Quectel UMTS/HSPA(+) Module
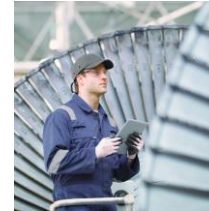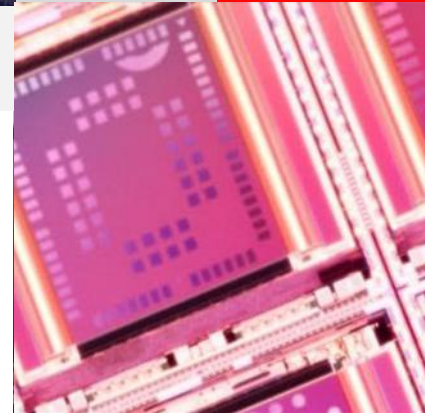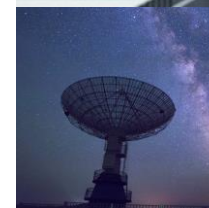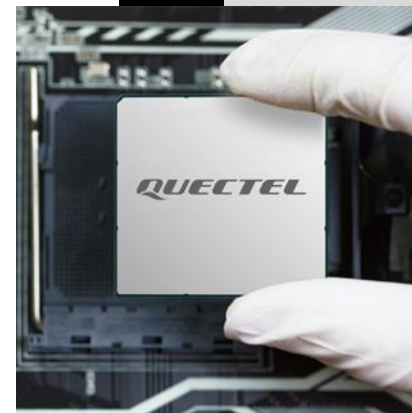
Product Overview

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Duty of Confidentiality

The Receiving Party shall keep confidential all documentation and information provided by Quectel, except when the specific permission has been granted by Quectel. The Receiving Party shall not access or use Quectel's documentation and information for any purpose except as expressly provided herein. Furthermore, the Receiving Party shall not disclose any of the Quectel's documentation and information to any third party without the prior written consent by Quectel. For any noncompliance to the above requirements, unauthorized use, or other illegal or malicious use of the documentation and information, Quectel will reserve the right to take legal action.
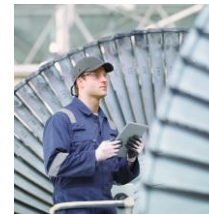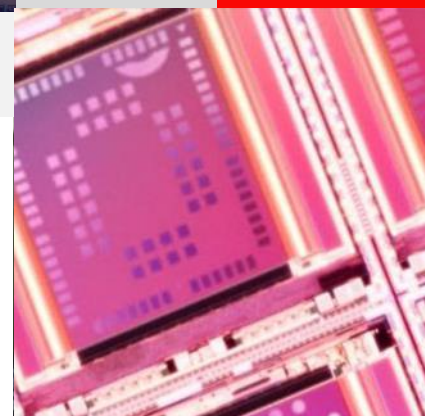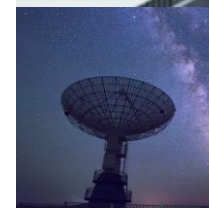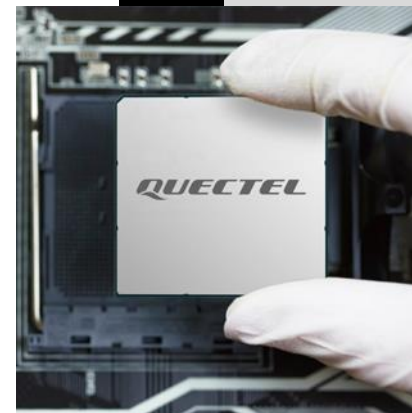
Build a Smarter World

Product Roadmap

Specifications
Technologies
Applications

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UMTS/HSPA(+) Modules Roadmap

UG96

- XMM6250
- LGA Form Factor
- (26.5 × 22.5 × 2.2) mm
- 7.2 Mbps DL/ 5.76 Mbps UL
- Global Version

UC200T Series

- ASR1501
- LCC Form Factor
- (29.0 × 32.0 × 2.4) mm
- 21 Mbps DL/ 5.76 Mbps UL
- -EM/ -GL

UC200T Series Mini PCIe

- ASR1501
- Mini PCIe Form Factor
- (30.0 × 51.0 × 4.9) mm
- 21 Mbps DL/ 5.76 Mbps UL
- -EM/ -GL

