based on open standards



KEY IoT & SMART GRID APPLICATIONS

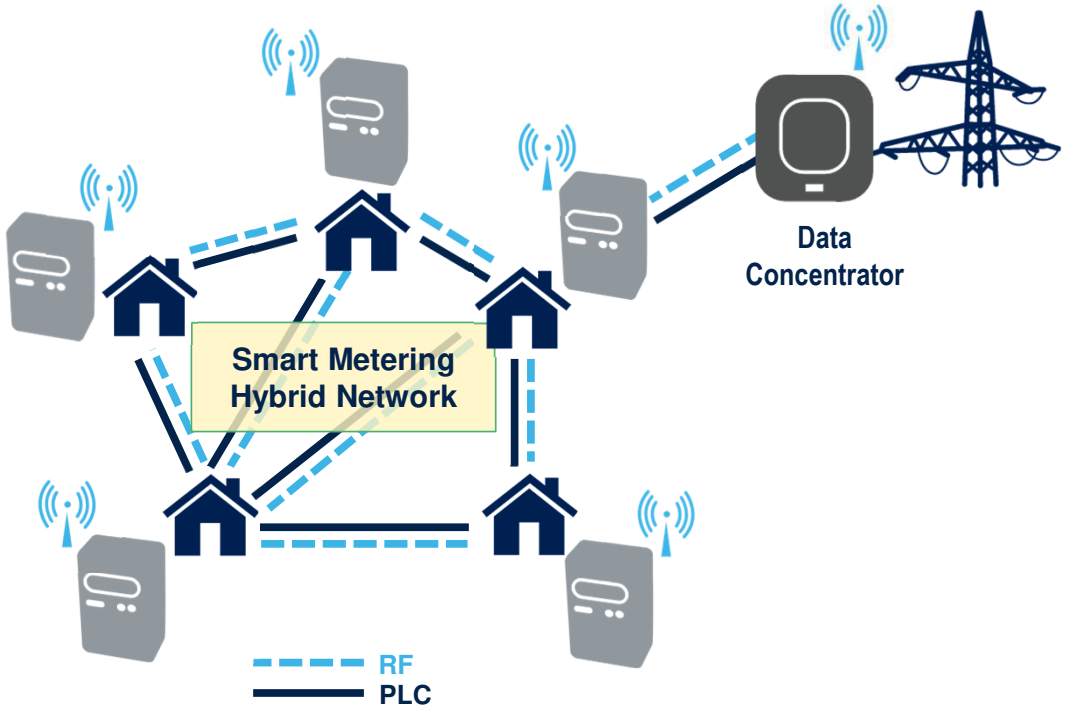
- Smart Metering
- Smart Street lighting
- Smart Solar
- Smart City
- Smart Industry
- Smart Infrastructure

Key features and benefits

- G3-PLC Hybrid Profile
  - ✓ G3-PLC & IEEE 802.15.4
  - ✓ 6LowPAN and IPv6
- Fully backward compatible and interoperable with any G3-PLC standard-based network
- Full coverage and high resilience
- Solution for the “last 1% connectivity” to meet >99% connectivity requirements in AMI
- Enables low density PLC deployments
- Suitable for integration of RF-only sensor nodes
- ST field proven technology

