2.1 Product Positioning

The AN5506-01-A is an FTTH-type GPON ONT. It provides users with communication and entertainment services in the form of data, voice, video, and so on, to meet the integrated access demand of families and small-scaled enterprises.

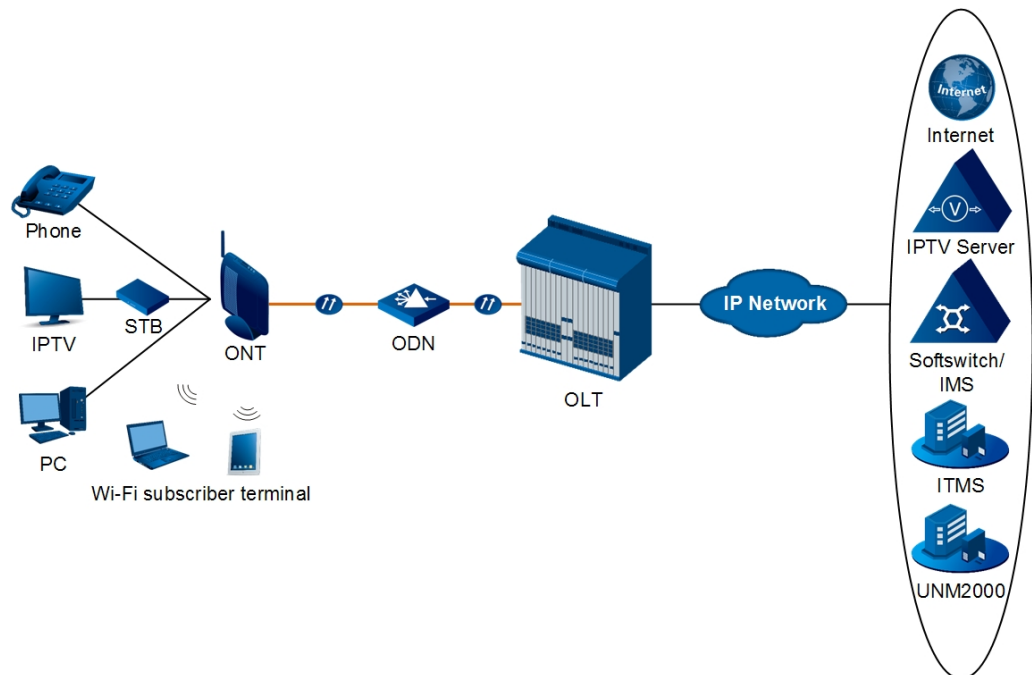See Figure 2-1 for the network positioning of the AN5506-01-A.

Figure 2-1   Network Application of the AN5506-01-A

2.2 Product Specifications

The tables below list the interfaces on the AN5506-01-A and the services supported by the ONT for users' reference on ONT configuration.

Table 2-1 lists the interfaces supported by the AN5506-01-A.

Table 2-1   Interfaces Supported by the AN5506-01-A

ONT Type	Ethernet Interface Quantity	POTS Interface Quantity	Wi-Fi Interface	USB Interface Quantity	CATV Interface Quantity
AN5506-01-A	1 (GE)	-	-	-	-

Table 2-2 lists the service types supported by the AN5506-01-A.

Table 2-2 Service Types Supported by the AN5506-01-A

ONT Type	Internet Service	Multicast Service	Voice Service	Wi-Fi Service
AN5506-01-A	√	√	×	×
Note: "√"indicates "supported"; "×" indicates "not supported".				

Service Reliability

The AN5506-01-A supports MTBF up to 30 000 hours.

2.3 Interface Specifications

2.3.1 GPON Interface

See Table 2-3 for the specifications of the GPON interface.

