

## Model No. WCB1215H5DX

### Wireless-N/A, 5Ghz, 500mW Outdoor AP Bridge

### (Built-in 15dBi Dual Polarization Directional Antenna )



#### High Lights

- IEEE 802.11n Compliance in 2Tx / 2Rx Design
  - Support IEEE 802.11n and 802.11a
  - Operates in the 5GHz ISM Band
  - Built in 15dBi , 5GHz (H60, E30) Dual Polarization Directional Antenna
  - Enables Bandwidth of up to 300Mbps(Tx), 300Mbps(Rx) link rate
  - Topology : Point to Point ; Point to Multi Point
    - Access Point Mode : Pure Access Point Function and Access Point /Bridge(WDS) Function
    - WDS Mode
    - CPE Mode (Router Client )
    - **Universal Repeater + Client Bridge Mode**
  - Security with 802.1X, WPA, and WPA2
  - Support QoS & WMM
  - Integrated Power over Ethernet (PoE)
  - Multiple Virtual AP & Capability of Client Isolation
  - Business-class WLAN Security and Client Authentications
  - Provide Advanced Wireless Setting
  - Support Web Management and SNMP MIB II
  - Client Isolation Through Layer 2 VLAN Technology
- Two administrator accounts for manager authorities

- WISP Centralized Management for per-subscriber rate limiting features (CPE Mode)
- QoS(Quality of Service) for bandwidth management and traffic prioritization

WCB1215H5DX is the point of connection to Wireless Outdoor Network for service provider deploying last mile services to business or residential broadband subscribers.. Network administrators can create multiple subscriber service tier using per-subscriber rate limiting features, and manage centrally. WCB1215H5DX outdoor WISP bridge utilizes a 500mW high power with a Built-in 5 GHz 14dBi patch antennas . WCB1215H5DX may connect to the WiFi mesh or WDS infrastructure and provides the subscriber with an Ethernet connection for a local access .

WCB1215H5DX outdoor high power Bridge can be used for seven different purposes in four different modes. In the AP mode, it can be deployed either as traditional fixed wireless Access Point(AP), or combination of AP and WDS(AP+WDS). In the WDS mode, it's only used to expand or bridge Ethernet networks and deployed as a main base, relay based or remote base station. In the CPE mode, it connects to Wireless Internet Service Provider's(WISP) outdoor network via wireless WAN gateway to access to Internet. In the Universal Repeater mode, it connects to Wireless Internet Service Provider's(WISP) outdoor network via wireless or wired bridge to access to Internet

- 1) Access Point : It can be deployed as a traditional fixed wireless Access Point
- 2) Repeater: To expand wireless service by repeating prior AP
- 3) WDS : It can be used to expand Ethernet network via wireless WDS Link
- 4) AP+WDS: Not only to extend Ethernet network, but also provide wireless access to the expanded network
- 5) CPE (Customer Premises Equipment): It is a wireless gateway with NAT and DHCP Server functions to connects to Wireless Internet Service Provider's (WISP)
- 6) Universal Repeater : It is a wireless repeater or bridge to connects to Wireless Internet Service Provider's (WISP)

## Specifications

### ■ Wireless Architecture Mode

- **AP Mode (AP + WDS)**

It can be deployed as a tradition fixed wireless Access Point and provides WDS link to expand network

- **WDS Mode (PtP, PtMP, Repeater)**

An access point can be either a main, relay or remote base station. A main base station is typically connected to a wired network via the Ethernet port. A relay base station relays data between main base stations and relay stations or remote base stations with clients. A remote base station is the end point to accept connections from wireless clients and pass data upwards to a network wirelessly. In this mode, it can support single or multiple WDS links and no wireless clients **can** associate with it though.

- **CPE Mode (Router Client)**

It can be used as an Outdoor Customer Premises Equipment (CPE) to receive wireless signal over last mile application, helping WISPs deliver wireless broadband Internet service to residents and business customers. In the CPE mode, WCB1215H5DX is a gateway enabled with NAT and DHCP Server functions. The wired clients connected to WCB1215H5DX are in **different** subnet from those connected to Main Base Station, and, in CPE mode, it **does not** accept wireless association from wireless clients.

