



Ham Radio for EmComm



South Pasadena Amateur Radio Club

September 2, 2026

What Is Ham Radio Anyway?

Amateur Radio, also known as “ham radio,” is both a service and a hobby. It enables many activities:

- Public service
- Scientific experimentation
- Recreation



Why “Amateur”? Why “Ham”?

- “Amateur” in this case doesn’t mean “unskilled,” it means “non-commercial” or “hobbyist.”
- “Ham” originally DID mean unskilled. It was an insult from telegraph operators: “ham-fisted.” But it became a source of pride and was embraced.



Why Choose Amateur Radio Over GMRS?

Many more frequencies

+

Higher power limits

=

Flexibility and Distance

Plus, other modes including powerful digital tools



Amateur Radio Band Plan

US Amateur Radio Bands

US AMATEUR POWER LIMITS

FCC 97.119 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 15 kW PEP.

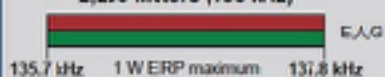
Effective Date for
2,200 and 630 Meters
to be announced



ARRL The national association for
AMATEUR RADIO

On March 28, 2017, the Federal Communications Commission adopted rules that will allow Amateur Radio access to 472-479 kHz (630 meters) and to 135.7-137.8 kHz (2,200 meters). However, amateurs cannot use these frequencies until 30 days after the Report and Order is published in the Federal Register and the final procedures for existing stations with the Utilities Telecommunications Council (UTC) have been approved and announced. At the time this chart was created, the Report and Order had not been published and the UTC online registration site is not yet available. Follow ARRL news for further information. New charts will be published at www.arrl.org/graphical-frequency-allocations when the bands are fully available for use.

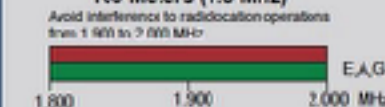
2,200 Meters (135 kHz)



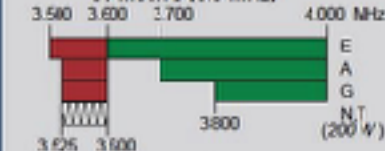
630 Meters (472 kHz)



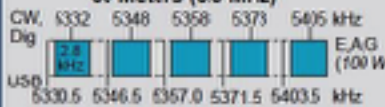
160 Meters (1.8 MHz)



80 Meters (3.5 MHz)

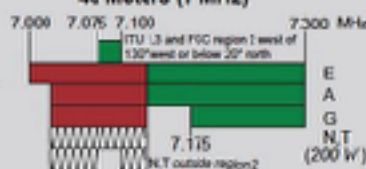


60 Meters (5.3 MHz)



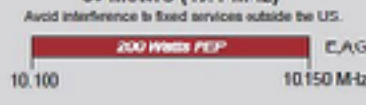
General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31, and other digital modes such as PACTOR II. Only one signal at a time is permitted on any channel.

40 Meters (7 MHz)

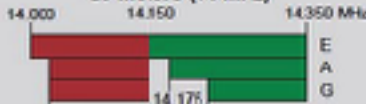


See Sections 97.305(x), 97.307(e)(1), and 97.301(e). These exemptions do not apply to stations in the continental U.S.

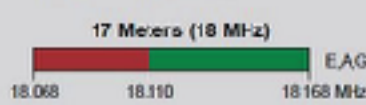
30 Meters (10.1 MHz)



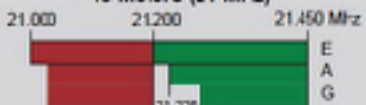
20 Meters (14 MHz)



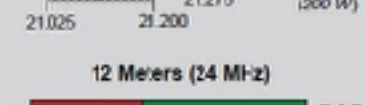
17 Meters (18 MHz)



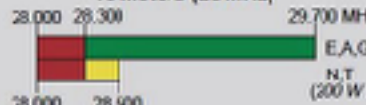
15 Meters (21 MHz)



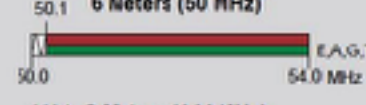
12 Meters (24 MHz)



10 Meters (28 MHz)



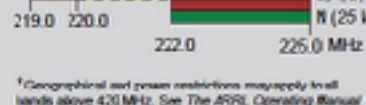
6 Meters (50 MHz)



2 Meters (144 MHz)

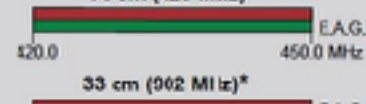


1.25 Meters (222 MHz)

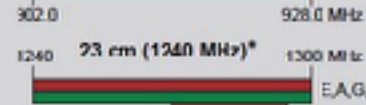


*Geographical and power restrictions may apply to all bands above 420 MHz. See The ARRL Operating Manual for information about your area.

