



Oliver Utesch

Regional Sales Manager, Central Europe
Quectel



Connecting the World with Infinite Possibilities

Oliver Utesch | Sales Manager

Content

IoT Development Trend

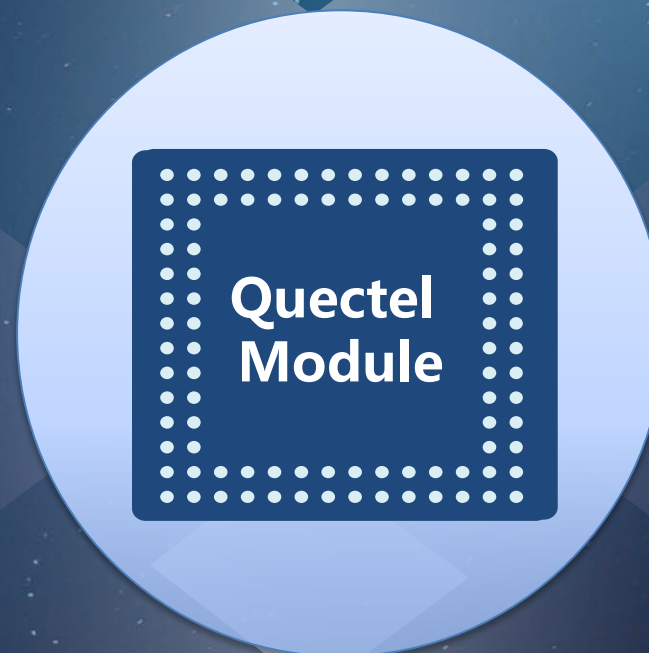
NB-IoT Product Introduction

Quectel Advantages

Build a Smarter World 

Introduction of IoT Module

Quectel Module,
at the Core of IoT



Function

Data

Protocol

Voice &
SMS

Enhanced
Features

Product
Specification

Industrial
Grade

Automotive
Grade

Form Factor

LCC

LGA

Mini PCIe

WLAN

Bluetooth

Zigbee

Therad

Wi-Fi

WWAN

GSM/GPRS

UMTS

LTE

5G

LPWAN

NB-IoT

Cat M

Others

Sigfox

LoRa

Weighless

SATCOM

Fiber Optic

eCall

Location

DTMF

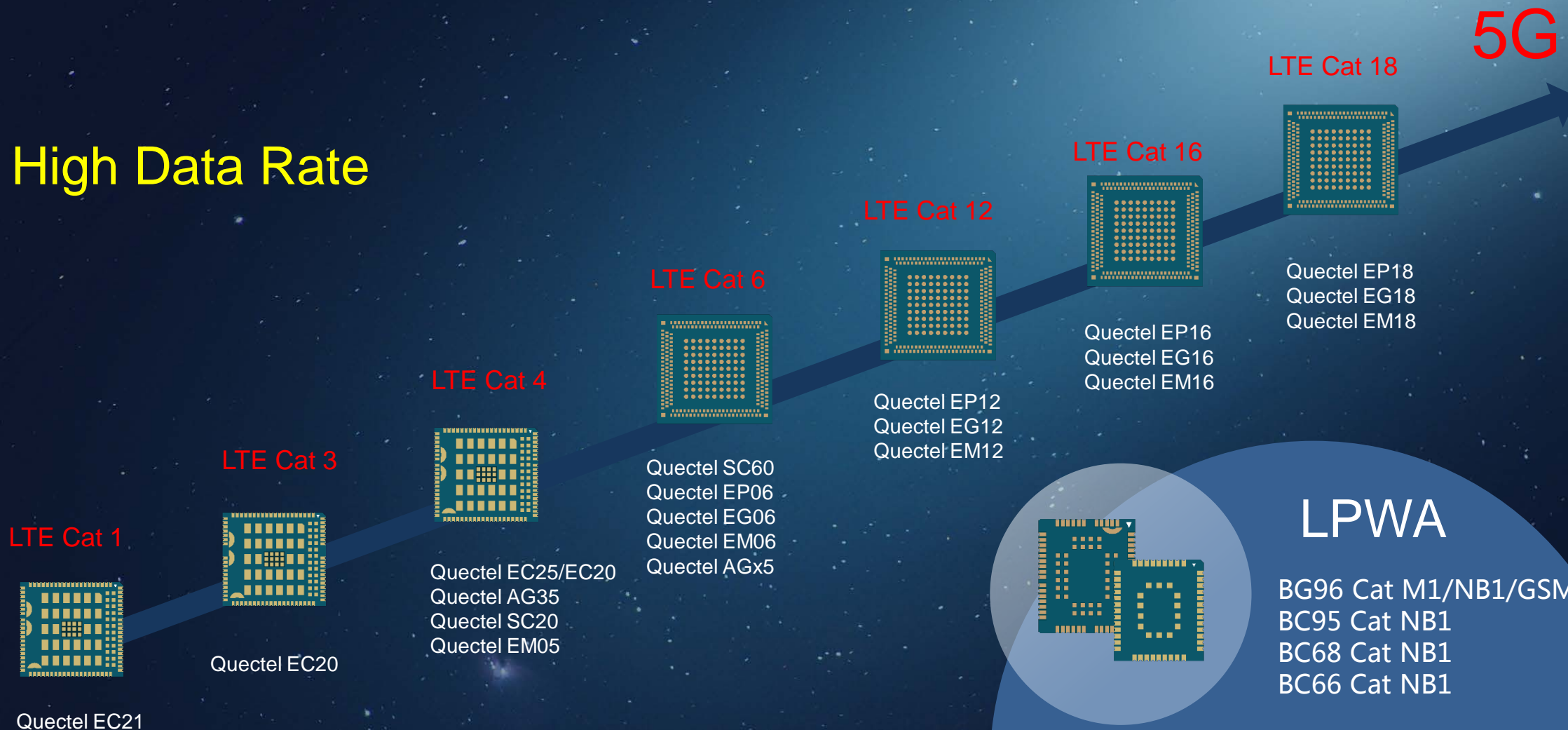
FOTA

TTS

Constant Innovation in LTE Modules

High Data Rate

5G



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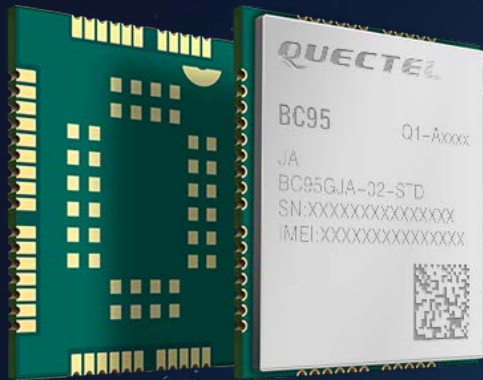
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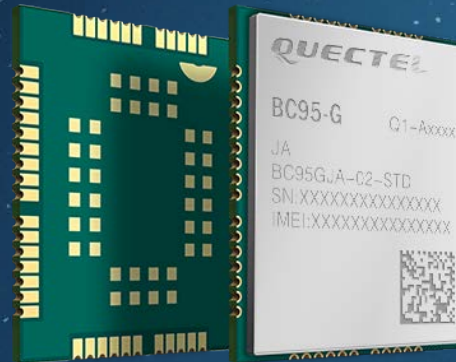
