

# Quectel EG25-G(Mini PCIe) Module

## Product Overview

May, 2020

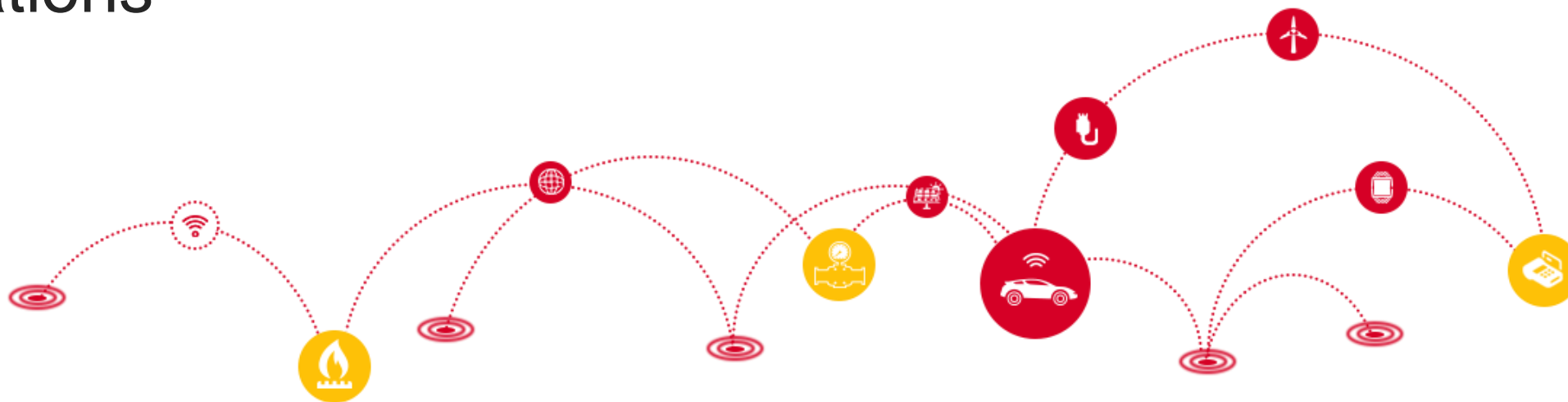
# Compatible Design

Highlights & Specifications

Development Timeline

Technical Details

Applications



# EG25-G Compatible Design

LTE Standard

Cat 4



## EC20 R2.1

- LCC Form Factor
- Multi-mode LTE Cat 4
- -CE



## EC25 Series

- LCC Form Factor
- Multi-mode LTE Cat 4
- -E/ -A/ -V/ -J/ -AU/ -AUT/ -AUTL/ -AF/ -EU/ -EUX/ -MX/ -AFX/ -AUX



## EC21 Series

- LCC Form Factor
- Multi-mode LTE Cat 1
- -E/ -A/ -V/ -J/ -AU/ -AUT/ / -KL/ -EU/ -EUX/ -AUX



