

mimosa

2.4 GHz Wi-Fi PoE Gateway
User manual

Revision History

Version	Date	Authors	Comments
1.0	6/24/2015	LiteOn, Reza, David Stiff	Final 1.0 after Mimosa and LiteOn final review. Note: This is a living document and will be updated as product development proceeds.

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Approval:



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Mimosa Networks, Inc.

6/25/15

(For Confirming the Spec Only, not an Official Agreement for OEM/ODM Business)

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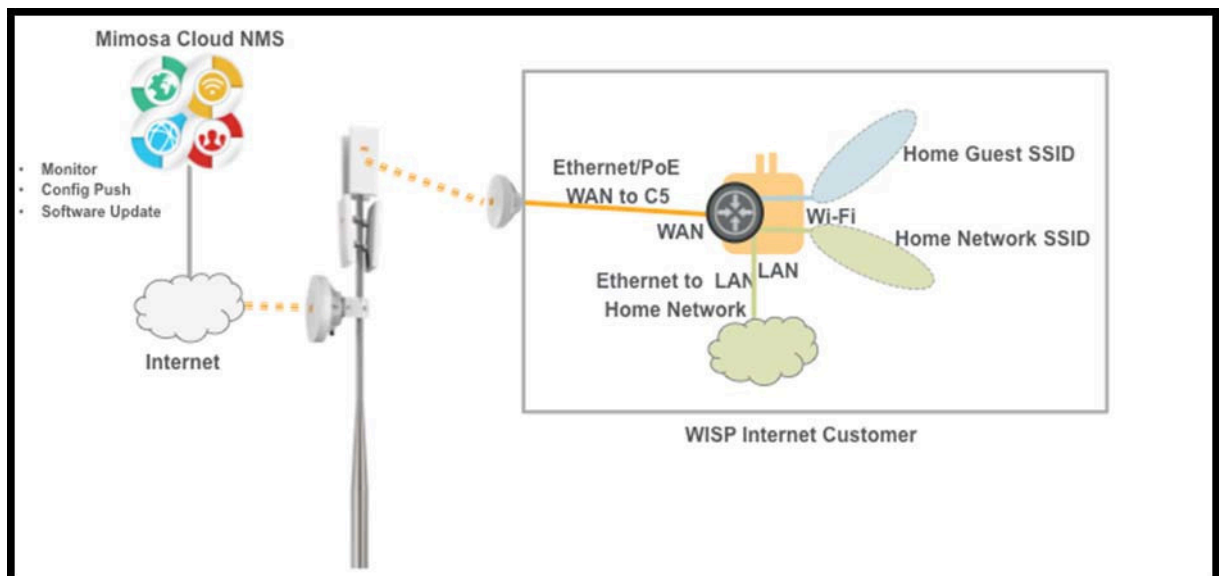
1 Product Overview

The POE Wi-Fi Router is a wall wart plug-in wireless access point with full router and multi-mode operational capabilities. It has two GigE ports one for WAN and one for LAN interface. The WAN port has as a POE injector (passive) for connecting to Mimosa devices (C5/C5c/C5i). It can be configured as a Wi-Fi Router, Wi-Fi Extender, Range Extender, or POE pass-through. It has the features as follows:

- Automated configuration from Mimosa Cloud NMS
- Built in 2.4GHz 802.11b/g/n 2x2:2 wireless AP with integrated antenna
- Two GigE (10/100/1000BaseT) Interface, WAN & LAN
- POE output for WAN –passive PSE 48V/10W
- Interchangeable AC clips to deploy in different countries
- 4 modes of operation: Wi-Fi Router, Wi-Fi Extender, Range Extender, or POE pass-through
- NAT Routing (DHCP, SPI, Port Forwarding)
- PPPoE and PPTP support
- Rate Limiting
- Up to 4 SSIDs
- Guest Network SSID

