

I have just received my license or upgrade. Where do I go from Here?

Radio(s)?

Bands?

Activities?

Nets?

Where do I get help?



You Just Passed Your Technician License Exam

- ⚠ You can not transmit until you license appears on the FCC Universal License System web page.
- ⚠ Decide if you want a handheld radio, Base station or mobile radios.
 - ï Simplest and least expensive is a hand held radio
 - ï A mobile radio can be mounted in a vehicle or operated at home as a base station.
 - ï Do not buy used unless you have an experienced operator help you find a good one.

Choosing a Handheld

- Å Most hand held radios have a 4 to 7 watt output.
- Å They are available in single band or dual band (2 meter and 70 cm) versions
- Å They usually come with rechargeable battery packs, charger and an antenna.
- Å They can be simple or have options like built in GPS and APRS.

Choosing a Handheld

(continued)

Å The simplest and least expensive radio the BaoFeng UV-5RV2+.



- Å Dual Band (2 meter and 70 cm)
- Å Five watt output
- Å Can operate outside the amateur bands so use caution when entering frequencies.
- Å Comes with rechargeable battery, drop in charger and antenna.
- Å Can be programmed from a computer (programming cable not supplied).
- Å Cost >\$30 on line from Amazon and e-bay shipped from China and US distributors.

Choosing a Handheld

(continued)

Å A better radio is the Yaesu FT60



- Å Dual Band (2 meter and 70 cm).
- Å Five watt output.
- Å Easier to manually program.
- Å Comes with rechargeable battery, charger and antenna.
- Å Can be programmed from a computer (programming cable not supplied).
- Å Rugged construction.
- Å Cost \$160 on line from Amazon, GigaParts, and Ham Radio Outlet.

Choosing a Handheld

(continued)

Å A better radio is the Yaesu FT70



- Å Dual Band (2 meter and 70 cm).
- Å Five watt output.
- Å Standard FM + C4FM Digital FM
- Å Easier to manually program.
- Å Comes with rechargeable battery, charger and antenna.
- Å Mini USB port for programming and Software updates computer (programming cable not supplied).
- Å Rugged construction.
- Å Cost \$195 on line from Ham Radio Outlet.

Choosing a Handheld

(continued)

⌚ A more featured radio is the Kenwood TH D72



- ⌚ Dual Band (2 meter and 70 cm).
- ⌚ Five watt output.
- ⌚ Integrated GPS and APRS.
- ⌚ Easy to manually program.
- ⌚ Comes with rechargeable battery, charger and antenna.
- ⌚ Can be programmed from a computer.
(programming cable not supplied)
- ⌚ Cost \$380 to \$439 on line from Ham Radio Outlet.

DMR Handheld

Å Tytera MD-390



- Å Dual Band (2 meter and 70 cm).
- Å Digital and Analog
- Å Five watt output.
- Å Integrated GPS and supports APRS.
- Å Comes with rechargeable battery, charger, antenna and programming software w/cable
- Å Cost \$130 online from <https://www.buytwowayradios.com>

DMR Handheld

(continued)

Å Anytone AT-D878UV



AT-D878UV

- Å Dual Band (2 meter and 70 cm).
- Å Digital and Analog
- Å Six watt output.
- Å Integrated GPS, supports APRS
- Å Comes with rechargeable battery, charger, antenna and programming software w/cable
- Å Cost \$220 online from Amazon

Useful Hand Held Accessories

Å Speaker Microphone

\$15 to \$50



Å Alkaline battery holder

ï If available \$20 to \$40



Å Gain Antenna

ï Around \$15



A Mobile or Base Station

- Å You will need a single or dual band transceiver.**
- Å You will need an external antenna.**
- Å You will need coaxial cable to connect the antenna to the radio.**
- Å You will need a 12 volt 12 amp power supply to power the radio (or a battery).**

Base or Mobile Radios

(Single Band)

Å Yaesu FTM3100R



- Å Two meter only.**
- Å Sixty Five watt output.**
- Å Includes Microphone and power leads.**
- Å Easy to manually program.**
- Å Can be programmed from a computer (programming cable not supplied).**
- Å Requires external 12 volt power supply or 12 volt battery.**
- Å Rugged construction.**
- Å Cost \$130 to \$150 on line from Ham Radio Outlet.**

Base or Mobile Radios

(Single Band)

Å Kenwood TM 281A



- Å Two meter only.
- Å Sixty Five watt output.
- Å Includes Microphone and power leads.
- Å Has weather alert function.
- Å Can be programmed from a computer with optional programming cable.
- Å Programming software free on the web.
- Å Requires external 12 volt power supply or 12 volt battery.
- Å Available for on line from HRO for \$145 to \$160.

