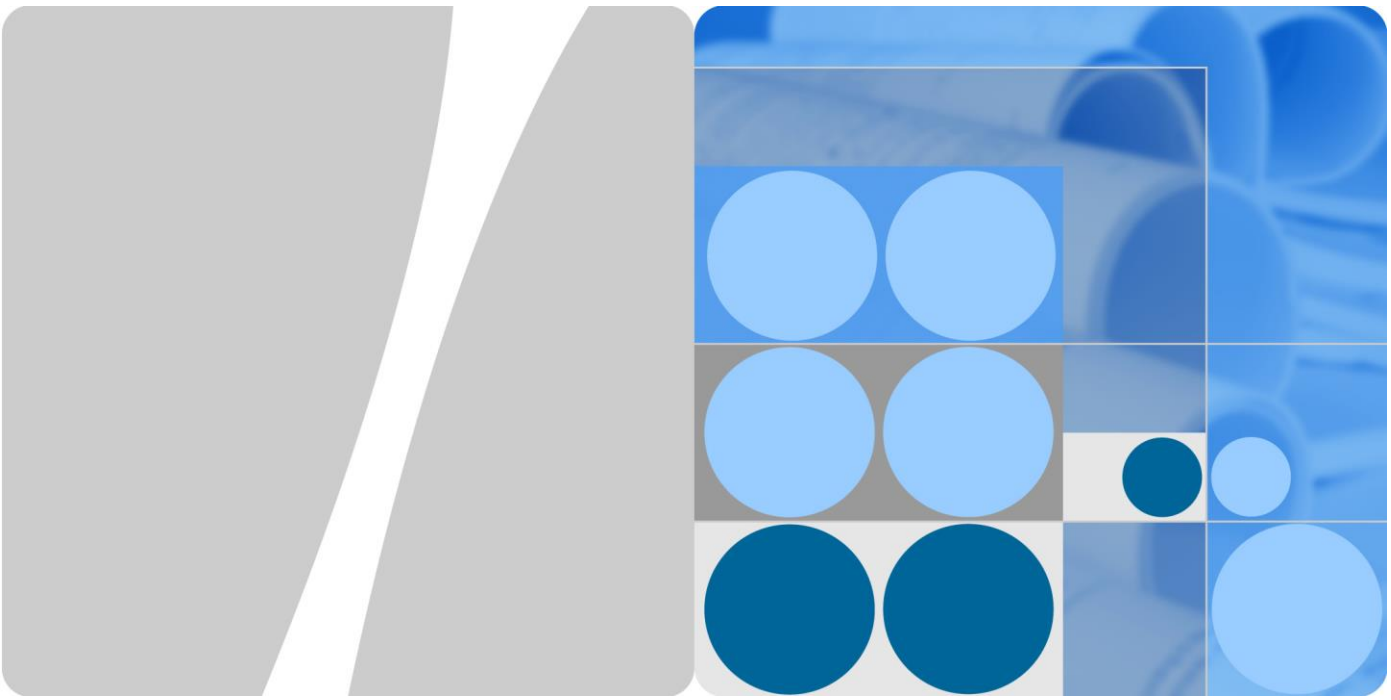

HUAWEI H312-371 5G CPE Win V100R001

Product Description

Issue 03

Date 2020-05-21

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About This Document

Summary

This document provides information regarding the features, main functions and services, technical specifications, and technical references of the product.

This document includes:

Chapter	Details
1 Product Overview	Provides an overview of the product.
2 Technical Specifications	Describes the specifications of the product hardware, software, and user interface.
3 Services and Applications	Describes the main functions and applications of the product.
4 System Structure and Scenario Constraints	Describes the product system structure.
5 Technical References	Describes the standards and communication protocols of the product.
6 Packing List	Describes the devices and accessories that comprise the product package

NOTE

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

History

Issue	Date	Details
01	2019-10-24	Initial official release.
02	2019-10-25	Refresh the packing list.
03	2020-03-23	Refresh the diagram in section 3.1.

Acronyms and Abbreviations

Acronym or Abbreviation	Full Spelling
3GPP	3rd Generation Partnership Project
ACS	Auto Configuration Server
AES	Advanced Encryption Standard
ALG	Application Layer Gateway
AMR-NB	Adaptive Multi-Rate compression - Narrowband
AMR-WB	Adaptive Multi-Rate compression - Wideband
AP	Access Point
APN	Access Point Name
ARP	Address Resolution Protocol
CA	Carrier Aggregation
CC	Component Carriers
CLAT	Customer-side Translator
CPE	Customer Premises Equipment
CS	Circuit Switched
CSFB	Circuit Switched Fallback
DBDC	Dual Band Dual Concurrent
DHCP	Dynamic Host Configuration Protocol
DL	Downlink
DMZ	Demilitarized Zone
DNS	Domain Name Server
DTMF	Dual-Tone Multi-Frequency
E-UTRA	Evolved Universal Terrestrial Radio Access Network
FDD	Frequency Division Duplex
HOTA	Huawei Firmware Over the Air
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
IPSec	Internet Protocol Security
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6

Acronym or Abbreviation	Full Spelling
ICMP	Internet Control Message Protocol
L2TP	Layer Two Tunneling Protocol
LAN	Local Area Network
LED	Light Emitting Diode
LTE	Long Term Evolution
MAC	Media Access Control
MDI	Medium Dependent Interface
MDIX	Medium Dependent Interface Crossover
MIMO	Multi-input Multi-output
MME	Mobility Management Entity
NAT	Network Address Translation
NAPT	Network Address and Port Translation
PC	Personal Computer
PCC	Primary Component Carrier
PGW	PDN Gateway
PIN	Personal Identification Number
PLAT	Provider-side Translator
PPTP	Point-to-Point Tunneling Protocol
QAM	Quadrature Amplitude Modulation
QR	Quick Response
RFC	Request For Comments
RTCP	Real-time Transport Control Protocol
RTP	Real-time Transport Protocol
SAMBA	System for Advanced Mobile Broadband Applications
SCC	Secondary Component Carrier
SCP	Service Control Point
SDRAM	Synchronous Dynamic Random Access Memory
SDP	Session Description Protocol
SGW	Serving Gateway
SIP	Session Initiation Protocol
SMA	Sub-Miniature-A

