

Dual Radio & Wireless Bridge/AP/Switch Mesh Node WAP-2450



WAP-2450

WAP-2450 is a high performance dual radio & dual standard wireless bridge / AP / Switch mesh node system that, having two independent radios inside, provides high capacity, high-speed point-to-point links and point-to-multipoint coverage for a large-scale IP enterprise.

The WAP-2450 system utilizes advanced technologies to support optimal performance in spectrally polluted environments. WAP-2450 products a compliant to the IEEE 802.11 b/g and IEEE 802.11 a/h standards operating in Time Division Duplex (TDD) mode, using also Orthogonal Frequency Division Multiplexing (OFDM) modulation with Forward Error Correction (FEC) coding. Using the enhanced multi-path resistance capabilities of OFDM modem technology, WAP-2450 enables operation in near and non-line-of-sight (NLoS) environments. Thanks to the Atheros SuperG/AG Dynamic Turbo and the eXtended Range (XR) operating modes the WAP-2450 system is capable to deliver extremely high-capacity at the largest RF bandwidth and the highest receiver sensitivity at the lowest bandwidth. These qualities enable service providers to reach a previously inaccessible and broader segment of the subscriber's population. The system also features adaptive modulation for automatic selection of modulation schemes, including BPSK, QPSK, 16 and 64 QAM to maximize data rate and improve spectral efficiency, as the legacy Baker DSSS and Walls CCK of the early IEEE 802.11b Standard.

WAP-2450 mesh nodes can enhance privacy and mesh performance by separating traffic and directing it onto specific VLAN routes. The WAP-2450 mesh supports 802.1q VLAN tagging of packets entering and exiting the mesh.

WAP-2450 mesh nodes provide internetworking compatibility at Layer 2 (Ethernet). This enables the creation of a WAP-2450 wireless mesh network that behaves as an Ethernet switch, which is fully compatible and interoperable with all Ethernet switching and routing protocols (including VPN tunnels, VLANs, OSPF, BGP, ISIS, OSLR, RIP, Multicast, etc.). This capability allows multiple wireless mesh networks, potentially from different vendors, to be inter-networked at Layer 2 or Layer 3. Intermediate System-to-Intermediate System (ISIS) based path selection protocol allows you to use WAP-2450 in large-scale IP enterprise, carrier, and service provider networks.

Where allowed by applicable radio regulations, WAP-2450 supports the use of 40 MHz frequency channels. When using 40 MHz (instead of 20 MHz) the WAP-2450 increases, and quite double, the net throughput of the link. Instead, the eXtended Range (XR) operating mode enable the use of 10 MHz and 5 MHz frequency channels, that allow the WAP-2450 to deliver link range and coverage up to 2-3 times bigger. For high performance, WAP-2450 offers a very good throughput: standard 20 MHz channel with more than 30 Mbps, and turbo dynamic 40 MHz channel with more than 60 Mbps. It also supports XR (extended range) options, header compression.

Features at a glance

- Intel XScale® NPU with Hardware Encryption and Linux Based True Open Platform & Flexible Solution
- Outdoor rugged Carrier Class IP 68 Metal Molded Case - Method MIL 509.4 & MIL 510.4 Tested
- Extended Temperature Range -25 to +70 °C
- Built-in 20 kA LAN/Ethernet ports Lightning Protectors
- Two independent High Performance NLoS OFDM Unlicensed Radio with 108 Mbps Dynamic Turbo
- State-of-The-Art Active Filter LNA
- Two independent 10/100BaseTX LAN ports with standard PoE IEEE 802.3af
- Redundant High Resilient 2+0 P2P Configuration
- HTTP/HTTPS/Telnet/CLI/Full SNMP V1-V3 Remote Managements
- Frequencies: 2.312-2.484 GHz or 4.8-5.925 GHz.
- Dynamics Frequency Selection (DFS)
- Support following protocols and standard: IEEE802.3u, 802.1d, 802.3ad, 802.1q-2005, 802.11x, VLAN, VPN, QoS, COS
- Support Ad-hoc, self-forming, self-healing network.
- Support maximum throughput of at least 54 MBit/Sec
- Use OFDM (with Adaptive Rate Modulation). Different selectable modulation: BPSK, QPSK, 16 QAM, 64 QAM
- Encryption: WEP 64/128/152, AES-PSK/AES-EAP 152, TKIP-PSK/TKIP-EAP
- Forward Error Correction (FEC)
- Optional Antenna: 28 dBi panel antenna or up
- Maximum working temp: 70 Degree Celcius
- Industrial Standard: FCC, EN-301, EN-60950 (safety), EN-50385 and more.
- Protocols with WDS, OSPF, BGP, ISIS, OSLR mesh
- Over-the-Air firmware upgrade and configuration backup/restore
- Wi-Fi Forum Compliant Solution for WISP Application & Hot-Spot MAN Networks
- AP, Bridge, Repeater, WDS Auto Mesh Capability
- Wireless Router, Firewall and NAT, Virtual Server
- Unlimited Multi SSIDs (Virtual AP/Bridge) with VLANs mapping or IP domain routing *isolation*
- IEEE 802.11i, IEEE 802.1x RADIUS Compliant
- WMM / pre-IEEE 802.11e Multimedia Protocol Compliant
- WiMAX TDD and MIMO Gen3 Upgradeable

