



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

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

<b>Part Numbers (Universal)</b>	<p><b><u>Accessories</u></b></p> <ul style="list-style-type: none"> <li>70251 PoE (Power Over Ethernet) Surge Arrestor for Tsunami MP.11 and QuickBridge.11</li> </ul> <p><b><u>Outdoor Ethernet Cables</u></b></p> <ul style="list-style-type: none"> <li>69819 25m outdoor, terminated CAT5 cable for Tsunami MP.11 or QB.11 with three RJ-45 and one weather-proof Ethernet port cap</li> <li>69820 50m outdoor, terminated CAT5 cable for Tsunami MP.11 or QB.11 with three RJ-45 and one weather-proof Ethernet port cap</li> <li>69821 75m outdoor, terminated CAT5 cable for Tsunami MP.11 or QB.11 with three RJ-45 and one weather-proof Ethernet port cap</li> </ul> <p><b><u>Power Injector</u></b></p> <ul style="list-style-type: none"> <li>69823 Spare Power DC Injector for Tsunami MP.11 or QB.11 (-R model ONLY)</li> </ul>																																																																																																																																																																																																													
<b>Regulatory Approvals and Frequency Ranges for 2454-R<sup>1</sup></b>	<p><b>Model 2454-R</b></p> <table border="1"> <thead> <tr> <th>Country</th> <th>Frequency Range (GHz)</th> <th colspan="3">Number of Channels</th> <th>Certification</th> </tr> </thead> <tbody> <tr> <td colspan="6"><b>North America</b></td> </tr> <tr> <td>USA</td> <td></td> <td>5MHz</td> <td>10MHz</td> <td>20MHz</td> <td rowspan="3">Yes</td> </tr> <tr> <td>Canada</td> <td>2.40-2.462</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"><b>EU Countries</b></td> </tr> <tr> <td>Austria</td> <td></td> <td></td> <td></td> <td></td> <td rowspan="20">Yes</td> </tr> <tr> <td>Belgium</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cyprus</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Czech Republic</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Denmark</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Estonia</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Finland</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>France</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Germany</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Greece</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Hungary</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Ireland</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Italy</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Latvia</td> <td></td> <td>5MHz</td> <td>10MHz</td> <td>20MHz</td> </tr> <tr> <td>Luxemburg</td> <td>2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> <tr> <td>Lithuania</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Malta</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Netherlands</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Poland</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Portugal</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Spain</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sweden</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Slovakia</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Slovenia</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>United Kingdom</td> <td></td> <td></td> <td></td> <td></td> <td>Yes</td> </tr> <tr> <td colspan="6"><b>Other European Countries</b></td> </tr> <tr> <td>Iceland</td> <td></td> <td></td> <td></td> <td></td> <td rowspan="4">Yes</td> </tr> <tr> <td>Liechtenstein</td> <td></td> <td>5MHz</td> <td>10MHz</td> <td>20MHz</td> </tr> <tr> <td>Norway</td> <td>2.40 - 2.4835</td> <td>13</td> <td>Up to 13</td> <td>Up to 13</td> </tr> <tr> <td>Switzerland</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6"><b>South America</b></td> </tr> <tr> <td>Brazil</td> <td></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	Frequency Range (GHz)	Number of Channels			Certification	<b>North America</b>						USA		5MHz	10MHz	20MHz	Yes	Canada	2.40-2.462	11	Up to 11	Up to 11	Mexico	2.40 - 2.472	13	Up to 13	Up to 13	<b>EU Countries</b>						Austria					Yes	Belgium					Cyprus					Czech Republic					Denmark					Estonia					Finland					France					Germany					Greece					Hungary					Ireland					Italy					Latvia		5MHz	10MHz	20MHz	Luxemburg	2.40 - 2.4835	13	Up to 13	Up to 13	Lithuania					Malta					Netherlands					Poland					Portugal					Spain					Sweden					Slovakia					Slovenia					United Kingdom					Yes	<b>Other European Countries</b>						Iceland					Yes	Liechtenstein		5MHz	10MHz	20MHz	Norway	2.40 - 2.4835	13	Up to 13	Up to 13	Switzerland					<b>South America</b>						Brazil		5MHz	10MHz	20MHz	In Process		2.40 - 2.4835	13	Up to 13	Up to 13
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	<b>APAC</b>					Yes	
	Australia						
	New Zealand						
	Japan						
	Hong Kong	2.40 - 2.4835	5MHz 13	10MHz Up to 13	20MHz Up to 13		
	S. Korea						
	China						
	Taiwan						
<b>Regulatory Approvals and Frequency Ranges for 5054-R<sup>1</sup></b>	<b>Model 5054-R</b>						
	<b>Country</b>	<b>Frequency Range (GHz)</b>	<b>Number of Channels</b>			<b>Certification</b>	
	<b>North America</b>						
	USA		5MHz	10MHz	20MHz	Yes	
	Canada	5.25 - 5.35	Up to 15	Up to 7	Up to 4		
	Mexico	5.725 - 5.85	Up to 21	Up to 11	Up to 5		
	<b>EU Countries</b>						
	Austria					Yes	
	Belgium						
	Cyprus						
	Czech Republic						
	Denmark						
	Estonia						
	Finland						
	France						
	Germany						
	Greece						
	Hungary						
	Ireland		5MHz	10MHz	20MHz		
	Italy	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		5MHz	10MHz	20MHz	Yes	
		5.47 - 5.70	Up to 46	Up to 23	Up to 11		
		5.725 - 5.85	Up to 21	Up to 11	Up to 5		
	<b>Other European Countries</b>						
	Iceland					Yes	
	Liechtenstein		5MHz	10MHz	20MHz		
	Norway	5.47 - 5.70	Up to 46	Up to 23	Up to 11		
	Switzerland						
	<b>South America</b>						
	Brazil		5MHz	10MHz	20MHz	Yes	
		5.25 - 5.35	Up to 15	Up to 7	Up to 4		
5.47 - 5.70		Up to 46	Up to 23	Up to 11			
	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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<b>Integrated Antenna Specification</b>	<p><b>Model 2454-R</b></p> <ul style="list-style-type: none"> <li>• Part Number 2454-QB-xx</li> <li>• Frequency range 2.4 to 2.5 GHz</li> <li>• Nominal Impedance 50 Ohms</li> <li>• Gain 18 dBi</li> <li>• Front-to-Back Ratio 25 dB</li> <li>• HPBW/vertical 25 degrees</li> <li>• HPBW/horizontal 25 degrees</li> <li>• Cross Polarization 20 dB</li> <li>• Power handling 1 W</li> <li>• VSWR 1.5 : 1 Max</li> </ul> <p><b>Model 5054-R</b></p> <ul style="list-style-type: none"> <li>• Part Number 5054-QB-xx</li> <li>• Frequency range 5250 - 5875 MHz</li> <li>• Nominal Impedance 50 ohms</li> <li>• Gain 23 dBi</li> <li>• Front-to-Back Ratio 35 dB</li> <li>• HPBW/vertical 9 degrees</li> <li>• HPBW/horizontal 9 degrees</li> <li>• Cross Polarization 24 dB</li> <li>• Power handling 1 W (cw)</li> <li>• VSWR 2.0 : 1 Max</li> </ul>																																		
<b>RF Modulation and Data Rates</b>	<p><b>Model 2454-R and 5054-R</b> <b>OFDM (Orthogonal Frequency Division Multiplexing)</b></p> <table border="1"> <thead> <tr> <th></th> <th><u>20 MHz Channels</u></th> <th><u>10 MHz Channels</u></th> <th><u>5 MHz Channels</u></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 ½</td> <td>48 Mbps</td> <td>24 Mbps</td> <td>12 Mbps</td> </tr> <tr> <td>• 64 QAM ¼</td> <td>54 Mbps</td> <td>36 Mbps</td> <td>18Mbps</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Maximum Packet Size 1522 Bytes</li> </ul>		<u>20 MHz Channels</u>	<u>10 MHz Channels</u>	<u>5 MHz Channels</u>	• 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 ½	48 Mbps	24 Mbps	12 Mbps	• 64 QAM ¼	54 Mbps	36 Mbps	18Mbps										
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<b>Wireless Protocol</b>	<ul style="list-style-type: none"> <li>• WORP (Wireless Outdoor Router Protocol)</li> </ul>																																		
<b>Device Interface</b>	<p><b>Ethernet</b></p> <ul style="list-style-type: none"> <li>• Auto-sensing 10/100BASE-TX Ethernet</li> </ul>																																		

