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RAP001A

User manual





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For improvement of product performance, supplementation, or follow-up of information; the contents of this manual are subject to change without separate prior notice.

Please note that our company has neither responsibility for any accidents nor obligation to do free repair service for any damage of the equipment due to user's mistake, which resulted from failure to follow the contents in this manual. Make sure to be familiar with the safety precautions and usage procedures. Also note that the product may slightly differ from the contents of this manual depending on specification.

The following marks are used for the effective use of the product in this manual.



Attention, consult accompanying documents.



This is used to emphasize essential information. Be sure to read this information to avoid incorrect operation.



This indicates hazardous situation which, if not heeded, may result in minor or moderate injury to you or others, or may result in machine damage.



This indicates a potentially hazardous situation which, if not heeded, could result in death or serious injury to you or others.

Federal Law restricts this device to sale by or the order of a radiologist or any other practitioners licensed by the law of the state in which that person practices to use or order the use of the device.



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1. Specifications

| CPU | Qualcomm QCA9558/QCA9880 | | | |
|---|--|--------------------------|--|--|
| RAM | 128M | | | |
| Flash | 16M | | | |
| Wireless Standards | 802.11 a/b/g/n/ac | | | |
| Frequency | 2.4Ghz/5GHz | | | |
| | 802.11a | Maximum 54Mbps | | |
| | 802.11b | Maximum 11Mbps | | |
| Data Rate | 802.11g | Maximum 54Mbps | | |
| | 802.11n | Maximum 450Mbps | | |
| | 802.11ac | Maximum 1.3Gbps | | |
| Wireless Security | WPA, WPA2, WPA/WPA2, WPS button | | | |
| Transmission Power | 22±2dBm (per Path) | | | |
| Ethernet | 10,100,1000 Mbps base Ethernet | | | |
| Concurrent Connection (Wire) Up to 3 | | | | |
| Concurrent Connection (Wireless) | Up to 128 | | | |
| Port | Gigabit LAN x 1, Trigger x 1, Detector x | 3 | | |
| Power | Input : AC85~264V 50/60Hz Output : 24VDC (Max 6.4A) | | | |
| Maximum Power Consumption | 15W (When the Detector power is not c | connected) | | |
| Antenna | 2.4GHz/5GHz 4/6Dbi Dual-band Rever | se SMA Antenna (3Txx3Rx) | | |
| Major Function | Wire PowerBox, AGI function Wire Detector DC 24V Power Max 6.4A | supply | | |
| Size | 240 x 190 x 75 mm (without antenna) | | | |
| Weight | 1.85kg | | | |
| Environmental | Operating : 5 ~ 40 [°] ℃ / 30 ~ 75 % H.R | | | |
| requirement | Storage : -10 ~ 50 °C / 10 ~ 80 % H.R | | | |



2. Components

- RAP001A
- Antenna x 3
- Power cable
- LAN cable
- Power converter
- User manual



3. Name of Each Part and Function

<Front>



| LED | LED color | Status |
|---------|-----------|---|
| | | Turned on while booting after connecting with power |
| PWR/LAN | Red | supply |
| | | Turned off upon the completion of booting |
| | Green | Turned off when connecting PC LAN |
| TRICCER | Red | Trigger READY DONE |
| TRIGGER | Green | Trigger READY IN |
| | Red | Frequency of 2.4GHz |
| 5G/2.4G | Green | Frequency of 5GHz |
| | Yellow | Frequency of 2.4GHz and 5GHz |
| DET1 | Green | Turned off when connecting with Detector. |
| DET2 | Green | Turned off when connecting with Detector. |
| DET3 | Green | Turned off when connecting with Detector. |



<Back>



| 1 | AC Innet | Power switch, Connecting with fuse box and power cable (Fuse: |
|---------------|-----------------|---|
| | | T3.15 AL 250V) |
| 2 | Trigger Port | 7P Generator Linkage Port |
| 3 | Detector Port 1 | 16P Detector Linkage Port (10/100/1000BaseT and for charging) |
| 4 | Detector Port 2 | 16P Detector Linkage Port (10/100/1000BaseT and for charging) |
| (5) | Detector Port 3 | 16P Detector Linkage Port (10/100/1000BaseT and for charging) |
| 6 | PCLAN Port | RJ-45 Port (10/100/1000BaseT) |
| | | Rebooting (press for one second), Factory reset (press for 10 |
| \mathcal{O} | Reset Button | seconds) |
| 8 | WPS Button | Supporting PBC of WPS |



