

UC20 Mini PCIe Module Presentation

October, 2013

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Highlights

Advanced Features

UC20 Mini PCIe vs. Competitor's Products

Support Package



Highlights



Based on Qualcomm MDM6200 Chipset

Multi-Band Combination

UMTS/HSPA+: UC20-E Mini PCIe (900/2100MHz)
UC20-A Mini PCIe (850/1900MHz)
GSM/EDGE: 850/900/1800/1900MHz

HSPA+ High Speed Packet Access

Max.14.4 Mbps (DL), Max.5.76 Mbps (UL)

Robust Package

Standard Mini PCIe form factor maximizes the convenience for customers to design and use

Abundant Functions and Interfaces

USB/UART/USIM/Audio (PCM)/PERST#/LED_WWAN#/
W_DISABLE#/eCall/GNSS/Rx-diversity

Extended Temperature Range

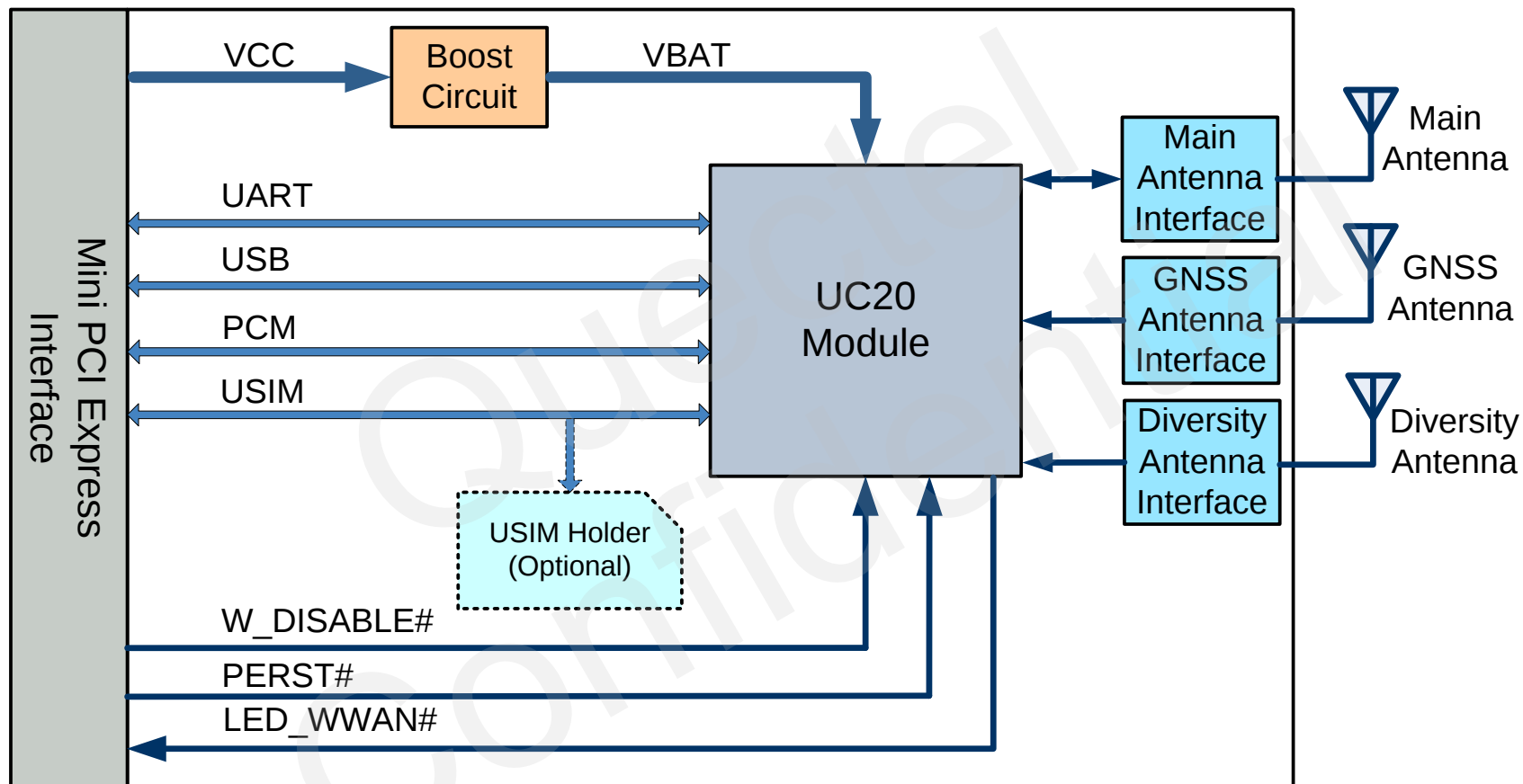
-40°C ~ +80°C

Mechanical Dimensions



Length:	51.0 mm
Width:	30.0 mm
Height:	4.9 mm
Weight:	Approx. 9.8g

Hardware Architecture



Software Advantages

USB Serial Drivers

- Windows XP, Windows Vista, Windows 7, Windows 8
- Windows CE 5.0/6.0
- Linux 2.6/3.0
- Android 2.3/4.0

Quality Guarantee

- Reliable network protocol
- Steady flash protected mechanism
- Superior audio algorithms
- High sensitivity

NDIS&USB RIL Drivers

- NDIS: Windows XP, Windows Vista, Windows 7, Windows 8
- USB RIL: Windows CE6.0, Android 2.3/4.0

Flexible Applications

- GPS
- GLONASS
- eCall

Abundant Protocols

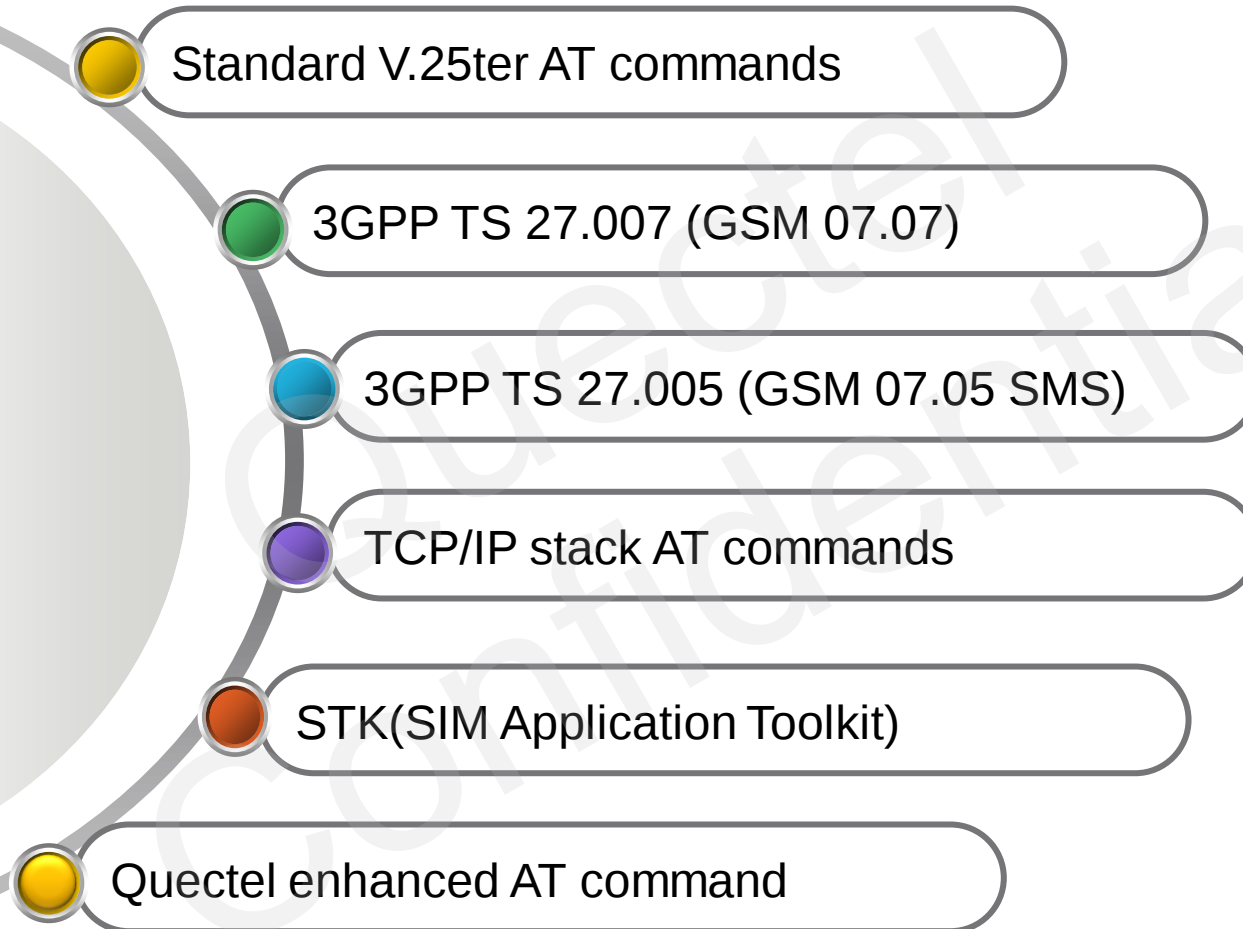
- TCP/IP, UDP, PPP
- SMS
- FTP*, HTTP*, MMS, SMTP
- MUX

