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Cisco IPV50xy/IPV60xy Set-Tops Installation

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Installation Guide

Cisco IPV50xy/IPV60xy High-Definition IP Set-Tops

Contents

Notice for Installers

The servicing instructions in this notice are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.

Note to System Installer

For this apparatus, the cable shield/screen shall be grounded as close as practical to the point of entry of the cable into the building. For products sold in the US and Canada, this reminder is provided to call the system installer's attention to Article 800-93 and Article 800-100 of the NEC (or Canadian Electrical Code Part 1), which provides guidelines for proper grounding of the cable shield.

This symbol is intended to alert you that uninsulated voltage within this product may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this product.

Ce symbole a pour but d'alerter toute personne qu'un contact avec une pièce interne de ce produit, sous tension et non isolée, pourrait être suffisant pour provoquer un choc électrique. Il est donc dangereux d'être en contact avec toute pièce interne de ce produit.

This symbol is intended to alert you of the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.

Ce symbole a pour but de vous avertir qu'une documentation importante sur le fonctionnement et l'entretien accompagne ce produit.

CAUTION: To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

WARNING

TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT SAFETY INSTRUCTIONS

1) **Read these instructions.**
2) **Keep these instructions.**
3) **Heed all warnings.**
4) **Follow all instructions.**
5) **Do not use this apparatus near water.**
6) **Clean only with dry cloth.**
7) **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.**
8) **Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.**
9) **Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.**
10) **Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.**
11) **Only use attachments/accessories specified by the manufacturer.**
12) **Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.**
13) **Unplug this apparatus during lightning storms or when unused for long periods of time.**
14) **Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.**

Power Source Warning

A label on this product indicates the correct power source for this product. Operate this product only from an electrical outlet with the voltage and frequency indicated on the product label. If you are uncertain of the type of power supply to your home or business, consult your service provider or your local power company.

The AC inlet on the unit must remain accessible and operable at all times.

Ground the Product

WARNING: Avoid electric shock and fire hazard! If this product connects to cable wiring, be sure the cable system is grounded (earthed). Grounding provides some protection against voltage surges and built-up static charges.

Protect the Product from Lightning

In addition to disconnecting the AC power from the wall outlet, disconnect the signal inputs.

Verify the Power Source from the On/Off Power Light

When the on/off power light is not illuminated, the apparatus may still be connected to the power source. The light may go out when the apparatus is turned off, regardless of whether it is still plugged into an AC power source.

Eliminate AC Power/Mains Overloads

WARNING: Avoid electric shock and fire hazard! Do not overload AC power/mains, outlets, extension cords, or integral convenience receptacles. For products that require battery power or other power sources to operate them, refer to the operating instructions for those products.

Handling Disposable Batteries

This product may contain disposable batteries. Heed the following warning and follow the Battery Safety and Battery Disposal instructions below.

WARNING: There is danger of explosion if the battery is mishandled or incorrectly replaced. Replace only with the same type of battery. Do not disassemble it or attempt to recharge it outside the system. Do not crush, puncture, dispose of in fire, short the external contacts, or expose to water or other liquids. Dispose of the battery in accordance with local regulations and instructions from your service provider.

Battery Safety

- Insert batteries correctly. There may be a risk of explosion if the batteries are incorrectly inserted.
- Do not attempt to recharge 'disposable' or 'non-reusable' batteries.
- Follow instructions provided for charging 'rechargeable' batteries.
- Replace batteries with the same or equivalent type that we recommend.
- Do not expose batteries to excessive heat (such as sunlight or fire).
- Do not expose batteries to temperatures above 100°C (212°F).

Battery Disposal

- The batteries may contain substances that could be harmful to the environment.
- Recycle or dispose of batteries in accordance with the battery manufacturer's instructions and local/national disposal and recycling regulations.

- The batteries may contain perchlorate, a known hazardous substance, so special handling and disposal of this product might be necessary. For more information about perchlorate and best management practices for perchlorate-containing substance, see www.dtsc.ca.gov/hazardouswaste/perchlorate

Provide Ventilation and Select a Location

- Remove all packaging material before applying power to the product.
- Do not place this apparatus on a bed, sofa, rug, or similar surface.
- Do not place this apparatus on an unstable surface.
- Do not install this apparatus in an enclosure, such as a bookcase or rack, unless the installation provides proper ventilation.
- Do not place entertainment devices (such as VCRs or DVDs), lamps, books, vases with liquids, or other objects on top of this product.
- Do not block ventilation openings.

Operating Environment

The set-top is designed for operation indoors with a temperature range from 32° to 104° F (0° to 40° C). Each set-top should have adequate spacing on all sides so that the cooling air vents on the chassis are not blocked.

Protect from Exposure to Moisture and Foreign Objects

WARNING: Avoid electric shock and fire hazard! Do not expose this product to dripping or splashing liquids, rain, or moisture. Objects filled with liquids, such as vases, should not be placed on this apparatus.

WARNING: Avoid electric shock and fire hazard! Unplug this product before cleaning. Do not use a liquid cleaner or an aerosol cleaner. Do not use a magnetic/static cleaning device (dust remover) to clean this product.

WARNING: Avoid electric shock and fire hazard! Never push objects through the openings in this product. Foreign objects can cause electrical shorts that can result in electric shock or fire.

Service Warnings

WARNING: Avoid electric shock! Do not open the cover of this product. Opening or removing the cover may expose you to dangerous voltages. If you open the cover, your warranty will be void. This product contains no user-serviceable parts.

Check Product Safety

Upon completion of any service or repairs to this product, the service technician must perform safety checks to determine that this product is in proper operating condition.

Protect the Product When Moving It

Always disconnect the power source when moving the apparatus or connecting or disconnecting cables.

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Change the Way You Watch TV

Welcome to Internet Protocol Television (IPTV). The Cisco IPV5K/IPV6K Series High-Definition IP Set-Tops bring a rich, new set of interactive services directly to you through your TV and your in-home IP network.

Available services may include some or all of the following features:

- Digital Video Recorder (DVR)—Allows you to record your favorite programs so that you can still go to your friend's house for dinner and not miss your favorite TV show
- Pause Live TV—Allows you to pay for the pizza and come back to the show where you left it (Applies to DVR models only)
- High-definition (HD)—Provides crystal-clear pictures and sound when compared to standard-definition – you won't want to watch television any other way once you've experienced HD
- Video-On-Demand (VOD)—Gives you access to a robust library of movies and programs that you can watch – when you want to watch them

Note: Contact your service provider to find out if the DVR, HD, or VOD services are available and to activate the services.