## EG25-G

MP

- LGA Form Factor
- Multi-mode LTE Cat 4
- Global



## EG21-G

- LGA Form Factor
- Multi-mode LTE Cat 1
- Global

UMTS/HSPA+



## UC200T Series

- LCC Form Factor
- 21M DL/ 5.76M UL
- -EM/ -GL

..... 2017

2018

2019

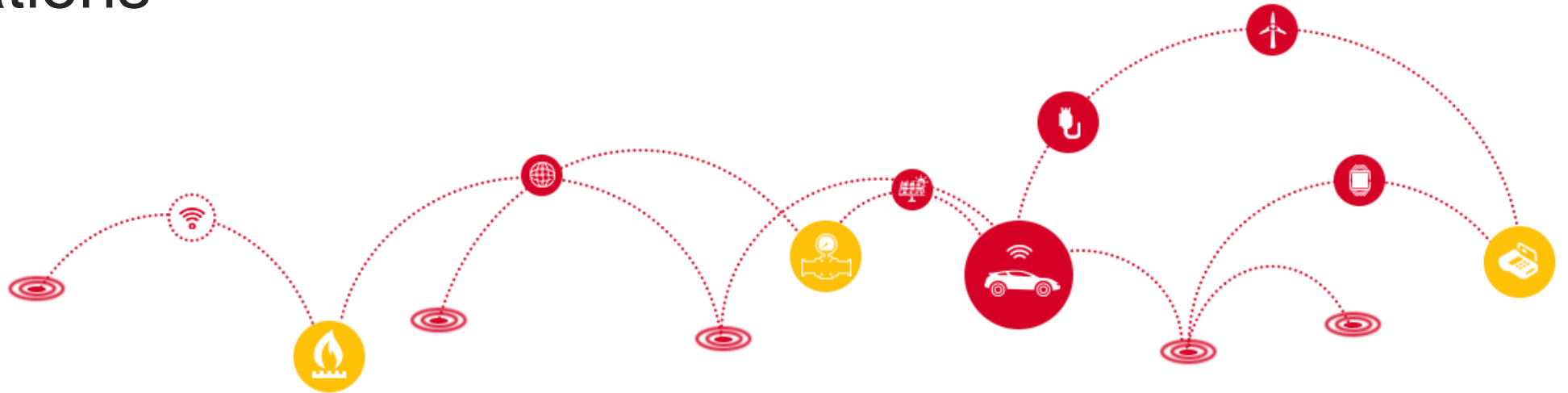
Compatible Design

**Highlights & Specifications**

Development Timeline

Technical Details

Applications

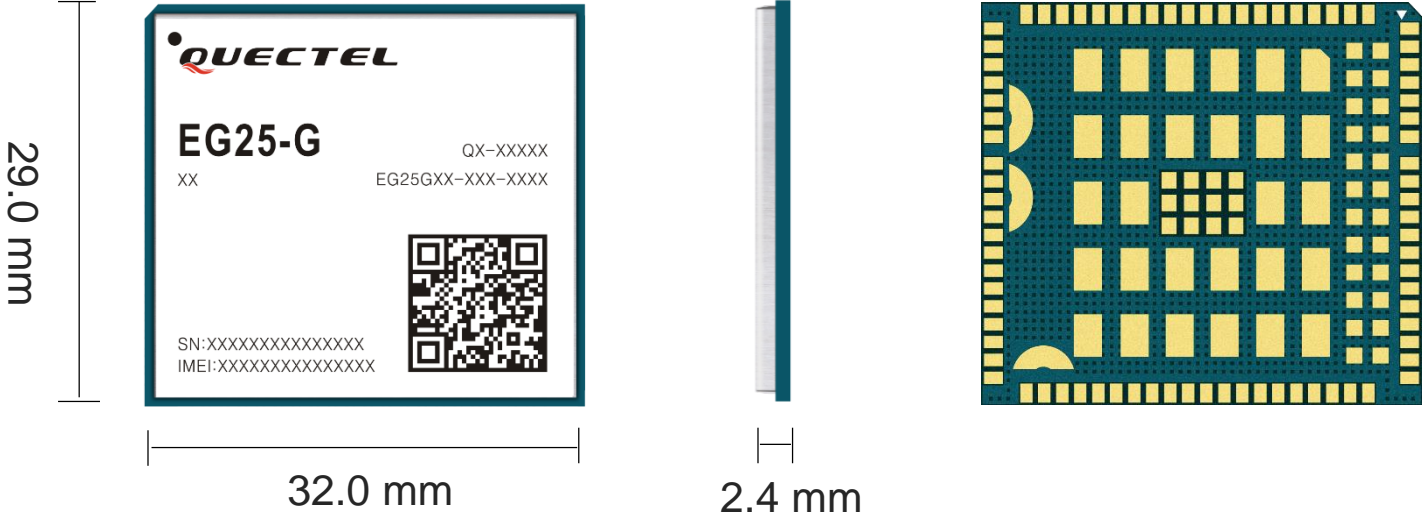


# EG25-G Mechanical Dimensions



Multi-Mode LTE Module

LGA Form Factor<sup>①</sup>



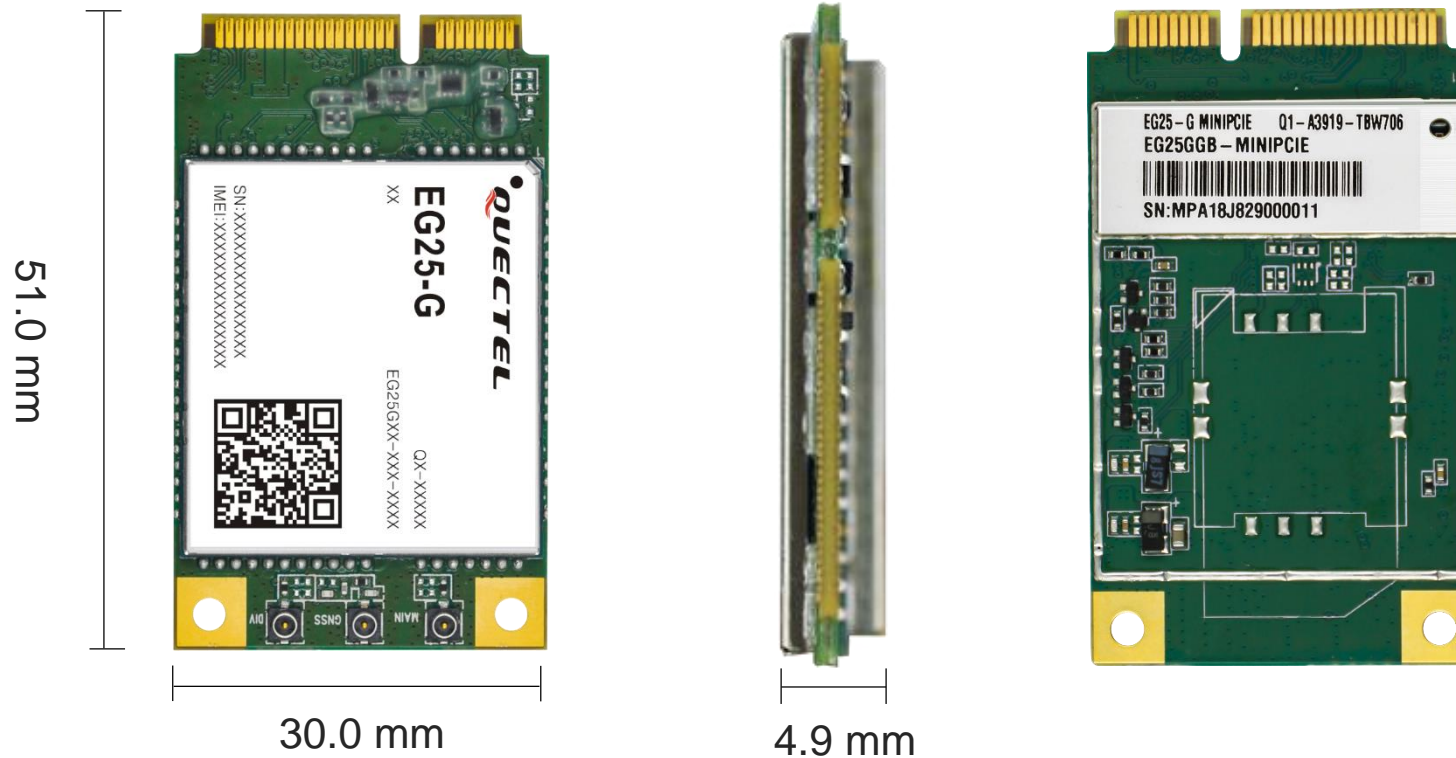
Length: 29.0 ±0.15 mm  
Width: 32.0 ±0.15 mm  
Height: 2.4 ±0.2 mm  
Weight: Approx. 4.9 g

<sup>①</sup> means EG25-G includes LGA and LCC form factors. LGA is default, while LCC is recommended only in the compatible design.

# EG25-G Mini PCIe Mechanical Dimensions

Multi-Mode LTE Module

Mini PCIe Form Factor



Length: 42.0  $\pm$  0.15 mm  
Width :30.0  $\pm$  0.15 mm  
Height 2.3  $\pm$  0.2 mm  
Weight: Approx. 6.0 g

# EG25-G Specifications



29.0 mm × 32.0 mm × 2.4 mm  
150 Mbps DL/ 50 Mbps UL

## Multi-Mode LTE Cat 4 Module

Module		EG25-G
LTE	LTE-FDD	B1/ B2/ B3/ B4/ B5/ B7/ B8/ B12/ B13/ B18/ B19/ B20/ B25/ B26/ B28
	LTE-TDD	B38/ B39/ B40/ B41
UMTS	WCDMA	B1/ B2/ B4/ B5/ B6/ B8/ B19
GSM		B2/ B3/ B5/ B8
GNSS (Optional)		GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS
Form Factor		LGA <sup>①</sup>
Region		Global
Certification		<b>Carrier:</b> Deutsche Telekom/ Verizon/ AT&T/ Sprint/ U.S. Cellular/ Telus/ T-Mobile*/ Rogers* <b>Regulatory:</b> GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ SRRC/ NAL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ IMDA/ ICASA/ NBTC/ FAC* <b>Others:</b> WHQL

“\*” means under development.