Global Leading NB-IoT Solutions

China's leading NB-IoT technologies are accelerating global IoT growth.
Quectel NB-IoT modules help Chinese enterprises explore overseas market.



Quectel BC95

Chip: Boudica V120
Band: B5/B8/B20/B28
Dimensions: 19.9 × 23.6 × 2.2mm
Working temperature: -40 °C ~ +85 °C
Voltage: 3.1~4.2 V, typ. 3.6V
Output power: depends on working mode
PSM: 3.6uA
IDLE: 2mA
Max: 230mA@23dB



Quectel BC95-G

Chip: Boudica V150
Band: B1/B3/B5/B8/B20/B28
Dimensions: 19.9 × 23.6 × 2.2mm
Working temperature: -40 °C ~ +85 °C
Voltage: 3.1~4.2 V, typ. 3.6V
Output power: depends on working model
PSM: 3.6uA
IDLE: 2mA
Max: 230mA@23dB



Quectel BC68

Chip: Boudica V150
Band: B1/B3/B5/B8/B20/B28
Dimensions: 17.7 x 15.8 x 2.0mm
Working temperature: -40 °C ~ +85 °C
Voltage: 3.1~4.2 V, typ. 3.6V
Output power: depends on working model
PSM: 3.6uA
IDLE: 2mA
Max: 230mA@23dB

R&D History of Quectel NB-IoT Modules

Huawei, Vodafone and Qualcomm proposed NB-CIoT standards.

