

83 YEARS OF U.S. AMATEUR LICENSING

By
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Boulder, Colorado

INTRODUCTION

The addition of a "no-code" VHF class of U.S. amateur radio license, with talk of reducing code requirements for HF classes, reminds us that the federal regulation of operator licensing is a dynamic process. Requirements and privileges periodically change with shifts in regulatory philosophy, the state of the radio art, and the larger culture in which ham radio exists.

Today, there are members of the Quarter Century Wireless Association (QCWA) whose amateur radio careers post-date the tumultuous "incentive licensing" debates of the 1960s. Only a relative handful of current hams experienced the "A-B-C" era of licensing that shaped amateur radio for so long prior to 1951. Lest any of the newer radio amateurs assume that the license structure has always been as it is today, a review of the history of U.S. amateur operator licensing is clearly in order.

This review is not comprehensive; it is only an overview of the history and development of amateur radio operator licensing. Band privileges are discussed only as they relate to structural changes in licensing. For length and readability purposes, license term lengths (which have increased from two to ten years), fees, renewal activity requirements, and time-in-class requirements are not treated. Further, the substantial contributions of parties other than the American Radio Relay League (ARRL - a national association of amateur radio operators) to FCC rule-making proceedings are sparsely mentioned.

THE ROOTS OF OPERATOR LICENSING

Pioneer U.S. radio operators, amateur and maritime, passed the century's first decade without any licensing requirement. Other seafaring nations, however, tested and certified shipboard operators in accordance with the Berlin Radiotelegraphic Convention of 1906 (an early use of the word "radio"). The

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UNITED STATES OF AMERICA

Department of Commerce and Labor
NAVIGATION SERVICE

OPERATOR'S CERTIFICATE OF SKILL IN RADIOCOMMUNICATION

This is to certify that, under the provisions of the Act of June 24, 1910,

CHARLES H. STEWART, St. David's, Pa.

has been examined in radiocommunication and has passed in:

- (a) The adjustment of apparatus, correction of faults, and change from one wave-length to another;
- (b) Transmission and sound-reading at a speed of not less than fifteen words a minute American Morse, twelve words Continental, five letters counting as one word.

The candidate's practical knowledge of adjustment was tested on a Stent set of apparatus. His knowledge of other systems and of international radiotelegraphic regulations and American naval wireless regulations is shown below:

Understands United Wireless Telegraph Company's System; familiar with international radiotelegraphic regulations and American naval wireless regulations; examined and passed in both Continental and American Morse Systems.

W. E. Howard

(Signature of examining officer) Captain, U. S. Navy.

Place Navy Yard, Philadelphia, Date August 28, 1911, 191

By direction of the Secretary of Commerce and Labor:

W. E. Howard
Commissioner of Navigation, Washington, D. C.

I, Charles H. Stewart, do solemnly swear that I will faithfully preserve the secrecy of all messages coming to my knowledge through my employment under this certificate; that this obligation is taken freely, without mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office: So help me God.

Date of birth July 10th, 1873 Place of birth Philadelphia, Pa.

Sworn to and subscribed before me this 28th day of August, A. D. 1911

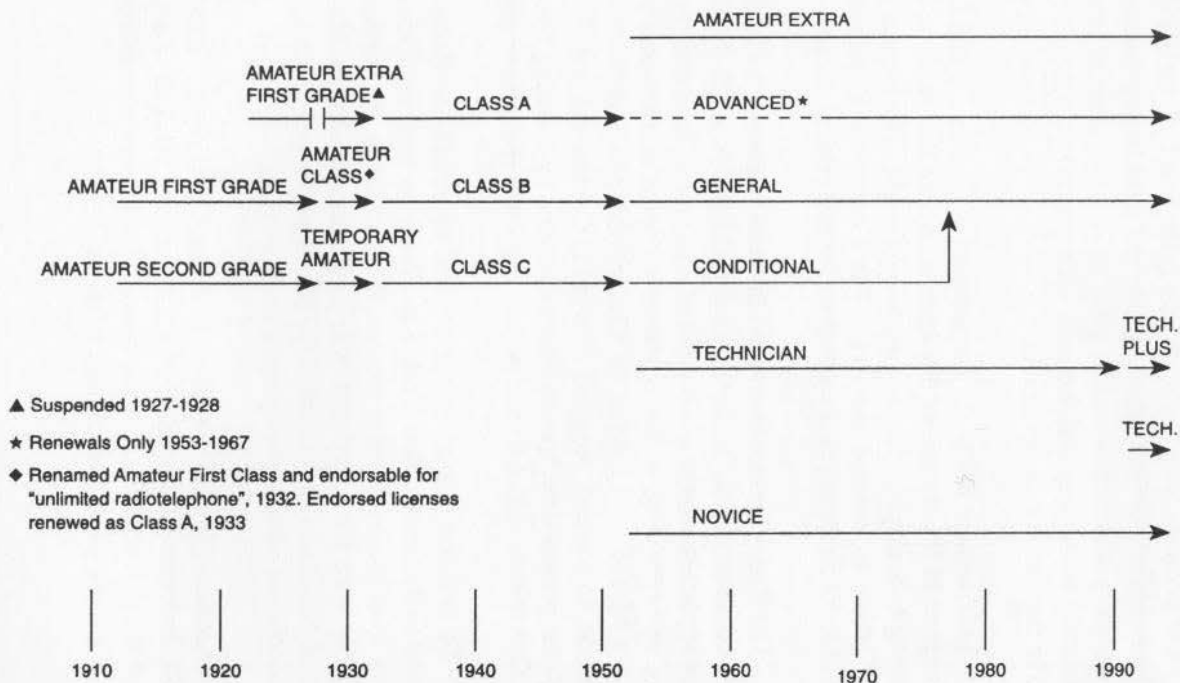
Theodore Mack
Notary Public.

*It is not intended to limit the employment of the holder to a particular system, but merely to indicate the particular system in which he was tested for adjustment of apparatus.

This certificate is valid for two years, subject to suspension or revocation by the Secretary of Commerce and Labor for cause. It should be kept where it can be shown to officers of the customs or other officers of the Government just before the ship leaves port.

Figure 1. "Operator's Certificate of Skill in Radiocommunication", Commerce Department, 1911. Charles H. Stewart later became a vice-president of ARRL. Size app. 10" x 20". Photo courtesy of ARRL.

U.S. Amateur Licensing, 1912-1994



U.S. did not ratify a radio convention until 1912, however, because of disputes surrounding the regulation of commercial message traffic.

The Wireless Ship Act of 1910 was the first U.S. legislation to mandate qualifications for radio operators. It required most large passenger ships, as of 1911, to carry a wireless station able to communicate at least 100 miles. Significantly, it also required that each such station be "in the charge of a person skilled in the use of such apparatus."¹

Enforcement fell to the Department of Commerce and Labor where it was assigned to the Bureau of Navigation, whose duties at the time included monitoring U.S. shipbuilding and seagoing freight. The Bureau created a new Radio Service to enforce the Act. The Commerce Department remained responsible for licensing radio operators for two critical decades.