# Tsunami QuickBridge.11 Model 2454-R and 5054-R

## Technical Specifications

<b>Receive Sensitivity (BER=10<sup>-6</sup>):</b>	<b>Model 2454-R</b>				
	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
	<b>Model 5054-R</b>				
	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	-66dBm @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 -93dBm @2.25Mbps -94 dBm @1.5Mbps
<b>Transmit Power Settings</b>	<b>Model 2454-R</b>				
		<b>6-24 Mbps @ 20 MHz</b> 16QAM 1/2 QPSK 3/4 QPSK 1/2 BPSK 3/4 BPSK 1/2	<b>36 Mbps @ 20 MHz</b> 16QAM 3/4	<b>48 Mbps @ 20 MHz</b> 64QAM 1/2	<b>54 Mbps @ 20 MHz</b> 64QAM 3/4
	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				
	<b>Model 5054-R</b>				
		<b>6-24 Mbps @ 20 MHz</b> 16QAM 1/2 QPSK 3/4 QPSK 1/2 BPSK 3/4 BPSK 1/2	<b>36 Mbps @ 20 MHz</b> 16QAM 3/4	<b>48 Mbps @ 20 MHz</b> 64QAM 1/2	<b>54 Mbps @ 20 MHz</b> 64QAM 3/4
	5.25-5.35 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				
<b>Range Information for 5054-R<sup>2</sup></b>		54 Mbps	36 Mbps	6 Mbps	
	5.25-5.35 GHz (US)	1.0 mi	2.4 mi	5.2 mi	
	5.47-5.7GHz (ETSI)	1.0 mi	2.4 mi	5.2 mi	
	5.725-5.850 (US)	1.6 mi	3.5 mi	9.7 mi	

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

<b>Range information for 2454-R<sup>2</sup></b>		54 Mbps	36 Mbps	6 Mbps
	2.4-2.4835GHz (US)	1.2 mi	3.2 mi	9.8 mi
	2.4-2.8 GHz (ETSI)	0.4 mi	1.0 mi	3.2 mi
<b>System Processor and Memory</b>	<ul style="list-style-type: none"> <li>• 166MHz Motorola 8241 processor</li> <li>• 16 Mbytes RAM</li> <li>• 8 Mbytes FLASH</li> </ul>			
<b>Software Specification</b>	<ul style="list-style-type: none"> <li>• Miscellaneous <ul style="list-style-type: none"> <li>• Dynamic Data Rate Selection</li> <li>• Transmit Power Control</li> <li>• Antenna Alignment</li> <li>• Integrity Check for Software Upload</li> <li>• 5, 10, and 20MHz channels</li> </ul> </li> <li>• Bridging and Routing <ul style="list-style-type: none"> <li>• Bridge (802.1d)</li> <li>• IP/ RIPv1 (RFC 1058)</li> <li>• IP/ RIPv2 (RFC 1388)</li> <li>• CIDR (RFC 1519)</li> <li>• ICMP (RFC 792)</li> <li>• IP (RFC 791)</li> <li>• ARP (RFC 826)</li> </ul> </li> <li>• Filtering <ul style="list-style-type: none"> <li>• Ethernet protocol (Ethertype)</li> <li>• Static MAC</li> <li>• Storm threshold</li> <li>• IP address</li> <li>• Broadcast protocol</li> </ul> </li> <li>• Services <ul style="list-style-type: none"> <li>• DHCP Server (RFC 2131)</li> <li>• DHCP Client (RFC 2131)</li> <li>• Bi-Directional Bandwidth Control</li> <li>• </li> </ul> </li> <li>• Security Features <ul style="list-style-type: none"> <li>• MAC Authentication</li> <li>• Radius MAC Access Control</li> <li>• WEP/AES-OCB encryption</li> <li>• RADIUS (RFC 2138)</li> </ul> </li> </ul>			
<b>Security</b>	<ul style="list-style-type: none"> <li>• Filter based on packet information such as unicast/multicast/ broadcast MAC or IP.</li> <li>• Secure "over the air encryption" with WEP, WEP+, and AES, and AES-CCB).</li> <li>• Authentication via Radius</li> </ul>			