70 cm (420 MHz)*



33 cm (902 MHz)*



23 cm (1240 MHz)*



All licensees except Novices are authorized all modes on the following frequencies:

2300-2110 MHz	10.0-10.5 GHz	122.25-123.0 GHz
2390-2450 MHz	24.0-24.25 GHz	134-141 GHz
3300-3600 MHz	47.0-47.7 GHz	241-268 GHz
5650-5825 MHz	76.0-81.0 GHz	All above 275 GHz

± No pulse emissions

KEY

Note:

CW operation is permitted throughout all amateur bands.

MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.

Test transmissions are authorized above 5.1 MHz, except for 319-320 MHz.

- = RTTY and data
- = phone and image
- = CW only
- = SSB phone
- = IRLP phone, CW, RTTY, and data
- = Fixed digital message forwarding systems only

E = Amateur Extra
A = Advanced
G = General
I = technician
N = Novice

See ARRLWeb at www.arrl.org for detailed band plans.

ARRL We're At Your Service

ARRL Headquarters:
800-394-6200 (fax: 800-394-6200)
email: info@arrl.org

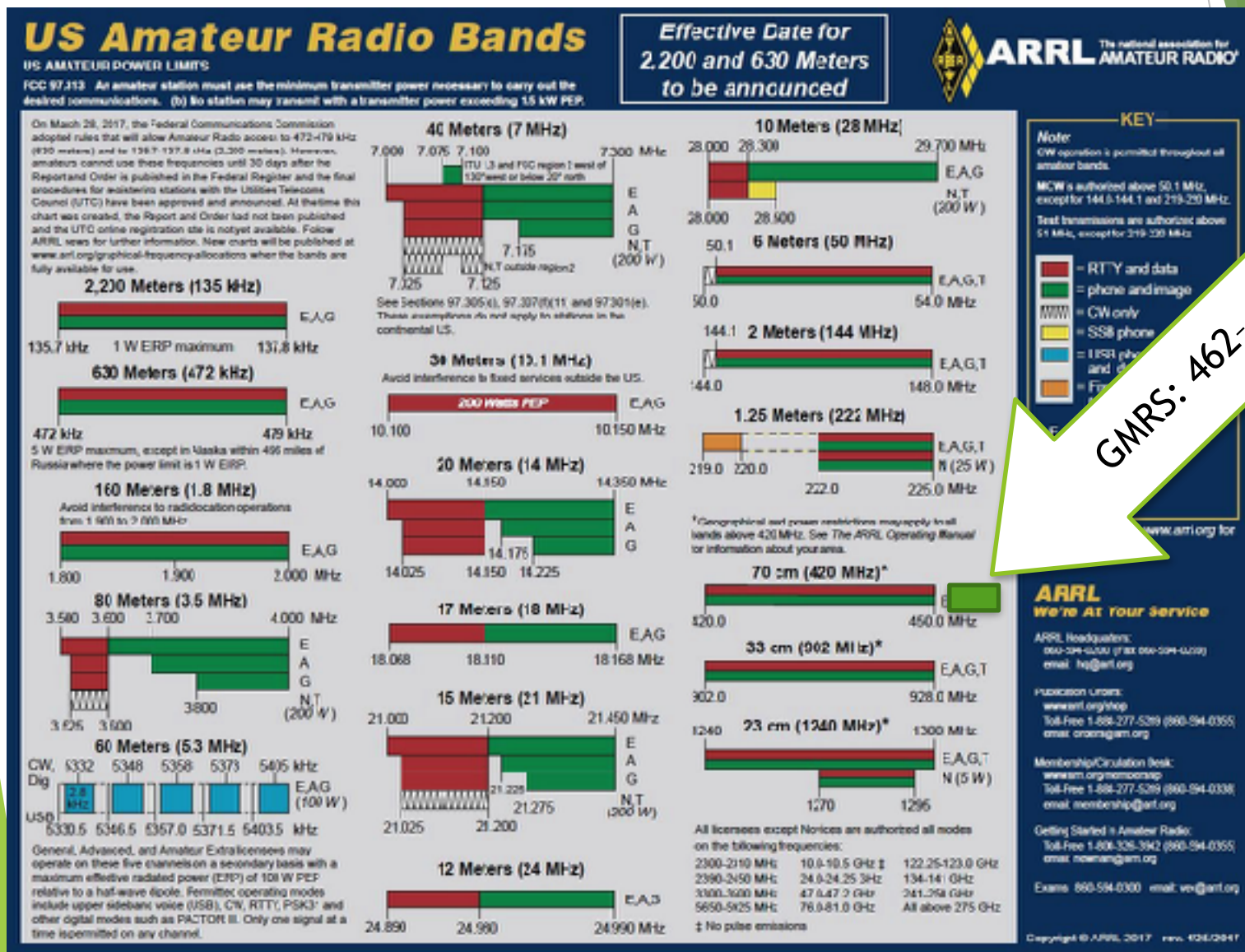
Publication Orders:
www.arrl.org/shop
Toll-Free 1-888-277-5289 (800-594-6355)
email: ordering@arrl.org

