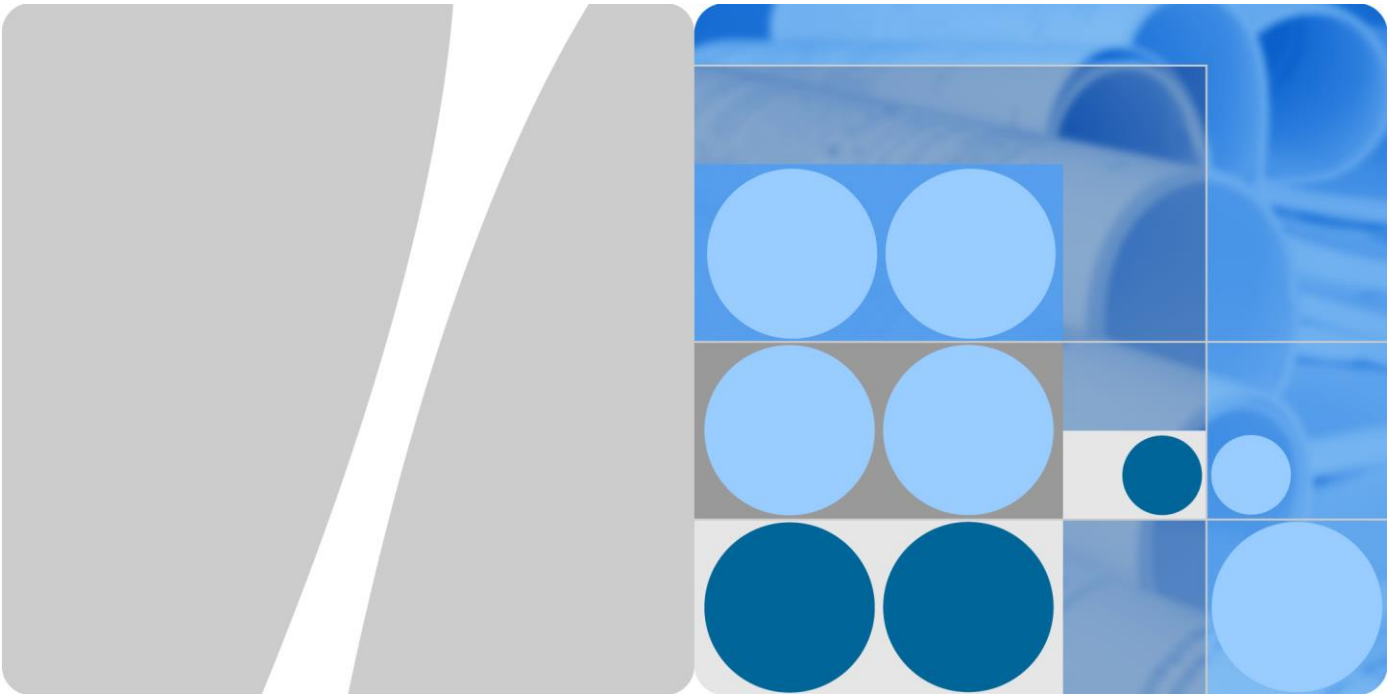

HUAWEI H112-372 5G CPE Pro V100R001

Product Description

Issue	**03**
Date	**2019-08-22**

HUAWEI TECHNOLOGIES CO., LTD.

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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	2019-06-12	Initial official release.
02	2019-07-12	Refresh antenna gain.
03	2019-08-22	Add the LTE CA combination and EN_DC combination.

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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
CLAT	Customer-side Translator
CPE	Customer Premises Equipment
CS	Circuit Switched
CSFB	Circuit Switched Fallback
DBDC	Dual Band Dual Concurrent
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
ICMP	Internet Control Message Protocol
L2TP	Layer Two Tunneling Protocol
LAN	Local Area Network

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Acronym or Abbreviation	Full Spelling
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
SMS	Short Message
SOHO	Small Office Home Office
SSID	Service Set Identifier

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Acronym or Abbreviation	Full Spelling
TDD	Time Division Duplex
TKIP	Temporal Key Integrity Protocol
UE	User Equipment
UL	Uplink
UMTS	Universal Mobile Telecommunications System
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 H112-372 is a 5G wireless gateway for multiple users in household or small office environments. It enables users to access the Internet.

