W5YI

America'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.

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In This Issue...

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New Novice-Technician Ham Exam Questions Released by QPC

On December 1, 1996, the VECs Question Pool Committee released the largest set ever of Element 2 (Novice) and Element 3A (Technician) license examination questions into the public domain. These questions with their multiple choice answers must be used verbatim in all No-Code Technician license examinations beginning July 1, 1997. It is expected that nearly 200,000 examinees will be administered these examinations over the next four years. The new pools will remain in effect until June 30, 2001.

On July 1, 1997, the number of Novice questions appearing in an Element 2 examination will increase to 35 with a score of 26 or more correct passing. The Technician (Element 3A) examination will contain 30 questions with a pass mark of 22 correct. (There are currently 30 Novice exam questions and 25 Technician, a total of 55 questions. The passing mark is 22 and 19.)

You can expect that the new No-Code Technician study guides to be much thicker - with more material to study than previously was the case. And the material will necessarily be more difficult. The new No-Code Technician manuals should be available about May 1st on bookstore shelves everywhere. The new manuals will contain 924 questions versus 632 in the current Novice-Technician question pools - a whopping 46% increase.

The Question Pool Committee

Many Amateurs believe that all ham license examination questions are developed and revised by the FCC. But this is not the case. Ten years ago, the FCC transferred the responsibility for the maintenance of the question pools over to the Volunteer-Examiner Coordinators.

The Part 97 rules require that "All VECs must cooperate in maintaining one question pool for each written examination element. Each question pool must contain at least 10 times the number of questions required for a single examination. Each question pool must be published and made available to the public prior to its use for making a question set." (Section § 97.523)

The VECs, in turn, elect an internal panel at their annual Conference - called the Question Pool Committee (QPC) - to do the actual work of revising of the five question pool sets. Their collaboration is done by electronic mail and it takes nearly a year to revise the outline (syllabus) and questions in each written element pool.

All pools are revised on a four year cycle with the Novice and Technician Classes being handled together since they are the sole requirement for the most popular No-Code ham ticket. The public is also invited to suggest changes to the syllabus and license exam questions. The current QPC consists of Ray Adams N4BAQ (Chairman), Fred Maia W5YI (Vice Chairman) and members: Scotty Neustadter W4WW and Bart Jahnke W4JJ. There is no rest for the QPC. They will begin almost immediately on revising the Element 3B (General

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Class) question pools. The syllabus for 3B must be firmed up by February 1, 1997.

The Part 97 rules (§ 97.503) specify the topics and number of questions required in each question set. For the new Novice (Element 2) and Technician (Element 3A) written examinations:

	Element	
TOPICS IN EXAMINATION:	**2**	**3A**
(1) FCC rules for the amateur radio service	10	5
(2) Amateur station operating procedures	2	3
(3) Radio wave propagation characteristics of amateur service frequency bands	1	3
(4) Amateur radio practices	4	4
(5) Electrical principles as applied to amateur station equipment	4	2
(6) Amateur station equipment circuit components	2	2
(7) Practical circuits employed in amateur station equipment	2	1
(8) Signals and emissions transmitted by amateur stations	2	2
(9) Amateur station antennas and feedlines	3	3
(10) Radiofrequency environmental safety practices at an amateur station	5	5
TOTAL:	**35**	**30**
PASS MARK:	**26**	**22**

There are 46% more questions in the combined Novice and Technician Class pools. Here is a breakdown with a comparison to the current (1993) pools:

	NOVICE		TECHNICIAN	
Question	**1993**	**1997**	**1993**	**1997**
Topic:	**El. 2**	**El. 2**	**El. 3A**	**El. 3A**
1 - Commission Rules	105	123	50	64
2 - Operating Procedures	35	38	41	45
3 - Radio Propagation	12	18	33	39
4 - Amateur Practices	44	50	53	54
5 - Electrical Principles	44	53	22	27
6 - Circuit Components	23	26	25	30
7 - Practical Circuits	24	32	11	20
8 - Signals/Emissions	22	27	22	24
9 - Antennas/Feedlines	33	36	33	41
10 - RF Safety	0	80	0	96
TOTAL QUESTIONS:	342	483	290	441
Increase over previous:		+41.2%		+52.1%
TOTAL Novice/Tech:	**1993: 632**		**1997: 924**	**+46.2%**

Radiofrequency safety practices

You will note that the big increase was primarily caused by the inclusion of the new "RF Safety" topic. There are 176 questions on that subject alone.

