

Ham 03 - What is ham

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1. First, let's talk about golf.

Pro is a golfer who is skilled and paid for his golfing abilities.

Amateur is skilled enough to play with pros, but is unpaid as a golfer.

Duffer is someone who has a club, may know where the course is, but is not allowed to play with the big boys.

1. Now, let's talk radio communications.

Commercial is radio for general use like FM, TV, cellphone tower, which is installed, operated, and maintained by PAID qualified, licensed, professionals. Frequencies are allocated and activity is controlled by the FCC.

Amateur is radio on all the same bands, for experimental use (trying different things), which is installed, operated, and maintained by UNPAID qualified, licensed, professionals. That is a paraphrase of FCC law.

Personal is low-powered, two-way, short-distance voice communications service for personal or business activities of the general-public, like CB, GMRS, FRS, or MURS walkie-talkies. These do not require an examination license, since any screw-up is unlikely to be more than a minor, local nuisance.

2. What is radio spectrum?

Radio spectrum includes that part of nature, which humans use to send information at some distance.

The spectrum includes light, which is electrical and magnetic in nature, on the high end and hearing on the low.

Everything in nature vibrates at a frequency, usually multiple frequencies. See sciencenotes.org figure.

Number of vibrations per second is a Hertz (Hz). 1000 is kiloHertz (kHz). 1,000,000 is megaHertz (MHz).

For convenience, a group of frequencies are called a band, which is determined by the length of the radio wave.

3. $Frequency * wavelength = the\ speed\ of\ light\ (300,000,000\ meters\ per\ second).$

Quicker is $Frequency\ in\ MHz * wavelength = 300.$

Commercial FM radio is about 100 MHz, so its wavelength or band is 3 meters (Very High Frequency, VHF).

Commercial AM radio is about 1000 kHz, so its wavelength or band is about 300 meters. (Medium wave, MW).

4. Unit abbreviations are two letters. If it is honorary name for someone, the first letter is always capital.

Because of the size of some numbers, it is easier to get rid of three-zeroes and apply a different prefix.

5. Who gets to use the spectrum?

Since radio transmission is not limited by borders, international agreements decide who can use what part of the radio spectrum. In the United States these agreements are managed by the Federal Communications Commission.

Commercial radio stations (TV, Wi-Fi, cellphones, GPS, radar) broadcast on a single, well-regulated frequency within a band, so others can know where to find the radio signal and information.

6. Since the first days of radio, part of each band grouping has been reserved for Amateur (ham) use, so that different things can be tried (experimentation).

No two ham stations are the same. Almost every communications includes how well the signal is received.

Because of this experimenting (my wife calls it playing around. I say research), much of radio technology has developed and advanced by hams.

If something works, then its usage expands.

7. What about emergency communications?

When an emergency strikes, whether weather or whatever, what communications is always there? Why?

How do storm-chasers and storm-spotters communicate? Storm spotter classes are in February and March.

Who operates and pays for amateur radio? *Individuals*, not government nor organizations.

The innovation, creativity, & energy of multiple, independent people distributed around is unlikely to be stopped.

A few notable hams include Dick Rutan, Priscilla Presley, Joe Walsh, www.qsl.net/w5www/famous.html.

Ham experience, experimentation, and exigency provides communications service when no one else can.

8. Consider this. The grid goes down and limits travel. No internet. No phones. Suddenly, anyone beyond walking distance is now someone you used to know. Your ability to exchange information with the world is non-existent. Who can change that? What backup communications system is there in emergencies? Let's get you up and running.

Most everyone uses a cellphone, and listens to Travis' weather on TV. But, if it all went down tomorrow, How would you stay informed? How would you give help or get help? What is the backup communications system that is there in every emergency?

Hams are UNPAID, qualified, licensed, professionals. Unlike any other radio service, hams are encouraged to experiment (try things). We all become hams because of an Elmer. An Elmer steps-up to help other hams