Membership/Circulation Desk:
www.arrl.org/membership
Toll-Free 1-888-277-5289 (800-594-6355)
email: membership@arrl.org

Getting Started in Amateur Radio:
Toll-Free 1-800-328-3942 (800-594-6355)
email: news@arrl.org

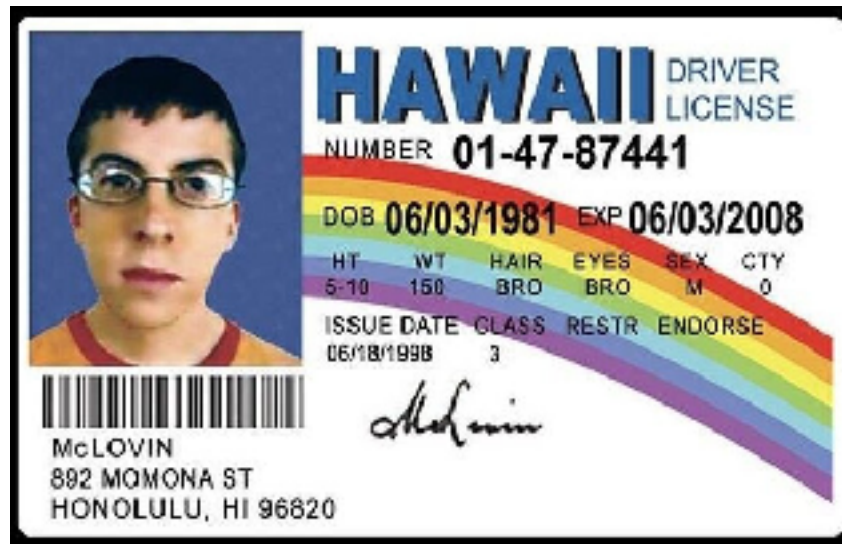
Exams: 800-594-6300 email: ve@arrl.org

Amateur Radio Band Plan



GMRS: 462-467 MHz

What About That License?



Unlike GMRS, you must pass a test to obtain an amateur radio license.

How Hard Is This Test?

There are actually THREE tests, one for each class of license.

TECHNICIAN CLASS - entry-level

- 35-question, multiple choice test
- Drawn from a pool of 409 questions
- Must get 26 correct

It's not that hard. You don't need to learn Morse code. Kids can pass it!



What Privileges Does the Tech License Cover?

- All modes on frequencies 30 MHz and up (VHF/UHF)
- Voice privileges on 28.3-28.5 MHz (the 10m band)

For EmComm, a technician license is sufficient.



How Do I Study for the Test?

