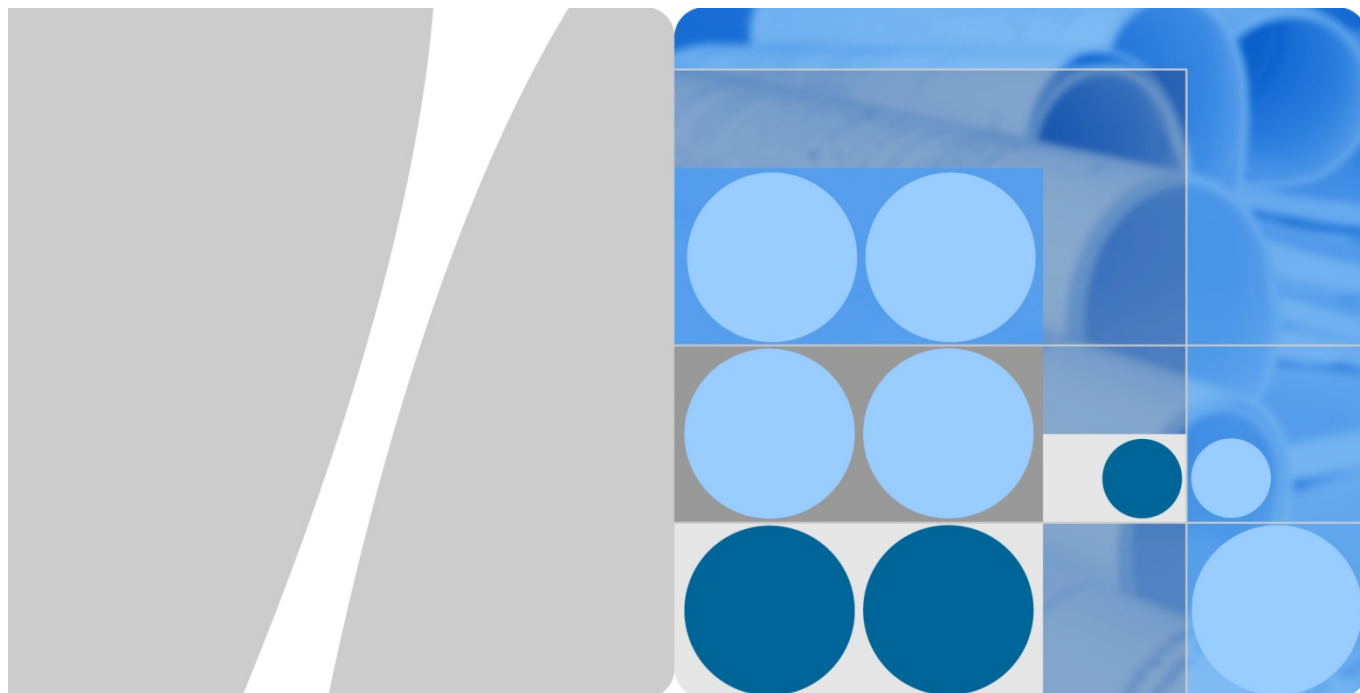


Product Description



HUAWEI E5220s-81 Mobile WiFi
V100R001

Issue 01
Date 2013-04-26

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

Website: <http://www.huawei.com>

Copyright © Huawei Technologies Co., Ltd. 2013. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions



HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

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.	2013-04-26

Contents

1 Overview	6
1.1 Brief Introduction	6
1.2 Optional Features	7
2 Features	8
2.1 Main Features	8
2.2 Technical Specifications	9
2.2.1 Hardware	9
2.2.2 Software	10
3 Services and Applications	13
3.1 Data Service	13
3.1.1 Wireless Modem	13
3.1.2 USB Modem	14
3.1.3 3G/Wi-Fi Auto Offload (Optional)	14
3.2 SMS	15
4 System Architecture	16
4.1 System Architecture	16
4.2 Functional Modules	17
5 Packing List	18

1 Overview

1.1 Brief Introduction

HUAWEI E5220s-81 Mobile WiFi 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 E5220s-81 supports the following standards:

- High Speed Packet Access Plus (HSPA+)
- High Speed Packet Access (HSPA)
- Universal Mobile Telecommunications System (UMTS)
- Enhanced Data rates for Global Evolution (EDGE)
- General Packet Radio Service (GPRS)
- Global System for Mobile communications (GSM)

The E5220s-81 provides the following services:

- HSPA+ packet data service of up to 21.6 Mbit/s
- HSPA (HSUPA/HSDPA)/UMTS packet data service of up to 14.4 Mbit/s
- EDGE/GPRS packet data service of up to 236.8 kbit/s
- UMTS/GSM Short Message Service (SMS)

You can connect the E5220s-81 with the USB interface of a computer, or connect the E5220s-81 with the Wi-Fi. In the service area of the HSPA+/HSPA/UMTS/EDGE/GPRS/GSM network, you can surf the Internet and send/receive messages/emails cordlessly. The E5220s-81 is fast, reliable, and easy to operate. Thus, mobile users can experience many new features and services with the E5220s-81. These features and services will enable a large number of users to use the E5220s-81 and the average revenue per user (ARPU) of operators will increase substantially.

Figure 1-1 shows the appearance of the E5220s-81.

Figure 1-1 Appearance

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 E5220s-81's optional features are as follows:

- 3G/Wi-Fi auto offload
- IPv6 /IPv4 dual stack

2 Features

2.1 Main Features

The E5220s-81 mainly supports the following features:

- HSPA+ (DL) data service of up to 21.6 Mbit/s
- HSPA+ (UL) data service of up to 5.76 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 UMTS and GSM
- SMS based on CS/PS domain of GSM and UMTS
- Wi-Fi
- Five-second fast boot
- Plug and Play (PnP)
- 3G/Wi-Fi auto offload (optional)
- IPv6 /IPv4 dual stack (optional)
- Built-in DHCP Server, DNS RELAY and NAT
- Online software upgrade
- Traffic statistic
- Standard Micro USB interface
- LED indicators
- Built-in UMTS and WLAN high gain antenna
- Support for HUAWEI Mobile WIFI app
- Windows XP, Windows Vista, Windows 7, Windows 8, MAC OS X 10.5, 10.6, 10.7 and 10.8

2.2 Technical Specifications

2.2.1 Hardware

Table 2-1 lists the hardware specifications.

Table 2-1 Hardware specifications

Item	Specifications	
Technical standard	<ul style="list-style-type: none"> • WAN: HSPA+/HSPA/UMTS/EDGE/GPRS/GSM • WLAN: IEEE 802.11b/g/n 	
Operating frequency	HSPA+/HSPA/UMTS 2100/1900/900MHz	
	EDGE/GPRS/GSM 1900/1800/900/850MHz	
	WLAN: 2400–2483.5 MHz	
Internal memory	128 MB Flash, 64 MB Memory	
Maximum transmitter power	UMTS: 24 (+1/-3) dBm	
	WLAN	802.11b: 14 (+/-3) dBm
		802.11g: 11 (+/-3) dBm
		802.11n: 9 (+/-3) dBm
Receiver sensitivity	UMTS: -106 dBm	
	WLAN 802.11b	-76 dBm@11 Mbit/s
		-82 dBm@1 Mbit/s
	WLAN 802.11g: -65 dBm@54 Mbit/s	
	WLAN 802.11n: -64 dBm@65 Mbit/s	
WLAN speed	802.11b: Up to 11 Mbit/s	
	802.11g: Up to 54 Mbit/s	
	802.11n: Support MCS0–MCS7; Up to 72.2 Mbit/s.	
Maximum power consumption	3.5 W	
Power supply	<ul style="list-style-type: none"> • AC: 100–240 V • DC: 5 V, 1 A 	

