BUFFALO™

AirStation

WHR-1166D
User Manual

www.buffalotech.com

Contents

Chapter 1 - Setup

Introduction

Thank you for purchasing a Buffalo AirStation. The WHR-1166D AirStation is a dual-band wireless router with outstanding performance and range. It combines high data transfer speeds with a robust set of extra features like QoS, guest accouts, eco mode, and web filtering. This manual will help you set up and use your new wireless router.

For advanced users, use a wired Ethernet connection to access the AirStation's settings:

- Default LAN-side IP address: 192.168.11.1
- Username: admin
- Default password: password

Diagrams and Layout

Front Panel
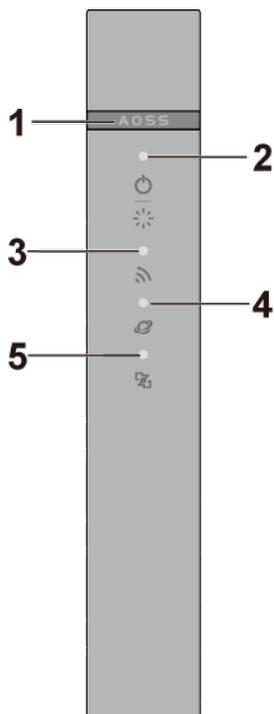
1 AOSS button

To initiate AOSS, hold down this button until the wireless LED flashes (about 3 second). Then, push or click the AOSS button on your wireless client device to complete the connection. Both devices must be powered on.

2 Power/Diag LED (Green or Amber)

On (Green):
Power is on.
Blinking (Green):
Booting.
Off:
Power is off.
2 blinks (Amber)**:
Flash ROM error.
3 blinks (Amber)**:
Wired LAN error.
4 blinks (Amber)**:
Wireless LAN error.
5 blinks (Amber)***:
IP address setting error.
Continuously blinking (Amber)*:
Updating firmware, saving settings, or initializing settings.

* Do not unplug the AC adapter while the LED is blinking continuously.

** Turn off AirStation first, wait for a few seconds, then turn it back on.

*** WAN-side and LAN-side IP addresses are the same. Change the LAN-side IP address of the AirStation.

3 Wireless LED (Green or Amber)

On:
Wireless LAN is enabled or transmitting.
Double blinks:
AirStation is waiting for an AOSS or WPS security key.
Continuously blinking:
AOSS/WPS error; failed to exchange security keys.
Off:
Wireless LAN is disabled.

Note: The wireless LED will be green if security is enabled or amber if it is disabled.

4 Internet Access LED (Green)

On:
Router functionality is enabled and you can connect to the Internet.
Blinking:
Router functionality is enabled but you cannot connect to the Internet.
Off:
Router functionality is disabled (the AirStation is in bridge mode).

5 Router LED (Green or Amber)

On (Green):
Mode switch is in the "Auto" position.
On (Amber):
Mode switch is in the "Router" position.

Off:
Mode switch is in the "Bridge" position.

Back Panel
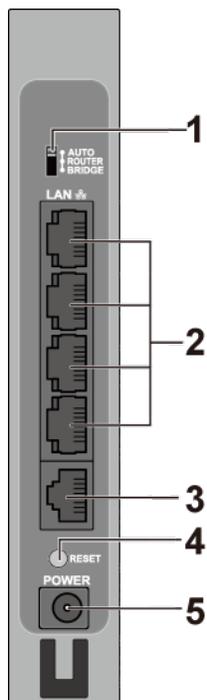
1 Mode Switch
This switch changes between router mode and bridge (access point) mode. Auto mode will enable or disable router functionality automatically.

2 LAN Port
Connect your computer, hub, or other Ethernet devices to these ports. This switching hub supports 10 Mbps and 100 Mbps connections

3 Internet Port
10 Mbps, 100 Mbps, and 1000 Mbps connections are supported.
Note: In bridge mode, the Internet port becomes a regular LAN port that supports also 1000 Mbps, for a total of 5 usable LAN ports.

4 Reset Button
To reset all settings, hold down this button until the power/diag LED turns amber (about 3 seconds). The power must be on for this to work.

5 DC Connector
Connect the included AC adapter here.

Bottom

1 Setup Card Slot
   This is the slot where the AirStation setup card is stored. The initial settings for the username, password, SSID, and encryption type are provided on the card.

How to Set Up AirStation for the First Time

Connect to a PC and Power On

To configure your AirStation, follow the procedure below.

1 Verify that you can connect to the Internet without the AirStation, then turn off your modem and computer.

2 Unplug the LAN cable which connects your computer and modem.
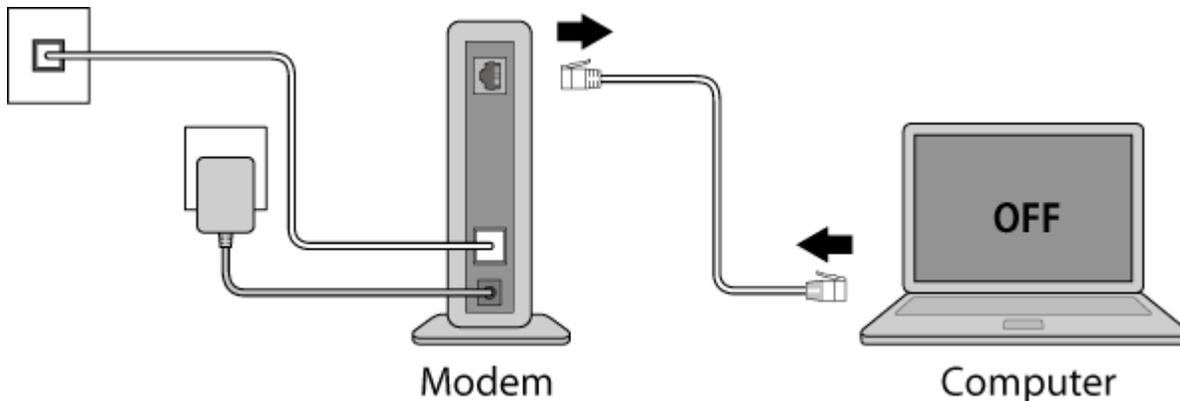
3 Confirm that the mode switch is in the "Auto" position. Plug one end of the LAN cable into your modem and the other end to the AirStation's Internet (WAN) port. Turn on the modem.

Modem   Internet Port   AirStation
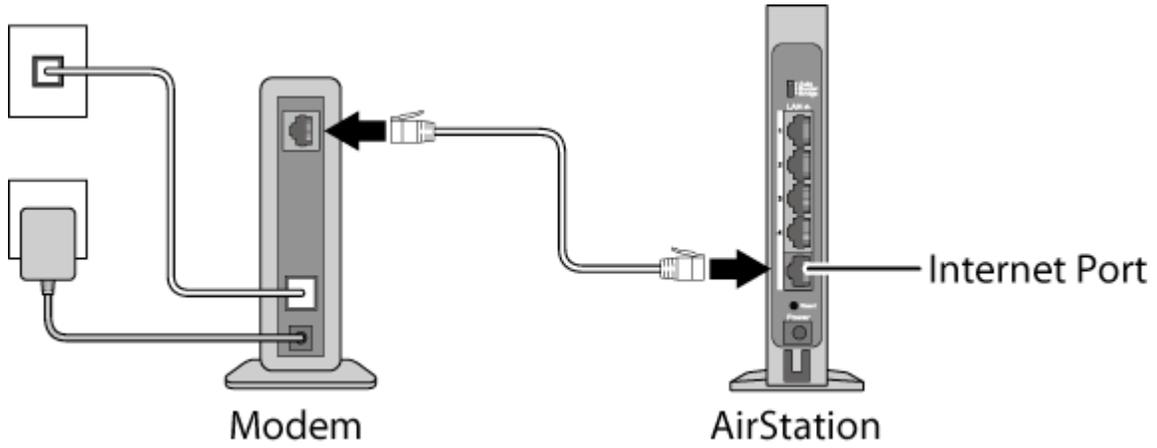
4 Turn on the AirStation and wait one minute.
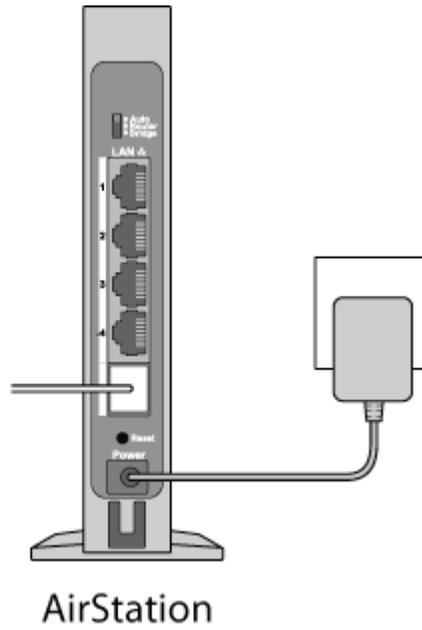
AirStation

5 If using a wired LAN, connect the AirStation LAN port and computer using a LAN cable.
If using a wireless LAN, connect the computer to the wireless LAN as described in Chapter 3.

AirStation   Computer
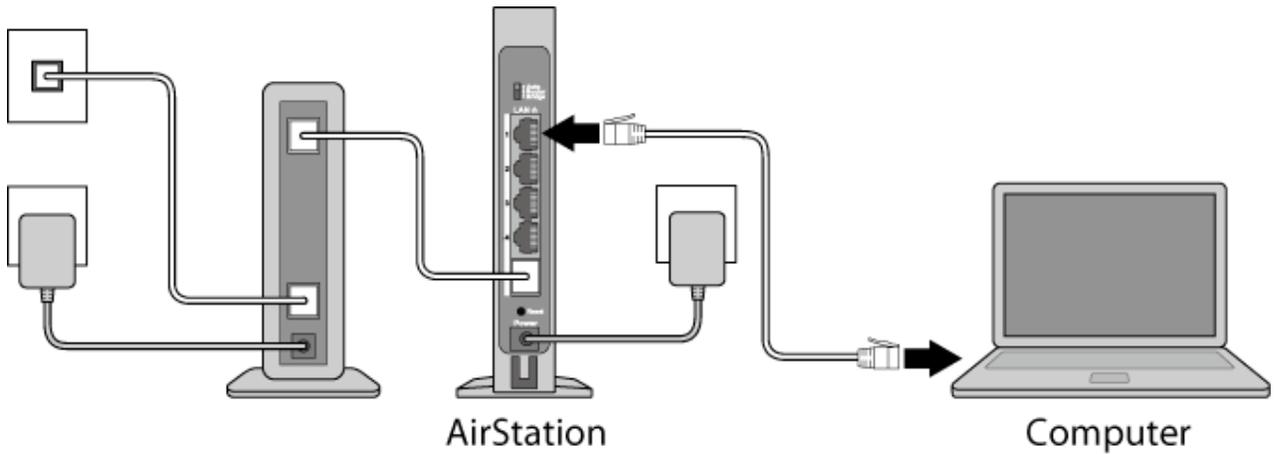
6 Once your computer has booted, the AirStation's LEDs should be lit as described below:
Power/Diag: Lit green.
Wireless: Lit green.
Router: Lit green.

7 Launch a web browser. If the home screen is displayed, setup is complete.
If username and password fields are displayed, enter "admin" for the username and "password" for the password,
then click *Log In*. Step through the wizard to complete setup.

You've completed the initial setup of your AirStation.

Opening Settings

To configure the AirStation, log in to Settings as shown below.

1 Launch a web browser.

2 Enter the AirStation's LAN-side IP address in the address field and press the enter key.
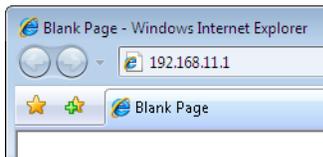
> **Notes:**
> - The AirStation's default LAN-side IP address depends on the mode.
> - In router mode: 192.168.11.1
> - In bridge (access point) mode: 192.168.11.100
> - In wireless bridge mode: 192.168.11.100
>   If the mode switch is set to Auto and the AirStation is in bridge (access point) mode, the AirStation's IP address is assigned by an external DHCP server.
> - If you changed the IP address of the AirStation, then use the new IP address.

