

# Cisco ITV7900 Family IP Set-Tops





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# 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.

**CAUTION**

RISK OF ELECTRIC SHOCK  
DO NOT OPEN

**AVIS**

RISQUE DE CHOC ÉLECTRIQUE  
NE PAS OUVRIR



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.**



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.

## 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.**

### 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 place this apparatus in excessive heat or moisture.
- 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

This product is designed for operation indoors with a temperature range from 32° to 104° F (0° to 40° C). Each product 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.

20110316\_IP\_No Tuner\_Safety

## Compliance Information

### United States FCC Compliance

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 is going to operated in the 5.15-5.25 MHz frequency ranges, it is restricted in indoor environment only

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

Devices will not permit operations on channels 120-132 for 11a and 11n/a which overlap the 5600 - 5650 MHz band.

ITV7900 Family IP Set-Top  
Models ITV7904, ITV7906, and ITV7908  
Manufactured by: Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134 USA  
[www.cisco.com/go/contacts](http://www.cisco.com/go/contacts)

**Note: The ITV7906 andITV7908 have disabled the 5600-5650M band by S/W to avoid 5600-5650M band for IC certification.**

### 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

### AVC VIDEO LICENSE

With respect to each AVC/H.264 product, we are obligated to provide the following notice:

THIS PRODUCT IS LICENSED UNDER THE AVC PATENT PORTFOLIO LICENSE FOR THE PERSONAL USE OF A CONSUMER OR OTHER USES IN WHICH IT DOES NOT RECEIVE REMUNERATION TO (i) ENCODE VIDEO IN COMPLIANCE WITH THE AVC STANDARD ("AVC VIDEO") AND/OR (ii) DECODE AVC VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED TO PROVIDE AVC VIDEO. NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION MAY BE OBTAINED FROM MPEG LA, L.L.C. SEE [HTTP://WWW.MPEGLA.COM](http://www.MPEGLA.COM).

Accordingly, please be advised that service providers, content providers, and broadcasters may be required to obtain a separate use license from MPEG LA prior to any use of AVC/H.264 encoders and/or decoders.

### ROVI CORPORATION COPYRIGHT NOTICE

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights of Rovi Corporation. Use of this copyright protection technology must be authorized by Rovi Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Rovi Corporation. Reverse engineering and disassembly are prohibited.

### Disclaimer

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

### IMPORTANT NOTE: FCC RF 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 and your body.

This device and it's antennas(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures

### Industry Canada Statement:

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.

**Caution:**

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

High power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

### IMPORTANT NOTE:

### Canada RF Exposure Statement:

This system has been evaluated for radiofrequency 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 (20cm) to maintain compliance.

L'exposition humaine aux radiofréquences émises par ce système a été évaluée conformément aux limites spécifiées dans le Code de sécurité 6 de Santé Canada (2009). Cette évaluation était basée sur l'évaluation décrite dans le document RSS-102 Rev 4. Cette norme définit à 20 cm (7,9 po) la distance minimale devant séparer l'antenne de toute personne.

## FC FCC 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.

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Manufactured under license from Dolby Laboratories. Dolby is a trademark of Dolby Laboratories.

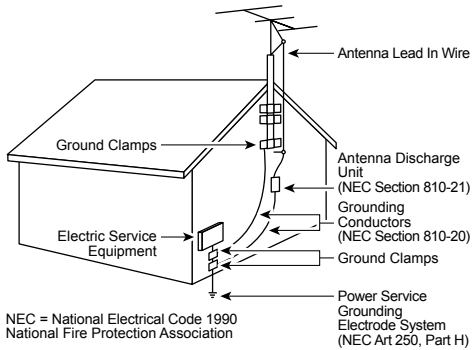
**HDMI** The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

Rovi is a trademark of Rovi Corporation.

The Wi-Fi Protected Setup mark is a mark of the Wi-Fi Alliance. Wi-Fi Protected Setup is a trademark of the Wi-Fi Alliance.



# IMPORTANT SAFETY INSTRUCTIONS, continued



## TO CATV INSTALLER

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the National Electrical Code (NEC) that provides guidelines for proper grounding, and in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of entry as practical.

T15378

## 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.
- Please 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.



廢電池請回收

- 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](http://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.

20110316\_Cable\_Safety

# Welcome

The Cisco® ITV7900 family of IP set-tops provide high-definition (HD) capability and broadband digital video services in exceptional picture and audio quality. On MoCA™-enabled set-tops, the MoCA connection enables an IP LAN connection over coaxial cable, which minimizes the need for new wiring in the home. On wireless-enabled set-tops, the connection with a video-centric access point/gateway, allows you to add new Wireless Protected Setup (WPS) -compliant clients to your home network giving you the flexibility to watch TV anywhere in the house. Contact your service provider for wireless pairing information and other available services.