Acronym or Abbreviation	Full Spelling
SMS	Short Message
SOHO	Small Office Home Office
SSID	Service Set Identifier
TDD	Time Division Duplex
TKIP	Temporal Key Integrity Protocol
UE	User Equipment
UL	Uplink
UPnP	Universal Plug and Play
USB	Universal Serial Bus
USIM	UMTS Subscriber Identity Module
VPN	Virtual Private Network
WAN	Wide Area Network
WEP	Wireless Encryption Protocol
Wi-Fi®	Wireless Fidelity
WMM	Wi-Fi Multimedia
WPA/WPA2-PSK	Wi-Fi Protected Access/Wi-Fi Protected Access II - Pre-Shared Key
WPA2-PSK	Wi-Fi Protected Access II - Pre-Shared Key
WPS	Wi-Fi Protected Setup

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1 Product Overview

The HUAWEI 5G CPE H312-371 is a 5G wireless gateway for multiple users in household or small office environments. It enables users to access the Internet.

The H312-371 supports 3GPP Release 15 with UE downlink category 19 and uplink category 13. The supported service functions are as follows:

- Data service:

  SA (Supported only in China):

  - 5G:

    Downlink 1CC（100M）, 4x4 MIMO, 256 QAM, peak rate: 1.65Gbps (DL/UL subframe configuration 8:2).

    Uplink 1CC（100M）2x2 MIMO, 256 QAM, peak rate: 250Mbps (DL/UL subframe configuration 8:2)

  NSA:

  - 5G:

    Downlink 1CC（100M）, 4x4 MIMO, 256 QAM, peak rate: 2.33Gbps (Total downlink subframe configuration)

    Uplink 1CC（100M）, 1T, 256 QAM, peak rate: 650Mbps (Total uplink subframe configuration)

  - LTE

    Downlink 5CC, 4x4 MIMO (Different frequency bands support different MIMO modes), 256QAM, peak rate: 1.6Gbps (FDD frequency bands, 20+20+20+20MHz, 4x4MIMO).

    Uplink 2CC, 1T, 64 QAM, peak rate: 150Mbps (FDD frequency bands, 20MHz+20MHz)

  NOTE

  The actual data rate varies with network configuration.
- Working band: 5G: n41/77/78/79(4800MHz~5000MHz), LTE: B1/3/5/7/8/18/19/20/28/32/34/38/39/40/41/42/43
- Wi-Fi: 2.422 GHz～2.482 GHz, Wi-Fi is used only for user installation and configuration. If the user accesses the Internet through this Wi-Fi, the performance cannot be guaranteed. First connect the indoor router to the H312-371 and then connect the Wi-Fi of the indoor router to access the Internet.
- 1 GE port for LAN.
- Multi APN function (Optional) for Data, TR-069 services(Optional)

- Routing mode: NAT enable (Default) / IP pass-through (Optional)
- VPN client service (L2TP, PPTP)
- Customer management via WebUI or HUAWEI AI Life APP (Android)
- Operator maintenance via TR-069 (Optional) and TR-143 (Optional)
- Huawei Firmware Over the Air (HOTA)

Figure 1-1 H312-371 appearance

2 Technical Specifications

2.1 Hardware Specifications

Table 2-1 Technical specifications of the H312-371 main unit

Item	Description	
Technical standard	WAN	3GPP Release 15
	LAN	IEEE 802.3/802.3u
	Wi-Fi	IEEE 802.11b/g/n
Working band/frequency	5G	n41/77/78/79
	LTE	B1/3/5/7/8/18/19/20/28/32/34/38/39/40/41/42/43
	DL MIMO	5G 4x4：n41/77/78/79 LTE 4x4：B1/3/7/38/39/40/41/42/43 LTE 2x2：B5/8/18/19/20/28/32/34
	UL MIMO	n41/77/78/79 (UL MIMO is supported only in SA mode, and SA mode is supported only in China.)
External port	• One LAN port (RJ45) • One SIM card slot (Nano-SIM)	
Antennas	• Built-in 5G/LTE primary antenna • Built-in 5G/LTE secondary antenna • Built-in Wi-Fi 2.4 GHz antennas	
LED Indicators	• One 5G indicator • One 4G indicator	
Buttons	• One Reset button	
Maximum transmit power	5G	n77/78/79: 23 dBm+2.7/-3.7 dB n41: 23 dBm+2.7/-2.7 dB

Item	Description	
	LTE	B1/3/5/7/8/18/19/20/28/32/34/38/39/40/41/42/43: 23 dBm+2.7/-2.7 dB
Receiving sensitivity	5G	Conform to 3GPP Definition
	LTE	Conform to 3GPP Definition
Power consumption	< 24 W	
AC/DC power supply	• AC (input): 100V-240V 50Hz/60Hz • DC (output): 19V/1.26A	
Dimensions (Maximum)	112 mm (Length) x 29.6 mm (Width) x 187 mm (Height)	
Weight	< 670 g (excluding the power adapter)	
Temperature	• Working temperature: -40°C to +55°C (No solar radiation) • Storage temperature: -40°C to +70°C	
Humidity	5% – 95% (non-condensing)	
Certification/Compliance	Overseas: CE certification /RoHS/REACH/WEEE/Wi-Fi certification /ErP/GCF China : CCC/ SSRC Type Approval/ China Type Approval	

2.2 Antenna Specifications

2.2.1 Build-in Antenna

Table 2-2 Build-in antenna specifications

Item	Description
Frequency	5G • n41: UL 2496–2690 MHz DL 2496–2690 MHz • n77: UL 3300–4200 MHz DL 3300–4200 MHz • n78: UL 3300–3800 MHz DL 3300–3800 MHz • n79: UL 4800–5000 MHz DL 4800–5000 MHz LTE • B1: UL 1920–1980 MHz DL 2110–2170 MHz • B3: UL 1710–1785 MHz DL 1805–1880 MHz • B5: UL 824–849 MHz DL 869–894 MHz • B7: UL 2500–2570 MHz DL 2620–2690 MHz • B8: UL 880–915 MHz DL 925–960 MHz • B18: UL 815–830 MHz DL 860–875 MHz

