

TVs and EMFs

Introduction

TVs are difficult to be around these days for people who are sensitive and want to avoid radio frequency (RF) EMFs. That is because smart TVs now often transmit RF even when they are turned off and just on standby, let alone when we are watching them. The same is true for all the set-top boxes that people now use to stream Internet-based TV, such as Apple TV and Roku Streaming Players.

A Bit of History: Television Delivered Over-the-Air, by Cable and Telephone Companies

The issue of RF from TVs has to do primarily with the move towards Internet-based delivery of television programming through streaming, giving rise to what are known as “smart TVs” and their accompanying set-top boxes, such as AppleTV and Roku Streaming Players. In the past, we had over-the-air analog broadcast of TV signals. Over-the-air TV signals are now broadcast digitally. That has no direct EMF implications for us, including for those who are electrically sensitive, unless you live right next to a TV transmitting tower.

We then had the addition of cable-delivered TV programming decades ago, which is also safe in terms of how the signal gets to your house for most everyone. This is because the data stream of information comes into your house via a coaxial cable. That does not emit significant EMFs because coaxial cables are shielded. (Granted, you can have current flowing on the sheathing of the portion of coaxial cable from the house to the street, but that is a magnetic field issue in

the category of having current on house grounding systems, covered in my [Magnetic Field EMFs](#) article.)

Many years after the introduction of cable TV, telephone companies (telcos) also started to offer TV, including Verizon's (now Frontier) FIOS and AT&T's U-Verse. The television signal comes into your home on a pair of copper wires, but what was required to provide all that television content above and beyond simple telephone conversations and Internet was for the telcos to bury fiber-optic cables under the street or string them overhead in your neighborhood to a local distribution box that serves several houses. This is either up on overhead utility poles or in a three-foot high green cylindrical metal box with a round top at the curb in neighborhoods with underground utility service.

However, the "last mile" of delivery of the TV signal from that box to each house is still over the old-fashioned pair of copper wires that the telephone company has always used to get voice telephone signals into your house. Again, there are no significant EMFs from that copper wire for most people.

Low Voltage Hardwired Cables Don't Radiate EMFs on their Own

Any time telephone, television or Internet data is carried over hardwires, such as coaxial cables, copper telephone wires or Ethernet cables, that electrical signal is at low voltage and does not transmit significant EMFs off the wires. There is no radio frequency signal that comes off hardwired cables, regardless of what type they are.

It is the case, however, that any metal path or wire can *pick up* radio signals traveling through the air onto your property and into your house from outside radio sources, such as wireless devices inside your

home and broadcast towers and cell antennas outside. Those signals can then be re-radiated at very low strength into the air around the cable or wire in your yard or in the house.

Some people who are very sensitive to electromagnetic fields, known as Electrical Hypersensitivity (EHS), can indeed feel those fields and are bothered by them. However, the fields do not themselves come from the wire or cable because wires and cables do not transmit radio frequency signals themselves directly. That radiated RF signal comes from specific antennas inside wireless devices inside your home or from outside broadcast or cell towers. The wires in these low voltage cables only re-radiate what is already in the air, and the sheathing of coaxial cable generally shields and avoids this.

Most people, including some EHS individuals, are not bothered by RF signals being re-radiated off these wires. However, everyone should protect themselves from radio frequency signals coming from wireless antennas themselves, whether indoors or outside, by not using wireless devices in their homes in the first place. We recommend that you switch to hardwired solutions when possible in your house for all your communication needs (telephone, Internet, streaming media, thermostats, baby monitors, surveillance cameras, etc.). This includes the advice to reduce use and increase distance from hand-held devices (cell phones, tablets and laptops). That is covered in my article on Radio Frequency EMFs, accessed from the [Articles on EMFs](#) page on my website, as well as my [Safer Use of Computers](#) article.