167.2

4. Dimension





5. Connecting and Using Product

5.1. Auto trigger & station mode

① Product setup



(2) Connect the cable





③ PC setup

- Set up the Network as below
 - Desktop > Network Icon > Right click > Properties > Change Adaptor Settings
 - · Control Panel > Network and Sharing Center > Change Adaptor Settings



• To use station mode, right click "Local Area Connection" and click properties





- Double click "Internet Protocol Version 4 (TCP/IPv4)"
- Select "Obtain an IP address automatically" and click "OK"

| Broadcom Net | @reme Gigabit Ethemet # | 2 |
|---|---|---|
| s connection uses | the following items: | Configure |
| GoS Packet | Scheduler | (accedes |
| Fie and Print Internet Prot Internet Prot Link-Layer T Link-Layer T | ter Shanng for Nicrosoft N pool Version 6 (TCP/IPv6 and Version 4 (TCP/IPv4 opology Discovery Mappi opology Discovery Respo | Verwonks P er I/O Driver order |
| A lo and Print Internet Prot Intern | Ger Sharing for Nicrosoft N bool Version 6 (TCP/IPv6 and Version 4 (TCP/IPv4 opology Discovery Napp opology Discovery Respo | er I/O Driver Inder Properties |

| r the appropriate IP settings. | to ask | your r | etvor | k admini | strator |
|--|---------|--------|-------|------------|---------|
| Obtain an IP address automat | icalv | | | | |
| C Use the following IP address: | (U) | | | | |
| IF address: | 1 | - 63 | (6) | 54 | |
| Sybnet mask: | | 12 | - 61 | <u>6</u> 4 | |
| DeFault gateway: | Γ | ×. | | 34 | |
| Cbtain DNS server address au | tomatic | ally | | | |
| Use the following DNS server is | addresa | 251 | | | |
| Preferred DNS server: | - | • . | | | |
| Abernate UNa server: | Γ | | | | 1 |
| | | | | | |

④ Wireless Access point setup

- · Set up wireless Access point as below
 - SSID: Griffon
 - Internal network
 - IP address: 2.2.2.1
 - Subnet mask: 255.255.255.0
 - Dynamic IP allocation range: 2.2.2.2~2.2.254
 - Pre-Shared Key (PSK): project302
 - Authentication methods: WPAPSK or WPA2PSK
 - Password methods: TKIP / AES
 - Channel (Frequency)
 - Avoid the crowded channel option



5.2. Manual trigger & Station mode

① Product setup



② Connect the Cable











③ PC setup

- Set up the Network as below
 - Desktop > Network Icon > Right click > Properties > Change Adaptor Settings
 - Control Panel) Network and Sharing Center) Change Adaptor Settings



• To use station mode, right click "Local Area Connection" and click properties





- Double click "Internet Protocol Version 4 (TCP/IPv4)"
- Select "Obtain an IP address automatically" and click "OK"

| nnect using: | | | |
|---------------------|---------------------------------------|----------------|--|
| Broadcom Net X | reme Gigabit Ethemet | #2 | |
| | | Configure | |
| s connection uses t | he following items: | | |
| Cient for Micr | osoft Networks | | |
| GoS Packet S | Scheduler ar Sparing for Microsoft | Metworke | |
| A Internet Proto | col Version 6 (TCP/IPv | (6) | |
| 🛛 📥 İnternet Proto | col Version & (TCP/IPs | <i>κ</i> ΔΥ | |
| 🖞 📥 Link-Layer To | pology Discovery Map | per 1/O Driver | |
| Z . Lat. Law To | | oonder | |
| 🦾 Link-Layer To | pology Discovery Kesp | | |
| ink-Layer To | Unnstal | Properties | |
| Install | Linnstal | Properties | |
| Install | Unnstal | Properties | |

| u can get IP settings assigned at a capability. Otherwise, you nee r the appropriate IP settings. | utomatic d to ask | ally if your r | your n networ | etwork kadmir | supports histrator |
|---|----------------------|----------------|------------------|------------------|-----------------------|
| Cbtain an IP address automa | ticali | | | | |
| C Use the following IP address: | | | | | |
| IP address: | | - 63 | (6) | <u>6</u> | 1 |
| Subnet mask: | | - 82 | 191 | <u>a</u> | |
| Default gateway: | Γ | ×. | 4 | 34 | 1 |
| Chitain DNS server address a | utonatio | ally | | | |
| C Use the following DNS server | address | es: | | | |
| Preferred DNS servers | | | | | |
| Alemate DN5 server: | | | | | |
| Vaidate settings upon ext | | | | Adv | anced |

