MP.11 Outdoor Base Station

MP.11 Subscriber Unit with Integrated Antenna

Outdoor Broadband Wireless Access

Proxim Wireless offers the industry's most complete suite of outdoor broadband wireless access products. This portfolio includes:

- **Tsunami™ MP.11 –** Capabilities of fixed and mobile WiMAX for U.S. and global markets

- **Tsunami™ MP.16 –** WiMAX for the 3.5 GHz frequency band

- **ORiNOCO® Wi-Fi Mesh –** Outdoor and indoor Wi-Fi® mesh for service providers and municipalities

Proxim Wireless is a global pioneer in scalable broadband wireless networking. From Wi-Fi to wireless Gigabit Ethernet – our WLAN, mesh, point-to-multipoint and point-to-point products are available through our extensive global channel network.

The Next-Generation Broadband Wireless Access Solution Adds WiMAX Functionality Today

Proxim Wireless is proud to introduce enhanced features to the field-proven Tsunami MP.11 point-to-multipoint product line. The MP.11 series has enabled municipalities and service providers to bridge the digital divide, increase productivity, cut network costs, and create new business opportunities – all through advanced broadband wireless networking. Advanced features include: WiMAX Quality of Service (QoS); roaming with seamless handoffs at speeds up to 200 km/hour; dynamic frequency selection (DFS), which has already received EN 301-893 v1.3.1 and FCC-DFS (part 15) certification and extended range. Available in outdoor and indoor models, the MP.11 series is capable of supporting converged voice, video and data transmission in fixed and mobile applications, bringing capabilities of the IEEE 802.16e (mobile WiMAX) standard to market now, for license-free frequency bands available globally. Existing MP.11 installations can even be upgraded in the field.

- Frequency support for 2.4 GHz with 13 total channels, four 5 GHz bands (5.15, 5.25, 5.47, and 5.725 GHz) with 80+ non-overlapping channels and 902-928 MHz with four channels

- Scalable performance from 6 to 54 Mbps – all selectable via simple user interfaces

- Advanced revenue-enhancing features are standard – including flexible bandwidth provisioning for DSL, T1 or Ethernet-like tiered services as well as NAT and DHCP for IP-based storage and e-mail hosting

- Extended network coverage:
  - High Power 5054-R-LR version provides extended range up to 20 miles (Supports 5.725-5.850 GHz)
  - Model MP.11 954-R reaches remote subscribers in rural areas where foliage and other obstructions make line-of-sight impossible (Supports 902-928 MHz)

WiMAX QoS Provides New Revenue Opportunities for Service Providers

IEEE 802.16 (WiMAX) QoS provides a higher level of prioritization than any available 802.1-based schemes from currently existing products. As many as eight classes of service, with up to eight service flows per class, are supported. This is especially important for emerging services like VoIP and streaming video applications. As a result, service providers will have more options for managing their bandwidth more effectively and can make better, more informed decisions about their service management strategies and revenue-generating opportunities.

Mobile Roaming Enables New Applications

Proxim innovation delivers another wireless industry first – mobile roaming of Subscriber Units (SU) between Base Station Units (BSU). Public safety first responder networks, transportation system monitoring and telemetry, and mobile security and surveillance are now all possible with a low cost, robust system.

- Fast handoff at speeds up to 200 km per hour (120 miles per hour) with handoff times as low as 40 ms

- Customizable roaming parameter maintains minimum bandwidth required for application performance

¹Available for FCC only.

APPLICATIONS

- **Security and Surveillance**
  Wireless solutions for bandwidth-intensive and high-definition IP-surveillance cameras located at important city and transportation infrastructure such as airports, bridges and trains

- **Business and Residential Last-Mile Access**
  Competitive broadband service alternative to DSL or cable modems for residences and T1 or Ethernet for businesses

- **Metropolitan Area Networks**
  Secure and reliable connectivity between city buildings

- **Emergency First Responders**
  Critical information delivery such as medical data and video feeds during in-progress events

- **Enterprise Campus Connectivity**
  Extend main network to remote branch offices, warehouses or other out buildings without leased line

- **Mobile Hot Spot**
  On-demand entertainment and broadband access solutions for ferry, transit buses and railway system commuters

Adaptive Wireless Network Optimizes Performance

Using advanced OFDM technology and Wireless Outdoor Routing Protocol (WORP), MP.11 networks dynamically adapt to the ever-changing network load for optimum performance.

