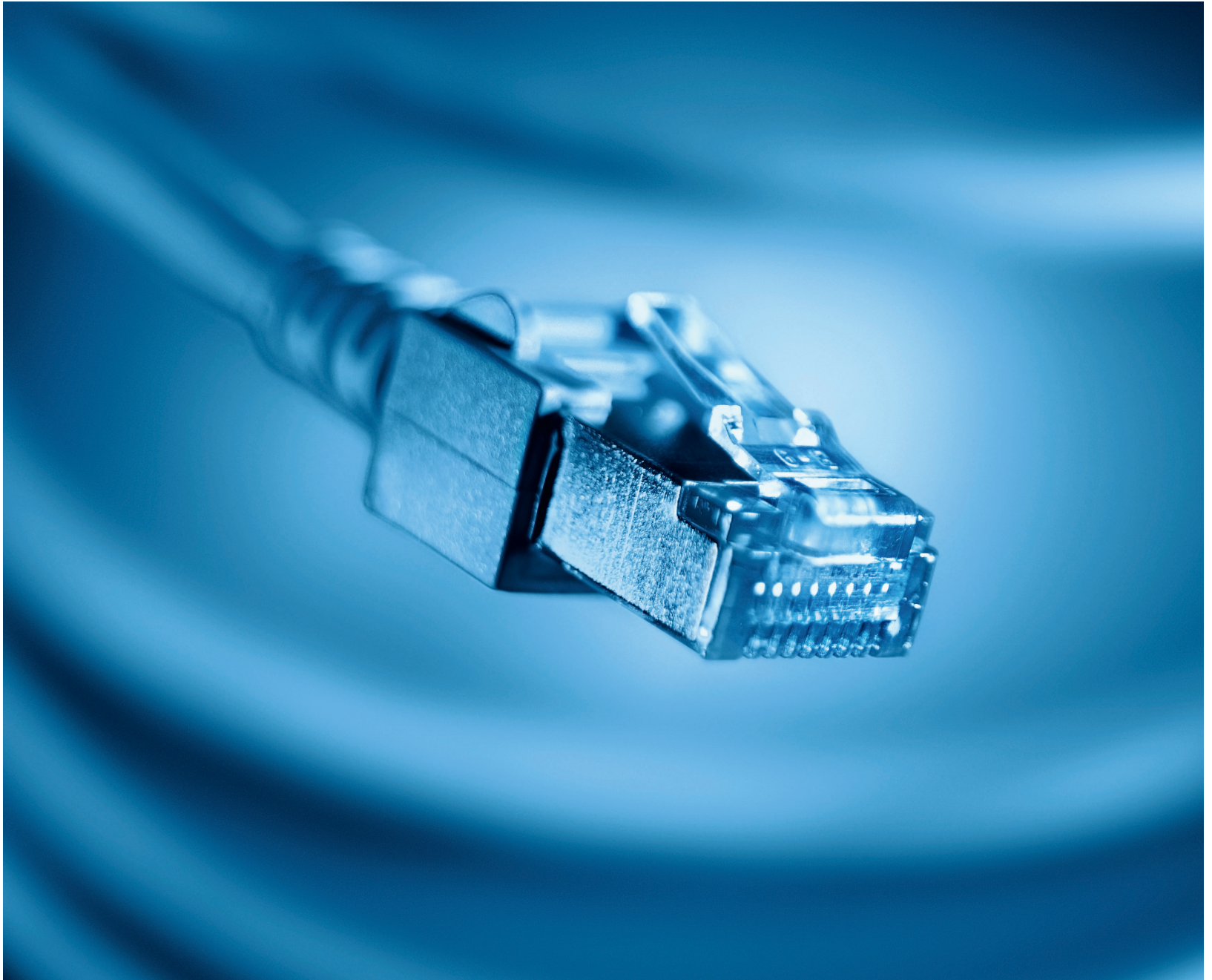# CAT 6A FOR PoE APPLICATIONS

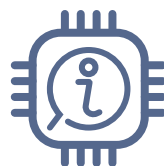

For high-performance infrastructures

POWER OVER ETHERNET MAIN APPLICATIONS

Security

- CCTV
- Access control
- Intruder alarms
- Lift controls

ICT

- AV Systems
- WAPs
- VoIP phones
- Thin clients

Building automation & control

- Lighting
- Parking Management Systems
- Room Controllers
- Automated Blinds
- Variable air volume units

