

HUAWEI LTE CPE eA280-204 Product Description

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1 Overview

Introduction

Huawei eA280-204 CPE is the wireless gateway of LTE. The eA280-204 can be deployed indoors to provide services such as data collection and video surveillance. CPE is short for customer premises equipment.

The eA280-204 supports 3GPP R11/R12. The eA280-204 provides the following functions:

- Data service
- Voice service
- Security service
- Local and remote maintenance and management
- Data routing

Highlights

The eA280-204 supports the following specifications:

- LTE Band 31 (452.5~457.5MHz, 462.5~467.5MHz)
- 1T2R configuration
- Internal LTE antenna
- WLAN 2.4 GHz (802.11b/g/n) for an internal Wi-Fi antenna
- WPS 2.0
- 2x2 MIMO
- LTE DL Category 6 and UL Category 5
- Two Ethernet ports
- VoIP services
- Dynamic Host Configuration Protocol (DHCP) and Network Address Translation (NAT)
- Routing Behind MS
- VxLAN
- L2VPN over GRE
- L2TP
- Two APNs (one for voice services and the other for data services)
- UE direct connecting
- Soft SIM cards
- Frequency lock

- Firewall
- IE, Firefox, Chrome, and Safari
- Management on the Web UI
- Device management complying with TR-069
- LED indicators

Exterior

Figure 1-1 shows the exterior of the eA280-204.

Figure 1-1 eA280-204 exterior



2 Application Scenarios

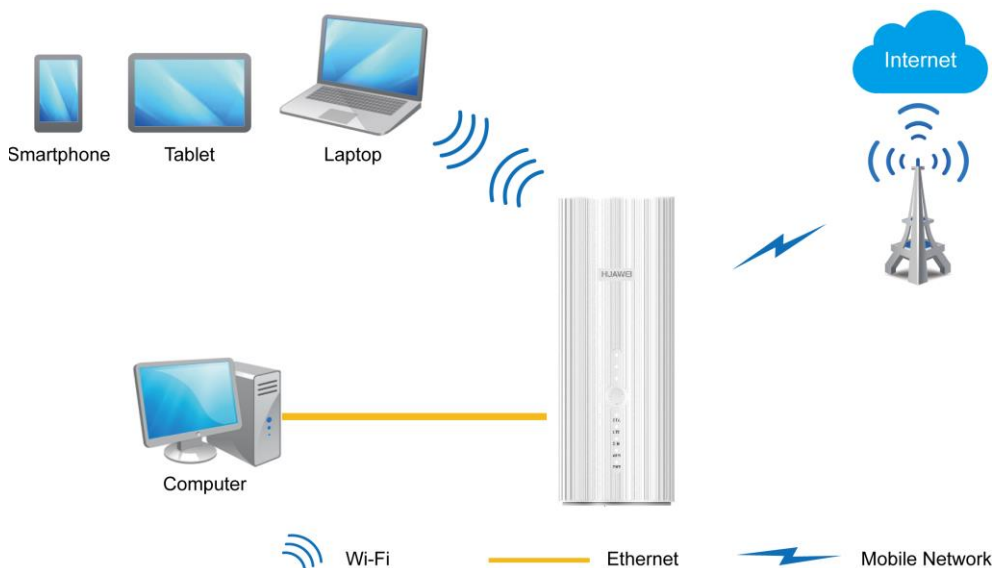
The eA280-204 is designed to provide users with wireless broadband data access services in the wISP market.

The eA280-204 provides LTE wireless routing and exchanges data between LTE wireless networks and wired Ethernet networks.

SOHO users can set up either wired or wireless connections to the eA280-204 to achieve high-speed services.