Base or Mobile Radios

(Single Band)

∅ Icom 2300H



- ∅ Two meter only.
- ∅ Sixty Five watt output.
- ∅ Includes Microphone and power leads.
- ∅ Can be programmed from a computer with optional programming cable and Software.
- ∅ Rugged Construction.
- ∅ Requires external 12 volt power supply or 12 volt battery.
- ∅ Available for on line from HRO for \$170.
- ∅ Does not not include mobile mounting bracket

Base or Mobile Radios

(Dual Band)

Å Kenwood TM VM71



- Å Simultaneous two Meter and 70 cm receive
- Å dual band frequency displays.
- Å Fifty watt output.
- Å Includes Microphone and power leads.
- Å Can be programmed from a computer with optional programming cable and Software.
- Å Can be configured for cross band repeat.
- Å Requires external 12 volt power supply or 12 volt battery.
- Å Built in Echo Link.
- Å Available for on line from HRO from 345 to \$380.

Base or Mobile Radios

(Dual Band)

Å Icom IC 2730



- Å Simultaneous two Meter and 70 cm receive dual band frequency displays.
- Å Fifty watt output.
- Å Includes Microphone and power leads.
- Å Does not include mobile mounting bracket.
- Å Can be programmed from a computer with optional programming cable and Software.
- Å Can be configured for cross band repeat.
- Å Requires external 12 volt power supply or 12 volt battery.
- Å Available for on line from HRO for \$320.
- Å Does not include mobile mounting bracket.

Base or Mobile Radios

(Dual Band)

Å Yaesu FT 8800



- Å Simultaneous two Meter and 70 cm receive dual band frequency displays.
- Å Fifty watt output.
- Å Includes Microphone and power leads.
- Å Can be programmed from a computer with optional programming cable and Software.
- Å Can be configured for cross band repeat.
- Å Requires external 12 volt power supply or 12 volt battery. supply or 12 volt battery.
- Å Available for on line from HRO for \$330.

Base or Mobile Radios

(Dual Band)

Å Yaesu FTM-400XDR



- Å Simultaneous two Meter and 70 cm receive dual band frequency displays.
- Å 50 watt output.
- Å Includes Microphone and power leads.
- Å Built-in GPS and supports APRS
- Å Digital Mode: C4FM (System Fusion)
- Å Requires external 12 volt power supply or 12 volt battery. supply or 12 volt battery.
- Å Available for on line from HRO for \$410.

Base Station Power Supplies

⌘ Astron RS12

\$ 90



⌘ Astron SL15R - 12 volt
15 amp Power supply

\$ 135



⌘ Alinco DM 330MVT -
12 volt 30 Amp PS

\$ 160



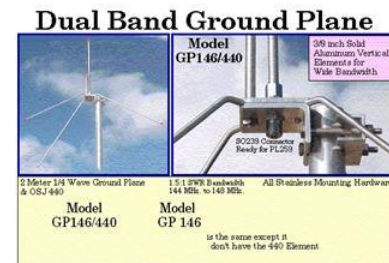
⌘ MFJ 4128 – 12 volt
28 amp Power Supply

