

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

**WIRELESS TRANSPORT LLC,**

Plaintiff,

**v.**

**PROXIM WIRELESS CORPORATION,**

Defendant.

C.A. NO.

**JURY TRIAL DEMANDED**

**ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT**

1. This is an action for patent infringement in which Wireless Transport LLC makes the following allegations against Proxim Wireless Corporation.

**PARTIES**

2. Plaintiff Wireless Transport LLC (“Plaintiff” or “Wireless Transport”) is a Delaware limited liability company with its principal place of business at 16192 Coastal Highway, Lewes, DE 19959.

3. On information and belief, Proxim Wireless Corporation (“Defendant” or “Proxim”) is a corporation organized and existing under the laws of the State of Delaware, which can be served through its registered agent RL&F Service Corp, 920 N King St Fl 2, Wilmington, DE 19801.

**JURISDICTION AND VENUE**

4. This action arises under the patent laws of the United States, Title 35 of the United States Code. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

5. Venue is proper in this district under 28 U.S.C. §§ 1391(c) and 1400(b). On information and belief, Defendant is incorporated in the State of Delaware, and, thus, resides in the State of Delaware for the purposes of 28 U.S.C. § 1400(b).

6. On information and belief, Defendant is subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Delaware Long Arm Statute, due at least to its substantial business in this forum, including: (i) at least a portion of the infringements alleged herein; and (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in Delaware and in this Judicial District.

**COUNT I**  
**INFRINGEMENT OF U.S. PATENT NO. 6,563,813**

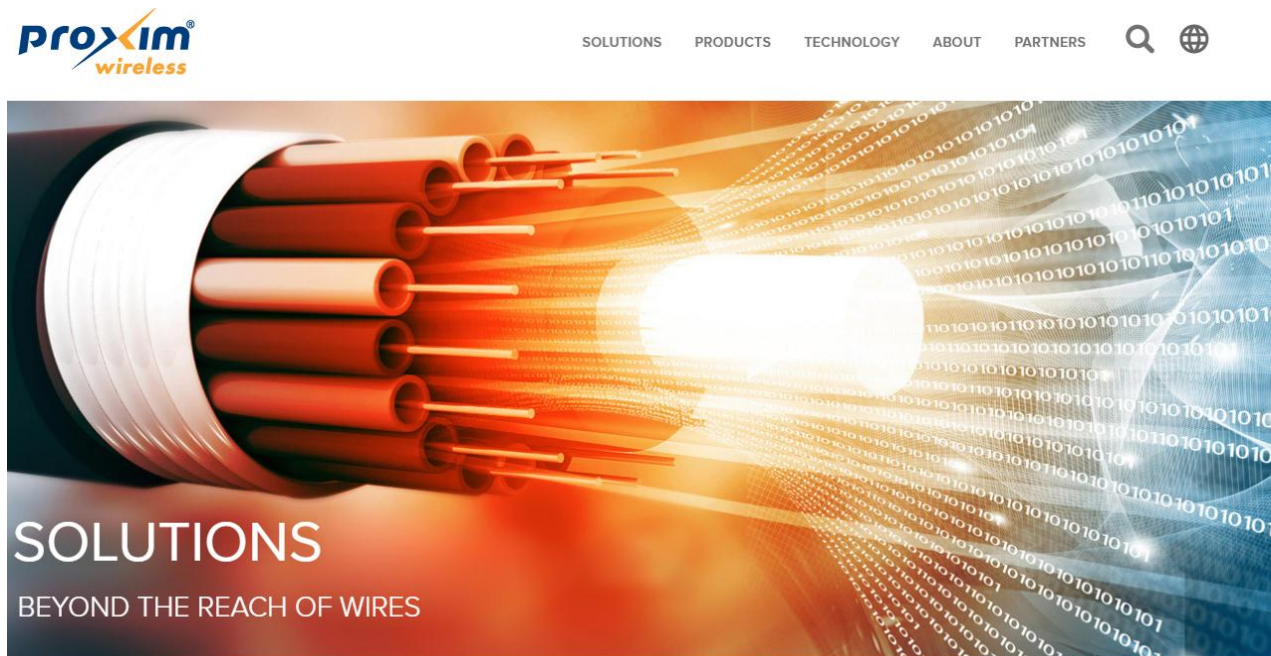
7. Plaintiff is the owner of United States Patent No. 6,563,813 ("the '813 patent") entitled "Wireless Transport Protocol." The '813 Patent issued on May 13, 2003. A true and correct copy of the '813 Patent is attached as Exhibit A.

8. Defendant owns, uses, operates, advertises, controls, sells, and otherwise provides products and/or services that infringe the '813 patent. The '813 patent provides, among other things, "A communication system comprising: a wireless client; a wireless network; a land-line client; a land-line network; and a network backbone interfacing said land-line network and said wireless network to allow data packets to be exchanged between said wireless client and said land-line client, said communication system using a wireless transport layer protocol for data frame transmission over said land-line and wireless networks, each data frame including connection handling information specifying at least one data transport connection to be used to transmit data between said wireless client and said land-line client over said wireless and land-line networks; connection addressing information; a user data field including a data packet to be transmitted from one client to another client; and at least one sequencing field identifying the last packet received by the client that is transmitting a current data packet."

9. Defendant directly and/or through intermediaries, made, has made, used, imported, provided, supplied, distributed, sold, and/or offered for sale products and/or services that infringed one or more claims of the '813 patent, including at least Claim 6, in this district and elsewhere in the United States. For example, but without limitation, the Proxim Wireless Local Area Network (WLAN) forms a communication system within the meaning of the '813 Patent. By making, using, importing, offering for sale, and/or selling such products and services,

and all like products and services, Defendant has injured Plaintiff and is thus liable for infringement of the '813 patent pursuant to 35 U.S.C. § 271.

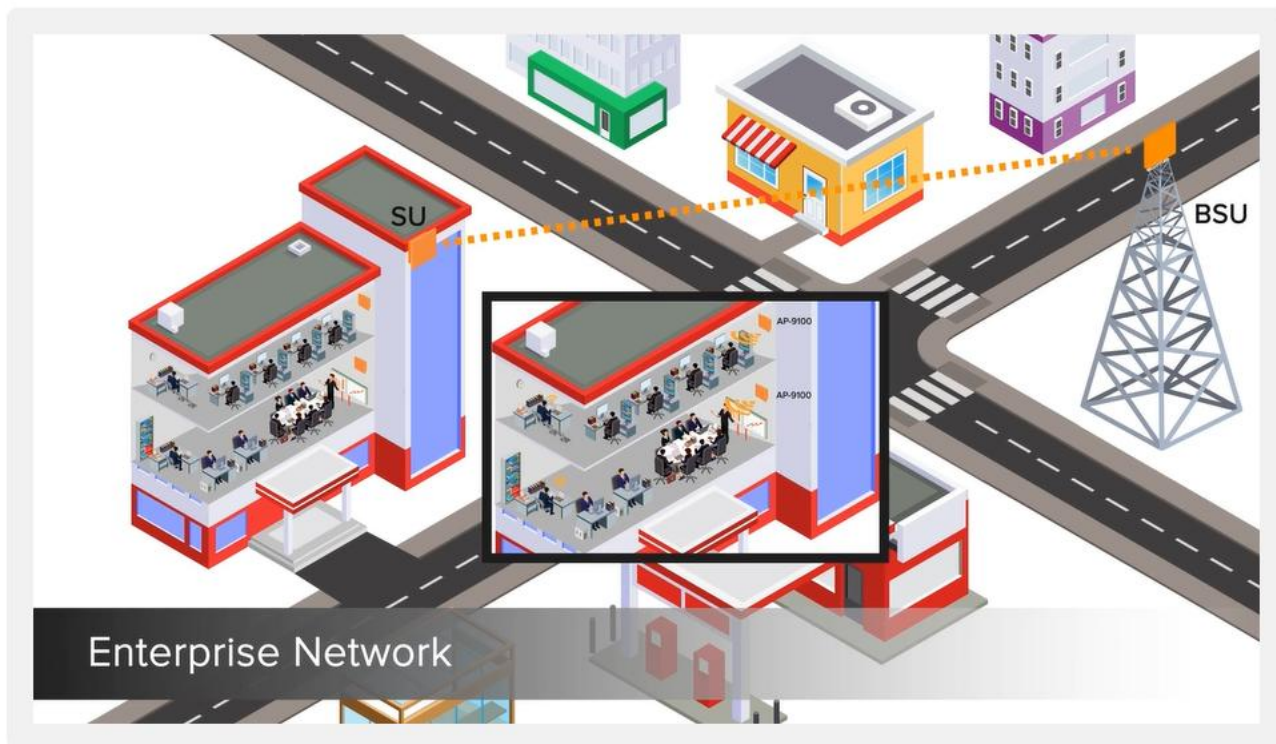
10. Proxim Wireless makes, uses, sells, and/or offers for sale a communication system. For example, Proxim Wireless provides a Wireless solutions such as Wireless Local Area Network (WLAN) (“communication system”).



Wired networking is very often the best of all choices, but the need for genuine operational cost savings, mobility, and rapid deployment calls for advanced wireless solutions. Proxim's purpose-designed technology offers highly efficient alternatives to leased lines, and wired distribution systems, but with the mobility, flexibility and rapid deployment benefits of true carrier-class wireless solutions.

Source: <https://www.proxim.com/en/solutions/wifi>

# Typical Wireless LAN Deployments



Source: <https://www.proxim.com/en/solutions/wifi>

# Typical Wireless LAN Deployments



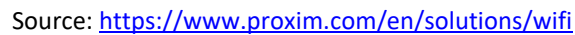
Source: <https://www.proxim.com/en/solutions/wifi>



# Typical Wireless LAN Deployments

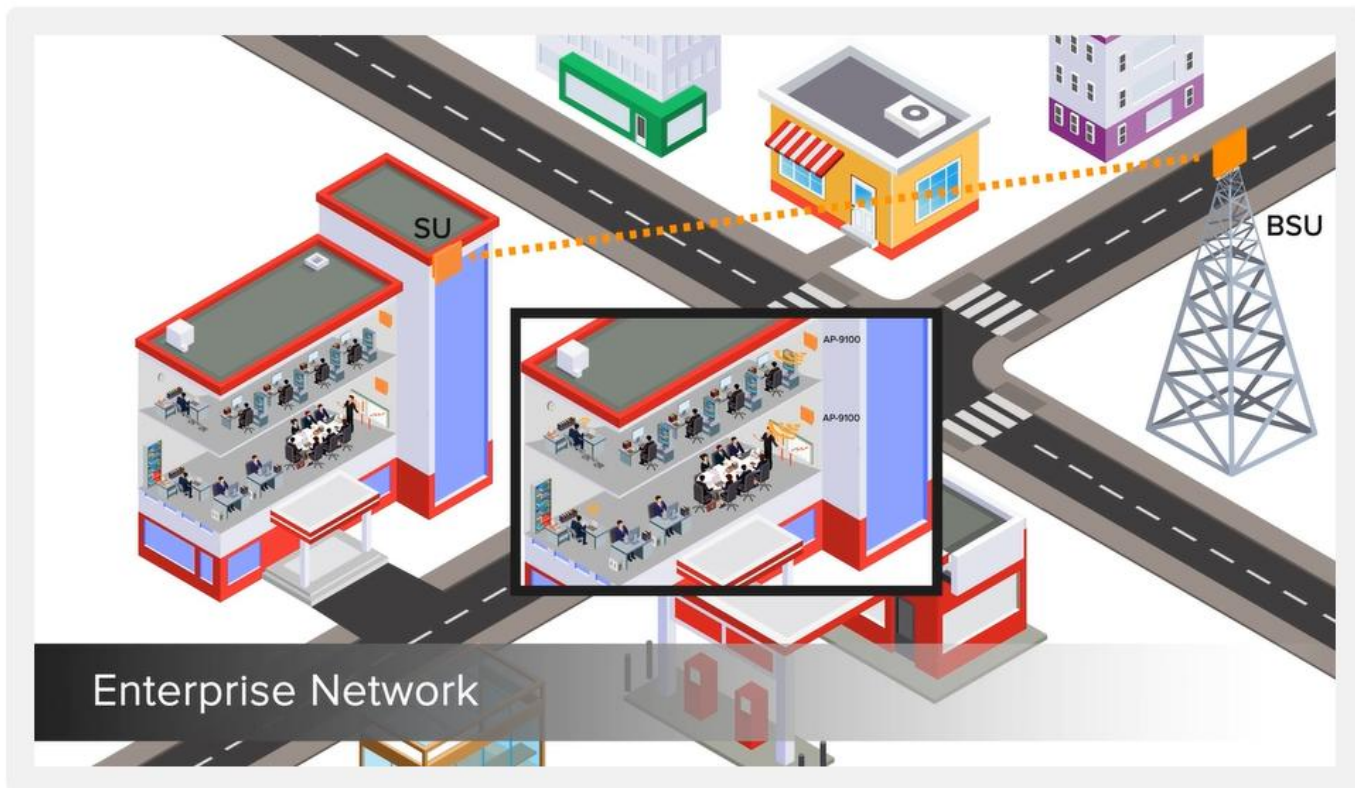


Source: <https://www.proxim.com/en/solutions/wifi>



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# Typical Wireless LAN Deployments



