soitec

INVESTOR CONFERENCE

CONNECTING THE WORLD WITH ENGINEERED SUBSTRATES

Barcelona | February 2024

DISCLAIMER

This document is provided by Soitec (the “Company”) for information purposes only.

The Company’s business operations and financial position are described in the Company’s 2022-2023 Universal Registration Document (which notably includes the 2022-2023 Annual Financial Report) which was filed on June 14, 2023 with the French stock market authority (Autorité des Marchés Financiers, or AMF) under number D.23-0482, as well as in the 2023-2024 half-year financial report released on November 15, 2023. The French version of the 2022-2023 Universal Registration Document and the 2023-2024 half-year financial report, together with English courtesy translation for information purposes, are available for consultation on the Company’s website (www.soitec.com), in the section Company - Investors - Financial Reports.

Your attention is drawn to the risk factors described in Chapter 2.1 (Risk factors and controls mechanism) of the Company’s 2022-2023 Universal Registration Document.

This document contains summary information and should be read in conjunction with the 2022-2023 Universal Registration Document and the 2023-2024 half-year financial report.

This document contains certain forward-looking statements. These forward-looking statements relate to the Company’s future prospects, developments and strategy and are based on analyses of earnings forecasts and estimates of amounts not yet determinable. By their nature, forward-looking statements are subject to a variety of risks and uncertainties as they relate to future events and are dependent on circumstances that may or may not materialize in the future. Forward-looking statements are not a guarantee of the Company’s future performance. The occurrence of any of the risks described in Chapter 2.1 (Risk factors and controls mechanism) of the 2022-2023 Universal Registration Document may have an impact on these forward-looking statements. In particular, the future consequences of geopolitical conflicts, notably the Ukraine / Russia situation, as well as rising inflation, may result in greater impacts than currently anticipated in these forward-looking statements.

The Company’s actual financial position, results and cash flows, as well as the trends in the sector in which the Company operates may differ materially from those contained in this document. Furthermore, even if the Company’s financial position, results, cash-flows and the developments in the sector in which the Company operates were to conform to the forward-looking statements contained in this document, such elements cannot be construed as a reliable indication of the Company’s future results or developments.

The Company does not undertake any obligation to update or make any correction to any forward-looking statement in order to reflect an event or circumstance that may occur after the date of this document. In addition, the occurrence of any of the risks described in Chapter 2.1 (Risk factors and controls mechanism) of the 2022-2023 Universal Registration Document may have an impact on these forward-looking statements.

This document does not constitute or form part of an offer or a solicitation to purchase, subscribe for, or sell the Company’s securities in any country whatsoever. This document, or any part thereof, shall not form the basis of, or be relied upon in connection with, any contract, commitment or investment decision.

Notably, this document does not constitute an offer or solicitation to purchase, subscribe for or to sell securities in the United States. Securities may not be offered or sold in the United States absent registration or an exemption from the registration under the U.S. Securities Act of 1933, as amended (the “Securities Act”). The Company’s shares have not been and will not be registered under the Securities Act. Neither the Company nor any other person intends to conduct a public offering of the Company’s securities in the United States.

