

Tech, General, or Extra License... What's the difference?

3 min read

A common question we receive from prospective new hams is, "What's the difference between the three ham radio licenses?" Let's cut to the quick.

The FCC currently issues three Amateur Radio Service (ham radio) licenses: Technician, General, and Extra licenses. Technician is considered the "entry level" license, while Extra is the top-level license. You must earn each license in sequence, Tech, Gen, Extra. Each step up in license type provides expanded privileges to transmit on the variety of radio bands allocated by the FCC for the Amateur Radio Service. Let's dig a little deeper on this point.

The Technician license grants transmitting privileges on the VHF and UHF bands most commonly used for local area communications. The signals using these frequency ranges do not typically travel beyond the *radio horizon*, the distance limiting signal propagation due to the curvature of the earth and local terrain features. However, repeater stations positioned atop towers, hills and mountains, or tall buildings are very effective at instantaneously retransmitting your VHF and UHF signals greater distances due to the expanded horizon produced by those high vantage points and usually by increased power of the retransmissions. Further, repeater stations at disparate locations can be linked together through internet connectivity or using auxiliary radio relays, potentially providing hundreds of miles of coverage for your VHF/UHF transceiver.

The Tech license also provides transmitting privileges on small segments of some HF bands allowing communication around the world via *skip propagation* using the earth's ionosphere. HF signals are bent back toward the earth by the charged particles in the ionosphere, sending your signals over the horizon thousands of miles. Multiple skips of a transmitted radio signal can literally send it completely around the planet. The Tech license provides limited privilege to transmit by voice (phone mode) on one HF band and by continuous wave (CW, using Morse Code) on additional bands.

The General license maintains all the Tech license privileges and expands your transmitting privileges limited segments of all of the HF bands allocated to the Amateur Radio Service. Essentially, the General license opens the world of long-distance, international communication to you, as well as greatly increasing the voice mode operations on the HF bands. With access to the range of HF bands, you can communicate with operators around the globe, across the continent, or right next door using voice, CW, or digital modes of radio signals. The General license requires increased knowledge of the common operating modes and practices for HF communications as well as more advanced digital communications techniques and electronics competency.

Is it feasible to earn the Technician and General licenses simultaneously, taking the exams sequentially at an exam session? Yes, many hams with a good technical background do so, jumping immediately to this broad HF access in addition to the VHF and UHF band use. Both Tech and General exams are comprised of 35 questions from unique question pools of over 400 questions each. However, taking this big step all at once may be a significant challenge for those who are not trained in electronics or physical sciences prior to preparing for the exams. If you don't have a strong technical background, take it one step at a time, gaining experience with the Technician license before initiating the learning for General.

The Extra license adds privileges to operate on additional segments of the HF bands beyond those provided by the General license. This license upgrade provides full access to the range of bands allocated to the Amateur Radio Service. The Extra license represents a significant increase in knowledge of radio science, electronics, and operating techniques. The Extra exam is comprised of 50 questions from a pool about 1.5 times larger than those for General or Technician.

American Radio Relay League (ARRL) US Amateur Radio Band Chart. Each band is indicated with associated license privileges (by frequency boundaries and operating mode) for T-Technician, G-General, and E-Extra.

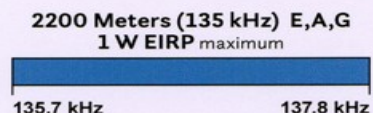


US Amateur Radio Bands

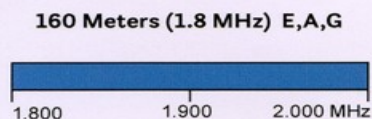
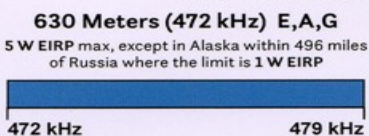
Operator license classes: **E** = Amateur Extra **A** = Advanced **G** = General **T** = Technician **N** = Novice
 CW operation is permitted throughout all amateur bands. Except as noted, all frequencies are in megahertz (MHz).