G3-Hybrid technology

Expanding PLC capabilities

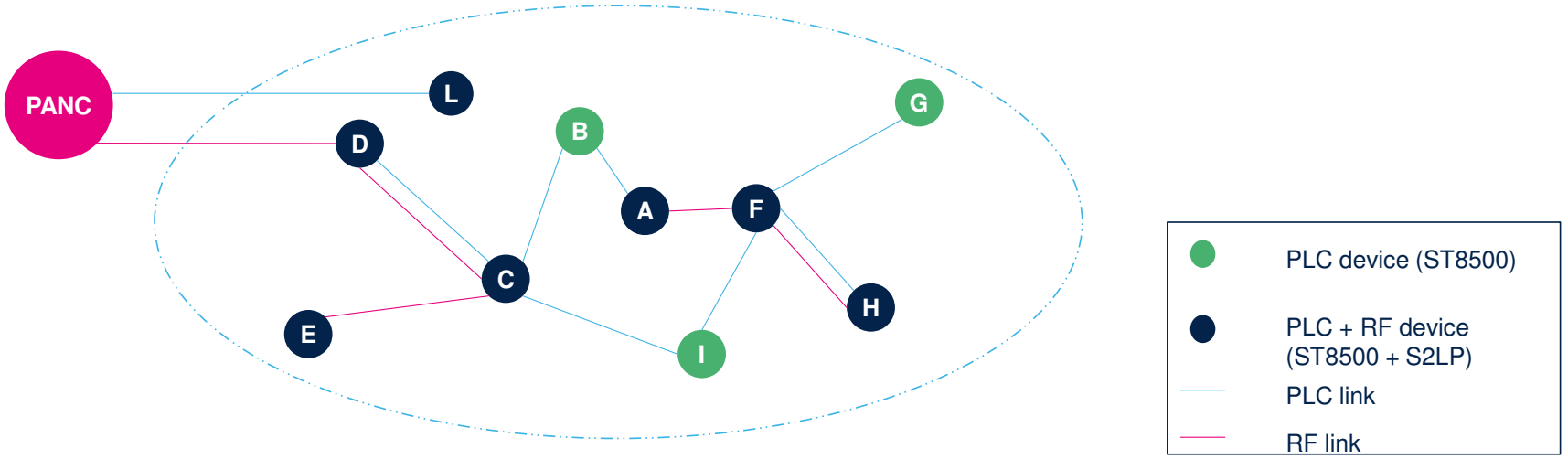


- Challenging network topologies
  - Rural area networks
  - MV/LV transformer bypass
  - Particularly harsh noise/impedance conditions
- Need to extend to other Smart Grid services (e.g. DER)
- Solution: **fully hybrid** PLC + RF Network
  - Each node has PLC and RF connectivity
  - The route is built with a **hop-by-hop automatic selection** of the best between PLC and RF media (dynamically adjusted)
- Boosting Key Performance Indicators to **100%**

G3-Hybrid network structure

Fully hybrid PLC + RF Network

- Each node has PLC or PLC+RF connectivity to others (or RF only)
- The route is built with a hop-by-hop selection of the “best” channel
- The channel selection is done during network setup and dynamically adjusted based on the media status



