



* 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) Europe (ETSI): 5.47 to 5.725 GHz (11 channels)				
	Licensed	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 Turbo Mode	20 MHz Channels Standard Mode	10 MHz Channels Standard Mode	5 MHz Channels 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 5.725-5.850 GHz 4.4 miles at peak performance (36Mbps mode) using SUs with external antennas 12.2 miles maximum (6Mbps mode) using SUs with external antennas
COMPLIANCE AND STANDARDS	Safety	UL CSA IEC	60950, UL50 22.2 No. 60950-00 60950 3rd Ed (1999)
	Radio Approvals	USA Canada Europe (ETSI) ARIB	FCC 15.107, 15-109; 15-203-15.205, 15.207, 15.209; 15.247; 15.401-15.407 RSS-102; RSS-210; ICES-003 EN 301.893; EN 300.328; EN 301.489-1; EN 301.489-17; EN 300-440; EN50371 STD-T71, STD 33, STD
	EMI and Susceptibility (Class B)	USA Canada	FCC Part 15.107 ICES-00
	SNMP COMPLIANCE	SNMPv1/v2 MIB-II Ethernet-like MIB Bridge MIB 802.3MAU 802.11 MIB Private MIB Orinoco MIB	RFC 1157 RFC 1213 RFC 1643 RFC 1493 RFC 2668
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
		Filtering
		Intra Cell Blocking
		Services
		NAT (RFC 3022)
		DHCP Relay (RFC 2131)
INPUT POWER REQUIREMENTS	Wall Mount Unit (included)	Input: 100 to 240 VAC, 0.4 Watts Output: 12VDC, 1.5
	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