Source: <https://www.proxim.com/en/solutions/wifi>



## Recommended Products



### ORiNOCO® AP-9100

Enterprise Class 802.11ac Access Point

2.4 GHz, 5 GHz  
Up to 24.8 dBm (Triple chain)



### ORiNOCO® AP-9100R

Outdoor 802.11ac Access Point

2.4 GHz, 5 GHz  
Up to 28 dBm (Triple chain)



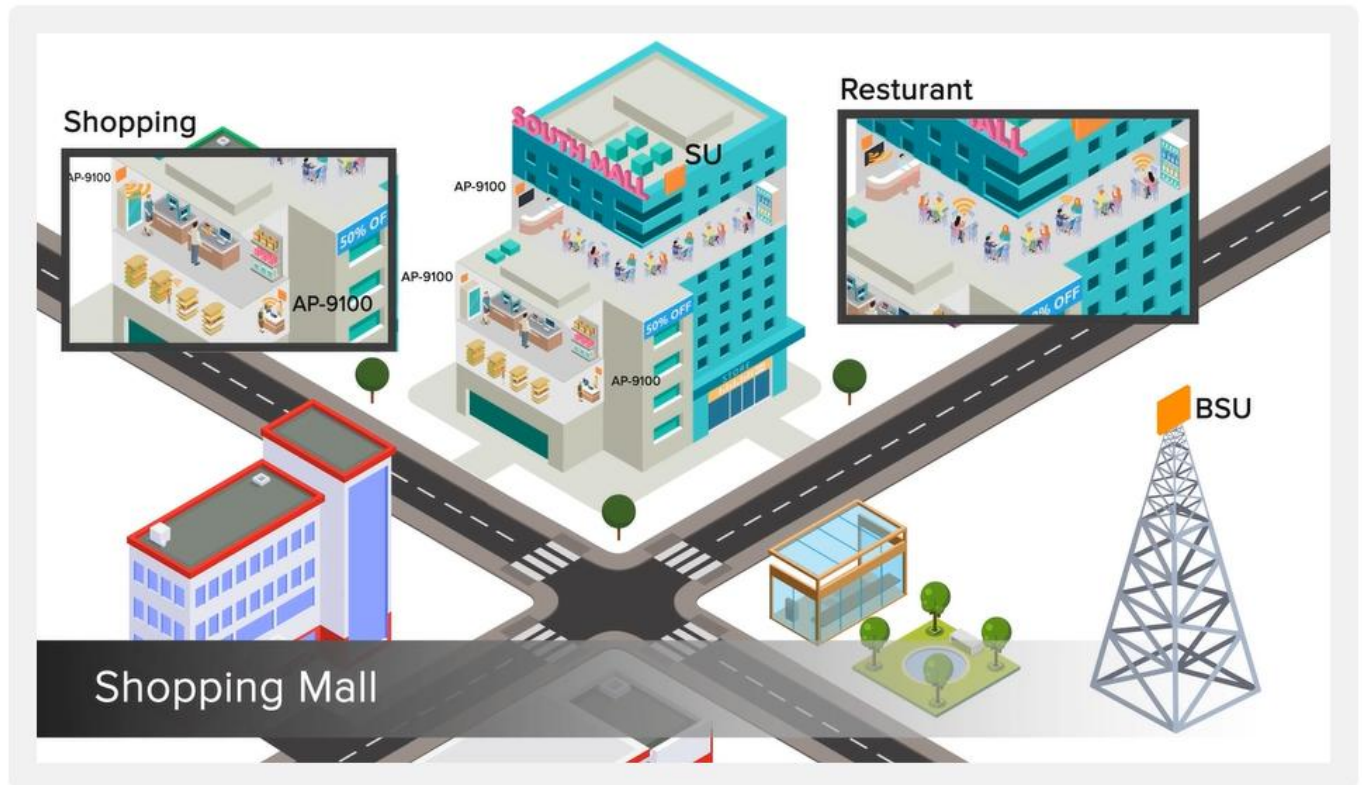
### Tsunami® XP-10100 Series

Point-to-Multipoint Wireless Solution with  
built in Access Point

PtMP: 4.9 - 5.9GHz | Up to 28dBm  
Access: 2.4GHz | Up to 26dBm

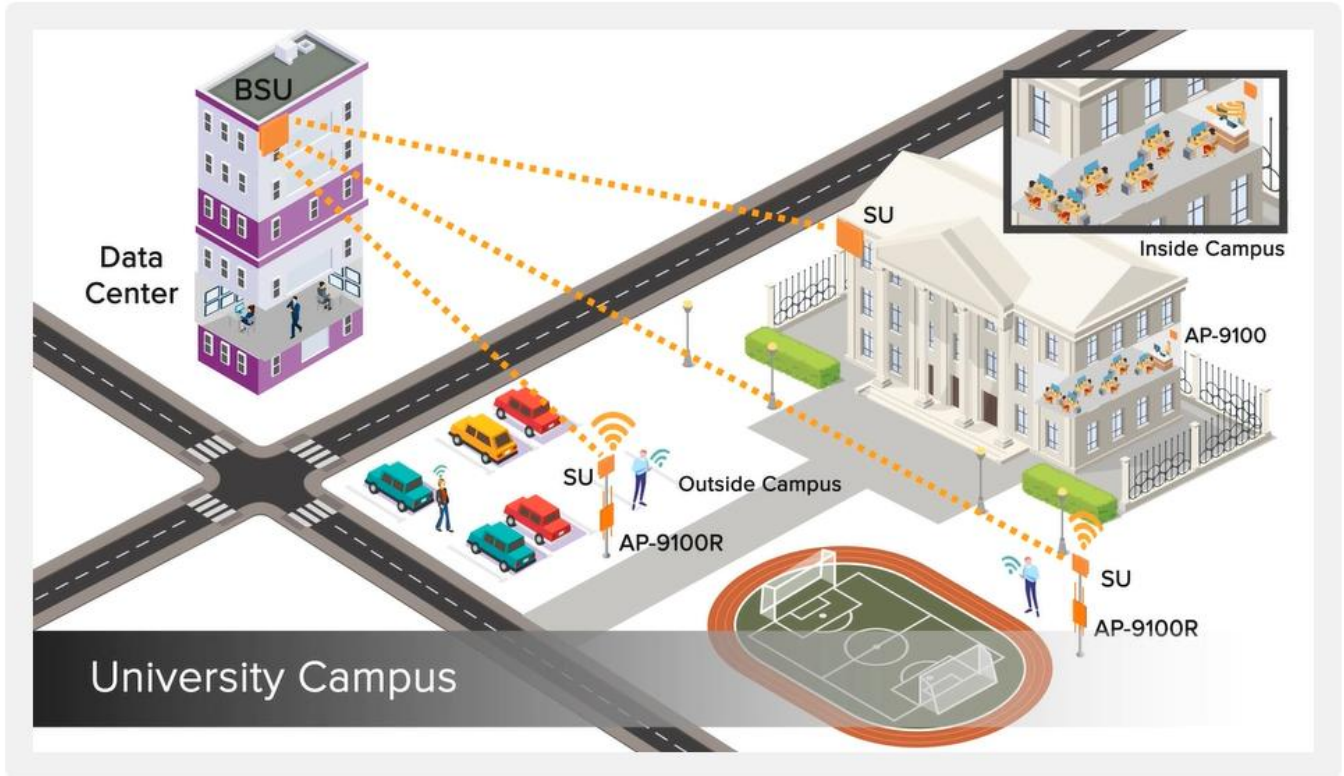
Source: <https://www.proxim.com/en/solutions/wifi>

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Source: <https://www.proxim.com/en/solutions/wifi>

# Typical Wireless LAN Deployments



Source: <https://www.proxim.com/en/solutions/wifi>



## ORiNOCO® AP-9100

Enterprise Class 802.11ac Access Point



### ORiNOCO® AP-9100, combining compact design with breakthrough speeds of 1.3 Gbps and incredible flexibility

ORiNOCO® AP-9100 is a high performance, very reliable, 802.11ac access point with up to 24.8 dBm triple chain transmit power. It features MIMO 3x3:3 performance of 1750 Mbps aggregate data rate and unparalleled flexibility. In addition, Proxim's access point takes advantage of the ergonomics and cutting edge design of its predecessor, simplifying installation and migration.

Organizations of all sizes encompassing Small and Medium Enterprises, Health Care, Governments and Public safety departments, can achieve higher performance than their existing wired and wireless LANs while avoiding High OPEX and CAPEX, deployment challenges and additional network planning. The primary advantages of 802.11ac compliant products are significantly higher throughput and longer range.

#### High Performance

ORiNOCO® AP-9100 products enable enterprises of all size to unwire the wired LAN by providing greater performance than existing Ethernet networks

- \* High throughput with dual radio data rates of 1300 + 450 Mbps
- \* No need to run new cable to add stations to a LAN
- \* Three times the throughput of existing typical WLANs
- \* High reliability for quad play applications

#### Highly Secure

ORiNOCO® AP-9100 provides enterprise class security to ensure full protection of sensitive information

- \* 802.11i based security with AES 128 encryption and 802.1x radius based authentication
- \* Rogue scan listing surrounding devices
- \* Secure management (SSL, SSH and SNMPv3) preventing unwanted configuration changes
- \* Kensington lock protecting against product theft
- \* Fire resistant enclosure matching plenum installation requirement

#### Unparalleled Flexibility and Convenience with Centralized Management

ProximVision® Advanced supports ORiNOCO® AP-9100 giving network architects unparalleled flexibility and control of the units

- \* Rapid Network Deployment: ProximVision® Advanced automates configuration processes for faster, more efficient deployment of Proxim Wireless networks
- \* Advanced Configuration Capabilities: ProximVision® Advanced gives network managers an option for exhaustive device configuration with a software-based tool
- \* Greater Ease of Use and Upgradability: ProximVision® Advanced can support a greater number of APs than competitively priced solutions and provides the simplest path to configuration and upgrade

#### About Proxim Wireless

Proxim Wireless is a pioneer and global leader in advanced Wi-Fi, point to point, and point to multipoint outdoor wireless systems that deliver high performance and high availability communications.

With over 30 years of wireless experience, Proxim is recognized for its unparalleled reliability, superior performance and drive for innovation.

