

Everything You Need to Know to Get a License

By Frederick O. Maia, W5YI-VEC

Ham radio is probably more popular than you realize. Nearly half-a-million people in the United States from all walks of life call amateur radio their hobby. And the number is growing. Some of the world's most famous people are licensed amateur radio operators. Ex-Senator Barry Goldwater is K7UGA, Jordan's King Hussein is JY1, ex-pro baseball player Joe Rudi is NK7U, guitarist Chet Atkins is WA4CZD and Country-and-Western superstar Ronnie Milsap is WB4KCG. The list goes on and on! In fact, you never know who is behind the microphone at the other end. It could be just about anyone from any walk of life. In amateur radio, there are no race, age, creed, color, sex or class distinctions. There is bound to be a ham right in your neighborhood, maybe even on your street.

Amateur radio survives as a result of international treaties and government regulations. Ham radio operators in the United States are licensed and regulated by the Federal Communications Commission (FCC). Internationally allocated, amateur radio exists in nearly every country in the world on the same frequencies as in the U.S. There are currently nearly two million amateur radio operators worldwide. Japan has the most with about one million, but doesn't have a code requirement for their entry-level license.

There is a very big difference between ham radio and CB communication. For one thing, amateur radio communications requires that you must be licensed and issued a call sign by the government. What's more, you must use that call sign when you operate on-the-air. Instead of one band of 40 channels, you get literally thousands of frequencies scattered throughout many bands--each with different propagation characteristics. You can legally run power levels up to 1,500 watts with worldwide capability instead of just a mere few watts for local operation.

It is really very easy to become a ham radio operator. There are five different amateur radio license levels: Novice, Technician, General, Advanced and the top-level Amateur Extra Class. Each one requires demonstrating more knowledge and skill in exchange for additional operating and frequency privileges. You will be tested for Morse code proficiency and knowledge of radio theory and regulations.

You should be able to qualify for the Novice license with as little as a couple of weeks of study. Upgrading to any higher-class licenses can be attempted any time. Enthusiastic Novices with little or no background in the area have mastered the necessary skills to upgrade all the way to the Extra class license in six months or less. How quickly you move up depends on how much effort and time you wish to devote to preparation activities. Many amateur radio clubs and adult education programs offer license courses at little or no expense.

Morse Code

It is an International Telecommunication Union (ITU) requirement that to transmit long-distance amateur shortwave radio, you must learn the Morse code. The shortwaves are defined as those below 30 MHz. (The ITU is the worldwide United Nations telecommunications governing body headquartered in Geneva,

Switzerland.) More and more countries are, however, allowing their amateurs to operate on the VHF and higher frequencies (those above 50 MHz) without telegraphy knowledge. Unfortunately, the United States is not presently planning to be one of them. Canada, however, is in the process of adopting a code-free beginning amateur class.

There are all sorts of reasons cited on why the code is needed--or not needed. Without getting mired in this argument, let's look at the positive aspects of the code since it is the law that you show CW proficiency, even though fewer amateurs today own a telegraph key than a computer.

Telegraphy can be an interesting way to communicate. It allows more amateurs to utilize the bands at one time since it takes less spectrum space. Under marginal band conditions, it is easier to get through with CW than with voice since you can filter out interference more readily. For some of us, CW is simply a lot of fun. I enjoy the code and have many awards for international two-way CW contacts. Amateurs who can't communicate well in each other's language can use standard abbreviations and prosigns to carry on fairly detailed code conversations.

To many, Morse-code proficiency is a stumbling block. It need not be. It merely requires the discipline to practice code for a couple of weeks to be able to learn enough Morse to pass the 5 word-per-minute (WPM) Novice code exam. There is no additional code requirement for the Technician class license, which gives you access to all the VHF frequencies and privileges. This includes the popular 2-meter FM band that so many hams use to make phone calls from their cars or small portable units. You must pass a 13-WPM exam to advance from the Technician to General Class and a 20-WPM one to obtain the Amateur Extra Class license. These licenses provide increasingly more frequencies and privileges on the HF bands.