3 Enter "admin" for the username and "password" for the password, then click *Log In*.
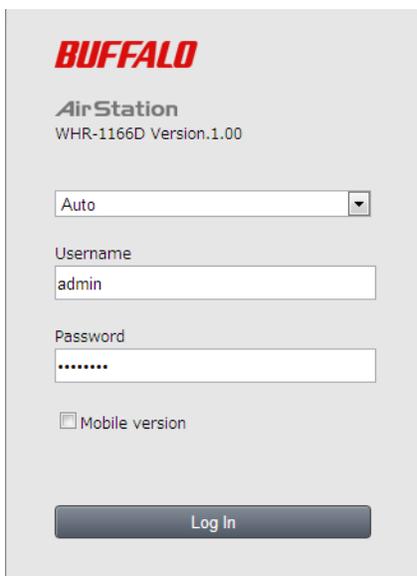
Note: If you forget your password, hold down the reset button to initialize all settings. Note that all other settings will also revert to their default values.

4   This is the home page of Settings, where most AirStation settings can be configured.
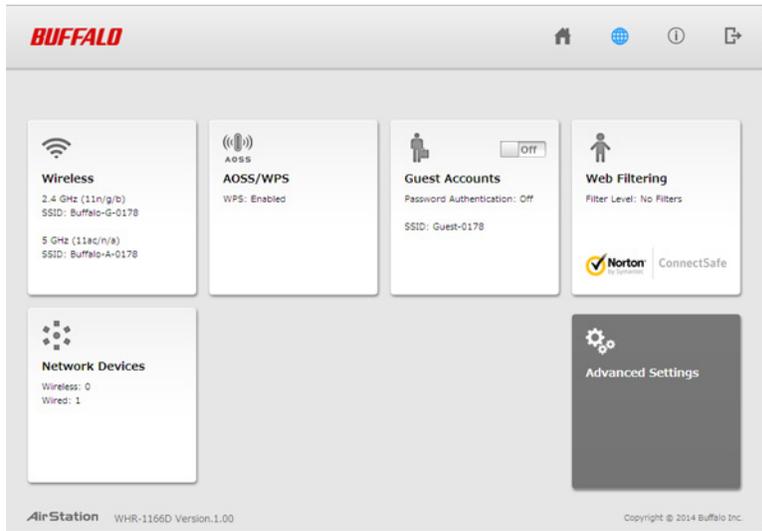
Connect Your Wireless Devices

For each wireless device that you want to connect to the network, use the device's built-in software to search for available networks. Find your SSID (the name of your wireless network) on the list of detected networks and select it.

Enter the passphrase for the network and you'll be connected. Repeat for any additional wireless client devices that you want to connect.

Chapter 2 - Settings

Settings is the configuration GUI for the AirStation. You can configure all settings for the AirStation from here.

Easy Admin

Home

When you first open Settings, the Easy Admin page is shown. From this page you can easily configure common settings. The examples below assume the AirStation is in router mode.
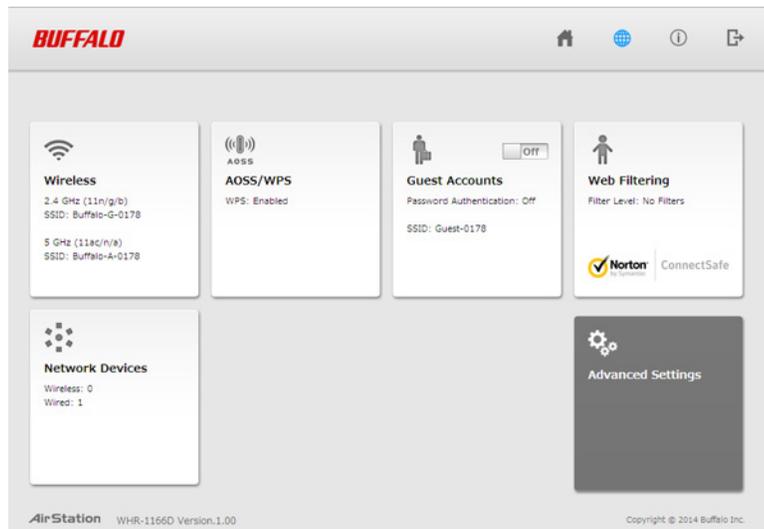
Wireless	Displays current wireless status. Click the panel to configure wireless settings.
AOSS/WPS	Displays current AOSS/WPS status. Click the panel to run AOSS/WPS.
Guest Accounts	Displays current guest accounts status. Click the slider to turn guest accounts on or off. Click the panel to configure guest accounts settings.
Web Filtering	Displays current content filter status. Click the panel to configure web filtering.
Network Devices	Displays the number of devices connected to the network. Click the panel to check each device's status.
Advanced Settings	Click the panel to configure advanced settings.

Wireless

Configure basic wireless settings here.

2.4 GHz (11n/g/b) 5 GHz (11ac/n/a)	You may enable or disable either wireless frequency range independently. If both wireless radios are disabled, the AirStation will not communicate wirelessly.
SSID 1	Each SSID may contain up to 32 alphanumeric characters.
Encryption	The following types of encryption are available: **WPA2-PSK AES** WPA2 authentication with AES encryption is the best system available. Highly recommended if all your wireless clients support it. **WPA-PSK AES** WPA authentication with AES encryption is an older system, but still secure. **WPA/WPA2-mixed PSK AES** For maximum compatibility, this system allows any combination of WPA, WPA2, and AES. This encryption system works with most older clients but is not very secure. **No Encryption** No encryption means that anyone can log in to your wireless network, snoop on your wireless traffic, and use your bandwidth. Not recommended for most users. **Note:** To use WEP encryption, navigate to *Wireless - 2.4 GHz (or 5 GHz) - Encrypt Wireless Data* and select *WEP*.
Encryption Key	The encryption key is like the "password" for your wireless network. It may contain 8 to 63 case-sensitive alphanumeric characters (ASCII) or 64 hexadecimal characters (0-9 and a-f, not case-sensitive).
Channel	For best results, select *Auto Channel*. The AirStation will seek and use the clearest channel automatically. Alternately, you may choose a wireless channel manually.
Bandwidth	In rural areas with little wireless traffic, a larger bandwidth setting may improve wireless performance significantly. However, if you are in an urban area with much wireless traffic and interference, the default bandwidth is recommended.

AOSS/WPS

The following window appears when you click the panel. Click *OK* to start AOSS/WPS.

Guest Accounts

Configure guest account settings here.
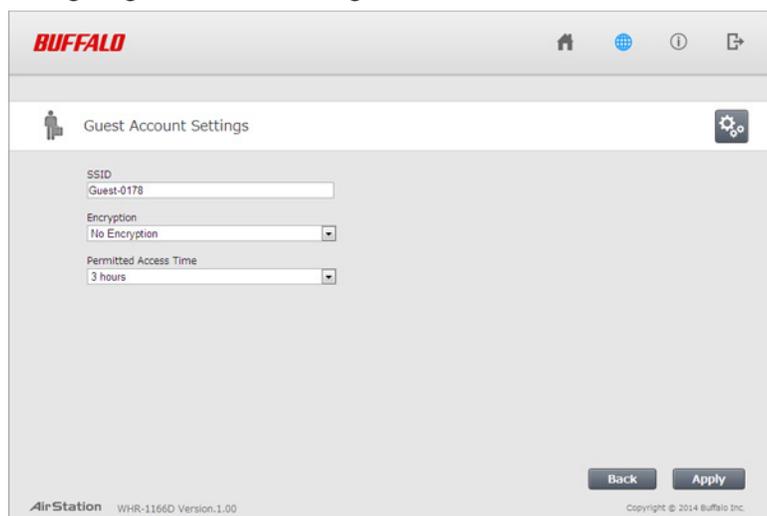
SSID	The SSID for the guest accounts may contain up to 32 alphanumeric characters.
Encryption	Select an encryption mode for the guest accounts.
Permitted Access Time	This is the amount of time that guests will be permitted to access the Internet.

Web Filtering

Configure web filtering. This is available in router mode only.

Block Malicious Sites	Blocks malware, phishing, and scam sites.
Block Malicious and Adult Sites	Blocks malware, phishing, and sites that contain sexually explicit content.
Block Malicious, Adult, and Other Non-Family Friendly Sites	Blocks malware, phishing, and scam sites, sites that contain sexually explicit material, mature content, abortion, alcohol, crime, cult, drugs, gambling, hate, sexual orientation, suicide, tobacco, and violence.
No Filters	This allows unrestricted access to all websites.
I agree to Norton's Terms of Service	Web filtering is provided by Symantec Corporation. To enable, you must accept the terms of service.

Norton ConnectSafe must be activated by the customer. Use of Norton ConnectSafe is subject to the terms of service found at https://dns.norton.com/dnsweb/terms.do

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Network Devices

Check the status of each device connected to the network. This is available in router mode only.
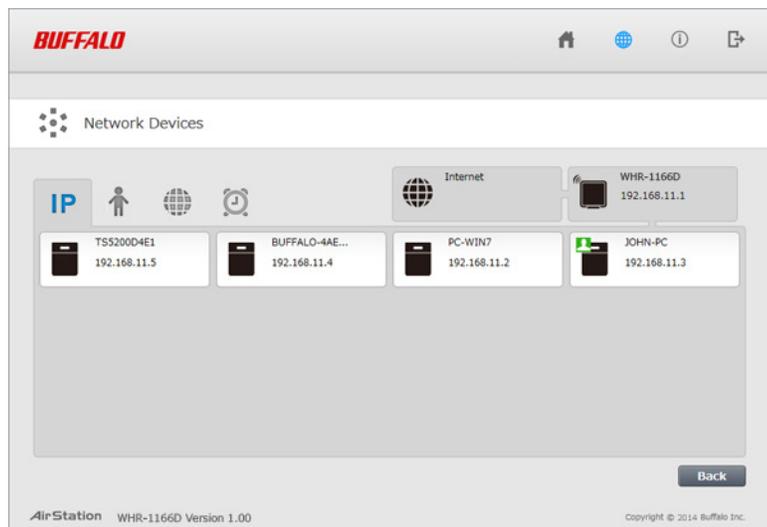
IP	Displays the IP address of each device connected to this product.
	Displays the devices connected to the AirStation.
	Click the appropriate icon to open each device's settings.
	Click the icon to send a Wake-on-LAN packet to the device.

Advanced Settings

Internet

Configure the WAN-side port (Internet port) here.

Internet - Internet (Router Mode Only)

Method of Acquiring IP Address	Specify how the WAN-side IP address is obtained.
Default Gateway	Configure an IP address for the default gateway.
DNS Name Server Address	Specify IP addresses for the DNS server.
Internet MAC Address	You may use the default MAC address or specify one manually. **Note:** Configuring an improper MAC address may make the AirStation unusable. Do not change the MAC address unless you know what you're doing!
MTU Size of Internet Port	Configure the MTU value of the Internet port. Values of 578 to 1500 bytes may be entered.

PPPoE

Configure PPPoE settings here.

Internet – PPPoE (Router Mode Only)

Default PPPoE Connection	If you have registered multiple connection destinations in the *PPPoE Connection List*, connection destinations selected here have priority.
IP Unnumbered PPPoE Connection	Select the destination from the *PPPoE Connection List* to be used when *Use IP Unnumbered* is chosen as the method of acquiring IP address.
PPPoE Connection List	Edit PPPoE destination. You can register up to 5 sessions.
Edit Connection List	Click this button to edit destination settings.

PPPoE Connection	This is displayed when *Edit Connection List* is clicked. **Name of Connection** Enter the name to identify the connected destination. You may enter up to 32 alphanumerical characters and symbols. **Username** Enter the username specified by your ISP for PPPoE certification. You may enter up to 64 alphanumerical characters and symbols. **Password** Enter the password specified by your ISP for PPPoE certification. You may enter up to 64 alphanumerical characters and symbols. **Service Name** Fill in this field only if your ISP specifies a service name. Leave blank otherwise. You may enter up to 64 alphanumerical characters and symbols. **Connection Type** Specifies the timing for the AirStation to connect to your provider. **Automatic Disconnection** Set time to disconnect after communication is stopped when the connection method is set to *Connection on Demand* or *Manual*. You can enter up to 1440 minutes. **Authentication** Configure an authentication method with an ISP. **MTU Size** Configure the MTU (maximum transmission unit) size for PPPoE. Values of 578 to 1492 bytes may be entered. **MRU Size** Configure MRU (maximum receive unit) for PPPoE. Values of 578 to 1492 may be entered. **Keepalive** If keepalive is enabled, the AirStation will issue an LCP echo request once a minute in order to maintain the connection with the PPPoE. If the server does not respond for more than 6 minutes, the line is recognized as disconnected and the AirStation will terminate the connection. Disabled by default.
Preferred Connections	Displays information you have set regarding to the connection destination route.
Edit Preferred Connections	Click to edit the connection destination route settings.
Preferred PPPoE Connection	Click *Edit Preferred Connections* to display. **Name** The destination to connect by PPPoE if *Destination Address* and *Source Address* match. Select the destination registered to the PPPoE Connection List. **Destination Address** When communicating to this address, the AirStation will communicate with *Name*. **Source Address** When communicating from this address, the AirStation will communicate with *Name*.

