

Introduction to Amateur Radio

Eric Hansen, KB1VUN

Amateur Radio is a licensed service

- You must have a license
 - Three license categories, different privileges
 - Licenses are issued by the FCC, exams are administered by volunteers
 - Multiple-choice exam questions cover theory, rules, and operating practices
- Amateur radio is a public service
 - Emergency communication when normal infrastructure is broken
 - Communication for other events, e.g., The Prouty
 - But emergencies are rare, everything else is direct or indirect practice
 - Largely self-policing, but FCC will prosecute abusers

Ham radio vs other services you may know about



- Commercial broadcast radio
 - AM: 520-1610 kHz, 10 kHz channels, 50 kW limit, licensed
 - FM: 87.5-108.0 MHz, 200 kHz channels, 100 kW limit, licensed
- Citizens Band: 26-27 MHz, 40 channels, 4-12 W (depending on mode), no license
- Family Radio Service (walkie-talkies): 462 & 467 MHz, 14 channels, 500 mW, no license
- **Amateur radio** is licensed, two-way (no broadcasting), up to 1.5 kW (mostly), variety of frequency bands. Must be unencrypted, noncommercial, no music. Also supposed to be non-profane and non-political, but...

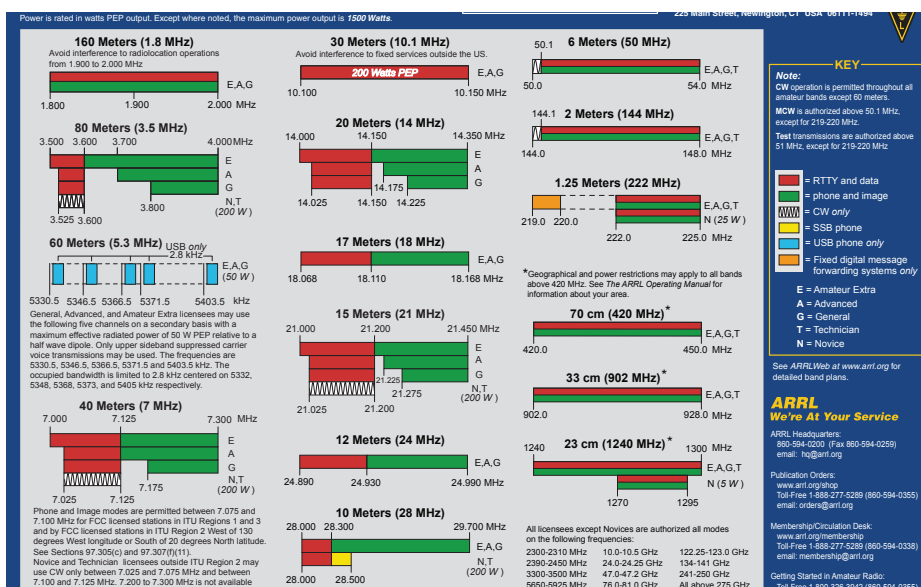
Operating modes



- Analog (speech)
 - AM (nearly obsolete)
 - Single sideband (SSB, better version of AM)
 - FM
- Digital
 - Morse code (CW)
 - Radioteletype (RTTY)
 - More advanced digital modes, including digital voice
 - Although digital data is "coded", it is not encrypted. Anyone with the right equipment can listen in.



<http://www.ntia.doc.gov/files/ntia/publications/2003-allochrt.pdf>



Amateur radio bands

Amateur Radio in Practice

- Local amateur radio
 - 2m and 70cm FM voice and data
 - Line of sight, range extended by repeaters: one inbound frequency, one outbound frequency
- Distant amateur radio
 - HF and 6m (occasionally higher), skywave / ionosphere
 - Contests, DX, “rag chewing”
- Experimental amateur radio
 - UHF, microwave, earth-moon-earth, etc.

What does W1ET have?

- Icom IC-736 HF / 6m all-mode transceiver
- Yaesu FT-847 HF / 6m / 2m / 430 MHz all-mode transceiver
- Two VHF all-mode transceivers
- Three VHF / UHF FM transceivers (for local communications)
- HF and VHF antennas
- Currently, no “shack” space — plan to operate “portable” through the summer, then make longer-range plans in the fall.

Upcoming exam sessions



- Find an exam near you:

<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

- Exam fee is \$15. If you pass, you may take the next exam on the spot, for no additional charge.