



* BSU and SU Models



* SUI Model

APPLICATIONS

- 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 busses and railway system commuters
- 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

PART NUMBERS	NORTH AMERICA REGION	
	Base Station Unit	
	5054-BSU-US	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - USA/CAN PSU
	Residential Subscriber Unit	
	5054-RSU-US-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - USA/CAN PSU - w/15 dBi Window Antenna
	5054-RSU-US-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - USA/CAN PSU - 5-pack
	5-packs contain: RSU (5), Power Supply (5); No software, No documentation, No Antennas	
	Subscriber Units	
	5054-SU-US	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - USA/CAN PSU
	EUROPE AND MIDDLE EAST REGIONS	
	Base Station Unit	
	5054-BSU-EU	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - Europe PSU
	5054-BSU-UK	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - UK PSU
	Residential Subscriber Unit	
	5054-RSU-EU-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - Europe PSU - w/15 dBi Window Antenna
	5054-RSU-UK-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - UK PSU - w/15 dBi Window Antenna
	Residential Subscriber Unit 5-packs	
	5054-RSU-EU-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - Europe PSU - 5-pack
	5054-RSU-UK-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - UK PSU - 5-pack
	5-packs contain: RSU (5), Power Supply (5); No software, No documentation; No antennas	
	Subscriber Units	
	5054-SU-EU	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit, EU PSU
	5054-SU-UK	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit, UK PSU
5054-SUI-EU	Tsunami MP.11 Model 5054 Indoor Subscriber Unit, EU PSU	
5054-SUI-UK	Tsunami MP.11 Model 5054 Indoor Subscriber Unit, UK PSU	
5054-SUI-WA-EU	Tsunami MP.11 Model 5054 Indoor Subscriber Unit with 15 dBi Window Antenna, EU PSU	
5054-SUI-WA-UK	Tsunami MP.11 Model 5054 Indoor Subscriber Unit with 15 dBi Window Antenna, UK PSU	
ASIA PACIFIC REGION		
Base Station Unit		
5054-BSU-EU	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - Europe PSU	
5054-BSU-UK	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - UK PSU	
5054-BSU-AU	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - Australia PSU	
5054-BSU-SK	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - South Korea PSU	
5054-BSU-CN	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - China PSU	
5054-BSU-US-WORLD	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit - US/CAN PSU - WORLD	

PART NUMBERS (CONT'D)	ASIA PACIFIC REGION (CONT'D)	
	Residential Subscriber Unit	
5054-RSU-EU-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - Europe PSU - w/15 dBi Window Antenna	
5054-RSU-UK-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - UK PSU - w/15 dBi Window Antenna	
5054-RSU-AU-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - Australia PSU - w/15 dBi Window Antenna	
5054-RSU-SK-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - South Korea PSU - w/15 dBi Window Antenna	
5054-RSU-CN-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - China PSU - w/15 dBi Window Antenna	
5054-RSU-US-WORLD	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - US/CAN PSU - w/15 dBi Window Antenna - WORLD	
	Residential Subscriber Unit 5-packs	
5054-RSU-AU-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - Australia PSU - 5-pack	
5054-RSU-US-MP-WORLD	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - US/CAN PSU - 5-pack WORLD	
5054-RSU-SK-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - South Korea PSU - 5-pack	
5054-RSU-CN-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - China PSU - 5-pack	
5054-RSU-EU-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - Europe PSU - 5-pack	
5054-RSU-UK-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - UK PSU - 5-pack	
	5-packs contain: RSU (5), Power Supply (5); No software, No documentation; No antennas	
	Subscriber Units	
5054-SU-EU	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - Europe PSU	
5054-SU-UK	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - UK PSU	
5054-SU-AU	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - Australia PSU	
5054-SU-SK	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - South Korea PSU	
5054-SU-CN	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - China PSU	
5054-SU-US-WORLD	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - US/CAN PSU - WORLD	
5054-SUI-EU	Tsunami MP.11 Model 5054 Indoor Subscriber Unit with 15 dBi Window Antenna, EU PSU	
5054-SUI-UK	Tsunami MP.11 Model 5054 Indoor Subscriber Unit with 15 dBi Window Antenna, UK PSU	
5054-SUI-WA-EU	Tsunami MP.11 Model 5054 Indoor Subscriber Unit with 15 dBi Window Antenna, EU PSU	
5054-SUI-WA-UK	Tsunami MP.11 Model 5054 Indoor Subscriber Unit with 15 dBi Window Antenna, UK PSU	
	CARIBBEAN AND LATIN AMERICA REGION	
Model 5054	Base Station Unit	
	5054-BSU-US	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit – USA/CAN PSU
	5054-BSU-BR	Tsunami MP.11 Model 5054 (MP.11a) Base Station Unit – BRAZIL PSU
	Residential Subscriber Unit	
	5054-RSU-US-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - USA/CAN PSU - w/12 dBi Window Antenna
	5054-RSU-BR-WA	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - BRAZIL PSU - with 12 dBi Window Antenna
	5054-RSU-US-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - USA/CAN PSU - 5-pack
	5054-RSU-BR-MP	Tsunami MP.11 Model 5054 (MP.11a) Residential Subscriber Unit - BRAZIL PSU - 5-pack
	5-packs contain: RSU (5), Power Supply (5); No software, No documentation, No Antennas	
	Subscriber Units	
	5054-SU-US	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - USA/CAN PSU
	5054-SU-BR	Tsunami MP.11 Model 5054 (MP.11a) Subscriber Unit - BRAZIL PSU