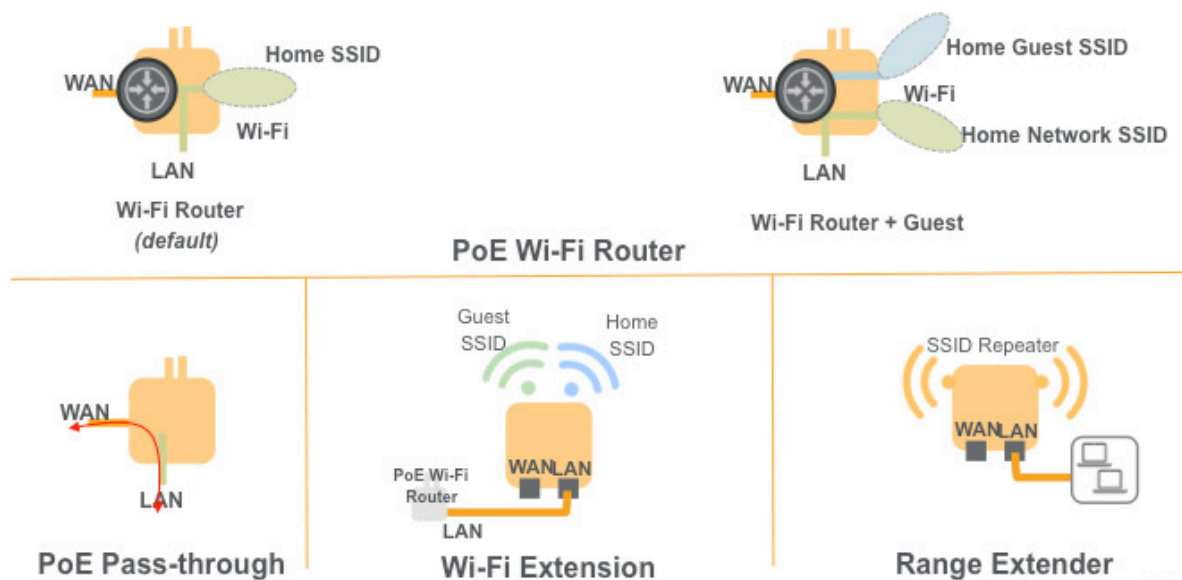
1.1 Deployment Applications

The deployment model of the PoE Wi-Fi Router is to provide the in-home, “final leg” portion of a Mimosa fixed wireless solution typically deployed by Wireless Internet Service Providers (WISPs). It provides the necessary WAN routing, Wi-Fi and LAN connections to bring the Internet into the home. It’s designed to be part of a complete Mimosa solution that provides easy installation and automated configuration from the Mimosa Cloud NMS. It simply plugs into a wall outlet and has a color-coded Mimosa jack to indicate which port is connected to the Mimosa CPE device. It is only designed to provide PoE power to Mimosa C5/C5c/C5i CPE devices.



1.2 Operational Description & Modes

The advanced PoE Wi-Fi Router is designed to be used inside a home/small office to provide PoE power to a Mimosa C5, C5c or C5i CPE wireless device and Internet connectivity via Wi-Fi and a LAN connection. There are 4 operational modes that provide the following features and function:

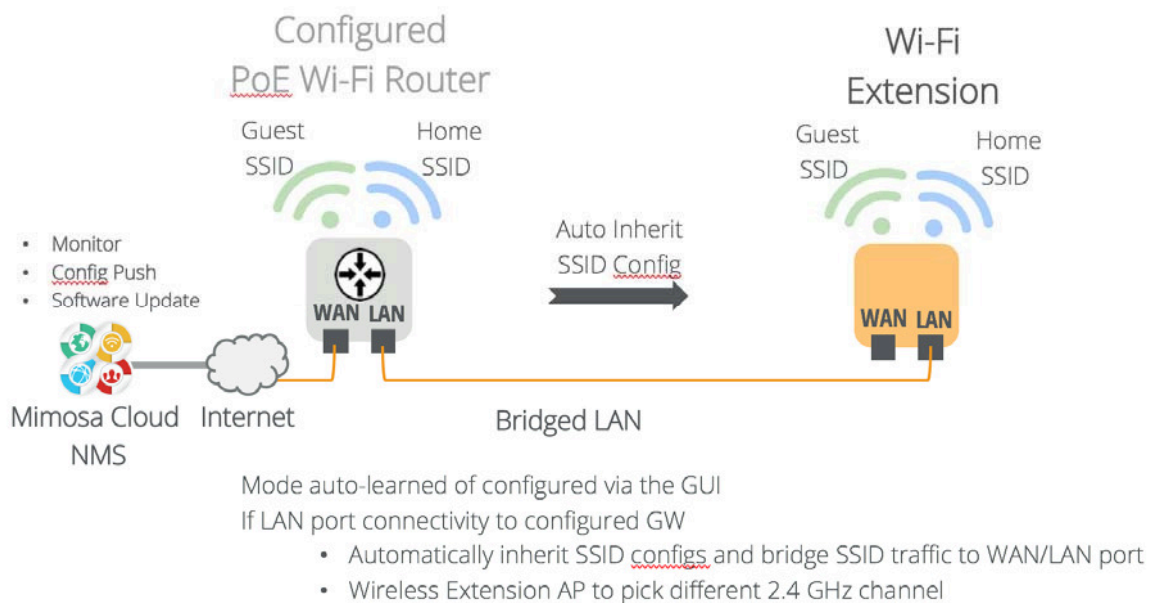


Confidential 2

- **PoE Wi-Fi Router:** This mode powers the Mimosa C5/C5c/C5i CPE and provides everything needed for in-home Internet access via Wi-Fi or LAN. Power to the Mimosa CPE is provided via PoE on the WAN port using passive PSE 48V/10W. Network and routing services for NAT, DHCP, stateful packet inspection, and port forwarding provide Internet connectivity to the home network. The Home network is provided by a 2.4 GHz 802.11n Wi-Fi access point supporting up to 4 SSIDs including Guest Access and a Gigabit LAN connection.
- **PoE Pass-through:** This mode is used when a 3rd party Wi-Fi/WAN Router is installed. When in PoE Pass-Through mode the PoE Wi-Fi Router disables the routing and Wi-Fi operations and simply provides PoE power and bridging between the WAN and LAN ports.
- **Range Extender:** The Range Extension, or repeater, mode is designed for increasing Wi-Fi coverage to a location where the in-house main router's signal is very weak or doesn't reach at all. It takes the radio

signal from the in-house main router and rebroadcasts it to create a second network (it receives, then retransmits each packet using the same radio on the same channel and with the same SSID.). It bridges the gap between the main router and the second network. The throughput loss will be more than 50%.

- **Wi-Fi Extender:** This mode is designed to extend the reach of Wi-Fi for homes/small offices with in-house LAN wiring. Adding a second PoE Wi-Fi Router in "Wi-Fi Extender" mode allows you to increase Wi-Fi coverage without sacrificing performance. When installed, it automatically learns the SSID from the primary device and extended Wi-Fi coverage using a different channel.