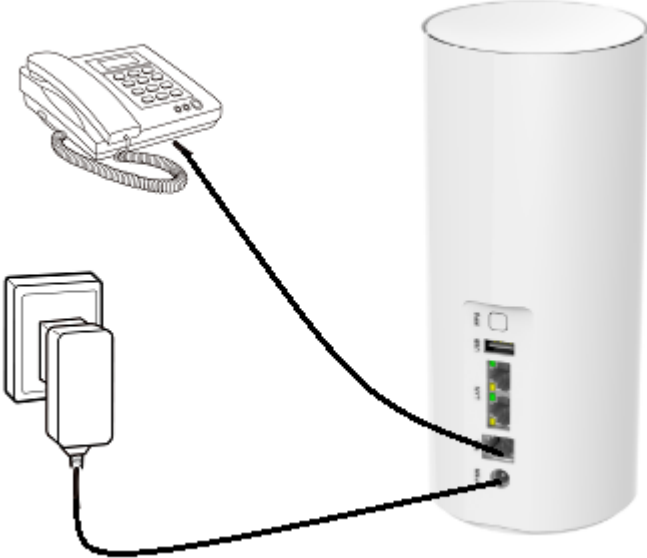
The eA280-204 allows 32 Wi-Fi devices (2.4 GHz) to provide wireless network connections and connects to hubs and switches to form a local area network (LAN).

Figure 2-1 eA280-204 connected to multiple devices



The eA280-204 provides one port for connecting a telephone to perform basic voice services.

Figure 2-2 eA280-204 connected to a telephone



3 Technical Specifications

3.1 Hardware

Table 3-1 lists the hardware specifications of the eA280-204.

Table 3-1 Hardware specifications

| Item | Description |
|---------------------|---|
| Technical standards | WAN: 3GPP R11/R12 |
| | LAN: IEEE 802.3/802.3u |
| | WLAN: IEEE 802.11b/g/n |
| Working bands | LTE Band 31 UL: 452.5 MHz to 457.5 MHz DL: 462.5 MHz to 467.5 MHz |
| | WLAN 802.11b/g/n: 2.4 GHz to 2.4835 GHz |
| External ports | One power port |
| | One telephone port (RJ11): bound with one telephone number |
| | Two LAN ports (RJ45) |
| | One USB 2.0 slave port (for maintenance only) |
| | One micro-SIM slot |
| Buttons | One PWR button |
| | One WPS button |
| | One reset button |
| LED indicators | One power indicator |
| | One Wi-Fi indicator |
| | One SIM indicator |
| | One LTE indicator |

| Item | Description | | |
|------------------------|--------------------------------------|--|--|
| | One status indicator | | |
| | Three signal strength indicators | | |
| Maximum transmit power | LTE | (23 ± 2) dBm | |
| | WLAN | 802.11b | (16±3) dBm @11 Mbps |
| | | 802.11g | (16±3) dBm @54 Mbps |
| | | 802.11n | (16±3) dBm @2.4G MCS0 (16±3) dBm @2.4G MCS7 |
| EIRP | WiFi | 2.4G | < 20 dBm |
| Receiver sensitivity | LTE | Band 31 <ul style="list-style-type: none"> • 1.4 MHz:-98.3dBm • 3 MHz: -95dBm • 5 MHz: -92.8 dBm | |
| | WLAN | 802.11b | -92 dBm@1 Mbps -85 dBm@11 Mbps |
| | | 802.11g | -88 dBm@6 Mbps -73 dBm@54 Mbps |
| | | 802.11n HT20 (2.4 GHz) | -87 dBm@MCS 0 -71 dBm@MCS 7 |
| | | 802.11n HT40 (2.4 GHz) | -84 dBm@MCS 0 -68 dBm@MCS 7 |
| Power consumption | < 12 W | | |
| Power supply | AC: 100 V to 240 V | | |
| | DC: 12 V/2 A | | |
| Dimensions (D x H) | 95 mm x 210 mm | | |
| Weight | About 530 g (power adapter excluded) | | |
| Temperature | Working temperature: 0°C to +40°C | | |
| | Storage temperature: -20°C to +70°C | | |
| Humidity | 5% to 95% | | |



NOTE

It is recommended that the eA280-204 be deployed on the live network within three months after delivery or be stored in the following environment:

- Temperature: -10°C to 35°C
- Relative humidity: 30% RH to 85% RH

The storage environment should be equipped with temperature, humidity, and dehumidification devices to monitor and adjust the temperature and humidity.

