

**DECATUR  
MAKERS**

Ham Radio  
Lunch and Learn

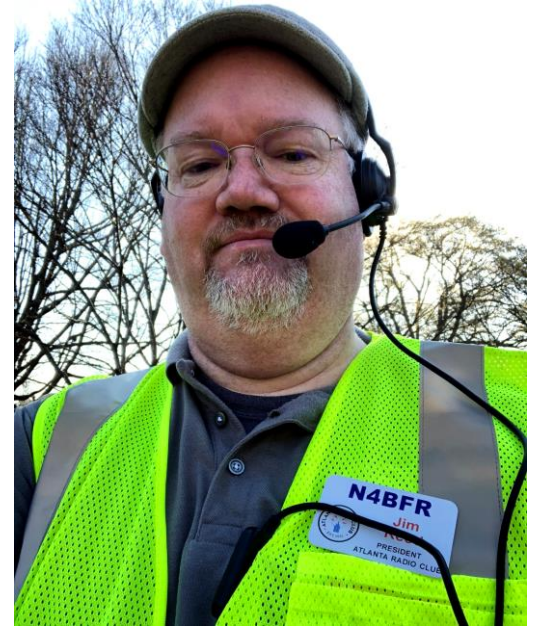
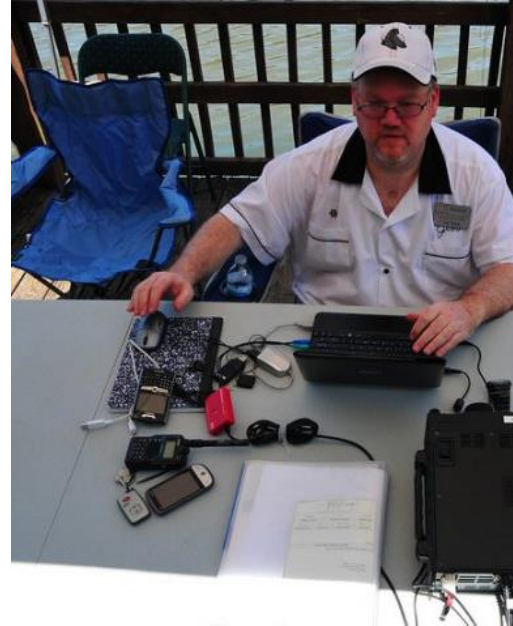
Monday 12:30 PM



# HAM RADIO LUNCH & LEARN

APRIL 6, 2020

BY JIM REED – N4BFR



# ABOUT ME

# OVERVIEW

- What is Ham Radio
- Three elements of Ham Radio
- What it isn't
- Licensing
- What can you do now?
- What's next?