#### Standalone and Controller-Ready

ORiNOCO® AP-9100 offers advantage of both architectures

- \* Standalone operation, leveraging ProximVision® Advanced supervision
- \* If controller architecture is desired, AP-9100 and ProximVision® Advanced can operate in Controller mode

Source: <https://www.proxim.com/download-ds.php?file=WLAN/ORiNOCO-AP-9100/ORiNOCO-AP-9100-datasheet-US.pdf&source=http://www.proxim.com/products/wifi/orinoco-ap-9100>, page 1



## ORINOCO® AP-9100

## Cost Effective

ORINOCO® AP-9100 solution drastically reduces the cost of WLAN deployments

- AP-9100 simplifies installation by ensuring enhanced signal strength to hard-to-reach clients, thanks to its three RF chain
- AP-9100 utilize a very convenient mounting hardware enabling simple swap out of old Proxim AP's and making upgrades a snap

## Specifications

PRODUCT MODELS										
ORINOCO AP-9100		ORINOCO AP-9100, MIMO 3x3, 802.11 ac + b/g/n dual radio Access Point								
INTERFACES										
WIRED ETHERNET WIRELESS PROTOCOL		One auto MDI-X RJ45 10/100/1000Mbps Ethernet Radio #1: 802.11a/n/ac Radio #2: 802.11b/g/n								
RADIO & TX SPECS										
	Radio #1					Radio #2				
FREQUENCY	5.150 – 5.350, 5.470 - 5.850 GHz (Subject to Country Regulations)					2.400 – 2.484 (Subject to Country Regulations)				
	802.11ac		802.11n		802.11a	802.11n		802.11g	802.11b	
MIMO	3x3		3x3		N/A	3x3		N/A	N/A	
MODULATION	OFDM BPSK-QAM256		OFDM BPSK-QAM64		OFDM BPSK-QAM64	OFDM BPSK-QAM64		OFDM BPSK-QAM64	DSSS DBPSK-CCK	
DATA RATE	Upto 1300Mbps		Upto 450Mbps		Upto 54Mbps	Upto 450Mbps		Upto 54Mbps	Upto 11Mbps	
	80 MHz	40 MHz	20 MHz	40 MHz	20 MHz	20 MHz	40 MHz	20 MHz	20 MHz	20 MHz
TX POWER	MCS0: 20	MCS0: 20	MCS0: 20	MCS0: 20	MCS0: 20	6 Mbps: 20	MCS0: 17	MCS0: 18	6 Mbps: 19	1 Mbps: 19
	MCS9: 15	MCS9: 15	MCS8: 17	MCS7: 19	MCS7: 19	54 Mbps: 19	MCS7: 14	MCS7: 15	54 Mbps: 16	11 Mbps: 19
RX SENSITIVITY (Per=10 <sup>-4</sup> )	MCS0: -87	MCS0: -90	MCS0: -92	MCS0: -91	MCS0: -92	6 Mbps: -92	MCS0: -88	MCS0: -91	6 Mbps: -90	1 Mbps: -95
	MCS9: -60	MCS9: -63	MCS8: -67	MCS7: -71	MCS7: -73	54 Mbps: -75	MCS7: -72	MCS7: -73	54 Mbps: -76	11 Mbps: -90
ANTENNA										
	Radio #1					Radio #2				
	Three integrated PIFA antennas: 5 dBi					Three integrated PIFA antennas: 4.5 dBi				
SECURITY										
AUTHENTICATION	Enterprise/802.1x, Personal/PSK (Pre Shared Key) or Open plus Internal MAC Address Control List									
802.1X SUPPORT	PEAP, LEAP, EAP-FAST, EAP-SIM, EAP-TTLS, EAP-AKA									
ENCRYPTION	802.11n Wireless Security with AES-128, TKIP or WEP									
WIRELESS										
AP-AP COMMUNICATION	WDS with STP loop avoidance									
RF ENVIRONMENT	Rogue Scan									
OTHER	802.11n Spectrum and Transmit Power Management Extensions									
QoS										
	802.11e Enhanced Distributed Channel Access									
THROUGHPUT										
	Radio #1					Radio #2				
	Upto 670 Mbps					Upto 310Mbps				

Source: <https://www.proxim.com/download-ds.php?file=WLAN/ORINOCO-AP-9100/ORINOCO-AP-9100-datasheet-US.pdf&source=http://www.proxim.com/products/wifi/orinoco-ap-9100>, page 2

## ORINOCO® AP-9100

MANAGEMENT				
REMOTE	Telnet and SSH, Web GUI and SSL, TFTP, SNMP v1, v2c and v3			
OTHER	Syslog, and SNTTP			
POWER				
POWER OVER ETHERNET	802.3af/at compliant			
POWER ADAPTER	110/220 V AC - 50/60 Hz (input), 12 V DC - 1.25 A (output)			
CONSUMPTION	< 12.9 Watt typical			
NETWORK				
DHCP	Client and Server			
VLAN	802.1Q, Management VLAN, Transparent, Access and Trunk mode.			
ENVIRONMENTAL SPECS	OPERATING TEMPERATURE	STORAGE TEMPERATURE	HUMIDITY - IP RATING	
	0° to 40°C (32° to 104° Fahrenheit)	-20° to 60°C (-4° to 140° Fahrenheit)	5 - 90% relative humidity	
SURGE PROTECTION				
ELECTRO STATIC DISCHARGE	Conductive : 4 kV		Air : 8 kV	
SURGE CAPACITY	Line to Line : 0.5 kV		Line to Earth 1 kV (EN 61000-4-5)	
PHYSICAL SPECS	DIMENSIONS PACKAGED	DIMENSIONS UNPACKAGED	WEIGHT (PACKAGED)	WEIGHT (UNPACKAGED)
	13.2 x 8.45 x 2.16 in. (335 x 215 x 55 mm)	6.69 x 6.69 x 1.74 in. (170 x 170 x 44.1 mm)	1.75 lbs (790 g)	0.75 lbs (340 g)
SAFETY STANDARDS				
	UL 60950, CAN/CSA-C22.2 No. 60950, IEC 60950, EN 60950 (part -1 and -22) Plenum rated (ATX 200 material)			
CERTIFICATIONS				
	USA: FCC 90Y + 15C + 15E (UNII 15.247) Canada: IC RSS 102 + RSS 111 + RSS 247 Europe: RED EN 301 489-1 + EN 301 489-17 + EN 300 328 + EN 301 893 + EN 302 502 Railway: EN 50155 + EN 50121 + EN 61373			
PACKAGE CONTENTS				
	<ul style="list-style-type: none"><li>• One ORINOCO® AP-9100 unit</li><li>• One power adapter</li><li>• One Wall/Ceiling mounting kit</li><li>• One Quick Installation Guide</li></ul>			
MTBF & WARRANTY				
	Over 500k hours & 1-year on parts and labor; ServPak Extended Support available			

Source: <https://www.proxim.com/download-ds.php?file=WLAN/ORiNOCO-AP-9100/ORiNOCO-AP-9100-datasheet-US.pdf&source=http://www.proxim.com/products/wifi/orinoco-ap-9100>, page 3

12. Proxim Wireless provides a communication system comprising a wireless network. For example, WLAN solutions comprises a wireless network which works on wireless network standards (such as IEEE 802.11 a/b/g (WLAN) standard on 2.4 GHz and 5 GHz band frequencies).

## ORINOCO® AP-9100

## Cost Effective

ORINOCO® AP-9100 solution drastically reduces the cost of WLAN deployments

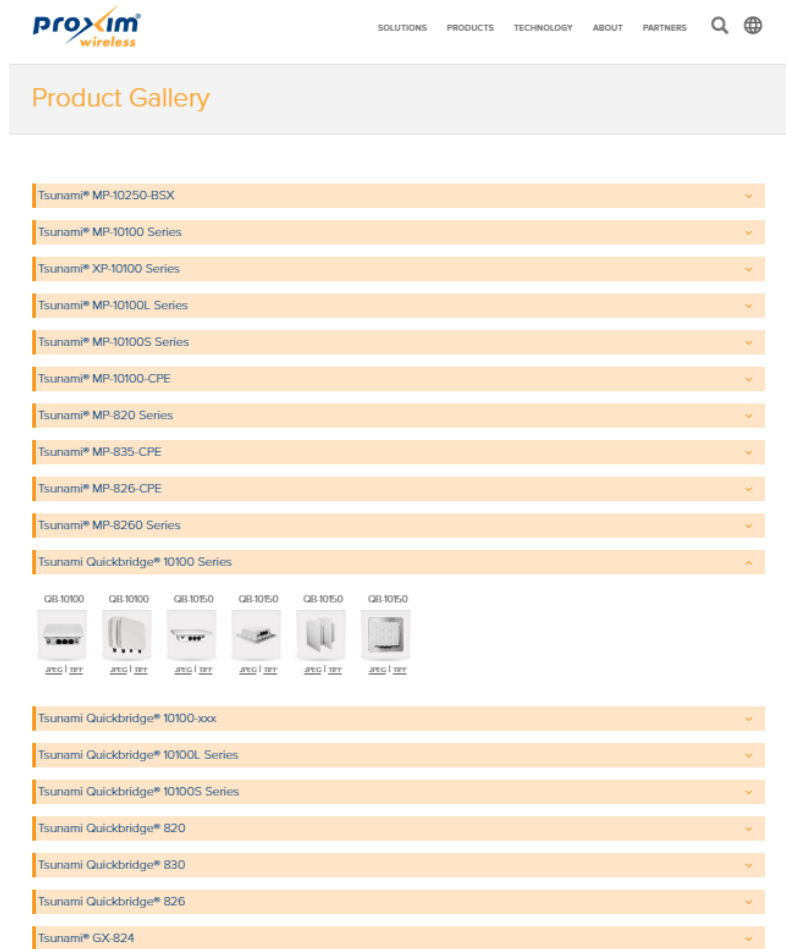
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RADIO & TX SPECS										
	Radio #1					Radio #2				
FREQUENCY	5.150 – 5.350, 5.470 – 5.850 GHz (Subject to Country Regulations)					2.400 – 2.484 (Subject to Country Regulations)				
	802.11ac		802.11n		802.11a	802.11n		802.11g	802.11b	
MIMO	3x3		3x3		N/A	3x3		N/A	N/A	
MODULATION	OFDM BPSK-QAM256		OFDM BPSK-QAM64		OFDM BPSK-QAM64	OFDM BPSK-QAM64		OFDM BPSK-QAM64	DSSS DBPSK-CCK	
DATA RATE	Upto 1300Mbps		Upto 450Mbps		Upto 54Mbps	Upto 450Mbps		Upto 54Mbps	Upto 11Mbps	
	80 MHz	40 MHz	20 MHz	40 MHz	20 MHz	20 MHz	40 MHz	20 MHz	20 MHz	20 MHz
TX POWER	MCS0: 20	MCS0: 20	MCS0: 20	MCS0: 20	MCS0: 20	6 Mbps: 20	MCS0: 17	MCS0: 18	6 Mbps: 19	1 Mbps: 19
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RX SENSITIVITY (Per=10°)	MCS0: -87	MCS0: -90	MCS0: -92	MCS0: -91	MCS0: -92	6 Mbps: -92	MCS0: -88	MCS0: -91	6 Mbps: -90	1 Mbps: -95
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ANTENNA										
	Radio #1					Radio #2				
	Three integrated PIFA antennas: 5 dBi					Three integrated PIFA antennas: 4.5 dBi				
SECURITY										
AUTHENTICATION	Enterprise/802.1x, Personal/PSK (Pre Shared Key) or Open plus Internal MAC Address Control List									
802.1X SUPPORT	PEAP, LEAP, EAP-FAST, EAP-SIM, EAP-TTLS, EAP-AKA									
ENCRYPTION	802.11n Wireless Security with AES-128, TKIP or WEP									
WIRELESS										
AP-AP COMMUNICATION	WDS with STP loop avoidance									
RF ENVIRONMENT	Rogue Scan									
OTHER	802.11n Spectrum and Transmit Power Management Extensions									
QoS										
	802.11e Enhanced Distributed Channel Access									
THROUGHPUT										
	Radio #1					Radio #2				
	Upto 670 Mbps					Upto 310Mbps				

Source: <https://www.proxim.com/download-ds.php?file=WLAN/ORiNOCO-AP-9100/ORiNOCO-AP-9100-datasheet-US.pdf&source=http://www.proxim.com/products/wifi/orinoco-ap-9100>, page 2

13. Proxim Wireless provides a communication system comprising a land-line client. For example, WLAN solutions comprises of Ethernet Switches (such as Tsunami Quickbridge-10100 Series, Tsunami Quickbridge-10100-XX Series) which work together with wired and wireless devices.



