60GHz WirelessHD Transceivers

User Manual

Federal Communication Commission

Interference Statement

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.

NOTE: 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.

In order to comply with FCC RF Exposure requirements, a separation distance of at least 20 cm must be maintained between the antenna and all persons.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Table of Contents

Chapter 1: Introduction

Overview

For coming huge flat TV screen and high definition resolution, users like to set up the AV system in living room, but the cable placement always is a great harassment to the interior house. Also the HDMI cable is as expensive as the length as be. Users deserve to have a wireless cable replacement to match their high class AV systems. Here shows up a high edge solution to meet users' equipment: 60GHz WirelessHD Audio-Video Transceivers!

This elegant product has HDMI interface to take multiple content sources like multimedia center, Blue ray player and Set-Top Box, without compressing of content, the WirelessHD technology will offer multiple gigabit throughout for Full HD video transmission. Users do not need to worry about video quality for lower transmission bandwidth anymore. It also has compliance to WirelessHD, HDMI, and DTCP for content security and quality assurance.

Features

◆ 36 antennas array
◆ Auto tracing - smart antenna
◆ Least interference - 60GHz transmission
◆ 1080P 60f 50 Hz/ 59.94 Hz/ 60Hz global capability
◆ Full HD 1080P 60f non-compressing image wireless transmission
◆ Support HDCP/ DTCP for content security and quality assurance
◆ 4Gb/sec. wireless transmission
◆ Multiple TX to single RX availability

Package Contents

The following items should be included:

- 60GHz WirelessHD transmitter unit
- 60GHz WirelessHD receiver unit
- User manual
- Remote controller
- Two-piece of HDMI cables
- Two-piece of power adapters
- Warranty leaflet

If any of the above items are damaged or missing, please contact your dealer immediately.

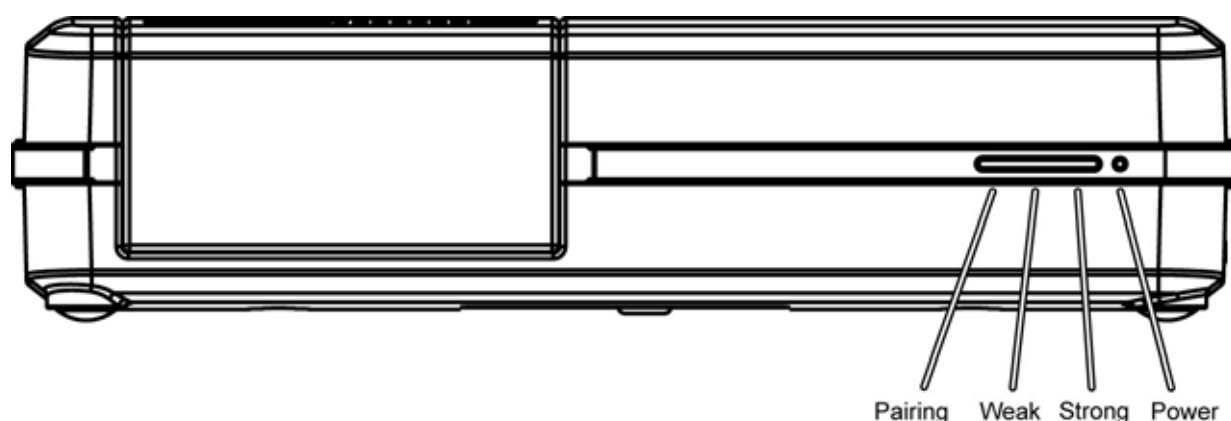# Application Diagram
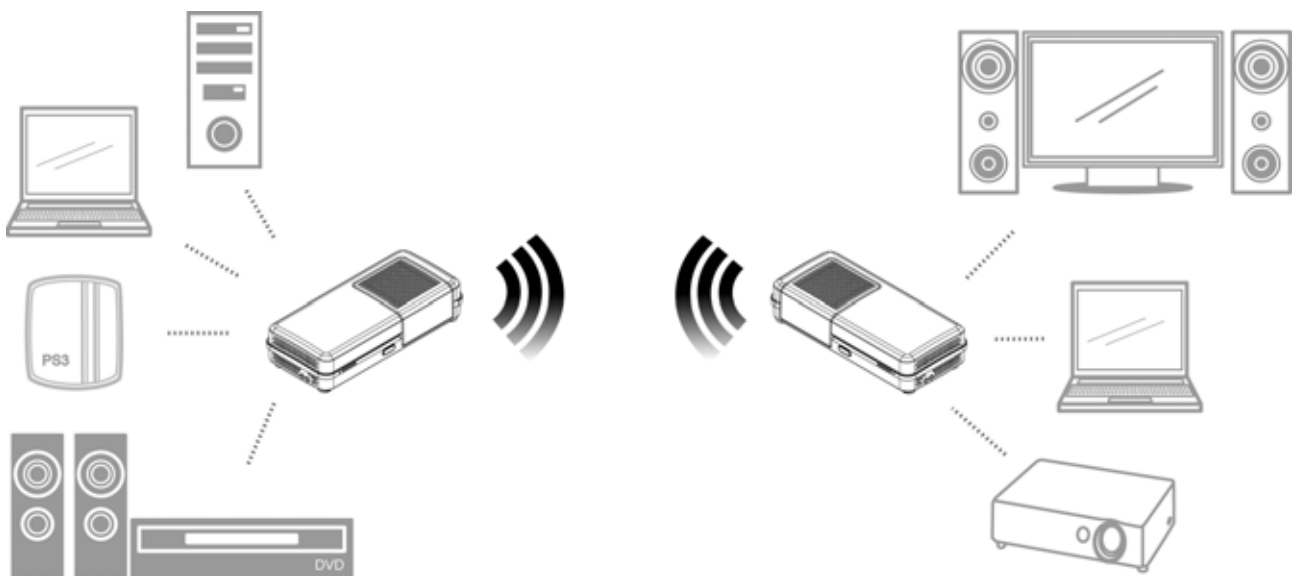
Notice!

For better transmitting quality, we strongly recommend to put the 60GHz WirelessHD Transceivers horizontally in open space, do not put them into cabinet or cupboard that will reduce the wireless transmitting signal.

