Product Description
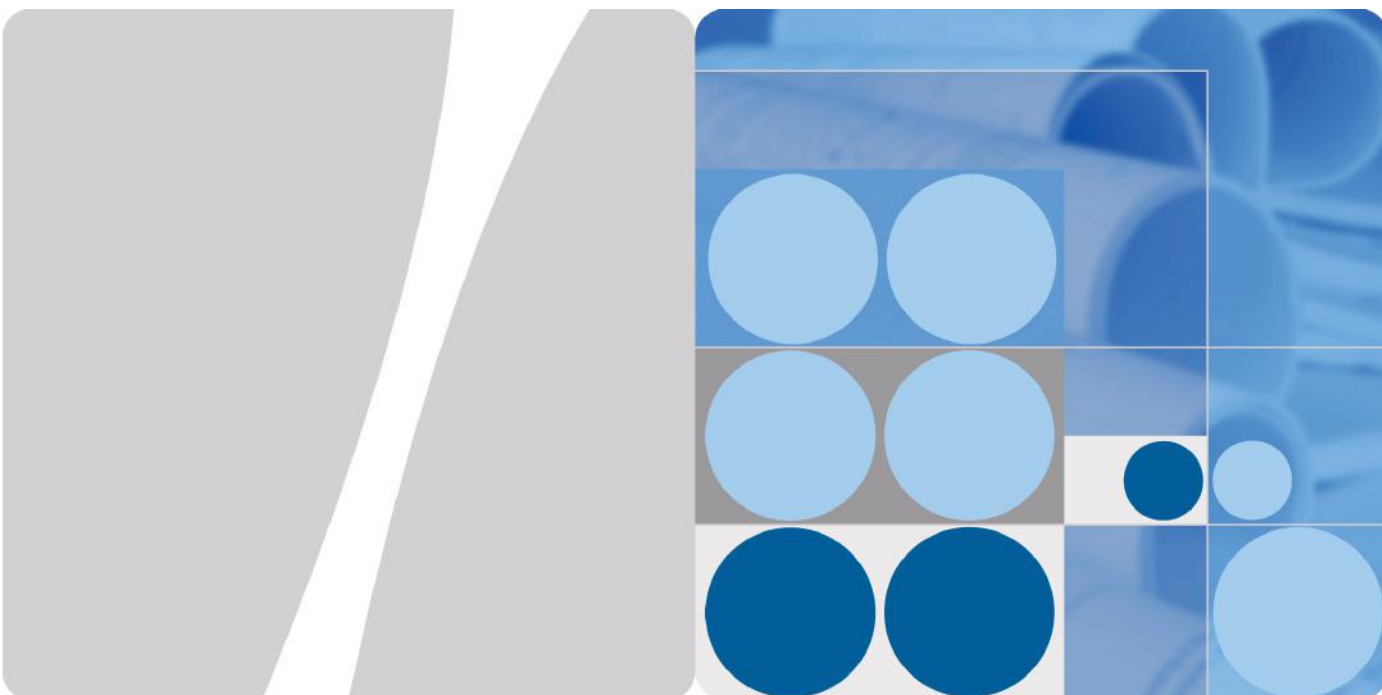
HUAWEI E5787s-33a Mobile WiFi
V200R001

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Technologies Co., Ltd. provides customers with comprehensive technical support and service. Please feel free to contact our local office or company headquarters.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base

Bantian, Longgang

Shenzhen 518129

People's Republic of China

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.	2015-11-20
02	• Delete the "Wakeup via Bluetooth" function. • Add descriptions of the LTE CA operating frequency. • Add notes about the Always remind function (under Update).	2016-03-14
03	Add "support CH5~CH10"	2016-09-20

Contents

1 Overview

1.1 Brief Introduction

HUAWEI E5787s-33a Mobile WiFi (hereinafter referred to as the E5787s-33a) 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 E5787s-33a supports the following standards:

- Long Term Evolution Carrier Aggregation (LTE CA)
- LTE Frequency Division Duplex (FDD)
- LTE Time Division Duplex (TDD)
- 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)

The E5787s-33a provides the following services:

- LTE CA packet data service
- LTE FDD packet data service
- LTE TDD packet data service
- DC-HSPA+ packet data service
- HSPA+/HSPA/UMTS packet data service
- Short Message Service (SMS)

You can connect the E5787s-33a with the USB interface of a computer, or connect the E5787s-33a with the Wi-Fi. In the service area of the LTE CA/LTE FDD/LTE TDD/ DC-HSPA+/HSPA+/HSPA/UMTS network, you can surf the Internet and send/receive messages/emails cordlessly. The E5787s-33a is fast, reliable, and easy to operate. Thus, mobile users can experience many new features and services with the E5787s-33a. These features and services will enable a large number of users to use

the E5787s-33a and the average revenue per user (ARPU) of operators will increase substantially.

Figure 1-1 shows the profile of the E5787s-33a.

Figure 1-1 E5787s-33a 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 E5787s-33a's optional feature is as follows:

- IPv6/IPv4 dual stack (optional)
- SIM lock (optional)
- Dual SSID (optional)

2 Features

2.1 Main Features

The E5787s-33a mainly supports the following features:

- LTE FDD CA (DL) data service of up to 300 Mbit/s
- LTE FDD (DL) data service of up to 150 Mbit/s
- LTE FDD (UL) data service of up to 50 Mbit/s
- LTE TDD CA (DL) data service of up to 224 Mbit/s
- LTE TDD (DL) data service of up to 112 Mbit/s
- LTE TDD (UL) data service of up to 20 Mbit/s
- DC-HSPA+ (DL) data service of up to 43.2 Mbit/s
- HSPA+ (DL) data service of up to 21.6 Mbit/s
- HSDPA (DL) data service of up to 14.4 Mbit/s
- HSUPA (UL) data service of up to 5.76 Mbit/s
- UMTS data service of up to 384 kbit/s
- EDGE data service of up to 236.8 kbit/s
- GPRS data service of up to 85.6 kbit/s
- PS domain data service based on LTE/UMTS/GSM
- SMS based on LTE/UMTS/GSM
- Built-in LTE/UMTS and WLAN high gain antenna
- Wi-Fi 2.4 GHz and 5 GHz bands
- 2.4-inch color touchscreen
- Support for HUAWEI HiLink APP (Mobile WiFi APP)
- Press and Play
- IPv6/IPv4 dual stack (optional)
- Built-in DHCP Server, DNS RELAY and NAT
- Online software upgrade
- Traffic statistic
- Supply power to devices
- WPS
- Standard Micro USB 3.0 interface

- 2D Barcode easy connection
- Windows 7, Windows 8, Windows 8.1, Windows 10 (does not support Windows RT), MAC OS X 10.7, 10.8, 10.9, 10.10 and 10.11 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 CA/LTE FDD/LTE TDD/ DC-HSPA+/HSPA+/HSPA/UMTS/EDGE/GPRS/GSM	
	WLAN: IEEE 802.11a/b/g/n/ac	
Operating frequency	LTE: CA (maximum bandwidths: 20 MHz+20 MHz) intra-band continuous: B1+B1, B3+B3, B7+B7, B38+B38, B40+B40, and B41+B41 Inter-frequency: B3+B7, B3+B20, and B7+B20 TDD B38(2600MHz)/B40(2300-2395MHz)/B41(2555-2655MHz) FDD B1(2100MHz)/B3(1800MHz)/B5(850MHz)/B7(2600MHz)/B8(900 MHz)/B20(800MHz)	
	DC-HSPA+/HSPA+/HSPA/UMTS：B1(2100)/B2(1900)/B5(850)/B8(900)	
	EDGE/GPRS/GSM：B2(1900)/B3(1800)/B5(850)/B8(900)	
	WLAN: 2.4 GHz (support CH5~CH10), 5 GHz	
Internal memory	512MB Flash, 256MB DDR SDRAM	
Maximum transmitter power	LTE: Conform to Power Class 3 Definition	
	UMTS: Conform to Power Class 3 Definition	
	WLAN	802.11a: 10dBm
		802.11b: 15dBm
		802.11g: 12dBm
		802.11n: 11dBm (2.4GHz); 10dBm (5GHz)
		802.11ac: 9dBm
Receiver sensitivity	LTE: Confirm to 3GPP Requirements	
	UMTS: Confirm to 3GPP Requirements	

