

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

REPORT AND ORDER

Adopted: December 22, 1999

Released: December 30, 1999

By the Commission:

TABLE OF CONTENTS

	Paragraph
INTRODUCTION AND EXECUTIVE SUMMARY.....	1
BACKGROUND	4
DISCUSSION.....	7
License Structure.....	7
Number of License Classes.....	9
Telegraphy Examination Requirements.....	22
Written Examinations	40
Disposition of the Designated Novice Bands	53
Greater Volunteer Examiner Opportunities	57
RACES Station Licenses.....	61
Privatization of Certain Enforcement Procedures	64
Other Issues.....	67
CONCLUSION	69
PROCEDURAL MATTERS	70
ORDERING CLAUSES.....	72

I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In the *Notice* in this proceeding, we examined the Amateur Radio Service Rules in an effort to streamline our licensing processes and eliminate unnecessary and duplicative rules.¹ We initiated this proceeding as part of our 1998 biennial review of regulations pursuant to Section 11 of the Communications Act of 1934, as amended (Communications Act),² because we believe it is appropriate to review all of our regulations.³

2. By this *Report and Order*, we adopt rules that simplify the Amateur Radio Service operator license structure, streamline the number of examination elements and, reduce the emphasis on telegraphy that underlies the current license structure to the greatest extent possible, consistent with the international *Radio Regulations (Radio Regulations)*.⁴ Moreover, we believe that these changes will: (a) allow current Amateur Radio Service licensees to contribute more to the advancement of the radio art; (b) reduce the administrative costs that we incur in regulating this service and streamline our licensing processes; (c) eliminate unnecessary requirements that may discourage or limit individuals from becoming trained operators, technicians, and electronic experts; and (d) promote efficient use of spectrum allocated to the Amateur Radio Service.

3. The major rule changes we adopt today are as follows:

- Reduction of the number of operator license classes from six to three.
- Reduction of the number of telegraphy examination elements from three to one.
- Reduction of the number of written examination elements from five to three.
- Authorization of Advanced Class amateur radio operators to prepare and administer examinations for the General Class amateur radio operator license.
- Elimination of Radio Amateur Civil Emergency Service (RACES) station licenses.

II. BACKGROUND

4. The Amateur Radio Service is composed of three different services -- the amateur service, the

¹See 1998 Biennial Regulatory Review -- Amendment of Part 97 of the Commission's Amateur Service Rules, *Notice of Proposed Rule Making*, WT Docket No. 98-143, and Errata, Aug. 31, 1998, 13 FCC Rcd 15798, 15799 ¶ 2 (1998) (*Notice*).

²See 47 U.S.C. § 161 which provides that (a) in every even-numbered year (beginning with 1998), the Commission (1) shall review all regulations issued under this Act in effect at the time of the review that apply to the operations or activities of any provider of telecommunications service; and (2) shall determine whether any such regulation is no longer in the public interest as the result of meaningful economic competition between providers of such service, and (b) the Commission shall repeal or modify any regulation it determines to be no longer in the public interest.

³*Notice*, 13 FCC Rcd 15799 ¶ 1.

⁴See Article 1, Radio Regulation No. 53, and Article 32, Radio Regulation Nos. 2731-2739 of the International Telecommunication Union (ITU) Radio Regulations (Geneva, 1979) (now Article S25). The ITU operates under the auspices of the United Nations and is a multi-national body of government representatives that coordinate usage of the radio spectrum among the different nations of the world.

amateur-satellite service, and the Radio Amateur Civil Emergency Service (RACES).⁵ The amateur service is available to be used by persons who are interested in radio technique solely with a personal aim and without pecuniary interest.⁶ It presents an opportunity for individuals to self-train, intercommunicate, and carry out technical investigations.⁷ Amateur radio operators engage in voluntary, noncommercial communications with other amateur radio operators located in the United States and in foreign countries.⁸ Millions of amateur radio operators throughout the world communicate with each other directly by exchanging voice, teleprinting, telegraphy, digital packet, facsimile, and television messages. Amateur radio operators also routinely provide essential communications links and facilitate relief actions on a purely voluntary basis when a disaster occurs or is likely to occur.⁹ The amateur service rules are designed to allow licensees in this service to provide emergency communications, advance radio technology, improve operator skills, enhance international goodwill, and expand the number of trained operators, technicians, and electronic experts.¹⁰

5. The amateur service is one of the radio communication services authorized by the *Radio Regulations* and was one of the first non-government communication services. Regulation of the amateur service in the United States dates from the early 1900's as a result of the U.S. Navy's concern about interference to its stations and its desire to be able to order amateur radio stations off the air in the event of war.¹¹ As part of this regulation, proficiency in Morse code¹² was mandated to ensure that amateur radio operators could recognize and avoid interference with government and commercial stations as well as maritime distress messages, and to ensure that the U.S. Navy could communicate government orders to amateur radio operators.¹³ This mandated telegraphy proficiency was continued by the Federal Radio Commission¹⁴ and then by the Federal Communications Commission.¹⁵ Telegraphy proficiency remains one of the examination elements that, by international treaty,¹⁶ an examinee must pass to obtain an amateur service operator license that authorizes operating privileges in the portion of the radio spectrum below 30 MHz.¹⁷

⁵See 47 C.F.R. § 97.3(a).

⁶*Id.*

⁷See 47 C.F.R. § 97.1.

⁸See 47 C.F.R. § 97.111(a)(1).

⁹See 47 C.F.R. § 97.401.

¹⁰See 47 C.F.R. § 97.1.

¹¹See generally Bruce Perens Comments at 1-2.

¹²The international Morse code is a dot-dash code as defined in International Telegraph and Telephone Consultative Committee (CCITT) Recommendation F.1 (1984), Division B, I. Morse code. See 47 C.F.R. § 97.3(a)(27).

¹³*Id.*

¹⁴The amateur service was regulated at various times prior to 1934 by the Department of Commerce, the Interstate Commerce Commission, and the Federal Radio Commission.

¹⁵In initially allocating communication services to its various divisions, the Commission assigned the Telegraph Division responsibility for the amateur service. See *Order No. 1: Creating the three Divisions of the Commission and allocating to each its duties*, 1 FCC 3, 5 (1934).

¹⁶See No. 2735 of the ITU Radio Regulations (Geneva, 1979) (*Radio Regulations*) (now S25.5). This *Radio Regulation* states: Any person seeking a license to operate the apparatus of an amateur station shall prove that he is able to send correctly by hand and receive correctly by ear, texts in Morse code signals. The administration concerned may, however, waive this requirement in the case of stations making use exclusively of frequencies above 30 MHz.

¹⁷See 47 C.F.R. §§ 97.301, 97.501, 97.503. The segment of the radio spectrum between 3 and 30 MHz is commonly referred to as the High Frequency (HF) band. The segment of the radio spectrum between 300 kHz and 3 MHz is the Medium Frequency (MF) band. See 47 C.F.R. § 2.101. Internationally, the amateur service is allocated frequencies in

6. On August 10, 1998, we released the *Notice* and sought comment regarding rule amendments that could simplify the amateur service license structure, streamline our licensing processes, and eliminate unnecessary and duplicative rules. In particular, we proposed to simplify the amateur service license structure to a four-class license structure by grandfathering the Novice Class operator license and by combining the Technician and Technician Plus classes of amateur radio operator licenses. We also proposed to authorize Advanced Class operators to prepare and administer examinations for the General Class operator license and to eliminate RACES station licenses by not renewing them. This initiative to streamline the rules for the amateur service was in addition to those initiatives adopted as part of the Universal Licensing System (ULS) proceeding.¹⁸ The Electronic Comment Filing System¹⁹ shows that we received over 2,250 timely filed comments and reply comments in response to the *Notice*.²⁰

both the MF band and the HF band.

¹⁸See Biennial Regulatory Review -- Amendment of Parts 0, 1, 13, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, WT Docket 98-20, *Report and Order*, 13 FCC Rcd 21027 (1998), and *Memorandum Opinion and Order on Reconsideration*, 64 Fed. Reg. 53231 (October 1, 1999).

¹⁹On October 26, 1998, the ECFS replaced the Record Imaging Processing System as the official record of documents filed in docketed and rulemaking proceedings. See *Public Notice*, "Electronic Comment Filing System (ECFS) Replaces RIPS Today" (released Oct. 26, 1998).

²⁰Appendix A to this document provides a list of parties who filed comments in response to the *Notice*. The official record of filings in this proceeding consists of the entries shown in ECFS.

III. DISCUSSION

A. License Structure

7. The last major restructuring of the Amateur Radio Service rules took place in 1989.²¹ In that proceeding, the Commission eliminated unnecessary rules and simplified complex terminology. The classes of operator licenses and examination requirements to obtain these licenses, however, were not changed. In view of advances in communication techniques that have occurred since the last comprehensive evaluation of the amateur service license structure, in the *Notice* we indicated our belief that this is an opportune time to consider additional ways to streamline and simplify the amateur service rules by conforming them to contemporary technological advances in the art of radio communication.²² In sum, the keystone of our proposals was the simplification of the amateur service license structure and the streamlining of our licensing processes.

8. In the *Notice*, we proposed changes to, or sought comment on, three primary issues regarding the amateur service license structure. Specifically, we first stated that we thought six classes of operator licenses were unnecessary and we sought comment on other alternatives, for example, a four-class license structure as described in the *Notice*.²³ We also sought comment generally on whether we could reduce the number of license classes while still encouraging amateur radio operators to advance their skills in meaningful ways.²⁴ We stated that reducing the number of classes of operator licenses would lessen preparation and administration tasks by Volunteer Examiners (VEs) and would ease the Commission's administrative burdens associated with this service.²⁵ Second, we sought comment on all aspects of the Morse code standards used in our telegraphy examinations, including whether we should continue to have a standard that requires three different telegraphy examinations or whether this standard should be reduced to one or two telegraphy examinations, and, if so, what the required speeds should be.²⁶ Lastly we sought comment on whether the written examination requirements should be modified to provide VEs and Volunteer-Examiner Coordinators (VECs) additional flexibility in determining the specific contents of written examinations.²⁷

²¹ See Reorganization and Deregulation of Part 97 of the Rules Governing the Amateur Radio Service, PR Docket No. 88-139, *Report and Order*, 4 FCC Rcd 4719 (1989).

²² *Notice*, 13 FCC Rcd at 15800.

²³ *Notice*, 13 FCC Rcd at 15801.

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Notice*, 13 FCC Rcd at 15806.

²⁷ *Notice*, 13 FCC Rcd at 15807.

1. Number of License Classes

9. *Background.* Three of the six current amateur radio operator license classes, *i.e.*, the Novice, Technician, and Amateur Extra Class, were established in 1951.²⁸ At that time, telegraphy was a common mode of radio communication in commercial, military, and marine services and applications.²⁹ The telegraphy examination requirement was removed as a requirement to qualify for the Technician Class operator license in 1990.³⁰ The Technician Plus Class operator license was established in 1994 to distinguish between Technician Class operators who had or had not passed at least a 5 words per minute (wpm) telegraphy examination.³¹ The present license structure is a six-step ladder structure, *i.e.*, an individual advances to a higher class of operator license by passing examinations that demonstrate increased telegraphy proficiency and/or more technical expertise than his or her present license requires.³² The class for which each examinee is qualified is determined by the degree of skill and knowledge in operating a station that the examinee demonstrates at the time of examination. Upon passing the necessary examination(s),³³ the licensee receives greater frequency privileges than the previous license authorized.³⁴ The current operator frequency privileges, the structure of the license classes, and the requirements for obtaining an amateur operator license were developed in accordance with the expressed desires of the amateur community to provide an incentive, *i.e.*, additional frequency privileges, to motivate amateur radio operators to advance their communication and technical skills.

²⁸See Amendment of Part 12, Rules Governing Amateur Radio Service, Docket 9295, *Report and Order*, 42 FCC 198 (1951) (*1951 License Structure Decision*). At the same time, the Class A, B, and C operator licenses were converted to the Advanced, General, and Conditional Class operator licenses, respectively. After adoption of the *1951 License Structure Decision*, the amateur service operator license classes, in ascending order of frequency privileges, were: Novice, Technician, Conditional or General, Advanced, and Amateur Extra Class.

²⁹*Id.*

³⁰See Amendment of Part 97 of the Commission's Rules Concerning the Establishment of a Codeless Class of Amateur Operator License, *Report and Order*, PR Docket No. 90-55, 5 FCC Rcd 7631 (1990) (*Codeless Technician Decision*).

³¹See Amendment of the Amateur Service Rules to Change Procedures for Filing an Amateur Service License Application and to Make Other Procedural Changes, *Order*, 9 FCC Rcd 6111 (1994).

³²See 47 C.F.R. §§ 97.501 and 97.503. The current operator license classes, in ascending order of frequency privileges, are: Novice, Technician, Technician Plus, General, Advanced, and Amateur Extra Class. See 47 C.F.R. § 97.9.

³³The present amateur service operator license examination system has three telegraphy examination elements, Elements 1(A), 1(B), and 1(C) which are the 5, 13, and 20 wpm telegraphy examinations respectively, and five written examination elements, Elements 2, 3(A), 3(B), 4(A), and 4(B). These written examination elements, or combinations of them and telegraphy examination elements, must be passed by individuals applying for an amateur radio operator license.

³⁴See 47 C.F.R. § 97.301.

10. Prior to the elimination of the telegraphy examination requirement for the Technician Class operator license in 1990, the Novice Class operator license was the entry point into the amateur service for most individuals. To qualify for a Novice Class operator license, an applicant must pass, or receive credit for, at least a 5 wpm³⁵ telegraphy examination and a single written examination element. Currently, most individuals choose the Technician Class operator license as the entry point into the amateur service.³⁶ To qualify for a Technician Class operator license, an applicant must pass two written examination elements.³⁷ A Technician Class operator may be the control operator of a station transmitting any emission allowed in any of seventeen frequency bands above 50 MHz.³⁸ Holders of the Technician Plus Class license have passed the two written examination elements required for the Technician Class operator license plus an additional 5 wpm or faster telegraphy examination element, thereby earning the additional privileges of the Novice Class operator licensee in four HF or shortwave bands between 3 MHz and 30 MHz.³⁹ To qualify for a General Class operator license, an applicant must pass three written examination elements and at least a 13 wpm telegraphy examination element. The General Class operator license authorizes all privileges of the Technician Class operator license and additional privileges in all of the MF and HF bands. To qualify for an Advanced Class operator license, an applicant must pass four written examination elements and at least a 13 wpm telegraphy examination element. The privileges of an Advanced Class operator license include the privileges of the General Class operator license and, additionally, it authorizes stations authority to transmit on 275 kHz of additional spectrum in the HF bands. To qualify for an Amateur Extra Class operator license, an applicant must pass five written examination elements and at least a 20 wpm telegraphy examination element. The frequency privileges of an Amateur Extra Class operator license include authorization to transmit on an additional 175 kHz in the HF bands.

