Product Description

HUAWEI E5151 Mobile WiFi
V100R001

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

Email: mobile@huawei.com

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.	2012-02-01

Contents

1 Overview

HUAWEI E5151 Mobile WiFi (hereinafter referred to as the E5151) 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 E5151 has a branch type, E5151s-2, within Huawei. It supports:

- HSPA+/HSPA/UMTS 2100/900 MHz
- EDGE/GPRS/GSM 1900/1800/900/850 MHz

The E5151 supports the following standards:

- 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 E5151 provides the following services:

- HSPA+ packet data service of up to 21 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 E5151 with the USB interface of a computer, or connect the E5151 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 E5151 is fast, reliable, and easy to operate. Thus, mobile users can experience many new features and services with the E5151. These features and services will enable a large number of users to use the E5151 and the average revenue per user (ARPU) of operators will increase substantially.

Figure 1-1 shows the profile of the E5151.

Figure 1-1 E5151 profile
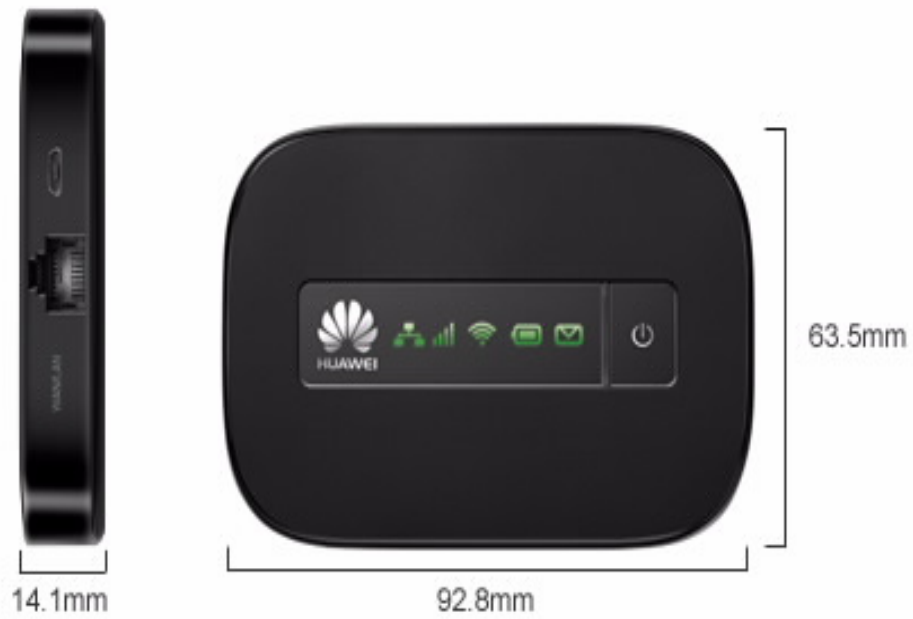
2 Features

2.1 Main Features

The E5151 mainly supports the following features:

- HSPA+ (DL) data service of up to 21 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
- Built-in DHCP Server, DNS RELAY and NAT
- Plug and Play (PnP)
- USB Extension Cable, easy to connect
- Standard Micro USB interface
- LED indicators
- Built-in UMTS and WLAN high gain antenna
- Windows XP, Windows Vista, Windows 7, MAC OS X 10.5, 10.6 and 10.7

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: HSPA+/HSPA/UMTS/EDGE/GPRS/GSM • WLAN: IEEE 802.11b/g/n		
Operating frequency	HSPA+/HSPA/UMTS	2100/900 MHz	
	EDGE/GPRS/GSM	1900/1800/900/850 MHz	
	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: 12 (+/-3) dBm	
		802.11n: 7 (+/-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	• AC: 100–240 V • DC: 5 V, 1 A		