Special Features

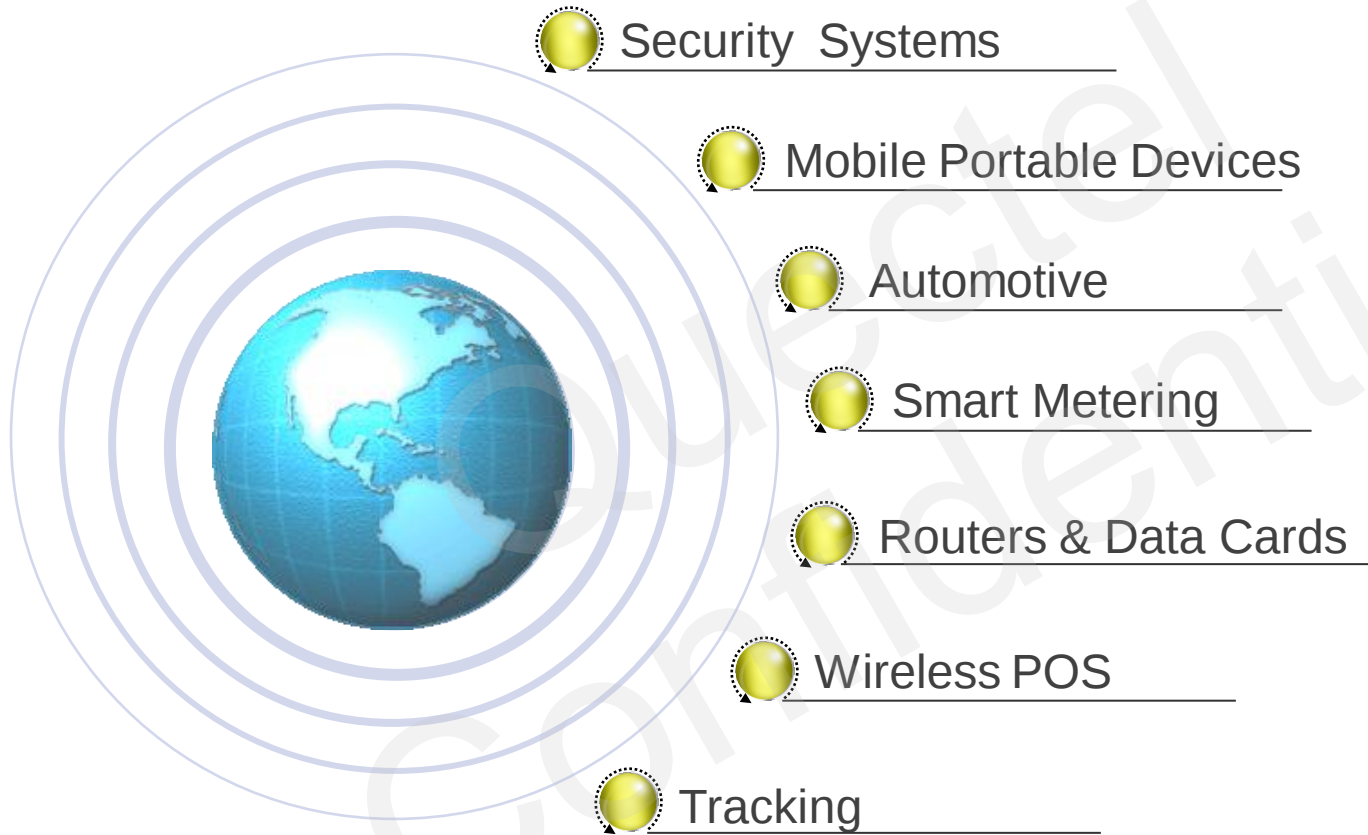
- Rx-Diversity
- QuecFOTA
- QuecLocator*