11. While we continue to believe that there should be a structure of license classes sufficient to encourage amateur radio operators to advance their skills in meaningful ways,⁴⁰ in the *Notice* we observed that six classes of operator licenses might be unnecessary.⁴¹ Reducing the number of classes of operator licenses would relieve the VEs from the task of preparing and administering unnecessary examinations, and it also would ease the Commission's burden associated with its oversight of the amateur service licensing system.⁴² In the *Notice*, we stated there appears to be an unnecessary overlap between the Novice, Technician, and Technician Plus operator license classes.⁴³ We proposed to phase out the Novice Class operator license, with current Novice Class operator licensees being grandfathered.⁴⁴ We also

³⁵A "word" consists of five characters. A punctuation mark is considered two characters. Additionally, spaces must be used at the end of characters, words, and sentences. See 47 C.F.R. § 97.507(d).

³⁶A review of the Commission's licensing records indicates that in 1997, we received only 961 applications for the Novice Class operator license. By comparison, we received 21,416 applications for the no-code Technician Class operator license. *Notice*, 13 FCC Rcd at 15801-2.

³⁷See 47 C.F.R. § 97.503(b). The written examination elements are Element 2 and Element 3(A).

³⁸See 47 C.F.R. §§ 97.301(a), 97.305.

³⁹See 47 C.F.R. § 97.301(e). It is believed that the attraction of the HF bands to amateur radio operators is that this frequency band (3-30 MHz) generally supports communications over great distances.

⁴⁰See 47 C.F.R. § 97.1(c).

⁴¹*Notice*, 13 FCC Rcd at 15801.

⁴²As of January 31, 1999, the number of licensees in our amateur service database, by license class, is as follows: 72,243 in the Novice Class; 191,756 in the Technician Class; 146,097 in the Technician Plus Class; 121,339 in the General Class; 110,099 in the Advanced Class; and 76,787 in the Amateur Extra Class.

⁴³*Notice*, 13 FCC Rcd at 15802.

⁴⁴By "Grandfathering", we mean that current Novice Class licensees would be permitted to continue to hold their license and modify or renew it. No new Novice Class licenses however, would be granted. We believe that

proposed to phase out the Technician Plus Class by renewing Technician Plus Class operator licenses as Technician Class operator licenses. We noted that when a Technician Class licensee modifies his or her license to change the operator class from Technician Class to Technician Plus Class, the VEs must prepare and administer a 5 wpm telegraphy examination, and the Commission is burdened with processing the resulting applications and revising the database.⁴⁵ The result of this license modification is that the Commission incurs the administrative costs of keeping a separate classification of Technician Class licensees who have passed a 5 wpm telegraphy examination. With the exception of holders of FCC-issued Technician Class operator licenses granted before March 21, 1987,⁴⁶ Technician Class operators can qualify for a General Class operator license by passing written examination Element 3(B), which presently consists of thirty questions on the additional privileges of a General Class operator license and the appropriate telegraphy examination.

12. *Decision.* After review of the record, we conclude that the amateur service community generally supports streamlining and simplification of its license structure. We also conclude, based on the record of this proceeding, that we are able to adopt a streamlined and simplified amateur service license structure that will: (a) comply with the Communications Act and the *Radio Regulations*; (b) meet the goals underlying this proceeding, and (c) reduce the resources the Commission expends on administration of the amateur service without adversely affecting the overall effectiveness of the licensing system.

13. We conclude that the public interest will best be served by reducing the number of operator license classes from six to three and that the three classes of operator licenses in the simplified amateur service license structure should be the Technician, General, and Amateur Extra Class operator licenses. We believe this three-class license structure will provide an incentive for licensees to continue the educational opportunities offered by amateur radio as The American Radio Relay League, Inc. (ARRL) requests, will continue to provide an incentive for amateur radio operators to advance their communication and technical skills, and will significantly streamline our licensing processes for this service. Additionally, we believe that a three-class license structure provides a sufficient number of license classes so that the fundamental purposes underlying the amateur service rules will not be compromised.⁴⁷ We also find that a single amateur radio operator license and a two- or four-class operator license structure is not supported by the majority of comments in this proceeding. In addition, we conclude that a two-class license structure would not contain a sufficient number of license classes to provide an incentive for licensees to advance their skills in meaningful ways. Further, we conclude that a five-class operator license structure would not significantly streamline and simplify the present amateur service licensing system.⁴⁸

14. We also are adopting the suggestion of the National Conference of VECs (NCVECs) that we

grandfathering provides a mechanism to ensure that a licensee is not adversely affected as a result of changes to the license structure. For example, Novice Class operator licensees would retain their currently authorized operating privileges and would continue to receive examination credit for examination elements passed that also are required to qualify for other licenses.

⁴⁵See Notice, 13 FCC Rcd at 15802.

⁴⁶See 47 C.F.R. §§ 97.501, 97.503, 97.505(a)(8). These licensees receive examination credit for written examination Elements 3(A) and 3(B) because they passed the equivalent written examination elements to earn their Technician Class license.

⁴⁷See 47 C.F.R. § 97.1.

⁴⁸We also note that a five-class license structure was the license structure in effect prior to the establishment of the Technician Plus Class operator license in 1994.

not issue new Advanced Class operator licenses and grandfather licensees holding this class.⁴⁹ We observe that the primary difference between the Advanced Class operator license and the Amateur Extra Class operator license is not the difficulty of the Amateur Extra Class written examination but, rather, the 20 wpm telegraphy examination which, as we explain below, we are eliminating as a requirement to obtain the Amateur Extra Class operator license. We also agree with NCVEC that the difference in authorized frequency privileges between the Advanced Class operator license and the Amateur Extra Class operator license is minimal and does not alone warrant maintaining two separate license classes in the future.⁵⁰ Additionally, we expect that many current Advanced Class licensees will upgrade their operator licenses to the Amateur Extra Class operator license, thereby resulting in a reduction in the number of Advanced Class licensees. In order to assure that Technician Plus Class licensees do not lose privileges, we have revised Section 97.301(e) of our Rules to reflect that any Technician Class licensee who satisfies the telegraphy requirement in the *Radio Regulations* will maintain the privileges which the Technician Plus Class operator license presently authorizes.

15. We are not adopting the ARRL suggestion that we automatically upgrade Novice and Technician Plus Class licenses to the General Class,⁵¹ or the suggestion of others that we automatically upgrade Advance Class licenses to the Amateur Extra Class operator license.⁵² We note that the privileges of a General Class licensee in the MF and HF bands are significantly different than a Novice Class licensee.⁵³ We also note that grandfathering Novice and Advanced Class licensees is consistent with both the ARRL's overall request that no change in the license structure be made that would reduce the privileges of any existing licensee,⁵⁴ and other commenter's requests that licensees not receive additional privileges without passing the required examination elements.⁵⁵ We believe that both of these concerns are reasonable and that they are satisfied by grandfathering licensees. Similarly, we will not grant the request of commenters that we upgrade the operator privileges of individuals who held a Class A operator license prior to 1951 to Amateur Extra Class operator privileges.⁵⁶ As we have stated, the Amateur Extra Class operator license was a new class of operator license in 1951⁵⁷ and no licensee was converted or grandfathered to Amateur Extra Class. Consequently, we are not persuaded that a different approach is warranted in light of our actions in this proceeding.

16. In support of these conclusions, we note that the majority of comments we received in response to the *Notice* strongly agree that this is an opportune time to streamline and simplify the amateur service license structure and that re-evaluation is appropriate. For example, Kenwood Communications

⁴⁹NCVECs Comments at 11.

⁵⁰NCVECs Comments at 10-11.

⁵¹ARRL Comments at 23.

⁵²See, e.g., ARRL Comments at 14; William J. Sartorius Comments at 1; Hans E. Richter Comments at 1; Dominic Costantino Comments at 1; Ray Adams Comments at 10.

⁵³See 47 U.S.C. § 303(l)(1). In this connection, we note that unlike Novice and Technician Plus Class licensees, General Class licensees have passed, or received credit for, a 13 wpm telegraphy examination and certain other written examination elements. Brent McKinney Comments at 1; John Eary Comments at 1.

⁵⁴ARRL Comments at 2.

⁵⁵See, e.g., NCVECs Comments at 12-13; William H. Cottrill Comments at 1; Don Murano Comments at 1; David L. Heller Comments at 3.

⁵⁶See, e.g., James C. Thompson Comments at 1; Samuel H. Beverage Comments at 1-2. We note that in 1951, a Class A operator license was converted to an Advanced Class operator license.

⁵⁷See 1951 License Structure Decision, *supra*, note 26.

Corporation (Kenwood) states that the license structure of the amateur service is in need of updating.⁵⁸ Quarter Century Wireless Association, Inc. (QCWA) and Kenwood agree that fewer than the present six license classes would serve the amateur service equally well, if not better, and would be more in keeping with amateur licensing trends in many other countries.⁵⁹ The ARRL⁶⁰ also stated that fewer license classes are preferable and that the current licensing structure has been perceived by many radio amateurs as overly complex, cumbersome, and somewhat outdated.⁶¹ The ARRL also states that "while this proceeding is a timely and needed opportunity for simplification of what is now an overly complex licensing structure for the Amateur Radio Service,⁶² the result must continue to provide an incentive for licensees to continue to pursue the educational opportunities offered by amateur radio."⁶³ Other commenters have observed that revitalization and realignment of the amateur service licensing structure is absolutely necessary to ensure that this service will be capable of meeting its public service and technical training objectives in the future.⁶⁴ In contrast, twenty-two percent of the member-respondents in an ARRL survey⁶⁵ and other commenters in this proceeding oppose any change in license classifications or the requirements necessary to obtain an amateur radio license.⁶⁶

17. We disagree with the ARRL, however, that simplification of the license structure only should be undertaken as part of a comprehensive restructure of the licensing process and operating privileges.⁶⁷ We believe that in light of ongoing discussions concerning implementation of new and more modern communications technologies within the amateur service community, we should accord the amateur service community an opportunity to complete such discussions and possibly reach a consensus regarding implementation of new technologies before we undertake a comprehensive restructuring of the amateur service operating privileges and frequencies. For example, the ARRL recently announced it has a newly-formed committee that will study the implementation of modern technologies into the amateur service.⁶⁸ We also did not propose to change the name of any current operator license class or create additional permits such as a "Basic Amateur Permit"⁶⁹ because such changes would result in our expending

⁵⁸ Kenwood Comments at 1-2.

⁵⁹ QCWA Comments at 2; Kenwood Comments at 2.

⁶⁰ The ARRL is a national association of amateur radio operators. It represents the views of its members through its Board of Directors.

⁶¹ ARRL Comments at 2 and 5.

⁶² ARRL Comments at 3.

⁶³ ARRL Comments at 4.

⁶⁴ See, e.g., Carl R. Stevenson Comments at 4; No Code International Comments at 4.

⁶⁵ ARRL Comments at 5, n.7. The ARRL requested a nationally recognized independent research company to survey and prepare a report on the views of members and non-members concerning the amateur service license structure and telegraphy in the amateur service. The survey was based on a sample of 1600 individuals. ARRL Comments, Exhibit A.

⁶⁶ Joseph Sarkis Comments at 1; George A. Bonadio Comments at 1; Herbert L. Lacey, Jr. Comments at 2; William H. Eckels Comments at 1; Leonard J. Umina Comments at 1 (although suggesting changes to the Novice and Technician Classes of operator licenses).

⁶⁷ ARRL Comments at 4.

⁶⁸ See ARRL Letter, Volume 18, Number 4 at 3-4 (Jan. 22, 1999). The ARRL's Technology Task Force has invited information and concepts on a wide range of technologies with the potential to improve the amateur service by November 30, 1999, and will use the input to help formulate ARRL policy recommendations on a wide range of technical issues. See ARRL Letter, Volume 18, Number 36 (Sept. 10, 1999). The ARRL Letter is a newsletter published weekly by the ARRL, Inc. It is available on internet at <http://www.arrl.org/arrlletter/#99>.

⁶⁹ CQ Comments at 2; Robert Vernal Comments at 12; ARRL Comments at 13, n.15.

considerable resources modifying the amateur service database, issuing new license documents, and/or reprinting scores of licenses; a result which is counter to the goals of this proceeding.

18. With respect to our proposal to phase out the Novice Class operator license, several commenters assert that the Novice Class license as an entry avenue to amateur radio does not serve much of a purpose.⁷⁰ They further assert that retaining the Novice Class operator license only creates a paperwork burden for the VECs and the Commission.⁷¹ Furthermore, these commenters agree that this class license should be eliminated, provided that present Novice Class licensees are grandfathered.⁷² Other commenters state, however, that there is still a place for the Novice Class operator license in the Amateur Radio Service license structure.⁷³ For example, the Western Illinois Amateur Radio Club, Inc. states that the Novice Class license still is the most viable entry path among early- and pre-teen examinees, based upon its experience offering an annual introductory class to the amateur radio service. It requests, therefore, that we do not close off entry into the Novice Class license.⁷⁴

19. We have considered the record in this proceeding and conclude that we should adopt our proposal to phase out the Novice Class operator license while grandfathering current Novice Class licensees. While the Novice Class operator license might be considered a viable entry path for some individuals,⁷⁵ we note that, as a practical matter, very few individuals choose to enter the amateur service as Novice Class operators.⁷⁶ Based on our review of the amateur service licensing data, it appears that the majority of individuals choose to enter the amateur service with the no-code Technician Class operator license. We also note that an individual who qualifies for a Technician Class operator license and then passes a telegraphy examination qualifies for privileges that include those of a Novice Class operator license. The only difference between an individual who qualifies for a Novice Class license first and then a Technician Class license (thereby becoming a Technician Plus Class licensee), and an individual who passes the examinations in reverse order, is the order in which the examination elements are taken. We conclude, therefore, there is an overlap between the Novice Class and Technician Plus Class operator licenses. Thus, we also conclude that the Novice Class license can be phased out without significantly increasing the difficulty to enter the amateur service.

20. With regard to our proposal to renew Technician Plus Class operator licenses as Technician

⁷⁰ See, e.g., Timothy Fiebig Comments at 1; Ray Adams Comments at 3; California Central Coast DX Club Comments at 2; Alfred J. Harrison, Jr. Comments at 2.

⁷¹ *Id.*

⁷² *Id.*

⁷³ See e.g., Herbert J. Ulrich, Jr. Comments at 1 (the Novice Class license is a useful part of the "career" path to obtain the Amateur Extra Class license), James B. Didriksen Comments at 1 (the Novice Class license should be left intact because it is an easy examination that is far less intimidating than tackling a higher class license to start into amateur radio); Eric Grimes Comments at 1; Allan Douglas Grimes Comments at 1; Tara Grimes Comments at 1; Brant Grimes Comments at 1.

⁷⁴ Western Illinois Amateur Radio Club, Inc. Comments at 3-4.

⁷⁵ See ARRL Letter Online, Volume 17, Number 12 at 4 (Mar. 20, 1998) (four year old qualifies for Novice Class operator license).

⁷⁶ A review of the FCC's licensing database indicates that we granted 793 new Novice Class applications in 1998, as compared to 961 such licenses in 1997. The licensing information also reflects a decrease in the number of currently licensed Novice Class licensees from 63,892 in January, 1998, to 57,008 in January, 1999. See also, *The W5YI Report*, May 1, 1999, at 3.

Class operator licenses, we note that Technician Plus Class licensees personally hold documentation⁷⁷ that they have passed a 5 wpm telegraphy examination. For this reason, we see no need to maintain a separate classification of these licensees. Rather, if documentation is needed to verify whether a licensee has passed a telegraphy examination, we may request the documentation from that licensee or the VECs.⁷⁸ We will, therefore, adopt our proposal to renew Technician Plus Class licenses as Technician Class licenses.