\$ 85

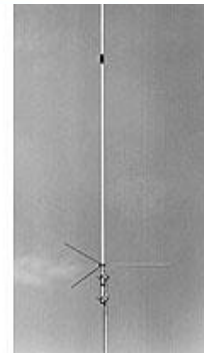


Base Station Antennas

Å Arrow Antenna 2M/440 \$ 48
Base Antenna



Å Comet GP3 (4.5/7.2 dBi) \$ 100
2M/220/440 Base Antenna



Å MFJ 1526 2M/440 Base (low radiation angle) \$140



Now It Is time To Get On The AIR

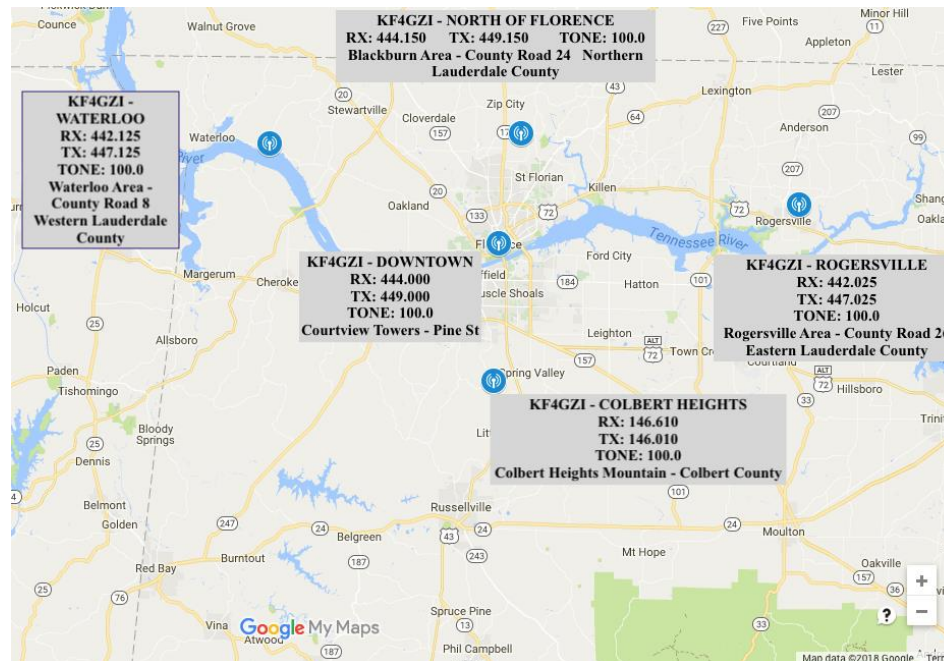
Å There are many local amateur radio operators (referred to as Elmer's) out there to help:

- ï To assist you in selecting the right radio, antenna and power supply.**
- ï To assist you in assembling your station.**
- ï Answer your questions.**
- ï Help you make your first contact.**