The Radio Service issued an elaborate "Operator's Certificate of Skill in Radio communication" to those found qualified to operate shipboard stations. It tested applicants on the adjustment of equipment, laws and regulations, and sending and receiving, at the applicant's choice of 15 words per minute in American Morse or 12 wpm in Continental code, or both. The Berlin Convention, in contrast, required 20 wpm in Continental code.² As with tests through the present date, speeds were calculated by counting five letters to the word. One minute out of five of perfect copy was required to pass.

To examine shipboard stations and operators, the Radio Service sent inspectors to Baltimore, New York, San Francisco, and New Orleans. As these locations were inconvenient to much of the population, the Service entered into agreements with the Navy and War Departments and, in Washington, the Bureau of Standards, to examine applicants under delegated authority. The Navy conducted most of the operator examinations.³

Amateurs were not required to obtain Certificates of Skill. According to ARRL historian Clinton B. DeSoto, however, "While it is not known how many of these [certificates] were issued to amateurs, the probability is that amateurs got the greater percentage of them."⁴

FIRST AMATEUR LICENSES

Even as the 1910 Act took effect, it was clear that the nation would not long continue without comprehensive radio regulation. Forces militating for additional laws included rapid progress in the radio art, increasing spectrum usage by amateur, commercial, and government interests, the value of radio in

ORIGINAL

Official call 1AANumber 1LICENSE FOR AMATEUR RADIO STATION

(General or restricted)

EXPIRES FOR THE SECOND YEAR ON
October 14, 1921.

DEPARTMENT OF COMMERCE

BUREAU OF NAVIGATION

RADIO SERVICE

U. S. Radio Inspector,
Boston, Mass.

Pursuant to the act to regulate radio communication, approved August 13, 1912,
WALLACE E. HEGGEMAN, age 16, a citizen of the State
of Massachusetts, county of Dorchester

city or town Boston, Mass. street 118 Winchester Road, No. 118,

having applied therefor, is hereby granted by the Secretary of Commerce, for a period of two year 8,
on and subject to the restrictions and conditions hereinafter stated and revocable for cause by him, this
License to use or operate the apparatus for radio communication (identified in the Schedule hereinafter) for
the purpose of transmitting private radiograms or signals, notwithstanding the effect thereof extends beyond
the jurisdiction of the State or Territory in which the said station is located: *Provided*, That no interference
other than may result under the restrictions contained in this License shall be caused with the radio com-
munication of stations of the Government of the United States or licensed stations.

2. The use or operation of apparatus for radio communication pursuant to this License shall be subject
also to the articles and regulations established by the International Radiotelegraphic Convention, ratified by
the Senate of the United States and caused to be made public by the President, and shall be subject also to
such regulations as may be established from time to time by authority of subsequent acts and treaties of the
United States.

3. The apparatus shall at all times while in use and operation be in charge of a person or persons licensed
for that purpose by the Secretary of Commerce, and the operator of the apparatus shall not wilfully or
maliciously interfere with any other radio communication.

4. The station shall give absolute priority to signals or radiograms relating to ships in distress; shall
cease all sending on hearing a distress signal; and shall refrain from sending until all the signals and radio-
grams relating thereto are completed.

5. The station shall use the minimum amount of energy necessary to carry out any communication
desired, and the transformer input shall not exceed one kilowatt.

6. The station shall not use a transmitting wave length exceeding 200 meters.

7. The station shall not use a transmitter during the first 15 minutes of each hour, local standard time,
whenever the Secretary of Commerce by notice in writing shall require it to observe a division of the time,
pursuant to the Regulations of the act of August 13, 1912.

8. The President of the United States in time of war or public peril or disaster is authorized by law to
close the station and cause the removal therefrom of all radio apparatus, or may authorize the use or control
of the station or apparatus by any department of the Government upon just compensation to the owners.

9. The Secretary of Commerce and Collectors of Customs or other officers of the Government authorized
by him may at all reasonable times enter upon the station for the purpose of inspecting and may inspect any
apparatus for radio communication of such station and the operators of such apparatus.

10. The apparatus shall not be altered or modified in respect of any of the particulars mentioned in the
following Schedule except with the approval of a radio inspector, or other duly authorized officer of the
Government.

Name of naval or military station, if within 5 nautical miles, None

Power: Transmitter input, 1000 W. Antenna: Type (T, J, etc.) A

Height, 25 ft.; horizontal length, 100 ft.

Wires: Number in vertical part, 1; in horizontal part, 1

The normal sending and receiving wave length shall be 200 meters and the station is
authorized to use the following additional wave lengths, not exceeding 200 meters: ---

meters, --- meters.

This License expires on September 30, 19 21

EDWIN F. SWEET,
Assistant Secretary of Commerce.

E. T. CHAMBERLAIN,
Commissioner of Navigation.

Delivered by Hegawen
(Radio Inspector)

Boston, Mass. Date 1 October 1921

*The station be within 5 nautical miles of a naval or military station; others be strike out "one-half."
*The station be within 5 nautical miles of a naval or military station, not to exceed 500.

Figure 2. Amateur Station License, Commerce Department, 1919.
Post-WW I License No. 1, Call 1AA. Size 8 1/2" x 14".

Photo Courtesy of ARRL

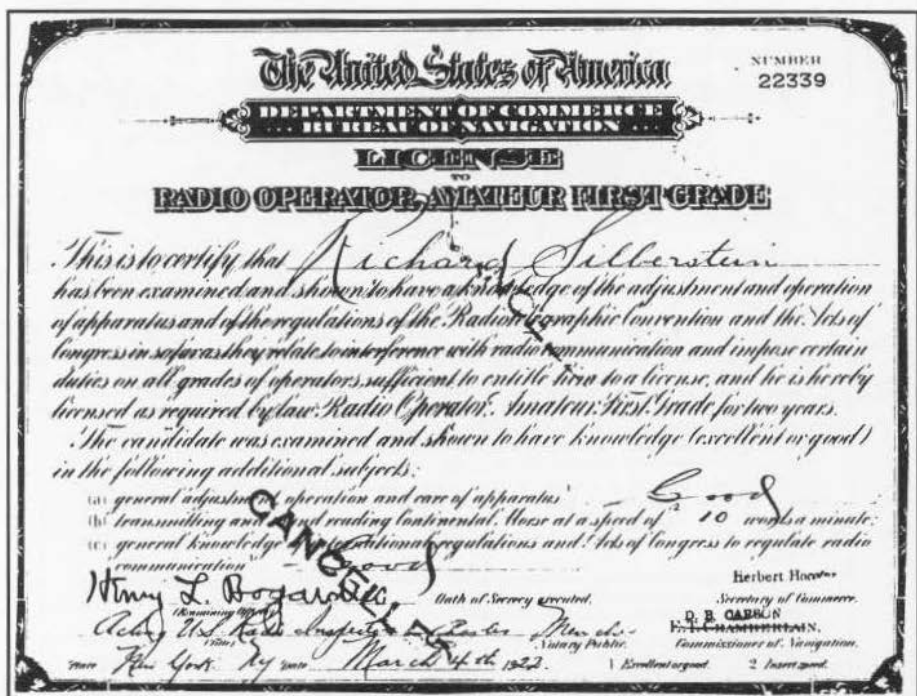


Figure 3. Amateur First-Grade License, Commerce Department, 1922.
 Size 9 3/4" x 12", blue background.

