let's make

Explore (/explore/)

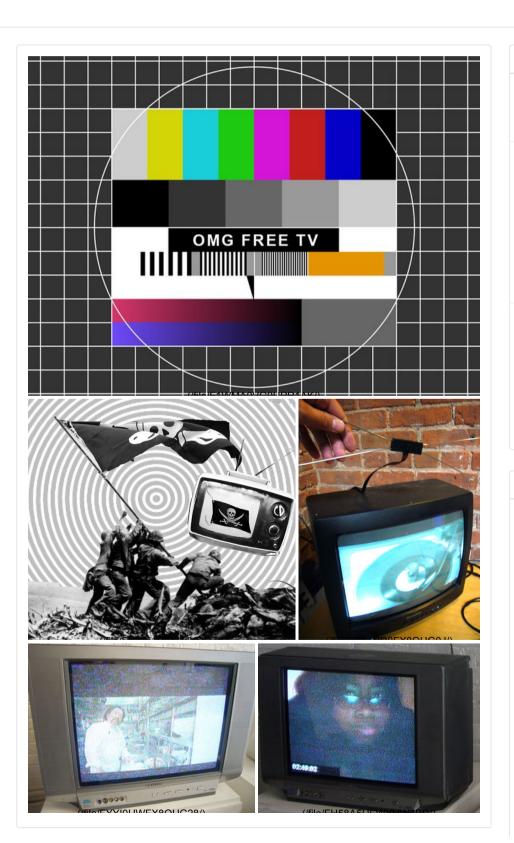
Contests of odraws wint/login/) Clasis selfolasses / volasses/lygopro)

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69

Bio: I teach, work on art projects, and master music. For more info on me go to http://joncohrs.com or for more projects go to ... More » (/member/splnlss/)

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how to make an analog tv transmiter (/id/how-to-makean-analog-tv-transmiter-1/) by snowdrop1101

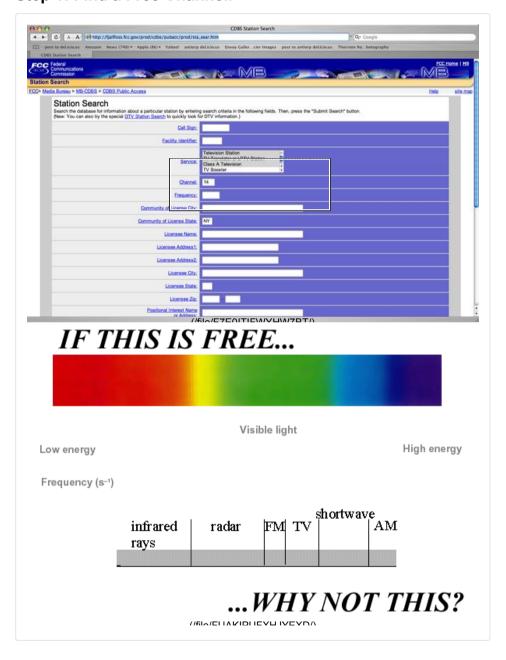
Resurrect a Classic Portable B&W TV (/id/Resurrect-a-Classic-Portable-BW-TV/) by technovative

Tired of the blocky, JPEG-like resolution of digital television? Do you long for the days of RF modulation and regulated-yet-unregulated content? Do you simply have the desire to toss your converter box out the window and make use of those rabbit ear antennae that are just lying around? If so, then you might be interested in becoming a savior of analog television! This Instructable will show you how to create your own fully-fledged low-power analog television channel, with any video source(including your computer) as a source of content.

We created one that went live the minute analog tv went dead. We're still the only analog station in NYC, but please join us in making more!! Long live analog tv.

http://OMGimon.TV (http://OMGimon.TV)

# Step 1: Find a Free Channel.



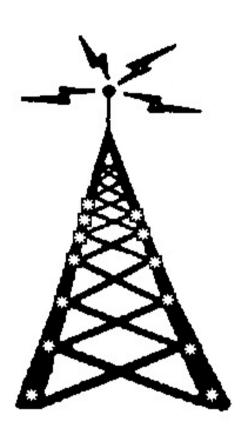
The first step is to find a TV channel that isn't being used in your general vicinity. Although after the 2009 DTV transition in June a lot of "whitespace" (i.e. unused television bandwidth) became available, most of this whitespace is still legally dubious and many of these channels are still tied to the original owners via legal identity and copyright. However, because of this legal ambiguity a lot of free space is still up for the taking.