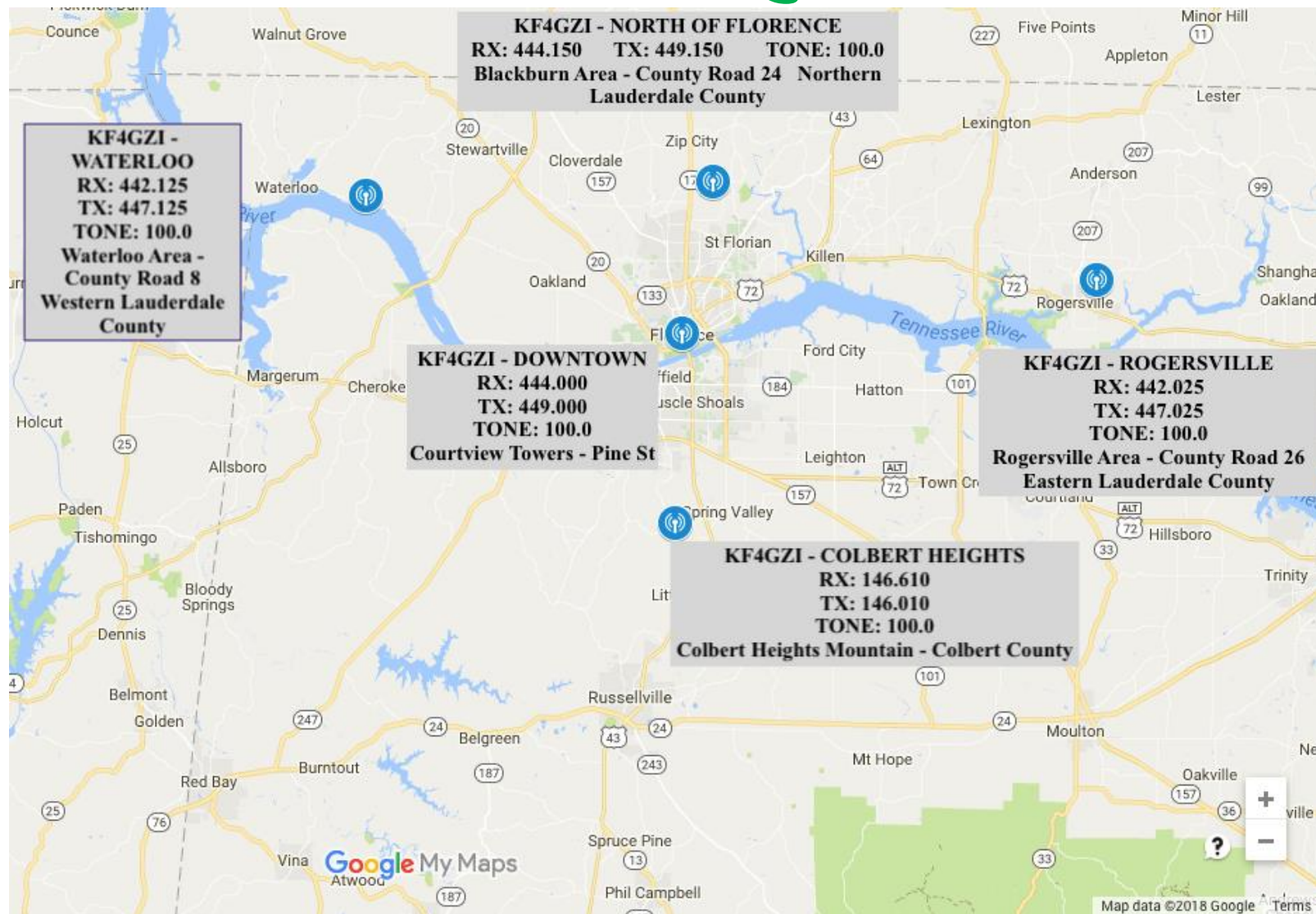
Now It Is time To Get On The AIR

Look for local nets that you can check into:

- The AENJ net – every weekday at 6:00 pm on the KF4GZI linked repeaters



KZ4GZI Repeaters



Now It Is time To Get On The AIR

- Å Try tuning into these nets and becoming familiar with their operation.**
- Å Join in the nets, they are always happy to have new participants.**
- Å Don't worry about making mistakes on the air all the nets will gladly help you.**
- Å The linked repeaters are available for anyone to use, even when the net is not active.**

Attend Local Club Meetings

Å Muscle Shoals Amateur Radio Club

- ï <http://www.msarc.org>
- ï 9:00 am the first Saturday of each month at the Florence Lauderdale Public Library
- ï 7:00pm the third Thursday of each month at the Colbert County EMA

Å Local Ham Breakfast (NOT club function, open to all amateur radio operators)

- ï 9:00am each Thursday at Homeside Restaurant on Huntsville Rd.

Congratulations On Your Promotion To General

Now that you have passed the General license exam you can experience more Amateur Radio fun and start talking around the world.



Now You're a General

- ⚡ You now have phone privileges on the HF Bands.**
- ⚡ You will need a new radio for the HF bands.**
- ⚡ You need a higher current power supply for your 100 watt radio (most HF Radios are 100 watts) requiring 12 (13.8) Volts at approximately 22 amperes.**
- ⚡ You will need a new antenna(s).**
- ⚡ You may need an antenna tuner.**

Choosing HF Radios

Å Your Budget.

Å Base or mobile operation?

Å Bands?

Å Type of communication?

ï Phone – Filters, DSP?

Å Many modern transceivers have built in DSP.

Å Digital or CW operation

ï Optional CW Filters?

ï Digital port?

Choosing HF Radios

Å Built in antenna tuner or external antenna tuner?

- ï Built in tuners have limited range but are convenient.**
- ï External tuner (manual or automatic) have a wider VSWR range.**

Å Antenna(s) ?

- ï Base Station or Mobile?**
- ï Commercial?**
- ï Home built?**
- ï Wire (Dipole, NVIS, Other)?**

Entry Level Radios for HF



Alinco DX-SR8T

\$570

- Å Covers all HF amateur bands from 160m to 10m in SSB, CW, AM and FM modes.
- Å Output power is 100W PEP SSB/CW and FM, 40W in AM with low power settings for QRP operation.
- Å General coverage receiver covers 135KHz to 30MHz in all modes.
- Å Detachable front control panel.

Entry Level Radios for HF



Alinco DX-SR8T (continued)

\$570

- Å Direct DATA entry via the key pads or tuning knob
- Å Reject unwanted signals with the IF shift.
- Å Choose a narrow filter, a noise-blanker or use RIT/TXIT to stay out of QRM.
- Å An electronic keyer unit is standard for CW, Semi or Auto break-in, split, narrow filter, AGC and RF gain.
- Å A dynamic microphone and a speech compressor come standard for sharp, clear and powerful transmit audio.