Source: <https://www.proxim.com/en/products/knowledge-center/product-gallery?product=AP-9100R#AP9100R>





#### Designed to Maximize Bandwidth and Link Reliability in Noisy Environments



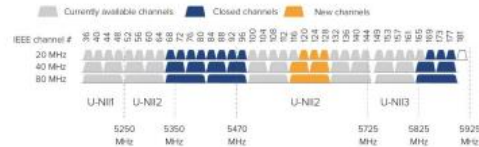
The Tsunami® MP-10250-BSX is an intelligent base station that implements a beam steering (BeamX™) antenna and a secondary, look-ahead scan radio (SmartScan™) to mitigate interference and take full advantage of the high throughput capability of the Tsunami® 10000 product line. This product is extremely robust in the face of high ambient RF interference, delivers more Mbps at a given point in the network and opens up additional 5GHz spectrum.

#### Fast, Secure and Flexible

- Point-to-Multipoint base station that delivers up to 866 Mbps data rate and covers distances up to 10 miles (16 km)
- AES 128 encryption, Radius authentication and highly-secure remote management via SSL/TLS 1.2, SSH and SNMPv3
- Service flow based QoS with deep packet inspection (DPI) to ensure that the most important data arrives with priority
- Built-in feature rich network protocols for IPv4 and IPv6 bridging, routing and gateway functionality

#### Proxim SmartScan™

- Performs background analysis of the full RF spectrum and creates channel availability tables to allow an immediate switch to a free channel in case of weather radar detection or heavy interference.
- By removing the initial transmission delay, SmartScan makes the DFS channel more efficient
- It also opens access to the 5.600–5.650 GHz sub-band, and enables effective use of up to 355 MHz of DFS spectrum



#### About Proxim Wireless

Proxim Wireless is a pioneer and global leader in advanced Wi-Fi, point to point, and point to multipoint outdoor wireless systems that deliver high performance and high availability communications.

With over 30 years of wireless experience, Proxim is recognized for its unparalleled reliability, superior performance and drive for innovation.

#### BeamX™ Antenna

- Smart antenna delivering a 17° beam that electronically steers itself to the remote subscriber unit over a 60° sector, to limit interference from nearby RF sources
- By improving the radio Signal to Noise Ratio (SNR), BeamX enables higher modulations and thus improves throughput



Source: <https://www.proxim.com/download-ds.php?v=1&file=PtMP/MP-10250-BSX/Tsunami-MP-10250-BSX-datasheet-US.pdf&source=https://www.proxim.com/products/point-to-multipoint/tsunami-mp-10250-bsx>, page 1

## Tsunami® MP-10250-BSX

## Rugged and Reliable

Designed for harsh environments, the Tsunami® MP-10250-BSX is fully IP67 rated, and will deliver years of reliable service in conditions that include, high winds, high salt, and high temperature extremes.

## Key Technologies

The Tsunami® MP-10250-BSX supports the following features for applications that include last mile access or video surveillance, both of which need uninterrupted high speed, and prioritized broadband wireless access:

**Proxim WORP®**

Combines network access control, data scheduling, advanced QoS and encryption to ensure highly efficient and secure data transmission.

**Proxim ClearConnect™**

A suite of interference mitigation technologies ensuring robust and reliable communications in high-density wireless deployments.

**Proxim SmartConnect™**

Delivering exceptional performance in noisy RF locations by combining a beam steering antenna with a secondary look ahead scan radio to seek, manage and select the best channel.

## Product Line Compatibility

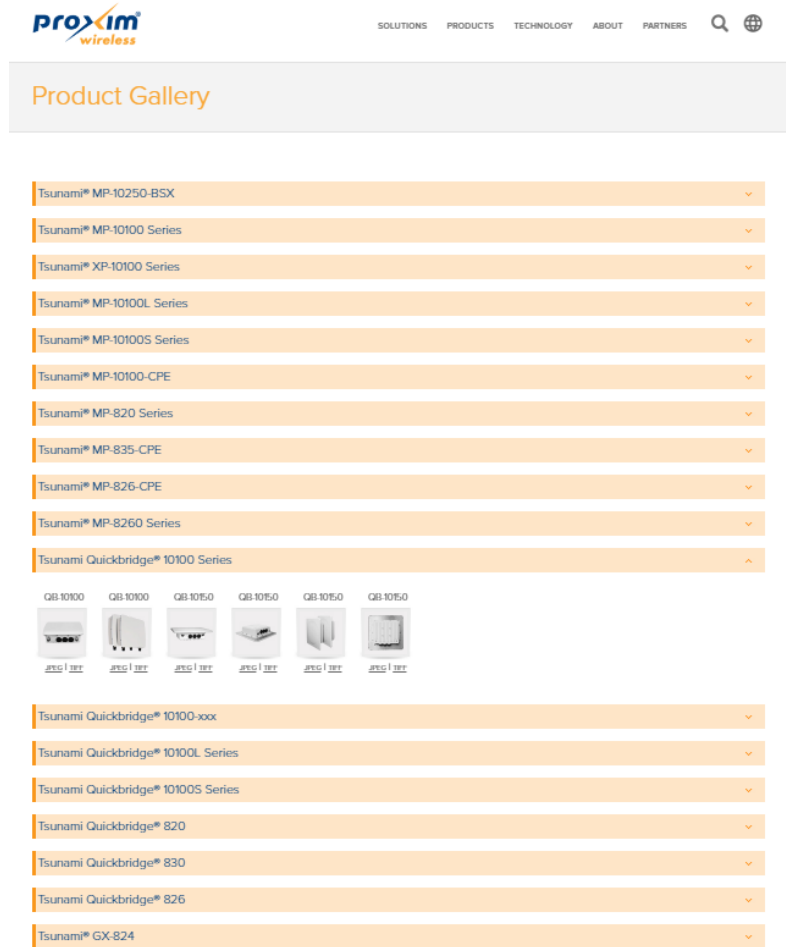
- Connects to all existing Tsunami® MP/XP 10100, MP-10100L, MP-8200, MP-820 and MP-830 products
- Fully integrates within ProximVision® Advanced Cloud Based Carrier Management System and Controller

## Specifications

PRODUCT MODELS		PART NUMBERS	
MP-10250-BSX	Tsunami® MP 10250 Base Station Unit, 867 Mbps, MIMO 2x2, 16 dBi BeamX antenna, scan radio	901-00291	MP-10250-BSX-US
		901-00292	MP-10250-BSX-WD
INTERFACES			
WIRED ETHERNET	Two auto MDI-X RJ45 10/100/1000Mbps Ethernet (Port #1 with PoE in & Data, Port #2 with PoE out & Data)		
WIRELESS PROTOCOL	WORP® (Wireless Outdoor Router Protocol)		
RADIO & TX SPECS			
MIMO	2x2:2 and 0x2:2 (scan radio)		
MODULATION	OFDM with BPSK, QPSK, QAM16, QAM64, QAM256		
FREQUENCY	4.900 – 5.850 GHz (Subject to Country Regulations)		
CHANNEL SIZE	80 MHz, 40 MHz and 20 MHz		
DATA RATE	MCS 0 to 9 with Dynamic Data Rate Selection		
TX POWER	Up to 28 dBm (dual chain)		
TX POWER CONTROL	0 - 27 dB, in 1 dB steps. Automatic TPC with configurable EIRP limit		
	80 MHz	40 MHz	20 MHz
TX POWER	MCS0: 28 dBm MCS9: 21 dBm	MCS0: 28 dBm MCS9: 22 dBm	MCS0: 29 dBm MCS8: 25 dBm
RX SENSITIVITY (Per=10%)	MCS0: -89 dBm MCS9: -68 dBm	MCS0: -93 dBm MCS9: -71 dBm	MCS0: -94 dBm MCS8: -74 dBm
THROUGHPUT	Up to 672 Mbps	Up to 324 Mbps	Up to 137 Mbps
OTHER	Dynamic Channel Selection (DCS) based on interference detection. Dynamic Frequency Selection (DFS) based on radar signature. Automatic Transmit Power Control (ATPC) with EIRP limit support.		

Source: <https://www.proxim.com/download-ds.php?v=1&file=PtMP/MP-10250-BSX/Tsunami-MP-10250-BSX-datasheet-US.pdf&source=https://www.proxim.com/products/point-to-multipoint/tsunami-mp-10250-bsx>, page 2

14. Proxim Wireless provides a communication system comprising a land-line network. For example, WLAN solutions comprises a land-line network which works with wired (land-line) network standards (such as IEEE 802.3 (Ethernet)).



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## Tsunami® MP-10250-BSX

Extending the range of high bandwidth services

### Designed to Maximize Bandwidth and Link Reliability in Noisy Environments



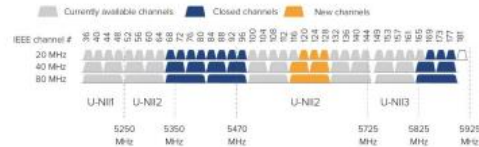
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With over 30 years of wireless experience, Proxim is recognized for its unparalleled reliability, superior performance and drive for innovation.

### BeamX™ Antenna

- Smart antenna delivering a 17° beam that electronically steers itself to the remote subscriber unit over a 60° sector, to limit interference from nearby RF sources
- By improving the radio Signal to Noise Ratio (SNR), BeamX enables higher modulations and thus improves throughput



Source: <https://www.proxim.com/download-ds.php?v=1&file=PtMP/MP-10250-BSX/Tsunami-MP-10250-BSX-datasheet-US.pdf&source=https://www.proxim.com/products/point-to-multipoint/tsunami-mp-10250-bsx>, page 1



## Tsunami® MP-10250-BSX

## Rugged and Reliable

Designed for harsh environments, the Tsunami® MP-10250-BSX is fully IP67 rated, and will deliver years of reliable service in conditions that include, high winds, high salt, and high temperature extremes.

## Key Technologies

The Tsunami® MP-10250-BSX supports the following features for applications that include last mile access or video surveillance, both of which need uninterrupted high speed, and prioritized broadband wireless access:

**Proxim WORP®**

Combines network access control, data scheduling, advanced QoS and encryption to ensure highly efficient and secure data transmission.

**Proxim ClearConnect™**

A suite of interference mitigation technologies ensuring robust and reliable communications in high-density wireless deployments.

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Delivering exceptional performance in noisy RF locations by combining a beam steering antenna with a secondary look ahead scan radio to seek, manage and select the best channel.