Dynamic DNS

Configure dynamic DNS settings here. Many settings are only available when the appropriate dynamic DNS service is enabled.

Internet - Dynamic DNS (Router Mode Only)

Dynamic DNS Service	Select a supported dynamic DNS provider (DynDNS or TZO).
Username	Enter the dynamic DNS username. You may enter up to 64 alphanumerical characters and symbols.
Password	Enter the dynamic DNS password. You may enter up to 64 alphanumerical characters and symbols.
Hostname	Enter the dynamic DNS hostname. You may enter up to 255 alphanumerical characters, hyphens, and periods.
Email Address	Enter the email address which is registered to the dynamic DNS service. You may enter up to 64 alphanumerical characters and symbols.
TZO Key	Enter the TZO key which is registered to the dynamic DNS service. You may enter up to 64 alphanumerical characters and symbols.
Domain Name	Enter the domain name which is registered to the dynamic DNS service. You may enter up to 255 alphanumerical characters, hyphens, and periods.
IP Address Update Period	Specifies the period to notify the dynamic DNS service provider of the current IP address. For DynDNS, set it between 0 and 35 days. For TZO, set it between 0 and 99 days. If 0 (zero) days is set, no periodic update is performed.
Internet-side IP Address	The WAN-side IP address of the AirStation's Internet port. This address is sent to the dynamic DNS service provider.
Domain Name	The domain name assigned by the dynamic DNS service provider. The AirStation can be accessed from the Internet using this domain name.
Status	Displays the status of the dynamic DNS service.

NAT

Configure network address translation settings here. This enables LAN-side devices to communicate with the Internet.

Internet - NAT (Router Mode Only)

Address Translation ☑ Enable

Address Translation	Enable to use network address translation.

LAN

Configure LAN-side and DHCP server settings.

LAN - LAN

LAN-side IP Address	By default, the LAN-side IP address is 192.168.11.1 with subnet mask 255.255.255.0. You may change it here.
DHCP Server	Enable or disable the DHCP server, which assigns LAN-side IP addresses automatically.
DHCP IP Address Pool	Configure the range of IP addresses to be assigned by the DHCP server and IP addresses to be excluded from that range. Values from 1-256 may be entered.
LAN-side IP Address (For IP Unnumbered)	Set an IP unnumbered LAN-side IP address. **Note:** A PC with a normal LAN-side IP address and a PC with an IP unnumbered IP address cannot communicate with each other.
Advanced Settings	Check *Display* to display DHCP server advanced settings options.
Lease Period	Set the effective period for IP addresses assigned by the DHCP server. Up to 999 hours may be entered.
Default Gateway	Set the default gateway IP address for the DHCP server to issue to clients.
DNS Servers	Set the DNS server IP address for the DHCP server to issue to clients.
WINS Server	Set the WINS server IP address for the DHCP server to issue to clients.
Domain Name	Set the domain name for the DHCP server to issue to clients. You may enter up to 64 alphanumerical characters, hyphens, and periods.

DHCP Lease

Configure DHCP exceptions here.

LAN - DHCP Lease (Router Mode Only)

Current DHCP Clients

IP Address	MAC Address	Lease Period	Status	Customize
No IP addresses have been assigned.				

* The IP address of this computer is 192.168.11.2.

Add Client

Refresh

Current DHCP Clients	Displays information for current leases. An IP address which is leased automatically can be changed to manual leasing by clicking *Add Client*.

Routing

Configure the AirStation's IP communication route here.

LAN - Routing

Routing

Destination Address	Subnet Mask	Gateway	Metric	Operation
No routes are registered.				

Add

Routing	Manual entries will appear here after being added.

2.4 GHz/5 GHz

Configure basic wireless settings from here.

Wireless - 2.4 GHz or 5 GHz

Wireless	Determines whether to allow wireless communication. If this is unchecked, no wireless connections will be allowed.

Wireless Channel	Sets a channel (a range of frequencies) for wireless connections. With *Auto Channel* selected, the AirStation will automatically use the best available channel.
High-Speed Mode	Configure the bandwidth for wireless communication. To increase communication rate, set the bandwidth to 80 or 40 MHz.
Broadcast SSID	If *Allow* is checked, then the AirStation will respond to SSID searches from wireless devices by broadcasting its SSID. If *Allow* is unchecked, the AirStation ignores SSID searches from wireless devices.
SSID 1 **SSID 2**	Enable or disable the main SSID (SSID 1) and sub SSID (SSID 2).
SSID Isolation	Enable to make wireless devices connected to the specified SSID be able to communicate only with the Internet-side.
Wireless Authentication	Select an authentication method for SSID 1 from below: **WPA/WPA2-mixed mode PSK** Allows the authentication compatible with WPA-PSK and WPA2-PSK at the same time. **WPA2-PSK** Allows the authentication compatible with WPA2 (IEEE 802.11i). **WPA-PSK** Allows the authentication compatible with WPA (Wi-Fi Protected Access). **No authentication** Connect to wireless clients without any authentication method.
Encrypt Wireless Data	You may use any of the following types of encryption: **AES** AES uses a pre-shared key to communicate with wireless devices. It is faster and more secure than TKIP. AES can be selected only when WPA-PSK or WPA2-PSK is selected for wireless authentication. **WEP** WEP is a common encryption method supported by most devices. WEP can only be selected when wireless authentication is set to *No Authentication*. Note that WEP's encryption is weak, and networks protected with WEP are not much more secure than those with no encryption at all. Not recommended for anyone with private data that needs to be kept secure. **No encryption** Data is transmitted without encryption. With this setting, anyone within range can connect to your wireless network and might be able to access data on the network. Not recommended for anyone with private data that needs to be kept secure. *No Encryption* can be selected only when *No Authentication* is selected for wireless authentication.
WPA-PSK (Pre-shared Key)	A pre-shared key or passphrase is the password for your wireless connections. There are two different formats for a pre-shared key. Use 8 to 63 alphanumeric characters (case-sensitive) for an ASCII passphrase, or use 64 alphanumeric characters (0 to 9 and a to f, not case-sensitive) for a hexadecimal passphrase.
Key Renewal Interval	Set the update interval for the encryption key between 0 and 1440 (minutes).
WEP Encryption Key Settings	A WEP encryption key (passphrase) may have any of four different formats. An ASCII passphrase may use either 5 or 13 alphanumeric characters (case-sensitive). A hexadecimal passphrase may use either 10 or 26 alphanumeric characters (0 to 9 and a to f, not case-sensitive).
Multicast Rate	Set the communication speed of multicast packets.
DTIM Period	Set the beacon responding interval (1 -255) for which the AirStation responds to a wireless device. This setting is effective only when power management is enabled for the wireless device.

Wireless Client Isolation	If enabled, the wireless client isolation blocks communication between wireless devices connected to the AirStation. Wireless devices will be able to connect to the Internet but not with each other. Devices that are connected to the AirStation with wired connections will still be able to connect to wireless devices normally.
Output Power **(5 GHz Only)**	This sets the output of the wireless signal. Because the wireless transmission output and signal distance range are nearly proportional, when the wireless transmission output is reduced, the signal distance range also becomes shorter.
WMM Settings	Check *Display* to set priorities only for a specific communication.
WMM-EDCA Parameters	You don't usually need to change these settings. Using the default settings is recommended. **Priority** The following priorities may be applied to individual transmission packets: (Highest) 8, (High) 4, (Normal) 2, and (Low) 1. From the queue, these packets are processed in order of priority. **CWmin, CWmax** The maximum and minimum value of the contention window. The contention window is used in the frame collision avoidance structure performed in IEEE802.11, and generally, the smaller the value in the window, the higher the probability that the queue obtains the right to send. **AIFSN** The interval to send frames. The unit of the AIFSN is a slot, just as the window defined by CWmin and CWmax is. The smaller the interval of sending frames, the faster the algorithm can restart. As a result, the priority of the queue is higher. **TXOP Limit** The period of time that the queue can use after obtaining the right to send. The unit is 32 ms. The longer this time, the more frames can be sent per right to send. However, the queue may interfere with other packet transmissions. If *TXOP Limit* is set to 0 (zero), only one frame can be sent per right to send.

WPS

WPS (Wi-Fi Protected Setup) enables users to easily configure wireless networks and add new devices.

Wireless - WPS

WPS	Enable to use WPS automatic configuration.
External Registrar	Enable to accept configure requests from other WPS devices. **Note:** Configure requests will not be accepted if AOSS is in use.
AirStation PIN	Displays the PIN code of the AirStation. Clicking *Generate PIN* will generate a new PIN code. This code can be entered into other wireless devices that support WPS.
WPS PIN	Enter the PIN code for the other wireless device and click *OK*.
WPS Status	Displays *configured* if all available wireless bands are configured. Displays *unconfigured* if at least one wireless band is unconfigured.

AOSS

AOSS (AirStation One-Touch Secure System) is a system for easily configuring a secure wireless home network. It was developed by Buffalo.

Wireless - AOSS

AOSS Settings

Exclusive SSID for WEP	802.11ac/n/a	Stop
	802.11n/g/b	Stop
Allow WEP for Game Consoles Only	When this is enabled, clients connecting via WEP will be isolated from clients connecting via more secure encryption methods.	
	802.11ac/n/a	Disabled
	802.11n/g/b	Disabled
AOSS Button on the AirStation Unit	☑ Enable	

Current Security Information 802.11ac/n/a

Encryption Type	WPA/WPA2 mixed mode - PSK(AES) (Now in use)
SSID	Buffalo-A-0178
Encryption Key	ww5mrkpkxm446

Encryption Type	WEP128	
SSID	Buffalo-A-0178_1	
Encryption Key	b9bc8667f8d5afb64187faba61	(Sending Key)
	369ece8960886f144c92d6c98b	
	7773d0402d9eec46cf3dc6fd95	
	816262e40d1f990274bdd89969	

Encryption Type	WEP64	
SSID	Buffalo-A-0178_2	
Encryption Key	60746861cb	(Sending Key)
	89b50301ee	
	27f5b89510	
	1a4db5bb35	

Current Security Information 802.11n/g/b

Encryption Type	WPA/WPA2 mixed mode - PSK(AES) (Now in use)
SSID	Buffalo-G-0178
Encryption Key	ww5mrkpkxm446

Encryption Type	WEP128	
SSID	Buffalo-G-0178_1	
Encryption Key	96b3ebefa3b9638e85327c6c22	(Sending Key)
	854d6b2dfd0271d6c9eca7be38	
	cf2d107dd4e5fd6813d5db6565	
	af25db92b073fe762015efba35	

Encryption Type	WEP64	
SSID	Buffalo-G-0178_2	
Encryption Key	f943bfbbbf	(Sending Key)
	862a120d45	
	6aa86d55c5	
	9da792d067	

[Random] [KEY Base] [Reset]

AOSS Client Information

Name	MAC Address	Encryption Type	Wireless	Connection Setting
SC-02B	b4:07:f9:ef:38:41	WEP64/WEP128/WPA-PSK-AES	802.11n/g/b	Allow

[Edit AOSS Client Information]

[Apply]

Exclusive SSID for WEP	You may allow a separate SSID specifically for WEP connections. If *Stop* is selected, then clients will not be able to connect with WEP.

Allow WEP for Game Consoles Only	This allows game consoles that only support WEP to connect to the network.
AOSS Button on the AirStation Unit	If *Enable* is unchecked, only WPS runs when you press the button.
Current Security Information	Displays the encryption type, SSID, and encryption key configured by AOSS.
Random	Click to enter random values for SSID, encryption key, and other settings.
KEY Base	Click to return the SSID, encryption key, and other wireless settings to the values on the case sticker.
Reset	Click to return the SSID, encryption key, and other wireless settings to their previous values.
AOSS Client Information	Displays the information of the clients connected to this product via AOSS and communicating with this product wirelessly. **Name** Displays the name of the clients. **MAC Address** Displays the MAC address of the clients. **Encryption Type** Displays the encryption type the clients can use. **Wireless** Displays current connection method. **Connection Settings** Displays current connection settings status.

MAC Filtering

Restrict access to specific wireless devices here.

