

Ethernet-to-Wireless Bridge

User's Manual

Rev. 01 (April, 2003)

Made In Taiwan



RECYCLABLE

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ABOUT THIS GUIDE

This manual describes the Ethernet-to-Wireless Bridge, including full descriptions of its features, detailed installation procedures, and product specification.

1

INTRODUCTION

Congratulations on purchasing your Ethernet-to-Wireless Bridge, a device that can be implemented in a variety of ways to provide wireless access by converting an Ethernet connection. For devices with a built-in Ethernet port, the Ethernet-to-Wireless Bridge provides a cost effective way to gain wireless connectivity, virtually transforming wired devices into wireless units! Connect any Ethernet-enabled device to an existing 802.11b wireless network using the Ethernet-to-Wireless Bridge.

Typical applications include connecting a printer to a wireless network and connecting Ethernet-enabled devices such as game consoles or set top boxes to a Wireless Local Area Network (WLAN). Simply connect the Ethernet-to-Wireless Bridge to the Ethernet (RJ-45) port of a network device, such as a network storage device, Internet camera, network printer, network scanner, or other similar device. Using the Ethernet-to-Wireless Bridge allows the flexibility of placing network devices in remote locations while maintaining a high-speed connection.

You can use the convenient Setup Wizard for the easy installation of your Ethernet-to-Wireless Bridge. Whether you are using it in Ad-Hoc mode or Infrastructure mode, you can begin with the Setup Wizard. Please refer to the Quick Installation Guide that is included with your purchase for instructions on how to use the Setup Wizard.

Package Contents

Carefully remove all items from the package. In addition to this *Hardware User's Guide*, be certain that you have:

- ◆ One Ethernet-to-Wireless Bridge
- ◆ One AC Power adapter suitable for your country's electric power service
- ◆ One *Installation CD-ROM*
- ◆ One *Quick Installation Guide*

If any item is missing, or if you find any damage or mismatch, promptly contact your dealer for assistance.

General Features

- ◆ Transforms an Ethernet device into a wireless device
- ◆ Up to 22Mbps transfer rates
- ◆ Fully compatible with standard 802.11b-compliant devices
- ◆ Equipped with one 10/100 Ethernet port, Auto-MDI/MDIX
- ◆ Quick and Simple connectivity via Ethernet
- ◆ Supports Ad-Hoc or Infrastructure modes
- ◆ Easy web-based configuration when changing settings
- ◆ Encryption to provide a level of security for data transfers

Service Features

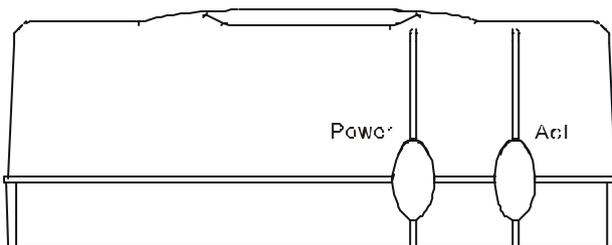
With the Ethernet-to-Wireless Bridge, you can provide instant wireless access to the LAN (Local Area Network) for Ethernet-enabled devices. People use WLAN technology for many different purposes:

- ◆ **Mobility** - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.
- ◆ **Low Implementation Costs** – WLANs are easy to set up, manage, change and relocate. Networks that frequently change, both physically and logically, can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.
- ◆ **Installation and Network Expansion** - Installing a WLAN system can be fast and easy and can eliminate the need to install cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.
- ◆ **Inexpensive Solution** – Wireless network devices are as competitively priced as conventional Ethernet network devices.
- ◆ **Scalability** - WLANs can be configured in a variety of ways to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users that allow roaming over a broad area.

External Features

This section describes the external features of your Ethernet-to-Wireless Bridge.

