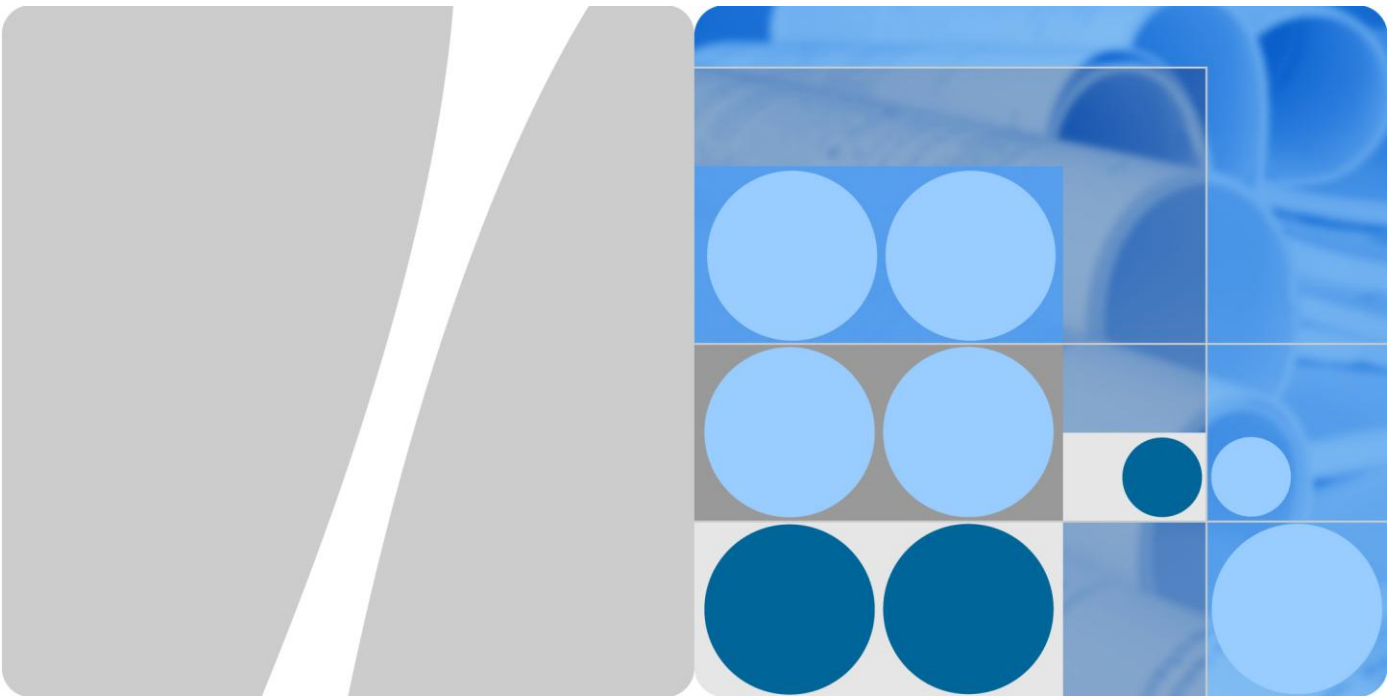

HUAWEI H122-373 5G CPE Pro 2 V100R001

Product Description

Issue 04

Date 2020-08-31

HUAWEI TECHNOLOGIES CO., LTD.

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Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: http://consumer.huawei.com/en/

Email: mobile@huawei.com

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	2020-03-16	Initial official release.
02	2020-03-19	Add the CAT description in the hardware technical specifications section.
03	2020-03-25	Add description of Ethernet access function in section 4.1.

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Issue	Date	Details
04	2020-03-30	Update the NR-CA combination.

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

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Acronym or Abbreviation	Full Spelling
IPv6	Internet Protocol version 6
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

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Acronym or Abbreviation	Full Spelling
SMA	Sub-Miniature-A
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
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 H122-373 is a 5G wireless gateway for multiple users in household or small office environments. It enables users to access the Internet.

The H122-373 supports 3GPP Release 15 with UE downlink category 19 and uplink category 13. The supported service functions are as follows:

- Data service:

  SA:

  - 5G:

    Downlink 1CC（100M）, 4x4 MIMO, 256 QAM, peak rate: 1.8Gbps (DL/UL subframe configuration 8:2).

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

  - 5G:

    Downlink 2CC（200M）, 4x4 MIMO, 256 QAM, peak rate: 3.6Gbps (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: 1.8Gbps (DL/UL subframe configuration 8:2)

    Uplink 1CC（100M）, 1Tx，256 QAM，peak rate: 125Mbps (DL/UL subframe configuration 8:2)

  - LTE

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

    Uplink 1CC, 1Tx, 64 QAM, peak rate: 75Mbps (FDD frequency bands, 20MHz)

  NOTE

  The actual data rate varies with network configuration.

- Working band: 5G: n1/3/5/7/28/38/40(2300–2390 MHz)/41/77/78/79/80/84, LTE: B1/3/5/7/8/20/28/32/34/38/39/40(2300–2390 MHz)/41/42/43

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- Wi-Fi: 802.11 b/g/n/a/ac/ax. 2.4GHz Wi-Fi 2x2 MIMO up to 300Mbps, 5GHz Wi-Fi 2x2 MIMO up to 2.4Gbps. Maximum Users: 64
- 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)
- VPN client service (L2TP, PPTP)
- Customer management via WebUI or HUAWEI AI Life APP
- 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 H122-373 appearance

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2 Technical Specifications

2.1 Hardware Specifications

Table 2-1 Technical specifications of the H122-373 main unit

Item	Description	
Technical standard	WAN	3GPP Release 15; LTE DL Cat19/UL Cat13
	LAN	IEEE 802.3/802.3u
	Wi-Fi	IEEE 802.11b/g/n/a/ac/ax
Working band/frequency	5G	n1/3/5/7/28(703 – 733 MHz(UL)/758 – 788 MHz(DL))/38/40(2300-2390 MHz)/41/77/78/79/80/84
	LTE	B1/3/5/7/8/20/28/32/34/38/39/40(2300-2390 MHz)/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)
	DL MIMO	5G 4x4: n1/3/7/38/40/41/77/78/79 5G 2x2: n5/28 LTE 4x4: B1/3/7/38/39/40/41/42/43 LTE 2x2: B5/8/20/28/32/34
	UL MIMO	5G 2x2: n38/41/77/78/79 (UL MIMO is supported only in SA mode.)
External port	• One power adapter port • One LAN/WAN port (RJ45), One LAN port (RJ45) • One USB3.1 Type C port (This interface supports only data transmission and is used for carrier rate comparison. In addition, the interface needs to apply for a driver from the RD department. Whether to support USB port, subject to the actual product.) • One SIM card slot (nano-SIM)	

