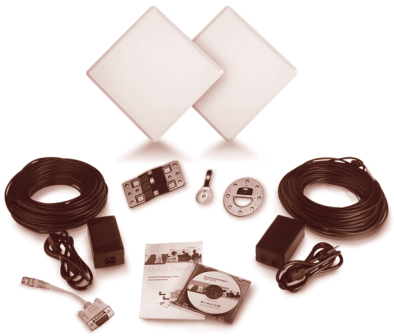

APPLICATIONS

- **Backhaul to a Central POP**
  Avoid expensive installation and recurring charge of a second wireline backhaul to a remote virtual POP
- **Leased Line Redundancy**
  Eliminate recurring DS-3 leased line charges with one time installation charge of a QuickBridge.11 link
- **Repeater**
  Extend distance or overcome path blockage by adding point to point hops
- **High-bandwidth Last Mile Access**
  Use QuickBridge.11s to deliver TLS (Transparent LAN Services) to corporate parks
- **Inter-POP Redundancy**
  Avoid downtimes caused by a wireline backhaul failure by adding a QuickBridge.11 link as inter-POP redundancy

Part Numbers (North America region)	**Model 2454-R**	
	• 2454-QB-US-WORLD	Tsunami QuickBridge.11 Model 2454-R US/CAN PSU-WORLD
	Model 5054-R	
	• 5054-QB-US	Tsunami QuickBridge.11 Model 5054-R US/CAN PSU-WORLD
	Model 5054-R-LR*	
	• 5054-QB-LR-US	Tsunami QuickBridge.11 Model 5054-R-LR, US/CAN PSU
Part Numbers (Europe and Middle East regions)	**Model 2454-R**	
	• 2454-QB-EU	Tsunami QuickBridge.11 Model 2454-R Europe PSU
	2454-QB-UK	Tsunami QuickBridge.11 Model 2454-R UK PSU
	Model 5054-R	
	• 5054-QB-EU	Tsunami QuickBridge.11 Model 5054-R Europe PSU
	• 5054-QB-UK	Tsunami QuickBridge.11 Model 5054-R UK PSU
Part Numbers (Asia Pacific region)	**Model 2454-R**	
	• 2454-QB-AU	Tsunami QuickBridge.11Model 2454-R Australia PSU
	• 2454-QB-CN	Tsunami QuickBridge.11Model 2454-R China PSU
	• 2454-QB-SK	Tsunami QuickBridge.11 Model 2454-R South Korea PSU
	• 2454-QB-US-WORLD	Tsunami QuickBridge.11 Model 2454-R US/CAN PSU -WORLD
	• 2454-QB-EU	Tsunami QuickBridge.11 Model 2454-R Europe PSU
	• 2454-QB-UK	Tsunami QuickBridge.11 Model 2454-R UK PSU
	Model 5054-R	
	• 5054-QB-AU	Tsunami QuickBridge.11 Model 5054-R AustraliaPSU
	• 5054-QB-CN	Tsunami QuickBridge.11 Model 5054-R China PSU
	• 5054-QB-SK	Tsunami QuickBridge.11 Model 5054-R South Korea PSU
	• 5054-QB-US	Tsunami QuickBridge.11 Model 5054-R US/CAN PSU
	• 5054-QB-EU	Tsunami QuickBridge.11 Model 5054-R Europe PSU
	• 5054-QB-UK	Tsunami QuickBridge.11 Model 5054-R UK PSU
Part Numbers (Caribbean and Latin America region)	**Model 2454-R**	
	• 2454-QB-US-WORLD	Tsunami Qu ickBridge.11 Model 2454-R US/CAN PSU -WORLD
	Model 5054-R	
	• 5054-QB-BR	Tsunami QuickBridge.11 Model 5054-R Brazil PSU
	• 5054-QB-US	Tsunami QuickBridge.11 Model 5054-R US/CAN PSU
	Model 5054-R-LR*	
	• 5054-QB-LR-US	Tsunami QuickBridge.11 Model 5054-R-LR US/CAN PSU
Part Numbers (Universal)	**Accessories**	
	• 70251	PoE (Power over Ethernet) Surge Arrestor for Tsunami MP.11 and QuickBridge.11
	Outdoor Ethernet Cables	
	• 69819	25m outdoor, terminated CAT5 cable for Tsunami MP.11 or QB.11 with three RJ-45 and one weather-proof Ethernet port cap
	• 69820	50m outdoor, terminated CAT5 cable for Tsunami MP.11 or QB.11 with three RJ-45 and one weather-proof Ethernet port cap
	• 69821	75m outdoor, terminated CAT5 cable for Tsunami MP.11 or QB.11 with three RJ-45 and one weather-proof Ethernet port cap
	Power Injector	
	• 69823	Spare Power DC Injector for Tsunami MP.11 or QB.11