Television Delivered by Satellite

A third way in which TV content is delivered into your home is by a satellite dish mounted on your roof or on a free-standing pole in your yard. People think the satellite signal coming from space is strong and therefore harmful. For those who are EHS, it can be. However, the

signal from satellites is very weak by the time it reaches earth from 22,000 miles up in space, which is the distance above the equator where these satellites are parked in geostationary orbit. Actually, the distance to your house is even greater than that because you must factor in the hypotenuse of the right triangle, because we are well north of the equator living in the US.

This satellite TV signal coming from space is so weak it has to be collected by a reflecting dish that is shaped like a parabola to focus the signal to a point a few feet above the dish. That signal is received by a receiver in a metal arm positioned above the dish at exactly the focal point of that focused signal. The signal is then boosted and carried on a coaxial cable from the dish to a splitter that sends the signal to multiple TVs (that is, if your satellite TV company uses the coaxial cable system in your walls-many satellite TV companies are now using WiFi to distribute the TV signal around the house to TV sets-see below). At each TV in the house, the satellite company provides a box that converts the signal from the dish and sends it to your television set over an HDMI cable. That signal can also be sent to a modem for satellite-delivered Internet.

You must understand that if we take a walk outdoors, we are exposed to the same signals beaming down from multiple satellites parked in geostationary orbit up in space that the dish receives, as we have for decades. However, those broadcast signals are very weak and don't bother most people. I say to my highly electrically sensitive clients who are concerned about this, can you go for a walk in the country, away from cell towers, and feel comfortable? If so, you are still in the path of the very weak signals coming down from space from TV satellites, as their broadcast footprint spans a very wide path, literally covering a circle that can be a thousand miles across, covering all areas within it. Some clients think that a dish on their house "pulls" the signal down stronger in some way, which then spills out to neighboring parts of the house and land. That is not true. EHS people can feel ill being around an operating dish, but that is not because the signal from space has been pulled down stronger, so to speak. There are other reasons why EHS people can feel affected by being around

satellite TV dishes.

We even have the advent on the horizon of Internet signals being delivered from balloons, drones and satellites much closer to earth in the next few years as part of so-called “5G”, which will be a problem mostly for EHS people, but also for the rest of us and for all biological life in our biosphere. While the deployment of balloons may have been delayed or abandoned, low earth orbit satellites have already been launched. That is a separate topic, which I discuss in my [5G](#) article .

It is helpful to know that the weak satellite TV signals we have had beamed down to earth from space for decades are easily blocked by trees, rain, roofs and neighbor’s buildings. You can’t put a satellite dish in an attic and expect to receive TV signals well. Standard building materials such as plywood and asphalt shingles, let alone metal or RF-shielding paint, will block the millimeter wave signals from TV satellites. These are the same frequencies to be used in the high, mmWave band of 5G cell signals.

In order to receive the TV signal from a satellite, the dish must be on a roof or pole in direct line-of-sight of the part of the sky where the satellite is located. The installer must align the dish perfectly in direct line of sight with the satellite high above the earth to the south of the US, in geo-stationary orbit over the equator.

It is therefore easy to be shielded when indoors from signals from a satellite in space. No special shielding materials, like Y-Shield paint or aluminum building foil are needed. Simple building materials block those signals. (Satellite TV signals are not beamformed, as 5G cell signals also in the mmWave band need to be to penetrate through walls-see my [5G](#) article.)

Finally, information sent from the satellite box in your house back to the satellite company is sent not by the dish back up into space. A satellite technician told me transmission of data from your house to the satellite company is done through your telephone or cable Internet connection. The dish on your roof is much too small and the equipment much too weak to transmit a signal 22,000 miles (or more)

back up into space to the satellite.

How are EMFs Generated in a Home from TV Sets?