UG89

- ASR1501
- LGA Form Factor
- (25.4 × 27.6 × 2.35) mm
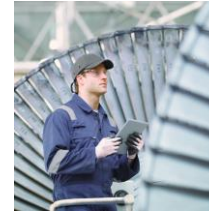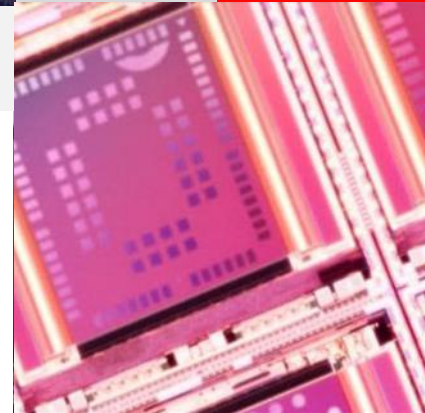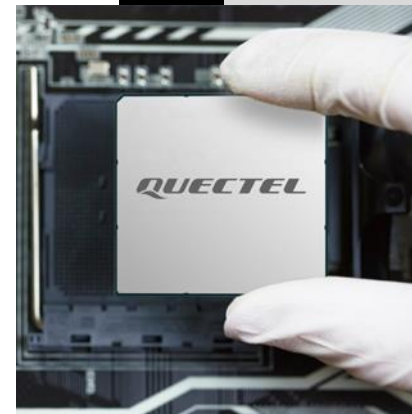- 21 Mbps DL/ 5.76 Mbps UL
- Global Version

2015	2019	......

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UG89 Specifications

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■ **UMTS/HSPA+ Module**

25.4 mm × 27.6 mm × 2.35 mm
21 Mbps (DL)/ 5.76 Mbps (UL)

Variant	UG89
Platform	ASR1501
Band	B1/B2/B5/B8 @ UMTS 850/900/1800/1900 MHz @ GSM
Area	Global
Supply Voltage	3.3–4.5 V, typ. 3.8 V
Interfaces	(U)SIM/ UART/ USB/ Audio Digital (PCM)/ I2C/ ADC/ GPIO/ Antenna
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ NITZ/ CMUX/ HTTPS/ FTPS/ SSL/ FILE/ MQTT/ SMTP/ MMS/ SMTPS/ CSD*
Features	QuecFOTA®/ QuecLocator®/ QuecFile®/ RIL Driver/ USB RNDIS Driver/ USB Serial Driver/ (U)SIM Card Detection/ USB ECM Driver
Certification	**Regulatory:** GCF/ CE/ PTCRB/ FCC/ IC/ Anatel/ IFETEL/ RCM

"" means under development/plannning.*

UG89 Timeline

2021

Project Stage

UG89 MP

Regulatory Certification

GCF/ CE/ PTCRB/ FCC/ IC/ Anatel/ IFETEL/ RCM

UC200T Series Specifications

UMTS/HSPA+ Module

29.0 mm × 32.0 mm × 2.4 mm
21 Mbps (DL)/ 5.76 Mbps (UL)

Variant	UC200T-EM	UC200T-GL
Platform	ASR1501	ASR1501
Band	B1/B8 @ UMTS 900/1800 MHz @ GSM	B1/B2/B5/B8 @ UMTS 850/900/1800/1900 MHz @ GSM
Area	Europe/ Asia Pacific Region	Global
Supply Voltage	3.4–4.5 V, typ. 3.8 V	
Interfaces	(U)SIM/ UART/ USB/ Audio Digital (PCM)/ I2C/ ADC/ Antenna	
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ NITZ/ CMUX/ HTTPS/ FTPS/ SSL/ FILE/ MQTT/ SMTP/ MMS/ SMTPS/ CSD*	
Features	QuecFOTA®/ QuecLocator®/ QuecFile®/ RIL Driver/ USB RNDIS Driver/ USB Serial Driver/ (U)SIM Card Detection/ USB ECM Driver	
Certification	**Regulatory:** CE/ RCM	**Regulatory:** CE/ FCC/ Anatel/ RCM

"" means under development.*

UC200T Series Mini PCIe Specifications

■ UMTS/HSPA+ Module

30.0 mm × 51.0 mm × 4.9 mm
21 Mbps (DL)/ 5.76 Mbps (UL)

Variant	UC200T-EM Mini PCIe	UC200T-GL Mini PCIe
Platform	ASR1501	ASR1501
Band	B1/B8 @ UMTS 900/1800 MHz @ GSM	B1/B2/B5/B8 @ UMTS 850/900/1800/1900 MHz @ GSM
Area	Europe/ Asia Pacific Region	Global
Supply Voltage	3.0–3.6 V, typ. 3.3 V	
Interfaces	(U)SIM/ UART/ USB/ Audio Digital (PCM)/ I2C/ Antenna/ (U)SIM Card Holder (optional)	
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ NITZ/ CMUX/ HTTPS/ FTPS/ SSL/ FILE/ MQTT/ SMTP/ MMS/ SMTPS/ CSD*	
Features	QuecFOTA®/ QuecLocator®/ QuecFile®/ RIL Driver/ USB RNDIS Driver/ USB Serial Driver/ (U)SIM Card Detection/ USB ECM Driver	

