



Tsunami QuickBridge.11

Model 2454-R and 5054-R

Technical Specifications

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

<p>Part Numbers</p> <p>(North America region)</p>	<p>Model 2454-R</p> <ul style="list-style-type: none"> • 2454-QB-US-WORLD Tsunami QuickBridge.11 Model 2454-R US/CAN PSU-WORLD <p>Model 5054-R</p> <ul style="list-style-type: none"> • 5054-QB-US-WORLD Tsunami QuickBridge.11 Model 5054-R US/CAN PSU-WORLD
<p>Part Numbers</p> <p>(Europe and Middle East regions)</p>	<p>Model 2454-R</p> <ul style="list-style-type: none"> • 2454-QB-EU Tsunami QuickBridge.11 Model 2454-R Europe PSU • 2454-QB-UK Tsunami QuickBridge.11 Model 2454-R UK PSU <p>Model 5054-R</p> <ul style="list-style-type: none"> • 5054-QB-EU Tsunami QuickBridge.11 Model 5054-R Europe PSU • 5054-QB-UK Tsunami QuickBridge.11 Model 5054-R UK PSU
<p>Part Numbers</p> <p>(Asia Pacific region)</p>	<p>Model 2454-R</p> <ul style="list-style-type: none"> • 2454-QB-AU Tsunami QuickBridge.11 Model 2454-R Australia PSU • 2454-QB-CN Tsunami QuickBridge.11 Model 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 <p>Model 5054-R</p> <ul style="list-style-type: none"> • 5054-QB-AU Tsunami QuickBridge.11 Model 5054-R Australia PSU • 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-WORLD Tsunami QuickBridge.11 Model 5054-R US/CAN PSU -WORLD
<p>Part Numbers</p> <p>(Caribbean and Latin America region)</p>	<p>Model 2454-R</p> <ul style="list-style-type: none"> • 2454-QB-US-WORLD Tsunami QuickBridge.11 Model 2454-R US/CAN PSU -WORLD <p>Model 5054-R</p> <ul style="list-style-type: none"> • 5054-QB-BR Tsunami QuickBridge.11 Model 5054-R Brazil PSU • 5054-QB-US Tsunami QuickBridge.11 Model 5054-R US/CAN PSU