Front View

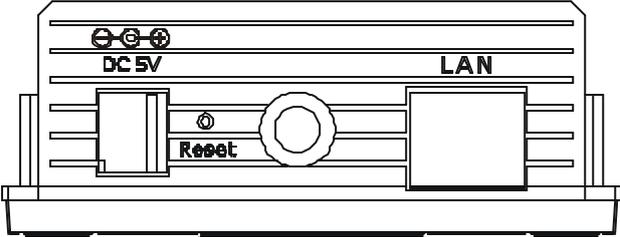


Front Panel

There are two LEDs indicators on the front panel:

LEDs	Description
Power	A steady Green light indicates a proper connection to a power source.
Wireless Link/Act	A steady Yellow light indicates a wireless connection. A blinking light indicates that the Bridge is receiving/transmitting from/to the wireless network.

Rear View



Rear Panel

Components	Description
DC Power Input	Connect one end of the 5V DC Power Adapter (included) to the power input connector on the Bridge and connect the other end of the Power Adapter to a power outlet.
Reset Button	Press this button to revert to the factory default settings of the Bridge.
Ethernet Port	This RJ-45 Auto MDI/MDIX port provides connection to a network device using a Cat 5 Ethernet cable. (The auto MDI/MDIX port accommodates either Straight-Through or Cross-Over cable and is auto-sensing.)

2

INSTALLATION

This chapter explains how to install your Ethernet-to-Wireless Bridge and connect it to the network.

Installing the Bridge

Follow these steps for a trouble-free start of Bridge operations with your Ethernet-to-Wireless Bridge.

1. First, connect the power adapter to the connector at the back panel of the Bridge and then plug the other end of the power adapter to a wall outlet or power strip. The Power LED will turn ON to indicate proper operation.
2. Insert one end of an Ethernet cable (included) to the Ethernet port on the back panel of the Bridge and connect the other end to the Ethernet port located on the device (e.g., a Set-Top Box, Gaming Console, laptop or desktop computer, or network printer.) The LED light will blink when there is data transfer through the wireless connection.

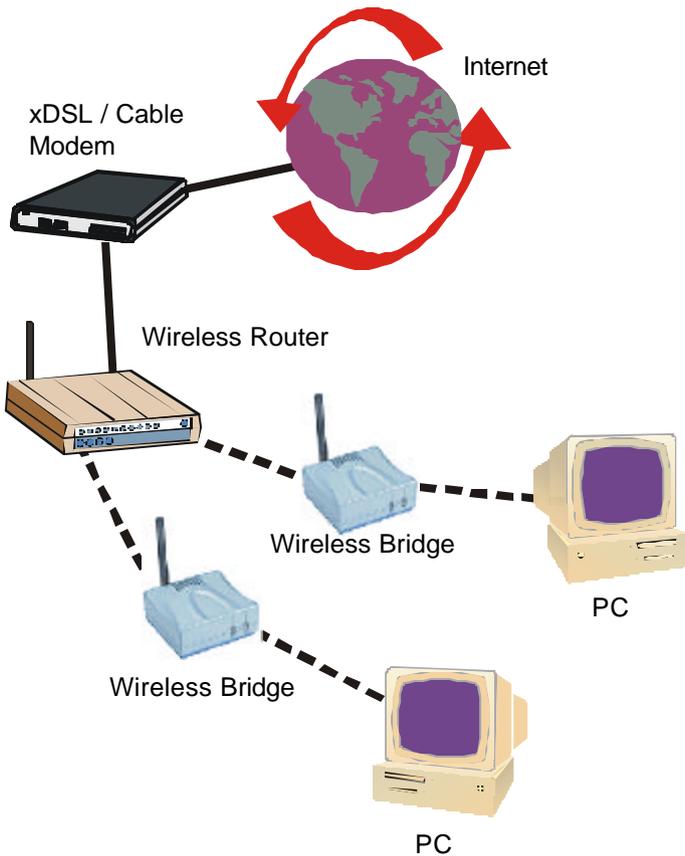
(Note: The Ethernet port on the Bridge is Auto-MDI/MDIX. Meaning you can use a straight-through or crossover-cable to the Ethernet Port.)