PART NUMBERS (CONT'D)	UNIVERSAL							
			Accessories					
			5054-SURGE Surge Arrestor 5 GHz - Standard-N Female to Female					
			848 274 171 20 ft Low Loss Antenna Cable St-N - Male-Male LMR 200					
			848 332 789 20 ft Low Loss Antenna Cable St-N - Male-Male LMR 400					
			5054-ULA400-50 50 ft Low Loss Antenna Cable St-N - Male-Male LMR 400					
			848 274 205 75 ft Low Loss Antenna Cable St-N - Male-Male LMR 400					
			69828 6 ft Low Loss Antenna Cable St-N - Male-Male LMR 600					
			5054-LMR600-50 50 ft Low Loss Antenna Cable St-N - Male-Male LMR 60					
			Model 5054 5 GHz Antennas					
			5054-WA-15-STN 15 dBi Window Antenna - St-N Female - 5.25 - 5.875 GHz					
			5054-PA-18 18 dBi Panel Antenna - St-N Female - 5.25 - 5.875 GHz					
			5054-PA-23 23 dBi Panel Antenna - St-N Female - 5.725 - 5.875 GHz					
			5054-OA-8 8 dBi Omni Directional Antenna - St-N Female - 5.47-5.850 GHz					
			5054-OA-10 10 dBi Omni Directional Antenna - St-N Female - 5.47-5.850 GHz					
			5054-SA120-14 14 dBi Sector Antenna - St-N Female - 5.25-5.850 GHz - 120 degrees					
			5054-SA60-17 17 dBi Sector Antenna - St-N Female - 5.25-5.850 GHz - 60 degrees					
		AE (IEEE 802.3af) Power Injectors						
		4312-XX AE 3af 12 Port DC Injector						
		4306-XX AE 3af 6 Port DC Injector						
		4301-XX AE 3af 1 Port DC Injector						
		Outdoor Ethernet Cables						
		69819 25m outdoor, terminated CAT5 cable for MP.11 with three RJ-45 and one weather-proof Ethernet port cap						
		69820 50m outdoor, terminated CAT5 cable for MP.11 with three RJ-45 and one weather-proof Ethernet port cap						
		69821 75m outdoor, terminated CAT5 cable for MP.11 with three RJ-45 and one weather-proof Ethernet port cap						
FREQUENCY RANGE AND CHANNELS	Unlicensed	5 GHz Band						
		Americas (FCC): 5.25 to 5.35 GHz (3 channels)						
		Americas (FCC): 5.725 to 5.850 GHz (5 channels)						
FREQUENCY RANGE AND CHANNELS	Licensed	Europe (ETSI): 5.47 to 5.725 GHz (11 channels)						
		5 GHz Band (for the UK)						
		5.725 - 5.850 GHz supports 4 channels						
RF MODULATION	OFDM (Orthogonal Frequency Division Multiplexing)							
	BPSK	6 and 9 Mbps						
	QPSK	12 and 18 Mbps						
	16-QAM	24 and 36 Mbps						
	64-QAM	48 and 54 Mbps						
WIRELESS PROTOCOL	WORP (Wireless Outdoor Router Protocol)							
OVER THE AIR DATA RATES	Model 5054	54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps						
WIRED INTERFACE	Ethernet	Auto-sensing 10/100BASE-TX Ethernet						
	Antenna Connector for BSU and SU with Type-N Connector	Standard Type-N Male						
NETWORK ARCHITECTURE TYPE	Infrastructure							
RECEIVE SENSITIVITY	(BER=10-6)	Modulation	40 MHz Channels	20 MHz Channels	10 MHz Channels	5 MHz Channels		
		Turbo Mode	Standard Mode	Standard Mode	Standard Mode	Standard Mode		
		64 QAM ¾	-66 dBm @ 108 Mbps	-69 dBm @ 54 Mbps	-72 dBm @ 36 Mbps	-75 dBm @ 18 Mbps		
		64 QAM ½	-68 dBm @ 96 Mbps	-72 dBm @ 48 Mbps	-75 dBm @ 24 Mbps	-78 dBm @ 12 Mbps		
		16 QAM ¾	-75 dBm @ 72 Mbps	-77 dBm @ 36 Mbps	-80 dBm @ 18 Mbps	-83 dBm @ 9 Mbps		
		16 QAM ½	-78 dBm @ 48 Mbps	-80 dBm @ 24 Mbps	-83 dBm @ 12 Mbps	-86 dBm @ 6 Mbps		
		QPSK ¾	-81 dBm @ 36 Mbps	-83 dBm @ 18 Mbps	-86 dBm @ 9 Mbps	-89 dBm @ 4.5 Mbps		
		QPSK ½	-83 dBm @ 24 Mbps	-86 dBm @ 12 Mbps	-89 dBm @ 6 Mbps	-92 dBm @ 3 Mbps		
		BPSK ¾	-84 dBm @ 18 Mbps	-87 dBm @ 9 Mbps	-90 dBm @ 4.5 Mbps	-93 dBm @ 2.25 Mbps		
		BPSK ½	-85 dBm @ 12 Mbps	-88 dBm @ 6 Mbps	-91 dBm @ 3 Mbps	-94 dBm @ 1.5 Mbps		
		AVAILABLE TRANSMIT POWER SETTINGS	Model 5054	5.25-5.35 GHz	16 dBm (max)			
				5.47-5.725 GHz	16 dBm (max)			
5.725-5.850 GHz	16 dBm (max)							
Attenuation Step Value 3dB, from 16 dBm								