*Available for FCC only

Regulatory Approvals and Frequency Ranges for 2454-R[1]

Model 2454-R

Country	Number of Channels				Certification
North America					
USA, Canada, Mexico	(GHz)	5MHz	10MHz	20MHz	Yes
	2.40 - 2.4835	11	Up to 11	Up to 11	
	2.40 - 2.472	13	Up to 13	Up to 13	
EU Countries					
Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxemburg, Lithuania, Malta, Netherlands, Poland, Portugal, Spain, Sweden, Slovakia, Slovenia	(GHz)	5MHz	10MHz	20MHz	Yes
	• 2.40 - 2.4835	13	Up to 13	Up to 13	
United Kingdom	(GHz)	5MHz	10MHz	20MHz	Yes
	2.40 - 2.4835	13	Up to 13	Up to 13	
Other European Countries					
Iceland, Liechtenstein, Norway, Switzerland	(GHz)	5MHz	10MHz	20MHz	Yes
	2.40 - 2.4835	13	Up to 13	Up to 13	
Russia	(GHz)	5MHz	10MHz	20MHz	In Process
	5.15 - 5.85	Up to 141	Up to 71	Up to 36	
South America					
Brazil	(GHz)	5MHz	10MHz	20MHz	Yes
	2.40 - 2.4835	13	Up to 13	Up to 13	
APAC					
Australia, New Zealand, Japan, Hong Kong, S. Korea, China, Taiwan	(GHz)	5MHz	10MHz	20MHz	Yes
	2.40 - 2.4835	13	Up to 13	Up to 13	
Singapore	(GHz)	5MHz	10MHz	20MHz	In Process
	5.15-5.25	Up to 13	Up to 7	Up to 4	
	5.725-5.825	Up to 17	Up to 9	Up to 5	
India	(GHz)	5MHz	10MHz	20MHz	In Process
	5.15-5.35	Up to 32	Up to 16	Up to 7	
	5.725-5.825	Up to 17	Up to 9	Up to 5	

Regulatory Approvals and Frequency Ranges for 5054-R[1]