④ Wireless Access point setup

- · Set up wireless Access point as below
 - SSID: Griffon
 - Internal network
 - IP address: 2.2.2.1
 - Subnet mask: 255.255.255.0
 - Dynamic IP allocation range: 2.2.2.2~2.2.254
 - Pre-Shared Key (PSK): project302
 - Authentication methods: WPAPSK or WPA2PSK
 - Password methods: TKIP / AES
 - Channel (Frequency)
 - Avoid the crowded channel option



5.3. Auto trigger & Wired mode

① Product Setup



② Connect the cable





③ PC setup

- Set up the Network as below
 - Desktop > Network Icon > Right click > Properties > Change Adaptor Settings
 - Control Panel) Network and Sharing Center) Change Adaptor Settings



• To use wired mode, right click "Local Area Connection" and click properties





Double click "Internet Protocol Version 4 (TCP/IPv4)"

Select "Obtain an IP address automatically" and click "OK"

| 2010 | P/1PV4) Propercies |
|--|---|
| General Alternate Configuration | 1 |
| You can get IP settings assigned this capability. Otherwise, you ne | automatically if your network supports eed to ask your network administrator |
| C Ebtain an IP address autom | naural |
| -C Use the following IP addres | is: |
| IF eddress: | R 5 G |
| Subnet mask: | 10 10 10 10 |
| DeFault gateway: | |
| Cbtain DNS server address | automatically |
| C Use the following DNS serve | er addresses; |
| Preferred DNS servers | · · · · · · · · · · · · · · · · · · · |
| Abemate DNS server: | |
| 📕 Vajdote settings apon ext | Ad <u>v</u> anced |
| | Gereral Alternate Configuration You can get IP settings absigned the capability. Otherwae, you in for the appropriate IP settings. © Exbrain an IP address autor © Exbrain an IP address autor © Uge the following IP address: Sobnet mask: Default gateway: © Obtain DNS server address © Uge the following DNS server: Bernate DNS server: Default gates of DNS server: Bernate DNS server: |



5.4. Manual trigger & Wired mode

1 Product Setup



② Connect the cable









③ PC setup

- Set up the Network as below
 - Desktop > Network Icon > Right click > Properties > Change Adaptor Settings
 - Control Panel) Network and Sharing Center) Change Adaptor Settings



• To use wired mode, right click "Local Area Connection" and click properties





- Double click "Internet Protocol Version 4 (TCP/IPv4)"
- Select "Obtain an IP address automatically" and click "OK"

| Local Area Connection 3 Properties | X Internet Protocol Version 4 | (TCP/IPv4) Properties |
|---|--------------------------------|---|
| etworking Sharing | General Alternate Configura | ton |
| Connect using: | You can get IP settings assig | aned automatically if your network supports |
| Broadcom NetXtreme Gigabit Ethemet #2 | for the appropriate IP setting | gs. |
| Configure | Citain an IP address a | utematical M |
| This connection uses the following items: | -C Use the following IP ad | ldress: |
| ✓ I Client for Microsoft Networks ✓ ■ Cost Packet Scheduler | IF address: | |
| File and Printer Sharing for Microsoft Networks | Subnet mask: | 10 D D |
| | Default gateway: | |
| Link-Layer Topology Discovery Mapper I/O Driver Link-Layer Topology Discovery Responder | Cbtain DNS server add | ress automatically |
| | C Use the following DNS a | server addresses; |
| Install Unnstal Properties | Ereferred DNS servers | · · · · · · · · · · · · · |
| Description | <u>A</u> bernate DN5 server : | · · · · · · · · · · · · · · · · · · · |
| Transmission Control Protocol/Internet Protocol: The default wide area network protocol that provides communication across diverse interconnected networks. | 🗖 Vajdate settings upon | exit Advanced |
| OK Crocel | | OK Cancel |



6. Web UI

6.1. Main Screen





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- You can set or view the parameter of RAP001A on the web browser.
- Access to the page using the following information: IP (192.168.1.1) and Port (8080).
- The login ID is "Admin", and the password is "rayence1".
- The access address, the port, and the account can be modified on the WEB UI.