- WORP adapts to avoid collisions and maximizes data content with each transmission
- Dynamic Data Rate Selection automatically compensates for temporary link degradation, maintaining robust connectivity and mitigating service calls

Advanced Security Protects Privacy

Multiple security mechanisms protect operator, residential customer and enterprise privacy.

- Weatherized enclosure allows colocation on rooftops – limiting physical access
- Proxim's Wireless Outdoor Routing Protocol (WORP) prevents snooping common to Wi-Fi systems
- Advanced encryption protects over-the-air transmission
- Intracell blocking forbids direct communication between Subscriber Units
- BSU and SU mutual authentication eliminates unauthorized use of system by rogue SUs and man-in-the middle attacks
- Password protection of all remote management methods

Designed for Fast Installation and Lower Maintenance Cost

MP.11 radios incorporate hardware and software features that reduce labor costs associated with initial deployment and post-sales maintenance.

- With Peltier heating and cooling technology inside a ruggedized enclosure, the MP.11 products can be deployed in extreme weather conditions
- Decrease Subscriber Unit configuration time with integrated and vertical/horizontal polarized antennas
- Eliminate guess work in locating the remote antennas with audible tone and real-time signal strength measurements
- Support for both local and remote management, removing the need for expensive on-site supports

Investment Protection for Current Tsunami MP.11 Model 5054 (MP.11a) customers

Customers of earlier versions of MP.11 can upgrade their products in the field with enhancements including WiMAX QoS and fast roaming (v2.3) and DFS compliant with EN 301-893 v1.3.1.

Please visit http://support.proxim.com/ to obtain upgrade details.

PERFORMANCE AND SCALABILITY

Best-in-class Performance with WORP	By eliminating in-the-air collisions and maximizing data content for each transmission, Wireless Outdoor Router Protocol (WORP) significantly improves performance
Near Line of Sight Capable	Line of sight and near line of sight connectivity extends deployment flexibility in rural as well as high-density urban areas
Highest Performance Per Cell	Supports 6 sectors per cell with an aggregate data rate of 324 Mbps
Dense Subscriber Support Per Cell	Supports up to 1,500 subscribers with 6 sectors
Guaranteed Data Rate While Roaming	Allows bandwidth-intensive applications, such as high-definition video streaming, in mobile environments

QUALITY OF SERVICE (QoS)

WiMAX 802.16 QoS	Supports up to 8 QoS Classes; Supports up to 8 Service Flows per class
Traffic Prioritization Parameters Supported	IP ToS (Layer 3 QoS identification), IP Protocol List, 802.1p tag (Layer 2 QoS identification), Source IP Address+Mask, Destination IP Address+Mask, Source TCP/UDP port ranges, Destination TCP/UDP port ranges, Source MAC addresses, Destination MAC address, VLAN ID, Ethertype
Committed Information Rate (CIR)	Users can set CIR for each Subscriber Unit
Minimum Information Rate (MIR) Support	User defined MIR

SECURITY

Unicast, Multicast and Broadcast Storm	User definable threshold levels prevent excessive bandwidth consumptions from degrading network control performance
Packet Filtering	MAC, Ethertype, IP address filtering provides very granular network security
Intracell Blocking	Allows the BSU to act as the central policy enforcer for SU to SU communications, further enhancing subscriber units' privacy
WORP as a Secure Protocol	Un-snoopable by wireless decryptors, WORP provides critical feature support for secure long-range wireless deployments in unlicensed frequency spectrum
Secure Encryption and Authentication	Supports for WEP, WEP+ and AES for over the air encryption and Radius for user authentication
Interference Mitigation Tool	Variable Receive Threshold, Transmit Power Control and Dynamic Frequency Selection