Wireless - MAC Filtering

Enforce MAC Filtering (11n/g/b) ☐ Enable
Enforce MAC Filtering (11ac/n/a) ☐ Enable

Registration List

MAC Address   Connection Status
No registered MAC addresses.

[Edit Registration List]

Enforce MAC Filtering	Enable to restrict wireless connections to devices with registered MAC addresses.
Registration List	Displays the MAC addresses of registered devices which are permitted to connect wirelessly.
Edit Registration List	Adds a wireless device to the list of permitted devices.
Enter MAC Addresses	Enter a MAC address of a wireless device to permit to connect to the AirStation. Click *Register* to add that MAC address to the list.
Connected Client's List	Display the list of all MAC addresses of wireless devices connected to the AirStation.

Multicast Control

Configure restrictions on unnecessary multicast packets sent to the wireless LAN port here.

Wireless - Multicast Control

Snooping   ☑ Enable
Multicast Aging Time 300   Sec.

Snooping	If enabled, snooping supervises multicast administrative packets such as IGMP and restricts unnecessary multicast transfers to wired or wireless ports.
Multicast Aging Time	Set the time to hold the data from multicast snooping in the range of 1 to 3600 (seconds). Enter a value bigger than the IGMP/MLD query interval.

Guest Accounts

Configure the AirStation's guest accounts here.

Wireless - Guest Accounts

Guest Account Settings

Guest Accounts	☐ Enable
Guest User Authentication	☐ Enable
Guest Account LAN IP Address	◉ Auto ⚪ Manual Setting
Permitted Access Time	3 hours ▼

Wireless

SSID	◉ Use AirStation's MAC address(Guest-0178) ⚪ Enter value:
Wireless Authentication	No Authentication ▼
Wireless Encryption	No Encryption ▼

Show Guests

Username	Connection MAC Address	Connection Status	Operation
No registered guest users.			

[Edit Guests]

[Refresh]

Guest Accounts	Enable or disable the guest accounts.
Guest User Authentication	This sets whether authentication is performed for guest users.
Guest Account LAN IP Address	This sets the LAN-side IP address for the guest accounts.
Guest Account DHCP Server	This sets whether IP addresses are automatically assigned for devices connected to the guest accounts.
Permitted Access Time	Set the time frame for Internet access for the guest accounts.
SSID	This sets the SSID for the guest accounts.
Wireless Authentication	This sets whether wireless authentication is performed for the guest accounts.
Wireless Encryption	This sets the wireless encryption system for the guest accounts.
WPA-PSK (Pre-shared Key)	This sets the wireless encryption key for the guest accounts.
Edit Guests	Click to register a user to use the guest accounts.
Username	Enter a name for the guest user.
Password	Enter a password for the guest user.

WB

Configure WB (wireless bridge) here. This function is only available when the AirStation is in bridge mode.

Wireless - WB

WB	If enabled, the AirStation can connect to the wireless master. Disabled by default.
Connection Type	Select the connection method to connect to the master. You may use AOSS or WPS to connect push-button style, or specify an SSID to configure manually.
Connection Status	Displays the connection status with the master.
SSID	Specify an SSID to connect to the master manually.
Search	Click to search for a master.
Authentication	Specify the authentication method used to connect to the master.
Encryption	Specify the encryption method used to connect to the master.

Firewall

Configure the AirStation's firewall here.

Security - Firewall (Router Mode Only)

Enable	Basic Rules	Number of Packets
☐	Prohibit NBT and Microsoft-DS routing ☐ PPPoE1: Easy SetupProhibit	0
☑	Reject ident requests	0
☑	Block ping from Internet ☑ PPPoE1: Easy SetupIgnore	0

Basic Rules	Enable to use any of the quick filters. Preconfigured quick filters include: **Prohibit NBT and Microsoft-DS routing** Enabling this blocks communication using these protocols from the WAN side to the LAN side or from the LAN side to the Internet. You can configure this with PPPoE if you select *Use PPPoE client* or *Use IP Unnumbered* for the method of acquiring IP Address, or if Easy Setup identified a PPPoE connection during setup. **Reject ident requests** Enabling this option will answer ident requests from the Internet side with corresponding rejection packets. Enable this option if you experienced slow transfer speeds for network applications such as email, FTP, and web browsing. If you have configured transfer of ident requests to the LAN-side computer in the address translation settings (DMZ or TCP port 113), then that setting has higher priority, and overrides this setting. **Block ping from Internet** If this is enabled, the AirStation will not respond to pings from the Internet side. You can configure this with PPPoE if you select *Use PPPoE client* or *Use IP Unnumbered* for the method of acquiring an IP address, or if Easy Setup identified a PPPoE connection during setup.

IP Filter

Create and edit IP filters here.

Security - IP Filter (Router Mode Only)

Action	Specify how to process target packets.
Direction	Specify the transmission direction of target packets.
IP Address	Specify the sender's IP address and receiver's IP address of the target packets.
Protocol	Select a protocol for target transmission packet.
IP Filter	Display the list of IP filters which have been registered.

VPN Passthrough

Configure IPv6 passthrough, PPPoE passthrough, and PPTP passthrough here.

Security - VPN Passthrough (Router Mode Only)

IPv6 Passthrough	Enable to use IPv6 passthrough for address translation.
PPPoE Passthrough	Enable to use PPPoE bridging. PPPoE bridging lets you automatically obtain an IP address from your provider for your LAN-side computer using the PPPoE protocol because PPPoE packets can pass between the Internet and LAN.
PPTP Passthrough	Enable to use PPTP passthrough for address translation.

Port Forwarding

Configure port translation here.

Security - Port Forwarding (Router Mode Only)

Forward a Port

Group	New Group ▼ Group Name:
Internet-side IP Address	AirStation's Internet-side IP Address ▼ Manual IP Address:
Protocol	○ All ○ ICMP ○ Manual Protocol Number: ⦿ TCP/UDP TCP Port Manual Setting ▼ Port Number:
LAN-side IP Address	192.168.11.2
LAN-side Port	TCP/UDP Port:

Add

Forwarded Ports

Group	Internet-side IP Address LAN-side IP Address	Protocol LAN-side Port	Customize
	Port forwarding has not been set up yet.		

Group	Specify a group name for a new rule to belong to. Select *New Group* and enter the new group name in the Group Name field to create a new group. A group name can include up to 16 alphanumeric characters.
Internet-side IP Address	Enter the Internet-side IP address (before translation) for the port translation table entry.
Protocol	Select the Internet-side protocol (before translation) for the port translation table entry.
LAN-side IP Address	Enter the LAN-side IP address (after translation) for the port translation table entry.
LAN-side Port	Select the LAN-side (after translation) port number (1 - 65535) for the port translation table entry.
Forwarded Ports	Shows current entries in the port translation table.

DMZ

Configure a destination for packets that don't have a LAN-side destination.

Security - DMZ (Router Mode Only)

Add IP Address to DMZ [   ]
* The IP address of this computer is 192.168.11.2.

Add IP Address to DMZ	Enter the IP address of the destination for packets not routed by port translation table to be forwarded. **Note:** RIP protocol packets (UDP port number 520) will not be forwarded.

UPnP

Configure UPnP (Universal Plug and Play) here.

Security - UPnP (Router Mode Only)

UPnP ☑ Enable

UPnP	Enable or disable Universal Plug and Play.

Web Filtering

Security – Web Filtering (Router Mode Only)

Filter Level

- ⦿ Block Malicious Sites
  Blocks malware, phishing, and scam sites.
- ○ Block Malicious and Adult Sites
  Blocks malware, phishing, and scam sites that contain sexually explicit content
- ○ Block Malicious, Adult, and Other Non-Family Friendly Sites
  Blocks malware, phishing, and scam sites, sites that contain sexually explicit material, mature content, abortion, alcohol, crime, cult, drugs, gambling, hate, sexual orientation, suicide, tobacco, or violence
- ○ No Filters
  This allows unrestricted access to all websites. You can still configure access control separately.

☑ I agree to Norton's Terms of Service.
"Web Filtering" service is powered by Symantec. **You need to accept the** terms of service **for the filters to apply.**

Click here for FAQ

Norton by Symantec

ConnectSafe

Websites Excluded from Filter

Excluded Websites	Operation
No excluded websites registered.	

[Add]

Computers Excluded from Filter

MAC Address	IP Address	Computer Name	Operation
	No excluded computers registered.		

[Add]

Norton ConnectSafe must be activated by the customer. Use of Norton ConnectSafe is subject to the terms of service found at https://dns.norton.com/dnsweb/terms.do .

Filter Level	Select the filter level.
Websites Excluded from Filter	Specify a list of websites that will be unaffected by the web filter. Click *Add* and enter any website (up to 20 are allowed). You can edit or delete entered entries.
Computers Excluded from Filter	Set a list of computers on the network that will be unaffected by the web filter. Click *Add* and enter a computer's MAC address (up to 20 are allowed). You can edit or delete entered entries.

Access Control

Security - Access Control (Router Mode Only)

Access Control	Check to enable access control. Click *Add* to configure the schedule.
Add Access Control	Enter the computer's MAC address in the *Target Computer* field. You can add up to 20 network computers.
Permitted Access Time	Displays the time that the computer is allowed to access to the Internet.
Register	Configure the schedule, then click *Edit Permitted Access Time*. The schedule is registered.

QoS

Configure QoS (quality of service) settings here.

Applications - QoS (Router Mode Only)

QoS	Enable or disable QoS.
Upload Bandwidth	Specify the upstream bandwidth in kbps from the AirStation to the Internet side. Set the actual value for the upstream bandwidth.
Enable	Enable or disable this entry.
Application Name	Enter an application name. Names may use up to 32 alphanumerical characters, double or single tick marks ("'), quotation marks ("), and semicolons (;).
Protocol	Select either TCP or UDP.
Destination Port	Specifies a destination port from 1 - 65535. If this field is empty, a random port is selected.

Priority	Select high, medium, or low. If packets do not qualify for classification as a type on the list, then their priority is treated as a level between medium and low.

eco Mode

Configure eco Mode from this screen.

Applications - eco Mode

Power Saving

Power Saving ☐ Enable

Custom Mode

LED	Off ▾
Wired LAN	eco ▾
Wireless LAN	Off ▾

Weekly Schedule
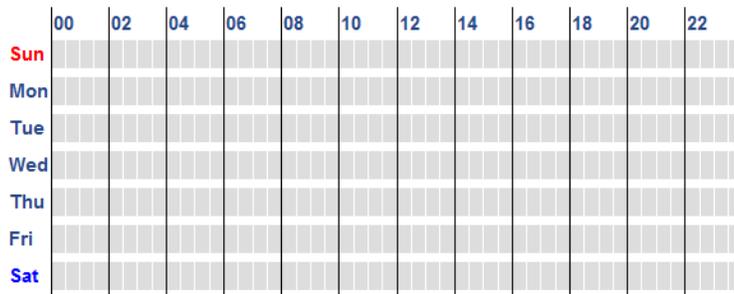
Normal ▣ Sleep ▣ Custom Mode ▣

Schedule Entry

Mode	Normal ▾
Start Time	0:00 ▾
End Time	0:30 ▾
Day of Week	Sun Mon Tue Wed Thu Fri Sat ☐ ☐ ☐ ☐ ☐ ☐ ☐

[Add]

Power Saving	Enable to set the power saving schedule. If eco Mode is enabled, AOSS will function only when the AirStation is in normal operating mode.
Custom Mode	Individual power saving elements may be configured for custom mode.
Weekly Schedule	Graphically displays the configured schedule.
Schedule Entry	Configure operational mode for time periods in the weekly schedule.

System

Configure basic AirStation settings here.

Admin - System

System Information

AirStation Name	AP106F3F990C4A

Administrator	admin (fixed)
Administrator Password	••••••• ☐ Show password

Access

Enable	Management Access	Number of Packets
☐	Prohibit configuration from wireless LAN	0
☐	Prohibit configuration from wired LAN	0

Internet-side Remote Access

Enable	Management Access
☐	Permit configuration from wired Internet

Local Time

NTP Functionality	☑ Enable
NTP Server	time.nist.gov
Update Interval	24 hours

Local Date	2013 Year 1 Month 1 Day
Local Time	0 Hour 2 Minute 29 Seconds
Time Zone	(GMT-06:00) Central Standard Time: CST

[Refresh] [Get Current Time from Your PC]

AirStation Name	Enter a name for the AirStation. Names may include up to 64 alphanumeric characters and hyphens (-).
Administrator	The name of the administrator account is "admin".
Administrator Password	The administrator password may contain up to 8 alphanumeric characters and underscores (_).
Prohibit configuration from wireless LAN	If enabled, prevents access to configuration interface from wirelessly connected devices (only wired devices may configure).
Prohibit configuration from wired LAN	If enabled, prevents access to configuration interface from wired devices (only wirelessly connected devices may configure).
Permit configuration from wired Internet	If enabled, allows access to configuration interface from network devices on the WAN (Internet) side.
Permitted IP address	Displayed only if Internet-side configuration is enabled. Enter the IP address of a device that is permitted to configure the AirStation remotely from the WAN (Internet) side.