Identify Your Set-Top

This installation guide covers the following set-top models. Use the following information to identify your model.

- IPV5000 set-top—TV set-top that supports high-definition (HD) and standard-definition (SD) video MPEG2 and H.264 decoding. Supports 480i, 576i, 720p, 1080i and 1080p content. Uses Ethernet over CAT-5
- IPV5001 set-top—The IPV5001 is the same as the IPV5000 but has 16 GB of eMMC flash memory
- IPV5010 set-top—The IPV5010 is the same as the IPV5000 but also uses HPNA v3 in-home networking over coaxial cable
- IPV5050 set-top—The IPV5050 is the same as the IPV5000 but with WiFi capability
- IPV6003 set-top—The IPV6003 is the same as the IPV5000 but with a 320 GB hard disk drive for DVR capability
- IPV6005 set-top—The IPV6005 is the same as the IPV5000 but with a 500 GB hard disk drive for DVR capability
- IPV6006 set-top—The IPV6006 is the same as the IPV5000 but with a 1 TB hard disk drive for DVR capability
- IPV6013 set-top—The IPV6013 is the same as the IPV5000 but with HPNA v3 in-home networking over coaxial cable and a 320 GB hard disk drive for DVR capability
- IPV6015 set-top—The IPV6015 is the same as the IPV5000 but with HPNA v3 in-home networking over coaxial cable and a 500 GB hard disk drive for DVR capability
- IPV6016 set-top—The IPV6016 is the same as the IPV5000 but with HPNA v3 in-home networking over coaxial cable and a 1 TB hard disk drive for DVR capability

IPV5000 / IPV5001

IPV5010 / IPV5050

IPV6003 / IPV6005 / IPV6006

IPV6013 / IPV6015 / IPV6016

Note: This illustration may vary from the actual product.

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Safety First

Before using the set-top, read the Important Safety Instructions section of this guide.

Serial Number

At times your service provider may ask for the serial number. To find the serial number for your set-top, look on the bottom of the set-top for the label. The serial number is a 9-digit numeric code to the right of the letters “S/N” on the label.

Use the space provided here to record the serial number: _____

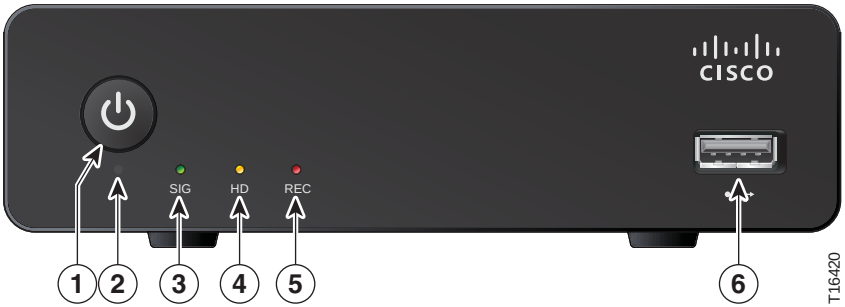
In This Guide

This guide covers the information that you need to connect your set-top to both your in-home IP network and your entertainment system. The guide also outlines certain safeguards and installation information. The safety information contained in this guide was developed and provided solely by the set-top manufacturer, Cisco Systems, Inc.

Open Source License Statement

Cisco IPV5K and IPV6K Series set-tops may contain, in part, certain free and/or open source software (“Open Source”) under separate license terms. Examples of such licenses may include all versions of the GNU General Public License (GPL), GNU Lesser General Public License (LGPL), BSD license, MIT license, Mozilla Public License, Eclipse Public License, Apache license, and others. To find specific information regarding the Open Source in your product, including copies of the applicable license documentation and related information, go to: (i) for North America http://www.cisco.com/web/consumer/support/open_source.html, or (ii) for outside North America http://www.cisco.com/web/consumer/support/open_source.html#~international. Once at the site, search for the product listing and click the related items identified. If you have any questions or problems accessing any of the links, contact: spvtg-external-opensource-requests@cisco.com.

IPV5000, IPV5001, IPV6003, IPV6005, and IPV6006 Front Panel



1	**Power**	Turns the set-top on or places it in standby
2	**Power LED**	Indicates that the set-top is powered on. The LED is white
3	**SIG LED**	Indicates network link status. The LED is green
4	**HD LED**	Indicates that the set-top is set to a resolution of 720p, 1080i, or 1080p. The LED is yellow
5	**REC LED**	Indicates that a recording is in progress. The LED is red
6	**USB Port**	USB connector

Note: This illustration may vary from the actual product.

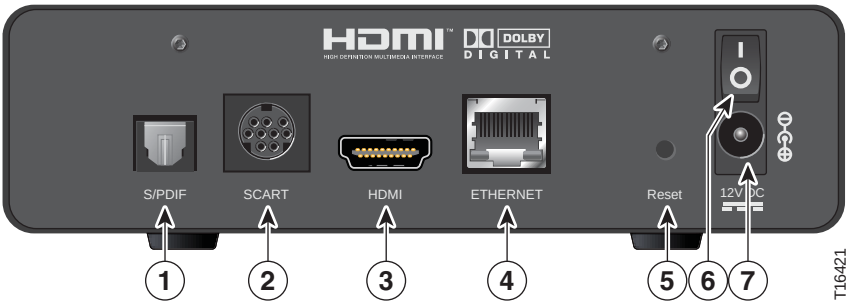
CAUTION:

Your set-top may be equipped with a hard disk drive to store programs that you record and to allow you to rewind and pause live TV. Any time the set-top is powered on (power LED is illuminated) or a recording is in progress (the record LED is illuminated) the hard disk drive is in use.

If you need to move the set-top, complete the following steps to allow the hard disk drive to shut down properly. First, make sure that no recording is in progress (record LED is off). Then, turn off power by pressing the Power switch. Finally, unplug the unit and wait 10 seconds for the hard disk drive to spin down (stop). At this point the unit can be moved safely.