Besides listening to on-the-air conversations and code-practice transmissions, you can use numerous tapes, computer programs and electronic devices that provide you with code practice. In large part, they are all effective learning tools. You may find that certain features of one program are more attractive than those of another. It is a matter of personal preference.

One factor that is not a matter of preference, though, is how you learn the characters. Morse code is an aural code, and that is how you should learn it. Attempting to learn the code by staring at dots and dashes on the printed page is the worst course of action possible. If you adopt this approach, you are almost certainly undermining your ability to learn Morse code and, later, to increase your speed in order to upgrade.

All modern code-teaching courses and programs teach you the sound of each character. When you learn code the right way, you will find that its reputation as a difficult skill to master is grossly overstated. Do it right, and the code is easy.

When you sit for the exam, the examiners will send you five minutes of a simulated on-the-air conversation. You will then be given a test of 10 questions relating to the transmission. A score of 70% on this code test is passing. Should you pass the code and fail the theory (or vice versa) when taking the Technician or higher exam, you will be given a certificate of successful completion for the portion that you passed. You will

then have a year to pass the remaining element of the exam without retesting on what you already passed.

Theory and Regulations

The written examinations cover amateur radio regulations, operating procedures and electronic principles. You do not have to be technically oriented to pass the examinations. All of the questions and answers that make up the various question pools are widely published. Each of the five examinations draws from questions on nine topics. Each topic is designated by a letter. There are from 25 to 50 questions in each of examination element that are taken from a pool of hundreds of possibilities. Licensing requirements are cumulative. That is, if you want to start with the Technician class as your first license, you must first pass the Novice-theory exam element. You could take all the examination elements at one testing session and walk out with an Amateur Extra Class license. See Table I.

The purpose of the exams is to demonstrate that you can operate a transmitter safely and legally--not design one. Anyway, real knowledge comes with practical experience, which usually comes after you have your license, not before. So there's nothing wrong with using mnemonic devices to recall answers to questions.

Novice Exam: The Novice examination is made up of the 5- WPM code test (Element 1A) and a 30-question (Element 2) multiple-choice written examination. The questions are selected from the Novice level question bank. To pass the Element 2 test, 22 or more correct answers are needed

To conduct the examinations requires two volunteer examiners (VEs) to administer the tests. They need not be accredited, as they must be for the higher-level tests. But they must be at least 18 years of age and hold a General-class or higher-level license. Also, they must have a clean radio record to conduct the examination. The Volunteer Examiners (VEs) also should not be engaged in the amateur radio equipment, distribution or license-preparation material business, nor should they be related to the applicant. The VEs will mail the application (Form 610) to the FCC in Gettysburg, Pennsylvania, for Novice license issuance if the applicant passes both examination parts. If only one element is passed, an applicant has a year to complete the remaining test element.

Since March 21, 1987, Novice privileges are better than ever! As an incentive to attract new participants to the amateur radio hobby, the FCC relaxed its regulations to allow entry level ham radio operators to immediately join the mainstream of amateur radio. No longer are they restricted to just the Morse code. Beginners can now talk around the world using SSB on the popular 10-meter HF band, too. They can also communicate through 220-MHz FM repeaters, even linking their radio to the telephone or a personal computer.

Upgrading: And that is not all. The FCC has made it easier than ever to upgrade. The next step up the ladder, the Technician Class (which lets you talk on the popular two-meter band, the ham's traditional social party line), now is more than twice as easy to attain. To become a Technician class amateur, you simply must pass its 25-question multiple-choice examination as compared to the earlier 50-question combined Technician/General exam. (Code speed alone previously distinguished between the two levels.) Upgrading test sessions are more formal than their

Novice counterparts. They are normally held at schools or other public halls. The rules require that accredited VEs publicly announce locations and times of all examination sessions. Ham radio equipment outlets and amateur radio operators in your area will know who is administering amateur radio operator examinations locally. You may also take a Novice examination at a Volunteer Exam Coordinator (VEC) System test session without cost.

