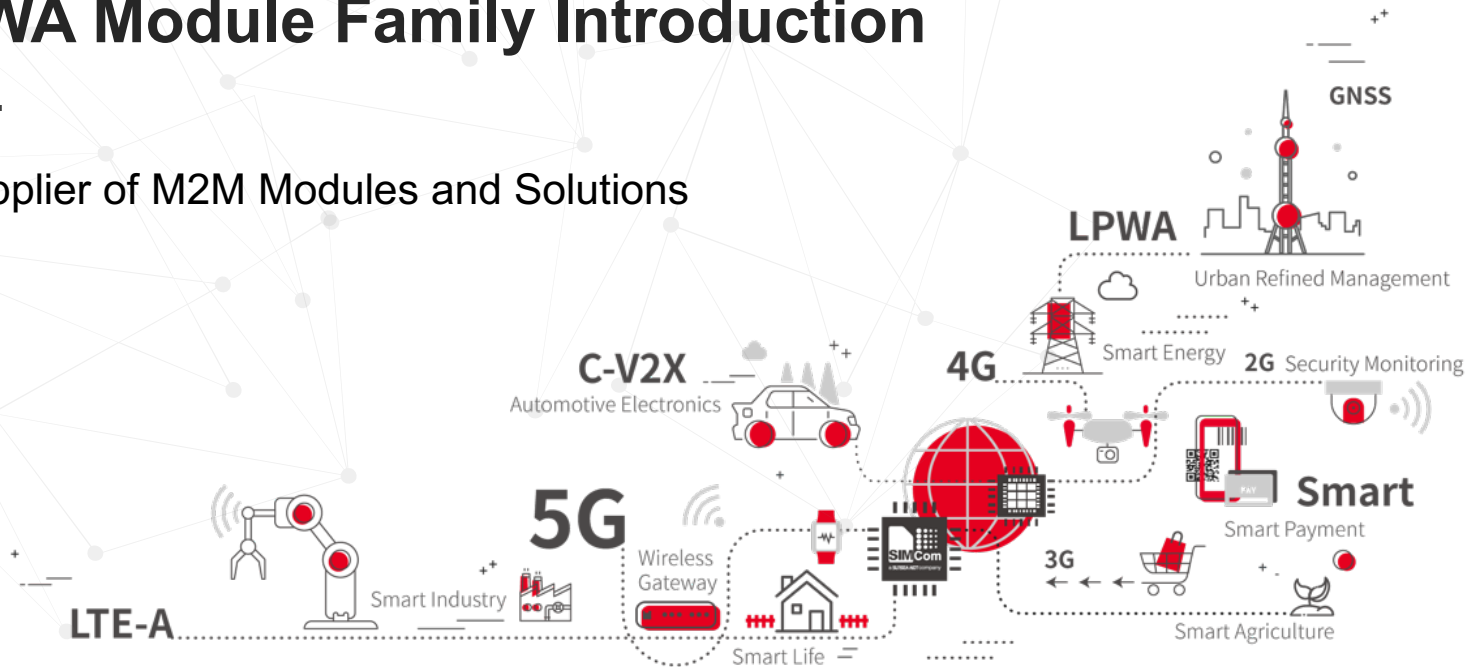# SIMCom LPWA Module Family Introduction

World's Leading Supplier of M2M Modules and Solutions
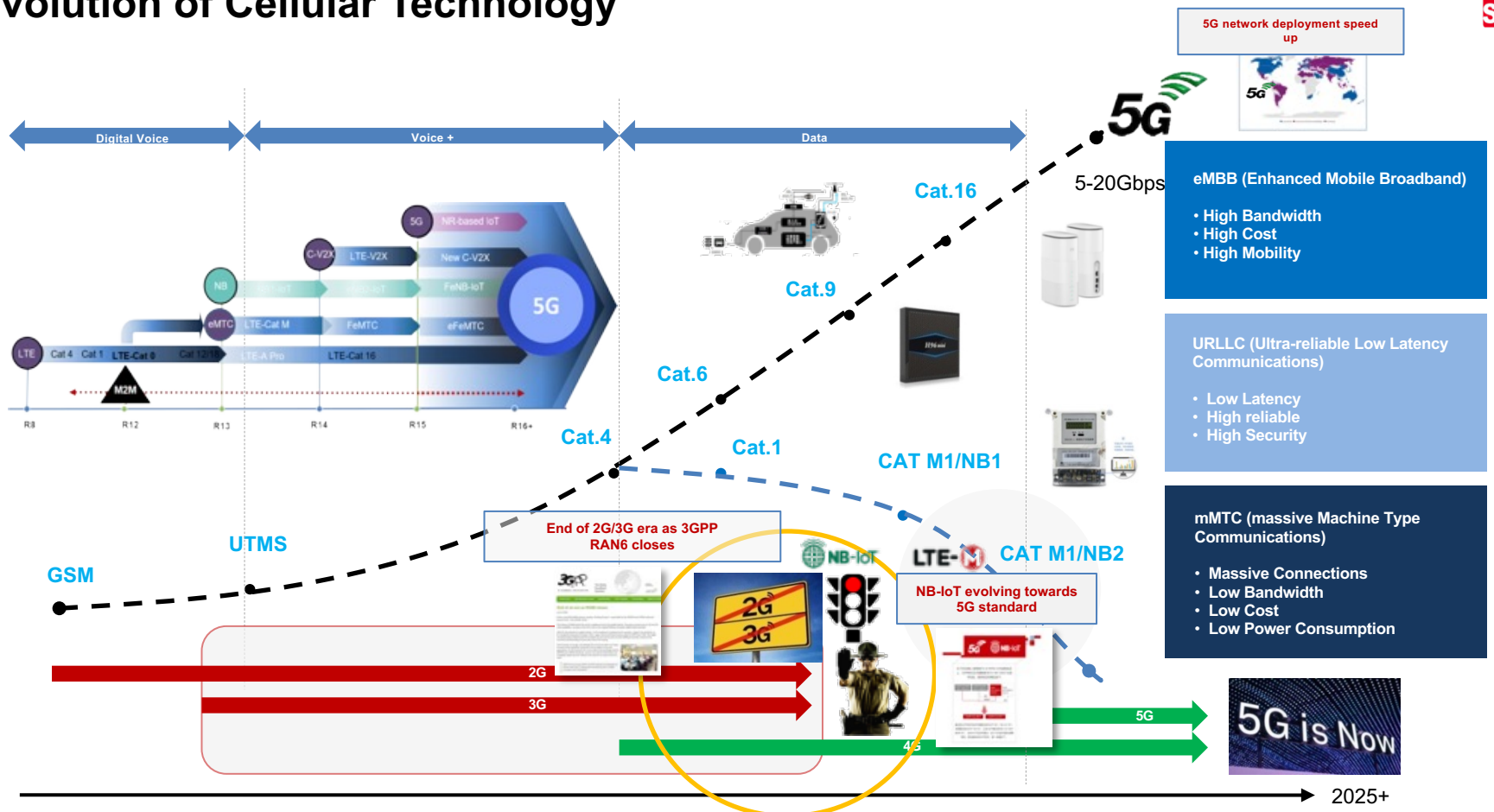
www.simcom.com

Content

Operator & Market Updates
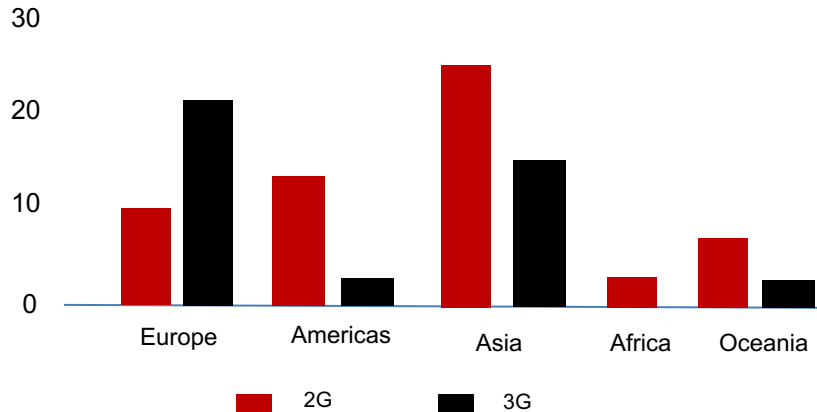
SIMCom LPWA Module Family Introduction

Use Case & Applications

Operator & Market Updates

Evolution of Cellular Technology

Global Operator Network speed up 2G/3G network shutdown process

SIMCom

Completed and Planned Sunsets （2015-2025）

*As on March 2021

Legend: ■ 2G ■ 3G

01 Europe 3G eclipse

Europe is experiencing more sunsets in 3G than 2G. A total of 19 operators in 14 nations plan to switch off 3G by 2025, whereas only eight operators in eight countries are planning a 2G switch off by same time. The sunset saga in the region started with Net1 being the first operator to completely shut down its 3G networks in Denmark and Sweden in 2015, followed by Vodafone Ziggo in 2020, then Telenor Norway and Swisscom in 2021. Though 3G is newer, it is still retiring in the region because 2G has dished out a notable edge, especially for M2M and IoT services in countries including Germany, Finland, and Belgium.