LOWER COST OF OWNERSHIP

Dynamic Data Rate Selection (DDRS)	Automatically optimizes throughput as link conditions change or as subscribers roam; connectivity is automatically maintained when link quality degrades
Flexible and Secure Remote Management	Supports remote management via Telnet, SNMP and web interfaces with password protections
Antenna Alignment Tool	Audible tone and CLI with running statistics displaying real-time signal strength ease antenna system installation
Comprehensive Station Statistics	Unit and group statistics are available for monitoring, planning and management of a wireless network
Lower Recurring Lease Cost	Co-locating unit on rooftops with plenty of available space lowers lease cost
Antenna Flexibility	Subscriber unit with type-N connector supports a broad selection of standard-based external antennas; subscriber unit with integrated antennas supports dual polarizations, vertical and horizontal, to minimize installation time
Remote Reboot	System reboot or reset to factory default can be performed remotely via a power injector button

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PRODUCT MODELS	MP.11 954-R	MP.11 2454-R
DESCRIPTION	954-BSUR-US Tsunami MP.11 954-R Base Station Unit with Type-N Connector 954-SUA-US Tsunami MP.11 954-R Subscriber Unit with Type-N Connector	2454-BSUR-XX Tsunami MP.11 2454-R Base Station Unit with Type-N Connector 2454-SUA-XX Tsunami MP.11 2454-R Subscriber Unit with Type-N Connector 2454-SUR-XX Tsunami MP.11 2454-R Subscriber Unit with Integrated 18 dBi Antenna
RADIO & TRANSMISSION SPECIFICATIONS		
MODULATION METHOD	OFDM	OFDM
UNLICENSED FREQUENCIES	Americas (FCC) 902-928 MHz (4 channels)	Americas (FCC) 2.4-2.4835 GHz (13 channels) Europe (ETSI) 2.4-2.4835 GHz (13 channels) Japan (MKK) 2.4-2.4835 GHz (14 channels)
LICENSED FREQUENCIES	N/A	N/A
DATA RATE	54, 48, 36, 24, 18, 12, 9, 6 Mbps	54, 48, 36, 24, 18, 12, 9, 6, 4.5, 3, 2.25, 1.5 Mbps
INTERFACES		
WIRED ETHERNET	10/100Base-TX Ethernet (RJ-45)	10/100Base-TX Ethernet (RJ-45)
WIRELESS PROTOCOL	WORP	WORP
ANTENNA CONNECTOR	Standard Type-N Female	Standard Type-N Female (BSUR & SUA)
PHYSICAL SPECIFICATIONS		
DIMENSIONS: (Packaged)	14.6 x 13.7 x 8.2 in (370 x 348 x 208 mm)	14.6 x 13.7 x 8.2 in (370 x 348 x 208 mm)
WEIGHT: (Packaged)	9.2 lbs (4.2 kg)	BSUR, SUA: 9.2 lbs (4.2 kg) SUR: 10.1 lbs (4.6 kg)
ENVIRONMENTAL SPECIFICATIONS		
TEMPERATURE	-33° to 60°C (Operating) -55° to 80°C (Storage)	-33° to 60°C (Operating) -55° to 80°C (Storage)
HUMIDITY	Max 100% relative humidity (non-condensing)	Max 100% relative humidity (non-condensing)
ELECTRICAL		
INPUT	110/250 VAC	110/250 VAC
OUTPUT	Current 420mA at 48V	Current 420mA at 48V
POWER CONSUMPTION	Maximum 20 Watt	Maximum 20 Watt
POWER OVER ETHERNET	Via RJ-45 Ethernet interface port	Via RJ-45 Ethernet interface port
MANAGEMENT		
LOCAL	RS-232 Serial Port (RJ11 to DB-9)	RS-232 Serial Port (RJ11 and DB-9)
REMOTE	Telnet, Web GUI, TFTP	Telnet, Web GUI, TFTP
SNMP	SNMPv1/v2c; MIB-II; Ethernet-like MIB; 802.3MAU; 802.11MIB; Private MIB; ORiNOCO MIB; RFC 1157; RFC 1213; RFC 1643; RFC 1493; RFC 2668	SNMPv1/v2c; MIB-II; Ethernet-like MIB; 802.3MAU; 802.11MIB; Private MIB; ORiNOCO MIB; RFC 1157; RFC 1213; RFC 1643; RFC 1493; RFC 2668
MTBF & WARRANTY	100,000 hours; 1-year on parts and labor	100,000 hours; 1-year on parts and labor
PACKAGE CONTENTS	• One (1) Tsunami MP.11 954-BSUR with N-connector, or One (1) 954-SUA Unit with N-connector • One (1) wall/pole mounting bracket • One (1) power injector and country specific power cord • One (1) Ethernet cable water-proof plug • One (1) Documentation • Software CD-ROM	• One (1) Tsunami MP.11 2454-BSUR with N-connector, One (1) 2454-SUA Unit with N-connector, or one (1) 2454-SUR with 18 dBi antenna • One (1) wall/pole mounting bracket • One (1) power injector and country specific power cord • One (1) Ethernet cable water-proof plug • One (1) Documentation • Software CD-ROM
RELATED PRODUCTS	MP.11 5054-R-LR, 5054-R, 2454-R products, Quickbridge.11 (2454-QB, 5054-QB, 5054-QB-LR), AP-4000MR(-LR) Mesh AP, AP-4900MR-LR Mesh AP, PoE Surge Arrestor (70251), Spare Power DC Injector for MP.11 or QB.11 (69823), Surge Arrestor 5 GHz (5054-SURGE), ProximVision™ Network Management System, ServPak (US/CAN Only), Worldwide Extended Warranty	MP.11 5012 Subscriber Units, Quickbridge.11 (2454-QB, 5054-QB, 5054-QB-LR), AP-4000MR(-LR) Mesh AP, AP-4900MR-LR Mesh AP, PoE Surge Arrestor (70251), Spare Power DC Injector for MP.11 or QB.11 (69823), Surge Arrestor 5 GHz (5054-SURGE), 2.4 GHz Antennas, 5 GHz Antennas, ProximVision™ Network Management System, ServPak (US/CAN Only), Worldwide Extended Warranty