Photo courtesy of Richard Silberstein, W0YBF

maritime disasters, such as the sinking of the Titanic in April 1912, and demands of other countries for the orderly exchange of wireless message traffic.

These pressures resulted in the Radio Act of 1912, which required that radio stations, other than those of the federal government, be licensed by the Secretary of Commerce and Labor (later the Secretary of Commerce). In addition, stations had to be in the charge of licensed operators. Amateurs were normally required to operate on wavelengths below 200 meters.⁵

To implement these licensing provisions, the Radio Service established six classes of commercial operators and two classes of amateurs, Amateur First Grade and Amateur Second Grade. After World War I amateur license certificates were issued on large (9 1/2" x 12") blue stock in diploma-style form, in the manner of commercial operator licenses.

Applicants for Amateur First Grade had to pass a written test on the adjustment of equipment and on applicable laws and regulations.⁶ The first ARRL Handbook in 1926 called the examination "not difficult," requiring the



Figure 4. Commerce Department Radio Inspector administers the 10-wpm amateur code test using Omnigraph machine. *QST*, Vol. III, No. 1, August, 1923.

Photo: Author's collection.

applicant "to tell what apparatus he expects to use, to draw a simple diagram of connections, and to explain the operation."⁷ The examining officer noted on the license whether the applicant's knowledge in these areas was "good" or "excellent" (they were tough graders, as most licenses I have seen only state "good"). At some point in the 1920s, the test was standardized at ten essay-type questions. The back of the license included a notarized oath by the applicant to maintain the secrecy of messages and space for the operator to log his or her "service record" at different stations.

The Continental code test, originally 5 wpm, was raised to 10 wpm by 1919.⁸ It was to be "conducted by means of the Omnigraph or other automatic instrument wherever possible."⁹ *QST*'s front cover for April, 1923, a drawing of a Radio Inspector administering the test, suggests that Omnigraphs (clockwork mechanical code generators) were often used.

Examinations for Amateur First Grade were regularly held at Radio Service headquarters in Washington, at nine field offices, and at military posts in Alaska and Hawaii.¹⁰ Prospective hams unable to travel to a test site could seek an Amateur Second Grade license. Applicants had to satisfy the nearest Radio Inspector that they could not appear for an exam but were nevertheless qualified to operate a station.¹¹ They took "a brief examination by mail" and had two licensees certify to their ability to copy code at 10 wpm.¹²

The two grades conveyed identical privileges, the right to operate an amateur station. The type of station license held determined the authorized operating frequencies. The Radio Service issued station licenses, initially General, Restricted or Special, as separate 8 1/2" x 12" certificates. The specific privileges authorized by station licenses changed often over the years and are beyond the scope of this article.

Many hams, used to operating without government regulation, did not quickly accept the new licensing requirements. DeSoto stated, nearly a decade after the 1912 Act,

The 200-meter restriction, the power restriction, even the licensing requirement, existed to a considerable extent in name only.

However, following the threat of onerous additional government regulation in 1921, compliance improved.¹³

THE PINK TICKET

The Radio Act of 1912 did not entirely restrict amateur operation to the legendary "200 meters and down." Hams could use longer wavelengths, but only "by special authority of the Secretary of Commerce contained in the license of the station." The potential for interference with government and commercial stations was a prime consideration in the exercising of this authority. At first the Radio Service issued "Special" amateur station licenses (with distinctive "Z" calls, as in "2ZRM"), allowing such operation to hams with at least two years of experience, if "some substantial benefit to the art or to commerce apart from individual amusement seems probable."¹⁴

Beginning in 1923, the Radio Service restricted Special amateur station licenses, which then authorized cw operation at 150-200 meters, to holders of a new class of operator license, the Amateur Extra First Grade. This title matched that of the highest commercial license, the Commercial Extra First Grade. Available only to amateurs with two years of experience, the new license required an advanced, ten-question written examination and a code test at 20 wpm, the speed then required of Commercial First Class operators. The large diploma-style licenses were issued on pink stock!¹⁵ This Amateur Extra First Grade license marked the first use of extra privileges as incentives for hams to upgrade their skills.

While the new license achieved some early popularity, the attraction of 150-meter privileges rapidly declined as amateur interests shifted to the exciting propagation characteristics of the short waves. In 1927 the Commerce Department reported that "nearly all of the amateur stations are now operating

Form No. 1-4 FEDERAL

File No. 7-1
 Official No. 953
 Call Letters W.F. 3 X 2

UNITED STATES OF AMERICA
FEDERAL RADIO COMMISSION

AMATEUR RADIO STATION LICENSE

Subject to the provisions of the Radio Act of 1927, as amended, subsequent acts and treaties, and all regulations hereunder or hereafter made by this Commission, and further subject to the conditions set forth in this license, the

LICENSEE W.F. 3 X 2

is hereby authorized to use and operate the radio transmitting apparatus hereinafter described for the following purposes

for the term beginning April 22 1929, and ending April 21 1930, unless this license is sooner suspended or revoked.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term hereof, nor to any other station than authorized herein. Neither the license nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Radio Act of 1927, as amended. This license is subject to the right of use or control by the Government of the United States conferred by Section 1 of the Radio Act of 1927.

The licensee is authorized to use and operate the apparatus hereinafter described, at Shelby Mo.

City or town of ANFSS County of St. Louis in the State of Ohio

described as follows: See 3-17

Licensee is authorized to communicate only with amateur radio stations and on frequencies within the following bands:

Kilohertz	Kilohertz
1,715 to 2,000	10,000 to 10,000
2,000 to 4,000	10,000 to 20,000
7,000 to 7,300	400,000 to 600,000
14,000 to 14,400	

Amateur radio telephone operation is authorized only on frequencies within the following bands:

Kilohertz
1,715 to 2,000
2,000 to 2,500
34,000 to 60,000

Amateur telephony and operation of picture transmission apparatus is authorized only on frequencies within the following bands:

Kilohertz
1,715 to 2,000
34,000 to 60,000

Licensee is authorized to use a maximum power input into the final stage of one kilowatt, and to operate at all times, unless otherwise with other radio service is used, in which event a limit must be observed between the hours of 8.00 p. m. and 10.00 p. m., local standard time, and no Sunday during local church services.