Since the delivery method of TV content into your home from all of these companies is relatively free of radio frequency EMFs, whether from cable, telephone or a satellite dish company, where do EMFs in your TV set and home entertainment center equipment come from? The answer is, from the ways in which you convey the signal from one room to another within your home from new equipment that uses wireless, rather than a hardwired cable, as the method of sending the TV signal from one location to another. There will be a central point to which the low voltage TV signal comes from outside the house, and from there, it can be distributed to TVs around the house in two ways, just like data on the Internet can. That is, in either a hardwired or a wireless way, or both.

We recommend that TV and Internet data be sent to TV sets and computers around the home in a hardwired way. This avoids occupant exposure to wireless radio frequency EMFs in your living space. However, when you use coaxial and Ethernet cables between TVs and Ethernet cables between your modem/router and computers, many components can still transmit RF when on standby. That RF signal has to be disabled, if possible. We discuss that below.

Let's talk about the different companies that deliver TV into your home one by one.

TV Signals Delivered to the House by Telephone Companies

Telco-delivered TV will come into the house from FIOS (if you have Frontier or Verizon), U-Verse (if you have AT&T), or some variation on that technology depending upon the telephone company that has the franchise in your town. The telco brings the TV signal to a distribution box in your neighborhood on fiberoptic lines. The signal is then

brought on a pair of copper wires to the telephone network Interface device, or NID, mounted on the outside of your home or in your basement. This is the demarcation box between the telco's neighborhood lines and the telephone wiring inside your walls. These copper wires can come into your house either overhead or underground, whichever way your electrical wires are also brought in. There are no significant EMFs from this path.

Once the signal is inside your house, the telco delivers its signal to television sets throughout your house one of three ways. The first is through existing coaxial cables in your walls, the second is through Ethernet cables, and the third is wirelessly through WiFi. That third way is what happens with AT&T U-Verse TV service because AT&T has partnered with DirectTV, a company that puts a satellite dish on your house and then it can use a wireless system to get their signal throughout the house using what they call the Genie Whole-Home system. Dish TV similarly uses wireless devices called a "Hopper" for the main cable box and a "Joey" (using mother and kid kangaroo analogies for the names) to distribute the TV signal around the house. We, of course, recommend either of the first two methods (coaxial or Ethernet cable) because they are hardwired, not wireless.

An HDMI cable would then send the video and audio signal up from the telephone company's set-top box to each TV. Again, no EMFs there.

TV Signals Sent Around the House by Cable Companies

Let's turn to the cable company. They provide television service directly through the coaxial cable network in your walls. They bring their television, Internet and telephone signal to the house over their overhead or underground coaxial cable to their network interface box on the side of your house. This spreads the TV signal to television sets throughout the house through a simple splitter to the network of coaxial cables in your walls. You simply screw in a coaxial cable to the jack in the wall of the room where you want your TV and run a coax cable to a set-top box. From there, you run an HDMI cable up to your TV for audio and video. If you need television in a room that does not

have a coaxial cable jack, the cable installer can run a cable to that room either outside, or in the attic or basement/crawl space, or along the baseboards.

The only EMF implication from cable TV is that the coaxial cable coming from the street or utility pole to your house can sometimes carry current on the outer metal sheathing inside the cable. This causes magnetic fields inside the house along the path of this incoming TV cable and its grounding cable.

This happens because the incoming TV cable, whether overhead or underground, is grounded both at the house and at the street to the electric utility ground. This provides what we call a parallel path for return neutral electric current to flow back to the neighborhood electric utility. Since this TV cable is a singular metal path without another wire running next to it with the same amount of current flowing in the opposite direction, the magnetic field around the cable is not cancelled by another wire near it with the same amount of current, as is the case with properly wired electric circuits in walls.

This current on the TV cable, when present, is easily rectified by the insertion of a cable ground loop isolator for \$15. I discuss this in more detail in my Magnetic Field EMF article, accessed from the [Articles on EMFs](#) page.

TV Signals Sent Around the House by Satellite TV Companies

Satellite television is likewise delivered from a rooftop or pole-mounted dish to a decoder box. That box then sends the television signal to set-top boxes throughout the house using the existing coaxial cable network in the walls. The installer can run a coaxial cable to a room that does not have a cable jack, similar to the cable installer. You then run an HDMI cable from the satellite TV set-top box up to the TV.