# Tsunami QuickBridge.11 Model 2454-R and 5054-R

## Technical Specifications

<b>Management</b>	<ul style="list-style-type: none"> <li>• SU/BSU statistics</li> <li>• Link Test</li> <li>• Temperature logging</li> <li>• Remote reboot (reload) or reset to factory default via power injector</li> </ul> <ul style="list-style-type: none"> <li>• SNMPv1           RFC 1157</li> <li>• SNMP v2c       RFC 1907</li> <li>• HTTP Server     RFC 2616</li> <li>• Telnet           RFC 855</li> <li>• TFTP client      RFC 783</li> <li>• CLI</li> </ul> <ul style="list-style-type: none"> <li>• MIB-II           RFC 1213</li> <li>• Ethernet-like MIB   RFC 1643</li> <li>• Bridge MIB      RFC 1493</li> <li>• 802.3MAU       RFC 2668</li> <li>• 802.11 MIB</li> <li>• Private MIB</li> <li>• Orinoco MIB</li> </ul>
<b>Antenna Alignment Tools</b>	<ul style="list-style-type: none"> <li>• Audible Tone</li> <li>• CLI output</li> </ul>
<b>Status LEDs</b>	<ul style="list-style-type: none"> <li>• Two indicators on the RJ-45 connector to indicate power, wireless traffic, and Ethernet traffic</li> </ul>
<b>Local Configuration Support</b>	<b><u>RS-232 Serial port</u></b> <ul style="list-style-type: none"> <li>• RJ11 port built-into the unit</li> <li>• DB9 Female via a converter (included)</li> </ul>
<b>Compliance and Standards</b>	<b><u>Safety</u></b> <ul style="list-style-type: none"> <li>• UL                   60950, UL50 (radio units, except CAT-5 cable)</li> <li>• CSA                 22.2 No. 60950-00</li> <li>• IEC                 60950 3rd Ed (1999)</li> </ul> <b><u>Radio Approvals</u></b> <ul style="list-style-type: none"> <li>• USA                 FCC 15.107, 15-109; 15-203-15.205, 15.207, 15.209; 15.247; 15.401-15.407</li> <li>• Canada             RSS-102; RSS-210; ICES-003</li> <li>• Europe (ETSI)     EN 301.893; EN 300.328; EN 301.489-1; EN 301.489-17; EN 300-440; EN50371</li> <li>• ARIB               STD-T71, STD 33, STD 66</li> </ul> <b><u>EMI and Susceptibility (Class B)</u></b> <ul style="list-style-type: none"> <li>• USA                 FCC Part 15.107</li> <li>• Canada             ICES-003</li> </ul> <b><u>Water and Dust Proof</u></b> <ul style="list-style-type: none"> <li>• IP65</li> </ul>

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

<b>Electrical</b>	<p><b><u>5054-R / 2454-R POE Power Injector</u></b></p> <ul style="list-style-type: none"> <li>• Custom Power over Ethernet for Tsunami MP.11 Model 5054-R only</li> <li>• Input: Voltage 110 to 250 VAC (47-63Hz)</li> <li>• Output: Current 420mA at 48V (injected into the Cat-5 Cable)</li> <li>• Pin for Remote reboot (reload) or reset to factory default</li> </ul> <p><b><u>5054-R / 2454-R Outdoor Radio Unit</u></b></p> <ul style="list-style-type: none"> <li>• Power Consumption: 7.5W typical.. Up to 20 Watts across full operating temperature range.</li> <li>• Input: Voltage 42 to 60 VDC</li> <li>• Pin for Remote reboot or reset to factory default</li> </ul>
<b>Dimensions</b>	Packaged: 22.5 x 15.5 x 14.75 (inches) (571mm x 394mm x 375mm)
<b>Weight</b>	Packaged: 35 lbs (15.9kg)
<b>Environmental</b>	<p><b><u>Operating</u></b></p> <ul style="list-style-type: none"> <li>• -33° to 60°C (-27.5° to 140° Fahrenheit)</li> <li>• 100% humidity</li> <li>• Wind loading: 125mph</li> </ul> <p><b><u>Storage</u></b></p> <ul style="list-style-type: none"> <li>• -55° to 80°C (-41° to 176° Fahrenheit)</li> <li>• 100% humidity</li> </ul>
<b>Packaging Contents</b>	<ul style="list-style-type: none"> <li>• Two 50 Meter POE Outdoor Rated CAT 5 Cables with connectors</li> <li>• Two Ethernet cable weatherproof plugs</li> <li>• Two Tsunami QuickBridge.11 5054-R or Tsunami QuickBridge.11 2454-R radios w/integrated antenna</li> <li>• Two Pole Mounting Brackets</li> <li>• One CD-ROM with user documentation and software</li> <li>• Two Power-Over-Ethernet injector for Models 2454-R or 5054-R</li> <li>• Two country specific power cord</li> <li>• One Quick Install Guide</li> </ul>
<b>MTBF</b>	<ul style="list-style-type: none"> <li>• 100,000 hrs</li> </ul>
<b>Warranty</b>	<ul style="list-style-type: none"> <li>• One year</li> </ul>

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.