You should handle this product with the same level of care that you would use when handling other electronics containing a hard disk drive, such as a laptop computer or other hard disk drive-equipped devices.

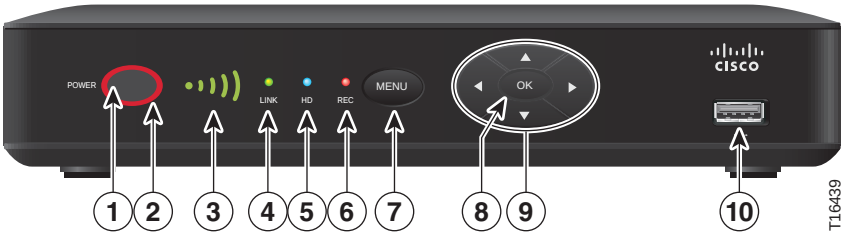
IPV5000, IPV5001, IPV6003, IPV6005, and IPV6006 Back Panel



1	**S/PDIF**	Connect to an optical cable to send a digital audio signal to a surround sound system or other digital audio device
2	**SCART**	Connect a MiniDin-to-SCART adapter cable to the SCART connector on your HDTV or SDTV
3	**HDMI**	Connect an HDTV HDMI (High-Definition Multimedia Interface) cable from the HDTV to the HDMI port. HDMI supports both digital audio and video. See page 14 for more information
4	**ETHERNET**	Connect to Ethernet (CAT-5) network at your home, if applicable
5	**Reset**	Press for one second to reboot the set-top
6	**Power switch**	Toggle to switch the set-top on or off
7	**Power**	Connect the DC output of the AC power adapter (provided) to deliver power to the set-top. Use only the AC power adapter provided with the set-top

Note: This illustration may vary from the actual product.

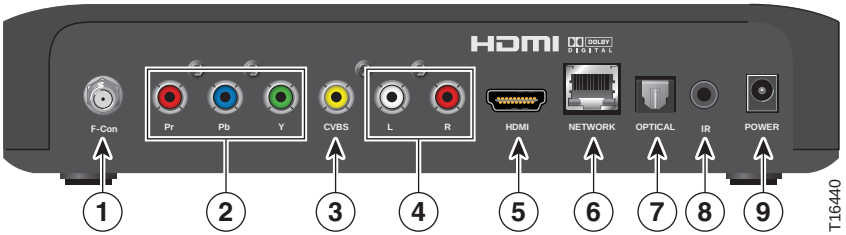
IPV5010, IPV5050, IPV6013, IPV6015, and IPV6016 Front Panel



1	**Power**	Turns the set-top on or places it in standby
2	**LED halo**	LED is green for power on, red for standby
3	**Signal Strength Indicator**	Identifies the strength of the wireless connection (Optional)
4	**LINK**	Indicates network link status. The LED is green
5	**HD**	Indicates the set-top is set to a resolution of 720p, 1080i, or 1080p. The LED is blue
6	**REC**	Indicates that a recording is in progress. The LED is red
7	**MENU**	Accesses the on-screen menu
8	**OK**	Selects the current item
9	**Arrow Keys**	Accesses on-screen services (such as the on-screen guide, video-on-demand, or pay-per-view) and navigates menus
10	**USB Port**	USB connector

Note: This illustration may vary from the actual product.

IPV5010, IPV5050, IPV6013, IPV6015, and IPV6016 Back Panel



1	**F-Con**	Connect to in-house coaxial wiring, if applicable (Optional)
2	**Pr Pb Y**	Connect the receiver to the component video input (PrPbY) on the HDTV. See pages 14 and 15 for more information
3	**CVBS**	Connect to composite video input on your HDTV or SDTV
4	**Audio Out (L/R)**	Connect RCA-type cables to Audio Out to send analog audio signals (left and right) to a TV with stereo inputs or to a stereo amplifier
5	**HDMI**	Connect an HDTV HDMI (High-Definition Multimedia Interface) cable from the HDTV to the HDMI port. HDMI supports both digital audio and video. See page 14 for more information
6	**NETWORK**	Connect to the Ethernet (CAT-5) network at your home, if applicable
7	**OPTICAL**	Connect an optical cable to send a digital audio signal to a surround-sound receiver or other digital audio device
7	**IR**	Available to be connected to an approved remote IR receiver (purchased separately). Contact your service provider for details
8	**Power**	Connect the DC output of the AC power adapter (provided) to deliver power to the set-top. Use only the AC power adapter provided with the set-top

Note: This illustration may vary from the actual product.

Connecting the Set-Top

To connect your set-top to your network and home entertainment devices, complete these steps:

1

Because the connections for a high-definition (HD) or standard-definition (SD) TV are different, you must determine if your TV is HD or SD. Your TV must receive HD signals for you to enjoy the benefits of HDTV. See the guide that came with your TV for more information. See page 25 for more information on picture formats.

or

2

Make one of the following connections for your home network:

- If your home network uses coaxial cable, use the F-Con connector on the set-top. See page 13
- If your home network uses Ethernet (CAT-5) cable, use the NETWORK connector on the set-top. See page 13

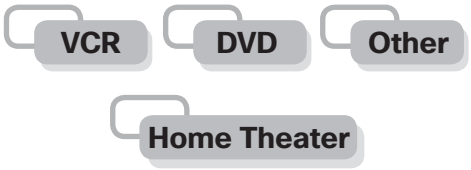
3

Make the connections for your TV, VCR, and DVD recorder as follows:

- If you are using an HDTV, see page 14 and the connection diagrams in this guide
- If you are using an SDTV, see page 15 and the connection diagrams in this guide

4

Identify the additional consumer electronic devices that you will connect to the set-top and TV. See pages 17 through 22 and see the owner's manual for the device.