## Product Line Compatibility

- Connects to all existing Tsunami® MP/XP 10100, MP-10100L, MP-8200, MP-820 and MP-830 products
- Fully integrates within ProximVision® Advanced Cloud Based Carrier Management System and Controller

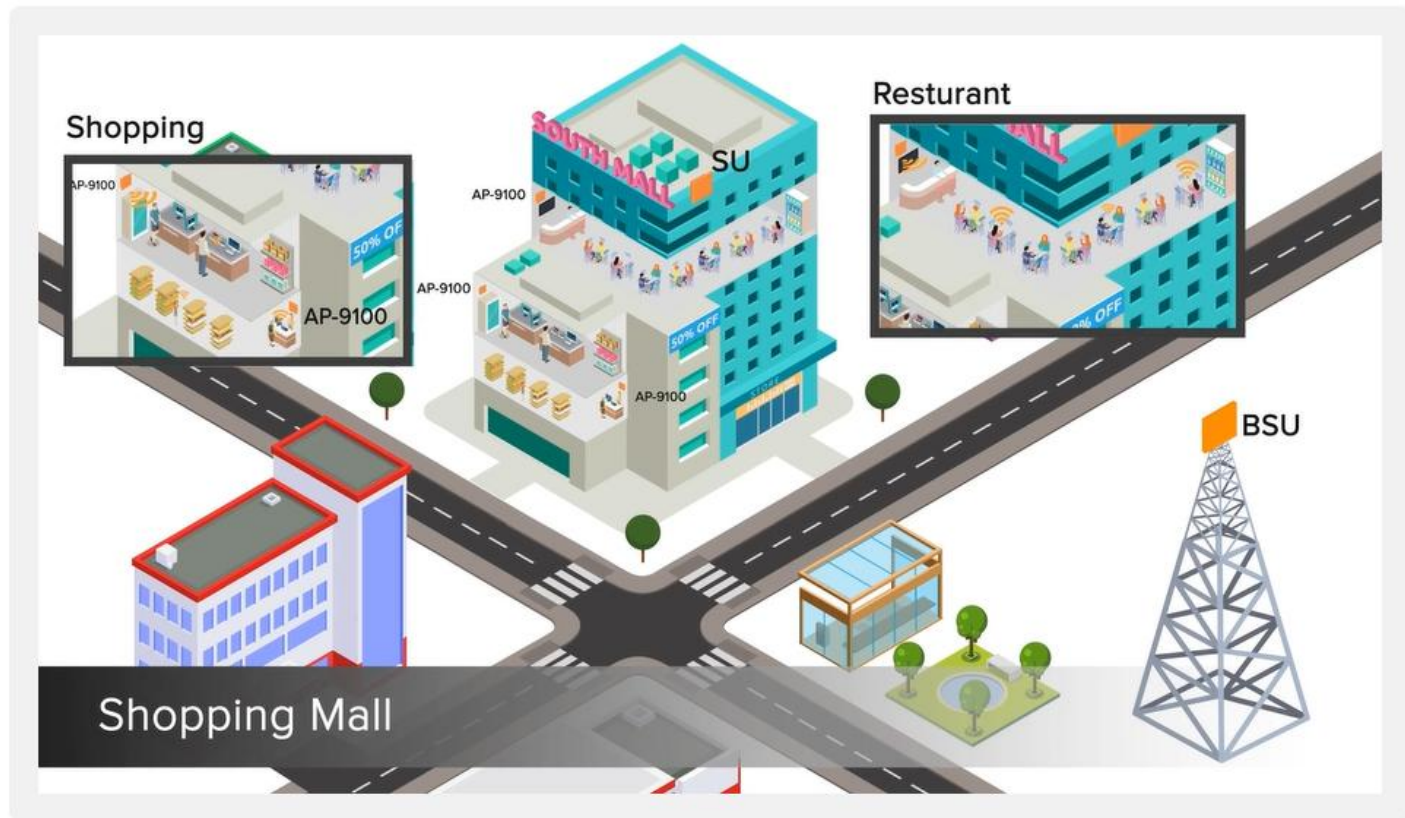
## Specifications

PRODUCT MODELS		PART NUMBERS	
MP-10250-BSX	Tsunami® MP 10250 Base Station Unit, 867 Mbps, MIMO 2x2, 16 dBi BeamX antenna, scan radio	901-00291	MP-10250-BSX-US
		901-00292	MP-10250-BSX-WD
INTERFACES			
WIRED ETHERNET	Two auto MDI-X RJ45 10/100/1000Mbps Ethernet (Port #1 with PoE in & Data, Port #2 with PoE out & Data)		
WIRELESS PROTOCOL	WORP® (Wireless Outdoor Router Protocol)		
RADIO & TX SPECS			
MIMO	2x2:2 and 0x2:2 (scan radio)		
MODULATION	OFDM with BPSK, QPSK, QAM16, QAM64, QAM256		
FREQUENCY	4.900 – 5.850 GHz (Subject to Country Regulations)		
CHANNEL SIZE	80 MHz, 40 MHz and 20 MHz		
DATA RATE	MCS 0 to 9 with Dynamic Data Rate Selection		
TX POWER	Up to 28 dBm (dual chain)		
TX POWER CONTROL	0 - 27 dB, in 1 dB steps. Automatic TPC with configurable EIRP limit		
	80 MHz	40 MHz	20 MHz
TX POWER	MCS0: 28 dBm	MCS0: 28 dBm	MCS0: 29 dBm
	MCS9: 21 dBm	MCS9: 22 dBm	MCS8: 25 dBm
RX SENSITIVITY (Per=10%)	MCS0: -89 dBm	MCS0: -93 dBm	MCS0: -94 dBm
	MCS9: -68 dBm	MCS9: -71 dBm	MCS8: -74 dBm
THROUGHPUT	Up to 672 Mbps	Up to 324 Mbps	Up to 137 Mbps
OTHER	Dynamic Channel Selection (DCS) based on interference detection. Dynamic Frequency Selection (DFS) based on radar signature. Automatic Transmit Power Control (ATPC) with EIRP limit support.		

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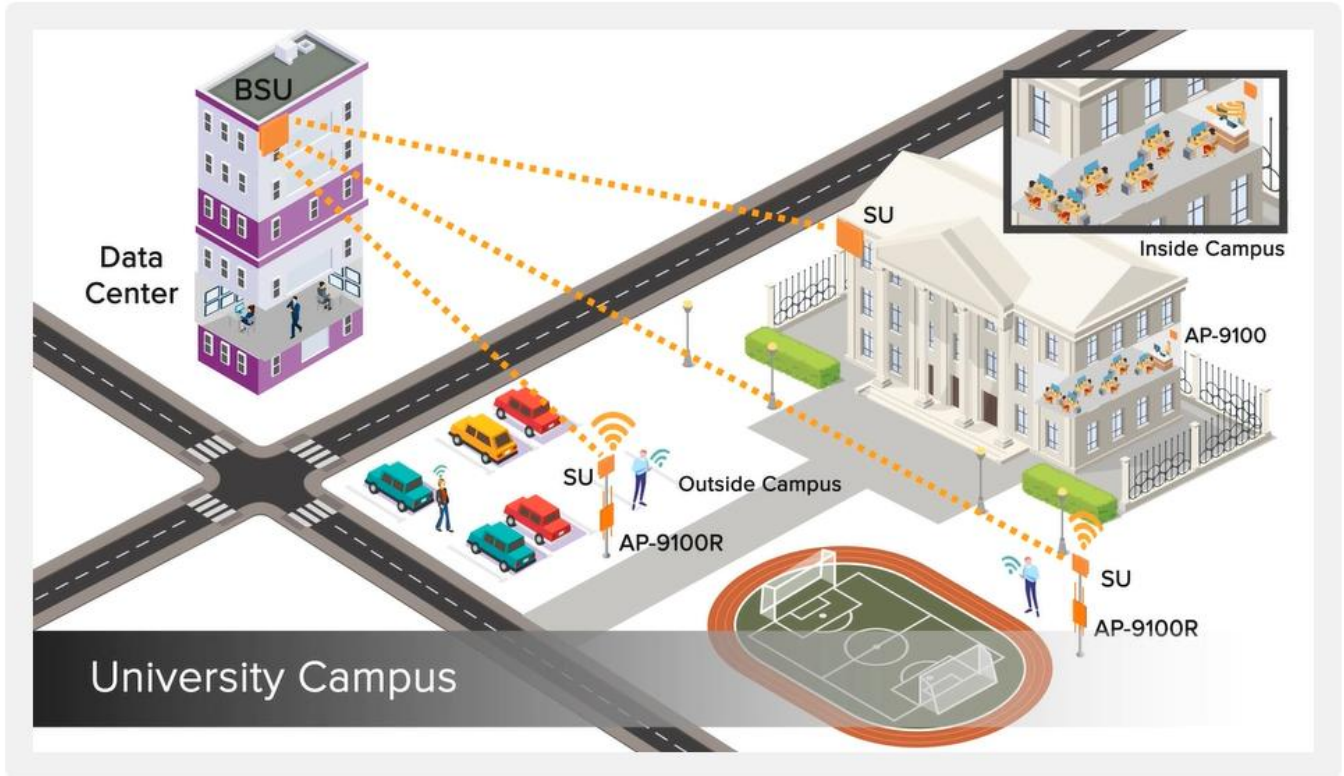
15. Proxim Wireless provides a communication system comprising a network backbone interfacing said land-line network and said wireless network to allow data packets to be exchanged between said wireless client and said land-line client. For example, WLAN solutions supports wireless transport capable protocols such as TCP/IP (Transmission Control Protocol/Internet Protocol) which acts as a network backbone interfacing land-line network and wireless network. TCP/IP network protocol allow data packets to be exchanged between wireless devices (such as ORiNOCO AP-9100, AP-9100R and/or Tsunami XP-10100 Series) and Ethernet Switches (such as Tsunami Quickbridge-10100 Series, Tsunami Quickbridge-10100-XX Series)

# Typical Wireless LAN Deployments



Source: <https://www.proxim.com/en/solutions/wifi>

# Typical Wireless LAN Deployments



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## 2. TCP/IP Overview

The generic term "TCP/IP" usually means anything and everything related to the specific protocols of TCP and IP. It can include other protocols, applications, and even the network medium. A sample of these protocols are: UDP, ARP, and ICMP. A sample of these applications are: TELNET, FTP, and rcp. A more accurate term is "internet technology". A network that uses internet technology is called an "internet".

### 2.1 Basic Structure

To understand this technology you must first understand the following logical structure:

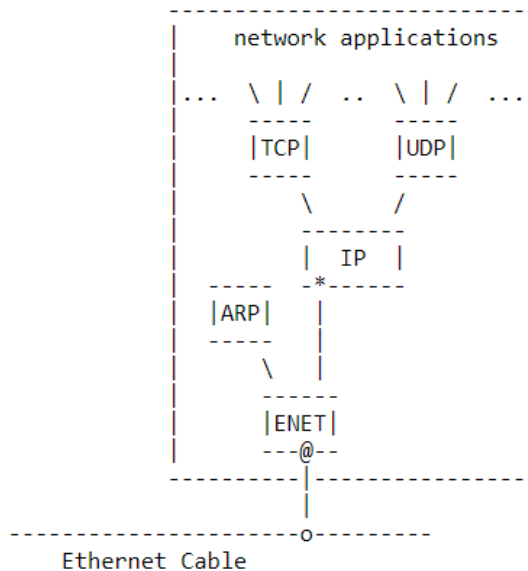


Figure 1. Basic TCP/IP Network Node

Source: <https://tools.ietf.org/html/rfc1180>, page 1



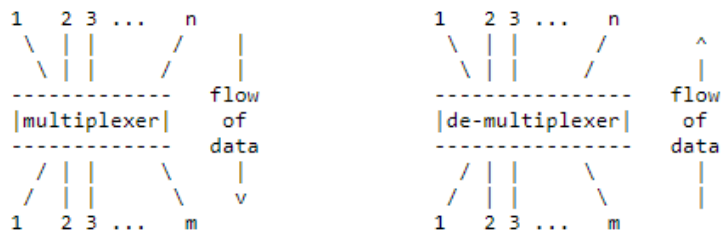


Figure 4. n-to-m multiplexer and m-to-n de-multiplexer

It performs this multiplexing in either direction to accommodate incoming and outgoing data. An IP module with more than 1 network interface is more complex than our original example in that it can forward data onto the next network. Data can arrive on any network interface and be sent out on any other.