The H112-372 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(3300MHz~3800MHz)/78/79(4800MHz~4900MHz, Supported only in China), LTE: B1/3/5/7/8/18/19/20/28/32/34/38/39/40/41/42/43
- Wi-Fi: 802.11 b/g/n/a/ac. 2.4GHz Wi-Fi 2x2 MIMO up to 300Mbps, 5GHz Wi-Fi 2x2 MIMO up to 867Mbps. Maximum Users: 32+32
- 1 GE port for LAN/WAN, 1 GE port for LAN.
- Multi APN function (Optional) for Data, TR-069 services(Optional)
- Routing mode: NAT enable (Default) / IP pass-through (Optional)

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- VPN client service (L2TP, PPTP)
- Customer management via WebUI or HUAWEI SmartHome APP (iOS or Android)
- Operator maintenance via TR-069 (Optional) and TR-143 (Optional)
- Huawei Firmware Over the Air (HOTA)
- 5GHz Wi-Fi preferred
- HUAWEI HiLink

Figure 1-1 H112-372 appearance

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2 Technical Specifications

2.1 Hardware Specifications

Table 2-1 Technical specifications of the H112-372 main unit

Item	Description	
Technical standard	WAN	3GPP Release 15
	LAN	IEEE 802.3/802.3u
	Wi-Fi	IEEE 802.11b/g/n/a/ac
Working band/frequency	5G	n41/77/78/79(n79 is supported only in China)
	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 (5-13ch), 5.170 GHz～5.330 GHz, 5.490 GHz～5.710 GHz, 5.735 GHz～5.835 GHz, (W52,W53,W56,W58) (W58 is supported only in China)
	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 power adapter port • One LAN/WAN port (RJ45), One LAN port (RJ45) • two external 5G antenna ports (TS-9) • 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 and 5 GHz antennas	

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Item	Description				
LED Indicators	• One 5G indicator • One 4G indicator • One Wi-Fi indicator • One ambient light strip				
Buttons	• One Power ON/OFF switch • One Hi button • 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			
	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			
	Wi-Fi	2.4GHz	802.11b	Ant0/Ant1 13 dBm（±2dB）@11 Mbps	
			802.11g	15 dBm（±2dB）@6 Mbps 15 dBm（±2dB）@54 Mbps	
			802.11n	15 dBm（±2dB）@2.4G MCS0 15 dBm（±2dB）@2.4G MCS7	
		5GHz	Formats and channels	Ant0	Ant1
		W52/W53	11a 6M	15	14.5
			11a 54M	15	14.5
			11n 20 MCS0	15	14.5
			11n 20 MCS7	15	14.5
			11n 40 MCS0	17	16.5
			11n 40 MCS7	16	15.5
			11ac 20 MCS0	15	14.5
			11ac 20 MCS8	15	14.5
			11ac 40 MCS0	17	16.5
			11ac 40 MCS9	15	14.5
			11ac 80 MCS0	15	14.5
			11ac 80 MCS9	15	14.5
		W56	11a 6M	19	18.5
			11a 54M	16	15.5
			11n 20 MCS0	19	18.5
			11n 20 MCS7	16	15.5