Model 5054-R

North America					
USA	(GHz)	5MHz	10MHz	20MHz	Yes
	5.25 - 5.35	Up to 15	Up to 7	Up to 3	
	5.725 - 5.85	Up to 21	Up to 11	Up to 5	
Canada	(GHz)	5MHz	10MHz	20MHz	
	5.25 - 5.35	Up to 15	Up to 7	Up to 3	
	5.725 - 5.85	Up to 21	Up to 11	Up to 5	
Mexico	(GHz)	5MHz	10MHz	20MHz	
	5.725 - 5.85	Up to 21	Up to 11	Up to 5	
EU Countries					
Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Luxemburg, Lithuania, Malta, Netherlands, Poland, Portugal, Spain, Sweden, Slovakia, Slovenia	(GHz)	5MHz	10MHz	20MHz	Yes
	5.47 - 5.70	Up to 46	Up to 23	Up to 11	
United Kingdom, Ireland	(GHz)	5MHz	10MHz	20MHz	Yes
	5.47 - 5.70	Up to 46	Up to 23	Up to 11	
	5.725 - 5.85	Up to 23	Up to 11	Up to 4	
Other European Countries					
Iceland, Liechtenstein, Norway, Switzerland	(GHz)	5MHz	10MHz	20MHz	Yes
	5.47 - 5.70	Up to 46	Up to 23	Up to 11	
South America					
Brazil	(GHz)	5MHz	10MHz	20MHz	Yes
	5.47-5.70	Up to 46	Up to 23	Up to 11	
	5.725 - 5.85	Up to 19	Up to 10	Up to 5	
Argentina	(GHz)	5MHz	10MHz	20MHz	Yes
	5.25-5.35	Up to 9	Up to 5	Up to 3	
	5.725 - 5.85	Up to 13	Up to 7	Up to 4	
Colombia	(GHz)	5MHz	10MHz	20MHz	Yes
	5.25-5.35	Up to 15	Up to 7	Up to 3	
	5.725 - 5.85	Up to 21	Up to 11	Up to 5	
APAC					
Australia, New Zealand, Hong Kong	(GHz)	5MHz	10MHz	20MHz	Yes
	5.725 - 5.85	Up to 21	Up to 11	Up to 5	
S. Korea, China	(GHz)	5MHz	10MHz	20MHz	Yes
	5.725-5.85	Up to 17	Up to 9	Up to 5	
Taiwan	(GHz)	5MHz	10MHz	20MHz	Yes
	5.25-5.35	Up to 15	Up to 7	Up to 3	
	5.725-5.85	Up to 17	Up to 9	Up to 5	

Regulatory Approvals and Frequency Ranges for 5054-R-LR[1]

Model 5054-R-LR

North America	(GHz)	5MHz	10MHz	20MHz
USA	5.25 - 5.35	Up to 15	Up to 7	Up to 3
	5.725 - 5.85	Up to 21	Up to 11	Up to 5

Integrated Antenna Specification

Model 2454-R

- Part Number: 2454-QB-xx
- Frequency range: 2.4 to 2.5 GHz
- Nominal Impedance: 50 Ohms
- Gain: 18 dBi
- Front-to-Back Ratio: 25 dB
- HPBW/vertical: 22 degrees
- HPBW/horizontal: 15 degrees
- Cross Polarization: 20 dB
- Power handling: 1 W
- VSWR: 1.5 : 1 Max

Model 5054-R(-LR)

- Part Number: 5054-QB-xx or 5054-QB-LR-US
- Frequency range: 5250 - 5875 MHz
- Nominal Impedance: 50 ohms
- Gain: 23 dBi
- Front-to-Back Ratio: 35 dB
- HPBW/vertical: 9 degrees
- HPBW/horizontal: 9 degrees
- Cross Polarization: 24 dB
- Power handling: 1 W (cw)
- VSWR: 2.0 : 1 Max

RF Modulation and over-the-air rates

Model 2454-R and 5054-R(-LR)
OFDM (Orthogonal Frequency Division Multiplexing)

	20 MHz Channels	10 MHz Channels	5 MHz Channels
• BPSK	6 and 9 Mbps	3 and 4.5 Mbps	2.25 and 1.5 Mbps
• QPSK	12 and 18 Mbps	6 and 9 Mbps	3 and 4.5 Mbps
• 16-QAM	24 and 36 Mbps	12 and 18 Mbps	6 and 9 Mbps
• 64 QAM	54 and 48 Mbps	36 and 24 Mbps	18 and 12 Mbps

- Maximum Packet Size: 1538 Bytes

Wireless Protocol

- Wireless Outdoor Routing Protocol (WORP)

Device Interface

Ethernet

- Auto-sensing 10/100BASE-TX Ethernet

Antenna Connector for BSU and SU with Type-N Connector

- Standard Type-N Female

Network Architecture Type

- Infrastructure

Receive Sensitivity (BER=10-6):