Item	Specifications	
	WLAN	802.11a: -65dBm
		802.11b: -76dBm
		802.11g: -65dBm
		802.11n: -64dBm
		802.11ac: -64dBm
WLAN speed	802.11a: Up to 54 Mbit/s	
	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.
	802.11ac: Up to 867 Mbit/s	
Maximum power consumption	3.5 W	
Power supply	AC: 100–240 V	
	DC: 5 V, 2 A	
Battery	Type: Li (rechargeable)	
	Capacity: 3.8 V, 3000 mAh	
	Maximum working time: 10 hours (depending on the network)	
	Maximum standby time: 600 hours (depending on the network)	
External interfaces	Micro USB 3.0 interface	
	Standard 6-pin SIM card interface	
Screen	2.4-inch color touchscreen with a resolution of 320 x 240 pixels	
Key-press	Power switch, RESET switch	
Antenna	Built-in LTE/UMTS/GSM main antenna	
	Built-in LTE/UMTS/GSM diversity antenna	
	Built-in WLAN 2×2 antenna	
Dimensions (W × D × H)	108.0 mm × 62.0 mm × 17.3 mm	

Item	Specifications
Weight	about 140 g (including the battery)
Temperature	Operating: 0℃ to +35℃
	Storage: -20℃ to +60℃
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 E5787s-33a.
Network connection setup	• APN management: create, delete and edit. • Set up network connection
WLAN setup	• SSID broadcasting and hiding • None (Open), WEP, WPA2-PSK, and WPA/WPA2-PSK encryption Automatic adjustment of ratios • Display STA status • Turn off Wi-Fi automatically • WLAN MAC filter
Firewall setup	• Firewall Switch • LAN IP Filter • Virtual Server • DMZ Service • UPnP Service
NAT setup	• CONE NAT • Symmetric NAT • ALG
DHCP setup	• DHCP server enabling and disabling • Address pool of the DHCP server setup • DHCP lease time setup
Software installation	Automatic installation
IPv6/IPv4 dual stack (optional)	• DHCPv6/v4 server and client • DNSv6/v4 server and client • Display IPv6/v4 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.

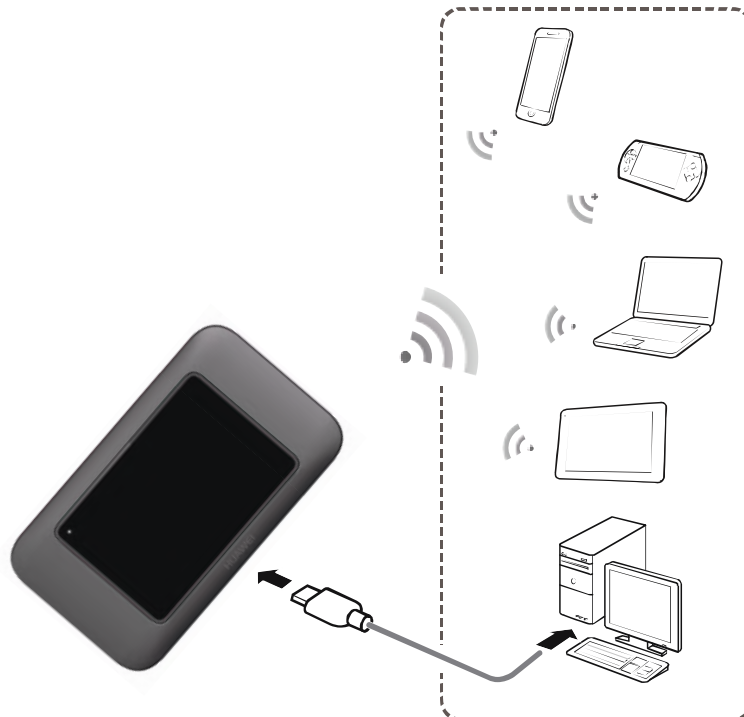| Item	Description
	Selection of network connection types, for example: • LTE Only • 3G Only • Auto
	PIN management: activate/deactivate PIN, PIN lock, changing PIN, unblocking by using the PUK.
	When the Always remind function for Update is enabled, the E5787s-33a will receive notifications for updates. Notifications for important updates can only be dismissed a limited number of times. This function can be disabled if necessary.
System requirement	• Windows 7, Windows 8, Windows 8.1, Windows 10 (does not support Windows RT) • Mac OS X 10.7, 10.8, 10.9, 10.10 and 10.11 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 Wireless Modem

