

Beamforming 802.11n  
Interference Immunity  
Fastest ROI

*As far as Wi-Fi can go*

### WBSn Base Stations

WBSn is a family of advanced Gigabit outdoor Wi-Fi base stations operating in the 2.4 and 5 GHz unlicensed bands. WBSn base stations use true two-way spatially adaptive Beamforming together with 802.11n to deliver best range and capacity, addressing the rapidly growing needs for operators to deliver new content-rich services, while maintaining quality of service and profitability.

WBSn base stations enable service providers, governments and enterprises to deliver high quality Wi-Fi services in metro and rural areas, with significantly fewer base stations, and at much lower costs.

### Wavion Technology Edge

#### Beamforming 802.11n, Interference Immunity

WBSn base stations combine Wavion's true two-way Beamforming and interference immunity technologies together with 802.11n 3x3:3 MIMO, delivering best capacity and coverage, with speeds of up to 450 Mbps. WBSn is a new market milestone.

#### Complete Solution

WBSn base stations are available in Omni and Sector form factors, with simultaneous 2.4 and 5 GHz band support, integrated backhauling, and a fully featured built-in Access Controller. WBSn is complemented by Wavion service provisioning, WavioNet management tools, and a span of WCPEs, enabling numerous urban and rural applications at the lowest cost per bit.

#### Carrier Grade

WBSn base stations are carrier grade IP-68, designed to provide the highest reliability, quality of service, security and manageability. WBSn base stations come with a complete set of FCAPS management tools.



Wavion WBSn Base Stations

## WBSn Outdoor Wi-Fi Base Station Family

### Benefits

- **Gigabit Outdoor Wi-Fi**

WBSn base stations support 802.11n with three spatial data streams, for transmitting at speeds of up to 450 Mbps, and maximum aggregated capacity of up to one Gbps per unit with the Enhanced Omni base station.

- **Extended Outdoor and Indoor Coverage**

The true spatially adaptive Beamforming leverages a unique High Gain Diversely Polarized (HGDP) antenna array for maximum performance. With the Beamforming signals traveling in different propagation paths are coherently combined at the receiver's antenna. This increases coverage by up to 50%, enables NLOS connectivity and indoor signal penetration.

- **Carrier Grade**

WBSn base stations are designed for high reliability and manageability, including a robust IP-68 enclosure for harsh environments, security and QoS features, FCAPS management suite, and simple and easy installation. WBSn base stations are designed for integration and homologation with carriers' core.

- **Fastest Return On Investment**

With fewer sites required per covered area, highest network reliability and enhanced service options, WBSn provides up to 50% savings of CAPEX and OPEX and the fastest ROI.

- **Interference Immunity Suite**

With a decade of outdoor Wi-Fi experience, Wavion's Interference Immunity Suite combines the inherent Beamforming ability to suppress interference, the Dynamic Interference Handling (DIH) algorithm that continuously optimizes receiver's parameters according to noise level, the Automatic Channel Selection (ACS) algorithm for best operating channel online selection, the Wavion Rate Adaptation (WARA) for optimal rate selection in environments with high interference, and the capabilities of both Down Tilted Antennas (DTA) and sector antennas to reject noise out of their field-of-view.

- **Rich Embedded Networking**

WBSn base stations include rich embedded networking capabilities, including Bridging, Routing and a fully integrated Access Controller, for flexible service planning and reduced costs.

- **Environmentally Friendly**

WBSn is designed to be environmentally-friendly with low power consumption, fewer sites to power, aesthetic smart design, and green standard compliance.



Seamless Cellular Offloading



Residential and Business Access



Hotels and Resorts



Digital City



Video Surveillance



Internet to School and University

#### Applications

Wavion WBSn base stations enable carriers, internet service providers, governments and private networks to deploy outdoor Wi-Fi networks in metropolitan and rural areas, for a variety of applications:

- **Carriers and Internet Service Providers**

- Seamless cellular offload
- Hot-zone and hot-spots
- Residential and business access
- Rural communities

- **Government and Private Networks**

- Education schools and universities
- Municipal networks and safe cities
- Health
- Hospitality
- Oil and gas
- Industrial and construction sites
- Mining
- Terminal hubs, malls and large venues
- Smart power grid
- Automatic meter reading and telemetry

## WBSn Base Station Configurations

### WBSn Base Station Types

Name*	P/N	Configuration	Capacity	2.4 GHz Radio	5 GHz Radio
WBSn-2400-S-cc	1242050x	Sector	450 Mbps	+	
WBSn-2400-O-cc	1242010x	Omni	450 Mbps	+	
WBSn-2400-E-cc	1242110x	Enhanced Omni	900 Mbps	+	
WBSn-2450-S-cc	1742050x	Sector	900 Mbps	+	+
WBSn-2450-O-cc	1742030x	Omni	900 Mbps	+	+
WBSn-2450-E-cc	1742110x	Enhanced Omni	1350 Mbps	+	+
WBSn-2450-OS-cc	1742040x	Omni-Sector	900 Mbps	+ Omni	+ Sector
WBSn-2450-SO-cc	1742060x	Sector-Omni	900 Mbps	+ Sector	+ Omni
WBSn-5000-S-cc	1502050x	Sector	450 Mbps		+
WBSn-5000-O-cc	1502010x	Omni	450 Mbps		+

\* Shipping availability to be advised

#### Ordering Information

**Country codes:** please specify the destination region with name and P/N by indicating: cc = US/EU/UN/IL/JP/IN and correspondingly x = 1/2/3/4/5/6.