2 Deliverables

- The Plug-In Wi-Fi Router with PoE and embedded software
 - User Documentation
 - Quick Start Guide
 - Warranty/SLA
 - Registration card
 - Regulatory flyer
 - RJ45 blocker (installed into RJ45 connector)
 - LiteOn-designed brown box
 - Mimosa-design giftbox (covering over brown box)
 - One clip to each correspong SKU
- totally 4 SKUs

Country	Type
USA, Canada, Mexico, and Japan	Type A
Europe, and Russia (except UK & Ireland)	Type C
UK, Ireland, Malta, Malaysia & Singapore	Type G (plastic ground)
Australia, New Zealand,	Type I – 2 pin (insulated)

3 Hardware requirements

3.1 Main Components

- Processor: MT7620A
 - MIPS24KEc (580 MHz) with 64KB I-cache, 32KB D-cache
 - 2.4GHz 802.11 b/g/n 2T×2R, 2 spatial streams
- Flash: 8MB SPI NOR
 - SDRAM: 64MB 16-bit DDR2
- PoE non-standard passive PSE on WAN port at 10W

3.2 Wired Networking Interfaces

- 2xRJ45
 - 1x10/100/1000BaseT LAN
 - 1×10/100/1000BaseT PoE PSE WAN port,
 - PoE non-standard passive PSE on WAN port at 10W

3.3 Wireless Interface

- IEEE802.11 b/g/n
- 2.4GHz, 2T2R, 2 Spatial Streams MIMO
- 300Mbps Phy data rate
- Supports Reverse Data Grant (RDG), Maximal Radio Combining (MRC), Space Time Block Coding (STBC)
- Frequency Range: 2.4GHz~2.484GHz
- Data Rate:
 - 802.11b: 1,2,5.5,11Mbps
 - 802.11g: 6,9,12,18,24,36,48,54 Mbps
 - 802.11n: MCS0~MCS15, 6.5,13,19.5,26,39,52,58.5,65,150,300 Mbps
- Antenna:
 - Two orthogonally polarized antennas; mounted internally. A single dual polarized antenna is not specifically excluded.

- Antenna Gain: -4dBi or higher over 60% of all directions. Typically omnidirectional pattern, intended to radiate into a room or through a wall behind the device.
- Frequency of operation at least as wide as paragraph 2.4 (above)
- Both antennas shall not have nulls in the same direction
- s11 shall be -10dB or less over the operating frequency band
- Various types of antennas may be considered with minimal cost being a primary concern; consequently antennas integrated into the PCB are preferable.

3.4 Wireless Interface RF Performance

	LiteOn		Mimosa	
	Tx (+/- 2dB)	Rx +/- 2dB	Tx	Rx
802.11b				
1 Mbps	16	-93		
2 Mbps	16	-90		
5.5 Mbps	15	-90		
11 Mbps	15	-86		-80
802.11g				
6 Mbps	16	-88		
9 Mbps	16	-86		
12 Mbps	16	-85		
18 Mbps	16	-84		
24 Mbps	15	-82		
36 Mbps	15	-78		
48 Mbps	14	-74		
54 Mbps	14	-72		-72
802.11n 20HT				
MCS0	16	-88		
MCS1	16	-86		
MCS2	16	-85		
MCS3	16	-80		
MCS4	15	-78		
MCS5	15	-75		
MCS6	13	-73		
MCS7	13	-71		-67
MCS8	16	-87		
MCS9	16	-85		
MCS10	16	-82		
MCS11	16	-78		
MCS12	15	-76		
MCS13	15	-72		
MCS14	13	-70		
MCS15	13	-69		
802.11n 40HT				
MCS0	15	-84		

MCS1	15	-83		
MCS2	15	-82		
MCS3	15	-77		
MCS4	14	-75		
MCS5	14	-72		
MCS6	12	-70		
MCS7	12	-68	17(aggregated)	-66
MCS8	15	-82		
MCS9	15	-81		
MCS10	15	-79		
MCS11	15	-75		
MCS12	14	-73		
MCS13	14	-70		
MCS14	12	-68		
MCS15	12	-66		

3.5 Other Interfaces

- Console: 4-pin pin header UART
- GPIO Test Points

3.6 Power Supply

- AC to DC Converter
 - Input Voltage: 100~240VAC, 50/60Hz
 - Input Current: 0.6A (RMS)@ 120VAC, 0.4A (RMS)@240VAC
 - Inrush Current: <60A (RMS) Peak @120VAC, <120A (RMS) Peak@240VAC
 - Over Current Protection, Over Voltage Protection
 - Output Voltage: 48VDC +/-5%, 12V +/-4V
 - Output Current: 48V/210mA, 12V/330mA (10Watts for PoE PSE, 4Watts for main board)
 - Efficiency: Typ >75.9%
 - Ripple Voltage: 200mV P-P
 - Passive non standard PoE to PoE PSE WAN port
- Interchangeable AC Clip

Country	Type
USA, Canada, Mexico, and Japan	Type A

Europe, and Russia (except UK & Ireland)	Type C
UK, Ireland, Malta, Malaysia & Singapore	Type G (plastic ground)
Australia, New Zealand,	Type I – 2 pin (insulated)

Note:

- I. For the EU plug type, need the CEE 7/16
- II. For type I socket to cover all countries we require insulated per Australia standard.
- III. Surface finish: VDI No.36



Interchangeable AC Clips



3.7 PCB Structure

- Two PCBs – power board and main board

- The connection between the power board and the main board are two 1x4 pin headers (one for 48VDC, another for 12VDC)

