

# Tsunami® Multipoint 835 CPE

## High Performance Customer Premises Equipment for WISPs

### Rugged outdoor Point-to-Multipoint CPE for last-mile access and mobility applications

The Tsunami® Multipoint 835 CPE is an ideal solution for large-scale wireless deployments and provides an excellent value proposition to WISPs planning wireless broadband last-mile access deployments.

Leveraging the advantages of OFDM, and MIMO radio innovations combined with Proxim's proprietary Wireless Outdoor Routing Protocol (WORP®), the Tsunami® Multipoint 835 CPE provides excellent performance and throughput even in Non Line-of-Sight (NLOS) installations.

The MP-835-CPE enables seamless roaming up to 295 km/h (185 mph) for use in mobility applications such as provision of Internet access or video surveillance on trains, trams and busses.

This CPE also features a carrier-grade prioritization platform supporting multiple service classes and able to prioritize voice, video and data applications to enable granular management of customer service features.

### High Value, Long Service Life

The combination of high reliability, license-free frequency bands, and guaranteed compatibility with past, current and future Proxim base station models, ensures a long service life, and an excellent return on investment.

- License-free frequency bands worldwide provide reliable wireless broadband without the high cost and delays associated with licensed frequencies
- Designed for harsh environments, the Tsunami® MP-835-CPE is fully IP67 rated, and will deliver years of reliable service in conditions that include, high winds, high salt, and high temperature range

### Flexible, Fast and Secure

- Allows flexible bandwidth allocation for service tiers
- Field upgradable 10, 25, 50 or 100 Mbps of throughput with maximum data rates of 300 Mbps
- Provides flexible channel planning with support for 4.900 - 5.000 GHz (L mask) and 5.150 - 5.925 GHz
- Comes with a 2x2 MIMO high power radio capable of 26 dBm transmit power
- Advanced encryption protects over-the-air transmission via AES-128
- Uses Proxim's Wireless Outdoor Routing Protocol (WORP®) to prevent snooping
- Radio mutual authentication eliminates unauthorized use of the system by rogue subscriber units and man-in-the-middle attacks
- Supports either WORP® or WORP® sync to adapt to RF condition and deliver optimum performance.

### All-in-One CPE and Gateway

- Built-in network protocols for Bridging, Routing and Gateway functionality
- MAC, Ether type, IP address packet filtering provides granular network security
- Features highly-secure remote management via SSL, SSH and SNMPv3



### Easy to Install

- Comes ready to install with a complete "bring-your-own-pole" installation kit that includes basic pole mount and grounding kits, connector weather proofing kit and a power injector
- Non Line-of-Sight capability provided by Advanced Orthogonal Frequency Division Multiplexing (OFDM) along with 2x2 MIMO eases deployment in challenging areas
- Deployment tools include spectrum analyzer, antenna alignment and remote management configuration
- 15 dBi integrated antenna
- Connects to all existing Tsunami® MP:11 5054, Tsunami® 8100 and Tsunami® 8200, but also to all new Tsunami 10100 and 10200 series

### Key Technologies



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 FastConnect™, mobility technology that delivers rapid hand-off between fixed base stations and moving vehicles to ensure uninterrupted broadband at speeds up to 295 km/h (185 mph)

### 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.

PRODUCT MODELS		PART NUMBERS	
MP-835-CPE-10	Tsunami® MP 835 Customer Premise Equipment, 10 Mbps, MIMO 2x2, 15 dBi integrated antenna	901-00203	MP-835-CPE-10-US
MP-835-CPE-25	Tsunami® MP 835 Customer Premise Equipment, 25 Mbps, MIMO 2x2, 15 dBi integrated antenna	901-00204	MP-835-CPE-25-US
MP-835-CPE-50	Tsunami® MP 835 Customer Premise Equipment, 50 Mbps, MIMO 2x2, 15 dBi integrated antenna		
MP-835-CPE-100	Tsunami® MP 835 Customer Premise Equipment, 100 Mbps, MIMO 2x2, 15 dBi integrated antenna		
MP-835-CPE-10-25-UPG	Tsunami® MP 835 Customer Premise Equipment, 10 to 25 Mbps license upgrade	997-00016	MP-835-CPE-10-25-UPG
MP-835-CPE-10-50-UPG	Tsunami® MP 835 Customer Premise Equipment, 10 to 50 Mbps license upgrade		
MP-835-CPE-10-100-UPG	Tsunami® MP 835 Customer Premise Equipment, 10 to 100 Mbps license upgrade		
MP-835-CPE-25-50-UPG	Tsunami® MP 835 Customer Premise Equipment, 25 to 50 Mbps license upgrade		
MP-835-CPE-25-100-UPG	Tsunami® MP 835 Customer Premise Equipment, 25 to 100 Mbps license upgrade		
MP-835-CPE-50-100-UPG	Tsunami® MP 835 Customer Premise Equipment, 50 to 100 Mbps license upgrade		