AGENDA

#01

MOBILE COMMUNICATIONS MEGATRENDS

#02

COMMUNICATIONS BEYOND SMARTPHONE

#03

PRODUCT PORTFOLIO

CONVERGING THE CONNECTIVITY AND INTELLIGENCE REVOLUTIONS

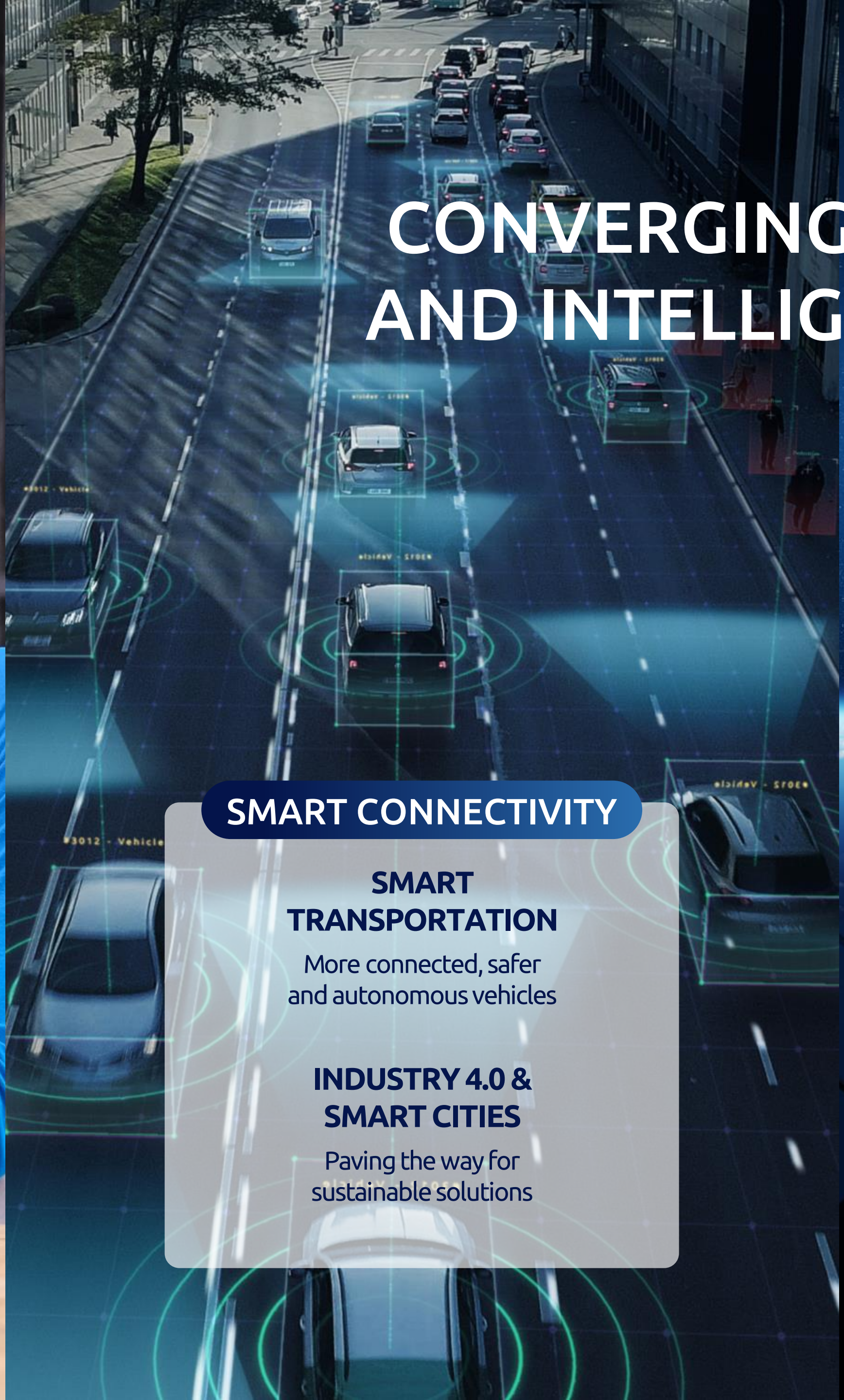
MOBILE & CONSUMER

5G ADVANCED & Wi-Fi 6 / 6E / 7

Enhanced mobile broadband experience

NEXT-GEN USER DEVICES

On-the-go and virtual reality experiences



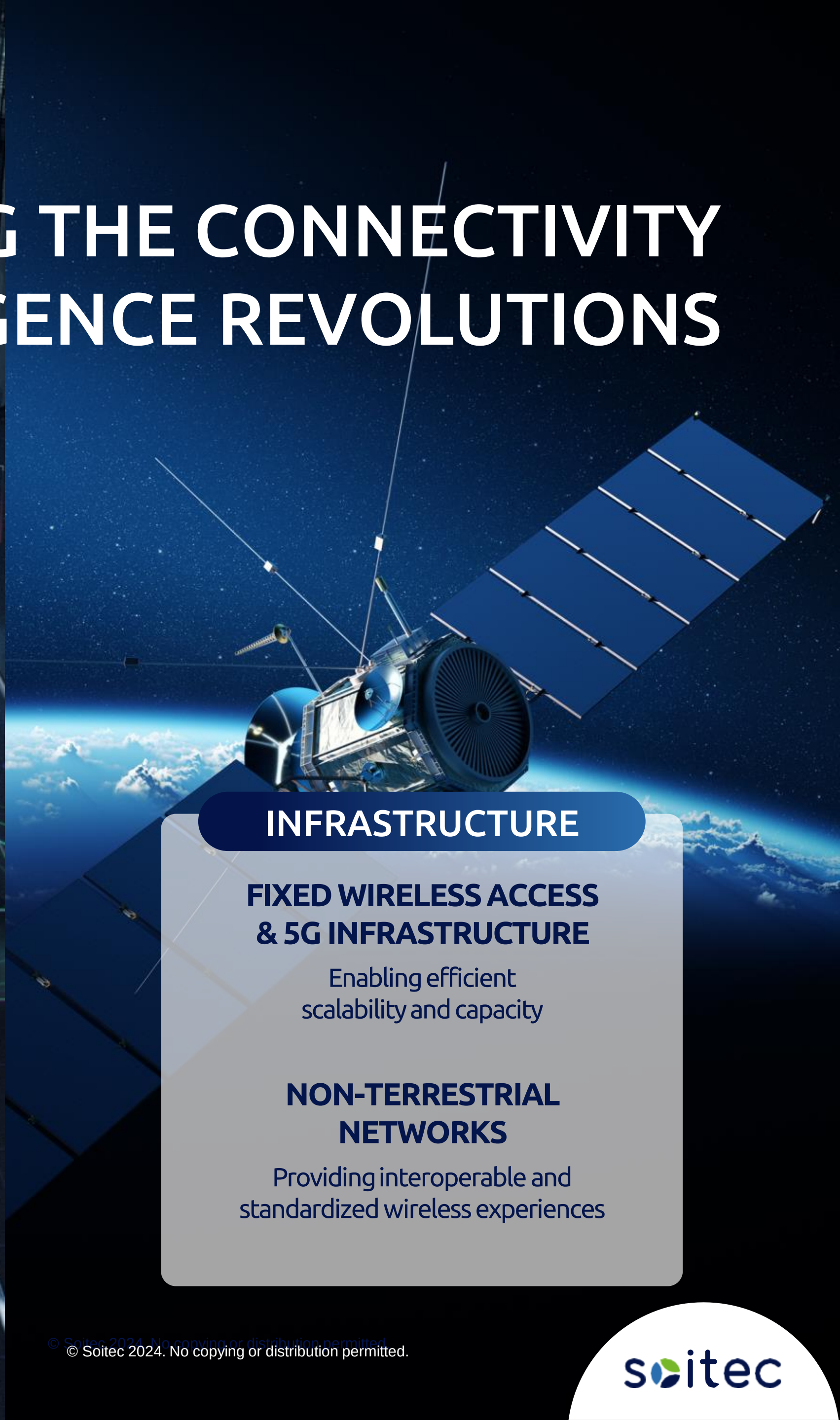
SMART CONNECTIVITY

SMART TRANSPORTATION

More connected, safer and autonomous vehicles

INDUSTRY 4.0 & SMART CITIES

Paving the way for sustainable solutions



INFRASTRUCTURE

FIXED WIRELESS ACCESS & 5G INFRASTRUCTURE

Enabling efficient scalability and capacity

NON-TERRESTRIAL NETWORKS

Providing interoperable and standardized wireless experiences

01

MOBILE COMMUNICATIONS MEGATRENDS

5G IS TRANSFORMING THE WORLD

5G PERFORMANCE vs 4G

x100
NETWORK CAPACITY

x10
SPEED

x10
FASTER RESPONSE TIME

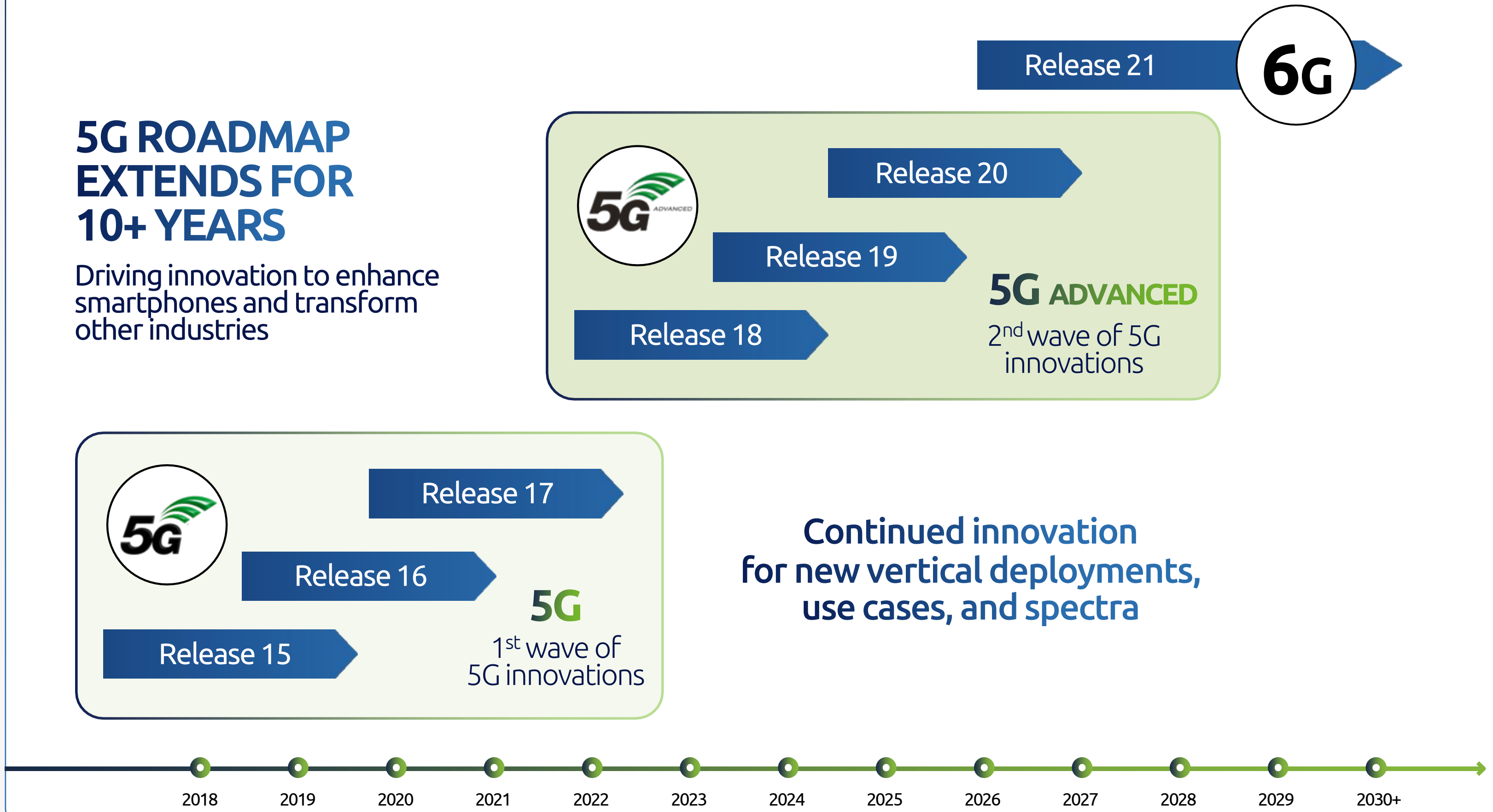
x10
CONNECTED DEVICES

x10
LESS ENERGY PER DATA

MOVING TO AN ALL CONNECTED 5G WORLD

5G ROADMAP EXTENDS FOR 10+ YEARS

Driving innovation to enhance smartphones and transform other industries



Continued innovation for new vertical deployments, use cases, and spectra

Source: Qualcomm, Ericsson

5G

SUSTAINED GROWTH IN GLOBAL MOBILE DATA TRAFFIC

5G DATA TRAFFIC IN ACCELERATION BEYOND 2023

x3.3

5G MOBILE SUBSCRIPTIONS
5.3B IN 2029

x2.5

FIXED WIRELESS ACCESS CONNECTIONS
330M IN 2029

x2.7