Chapter 2: Hardware Instruction

60GHz WirelessHD Transmitter

TX Front Panel Configuration

Pairing   Weak   Strong   Power

TX LED Indicators			
LED	**Color**	**Behavior**	**Indication**
Power	Green	On	The LED will illuminate when the power is connected and the power switch is turned on.
		Off	The LED will be dark when the power switch is turned off.
		Blinking	Unit in sleep mode.
Pairing	Blue	On	The LED will illuminate to indicate which RX is being selected.
		Off	If the pairing LED is off, user has to re-select again or reset both devices.
		Blinking	Waiting for link.
Weak	Green	On	The LED will illuminate when the signal is weak.
		Off	No link or no signal

|			
Strong	Green	On	The LED will illuminate when the signal is strong.
		Off	Signal weak

If 4 LEDs are blinking at same time, that means fan does n't work, please turn off unit and send to serv ice station.

TX Rear Panel Configuration
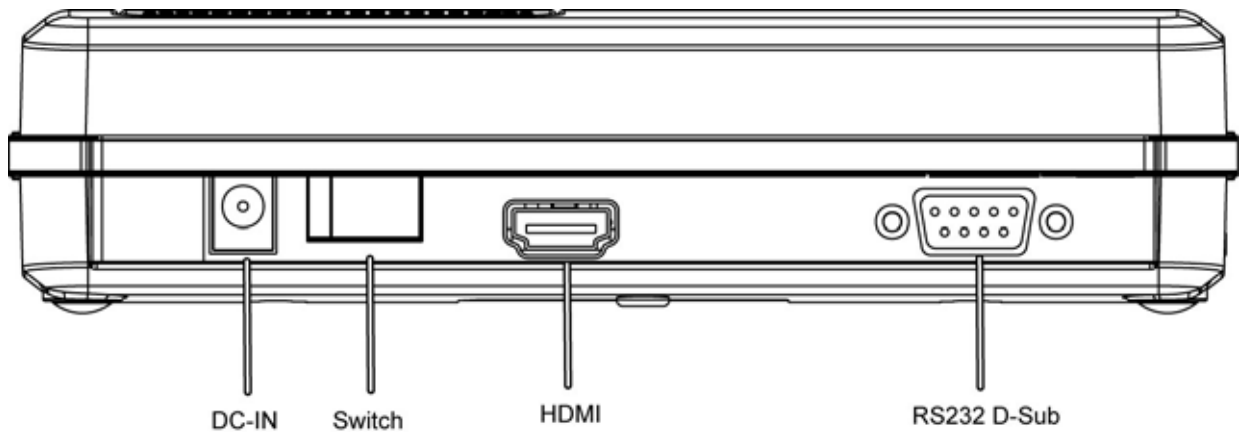
DC-IN Switch HDMI RS232 D-Sub

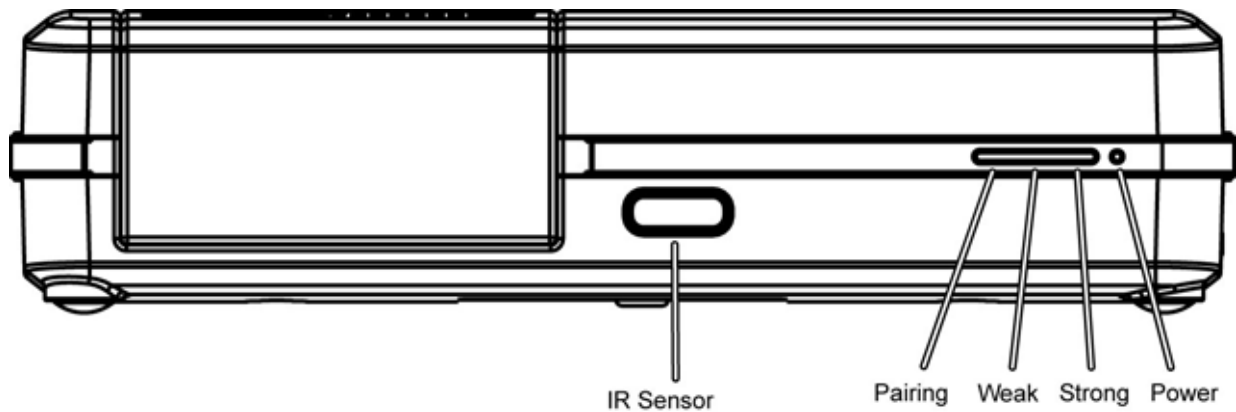| Configuration	
DC-IN	Connect the power adapter to the power DC-IN port.
Switch	Switch the button to turn on or off the power supply.
HDMI	Connect HDMI cable one end to this HDMI port and the other to the DVD player or computer HDMI port.
RS232 D-Sub	Connect the RS232 D-Sub cable one end to this port, the other to the computer or laptop RS232 D-Sub port.

TX Side Panel Configuration
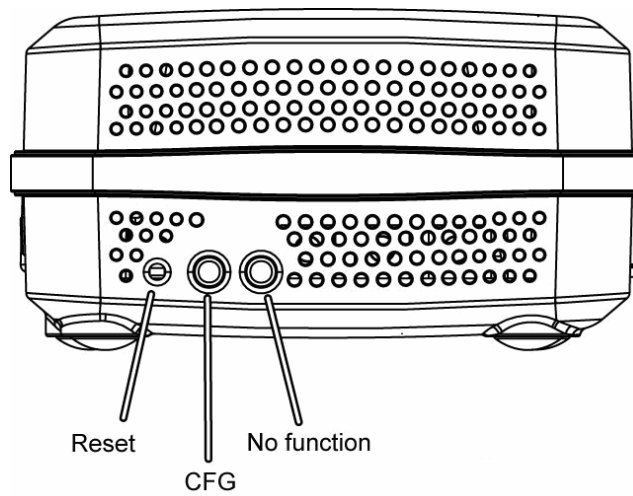
| TX Buttons	
Reset	Press the "RESET" button to reset the system, the system will run through a full reset which takes approximately 5 seconds.
CFG (Configure)	This button is for upgrade system firmware. For further firmware upgrade process, please refer to Chapter 4: Software Upgrade.
No function	This button is fixed and no function here.

60GHz WirelessHD Receiver

RX Front Panel Configuration

IR Sensor   Pairing   Weak   Strong   Power

| RX LED Indicators			
LED	**Color**	**Behavior**	**Indication**
Power	Green	On	The LED will illuminate when the power is connected and the power switch is turned on.
		Off	The LED will be dark when the power switch is turned off.
		Blinking	Unit in sleep mode.
Pairing	Blue	On	The LED will illuminate to indicate which TX is being selected.
		Off	If the pairing LED is off, user has to re-select again or reset both devices.
		Blinking	Waiting for link.
Weak	Green	On	The LED will illuminate when the signal is weak.
		Off	No link or no signal
Strong	Green	On	The LED will illuminate when the signal is strong.
		Off	Signal weak

If 4 LEDs are blinking at same time, that means fan does n't work, please turn off unit and send to serv ice station.