Upgrading above Technician is also easy, particularly when you take it one step at a time. To go from Technician to General requires passing a 13-WPM code test and an additional 25-question multiple-choice test. To go from General to Advanced, you must pass a 50-question multiple-choice exam. Finally, to take the last step to Amateur Extra, you must pass a 20-WPM code test and a 40-question multiple-choice exam.

With respect to the theory/regulations written exam, at least ten times as many questions appear in each of the question banks as will be needed in any one examination. VECs or VEs (it can be either) prepare the written examination by selecting a specified number of questions from each of the nine topics. (See Table II.)

VE teams administer the written examinations using the exact questions and multiple-choice answers that appear in the question pools. VEs are not allowed to deviate from the questions. Applicants can be assured that the questions and answers they studied are the same ones that will appear word-for-word on their examination. Test candidates should be certain, however, that they have obtained the current study material. The cutoff date should be stated in the license preparation material.

There is no longer a waiting period to retake failed examinations. Some VE teams will even re-administer you the failed examination at the same session, although you will probably have to pay another test fee if the examination is at the Technician or higher class level. The test fee, which is adjusted annually for changes in the Department of Labor's Consumer Price Index, is currently \$4.55 per examinee.

A new maximum test fee is implemented each January. The test fees go to finance the cost of the VEC System testing program. You only pay one fee as long as you continue to pass administered examinations during any one testing session. You can even take all examinations right up through the Extra Class level at one sitting. There is no charge, however, if you only take the Novice examination.

The FCC has determined that anyone who can receive code at a given speed can also send at that speed or greater. Thus, the FCC will assume your ability to send if you can demonstrate an ability to receive. What this means is that you will not be given a sending test.

History of Amateur Testing

Volunteer amateur self-testing started to take shape during the early 1980s when the FCC began abolishing most of its commercial radiotelephone licensing program. The government eventually turned their engineering/technician licensing program over to industry groups. A general trend towards ``privatization'' of many government functions developed.

In 1981 legislation was enacted to legally allow the public to voluntarily assist the government. The Novice examination, which had been administered by volunteers for decades, had been

determined to be illegal since federal rules forbid volunteer help from the public. As a tax saving measure, Senator Barry Goldwater introduced legislation that laid the groundwork for all testing of amateur radio operators to be conducted by volunteers.

Public Law 97.259, signed by President Reagan on September 13, 1982, carried Goldwater's amendment authorizing legal volunteer amateur radio operator test preparation and administration. The United States became the first nation to authorize amateur radio operators to verify their own qualifications. Previously the FCC had developed and administered all amateur radio operator code and theory examinations. Now the entire program would be carried on by the amateur community.

During 1983 the FCC developed the guidelines for its Technician and higher class amateur self-testing system. The Novice testing program was basically already in place. Prior to 1984, the examination questions on FCC administered amateur radio operator tests were supposedly known only to FCC personnel. Word had a way of getting around, however. At least one amateur made a career of researching and publishing the exact questions and answers to all amateur radio operator examinations. At any given time, there were only one or two test versions for each license level. Amateur radio operator test questions and answers were pretty well available to anyone that wanted to purchase them. It didn't take much effort to memorize enough material to pass any of the exams.

The FCC decided to try a different system. With help from the amateur community, the government developed and then released to the public all possible verbatim questions that could be asked of amateur operators. The FCC came up with ten times as many questions as would be needed in any one amateur radio operator examination. These lists, known as question pools, were released to the public in the form of PR (for Private Radio) 1035 Bulletins. PR-1035A contained the Novice questions, PR-1035B covered the Technician class and so on.

Once the question pools were in place, the FCC began a search for a testing system administrator who would recruit examiners and further develop a program to test amateur radio operator applicants. The Commission also said that 1984 would be the last year that they would examine amateur radio operators. Initially, most observers thought that the American Radio Relay League (ARRL) would be the sole amateur testing administrator.

