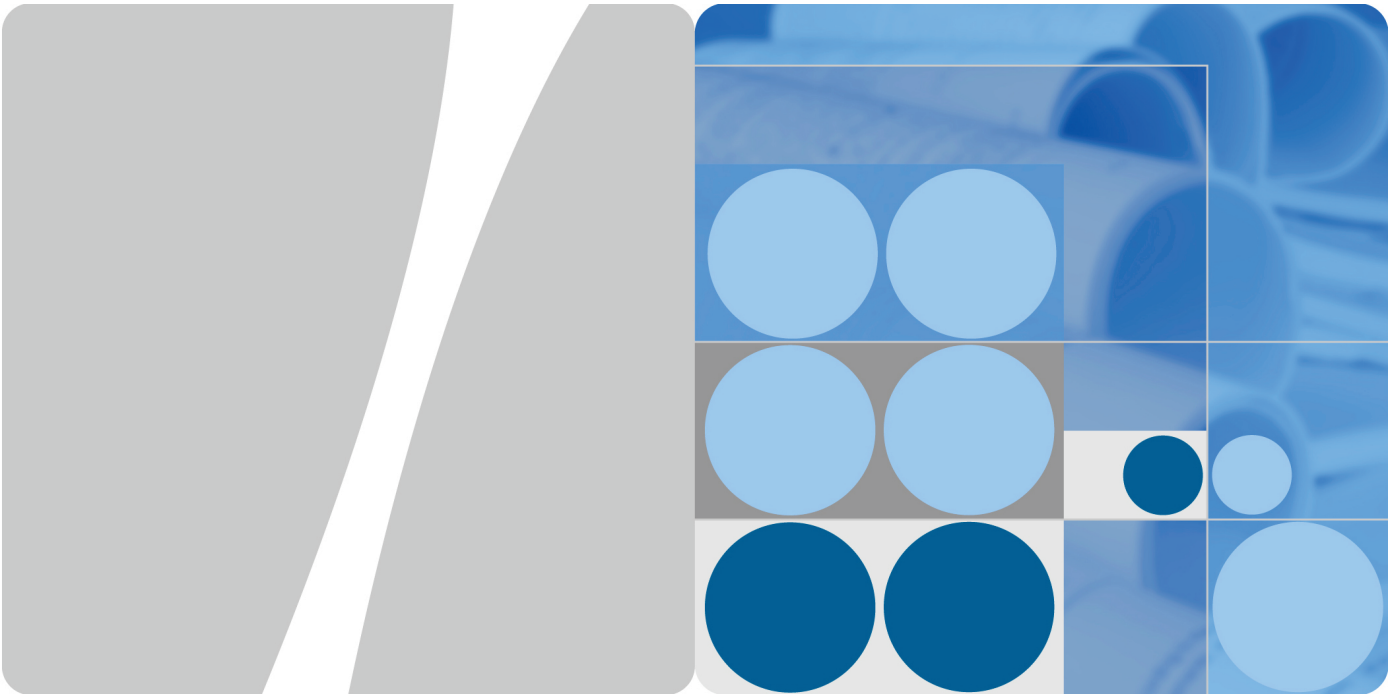
Product Description



HUAWEI E5885Ls-93a Mobile WiFi
V200R001

Issue 05

Date 2017-06-22

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About This Document

Summary

This document provides information about the major functions, supported services and system architecture.

The following table lists the contents of this document.

Chapter	Details
1 Overview	The supported network modes, basic services and functions, and the appearance of the product.
2 Features	The supported features and technical specifications of the product.
3 Services and Applications	The services and applications of the product.
4 System Architecture	The architecture of the product.
5 Packing List	The items contained in the package of the product.

History

Issue	Details	Date
01	First release.	2016-12-23
02	1. Modify B40 info 2. Add “LTE CA” frequency	2017-02-23
03	Modify Packing list Delete MAC OS X 10.7, 10.8	2017-03-16
04	Modify WLAN: IEEE 802.11ac/b/g/n Modify micro-SIM card interface	2017-03-27
05	Modify ID picture on page 7	2017-06-22

Contents

1 Overview

1.1 Brief Introduction

HUAWEI E5885Ls-93a Mobile WiFi (hereinafter referred to as the E5885Ls-93a) is a high-speed packet access mobile hotspot. It is a multi-mode wireless terminal for SOHO (Small Office and Home Office) and business professionals. The E5885Ls-93a can access the Internet through a LTE/3G/2G network, or using its Ethernet port.