21. By adopting our proposals concerning the Novice Class and Technician Plus Class operator licenses, we have reduced the number of operator license classes from six to four. The majority of commenters, however, state that they support a three-class license structure consisting of the Technician, General, and Amateur Extra Class operator licenses⁷⁹ or another three-class operator license structure,⁸⁰ or the four-class license structure we proposed in the *Notice*.⁸¹ A three-class structure consisting of the Technician, General, and Amateur Extra Class operator licenses is supported, among others, by the

⁷⁷This documentation is usually either a Technician Class license issued before February 14, 1991, a Certificate of Successful Completion of Examination showing credit for telegraphy examination Element 1(A), or a Technician Plus Class operator license issued by the Commission.

⁷⁸See 47 U.S.C. § 308(b) and 47 C.F.R. §§ 97.5(a), 97.519(c).

⁷⁹See, e.g., CQ Communications, Inc. (CQ) Comments at 8; jointly filed Comments of Gordon West and Gordon West Radio School, Inc. (collectively, West) at 5; Master Publishing, Inc. (Master Publishing) Comments at 2; William A. Clark Comments at 1; William J. Sartorius Comments at 1; Hans E. Richter Comments at 1; Dominic Costantino Comments at 1; Ray Hamovitz Comments at 1; Lee Forrest, Jr. Comments at 1; Percy Whitmore Comments at 1; Philip E. Galasso Comments at 2; Carl R. Stevenson Comments at 5; No Code International Comments at 5; Ray Adams Comments at 10; Arthur J. Kyle Comments at 2; Richard Wurtzinger Comments at 1; Edwin C. Dow Comments at 2-3; Woodie D. Thompson Comments at 1-2; James R. Sohl Comments at 2; Kenneth A. Piletic Comments at 1; Jay W. Underdown Comments at 3-4. An analysis of 2258 comments and reply comments received in ECFS was prepared by No Code International. See *Ex Parte* Presentation of No Code International, March 19, 1999. In this analysis, No Code International found that 43% of the comments supported a three-class license structure with no more than a five wpm telegraphy requirement, 37% of the comments supported retaining the current system license structure, 20% of the comments supported the license structure suggested by the ARRL, 346 comments in ECFS were duplicate comments, and 94 did not specify a position on telegraphy testing. *Id.* 17-18.

⁸⁰See, e.g., Robert W. Rettie Comments at 1; Henry Pokorny Comments at 1 (suggesting Technician Plus, General, and Advanced Class operator licenses); Alfred J. Harrison, Jr. Comments at 2 (suggesting Technician, General, and Advanced Class operator licenses); Edward Conder Comments at 1 (suggesting an "entry-level" (*i.e.*, Technician Class), Intermediate Class, and Advanced Class); Puerto Rico Amateur Radio League, Inc. Comments at 4, Robert S. Ross Comments at 1-2, and Robert L. Shrader Comments at 1-2 (suggesting Class A, B, and C licenses); Gary S. Dewey Comments at 1-2 and Donald B. Chester Comments at 2 (suggesting Amateur 3rd, 2nd, and 1st Class operator licenses); Paul J. Kiesel Comments at 2 (suggesting General, Advanced, and Amateur Extra Class operator licenses); John R. Sproat, Jr. Comments at 2-3 (suggesting Entry, Intermediate, and Extra Class operator licenses); Gail D. Griner Comments at 2-5 (suggesting three basic license classes requiring no Morse code examination and a Morse code endorsement to obtain Morse code privileges).

⁸¹See, e.g., Frank A. Pitman, Jr. Comments at 1 (Mr. Pitman suggests changing the name of the entry level license from the Technician Class operator license to the VHF Class operator license); Richard E. Daily, Sr. Comments at 1; Sara Louise K. Wood Comments at 1; California Central Coast DX Club Comments at 2; Lawrence J. Roll Comments at 1; Carl R. Swanson Comments at 2; Myron W. Manker Comments at 2-3. A number of comments also suggest other four-class license structures. See, e.g., James A. Wades Comments at 3 (suggesting a no code Technician Class, Technician Plus Class, General Class, and Amateur Extra Class license); Alan J. Wormser Comments at 1-2, Frederick V. Adsit Comments at 2-3, and Michael J. Dinelli Comments at 1-2 (suggesting Technician Class, Intermediate Class, Advanced Class, and Amateur Extra Class operator licenses); Robert J. Crockett Comments at 2-4 (suggesting elimination of the Technician Plus and Advanced Class operator licenses); William Reed Comments at 2 (suggesting Technician Class, General Class, Advanced Class, and Amateur Extra Class operator licenses).

NCVECs and the Quarter Century Wireless Association (QCWA).⁸² In this regard, NCVEC states that there is very little difference in frequency privileges between the Advanced Class and Amateur Extra Class operator licenses and that the Advanced and Amateur Extra operator license classes should be streamlined by grandfathering the Advanced Class operator license.⁸³ The study conducted by the ARRL showed that 21% of the ARRL members responding also supported a three-class license structure.⁸⁴ The ARRL, however, supports a reduction in the number of license classes from six to four,⁸⁵ and states that in its study, 22% of the respondents supported a four-class license structure.⁸⁶ We conclude, based on the record, that there is strong support within the amateur service community for a simplified operator license structure consisting of either three or four classes of operator licenses. Given our decision to reduce the telegraphy examination requirement to the minimum requirement that meets the *Radio Regulations*, we believe that the three-class operator license structure is preferable because this structure has substantial support within the amateur service community and satisfies our goal of streamlining and simplifying the amateur service licensing system to the greatest extent possible.

2. **Telegraphy Examination Requirements**

22. *Background.* In the early days of radio, communication by radiotelegraphy was the primary means used to exchange messages between radio operators at all radio stations, including amateur radio stations. Proficiency in telegraphy using the Morse code was mandated to ensure that operators of amateur radio stations would not cause interference to Government and commercial stations and that amateur radio stations would be able to stay clear of maritime distress messages.⁸⁷ Currently, in the Amateur Radio Service license examination system, three telegraphy examination elements are prepared and administered by a team of three VEs⁸⁸ to applicants seeking to obtain an amateur radio operator license from the Commission.⁸⁹ In a telegraphy examination, the VEs generally ask an examinee to either transcribe a prepared telegraphy message or answer a series of questions based on the message. On the basis of the examinee's transcription or answers, the VEs determine whether the examinee has adequate skills in sending and receiving text in the international Morse code to pass the telegraphy examination.⁹⁰ Our rules delineate three levels of skill in telegraphy, based upon the rate at which an examinee correctly receives a telegraphy message: 5, 13, and 20 wpm.⁹¹ Today, as opposed to the early days of radio, radiotelegraphy is just one of numerous diverse modes of radiocommunication.

⁸²National Conference of VECs (NCVECs) Comments at 11-13; QCWA Comments at 2, *Ex Parte* Presentation of No Code International, March 19, 1999, at 15, 18. *See also*, fn. 76 and 77, *supra*.

⁸³NCVECs Comments at 10-11.

⁸⁴ARRL Comments at 5, n.7.

⁸⁵ARRL Comments at 12.

⁸⁶ARRL Comments at 5, n.7. The ARRL also states that an additional 22% of the respondents supported retaining the present six-class license structure, 17% supported a five-class license structure, 11% supported either a 1-, 2-class license structure, and 3% supported a 7 or more-class license structure. *Id.*

⁸⁷*See generally* Bruce Perens Comments at 1-2.

⁸⁸At their annual conference in July, 1997, the VECs estimated that there are approximately 35,000 VEs.

⁸⁹*See* 47 C.F.R. § 97.501.

⁹⁰*See* 47 C.F.R. § 97.509(g). The Commission does not limit the VEs flexibility in administering a telegraphy examination. Generally, VEs allow an examinee multiple ways to demonstrate their ability to receive texts. These methods include, for example, answering a certain number of multiple choice or fill-in-the-blank questions about the content of the message correctly and interpreting a certain number of consecutive characters correctly.

⁹¹*See* 47 C.F.R. § 97.503.

23. In the *Notice* we sought comment on all aspects of the Morse code standards used in our examinations.⁹² We asked whether, in view of the technologies that amateur radio operators use to communicate today, the three telegraphy proficiency levels remain relevant to contemporary communications practices.⁹³ We also asked whether we should continue to have three different telegraphy examination standards or whether the telegraphy standard should be reduced to one or two telegraphy examination elements -- and, if so, what the required speed(s) should be.⁹⁴ With regard to the administration of the telegraphy examination element, we asked in the *Notice* whether we should consider specifying the method of examining for Morse code proficiency instead of allowing VEs to determine how to test for code speed if we were to reduce the required Morse code examination elements.⁹⁵

24. The *Notice* also sought comment on the ARRL's requests, contained in RM-9196, that the examinee be required to attempt the higher-speed telegraphy examination before examination credit is given pursuant to a doctor's certification, and that VECs be authorized to request medical information from the certifying physician pertaining to the examinee's disability.⁹⁶ We tentatively concluded that neither of these proposals is an appropriate means to address potential abuses of the physician's certification requirement.⁹⁷ In addition, we noted that these issues remain relevant only if we were to retain the higher telegraphy speed requirements, because if the requirements were to be eliminated, there would no longer be a need for an examination credit based on an applicant's disability.⁹⁸

25. *Decision.* We have considered the comments on this issue and conclude that the public interest will best be served by reducing the telegraphy examination requirement to the minimum requirement that we have found that meets the *Radio Regulations* and that has been accepted as proving that the control operator of a station can ensure the proper operation of that station. To achieve this result, we will amend Section 97.501 of our Rules to eliminate the requirement that an individual demonstrate 13 wpm and 20 wpm proficiency in telegraphy before qualifying for any amateur radio operator license. In reaching this decision, we note that one of the fundamental purposes underlying our Part 97 rules is to accommodate the amateur radio operator's proven ability to contribute to the advancement of the radio art.⁹⁹ We believe that an individual's ability to demonstrate increased Morse code proficiency is not necessarily indicative of that individual's ability to contribute to the advancement of the radio art. As a result, we find that such a license qualification rule is not in furtherance of the purpose of the amateur service and we do not believe that it continues to serve a regulatory purpose. Consistent with our decision to eliminate 13 wpm and 20 wpm Morse code proficiency as licensing requirements, we also are streamlining Section 97.503(b) of our Rules to reduce the number of telegraphy examination elements from three to one -- specifically, a 5 wpm telegraphy examination. We also conclude that, due to the *Radio Regulations*, we can not grant the request of the ARRL that we authorize privilege on all amateur service bands below 30 MHz to Technician Class licensees who have not passed a telegraphy examination. While we do not disagree with the ARRL's belief that the best way to learn telegraphy is to use it on-the-air, and that actual use of telegraphy to communicate is proof of the ability to send and receive telegraphic texts,¹⁰⁰ the *Radio Regulations* provide that the telegraphy requirement may be

⁹²*Notice*, 13 FCC Rcd at 15806.

⁹³*Notice*, 13 FCC Rcd at 15806, ¶ 24.

⁹⁴*Notice*, 13 FCC Rcd at 15806.

⁹⁵*Notice*, 13 FCC Rcd at 15806.

⁹⁶See Petition for Rule Making, RM-9196, filed by ARRL on September 23, 1997.

⁹⁷*Notice*, 13 FCC Rcd at 15806-07.

⁹⁸*Notice*, 13 FCC Rcd at 15806-07.

⁹⁹See 47 C.F.R. § 97.1.

¹⁰⁰ARRL Comments at 18, n.17 and 21-22.

waived only for an operator of a station transmitting exclusively on frequencies above 30 MHz. In this regard, we also note, as the ARRL states, that the *Radio Regulations* remain an obligation of the Commission that can not be waived.¹⁰¹

26. When considering the issue of telegraphy as an examination requirement to obtain an amateur radio operator license, we begin with a number of general principles. First, the *Radio Regulations* contain certain requirements that an applicant for an amateur radio license must satisfy. With regard to the telegraphy requirement specifically, the *Radio Regulations* require that persons seeking a license to operate an amateur radio station must prove that they have the ability to send correctly by hand and to receive correctly by ear texts in Morse code telegraphy signals.¹⁰² The *Radio Regulations* also provide that this requirement may be waived only for an operator of a station transmitting exclusively on frequencies above 30 MHz.¹⁰³ In order to comply with the *Radio Regulations*, our rules require that every class of amateur radio operator license that authorizes privileges below 30 MHz has, as one of the examination elements that an applicant is required to pass or otherwise receive credit for, a telegraphy examination element.¹⁰⁴ The other principles that we consider relevant to examination requirements are that those requirements pertain to the privileges the operator license authorizes and that they constitute the minimum requirements necessary to demonstrate that the control operator of a station can ensure the proper operation of that station.¹⁰⁵

27. Few issues coming before us present such a clear dichotomy of viewpoints as does the issue of the appropriate telegraphy examination requirements for an individual to qualify for an amateur radio license. Many of the comments we have received, including comments from groups of amateur radio operators and individual amateur radio operators, support reducing the emphasis on telegraphy proficiency as a license qualification requirement.¹⁰⁶ Other comments contend that any significant reduction of telegraphy examination requirements will be detrimental to the amateur service while providing no long term benefits.¹⁰⁷ In fact, some commenters suggest that a reservoir of operators proficient at the higher Morse code speeds is a public interest benefit and should be encouraged through our Rules.¹⁰⁸

28. As mentioned above, in the *Notice*, we asked whether, in the context of the amateur radio operator licensing system and in view of the technologies that amateur radio operators use to communicate today, three telegraphy proficiency levels remain relevant to today's communications practices. We also asked whether we should add elements to the written examination to ensure a working knowledge of the newer digital technologies, were we to reduce the required Morse code elements.¹⁰⁹ Some commenters

¹⁰¹ ARRL Comments at 29.

¹⁰² See No. 2735 (now S25.5) of the *Radio Regulations* (Geneva, 1979).

¹⁰³ See No. 2735 of the *Radio Regulations*. This *Radio Regulation* states: Any person seeking a license to operate the apparatus of an amateur station shall prove that he is able to send correctly by hand and receive correctly by ear texts in Morse code signals. The administration concerned may, however, waive this requirement in the case of stations making use exclusively of frequencies above 30 MHz.

¹⁰⁴ See 47 C.F.R. § 97.505(a).

¹⁰⁵ See 47 C.F.R. § 97.105.

¹⁰⁶ See para. 28, *infra*.

¹⁰⁷ David L. Heller Comments at 2, Jim Beaudry Comments at 1-2, Marco Marchetti Comments at 1. See also para. 29, *infra*.

¹⁰⁸ See, e.g. Frank A. Pitman, Jr. Comments at 2; Greg Pollard Comments at 1; Gunnar C. Carlson, Jr. and Beverly A. Carlson Comments at 2.