The best option for finding free space is the FCC's own search engine for these things:

http://fjallfoss.fcc.gov/prod/cdbs/pubacc/prod/sta\_sear.htm (http://fjallfoss.fcc.gov/prod/cdbs/pubacc/prod/sta sear.htm)

Simply type in the channel (try a range of 14 to 35) and your state, along with the type of broadcasts available. Try to avoid channels that correspond to channels in your area (i.e. CBS 2 in New York). While they might be free because of the DTV transition and broadcasting in a higher channel range, they are still virtually broadcasting through that channel and might also have dibs on it for visual identity's sake.

Step 2: Find a TV Transmitter.



//file/E012AVTEVEE71DU/\

scale operators, to micro radio broadcasters with the goal of completely precluding all such broadcasts.

As the named party by the FCC, Stephen Dunifer stated

"This recently filled response is an extremely clear and succinct
defense of micro power broadcasting. It is my hope that we can
establish a clear and binding legal precedent which will protect the
internationally recognized right of communication between individu
als and communities. In light of the FCC's pitful ruling that the
Home Shopoing Channel serves the public interest, it is obvious the Home Shopping Channel serves the public interest, it is obvious the FCC is more interested in protecting the status quo of commercial and corporate interests than actual public interests. As the one dissenting FCC commissioner, Evin Duggan, put it "Today, sadly, the commission puts forward a minimalist definition of the public the commission puts loward a miniminant demandion of the policic interest standard, at precisely the moment we should be mending and refurbishing that tattered banner.' Despite the most recent actions of the FCC, Free Radio Berkeley will continue its weekly Sunday broadcasts as a community free speech project, from 9 PM to 12 Midnight at 88.1 on the FM band. We will not be silenced by federal agencies who hide behind a facade of serving the public interest to mask their flagrant abuse of regulatory power, public money and resources to defend, promote, and serve private corpo-

Peter Franck, speaking for the National Lawyers Guild Committee on Democratic Communications(NLGCDC), stated, "The NLGCDC has laid the groundwork for the defense of Mr. Dunifer and Micro Radio practitioners. The work of the CDC tocuses on the rights of all people to have a world-wide system of media and communications based on the principle of cultural and informational self-determination. Its research has led it to find that the FCC's ban on low power community broadcasting violates both the US Consti-tution and International Human Rights Law.

rate media interests."

#### Free Radio Berkeley Needs Your Support

Over the past few months, on Sundays from 9 Mto 12 midnight Free Radio Berkeley has been bringing a unique presence to the Berkeley airwaves presenting voices you are not likely to hear on any other station. To continue and expand this effort, Free Radio Berkeley needs your energy -creative, volunteer, monetary, etc. Free Radio Berkeley needs on the 3rd Wednesday of each month at the Long Hau, 3124 Shattlek at 7:30 PM. Monetary contributions may be sent to the address on the back.



Workshops will be presented by

Stephen Dunifer from Free Radio Berkeley. A donation of \$5-15 is requested Call (510) 464-3041 for info

//fila/EDDEC3VEVLIVD97/\

The next step is to find a good transmitter. There are a myriad of ways to go about this, but these are the three best ways we've come across:

- 1. buying multiple short-range consumer transmitters
- 2. commissioning a transmitter from Free Radio Berkeley Http://freeradio.org
- 3. building your own

The first is relatively cheap-yet-clumsy, the second relatively expensive-yet-simple and the third a bit less expensive but a (rewarding) challenge, but all three result in a rather robust analog broadcast.

Step 3: Step 2, Method 1: Multiple Short-range Transmitters



This method is essentially an ad-hoc broadcaster made up of lots of tiny, low-power wireless UHF audio/video transmitters. These can be bought fairly cheaply on eBay, and have a range of about 500 feet: http://shop.ebay.com/?

- \_from=R40&\_trksid=m38&\_nkw=Wireless+UHF+Audio+Video+Transmitter (http://shop.ebay.com/?
- \_from=R40&\_trksid=m38&\_nkw=Wireless+UHF+Audio+Video+Transmitter)

Most of these transmitters require an RCA composite or Coaxial input, so any video source would work. To get composite video from a computer one simply needs to buy some kind of VGA/DVI to Composite converter or a PC TV converter, which usually range from 35 to 200 dollars, depending on the quality.