The frequency of the waves emitted must be as constant and as free from harmonics as the state of the art permits.

The station operator must maintain call letters and location as frequently as may be practicable when station is in operation, and in any event not less than once during each fifteen minutes of transmission. This requirement is waived when such announcement would interrupt a single consecutive message, and in such cases the announcement of the call letters and location shall be made at the beginning and end of each message.

Licensee is not authorized to use dispatch waves nor is licensee authorized to broadcast news, music, lectures, sermons, or any other form of entertainment, or to conduct any form of commercial correspondence.

Dated this 22nd day of April 1929

At Detroit, Michigan

FEDERAL RADIO COMMISSION,
 ISA E. ROBINSON,
 Chairman
 By Ernest J. Peltier
 Acting Superintendent of Radio.

Figure 5. Federal Radio Commission amateur station license, 1929. Size 8" x 10 1/2".

Photo: Author's collection

on wave lengths of 80 meters and below."¹⁶ The Amateur Extra First Grade attracted very few applicants that year and was temporarily discontinued in fiscal 1928.¹⁷

The broadcast boom of the 1920s quickly made the 1912 Act obsolete. The Bureau of Navigation reported in 1923 that

It is becoming more difficult each year to apply the existing law of 1912 to services which not only did not exist but were not contemplated when the present law was enacted.¹⁸

As a stop-gap measure, Secretary of Commerce (later president) Herbert Hoover convened annual National Radio Conferences to encourage orderly spectrum usage through mutual agreement. Chaos threatened, however, when the Attorney General ruled in 1926, after an adverse court decision,¹⁹ that the Commerce Department, which could not deny requests for broadcast licenses, had no authority to restrict stations to specific wave lengths, hours of operation, or power limits.²⁰ Stations could broadcast however they liked! To restore order, Congress quickly passed the Radio Act of 1927, which gave the government the needed regulatory authority to control the spectrum.²¹

The 1927 Act assigned station licensing to the new Federal Radio Commission (FRC), but continued to reserve operator licensing to the Commerce Department. To fulfill this responsibility, the Department created a new Radio Division as an agency independent of the Bureau of Navigation, reporting directly to the Secretary of Commerce.²²

Just a few months after its creation, the Radio Division revised the operator licensing system. It reduced the number of commercial license classes from six to three, and, as noted above, it temporarily deleted the Amateur Extra First Grade license. In addition, it renamed the Amateur First and Second Grade licenses as "Amateur Class" and "Temporary Amateur," respectively. The name changes reflected that the licenses did not represent two different grades of operator qualifications and privileges; rather, one was a permanent license and the other a temporary authorization pending an in-person examination.

Initially, the new Temporary Amateur license had a one-year term and could not be renewed. The intent was that hams could no longer indefinitely avoid a government examination²³ The lack of funds to establish enough test sites, however, eventually forced the Radio Division to renew "temporary" licenses.²⁴

The Radio Division reinstated the Amateur Extra First Grade License, with its special written exam, at the end of 1928. This time, the code test was 20 wpm in plain language and 16 five-letter random groups per minute.²⁵ This is the only instance of the government testing hams on copying random code groups, and it is unclear why it did so.

The following year, 1929, the FRC granted phone privileges on the exciting new 20-meter band to amateurs determined by the Radio Division to be qualified for such work.²⁶ The Radio Division responded by endorsing Amateur Extra First Grade licenses as follows:

The holder of this license examined and certified for unlimited radiotelephone operation under Federal Radio Commission Regulation No. 377.²⁷

In 1932 Congress transferred the Radio Division and its duties to the FRC, centralizing amateur operator and station regulation in the Commission. Among the Division's final acts was the granting to those Amateur Class operators who passed a ten-question exam on phone theory the "unlimited radiotelephone" endorsement previously reserved to Amateur Extra First Grade licensees. The new test was not as comprehensive as that for the top license, and no additional code exam was required. The Radio Division also added 75 meters as a phone band reserved for holders of the endorsement.²⁸

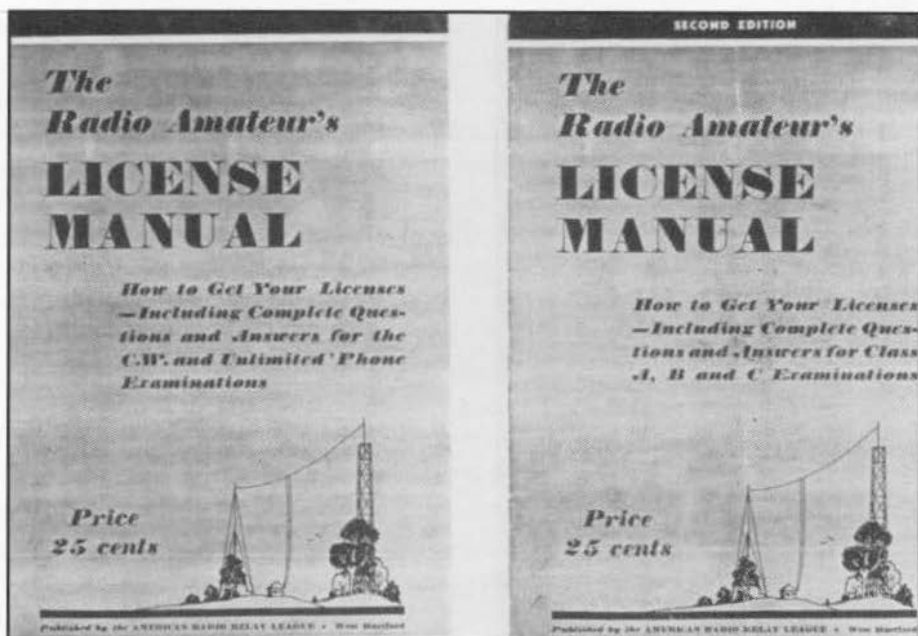


Figure 6. First ARRL License Manual, May, 1933, on the left. The 2nd Edn. on the right, Sept. 1933, reflected the June revisions of the licensing system by the FRC.
Photo: Author's collection

At the end of the year, the FRC discontinued the fancy, diploma-style operator licenses for plainer, 8" x 10 1/2" forms similar to the station licenses of the time.²⁹ It also renamed the Amateur Class license as Amateur First Class.³⁰ Perhaps the latter change was initiated by former Amateur First Grade licensees who felt they had lost status by the 1927 name change to Amateur Class.

By the end of 1932, then, four types of licenses in two distinct groups were available. In the first group, the Temporary Amateur license and Amateur First Class conveyed basic privileges. In the second group, Amateur First Class was endorsed for "unlimited radiotelephone," and Amateur Extra First Grade allowed, in addition to the above, operation in the 20- and 75-meter phone bands.

