Before the

Federal Communications Commission
Washington, DC 20554

In the Matter of	)	WT Docket No. 98-143
	)	
1998 Biennial Regulatory Review --	)	RM-9148
Amendment of Part 97 of the Commission's	)	RM-9150
Amateur Service Rules	)	RM-9196

COMMENT FOR THE RECORD

12 October 1998

I. INTRODUCTION

Given the intense depth of feeling among Amateur Radio operators about licensing requirements and structure, there probably is no "good" time to propose a major restructuring of the Amateur Service. However, the present is an appropriate time, because of changes that have occurred in the past few years and challenges that will be faced in the near future. This Notice of Proposed Rule Making presents an opportunity to not only streamline licensing processes but also to reinvigorate the Amateur Service and increase its value to the public.

This writer is an Amateur Extra Class licensee who has served as President of an active local radio club (1), as an instructor in licensing classes, and is an ARRL-accredited Volunteer Examiner (VE). Though interested in amateur radio for many years (and holder of a commercial First Class Radiotelephone license), the author did not obtain an amateur license until 1991, when he became one of the first no-code Technicians. He subsequently upgraded to his current license class and has written for amateur publications and lectured frequently on amateur-radio topics.

As someone who began his amateur career as a no-code Technician and evolved into an Amateur Extra Class operator whose favorite operating mode is Morse radiotelegraphy, this writer has friends on both sides of current arguments over Morse requirements and licensing structure and a rare understanding of the feelings and concerns of both these seemingly warring camps. These comments seek to point toward actions that, while not pleasing to all, will ensure the long-term health of the Amateur Service.

II. EXECUTIVE SUMMARY

A strong and vital Amateur Radio Service is an important asset to the nation, fulfilling not only the well-known functions outlined in its regulatory charter, but also increasingly-important educational functions for a society growing more technological by the year. To do this, the Service must grow and overcome an alarming trend toward stagnation evident in recent years.

That stagnation, evidenced by an increasingly "bottom-heavy"

distribution of licensees, is due in large part to the current licensing structure, and particularly to the significant barrier presented by the 13 wpm Morse code requirement. The 13 wpm requirement is one of Morse proficiency, gained at the expense of an extensive investment of time, as opposed to mere familiarity with Morse at 5 wpm, which requires significantly less work to attain. To provide a larger number of amateurs with operating privileges more likely to sustain their interest and long-term commitment, we must reduce the number of license classes and revise the requirements for obtaining licenses.

Because of the wide-ranging appeal of the amateur HF bands, our new licensing structure must provide significant operating privileges on those bands at much less cost in Morse training time. Specifically, we should aim toward a three-class licensing system, with an entry-level license; a general-purpose license requiring Morse proficiency at 12 or 13 wpm and conveying most amateur privileges; and a "prestige" license permitting use of exclusive CW subbands on the HF bands. The entry-level license would provide attractive HF privileges in return for a 5 wpm code test and a written exam somewhat more extensive than current entry-level tests. Until Morse requirements in International regulations are removed, a fourth class would provide privileges at VHF and above for those who pass the entry-level written exam but no Morse exam. When International regulations are changed, the Morse requirement could simply be removed from the entry-level class, reducing the number of license classes to three.

In any restructuring, the Novice class of license should be eliminated and its current members "grandfathered" into new licenses only upon passage of additional written exams.

Greater volunteer examiner opportunities should be allowed, as requested by the ARRL in RM-9148.

Phasing out RACES station licenses is a reasonable step.

Enforcement of Commission rules in the Amateur Service is a priority. We must devise a means to use the available resources to greatly improve enforcement. The volunteers of the Amateur Auxiliary are one of the prime resources available in this effort, and we must utilize the legal expertise available to find a way to use them that is consistent with applicable laws. The legal experts must be assigned the task of devising a legally-acceptable mechanism that utilizes the available resources to solve this growing problem.