AVERAGE DATA CONSUMPTION PER SMARTPHONE
56GB / MONTH IN 2029

Public & private networks

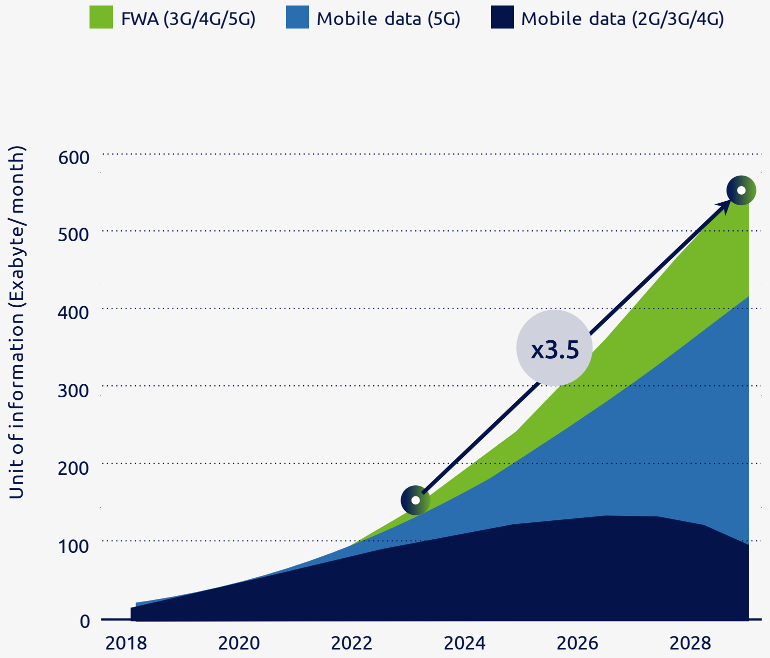
Smart transportation

Massive IoT

Industry 4.0

Source: Ericsson Mobility report November 2023

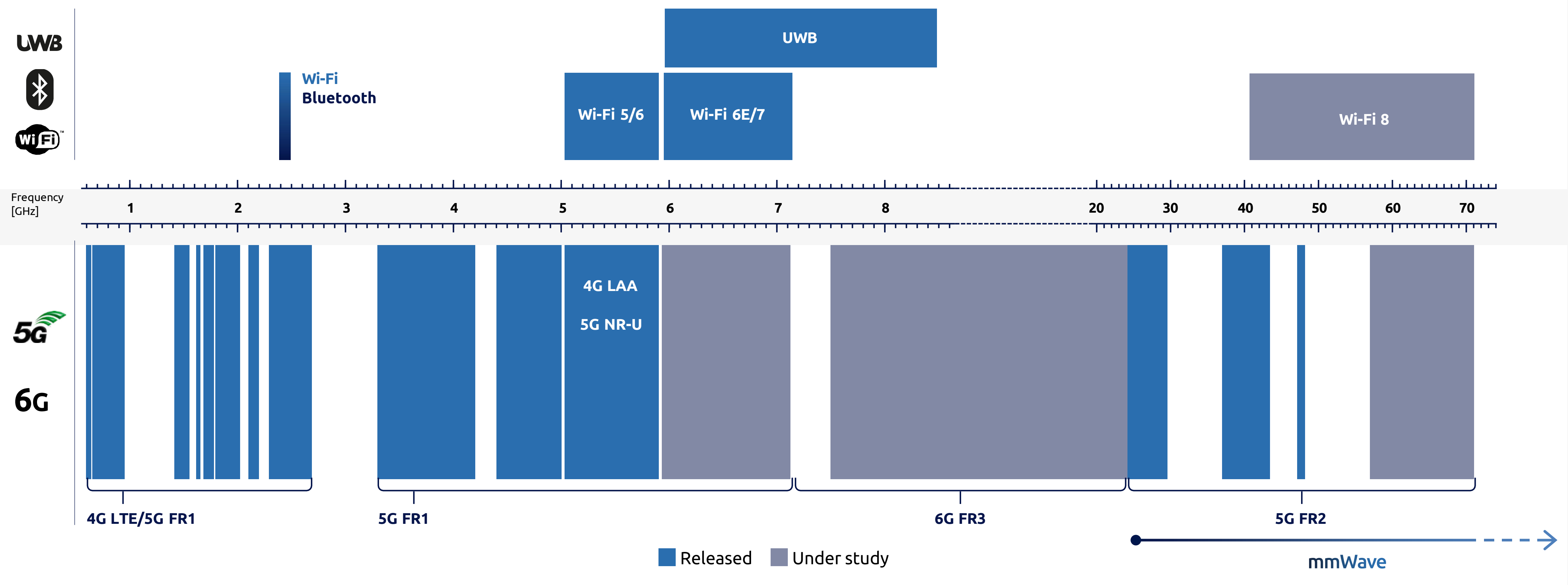
5G enabling significant data traffic growth



FWA (Fixed Wireless Access)

MORE FREQUENCY SPECTRUM
TO ACCOMMODATE AN INCREASING NEED IN DATA TRAFFIC

In the last 10 years, mobile data traffic has more than doubled on average every second year

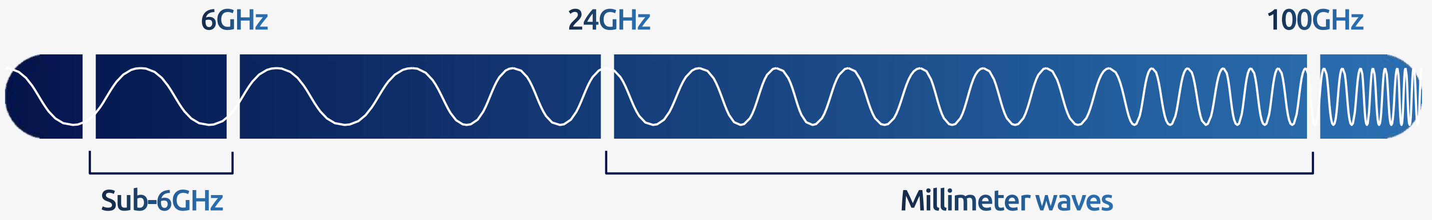


Source: Soitec, 2024

5G mmWave

EXPANDING 5G BOUNDARIES

25x MORE BANDWIDTH THAN 4G



HIGH DATA RATES AND LOW LATENCY FOR NEW USE CASES

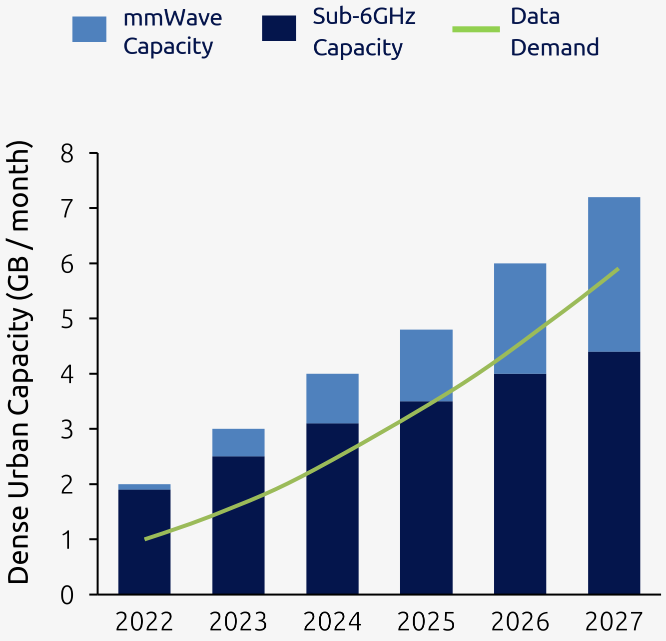

Crowded area capacity


Last-mile fiber complement


AR / VR everywhere


5G Smart Factory

5G mmWave ENABLING SIGNIFICANT CAPACITY ADD-ON IN DENSE AREAS

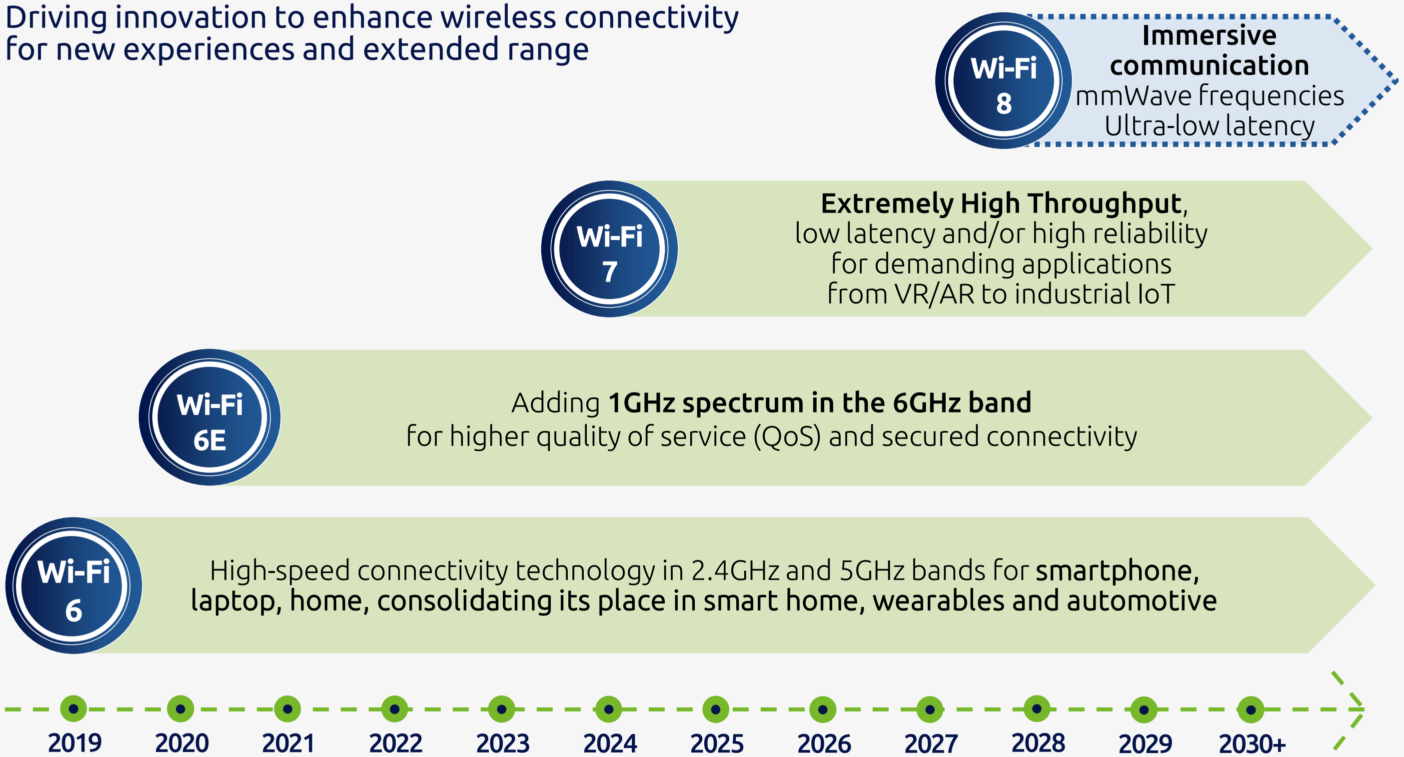


Source: Mobile Experts

Wi-Fi 6 AND 7 – THE NEW PARADIGM FOR WIRELESS CONNECTVITY
ENABLING ENHANCED USER EXPERIENCES

Wi-Fi 6 / 6E / 7 pave the way for new wireless connectivity
Wi-Fi 8 is on the way

Driving innovation to enhance wireless connectivity for new experiences and extended range



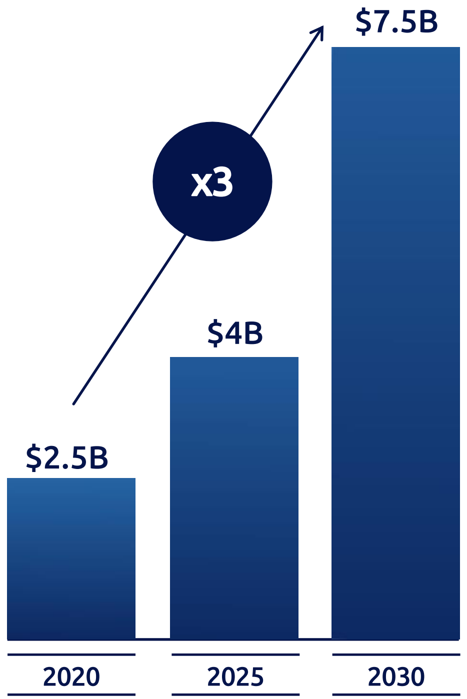
Wi-Fi 8
Immersive communication
mmWave frequencies
Ultra-low latency

Wi-Fi 7
Extremely High Throughput, low latency and/or high reliability for demanding applications from VR/AR to industrial IoT

