W5YI

Nation's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

Fred Maia, W5YI, Editor, P.O. Box 565101, Dallas, TX 75356-5101

★ *In This Issue* ★

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FCC Proposes Amateur Service VHF/UHF Rule Changes

In response to three petitions that involve unrelated changes to the rules for the amateur service 222-225 MHz band, the FCC has issued a *Notice of Proposed Rule Making* which:

(1) creates a small new subband where repeaters are prohibited;
(2) authorizes frequency privileges to the Novice Class operators in the entire band; and
(3.) allows Novice Class operators to be licensees and control operators of repeaters in the 222-225 MHz band as well as in the 1270-1295 MHz segment of the 1240-1300 MHz band.

Weak signal segment

The American Radio Relay League (ARRL) requested in RM-7869 that a new subband be designated at 222.000-222.15 MHz where repeaters would be prohibited, but where all other types of station operation could continue. It said a small segment is needed where experimentation can take place but where frequencies need not be shared with repeaters. While many amateurs believe that this matter should be decided by the local frequency coordinator, the ARRL argues that protection of other types of operation from interference cannot be assured other than by regulation.

Novices accorded entire 1.25 m band privileges

ARRL also asked in RM-7868 that the frequency privileges accorded Novice operators be expanded to encompass the entire 222-225 MHz band. It believes that Novice Class operators would benefit from such expansion because they would be exposed to routine types of amateur station operation other than repeater operation. As of November 1, 1992, there were 98,713 licensees holding the Novice Class operator license.

Novice repeater licensees, control operators

In a petition assigned RM-7888, Dr. Michael C. Trahos, KB4PGC, of Falls Church, Virginia, requested that Novice Class operators be authorized to be licensees and control operators of repeaters in the 222-225 MHz band and in the 1270-1295 MHz Novice subband of the 1240-1300 MHz (23 cm) band. He argues that the amateur service should follow the General Mobile Radio Service (GMRS) and the Private Land Mobile Radio Services (PLMRS) where licensees are authorized to be licensees of repeaters without even being required to pass an examination in proper repeater operation.

Section §97.503 requires each written examination be such as to prove that the examinee possesses the operational and technical qualifications necessary to perform properly the duties associated with the privileges of the class of license sought. Trahos acknowledged, however, that a GMRS licensee must be 18 years of age or older.

Trahos also asked that the privileges requested

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service communications support and selling/trading amateur station equipment as long as it is not done ***on a regular basis.*** Amateur stations could also transmit personal and public service communications (such as ordering food, lodging and transportation) which incidently facilitates the commercial activities of some party. Teachers would also be able to accept compensation during periods of time when an amateur station is used for classroom instruction.

Responding to comments that it might be illegal under the rules for a government employee to participate in public service communications since they might be considered to be on behalf of an employer, the ARRL pointed out that performing amateur public service communications is as acceptable for a public servant as for anyone else in similar circumstances. The League added that the rules cannot address every situation which might arise.

Addressing our (W5YI) reference to the lack of a specific rules definition for the term "on a regular basis", the League said a "degree of rigidity ...does not properly belong in content rules for the Amateur Radio Service." The League agreed, however, that annual and semi-annual events (such as the Iditarod dogsled race) are strictly speaking "regular" events, but one in which Amateur Radio has an appropriate role.

The League was particularly critical of the *National Association of Broadcasters* and the *Radio Television News Director's Association.* The NAB and RTNDA filed joint comments supporting the use of amateur radio as a newsgathering tool. "They would like amateur radio to be used by journalists, presumably because it is cheaper to do so than to purchase and deploy equipment for the dedicated Part 74 frequencies, specifically allocated for broadcast auxiliary purposes..." ARRL said this "...has a far reaching potential for abuse. It is analogous to the need to prevent use of amateur radio for regular police communications." *[Reply comments filed December 1, 1992]*

Temporary licensing for visiting foreign amateurs

The League turned "thumbs down" on the FCC's proposal to authorize VEs to examine foreign visiting amateurs so that they might operate their station while on short visits to the United States. The FCC's NPRM suggested an immediate 60-day operating period to foreign amateurs who could pass a short "rules" examination. The system would involve VE's examining foreign amateur service licenses, determining operating privileges, administering a 20 question "rules" test, issuing a "qualification document" and recording the data.

ARRL agreed that the FCC's objective was admirable but flawed. "...there were other, significantly better means of accommodating foreign radio amateurs' interests in operating their stations while they are in the United States." Using the IDP *(International Driving Permit)* as a model, the ARRL urged the FCC to lead the way toward worldwide implementation of an endorsement on amateur radio licenses to permit international operation.

"An initial step would be for the United States to participate in the international licensing system for amateurs recently created by the *European Conference of Postal and Telecommunications Administrations* (CEPT.) By means of a table of equivalencies for dissimilar licenses among CEPT countries, amateurs with a CEPT endorsement on their own country's amateur radio license, operate their stations in other CEPT countries. States outside the territory of CEPT can now participate in the amateur licensing program..."

According to the League, Volunteer-Examiner Coordinators (VECs) addressed implementation without addressing the root issue. "Of far more significance is whether or not the proposed plan for issuing rules examinations to foreign temporary license candidates is or is not reasonable from the point of view of the foreign amateur, and the effect such a program on international relations, i.e. how U.S. amateurs will be treated by other countries should this proposal be enacted."

The ARRL said that requiring foreign amateurs to take an FCC regulations test in English might result in American amateurs being required to take similar examinations in foreign lands in unfamiliar languages. "These restrictions would have the effect of stifling international amateur radio operation..."

The ARRL "...respectfully requests that the Commission not adopt the rules as proposed in the Notice, but that it approach its laudable goal from a different, broader perspective. The League looks forward to assisting the Commission in planning for the alternative international licensing plan..." *[Reply comments filed November 30, 1992]*

BURTON, EX-WB6JAC CONVICTED ...AGAIN!