Entry Level Radios for HF



Icom IC 718
\$625

- Å Coverage of All short-wave and HF amateur bands
Covers the 160m to 10m.
- Å Output power is 100W SSB, and CW, 40W in AM
- Å General coverage receiver covers 500KHz to 30MHz
in all modes.
- Å Front mounted speaker.
- Å Minimum number of controls for easy operation.

Entry Level Radios for HF



Icom 718 (continued)
\$625

- Å Adjustable level noise blanker.
- Å A double-conversion system to help minimize image and spurious responses.
- Å Optional built in DSP.
- Å Noise reduction, pull desired AF signals from noise.
- Å IF Shift Function.
- Å Microphone speech compressor.
- Å Built in VOX.

Entry Level Radios for HF



Yaesu FT 450D

\$780

- Å Coverage of All short-wave and HF amateur bands Covers the 160m to 6m amateur bands in SSB, CW, AM and FM modes.
- Å Output power is 100W SSB/CW and FM, 40W in AM
- Å Comes with an Automatic Antenna Tuner
- Å Illuminated Key Buttons
- Å Main Dial and Knobs give "Big Radio" feel.
- Å 400 MHz built-in fast and robust IF DSP.
- Å 10 kHz bandwidth Roofing Filter in the 67.899 MHz 1st IF.
- Å Adjustable IF Width and IF Shift
- Å Contour filtering system

Entry Level Radios for HF



Yaesu FT 450D (continued)
\$780

- Å IF Notch filter allows you to eliminate interfering beat note or carrier signals from inside the receiver passband.
- Å The Digital Noise Reduction (DNR), utilizes mathematical algorithms to analyze and suppress noise
- Å Manual Notch Filter to reduce interfering beat tone/signal.
- Å Digital Voice Recorder to Record and playback up to 20 seconds of audio.
- Internal built-in 300Hz, 500Hz and 2.4kHz CW IF Filters.
- Built-In Electronic Keyer

Entry Level Radios for HF



Yaesu FT 991A

\$1,200

- Å Coverage of All short-wave and HF amateur bands Covers the 160m to 6m amateur bands in SSB, CW, AM and FM modes.
- Å Includes 2 meters and 70 centimeters FM and C4FM.
- Å Output power is 100W SSB/CW and FM, 40W in AM , 50 watts on 2M and 70 cm.
- Å Automatic Antenna Tuner for 180 to 6 meters
- Å Real-time spectrum scope
- Å Color Waterfall Display on 3.5" TFT Display
- Å Roofing Filters 3 kHz/15 kHz Standard
- Å Contour filtering system

Entry Level Radios for HF



Yaesu FT 991 (continued)
\$1,200.

- Å Auto IF Notch filter allows you to eliminate interfering beat note or carrier signals from inside the receiver passband.
- Å 32 bit high speed DSP for random noise cancelation
- Å Manual Notch Filter to reduce interfering beat tone/signal.
- Å Triple Conversion receiver design
 - Internal built-in 300Hz, 500Hz and 2.4kHz CW IF Filters.
 - Built-In Electronic Keyer

Additional HF Radios



Kenwood TS 480 HX

\$1,120



Icom IC 7100

\$ 1,020



Elecraft KX3 (QRP)

\$1,000

HF Radio Power Supplies



Alinco DM 330MVT

\$160



MFJ-4225MV

\$90



Astron SS30M

\$150



MFJ 4128

\$ 85

HF Radio Antennas

Wire antennas are the simplest and least expensive for base stations.

Å They can be single or multiband

Å They are long (1/2 wavelength) on lowest band

ı 260 ft for 160 meters, 130 ft for 80 meters, 68 ft for 40 meters

Å If built properly do not need an antenna tuner

Å Requires trees, buildings or poles to string between.