3. The antenna is used by the Bridge to connect to other 802.11b wireless devices.

Connecting the Bridge

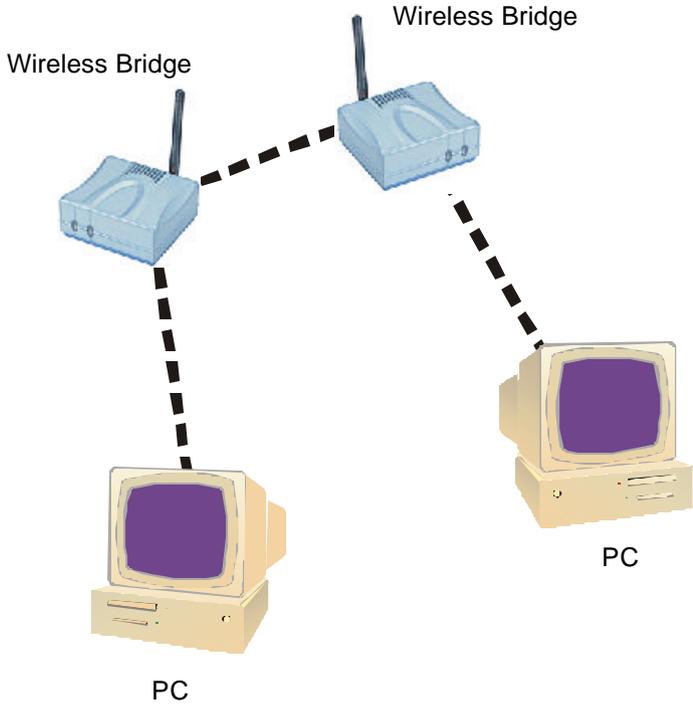
Infrastructure Mode

This example illustrates an **Infrastructure** setup. Web configuration is required to connect the Bridge.



Ad-Hoc Mode

This example illustrates an **Infrastructure** setup. Web configuration is required to connect the Bridge.



Configuration of the Bridge

Before configuring the Bridge, please consider the following:

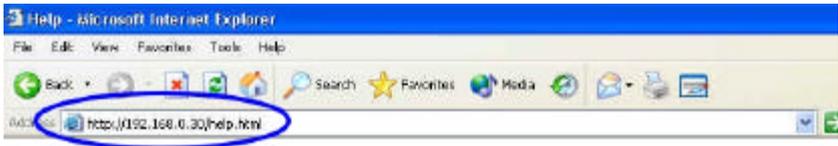
- You will need a JavaScript-enabled web-browser such as the Internet Explorer 6.0 or later, or the Netscape Navigator 6.0 or later.
- The computer that you are using for initial configuration must have an IP Address within the same range as the IP Address of the Bridge. The Bridge has a default IP Address of 192.168.0.30 with a subnet mask of 255.255.255.0.
- You will need to assign a Static IP Address to the computer that you are using to configure the Bridge, within the IP Address Range of the Bridge. For example, you can assign a Static IP address of 192.168.0.2 with a subnet mask of 255.255.255.0.

Factory Default Settings for the Bridge

Operating Mode	Infrastructure
SSID	default
Channel	6
Transmission rates	Auto
Encryption	No
Administrator password	Blank (no password needed)
IP Address mode	Static
IP Address	192.168.0.30
IP Subnet	255.255.255.0
username	admin (all lower case)

To configure the Bridge:

1. Whenever you want to configure your network or the Bridge, you can access the Configuration Utility by opening the web-browser and typing in the IP Address of the Bridge. The Bridge's default IP Address is shown below:



Note: The IP Address shown in the example above is the default setting. If you have changed the IP Address of the Bridge, then input that IP Address in the web browser, instead of the default IP Address shown.

2. The logon pop-up screen will appear.



Type "**admin**" for the username and leave the password field blank. Then, click **OK**.

- The **Home** window will appear. Please refer to the Quick Installation Guide, included with your purchase, for more information regarding the **Setup Wizard**. Once you have completed the configuration of the Bridge, the current settings will be displayed in this window.

Enhanced 2.4GHz Ethernet-to-Wireless Bridge

Home Network Wireless Admin Help

Setup Wizard
 The setup wizard will guide you to configure the Bridge AP. The Bridge AP's easy setup will allow you to have wireless access within minutes.
 Please follow the setup wizard step by step to configure the Bridge AP.