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Item	Description				
			11n 40 MCS0	19	18.5
			11n 40 MCS7	16	15.5
			11ac 20 MCS0	19	18.5
			11ac 20 MCS8	15	14.5
			11ac 40 MCS0	19	18.5
			11ac 40 MCS9	15	14.5
			11ac 80 MCS0	18	17.5
			11ac 80 MCS9	15	14.5
		W58	11a 6M	19	18.5
			11a 54M	16	15.5
			11n 20 MCS0	18.5	18
			11n 20 MCS7	16	15.5
			11n 40 MCS0	19	18.5
			11n 40 MCS7	16	15.5
			11ac 20 MCS0	18.5	18
			11ac 20 MCS8	15	14.5
			11ac 40 MCS0	19	18.5
			11ac 40 MCS9	15	14.5
			11ac 80 MCS0	18	17.5
			11ac 80 MCS9	15	14.5
		Note: Some edge frequency point power will have a fallback			
Receiving sensitivity	5G	Conform to 3GPP Definition			
	LTE	Conform to 3GPP Definition			
	Wi-Fi	Conform to IEEE P802.11 Definition			
Power consumption	< 24 W				
AC/DC power supply	• AC (input): 100V-240V 50Hz/60Hz • DC (output): 12V/2A				
Dimensions (Maximum)	99 mm (Top edge length) x 107 mm (Bottom edge length) x 215 mm (Height)				
Weight	About 756 g (excluding the power adapter)				
Temperature	• Working temperature: 0 ℃ to 40 ℃ • Storage temperature: -20 ℃ to +70 ℃				
Humidity	5% – 95% (non-condensing)				

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Item	Description
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 LTE Antenna

Table 2-2 LTE antenna specifications

Item	Description
Frequency	5G • n41: UL 2496–2690 MHz DL 2496–2690 MHz • n77: UL 3300–3800 MHz DL 3300–3800 MHz • n78: UL 3300–3800 MHz DL 3300–3800 MHz • n79: UL 4800–4900 MHz DL 4800–4900 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 • 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: -1.9 dB • n77: -1.8 dB • n78: -1.9 dB

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Item	Description
	• n79: -2.9 dB LTE • B1: -2.0 dB • B3: -1.6 dB • B5: -2.2 dB • B7: -2.0 dB • B8: -2.7 dB • B18: -2.3 dB • B19: -2.2 dB • B20: -2.4 dB • B28: -3.0 dB • B32: / • B34: -2.1 dB • B38: -1.8 dB • B39: -1.8 dB • B40: -2.4 dB • B41: -1.9 dB • B42: -2.0 dB • B43: -1.8 dB
Diversity antenna efficiency	5G • n41: -1.4 dB • n77: -1.1 dB • n78: -1.3 dB • n79: -2.5 dB LTE • B1: -1.7 dB • B3: -1.5 dB • B5: -2.8 dB • B7: -1.4 dB • B8: -3.3 dB • B18: -2.7 dB • B19: -2.8 dB • B20: -2.3 dB • B28: -2.5 dB • B32: / • B34: -1.7 dB • B38: -1.3 dB • B39: -1.5 dB • B40: -1.9 dB • B41: -1.4 dB

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Item	Description
	• B42: -1.3 dB • B43: -1.2 dB
Main antenna gain	5G • n41: 5.6 dBi • n77: 5.6 dBi • n78: 6 dBi • n79: 4.6 dBi LTE • B1: 3.9 dBi • B3: 3 dBi • B5: 3.3 dBi • B7: 4.7 dBi • B8: 2.5 dBi • B18: 3.3 dBi • B19: 3.3 dBi • B20: 3.3 dBi • B28: 2.3 dBi • B32: / • B34: 3.6 dBi • B38: 5.5 dBi • B39: 3.2 dBi • B40: 3.9 dBi • B41: 5.5 dBi • B42: 4.1 dBi • B43: 4.8 dBi
Diversity antenna gain	5G • n41: 5.5 dBi • n77: 4.8 dBi • n78: 4.1 dBi • n79: 4.4 dBi LTE • B1: 3.7 dBi • B3: 3.8 dBi • B5: 2.6 dBi • B7: 5.6 dBi • B8: 1.9 dBi • B18: 2.7 dBi • B19: 2.7 dBi • B20: 2.2 dBi

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Item	Description
	• B28: 3.0 dBi • B32: / • B34: 3.4 dBi • B38: 5.5 dBi • B39: 2.6 dBi • B40: 3.8 dBi • B41: 5.5 dBi • B42: 4.0 dBi • B43: 4.3 dBi
TX/RX	2T4R
Polarization	Linear polarization

2.2.2 Build-in Wi-Fi Antenna

Table 2-3 Wi-Fi 2.4 GHz antenna specifications

Item	Description
Frequency	2.422 GHz-2.482 GHz (Channel 5 – Channel 13)
Input impedance	50 Ω
Standing wave ratio	< 2
Efficiency	-2.2 dB
Gain	3 dBi
Polarization	Linear polarization

