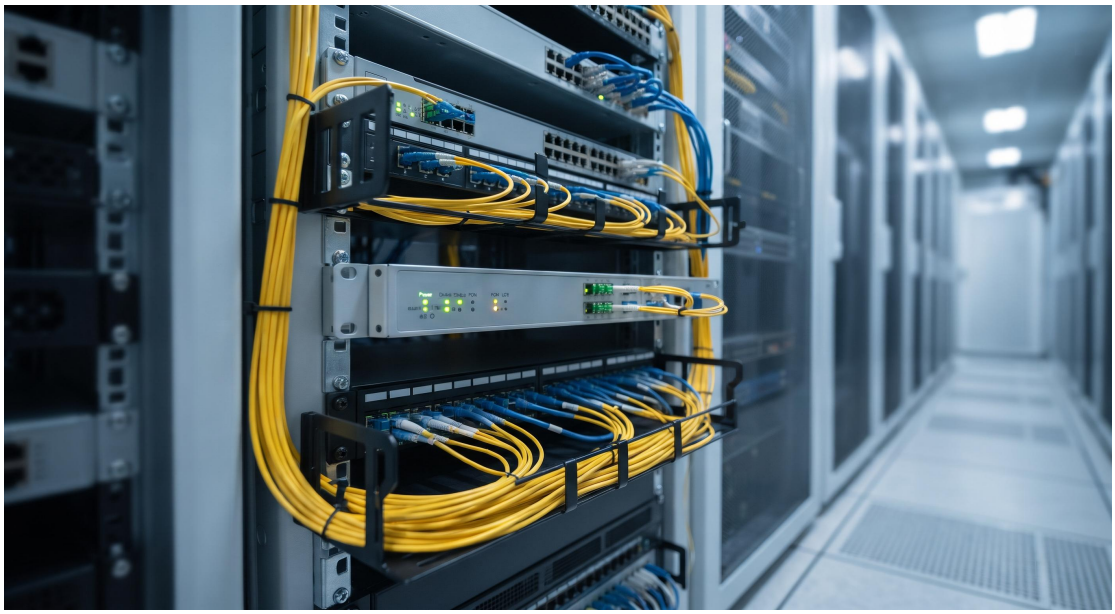
FiberHome AN5506-04-B FTTH Optical Terminal Deployment and Cabling Guidelines - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The FiberHome AN5506-04-B is a carrier-class GPON optical network terminal (ONT) designed for FTTH and FTTO deployment scenarios requiring reliable multi-service delivery over a single fiber infrastructure. As a member of FiberHome's industry channel ONU series, the AN5506-04-B provides four 10/100BASE-TX Ethernet ports and two RJ11 voice ports, enabling simultaneous data, VoIP, and video service delivery to residential and small enterprise subscribers. The device operates as a remote GPON SFU (Single Family Unit) that connects to an AN5x16 Series OLT within a GPON access system, supporting line rates compliant with ITU-T G.984 standards. This document provides deployment and cabling guidelines for field engineers, system integrators, and network planners responsible for FTTH rollout and subscriber premises installation.

IMPORTANT LIFECYCLE NOTICE: Per FiberHome official announcements, the AN5506-04 series has reached End of Marketing (EOM) effective April 30, 2025. End of Full Support (EOFS) is scheduled for April 30, 2027, and End of Service (EOS) for April 30, 2028. New deployments should consider this lifecycle status when planning procurement and long-term support strategies.



PRODUCT IDENTIFICATION

The AN5506-04-B is a box-type GPON ONU featuring a compact passive-cooling chassis suitable for desktop placement or wall-mount installation. The unit provides one GPON uplink interface via SC/PC optical connector and subscriber-facing interfaces comprising four 10/100BASE-TX RJ45 ports and two RJ11 POTS ports. The device supports both SIP and H.248 voice protocols, enabling flexible integration with various softswitch platforms. Management is performed through the OLT via OMCI or through a local Web GUI interface, with remote upgrade and monitoring capabilities supported.

The AN5506-04-B operates from a 12V DC power adapter with AC 220V input, consuming less than 5W under typical operating conditions. The unit's passive

thermal design eliminates fan noise and moving parts, enhancing reliability for unattended subscriber premises deployment. Physical dimensions are 210 × 149 × 32.5 mm, with a net weight of approximately 650g.

