

HUAWEI B310s-22 LTE CPE  
V200R001

## Product Description

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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	2015-03-20	Initial official release.

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# 1 Product Overview

The HUAWEI B310s-22 LTE CPE (B310s-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 B310s-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 B310s-22 supports wired and wireless network access, and provides data routing service.

The B310s-22 provides the following services:

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

**Figure 1-1 B310s-22 appearance**



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# 2 Features

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The B310s-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
- SMS
- IPv4 /IPv6 dual stack
- Compatibility with RJ11 telephone ports; can be set to Voice over Internet Protocol (VoIP) or Circuit Switch (CS) voice mode
- External antenna port
- Support for HUAWEI HiLink 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.

# 3 Technical Specifications

## 3.1 Hardware Specifications

**Table 3-1** Technical specifications of the B310s-22 main unit

Item	Description	
Technical standard	WAN	<ul style="list-style-type: none"> <li>Mobile Network: LTE/DC-HSPA+/HSPA+/HSPA/WCDMA/EDGE/GPRS/GSM</li> <li>Gigabit Ethernet: IEEE 802.3/802.3u</li> </ul>
	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 - 2.4835 GHz
Data service	LTE FDD	DL 150 Mbps, UL 50 Mbps
	LTE TDD	<ul style="list-style-type: none"> <li>Configuration 1: DL 80 Mbps, UL 20 Mbps</li> <li>Configuration 2: DL 112 Mbps, UL 10 Mbps</li> </ul>
	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



Item	Description		
	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	<ul style="list-style-type: none"> <li>• 802.11b: 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps</li> <li>• 802.11g: 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps</li> <li>• 802.11n: 300 Mbps (HT40 MCS15), 144.4 Mbps (HT20 MCS15)</li> </ul>	
External port	<ul style="list-style-type: none"> <li>• One power adapter port</li> <li>• One WAN/LAN port (RJ45)</li> <li>• One phone port (RJ11)</li> <li>• Two external LTE antenna ports (SMA-J1.5)</li> <li>• One SIM card slot</li> </ul>		
Antenna	<ul style="list-style-type: none"> <li>• Built-in LTE/UMTS/GSM primary antenna</li> <li>• Built-in LTE/UMTS secondary antenna</li> <li>• Built-in WLAN 2.4G antenna</li> </ul>		
Indicator	<ul style="list-style-type: none"> <li>• One power indicator</li> <li>• One Internet status indicator</li> <li>• One Wi-Fi/WPS indicator</li> <li>• One LAN indicator</li> <li>• One group of signal strength indicators</li> </ul>		
Button	<ul style="list-style-type: none"> <li>• One Power ON or OFF switch</li> <li>• One WPS button</li> <li>• One Reset button</li> </ul>		
Maximum transmit power	LTE	Conform to 3GPP Power Class 3 Definition	
	UMTS	Conform to 3GPP Power Class 3 Definition	
	GSM	Conform to 3GPP Power Class 3 Definition	
	WLAN	802.11b	16 dBm(+3 dB/-3 dB)@11 Mbps
802.11g		<ul style="list-style-type: none"> <li>• 17 dBm(+3 dB/-3 dB)@6 Mbps</li> <li>• 17 dBm(+3 dB/-3 dB)@54 Mbps</li> </ul>	
		802.11n	<ul style="list-style-type: none"> <li>• 17 dBm(+3 dB/-3 dB)@MCS0</li> <li>• 17 dBm(+3 dB/-3 dB)@MCS7</li> </ul>

Item	Description		
Receiving sensitivity	LTE	Conform to 3GPP Definition	
	UMTS	<ul style="list-style-type: none"> <li>2100 MHz: -106.7 dBm@3.84 MHz</li> <li>900MHz: -103.7 dBm@3.84 MHz</li> </ul>	
	GSM	-104 dBm	
	WLAN	802.11b	Typ. -92 dBm@1 Mbps Typ. -85 dBm@11 Mbps
		802.11g	Typ. -88 dBm@6 Mbps Typ. -70 dBm@54 Mbps
		802.11n HT20	Typ. -88 dBm@MCS0 Typ. -68 dBm@MCS7
		802.11n HT40	Typ. -84 dBm@MCS0 Typ. -66 dBm@MCS7
Power consumption	< 12 W		
AC/DC power supply	<ul style="list-style-type: none"> <li>AC: 100 V - 240 V</li> <li>DC: 12 V/1 A</li> </ul>		
Dimensions (Maximum)	181 mm (Width) x 126 mm (High) x 36 mm (Deep)		
Weight	About 226 g (excluding the power adapter)		
Temperature	<ul style="list-style-type: none"> <li>Working temperature: 0°C to 40°C</li> <li>Storage temperature: -20°C to +70°C</li> </ul>		
Humidity	5% - 95%		

## 3.2 Antenna Specifications

**Table 3-2** LTE/UMTS/GSM primary antenna specifications

Item	Description
Frequency	<ul style="list-style-type: none"> <li>703 MHz - 960 MHz</li> <li>1710 MHz - 2690 MHz</li> </ul>
Input impedance	50 Ω
Standing wave ratio	< 3

