

# Tsunami® Multipoint 835-CPE

## A High Performance Customer Premises Equipment for WISPs



### Presenting Proxim's next generation Point-to-Multipoint Customer Premises Equipment

Proxim Wireless is a leader and an early innovator in wireless technology providing high-speed, long-range broadband wireless solutions. Leveraging the advantages of OFDM, MIMO radio innovations along with Proxim's proprietary Wireless Outdoor Routing Protocol (WORP®), Tsunami® Multipoint 835 CPE is a feature rich customer premises equipment specifically designed for the carrier, service provider and WISP market.

The low cost outdoor form factor of Tsunami® Multipoint 835 CPE is an ideal solution for large-scale wireless deployments suitable for all last-mile broadband wireless access deployments.

This CPE is also feature rich with a carrier-grade prioritization platform supporting multiple service classes that can prioritize voice, video and data applications over the widest range of operating frequencies.

#### World Class Performance

- Features a very small form factor and an outdoor rated IP67 Metal enclosure
- Available with 15 dBi integrated antenna
- Field upgradable 10 or 25 Mbps of throughput with maximum data rates of 300 Mbps
- Provides flexible channel planning with support for 5.150 to 5.925 GHz
- Comes with a 2x2 MIMO high power radio capable of 26 dBm transmit power
- Allows flexible bandwidth allocation for service tiers
- Seamless mobility up to 295 km/h (185 mph)

#### All-in-One CPE with Security & Gateway Features

- Built-in feature rich network protocols for Bridging, Routing and Gateway functionality
- Advanced encryption protects over-the-air transmission via AES-128

- Radio mutual authentication eliminates unauthorized use of the system by rogue subscriber units and man-in-the middle attacks
- MAC, Ether type, IP address packet filtering provides granular network security
- Uses Proxim's Wireless Outdoor Routing Protocol (WORP®) to prevent snooping
- Supports either WORP® or WORP® sync to adapt to RF condition and deliver optimum performances.
- Features highly-secure remote management via SSL, SSH and SNMPv3

#### Reducing Costs for Wireless ISPs

- License-free frequency bands worldwide provide reliable wireless broadband without the high cost of licensed frequencies
- Low-cost bundle including both radio and mounting kit provides the industry's most aggressive price point, enabling any deployment to enjoy a quick return on investment

#### Easy to Install

- Comes as a complete compact outdoor form factor offering unprecedented ease of installation
- Deployment tools include spectrum analyzer, antenna alignment and remote management configuration
- Non Line-of-Sight capability provided by Advanced Orthogonal Frequency Division Multiplexing (OFDM) along with 2x2 MIMO eases deployment in challenging areas
- Connects to all existing Tsunami® MP:11 5054, Tsunami® 8100 and Tsunami® 8200

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																											
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		5.150 – 5.925 GHz (Subject to Country Regulations)																											
CHANNEL SIZE		40 MHz, 20 MHz, 10 MHz*, 5 MHz* channel bandwidths																											
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> )		<table><tr><td>Channel Size</td><td>40 MHZ</td><td>20 MHZ</td><td>10 MHz</td><td>5 MHz</td></tr><tr><td>MCS 0</td><td>-88 dBm</td><td>-92 dBm</td><td>-93 dBm</td><td>-94 dBm</td></tr><tr><td>MCS 7</td><td>-72 dBm</td><td>-74 dBm</td><td>-75 dBm</td><td>-77 dBm</td></tr><tr><td>MCS 8</td><td>-88 dBm</td><td>-91 dBm</td><td>-93 dBm</td><td>-94 dBm</td></tr><tr><td>MCS 15</td><td>-69 dBm</td><td>-71 dBm</td><td>-72 dBm</td><td>-75 dBm</td></tr></table>			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
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ANTENNA																													
		Integrated 15 dBi dual Polarized (H+V) panel antenna (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																											
QoS		<table><tr><td>Asymmetric Bandwidth Control</td><td>Uplink and Downlink CIR Control "committed information rate" per service flow. Uplink and Downlink MIR Control "maximum information rate" per service flow</td></tr><tr><td>Packet Classification Capabilities</td><td>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</td></tr><tr><td>Scheduling</td><td>Best Effort, Real Time Polling Services</td></tr></table>			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																			
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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)		-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 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 & 2 year on parts and labor; ServPak Extended Support available																											