RX Rear Panel Configuration
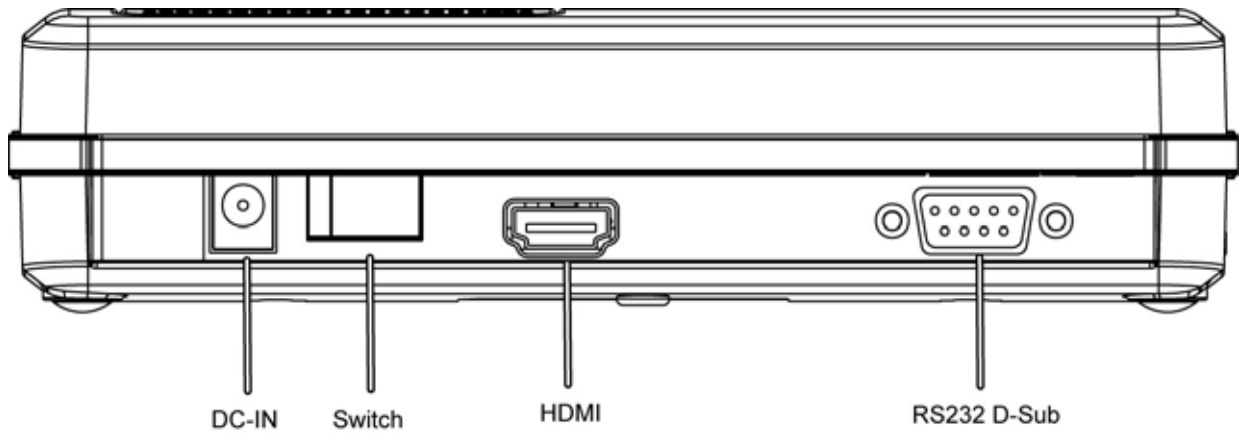
Configuration	
DC-IN	Connect the power adapter to the power DC-IN port.
Switch	Switch the button to turn on or off the power supply.
HDMI	Connect HDMI cable one end to this HDMI port and the other to the TV or computer HDMI port.
RS232 D-Sub	Connect the RS232 D-sub cable one end to this port, the other to the projector or TV RS232 D-sub port.

RX Side Panel Configuration
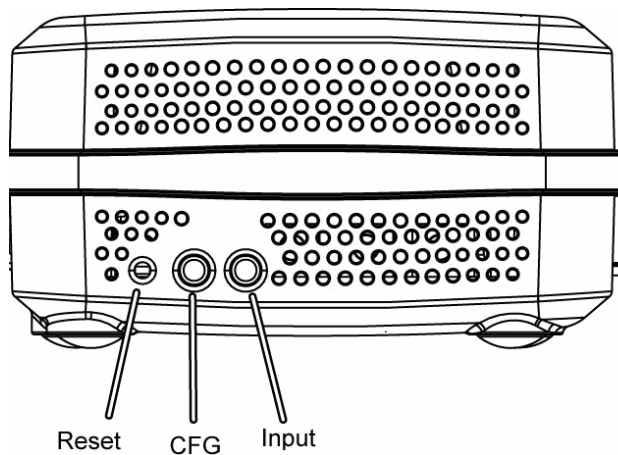
| RX Buttons	
Reset	Press the "RESET" button to reset the system, the system will run through a full reset which takes approximately 5 seconds.
Input Switch **(Pending)**	Press the RX unit "INPUT" button repeatedly to switch to desired source units (TX1/ TX2…) and the "PAIRING" LED will illuminate to indicate which source unit is being selected.
CFG (Configure)	This button is for upgrade system firmware. For further firmware upgrade process, please refer to Chapter 4: Software Upgrade.

Remote Controller
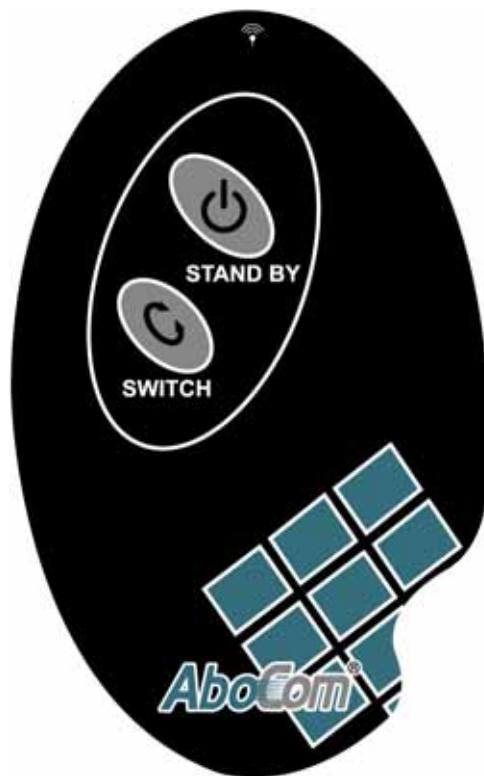
| Remote Controller	
Stand by	The devices will be ready while this button clicking.
Switch **(Pending)**	Switch the pairing input source to different 60GHz WirelessHD Transmitters.