02 Americas Goodbye 2G

The Americas is on a different path from Europe, focused towards turning 2G off: there has not been a single 3G closure. The region, an early adopter of new technology generations, has seen 13 operators across five countries launching their 5G networks, making it vital to have the required spectrum to foster the services. Here we expect 15 operators in seven countries to switch off their 2G network by the end of 2025. Putting the best foot forward, the operators are re-using their existing spectrum from 2G to fill in the demand for 4G and 5G networks

03 Asia 2G departure

Service providers in the region are vying to retain their 3G networks and shutting down 2G instead to employ the infrastructure for 4G, which has high adoption. By the end of 2025, we expect 29 operators to shut down 2G and 16 operators to close 3G with Taiwan currently the only market which has witnessed both 2G and 3G sunsets, in 2017 and 2018 respectively.

04 Africa Preserving 2G and 3G

In this region, 2G markets outnumber 3G twofold, basic feature phone still comprise 42 per cent of all devices and end-users are incentivized to remain on them given lower costs. In turn, this drives lower digital uptake, explaining why a negligible number of sunsets have been announced. Of course, as demand rises, we would expect operators would have to plan for them in future.
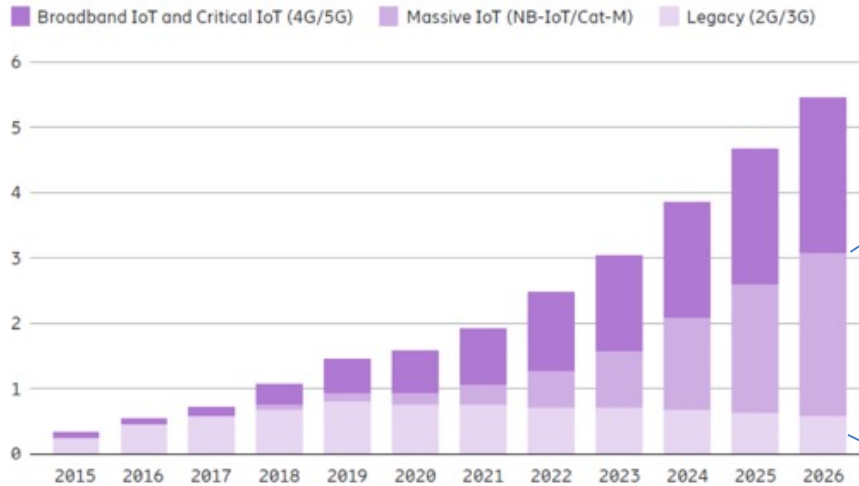
05 Oceania Precedence for 2G

The region has been quick enough to migrate to newer generation networks as 5G services are available in four countries, whereas others are testing the network for commercial deployments. Today, 2G networks account for only 5 per cent of total connections, having very small amount of traffic across the region. As a result of this trend, Australia, the biggest market in the region, completed its 2G network sunset in 2018. Though operators have not announced their network sunset plans, we expect the region to see more 2G than 3G closures, based on representative shares.

Massive IoT enabled by long battery duration with reliable connectivity

Cellular IoT connections by segment and technology (billion)

■ Broadband IoT and Critical IoT (4G/5G) ■ Massive IoT (NB-IoT/Cat-M) ■ Legacy (2G/3G)

2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026

Massive IoT Market

[1] Cat-M includes both Cat-M1 and Cat-M2. Only Cat-M1 is being supported today.
[2] These figures are also included in the figures for wide-area IoT.

Smart Meter

Trackers

IoT Gateway   Smart smoke   Environment Monitoring

Continued roadmap evolution to meet tomorrow's massive IoT needs

| Release 8 | Release 10 | Release 11 | Release 12 | Release 13 |

3GPP

	2017	2018	2020	2021
	LTE	5G Phase1	5G Phase2	5G Advanced
	Rel-13	Rel-14	Rel-15	Rel-16	Rel-17

LTE-M

Rel-13	Rel-14	Rel-15	Rel-16	Rel-17
• 15db coverage • Large connection • Low power consumption • Low cost	• Higher data rate • Positioning （ECID and OTDOA） • Multicast （SC-PTM） • Mobility enhancements • VoLTE enhancements	• Higher UE velocity • Lower UE power class 14dbm • Improve Latency • Improved power consumption • Improved spectral efficiency	• Improved transmission efficiency • Improved UE power consumption • Scheduling enhancement • Coexistence with NR	• Higher data rate （14 DL HARQ, maximum DL TBS of 1736bits

NB-IoT

Rel-13	Rel-14	Rel-15	Rel-16	Rel-17
• 20db coverage • Large connection • Low power consumption • Low cost	• Peak rate > 100kb/s • Multi-carrier enhancement • Positioning (ECID and OTDOA) • Power consumption reduction • Mobility enhancement	• Latency reduction • Reduced terminal power consumption • Mixed mode multi-carrier • New PRACH format	• Coexistence with 5G NR • Connection to 5G core • Latency & Mobility enhancement • SON	• DL 16QAM (248kbps) • Diverse-service efficiency • Lower mobility latency

Comparison between NB-IoT and LTE-M technology

	Bandwidth Spectrum	Coverage	Battery Life	Capacity	Peak Throughput	Mobility	Voice
LTE-M	1.4MHz	160dB (+15dB)	10+ Year	1M+ /Cell	0.8/1 Mbps (300/375 kbps)	Connected & Idle Mode mobility	Supported
NB-IoT	200KHz	164dB (+20dB)	10+ Year	200K /Cell	227/250 kbps (21/63 kbps)	Idle mode mobility	Not Supported

LPWA network ecosystem is expanding gradually

Mobile IoT Coverage Map

Source: GSMA

Global LPWA Network Deployment Status

Source: GSMA

Total Launches Globally

159

53

106
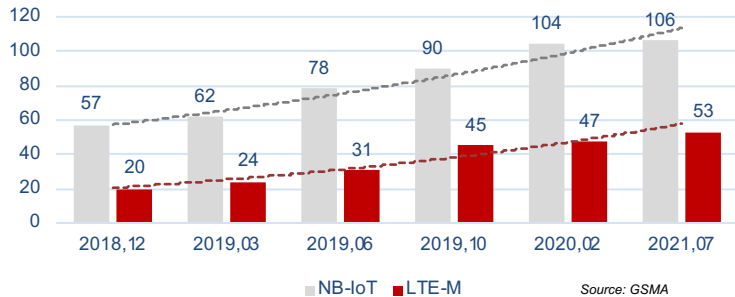
Source：GSMA 2021.07

Deutsche Telekom *LTE-M & NB-IoT roaming available in 20 countries Including the USA (2021)*

SIMCom LPWA Module Family Introduction

LPWA Module Family Roadmap

SIMCom

SIM7070X
- 24.0x24.0mm
- CAT-M/NB2/EGPRS
- Embedded GNSS
- 3GPP Rel -14
- Global Version

SIM7000X
- 24.0x24.0mm
- CAT-M/NB1/EGRPS
- Embedded GNSS
- 3GPP Rel-13
- -C/-A/-E/-JC/-G

SIM7080G
- 17.6x15.7mm
- CAT-M/NB2
- Embedded GNSS
- 3GPP Rel-14
- Global Version

SIM7090G
- CAT-M/NB2/
- Embedded GNSS
- Super small size
  14.8x12.8mm
- 3GPP Rel-14
- Global Version

- *Super Low power consumption 0.8uA@PSM*
- *High integration, Low cost price*
- *P2P Compatible with SIM7080*

Y7080E
- LCC+LGA 77PIN
- 17.6* 15.7* 2.3mm
- NB-IoT Only+GNSS

NEW !

