

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
)
AMENDMENT OF PART 97 OF THE)
COMMISSION'S RULES GOVERNING THE) RM- _____
AMATEUR RADIO SERVICE TO)
IMPLEMENT CHANGES TO ARTICLE 25)
OF THE INTERNATIONAL RADIO)
REGULATIONS ADOPTED AT THE 2003)
WORLD RADIOCOMMUNICATION)
CONFERENCE, TO ENHANCE THE)
AMATEUR RADIO SERVICE AND TO FULFILL)
THE COMMISSION'S OBJECTIVE OF)
STREAMLINING THE AMATEUR RADIO)
SERVICE AS SET FORTH IN)
WT DOCKET 98-143.)

To: The Chief, Wireless Telecommunications Bureau

PETITION FOR RULE MAKING

The Radio Amateur Foundation, an unincorporated grassroots organization comprised of concerned, licensed radio amateurs without pecuniary interest in the Amateur Radio Service, hereby with all respect, requests the Commission to issue at the earliest date possible a Notice of Proposed Rulemaking, proposing changes herein in the rules governing the Amateur Radio Service. The rule changes proposed in this Petition would upgrade the

Service by implementing changes to the International Radio Regulations adopted at the 2003 World Radiocommunication Conference (WRC-03) with regard to qualifications for the basic, entry-level license in the jurisdictional areas governed by the Federal Communications Commission. It provides a progressive licensing framework and bandplan that enhances the existing Amateur Radio Service, while still respecting the basic, sensible traditions that have made the Amateur Service strong, and prepares those involved for the worst of all conceivable national communications emergencies. As well, it provides an elegant mechanism that allows the Commission to meet the objectives it set forth in WT Docket 98-143: to streamline and enhance the license structure and application process. Finally, it provides for the creation, adoption and integration of new and existing digital technologies into the mainstream of the Service.

Instead of creating a new, entry-level license class, the Radio Amateur Foundation proposes to modify the popular and highly successful Technician Class license to allow restricted high-frequency telephony, data, image and CW privileges, thereby remaining the de facto entry point into the Service. This Petition also proposes that the Element 1 Morse telegraphy requirement be retained for both the General and Amateur Extra Class license, that all current Advanced Class licenses are to be

upgraded to Amateur Extra Class and that all current Novice Class licenses are to be upgraded to Technician Class.

The Radio Amateur Foundation states its petition as follows:

I. Background and Introduction

1. Since its inception, the licensing requirements for the Amateur Radio Service in the United States have been revised numerous times. The most recent revisions were in the year 2000, when the Commission ruled that all licensees in the Amateur Service with operating privileges below 30 MHz were to demonstrate a basic proficiency in Morse telegraphy at five (5) words per minute (WPM). This was in keeping with the international requirement that all amateurs operating below 30 MHz were to demonstrate a basic knowledge of Morse telegraphy. Since, in July 2003, the World Radiocommunication Conference (WRC-03) revised Article 25 of the international communications regulations governing the Amateur Service, removing the international requirement for demonstration of Morse radiotelegraphy proficiency. It was decided at WRC-03 that it would be left up to each national authority to develop its own licensing requirements with regard to such proficiency. The Article that pertains to this requirement now reads:

25.5 - 3.1) Administrations shall determine whether or not a person seeking a license to operate an amateur station shall demonstrate the ability to send and receive texts in Morse code signals.

Modifications to Article 25 regarding technical criteria were also made:

25.6 - 2) Administrations shall verify the operational and technical qualifications of any person wishing to operate an amateur station.

2. In Docket 98-143, the Commission tasked itself with “streamlining” the Amateur Service. During this time, it reduced the number of license classes in the Amateur Service from six to three, reduced the number of required telegraphy elements from three to one and reduced the number of written examination elements from five to three. The Commission’s intent was to simplify the licensing structure and corresponding processes. However, this was specifically considered by the Commission to be a short-term ‘fix’, and that such matters as operating privileges, and the upgrade incentive offered by those privileges would be dealt with at a later date. However, in its effort to streamline the Amateur Service, the Commission has been left with the task of maintaining ‘legacy’ or grandfathered classes, specifically the Novice and Advanced Class licenses. And though no new licenses of these classes have been issued since, existing licenses have been maintained without a reduction of privileges

stipulated in Part 97 of the Commission's rules. In effect, though no new Novice or Advanced Class licenses have been issued, much of Part 97 of the Commission's rules remain 'frozen in time' in order to accommodate those licensees. As a result, the Commission has not been able to fully recognize the administrative benefit sought in Docket 98-143.

3. In view of recent modifications to Article 25 at the 2003 World Radio Conference, and in light of the obvious need for Amateur Service restructuring (and the Commission's invitation to the Amateur community to fully participate in the process), the Radio Amateur Foundation believes that it is time for the restructuring process to be completed. The Radio Amateur Foundation understands the need for the Commission to fully reap the benefits of the streamlining process it began with WT Docket 98-143. Any such restructuring must address the near-term future (up to 10 years) of the service, the needs of both prospective radio amateurs and the concerns of currently licensed radio amateurs pertaining to licensee integrity, the potential impact of restructuring on existing operating conditions and the preparedness of the service for the worst conceivable communications emergency. We argue that modification of the existing and very successful Technician Class license to include restricted HF privileges meets both the objectives of the

Commission, as well as the objectives of current and future radio amateurs, and can serve as a successful and proven entry point into the Amateur Service. We also submit that modification of existing Novice Class licenses to Technician Class, as well as modification of existing Advanced Class licenses to Amateur Extra also meets all of the above listed objectives with little, if any negative impact on the Amateur Service. The Radio Amateur Foundation believes that providing for a code-free entry level license with restricted high frequency access and full access above 50 MHz by modifying the existing Technician Class license is the most sensible route for both the Commission and the Amateur Service. However, the Radio Amateur Foundation asserts that beyond this, there is no need to make modifications to the licensing requirements for either the current General or Amateur Extra Class license. In their current form, both of these classes are highly successful, and provide ample incentive for radio amateurs to engage in a course of motivated self-training in order to obtain these privileges. With any modification to these classes, as some have suggested, the Commission creates a high risk of corrupting the integrity of the Amateur Service, and disenfranchising those very radio amateurs who have long contributed to the service.

II. The Technician License – Building on a Proven Entry-Point into the Amateur Service

4. Since the creation of the ‘Codeless’ Technician Class license in 1991, more people have entered the Amateur Service than ever before. The Commission itself has noted this success, with satisfaction, and ascertains that the Technician Class license should be the main entry-level point into the Amateur Service. However, as others have maintained, as the only entry-level license, it segregates licensees to a local geographic scope in terms of average communications distances and does not provide an opportunity for an adequate ‘sampling’ of the ‘amateur experience’ in terms of the worldwide communication capabilities that the Amateur Service is noted for in the high-frequency spectrum. Without the opportunity for actual hands-on experience below 30 MHz, many licensees at this level are not properly motivated to take on the task of self-training and improvement needed to ‘upgrade’ to the General Class license. The Radio Amateur Foundation proposes with this Petition that restricted privileges in the high-frequency spectrum of the Amateur Service be granted to the Technician Class license, as set forth in the section VII of this petition, without any reduction in privileges above 50 MHz. It would grant restricted power narrowband data and Morse telegraphy privileges on segments of the 80, 40, 15 and 10 meter high-frequency amateur bands, as well as voice and image

privileges with restricted power on the 10 and 15 meter high-frequency amateur bands. It is also believed that there is a substantial benefit in providing restricted privileges, limited by frequency spectrum and transmitter output power of 100 watts P.E.P. on relatively unused portions of the 160 meter medium-frequency amateur band from 1900-2000 kHz for the entry-class license. This would provide a “nighttime” band for Technician Class licensees, and would afford the opportunity for experimentation and experience with operating conditions very different than those experienced on the high-frequency amateur bands. The recommended privilege modifications are outlined in section VII of this petition.

