

# WiMax

## InfiLINK 2 x 2 4.9Ghz – 6.4Ghz



### Case Communication Point to Point Wimax



The Case Communications InfiLINK 2 x 2 is a wireless Point-to-Point solution, which combines high-speed capability, up to 300 Mbps throughput, with a rich set of best-in-class features and benefits such as leading-edge radio protocols providing unrivalled spectral efficiency and wireless transmissions over distances in excess of 80 km. In its simplest form, it can be deployed by many organisations to provide Ethernet extensions (i.e. LAN-to-LAN) between two locations. In its most advanced configurations, the InfiLINK 2x2 is able to provide a complete infrastructure that enables corporates of all sizes to connect their remote sites to the headquarters, thus allowing the simultaneous transmission of multi-protocol services such as voice, video and data. This family of solutions can also be deployed by mobile operators requiring multi-megabit capacity for their backhauls.

The Case Communications **Infilink 2 x 2** range of solution comprises a number of high-performance Fixed Broadband Wireless Access (FBWA) units, which operate in both LOS (line of site ) and NLOS (non-line of site) environments, in both licensed and unlicensed frequency bands.

#### **MIMO 2 x 2 TECHNOLOGY**

(Multiple Input – Multiple Output)

MIMO 2 x 2 Stands for Multiple Input / Multiple Output innovative technology and it requires the use of two antennas at both the transmitter and receiver to improve communications

#### **Applications**

- GSM / 3G / LTE High Capacity backhaul
- WISP infrastructure backhaul
- Building to building connectivity at Fast-Ethernet speeds.
- Redundant Cellular backhaul
- Cost-effective alternatives to legacy microwave links or wired leased lines
- NLOS backhaul using lower frequency bands
- Reliable backup for fibre lines, high-speed FSO or millimetre-wave links

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### INFILINK 2 X 2 Frequency Bands 4.9Ghz – 6.4Ghz

- Available in 4.9–6.05 GHz and 6.05–6.4 GHz frequency bands
- Multiple Input - Multiple Output (MIMO 2x2) innovative technology
- “Pay as you grow” software upgradeable capacity feature
- High capacity – up to 280 Mbps net throughput
- 5/10/20/40 MHz channel widths
- Possible operational distances in excess of 80 km
- Unique plug & play out-of-box 5–6 GHz ultra-long backhaul solution
- Gigabit Ethernet port and flexible uplink/downlink reallocation
- LOS (line-of-sight) and NLOS (non-line-of-sight) deployments
- Advanced Quality-of-Service Support

### FEATURES

#### RADIO

- Voice/RTP Aware Super Packeting
- DFS
- Automatic Bitrate Control
- Automatic Transmit Power Control
- Automatic Distance Learning
- Channel Time Adjustment
- Spectrum Analyser mode
- Channel testing tools

#### ENVIRONMENTAL

**Outdoor Units:** -40..+60C,  
100% humidity, condensing

**Indoor Unit:** 0..+40C,  
95% humidity, non-condensing

#### NETWORKING

- Ethernet-over-IP tunnelling
- ARP protocol support
- MAC/IP filtering
- RIPv2 / OSPFv2 /static routing
- Tunnelling (Ethernet-over-IP, IP-over-IP)
- L2/L3 Firewall
- NAT(multi-pool, H.323-aware)
- DHCP client/server/relay