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Item	Description				
Antennas	• Built-in 5G/LTE primary antenna • Built-in 5G/LTE secondary antenna • Built-in Wi-Fi 2.4 GHz and 5 GHz antennas				
LED Indicators	• One 5G indicator • One 4G indicator • One Wi-Fi indicator • One ambient light strip				
Buttons	• One Power ON/OFF switch • One H button • One Reset button				
Maximum transmit power	5G	Conform to 3GPP Definition			
	LTE	Conform to 3GPP Definition			
	Wi-Fi	2.4GHz	Formats and channels	Ant0	Ant1
			802.11b	13.5	14
			802.11g	15.5	16
			802.11n20	15.5	16
			802.11n40	15.5	16
			802.11ac20	15.5	16
			802.11ac40	15.5	16
			802.11ax20	15.5	16
			802.11ax40	15.5	16
		5GHz	Formats and channels	Ant0	Ant1
		W52/W53	11a 6M	16.5	17
			11a 54M	16.5	17
			11n 20 MCS0	16.5	17
			11n 20 MCS7	16.5	17
			11n 40 MCS0	17.5	18
			11n 40 MCS7	16.5	17
			11ac 20 MCS0	16.5	17
			11ac 20 MCS8	16	16.5
			11ac 40 MCS0	17.5	18
			11ac 40 MCS9	16	16.5
			11ac 80 MCS0	17.5	18

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Item	Description				
			11ac 80 MCS9	16	16.5
			11ac 160 MCS0	17.5	18
			11ac 160 MCS11	16	16.5
			11ax 20 MCS0	16.5	17
			11ax 20 MCS11	15	15.5
			11ax 40 MCS0	17.5	18
			11ax 40 MCS11	15	15.5
			11ax 80 MCS0	17.5	18
			11ax 80 MCS11	15	15.5
			11ax 160 MCS0	17.5	18
			11ax 160 MCS11	14.5	15
		W56	11a 6M	20	20
			11a 54M	18	18
			11n 20 MCS0	20	20
			11n 20 MCS7	17	17
			11n 40 MCS0	20	20
			11n 40 MCS7	17	17
			11ac 20 MCS0	20	20
			11ac 20 MCS8	16.5	16.5
			11ac 40 MCS0	20	20
			11ac 40 MCS9	16.5	16.5
			11ac 80 MCS0	20	20
			11ac 80 MCS9	16.5	16.5
			11ac 160 MCS0	20	20
			11ac 160 MCS11	16.5	16.5
			11ax 20 MCS0	20	20
			11ax 20 MCS11	15.5	15.5
			11ax 40 MCS0	20	20
			11ax 40 MCS11	15.5	15.5
			11ax 80 MCS0	20	20
			11ax 80 MCS11	15.5	15.5
			11ax 160 MCS0	20	20
			11ax 160 MCS11	15	15
		W58	11a 6M	20	20

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Item	Description				
			11a 54M	18	18
			11n 20 MCS0	20	20
			11n 20 MCS7	17	17
			11n 40 MCS0	20	20
			11n 40 MCS7	17	17
			11ac 20 MCS0	20	20
			11ac 20 MCS8	16.5	16.5
			11ac 40 MCS0	20	20
			11ac 40 MCS9	16.5	16.5
			11ac 80 MCS0	20	20
			11ac 80 MCS9	16.5	16.5
			11ac 160 MCS0	20	20
			11ac 160 MCS11	16.5	16.5
			11ax 20 MCS0	20	20
			11ax 20 MCS11	15.5	15.5
			11ax 40 MCS0	20	20
			11ax 40 MCS11	15.5	15.5
			11ax 80 MCS0	20	20
			11ax 80 MCS11	15.5	15.5
			11ax 160 MCS0	20	20
			11ax 160 MCS11	15	15
		Note: 1. Some edge frequency point power will have a fallback 2. The supported frequency bands and power specifications are adjusted according to the regulations of the delivered sites. The current specifications are for reference only.			
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)	90 mm (Top edge length) x 96.6 mm (Bottom edge length) x 178 mm (Height)				
Weight	About 540 g (excluding the power adapter)				

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Item	Description
Temperature	• Working temperature: 0°C to 40°C • Storage temperature: -20°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 5G/LTE Antenna

Table 2-2 LTE antenna specifications

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Frequency</td><td>5G
• n1：UL 1920–1980 MHz DL 2110–2170 MHz
• n3：UL 1710–1785 MHz DL 1805–1880 MHz
• n5：UL 824–849 MHz DL 869–894 MHz
• n7：UL 2500–2570 MHz DL 2620–2690 MHz
• n28：UL 703–733 MHz DL 758–788 MHz
• n38：UL 2570–2620MHz DL 2570–2620 MHz
• n40：UL 2300–2390 MHz DL 2300–2390 MHz
• 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 4400–5000 MHz DL 4400–5000 MHz
• n80：UL 1710–1785 MHz /
• n84：UL 1920–1980 MHz /
<table>
<tr><th>Band</th><th>15KHz SCS</th><th>15KHz SCS Bandwidths</th><th>30KHz SCS</th><th>30KHz SCS Bandwidths</th></tr>
<tr><td>n1</td><td>Y</td><td>5M 10M 15M 20M</td><td>N</td><td>/</td></tr>
<tr><td>n3</td><td>Y</td><td>5M 10M 15M 20M 25M 30M</td><td>N</td><td>/</td></tr>
<tr><td>n5</td><td>Y</td><td>5M 10M 15M 20M</td><td>N</td><td>/</td></tr>
<tr><td>n7</td><td>Y</td><td>5M 10M 15M 20M</td><td>N</td><td>/</td></tr>
<tr><td>n28</td><td>Y</td><td>5M 10M 15M 20M</td><td>N</td><td>/</td></tr>
</table>
</td></tr>
</table>