① means EG25-G includes LGA and LCC form factors. LGA is default, while LCC is recommended only in the compatible design.

# EG25-G Mini PCIe Specifications



51.0 mm × 30.0 mm × 4.9 mm  
150 Mbps DL/ 50 Mbps UL

## ■ Multi-Mode LTE Cat 4 Module

Module		EG25-G Mini PCIe
LTE	LTE-FDD	B1/ B2/ B3/ B4/ B5/ B7/ B8/ B12/ B13/ B18/ B19/ B20/ B25/ B26/ B28
	LTE-TDD	B38/ B39/ B40/ B41
UMTS	WCDMA	B1/ B2/ B4/ B5/ B6/ B8/ B19
GSM		B2/ B3/ B5/ B8
GNSS (Optional)		GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS
Form Factor		LGA
Region		Global
Certification		<b>Carrier:</b> Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile*/ Sprint*/ Rogers*/ Telus <b>Regulatory:</b> GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ SRRC/ NAL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ IMDA/ ICASA/ FAC*/ NBTC* <b>Others:</b> WHQL

“\*” means under development.

There are two types of EG25-G Mini PCIe, with or without (U)SIM card connector.



# EG25-G Main Functions



Main Function	Description
<b>Hardware Interfaces</b>	UART/ USB 2.0/ (U)SIM/ PCM (Optional)/ I2C/ NETLIGHT/ ADC/ SD Card/ SGMII/ WLAN/ BT/ RESET/ PWRKEY/ STATUS/ USB_BOOT/ Antennas (Main, Rx-diversity and GNSS)
<b>USB Serial Driver</b>	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x
<b>GNSS Driver</b>	Android 4.x–9.x
<b>RIL Driver</b>	Android 4.x–10.x
<b>NDIS Driver</b>	Windows 7/8/8.1/10
<b>MBIM Driver</b>	Windows 8/8.1/10, Linux 3.18–5.4
<b>GobiNet Driver</b>	Linux 2.6–5.4
<b>QMI_WWAN Driver</b>	Linux 3.4–5.4
<b>Abundant Protocols</b>	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ NITZ/ SMTP/ MQTT/ CMUX/ HTTPS/ FTPS/ SMTPS/ SSL/ MMS/ FILE
<b>Enhanced Features</b>	SDIO Interface for Wi-Fi Function (Optional) UART/PCM Interfaces for BT4.0 Function DTMF Audio Playback/Audio Recording (U)SIM Card Detection QuecFile* QuecLocator® QuecOpenr® Downlink MIMO (Supports Rx-diversity Antenna) DFOTA: Delta Firmware Upgrade Over-The-Air GNSS: GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)
<b>SMS</b>	Text and PDU modes Point-to-point MO and MT SMS cell broadcast SMS storage: ME by default
<b>Audio</b>	Support 1 digital audio interface: PCM (Optional) Speech coding: HR/FR/EFR/AMR/AMR-WB Support echo cancellation and noise suppression

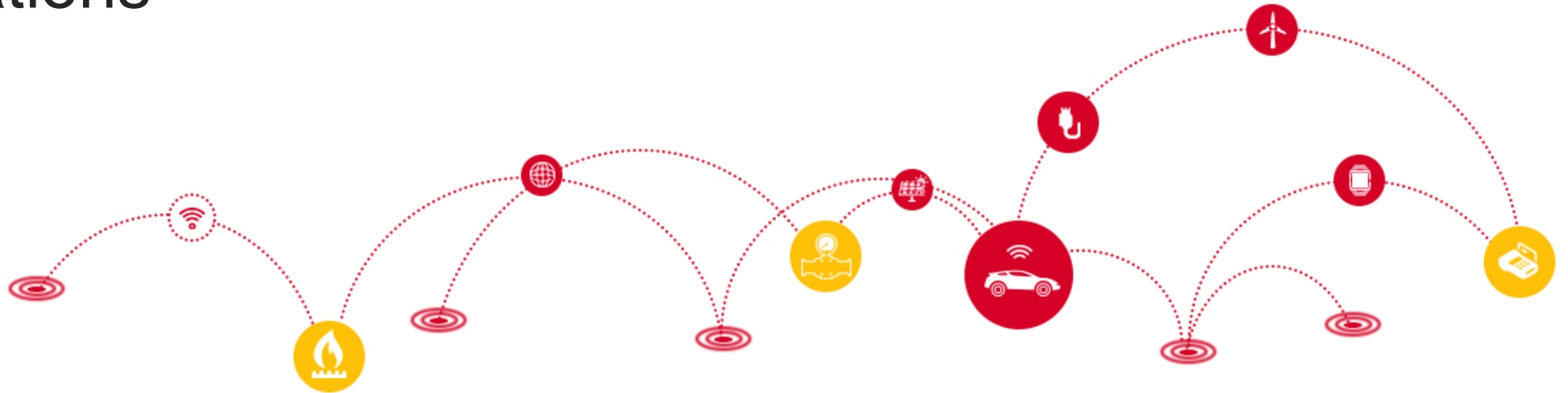
# Compatible Design

## Highlights & Specifications

## **Development Timeline**

## Technical Details

## Applications

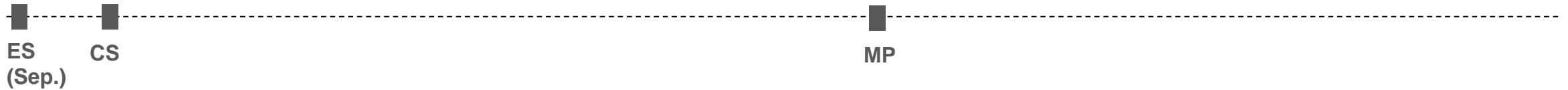


# EG25-G Timeline



2018	2019											
Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

## Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

## Carrier Certification Schedule

Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ Sprint/ Telus      Completed