6.2. Page Layout

| avence | Three Sciences - D | fact beforeasting | | | | fages + by | |
|--|---------------------|-------------------|--|-------------|---------------------------------|--|--|
| fatus Information | Put and | | | | | | |
| Cretault elkorrodion | Cremerum annorma | (Diori) | Rollinson . | | | | |
| Second Information | eren. | | | | | | |
| Plane Merenne | With Farebourn Date | | 14.44 | | | | |
| Street Set | Profession and | | | | | | |
| Dectr their Gelleral | System Start Terrer | | Hig Prog 22008 (Taure | | | | |
| AG WEAN Settings | SSEActory | | 37 | | | | |
| Tails Latings | | | 101107/01110/01111 | | | | |
| 10.56.0 | LAW P Address | | 10021008.0.0 | | | | |
| G WLAN Settless | Last Salvest Basis | | 201.201.201.0 | | | | |
| Cardin Tardinan | | | | | | | |
| TRU Selfings | 2.45°00,00 (Darren) | | Lin ann | | | | |
| PSSellings | 50-10LAN Chareet | | 1111.00004.00010 | | | | |
| dennerd Settings | 2.4 WLAN SSI | Status | | | | | |
| And a second | - | 5.900 | Tak-only fullege | MIC ADDRESS | Association Strenice Crantil | Thatkin . | |
| torman Lipprade | | Rinker | | | | | |
| Configuration Crical | and municipality | | Incaste Internet | And Address | And and advect Taxable Canada C | Table | |
| | | 100 | and the second s | | And a second second second | a start and a st | |

1 Menu

• The viewing and settings menu on the left are categorized by the function.

2 Upper screen

• Language setting: Can set the display language either in Korean or in English.



- LOGOUT: Logout from the Web UI page.
- REBOOT: The system must be rebooted to apply the changes in parameters.

③ Main panel

• The information for each menu can be viewed or configured.

6.3. Main Menu

• The current setting can be viewed or modified.

① Status Information

A. Default Information

| Default Inform | nation | | | | | | | |
|--|----------|------------------------------|--------------|--------------------------|--------|--|--|--|
| Model | | R4P00014 | | | | | | |
| NW Firmware Version S/W Firmware Version System Start Time | | 100 | | | | | | |
| | | 1044 | | | | | | |
| | | 8Qay 2Hour 25Minute 22Second | | | | | | |
| SSH Activity | | OFF | | | | | | |
| LAN MAC Address | | 00.07.80.38.38.17 | | | | | | |
| LAN IP Address | | 192,168.1.1 255.255.255.9 | | | | | | |
| LAN Subnet Mask | | | | | | | | |
| 2.4G WLAN Charter | el | Disatle | | | | | | |
| 55 WLAR Channel | | 10115-805GHz(40MHz) | | | | | | |
| 2.4 WLAN SSI | D Status | | | | | | | |
| NO. | \$50 | Security Settlegs | MAC Address | Association Device Count | States | | | |
| 5G WLAN SSI | D Status | | | | | | | |
| 540. | 8.540 | Security Settings | MAC Address | Association Device Count | States | | | |
| 1 | Gutter | 10P42-Personal | 000780383658 | 1 | Enable | | | |

> This menu provides information about the settings and the environment of RAP001A.

i. Default information: Display information about the basic information.

- Model: Display the Model information of the product.
- HW Firmware version / SW Firmware version: Display the Version.
- System Start Time: Display the Service time after Reboot.
- SSH Activity: Display the connection status using the SSH protocol.
- LAN MAC Address: Display the MAC address of LAN cable.
- LAN IP Address: Display the LAN IP address.
- LAN Subnet Mask: Display information about the LAN Subnet Mask.
- 2.4G WLAN Channel: Display the current channel with 2.4G and the bandwidth information.
- 5G WLAN Channel: Display the current channel with 5G and the bandwidth information.

ii. 2.4G WLAN SSID Status: Display information about current 2.4G wireless LAN.



B. Session Information

| aras Informa | ation > Section Information | | | | | | | | English | • Legest Re |
|--------------|-----------------------------|----------------|--------------------|--------------------------|---------------|-----------------|------|-------------|-------------|-----------------------|
| 2.4G De | vice | | | | | | | | | |
| ka, | 982 | MAC Address | Allocation Mode | Authentication Method | (P Address | Idle time(s) | RSSI | Tx bytes | Rx bytes | Allocation Control |
| 5G Devi | ce Information | | | | | | | | | |
| 6. | \$50 | BAC Address | Allocation Mode | Authentication Method | Q Address | idie time(s) | 855I | Tx bytes | Rx bytee | Allocation Control |
| 1 | Geiffon | 位征拒护信号 | 802.1155 | 97A2-PIK | 192.198.1.80 | 00:00:00 | -85 | 8183 | 1583 | Carlos R |

- > This menu provides information about the devices connected to the wireless LAN of RAP001A.
 - i. 2.4G Device information: Display the information and the status of the devices conn ected to the 2.4G wireless LAN.
 - ii. 5G Device information: Display the information and the status of the devices connected to the 5G wireless LAN.
 - SSID (Service Set Identifier): Display the value that distinguishes the wireless LAN, and this values allows the connection to the corresponding BSS (basic service set).
 - MAC Address: Display the physical address of each device.
 - Allocation Mode: Display the wireless mode of each device, such as a/b/g/n/ac.
 - Authentication Method: The Authentication status can be divided into the authenticated and the unauthenticated status, and the Authentication Method changes by the authentication and security methods.
 - IP Address: Display the private IP assigned to the device by the RAP001A.
 - Idle Times(s): Display the idle time of the device.
 - RSSI: Display the receiving sensitivity.
 - Tx bytes: Display the amount of Transfer data.
 - Rx bytes: Display the amount of Receive data.