¹⁰⁹ *Notice*, 13 FCC Rcd at 15806.

state that the current licensing structure overemphasizes the importance of manual telegraphy.¹¹⁰ Similarly, the ARRL states, "... the current examination structure places a strong emphasis on demonstrating Morse code proficiency, while not requiring demonstrated proficiency in more technically advanced communications techniques".¹¹¹ Further, the ARRL states that "telegraphy should not be overemphasized to the exclusion of other operating modes [in the examination system]".¹¹² Mr. Samuels notes that communications has divided into many different modes, and each one has its own technology and technical requirements.¹¹³ NCVECs and others agree with our assessment that the role of Morse code is decreasing in modern communications.¹¹⁴ Kenwood states that licensing of persons because they are proficient in Morse code is inconsistent with encouraging those interested in modern telecommunications to join the ranks of amateurs and become skilled in the technical sciences.¹¹⁵ Another commenter states that potential recruits to the Amateur Radio Service consider the telegraphy requirement archaic and quickly lose interest in becoming amateur radio operators.¹¹⁶ Many individual commenters also agree that Morse code proficiency is not relevant to modern communications practices and technologies.¹¹⁷ Other commenters state that the Morse code requirement exists only as a roadblock to prevent current and possible amateur operators from obtaining worldwide frequency privileges¹¹⁸ or have been used to control access to the HF amateur radio bands.¹¹⁹ Mr. Robert H. Stephens states that although he passed the 5 wpm examination, he uses telegraphy less than five percent of the time.¹²⁰

29. On the other hand, several commenters equate passing a telegraphy examination to the type of on-the-air operator a licensee will be,¹²¹ proof of skill level,¹²² or emergency communication capabilities.¹²³ Kenwood, however, states that Morse code telecommunications is not a skill used often in

¹¹⁰See QCWA Comments at 3; West Comments at 6; Vernon H. Ferris Comments at 1 (telegraphy is just one of the various communications modes used and enjoyed by amateur radio operators).

¹¹¹ARRL Comments at 6.

¹¹²*Id.*

¹¹³Arnold Samuels Comments at 1-2.

¹¹⁴NCVECs Comments at 2; William Reed Comments at 4.

¹¹⁵Kenwood Communications Corporation Comments at 3.

¹¹⁶See, e.g., Vernon H. Ferris Comments at 1.

¹¹⁷See, e.g., NCVECs Comments at 2; William A. Clark Comments at 1 (use of Morse code by amateur radio operators is now purely recreational); Robert W. Rettie Comments at 1; Vernon H. Ferris Comments at 1; Richard G. Meyer Comments at 1; Philip E. Galasso Comments at 2 (Morse Code is a historical curiosity); Ray Adams Comments at 3 (CW (Morse Code) is an element of nostalgia); Richard S. Wilson Comments at 1 (Morse Code is an anachronism).

¹¹⁸See, e.g., Timmy S. Naami Comments at 1; Paul S. Towne Comments Linda L. Towne Comments at 1 (Morse Code proficiency requirements in excess of 10 wpm are an art form which should not be required as part of a technical hobby); The Courage HANDI-HAM System Comments at 1 (telegraphy proficiency adds nothing to advance the state of the art of HF communication).

¹¹⁹See, e.g., NCVECs Comments at 15-17; Vernon H. Ferris Comments at 1; Bob Vernal Comments at 5.

¹²⁰Robert H. Stephens Comments at 1. We also note that 72% of respondents to an ARRL survey responded that they either rarely or never use Morse code. ARRL Comments, Exhibit A, Figure 4.

¹²¹Richard S. Wilson Comments at 1 (Morse code proficiency results in operators who are far more accountable and self policing); Sarah E. Howard Comments at 1; Henry Pokorny Comments at 1; Henry Clark at 1 (Morse Code proficiency makes a difference in the type of individuals who are licensed and operate on the amateur bands); Donald W. Long Comments at 1 (Morse Code proficiency demonstrates commitment to the hobby); Gary McConville Comments at 1; Holton E. Harris Comments at 1 (keeps most of the CB-style operators off the HF bands); William H. Cotrill Comments at 1 (determines a person's commitment to amateur radio).

¹²²John Griffeth and Deana Martin-Griffeth Comments at 1 (reducing the Morse code requirements to obtain an amateur service license would weaken the skill levels of an amateur radio operator).

¹²³Michael F. Taylor Comments at 1 (Morse Code proficiency keeps amateur radio operators ready in case an emergency develops); Michael Murray Comments at 1 (Morse code has saved many people in danger when no other

emergency communications or disaster relief any longer.¹²⁴ Other comments express a personal preference for exchanging messages with other amateur radio stations using telegraphy.¹²⁵ While Kenwood agrees with these observations, it states, however, they are not a sufficient justification for keeping Morse code proficiency as a licensing requirement.¹²⁶ Courage HANDI-HAM System agrees that while Morse code is fun to use and retains a following in the amateur community, it is no longer essential to HF communications.¹²⁷

30. Based on our review of the record, we are not persuaded by the arguments of those commenters opposing reduction or elimination of the emphasis on telegraphy proficiency as a license requirement in the amateur service. To the extent that these commenters put forth arguments premised on personal preference or concerns regarding on-the-air etiquette amongst amateur radio operators, we reiterate pronouncements made in the *Codeless Technician Decision*. In that decision, the Commission stated that passing a telegraphy examination, for regulatory purposes, is no more and no less than proof of the examinee's ability to send and receive text in Morse code at some specified rate.¹²⁸ Additionally, it addressed the issue of personal preference for telegraphy and claims that passing a Morse code examination would make for a better operator by stating:

We do not concur with the comments alleging that the passing of a telegraphy examination is an indication of the examinee's good character, high intelligence, cooperative demeanor, or willingness to comply with our rules. These traits are also found in individuals who have not passed a telegraphy examination rather than being exclusive to those who have passed such a test. With respect to comments that make claims for the superiority of telegraphy over other types of communications, we do not consider these arguments as germane to this proceeding. The *Notice* did not propose to discontinue the authorization of telegraphy CW emission types on any amateur service frequency. The amateur service in the future, as it has in the past, can provide to those who personally desire to do so the opportunity to communicate by telegraphy.¹²⁹

We are persuaded that because the amateur service is fundamentally a technical service, the emphasis on Morse code proficiency as a licensing requirement does not comport with the basis and purpose of the service. We note, moreover, that the design of modern communications systems, including personal communication services, satellite, fiber optic, and high definition television systems, are based on digital communication technologies. We also note that no communication system has been designed in many years that depends on hand-keyed telegraphy or the ability to receive messages in Morse code by ear. In contrast, modern communication systems are designed to be automated systems. Given the changes that

form of communication was available); Anne K. Fanelli Comments at 1 (continued need for proficiency in telegraphy as a back-up to satellite and automated terrestrial communications systems for distress and safety communications); Henry Pokorny Comments at 1 (Morse code proficiency is needed because satellites, beacons, and repeater stations all identify in Morse code at 18 wpm or more).

¹²⁴Kenwood Comments at 4.

¹²⁵W6SGJ [no individual name provided] Comments at 1. *See also* Holton E. Harris Comments at 1; Anne K. Fanelli Comments at 1; Kenneth S. Cannaday Comments at 3-6.

¹²⁶Kenwood Comments at 4.

¹²⁷The Courage HANDI-HAM System Comments at 1-2.

¹²⁸See *Codeless Technician Decision*, *supra*, note 30.

¹²⁹*Id.*

have occurred in communications in the last fifty years, we believe that reducing the emphasis on telegraphy proficiency as a licensing requirement will allow the amateur service to, as it has in the past, attract technically inclined persons, particularly the youth of our country, and encourage them to learn and to prepare themselves in the areas where the United States needs expertise.

31. We also find unconvincing the argument that telegraphy proficiency is one way to keep amateur radio operators ready to be of service in an emergency. In this regard, we note that most emergency communication today is performed using either voice, data, or video modes. We also note that most amateur radio operators who choose to provide emergency communication do so, according to the amateur radio press, using voice or digital modes of communication, in part, because information can be exchanged much faster using these other modes of communication.¹³⁰ Further, we note that in traditional emergency services, such as police, fire, and rescue, there is no requirement that emergency service personnel hold amateur radio licenses or any other license that requires telegraphy proficiency. We conclude, therefore, that telegraphy proficiency is not a significant factor in determining an individual's ability to provide or be prepared to provide emergency communications.

32. The *Notice* also asked whether we should continue to have three different telegraphy examination standards or whether the telegraphy standard should be reduced to one or two telegraphy examination elements -- and, if so, what the required speed(s) should be. Numerous commenters support a reduction in the number of telegraphy elements from three to one. These commenters disagree, however, regarding what the required telegraphy speed should be. Some commenters state that the only telegraphy speed should be 5 wpm.¹³¹ Other commenters express a preference for a speed of seven wpm,¹³² or the lowest speed allowed by international agreement.¹³³ Mr. Holton E. Harris states, however, that reducing the Morse code element to a single 5 wpm examination trivializes it to the point that there is no longer a meaningful examination requirement and, thus, it might as well be eliminated.¹³⁴

33. Some commenters support retaining the present 5, 13, and 20 wpm telegraphy examination requirements¹³⁵ or increasing the telegraphy requirements for obtaining a FCC-issued amateur service

¹³⁰See, e.g., *The ARRL Letter*, Volume 18, Number 7, at 3-4 (use of single side band when Hams Help Staff Colombian Relief Call Center); Volume 17, Number 13 at 3 (VHF repeaters use to assist tornado victims); Volume 18, Number 4 at 1-3 (use of VHF 2 meter repeaters to assist Emergency Operations center after tornado outbreak). See also *Worldradio*, February, 1999, at 6 (Salvation Army Emergency Team Radio Network (SATERN) maintaining a network of stations on 14.265 MHz during Hurricane Mitch); and *Newsline*, Issue No. 1129, February 29, 1999 (communications for Colombian earthquake assistance on 14.347 MHz using voice modes.)

¹³¹See, e.g., National Conference of VECs Comments at 2 and 22-25; Master Publishing Comments at 2; CQ Comments at 8-9; Donald W. Long Comments at 1; William A. Clark Comments at 1; Timmy S. Naami Comments at 1; Arnold Samuels Comments at 1; Roger R. Schroeder Comments at 1; Vernon H. Ferris Comments at 1; Richard G. Meyer Comments at 1; Clarence A. Tillery Comments at 1; Carl R. Stevenson Comments at 7; No Code International Comments at 7; Kenwood Comments at 4; W. David Gerns, Sr. Comments at 2-3; Richard Wurtzinger Comments at 3; Woodie D. Thompson Comments at 2; Thomas L. Floyd Comments at 2; Michael C. McCardy Comments at 1-2; Bruce Perens Comments at 1; Joel R. Stanley Comments at 3; William R. Slye, Jr. Comments at 1.

¹³²William A. Burns Comments at 2-4.

¹³³See, e.g., Timmy S. Naami Comments at 1; SaraLouise K. Wood Comments at 1; Comments of Ray Adams Comments at 3; Bob Vernall Comments at 9; Jay W. Underdown Comments at 1-2; Joel R. Stanley Comments at 1.

¹³⁴Holton E. Harris Comments at 1.

¹³⁵See, e.g., William H. Cottrill Comments at 1; Gary McConville Comments at 1; Dominic Costantino Comments at 1; Ray Hamovitz Comments at 1; Lee Forrest, Jr. Comments at 1; Percy Whitmore Comments at 1; Holton E. Harris Comments at 1; Jack E. Loudon Comments at 1; George Folsy Comments at 1; Sarah E. Howard Comments at 1; Michael F. Taylor Comments at 1; Henry Pokorny Comments at 1; Henry Clark Comments at 1; W6SGJ Comments at 1; Robert E. Becker Comments at 1; Gerald Ortman Comments at 1; Ken Hale Comments at 1; Edward J. Zupan

license.¹³⁶ Other commenters suggest that we revise the telegraphy examination requirements so that they sunset if the *Radio Regulations* are revised in year 2001 to eliminate the requirement that an amateur radio operator demonstrate the ability to send by hand and receive by ear texts in the Morse code.¹³⁷ Another option advanced in the comments is to reduce the number of telegraphy examination elements from three to two. The American Radio Relay League suggests that we substitute a 12 wpm telegraphy examination for both the 20 wpm telegraphy examination currently required for the Amateur Extra Class operator license and the 13 wpm telegraphy examination currently required for the Advanced Class operator licenses. It also suggests that we reduce the telegraphy requirement for a General Class operator license to 5 wpm,¹³⁸ and requests that we authorize privilege below 30 MHz to Technician Class licensees who have not passed a telegraphy examination.¹³⁹ Numerous other comments agree that the telegraphy requirement for the General Class operator license should be only a 5 wpm telegraphy examination,¹⁴⁰ while others suggest other proficiency requirements for telegraphy examination elements.¹⁴¹

34. We have considered the comments on this issue and conclude that the required speed for the telegraphy examination element should be 5 wpm. In this connection, we note that this is the minimum telegraphy speed that has been required for the Novice Class operator license since 1951,¹⁴² and is the minimum telegraphy proficiency that must be demonstrated by a Technician Class licensee to be authorized HF privileges. Because both of these classes of operator licenses authorizes HF privileges, 5 wpm is a speed that the Commission has found sufficient to meet the requirement of the *Radio Regulations*, and the slowest telegraphy speed in the amateur service examination system. We believe that, consistent with our decision to reduce the number of telegraphy elements from three to one, we also should use the least burdensome requirement, the 5 wpm requirement, as the standard for that element.

Comments at 1; David A. Henegbry Comments at 1 (13 wpm telegraphy requirement for General Class license); Sylvia K. Thompson Comments at 1; Lawrence J. Roll Comments at 2; Vincent Biancomano Comments at 3; Kenneth A. Piletic Comments at 5; QCWA Marconi Chapter 138 Comments at 3.

¹³⁶Greg Pollard Comments at 1.

¹³⁷See, e.g., No Code International Comments at 5; Carl R. Stevenson Comments at 5; SaraLouise K. Wood Comments at 1; Richard G. Meyer Comments at 1.

¹³⁸ARRL Comments at 14-15; QCWA Comments at 3.

¹³⁹ARRL Comments at 14 and 18-19.

¹⁴⁰See, e.g., Rick Foster Comments at 1; Volney V. Brown, Jr. Comments at 1; Hans E. Richter Comments at 1; ARRL Comments at 14; Orlando Latin Amateur Radio Club, on behalf of 26 members, Comments at 1; Jack G. Valdovinos Comments at 1; West Comments at 6.

¹⁴¹See, e.g., Paul S. Towne Comments at 1, Linda L. Towne Comments at 1, Robert S. Ross Comments, Edwin C. Dow Comments at 1 (5 wpm and 10 wpm); Frank A. Pitman, Jr. Comments at 1 (13 wpm and 20 wpm); Cecil A. Palmer Comments at 1; Jim Rinehart Comments at 1, Richard S. Wilson Comments at 1, William E. Wyckoff Comments at 1, Richard Beckett Comments at 1, Noel Guice Comments at 1, Donald B. Chester Comments at 3-4, Michael Murray Comments at 1 (5 wpm and 13 wpm); Philip E. Galasso Comments at 2 (5 wpm and 15 wpm); Alfred J. Harrison, Jr. Comments at 2 (five wpm and 13 wpm and a master telegrapher endorsement for 20 wpm plain text or 15 wpm five-letter cipher groups); Richard E. Daily, Sr. Comments at 1, Paul J. Castile Comments at 2, California Central Coast DX Club Comments at 2 (5 wpm, 10 wpm, and 20 wpm); Anne K. Fanelli Comments at 1 (10 wpm and 18 wpm); Timothy J. Fiebig Comments at 2 (8 to 12 wpm and 18 to 20 wpm); Edward A. Conder Comments at 1 (5 wpm to 10 wpm and 13 wpm); James A. Wades Comments at 3 (10 wpm and 20 wpm); West Comments at 5 (5 wpm and 20 wpm); Sunnyvale VEC Comments at 1 (5 wpm and 16 wpm); Edward J. Plesnar Comments at 2 (5 wpm and 12 wpm); Myron W. Manker Comments at 5-6 (10 wpm and 15 wpm); Craig S. Kidder Comments at 2-3 (either 5 wpm, 10 wpm, and 15 wpm, or 8 wpm, 13 wpm, and 18 wpm, for the General, Advanced, and Amateur Extra Class operator licenses, respectively).

