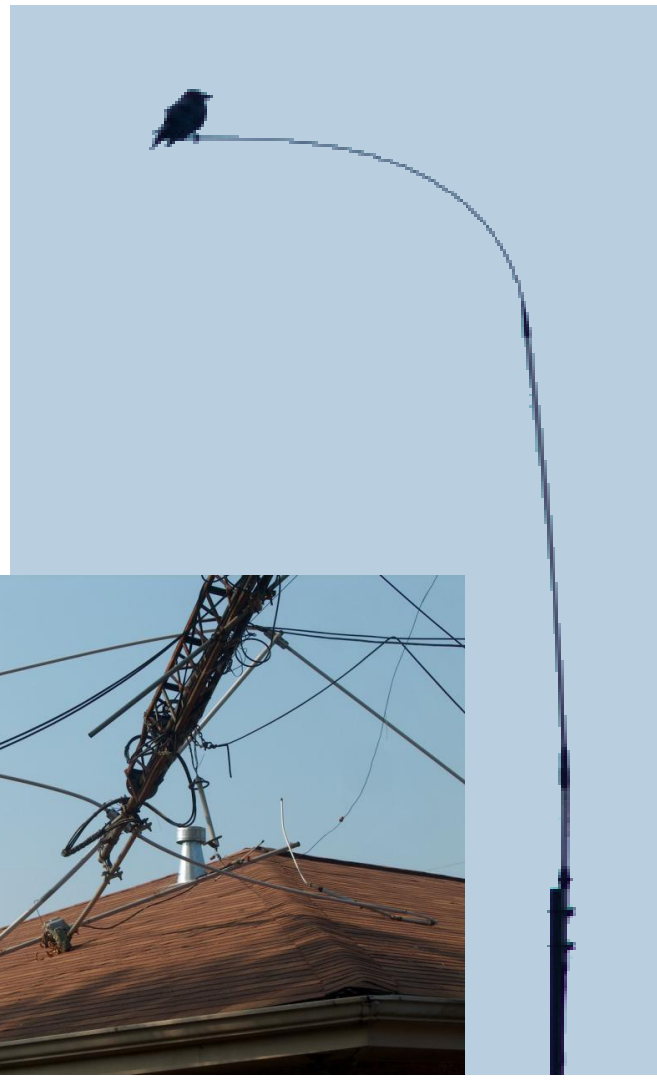


# 10 Worst Antennas

Anthony Luscre, K8ZT



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# K8ZT



Flying Pigs



QRP Club



Many slides & links, so you're probably  
going to want to review **Today's  
Presentation**

View & access links in this slide show at

*[tiny.cc/worst-ant](https://tiny.cc/worst-ant)* 

If you need a PDF copy click [here](#)