Device Information
 Firmware Version **1.1, Thu, 17 Apr 2003**

Ethernet

■ MAC Address	001122334455	■ Bond	Good Packets 2017
■ IP Address	192.168.0.30		Dropped Packets 0
■ Subnet Mask	255.255.255.0	■ Receive	Good Packets 68
■ Gateway	192.168.0.1		Dropped Packets 0

Wireless

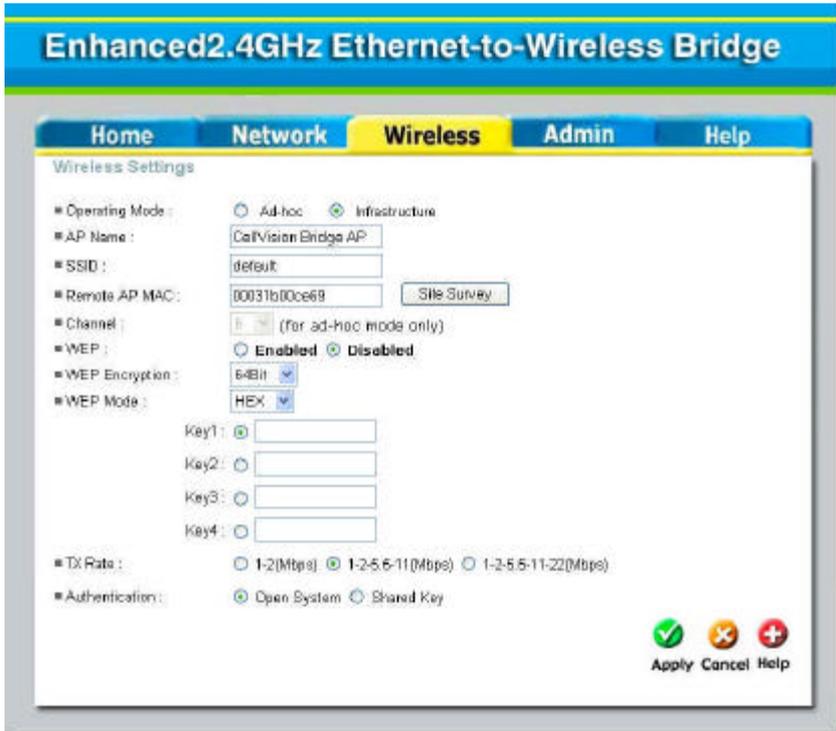
■ MAC Address	0003207c448	■ Bond	Good Packets 32
■ SSID	default		Dropped Packets 0
■ Encryption Function	Disabled	■ Receive	Good Packets 75684
■ Channel	6		Dropped Packets 0
■ AP mode	Infrastructure		

 **Help**

- Click the **Network** tab. This window displays the default settings of the Bridge. The default IP Address is 192.168.0.30. If you select **Dynamic IP Address**, you will obtain a dynamic IP Address from a DHCP server on your network. The Subnet Mask is 255.255.255.0. Input the IP Address of the Gateway (the router on your network). Click **Apply** if you have made any changes.

The screenshot shows the configuration interface for an Enhanced 2.4GHz Ethernet-to-Wireless Bridge. The title bar reads "Enhanced 2.4GHz Ethernet-to-Wireless Bridge". Below the title bar is a navigation menu with tabs for "Home", "Network" (which is selected and highlighted in yellow), "Wireless", "Admin", and "Help". The main content area is titled "IP Address Settings". It features a "LAN IP" section with two radio button options: "Dynamic IP Address" (which is selected) and "Static IP Address". Below these options are three input fields: "IP Address" with the value "192.168.0.30", "Subnet Mask" with the value "255.255.255.0", and "Gateway" with the value "192.168.0.1". At the bottom right of the configuration area, there are three icons: a green checkmark, a yellow 'X', and a red plus sign, with the labels "Apply", "Cancel", and "Help" respectively.

- Click the **Wireless** tab. This window allows you to set the network construction, such as Ad-Hoc mode and Infrastructure mode. **Infrastructure** is the default setting.

