Product Description
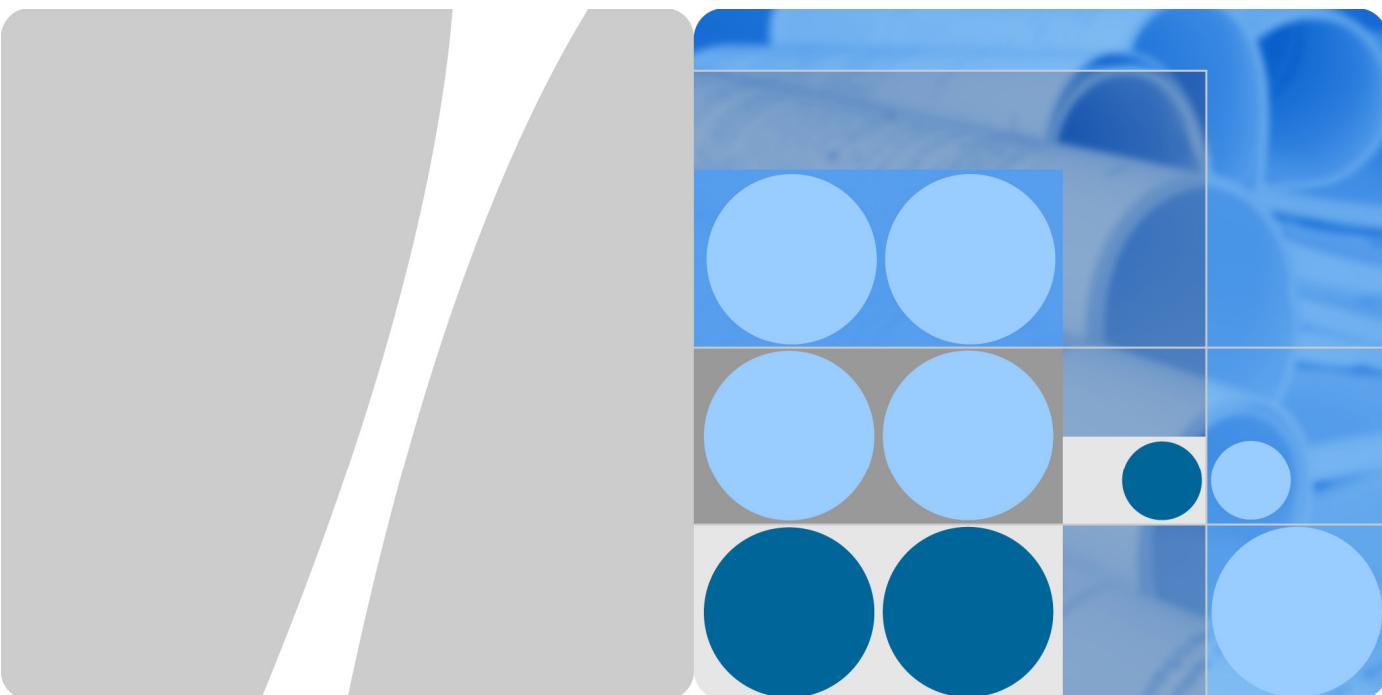
HUAWEI E5878s-32 Mobile WiFi
V200R001

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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.	2014-04-15

Contents

1 Overview

1.1 Brief Introduction

HUAWEI E5878s-32 Mobile WiFi (hereinafter referred to as the E5878s-32) 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 E5878s-32 supports the following standards:

- Long Term Evolution (LTE) Frequency Division Duplex (FDD)
- 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 E5878s-32 provides the following services:

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

You can connect the E5878s-32 with the USB interface of a computer, or connect the E5878s-32 with the Wi-Fi. In the service area of the LTE FDD/DC-HSPA+/HSPA+/HSPA/UMTS or EDGE/GPRS/GSM network, you can surf the Internet and send/receive messages/emails cordlessly. The E5878s-32 is fast, reliable, and easy to operate. Thus, mobile users can experience many new features and services with the E5878s-32. These features and services will enable a large number of users to use the E5878s-32 and the average revenue per user (ARPU) of operators will increase substantially.

Figure 1-1 shows the profile of the E5878s-32.