Item	Description
Efficiency	$\geq -4.5$ dB@703MHz – 960 MHz $\geq -3.5$ dB@1710MHz – 2690 MHz
H side gain	$\geq 1$ dBi (horizontal level)
Polarization	Linear polarization

**Table 3-3** LTE/UMTS secondary antenna specifications

Item	Description
Frequency	<ul style="list-style-type: none"> <li>• 703 MHz - 960 MHz</li> <li>• 1710 MHz - 2690 MHz</li> </ul>
Input impedance	50 $\Omega$
Standing wave ratio	< 3
Efficiency	$\geq -4.5$ dB@703MHz – 960 MHz $\geq -3.5$ dB@1710MHz – 2690 MHz
H side gain	$\geq 1$ dBi (horizontal level)
Polarization	Linear polarization

**Table 3-4** WLAN 2.4 GHz antenna specifications

Item	Description
Frequency	2.400 GHz - 2.4835 GHz
Input impedance	50 $\Omega$
Standing wave ratio	< 2
Efficiency	$\geq -3$ dB
H side gain	$\geq 1$ dBi (horizontal level)
Polarization	Linear polarization

## 3.3 Software Specifications

**Table 3-5** Software specifications

Item	Description	
Mobile network	APN management	
Gigabit Ethernet	<ul style="list-style-type: none"> <li>• WAN/LAN auto-negotiation</li> <li>• PPPoE username and password</li> </ul>	
SMS	<ul style="list-style-type: none"> <li>• Writing, sending, and receiving messages</li> <li>• Sending/Receiving extra-long messages</li> <li>• Storage: Up to 500 messages can be saved in the internal memory of the B310s-22</li> </ul>	
Voice service	VoIP voice	<ul style="list-style-type: none"> <li>• SIP voice services</li> <li>• G.722/G.711a/G.711u/G.729/G.726 encoding and decoding</li> </ul>
	CS voice	<ul style="list-style-type: none"> <li>• CS voice services over UMTS/GSM networks</li> <li>• CSFB</li> </ul>
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	<ul style="list-style-type: none"> <li>• The default gateway address is 192.168.8.1</li> <li>• 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.</li> <li>• The default DHCP lease is 24 hours</li> <li>• The DHCP Server can be enabled or disabled</li> <li>• The address pool of the DHCP server can be configured</li> <li>• The lease can be configured</li> </ul>
	NAT	<ul style="list-style-type: none"> <li>• NAT, NAT (compliant with RFC2663, RFC3022 and RFC3027)</li> <li>• CONE NAT</li> <li>• Fragment message identification for normal NAT</li> <li>• ALG</li> </ul>
	ARP	
	ICMP	
	DNS Relay	
	IPv6/IPv4 dual stack	

Item	Description	
	VPN passthrough	
Firewall setup	Firewall switch	
	URL filter	
	LAN IP Filter	
	Virtual server (Port forwarding)	
	Special Applications (Port triggering)	
	DMZ service	
	UPnP Service	
	ALG settings	
	MAC address authentication	<ul style="list-style-type: none"> <li>• White list</li> <li>• Black list</li> <li>• The preceding two lists cannot coexist</li> <li>• Up to 10 MAC address items</li> </ul>
Remote management	TR069 (Customized)	
LAN	10 Mbps, 100 Mbps, and 1000 Mbps auto-negotiation	
	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	<ul style="list-style-type: none"> <li>• WEP</li> <li>• AES</li> <li>• TKIP+AES</li> </ul>
	Security mode	<ul style="list-style-type: none"> <li>• WPA2.0 PSK</li> <li>• WPA1.0+WPA2.0 PSK</li> <li>• WEP Shared Key (four keys at most)</li> <li>• Open</li> </ul>
	STA management	<ul style="list-style-type: none"> <li>• Supports inquiry of STA status</li> <li>• Supports limit of access users (Access from up to 32 users)</li> </ul>
Huawei HiLink App	View service provider's name, the roaming status and signal strength.	
	View the data traffic usage and SMS.	

Item	Description	
	Manage the connected devices.	
	Change SSID and password.	
System requirement	Operating System	<ul style="list-style-type: none"><li>• Windows 8.1, Windows 8, Windows 7, Windows Vista SP1/SP2, Windows XP SP3</li><li>• Mac OS X 10.9, 10.8, and 10.7 with latest upgrades</li></ul>
	Web browser	<ul style="list-style-type: none"><li>• IE 8.0 (Windows XP)</li><li>• IE 8.0 and above (Windows 7/Vista)</li><li>• IE 10.0 and above (Windows 8)</li><li>• Firefox 24.0 and above</li><li>• Safari 6.0 and above (MAC)</li><li>• Opera 12.0 and above</li><li>• Chrome 27.0 and above</li></ul>

# 4 Services and Applications

## 4.1 Data Services

The B310s-22 can access the Internet through mobile networks, and Ethernet networks. By connecting to the B310s-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 B310s-22 can access the Internet through mobile networks.