On December 1, ***Richard A. Burton ex-WB6JAC*** of Harbor City, California, was convicted on all four counts of operating an amateur radio transmitter without a license. *(See W5YI Report, Dec. 1, p.3)* He will be sentenced on February 8th. This is his third conviction for unlicensed operation and he could receive up to 2 years in prison and a $10,000 fine on each count. Burton was imprisoned for six months at Lompoc ten years ago on the same charge. Although it is up to the judge, Federal Sentencing Guidelines dictate that he will be returning to prison.

be conditioned upon the use of "commercial equipment" and low transmitter power limits. The FCC said that "The [commercial equipment provision] is not feasible because amateur VHF and UHF repeater transmitters are not subject to the Commission's type acceptance program. The low power limits requested by Trahos, moreover, are those already required in Section §97.313(d)..." which limits Novice operators to 25 W PEP on the VHF 1.25 meter band.

Notice of Proposed Rule Making adopted

The Commission said it believed there was merit in these petitions and asked for comments on the proposed rule changes. "They offer improvements in the operational standards for the amateur service. The availability of a small protected subband at 222.0-222.15 would facilitate experimentation. Permitting Novice Class operators to be licensees and control operators of repeaters and authorizing them additional frequency privileges would provide an opportunity for Novice Class operators to become proficient in a wide variety of amateur service operations. They would also have more flexibility in selecting the mode of transmission. Choosing the appropriate mode would result in a more efficient use of available spectrum. Comments are invited on the effect that the proposed changes would have on Novice Class licensees."

The FCC noted that they "...amended the amateur service rules in PR Docket 90-55 (the Codeless Technician class proceeding) based on, among other than things, the amateur community's view that the Novice Class operator license is needed as an entry level for persons who cannot pass the more difficult written examination for the Technician Class license, but who can pass a slow-speed telegraphy examination. Comments are also requested, therefore, on the effect that the proposed changes would have on the current amateur operator license class structure."

Public comment period established

Interested parties may file comments on or before February 23, 1993, and reply comments on or before March 23, 1993. To file informally in this proceeding, you must file an original and four copies of all comments and reply comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should send comments and reply comments to: Office of the Secretary, Federal Communications Commission, Washington, DC 20554.

If adopted, the new rule changes would read:

Part 97.201 Auxiliary station

(b.)An auxiliary station may transmit only on the 1.25 m and shorter wavelength frequency bands, except the 222.00-222.15 MHz, 431-433 MHz, and 435-438 MHz segments. *[An auxiliary station transmits communications point-to-point within a system of cooperating amateur stations.]*

Part 97.205 Repeater station

(a.) Any amateur station may be a repeater. A holder of any class operator license may be the control operator of a repeater, subject to the privileges of the class of operator license held. *[Previous version permitted only Technician and higher class licensees to be a repeater control operator.]*

(b) A repeater may receive and retransmit only on the 10 m and shorter wavelength frequency bands except the 28.0-29.5 MHz, 50.0-51.0 MHz, 144.0-144.5 MHz, 145.5-146.0 MHz, 222.00-222.15 MHz, 431.0-433.0 MHz, and 435.0-438.0 MHz segments. *[The 222.0-222.15 MHz segment is a new repeater restriction.]*

Part 97.301(f) Authorized frequency bands

The entry under VHF is Section 97.301(f) is amended by revising the frequencies authorized for use by Novice Class operators in ITU Region 2 to read as follows:

Wavelength band	ITU Region 1	ITU Region 2	ITU Region 3
VHF	MHz.	MHz.	MHz.
1.25 m	* * *	222-225	* * *

[Previous version permitted Novice operation only between 222.10-223.91 MHz in ITU Region 2.]

[NPRM, PR Docket 92-289, released: 12/11/92.]

LEAGUE FILES REPLY COMMENTS ON PERMISSIBLE COMMUNICATIONS, VISITING FOREIGN AMATEURS

The American Radio Relay League has filed reply comments on relaxing restrictions on the scope of permissible amateur communications *(PR Docket 92-136)* and the creation of a special licensing procedure for visiting foreign amateurs *(PR Docket 92-167).*

Business communications in the amateur service

The League was gratified that public comments on the Notice were generally supportive. "The League remains satisfied that the proposed rule, as it appears in the Notice, establishes a good balance between the desirable goal of increased flexibility in the content rules, and the absolute requirement of protecting the Service against encroachment and exploitation by other radio services and those who might commercially benefit from the Service."

The FCC's proposal was basically the version put forth by the ARRL. The new rules, if adopted, will allow amateurs to participate more fully in public

AMATEUR RADIO CALL SIGNS

...issued as of the first of December 1992:

Radio District	Gp."A" Extra	Gp."B" Advan.	Gp."C" Tech/Gen	Gp."D" Novice
Ø (*)	AAØKS	KGØBY	NØUPN	KBØKUW
1 (*)	AA1EM	KD1LK	N1NUA	KB1AMB
2 (*)	AA2LN	KF2LH	N2SXD	KB2PPA
3 (*)	AA3CK	KE3FN	N3NQE	KB3AKE
4 (*)	AC4XF	KQ4JF	(***)	KD4UHQ
5 (*)	AB5JD	KJ5GJ	(***)	KB5WCU
6 (*)	AB6PC	KN6DF	(***)	KD6PFZ
7 (*)	AA7SL	KI7IA	(***)	KB7QWZ
8 (*)	AA8JG	KF8XY	N8WEJ	KB8OKK
9 (*)	AA9FG	KF9MI	N9RLL	KB9IFW
N.Mariana Is.	AHØQ	AHØAL	KHØAY	WHØAAT
Guam	NH2K	AH2CR	KH2GL	WH2AND
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii	(**)	AH6ME	WH6JQ	WH6CQA
Kure Is.			KH7AA	
Amer. Samoa	AH8G	AH8AE	KH8AI	WH8ABB
Wake W.Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska	(**)	AL7ON	WL7GN	WL7CGF
Virgin Is.	NP2U	KP2CA	NP2FZ	WP2AHU
Puerto Rico	(**)	KP4UL	(***)	WP4LOF

CALL SIGN WATCH: *=All 2-by-1 "W" prefixed call signs have been allocated in all radio districts. Group "A" 2-by-2 format call signs from the AA-AK block are now being assigned to Extra Class amateurs.