Chapter 3: Installation

Set Up Steps

1. Connect the 60GHz WirelessHD Transmitter with cables to media input sources, such as a computer or a DVD player.
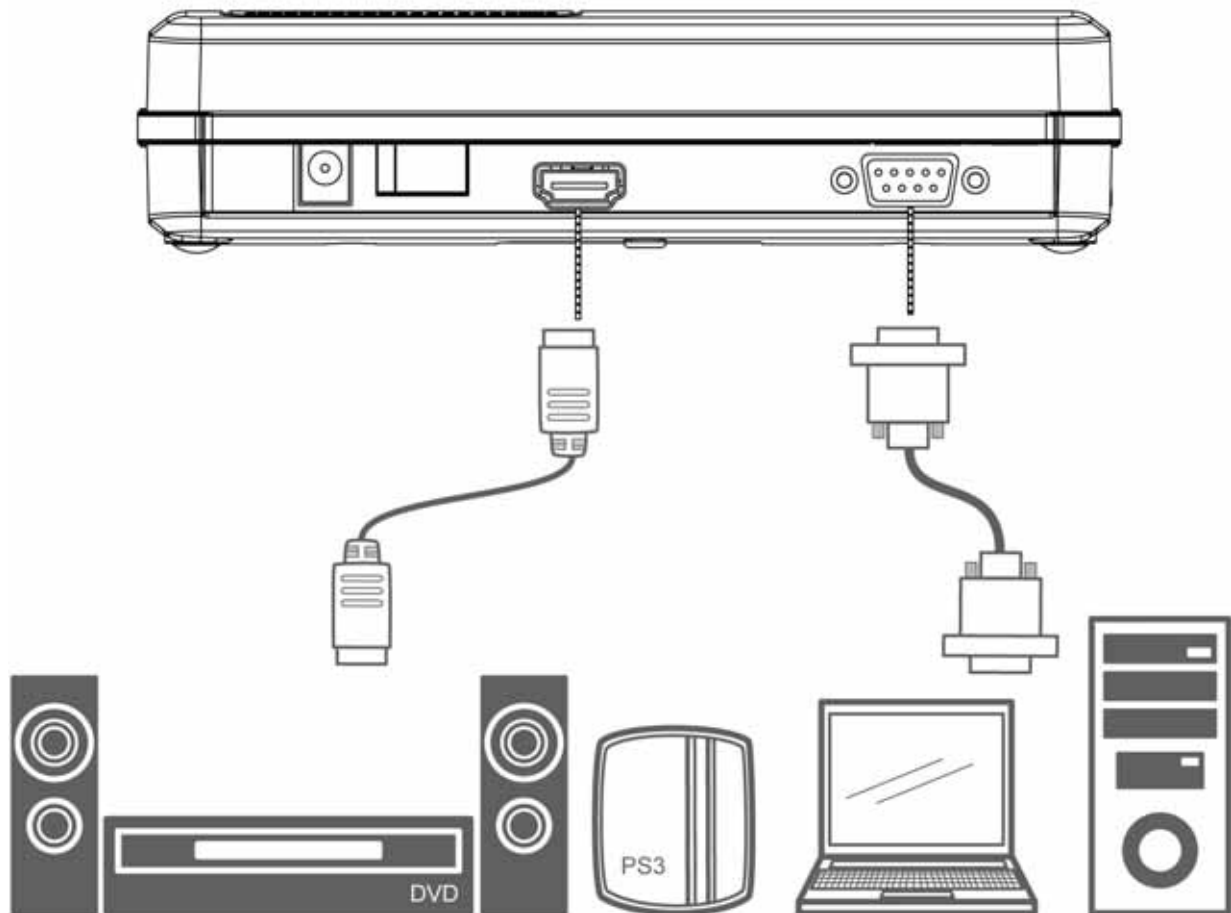
2. And connect 60GHz WirelessHD Receiver with cables to media output sources, such as a monitor or a projector.
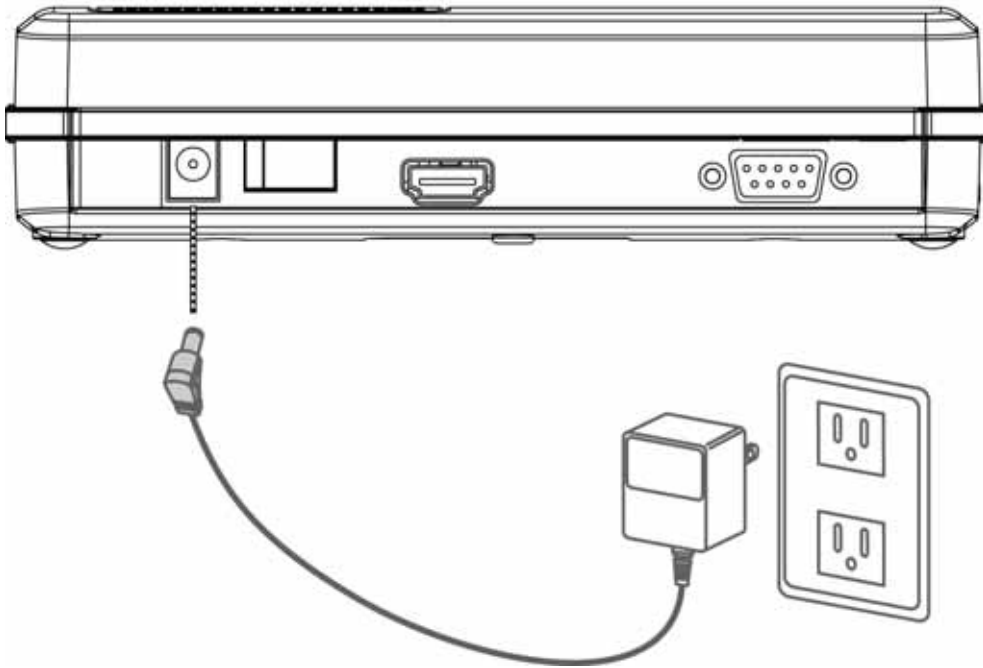