The E5885Ls-93a supports the following standards:

- Long Term Evolution (LTE)
- Dual Carrier High Speed Packet Access Plus (DC-HSPA+)
- High Speed Packet Access Plus (HSPA+)
- High Speed Uplink Packet Access (HSUPA)
- High Speed Downlink Packet Access (HSDPA)
- Universal Mobile Telecommunications System (UMTS)
- Enhanced Data rates for Global Evolution (EDGE)
- General Packet Radio Service (GPRS)
- Global System for Mobile communications (GSM)
- Ethernet

The E5885Ls-93a provides the following services:

- LTE packet data service
- DC-HSPA+ packet data service
- HSPA+ packet data service
- HSPA/UMTS packet data service
- EDGE/GPRS packet data service
- Short Message Service (SMS)

You can connect the E5885Ls-93a with the USB interface of a computer, or connect the E5885Ls-93a with the Wi-Fi. In the service area of the LTE/DC-HSPA+/HSPA+/HSPA/UMTS or EDGE/GPRS/GSM/Ethernet network, you can surf the Internet and send/receive messages/emails cordlessly. The E5885Ls-93a is fast, reliable, and easy to operate. Thus, mobile users can experience many new features and services with the E5885Ls-93a. These features and services will enable a large

number of users to use the E5885Ls-93a and the average revenue per user (ARPU) of operators will increase substantially.

Figure 1-1 shows the profile of the E5885Ls-93a.

Figure 1-1 E5885Ls-93a profile

1.2 Optional Features

Optional features refer to features that are not supported by the standard version or are disabled by default. These features can be customized according to operator or customer requirements. The E5885Ls-93a's optional features are as follows:

IPv4v6 dual stack (optional)

2 Features

2.1 Main Features

The E5885Ls-93a mainly supports the following features:

- LTE FDD Cat.6 data service of up to 300Mbit/s (DL) /50Mbit/s (UL)
- LTE FDD Cat.4 data service of up to 150Mbit/s (DL) /50Mbit/s (UL)
- LTE TDD Cat.6 data service of up to 224Mbit/s (DL) /20Mbit/s (UL)
- LTE TDD Cat.4 data service of up to 112Mbit/s (DL) /20Mbit/s (UL) Mbit/s
- DC-HSPA+ (DL) data service of up to 43.2Mbit/s (DL) /5.76Mbit/s (UL)
- HSPA+ data service of up to 21.6 Mbit/s (DL) /5.76Mbit/s (UL)
- HSDPA data service of up to 14.4 Mbit/s (DL) /5.76Mbit/s (UL)
- UMTS (UL/DL)data service of up to 384 kbit/s
- EDGE(UL/DL) data service of up to 236.8 kbit/s
- GPRS (UL/DL)data service of up to 85.6 kbit/s
- Ethernet data service of up to100 Mbit/s (DL) /10 Mbit/s (UL)
- PS domain data service based on LTE/UMTS/GSM
- SMS based on LTE,UMTS and GSM
- Built-in LTE/UMTS/GSM and WLAN high gain antenna
- Micro Secure Digital Memory (microSD) Card
- SIM lock
- Wi-Fi and WPS
- LTE/3G/Wi-Fi auto offload
- Supply power to devices (working as a power bank)
- Support for HUAWEI HiLink APP
- Press and Play
- IPv4v6 dual stack (optional)
- Display current SSID and Wi-Fi key on the screen
- Built-in DHCP Server, DNS RELAY and NAT
- Online software upgrade
- Traffic statistic
- Ethernet port

- PPPoE dial up
- Standard Micro USB interface
- USB interface
- OLED-LCD screen
- Support for NFC function
- Windows 7, Windows 8, Windows 8.1, Windows 10(does not support Windows RT), MAC OS X 10.9, 10.10, 10.11 and 10.12 with latest upgrades

2.2 Technical Specifications

2.2.1 Hardware

Table 2-1 lists the hardware specifications.

