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 reporduced providing credit is given to The W5YI Report.

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★ *In This Issue* ★

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VEC's HOLD ANNUAL HAM TESTING CONFERENCE

Volunteer Examiner Coordinators representing more than 98% of all amateur radio operator license examinations conducted in the Amateur Service met on June 17 and 18 in Gettysburg, PA at their annual conference. Eleven out of the eighteen VEC's were present at the meeting along with numerous FCC Gettysburg, PA, and Washington, DC officials. Also in attendance were representatives from the American Radio Relay League, the National Amateur Radio Association and various Amateur Radio training and publishing groups.

Question pools

The Thursday working meeting included a report from the VEC's Question Pool Committee who are charged with developing and revising all written Amateur Radio examination questions. WCARS-VEC Ray Adams N4BAQ, QPC Chairman, covered the reasoning behind the new Element 2 (Novice) and 3A (Technician) question pools which go into effect on July 1.

He also presented a schedule for updating the Element 3B (General) pool. The approved revision schedule calls for new General Class questions to be released to the public on December 1, 1993 and to be used effective July 1, 1994, in all examinations administered by VEs. Revised Advanced (4A) questions will be implemented on July 1, 1995; Amateur Extra Class (4B) on July 1, 1996.

A motion was made and seconded requiring all VEC's and VE teams to use only the answers and distractors (wrong answer choices) provided by the Question Pool Committee. The motion was adopted and VE teams will not be permitted to deviate from the QPC provided multiple choice answers although they may change the order of the multiple choices.

Telegraphy standard

Jim Georgias, W9JUG, who heads up the Great Lakes VEC led the discussion on the Morse Code examination process. He pointed out that applicants are sometimes improperly passing the 5 words-per-minute telegraphy examination and then going to their doctor to obtain a falsely claimed exemption for the 13 and 20 words-per-minute telegraphy requirement. It was recommended that the FCC follow-up every telegraphy exemption request to verify that the doctor agrees that handicap code credit is justified.

For the first time, the VEC's adopted a telegraphy examination standard which must be used on all code exams administered in the VEC System. Only one minute solid copy, answering seven-out-of-ten questions or multiple-choice code exams may be used to prove telegraphy knowledge.

If the multiple choice answer format is used, then there must be ten questions with seven correct passing. A minimum of 4 choices (answer/distractors) must be included on all

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multiple choice questions. No True/False code exams or transcriptions of the telegraphy text with ten missing words will be permitted. The new standard must be put into effect as soon as possible but no later than January 1, 1994.

If seven-out-of-ten questions or multiple-choice telegraphy answer formats are used, then the VE team must also submit the applicant's answer sheet to their VEC showing what the applicant actually wrote down. VE teams and VECs should review the code transcribed by the examinee to determine that he/she was able to answer the examination questions from the copied text.

Paperwork efficiency

Gordon Girton W6NLG, of the Sunnyvale VEC led a discussion on automated (electronic) filing of Form 610 Amateur Radio Operator applications and the importance of the FCC consulting with VECs before finalizing the form and procedures.

On the subject of standardization of Certificates of Successful Completion of Examination (CSCE), the Conference decided that standardization is impractical since many VECs already have large quantities of forms on hand which would have to be discarded. A motion to require examinee signatures on all CSCE's was adopted.

Don Tunstill, WB4HOK submitted a report on the Tech Plus database. Technician Class amateurs who obtain Novice HF privileges by passing a code test are not issued another "Technician Plus" license. Instead, a computerized list is kept for the FCC which includes all Technician licensees who have passed a telegraphy examination. Tunstill also discussed the need to develop a funding plan for the VEC Conference to repay its expenses.

Question topic requirements

Ray Adams, discussed the possibility of deleting Part 97.503(c). This Rule requires that a certain number of questions be asked from each of the nine topics (sub-elements). It was generally felt that the Question Pool Committee could better determine the proper mix of question topics to be asked in each of the five written examinations.

A motion to support the development of a petition to the FCC by the Question Pool Committee to revise or delete the written element standards of Section 97.503(c) was approved by the VEC Conference. This will allow the QPC to place more emphasis on needed topics, such as Amateur Radio rules, practices and station operating procedures for beginners - and to highlight technical subjects at the higher class levels.

Presentation by FCC

The meeting on Friday, June 18th, was primarily devoted to presentations and discussions with the FCC. In attendance were many Commission officials, including Ralph Haller, Private Radio Bureau Chief; Bob McNamara, Special Services Division Chief; John Johnston, Personal Radio Branch Chief; Bill Cross, Communications Specialist; and attorneys, Tom Fitz-Gibbon, Monty DePont, and Carol Fox-Foelak.

The Gettysburg licensing facility was represented by Marcus Stevens, Special Services Branch Chief, his assistant Larry Weikert; Amateur Section Supervisor, Darlene Reeder and Judy Dunlap from their data processing department.

Johnny Johnston gave lengthy, and very interesting remarks on rulemaking plans that could impact Amateur Radio testing including the recent shift of Novice examinations to the VEC System effective July 1. He said the VEC System is more efficient than the Novice program and simplifies and standardizes the Amateur examination process.

Johnston noted that the one-millionth examination will be administered under the VEC System within a couple of weeks. While the "late-filed application" rate could be improved, "defective applications" are down to an excellent 0.2%. (Novice program application errors were nearly 10%.)