**=All Group A (2-by-1) call signs have been assigned in Hawaii, Alaska and Puerto Rico. Group "B" (2-by-2) format call signs are now being assigned.

***=Group "C" (1-by-3) call signs have now run out in the 4th, 5th, 6th, 7th and Puerto Rico call districts. Technician and General class amateurs are now being assigned Group "D" (2-by-3 format) call signs.

[Source: FCC, Gettysburg, Pennsylvania]

IMPORTANT NOTE: The FCC's Gettysburg, PA, licensing facility has a very big backlog of Form 610 Amateur Radio operator license applications awaiting license issuance. It is now taking up to 12 weeks for an applicant to receive an operator license. Licenses are currently going out to examinees who were tested during early September! We note 55% less Form 610 applications were processed by Gettysburg in October 1992 than a year ago, yet the W5YI-VEC sent the FCC more applications than in October 1991! Based on our usual share of the amateur operator testing "market", 4500 applications should have been processed by Gettysburg instead of 2035. Everything points to a severe slow down at the FCC! We are checking and will let you know in the next issue.

• According to John Guili, Chief of the Commission's Washington, DC, Computer Applications Division, the ***FCC will be upgrading its information systems*** infrastructure in early 1993, both hardware and software. A new Amateur Licensing System is scheduled for implementation during the first quarter of 1993. The FCC plans to move the existing mainframe, batch oriented system to a local area network (LAN) based client-server architecture capable of accommodating both paper and electronic filings from the Volunteer-Examiner Coordinators (VECs). The new system will be tested later on in 1993 and plans are to have the VEC's file Form 610 applications electronically starting in early 1994. Guili said he envisions the new process will be similar to accessing a computer bulletin board with its menu of functions - including uploading of Form 610 information. This should greatly speed up issuance of Amateur Radio operator licenses.

• The following was received from ***Ruth Hoffman, N4LMC,*** of Clearwater, FL. Ruth is manager of the ***Intercontinental Traffic Net.*** "...please accept the following to be printed as a retraction to two statements made in the (W5YI) report of December 1, 1992.

You stated that 'Gil would harrass and jam them (BARF) by making constant announcements ON BEHALF OF the Intercon Net which operates at 14.300.' You also stated that the Intercontinental Traffic Net to be '...the Inter-continental phone patch net.' These are the statements made by KV4FZ, who uses then constantly to slander the net.

KV4FZ has accused me (N4LMC) of talking with KD4VQ and that is an absolutel lie. The Intercontinental Traffic Net is run by a group of volunteers who are dedicated to doing the right thing at the right time. Naturally there will be illegalities occuring and when this happens the Net Controls will be notified and every thing will be done to stop the offense.

The Intercontinental Traffic Net is not a "phone patch" net, as was stated. We deal with all types of traffic of which phone patching is only a part and I might add, quite legal.

"Gil types" have never been nor ever will be accepted or supported by the Intercontinental Traffic Net. The Net has never authorized KD4VQ or anyone else to operate on its behalf any more than we have made any agreements with BARF (KV4FZ.) We stand against obscene language as well as harrassment of Hams by those who dislike net operations of any kind. Quite the contrary, a phone call was made to pass a message to "Gil" to stop using the Net name and he allegedly refused.

Thank you for printing this response without editing." 73 (signed:) Ruth Hoffman, N4LMC

SEPTEMBER VE PROGRAM STATISTICS

September	*1990*	*1991*	*1992*
No. VEC's	*18*	*18*	*18*
Testing Sessions	*459*	*628*	*656*
VEC	*1990*	*1991*	*1992*
ARRL	39.7%	45.9%	50.6%
W5YI	35.3	33.6	35.8
CAVEC	4.1	3.2	2.9
GtLks*	5.4	4.1	2.1
Others (14)	15.5	13.2	8.8
Year-to-Date Sessions	*4478*	*5724*	*7365*
Elements Administ.	*6875*	*12673*	*11625*
VEC	*1990*	*1991*	*1992*
ARRL	48.4%	53.0%	53.3%
W5YI	26.9	26.3	28.1
WCARS	1.4	2.3	4.5
GtLks*	4.6	3.6	3.0
CAVEC	4.5	1.9	2.3
Others (13)	14.2	12.9	8.8
Year-to-Date Elements	*78552*	*123878*	*147156*
Applicants Tested	*4236*	*7583*	*7010*
VEC	*1990*	*1991*	*1992*
ARRL	46.7%	54.8%	52.5%
W5YI	27.7	27.0	29.3
WCARS	1.5	2.3	4.3
GtLks*	5.7	2.8	3.3
CAVEC	3.7	2.1	2.1
Others (13)	14.7	11.0	8.5
Year-to-Date Tested	*47916*	*74494*	*88198*

(= Great Lakes-VEC - is the previous DeVry VEC.)*

September	*1990*	*1991*	*1992*
Pass Rate - All	60.1%	66.9%	65.2%
Applicants/Session	9.2	12.1	10.7
Elements/Applicant	1.6	1.7	1.7
Sessions Per VEC	25.5	34.9	36.4

Administrative Errors by VE's/VEC's

September	*1980*	*1991*	*1992*
Defect. Applications	0.8%	1.1%	0.4%
Late Filed Sessions	0.7%	3.2%	0.3%
Defective Reports	0.0%	0.8%	0.2%

(*) Note: Most of the exams administered are for the written Element 2 and 3A. Technician is now the entry level of choice by most newcomers.