Morse radiotelegraphy has a long and honored history in the Amateur Service, and will continue as part of amateur radio for the foreseeable future. However, it is dwindling in importance to communications overall and no longer should have such a significant part in licensing requirements. The inherent appeal of radiotelegraphy will ensure its continuation in amateur use. While Morse code does not need a licensing requirement to survive in amateur radio, its practitioners do need protection from increasing encroachment by digital operators who frequently interfere with ongoing Morse communications. Exclusive CW-only subbands in the HF amateur bands must be instituted to prevent this growing interference problem.

Relaxing the Morse licensing requirements is necessary for the continued vitality and growth of the Amateur Service. The relaxation and even removal of Morse licensing requirements is nearly inevitable in the future, but generates intense fear on the part of many amateurs. Morse tests long have been used not because of a need for radiotelegraphers but to limit the number of operators. The Morse tests are considered by many amateurs as a measure of worthiness for entering the Service. These amateurs fear that relaxation of Morse requirements will bring poor operating practices and even chaos to the amateur bands. By stiffening the written exams and improving their administration, we can alleviate many of these fears.

However, as long as Morse requirements remain, we must insist that they be met honestly. The current system of granting telegraphy examination credit on the basis of a physician's certification of disability has been abused widely and is degrading the integrity of the licensing process. With the accommodations available, almost anyone can take a Morse examination, and there are very few medical conditions that prevent one from taking such a test. The ARRL request in RM-9196 requiring an applicant to first try an accommodated exam before being granted an exemption is reasonable. The ability of VECs to obtain additional information from the certifying physician also is reasonable. The physician's certification should be made the subject of a separate FCC form which specifies in detail the accommodations possible and also specifies medical conditions that do NOT constitute grounds for exemption. The current practice has caused widespread fraud by people who simply do not want to invest the time required to build code proficiency.

While current written examinations are not as easily passed as some would contend, they can be improved. They must be strengthened, not only because greater competency should be required of examinees, but also to gain the support of those who oppose all license restructuring because of the perceived reduction of standards inherent in relaxing Morse exams. We must increase the breadth and depth of subjects covered and also utilize modern technology to more effectively vary the specifics of each exam to ensure that knowledge, not memorization ability, is being tested. This can be done readily without significantly increasing the burden on examiners or VECs.

III. BACKGROUND

The Amateur Radio Service has been a valuable national asset for most of this century and today ably serves the purposes for which it was established, specifically, providing a voluntary, noncommercial communications service, particularly for emergency communications; advancement of the radio art; advancing skills in both the communication and technical phases of the art; expansion of the reservoir of trained operators, technicians and electronics experts; and continuation and extension of the amateur's unique ability to enhance international goodwill.(2)

In addition to well-publicized service in emergencies and a solid record of achievement in supporting all the above purposes, there is a less well-known, but equally important educational function at which the Amateur Service excels. As a technical pastime involving a number

of scientific and technical fields, Amateur Radio is both a training ground for future scientists, engineers and technicians and a common ground where people from technical and non-technical career fields can meet and exchange information.

While it is obvious that the Amateur Service expands the reservoir of trained operators, technicians and electronics experts, it is no less true that it has inspired many young people over the years to pursue careers in other technical fields. Today, the ranks of physicists, aerospace engineers, astronomers, computer scientists and many other fields include numerous professionals whose first contact with science or engineering came as a youthful radio amateur.

In an increasingly competitive, technological world, the United States needs these technical professionals, and Amateur Radio's contribution to recruiting them into these pursuits is a valuable aid to the nation's competitiveness. It also is important that those citizens who do not pursue technical careers have at least a basic understanding of the fundamentals of some of the technologies that power our economy. Amateur Radio has a unique role to play as a technical pastime pursued by many people whose careers are far removed from electronics or engineering.

The importance of this role cannot be overemphasized. A recent survey showed that only about one in nine Americans thinks of himself or herself as being well informed about science or the use of new technologies. On a test of basic scientific and technical concepts, only 27 percent of Americans could correctly answer at least seven of 10 questions.(3)

Amateur Radio provides a common ground where technical professionals and people from non-technical fields meet and interact in a relaxed, informal setting conducive to information exchange and de-mystifying concepts in science and engineering. Many people in non-technical careers have their only contact with the world of science and engineering through their Amateur Radio activities. When these citizens, managers and leaders learn more about the scientific underpinnings of technology and the technologies themselves, their improved understanding strengthens our nation.