Club and military recreation station call signs

Johnston reviewed the new club and military recreation station call sign procedure which was approved by recent legislation. Voluntary, uncompensated and unreimbursed tax-exempt non-profit organizations will be granted blocks of 2-by-3 call signs which they will issue to Amateur groups. Each Call Sign Administrator must provide a monthly data file to the FCC of call signs issued. Administrators selected will be asked to request call sign blocks from the NA to NZ prefixes in descending order of preference.

Temporary foreign licensing

A new foreign visiting amateur licensing procedure under consideration will allow foreign amateurs to operate their Amateur Radio equipment in the U.S. for a period of up to 60 days. FCC rules authorize it to qualify and license amateur operators itself or issue a reciprocal permit based on a license granted by another government.

Under the Instant Temporary Licensing program, a foreign Amateur would be given credit for 8 of the 9 examination topics - all except FCC Regulations. VEs would then administer a short multiple-choice Rules exam. If passed, the VE team would issue a Certificate of Successful Completion on the spot. The

twenty question examination would be prepared from the Rules section of each of the five question pools. The CSCE would authorize the alien Amateur to immediately operate Amateur transmitters in the United States or its possessions for up to a sixty day term.

Commercial radio operator

Johnny Johnston then covered the privatization of Commercial Radio Operator license exams. The new Part 13 Commercial Radio examination Rules are based on the successful VEC system as defined in Subpart F of the Part 97 Amateur Service Rules. Commercial Operator License Examination Managers (COLEMs) will administer exams and issue a PPC (proof of passing) certificate. The applicant then sends this document along with an application to the FCC who will issue the Commercial Radio Operator license. Commercial Operator question pools are now in the process of being determined by the FCC.

Examination accountability

The problem of holding three administering VEs accountable for examination irregularities was discussed. It is difficult to hold more than one examiner accountable and expensive to police. The initial "Dayton production-line model" may be better. (The first non-FCC ham exams were administered in 1984 at the Dayton HamVention with Ralph Haller from the FCC in attendance.)

Under that procedure, examinees are routed to a central desk where an official approves the examination results and ensures compliance with the Rules. The FCC asked if there is a better "accountability system" to ensure compliance with the Rules and invited a petition. Johnston also discussed the prohibition of VE's distributing license preparation materials to the public.

Amateur radio call signs

On the subject of call signs, Johnston said the Amateur Radio Call Sign System adopted in 1978 provides for 7 prefix blocks, 93 prefixes (AA-AL, K, KA-KZ, N, NA-NZ, W, WA-WZ), 5 format arrangements (1x2, 1x3, 2x1, 2x2, 2x3) in each of 10 regions. Although a total of 14,888,860 combinations are possible, only 4% of the available call signs are assigned. Currently the FCC is processing about 125,000 applications annually at an annual cost of 2.5 work years.

The FCC does not have ability to assign specific call signs and the present Group A, B, C, D will remain. A new computer system coming on line shortly is being programmed, however, to provide personalized Amateur call signs which would require a fee. Johnston would like that fee to go to the FCC to help finance Amateur Radio administration. This would require Congressional legislation.

In the future it might be possible for Amateurs to obtain any unassigned call sign, "will" call signs to heirs or friends ...or retire it permanently. Johnston also said the FCC was currently considering a system that would allow new hams to become control operators immediately after passing the required examinations.

The instant operation authorization would utilize a temporary self-assigned call sign from WZ-by-3 cal sign block. A new Amateur would use his initials and the appropriate identifier indicating that the examinee had upgraded to a specific license class. For example: WZ5FOM/AE could be used by Frederick O. Maia if his first license was Amateur Extra Class until his permanent license was received from the Commission.

FCC Chief-of-Staff stops by conference

Private Radio Bureau Chief Ralph Haller introduced Brian Fontes (Chairman Quello's Chief of Staff) who discussed the budgetary difficulties of the Commission and how private sector programs such as the VEC System and privatized Commercial Radio testing assists in this area.

He outlined FCC expenditures and workload; 80 - 85% of budget is staff. The Commission will start off the fiscal year with a 15 million shortfall and will have to give a mandatory five day furlough to everyone to make up the deficit. It will be taken as 5 one-day shutdowns for all FCC personnel. Fontes praised the FCC staff for their hard work.

Ralph Haller announced selection of Fred Maia and the W5YI Group, Inc., as one of the nine COLEMs (Commercial Operator License Examination Managers) who will manage the newly privatized commercial radio testing program.

Gettysburg computer system

Larry Weikert, who works in the FCC's Gettysburg, PA, Special Services Branch, discussed the new PC-based computer system that will be coming on-line at the end of the year. The present Honeywell mainframe computer is badly out-of-date and will be retired in late 1994. Beginning in October 1993, two parallel systems will be used.

Among the new services to be offered will be renewal notices and the issuance of Technician Plus licenses which will have to be submitted by the VECs. The new system will be capable to issuing "vanity" call signs, reserved (for 10 years) and lifetime retired call signs at a higher fee. An applicant could list up to five call signs and the first available call would be assigned

"We could have two types of reserve calls. One; upon notification, a current holder of a call sign could reserve his/her call for assignment only to a designated club station or to a designated person upon that person becoming eligible for a call sign in that group.

"Second, anyone, amateur or non-amateur could reserve any available call sign. This reserved call would be available for assignment only to a designated club station or to a designated person, including the person making the reservation upon that person becoming eligible for a call sign in that group.