Tsunami QuickBridge.11 Model 2454-R and 5054-R Technical Specifications

Part Numbers (Universal)	<p>Accessories</p> <ul style="list-style-type: none"> 70251 PoE (Power over Ethernet) Surge Arrestor for Tsunami MP.11 and QuickBridge.11 <p>Outdoor Ethernet Cables</p> <ul style="list-style-type: none"> 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 <p>Power Injector</p> <ul style="list-style-type: none"> 69823 Spare Power DC Injector for Tsunami MP.11 or QB.11 (-R model ONLY) 																																																																																																																																						
Regulatory Approvals and Frequency Ranges for 2454-R¹	<p>Model 2454-R</p> <table border="1"> <thead> <tr> <th>Country</th> <th colspan="4">Number of Channels</th> <th>Certification</th> </tr> </thead> <tbody> <tr> <td colspan="6">North America</td> </tr> <tr> <td>USA</td> <td>(GHz)</td> <td>5MHz</td> <td>10MHz</td> <td>20MHz</td> <td rowspan="3">Yes</td> </tr> <tr> <td>Canada</td> <td>2.40 - 2.4835</td> <td>11</td> <td>Up to 11</td> <td>Up to 11</td> </tr> <tr> <td>Mexico</td> <td>2.40 - 2.472</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> <tr> <td colspan="6">EU Countries</td> </tr> <tr> <td>Austria</td> <td colspan="4" rowspan="16"> <table border="1"> <thead> <tr> <th>(GHz)</th> <th>5MHz</th> <th>10MHz</th> <th>20MHz</th> </tr> </thead> <tbody> <tr> <td>• 2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> </tbody> </table> </td> <td rowspan="16">Yes</td> </tr> <tr><td>Belgium</td></tr> <tr><td>Cyprus</td></tr> <tr><td>Czech Republic</td></tr> <tr><td>Denmark</td></tr> <tr><td>Estonia</td></tr> <tr><td>Finland</td></tr> <tr><td>France</td></tr> <tr><td>Germany</td></tr> <tr><td>Greece</td></tr> <tr><td>Hungary</td></tr> <tr><td>Ireland</td></tr> <tr><td>Italy</td></tr> <tr><td>Latvia</td></tr> <tr><td>Luxemburg</td></tr> <tr><td>Lithuania</td></tr> <tr><td>Malta</td></tr> <tr><td>Netherlands</td></tr> <tr><td>Poland</td></tr> <tr><td>Portugal</td></tr> <tr><td>Spain</td></tr> <tr><td>Sweden</td></tr> <tr><td>Slovakia</td></tr> <tr><td>Slovenia</td></tr> <tr> <td>United Kingdom</td> <td>(GHz)</td> <td>5MHz</td> <td>10MHz</td> <td>20MHz</td> <td>Yes</td> </tr> <tr> <td></td> <td>2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> <td></td> </tr> <tr> <td colspan="6">Other European Countries</td> </tr> <tr> <td>Iceland</td> <td colspan="4" rowspan="4"> <table border="1"> <thead> <tr> <th>(GHz)</th> <th>5MHz</th> <th>10MHz</th> <th>20MHz</th> </tr> </thead> <tbody> <tr> <td>2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> </tbody> </table> </td> <td rowspan="4">Yes</td> </tr> <tr><td>Liechtenstein</td></tr> <tr><td>Norway</td></tr> <tr><td>Switzerland</td></tr> <tr> <td>Russia</td> <td>(GHz)</td> <td>5MHz</td> <td>10MHz</td> <td>20MHz</td> <td rowspan="2">In Process</td> </tr> <tr> <td></td> <td>5.15 - 5.85</td> <td>Up to 141</td> <td>Up to 71</td> <td>Up to 36</td> </tr> <tr> <td colspan="6">South America</td> </tr> <tr> <td>Brazil</td> <td>(GHz)</td> <td>5MHz</td> <td>10MHz</td> <td>20MHz</td> <td rowspan="2">In Process</td> </tr> <tr> <td></td> <td>2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> </tbody> </table>	Country	Number of Channels				Certification	North America						USA	(GHz)	5MHz	10MHz	20MHz	Yes	Canada	2.40 - 2.4835	11	Up to 11	Up to 11	Mexico	2.40 - 2.472	13	Up to 13	Up to 13	EU Countries						Austria	<table border="1"> <thead> <tr> <th>(GHz)</th> <th>5MHz</th> <th>10MHz</th> <th>20MHz</th> </tr> </thead> <tbody> <tr> <td>• 2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> </tbody> </table>				(GHz)	5MHz	10MHz	20MHz	• 2.40 - 2.4835	13	Up to 13	Up to 13	Yes	Belgium	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Latvia	Luxemburg	Lithuania	Malta	Netherlands	Poland	Portugal	Spain	Sweden	Slovakia	Slovenia	United Kingdom	(GHz)	5MHz	10MHz	20MHz	Yes		2.40 - 2.4835	13	Up to 13	Up to 13		Other European Countries						Iceland	<table border="1"> <thead> <tr> <th>(GHz)</th> <th>5MHz</th> <th>10MHz</th> <th>20MHz</th> </tr> </thead> <tbody> <tr> <td>2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> </tbody> </table>				(GHz)	5MHz	10MHz	20MHz	2.40 - 2.4835	13	Up to 13	Up to 13	Yes	Liechtenstein	Norway	Switzerland	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	In Process		2.40 - 2.4835	13	Up to 13	Up to 13
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Regulatory Approvals and Frequency Ranges for 5054-R¹