5

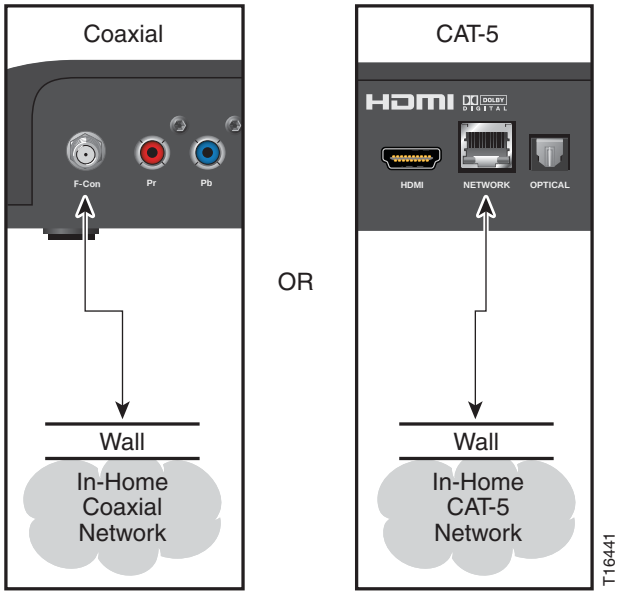
Plug the set-top and the TV into an AC power source that is not controlled by a switch.

Connecting to the In-Home Network

The following diagrams illustrate examples of the connections that you can use to connect your set-top to your in-home network. Contact your service provider for the recommended connection method for your home. (This section does not apply to the IPV5050; see **Connection for IPV5050 Wireless Set-Top** on page 16.)

Notes:

- The in-home coaxial wiring networks use HomePNA 3.1 technology
- The illustrations below may vary from the actual product



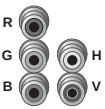
Connections for a High-Definition TV (HDTV)

To use the set-top with an HDTV, you must make *one* of the following connections to view the HD content. See the owner's manual for your TV and the cabling diagrams in this guide for more detailed connection information.

Although all connections provide you with quality service, we list the connections in our recommended order.

Notes:

- The labeling on your set-top or HDTV may vary slightly from the illustrations shown below
- Some cables shown in the connection diagrams may not be included with this set-top
- Set the HD mode and select the output video format (480i, 480p, 720p, 1080i, 1080p) on the set-top. See page 25 for more information on picture formats

	Use One of These Required Connections to an HDTV	Set-Top Connections		HDTV Connections
HDMI	Some HDTVs have a High-Definition Multimedia Interface (HDMI) connector. The HDMI connector provides both a digital video and audio connection. See the connection diagram on page 17 for an example. **Note:** The HDMI port on the TV must support high-bandwidth digital content protection (HDCP).		**Audio/Video**	
DVI	The HDMI connector can provide the connection to an HDTV with a DVI input. If your HDTV has a Digital Visual Interface (DVI) connector, you need an HDMI-to-DVI adapter, and a separate audio connection (either L/R or optical audio). **Note:** The DVI port on the TV must support high-bandwidth digital content protection (HDCP). See the connection diagram on page 18 for an example.	 **Adapter Needed**	**Video**	
			**Audio**	
				
YPbPr	The YPbPr (red, blue, and green) connectors provide high-definition component video signals to an HDTV, and a separate audio connection (either L/R or optical audio). See the connection diagram on page 19 for an example.		**Video**	
			**Audio**	
				
RGB	Some HDTVs have only RGB or RGB-HV connectors. If you have one of these HDTVs, you need a Component-to-RGB adapter, and you need a separate audio connection.	 **Adapter Needed**	**Video**	
			**Audio**	

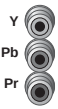
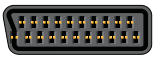
Connections for a Standard-Definition TV (SDTV)

When using the set-top with an SDTV, you must make *one* of the following connections to view content. Some SDTVs may not have all of these connections. See the owner's manual for your TV and the cabling diagrams in this guide for more detailed information.

Although all connections provide you with quality service, we list the connections in our recommended order.

Notes:

- The labeling on your set-top or SDTV may vary slightly from the illustrations shown below
- Some cables shown in the connection diagrams may not be included with this set-top

Use One of These Required Connections to an SDTV		Set-Top Connections		SDTV Connections
YPbPr	The YPbPr (red, blue, and green) connectors can provide standard-definition component video signals to an SDTV. A separate audio connection is also needed. **Note:** To connect YPbPr to an SDTV, you must select the output video format. See page 25 for more information on picture formats. See the connection diagram on page 20 for an example.		**Video**	
			**Audio**	
SCART	The MiniDin connector can provide standard-definition RGB or composite video signals and audio to SDTV or HDTV. See the connection diagram on page 22 for an example.	 **Adapter Cable Needed**	**Audio/Video**	
Video Out	The Video Out connector provides a video connection to an SDTV. A separate audio connection is also needed. See the connection diagram on page 21 for an example.		**Video**	
			**Audio**	

Connections for an Over-the-Air Converter Box

You can connect an over-the-air converter box directly to your TV to receive certain local channels, but do not connect the over-the-air converter box directly to your set-top.

Connection for IPV5050 Wireless Set-Top

The IPV5050 set-top allows for easy and secure establishment of a wireless home network. The signal strength indicator on the front panel of the set-top allows you to identify the strength of your wireless connection.

Signal Strength Indicator

T16442

Connecting to an HDTV with an HDMI Connector

Cable Used in this Configuration

- 1 HDMI Cable

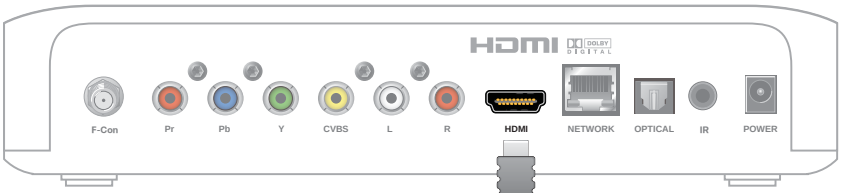
Notes:

- The HDMI port on the TV must support high-bandwidth digital content protection (HDCP)
- The HDMI interface supports Dolby Digital 5.1 audio

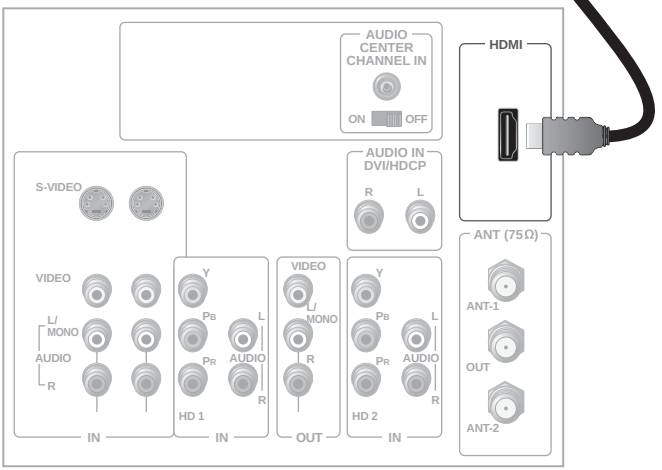
WARNING:

Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the set-top.