"A the last is retired call signs. This would allow anyone, but mainly the current holder to, retire a specific call sign so that it is never reassigned. Vanity, reserved and retired calls will be made available to the amateur community upon approval from Congress to collect a fee for the administration of this personalized call sign system. We will use a separate form for this program. Reserve and retired calls could be held for ten years with the option to renew. Retired calls could be on a permanent basis for a higher fee.

"The vanity, reserved and retired system would be in addition to the routine call sign assignment that we use today. Although no decision has been made, we might allow a six month period for the applying for vanity, reserved and retired calls. After that period, those old calls that are still not assigned could be made available to fill in those areas in the groups that have been exhausted."

Electronic Amateur Radio application filing should be in place by 1994. VECs, using a PC running a "Windows" computer program, will be able to file Form 610's with the FCC, Gettysburg. The filing could be done by modem to a bulletin board setup located in Gettysburg, a submitted diskette ...or mailed to the FCC as it is done today.

"Depending on backlog in Key Entry (Department), licenses could be issued in seven to ten days. Diskettes received in the mail line would be taken the Key Entry (and) licenses could be granted in three or four days. Electronic filed licenses could be granted in one or two days after being transmitted to the Commission."

Weikert handed out a new draft "610" form and asked the VECs for feedback on the new form by July 1st. Questions about electronic filing were fielded by technical personnel from the FCC's Washington DC Office of Managing Director. (Robert Snow, Linda Gunter and John Stine.)

Fred Maia of the W5YI-VEC gave a slide presentation of examinations conducted during the Dallas Ham-Com Convention which featured automated Form 610 printing. He also demonstrated computer software being developed by his staff to report examination results to the VEC by examining teams.

Reducing examination irregularities

Carol Fox-Foelak, of the FCC's Compliance Department discussed preventing unqualified licensees. The handicap telegraphy exemption program is being abused. To reduce misuse, the new rewritten Form 610 will contain a more complete doctor's information and certification section. FCC Gettysburg has been asking doctors to confirm medical conditions and many telegraphy exemptions have been denied.

If at all possible, compliance problems should be prevented before they reach the FCC level. VECs should intercept irregularities and invalidate questionable test sessions to avoid lengthy and expensive FCC involvement.

VEC Instructions

Greater Los Angeles ARG's R.C. Smith, W6RZA, VEC Instructions Committee Chairman, highlighted proposed changes to the Guidelines which were distributed and discussed. It is the Instructions Committee that writes the VEC Program directions which are approved by the FCC. It was voted to amend the VEC Guidelines to read that "...amendments to the VEC Guidelines could be initiated and voted upon at any properly called annual conference and shall be accepted on concurrence of a majority of VEC organizations present" rather than by a majority of the 18 VEC's.

Next year's conference will be held on June 16 and 17 in Gettysburg. CAVEC's Don Tunstill was nominated and elected unanimously as next year's moderator. All other VEC committees were renominated and elected for another year. Don Tunstill asked for NCVEC permission to create a Rules committee. A closing round-table discussion was led by Johnny Johnston who praised the VECs for their comments and cooperation.

- ***James W. Thomas W9OAG,*** of Evansville, IN, wrote the FCC stating that he had received two Official Observer notices during the past two years for transmitting taped messages on the air that were considered to be "broadcasting." He asked the FCC for a clarification.

The FCC said there is no prohibition against transmitting audio tapes on the ham bands as long as the information conveyed is "...directed only to amateur operators that consists of subject matter of direct interest to the Amateur Service." The transmission is considered to be "broadcasting" and prohibited if intended for reception by the general public.

ONE MILLION HAM OPERATORS BY 1998?

The Technician Class continues to be the fastest growing ham class by far. Up until 1991, the Amateur Service grew at a trickle under 3%. Thanks to the arrival of the Codeless Technician ticket in 1991, ham radio now healthy and increasing at nearly a 10% rate. The Technician Class is expanding even faster, around 20%.

In 1985, one amateur in five was a Technician. Five years later (1990) it was one in four. Today, one third of all ham operators hold the Technician Class. If the current trends continue, in four years (late 1997) fifty percent of all amateurs will be a Tech. And by the end of 1998, we could have one million licensed ham operators!

The big unknown is the effect of renewals which will be resuming at year end after a five year hiatus. The five year void was caused by the difference between the previous five year term and the new ten year license which began in 1984. Between Jan. 1989 and Dec. 1993, there have been no renewals - and no one has been dropped from the ham operator rolls.

The FCC is now in the process of developing a procedure to remind amateurs to renew their license. Instead of filing out a Form 610 application, amateurs (with no information or address changes) will simply return a postal card sized reminder to renew for another ten years.