C. IP Lease Information

| Situtus Information > D | English • Legist Babier | | | | |
|-------------------------|-------------------------|-------------------|----------------|--------------|--------|
| | IP Address | BAC Address | Exipite Tatus | WireWireless | Status |
| 1 | 192 168 1 113 | 00 10 18 53 16 30 | 0day, 00:05:21 | Wired | Lapsed |

> This menu provides information about the assigned IP for wireless and wire LAN of RAP001A.

2 Network



A. Default Settings

| ervork > Default Settings | | English • Legent Paleo |
|---------------------------|-----------------------|------------------------|
| | | |
| LAN | | |
| IP Address | 192 168 1 1 | |
| Subnut Mask | 255 255 255 0 | |
| DHCP Start Address | [1922][1930][1][2][2] | |
| DHCP End Address | (mi) [mii] [x] 254 | |
| DHCP Lease Time | 10 ktoute | |

i. LAN

- IP Address: Display the IP address of RAP001A.
- Subnet Mask: Display the Subnet Mask of RAP001A.
- DHCP Start Address: Display the DHCP Start Address, which is assigned to device by RAP001A.
- DHCP End Address: Display the DHCP End Address, which is assigned to device by RAP001A.
- DHCP Lease Time: Display the DHCP Lease Time, which is assigned to device by RAP001A.

B. DHCP Static Settings

| Network > DHCP Static Se | tlings | | | | English • Legent 2 | letiost |
|-----------------------------|----------------------|------------------------|-----------------------------------|---------|--------------------|---------|
| Automatic Allecatio | n QFF | 9N: | | | | |
| non-managemen HW Address | device OFF Current 1 | Italus: ON | MAC liearching | | | |
| IP Address to allocate | | [182][168][1]. Add | Contraction and the second second | | | |
| No. | HWAddress | IP Address to allocate | | Comment | | 6 |



http://192.168.1.1 8080/search_mac_result.html

Search Mac address

| HW Address | | 1: | 4 4 | 1: | | |
|-------------------|--------------|-------------|------------|-----------|------|--|
| H/W adress is inp | utted automa | tically whe | n choosing | pc to app | aly. | |
| | Save | Cancel | Refres | h | | |

| Host Name | HW Address | |
|-----------|-------------------|--|
| Unknown | 00:0E:8E:69:0B:99 | |
| Unknown | 00:10:18:53:1E:30 | |

> It is the filter function that limits the connectable device.

i. DHCP Static Settings

- Automatic Allocation OFF: Display the setting value of automatic IP allocation for devices.
- Non-management device: Display the policy about the registered or unregistered devices to the WEB UI.
- HW address: Input the 12-digit Hardware address of device to where the IP is assigned.
- IP address to allocate: Input the assigned IP address.
- ii. Mac Searching
- HW Address: Input the 12-digit Hardware address directly into the field or using the automatic search function.
- Table for Device management
- The table shows the hardware address of the devices that the DHCP Static table manages and the record list of the IP address to be assigned.



3 2.4G Wireless LAN Settings

A. Radio settings

| | | | and the second second |
|------------------------------------|-----------------------|---|------------------------|
| L4G WLAN Settings > Radio Settings | | | English • Lagrad Balan |
| | | | |
| | | | |
| If used or not | Enable C Disable | | |
| Country Code | KOREA REPUBLIC | | • |
| Wireless Mode | 802.1100 | | |
| Channel Band Width | ② 20MHz ● 40MHz | | |
| Channel Selection | Auto Channel(Auto) | | |
| Channel Output | 100% | 7. * | |
| Association Lomit Count | 0 | (default 0(unitmited), 0~100) | |
| RTS Threshold | 2347 | 11-2347) | |
| Frag Threshold | 2346 | (256-2346, even number) | |
| Beacon Interval | 100 | (20+1024) | |
| OTIM Interval | 1 | (1+255) | |
| Link Timeout | 300 | (90-900) | |
| Guard Interval | C Long @ Short | | |
| Short Preamble | 🖷 Enable 🗇 Disable | | |
| Protection Type | Itione # CTB-only | © RTB-CTB | |
| AMPDU | · Enable O Disable | max frames 32 (1-64), max bytes 50000 (1-65536 bytes) | |
| AMISOU | C Enable . Disable | | |
| STRC | 🖷 Enable 🔿 Disable | | |
| Tx Chain | Ri Chain 1 St Chain 2 | IV Chain 3 | |
| Rx Chain | E Chain 1 E Chain 2 | Pl Chain 3 | |