APAC						Yes
Australia						
New Zealand						
Japan	(GHz)	5MHz	10MHz	20MHz		
Hong Kong	2.40 - 2.4835	13	Up to 13	Up to 13		
S. Korea						
China						
Taiwan						
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		
Model 5054-R						
North America						
USA	(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		
Canada	(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		
Mexico	(GHz)	5MHz	10MHz	20MHz		
	5.725 - 5.85	Up to 21	Up to 11	Up to 5		
EU Countries						
Austria					Yes	
Belgium						
Cyprus						
Czech Republic						
Denmark						
Estonia						
Finland						
France						
Germany						
Greece						
Hungary						
Italy	(GHz)	5MHz	10MHz	20MHz		
	5.47 - 5.70	Up to 46	Up to 23	Up to 11		
Latvia						
Luxemburg						
Lithuania						
Malta						
Netherlands						
Poland						
Portugal						
Spain						
Sweden						
Slovakia						
Slovenia						
United Kingdom	(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		
Ireland						
Other European Countries						
Iceland					Yes	
Liechtenstein	(GHz)	5MHz	10MHz	20MHz		
Norway	5.47 - 5.70	Up to 46	Up to 23	Up to 11		
Switzerland						
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		

Tsunami QuickBridge.11 Model 2454-R and 5054-R Technical Specifications

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Integrated Antenna Specification	<p>Model 2454-R</p> <ul style="list-style-type: none"> Part Number: 2454-QB-xx Frequency range: 2.4 to 2.5 GHz Nominal Impedance: 50 Ohms Gain: 16 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 <p>Model 5054-R</p> <ul style="list-style-type: none"> Part Number: 5054-QB-xx 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	<p>Model 2454-R and 5054-R OFDM (Orthogonal Frequency Division Multiplexing)</p> <table border="1"> <thead> <tr> <th></th> <th>20 MHz Channels</th> <th>10 MHz Channels</th> <th>5 MHz Channels</th> </tr> </thead> <tbody> <tr> <td>• BPSK</td> <td>6 and 9 Mbps</td> <td>3 and 4.5 Mbps</td> <td>2.25 and 1.5 Mbps</td> </tr> <tr> <td>• QPSK</td> <td>12 and 18 Mbps</td> <td>6 and 9 Mbps</td> <td>3 and 4.5 Mbps</td> </tr> <tr> <td>• 16-QAM</td> <td>24 and 36 Mbps</td> <td>12 and 18 Mbps</td> <td>6 and 9 Mbps</td> </tr> <tr> <td>• 64 QAM 1/2</td> <td>54 and 48 Mbps</td> <td>36 and 24 Mbps</td> <td>18 and 12 Mbps</td> </tr> <tr> <td>• 64 QAM 3/4</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Maximum Packet Size: 1522 Bytes 		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 1/2	54 and 48 Mbps	36 and 24 Mbps	18 and 12 Mbps	• 64 QAM 3/4																												
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Wireless Protocol	<ul style="list-style-type: none"> N/A 																																																	
Device Interface	<p>Ethernet</p> <ul style="list-style-type: none"> Auto-sensing 10/100BASE-TX Ethernet <p>Antenna Connector for BSU and SU with Type-N Connector</p> <ul style="list-style-type: none"> Standard Type-N Female 																																																	
Network Architecture Type	<ul style="list-style-type: none"> Infrastructure 																																																	