Here is what has happened to the Technician Class since 1985 - and what the amateur census could look like down the road:

April Year	Total Techs	% of Total	Licensed Amateurs	Techs Inc.	Amateurs Inc.
1985	80906	19.7%	410622		
1986	85022	20.3%	418917	+5.1%	+2.0%
1987	86118	20.4%	422933	1.3%	1.0%
1988	95810	22.0%	434983	11.3%	2.9%
1989	106341	23.5%	452919	11.0%	4.1%
1990	112214	24.5%	457369	5.5%	1.0%
1991	134655	26.3%	512918	20.0%	12.1%
1992	171803	30.6%	561157	27.6%	9.4%
1993	203873	33.8%	603717	18.7%	7.6%
Average Increase Technicians*:				**30,600**	**+22.1%**
Average Increase Amateurs*:				**48,800**	**+ 9.7%**
New Technicians*: (*=Since 1990)				**91,659**	
Amateur Growth since 1990:				**146,348**	
% of Growth Due to New Techs:				**62.6%**	
1994	244650	38.2%	640100	20.0	10.0
1995	293600	40.2%	730500	20.0	10.0
1996	352300	43.8%	803500	20.0	10.0
1997	422750	47.8%	884000	20.0	10.0
1998	507300	52.2%	972300	20.0	10.0
1999	608750	56.9%	1070000	20.0	10.0
2000	730500	62.1%	1176500	20.0	10.0

APRIL VE PROGRAM STATISTICS

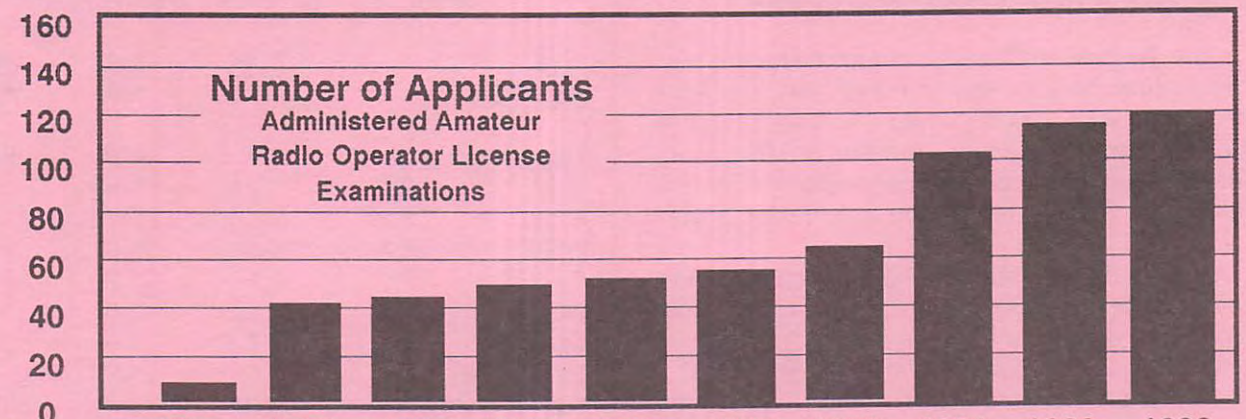
April	1991	1992	1993
No. VEC's	*18	*18	*18
Testing Sessions	711	970	930
VEC	1991	1992	1993
ARRL	32.1%	46.3%	49.5%
W5YI	47.7	38.4	36.6
CAVEC	6.5	3.6	3.3
WCARS	1.7	2.0	2.5
GtLakes	4.6	3.2	0.9
Others (13)	7.4	6.5	7.2
Year-to-Date Sessions	2199	3364	3379
Elements Administ.	18506	22349	18651
VEC	1991	1992	1993
ARRL	37.3%	53.3%	55.2%
W5YI	38.4	29.9	27.3
CAVEC	7.6	2.8	3.5
WCARS	1.5	2.2	3.0
GtLakes	3.5	2.6	0.9
Others (13)	11.7	9.2	10.1
Year-to-Date Elements	47992	74935	65092
Applicants Tested	10779	13360	10996
VEC	1991	1992	1993
ARRL	37.2%	53.1%	54.5%
W5YI	39.2	30.4	28.4
CAVEC	6.7	2.6	3.3
WCARS	1.5	2.2	2.8
GtLakes	3.9	2.9	1.0
Others (13)	11.5	8.8	10.0
Year-to-Date Tested	28593	44267	38165

April	1991	1992	1993
Pass Rate - All	66.8%	66.2%	65.9%
Applicants/Session	15.2	13.8	11.8
Elements/Applicant	1.7	1.7	1.7
Sessions Per VEC	39.5	53.9	51.7

Administrative Errors by VE's/VEC's			
April	1991	1992	1993
Defect. Applications	0.9%	0.4%	0.2%
Late Filed Sessions	1.7%	1.0%	1.2%
Defective Reports	0.3%	0.3%	0.0%

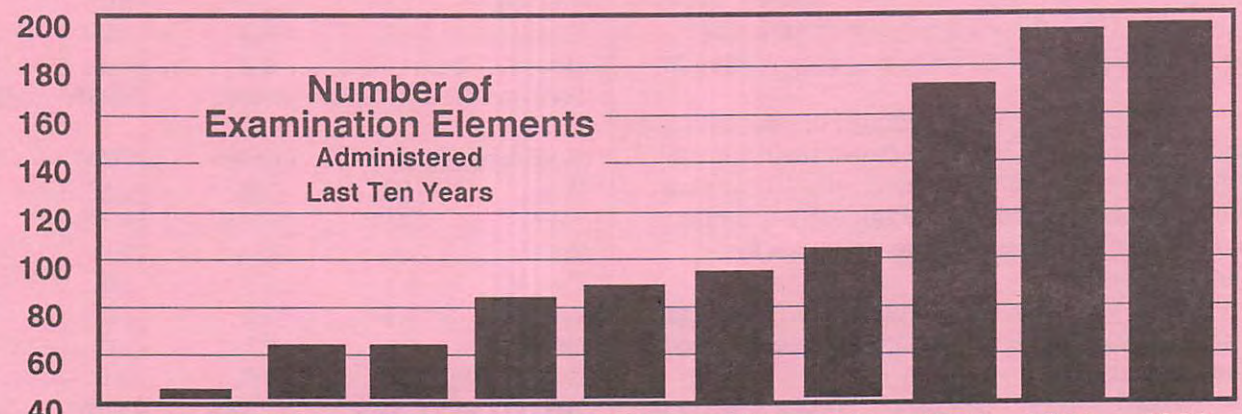
Note: The initial surge by newcomers to obtain No-Code Technician ham tickets is over. Although there was just about the same number of test sessions conducted during the first four months of 1993 there were about 15% less exam elements administered than in 1992. The good news is that the number of applicants taking ham tests is still 67% greater than before "code-free" hamming. (1990: 6594 applicants, 1993: 10,996)