Follow the instructions in this guide to install the set-top and to access the programming offered by your service provider.

The consumer support website provides news and information about this product. For more information, please refer to <http://www.cisco.com/web/consumer/support/index.html>.

## Safety First

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

## Identify your Set-Top

If your set-top requires troubleshooting in the future, your service provider may ask for this serial number. The serial number can be located on the label found at the bottom of the set-top.



ITV790x  
Set-Top Box SD/HD  
Date of Mfg: XXXX-XX-XX  
Input: 12VDC/15W

PID: XXXXXXXX  
TAN: XX-XXXXXX-XX  
HW: XXXXX  
SW: XXXXX  
Cisco factory ID: PSZ  
Made in China



E.317539

Serial Number →



SN: XXXXXXXX



Ethernet Mac: XX XX XX XX



Wifi MAC: XXXXXXXXXX

Manufactured under license from Dolby Laboratories  
Dolby and the double-D symbol are trademarks of  
Dolby Laboratories.

T16500

## Watch TV

### Use the Remote Control to Access Services and Programs

Press the following keys on the remote control to access services:

- Guide – Display the on-screen guide of TV programming schedules and other services available from your service provider, such as video-on-demand and pay-per-view programs.
- Arrows – highlight a program in the schedule.
- Info – Display the description of a specific program (either from the on-screen guide or while viewing a program).

# Front Panel



- 1

**Power**

Turns the set-top on or places it in standby mode
- 2

**Display**

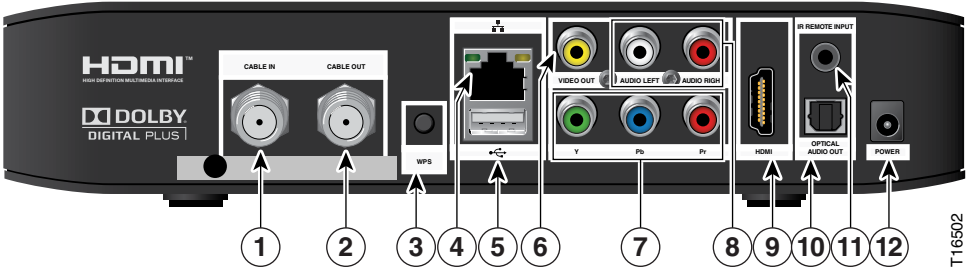
Displays the selected channel number and time of day. The display shows the following:

- Record ( **REC** ) - Indicates a recording is in progress when illuminated
  - Home (  ) - Indicates multi-room DVR activity when illuminated
  - WiFi (  ) - Indicates the set-top is receiving a wireless signal when illuminated
  - Communication (  ) - Indicates the set-top is receiving data via MoCA, Ethernet, or WiFi when illuminated
  - Power (  ) - Indicates the set-top is on when illuminated
  - Message (  ) - Indicates the set-top has received a system message when illuminated

### Notes:

- This illustration may vary from the actual product
- The usage of the icons may vary based on the software implementation

# Back Panel



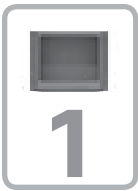
- 1 Cable In (optional for some models)** Connects to a coaxial cable that delivers the MoCA signal (IP over coax ) to the set-top
- 2 Cable Out** Connects to a coaxial cable that sends audio and video signals to a TV or VCR
- 3 WPS (optional for some models)** When pressed, initiates the wireless setup feature, which allows you to add new Wireless Protected Setup (WPS) compliant clients to your home network
- 4 Ethernet** Connects to the in-home network via Ethernet instead of using MoCA or WiFi
- 5 USB 2.0** Connects to external USB equipment if supported by your service provider
- 6 Video Out** Connects to the composite video input on your TV
- 7 Y Pb Pr** Connects to the component input (YPbPr) on your TV
- 8 Audio Out (Left/Right)** Connects to RCA cables that send analog audio signals (left and right) to the stereo inputs on a TV
- 9 HDMI** Connects an HDMI™ cable to the HDMI input of an HDTV. HDMI supports both digital audio and video. May be used to connect to a DVI interface using an HDMI-to-DVI adapter for video and separate audio connections. Any of the following audio connections may be used: Audio Out Left/Right (8) or Optical Audio Out (10)
- 10 Optical Audio Out** Connects to an optical cable that sends a digital audio signal to a surround-sound receiver or other digital audio device input
- 11 IR Remote Input** Available to be connected to an approved remote IR receiver (purchased separately). Contact your service provider for details
- 12 AC Power Input** Connects to the external power supply to deliver power to the set-top
- SD Card reader (optional, not shown)** Allow the addition of an SD card reader to support time shifted buffer (TSB) functionality

## Notes:

- This illustration may vary from the actual product
- The usage of the icons may vary based on the software implementation

# Connecting the Receiver

To connect your receiver to your network and home entertainment devices, complete these steps.