HamStudy.org

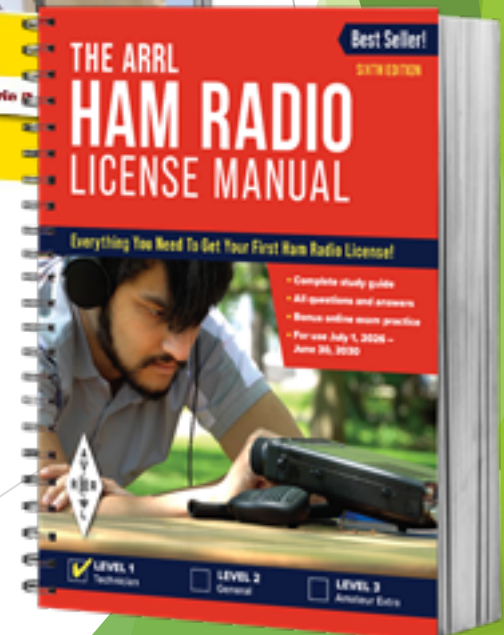
or

Study guide by Gordon West

or

Study guide from ARRL

HamStudy.org is free and effective!



HAMSTUDY



Where Do I Take the Test?

- In person at Huntington Hospital
Second Saturday of each month
Administered by ARES LAX Northeast

Register at <https://hamstudy.org/sessions/laxne>

- Online via video conference
Times vary
Administered by GLAARG

Register at <https://hamstudy.org/sessions/lagroup/remote>



How Much Does It Cost?

- \$15 examination fee for Huntington/ARES option or \$10 fee for GLAARG option
- \$35 FCC fee for a ten-year term
- You'll need a free FCC Registration Number before the day of your test. Create an account here:



How Much Are the Radios?

You have a wide range of radios to choose from.
They don't have to be expensive!



Baofeng UV-32
10W, Tri-Band, GPS
~ \$50



Yaesu FT-60R
5W, Dual-Band
~ \$200

How Do I Choose a Radio?

Ask a friendly SPARC member!



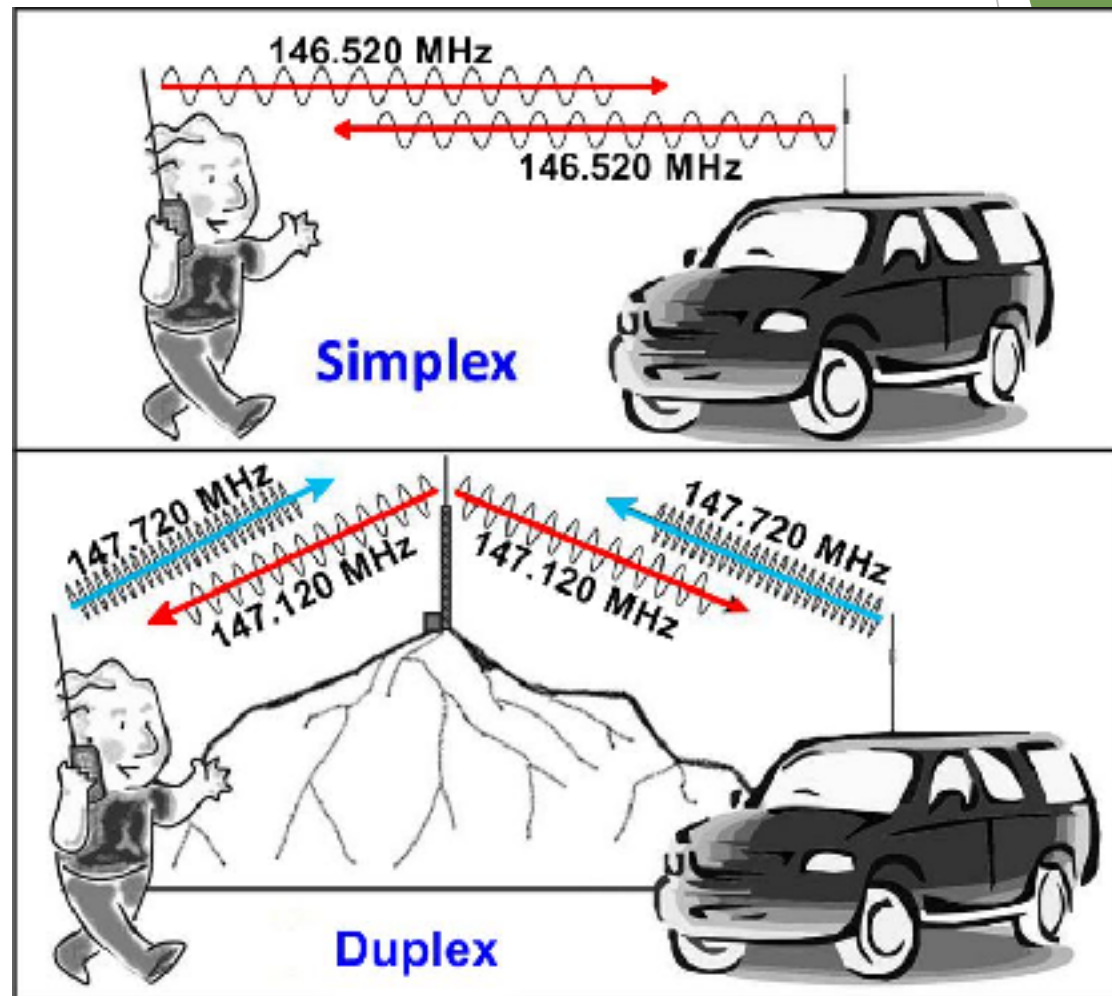
- Beware of inexpensive radios. Some have “dirty” signals or poor build quality.
- You’ll want to upgrade the stock antenna.