The League still had not accepted the position, however, six months later. It began to appear that amateur testing opportunities might be very limited or even non-existent in the future. When it became apparent that the ARRL was undecided and apprehensive about agreeing to handle amateur radio operator testing on a national basis, the FCC elected to go with smaller regional groups. They called these administrators Volunteer Examiner Coordinators (VECs).

The primary duty of a VEC is to select examiners and provide them with examination materials and testing guidelines. It was obvious that Goldwater envisioned that all amateur radio examinations would be handled similar to the Novice program by individual amateurs that would certify the qualifications of others. As a safeguard against cheating, however, the FCC elected to require testing teams rather than a single volunteer examiner (VE).

Several organizations applied to become a VEC all on a regional basis. Our program was the first to apply to become a National Volunteer Examiner Coordinator. We set up a program which shifted many expenses to the volunteer examiners. Amateurs, interested in helping the service grow, had always volunteered their services to conduct Novice examinations. We figured they would come through for all other license classes as well. We were right! Once a provision was made for reimbursement of testing expenses, the ARRL also applied to become a VEC in all regions. A current listing of VECs for each region can be found in Table 3.

The early days of volunteer testing saw different answers to examination questions. The FCC released the questions but not the answers. It was left to the individual VECs to develop the answers and different VECs had different answers to the same questions! We solved the answer problem by filing a FOIA (Freedom of Information Act) request for the answers that the FCC had in their possession. Once received, we circulated them to other VECs and license preparation publishers. It was our first attempt at standardizing the answers. Once the ARRL became a VEC, their answers to the examination emerged as the de facto standard which most (but not all) VECs adopted and provided their volunteer examiners. At least one VEC used true/false answer formats to the written examinations.

VECs Agree to Standardize

The first VEC Conference was held at the FCC's licensing facility in Gettysburg, Pennsylvania. While the main objective of the conference was to observe the license issuance function, most VECs wanted to work towards further standardization of amateur testing. The VEC Conference in 1986 was held at the FCC in Washington, DC. Progress and cooperation among all VECs has now resulted in every VEC adopting the same answer format to examination questions. The rules now require that VECs agree on a single common question pool. At one point, different question pools among the VECs were envisioned by the FCC. Thus an applicant can now be assured that no matter where amateur radio operator examinations are held, the questions and answers will be the same.

The Extra Class written examination changed to a new updated version on November 1, 1988. The VEC Question Pool Committee is currently considering newly submitted questions to the Element 2 (Novice) and 3A (Technician) examinations which will be revised and implemented on November 1, 1989. Barring changes in the rules and regulations that directly affect a particular question, there will be no other changes to the question pools until 1990.

All commercially published license preparation study guides support the same testing material. You can be assured that any current study material will be appropriate for any exam from any VEC. If you are going for the Extra, keep in mind the cut-over date for the new exams this fall. Selecting study material and aids should be based on personal preference. Selecting a testing session to attend should will probably be based on convenience. Amateur testing has never been more convenient.

Call Signs

Amateur radio call signs are of supreme importance to a ham operator. It becomes their name on the air--frequently for life. Hams know each other by call sign and often never know the last name of those they may communicate with on a daily basis.

Amateur radio stations are issued their own station call signs primarily as an aid to enforcement of the radio rules. With a few exceptions, transmitting stations throughout the world are required to identify themselves at established intervals when they are in operation. By international agreement, the prefix letters of a station's call sign indicates the country from which the call sign was issued. On the DX airwaves, hams can readily identify the origin of the signal they hear by the call sign prefix.

The amateur radio prefixes allocated to the United States are AA through AL, K, N and W, each followed by one numeral. With the exception of the AA-AL block, the prefix can be a single letter (K, N or W) followed by a digit, or it can consist of two letters and a digit. Occasionally, special prefixes have been authorized that deviate from these formats. The number indicates the geographic area for the bona fide mailing address at the time the call sign was first issued. See Table 4 for details.