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. Refer to the manual that came with your TV for more information.



or

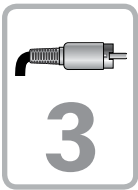


**See page 26** for more information on picture formats.



Make one of the following connections for your home network:

- If your home network uses coaxial cable, use the TO WALL connector on the receiver. **See page 11.**
- If your home network uses twisted pair cable (phoneline wiring), use the TO WALL connector on the receiver and an adapter that converts twisted pair to coaxial. **See page 11.**
- If your home network uses Ethernet (CAT-5) cable, use the NETWORK connector on the receiver. **See page 11.**



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

- If you are using an HDTV, **see page 12** and the connection diagrams in this manual.
- If you are using a standard-definition TV, **see page 13** and the connection diagrams in this manual.
- If you want to record some programs on VCR tape or DVD, **see page 14** and the connection diagrams in this manual.



Identify the additional consumer electronic devices you will connect to the receiver and TV. **See pages 15 through 23** and refer to the owner's manual for the device.



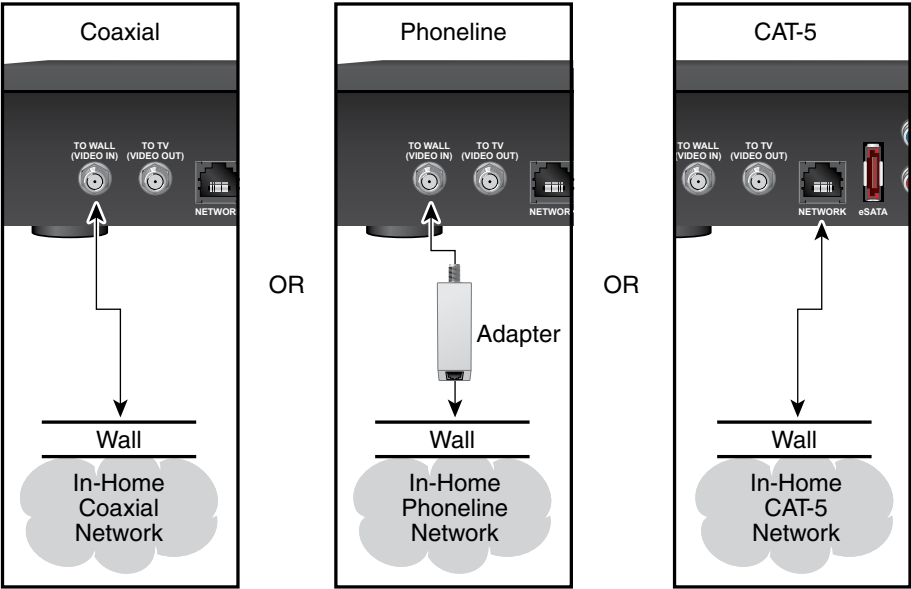
Plug the receiver and the TV into an AC power source that is not controlled by a switch.

# Connecting to the In-Home Network

The following diagrams illustrate examples of the connections you can use to connect your receiver to your in-home network. Contact your service provider for the recommended connection method for your home.

**Notes:**

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



T15906

**Should this stay shown with connections to the back of the ITV7900?**

# Should this connection page stay using connectors from the ITV7900?

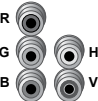
## Connections for a High-Definition TV (HDTV)

To use the receiver with an HDTV, you must make *one* of the following connections to view the HD content. Refer to the owner’s manual for your TV and the cabling diagrams in this manual 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 receiver or HDTV may vary slightly from the illustrations shown below.
- Some cables shown in the connection diagrams may not be included with this receiver.