These days, however, satellite TV companies use set-top boxes throughout the house that get their TV signal wirelessly using units made by the Ruckus company and other manufacturers. I have seen these boxes, and they send out a Wi-Fi signal even when on standby

and the TV set is not on. I mentioned the Genie Whole-Home system used by AT&T's DirectTV satellite TV service and the Hopper and Joey used by DishTV. I have not found a way to disable the WiFi on these boxes, and this is for regular TV, not Internet-delivered TV content.

So, for that reason, I recommend that people not sign up with satellite companies that use set-top boxes that communicate wirelessly. If the satellite TV installer says he or she can use boxes that can get their signal through the coaxial cables in the wall and he or she can disable any WiFi, then you can use satellite TV. However, even when installers say they have disabled WiFi, you must always measure for WiFi yourself with a radio frequency meter. See [EMF Meters and Instruments](#) on my website for RF meter choices.

The Age of Internet-based TV

After having considered the EMF implications of getting regular TV to your television sets throughout the house, now you want to stream your favorite TV shows or movies through Netflix, Hulu, HBO Go or a hundred other new ways to get TV content. That comes from the Internet, not from the TV cable or over-the-air. It requires a connection to the Internet through your modem, which you must establish with your provider. You would have already done that for your computer. The question is, how will you get that Internet signal from your modem and router in your home office to the box that decodes the Internet signal and provides content to your television set in the family room?

That can be done through the set-top box of your cable or telephone company (whichever provides TV service to your house). Also, many newer TV sets come Internet-ready. You simply plug in an Ethernet cable and find the selection of Internet channels by changing the Source button.

You can also buy an Apple TV, Roku Streaming Player or Blu-ray box

to provide Internet-delivered TV content to your television set. Each choice has slightly different offerings, pixel sizes and other features that set them apart from each other.

Each of these devices can get its signal either through an Ethernet cable or wirelessly through Wi-Fi. When we want to avoid radio frequency EMFs, we must disable Wi-Fi transmitters at both ends, since these devices talk to each other through two-way communication. Plugging in an Ethernet cable does not in and of itself disable the Wi-Fi, except in a few important cases.

The question for us with Internet-delivered TV always is, can we plug in an Ethernet cable and disable the Wi-Fi signal? If so, how? If not, how far does the signal extend in the room and how do we protect occupants from radio frequency EMFs?

Disabling Wi-Fi on Earlier Models of Apple TV, Roku Streaming Player and TV Sets

It turns out that earlier models of Apple TV (1 and 2) had the handy feature of having the Wi-Fi signal completely shut off when we plugged in an Ethernet cable and synched up the unit with the router. The same thing happened when we plugged an Ethernet cable directly into earlier models of Samsung's smart TV sets. Earlier models of Roku also did this (there are important steps you must now take to render the Roku Ultra Player safe-see below).

I would always verify this by having my RF meter turned on as I do this re-configuration. When the Ethernet cable was plugged in and the device or TV set synched up with the router, the Wi-Fi signal went away and stayed off.

Newer Models Don't Easily Allow This

However, these companies have changed their technologies on newer models so we can no longer disable Wi-Fi as easily. Apple TV 3's have Airplay that we can disable on-screen, which shuts off the continuous Wi-Fi signal, but I still pick up an occasional RF signal every minute or so. You have to verify this for yourself with your own RF meter. Apple TV 4 doesn't even shut off the Wi-Fi when you disable Airplay on-screen. There is also no setting to disable Wi-Fi on-screen for newer models of Samsung's TV sets.