Permitted Port	Displayed only if Internet-side configuration is enabled. Set a port number (1 - 65535) to configure the AirStation from the WAN (Internet) side.
NTP Functionality	Enable to use an NTP server.
NTP Server	Enter the name of the NTP server as a hostname, hostname with domain name, or IP address. Up to 255 alphanumeric characters, hyphens (-), and underscores (_) may be used. The default is *time.nist.gov*.
Update Interval	How often will the AirStation check the NTP server for the correct time? Intervals of 1 - 24 hours may be set. The default is 24 hours.
Local Date	You may manually set the date of the AirStation's internal clock.
Local Time	You may manually set the time of the AirStation's internal clock.
Time Zone	Specify the time zone (offset of Greenwich Mean Time) of the AirStation's internal clock.

Syslog Settings

You may transfer the AirStation's logs to a syslog server.

Admin - Syslog Settings

Transfer Logs	Enable to send logs to a syslog server.
Syslog Server	Identify the syslog server by hostname, hostname with domain name, or IP address. You may enter up to 255 alphanumeric characters and hyphens (-).
Logs	Choose which logs will be transferred to the syslog server.
Detailed Logs	Choose which detailed logs will be transferred to the syslog server.

Reset / Reboot

From this page you can save and restore the AirStation's settings, initialize the AirStation, or reboot the AirStation.

Admin - Reset / Reboot

Operation	Select an operation. **Back up settings** Save this product's settings to a file. Click *Execute*. You can encrypt the setting file by checking *Use Password* and clicking *Execute*. **Restore settings** Restore this product's settings from the setting file. Click *Browse...* and specify a setting file, then click *Execute*. If the setting file is encrypted, check *Use Password* and click *Execute*. **Initialize AirStation** This will return the AirStation to its factory default settings.
Restart	Click it to restart the AirStation.

Update Firmware

Update the AirStation's firmware here.

Admin - Update Firmware

Firmware Version	WHR-1166D Ver.1.00(R11.25/B1.03)
Update Method	○ Specify a file on your PC ◉ Automatic update
Firmware File Name	Choose File No file chosen

Update Firmware

Get updated firmware files from the link below:

Buffalo

Firmware Version	Displays the current firmware version of the AirStation.
Update Method	*Specify a file on your PC* updates from a firmware file stored on your computer. *Automatic update* updates to the latest firmware automatically.
Firmware File Name	Click *Browse...* to navigate to the firmware file on your computer if *Specify a file on your PC* is selected. You don't need to specify the firmware location if you're using *Automatic update*. Click *Update Firmware* to update the firmware.

System Information

View system information for the AirStation.

Status - System Information

Model	WHR-1166D Ver.1.00(R11.25/B1.03)	
AirStation Name	APB0C745C20178	
Hardware Mode Switch Status	Router mode	
Mode	Router mode	
Internet	Method of Acquiring IP Address	
	Wired	Disconnected
LAN	IP Address	192.168.11.1
	Subnet Mask	255.255.255.0
	DHCP Server	Enabled
	MAC Address	B0:C7:45:C2:01:78
Wireless(5 GHz)	Wireless Status	Enabled
	SSID1	Buffalo-A-0178
	Authentication	AOSS WPA/WPA2 mixed mode - PSK
	Encryption	AOSS AES
	Broadcast SSID	Enabled
	Wireless Client Isolation	Disabled
	Wireless Channel	149(Auto)
	High-Speed Mode	80 MHz
	MAC Address	B0:C7:45:C2:01:7C
Wireless(2.4 GHz)	Wireless Status	Enabled
	SSID1	Buffalo-G-0178
	Authentication	AOSS WPA/WPA2 mixed mode - PSK
	Encryption	AOSS AES
	Broadcast SSID	Enabled
	Wireless Client Isolation	Disabled
	Wireless Channel	10(Auto)
	High-Speed Mode	20 MHz
	MAC Address	B0:C7:45:C2:01:78
Guest Accounts	Status	Disabled
Web Filtering	Disabled	
WB	Connection Status	Disabled
eco Mode	Status	Disabled

Refresh

Model	Displays the product name of the AirStation and the firmware version.
AirStation Name	Displays the name of the AirStation.
Hardware Mode Switch Status	Displays the status of the AirStation's mode switch.
Mode	Displays the AirStation's current operational mode.
Internet	Displays information about the Internet port.
LAN	Displays information about the LAN port.
Wireless (5 GHz) **Wireless (2.4 GHz)**	Displays the wireless status.
Guest Accounts	Displays information about the guest accounts.
Web Filtering	Displays the operating status of the web filter.
WB	Displays the WB status.
eco Mode	This indicates the operating status of eco Mode.

Logs

The AirStation's logs are recorded here.

Status - Logs

Display logs	Choose the types of logs to display.
Logs	Displays the log information recorded in the AirStation.

Packets

View packet transfer information.

Status - Packets

Sent	Displays the number of packets sent to the WAN, the LAN, and the wireless LAN.
Received	Displays the number of packets received from the WAN, the LAN, and the wireless LAN.

Ping

A ping test checks whether the AirStation can communicate with a specific network device.

Status - Ping

Destination Address	Enter the IP address or hostname of the device that you are testing communication with, then click *Execute*. The result will be displayed below.

Chapter 3 - Wireless

Wireless Options

You may use any of the following methods to connect devices to the AirStation wirelessly.

Manual Configuration

On your device, search for available networks and find the AirStation. If a password is required, enter the AirStation's encryption key.

WPS (Wi-Fi Protected Setup)

WPS is an automatic connection method created by the Wi-Fi Alliance. Two different versions of WPS are supported: pushbutton and PIN. For pushbutton, start WPS on your client device, then press the AOSS button on the AirStation. Alternately, if your wireless client has a WPS PIN, you may use the Client Manager to enter the PIN in the AirStation. With either of these methods, a wireless connection will be established automatically within a couple of minutes.

> **Notes:**
> - WPS supports Windows 8.1, Windows 8, Windows 7, and Windows Vista (SP 2).
> - Mac OS is not supported.

AOSS (AirStation One-Touch Secure System)

AOSS is a proprietary system by Buffalo that lets you set up a secure wireless connection with the push of a button. Press your device's and the AirStation's AOSS buttons and a secure wireless connection will be configured automatically.

> **Notes:**
> - To use AOSS with a Windows PC, install Client Manager.
> - To use AOSS with Mac, install AOSS Assistant.

Advanced Wireless Configuration

Manual Configuration (SSID and Password)

1 Click the wireless icon.

2 Select your AirStation's SSID from the list.

    Note: Your AirStation's default SSID and encryption key are on the setup card stored in the base of the AirStation.

3 Enter the AirStation's encryption key.

4 The connection will be established.

Automatic Secure Setup (WPS)

1 Click the wireless icon.

2 Select your AirStation's SSID from the list.

    Note: Your AirStation's default SSID is on the setup card stored in the base of the AirStation.

3 Without entering a password, press the AOSS button on the AirStation.

Notes:

- WPS supports Windows 8.1, Windows 8, Windows 7, and Windows Vista Service Pack 2 only.

- Mac OS is not supported.

4 The connection will be established.

Automatic Secure Setup (AOSS)

1 Windows users should download Client Manager from Buffalo's website and install it.
Mac users should download AOSS Assistant and install it.

2 Initiate AOSS from Client Manager or AOSS Assistant.
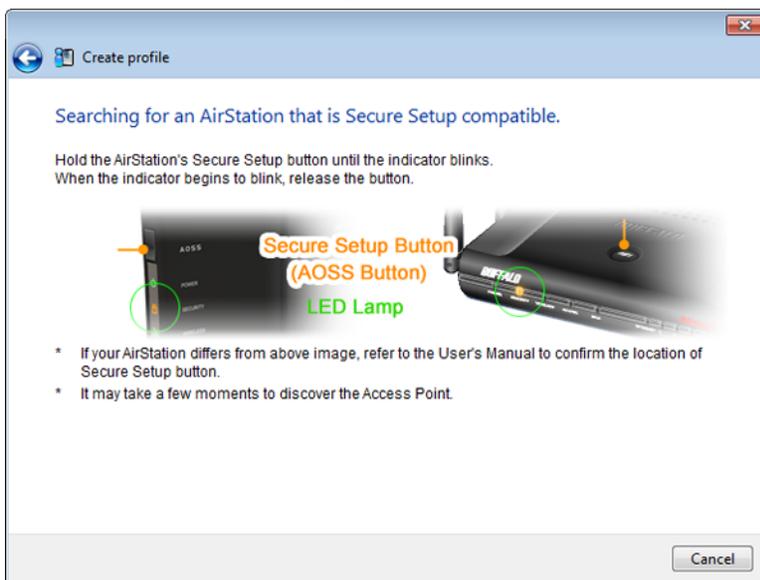
3 Press your AirStation's AOSS button.

4 The connection will be established.

Chapter 4 - Utilities

How to Download Utilities

You can download utilities for your AirStation from Buffalo's website.

http://d.buffalo.jp/whr-1166d/

AirStation Configuration Tool

You can enter AirStation's Settings and change its IP address with this tool.
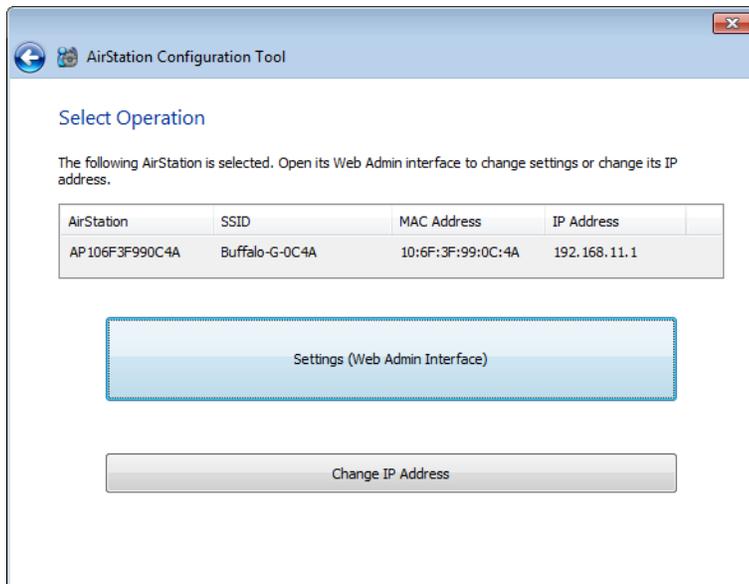
Compatible with:

WIndows 8.1, Windows 8, Windows 7, Windows Vista, Windows XP

OS X 10.9, 10.8, 10.7, 10.6, 10.5, 10.4

Client Manager

Use this software to let your Windows PC connect to the AirStation with AOSS.

Client Manager V supports Windows 8.1, Windows 8, Windows 7, and Windows Vista.

Client Manager 3 supports Windows XP.

