BelAir300 Converged Multi-service Wireless Node

BelAir Networks offers the only complete family of wireless mesh products. This comprehensive portfolio delivers unprecedented flexibility in the design and future-proof growth of your wireless cellular and mesh network. It supports a full spectrum of coverage options from high-speed Internet access and other data services through to high capacity, high performance networking that addresses a full mix of cellular, video, wireline-quality voice, tiered business services and backhaul.

The BelAir300 Converged Multi-service Wireless Node is the first and only solution able to support GSM Cellular, Wi-Fi, WiMAX, and backhaul services in a compact, integrated package, and the only solution optimized to deliver carrier-grade voice services. By incorporating up to two 1800 or 1900 MHz IP-based GSM EDGE-enabled picocells within it’s industry-leading wireless mesh solution, BelAir has again taken a leadership position and delivered the most compact, flexible and cost effective solution for wireless carriers.

The BelAir300 is a six-radio platform encased in a small, environmentally hardened outdoor package, and available in multiple configurations. It can be used to build cellular and wireless mesh networks throughout cities and across campuses. Deploy it as a standalone device, or, through multiple point to point, point to multipoint, or multipoint to multipoint connectivity, as part of a larger mesh comprised of other BelAir300 nodes, or any combination of BelAir200, BelAir100, and BelAir50, all seamlessly managed by BelAir BelView NMS.

- Industry’s first converged GSM picocell/wireless mesh solution
- Highest performance available today
- Flexible coverage applications
- Cellular, Wi-Fi, and WiMAX

**Wireless**

- Multi-radio platform with up to 6 radios
  - 1 WiFi Access radio, up to 2 GSM radios, and up to 3 backhaul radios
- Access and backhaul radio (IEEE 802.11a/b/g)
  - Frequency and transmit power:
    - 2.4 to 2.4835 GHz, up to 36 dBm EIRP
    - 4.900 to 5.000 GHz, up to 30 dBm EIRP
    - 4.940 to 4.990 GHz, up to 30 dBm EIRP
    - 5.25 to 5.35 GHz, up to 30 dBm EIRP
    - 5.725 to 5.825 GHz, up to 32 dBm EIRP
  - 802.11b mode: rates up to 11 Mbps
  - 802.11g mode: rates up to 54 Mbps
  - Receive sensitivity: up to -100 dBm
- Diversity
- Backhaul radio (pre-WiMAX)
  - Frequency and transmit power:
    - 4.900 to 5.000 GHz, up to 30 dBm EIRP
    - 4.940 to 4.990 GHz, up to 30 dBm EIRP
    - 5.25 to 5.35 GHz, up to 30 dBm EIRP
    - 5.47 to 5.725 GHz, up to 32 dBm EIRP
    - 5.725 to 5.850 GHz, up to 32 dBm EIRP
    - 5.825 to 5.875 GHz, up to 14 dBm EIRP
  - Rates up to 54 Mbps
  - Receive sensitivity: up to -90 dBm
  - Multiple point-to-point, point-to-multipoint and multipoint-to-multipoint links

- Transmit Power Control
- Dynamic Frequency Selection
- Available T1/E1 circuit emulation module (CEM)
- Layer 2 and Layer 3 mobility
- GSM Radio
  - Transmit frequencies
    - GSM 1800 model: 1805 to 1880MHz
    - GSM 1900 model: 1930 to 1990MHz
  - Channel spacing: 200kHz
Max. output power:
GMSK (CS 1-4/MCS 1-4): +23dBm
8PSK (MCS 5-9): +13dBm
Static power control: 6 steps (2dB each)
Dynamic power control: 6 steps (2dB each)

Receive frequencies
GSM 1800: 1710 to 1785MHz
GSM 1900: 1850 to 1910MHz
Channel spacing: 200kHz
Performance: GSM 05:05
Gain control steps: 26

Antennas
- Access
  - directional: 8.5, 11.5 dBi
  - external directional: 8.5 dBi
  - external omni-directional: 4, 6, 8, 10, 12 dBi
- Backhaul
  - internal directional: 6, 9, 10.25, 10.5, 12, 13.5, 15 dBi
  - external directional: 10.5, 12, 15 dBi
- GSM
  - Separate antennas for TX, RX
  - 0dB omni-directional (nominal)
  - External antenna connections (optional)

Networking
- Dual-electrical, electrical or optical Ethernet ports
- Layer 2 and Layer 3 support
- 802.1D bridging
- 802.1Q VLANs with authentication
- RSTP and MSTP
- QoS with traffic prioritization over 4 queues; Voice over IP, and traffic filtering
- 15 SSIDs per access radio. Full MBSSID support for 8 virtual APs per access radio
- Support for SNTP, ICMP, HTTP, ARP, TCP, UDP, Telnet, TFTP and IP traffic

GSM Data
- Encryption support
  - A5/1
  - A5/2
- Circuit switched data
  - Single slot BS20 at up to 14.4kb/s
  - BS21-26, plus BS61, BS81
- GPRS support
  - Coding schemes CS1-4
  - Multi-slot class 10
  - Dynamic PDCH for optimising mix of service for voice/data
- E-GPRS support
  - Modulations coding schemes MCS1 -9
  - Link adaptation
  - Incremental redundancy

Management
- Secure local and remote access
- Command line, HTTP and HTTPS Web GUI, SNMPv1/v2 and SSHv2 management interfaces
- MIBs: MIB-II, SNMPv2, 802.11, Ethernet-like, Interface Group, IP Forwarding Table, OSPFv2
- Multiple user privilege levels with RADIUS authentication
- Firmware upgrade through TFTP with support for automatic rollback
- RADIUS accounting

Security
- Authentication: 802.1x (RADIUS) and EAP methods
- Encryption: WEP 64 and 128 bit, TKIP / MIC per 802.1x, 802.11i AES
- MAC address access control lists
- Rogue AP detection

Approvals
- Radio: FCC part 15, EN 300 328, EN 300 440, EN 301 893
- EMC: FCC 47 CFR part 15, subpart B Class B and EN 301 489-1/-17 Class B

Physical and Electrical
- Size: 11.5 in. (29.2 cm) width by 14.25 in. (36.2 cm) length by 16 in. (40.6 cm) high
- Weight: 42 lbs (19 kg)
- Typical power consumption: 88 Watts
- Power supply: 100 to 240V ac, 47 to 63 Hz
- Available wall or pole mounting kits with theft deterrent anti-tamper screws
- Power, Radio and Ethernet lamps

Protection circuits
- IEC 60000-4-5 level 4 surge
- GR1089 - 6 kV (3000 A) surge

Environmental
- Operating temperature: -40°C to +50°C
- Storage temperature: -40°C to +80°C
- Operating humidity: 5 to 95% non-condensing
- Shock and vibration: ETSI300-019-1-4

To find out more, contact BelAir Networks:
info@belairnetworks.com
sales@belairnetworks.com
1-877-BelAir1 (1-877-235-2471)
1-613-254-7070
www.belairnetworks.com

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