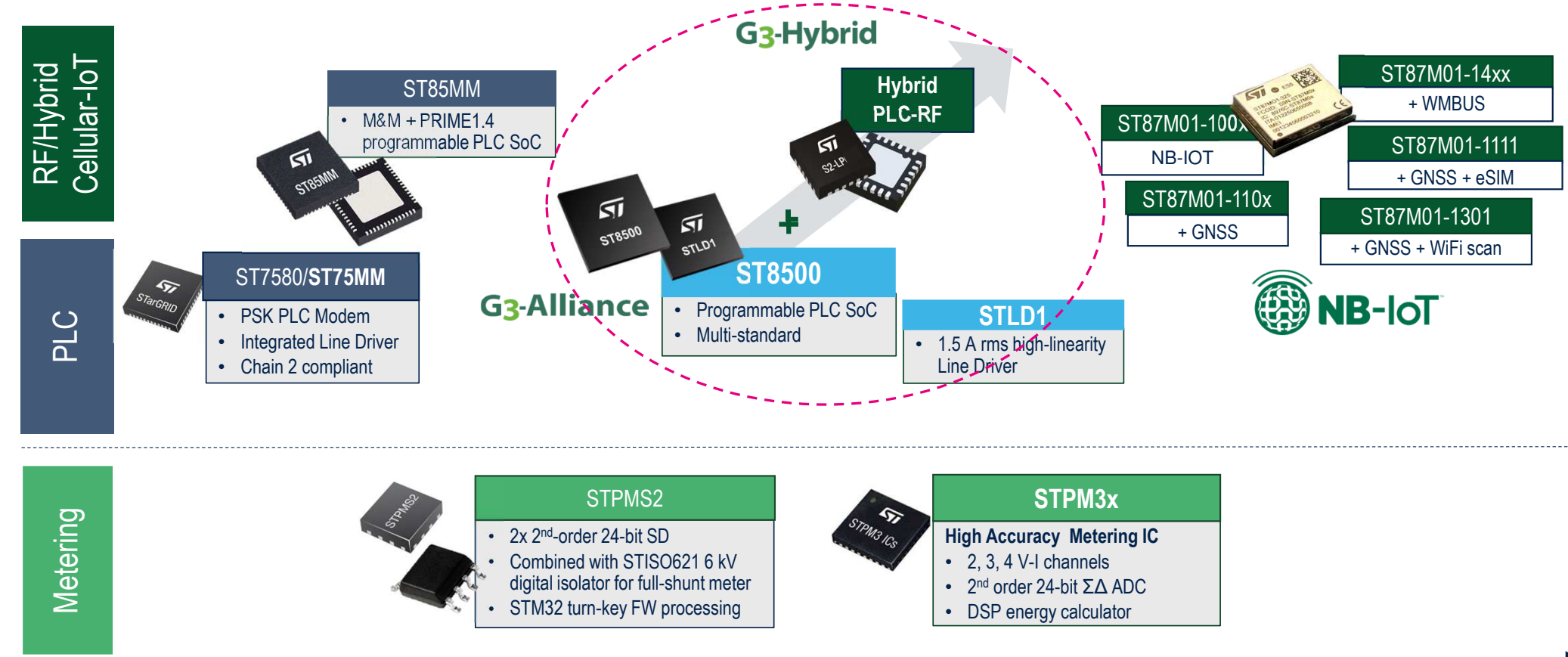
ST Technology for G3-Hybrid

Smart Grid Connectivity & Metering products

RF/Hybrid Cellular-IoT

PLC

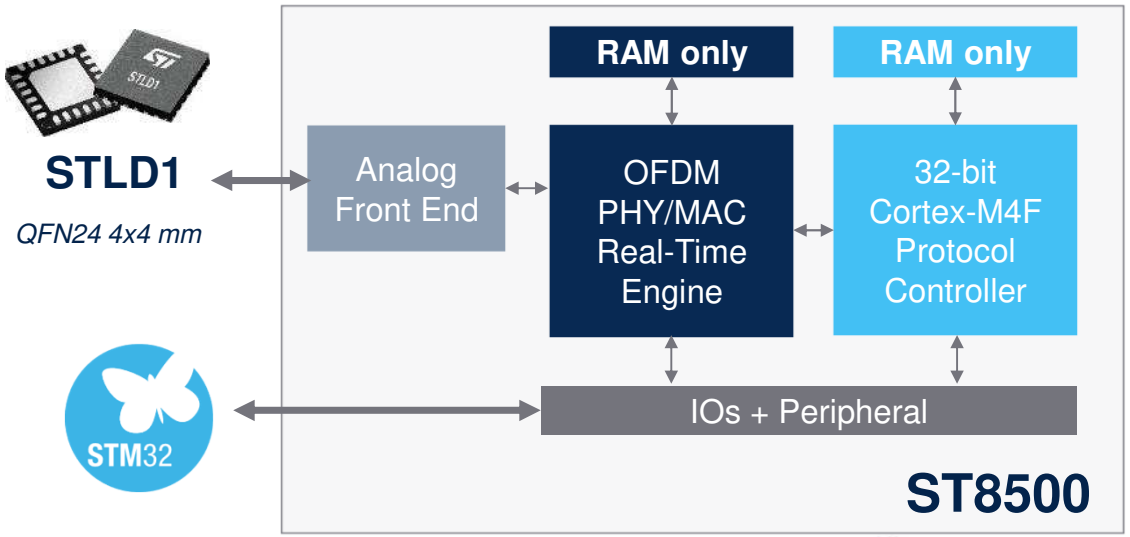
Metering



ST Value Proposition:
Market **leadership** on flexible, field-proven turn-key **system solutions**

PLC state-of-the-art solution: ST8500 / STLD1 platform

Programmable, low-power and compact PLC solution



STLD1

QFN24 4x4 mm

STM32

G3-PLC CERTIFIED CEN A HYB

G3-PLC CERTIFIED FCC HYB

QFN56 7x7 mm

Fully programmable, high performance

- 400 MHz PHY / MAC Real-Time Engine
- 200 MHz ARM® Cortex-M4F 32-bit core, 352 kB RAM

Ultra-low power consumption

- 100 mW in Receive mode

Embedded AES cryptography engine

- Up to 256-bit key, multiple security modes

Multi-standards, full 500 kHz bandwidth

- Support multiple protocols and modulations:
  - OFDM: G3
  - Standard and proprietary PSK / FSK

Best-in-class STLD1 differential line driver

- Up to 18 V p-p single-ended, 36 V p-p differential output range with 1.5 A rms max current
- Very high linearity for EMC compliance
- Integrated overtemperature protection and current sensing