Table 2-1 Hardware specifications

Item	Specifications		
Technical standard	WAN: LTE/DC-HSPA+/HSPA+/HSPA/UMTS/EDGE/GPRS/GSM		
	WLAN: IEEE 802.11ac/b/g/n		
Operating frequency	LTE CA: intra-band continuous: B3+B3，B38+B38，B40+B40，B41+B41； intra-band non-contiguous: B41+B41； Inter-frequency: B1+B3，B1+B20，B3+B20, B3+B5，B3+B7，B3+B8, B7+B8, B7+B20, B1+B19, B3+B19。 （note: B7+B8 only support B7as Primary Component Carrier） LTE FDD: B1/B2/B3/B4/B5/B7/B8/B20/B19 LTE TDD: B38/B40/B41(2555-2655MHz)		
	DC-HSPA+/HSPA+/HSPA/UMTS: B1/B2/B4/B5/B6/B8/B19		
	EDGE/GPRS/GSM: B2(1900MHz)/B3(1800MHz)/B8(900MHz)/B5(850MHz)		
	WLAN: 2.4 GHz (support CH5~CH11), 5GHz		
Internal memory	256 MB NAND flash and 256 MB DDR SDRAM		
Maximum transmitter power	LTE: Conform to Power Class 3 Definition		
	UMTS: Conform to Power Class 3 Definition		
	WLAN	2.4GHz	802.11b：14dBm
			802.11g：11dBm
			802.11n：10dBm
		5GHz	802.11a：11dBm
			802.11n：11dBm
			802.11ac：11dBm

Item	Specifications		
Receiver sensitivity	LTE: Confirm to 3GPP Requirements		
	UMTS: Confirm to 3GPP Requirements		
	WLAN	2.4GHz	802.11b：-76dBm@11Mbit/s
			802.11g：-65dBm@54Mbit/s
			802.11n：-64dBm@65Mbit/s
		5GHz	802.11a：-65dBm@54Mbit/s
			802.11n：-64dBm@65Mbit/s
			802.11ac：-64dBm@65Mbit/s
WLAN speed	802.11b: Up to 11 Mbit/s		
	802.11g: Up to 54 Mbit/s		
	802.11n	HT20: Support MCS0–MCS7; Up to 72.2 Mbit/s. Support MCS8–MCS15; Up to 144.4 Mbit/s. HT40: Support MCS0–MCS7; Up to 150 Mbit/s. Support MCS8–MCS15; Up to 300 Mbit/s. HT80：Support MCS0～MCS9，Up to 867Mbit/s	
Maximum power consumption	4 W		
Power supply	AC: 100–240 V		
	DC: 5 V, 2 A		
Battery	Type: Li (rechargeable and irremovable)		
	Capacity: 3.8 V, 6400 mAh		
	Maximum working time: 25 hours (depending on the network)		
	Maximum standby time: 1600 hours (depending on the network)		
External interfaces	Micro USB interface		
	USB interface (supplying power to other devices)		
	Standard microSD card interface		
	micro-SIM card interface		
	Ethernet port: RJ45		
Screen	OLED-LCD		

Item	Specifications
key-press	Power switch, WPS switch, Reset switch
Antenna	Built-in LTE/UMTS/GSM main antenna
	Built-in LTE/UMTS diversity antenna
	Built-in WLAN antenna
Dimensions (W × D × H)	112.0mm×69.2mm×23mm
Weight	about 195 g (including the battery)
Temperature	Operating: 0°C to +35°C
	Storage: -20°C to +70°C
Humidity	5% to 95% (non-condensing)

2.2.2 Software

Table 2-2 lists the software specifications.

Table 2-2 software specifications

Item	Description
SMS	• Writing/Sending/Receiving • Sending/Receiving extra-long messages • Storage: Up to 500 messages can be saved in the internal memory of the E5885Ls-93a. • New message prompt
Network connection setup	• APN management: create, delete and edit • Set up network connection
WLAN setup	• SSID broadcasting and hiding • Open system and shared key authentication • ASCII and HEX keys • 64/128-bit WEP encryption • 256-bit WPA2-PSK encryption • WPA2-PSK integrated encryption • AES encryption algorithm • TKIP and AES integrated encryption algorithm • Automatic adjustment of ratios • Display STA status • Turn off Wi-Fi automatically • WLAN MAC filter