CAT-M/NB/
EGPR/
GNSS

NB+GNSS

NB+2G

R7072
- 24.0x24.0mm
- NB-IoT +2G

- *Super Low power consumption 0.8uA@PSM*
- *Wide operating voltage 2.2 ~4.3V*
- *High integration, Low cost price*
- *P2P Compatible with SIM7020X/SIM800C*

NB
only

SIM7020X
- 17.6x15.7mm
- NB-IoT only
- 3GPP Rel.13/14

SIM7022
- 17.6x15.7mm
- NB-IoT only
- Global version

NEW !

2021   2022

SIM7070/7080/7090 Module Family Overview

Specification	In Production
CAT-M/NB2/EGPRS GNSS	

SIM7070G

CAT-M/NB2/EGPRS Triple Mode
GNSS
LCC 24* 24* 2.3mm

SIM7080G

CAT-M/NB2 Dual Mode
GNSS
LCC+LGA 17.6* 15.7* 2.3mm

SIM7070E

CAT-M/NB2/EGRPS Triple Mode
LTE 450MHz Support
GNSS
LCC 24* 24* 2.3mm

SIM7090G

CAT-M/NB2 Dual Mode
GNSS
LGA 14.8* 12.8* 1.9mm

**SIM7070X Series
Mini PCIe
available**

SIM7070 Module Family Overview

SIM7070 Series

24.0x24.0x2.3mm

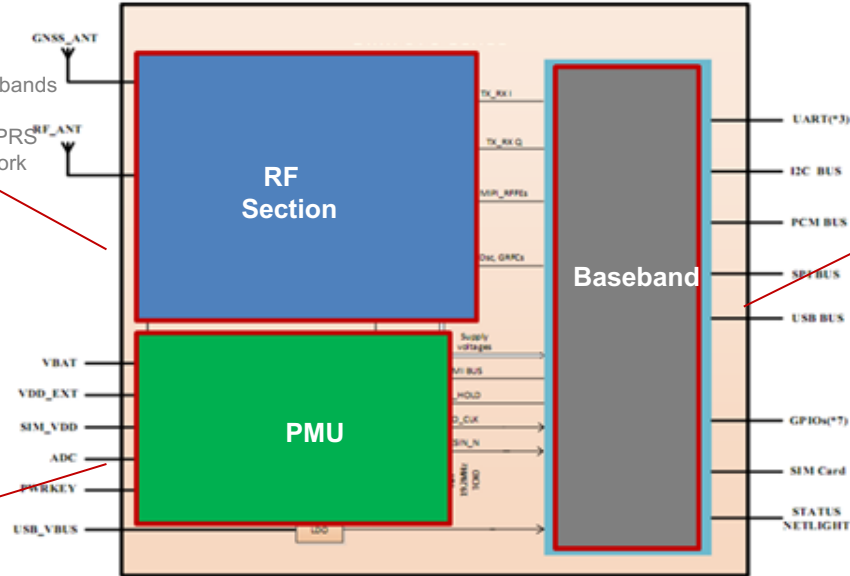| Model P/N	SIM7070G Series
Package	LCC 68PIN 24* 24* 2.3 mm
Network Multi Mode	Cat M/NB2/EGPRS
Product Variants	-MN(Cat M/NB2) /-M (Cat M only/-HP (Tx Power @Class 3)
Bands	CAT-M：B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B85 CAT-NB:B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66/B71/B85 EGPRS：850/900/1800/1900MHz
Date Rates	Cat-M: UL1119Kbps DL589Kbps NB-IoT: UL158.5Kbps DL127Kbps EGPRS: Compatible with MCS 12
Power Consumption	SIM7070G Series：Approx 3.2u@PSM mode
Power Supply Range	-G/-MN/-M: 3.0~4.6V -HP: 3.0-4.5V
GNSS	Supported (GPS, GLONASS, BeiDou, Galileo, QZSS)
Voice	VoLTE over Cat M CSFB over GSM
Compatible Design	SIM7000/SIM800F/SIM900 Series
EAT	Supported
Embedded SIM	Supported
Interfaces	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0
Protocols	TCP/UDP/HTTP/HTTPS/FTP/TLS/DTLS/PING/LWM2M/COAP/MQTT

（*）on going

SIM7070/SIM7080/SIM7090 Series Module Block Diagram

SIMCom

RF Configuration

- Covering all Global regions' main frequency bands
  to meet customer's different requirements
- SIM7070G triple mode Cat-M1/Cat-NB2/EGPRS
  SIM7070E for supporting 450MHz LTE network
- SIM7080G dual mode Cat-M1/Cat –NB2
- SIM7090G dual mode Cat-M1/Cat-NB2

Chipset Platform Key features

- Multi-Mode LTE Cat. M 1 ,LTE Cat.NB2，
  and EGPRS triple mode
- Integrated GNSS
- Integrated Cortex A7 support ThreadX
  and AliOS
- Integrated RAM and Flash

Power Management

- Complete power management
  and clock tree solution
- Efficient power management

GNSS_ANT

RF_ANT

RF Section

PMU

Baseband

VBAT
VDD_EXT
SIM_VDD
ADC
PWRKEY
USB_VBUS

TX_RX I
TX_RX Q
MIPI_RFFEs
Osc, GRFCs
Supply voltages

LDO

UART(*3)
I2C BUS
PCM BUS
SPI BUS
USB BUS
GPIOs(*7)
SIM Card
STATUS NETLIGHT

SIM7070 Module Family Overview

Model P/N	SIM7070G	SIM7070G-MN	SIM7070G-M	SIM7070G-HP
Package	LCC 68PIN 24* 24* 2.3 mm			
Tx Power	Power Class 5, 21dbm	Power Class 5, 21dbm	Power Class 5, 21dbm	External PA（Power Class 3, 23dbm）
FLASH	Integrated	Integrated	Integrated	Integrated
Bands	CAT-M：B1/B2/B3/B4/B5/B8/B12/B13/B14/ B18/B19/B20/B25/B26/B27/B28/B66/B85 CAT-NB:B1/B2/B3/B4/B5/B8/B12/B13/B18/ B19/B20/B25/B26/B28/B66/B71/B85 EGPRS：850/900/1800/1900MHz	CAT-M: B1/B2/B3/B4/B5/B8/B12/B13/B14/ B18/B19/B20/B25/B26/B27/B28/B66/B85 CAT-NB:B1/B2/B3/B4/B5/B8/B12/B13/B18/ B19/B20/B25/B26/B28/B66/B71/B85	CAT-M：B1/B2/B3/B4/B5/B8/B12/B13/B14/ B18/B19/B20/B25/B26/B27/B28/B66/B85	CAT-M：B1/B2/B3/B4/B5/B8/B12/B13/B14/ B18/B19/B20/B25/B26/B27/B28/B66/B85 CAT-NB:B1/B2/B3/B4/B5/B8/B12/B13/B18/ B19/B20/B25/B26/B28/B66/B71/B85
Data rates	Cat-M: UL1119Kbps DL589Kbps NB-IoT: UL158.5Kbps DL127Kbps EGPRS: Compatible with MCS 12	Cat-M: UL1119Kbps DL589Kbps NB-IoT: UL158.5Kbps DL127Kbps	Cat-M: UL1119Kbps DL589Kbps	Cat-M: UL1119Kbps DL589Kbps NB-IoT: UL158.5Kbps DL127Kbps
Voice	Yes	Yes	Yes	Yes
GNSS	Yes	Yes	Yes	Yes
EAT	Yes	Yes	Yes	Yes
Embedded SIM	Supported	Supported	Supported	Supported
Interfaces	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0
Protocols	TCP/UDP/HTTP/HTTPS/FTP/TLS/DTLS/ PING/LWM2M/COAP/MQTT	TCP/UDP/HTTP/HTTPS/FTP/TLS/DTLS/ PING/LWM2M/COAP/MQTT	TCP/UDP/HTTP/HTTPS/FTP/TLS/DTLS/ PING/LWM2M/COAP/MQTT	TCP/UDP/HTTP/HTTPS/FTP/TLS/DTLS/ PING/LWM2M/COAP/MQTT
Certifications	FCC/IC/CE/RCM/NCC/CCC/NAL/SRRC/ ANATEL*/PTCRB/GCF/ AT&T/Verizon*/TMO-US/US Cellular/ VDF*/Deutsche Telekom/Orange*/TIM*/ Telefonica*/ RoHS/REACH	FCC/IC/CE/RCM/NCC/CCC/NAL/SRRC/ ANATEL*/PTCRB/GCF/ AT&T/Verizon*/TMO-US/US Cellular/ VDF*/Deutsche Telekom/Orange*/TIM*/ Telefonica*/ RoHS/REACH	FCC/IC/CE/RCM/NCC/CCC/NAL/SRRC/ ANATEL*/PTCRB/GCF/ AT&T/Verizon*/TMO-US/US Cellular/ VDF*/Deutsche Telekom/Orange*/TIM*/ Telefonica*/ RoHS/REACH	KC*/GCF*/ Telestra*/ RoHS*/REACH*