PRODUCT MODELS	MP.11 5054-R	MP.11 5054-R-LR[3]
DESCRIPTION	5054-BSUR-XX Tsunami MP.11 5054-R Base Station Unit with Type-N Connector 5054-SUA-XX Tsunami MP.11 5054-R Subscriber Unit with Type-N Connector 5054-SUR-XX Tsunami MP.11 5054-R Subscriber Unit with Integrated 23 dBi Antenna	5054-BSUR-LR-XX Tsunami MP.11 5054-R-LR Subscriber Station Unit with Type-N Connector 5054-SUA-LR-XX Tsunami MP.11 5054-R-LR Subscriber Unit with Type-N Connector 5054-SUR-LR-XX Tsunami MP.11 5054-R-LR Subscriber Unit with Integrated 23 dBi Antenna
RADIO & TRANSMISSION SPECIFICATIONS		
MODULATION METHOD	OFDM	OFDM
UNLICENSED FREQUENCIES	Americas (FCC) 5.25-5.35 GHz (15 channels) Americas (FCC) 5.47-5.725 GHz (46 channels) Americas (FCC) 5.725-5.850 GHz (21 channels) Europe (ETSI) 5.47-5.725 GHz (46 channels)	Americas (FCC) 5.725-5.850 GHz (21 channels)
LICENSED FREQUENCIES	Europe (Russia) 5.15 - 6.08 GHz (82 channels) Europe (UK only) 5.725 – 5.850 GHz (21 channels) Asia (India only) 5.8 – 5.850 GHz (9 channels) Transportation (ITS) 5.85 - 5.95 GHz (19 channels)	N/A
DATA RATE	54, 48, 36, 24, 18, 12, 9, 6, 4.5, 3, 2.25, 1.5 Mbps	54, 48, 36, 24, 18, 12, 9, 6, 4.5, 3, 2.25, 1.5 Mbps
INTERFACES		
WIRED ETHERNET	10/100Base-TX Ethernet (RJ-45)	10/100Base-TX Ethernet (RJ-45)
WIRELESS PROTOCOL	WORP	WORP
ANTENNA CONNECTOR	Standard Type-N Female (BSUR & SUA)	Standard Type-N Female (BSUR & SUA)
PHYSICAL SPECIFICATIONS		
DIMENSIONS: (Packaged)	14.6 x 13.7 x 8.2 in (370 x 348 x 208 mm)	14.6 x 13.7 x 8.2 in (370 x 348 x 208 mm)
WEIGHT: (Packaged)	BSUR, SUA: 9.2 lbs (4.2 kg) SUR: 10.1 lbs (4.6 kg)	BSUR, SUA: 9.2 lbs (4.2 kg) SUR: 10.1 lbs (4.6 kg)
ENVIRONMENTAL SPECIFICATIONS		
TEMPERATURE	-33° to 60°C (Operating) -55° to 80°C (Storage)	-33° to 60°C (Operating) -55° to 80°C (Storage)
HUMIDITY	Max 100% relative humidity (non-condensing)	Max 100% relative humidity (non-condensing)
ELECTRICAL		
INPUT	110/250 VAC	110/250 VAC
OUTPUT	Current 420mA at 48V	Current 420mA at 48V
POWER CONSUMPTION	Maximum 20 Watt	Maximum 20 Watt
POWER OVER ETHERNET	Via RJ-45 Ethernet interface port	Via RJ-45 Ethernet interface port
MANAGEMENT		
LOCAL	RS-232 Serial Port (RJ11 and DB-9)	RS-232 Serial Port (RJ11 and DB-9)
