WAVION
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Data Sheet

WBS-5000 Sector Base Station

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Wavion WBS-5000 Sector base station is a new addition to Wavion's advanced broadband base station portfolio, which operates in the 5.4 GHz unlicensed band. The product's operational frequency band can be manually opened to work between 4.9GHz and 5.9GHz, providing much more flexibilty to the operator to avoid interference.

Based on an array of 3 antennas covering a 120° sector and 3 radios, the WBS-5000 Sector leverages Wavion's beamforming technology to provide extended range and superior connectivity in 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 is based on the 802.11a standard, which enables network operators to use any off-the-shelf 802.11a standard based client and thus tailor their solution according to the specific needs of each individual end user.

Based on Wavion's unique and powerful spatially adaptive beamforming technology, theWBS-5000providessignificantperformance gains in terms of range, throughput and interference mitigation.

This enables service providers to offer 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 enables larger network capacity.

- **Superior interference mitigation**
  The inherent spatial filtering of the beamforming technology and the unique dynamic interference handling capabilities ensure good operation even in noisy environments. In addition, the product's ability to work in a wider frequency range and a narrower 10MHz channel bandwidth, increases further its interference immunity and reduces cross base station interference by half.

- **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 increased addressable market per base station, coupled with the low cost CPEs enabled by Wavion's standard based solution, provide the lowest cost per line solution.

- **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 increases significantly 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 digital 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 including:

- Business and residential connectivity
- Municipalities – Metro coverage
- Public safety (video over wireless)
- Backhaul solution for PtP and PtMP applications

Typical application

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 to work at.

When properly installed, the WBS-5000 Sector can provide coverage in a radius of up to 15Km with multiple CPEs in LOS or NLOS conditions.

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

Alternatively, 3 WBS-5000 Sector Base Station can be colocated to provide 360° coverage with triple capacity. The same network can be used for supporting multiple video surveillance cameras.

In some cases you can provide an end to end wireless solution with access at 2.4GHz, based on the WBS-2400, and backhaul based on WBS-5000 Sector in the 4.9-5.9GHz range.

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Specifications WBS-5000 sector:

Security
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)
- 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
- RF: ETSI 301 893 (No DFS)
- 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: 9 cm
- Length: 39 cm
- Width: 36 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)
- ETSI 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 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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