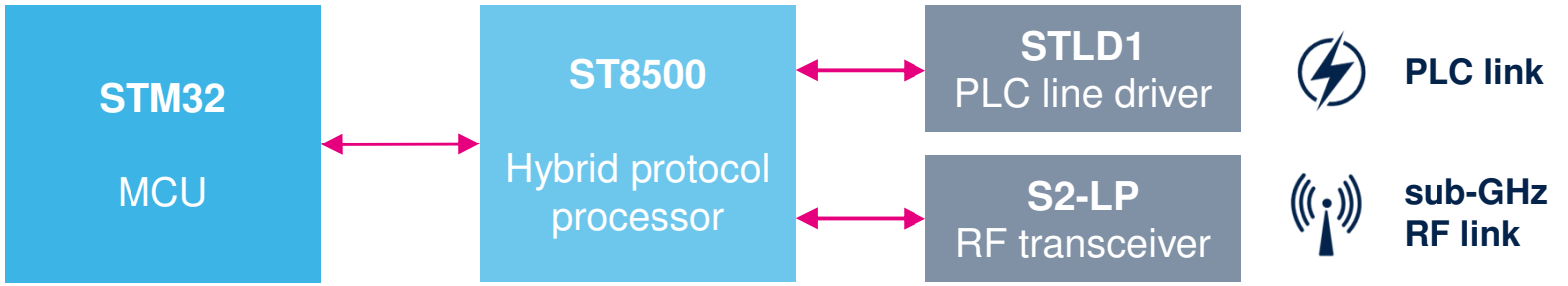
Extended temperature range

- -40 °C to +105 °C

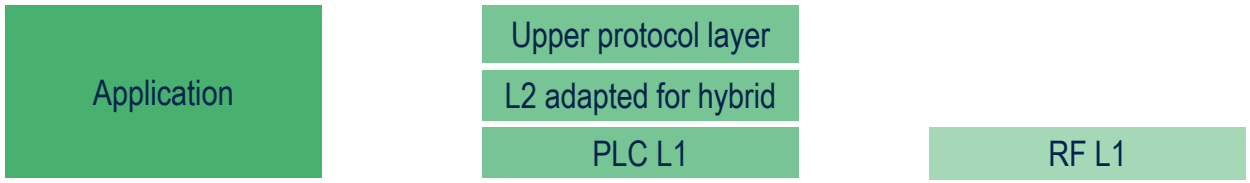
ST hybrid PLC-RF turn-key solution

Combined powerline and wireless strengths for top performance

G3-Hybrid connectivity solution for the ST8500 SoC platform



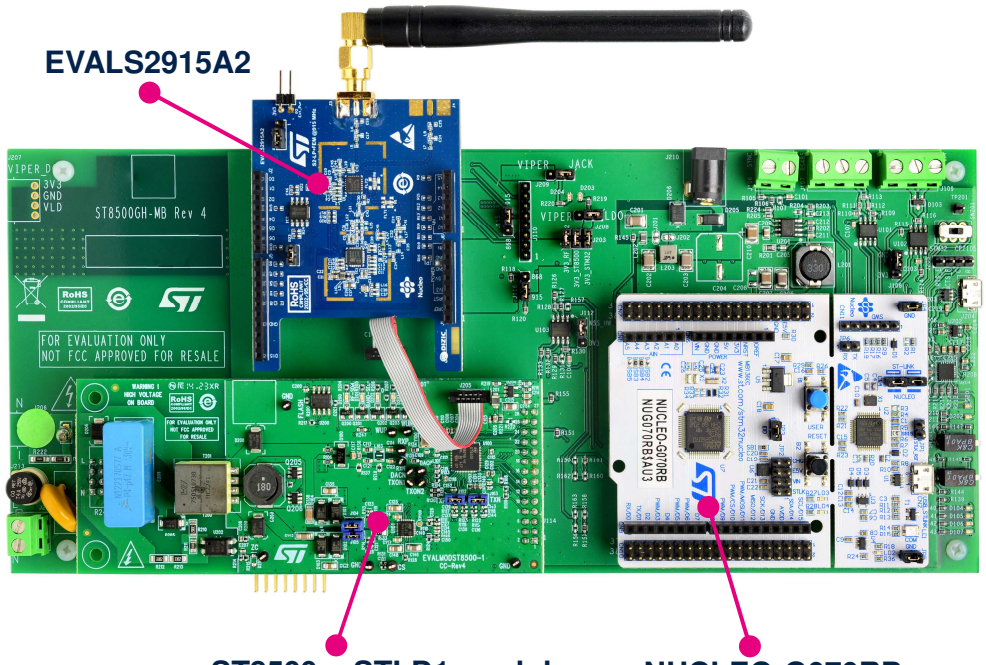
ST hybrid protocol firmware



Channel selection and switching according to which link offers better coverage
Enables highly efficient hybrid networking

Turn-key scalable development ecosystem package

Explore the many benefits of the ST G3 Hybrid application solutions



EVLKST8500GH-2

- EVLKST8500GH-2 modular kit
  - Full-feature module with **ST8500 + STLD1** for PLC connectivity over AC or DC lines
  - EVALS2915A2 based on **S2-LP** for RF connectivity in the range **860-940 MHz** at TX power up to **27 dBm**
  - NUCLEO-G070RB with **STM32G070RB** MCU as programmable application controller and PC interface
  - Module interconnection board with USB-to-UART, RS485 and CAN transceivers to develop smart connectivity applications (*)
  - **Application functionality expansion** through STM32 NUCLEO Open Development Environment
- STSW-ST8500GH-2 software framework and documentation for EVLKST85000GH-2

(*) NUCLEO board might be replaced with another model according to application development requirements

Our technology starts with You



Find out more at www.st.com

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