(*) on going

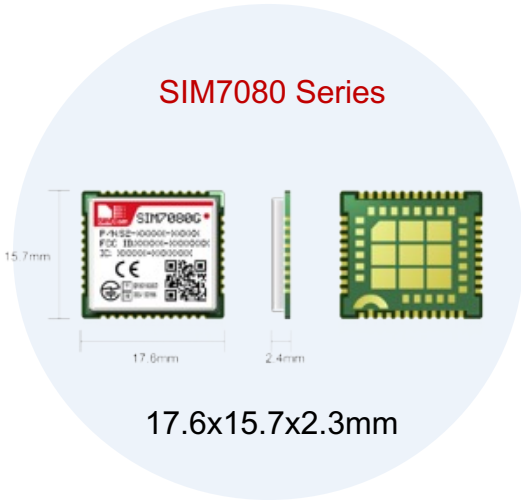# SIM7070E Module Overview

SIM7070E

24.0x24.0x2.3mm

➡️ **Main Feature：**
- LCC Form Factor ,24.0x24.0x2.3mm
- CAT-M/NB2/EGPRS triple mode
- Embedded GNSS receiver
- Compatible with SIM7070G design
- Frequency Bands
  - Global version
  - LTE 450MHz network Support
    - CAT M – B31 and B72
    - NB2- B31
    - Power Class 2 in B31 /B72
  - LTE 410MHz network Support
    - CAT M – B87 and B88
    - NB2- B87/B88

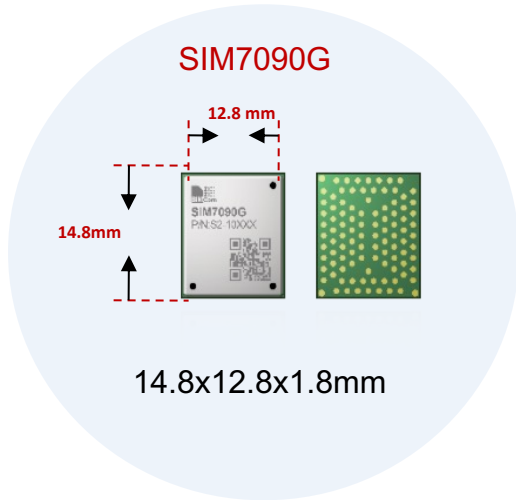| Model P/N	SIM7070E Series
Package	LCC 68PIN 24* 24* 2.3 mm
Network Multi Mode	Cat M/NB2/EGPRS
Product Variants	-MN (Cat M/NB2)
Bands	CAT-M：B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/ B19/B20/B25/B26/B27/B28/B31/B66/B72/B85/B87/B88 CAT-NB:B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/ B25/B26/B28/B31/B66/B85/B87/B88 EGPRS ：850/900/1800/1900MHz
Data rates	Cat-M: UL1119Kbps DL589Kbps NB-IoT: UL158.5Kbps DL127Kbps EGPRS: Compatible with MCS 12
Power Consumption	3.2u@PSM mode
Power Supply Range	3.2~4.2V
GNSS	Supported ((GPS, GLONASS, BeiDou, Galileo, QZSS)
Voice	VoLTE over Cat M
Compatible Design	SIM7000/SIM7070G Series
EAT	Supported
Embedded SIM	Supported
Interfaces	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0
Protocols	TCP/UDP/HTTP/TLS/DTLS/PING/LWM2M/COAP/MQTT
Certifications	CE/FCC*/ANATEL*/RoHS/REACH

SIM7080 Module Family Overview

SIM7080 Series

17.6x15.7x2.3mm

Model P/N	SIM7080G Series
Package	LCC+LGA 77PIN 17.6* 15.7* 2.3mm
Network Multi Mode	Cat M/NB2
Product Variants	-M (Cat M only)
Bands	CAT-M:B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/ B25/B26/B27/B28/B66/B85 CAT-NB : B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/ B26/B28/B66/B71/B85
Date rates	Cat-M: UL1119Kbps DL589Kbps NB-IoT: UL158.5Kbps DL127Kbps EGPRS: Compatible with MCS 12
Power Consumption	3.2u@PSM mode
Power Supply Range	2.7~4.8V
GNSS	Supported (GPS, GLONASS, BeiDou, Galileo, QZSS)
Voice	VoLTE for Cat M
Compatible Design	SIM7020/SIM800C Series
EAT	Supported
Embedded SIM	Supported
Interfaces	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0
Protocols	TCP/UDP/HTTP/TLS/DTLS/PING/LWM2M/COAP/MQTT

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SIM7090 Module Overview

SIM7090G

12.8 mm

14.8mm

14.8x12.8x1.8mm

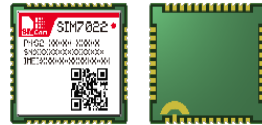| Model P/N	SIM7090G
Package	LCC+LGA 77PIN 14.8* 12.8* 1.8mm
Network Multi Mode	Cat M/NB2
Bands	CAT-M: B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B85 CAT-NB:B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66/B71/B85
Data rates	Cat-M: UL1119Kbps DL589Kbps Cat-NB2: UL158.5Kbps DL127Kbps
Power Consumption	3.2u@PSM mode
Power Supply Range	2.7~4.8V
GNSS	Supported (GPS, GLONASS, BeiDou, Galileo, QZSS)
Voice	VoLTE over Cat M
EAT	Supported
Embedded SIM	Not Supported
Interfaces	UART/PCM/I2S/SPI/I2C/GPIO/ADC/USB2.0
Protocols	TCP/UDP/HTTP/TLS/DTLS/PING/LWM2M/COAP/MQTT
Certifications	FCC/IC/CE/RCM/JATE/TELEC/GCF/PTCRB/AT&T/VERIZON*/TMO/US Cellular/DT/RoHS/REACH

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SIM7022 Module Overview
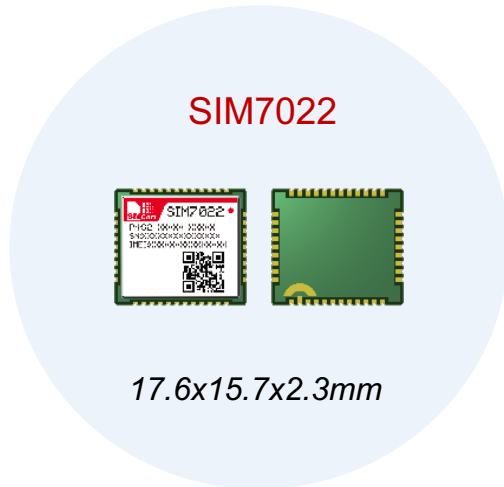
Specification	In Production
NB-IoT Only	