Item	Specifications
Battery	• Type: Li (Rechargeable) • Capacity: 3.7 V, 1500 mAh • Maximum working time: 5 hours • Maximum standby time: 280 hours while Wi-Fi is off; 30 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
key-press	Power switch, Reset switch
Antenna	• Built-in GSM/UMTS main diversity antenna • Built-in UMTS diversity antenna • Built-in WLAN antenna
Dimensions (D × W × H)	92.8 mm×60.0 mm×13.8 mm
Weight	about 82 g (including the battery)
Temperature	• Operating: 0℃ to +35℃ • Storage: -40℃ to +70℃
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 1000 messages can be saved in the internal memory of the E5151. • New message prompt
Network connection setup	• APN management: create, delete and edit. • Set up network connection

| Item	Description
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 • TKIP and AES encryption algorithm • TKIP and AES integrated encryption algorithm • Automatic and manual adjustment of ratios • STA management • Wi-Fi automatically closes
Firewall setup	• Firewall Switch • LAN IP Filter • Virtual Server • DMZ Service • UPnP Service • WAN Ping block
DHCP setup	• DHCP server enabling and disabling • Address pool of the DHCP server setup • DHCP lease time setup
Software installation	Automatic installation (PnP)
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: • 3G Only • 2G Only • Auto
	PIN management: activate/deactivate PIN, PIN lock, changing PIN, unblocking by using the PUK.
System requirement	• Windows XP, Windows Vista, Windows 7 • Mac OS X 10.5, 10.6 and 10.7 • 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 USB Modem

After you connect the E5151 and PC with a USB data cable, the E5151 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 E5151 WEB page (or directly use the default settings) 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 One-device access via USB
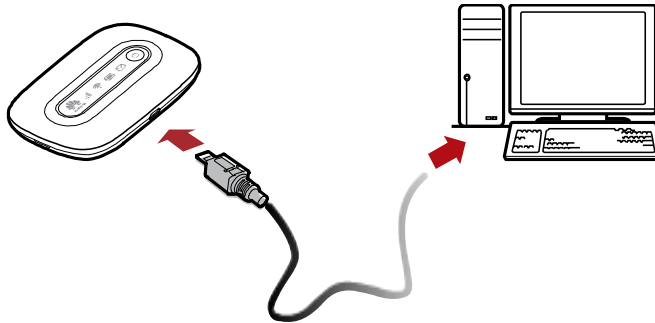
3.1.2 Wireless Modem

The E5151 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 E5151.

A maximum of eight wireless users can access the E5151 at the same time. You can set up the WLAN with the access point (AP) function.

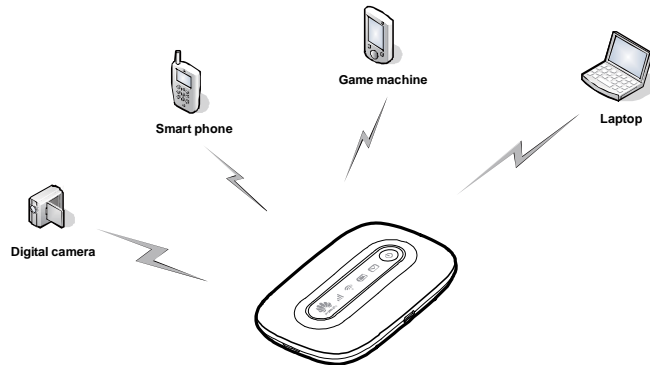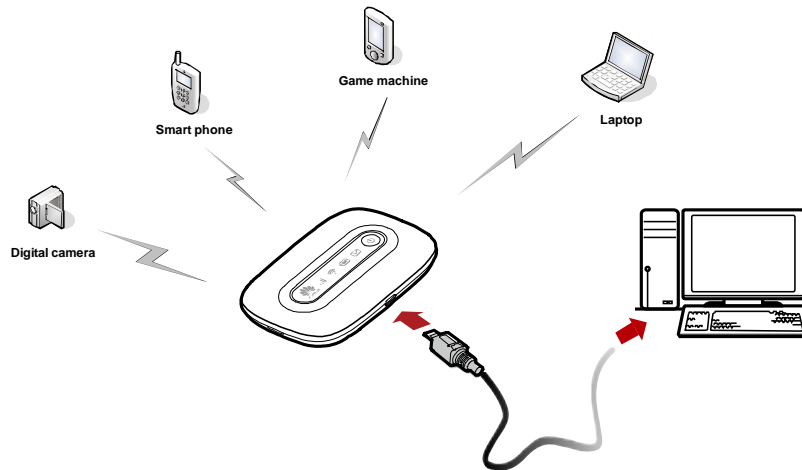**Figure 3-2** Multi-device access via Wi-Fi