3.2 Antenna

Table 3-2 Specifications of an internal LTE antenna

| Item | Description |
|---------------------------|---------------------|
| Frequency | 450 MHz to 470 MHz |
| Input impedance | 50 Ω |
| Standing wave ratio (SWR) | ≤ 2 |
| Efficiency | $> 35\%$ |
| Gain | ≥ -0.3 dBi |
| Polarization | Linear polarization |
| Direction | Omnidirectional |

Table 3-3 Specifications of an internal Wi-Fi antenna

| Item | Description |
|---------------------|-----------------------|
| Frequency | 2.4 GHz to 2.4835 GHz |
| Input impedance | 50 Ω |
| Standing wave ratio | < 3 |
| H side gain | 2 dBi |
| Efficiency | $> 60\%$ |
| Polarization | Linear polarization |

3.3 Software

Table 3-4 lists the software specifications of the eA280-204.

Table 3-4 Software specifications

| Item | Description |
|----------|---|
| Gateway | The default routing address is 0.0.0.0. The default routing table can be configured. |
| | The Address Resolution Protocol (ARP) is supported. |
| | The Internet Control Message Protocol (ICMP) is supported. |
| | The domain name service (DNS) is supported. |
| | NAT NAT and Network Address Port Translation (NAPT) are supported, complying with RFC2663, RFC3022, and RFC3027. |
| | DHCP server <ul style="list-style-type: none"> • The default DHCP server address ranges from 192.168.1.2 to 192.168.1.254. The default gateway address is 192.168.1.1. • The default DHCP lease is 24 hours. • The DHCP server can be enabled or disabled. • The DHCP server's address pool can be configured. • The DHCP lease can be configured. • IP address status such as the host name, Media Access Control (MAC) address, IP address, and remaining DHCP lease can be displayed. • Static IP address reservation is supported. • DHCP relay is supported. |
| Firewall | <ul style="list-style-type: none"> • Firewall switch • LAN MAC address filtering • IP address filtering • URL filtering • Security Parameter Index (SPI) filtering • Demilitarized Zone (DMZ) • Port forwarding • Service access control |
| LAN | <ul style="list-style-type: none"> • Auto-negotiation between 10 Mbit/s, 100 Mbit/s, and 1000 Mbit/s • MDI/MDIX auto-sensing • Compatible with IEEE 802.3/802.3u • The number of devices under a hub or switch must not exceed 32 |
| VoIP | G.729, G.711a, and G.711u (auto-negotiation by the CPE) |
| | SIP (RFC3261) |
| | SDP (RFC2327) |

| Item | Description |
|---------------------------------------|--|
| | DNS |
| | DTMF |
| | SIP ALG |
| Upgrade | <ul style="list-style-type: none"> • TR-069 upgrade • Local upgrade |
| SIM | Personal identification number (PIN) management and SIM card authentication are supported. Soft SIM cards are supported. |
| Frequency lock | Intra-band frequency lock |
| Dial-up connection | <ul style="list-style-type: none"> • Automatic connection • Manual connection |
| Importing and exporting configuration | The system encrypts and backs up the current configuration, and then restores from a backup configuration. |
| WLAN | SSIDs can be either broadcast or hidden. |
| | WLAN 2.4 GHz is supported, complying with IEEE 802.11b/g/n. |
| | WPS is supported. |
| | Authentication <ul style="list-style-type: none"> • Open System authentication • Encryption using the wired equivalent privacy (WEP), Wi-Fi protected access pre-shared key (WPA-PSK), and WPA2-PSK keys • Advanced Encryption Standard (AES) ciphering algorithm • TKIP and AES ciphering algorithm synchronously |
| | MAC address authentication <ul style="list-style-type: none"> • MAC address authentication whitelist • MAC address authentication blacklist • 16 MAC address entries at most |
| | The transmission rate can be adjusted automatically. |
| | Station management <ul style="list-style-type: none"> • The station status can be queried. • A maximum of 32 access users are supported |