Model 2454-R

Modulation	40 MHz Channels Turbo Mode (US Only)	20 MHz Channels Standard Mode	10 MHz Channels Standard Mode	5 MHz Channels Standard Mode
64QAM ¾	N/A	-71 dBm @54Mbps	-74 dBm @36Mbps	-77 dBm @18Mbps
64QAM ½		-74 dBm @48Mbps	-77 dBm @24Mbps	-80 dBm @12Mbps
16QAM ¾		-79 dBm @36Mbps	-82 dBm @18Mbps	-85 dBm @9Mbps
16QAM ½		-84 dBm @24Mbps	-87 dBm @12Mbps	-90 dBm @6Mbps
QPSK ¾		-87 dBm @18Mbps	-90 dBm @9Mbps	-93 dBm @4.5Mbps
QPSK ½		-89 dBm @12Mbps	-92 dBm @6Mbps	-95 dBm @3Mbps
BPSK ¾		-91 dBm @9Mbps	-94 dBm @4.5Mbps	-97 dBm @2.25Mbps
BPSK ½		-91 dBm @6Mbps	-94 dBm @3Mbps	-97 dBm @1.5Mbps

Model 5054-R

Modulation	40 MHz Channels Turbo Mode (US only)	20 MHz Channels Standard Mode	10 MHz Channels Standard Mode	5 MHz Channels Standard Mode
64QAM ¾	-66 dBm @108Mbps	-69 dBm @54Mbps	-72 dBm @36Mbps	-75 dBm @18Mbps
64QAM ½		-72 dBm @48Mbps	-75 dBm @24Mbps	-78 dBm @12Mbps
16QAM ¾	-68 dBm @96Mbps	-77 dBm @36Mbps	-80 dBm @18Mbps	-83 dBm @9Mbps
16QAM ½	-75dBm @72Mbps	-80 dBm @24Mbps	-83 dBm @12Mbps	-86 dBm @6Mbps
QPSK ¾	-78dBm @48Mbps	-83 dBm @18Mbps	-86 dBm @9Mbps	-89 dBm @4.5Mbps
QPSK ½	-81dBm @36Mbps	-86 dBm @12Mbps	-89 dBm @6Mbps	-92 dBm @3Mbps
BPSK ¾	-83 dBm @24Mbps	-87 dBm @9Mbps	-90 dBm @4.5Mbps	-93 dBm @2.25Mbps
BPSK ½	-84 dBm @18Mbps -85 dBm @12Mbps	-88 dBm @6Mbps	-91 dBm @3Mbps	-94 dBm @1.5Mbps

Model 5054-R-LR

Modulation	40 MHz Channels Turbo Mode	20 MHz Channels Standard Mode	10 MHz Channels Standard Mode	5 MHz Channels Standard Mode
64QAM ¾	-70dBm @108Mbps	-73 dBm @54Mbps	-73 dBm @36Mbps	-76 dBm @18Mbps
64QAM ½	-72dBm @96Mbps	-75 dBm @48Mbps	-76 dBm @24Mbps	-79 dBm @12Mbps
16QAM ¾	-74dBm @72Mbps	-84 dBm @36Mbps	-81 dBm @18Mbps	-83 dBm @9Mbps
16QAM ½	-78dBm @48Mbps	-85 dBm @24Mbps	-84 dBm @12Mbps	-86 dBm @6Mbps
QPSK ¾	-81dBm @36Mbps	-89 dBm @18Mbps	-87 dBm @9Mbps	-89 dBm @4.5Mbps
QPSK ½	-83 dBm @24Mbps	-90 dBm @12Mbps	-90 dBm @6Mbps	-92 dBm @3Mbps
BPSK ¾	-84 dBm @18Mbps	-93 dBm @9Mbps	-81 dBm @4.5Mbps	-93 dBm @2.25Mbps
BPSK ½	-85 dBm @12Mbps	-94 dBm @6Mbps	-91 dBm @3Mbps	-95 dBm @1.5Mbps