The suffix consists of up to three letters which are issued by the government in strict sequential order. Not only does the FCC issue amateur call signs in keeping with international law and geographic considerations but also according to license class. All newly issued call signs are assigned according to operator class. The prefix letter combinations are referred to as "prefix blocks." When all suffix letters within a call sign area have been assigned for any given prefix block, the FCC issues call signs from the next lower block. Table 5 contains a listing of the prefix blocks assigned to each license class.

Call sign letter combinations and the format from within a call sign group are always selected by the FCC. Issuance of ham radio call signs is governed by Section 97.51 of the Amateur Radio Service regulations. Basically two guidelines apply: first, call signs must be assigned systematically, and, second, the FCC will not grant a request for a specific call sign.

The Commission has not issued a specific call sign of an amateur's choosing in over ten years. The FCC is, however, working on a system where private groups may do just that. A Special Call Sign Coordinator (SCSC) may be able to issue you another (called a "secondary") call sign of your choice. The primary call sign will still be issued by the FCC's licensing facility in Gettysburg, Pennsylvania. In fact, the new system may be approved by the time you read this.

Once the initial primary call sign is assigned by the FCC, a call sign will not be changed unless the licensee specifically requests and is eligible for a change. The licensee always has the option to keep the current call sign upon license renewal, upgrade, change of station location, change of mailing address or change of name. To request a call sign change, an amateur merely checks the "Change Call Sign" box on application form FCC Form 610.

Licensees (including Novice) who change their mailing address to a different call sign area must make a choice of whether they want to keep their present call sign or apply for a call sign applicable to their new geographic area. If your amateur radio license lapses, you may retain your same call sign if reactivated within a two year "grace" period otherwise you must accept a new call sign appropriate for your license class and mailing address.

The FCC issues a monthly list of call signs issued so amateurs

will have some idea of the call sign they will receive. Table No. 6 is the list that was issued by the FCC on June 1, 1988.

Summary

Joining the fun on the ham bands is as simple as passing a test and purchasing some modest equipment--or not so modest if your budget permits. Passing the test is a lot easier than you may have supposed.

First, you are going to have to master the Morse code to one degree or another. It is the law. When approached properly (aurally), learning the code is far easier than most people think. You should be able to learn enough to pass the Novice 5-WPM test in a couple of weeks. Daily practice and the proper mental attitude can boost that speed to the 20-WPM level in a matter of a few months.

You will also be tested on theory and regulations. Although there is a technical aspect to this hobby, you do not need a strong technical background to pass these exams. The exact questions and answers are available from a number of sources in several different formats. You can simply memorize the answers to the questions that you do not understand. Regardless of your background, the real education comes after you get your license and get on the air.

As a result of the new VEC/VE system of testing, it has never been easier or more convenient to find a testing session. In most metropolitan areas, tests are conducted regularly, perhaps once a month or more often. Most of these sessions are on weekends or in the evenings, which is convenient for people who work regular business hours or attend school.

When you take an exam, you will get credit for any portion of it that you pass. The credit is good for a year. You can retake exams as often as you like until you pass. All it takes is a little effort and persistence.

Once you have your license and call sign, you can get on the air anytime you like. You'll make new friends, and some of them may be well known celebrities. Take a look at the Callbook. That KA6 with the familiar sounding voice that you worked this morning. His name is strangely similar to the reclusive movie star who . . .