In 2015, Quectel and Huawei signed an agreement on NB-IoT development.

BC95 was the world's first NB-IoT module receiving GCF certification

BC95 earned CCC, SRRC certifications

BC95 achieved mass production



2015.05



2016.06



2017



2017.Q4



NB-IoT 3GPP standards were frozen.

2016.07 Quectel released the world's first NB-IoT module compliant with 3GPP R13 standards.

In 2017, Quectel became the first module vendor supporting over **500** NB-IoT cases in China, which cover utilities, industry & agriculture, personal , etc.

Based on Huawei Boudica V150 chipset, Quectel launched BC35-G/ BC28 supporting global bands.



NB-IoT Outlook

R14 standards

R15 is on the way



Positioning

- OTDOA/UTDOA, positioning accuracy of 50m
- E-cid, positioning accuracy of several hundred meters



Multicast

- Send commands to multiple devices simultaneously, easy to manage



Mobility

- Enhanced and continuous mobility, smooth cell handover



Output Power

- Optimized output power, lower energy consumption

Quectel Pushes Commercialization of LPWA

- Globally certified
- FOTA function
- Support various protocols
- Support multiple cloud platforms

Comprehensive
functions

Close co-
op with
carriers

- Gain certification by all three carriers in China
- Cooperate with global top carriers like AT&T, Verizon, Vodafone, etc.

- Cooperate with 100+ IoT design houses
- Support IoT applications in a wide range of segments

Know IoT
applications
better

Multiple
chipset
platforms

- Qualcomm
- HiSilicon
- MTK

NB-IoT Applications

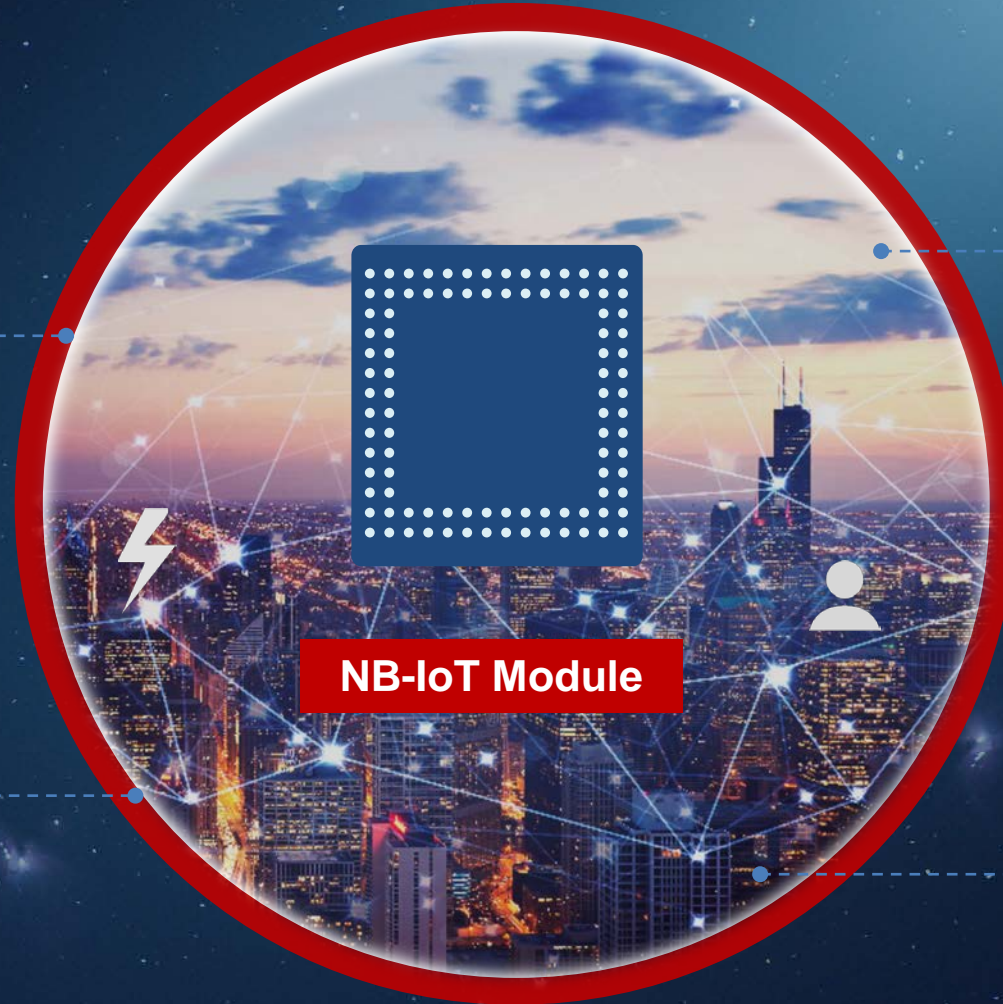
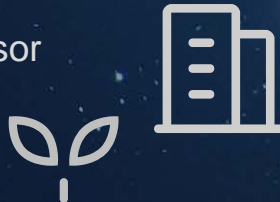