| Use One of These Required Connections to an HDTV |                                                                                                                                                                                                                                                                                                                                                                                                                              | Receiver Connections                                                                                                               |             | HDTV Connections                                                                                                     |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------|
| HDMI                                             | <p>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 <b>page 15</b> for an example.</p> <p><b>Note:</b> The HDMI port on the TV must support high-bandwidth digital content protection (HDCP).</p>                                                                                               |  <p>HDMI</p>                                      | Audio/Video |  <p>HDMI</p>                        |
| DVI                                              | <p>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).</p> <p><b>Note:</b> The DVI port on the TV must support high-bandwidth digital content protection (HDCP).</p> <p>See the connection diagram on <b>page 16</b> for an example.</p> |  <p>HDMI</p> <p><b>Adapter Needed</b></p>         | Video       |  <p>DVI</p>                         |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>L R<br/>AUDIO OUT</p>                         | Audio       |  <p>L R</p>                         |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>OPTICAL</p>                                   |             |  <p>OPTICAL INPUT</p>               |
| YPbPr                                            | <p>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).</p> <p>See the connection diagram on <b>page 17</b> for an example.</p>                                                                                                                                                                            |  <p>Pb Y<br/>Pr</p>                             | Video       |  <p>Y<br/>Pb<br/>Pr</p>           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>L R<br/>AUDIO OUT</p>                       | Audio       |  <p>L R</p>                       |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>OPTICAL</p>                                 |             |  <p>OPTICAL INPUT</p>             |
| RGB                                              | <p>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.</p>                                                                                                                                                                                                                                                         |  <p>Pb Y<br/>B</p> <p><b>Adapter Needed</b></p> | Video       |  <p>R<br/>G<br/>B<br/>H<br/>V</p> |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                              |  <p>L R<br/>AUDIO OUT</p>                       | Audio       |  <p>L R</p>                       |

## Connections for a Standard-Definition TV (SDTV)

When using the receiver with an SDTV, you must make *one* of the following connections to view content. Some SDTVs may not have all these connections. Refer to the owner's manual for your TV and the cabling diagrams in this manual 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 receiver or SDTV may vary slightly from the illustrations shown below.
- Some cables shown in the connection diagrams may not be included with this receiver.

| Use One of These Required Connections to an SDTV |                                                                                                                                                                                                                          | Receiver 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. See the connection diagram on <b>page 18</b> for an example. |    | Video       |    |
|                                                  |                                                                                                                                                                                                                          |    | Audio       |    |
| S-Video                                          | The S-Video connection provides an optimal video connection to SDTVs. A separate audio connection is also needed. See the connection diagram on <b>page 19</b> for an example.                                           |    | Video       |    |
|                                                  |                                                                                                                                                                                                                          |    | Audio       |    |
| 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 <b>page 20</b> for an example.                                                 |  | Video       |  |
|                                                  |                                                                                                                                                                                                                          |  | Audio       |  |
| To TV (Video Out)                                | The To TV (Video Out) connector provides both a video and audio connection to an SDTV. See the connection diagram on <b>page 21</b> for an example.                                                                      |  | Audio/Video |  |

using connectors from the ITV7900?

Connections for a VCR or DVD Recorder

When using the receiver with a VCR or DVD recorder, you must make *one* of the following connections to view content.

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

Notes:

- The labeling on your receiver, VCR, or DVD recorder may vary slightly from the illustrations shown below.
- Some cables shown in the connection diagrams may not be included with this receiver.

| Use One of These Optional Connections to a VCR or DVD Recorder |                                                                                                                                                                                                                                   | Receiver Connections                                                                                  |       | VCR/DVD Recorder Connections                                                                    |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------|
| VCR/DVD Recorder                                               | For VCRs or DVD recorders with S-Video In and Left and Right audio connectors, use the S-Video and the Audio Out Left and Right connectors on the receiver.                                                                       | <br>S-VIDEO          | Video | <br>S-VIDEO IN |
|                                                                |                                                                                                                                                                                                                                   | <br>L R<br>AUDIO OUT | Audio | <br>L R        |
|                                                                | For VCRs or DVD recorders with Video In and Left and Right audio connectors, use the Video Out and the Audio Out connectors (Left and Right) on the receiver.<br><br>See the connection diagram on <b>page 23</b> for an example. | <br>VIDEO OUT        | Video | <br>VIDEO IN   |
|                                                                |                                                                                                                                                                                                                                   | <br>L R<br>AUDIO OUT | Audio | <br>L R        |

Connecting 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 receiver.