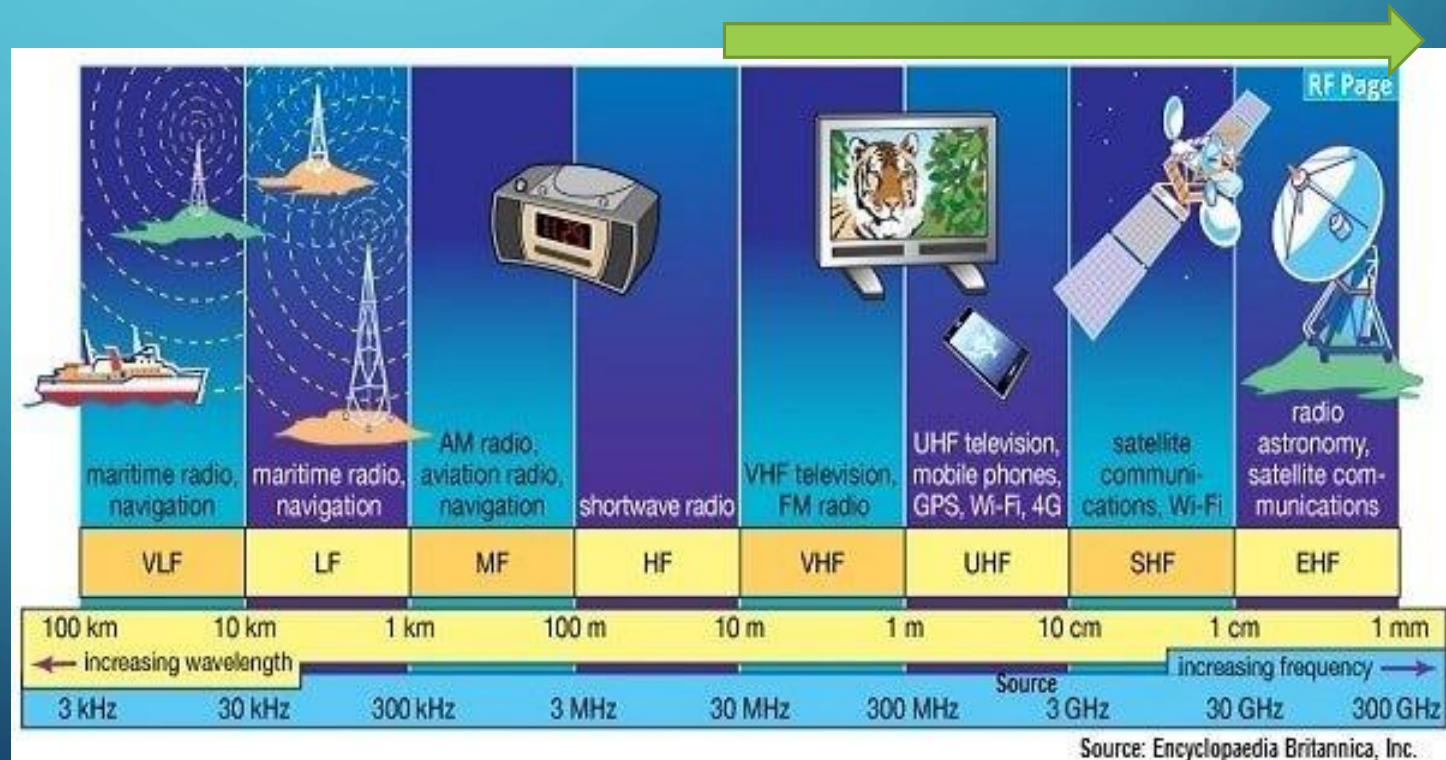


## FCC DEFINITION

- The amateur and amateur-satellite services are for qualified persons of any age who are interested in radio technique solely with a personal aim and without pecuniary interest. These services present an opportunity for self-training, intercommunication, and technical investigations. Twenty-nine small frequency bands throughout the spectrum are allocated to this service internationally. Some 1,300 digital, analog, pulse, and spread-spectrum emission types may be transmitted.

# WHAT DO WE MEAN BY BANDS

- Bands are different groups of frequencies allocated for ham radio use in some way.
- Generally, lowest level hams can use 10 Meters and “above” while additional licensing is needed for HF and ULF.



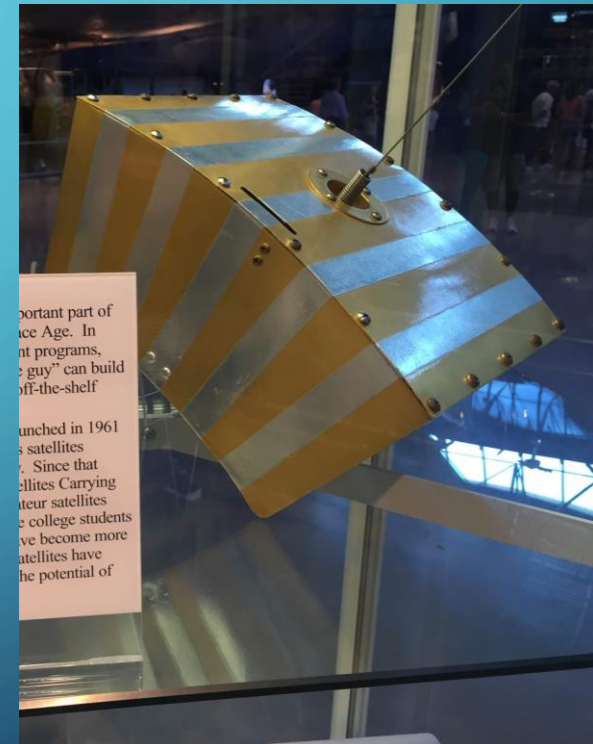
# THREE KEY FOCUS AREAS



Public Service  
Communications



International  
Communications



The Science of Radio



# PUBLIC SERVICE COMMUNICATIONS



Public Service  
Communications

Why we're needed:

- "When All Else Fails"
- Groups like Amateur Radio Emergency Service & Skywarn
- Supporting things like Marathons, Road Races for practice
- Local and International communications
  - Post-Disaster Communication in Louisiana, Puerto Rico
  - Severe Storm Spotting

Tools we use:

- Local: Handhelds, Mobile (Car) Radios, Repeaters
- Digital Modes: D\*Star & Digital Mobile Radio (DMR)
- HF for Long Distance

Celebrity Spotlight: Actor Tim Allen (KK6OTD) has Ham Radio as his hobby on the "Last Man Standing" TV Program

# INTERNATIONAL COMMUNICATIONS



International  
Communications

Why we're needed:

- "When All Else Fails"
  - Haiti, Puerto Rico, Katrina
  - Public Service & Health and Welfare
  - SATERN (Salvation Army)
- Support Other Groups
  - Military Auxiliary Radio System - 94 Years Old!
- International Fellowship
  - DX'ing, Contesting, Radio Sport

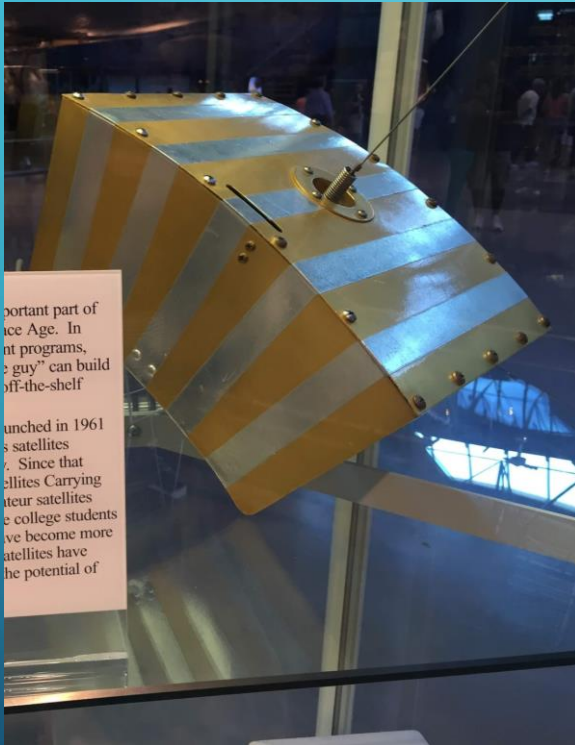
Tools we use:

- HF for Long Distance Communications
- Morse Code (Not Required), Sideband (Shortwave), Digital Modulation

Celebrity Spotlight: Eagles band member Joe Walsh (KU4UB) is an avid Morse Code operator.



# THE SCIENCE OF RADIO



The Science of Radio

Why we're needed:

- Experimenting and Making

Tools we use:

- RF Modulation: Nobel Prize winning Physicist Joe Taylor (K1JT) creates experimental "low noise" methods of modulation
- Circuit Design: Build a radio, no FCC certification needed
- Satellite: Use an amateur satellite or maybe talk to an astronaut on the ISS.
- Wireless telemetry: High Earth Orbit balloons, rocketry

Celebrity Spotlight: Owen Garriott, W5LFL was the first radio amateur to operate in space on Shuttle Mission STS-19 (1983)

# SORRY, NOT US



NO TIME TRAVEL



NO 10-4 GOOD BUDDY



NO MUSIC

# LICENSING

- Three Levels of Licenses
  - Technician: Primarily focused on local communications (Public Service). Good “License To Learn” level.
  - General: Adds many but not all parts of the HF bands. Testing includes deeper electronics knowledge (simple circuits) and safety.
  - Amateur Extra: Adds remaining privileges, operating from most foreign countries, conducting Volunteer Examinations. Testing includes radio and electronics theory.