5. It is felt that voice and image privileges on the 40 and 80 meter amateur bands for the entry-level Technician class license is NOT in the best interest of the Amateur Service for two very logical reasons:

- **The current overcrowding of these frequencies.** The 40 meter phone segment is ‘bursting at the seams’ with activity on a 24 hour a day basis, and competition with international broadcasters at night only worsens the situation. At night, the 80 meter phone segment is, at best crowded with stations who are trying desperately to avoid interfering with each other. During contest weekends, these bands suddenly become

so saturated that ill-will between amateurs is commonplace. Overcrowding on these frequencies has been stated as one of the reasons for the ARRL's 'Refarming Petition' for the Novice bands (Petition for Rulemaking, RM-10413). 'Opening the gate' and suddenly allowing access to these frequencies by multitudes of inexperienced amateurs will, at best result in an acute communications nightmare, ill-will between amateurs and most likely result in an onslaught of complaints filed with the Commission's Enforcement Bureau.

- **Incentive for Advancement.** Along with the 20 meter amateur band, both 40 and 80 meter phone segments are seen as 'prime' space, and access to these segments is one of the fundamental incentives for the radio amateur to upgrade to a higher class license. These segments should be 'carrots' that the amateur community uses as incentives to motivate amateurs to take on the task of self-training, and upgrading to the General Class license.

6. The recent modification of Article 25 at WRC-03 affords the Commission the opportunity to finally complete the process of making the Technician Class license a true entry-point into the Amateur Service, and to streamline it's own internal processes with the intent it set forth in Docket 98-143.

7. Modification of the privileges to include HF and MF access for Technicians will require an updating of the Technician Class license examination question pool to reflect a basic understanding of the new mediums involved. Basic propagation, international radio law, basic radio theory, operating procedure, digital modes and antenna theory, which are currently part of the Technician Class exam should be broadened to include specific questions relating to operating below 30 MHz.

8. It should be noted however, that even with the opportunity afforded in this petition, many Technician Class licensees are quite content with the local communications capabilities afforded them with the privileges associated with this class, and will not see the benefit of tasking themselves with 'upgrading' to the General Class license. This has been observed since the inception of the original Technician Class license. There is nothing wrong with this. Those very amateurs have been accepted into the community and have contributed greatly to the Service. They find their own value within the terms of their current privileges and do not desire what this proposed enhancement has to offer.

9. It has been argued by some, including the ARRL, that the volume and scope of knowledge required for the Technician Licensee is "too broad", and that it is a deterrent for many who

wish to enter the amateur service through this license class. The Radio Amateur Foundation disagrees with this statement, and uses the success of the Technician License since 1991 as its primary proof and evidence. In the history of the Amateur Service, never has such a license attracted so many newcomers. It is believed that the scope of material required is in no way immaterial to the privileges granted by the license, nor is it a deterrent to entry into the service. It is also believed that creation of a new entry-level 'Novice' license, and dismissal of the Technician Class license is counter to the Commission's objective of streamlining and simplifying the Amateur Service as set forth in Docket 98-143. It is felt that the Commission will also agree with these observations, as it will undoubtedly be hesitant in disposing of the most successful entry-class license in U.S. Amateur Service history.

10. The Radio Amateur Foundation asserts that the proven success of the Technician Class license, with modifications to include restricted access below 30 MHz would provide a full-spectrum entry point into the Amateur Service, within a similar spirit as the old Novice Class license. Our organization respectfully requests that the Commission make the modifications illustrated in this section as soon as possible. As for current Technician Class licensees with credit for successfully passing

the five words-per-minute telegraphy exam, it is recommended that they be allowed to maintain lifetime telegraphy credit. This will encourage those individuals to pursue a path toward a higher-class license.

III. The General Class and Amateur Extra Class Licenses. Don't Fix what isn't Broken.

11. The General Class license accounts for more than 20 percent of all licensed radio amateurs in the United States. At some time in most every active amateur's life, obtaining a General Class license becomes a goal. It is a celebrated rite of passage in American ham culture. Passing of the General Class exam reflects a licensee's intermediate understanding of general radio theory and practice at all amateur frequencies, safety, electronics, antenna theory and an intermediate comprehension of international telecommunications law. From this foundation, the radio amateur is prepared to experience amateur radio at its fullest, with a full set of privileges that span from 1.8 MHz to the shortest of light wavelengths. Radio amateurs reaching this level feel a sense of pride and achievement, part of which is gained from the personal struggle and quest for knowledge that every ham endures to reach this point. The General Class license, in effect, works well the way it is currently structured, and is not in need of any type of modification.

12. The Amateur Extra Class license reflects the pinnacle of achievement for the radio amateur in the United States, and according to the Commission's public data, accounts for 14.6 percent of all licensed amateurs in this country. It reflects an advanced knowledge, usually gained through hands-on experience over a wide variety of communications-related disciplines. The main distinguishing characteristic in these radio amateurs is a high interest in communications and substantial motivation to perfect their own personal art. Those who meet these requirements are an elite group who deserve the full set of privileges that are granted to radio amateurs in this country. Radio amateurs who reach this lofty goal genuinely possess a sense of what Abraham Maslow, a legendary behavioral psychologist from the early 20th century referred to in the 'Hierarchy of Needs' as 'self-actualization'; a sense of well-being and enlightenment for having achieved the highest of one's goals through work, struggle, understanding, wisdom and experience. Very few other circumstances in a human being's life can provide this sense of achievement, and the struggle to reach this point is a large part of the foundation of this very human and very rare phenomenon. The Radio Amateur Foundation acknowledges this as one of the great moments in our amateur lives, and respectfully requests that the Commission make no modifications whatsoever to the Amateur Extra Class license.

13. Passing of the current General Class and Amateur Extra Class examination also reflects a basic proficiency in the most simple and essential forms of radiocommunication: Morse telegraphy. Even though commercial, maritime and other pecuniary-based services have walked away from this basic form of communication in favor of other more economical methods, telegraphy has been gaining favor in HF amateur circles in the past decade. Several HF-based amateur radio contests based using this mode have seen a substantial increase in participation during the past 10 years - both in this country, and internationally. Also, in contrast to the argument made in its recent (yet unnumbered) petition for rulemaking to the Commission, the ARRL cites in a non-scientific web-based survey dated March 2003 that nearly 68 percent of respondents used CW on a regular basis, and 44 percent use it more than any other mode. It is also interesting to note that at that time, more than 30 percent of all licensed amateurs were so-called 'no-code' Technicians - around the same number of respondents that said that they 'never used CW'. Telegraphy continues to provide reliable communications using the most basic of equipment between radio amateurs over great distances, during the harshest of ionospheric conditions and where most other methods of communication fail or could not otherwise be utilized. In short, it provides the radio amateur with a powerful tool and a skill

that can always be relied upon, and is seen as a cornerstone in the active radio amateur's wide-ranging toolset.

14. Many have made the argument that because the maritime and commercial services are 'pulling the plug' on radiotelegraphy, it is a reason to do so in the amateur service. It should be noted that it is illogical to even compare the two services, because respective needs are very different. Maritime and commercial entities are mostly concerned with being able to move massive amounts of information reliably, and in a short period of time. The regulations governing those services also correspondingly allow very high power and other necessities required to meet the objectives of its licensees. Amateurs on the other hand usually engage in very low information transfer and rarely ever have the need to move massive amounts of information reliably. If an amateur has such a need, he or she usually turns to an appropriate commercial service, in the same manner as those outside of the amateur service.