How to Disable Direct Connect Wi-Fi on Roku Ultra Players

Regarding the latest models of Roku Player (as of 2020 and 2021), the only model currently available that gives you the ability to plug in an Ethernet cable is their Ultra Player, which retails for under \$100 (available below). Roku's two lower-priced models, the Roku Express and Roku Premiere, don't have an Ethernet port. Those models only get streaming content through Wi-Fi. You will therefore not be able to use either of them without having to have a Wi-Fi signal in the room emitted from the Roku Player, and you will also need to have Wi-Fi enabled in your house on your router or on a Wireless Access Point in order to stream TV content to the Roku Express or Premiere Players.

The Roku Ultra is your solution to have streaming TV without Wi-Fi. I can verify that the network Wi-Fi on the Roku Ultra player is disabled automatically when you plug in an Ethernet cable, as has always been the case with Roku Players. You must wait long enough for the Roku Player to recognize the Ethernet cable once you plug it in. It now takes about 30 seconds before the network Wi-Fi transmitter stops broadcasting and the device is getting its Internet exclusively over the Ethernet cable.

However, the Roku Ultra Player still transmits Wi-Fi from a second

transmitter, known as Direct Connect Wi-Fi. Direct Connect allows you to stream directly to the Roku Player from your smart phone and to control the player from your smart phone as a second remote. This is also involved, I believe, with “Screen Mirroring”.

You can disable Screen Mirroring in the on-screen prompts on your TV screen, but you will need to purchase an Infra-Red (IR) Roku Remote from Amazon in order to disable Direct Connect on your Roku Ultra Player. Read through the following instructions in their entirety before you purchase anything in order to understand what you need to do.

If you have already purchased a Roku Ultra (or have a previous Roku model such as the Roku 3) and are using the Voice Remote that came in the box, you can shut off Screen Mirroring but not Direct Connect.

To shut off Screen Mirroring, do the following:

- On your remote, find the “Home” button
- Then, scroll down to Settings on your TV screen
- Click on Settings
- Click on System
- Click on Screen Mirroring
- Click on the option, “Screen mirroring mode: Never Allow”. That disables Screen Mirroring, but not Direct Connect. You will be able to turn off Screen Mirroring with either the Voice Remote or the IR Remote.
- Then, if you try to disable Direct Connect Wi-Fi with your Voice Remote, you would go to Advanced System Settings
- Click on Direct Connect
- Click on Disable Direct Connect

If you used the Voice Remote that came with your Roku Ultra Player to set up the Ultra Player, you will have paired your Voice Remote with the Ultra Player. That remote uses Wi-Fi, not Infra-Red (IR), to control the TV. When you try to disable Direct Connect using that Voice Remote, you will get an error message that says, “Device Connect can’t be disabled when the following devices are paired to your Roku Player: Roku Voice Remote”.

To shut off Direct Connect, you will need to purchase an IR (Infra-Red) Roku Remote to disable Direct Connect Wi-Fi. See below for ordering information for the IR Roku Remote. This IR Remote is available from Amazon, not from Roku.

Once you obtain a Roku IR Remote from Amazon, you will first need to un-pair the Voice Remote from the Roku Ultra Player by following the instructions below, provided by Roku customer service:

- Remove the batteries from your Roku Voice Remote that came with the Roku Ultra Player
- Power cycle the Roku Player by unplugging its power cord (which shuts it down entirely), waiting for 5 seconds and plugging it back in
- Now, insert the batteries into the IR Remote. There are no set-up steps required to pair the IR Remote with the Roku Player (the IR Remote does not use Wi-Fi).

Then go back and follow the steps listed above to successfully disable Direct Connect Wi-Fi on your Ultra Player. Those steps are repeated below. This time, when you go to Advanced System Settings and click on “Disable Direct Connect”, the Direct Connect Wi-Fi will stop working and you will not see the error message described above.