Item	Description
Firewall setup	• Firewall Switch • LAN IP Filter • Virtual Server • ACL Service • DMZ Service • UPnP Service
NAT setup	• CONE NAT • Symmetric NAT • ALG • VPN passthrough
DHCP setup	• DHCP server enabling and disabling • Address pool of the DHCP server setup • DHCP lease time setup
Software installation	Automatic installation (Plug and Play)
LTE/3G/Wi-Fi auto offload	• Accessing to WAN via LTE/3G or Wi-Fi • Automatic offload between LTE/3G and Wi-Fi
IPv4v6 dual stack (optional)	• DHCPv4v6 server and client • DNSv4v6 server and client • Display IPv4v6 WAN address
Other	Network connection settings: • Automatic network selection and registration • Manual network selection and registration
	Network status display: signal, operator name, system mode, and so on.
	Selection of network connection types, for example: • LTE Only • 3G Only • Auto
	PIN management: activate/deactivate PIN, PIN lock, changing PIN, unblocking by using the PUK.
System requirement	• Windows 7, Windows 8, Windows 8.1, Windows 10(does not support Windows RT), MAC OS X 10.9, 10.10, 10.11 and 10.12 with latest upgrades. • Your computer's hardware system should meet or exceed the recommended system requirements for the installed version of OS

3 Services and Applications

3.1 Data Service

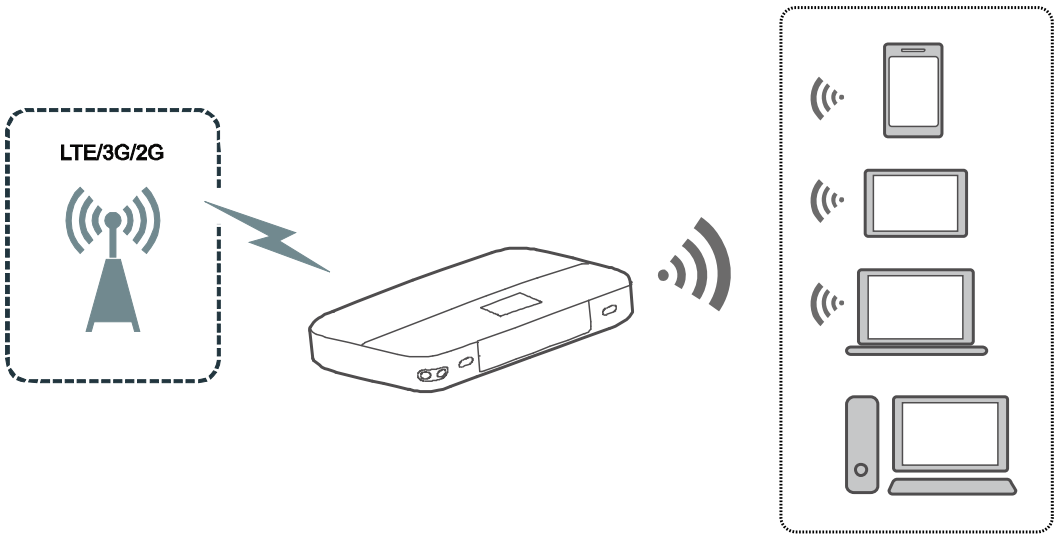
3.1.1 Accessing the Internet Using an LTE, 3G or 2G Network

Functioning as a Wireless Modem

The E5885Ls-93a can be used as a wireless modem when the Wi-Fi is enabled. You can access the Internet service through setting up the wireless network connection with the E5885Ls-93a.

A maximum of 32 wireless users can access the E5885Ls-93a at the same time. You can set up the WLAN with the access point (AP) function.