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



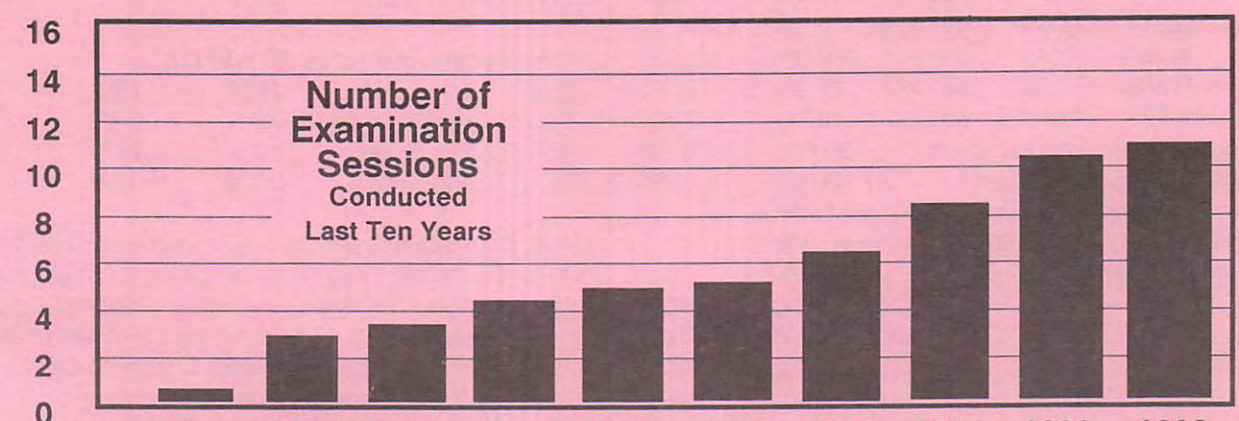
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Thousands										
Total Applicants	8599	41439	42422	49728	53546	57417	64737	103251	115852	120000
Per Session	21	13	11	11	11	10	10	13	12	11

Testing Growth Under VEC System



	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Thousands	12633	62589	61921	81042	89788	96092	105763	172061	193521	195,000

1993 Estimated - Includes Novice



	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Thousands	413	3223	3784	4378	4903	5486	6250	8118	10016	10500

• Technically oriented officials from the ARRL are scheduled to participate in a tutorial for the FCC's Office of Engineering and Technology on June 29th. The subject matter is "RECENT DEVELOPMENTS IN AMATEUR RADIO." The tutorial will be presented by Technical Relations Manager Paul Rinaldo W4RI with assistance from ARRL Senior Engineer Jon Bloom KE3Z and AMSAT's Dick Daniels.

The topics to be covered include: Digital Communications (Clover, Pactor, Network Development, Error Control); RF Developments (Propagation Studies, Antenna Computer Modeling, Narrow Band Microwave Systems); Digital Signal Processing (Adaptive filter technology, DSP Data Communications, Signal Generation); Design and Construction (Software for Amateur Radio, Hardware Development & Construction); Amateur Satellite Programs (Soviet Union in Low Earth Orbit, AMSAT, OSCARS, UOSAT, ARSENE); Improved Techniques/New Experiments (Digital Protocols, Higher Data Rates, Better Pictures of the Earth, Science Experiments); Manned Space-Amateur Radio-Education Interplay (Continued MIR Operations, SAREX & the Astronaut Corps, Space and the Schools); and Future Systems (More Microsats, Phase 3D, Higher Orbits, Frequencies & Data Rates, The Space Station, Digital Voice, Advanced Packet, Image Communications ...and more. The tutorial will be held in the Commission Meeting Room at 1:30 p.m.

• SAREX and Amateur Radio, in general, got good PR last week when President Clinton held a telephone conference with the STS-57 crew. During his address to the astronauts, President Clinton commended the astronauts, the SAREX team and the Amateur Radio community for their outstanding support to students around the world. Clinton said "I understand later in the mission Janice (Voss) and Brian (Duffy N5WQW) are going to be talking to school children around the world. ...I want to tell you how much I appreciate the fact that you're making an international educational project out of this mission." Duffy responded "Mr. President, we find that using Amateur Radio is an excellent way of communicating with children all around the world, and we're also able to excite them by using space and science. And by letting them see space and science in action, we're able to excite them and hope they'll study harder." The President finished, "You have no idea -- you may be on this mission creating thousands of scientists for the future just be the power of your example and by this direct communication. I think sometimes we underestimate the impact that human contact in an enormously impressive setting like this can have on children all across the world -- not only those with whom you'll talk, but millions of others who will just see it and know that it happened."