THE "A-B-C" ERA

The next year, 1933, the FRC simplified the license structure and changed the class names to A, B, and C. It also began issuing combined amateur licenses (operator on one side, station on the other) on a wallet-sized (about 3" x 5") card. Amateur First Class became Class B, a change of little more than

name. Class B and Class C conveyed all operating privileges except the phone bands, which were reserved to Class A licensees.

Amateur Extra First Grade and those Amateur First Class licenses that were endorsed for “unlimited radiotelephone,” were merged into Class A, and, in later decades 20- and 75-meters were commonly referred to as the “Class A phone bands.” The additional Class A written test was a ten-question examination on radiotelephone subjects. No code test, beyond the 10 wpm for Class B, was required.³¹

The replacement of Temporary Amateur by Class C, on the other hand, involved substantial changes. Temporary Amateurs were not grandfathered into Class C; they had to pass the written and code exams and otherwise qualify anew. License requirements were stiffened. *QST*, the official publication of the ARRL, derisively called the self-administered written exam for Temporary Amateur “the skimpiest possible test.”³² In contrast, Class C required the same ten-question essay exam as Class B, taken before a certifying witness. Where the Temporary Amateur applicant simply declared that he or she could copy code at 10 wpm, the Class C applicant was required to take a code test from a volunteer examiner, often necessitating considerable travel.

The Communications Act of 1934, still in force today, although much amended, created the Federal Communications Commission (FCC).³³ The FCC consolidated the broad spectrum powers of the FRC with the wireline communications authority previously exercised by the Interstate Commerce Commission. To date, the FCC has regulated U.S. amateur radio for 61 years. For the first 17, it continued the A-B-C licensing system begun by the FRC.

In May, 1936, the ARRL petitioned the FCC to raise the code requirement for all classes to 12.5 wpm.³⁴ Perry Williams, W1UED, a former ARRL Washington Area Coordinator, suggests this was instigated by ardent traffic handlers seeking to raise the level of code proficiency. The

UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON

NOT TRANSFERABLE
N

DATE OF ISSUANCE: 12-20-46

AMATEUR RADIO OPERATOR LICENSE

This license when signed by an issuing officer of the Commission, indicating privilege granted and countersigned by the Licensee, is valid for 5 years from the date of issuance, subject to the provisions of all treaties, laws, orders, and regulations that apply to amateur radio operators.

FEDERAL COMMUNICATIONS COMMISSION
T. J. Blumie, Secretary

Licensee: Richard Silberstein
3904 Jackson St., N.W.
Washington, D.C.

Privileges	Issued On	Date
Class C		
Class B		
Class A		12-20-46

DO NOT WRITE INSIDE THIS LINE

EXPIRED

U.S. GOVERNMENT PRINTING OFFICE 16-71887-1

Figure 7. FCC Class A amateur license, 1946. Station license on the reverse. Size 2 1/2" x 4" (trimmed) card stock. Photo courtesy of R. Silberstein, W0BYF

Commission found 12.5 wpm “messy to grade” and so in June rounded up to the 13 wpm standard that has continued through to today’s General and Advanced licensees.³⁵ This was a significant action, given the common complaint of a learning plateau at 10-12 wpm that must be overcome to pass the test.

The Commission changed the written examinations in 1940. The old ten-question essay tests “required an amateur to write more or less a book in reply.”³⁶ Moreover, the grading of such exams was slow and somewhat subjective. These were replaced with a fifty-question test for Class B and C and an additional forty-question test for Class A. Some of the questions required applicants to draw portions of circuit diagrams (these were eliminated in 1960³⁷). Most questions, however, were multiple choice. The new tests could be graded quickly and objectively, and allowed testing on more topics.

To promote the use of the ultra-high frequencies the ARRL petitioned the FCC in 1946 for a code-free Class D license. The proposed license would allow operation above 200 MHz and require only the Class B/C written examination.³⁸ The League withdrew its petition a few months later, however, with amateur opinion “gradually crystallizing” against the concept.³⁹

The Administrative Procedure Act of 1946 required the FCC and other federal agencies to publish proposed rules and consider public comments before adopting regulations. As a result, much more detailed published records are available for subsequent rule-making proceedings than for the earlier ones.

GENERALS AND OTHERS

In 1948 the ARRL asked the FCC to expand the Class A phone bands, establish a 16-wpm Class A code test, and bar new licensees from phone operation below 30 MHz during their first year on the air.⁴⁰ The Commission responded in 1949 by proposing a major overhaul of the licensing system. This included renaming Class A, B and C licenses with the more descriptive terms Advanced, General, and Conditional, respectively. The FCC also proposed three new license grades: Amateur Extra (named “for extra qualifications and extra privileges”) at the top, and Novice and Technician at the bottom.⁴¹

The Commission also proposed closing the Advanced class to new applicants and downgrading existing licensees to General upon license renewal; the 20- and 75-meter phone privileges would be reserved to Amateur Extras. The new top license would require a code test at 20 wpm and a written examination more comprehensive than that previously used for Class A.

FCC Form 605 Rev. June 1958		UNITED STATES OF AMERICA		EXPIRES	N18
STATION CALL SIGN		FEDERAL COMMUNICATIONS COMMISSION		1-9-58	
K N 9 K Z W		WASHINGTON, D. C.			
		AMATEUR RADIO LICENSE			
Fixed transmitter location: (and remote control position when authorized)					
NOT TRANSFERABLE	SAME AS BELOW		 <i>May Jane Moran</i> Secretary		Countersigned <i>James D. Ziese</i> Licensee
	Licenses and P. O. Address:				
	JAMES D. ZIESE				
	9926 IRVING PARK ROAD SCHILLER PARK, ILL.				
(This license issued subject to conditions shown on reverse side)					
Operator Privileges		Issuing Officer		Effective Date	
Class NOVICE				1-9-58	
Class					
SEE UPPER RIGHT CORNER FOR EXPIRATION DATE					

Figure 8. FCC Novice License, 1958. Size 1 1/2" x 4 1/4", trimmed. Photo courtesy of James Ziese, W0PWS

QST later reported that these proposals caused greater consternation among amateurs than even the incentive licensing rule making of the 1960s.⁴² The League and others strongly objected to the perceived unfairness of Advanced licensees losing phone privileges, despite having earned them by passing a special exam.⁴³ Adopting new rules in 1951, the FCC met this concern with a grandfathering provision. Existing Advanced class hams could renew their licenses and share the restricted phone bands with Amateur Extras. After 1952, the class would be closed to new applicants.⁴⁴

This change did not satisfy the ARRL, which reasoned that Generals and Conditionals desiring access to popular phone bands should not have to pass a 20-wpm code test and a written exam on subjects unrelated to radiotelephone operation.⁴⁵ The attraction of 20 and 75 meters must be viewed bearing in mind that the (arguably) less desirable 10- and 160-meter phone bands were the only ones available to holders of the lower classes of tickets. The 15-meter band did not yet exist, and phone operation was not allowed on 40 meters.