For all these reasons, a strong and vital Amateur Radio Service is an important asset to our society. We must assure the continued attractiveness of the Amateur Service to a large number of people and assure that those who enter the Service remain active and continue to pursue self-training and advancement.

In the past few years, while we have seen growth in the Amateur Service, we also have seen some danger signs that indicate approaching stagnation. Though there now are six classes of amateur license, the vast majority of the growth has been in the entry-level classes. In contrast to the situation only a few years ago, the "top three" license classes now constitute a minority of licensed operators. The rate of upgrading into the higher-class licenses has slowed alarmingly. These developments are troubling because, over the years, it generally has been the higher-class licensees who have remained active and provided leadership for the Service and encouragement to newcomers.

Stagnation must be halted. We must establish a licensing structure that assures competence while encouraging lifetime involvement and continuing growth on the part of amateur operators.

This proceeding provides a valuable and timely opportunity to change the licensing structure so as to reverse the trend of stagnation, reinvigorate the Amateur Service and assure its continued vitality and utility to the nation as we enter the next century.

IV. DISCUSSION

A. Number of License Classes

The basic structure of the current licensing system now is more than three decades old. The changes of 1968 caused considerable turmoil in the amateur ranks and the changes proposed today also are stirring emotions. If we are going to go through the controversial process of changing the licensing structure, we should make our best effort to produce a new structure that will reinvigorate the Amateur Service and also serve our needs for many years to come. Whatever structure we design now almost certainly will remain in place well into the next century. We should design something that will stand the test of time.

What is wrong with the current system and why should we change it? With six classes of operator license, the Commission points out the administrative burden of processing an application and issuing a license whenever an operator changes license class, in addition to the burden on the Volunteer Examiners and the VEC organizations in preparing and administering the exams themselves. In an era of tightened Government budgets, this is a valid concern and a proper motivation for considering changes. However, if the current licensing structure were serving the needs of the Amateur Service well, these burdens would be justified. That is not the case.

The current licensing structure is a prime cause of the stagnation afflicting the Amateur Service. The sequence of licenses, offering greater operating privileges based on passage of increasingly-difficult written examinations and higher-speed Morse code proficiency, was designed to encourage operators to improve their knowledge and skills. Its effectiveness in achieving this goal depends on a healthy rate of upgrading among operators and a balance of numbers among entry-level and higher-grade license classes. This is precisely where the current system is failing; today we have a "bottom-heavy" Amateur Service, with a growing majority of operators holding entry-level licenses and fewer upgrading every year.

Not only are we failing to encourage amateurs to advance to higher-grade licenses but we also are failing to keep many of them as active, involved members of the amateur community. Those who remain in entry-level license classes for years tend to become less active and more likely to drop out of amateur radio. This is an increasingly serious threat to the health of the Amateur Service.

What is causing this problem? Primarily, it is the barrier presented by the 13 word per minute Morse Code test. On one side of this barrier

lie limited operating privileges, no meaningful access to the HF bands, and the stigma of a "beginner's" license. On the other side are attractive access to the HF bands and the status of a more "senior" class of license. The difference in difficulty between the Technician written exam and the General written exam is negligible; it is the code requirement that effectively blocks advancement from one to the other.

Though there are many exciting operating activities and stimulating challenges to be found on the VHF and higher amateur frequencies, the HF bands continue to hold a special allure for amateur operators. It is on the HF bands that amateurs can easily and routinely achieve world-wide communications, often with home-built equipment. It is on the HF bands that even enthusiasts of satellite communications and VHF weak-signal experimentation meet regularly to schedule their contacts and exchange ideas. It is on the HF bands that amateurs can gather for statewide and region-wide networks for fellowship and in response to emergencies. It is thus no wonder that meaningful access to the HF bands is one of the strongest factors that determines whether or not an individual will remain interested and active in amateur radio.