Sensors

- Prescence
- Movement
- Temperature
- Light pressure
- Humidity
- Gases
- Water leakage
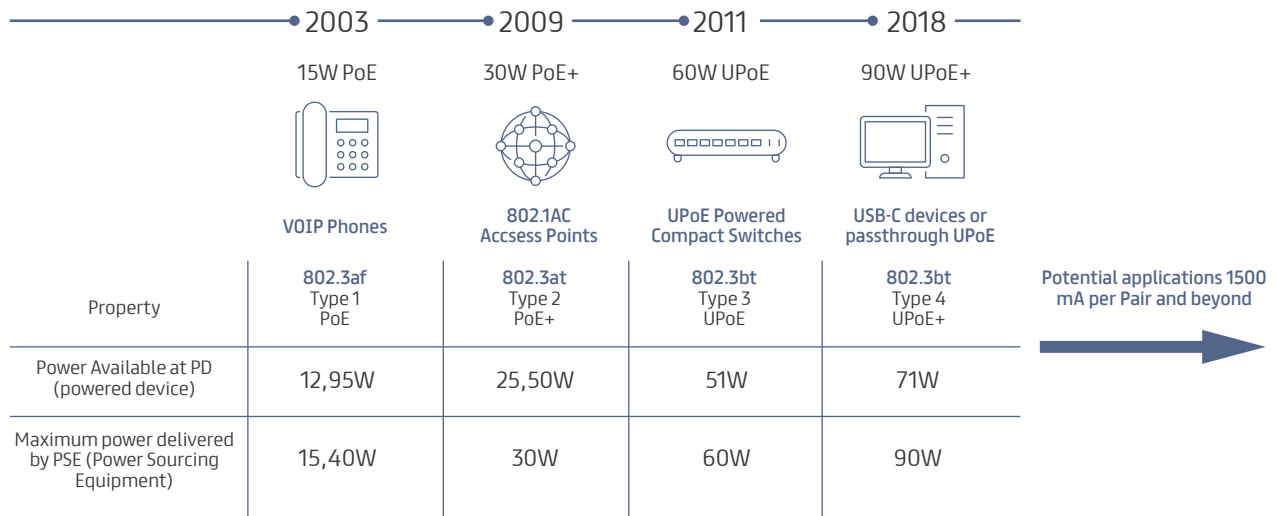- Explosion

etc...

Retail

- Digital signage & kiosks
- Point of sale terminals
- Self checkout machines
- People counter direction detection, queue monitors, etc.

Industrial

- DC motors
- RFID
- Human Machine Interfaces
- PoE clocks
- Industrial PoE switches

PoE STANDARDIZATION ROADMAP

2003 ─ **2009** ─ **2011** ─ **2018**

| | 15W PoE | 30W PoE+ | 60W UPoE | 90W UPoE+ |

	VOIP Phones	802.1AC Accsess Points	UPoE Powered Compact Switches	USB-C devices or passthrough UPoE
Property	802.3af Type 1 PoE	802.3at Type 2 PoE+	802.3bt Type 3 UPoE	802.3bt Type 4 UPoE+
Power Available at PD (powered device)	12,95W	25,50W	51W	71W
Maximum power delivered by PSE (Power Sourcing Equipment)	15,40W	30W	60W	90W

Potential applications 1500 mA per Pair and beyond →

CHALLENGES OF PoE APPLICATIONS

HIGHER Core Temperature

- Modern devices require higher power and bandwidth

- Power levels above 60W have been shown to cause overheating in cable bundles that can damage cable integrity and performance

- As power increases, cables generate heat, which can be amplified in an enclosed installation

- At the highest power levels (60w and above), inferior cabling will not support large cable bundles. Only cables with enhanced features and constructions will support these elevated power needs.