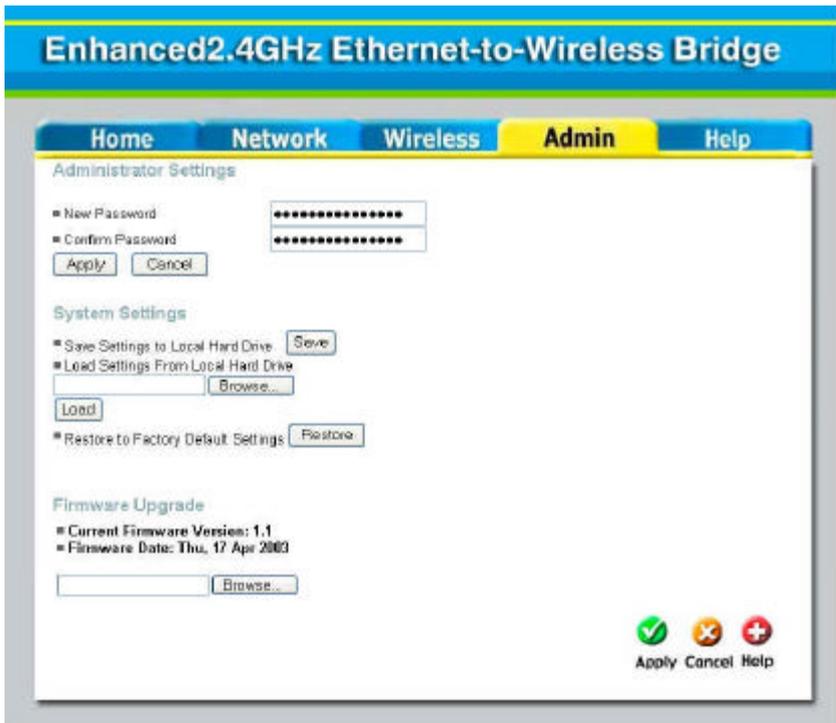


- **AP Name:** You may choose to rename your Bridge, especially if you have more than one Access Point on your network.
- **SSID (Service Set Identifier):** **default** is the default setting. The SSID is a unique name that identifies a network. All devices on a network must share the same SSID name in order to communicate on the network. If you choose to change the SSID from the default setting, input your new SSID name in this field. The SSID can be up to 32 characters in length.

- **Channel:** Channel 6 is the default channel. Input a new number if you want to change the default setting. All devices on the network must be set to the same channel to communicate on the network.
- **WEP Encryption:** Select **Enable Encryption** to use WEP (Wired Equivalent Privacy) on the network. All devices on the network, and the Access Point, must share the same WEP selection – either **Enable** or **Disable**, and they must share the same WEP key. The WEP key is generated from ASCII or Hexadecimal entries that are either 64, 128, or 256 bits in length. When enabling encryption, select the Key Type (ASCII or Hexadecimal) and then input the appropriate digits or letters. You can create up to 4 keys. Select the key you wish to use.
- **TX Rate:** Transmission Rate. Select the transmission rate for the network. The default setting is 1-2-5.5-11-22 (Mbps)
- **Authentication: Open System** – communicates the key across the network. **Shared Key** – devices must have identical WEP settings to communicate

Click **Apply** if you have made any changes or additions.

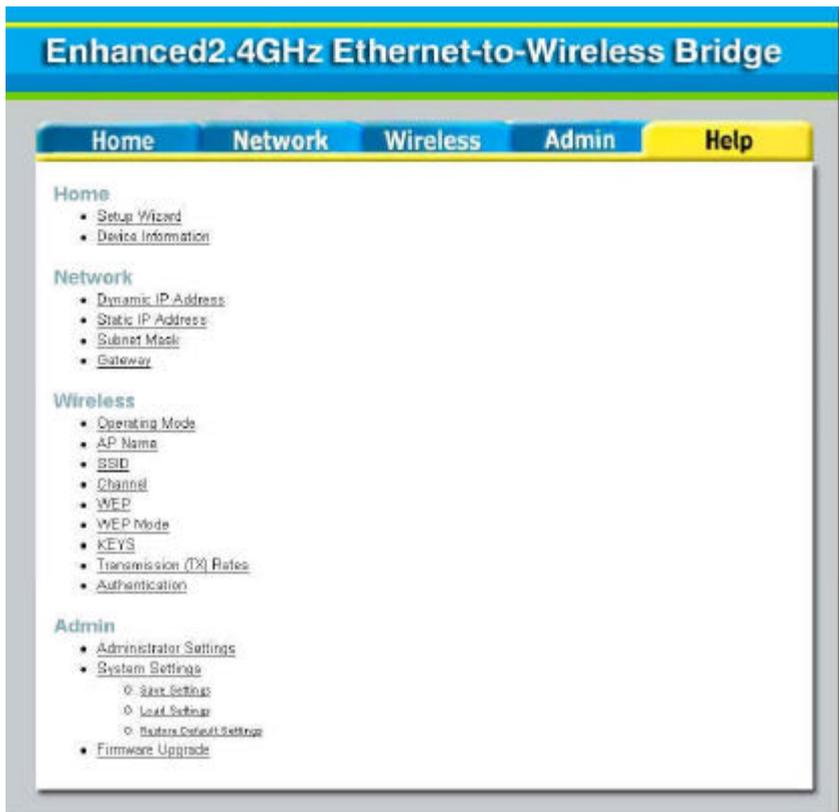
- Click the **Admin** tab. This window allows you to control the Bridge as an administrator.