Table I

WRITTEN EXAMINATION TOPICS

Topic Letter	Sub-element Description
A	FCC Rules for the Amateur Radio Service
B	Amateur station operating procedures
C	Radio wave propagation characteristics of amateur frequency bands

D Amateur radio practices
 E Electrical principles as applied to amateur station equipment
 F Amateur station equipment circuit components
 G Practical circuits employed in amateur station equipment
 H Signals and emissions transmitted by amateur stations
 I Amateur station feedlines and antennas

Table II

	Element 2 Novice		Element3A Tech		Element3B General		Element4A Advanced		Element4B Extra	
Topic Letter	in pool	to select	in pool	to select	in pool	to select	in pool	to select	in pool	to sel.
A	95	9	58	5	46	4	66	6	117	8
B	2	3834	2	38	3	35	3	10	1	214
C	17	2	30	3	30	3	20	2	12	2
D	21	4	41	4	50	5	40	4	27	4
E	33	3	35	2	41	2	100	10	65	6
F	10	2	18	2	11	1	60	6	36	5
G	17	2	11	2	10	1	100	10	69	4
H	26	2	21	2	22	2	63	6	44	4
I	28	3	36	3	41	4	48	5	50	4
TOTAL	302	30	288	25	286	25	507	50	441	40
NXT REV	11/1/89		11/1/89		11/1/90		11/1/90		11/1/91	

Table indicates the actual makeup of each of the five examinations. The number of pool questions in each sub-element is indicated along with number to be selected for the actual examination. The Novice examination contains 30 questions, Technician and General: 25 questions, Advanced: 50 questions and Extra Class: 40 questions

Table IV

Numeral in Call Sign Determined by Bona Fide Mailing Address
 Call District Area (Contiguous 48 States)

1 Maine, New Hampshire, Vermont, Massachusetts, Rhode Island,
 Connecticut
 2 New York, New Jersey
 3 Pennsylvania, Delaware, Maryland, District of Columbia
 4 Virginia, North and South Carolina, Georgia, Florida, Alabama,
 Tennessee, Kentucky
 5 Mississippi, Louisiana, Arkansas, Oklahoma, Texas, New Mexico
 6 California
 7 Oregon, Washington, Idaho, Montana, Wyoming, ARizona, Nevada, Utah
 8 Michigan, Ohio, West Virginia
 9 Wisconsin, Illinois, Indiana
 0 Colorado, Nebraska, North and South Dakota, Kansas, Minnesota, Iowa,
 Missouri

U.S. Island Possessions Outside the Continental United States receive the following call sign locators.

- 1 Baker, Canton, Enderbury, Howland, Navassa Islands
- 2 Guam
- 3 Johnston Island, Rancador Key, Quita Sueno Bank, Serrana Bank, Serranilla Bank
- 4 Midway Island, Puerto Rico
- 5 Kingman Reef, Palmyra, Jarvis Island
- 6 Hawaii
- 7 Alaska, Kure Island
- 8 American Samoa
- 9 Wake, Wilkes, Peale Islands

Table V

CALL SIGN FORMATS FOR THE VARIOUS AMATEUR LICENSE CLASSES

LICENSE CLASS	CALL SIGN GROUPING	PREFIX BLOCKS	SUFFIX	LETTERS
Novice	Group D	KA-KZ, NA-NZ, WA-WZ		3 letters
Tech	Group C	K, N, W		3 letters
General	Group C	K, N, W		3 letters
Advanced	Group B	KA-KZ, NA-NZ, WA-WZ		2 letters
Extra	Group A	K, N, W		2 letters
	Group A	AA-AK, KA-KZ, NA-NZ, WA-WZ		1 letter
	Group A	AA-AK		2 letters

Note: Prefixes AH, AL, KH, KL, KP, NH, NL, NP, WH, WL, WP are reserved for amateurs with mailing addresses outside of the 48 contiguous United States. WC, WK, WM, WR and WT call sign prefixes are reserved for RACES (Radio Amateur Civil Emergency Service), Clubs, Military recreation, repeaters and Temporary licenses but their issuance has never been implemented.