Table 2-4 Wi-Fi 5 GHz antenna specifications

Item	Description
Frequency	5.170 GHz-5.330 GHz,5.490 GHz-5.710 GHz,5.735 GHz～5.835 GHz
Input impedance	50 Ω
Standing wave ratio	< 2
Efficiency	-3 dB
Gain	3.7 dBi
Polarization	Linear polarization

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2.2.3 LTE CA combination

Table 2-5 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**

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		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

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		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)	

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		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.

2.2.4 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

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		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

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		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

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

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

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2.3 Software Specifications

Table 2-6 Software specifications

Item	Description	
5G features	DL 4x4 MIMO	
	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 IPv6 only (Optional , CLAT for LAN side IPv4 device access Internet) **NOTE** When the CLAT function is enabled, the IPv4 device Internet access service cannot reach the maximum throughput. Under IPv6 only, NAT-base service (such as port forwarding and port triggering) is not available	
	VPN pass-through	
VPN client	• Support L2TP VPN client • Support PPTP VPN client	
SMS	• Writing/sending/receiving • Writing/sending/receiving extra-long messages	

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Item	Description	
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	
	Wi-Fi 802.11b/g/n/a/ac	
	Supports multi APNs (Optional, one for data and one for TR-069)	
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 • MDI/MDIX auto-sensing • IEEE 802.3/802.3u-compatible	
Wi-Fi	Broadcasts and hides service set identifiers (SSIDs)	
	Complies with IEEE 802.11b/g/n/a/ac	
	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 10 MAC address entries
	STA	• Supports inquiry of STA status • Supports a maximum of 64 connected stations

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Item	Description	
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 SmartHome APP	• View data traffic usage and SMS • Manage connected devices • Change CPE's SSID and password	
System requirements	Operating system	Windows 7, Windows 8.1, Windows 10 (Not support Windows RT), MAC OS X 10.12, 10.13 and 10.14 with latest updates
	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 (MACOS)
	Your computer's hardware system should meet or exceed the recommended system requirements for the installed OS version	

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3 Services and Applications

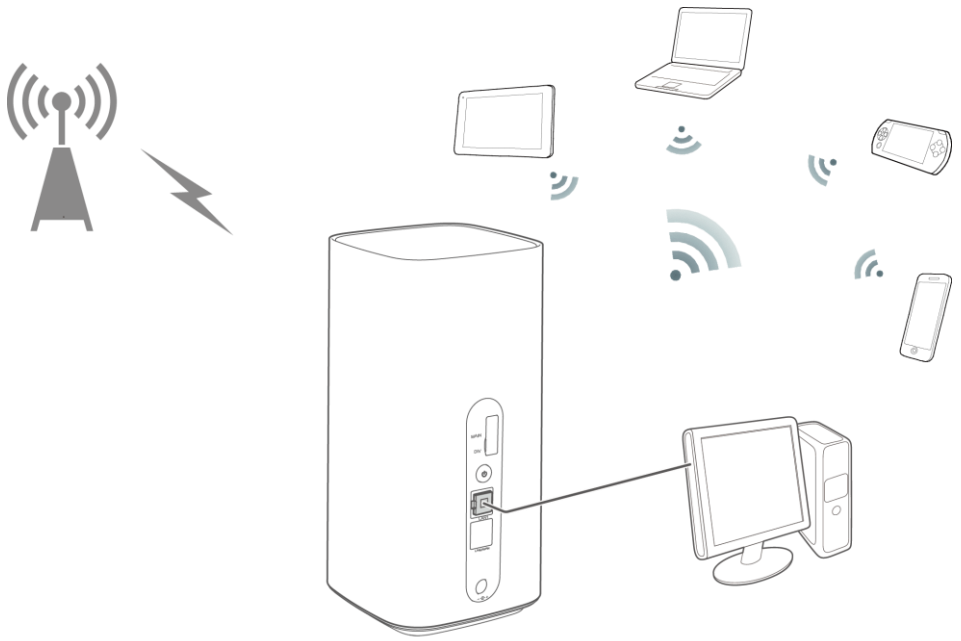
3.1 Data Services

The H112-372 can access the Internet through mobile networks and Ethernet networks. By connecting to the H112-372 using Wi-Fi or a network cable, users can obtain access to high-speed Internet services and establish a local area network (LAN).