15. Non-amateur services are concerned primarily with pecuniary interest, either directly or indirectly. Moving to other modes of communication are primarily motivated and necessitated by optimizing those commercial interests and nothing else. They may choose to drop telegraphy in favor of 'modern' methods because it is too expensive to keep trained operators on

staff, because there is a need for instant and private communications or because of a perceived lower liability profile in the event of a mishap (such as a maritime distress situation). Using the argument that the elimination of telegraphy in services which have entirely different motives, motives which are explicitly prohibited in the Amateur Service by Part 97.3(4) of the Commission's regulations, is in no way a valid argument for those detractors who wish to use it as a case for the elimination of the telegraphy requirement in this service. As stated in Part 97.3 of the Commission's regulations governing the Amateur Service:

(4) Amateur Service. A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

Commercial interest is explicitly prohibited in the Amateur Service. Therefore, the decisions made by those with commercial interests in other services with entirely different objectives cannot be used as an argument to justify similar action in a non-commercial service. To remove the telegraphy requirement based on the actions of those in other services would be a dangerous precedent, and could fundamentally change the nature of the Amateur Service. Amateur radio exists for its own sake, and should not be impacted by the decisions made

in other services for other reasons. It is, after all “amateur” radio, and should remain pure, as stated in FCC 94.3(4).

16. The Commission has stated that Morse proficiency alone does not indicate whether an individual will be a successful radio amateur. This argument is tantamount to the statement that “knowledge of American History is not a good indicator of how well a person will perform in American society.” While this statement may be true to some extent, there is no doubt that a citizen, native or naturalized, who knows the history of his nation will be in a better position to fully understand, utilize and appreciate it. Similarly, it is agreed that knowledge of Morse telegraphy alone does not imply that one whom is proficient in it would make a ‘better’ radio amateur than one whom isn’t. Many radio amateurs in the Technician Class ranks have more than proven themselves worthy hams, perfecting their technique, contributing to their communities and advancing the art of amateur radio on the frequencies above 50 MHz. However, it is commonly accepted that an amateur whom is proficient in radiotelegraphy has a distinct advantage over other amateurs who are not likewise proficient in this simple communications method, and that the same ideal Technician Class licensee illustrated above would be a more capable radio amateur if he or she was proficient in

telegraphy methods, especially when using the frequencies below 30 MHz.

16a. For example, below 30 MHz, telegraphy is the only mode allowed to amateurs that can be used to transcend language barriers, allowing our community to become 'radio room diplomats', aiding tremendously in our quest for "continuation and extension of the amateur's unique ability to enhance international goodwill" (*FCC Part 97.1e*). While some will argue that digital methods can be used to the same effect, this would limit such communications to those who could afford the complex equipment required, effectively removing lower-income amateurs using simple equipment from this enlightening activity.

17. Some have argued that in the day of the Internet and instant worldwide communications, that radiotelegraphy is 'outdated' and 'outmoded', and solely because of the telegraphy requirement, the 'best and brightest' are prevented from entering the service as they once did. They point to an emotionally perceived 'loss' of amateurs on the bands, when in fact, there are more licensed radio amateurs than ever before. This perceived 'loss' can be attributed to a variety of technological and cultural shifts, including:

- an increase in communications options that the average ham has available, including those which are deemed commercial.
- a decrease in the amount of time relegated to 'hobbies', such as amateur radio, in our contemporary society.
- an drastic increase in the number of options competing for our dwindling leisure time.
- a societal shift toward an 'instant gratification' mindset, which runs counter to the very purpose and most highly regarded traditions of the Amateur Service, an institution built upon individual self-training, self-improvement, experimentation and personal satisfaction; a service which is anything but 'instant gratification' oriented.

18. Telegraphy doesn't prevent the 'best and brightest' from entering the Amateur Service. The 'best and brightest' will have little trouble mastering telegraphy in short order, or any other existing examination requirement for a license grant in the Amateur Service, but only if they are so *motivated*. There are many in the Amateur Service who once did not see the need for a telegraphy requirement, but were motivated enough to step up to the challenge, and now fully appreciate why the requirement was in place to begin with. Lowering licensing requirements does not invite participation from the 'best and brightest' as some argue. It only serves to lower the motivation for those who thrive on challenge, the very individuals who are so needed in the Amateur Service.

Those individuals understand that learning and wisdom come from accepting an honest challenge. If lower requirements encouraged participation, local community colleges would be overflowing with high school valedictorians and National Merit Scholars, while universities such as Stanford and MIT would have to go begging for students.

19. The Radio Amateur Foundation asserts that the individual struggle for skill development, mastery and proficiency leaves in its wake a sense of genuine achievement. This sense of achievement which so-called 'traditional' radio amateurs have gained over the decades is what defines the sense of respect and protectiveness that each worthy amateur has for the Amateur Service. It is an integral part of the radio amateur culture, and this sense of respect and duty can only be attained through the process of mastery. Individuals who have never set out on this self-imposed quest for mastery and attainment have no frame of reference for what many of those active in the Amateur Service hold in such high regard.

20. Unfortunately, it is mostly those individuals outside of the service, along with traditional amateurs who are responding emotionally to a perceived 'loss' of activity on the high frequencies, and those who stand to gain

financially (either implicitly or otherwise), who have cried the loudest for the dismissal of the telegraphy requirement in the Amateur Service. Basically, ignorance, panic and greed are unwitting collaborators in an alliance to wholesale the values and culture of a service which has a tradition of proficiency, knowledge, pride and self-regulation.

21. Finally, it should be noted that by removing the Morse radiotelegraphy requirements from the General Class and Amateur Extra Class licenses, the Commission would be creating the groundwork for a socially divisive caste system within the Amateur Service - the 'no-codes' versus the 'know-codes'. To some degree, this is already a fact in some circles. Amateur radio, by its very nature, is a very social pursuit. However, by removing telegraphy from the requirements of the General Class and Amateur Extra Class licenses as petitioned by some in the community, the Commission is potentially embarking upon a mission that is virtually guaranteed to become a very expensive enforcement nightmare.

The Worst of All Conceivable National Emergencies

22. Part 97.1 of the Commission's regulations governing amateur radio states:

(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary

noncommercial communication service, particularly with respect to providing emergency communications.

(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

Part 97.401 of the Commission's regulations governing amateur radio also states:

(a) When normal communication systems are overloaded, damaged or disrupted because a disaster has occurred, or is likely to occur, in an area where the amateur service is regulated by the FCC, an amateur station may make transmissions necessary to meet essential communication needs and facilitate relief actions.

23. If we are to give any credence to the very regulations that are the *raison d'être* of the Amateur Service in the eyes of the public, those trained operators mentioned in 97.1 must be prepared to provide communications in the worst of all conceivable scenarios - a nuclear attack upon the United States. While this might seem much less likely in a post-Cold War era, the events transpiring on September 11, 2001 and subsequently, the rationale for invading the nations of Iraq and Afghanistan leave one to believe that the scenario is even more of a possibility than before. This threat is compounded further by North Korea's pursuit of nuclear weapons and long-range missiles. It is common knowledge in technical circles that in the event of even a limited nuclear attack, modern terrestrial, satellite and emergency backup communications networks will be, for the most

part rendered useless by the electromagnetic pulse (EMP) event generated by the nuclear explosion(s). As well, the nation's fragile energy infrastructure is quite susceptible to the same event. The only electronic equipment to survive such an event will be of the older larger-lead tube-type equipment, and modern equipment specifically isolated and protected from electromagnetic pulse events. It is also suspected that the ionosphere will be 'noisy' from radiation and charged artifacts projected through it by such a series of explosions, with phase delays that would wreak havoc on standard voice and data communications.¹

24. It will be at such a time when trained radio amateurs proficient in radiotelegraphy will be called into service to provide the most important of all communication tasks. Public and private interests alike - and in particular, those that ceased the use of radiotelegraphy, will find themselves depending on the very method of communication that was deemed 'archaic' and slow. While it is strongly believed (and hoped) that this particular scenario is highly unlikely, by unnecessarily disposing of the radiotelegraphy requirement for the General Class and Amateur Extra Class licenses, the Commission increases the risk of a total national communications

¹ *The Effects of Nuclear Weapons.*, 1978, U.S. Department of Defense, pp 461-540

failure in such an event by eventually eliminating this basic of all skills from its resident amateur population; the very people who are the last hope in such a situation.

25. It should also be noted that most recently, the military services in many western nations have returned to teaching Morse telegraphy to communications personnel. The U.S. Special Forces and the British SAS have always required a knowledge of Morse telegraphy within their units. It should also be noted that the former eastern-bloc nations have never ceased the use of telegraphy, and have stated recently that even with the changes in ITU Article 25, they will not drop it as a requirement for an amateur license. They understand that during the worst of all conditions, radiotelegraphy can be relied on.