#### QUALITY-OF-SERVICE

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

#### STANDARD COMPLIANCE

##### RADIO

ETSI EN 301 893 v.1.7.1  
ETSI EN 302 502 v.1.2.1  
FCC Part 15.247

##### EMC

ETSI EN 301 489-1  
ETSI 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

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FACT SHEET












Case Communications InfiLINK 2 x 2 Point to Point WiMax				
<b>RECOMMENDED APPLICATIONS</b>	<ul style="list-style-type: none"> <li>High spectral efficiency backhaul for ISP or operator networks</li> <li>LAN-to-LAN connectivity at Fast Ethernet or higher speeds</li> <li>A cost-effective alternative for legacy microwave links</li> </ul>		<ul style="list-style-type: none"> <li>Reliable backup for fibre lines, high-speed FSO or millimetre-wave links</li> <li>High-capacity capacity backhaul for IP-based CCTV networks</li> <li>Long range high capacity network access solution</li> </ul>	
<b>Product Family</b>	Case Communications InfiLINK 2 x 2 PRO		Case Communications InfiLINK 2 x 2 LITE	
<b>Model</b>	<b>R5000-Mmx</b>	<b>R5000-Omx</b>	<b>R5000-Smn</b>	<b>R5000-Lmn</b>
<b>Device description</b>	High capacity 280 Mbps Integrated Antenna Point to- Point Backhaul	High capacity 280 Mbps External Antenna Point-to-Point Backhaul	Medium capacity lightweight Integrated 19, 21, 23, 24, 27 or 28 dBi Dual-polarization Antenna Point-to-Point Backhaul	Medium –capacity lightweight External Antenna Point-to-Point Backhaul
<b>Performance</b>	300 Mbps (up to 280 Mbps net throughput)		<ul style="list-style-type: none"> <li>8 Mbps (up to 8 Mbps net) 50 Mbps (up to 50 Mbps net)</li> <li>300 Mbps (up to 180 Mbps net) License upgradeable</li> </ul>	
<b>Distance</b>	<ul style="list-style-type: none"> <li><b>23 and 24 dBi antenna</b> Recommended range: up to 10-20 km Maximal range: in excess of 30 km</li> <li><b>27 and 28 dBi antenna</b> Recommended range: up to 15-50 km Maximal range: in excess of 60 km</li> </ul>	<ul style="list-style-type: none"> <li>Recommended range: up to 80 km (with external high-gain antennas)</li> <li>Maximal range: in excess of 100 km</li> </ul>	<ul style="list-style-type: none"> <li><b>19 dBi antenna:</b> up to 5-10 km</li> <li><b>21 dBi antenna:</b> up to 7-12 km</li> <li><b>23 and 24 dBi antenna:</b> up to 10-15 km</li> <li><b>27 and 28 dBi antenna:</b> up to 15-30 km</li> </ul>	<ul style="list-style-type: none"> <li><b>Long range</b> (up to 60 km with high-gain external antenna)</li> </ul>
<b>Frequency Bands/ Antennae</b>	<ul style="list-style-type: none"> <li><b>4.9 – 6.0 GHz /</b> Integrated 23 or 28 dBi Dual-polarization Antenna</li> <li><b>6.0 – 6.4 GHz /</b> Integrated 24 or 27 dBi Dual-polarization Antenna</li> </ul>	<ul style="list-style-type: none"> <li><b>4.9 – 6.0 GHz /</b> Connectorised (2 x N-type connectors)</li> <li><b>6.0 – 6.4 GHz /</b> Connectorised 2 x N-type connectors)</li> </ul>	<ul style="list-style-type: none"> <li><b>4.9 – 6.0 GHz /</b> Integrated 19, 21, 23 or 28 dBi Dual-polarization Antenna</li> <li><b>6.0 – 6.4 GHz /</b> Integrated 19, 24 or 27 dBi Dual-polarization Antenna</li> </ul>	<ul style="list-style-type: none"> <li><b>4.9 – 6.0 GHz /</b> Connectorised (2 x N-type connectors)</li> <li><b>6.0 – 6.4 GHz /</b> Connectorised 2 x N-type connectors)</li> </ul>
<b>Radio</b>	<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>Transmit power: up to 23 dBm</li> <li>Receiver sensitivity: -67..-97 dBm</li> <li>Channel bandwidth: 5/10/20/40 MHz</li> <li>Instant DFS (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>Transmit power: <ul style="list-style-type: none"> <li>Up to 18 or 23 dBm (4.9-6.0 GHz models)</li> <li>Up to 23 dBm (6.0-6.4 GHz models)</li> </ul> </li> <li>Receiver sensitivity: -67..-97 dBm</li> <li>Channel bandwidth: 5/10/20/40 MHz</li> </ul>	
<b>Wired interfaces</b>	<ul style="list-style-type: none"> <li><b>Gigabit Ethernet port</b> (10/100/1000 Base-T) RJ-45 connector</li> <li><b>Serial port (RS-232)</b></li> </ul>		<ul style="list-style-type: none"> <li><b>Smn 19 dBi</b> 1 x Fast Ethernet (10/100 Base-T) RJ-45 connector</li> <li><b>Smn 21..28 dBi</b> 2x Fast Ethernet (10/100 Base-T) PoE output at the second Ethernet port RJ-45 connector</li> </ul>	<ul style="list-style-type: none"> <li><b>2x Fast Ethernet</b> (10/100 Base-T) PoE output at the second Ethernet port RJ-45 connector</li> </ul>
<b>Power consumption</b>	<ul style="list-style-type: none"> <li><b>Consumption: - Up to 12 Watts</b></li> <li><b>Power options:</b> 110-240 VAC @ 50/60 Hz ±43..56 VDC IEEE 802.3at compliant</li> </ul>		<ul style="list-style-type: none"> <li><b>Consumption: - Up to 7 Watts</b></li> <li><b>Power options:</b> 110-240 VAC @ 50/60 Hz +9..56 VDC</li> </ul>	

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PRODUCT FAMILY	InfiLINK 2 x 2 PRO		InfiLINK 2 x 2 LITE	
Model	R5000-Mmx	R5000-OMx	R5000-SMN	R5000-Lmn
	<b>Outdoor Unit (ODU)</b> <b>R5000-Mmx</b> 27 or 28dBi	<b>Outdoor Unit (ODU)</b> <b>R5000-OMx</b> External Antenna	<b>Outdoor Unit (ODU)</b> <b>R5000-Smn</b> 27 or 28dBi	<b>Outdoor Unit (ODU)</b> <b>R5000-OMx</b> External Antenna
				
	600x600x75mm 6.8Kg	240x240x51mm 2.3Kg	600x600x75mm 6.1Kg	240x 240 x 51mm 1.6Kg
	<b>R5000-Mmx</b> 23dBi Antenna	<b>Indoor Unit (IDU-BS-G)</b> 124 x 72 x 38mm 0.3Kg	<b>R5000-Smn</b> 23dBi Antenna	<b>Indoor Unit (IDU-CPE)</b> 85 x 76 x 36mm 0.15Kg
				
	370x370 x90mm 3.5Kg		371 x 371 x 83mm 2.8Kg	
	<b>R5000-Mmx</b> 24dBi Antenna		<b>R5000-Smn</b> 21db or 24 dBi Antenna	
				
	305 x 305 x 60mm 2.3Kg		305 x 305 x 73mm 2.0Kg	
			<b>R5000-Smn</b> 19dBi Antenna	
				
			207 x 207 x 36mm 0.15Kg	