Tsunami QuickBridge.11 Model 2454-R and 5054-R Technical Specifications

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 3/4 64QAM 1/2 16QAM 3/4 16QAM 1/2 QPSK 3/4 QPSK 1/2 BPSK 3/4 BPSK 1/2	N/A	-71 dBm @54Mbps -74 dBm @48Mbps -79 dBm @36Mbps -84 dBm @24Mbps -87 dBm @18Mbps -89 dBm @12Mbps -91 dBm @9Mbps -91 dBm @6Mbps	-74 dBm @36Mbps -77 dBm @24Mbps -82 dBm @18Mbps -87 dBm @12Mbps -90 dBm @9Mbps -92 dBm @6Mbps -94 dBm @4.5Mbps -94 dBm @3Mbps	-77 dBm @18Mbps -80 dBm @12Mbps -85 dBm @9Mbps -90 dBm @6Mbps -93 dBm @4.5Mbps -95 dBm @3Mbps -97 dBm @2.25Mbps -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 3/4 64QAM 1/2 16QAM 3/4 16QAM 1/2 QPSK 3/4 QPSK 1/2 BPSK 3/4 BPSK 1/2	-66 dBm @108Mbps -68 dBm @96Mbps -75dBm @72Mbps -78dBm @48Mbps -81dBm @36Mbps -83 dBm @24Mbps -84 dBm @18Mbps -85 dBm @12Mbps	-69 dBm @54Mbps -72 dBm @48Mbps -77 dBm @36Mbps -80 dBm @24Mbps -83 dBm @18Mbps -86 dBm @12Mbps -87 dBm @9Mbps -88 dBm @6Mbps	-72 dBm @36Mbps -75 dBm @24Mbps -80 dBm @18Mbps -83 dBm @12Mbps -86 dBm @9Mbps -89 dBm @6Mbps -90 dBm @4.5Mbps -91 dBm @3Mbps	-75 dBm @18Mbps -78 dBm @12Mbps -83 dBm @9Mbps -86 dBm @6Mbps -89 dBm @4.5Mbps -92 dBm @3Mbps -93 dBm @2.25Mbps -94 dBm @1.5Mbps
Maximum Throughput (Mbps)	Model 2454-R				
	Data rate	20 MHz Channels	10 MHz Channels	5 MHz Channels Standard Mode	
	54Mbps	29 Mbps			
	48Mbps	21 Mbps			
	36Mbps	17 Mbps			
	24Mbps	15 Mbps			
	18Mbps	14 Mbps	13 Mbps		
	12Mbps	10 Mbps	10 Mbps		
	9Mbps	5 Mbps	6 Mbps	6 Mbps	
	6Mbps	4 Mbps	4 Mbps	4 Mbps	
	4.5Mbps		4 Mbps	4 Mbps	
	3Mbps		2 Mbps	2 Mbps	
	2.25Mbps			1 Mbps	
	1Mbps			0.5 Mbps	
	Model 5054-R				
	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	54 Mbps			
	96Mbps Turbo 48	53 Mbps			
	72Mbps Turbo 36	50 Mbps			
	48Mbps Turbo 24	39 Mbps			
	36Mbps Turbo 18	31 Mbps			
	24Mbps Turbo 12	23 Mbps			
	54Mbps		40 Mbps		
	48Mbps		34 Mbps		
	36Mbps		31 Mbps		
	24Mbps		21 Mbps		

Tsunami QuickBridge.11 Model 2454-R and 5054-R Technical Specifications

	18Mbps		17 Mbps	19 Mbps		
	12Mbps		11 Mbps	13 Mbps		
	9Mbps		9 Mbps	8 Mbps	8 Mbps	
	6Mbps		5 Mbps	6 Mbps	6 Mbps	
	4.5Mbps			4 Mbps	5 Mbps	
	3Mbps			3 Mbps	3 Mbps	
	2.25Mbps				2 Mbps	
	1Mbps				0.5 Mbps	
	*Maximum-throughput data with release 2.2.5, 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.					
Transmit Power Settings	Model 2454-R					
		6-24 Mbps @ 20 MHz 16QAM ½ QPSK ¼ 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 ¼ 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 a tolerance of +/- 1.5 dB					
Range Information for 5054-R²		54 Mbps	36 Mbps	6 Mbps		
	5.15-5.35 GHz (US)	1.0mi/1.6km	2.4mi/3.9km	5.2mi/8.4km		
	5.47-5.7GHz (ETSI)	1.0mi/1.6km	2.4mi/3.9km	5.2mi/8.4km		
	5.725-5.850 (US)	1.6mi/2.6km	3.5mi/5.6km	9.7mi/15.6km		
	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 2454-R²		54 Mbps	36 Mbps	6 Mbps		
	2.4-2.4835GHz (US)	1.2mi/2km	3.2mi/5.1km	9.8mi/15.8		
	2.4-2.8 GHz (ETSI)	0.4mi/0.7km	1.0mi/1.6km	3.2mi/5.1km		
	Minimum fade margin; 99.995% or better availability; average terrain/climate; no unusual multipath; proper path clearance (0.6F1).					
System Processor and Memory	<ul style="list-style-type: none"> • 166MHz Motorola 8241 processor • 16 Mbytes RAM • 8 Mbytes FLASH 					