3.7.1 Power Board

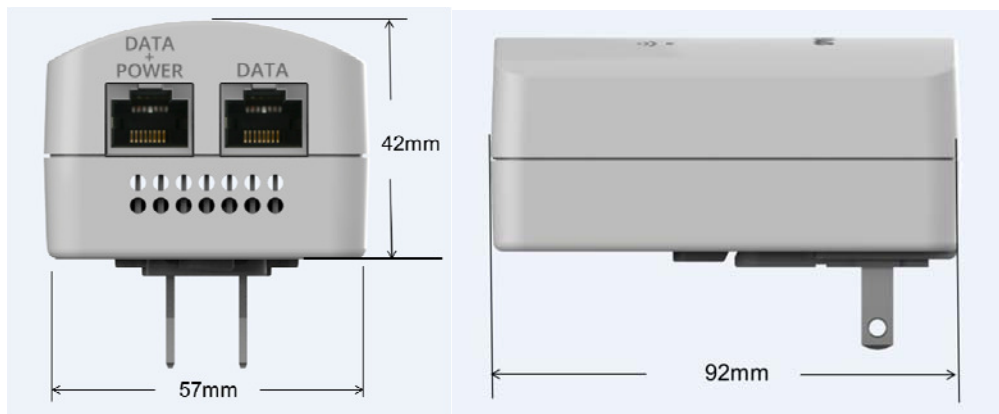
- AC to 48VDC/12VDC Converter
- PCB Dimensions: 83.5mm x 47.5mm x 1mm
- Two 1x4 pin receptacle connector to connect to the main board
- Two pads for interchangeable AC Clips

3.7.2 Main Board

- All circuit except AC/DC converter are on this board
- PCB dimensions: 83.5mm x 47.5mm x 1mm
- Two 1x4 pin header connectors to connect to the power board

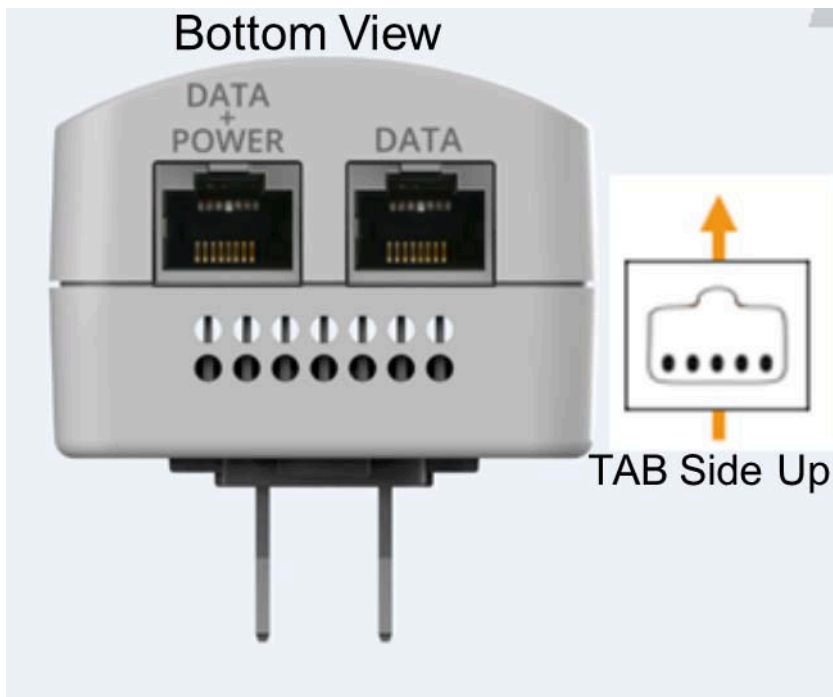
3.8 Enclosure and Mechanical

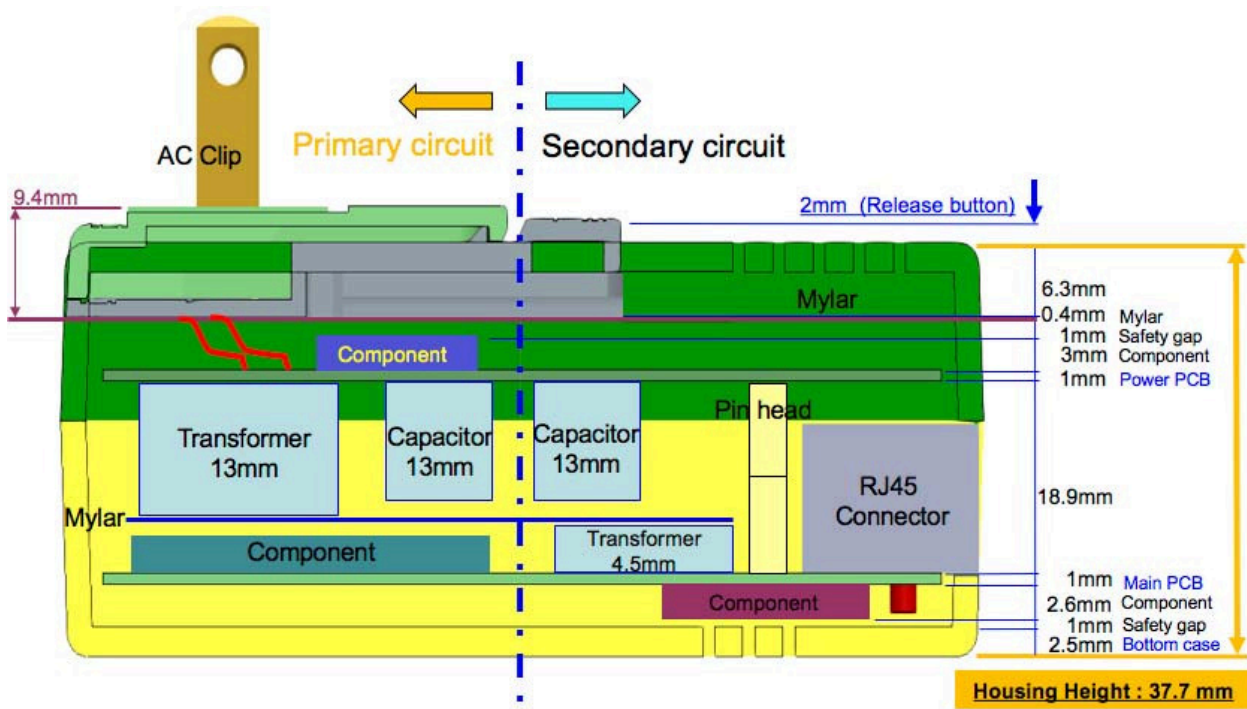
- ME Dimension : 92mm(L)x57mm(W)x42 mm(H): (Refer to Industrial Design Surfaces).



