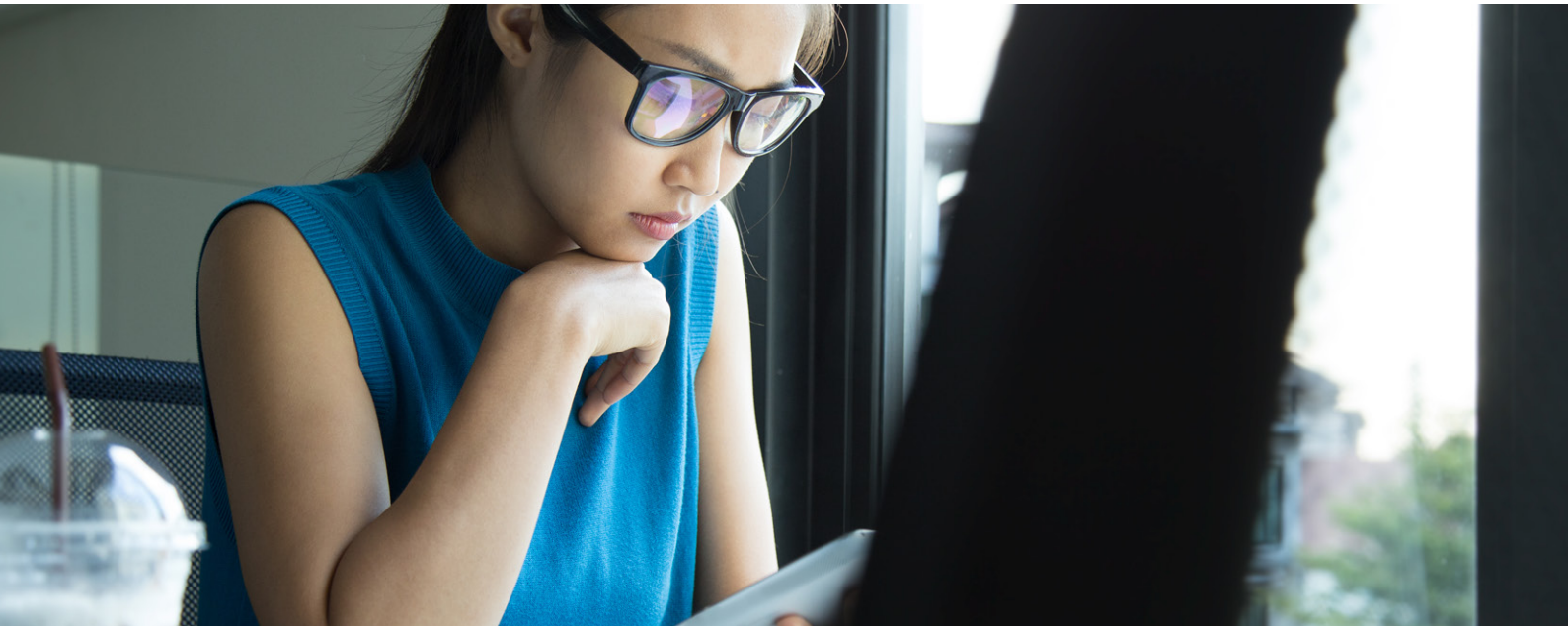# Education
Wi-Fi selector guide

Alcatel-Lucent OmniAccess Stellar WLAN Solution

Thank you for downloading this guide on Wi-Fi infrastructure. It is your personal guide to the solutions within the Alcatel-Lucent OmniAccess® Stellar WLAN Wi-Fi 6 and Wi-Fi 5 portfolio of access points, and how they help to deliver the services and resources your users need, wherever they need them.

ALE is working with education professionals all over the world to transform research, communication and collaboration for schools, colleges, universities and other educational institutions.

Simple, secure access

The priorities of a wireless infrastructure include security, reliable availability and ease of management. These three factors serve to define the user experience, whether those users are students, teachers, management or administration professionals.

On a large, busy campus, or even on a smaller school campus, users must be able to move freely around the site, without worrying about losing coverage, or having to reconnect every time they arrive in a different room.

With OmniAccess Stellar WLAN, this expectation is met consistently at every location. Users are recognized wherever they are, and no matter what device they are using to connect to the network.

Multiple devices

You are almost certainly operating some form of bring-your-own policy, allowing users to connect their own devices, as well as those issued by your organization. The access control and security policies you need to apply will vary according to the type of user.

For example, teachers will require greater flexibility, and students may need additional layers of content filtering. Management staff may need to connect to back-office functions from their mobile devices, while teachers and students must be prevented from accessing these services.

Of course, the other challenge you face when supporting multiple devices is the sheer number of connections, disconnections and reconnections that the network must accommodate, from a vast array of different devices and operating systems, some of which are several years old. This is more than a question of bandwidth or capacity, because demand fluctuates continually every day. And when budgets are tight, over-provisioning is as bad and inefficient as under-provisioning.