# Connecting to an HDTV with an HDMI Connector

## Cable Used in this Configuration

- 1 HDMI Cable

### Notes:

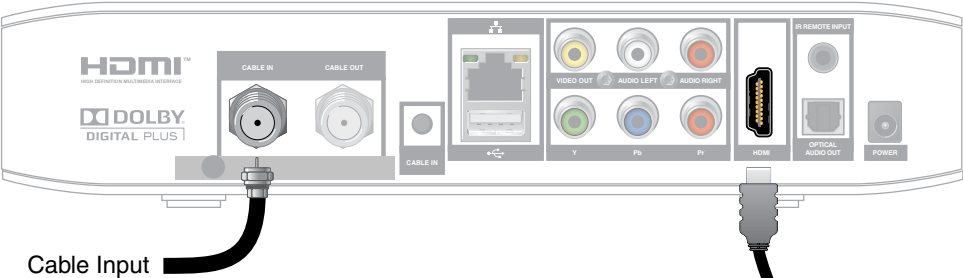
- The HDMI port on the TV must support high-bandwidth digital content protection (HDCP).
- The HDMI interface supports Dolby™ Digital 5.1 audio.



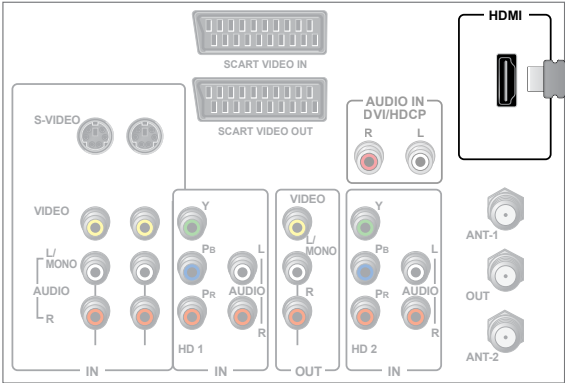
### WARNING:

**Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the receiver.**

Back of Set-Top



Back of HDTV



T16503

# 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:

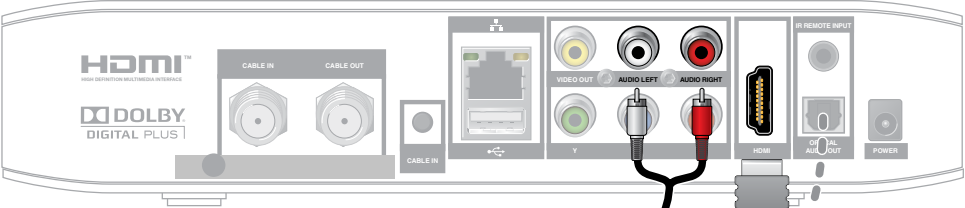
- The DVI port on the TV must support high-bandwidth digital content protection (HDCP).
- When you connect the HDMI connector to the DVI connector on your HDTV, you need an HDMI-to-DVI adapter and a separate audio connection.



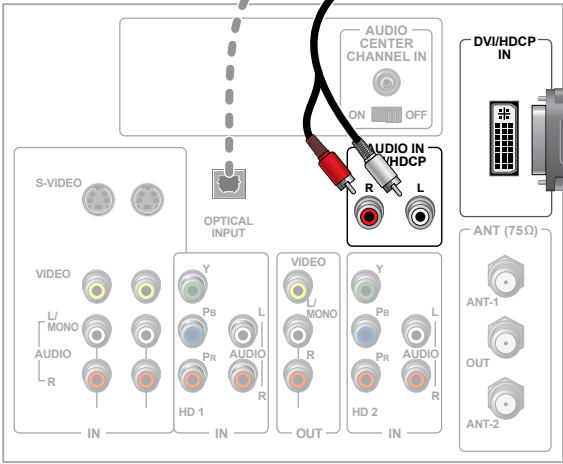
### WARNING:

**Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the receiver.**

Back of Set-Top



Back of HDTV



# Connecting to an HDTV with Component (YPbPr) Connectors

## Cables Used in this Configuration

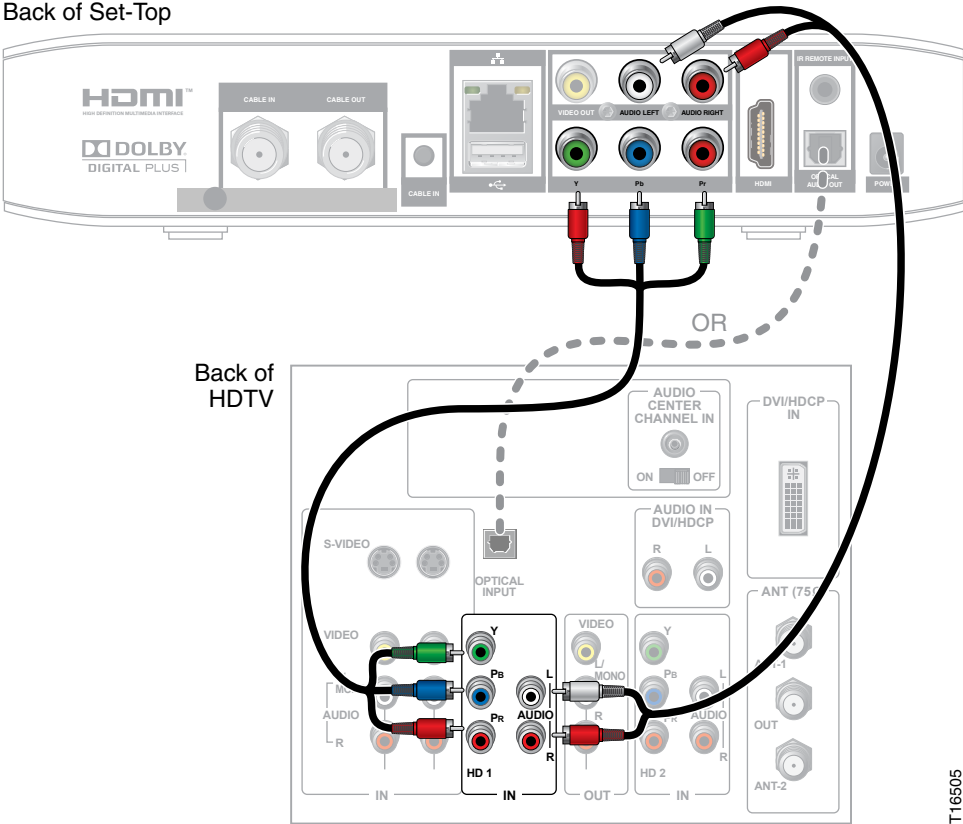
- 1 Component Video Cable (YPbPr)
- 1 Audio Left/Right Cable (You can also use an optical cable [indicated by the dotted line] instead of the Audio Left/Right Cable as shown in the diagram, dependent upon your TV's capabilities.)