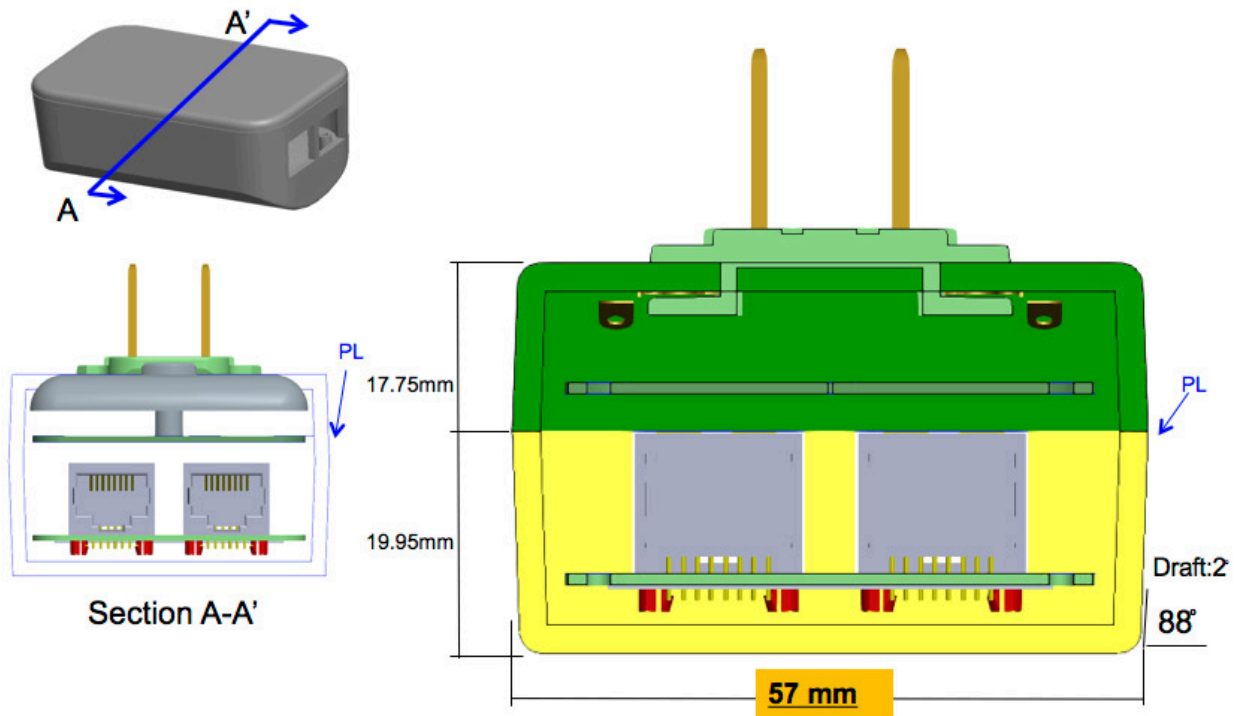
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- Product ME Dimensions NOTE: Color is not accurate
- Plastics should match Sabic Lexan 945 PN/8T9D355. The next few pictures illustrate the shape and finish of the final product. See CAD files for exact dimensions.

- Scratches when installing the AC clip are acceptable.