Wi-Fi 6E
Adding **1GHz spectrum in the 6GHz band** for higher quality of service (QoS) and secured connectivity

Wi-Fi 6
High-speed connectivity technology in 2.4GHz and 5GHz bands for **smartphone, laptop, home, consolidating its place in smart home, wearables and automotive**

Wi-Fi FRONT-END-MODULE SEMICONDUCTOR MARKET



Source: Soitec estimates

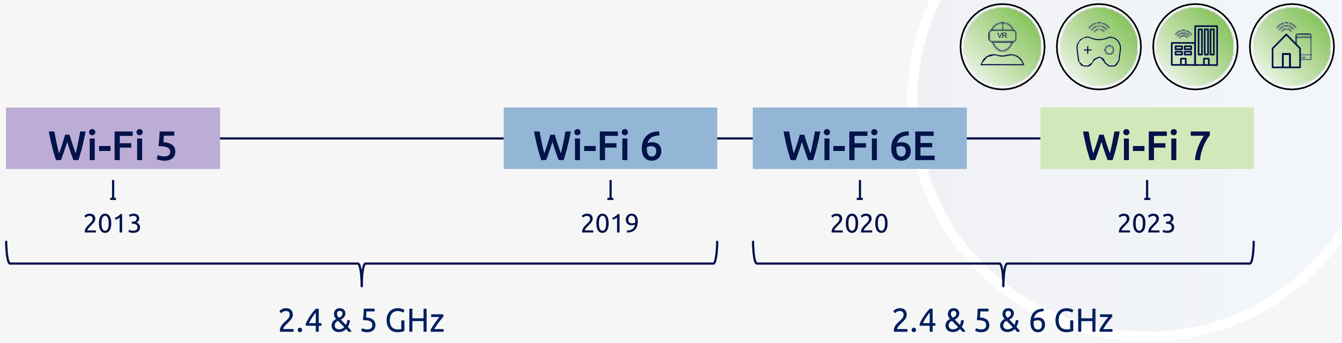
Wi-Fi 7 – TRANSITION TO FASTER CONNECTIVITY

x4
Performance per watt

x6
Faster response time

x60
Longer range

IMPROVED PERFORMANCE FOR Wi-Fi CONNECTIVITY ADDRESSES NEW USES CASES



Wi-Fi CONNECTIVITY STANDARD SPLIT AMONG SMARTPHONE MARKET

Source: Soitec estimates, ABI 2023, Broadcom 2023
Note: x factors are on average, Wi-Fi 7 vs Wi-Fi 6

THE INTELLIGENCE REVOLUTION MOVING BEYOND THE CONNECTIVITY REVOLUTION

4G & 5G

CURRENT APPLICATIONS
- Computational photography
- Mobile gaming
- Voice assistant

CLOUD AI LIMITATIONS
- Latency
- Need for a reliable connection
- Privacy risk
- High power consumption in datacenters

SMARTPHONE + CLOUD AI

TODAY

5G &
5G Advanced
+ mmWave

SMARTPHONE + CLOUD & EDGE AI

FUTURE APPLICATIONS
- Advanced computational photography
- Desktop-level gaming on smartphone
- Augmented virtual companion
- Real-time language translation
- On-device text and image generation

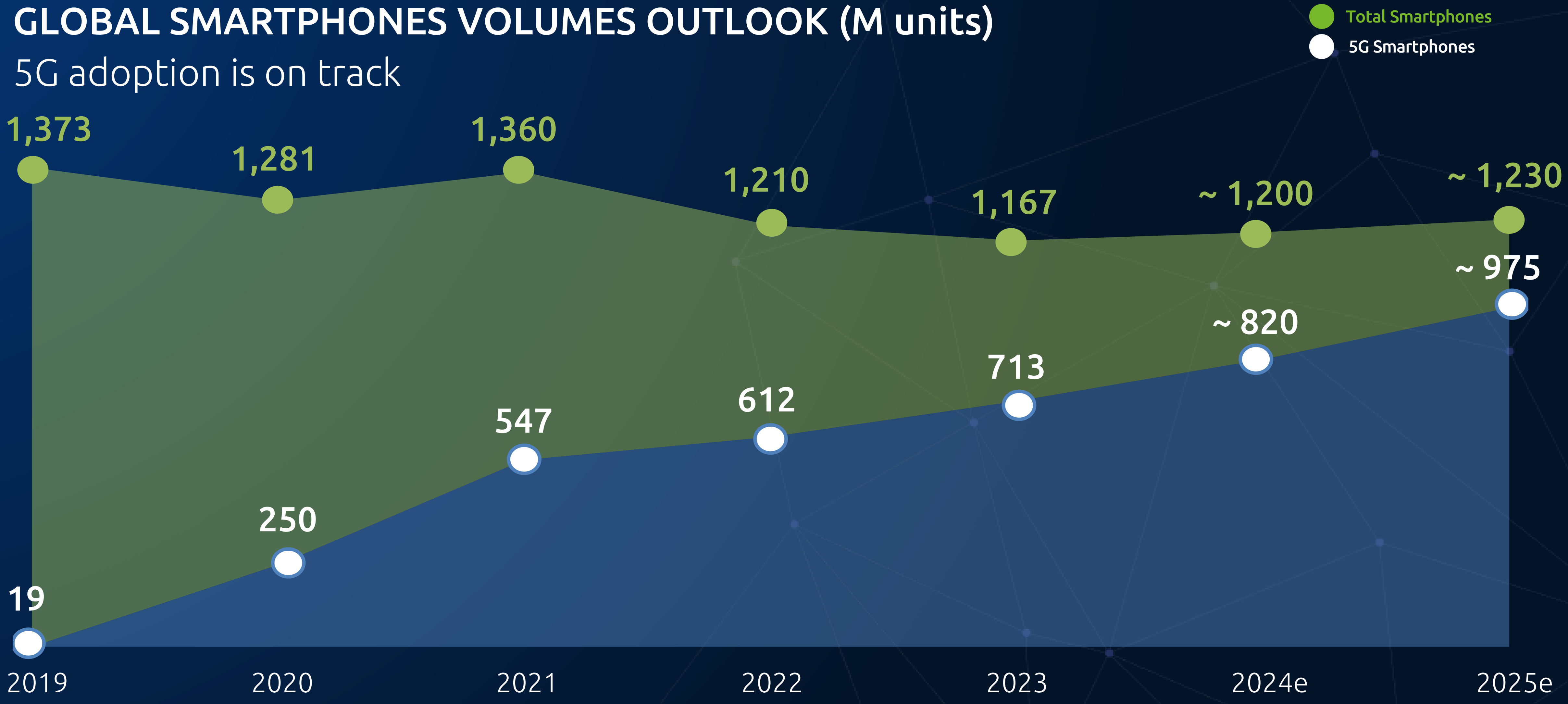
BENEFITS OF EDGE AI
- Zero latency
- No connection required
- Privacy secured
- Low power consumption

TOMORROW

Source: Qualcomm

GLOBAL SMARTPHONES VOLUMES OUTLOOK (M units)

5G adoption is on track



Source: IDC, Soitec estimates

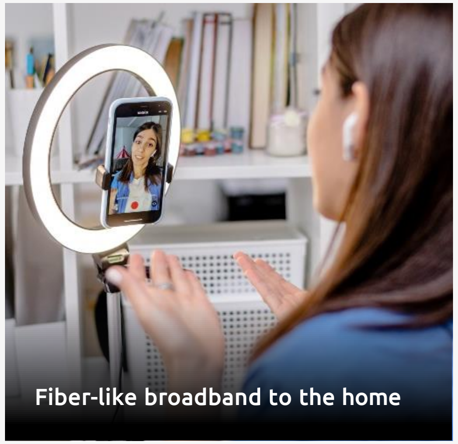
COMMUNICATIONS BEYOND SMARTPHONE

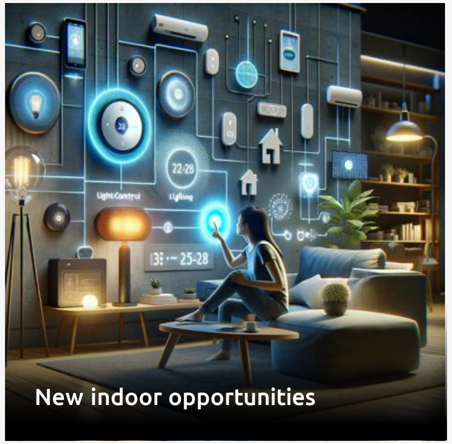
FIXED WIRELESS ACCESS – ENABLING FIBER TO THE HOME

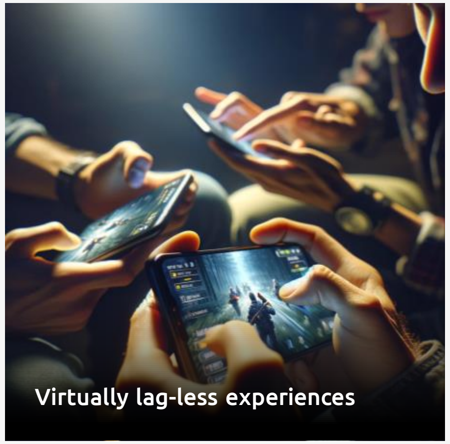
Last-mile technology with fiber-like data speeds