For the first nine months of 1992 versus 1991:

Number of Test Sessions:	+ 28.7% Increase
Number of Tests Administered:	+ 18.8% Increase
Number of Applicants Tested:	+ 18.4% Increase

[Source: Personal Radio Branch/FCC; Washington, D.C.]

OCTOBER AMATEUR LICENSING STATISTICS

October	*1989*	*1990*	*1991*	*1992*
New Amateurs:				
New Novices	1556	1457	1070	456
New Tech's	220	283	3354	1548
Total New:	1811	1826	4501	2035
Upgrading:				
Novices	1454	1456	1073	312
Technicians	533	810	*893	*364
Generals	357	620	527	235
Advanced	288	325	398	139
Total:	*2627*	*3211*	*2891*	*1050*
Renewals:				
Total Renew:	193	63	52	63
Novices	29	9	5	9
Purged:				
Total Dropped:	1175	1922	41	12
Novices	515	977	22	0
Census:				
Indiv. Oper.	*466971*	*495166*	*536532*	*582829*
Change/Year	+30008	+28195	+41366	+46297

Individual Operators by Class: (and % of total)

Extra	*Advan.*	*General*	*Technic.*	*Novice*	*Total:*
October 1989					
49883	101725	116797	113786	84780	*466971*
10.7%	21.8%	25.0%	24.4%	18.1%	100.0%
October 1990					
53219	104771	119393	126050	91733	*495166*
10.7%	21.2%	24.1%	25.5%	18.5%	100.0%
October 1991					
56954	107370	122301	153514	96393	*536532*
10.6%	20.0%	22.8%	28.6%	18.0%	100.0%
October 1992					
60852	109683	124832	188749	98713	*582829*
10.5%	18.8%	21.4%	32.4%	16.9%	100.0%

Club/ RACES & Military:	*(1989)*	*(1990)*	*(1991)*	*(1992)*
	2462	2434	2431	2431
Total Active:	**469433**	**497600**	**538963**	**585260**
% Increase	+6.9%	+6.0%	+8.3%	+8.6%

(* = Does not include Technicians upgrading to Tech Plus)

NUMBER OF AMATEURS BY CALL SIGN GROUP:

Group	Extra	Advan.	General	Technic.	Novice	Total
A	34790	684	249	7	0	35730
B	3702	28424	54	6	1	32187
C	13983	43800	67138	85132	48	210101
D	8131	36657	57285	103541	98662	304276
Other	246	118	106	63	2	535
Total	**60852**	**109683**	**124832**	**188749**	**98713**	**582829**

[Group "A"=2X1 & 2X2; "B"=2X2; "C"=1X3 "D"=2X3 format.]

[Source: FCC Licensing Facility, Gettysburg, PA]

TELEGRAPHY TESTING AND THE HANDICAPPED

There seems to be a lot of confusion on the rules surrounding telegraphy (and written) examination procedures and Morse code exemptions available to severely disabled persons. The following instructions apply to all disabled applicants, VEs and VECs.

(1) A telegraphy test exemption is available only to severely handicapped applicants who have already passed a telegraphy examination in some manner. Telegraphy comprehension is necessary for amateur radio operators due to the Article 32 requirement in the International Radio Regulations. The IRR requires Morse code knowledge when the communications take place at frequencies below 30 MHz. This international requirement can not be waived by our FCC regardless of the severity of the disability.

(2) There is no telegraphy speed requirement, however, in the international law. The IRR only mandates that amateurs must be able to "send by hand, receive by ear" Morse code signals.

(3) It has been the FCC's experience that "...passing a telegraphy receiving examination is adequate proof of an examinee's ability to both send and receive telegraphy..." *See Part §97.509(d).* This means that under normal circumstances a telegraphy examination consists of copying at least portions of a minimum five minute message containing all 43 different characters transmitted at 5, 13 or 20 words-per-minute using audio tones. *See Part §97.503(a) and §97.507(e).*

(4) While the Rules require VEs to "...accommodate an examinee whose physical disabilities require a special procedure"; (See §97.509(h) the allowable accommodations are not specified in Part 97. By separate instructions to the VECs, however, the FCC has said that, depending upon the disability, passing a telegraphy examination need not be only by hearing the code. *(VEC Instructions, Revision D, Dec. 3, 1992, §3.5.7)*

(5) Where warranted, telegraphy knowledge may be demonstrated by other means such as vibrating surfaces, flashing lights or a hand sending test. In severe cases, the VEs are authorized to pause the transmitted audio telegraphy test message after each sentence, phrase, word ...or even after each character to gather a response from the examinee. In all but the most severe cases, the minimum transmitted telegraphy speed to pass Element 1(A) should be 5 wpm.

(6) The special arrangements used by the VE team should relate to the disability. For example, questions with schematic diagrams should not be used for testing a sightless applicant. An administering VE may read the questions to a blind examinee and transcribe the answers. If hand coordination is difficult for writing purposes, the examinee may dictate the answers to one of the VEs.

(7.) Properly prepared written examinations in braille are available from the *Courage HANDI-HAMS System (Courage Center, 3915 Golden Valley Road, Golden Valley, MN 55422.)* VEs may also submit a computer disk containing a unique written examination in ASCII text format to HANDI-HAMS. They will return a brailled examination to the VE team. Contact is Pat Tice, (Manager) WAØTDA (Tel. 612/520-0516) or Sister Alverna O'Laughlin, (Educational Coordinator) WAØSGJ (Tel. 612/520-0515.) Courage Center is a nonprofit United Way organization providing rehabilitation and educational services to the physically disabled.