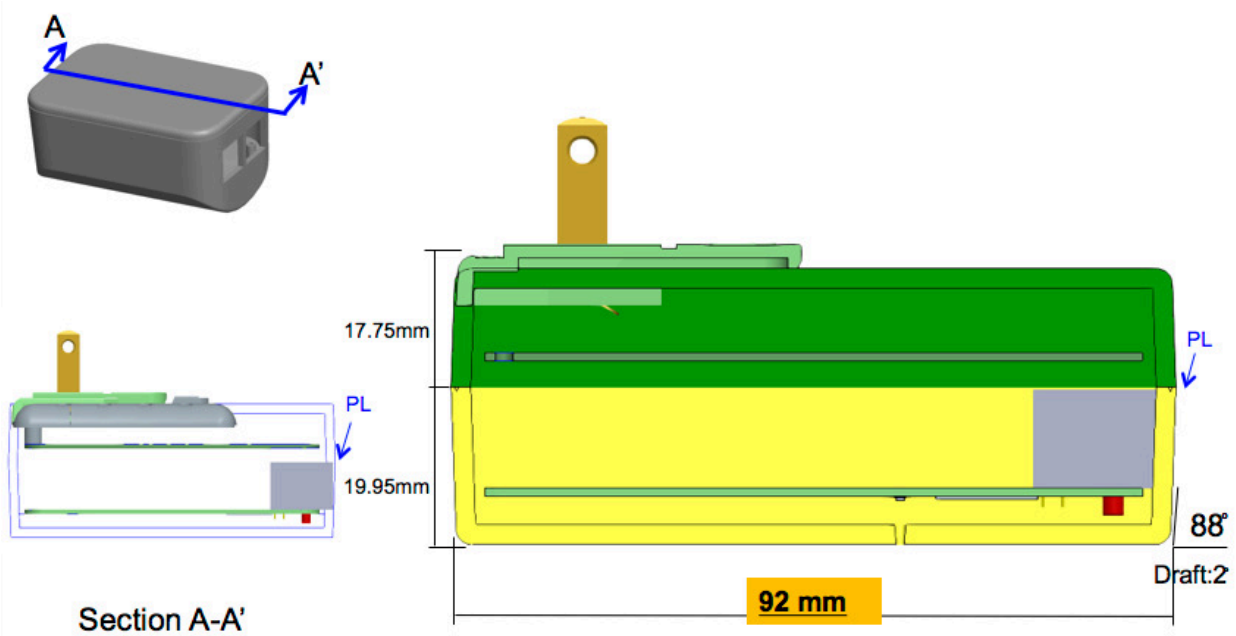




Long Side View – Stackup Analysis



Short Side View: Outline Dimensions (length)



Long Side View: Outline Dimensions (length)

3.9 LED Indicators

The functions of each LED shall be implemented in software. The table below defines the functions of each LED.

LEDs Description – 3 LEDs			Wi-Fi Router	Wi-Fi Extender	Range Extender	Pass-through
NOTE: No LEDs on the RJ-45 Ethernet connectors						
WAN (green/red) Link on RJ45 WAN C5 CPE status	Green Yellow Red	Green On: Good Link on 1000Mbps	Y	WAN LED OFF	WAN LED OFF	Y
		Yellow On: Good Link on 100Mbps	Y			Y
		Red On: Good Link on 10Mbps (this is red because a 10Mbps link is not desired)	Y			Y
		Red Blinking: C5 CPE Dead or no connectivity	Y			Y
		Off: Power Off	Y			Y
LAN (green/red) Link on R45 LAN	Green Yellow	Green On: Good Link on 1000Mbps	Y	Y	Y	Y
		Yellow On: Good Link on 10/100Mbps	Y	Y	Y	Y
		Off: No Link	Y	Y	Y	Y
		Note: No Red status for 10Mbps as this is acceptable and could be confused as error.				
Wi-Fi (blue) Link on 11n 2.4G Wi-Fi	Blue	Blue On: Wi-Fi has at lease one client connected.	Y	Y	Y	Wi-Fi LED OFF
		Off: Wi-Fi is disabled or no client is connected.	Y	Y	Y	
System Status During Boot	System Initialization or reset (software self-test and loading): Cycle –blink green and red on WAN; blink green and yellow on LAN Wi-Fi Off					
	System Boot Failure: Blink Red on WAN and blink yellow on LAN, Wi-Fi Off					

3.9.1 LED Locations

See Detailed LED placement from CAD Mechanical Drawings

NOTE: There are no LED's on the Ethernet RJ-45 connectors.

3.10 Reset Button

The reset button can be accessed through a pinhole with a paperclip or sharp object.

- ❖ Press and release the reset button to reboot the router.
- ❖ Press and hold the reset button for five seconds or more to reset the router to factory default settings

4 SW Features

Version 1.6 – May 22, 2015

David Stiff, Mimosa Networks

Interface Use Case Diagram (diagram 1)

This table describes the basic connection description and requirements for the ports on the PoE Wi-Fi Router.

Mimosa Plug-In POE Wi-Fi Gateway Software specification		
Interface Uses (diagram 1)	WAN	<ul style="list-style-type: none"> • PoE Ethernet to WAN • PoE powers Mimosa C5 Wireless CPE device • IP Address/DNS learned from WAN (DHCP or Static)
	LAN	<ul style="list-style-type: none"> • Ethernet to Home Network • Bridged connection to SSIDs • NAT routed to WAN • Not Bridged to Guest SSID • Router Manages DHCP Server for IP Assignments
	Wi-Fi SSIDs	<ul style="list-style-type: none"> • Home Network SSIDs: bridged to LAN except Guest SSID, NAT routed to WAN • Guest SSID, traffic only allowed to Internet via WAN, NAT routed to WAN • Router Manages DHCP Server for IP Assignments

Mimosa PoE Wi-Fi Router Operational Modes

This table describes the four operational modes for the PoE Wi-Fi Router and what functions are enabled for each mode. How will C5/C5c/C5i be configured?