¹⁴²Prior to the *1951 License Restructuring* decision, the minimum telegraphy requirement to qualify for an amateur service license was 13 wpm.

35. Likewise, we will not revise the rules so that the telegraphy examination requirement automatically sunsets if the *Radio Regulations* are revised to eliminate a mandatory telegraphy proficiency requirement. In this regard, we do not believe that it would be prudent, at this time, to premise the resolution of this issue on decisions to be made at the next World Radio Conference (WRC), particularly given that it is uncertain whether the WRC will actually address this issue. We also note that the International Amateur Radio Union Administrative Council has stated that it opposes changing the *Radio Regulations* to reduce the minimum international qualifications for an amateur radio license, making the potential changes to this *Radio Regulation* even more uncertain.¹⁴³

36. The *Notice* also requested comment on whether we should consider specifying the method of examining for Morse code proficiency instead of allowing VEs to determine how to test for code speed were we to reduce the required Morse code examination elements. Currently, VEs have the option of determining the most appropriate method, including changing the method on a case-by-case basis, to allow an applicant to demonstrate his or her telegraphy skills. Some commenters express the view that we should limit the methods available to VEs for examining for Morse code proficiency to either one minute of solid copy or a fill-in-the-blank examination, and that these methods are adequate.¹⁴⁴ Other commenters contend that there should be a single testing method available to VEs: require an applicant to correctly copy one minute of the code message in order for the applicant to pass the telegraphy examination.¹⁴⁵ Mr. Ray Adams states, however, that requiring one minute of solid copy would be unworkable for the VECs because it would result in a tremendous backlog of detail in large examination sessions and controversies when the VEs interpret handwriting differently from what the applicant actually intended or claimed the handwriting response to be.¹⁴⁶ Other commenters suggest that the VEs should be limited to three methods: one minute of solid copy or a ten-question written examination of either multiple-choice or fill-in-the-blank.¹⁴⁷

37. The NCVECs states that the current arrangement for the preparation and administration for Morse code examinations as provided for in the Commission's rules is adequate and there is no need to change or add to them.¹⁴⁸ Ms. Anne K. Fanelli and others state that VEs should continue to be allowed to determine how to test for telegraphy proficiency.¹⁴⁹ Mr. West states that the test structure should be left up to the individual VE teams.¹⁵⁰ The ARRL, however, suggests that the method VEs must use to determine whether an applicant passes a telegraphy examination should be specified in the Rules to ensure examination uniformity and fairness to all examination candidates.¹⁵¹ Specifically, the ARRL proposes that the Rules be amended to require that VEs be limited to using either a ten-question fill-in-the-blank examination or one minute of solid copy to determine whether an applicant has passed a telegraphy

¹⁴³ See ARRL Letter, Volume 17, Number 40 (Oct. 9, 1998), and Volume 18, Number 39 (Oct. 1, 1999).

¹⁴⁴ See, e.g., Robert E. Becker Comments at 1; William E. Wyckoff, Jr. Comments at 1.

¹⁴⁵ See, e.g., QCWA Comments at 3; Ray Hamovitz Comments at 1; Dominic Costantino Comments at 1; Frank A. Pitman, Jr. Comments at 2; Lee Forrest, Jr. Comments at 1; Percy Whitmore Comments at 1; Holton E. Harris Comments at 1; Gunnar C. Carlson, Jr. and Beverly A. Carlson Comments at 1; William R. Slye, Jr. Comments at 2.

¹⁴⁶ Ray Adams Comments at 8. See also, Jay W. Underdown Comments at 4 (failed telegraphy examination because FCC Engineer In Charge could not read Underdown's writing).

¹⁴⁷ SaraLouise K. Wood Comments at 1; Ray Adams Comments at 7.

¹⁴⁸ NCVECs Comments at 22-23.

¹⁴⁹ Anne K. Fanelli Comments at 1; Bruce W. Moyer Comments at 2.

¹⁵⁰ West Comments at 6.

¹⁵¹ ARRL Comments at 35.

examination.¹⁵²

38. We have considered the comments on this issue and have decided not to adopt rule amendments that inadvertently could limit VEs' flexibility in administering telegraphy examinations. In this regard, we note that rule changes that specify the method VEs must use to administer telegraphy examinations would serve to limit the flexibility VEs currently have. We are persuaded by the NCVECs that the current rules applicable to the preparation and administration for Morse code examinations are adequate and there is no need to change or add to these rules. We are not persuaded that rigid examination uniformity results in fairness to all examination candidates, and we note that, even if we were to adopt the changes requested by the ARRL and others, the uniformity they seek would not necessarily result because VEs are required to modify examination procedures to accommodate individuals with disabilities.¹⁵³

39. With regard to ARRL's requests that we change telegraphy examination procedures and impose other requirements on applicants before examination credit is given pursuant to a *Physician's Certification of Disability*, we noted that these issues only remained relevant if we retained the higher telegraphy speeds requirement. In that we have decided not to retain the higher telegraphy speeds requirements, no person now will be required by our Rules to demonstrate telegraphy proficiency at higher telegraphy speeds. In this regard, we agree that by reducing the telegraphy requirement to a single 5 wpm telegraphy examination, the need to grant credit based on a *Physician's Certification of Disability* would be eliminated.¹⁵⁴ We also agree with Courage Handi-Ham System that reducing the emphasis on telegraphy proficiency may encourage some individuals with disabilities to participate in the amateur service and that provisions must remain in place for accommodating individuals with severe disabilities.¹⁵⁵ In this regard, we note that no changes to this rule¹⁵⁶ were proposed in the *Notice*; furthermore, no actions taken herein will limit or eliminate such accommodations.

3. Written Examinations

40. *Background.* Currently, a written examination is prepared and administered to each applicant for each class of amateur radio operator license.¹⁵⁷ The purpose of the written examination is to allow the applicant to demonstrate that he or she possesses the operational and technical qualifications required to perform properly the duties of an amateur service operator licensee, *i.e.*, that he or she is qualified to be an amateur service licensee.¹⁵⁸ The written examination questions are drawn from a uniform national database of multiple-choice questions and answers approved by the NCVECs using an

¹⁵² ARRL Comments at 35.

¹⁵³ See 47 C.F.R. § 97.509(k).

¹⁵⁴ See, *e.g.*, NCVECs Comments at 22; William A. Clark Comments at 1.

¹⁵⁵ Courage Handi-Ham System Comments at 1.

¹⁵⁶ 47 C.F.R. § 97.509(k). Although we do not regulate examination preparation courses, we remind administering VEs and those offering examination preparation courses that the Americans with Disabilities Act provides that "[a]ny person that offers examinations or courses related to applications, licensing, certification or credentialing for secondary or post-secondary education, professional, or trade purposes shall offer such examinations or courses in a place and manner accessible to persons with disabilities or offer alternative accessible arrangements for such individuals." 42 U.S.C. § 12189.

¹⁵⁷ See 47 C.F.R. § 97.503(b).

¹⁵⁸ See 47 U.S.C. § 303(1)(1) and 47 C.F.R. § 97.503.

algorithm that is specified in the Rules.¹⁵⁹ This database is periodically updated to provide access to current examination questions. The database is arranged into five examination elements, each of which contains questions applicable to the privileges of one of the six classes of amateur radio operator licenses. To qualify for an amateur radio operator license, an applicant must pass or receive credit for one or more written examination elements and, if required, a telegraphy examination element.¹⁶⁰ The components of the written examinations were carried over into the VE system from the examination used previously when the Commission prepared and administered amateur radio operator examinations.¹⁶¹

41. In the *Notice*, we sought comment on all aspects of the written examinations that an individual is required to pass in order to become an amateur radio operator or to obtain a higher class of amateur radio operator license. We noted that the topics tested in the written examinations are the topics the Commission used when it prepared and administered amateur radio operator examinations over fifteen years ago.¹⁶² In light of this fact, we sought comment on whether these topics still adequately cover the significant categories of information relevant to determining whether an applicant has the qualifications to become an amateur service licensee.¹⁶³ Specifically, we asked whether we should add elements to the written examination elements to ensure a working knowledge of the newer digital technologies which, in part, are replacing the Morse code.¹⁶⁴ In addition, we asked whether the required number of questions from each general topic should continue to be established by rule, noting that the written examinations have been prepared and administered under the VE system for over a decade.¹⁶⁵ We also sought comment on: whether the written examination requirements should be modified to provide VEs and VECs additional flexibility in determining the specific contents of written examinations, the specifics of what such flexibility should entail, and the advantages and disadvantages of providing such flexibility.¹⁶⁶

42. *Decision.* The comments we received regarding the written examinations required to obtain an amateur radio operator license have convinced us that the current written examination elements are not adequately demonstrating whether an individual is qualified to be an amateur service licensee. In this regard, we note that almost all of the comments suggest that some type of change to the current system is needed. We believe that the changes suggested by the NCVETs and Ray Adams, among others, will result in an examination system that is more relevant, that is simpler for examinees and licensees to understand, and that takes advantage of the ability that the VECs consistently have shown since 1986 to maintain the question pools.¹⁶⁷ We, therefore, will amend Section 97.503(b) of our Rules to require that

¹⁵⁹47 C.F.R. § 97.503.

¹⁶⁰47 C.F.R. § 97.501.

¹⁶¹See Use of Volunteers to Prepare and Administer Operator Examinations in the Amateur Radio Service, PR Docket No. 83-27, *Report and Order*, 54 Rad. Reg. (P&F) 2d 1068 (1983); *Memorandum Opinion and Order*, 49 Fed. Reg. 30313 (July 30, 1984); see also Permitting Volunteer-Examiner Coordinators to Maintain Pools of Questions for Amateur Operator Examinations, PR Docket No. 85-196, *Report and Order*, 51 Fed. Reg. 30645 (Aug. 28, 1986), *Memorandum Opinion and Order*, 2 FCC Rcd 2815 (1987).

¹⁶²The ten topics, which are set forth in 47 C.F.R. § 97.503(c), are: (1) FCC rules for the amateur radio services; (2) Amateur station operating procedures; (3) Radio wave propagation characteristics of amateur service frequency bands; (4) Amateur radio practices; (5) Electrical principles as applied to amateur station equipment; (6) Amateur station equipment circuit components; (7) Practical circuits employed in amateur station equipment; (8) Signals and emissions transmitted by amateur stations; (9) Amateur station antennas and feed lines; and (10) Radio frequency environmental safety practices at an amateur station.

¹⁶³*Notice*, 13 FCC Rcd at 15807.

¹⁶⁴*Notice*, 13 FCC Rcd at 15806.

¹⁶⁵*Notice*, 13 FCC Rcd at 15807.

¹⁶⁶*Notice*, 13 FCC Rcd at 15807.

¹⁶⁷See Permitting Volunteer-Examiner Coordinators to Maintain Pools of Questions for Amateur Operator

the Technician Class and General Class written examination elements consist of thirty five questions each, and that the Amateur Extra Class written examination element consist of fifty technically oriented questions, including questions about administering amateur radio operator license examinations. Additionally, we believe that these changes will eliminate rules that are unnecessary and will provide VEs and VECs additional flexibility as the majority of commenters have requested. Moreover, these changes will streamline further our administration of the amateur service. We also agree that the Question Pool Committee of the NCVECs has a better ability to insure that the question pools reflect current technology than we do by specifying general topics in our Rules. Accordingly, we will revise the number of questions in written examination element question sets, and we will revise Section 97.503(c) of our Rules to remove the general topics and algorithm specified therein. We agree that the Question Pool Committee of the NCVECs is capable of both specifying topics and organizing questions by topic, if this function is necessary, as part of its maintenance of the question pools for amateur radio operator examinations. We note that allowing the Question Pool Committee of the NCVECs this flexibility will allow material included on amateur radio operator examinations to reflect technological advances in a much more timely fashion than can be accomplished by the rulemaking process.¹⁶⁸ In the event that individual incidents of abuse of this flexibility are brought to our attention, we note that Section 97.519(d) of our Rules provides a mechanism whereby we can address such abuses.¹⁶⁹

43. The majority of comments on this issue strongly agree that the written examination elements are in need of updating or changing.¹⁷⁰ Additionally, some comments point out that the number of written examination elements can be reduced to better correlate with the reduced number of license classes we are adopting.¹⁷¹ Others suggest standards we should use in determining what the written examination elements should cover.¹⁷² We agree that the rule specifying the written examination elements is in need of updating and should be streamlined to reduce the number of written examination elements. Accordingly, we are revising Section 97.503(b) of our Rules to reduce the number of written examination elements from five to three and aligning these elements so that they correspond to the remaining classes of amateur radio operator licenses. We also are revising Section 97.503(c) of our Rules to provide VEs and VECs additional flexibility in determining the specific content of written examinations. Finally, we are revising Section 97.505(a) of our Rules to align the Rule for element credit with the new written examination elements. We will discuss below these changes to the rules in the context of each of the topics on which we requested comment.

Examinations, *Report and Order*, 51 Fed. Reg. 30645 (Aug. 28, 1986), *Memorandum Opinion and Order*, 2 FCC Rcd 2815 (1987).

¹⁶⁸With regard to the ARRL's position that some version of the syllabus must remain in the rules, we disagree. We note that, as an initial matter, and contrary to ARRL's claim, having a syllabus in 47 C.F.R. § 97.503(c) does not insure that examination sessions coordinated by different VECs will not vary widely in difficulty. Rather, the difficulty of an examination is determined by specific questions that appear on that examination, rather than simply the topics the examination covers. We also note that our rules require, and will continue to require, that the administering VEs prepare each written examination element question set according to the instructions of the coordinating VEC. *See* 47 C.F.R. § 97.507(c). Therefore, under our rules, if the ARRL-VEC or any other VEC believes that its VEs will prepare arbitrary, unfair, or biased examinations, it can, on its own and using a standard it decides is appropriate, continue to standardize the topics and the number of questions on each topic in examinations its VEs administer.

¹⁶⁹47 C.F.R. § 97.519(d).

¹⁷⁰*See* paras. 44-50, *infra*.

¹⁷¹*See, e.g.*, NCVECs Reply Comments at 6, ARRL Comments at Appendix, pp. 8-9.

¹⁷²*See, e.g.*, Kenwood Comments at 3; William J. Sartorius Comments at 1; Vernon H. Ferris Comments at 2.