The E5787s-33a can be used as a wireless modem when the Wi-Fi is enabled. You can directly use the default settings (or configure APN on the E5787s-33a Web page) and set up a wireless network connection. Then you can access the Internet.

A maximum of ten wireless users can access the E5787s-33a at the same time. You can set up the WLAN with the access point (AP) function.
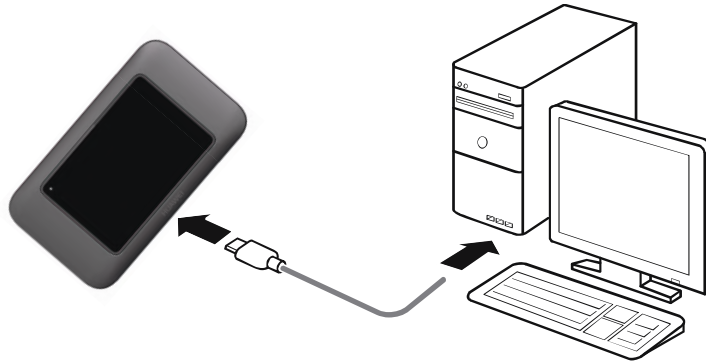
Figure 3-1 Multi-device access via Wi-Fi and USB at the same time

3.1.2 USB Modem

After you connect the E5787s-33a 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 E5787s-33a 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.

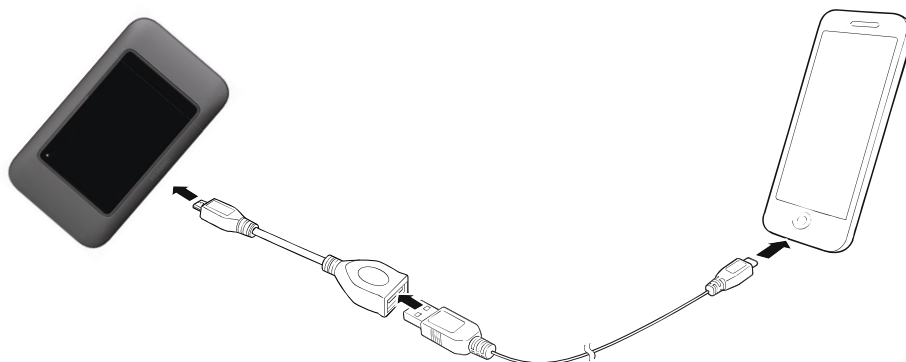**Figure 3-2** One-device access via USB

3.2 SMS

The E5787s-33a supports message writing/sending/receiving. You can manage messages through the Web page, such as an inbox, an outbox and a draft.

3.3 Supplying power to devices

You can connect the Mobile WiFi that supports the function of acting as a charger to power supply cable to supply power to a mobile phone, music player, or Bluetooth headset.