Item	Specifications
Battery	<ul style="list-style-type: none">• Type: Li (Rechargeable)• Capacity: 3.7 V, 1150 mAh• Maximum working time: 4 hours• Maximum standby time: 200 hours while Wi-Fi is off; 23 hours while Wi-Fi is often on.
External interfaces	USB interface: Micro USB
	SIM card: standard 6-pin SIM card interface
Indicators	LED indicators: Signal, Wi-Fi, Battery, SMS
Button	Power switch, Reset switch
Antenna	<ul style="list-style-type: none">• Built-in GSM/UMTS main antenna• Built-in UMTS diversity antenna• Built-in WLAN antenna
Dimensions (H × W × D)	14.4 mm×90.5 mm×56.0 mm
Weight	about 66 g (including the battery)
Temperature	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Writing/Sending/Receiving• Sending/Receiving extra-long messages• Storage: Up to 500 messages can be saved in the internal memory of the E5220s-81.• New message prompt
Network connection setup	<ul style="list-style-type: none">• APN management: create, delete and edit.• Set up network connection

Item	Description
WLAN setup	<ul style="list-style-type: none"> • 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 • TKIP and AES encryption algorithm • TKIP and AES integrated encryption algorithm • Automatic adjustment of ratios • STA management • Turn off Wi-Fi automatically • WLAN MAC filter
Firewall setup	<ul style="list-style-type: none"> • Firewall Switch • LAN IP Filter • Virtual Server • DMZ Service • UPnP Service • WAN Ping block
NAT setup	<ul style="list-style-type: none"> • CONE NAT • Symmetric NAT • VPN passthrough
DHCP setup	<ul style="list-style-type: none"> • DHCP server enabling and disabling • Address pool of the DHCP server setup • DHCP lease time setup
Software installation	Automatic installation (PnP)
3G/Wi-Fi auto offload (optional)	<ul style="list-style-type: none"> • Accessing to WAN via 3G or Wi-Fi • Automatic offload between 3G and Wi-Fi
IPv6/IPv4 dual stack (optional)	<ul style="list-style-type: none"> • DHCPv6/v4 server and client • DNSv6/v4 server and client • Display IPv6/v4 WAN address
Other	Network connection settings: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none">• 3G Only• 2G Only• Auto
	PIN management: activate/deactivate PIN, PIN lock, changing PIN, unblocking by using the PUK.
System requirement	<ul style="list-style-type: none">• Windows XP, Windows Vista, Windows 7, Windows 8• Mac OS X 10.5, 10.6, 10.7 and 10.8• 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 E5220s-81 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 E5220s-81.

A maximum of ten wireless users can access the E5220s-81 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