FWA networks could eliminate the need for "last-mile" fiber

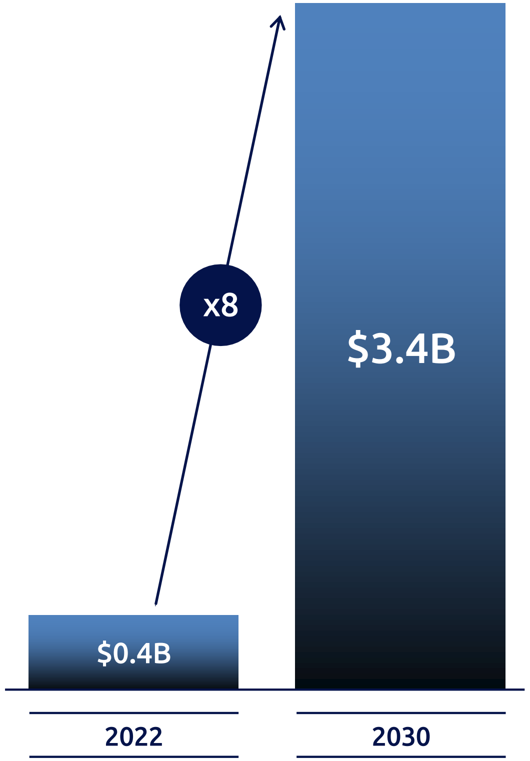
5G mmWave further improves user experience through gigabit wireless and low latency services


Fiber-like broadband to the home


New indoor opportunities


Virtually lag-less experiences

FIXED WIRELESS ACCESS
FRONT-END-MODULE SEMICONDUCTOR MARKET



Source: Soitec Estimates, Yole 2023

WIRELESS CONNECTIVITY IN AUTOMOTIVE

INFOTAINMENT
in-vehicle

Internet services
Navigation system
Screen mirroring

Hands free voice
Multimedia streaming

TELEMATICS
cloud ↔ vehicle
satellite ↔ vehicle

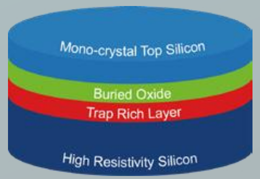
OTA Update
Vehicle location
Optimum routing

Internet access
Fleet utilization
Media services

ENVIRONMENT
V2x

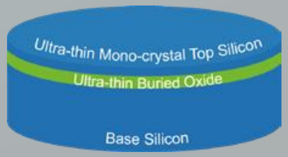
Dynamic traffic signage
Connection to home
Pedestrian warning

Driver assistance
Remote control
Keyless access



RF-SOI
Extended High performance
RFFE for connectivity,
C-V2X & 5G in automotive

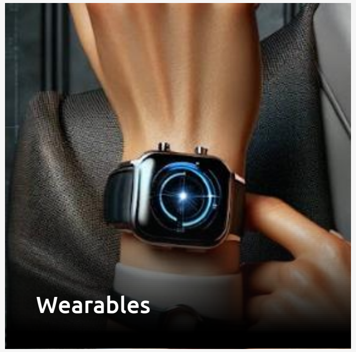
FD-SOI
Extensive SoC solution
from connectivity to
MCU/PMU edge computing



Source: Soitec

NEXT GENERATION OF CONNECTED USER DEVICES
RELIABLE, HIGH-BANDWIDTH & LOW-LATENCY CONNECTIVITY

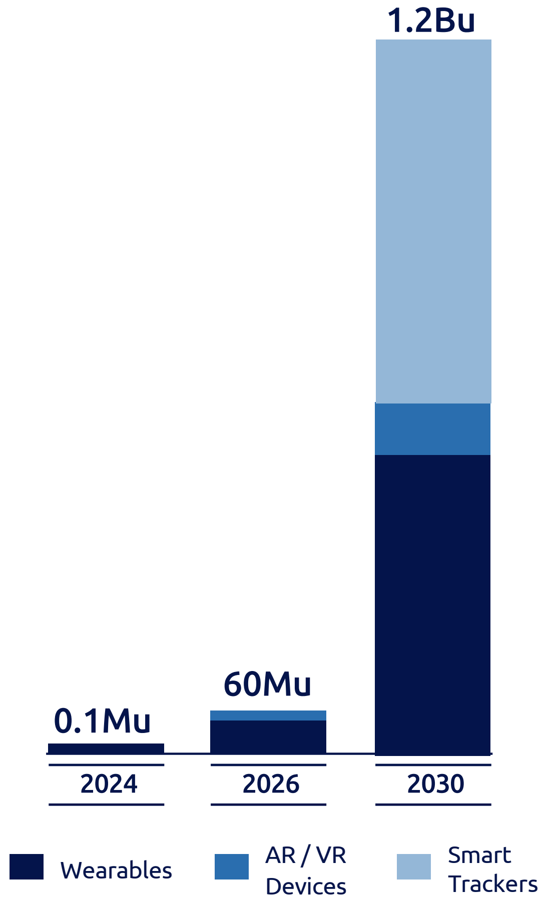
APPLICATIONS EVOLVE TO BENEFIT FROM IMPROVED 5G ADVANCED TECHNOLOGY



5G Advanced and Wi-Fi 7 / 8 to support next gen user devices challenges

- Low power consumption user devices for wearables
- Low latency and extended throughput for next gen AR/VR
- Higher location accuracy for personal trackers

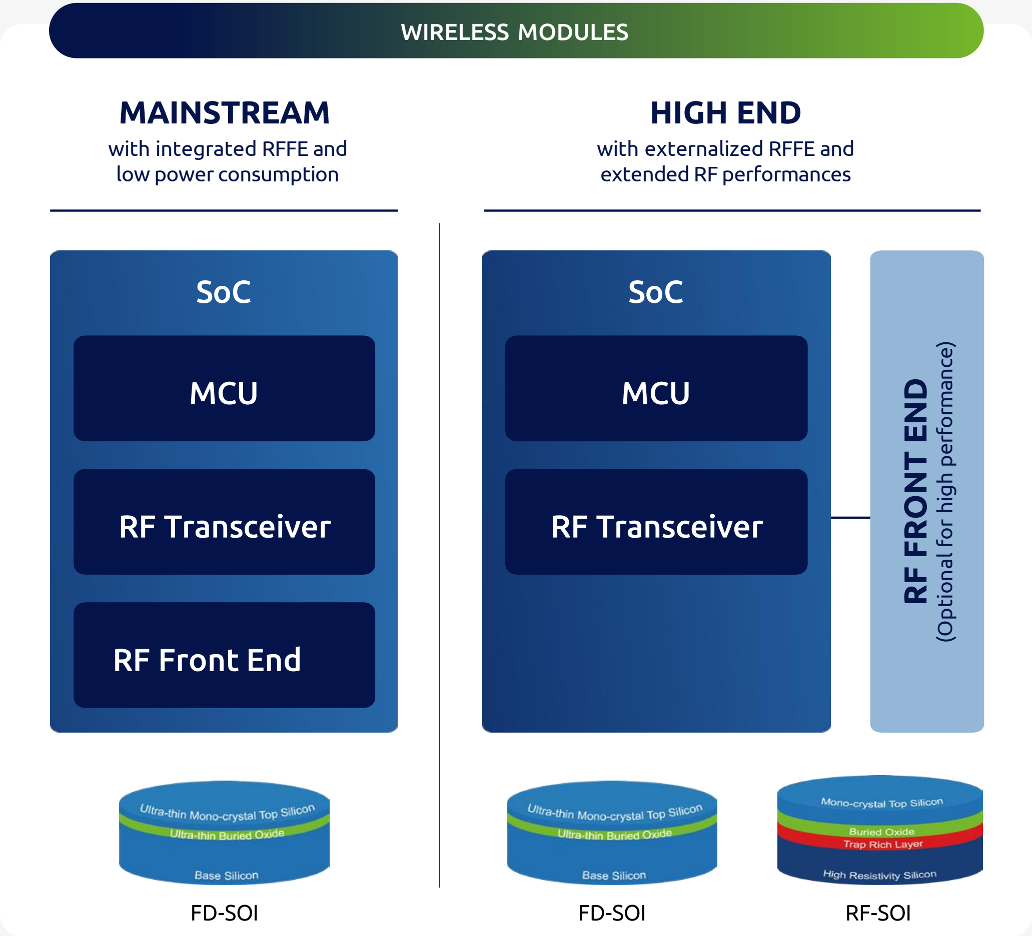
NEXT-GEN USER DEVICES EMBEDDING 5G ADVANCED TECHNOLOGY



Source: ABI, 2023

WIRELESS CONNECTIVITY IN SMART DEVICES

ENABLING WIRELESS FUNCTIONALITIES AT LOW POWER CONSUMPTION



WIRELESS MODULES

MAINSTREAM

with integrated RFFE and
low power consumption

SoC

- MCU
- RF Transceiver
- RF Front End

FD-SOI

HIGH END

with externalized RFFE and
extended RF performances

SoC

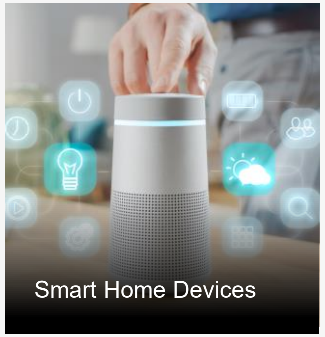
- MCU
- RF Transceiver

RF FRONT END
(Optional for high performance)