The FCC responded with a surprising reversal of position. Rather than either reserving privileges only for Amateur Extras and holdover Class A licensees (its prior proposal) or allowing new Advanced licensees to earn them (ARRL's position), in 1953 it opened the long-restricted 20- and 75-meter phone bands to the large number of Conditionals and Generals.⁴⁶ This action left four classes of licensees — Conditional, General, Advanced, and Amateur Extra — with identical privileges!

The General/Conditional/Technician written test was revised to include more questions on phone operation.⁴⁷ The Commission opened the Amateur Extra Class in 1952 and expressed the intent to reserve unspecified

privileges to the class in the future.⁴⁸ Although the new top license granted no special rights, as a token reward to those who passed the exam the FCC field offices issued, upon request, a 7" x 9" (peculiarly hard to frame) diploma-style form in addition to the usual wallet-sized license. This unusual certificate, which stated neither call letters nor expiration date, was purely ceremonial, as it stated that it was only valid to the extent the holder possessed a valid license of the regular form. Additionally, Amateur Extras who had been licensed for 25 years could also request "preferred" call signs.

The Novice and Technician classes, created in 1951, required a 5-wpm code test. The Novice license, intended to encourage the entry of youth into ham radio, had an "extremely simple" written exam. With a one-year term and non-renewable at first, it allowed only crystal-controlled operation with 75 watts maximum input power. Operating privileges included frequencies on 11 and 80 meters, and cw and phone from 145 to 147 MHz. The Technician license, intended to stimulate experimentation at VHF and above, required the Conditional/General written test. It granted all privileges above 220 MHz.⁴⁹ Overall, Novice and Technician privileges have greatly increased over the past four decades.

At first, Novice and Technician exams were given at FCC offices or, if the applicant lived more than 125 miles from an office, they were obtained by mail and given by a volunteer examiner with at least a General license. The same procedure was followed for granting the Conditional license. After 1954, however, they became available by mail to all applicants, regardless of location of residence.

INCENTIVE LICENSING

Thirty years after the time, hams of the 1990s may find it difficult to understand the emotions aroused by the "incentive licensing" rule making of the 1960s. Strong feelings arose because the proceeding addressed basic questions about fairness to existing licensees, the proper role of government regulation, and the future of amateur radio.

An editorial in the February, 1963 issue of *QST* started the controversy. Ten years after the 20- and 75-meter phone bands were opened to General and Conditionals, it suggested that a return to restricted phone segments would improve amateur proficiency and operations.⁵⁰ Shortly afterward, the ARRL petitioned to reopen the Advanced Class to new applicants and to restrict the 15-, 20-, 40- and 75-meter phone bands to Advanced and Amateur Extra licensees, leaving phone bands for the lower classes at 10 and 160 meters, as before 1953.⁵¹

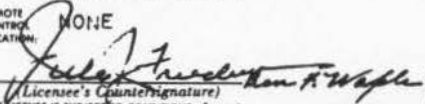
FCC FORM 600 DEC. 1970	UNITED STATES OF AMERICA FEDERAL COMMUNICATIONS COMMISSION WASHINGTON, D. C. 20554 AMATEUR RADIO LICENSE	Not Transferable
OPERATOR PRIVILEGES:		
NOVICE CALL SIGN: WN2BJA		
EFFECTIVE DATE: 06-15-71	EXPIRATION DATE: 06-15-73	
JULES J. FRIEDMAN 88 CARTHAGE RD SCARSDALE N Y 10583		
STATION LOCATION:	SAME AS ABOVE	
REMOTE CONTROL LOCATION:	NONE	
 (Licensee's Counter Signature)		
THIS LICENSE IS SUBJECT TO CONDITIONS OF GRANT		
		SECRETARY

Figure 9. FCC Novice License, 1971. Size 2 3/4" x 3 3/4", folded.

Photo: Author's collection

The League received about 15,000 comments from its members on incentive licensing. These divided evenly on the issue.⁵² Supporters and opponents cited many arguments, but the positions may be capsulized as follows:

Those against incentive licensing felt that the proper goal of government testing was to ensure that licensees operate safely, within the regulations, and without interfering with others. They also protested the unfairness of banishing Generals and Conditionals from bands that these classes had used for years.

Those in favor argued that offering special privileges as inducements to improve skills would upgrade the skills of the amateur corps and was a legitimate use of regulatory power. They noted that grandfathering of existing Generals and Conditionals, the bulk of the amateur service, would be self-defeating, as those licensees would have no incentive to increase skills.

Of the non-ARRL ham magazines, *CQ* generally supported the principle of incentive licensing but differed as to details.⁵³ *73* opposed the ARRL proposal and the first FCC response, but approved the final implementation.⁵⁴

Responding to the ARRL's petition (and ten others), the FCC issued its proposal in 1965. It planned to abolish the Advanced Class, downgrading its licensees to General. As the scope of the General examination increased in 1951 to include phone topics previously reserved for Advanced, the Commission saw little difference between the classes. A new license, Amateur First Class, would become a stepping stone between General and Amateur Extra. It would require a written exam of intermediate difficulty and a 16-wpm code test. Some band segments would be reserved for Amateur First Class and Amateur Extra licensees and others only for Amateur Extras. The FCC also proposed assigning



Figure 10. FCC Amateur Extra License, 1973. Diploma-style form issued upon request of licensee. 7" x 9".

Photo: Author's collection

calls with prefixes indicative of the class of license held. Technicians, for example, would get calls beginning with WT or WU.⁵⁵

The ARRL responded by requesting that Advanced licensees be grandfathered into the new Amateur First Class without requiring the 16-wpm code test, rather than downgraded to General. It argued that Advanced hams deserved more privileges than Generals and Conditionals because they had taken pains to reach the top of the earlier (A-B-C) incentive licensing system. The League asked that Amateur Extra First Grade licensees of the Commerce Department era, downgraded to easier-to-attain Class A after 1932, be grandfathered into the Amateur Extra Class. It requested that, if new prefixes were assigned, all hams should be allowed to retain their existing call suffixes.⁵⁶

The FCC received 1,700 public comments, about two-thirds supporting the principle of incentive licensing. It issued final rules in 1967, ending the five-year controversy. The Commission abandoned its Amateur First Class proposal and made the Advanced Class the stepping stone between General and Amateur Extra. It opened Advanced to new applicants, requiring an intermediate-level written exam and no additional code test beyond the existing 13-wpm requirement. Some band segments were reserved for Advanced and Amateur Extra licensees and others for Amateur Extras alone, beginning in 1968 and 1969.⁵⁷ Generals and Conditionals, however, remained able to operate on a portion of every phone band.

The FCC also extended the Novice term to two years and eliminated the two-meter Novice phone privileges. It rescinded its call sign proposal and ignored the request to upgrade former Amateur Extra First Grade licensees.