T-Mobile/ Rogers      TBD

## Regulatory Certification Schedule

GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ SRRC/ NAL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ IMDA/ ICASA      Completed

FAC      TBD

## Others

WHQL      Completed

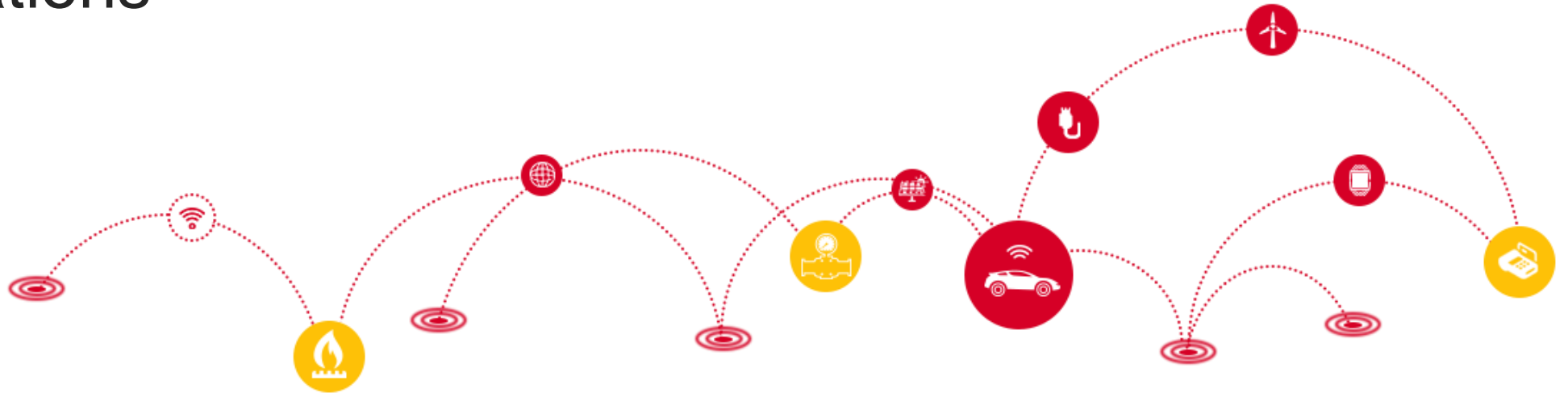
# Compatible Design

## Highlights & Specifications

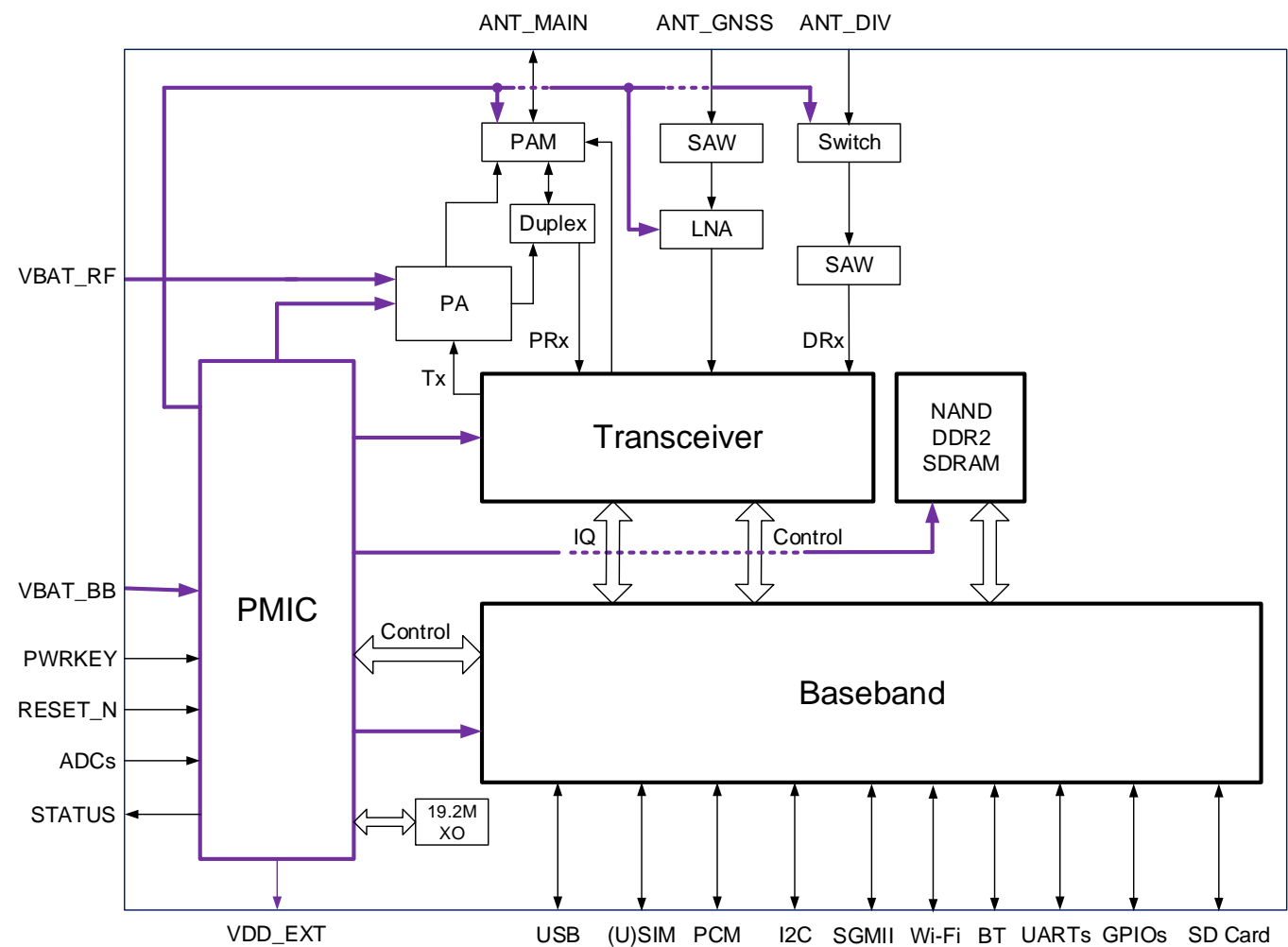
## Development Timeline

## **Technical Details**

## Applications



# EG25-G Hardware Architecture



# EG25-G Software Advantages

## USB Serial Driver

- Windows 7/8/8.1/10
- Linux 2.6–5.4
- Android 4.x–9.x

## Other Drivers

- GNSS Driver:  
Android 4.x–9.x
- RIL Driver:  
Android 4.x–10.x
- NDIS Driver:  
Windows 7/8/8.1/10
- MBIM Driver:  
Windows 8/8.1/10, Linux 3.18–5.4
- GobiNet Driver:  
Linux 2.6–5.4
- QMI\_WWAN Driver:  
Linux 3.4–5.4