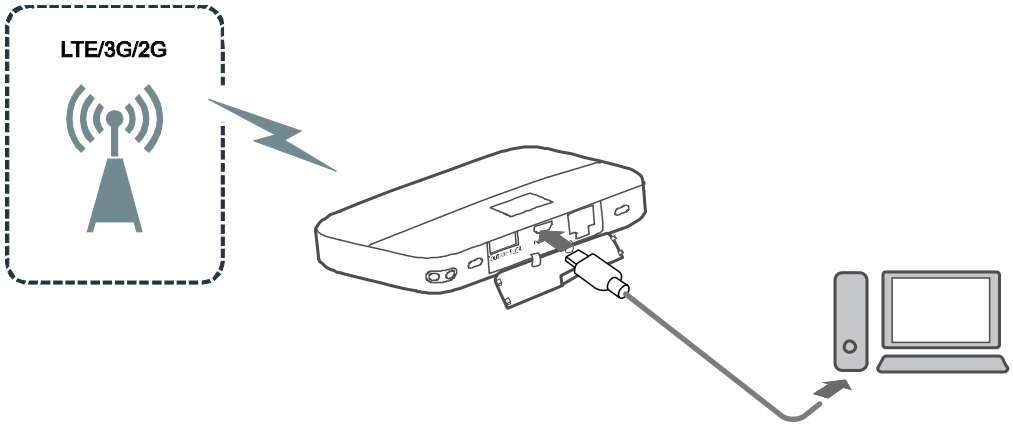
Figure 3-1 Connecting multiple devices through Wi-Fi



Functioning as a USB Modem

After you connect the E5885Ls-93a and PC with a USB data cable, the Web page is displayed on the PC desktops automatically. You can directly use the default settings (or configure APN on the E5885Ls-93a Web page) and set up a network connection. Then you can send or receive E-mail, access the network through wireless connection, and download files through wireless data channels.

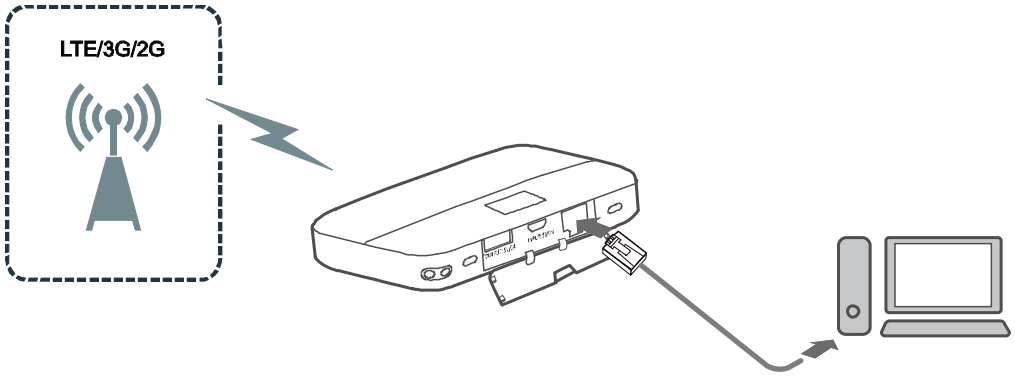
Figure 3-2 Connecting a single device through USB



Providing Network Connection Using the Ethernet Port

After you connect the E5885Ls-93a to a PC using a network cable to support automatic identification of the WAN/LAN port in access mode, you can configure the APN on the E5885Ls-93a's Web page or use the default APN settings, and set up a network connection. You can then send or receive emails, browse Web pages, and download files from the PC using the E5885Ls-93a's data connection.

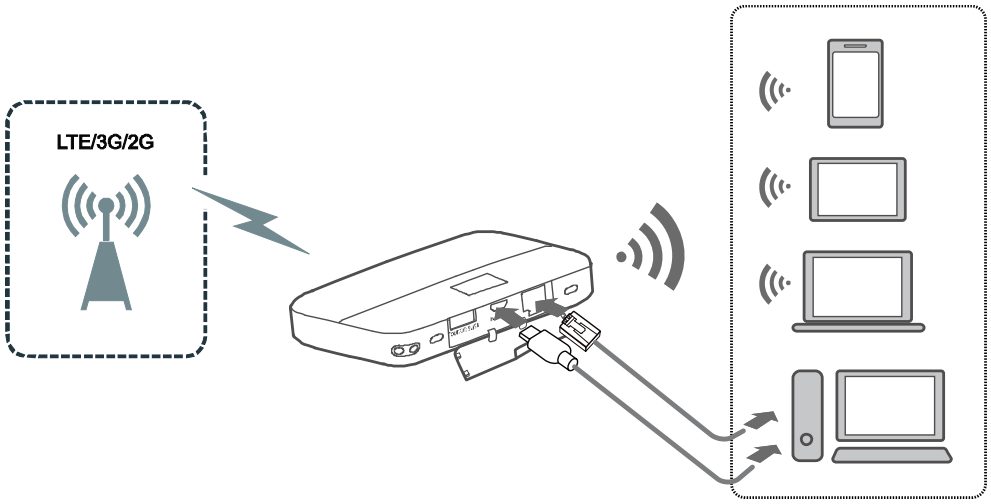
Figure 3-3 Connecting a single device through Ethernet port