Item	Description
	• B19: UL 830–845 MHz DL 875–890 MHz • B20: UL 832–862 MHz DL 791–821 MHz • B28: UL 703–748 MHz DL 758–803 MHz • B32: / DL 1452–1496 MHz • B38: UL 2570–2620MHz DL 2570–2620 MHz • B40: UL 2300–2400 MHz DL 2300–2400 MHz • B41: UL 2496–2690 MHz DL 2496–2690 MHz • B42: UL 3400–3600 MHz DL 3400–3600 MHz • B43: UL 3600–3800 MHz DL 3600–3800 MHz
Input impedance	50 Ω
Standing wave ratio	< 2.5
Main antenna efficiency	5G • n41: -2.4 dB • n77: -1.4 dB • n78: -1.5 dB • n79: -1.4 dB LTE • B1: -1.8 dB • B3: -1.8 dB • B5: -1.2 dB • B7: -2.3 dB • B8: -1.9 dB • B18: -1.3 dB • B19: / • B20: -1.3 dB • B28: -2.9 dB • B32: / • B34: -1.9 dB • B38: -2.5 dB • B39: -1.6 dB • B40: -2.6 dB • B41: -2.4 dB • B42: -1.4 dB • B43: -1.3 dB
Diversity antenna efficiency	5G • n41: -2.7 dB • n77: -2.6 dB • n78: -2.7 dB • n79: -3 dB

Item	Description
	LTE • B1: - 1.42 dB • B3: - 1.35 dB • B5: - 2.03 dB • B7: - 3 dB • B8: - 2.69 dB • B18: - 2 dB • B19: / • B20: - 2.12 dB • B28: -2.48 dB • B32: / • B34: -1.68 dB • B38: -2.6 dB • B39: -1.26 dB • B40: -1.9 dB • B41: -2.64 dB • B42: -2.73 dB • B43: -2.93 dB
Main antenna gain	5G • n41: 3.7 dBi • n77: 5.5 dBi • n78: 5.5 dBi • n79: 5.5 dBi LTE • B1: 3.5 dBi • B3: 3.6 dBi • B5: 3.3 dBi • B7: 3.7 dBi • B8: 1.9 dBi • B18: 3.2 dBi • B19: / • B20: 3.3 dBi • B28: 2.3 dBi • B32: / • B34: 2.2 dBi • B38: 3 dBi • B39: 4.6 dBi • B40: 3 dBi • B41: 3.7 dBi • B42: 5.5 dBi

Item	Description
	• B43: 5 dBi
Diversity antenna gain	5G • n41: 4 dBi • n77: 4 dBi • n78: 3.9 dBi • n79: 3 dBi LTE • B1: 2.56 dBi • B3: 2.85 dBi • B5: 1.17 dBi • B7: 2.34 dBi • B8: 1.32 dBi • B18: 1.17 dBi • B19: / • B20: 1.65 dBi • B28: 1.02 dBi • B32: / • B34: 2.9 dBi • B38: 2.34 dBi • B39: 3.2 dBi • B40: 2.83 dBi • B41: 3 dBi • B42: 3.7 dBi • B43: 3.11 dBi
TX/RX	LTE: 1T: LTE B1/3/5/7/8/18/19/20/28/32/34/38/39/40/41/42/43 2R: LTE B5/18/19/20/28/32/34 4R: LTE B1/3/7/8/38/39/40/41/42/43 NR SA: 2T4R ENDC: LTE 1T+NR 1T4R 2R: LTE B5/18/19/20/28/32/34 4R: LTE B1/3/7/8/38/39/40/41/42/43
Polarization	Linear polarization

2.2.2 LTE CA combination

Table 2-3 LTE CA combination

Item	Description

Band combination	LTE	2CC(DL)	
		DL	**MIMO**
		CA_1C	4+4
		CA_3C	4+4
		CA_7C	4+4
		CA_39C	4+4
		CA_40C	4+4
		CA_41C	4+4
		CA_42C	4+4
		CA_7A-7A	4+2
		CA_1A-3A	4+4
		CA_1A-7A	4+4
		CA_1A-8A	4+2
		CA_20A-32A	2+2
		CA_20A-38A	2+4
		CA_3A-19A	4+2
		CA_19A-42A	2+4
		CA_1A-19A	4+2
		CA_1A-20A	4+2
		CA_1A-28A	4+2
		CA_1A-38A	4+4
		CA_1A-42A	2+4
		CA_3A-3A	4+4
		CA_3A-7A	4+4
		CA_3A-8A	4+2
		CA_3A-20A	4+2
		CA_3A-28A	4+2
		CA_3A_32A	4+2
		CA_41A-42A	4+4
		CA_7A-32A	4+2
		CA_3A-40A	4+4
		CA_1A-32A	2+2
		CA_3A-38A	4+4
		CA_3A-41A	4+4
		CA_3A-42A	4+4
		CA_7A-8A	4+2
		CA_7A-20A	4+2
		CA_7A-28A	4+2
		CA_8A-39A	2+4
		CA_8A-41A	2+4
		CA_38C	4+4
		CA_39A-41A	4+4
		CA_1A-18A	4+2
		CA_1A-41A	4+4
		CA_1A-40A	4+4
		3CC(DL)	
		DL	**MIMO**
		CA_40D	4+4+4
		CA_41D	4+4+4
		CA_1A-7C	4+4+4
		CA_1A-3C	4+4+4
		CA_1A-41C	4+4+4
		CA_1A-42C	4+4+4
		CA_1A-40C	4+4+4