> **Note:** If Client Manager 3 is installed on your computer, Wireless Zero Config is disabled. Uninstall Client Manager 3 to use Wireless Zero Config, or just use Client Manager 3 to connect to the AirStation.
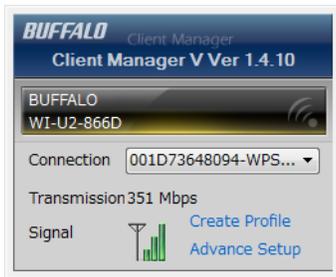
Compatible with:

Windows 8.1, Windows 8, Windows 7, Windows Vista, Windows XP

AOSS Assistant

Use this software to let your Mac connect to the AirStation with AOSS.
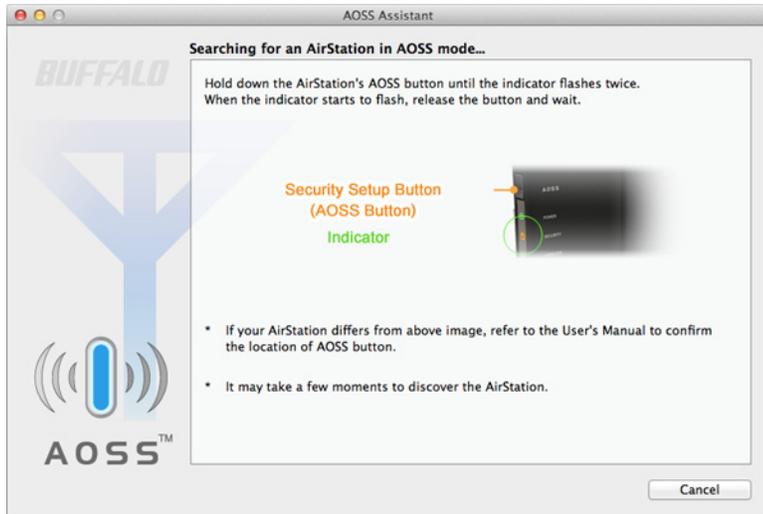
Compatible with:

OS X 10.9, 10.8, 10.7, 10.6, 10.5, 10.4

WLAN Monitor

You can check the radio wave condition, connection speed, signal quality, and signal level with this tool.
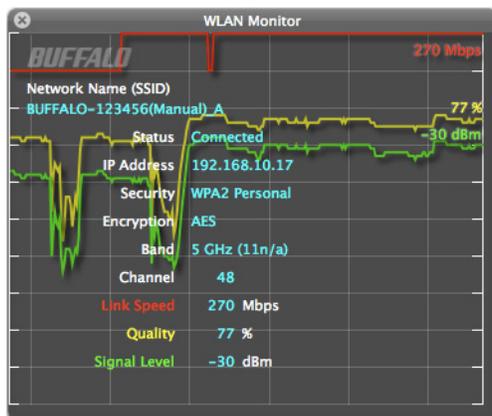
Compatible with:

OS X 10.9, 10.8, 10.7, 10.6, 10.5, 10.4

Chapter 5 - Troubleshooting

Finding Your AirStation on the Network

By default, your AirStation is accessible on your local network at the IP address 192.168.11.1 with subnet mask 255.255.255.0. If this address has been changed and you don't know the new address, you can reset the AirStation to its default settings by holding down the reset button for 3 seconds.

You can also find your AirStation on the network with the AirStation Configuration Tool. This software will detect AirStations on your network and give you the IP address and MAC address of each.

Eliminating Dead Spots in Wireless Coverage

If there are spots in your house with poor wireless coverage, try moving your AirStation. Sometimes even moving it a few feet can eliminate dead spots in the area. Also, in Settings, make sure that the wireless output power of the AirStation is set to 100% for maximum range.

If Your Wireless Connection Is Not Stable

Many household devices such as microwaves and cordless phones can interfere with some channels of the spectrum available for the AirStation. If your wireless connection is unstable, change the wireless channel setting to *Auto Channel* for both the AirStation and your wireless client device. The AirStation will then choose the clearest channel automatically.

Make sure that the 5 GHz band is enabled. The AirStation is a dual band router, and either band will work well, but the 5 GHz band will usually have less interference.

Basic Router Troubleshooting

If your router is not behaving normally, begin by using the resetting all settings. With the unit connected to power, hold down the reset button for 3 seconds. This will reset all settings to their defaults. The local IP address of the router will now be 192.168.11.1 with a 255.255.255.0 subnet mask.

Connect your PC to one of the Ethernet ports on the router. Give the computer a manual (fixed) IP address on the same subnet as the router such as 192.168.11.2. Set the subnet mask to 255.255.255.0.

Open a browser (such as Firefox) on your computer and type 192.168.11.1 into the URL window. Click *Go*. The router's settings page should open.

Enter the router's username and password ("admin" and "password" by default).

You should now be able to reconfigure your settings and change your password for the router.

Basic Router Troubleshooting from a Mac

If your router is not behaving normally, begin by using the resetting all settings. With the unit connected to power, hold down the reset button for 3 seconds. This will reset all settings to their defaults. The local IP address of the router will now be 192.168.11.1 with a 255.255.255.0 subnet mask.

Connect your Mac to one of the Ethernet ports on the router. In *System Preferences - Network - Ethernet*, give the computer a manual (fixed) IP address on the same subnet as the router such as 192.168.11.2. Set the subnet mask to 255.255.255.0.

If your Mac doesn't have an Ethernet port, connect it to the AirStation wirelessly instead. The AirStation's default SSID and passphrase are printed on the setup card in the bottom of the router. Use this information to connect wirelessly. Then, give the computer a fixed IP address on the same subnet as the router such as 192.168.11.2 and set the subnet mask to 255.255.255.0.

Open a browser (such as Safari) on your computer and type 192.168.11.1 into the URL window. Click *Go*. The router's settings page should open.

Enter the router's username and password ("admin" and "password" by default).

You should now be able to reconfigure your settings and change your password for the router.

Appendix A - Supplemental Information

Package Contents

The following items are included in your AirStation package. If any of the items are missing, please contact your vender.

AirStation...1
AirStation setup card...............................1
AC adapter..1
Ethernet cable...1
Quick setup guide....................................1
Warranty statement.................................1

Factory Default Settings

Feature	Parameter	Default Setting
Internet	Method of Acquiring IP Address	Internet Connection Wizard
	Default Gateway	-
	DNS Name Server Address	-
	Internet MAC Address	Use default MAC address
	MTU Size of Internet Port	1500 Bytes
PPPoE	Default PPPoE Connection	No active session.
	IP Unnumbered PPPoE Connection	No active session.
	PPPoE Connection List	No connections registered.
	Preferred Connections	No connections registered.
Dynamic DNS	Dynamic DNS Service	Disabled
NAT	Address Translation	Enabled

Feature	Parameter	Default Setting
LAN	LAN-side IP Address	IP address: 192.168.11.1 Subnet mask: 255.255.255.0
	DHCP Server	Enabled
	DHCP IP Address Pool	From 192.168.11.2 to 192.168.11.65
	LAN-side IP Address (For IP Unnumbered)	-
	Advanced Settings	Not displayed
	Lease Period	48 hours
	Default Gateway	AirStation's IP address
	DNS Servers	AirStation's IP address
	WINS Server	Do not specify
	Domain Name	Assigned by DHCP
DHCP Lease	Current DHCP Clients	-
Routing	Routing	No routes are registered.
2.4 GHz 5 GHz	Wireless	Enabled
	Wireless Channel	Auto Channel
	High-Speed Mode	2.4 GHz: 144.4 Mbps (20 MHz) 5 GHz: 867 Mbps (80 MHz)
	Broadcast SSID	Allow
	SSID 1	Use
	SSID Isolation	Not used
	SSID	Use AirStation's MAC address
	Wireless Authentication	WPA2-PSK or no authentication
	Encrypt Wireless Data	AES or no encryption
	WPA-PSK (Pre-shared Keys)	An 8-digit random number (Printed on the setup card) or disabled (Encryption is disabled in default settings on AirStation for Asia region.)
	Key Renewal Interval	0 minutes
	SSID 2	Not used
	SSID Isolation	Not used
	SSID	Use AirStation's MAC address
	WEP Encryption Key Settings	-
	Multicast Rate	2.4 GHz: 1 Mbps 5 GHz: 6 Mbps
	DTIM Period	1
	Wireless Client Isolation	Not used
	Output Power (5 GHz Only)	100%

Feature	Parameter	Default Setting		
2.4 GHz **5 GHz**	**WMM Settings**	Not displayed		
	WMM-EDCA Parameters (Priority AC_BK (Low))		**For AP**	**For STA**
		CWmin	15	15
		CWmax	1023	1023
		AIFSN	7	7
		TXOP Limit	0	0
	WMM-EDCA Parameters (Priority AC_BE (Normal))		**For AP**	**For STA**
		CWmin	15	15
		CWmax	63	1023
		AIFSN	3	3
		TXOP Limit	0	0
	WMM-EDCA Parameters (Priority AC_VI (High))		**For AP**	**For STA**
		CWmin	7	7
		CWmax	15	15
		AIFSN	1	2
		TXOP Limit	94	94
	WMM-EDCA Parameters (Priority AC_VO (Highest))		**For AP**	**For STA**
		CWmin	3	3
		CWmax	7	7
		AIFSN	1	2
		TXOP Limit	47	47
WPS	**WPS**	Enabled		
	External Registrar	Enabled		
	AirStation PIN	An 8-digit random value (Printed on the label of the AirStation)		
	WPS PIN	-		
	WPS Security Settings	**WPS Status**: Configured **SSID**: Buffalo-A-XXXX (where "XXXX" is the last 4 digits of the AirStation's MAC address). Buffalo-G-XXXX (where "XXXX" is the last 4 digits of the AirStation's MAC address). **Security**: WPA2-PSK AES or none **Encryption Key**: An 8-digit random number (Printed on the setup card) or disabled (Encryption is disabled by default settings on AirStation for Asia region.)		
AOSS	**Exclusive SSID for WEP**	Not in use		
	Allow WEP for Game Consoles Only	Disabled		
	AOSS Button on the AirStation Unit	Enabled		
MAC Filtering	**Enforce MAC Filtering**	Disabled		
	Registration List	No Registered MAC addresses.		

Feature	Parameter	Default Setting
Multicast Control	**Snooping**	Enabled
	Multicast Aging Time	300 seconds
Guest Accounts	**Guest Accounts**	Disabled
	Guest User Authentication	Disabled
	Guest Account LAN IP Address	Auto
	Permitted Access Time	3 hours
	SSID	Use AirStation's MAC address
	Wireless Authentication	No Authentication
	Wireless Encryption	No Encryption
	Show Guests	No registered guest users.
WB	**WB**	Disabled
Firewall	**Basic Rules**	**Prohibit NBT and Microsoft-DS routing**: Disabled **Reject ident requests**: Enabled **Block ping from Internet**: Enabled
IP Filter	**IP Filter**	No IP filters have been configured yet.
VPN Passthrough	**IPv6 Passthrough**	Disabled
	PPPoE Passthrough	Disabled
	PPTP Passthrough	Disabled
Port Forwarding	**Forwarded Ports**	Port forwarding has not been set up yet.
DMZ	**Add IP Address to DMZ**	-
UPnP	**UPnP**	Enabled
Web Filtering	**Filter Level**	No Filters
Access Control	**Access Control**	Disabled
QoS	**QoS**	Disabled
eco Mode	**Power Saving**	Disabled
	LED	Off
	Wired LAN	eco
	Wireless LAN	Off
	Weekly Schedule	-
	Mode	Normal
	Start Time	0:00
	End Time	0:30
	Day of Week	-

Feature	Parameter	Default Setting
System	**AirStation Name**	"AP" + AirStation's MAC Address
	Administrator	admin (fixed)
	Administrator Password	password
	Access	**Prohibit configuration from wireless LAN**: Disabled **Prohibit configuration from wired LAN**: Disabled **Permit configuration from wired Internet**: Disabled
	NTP Functionality	Enabled
	NTP Server	time.nist.gov
	Update Interval	24 hours
	Local Date	2013 Year 1 Month 1 Day
	Local Time	0 Hour 0 Minute 0 Seconds (12 midnight)
	Time Zone	(GMT + 00:00) Greenwich Mean Time, London
Syslog Settings	**Transfer Logs**	Disabled
	Syslog Server	-
	Logs	Address Translation, IP Filter, Firewall, PPPoE Client, Dynamic DNS, DHCP Client, DHCP Server, AOSS, Wireless, Authentication, Setting Changes, System Boot, NTP Client, Wired
	Detailed logs	-
Update Firmware	**Update Method**	Automatic update
	Firmware File Name	-