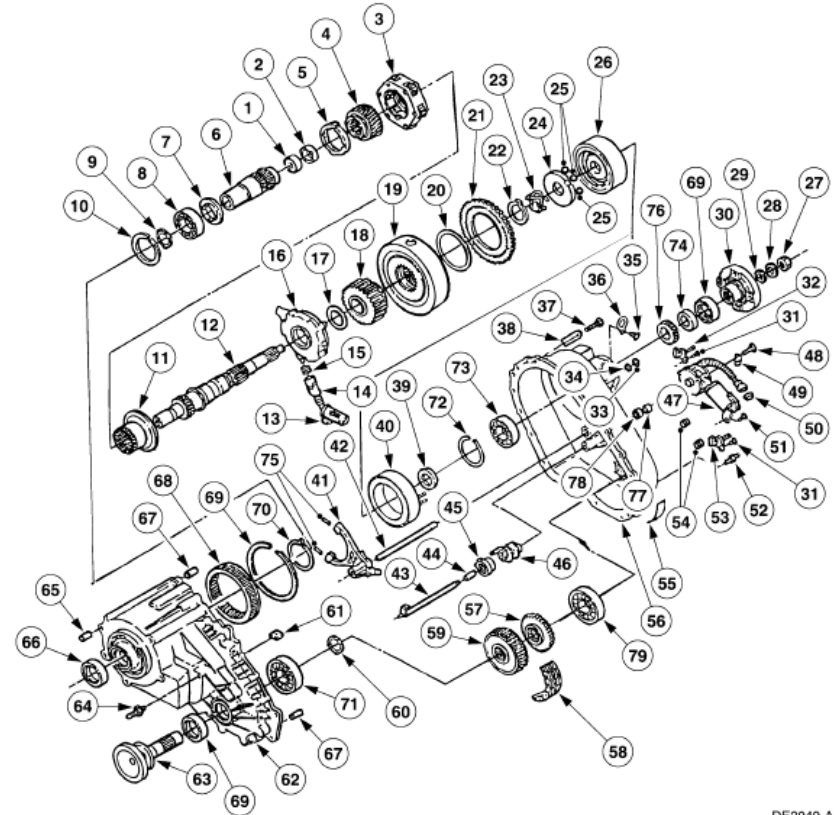


# **Worst Antennas – NONE**

- 1. No Antenna**
- 2. Antenna still in Package or Unassembled**
- 3. Antenna Assembled, but Not Installed**

# Worst Antennas – TRY AGAIN

4. Antenna  
Improperly  
Assembled or  
Too Complicated

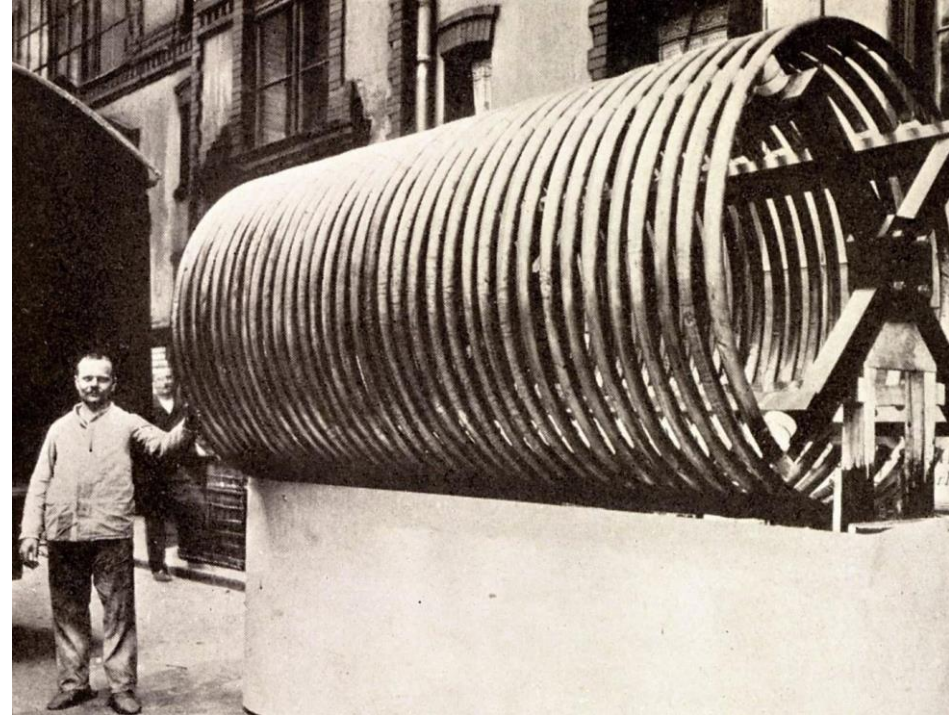


# Worst Antennas – TRY AGAIN

5. Antenna Improperly Installed and/or poor feedline
6. Antenna (that requires counterpoise) without one

# Worst Antennas – NEED MORE

## 7. No Antenna for a desired band



# Worst Antennas – NEED MORE

8. Wrong Take Off Angle for target geographic area
9. No back up antenna in a portable/field operation (see "Two is One and One is None" in *Portable Operations* presentation)



# Worst Antennas – GOOD, GONE BAD

10. Antenna ready to fall down soon –  
damaged, abused coax, worn or bad hardware, worn or bad support structure, no or worn weatherproofing, no maintenance, etc.

# How Can I Make It Better

- Let me count the ways...
  1. Get a least one antenna up and working; you can always upgraded it later. A simple dipole or endfed wire can be easy inexpensive starting points