REMOTE	Telnet, Web GUI, TFTP	RS-232 Serial Port (RJ11 and DB-9)
SNMP	SNMPv1/v2c; MIB-II; Ethernet-like MIB; 802.3MAU; 802.11MIB; Private MIB; ORiNOCO MIB; RFC 1157; RFC 1213; RFC 1643; RFC 1493; RFC 2668	SNMPv1/v2c; MIB-II; Ethernet-like MIB; 802.3MAU; 802.11MIB; Private MIB; ORiNOCO MIB; RFC 1157; RFC 1213; RFC 1643; RFC 1493; RFC 2668
MTBF & WARRANTY	100,000 hours; 1-year on parts and labor	100,000 hours; 1-year on parts and labor
PACKAGE CONTENTS	• One (1) Tsunami MP.11 5054-BSUR with N-connector, One (1) 5054-SUA Unit with N-connector, or one (1) 5054-SUR with 23 dBi antenna • One (1) wall/pole mounting bracket • One (1) power injector and country specific power cord • One (1) Ethernet cable water-proof plug • One (1) Documentation • Software CD-ROM	• One (1) Tsunami MP.11 5054-BSUR-LR with N-connector, One (1) 5054-SUA-LR Unit with N-connector, or one (1) 5054-SUR-LR with 23 dBi antenna • One (1) wall/pole mounting bracket • One (1) power injector and US power cord • One (1) Ethernet cable water-proof plug • One (1) Documentation • Software CD-ROM
RELATED PRODUCTS	MP.11 5054-SUI Indoor subscriber[2], MP.11 5012 Subscriber Units, Quickbridge.11 (2454-QB, 5054-QB, 5054-QB-LR), AP-4000MR(-LR) Mesh AP, AP-4900MR-LR Mesh AP, PoE Surge Arrestor (70251), Spare Power DC Injector for MP.11 or QB.11 (69823), Surge Arrestor 5 GHz (5054-SURGE), 2.4 GHz Antennas, 5 GHz Antennas, ProximVision™ Network Management System, ServPak (US/CAN Only), Worldwide Extended Warranty	MP.11 5012 Subscriber Units, Quickbridge.11 (2454-QB, 5054-QB, 5054-QB-LR), AP-4000MR(-LR) Mesh AP, AP-4900MR-LR Mesh AP, PoE Surge Arrestor (70251), Spare Power DC Injector for MP.11 or QB.11 (69823), Surge Arrestor 5 GHz (5054-SURGE), 2.4 GHz Antennas, 5 GHz Antennas, ProximVision™ Network Management System, ServPak (US/CAN Only), Worldwide Extended Warranty

[2]See MP.11 5054 Technical Specs for more information on the 5054-SUI
[3]Available for FCC Only

For detailed technical specifications, please go to **http://www.proxim.com/**

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Proxim Wireless Corporation
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