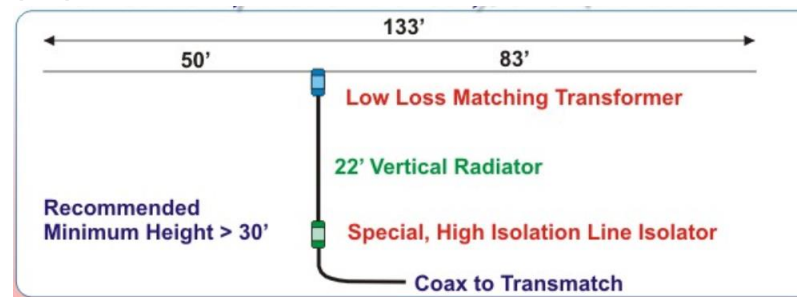
Å Should be => ¼ wave above the ground

All Bands 80 - 10 meters, + 30, 17, 12 m

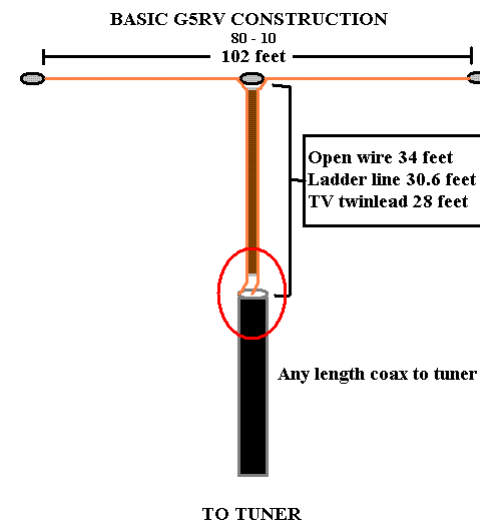
HF Wire Antennas

⚡ The Carolina Windom \$80 from Amateur Radio Supplies

⚡



⚡ The G5RV \$50 from MFJ



HF Wire Antennas

Å Alpha Delta DX 20 (20 Meter dipole) \$60

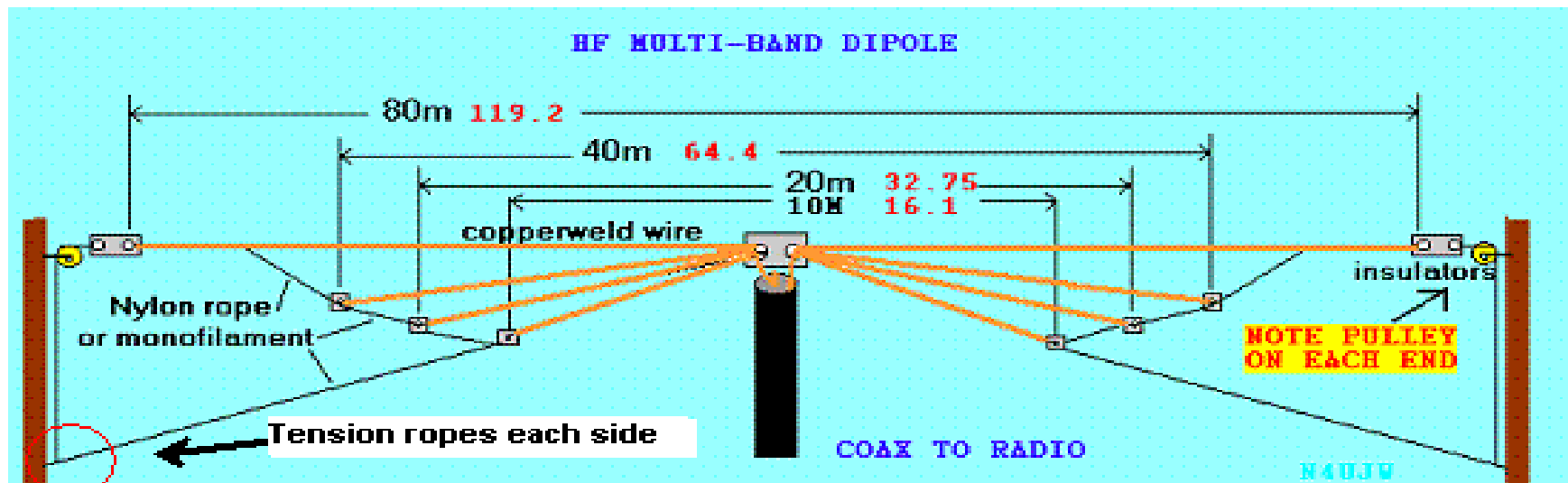


Available for most bands

Å Home Built

ï Simple dipoles can be built for low cost

HF Wire Antennas



Tension rope is not tied to pulley rope in picture. It is tied near location of pulley rope down on supports within easy reach. It is tied last after final SWR adjustment and the antenna is in it's final position.

Suggested total lengths:

80 meters - 120 feet

40 meters - 65 to 66 feet

20 meters - 34 feet

10 meters - 17 feet

These lengths are not exact. Some tuning may be required. Use the standard formula $468 / \text{freqmhz}$ for total feet for each band (freq) of interest. Adjust each length longer or shorter as needed.

