



# Infiman 2x2

4.9 – 6.4 GHz  
Frequency Bands

The **Infiman 2x2** is a successful field-proven family of wireless point-to-multipoint products designed for various applications, including fixed wireless access infrastructure for operators and enterprise networks, including nomadic and mobile functionality. It encompasses a number of base station sector units, including those with a beamforming antenna, and a range of subscriber terminals with both various integrated antennas and connectorized ones. The whole family features high spectral efficiency, exceptional reliability and excellent Quality of Service (QoS).

Compared to traditional Point-to-Multipoint systems, both operating range and link reliability have increased significantly through the use of advanced Multiple Antenna Technology and Adaptive Multipoint Access Protocol.

The Infiman 2x2 portfolio represents a unique proposition to all types of operators (e.g. WISP's, organisations of all sizes, government authorities, etc.) wishing to deliver Fast Ethernet data, voice and video services at ultra long ranges, whilst at the same time providing a wide set of networking features and maintaining strict QoS control. With their increased aggregate bit rates and improved coverage range, our base stations now allow operators to cater for more and higher capacity remote subscriber units than ever before, thus reducing capital expenditure on network infrastructure.

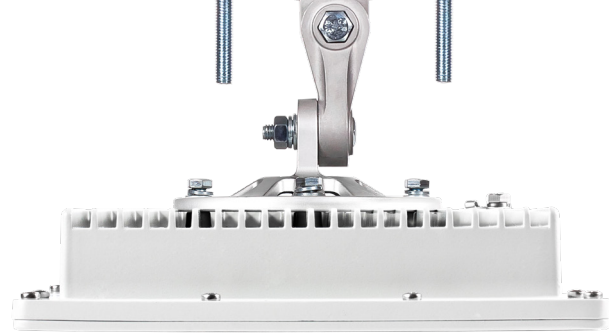
## Applications

- ▶ High-Speed local or wide area corporate networks
- ▶ CCTV and Video surveillance Networks
- ▶ Triple-play services for Wireless ISP's
- ▶ Long-range Rural Connectivity
- ▶ Government & Municipal Networks

## MIMO 2X2 TECHNOLOGY

MIMO 2x2 stands for Multiple Input / Multiple Output innovative technology and it requires the use of two antennas at both the transmitter and receiver to improve communication performance.

# Product Highlights



- ✓ Available in multiple frequency bands 4.9 – 6.0 and 6.0 – 6.4 GHz
- ✓ 250 Mbps base station sector capacity with just 40 MHz of spectrum
- ✓ Increased NLOS range and performance
- ✓ Supports channel width size from 5 to 40 MHz, reducing licence expenditure
- ✓ Advanced Quality-of-Service features, offering a reliable and robust solution
- ✓ Base station sectors supported with smart beamforming technology to increase capacity two-fold and improve interference and noise immunity
- ✓ Integrated sector antenna Base stations, ensuring maximum RF performance and quick & simple installation
- ✓ Unparalleled selection of integrated antenna subscriber terminals ranging from compact and lightweight 19 dBi antenna model to unique 28 dBi terminal ideally suitable for long-range connectivity in excess of 15-25 km from a base station

## Features

### RADIO

- ▶ Voice/RTP Aware Superpacketting
- ▶ DFS
- ▶ Automatic Bitrate Control
- ▶ Automatic Transmit Power Control
- ▶ Automatic Distance Learning
- ▶ Channel Time Adjustment
- ▶ Spectrum Analyzer mode
- ▶ Channel testing tools

### ENVIRONMENTAL

- ▶ Outdoor Units: -40..+60°C  
(-55..+60°C models with index «t» in PN),  
100% humidity, condensing
- ▶ Indoor Unit: 0..+40°C,  
95% humidity, non-condensing

### NETWORKING

- ▶ Ethernet-over-IP tunneling
- ▶ ARP protocol support
- ▶ MAC/IP filtering
- ▶ Full-fledged 2nd layer switch
- ▶ RIPv2 / OSPFv2 /static routing
- ▶ Tunneling (Ethernet-over-IP, IP-over-IP)
- ▶ L2/L3 Firewall
- ▶ NAT (multipool, H.323-aware)
- ▶ DHCP client/server/relay

### QUALITY-OF-SERVICE

- ▶ 17 priority queues
- ▶ IEEE 802.1p support
- ▶ IP TOS / DiffServ support
- ▶ Full voice support
- ▶ Traffic limiting (absolute, relative, mixed)
- ▶ Traffic redirection



### STANDARD COMPLIANCE

- ▶ Radio
  - EN 301 893 v.2.1.1
  - EN 302 502 v.2.1.1
  - FCC part 15.247
- ▶ EMC
  - EN 301 489-1
  - EN 301 489-17
  - FCC Part 15 Class B
- ▶ Safety
  - ETSI EN 60 950-1:2006
- ▶ RoHS
  - Directive 2002/95/EC