How Can a Tech Help in an Emergency Situation?

- Simplex voice
- Repeaters

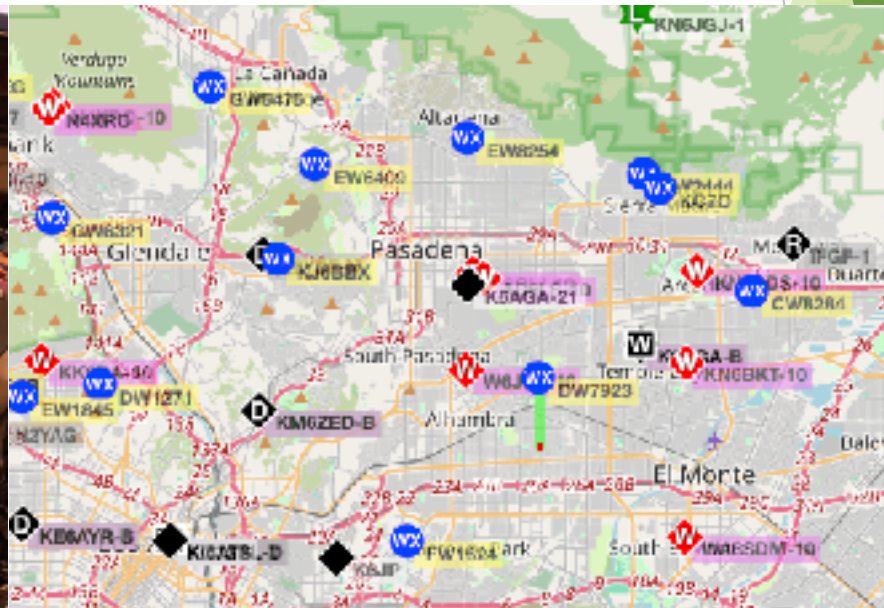
Like GMRS
with more
infrastructure



How Can a Tech Help in an Emergency Situation?

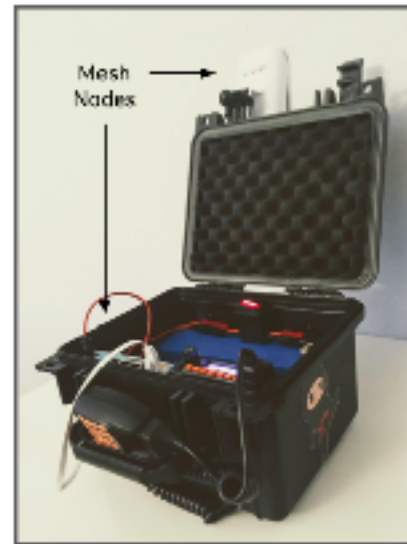
The power of digital modes:

- Winlink: email over radio
- APRS: locations, messages, status reports



How Can a Tech Help in an Emergency Situation?

Mesh Networking — If you thought LoRa was cool...



The AREDN Mesh is basically WiFi but using ham radio frequencies.



Where Do I Go From Here?

You don't have to do this alone!

SPARC has guides and tips shared by members.

Let's take steps now that will help our families, neighbors and community later.

www.southpasradio.org/resources-links/prepare/



Connecting with Others

Next steps to a resilient community



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Next steps to a resilient community

If you get your ham license, you can join ARES:
Amateur Radio Emergency Service



Our local ARES district
is LAX Northeast.
Visit laxnortheast.org



SPARC

Thank You!

SouthPasRadio.org

contact@southpasradio.org

