

# Loea



*Educational institutions facing increased data requirements, rising school attendance and reduced operating budgets can turn to millimeter wave wireless solutions for high-bandwidth, high-performance, highly-secure network connectivity.*

## Applications

- Campus Area Networking
- Building-to-Building Connectivity
- LAN Extensions
- Temporary Network Connections
- Distance Learning Centers
- Video Conferencing
- Voice-over-IP

## Benefits

- High bandwidth up to and exceeding 1Gbps
- Rapid installation and deployment
- Campus-wide network access
- Improved student and faculty services

## Application Brief

### The Problem

Education needs high-bandwidth connectivity. Elementary schools, college and universities are seeing an increased demand for capacity as more traffic – student records, instructional videos, network data – is sent over the campus area network.

While technology improvements have opened the door for secure, near-instantaneous access to this information, the majority of educational environments are still using antiquated transmission systems.

Connectivity between campus buildings, remote locations, student residence halls and other sites are based on slow copper networks (e.g., 10BaseT) or leased lines. And with student attendance on the rise, networks will become even more congested.

The prevalence of wireless Wi-Fi networks has only increased the need for more capacity. Unfortunately, these campus-wide wireless LANs based on unlicensed 2.4GHz or 5GHz technologies, have limited the number of wireless solutions that can realistically be used in these educational locations.

The possibility of interference and spectrum saturation in these Wi-Fi campus networks is a major concern. The backhaul links between buildings – often carrying critical data – cannot be susceptible to these potential issues.

Although some campuses have made the investment in fiber networks, the high cost, lengthy installation timeframes and potential disruptions due to construction, is not an option for the majority of educational institutions.

The need for a high-bandwidth, high-availability, highly-secure yet highly-cost effective network communications solution becomes apparent.

## Education Solutions

### The Loea Solution

Loea's millimeter wave radio products are the ideal solution for educational institutions needing campus connectivity between remote buildings, distance learning locations and student housing.

Instead of using traditional leased lines, these campuses can now be linked with a high-capacity wireless point-to-point solution.

With data throughput of 1.25Gbps, Loea's solutions are more than capable of handling the ever-increasing, bandwidth-intensive data traffic seen on university and K-12 campuses. Wireless LAN access, sharing of music and video files and an increase in digitized student records are driving the need for higher capacity. Files that would typically take several minutes to transmit can now be transferred in a couple of seconds.

Based on proven millimeter wave technology used by the military, Loea's products are also highly secure and unaffected by most weather occurrences such as fog.

Transmission is at the upper radio frequencies (70/80GHz) – bands recently approved for commercial use. A simple, web-based licensing process reduces the potential for interference and spectrum saturation issues facing lower, unlicensed frequencies. And, a very narrow beamwidth (0.4 degrees) ensures that data transmission cannot be easily intercepted.

From a cost savings standpoint, Loea's solutions are one of the most cost-effective wireless solutions today. Installation can take place in the matter of a few hours – a significant reduction compared to fiber trenching. Costly monthly leased lines (approaching several thousands of dollars per month depending on location) are virtually eliminated. And since the technology is wireless, networks can be easily redeployed to new locations.

# Loea App Brief

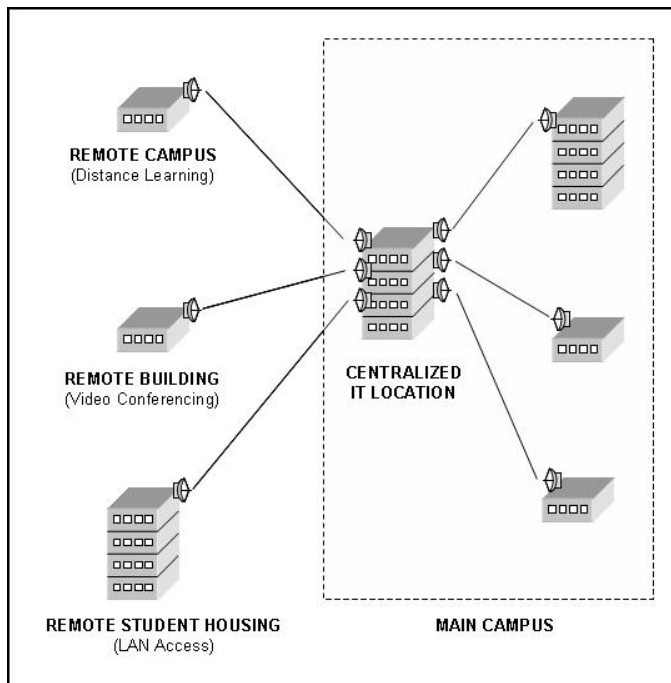
Education  
Solutions

## Benefits

Loea's millimeter wave wireless solutions help educational institutions increase capacity for campus area network applications. Benefits include:

- Rapid Installation – can be installed in hours.
- Reduced Costs – avoids monthly leased line fees and replaces need for expensive fiber trenching.
- Expanded Reach – easy deployment to locations where environmental or geographical obstacles make fiber runs or leased lines unavailable.
- Redundancy – acts as back-up or failover to ensure network availability.
- Improved Network Performance – removes throughput constraints and interference issues facing licensed microwave and unlicensed RF.
- Minimal Weather Impact – works in environments where FSO technology is impacted (fog).
- Enhanced Bandwidth – increases network capacity with Gigabit speeds.
- Greater Control – eliminates dependency on leased lines for connectivity.

## Configuration Example



## Loea Products

Loea products have been used as a vital communication link for some of the world's leading Enterprise, Carrier and Government customers.

Based on 70/80GHz millimeter wave technology (also referred to as E-Band), Loea offers the highest-performing, highest-availability wireless solutions available on the market today.

And by leading the successful petitioning of the FCC for commercial use of these frequencies and spectral bandwidth, Loea products will be able to reach up to 10Gbps throughput in the very near future.

Loea solutions are ideal for point-to-point connectivity between buildings, campuses and remote locations – eliminating the need for time-consuming and cumbersome fiber runs.

Unlike other wireless technologies that have performance limitations due to bandwidth, weather and distance, Loea's products provide full-duplex 1.25Gbps throughput with 99.999% availability at link distances exceeding 1km. And Loea's use of upper radio frequencies coupled with its narrow beam width (0.4 degrees) make it one of the most secure forms of wireless transmission today. No other wireless technology can make such a claim.

All Loea millimeter wave solutions include:

- 2 Radios
- 2 Antennas (2-foot diameter for maximum range)
- 2 Radio Mounts and Steering Mechanisms
- Installation and rooftop hardware are not included

## About Loea

Loea Corporation is the pioneer of the 70/80 GHz wireless domain and the product, quality and technology leader.

Loea was the first company to release and deploy successful product in the 71-76 and 81-86 GHz bands and has been on the leading edge of technology creation in this space for over 10 years. Loea successfully petitioned the FCC to gain access to this spectrum for commercial use in 2001 and was first to receive commercial FCC approval in July 2005.

Loea is headquartered in Honolulu, Hawaii. R&D and manufacturing locations are located in Kahului, Maui, Hawaii and West Hatfield, Massachusetts.



Loea Corporation  
Pacific Guardian Center  
733 Bishop Street, Suite 1717  
Honolulu, HI 96813

More info:  
[www.loeacom.com](http://www.loeacom.com)  
(858) 646-5543 or (808) 521-4908  
[loeainfo@loeacom.com](mailto:loeainfo@loeacom.com)