The channels that these transmitters broadcast on are also adjustable; see the transmitter's instruction manual for details on that.

Networking the transmitters can be achieved by daisy-chaining the antennae with the Coaxial In/Out ports on each transmitter using long, 500-foot cables.

**Step 4: Step 2, Method 2: a Commissioned Free Radio Berkeley Transmitter** 

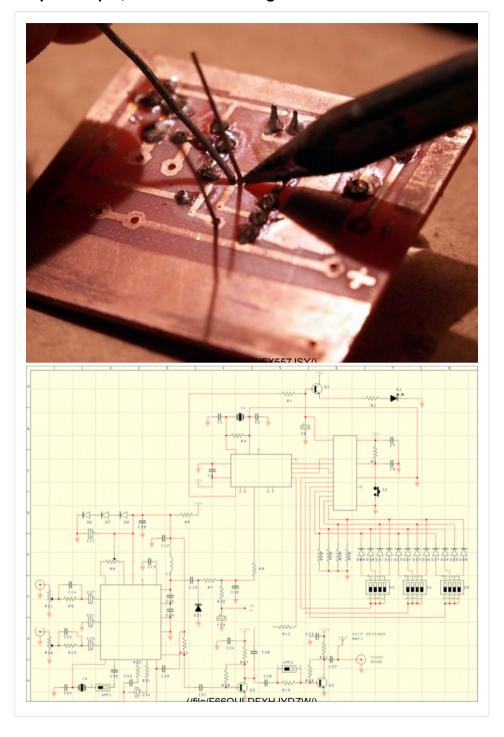


The second method involves purchasing an used transmitter on ebay (everyone is dumping them now that the digital transition has happened) or getting a custom-built transmitter from Free Radio Berkeley (www.freeradio.org). Their site has instructions for purchasing a pre-built NTSC or PAL TV transmitter, amplifier and antenna. While more expensive than the first method, the final transmitter is more powerful and dependable than the makeshift transmitter network.

Like with the previous ad-hoc broadcast method, any analog video source will work. However, if you plan on using composite video you will probably need some RCA-to-coaxial converters for the video and audio, which are really just a few bucks at radio shack.

Stephan Dunifer, the founder of Free Radio Berkeley, has been building these transmitters for the past thirty years and is very helpful if you have any

Step 5: Step 2, Method 3: Building Your Own Transmitter



This method is pretty intense, but doable for the electronics folks .

In 2008 the media collective !Mediangruppe Bitnik created a freely-downloadable pocket zine that contains detailed instructions for creating your own short-range television transmitter:

http://osvideo.constantvzw.org/wp-content/uploads/ptv\_zine\_constant\_081120.pdf (http://osvideo.constantvzw.org/wp-content/uploads/ptv\_zine\_constant\_081120.pdf)

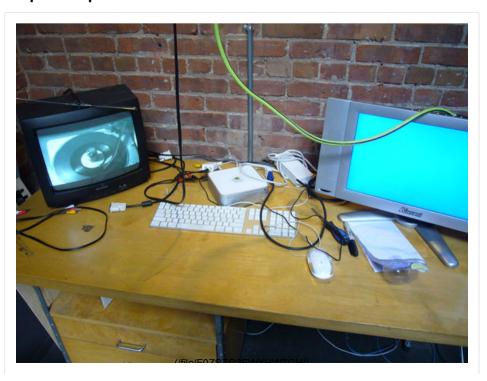
This transmitter also accepts any analog video source you can throw at it.

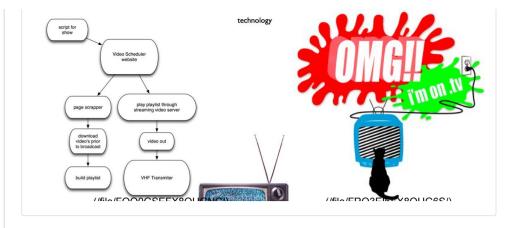
Step 6: Install Transmitter



It's important to find a good place to setup your antenna. You want to find a high location that can transmit waves relatively unobstructed. Chimneys work great. Long runs of cable between your antenna and the transmitter will degrade your broadcast range, so the shorter the distance the better. We decided to put our transmitter up on the roof and run the A/V cable up from our broadcast room. In order to protect our transmitter from weather and rain, we bought a huge tupperware container and retrofitted it with holes for ventilation and cable runs to house and protect the delicate electrical components.