# How Can I Make It Better

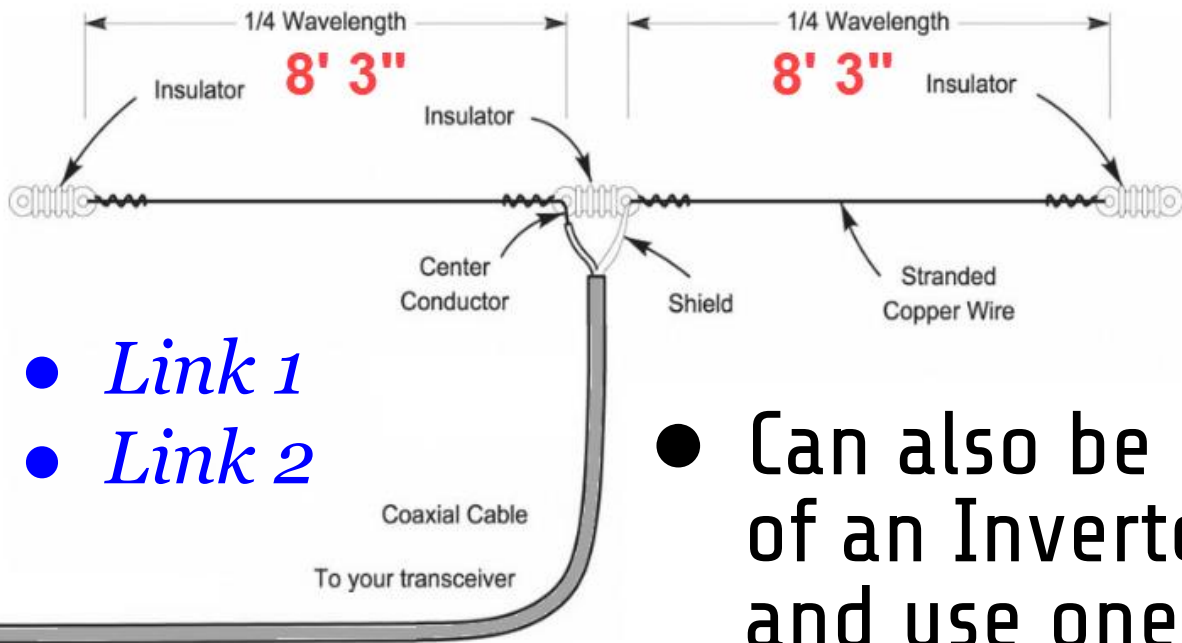
- Let me count the ways
  2. Take time to properly...
    - Assemble according to directions
    - Tune the antenna (remember tuning may change drastically at different heights or locations and retuning may be necessary)

# How Can I Make It Better

- Let me count the ways
  3. KISS– Keep It Simple Sam
    - Simple wire antennas
    - Single Band Antennas
    - Avoid complex designs
    - Avoid severe compromises

# Simple HF Dipole Wire Antennas

- Simple HF Dipole Antenna



- *Link 1*
- *Link 2*

| Band (Meters) | Low End MHz | Dipole Half (ft) | High End MHz | Dipole Half (ft) | Mid-Band | Dipole Half (ft) |
|---------------|-------------|------------------|--------------|------------------|----------|------------------|
| 6             | 50.00       | 4.7              | 54.00        | 4.3              | 52.00    | 4.5              |
| 10            | 28.00       | 8.4              | 29.70        | 7.9              | 28.85    | 8.1              |
| 12            | 24.89       | 9.4              | 24.99        | 9.4              | 24.94    | 9.4              |
| 17            | 21.00       | 11.1             | 21.45        | 10.9             | 21.23    | 11.0             |
| 15            | 18.07       | 13.0             | 18.17        | 12.9             | 18.12    | 12.9             |
| 20            | 14.10       | 16.6             | 14.35        | 16.3             | 14.23    | 16.4             |
| 30            | 10.10       | 23.2             | 10.15        | 23.1             | 10.13    | 23.1             |
| 40            | 7.00        | 33.4             | 7.30         | 32.1             | 7.15     | 32.7             |
| 80            | 3.50        | 66.9             | 4.00         | 58.5             | 3.75     | 62.4             |
| 160           | 1.80        | 130.0            | 2.00         | 117.0            | 1.90     | 123.2            |

- Can also be set up in the form of an Inverted V to save space and use one support

# How Can I Make It Better

4. Avoid "Black Boxes", Antennas with Excess Superlatives, Miracles, etc.

Here's the SPECTACULAR  
"L--O--N--G R--E--A--C--H"  
RANDOM LENGTH OF WIRE ANTENNA

PRICED AT ONLY

**\$149<sup>.95</sup>**

THE "BEST" STRAIGHT WIRE AVAILABLE  
PERFECT FOR STRINGING BETWEEN TREES  
ACCURATE  
EASY TO INSTALL  
PREMIUM SELECTIVITY  
"OPTIMIZED" FOR HAM RADIO BY OUR UNIQUE PROCESS

"You are 599, OM!"