• On Oct. 28, 1992, the President signed the TDDRA *(Telephone Disclosure and Dispute Resolution Act)* into law. It required the FCC to deny equipment authorization for certain scanning receivers capable of receiving cellular radio communications. TDDRA also required that the FCC report to Congress on available security features for cellular radio signals. That report was released on June 1st. Here are some excerpts from the 17 page report:

Scanners are radio receivers that can automatically switch between four or more frequencies anywhere within the 30-960 MHz band. The *Electronic Communications Privacy Act of 1986* made it illegal to intentionally intercept cellular communications or to manufacture equipment primarily useful for the surreptitious interception of cellular communications.

On April 19, 1993, the FCC prohibited the manufacture or importation of scanning receivers capable of tuning cellular radio frequencies at 824-849 and 869-894 MHz. Almost all current cellular radio operations employ unencrypted, standard FM modulation. A simple FM receiver that can tune to the cellular frequencies is all that is required to listen to cellular telephone conversations that are transmitted using standard FM modulation.

A scanning receiver can quickly scan through all the channels, identify the ones in use at a particular location, and be programmed to monitor those channels. The scanner will tune through each of the channels programmed by the user and stop whenever it detects a conversation. To better increase the chances of eavesdropping on a particular conversation, multiple scanners and audio recorders can be used.

The current analog cellular technical standard has its roots in technology developed more than 20 years ago and was never envisioned to be voice-secure. In the last few months, however, several manufacturers have announced voice security products for analog cellular systems which scramble the voice portion of a cellular signal resulting in a sound that is virtually unintelligible. A major draw back to "frequency inversion" scrambling is that the operating range can be reduced by as much as 60 percent. It therefore has gained little support.

Spread spectrum encryption overcomes this problem but the cost of cellular units is increased. AT&T offers encryption technology but at an increased cost to the subscriber and the cellular operator.

Very few cellular phone networks use digital cellular technology. A big advantage is an increase in system communications capacity. Digital technology greatly increases the difficulty of eavesdropping on cellular telephone conversations, but no technique is foolproof. At best, all one can do is try to make decryption extremely difficult and expensive.

The FBI and National Security Agency are concerned that digital techniques will make legal wiretapping and monitoring difficult for law enforcement purposes.

• The FCC has responded to a letter from the ARRL's attorney concerning the conflict-of-interest provision in the Rules and its relationship to VEs who administer amateur operator license examinations.

The ARRL's position "...is that VEs are not precluded by the language of the statute from distributing and selling license preparation materials" especially if the VE is not an owner or an employee of a study materials publisher or distributor.

The FCC did not agree and said "A VE is an entity within the meaning of the statute. There is a conflict-of-interest, therefore, when a VE distributes or sells license preparation materials. The fact that the materials are provided to the examinee at cost is irrelevant. The statutory prohibition is applicable to the distribution and sale of examination materials. The statute is silent with respect to a profit or non-profit factor."

220-MHz BAND RULE MAKING ACTIVITY

Public comments closed on June 15th on the Commission's proposal (ET Docket No. 93-40 NPRM released March 22, 1993) which would permit Amateurs to utilize 219-220 MHz for point-to-point wideband data communications. The FCC's objective is to provide a home for auxiliary station packet backbone networks and other point-to-point fixed communications on a secondary basis that were displaced by the loss of 2 MHz at 220-222.

The Commission said it believes that with "...careful engineering and planning, secondary amateur operations in the 219-220 MHz band will be possible without causing interference to the land mobile operations that are expected to begin soon in the adjacent (220-222 MHz) segment."

As expected, highly conflicting opinions were expressed by Amateurs, maritime communications service providers and industry.

(1.) The ARRL believes the proposal is "...a reasonable attempt to alleviate the frequency congestion in the 222-225 MHz amateur allocation."
(2.) Waterway Communications System, Inc. operates an AMTS service along the Mississippi River. They generally concur, but want additional restrictions to preclude Amateurs interfering with their maritime communications service.
(3.) Orion Telecom operated by Fred W. Daniel W6FNO, says his 25-watt Pacific Coast Automated Maritime Telecommunications System will be put out of business if Amateurs share the same spectrum.
(4.) ProNet, Inc. alleges that its "Electronic Tracking System" surveillance system will be adversely affected if Amateurs gain access to the 219-220 MHz band.
(5.) The Utilities Telecommunications Council is concerned that they will suffer interference since "...the amateur radio community is self-policed and coordinated, and enforcement of sound engineering practices is primarily through 'peer interaction' which varies from region to region."
(6.) Phonic Ear, Inc., wants the FCC to establish a new 216 MHz low-power radio service for services and education to disabled persons and for health care.
Lets go into each of these filings in more detail:

ARRL FAVORS 219-220 MHz AMATEUR ALLOCATION

The League said it made clear during the Docket 87-14 proceeding that the Amateur Radio Service would be harmed and its efforts to establish a reliable, efficient digital inter-city network would be disrupted if the Amateur Service was forced to vacate the 220-222 MHz band ...which it was in August of 1991.

The League wholeheartedly supports the FCC's proposal of a secondary allocation in the 219-220 MHz band to the Amateur Radio Service and believes that Amateur point-to-point digital operations can be accomplished without causing harmful interference to existing users.

