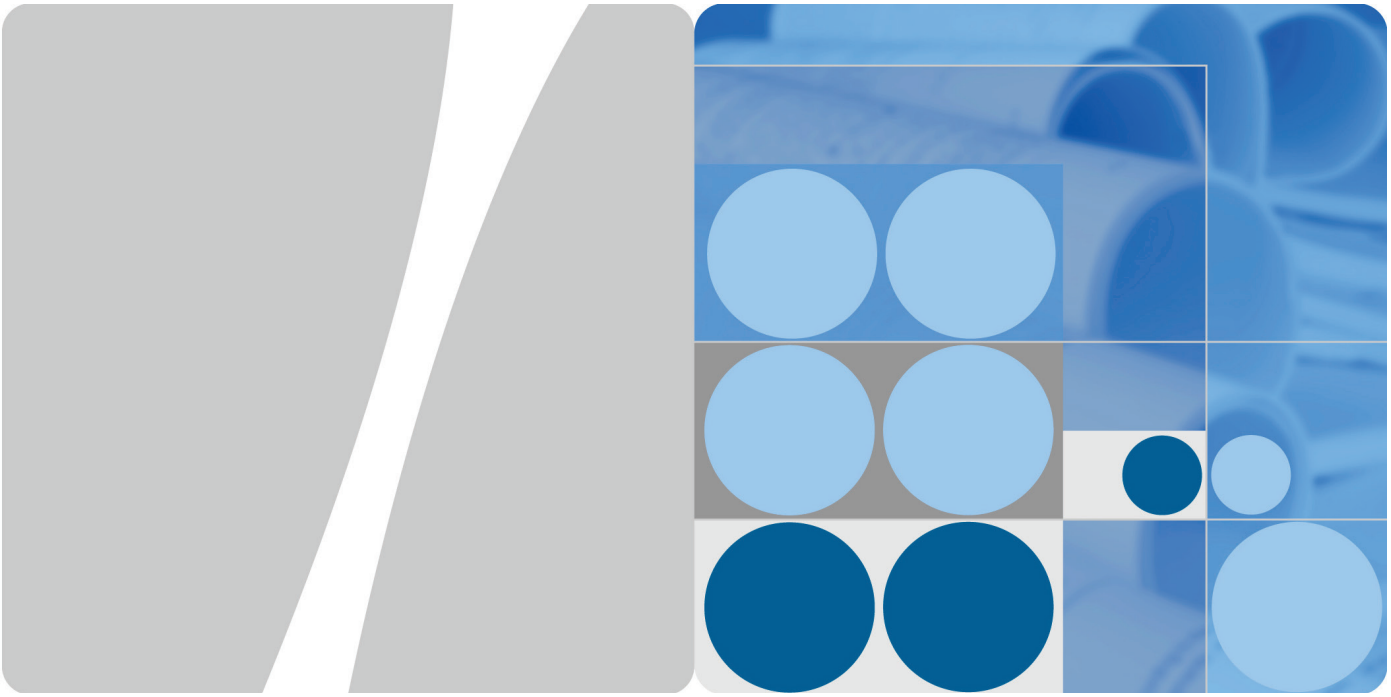

HUAWEI B315s-22 LTE CPE V200R001

Product Description

Issue	01
Date	2014-12-15

HUAWEI TECHNOLOGIES CO., LTD.

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About This Document

Summary

This document provides information for product features, main functions and services, technical specifications and technical references.

This document includes:

Chapter	Details
1 Product Overview	Describes the appearance and main services of product
2 Features	Describes the product features
3 Technical Specifications	Describes the specifications of product hardware, software and user interface
4 Services and Applications	Describes the main functions and applications
5 System Structure	Describes the product system structure
6 Packing List	Describes the devices and accessories of the product

NOTE

The document is an invitation to offer but not an offer. It is intended to describe the general features and functions of products. The features and functions of certain products vary with requirements of customers.

History

Issue	Date	Details
01	2014-12-15	Initial official release.