SIM7022

NB-IoT only
Global
LCC 17.6*15.7mm

SIM7022 Module Specification


SIM7022

17.6x15.7x2.3mm

Main Feature:
- Super Low power consumption
- Wide operating voltage 2.2~4.3V
- High integration
- P2P Compatible with SIM7020X/SIM800C

Model P/N	SIM7022
Platform	Qualcomm 212
Package	LCC 42PIN 17.6* 15.7* 2.3 mm
Network Mode	NB-IoT only
Bands	NB:B1/B2/B3/B4/B5/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B66/B70/B85
Data rates	UL 159 Kbps/DL 127 Kbps (Rel.14 NB2)
Power Consumption	0.8uA @PSM mode
Power Supply Range	2.2~4.2V
GNSS	Not supported
Compatible Design	SIM7020X/SIM800C series
EAT	Supported
Embedded SIM	Supported
Interfaces	UART/SIM/ANT/NETLIGHT/RI/Reset/ADC/WAKEUP
Protocols	HTTP/HTTPS/TLS/DTLS/DNS/NTP/PING/LWM2M/COAP/MQTT/MQTTS
Certifications	CE/FCC/RCM/GCF*/ Telefonica*/Deutsche Telekom* RoHS/REACH

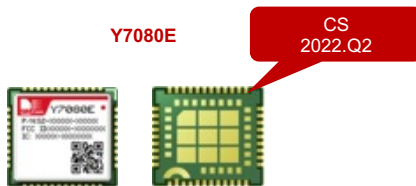（*）on going

SIM7022 Module Highlight

Power consumption

mA

9uA

@ PSM mode

3.2uA

0.8uA

MDM9206

MDM9205

QCX212
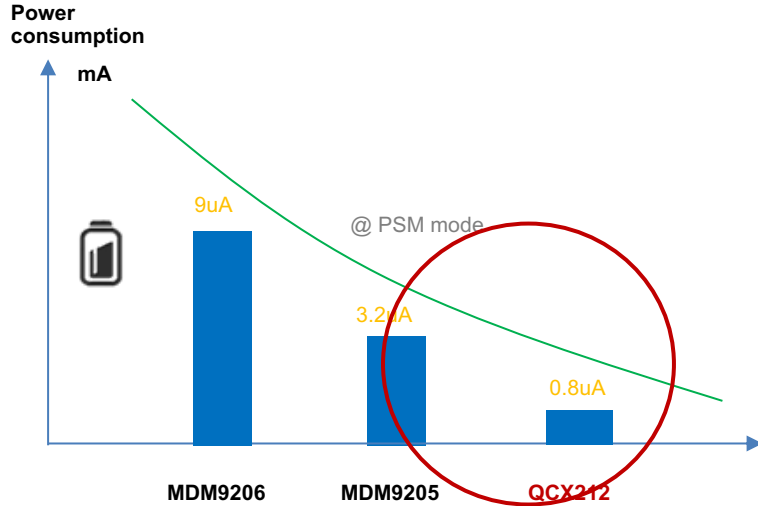
1 Lower power consumption

2 Less BOM cost

3 Wider operating voltage

Y7080 Module Family Overview

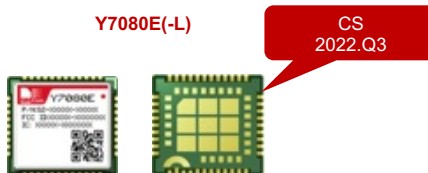| Specification	In Developing

NB-IoT+GNSS

Y7080E

CS
2022.Q2

NB-IoT
NB B3/5/8/20/28
LCC+LGA 17.6×15.7×2.4 mm
GPS: Support
GPS/GLONASS/Galileo*

NB-IoT Only

Y7080E(-L)

CS
2022.Q3

NB-IoT
NB B3/5/8/20/28
LCC+LGA 17.6×15.7×2.4 mm

Y7080E Module Specification
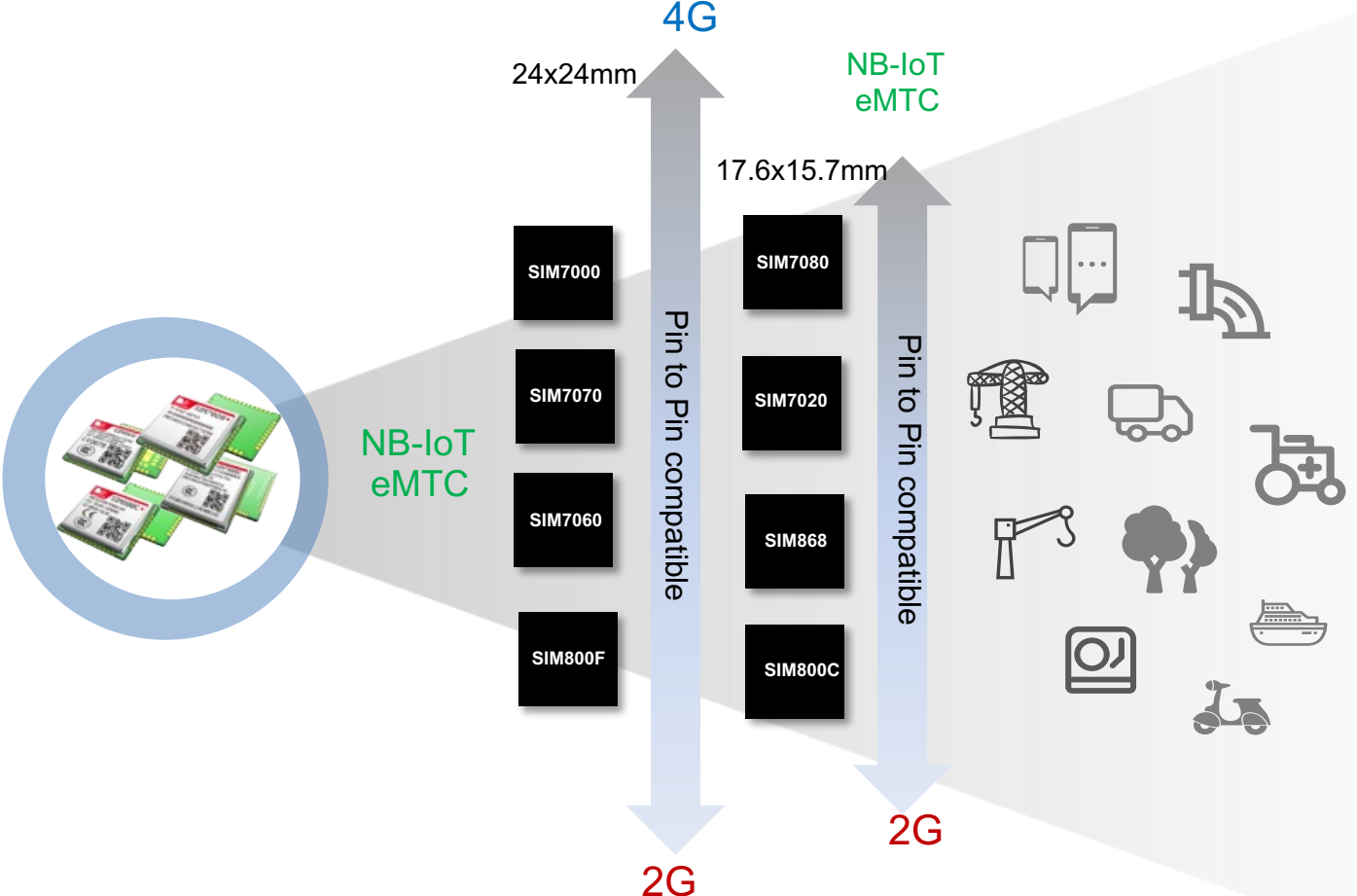

Y7080E

15.7mm
17.6mm
2.4mm

17.6x15.7x2.3mm
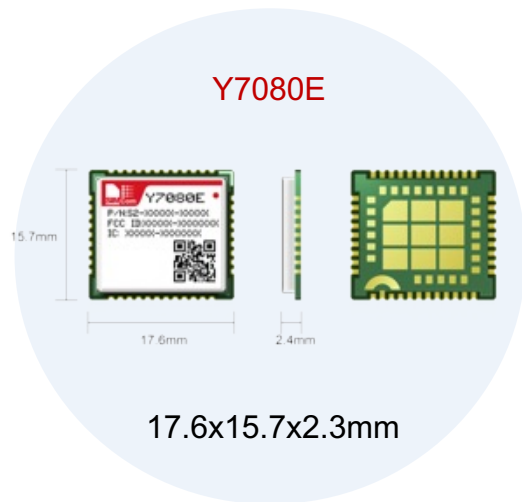
Main Feature:
- Super Low power consumption
- ~1uA@PSM
- High integration, Low cost price
- GPS: Support GPS/GLONASS/Galileo*
- P2P Compatible with SIM7080