Our current licensing structure has produced a ghettoization, in which those on the short end of the 13-wpm Morse Code barrier have no effective access to these activities on the HF bands. Without access, they often are not even adequately exposed to many of the activities that stimulate lifetime interest in amateur radio. Even if exposed and knowledgeable, many still find their exclusion from these activities demoralizing. This ghettoization helps to discourage effective mentoring by higher-class operators and to produce apathy and waning interest among those in the entry-level classes.

For the health of the Amateur Service, we must eliminate this ghettoization, encourage more interaction among those of different license classes, and provide newcomers to the Service with operating privileges sufficient to expose them to the entire breadth of amateur activities and to sustain their enthusiasm for amateur radio. What changes will achieve these goals?

First, eliminating the Novice class license, as the Commission proposes, will be a sound and useful step. The Novice license has in fact been replaced by the Technician license as the entry point of choice. It also has become a detriment to the growth and vigor of the Service. In addition to the decline in Novice licensees and applications cited by the Commission, Novice licensees are the least likely to be active in any way in Amateur Radio. An ARRL survey in 1993 found that only 16,000 of the more than 100,000 Novices then licensed were active operators. Even the active Novices reported significantly less on-the-air activity than other amateurs and were far less likely to be members of radio clubs. (4)

The decline in numbers of Novices and their demonstrated lack of activity indicate that this class of license does not provide the basis for continued interest in amateur radio and in fact is causing dropouts that probably are lost to the Service forever. Eliminating this license class will thus be a benefit to amateur radio. The current Novice frequency subbands should be reallocated for use by other classes without power restrictions.

The goals and needs of the Amateur Service, along with the need of the Commission to streamline the licensing process, would best be met by a structure containing only three classes of license: an entry-level class, a general-purpose class, and a senior or "prestige" class. This would provide attractive privileges to all amateurs, reasonable incentives to individuals to improve their knowledge and skills, and a reduced burden of license testing and processing. Because of the current requirement of Article S25 of the international Radio Regulations, a fourth class of license is needed for the immediate future, but it can be instituted so that the number of classes can easily be reduced to three when changes to Article S25 permit.

The specific licensing structure thus would include:

Entry-Level ("Basic") License: This license would confer all operating privileges at VHF frequencies and above, as well as HF operating privileges approximately equal to or perhaps somewhat less extensive than the current General license. This license class should not have privileges in the 30, 17 and 12 meter ("WARC") bands. It would require a written examination at approximately the level of the current General license.

Because Article S25 of the international Radio Regulations requires Morse Code ability for operators using HF frequencies, we would at present have to split this entry-level license into two classes. Those who have demonstrated Morse familiarity at 5 wpm would have all the above privileges while those who have not would be limited to VHF and above ("Basic-VHF"). The written examination should be the same for both classes; that way, passing the 5 wpm exam would confer significant and rewarding HF privileges. In the future, when the international Morse requirement is lifted, as it almost certainly will be, these two classes would be merged into one.

This means that we would retain, for the time being, two license classes that differ in their requirements only by the 5 wpm code test. However, there would be a major difference between this proposal and the current situation with the Technician and Technician-Plus classes. Currently, passage of the 5 wpm exam does not confer HF operating privileges that are sufficiently attractive to stimulate their use. Thus, Technician-Plus licensees still use VHF and above frequencies nearly exclusively. Under the new structure, passage of the 5 wpm exam would bring significant and attractive HF operating privileges sufficient to stimulate activity and interest in those bands, and to sustain long-term interest in amateur radio. This difference well justifies the burden of administering the additional test and license processing.

General-Purpose License: This license would confer operating privileges approximately equal to those of the current Advanced class and would require a written examination approximately equivalent to that of the current Advanced class, plus Morse code proficiency at either 12 or 13 wpm.

Senior or "Prestige" License: This would confer all Amateur privileges, and specifically would grant access to exclusive, CW-only subbands on the HF bands. It would require a written

examination equal to or perhaps somewhat more difficult than the current Amateur Extra Class, and Morse code proficiency at 16 or 20 wpm.