## Quality Guarantee

- Reliable network protocols
- Steady flash protection mechanism
- Superior audio algorithms
- Backup recovery mechanism

## Special Features

- LGA Form Factor (by default)
- MIMO 2 × 2

## Flexible Applications

- DFOTA
- DTMF
- GNSS

## Protocols

TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/  
PING/ QMI/ NITZ/ SMTP/ MQTT/  
CMUX/ HTTPS/ FTPS/ SMTPS/ SSL/  
MMS/ FILE

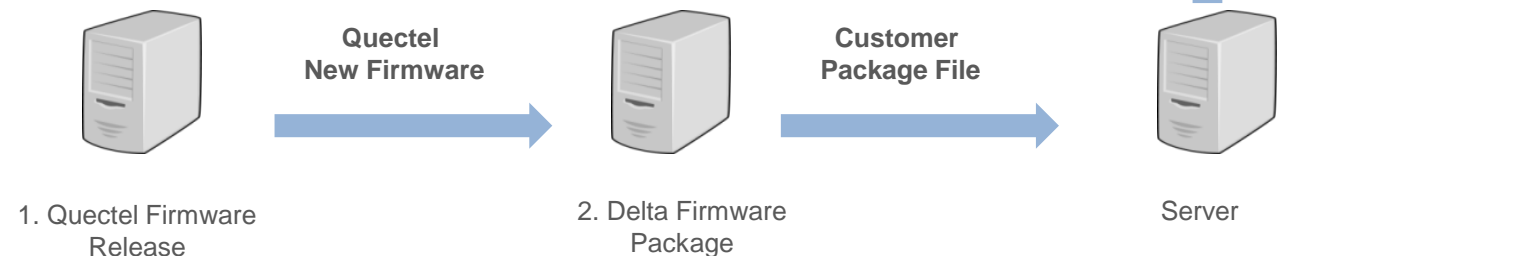
# DFOTA

DFOTA refers to Delta Firmware Upgrade Over-The-Air, which enables customers to upgrade firmware wirelessly.

In DFOTA, a delta firmware package, which only contains the differences between the source and the target firmware versions, occupies small memory. Thus the firmware can be upgraded quickly over LTE/WCDMA/GSM/GPRS networks, eliminating the need for users to bring the device to a service facility.

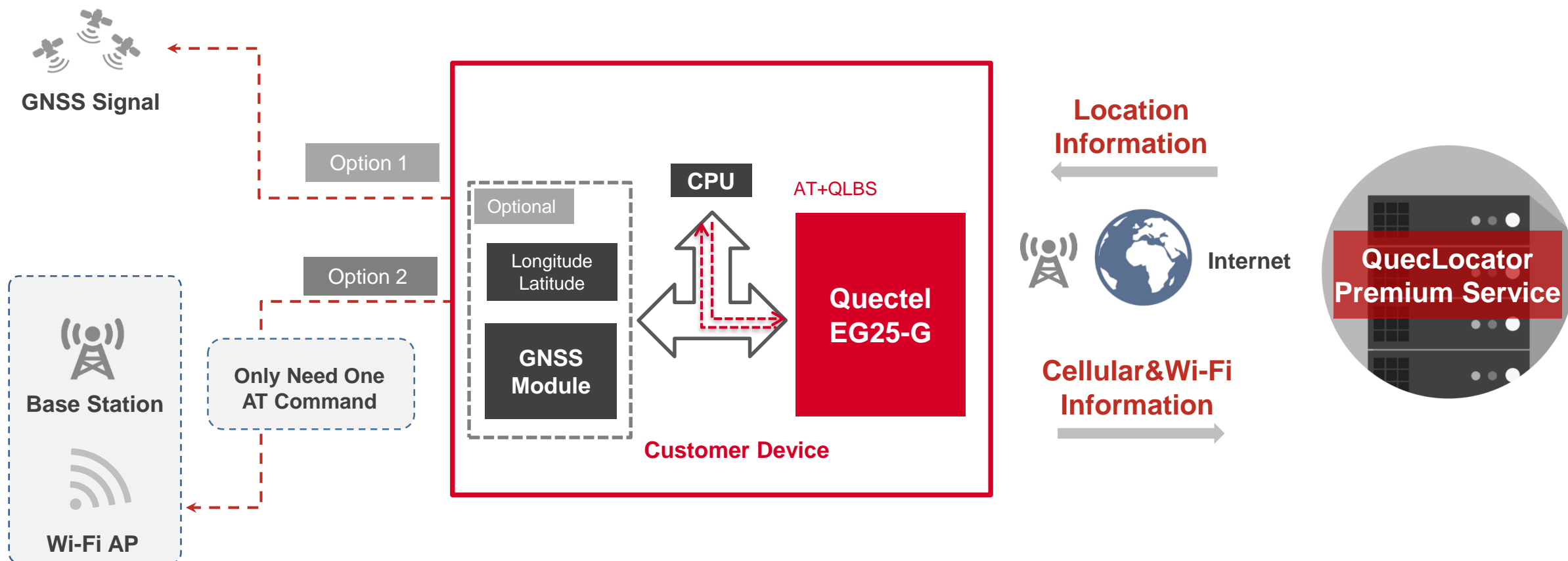
## Firmware Upgrade Process via DFOTA

- Get Delta Firmware Package
- Put Delta Package on Server
- Execute **AT+QFOTADL** Command
- Download and Upgrade Firmware Automatically



# QuecLocator Working Process

QuecLocator is an easy and reliable positioning service providing secure and accurate positioning **Anytime, Anywhere.**



NOTE: There is no need for extra GNSS modules when using QuecLocator.