3.1.1 Accessing the Internet through a Mobile Network (5G/LTE)

The H112-372 can access the Internet through mobile networks.

Figure 3-1 Accessing the Internet through a mobile network



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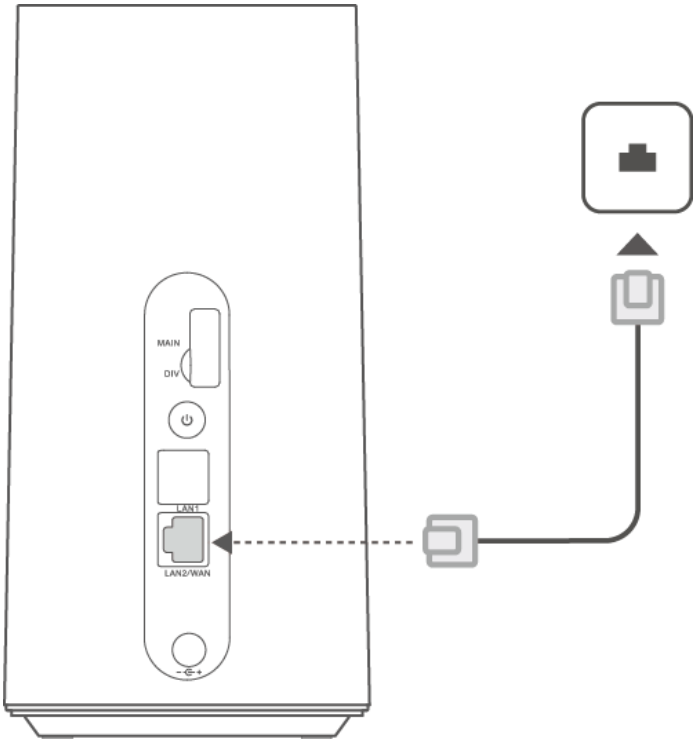
3.1.2 Accessing the Internet through an Ethernet Network

The H112-372's LAN/WAN port can be connected to a wall-mounted Ethernet port using a network cable.

Figure 3-2 Accessing the Internet through an Ethernet network



3.2 SMS

The H112-372 supports message writing/sending/receiving and group sending (up to 50 -contacts at a time).

3.3 Security Service

The H112-372 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 H112-372 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.

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3.3.2 MAC Filtering

The H112-372 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:

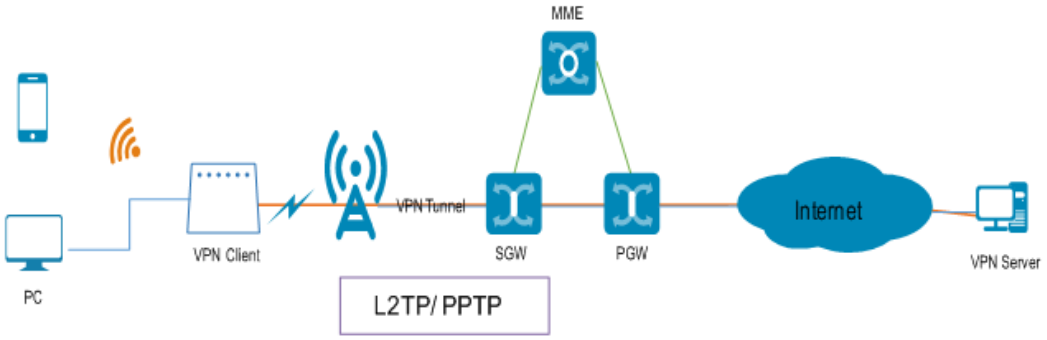
- No encryption
- WEP, WPA2-PSK (AES), WPA/WPA2-PSK (TKIP/AES).