Table 2-3 GPON Interface Specifications

Parameter	Specification
Standard compliance	ITU-T G.984, Class B+
Transmission rate	Rx: 2.5 Gbit/s; Tx: 1.25 Gbit/s
Interface mode	Single-mode
Interface type	SC/UPC or SC/APC
Maximum transmission distance	20 km
Central wavelength	Tx: 1310 nm; Rx: 1490 nm
Optical power	Tx optical power: 0.5 dBm to 5.0 dBm Rx optical power: -8 dBm to -29 dBm
Extinction ratio	More than 10 dB
Receiving sensitivity	-27 dBm to -29 dBm
Maximum overload optical power	-8 dBm

2.3.2 LAN Interface

Table 2-4 shows the specifications of the LAN interface.

Table 2-4   LAN Interface Specifications

Parameter	Specification
Standard compliance	IEEE 802.3ab
Interface type	RJ-45
Interface rate	10 Mbit/s, 100 Mbit/s or 1000 Mbit/s
Maximum transmission distance	100m
Working mode	Supports full-duplex or half-duplex and 10/100/1000 M auto negotiation.
Specifications of the cable used	CAT-5 unshielded twisted pair

2.4   Introduction to the AN5506-01-A

2.4.1   Appearance

The following describes the appearance of the AN5506-01-A, including the overall look, interfaces, buttons, and indicator LEDs.

Note:

The pictures here are only for reference.

Appearance

The overall look of the AN5506-01-A is shown in Figure 2-2.

Figure 2-2   Overall Look of the AN5506-01-A

Interface and Button

Interfaces and buttons of the AN5506-01-A are located on the rear and side panels of the equipment. Figure 2-3 shows the rear panel and Figure 2-4 shows the side panel.
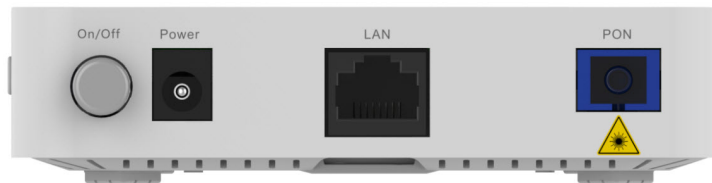

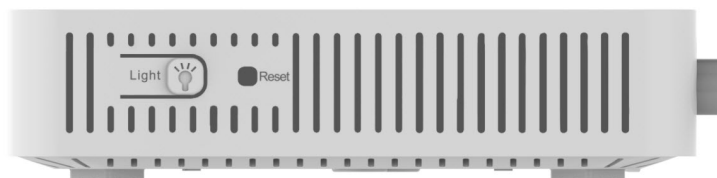Figure 2-3   Rear Panel of the AN5506-01-A

Figure 2-4   Side Panel of the AN5506-01-A

Table 2-5 describes the interfaces and buttons of the AN5506-01-A.

Table 2-5   Interfaces and Buttons of the AN5506-01-A

Interface and Button	Description	Function
On/Off	Power switch	Turns on or off the power for the equipment.
Power	Power interface	Connects with the power adapter.
LAN	Ethernet interface	Connects with the computer, IP router or IP set top box.
PON	Fiber interface	Connects with optical fiber for uplink access.
Light	Indicator LED switch	Turns on or off the indicator LEDs.
Reset	Reboot button	Pressing down the button for no more than 5 seconds to reboot the equipment; pressing down the button for more than 5 seconds to restore the factory settings and reboot the equipment.

Indicator LED Description

Indicator LEDs of the AN5506-01-A are located on the front panel of the equipment. Table 2-6 describes the indicator LEDs.

Table 2-6   Indicator LEDs on the AN5506-01-A

Indicator LEDs	Meaning	Color	Status	Status Description
Power	Power status indicator LED	Green	ON	The equipment is powered on.
			OFF	The equipment is not powered on.
LAN	Ethernet interface status indicator LED	Green	ON	The interface is connected to the user terminal and no data is transmitted.
			Blinking	The interface is transmitting / receiving data.
			OFF	The interface is not connected to the user terminal.
LOS	Optical signal status indicator LED	Red	Blinking	The equipment has not received the optical signal.
			OFF	The equipment has received the optical signal.
PON	Register status indicator LED	Green	ON	The ONT is activated.
			Blinking	The ONT is being activated.
			OFF	Activation of the ONT is not yet started.

