# EC SYSTEM
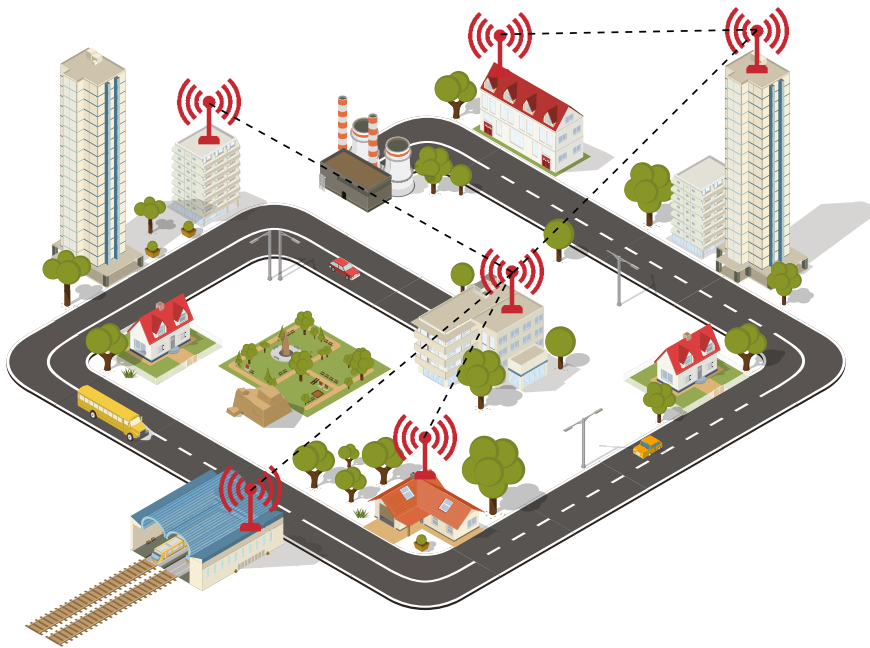
## EC-Link

**4.9 – 6.4 GHz Frequency Bands**



**EC LINK** is a Professional wireless Point-to-Point solution, which combines high-speed capability, up to 500 Mbps throughput and can achieve distances in excess of 80 Km. All models use MIMO technology to improve the communication performance. The units have incorporated L2/L3 routers and are fully compatible with our EC System multipoint solutions.

**EC SYSTEM** is the choice of excellence to connect remote corporate sites to the headquarters, thus allowing the simultaneous transmission of multi-protocol services such as voice, video and data. The EC-link is an integral part of our EC System family of solutions. EC-link supports GPS synchronization and can also be deployed by mobile operators requiring multi-megabit capacity for their backhaul links.

**EC SYSTEM** is a unique solution for operators to deliver Fast Ethernet data, voice and video services over long distances providing a wide range of networking features and maintaining strict QoS control.The EC-link range of solutions comprises of a number of high performance Fixed Broadband Wireless Access (FBWA) units, which operate in both LOS (line-of-sight) and NLOS (nonline-of-sight) environments, in both licensed and unlicensed frequency bands.

## Applications

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

**EC SYSTEM**

# Key Features

✓ Multiple frequency bands 4,9 - 6,05 GHz and 6,05 - 6,4 GHz
✓ Wide range of terminals with license upgrade option
✓ High capacity – up to 480 Mbps net throughput
✓ 5/10/20/40 MHz channel widths
✓ Possible operational distances in excess of 80 km
✓ LOS (line-of-sight) and NLOS (non-line-of-sight) deployments
✓ Advanced Quality-of-Service Support
✓ Plug & play solution 5–6 GHz ultra-long backhaul connection
✓ Gigabit Ethernet port/ SFP+ optical port
✓ Flexible uplink/downlink reallocation