**Figure 4-1** Accessing the Internet through a mobile network



## 4.1.2 Accessing the Internet Through an Ethernet Network

Connect the B310s-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

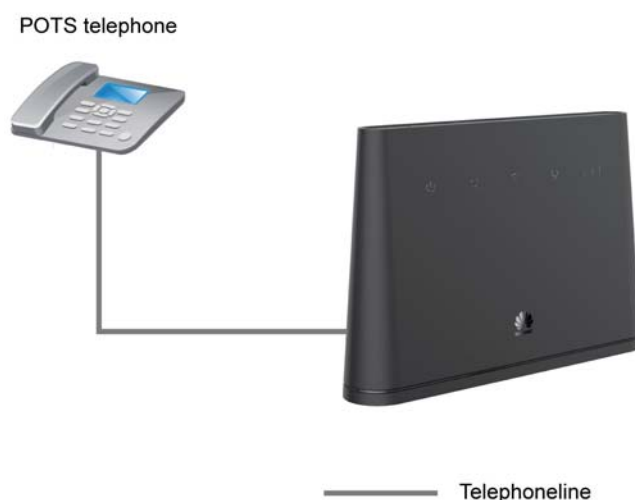


## 4.2 Voice Services

The B310s-22 provides one telephone port that can be connected to telephones for calling.



**Figure 4-3** Connecting telephones to the B310s-22



## 4.3 SMS

The B310s-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 B310s-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.

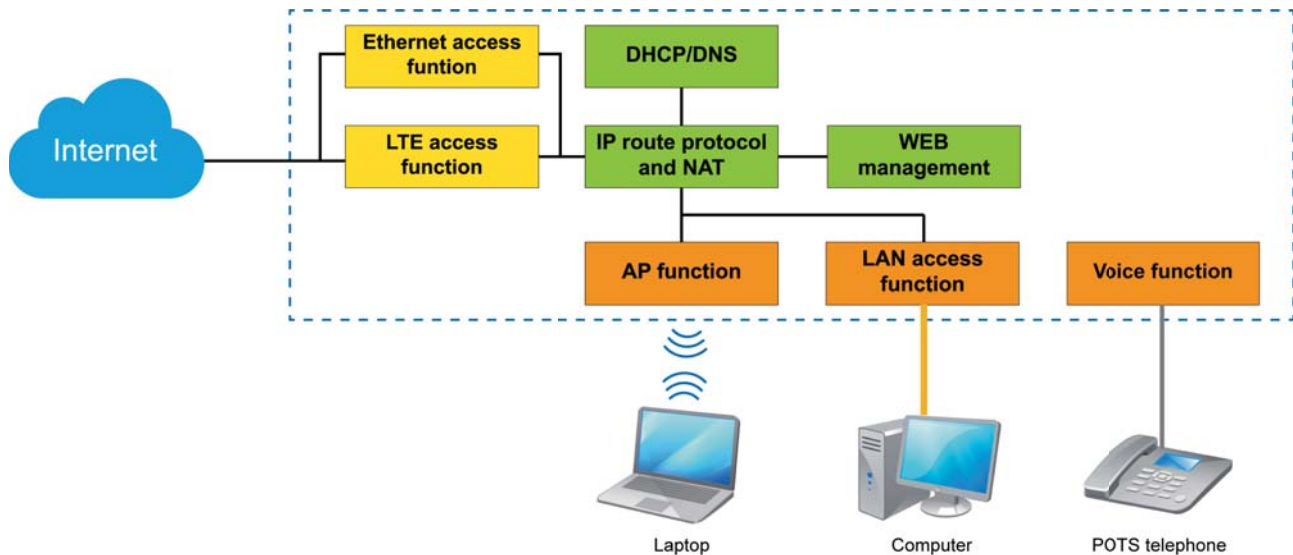
## 4.5 Local management and maintenance

The B310s-22 supports local configuration through the Web page. You can accomplish device management, network configuration and ensure normal and stable performance.

# 5 System Structure

## 5.1 System Architecture Diagram

Figure 5-1 System architecture



## 5.2 Functional Modules

- Mobile network access: The B310s-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 B310s-22.
- Routing and NAT: High-speed routing capability. With the built-in NAT, the B310s-22, together with wireless broadband packet-based network devices, can provide flexible broadband access solutions and networking schemes.

# 6 Packing List

Table 6–1 shows the devices and accessories of the B310s-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 B310s-22 wireless gateway also provide external antenna as optional for you to choose.

# A Acronyms and Abbreviations

<b>A</b>	
AC	Alternating Current
ARP	Address Resolution Protocol
AP	Access Point
APN	Access Point Name
<b>C</b>	
CPE	Customer Premises Equipment
CS	Circuit Switch
CSFB	Circuit Switched Fallback
<b>D</b>	
DHCP	Dynamic Host Configuration Protocol
DL	Downlink
DNS	Domain Name Server
<b>G</b>	
GE	Gigabit Ethernet
<b>H</b>	
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
<b>I</b>	
IP	Internet Protocol

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