The **WAP-2450** is geared to satisfy all the common needs and featured to be compliant with the most recent applications of the new Metropolitan Wireless Internet Service Provider (MAN WISP) and of the emerging Wireless Wi-Fi VoIP Service Provider (WVoIP ISP).

All has been designed having in mind with real expected applications that the WISPers or the WVoIP ISPs will deal with, staying focused on the real key and needed features for reliable and low cost MAN unlicensed radio networks. The IP 68 sealed metal rugged case, the extended temperature range, the standard PoE powering system, as all the integrated security features, guaranty high MTBF, short MTTR, low power consumption and no safety hazardous or healthcare SAR related risks.



Platform	WAP-2450
Outdoor Unit Case	Rugged All-Weather IP 68 Metal Molded Case Method 509.4 & 510.4-MIL-STD-810F Tested (When applicable)
CPU and Memory	Intel XScale 425 @ 266 MHz with 64 MB DRAM & 16 MB Flash
Expansion Slots	2 x Mini-PCI @ 66 MHz
Data Ports	2 x 10/100BaseTX Fast-Ethernet ports with IP 68 Connectors Auto-sensing & Auto MDI / MDI-X Capability 20 kA Built-in Lightning Protectors
Serial Port	1 x RS 232C port with IP 68 Connector
System Control	2 x JTAG (Internal connectors)
Power	Power over Ethernet (PoE), 48VDC 1A, Standard IEEE 802.3af cabling. Max consumption 30 W
Environmental Operation	From -25 to + 70 °C and IP 68 Outdoor Unit (Equipment) From 0 to +40 °C and IP 30 Indoor Unit (PoE)
Dimension and Weight	27 x 20 x 7 cm, 2.7 kg (Storage from -40 to +85 °C)
Mesh Protocols	
Types	<ul style="list-style-type: none"> • L2 WDS Protocol • L3 routing protocol (OSPF, BGP and ISIS) • L3 mesh protocol OSLR
Radio: 2 independent	WAP-2450 with Atheros AR5213 / AR5112 / AR5414
Frequency Band	From 2.312 to 2.484 GHz and from 4.8 to 5.925GHz All Major Country Sub-Bands Supported: EU, US, JP, CN
Radio Protocol	IEEE 802.11b/g, IEEE 802.11a/h, Atheros 108 M Turbo
Advanced Feature	ETSI DFS & ATPC, Atheros SuperG/AG & XR
Main RF Output Power & Sensitivity	802.11a -108M Turbo: Out +15dBm, Sensitivity -69dBm 802.11a/h - 54M Standard: Out +15dBm, Sensitivity -71dBm 802.11g - 54M Standard: Out +17dBm, Sensitivity -71dBm 802.11b - 11M Standard: Out +19dBm, Sensitivity -89dBm 802.11b - 1M Standard: Out +20dBm, Sensitivity -99dBm
Noise Figure	5.5 +/- 1 dB (Atheros); < 2 dB (2.4GHz)
Max Allowed RF Input Power	-30 ~ -50 dBm
RF Connector	2 x N-type (F) Low Loss IP 68 Connectors
Regulatory Compliant and Certifications	
Safety	EU EN 60950, US UL 1950
Lightning Protection	EU EN 61000-4-5
EMC-EMI	EU ETSI EN 301 489-1, US FCC 15 B
Radio	EU ETSI 300 328, ETSI EN 301 753, ETSI EN 301 021