The OmniAccess Stellar WLAN solution employs a distributed intelligent architecture, which allows the infrastructure to adapt in response to patterns of demand, with minimal management intervention. It also enables the simple deployment and enforcement of multiple security and access policies.

As an example, if a group of students are using videoconferencing to collaborate after class, then the network will automatically assign the required capacity to the video traffic, reducing bandwidth for lower priority streams, and assigning more capacity from access points that are not experiencing high demand.

The product specifications and information in this guide will tell you more about this, including capabilities such as beam forming, and multi-user/multiple input multiple output (MU-MIMO), which helps to boost data throughput.

Simplified management

IT teams in the education sector are often under-resourced, dealing with demands ranging from trivial user problems with software, to strategic projects such as system upgrades or the provisioning of services to a new campus building.

By simplifying the routine management associated with the wireless infrastructure, OmniAccess Stellar WLAN takes away much of the burden of administration from your IT team.

The intelligent architecture also allows you to deploy advanced network services, and to support applications that equip the organization with valuable new educational resources. These help to empower teachers, improve the educational experience, enhance the reputation of the institution, while helping to attract more students – and their associated funding.

This guide includes details of the Alcatel-Lucent OmniVista 2500 (on-premise) and OmniVista Cirrus (cloud) network management platforms, which provides a single, unified interface for your WLAN and your LAN infrastructure.

Future-ready wireless

This document is an initial guide to the solutions you may need for your organization. For a more detailed consultation and assessment, get in touch with us. One of our education specialists will discuss with you your specific requirements.

In particular, the education specialist will consider the future requirements of your wireless LAN. Demand for wireless connectivity is only going to increase as students arrive every year with a greater variety of devices.

At the same time, the Internet of Things (IoT) is already automating many operational functions for educational institutions, from heat and light, to security systems and entry controls. In effect, the IoT creates a whole new and numerous "school population", which also has the same requirements for secure access, continuous availability and intelligent management.

OmniAccess Stellar WLAN technology includes access points with the latest Wi-Fi 6 technology which brings even greater capacity and capabilities to tackle the ever growing number of users, devices and applications simultaneously connecting to your network. Our experts can help you plan for the future, building in efficient scalability to your existing investment.

We hope you find this guide relevant and valuable. Once you've read it, please get in touch with us at: **www.al-enterprise.com/contact-us**

Hardworking Wi-Fi for stellar educational institutions

A future-proof networkfor education

In education you need to meet the expectations of students who are enthusiastic to use technology and expect to be connected wherever they are. Nowhere more so than universities, where connectivity is essential for everyday living – from using the latest education technology to interacting with neighbors, and participating in groups that go far beyond the campus. All this requires a wireless network that has high capacity, is fast and reliable so that you can deliver:

- **Anywhere, anytime, anyhow education** – from blended learning at home and on campus to personalized curricula and game-based learning

- **Updating educational technology** – with limited staff resources:
  - Teachers – wanting easy-to-use technology that helps them engage more with students
  - Administrators – looking for simpler, efficient operations
  - IT – needing easy-to-administer, cost-effective, reliable technology
  - Education leaders – searching for technology to differentiate their organization

- **Securing the network from cyberattacks and misuse** – whether that is protecting against ransomware attacks or attempts to steal confidential data, IT needs to limit who can access what and when

Mobility for the digital campus

With our global reach and local focus, the ALE architecture provides the digital foundation to drive education networks. The OmniAccess Stellar WLAN product line offers affordable, top-grade features with easy-to-use simplicity.

It does so through:

- **High-performance Wi-Fi** – that gives you better coverage, more bandwidth and controls every device for smarter connectivity in high density areas such as classrooms, libraries and football stadiums

- **Unified access** – for students and staff to have secure and seamless access rights across campus

- **Greater IT efficiency** – with a network that's simple to deploy and manage, which is especially important when IT resources are limited

- **IoT containment** – provide a secure, automated and efficient environment for all authorized devices.

- **Easy scalability** – with a network that can adapt to meet the emerging demands of education technology

Flexible solutions for every campus

Our hardworking Wi-Fi suits any education environment. Wi-Fi 6 access points are especially suited for environments with a high number of concurrent users and devices that need to be connected to Wi-Fi and/or high-bandwidth applications.