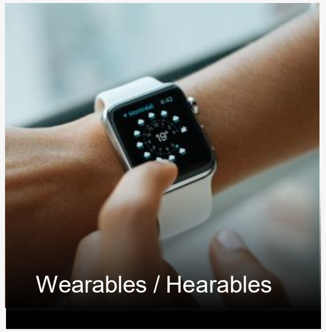
FD-SOI

RF-SOI

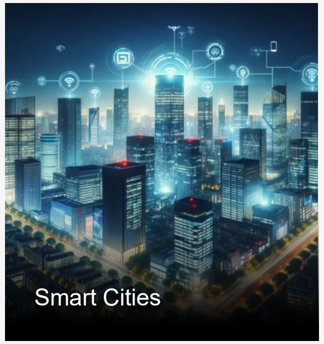
POWER EFFICIENT WIRELESS SOLUTIONS SUPPORTING A WIDE RANGE OF APPLICATIONS



Smart Home Devices



Wearables / Hearables

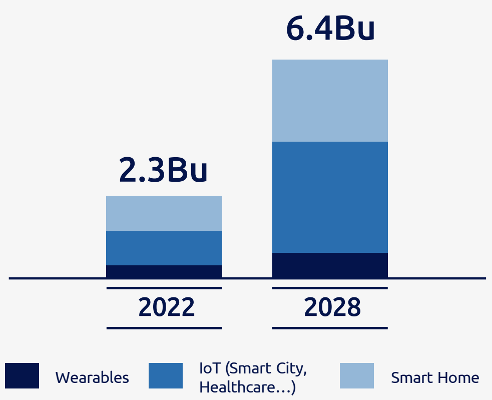


Smart Cities

SOI ENGINEERED SUBSTRATES ENABLE BETTER SMART DEVICES

- **BATTERY POWER SAVINGS**
- **INTEGRATION FROM SOC TO MODULE**
- **SIGNAL INTEGRITY WITH MULTI CONNECTIVITY PROTOCOLS**

CONNECTIVITY WIRELESS SMART DEVICES



Source: ABI, 2023

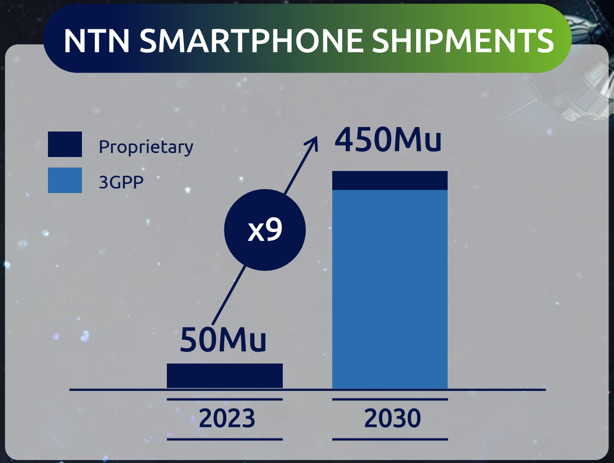
NON-TERRESTRIAL NETWORK (NTN) CONNECTIVITY

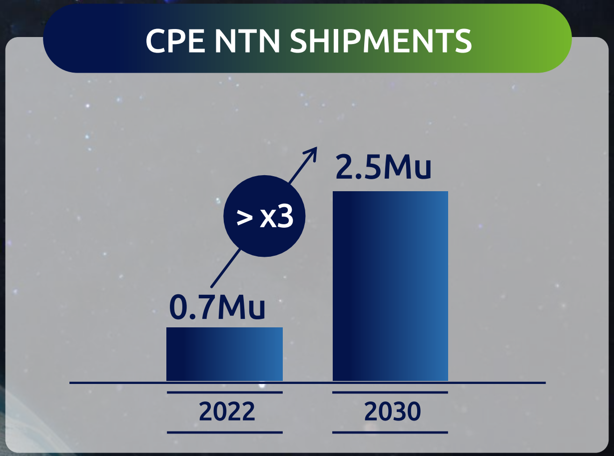
5G MOBILE

- New NTN bands standardized by 3GPP
- Standard mobile phone with RFFE hardware add-on
- Soitec Connect products as part of RFFE solution

CUSTOMER PREMISES EQUIPMENT NON-TERRESTRIAL NETWORKS

- Fully integrated SoC solution reducing footprint
- Smaller arrays and lower cost using Connect SOI
- Connect SOI solution for low energy power consumption