Figure 1-1 E5878s-32 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 E5878s-32's optional feature is as follows:

SIM lock (optional)

2 Features

2.1 Main Features

The E5878s-32 mainly supports the following features:

- LTE FDD (DL) data service of up to 150 Mbit/s
- LTE FDD (UL) data service of up to 50 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/GSM and WLAN high gain antenna
- Slim metal body
- Support for USB-to-Ethernet conversion with the AF18 conversion cable
- Five-second fast boot
- LTE/3G/Wi-Fi auto offload
- Support for HUAWEI Mobile WiFi App
- Press and Play
- IPv6/IPv4 dual stack
- Built-in DHCP Server, DNS RELAY and NAT
- Online software upgrade
- Traffic statistic
- Standard Micro USB interface
- OLED screen
- 2D Barcode easy connection

- Windows XP SP3, Windows Vista SP1/SP2, Windows 7, Windows 8, Windows 8.1 (does not support Windows RT), MAC OS X 10.7, 10.8 and 10.9 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 FDD/DC-HSPA+/HSPA+/HSPA/UMTS/EDGE/GPRS/GSM	
	WLAN: IEEE 802.11b/g/n	
Operating frequency	LTE FDD: 2600/2100/1800/900/800/850 MHz	
	DC-HSPA+/HSPA+/HSPA/UMTS: 2100/1900/900/850 MHz	
	EDGE/GPRS/GSM: 1900/1800/900/850 MHz	
	WLAN: 2.4 GHz	
Internal memory	128 MB Flash, 128 MB DDR SDRAM	
Maximum transmitter power	LTE: Conform to Power Class 3 Definition	
	UMTS: Conform to Power Class 3 Definition	
	WLAN	802.11b: 13 dBm
		802.11g: 11 dBm
		802.11n: 10 dBm
Receiver sensitivity	LTE: Confirm to 3GPP Requirements	
	UMTS: Confirm to 3GPP Requirements	
	WLAN	802.11b: -76 dBm@11 Mbit/s
		802.11g: -65 dBm@54 Mbit/s
		802.11n: -64 dBm@65 Mbit/s
WLAN speed	802.11b: Up to 11 Mbit/s	
	802.11g: Up to 54 Mbit/s	

Item	Specifications	
	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.
Maximum power consumption	3.5 W	
Power supply	AC: 100–240 V	
	DC: 5 V, 1 A	
Battery	Type: Li (rechargeable, irremovable)	
	Capacity: 3.7 V, 1900 mAh	
	Maximum working time: 6 hours (depending on the network)	
	Maximum standby time: 380 hours (depending on the network)	
External interfaces	Micro USB interface	
	Standard Micro 6-pin SIM card interface	
Screen	OLED	
Key-press	Power 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)	109.5 mm×58.0 mm×7.5 mm	
Weight	about 80 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 E5878s-32. • 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 WPA-PSK and WPA2-PSK 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
Firewall setup	• Firewall Switch • LAN IP Filter • Virtual Server • ACL Service • 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
LTE/3G/Wi-Fi auto offload	• Accessing to WAN via LTE/3G or Wi-Fi • Automatic offload between LTE/3G and Wi-Fi

Item	Description
IPv6/IPv4 dual stack	• 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.
	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 XP SP3, Windows Vista SP1/SP2, Windows 7, Windows 8, Windows 8.1 (does not support Windows RT), MAC OS X 10.7, 10.8 and 10.9 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 E5878s-32 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 E5878s-32 Web page) and set up a wireless network connection. Then you can access the Internet.

A maximum of ten wireless users can access the E5878s-32 at the same time. You can set up the WLAN with the access point (AP) function.