> This menu displays the properties of the 2.4G wireless LAN.

i. Radio settings

- If used or not: Set whether to use the corresponding wireless LAN.
- Country Code: The Country Code setting is required because the allowed RF Channels differ by countries, and it can be currently set only for America and Korea.
- Wireless Mode: The Wireless Mode can be set to 802.11 b/g/n.
- Channel Width: The wireless bandwidth can be set to BW 20M or 40M.
- Channel Selection: The channel to use can be set to Auto or Manual.
- RTS Threshold: Set the size of the packet considering the Hidden Node.
- Frag Threshold: Transmit by dividing the wireless packet according to the setting value.
- Beacon Interval: It synchronizes the packet sent from RAP001A and the packet the device receives, and it is the transmission interval.
- DTIM Interval: It is the signal that sounds when there is data to send to device and breaks the standby status of device.
- Link Timeout: Display the Session time to provide to devices.
- Guard Interval: It is the data length that checks the connection before the wireless transmission.
- Short Preamble: It provides some spare time for receiving device to synchronize the clock of RAP001A.
- Protection Type: It is type to protect the hidden node issue.



English

- AMPDU : Aggregate-MAC Protocol Data Unit
- AMSDU : Aggregate-MAC Service Data Unit
- STBC : Space Time Block Coding
- Tx Chain: Check the data Transfer status of 3X3 antenna.
- Rx Chain: Check the data Receive status of 3X3 antenna.

B. SSID Settings

| 24 | IG WEAN | Settings > 5 | SED Setting | |
|----|---------|--------------|-------------|--|

| MO. | \$30 | Security Settings | Hunod | Settings |
|-----|----------|-------------------|-------|----------|
| 1 | Oriffine | WPA2-Presonal | 321 | Madity |
| 2 | Windexs | Open | 10 | Mindity |
| i i | Wardens | Opm | 15 | Madity |
| 4 | Windows | Open | 13 | Modify |
| 5 | Wardena | Open | 173 | Modely |
| | Wardnos | Opm | 0 | Madhy |
| ; | Window | Open | 13 | Mades |
| 1 | Wardens | Opm | 10 | Modify |

2.4G WEAN Settings > 8500 Settings

| SSD Name | Gutton | |
|---|----------------------------|--|
| SSID Broadcast | · Enable C Disable | |
| Association Lond Count | 0 ID-100.0 is not limited) | |
| Communication permission between wireless UEs | C Enable @ Disable | |
| ARP Spoofing prevention function | 🗇 Enable 🖷 Disable | |
| Garunity | | |
| security | | |
| Authentication Method | O open · wpa | |
| WPA | | |
| Security Mode | O WPA @ WPA2 O WPASWPA2 | |
| Encryption Blathod | O THOP . ALS O THOPANES | |
| Authentication Method | · PSK | |
| PSK Key | | |

> This menu displays the SSID property of the 2.4G wireless LAN.

i. SSID Settings

- SSID name: Defines the SSID name. You can use Korean, English alphabets, number, space, and symbols for the SSID name.
- SSID Broadcast: Displays the possibility of SSID Broadcast to devices.
- Association Limit Count: Limit the number of devices that can be connected to the corresponding



SSID.

- Communication permission between wireless Use: Set whether to allow the connection between wireless devices.
- ARP Spoofing prevention function: Set whether to use the prevention function against the ARP Spoofing attack.

ii. Security

• Authentication Method: Set whether to provide the open SSID service or the SSID service with a password.

iii. WPA

- Security Mode: Display the type of security mode.
- Encryption Method: Display the type of encryption method.
- Authentication Method: Display the authentication method.
- PSK Key: Input the encryption key.



C. WPS Settings

| 2.4G WLAN Settings > WPS Settings 		 Logout Reboor | | | | | | |
|--|----------------|----------|-------------------|--|--|--|
| | | | | | | |
| No. | Settings | SSID | Security Settings | | | |
| 1 | WPS Connection | Griffon | WPA2-Personal | | | |
| 2 | WPS Connection | Wireless | Open | | | |
| 3 | WPS Connection | Wireless | Open | | | |
| 4 | WPS Connection | Wireless | Open | | | |
| 5 | WPS Connection | Wireless | Open | | | |
| 6 | WPS Connection | Wireless | Open | | | |
| 7 | WPS Connection | Wireless | Open | | | |
| 8 | WPS Connection | Wireless | Open | | | |

> This menu displays the WPS Settings for each SSID (2.4G).