(8) In some cases, the disability and/or its severity may not be evident to the examiners. The VE team is authorized to require a medical confirmation (either oral or in the form of a letter) from a physician indicating the nature of the disability before determining which, if any, special procedures must be used. (See §97.509(h.) The VE team should use testing procedures as close to a normal telegraphy examination as possible.

(9) A severely handicapped amateur operator who has already passed the 5 wpm code exam but who is physically unable to pass the higher speed telegraphy examinations even when special accommodative procedures are used may be exempted from the 13 and 20 words-per-minute telegraphy requirements.

(10) The entire process of granting an exemption is not meant to apply to a person who simply wants to avoid expending the necessary effort to acquire greater skill in telegraphy. No handicapped person is required to apply for an exemption from the higher speed telegraphy examination - nor is anyone denied the opportunity to take the telegraphy examination.

(11) It is the responsibility of the disabled applicant to prove that he/she has passed the 5 wpm code requirement. This is usually accomplished by presenting a *Certificate of Successful Completion of Examination* (CSCE) to the VE team which was issued during the past year or a current (or expired less than the 2 year grace period) operator license for any class except "Codeless Technician." (All Technician Class amateurs with licenses dated prior to March 12, 1991, have passed the 5 wpm code test.) Handicapped applicants who can not

establish Element 1(A) credit should write the FCC (Amateur Section, 1270 Fairfield Road, Gettysburg, PA 17325) to obtain a confirmation letter of their status. Phone calls are not accepted for this purpose.

(12) An application for 20 wpm telegraphy exam credit may be made by using only the current FCC Form 610 (dated March 1992 in the lower right-hand corner.) 20 wpm code credit is given even if the applicant only needs 13 wpm to upgrade.

(13) All handicapped applicants seeking a telegraphy exemption must submit their Form 610 applications directly to a VE team. This applies even if no further examinations are necessary such as when disabled applicants already have credit for the needed written examinations. Technician Class amateurs who have passed the old 50 question Element 3 prior to March 21, 1987, receive credit for Element 3B. Volunteer examiners must certify all Form 610 applications even if no examinations are administered.

(14) Handicapped amateurs must have their doctor (medical doctor, M.D., or doctor of osteopathy, D.O., only) complete the "*Physician's Certification of Disability*" on the back of the Form 610 to obtain the 13 and 20 wpm telegraphy exemption. Rubber stamped signatures are not allowed. The wording on the certification may not be altered in any way. (Stapling the doctor's business card to the back of the application also helps.) The doctor should read the "*Information for Physicians Who Certify that an Individual is Unable to Pass a Telegraphy Examination for an Amateur Radio Operator License*" which is contained on page 4 of the application. The "*Patient's Release*" must be signed and dated by the applicant. Disabled applicants who cannot sign their name should have their "mark" witnessed. No other form or letter is permitted.

(15) The VE Team will place the letter "H" in the *Administering VE's Report* section of the Form 610 opposite Line "B" and under "1(C) indicating "H"andicapped code credit. Three VEs must certify in Section II-B.

(16) The VE team at a convened examination session will immediately issue a 365-day term *Certificate of Successful Completion of Examination* (CSCE) for 20 wpm telegraphy credit upon receipt of a properly completed FCC Form 610 from a severely handicapped examinee who has passed 5 wpm. The date on the CSCE must be the date of the test session. After one year, the handicapped applicant must obtain another doctor's certification if the required written examination(s) necessary for further upgrade have not been completed.

(17) Since a 20 wpm telegraphy exemption (and not a rule "waiver") is being granted, no FCC decision is needed. Therefore, provided all other examination requirements have been met, currently licensed handicapped applicants do not need to wait for receipt of their new upgraded license to begin using their newly obtained privileges.

(18) Volunteer Examiners are not permitted to question the medical judgement of the certifying physician, nor may they refuse to process a properly completed application. VEs and/or VECs may, however, contact the physician for the purpose of verifying the signature. They may also ask if they saw/read the "*Information for Physicians*" contained on page 4 the Form 610. If the VE team has substantial evidence that credit is being given improperly, they should attach a signed letter to the front of the Form 610 application. These Form 610's are routinely referred to the FCC's Personal Radio Branch for further investigation.

MILITARY PHONE HOME FREE OVER HOLIDAYS

Army, Navy, Air Force and Marine Corps military personnel stationed overseas will be able to place free long distance phone calls beginning Thanksgiving Day through Jan. 3, 1993, to anywhere in the U.S.

The Armed Forces *Military Affiliate Radio System* (MARS) and MCI Communications Corp. have teamed up to provide this program for service men and women who will not be traveling back to the United States over the holiday season.

MARS stations throughout the world, in contact with 185 designated MARS stations in the U.S., will patch the phone calls to family and friends of service people over the MCI long distance network at no charge.

MARS, founded more than 40 years ago, is the post-World War II successor to the *Army Amateur Radio System,* AARS. MARS is comprised of individual short-wave radio systems in the Army, Air Force and Navy-Marine Corps. The membership consists of approximately 8,000 volunteer civilian amateur radio operators, with some volunteer military members at military bases and aboard ships.

Although civilian MARS operators are FCC licensed amateur radio operators, they operate on government frequencies located outside the ham bands using specially assigned military call signs. Some MARS messages, however, find their way into the amateur bands through liaison with the National Traffic System.

Information about MARS can be obtained from: Air Force MARS, Scott AFB, Il 62225-6001, Navy-Marine Corps MARS, Washington, DC 20390-5161 and Army MARS, Ft., Huachuca, AZ 85613.