* Under development

Enhanced AT Commands



Target Applications



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UC20 Mini PCIe adopts Qualcomm's gpsOne gen8 instead of gpsOne gen 7. Compared with Gen7, Gen8 has the following key highlights.

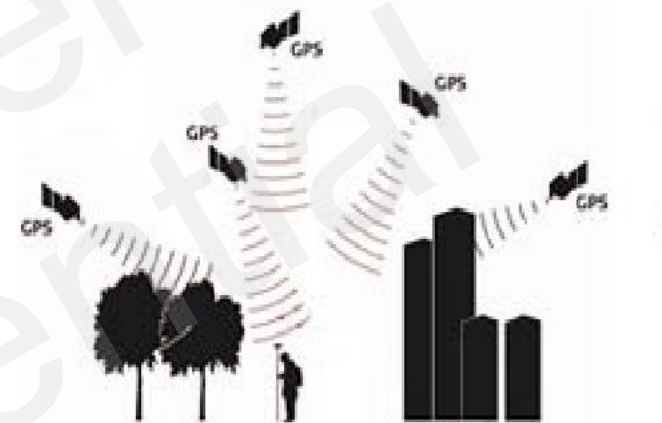
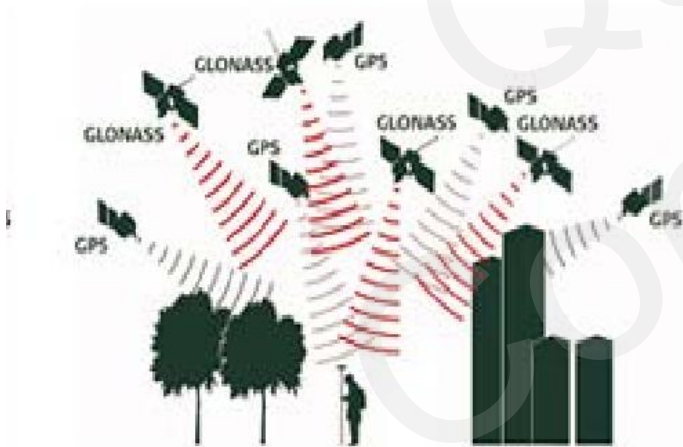
- Concurrent GPS and GLONASS operation
- Usable constellation increases to 55 satellite vehicles (SVs)
- Search capacity increased by 225% over Gen7
- Reduced coverage gaps
- Improved TTFF(time-to-first-fix)
- Improved short multipath mitigation – urban canyon benefit
- Improved tracking sensitivity
- Obvious power reduction over Gen 7; longer battery life

Parameter	Gen7	Gen8
GNSS system	GPS only	GPS + GLONASS
Tracking sensitivity	-160dBm	-161dBm
TTFF (hot/warm/cold/weak signal)	1s/29s/35s/100s	1s/29s/32s/50s
Total number of SVs available	~30	~55

Benefit of gpsOne Gen8– GPS & GLONASS

Qualcomm's gpsOne Gen8 supports GNSS system which can observe more satellites. Therefore, enabling GLONASS and GPS system at the same time makes GNSS module possess the following advantages.

- Saving times of acquisition
- High accuracy and precision
- Reduction of values of PDOP and GDOP



In the open sky, natural obstacles, such as trees, high buildings, etc. affects GPS modules to receive signals from satellites. The GNSS system can observe more satellites than single GPS system, which highly avoid the limitation of signal reception in the open sky.