Maximum Throughput (Mbps)

Model 2454-R

Data rate	20 MHz Channels	10 MHz Channels	5 MHz Channels Standard Mode
54Mbps	30 Mbps		
48Mbps	28 Mbps		
36Mbps	18 Mbps		
24Mbps	14 Mbps		
18Mbps	12 Mbps	12 Mbps	
12Mbps	9 Mbps	9 Mbps	
9Mbps	7 Mbps	7 Mbps	6.8 Mbps
6Mbps	5 Mbps	5 Mbps	5 Mbps
4.5Mbps		4 Mbps	4 Mbps
3Mbps		2 Mbps	2.7 Mbps
2.25Mbps			2 Mbps
1Mbps			1.4 Mbps

Maximum Throughput (Mbps)

Model 5054-R(LR)

Data rate	40 MHz Channels Turbo Mode (US Only)	20 MHz Channels Standard Mode	10 MHz Channels Standard Mode	5 MHz Channels Standard Mode
108Mbps Turbo 54	35 Mbps			
96Mbps Turbo 48	35 Mbps			
72Mbps Turbo 36	35 Mbps			
48Mbps Turbo 24	27 Mbps			
36Mbps Turbo 18	22 Mbps			
24Mbps Turbo 12	16 Mbps			
54Mbps		29 Mbps		
48Mbps		27 Mbps		
36Mbps		22 Mbps		
24Mbps		16 Mbps	16 Mbps	
18Mbps		13 Mbps	13 Mbps	
12Mbps		9 Mbps	9 Mbps	
9Mbps		7 Mbps	7 Mbps	7 Mbps
6Mbps		2 Mbps	5 Mbps	4.7 Mbps
4.5Mbps			3.6 Mbps	3.8 Mbps
3Mbps			2.4 Mbps	2.7 Mbps
2.25Mbps				2 Mbps
1Mbps				1.2 Mbps

**Maximum-throughput data with release 2.3, as measured with test equipment under controlled lab conditions and best performing packet size. In some instances, data compression yields throughput equal to the configured data rate. Actual throughput performance in the field may vary.*

Latency

< 10ms typical at maximum throughput*

** under throughput test conditions indicated above.*

Transmit Power Settings

Model 2454-R

	6-24 Mbps @ 20 MHz 16QAM ½, QPSK ¾, QPSK ½, BPSK ¾, BPSK ½	36 Mbps @ 20 MHz 16QAM ¾	48 Mbps @ 20 MHz 64QAM ½	54 Mbps @ 20 MHz 64QAM ¾
2.400-2.483 GHz	16 dBm	16 dBm	14 dBm	13 dBm

Output Power Attenuation: 0 - 18dB, in 3dB steps
Output Power Values will have a tolerance of +- 1.5 dB

Model 5054-R

	6-24 Mbps @ 20 MHz 16QAM ½, QPSK ¾, QPSK ½, BPSK ¾, BPSK ½	36 Mbps @ 20 MHz 16QAM ¾	48 Mbps @ 20 MHz 64QAM ½	54 Mbps @ 20 MHz 64QAM ¾
5.15-5.35 GHz 5.47-5.725 GHz 5.725-5.850 GHz	• 15 dBm • 16 dBm • 16 dBm	• 13 dBm • 13 dBm • 13 dBm	• 12 dBm	• 11 dBm

Output Power Attenuation: 0 - 18dB, in 3dB steps
Output Power Values will have tolerance of +- 1.5 dB