Model P/N	Y7080E
Package	LCC+LGA 17.6×15.7×2.4 mm
FLASH	内置
Bands	NB B3/5/8/20/28
Data rates	CAT NB2: 136 Kbps (DL) ,150 Kbps (UL)
GNSS	GPS/GLONASS/Galileo*
EAT	Supported
Power Supply Range	3.0V ~ 4.2V
Power Consumption	~1 uA @ PSM
Operating Temperature	-40~85℃
Embedded SIM	Supported
Interfaces	UART/GPIO/SIM/ADC/I²C/SPI/ANT/LDO
Protocols	TCP/UDP/HTTP/DNS/NTP/PING/TLS*/DTLS* LWM2M*/COAP/MQTT OneNET DFOTA
Certifications	CE-RED*/UKCA*/Reach*/Rohs*/GCF* /Vodafone*/Telefonica*/Orange*UKCA*

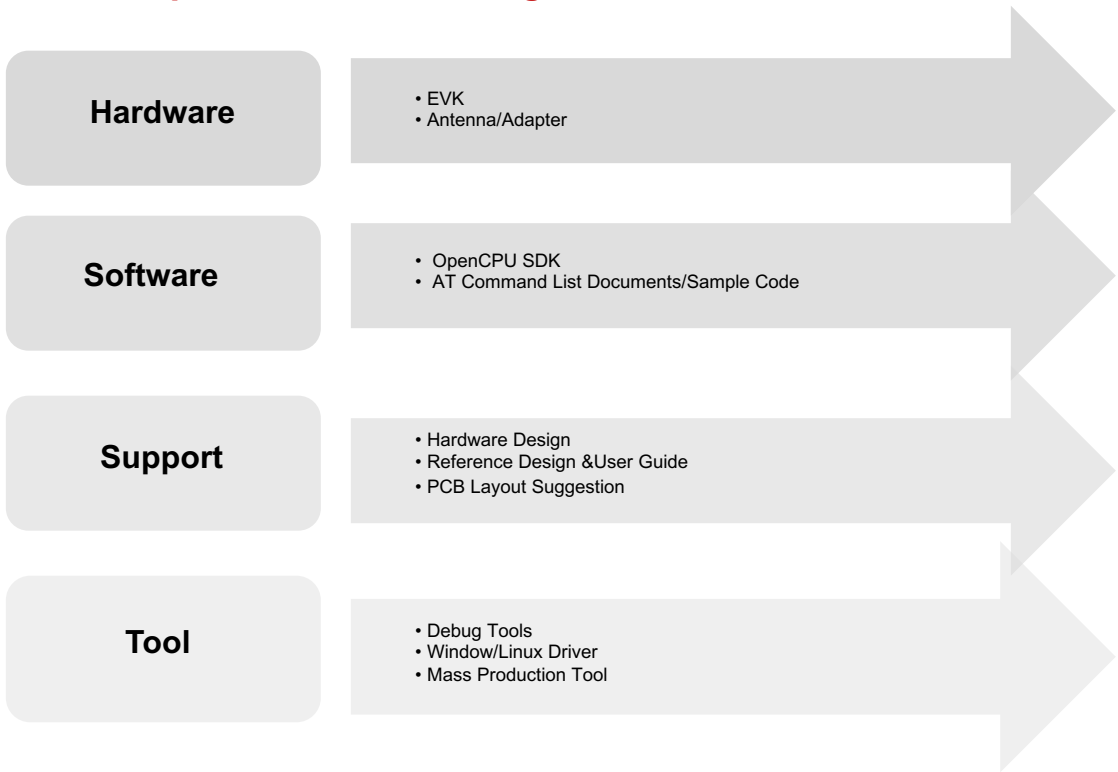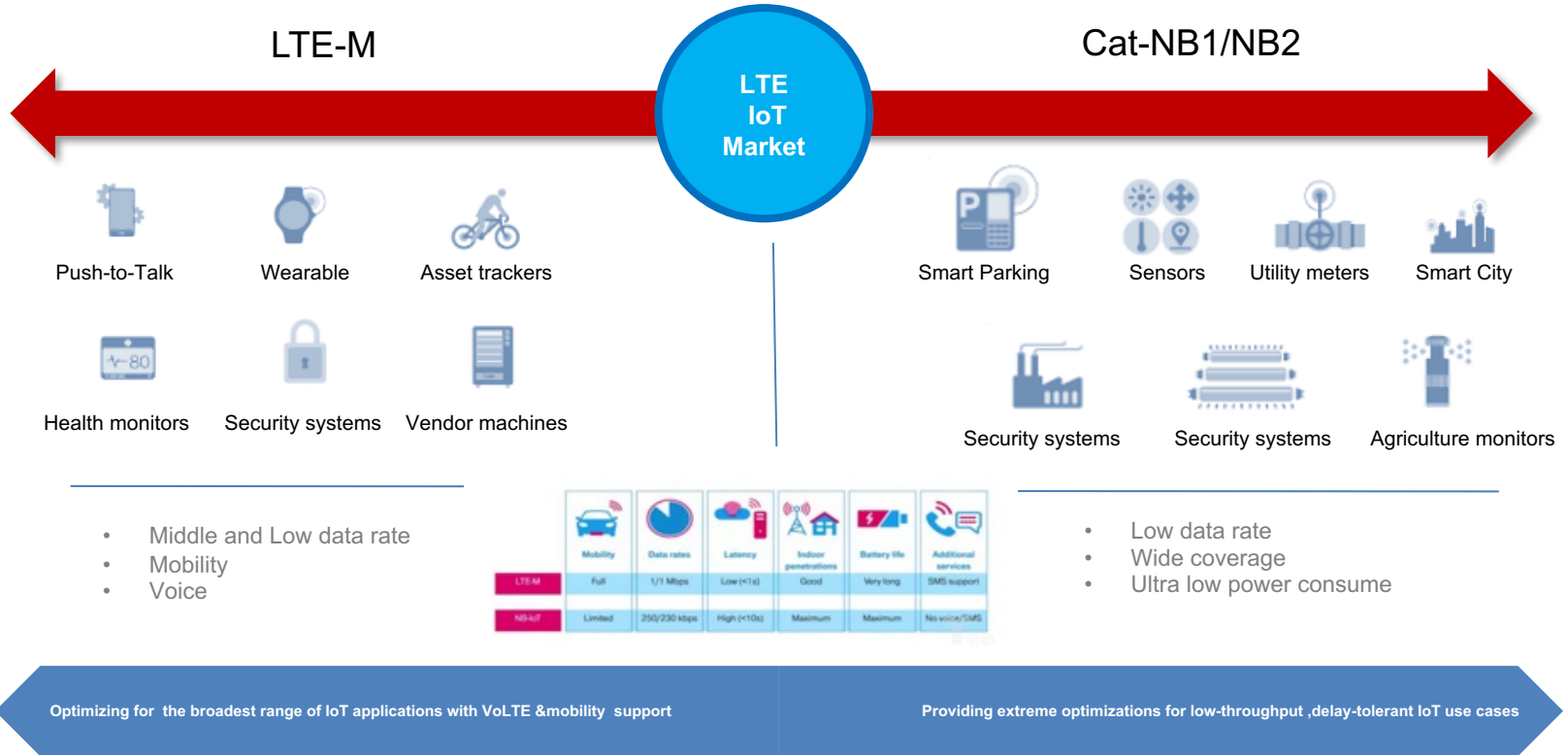（*）on going