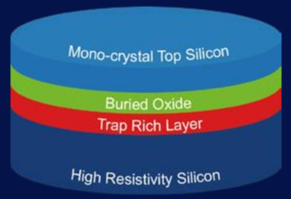
Source: ABI, 2023

03

PRODUCT PORTFOLIO

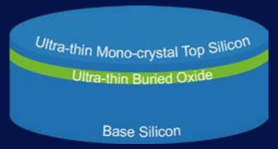
SOITEC PRODUCT PORTFOLIO ENABLES BEST-IN-CLASS CONNECTIVITY

A COMPREHENSIVE OFFER FOR Sub-6GHz & mmWave FRONT-END MODULES



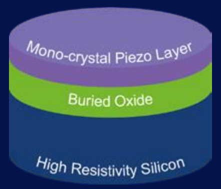
Connect RF-SOI

For highly efficient mobile communications



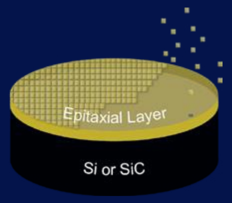
Connect FD-SOI

Integrated technology



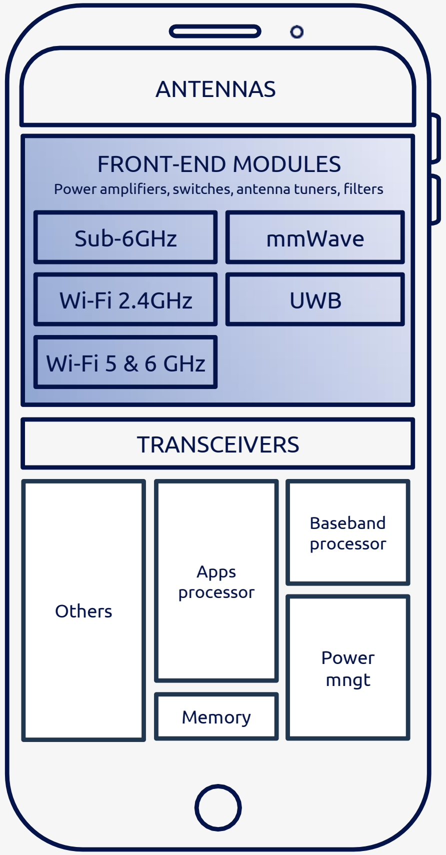
Connect POI

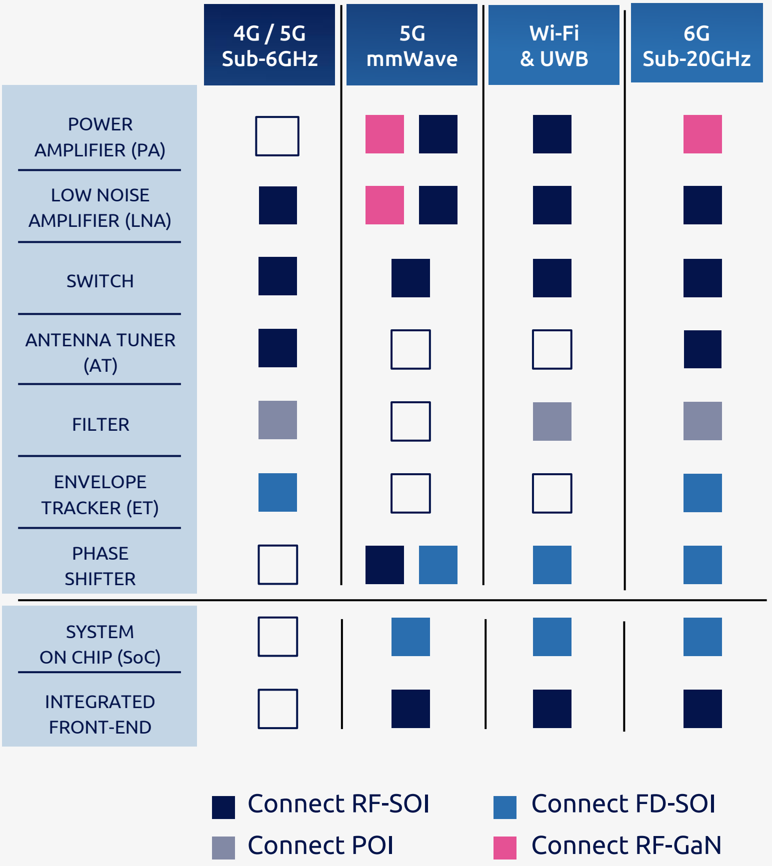
High performance 5G filters



Connect RF-GaN

High-performance power amplifiers





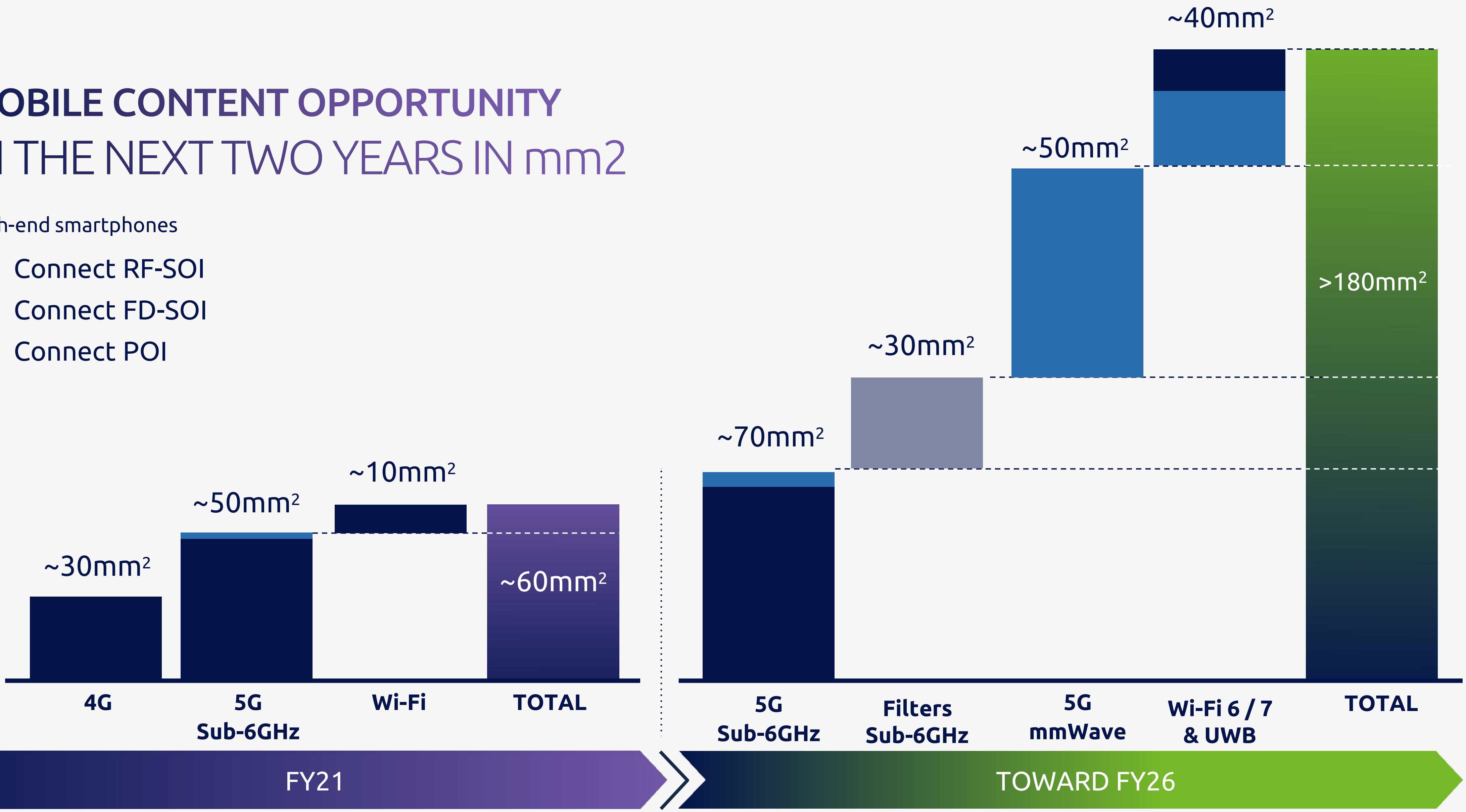
	4G / 5G Sub-6GHz	5G mmWave	Wi-Fi & UWB	6G Sub-20GHz
POWER AMPLIFIER (PA)	☐	🟪 ■	■	🟪
LOW NOISE AMPLIFIER (LNA)	■	🟪 ■	■	■
SWITCH	■	■	■	■
ANTENNA TUNER (AT)	■	☐	☐	■
FILTER	▨	☐	▨	▨
ENVELOPE TRACKER (ET)	🟦	☐	☐	🟦
PHASE SHIFTER	☐	■ 🟦	🟦	🟦
SYSTEM ON CHIP (SoC)	☐	🟦	🟦	🟦
INTEGRATED FRONT-END	☐	■	■	■

■ Connect RF-SOI
🟦 Connect FD-SOI
▨ Connect POI
🟪 Connect RF-GaN

MOBILE CONTENT OPPORTUNITY
IN THE NEXT TWO YEARS IN mm2

High-end smartphones

■ Connect RF-SOI
🟦 Connect FD-SOI
▨ Connect POI



MOBILE PRODUCT PORTFOLIO
CONNECT RF-SOI

Connect RF-SOI embedded in 100% of 5G smartphones

CONNECT RF-SOI EXPANDING LEADERSHIP INTO NEW 5G VERTICALS


5G
Communications


Automotive &
Industry 4.0

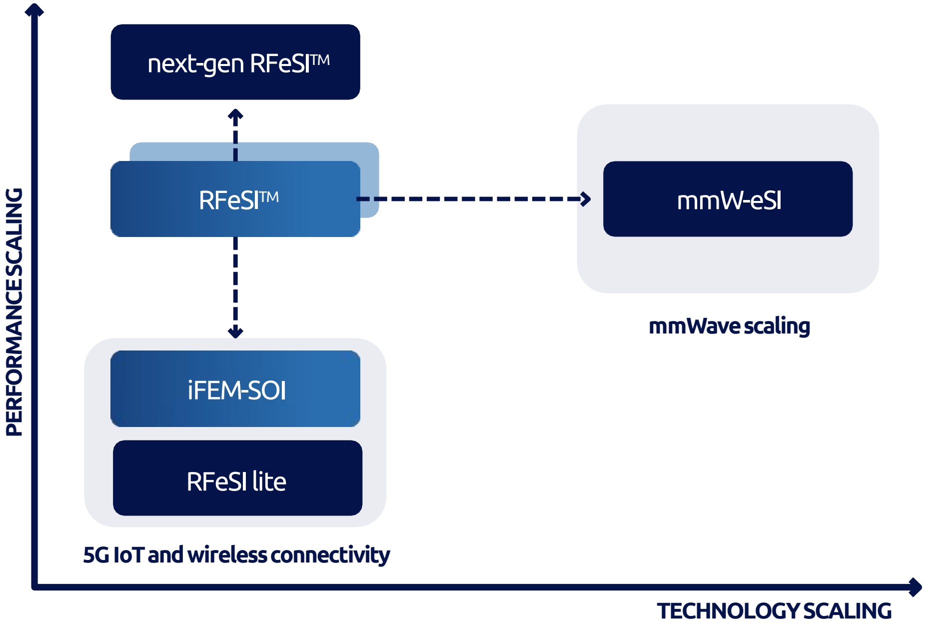

AR / VR


Fixed Wireless Access

OUR RF-SOI SUBSTRATES ENABLE

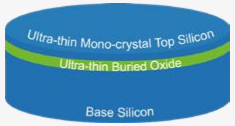
- 5G CONNECTIVITY ENHANCEMENT
- BATTERY POWER SAVING
- OPTIMIZED FOOTPRINT WITH RFFE INTEGRATION

CONNECT RF-SOI ROADMAP



●	PRODUCTION 300mm
●	PRODUCTION 200mm
●	IN DEVELOPMENT 300mm

MOBILE PRODUCT PORTFOLIO
CONNECT FD-SOI



FD-SOI for mmWave endorsed by major smartphone OEMs


Samsung Galaxy S24


Google Pixel 8
Google Pixel 8 Pro


Google Pixel Fold


Samsung Galaxy A53


Google Pixel 7
Google Pixel 7 Pro


Google Pixel 6
Google Pixel 6 Pro

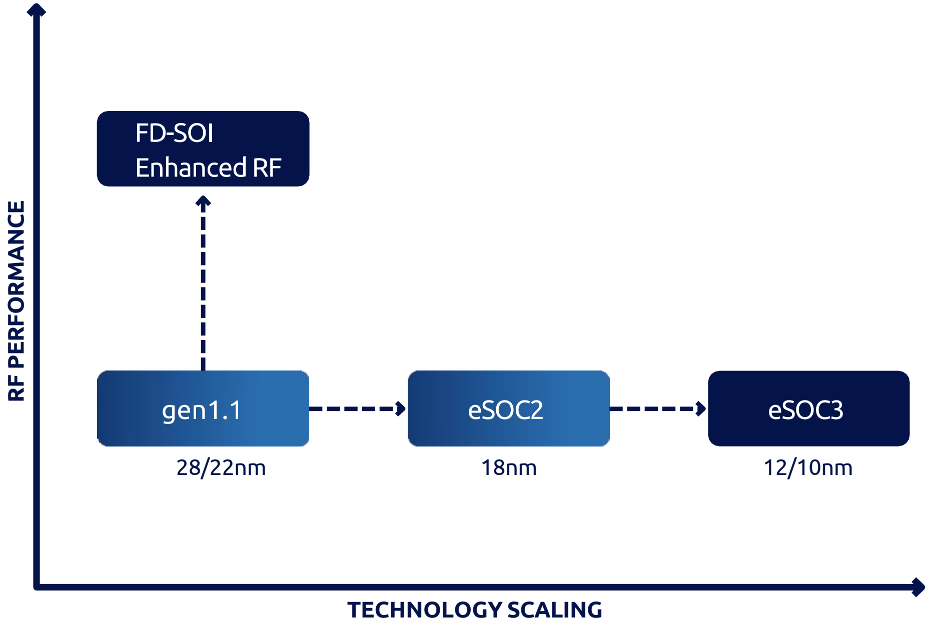
OUR RF-SOI SUBSTRATES ENABLE

HIGH QUALITY & EXTENDED 5G mmWave LINK

>10% BATTERY POWER SAVING

OPTIMIZED FOOTPRINT WITH DIGITAL SCALING

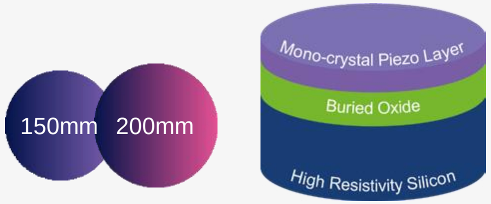
CONNECT FD-SOI ROADMAP



● PRODUCTION ● IN DEVELOPMENT

Images source: store.google.com, motorola.com, samsung.com

MOBILE PRODUCT PORTFOLIO
CONNECT POI



NEW 5G CHALLENGES

- x10 Filter paths
- x2 Bandwidth
- x2 Power requirement

FILTER CHALLENGES

- More multiplexing
- High quality factor & better coupling factor
- Better insertion losses
- Better temperature stability
- Manufacturing cost