RANGE INFORMATION ¹	Model 5054		5.25-5.35 GHz	
			1.1 miles at peak performance (36Mbps mode) using SUs with external antennas	
			3 miles maximum (6Mbps mode) using SUs with external antennas	
			5.47-5.725 GHz	
			1.0 miles at peak performance (36Mbps mode) using SUs with external antennas	
			2.9 miles maximum (6Mbps mode) using SUs with external antennas	
COMPLIANCE AND STANDARDS	Safety		UL	60950, UL50
			CSA	22.2 No. 60950-00
			IEC	60950 3rd Ed (1999)
	Radio Approvals		USA	FCC 15.107, 15-109; 15-203-15.205, 15.207, 15.209; 15.247; 15.401-15.407
			Canada	RSS-102; RSS-210; ICES-003
			Europe (ETSI)	EN 301.893; EN 300.328; EN 301.489-1; EN 301.489-17; EN 300-440; EN50371
			ARIB	STD-T71, STD 33, STD
	EMI and Susceptibility (Class B)		USA	FCC Part 15.107
			Canada	ICES-00
	SNMP COMPLIANCE	SNMPv1/v2	RFC 1157	
MIB-II		RFC 1213		
Ethernet-like MIB		RFC 1643		
Bridge MIB		RFC 1493		
802.3MAU		RFC 2668		
802.11 MIB				
Private MIB				
AE (IEEE 802.3AF) POWER INJECTORS	AE 3af 12 Port DC Injector			
	AE 3af 6 Port DC Injector			
	AE 3af 1 Port DC Injector			
SECURITY	WORP provides critical feature support for secure long-range wireless deployments in unlicensed frequency spectrum.			
	Filter based on packet information such as unicast/multicast/ broadcast MAC or IP			
	Secure “over the air encryption” with WEP and AES			
	Authentication via Radius			
	Intracell blocking allows the BSU to act as the central policy enforcer for SU to SU communication			
STATUS LEDs	Three indicators on the top panel indicate power, wireless traffic, Ethernet traffic			
REMOTE CONFIGURATION SUPPORT	Telnet, HTTP, TFTP, and SNMPv1/ v2c			
LOCAL CONFIGURATION SUPPORT	RS-232 Serial port, DB9 Female			
DIMENSIONS	Unpackaged (BSU & SU)	8.46 x 6.89 x 1.57 in (215 x 175 x 40 mm)		
	Unpackaged (SUI)	7.8 x 4.75 x 1 in (198 x 121 x 25 mm)		
WEIGHT	Unpackaged (BSU & SU)	2.38 lbs (1.08 kg)		
	Unpackaged (SUI)	0.65 lbs (0.29 kg)		
ENVIRONMENTAL	Operating	0° to 55°C, 5-95% humidity non-condensin @ 5° to 55°C		
	Storage	-20° to 75°C, 5-95% humidity non-condensing @ 5° to 75°C		
SYSTEM PROCESSOR AND MEMORY	166MHz Motorola 8241 processor			
	16 Mbytes RAM			
	8 Mbytes FLASH			