• WPS Connection: Attempts to connect with WPS and the connection to WPS will be successful when connected within two minutes.



④ 5G WLAN Settings

A. Radio Settings

| SG WLAN Settings > Radia Settings | | | English + Leput Robool |
|-----------------------------------|-------------------------|---|------------------------|
| | | | |
| If used or not | @ Enable 🗇 Disable | | |
| Country Code | KOREA REPUBLIC | | * |
| Wireless Node | 802.111 | | |
| Channel Band Width | C 20MP0. @ 40MHz C 8 | D6#42 | |
| Channel Selection | Auto Channel(Auto) | | |
| Channel Output | 100% | - | |
| Association Lomit Count | 0 | (default 0(unitmited), 0~100) | |
| RTS Threshold | 2347 | (1-2347) | |
| Frag Threshold | 2345 | (255-2346, even number)- | |
| Beacon Interval | 100 | (20-1024) | |
| DTIM Interval | 1 | (1~255) | |
| Link Timeout | 300 | (60-500) | |
| Guard Interval | 🗇 Long 🖷 Short | | |
| Short Preamble | 🖷 Enable 🛞 Disable | | |
| Protection Type | C Nume @ CTS-only C I | RTS-CTS | |
| AMPOU | 🖷 Enable 🔘 Disable ma | x frames 32 (1-64), max bytes 50000 (1-65536 bytes) | |
| AMSOU | C Enable 🖲 Disable | | |
| STBC | 🖷 Enable 🔘 Disable | | |
| Tx Chain | 50 Chain 1 90 Chain 2 8 | Ri Chain 3 | |
| Rx Chain | IE Chain 1 IE Chain 2 5 | 킨 Chain 3 | |

This menu displays the property of the 5G wireless LAN.

i. Radio Settings

- If used or not: Set whether to use the corresponding wireless LAN.
- Country Code: The Country Code setting is required because the allowed RF Channels differ by countries, and it can be currently set only for America and Korea.
- Wireless Mode: The Wireless Mode can be set to 802.11 a/n/ac.
- Channel Band Width: The wireless bandwidth can be set to BBW 20M, 40M, or 80M.
- Channel Selection: The channel to use can be set to Auto or Manual.
- RTS Threshold: Set the size of the packet considering the Hidden Node.
- Frag Threshold: Transmit by dividing the wireless packet according to the setting value.
- Beacon Interval: It synchronizes the packet sent from RAP001A and the packet the device receives, and it is the transmission interval.
- DTIM Interval: It is the signal that sounds when there is data to send to device and breaks the standby status of device.
- Link Timeout: Display the Session time to provide to devices.
- Guard Interval: It is the data length that checks the connection before the wireless transmission.
- Short Preamble: It provides some spare time for receiving device to synchronize the clock of RAP001A.
- Protection Type: It is type to protect the hidden node issue.



English ... Legent Exter

- AMPDU : Aggregate-MAC Protocol Data Unit
- AMSDU : Aggregate-MAC Service Data Unit
- STBC : Space Time Block Coding
- Tx Chain: Check the data Transfer status of 3X3 antenna.
- Rx Chain: Check the data Receive status of 3X3 antenna.

B. SSID Settings

| WLAN Settings > 55ED Settings | | | | |
|-------------------------------|----------|-------------------|-------|----------|
| | | | | |
| | | | | |
| No. | \$50 | Security Settings | Huned | Settings |
| 1 | Onifies | WPA2-Personal | 12 | (Budly) |
| 2 | Windest | Oper | 8 | Mendatly |
| 3 | Windess | Open | 5 | Madity |
| 4 | Waxless | Open | 5 | Modify |
| 5 | Wandese | Open | 13 | Modify |
| 8 | Wardings | Opm | D | Medity |
| 1 | Windext | Open | 6 | Anualty |
| 1 | Wardana | Opm | 15 | BALCOTY: |

IG WLAN Somings > SND Somings

| S SID Name | Gittion | | | |
|---|----------------------------|--|--|--|
| SSID Broadcast | Enable C Disable | | | |
| Association Lond Count | 0 (0-100, 0 is not imited) | | | |
| Communication permission between wireless UEs | C Enable @ Disable | | | |
| AllP Spooling prevention function | 🗇 Enable 🖷 Disable | | | |
| | | | | |
| Security | | | | |
| Authentication Method | O open 🖷 wpa | | | |
| | | | | |
| WPA | | | | |
| Security Mode | IC WPA . WPA2 C WPASWPA2 | | | |
| Encryption Mathod | © TOP ● AES © TRIPAAES | | | |
| Authentication Method | # PSK | | | |
| PSK Key | | | | |

> This menu displays the SSID property of the 5G wireless LAN.

i. SSID Settings

- SSID Name: Defines the SSID name. You can use Korean, English alphabets, number, space, and symbols for the SSID name.
- SSID Broadcast: Displays the possibility of SSID Broadcast to devices.
- Association limit Count: Limit the number of devices that can be connected to the corresponding



English . Legent Bob

SSID.