- On your remote, find the “Home” button
- Then, scroll down to Settings on your TV screen
- Click on Settings
- Click on System
- Click on Advanced System Settings
- Click on Direct Connect
- Click on Disable Direct Connect

If you purchase a new Roku Ultra Player, you will need to pair the Voice Remote that comes in the box with the Roku Ultra Player to set up the Player (press and hold the button under the battery cover to pair the Voice Remote with the Player). When set up is complete, follow the instructions listed above to un-pair your Voice Remote from the Ultra Player so that you can use your IR Remote to disable the Direct Connect. Use the on-screen prompts and follow the steps listed

above.

You can also use the IR Remote that you purchased from Amazon to control the Roku Player rather than the Voice Remote that came in the box for a totally Wi-Fi-free viewing experience.

Always verify that the Wi-Fi is actually off with an RF meter. I have successfully turned off both network Wi-Fi and Wi-Fi Direct Connect transmitters on Roku Ultra Players in the homes of several electrically-sensitive clients, as verified with my RF meter.

Order an IR replacement remote from Amazon for \$17 by clicking on the text or image link below (Roku does not sell IR remotes). You will be purchasing a Universal IR Remote Replacement for Roku Streaming Player. This remote states that it is compatible with Roku Ultra. In addition, this IR Remote does not emit a Wi-Fi signal when you use it in your hand to control your player (changing channels etc).

[Universal IR Remote Replacement for Roku Streaming Player](#)

Roku Ultra Streaming Media Player

Purchase a Roku Ultra Streaming Media Player from Amazon by clicking on the text link or the image below:

[Roku Ultra Streaming Media Player](#)

Additional Options to Stream Without Wi-Fi

Another option to stream Netflix, Hulu and other Internet-based TV content without Wi-Fi is the use of a Samsung Blue-ray player. You can plug in an Ethernet cable and run an HDMI cable up to your television set. The Wi-Fi on the Blue-ray can be disabled using the remote control through on-screen prompts on your TV set. Go to Network and choose Hardwired. That will initiate a process where the Blue-ray player will synch up with your router over the Ethernet

cable. Use a Network Adapter to get an Ethernet cable into the room with the TV set if the router is not in the same room or you don't already have an Ethernet jack in the wall.

Order a certified refurbished Samsung Blue-ray player at Amazon for \$42 by clicking [here](#).

New flat screen TVs, which have virtually no magnetic field EMFs (as the much older cathode ray tube TV sets did), are Internet-ready and come pre-loaded with Netflix, Hulu and YouTube. Up until recently we have had the ability to disable the Wi-Fi on Internet-ready flat-screen TVs when we plugged in an Ethernet cable and used on-screen prompts to set the TV to connect directly to the router via a hardwired connection. (You can use a network adapter to bring hardwired Internet into the room where the TV is located—see the Radio Frequency EMF section of the [Safer Use of Computers](#) page for details).

However, the most recent Samsung TVs have the annoying drawback that the Wi-Fi does not turn off when you connect an Ethernet cable and set the TV to Hardwired Connection rather than Wireless on the Network option under Settings. The Wi-Fi signal continues to emit from the TV even when it is turned off (which is only standby mode for the electronic components within the TV).

Fortunately, the signal strength of the Wi-Fi transmitter does diminish in intensity with distance across a standard living room but if children play on the floor in front of the TV or you are electrically-sensitive, you can either plug the TV into a power strip and flip that off when you don't watch TV (which kills the Wi-Fi transmitter) or you can look for an older model Internet-ready flat screen TV through Ebay and purchase a radio frequency detector to verify that the Wi-Fi has been turned off when you connect an Ethernet cable and select the hardwired network on the TV's on-screen prompts.

Monitoring Wi-Fi from Apple TV and Roku Players and TV Sets

I have measured the RF signal at normal viewing distances across the room, and it was below 100 microWatts/meter squared. That is

tolerable for most people, but EHS people need the Wi-Fi to be off completely. That Wi-Fi signal continues to emit into the room even when the TV is turned off (which is really, standby mode). You should plug the TV into a surge protector and then flip that off when you don't watch the TV, so you don't have any RF EMFs in the room when the TV is on standby mode.