"" means under development.*

UG96 Specifications

UMTS/HSPA Module

26.5 mm × 22.5 mm × 2.2 mm
7.2 Mbps DL/ 5.76 Mbps UL

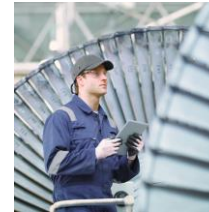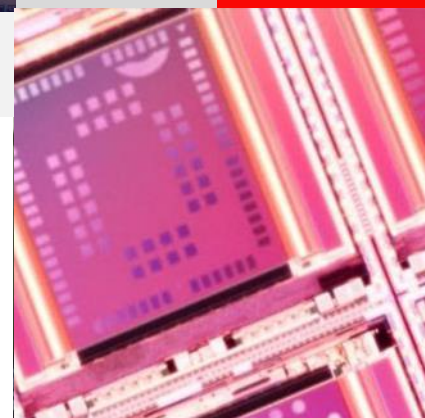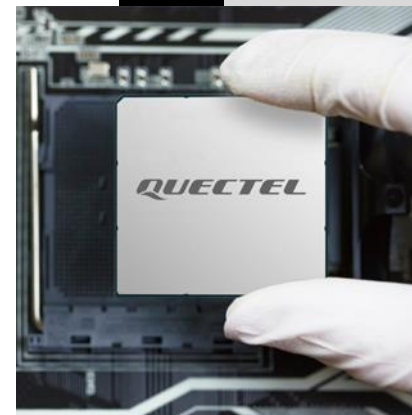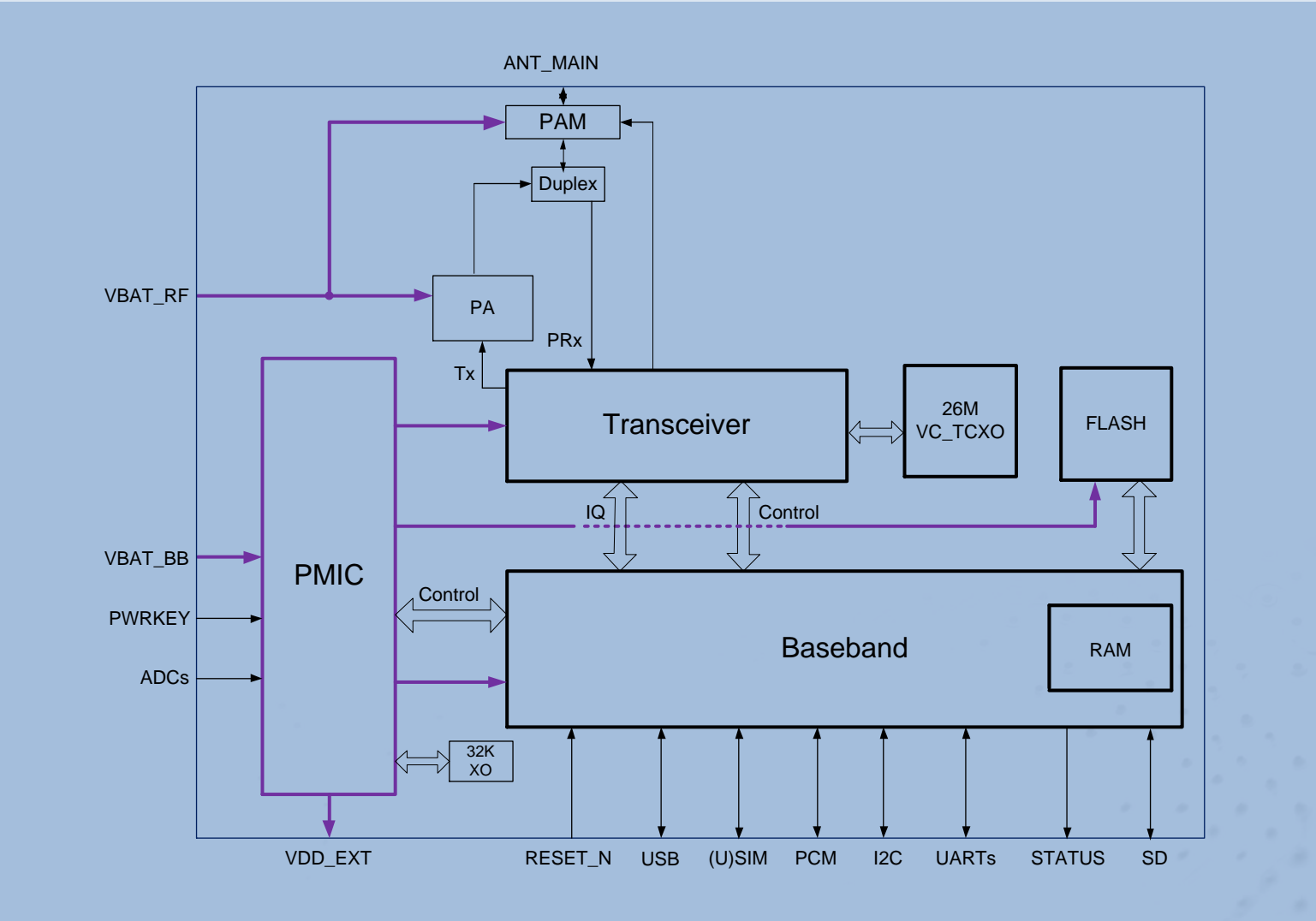| Variant	UG96
Platform	XMM6250
Band	B1/B2/B5/B6/B8 @ UMTS 850/900/1800/1900 @ GSM
Area	Global
Supply Voltage	3.3–4.3 V, typ. 3.8 V
Consumption	1.1 mA @ GSM sleep, DRX = 9 1.7 mA @ UMTS sleep, DRX = 9
Interfaces	(U)SIM/ UART/ USB/ Audio Digital (PCM)/ I2C/ RTC Backup/ Antenna
Protocols	TCP/ UDP/ PPP/ MMS/ HTTP/ HTTPS/ SMTP/ SMTPS/ FTP/ NTP/ NITZ/ PING/ SSL
Features	DTMF/ DFOTA/ RIL Driver/ MUX/ USB Serial Driver/ (U)SIM Card Detection
Certification	**Carrier:** Deutsche Telekom/ Telefonica **Regulatory:** GCF/ CE/ PTCRB/ FCC/ IC/ Anatel/ IFETEL/ CCC/ JATE/ TELEC/ RCM/ FAC/ ICASA