2.4.2   Product Characteristics

The AN5506-01-A can be used together with the OLT equipment to make up a GPON system and access multiple services for users. The AN5506-01-A has the following characteristics:

1. GPON access capability

◆ Conforms to ITU-T G.984 series of standards, with good interoperability.

◆ Provides large-capacity GPON transmission bandwidth: supports 2.5 Gbit/s for the downlink rate and 1.25 Gbit/s for the uplink rate.

◆ Supports the DBA (Dynamic Bandwidth Allocation) algorithm.

◆ Supports long-haul transmission. The maximum transmission distance can reach 20 km.

2. Abundant service types

The equipment provides abundant physical interfaces on the subscriber side to access multiple services such as Internet access and video services.

3. Gateway functions

◆ Serves as home gateway and provides abundant and reliable gateway functions.

◆ Functions as the DHCP Server to cater for application demands in different scenarios.

◆ Supports configuring protection against DoS attack, filtering of MAC addresses, IP addresses and URL addresses, firewall and ACL rules to guarantee safe operation of the equipment.

4. Remote automatic provisioning of services, maintenance and management

◆ The equipment adopts the management based on TR-069 and OMCI, and supports TR-069 over OMCI. It can manage terminal services without IP network, which facilitates automatic provisioning, maintenance and management of services remotely.

◆ Supports configuring the global profile and delivering the XML configuration file on the network management system. Only a few changes are required to deliver the ONT services in a batch manner and make network adjustment.

◆ Supports configuring the user-defined upgrade policies on the network management system so that the equipment can be upgraded automatically after being powered on.

◆ Supports collecting performance data of the ONT remotely via the network management system to enable real-time monitoring of the network performance.

◆ Supports remote fault isolation for the ONT via the network management system. Faults can be isolated remotely according to the alarms reported to reduce the maintenance cost.

2.4.3　Functions and Features

Table 2-7 lists the functions and features of the AN5506-01-A

Table 2-7　Functions and Features of the AN5506-01-A

Item		Description
GPON	GPON interface specifications	Compliant with standards ITU-T G.984.1, G.984.2, G.984.3 and G.984.4.
		Supports GEM encapsulation (Ethernet over GEM is supported, but ATM encapsulation is not supported).
		The GPON system adopts the single-fiber bidirectional transmission mechanism, using the TDMA mode with the wavelength 1310 nm in the uplink direction, and the broadcast mode with the wavelength 1490 nm in the downlink direction.
		Supports the embedded OAM message, PLOAM message and OMCI message.
		Supports the splicing of data packets and OMCI protocol packets in the uplink direction. Splicing with adaptive message length and that with fixed length are supported.
	GEM Port	Supports bearing the downlink broadcast packets and unknown multicast packets via the broadcast GEM port.
		Supports mapping from GEM ports to T-CONTs.
		Supports multiple flow mapping modes.
		Supports the GEM port loopback.
	T-CONT	Supports T-CONTs of Type 1 to Type 5.
		A T-CONT supports no less than 64 GEM ports.

Table 2-7   Functions and Features of the AN5506-01-A (Continued)

Item		Description
		Supports eight T-CONTs.
	DBA	Supports DBA in the SR and NSR modes.
		Supports DBA Piggy-back DBRu Mode 0.
	FEC	Supports bi-directional FEC: downlink FEC decoding and uplink FEC encoding.
		Supports downlink FEC performance statistics.
	Encryption	Supports encryption of downlink unicast data channel.
		Supports the AES-128 encryption algorithm.
		Supports generation of the key and response to the OLT's request for key.
		Supports OMCI channel encryption.
	Registration authentication	Supports the ONT registration process as specified in ITU-T. G.984.3.
		Supports four authentication modes: SN, Password, SN + Password and LOID.
		Supports performance statistics for the Ethernet interface.
		Supports performance statistics for the GEM interface.
Ethernet		Complies with the IEEE 802.3 standard.
		Supports configuring the Ethernet interface rate, working mode, and MDI/MDIX auto-negotiation mode.
		Supports manual configuration to the rate 10/100/1000 Mbit/s.
		Supports manual configuration of the half duplex or full duplex mode.
		Supports unlink / downlink rate control based on the Ethernet interface, with the control granularity of 64 kbit/s.
		Supports the PAUSE flow control.
		Supports the loopback detection at the subscriber side.
		Supports learning up to 1024 MAC addresses.
		Supports global configuration of enabling / disabling the MAC address learning function.
		Supports remote configuration of the MAC address aging time. The value ranges between 0s and 300s. The default value is 80s.
Multicast		Supports the IGMP Snooping protocol.
		Supports IGMP v1/v2/v3.
		Supports filtering and forwarding of multicast MAC addresses.
		Supports controllable multicast and uncontrollable multicast.
		Supports fast leave.
		Supports translation, transparent transmission and stripping of the multicast VLAN tags.