44. In response to our request for comment regarding the relevance of the general topics in Section 97.503(c) of our Rules to determine whether an applicant is qualified to become an amateur service licensee, two commenters say that the current topics are not relevant.¹⁷³ In this connection, NCVEC's, for example, states that the topics currently specified in Section 97.503(c) fail to take into account changes in operating habits, technology, and transmitting equipment that have occurred over the past fifteen years, and that this rule section results in VEs administering examinations that contain questions on topics that are not appropriate to the class of license for which the examination is being administered.¹⁷⁴ For example, NCVEC's and Ray Adams state that it is not necessary for licensees to understand electronics and other technical subjects in order to properly operate commercially manufactured equipment.¹⁷⁵ To make the examinations a valid means of determining whether an applicant is qualified to be an amateur service licensee, Kenwood says the written examination requirements should be revised to eliminate questions that call for memorization of operating trivia and, instead, should focus on technical theory that a licensee in a technical avocation should be expected to know.¹⁷⁶ Revising written examinations in this way, Kenwood says, would further the technical art of telecommunications.¹⁷⁷ QCWA, however, believes that, with the exception of advanced technologies, the examinations are adequate, and it recommends that questions on advanced technologies be included in future examinations.¹⁷⁸ Myron W. Manker states that some written examination element topics appear to be somewhat duplicative¹⁷⁹. The ARRL believes that some topics can be consolidated,¹⁸⁰ but does not propose specific changes to the ten topics contained in Section 97.503(c) of our Rules.¹⁸¹

¹⁷³NCVEC's Comments at 27 (Technician Class examinees administered questions on electronic circuits even though all transceivers are purchased in the commercial marketplace); ARRL Comments at 36 (suggests different emphasis on different topics by license class).

¹⁷⁴NCVEC's Comments at 26-27.

¹⁷⁵NCVEC's Comments at 27; Ray Adams Comments at 4-5 (usefulness of the technical portions of the written examinations has passed because most amateur radio operators are not capable of repairing, let alone building, their own equipment).

¹⁷⁶Kenwood Comments at 3.

¹⁷⁷*Id.*

¹⁷⁸QCWA Comments at 3.

¹⁷⁹Myron W. Manker Comments at 7. Specifically, Mr. Manker believes that the "Radio wave propagation characteristics of amateur service frequency bands" topic is somewhat duplicative with "Signals and emissions transmitted by amateur stations." *Id.*

¹⁸⁰ARRL Comments at 36.

¹⁸¹ARRL Comments, Appendix at 9.

45. Other commenters suggest that revisions to the written examinations are needed to add new topics or change the emphasis among existing topics.¹⁸² Some commenters suggest that the written examinations test on law,¹⁸³ operating practice, and theory applicable to particular amateur service bands.¹⁸⁴ The Marlboro Youth Repeater Association states that the written examination question pools should include more questions on boolean logic, computer programming, and modern digital techniques,¹⁸⁵ while Ms. Anne K. Fanelli states that a greater emphasis should be placed on station design, trouble-shooting skills, and maintenance.¹⁸⁶

46. In response to our request for comments as to whether we should add elements to the written examination to ensure a working knowledge of the newer digital technologies which, in part, are replacing the Morse code, the commenters agree that such a change is desirable.¹⁸⁷ Several commenters state that questions on new digital technologies should be added because these technologies will be used in the near future.¹⁸⁸

47. Regarding whether the number of required questions from each general topic either should be changed or should not continue to be established by rule, the comments generally express the view that changes are warranted. For example, a number of commenters suggest that the written examination elements contain a different number of questions and topics for each class of amateur radio operator license than is presently required by our Rules.¹⁸⁹ Several commenters believe that the passing grade of 74%¹⁹⁰ is too low¹⁹¹ and that many of the questions currently in the written examination question pools are very simplistic. NCVEC, however, states that the number of required questions from each general topic need not continue to be established by rule. Rather, it suggests that we eliminate Section 97.503(c) of our

¹⁸²See, e.g., William J. Sartorius Comments at 1 (conducting a more comprehensive written examination for some or all license classes); Hans E. Richter Comments at 1 (Amateur Extra Class); Vernon H. Ferris Comments at 2 (emphasis on a fundamental understanding of modern communications technology).

¹⁸³SaraLouise K. Wood Comments at 2 (emphasize our Part 97 Rules); Woodie D. Thompson Comments at 2. Mr. Thompson states that questions on rules should comprise at least 25% of the questions on the examination.

¹⁸⁴Alfred J. Harrison, Jr. Comments at 3-4; West Comments at 9 (a more practical test to demonstrate proficiency in a specific area of amateur radio); Robert L. Shrader Comments at 1 (emphasize fundamental theory).

¹⁸⁵The Marlboro Youth Repeater Association Comments at 1.

¹⁸⁶Anne K. Fanelli Comments at 2.

¹⁸⁷Donald W. Long Comments at 1 (various levels of radio and electronic theory should be required and not higher Morse code speeds, if amateur radio operators are to contribute to the field of radio); ARRL Comments at 37 (questions should be added on this subject). See, also, Arnold Samuels Comments at 1 (a knowledge of computers, antennas, and digital communications replaces Morse code).

¹⁸⁸Henry Pokorny Comments at 1; Orlando Latin Amateur Radio Club, on behalf of 26 members, Comments at 1.

¹⁸⁹See ARRL Comments at 11-15 (suggesting 35, 35, 40, and 50 questions for the Technician, General, Advanced, and Amateur Extra Class operator licenses, respectively); Frank A. Pitman, Jr. Comments at 1 (suggesting 100, 50, 50, and 40 questions on the written examination elements for Amateur Extra, Advanced, General, and VHF Class operator licenses, respectively.); Alfred J. Harrison, Jr. Comments at 3-4 (suggesting 100 questions for each written examination element); Kenwood Comments at 5-6 (suggesting 35, 50, and 100 questions on the written examination elements for Technician, General, and Amateur Extra Class operator licenses, respectively); Ray Adams Comments at 10 (suggesting 30, 30, 40 questions on the written examination elements for Technician, General, and Amateur Extra Class operator licenses, respectively); West Comments at 5 (suggesting 50, 50, and 100 questions on the written examination elements for Technician, General, and Amateur Extra Class operator licenses, respectively).

¹⁹⁰The rules specify the number of questions in the written examination element question set and the number of questions that an examinee must answer correctly. Generally speaking, to pass a written examination element, an examinee must answer approximately 74% of the questions correctly. See 47 C.F.R. § 97.503(b).

¹⁹¹Frank A. Pitman, Jr., Comments at 1; QCWA Comments at 4 (suggesting that we increase the minimum passing score to 80%).

Rules and that the VEC Question Pool Committee should determine the topics and questions that are appropriate as part of the process of reviewing and revising the various question pools.¹⁹² ARRL, on the other hand, states that the topics specified in Section 97.503 of our Rules provide the only element of standardization in the examination process and believes that some version of the syllabus must remain in our Rules.¹⁹³ ARRL agrees, however, that the number of questions per topic on an examination element needs to be changed to emphasize different topics for different classes of licenses.¹⁹⁴

48. Mr. Fiebig suggests that we increase the number of questions in the question pool, possibly even double them, that the number of questions on each examination be increased, and that the passing score be increased.¹⁹⁵ NCVEC and West suggest that the Technician Class written examination consist of fifty VHF oriented questions, the General Class written examination consist of fifty questions taken from the present written examination Element 3B, and the Amateur Extra Class written examination contain 100 technically oriented questions, including questions about administering amateur radio operator license examinations.¹⁹⁶ Mr. Russ Ward, on behalf of the Nashville Volunteer Exam Team, states that the current written examination system is fine with no fixing needed. He suggests, however, that we require all written examination elements to contain fifty questions as a gesture for improving the quality of amateur radio operators.¹⁹⁷ ARRL suggests thirty five questions for both the Technician and General Class operator license written examinations, and forty and fifty questions for the Advanced and Amateur Extra Class operator license written examinations, respectively.¹⁹⁸ Mr. Ray Adams states that increasing the revised written examination elements to more than fifty questions would be a major transition problem for more than one VEC, including his own VEC.¹⁹⁹

49. The comments we received addressing the issue of whether the written examination requirements should be modified to provide VEs and VECs additional flexibility in determining the specific contents of written examinations supported providing VEs and VECs this flexibility. For example, Ray Adams suggests that the Question Pool Committee of the NCVEC could, and would, keep the question pools more in line with current technology than has been accomplished by the "mini syllabus" in Section 97.503(c) of our Rules.²⁰⁰ The ARRL states that the Commission already offers the VECs significant flexibility in preparing and maintaining question pools, and states, moreover, that the element standards contained in Section 97.503 of our Rules are not burdensome.²⁰¹ Several commenters point out, however, that revisions to the written examination elements might have a significant impact on publishers of amateur radio study guides.²⁰² They request, therefore, that if we make any changes to existing written

¹⁹²NCVECs Comments at 27.

¹⁹³ARRL Comments at 35-36. The ARRL's concern is that examinations could be arbitrarily created or could differ widely in difficulty if we eliminate 47 C.F.R. § 97.503(c).

¹⁹⁴ARRL Comments at 36 and Appendix at 8-9.

¹⁹⁵Timothy J. Fiebig Comments at 3.

¹⁹⁶NCVECs Comments at 27-28 and West Comments at 5. In its Reply Comments, NCVEC states that it has no objection to the ARRL proposal that the Technician and General Class written examinations should have 35 questions each, and the Amateur Extra Class written examination should have 50 questions. NCVEC Reply Comments at 6-7.

¹⁹⁷Russ Ward Comments at 1.

¹⁹⁸ARRL Comments at 11-15.

¹⁹⁹Ray Adams Comments at 6.

²⁰⁰*Id.* at 5.

²⁰¹ARRL Comments at 35.

²⁰²NCVECs Comments at 10-11; West Comments at 11; and Master Publishing Comments at 3-6.

examination elements, we make them in such a way that we do not make obsolete study guides that have been published but not sold.²⁰³

50. We believe that the general standard suggested by the ARRL -- *i.e.*, testing should be related to privileges, should place greater emphasis on operating practices and current technologies, and should support and encourage experimentation²⁰⁴ -- is a reasonable standard for the Question Pool Committee of the NCVECs to use in reorganizing the current question pools and revising the written examination elements. In addition, we agree with Kenwood that the written examinations should test minimum qualifications for a licensee to ensure that the licensee has the basic understanding of various levels of amateur radio operating activities and radio technical theory.²⁰⁵ In this regard, Kenwood states that the Technician Class operator license examination should primarily relate to simple electronic theory and proper operation of equipment, that the General Class operator license examination should cover intermediate electronic theory and operating techniques, and that the Amateur Extra Class operator license examination should relate to advanced electronic theory and advanced communications systems.²⁰⁶ Mr. Pitman states that the VHF (*i.e.*, Technician) Class operator license written examination should test only on FCC rules and operating procedures relevant to VHF and UHF.²⁰⁷

51. With regard to specific changes to the number of questions on the written examination elements, we adopt the changes suggested by NCVEC. We, therefore, will amend Section 97.503(b) of our Rules to require that the Technician Class and General Class written examination elements consist of thirty five questions each, and that the Amateur Extra Class written examination element consist of fifty technically oriented questions, including questions about administering amateur radio operator license examinations. The comments from QCWA, NCVEC, and West suggesting that we combine the present written examination Elements 4A and 4B to create the new written examination Element 4 for the Amateur Extra Class license,²⁰⁸ appears to be a simple and straightforward method the Question Pool Committee should consider for creating this new element. West's suggestion that we combine the present written examination Elements 2 and 3A to create a new written examination Element 2 for the Technician Class license,²⁰⁹ and Ray Adams' suggestion that we combine the present written examination Elements 3A and 3B to create a new written examination Element 3 for the General Class operator license,²¹⁰ while slightly inconsistent, also are options the Question Pool Committee could consider. Moreover, these suggestions appear to satisfy publishers' concerns that we make changes to the written examination elements in such a way that we not make obsolete study guides that have been published but not sold.²¹¹ We also will redesignate the written examination elements as written examination Elements 2, 3, and 4.

52. In addition, we are revising Section 97.505 of our Rules to conform it with our revisions to Sections 97.501 and 97.503 of our Rules. This revision is a necessary and logical outgrowth of our proposal to revise the license structure and the written and telegraphy examination elements. Currently,

²⁰³NCVECs Comments at 10-11; West Comments at 11; and Master Publishing Comments at 3-6.

²⁰⁴ARRL Comments at 13.

²⁰⁵Kenwood Comments at 2.

²⁰⁶Kenwood Comments at 5-6.

²⁰⁷Frank A. Pitman, Jr., Comments at 1.

²⁰⁸QCWA Comments at 2, NCVECs Comments at 11, and West Comments at 9.

²⁰⁹West Comments at 9.

²¹⁰Ray Adams Comments at 3.

²¹¹In this regard, we note that the Question Pool Committee revises examination question pools on a scheduled basis and that it has stated that the transition to a new written examination element can be completed within the present schedule. *See Ex Parte Presentation*, NCVECs, October 31, 1998, at 4.

an examinee receives examination credit from the VEs for each examination element specified for the class of license that the examinee holds. Because the revised examination system will be comprised of three written examination elements and one telegraphy examination element, instead of the present five written examination elements and three telegraphy examination elements, we believe that adjustments to the element credit rule are necessary. We are amending the rules so that licensees who previously have passed a telegraphy examination will not have to pass another telegraphy examination to advance to the highest class of operator license. Additionally, licensees who have passed all the written examination element components of a revised written examination element(s) will continue to receive credit for the revised element(s).²¹² However, licensees who, in the past, passed a written examination element that no longer exists or has been subsumed in a more comprehensive examination element, will have to pass the new element. In this regard, we note that licensees who are required to pass a written examination element that, in part, may include material they have been tested on previously, such as Advanced Class licensees upgrading to the Amateur Extra Class operator license, receives the offsetting benefit that they can upgrade their license class without having to pass a higher speed telegraphy examination.

4. Disposition of the Designated Novice Band

53. *Background.* When the Novice Class operator license was established in 1951, limited frequency segments in the HF portion of the radio spectrum were established for Novice Class operators so that they could improve their telegraphy skills by practicing telegraphy on-the-air. This on-the-air use of telegraphy was necessary, in part, because the Novice Class operator license was a one-year, once-in-a-lifetime, non-renewable license.²¹³ At the end of the year, the licensee was required either to upgrade his or her license or discontinue operations. Specific frequency segments for Novice Class operators have been a part of the amateur service license structure since 1951. These frequency segments are available to other class licensees but, with the exception of the 10-meter frequency segment, only at reduced power.²¹⁴ In the *Notice*, we requested comment on whether it would be appropriate to delete the frequency limitations on Novice Class operators and the power limitations on other classes of operators using the Novice frequencies if we were to discontinue licensing new Novice Class operators.²¹⁵

54. *Decision.* We have considered the comments on this issue and have decided that because we are grandfathering Novice Class operator licenses, rather than automatically upgrading them to General Class operator license as requested by the ARRL, we will not adopt any rule changes at this time that would change operating privileges for any licensee within the frequency segments currently authorized Novice Class operators. We also note that the comments are divided as to what the future use of these

²¹²For example, General Class licensees and pre-1987 Technician Class licensees (who now are Technician Plus Class) will receive credit for Elements 1, 2, and 3 because these licensees passed the General Class written examination and a telegraphy examination to qualify for their licenses. Novice Class licensees will receive credit for the telegraphy examination, but not the Technician Class written examination because they have not passed former written examination Element 3(A). For a Novice Class licensee to upgrade to Technician Class, therefore, that licensee would have to pass only revised written examination Element 2. Likewise, a Technician Class licensee may upgrade to the General Class by passing Element 1 and new written Element 3 (current Technician Plus Class licensees will receive credit for Element 1), and an Advanced Class licensee need only pass new written examination Element 4, rather than former written examination element 4(B) (a 40 question written examination) and a 20 wpm telegraphy examination to upgrade to the Amateur Extra Class operator.