Product Roadmap
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Hardware Architecture

The hardware architecture above shows an example with UC200T series module.

Software Advantages

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USB Serial Driver

- Windows 7/8/8.1/10
- Linux 2.6–5.12
- Android 4.x–11.x

Other Drivers

- RIL Driver: Android 4.x–11.x
- USB RNDIS Driver:
  Windows 7/8/8.1/10
  Linux 2.6–5.12
- USB ECM Driver:
  Linux 2.6–5.12

Quality Guarantee

- Reliable network protocols
- Steady flash protection mechanism
- Superior audio algorithms
- High sensitivity

Special Features

- TTS
- QuecFile® (UG89/UC200T series)
- DFOTA (UG96)

Flexible Applications

- eCall
- (U)SIM card detection
- DTMF

Enhanced AT Commands

- Standard V.25ter AT commands
- 3GPP TS 27.007 (GSM 07.07)
- 3GPP TS 27.005 (GSM 07.05 SMS)
- TCP/IP stack AT commands
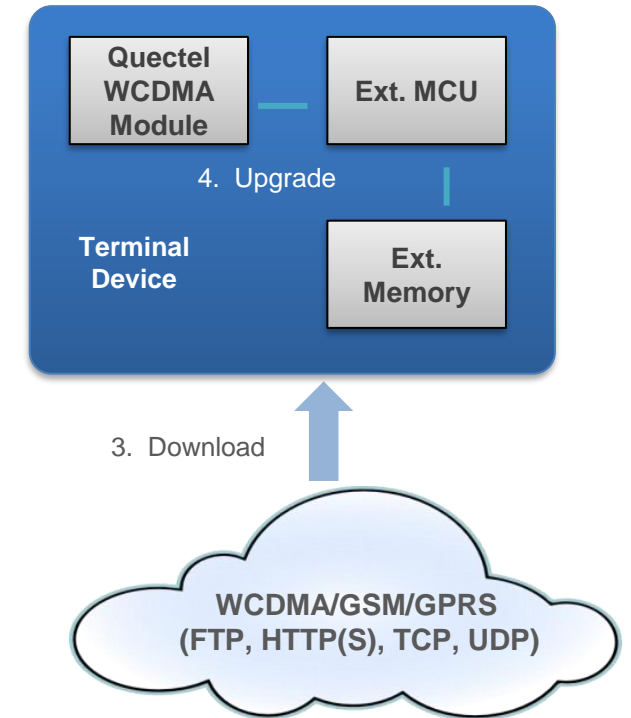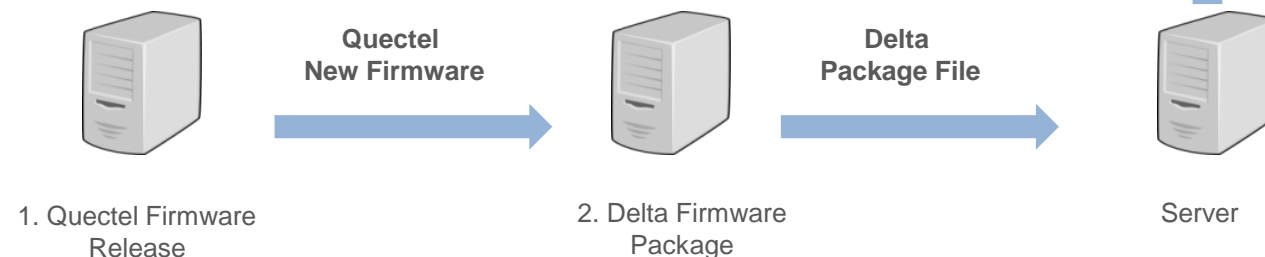- STK ((U)SIM Application Toolkit)