INTERFACES	
WIRED ETHERNET	One auto MDI-X RJ45 10/100 Mbps Ethernet with PoE in
WIRELESS PROTOCOL	WORP® (Wireless Outdoor Router Protocol) or WORP sync

RADIO & TX SPECS	
MIMO	2x2 MIMO
MODULATION	OFDM with BPSK, QPSK, QAM16, QAM64
FREQUENCY	4.900 - 5.925 GHz (Subject to Country Regulations)
CHANNEL SIZE	40 MHz, 20 MHz, 10 MHz*, 5 MHz* channel bandwidths <span style="float: right;">* Not applicable for DFS Band</span>
DATA RATE	MCS 0 to 15 for High Throughput mode (6.5 – 300 Mbps) with Dynamic Data Rate Selection. BPSK, QPSK, 16-QAM and 64-QAM for legacy mode (6Mbps - 54Mbps)
TX POWER	Up to 26 dBm (dual chain)
TX POWER CONTROL	0 – 15 dB, in 0.5 dB steps. Automatic TPC with configurable EIRP limit
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

RX SENSITIVITY (BER=10 <sup>-6</sup> )	Channel Size	40 MHz	20 MHz	10 MHz	5 MHz
	MCS 0	-88 dBm	-92 dBm	-93 dBm	-94 dBm
	MCS 7	-72 dBm	-74 dBm	-75 dBm	-77 dBm
	MCS 8	-88 dBm	-91 dBm	-93 dBm	-94 dBm
	MCS 15	-69 dBm	-71 dBm	-72 dBm	-75 dBm

ANTENNA	
	Integrated 15 dBi dual Polarized (H+V) panel antenna (12 dBi before 5.000 GHz and 14 dBi beyond 5.850 GHz)

MANAGEMENT	
REMOTE	Telnet and SSH, Web GUI and SSL, TFTP, SNMPv3
SNMP	SNMP v1-v2c-v3, RFC-1213, RFC-1215, RFC-2790, RFC-2571, RFC-3412, RFC-3414, Private MIB
OTHER	Syslog, sFlow™ agent, SNTP and local time, Spectrum analyzer

SECURITY	
ENCRYPTION	AES-CCM 128 bits
AUTHENTICATION	Internal MAC Address Control List, Radius based Authentication (with VLAN and QoS provisioning)

NETWORK	
MODES	Bridging , Routing (RIP v2 and IP tunneling)
GATEWAY FEATURES	DHCP Server & relay, NAT with Std ALGs, PPPoE end point with Proxy DNS
THROUGHPUT	MP-835-CPE-10 - Up to 10 Mbps, MP-835-CPE-25 - Up to 25 Mbps MP-835-CPE-50 - Up to 50 Mbps, MP-835-CPE-100 - Up to 100 Mbps

QoS	
Asymmetric Bandwidth Control	Uplink and Downlink CIR Control "committed information rate" per service flow. Uplink and Downlink MIR Control "maximum information rate" per service flow
Packet Classification Capabilities	802.1D/802.1Q/802.1p priority, IPTOS, VLAN ID, IP source/destination address, source/destination port, Ethernet source/destination address, IP protocol, and Ethertype
Scheduling	Best Effort, Real Time Polling Services

VLAN	802.1Q: Management VLAN. Transparent, Access, Trunk and Mixed mode. QinQ double tagging
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POWER CONSUMPTION	
	6 Watt typical

ENVIRONMENTAL SPECS		
OPERATING TEMPERATURE	STORAGE TEMPERATURE	HUMIDITY, WATER & DUST PROOF, WIND LOADING
-30° to 50°C (-22° to 122° Fahrenheit)	-55° to 70°C (-67° to 158° Fahrenheit)	Max 100% relative humidity (non-condensing), IP67, 180 km/h (112 mph)
Cold start at -20°C (-4° Fahrenheit)		

PHYSICAL SPECS			
DIMENSIONS (PACKAGED)	DIMENSIONS (UNPACKAGED)	WEIGHT (PACKAGED)	WEIGHT (UNPACKAGED)
13.97 x 8.86 x 3.46 in (355 x 225 x 88 mm)	4.96 x 8.62 x 2.58 in (126 x 219 x 65.5 mm)	4.9 lbs (2.225 Kg)	2.1 lbs (0.950 kg)

SAFETY STANDARDS	
	UL 60950-1/22

PACKAGE CONTENTS	
<ul style="list-style-type: none"> <li>• One Tsunami® MP-835-CPE-10/25/50/100 with integrated antenna</li> <li>• One 20 W power injector and country specific power cord</li> <li>• One Connector weatherproofing kit (Includes all recommended weatherproofing material)</li> </ul>	<ul style="list-style-type: none"> <li>• One Grounding kit</li> <li>• One basic Pole mounting kit</li> <li>• One Quick Installation Guide</li> </ul>

MTBF & WARRANTY	
	> 350,000 hours & 1-year; ServPak Extended Support available.