# GETTING LICENSED

- In Person Test with one offered around Metro-Atlanta most weekends.
- Some sites are Free (PDK Airport, Second Sunday at Noon), some are \$15
- 35 Multiple Choice from a pool of 432 questions in 10 areas.

What is the meaning of the term  
broadcasting in the FCC rules for the  
Amateur Radio Service?

- A. Two-way transmissions by amateur stations
- B. Transmission of music
- C. Transmission of messages directed only to amateur operators
- D. Transmissions intended for reception by the general public

What is a transceiver?

- A. A type of antenna switch
- B. A unit combining the functions of a transmitter and a receiver
- C. A component in a repeater that filters out unwanted interference
- D. A type of antenna matching network

# ONCE YOU PASS...

- You'll get a call sign in a few days... something like KO4XYZ...
- As soon as you get this, you can get on the air... not before!
- You can customize your call sign later.



1-2 Char. Prefix  
K, N, W and some  
A combinations

Number  
0-9. 4 is the southeast  
US, 6 is California...

2-3 Char. Suffix  
AA to ZZZ with  
a few exceptions

# LISTEN WHILE YOU WAIT FOR A POST-COVID-19 WORLD...



## RADIO SCANNER

A scanner lets you listen to ham repeaters, aviation, NASCAR drivers, etc.  
- Analog Transmissions



## SHORT WAVE RADIO

A Shortwave radio lets you listen to Ham, Numbers Stations, Radio Cuba...

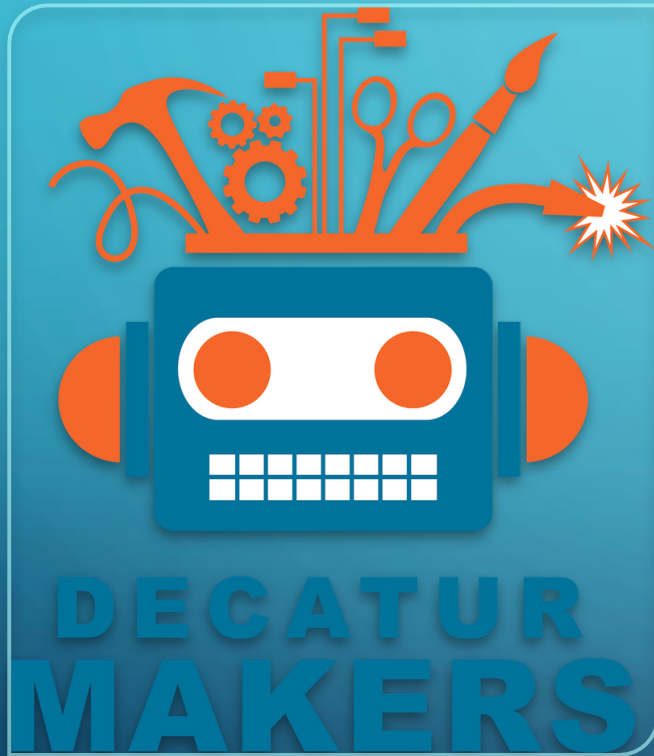


## RTL-SDR DONGLE

An RTL-SDR dongle lets you listen to those through your computer and discover new signals like tracking planes



# ABOUT W4BSE



- Decatur Makers has a Amateur Radio Station which includes
  - ADSB Airplane Reciever
  - 2 Meter / 70 CM Radio
  - HF Radio
- We need:
  - HF Antenna
  - Operators

## NEXT STEPS

- ☐ Take a practice test at a place like HamExam.org or QRZ.com
- ☐ Get Watching or Reading – YouTube Training, plenty of books (Gordon West's are popular) visit <http://www.arrl.org/what-is-ham-radio> for more
- ☐ Find a local club. Both Atlanta Radio Club and Alford Memorial Radio Club are holding virtual meetings and glad to mentor new hams
- ☐ Have fun



# QUESTIONS AND ANSWERS

USE THE CHAT FUNCTION TO ASK ME ANYTHING ABOUT HAM RADIO



# THANK YOU

