**EC SYSTEM ECM-S5-A23Rx**

4.9 – 6.0 GHz

**Description**

EC SYSTEM Medium–capacity lightweight Integrated 23 dBi Dual-polarization Antenna Point-to-Point Backhaul

**Performance**

- 8 Mbps (up to 8 Mbps net)
- 20 Mbps (up to 20 Mbps net)
- 50 Mbps (up to 50 Mbps net)
- 300 Mbps (up to 180 Mbps net)
- License upgradeable

**Distances**

up to 10-15 km

**Radio**

- Radio technology: MIMO 2x2 with OFDM 64/128
- Modulation types: BPSK ½ to QAM64 5/6
- Transmit power: up to 18 or 23 dBm
- Receiver sensitivity: -67...-97 dBm
- Frequency bands: 4.9-6.0 GHz
- Channel bandwidth: 5/10/20/40 MHz
- 23 dBi dual-pol integrated antenna

**Wired Interfaces**

- 2x Fast Ethernet (10/100 Base-T)
- PoE output at the second Ethernet port
- RJ-45 connector

**Power Consumption**

Consumption:
- Up to 7 Watts

Power options:
- 110-240 VAC @ 50/60 Hz
- +9..56 VDC

**Form Factor and Dimensions**

- Outdoor Unit (ODU):
  - 371 x 371 x 83 mm, 2.0 kg
- Indoor Unit (IDU-CPE): 85 x 76 x 36 mm, 0.15 kg

<table>
<thead>
<tr>
<th>Part Number Options</th>
<th>ECM-S5-A23R</th>
<th>Option</th>
<th>Output Power</th>
<th>Option</th>
<th>Capacity</th>
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<td>300M</td>
<td>300 Mbps</td>
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</table>

**Part Number Example**

ECM-S5-A23R63-300M
Features

**RADIO**
- Voice/RTCP Aware Superpacketing
  - to minimize jitter and latency for multimedia applications
- DFS
  - intelligent search for a cleanest channel and interference avoidance
- radar detection (depending on regulatory domain)
  - continuous background spectrum monitoring (for Instant DFS enabled units only)
- seamless channel change in case of congestion or radar detection (for Instant DFS enabled units only)
- Automatic Bitrate Control
  - to ensure a 100% stable link irrelevant of changes in external conditions
- Automatic Transmit Power Control
  - to track and keep optimal input signal level to maximize performance for each link and reduce overall interference within a given transmit power and ERP limitations
- Automatic Distance Learning
  - to optimize performance for any link distances from dozens of meters to 100 km and above
- Channel Time Adjustment
  - to improve performance on heavily loaded links
- Spectrum Analyzer mode
  - interference detection
  - non-invasive spectrum analysis (for Instant DFS enabled units only)
- Channel testing tools
  - channel performance measurement
  - advanced diagnostics

**MANAGEMENT FEATURES**
- Web-interface
  - basic settings
  - channel diagnostics: spectrum analysis, antenna alignment, channel throughput measurement
  - unit and RF links monitoring
  - maintenance: firmware upgrade, license and configuration import/export
  - tech support-diagnostic reports generation
  - command-line access
- Command line interface for in depth configuration and diagnostics accessible via:
  - secure shell (SSH)
  - telnet
  - serial port
  - remote shell
  - SNMPv1 / SNMPv3 support (MIB II, private MIB)
  - Configurable SNMP Traps

**NETWORKING**
- Ethernet-over-IP tunneling
- ARP protocol support
- MAC/IP filtering
- Full-routed 2nd layer switch:
  - Transparent transport for any type of Ethernet traffic including MPLS, stacked VLANs, etc.
  - Multiple switching groups
  - Full VLAN support including Q-in-Q (IEEE 802.1q and 802.1ad)
  - STP/STP support
  - IGMP Snooping with Querier mode
  - Trunk groups support
  - 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**
With many QoS permutations, QoS implementation works transparently in the network based on IEEE802.1p standard as well as ToS/Diffserv, guaranteeing optimal performance under any load conditions and lowest jitter/delay for priority traffic.
- Quality-of-Service features:
  - 16 priority queues
  - IEEE 802.1p support
  - IP TOS / Diffserv support
  - Full voice support
  - Traffic limiting (absolute, relative, mixed)
  - Traffic redirection

**MAC**
- Dynamic adaptive Polling
  - Centralized carrier grant mode
  - Dynamically takes into account channel activity
  - Permanent channel testing
- Pseudo-radio Interface
  - unique Wireless feature to join Wireless networks via 3rd party equipment (Wired Ethernet segments, PoClouds)
- Automatic over-the-air firmware upgrade

**STANDARD COMPLIANCE**
- Radio
  - EN 301 893 V1.5.1
  - EN 302 502 V1.2.1
  - FCC part 15.247
- EMC
  - EN 301 489-1
  - EN 301 489-17
  - FCC Part 15 Class B
- Safety
  - EN 60 950-1:2006
- RoHS
  - Directive 2002/95/EC

**SECURITY FEATURES**
- Storm / Flood protection
- Password protection
- Protocol messages encryption
  - Secure command-line access via SSH protocol

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

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