Evolution 8000 Series Airborne Router (e8000 AR XL)

Powerful and Secure Airborne IP Broadband Connectivity
The e8000 AR XL meets the unique needs of Airborne satellite communications (SATCOM) requirements. The 19-inch rack-mountable enclosure is ideal for roll-on/roll-off use and provides fast, secure and reliable military grade communications. The e8000 AR XL is certified to MIL-STD EMI, Power and Environmental specifications for aircraft.

Greater Mobility
Combined with leading edge spread spectrum technology, this Evolution series router enables use of ultra-small and phased-array antennas on aircraft. The e8000 AR XL is fully enabled for iDirect’s Global Network Management System (GNMS) and automatic beam switching technology allowing for true global roaming while on the move. With embedded OpenAMIP™ standard, the e8000 AR XL easily integrates with multiple antenna platforms and can support all airborne antenna variants – X-, Ku- and Ka-bands.

Greater Flexibility and Higher Performance
The e8000 AR XL series offers the choice between iNFINITI TDM or DVB-S2/ACM on the outbound, providing even more flexibility for network design and bandwidth optimization. Additionally, the e8000 AR XL can be operated in either MF-TDMA or SCPC return, providing return carrier symbol rates up to 15 Msps, for multiple high-definition (HD) video acquisition. Built into the unit is a fully integrated PCIe/104 with Quad core i7 processor computer for maps and additional applications.

High Security
Compliant with the highest military security requirements, the e8000 AR XL features embedded AES encryption and TRANSEC with advanced FIPS 140-2 Level 2 compliance. Also, to support Wideband Global Satellite (WGS) frequency ranges, the e8000 AR XL series is equipped to cover wider IF ranges, providing flexibility in secure network deployment.

Superior Quality of Service
With advanced Quality of Service (QoS), high-priority traffic designation can be recognized by advanced encryption devices and traffic can be segregated by groups of remotes, multiple sub-networks, and multiple applications, ensuring the highest quality transmissions where needed.

Airborne Tests & Certifications

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Configuration

Network Topology
- Star

Modulation
- Downstream: DVB-S2/ACM or (iNFINITI TDM)
- Upstream: D-TDMA or (SCPC Return)

FEC
- Symbol: LDPC, 0.25–0.9 (TPC, 0.495–0.879)
- Info: TPC**, 0.431–0.793
- Line Card IP Data: 2D 16S, 1/2-6/7 (2D 16 State 1/2-6/7)
- Remote IP Data: 7.5 Msps (15 Msps)

Maximum Rates
- Symbol: 45 Msps (15 Msps)
- Info: 150 Mbps* (21 Mbps²)
- Line Card IP Data: 149 Mbps² (20 Mbps³)
- Remote IP Data: 38.5 Mbps³ (17 Mbps⁴)

Notes:
- 16APSK, 8/9 FEC; 2QPSK, .897 FEC; 3QPSK, .793 FEC; 4QPSK, 6/7 FEC; 5QPSK, 4/5 FEC
- Maximum downstream and upstream data rates cannot be achieved simultaneously
- Maximum rates are achieved with optimal configurations

Spread Spectrum
- Spreading Factor: (TDM: 2, 4 and 8)
- Max Chip Rate: (TDM: 15 Mcps)

Interaces

SATCOM Interfaces
- TX Out: T ype-N, 950–2000 MHz, +5dBm/-35dBm
- RX In: TNC, 950–2000 MHz, -5dBm (max) composite/-130+10*log (Fsym) dBm (min) single carrier
- RX Out: TNC, 950–2000 MHz

Data Interfaces
- LAN: Two Gigabit Ethernet; 1-front, 1-back
  - Two 10/100 Mbps Ethernet; 2-D38999
- Console: RS-232 Console connection
- RS-232: GPS input or Antenna Control Signaling
- 10 MHz: TNC, External reference clock

CPU Interfaces
- USB – front panel
- KVM – rear panel
- Serial Com 1 – (RS-232) – rear panel
- Serial Com 2 – (RS-485) – rear panel

Protocols Supported
- TCP, UDP, ICMP, IGMP, RIP v2, Static Routes, NAT, DHCP, DHCP Helper, Local DNS Caching, OpenAMIP, cRTP, and GRE

Security
- AES Link Encryption (256-bit), TRANSEC (iNFINITI and S2 modes), FIPS 140-2 Level 2 Compliant, x.509 digital certificates authentication, Automatic Key Management

Traffic Engineering
- Group QoS, QoS (Priority Queuing and CBWFQ), Strict Priority Queuing, Application Based QoS, Minimum CIR, CIR (Static and Dynamic), Rate Limiting

Discrete Interfaces
- Transmit Mute (Input), Transmit Mute (Output), Weight on Wheels, Flight Crew Ground Transmit Override, Maintenance Ground Transmit Override

Other Features
- Built-in Automatic Uplink Power, Frequency and Timing Control, Authentication, Antenna Control Interface (OpenAMIP), Remote On/Off Interface Available

Mechanical/Environmental

Size
- e8000 AR XL: W 19 in x D 21.97 x H 1.73 (w 48.26cm x D 55.80cm x H 4.39cm)

Weight
- 16.9 lbs (7.66Kg)

Operating Temperature
- -20° to +60°C (-4° to +140°F) at sea level with temperature gradient of 1°C per 1 min

Altitude
- Operational: Up to 10,000 feet (3048m); Storage: up to 30,000 feet (9144m)

Relative Humidity
- Max 95% non-condensing humidity (operational)
- Max 100% condensing humidity (storage)

Input Voltage
- 22-36VDC, 100-240VAC, 50-400Hz

Power Consumption
- DC: 5 Amps maximum at 28VDC
- AC: 4 Amps maximum at 110VAC, 60Hz

Operational Vibration
- MIL-STD-810G Method 514.6

Operational Shock
- MIL-STD-810G Method 516.6

Acceleration
- MIL-STD-810G Method 513.6

Rapid Decompression
- MIL-STD-810G Method 500.5

Explosive Atmosphere
- MIL-STD-810G Method 511.5@10K ft.

Electro Magnetic Interface (EMI)
- MIL-STD-461F

Aircraft Electrical Power
- MIL-STD-704F

** TPC not supported for use with DVB-S2 outbound in iDX 3.0 and above