NOVICE/TECHNICIAN QUESTION POOLS RELEASED

The VECs *Question Pool Committee* (QPC) has completed work on a newly revised Element 2 and 3(A) Question pool. These two elements make up the sole requirement for the Codeless Technician examination. An ASCII text computer disk with the new questions, multiple choices and answers identified has been forwarded to all known license preparation publishers and VECs. License preparation publishers are being asked to have their new study material on the shelves in the publishing marketplace on May 1, 1993.

VEs must begin using the new questions in all Element 2/Novice and 3(A)/Technician examinations administered after July 1, 1993. This will allow a 60 period between the availability of study material and use of the new questions in examinations. The new pools have approximately 10% less questions than the current questions. Here is a comparison between the current and new questions pools:

	QUESTIONS IN:		
Element 2 - Novice	Current Pool	New Pool	Exam-nation
1 - FCC Rules	112	112	10
2 - Operating Procedures	48	35	2
3 - Radio Wave Propagation	18	12	1
4 - Amateur Radio Practice	45	44	4
5 - Electrical Principles	44	44	4
6 - Circuit Components	21	23	2
7 - Practical Circuits	20	24	2
8 - Signals & Emissions	23	22	2
9 - Antennas & Feedlines	39	33	3
Total:	**370**	**349**	**30**

Element 3(A) - Technician	Current	New	Exam
1 - FCC Rules	63	55	5
2 - Operating Procedures	30	41	3
3 - Radio Wave Propagation	30	33	3
4 - Amateur Radio Practice	44	53	4
5 - Electrical Principles	34	22	2
6 - Circuit Components	37	25	2
7 - Practical Circuits	17	11	1
8 - Signals & Emissions	28	22	2
9 - Antennas & Feedlines	42	33	3
Total:	**325**	**295**	**25**

A new five-character question numbering system has been used beginning with this revision of the Novice and Technician question pools. It will completely replace the old numbering system as the Question Pool Committee revises the pools. Every question designator will be five characters in length. Hyphens between characters will not be used.

The **first character** indicates the class of the question pool: N = Novice, T = Technician, G = General, A = Advanced, and E = Extra.

The **second character** is the subelement number (1 through 9) of the question per §97.503(c).

The **third character** is always a letter of the alphabet and refers to the general topic of the question, as specified in the syllabus. There are always as many topics within a subelement as there are required questions. If Part §97.503(c) requires an examination to have four questions from one subelement, then there will be four syllabus topics within the subelement, and the letters A, B, C and D will be used as the third character for those questions.

The **fourth and fifth characters** are the question number within the syllabus topic. Two characters are always used, even if the numbers that are normally a single digit (a zero is used as the "tens" digit for the numbers 1 through 9.) There are no fewer than ten questions within each topic.

For example, question designated "N4C05" would indicate:

N: Novice question pool
4: Subelement 4, *Amateur Radio Practices*
C: Syllabus topic 3, *SWR meaning and measurements*
05: Fifth question within this topic

The wording of the Novice and Technician questions were simplified so as to be on a Junior High and High School level. The wording of **every** question was changed or revised in some form.

The two new pools have been incorporated into an **Element 2 & 3(A) Question Pool booklet** which contains the syllabus and all (644) Novice and Technician questions, multiple choices and answers.

This booklet is available now from the: **W5YI Group, Inc. P.O. Box 565101, Dallas, TX 75356-5101** at a cost of $2.50 - plus $1.00 shipping charge.

The **ASCII text computer disk** of all new Novice and Technician questions is $2.00 plus $1.00 shipping charge. Both the new Novice/Technician Question Pool booklet and ASCII disk shipped together is $5.00 postpaid.

In a letter to all Volunteer-Examiner Coordinators, QPC Chairman ***Ray Adams, N4BAQ*** said "We recognize the widespread opinion in Amateur Radio that neither 5 questions on *Operating practices* (2 from the Novice and 3 from the Technician Pool) nor 8 questions on *Amateur radio practices* (4 from the Novice pool and 4 from the Technician pool) constitute an adequate examination on these subjects to demonstrate qualifications for actually beginning operations as an amateur operator. No judgement by any party on that matter is permitted by the present wording of §97.503(c) [which specifies a certain number of questions from each subelement.]"

Adams asks the VECs to support a petition to delete §97.503(c) from the rules leaving §97.523 to control the topics on each exam. §97.523 simply requires that each question pool contain at least ten times the number of questions required for a single examination without specifying the topics.

PRIVATIZING COMMERCIAL RADIO OPERATOR EXAMINATIONS - PR DOCKET 92-206

Both the ***National Association of Radio and Telecommunications Engineers*** (NARTE) and the ***National Association of Business and Educational Radio*** (NABER) have submitted Reply Comments on the FCC's proposal to privatize commercial radio operator licenses.

NARTE believes that if too many examiners are appointed "...it will be difficult for these examiners to maintain economic viability, even if they are nonprofit organizations. In the Amateur Radio Service, there are more than 60,000 licenses issued each year by the 18 Volunteer-Examiner Coordinators, as compared to only 9,200 licenses to be issued by the entities chosen to administer commercial operator examinations." NARTE agrees with the comment of NABER that no more than five examiner entities should be appointed to coordinate commercial radio operator licenses.

NARTE also believes that the appointed examiners should be restricted to nonprofit organizations who are experienced in administering radio operator licensing/-certification examinations who have a mechanism in place to ensure that the examination will be updated to reflect industry developments. They feel that the organizations appointed to conduct examinations should also update and improve the examination questions.

NARTE agrees that each examination should be compiled by a random selection from a large question bank but disagrees that each testing organization should be required to use the same questions.

"As a further cost-cutting measure, NARTE would advocate that the examiner entities be allowed to print a commercial radio operator license for each person successfully completing the examination. This license could be forwarded to the Commission for registration and to have the Commission's official seal affixed to it." NARTE also supports the reimposition of licensing requirements for telecommunications technicians and engineers.