Back of Set-Top



Back of HDTV



T16443

Connecting to an HDTV with a DVI Connector

Cables Used in this Configuration

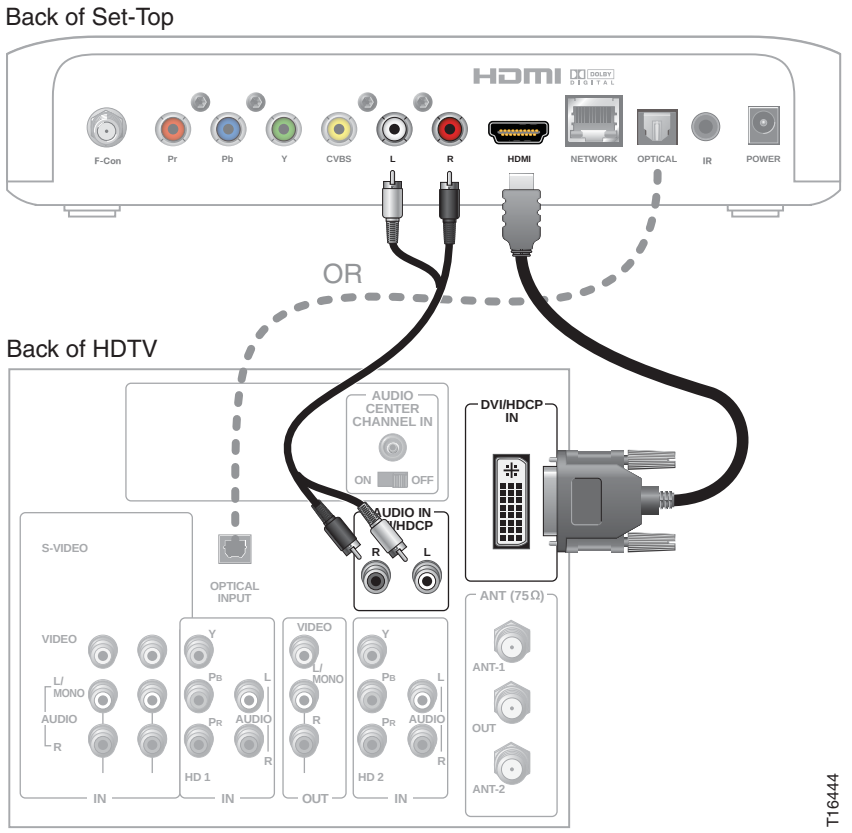
- 1 HDMI-to-DVI Cable *or* 1 HDMI Cable and 1 HDMI-to-DVI Adapter
- 1 Audio Left/Right Cable (You can also use an optical cable [indicated by the dotted line] instead of the Audio Left/Right Cable as shown in the diagram, dependent upon your TV's capabilities.)

Notes:

- The DVI port on the TV must support high-bandwidth digital content protection (HDCP)
- When you connect the HDMI connector to the DVI connector on your HDTV, you need an HDMI-to-DVI adapter and a separate audio connection

WARNING:

Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the set-top.



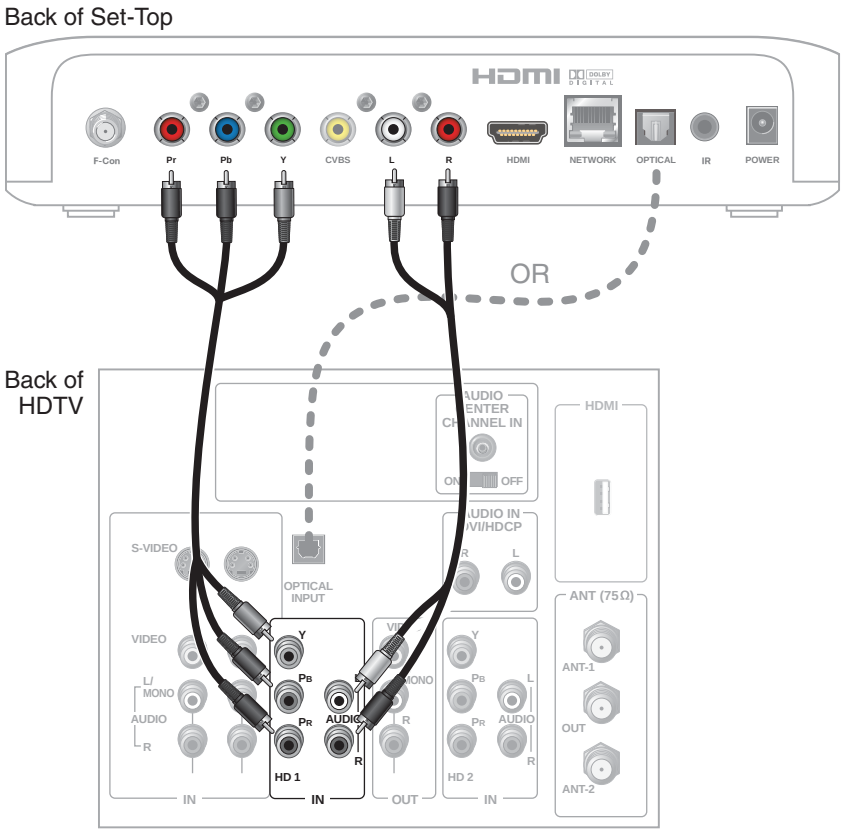
Connecting to an HDTV with Component (YPbPr) Connectors

Cables Used in this Configuration

- 1 Component Video Cable (YPbPr)
- 1 Audio Left/Right Cable (You can also use an optical cable [indicated by the dotted line] instead of the Audio Left/Right Cable as shown in the diagram, dependent upon your TV's capabilities.)

WARNING:

Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the set-top.