		CA_3A-7C	4+4+4
		CA_3A-40C	4+4+4
		CA_3A-41C	4+4+4
		CA_3A-41A-42A	2+4+4
		CA_3C-5A	4+4+2
		CA_3C-7A	4+4+4
		CA_3C-8A	4+4+2
		CA_3C-20A	4+4+2
		CA_3C-28A	4+4+2
		CA_3C-32A	4+4+2
		CA_7A-40C	4+4+4
		CA_7C-20A	4+4+2
		CA_7C-28A	4+4+2
		CA_28A-40C	2+4+4
		CA_1A-3A-7A	4+4+4
		CA_1A-3A-8A	4+4+2
		CA_1A-3A-20A	4+4+2
		CA_1A-3A-28A	4+4+2
		CA_1A-3A-32A	2+4+2
		CA_1A-3A-38A	4+4+4
		CA_1A-7A-7A	4+2+4
		CA_1A-8A-38A	4+2+4
		CA_1A-20A-32A	2+2+2
		CA_1A-7A-20A	4+4+2
		CA_1A-7A-28A	4+4+2
		CA_1A-7A-32A	2+4+2
		CA_3A-3A-20A	4+4+2
		CA_3A-3A-7A	4+4+4
		CA_3A-7A-7A	4+2+4
		CA_3A-7A-20A	4+4+2
		CA_3A-7A-28A	4+4+2
		CA_3A-7A-32A	4+4+2
		CA_3A-7A-38A (B3 PCC)	4+4+2
		CA_7A-20A-32A	4+2+2
		CA_7A-20A-38A （B20 PCC)	2+2+4
		CA_41A-42C	4+4+4
		CA_41C-42A	4+4+4
		CA_39A-41C	4+4+4
		CA_39C-41A	4+4+4
		CA_1A-3A-19A	2+4+2
		CA_1A-3A-42A	2+4+4
		CA_1A-19A-42A	2+2+4
		CA_1A-42C	2+4+4
		CA_3A-19A-42A	4+2+4
		CA_3A-42C	4+4+4
		CA_19A-42C	2+4+4
		CA_8A-41C	2+4+4
		CA_3A-28A-40A	4+2+4
		CA_1A-28A-40A	4+2+2
		CA_1A-3A-40A	4+4+4
		CA_1A-7A-8A	2+4+2
		CA_3A-7A-8A	4+4+2

		4CC(DL)	
		DL	**MIMO**
		CA_40E	4+4+4+4
		CA_3A-40D	4+4+4+4
		CA_3C-7C	4+4+4+4
		CA_1A-3A-7C	4+4+4+4
		CA_1A-3A-40C	4+4+4+4
		CA_1A-3C-5A	2+4+4+2
		CA_1A-3C-7A	2+4+4+4
		CA_1A-3C-8A	4+4+4+2
		CA_1A-3C-28A	4+4+4+2
		CA_1A-7C-28A	4+4+4+2
		CA_1A-7A-40C	4+2+2+2
		CA_3C-8A-38A	4+4+2+2
		CA_3A-7A-20A-32A	4+4+2+2
		CA_3A-7A-40C	4+4+4+4
		CA_3A-7C-20A	4+4+4+2
		CA_3A-7C-28A	4+4+4+2
		CA_3C-7A-20A	4+4+4+2
		CA_3C-7A-28A	4+4+4+2
		CA_3C-7A-32A	4+4+4+2
		CA_3A-28A-40C	4+2+4+4
		CA_1A-3A-7A-7A	4+2+2+2
		CA_1A-3A-7A-8A	2+4+4+2
		CA_1A-3A-7A-20A	2+4+4+2
		CA_1A-3A-7A-28A	2+4+4+2
		CA_1A-3A-7A-32A	2+4+4+2
		CA_1A-7A-20A-32A	2+4+2+2
		CA_1A-3A-8A-38A	2+4+2+4
		CA_7A-40D	4+4+4+4
		CA_7A-28A-40C	4+2+4+4
		CA_41C-42C	4+4+4+4
		CA_3A-41A-42C	2+4+4+4
		CA_3A-41C-42A	2+4+4+4
		CA_39C-41C	4+4+4+4
		CA_39A-41D	4+4+4+4
		CA_1A-3A-19A-42A	2+4+2+4
		CA_1A-3A-42C	2+4+4+4
		CA_1A-19A-42C	2+2+4+4
		CA_1A-42D	2+4+4+4
		CA_3A-19A-42C	4+2+4+4
		CA_3A-42D	4+4+4+4
		CA_1A-3A-20A-32A	2+4+2+2
		CA_1A-28A-40C	4+2+2+2
		CA_1A-3A-28A-40A	4+4+2+2
		5CC(DL)	
		DL	**MIMO**
		CA_1A-3A-3A-8A-38A	2+2+2+2+2
		CA_1A-3A-7C-28A	2+4+4+4+2
		CA_1A-3A-7A-20A-32A	2+4+2+2+2
		CA_3C-7C-28A	2+2+4+4+2
		CA_1A-41C-42C	4+2+2+4+4
		CA_1A-3C-7C	4+4+4+2+2

		CA_3A-7A-28A-40C	4+4+2+2+2
		CA_1A-3A-28A-40C	4+4+2+2+2
		CA_3A-28A-40D	2+2+4+4+4
		CA_7A-40E	4+2+2+2+2
		CA_3A-40E	4+2+2+2+2
		CA_1A-3A-7A-40C	2+2+2+2+2
		CA_1A-7A-28A-40C	4+2+2+2+2
		CA_1A-3A-19A-42C	2+4+2+4+4
		CA_3A-41C-42C	2+2+2+4+4
		CA_1A-42E	2+2+2+2+2
		CA_3A-42E	4+2+2+2+2
		CA_1A-3A-18A-42C	2+4+2+4+4
		UL	
		UL	**MIMO**
		CA_3C	/
		CA_7C	/
		CA_39C	/
		CA_40C	/
		CA_41C	/
		CA_42C	/
		CA_1A-3A	/
		CA_1A-7A	/
		CA_1A-20A	/
		CA_3A-7A	/
		CA_3A-8A	/
		CA_3A-28A	/
		CA_3A-20A	/
		CA_3A-38A	/

NOTE

(1)All the preceding LTE CA combinations can only represent product capabilities. For details about the carrier's support, see the product configuration.

(2)B32 supports only SCC. All downlink CA combinations with B32 do not support uplink inter-band CA.