NABER also supports the FCC's plan to privatize the administration of commercial radio operator examinations which "...will permit the examinations to be given at more sites and more frequently." NABER urged multiple testing organizations and that each entity demonstrate some communications expertise, experience in developing and/or administering tests and the ability to provide test administration nationwide. They were opposed to a set examination fee schedule.

NABER recognized that the FCC may not have the resources to develop questions to be used by the testing groups and recommended that each testing entity be required to develop its own tests which the FCC would then approve. NABER suggested that the FCC retain oversight over the examination fees charged as well as require a "speed of service" standard.

NABER noted that approximately one-half of the parties submitting comments recommended that the Commission certify NABER, NARTE and SBE, the ***Society of Broadcast Engineers*** as commercial radio operator examiners because of their communications expertise and establishment of technician certification programs.

While NARTE urged the FCC to form a testing entity committee made up of representatives from each selected examining group, NABER opposed the creation of such a committee. NABER did not feel that the commercial radio operator testing should be patterned after the successful Amateur Radio examination program since that program lacks adequate oversight over the testing groups and the examinations given.

- ***The European Space Agency has notified AMSAT*** that the separation interface planned to be used to separate the Phase IIID communications satellite from the launch vehicle will not be available. Several new alternative spacecraft separation concepts are being examined at this time. The Phase IIID will now fly on the Ariane-502 mission.

- ***Croatia (9A), Slovenia (S5)*** *and* ***Bosnia-Hercegovina (4N4)*** have been added to the DXCC countries list. The Awards Committee is still contemplating adding ***Macedonia (4N5)*** to the list.

- ***Doug Loughmiller, KO5I, has accepted an appointment*** at the University of Surrey's Spacecraft Engineering Research Unit (UoSAT) in England. Doug began his duties last month as the Manager of the Ground Control Station and of Satellite Mission Operations for both UoS and Surrey Satellite Technology, Ltd. SSTL designs and builds satellites for professional groups such as the *Volunteers in Technical Assistance* (VITA.) Loughmiller was AMSAT-NA president from 1988 to 1991.

- Do you remember we told you about how ***Intel Corp. would be looking for a nmame that can be trademarked*** for their new 586 microprocessor. At least three competitors have been using the 486 designation for their 486 clone chips. Intel has now chosen the name ***"Pentium"*** for their 586 chip which operates at 100 MHz.

- Most of the new connections to the world's largest computer network, the ***government sponsored Internet*** are commercial. The network is funded for and oriented towards education and research. We hear that the *National Science Foundation* is getting ready to kick all commercial users off of Internet.

ARMY-NAVY FOOTBALL GAME BALL
TRACKED BY SATELLITE AND HAM RADIO.

It is 128 miles from Annapolis, Maryland to Veterans Stadium in Philadelphia. No one knows that better than the midshipmen at the U.S. Naval Academy. Every year they run the Army-Navy football game ball from the Academy to the stadium.

Fifty-five teams of runners from the 13th Company sprint approximately two-and-a-half mile legs relaying the ball to two-man teams stationed along the route. The trek takes some 18 hours. Plebes and Third Class midshipmen get the night shift. This year's annual run began Friday, December 4th at noon, and after winding through downtown Baltimore, arrived in Philadelphia on Saturday at dawn, the day of the big game.

But the 1992 football run was different. This year's relay was tracked by state-of-the-art satellite technology. The objective was to have a way for the brigade of midshipmen back at the Academy to follow the progress of the game ball to Philadelphia.

Bob Bruninga, WB4APR, of Glen Burnie, Maryland - who is also the director of the Academy's Satellite Earth station - thought up and implemented the novel experiment. For the past two years, Bob had been testing HF packet radio to link back the position of Naval Academy boats up and down the east coast. He believed he could use 2m packet radio to send back status reports on the progress of the football to Philadelphia. The project was designed to demonstrate automatic position reporting using the Global Positioning System (GPS) satellite and amateur radio packet network.

Global Positioning System Network

There are about 20 GPS satellites in orbit. You can see three to six of those satellites from any point on earth at any given time. A GPS receiver merely listens to multiple satellites and by interpreting the timing differential, determines a three-dimensional position fix every second that is accurate to within 100 yards. It not only can tell you where you are, but your elevation as well. Some also have a serial ASCII output. There is no cost to use the satellites.

Originally a miniaturized GPS receiver, and data link transmitter (a tiny TNC and 2-meter hand-held) was to have been placed inside the football! The low power VHF transceiver operating in the beacon mode would send the serial ASCII data back to the nearby chase vehicle where higher power transmitters would, with the help of 2-m repeaters and ham clubs along the route, digipeat the packet data back to Annapolis.

As game time approached, however, it was decided to place the commercial GPS receiver inside a football helmet so the GPS antenna would have an unobstructed view of the sky. The equipment would be less vulnerable to fumbles. And the small GPS antenna sprouting from a football tucked under someone's arm might not see the GPS satellites.

Surprisingly, the Magellan 5-channel GPS circuit card, the PacComm HandiPacket TNC and the 2-meter transmitter plus eight AA batteries fit nicely in place of the usual water-filled compression pads so the only external equipment on the helmet were the small GPS and 2-m whip antennas.

Transmitting the packet data

To accomplish the data transmission over the extended 128 mile route, members of the Naval Academy W3ADO Amateur Radio Club joined with the 13th company to provide the necessary communication and data links. The midshipmen installed amateur VHF mobile radios and digital packet TNCs in each of the two official chase vehicles and augmented the fleet with three radio equipped private vehicles.

Local ham volunteers set up a VHF station in the Oxford, Pennsylvania, fire house which is used as a halfway rest station and field command post. A series of three amateur 2-meter repeaters along the route provided excellent coverage over the entire 128 mile range. A GPS receiver was also interfaced to the packet modems in the two vans so that their movements in shuttling runners to each of the 64 waypoints could be tracked.