With any TV model you buy, you should plug in an Ethernet cable and go into the settings under Network and choose Wired Connection. The TV will synch up with the router and you will have access to YouTube, Netflix, etc. You then need to check that the Wi-Fi signal is off with your RF meter. If so, congratulations. If not, either find another TV set and keep checking with your RF meter or use the strategies I mention above.

If you use Apple TV, you can try older models 1 and 2, available on eBay. I cannot guarantee that every model shuts off Wi-Fi when you plug in an Ethernet cable. That is what I found with the models I tested at certain clients' houses, and I have successfully disabled the Apple Play on an Apple TV model 3.

With Roku Players, as mentioned above, the Wi-Fi will shut off when an Ethernet cable is plugged in, particularly if you wait long enough, however, there are steps you must take, as outlined above, to make sure it is completely disabled.

Ultimately with any of these models you must always check for this yourself with your own RF meter.

If the telco or cable set-top box provides Internet TV, make sure the installer disables the Wi-Fi on the set-top box and verify that with your RF meter. If it cannot be disabled, have him replace it with a box that does not have Wi-Fi to begin with. If you are successful at disabling the Wi-Fi, you will still need to go into the TV set's Settings under Network and select Hardwired Network. Then verify that the TV itself is not sending out a Wi-Fi signal with your RF meter.

TV Sound Bar With Bluetooth that Can Be Disabled

I have tested a Vizio sound bar that had no WiFi or Bluetooth signal. The closest available Vizio model to the one I tested is Model SB2920-C6, linked to below. It connects to the TV through an optical cable, which is included in the box. Like all sound bars, these models do have Bluetooth, which you must enable to pair the sound bar with a portable device, such as your smart phone. However, if you don't push the Bluetooth button and pair the sound bar with a smart device, it appears that the Bluetooth signal does not transmit from these sound bars. At least, I did not measure any Bluetooth signal from the model SB2820n-E0 that I tested. That model, dated 2017, is no longer readily available, but the SB2920-C6 is and appears to be identical to the preceding model, according to specs on Amazon's page for this item.

[VIZIO SB2920-C6 29" 2.0 Channel Home Theater Surround Sound Bar](#)

Smart TVs that Allow WiFi to be Disabled

Sony and Sharp brand smart TVs have the capability to allow you to disable the Wi-Fi in the Network settings. On newer Sony smart TVs, go to Settings for the TV, then find Network & Internet, then see "Wi-Fi" at the top of that page. Slide the on-screen button to the "off" position to disable the WiFi connection and always verify with an RF meter, which every electrically hypersensitive (EHS) person should own. The remote of Sony TVs only emits RF when you press a button. No other newer models of smart TV that I have worked on allows WiFi to be disabled, even when an Ethernet cable is plugged in and the Wired option is selected to connect to the Internet.

Disabling Wi-Fi on a TV Set

Another option is to disable the Wi-Fi transmitter inside the TV, if you are handy with a screwdriver. There is a YouTube video of an

individual who opened up the back of his Samsung TV and found the Wi-Fi module. He unplugged the wire to it, which disabled the radio frequency signal. That, unfortunately, voids the warranty of the TV set. However, if you follow his directions carefully and don't damage the TV in the process, you should be fine (but don't take my word for it. If you undertake that process, you must understand that you are doing so at your own risk and that I am not responsible for any damage or lack of operation that occurs). The YouTube link is [here](#).

TV Sets Without Wi-Fi (Non-Smart TVs)

Here are two TV sets, available from Amazon, that are not "Smart", meaning, they do not have the ability to stream Netflix, Hulu and other streaming content. They do not have those streaming services embedded within them, they do not have an Ethernet jack, and, most importantly, they do not have Wi-Fi.