Was the return to incentive licensing the right decision? It has been blamed for flattening the growth of amateur radio, reducing the number of equipment dealers, driving American manufacturers out of business, and even letting Japan capture the world electronics markets. While many would ascribe these events to other causes, incentive licensing did deprive many hams of privileges they had previously enjoyed. If success is viewed as inducing licensees to obtain licenses beyond the General Class, however, then incentive licensing clearly was a success. Before 1962, relatively few hams progressed beyond General. Today, most hams who reach General go on to Advanced and Amateur Extra.

RESTRUCTURING/NO CODE

The Commission must have liked the results of its incentive licensing handiwork, for just a few years later, in 1974, it proposed what must be the ultimate in an incentive-based system. "Restructuring," as it was known, contemplated seven distinct license classes, each with its own examination and special privileges.⁵⁸

NOT TRANSFERABLE		
CALL SIGN	OPERATOR PRIVILEGES	STATION PRIVILEGES
W4DF	EXTRA	PRIMARY
FIXED STATION OPERATION LOCATION		
SAME AS MAILING ADDRESS		
THIS LICENSE IS SUBJECT TO CONDITIONS OF GRANT ON REVERSE SIDE		
UNITED STATES OF AMERICA FEDERAL COMMUNICATIONS COMMISSION GETTYSBURG, PA 17326		
FCC FORM 605 JUNE 1986		FEDERAL COMMUNICATIONS COMMISSION
AMATEUR RADIO LICENSE		
EFFECTIVE DATE	EXPIRATION DATE	
06/12/87	06/12/89	
NAME AND ADDRESS		
VEIL D FRIDMAN 573 KALMIA AVE BOULDER CO 80312		
 (LICENSEE'S SIGNATURE)		

Figure 11. FCC Amateur Extra License, front and back, 1987. Pattern of yellow FCC seals on a white background. 2 1/2" x 3 3/4", folded.

Photo: Author's collection

The proposal planned two license "ladders": one with HF privileges (Novice, General, and Advanced) and one with VHF/UHF privileges (Communicator, Technician, and Experimenter). At the top, the Extra Class (no "Amateur") would convey all privileges. An individual could hold one license in each chain. Extra would require a code test at 20 wpm; Advanced and General at 13; and Novice, Experimenter, and Technician at 5. Grandfathering provisions were generous.

The most controversial part of the plan involved the entry-level Communicator license. Requiring a simple written examination and no code test, it would convey broad privileges above 144 MHz. Most of the 56,000 respondents to an ARRL membership survey objected to the no-code plan.⁵⁹ The League countered with its own "slow code" proposal; a Basic Amateur Class would be added below Novice on the existing license scheme. The new class would allow privileges at 144 and 220 MHz, share an expanded Novice written test, and require that applicants identify letters in code (e.g., dit-dah equals A) at no specific speed.⁶⁰

As an interim measure, in 1976 the FCC eliminated much of its long-standing volunteer examiner program (often derisively referred to as "mail-order licensing") because of abuse. Ninety percent of the Technicians and Conditionals who were called to retake their tests before Commission personnel either failed or did not appear. Henceforth, Technician applicants were examined by FCC personnel. No new Conditional licenses were issued, with existing licensees grandfathered to General. The FCC also granted Novice privileges to Technicians and eased Novice transmitting limitations.⁶¹

The Commission stopped requiring a code sending test for any class of license in 1977. It found that over 99 per cent of applicants passing the code receiving test also passed the sending test.⁶² Perhaps even more significantly, without the sending test amateur exams could be given by clerical personnel instead of the higher paid field engineers.

In 1979, the FCC announced it would take no action on a code-free license, but would revisit the issue in the future. Most of the 4,000 public comments asserted that the proposed privileges were too generous, given the Communicator license's limited requirements, but the Commission disagreed and suggested that public sentiment might have changed since it proposed the plan in 1975. It also stated that the dual-ladder licensing scheme would not be pursued due to workload problems. The Novice license was made renewable and given the same five-year term as other classes.⁶³

Nearly a half-century after the government began using volunteer amateurs to administer code and written exams, the FCC's General Counsel, curiously enough, declared in 1979 that the acceptance of such services without

specific statutory authorization violated federal law. This opinion threatened the continuation of the Novice license program, which still depended upon volunteer examiners.⁶⁴

The ARRL actively pursued corrective legislation, first as part of an ongoing Congressional "rewrite" of the Communications Act of 1934 and, when the rewrite died, as a separate amendment to the Act. The "[Barry] Goldwater Amateur Radio Legislation," enacted in 1982, authorized the FCC to accept voluntary services from licensed amateurs.⁶⁵ A later amendment, avidly sought by the ARRL, authorized examiners to charge limited fees to recover their expenses.

The Commission seized upon its new authority to ease the burden of amateur licensing on its resources. In 1983 it began selecting organizations, including the ARRL, to coordinate examinations above Novice, to be given by groups of three hams accredited as volunteer examiners.⁶⁶

The volunteer examiners began the testing in 1984. The new system conserved FCC resources and expanded testing opportunities for applicants. In addition, it opened the process of question-pool formation to public scrutiny. The system worked so well that in 1993 the FCC made Novice testing a responsibility of the volunteer coordinators.

The volunteer examining system resulted in other changes to the licensing process. Applicants passing either the written or the code test for a grade of license would receive credit for it if the other portion of the examination was passed within a year. Applicants could pass the code test with either a minute of solid copy or by answering questions on the content of the message received.

NO CODE AGAIN...AND AGAIN

True to its word, the FCC revisited the issue of a code-free license in 1983. Contending that such a license would bring more computer-oriented youth into amateur radio, it proposed two alternatives. In one, a Technician license with no code test would allow operation above 30 MHz. (The 1979 World Administrative Radio Conference had lowered the frequency below which international law required knowledge of the code, from 144 to 30 MHz.) In the other, a new code-free Experimenter Class, patterned after the Canadian Digital Amateur Class, would require an examination emphasizing digital modes and would allow VHF/UHF privileges.⁶⁷

Of the 5,000 comments received by the Commission, opponents of a code-free license outnumbered supporters by 20 to 1!⁶⁸ The ARRL argued that

knowledge of code remained an important skill and that 5 wpm was not a significant barrier to motivated applicants. It also contended that a major change in licensing would unduly burden the fledgling volunteer examiner testing system.⁶⁹ Acceding to this lack of support, the FCC abandoned the proposal at the end of 1983. *QST*, paraphrasing Commission officials, pronounced the issue of a code-free license "buried once and for all."⁷⁰

While the ARRL had opposed "no-code," it realized that changes were needed to entice more potential amateurs to obtain licenses. In 1985 it petitioned for a "Novice enhancement" plan, in which Novices and Technicians would receive voice and digital mode privileges at 28, 220 and 1240 MHz.⁷¹ The Commission proposed to accept this plan, with minor changes, in 1986.⁷² Novice Enhancement met with favorable comment and was adopted in 1987. Novice tests were given thereafter by two volunteer amateurs (until 1993, when the volunteer coordinators assumed Novice testing) and included questions covering the new privileges. The Technician written test was made distinct from the General exam, emphasizing VHF/UHF theory.⁷³