Step 7: Step 3: Content!





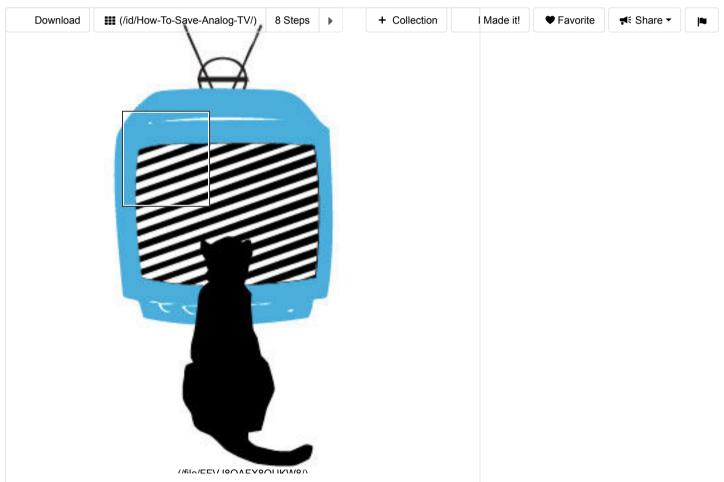
Content is key! Once you have your transmitter set, there are infinite possibilities for your new TV channel. You can use anything analog--old home video tapes, video cameras, character generators, etc.

If you're using a computer as a video source, your possibilities are potentially more infinite. However, if you still feel scraped for content there are various webscraping tools at your disposal, including Yahoo Pipes, Google Mashup Editor or Youtube's own API. Enclosed is a flow chart that explains our approach.

We create our own custom web scrapper at http://OMGimon.TV. (http://OMGimon.TV.) We're happy to share our code if you're interested in building something similar or building a webscraper.

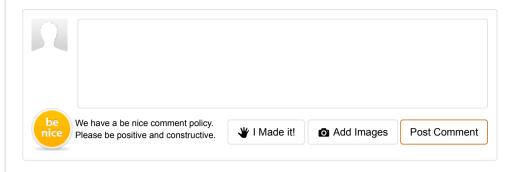
# How to Save Analog Television - Pirate TV by Step (82-Now) Stare Into Now in Stare Into No. 1971 Stare Int





Nows the fun part. Sit back and relax and watch your tv station, without flipping through youtube's endless options or 1000's of mediocre cable channels.

# Comments





#### Arsen Gabrielyan (/member/Arsen+Gabrielyan/)

2017-07-25

Reply

Yay Tv Station is cool. i make the "lego TV" Station use pico macon, video sender



(https://cdn.instructables.com/FOT/A60C/J5IFZMEW/FOTA60CJ5IFZMEW.LARGE.jpg)



#### HammE (/member/HammE/)

2014-11-07

Reply

Quick question, this is technically violating Part 97 of the FCC right?



cwalkowiak3 (/member/cwalkowiak3/) > cwalkowiak3 (/member/<<replyAuthor>>)

2017-07-13



# Abe Lima (/member/Abe+Lima/)

It is.

2016-04-02

Reply

I want my station to be a local PBS Station. I just need to sign a contract with the Public Broadcasting Service.



cwalkowiak3 (/member/cwalkowiak3/) > cwalkowiak3 (/member/<<replyAuthor>>)

And get a license. And a transmitter. PBS isn't going to 2017-07-13 sign anything with you unless you have a license and a transmitter to cover a good amount of area.

# Nirgal38 (/member/Nirgal38/)

2009-09-12

Here in the US, the FCC has absolutely no sense of humor if they think you're violating their regulations. As a ham radio operator, I read their enforcement actions on a regular basis so if you're keen on paying \$25000 fines or jail time, go ahead with this. Be REALLY sure that you're in the right because even if you win your case if the FCC decides to prosecute, you'll be out thousands of dollars in legal fees, etc. They especially frown on unlicensed broadcasters using the airwaves.

austinburke. (/member/austinburke./) ▶ austinburke. (/member/<<replyAuthor>>)

Nirgal38 (/member/Nirgal38/) ➤ Nirgal38 (/member/<<replyAuthor>>)

Reply

2009-09-29

Hey, I didn't tell people not to do this. I just warned of the potential consequences if they do. If a person really wanted to do this legally, he could go out, get a Technician Class Amateur Radio Operator's license then can transmit using amateur TV and be perfectly legal. They'd still have to follow FCC regulations regarding amateur transmissions. Our local ham club just had a 6 year old pass the test so it's not that tough.