26. The newly modified Article 25 from the World Radiocommunication Conference provides the latitude for each individual administration to determine whether or not a radio amateur should have proficiency in radiotelegraphy. On the grounds of national security alone, it should be quite obvious from the above illustration that maintaining a pool of trained radio operators is in the best interest of the Commission, the Amateur Radio Service and the United States. An amended Article 25 provides the option to do so. However, implied in the Article 25 option is the responsibility that each administration has in

maintaining the high-level of integrity within the service by providing an intuitive path for those few who are so motivated to become a member of the amateur community; not to provide a cheap alternative to other, more appropriate communications services. The Commission must utilize the amended Article 25 with caution, restraint and wisdom. It is an option, because a decision that may work in the best interests of one administration does not necessarily mean that it will be effective in another. It should be used to better the Amateur Service, not degrade it. On these grounds, the Radio Amateur Foundation strongly and respectfully requests that no modification to the current requirements for the General Class and Amateur Extra Class license be altered in any way whatsoever.

IV. Novice Class and Advanced Class licensees.

27. As a result of the Commission's intent to streamline the Amateur Service, as set forth in WT Docket 98-143, it was decided not to issue any more Novice Class or Advanced Class licenses. However, the Commission decided to postpone any action on modification to existing grants with licensees holding those privileges. Since it was determined that amateurs with those particular grants should suffer no reduction in privileges, it was decided by the Commission that the grants should be "grandfathered" until appropriate action could be taken in the future. This has presented the Commission with the task of maintaining the existing license grants, which runs contrary to the streamlining goals set forth by Docket 98-143, in which the Commission sets a three-tier licensing structure for the Amateur Service. It also has the side-effect of freezing a significant portion of Part 97 of the Commission's regulations governing the Amateur Service.

28. The Radio Amateur Foundation also believes that a three-tier system is also appropriate for the future of Amateur Radio. It also believes that the amateurs who have Novice Class or Advanced Class license grants should suffer no reduction in

operating privileges, and that the solution should have a net positive impact on the Amateur Service as a whole. As a solution, the Radio Amateur Foundation respectfully requests the following modifications to the Commission's regulations regarding the Amateur Service:

29. A blanket upgrade of all Advanced Class license grants to Amateur Extra. As the Commission, and other petitioners have stated, the only perceived significant difference between the Amateur Extra Class and Advanced Class licensing requirements was the 20 word-per-minute radiotelegraphy exam. Technically, the exam elements are perceived as minimally different. Similarly, the difference in operating privileges are also minimal. Now that the radiotelegraphy requirement has been reduced to five words-per-minute for the Amateur Extra, and that all current Advanced Class licensees have passed a 13 word-per-minute radiotelegraphy examination, the "requirement gap" has been virtually eliminated. In keeping with the streamlining objectives set forth by the Commission in WT Docket 98-143, the Radio Amateur Foundation respectfully requests that the Commission upgrade all existing Advanced Class license grants to Amateur Extra Class at it's earliest convenience.

30. Elimination of the Novice Class license and a blanket upgrade of all Novice Class license grants to Technician

Class. For many decades, the Novice Class license served as the most popular gateway into the Amateur Service. Currently, more than five percent of all amateur license grants in the Commission database are to Novice Class licensees. Unfortunately, for a wide variety of reasons most of these amateurs are no longer active in the service. The HF novice sub bands are for the most part, devoid of their signals.

31. In WT Docket 98-143, the Commission has mandated its preference for a three-tier license structure, and an overall streamlining of the Amateur Service. Given its relative dormancy, it would be logical to conclude that disposing of the current Novice Class license is in order. However, it is not recommended that these amateurs should have their license grants terminated. The Commission has stated that it does not want to reduce or eliminate privileges for any radio amateur, including Novices. In addition, given the fact that many amateurs return to the service after a period of inactivity, it is deemed inappropriate, and against the best interests of the amateur community to cancel the license grants of these individuals. The best overall solution is to modify the existing Novice Class license grants into the entry-class license mandated in the Commission's streamlined system. It is reasoned that because these amateurs are mostly inactive, there will be insignificant

immediate impact on the Amateur Service. However, in the long run, this modification could result in many inactive Novices returning to the service with a renewed interest in the expanded privileges afforded by the upgraded Technician Class entry-level license proposed in this petition.

32. In keeping with the Commission's spirit of improvement and streamlining, and for consistency, it is also requested that all existing Novice Class licensees be granted lifetime credit for successful completion of the five word-per-minute radiotelegraph exam.

33. Therefore, the Radio Amateur Foundation respectfully requests that in the best interest of the Amateur Service, the Commission modify all existing Novice Class license grants to Technician Class and eliminate the Novice Class license.

V. The 29.0 – 29.3 MHz Wideband Digital Subband. A Digital Experimenters Dream.

34. Current restrictions on emission bandwidth below 30 MHz in the Amateur Service prevents any type of experimentation, or establishment of high-speed digital services that could improve the state of the technical art within the Amateur Service, and provide for an infrastructure that could be used for public service during times of emergency. The segment of spectrum from 29.0 to 29.3 MHz is relatively underutilized by the amateur community, and should be allocated for exclusive use for digital emissions of up to 15 kHz in bandwidth by all license classes within the Amateur Service, with power restrictions of 100 watts P.E.P for Technician Class licensees. Granting permission to utilize wideband digital emissions within this sub band would have virtually no adverse impact on existing Amateur Service communications, and would provide the regulatory approval needed in order to begin fostering a new wave of experimentation within the amateur community. Eventually, the merger of old-fashioned amateur ingenuity and spirit, with off-the-shelf technology will lead to the development of relatively high-speed digital communications systems, gateways and long-distance network infrastructure. Eventually, new types of hardware, software and system applications will emerge as amateurs are afforded new challenges with this exclusive allocation.

35. The Radio Amateur Foundation can envision the evolution of a network infrastructure that is not unlike today's popular Internet, yet an entirely different animal that is designed around the needs, goals and constraints of amateurs and the Amateur Service. Imagine IP-like networks with several hundred kilobits per second (or more) of bandwidth capacity², comprised entirely of dedicated nodes scattered throughout the globe. These interconnected networks will allow amateurs to connect to each other (either on 29 MHz or through a local VHF/UHF gateway), and will transport all types of data -- everything from electronic mail to emergency digital voice communications. The possibilities for are virtually limitless, and the 29 MHz wideband digital allocation will only be the beginning.

36. The Radio Amateur Foundation respectfully requests the Commission to allow wideband digital emissions of up to 15 kHz in the frequencies between 29.0 to 29.3 MHz inclusively. In the future, the Radio Amateur Foundation may petition the Commission to set that portion of the spectrum aside for digital amateur experimentation on an exclusive basis.