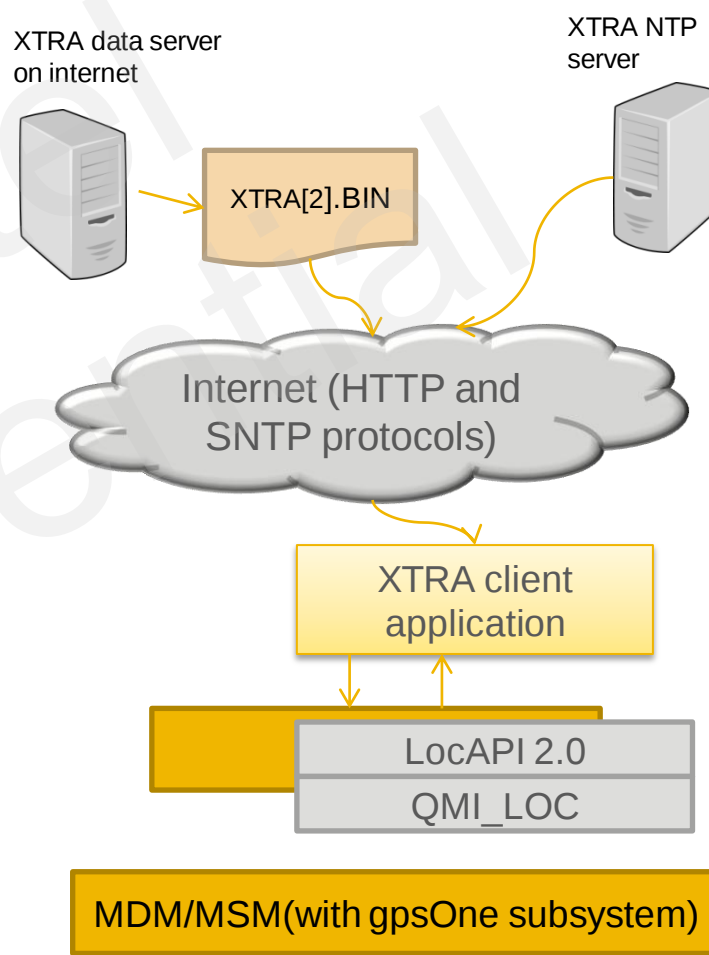
Benefits of gpsOne Gen8 – XTRA Assistance Technology

Qualcomm's new gpsOne XTRA Assistance technology provides enhanced operation by enabling user 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 difficult areas such as indoors and in dense urban canyons.

gpsOne XTRA Assistance technology provides improved TTFF

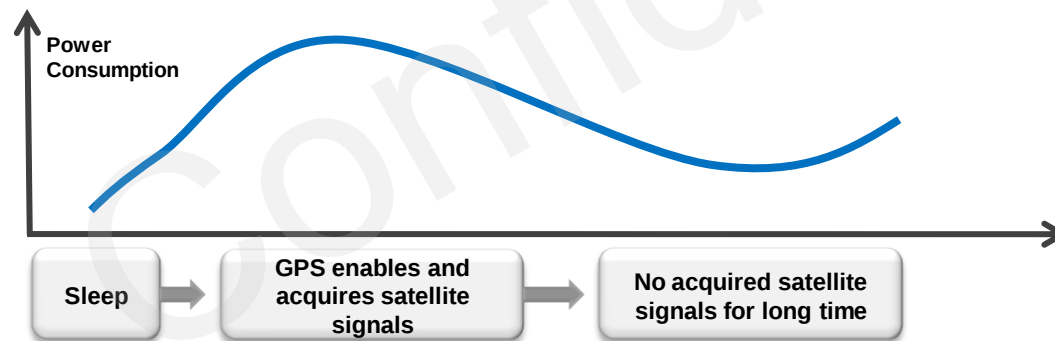
Parameter	Description	Conditions	Typical Value
TTFF (GNSS)	Cold start @open sky	Autonomous	32s
		XTRA enabled	22s
	Warm start @open sky	Autonomous	29s
		XTRA enabled	3s
	Hot start @open sky	Autonomous	2.5s
		XTRA enabled	2s



DPO

UC20 Mini PCIe provides power saving solutions by DPO (Dynamic Power Optimization), thus extending battery life, maximizing talk and standby time. DPO is a power-saving solution which attempts to turn off GNSS RF parts, reduces current consumption up to 50% without impact on TTFF.