HF Mobile Antennas

Å Single band Ham Sticks around \$ 30



Å Multiband Screwdriver antennas \$400

(note) Both antennas require a base for mounting



HF Field Antennas

Å Budi-Pole

\$200 - \$400



HF Base Antennas

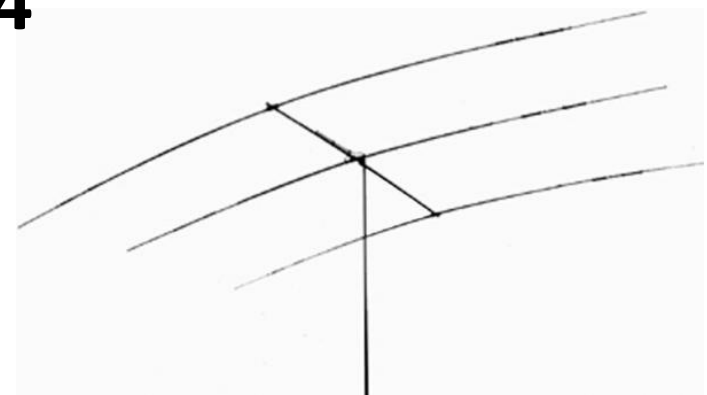
Å Cushcraft R9

\$700



Å Hy-Gain TH-3JRS

\$324



Now You Have Passed the Extra Exam

- Å You passed the most difficult license test with 50 questions from a 700+ question pool.**
- Å You have learned a lot on many subjects related to amateur radio.**
- Å You will be able to help other hams through your knowledge.**
- Å Just because you passed the exam you will still have a lot to learn.**

Now You Have Passed the Extra Exam

- Ⓐ Even if you just memorized the answers I don't think you can go through that memorization process without learning a lot more than you think.**
- Ⓐ Whether or not you use what you learn while studying for the Extra Class license is immaterial. An Extra Class license holder is supposed to know about many aspects of amateur radio, and in some depth. That's the whole idea of the Extra Class license.**

Now You Have Passed the Extra Exam

- ⚠ The Extra license gives you prestige and access to extra portions of the bands. Extra gives you twice as much of the 80M band and a more modest gain on 40, 20, and 15M.**
- ⚠ If the bands are crowded, the extra class sections will be less so. This could be an advantage in a contest.**
- ⚠ Extra License is also required to be a Volunteer Examiner to administer license exams for all three classes of licenses.**

As an Extra You Do Not Need Additional Equipment

Ⓐ The station you have for HF communication using your general privileges will be all you need to operate in the extra band segments.



Use Your New Knowledge

- ⚡ Become Volunteer Examiner (VE) and assist in conducting license test sessions.
- ⚡ Be an “Elmer” and help others in the hobby.
- ⚡ Become an ARRL registered instructor and Teach a Technician, General, or Amateur Extra license class.
 - What you need to teach a class can be found on www.ad7fo.com
- ⚡ Become an ARRL Technical Specialist and help other hams in your area.

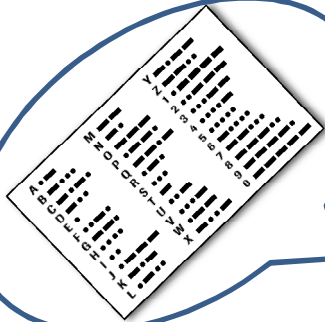
Use Your New Knowledge

- ⌚ Present training for your local amateur radio club and help promote interest in the hobby.
- ⌚ There are many short amateur radio presentations available from ARRL and on the web that you can use. Also on www.ad7fo.com
- ⌚ Develop your own training on an aspect of amateur radio you are passionate about.

It Is Time To Enjoy The Hobby Whatever Your License Class



Questions?



IF I LEFT ENGINEERING AND
BECAME A MANAGER WOULD
I BE AS SEXY AS I AM
NOW, LIZ?



S. Adams E-Mail: SCOTTADAMS@aol.com

I THINK IT WOULD
DECREASE YOUR SEX
APPEAL BY 17%. BUT
THAT'S JUST A
PLANNING NUMBER.



WHAT IF I GOT
MY HAM RADIO
LICENSE TO
COMPENSATE FOR
THE LOSS?

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LOOK AT MY
ARM: GOOSE
BUMPS.