

# User Manual

## Wireless 802.11 a/b/g/n dongle

### Chapter 1: Product Overview

**AzureWave Technologies, Inc.** introduces the advanced **IEEE 802.11a/b/g/n 2x2 dual-band WLAN USB 2.0** dongle - **AW-NU231-D**. The dongle supports both 2.4GHz and 5GHz bands and Multiple Input Multiple Output (MIMO) technology. With MIMO, information is simultaneously sent and received over two antennas in the same frequency band, thus providing greater range and increased throughput while maintaining compatibility with legacy IEEE 802.11a/b/g devices. By using AW-NU231-D, the customers can easily enable the development of USB 2.0-based Draft-802.11n WLAN client and router subsystem solutions for all WLAN markets that can take advantage of the high throughput and extended range of MIMO.

In Compliance with the IEEE 802.11a/b/g/n standard, the AW-NU231-D uses Direct Sequence Spread Spectrum (**DSSS**), orthogonal frequency division multiplexing (**OFDM**), **DBPSK**, **DQPSK**, **CCK** and **QAM** baseband modulation technologies. A high level of integration and full implementation of the power management functions specified in the IEEE 802.11 standard minimize the system power requirements. By using AW-NU231-D, state-of-the-art security is provided by industry standard system support for **WPA**, **WPA2**, and hardware accelerated **AES** encryption/decryption coupled with **TKIP** and **IEEE 802.1X** support. Embedded hardware acceleration enhances system performance and significantly reduces host-CPU utilization in both client and access point configurations. The AW-NU231-D also supports Broadcom's widely accepted and deployed **SecureEasySetup™ (SES)** application for ease-of-use wireless secured networks.

The AW-NU231-D dongle adopts Broadcom's latest Draft-802.11n-based chip, **BCM4323**, innovations designed to increase WLAN system performance and extend range using MIMO technology. The module integrates two dual-band antennas which are used for 2x2 MIMO and supports 2-stream spatial multiplexing up to 300Mbps.

## Chapter 2: Installation

Internet services provided by VUDU™ Apps let you access many popular on-line applications. In addition to free content, VUDU's movie service lets you buy and rent movies through the TV. Visit [www.VUDU.com](http://www.VUDU.com) to learn more about available movie titles, prices, and services offered. For a list of recommended routers and switches, see the **Support > FAQ** section at VUDU.com.

**Note:** From time to time you may notice changes to the internet interface as new features are added.

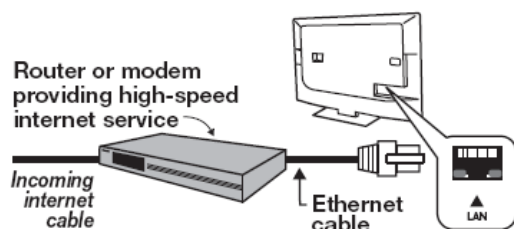
### Home Network Setup

Before using StreamTV internet media, you must connect the TV to the internet using one of these methods.

#### Ethernet Connection

##### DHCP (automatic)

1. Connect the TV to your network router with a Category-5 Ethernet cable (not supplied).



2. Open the **Setup > Network** menu to review settings.
3. Press EXIT to clear the menu.

##### Manual

1. Connect the TV to your network router with a Category-5 Ethernet cable (not supplied).
2. In the **Setup > Network** menu, highlight **Manual** and press ENTER.
3. Press ► to move to the **Connection Data** area.
4. Input the connection data.
5. After entering connection data, press ENTER to connect.
6. Change any of the following if needed:
  - Default Gateway
  - DNS
  - Subnet Mask

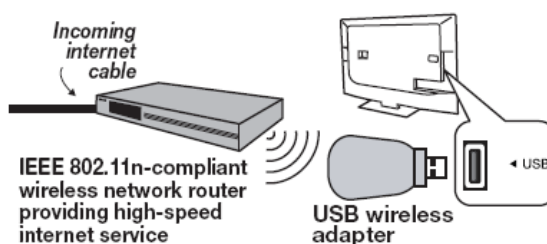
#### Required for StreamTV internet media:

- Broadband internet service (at least 2 Mbps for SD, 4 Mbps for HD, and 8 Mbps for 1080p HDX)
- Ethernet cable or to connect a 154 series TV wirelessly, an Azurewave AW-NU231 USB wireless adapter.
- Computer access to the VUDU.com website (required for initial account activation).
- A credit card for rental and purchase transactions from VUDU's movie service.