² at least 200 kilobits per second -- or more -- of data transfer is conceivable by implementing today's popular public compression algorithms

VI. Amateur High-Frequency Spectrum Reallocation. The Bandplan.

36a. With regards to recommendations made in this petition, the Radio Amateur Foundation respectfully requests that the Commission repartition the amateur high-frequency allocations as follows:

ITU Region II

160 meters (1.8 - 2.0 MHz)

CW, Data, Phone and Image

General and Extra	1.800 - 2.000 MHz
Technician*	1.900 - 2.000 MHz

80 meters (3.5 - 4.0 MHz)

CW, Data

Extra	3.500 - 4.000 MHz
General	3.525 - 3.725 MHz
“ “	3.800 - 4.000 MHz
Technician*	3.625 - 3.725 MHz

Image, Phone

Extra	3.725 - 4.000 MHz
General	3.800 - 4.000 MHz

40 meters (7.0 - 7.3 MHz)

CW, Data

Extra	7.000 - 7.300 MHz
General	7.025 - 7.125 MHz
“ “	7.175 - 7.300 MHz
Technician*	7.075 - 7.125 MHz

Image, Phone

Extra	7.125 - 7.300 MHz
General	7.175 - 7.300 MHz

20 meters (14.0 - 14.35 MHz)

CW, Data

Extra	14.000 - 14.350 MHz
General	14.025 - 14.150 MHz
“ “	14.225 - 14.350 MHz

Image, Phone

Extra	14.150 - 14.350 MHz
General	14.225 - 14.350 MHz

15 meters (21.0 - 21.450 MHz)

CW, Data

Extra	21.000 - 21.450 MHz
General	21.025 - 21.200 MHz
“ “	21.250 - 21.450 MHz
Technician*	21.100 - 21.200 MHz

Image, Phone

Extra	21.200 - 21.450 MHz
General	21.250 - 21.450 MHz
Technician*	21.350 - 21.450 MHz

10 meters (28.0 - 29.7 MHz)

CW, Data

General & Extra	28.000 - 29.700 MHz
Technician*	28.100 - 28.300 MHz

Image, Phone

General & Extra	28.300 - 29.700 MHz
Technician*	28.300 - 28.500 MHz

Wideband Data (emissions up to 15 kHz wide)

General & Extra	29.000 - 29.300 MHz
Technician* **	29.000 - 29.300 MHz

50 MHz and above

no changes to the current privileges and allocations

* limited to 100 watts P.E.P. output

** wideband digital emissions only

Region III (Pacific Regions within FCC Jurisdiction)

160 meters (1.800 - 2.000 MHz)

same as for Region II

75/80 meters (3.5 - 3.9 MHz)

CW, Data

Extra	3.500 - 3.900 MHz
General	3.525 - 3.725 MHz
Technician*	3.625 - 3.725 MHz

Image, Phone

Extra	3.725 - 3.900 MHz
General	3.775 - 3.900 MHz

40 meters (7.0 - 7.1 MHz)

CW, Data

Extra	7.000 - 7.100 MHz
General	7.025 - 7.100 MHz
Technician*	7.050 - 7.075 MHz

Image, Phone

Extra	7.075 - 7.100 MHz
General	7.075 - 7.100 MHz

20 meters (14.0 - 14.35 MHz)

same as for Region II

15 meters (21.0 - 21.450 MHz)

same as for Region II

10 meters (28.0 - 29.70 MHz)

same as for Region II

50 MHz and above

no changes to the current privileges and allocations

* limited to 100 watts P.E.P output

VII. Amateur Service Testing. Reforming a Broken System.

37. Part 97, section 503 (b) of the Commission's regulations regarding the Amateur Service states:

97.503(b) -- A written examination must be such as to prove that the examinee possesses the operational and technical qualifications required to perform properly the duties of an amateur service licensee.

This is in keeping with international law, as stipulated by Article 25, section 6, paragraph 2 of the ITU regulations:

25.6 2) Administrations shall verify the operational and technical qualifications of any person wishing to operate an amateur station.

38. Since written examinations are the accepted standard method utilized for evaluating an individual's "operational and technical" qualifications, it is very important that the examinations themselves meet two very important, and commonly accepted psychometric criteria:

- a) **Validity:** the examination must measure what it is supposed to measure. In the case of the Amateur Service, it must fulfill the objectives mandated by Part 97.503b, and ITU Article 25.6 paragraph 2.
- b) **Reliability:** the examination must be consistent in its measurements with each use over time, under similar (or identical) conditions and within a given population.

39. If a written examination element fails to meet either of these psychometric requirements, either through the

questions comprising the examination element, the test administration process or some other influential circumstance, then the test result cannot be guaranteed to actually reflect the knowledge of the examinee in regards to what the exam is trying to measure. In the case of the Amateur Service, this would imply that the examination element in question cannot necessarily guarantee that the basic requirement provided for by international law³, and the Commission's regulations have been fulfilled as required by Part 97.

40. Assuming that the current amateur written examinations are in fact, valid (the resulting score somewhat accurately reflects an individual's knowledge of the pertinent subjects areas) and reliable (the written examination will measure consistently over time and across a given population), there are two psychometric points relating to the current examination procedure that are of concern:

memory effect - a false positive score on an examination because respondents (examinees) remember the questions and correct answers from a previous administration of the same testing instrument. This is usually a result of an insufficient waiting period between examinations, exacerbated by the practice of providing correct answers to questions with incorrect responses.

practice effect - a false positive score on an examination because respondents (examinees) are exposed to the content and form of a testing instrument beforehand.

In psychometric terms, both of these effects are referred to as *systematic errors*: a condition that will skew the resulting measurement outside of an otherwise valid testing instrument, usually yielding a false positive result.

41. The current examination methodology in the Amateur Service consists of:

- a) VECs coordinating their efforts to building a large set of pertinent multiple choice questions and corresponding answer choices, covering the subjects appropriate for a particular testing element.
- b) collecting those questions into question pools from which written examination elements can be constructed.
- c) releasing the question pools to the public.

While there is no argument with steps A and B illustrated above, releasing the question pools to the public defeats the entire purpose of the required examination. In doing so, a serious practice effect is introduced, thereby from a true psychometric point-of-view, yields a false positive result for those who have had exposure to question pool beforehand. Instead of requiring the individual to actually become knowledgeable by pursuing a self-motivated course of personal training through study, understanding and experience, it reduces the knowledge required to successfully pass an examination element to rote memorization of possible questions and correct answers from the question pools.

In essence, a passing grade on an Amateur Service examination only shows who have successfully memorized the exam questions. It does not convey a person's actual knowledge of the subject matter required by the Commission, and by international law. If somehow, the current examination process was reviewed by the Federal Courts, as have other such tests such as the SAT and GMAT, it would be ruled by a competent judge that the results of these examinations were invalid. Also, the judge would likely rule that license grants made using this practice are in violation of international and Federal law, and thereby illegal.

42. Since the Commission began allowing the public release of Amateur Service examination question pools, it has been observed time and time again, that many individuals who have minimal understanding, and no actual knowledge of the subject areas covered in an examination element, have successfully passed the written test elements merely by memorizing the questions and the corresponding correct answer choice from the pools. In essence, it is easier to obtain an amateur radio license through memorization technique rather than through true subject comprehension. Given human nature is much like electron flow, when confronted with an obstacle, it will generally choose the path of least resistance; in this case, memorization instead of understanding and comprehension. As a result, this practice has

had a detrimental, long-term effect on the Amateur Service with the subsequent granting of licenses to people who do not actually comprehend the subjects they have successfully tested for. In essence, the public release of the examination question pools significantly tends to yield systematic 'false positives' on exam scores, thereby yielding results that only measure memorization capacity rather than true comprehension of the required subject matter. Even more alarmingly, because of the flawed nature of this practice, successful examinees fail to realize why true understanding of these topics was even required of them in the first place. As more and more individuals enter the Amateur Service via this method, this type of pathological misunderstanding will only perpetuate itself. In the long run, it is will only lead to a total disdain and contempt for the Amateur Service's tradition and reasoning for examination, the Service's culture, and of the reasoning behind any of the Commission's requirements in general.

43. The Radio Amateur Foundation, an organization more concerned with true quality rather than quantity within the amateur ranks, respectfully asks the Commission to discontinue the practice of releasing the examination question pools to the public as soon as possible, and return to its philosophy of actually requiring a person to prove his knowledge and understanding of

required subjects before granting a license. This action will require disposing of all current question pools for all amateur examinations immediately, rewriting the questions from scratch and requiring those organizations administering examinations, the Volunteer Examination Coordinators to reconstruct the examination elements and individual tests, and to keep the source question pools secure from public access. While this may prove to be an inconvenience to the question pool administrators, the end result will be a return to a testing procedure that is in compliance with international and Federal law. It will also mark the return to generalized and sincere self-training within the Amateur Service, instead of rote memorization used solely for the purpose of passing an exam. Both individual amateurs, and the service as a whole, will benefit from this action.