Current licensees would be "grandfathered" into the new classes as follows: Technicians to "Basic-VHF"; Technicians-Plus, Generals and Advanced to General-Purpose; and Extras to "Prestige" class.

Novices would be given a fixed length of time, perhaps two years or so, to pass the written exam for the General-purpose license to obtain that license. For currently-licensed Novices, that exam could perhaps be administered on an open-book basis. The current Novice written exam is not a sufficient basis for issuing any higher-class license and it would be irresponsible to grandfather Novices into any other license without ensuring that their knowledge of technical, safety and regulatory matters is sufficient to allow them to exercise new privileges without harming themselves or others. Those Novices who do not wish to take the additional exam probably already are inactive and lost to the Service anyway, and in any case certainly would be relatively small in number. Novices could continue to operate with their current privileges until the grace period expires; at that time, however, all Novice licenses would become null and void.

B. Greater Volunteer Examiner Opportunities

The ARRL's proposal in RM-9148 should be adopted. Advanced Class operators who are VEs should be permitted to administer examinations for the General Class license. These operators will be administering examination elements that they themselves have passed. This change will expand the number of examination opportunities and thus benefit the entire Amateur Service. Current regulations requiring Extra Class VEs to administer examinations for the General Class pose a particular hardship for amateurs in smaller communities and rural areas, where the available pool of VEs is smaller.

Under any new licensing structure, the rules governing Volunteer Examiners should be designed to maximize the availability of examination opportunities.

C. RACES Station Licenses

The proposed phaseout of RACES station licenses appears to have no effect on the ability of the Amateur Service to conduct emergency communications, while eliminating a burden on Commission resources.

D. Privatization of Certain Enforcement Procedures

While the Amateur Service is designed to be self-policing and the vast majority of amateur operators pride themselves on exemplary operating practices, there is a small but growing number of scofflaws in the amateur bands. Some of these are licensed and others are unlicensed persons "invading" the amateur bands. The growth of the problem is due in part simply to the increasing number of amateurs, but the perceived lack of enforcement activity is a strong contributing factor. An

efficient, cost-effective enforcement mechanism thus will serve to not only bring sanctions on those caught violating the rules but also to provide a strong, credible deterrent to others who may be potential violators.

The need is growing for an expanded enforcement effort. We must put in place a visible and credible enforcement mechanism before the problem becomes intractable. If the ARRL's proposals in RM-9150 are inconsistent with statutory provisions governing the role of administrative law judges, then legal experts should be given the responsibility of finding ways to alter the proposals to make them conform to the law.

The Commission's suggestion to require persons bringing complaints of interference to include a draft "show cause" order would appear to require an unwarranted amount of legal expertise on the part of the complainant. The Amateur Auxiliary consists of volunteers whose expertise includes identifying and localizing interfering signals, not administrative law.

Undoubtedly, many suggestions for ways to deal with the enforcement problem will be forthcoming. We know what the problem is. We know what resources we have for dealing with the problem. We now need to task the legal experts with the duty of crafting a solution to the problem that uses the available resources in a manner consistent with applicable laws.

E. Telegraphy Examination Requirements

There is no more divisive issue in Amateur Radio than Morse Code examinations. The Morse examinations have both supporters and opponents whose feelings on the issue approach religious fervor. Any proposal for change draws intense criticism, often from both sides. There is a temptation among reasonable people to simply leave the status quo unaltered until such time as, one hopes, a consensus develops among the amateur community and change can be implemented with considerably less rancor generated. However, both the Commission's need to streamline the licensing structure and the Amateur Service's need to overcome the stagnation that is increasing among licensees require that this issue be examined now. We cannot please both sides, or even perhaps either side, on this matter; we simply must take the actions required to ensure the future growth and strength of the Amateur Service.

1. The Role of Telegraphy in Amateur Radio

As the Commission pointed out, testing for Morse telegraphy was originally instituted in the days when radiotelegraphy was the primary communication mode of all radio operators. Morse testing for amateurs was, at that time, necessary to ensure that amateurs could recognize and stay away from Government and commercial stations as well as stay clear of maritime distress messages. In the following decades, as radiotelegraphy retained an important role in commercial and military communications, the amateur Morse tests also helped further the Amateur Service function of providing a pool of trained operators for the nation. This proved quite valuable in both world wars.