Soon afterward, the ARRL leadership recognized that Novice enhancement alone would not draw large numbers of technically-oriented newcomers into amateur radio and that antipathy toward a no-code license was easing. In early 1989, the League's president appointed a blue-ribbon committee to make recommendations with regard to a code-free license. It included representatives of ARRL, industry, and the general ham community. Consultants to the committee included the presidents of the Canadian Radio Relay League and the Quarter Century Wireless Association.⁷⁴

The committee recommended that a code-free Technician license convey all privileges above 30 MHz, excepting 144.9 to 145.1 MHz). Upon passing a 5-wpm code test, licensees could upgrade to Technician Plus and receive all of the prior Novice/Technician privileges. Existing Technicians would be grandfathered into the Tech Plus class.⁷⁵ The ARRL petitioned for a code-free license later in the year, but called the class "Communicator," with privileges only above 220 MHz.⁷⁶

Responding to the ARRL and eleven other petitioners, the FCC proposed a code-free Communicator license with privileges above 222 MHz. The written exam would come from the Novice and Technician question pools, with some added topics. An upgrade to General would require the General written test and a 13-wpm code exam. No new Novice and Technician licenses would be issued, but existing licensees could renew indefinitely.⁷⁷

LICENSEE:
Below are your Amateur Radio Licenses in sizes suitable for your wallet and for framing. Carefully cut the documents along the lines as indicated. Each license carries equal operating authority. The Commission suggests that the wallet size version of the license be laminated for other similar document protection process after signing. The Commission has found, under certain circumstances, laser print is subject to displacement.

01/18/94-01/18/04

Let Sign	Effective Date	Expiration Date
N3DF	01/18/94	01/18/04
Operator Privileges	Station Privileges	
EXTRA	PRIMARY	

THIS LICENSE SUBJECT TO CONDITIONS OF GRANT IN THE REVERSE SIDE. THIS LICENSE IS NOT TRANSFERABLE.

NEIL D. FRIEDMAN
503 KALWIA AVE
BOULDER CO 80304

FCC AMATEUR RADIO LICENSE CLASS 01/18/94
FEDERAL COMMUNICATIONS COMMISSION

02772

UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
AMATEUR RADIO LICENSE
N3DF

NEIL D. FRIEDMAN
503 KALWIA AVE
BOULDER CO 80304

Special Conditions

Effective Date	Expiration Date
01/18/94	01/18/04
Operator Privileges	Station Privileges
EXTRA	PRIMARY

THIS LICENSE SUBJECT TO CONDITIONS OF GRANT IN THE REVERSE SIDE

NOT TRANSFERABLE

01/18/94-01/18/04

Figure 12. FCC Amateur Extra License, 1994. Laser-printed wallet and framable forms, uncut. 2 1/4" x 3 1/2", trimmed and folded, and 5" x 7", trimmed.
Photo: Author's collection

The ARRL strongly objected to the proposed deletion of the Novice and Technician classes.⁷⁸ Other parties, including the QCWA and Barry Goldwater, urged the Commission to include all VHF privileges in the code-free class.

Accommodating these requests, the FCC adopted most of the original recommendations of the League's committee. As of 1991, a code-free Technician license granted privileges above 30 MHz, below which international law required a knowledge of the code. The holder could be upgraded to Technician Plus, with Novice HF privileges, upon passing a 5-wpm code test. The Novice license was retained as an alternate entry-level class and existing Technicians were grandfathered to Technician Plus. As the FCC's antiquated data processing equipment could not accommodate a sixth license class, "Plus" status was confirmed by a credit slip from the volunteer examiners, rather than on the license document, a situation finally remedied by the Commission's acquisition of new computers in 1994.⁷⁹

Why did the amateur community support a code-free license after so many years of opposition? Traditions die hard, and hams shared a knowledge

of code for three-quarters of a century. Threats to amateur bands (such as 220 MHz) from other services emphasized the need for growth, and experience in other countries had demonstrated that a code-free license would attract many newcomers.

In addition, by the late 1980s, the microprocessor-controlled two-meter handy talky was firmly established as the major enticement to obtain a ham license. Code, to many, simply no longer appeared as a relevant requirement for this type of activity. The experience of the author, both on the air and as a volunteer examiner, is that the code-free license has been a powerful magnet to attract new amateurs and that fears of degraded amateur operations (ostensibly because code-free licensees have not demonstrated sufficient commitment to amateur radio) have largely proven overblown. Surely there are avenues other than by learning the code to make a commitment to amateur radio. Engaging in technical experimentation, public service events, nets and other on-the-air activities, and club meetings are just a few of the ways.

Have the written exams grown easier over the decades? While many amateurs think so, I do not. I took the Novice through Extra tests in the 1960s and 1970s and have ten years' experience as a volunteer examiner. I have studied an extensive collection of license manuals and, in addition, I have passed many other types of written tests, including the bar and CPA exams, and have given some as a college instructor. In my opinion, the difficulty level of the widely-held HF license exams has remained about the same, within the reach of motivated high school (and some younger) students. This is as it should be, for teenagers have always been the prime source of new radio amateurs. Study materials, on the other hand, have definitely improved over the past two decades. A newcomer who works through the ARRL's Technician ("Now You're Talking") and General Class license manuals will be a reasonably knowledgeable amateur.

I have also heard many hams complain that "open" question pools may simply be memorized. The old "question-and-answer" license manuals, however, also lent themselves to memorization. In my opinion, the new publicly-developed questions pools have resulted in better questions, more of them, and more up-to-date and comprehensive coverage of relevant rules and technology.

THE FUTURE

The amateur license structure of even a few years from now will surely differ from that of the present. Experimentation is an established part of amateur

radio, in its regulation as much as in its technical activities. A lesson of eight decades of adjustments is that the licensing system is never set in stone. Should code continue as a requirement for HF operation? Is the six-class structure too complex? Should license classes and requirements be internationalized? Are the written exams too difficult? Too easy?

Observing change is one of the joys of a lengthy amateur radio career (forming radio friendships is another). It is the changes in the new that make comparison with the old so interesting. Much of my on-air activity consists of arguing the merits of new equipment, new operating practices and, of course, new regulations. I anticipate with relish many heated discussions in the future.

ACKNOWLEDGEMENTS

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Neil is a lawyer and certified public accountant in Boulder, Colorado. While his wife (N0FNS) and children ski on winter weekends, he can be heard operating HF mobile from the summit of Vail Pass. An AWA member since the '70s, Neil wants to take this opportunity to thank all those whose efforts make the annual Rochester conference so enjoyable.