Functioning as a USB Modem

After you connect the E5878s-32 and PC with a USB data cable or AF18, you can directly use the default settings (or configure APN on the E5878s-32 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 3-1 Multi-device access via Wi-Fi and USB/AF18 at the same time
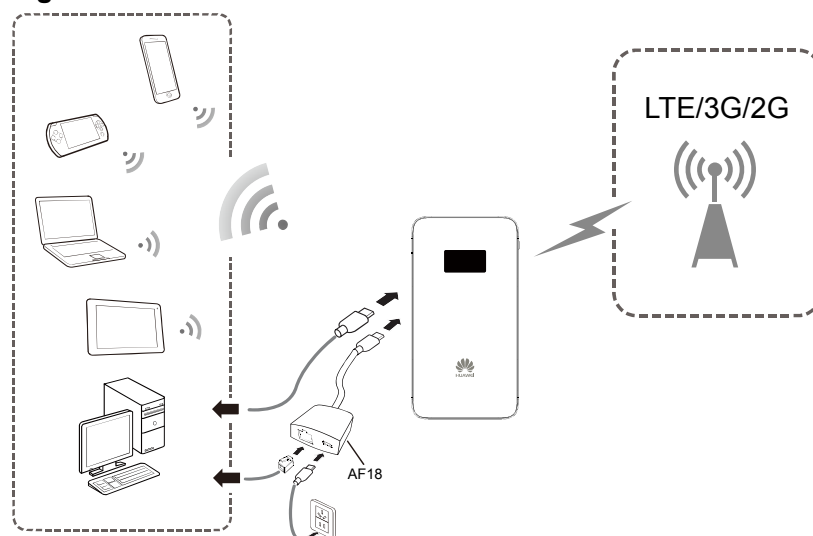
3.1.2 Accessing the Internet Using Ethernet

Connect the Mobile Wi-Fi to AF18, and then connect the AF18's network port to the Ethernet port using a network cable. E5878s-32 supports 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. You can easily access the Internet using the Ethernet to save your LTE/3G/2G network flow and fee.

Figure 3-2 E5878s-32 access via AF18
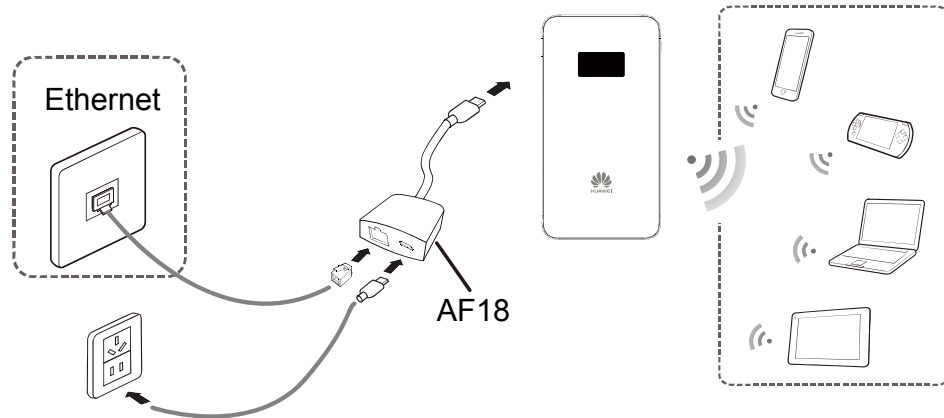
3.1.3 LTE/3G/Wi-Fi Auto Offload

The E5878s-32 allows you to access the Internet via LTE/3G or Wi-Fi. When you are using the E5878s-32 in areas with a Wi-Fi hotspot, for example, an airport, a cafe, a hotel, or your home, the E5878s-32 switches to Wi-Fi connection automatically, saving your LTE/3G network traffic fees.

After the function is enabled, a maximum of nine wireless users can access the E5878s-32 at the same time.

Figure 3-3 LTE/3G/Wi-Fi auto offload
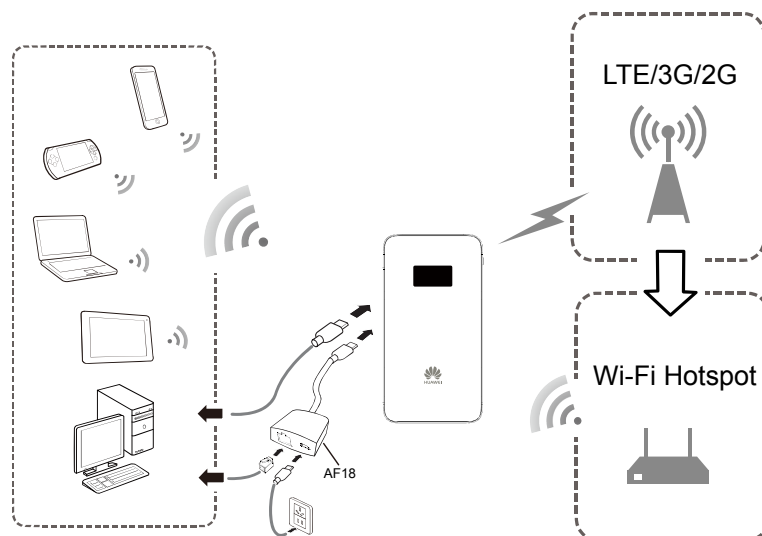
3.2 SMS

The E5878s-32 supports message writing/sending/receiving. You can manage messages through the Web page, such as an inbox, an outbox and a draft.