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<table>
<tr><th>Item</th><th colspan="5">Description</th></tr>
<tr><td></td><td>n38</td><td>N</td><td>/</td><td>Y</td><td>10M 15M 20M</td></tr>
<tr><td></td><td>n40</td><td>N</td><td>/</td><td>Y</td><td>20M 40M 50M 60M 80M</td></tr>
<tr><td></td><td>n41</td><td>N</td><td>/</td><td>Y</td><td>20M 40M 50M 60M 80M 90M 100M</td></tr>
<tr><td></td><td>n77</td><td>N</td><td>/</td><td>Y</td><td>20M 40M 50M 60M 80M 90M 100M</td></tr>
<tr><td></td><td>n78</td><td>N</td><td>/</td><td>Y</td><td>20M 40M 50M 60M 80M 90M 100M</td></tr>
<tr><td></td><td>n79</td><td>N</td><td>/</td><td>Y</td><td>40M 50M 60M 80M 100M</td></tr>
<tr><td></td><td>n80</td><td>Y</td><td>5M 10M 15M 20M</td><td>N</td><td>/</td></tr>
<tr><td></td><td>n84</td><td>Y</td><td>5M 10M 15M 20M</td><td>N</td><td>/</td></tr>
<tr><td></td><td colspan="5">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
• B20：UL 832–862 MHz DL 791–821 MHz
• B28：UL 703–748 MHz DL 758–803 MHz
• B32： / DL 1452–1496 MHz
• B34：UL 2010–2025 MHz DL 2010–2025 MHz
• B38：UL 2570–2620MHz DL 2570–2620 MHz
• B39：UL 1880–1920 MHz DL 1880–1920 MHz
• B40：UL 2300–2390 MHz DL 2300–2390 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</td></tr>
<tr><td>Input impedance</td><td colspan="5">50 Ω</td></tr>
<tr><td>Standing wave ratio</td><td colspan="5">< 2.5</td></tr>
<tr><td>Main antenna efficiency</td><td colspan="5">5G
• n1：-2.3 dB
• n3：-2.2 dB
• n5：-2.9 dB
• n7：-2.0 dB</td></tr>
</table>

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Item	Description
	• n28：-2.6 dB • n38：-2.1 dB • n40：-2.7 dB • n41：-2.1 dB • n77：-1.6 dB • n78：-1.6 dB • n79：-1.9 dB • n80：-2.2 dB • n84：-2.3 dB LTE • B1：-2.3 dB • B3：-2.2 dB • B5：-2.9 dB • B7：-2.0 dB • B8：-3.7 dB • B20：-3.0 dB • B28：-2.6 dB • B32：-3.0 dB • B34：-1.9 dB • B38：-2.1 dB • B39：-2.1 dB • B40：-2.4 dB • B41：-2.1 dB • B42：-1.7 dB • B43：-1.5 dB
Diversity antenna efficiency	5G • n1：-2 dB • n3：-2.2 dB • n5：-3.5 dB • n7：-2.5 dB • n28：-3.6 dB • n38：-2.5 dB • n40：-2.7 dB • n41：-2.5 dB • n77：-2.5 dB • n78：-2.2 dB

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Item	Description
	• n79：-2.5 dB • n80：-2.2 dB • n84：-2 dB LTE • B1：-2 dB • B3：-2.2 dB • B5：-3.5 dB • B7：-2.5 dB • B8：-4.3 dB • B20：-3.5 dB • B28：-3.6 dB • B32：-3.6 dB • B34：-2.2 dB • B38：-2.5 dB • B39：-2.5 dB • B40：-2.7 dB • B41：-2.5 dB • B42：-2.5 dB • B43：-2.5 dB
Main antenna gain	5G • n1：3~4 dBi • n3：4~5 dBi • n5：1~2 dBi • n7：2~3 dBi • n28：3~4 dBi • n38：2~3 dBi • n40：2~3 dBi • n41：2~3 dBi • n77：4~5 dBi • n78：5~6 dBi • n79：4~5 dBi • n80：4~5 dBi • n84：3~4 dBi LTE • B1：3~4 dBi • B3：4~5 dBi

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Item	Description
	• B5：1~2 dBi • B7：2~3 dBi • B8：2~3 dBi • B20：1~2 dBi • B28：3~4 dBi • B32：1~2 dBi • B34：4~5 dBi • B38：2~3 dBi • B39：3~4 dBi • B40：4~5 dBi • B41：2~3 dBi • B42：5~6 dBi • B43：5~6 dBi
Diversity antenna gain	5G • n1：4~5 dBi • n3：4~5 dBi • n5：2~3 dBi • n7：2~3 dBi • n28：2~3 dBi • n38：2~3 dBi • n40：2~3 dBi • n41：2~3 dBi • n77：4~5 dBi • n78：4~5 dBi • n79：4~5 dBi • n80：4~5 dBi • n84：4~5 dBi LTE • B1：4~5 dBi • B3：4~5 dBi • B5：2~3 dBi • B7：2~3 dBi • B8：2~3 dBi • B20：2~3 dBi • B28：2~3 dBi • B32：0~1 dBi

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Item	Description
	• B34：4~5 dBi • B38：2~3 dBi • B39：4~5 dBi • B40：4~5 dBi • B41：2~3 dBi • B42：4~5 dBi • B43：4~5 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 dB
Gain	2.5 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	3.5 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	CA(DL)	MIMO
		CA_1C	4+4
		CA_3C	4+4
		CA_7C	4+4
		CA_38C	4+4
		CA_39C	4+4
		CA_40C	4+4
		CA_40D	4+4
		CA_40E	4+4
		CA_41C	4+4
		CA_41D	4+4
		CA_42C	4+4
		CA_3A-3A	4+4
		CA_7A-7A	4+2
		CA_20A-41A	2+4
		CA_1A-3A	4+4
		CA_1A-3C	4+4
		CA_1A-3A-3A	4+4+4
		CA_1A-5A	4+2
		CA_1A-7A	4+4
		CA_1A-7C	4+4
		CA_1A-7A-7A	4+4+4
		CA_1A-8A	4+2
		CA_1A-20A	4+2
		CA_1A-28A	4+2
		CA_1A-32A	4+2
		CA_1A-38A	4+4
		CA_1A-40A	4+4
		CA_1A-40C	4+4
		CA_1A-41A	4+4
		CA_1A-41C	4+4
		CA_1A-42A	4+4
		CA_1A-42C	4+4
		CA_1A-42D	4+4
		CA_1A-42E	4+2
		CA_3A-5A	4+2
		CA_3C-5A	4+2
		CA_3A-7A	4+4
		CA_3C-7A	4+4
		CA_3A-3A-7A	4+4+4
		CA_3A-7C	4+4
		CA_3A-7A-7A	4+4+4
		CA_3C-7C	4+4
		CA_3A-8A	4+2
		CA_3C-8A	4+2
		CA_3A-3A-8A	4+2
		CA_3A-20A	4+2

