What Works, What does not...

Operating

Building / Restoring

Technology

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Operating Issues / Opportunities for the recently licensed or to be licensed Ham

- “What do I do now?”
- Local radio clubs are very unique in their mission, some are fun clubs that try to engage the membership with various activities (repeater operation, guest speakers), others are more directly coupled to city government to support emergency services
  - Find a club that fits with what you want to do, or would like to try to do

Operating Issues / Opportunities for the recently licensed or to be licensed Ham

- “What do I do now?”
- Join a local club, find an Elmer (mentor), or just start listening, nets can show you how.....
- How do I find out what stations are out there
- Internet based repeater listings (VHF/UHF)
- https://www.repeaterbook.com/repeaters/index.php?state_id=06
- Internet SDR radio receiving stations (VHF/UHF/HF/SWL)
    - http://www.websdr.org/

Operating Questions for the recently licensed

- First (or second) radio choice?
- What are the intended use cases?
- VHF vs UHF propagation
  - Radio range
  - Rural / Urban / Marine / Airborne settings
  - Terrain / Buildings / Obstructions
  - Hand held vs mobile

Operating Questions for the recently licensed

- My HT comes with an antenna
  - Is an after market antenna needed?
  - The “stock” antenna is a deliberately small antenna to address size concerns with HT use, after market antennas (long) work much better (longer range) but you have to arrange how to place the HT so that you avoid spearing yourself or others near you.
  - Emergency communicators typically have special vests with antenna loops to hold the antenna away from you
  - Which antenna to use depends on where you will be and your surroundings

Operating Questions for the recently licensed

- My mobile radio does not come with an antenna what should I do?
  - Emergency communicators typically have high gain (long) vertical whip antennas on their car
    - High gain antennas tend to get beat up hitting garage doors, parking garage roofing and in extreme cases bridges
  - Which antenna to use depends on where you will be and your surroundings
  - Consider switching between both short and long antennas – kits can provide both on a single base

Operating Opportunities for the recently licensed

- Voice is the predominant mode but not the only one for VHF / UHF bands
- Packet (text messaging) radio is prevalent in emergency communications systems
- Mesh networks (Micro wave) use amateur bands to facilitate “open” networks for computer, phone, video, data telemetry communications (but not the Internet)
- https://www.arednmesh.org/

Operating Opportunities for the “General” licensee

- Phone and CW are the predominant modes but not the only ones for HF bands
  - CW works really well for DX contacts
  - Phone is the easiest for new HF operators
- PSK31, JT65, RTTY are classic digital modes for HF
  - These are computer assisted modes that started the introduction of processing power between the operator and the radio

http://www.arrl.org/digital-modes

Operating Opportunities for the “General” licensee

- What is the most cost effective way to optimize my HF station to improve radio performance?
- If at all possible, use full size resonant beam antennas (Yagi), this greatly improves both reception and transmission of radio signals
- My station is a “home brew” 4 band fan dipole (80m/40m/20m/10m) that has a very low visibility footprint, but also affords very good radio operation in a small area, a beam antenna will not work at my home location
  - power lines are a safety concern
  - Vertically polarized antenna systems are more noisy

Operating Opportunities for the “General” licensee

- Requires HF radio and antenna system for either fixed or mobile operation
- Fixed location usually allows a more optimized (bigger) antenna system (longer range) than mobile antenna
- Mobile operation has power limitations
- Good operating practice implies that you understand your station limitations and avoid being a “Alligator”
  - Using appropriate power levels in operation given the restrictions of the operating environment
    - Be safe – avoid radiation hazards

http://www.arrl.org/files/file/Technology/tis/info/pdf/rfex1_2.pdf

Operating Confusion for any Ham

- Recent developments in Ham Radio
- Digital Vocoder Radio (VHF / UHF)
- Most major manufactures of ham equipment now are producing new models that are either DMR, P25, DSTAR, System Fusion based implementations of digital voice encoding and decoding that are incapable of significant bandwidth reductions and additional channel capacity, but there is no standard configuration, radio types are incompatible but can be networked, but not compatible network systems
  https://www.youtube.com/watch?v=6OCTCG9tkzQ

Operating Confusion for any Ham

Intro to DMR radio

http://www.k7bbr.net/hamfiles/dmr/DMR_DCARC_2018.pdf

https://sadigitalradio.com/digital-radio-how-tos/make-mmdvm-digital-repeater/

MultiMode Digital Voice

The Exciting New Trend in DV

Jim McLaughlin – KI6ZUM
Jim Moen – K6JM
Don Jacob – WB5EKU
Pacificon
Oct 21, 2017

Building / Restoration for any Ham

- A good fit for those who enjoy working with there hands
- Many commercial radio kits are available
- Hidden treasures can be found at local swap-meets (but know what you are buying)

https://www.electronicsfleamarket.com/

http://w6trw.com/index.php/w6trw-amateur-radio-club-swap-meet/

http://www.w6thw.com/ham_swap_meets.html

http://www.n7cfo.com/amradio/hf/hf.htm

Building / Restoration for any Ham

- I have built up my HF rig (Elecraft KX3) and my power amp (HF Projects 100Watt)
  - The amplifier build was a challenge, not for beginners but I now use it all the time for my 75M Western Country Cousins Net
    - contacts from San Diego, Vancouver BC and all in between
  - The 35Watt version is a much easier project and a lot less expensive
    - good for back packing

Issues for the long term Ham

- "Luddite" syndrome
  - Opponent of technical progress
- Fear of "Failure or the Unknown"
  - Combat with Knowledge then Experience
    - Where can I find out about "Leading edge new Technology in Amateur radio?"
      - TAPR – DCC conferences
      - https://www.hamradionow.tv/tapr-dcc
      - https://www.tapr.org/conferences.html
      - https://www.livefromthehamshack.tv/

Technology Opportunities for the long term Ham

- Recent developments in Ham Radio
  - Software defined radio (HF bands)
  - Most major manufactures of ham equipment now are producing new models that are SDR radios
  - More performance for a given price point
  - Audio quality is “different” than traditional dual conversion radios
  - More difficult to manipulate the extensive controls, significant learning on how to get the rig to work well

Technology Opportunities for the long term Ham

- Recent developments in Ham Radio
  - Digital Vocoder Radio (HF)
  - DV2 (open source) protocol is being adopted by some radio manufactures for HF rigs
    - easy to implement in SDR radios
  - https://www.youtube.com/watch?v=giZi4Y7FIwM

Technology Opportunities for the long term Ham

- Recent developments in Ham Radio
  - FT8 digital protocol (HF)
  - 15 seconds for transmit / receive packet
  - Allows keyboard to keyboard contacts
  - Very sensitive for reception (enables DX contacts with low power levels)
    - Do not need expensive antenna systems or complicated radio setups
  - https://www.youtube.com/watch?v=EimvUVWsGI4