- **Universal Repeater + Client Bridge Mode**

It can be used as an Universal Repeater to receive wireless signal over last mile applications, helping WISPs deliver wireless broadband Internet service to new residential and business customers. In this mode, the wired clients of WCB1214H2PX are in **the same** subnet from Main Base Station and it **accepts** wireless connections from client devices.

## ■ Networking

- Support Static IP, Dynamic IP(DHCP Client) and PPPoE on WiFi WAN Connection
- Support three reconnect mode on PPPoE : Always On, On Demand and Manual
- Support PPTP/L2TP Pass Through
- MAC Cloning
- **DHCP Server ( for CPE Mode and Client Bridge Mode )**
- 802.3 Bridging
- **Masquerading (NAT) (for CPE Mode)**
- **Support UDP**
- **Support RTS /RTS**
- Proxy DNS
- Dynamic DNS
- NTP Client
- Virtual DMZ
- Virtual Server (Port Forwarding)
- Support MAC Filter

- Support IP Filter
- Bandwidth traffic Shaping

## ■ Wireless Feature

- Transmission power control : 1~100 %
- Channel selection : Manual or Auto
- No of associated clients per AP : 32
- Setting for max no associated clients : Yes
- No. of ESSID (Virtual AP ) : 7
- No. of Max. WDS setting : 4
- Preamble setting : Short/ Long
- Setting for 802.11a/n mix or 802.11a only
- Setting for transmission speed
- Dynamic Wireless re-transmission
- IEEE802.11f IAPP (Inter Access Point Protocol), hand over users to another AP
- IEEE 802.11i Preauth (PMKSA Cache )
- IEEE 802.11h - TPC(Transmission Power Control) and DFS(Dynamic Frequency Select)
- IEEE 802.11d -Multi country roaming
- Wireless Site Survey
- Channel Bandwidth setting : 20MHz or 20/40MHz
- HT Tx/Rx Stream selection : 1 or 2
- A-MSDU and A-MPDU support
- Maximal MPDU density for TX aggregation setting
- Short Slot support
- RTS Threshold and Fragment Threshold support
- **IGMP Snooping v1,v2,v3 support**

## ■ Authentication/ Encryption (Wireless Security)

- Layer 2 User Isolation
- **Layer 2 AP Isolation**
- Blocks client to client discovery within a specified VLAN
- WEP 64/ 128 Bits
- EAP-TLS + Dynamic WEP
- EAP-TTLS + Dynamic WEP
- PEAP/ MS-PEAP+Dynamic WEP
- WPA (PSK +TKIP)

- WPA (802.1x certification + TKIP)
- 802.11i WPA2 (PSK + CCMP/ AES)
- 802.11i WPA2 (802.1x certification + CCMP/ AES)
- Setting for TKIP/ CCMP/ AES key's refreshing period
- Hidden ESSID support
- Setting for "Deny ANY " connection request
- MAC Address filtering (MAC ACL)
- No. of registered RADIUS servers : 1
- VLAN assignment on ESSID
- Support WEP, AES and TKIP data encryption over WDS link

## ■ Quality of Service

- **Download and Upload traffic control**
- **Packet classifications via DSCP (Differentiated Services Code Point)**
- **Control Policy by IP/IP Ranges/ MAC Group/ Service**
- **Layer-7 Protocol Support**
- **Traffic Analysis and Statistics**
- **No. of Max. Policy setting : 10**
- DiffServ/ TOS
- IEEE802.1p/ COS
- IEEE 802.1Q Tag VLAN priority control
- IEEE802.11e WMM

## ■ System Administration

- Intuitive Web Management Interface
- Password Protected Access
- Firmware upgrade via Web
- Reset to Factory Defaults
- Profiles Configuration Backup and Restore
- One-button-click to reset factory default
- Two administrator accounts
- Remote Link Test – Display connect statistics
- Full Statistics and Status Reporting
- NTP Time Synchronization
- Even Log
- Support SNMP v1, v2c, v3