The band is shared with the Automated Maritime Telecommunications System, an inland waterways service. The ARRL "...will serve as an information conduit" to avoid harmful interference to AMTS licensees. Amateur repeater coordinators at 222-225 MHz will play an important role at 219-220 MHz. The League feels the notification procedures to prevent interference are reasonable.

Even though a new Interactive Video and Data Service (IVDS) is scheduled to operate in the adjacent 218-219 MHz band and Advanced Television Systems at 216-218 MHz, the League believes that there are still opportunities for additional sharing in the remainder of the 216-220 MHz band.

The League wants (1) the use of the 219-220 MHz segment to be restricted to Technician and higher class licensees, (2) a 100 kHz bandwidth (rather than a 56 kilobaud data rate) and (3) asks that digital voice (as well as digital data) be approved.

WATERCOM APPROVES, URGES MODIFICATIONS

The 216-220 MHz band was allocated to AMTS at the 1979 World Administrative Radio Conference for the purpose of providing a home for telephone-style telecommunications for the maritime user community. Watercom (Waterway Communications System, Inc.) provides these services along the Mississippi River at frequencies between 217 and 219 MHz.

Watercom believes in the premise of unlike services sharing frequencies as long as the priority status is recognized, appropriate technical standards are imposed to preclude interference and effective frequency coordination is implemented.

Watercom considers the Amateur Service to be a good frequency sharing partner, but is concerned that Amateur operations will be concentrated in the 1 MHz of spectrum that is used by vessels which are weaker in signal strength than coast station operations. Both Watercom and ARRL agree that amateurs should notify AMTS operators within 400 miles of AMTS stations rather than the proposed 150 miles.

The FCC declined to designate ARRL as the sole frequency coordinator, instead existing volunteer frequency coordinators will manage the band. While Watercom endorses this suggestion, it asks that the ARRL be notified of frequency assignments to facilitate the collection of a database. Through maintenance of the database, the ARRL will be in a position to notify

amateurs if they foresee a potential interference problem and suggest means of avoidance.

ORION TELECOM: "NO WAY" TO 219 MHz HAMS.

Orion Telecom is operated by Fred W. Daniel, a long-time licensed Amateur, W6FNO. For many years, Daniel operated a 2-meter repeater in Los Angeles which was repeatedly commended for its contribution to public safety and providing emergency aid.

While Daniel regrets the reallocation of the 220-222 MHz band, he recognizes that the Amateur community was not making sufficient use to justify the continued allocation. "Much as he enjoys and is dedicated to Amateur Radio, Daniel must defend his ability to provide the maritime radio communications service which he has been authorized to render to the boating public, which are duly exposed to situations far more perilous than are to be found on the Los Angeles freeways." (An interesting quote from Orion's comments.)

So far, three AMTS systems have been authorized. Watercom serves the Mississippi River, while Paging Systems, Inc. and Orion Telecom operate systems along the Pacific Coast. W6FNO is particularly troubled about AMTS abandoned call attempts, lost calls, customer dissatisfaction and loss of business.

"Most users of commercial radio communications service do not have an understanding of the technical aspects of radio. ...in view of the 25 watt limitation applied to AMTS ship stations, the Commission's proposal to allow Amateur stations at a power of up to 50 watts at a distance of as little as 50 miles from an AMTS station would probably destroy the AMTS station."

Daniel also believes that "...the Commission needs to provide a great deal more mileage separation between AMTS stations and any of the proposed Amateur auxiliary stations." He suggests that "...no Amateur station may operate at a distance of less than 575 miles from an AMTS station without the consent of the AMTS operator." And since so few Amateur stations would be able to operate due to these separation requirements, "...the Commission should abandon this proceeding without action."

He adds that wideband data signals are not compatible with narrowband mobile systems and AMTS would be rendered incapable of reliable operation.

AMATEURS "...COORDINATE WITH LAND MOBILE"

The Utilities Telecommunications Council (UTC) represents 2000 of the nation's electric, gas, water utilities and natural gas pipelines on communications matters. "...virtually all utilities rely on private land mobile communications facilities to support their public service obligations." They soon will be operating on the 220-222 MHz vacated by the Amateur Service.

UTC realizes that technical standards for Amateur licensees must be flexible due to the experimental nature of the service but "...protection of primary radio services must also be considered." The fact that amateur operation will be "...on a secondary or non-interference basis does nothing to minimize the risk of interference. Without adequate safeguards, authorization of a service on a secondary basis, and without a frequency coordination requirement on the secondary licensee, shifts the burden of identifying and proving interference (after-the-fact) to the primary licensee."

UTC notes that the ARRL supported mandatory coordination and disputes the belief that the FCC does not have the authority to require Amateur Service frequency coordination. "Since it appears that some form of coordination will be necessary with respect to AMTS (maritime) operations in the 219-220 MHz band, there is no reason why this requirement should not be extended to protect adjacent band land mobile operations as well."

At the very least, UTC wants a requirement that Amateur licensees notify a single, nationwide point of contact of 219-220 MHz operations to provide 220-222 MHz licensees with the information necessary to identify and correct interference problems.