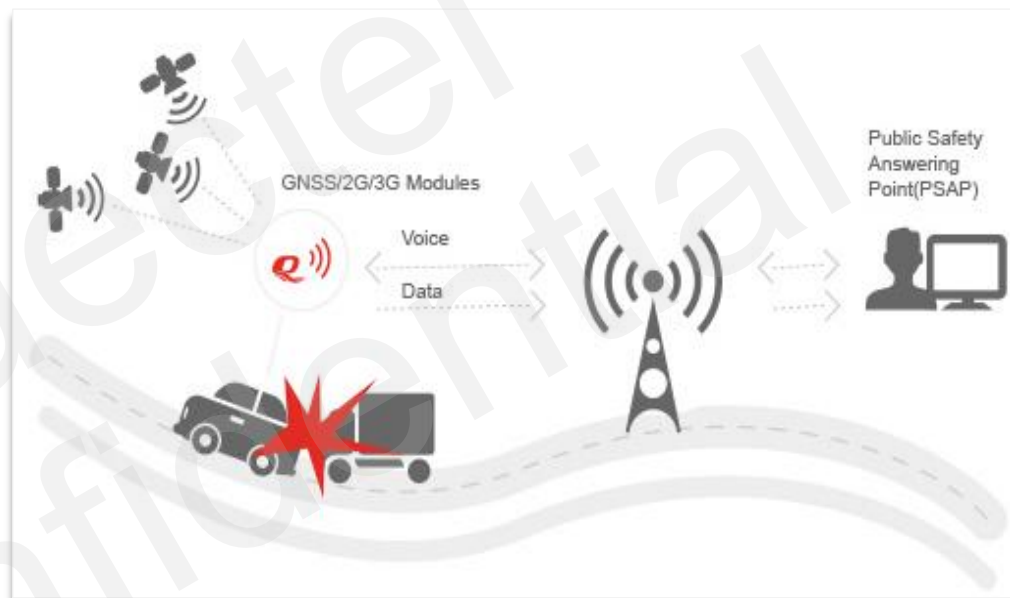
The DPO feature attempts to reduce power consumption by turning the RF(and associated hardware) on just long enough to acquire the satellite signals. It can be activated only when there is no need to decode navigation data because the GPS receiver has the GPS time knowledge and ephemeris(or XTRA-based almanac corrections) needed to compute the location.



UC20 Mini PCIe supports eCall function.



A car will have an electronic safety system automatically calling emergency services in case of a serious accident. Even if you are unconscious, the system will inform rescue workers of the crash site's exact whereabouts, and the rescues will be on its way within minutes. The system is named as "eCall".



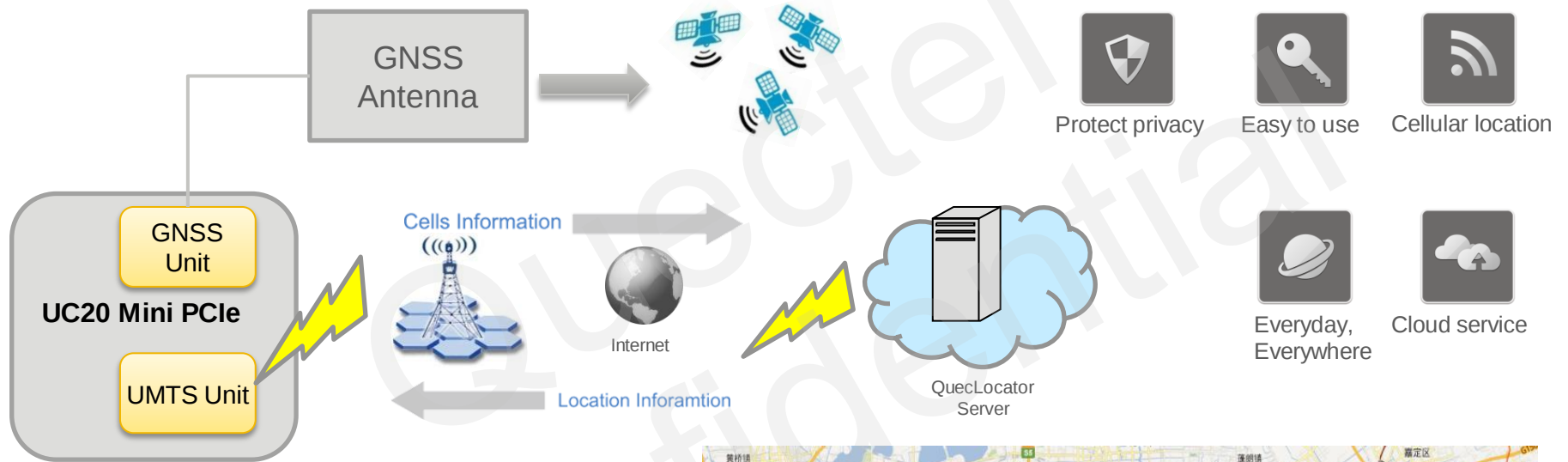
Quectel supports eCall in 2G Modules as well and has been working on E-Call since late 2011.