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Contents

About This Document ii

1 Product Overview 1

2 Features 3

3 Technical Specifications 4

3.1 Hardware Specifications 4

3.2 Antenna and Radio Frequency Specifications 6

3.3 Software Specifications 8

4 Services and Applications 11

4.1 Data Services 11

4.1.1 Accessing the Internet Through a Mobile Network (LTE/UMTS/GSM) 11

4.1.2 Accessing the Internet Through an Ethernet Network 12

4.2 Voice Services 12

4.3 SMS 13

4.4 Security Service 13

4.5 USB Sharing services 13

4.6 Local management and maintenance 13

5 System Structure 14

5.1 System Architecture Diagram 14

5.2 Functional Modules 14

6 Packing List 15

A Acronyms and Abbreviations 16

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1 Product Overview

The HUAWEI B315s-22 LTE CPE (B315s-22 for short) is a wireless gateway that integrates LTE and high-speed Ethernet uplink access, which provides users with flexible and diversified data access and voice services.

NOTE

The frequency bands of the product are as follows.

- LTE: Band 1/3/7/8/20/38
  FDD 2100 MHz/1800 MHz/2600 MHz/900 MHz/800 MHz/TDD 2600 MHz
- UMTS: Band 1/8 2100 MHz/900 MHz
- GSM: Band 2/3/5/8 1900 MHz/1800 MHz/850 MHz/900 MHz

The B315s-22 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 Packet Access (HSPA)
- Wideband Code Division Multiple Access (WCDMA)
- Enhanced Data Rates for Global Evolution (EDGE)
- General Packet Radio Service (System) (GPRS)
- Global System for Mobile Communications (GSM)
- Gigabit Ethernet (GE)

The B315s-22 supports wired and wireless network access, and provides data routing service.

The B315s-22 provides the following services:

- Data service
- Voice service
- SMS
- Security service
- Local maintenance management function

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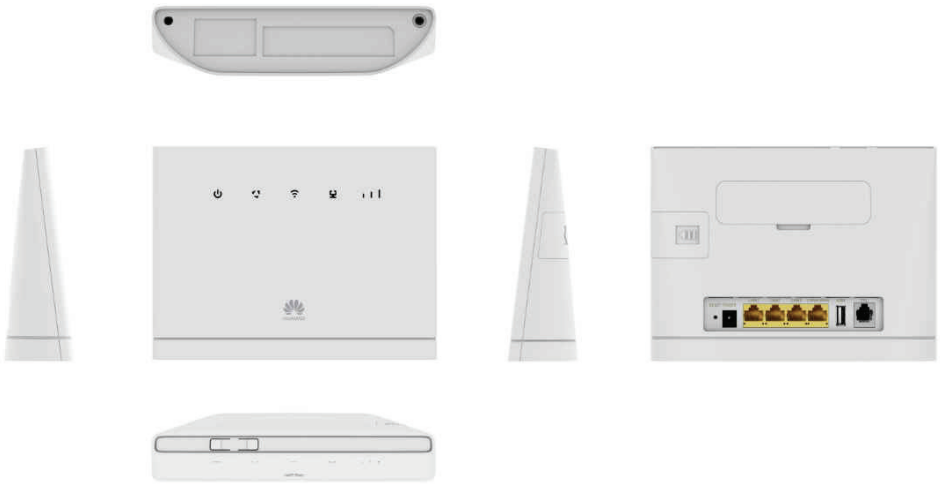
Figure 1-1 B315s-22 **appearance**



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2 Features

The B315s-22 mainly supports the following features:

- Access to LTE/DC-HSPA+/HSPA+/HSPA/WCDMA/EDGE/GPRS/GSM wireless networks
- Access to Gigabit Ethernet networks
- High-speed data access
  - LTE FDD: DL 150 Mbps, UL 50 Mbps
  - LTE TDD: DL 112 Mbps, UL 10 Mbps
  - DC-HSPA+: DL 42 Mbps, UL 5.76 Mbps
  - HSPA+: DL 21 Mbps (64QAM) / 28 Mbps (MIMO), UL 5.76 Mbps
  - HSPA: DL 14.4 Mbps, UL 5.76 Mbps
  - WCDMA PS: 384 kbps
  - EDGE: DL 296 kbps, UL 236.8 kbps
  - GPRS: 85.6 kbps
- Support maximum data transmission rate of 300 Mbps 802.11b/g/n
- Compatibility with RJ11 telephone ports; can be set to Voice over Internet Protocol (VoIP) or Circuit Switch (CS) voice mode
- USB 2.0 host port
- External antenna port
- Support for HUAWEI Mobile WiFi App
- WPS 2.0
- HOTA updates
- Built-in DHCP Server, DNS RELAY and NAT
- Security services. Provides instant protection to block potential security risks and intrusion attempts
- Windows 8.1, Windows 8, Windows 7, Windows Vista SP1/SP2, Windows XP SP3, and Mac OS X 10.9, 10.8, and 10.7 with latest upgrades
- User-friendly design of LED indicator. Easy to observe the status of equipment.