3.3 Connecting an Android Device to the E5878s-32 Using a 2D Barcode
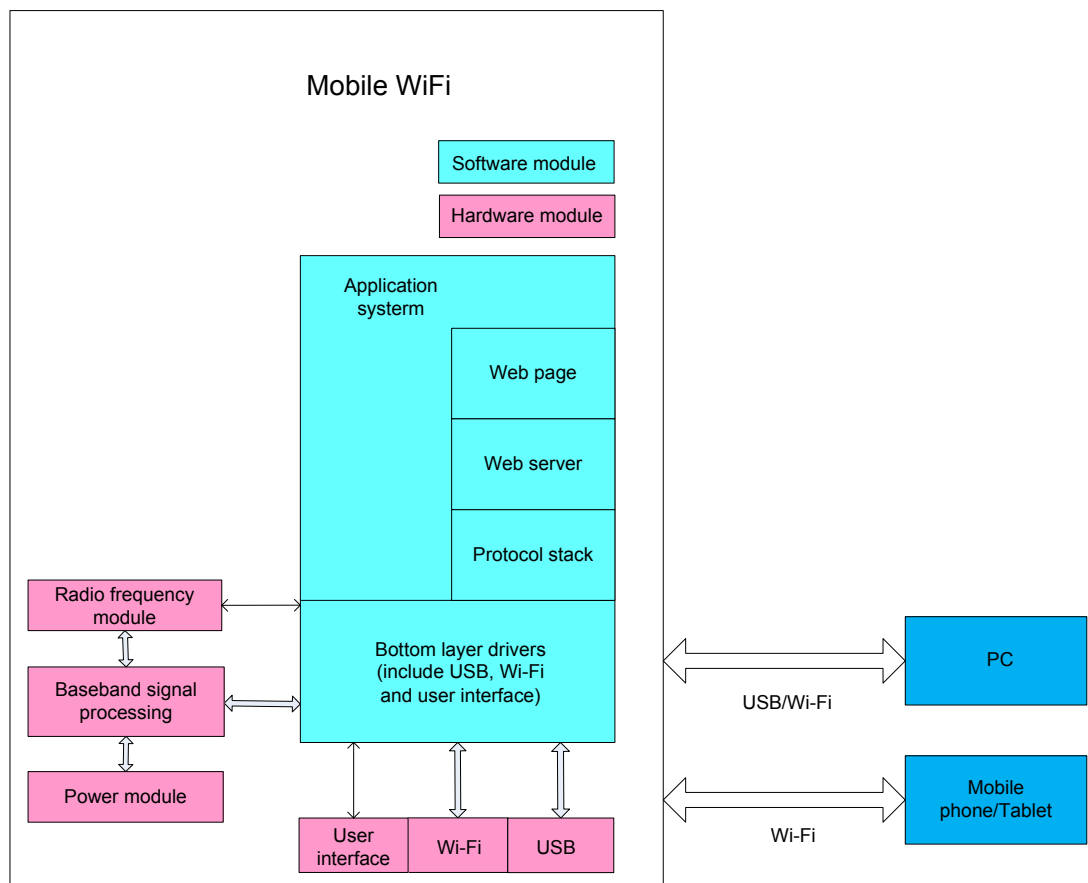
If you are using an Android device and has the HUAWEI Mobile WiFi App installed, you can quickly connect your device to the E5878s-32 to access the Internet by scanning a 2D Barcode on the E5878s-32 label.

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/GSM baseband 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, a buttons and a SIM 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 E5878s-32.

Table 5-1 lists the items contained in the package of the E5878s-32.

Table 5-1 Packing list of the E5878s-32

Item	Quantity	Remarks
Mobile WiFi	1	Standard
USB Cable	1	Standard
Quick Start	1	Standard
Safety Information	1	Standard
SIM eject tool	1	Standard
Charger	1	Standard
AF18	1	Optional
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
DFS	dynamic frequency selection
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
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