[IMAGE_1]

CORE INTERNAL TOPOLOGY

The AN5506-04-B employs a single-chip GPON MAC and packet forwarding architecture optimized for line-rate Layer 2 switching. The GPON interface complies with ITU-T G.984 series recommendations, supporting downstream rates up to 2.488 Gbps and upstream rates up to 1.244 Gbps over a maximum transmission distance of 20 kilometers. The internal forwarding engine supports wire-speed L2/L3 forwarding, IEEE 802.1Q VLAN processing with the full 4096 VLAN address space, and IEEE 802.1p QoS classification based on interface, MAC address, and VLAN ID.

The device implements IGMP Snooping and IGMP Proxy for multicast service delivery, supporting IGMP v1/v2/v3 protocols to enable efficient IPTV and video stream distribution. Security features include PPPoE+ for accurate subscriber identification, DHCP Option82 for physical location reporting, MAC/IP address filtering and binding, and DoS attack protection. Downstream

data encryption is supported via AES-128 algorithm.

SWITCHING SUBSYSTEM CAPABILITIES

The Ethernet switching subsystem provides four 10/100BASE-TX RJ45 interfaces with auto-negotiation for speed, duplex mode, and MDI/MDIX crossover detection. Each port supports IEEE 802.3x pause flow control and can be individually configured for VLAN membership, QoS priority, and bandwidth policing. The voice subsystem provides two RJ11 POTS interfaces supporting SIP and H.248 call control protocols, with voice codecs including G.711, G.723.1, and G.729.

The AN5506-04-B supports STP/RSTP for loop prevention in redundant LAN topologies and provides comprehensive VLAN processing including 802.1Q tagging, QinQ, and VLAN 1:1/N:1 translation. Traffic management features include ACL-based packet filtering, unknown unicast/broadcast/multicast suppression, and priority re-tagging based on IEEE 802.1p.

OPERATIONAL ADVANTAGES

- **Single-Fiber Multi-Service Integration**: Consolidates broadband data, VoIP telephony, and IPTV/video onto one GPON fiber, reducing cabling complexity

and installation cost for FTTH drop deployments.

- **Passive Cooling Design**: Fanless chassis construction eliminates acoustic noise and mechanical failure points, suitable for in-home installation where silent operation is essential.

- **Carrier-Grade Voice Quality**: Dual POTS ports with SIP/H.248 support and standard voice codecs deliver toll-quality telephony over the GPON infrastructure.

- **Flexible Installation Options**: Compact form factor supports desktop placement, wall mounting, or embedded wall-box installation, accommodating diverse subscriber premises constraints.

- **Remote Management and Upgrade**: Full OMCI management from the OLT enables zero-touch provisioning and remote firmware updates, reducing truck-roll requirements for service activation and maintenance.

SPECIFICATION MATRIX

The following table summarizes the AN5506-04-B hardware and software specifications relevant to deployment planning and cabling engineering.

Parameter	**Specification**
Form Factor	Box-type desktop/wall-mount ONT, passive cooling

Dimensions (W×D×H)	210 × 149 × 32.5 mm
Weight	Approximately 650g
GPON Uplink Interface	1 × SC/PC optical port, ITU-T G.984 compliant
Downstream/Upstream Rate	2.488 Gbps / 1.244 Gbps
Maximum Reach	20 km
Ethernet Ports	4 × RJ45, 10/100BASE-TX, auto-negotiation
POTS Ports	2 × RJ11, SIP and H.248
Voice Codecs	G.711, G.723.1, G.729
VLAN Support	IEEE 802.1Q, full 4096 VLAN space, QinQ
Multicast	IGMP v1/v2/v3, IGMP Snooping, IGMP Proxy
QoS	IEEE 802.1p, interface/MAC/VLAN-based classification
Security	PPPoE+, DHCP Option82, AES-128, MAC/IP filtering
Power Input	DC 12V via AC 220V adapter
Power Consumption	< 5W (typical)
Operating Temperature	-10°C to +55°C

Storage Temperature	-30°C to +60°C
Relative Humidity	10% to 90% (non-condensing)
Lightning Protection	Power: 4KV; User interfaces: 1.5KV
Management	OMCI via OLT, Web GUI, remote upgrade

REGULATORY COMPLIANCE

The AN5506-04-B complies with ITU-T G.984 series GPON standards and supports the OMCI management protocol as defined in G.984.4. The device meets applicable electromagnetic compatibility requirements for subscriber premises equipment and incorporates lightning protection on the power interface (4KV) and user interfaces (1.5KV). VoIP functionality conforms to SIP and H.248 protocol specifications, with voice codec implementations compliant with ITU-T G.711, G.723.1, and G.729 recommendations. The unit is designed for indoor operating environments with a temperature range of -10°C to +55°C and relative humidity of 10% to 90% non-condensing.