**POE:** P/N 27004003, ordered separately.

**Power cables:** P/N 27001003 for US connector, P/N 27001103 for EU connector, ordered separately.

#### Sector



WBSn-2400-S  
WBSn-5000-S  
WBSn-2450-S

#### Omni



WBSn-2400-O  
WBSn-5000-O  
WBSn-2450-O

#### Combined Sector-Omni



WBSn-2450-OS  
WBSn-2450-SO

#### Enhanced Omni



WBSn-2400-E  
WBSn-2450-E

### WBSn Base Station Specifications

#### Radio

	802.11 b/g/n Radio	802.11 a/n Radio			
Operating band*	2.400 – 2.483 GHz, 13 channels	4.900 – 5.900 GHz, DFS support			
Modulations	802.11n: 3x3 MIMO with 3 spatial data streams 802.11g: OFDM, 802.11b: DSSS	802.11n: 3x3 MIMO with 3 data spatial 802.11a: OFDM			
Data rates	802.11n: MCS0 – MCS23 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11b: 11, 5.5, 2, 1 Mbps	802.11n: MCS0 – MCS23 802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps			
Bandwidth	20 / 40 MHz, 5 MHz steps	5 / 10 / 20 / 40 MHz, 5 MHz steps			
	<b>Sector</b>	<b>Omni</b>	<b>Enhanced Omni</b>	<b>Sector</b>	<b>Omni</b>
Max, transmit power*	Tx power at antenna port: 26 dBm, 1dB steps			Tx power at antenna port: 25 dBm, 1dB steps	
	48 dBm EIRP	43 dBm EIRP	48 dBm EIRP	49 dBm EIRP	43 dBm EIRP
Antenna	HGDP, 12 dBi, 120°	DTA, 7.5 dBi, 30°	HGDP, 12 dBi, 15°	HGDP, 14 dBi, 120°	DTA, 8.5 dBi, 30°

\* Actual operating channels, transmission power and EIRP may reduce for compliance with local regulations (FCC, ETSI, etc.)

#### Hardware Specification

Ports	Ethernet: auto-sensing 10/100/1000 Base-T				
	55VDC Power over Ethernet (only with Wavion POE Injector), feed: 100-240 VAC at 47-63 Hz				
Input power	<b>Sector</b>	<b>Omni</b>	<b>Sector-Omni/Omni-Sector</b>	<b>Enhanced Omni</b>	
Power Consumption** (Nom./Max.)	19/23W, single band 27/35W, dual band	19/23W, single band 27/35W, dual band	27/35W, dual band	44/56W, single band 59/75W, dual band	
Dimensions (L x W x H)	38cm x 14cm x 39.5cm	38cm x 14cm x 9.5cm (excluding antennas)	38cm x 14cm x 43.5cm (excluding antennas)	44.5cm x 41.5cm x 46cm	
Weight	2.6 kg	1.8 kg	3.75 kg	7.6 kg	

\*\* May be lower with different regulations such as ETSI.

#### Software Features

- Virtual APs (VAPs) per band
- WDS
- QoS:  
WMM with four priority queues  
Prioritization: VLAN, DSCP and IP TOS
- VLAN support :  
VLAN termination, VLAN trunk (multiple VLANs per VAP), QinQ, Dynamic VLAN assignment by RADIUS
- Bridge and Router \*\*\* modes
- Built-in Access Controller \*\*\*
- Built-in accounting \*\*\*

#### Security

- **Wireless Security:**  
Open, WEP, 802.11i (WPA, WPA2)
- **Authentication:**  
Pre-Shared-Key (PSK) and  
802.1X-RADIUS (supporting EAP-TLS,  
EAP-TTLS, PEAP, EAP-AKA, EAP-SIM)
- **Encryption:** WEP, TKIP, AES
- **Network securities:**  
Broadcast/multicast limiters  
Peer-to-peer traffic blocking option  
Access Control List (ACL)

#### Management

- SNMPv2c
- HTTP/HTTPS

#### Environmental Specifications

- **Operating temperature:** -40° to 55°C
- **Storage temperature:** -40° to 85°C
- **Humidity:** 0 to 95 % non-condensing
- **Enclosure:** IP-68, corrosion-resistant
- **Wind survivability:** 165 Mph
- **Shock and vibration:** ESTI 300-192-4, T41.E
- **Transportation:** ISTA2A

#### Approvals

- **Radio:** FCC 47 CFR part 15, Class C, EN 302 502, EN 301 893, EN 300328
- **Safety:** MET tested to UL 60950-1:2003, CAN/CSA-C22.2 No. 60950-1-03 and EN 60950-1, IEC 60950-1, IEC 60950-22
- **EMC:** 47 CFR Part 15, Class B (USA), EN 301489-1, EN 300328
- **Green:** ROHS, WEEE

\*\*\* These features require licenses.