- **Administrator Settings:** Change your password in this window. Re-enter the new password to confirm. It can be up to 14 characters in length. Please keep a copy of your password in a safe place. Click **Apply**, if you have made any changes.
- **System Settings:** The current system settings can be saved as a file onto the local hard drive by clicking **Save**. The saved file can be loaded back on the Bridge by clicking **Browse**. When you have selected the settings file, click **Load**. Click **Restore** to return to Factory Default Settings.
- **Firmware Upgrade:** This item shows the information of the firmware for the Bridge, and allows you to upgrade the firmware version.

After you have downloaded a firmware upgrade to your local drive, click **Browse**. Select the firmware and click **Apply** to complete the upgrade.

7. Click the **Help** tab. This window displays information about each window in the Configuration menu. When you change the settings in the Configuration menu, you will need to restart the Bridge for the changes to take effect.



PRODUCT SPECIFICATIONS

Standards

- IEEE 802.11
- IEEE 802.11b
- IEEE 802.3 Ethernet
- IEEE 802.3u

Port

- 10/100 Mbps Fast Ethernet Auto MDI/MDIX

Data Rates with Automatic Feedback

- 22 Mbps
- 11 Mbps
- 5.5 Mbps
- 2 Mbps
- 1 Mbps

Encryption

- 64-bit RC4
- 128-bit RC4
- 256-bit RC4

Media Access Control

- CSMA/CA with ACK

Franquency Range

- 2.4 GHz to 2.4385 GHz

Operating Range

- Indoors: up to 328 ft. (100 m)*
 - Outdoors: up to 1,312 ft. (400 m)*
- * Environmental factors may adversely affect range.

Modulation Technology

- PBCC : Packet Binary Convolutional Coding
- DSSS : Direct Sequence Spread Spectrum
- 11-chip Barker Sequence

Modulation Techniques

- PBCC (22 Mbps/8.5 db)
- PBCC (11 Mbps/4.5 db)
- CCK (11 Mbps/8.5 db)
- PBCC (5.5 Mbps/1.5 db)
- CCK (5.5 Mbps/5.5 db)
- Barker (2 Mbps/3 db)
- Barker (1 Mbps/0 db)

Power Input

- External Power Supply, DC 5V

LEDs

- Power (green)
- WLAN (yellow)

Transmitter Output Power

- 15 dBm +/- 2 dB

External Antenna Type

- Detachable 1.0 dB gain with reverse SMA connector

Over-driving Levels

- Tolerates up to +17 dBm at the antenna

Device Management

- Web-based : Internet Explorer 6.0 or later; Netscape Navigator 6.0 or later; or other Java-enabled browser.

Temperature

- Operating : 32°F to 131°F (0°C to 55°C)
- Storing : 4°F to 167°F (-20°C to 75°C)

Humidity

- 95% maximum (non-condensing)

Safety & Emission

- FCC
- CE

Dimensions

- 3.5(L) x 3.2(W) x 1.6(H) inch (90 x 82 x 40 mm)

Weight

- 0.34 lbs (153 g)

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.

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.

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.

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.