2.2.3 EN_DC combination

Table 2-4 EN_DC combination

Item	Description		
Band combination	5G	2CC	
		EN_DC	**MIMO**
		DC_1A_n78A	4+4
		DC_3A_n78A	4+4
		DC_5A_n78A	2+4
		DC_7A_n78A	4+4
		DC_8A_n78A	2+4
		DC_20A_n78A	2+4
		DC_28A_n78A	2+4
		DC_38A_n78A	4+4
		DC_40A_n78A	4+4
		DC_41A_n78A	4+4

		DC_1A_n77A	4+4
		DC_3A_n77A	4+4
		DC_28A_n77A	2+4
		DC_1A_n41A	4+4
		DC_3A_n41A	4+4
		DC_20A_n41A	2+4
		DC_39A_n41A	4+4
		DC_39A_n79A	4+4
		DC_3A_n79A	4+4
		3CC	
		EN_DC	**MIMO**
		DC_1A-3A_n78A	4+4+4
		DC_1A-7A_n78A	4+4+4
		DC_1A-8A_n78A	4+2+4
		DC_1A-20A_n78A	4+2+4
		DC_3A-7A_n78A	4+4+4
		DC_3A-8A_n78A	4+2+4
		DC_3A-20A_n78A	4+2+4
		DC_3A-38A_n78A(B38 SCC)	4+4+4
		DC_7A-20A_n78A	4+2+4
		DC_20A-38A_n78A(B38 SCC)	2+4+4
		DC_1C_n78A	4+4+4
		DC_3C_n78A	4+4+4
		DC_1C_n78A	4+4+4
		DC_3A-3A_n78A	4+2+4
		DC_7C_n78A	4+4+4
		DC_40C_n78A	4+4+4
		DC_41C_n78A	4+4+4
		DC_1A-3A_n77A	4+4+4
		DC_1A-28A_n78A	4+2+4
		DC_3A-28A_n78A	4+2+4
		DC_3A-41A_n78A	4+4+4
		DC_3A-42A_n78A(B42 SCC)	4+4+4
		DC_7A-28A_n78A	4+2+4
		DC_7C_n78A	4+4+4
		DC_3A-32A_n78A	2+2+4
		DC_3A-40A_n78A	2+2+4
		DC_1A-40A_n78A	2+2+4
		DC_1A-32A_n78A	2+2+4
		DC_7A-32A_n78A	2+2+4
		DC_20A-32A_n78A	2+2+4
		DC_1A-41A_n78A	4+4+4
		DC_1A-28A_n77A	2+2+4
		DC_3A-28A_n77A	4+2+4
		DC_7A-8A_n78A	2+2+4
		4CC	
		EN_DC	**MIMO**
		DC_1A-3C_n78A	4+4+4+4
		DC_1A-7C_n78A	4+4+4+4
		DC_1A-3A-7A_n78A	2+2+4+4
		DC_1A-3A-8A_n78A	2+4+2+4
		DC_1A-3A-20A_n78A	2+4+2+4
		DC_1A-7A-20A_n78A	2+4+2+4
		DC_3A-7A-20A_n78A	2+4+2+4
		DC_3A-7C_n78A	4+4+4+4
		DC_3C-7A_n78A	4+4+4+4
		DC_3C-20A_n78A	4+4+2+4

		DC_3A-42C_n78A(B42 SCC)	4+4+4+4
		DC_7C-28A_n78A	4+4+2+4
		DC_1A-41C_n78A	4+4+4+4
		DC_1A-3A-28A_n77A	2+4+2+4
		DC_1A-3A-28A_n78A	2+4+2+4
		DC_3A-7A-28A_n78A	2+4+2+4
		DC_3C-32A_n78A	2+2+2+4
		DC_3C-28A_n78A	2+2+2+4
		DC_3A-40C_n78A	2+2+2+4
		DC_1A-40C_n78A	2+2+2+4
		DC_1A-3A-40A_n78A	2+2+2+4
		DC_1A-7A-28A_n78A	2+2+2+4
		DC_1A-7A-32A_n78A	2+2+2+4
		DC_1A-20A-32A_n78A	2+2+2+4
		DC_7A-20A-32A_n78A	2+2+2+4
		DC_3A-20A-32A_n78A	2+2+2+4
		DC_1A-7A-8A_n78A	2+2+2+4
		DC_3A-7A-8A_n78A	2+2+2+4
		5CC	
		EN_DC	**MIMO**
		DC_1A-3A-7A-20A_n78A	2+2+2+2+4
		DC_1A-3C-7A_n78A	2+2+2+4+4
		DC_1A-3A-7C_n78A	4+2+2+2+4
		DC_3C-7C_n78A	4+4+4+4+4
		DC_3C-7A-20A_n78A	2+2+4+2+4
		DC_1A-3C-28A_n78A	4+2+2+2+4
		DC_3A-7C-28A_n78A	4+2+2+2+4
		DC_3A-7A-20A-32A_n78A	2+2+2+2+4
		DC_1A-3A-7A-28A_n78A	2+2+2+2+4
		DC_1A-3A-7A-8A_n78A	2+2+2+2+4
		DC_1A-7A-20A-32A_n78A	2+2+2+2+4
		DC_3A-28A-40C_n78A	2+2+2+2+4
		DC_1A-3A-40C_n78A	2+2+2+2+4
		DC_1A-7C-28A_n78A	2+2+2+2+4
		6CC	
		EN_DC	**MIMO**
		DC_1A-3A-28A-40C_n78A	2+2+2+2+2+4
		DC_1A-3A-7C-28A_n78A	2+2+2+2+2+4
		DC_3C-7C-28A_n78A	2+2+4+4+2+4

NOTE

All the preceding EN_DC combinations can only represent product capabilities. For details about the carrier's support, see the product configuration.