Small WLAN	Medium-sized WLAN	Large WLAN	Multi-site WLAN
For compact, self-contained sites such as a school or study center.	Reliable, efficient coverage for local schools and education centers.	Fast, cost-effective coverage across the whole education campus.	Connecting several sites into a single WLAN, such as linked campuses.
Entry level AP AP1101 AP1201 – Wave 2 For linking several smaller sites or parts of a campus, such as school or student blocks. **Mid-level APs** AP1201 - built-in antenna AP1220 series (Wave 2) – built-in and external antenna AP1320 series (Wi-Fi 6) – built-in and external antenna **Outdoor APs** AP1251 (Wave 2) – built-in antenna AP1360 series (Wi-Fi 6) – built-in and external antenna **Standalone deployment** Wi-Fi Express	**Entry level AP** AP1201 **Mid-level APs** AP1220 series (Wave 2) – built-in and external antenna AP1320 series (Wi-Fi 6) – built-in and external antenna **Outdoor APs** AP1251 (Wave 2) – built-in antenna AP1360 series (Wi-Fi 6) – built-in and external antenna **Managed deployment** Alcatel-Lucent OmniVista 2500 (on premise) or OmniVista Cirrus (cloud) **Distributed Intelligent Architecture** **Location-based services** Alcatel-Lucent OmniAccess Stellar Indoor Location-Based System	**Entry level AP** For teachers and administration staff offices AP1201 – built-in antenna **Mid-level APs** AP1220 series (Wave 2) – built-in and external antenna AP1320 series (Wi-Fi 6) – built-in and external antenna **High-end APs** AP1231 – built-in antenna AP1232 – external antenna connecters **Outdoor APs** AP1251 (Wave 2) – built-in antenna AP1360 series (Wi-Fi 6) – built-in and external antenna **Managed deployment** OmniVista 2500 (on premise) or OmniVista Cirrus (cloud) **Distributed Intelligent Architecture** **Location-based services** OmniAccess Stellar Indoor Location-Based System	**Entry level AP** For teachers and administration staff offices AP1201 - built-in antenna **Mid-level APs** AP1220 series (Wave 2) – built-in and external antenna AP1320 series (Wi-Fi 6) – built-in and external antenna **High-end APs** AP1231 – built-in antenna AP1232 – external antenna connecters **Specialized AP** For student dormitories AP1201H **Outdoor APs** AP1251 (Wave 2) - built-in antenna AP1360 series (Wi-Fi 6) - built-in and external antenna **Managed deployment** OmniVista 2500 (on premise) or OmniVista Cirrus (cloud) **Distributed Intelligent Architecture** **Location-based services** OmniAccess Stellar Indoor Location-Based System

Built for enhanced learning

The OmniAccess Stellar WLAN product line provides a simple, efficient enterprise-grade solution to provide the best user experience for staff and students, campus-wide.

Entry level APs

AP1101

At 3x the speed of previous industry standard access points, the AP1101 is designed specifically for use in a smaller school or study center.

- The 802.11ac Wave 1 access points are plug-and-play with up to 1.2 Gb/s throughput

- Fine-tuned for specific applications such as voice or video

- Especially cost-effective for smaller wireless networks

- Simple to use for user account creation and management with no IT skills needed

AP1201

This access point supports the 802.11ac Wave 2 Wi-Fi 5 standard,

- Dual radios (2.4GHz and 5GHz)
- High-speed Wi-Fi with up to 1.2 Gb/s throughput
- Ideal for low density user areas, like offices, corridors and small classrooms
- Built-in Bluetooth low energy (BLE) beacon/receiver radio for location-based services (also Zigbee capable for IoT)
- Built in DPI for applications visibility and control

Mid-level APs

AP1221 – built-in antenna
AP1222 – external antenna connectors

These access points support the 802.11ac Wave 2 Wi-Fi 5 standard.

- High-speed Wi-Fi with up to 2.2+ Gb/s throughput
- Better user experience through a higher density of devices with no performance drop
- Optional Bluetooth low energy beacon radio makes location services possible
- Built in DPI for applications visibility and control

AP1321 – integrated omni-antenna
AP1322 – external antenna connectors

These access points support the latest 802.11ax Wi-Fi 6 standard.

- Tri-radio AP, high-speed Wi-Fi with up to 3 Gb/s throughput with a dedicated radio for band scanning
- Bluetooth low energy beacon radio, making location services possible
- Better user experience through Wi-Fi 6 increased throughput, higher client density and battery optimization for connected devices

High-end APs

AP1231 – built-in antenna
AP1232 – external antenna connectors

These access points support the 802.11ac Wave 2 Wi-Fi 5 standard.

- Rapid 4.2+ Gb/s throughput
- Best radio coverage high-speed Wi-Fi is simple to deploy and scale
- Supports a higher density of devices with no drop-off in performance for a better user experience
- Easy monitoring of locations and tracking of people and educational assets using embedded Bluetooth low energy beacon radio
- Built in DPI for applications visibility and control Specialized AP

Specialized AP

AP1201H

This access point supports the 802.11ac Wave 2 Wi-Fi 5 standard.