DFOTA

DFOTA is an acronym for Delta Firmware Upgrade Over-The-Air. DFOTA technology enables mobile device manufacturers to remotely update software. New software can be delivered over the air, eliminating the need for users to bring the device to a service facility.
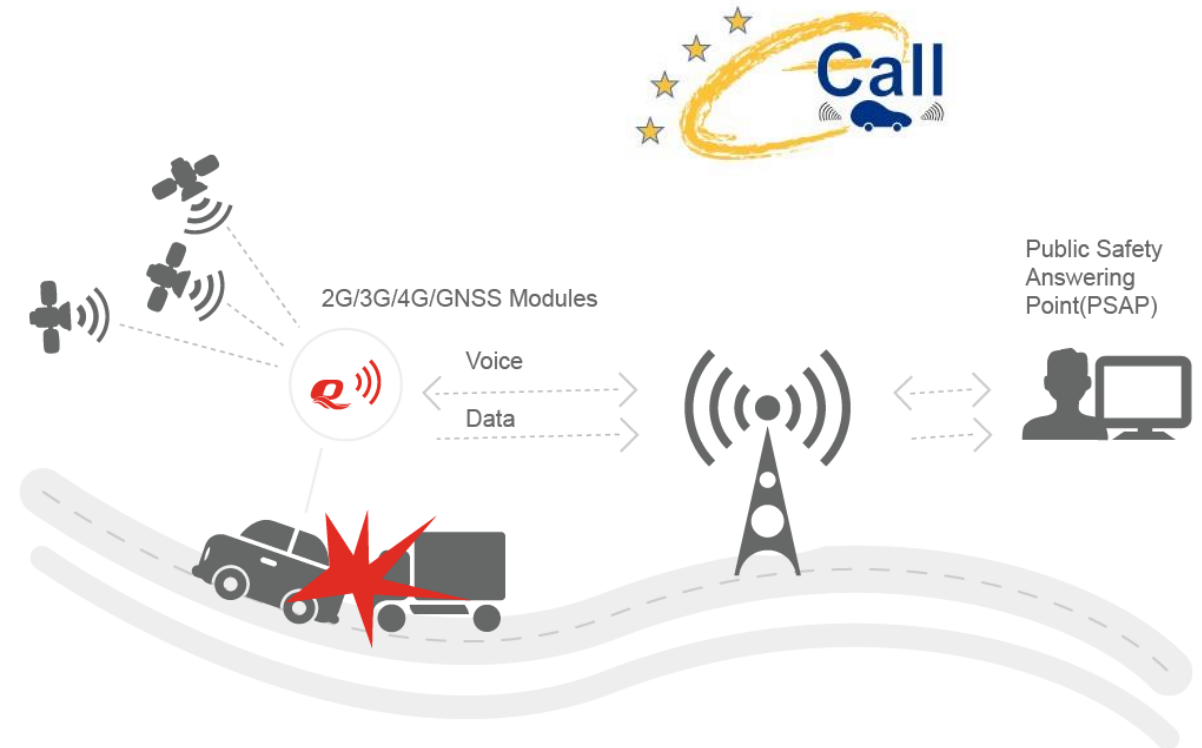
Firmware Upgrade Procedures via DFOTA

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

eCall Function

Automatic Emergency Call (eCall) is a system that provides an automated message to the emergency services following a road crash, which includes the precise crash location, time, license plate number and the number of passengers. This system aims to reduce the time between when the crash occurs and when rescues are provided.
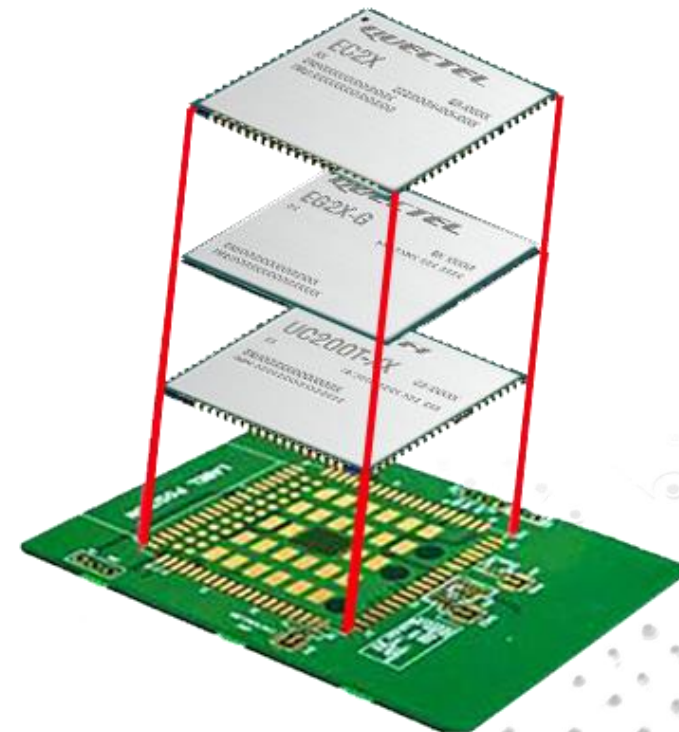
- *Quectel is well-experienced in eCall development and is capable of offering technical support and assistance for customers in the development of eCall application.*

UC200T Series Layout Compatibility

UC200T series module is compatible with Quectel LTE Standard **EC2x/EG2x-G** series modules.