Setting Up Connections Using Wi-Fi, USB, and the Ethernet Port Simultaneously

Multiple devices can connect to the E5885Ls-93a simultaneously using Wi-Fi, USB, and the Ethernet port.

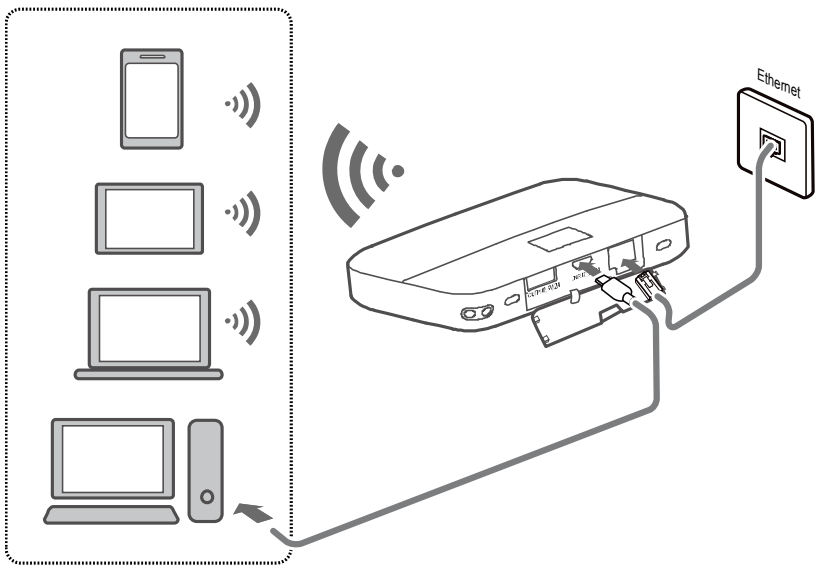
Figure 3-4 Connecting multiple devices through Wi-Fi, USB, and Ethernet port simultaneously



3.1.2 Accessing the Internet Using Ethernet

A network cable is connected with the Ethernet port of the E5885Ls-93a, to support automatic identification of the WAN/LAN port in access mode, and automatic selection of accessing manners of ADSL domestic wideband, DHCP hotel wideband or static IP wideband. It is unnecessary to select the accessing manners after entering into the Web page manually. You can easily access the Internet using the Ethernet to save your LTE/3G/2G network flow and fee.

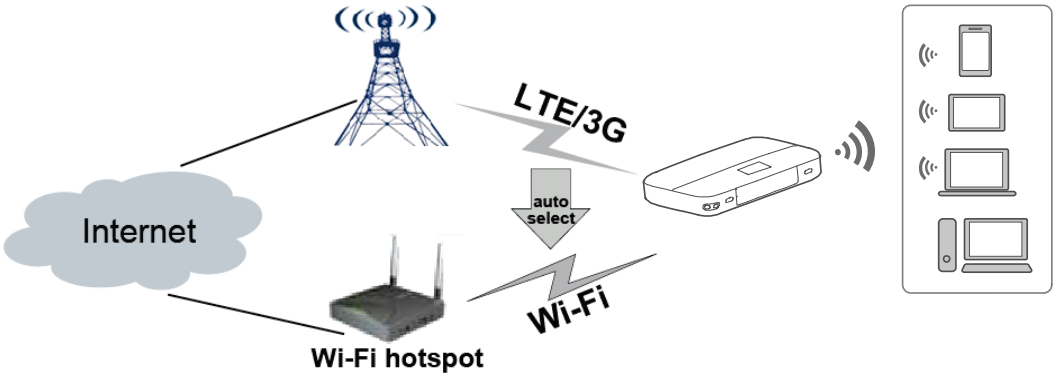
Figure 3-5 Accessing the Internet using Ethernet



3.1.3 LTE/3G/Wi-Fi Auto Offload

The E5885Ls-93a allows you to access the Internet via LTE/3G or Wi-Fi. When you are using the E5885Ls-93a in areas with a Wi-Fi hotspot, for example, an airport, a cafe, a hotel, or your home, the E5885Ls-93a switches to Wi-Fi connection automatically, saving your LTE/3G network traffic fees.