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3 Technical Specifications

3.1 Hardware Specifications

Table 3-1 Technical specifications of the B315s-22 main unit

Item	Description	
Technical standard	WAN	• Mobile Network: LTE/DC-HSPA+/HSPA+/HSPA/WCDMA/EDGE/GPRS/GSM • Gigabit Ethernet: IEEE 802.3/802.3u
	LAN	IEEE 802.3/802.3u
	WLAN	IEEE 802.11b/g/n
Working frequency band	LTE	Band 1/3/7/8/20/38 FDD 2100 MHz/1800 MHz/2600 MHz/900 MHz/800 MHz/TDD 2600 MHz
	UMTS	Band 1/8 2100 MHz/900 MHz
	GSM	Band 2/3/5/8 1900 MHz/1800 MHz/850 MHz/900 MHz
	WLAN	2.400 GHz - 2.474 GHz
External port	• One power adapter port • Three LAN ports (RJ45) • One WAN/LAN port (RJ45) • One USB 2.0 host port • One phone port (RJ11) • Two external antenna ports • One SIM card slot	

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Item	Description		
Indicator	• One power indicator • One Internet status indicator • One Wi-Fi/WPS indicator • One LAN indicator • One group of signal strength indicators		
Button	• One Power ON or OFF switch • One WPS button • One Reset button		
Maximum transmit power	LTE	Conform to 3GPP Power Class 3 Definition	
	UMTS	23 dBm (+2 dB/-2 dB)	
	GSM	• 850 MHz/900 MHz: 33 dBm (+2 dB/-2 dB) • 1800MHz/1900MHz: 30 dBm (+2 dB/-2 dB)	
	WLAN	802.11b	16 dBm(+3 dB/-3 dB)@11 Mbps
		802.11g	• 17 dBm(+3 dB/-3 dB)@6 Mbps • 17 dBm(+3 dB/-3 dB)@54 Mbps
		802.11n	• 17 dBm(+3 dB/-3 dB)@MCS0 • 17 dBm(+3 dB/-3 dB)@MCS7
Receiving sensitivity	LTE	Conform to 3GPP Definition	
	UMTS	• 2100 MHz: -106.7 dBm@3.84 MHz • 900MHz: -103.7 dBm@3.84 MHz	
	GSM	-104 dBm	
	WLAN	802.11b	≤ -92 dBm@1 Mbps ≤ -85 dBm@11 Mbps
		802.11g	≤ -88 dBm@6 Mbps ≤ -70 dBm@54 Mbps
		802.11n HT20	≤ -88 dBm@MCS0 ≤ -68 dBm@MCS7
		802.11n HT40	≤ -84 dBm@MCS0 ≤ -66 dBm@MCS7
Power consumption	< 12 W		
AC/DC power supply	• AC: 100 V - 240 V • DC: 12 V/1 A		
Dimensions (Maximum)	186 mm (Width) x 139 mm (High) x 46 mm (Deep)		

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Item	Description
Weight	About 275 g (excluding the power adapter)
Temperature	• Working temperature: 0°C to 40°C • Storage temperature: -20°C to +70°C
Humidity	5% - 95%

3.2 Antenna and Radio Frequency Specifications

Table 3-2 LTE/UMTS/GSM main diversity antenna specifications

Item	Description
Frequency	• 703 MHz - 960 MHz • 1710 MHz - 2690 MHz
Input impedance	50 Ω
Standing wave ratio	< 3
Efficiency	≥ -4.5 dB@703MHz - 960MHz ≥ -3.5 dB@1710MHz - 2690MHz
H side gain	≥ 1 dBi (horizontal level)
Polarization	Linear polarization