Connecting to an SDTV with Component (YPbPr) Connectors

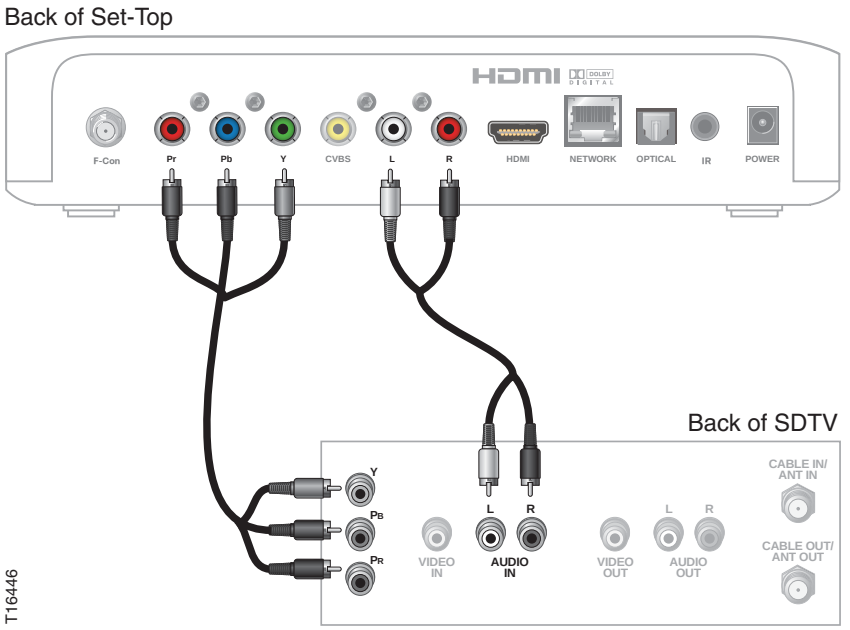
Cables Used in this Configuration

- 1 Component Video Cable (YPbPr)
- 1 Audio Left/Right Cable

Note: The set-top must be set to the proper standard-definition mode.

WARNING:

Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the set-top.



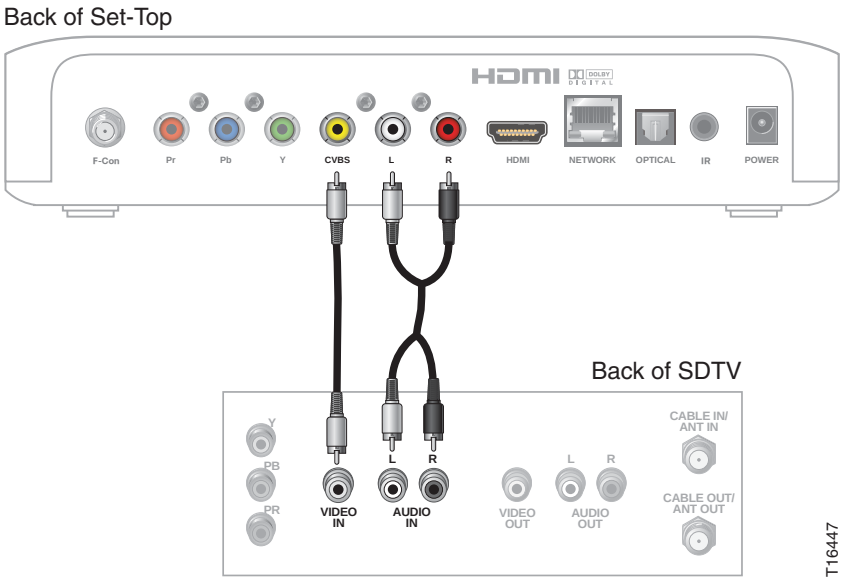
Connecting to an SDTV with an RCA-Type Connector

Cables Used in this Configuration

- 1 RCA-type Video Cable
- 1 Audio Left/Right Cable

WARNING:

Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the set-top.



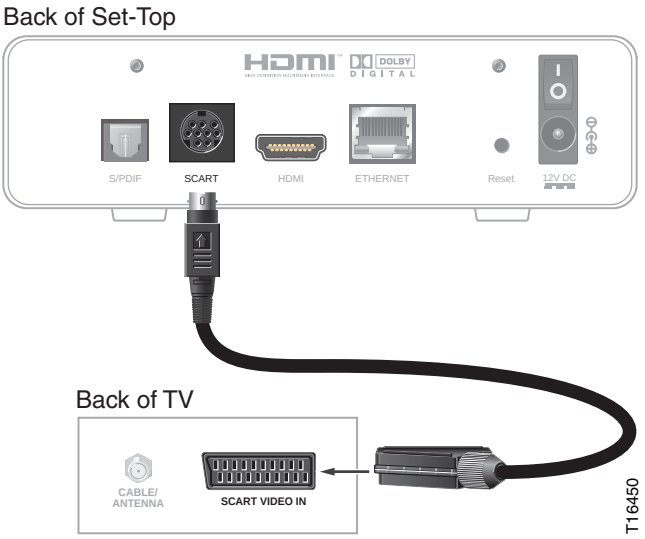
Connecting to an SDTV with a SCART Connector

Cables Used in this Configuration

- MiniDin to SCART Adapter Cable

WARNING:

Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the set-top.



Troubleshooting

If the set-top does not perform as expected, the following tips may help. If you need further assistance, contact your service provider.

No Picture

- Verify that the power to your TV is turned on
- If the set-top is plugged into a wall switch, verify that the switch is in the ON position
- Verify that all cables are properly connected
- If your system includes a VCR, DVD recorder, or stereo, verify that you have properly connected the device to the set-top
- Verify that you are using the proper input selection to the home theater set-top or TV
- Verify that the set-top is set to the proper screen type and resolution
- If you are using coaxial cable to connect to your TV, verify that the TV is tuned to the channel designated by your service provider (usually channel 3). Contact your service provider for the channel information

No Color or Incorrect Color

- Verify that the current TV program is broadcast in color
- Adjust the TV color controls
- If you are using a component video connection (YPbPr), check that all connectors are completely and properly plugged into the set-top and TV
- If you are using a component video connection (YPbPr) and your HDTV has only RGB or RGB-HV connectors, you must use an adapter. You can obtain the adapter through an electronic parts retailer

No Sound

- If your setup includes a VCR, DVD recorder, or stereo, verify that you have properly connected the device to the set-top
- Verify that the volume is turned up
- Verify that the mute function is not on
- Verify the proper input selection to the home theater set-top or TV
- If you are using coaxial cable to connect to your TV, verify that the TV is tuned to the correct channel

Avoid Screen Burn-In

Images such as letterbox bars or side bars, bright closed-captioning backgrounds, station logos, or any other stationary images may cause the display in your HDTV to age unevenly; this is known as screen burn-in. See the owner's manual that came with your HDTV for more information.