Model 5054-R-LR

	6-24 Mbps @ 20 MHz 16QAM ½, QPSK ¾, QPSK ½, BPSK ¾, BPSK ½	36 Mbps @ 20 MHz 16QAM ¾	48 Mbps @ 20 MHz 60QAM ¾	54 Mbps @ 20 MHz 64QAM ¾
•5.25-5.35 GHz •5.725-5.850 GHz	•20 dBm •25 dBm	•20 dBm •23 dBm	•20 dBm •22 dBm	•20 dBm •20 dBm

Output Power Attenuation: 0 - 18dB, in 3dB steps
Output Power Values will have a tolerance of +- 1.5 dB

Range information for 2454-QB[2]

	54 Mbps	36 Mbps	6 Mbps
2.4-2.4835GHz (US)	3mi/4.8km	5mi/8.05km	3mi/4.8km
2.4-2.8 GHz (ETSI)	1mi/1.6km	2.6mi/4.2km	2.6mi/4.2km

Minimum fade margin; 99.995% or better availability; average terrain/climate; no unusual multipath; proper path clearance (0.6F1).

Range Information for 5054-QB[2]

	54 Mbps	36 Mbps	6 Mbps
5.25-5.35 GHz (US)	3mi/4.8km	6mi/9.6km	3mi/4.8km
5.47-5.7GHz (ETSI)	3mi/4.8km	6mi/9.6km	2.1mi/3.8km
5.725-5.850 (US)	3mi/4.8km	6mi/9.6km	3mi/4.8km

Minimum fade margin; 99.995% or better availability; average terrain/climate; no unusual multipath; proper path clearance (0.6F1).

Distance calculations for 5 and 10 MHz channels are comparable for ETSI regulatory domains. Proper TPC settings (-9dB@20MHz, -12dB@10MHz, -15dB@5MHz), should be set to meet power density rules. Increased distances are possible in the US with proper engineering.

Range Information for 5054-QB-LR

	54 Mbps	36 Mbps	6 Mbps
5.25-5.35 GHz (US)[1]	5mi/8.05km	6mi/9.6km	5mi/8.05km
5.725-5.850GHz (ETSI)[2]	5mi/8.05km	20mi/32km	20mi/32km

Ranges calculated with minimum 15 dB theoretical System Operating Margin with a 20 MHz bandwidth. Assumes the integrated 23 dBi panel is used at each end, the link has clear line of site, proper path clearance (0.6F1), average terrain/climate and no unusual multipath.

[1] Presumes transmit power is reduced to -3dBm to comply with FCC EIRP limitations.

[2] Presumes transmit power is set to maximum, which complies with FCC EIRP limitations.

System Processor and Memory

- 166MHz Motorola 8241 processor
- 16 Mbytes RAM
- 8 Mbytes FLASH

Software Specification

- Key Features
  - Dynamic Data Rate Selection
  - Transmit Power Control
  - Antenna Alignment
  - Integrity Check for Software Upload
  - 5, 10, and 20MHz channels
  - QoS Support; up to 8 class of service, up to 8 Service Flows per class*
- Bridging and Routing
  - Bridge (802.1d)
  - IP/ RIPv1 (RFC 1058)
  - IP/ RIPv2 (RFC 1388)
  - CIDR (RFC 1519)
  - ICMP (RFC 792)
  - IP (RFC 791)
  - ARP (RFC 826)
- 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
- VLAN
  - 802.1Q
- Security Features
  - MAC Authentication
  - Radius MAC Access Control
  - WEP/AES-OCB encryption
  - RADIUS (RFC 2138)