2.3 Software Specifications

Table 2-5 Software specifications

Item	Description
5G features	DL 4x4 MIMO

Item	Description	
	DL 256 QAM, UL 256QAM	
LTE features	DL 4x4 MIMO+5 CC	
	DL 256 QAM，UL 64 QAM	
Mobile network	APN management APN auto adapter	
Gateway	Router	• Supports the default route • Supports manual configuration of LAN IP addresses • Supports Address Resolution Protocol (ARP)
	DHCP server	• The DHCP server can be enabled or disabled • The address pool of the DHCP server can be configured • The lease can be configured
	NAT	• Supports NAT and NAPT (compliant with RFC2663, RFC3022, and RFC3027) • Supports cone NAT
	ARP	
	ICMP	
	IPv4v6 dual stack IPv4 only	
	VPN pass-through	
VPN client	• Support L2TP VPN client • Support PPTP VPN client	
SMS	• Writing/sending/receiving • Writing/sending/receiving extra-long messages	
Data service	• 5G： Downlink single CC (100M), 4x4 MIMO, 256 QAM Uplink single CC (100M), 2x2 MIMO, 256 QAM • LTE： Downlink 5CC, 4x4 MIMO, 256 QAM Uplink 2CC, single-shot, 64 QAM	
	Supports multi APNs (Optional, one for data and one for TR-069)	

Item	Description	
Firewall setup	• Firewall enable/disable • MAC Address Filter • IP Filter • Virtual server • Special Applications • DMZ settings • SIP ALG settings • UPnP settings • NAT settings • Domain Filter	
LAN	• 10/100/1000 Mbps auto-negotiation • IEEE 802.3/802.3u-compatible	
Wi-Fi	Broadcasts and hides service set identifiers (SSIDs)	
	Complies with IEEE 802.11b/g/n	
	WPS	
	WMM	
	Encryption	WEP, AES, and TKIP + AES
	Security mode	• Open • WPA2-PSK • WPA/WPA2-PSK • WEP
	MAC address authentication	• Supports the MAC address authentication whitelist • Supports the MAC address authentication blacklist • Supports a maximum of 32 MAC address entries
	STA	• Supports inquiry of STA status • Supports a maximum of 32 connected stations
Operator maintenance (Optional)	• Supports TR-069 Amendment III • Supports TR-098 Amendment II • Supports TR-143 Amendment I	
USIM	PIN management and USIM card authentication	
NTP	Supports daylight saving time (DST) (Optional)	
HUAWEI AI Life APP	• View data traffic usage and SMS • Manage connected devices • Change CPE's SSID and password	

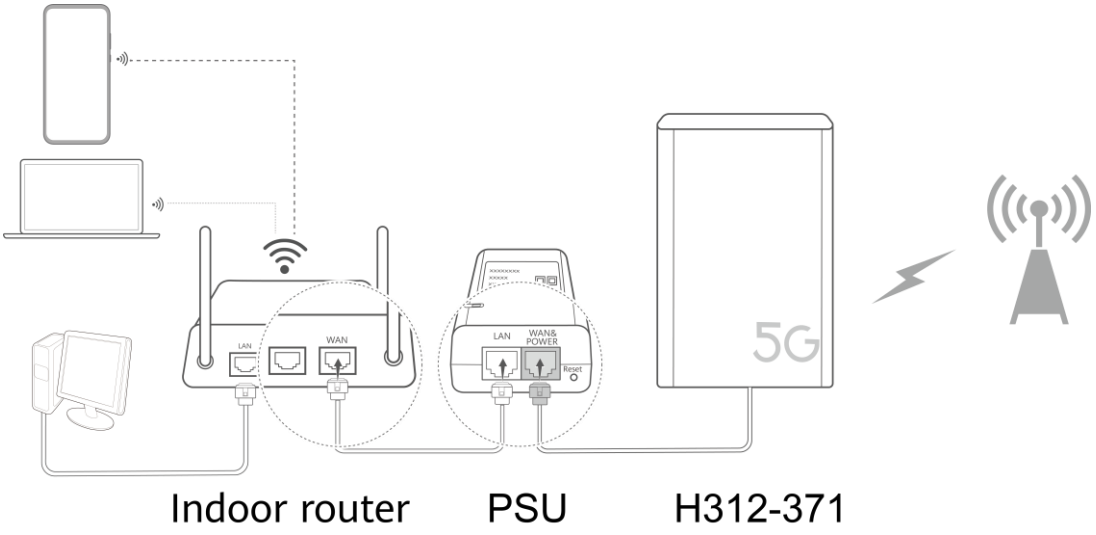
Item	Description	
System requirements	Web browser	• Microsoft Internet Explorer 9.0 and Microsoft Edge with latest updates • FireFox 49.0 with latest updates • All major versions of Chrome in the last year (53.0 with latest updates) • Safari 10.0 with latest updates (Mac OS)
	Your computer's hardware system should meet or exceed the recommended system requirements for the installed OS version	

3 Services and Applications

3.1 Data Services

The H312-371 can access the Internet through mobile networks.

Figure 3-1 Accessing the Internet through a mobile network



3.2 SMS

The H312-371 supports message writing/sending/receiving and group sending (up to 50 -contacts at a time).

3.3 Security Service

The H312-371 supports comprehensive and robust security services. It provides a firewall function and PIN protection mechanisms. These features allow users to connect their computers to the Internet and simultaneously protect their computers against security threats from the Internet.

3.3.1 Firewall Service

The H312-371 supports the enabling or disabling of a firewall on the network connection, which protects the device and network from attacks by hackers on the Internet and controls access to the Internet.

3.3.2 MAC Filtering

The H312-371 supports configuration of the Media Access Control (MAC) address to restrict network access.

3.3.3 Wi-Fi Authentication

The gateway supports the following user authentication protocols for Wi-Fi:

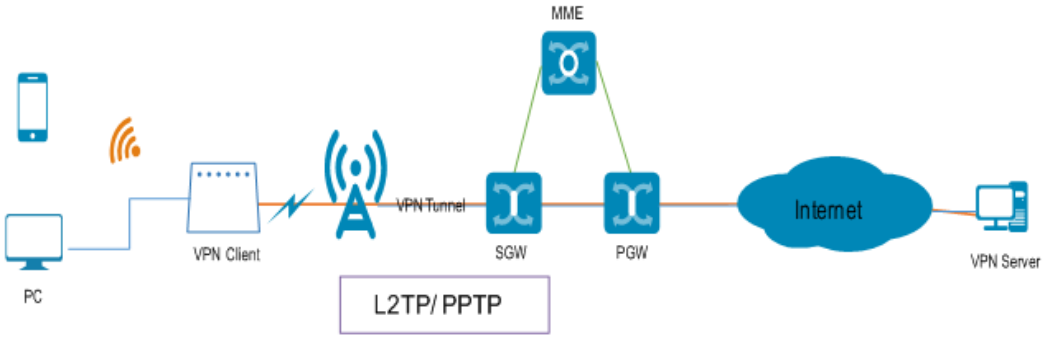
- No encryption
- WEP, WPA2-PSK (AES), WPA/WPA2-PSK (TKIP/AES).