## Main Features:

- Support multi-mode GNSS: GPS, GLONASS, BeiDou (Compass), Galileo, QZSS
- Increased the total number of available satellite vehicles (SVs) to 55
- Improved searching performance, significantly reduced power and thus extended the battery life
- Wider coverage
- Improved time-to-first-fix (TTFF)
- Enhanced short multipath suppression in urban canyon environments
- Improved tracking sensitivity

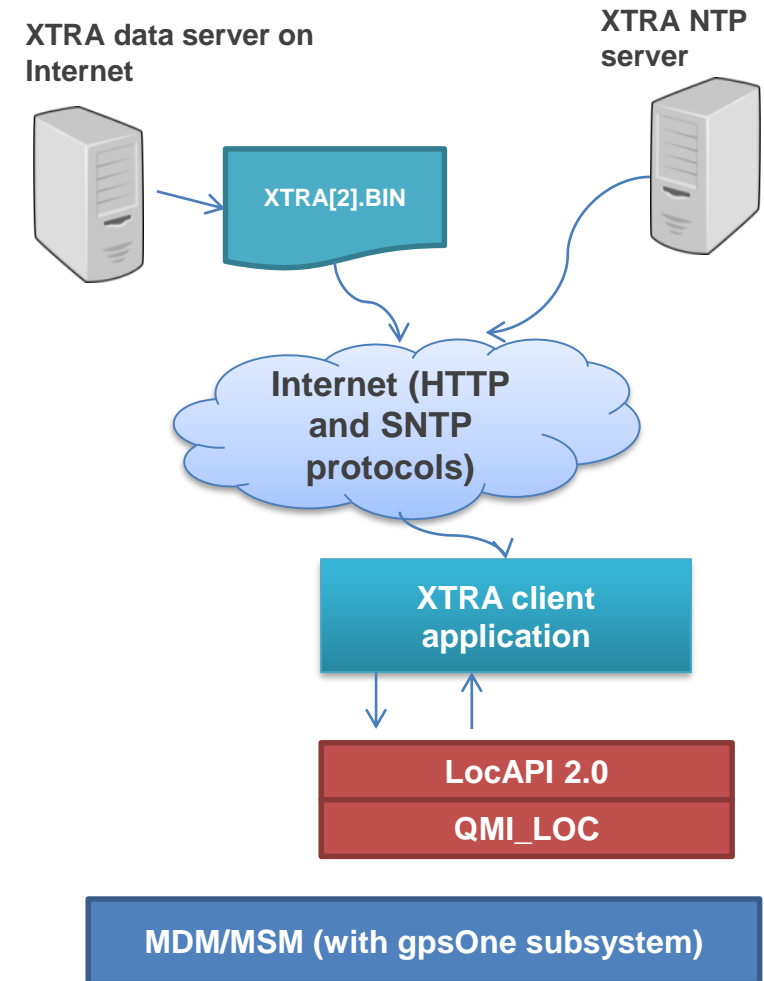
Parameter	GNSS (Optional)	Tracking Sensitivity	TTFF	Total Number of SVs Available
Gen8	GPS/GLONASS/BeiDou (Compass)/ Galileo/QZSS	-156 dBm	Cold start: 35 s Warm start: 32 s Hot start: 2 s	55

# Qualcomm gpsOne Gen8: gpsOneXTRA

## gpsOneXTRA Assistance Technology

Qualcomm's new gpsOneXTRA Assistance technology provides enhanced operation by enabling users to download a small assistance data file through a brief Internet access session.

This technology delivers more accurate positioning with greater sensitivity than otherwise possible with standalone GPS receivers, especially in challenging areas such as indoors and in dense urban canyons.



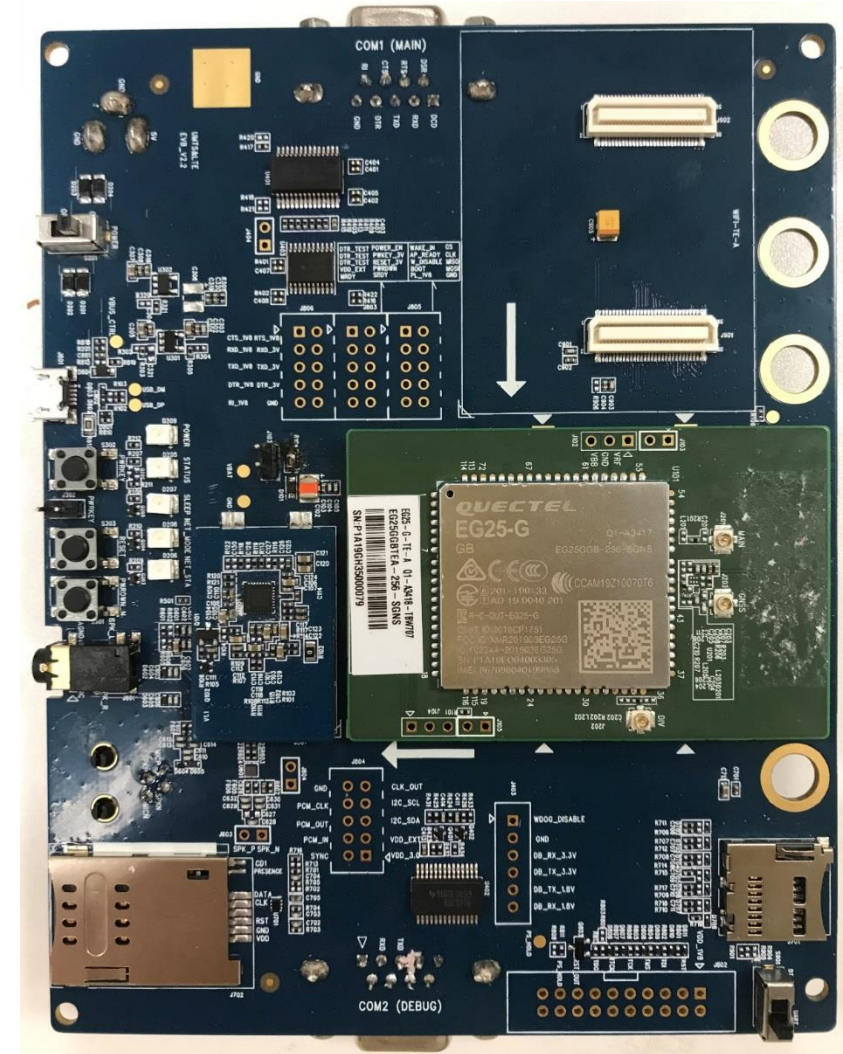
# Support Package - Technical Materials and UMTS&LTE EVB Kit