¹ Assumptions for Model 5054 Range Calculation

- PMP configuration using USA regulations for L and U bands, ETSI regulations for M bands
- Clear LOS
- Sector antenna (17dBi, 60-degrees) at BSU with short 1dB jumper cable
- 3' parabolic dish (31.4dBi) with short 1dB jumper cable for SUs with external antennas
- Fade margin minimum of 10dB to 2 miles, 0.2dB additional fade margin for every 0.1 mile to 15dB

SOFTWARE SPECIFICATION	Base Station and Subscriber Units	Key Features WORP protocol Dynamic Data Rate Selection Transmit Power Control Antenna Alignment Integrity Check for Software Upload Mobility with Auto-scanning QoS Support; Up to 8 classes of service, up to 8 service flows per class ² Satellite Density Enhanced Dynamic Frequency Selection Redundancy Spanning Tree (802.1D) Bridging and Routing Bridge (802.1d) ICMP (RFC 792) IP/RIPv1 (RFC 1058) IP (RFC 791) IP/RIPv2(RFC 1388) ARP (RFC 826) CIDR (RFC 1519) Filtering Ethernet protocol (Ethertype) Static MAC Storm threshold IP address Broadcast protocol Services DHCP Server (RFC 2131) DHCP Client (RFC 2131) Bi-Directional Bandwidth Control Management SNMPv1/v2c (RFC 1157) TFTP Client (RFC 783) SNMPv2c RFC 1907 SU/BSU statistics HTTP Server (RFC 2616) Link test Telnet Server (RFC 855) Remote reboot or reset to factory default via Power Injector Temperature Logging Security Features MAC Authentication Radius MAC Access Control WEP/AES-OCB encryption RADIUS (RFC 2138) Mobility Subscriber Unit Roaming
	Base Station Unit	Filtering Intra Cell Blocking
	Subscriber Unit	Services NAT (RFC 3022) DHCP Relay (RFC 2131)
	Wall Mount Unit (included)	Input: 100 to 240 VAC, 0.4 Watts Output: 12VDC, 1.5
INPUT POWER REQUIREMENTS	Power over Ethernet	802.3af compliant ³ Requires Proxim AE 3af Power Injector or other 802.3af device Input: Voltage 42 to 60 VDC Output: Current 200mA at 48V
	Power Consumption	Maximum 10 Watt
ANTENNA ALIGNMENT TOOLS	CLI output	

²Available with version 2.5 software release

³IEEE 802.3af is not included for RSU. Power injector is sold separately.

PACKAGING CONTENTS	Base Station (BSU) and Subscriber Unit (SU) One Tsunami MP.11 Model 5054 Base Station or (Residential) Subscriber Unit One metal base for ceiling/ desk mounting One wall-mount power supply One country specific power cord One Documentation and Software CD-ROM *Note: Residential Subscriber unit includes 15 dBi Window Antenna
	Subscriber Unit (SUI) One Tsunami MP.11 5054-SUI Subscriber Unit One pigtail adapter cable with N-Male connector One Mounting bracket One power supply and support for IEEE 802.3af CD-ROM with Software and Documentation *Note: 5054-SUI-WA version includes 15 dBi Window Antenna
MTBF	150,000 hrs
WARRANTY	One year

