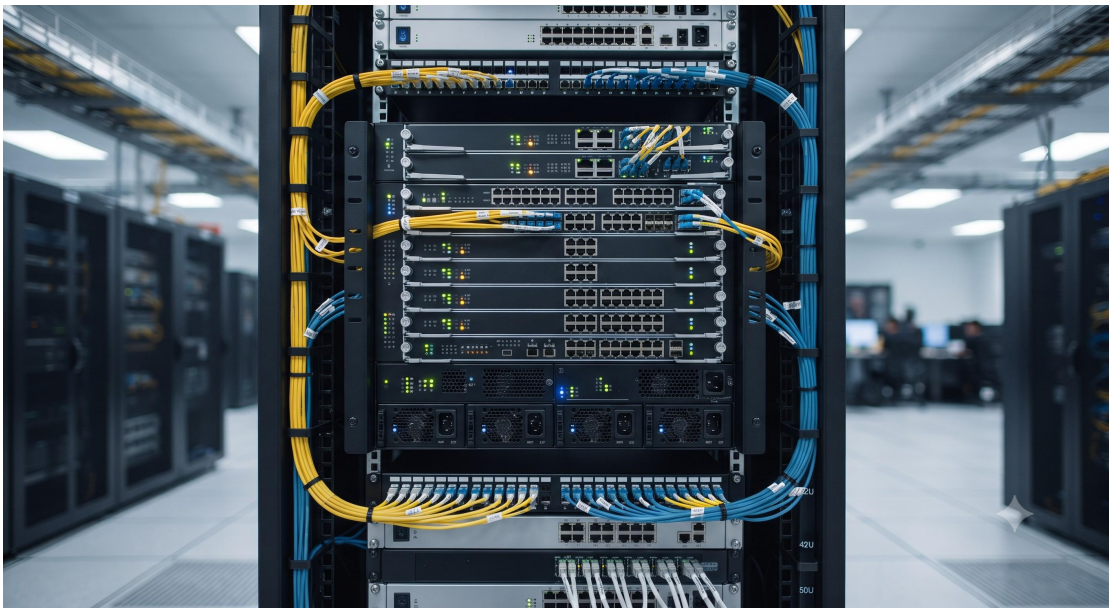
FiberHome AN5516-06 Subrack Mechanical Dimensions and Grounding Requirements - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The FiberHome AN5516-06 is a high-density, carrier-grade optical transmission subrack engineered for the modern metro and backbone transport network. As a fundamental building block within the FiberHome OTN and WDM portfolio, the AN5516-06 provides a standardized, high-reliability mechanical and electrical platform for housing service interface units, optical amplifier modules, and multiplexer/demultiplexer cards. This document serves as the definitive technical reference for its mechanical form factor, physical installation parameters, and the mandatory grounding and bonding requirements essential for safe and electromagnetic-compliant operation in central office and data center environments.



CORE INTERNAL TOPOLOGY & PHYSICAL LAYOUT

The AN5516-06 subrack is designed with a robust, ETSI-compliant chassis architecture that prioritizes service modularity, thermal efficiency, and physical security. The chassis backplane employs a high-speed, low-loss printed circuit board (PCB) design, establishing a passive, highly reliable connection matrix between the front-accessible service cards and the rear power distribution and fan tray modules. The internal topology is segregated into distinct physical zones to optimize signal integrity and cable management:

- Service Card Bay: The front section features 6 vertical slots arranged in a 6-slot horizontal configuration, each accommodating a dedicated plug-in unit (PIU). The slot assignments are keyed to specific card types (e.g., tributary, line, or optical supervisory) to prevent incorrect insertion and ensure optimal cooling airflow.

- Fan Tray Zone: Located in the lower section of the chassis, the fan tray unit is individually hot-swappable, featuring N+1 redundancy. It is responsible for the forced-air cooling architecture, drawing cool air from the front and exhausting it laterally out the side or rear to maintain temperature uniformity across all installed modules.
- Power Distribution Area: Positioned at the rear or side of the chassis, the power entry module (PEM) provides dual redundant feeder connections, supporting -48 V DC input voltages and incorporating inrush current limiting and advanced surge protection circuitry.

SWITCHING SUBSYSTEM CAPABILITIES

While the AN5516-06 functions as a managed physical transport subrack, its backplane and logic control systems are engineered to support high-capacity optical switching. The subrack architecture enables non-blocking connectivity between inserted service units, allowing for:
- Flexible service grooming and cross-connect of up to 200 Gbps of backplane bandwidth, depending on the specific mix of tributary and line cards installed.
- Full support for OTN, SONET/SDH, and packet-based services through unified service interfaces.
- The capability for per-slot service provisioning, where each of the 6 slots can be independently configured to support line rates up to 100G.