Public Utilities

- Water/Gas Metering
- Parking
- Fire Hydrant
- Smoke Alarm
- Street Lighting
- Trash Bin

Industry & Agriculture

- Gas Detector
- Soil PH/Optical Sensor
- Machine Alarm
- Irrigation Controller



Personal Life

- Asset Tracking
- Wearable Devices
- Person/Pet Tracking

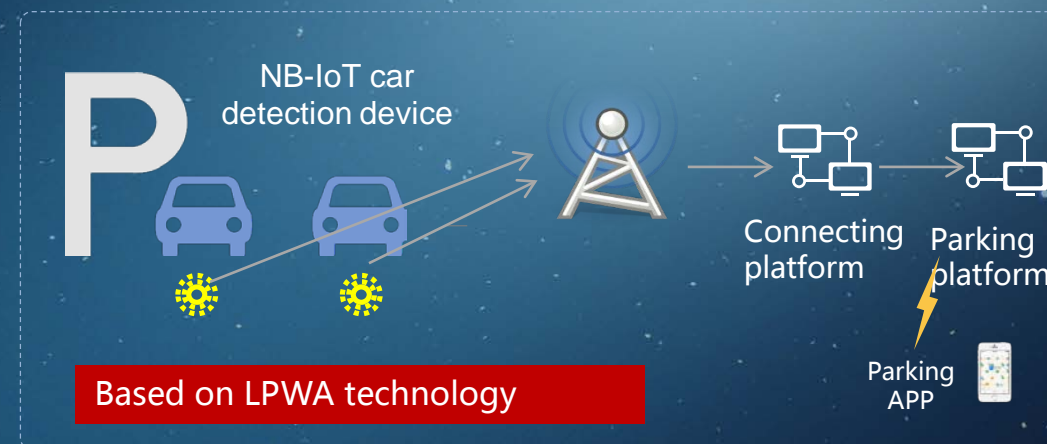
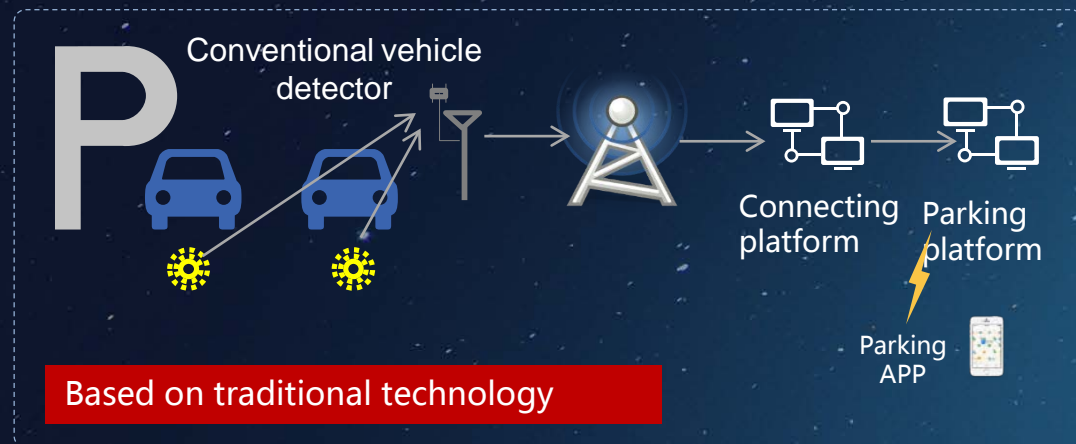