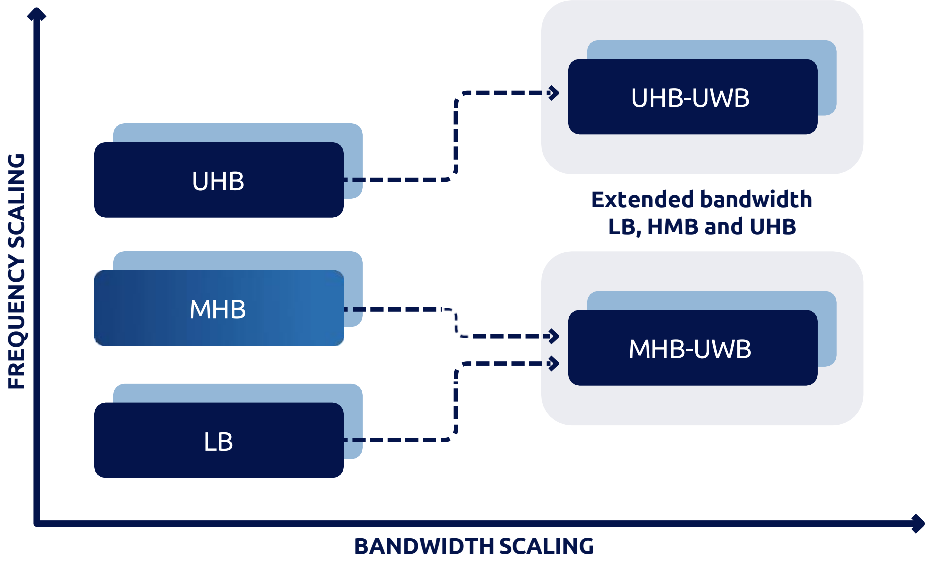
POI VALUE

- Multiplexer die integration
- x2 quality factor
- Coupling factor up to 20%
- Insertion losses <1dB
- x2 lower temperature drift
- Simpler manufacturing process
- 200mm scaling

OUR POI SUBSTRATES ENABLE

- BETTER FILTER PERFORMANCE
- BATTERY POWER SAVING
- OPTIMIZED FILTER BOM FOOTPRINT

CONNECT POI ROADMAP



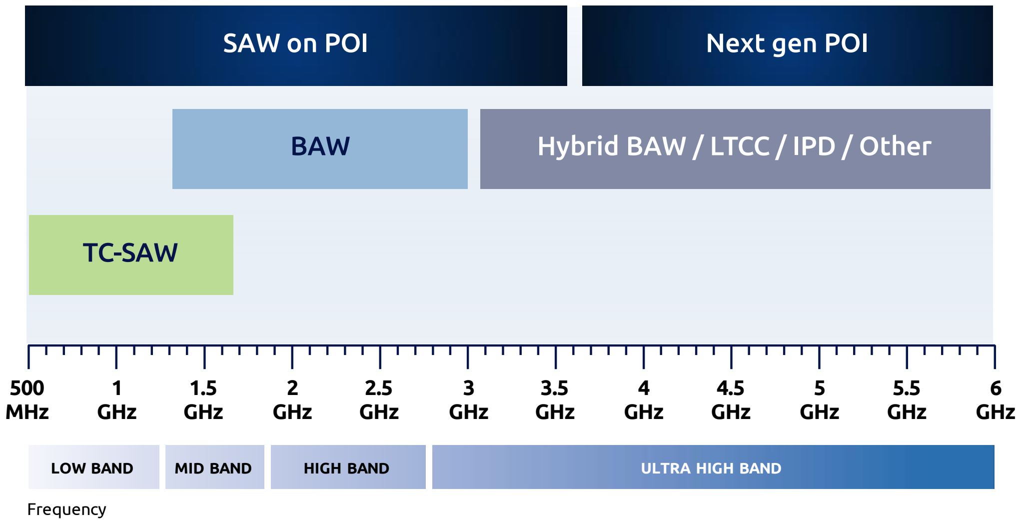
LB: LOW BAND (0.6-1GHz)
MHB: MID-HIGH BAND (1.4-2.7GHz)
UHB: ULTRA HIGH BAND (>3.3GHz)

● **PRODUCTION 150mm**
● **IN DEVELOPMENT 150mm**
● **IN DEVELOPMENT 200mm**

MOBILE PRODUCT PORTFOLIO
WHY CONNECT POI?

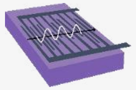
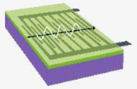
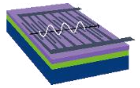
SAW-ON-POI CAN OPERATE ACROSS THE ENTIRE FREQUENCY SPECTRUM

Enabling transition to higher bands

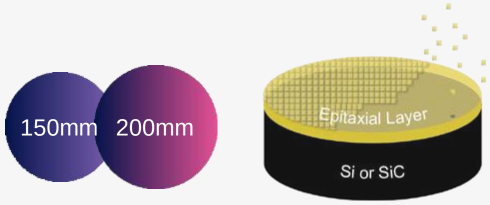


SAW-ON-POI ADDRESSES ALL 5G FILTER NEEDS

From higher selectivity to lower insertion losses,
enhanced frequency stability and easier multiplexer integration

	 SAW	 TC-SAW	 BAW	 SAW-on-POI
Substrate	Piezo (non-POI)	Piezo (non-POI)	Piezo (non-POI)	POI
Quality Factor	⊜	⊖	⊕	⊕
Coupling factor	⊜	⊖	⊜	⊕
Temperature Compensation	⊜	⊕	⊜	⊕ ⊕
Process simplicity	⊜	⊖	⊖	⊜
Integration	⊜	⊜	⊜	⊕

MOBILE PRODUCT PORTFOLIO
CONNECT RF-GaN



GaN technology is a standard for RF power amplifiers in 5G MIMO base stations

GaN-on-Silicon is penetrating 5G base station market for 5G radio cost reduction

GaN technology will meet new 5G mobile requirements with new power class devices and new 5G bands

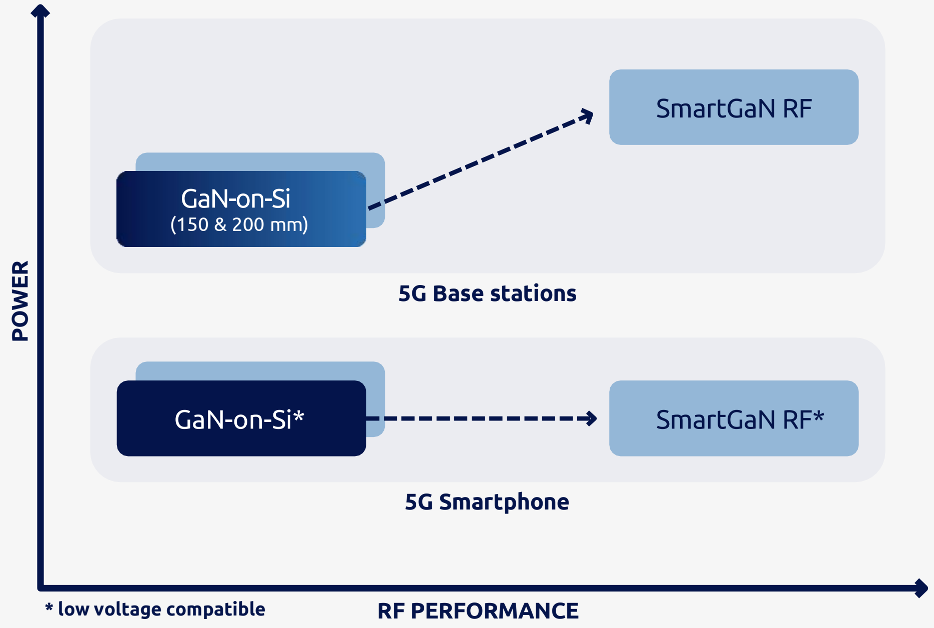
SOITEC CONNECT RF-GaN SOLUTION FOR MOBILE AND INFRASTRUCTURE

Unique expertise to capture **GaN-on-Si** long-term trend for **Mobile and Infrastructure**

Strong experience to serve high volume manufacturing markets

Long-term roadmap to meet higher RF performances with **SmartGaN**

CONNECT RF-GaN ROADMAP



* low voltage compatible

● **PRODUCTION 150mm**

● **IN DEVELOPMENT 150mm**

● **IN DEVELOPMENT 200mm**

ANYTHING-ON-ANYTHING - SOITEC INNOVATION DNA
ENABLING NEW PROPERTIES FOR SPECIFIC APPLICATIONS

SUBSTRATE \ ACTIVE LAYER	Silicon	Piezo	SiC	InP	GaN	GaAs	Ge	Others
Silicon or SOI	Low power Transistor isolation Radiation hardness Edge AI, 4G/5G, Datacenter, Imager	High performance RF filters 4G/5G	Co-integration Quantum	Co-integration Scalable to 300mm High performance 6G, SWIR, Imager	PA performance Co-integration 5G/6G, smartphones	Co-integration Scalable to 300mm Optoelectronics	Co-integration Scalable to 300mm High mobility Optoelectronics	Better performance Power electronics Better performance HPC, IoT
Sapphire	Transistor isolation Radiation hardness 3G/4G			Co-integration High performance Optoelectronics	High performance microLEDs	Co-integration High performance Optoelectronics	Co-integration High performance Optoelectronics	
SiC or polySiC			Better performance Higher yield Greener technologies Power electronics		PA performance Co-integration 5G/6G, baseband			
GaAs				Optical performance Optoelectronics		Optical performance Optoelectronics		
Device wafer	Uniformity Crystal quality SoC integration 3D Sequential integration	Uniformity Crystal quality Yield Sensors, Actuators						

MOBILE COMMUNICATIONS

THANK YOU

GLOSSARY

4G LAA	4G License Assisted Access
4G LTE	4G Long Term Evolution
5G NR-U	5G New Radio Unlicensed
BAW	Bulk Acoustic Wave
CPE	Customer Premises Equipment
FTTX	Fiber to Anything
FWA	Fixed Wireless Access
LB	Low Band
LNA	Low Noise Amplifier
MCU	Microcontroller Unit
MHB	Mid-High Band
NTN	Non-Terrestrial Network
RFFE	RF Front-End
SAW	Surface Acoustic Wave
SoC	System on Chip
UHB	Ultra High Band
UWB	Ultra Wide Band
V2x	Vehicle to Everything