Step 2 60GHz WirelessHD Receiver
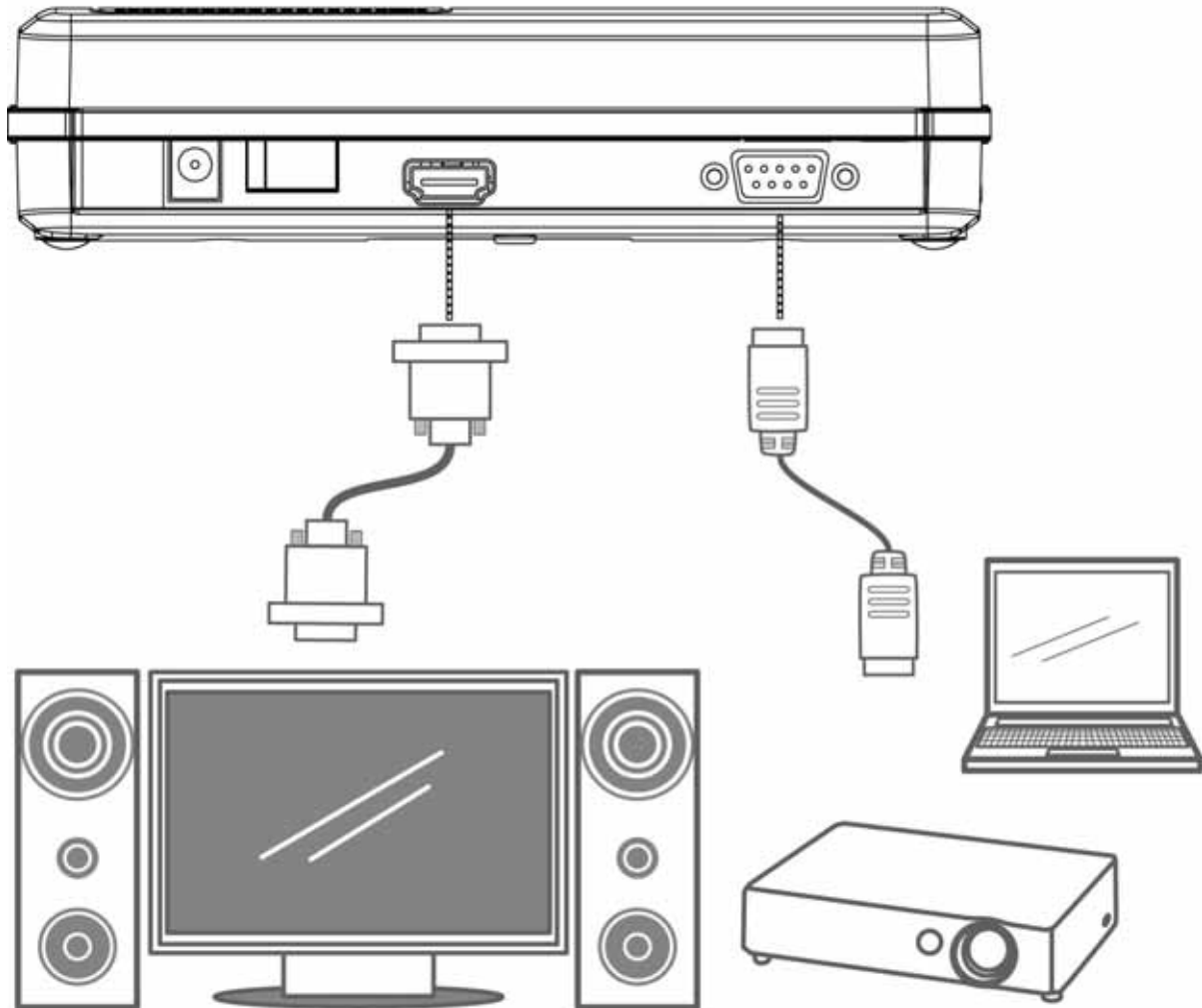
Notice!

Do not forget to turn on the power supplies of your monitor, projector or video device and switch them into corresponding settings. Such as, set your monitor sources into HDMI setting for media receiving.
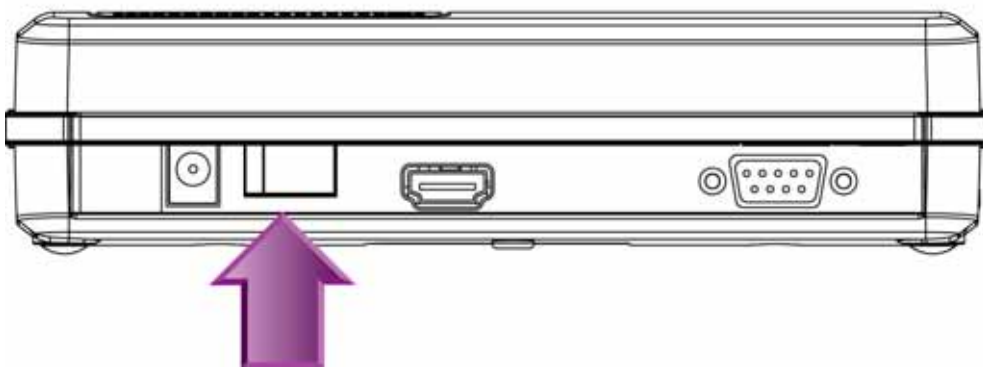
3. Then, connect both power adapters of the 60GHz WirelessHD Transceivers to outlets.

Step 3 Power adapters Connection

4. Turn on the power of both 60GHz WirelessHD Transceivers.

Step 4 Turn on Power

5. After finished above set up steps, the 60GHz WirelessHD Transceivers will be ready to transmit media.

Chapter 4:
Software Upgrade

Software Application Installation

The devices would allow user to upgrade firmware into new version. Please download the new firmware and application from the supported website. (Please fill in the website link.) Then, install the application on your computer or laptop by the following steps.
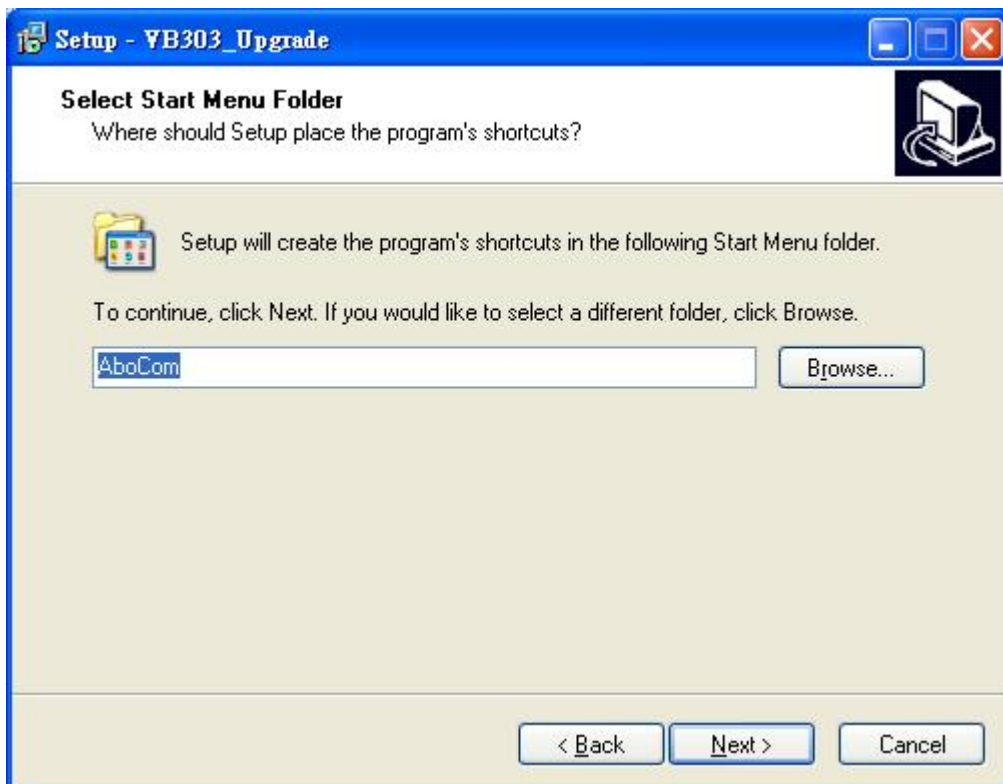
1. When this screen shows up, please click **Next** to install.