### WARNING:

**Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the receiver.**

Back of Set-Top



T16505

# Connecting to an SDTV with Component (YPbPr) Connectors

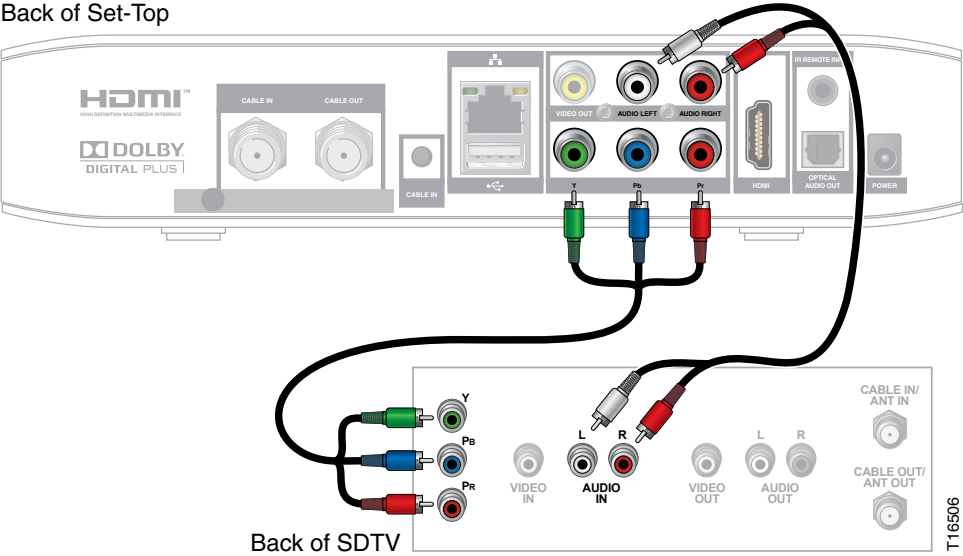
## Cables Used in this Configuration

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

**Note:** The receiver 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 receiver.**

Back of Set-Top



Back of SDTV

T16506

# Connecting to an SDTV with an RCA-Type Connector

## Cables Used in this Configuration

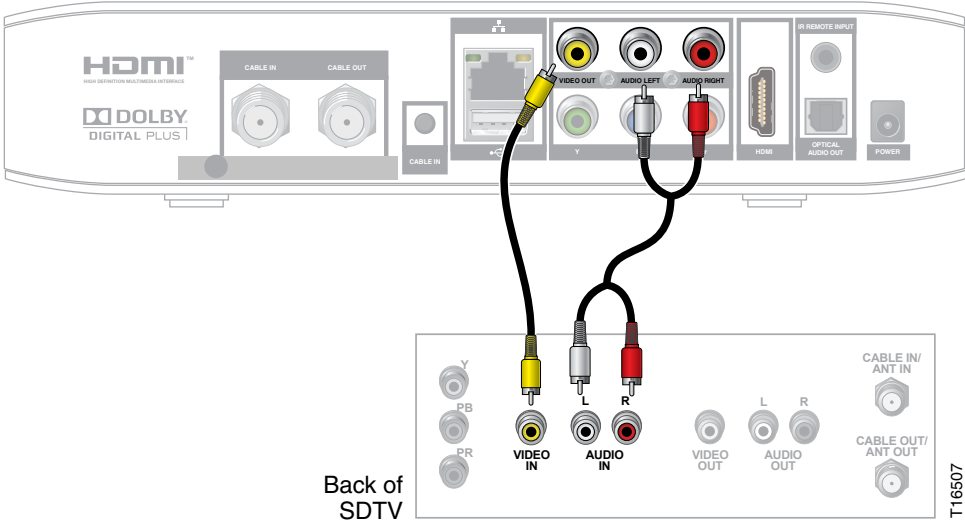
- 1 RCA-type Video Cable
- 1 Audio Left/Right Cable



### WARNING:

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

Back of Set-Top



T16507

# Connecting to a Home Theater System with Component (YPbPr) Connectors

## Cables Used in this Configuration

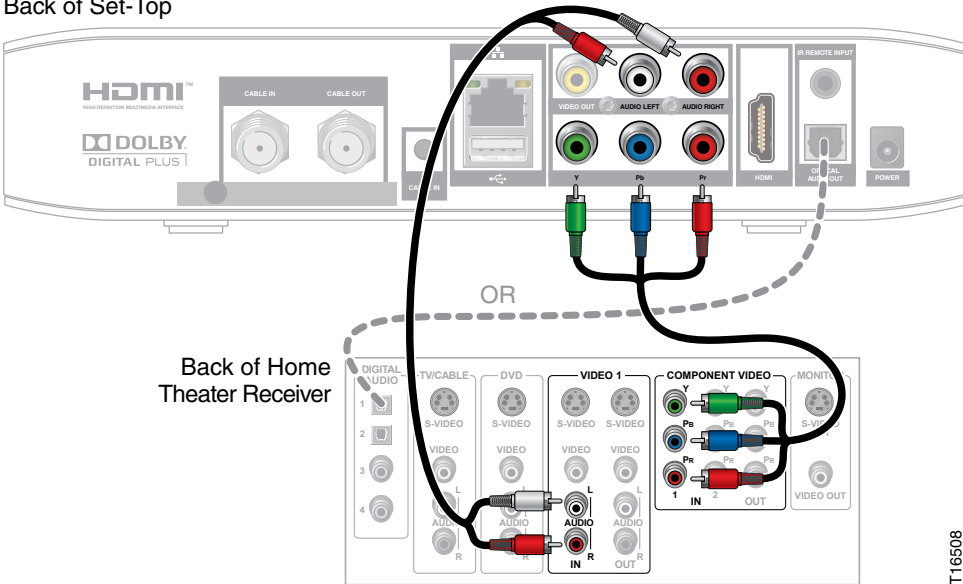
- 1 Component Video Cable (YPbPr)
- 1 Audio Left/Right Cable (You can also use an optical cable [indicated by the dotted line] instead of the Audio Left/Right Cable as shown in the diagram.)

### Notes:

- This connection requires that audio is provided by the home theater system.
- Consult the user guide that came with your home theater system for information on connecting your other video and audio devices.

**WARNING:**  
**Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the receiver.**

Back of Set-Top



T16508

# Connecting to a Stereo VCR or DVD Recorder (optional)

The diagram below shows how to connect a recording device to your receiver. Although it is possible to watch TV using a connection through your VCR or DVD recorder to the TV, this connection may not provide the best picture, and HDTV users are restricted to an SD format. In addition, some content is copy protected and passing this content through the recording device may result in a picture that cannot be viewed.

For these reasons, the connection shown is best used to provide only video and audio to your recording device and not for normal TV viewing. The connection from the recording device to the TV (only used for playback of recorded material) depends on the type of device being used, the outputs that are supported, and the inputs that remain available for use on your TV.