\*actual product may vary

ANOTHER FINE PRODUCT FROM  
**WET NOODLE ANTENNAS**

20W HF QRP Whip Antenna Miracle  
RX & TX Antenna -US \$58.90



# How Can I Make It Better

4. Yes, you can make contacts with them, but you can also make contacts with tuned shopping carts, rain gutters, light bulbs, etc.

- “Light Bulb Antenna Basics & FAQ” by David Day- [link](#)
- “Loading up a wet noodle and more...” by VA3050 [Youtube](#)



e 60W Light Bulb Antenna ir

# How Can I Make It Better

5. Unfortunately the Antenna literature is filled with subjective (and useless) statements–

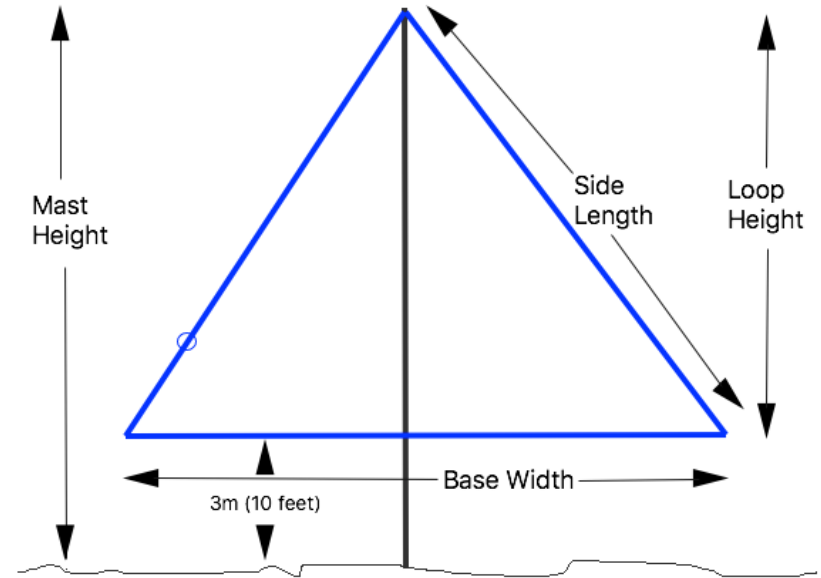
- “I worked Slovenia with my first contact”
- “He gave me a 59 with only 5 watts”
- “It worked better than XYZ that I used last year”



# How Can I Make It Better

6. If length of antenna is impractical for your property think...

- Zigging & Zagging
- Inverted "V"
- Delta Loops
  - *Link 1*
  - *Link 2*



*vertically polarized delta loop.*

# How Can I Make It Better

## 7. If possible get your antenna...

- Outside
- Away from other antennas and metal objects
- At or near recommended height
  - For best results, dipoles should be at least 1/2 wavelength above ground level

| Band (Meters) | Mid-Band Frq | Recommended Dipole Height (ft) |
|---------------|--------------|--------------------------------|
| 6             | 52.00        | 9.5                            |
| 10            | 28.85        | 17.1                           |
| 12            | 24.94        | 19.7                           |
| 17            | 21.23        | 23.2                           |
| 15            | 18.12        | 27.2                           |
| 20            | 14.23        | 34.6                           |
| 30            | 10.13        | 48.6                           |
| 40            | 7.15         | 68.8                           |
| 80            | 3.75         | 131.2                          |
| 160           | 1.90         | 258.9                          |

# How Can I Make It Better

8. If recommended height is impractical think...

- Inverted "V"
- Verticals (with proper counterpoise/radials)
- Inverted "L" (especially on low bands 80/160)
- Delta Loop

# Portable Operations

- Antenna restrictions at home, try portable!
- Like to mix AR with other outdoor activities
- AR Activities- DXpedition, SOTA, POTA, IOTA, etc.
- Special Events
- Portable Operations-  
[tiny.cc/portop](https://tiny.cc/portop) 📧

**Portable &  
Field Radio  
Operations**



**Anthony Luscre, K8ZT**

# Antenna Chart

- Antenna Ideas, Comparisons & Resources - [tiny.cc/portant](http://tiny.cc/portant)