Table 3-3 LTE/UMTS sub diversity antenna specifications

Item	Description
Frequency	• 703 MHz - 960 MHz • 1710 MHz - 2690 MHz
Input impedance	50 Ω
Standing wave ratio	< 3
Efficiency	≥ -4.5 dB@703MHz - 960MHz ≥ -3.5 dB@1710MHz - 2690MHz
H side gain	≥ 1 dBi (horizontal level)
Polarization	Linear polarization

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Table 3-4 WLAN 2.4 GHz antenna specifications

Item	Description
Frequency	2.400 GHz - 2.474 GHz
Input impedance	50 Ω
Standing wave ratio	< 2
Efficiency	≥ -3 dB
H side gain	≥ 1 dBi (horizontal level)
Polarization	Linear polarization

Table 3-5 External antenna specifications

NOTE

- The external antenna is an optional accessory. Signals may be weak in some areas; thus, you can choose whether to use the external antenna.
- The external antenna can be used indoor only. Put it near the window when using to get better signal.
- Avoid thunderstorms when using.

Item	Description
Technical standard	LTE/DC-HSPA+/HSPA+/HSPA/WCDMA/EDGE/GPRS/GSM
Frequency	• 703 MHz - 960 MHz • 1710 MHz - 2690 MHz
Input impedance	50 Ω
Standing wave ratio	< 3
H side gain	≥ 3 dBi (horizontal level)
Polarization	Linear polarization
Interface standard	SMA-J1.5

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3.3 Software Specifications

Table 3-6 Software specifications

Item	Description	
Mobile network	APN management	
Gigabit Ethernet	• WAN/LAN auto-negotiation • PPPoE username and password	
Data service	LTE FDD	DL 150 Mbps, UL 50 Mbps
	LTE TDD	• Configuration 1: DL 80 Mbps, UL 20 Mbps • Configuration 2: DL 112 Mbps, UL 10 Mbps
	DC-HSPA+	DL 42 Mbps, UL 5.76 Mbps
	HSPA+	DL 21 Mbps (64QAM) / 28 Mbps (MIMO) UL 5.76 Mbps
	HSPA	DL 14.4 Mbps, 10.2 Mbps, 7.2 Mbps, 3.6 Mbps UL 5.76 Mbps, 2 Mbps
	WCDMA PS	DL 384 kbps, UL 384 kbps
	EDGE	DL 296 kbps, UL 236.8 kbps (depending on the network configuration)
	GPRS	DL 85.6 kbps, UL 85.6 kbps (depending on the network configuration)
	WLAN	• 802.11b: 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps • 802.11g: 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps • 802.11n: 300 Mbps (HT40 MCS15), 144.4 Mbps (HT20 MCS15)
Web management	Web management page	
	Access to the web management page through an IPv4 address	
	Web browser	• IE 8.0 (Windows XP) • IE 8.0 and above (Windows 7/Vista) • IE 10.0 and above (Windows 8) • Firefox 24.0 and above • Safari 6.0 and above (MAC) • Opera 12.0 and above • Chrome 27.0 and above

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Item	Description	
Gateway	Router	Default routing (the routing address is 0.0.0.0). You can set the WAN connection to the default routing to generate default routing table items
	DHCP Server	• The default gateway address is 192.168.8.1 • The default IP addresses of the DHCP server is from 192.168.8.100 to 192.168.8.254. The IP addresses can be customized. • The default DHCP lease is 24 hours • The DHCP Server can be enabled or disabled • The address pool of the DHCP server can be configured • The lease can be configured
	NAT	• NAT, NAPT (compliant with RFC2663, RFC3022 and RFC3027) • CONE NAT • Fragment message identification for normal NAT • ALG
	ARP	
	ICMP	
	DNS Relay	
	IPv6/IPv4 dual stack	
SMS	Writing, sending, and receiving messages	
Voice service (Alternatively)	VoIP voice	• SIP voice services • G.722/G.711a/G.711u/G.729/G.726 encoding and decoding
	CS voice	• CS voice services over UMTS/GSM networks • CSFB
Firewall setup	Firewall switch	
	URL filter	
	Virtual server	
	Port forwarding	
	Port triggering	
	DMZ service	
	ALG settings	
	Remote management	
LAN	10 Mbps, 100 Mbps, and 1000 Mbps auto-negotiation	