The Commission also noted accurately that radiotelegraphy now has a decreasing role as a communications mode in other services. As the role of radiotelegraphy further diminishes in other services, the original purposes of amateur Morse testing become less and less valid. It seems quite likely that, when Article S25 of the international Radio Regulations is next considered by a World Radiocommunications Conference (now scheduled for 2001) the existing requirement for Morse Code proficiency among amateurs licensed to operate below 30 MHz will be removed. If no Amateur Radio Service existed today and one were being designed "from scratch," it is unlikely that a Morse requirement would be included.

However, Morse radiotelegraphy remains a significant part of amateur operating, and will remain so for the foreseeable future. This mode of operating has a number of attractions that have withstood the test of time and will meet the challenges of the future. The mode itself has strong appeal for many operators who simply find it a pleasurable and relaxing way to communicate. It provides a cost-effective means of reliable, world-wide communication for amateurs with limited means, particularly young people. A recent resurgence of equipment-building, spurred by numerous inexpensive, low-power transceiver kits, is helping teach practical electronics to many amateurs. Much, if not most, of this building activity involves radiotelegraph equipment.

Radiotelegraphy thus will remain popular among a significant fraction of the amateur community, and will help to fulfill important purposes of the Amateur Service. This popularity, however, will not require a licensing requirement to survive. The appeal of the aspects of amateur operating that involve Morse code will prove sufficient to motivate significant numbers of amateurs to build code proficiency on their own. Even today, many amateur operators who had long forgotten the Morse Code are rebuilding their proficiency because they are becoming newly attracted to radiotelegraphy as an operating mode.

While radiotelegraphy does not need a Morse licensing requirement to survive, it does need some protection from interference. Currently, radiotelegraphy shares its designated subbands with digital modes. Voluntary band plans call for separation of Morse and digital operating areas, but these have only limited success. Because of the nature of digital operation, it is easy for these operators to unknowingly interfere with radiotelegraph communications. This is becoming a more common occurrence. Therefore, it is necessary that subbands designated solely for CW radiotelegraphy be established in the HF amateur bands. Such subbands should be from 50 to 75 KHz wide, at the bottom of each HF amateur band.

2. Morse Code Requirements for Amateur Licenses

Much of the intense feeling about amateur Morse examinations arises from the nature of Morse Code training itself. Gaining Morse Code proficiency is a process fundamentally different from gaining knowledge of technical or regulatory matters. The ability to "copy" Morse Code at speeds above about 10 words per minute (wpm) comes only as a reflexive process involving no conscious thought. This reflexive ability can be developed only through repeated practice, often

totaling many tens of hours, or more. (6)

The need to spend the time required to develop code-copying as a reflex has proven extremely frustrating to many people over the years, particularly to those who are accustomed to learning technical subjects quickly and do not understand that building code proficiency is not an intellectual process but one of psychological conditioning. Many people responded to this frustration by abandoning the effort; others suffered through the process only to carry a lifelong distaste for Morse Code. Ability to pass a 5 wpm examination does not require the reflexive process, so it can be attained quickly. This low-speed ability, however, because it is not a reflexive process, does not represent true code proficiency, but rather a mere familiarity with Morse Code. The "barrier" between 5 wpm and 13 wpm has relegated thousands of amateurs to permanent occupation of the entry-level license classes, contributing to the stagnation of the Amateur Service.

It is the lengthy and sometimes painful nature of the training process that causes the intensity of feeling about Morse Code examinations among many amateurs. Those who have successfully completed the process often tend to treat it as an initiation rite that newcomers must undergo in order to prove their worthiness. Whether or not they themselves ever use Morse Code on the air, many amateurs feel that others must suffer the same ordeal they did in order to "pay their dues."