Table 2-7   Functions and Features of the AN5506-01-A (Continued)

Item	Description
	Supports VLAN translation for the uplink multicast protocol packets.
	Supports filtering the downlink multicast packets.
	Supports bearing downlink multicast service flow and IGMP signaling packets via different GEM ports.
	Supports configuration of the multicast GEM ports.
	Supports authentication of the GEM ports.
	Supports no less than 256 multicast groups.
	Uses the IPoE/PPPoE mode for the multicast services.
	Supports the IPv6 Snooping multicast service, supports the MLDv1 information, MLDv2 query information and MLDv2 report information.
VLAN	Supports the IEEE 802.1Q VLAN standard.
	Supports joining the 802.1Q VLAN in the tag / untag mode.
	Supports up to 4095 VLANs.
Wire-speed forwarding	Supports Layer 2 / Layer 3 wire-speed forwarding.
Layer 3 features	Supports the IPv4/v6 dual stack.
	Supports obtaining network parameters such as the user IP address, subnet mask and DNS in the DHCP mode. Supports reporting the physical location of the Ethernet interface based on DHCP Option82.
	Supports obtaining user IP addresses in the PPPoE mode, and supports the PPPoE+ function for precise identification of users.
	Supports static routing and default routing.
	Supports DDNS, NAT, port forwarding and DMZ.
	Supports ARP, UPnP, ALG, Portal and QoS.
Security	Supports the firewall.
	Supports packet filtering.
	Supports filtering MAC addresses.
	Supports filtering URL addresses.
	Supports protection against illegal message (DoS, ARP) attacks; supports suppression of broadcast storms.
	Supports configuring the HTTPS safe channel.
	Supports configuring ACL rules for the ONT.
	Supports remote control.
Management and maintenance	Supports local service configuration, query and software upgrade based on the Web page.
	Supports management of the OMCI configuration and queries.

Table 2-7   Functions and Features of the AN5506-01-A (Continued)

Item	Description
	Supports delivering the XML configuration file via the OMCI, alarm reporting, alarm synchronization and performance statistics.
	Supports automatic provisioning of services, equipment management and software upgrade remotely based on OMCI/TR-069.
	Supports query of the ONT optical module information.
	Supports TYPE B protection.
QoS	Provides abundant QoS functions; supports global configuration of queue priorities and flexible mapping of 802.1p values in packets.
	Supports the ACL function to match traffic based on the ACL rules.
	Supports three queue scheduling modes (PQ, WRR and PQ+WRR); supports configuring the weight of the queues under scheduling, so as to guarantee the quality of high-QoS services such as voice and video in the multi-service scenario.

2.4.4   Technical Specifications

See Table 2-8 for the technical specifications of the AN5506-01-A.

Table 2-8   Technical Specifications of the AN5506-01-A

Classification	Item	Description
Mechanical parameters	Dimensions	25.5mm × 112mm × 112mm (H × W × D)
	Wall mounting hole distance	75mm
	Weight	About 120g
Power supply parameter	DC	DC 12 V/0.5A
Power consumption parameters	Static power consumption	3W
	Maximum power consumption	4W
Environment parameters	Operating temperature	-5℃ to 45℃
	Storage temperature	-40℃ to 70℃
	Environmental humidity	10% to 90% (no condensation)