Compatible design accommodates both **UC200T** and **EC2x/EG2x-G** series modules on the same PCB footprint.

The compatibility diagram shown above is for illustration purpose only.
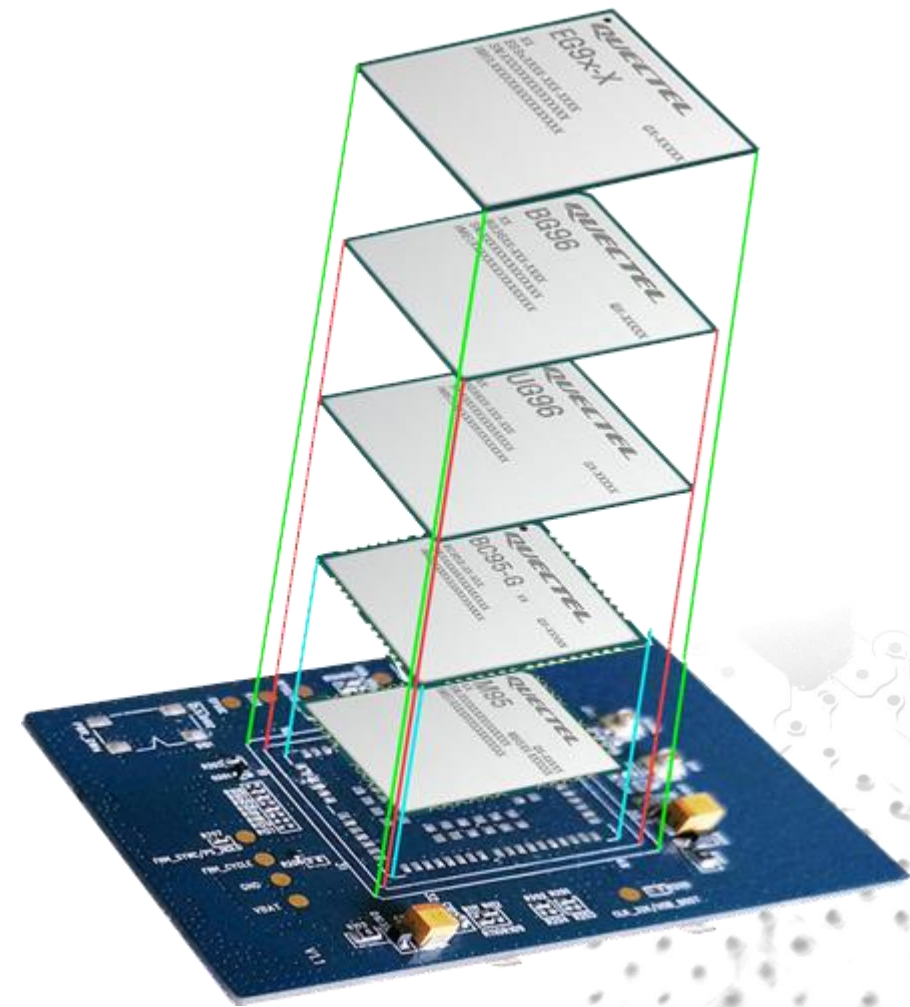*The actual appearance of the modules may be different.*

UG96 Layout Compatibility

UG96 is compatible with the following Quectel

modules:

- GSM/GPRS M95 module

- LTE Cat 4/Cat 1 EG95/EG91 series modules

- LTE Cat NB2 BC95-G module

- LTE Cat M1/Cat NB1/EGPRS BG96 module

The compatibility diagram shown above is for illustration purpose only.
The actual appearance of the modules may be different.

