**EC SYSTEM ECM-S5-A28Rx**

**4.9 – 6.0 GHz**

**Description**

**EC SYSTEM** Medium-capacity Integrated 28 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 15-30 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
- 28 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):
  - 600 x 600 x 75 mm, 6.1 kg
- Indoor Unit (IDU-CPE): 85 x 76 x 36 mm, 0.15 kg

**Part Number Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Output Power</th>
<th>Option</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>63</td>
<td>2x63</td>
<td>8M</td>
<td>8 Mbps</td>
</tr>
<tr>
<td>200</td>
<td>2x200</td>
<td>L20M</td>
<td>20 Mbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L50M</td>
<td>50 Mbps</td>
</tr>
<tr>
<td></td>
<td></td>
<td>300M</td>
<td>300 Mbps</td>
</tr>
</tbody>
</table>

**Part Number Example**

ECM-S5-A28R63-300M
Features

RADIO
- Voice/RTP 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)
- 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 EIRP 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-fledged 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/delays 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 marker 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, IP-Links)
- Automatic over-the-air firmware upgrade

STANDARD COMPLIANCE
- Radio
  - EN 301 893 v.1.5.1
  - EN 302 502 v.1.2.1
  - 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, +60C, 100% humidity, condensing
- Indoor Units:
  - 0, +40C, 95% humidity, non-condensing

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