- Communication permission between wireless use: Set whether to allow the connection between wireless devices.
- ARP Spoofing prevention function: Set whether to use the prevention function against the ARP Spoofing attack.

ii. Security

• Authentication method: Set whether to provide the open SSID service or the SSID service with a password.

iii. WPA

- Security Mode: Display the type of security mode.
- Encryption method: Display the type of encryption method.
- Authentication method: Display the authentication method.
- PSK Key: Input the encryption key.

C. WPS Settings

| 100 No.2 AND | Contractory in the | STATISTICS. | And in case of the |
|---------------------|--|-------------|--------------------|
| THE PERSON NEWSFILM | Contraction of the local division of the loc | 10.0 | |
| | | | |
| | | | |

| 80. | Settings | \$ SID | Security Settings |
|-----|------------------|----------|-------------------|
| 1 | WPS Consection | Outline | WPA2-Personal |
| 2 | sensi Connection | Warding | Open |
| 3 | WPG Connection | Wittless | Open |
| 4 | MPS Cannidan | Wardena | Opee |
| 3 | WPS Connection | Windess | Oper |
| 8 | MPS Carried an | Window | Open |
| 1 | WPG Convention | Window | Open |
| 1 | 1995 Convertien | Windows | Open |

- > This menu displays the WPS Settings for each SSID (5G).
 - WPS Connection: Attempts to connect with WPS and the connection to WPS will be successful when connected within two minutes.



5 Advanced Settings

A. EXT Interlocking Settings

| Advanced Settings > EXT laterlacking Settings | | English • Legent Robot |
|---|---|------------------------|
| | | |
| Interlocking or Not | 🖷 Enable 🗇 Disable | |
| EXT Association IP | 102.168.1.1 | |
| EXT Association Port | 20018 (Detault Port 20010, Range: 1025 - 65535) | |

> The external connection for AGI can be set through this menu.

- Interlocking or Not: Set whether to use the EXT interlocking.
- EXT Association IP: Display the received LAN IP address for corresponding address.
- EXT Association Port: Set the address for EXT Association Port.

B. Remote Management Settings

| Advanced Settlings > Remote Management Settlings | | | | English - Legent Rabort |
|--|----------|---|------------------|-------------------------|
| Web CM Connection Settings | | | | |
| Web CM Remote Connection Port | 8080 | (Defalul Port 8040, Range: 1025-46535) | | |
| Web Clit Remote Connection Password | | | (Length: 8 - 50) | |
| SSH Connection Settings | | | | |
| S SH Remote Connection | C Enable | Disable | | |
| 55H Remote Connection Port | | (Default Port 2222, Range 1025 - 66636) | | |

This menu provides the information about the WEB UI that controls the product or the connection to the inner terminal.

i. Web CM Connection Settings

- Web CM Remote Connection port: Display the Port number when connecting to the corresponding WEB UI.
- Web CM Remote Connection Password: Display the login ID and the password.

ii. SSH Connection Settings

- SSH Remote Connection: Set whether to enable the connection using the SSH protocol.
- SSH Remote Connection Port: Set the SSH protocol port number.



C. Firmware Upgrade

Configuration Clear

| Advanced Settings > Flearware Upgrade | | | English • Legent Robert |
|---|---|---|--|
| Femware File Selection | | 호대보기 J Upgrade Start | |
| ➤ The firmware of the | e product can be ι | upgraded. | |
| Firmware File SeUpgrade Start: S | election: Search th elect the normal F | e Firmware binary inside the Firmware binary and click the | e locally connected terminal. e [Upgrade Start] button. |
| D. Configuration Cle | ar | | |
| Advanced Settings > Configuration Clear | | | English • Legent Robert |

• Reset the settings value. At this time, the parameter set by users may be initialized.

Configuration Clear



IC Information to User

"This device complies with Industry Canada licence-exempt RSS standard(s). 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."

FCC Information to User

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 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 con-nected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution

Modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Compliance Information : 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.

IMPORTANT NOTE:

FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.





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