Mimosa Plug-In POE Wi-Fi Gateway Software specification		
<p>Configuration Modes</p> <p>Only enable auto config mode when device powered on with Factory Defaults</p> <p>Config can be changed manually once auto config is done.</p>	PoE Wi-Fi Router	<p>Detection: WAN cable plugged in</p> <ul style="list-style-type: none"> • WAN Router (NAT/DHCP) between WAN and LAN/Wireless • Bridge traffic between LAN and Wi-Fi • Wi-Fi always in Access Point mode for Wi-Fi certified 802.11bgn clients • Defaults: <p>SSID = MimosaXYZ (last 3 digits of serial number)</p> <p>WPA-PSK passphrase = mimosaXYZ (last 3 digits of serial number)</p> <p>Web GUI password = mimosaXYZ</p>
	Default Mode	
	PoE Pass-through	<p>Configure Option from GUI</p> <ul style="list-style-type: none"> • WAN Router (NAT/DHCP) OFF • Wi-Fi OFF • Bridge all packets from LAN ↔ WAN
	Wi-Fi Extension	<p>Detection: Only LAN port connected to WAN router</p> <ul style="list-style-type: none"> • WAN Router (NAT/DHCP) OFF • Learn SSID configuration from WAN Router • Enable SSIDs • Pick different Wi-Fi Channel from WAN Router • Bridge traffic from SSIDs to LAN port (DHCP/Gateway provided by WAN Router). Keep Guest traffic separate from Home Network. • No Router/DHCP function • Wireless always in Access Point mode for Wi-Fi certified 802.11bgn clients
	See Diagram 2 for details	
	Range Extender	<p>Detection: no LAN connection to main</p>

	<p>Router and auto-configured as Wi-Fi Extension. I.e.: Plug is once to configure as Wi-Fi Extension and then power on again w/out connecting to main router.</p> <p>Configured manually via GUI</p> <ul style="list-style-type: none"> • Enable Wi-Fi as repeater • WAN Router (NAT/DHCP) OFF • Bridge traffic to LAN if connected • Bridge traffic to the main Wi-Fi router
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Wireless Extension and Repeater Use Case (diagram 2)

This table describes the minimum viable feature set for the PoE Wi-Fi Router.

Wireless	Wireless mode	802.11bgn
	Bandwidth	<ul style="list-style-type: none"> • 20MHz • 40 MHz (deny 20 MHz clients) • 20/40MHz dynamic
	Aggregation in 11n mode	<ul style="list-style-type: none"> • A-MPDU
	SSID	<ul style="list-style-type: none"> • Support 4 virtual AP
	PowerSave	<ul style="list-style-type: none"> • Support WMM-Power Save
	QoS	<ul style="list-style-type: none"> • EDCA WMM (WMM QoS) • QoS-DSCP configurable via web UI
	Other parameter configurable via Web UI	<ul style="list-style-type: none"> • Transmit power adjustable (four level: full, 1/2, 1/4, 1/8) • DTIM • Guard interval (short/long) • Beacon Interval
	Channel Setting	<ul style="list-style-type: none"> • Auto via boot time scan – pick channel with least other SSIDs detected. • Manual Select from channel pick list.

	Closed Network	<ul style="list-style-type: none"> Option to hide SSID, configurable per SSID
	Guest SSID	<ul style="list-style-type: none"> Option to make an SSID a Guest SSID Create Guest SSID as WPA/WPA2 with default (no captive portal) Default SSID = GuestXYZ (last 3 digits of serial number) <p>WPA passphrase = guestXYZ (last 3 digits of serial number)</p> <ul style="list-style-type: none"> Allow option to enable client isolation to only allow Guest Wi-Fi traffic to go to internet (WAN)
	Range Extender (repeater) Site Survey	<ul style="list-style-type: none"> Site Survey Mode to discover SSIDs and display. User will select SSID and enter security credentials to repeat. Display SSID, Signal Strength, Security mode (None, WPA-PSK, WPA2-PSK, WEP). Allow selection of SSID, Entry of Encryption Key to enable repeating.
Security	Authentication	<ul style="list-style-type: none"> WPA/WPA2 Personal (PSK) WPA/WPA2 Enterprise 802.1X Authentication with RADIUS Client Enterprise (802.1x): PEAP, TTLS, TLS
	Encryption	<ul style="list-style-type: none"> AES, TKIP, WEP 64/128
Certification	Wi-Fi Alliance	Wi-Fi Certified only for mandatory items
Router Function for Ethernet as WAN	NAT router	<ul style="list-style-type: none"> Support to enable/disable
	SPI Firewall	<ul style="list-style-type: none"> Stateful Firewall to allow traffic session back through NAT router
	NAT Port Forwarding (WAN to LAN)	<ul style="list-style-type: none"> Action: Allow, Block Source IP (Any, Single IP, Range of IP) Destination IP (Single IP) Internal Port (Single Port, range 1-65535)

	Rate Limiting on WAN	<ul style="list-style-type: none"> Specify Upstream/Downstream WAN rate limits in Kbps
	Static routes	Route Name, Destination IP, IP Subnet Mask, Gateway IP Address
	DHCP Server for LAN and Wireless clients	<ul style="list-style-type: none"> Domain Name, Start IP, End IP, Lease Time (hours: default 24 Hr, range options 1-900 Hr) MAC Address based static assignment (Name, IP address, MAC Address) Check if IP in use before assigning to prevent duplicate IP addresses DHCP Lease Display Table
	PPPoE client For Authentication	<ul style="list-style-type: none"> PPP username/password Authentication options: Auto/PAP/CHAP/MS-CHAP/MS-CHAPv2
	PPTP Client For VPN	<ul style="list-style-type: none"> PPTP Server Address PPP username/password Authentication options: Auto/PAP/CHAP/MS-CHAP/MS-CHAPv2 Encryption: None, MPPE 128bit, 40 bit MTU Setting: Default 1460
Management and Administration	Management ACL	<ul style="list-style-type: none"> Permit WebUI/SNMP from Single IP, IP Range, Subnet mask
	Management Password	<ul style="list-style-type: none"> Default = mimosa Allow changing
	Time Setting	<ul style="list-style-type: none"> Set Time and Time Zone Set NTP server.
	Web UI	<ul style="list-style-type: none"> Mimosa GUI similar to B5/A5 HTTP/HTPTS Enable/Disable System Management from LAN. This will prevent LAN side user from changing router mode options and disconnecting Gateway from WAN. Keep Monitoring/Status and Guest config options avail from LAN
	Network setting	<ul style="list-style-type: none"> IPv4 static IP (IP, Netmask, Gateway, DNS1, DNS2) DHCP client on WAN (Ethernet) (Requested hostname, IP, Netmask, Gateway, DNS1, DNS2)

