WAVION
WIRELESS NETWORKS

Data Sheet

WBS-5000 Sector Base Station

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Wavion WBS-5000 Sector base station is an advanced sector-directional wireless broadband base station operating in the 5.4 GHz unlicensed band. The product's operational frequency band can be manually configured to work between 4.9 GHz and 5.9 GHz, providing the operator with increased flexibility in order to avoid interference.

Based on an array of three antennas covering a 120° sector and three radios, the WBS-5000 Sector leverages Wavion's Beamforming technology to provide extended range and superior connectivity under both Line-of-Sight (LOS) and Non-Line-of-Sight (NLOS) conditions.

These unmatched characteristics enable service providers, municipalities, and enterprises to deliver high quality, broadband wireless service, with significantly fewer base stations, at a much lower cost.

Beamforming technology

The WBS-5000 Sector base station complies with the 802.11a standard, and enables network operators to use any off-the-shelf 802.11a/n standard based client and therefore tailor their solution according to the specific needs of each individual end user.

Based on Wavion's unique and powerful spatially adaptive Beamforming technology, the WBS-5000 provides significant performance gains in terms of range, throughput and interference mitigation. This enables service providers to offer a highly cost effective broadband wireless service.

Wavion Sector Base Station 5000

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Benefits

- **Uniform coverage**
  Wavion Beamforming technology provides high quality NLOS coverage, thus enlarging the addressable market per base station.

- **Increased throughput**
  The superior link gain provides higher throughput and therefore a larger network capacity.

- **Superior interference mitigation**
  The inherent directivity of the Beamforming technology, coupled with the unique dynamic interference handling capabilities, ensure high-quality operation even in noisy environments. Furthermore, the wide spectrum coverage and the choice of channel bandwidth (10/20MHz) enable further interference mitigation by proper channel selection.

- **Standards based platform**
  Enables service providers to select standard off-the-shelf, cost-effective network components including CPEs, billing and provisioning systems.

- **Cost effective**
  The base station extended coverage and increased throughput, coupled with the ability to use standard off-the-shelf Wi-Fi CPEs, result in an attractive low price per line and rapid ROI.

- **Carrier grade**
  Robust and weatherproof IP-67 platform, designed to withstand extreme weather conditions.

WBS-5000 Sector - Typical Application

Technology

Wavion Beamforming technology focuses the energy to and from the client, on a per-packet basis. This focusing process significantly increases the link gain and the interference resiliency of the base station.

Moreover, while conventional technology suffers from the destructive effect of multipath propagation, Wavion's spatially adaptive Beamforming technology exploits multipath to its advantage by coherently combining the signals along the different propagation paths to and from the client.

Applications

The WBS-5000 Sector base station has been optimized for a wide range of applications and market segments including:

- Business and residential access
- Municipal networks and Metro coverage
- Public safety (video surveillance)
- Education campuses
- Rural communities
- Healthcare facilities
- PtMP backhaul

Typical application

Wavion's broadband wireless access solution is ideal Wavion's broadband wireless access solution is ideal for urban and suburban installations. When the entire 4.9-5.9GHz band is opened, 200 channels are available with which to work.

When properly installed, the WBS-5000 Sector can provide coverage in a radius of up to 15Km with multiple CPEs under LOS or NLOS conditions. Alternatively, three WBS-5000 Sector Base Station can be co-located to provide 360° coverage with triple capacity.

The same network can be used for supporting multiple video surveillance cameras.

Using the WBS-5000 sector with outdoor CPEs enables high quality broadband wireless service for business and residential customers.

WBS-5000 Sector's rich management and security capabilities, such as seamless RADIUS authentication and accounting, makes WBS-5000 suitable for metro zone network applications such as outdoor wireless access and cellular data offloading through Wi-Fi.

The WBS-5000 sector can also be used to provide backhaul in the 4.9-5.9GHz range to a 2.4GHz base station.

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Specifications WBS-5000 Sector

Security
- Open, WEP (64 bit or 128 bit), WPA, WPA2
- Encryption: TKIP, AES
- Authentication: Pre-Shared Key or 802.1x with RADIUS Server (EAP-TLS, PEAP, EAP-TTLS, EAP-SIM, EAP-AKA)
- MAC Authentication with RADIUS server for open sessions
- Time and throughput RADIUS Accounting
- VPN pass-through

Management
- Web-based configuration and management tool
- SNMPv2 with standard and Wavion MIB support
- Configuration save and restore
- Network and clients statistics
- HTTPS for Web-based management tools

Networking and QoS
- Multiple SSIDs / BSSIDs
- 802.1q VLAN support
- 802.1p, ToS or DSCP QoS support
- WMM support

Physical specifications
Network Interface:
- 1 Auto-sensing 10/100 Ethernet

Indicators
- One Ethernet port LINK/ACT LED indicator
- System Status LED indicator
- RF channel status indicator

Power input
- PoE: 55VDC, 28 W (only with Wavion PoE injector)

Environmental
- Operating temperature range: -40°C to +55°C
- Storage temperature range: -45°C to +85°C
- Weather rating: IP67
- Wind survivability: 165 mph
- Shock & vibration: ESTI 300-192-4 spec T41.E
- Transportation: ISTA2A

Approvals
- Safety: TUVus, UL 60950-1:2003, CAN/CSA-C22.2 No. 60950-1-03
- EMC: EN 301 489-03 V1.4.1

Physical Dimensions (without mounting brackets)
- Height: 39 cm
- Width: 36 cm
- Depth: 9 cm
- Weight: 4.6 Kg

Wireless
- IEEE 802.11a compliant
- Mulitple Bandwidth: 10/20MHz
- Frequency bands:
  - Out of the box: 5.470–5.725 GHz
  - Can be extended to 4.900-5.900 GHz by SW.

Modulation
- 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK)

TX Power Maximum (802.11a)
- Default mode:
  - Max. power per antenna: 8 dBm (at all rates)
  - Total EIRP: 30 dBm (from 3 antennas)
- Universal mode (4.9–5.9GHz):
  - Max. power per antenna:19/22 dBm (at 54/6Mbps)
  - Total Directed EIRP: 41 dBm (from 3 antennas)

Antenna Array
- Three 12.5 dBi 120° x 10° vertical sector antennas

RX Sensitivity (typical)

20MHz	
Rate (Mbps)	**Sensitivity (dBm)**
6	-99.5
9	-97.5
12	-96.5
18	-95
24	-92
36	-89
48	-85
54	-83

10MHz	
Rate (Mbps)	**Sensitivity (dBm)**
3	-102.5
4.5	-100.5
6	-99.5
9	-98
12	-95
18	-92
24	-88
27	-85

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