Technical Specifications

Wireless LAN Interface	
Standard Compliance	IEEE 802.11ac / IEEE 802.11n / IEEE 802.11a / IEEE 802.11g / IEEE 802.11b
Transmission Method	Direct sequence spread spectrum (DSSS), OFDM, MIMO
Frequency Range	Available frequencies depend on the country of purchase.
Transmission Rate 802.11ac	**IEEE 802.11ac 20 MHz BW <Long GI>:** 156/130/117/104/78/52/39/26/13 Mbps (2 streams) 78/65/58.5/52/39/26/19.5/13/6.5 Mbps (1 stream) **IEEE 802.11ac 20 MHz BW <Short GI>:** 173.3/144.4/130/115.6/86.7/57.8/43.3/28.9/14.4 Mbps (2 streams) 86.7/72.2/65/57.8/43.3/28.9/21.7/14.4/7.2 Mbps (1 stream) **IEEE 802.11ac 40 MHz BW <Long GI>:** 360/324/270/243/216/162/108/81/54/27 Mbps (2 streams) 180/162/135/121.5/108/81/54/40.5/27/13.5 Mbps (1 stream) **IEEE 802.11ac 40 MHz BW <Short GI>:** 400/360/300/270/240/180/120/90/60/30 Mbps (2 streams) 200/180/150/135/120/90/60/45/30/15 Mbps (1 stream) **IEEE 802.11ac 80 MHz BW <Long GI>:** 780/702/585/526.5/468/351/234/175.5/117/58.5 Mbps (2 streams) 390/351/292.5/263.3/234/175.5/117/87.8/58.5/29.3 Mbps (1 stream) **IEEE 802.11ac 80 MHz BW <Short GI>:** 866.7/780/650/585/520/390/260/195/130/65 Mbps (2 streams) 433.3/390/325/292.5/260/195/130/97.5/65/32.5 Mbps (1 stream)
Transmission Rate 802.11n/a/g/b	**IEEE 802.11n 20 MHz Channel <800 ns GI>:** 130/117/104/78/52/39/26/13 Mbps (2 streams) 65/58.5/52/39/26/19.5/13/6.5 Mbps (1 stream) **IEEE 802.11n 20 MHz Channel <400 ns GI>:** 144.4/130/115.6/86.7/57.8/43.3/28.9/14.4 Mbps (2 streams) 72.2/65/57.8/43.3/28.9/21.7/14.4/7.2 Mbps (1 stream) **IEEE 802.11n 40 MHz Channel <800 ns GI>:** 270/243/216/162/108/81/54/27 Mbps (2 streams) 135/121.5/108/81/54/40.5/27/13.5 Mbps (1 stream) **IEEE 802.11n 40 MHz Channel <400 ns GI>:** 300/270/240/180/120/90/60/30 Mbps (2 streams) 150/135/120/90/60/45/30/15 Mbps (1 stream) **IEEE 802.11a / IEEE 802.11g:** 54/48/36/24/18/12/9/6 Mbps **IEEE 802.11b:** 11/5.5/2/1 Mbps
Access Mode	Infrastructure Mode
Security	AOSS, WPA/WPA2 mixed PSK, WPA2-PSK (AES), WPA-PSK (AES), 64-bit or 128-bit WEP, MAC filtering

Wired LAN Interface	
Standard Compliance	**LAN Side:** IEEE 802.3u (100BASE-TX)/IEEE 802.3 (10BASE-T) **Internet Side:** IEEE 802.3ab (1000BASE-T)/IEEE 802.3u (100BASE-TX)/IEEE 802.3 (10BASE-T)
Transmission Rate	**LAN Side:** 100/10 Mbps **Internet Side:** 1000/100/10 Mbps
Transmission Encoding	**LAN Side:** 100BASE-TX 4B5B/MLT-3, 10BASE-T Manchester Coding **Internet Side:** 1000BASE-T 4DPAM5, 100BASE-TX 4B5B/MLT-3, 10BASE-T Manchester Coding
Access Method	CSMA/CD
Speed and Flow Control	10/100/1000 Mbps, Auto Sensing, Auto MDIX
Number of LAN Ports	4
Other	
Power Supply	External AC 100-240 V Universal, 50/60 Hz AC Adapter Type: WA-12M12FU/R/FK/FS/FC (Depends on the region) Manufacturer: Asian Power Devices Inc.
Power Consumption	About 10.8 W (Max)
Dimensions	159 x 131 x 55 mm (6.3 x 5.2 x 2.2 in.)
Weight	280 g (9.9 oz.)
Operating Environment	0 - 40° C (32 - 104° F), 10 - 85% (non-condensing)

GPL Information

The source code for Buffalo products that use GPL code is available at http://opensource.buffalo.jp/ .

Appendix B - Tutorials

Configuring the AirStation for Optimal Performance and Security

Some basic configuration tips to help improve your router performance and security.

Performance

- Put the AirStation in an elevated spot near the center of your house or coverage area, but away from other devices that might cause interference.
- Experiment with strategic locations to improve signal strength. To reduce interference, keep the router away from cordless phones and microwaves.
- In populated areas, leave automatic channel selection enabled and use 20 MHz wide channels. In less crowded areas, 40 MHz wide channels may offer better performance.
- Use QoS (quality of s ervice) to give priority to services that need the most data.

Security

- Use AES (Advanced Encryption Standard) as the encryption. WEP offers virtually no protection at all.
- Enable the built-in AirStation firewall to prevent certain types of network traffic from reaching your computer.
- Enable IP filtering to control what IP traffic to allow into and out of your network for further access control.
- If you are using an unsecure network (e.g. WEP) and you wish to keep that access point separate from the rest of the network, enable SSID isolation. The unsecure router will still be able to access the Internet, but will be kept separate from the rest of the network.

Configuring the Web Filter

You can apply a web content filter to prohibit access to sites that contain objectionable content. You can access the web filter settings from the Easy Admin page, or by navigating to *Security - Web Filtering*.

You must first accept the Symantec terms of use before you can use web filtering.
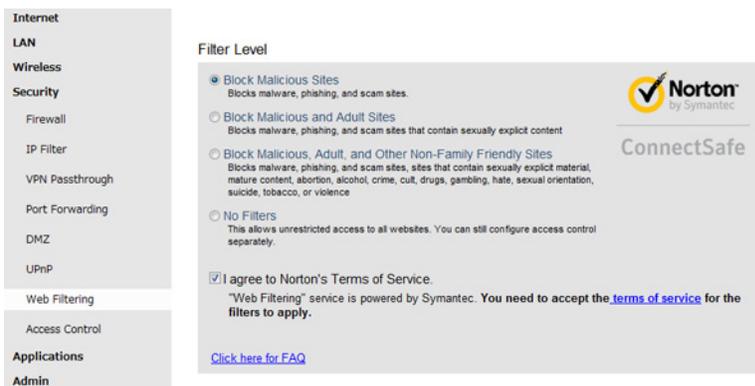
Content Filter

You can select a filter level to set what kind of sites are blocked by the AirStation. To configure the content filter:

1   From the Web Filtering screen, enable content filtering.

2   Select the filter level.

3   Click *Apply*.

Websites Excluded from Filter

Excluded websites can be accessed regardless of the content filter in place. You can register up to 20 excluded sites. To add a website:

1   On the Web Filtering screen, click *Add* under *Websites Excluded from Filter* to open the *Exclude Website* page.

2   Enter a website URL (e.g. www.google.com).

3   Click *Add*.

You will be returned to the Web Filtering page and the site will be displayed under *Websites Excluded from Filter*. You can click *Edit* to make any changes, or *Delete* to remove the entry.

Computers Excluded from Filter

Excluded computers can access any website without being affected by the content filter. You can register up to 20 excluded computers. To add a computer:

1 On the Web Filtering screen, click *Add* under *Computers Excluded from Filter* to open the *Exclude Computer* page.

2 Enter a computer's MAC address. If you need help locating a computer's MAC address, consult the computer's manual, or visit the next section.

3 Click *Add*.

You will be returned to the Web Filtering screen and the computer will be displayed under *Computers Excluded from Filter*. You can click *Edit* to make any changes, or *Delete* to remove the entry.

Finding a Computer's MAC Address

Follow the steps below to locate a computer's MAC address.

1 On your PC desktop, click on *Start* and type 'cmd' into the Search Bar.

2 The Command Prompt appears. Type 'ipconfig /all' and hit *Enter*.

3 Locate the Physical Address. This is the computer's MAC address.

Configuring Access Control

You can set up a schedule that dictates when a target computer on the network can (or cannot) access the Internet. To configure this, navigate to *Security - Access Control*.

Add Access Control

Target Computer [   ]

Permitted Access Time

■ Internet Access   ■ No Internet Access

Register

Status	No Internet Access ▼
Start Time	0:00 ▼
End Time	1:00 ▼
Day	Sun Mon Tue Wed Thu Fri Sat ☐ ☐ ☐ ☐ ☐ ☐ ☐

[Edit Permitted Access Time]

[Add] [Cancel]

1 Open Access Control options by clicking *Add*.

2 Under Target Computer, enter the computer's MAC address.

3 For the added computer, select *Internet Access* or *No Internet Access*.

4 Set the start time, end time, and day(s) for the computer's permitted access time. "0" refers to midnight. For example, if you set Computer A to have "Internet Access" from 7:00-10:00 on Thursday and Saturday, then Computer A can only access the Internet during those times and would not be able to get online during other times.

5 Click *Edit Permitted Access Time* to save the change.

6 You can make additional changes to the schedule if needed by repeating steps 3-5.

7 Click *Add*.

You will be returned to the *Access Control* screen, and the computer's access settings will be displayed. You can click *Edit* to modify the permitted access time or other settings, or *Delete* to remove the entry.

You can have up to 20 target computers under *Access Control*.

Port Forwarding Basics

Port forwarding is a way of configuring the AirStation so that incoming data is automatically directed to specific IP addresses on the network based on the data type.

Common Uses

Port forwarding allows computers outside your network to access computers on your LAN.

Some applications require port forwarding. For example, if you set up a game server, people outside the network will need to join your server to play the game with you. But the AirStation will automatically block all outside attempts to connect to your LAN. By setting a port number (the port receiving all the connection requests) and the IP address of your game server, the AirStation can then automatically direct the connection requests to the game server, allowing others to join and play.

You will need to know specific ports and corresponding protocols to successfully configure port forwarding. Most network applications and services will have the required ports and protocols in their user documentation.

Security

The risk of having a port "open" to the Internet depends entirely on the application using the open port. If no application is currently connected to the port, all communications to the port will be ignored. Enabling a firewall or other security application will also help reduce security risk.

UPnP

For the most part, manually configuring port forwarding rules is unnecessary with the advent of UPnP (Universal Plug and Play). UPnP is a protocol that allows a connecting application or device to automatically request and configure a port for you.

Many applications require that UPnP be enabled both in the application's settings and on the router. You can enable UPnP for this AirStation in Settings at *Applications - UPnP*.

Setting Up Port Forwarding Rules

If UPnP is enabled, most programs will configure this for you automatically. Otherwise, you can manually set rules for port forwarding. You can access port forwarding options by opening the AirStation's Settings page and then navigating to *Security - Port Forwarding*.

Creating Port Forwarding Rules

The AirStation can register up to 32 rules. Rules can be managed using the group feature.

Once a group has been created, you can add additional port forwarding rules to that group. You can also turn the group of rules on or off as needed, or select a group of port forwarding rules to be disabled.

1 Create a new group name or add to an existing group.

2 Specify the WAN-side IP address the AirStation will forward ports from. Using the AirStation's Internet IP address is highly recommended, but you can manually enter an IP address.

3 Select a protocol and its corresponding port from the dropdown menu. For example, selecting HTTP will automatically select TCP port 80. If you select any other protocol, you must select a valid port (from 1-65535) as well. The default is TCP/UDP, along with a list of common protocols. If selected, the protocols will use a corresponding port. You can also select *Manual* to manually enter a protocol and its corresponding port.

4 Enter the LAN–side IP address of the network computer to receive the forwarded data.

5 Enter the LAN-side port. This port will usually be the same as the port set under Protocol. If the port is different, this port will be used to route traffic on the LAN rather than the WAN port. As before, you can select a port from 1-65535.

Once the rule has been added, it will be displayed under the *Forwarded Ports* section.

Managing Port Forwarding Rules

Individual rules cannot be turned off. Only a rule group can be shut off. You can click *Edit* to make any changes to individual rules, or *Delete* to remove the rule entry.

Adding the AirStation to a Wireless Network

If you have an existing wireless network, you can connect the AirStation to extend the wireless network range. Other client devices (wired and wireless) will be able to connect to the AirStation to use the Internet.

Set Up the AirStation as an Extender

The AirStation can rebroadcast an existing wireless signal to extend the range. However, the AirStation will maintain its own SSID and security settings.

1 Set the mode switch on the back of the AirStation to "Bridge".

2 Connect the AirStation to a computer with an Ethernet cable.

3 Move the AirStation next to the access point.

4 Open a web browser and enter the AirStation's IP address (default is 192.168.11.100).

5 Enter the administrator password and log in.

6 Navigate to *Wireless - WB*.

WB	☑ Use
Connection Type	Manual ▼

11n/g/b Manual

Connection Status	
SSID	[ ] Search
Authentication	No authentication ▼
Encryption	No encryption ▼

[Apply]

11ac/n/a Manual

Connection Status	
SSID	[ ] Search
Authentication	No authentication ▼
Encryption	No encryption ▼

[Apply]

7 If the access point supports WPS or AOSS, you can use either to connect the AirStation. Once the access point is connected and its settings are displayed on the page, click *Apply*.