CAUTION:

Avoid screen burn-in.
Do not display the same fixed images on your HDTV screen for extended periods of time.

Frequently Asked Questions

What Is Digital Television?

Digital television (DTV) is a huge leap forward in television technology compared to analog television that has been widely available since the 1940s. DTV is delivered and displayed using digital encoding, similar to the way a PC operates. By using digital technology, there is no variation in picture and sound quality from the origination point until it is displayed on your television. You always receive a high-quality picture without the wavy lines or static you might sometimes get from a weak analog signal. Another feature of digital television is digital surround sound using Dolby Digital technology, which is the same technology used to produce the sound you hear in movie theaters.

What Is Standard-Definition Television?

Standard-definition television (SDTV) is a television system that uses a resolution that is not considered to be high-definition television (HDTV 720p, 1080i, and 1080p). The two common SDTV signal types are 576i, with 576 interlaced lines of resolution, derived from the European-developed PAL and SECAM systems; and 480i, with 480 interlaced lines of resolution, based on the American National Television System Committee (NTSC) system.

In North America, digital SDTV is broadcast in the same 4:3 aspect ratio as NTSC signals. In other parts of the world that used the PAL or SECAM color systems, standard-definition television is now usually shown with a 16:9 aspect ratio.

What Is High-Definition Television?

High-Definition Television (HDTV) is a high-quality video standard developed to replace older video formats often referred to as SDTV (Standard-definition television). While HDTV's video quality is one of the most noticeable improvements over SDTV, HDTV includes a number of other important improvements as well.

First of all instead of an analog signal, used by traditional NTSC broadcasts, HDTV is always digital. This eliminates analog interference caused be electrical currents and magnetic fields. Secondly, HDTV uses a different aspect ratio than SDTV. While previous broadcasts used a 4:3 ratio, HDTV uses a ratio of 16:9. This wider aspect ratio more closely emulates how humans see the world, making the image appear more realistic. This ratio is also better for watching widescreen movies, which are recorded in widescreen for the same reason. HDTV signals are either 720p, 1080i or 1080p.

Are Local TV Stations or Other Programmers Broadcasting in HDTV?

Many local TV stations and programmers are transmitting digital signals. However, transmitting a digital signal does not mean transmitting an HDTV signal. Some stations are using the new bandwidth to broadcast several standard-definition channels. Most stations and programmers, once they begin broadcasting in digital, are offering HD content from their parent network (for example, CBS, ABC, NBC, Fox, and PBS). Contact your service provider for more information.

Why Aren't All of the Shows that I Watch in High-Definition?

A high-definition program must originate in HD format and be broadcast in HD format. Having an HDTV system does not mean that everything you watch will be viewed in high-definition. Getting the signal from a digital source also does not mean it is high-definition.

What Is HDMI and Does it Support Dolby Digital 5.1 Audio?

The High-Definition Multimedia Interface (HDMI) is an uncompressed, all-digital audio/video interface. The Dolby Digital audio format that provides up to 5.1 separate channels of surround sound, and is the standard used for DVD-Video. HDMI supports standard, enhanced, or high-definition video, plus multi-channel digital audio, such as Dolby Digital audio, on a single cable.

Picture Formats

What Is the Difference Between a Standard-Screen and a Wide-Screen HDTV?

The type of screen your HDTV has (wide-screen or standard-screen) determines how the set-top displays programs on the screen. The picture format for an HDTV is a combination of *aspect ratio* and *screen resolution* and is different for standard-screen and wide-screen HDTVs.

What Is Aspect Ratio?

An aspect ratio is the ratio of the width to the height of the TV screen. The aspect ratios differ because the television industry manufactures both standard-screen and wide-screen HDTVs to appeal to consumer viewing preferences.

What Is the Screen Resolution?

The screen resolution indicates the amount of detail that the picture displays. Resolution is identified by the number of display lines on the screen. The techniques that an HDTV uses to "paint" the picture on the screen are referred to as progressive and interlaced.

With the **progressive scanning** method, the lines are drawn on the screen one at a time in sequential order. Progressive scanning results in a more detailed image on the screen and is also less susceptible to the flicker commonly associated with interlaced scanning. The **interlaced method** involves refreshing pixels in alternation – first the odd lines and then the even lines.

For advanced setup, select the screen resolution that your TV can support. See your HDTV user manuals to choose the proper screen resolution (480i, 576i, 720p, 1080i, or 1080p) for your setup.

For example, a screen resolution of 1080i indicates that the screen shows 1080 lines in an interlaced display, and 720p indicates that the screens shows 720 lines in a progressive display.

A **standard-screen SDTV** has a 4x3 aspect ratio. The screen is 4 units wide for every 3 units tall.

A screen resolution of 480i or 516i fills the screen.

A **wide-screen HDTV** is one-third wider than a standard-screen HDTV. The screen is 16 units wide for every 9 units tall.

A screen resolution of 720p or 1080i fills the screen.

FCC Compliance

United States FCC Compliance

This device 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 such interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it 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 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 connected.
- Consult the service provider or an experienced radio/television technician for help.

Any changes or modifications not expressly approved by Cisco Systems, Inc., could void the user's authority to operate the equipment.

The information shown in the FCC Declaration of Conformity paragraph below is a requirement of the FCC and is intended to supply you with information regarding the FCC approval of this device. *The phone numbers listed are for FCC-related questions only and not intended for questions regarding the connection or operation for this device. Please contact your service provider for any questions you may have regarding the operation or installation of this device.*

FC Declaration of Conformity

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: 1) the device may not cause harmful interference, and 2) the device must accept any interference received, including interference that may cause undesired operation.