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		CA_3C-20A	4+2
		CA_3A-3A-20A	4+4+2
		CA_3A-28A	4+2
		CA_3C-28A	4+2
		CA_3A-32A	4+2
		CA_3C-32A	4+2
		CA_3A-38A	4+4
		CA_3C-38A	4+4
		CA_3A-3A-38A	4+4+4
		CA_3A-40A	4+4
		CA_3A-40C	4+4
		CA_3A-40D	4+4
		CA_3A-40E	4+2
		CA_3A-41A	4+4
		CA_3A-41C	4+4
		CA_3A-42A	4+4
		CA_3A-42C	4+4
		CA_3A-42D	4+4
		CA_3A-42E	4+2
		CA_7A-8A	4+2
		CA_7A-20A	4+2
		CA_7C-20A	4+2
		CA_7A-28A	4+2
		CA_7C-28A	4+2
		CA_7A-32A	4+2
		CA_7A-40A	4+4
		CA_7A-40C	4+4
		CA_7A-40D	4+4
		CA_7A-40E	4+2
		CA_8A-38A	2+4
		CA_8A-39A	2+4
		CA_8A-41A	2+4
		CA_8A-41C	2+4
		CA_20A-32A	2+2
		CA_20A-38A	2+4
		CA_28A-40A	2+4
		CA_28A-40C	2+4
		CA_28A-40D	2+4
		CA_39A-41A	4+4
		CA_39C-41A	4+4
		CA_39A-41C	4+4
		CA_39C-41C	4+4
		CA_39A-41D	4+4
		CA_41A-42A	4+4
		CA_41C-42A	4+4
		CA_41A-42C	4+4
		CA_41C-42C	4+4
		CA_1A-3A-5A	4+4+2
		CA_1A-3C-5A	4+4+2
		CA_1A-3A-7A	4+4+4
		CA_1A-3C-7A	4+4+4
		CA_1A-3A-7C	4+4+4
		CA_1A-3A-7A-7A	4+2+2+2
		CA_1A-3C-7C	4+4+2

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		CA_1A-3A-8A	4+4+2
		CA_1A-3C-8A	4+4+2
		CA_1A-3A-3A-8A	2+4+4+2
		CA_1A-3A-20A	4+4+2
		CA_1A-3C-20A	4+4+2
		CA_1A-3A-28A	4+4+2
		CA_1A-3C-28A	4+4+2
		CA_1A-3A-32A	4+4+2
		CA_1A-3A-38A	4+4+4
		CA_1A-3A-3A-38A	2+4+4+2
		CA_1A-3A-40A	4+4+4
		CA_1A-3A-40C	4+4+4
		CA_1A-3A-41A	4+4+4
		CA_1A-3A-42A	4+4+4
		CA_1A-3A-42C	4+4+4
		CA_1A-7A-8A	4+4+2
		CA_1A-7A-20A	4+4+2
		CA_1A-7A-28A	4+4+2
		CA_1A-7C-28A	4+4+2
		CA_1A-7A-32A	4+4+2
		CA_1A-7A-40A	2+4+2
		CA_1A-7A-40C	2+4+2
		CA_1A-8A-38A	4+2+4
		CA_1A-20A-32A	4+2+2
		CA_1A-28A-40A	4+2+4
		CA_1A-28A-40C	4+2+4
		CA_1A-41A-42A	4+2+4
		CA_1A-41C-42A	4+2+4
		CA_1A-41A-42C	4+2+4
		CA_1A-41C-42C	4+2+4
		CA_3A-7A-8A	4+4+2
		CA_3A-7A-20A	4+4+2
		CA_3C-7A-20A	4+4+2
		CA_3A-7C-20A	4+4+2
		CA_3A-7A-28A	4+4+2
		CA_3C-7A-28A	4+4+2
		CA_3A-7C-28A	4+4+2
		CA_3C-7C-28A	2+4+2
		CA_3A-7A-32A	4+4+2
		CA_3C-7A-32A	4+4+2
		CA_3A-7A-38A	4+4+2
		CA_3A-7A-40A	4+4+4
		CA_3A-7A-40C	4+4+4
		CA_3A-8A-38A	4+2+4
		CA_3C-8A-38A	4+2+4
		CA_3A-3A-8A-38A	4+4+2+2
		CA_3A-8A-41A	4+2+4
		CA_3A-20A-32A	4+2+2
		CA_3A-20A-41A	4+2+4
		CA_3A-28A-40A	4+2+4
		CA_3A-28A-40C	4+2+4
		CA_3A-28A-40D	2+2+4
		CA_3A-41A-42A	4+4+4
		CA_3A-41C-42A	4+4+4

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		CA_3A-41A-42C	4+4+4
		CA_3A-41C-42C	2+2+4
		CA_7A-20A-32A	4+2+2
		CA_7A-20A-38A	4+2+2
		CA_7A-28A-40A	4+2+4
		CA_7A-28A-40C	4+2+4
		CA_1A-3A-7A-8A	2+4+4+2
		CA_1A-3A-7A-20A	2+4+4+2
		CA_1A-3C-7A-20A	2+4+4+2
		CA_1A-3A-7A-28A	2+4+4+2
		CA_1A-3A-7C-28A	2+4+4+2
		CA_1A-3A-7A-32A	4+4+2+2
		CA_1A-3A-7A-40A	2+4+4+2
		CA_1A-3A-7A-40C	2+4+4+2
		CA_1A-3A-8A-38A	4+4+2+2
		CA_1A-3A-3A-8A-38A	2+2+2+2+2
		CA_1A-3A-20A-32A	4+4+2+2
		CA_1A-3A-28A-40A	4+4+2+2
		CA_1A-3A-28A-40C	4+4+2+2
		CA_1A-7A-20A-32A	4+4+2+2
		CA_1A-7A-28A-40A	4+2+2+2
		CA_1A-7A-28A-40C	4+2+2+2
		CA_3A-7A-20A-32A	4+4+2+2
		CA_3A-7A-28A-40A	4+4+2+2
		CA_3A-7A-28A-40C	4+4+2+2
		CA_1A-3A-7A-20A-32A	2+4+2+2+2
		CA(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	/
		CA_7A-28A	/
		CA_7A-20A	/

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.