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Item	Description	
	MDI/MDIX auto-sensing	
	IEEE 802.3/802.3u is compatible	
WLAN	IEEE 802.11b/g/n	
	4 SSID broadcast and hiding are supported in maximum.	
	WPS 2.0	
	WMM	
	Encryption	• WEP • AES • TKIP+AES
	Security mode	• WPA2.0 PSK • WPA1.0/WPA2.0 PSK • WEP Shared Key (four keys at most) • Open
	MAC address authentication	• White list • Black list • The preceding two lists cannot coexist • Up to 10 MAC address items
	STA management	• Supports inquiry of STA status • Supports limit of access users (Access from up to 32 users)
HUAWEI Mobile WiFi App	View service provider's name, the roaming status and signal strength.	
	View the data traffic usage and SMS.	
	Manage the connected devices.	
	Change SSID and password.	
System requirement	Windows 8.1, Windows 8, Windows 7, Windows Vista SP1/SP2, Windows XP SP3, and Mac OS X 10.9, 10.8, and 10.7 with latest upgrades	
	Your computer's hardware system should meet or exceed the recommended system requirements for the installed version of OS	

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4 Services and Applications

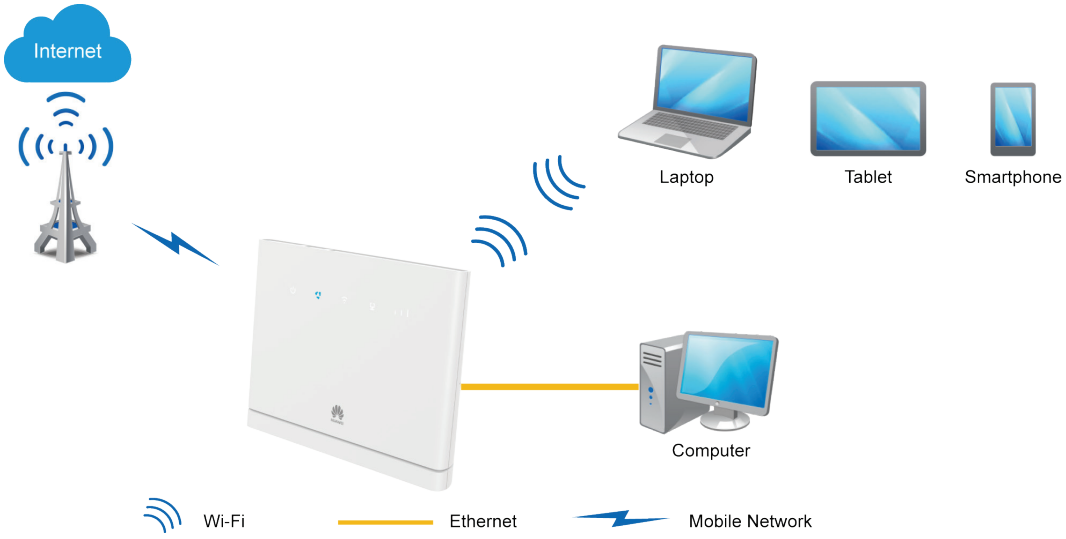
4.1 Data Services

The B315s-22 can access the Internet through mobile networks, and Ethernet networks. By connecting to the B315s-22 using Wi-Fi or a network cable, users can get access to high-speed Internet services and establish a local area network (LAN).

4.1.1 Accessing the Internet Through a Mobile Network (LTE/UMTS/GSM)

The B315s-22 can access the Internet through mobile networks.