### SECURITY FEATURES

- ▶ Storm / flood protection
- ▶ Password protection
- ▶ Secure command-line access via SSH protocol

# Technical Specifications

System component	InfiMAN 2x2 Base Stations			
Model	R5000-Qmxb	R5000-Mmxb	R5000-Omxb	R5000-Smnb
Device description	High-capacity base station sector with an integrated beamforming antenna	High-capacity base station sector with an integrated antenna	High-capacity base station sector for an external antenna	Medium-capacity base station sector with an integrated antenna
Performance	Up to 250 Mbps sector net throughput			Up to 150 Mbps sector net throughput
Distance	Middle-to-long range (20 km)	Middle-to-long range (30+ km)	Middle-to-long range (40+ km)	Middle range (up to 10-15 km)
Frequency Bands / Antennas	<ul style="list-style-type: none"> <li>4.9 – 6.0 GHz / 21 dBi dual-pol integrated beamforming antenna 90°x8° (20° Az-steerable beam)</li> </ul>	<ul style="list-style-type: none"> <li>4.9 – 6.0 GHz / 16 dBi dual-pol integrated 90° sector antenna</li> <li>6.0 – 6.4 GHz / 16 dBi dual-pol integrated 90° sector antenna</li> </ul>	<ul style="list-style-type: none"> <li>4.9 – 6.0 GHz / connectorised antenna (2 x N-type (Female) connectors)</li> <li>6.0 – 6.4 GHz / connectorised antenna (2 x N-type (Female) connectors)</li> </ul>	<ul style="list-style-type: none"> <li>4.9 – 6.0 GHz / 16 dBi dual-pol integrated 90° sector antenna</li> </ul>
Radio	<ul style="list-style-type: none"> <li>Radio technology: MIMO 2x2 with OFDM 64/128</li> <li>Modulation types: BPSK 1/2 to QAM64 5/6</li> <li>Duplex method: TDD</li> <li>Transmit power: up to 25dBm</li> <li>Receiver sensitivity: -91 dBm</li> <li>Channel bandwidth: 10/20/40 MHz</li> </ul>	<ul style="list-style-type: none"> <li>Radio technology: MIMO 2x2 with OFDM 64/128</li> <li>Modulation types: BPSK 1/2 to QAM64 5/6</li> <li>Duplex method: TDD</li> <li>Transmit power: up to 27 dBm (4.9 - 6.0 GHz) up to 23 dBm (6.0 - 6.4 GHz)</li> <li>Receiver sensitivity: -66 ... -94 dBm</li> <li>Channel bandwidth: 5/10/20/40 MHz</li> <li>Instant DFS support (optional)</li> </ul>		<ul style="list-style-type: none"> <li>Radio technology: MIMO 2x2 with OFDM 64/128</li> <li>Modulation types: BPSK 1/2 to QAM64 5/6</li> <li>Duplex method: TDD</li> <li>Transmit power: up to 27 dBm (4.9 - 6.0 GHz)</li> <li>Receiver sensitivity: -69...-94 dBm</li> <li>Channel bandwidth: 5/10/20/40 MHz</li> </ul>
Antenna	<ul style="list-style-type: none"> <li>21 dBi dual-pol integrated sector beamforming antenna 90°x8° (20° Az-steerable beam)</li> </ul>	<ul style="list-style-type: none"> <li>16 dBi dual-pol integrated 90° antenna</li> </ul>	<ul style="list-style-type: none"> <li>2 x N-type (Female) connectors</li> </ul>	<ul style="list-style-type: none"> <li>16 dBi dual-pol integrated 90° antenna</li> </ul>
Wired interfaces	<ul style="list-style-type: none"> <li>1x Gigabit Ethernet port (10/100/1000 Base-T) RJ-45 connector</li> <li>Serial port (RS-232)</li> </ul>			<ul style="list-style-type: none"> <li>2 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> <li>PoE output at the second Ethernet port</li> </ul>
Power consumption	<ul style="list-style-type: none"> <li>Consumption: Up to 35 W</li> <li>Power options: 90-240 VAC @ 50/60 Hz ±43..56 VDC Proprietary PoE</li> </ul>	<ul style="list-style-type: none"> <li>Consumption: Up to 20 W</li> <li>Power options: 110-240 VAC @ 50/60 Hz ±43..56 VDC Proprietary PoE</li> </ul>		<ul style="list-style-type: none"> <li>Consumption: Up to 20 W</li> <li>Power options: 110-240 VAC @ 50/60 Hz +9..56 VDC Proprietary PoE</li> </ul>
Form Factor and Dimensions	<b>Outdoor Unit (ODU)</b>  <b>R5000-Qmxb</b> <b>21 dBi antenna</b>    371 x 371 x 90 mm, 4.4 kg	<b>Outdoor Unit (ODU)</b>  <b>R5000-Mmxb</b> <b>16 dBi antenna</b>    371 x 371 x 90 mm, 3.4 kg	<b>Outdoor Unit (ODU)</b>  <b>R5000-Omxb</b> <b>External antenna</b>    240 x 240 x 57 mm, 2.2 kg	<b>Outdoor Unit (ODU)</b>  <b>R5000-Smnb</b> <b>16 dBi antenna</b>    371 x 371 x 83 mm, 2.8 kg
	<b>Indoor Unit</b> <b>IDU-BS-G(60W)</b> 151 x 62 x 38 mm, 0.32 kg	<b>Indoor Unit</b> <b>IDU-BS-G</b> 125 x 72 x 38 mm, 0.3 kg		<b>Indoor Unit</b> <b>(IDU-CPE-G (24W))</b> 97 x 53.5 x 33.5 mm, 0.133 kg