Figure 3-6 LTE/3G/Wi-Fi auto offload



3.2 SMS

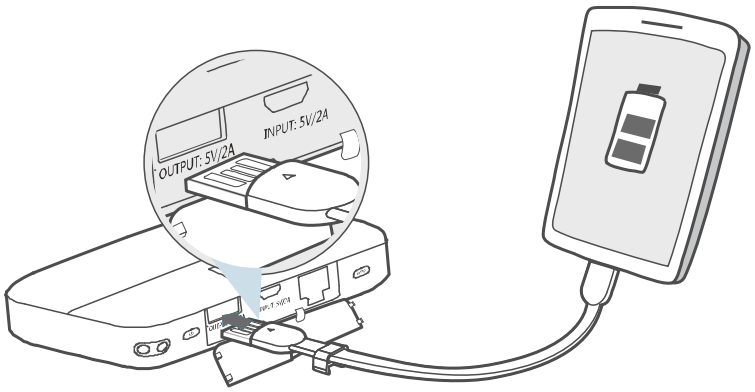
The E5885Ls-93a supports message writing/sending/receiving on Web. You can manage messages through the Web page, such as an inbox, an outbox and a draft.

3.3 Supplying power to devices

The E5885Ls-93a is can work as a portable power supply (rated output: 5 V, 2 A) for other devices, such as phones, tablets, music players, and Bluetooth headsets. You can charge those devices by simply connecting them to the E5885Ls-93a using a USB cable. The E5885Ls-93a supports plug and charge whether it is on or off.

Note:

- Do not connect both connectors of a data cable to the E5885Ls-93a.
- If the E5885Ls-93a is overheating or its own battery level is low, it will stop charging other devices.
- Do not fling the charging sling to avoid injuring others or the device itself.