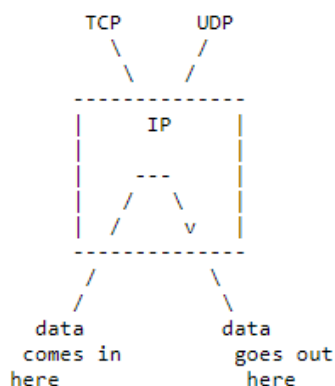
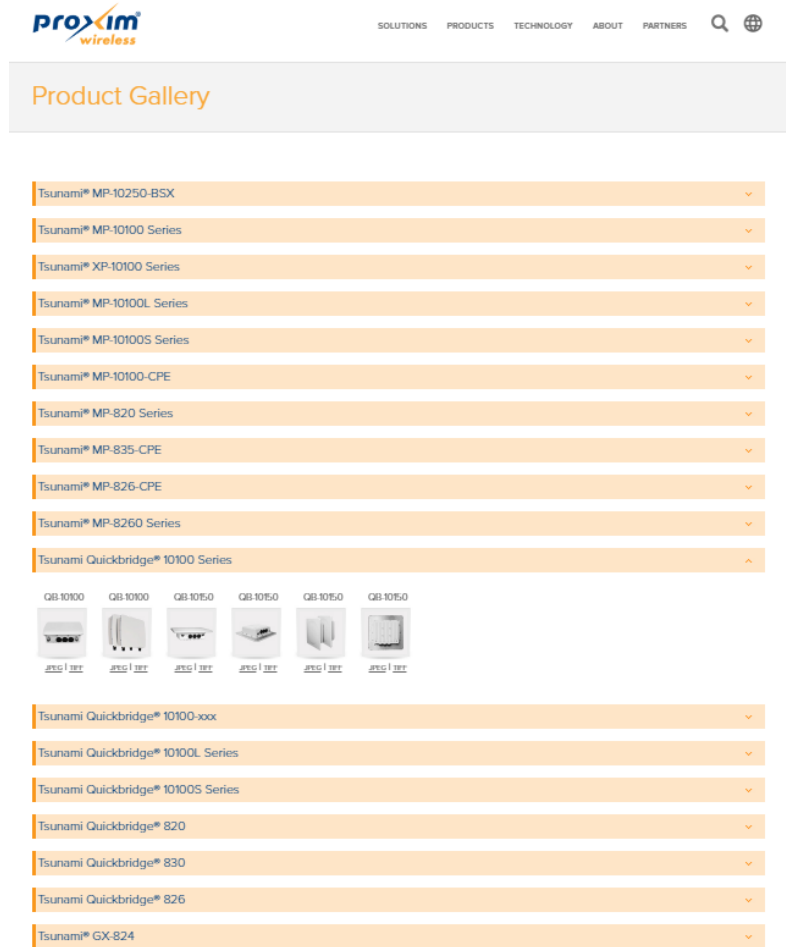


Figure 5. Example of IP Forwarding a IP Packet

The process of sending an IP packet out onto another network is called "forwarding" an IP packet. A computer that has been dedicated to the task of forwarding IP packets is called an "IP-router".

As you can see from the figure, the forwarded IP packet never touches the TCP and UDP modules on the IP-router. Some IP-router implementations do not have a TCP or UDP module.

Source: <https://tools.ietf.org/html/rfc1180, page 5>



Source: <https://www.proxim.com/en/products/knowledge-center/product-gallery?product=AP-9100R#AP9100R>



## Tsunami® MP-10250-BSX

Extending the range of high bandwidth services

### Designed to Maximize Bandwidth and Link Reliability in Noisy Environments



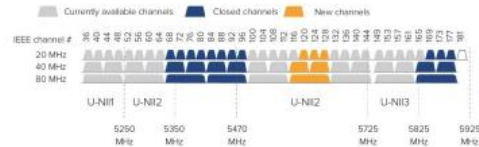
The Tsunami® MP-10250-BSX is an intelligent base station that implements a beam steering (BeamX™) antenna and a secondary, look-ahead scan radio (SmartScan™) to mitigate interference and take full advantage of the high throughput capability of the Tsunami® 10000 product line. This product is extremely robust in the face of high ambient RF interference, delivers more Mbps at a given point in the network and opens up additional 5GHz spectrum.

### Fast, Secure and Flexible

- Point-to-Multipoint base station that delivers up to 866 Mbps data rate and covers distances up to 10 miles (16 km)
- AES 128 encryption, Radius authentication and highly-secure remote management via SSL/TLS 1.2, SSH and SNMPv3
- Service flow based QoS with deep packet inspection (DPI) to ensure that the most important data arrives with priority
- Built-in feature rich network protocols for IPv4 and IPv6 bridging, routing and gateway functionality

### Proxim SmartScan™

- Performs background analysis of the full RF spectrum and creates channel availability tables to allow an immediate switch to a free channel in case of weather radar detection or heavy interference.
- By removing the initial transmission delay, SmartScan makes the DFS channel more efficient
- It also opens access to the 5.600–5.650 GHz sub-band, and enables effective use of up to 355 MHz of DFS spectrum



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16. Proxim Wireless provides a communication system which uses a wireless transport layer protocol for data frame transmission over said land-line and wireless networks, each data frame including connection handling information specifying at least one data transport connection to be used to transmit data between said wireless client and said land-line client over said wireless and land-line networks, connection addressing information. For example, WLAN solutions uses wireless transport capable protocols such as TCP/IP (Transmission Control Protocol/Internet Protocol) for data frames (such as Ethernet frame, IP packet, UDP datagram, and TCP segment and/or application message). Further, data frame (such as Ethernet frame)

contains connection handling information such as the destination address, source address (“connection addressing information”), type field and data.

## 2.2 Terminology

The name of a unit of data that flows through an internet is dependent upon where it exists in the protocol stack. In summary: if it is on an Ethernet it is called an Ethernet frame; if it is between the Ethernet driver and the IP module it is called a IP packet; if it is between the IP module and the UDP module it is called a UDP datagram; if it is between the IP module and the TCP module it is called a TCP segment (more generally, a transport message); and if it is in a network application it is called a application message.

These definitions are imperfect. Actual definitions vary from one publication to the next. More specific definitions can be found in [RFC 1122, section 1.3.3](#).

A driver is software that communicates directly with the network interface hardware. A module is software that communicates with a driver, with network applications, or with another module.

Source: <https://tools.ietf.org/html/rfc1180, page 2>

## 3. Ethernet

This section is a short review of Ethernet technology.

An Ethernet frame contains the destination address, source address, type field, and data.

An Ethernet address is 6 bytes. Every device has its own Ethernet address and listens for Ethernet frames with that destination address. All devices also listen for Ethernet frames with a wild-card destination address of "FF-FF-FF-FF-FF-FF" (in hexadecimal), called a "broadcast" address.

Ethernet uses CSMA/CD (Carrier Sense and Multiple Access with Collision Detection). CSMA/CD means that all devices communicate on a single medium, that only one can transmit at a time, and that they can all receive simultaneously. If 2 devices try to transmit at the same instant, the transmit collision is detected, and both devices wait a random (but short) period before trying to transmit again.

Source: <https://tools.ietf.org/html/rfc1180, page 7>



#### 4. ARP

When sending out an IP packet, how is the destination Ethernet address determined?

ARP (Address Resolution Protocol) is used to translate IP addresses to Ethernet addresses. The translation is done only for outgoing IP packets, because this is when the IP header and the Ethernet header are created.

##### 4.1 ARP Table for Address Translation

The translation is performed with a table look-up. The table, called the ARP table, is stored in memory and contains a row for each computer. There is a column for IP address and a column for Ethernet address. When translating an IP address to an Ethernet address, the table is searched for a matching IP address. The following is a simplified ARP table:

IP address	Ethernet address
223.1.2.1	08-00-39-00-2F-C3
223.1.2.3	08-00-5A-21-A7-22
223.1.2.4	08-00-10-99-AC-54

TABLE 1. Example ARP Table

The human convention when writing out the 4-byte IP address is each byte in decimal and separating bytes with a period. When writing out the 6-byte Ethernet address, the conventions are each byte in hexadecimal and separating bytes with either a minus sign or a colon.

The ARP table is necessary because the IP address and Ethernet address are selected independently; you can not use an algorithm to translate IP address to Ethernet address. The IP address is selected by the network manager based on the location of the computer on the internet. When the computer is moved to a different part of an internet, its IP address must be changed. The Ethernet address is selected by the manufacturer based on the Ethernet address space licensed by the manufacturer. When the Ethernet hardware interface board changes, the Ethernet address changes.

Source: <https://tools.ietf.org/html/rfc1180>, page 8

application, the TCP module, and the IP module. At this point the IP packet has been constructed and is ready to be given to the Ethernet driver, but first the destination Ethernet address must be determined.

The ARP table is used to look-up the destination Ethernet address.

#### 4.3 ARP Request/Response Pair

But how does the ARP table get filled in the first place? The answer is that it is filled automatically by ARP on an "as-needed" basis.

Two things happen when the ARP table can not be used to translate an address:

1. An ARP request packet with a broadcast Ethernet address is sent out on the network to every computer.
2. The outgoing IP packet is queued.

Every computer's Ethernet interface receives the broadcast Ethernet frame. Each Ethernet driver examines the Type field in the Ethernet frame and passes the ARP packet to the ARP module. The ARP request packet says "If your IP address matches this target IP address, then please tell me your Ethernet address". An ARP request packet looks something like this:

```

-----
|Sender IP Address  223.1.2.1      |
|Sender Enet Address 08-00-39-00-2F-C3|
-----
|Target IP Address  223.1.2.2      |
|Target Enet Address <blank>       |
-----

```

TABLE 2. Example ARP Request

Each ARP module examines the IP address and if the Target IP address matches its own IP address, it sends a response directly to the source Ethernet address. The ARP response packet says "Yes, that target IP address is mine, let me give you my Ethernet address". An ARP response packet has the sender/target field contents swapped as compared to the request. It looks something like this:

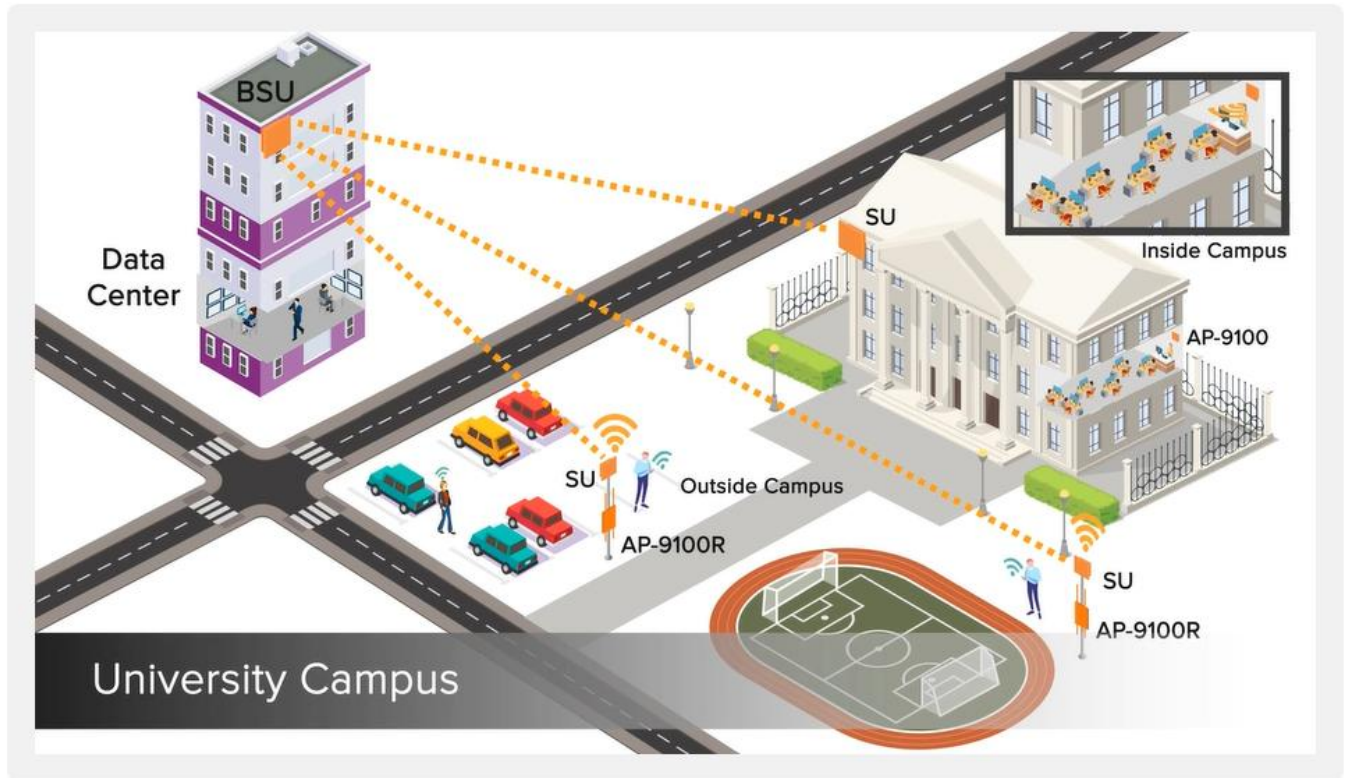
Source: <https://tools.ietf.org/html/rfc1180#page-2>, page 9

# Typical Wireless LAN Deployments



Source: <https://www.proxim.com/en/solutions/wifi>

# Typical Wireless LAN Deployments



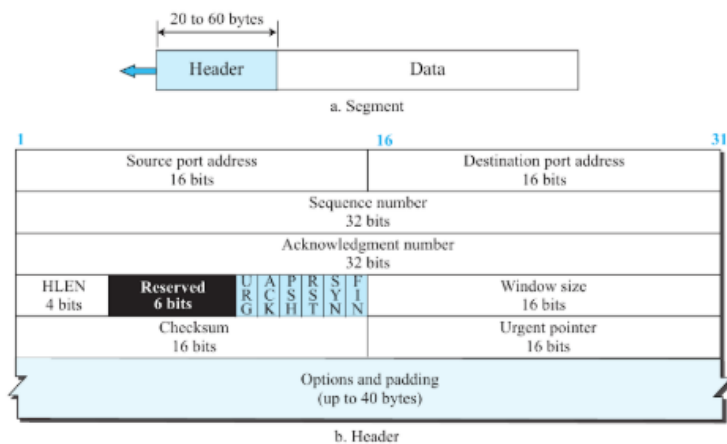
Source: <https://www.proxim.com/en/solutions/wifi>

17. Proxim Wireless provides a communication system comprising a user data field including a data packet to be transmitted from one client to another client. For example, WLAN solutions uses protocols such as TCP/IP (Transmission Control Protocol/Internet Protocol) which packages user data into TCP segments (“data packets”). The data packets are transmitted between wired and wireless devices (“client”) using WLAN solutions.

## CHAPTER 3 TRANSPORT LAYER

there are no options and up to 60 bytes if it contains options. We will discuss some of the header fields in this section. The meaning and purpose of these will become clearer as we proceed through the section.

Figure 3.44 TCP segment format

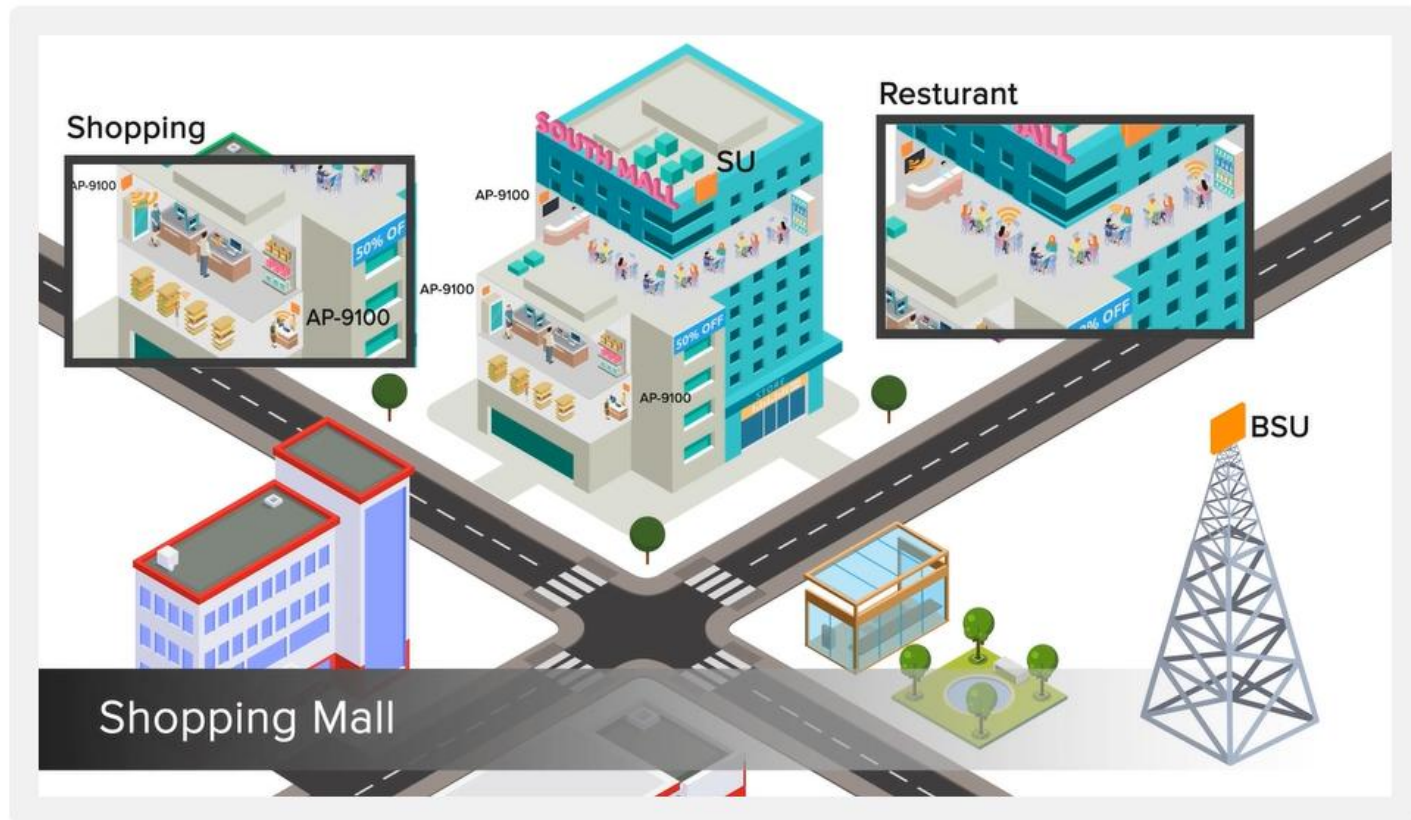


Source:

<https://books.google.co.in/books?id=o8CjAgAAQBAJ&printsec=frontcover&dq=forouzan+computer+networks&hl=en&sa=X&ved=0ahUKEwjV95WPruPhAhVFQo8KHWsUBtsQ6AEIKDAA#v=onepage&q=forouzan%20computer%20networks&f=false>, page 186



