alvarion ®

WBSn

carrier-grade Wi-Fi solution

Product Highlights

○ Licensed Exempt frequencies: 2.4 GHz and 2.4/5 Ghz

○ 802.11n 3x3:3 MIMO

○ Spatially adaptive Beam forming

○ Up to 450 Mbps per band (900 Mbps for both bands)

○ FCC or ETSI compliance

○ Omni or Sector Antenna

Main Segments

○ Corporate/Enterprise
○ Mining
○ Oil & Gas
○ Transportation
○ WISP

○ Utilities
○ Education
○ Public Safety

WBSn Wi-Fi Base Station Family

Overview

Alvarion's powerful beamforming technology allows WBSn enables the construction of scalable Wi-Fi networks with Quality of Service (QoS), security and high service reliability. WBSn base stations are HW-ready for advanced Passpoint™ capable hotspots and include a rich set of networking features for core integration with cellular and fixed-line operators.

The WBSn solution ensures that carriers, service providers, governments and enterprises are able to deploy their wireless networks quickly and effectively with significantly fewer base stations, and at much lower costs.

Alvarion Technology Edge

Beamforming 802.11n, Interference Immunity

WBSn base stations combine two-way Beamforming 802.11n and interference immunity technologies together with 3x3:3 MIMO, delivering best capacity and coverage, with speeds of up to 450 Mbps per band.

Complete Solution

WBSn base stations are available in outdoor, Omni and Sector form factors, with simultaneous 2.4 and 5 GHz band support, for concurrent access in 2.4 and 5 GHz. WBSn is complemented by service provisioning, management tools, enabling numerous urban and rural applications at a lower cost per bit.

Carrier-Grade

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

WBSn is a family of advanced carrier-grade WiFi base stations enhanced with unique two-way Beamforming 802.11n, interference immunity suite and 3x3:3 MIMO.

With powerful 2.4 and 5 GHz radios, WBSn delivers up to gigabit capacity and robust connectivity under challenging conditions of interference, Non-Line-of-Sight (NLOS) and outdoor-to-indoor penetration.

WBSn Base Station Family

Omni	Sector	Combined Sector-Omni
WBSn-2400-O	WBSn-2400-S	WBSn-2450-OS
WBSn-2450-O	WBSn-2450-S	WBSn-2450-SO

Benefits

○ **Gigabit Wi-Fi**
WBSn base stations support 802.11n with three spatial data streams, for transmitting and receiving at speeds of up to 450 Mbps per band, and maximum aggregated capacity of up to one Gbps.

○ **Extended Outdoor and Indoor Coverage**
The true spatially adaptive Beamforming leverages a unique High Gain Diversely Polarized (HGDP) antenna array for maximum performance. 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 Wi-Fi**
WBSn base stations are designed for high reliability and manageability, including security and QoS features, FCAPS management suite, easy installation and a robust IP-68 outdoor units for harsh environments. WBSn base stations are equipped with rich set of networking features designed for core integration and homologation with cellular and fix-line operators.

○ **Fastest Return On Investment**
With fewer sites required per covered area, high network reliability and enhanced service options, WBSn provides up to 50% savings of CAPEX and OPEX and a faster ROI.

○ **Interference Immunity Suite**
Alvarion'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 Wi-Fi Rate Adaptation (WARA) for optimal rate selection in environments with high interference, and the capability of the sector antenna to reject noise out of the base station field-of-view.

○ **Rich Embedded Networking**
WBSn base stations incorporate 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.

Applications

Mobile Data Offloading and Hotspots	Hotels and Resorts
Residential and Business Access	Malls and Large Retail Stores
Wi-Fi Wholesale	Hospitals
Managed Wi-Fi Services	Industrial Areas
Rural Broadband	Smart Cities
Campus Coverage	Smart Utilities

Configurations, Ordering Information and 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	
Modulations	802.11n: 3x3 MIMO with 3 spatial data streams 802.11g: OFDM 802.11b: DSSS		802.11n: 3x3 MIMO with 3 spatial data streams 802.11a: OFDM	
Data rates	802.11n: MCS0 – MCS23 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps		802.11n: MCS0 – MCS23 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
Bandwidth	20 / 40 MHz, 5 MHz steps		20 / 40 MHz, 5 MHz steps	
Outdoor WBSn	**Sector**	**Omni**	**Sector**	**Omni**
Max, transmit power ** **at antenna port**	26 dBm, 1dB steps		26 dBm, 1dB steps	
Max EIRP	48 dBm	43 dBm	49 dBm	43 dBm
Antenna	HGDP 12 dBi 120°H x 16°V	7.5 dBi 360°H x 20°V	HGDP 14 dBi 120° H x 8°V	8.5 dBi 360°H x 10°V