*Available with version 2.5 software release

Security	• Filter based on packet information such as unicast/multicast/ broadcast MAC or IP • Secure "over the air encryption" with WEP, WEP+, and AES, and AES-CCB) • Authentication via Radius
Management	• SU/BSU statistics • Link Test • Temperature logging • SNMPv1/v2 RFC 1157 • SNMP v2c RFC 1907 • HTTP Server RFC 2616 • Telnet RFC 855 • TFTP client RFC 783 • CLI • MIB-II RFC 1213 • Ethernet-like MIB RFC 1643 • Bridge MIB RFC 1493 • 802.3MAU RFC 2668 • 802.11 MIB • Remote reboot (reload) or reset to factory default via power injector • Private MIB • Orinoco MIB
Antenna Alignment Tools	• Audible Tone • CLI output
Status LEDs	• Two indicators on the RJ-45 connector to indicate power, wireless traffic, and Ethernet traffic
Local Configuration Support	**RS-232 Serial port** • RJ11 port built-into the unit • DB9 Female via a converter (included)
Compliance and Standards	**Safety** • UL 60950, UL50 (radio units, except CAT-5 cable) • 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 v1.3.1; EN 300.328; EN 301.489-1; EN 301.489-17; EN 300-440; EN50371 • ARIB STD-T71, STD 33, STD 66 **EMI and Susceptibility (Class B)** • USA FCC Part 15.107 • Canada ICES-003 **Water and Dust Proof** • NEMA4/IP56

*QB.11 5054-LR FCC only

Electrical	**5054-R(-LR) / 2454-R PoE Power Injector** • Custom Power over Ethernet (802.3af compatible) • Input: Voltage 110 to 250 VAC (47-63Hz) • Output: 48V @ 420mA MAX (injected into the Cat-5 Cable) • Pin for Remote reboot (reload) or reset to factory default **5054-QB(-LR) / 2454-QB Outdoor Radio Unit** • Power Consumption: 7.5W typical. Up to 20 Watts across full operating temperature range. • Input: Voltage 42 to 60 VDC
Dimensions	Packaged: 22.5 x 15.5 x 14.75 in (571 x 394 x 375 mm) Unpackaged (per unit): 12.6 x 12.6 x 3.5 in (320 x 320 x 89 mm)
Weight	Packaged: 35 lbs (15.9 kg) Unpackaged (per unit): 6 lbs (2.72 kg)
Environmental	**Operating** • -33° to 60°C (-27.5° to 140° Fahrenheit) • 100% humidity • Wind loading: 125mph **Storage** • -55° to 80°C (-41° to 176° Fahrenheit) • 100% humidity
Package Contents	• Tsunami QuickBridge.11 2454-R, Tsunami QuickBridge.11 5054-R or Tsunami QuickBridge.11 5054-R-LR radios with 23 dBi integrated antennas (Qty 2) • 50 Meter Outdoor Rated CAT 5 Cables with connectors (Qty 2) • Ethernet cable weatherproof plugs (Qty 2) • Wall/Pole Mounting Brackets (Qty 2) • CD-ROM with user documentation and software (Qty 1) • Power-Over-Ethernet injector for Models 2454-R, 5054-R, 5054-R-LR (Qty 2) • Country specific power cords (Qty 2) • Quick Install Guide (Qty 1)
MTBF	• 100,000 hrs
Warranty	• One year

1 Check with the local regulatory agency for certain restrictions

2 - PTP - (1BS to 1 SU) using USA regulations for L and U bands, ETSI regulations for M bands
- Base Station external Antenna (Parabolic Grid 29dB)
- Subscriber Antenna, external 5Ghz (29dB Parabolic Grid antenna) with short 1dB jumper cable
- Subscriber Antenna, external 2.4Ghz (24dB Parabolic Grid antenna) with short 1dB jumper cable
- Clear LOS (Line of Sight)
- 99.995% availability
- Fade margin minimum of 10dB to 2 miles, 0.2dB additional fade margin for every 0.1 mile to 15dB
- Predicted availability >99.990% (one-way) for all configurations
- Distance calculations for 5 and 10 MHz channels are comparable for ETSI regulatory domains. Proper TPC settings (3 and 6dB) respectively, should be set to meet power density rules. Increased distances are possible in the US with proper link engineering.

Near LOS (Line of Sight)
- 40-50% visibility
- Distance, Typically <2.5miles.

Proxim Wireless Corporation
www.proxim.com

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

TS_0806_QB11FAM_US