■ = RTTY, data, phone, image
 ■ = USB phone, RTTY, data and CW
 ■ = RTTY and data
 ■ = phone and image
■ = SSB phone
 = CW only

LF – Low Frequency band

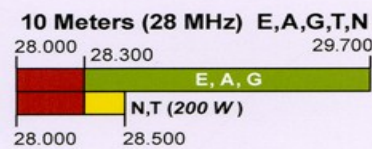
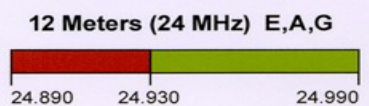
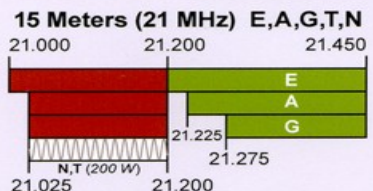
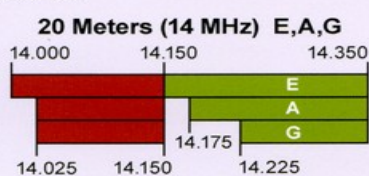
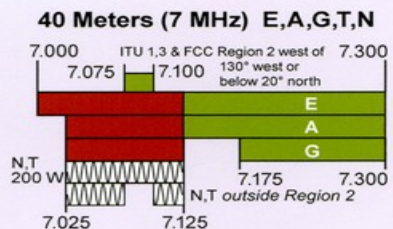
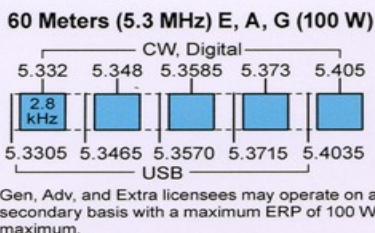
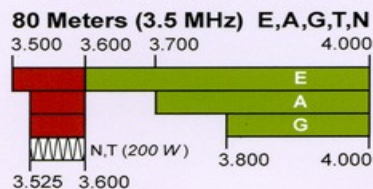


MF – Medium Frequency bands

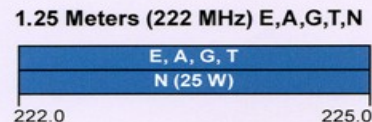
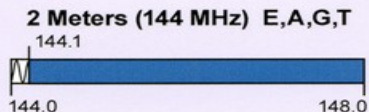
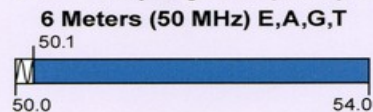


Amateurs wishing to operate on **2200 or 630 meters** must first register with the Utilities Technology Council online at <https://utc.org/plc-database-amateur-notification-process/>. You need only register once for each band.

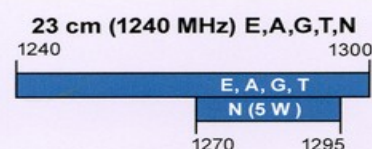
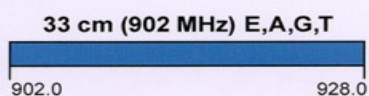
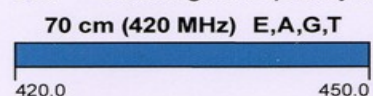
HF – High Frequency bands



VHF – Very High Frequency bands



UHF – Ultra High Frequency bands



SHF&EHF – Super and Extremely High Frequency bands

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

2300-2310 MHz	3300-3500 MHz	10.0-10.5 GHz	47.0-47.2 GHz	122.25-123.0 GHz	241-250 GHz
2390-2450 MHz	5650-5925 MHz	24.0-24.25 GHz	76.0-81.0 GHz	134-141 GHz	All above 275 GHz

See www.arrl.org/band-plan for detailed band plans.
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Grandfathered licenses: In previous years the FCC granted other intermediate licenses known as Novice and Advanced. These licenses are no longer issued, but some hams still maintain these licenses, and there are unique privilege classifications for these grandfathered licenses. Reference the ARRL band plan chart above to see these provisions.

Regardless of the license you ultimately achieve, ham radio is a valuable and rewarding endeavor. Every licensee has the advantage of superb backup or emergency communications, the enjoyment of on-air operation with other hams, the opportunity to experiment or contribute to community services, and to explore the many, many other facets of Amateur Radio operations in life-long learning.

Good luck! I hope we hear you on the air soon!

-- Stu WØSTU