The FCC's Office of Engineering and Technology adopted and released a *Report and Order* on August 1, 1996, which had an immediate effective date. The new guidelines incorporate two tiers of exposure limits. These exposure tiers are based on whether exposure could occur in an occupational or "controlled" situation or whether exposure could occur to the general population or in an "uncontrolled" situation.

In the FCC's recent *Report and Order,* certain Amateur radio installations were made subject to routine evaluation for compliance with the FCC's new RF exposure guidelines. Amateur licensees are now expected to demonstrate their knowledge of FCC guidelines through examinations. Applicants for new Amateur licenses and renewals also will be required to show that they have read and that they understand the applicable rules regarding RF exposure.

Before causing or allowing an amateur station to transmit from any place where the operation of the station could cause human exposure to RF radiation levels in excess of the FCC guidelines amateur licensees are now required to take certain actions.

According to Part §97.13(c) routine RF radiation evaluation is required if the transmitter power of the station exceeds 50 watts peak envelope power (PEP.) Otherwise the operation is categorically excluded from routine RF radiation evaluation.

Where routine evaluation of an Amateur station indicates that the RF radiation could be in excess of the FCC-specified limits, the licensee must take action to prevent such an occurrence. Such actions could be in the form of altering operating patterns, relocating antennas, revising a station's technical parameters ...such as frequency, power or emission type or combinations of these and other remedies.

In complying with the Commission's *Report and Order,* the FCC said Amateur operators should follow a policy of prudent avoidance of excessive RF exposure. The FCC said that it "...will continue to rely upon Amateur operators, in constructing and operating their stations, to take steps to ensure that their stations comply with the MPE (Maximum Permissible Exposure) limits for both Amateur operator (controlled) and general public (uncontrolled) situations."

In that regard, Amateur radio operators and members of their immediate household are considered to be in a "controlled environment" and are subject to the occupational/controlled MPE limits. Neighbors who are not members of an Amateur operator's household, are considered to be members of the general public, however, since they cannot reasonably be expected to exercise

control over their exposure. In those cases, general population/uncontrolled exposure MPE limits will apply.

"In order to qualify for use of the occupational exposure criteria, appropriate restrictions on access to high RF areas must be maintained and educational instruction in RF safety must be provided to individuals who are members of the Amateur operator's household."

Person's who are not members of the Amateur operator's household but who are present temporarily on an Amateur operator's property may also be considered to fall under the occupational/controlled designation provided that appropriate information is provided them about RF exposure potential if transmitters are in operation.

Amateur radio facilities represent a special case for determining exposure, since there are almost an infinite number of possible antenna types that could be designed and used for Amateur stations.

The FCC said that "generic equations" can be used for analyzing fields due to almost all antennas, although the resulting estimates for power density may be overly-conservative in some cases.

It was on this basis that the Question Pool Committee decided to utilize the RF exposure tables provided by Dr. Wayne Overbeck, N6NB. With the help of the ARRL Lab, these tables have been refined to come up with estimated distances to meet RF power density guidelines for various antennas, frequency bands, and power limits in both controlled and uncontrolled environments. These sample exclusion distance tables are now part of the Element 2 and 3A question pools.

Here is a sample table based on a 14 MHz (20-meter) frequency. (Controlled limit: 4.59 mw/cm^2, uncontrolled limit: 0.92 mw/cm^2. These power densities were developed by applying a rather complex formula and take into consideration a ground reflection factor.)

3-Element triband Yagi Antenna - 6.5 dbi gain

Transmitter power (watts)	Distance to controlled limit	Distance to uncontrolled limit
100	4.6 ft.	10.3 ft.
500	10.3 ft.	23.1 ft.
1000	14.6 ft.	32.7 ft.
1500	17.9 ft.	40.0 ft.

For example, this "worst type scenario" suggests that the above antenna running 1000 watts, (constant key-down transmitter) should be a minimum of 32.7 feet from their neighbors. The exclusion distance is shorter if the duty cycle (defined as the average on-vs.-off time over 30 minutes in an uncontrolled environment; a 6 minute period in a controlled environment) is less. Amateur operators and their families should be at least 14.6 feet away from the antenna. Tables shown in the Question Pools are for various (3.5 MHz to 446 MHz) frequency bands, using typical power levels and dipole, vertical and Yagi antennas. The Overbeck formulas make it very easy for an Amateur to determine if he/she is in compliance with the new MPE guidelines. Amateurs that meet these worst scenario calculations will have performed the routine evaluation required by the new Part 97 RF safety rules. Overbeck will also shortly release his computer program that makes these calculations into the public domain.