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

Hardware Specification

Ports	Ethernet: auto-sensing 10/100/1000 Base-T		
	Sector	**Omni**	**Sector-Omni / Omni-Sector**
Power over Ethernet (PoE)	55VDC (only with Alvarion POE Injector) feed: 100-240 VAC at 47-63 Hz		
Power Consumption ** (Nom./Max.)**	19/23W, single band 22/30W, dual band	19/23W, single band 22/30W, dual band	22/30W, 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)
Weight	2.4 kg single band 3 kg dual band	1.4 kg single band 2 kg dual band	3 kg
Additional weight	Post clamp 0.4 kg	Antennas: 0.2 kg Post clamp: 0.4 kg	Antennas: 0.2 kg Post clamp: 0.4 kg

** May be lower under different regulations such as ETSI.

WBSn Base Station Specifications

Software Features

- **Virtual APs (VAPs) per band**
- **WDS**
- **QoS**
  WMM with four priority queues
  Prioritization: VLAN, DSCP
- **VLAN support: 4095**
  VLAN termination, VLAN trunk (multiple VLANs per VAP), QinQ, Dynamic VLAN assignment by RADIUS
- **Bridge and Router*** modes**
- **Built-in Access Controller*****
  Portal redirection, walled garden, accounting, Service Level Agreement (SLA)
- **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, AES
- **Network securities:**
  WiFi client isolation, Access Control List (ACL)

*** These features require licenses

Management

- SNMP
- HTTP/HTTPS

Environmental Specifications

- **Outdoor WBSn**
  - Operating temperature: °40- to °55C
  - Storage temperature: °40- to °85C
  - Humidity: 0 to 95 % non-condensing
  - Enclosure: IP68-, corrosion-resistant
  - Wind survivability: 165 Mph

Approvals

- Radio: FCC 47 CFR part 15C, EN 502 302, EN 893 301, EN 328 300
- Safety: UL 1:2007-60950, UL 22:2007-60950 CAN/CSA-C22.2
- EMC: EN 489 301
- Transportation: ETSI EN 2-2-019 300, ETSI EN 4-2-019 300 V2.1.2
- IEC 29 ,64-2-60068
- MIL-STD810-
- IP68 - IEC 60529
- Green: ROHS, WEEE

Configurations and Ordering Information

WBSn Base Station Types

Name	P/N	Configuration	Data Rates	Users	2.4 GHz Radio	5 GHz Radio
WBSn-2400-S-cc	1242050x	Sector	450 Mbps	256 users	+	
WBSn-2400-O-cc	1242010x	Omni	450 Mbps	256 users	+	
WBSn-2450-S-cc	1742050x	Sector	900 Mbps	512 users	+	+
WBSn-2450-O-cc	1742030x	Omni	900 Mbps	512 users	+	+
WBSn-2450-OS-cc	1742040x	Omni-Sector	900 Mbps	512 users	+ Omni	+Sector
WBSn-2450-SO-cc	1742060x	Sector-Omni	900 Mbps	512 users	+ Sector	+Omni

- Country codes: please specify the destination region with name and P/N by indicating:
  cc = US/EU/UN/IL/JP/IN and correspondingly x = 6/5/4/3/2/1.
- PoE for outdoor WBSn: AC POE P/N 27004003 or DC PoE P/N 27004103 ordered separately.
- Power cables for outdoor WBSn: P/N 27001003 for US connector, P/N 27001103 for EU connector, ordered separately.

About Alvarion Technologies

○ Alvarion's mission is to provide state-of-the-art wireless solutions that bring individuals, groups, and communities closer together.

○ Alvarion provides wireless-based end-to-end solutions including HW infrastructure and SW based applications. It has designed and

○ manufactures a range of Wi-Fi solutions, wireless-based Point-to-Point and Point-to-Multipoint technologies.

○ With over 25,000 sites in over 95 countries, Alvarion's wireless portfolio has a proven record of reliability and performance.

○ Alvarion focuses on smart cities, high density events, cellular operators and ISPs worldwide as well as government agencies and enterprises.

○ Alvarion's wide network of distributers and integrators enables market presence and brand recognition across the world.