

工業無線的技術演進：挑戰與機遇

Technological Evolution in Industrial Wireless: Challenges and Opportunities

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Industrial Wireless Solutions

Mastering Sector-driven Markets Applications



Outdoor



AMR



Green Energy & EVs



High-End Medical



Rugged

Environmental
Adaptability

Standard Compliance
& Safety

Maintainability
& Upgradability

Customization
& Technical Support



Wi-Fi



Bluetooth



GNSS / GPS



Cellular

LoRa

Wi-Fi

GNSS



BT

5G

NFC

intel

Qualcomm

NXP



REALTEK

synaptics

MEDIATEK

u-blox

ADVANTECH

Wireless on Transforming System Architecture

Technological Evolutions in Industrial Wireless



Increasing Connection Numbers for Wi-Fi 7

- System integration in ARM-base system
- Require more connections in Wi-Fi 7 technology

Software Development in Wireless MCU

- Increasing demand on light system at lower cost
- Difficult to develop SW in host-less system

Entry-Level Cellular Solution- 5G Redcap

- Cost effective 5G solution
- Similar performance with 4G LTE Cat. 4

Rising Star of LTE Cat. 1bis

- Extend battery life
- Simplify global deployment plan

Why Wi-Fi 7 Stand out ?

Seamless, Smart, and Ultra-Fast

**Real T-put >4Gbps
(2x2 11be)**



Higher than 5G NR FR1 with 4
antennas

Ultra Low latency ~ 1ms



Similar with 5G NR FR1

**Lower cost
compared with 5G NR**



No need for base station/ small
cell and monthly fee

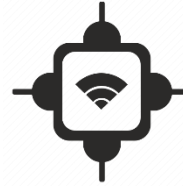
**Reliable connectivity for
multi-band links (MLO)**



Efficient transmission



Best Ally of Smart Infra. Development



Host-less MCU with
multiple IOs for data
collection



Wireless Connectivity
to complete last mile



Certificate of Origin
for Region and Tariff



Industrial-grade
Peripheral Design



Vertical-Oriented
Design-in Service

ADVANTECH

Wireless MCU:

Empowering Smart Meters & Remote Control



1

1x1 Wi-Fi6

For Data collection and remote control



3

Cost-Efficient Solution

High degree of integration contributes to very low system costs and run ROTS



2

MCU integrated

Includes a 260 MHz ARM® Cortex®-M33 core with Trustzone™-M



4

EdgeLock® security

Offers secure boot, secure debug, secure firmware updates and secure life cycle management

Smart Meter



Entry-level EV Charger



IOT Sensors





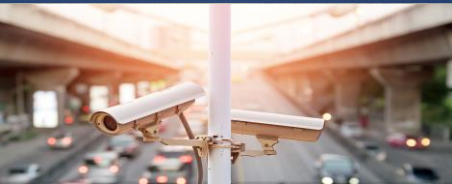
Industrial Equipment



Agricultural Operation



In-vehicle System



Smart City Surveillance

5G Redcap

Bridging 4G Simplicity with 5G Intelligence

Ultra-Reliable Low Latency Communication

- Bridging the gap between eMBB and NB-IoT
- Support consistent and stable connectivity
- Low latency for time-sensitive operations
- High availability with simplified architecture

Optimized Power Efficiency with Extended Battery Life

- Low power consumption with extended battery life
- Efficient for Low throughput applications
- Reduces total cost

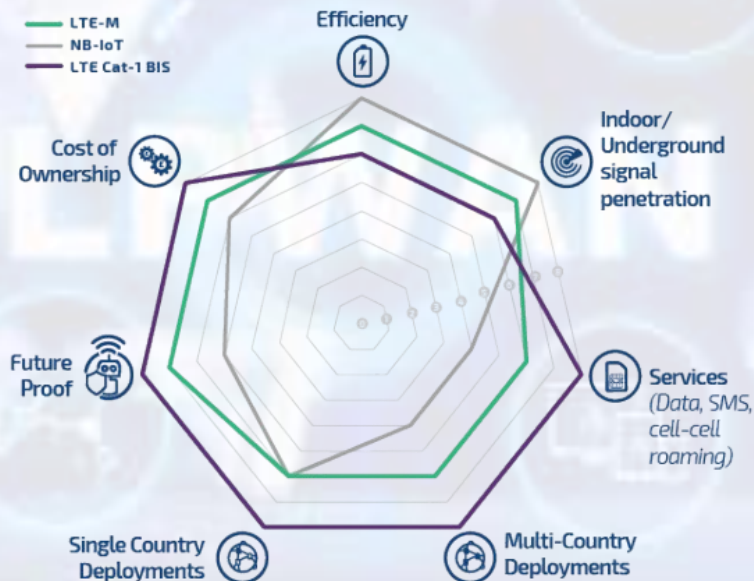
Ideally solution for mid-range IoT application

- Preserve core 5G network features with simplified HW design
- Optimize for medium-throughput IoT applications
- Support smooth migration from LTE to 5G



Cat. 1bis for Long Range IoT

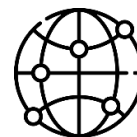
The Rising Star of LPWAN Solution



Low power consumption
for high durability



Lower cost than
Cat. 1 device



Easy for massive
global deployment



eSIM support

Market-Driven Technology

Indoor and Outdoor Location Precise Positioning

Indoor
Wi-Fi



iRetail



Warehouse

Outdoor
GNSS
QZSS



AMR



Drone

Co-Creating the Future of the IoT World