The two Non-Smart TV sets are:

[Sceptre 65 Inche 4K UHD LED TV 3840×2160 MEMC 120 Ultra Thin HDMI 2.0 Upscaling U658CV-UMC, 2018](#)

and

[Sceptre UTV 55" 4K Ultra-HDTV 3840×2160 U558CV-UMC 4X HDMI MEMC 120, Metal Black](#)

Additional Ways to Reduce or Eliminate Radio Frequency

EMFs

If you must use a Wi-Fi transmitting Apple TV or Roku Player, you can wrap it in a couple of layers of radio frequency-shielding fabric, such as Argenmesh. Argenmesh always comes five feet wide and is sold by the foot. One foot of Argenmesh sells for \$17 from LessEMF, available [here](#). Two layers of Argenmesh will reduce the RF signal quite well, however, if you are EHS, you don't want to use this option. Make sure the device you are wrapping does not run hot, as you don't want to trap heat in an electronic device that generates heat.

One other option is a Blu-ray player, which now also provides Internet TV. Connect an Ethernet cable to the Blu-ray player and then go on-screen on your TV set under the Blu-ray settings and choose Hardwired. I have verified that the Wi-Fi is fully disabled on a Samsung Blu-ray Disc Player/DVD Player, model BD-JM57C (Fully Refurbished). It is available from Amazon for \$40 by clicking [here](#).

How to Get Internet over Ethernet Cables to TV Sets

You can get Internet service through an Ethernet cable to a room that does not already have it through various hardwired ways. These options are covered in the article, [Safer Use of Computers](#) on my website. That is how you can get an Ethernet cable to your TV set for Internet TV when the TV is in a room some distance from the router.

I have been told by a telco installer that his company's U-Verse equipment does not do well when MOCA (Multimedia Over Cable Alliance) units are used. I presume this is also true of FIOS. MOCA is one of the options you can use to get Internet to other rooms in the house.

To get Internet to your TVs, it is best to hire someone to run Ethernet cables outside, in your attic, basement/crawl space, or around baseboards. Next best, but more affordable, is network adapters. I use a Network Adapter, and even though the speed indicator is red (<50 Mbps), not yellow (50-80 Mbps) or green (>80 Mbps), I am still

able to stream Netflix on a TV that is in a room some distance from the router. This is all covered in my Safer Use of Computers article.

Other Forms of EMFs from TV Sets and Remotes

Also, TVs in the old days used to emit horrendously high magnetic field EMFs many feet into the room. I have measured high magnetic field EMFs extending up to 4-6 feet into a room in all directions, including right through a wall, from old model cathode ray tube (CRT) television sets. This is also true of older computer monitors, which were also CRTs (also known as a video display terminal, or VDT).

Newer flat screen TVs and computer monitors have a very small magnetic field, particularly the liquid crystal display (LCD) and light emitting diode (LED) TV sets. The magnetic field from these models do not extend more than 6-8 inches from the TV set, in most cases.

Some plasma TV models can have magnetic fields that extend a bit farther, but still not as far as the older CRTs. I do understand, however, that plasma TVs consume a great deal of electricity and they also generate a fair amount of so-called “dirty electricity.”

Finally, regarding TV remote controls, they can connect to the TV set in one of two ways, infra-red (IR) or radio frequency (RF). We recommend the former. You can actually program the remote to operate in one or the other mode.

To determine which mode your remote is operating in, turn the TV on. Then hold the remote in one hand face up with the top of the remote pointed at the TV, as if you were going to change the channel. Cup your other hand over the top of the remote (pointed at the TV) and see if you can still change the channel or volume. If you cannot, the remote is operating by infra-red, which is safe (for most people). The remote sends out a beam of invisible light in the infra-red range, which is picked up by an infra-red eye on the front of the TV set.

If, on the other hand, you can change the channel and volume with your hand cupped over the top of your remote, it is communicating by radio frequency (RF) signals. This means, whenever you press any button, you are exposed to a blast of RF signals from the remote. You can re-program the remote to communicate by IR instead of RF.

Then, re-check the operation of the remote to make sure you cannot change the channel and volume with your hand cupped over the top.