Smart Home

- Smart Lock
- Home Appliance Monitoring & Control



IoT Trend Smart Parking Based on IoT



LPWA, the core technology for IoT

China's three major carriers will complete network construction by year end. The pioneering smart parking project will leave a mark in IoT history.

Reduced costs due to simplified gateways

Vehicle detectors can access NB-IoT network without gateway, which is expected to save 30% cost as there is no need to install and maintain gateways.

Plug and play, easy to install/maintain

Device detector supports plug and play, easy installation, no requirement on technical support, and easy upgrading for increased parking space. No need to worry about network compatibility.

High network reliability

NB-IoT network is operated by carriers, and has equivalent reliability and stability to 2G/3G/4G networks.

Smart Home

- NB-IoT Smart Lock
- Smoking Alarm
- Home Appliance
- Secure, Convenient
- Support multiple cloud platforms

Water Heater



Air Purifier

Smoke Detector



Refrigerator



AC



Washing Machine



Smart Lock



Haier

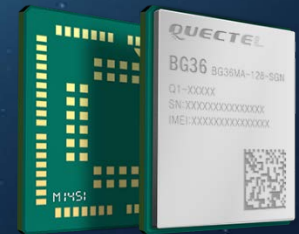
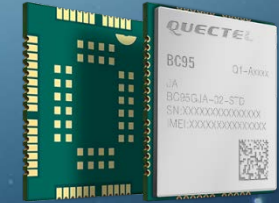
HOTHINK

Smart Agriculture: Monitor Cow Estrus, Increase Milk Production

China has a stock of around 16 million cows, accounting for 11% of the world. China imports 30% of globally traded raw milk, meaning great potential for domestic milk.



AOTOSO



Accurate detection of estrus will decide milk production directly

If dairy farmer fails to detect an estrus cycle (21 days), he will suffer loss of appx. 2,268 yuan, assuming that each cow produces 30kg milk each day ($30\text{kg} * 2.6\text{yuan/kg} * 21\text{days} = 2,268\text{ yuan}$).

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NB-IoT Product Introduction

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Build a Smarter World 

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



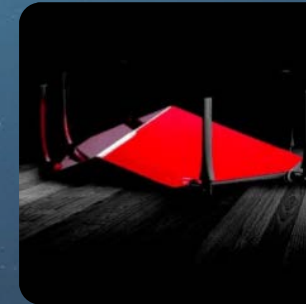
Security

- 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
- Home Appliances
- Pet Tracker
- Wearable Devices
- 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

Software Advantages



USB Serial Drivers

- Windows XP/Vista/7/8/8.1/10
- Windows CE 5.0/6.0/7.0*
- Linux 2.6/3.x/4.1
- Android 4.x/5.x/6.x/7.x



NDIS & RIL Drivers

- RIL Driver:
Android 4.x/5.x/6.0
- NDIS Driver:
Windows 7/8/8.1/10,
Linux 2.6/3.x/4.1