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- SNMP Traps to a list of IP Address
- Support MIB II
- CLI access via Telnet and SSH
- Administrative Access : HTTP and [HTTPS](#)
- [UPnP \(Universal Plug and Play\)](#)

Hardware Specification	
Base Platform	Ralink RT2880 + RT2850 (5G RF)
CPU Clock Speed	266 MHz
Wireless Radio	IEEE 802.11a/n
Serial Port	1 * Console (Internal)
Reset Switch Built-in	Push-button momentary contact switch
Standards Conformance	IEEE 802.3 / IEEE 802.3u
Ethernet Ports	<ul style="list-style-type: none"><li>• 1 x 10/100Mbps Ethernet ports with weatherproof connectors</li><li>• IEEE 802.3, 802.3u compliant</li><li>• CSMA/CD 10/100 auto sense</li><li>• Power over Ethernet (PoE)</li></ul>
Flash	On board : 4MB
SDRAM	On board : 32MB
Built-In LED Indicators	1 x Power, 1 x LAN, 1 x WLAN


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Wireless Specification	
Network Standards Conformance	IEEE 802.11 a/n (draft 2.0) compliant
Data Transfer Rate	IEEE802.11a :6/ 9/ 12/ 18/ 24/ 36/ 48/ 54Mbps (auto sensing) IEEE801.11n(draft 2.0) : 300Mbps (Tx), 300Mbps (Rx)
Frequency Range	IEEE802.11a : 5.150 – 5.350 & 5.725 – 5.825 GHz(USA) 4.900 – 5.250 GHz(Japan) 5.150 – 5.350 & 5.470 – 5.725GHz (Europe ETSI) IEEE802.11n : 5.150 – 5.350 & 5.725 – 5.825 GHz(USA) 4.900 – 5.250 GHz(Japan) 5.150 – 5.350 & 5.470 – 5.725GHz (Europe ETSI)
Channel Spacing	IEEE802.11a : 20MHz IEEE802.11n : 20/40MHz
Media Access Protocol	CSMA/ CA with ACK
Modulation Method	IEEE 802.11a : OFDM with BPSK, QPSK, QAM and 64QAM IEEE 802.11n : BPSK, QPSK, 16-QAM, 64-QAM
Operating Channels	IEEE 802.11a : US : 12 (CH: 36, 40, 44, 48, 52, 56, 60, 64, 149, 153, 157, 161) Japan : 4 (CH: 34, 38, 42, 46) ETSI : 19 (CH: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140) IEEE 802.11n @ 5GHz : US : 12 (CH: 36, 40, 44, 48, 52, 56, 60, 64, 149, 153, 157, 161) Japan : 4 (CH: 34, 38, 42, 46) ETSI : 18 (CH: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136)
RF Output Power	500mW
Frequency Response Flatness	±1dB over operating range
Receive Sensitivity	-97dBm

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**Environmental & Mechanical Characteristics**

Operating Temperature	-30 °C ~ 60 °C
Storage Temperature	-30 °C ~ 85 °C
Operating Humidity	100% Non-Condensing
Storage Humidity	100% Non-Condensing
Built-in Antenna	15dBi , 5GHz (H60, E30) Dual Polarization Directional Antenna
Power Consumption	9W
Overload Current Protection	1.1A
Input Power	24 VDC
Ethernet Connector	1 * Ethernet Connector
Power Supply	AC Input : 110 – 220V AV Power DC Output : 24V VDC, 0.5A input (PoE Power Injector)
Unit Weight	0.35KG
Unit Dimensions	165(H) *96(L)*48(W) (mm)
Form Factor	Pole Mount Ability
Certifications	FCC, CE
<b>Standard Packing</b>	
Outdoor Bridge Unit	1
Ethernet Passive Power Injector	1
CD User Manual	1
Pole Mounting Bracket	1