RF safety questions

The *Report and Order* required the addition of a new subelement 10 containing 5 questions to each of the Novice, Technician and General class amateur examinations.

Much of the new RF safety questions contain material never before addressed by the Amateur radio operator community. This topic became necessary when the FCC brought Amateur radio transmissions under the new RF exposure guidelines (ET Docket 93-62.)

There have been at least two motions for an emergency stay of implementation date and nine Petitions for Reconsideration [one from the US Department of Defense, no less!] filed in the matter, which, of course holds the finally effective date more or less in abeyance pending disposition of those filings.

But the fact remains that the FCC's Wireless Telecommunications Bureau amended Part 97 to immediately require the additional Element 2, 3A and 3B questions on RF safety. Here it gets a little fuzzy. The Amateur Service pools have always required some questions on this topic. But not to the degree the QPC interprets the "10 times the number of questions required for a single examination."

The QPC not only elects to develop ten times as many questions as will appear on a total examination, it develops a minimum of ten times the number of questions on every syllabus topic. If five questions are required on RF safety for Elements 2, 3A and 3B, then a total of 150 questions had to be developed.

Since the Order came down while the QPC was working on Element 2 and 3A, the QPC immediately began developing 100 RF safety questions. We will add a minimum of fifty RF Safety questions to 3B when we revise this element during the coming year. A new subelement syllabus called "0" (for "ten") devoted to RF safety matters is included in the newly released pools.

Even though there are several *Petitions for Reconsideration* of the new RF exposure rules, as it stands now, the administering VEs will be administering these RF safety questions come next July 1.

The FCC's Office of Engineering and Technology is also in the process of revising their OET Bulletin No. 65 *(Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation)* and

will also publish an RF safety booklet especially aimed at Amateur radio operators. These should be ready in about 60 days we are told.

Jerry Ulcek of FCC's Office of Engineering and Technology deserves a special note of thanks for forwarding much needed information to the QPC including the unreleased draft copy of the new OET Bulletin No. 65 on September 17, 1996.

It would be a gross injustice not to mention the assistance of Dr. Wayne Overbeck N6NB, Professor of Communications, University of California at Fullerton who generated the data contained in the Question Pool tables (Table NT0-1.) He originally furnished similar tables to the FCC's Office of Engineering and Technology without using the affects of ground reflections. That data is included in the draft copy of OET Bulletin NO. 65.

Some thought the data might be more accurate had ground reflections been considered in the calculations, even though the variations of the earth's soil could possibly affect the amount of reflections, causing the tables to continue to be nominal, and not totally fixed values. Dr. Overbeck not only agreed, but delivered the revisions via electronic mail within hours.

The QPC expects those revisions to be reflected in the final version of the FCC's OET Bulletin No. 65. Dr. Overbeck is one of the few in the nation that could have accomplished that feat in the time frame used, as he already had an operational and QPC-tested computer program to make the calculations. We also understand that he has authored an article on RF safety appearing in the January issue of CQ-VHF magazine.

Under the pressure of time as we were, without his most punctual and professional assistance the QPC might well have been forced to either forego use of the tables or extend the December 1st date on which we put these pools were scheduled to be placed in the public domain.

WORLD HEALTH ORGANIZATION TO ASSESS

Health Effects of Electric and Magnetic Fields

Internationally coordinated project seeks to resolve the controversy - WHO to demonstrate its independent role.

An international project to assess health and environmental effects of exposure to electric and magnetic fields (EMF) has been launched by the Geneva-based World Health Organization (WHO). The new project has been initiated by WHO in response to growing concerns in many Member States over possible health effects from exposure to an ever-increasing number and diversity of EMF sources.

The technologies using the electromagnetic spectrum have provided immense benefits and reshaped the way we communicate, practice medicine, travel, conduct business and manufacture goods. While extensive research has been conducted into possible health effects of exposure to many parts of the spectrum, not all frequencies have been fully investigated.

Further, some of this research has suggested that exposure to electromagnetic fields (EMF) may produce a broad range of health effects such as cancer, changes in behavior, memory loss, Parkinson and Alzheimer's diseases. While insufficient research has been conducted to substantiate these effects, sufficient concerns and perceptions of risks have been raised that there is an urgent need for an accelerated programme to provide scientific consensus and clarification of these issues.