- Dual radios (2.4GHz and 5GHz)

- High-speed Wi-Fi with up to 1.2 Gb/s throughput

- Designed to be deployed as one AP per dormitory room. It includes three Ethernet ports to connect desktop/laptop, IP TV or any smart device

- USB port for optional BLE beacon connectivity

Outdoor APs

AP1251 – built-in antenna

Designed to work well in any weather conditions. This access point supports the 802.11ac Wave 2 Wi-Fi 5 standard.

- Reliable Wi-Fi performance with a data rate of 1.2 Gb/s

- Fast, dual-radio operation with best-in-class RF management

- Flexible deployment with two gigabit link ports, one for the network and one for a device, such as a surveillance camera

AP1361 – integrated omni-antenna
AP1361D – integrated directional antenna
AP1362 – external antenna connectors

These access points support the latest 802.11ax Wi-Fi 6 standard, providing a more competitive outdoor Wi-Fi offer with internal and external antennas.

- Tri-radio AP, high-speed Wi-Fi with up to 3 Gb/s throughput with dedicated radio for band scanning

- Bluetooth low energy beacon radio, making location services possible

- SFP port allowing to connect the AP with a fiber, for long distance deployments

- One 1GbE downlink, PoE PSE port to connect one IoT device, for example a surveillance camera

- Better user experience through Wi-Fi 6 increased throughput, higher client density and battery optimization for connected devices

Access point management

Standalone deployment for smaller campuses: Wi-Fi Express

This lets you manage any of the Stellar WLAN access points direct from your web browser. Access points are automatically added and it's simple to set up who can have access, when, where and for how long – through a management portal. Supports up to 64 Stellar access points (32 access points if it's an AP1101-only cluster).

Managed deployment for larger campuses: Wi-Fi Enterprise

This lets you manage any of the OmniAccess Stellar WLAN access points from OmniVista 2500 on-premise network management system (NMS) or OmniVista Cirrus cloud NMS. Access points are automatically added and it's simple to set up who can have wireless access – when, where and for how long.

Save time and money and provide a seamless user experience with unified management of both your LAN and WLAN, through a single dashboard:

- **Secure mobility** – with best quality of service across the whole campus
- **Smart analytics on network activity** – so you can maximize available bandwidth limiting some applications network traffic, such as social media or entertainment streaming videos, while prioritizing teaching and business applications for staff and administrators
- **Access management for faculty and staff** – using role-based policies to set access criteria and automatically on-board devices
- **Quick and easy scalability** – up to 4,000 access points*

* OmniVista 2500 or OmniVista Cirrus required for more than 64 APs
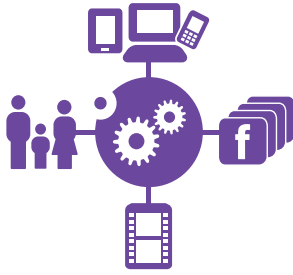
Distributed Intelligent Architecture

Uniquely, OmniAccess Stellar WLAN distributes intelligent control to each access point. This allows:

- **Better radio coverage** – with automatic choice of the best frequency and channel to avoid interference
- **Maximum bandwidth allocation** – so devices can support more clients
- **Superior user experience for each client device** – automatically connects devices to the highest capacity access points
- **Fastest speeds** – even for older devices through airtime fair access
- **More reliable network coverage** – without a centralized controller the network eliminates a single point of failure and increases robustness with a self-healing network
- **Best quality of service** – with automated services not impacting the user experience

Secure, separate education networks

ALE's single network infrastructure, wired and wireless*, also makes it easy to create function-specific networks. You can have a **teacher network**, exclusively for devices used by faculty, a **security network,** for security cameras, access control and intrusion detection, a **facilities network** and an **administration network**. Although they use the same network infrastructure, IoT containment means they are securely separated from each other.

*When used with an ALE LAN Solution

Location-based services

OmniAccess Stellar Indoor Location Services System can provide self-guided, turn-by-turn directions in the campus, provide notifications based on proximity to areas or objects, as well as, track people and educational assets using optional or embedded Bluetooth low energy beacons and scanners. These can allow you to provide new personalized educational services, such as:

- **Wayfinding** – map-based directions around campus, with information personalized to students and visitors
- **Improving campus operations** – by identifying the peak hours at facilities that can get busy, such as a library. Actions can be taken to prevent overcrowding
- **Contextual information** – geofencing enables the delivery of specific information as students and visitors approach objects and monuments
- **Automated class attendance** - geofencing can also provide auto attendance to students when they remain for a certain time in the classroom
- **Promotions** – such as restaurant offers or special deals from shops around or near the campus

For a more detailed consultation and assessment, please contact us today and one of our healthcare specialists will be happy to advise you.
www.al-enterprise.com/contact-us

Connected Education

Where Students Connect to interactive, engaged learning.
Where Faculty Connect to create inspirational learning experiences.
Where Educators Connect to empower the next generation.
We are ALE. Where Education Connects with technology that works.

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