## Technical Materials Package

- Hardware & software documents
- Debug tools, download tools, test tools, EVB kit & USB drivers
- Approvals & test reports
- QNavigator

## Development Tool (UMTS&LTE EVB Kit)

- Interfaces
  - a) *Power supply interfaces*
  - b) *USB interface*
  - c) *UART interfaces*
  - d) *(U)SIM interface*
  - e) *SD card interface*
  - f) *Audio interfaces*
- Auxiliaries
  - a) *Network status LED*
  - b) *Power key*
  - c) *Reset key*
  - d) *Test points*



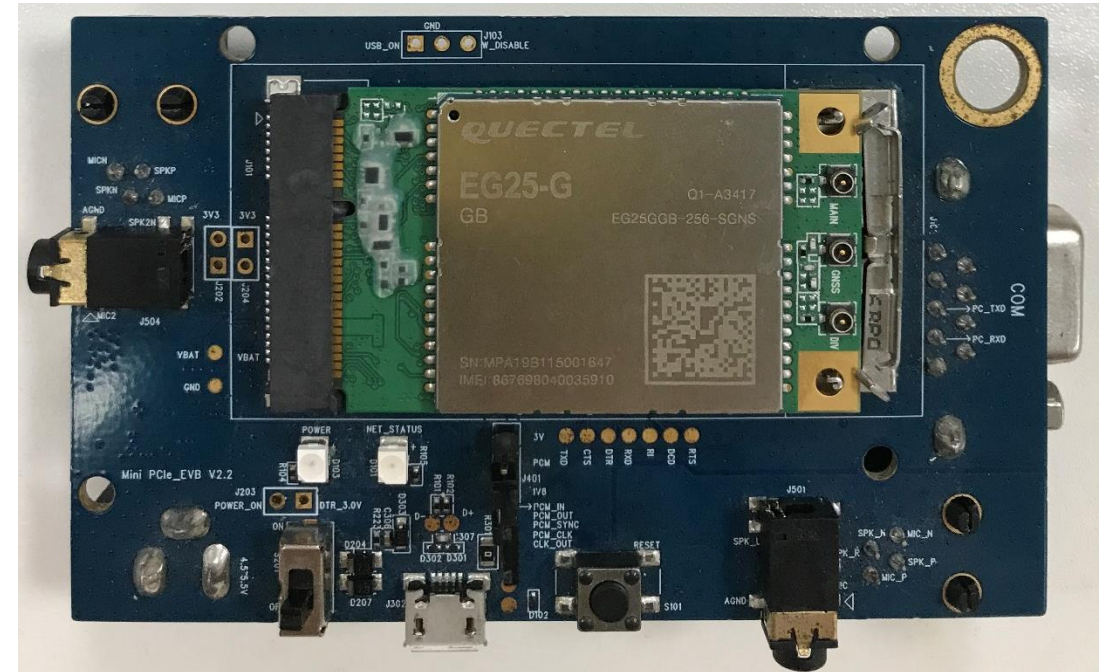
# Support Package - Technical Materials and Mini PCIe EVB Kit

## Technical Materials Package

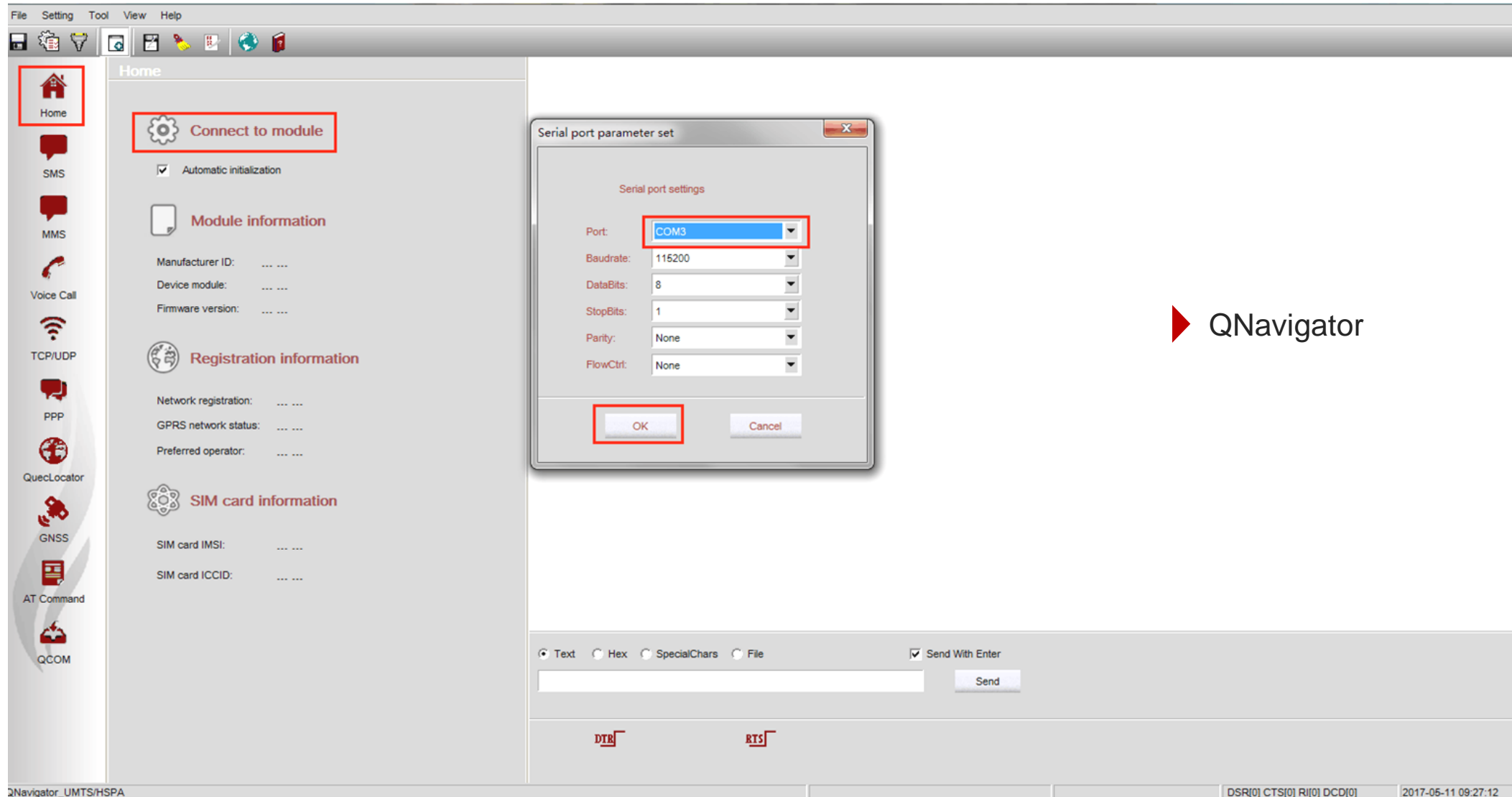
- Hardware & software documents
- Debug tools, download tools, test tools, EVB kit & USB drivers
- Approvals & test reports
- QNavigator