Consult the owner's manuals provided with your TV and recording device for more details on connection options.

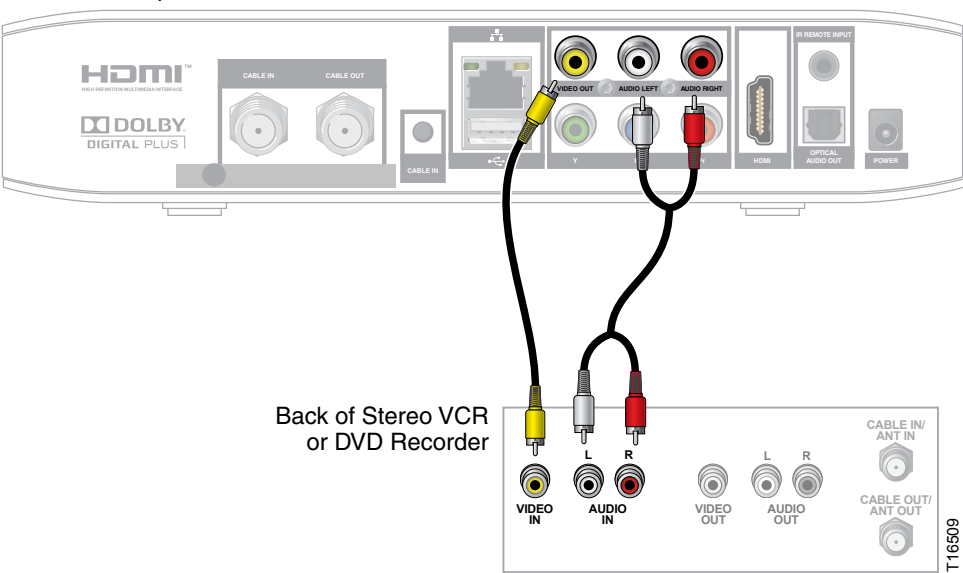
## Cables Used in this Configuration

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

**WARNING:**  
**Electric shock hazard! Unplug all electronic devices before connecting or disconnecting any device cables to the receiver.**

**Connecting your TV directly to the Audio/Video output of your receiver will assure a more vivid picture and enhance your viewing enjoyment.**

Back of Set-Top



T16509

## Troubleshooting

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

### No Picture

- Verify that power to your TV is turned on.
- If the set-top is plugged into a wall switch, verify the wall switch is in the ON position.
- Verify that all cables are properly connected.
- The current channel may not be available in your service package. Try selecting another channel to see if a picture appears.

### No Color

- Verify the current TV program is broadcast in color.
- Adjust the TV color controls.

### No Sound

- If you setup includes a stereo, verify that you have properly connected it to the set-top.
- Verify the volume is turned up.
- Verify the mute function is not on.

## 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. Refer to 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 basic digital television programming delivered by your service provider. Typically, the SDTV screen is the same, nearly square shape as an analog television screen. Digital images on an SDTV set are crisp and clear—noticeably better than on a standard analog television set using an antenna to receive over-the-air signals.

## What Is High-Definition Television?

High-definition television (HDTV) is a completely new way to send and receive television broadcast signals. HDTV images are made up of pixels that are much smaller and closer together than those used in standard analog television, and there are millions of them. Thus, HDTV can display five to six times the detail of analog television to deliver picture quality that is much more realistic, dimensional, and precise. SDTV programs can be viewed on an HDTV.

## 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 the Shows 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.

## Why Are Some HDTVs 4:3 Aspect Ratio and Others 16:9?

The aspect ratios differ because television manufacturers build both standard-screen and wide-screen HDTVs to appeal to consumer viewing preferences. The two aspect ratios are as follows:

- On standard-screen (4:3) HDTVs, the programming is displayed in letterbox format in the middle of the screen. There are bars surrounding the picture.
- On wide-screen (16:9) HDTVs, the programming is displayed on the full screen.

## 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 receiver 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. Refer to your *Feature Guide* and HDTV owner’s manuals to choose the proper screen resolution (480i, 720p, 1080i, or 1080p) for your setup.

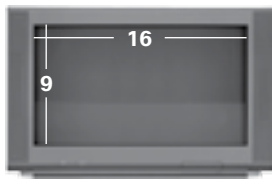
For example, a screen resolution of 1080i indicates that the screen shows 1080 lines in an interlaced display, and 720p indicates that the screens shows 720 lines in a progressive display.

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



A screen resolution of 480i 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, 1080i, or 1080p fills the screen.

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