Support Package (UG96/UC200T/UG89 Series)
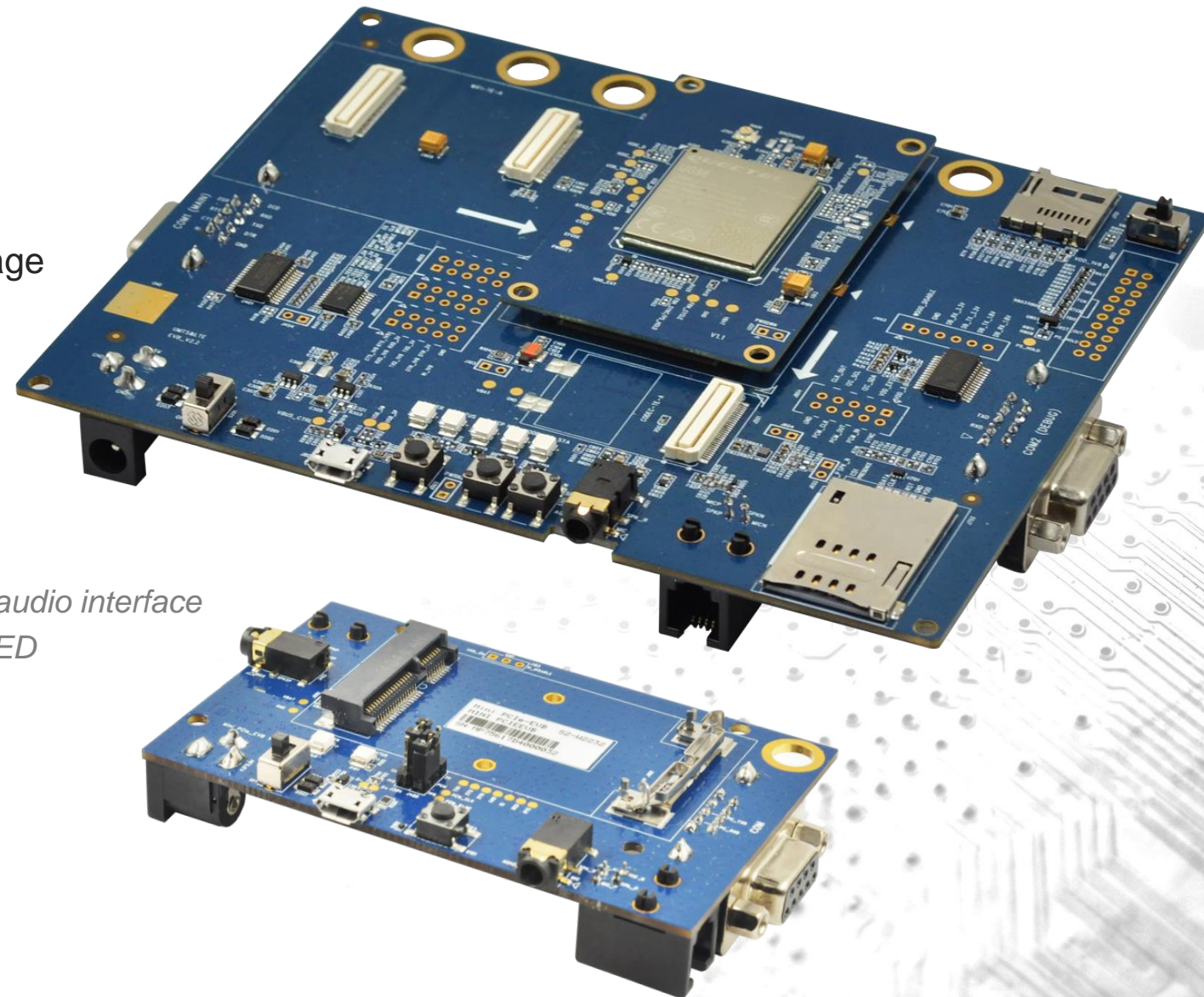
QUECTEL
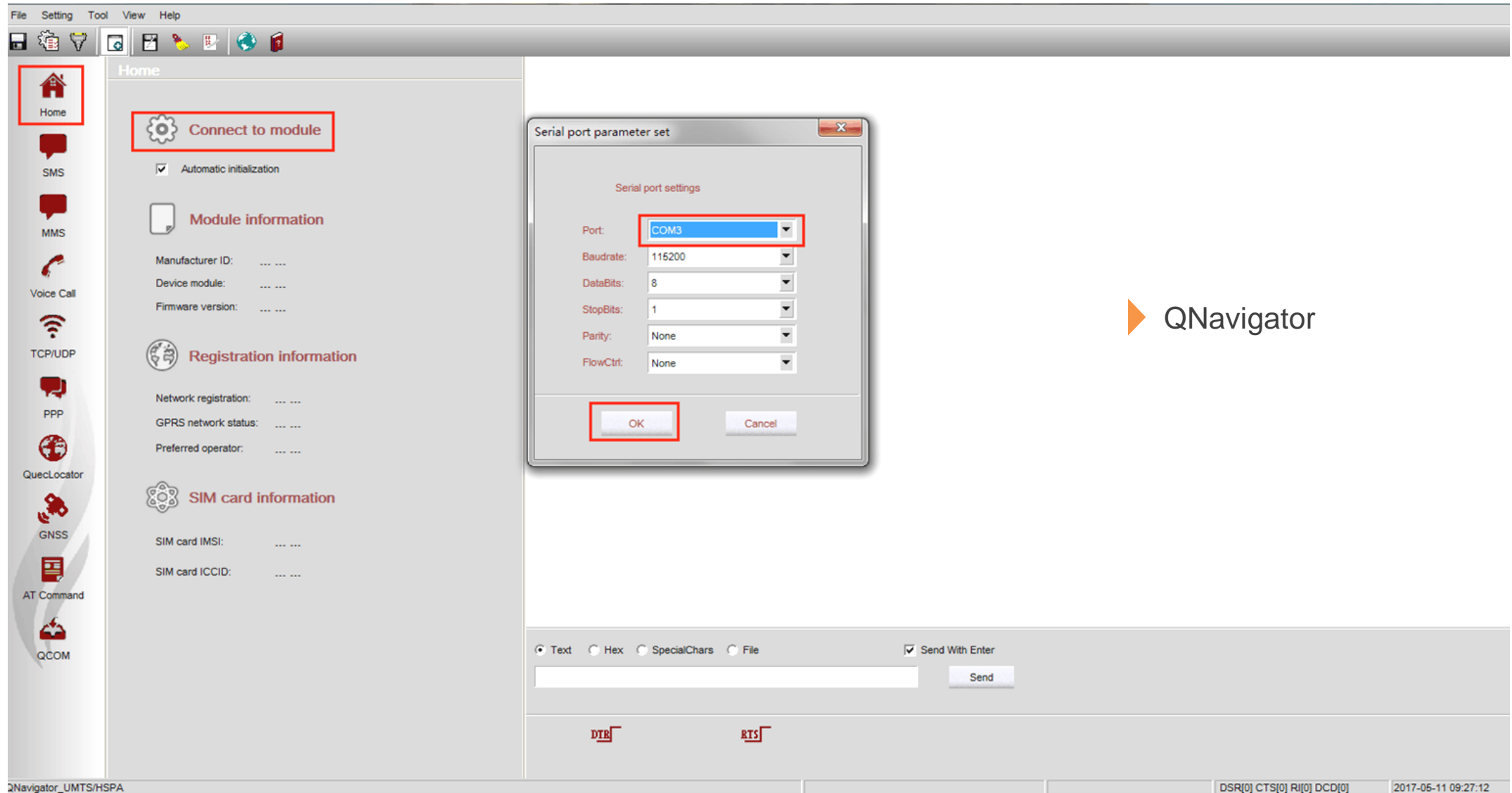
Technical Materials Package