The GPS receiver in the football helmet of the lead runner and the two vans were programmed to transmit a position report once every two minutes over the same two-meter channel as used for voice. Since the three VHF repeaters were independent and not normally linked together, two additional volunteer stations midway between the three repeaters provided automatic relay of the data from repeater to repeater back to the midshipmen at Annapolis.

In Annapolis, the data packets were not only distributed to midshipmen throughout the compound, but W3ADO also retransmitted the positions on HF and UHF satellites. The *Military Affiliate Radio System* (MARS) provided a (Navy) HF frequency (6833.3 KHz) for retransmission to Naval personnel worldwide.

AMSAT permitted use of the OSCAR-21 satellite for downlink on 145.987 MHz to amateurs everywhere! Packet enthusiasts all across the country were encouraged to tune to the HF or AO-21 downlink frequency. North American AO-21 users were asked to use low power to permit the packets to get through every two minutes. Format of the transmission was: FBALL>BEACON: $GPGLL, 3859.45,N,07629.44,W. The "N" is north latitude and "W" for west longitude.

Special PC software which displays an east coast map (which had to be hand drawn) and the movement of the football was available from ***KO4A, John Kohl*** at no cost to those who sent him a formatted 360K disk. You could zoom in from any full PC screen map scale from a thousand to a half mile diameter and see the

coast line, the roads and a little circle indicating the reporting station. QSLs are available to anyone receiving a "running of the football" position report from: WB4APR, 115 Old Farm Ct., Glen Burnie, MD 21060.

Not everything went smoothly!

Although the experiment was considered a complete success, it certainly was not uneventful! Problems with installations in the chase vehicles reduced the number of GPS vehicles from three to two. It was nearly midnight on Thursday (Dec. 3rd) before the football helmet was powered up and operational. The GPS receiver quickly synchronized and within minutes had a fix and was downloading data.

After a little sleep, the next morning (and four hours before the run was due to begin) midshipmen began distributing the software and setting up displays in public places throughout the Academy. One portable display was assembled by the Physics Department for the send-off PEP rally. With 30 minutes to go, both chase vehicles and all displays were operational.

The helmet was initialized and everyone headed for the PEP rally! Amidst speeches and cheers, the football was passed by Academy superintendent Rear Admiral Lynch to the lead runner and his companion donned the GPS helmet and they were off! The runners were joined by the chase vehicle at the main gate and the long trek through the Maryland and Pennsylvania countryside began. To their amazement (and horror) the laptop display showed the position of the two vehicles, but the football helmet was still reporting itself at the starting point!

WB4APR caught up with the helmet at the first two mile exchange point. It was inoperative and they were now down to two GPS systems "We realized that the lead chase vehicle was always within eyesight of the runners and that if we changed its callsign to FOOTBALL instead of CHASE, the objective of reporting the position of the football would still be met."

Bob also told us that after sunset the chase vehicle lost track of the runners for a while in rush hour traffic in Baltimore and the shuttle vehicle had a flat tire with no spare. "We could see each vehicle from 30 miles away - they were right around the corner from each other - but they couldn't find each other!"

Despite the difficulties, the experiment was an outstanding achievement. At game time Saturday, the 13th Company presented the game ball to the football co-captains at Veterans Stadium. The project team demonstrated to the midshipmen a combination of HF, VHF and satellite communications and introduced them to the technology of miniaturized GPS receivers. Members of the ham club gained hands on experience in a tactical environment and had a lot of fun to boot!

The 110 members of the 13th Company learned the advantages of radio communications in managing logistics over an extended range and the thousands of Naval Academy midshipmen at Annapolis were able to share in the excitement as they observed the progress of the football on their display screens. "In the past, the midshipmen never knew what happened to the football until it arrived in Philadelphia."

The distribution of the position reports via the recently installed high speed Naval Academy local area network demonstrated the capabilities of distributed processing power similar to the future networks anticipated on Naval ships.

The future of GPS and Amateur Radio

Bruninga told us that his long term goal is to eventually establish a series of digipeaters in the Chesapeake Bay area so that amateur radio operators who have GPS and LORAN-C navigation equipment on their boat can use this technique to keep track of where other amateur boaters are located.

"We are next going to disassemble the football helmet and put all of the equipment in a small bread tin and use duct tape to attach it to the top of a vehicle. Several vehicles so equipped would be able to see where everyone is if they are all tuned to the same 2-meter repeater."

The cost of GPS cards has been coming down drastically! A GPS receiver card that cost $1,000 last year and "...is now down to $400 and by next year will be $200. You're going to start seeing them in everything from cars coming out of Detroit to hand-held 'calculators.'"

The one Bob uses is "...a prototype version with an ASCII RS-232 serial data output at 4800/9600 baud but no LCD readout. The circuit card is smaller than a pack of cigarettes. It is just crying to be used in the amateur radio service. Half of the special and public service events we do in ham radio is trying to keep track of something."

"GPS positioning is ideal for the recent wave of amateur radio carrying balloon launches. You will be able to know where your balloon is at all times. ***W3IWI, Tom Clark*** is looking at using GPS on the amateur satellites so that the satellites will know where they are so they can compute their own tracking information directly."

"I foresee that every amateur's car will have GPS. Amateurs will be able to have a full color display map of where everyone is located. We will be able to go into a public service event better technically equipped than government and local officials. Amateurs who don't have GPS still will be able to be seen on a graphic display map if they know their coordinates. They would merely enter in their location through a keypad to give your computer a real time display of the packet network in your area. Instantly you can look at the map and say, 'Hey, I can digipeat through Joe to get to Sam' because Joe and Sam will be displayed."