Retesting Procedure for Failed Examination Elements

44. To compound the public question pool problem is the practice of allowing examinees to retake an examination element immediately after failing it. The examinee only has to pay the required examination fee, fill out another form 605, and is handed another copy of the exam -- in most cases, the same exact examination that was just failed by the applicant. Given that the examinee has most likely had the missed questions shown to him by the examiner, along with the corresponding correct answer choices,

passing the examination element during the next attempt (or immediate subsequent attempts) is almost assured. In psychometric terms, this introduces the strong *memory effect* (defined earlier), and is virtually guaranteed to yield false-positive results. Consequently, the resulting score is skewed towards a positive outcome, and does not reflect the examinees actual knowledge of the subjects required for a license grant. Once again, if this practice was brought before a reasonable judge in the Federal courts, he would find the process invalid, and also might find that all license grants made using this process to be in violation of international and Federal law.

45. It has been observed that the practice of immediately retaking a failed examination element is encouraged by the Volunteer Examiners. This practice reduces the integrity of the examination process itself, instills a foundation of contempt for the spirit of the process in the examinee and establishes doubt as to the validity of the exam results. Subsequently, it also establishes significant doubt as to the corresponding qualifications of the examinee for a Commission license grant.

46. At one time, the Commission required a 30-day waiting period before an individual could retake a failed Amateur Service examination. Most authorities in psychometrics would concur that

this waiting period is reasonable, and would reduce the systematic error caused by memory effect to a negligible amount. The vast majority of authorities who rely on valid examination results in their decision-making processes, such as universities, private corporations and government entities recognize the implications of the memory effect and insist on reasonable waiting periods between test administrations. The Amateur Service is worthy of the same integrity and consideration in its examination processes as well.

47. The Radio Amateur Foundation respectfully requests that the Commission require a minimum ten day waiting period before permitting an examinee to retake a previously failed exam element. While not ideal, this period of time would significantly reduce the memory effect that confounds the scores of most examination retakes. The Radio Amateur Foundation also requests that the Commission require Volunteer Examination Coordinators to prepare multiple, substantially different versions of the examination elements, and to not administer the same version of an examination element to the same individual within a 30 day period. This will require an appropriate change to Part 97 of the Commission's regulations governing the Amateur Service, and will require that the Volunteer Examination Coordinators prepare multiple versions of each element in the Amateur Service.

VIII. Systematic Callsigns and the Vanity Callsign System

48. When the Commission introduced the Vanity Callsign System in 1996, those amateurs who had been given systematic callsign assignments rejoiced. Once again, amateurs could choose their own callsigns, and end up with one that they liked, and could be proud of.

49. While amateurs are grateful for being able to choose their own calls, it is believed by the Radio Amateur Foundation that this should not be an automatic right granted to all licensed amateurs. Access to the Vanity Callsign System should be something that is earned through advancement and commitment to the Amateur Service.

50. Also, an opportunity is afforded with the proposed entry-level Technician Class license, where a licensee of this class is assigned a distinctive callsign systematically - much like the old 'WN' and 'KN' calls from the old Novice Class license. By doing so, more experienced amateurs would immediately know that the amateur 'on the other end' is an entry-class licensee, and could in the true spirit of the amateur service assist in fostering their development as an amateur. This will

also provide one more incentive for amateurs to upgrade to a higher class license.

51. Therefore, the Radio Amateur Foundation requests that the Commission make the two following modifications to Part 97 of the Commissions regulations governing the Amateur Service:

- A. New Technician Class licensees will be assigned a distinctive callsign, and from an unused Class D amateur prefix block (such as NA, NN, etc.).

- B. Only amateurs who have been licensed for more than two years, OR presently hold General Class or Amateur Extra Class licenses may request a specific callsign from the Vanity Callsign System.

IX. Conclusions

52. With this petition, the Radio Amateur Foundation has set forth a thoughtful blueprint for the future of the Amateur Service in the United States. We have introduced a progressive modification to a popular entry-point to the Amateur Service, thereby creating a new, entry-level license that is in step with the needs of the service, without burdening the Commission with the task of creating a new entry-point from scratch. We have also laid down the groundwork for maintaining the integrity and culture of amateur radio itself, while simultaneously providing for progressive new services on underutilized amateur spectrum. We have also recognized the need for incentives in our community, and provided ample motivation for newcomers to set out on the path of self-training required in order to upgrade to higher class licenses.

53. The Radio Amateur Foundation, an organization of devoted radio amateurs without pecuniary interest, hereby respectfully requests that the Commission act swiftly on this petition, and introduce it as soon as possible, with an official Notice of Proposed Rule-Making.

The Radio Amateur Foundation

Box 640
Killen, AL 35645

By: _____
Robin A. Gist, K4VU
Director, Radio Amateur Foundation

(signed on this date)
Members, Radio Amateur Foundation
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Appendix A -- Part 97 Modifications

Section 97.5(b)(2) would be modified to read as follows:

Sec. 97.5 Station license required.

(b)(2) A club station license grant. A club station license grant may be held only by the person who is the license trustee designated by an officer of the club. The trustee must be a person who holds an Amateur Extra or General operator license grant. Technician licensees who are currently trustees of club stations under prior rules may continue as the trustee. The club must be composed of at least four persons and must have a name, a document of organization, management, and a primary purpose devoted to amateur service activities consistent with this part.

Section 97.9 would be modified to read as follows:

Sec. 97.9 Operator license grant.

(a) The classes of amateur radio operator license grants are: Technician, General and Amateur Extra. Those licensees holding a valid and unexpired (or expired within the grace period) license of Novice Class on [effective date] will be converted to Technician Class. Those licensees holding a valid and unexpired (or expired within the grace period) license of Advanced Class on [effective date] will be converted to Amateur Extra Class. Novice and Advanced Class licensees who wish to have an updated license document issued to them are entitled to file an application on Form 605 through a VEC in order to obtain such. The person named in the operator license grant is authorized to be the control operator of an amateur station with the privileges authorized to the operator class specified on the license grant.

(b) The person named in an operator license grant of Technician or General Class, who has properly submitted to the administering VEs a FCC Form 605 document requesting examination for an operator license grant of a higher class, and who holds a CSCE indicating that the person has completed the necessary examinations within the previous 365 days, is authorized to exercise the rights and privileges of the higher

operator class until final disposition of the application or until 365 days following the passing of the examination, whichever comes first.

Section 97.17(d) would be modified to read as follows:

Sec. 97.17 Application for a new license grant.

(c) One unique call sign will be shown on the license grant of each new primary, club and military recreation station. The call sign will be selected by the sequential call sign system. Call signs for new Technician Class license grants shall be assigned sequentially from Block D (2x3), and shall begin with the prefix 'N'.

Section 97.19(a) would be modified to read as follows:

Sec. 97.19 Application for a vanity call sign.

(a) The person named in an operator/primary station license grant or in a club station license grant is eligible to make application for modification of the license grant, or the renewal thereof, to show a call sign selected by the vanity call sign system, provided that one of the following conditions are met:

- a. the person named in the operator/primary station license grant is a General Class or Amateur Extra Class license.
- b. the person named in the operator/primary station license grant in a Technician Class license who held the grant for period of at least two years.

RACES and military recreation stations are not eligible for a vanity call sign.

Section 97.119(f) would be modified to read as follows:

Sec. 97.119 Station Identification.

(f) When the control operator who is exercising the rights and privileges authorized by Section 97.9(b) of this Part, an indicator must be included after the call sign as follows:

- (1) For a control operator who has requested a license modification from Technician to General Class: AG;
- (2) For a control operator who has requested a license modification from Technician or General Class to Amateur Extra Class: AE.

Section 97.203 would be modified to read as follows:

Sec. 97.203 Beacon station.

(a) Any amateur station licensed to a holder of a Technician, General or Amateur Extra Class operator license may be a beacon. A holder of a Technician, General or Amateur Extra Class operator license may be the control operator of a beacon, subject to the privileges of the class of operator license held.