- Hardware & software specifications
- Application note package
- Debug tool, download tool, test tool, EVB package & USB drivers
- Approvals & test report package
- QNavigator

Development Tool (UMTS&LTE EVB Kit)

- Interfaces
  a) RS-232 interfaces
  b) USB interface
  c) Power supply
  d) Antenna interface
  e) Handset interface
  f) Earphone interface
  g) Test points

- Features
  a) Digital or analog audio interface
  b) Network status LED
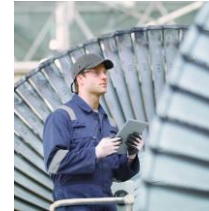 c) Power key
  d) Reset key

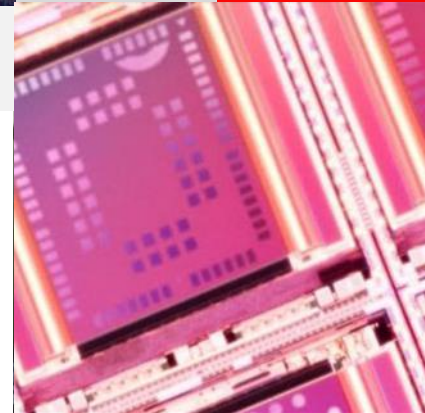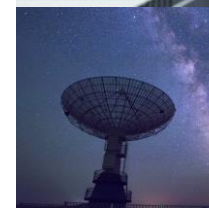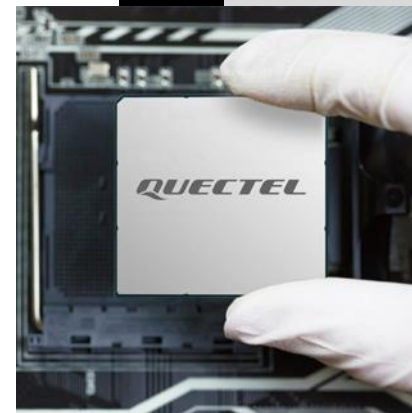# Support Package - QNavigator

QNavigator

Product Roadmap
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Build a Smarter World

Target Applications

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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

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

The number one cellular module vendor in the world and a leading GNSS module supplier

- Unbeatable choice from the broadest module portfolio in the world
- The highest quality products for the best possible prices
- Superb support with the largest R&D team in the industry
- Continuous innovation – first to market with 5G, LPWA, CV2X, snapdragon
- A passionate, dedicated team of "Quectelers" ensure our customers always come first

ThankYou

Build a Smarter World