²¹³See *Public Notice*, "Amateur Novice Class Licensees To Receive Distinctive Call Signs", Mimeo No. 64128, (released May 28, 1951).

²¹⁴47 C.F.R. § 97.313(c).

²¹⁵*Notice*, 13 FCC Rcd at 15802.

frequency segments should be. For example, Mr. Vernon H. Ferris states that the Novice bands should be eliminated and suggests that the HF band segments be aligned with band plans presently used in Canada, Europe, and other parts of the world.²¹⁶ Other commenters state that Novice Class operators should be allowed to operate Morse code with 200 watts output anywhere within the 80-, 40-, 15-, and 10-meter bands,²¹⁷ and the current Novice subbands should be reallocated only to narrowband operations (Morse and digital modes).²¹⁸ Mr. Fiebig suggests eliminating the current Novice frequency allocations as such and, instead, divide them between low power voice and low power Morse code and digital emission types, while maintaining the current power limitations.²¹⁹ Mr. James N. Hess states that we should preserve power limitations on all classes of operators in the present Novice Class HF frequency segments.²²⁰

55. Mr. James A. Wades states that any increase in voice allocations at the expense of Morse code and digital allocations poses the risk of stunting the growth of new digital communications modes.²²¹ The ARRL, however, requests that the Novice Class telegraphy subbands should be used to expand the frequency segments available for telephony.²²² California Central Coast DX Club states that the Novice bands should be returned to general usage for General Class and higher class licensees.²²³ Mr. Umina states that the Novice bands should remain unchanged; however, Novice Class licensees should be authorized additional privileges in four of the HF amateur service bands.²²⁴

56. We note, as an initial matter, that frequency segments available to Novice Class control operators also are available to Technician Plus Class operators for telegraphy and to General, Advanced, and Amateur Extra Class licensees for the transmission of RTTY and data emission types.²²⁵ Therefore, we believe that our Rules already provide the use that California Central Coast DX Club requests. As for the suggestion of others that we eliminate the Novice bands, we will not adopt this suggestion because the remaining comments convince us that there is no consensus within the amateur service community regarding rule changes we should make concerning these frequency segments. We also note that reallocation of these frequencies segments could have an effect on implementation of modern technologies into the amateur service and that we have previously decided that we should accord the amateur service community an opportunity to complete such discussions and possibly reach a consensus regarding implementation of new technologies before a comprehensive restructuring of the amateur service operating privileges and frequencies is undertaken.²²⁶

B. Greater Volunteer Examiner Opportunities

57. *Background.* The basis for the Volunteer Examiner program is set forth in Section 4 of the

²¹⁶Vernon H. Ferris Comments at 2.

²¹⁷Anne K. Fanelli Comments at 1; Anthony G. George Comments at 2; Woodie D. Thompson Comments at 3; John R. Sproat, Jr. Comments at 4; Frederick V. Adsit Comments at 4.

²¹⁸Anne K. Fanelli Comments at 1; Frederick V. Adsit Comments at 4.

²¹⁹Timothy J. Fiebig Comments at 2.

²²⁰James N. Hess Comments at 1.

²²¹James A. Wades Comments at 3.

²²²ARRL Comments at 14.

²²³California Central Coast DX Club Comments at 2.

²²⁴Leonard J. Umina Comments at 2.

²²⁵See 47 C.F.R. § 97.305(c).

²²⁶See para. 17, *supra*.

Communications Act.²²⁷ Under this Section, any individual who holds an amateur station operator license of a higher class is permitted to prepare or administer any examination for an amateur station operator license of a lower class, provided the examiner is accredited by the VEC coordinating the examination session and meets other requirements.²²⁸ Currently, only an Amateur Extra Class licensee can administer an examination for a General Class operator license.²²⁹ In the *Notice*, we proposed to authorize Advanced Class licensees to prepare and administer examinations for the General Class operator license, as requested by the ARRL.²³⁰ We stated that this proposal would benefit potential amateur service licensees by having additional volunteer examiners available for the examinations.²³¹

58. *Decision.* We conclude that the public interest will best be served by allowing Advanced Class licensees who are certified VEs to prepare and administer examinations for the General Class operator license. In this connection, we note that in all cases, Advanced Class VEs would be preparing and administering elements for which they themselves have received credit²³² and, therefore, allowing Advanced Class VEs to prepare and administer General Class operator license examinations is consistent with the Communications Act.

59. The comments we received generally supported our proposal. For example, NCVECs and ARRL agree that Advanced Class licensees who are VEs should be permitted to prepare and administer examinations for a General Class operator license and that allowing these VEs to perform these functions would help in areas where VEs are needed but are in short supply.²³³ Mr. William Reed also agrees, stating that having more VEs would reduce the "burnout factor" and could possibly increase the number of examination opportunities.²³⁴ Some commenters, however, do not support our proposal. For example, Mr. David L. Heller says there should be no shortage of VEs to administer General Class operator license examinations because about 10% of all amateur service licensees (*i.e.*, approximately 72,000 licensees) are Amateur Extra Class licensees.²³⁵ He suggests that instead of authorizing Advanced Class licensees to prepare and administer examinations for the General Class operator license, we should permit the VECs on a special accommodation basis to accredit additional VEs to administer examination in isolated instances where a shortage of VEs might occur.²³⁶ Mr. Umina opposes allowing Advanced Class licensees to administer General Class license examinations on the basis that this change would raise some security issues with regard to examination material.²³⁷ Mr. Dale Gagnon states that expanding VEs to include licensees with lower class operating licenses places a burden on VE organizations to match up the examiners with the examinees during the examination sessions. This burden, he says, can lead to complexity in administering the tests and increased possibility for error.²³⁸ Mr. Edward J. Zupan suggests

²²⁷ See 47 U.S.C. § 154(f)(4)(A).

²²⁸ See 47 C.F.R. § 97.509(b).

²²⁹ See 47 C.F.R. § 97.507(a).

²³⁰ See *Notice*, 13 FCC Rcd at 15802-03.

²³¹ See *Notice*, 13 FCC Rcd at 15803.

²³² To hold an Advanced Class operator license, an individual must have received credit for telegraphy examination Element 1(B) or 1(C) and written examination Elements 2, 3(A), 3(B), and 4(A). To qualify for a General Class operator license, an examinee must pass or receive credit for Element 1(B) or 1(C) and written examination Elements 2, 3(A), and 3(B). See 47 C.F.R. § 97.501.

²³³ NCVECs Comments at 25-26 and ARRL Comments at 24.

²³⁴ William Reed Comments at 3.

²³⁵ David L. Heller Comments at 3.

²³⁶ *Id.*

²³⁷ Leonard J. Umina Comments at 2.

²³⁸ Dale Gagnon Comments at 1.

that we eliminate the VE system altogether.²³⁹

60. We do not agree with Mr. Heller's suggestion that we permit VECs on a special accommodation basis to accredit additional VEs because there is no objective way of determining what would constitute a special accommodation basis. In addition, we are concerned that such an approach would impose additional burdens on the both the VECs and the Commission, a result which we do not believe would be in the public interest or consistent with the underlying goals of this proceeding. We also do not agree that allowing Advanced Class VEs to administer General Class license examinations would raise security issues with regard to examination material or would increase the complexity of matching VEs with examinees at examination sessions. We note that Advanced Class VEs currently may prepare and administer examinations for the Novice and Technician Class operator licenses and that there have been no significant issues surrounding examination material security of which we are aware. Thus, we have no reason to believe that Advanced Class VEs administering General Class operator license examinations would be any less careful than would Amateur Extra Class VEs in protecting the integrity of the examinations. Additionally, we note that one of the functions of the VEC is to screen application forms to ensure that examinations were administered only by properly accredited VEs. We do not believe that allowing Advanced Class licensees to administer General Class operator license examinations increases the burdens on VECs as presently they perform this screening function. Thus, we adopt the proposal as set forth in the *Notice*.

²³⁹Edward J. Zupan Comments at 1.

C. RACES Station Licenses

61. *Background.* The RACES, as it was envisioned when it was authorized in 1952, was to be a temporary service designed to afford radio communication for civil defense purposes.²⁴⁰ Under our Rules, we permit two types of stations to operate as part of the RACES:²⁴¹ (a) a licensed RACES station, and (b) any amateur station that has been properly registered with a civil defense organization.²⁴² Thus, we observed that to engage in RACES communications, it is not necessary to have a RACES station license with a separate and distinct call sign. For that reason, we proposed to amend our Part 97 Rules to phase out RACES station licenses by not renewing them.²⁴³ We observed that by eliminating the RACES station licenses, we would be taking steps which (a) would eliminate licensing duplication because emergency communications that are now transmitted by RACES stations also may be transmitted by primary, club, or military recreation stations, and (b) would conserve our financial resources.²⁴⁴ We also observed that no new RACES station licenses have been granted since July 14, 1980.²⁴⁵ In addition, we proposed to continue the *status quo* by not issuing any new RACES station licenses.²⁴⁶

62. *Decision.* Most of the comments specifically addressing this issue support our proposal to phase out RACES station licenses.²⁴⁷ In contrast, the elimination of RACES station licenses is opposed by Mr. William R. Slye, Jr. He states that in an emergency situation, it is beneficial to have a continuity of call signs so that a certain call sign is associated with a particular Emergency Operations Center or other emergency facility. He also believes that issuing RACES licenses is not overly burdensome to the Commission because current automation in licensing is available at the Commission.²⁴⁸ Taking a neutral position, Mr. Martin D. Wade suggests that before we take any further action regarding RACES station licenses, we should further study the RACES program and its place in Part 97 of our Rules.²⁴⁹

63. After review of the record, we conclude that we should eliminate RACES station licenses because RACES station licenses are unnecessary for amateur stations and amateur service licenses to provide emergency communications.²⁵⁰ Additionally, these licenses duplicate the communications that we have authorized primary, club, or military recreation stations to transmit,²⁵¹ and not issuing RACES station licenses would conserve our financial resources because, currently, such issuance is not an automated

²⁴⁰See Providing a Radio Amateur Civil Emergency Service, Docket No. 10102, *Memorandum Opinion and Order*, 1 Rad. Reg. Part Three (P&F) 91:1141 (1952). Frequency segments for this service were established in cooperation with the Civil Defense Administration. See *Public Notice*, "Frequencies Available For Amateur Participation In Civil Defense Communication", FCC 51-35, Mimeo No. 58278 (released Jan. 17, 1951).

²⁴¹RACES is a radio service using amateur stations for civil defense communications during periods of local, regional, or national civil emergencies. See 47 C.F.R. § 97.3(a)(35).

²⁴²See 47 C.F.R. § 97.407.

²⁴³See *Notice*, 13 FCC Rcd at 15803.

²⁴⁴*Id.*

²⁴⁵*Id.*

²⁴⁶*Id.*

²⁴⁷See e.g., ARRL Comments at 25-26; QCWA Comments at 3; Sunnyvale VEC Comments at 1; California Central Coast DX Club Comments at 3; Dominic Costantino Comments at 2; Lee Forrest, Jr. Comments at 2; Percy Whitmore Comments at 2; Russ Ward Comments at 1; Anne K. Fanelli Comments at 1 (RACES station licenses are unnecessary; these licenses overlap the function of the amateur radio emergency service); Herbert L. Lacey Comments at 2 (licenses are unnecessary; they have only been lightly used).

²⁴⁸William R. Slye, Jr. Comments at 3.

²⁴⁹Martin D. Wade Comments at 4.

²⁵⁰We note that, as of February 11, 1999, there were only 236 RACES station licenses in the amateur service database.

process.

D. Privatization of Certain Enforcement Procedures

64. *Background.* Pursuant to the Communications Act, the Commission has authority, for purposes of monitoring violations of any provision of the Communications Act, to accept and employ the voluntary and uncompensated services of any individual licensed by the Commission to operate an amateur station.²⁵² The functions of individuals who provide such uncompensated services, commonly called the Amateur Auxiliary, are limited to the detection of improper amateur radio transmissions, the conveyance to Commission personnel of information which is essential to the enforcement of the Communications Act relating to the amateur radio services, and other functions.²⁵³ In the *Notice*, we sought comment on other ideas for improving our enforcement processes as they relate to amateur radio.²⁵⁴ We suggested, for example, that one possibility might be to encourage or require persons bringing complaints of interference to the Commission to include a draft order to show cause to initiate a revocation or cease and desist hearing proceeding.²⁵⁵ We also requested additional comments and suggestions on how we could better utilize the services of the Amateur Auxiliary, consistent with its statutory basis.²⁵⁶

65. *Decision.* After review of the record, we conclude that we will adopt the suggestion of the ARRL to withhold any additional action on amateur radio service enforcement based on the increased amateur radio service compliance efforts recently undertaken by the Commission.²⁵⁷ In this regard, we note that the commenters are divided over the need and our ability to improve our enforcement processes as they relate to amateur radio. The ARRL states that in a 1998 survey it commissioned, it found the most important issue for both ARRL members and non-members was strict enforcement of FCC rules governing on-the-air conduct.²⁵⁸ It requests, however, that we withhold any further action on amateur radio service enforcement based on the increased amateur radio service compliance efforts recently undertaken by the Commission.²⁵⁹ The ARRL states that it is satisfied with the current policies of the Commission and the encouraging attitude of our Compliance and Information Bureau.²⁶⁰ Other commenters believe that official observers should be given authority to warn in the name of the FCC.²⁶¹

66. In contrast, Mr. Jay W. Underdown fears that privatization of Commission enforcement procedures could make a legalized vigilante group.²⁶² Mr. Philip Galasso states that enforcement should

²⁵¹ See 47 C.F.R. § 97.111.

²⁵² See 47 U.S.C. § 154(f)(4)(B).

²⁵³ *Id.*

²⁵⁴ *Notice*, 13 FCC Rcd at 15803-04.

²⁵⁵ *Id.* at 15804.

²⁵⁶ *Id.* at 15804.

²⁵⁷ ARRL Comments at 27-28.

²⁵⁸ ARRL Comments at 8, n.9.

²⁵⁹ ARRL Comments at 27-28.

²⁶⁰ ARRL Comments at 28. The functions of Compliance and Information Bureau recently have been reassigned to the Enforcement Bureau and the Consumer Information Bureau.

²⁶¹ See, e.g., Ray Hamovitz Comments at 1; Dominic Costantino Comments at 2; Lee Forest, Jr. Comments at 2; Percy Whitmore Comments at 2.

²⁶² ARRL Comments at 28. The functions of Compliance and Information Bureau recently have been reassigned to the Enforcement Bureau and the Consumer Information Bureau.

²⁶² See, e.g., Ray Hamovitz Comments at 1; Dominic Costantino Comments at 2; Lee Forest, Jr. Comments at 2; Percy Whitmore Comments at 2.