Figure 4-1 Accessing the Internet through a mobile network



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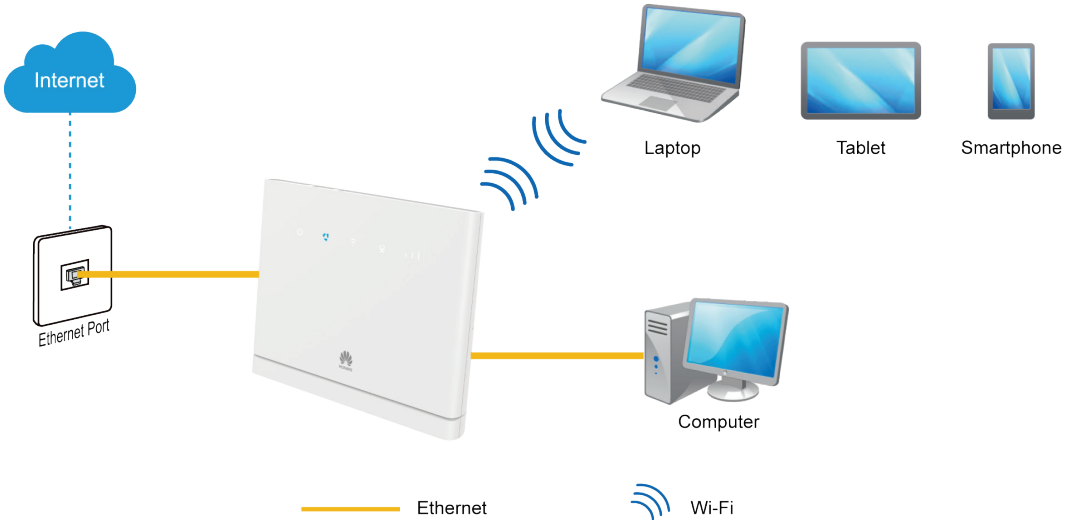
4.1.2 Accessing the Internet Through an Ethernet Network

Connect the B315s-22's WAN/LAN port to a wall-mounted Ethernet port using a network cable.

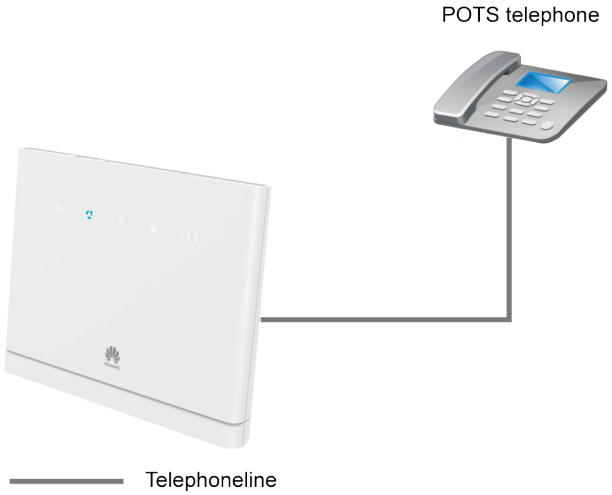
Figure 4-2 Accessing the Internet through an Ethernet network



4.2 Voice Services

The B315s-22 provides one telephone port that can be connected to telephones for calling.

Figure 4-3 Connecting telephones to the B315s-22



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4.3 SMS

The B315s-22 supports message writing/sending/receiving and group sending (up to 50 contacts at a time). You can manage messages through the Web page, such as inbox, outbox, draft.

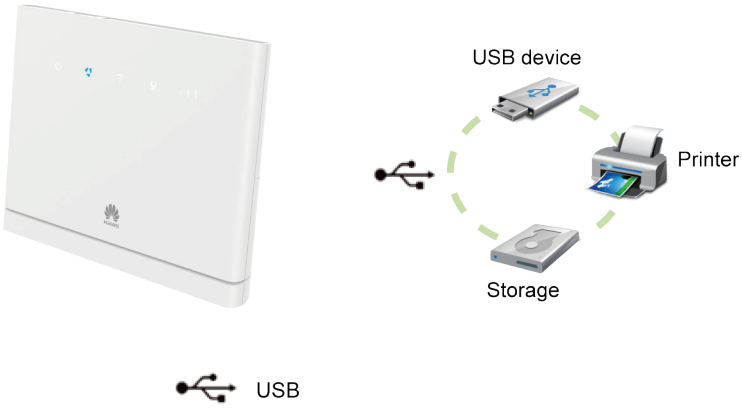
4.4 Security Service

The B315s-22 supports various security features, such as the firewall, user authentication, and PIN protection, protect users against security threats from the Internet when users are using network services.

4.5 USB Sharing services

With one USB port, users can connect a USB storage device to the USB port on the B315s-22 to save and share files. Users can also connect a USB printer to the USB port on the B315s-22 for printing services.