		<ul style="list-style-type: none"> DHCP Failover IP assignment if no DHCP response (IP, Netmask, Gateway, DNS1, DNS2)
	Statistics	<ul style="list-style-type: none"> Statistics of wired, wireless associated stations accessible
	SNMP	<ul style="list-style-type: none"> MIBII (survey throughput, data statistics, location) SNMP Community String RO setting
	Wireless ACL	<ul style="list-style-type: none"> Based on MAC address (White List & Black List individual MAC Addresses)
	Firmware upgrade	<ul style="list-style-type: none"> via Web UI
	System log	<ul style="list-style-type: none"> Internal (WebUI) and External (Syslog) Set External Syslog server IP
	Diagnostics	<ul style="list-style-type: none"> Ping, Traceroute
	Config	<ul style="list-style-type: none"> Reset to Factory Defaults Backup & Restore from Web UI to local laptop file system Reboot
	Mimosa Cloud Management	<p>A binary will be provided to allow config and monitoring of the device from Mimosa Cloud for the following items:</p> <ul style="list-style-type: none"> Device monitoring (IP, Mac, Name, Client count for wireless) RF Country Code Unlock Configuration Push
Connectivity Monitoring	CPE Available	<p>WAN Ethernet port up.</p> <p>Success = port up</p> <p>Fail = port down</p>
	Service Provider Gateway	<p>Ping WAN default gateway. This is the default gateway from the WAN side of the router. Learned from WAN side DHCP or manual WAN IP setting.</p> <p>Success = good ping response</p>

	Fail = no ping response
Internet Access (TCP)	<p>TCP connectivity (tcping) to well known global web sites:</p> <p>mimosa.co google.com youtube.com facebook.com independent.co.uk buzzfeed.com upsocl.com scribd.com ask.fm diply.com baidu.com</p> <p>Success = successful tcp connection to <u>any</u> of above sites.</p> <p>Fail = failed tcp connection to <u>all</u> sites</p>
Internet Access (DNS)	<p>DNS Server availability. Successful DNS lookup for above names. This is the DNS server from the WAN side of the router. Learned from WAN side DHCP or manual DNS setting.</p> <p>Success = successful lookup of any of the above DNS servers</p> <p>Fail = failed DNS lookup for all sites</p>
<p>Connectivity test monitoring should be configurable to on/off with on as default. Tests should run every 60 seconds.</p> <p>See Diagram 3 for examples for example of how monitoring will be represented to users in the GUI.</p>	

Connectivity Testing (Diagram 3)

5 Environmental

- Operating:
 - Temp: 0° C to +40° C (32° F to +104° F)
 - Humidity: 5% to 95% non-condensing
- Storage and Transportation Temperature Range:
 - Temp: -25° C to +65° C (-13° F to +149° F)

6 Reliability

- MTBF: >50,000 hours

7 Regulatory and Certifications

- EN55022/24 Class B
- EN 300 328
- EN 301 489 Part 1
- EN 301 489 Part 17
- UL/cUL/IEC/EN 60950
- IC RSS247
- CE Marked
- SAA/RCM with RCM logo marked
- FCC Part 15B+15C
- TUV (EN60950-1 + EN61984)
- RoHS Compliance
- Wi-Fi Alliance Wi-Fi CERTIFIED™

FCC WARNING STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
- This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
- For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible

FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

IC WARING STATEMENT

RSS-Gen Issue 4 8.4

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Industry Canada ICES-003 Compliance Label:

CAN ICES-3 (*)/NMB-3(*)

* Insert either "A" or "B" but not both to identify the applicable Class of ITE.

Co-located

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil et son antenne (s) ne doivent pas être situés ou fonctionner en conjonction avec une autre antenne ou émetteur.

RSS247 2.3 External RF Power Amplifiers (ERFPA)

Under Industry Canada regulations, this external radio frequency power amplifier (insert Industry Canada certification number of radio frequency power amplifier) may only be used with the transmitter with which the amplifier has been certified by Industry Canada. The certification number for the transmitter with which this amplifier is permitted to operate is IC: 11823A-10000033.

En vertu des règlements d'Industrie Canada, cet amplificateur de puissance de fréquence radio externe (insérer Industrie Canada numéro de certification de l'amplificateur de puissance de fréquence radio) ne peut être utilisé avec l'émetteur avec lequel l'amplificateur a été certifié par Industrie Canada. Le numéro de certification pour l'émetteur avec lequel cet amplificateur est autorisée à opérer est IC:11823A-10000033.

IC Radiation Exposure Statement:

mobile device

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition de rayonnement de la IC RSS-102 rf déterminées pour un environnement non contrôlé. Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.