# Tsunami® Multipoint 835 CPE

## Compact CPE for WISP and Mobility Applications

### 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 and excellent value propositions 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 surveilance 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.

# Specifications: Tsunami® Multipoint 835 CPE

## PRODUCT MODELS

| | |
|---|---|
| MP-835-CPE-10 | Tsunami® MP 835 Customer Premise Equipment, 10 Mbps, MIMO 2x2, 15 dBi integrated antenna |
| MP-835-CPE-25 | Tsunami® MP 835 Customer Premise Equipment, 25 Mbps, MIMO 2x2, 15 dBi integrated antenna |
| 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 |
| 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 |

## PART NUMBERS

| | | | |
|---|---|---|---|
| 901-00203 | MP-835-CPE-10-US | 901-00206 | MP-835-CPE-10-WD |
| 901-00204 | MP-835-CPE-25-US | 901-00207 | MP-835-CPE-25-WD |
| | | 901-00201 | MP-835-CPE-50-WD |
| | | 901-00208 | MP-835-CPE-100-WD |
| 997-00016 | MP-835-CPE-10-25-UPG | 997-00016 | MP-835-CPE-10-25-UPG |
| | | 997-00017 | MP-835-CPE-10-50-UPG |
| | | 997-00018 | MP-835-CPE-10-100-UPG |
| | | 997-00019 | MP-835-CPE-25-50-UPG |
| | | 997-00020 | MP-835-CPE-25-100-UPG |
| | | 997-00021 | MP-835-CPE-50-100-UPG |

## 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 * Not applicable for DFS Band |
| 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=$10^{-6}$)

| 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<br>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.<br>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

## 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)<br>Cold start at -20°C (-4° Fahrenheit) | -55° to 70°C (-67° to 158° Fahrenheit) | Max 100% relative humidity (non-condensing), IP67, 180 km/h (112 mph) |

## 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

- One Tsunami® MP-835-CPE-10/25/50/100 with integrated antenna
- One 20 W power injector and country specific power cord
- One Connector weatherproofing kit (Includes all recommended weatherproofing material)
- One Grounding kit
- One basic Pole mounting kit
- One Quick Installation Guide

## MTBF & WARRANTY

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