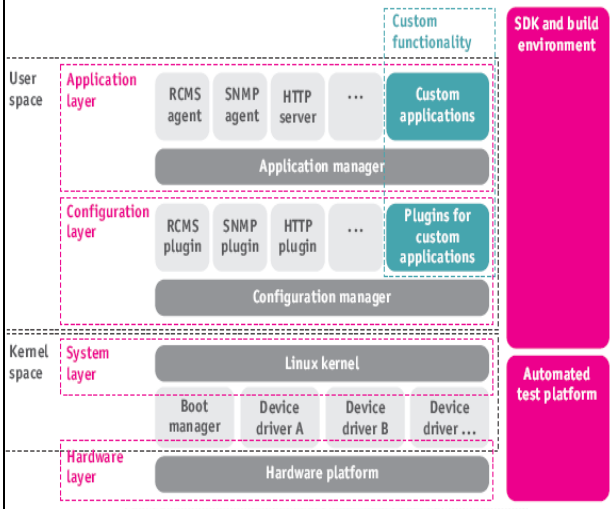
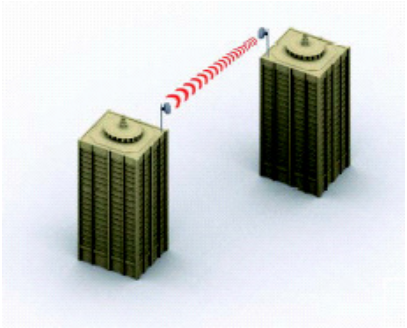
SkyLink™

SkyLink™ BH 4.9/5.8Ghz





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SkyLink™ 4.9/5.8 Ghz Band, is a Dual Radio rugged embedded Wireless platform suited Enterprise to implement highly functional, High Capacity Wireless, secure and manage wireless IP networking devices:

Dual Secure link Ethernet Bridge Point to Point Backhaul, Wireless Bridge, WiMAX customer premise equipment, point-to-point and point-to-multipoint wireless bridges, wireless mesh repeaters and 802.11a access points high performance.

SkyLink™ 4.9/5.8 Ghz Band was originally developed for the 400 MIPS, ARM920 CPU, 300Mhz . Hardware encryption acceleration is fully exploited on this processor.

SkyLink™ 4.9/5.8 Ghz Band passing up to 94 Mbit real TCP throughput.

SkyLink™ 4.9/5.8 Ghz Band scalable nature, allowed operate and integrate with other hardware plataforms like Atheros SoC AR2312, AR5312 (MIPS) and Kendin KS8695 SoC (ARM9), Intel IA-32 and other popular networking platforms.

The embeddable software is able to function on very constrained hardware that has 32MB of RAM and up 8 MB of flash memory. Latter amount of RAM and flash memory is sufficient for a fully functional 802.11a, extended networking and wireless security capabilities. This makes **SkyLink™** a great platform for a wide range of wireless network equipment: ranging for secure fixed wireless networks and Backhaul of high throughputs.

SkyLink™ 4.9/5.8 Ghz Band incorporates state of the art security functionality such as WPA, WPA2, AES-CCM & TKIP Encryption, 802.1x, 64/128/152bit WEP or . Security policy settings can be applied per BSSID or interface basis.

SkyLink™ 4.9/5.8 Ghz Band provides integrated hardware acceleration for security applications. It implements AES-CCM data encryption algorithms, in addition to SHA-1 and MD5 authentication algorithms, typically used in applications such as VPNs. 802.11 and 802.11a wireless applications also benefit from the network processor's ability to accelerate RC4-based WEP services and AES-CCM mode operations.

VLAN, tunneling and per interface network policies allow creation of very flexible network structures where the same hardware infrastructure can be used for public access with WEB login and WPA2 protected company network. Please refer to the list of **SkyLink™** functionality.

SkyLink™ 4.9/5.8 Ghz Band was designed to address wireless network management problems as well. At the heart of **SkyLink™** management subsystem is a simple text based configuration file and the RCMS (Remote Configuration Management System) agent, which in pair with an RCMS server creates a structure for fast wireless network deployment and robust administration.
Add other features, RCMS server has automatic provisioning, automatic configuration file and firmware image upload capabilities. RCMS agent can bypass most firewall and NAT protected routers without additional configuration.

SkyLink™ 4.9/5.8 Ghz Band has common management interfaces such as WEB, command line, SNMP and SYSLOG for troubleshooting.

SkyLink™ 4.9/5.8 Ghz Band support 01 Radio Cards for 802.11a, 802.16x Wimax, 3G routers.

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Networking Software Platform Functionality summary

Supported Standards

- IEEE 802.11a
- IEEE 802.11i
- IEEE 802.11d - Country element support
- IEEE 802.11e - Enhancements: QoS, including packet bursting (WMM)
- IEEE 802.11h - 5 GHz spectrum,
- DCS/DFS, TPC
- IEEE 802.11j - Country element support

Wireless functionality

- Wireless MESH with Virtual AP (MBSSID)
- Multiple wireless interfaces
- Per virtual AP (MBSSID) wireless security settings
- Association limitation per Virtual AP (MBSSID)
- Automated channel selection
- Antenna diversity control
- Output power control
- Wireless distribution system (WDS)
- Open client mode
- Secure client mode with WEP, WPA, WPA2 PSK and enterprise (dynamic key) with 802.1x supplicant
- Half and quarter rate channels support
- FCC security band support

Wireless Security

- WPA/WPA2 personal and enterprise (with dynamic key from remote RADIUS server) TKIP, AES (CCMP)
- Secure WDS mode, WDS inter access point traffic is secured by WPA/WPA2 in personal or enterprise modes
- Static and dynamic WEP
- 802.1x with EAP-MD5, EAP-TLS, EAP-PEAP, EAP-TTLS, EAP-SIM, EAP-LEAP
- Layer 2 intra and inter access point client isolation
- SSID broadcasting supresión
- Static wireless Access Control List, MAC address filtering