## Antenna Choices Pros & Cons

Share this doc- [tiny.cc/portant](http://tiny.cc/portant)

| Wire Antennas                           | Pros  | Cons   | Notes   |
|---|---|--|---|
| - Dipole (resonant)                     | <ul style="list-style-type: none"> <li>• Inexpensive</li> <li>• Easy to build</li> <li>• Can be fed with coax</li> </ul>  | <ul style="list-style-type: none"> <li>• Require 2 supports</li> <li>• Single or limited # of bands</li> </ul>   |   |
| - Dipole (nonresonant) or offset center | <ul style="list-style-type: none"> <li>• Inexpensive</li> <li>• Easy to build</li> <li>• Multiple bands support</li> <li>• Cheaper &amp; lighter Ladder line instead of <u>coax</u></li> </ul>                        | <ul style="list-style-type: none"> <li>• Require 2 supports</li> <li>• Requires Antenna Tuner</li> <li>• May require balun</li> </ul>  | Often fed with open or ladder line feeders allow better multiband performance |
| - Inverted V                            | <ul style="list-style-type: none"> <li>• Inexpensive</li> <li>• Easy to build</li> <li>• Require only 1 support</li> </ul>  | <ul style="list-style-type: none"> <li>• In some cases, it may not work as well as dipoles</li> </ul>  | Often have more omnidirectional <u>pattern</u> than dipoles                   |
| - End Fed                               | <ul style="list-style-type: none"> <li>• Inexpensive</li> <li>• Easy to build</li> <li>• Require only 1 support</li> <li>• Multiband Operation</li> </ul>   | <ul style="list-style-type: none"> <li>• May require a special balun</li> <li>• May cause RFI</li> </ul>   |   |
| Wire Loops (Delta, etc.)                | <ul style="list-style-type: none"> <li>• Inexpensive</li> <li>• Easy to build</li> <li>• Require only 1 support</li> <li>• Less L &amp; H required</li> </ul>   | <ul style="list-style-type: none"> <li>• Depending on shape &amp; feed point location, impedance may vary from 50Ω</li> </ul>  | Vertical polarized Delta Loops are probably the easiest.                      |
| Verticals                               | <ul style="list-style-type: none"> <li>• Require no high supports</li> <li>• Can be very simple (especially single band)</li> <li>• Very easy to transport</li> <li>• The only option for most mobile work</li> </ul> | <ul style="list-style-type: none"> <li>• Require Radials</li> <li>• Often have lossy or problematic traps for multiple bands</li> <li>• Low angle of radiation poor for close-in QSOs</li> </ul> |   |
| Beams                                   | <ul style="list-style-type: none"> <li>• Good gain</li> <li>• Front to Back and side nulling</li> <li>• Directivity</li> </ul>  | <ul style="list-style-type: none"> <li>• Require Tower or sturdy support</li> <li>• Require lots of <u>assembly</u></li> <li>• Limited to higher bands</li> <li>• Expensive</li> </ul>           | Smaller size at VHF or 2 M) greatly decreases the Cons                        |

# Resources for Successful Operating

- Sometimes it's not the Antenna's Fault!

How to Make That QSO-  
Get in the Rhythm,  
Know the Rhyme &  
Dance the Dance



Anthony Luscre, K8ZT

Successful  
Operating

Tools for Assessing  
Performance



Anthony Luscre, K8ZT



[tiny.cc/  
r-r-d](https://tiny.cc/r-r-d)

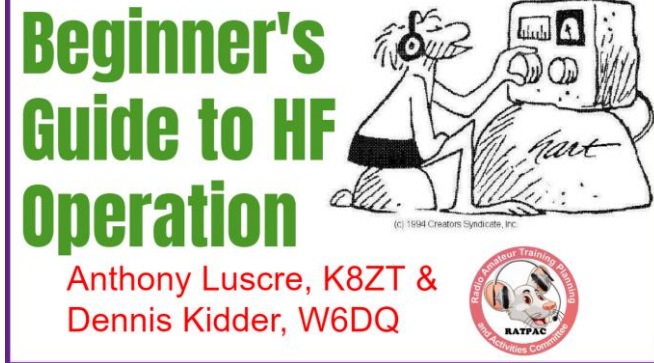
[tiny.cc/  
success-op](https://tiny.cc/success-op)

[tiny.cc/  
ham50](https://tiny.cc/ham50)

TECHNIQUES TO  
WAS & DXCC  
Anthony Luscre K8ZT

# Beginner's Guide to HF Operations

- “Beginner's Guide to HF Operations” a three-part Video Series
  - *Week 1* - The HF Bands, Operating & Making Contacts
  - *Week 2* - Equipment & Antennas
  - *Week 3* - Putting It All Together
  - *Slideshow* of presentations, including clickable links & resources