The time-intensive nature of the code-training process also has led to the use of Morse examinations to perform another function entirely unrelated to any operational utility of radiotelegraphy. That is the function of a "filter" to limit the number of amateur operators. This has a long history. In 1936, the ARRL petitioned the Commission to raise the code-speed requirement from 10 wpm to 12.5 wpm, and the Commission obliged by establishing the current 13-wpm testing speed. The League justified this by arguing that people are not "qualified" to be amateur operators "until they have proved themselves by exercising a little patience and persistent practice in 'learning by listening.'" (7) That same year, "control of the number of amateurs" was proposed as a solution to crowding on the amateur bands, and it was said that an "increased code-speed requirement" would "accomplish the desired result." (8)

Today, we still hear such arguments, often from amateurs who do not use Morse telegraphy and who may even admit that it is irrelevant to much of the activity on the amateur bands. Those who fear a large influx of new licensees and the subsequent crowding of the amateur bands insist that the code requirement serves as the only barrier to such an unwanted development. Many amateurs feel that the code requirements are the only thing keeping totally unqualified people from inundating the Amateur Service and destroying it.

These fears, while unreasonable, are real. We cannot cling to the past forever, but we must assure current licensees that the Amateur Service will not be degraded. This can be done by a stepped reduction in Morse requirements accompanied by increased difficulty in the written examinations.

It appears that the next WRC to consider Article S25 probably will remove the international requirement for Morse proficiency among amateur operators using the HF bands. The majority of U.S. amateurs today have not passed the 13 or 20 wpm tests. Pressure to remove Morse Code as an examination element will grow. We must prepare for this. A reasonable approach would give significant operating privileges on the HF bands now to people who have passed only a 5 wpm exam, while still requiring true code proficiency, at a level of 12 or 13 wpm, for a higher-class license.

As outlined in the section above on license classes, we should structure our licensing system to provide that significant HF access to licensees who have passed a 5 wpm exam, but put in place a licensing structure that would readily adapt to removal of any Morse requirement for HF access.

We should thus provide HF operating privileges sufficient to attract new operators and to retain their interest in amateur radio to those with 5 wpm familiarity. For full operating privileges, we should require true code proficiency, at least 12 wpm, for the time being.

The current Morse testing procedures, allowing VE teams to specify multiple-choice or fill-in-the-blanks tests, and also providing for passage by one minute of solid copy, work well. As an active examiner, this writer feels that no changes are required.

3. Telegraphy Examination Credit for Examinees with a Disability

As long as Morse telegraphy remains a licensing requirement, we must insist that applicants honestly meet that requirement, in order to preserve the integrity of the licensing process. The current rules providing for exemption from higher-speed Morse testing on the basis of a physician's certificate of disability are not adequate to preserve that integrity. The ease of exemption provided by the current rules makes the system readily vulnerable to abuse. The perception throughout the amateur community is one of widespread abuse of the exemption option, and this perception is generating an unhealthy cynicism about the entire licensing process. We must rectify this.

The medical conditions that preclude passing a telegraphy examination are very few and very rare. Given the "exceptionally accommodative arrangements," as described in FCC Form 610's "Notice to Physician Certifying a Disability," nearly anyone alive could take such an examination. The accommodations that can be provided by VEs would allow an examinee completely deprived of sight, hearing or both to take a telegraphy examination. Inability to write or speak, and even illiteracy can be accommodated in the examination process. (5) It thus is amazing to see the numbers of people with no such obvious conditions receiving exemptions. The inevitable conclusion is that many people are persuading a friendly physician to sign the certification in order to relieve them of the time-consuming burden of attaining the required level of code proficiency. This practice is not only dishonest but also unfair to those who do meet the requirement.

The ARRL's request in RM-9196 that examinees be required to first attempt an accommodated telegraphy examination before being granted an

exemption is reasonable and fair. It also is reasonable and fair, as requested in RM-9196, that VECs be allowed to request medical information from the certifying physician regarding the applicant's disability. This is not an unfair burden on examinees. Applicants requesting an exemption from code examination are requesting a tangible benefit from the Government -- amateur operating privileges -- based on a permanent medical condition. There is nothing unfair about requiring them to prove that they are in fact unable to take an accommodated examination. The ARRL requests in RM-9196 thus should be granted.