3.4 VPN Function

3.4.1 VPN Client

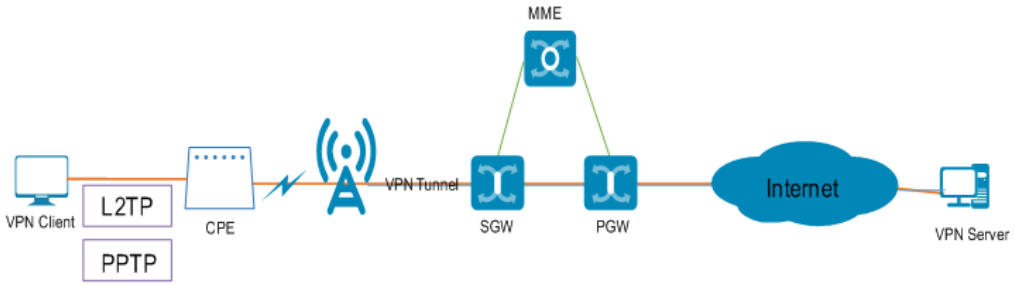
VPN tunneling involves establishing and maintaining a logical network connection (that may contain intermediate hops). On this connection, packets constructed in a specific VPN protocol format are first encapsulated within some other base or carrier protocol, then transmitted between the VPN client and server, and finally decapsulated on the receiving side.

The H312-371 supports L2TP and PPTP tunneling protocols.



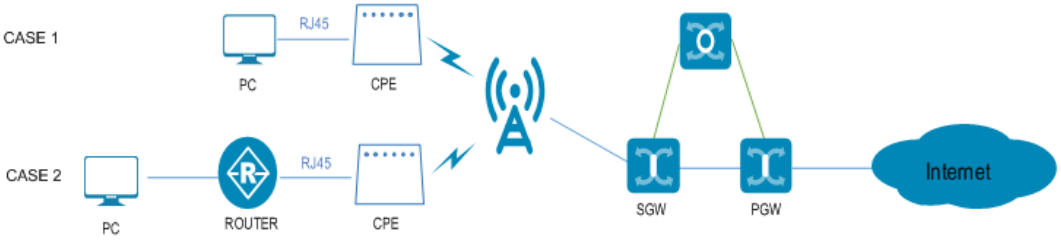
3.4.2 VPN Pass-Through

The H312-371 supports L2TP/PPTP VPN pass-through for the LAN side device. The LAN side device can create a VPN tunnel to the VPN server.



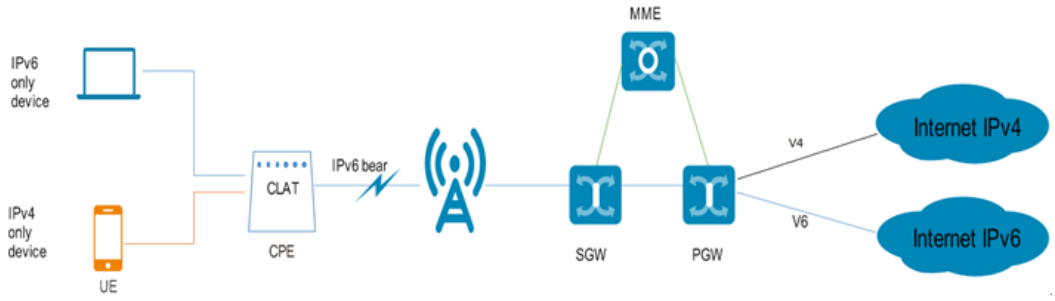
3.5 IP Pass-Through

The LTE CPE obtains the WAN IP address and passes it through to the PC (Case 1) or Router (Case 2), and then the PC (Case 1) or Router (Case 2) can directly use the WAP IP address.



3.6 IPv4v6 Dual Stack

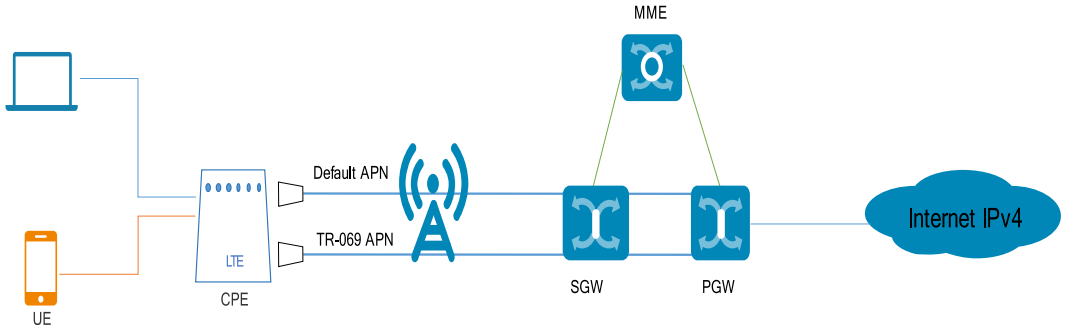
CPE provides dual stack function.



3.7 Multi-APN

The H312-371 supports the establishment and maintenance of two APNs. These two APN connections isolate data and remote management services on an operator's network.

The H312-371 supports an independent APN for CPE internal/TR-069.