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2.2.4 EN_DC combination

Table 2-6 EN_DC combination

Item	Description		
Band combination	5G	EN_DC	MIMO
		DC_(n)41AA	4+4
		DC_41A_n41A	4+4
		DC_1A_n5A	4+2
		DC_40A_n40A	4+4
		DC_3A_n1A	4+4
		DC_7A_n1A	4+4
		DC_1A_n7A	4+4
		DC_8A_n1A	2+4
		DC_20A_n1A	2+4
		DC_1A_n28A	4+2
		DC_1A_n38A	4+4
		DC_1A_n40A	4+4
		DC_1A_n41A	4+4
		DC_1A_n77A	4+4
		DC_1A_n78A	4+4
		DC_1C_n78A	4+4
		DC_3A_n5A	4+2
		DC_3A_n7A	4+4
		DC_3A_n28A	4+2
		DC_3A_n38A	4+4
		DC_3A_n40A	4+4
		DC_3A_n41A	4+4
		DC_3C_n41A	4+4
		DC_3A_n77A	4+4
		DC_3A_n78A	4+4
		DC_3C_n78A	4+4
		DC_3A_n79A	4+4
		DC_5A_n78A	4+4
		DC_20A_n7A	2+4
		DC_7A_n28A	4+2
		DC_28A_n7A	2+4
		DC_7A_n78A	4+4
		DC_7C_n78A	4+4
		DC_7A-7A_n78A	4+4+4
		DC_8A_n41A	2+4
		DC_8A_n78A	2+4
		DC_20A_n28A	2+2
		DC_20A_n41A	2+4
		DC_20A_n78A	2+4
		DC_28A_n40A	2+4
		DC_28A_n77A	2+4
		DC_28A_n78A	2+4
		DC_38A_n78A	4+4
		DC_39A_n41A	4+4
		DC_39A_n79A	4+4
		DC_40A_n78A	4+4

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		DC_40C_n78A	4+4
		DC_41A_n78A	4+4
		DC_41C_n78A	4+4
		DC_1A-41A_n41A	4+2+4
		DC_3A-41A_n41A	4+2+4
		DC_3A-3A_n78A	4+4+4
		DC_8A-41A_n41A	2+2+4
		DC_20A-41A_n41A	2+2+4
		DC_41A_n41A-n78A	2+4+4
		DC_3A-7A_n1A	4+4+4
		DC_1A-3A_n7A	4+4+4
		DC_3A-3A_n1A	2+2+4
		DC_3A-8A_n1A	4+2+4
		DC_3A-20A_n1A	4+2+4
		DC_1A-3A_n28A	4+4+2
		DC_1A-3A_n40A	4+4+4
		DC_1A-3A_n41A	4+4+4
		DC_1A-3C_n41A	4+4+4
		DC_1A-3A_n77A	4+4+4
		DC_1A-3A_n78A	4+4+4
		DC_1A-3C_n78A	4+4+4
		DC_1A-20A_n7A	4+2+4
		DC_7A-20A_n1A	4+2+4
		DC_1A-7A_n28A	4+4+2
		DC_1A-28A_n7A	4+2+4
		DC_1A-7A_n78A	4+4+4
		DC_1A-7C_n78A	4+4+4
		DC_1A-8A_n41A	4+2+4
		DC_1A-8A_n78A	4+2+4
		DC_1A-20A_n41A	4+2+4
		DC_1A-20A_n78A	4+2+4
		DC_1A-28A_n40A	4+2+4
		DC_1A-28A_n77A	4+2+4
		DC_1A-28A_n78A	4+2+4
		DC_1A-32A_n78A	4+2+4
		DC_1A_n40A-n78A	4+4+4
		DC_1A-41A_n78A	4+4+4
		DC_1A-41C_n78A	4+4+4
		DC_1A_n41A-n78A	4+4+4
		DC_3A-20A_n7A	4+2+4
		DC_3A-28A_n7A	4+2+4
		DC_3A-7A_n28A	4+4+2
		DC_3A-7A_n78A	4+4+4
		DC_3C-7A_n78A	4+4+4
		DC_3A-7C_n78A	4+4+4
		DC_3A-7A-7A_n78A	4+2+2+4
		DC_3C-7C_n78A	4+4+4
		DC_3A-8A_n41A	4+2+4
		DC_3A-8A_n78A	4+2+4
		DC_3A-20A_n41A	4+2+4
		DC_3C-20A_n41A	4+2+4
		DC_3A-20A_n78A	4+2+4
		DC_3C-20A_n78A	4+2+4
		DC_3A-28A_n40A	4+2+4

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		DC_3A-28A_n77A	4+2+4
		DC_3C-28A_n77A	4+2+4
		DC_3A-28A_n78A	4+2+4
		DC_3C-28A_n78A	4+2+4
		DC_3A-32A_n78A	4+2+4
		DC_3C-32A_n78A	4+2+4
		DC_3A-38A_n78A	4+4+4
		DC_3A_n40A-n78A	4+4+4
		DC_3A-41A_n78A	4+4+4
		DC_3A_n41A-n78A	4+4+4
		DC_3A-42A_n78A	4+4+4
		DC_3A-42C_n78A	4+4+4
		DC_7A-8A_n78A	4+2+4
		DC_7A-20A_n28A	4+2+2
		DC_7A-20A_n78A	4+2+4
		DC_7A-28A_n78A	4+2+4
		DC_7C-28A_n78A	4+2+4
		DC_7A-32A_n78A	4+2+4
		DC_8A_n41A-n78A	2+4+4
		DC_20A_n28A-n78A	2+2+4
		DC_20A-32A_n78A	2+2+4
		DC_20A-38A_n78A	2+4+4
		DC_20A_n41A-n78A	2+4+4
		DC_28A_n40A-n78A	2+4+4
		DC_1A-3A-41A_n41A	4+2+2+4
		DC_3A-8A-41A_n41A	4+2+2+4
		DC_3A-20A-41A_n41A	4+2+2+4
		DC_1A-3A-20A_n7A	2+4+2+4
		DC_3A-7A-20A_n1A	2+4+2+4
		DC_1A-3A-28A_n7A	2+4+2+4
		DC_1A-3A-7A_n28A	2+4+4+2
		DC_1A-3A-7A_n78A	2+2+4+4
		DC_1A-3C-7A_n78A	2+2+4+4
		DC_1A-3A-7C_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-3C-20A_n78A	2+4+2+4
		DC_1A-3A-28A_n77A	2+4+2+4
		DC_1A-3A-28A_n78A	2+4+2+4
		DC_1A-3C-28A_n78A	2+4+2+4
		DC_1A-3A-41A_n78A	4+2+2+4
		DC_1A-7A-8A_n78A	2+4+2+4
		DC_1A-7A-20A_n78A	2+4+2+4
		DC_1A-7A-28A_n78A	2+4+2+4
		DC_1A-7A-32A_n78A	4+2+2+4
		DC_1A-20A-32A_n78A	4+2+2+4
		DC_3A-7A-8A_n78A	2+4+2+4
		DC_3A-7A-20A_n78A	2+4+2+4
		DC_3C-7A-20A_n78A	2+4+2+4
		DC_3A-7A-28A_n78A	2+4+2+4
		DC_3A-7C-28A_n78A	2+4+2+4
		DC_3A-7A-32A_n78A	2+4+2+4
		DC_3C-7A-32A_n78A	2+4+2+4
		DC_3A-20A-32A_n78A	2+4+4+2