²⁶² Jay W. Underdown Comments at 1.

remain the exclusive province of the Commission.²⁶³ Mr. Ray Soifer states that compliance activities performed by the amateur service community will only be effective if official intervention by duly constituted regulatory authority occurs when necessary.²⁶⁴ We conclude that our decision is reasonable in as much as the amateur service community itself has responded very favorably to our increased compliance efforts directed to on-the-air conduct and compliance with our rules applicable to administering operator license examinations.²⁶⁵

E. Other Issues

1. *Out-of-Scope Proposals and Comments*

67. Some commenters suggest substantive changes to the amateur service rules in addition to those proposed in the *Notice*. For example, Northern California Packet Association requests that we revise Section 97.303(e) of our Rules to delete the requirement that amateur stations receive permission from an AMTS station to operate in the 219-220 MHz segment if the amateur station is within 80 kilometers of an AMTS coast station.²⁶⁶ Likewise, Southern California Remote Repeater and Remote Base Association requests that we require mandatory coordination of repeater stations operating in the VHF and UHF amateur service bands,²⁶⁷ a request others oppose.²⁶⁸ Other comments suggest that we mandate retesting of licensees as a condition of renewal of an amateur service license,²⁶⁹ that we amend Section 97.305 of our Rules to revise the authorized emission types in many medium frequency, high frequency, and VHF amateur service bands,²⁷⁰ or that the control operator privileges be amended when the station transmitting is a club station.²⁷¹ These requests are beyond the scope of this proceeding because either they are the subject of another rulemaking proceeding²⁷² or they involve rule sections which we did not propose to amend and are not a logical outgrowth of the rules originally proposed to be amended. Other requests, such as instituting license fees to pay for the workload and enforcement actions that the Commission has to support,²⁷³ would require statutory changes to the Communications Act and are solely within the province of Congress. Therefore, we neither intend, nor are we able to address these out-of-scope issues in this *Report and Order*.

2. *Editorial Matters*

68. We also are making minor amendments to various rule sections to eliminate duplicative

²⁶³Philip Galasso Comments at 3.

²⁶⁴Ray Soifer Comments at 2.

²⁶⁵*See, e.g.*, ARRL Comments at 28 and ARRL Letter, Volume 18, Number 3 at 1-2 (Jan. 15, 1999). *See also* FCC Amateur Radio Enforcement Log, December 15, 1999, at <<http://www.arrl.org/members-only/extra/>> (providing a representative listing of recent reports on amateur radio enforcement-related actions from the files of the FCC Enforcement Bureau.)

²⁶⁶Northern California Packet Association Comments at 1.

²⁶⁷Southern California Remote Repeater and Remote Base Association Comments at 8-9 and 16-19.

²⁶⁸*See, e.g.*, Rod Wheeler Reply Comments at 1.

²⁶⁹Robert E. Becker Comments at 1; William H. Eckels Comments at 1.

²⁷⁰ARRL Comments at 13-16; Mr. Philip Galasso Comments at 2-3; Richard G. Meyer Comments at 3; Ken Hale Comments at 1.

²⁷¹Jim Rinehart Comments at 1-2.

²⁷²*See, e.g.*, *Public Notice*, Report No. 2269, Mimeo No. 82995, Request for Declaratory Ruling, Compliance With Applicable Voluntary Band Plans in the Amateur Radio Service, RM-9259 (released Apr. 21, 1998).

²⁷³Nicholas D. Zorn Comments at 2.

language and conform them with this or other Commission decisions. Specifically, we are revising Section 97.13(c) of our Rules²⁷⁴ to correct the name of OET Bulletin Number 65. We also are revising Sections 97.307(f)(10) and 97.313(c)(2) of our Rules²⁷⁵ to clarify that only Technician Class control operators who have satisfied the *Radio Regulations* telegraphy requirement are authorized to transmit a phone emission below 30 MHz. We consider these revisions to be non-substantive in nature.

²⁷⁴See 47 C.F.R. § 97.13(c).

²⁷⁵See 47 C.F.R. §§ 97.307(f)(10), 97.313(c)(2) .

IV. CONCLUSION

69. Consequently, in view of the foregoing, we are amending our rules to: (a) reduce the number of amateur radio operator license classes from six to three, (b) reduce the number of written examination elements from five to three and the number of telegraphy examination elements from three to one, (c) authorize Advanced Class amateur radio operators to prepare and administer examinations for the General Class amateur radio operator license, and (d) eliminate RACES station licenses. The amended rules which are appended hereto will simplify and streamline the regulations that govern the Amateur Radio Service.

V. PROCEDURAL MATTERS

Regulatory Flexibility Act

70. The Regulatory Flexibility Act (RFA)²⁷⁶ requires that an agency prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."²⁷⁷ In the *Notice*, the Commission certified that the proposed rule amendments, if promulgated, would not have a significant economic impact on a substantial number of small business entities, as defined in Section 601(3) of the Regulatory Flexibility Act because the rule amendments do not apply to small business entities.²⁷⁸ Rather, the rules apply to individuals who are interested in radio technique solely with a personal aim and without pecuniary interest.²⁷⁹ No comments were received concerning this certification. The Commission now affirms this certification with respect to the rules adopted in this *Report and Order*. Accordingly, the Commission certifies, pursuant to Section 605(b) of the RFA, that the rule adopted herein will not have a significant economic impact on a substantial number of small entities, as defined in the RFA.

71. Alternate formats of this *Report and Order* (computer diskette, large print, audio recordings and Braille) are available to persons with disabilities by contacting Martha Contee at (202) 418-0260, TTY (202) 418-2555, or by e-mail at <mcontee@fcc.gov>. This *Report and Order* also is available at the Commission's internet site at: <<http://www.fcc.gov/wtb/amateur>>.

²⁷⁶See 5 U.S.C. § 601 *et seq.* The RFA has been amended by the Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Act of 1996 (SBREFA).

²⁷⁷5 U.S.C. § 605(b).

²⁷⁸*Notice* at ¶ 34.

²⁷⁹See 47 C.F.R. § 97.3(a).

VI. ORDERING CLAUSES

72. IT IS ORDERED that effective **April 15, 2000**, pursuant to Sections 4(i) and (j), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i) and (j), 303(r) and 403, Part 97 of the Commission's Rules, 47 C.F.R. Part 97, IS AMENDED as set forth in Appendix B.

73. IT IS FURTHER ORDERED, pursuant to Sections 4(i) and (j) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i); (j), 303(r) that the petition for rulemaking filed by the ARRL, RM-9196, on September 23, 1997, IS DISMISSED as moot.

74. IT IS FURTHER ORDERED that the Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order*, including the Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

75. IT IS FURTHER ORDERED that this proceeding IS TERMINATED.

Further Information

76. For further information, contact William T. Cross or Bert Weintraub, Policy and Rules Branch, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, at (202) 418-0680 voice or Wireless Telecommunications Bureau TTY at (202) 418-7233.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Note from NCI webmaster:

Appendix A, which was included in the official FCC document has been omitted in this version published to the NCI web site, at the suggestion of Mr. William Cross of the FCC (the source of the document) in the interest of reducing file size and download times, since Appendix A was simply a list of the 2000+ people and organizations who filed comments and reply comments.

The remainder of the document, prior to Appendix A, and all of Appendix B are presented here intact as received from the FCC, with the exception of minor formatting changes resulting from converting from the FCC's (Word Perfect ?) file format to Microsoft Word and then to Adobe Acrobat .pdf format.

Note also that, due to the deletion of Appendix A, the page numbering from this point forward will differ from the page numbering in the FCC document which includes Appendix A. However, all footnotes should be intact.

APPENDIX B

Final Rules

Part 97 of Chapter I of Title 47 of the Code of Federal Regulations is amended to read as follows:

Part 97 - AMATEUR RADIO SERVICE

1. The authority citation for Part 97 continues to read as follows:

Authority: 48 Stat. 1066, 1082, as amended; 47 U.S.C. §§ 154, 303. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. §§ 151-155, 301-609, unless otherwise noted.

2. Section 97.9 is amended by revising paragraph (b) to read as follows:

§ 97.9 Operator license.

(a) ***

(b) The person named in an operator license grant of Novice, Technician, Technician Plus, General or Advanced 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.

3. Section 97.13 is amended by revising paragraphs (b) and (c)(2) to read as follows:

§ 97.13 Restrictions on station location.

* * * * *

(b) A station within 1600 m (1 mile) of an FCC monitoring facility must protect that facility from harmful interference. Failure to do so could result in imposition of operating restrictions upon the amateur station by a District Director pursuant to § 97.121 of this Part. Geographical coordinates of the facilities that require protection are listed in § 0.121(c) of this chapter.

(c) * * *

(1) * * *

(2) If the routine environmental evaluation indicates that the RF electromagnetic fields could exceed the limits contained in § 1.1310 of this chapter in accessible areas, the licensee must take action to prevent human exposure to such RF electromagnetic fields. Further information on evaluating compliance with these limits can be found in the FCC's OET Bulletin Number 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

4. Section 97.17 is amended by revising paragraphs (a), (b)(1) and (c) to read as follows:

§ 97.17 Application for new license grant.

(a) Any qualified person is eligible to apply for a new operator/primary station, club station or military recreation station license grant. No new license grant will be issued for a Novice, Technician Plus, or Advanced Class operator/primary station or RACES station.

5. Section 97.21 is amended by revising paragraph (a)(2), (a)(3), and (a)(3)(iii) to read as follows:

§ 97.21 Application for a modified or renewed license.

(a) ***

(3) May apply to the FCC for renewal of the license grant for another term in accordance with § 1.913 of this chapter. Application for renewal of a Technician Plus Class operator/primary station license will be processed as an application for renewal of a Technician Class operator/primary station license.

(i) ***

(ii) ***

(iii) For a club station or military recreation station license grant showing a call sign obtained through the sequential call sign system, and for a club or military recreation station license grant showing a call sign obtained through the vanity call sign system but whose grantee does not want to have the vanity call sign reassigned to the station, the application must be presented in document form to a Club Station Call Sign Administrator who must submit the information thereon to the FCC in an electronic batch file. The Club Station Call Sign Administrator must retain the collected information for at least 15 months and make it available to the FCC upon request. RACES station license grants will not be renewed.

6. Section 97.301 is amended by revising paragraph (e) to read as follows. Section 97.301(f) is deleted. The frequency tables in Section 97.301(a), (b), (c), and (d) remain unchanged.

§ 97.301 Authorized frequency bands.

(e) For a station having a control operator who has been granted an operator license of Novice Class or Technician Class and who has received credit for proficiency in telegraphy in accordance with the international requirements.

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3	Sharing requirements See § 97.303 Paragraph
HF	MHz	MHz	MHz	
80 m	3.675-3.725	3.675-3.725	3.675-3.725	(a)
40 m	7.050-7.075	7.10-7.15	7.050-7.075	(a)
15 m	21.10-21.20	21.10-21.20	21.10-21.20	
10 m	28.10-28.50	28.10-28.50	28.10-28.50	
VHF	MHz	MHz	MHz	
1.25 m	---	222-225	---	(a)
UHF	MHz	MHz	MHz	
23 cm	1270-1295	1270-1295	1270-1295	(h) (i)

7. Section 97.307 is amended by revising paragraph (f) (10) to read as follows:

§ 97.307 Emission standards.

(f) ***

(10) A station having a control operator holding a Novice Class operator license or a Technician Class operator license and who has received credit for proficiency in telegraphy in accordance with the international requirements may only transmit a CW emission using the international Morse code or phone emissions J3E and R3E.

8. Section 97.313 is amended by revising paragraphs (c) and (f) to read as follows:

§ 97.313 Transmitter power standards.

(c) *****

(2) The 28.1-28.5 MHz segment when the control operator is a Novice Class operator or a Technician Class operator who has received credit for proficiency in telegraphy in accordance with the international requirements; or

(f) No station may transmit with a transmitter power exceeding 50 W PEP on the UHF 70 cm band from an area specified in footnote US7 to § 2.106 of Part 2, unless expressly authorized by the FCC after mutual agreement, on a case-by-case basis, between the District Director of the applicable field facility and the military area frequency coordinator at the applicable military base. An Earth station or telecommand station, however, may transmit on the 435-438 MHz segment with a maximum of 611 W effective radiated power (1 kW equivalent isotropically radiated power) without the authorization otherwise required. The transmitting antenna elevation angle between the lower half-power (-3 dB relative to the peak or antenna bore sight) point and the horizon must always be greater than 10°.

9. Section 97.407 is amended by revising paragraph (b) introductory text to read as follows:

§ 97.407 Radio Amateur Civil Emergency Service (RACES).

(b) The frequency bands and segments and emissions authorized to the control operator are available to stations transmitting communications in RACES on a shared basis with the amateur service. In the event of an emergency which necessitates the invoking of the President's War Emergency Powers under the provisions of Section 706 of the Communications Act of 1934, as amended, 47 U.S.C. § 606, RACES stations and amateur stations participating in RACES may only transmit on the following frequency segments:

10. Section 97.501 is amended by revising the introductory text and paragraphs (a), (b), and (c) to read as follows:

§ 97.501 Qualifying for an amateur operator license.

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:

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

11. Section 97.503 is amended by removing paragraph (c) and revising paragraphs (a) and (b) to read as follows:

§ 97.503 Element standards.

- (a) ***

Element 1: 5 words per minute

- (b) ***

(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: 35 questions concerning the privileges of a General Class operator license. The minimum passing score is 26 questions answered correctly.

(3) Element 4: 50 questions concerning the privileges of an Amateur Extra Class operator license. The minimum passing score is 37 questions answered correctly.

12. Section 97.505 is amended by revising paragraph (a) to read as follows:

§ 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, and 3.

(2) An unexpired (or expired but within the grace period for renewal) FCC-granted General Class operator license grant: Elements 1, 2, and 3.

(3) An unexpired (or expired but within the grace period for renewal) FCC-granted Technician Plus Class operator (including a Technician Class operator license granted before February 14, 1991) license grant: Elements 1 and 2.

(4) An unexpired (or expired but within the grace period for renewal) FCC-granted Technician Class operator license grant: Element 2.

(5) An unexpired (or expired but within the grace period for renewal) FCC-granted Novice Class operator license grant: Element 1.

(6) ***

(7) An unexpired (or expired less than 5 years) FCC-issued commercial radiotelegraph operator license or permit: Element 1.

(8) An expired FCC-issued Technician Class operator license document granted before March 21, 1987: Element 3.

(9) An expired or unexpired FCC-issued Technician Class operator license document granted before February 14, 1991: Element 1.

(b) ***

13. Section 97.507 is amended by revising paragraph (a) to read as follows:

§ 97.507 Preparing an examination.

(a) Each telegraphy message and each written question set administered to an examinee must be prepared by a VE holding an Amateur Extra Class operator license. A telegraphy message or written question set may also be prepared for the following elements by a VE holding an operator license of the class indicated:

(1) Element 3: Advanced Class operator.

(2) Elements 1 and 2: Advanced, General, or Technician (including Technician Plus) Class operators.

14. Section 97.509 amended by revising paragraphs (a), (b)(3), and (i) to read as follows:

§ 97.509 Administering VE requirements.

(a) Each examination for an amateur operator license must be administered by a team of at least 3 VEs at an examination session coordinated by a VEC. Before the session, the administering VEs or the VE session manager must ensure that a public announcement is made giving the location and time of the session. The number of examinees at the session may be limited.

(b) ***

(1) ***

(2) ***

(3) Be a person who holds an amateur operator license of the class specified below:

(i) Amateur Extra, Advanced or General Class in order to administer a Technician Class operator license examination;

(ii) Amateur Extra or Advanced Class in order to administer a General Class operator license examination;

(iii) Amateur Extra Class in order to administer an Amateur Extra Class operator license examination.