Tsunami QuickBridge.11 Model 2454-R and 5054-R Technical Specifications

Software Specification	<ul style="list-style-type: none"> • Miscellaneous <ul style="list-style-type: none"> • Dynamic Data Rate Selection • Transmit Power Control • Antenna Alignment • Integrity Check for Software Upload • 5, 10, and 20MHz channels • Bridging and Routing <ul style="list-style-type: none"> • Bridge (802.1d) • IP/ RIPv1 (RFC 1058) • IP/ RIPv2 (RFC 1388) • CIDR (RFC 1519) • ICMP (RFC 792) • IP (RFC 791) • ARP (RFC 826) • Filtering <ul style="list-style-type: none"> • Ethernet protocol (EtherType) • Static MAC • Storm threshold • IP address • Broadcast protocol • Services <ul style="list-style-type: none"> • DHCP Server (RFC 2131) • DHCP Client (RFC 2131) • Bi-Directional Bandwidth Control • VLAN <ul style="list-style-type: none"> • 802.1Q • Security Features <ul style="list-style-type: none"> • MAC Authentication • Radius MAC Access Control • WEP/AES-OCB encryption • RADIUS (RFC 2138)
Security	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Audible Tone • CLI output

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Status LEDs	<ul style="list-style-type: none"> Two indicators on the RJ-45 connector to indicate power, wireless traffic, and Ethernet traffic
Local Configuration Support	<p><u>RS-232 Serial port</u></p> <ul style="list-style-type: none"> RJ11 port built-into the unit DB9 Female via a converter (included)
Compliance and Standards	<p><u>Safety</u></p> <ul style="list-style-type: none"> UL 60950, UL50 (radio units, except CAT-5 cable) CSA 22.2 No. 60950-00 IEC 60950 3rd Ed (1999) <p><u>Radio Approvals</u></p> <ul style="list-style-type: none"> 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 66 <p><u>EMI and Susceptibility (Class B)</u></p> <ul style="list-style-type: none"> USA FCC Part 15.107 Canada ICES-003 <p><u>Water and Dust Proof</u></p> <ul style="list-style-type: none"> NEMA4/IP56
Electrical	<p><u>5054-R / 2454-R POE Power Injector</u></p> <ul style="list-style-type: none"> 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 <p><u>5054-R / 2454-R Outdoor Radio Unit</u></p> <ul style="list-style-type: none"> Power Consumption: 7.5W typical.. Up to 20 Watts across full operating temperature range. Input: Voltage 42 to 60 VDC
Dimensions	22.5 x 15.5 x 14.75 (inches) (571 mm x 394mm x 375mm)
Weight	Packaged: 35 lbs (15.9kg)
Environmental	<p><u>Operating</u></p> <ul style="list-style-type: none"> -33° to 60°C (-27.5° to 140° Fahrenheit) 100% humidity Wind loading: 125mph <p><u>Storage</u></p> <ul style="list-style-type: none"> -55° to 80°C (-41° to 176° Fahrenheit) 100% humidity
Package Contents	<ul style="list-style-type: none"> Two Tsunami QuickBridge.11 5054-R or Tsunami QuickBridge.11 2454-R radios w/integrated antenna Two 50 Meter POE Outdoor Rated CAT 5 Cables with connectors Two Ethernet cable weatherproof plugs Two Pole Mounting Brackets One CD-ROM with user documentation and software Two Power-Over-Ethernet injector for Models 2454-R or 5054-R Two country specific power cord One Quick Install Guide

Tsunami QuickBridge.11 Model 2454-R and 5054-R Technical Specifications

MTBF	<ul style="list-style-type: none">• 100,000 hrs
Warranty	<ul style="list-style-type: none">• One year

- 1 Check with the local regulatory agency for certain restrictions
- 2
 - PMP configuration using USA regulations for L and U bands, ETSI regulations for M bands
 - Clear LOS
 - 99.995% availability
 - Sector antenna (17dBi, 60-degrees) at BSU with short 1dB jumper cable
 - 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
 - Note: 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.

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