# Questions / Comments ?

View this slideshow and access  
all resources links at

*[tiny.cc/worst-ant](https://tiny.cc/worst-ant)* 

If you need a PDF copy click [here](#)





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- Website- [www.k8zt.com](http://www.k8zt.com)

# K8ZT



Flying Pigs



QRP Club



# Presentations

- If your club is interested in a online presentation I am currently offering multiple options, for a list visit

[tiny.cc/k8zt-p](https://tiny.cc/k8zt-p) 

- Email me if interested [k8zt@arrl.net](mailto:k8zt@arrl.net)

| Topics  | <a href="https://tiny.cc/k8zt-p">tiny.cc/k8zt-p</a>                    | Slideshow   | Video   |
|---|--|---|---|
| I am willing to present any of my slideshows live online (via Zoom, Goolge Meet, etc.) for your loc |  |   |   |
|   | <b>K8ZT Website</b>  |   |   |
| Buying  | Buying an Amateur Radio Transceiver                                    | <a href="https://tiny.cc/buyar">tiny.cc/buyar</a>           |   |
|   | 3 Stations for 100+ Mile Contacts With a Tech License for <\$100       | <a href="https://tiny.cc/100tech">tiny.cc/100tech</a>       |   |
| Call Signs  | Choosing Your Ideal Callsign- QSO Today Expo 2021                      | <a href="https://tiny.cc/qte-call">tiny.cc/qte-call</a>     | <a href="https://www.qso">https://www.qso</a>   |
| Contesting  | Intro to AR Contesting- ARRL Classes                                   | TBA   | TBA   |
|   | Intro to AR Contesting- ARRL Webinar                                   | <a href="https://tiny.cc/ar-contest">tiny.cc/ar-contest</a> | <a href="https://www.go">https://www.go</a>     |
|   | Contest Logging Software- RATPAC                                       | <a href="https://tiny.cc/logsoft">tiny.cc/logsoft</a>       | <a href="https://vimeo.co">https://vimeo.co</a> |
|   | N1MM Contesting Software- Elmering Day                                 | <a href="https://tiny.cc/n1mm-elme">tiny.cc/n1mm-elme</a>   | <a href="https://youtu.be">https://youtu.be</a> |
| CW/ Morse   | N1MM Contesting Software- Short  | <a href="https://docs.google">https://docs.google</a>       |   |
|   | Fun with Morse   | <a href="https://tiny.cc/fwm">tiny.cc/fwm</a>               | <a href="https://youtu.be">https://youtu.be</a> |
|   | Fun with Morse- QSO Today Expo 2020                                    | <a href="https://tiny.cc/fwm">tiny.cc/fwm</a>               | <a href="https://youtu.be">https://youtu.be</a> |
| Field Day   | Fun with Morse- Short  | <a href="https://docs.google">https://docs.google</a>       |   |
|   | Field Day in Social Distancing   | <a href="https://tiny.cc/fdsd">tiny.cc/fdsd</a>             | <a href="https://youtu.be">https://youtu.be</a> |
| Food  | Field Day in Social Distancing- IARU                                   | <a href="https://tiny.cc/fdsd">tiny.cc/fdsd</a>             | <a href="https://youtu.be">https://youtu.be</a> |
|   | Cooking- Value Added Flavor; Low Cost & Free Ways Improve Your Cooking | <a href="https://tiny.cc/vaflav">tiny.cc/vaflav</a>         |   |
| FT8/ FT4  | FT8 & FT4 Digital Soundcard Modes, Introduction- QSO Today Expo 2020   |   |   |
|   | FT8/FT4 Digital Modes  |   |   |
|   | FT8/FT4 Digital Modes- ARRL Webinar                                    |   |   |
|   | FT8/FT4 Digital Modes- G-QRP   |   |   |
|   | FT8/FT4 Digital Modes- IARU  |   |   |
|   | FT8/FT4 Digital Modes- IARU (ESPAÑ with OA4AI)                         |   |   |
| Go Kit  | FT8/FT4 Digital Modes- K1USN Club                                      |   |   |
| History of Radio & BCing  | Go-Kits (Amateur Radio Grab & Go)                                      |   |   |
|   | Radio, Radio, Radio- 100 yrs of Com Broadcating                        |   |   |
|   | Radio, Radio, Radio- 100 yrs of Com Broadcating- K12 School Version    |   |   |