Cisco PV5K/IPV6K Set-Tops

Models: IPV5000, IPV5001, IPV5010, IPV5050, IPV6003, IPV6005, IPV6006, IPV6013, IPV6015,IPV6016

Manufactured by:
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134 USA
www.cisco.com/go/contacts

Canada EMI Regulation

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la class B est conforme à la norme NMB-003 du Canada.

20081121 FCC Standard

Software and Firmware Use

The software described in this document is protected by copyright law and furnished to you under a license agreement. You may only use or copy this software in accordance with the terms of your license agreement.

The firmware in this equipment is protected by copyright law. You may only use the firmware in the equipment in which it is provided. Any reproduction or distribution of this firmware, or any portion of it, without our express written consent is prohibited.

Disclaimer

Cisco Systems, Inc. assumes no responsibility for errors or omissions that may appear in this guide. We reserve the right to change this guide at any time without notice.

The maximum performance for wireless is derived from IEEE Standard 802.11 specifications. Actual performance can vary, including lower wireless network capacity, data throughput rate, range and coverage. Performance depends on many factors, conditions and variables, including distance from the access point, volume of network traffic, building materials and construction, operating system used, mix of wireless products used, interference and other adverse conditions.

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IC (Industry Canada) Notice

Notice: The Industry Canada (formerly Canadian Department of Communications) label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

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.

RF Exposure Statements

Note: This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 7.9 inches (20 cm) between the radiator and your body.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

US

This system has been evaluated for RF exposure for humans in reference to ANSI C 95.1 (American National Standards Institute) limits. The evaluation was based on evaluation per ANI C 95.1 and FCC OET Bulletin 65C rev 01.01. The minimum separation distance from the antenna to general bystander is 7.9 inches (20 cm) to maintain compliance.

Canada

This system has been evaluated for RF exposure for humans in reference to Canada Health Code 6 (2009) limits. The evaluation was based on evaluation per RSS-102 Rev 4. The minimum separation distance from the antenna to general bystander is 7.9 inches (20 cm) to maintain compliance.

Note: The IPV5050 has disabled the 5600-5650M band by S/W to avoid 5600-5650M band for IC certification.

EU

This system has been evaluated for RF exposure for humans in reference to the ICNIRP (International Commission on Non-Ionizing Radiation Protection) limits. The evaluation was based on the EN 50385 Product Standard to Demonstrate Compliance of Radio Base Stations and Fixed Terminals for Wireless Telecommunications Systems with basic restrictions or reference levels related to Human Exposure to Radio Frequency Electromagnetic Fields from 300 MHz to 40 GHz. The minimum separation distance from the antenna to general bystander is 20 cm (7.9 inches).

Australia

This system has been evaluated for RF exposure for humans as referenced in the Australian Radiation Protection standard and has been evaluated to the ICNIRP (International Commission on Non-Ionizing Radiation Protection) limits. The minimum separation distance from the antenna to general bystander is 20 cm (7.9 inches).

20090317 FCC DSL_Dom and Intl

CE Compliance

Declaration of Conformity with Regard to the EU Directive 1999/5/EC (R&TTE Directive)

This declaration is only valid for configurations (combinations of software, firmware and hardware) supported or provided by Cisco Systems for use within the EU. The use of software or firmware not supported or provided by Cisco Systems may result in the equipment no longer being compliant with the regulatory requirements.

Български [Bulgarian]	Това оборудване отговаря на съществените изисквания и приложими клаузи на Директива 1999/5/ЕС.
Česky [Czech]:	Toto zařízení je v souladu se základními požadavky a ostatními odpovídajícími ustanoveními Směrnice 1999/5/EC.
Dansk [Danish]:	Dette udstyr er i overensstemmelse med de væsentlige krav og andre relevante bestemmelser i Direktiv 1999/5/EF.
Deutsch [German]:	Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.
Eesti [Estonian]:	See seade vastab direktiivi 1999/5/EÜ olulistele nõuetele ja teistele asjakohastele sätetele.
English:	This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]:	Este equipo cumple con los requisitos esenciales asi como con otras disposiciones de la Directiva 1999/5/CE.
Ελληνική [Greek]:	Αυτός ο εξοπλισμός είναι σε συμμόρφωση με τις ουσιώδεις απαιτήσεις και άλλες σχετικές διατάξεις της Οδηγίας 1999/5/ΕC.
Français [French]:	Cet appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la Directive 1999/5/EC.
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Latviski [Latvian]:	Šī iekārta atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]:	Šis įrenginys tenkina 1999/5/EB Direktyvos esminius reikalavimus ir kitas šios direktyvos nuostatas.
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Norsk [Norwegian]:	Dette utstyret er i samsvar med de grunnleggende krav og andre relevante bestemmelser i EU-direktiv 1999/5/EF.
Polski [Polish]:	Urządzenie jest zgodne z ogólnymi wymaganiami oraz szczególnymi warunkami określonymi Dyrektywą UE: 1999/5/EC.
Português [Portuguese]:	Este equipamento está em conformidade com os requisitos essenciais e outras provisões relevantes da Directiva 1999/5/EC.
Română [Romanian]	Acest echipament este in conformitate cu cerintele esentiale si cu alte prevederi relevante ale Directivei 1999/5/EC.
Slovensko [Slovenian]:	Ta naprava je skladna z bistvenimi zahtevami in ostalimi relevantnimi pogoji Direktive 1999/5/EC.
Slovensky [Slovak]:	Toto zariadenie je v zhode so základnými požiadavkami a inými príslušnými nariadeniami direktív: 1999/5/EC.
Suomi [Finnish]:	Tämä laite täyttää direktiivin 1999/5/EY olennaiset vaatimukset ja on siinä asetettujen muiden laitetta koskevien määräysten mukainen.
Svenska [Swedish]:	Denna utrustning är i överensstämmelse med de väsentliga kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

Note: The full declaration of conformity for this product can be found in the Declarations of Conformity and Regulatory Information section of the appropriate product hardware installation guide, which is available at http://www.cisco.com/web/consumer/support/compliance_info.html.

The CE mark and class-2 identifier is affixed to the product and its packaging. This product conforms to the following European directives:

CE ⓘ -1999/5/EC for IPV5050 set-tops

CE -2006/95/EC
-2004/108/EC
for all other IPV5K/IPV6K set-tops

National Restrictions

This product operates in the 5 GHz Wi-Fi bands and shall only be used indoors.

20110311 CE_Gateway

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