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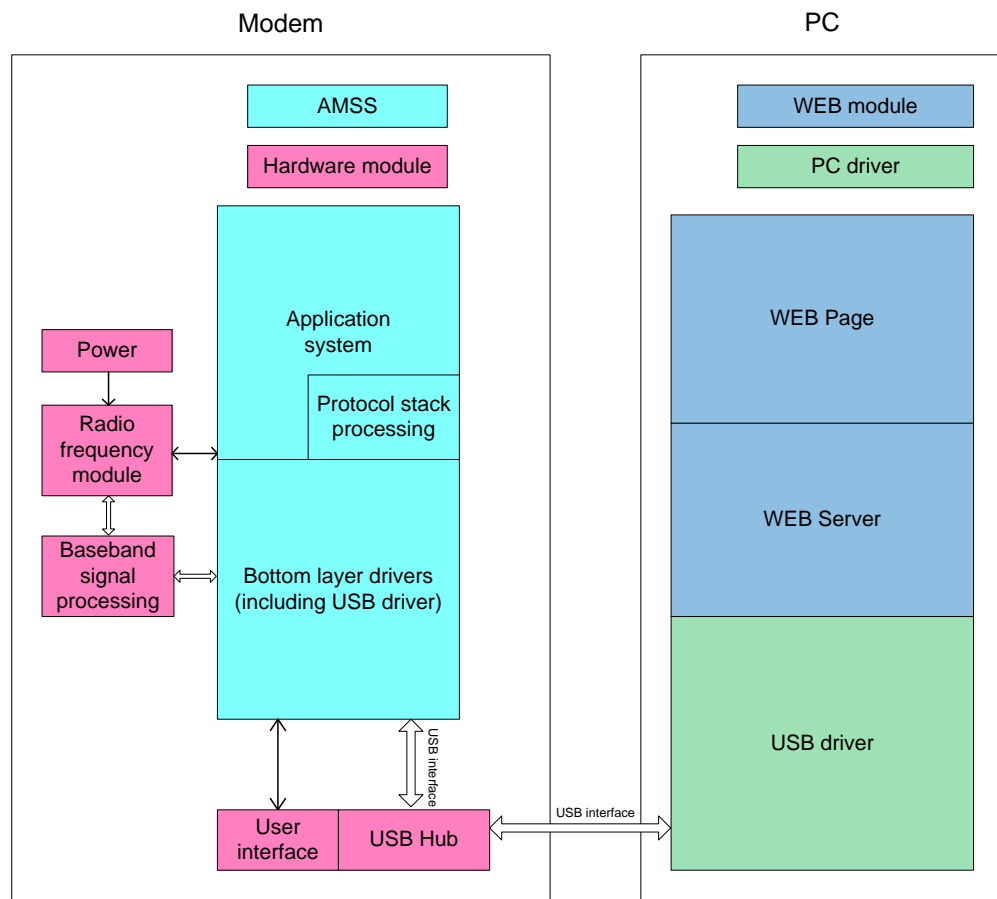

3.2 SMS

The E5151 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 and SIM.

4. **Protocol Stack System**: It processes protocols of HSPA+/HSPA/UMTS/EDGE/GPRS/GSM.

5. **Application System**: It sends laptop commands to the bottom layer protocol for processing and returns the value to the laptop. Existing applications include the following:
   - Message management
   - CS/PS domain service management

6. **User Interface**: It provides interface to connect peripherals. Interface is for SIM.

7. **Application Management**: Through the application window, you can set the parameters of the E5151 and operate the E5151.

5 Packing List

This chapter describes the items contained in the package of the E5151.

Table 5-1 lists the items contained in the package of the E5151.

Table 5-1 Packing list of the E5151

Item	Quantity	Remarks
Mobile WiFi	1	Standard
Rechargeable Battery (1500 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

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
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
WAN	wireless area network
WEP	wired equivalent privacy
Wi-Fi	Wireless Fidelity
WLAN	wireless local area network
WPA	Wi-Fi Protected Access