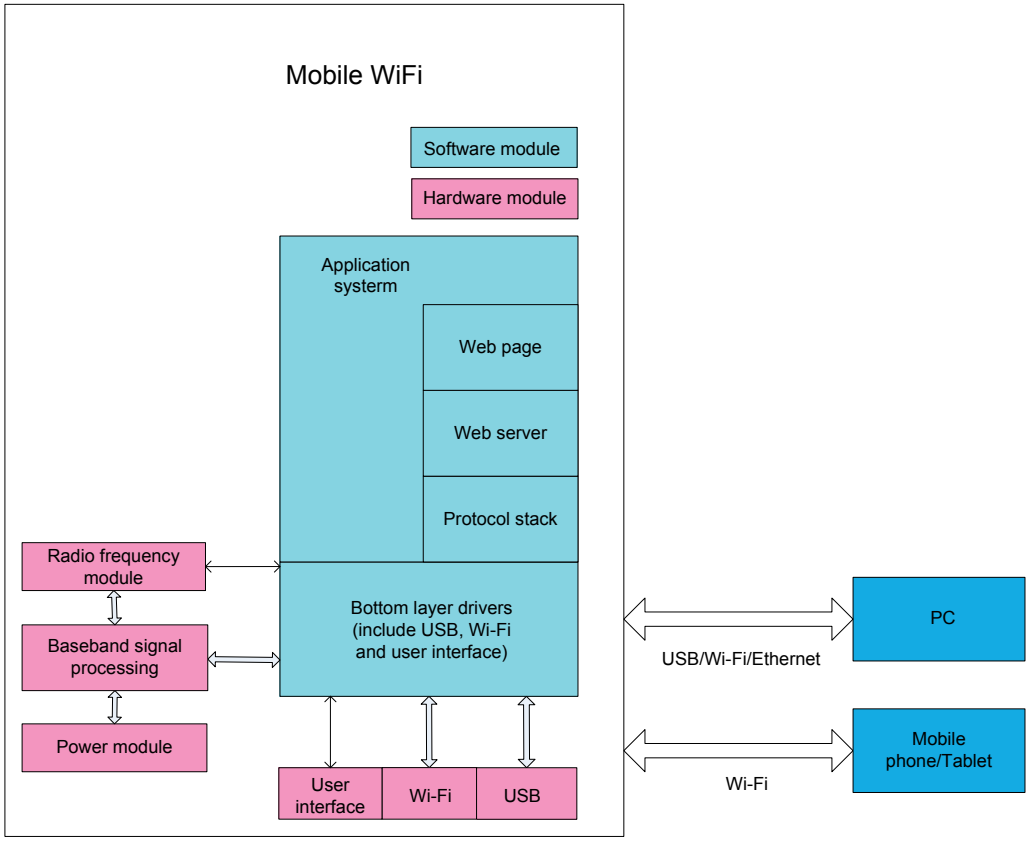


4 System Architecture

4.1 System Architecture

Figure 4-1 shows the system architecture.

Figure 4-1 System architecture



4.2 Functional Modules

1. **Radio frequency module**: It sends/receives radio signals and modulates/demodulates the radio frequency (RF) signals and baseband signals
2. **Baseband signal processing**: It processes LTE/DC-HSPA+/HSPA+/UMTS/EDGE/GPRS/GSMbaseband digital signals, including:
   - Modulating/Demodulating LTE/DC-HSPA+/HSPA+/UMTS/EDGE/GPRS/GSM baseband signals
   - Encoding/Decoding LTE/DC-HSPA+/HSPA+/UMTS/EDGE/GPRS/GSM channel
3. **Bottom layer driver**: It drives peripherals, including a USB device, Wi-Fi devices, a screen, buttons, a SIM card and a microSD card.
4. **Protocol stack system**: It processes protocols of LTE/DC-HSPA+/HSPA+/UMTS/EDGE/GPRS/GSM and TCP/IP.
5. **Application system:** It provides management system, including SMS, PS domain service, Wi-Fi configuration, network service, Web service and Web page. The user can set management parameters by Web page.
6. **User interface:** It provides human-computer interaction, including a screen and buttons.

5 Packing List

This chapter describes the items contained in the package of the E5885Ls-93a.

Table 5-1 lists the items contained in the package of the E5885Ls-93a.

Table 5-1 Packing list of the E5885Ls-93a

Item	Quantity	Remarks
Mobile WiFi	1	Standard
Rechargeable Battery (irremovable, 6400 mAh)	1	Standard
USB Cable	1	Standard
Charging Cable	1	Standard
USB Type-C	1	Standard
Charger	1	Standard
Quick Start (add Safety Information)	1	Standard
Warranty Card	1	Optional

A Acronyms and Abbreviations

3G	The Third Generation
ACL	access control list
AES	Advanced Encryption Standard
ALG	application level gateway
APN	access point name
ARPU	average revenue per user
ASCII	American Standard Code for Information Interchange
CA	carrier aggregation
DC-HSPA+	Dual Carrier High Speed Packet Access Plus
DHCP	Dynamic Host Configuration Protocol
DMZ	demilitarized zone
DNS	Domain Name Server
EDGE	Enhanced Data Rates for GSM Evolution
FDD	frequency division duplex
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HSPA+	High Speed Packet Access Plus
HSUPA	High Speed Uplink Packet Access
HSDPA	High Speed Downlink Packet Access
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
LCD	Liquid Crystal Display
LTE	Long Term Evolution

MAC	Medium Access Control
Modem	Modulator Demodulator
NAT	Network Address Translation
OS	Operating System
PC	personal computer
PIN	personal identification number
PnP	Plug and Play
PS	packet switched
PUK	PIN unblocking key
SIM	subscriber identity module
SMS	short messaging service
SOHO	small office home office
SSID	Service Set Identifier
TDD	Time Division Duplex
TFT	Thin Film Transistor
TKIP	Temporal Key Integrity Protocol
UMTS	Universal Mobile Telecommunications System
UPnP	Universal Plug and Play
USB	Universal Serial Bus
VPN	Virtual Private Network
WAN	wireless area network
WEP	wired equivalent privacy
Wi-Fi	Wireless Fidelity
WLAN	wireless local area network
WPA	Wi-Fi Protected Access