Figure 4-4 Connecting USB devices to the B315s-22



4.6 Local management and maintenance

The B315s-22 supports local configuration through the Web page. You can accomplish device management, network configuration and ensure normal and stable performance.

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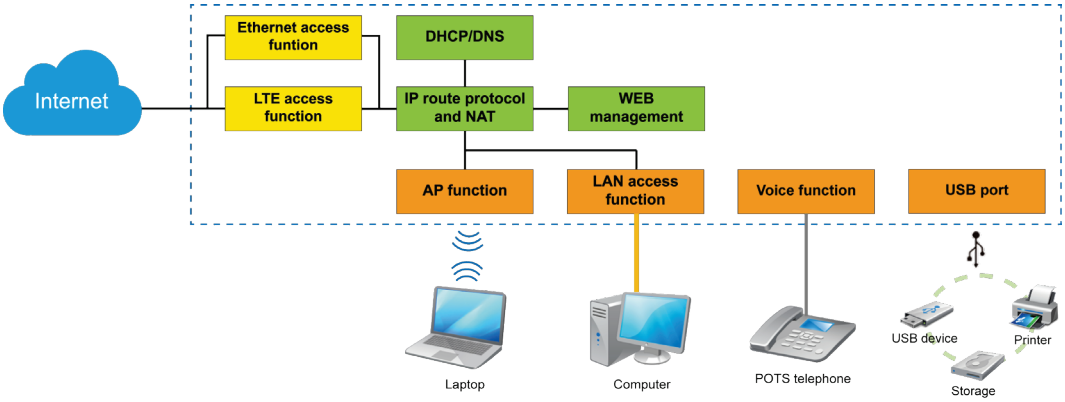
5 System Structure

5.1 System Architecture Diagram

Figure 5-1 System architecture



5.2 Functional Modules

- Mobile network access: The B315s-22 adopts the LTE/UMTS/GSM access technology at the WAN side, can access the wireless broadband packet-based.
- WLAN AP function: 802.11b/g/n compliant WLAN AP interface is provided, used for wireless networking at home. The interface is compliant with the IEEE 802.11b/g/n standard and the WPA-PSK/WPA2-PSK/WEP security authentication.
- DHCP/DNS: The DHCP server dynamically allocates IP addresses to PCs. The DNS parses domain names.
- Web management: You can configure, modify and query the configuration information of the B315s-22.
- Routing and NAT: High-speed routing capability. With the built-in NAT, the B315s-22, together with wireless broadband packet-based network devices, can provide flexible broadband access solutions and networking schemes.

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6 Packing List

Table 6–1 shows the devices and accessories of the B315s-22.

Table 6-1 Packing list

Description	Quantity	Remarks
Wireless Gateway	1	Standard
Power supply adapter	1	Standard
Quick Start	1	Standard
Ethernet cable	1	Standard
Warranty card	1	Optional
Phone cable	1	Optional

HUAWEI B315s-22 wireless gateway also provide external antenna as optional for you to choose.

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A Acronyms and Abbreviations

A	
AC	Alternating Current
ARP	Address Resolution Protocol
AP	Access Point
APN	Access Point Name
C	
CPE	Customer Premises Equipment
CS	Circuit Switch
CSFB	Circuit Switched Fallback
D	
DHCP	Dynamic Host Configuration Protocol
DL	Downlink
DNS	Domain Name Server
G	
GE	Gigabit Ethernet
H	
HSPA	High Speed Packet Access
HSPA+	High Speed Packet Access Plus
HSDPA	High Speed Downlink Packet Access
HSUPA	High Speed Uplink Packet Access
HT	High Throughput
I	
IP	Internet Protocol

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ICMP	Internet Control Message Protocol
L	
LAN	Local Area Network
LED	Light Emitting Diode
LTE	Long Term Evolution
M	
MCS	Modulation and Coding Scheme
N	
NAT	Network Address Translation
P	
POTS	Plain Old Telephone Service
T	
TKIP	Temporal Key Integrity Protocol
U	
UMTS	Universal Mobile Telecommunications System
UL	Uplink
V	
VoIP	Voice over Internet Protocol
W	
WAN	Wide Area Network
WLAN	Wireless Local Area Network
WCDMA	Wideband Code Division Multiple Access
Wi-Fi	Wireless Fidelity

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