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		DC_7A-20A-32A_n78A	4+2+2+4
		DC_1A-3A-7A-8A_n78A	2+2+2+2+4
		DC_1A-3A-7A-20A_n78A	2+2+2+2+4
		DC_1A-3C-7A-20A_n78A	2+2+2+2+4
		DC_1A-3A-7A-28A_n78A	2+2+2+2+4
		DC_1A-7A-20A-32A_n78A	2+2+2+2+4
		DC_3A-7A-20A-32A_n78A	2+2+2+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.

2.2.5 NR_CA combination

Table 2-7 NR_CA combination

Item	Description		
Band combination	5G	NR_CA	MIMO
		CA_n41C	4+4
		CA_n78C	4+4
		CA_n79C	4+4
		CA_n1A-n78A	4+4
		CA_n3A-n78A	4+4
		CA_n5A-n78A	2+4
		CA_n28A-n78A	2+4
		CA_n40A-n78A	4+4
		CA_n41A-n78A	4+4
		CA_n41A-n79A	4+4
		SUL_n78A-n80A	4+2
		SUL_n78A-n84A	4+2

NOTE

The specific support time of CA_n40A-n78A combination, please confirm with GTM.

2.3 Software Specifications

Table 2-8 Software specifications

Item	Description
5G features	DL 256 QAM, UL 256QAM
LTE features	DL 4x4 MIMO/5CC (The number of MIMO is related to the specific combination.)
	DL 256 QAM，UL 64 QAM

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Item	Description	
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	• Supports L2TP VPN client • Supports PPTP VPN client • Supports IPSec VPN client (optional)	
SMS	• Writing/sending/receiving • Writing/sending/receiving extra-long messages	
Data service	• Supports the SA and NSA networks • The SA network supports a maximum of DL 2CC and 200 MHz bandwidth • In the NSA network, the NR downlink supports single CC and 100 MHz bandwidth • Maximum number of downlink is 16 flows in the LTE network(The number of flows is related to the EN-DC combination)	
	Wi-Fi 802.11b/g/n/a/ac/ax	
	Supports multi APNs (Optional, one for data and one for TR-069)	

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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 • 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/ax	
	WPS	
	WMM	
	Encryption	WEP, AES, and TKIP + AES
	Security mode	• Open • WEP • WPA2-PSK • WPA3-SAE • WPA/WPA2-PSK • WPA2-PSK/WPA3-SAE
	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 64 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)	

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Item	Description	
HUAWEI AI Life 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

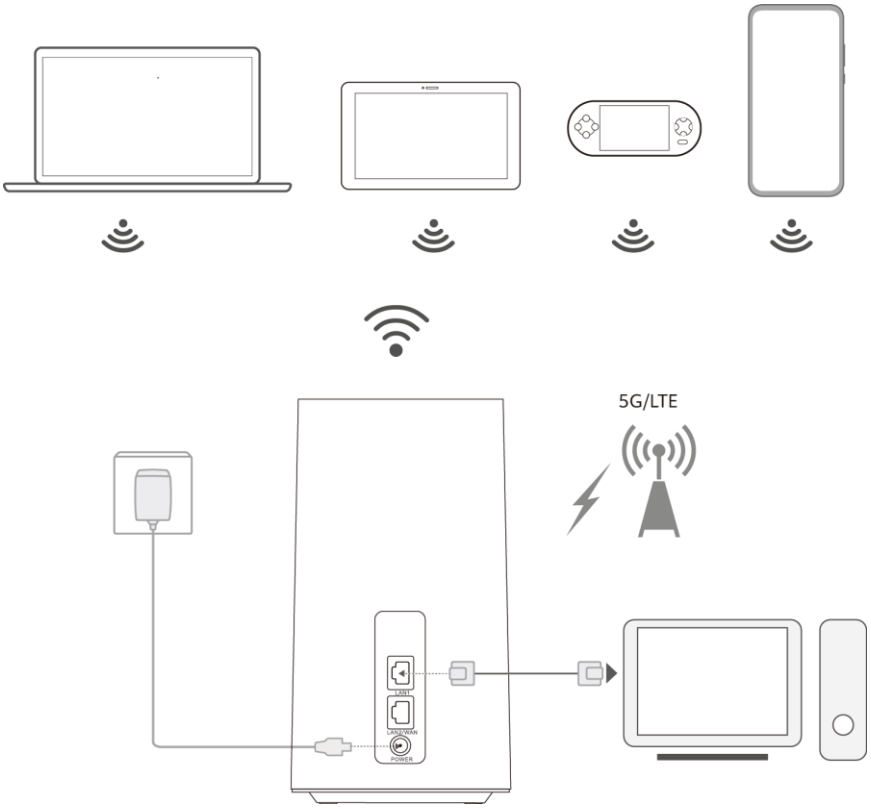
3.1 Data Services

The H122-373 can access the Internet through mobile networks and Ethernet networks. By connecting to the H122-373 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 H122-373 can access the Internet through mobile networks.

Figure 3-1 Accessing the Internet through a mobile network



3.1.2 Accessing the Internet through an Ethernet Network

The H122-373's LAN/WAN port can be connected to a wall-mounted Ethernet port using a network cable.

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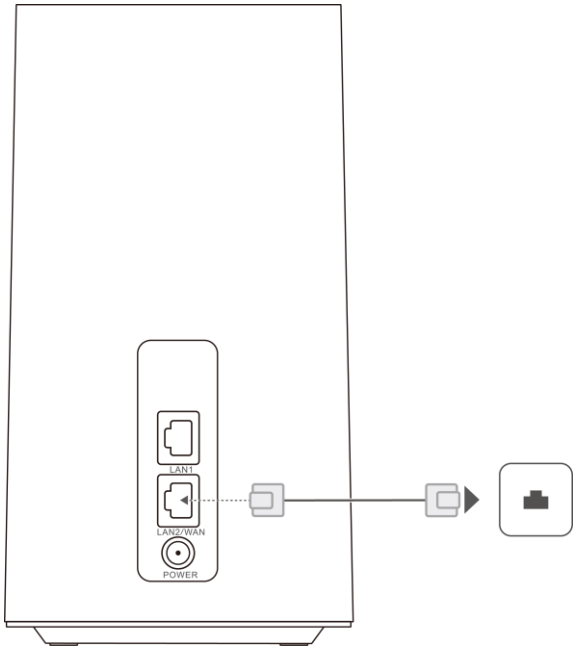
Figure 3-2 Accessing the Internet through an Ethernet network



3.2 SMS

The H122-373 supports message writing/sending/receiving and group sending (up to 50 -contacts at a time).