OPERATIONAL ADVANTAGES

The AN5516-06 delivers exceptional value through its physical design and mechanical engineering:

- Space Efficiency: Its shallow depth and 2-RU (Rack Unit) height maximize rack density, enabling operators to pack more transmission capacity into a single standard 19-inch or ETSI 300mm equipment rack.
- Simplified Cabling: The front-access design for all optical and electrical interfaces allows for intuitive and highly organized cable routing, reducing installation and maintenance time.
- Thermal Reliability: The intelligent fan control system adjusts fan speed based on ambient temperature and system load, minimizing acoustic noise and extending the operational life of sensitive optical modules.
- Enhanced Protection: The chassis is constructed from heavy-duty aluminum alloy and cold-rolled steel, providing rugged mechanical protection against physical shock and vibration, making it suitable for a variety of deployment scenarios from central offices to mobile aggregation sites.

SPECIFICATION MATRIX

The following table provides a comprehensive technical summary of the

FiberHome AN5516-06 subrack's physical, electrical, and environmental parameters.

Parameter	Specification
Form Factor	ETSI-compliant 2 RU (88.1mm height), 19-inch rack-mountable
Chassis Dimensions (H x W x D)	88.1 mm x 482.6 mm x 240 mm (without front cover); Weight: ~4.5 kg (empty chassis)
Total Slots	6 x front-accessible slots (universal for service units)
Power Input	Dual -48 V DC (-40 V to -72 V) OR 100-240 V AC (50/60 Hz), hot-swappable, load-sharing
Power Consumption	Up to 150 W (fully loaded, depending on card types)
Cooling	Front-to-side airflow; N+1 redundant, hot-swappable fan tray
Operating Environment	0°C to 45°C (short-term up to 55°C), 10% to 90% non-condensing RH
Storage Temperature	-40°C to +70°C
Grounding	M6 grounding stud (16mm ² min.

	conductor) on rear panel
Safety Approvals	IEC/EN 60950-1, IEC 62368-1
EMC Compliance	EN 300 386, FCC Part 15 Class A

REGULATORY COMPLIANCE & GROUNDING REQUIREMENTS

GROUNDING REQUIREMENTS

Proper electrical grounding is paramount for the AN5516-06 to ensure personnel safety, protect against lightning-induced surges, and mitigate electromagnetic interference (EMI). The subrack must be installed in accordance with the following mandatory grounding protocols:

- Primary Chassis Ground: The subrack is equipped with a dedicated M6 threaded grounding stud located on the rear panel. This stud must be connected to the central office or data center main grounding busbar using a 16mm² (minimum) copper grounding conductor. The resistance between the subrack chassis and the grounding electrode should not exceed 1 ohm.

- Rack Grounding: The host equipment rack (cabinet) itself must be electrically bonded to the same building grounding electrode system. This is typically achieved via the rack's ground points. A galvanic connection between the subrack and the rack must be established using a bonding jumper. All painted or anodized rack contact surfaces must be scraped clean to ensure a

low-resistance metal-to-metal contact.

- Signal Ground (Cable Shield Bonding): The AN5516-06 supports front mounting of cable management bars, which are equipped with grounding clips. The shields of all optical and electrical cables entering the subrack should be terminated to these bars using cable ties with integrated grounding teeth, providing a short and effective path to the chassis ground.

- AC Power (If equipped): For models supporting AC power, the AC inlet must be connected to a three-wire grounded AC outlet providing an independent Protective Earth (PE) conductor. The PE conductor must be securely bonded to the subrack's internal chassis ground plane.

KEY SAFETY AND EMC STANDARDS

The FiberHome AN5516-06 subrack is manufactured and fully tested to comply with the most stringent international safety and electromagnetic compatibility (EMC) standards:

- Electrical Safety: IEC/EN 60950-1 and IEC 62368-1 (Audio/Video, Information and Communication Technology Equipment - Safety).

- EMC: EN 300 386 V1.6.1 for Telecommunications Network Equipment - EMC requirements.

- Environmental: ETS 300 019-2-1 for Storage, ETS 300 019-2-2 for Transportation, ETS 300 019-2-3 for Stationary Use, specifying temperature, humidity, and vibration thresholds.

- RoHS: Fully compliant with the Restriction of Hazardous Substances Directive (2011/65/EU).