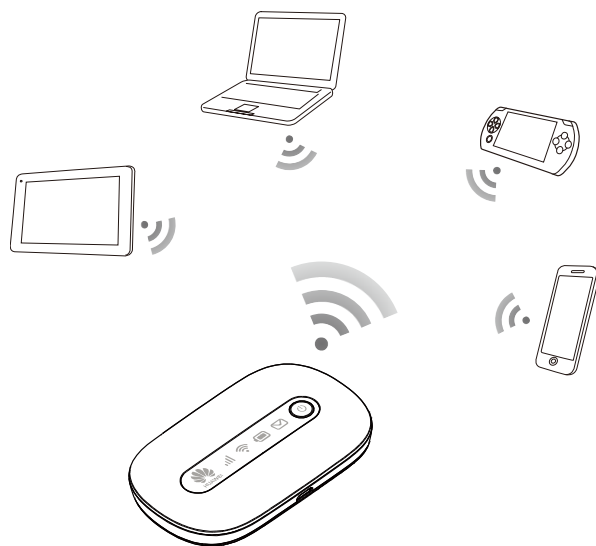
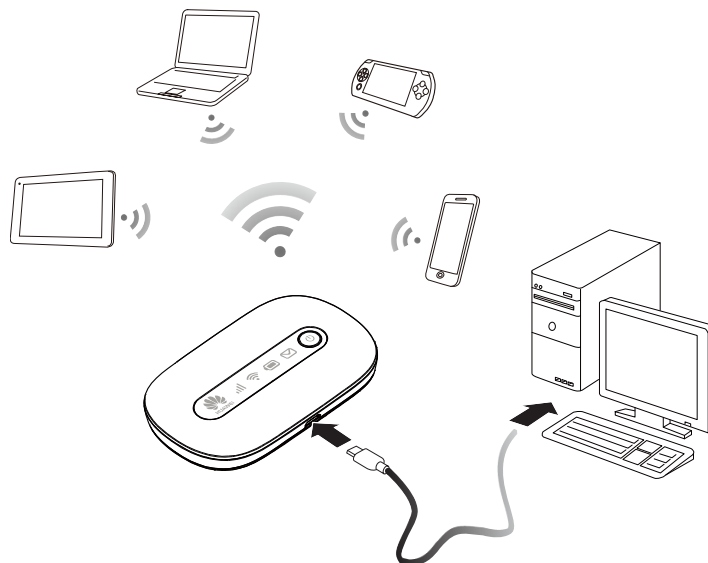
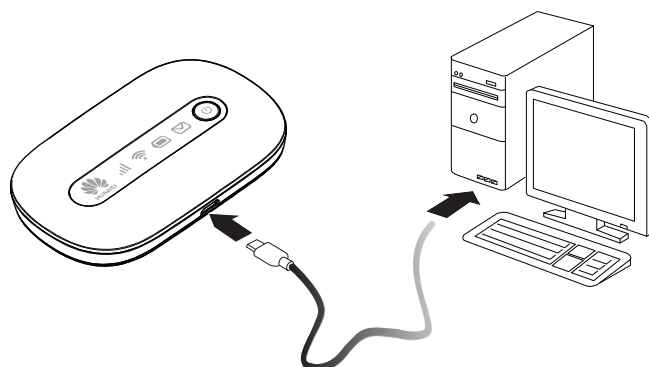


Figure 3-2 Multi-device access via Wi-Fi and USB at the same time

3.1.2 USB Modem

After you connect the E5220s-81 and PC with a USB data cable, the E5220s-81 driver is installed on the PC automatically and the shortcut of the web page is displayed on the PC desktops. You can configure APN on the E5220s-81 WEB page (or directly use the default settings) and set up a network connection. Then you can send or receive E-mail, access the Internet, and download files through wireless data channels.

Figure 3-3 One-device access via USB

3.1.3 3G/Wi-Fi Auto Offload (Optional)

The E5220s-81 allows you to access the Internet via 3G or Wi-Fi. When you are using the E5220s-81 in areas with a Wi-Fi hotspot, for example, an airport, a cafe, a hotel, or your home, the E5220s-81 switches to Wi-Fi connection automatically, saving your 3G network traffic fees.

After the function is enabled, a maximum of five wireless users can access the E5220s-81 at the same time.