Though the current "Notice to Physician Certifying a Disability" in FCC Form 610 is carefully and strongly worded, it should be strengthened and made even more specific. It should be made a separate form to be attached to the license application form, so as to allow additional text to be included and more information to be provided. The primary weakness of the current certification form is that it requires only that the applicant be certified as "disabled," a certification that is far too vague. A panel of VEC representatives and physicians should be charged with producing a list of medical conditions (admittedly very short) that may qualify for the exemption, along with a list of conditions, that, given the possible testing accommodations, do NOT qualify for the exemption. By forcing physicians to certify in writing that a specific, diagnosable condition exists, we would introduce a badly-needed higher level of honesty into this process.

F. Written Examinations

It has become popular in the amateur community to malign the current written examinations as too easy. According to some people, virtually anyone could pass an amateur examination with almost no preparation. These accusations, however, rarely come from those of us who serve as Volunteer Examiners. At every test session, we see candidates who have diligently studied the subject matter fail the examinations. Many people must attend several test sessions before successfully passing the tests. Statistics on pass rates from the VECs confirm that very significant percentages of examinees are failing the current exams.

While the current written examinations do, in fact, ensure that those who pass have a basic familiarity with the subject matter, they can be improved. They should be improved in two ways: first, by increasing the level of difficulty and the breadth of the subject matter itself; and secondly, by refining the manner in which the exams are prepared and administered.

We must effect significant improvements to the written examinations not only because it will raise the level of competence in the amateur service but also because this is the only way we can assure those who insist on retaining stiff Morse Code examinations that reduction or elimination of Morse requirements will not mean a reduction of competence or operating standards in the Amateur Service. If relaxed Morse requirements are accompanied by stiffened written exams, many amateurs will accept the new licensing structure much more readily.

Regarding subject matter, the current examination topics remain

relevant and appropriate. The level of knowledge required within these topics should generally be raised. In addition, if it is desired to more strongly emphasize digital communications techniques, then the exams should reflect that. It is very important to emphasize courteous, efficient operating practices much more strongly, so this should be more thoroughly represented in the examinations.

We also should revise our examination techniques to make the exams more truly test actual understanding of the subject matter. Though stories about people memorizing the current question pools probably are exaggerated, we can make significant improvements in testing procedure to eliminate this possibility. These improvements, however, must not make testing significantly more time-consuming or onerous for the VEs; we cannot go back to essay questions and requiring examinees to draw schematics.

We can, however, utilize modern technology to assure that understanding, not memorization, is more nearly the criterion for passage. Legal considerations probably dictate that a pool of questions must remain public, but even within that constraint, much can be done to make individual tests more unique. For example, if a question must be made public, must the exact phraseology of the answer also be made public? Even if the answer must be made public, could not the incorrect "distracter" answers change from test to test?

With computers, local VE teams could utilize VEC-approved software to generate written exams that would scramble the order of distracters, or perhaps choose from a larger pool of distracters for each exam. In addition, questions requiring computation could be generated with different inputs, such as component values, for each exam. This way, a candidate still will know what knowledge and skills will be expected, but will not be able to memorize specific answers in advance. By using custom software to generate both the examinations and the answer keys for the VE team, the examination process can be improved significantly without increasing the amount of time required to administer and grade the exams.

Integrity and accountability can be assured by a requirement that each computer-generated exam and the answer key used for it be retained for a specified period of time by the VE team or by the VEC.

In sum, while the current written examination system is not as broken as some would contend, it can be greatly improved without compromising impartiality or making the process too time-consuming.

V. CONCLUSION

The Amateur Radio Service has been a tremendous asset to the nation for much of this century and has shown a remarkable ability to adapt to new technologies and new times. As we approach the 21st Century, we have a strong and valuable Amateur Service, but one that is threatened with stagnation in its ranks. This proceeding offers a welcome opportunity to meet the administrative needs of the Commission and the needs of the Amateur Service by creating a new, streamlined licensing structure. With courage, foresight and commitment, we can make changes that will reinvigorate amateur radio and ensure its

vitality and value to the public for many years to come.

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