3.4 VPN Function

3.4.1 VPN Client

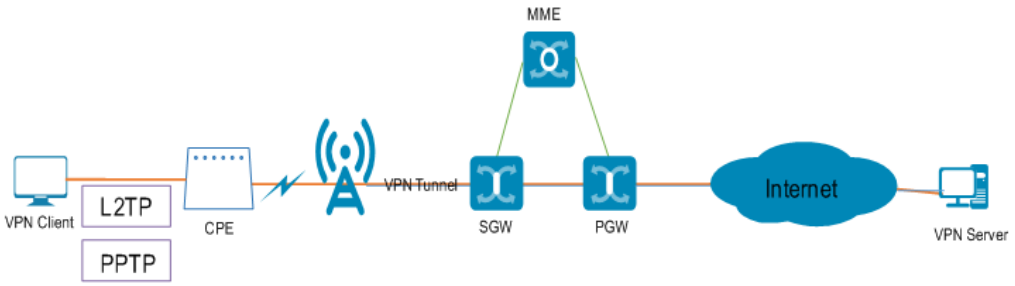
VPN tunneling involves establishing and maintaining a logical network connection (that may contain intermediate hops). On this connection, packets constructed in a specific VPN protocol format are first encapsulated within some other base or carrier protocol, then transmitted between the VPN client and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

The H112-372 supports L2TP and PPTP tunneling protocols.



3.4.2 VPN Pass-Through

The H112-372 supports L2TP/PPTP VPN pass-through for the LAN side device. The LAN side device can create a VPN tunnel to the VPN server.



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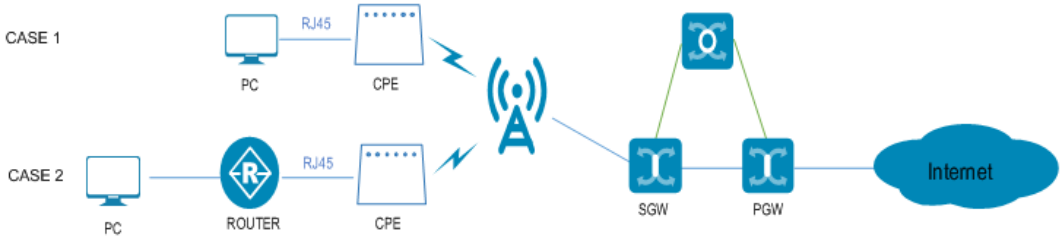
3.5 IP Pass-Through

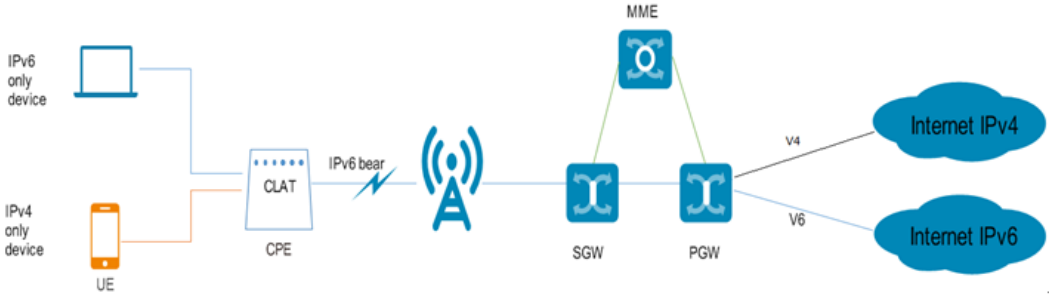
The LTE CPE obtains the WAN IP address and passes it through to the PC (Case 1) or Router (Case 2), and then the PC (Case 1) or Router (Case 2) can directly use the WAP IP address.