(d) A beacon may be automatically controlled while it is transmitting on the 28.20-28.30 MHz, 50.06-50.08 MHz, 144.275-144.300 MHz, 222.05-222.06 MHz or 432.300-432.400 MHz segments, or on the 33 cm and shorter wavelength bands. A holder of a Technician Class operator license may only operate an automatically controlled beacon on authorized frequencies above 50 MHz.

Section 97.205(a) would be modified to read as follows:

Sec. 97.205 Repeater station.

(a) Any amateur station licensed to a holder of a Technician, General or Amateur Extra Class operator license may be a repeater. A holder of a Technician, General or Amateur Extra Class operator license may be the control operator of a repeater, subject to the privileges of the class of operator license held.

Section 97.301 would be modified to read as follows:

Sec. 97.301 Authorized frequency bands.

The following transmitting frequency bands are available to an amateur station located within 50 km of the Earth's surface, within the specified ITU Region, and outside any area where the amateur service is regulated by any authority other than the FCC.

(a) For a station having a control operator who has been granted a Technician, General, or Amateur Extra Class operator license or who holds a CEPT radio-amateur license or IARP of any class:

Wavelength band	ITU Region I	ITU Region II	ITU Region II	Sharing requirements See Section 97.303 Paragraph:
VHF	MHz	MHz	MHz	
6 m	—	50-54	50-54	(a)
2 m	144-146	144-148	144-148	(a)
1.25 m	—	219-220	-	(a), (e)
-do-	-	222-225	-	(a)
UHF	MHz	MHz	MHz	
70 cm	430-440	420-450	420-450	(a),(b),(f)
33 cm	—	902-928	-	(a),(b),(g)
23 cm	1240-1300	1240-1300	1240-1300	(b),(i)
13 cm	2300-2310	2300-2310	2300-2310	(a),(b),(j)
-do-				
SHF	GHz	GHz	GHz	
9 cm	—	3.3-3.5	3.3-3.5	(a),(b),(k),(l)
5 cm	5.650-5.850	5.650-5.850	5.650-5.850	(a),(b),(m)
3 cm	10.00-10.50	10.00-10.50	10.00-10.50	(b),(c),(i),(n)
1.2 cm	24.00-24.25	24.00-24.25	24.00-24.25	(a),(b),(h),(o)

EHF	GHz	GHz	GHz	
6 mm	47.0-47.2	47.0-47.2	47.0-47.2	
4 mm	75.5-81.0	75.5-81.0	75.5-81.0	(b),(c),(h)
2.5 mm	119.98-120.02	119.98-120.02	119.98-120.02	(k),(p)
2 mm	142-149	142-149	142-149	(b),(c),(h),(k)
1 mm	241-250	241-250	241-250	(b),(c),(h),(q)
-	above 300	above 300	above 300	(k)

(b) For a station having a control operator who has been granted an Amateur Extra Class operator license or who holds a CEPT radio-amateur license or Class 1 IARP:

Wavelength Band	ITU Region I	ITU Region II	ITU Region III	Sharing requirements See Section 97.303 Paragraph:
MF	kHz	kHz	kHz	
160 m	1810-1850	1800-2000	1800-2000	(a),(b),(c)
HF	MHz	MHz	MHz	
80 m	3.50-3.725	3.5-3.725	3.5-3.725	(a)
75 m	3.725-3.8	3.725-4.0	3.725-3.9	(a)
40 m	7.0-7.1	7.0-7.3	7.0-7.1	(a)
30 m	10.1-10.15	10.1-10.15	10.1-10.15	(d)
20 m	14.0-14.35	14.0-14.35	14.0-14.35	
17 m	18.068-18.168	18.068-18.168	18.068-18.168	
15 m	21.0-21.45	21.0-21.45	21.0-21.45	
12 m	24.89-24.99	24.89-24.99	24.89-24.99	
10 m	28.0-29.7	28.0-29.7	28.0-29.7	

(c) For a station having a control operator who has been granted an operator license of General Class:

Wavelength Band	ITU Region I	ITU Region II	ITU Region III	Sharing requirements See Section 97.303 Paragraph:
MF	kHz	kHz	kHz	
160 m	1810-1850	1800-2000	1800-2000	(a),(b),(c)
HF	MHz	MHz	MHz	
80 m	3.525-3.725	3.525-3.725	3.525-3.725	(a)
75 m	3.775-3.8	3.8-4.0	3.775-3.9	(a)
40 m	7.025-7.1	7.025-7.125	7.025-7.1	(a)
-do-	-	7.175-7.3	-	(a)
30 m	10.1-10.15	10.1-10.15	10.1-10.15	(d)
20 m	14.025-14.15	14.025-14.15	14.0-14.15	
-do-	14.225-14.35	14.225-14.35	14.225-14.35	
17 m	18.068-18.168	18.068-18.168	18.068-18.168	
15 m	21.0-21.2	21.0-21.2	21.0-21.2	
-do-	21.250-21.45	21.250-21.45	21.250-21.45	
12 m	24.89-24.99	24.89-24.99	24.89-24.99	
10 m	28.0-29.7	28.0-29.7	28.0-29.7	

(d) For a station having a control operator who has been granted an operator license of Technician Class:

Wavelength Band	ITU Region I	ITU Region II	ITU Region III	Sharing requirements See Section 97.303 Paragraph:
MF	kHz	kHz	kHz	
160 m	-	1900-2000	1900-2000	(a),(b),(c)
HF	MHz	MHz	MHz	
80 m	3.625-3.725	3.625-3.725	3.625-3.725	(a)
40 m	7.05-7.075	7.075-7.125	7.075-7.125	(a)
15 m	21.1-21.2	21.1-21.2	21.1-21.2	
-do-	21.35-21.45	21.35-21.45	21.35-21.45	
10 m	28.1-28.5	28.1-28.5	28.1-28.5	
-do-	29.0-29.3	29.0-29.3	29.0-29.3	

Section 97.301(e) in the current regulations would be deleted.

Section 97.305(c) would be modified to read as follows:

Wavelength Band	Frequencies Authorized	Emission Types	Standards see Section 97.307(paragraph:
MF			
160 m	Entire band	RTTY, data,	(3)
160 m	Entire band	Phone, image	(1),(2)
HF			
80 m	Entire band	RTTY, data	(3),(9)
75 m	Entire band	Phone, image	(1),(2)
40 m	7.0-7.075 MHz	RTTY, data	(3),(9)
40 m	7.075-7.1 MHz	Phone, image	(1),(2),(9)
40 m	7.075-7.125 MHz	RTTY, data	(3)
40 m	7.125-7.3 MHz	Phone, image	(1),(2)
30 m	Entire band	RTTY, data	(3)
20 m	14.0-14.15	RTTY, data	(3)
20 m	14.15-14.35 MHz	Phone, image	(1),(2)
17 m	18.086-18.110 MHz	RTTY, data	(3)
17 m	18.110-18.186 MHz	Phone, image	(1),(2)
15 m	21.0-21.2 MHz	RTTY, data	(3)
15 m	21.2-21.45 MHz	Phone, image	(1),(2)
12 m	24.89-24.93 MHz	RTTY, data	(3)
12 m	24.93-24.99 MHz	Phone, image	(1),(2)
10 m	28.0-28.3 MHz	RTTY, data	(4)
10 m	28.3-28.5 MHz	Phone, image	(1),(2)
10 m	28.5-29.0 MHz	Phone, image	(1),(2)
10 m	29.0-29.3 MHz	Phone, image, data	(1),(2),(12),(13)
10 m	29.3-29.7 MHz	Phone, image	(2)
VHF			
6 m	50.1-51.0 MHz	MCW, phone, image, RTTY, data	(2),(5)
6 m	51.0-54.0 MHz	MCW, phone, image, RTTY, data, test	(2),(5),(8)
2 m	144.1-148.0 MHz	MCW, phone, image, RTTY, data, test	(2),(5),(8)
1.25 m	219-220 MHz	Data	(13)
1.25 m	222-225 MHz	MCW, phone, image, RTTY, data, test	(2),(5),(8)

UHF			
70 cm	Entire band	MCW, phone, image, RTTY, data, SS, test	(6),(8)
33 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
23 cm	Entire band	MCW, phone, image, RTTY, data, SS, test	(7),(8),(10)
13 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
SHF			
9 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
5 cm	Entire band	MCW, phone, image, RTTY, data, test, pulse	(7),(8),(10)
3 cm	Entire band	MCW, phone, image, RTTY, data, SS, test	(7),(8),(10)
1.2 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
EHF			
6 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
4 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
2.5 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
2 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
1 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)
-	Above 300 GHz	MCW, phone, image, RTTY, data, SS, test, pulse	(7),(8),(10)

Sections 97.307(f)(9) and (10) would be deleted, and subsections (f)(11)-(13) would be renumbered accordingly.