Quectel has enough development experience on eCall to support and assist with customer's eCall application development.

QuecLocator

QuecLocator, Quectel Cell Locate Technology

Since Quectel modules has its own cloud server, customers can be free to get cell location information through Internet.

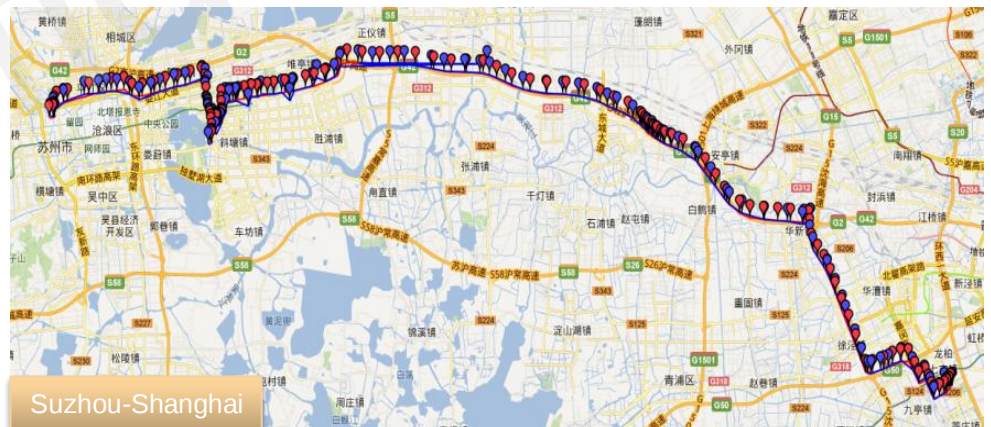


Field Test Result



GPS signal records

GSM signal records

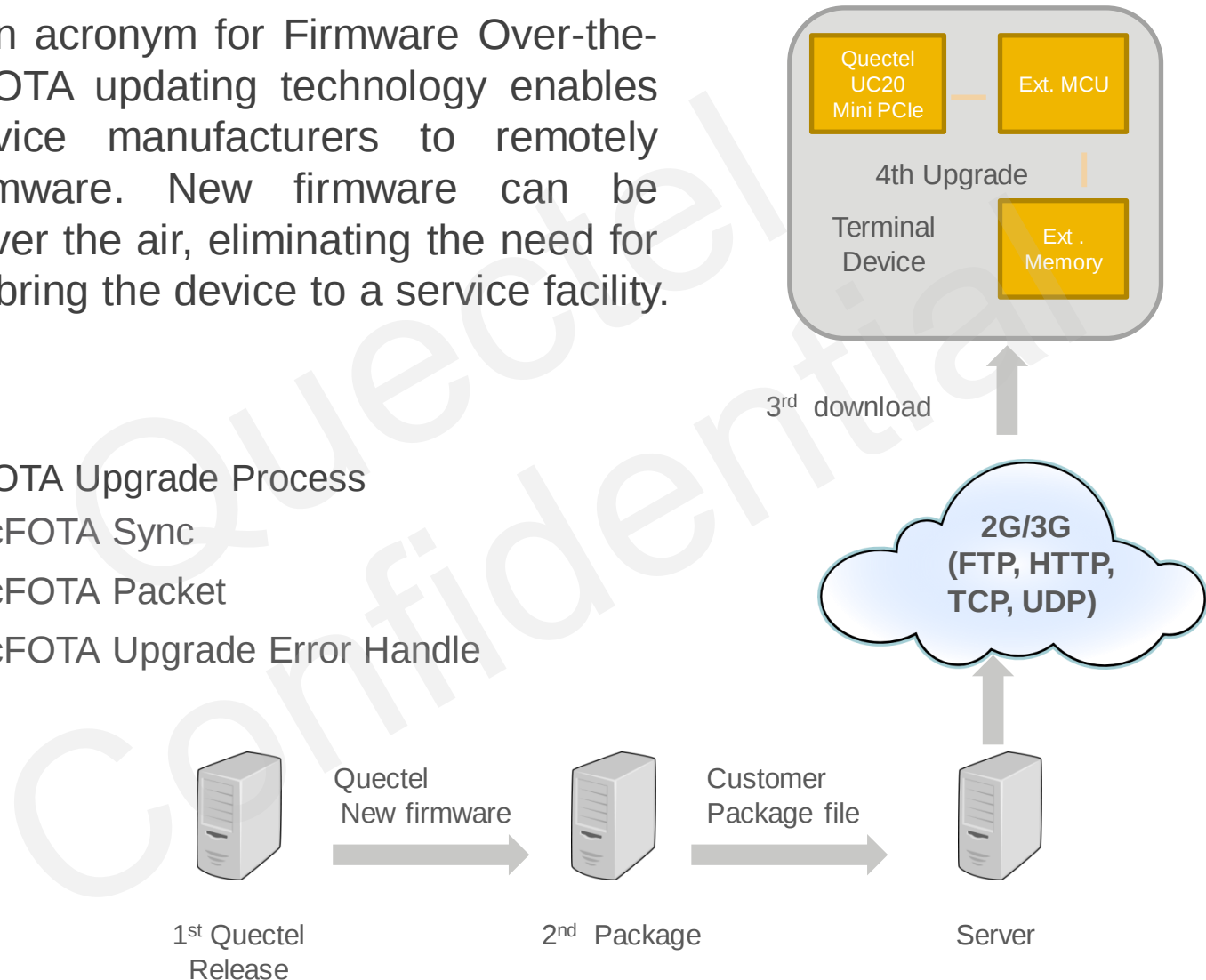


QuecFOTA

FOTA is an acronym for Firmware Over-the-Air. QuecFOTA updating technology enables mobile device manufacturers to remotely update firmware. New firmware can be delivered over the air, eliminating the need for the user to bring the device to a service facility.

QuecFOTA Upgrade Process

- QuecFOTA Sync
- QuecFOTA Packet
- QuecFOTA Upgrade Error Handle



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Features	UC20 Mini PCIe	Ex770W	U6x00V	Hx910	LxsA U200	ExS5
Weight	9.8g	11.5g	<11.5g	10g		7.5g
Data Rate	DL 14.4 Mbps UL 5.76 Mbps	DL 7.2 Mbps UL 2.0 Mbps	DL 7.2 Mbps UL 5.76 Mbps	DL 21.0 Mbps UL 5.76 Mbps	DL 7.2 Mbps UL 5.76 Mbps	DL 7.2 Mbps UL 5.76 Mbps
Voice	Supported	Supported	Supported	Supported	Supported	Not supported
eCall	Supported	Not supported	Not supported	Not supported	Supported	Not supported
Rx-Diversity	Supported	supported	Supported	supported	Not supported	Not supported
GPS	gpsOne® Gen 8	Not supported	Optional	supported	Supported	Not supported
GLONASS	Supported	Not supported	Not supported	Not supported	Not supported	Not supported
Temperature Range	-40°C ~ +80°C	-20°C ~ +70°C	-30°C ~ +75°C	-30°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C

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Technical Materials Package

- **Technical materials package**
 - Hardware, software, specification
 - Application note package
 - Download tool, test tool, EVB package, USB drivers.
 - Approvals & test report package

- **Development Tool**
 - **Interfaces**
 - ✓ RS-232 interfaces
 - ✓ USB interface
 - ✓ Power supply
 - ✓ Antenna interface
 - ✓ USIM holder



Q&A...

Thank you



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