Figure 3-4 3G/Wi-Fi auto offload

3.2 SMS

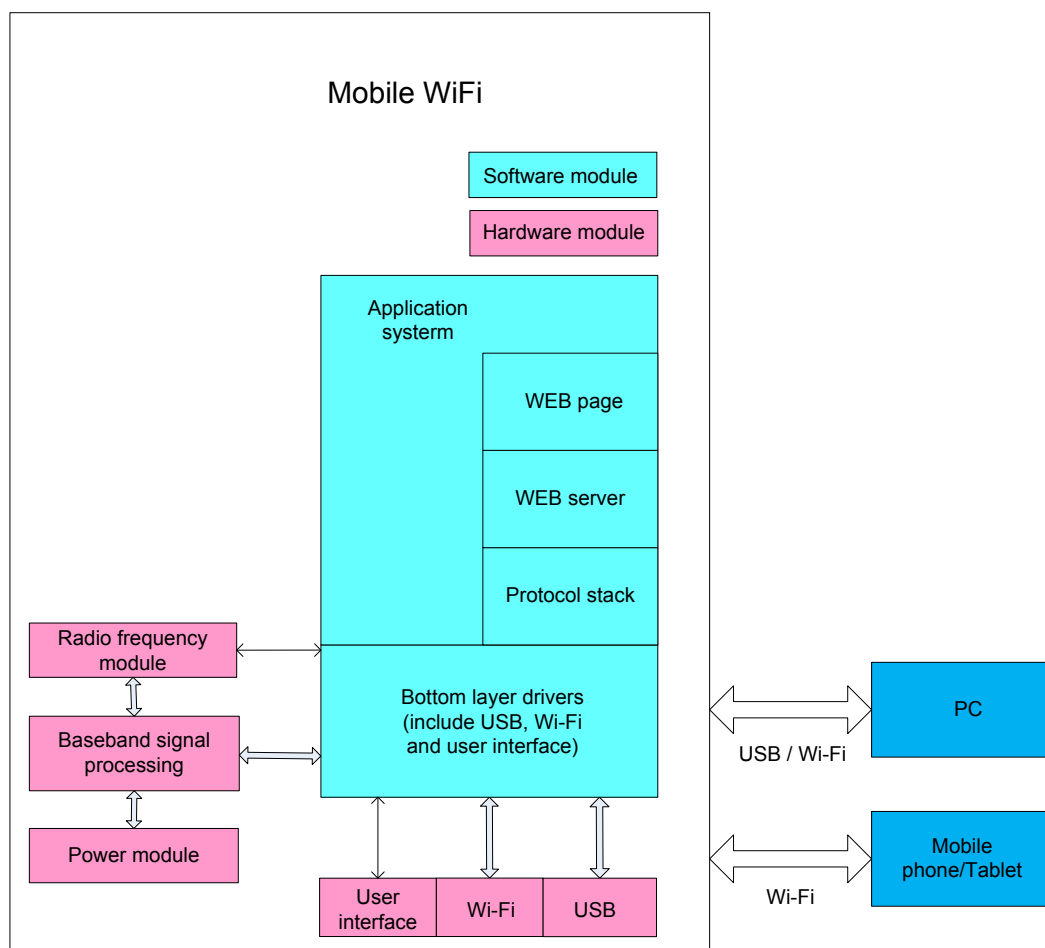
The E5220s-81 supports message writing/sending/receiving. You can manage messages through the WEB page, such as an inbox, an outbox and a draft.

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 HSPA+/HSPA/UMTS/EDGE/GPRS/GSM baseband digital signals, including:
 - Modulating/Demodulating HSPA+/HSPA/UMTS baseband signals
 - Modulating/Demodulating EDGE/GPRS/GSM baseband signals
 - Encoding/Decoding HSPA+/HSPA/UMTS channel
 - Encoding/Decoding EDGE/GPRS/GSM channel
3. **Bottom layer driver:** It drives peripherals, including USB device, Wi-Fi device, indicator, button and SIM card.
4. **Protocol stack system:** It processes protocols of 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 indicator and button.

5 Packing List

This chapter describes the items contained in the package of the E5220s-81.

Table 5-1 lists the items contained in the package of the E5220s-81.

Table 5-1 Packing list of the E5220s-81

Item	Quantity	Remarks
Mobile WiFi	1	Standard
Rechargeable Battery (1150 mAh)	1	Standard
USB Cable	1	Standard
Quick Start	1	Standard
Safety Information	1	Standard
Power Adapter	1	Optional
Warranty Card	1	Optional

A Acronyms and Abbreviations

2G	The Second Generation
3G	The Third Generation
AES	Advanced Encryption Standard
APN	access point name
ARPU	average revenue per user
ASCII	American Standard Code for Information Interchange
CS	circuit switched
DHCP	Dynamic Host Configuration Protocol
DMZ	demilitarized zone
DNS	Domain Name Server
EDGE	Enhanced Data Rates for GSM Evolution
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
LED	light emitting diode
MAC	Medium Access Control
Modem	Modulator Demodulator
NAT	Network Address Translation
OS	Operating System

PC	personal computer
PIN	personal identification number
PS	packet switched
PUK	PIN unblocking key
SIM	subscriber identity module
SMS	short messaging service
SOHO	small office home office
SSID	Service Set Identifier
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