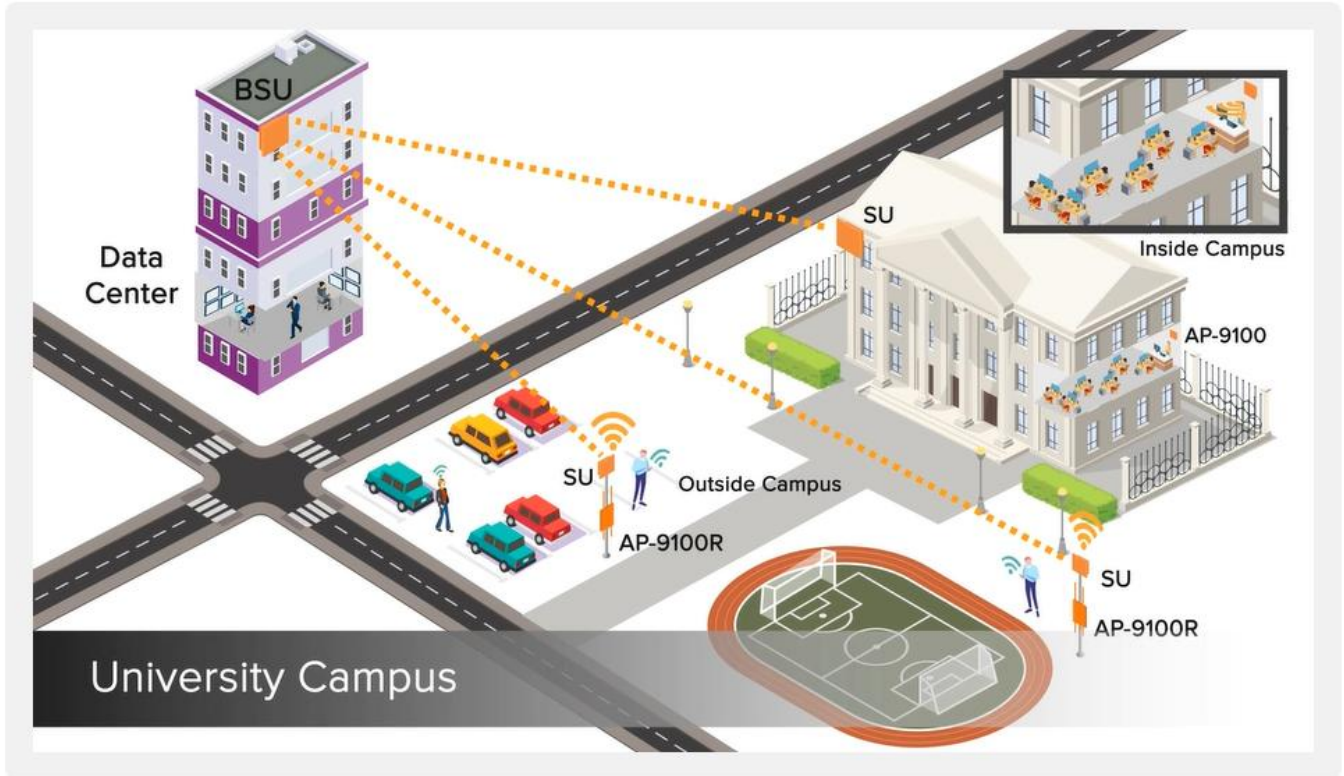
# Typical Wireless LAN Deployments



Source: <https://www.proxim.com/en/solutions/wifi>

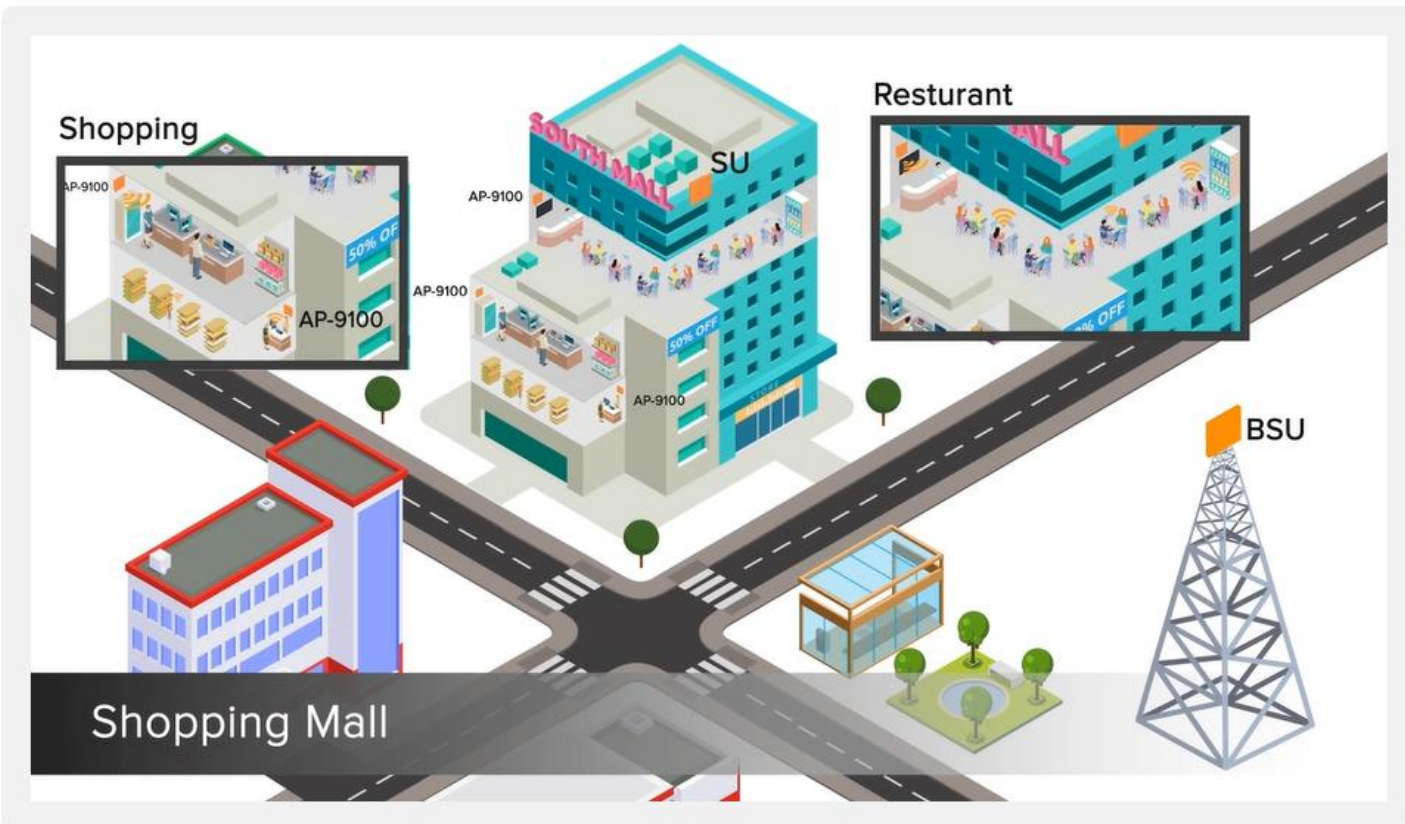


# Typical Wireless LAN Deployments



Source: <https://www.proxim.com/en/solutions/wifi>

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Source: <https://www.proxim.com/en/solutions/wifi>

18. Proxim provides at least one sequencing field identifying the last packet received by the client that is transmitting a current data packet. For example, the WLAN network products support wireless protocols such as TCP/IP for transmission. Further, TCP/IP uses sequence numbers and acknowledgement numbers for maintaining the sequence of the packets. Initial Sequence Number (ISN) is given to the first byte of the data to reassemble the bytes at the receiver end (wired and/or wireless devices). Acknowledgement number (“sequencing field”) is the next byte number that the receiver expects to receive which also provides acknowledgement for receiving the previous bytes/packets.

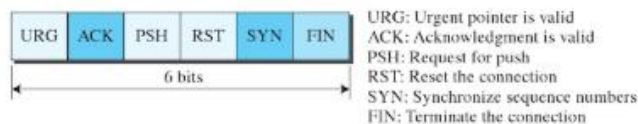
- ❑ **Source port address.** This is a 16-bit field that defines the port number of the application program in the host that is sending the segment.
- ❑ **Destination port address.** This is a 16-bit field that defines the port number of the application program in the host that is receiving the segment.
- ❑ **Sequence number.** This 32-bit field defines the number assigned to the first byte of data contained in this segment. As we said before, TCP is a stream transport protocol. To ensure connectivity, each byte to be transmitted is numbered. The sequence number tells the destination which byte in this sequence is the first byte in the segment. During connection establishment (discussed later) each party uses a random number generator to create an **initial sequence number** (ISN), which is usually different in each direction.
- ❑ **Acknowledgment number.** This 32-bit field defines the byte number that the receiver of the segment is expecting to receive from the other party. If the receiver of the segment has successfully received byte number  $x$  from the other party, it returns  $x + 1$  as the acknowledgment number. Acknowledgment and data can be piggybacked together.
- ❑ **Header length.** This 4-bit field indicates the number of 4-byte words in the TCP header. The length of the header can be between 20 and 60 bytes. Therefore, the value of this field is always between 5 ( $5 \times 4 = 20$ ) and 15 ( $15 \times 4 = 60$ ).

Source:

<https://books.google.co.in/books?id=o8CjAgAAQBAJ&printsec=frontcover&dq=forouzan+computer+networks&hl=en&sa=X&ved=0ahUKEwjV95WPruPhAhVFQo8KHWsUBtsQ6AEIKDAA#v=onepage&q=forouzan%20computer%20networks&f=false>, page 186

- ❑ **Control.** This field defines 6 different control bits or flags, as shown in Figure 3.45. One or more of these bits can be set at a time. These bits enable flow control, connection establishment and termination, connection abortion, and the mode of data transfer in TCP. A brief description of each bit is shown in the figure. We will discuss them further when we study the detailed operation of TCP later in the chapter.

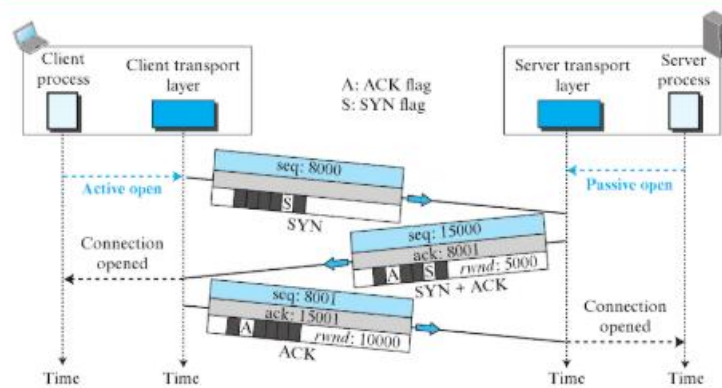
Figure 3.45 Control field



Source:

<https://books.google.co.in/books?id=o8CjAgAAQBAJ&printsec=frontcover&dq=forouzan+computer+networks&hl=en&sa=X&ved=0ahUKEwjV95WPruPhAhVFQo8KHWsUBtsQ6AEIKDAA#v=onepage&q=forouzan%20computer%20networks&f=false>, page 187

Figure 3.47 Connection establishment using three-way handshaking



number, the control flags (only those that are set), and window size if relevant. The three steps in this phase are as follows.

1. The client sends the first segment, a SYN segment, in which only the SYN flag is set. This segment is for synchronization of sequence numbers. The client in our example chooses a random number as the first sequence number and sends this number to the server. This sequence number is called the initial sequence number (ISN). Note that this segment does not contain an acknowledgment number. It does not define the window size either; a window size definition makes sense only when a segment includes an acknowledgment. The segment can also include some options that we discuss later in the chapter. Note that the SYN segment is a control segment and carries no data. However, it consumes one sequence number because it needs to be acknowledged. We can say that the SYN segment carries one imaginary byte.

**A SYN segment cannot carry data, but it consumes one sequence number.**

Source:

<https://books.google.co.in/books?id=o8CjAgAAQBAJ&printsec=frontcover&dq=forouzan+computer+networks&hl=en&sa=X&ved=0ahUKEwjV95WPruPhAhVFQo8KHWsUBtsQ6AEIKDAA#v=onepage&q=forouzan%20computer%20networks&f=false>, page 189



2. The server sends the second segment, a SYN + ACK segment with two flag bits set as: SYN and ACK. This segment has a dual purpose. First, it is a SYN segment for communication in the other direction. The server uses this segment to initialize a sequence number for numbering the bytes sent from the server to the client. The server also acknowledges the receipt of the SYN segment from the client by setting the ACK flag and displaying the next sequence number it expects to receive from the client. Because it contains an acknowledgment, it also needs to define the receive window size, *rwnd* (to be used by the client), as we will see in the flow control section. Since this segment is playing the role of a SYN segment, it needs to be acknowledged. It, therefore, consumes one sequence number.

**A SYN + ACK segment cannot carry data,  
but it does consume one sequence number.**

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### 3 TRANSPORT LAYER

3. The client sends the third segment. This is just an ACK segment. It acknowledges the receipt of the second segment with the ACK flag and acknowledgment number field. Note that the ACK segment does not consume any sequence numbers if it does not carry data, but some implementations allow this third segment in the connection phase to carry the first chunk of data from the client. In this case, the segment consumes as many sequence numbers as the number of data bytes.

**An ACK segment, if carrying no data, consumes no sequence number.**

Source:

<https://books.google.co.in/books?id=o8CjAgAAQBAJ&printsec=frontcover&dq=forouzan+computer+networks&hl=en&sa=X&ved=0ahUKEwjV95WPruPhAhVFQo8KHWSUBtsQ6AEIKDAA#v=onepage&q=forouzan%20computer%20networks&f=false>, page 190

19. In the alternative, because the manner of use by Defendant differs in no substantial way from language of the claims, if Defendant is not found to literally infringe, Defendant infringes under the doctrine of equivalents.

20. Defendant's aforesaid activities have been without authority and/or license from Plaintiff.

21. In addition to what is required for pleadings in patent cases, and to the extent any marking was required by 35 U.S.C. § 287, Plaintiff and all predecessors in interest to the '095 Patent complied with all marking requirements under 35 U.S.C. § 287.

22. Plaintiff is entitled to recover from Defendant the damages sustained by Plaintiff as a result of the Defendant's wrongful acts in an amount subject to proof at trial, which, by law,

cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff respectfully requests that this Court enter:

1. A judgment in favor of Plaintiff that Defendant has infringed the '813 Patent;
2. A judgment and order requiring Defendant to pay Plaintiff its damages, costs, expenses, and prejudgment and post-judgment interest for Defendant's infringement of the '813 Patent as provided under 35 U.S.C. § 284;
3. An award to Plaintiff for enhanced damages resulting from the knowing, deliberate, and willful nature of Defendant's prohibited conduct with notice being made at least as early as the date of the filing of this Complaint, as provided under 35 U.S.C. § 284;
4. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to Plaintiff its reasonable attorneys' fees; and
5. Any and all other relief to which Plaintiff may show itself to be entitled.

**DEMAND FOR JURY TRIAL**

Plaintiff, under Rule 38 of the Federal Rules of Civil Procedure, requests a trial by jury of any issues so triable by right.

Respectfully Submitted,

**WIRELESS TRANSPORT LLC**

Dated: July 29, 2019

By: /s/ Jimmy Chong

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