# Recommended Applications

✓ High spectral efficiency backhaul for ISP or operator networks
✓ LAN-to-LAN connectivity at Fast Ethernet or higher speeds
✓ A cost-effective alternative for legacy microwave links
✓ Reliable backup for fibre lines, high-speed FSO
  or millimetre-wave links
✓ High-capacity backhaul for IP-based CCTV networks
✓ Long range high capacity network access solution

| | Product family | | | |
|---|---|---|---|---|
| **Model** | **H5-A** | **H5-C** | **S5-A** | **S5-C** |
| **Frequency Bands/ Antennae** | • 4.9 – 6.0 GHz /Integrated 23 or 28 dBi Dual-polarization Antenna<br>• 6.0 – 6.4 GHz /Integrated 24 or 27 dBi Dual-polarization Antenna | • 4.9 – 6.0 GHz /Connectorised(2 x N-type connectors)<br>• 6.0 – 6.4 GHz /Connectorised 2 x N-type connectors) | • 4.9 – 6.0 GHz / Integrated 19, 21, 23 or 28 dBi Dual-polarization Antenna<br>• 6.0 – 6.4 GHz / Integrated 19, 24 or 27 dBi Dual-polarization Antenna | • 4.9 – 6.0 GHz / Connectorised (2 x N-type connectors)<br>• 6.0 – 6.4 GHz / Connectorised 2 x N-type connectors) |
| **Performance** | • 300 Mbps (up to 280 Mbps net throughput) | | • 8 Mbps (up to 8 Mbps net)<br>• 50 Mbps (up to 50 Mbps net)<br>• 300 Mbps (up to 180 Mbps net)<br>• License upgradeable | |
| **Distance** | • 23 and 24 dBi antenna Recommended range: up to 10-20 km Maximal range: in excess of 30 km<br>• 27 and 28 dBi antenna Recommended range: up to 15-50 km Maximal range: in excess of 60 km | • Recommended range: up to 80 km (with external high-gain antennas)<br>• Maximal range: in excess of 100 km | • 19 dBi antenna: up to 5-10 km<br>• 21 dBi antenna: up to 7-12 km<br>• 23 and 24 dBi antenna: up to 10-15 km<br>• 27 and 28 dBi antenna:up to 15-30 km | • Long range (up to 60 km with high-gain external antenna) |
| **Radio** | • Radio technology: MIMO 2x2 with OFDM 64/128<br>• Modulation types: BPSK 1/2 to QAM64 5/6<br>• Transmit power: up to 23 dBm<br>• Receiver sensitivity: -67..-97 dBm<br>• Channel bandwidth: 5/10/20/40 MHz<br>• Instant DFS (optional) | | • Radio technology: MIMO 2x2 with OFDM 64/128<br>• Modulation types: BPSK 1/2 to QAM64 5/6<br>• Transmit power:<br>- Up to 18 or 23 dBm (4.9-6.0 GHz models)<br>- Up to 23 dBm (6.0-6.4 GHz models)<br>• eceiver sensitivity: -67..-97 dBm<br>• Channel bandwidth: 5/10/20/40 MHz | |
| **Wired interfaces** | • Gigabit Ethernet port (10/100/1000 Base-T) RJ-45 connector<br>• Serial port (RS-232) | | • S5-A19<br>• 1 x Fast Ethernet (10/100 Base-T) RJ-45 connector<br>• S5-A27-28<br>• 2x Fast Ethernet (10/100 Base-T) PoE output at the second Ethernet port RJ-45 connector | • 2x Fast Ethernet (10/100 Base-T) PoE output at the second Ethernet port RJ-45 connector |
| **Power consumption** | • Consumption: Up to 12 Watts<br>• Power options: 110-240 VAC @ 50/60 Hz ±43..56 VDC IEEE 802.3at compliant | | • Consumption: Up to 7 Watts<br>• Power options: 110-240 VAC @ 50/60 Hz +9..56 VDC | |

# EC SYSTEM

# Features

## RADIO
- ✓ Voice/RTP Aware Superpacketing
- ✓ DFS
- ✓ Automatic Bitrate Control
- ✓ Automatic Transmit Power Control
- ✓ Automatic Distance Learning
- ✓ Channel Time Adjustment
- ✓ Spectrum Analyzer mode
- ✓ Channel testing tools

## 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

## ENVIRONMENTAL
- ✓ **Outdoor Units:** -40..+60°C, 100% humidity, condensing
- ✓ **Indoor Unit:** 0..+40°C, 95% humidity, non-condensing

## NETWORKING
- ✓ Ethernet-over-IP tunneling
- ✓ ARP protocol support
- ✓ MAC/IP filtering
- ✓ 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
- ✓ 16 priority queues
- ✓ IEEE 802.1p support
- ✓ IP TOS / DiffServ support
- ✓ Full voice support Traffic limiting (absolute, relative, mixed)
- ✓ Traffic redirection

## SECURITY FEATURES
- ✓ Storm / flood protection
- ✓ Password protection
- ✓ Secure command-line access via SSH protocol