When designing an infrastructure, the quality of the cable must be verified in accordance well as the installation environment.
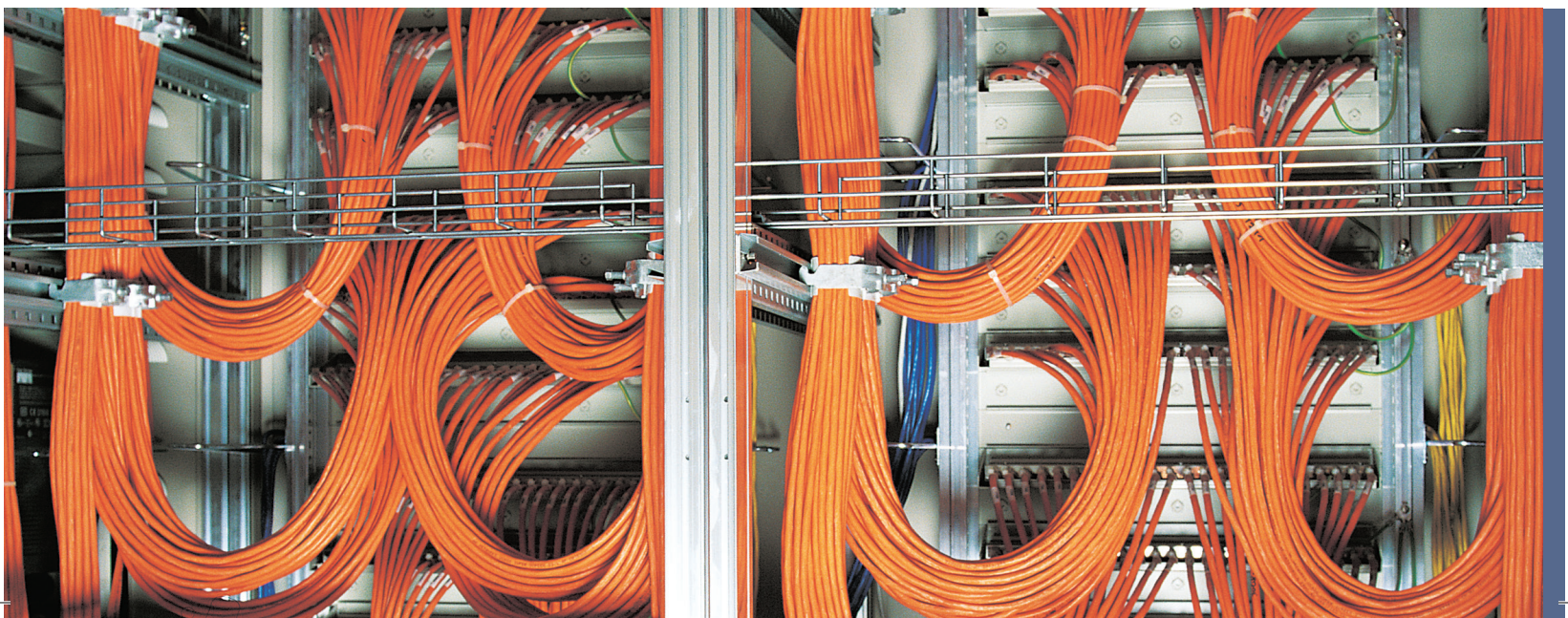
Cat6a is the de-facto PoE cabling infrastructure and core architecture of digital buildings. It carries direct current (DC) electrical power to any device on a network, enabling a vast variety of functions from smart devices with sufficient power and bandwidth.

The category augmented cable or Cat 6a is the next generation of the cabling system standard and has been designed to enhance the performance of the cat 6 cables. It can be laid more than 328 ft and transmits data rate of up to 10 gigabits.

Category 6A provides superior performance for the elevated power needs of Power over Ethernet (PoE) applications as it mitigates heat effectively with enhanced thermal dissipation.