2. Select destination location, click **Next** to continue or click **Browse** to change the location.
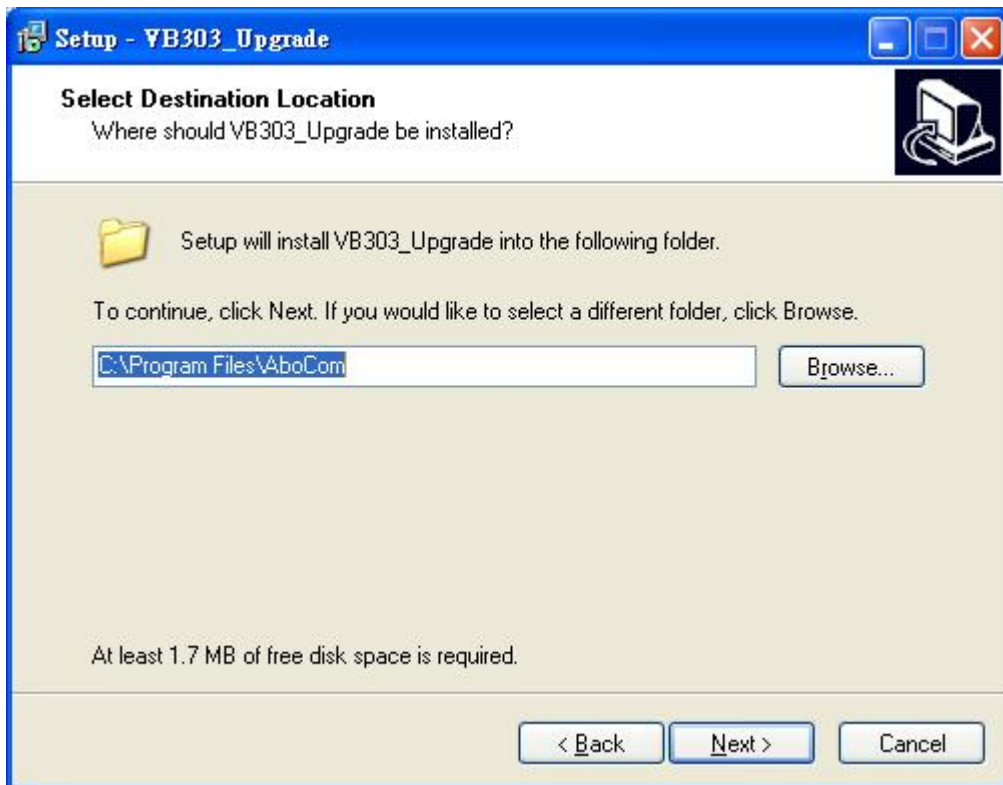
3. Select start menu folder, click **Next** to continue or click **Browse** to change the folder.

4. Select to create a short cut on the desktop, and then click **Next** to process.
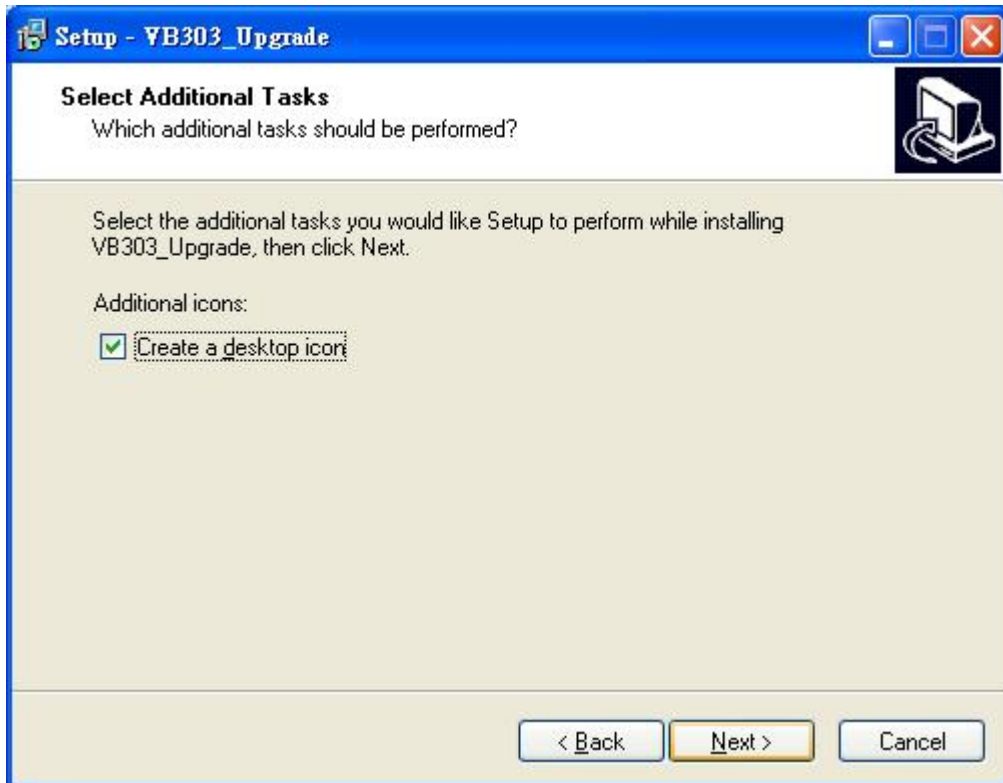
5. When following screen shows up, it is ready to install the application on your computer. Please click **Install** to setup.
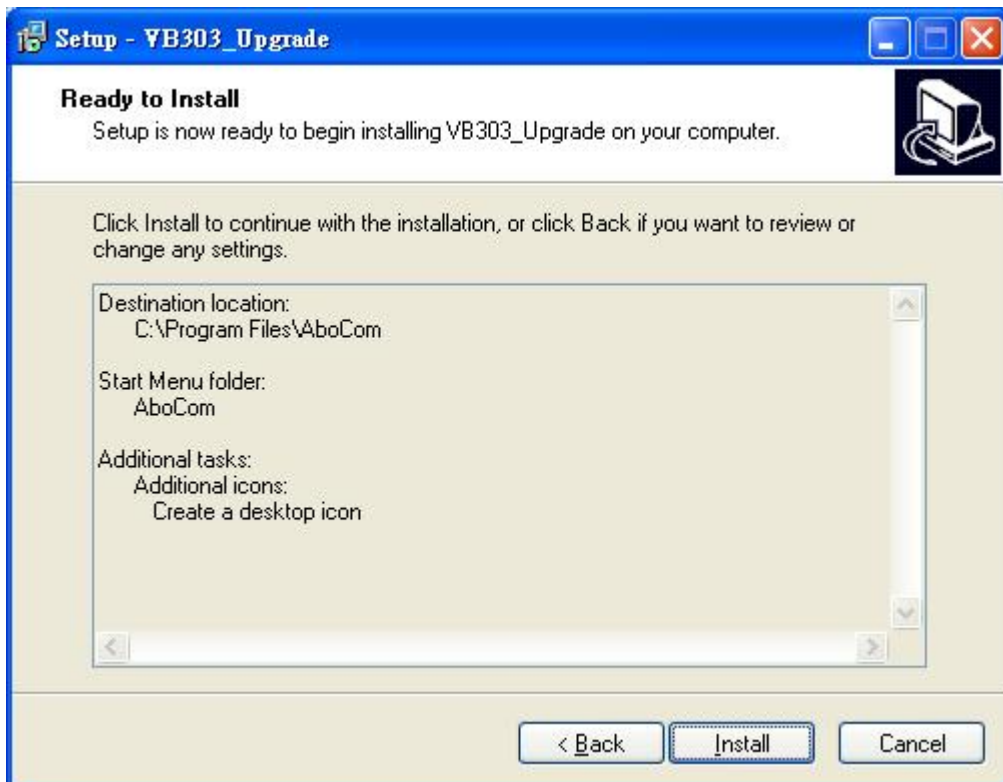
6. The application installing is completed, click **Finish** to exit.