# Technical Specifications

System component	InfiMAN 2x2 Subscriber Terminals		
Model	R5000-Smn	R5000-Lmn	R5000-Smnc
Device description	Integrated antenna subscriber terminal unit	External antenna subscriber terminal unit	Reduced form factor integrated antenna subscriber terminal unit
	All InfiLINK 2x2 LITE models and subscriber terminals can be easily configured to operate in either Point-to-Point or Point-to-Multipoint modes. A simple licence only is required to change their mode of operation from PtMP to PtP or vice-versa.		
Performance	<ul style="list-style-type: none"> <li>• 8 Mbps (up to 8 Mbps net)</li> <li>• 20 Mbps (up to 20 Mbps net)</li> <li>• 50 Mbps (up to 50 Mbps net)</li> <li>• 300 Mbps (up to 180 Mbps net)</li> <li>• License upgradeable</li> </ul>		
Distance	<ul style="list-style-type: none"> <li>• 23 or 24 dBi antenna: middle-to-long range (12-15 km)</li> <li>• 26 dBi antenna: long range (15-20 km)</li> <li>• 27 or 28 dBi antenna: long range (20-25 km)</li> </ul>	<ul style="list-style-type: none"> <li>• Middle-to-long range (25+ km with external high-gain antenna)</li> </ul>	<ul style="list-style-type: none"> <li>• Short-to-middle range (up to 5-7 km)</li> </ul>
Frequency Bands / Antenna	<ul style="list-style-type: none"> <li>• 4.9 – 6.0 GHz / Integrated 23, 26 or 28 dBi Dual-polarization Antenna</li> <li>• 6.0 – 6.4 GHz / Integrated 24 or 27 dBi Dual-polarization Antenna</li> </ul>	<ul style="list-style-type: none"> <li>• 4.9 – 6.0 GHz / Connectorised Antenna (2 x N-type connectors)</li> <li>• 6.0 – 6.4 GHz / Connectorised Antenna (2 x N-type connectors)</li> </ul>	<ul style="list-style-type: none"> <li>• 4.9 – 6.0 GHz / Integrated 19 dBi Dual-polarization Antenna</li> <li>• 6.0 – 6.4 GHz / Integrated 19 dBi Dual-polarization Antenna</li> </ul>
Radio	<ul style="list-style-type: none"> <li>• Radio technology: MIMO 2x2 with OFDM 64/128</li> <li>• Modulation types: BPSK 1/2 to QAM64 5/6</li> <li>• Duplex method: TDD</li> <li>• Transmit power: <ul style="list-style-type: none"> <li>- Up to 25 dBm (4.9-6.0 GHz)</li> <li>- Up to 23 dBm (6.0-6.4 GHz)</li> </ul> </li> <li>• Receiver sensitivity: -65..-91 dBm</li> <li>• Channel bandwidth: 5/10/20/40 MHz</li> </ul>		
Wired interfaces	<ul style="list-style-type: none"> <li>• 2 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> <li>• PoE output at the second Ethernet port</li> </ul>		<ul style="list-style-type: none"> <li>• 1 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> </ul>
Power consumption	<ul style="list-style-type: none"> <li>• Consumption: Up to 15 W</li> <li>• Power options: 110-240 VAC @ 50/60 Hz +9..56 VDC, Proprietary PoE</li> </ul>		
Form Factor and Dimensions	<b>Outdoor Unit (ODU)</b>  <b>R5000-Smn 27 or 28 dBi antenna</b>    600 x 600 x 68 mm, 5.8 kg  <b>R5000-Smn 26 dBi antenna</b>    371 x 371 x 83 mm, 2.8 kg  <b>R5000-Smn 23 or 24 dBi antenna</b>    305 x 305 x 61 mm, 1.9 kg	<b>Outdoor Unit (ODU)</b>  <b>R5000-Lmn External antenna</b>    240 x 240 x 50 mm, 1.6 kg	<b>Outdoor Unit (ODU)</b>  <b>R5000-Smnc 19 dBi antenna</b>    209 x 206 x 72 mm, 1.0 kg
	<b>Indoor Unit (IDU-CPE-G (24W))</b> 97 x 53.5 x 33.5 mm, 0.133 kg		