#### Wireless Connection

- **164 and 265 series** models have built-in wireless capabilities and can communicate directly with your wireless router.
- **154 series** TVs require an Azurewave AW-NU231 USB wireless adapter.

1. Disconnect the Ethernet cable if present.
2. For a 154 series TV, connect the USB wireless adapter.



*154 Series TV. A USB wireless adapter is required for wireless connection.*

3. Open the **Setup > Network** menu. After a few moments, detected networks will appear listed on the screen in order of signal strength.



#### Setup > Network menu

4. Highlight the desired network and press ENTER to connect. A check will appear next to the connected network.



Setup > Network menu after connecting. The active network is checked and connection data displays.

5. If connecting to a secure network, enter the network key or password on the remote control when prompted.

### Using StreamTV Internet Media

After establishing internet connectivity, press the **INTERNET** key to display services from VUDU Apps. Press **ENTER** to launch an application.

### Getting Started with VUDU Movies

1. After establishing internet connectivity, press **INTERNET** to display offerings from VUDU™.

### Using VUDU Apps and VUDU Movies

Navigate VUDU's menus with the keys on the TV's remote control. Browse the movie catalog, watch movie previews, set parental controls, and rent or buy movies.

**CANCEL.** Acts like the backspace key during text entry.

#### ENTER

- Selects a menu item.
- Launches an application from the VUDU Apps menu.
- In VUDU's movie service, use during video playback to see options.

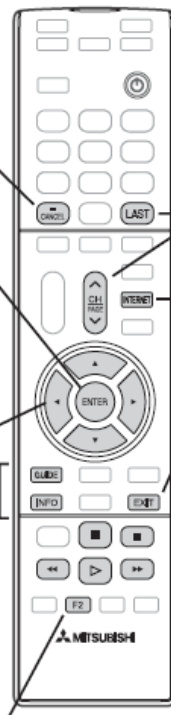


- Directional navigation
- In VUDU Apps, press ▲▼ to display more applications.

**GUIDE.** In VUDU's movie service, returns to the VUDU home menu.

**INFO.** In VUDU's movie service, works like the VUDU MORE key. Displays more options for the current selection if available.

**F2.** Displays the VUDU system menu.



**LAST.** In VUDU's movie service:

- Goes to the previous screen.
- Stops video playback and returns to the previous menu.

**CH/PAGE.** Jumps to the previous or next page of menu items.

**INTERNET.** Displays the VUDU Apps internet menu.

**EXIT.** Closes the internet menu.

In VUDU's movie service:

#### PLAY/PAUSE

Starts or pauses video playback.

#### FAST FORWARD/REVERSE

- Press to search scenes forward or back.
- Press additional times to speed up search.
- Press opposite key to slow and pause search.

#### STOP

Stops video playback and returns to the previous menu.

2. Select the VUDU movie service.
3. Browse the VUDU movie catalog and offerings.
4. When you are ready to rent or buy a movie, you will be prompted to activate your VUDU account. Follow the on-screen instructions and use a computer to go to [www.VUDU.com/activation](http://www.VUDU.com/activation). A credit card is required for activation.

Once your account is activated, you can rent and buy movies using only the TV and the TV's remote control.

### Troubleshooting

#### If You Are Unable to Connect to the Internet

- Check all power and data connections.
- If you can reach the internet with a computer or other device on the same internet service used by the TV, consult the router or modem owner's guide for reset instructions.
- If you cannot reach the internet, contact your service provider. You may be asked for network information such as the TV's IP address. Go to the **Setup > Network** menu to see connection data.

## Note:

The dongle is using with Mitsubishi televisions only and will be with the platform model names as following:

- **WD-60738**
- **WD-65738**
- **WD-73738**
- **WD-82738**
- **WD-65838**
- **WD-73838**
- **WD-82838**
- **LT-55154**

This dongle must be away from human body at least 20 cm.

### **Federal Communication Commission Interference 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.

**FCC Caution:** 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.

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor environment.

**IMPORTANT NOTE:**

**FCC Radiation Exposure Statement:**

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