Michigan Wake Up (/member/Michigan+Wake+Up/) ▶ Michigan Wake Up

(/member/<<replyAuthor>>)

2016-11-15

Reply

Please tell me more about this license the community of and how to get started.

Patrick

static (/member/static/) ▶ static (/member/<<replyAuthor>>)

2011-10-09

Reply

Yes, but the moment an Amateur radio operator in the US starts to broadcast content of interest to the general public, they are in violation of Part 97. Most reading this instructable are interest in broadcasting content to the general public not to the niche of amateur radio operators. Yes the test is not that tough, I suggest you take the test before stating what's perfectly legal.

Nirgal38 (/member/Nirgal38/) ➤ Nirgal38 (/member/<<replyAuthor>>)

Reply

Amateur extra class license here. And I wasn't talking about general interest broadcasting. I was simply talking about what it would take to transmit an amateur TV signal legally.

snowdrop1101 (/member/snowdrop1101/) ▶ snowdrop1101

(/member/<<replyAuthor>>)

2016-11-07

Reply

Ugh. Here we go again...

 $\pmb{emerson.john\ (/member/emerson.john/) \ } \ \ emerson.john\ (/member/<< replyAuthor>>)$ 

At last, Another adult.

2010-12-19

Reply

Reply

Reply

snowdrop1101 (/member/snowdrop1101/) ▶ snowdrop1101

(/member/<<replyAuthor>>)

2016-11-07

And how!

wb7ptr (/member/wb7ptr/) ➤ wb7ptr (/member/<<replyAuthor>>) 2011-08-04

... and the worst of it ... they'll CONFISCATE your nice little TV station!

Dr.Bill (/member/Dr.Bill/) ➤ Dr.Bill (/member/<<replyAuthor>>) 2011-11-27 Reply

And anything else they think went into making it.

atvdxtx (/member/atvdxtx/)

2015-04-11

Reply

RuiL6 (/member/RuiL6/) ➤ RuiL6 (/member/<<replyAuthor>>) 2015-09-21

Reply

and how about TELETEXT??? first INTERNET WI-FI system from the world!!! And it all began in the 1970!!!

how to make a full functional TELETEXT internet system manual:

===

- BI-DIRECTIONAL analog ANTENA tv || antena || server(s) || antena || tv
- remote with keyboard

#### CODING LANGUAGE AND "STUFF"

- Television systems;
- Data transmission within Teletext

http://www.etsi.org/.../01.02.01\_60/en\_300708v010201p.pdf (http://www.etsi.org/.../01.02.01\_60/en\_300708v010201p.pdf)

Key words: Broadcasting, data, transmission, Teletext, Radio

http://www.etsi.org/.../300706/01\_60/ets\_300706e01p.pdf (http://www.etsi.org/.../300706/01 60/ets 300706e01p.pdf)

=========

next stage of the process: CONVERT "EIA-608" CODING LANGUAGE TO JAVA

CONVERT "EIA-608" CODING LANGUAGE TO C++

**ETC** 

CONVERT JAVA CODING LANGUAGE TO "EIA-608" CONVERT C++ CODING LANGUAGE TO "EIA-608"

ETC

:);)(y)

# snowdrop1101 (/member/snowdrop1101/) > snowdrop1101

(/member/<<replyAuthor>>)

2016-11-07

Reply

Uhh...°°

# RyanS280 (/member/RyanS280/)

2016-08-02

Reply

# PLEASE DO NOT DO THIS.

In 2009 Analogue Television Broadcast was moved to several different parts of the spectrum, heres why you should not do this:

- 1) Military Passive Radars (foreign ones) were using the 6 Mcs wide TV signals to see even stealth A/C flying everywhere
- 2) MANY parts of the UHF spectrum formerly occupied by those noisy NTSC stations are now used for data backhaul for cell towers (LTE-DB)
- 3) Those cheap RF modulators are well known for causing fatal interference to the digital systems (APCO25) employed by EMS, Fire, Police, and Municipal services
- Amateur Radio is an important service, this will cause severe interference to the 70cm amateur radio band