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Table III

Volunteer Examiner Coordinators With Amateur Radio Operator Testing Programs by Call District

NATIONAL VEC's

W5YI-VEC

P.O. Box 565101

Dallas, Texas 75356-5101

Tel: Days (817) 548-9594 (10:00 a.m.-2:00 p.m. CDT)

Evenings/Weekends: (817) 461-6443

DeVry Amateur Radio Society-VEC

330 N. Campbell Avenue

Chicago, Illinois 60618

Tel: (800) 327-2444 (Outside Illinois)

(312) 929-8500 (Illinois only)

American Radio Relay League-VEC

225 Main Street

Newington, Connecticut 06111

Tel: (203) 66-1541

VECS, Call Sign Region 1

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

National VECs only

VECs, CALL SIGN REGION 2

New Jersey, New York

National VECs, only

VECs, CALL SIGN REGION 3

Delaware, District of Columbia, Pennsylvania

National VECs, plus:

Laurel Amateur Radio Club, Inc.

P.O. Box #3039

Laurel, Maryland 20708

Tel: (301) 953-1065

Mountain Amateur Radio Club

P.O. Box #234

Cumberland, Maryland 21502

Tel: (304) 289-3576

VECs, CALL SIGN REGION 4

Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee

National VECs, plus:

Central Alabama VEC, Inc.

606 Tremont Street

Selma, Alabama 36701

Tel: (205) 872-1166

Charolotte VEC

227 Bennett Lane

Charolotte, North Carolina 28213

Tel: (704) 596-2168

Triad Emergency Radio Club-VEC

3504 Stonehurst Place

High Point, North Carolina 27260

Tel: (919) 869-6637

Western Carolina Amateur Radio Society-VEC

5833 Clinton Highway, Suite #203

Knoxville, Tennessee 37912

Tel: (615) 688-7771

VECs, CALL SIGN REGION 5

Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma, Texas

National VECs, plus:

Jefferson Amateur Radio Club-VEC
P.O. Box #73665
Metairie, Louisiana 70033

VECs, CALL SIGN REGION 6
California
National VECs, plus:

Golden Empire Amateur Radio Society-VEC
P.O. Box 508
Chico, California 95927

Greater L.A. Amateur Radio Group-VEC
9737 Noble Avenue
Sepulveda, California 91343
Tel: (818) 892-2068

SANDARC-VEC
P.O. Box #5023
LaMesa, California 92041
Tel: (619) 465-3926

Sunnyvale VEC Amateur Radio Club
P.O. Box #60142
Sunnyvale, California 94088
Tel: (408) 255-9000

VEC's, CALL SIGN REGION 7
Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming
National VECs, plus:

Sunnyvale VEC Amateur Radio Club
P.O. Box #60142
Sunnyvale, California 94088
Tel: (408) 255-9000

VECs, CALL SIGN REGION 8
Michigan, Ohio, West Virginia

National VECs only

VECs, CALL SIGN REGION 9
Illinois, Indiana, Wisconsin
National VECs, plus:

Milwaukee Amateur Radio Club, Inc.-VEC
N50 W16328 Pin Oak Court
Menomonee Falls, Wisconsin 53051

VECs, CALL SIGN REGION 10

Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota

National VECs, plus:

PHd Amateur Radio Association, Inc.-VEC
P.O. Box #11
Liberty, Missouri 64068
Tel: (816) 781-7313 (7-9 p.m.)

VEC's, VEC REGION NO. 11

Alaska

National VEC's, plus:

Anchorage Amateur Radio Club-VEC
2628 Turnagain Parkway
Anchorage, Alaska 99517
Tel: (907) 243-2221
(907) 344-5401

Sunnyvale VEC Amateur Radio Club-VEC
P.O. Box #60142
Sunnyvale, California 94088
Tel: (408) 255-9000

VEC's, VEC REGION NO. 12

Puerto Rico, U.S. Virgin Islands

National VEC's only

VEC's, VEC REGION No. 13

Hawaii, South Pacific island possessions

Koolau Amateur Radio Club-VEC
45-529 Nakulual Street
Kaneohe, Hawaii 96744

Sunnyvale VEC Amateur Radio Club
P. O. Box 60142
Sunnyvale, California 94088
Tel: (408) 255-9000