The two types of Category 6a cables include:

Cat6A UTP (Unshielded)

Category 6a UTP is built in a particular model to help eliminate ANEXT and crosstalk. ANEXT is the computation of the signal coupling between wires in adjacent and different cables. The smaller diameter cable supported by new technology, is designed to meet the size requirement while still meeting the requirements of transmission and power. The smaller cable diameter allows for greater cable density.
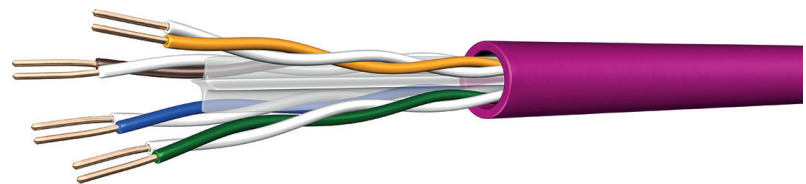
Cat6A F/UTP (Shielded)

Alien crosstalk and the time required to carry out the test could be reduced greatly, if not completely eliminated, by making use of Cat 6a F/UTP. The foil shield acts as a barricade preventing external RFI/EMI from degrading the performance of the twisted pairs. It improves data line security as it prevents the leakage of data signals out of the cable, making the cable better for secure installations and more difficult to tap.
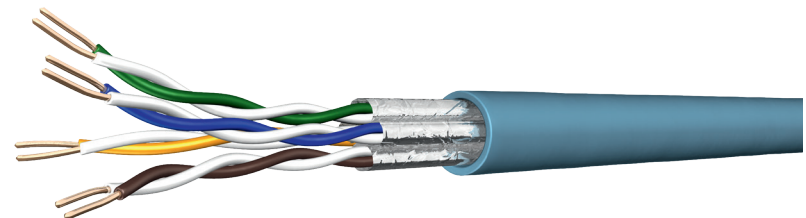
✓ Category 6A support a wireless system that depends on 10 Gig

✓ Category 6A offers improved performance for PoE (Power over Ethernet)

✓ Cat 6A is necessary to deliver the multi-gigabit backhaul required by the next-generation of Wi-Fi

✓ Cat 6A facilitates the performance and capacity needed by mobile users, IoT devices and latency-sensitive applications

Large enterprises are faced with a growing need to accommodate ever more sophisticated applications. Any structured cabling implementation should consider providing a stable, highspeed infrastructure that is technology-agnostic.

Category 6A is the perfect choice to enable the development and deployment of bandwidth-hungry applications. It provides improved price performance and lower power consumption, supports in-building wireless applications and is recommended for new installations in markets such as:

Commercial

Businesses today rely on data-heavy applications like video, wireless, and desktop virtualization, so it is critical to have a network infrastructure that will support these and future applications. Office bandwidth is required for many different uses such as cloud services, remote access VPN, Online backup, large file uploads and downloads, VoIP services and others. Determining bandwidth requirements also includes an estimation of the maximum downtime that the business could afford without productivity and profitability being affected.

Healthcare

The connectivity needs of healthcare facilities are more particular and complex than commercial buildings, in terms of the most appropriate cabling types, cable topologies, and cabling distances for use within a medical facility. The intent is support for both clinical and non-clinical systems within the building, including RFID, building automation systems, nurse call, security and access control, and pharmaceutical inventory or anything that utilizes IP-based infrastructure.

Education

Category 6A is recommended for new education facilities based on the need for a high-performance infrastructure required for wired and wireless connectivity. It includes providing the required network infrastructure and networked services to improve the quality of education and research output.

Reasons to Choose CAT 6A

1 Category 6A is highly recommended for new installations in healthcare & education facilities.

2 Category 6A supports 10GBASE-T up to 100 meters and supports the familiar and backwards compatible RJ45 user interface.

3 Category 6A offers simple and cost-effective provisioning to support current and emerging applications.

4 10GBASE-T provides improved price performance and lower power consumption which means lowest cost per transmitted gigabit.

5 Category 6A supports new in-building wireless systems that rely on 10G technology.
New in-building wireless systems relying on 10GBASE-T LAN technology and PoE over Category 6A are already in the market.

6 Category 6A supports Wi-Fi technologies already exceeding 1 Gbps.
Today's 802.11ax (aka Wi-Fi 6) access points can have a maximum speed of 6.77 Gbps and requires a 10GBASE-T connection.

7 Category 6A is globally available in unshielded and shielded versions.
Draka provides shielded and unshielded cables with unique characteristics that support sufficient bandwidth power transfer and protect against RFI/EMI, electrical noise and electromagnetic radiation Less likely to cause an electrical system to fail.

8 Category 6A provides superior performance for Power over Ethernet (PoE) applications.
Category 6A offers enhanced thermal dissipation performance over most traditional 1 gigabit cables.

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