

# **Chapter 1 Vocal**

1

During these presentations stop me if you have any questions.

2

The gentlemen teaching today are Amateur Radio Service operators from the Garland Amateur Radio Club. This is Ken, W5KYZ. This is Joaquin, KI5WZV. This is Wayne, KI5YOQ. I am John, KF5FWK.

3

This is training for the Federal Communications Commission's; Technician Class License; for the Amateur Radio Service. The Federal Communications Commission is usually abbreviated by the letters FCC.

4

Let me begin by saying right off that the FCC Amateur Radio Service is not a give-me. To earn the Technician License you must study and pass an exam. These six classes at the scout center should prepare you for passing the exam. I am saying this because some believed that all they needed to do was take the exam without any study. These guys usually fail the exam. With a little study everyone can pass the Technician exam. I am not trying to scare you because many school children regularly pass the Technician exam. What I am saying, is like most new subjects, there is plenty to learn. If you pay attention we will give you everything you need to pass the exam.

5

Obtaining an FCC Amateur Radio Service license is a worthy goal and also a great accomplishment. Being able to communicate, around the neighborhood or around the world, on the radio is a lot of fun. Some people need a Technician License for emergency preparation and for actual emergency communications. Some people use the Amateur Radio Service for personal sporting or camping events. Many students use the Amateur Radio Service to communicate with astronauts aboard the International Space Station. Other usages for the Amateur Radio Service is using radio for controlling model craft, talking through satellites, operating in school science fairs, or just speaking to a friend. There are many more reasons to use the Amateur Radio Service.

6

There are many YouTube videos available about the Amateur Radio Service. With YouTube you can see other HAMs sharing their knowledge and vast experiences. You may listen to the many POD Cast available. There are POD Cast groups like

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the young ladies radio group, youth groups, distance listening groups and many others.

7

You should set aside a little time each day for some un-obstructed study. Depending on your reading skills it could take a month or two to read the manual from cover to cover. You may also study alone or in groups.

8

All around the country there are trade shows called Ham Fest where you can visit with other HAMs, attend shows, and buy and sell HAM equipment. HAM is a term that refers to license holders in the Amateur Radio Service.

9

Each of you should have received the red book. This is the study reference for the first Amateur Radio Service license called the Technician License. Some of you may progress into the more advanced licenses called the General license and the Amateur Extra license. For now the Technician license is all that you need.

10

For the Technician license there is a question pool of 412 questions. The complete question pool with answers is the gray pages in the back of the red manual. Of the 412 questions, you will be presented with 35 questions drawn from the question pool at random. The question pool also has 4 answers for each question of which one is the correct answer. These answers are labeled A, B, C or D. Don't learn the letter of the correct answer instead learn the actual answer. On the exam when the 35 random questions are presented the order of the answers will also be randomized.

11

Be patient and don't get discouraged. Soon things will begin to fall in-place as you pickup the new lingo. You will be surprised at the new things you learn. Remember that many school children who study do pass the Technician exam. Some even eventually pass all three FCC exams.

12

As stated earlier the Federal Communications Commission, or the FCC, is the government agency that regulates stations that transmit radio signals by licensing those stations. Excuse the government lingo as the FCC defines Amateur Radio Service as "A radio communication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is,

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[the] duly authorized persons interested in radio technique solely with a personal aim and without pecuniary[, meaning monetary,] interest." Wow. What they are trying to say is that this is a special service and by following the rules you should have many avenues to have fun.

13

Once you get your Technician license you can explore many avenues and build on your skills. Some examples of signals you may send and receive are Phone, which is your voice; CW, which is usually called Morse code; JT8, which is a digital mode; and image, which is television. Some example of transmission avenues you may use are direct, usually called point-to-point; ionospheric bounce; meteor trail bounce; satellite communications; international space station communications; and moon bounce. Yes, you can communicate by bouncing your signal off the moon. In other words with a radio you can communicate with Morse code, your voice, or via your computer.

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The FCC exam is given by local Hams called volunteer examiners or VEs. There are VEs in our group so we will be giving you your exam. There is a fee for the license exam. The license exam fees for you scouts will be paid by the Garland Amateur Radio Club. After you pass the license exam there will be a \$35 fee charged by the FCC before they issue the Technician license. They are the government. Once they receive the \$35 payment they will email you your Technician license. You will also appear in the FCC Wireless Radio Database. Scouts can apply to the American Radio Relay League for a reimbursement of the \$35 fee. The Garland Amateur Radio Club will assist you with obtaining the reimbursement.

15

We will follow the red book chapter by chapter. This Saturday is chapters 1 and 2. They are titled Welcome to Amateur Radio and Radio and Signals Fundamentals. If you miss any Saturday training just read the chapters for that day. We have a limited time to pass along all of this information so the classes will be orientated by the question pool in the order of the chapters in the red book. What does this mean? It means that essentially we will be teaching the questions and the correct answer. The first handout is the question pool questions in the order that they appear in the red book along with the correct answer. That is not the LETTER of the correct answer because remember that the answers are randomized on the actual exam.

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The next Saturday training day, which I understand is March 4, will be the first half of chapter 3 titled Electricity, Components and Circuits. This is the same stuff taught in Middle School robotics classes

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You may be happy to know that there are no exam questions for chapter 1.

18

There are some things that you should know about the Amateur Radio Service.

19

Some of you may be familiar with other forms of radio known as Personal Radio Services. A partial list of them is:

- CB Citizens Band Radio
- FRS Family Radio Service
- GMRS General Mobile Radio Service
- LPRS Low Power Radio Service
- MURS Multi-Use Radio Service
- PLB Personal Locator Beacons
- R/C Radio Control Radio Service

These are just a few of the many services available.

20

The problem is these radios services have a limited frequency choice and limited power availability. That means you communicate over a short distance. For these services you must use off the shelf equipment. That is equipment purchased in a store. Some of these are only one way not two way communications.

21

With the Amateur Radio Service you have many frequencies available and you are allowed up to 1500 watts of transmitter power. That is twenty, 75 watt light bulbs. As an Amateur Radio Operator you may purchase your equipment or you may build your own equipment. You can't do that with the other radio services. Building your own equipment includes antennas as well as receivers and transmitters. It does not have to be land based either. Amateur Radio Operators use their equipment on boats and airplanes as well. Some mariners have both marine radios and amateur radios on board because when one fails the other usually operates. Amateur Radio Operators have even built their own satellites that have been placed

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into orbit by friendly governments. And you as a Technician operator are allowed to use them.

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Other uses of the Amateur Radio Service are radios in weather type balloons, hot air balloons and drones. All types of information are sent to the ground by airborne craft via radio signals.

23

Amateur Radio Operators include people of all ages and careers. Search for 'Famous Radio Hams' and you will find a long list of famous Amateur Radio Operators. That list includes Authors; Astronauts; Cosmonauts; Musicians; Singers; Politicians; Presidents; Prime Ministers; Royalty; Heads of State; and finally Stage, Screen, TV and Radio entertainers. The studio for the Last Man Standing program had an Amateur Radio Service station in the studio with a call sign of KA6LMS—Last Man Standing.

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When you pass the Technician exam the FCC will issue you your own call sign. No one else in the world will have the same call sign. This is your permission to transmit on the allowed amateur radio frequencies. For a Technician class Amateur Radio Service your call sign would be two letters, a number, and three letters.