## Development Tool (Mini PCIe EVB Kit)

- Interfaces
  - a) *Power supply interfaces*
  - b) *USB interface*
  - c) *UART interfaces*
  - d) *(U)SIM interface*
  - e) *Audio interfaces*
- Auxiliaries
  - a) *Network status LED*
  - b) *Power key*
  - c) *Reset key*
  - d) *Test points*



# Support Package - QNavigator



► QNavigator



# Technical Support Team



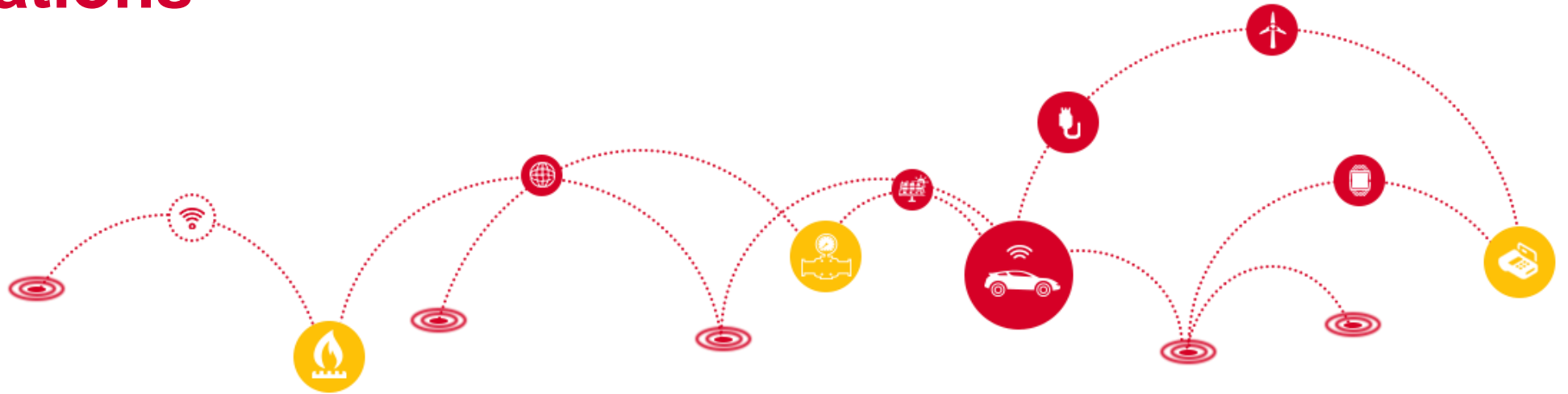
# Compatible Design

## Highlights & Specifications

## Development Timeline

## Technical Details

# Applications





# Target Applications



## Telematics & Transport

- Automotive OEM
- Vehicle Tracking
- Container Tracking
- Ship Tracking
- Fleet Management
- OBD
- DVR
- Insurance Box



## Energy

- Electricity Meter
- Gas Meter
- Water Meter
- Heat Meter
- Smart Grid
- Wind Turbines
- Solar Panel
- Charging Pile



## Payment

- Wireless POS
- Cash Register
- ATM
- Vending Machine
- Top-up Machine



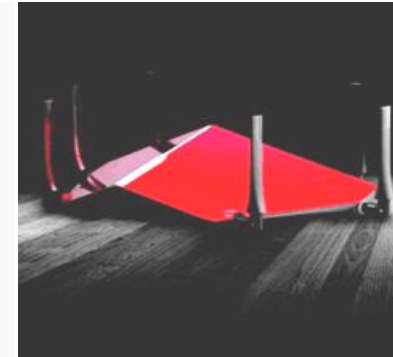
## Security

- Alarm
- Camera
- Video Surveillance
- Intrusion Detection
- Smoke Detector
- Asset Protection



## Smart City

- Street Lighting
- Sharing Economy
- Traffic Light
- Elevator
- Digital Signage
- Advertisement Display
- LED Lighting
- Garbage Bin Monitoring
- Parking



## Gateway

- DTU
- Consumer Router
- Industrial Router
- VoIP
- Server
- Wi-Fi Hotspot



## Industry

- Industrial PDA
- Rugged Tablet PC
- Pipeline Management
- UAV
- Robot
- Flow Meter
- Refrigerator
- Industrial Control
- Industrial Monitoring



## Life & Healthcare

- Personal Tracker
- Household Appliances
- Pet Tracker
- Wearables
- Elderly Monitoring
- Remote Medical Equipment
- Glucometer
- Blood Pressure Monitor
- Gambling Machine



## Agriculture & Environment

- Trail Camera
- Food Traceability
- Farm Machinery
- Irrigation
- Meteorological Station
- Wildlife Tracking
- Environment Monitoring
- Pollution Monitoring



# Thank you!

Building 5, Shanghai Business Park Phase III (Area B), No.1016  
Tianlin Road, Minhang District, Shanghai, China 200233  
Tel: +86-21-5108 6236  
Email: [info@quectel.com](mailto:info@quectel.com)  
Website: [www.quectel.com](http://www.quectel.com)



<https://www.linkedin.com/company/quectel-wireless-solutions>



<https://www.facebook.com/quectelwireless>



[https://twitter.com/Quectel\\_IoT](https://twitter.com/Quectel_IoT)