"BEACON BUCKS" PERILED BY HAM OPERATION

ProNet, Inc., operates a little known law-enforcement service in 22 metropolitan cities under its Electronic Tracking Systems, Inc., subsidiary. ETS technology assists the police by secretly attaching a "mini-tag low power transmitter" to bundles of currency, jewelry or other valuables. It currently has experimental authority to operate at 219.60 MHz. A transmitter is activated when a tagged valuable is stolen and law enforcement authorities equipped with various receiving devices are able to track the criminal.

"During its 20 years of operation, ProNet's ETS has been an unqualified success." ETS says continued development and expansion of their service will be threatened if Amateurs are permitted access to 219-220 MHz. ETS previously petitioned for three channels at 218, 218.5 and 219 MHz but the new Interactive Video Data Service (IVDS) requires that ProNet amend its petition to seek a permanent spectrum allocation elsewhere in the 216-220 MHz band.

ProNet and ARRL have agreed to work together in an effort to reach an understanding and cooperate in the timing of establishing new Amateur services. ETS wants the ARRL to defer initiation of data service as long as possible, encourage operation

that will not interfere with ETS and wants frequency coordinators to take ETS needs into consideration. "ProNet and ARRL also have discussed exploring the possibility of using technology that would disable Amateur Service (operation) during the brief period that an ETS tag is in operation."

NEW LOW POWER FM RADIO SERVICE PROPOSED

Phonic Ear, Inc., of Petaluma, CA, is the nation's leading manufacturer of wireless auditory assistance devices. Their low-power devices are widely used by the hard-of-hearing in schools, theatres, and churches. Similar equipment is used to deliver "descriptive audio" to the sightless.

The *Americans with Disabilities Act* (ADA) requires certain accommodations for the handicapped including "auxiliary aids and services" for the hearing impaired. Wireless audio can provide the most effective means for operators of public facilities to respond to the needs of hard-of-hearing and sight-impaired patrons under the ADA. Hospitals and health care facilities also need spectrum for "patient telemetry" (monitoring) and other short range communications."

On June 2nd, Phonic Ear petitioned the FCC for an allocation in the 216-217 MHz band for a low power ***Disability and Health Care Radio Service.*** The service would be licensed under Part 15 (200 mV/3 meters) and Part 90 (up to a 100 mW maximum.)

In a typical application, a teacher would wear a small microphone and a belt-mounted battery-powered transmitter; the student wears an earphone connected to a receiver adjusted to match his/her individual audiology. At home, a transmitter linked to a TV set allows a hard-of-hearing person to enjoy entertainment along with the rest of the household who have normal hearing. Another application is in public auditoriums.

The current 72-76 MHz allocation is not adequate due to "blanketing interference", congestion, and the existence of high power devices. And certain surgically implanted inner-ear devices preclude the use of 72-76 MHz. The 216-217 MHz band is ideal, however, and is essentially not used due to its proximity to TV Channel 13. Phonic Ear believes a strictly enforced low-power restriction will eliminate any obstacle to television broadcasting. And contrary to past 216-218 MHz proposals, Phonic Ear believes TV interests will support its recommendation since it will assist viewers in receiving their product.

Phonic Ear wants the FCC to designate 20 evenly-spaced channels centered on frequencies starting at 216.025 and ending at 216.975 MHz with channel band width adequate to accommodate higher fidelity reproduction. Station identification would be disruptive and therefore not required.

COMMERCIAL RADIO OPERATOR TESTING

The FCC has announced that nine organizations will manage their newly privatized commercial radio operator license examination program. The first to be chosen was The W5YI Group, Inc., Dallas, Texas.

More than 60 groups applied to become Commercial Operator License Examination Managers (COLEM.) The others selected are the National Association of Business and Educational Radio, International Society of Certified Electronic Technicians, Elkins Institute, Sylvan Learning Systems, Sea School, Drake Training and Technology, Electronic Technicians Association International and the National Association of Radio and Telecommunications Engineers. Each of these organizations will enter into a Memorandum of Agreement with the Government.

Examination managers are responsible for recruiting examiners, establishing testing centers, announcing test sessions, and preparing, administering, grading, and notifying applicants of passed examinations. A "Proof of Passing" document issued by the COLEM to examinees certifies their qualifications.

Common question pools are being developed by the Federal Communications Commission. Approximately twenty-percent of the multiple-choice questions contained in a pool are asked in a single examination.

Commercial radiotelegraph applicants are required to transcribe one minute solid copy. Amateur Extra Class ham operators will be given Morse Code exam credit towards the Second Class Radiotelegraph Operator license but must pass additional written examinations on radio law and operating practices.

The FCC did not establish an exam fee schedule, instead potential commercial examination managers were asked to submit their proposal for conducting privatized commercial radio testing. The W5YI Group said it would provide examinations utilizing both currently licensed Commercial and Amateur Extra Class radio operators as Registered Examiners.

The W5YI Group, Inc., has established a commercial operator testing division known as National Radio Examiners and is in the process of approving examiners. Priority for Chief Examiner status will be given to holders of the General Radiotelephone and Commercial Radiotelegraph Operator licenses.

It will not be necessary, however, that approved Amateur Extra Class level examiners hold a commercial radio license to conduct commercial radio operator testing. Examination fees collected will be shared with Testing Centers. Amateur and Commercial Radio Operators interested in participating as examiners or in establishing a Commercial Operator Testing Center are urged to contact: **The W5YI Group, Inc., National Radio Examiners, P.O. Box 565206, Dallas, Texas 75356. Telephone: (817) 461-6443.**