Section 97.307(f)(11), which becomes subsection(f)(9), would be modified to read as follows:

Sec. 97.307(f)

(9) Phone and image emissions may be transmitted only by stations located in ITU Regions 1 and 3, and by stations with control operators holding General Class or Amateur Extra Class operator licenses located within ITU Region 2 that are west of

130 degrees West longitude or south of 20 degrees North latitude.

After renumbering, new section 97.307(f)(12) would read as follows:

Sec. 97.307(f)

(12) A data emission using an unspecified digital code under the limitations listed in Sec. 97.309(b) also may be transmitted. The authorized bandwidth is 15 kHz.

After renumbering, new section 97.307(f)(13) would read as follows:

(13) Stations with Technician Class operator licenses may only use a data emission as allowed by 97.307(f)(12). All other emission types for stations with Technician Class operator licensees are prohibited.

Section 97.313 would be modified to read as follows:

Sec. 97.313 Transmitter power standards.

(d) No station may transmit with a transmitter power exceeding 100 W PEP on the 1.9-2.0 MHz, 3.625-3.725 MHz, 7.075-7.125 MHz, 21.1-21.2 MHz, 21.35-21.45, 28.1-28.5 MHz and 29.0-29.3 MHz segments when the control operator is a Technician Class operator, and on the 1.9-2.0 MHz, 3.625-3.725 MHz, 7.05-7.075 MHz, 21.1-21.2 MHz, 21.35-21.45 MHz, 28.1-28.5 MHz and 29.0-29.3 MHz segments when the control operator is a Technician Class operator in Regions 1 and 3.

Section 97.501 would be modified to read as follows:

Sec. 97.501 Qualifying for an amateur operator license.

(a) Each applicant must pass an examination for a new amateur operator license grant and for each change in operator class. Each applicant for the class of operator license grant specified below must pass, or otherwise receive examination credit for, the following examination elements:

- (1) Amateur Extra Class operator: Elements 1,2,3, and 4;
- (2) General Class operator: Elements 1, 2, and 3;
- (3) Technician Class operator; Element 2;

(b) In the event that an applicant fails an examination element, the application must wait for at least 10 days before

retesting for the same element. Violation of this waiting period will result in the loss of any completion credit that may have been acquired for that element. Repeated violations may result in loss of any amateur operator license granted by the FCC that the applicant holds.

Section 97.503 would be modified to read as follows:

Sec. 97.503 Element standards.

(a) A telegraphy examination must be sufficient to prove that the examinee has the ability to send correctly by hand and to received correctly by ear texts in the international Morse code at not less than the prescribed speed, using all letters of the alphabet, numerals 0-9, period, comma, question mark, slant mark and prosigns AR, BT and SK.

Element 1: 5 words per minute.

(b) A written examination must be such as to prove that the examinee possesses the operational and technical qualifications required to perform properly the duties of an amateur service licensee. Each written examination must be composed of a question set as follows:

- (1) Element 2: 35 questions concerning the privileges of a Technician Class operator license. The minimum passing score is 26 questions answered correctly.
- (2) Element 3: 50 questions concerning the privileges of a General Class operator license. The minimum passing score is 37 questions answered correctly.
- (3) Element 4: 70 questions concerning the privileges of an Amateur Extra Class license. The minimum passing score is 52 questions answered correctly.

Section 97.505 would be modified to read as follows:

Sec. 97.505 Element credit.

(a) The administering VEs must give credit as specified below to an examinee holding any of the following license grants or license documents:

- (1) An unexpired (or expired but within the grace period for renewal) FCC-granted Advanced Class operator license grant: Elements 1, 2, 3 and 4.
- (2) An unexpired (or expired but within the grace period for renewal) FCC-granted Novice Class operator license grant: Elements 1 and 2;
- (3) An unexpired (or expired but within the grace period for renewal) FCC-granted Technician Plus Class operator license grant: Elements 1 and 2;
- (4) An unexpired (or expired but within the grace period for renewal) FCC-granted Technician Class or Technician Plus Class operator license grant with documented proof of qualification for the Technician Class operator license dated on or before March 21, 1987: Elements 1, 2 and 3;
- (5) A CSCE: Each element the CSCE indicates the examinee passed within the previous 365 days.
- (6) An unexpired (or expired less than 5 years) FCC-issued commercial radiotelegraph operator license or permit: Element 1;
- (7) An expired or unexpired FCC-issued Technician Class operator license document granted before February 14, 1991; Technician Plus Class or General Class operator license issued before [effective date]; or an Advanced Class or Amateur Extra Class operator license: Element 1.

(b) No examination credit, except as herein provided, shall be allowed on the basis of holding or having held any other license grant or document.

Section 97.507(a) Should be modified to read as follows:

Sec. 97.507 Preparing an examination.

(a)..

- (1) Elements 1, 3 & 4: Amateur Extra Class operator.
- (2) Elements 2: General Class or Amateur Extra Class operator.

Section 97.509 Should be modified to read as follows:

Sec. 97.509 Administering VE requirements.

(b)..

- (3) Be a person who holds an amateur operator license of the class specified below:
 - (i) Amateur Extra or General Class in order to administer a Technician Class operator license examination;
 - (ii) Amateur Extra in order to administer General Class operator license examination;
 - (iii) Amateur Extra in order to administer Amateur Extra Class operator license examination;

(f) No examination that has been compromised shall be administered to any examinee. Neither the same telegraphy message nor the same question set may be re-administered to the same examinee within a thirty (30) day period.

(j) When the examinee does not score a passing grade on an examination element, the administering VE must:

- (1) inform the examinee of the grade. No VE shall divulge the incorrectly answered questions or answers to any examinee.
- (2) record the examinees name, TIN, call sign (if any), element failed, and the date of examination with the common tracking system shared by all VECs within seven (10) days of an examination.
- (3) retain the examinees application in a secure location a minimum of 90 days.

Section 97.519(b) should be modified to read as follows:

Sec. 97.519(b) Coordinating examination sessions.

- (1) Screen collected information and enter the examinees names, TIN, call sign (if any), element, test version, date of test and results of each examination with the VEC common tracking system.
- (2) Resolve any discrepancies, verify that the VE's certifications are properly completed and;
- (3) For qualified examinees, forward electronically all required data to the FCC. All data forwarded must be retained for at least 15 months and must be made available to the FCC upon request.
- (4) In the event that a violation of 97.501(b) is discovered, any completion credit for the element must be cancelled, and the examinee must be notified in writing as to the violation and cancellation of examination credit. If the FCC has been forwarded an upgrade request with completion credit for an element, the FCC must be notified of the violation and any license grants resulting from the violation will be cancelled. If repeated violation of 97.501(b) is noted, the FCC must be notified of the situation, along with a recommendation of action.

Section 97.523 should be modified to read as follows:

Sec. 97.523 Question Pools.

All VECs must cooperate in maintaining one question pool for each written examination element. Each question pool must contain at least 10 times the number of questions required for a single examination. Each copy of the question pool must be kept in a secure location and only divulged to those trusted VEs who assist in the process of developing individual examinations. In the event that the question pool is compromised, all other VECs using the question pool must be notified immediately, and all examinations that are based on the compromised question pool must no longer be used. Each question on each VEC question pool must be prepared by a VE holding the required FCC-issued operator license. See Sec. 97.507(a) of this part.