Completing the VB303_Upgrade Setup Wizard

Setup has finished installing VB303_Upgrade on your computer. The application may be launched by selecting the installed icons.

Click Finish to exit Setup.

Finish

Start to Upgrade

1. Connect the RS232 D-Sub cable one end to device, the other to the computer or laptop RS232 D-Sub port.
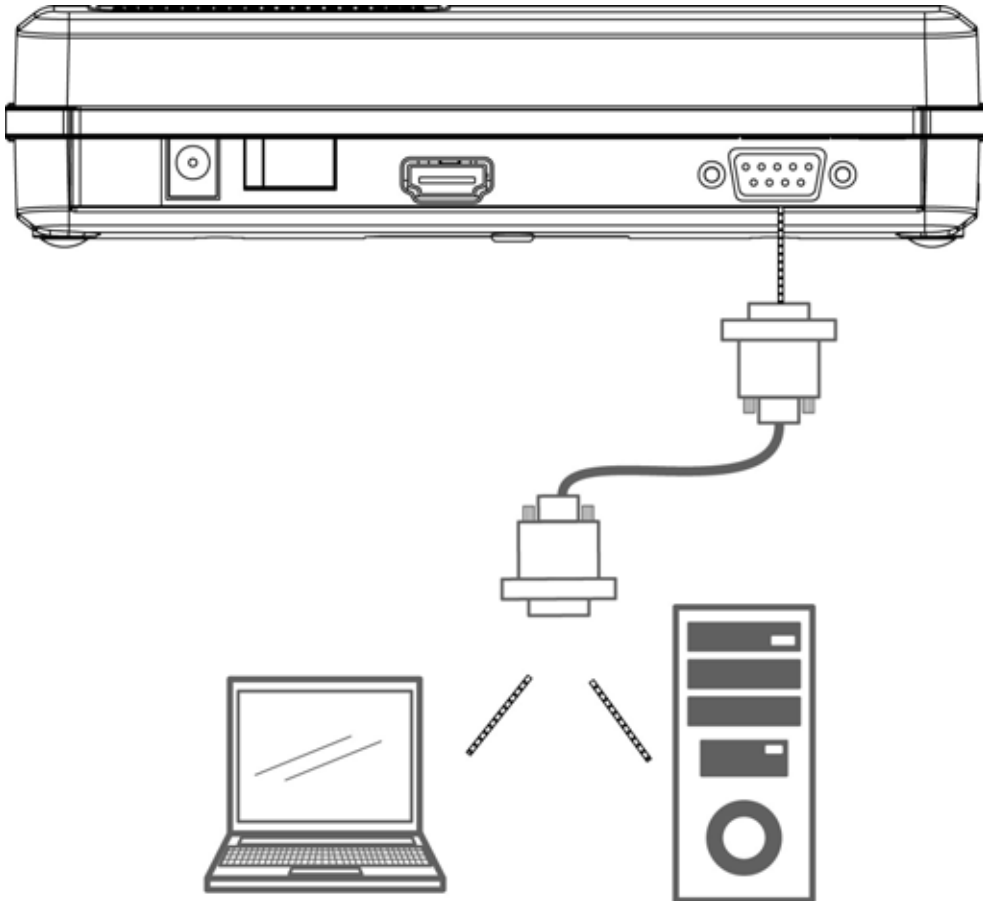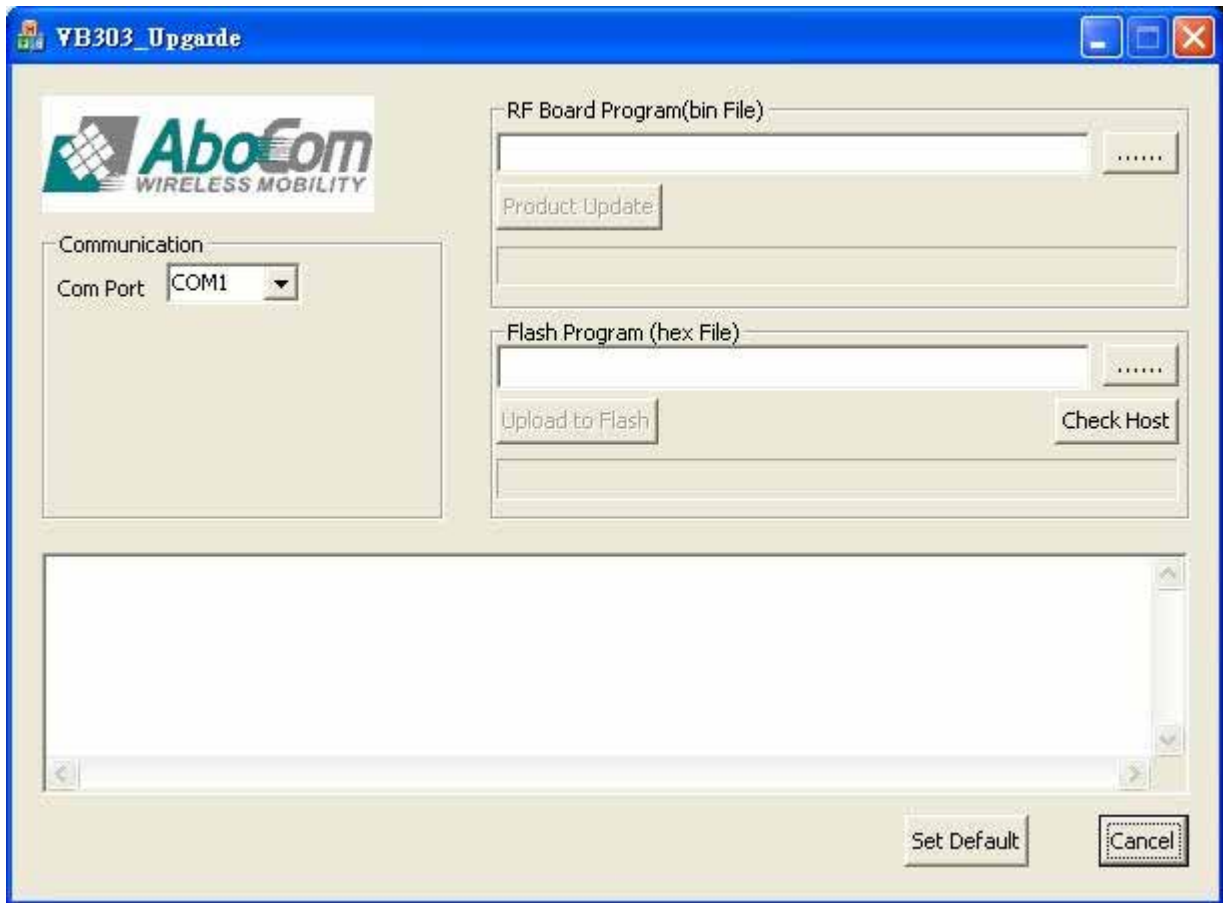
2. After confirming the hardware connection, please execute the software application that installed.