3.6 IPv6 Only and IPv4v6 Dual Stack

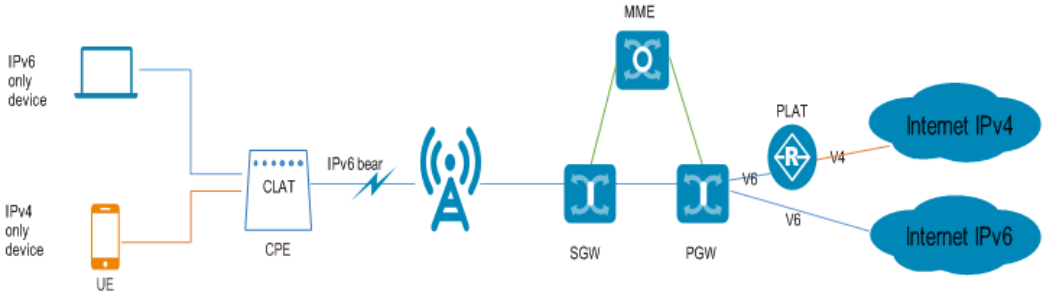
3.6.1 IPv4v6 Dual Stack

CPE provides dual stack function.



3.6.2 IPv6 Only (CLAT)

The LTE CPE supports IPv6 only with the transition solution CLAT for IPv4 device.



NOTE

When the IPv6 only (CLAT) function is enabled, NAT-based functions (like DMZ/Port Forwarding/Port tigger) cannot be used.

When an IPv4 device accesses the Internet, the performance is degraded because packets need to be packetized and unpacked. However, IPv6 devices are not affected.

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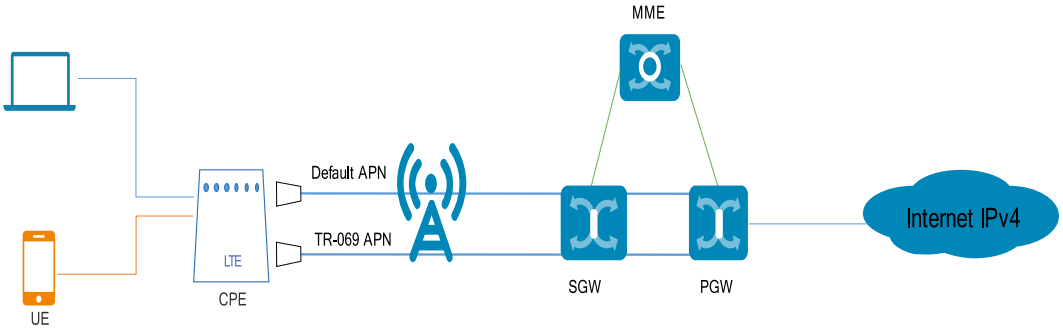
3.7 Multi-APN

The H112-372 supports the establishment and maintenance of two APNs. These two APN connections isolate data and remote management services on an operator's network.

The H112-372 supports an independent APN for CPE internal/TR-069.



3.8 5GHz Preferred

Priority usage of 5 GHz Wi-Fi band over 2.4 GHz band when signal strength is equal to increase connection speeds.

3.9 HiLink

- Supports HiLink routers to connect to H112-372 through the Hi button to create an expanded network.
- Supports quick connection between a HiLink device (such as Honor set-up boxes, Honor handsets and HUAWEI handsets running on EMUI 5.0 and later) and H112-372 through the Hi button.

3.10 Customer management

3.10.1 WebUI

The H112-372 supports local configuration through the Web UI. You can perform device management and network configuration to ensure normal and stable performance.

3.10.2 HUAWEI SmartHome APP

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

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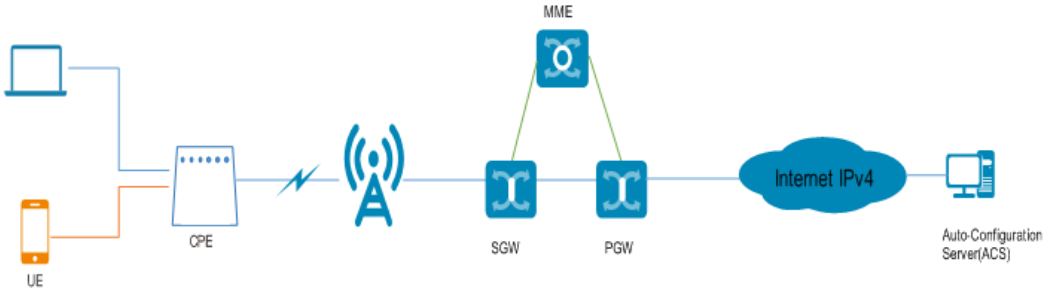
3.11 Operator maintenance

The H112-372 supports Operator maintenance through the TR-069. Operator remote manages the CPE software update/parameters configuration via TR-069.