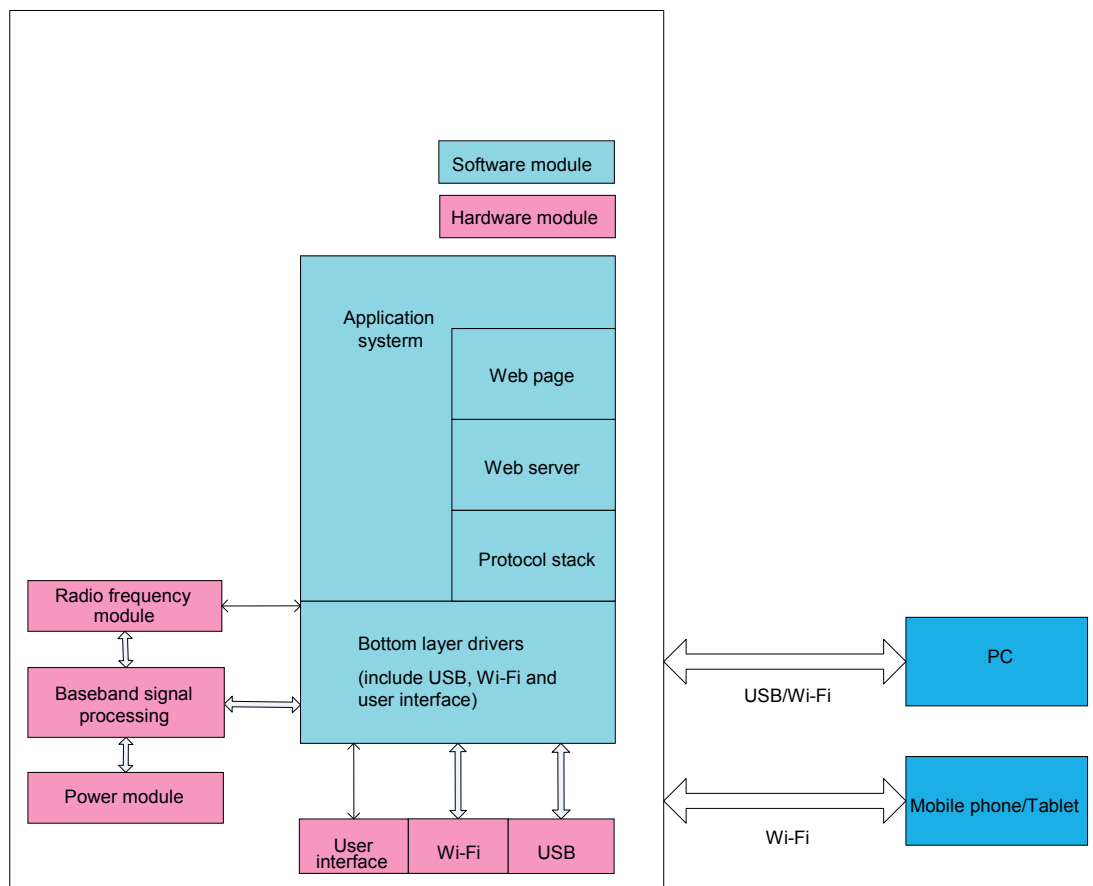**Figure 3-3** Charging other device using the power supply cable

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 CA/LTE FDD/LTE TDD/DC-HSPA+/HSPA+/UMTS baseband digital signals, including:

   - Modulating/Demodulating LTE CA/LTE FDD/LTE TDD/DC-HSPA+/HSPA+/UMTS/EDGE/GPRS/GSM baseband signals

   - Encoding/Decoding LTE CA/LTE FDD/LTE TDD/LTE TDD/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 and a SIM card.

4. **Protocol stack system**: It processes protocols of LTE CA/LTE FDD/LTE TDD/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 E5787s-33a.

Table 5-1 lists the items contained in the package of the E5787s-33a.

Table 5-1 Packing list of the E5787s-33a

Item	Quantity	Remarks
Mobile WiFi	1	Standard
Rechargeable Battery (3000 mAh)	1	Standard
USB Cable	1	Standard
Sling	1	Standard
Quick Start	1	Standard
Safety Information	1	Standard
Charger	1	Standard
Power Supply Cable	1	Optional
Warranty Card	1	Optional

A Acronyms and Abbreviations

3G	The Third Generation
AES	Advanced Encryption Standard
ALG	application level gateway
APN	access point name
ARPU	average revenue per user
ASCII	American Standard Code for Information Interchange
DHCP	Dynamic Host Configuration Protocol
DMZ	demilitarized zone
DNS	Domain Name Server
FDD	frequency division duplex
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
TFT	Thin Film Transistor
TKIP	Temporal Key Integrity Protocol
UMTS	Universal Mobile Telecommunications System
UPnP	Universal Plug and Play
USB	Universal Serial Bus
WAN	wireless area network
WEP	wired equivalent privacy
Wi-Fi	Wireless Fidelity
WLAN	wireless local area network
WPA	Wi-Fi Protected Access