Communication	Select the Com Port that connects the computer with RS232 D-Sub cable to the transceiver.
RF Board Program (bin file)	1. Find and open the RF firmware file by click the ...... button, the browser will display to correct file path. 2. Then, select the **Product** button to upgrade the program. 3. The upgrade status will show in the column below of the screen. 4. Wait for "upgrade success" message comes out from state log area. 5. If get "fail" message from state log area, please re-do the steps again. 6. After finished the firmware upgrade, please turn off

	then on the power to complete the firmware upgrading. ## Notice :　User can upgrade the RF firmware directly without pressing CFG button.
Flash Program (hex file)	1. Turn off the power supply first, and hold the CFG (Configure) button on the device turning on the power supply. Please remember to keep on holding the CFG (Configure) button for two seconds. The LEDs will not illuminate at this time. 2. Then, find and open the Host firmware file by click the ⬚ button, the browser will display to correct file path. 3. Then, select the **Upload to Flash** button to upgrade the program. 4. The upgrade status will show in the column below of the screen. 5. Wait for "upgrade success" message comes out from state log area. 6. If get "fail" message from state log area, please re-do the steps again 7. After finished the firmware upgrade, please turn off then on the power to complete the firmware upgrading.
Check Host	Click this button to check the host connection status.
Set Default	Click this button to set the system back to default settings.
Cancel	Click **Cancel** to give up and exit the upgrade process.

Notice!
The Transmitter, Receiver and RF parts firmware cannot be combined in one, thus user need to upgrade the firmware

separately.

Chapter 5: Specifications

Specifications

Standards	WirelessHD
Frequency	60 GHz
Input/ Output Interface	HDMI Interface
Antenna Type	36 Antenna Array (Integrate Ceramic)
Range	10 meters indoors
AV Port	Transmitter : 1 Port (HDMI 1.3) Receiver : 1 Port (HDMI 1.3)
Physical Specifications	Weight: 324g±10g Dimension: 183 (L) x 80 (W) x 36 (H) mm
Adapter Power	AC 90-230V @ 60Hz input, DC 12V 1.5A
LED Indicators	Transmitter: Four LEDs display, power, pairing indicator, signal Strength indication Receiver : Four LEDs display, power, pairing indicator, signal Strength indication, IR sensor

Operating Environment (Total System)	Operating Temperature: 0 ~ 50　ambient temperature Except AC adaptor, it is only 0 ~ 40 Storage Temperature: -30 ~ 70 Operating Humidity: 10% to 90% (Non-condensing) Storage Humidity: 5% to 90% (Non-condensing)
I/O Port	RS232 Interface

Video Format

Resolution Format (CEA-861 Code)	Vertical Refresh Rate			
	24 Hz	**50 Hz**	**59.94 Hz**	**60 Hz**
640x480p (1)			**25.175 MHz**	25 MHz
720x480p (2/3)			**27 MHz**	
720x576p (17/18)		27 MHz		
1280x720p (19)		74.25 MHz		
1280x720p (4)			**74.176 MHz**	74.25 MHz
1920x1080i (20)		74.25 MHz		
1920x1080i (5)			**74.176 MHz**	74.25 MHz
1920x1080p (32)	**74.25 MHz**			
1920x1080p (31)		148.5 MHz		
1920x1080p (16)			**148.352 MHz**	**148.5 MHz**

1. Specific format support is dependent on latest firmware release.
2. Deep color (10/12-bit/per color 4:4:4) is possible for all format but resolution 1080p (not supported in WirelessHD v1.0 specification).
3. Other video formats are possible to include PC formats (VGA, XGA, SXGA, etc.)

Audio Format

Audio up to 8-ch., 24-bit 192 kHz LPCM.

Multiples of Fs	32 kHz	44.1 kHz	48 kHz	88.2 kHz	96 kHz	176.4 kHz	19
128	4.096	5.645	6.144	11.290	12.288	22.579	
256	8.192	11.290	**12.288**	22.579	24.576	45.158	4
512	16.384	22.579	24.576	45.158	49.152		

Specific format support dependent on latest code release .