Compatibility Design

4G

NB-IoT
eMTC

24x24mm

17.6x15.7mm

NB-IoT
eMTC

SIM7000	SIM7080
SIM7070	SIM7020
SIM7060	SIM868
SIM800F	SIM800C

Pin to Pin compatible

Pin to Pin compatible

2G

2G

Technical Information & Evaluation Board Kit

SIMCom provide the following ：

Hardware
- EVK
- Antenna/Adapter

Software
- OpenCPU SDK
- AT Command List Documents/Sample Code

Support
- Hardware Design
- Reference Design &User Guide
- PCB Layout Suggestion

Tool
- Debug Tools
- Window/Linux Driver
- Mass Production Tool

Use Case& Applications

Massive application scenario enabled by LPWA Technology

LTE-M

Cat-NB1/NB2

LTE IoT Market

Push-to-Talk   Wearable   Asset trackers

Smart Parking   Sensors   Utility meters   Smart City

Health monitors   Security systems   Vendor machines

Security systems   Security systems   Agriculture monitors

- Middle and Low data rate
- Mobility
- Voice

- Low data rate
- Wide coverage
- Ultra low power consume

	Mobility	Data rates	Latency	Indoor penetrations	Battery life	Additional services
LTE-M	Full	1/1 Mbps	Low (<1s)	Good	Very long	SMS support
NB-IoT	Limited	250/230 kbps	High (<10s)	Maximum	Maximum	No voice/SMS

Optimizing for the broadest range of IoT applications with VoLTE &mobility support

Providing extreme optimizations for low-throughput ,delay-tolerant IoT use cases
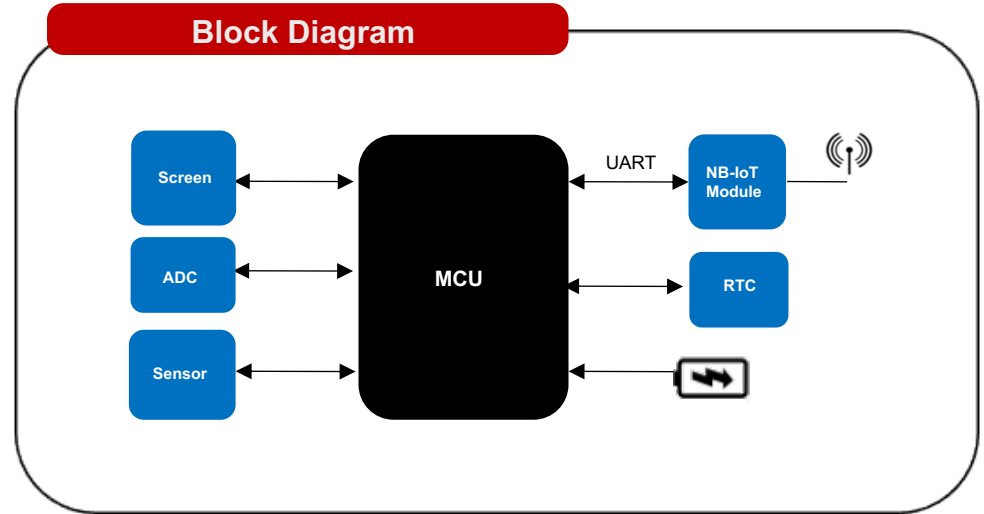
Typical IoT application architecture for LPWA Modules
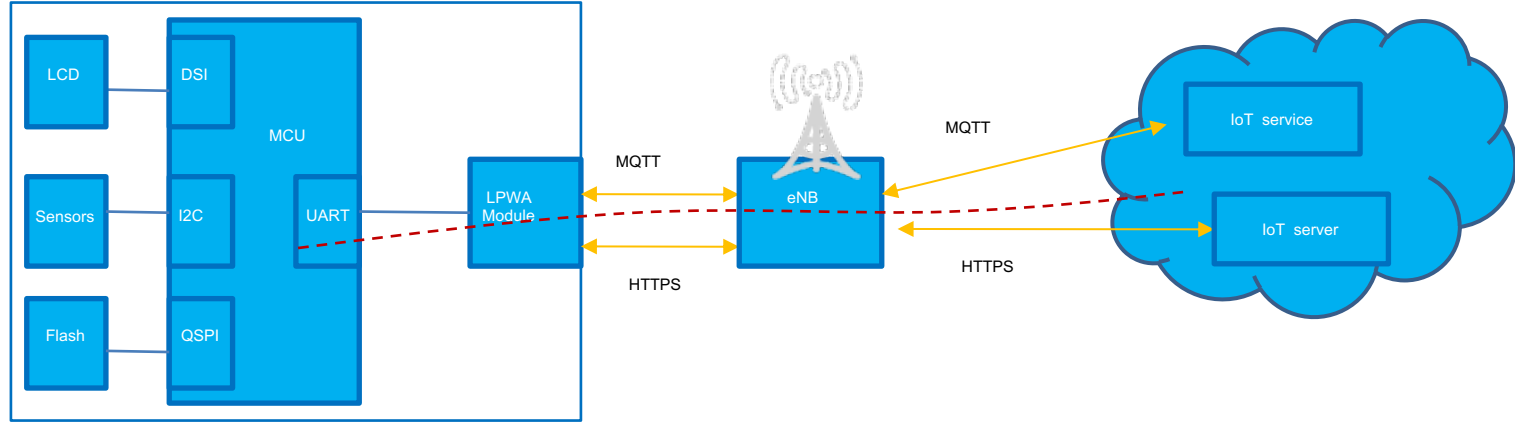
Key Functions

- Update data to Server
- Receive the message from Cloud
- Data transmission by TLS security technology
- Update firmware by FOTA
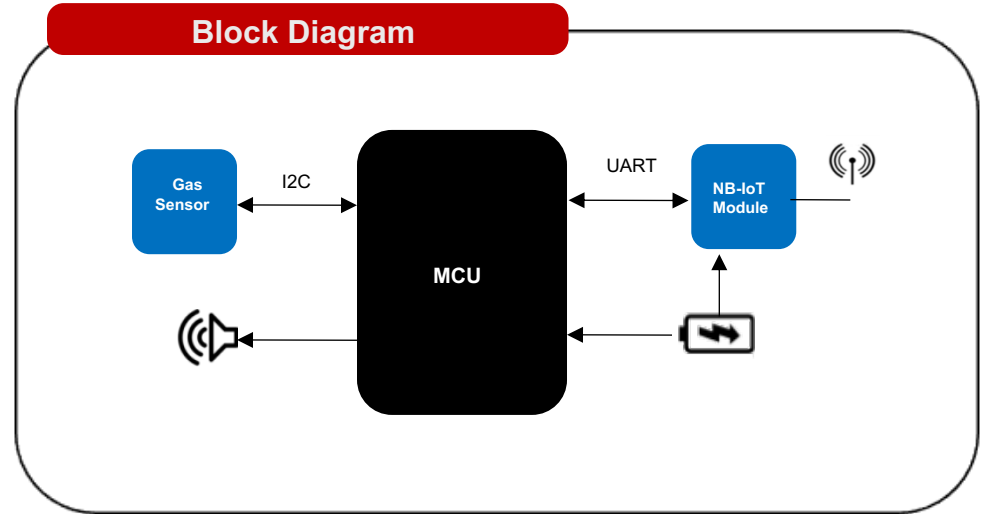- AT Command support (3GPP TS 27.007,27.005 and SIMCOM enhanced AT command)

Smart Metering

Key application requirement :

- Low power consumption required
- Above 5-years Battery cycle
- Wide operating voltage
- Complex working environment
- Low cost

Block Diagram

Smart Smoke detector

Block Diagram

Gas Sensor — I2C — MCU — UART — NB-IoT Module

Key application requirement :