If you are unfortunate enough to be an RF experimenter in the USA, REALLY THINK before doing this, think "Do I live near an Air Force Base or Naval Air Station?" If the answer is YES dont even think about powering up an analogue video sender

JohnnyRock1 (/member/JohnnyRock1/)  Doesn't it cost about \$500 to get a license for a tv o	2013-07-05 channel/station	Reply	
Abe Lima (/member/Abe+Lima/) ➤ Abe Lima (/mem		Reply 6-04-02	
trigun00 (/member/trigun00/)	2015-04-19	Reply	
how far will be the range for a 30watt vhf tv transmia good antenna.	itter? in plain terrain ar	nd with	
RuiL6 (/member/RuiL6/) ▶ RuiL6 (/member/< <replya< td=""><td>author&gt;&gt;) 2015-09-21</td><td>Reply</td><td></td></replya<>	author>>) 2015-09-21	Reply	
+Jim Faust +coolrob73 and how about TELE WI-FI system from the world!!! And it all bega		ET	
how to make a full functional TELETEXT inter	rnet system manual:		
=== - BI-DIRECTIONAL analog ANTENA - tv    an tv	ntena    server(s)    ante	ena	
- remote with keyboard ===			
CODING LANGUAGE AND "STUFF"- Televis - Data transmission within Teletext	sion systems;		
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http://www.etsi.org//300706/01_60/ets_300 (http://www.etsi.org/deliver/etsi_i_ets/300700		0/ets_300706e01p.pdf)	
======================================			
ETCCONVERT JAVA CODING LANGUAGE CONVERT C++ CODING LANGUAGE TO "E			
ETC			
:) ;) (y)			

snowdrop1101 (/member/snowdrop1101/)

2015-05-27 Reply

I made one about a year ago but it is a portable model and weighs about 5 pounds. it can also transmitt up to 100 feet.

(https://cdn.instructables.com/F7U/HX0B/IA591SFK/F7UHX0BIA591SFK.LARGE.jpg)

(https://cdn.instructables.com/F9L/JJJP/IA591SI2/F9LJJJPIA591SI2.LARGE.jpg)

#### StevenG10 (/member/StevenG10/)

2015-04-04

Reply

How do you know if your broadcasting your tv

StevenG10 (/member/StevenG10/) ➤ StevenG10 (/member/<<replyAuthor>>)

Fm

2015-04-04

Reply

#### Yonkosw (/member/Yonkosw/)

2014-11-19

Reply

Thanks for the instructable.

Protip: Not everyone here is american.

# Dinowaffles (/member/Dinowaffles/)

2014-08-04

Reply

I'm late here, but I just found out about this. Time to use the attic sized antenna I have upstairs.

# manasaich (/member/manasaich/)

2014-02-13

Reply

can anyone say how to create a new tv channel to show all people's home TV ???

please help me as soon as possible

#### Dr.Bill (/member/Dr.Bill/)

2012-08-30

Reply

Bottom line is...Get a license for Amateur Radio and do the Amateur TV thing. Its a lot safer to your freedom and Wallet!

# Ubergeek85 (/member/Ubergeek85/)

2009-09-04 F

Reply

The one thing I *don't* like about pirate TV is the setup cost. Sure, it's small, but I'm broke.

I've been intending to do something like this for a while now. Planning on using a PC as a source, running through a VGA-to-composite converter, to a VCR to use as a modulator, through to an modified splitter to act as an RF amp, through to the antenna. I've got it all except the antenna, and haven't modified the splitter yet (I hate SMD components, it makes circuit bending so hard..).

Oh, and I'm in New Zealand too. We don't have much of a history of Pirate TV here. Hopefully I'll be a trendsetter.

harley\_rly (/member/harley\_rly/) ▶ harley\_rly (/member/<<replyAuthor>>)

Reply

you could just use an outdoor analog antenna, or 1(or more)set of rabbit ears...rabbit ears probably wouldnt give ya much distance though, unless you made sure they were waterproof and attached 'em to the roof of your house

**Dr.Bill (/member/Dr.Bill/)** ▶ Dr.Bill (/member/<<replyAuthor>>)

Reply

Or pump it right into the Cable System where you are....

aceLED (/member/aceLED/)