Networking

- VLAN tagging, up to 4096 VLAN tags
- VLAN pass-through
- Bridging, spanning tree protocol (STP)
- IP routing
- DHCP server, client, relay
- DNS relay/proxy
- NTP and internal clock support
- Per VLAN, Virtual AP (MBSSID), IP tunnel or physical interface networking settings
- 802.1x authenticator
- 802.1x supplicant
- MAC filtering per interface
- IP filtering per interface
- Stateful inspection firewall
- Digital certificates for device identification
- IPSec with static keys and dynamic re-keying, hardware acceleration for IXP-42x platform
- Multiple GRE tunnels
- NAT/NAPT/ IP masquerading per interface and VLAN/Virtual AP (MBSSID)
- Diffserv with 802.1p mapping for WMM queues

Public Access

- WEB login redirection (captive portal)
- •PAP/CHAP/MSCHAP/MSCHAPv2)
- SMTP redirection
- Static and dynamic white and black lists
- RADIUS client has support for multiple authentication and accounting RADIUS servers
- RADIUS accounting client supports fail over and backup modes
- RADIUS authentication client supports fail over mode
- Per virtual AP (MBSSID) RADIUS, DHCP and NAT configuration
- WISPr RADIUS attributes support with per user dynamic bandwidth management
- Client IP connection logging to remote SYSLOG server.

Management

- WEB management via HTTPS
- Command line management via SSH and serial console

- Configuration file upload via HTTPS and FTP
- RCMS configuration, firmware management and status reporting agent with NAT/Firewall traversal functionality
- Subnet or VLAN for management traffic
- Management access control list
- Administrator authentication via RADIUS or TACACS
- SNMP V1/2/3
- SNMP Traps
- Supported MIB's: 802.11, 802.1x, MIBII, RADIUS authentication, RADIUS accounting
- SYSLOG support including remote servers and debug levels
- Dual firmware images and TFTP firmware recovery from boot loader if both firmware images were damaged

Operating System and Development Environment

- Linux kernel 2.6.18 XScale, ARM9, MIPS, IA-32
- uClibc
- Busybox utility set
- Supported file systems JFFS2, Cramfs, Squashfs

Open source development tools GNU compiler collection (GCC), GNU Make. Software Configurator is a standalone JAVA application and is supposed to be run on administrator desktops. This way it is possible to create device configurations without having physical devices turned on. JAVA solution enables running Software Configurator on the most popular Operating Systems with JAVA support (Microsoft Windows, Linux, Solaris etc.). Software Configurator is available as a free download for registered users.

SkyLink™

Interface	
Ethernet Interface	10/100 base-T Ethernet (RJ-45) with PoE
Wired LAN Protocol	IEEE 802.3 (CSMA/CD)
Wireless Interface	OFDM, TDD
Radio Ports	02 Radio Cards 802.11a, 802.11n, 802.16x
Wireless LAN Protocol	IEEE 802.11a, Atheros 802.11a, 802.11n, 802.16x, WPM (Wireless Polling MAC)
Radio	
Supported Frequencies (User Configurable)	Europe (ETSI): Ban 4.9 Ghz, 5500-5700 MHz (11 channels) with DFS (Dynamic Frequency Selection) USA (FCC): Band 4.9 Ghz , 5745-5825 MHz , with DFS (Dynamic Frequency Selection) UK (OFCOM FWA): Band 4.9 Ghz, 5735-5835 MHz (4 channels) with DFS (Dynamic Frequency Selection)
Modulation Technique	BPSK, QPSK, 16QAM, 64QAM
Link	Over the 70 Kms LOS (varies in nLOS, NLOS) with External Antenna.
Channel Width	User Selectable – 802.11a: 20 MHz, 10 MHz or 5 MHz, 802.11a Turbo: 40 MHz
Bit Error Rate (BER)	Better than 10-5
Output Power	Up 27~28 dbm Radio, User Selectable Power Levels, TPC (Transmit Power Control)
Antenna	Dual N Connector
Bit Data Rate	108 Mbps: 2 x Atheros ® 54 Mbps,48 Mbps,36 Mbps,24 Mbps,18 Mbps,12 Mbps,9 Mbps,6 Mbps
Receive Threshold	-74 dBm -77 dBm -83 dBm -86 dBm -90dBm -91 dBm -93 dBm - 94dBm
System	
Software Management	- WEB management via HTTPS; - Virtual AP tagging to VLAN's; - Multiple virtual AP; - Different security settings per virtual AP; - Bridge with WDS; - UAM configuration per virtual AP; - Wireless ACL configuration; - RCMS agent configuration and SNMP; - Integrated hardware acceleration of popular cryptography algorithms (DES, 3DES, AES) for protected applications.
Processor	400 MIPS ARM920 RISC processor, 300Mhz.
Memory	32 MB SDRAM
Flash	8 MB.
Throughputs	Up 94 Mbps, includes encryption/decryption for DES, 3DES and AES, 50 thousand packets per second.
Software	Software suite – a carrier - grade platform with an array of industry-leading security and management features not present on the market today
Ethernet	1 x 10/100 TX Ethernet Ports
I/O	Fast Ethernet.
Temperature / Humidity	Temperature -40℃ to +95℃ / 5% to 95% (non-condensing)
Electrical	PoE, 9-24 VDC
Upgrade	Firmware Factory and update free lifetime.
Electrical Protection	Up 15 kV protection
Enclosure	AL IP67 Rated, Outdoor montable, Weather Protected, Highly Rugged.
Regulatory	Certification: FCC/CE/RoHS Compliance