3.3 Security Service

The H122-373 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 H122-373 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 H122-373 supports configuration of the Media Access Control (MAC) address filtering to restrict network access.

3.3.3 Wi-Fi Authentication

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

- No encryption

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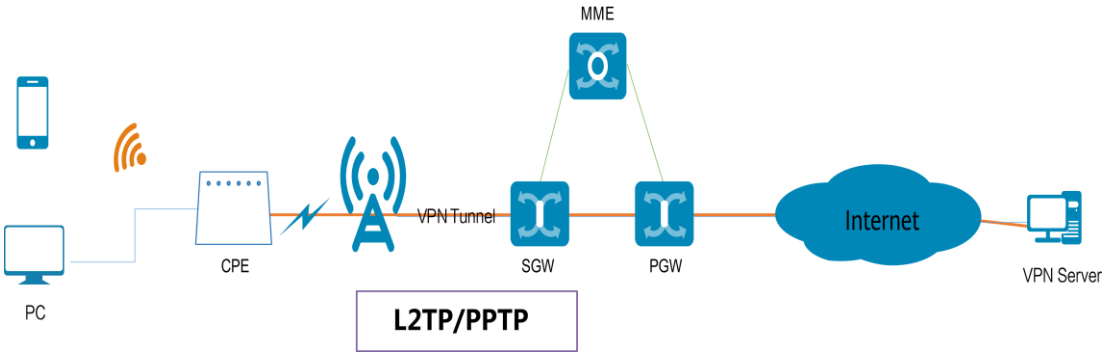
- WEP, WPA2-PSK, WPA3-SAE, WPA/WPA2-PSK, WPA2-PSK /WPA3-SAE.

3.4 VPN Function

3.4.1 VPN Client

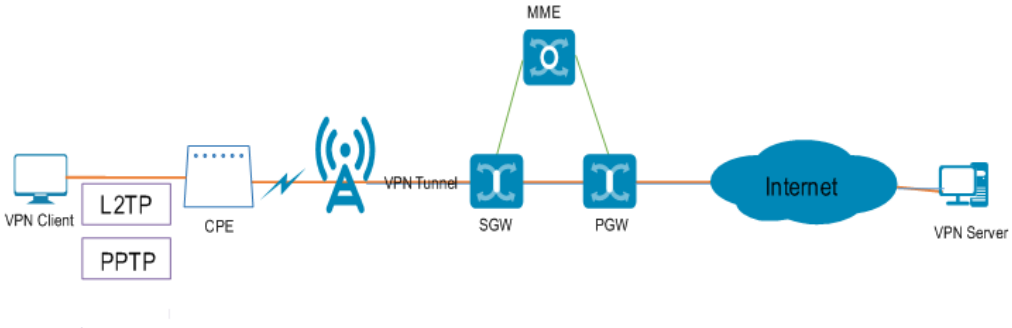
VPN tunneling involves establishing and maintaining a logical network connection (that may contain intermediate hops). On this connection, packets constructed in a specific VPN protocol format are first encapsulated within some other base or carrier protocol, then transmitted between the VPN client and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

The H122-373 supports L2TP and PPTP tunneling protocols.



3.4.2 VPN Pass-Through

The H122-373 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 (optional)

The H122-373 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.

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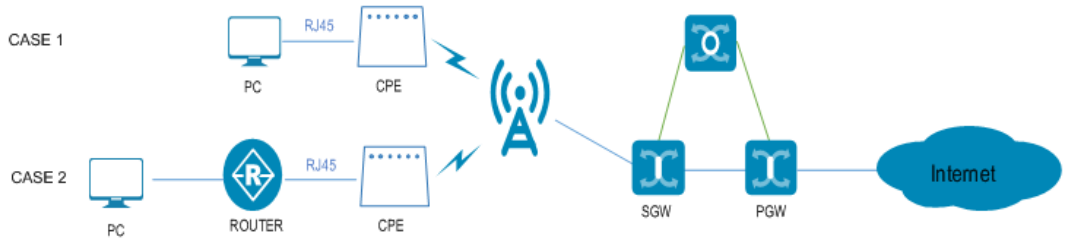
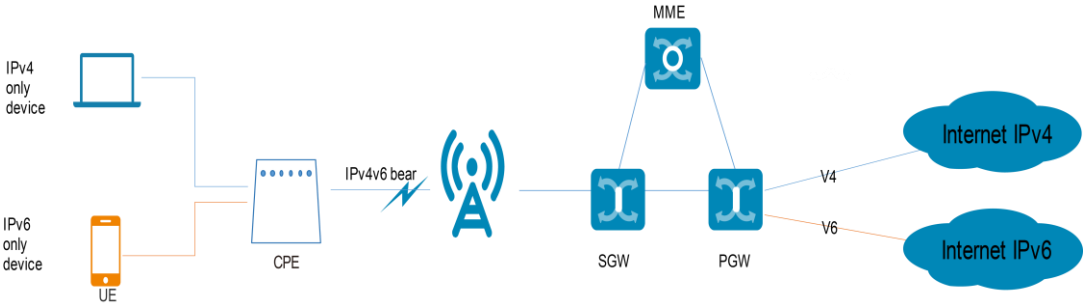


3.6 IPv6 Only and IPv4v6 Dual Stack

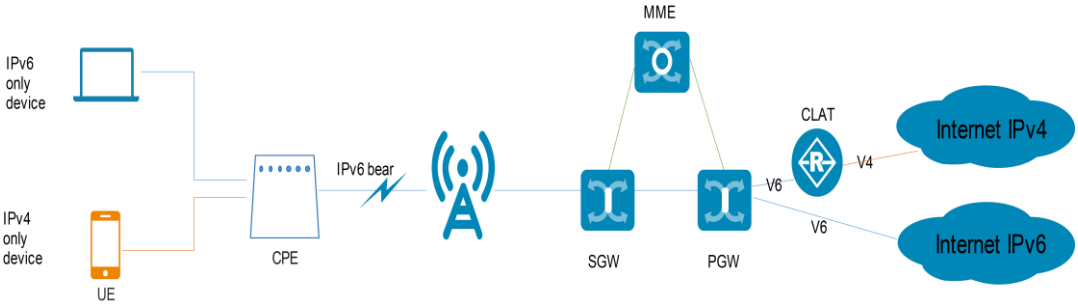
3.6.1 IPv4v6 Dual Stack

The H122-373 provides dual stack function.