- Low power consumption required
- Stable and strong cellular connectivity
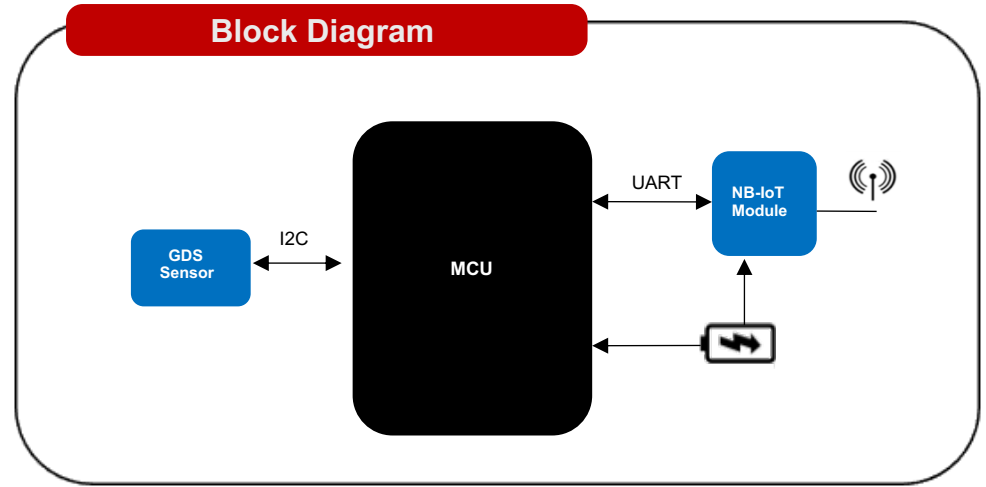- Wide operating voltage
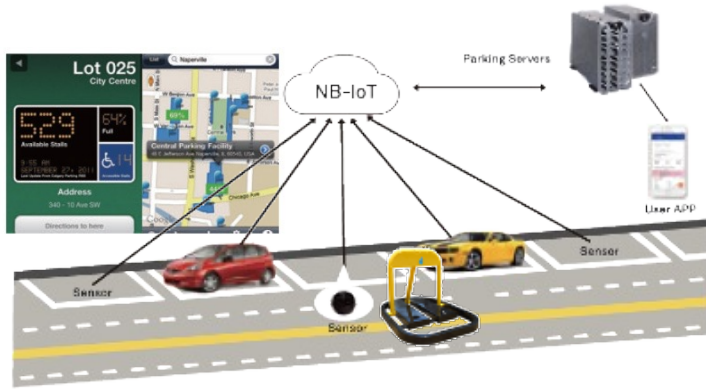- Local / Remote alarming

Smart Lock

Block Diagram

Server

LDO

Motor ← PWM

switch

MCU

switch

NB-IOT

BLE
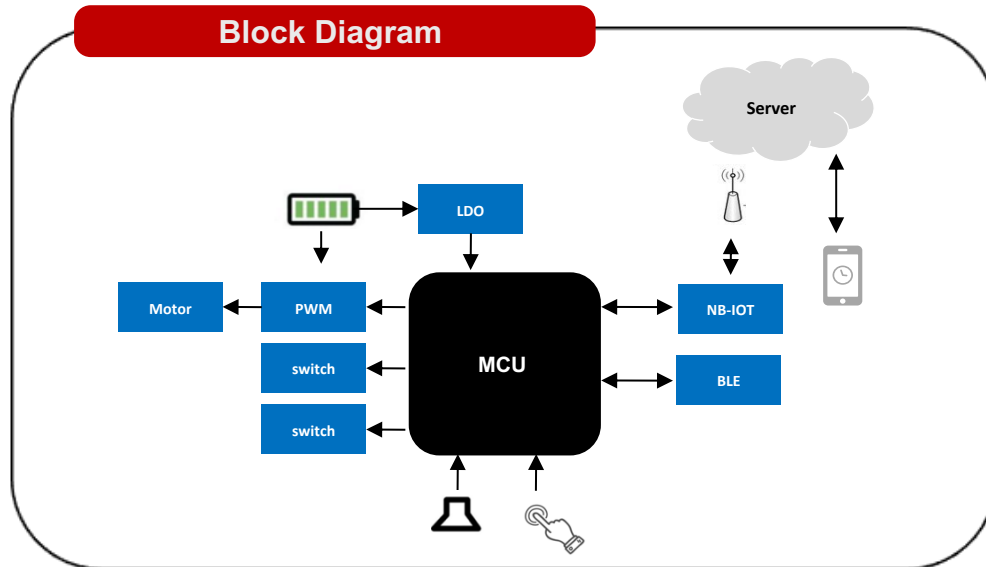
Key application requirement :

- Low power consumption required
- Use mobile phone to open the door instead
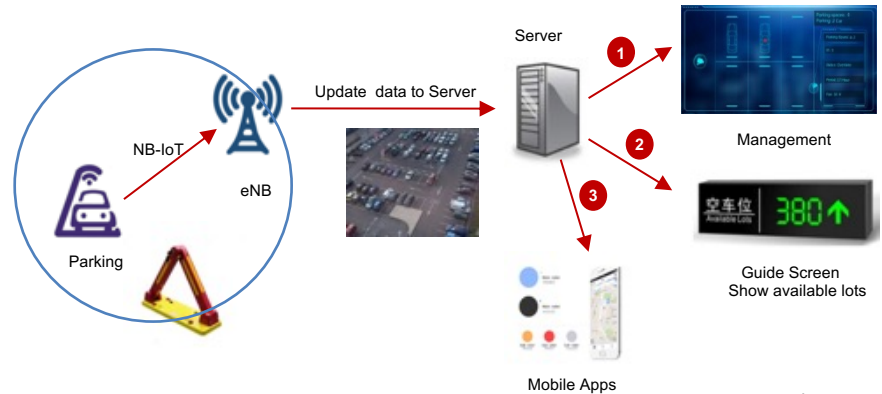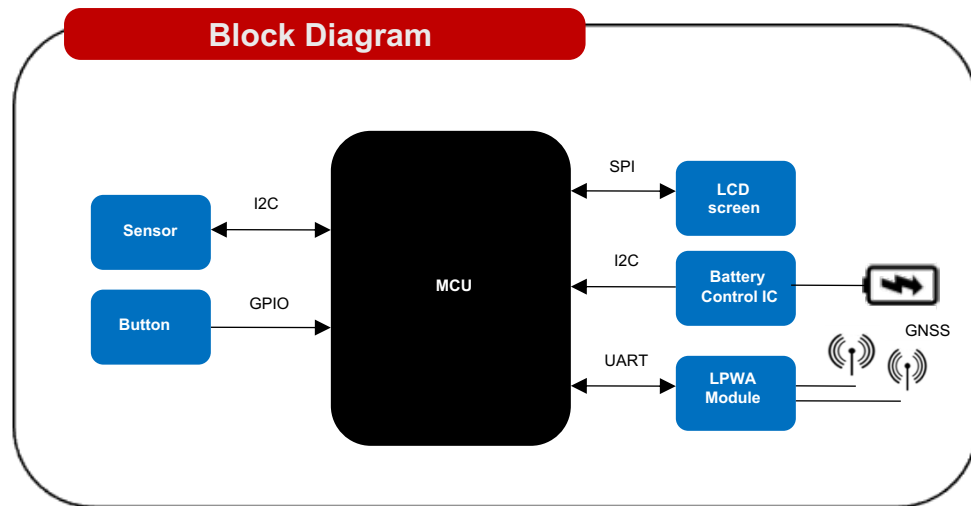- Not necessary to install IoT Gateway
- Security

Smart Parking

Block Diagram

GDS Sensor —I2C→ MCU —UART→ NB-IoT Module

Key application requirement :

- Low power consumption required
- 10-years Battery cycle
- Strong and Good Cellular module performance

NB-IoT

eNB

Update data to Server

Parking

Server

1 Management

2 Guide Screen
Show available lots

空车位 Available Lots 380↑

3 Mobile Apps

GPS Tracker

Block Diagram

Key application requirement :

- Low power consumption required
- Fewer PCB space
- Different wireless technologies combine into one module

Thank you

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GNSS

LPWA

Urban Refined Management

C-V2X
Automotive Electronics

4G

Smart Energy

2G Security Monitoring

5G

Wireless
Gateway

3G

Smart

Smart Payment

LTE-A

Smart Industry

Smart Life

Smart Agriculture