8 You can also manually select the access point. Click *Search* and select the access point from the available list of detected wireless access points, then click *Select*. If the access point is not displayed, click *Search again* to refresh the list. After you are returned to the WB page, set the wireless authentication and encryption to match that of the access point, then click *Apply*.

	Select Master AirStation to Connect to					
LAN						
Wireless	**Select**	**BSSID**	**SSID**	**Wireless Channel**	**Signal**	**Encryption**	**Wireless Band**
2.4 GHz	○	24DBAC438D39	GL04P-24DBAC438D39	1	Excellent	Yes	n/g/b
5 GHz	○	001D738E8B77	001D738E8B77	3	Excellent	Yes	n/g/b
WPS	◉	106F3FD117C0	Buffalo-G-17CA	6	Excellent	Yes	n/g/b
	○	001D73C2F6F0	WAP-G	6	Excellent	Yes	n/g/b
AOSS	○	106F3F0E636E	nas_dhcp_g	6	Excellent	Yes	n/g/b
	○	001D738C027C	001D738C027C	7	Excellent	Yes	n/g/b
MAC Filtering	○	106F3F470610	WAP-G	8	Excellent	Yes	n/g/b
Multicast Control	○	106F3FF000C4	Buffalo-G-00C4	9	Excellent	Yes	n/g/b
Guest Accounts	○	106F3F8E0088	MiniStation-8E0088	5	Excellent	Yes	n/g/b
	○	4CE6760BA400	BBS_g	6	Excellent	Yes	n/g/b
WB	○	106F3FD00B40	@11gSSID1	3	Excellent	--	n/g/b
Applications	○	106F3FF000DC	Buffalo-G-00DC	3	Excellent	--	n/g/b

The AirStation should now be connected as a wireless extender. Configure the AirStation's SSID and security settings on *Wireless - 2.4 GHz (or 5 GHz)*. Once you are finished, you can disconnect the Ethernet cable and move the AirStation to another location that is within range of the access point. Other devices can now connect to the AirStation to use the Internet.

Saving and Restoring Settings with a Backup File

Once you have finished configuring your AirStation to your needs, you can save the current configuration to a backup file. This file can be used to restore the AirStation's settings when needed. For example, the AirStation will initialize its settings after a hard reset. Instead of re-configuring the unit, simply use the backup file to restore its previous settings.

The backup file is not automatically updated when you make further AirStation configuration changes.

Save Settings to a Backup File

You can access Save settings by navigating to the *Admin - Reset / Reboot*.

1 On the *Reset / Reboot page*, select *Back up settings*.

2 Check *Use password* if you want to encrypt the backup file with a password. If you do, the system will ask for the password when restoring settings with the backup file. The password may include up to 8 single-byte alphanumeric characters and underscores (_).

3 Click *Execute*. The Save As dialog appears.

4 Click *OK*.

Once the file has been saved to your system, do not rename the backup file. If needed, you can put the file into another folder.

Restoring Settings with a Backup File

Restore settings can be found on the same tab.

1 On the *Reset / Reboot* page, select *Restore settings*.

2 The Browse field appears. Click *Browse...* to locate the backup file on the system.

3 Click *Execute*. The Restore dialog appears.

4 Enter the password if prompted. The password will be the one set when the backup file was created.

Please wait as the saved settings are restored to the AirStation. When settings are restored, all values (e.g. IP address, wireless encryption key, login, etc.) are changed to the ones saved in the backup file.

> **Note:** The AirStation will not be able to restore settings if the backup file was created with a different version of the AirStation firmware or a different product.

Replacing the AirStation

If an AirStation is no longer functional, you can replace it with another unit of the same model and use a saved backup file to automatically populate settings on the new unit. The firmware on the new unit must be the same version as the old unit when the backup file was created. If need be, downgrade the current firmware version to the previous one before using the backup file.

Connecting Wireless Devices Using AOSS

You can use the physical AOSS button on your AirStation to easily connect wireless devices that support AOSS or WPS. Consult your wireless device's documentation for the location of its AOSS or WPS button.

If you already have a wireless network that was configured without using AOSS or WPS, connecting a new device with AOSS will change its settings, disconnecting any previously connected wireless devices.

Pushbutton Method

Easily connect other wireless devices using the physical AOSS button.

1 Power on the AirStation.

2 Hold the physical AOSS button down for two seconds, then release it.

3 For the next 2 minutes, the AOSS LED will flash and the AirStation will automatically search for a nearby AOSS/WPS device. The AirStation will automatically return to normal if a device isn't found after 2 minutes.

4 Push the AOSS/WPS button on the wireless device. It should be automatically connected within 2 minutes.

You can repeat this for all AOSS/WPS devices you are attempt to connect with. If setup doesn't work, open the AirStation's Settings page and ensure that the AOSS physical button is enabled.

Using AirStations with 2Wire Residential Gateways

AT&T Internet services (U-verse or ADSL) will often assign a 2Wire residential gateway device that serves as both the modem and the router. To add an AirStation to this network, it is best to add the unit as a client device. This way the AirStation will not conflict with the existing residential gateway settings such as the firewall or port forwarding.

If you would like to set the 2Wire access point as the client device, or you need more information on its settings, contact AT&T technical support.

How to Use QoS

QoS (quality of service) is a feature that allows the AirStation to prioritize traffic by type. QoS applies to both upstream and downstream data flow, and ensures consistent performance when using certain high-traffic applications, such as video streaming.

Setting a QoS Priority Policy

1   Open the AirStation's Settings page.

2   Navigate to *Applications - QoS*.

3   Enable *QoS*.

QoS	☑ Enable

Upload Bandwidth	1000	Kbps

No.	Enable	Application Name	Protocol	Destination Port	Priority
1	☐	VoIP	UDP ▼		high ▼
2	☐	ssh	TCP ▼	22	medium ▼
3	☐	telnet	TCP ▼	23	medium ▼
4	☐	ftp	TCP ▼	21	low ▼
5	☐		TCP ▼		low ▼
6	☐		TCP ▼		low ▼
7	☐		TCP ▼		low ▼
8	☐		TCP ▼		low ▼

4   Enter the *Upload Bandwidth*. By default, this is set at 1,000 kbps, and values of 1–1,000,000 kbps may be entered. Bandwidth will be limited by your maximum network speed.

5   Check the *Enable* box next to the *Application Name* to activate the policy.

6   Enter the *Application Name* for the policy. This may contain up to 32 alphanumeric characters.

7   Select the protocol for the policy's incoming packets. For example, most VoIP and multimedia applications use UDP, while the Internet and emails use TCP.

8   Enter the port number for the *Destination Port*. You can use any port between 1–65535. If you leave this field blank, an arbitrary port will be selected. Most network applications and services will have their required protocols and ports listed in their documentation.

9   Select a priority for this policy, and adjust the priority for others. For example, if you set VoIP as *High*, the bandwidth priority of other policies should be lowered accordingly.

10 Click *Apply* to save any changes.

Once an entry has been saved, you can make additional changes to any entry and click *Apply* to save them. A policy can be turned on or off by checking the *Enable* box next to its *Application Name*.

How to Configure TCP/IP

Windows 8.1/Windows 8

To configure TCP/IP in Windows 8.1 or Windows 8, follow the procedure below.

1 Open Control Panel.

2 Click *Network and Internet*.

3 Click *Network and Sharing Center*.

4 Click *Change Adapter Settings* on the left side menu.

5 Right-click the network adapter, then click *Properties*.

6 If the User Account Control screen opens, click *Yes* or *Continue*.

7 Select "Internet Protocol Version 4 (TCP/IPv4)" then click *Properties*.

8 To have DHCP set your IP address settings automatically, check "Obtain an IP address automatically" and "Obtain DNS server address automatically".
Alternately, you can configure the settings manually. Example:
If the router's IP address is 192.168.11.1,
IP address: 192.168.11.80
Subnet mask: 255.255.255.0
Default gateway: 192.168.11.1
Preferred DNS server: 192.168.11.1
Alternate DNS server: leave blank

9 Click *OK*.

Windows 7

To configure TCP/IP in Windows 7, follow the procedure below.

1 Open Control Panel.

2 Click *Network and Sharing Center*.

3 Click *Change Adapter Settings* on the left side menu.

4   Right-click the network adapter, then click *Properties*.

5   If the "User Account Control" screen opens, click *Yes* or *Continue*.

6   Select "Internet Protocol Version 4 (TCP/IPv4)" then click *Properties*.

7   To have DHCP set your IP address settings automatically, check "Obtain an IP address automatically" and "Obtain DNS server address automatically".
Alternately, you can configure the settings manually. Example:
If the router's IP address is 192.168.11.1,
IP address: 192.168.11.80
Subnet mask: 255.255.255.0
Default gateway: 192.168.11.1
Preferred DNS server: 192.168.11.1
Alternate DNS server: leave blank

8   Click *OK*.

Windows Vista

To configure TCP/IP in Windows Vista, follow the procedure below.

1   Open Control Panel.

2   Click *Network and Sharing Center*.

3   Click *Manage network connections* on the left side menu.

4   Right-click the network adapter, then click *Properties*.

5   If the "User Account Control" screen opens, click *Yes* or *Continue*.

6   Select "Internet Protocol Version 4 (TCP/IPv4)" then click *Properties*.

7   To have DHCP set your IP address settings automatically, check "Obtain an IP address automatically" and "Obtain DNS server address automatically".
Alternately, you can configure the settings manually. Example:
If the router's IP address is 192.168.11.1,
IP address: 192.168.11.80
Subnet mask: 255.255.255.0
Default gateway: 192.168.11.1
Preferred DNS server: 192.168.11.1
Alternate DNS server: leave blank

8   Click *OK*.

Windows XP

To configure TCP/IP in Windows XP, follow the procedure below.

1 Open Control Panel.

2 Double-click *Network*.

3 Right-click the network adapter, then click *Properties*.

4 Select "Internet Protocol (TCP/IP)" then click *Properties*.

5 To have DHCP set your IP address settings automatically, check "Obtain an IP address automatically" and "Obtain DNS server address automatically".
Alternately, you can configure the settings manually. Example:
If the router's IP address is 192.168.11.1,
IP address: 192.168.11.80
Subnet mask: 255.255.255.0
Default gateway: 192.168.11.1
Preferred DNS server: 192.168.11.1
Alternate DNS server: leave blank

6 Click *OK*.

Mac OS

To configure TCP/IP in Mac OS, follow the procedure below.

1 Click *Apple menu > System Preferences*….

2 Click *Network*.

3 Click the network adapter.

4 To have DHCP set your IP address settings automatically, select "Using DHCP" in the "Configure IPv4" field.
Alternately, you can configure the settings manually. Example:
If the router's IP address is 192.168.11.1,
IP address: 192.168.11.80
Subnet mask: 255.255.255.0
Router: 192.168.11.1
DNS server: 192.168.11.1

5 Click *Apply*.

6

Appendix C - Regulatory Compliance Information

Only use the cables and accessories that are included in the package. Don't use other accessories or cables unless specifically instructed to in the documentation.

The information below is only for US and Canada region.

Company Information

Buffalo Americas, Inc.

11100 Metric Boulevard suite 750 Austin Texas 78758

+1-512-349-1500

FCC 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 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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

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.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IC statement (IC déclaration)

This device complies with RSS-210 of the Industry Canada 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.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes:

(1) le dispositif ne doit pas produire de brouillage préjudiciable, et

(2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

(i) The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

(ii) The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

High-power radars are allocated as primary users (i.e., priority users) of the bands 5250–5350 MHz and 5650–5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

(i) Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

(ii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5 725-5 825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250–5350 MHz et 5650–5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

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

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Under Industry Canada regulations, this radio transmitter may only operate using an

antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry

Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

L'antenne utilisée pour ce transmetteur ne doit pas être co-localisés en conjonction avec toute autre antenne ou transmetteur.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

The information below is only for EU region.

EU Regions of Intended Using

AT	BE	DK	FI	CZ	MT	SI
FR	DE	GR	IE	EE	PL	BG
IT	LU	NL	PT	HU	LT	RO
ES	SE	GB	CY	LV	SK	HR
TR						

Note: This device is also authorized for use in the following EFTA member states: **CH, IS, NO, LI**

The information below is only for Taiwan region.

NCC Statement

電磁波曝露量MPE標準值1mW/cm²，送測產品實測值為：0.236mW/cm²

根據 NCC低功率電波輻射性電機管理辦法：
第十二條：
經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率 、加大功率或變更原設計之特性及功能。

第十四條：
低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。