3.6.2 IPv6 Only (CLAT) (optional)

The H122-373 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.

3.7 Multi-APN (optional)

The H122-373 supports the establishment and maintenance of two APNs. These two APN connections isolate data and remote management services on an operator's network.

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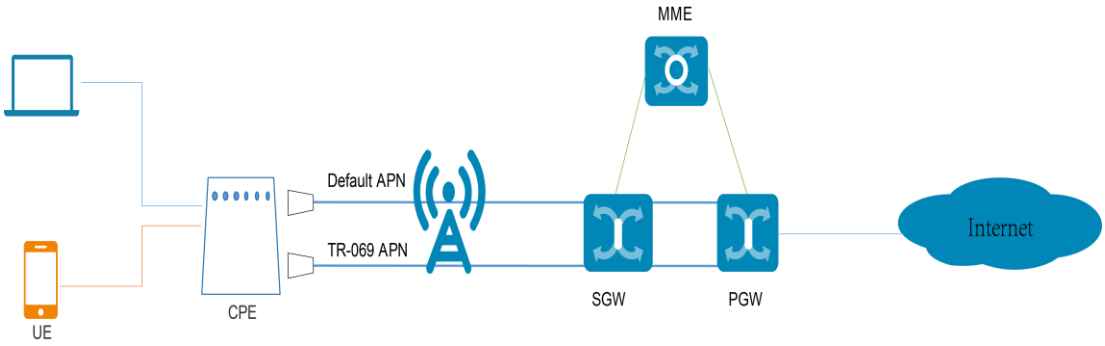
The H122-373 supports an independent APN for CPE internal/TR-069.



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.

The product will support two SSIDs when 5 GHz preferred is enabled. The first SSID includes 2.4 GHz Wi-Fi and 5GHz Wi-Fi, which provides 5 GHz preferred capabilities. The second SSID ending with '_5G' is an independent 5 GHz Wi-Fi. Customers can choose according to their needs.

The product also supports two SSIDs when 5 GHz preferred is disabled. The first SSID is only 2.4 GHz Wi-Fi, the second SSID is 5 GHz Wi-Fi ending with '_5G'. Customers can choose according to their needs.

3.9 HiLink

- Supports HiLink routers to connect to H122-373 through the H 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 H122-373 through the H button.

3.10 Customer management

3.10.1 WebUI

The H122-373 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 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.

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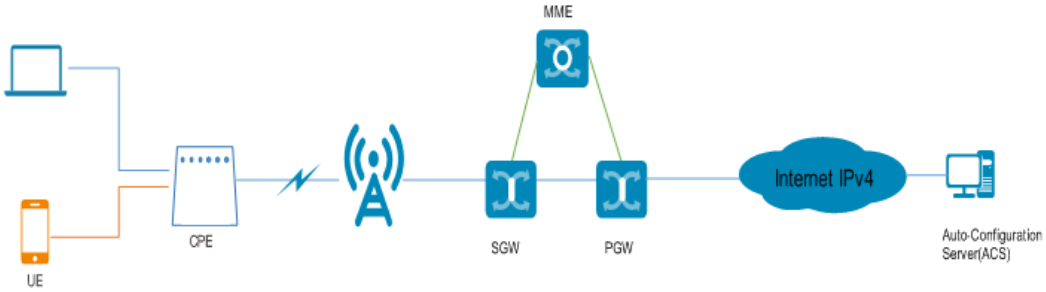
3.11 Operator maintenance (optional)

The H122-373 supports Operator maintenance through the TR-069. Operator remote manages the CPE software update/parameters configuration via TR-069.



3.12 HOTA

The H122-373 supports the HOTA feature, which allows users to remotely update the device firmware through the HOTA server.

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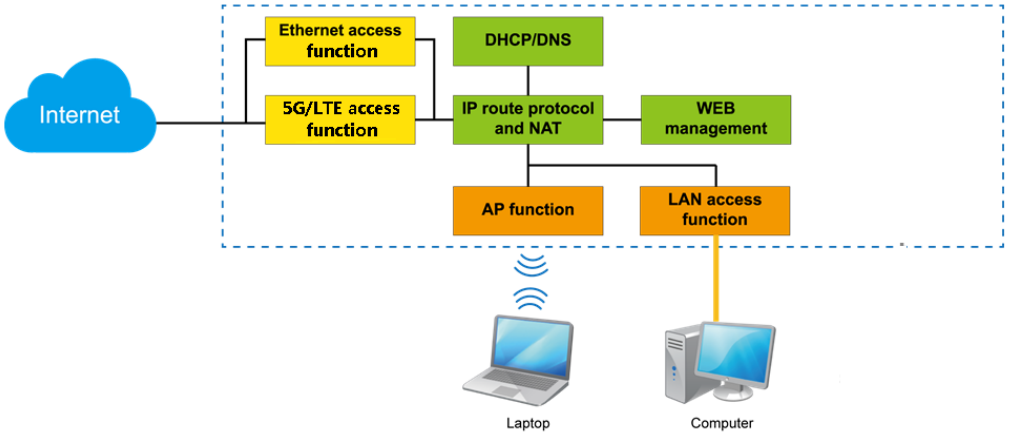
4 System Structure and Scenario Constraints

4.1 System Architecture

Figure 4-1 System structure



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

- Ethernet access function: The H122-373 adopts the Ethernet access technology at the WAN side.
- 5G/LTE access function: The H122-373 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 H122-373 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/ax-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/ax standard and the WEP, WPA2-PSK, WPA3-SAE, WPA/WPA2-PSK, WPA2-PSK /WPA3-SAE security authentication mechanisms.
- DHCP/DNS: The DHCP server dynamically allocates IP addresses to PCs.
- Web-based management: You can configure the H122-373 and modify and view the configuration of the H122-373.

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- IP routing protocol and NAT: The H122-373 has high-speed routing capability. With the built-in NAT, the H122-373, together with LTE terminals, can provide flexible broadband access solutions and networking schemes.

4.2 Scenario Constraints

The H122-373 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 H122-373 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 H122-373 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

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