Quality Assurance

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



Special Features

- QuecOpen™*
- PSM*



Flexible Applications

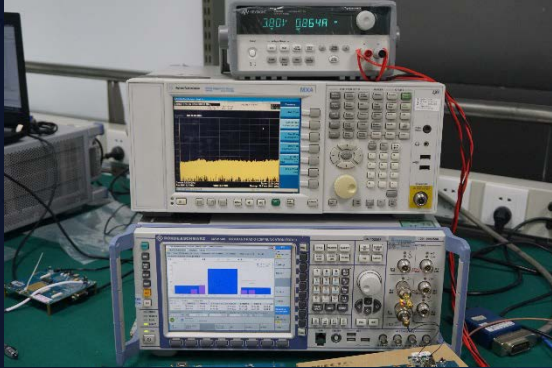
- eCall
- (U)SIM card detection
- DTMF



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 (SIM Application Toolkit)

Test Environment



◀ CMW 500 & Agilent DC Source
& GPS Signal Generator



Micro-drop Tester ▶



◀ Tumbling Barrel Tester

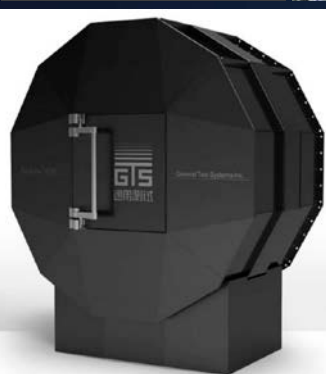
Art. Mouth,
Art. Ear, UPL
& ACQUA
System ▶



◀ Anechoic Chamber
for Audio



ESD Test System ▶



◀ OTA System

Thermal Shock
Chamber ▶



◀ High / Low Temp. &
Humidity Chamber

Robot ▶



Global Presence



Technology Partners and Certifications



Quectel 360-degree Support

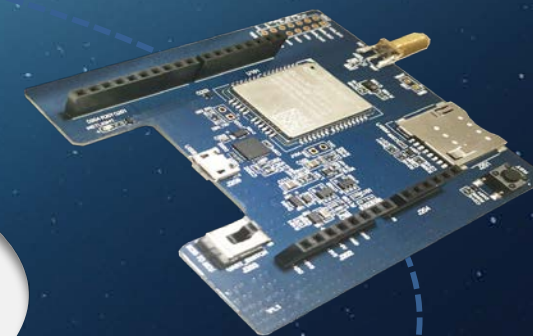
1. Design Concept

- Analyze customers' demands
- Recommend proper product



2. Design In

- Recommend referenced hardware designs
- Check Schematics and PCB design
- Provide software design support



3. Prototype

- Provide design validation test
- Recommend key component suppliers



www.quectel.com



86-21-54453668



On-site Support



support@quectel.com

5. Mass Production

- Provide assembly and test guidelines
- After-sales service



4. Test Service

- RF test
- Power consumption test
- Audio test
- Reliability & environmental test
- ESD test

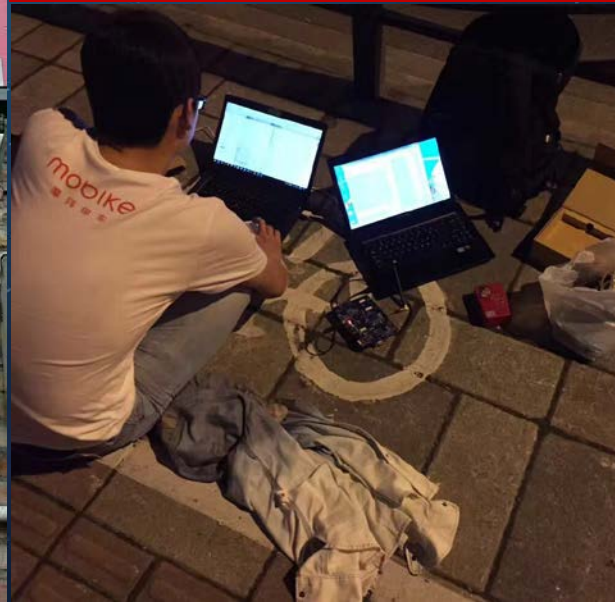




**Professional
Devotional
Concentrative**



**Serve customers and
bring them success**



Thank you!

7th Floor, Hongye Building, No.1801 Hongmei Road, Xuhui District,
Shanghai 200233, China
Tel: +86-21-5108 6236 Email: info@quectel.com
Website: www.quectel.com



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