2009-09-06

2012-08-30

Reply

wut kind of shows do u put on ur channel? me and my friends wanna do this now just so we can brodcast our own tv show ;p

**Dr.Bill (/member/Dr.Bill/)** ➤ Dr.Bill (/member/<<replyAuthor>>) 2012-08-30

Reply

Porn if you like. Or other stuff.

static (/member/static/)

2011-10-09

Reply

Much has been made about being a license amateur operator somehow means you can legally broadcast content of interest to the general public. Sorry to tell you that Part 97 doesn't not permit US amateur radio operators to broadcast content to the general public. Broadcast content that's intended to serve other amateur radio operators all you want. In the event some members of the public may watch is not a problem.

**Dr.Bill (/member/Dr.Bill/)** ▶ Dr.Bill (/member/<<replyAuthor>>)

Reply

You are right we don't Broadcast we Transmit to another station, However there is a time when we do broadcast and that is when we call CQ looking for someone to talk to.

blkhawk (/member/blkhawk/)

2012-04-10

2012-06-09

Reply

Your project should be classified under Technology→Wireless.

earthwindwater (/member/earthwindwater/)

2012-01-24

Reply

Nice write up. But, there is a much more simpler way. You can build your own channel with a Roku box. They are under \$100 bucks. I got my channel up and running in a weekend. Just fyi...

 $\textbf{BtRanbo (/member/BtRanbo/)} \blacktriangleright \text{BtRanbo (/member/<<replyAuthor>>)}$ 

Reply

how does it work. im keen, will evry1 that owns Roku be able to  $^{2012-03-22}$  watch my channel. does Roku works outside US and UK?

johnnyme33 (/member/johnnyme33/) ▶ johnnyme33 (/member/<<replyAuthor>>)

HOW!! D:

2012-02-13

Reply

Got a VCR that works? Got an old antenna amp that works? Got a good TV antenna on the roof?

Hook the antenna amp so that its input is fed from the output on the VCR.

The VCR IS a transmitter.

The antenna amp amplifies VCR output and feeds that signal to the antenna on the roof.

The antenna on the roof is a tuned yagi beam antenna just as it sits.

Hook it all up.

Put tape of some movie in the VCR turn it on and play it.

Your on the air.

Point the antenna in the direction of a lot of other roof top antennas and, bingo, someone is going to receive your signal.

BtRanbo (/member/BtRanbo/) ▶ BtRanbo (/member/<<replyAuthor>>)

2012-03-22

Finally a good and simple advice. thanks mate

wb7ptr (/member/wb7ptr/) ➤ wb7ptr (/member/<<replyAuthor>>) 2011-08-04

Cool! Don't get in trouble though:)

johnnyme33 (/member/johnnyme33/)

2012-02-13 Reply

uhh... and how often are people caught? i rly dont like jail

majcherek128 (/member/majcherek128/)

2011-03-07

Reply

You can even do it with a VCR. But you will need a proper amplification, to get anything useful out of it.

**Dr.Bill (/member/Dr.Bill/)** ▶ Dr.Bill (/member/<<replyAuthor>>) 2011-11-27

Just need an antenna amplifier placed in circuit backwards so it pulls the signal out of the VCR and pushes it to the TV antenna.

wb7ptr (/member/wb7ptr/) ➤ wb7ptr (/member/<<replyAuthor>>) 2011-08-04

Most certainly can. That is RF coming out of the RF Out jack, usually on channel 3 or 4 analog ...

Nirgal38 (/member/Nirgal38/)

2009-09-29 Reply

A common recreational activity in ham radio is called "fox hunting." A transmitter is set up in an undisclosed location then amateurs triangulate on it using relatively easy to build equipment (homebrew directional antennas). Generally, the "fox" is found within a couple of hours.

It only takes one interference complaint for the FCC to bring their nice, professionally assembled equipment into an area and nail down the offender in a matter of minutes.

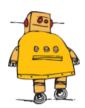
Hefty fines are no laughing matter. Jail time is no laughing matter.

Getting a Tech license here in the US is easy. You take a 35 question test and you can miss as many as 9. Look on the ARRL website (http://www.arrl.org) to find out if there are classes and/or testing near you.

You can also take practice tests at http://www.aa9pw.com. (http://www.aa9pw.com.)

If I can do it, how tough can it be?:)

■ More Comments



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