3.8 Customer management

3.8.1 WebUI

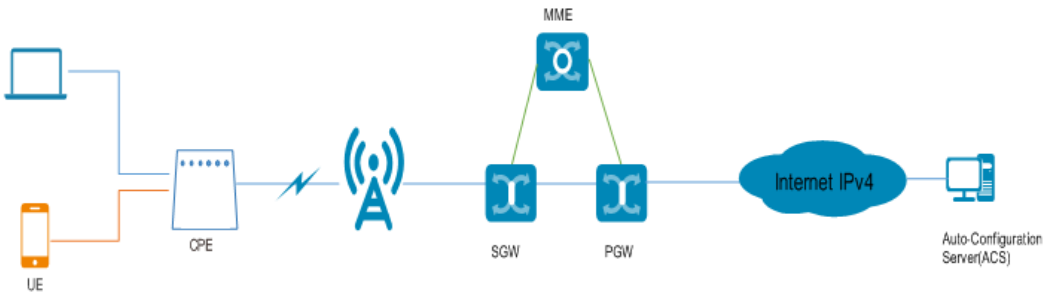
The H312-371 supports local configuration through the Web UI. You can perform device management and network configuration to ensure normal and stable performance.

3.8.2 HUAWEI AI Life APP

Scan the QR code (can be found in the Quick Start Guide and Web UI) to download the HUAWEI AI Life APP and configure the router from your phone.

3.9 Operator maintenance

The H312-371 supports Operator maintenance through the TR-069. Operator remote manages the CPE software update/parameters configuration via TR-069.



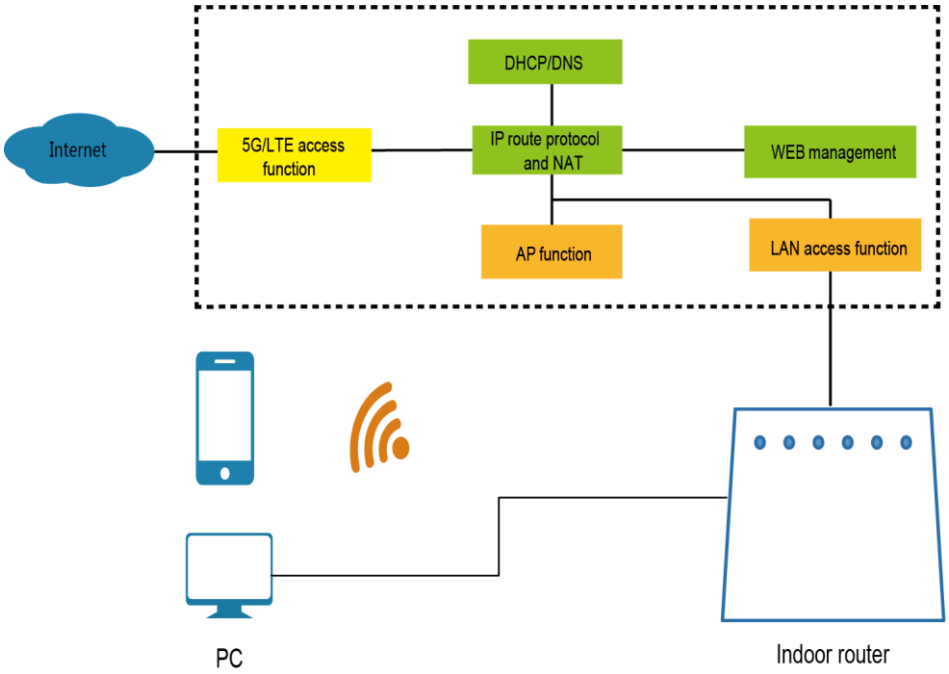
3.10 HOTA

The H312-371 supports the HOTA feature, which allows users to remotely update the device firmware through the HOTA server.

4 System Structure and Scenario Constraints

4.1 System Architecture

Figure 4-1 System structure



The following describes the modules shown in Figure 4-1.

- 5G/LTE access function: The H312-371 adopts the 5G/LTE access technology at the WAN side.
- LAN access function: One high-speed Ethernet port is provided at the LAN side. The H312-371 provides the switching function for local networking and sharing of the broadband network when it is connected to the router.
- DHCP/DNS: The DHCP server dynamically allocates IP addresses to PCs.
- Web-based management: You can configure the H312-371 and modify and view the configuration of the H312-371.

- IP routing protocol and NAT: The H312-371 has high-speed routing capability. With the built-in NAT, the H312-371, together with LTE terminals, can provide flexible broadband access solutions and networking schemes.

4.2 Scenario Constraints

The H312-371 is a household wireless broadband access product designed for use in scenarios with relatively few network access devices and relatively low network reliability requirements, such as homes or small office and home offices (SOHOs).

The H312-371 is not an enterprise-grade product. It cannot be used by medium- or large-sized enterprises or in scenarios with high network reliability requirements, such as banks, securities agencies, traffic control, and communications device backhaul.

The H312-371 has the following constraints:

- When the L2TP/PPTP VPN client function is enabled, the throughput performance will slow down.
- The Wi-Fi automatically shuts down after two hours without user access.
- For details about the installation procedure and precautions, see Quick Start.

5 Technical References

5.1 Standards and Communication Protocols

5.1.1 Standards and Communication Protocols of the Product

Table 5-1 Standards and communication protocols of the product

Item	Description
Physical layer	RFC894
ARP	RFC826
IP	RFC791, RFC1122, RFC1071, RFC1141, RFC1624, RFC792, RFC950, RFC1256
ICMP	RFC792, RFC950, RFC1256
TCP	RFC793
UDP	RFC768
NAT	RFC1631, RFC2663, RFC3022, RFC3027
DHCP	RFC1531, RFC1533

5.1.2 Standards and Communication Protocols of the Wireless Uu Interface

This device supports 3GPP Release 15.

6 Packing List

Table 6-1 Packing list

Description	Quantity	Remarks
Wireless Gateway	1	Standard
PSU	1	Standard
PSU power cable	1	Standard
Ethernet cable	1	Standard
Base	1	Standard
Adjustable pole strap	1	Standard
Nameplate	1	Standard
Internal hexagon wrench	1	Standard
Screw	4	Standard
Expansion anchor	4	Standard
Quick Start	1	Standard
Warranty card	1	Optional