3.12 HOTA

The H112-372 supports the HOTA feature, which allows users to remotely update the device firmware through the HOTA server.

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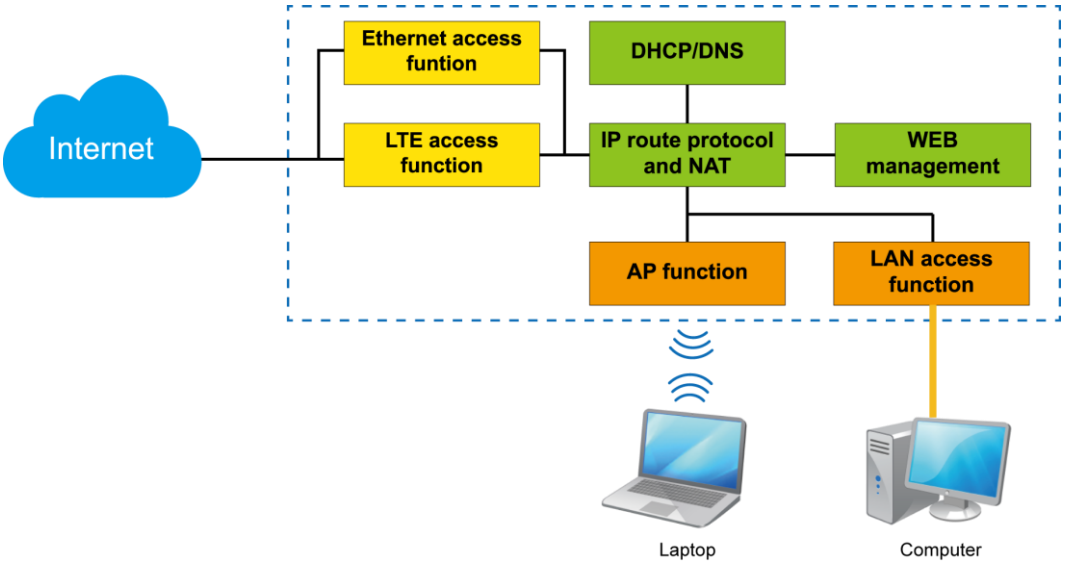
4 System Structure and Scenario Constraints

4.1 System Architecture

Figure 4-1 shows the interfaces for the H112-372.

Figure 4-1 System structure



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

- 5G/LTE access function: The H112-372 adopts the 5G/LTE access technology at the WAN side.
- LAN access function: One 10/100/1000 Mbps high-speed Ethernet ports are provided at the LAN side. The H112-372 provides the switching function for local networking and sharing of the broadband network when it is connected to terminal devices.
- AP function: An 802.11b/g/n/a/ac-compliant Wi-Fi AP interface is provided for wireless networking at home. The interface is compliant with the IEEE 802.11b/g/n/a/ac standard and the WEP, WPA/WPA2-PSK, WPA2-PSK security authentication mechanisms.
- DHCP/DNS: The DHCP server dynamically allocates IP addresses to PCs.

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- Web-based management: You can configure the H112-372 and modify and view the configuration of the H112-372.
- IP routing protocol and NAT: The H112-372 has high-speed routing capability. With the built-in NAT, the H112-372, together with LTE terminals, can provide flexible broadband access solutions and networking schemes.

4.2 Scenario Constraints

The H112-372 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 H112-372 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 H112-372 has the following constraints:

- When the IP Pass-Through mode is enabled, the HOTA function cannot be used.
- When the L2TP/PPTP VPN client function is enabled, the throughput performance will slow down.
- A maximum of 64 devices can be connected to the Wi-Fi in theory; the actual number of devices that can be connected and served depends on actual conditions.

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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.

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6 Packing List

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

The HUAWEI H112-372 wireless gateway has an optional external antenna.

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