3.4 Accessories and software

3.4.1 LTE antenna :

| Part Number | Part Description | Model | Trademark |
|-------------|--|-----------------|-----------|
| 27162628 | Terminal Antenna,452.5MHZ~467.5MHZ,>=-0.3 dBi-Isotropic,<=2,5W,IPX | HW8990-15-000-R | HUAWEI |

3.4.2 WiFi antenna :

| Part Number | Part Description | Model | Trademark |
|-------------|---|--|-----------|
| 27162434 | Terminal Build-In Antenna,2400~2500MHz/5150~5850MHz,<2d Bi,isotropic,<2,4W,B712u WIFI small Board antenna for softbank,Terminal Dedicated | 02220247 HW8677-15-000-R CPAD03705 | HUAWEI |

3.4.3 Power Adapter:

| Part Number | Part Description | Model | Trademark |
|-------------|---|------------------|-----------|
| 02220247 | Adapter,-10degC-45degC,100V-240V,12V/2A, AC VDE 2PIN/DC H PLUG 2.1x5.5x9.5mm,Length of wire 1.5M ,CE,ERP V,HUAWEI Logo,Terminal Dedicated | HW-120200E 6W | HUAWEI |

3.4.4 Software version:

eA280-204 software version is V100R001.

4 Services and Applications

Data Service

The eA280-204 provides access to LTE wireless broadband networks with high-speed data services.

Voice Service

The eA280-204 can provide high-quality VoIP services by connecting to a common telephone. It can also provide supplementary services enabled on the operator side, such as call waiting, call holding, and call transferring.

Security Service

The eA280-204 provides firewall functions which enable users to protect their computers when accessing the Internet.

Firewall

The following firewall functions are provided:

- Firewall switch: Enable or disable the firewall.
- LAN MAC address filtering: Prevent devices with specified MAC addresses on a LAN from accessing the network.
- LAN IP address filtering: Prevent devices with specified IP addresses from accessing computers on the LAN.
- URL filtering: Prevent computers on the LAN from visiting specified URLs.

Local Management and Maintenance

The eA280-204 supports local configuration to manage devices, configure network parameters, and help ensure that the device functions properly and stably.

Remote Management and Maintenance

The eA280-204 allows users to remotely manage connected devices complying with TR-069 on the Web UI.

5 Reference Standards

Communication Standards

Table 5-1 lists the communication standards that the eA280-204 complies with.

Table 5-1 eA280-204 communication standards

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

Wireless Interface Protocols

As to the Uu interface, the eA280-204 complies with 3GPP R11/R12.

6 Packing List

Table 6-1 describes the packing list for the eA280-204.

Table 6-1 eA280-204 packing list

| Item | Quantity | Remarks |
|----------------|----------|----------|
| LTE CPE | 1 | Standard |
| Power adapter | 1 | Standard |
| Quick Start | 1 | Standard |
| Ethernet cable | 1 | Standard |

7 Acronyms and Abbreviations

This chapter lists the acronyms and abbreviations related to the eA280-204.

Table 7-1 Acronyms and abbreviations

| Acronym/Abbreviation | Full Name |
|----------------------|--------------------------------------|
| AES | Advanced Encryption Standard |
| ALG | application level gateway |
| ARP | Address Resolution Protocol |
| APN | access point name |
| CPE | customer premises equipment |
| DHCP | Dynamic Host Configuration Protocol |
| DMZ | demilitarized zone |
| DNS | domain name service |
| ICMP | Internet Control Message 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 |
| NAPT | Network Address and Port Translation |
| NAT | network address translation |
| PIN | personal identification number |
| SSID | service set identifier |
| TDD | time division duplex |

| Acronym/Abbreviation | Full Name |
|-----------------------------|---------------------------------------|
| TKIP | Temporal Key Integrity Protocol |
| URL | uniform resource locator |
| USB | Universal Serial Bus |
| USIM | universal subscriber identity module |
| WAN | wide area network |
| Wi-Fi | Wireless Fidelity |
| WLAN | wireless local area network |
| WPA-PSK | Wi-Fi protected access pre-shared key |
| WPS | Wi-Fi protected setup |