People with little or no understanding of the health risks of EMF exposure view them as an unknown hazard. As such they may perceive them at a much higher level of risk than those for which they are familiar. Provision and communication of easily understood information on the nature of health risks from exposure to these fields, placing them in perspective with other risks, and an explanation of how risks are determined, may assist in alleviating people's concerns.

Electrical utilities in many countries have had to divert around populated areas and even halt construction of high voltage transmission lines. The installation of base stations for mobile telephone systems is also being obstructed. In the United States, for example, 85% of the total number of base stations needed have yet to be constructed.

Measures to keep the electric and magnetic fields to a minimum are costly, while research into the biological effects of exposure to EMF is often duplicated and unfocused. It has been estimated that concerns about EMF and health are costing the United States economy alone some $1 billion annually.

The International EMF Project was established by WHO in 1996. The Project is tentatively scheduled to last for five years. It will pool together current knowledge and available resources of key international and national agencies and scientific institutions in order to arrive at

scientifically-sound recommendations for health risk assessments of exposure to electric and magnetic fields in the frequency range 0-300 GHz.

The project has been devised to provide authoritative and independent peer-review of the scientific literature, and identify and fill gaps in scientific knowledge by establishing protocols for the conduct of research using compatible and comparable methodology, and by encouraging more focused research that should lead to better health risk assessments in the EMF domain. Leading scientists having a wide range of expertise in appropriate areas will be invited to participate in panel discussions and to present reports on human studies.

The International EMF Project will publish in-depth critical reviews conducted through independent, scientific peer-review groups on various topics related to exposure of people, biological systems and the environment including a report on the health effects of exposure to RF. The EMF Project will be funded through specific contributions by interested governments and institutions but will remain independent of vested interests in its work and conclusions.

Representatives of 23 countries and six international organizations took part this summer in the first preparatory meeting of the EMF Project held at WHO's Geneva headquarters. They included: Australia, Austria, Canada, Finland, France, Germany, Indonesia, Ireland, Israel, Italy, Japan, Kuwait, Malaysia, New Zealand, the Netherlands, Norway, Slovenia, South Africa, Sweden, Switzerland, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, and the United States of America, as well as the European Union (EU), International Agency for Research on Cancer (IARU), International Commission on Non-Ionizing Radiation Protection (ICNIRP), International Labour Organization (ILO), International Telecommunication Union (ITU) and the UN Environment Programme (UNEP).

The first scientific meeting was held in Munich, November 20-22, 1996. The meeting was sponsored by the German and Austrian governments, WHO and ICNIRP, and addressed the question of modulated radio frequency (RF) exposure. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) is an international independent commission chartered by the International Radiation Protection Association (IRPA) to advance non-ionizing radiation protection for the benefit of people and the environment and, in particular, to provide guidance and recommendations on protection from Non-Ionizing Radiations (NIR) exposure.

Under the WHO Code of Operation, members of industry and other "interested parties" are specifically precluded from participation in the final health hazard assessments "...so as to ensure that workers and members of the public have confidence in the independence of the conclusions." *(Source: World Health Organization, Geneva)*

AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of December 1996:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
Ø (*)	ABØDH	KIØFP	(***)	KBØZBW
1 (*)	AA1QZ	KE1GK	N1YFL	KB1CAN
2 (*)	AB2CQ	KG2JG	(***)	KC2AIU
3 (*)	AA3PD	KE3YE	N3YKC	KB3BRF
4 (*)	AE4ZE	KT4YT	(***)	KF4NQG
5 (*)	AC5KN	KM5FH	(***)	KC5YCW
6 (*)	AC6YQ	KQ6LA	(***)	KF6HQC
7 (*)	AB7TJ	KK7DJ	(***)	KC7TOB
8 (*)	AA8YS	KG8ZW	(***)	KC8FLH
9 (*)	AA9TO	KG9IQ	(***)	KB9PAM
N. Mariana	NHØA	AHØAW	KHØFR	WHØABF
Guam	WH2Z	AH2DC	KH2QY	WH2ANR
Johnston Is.	AH3D	AH3AD	KH3AO	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii	AH7J	AH6OW	KH7BY	WH6DCW
Amer.Samoa	AH8O	AH8AH	KH8DC	WH8ABF
Alaska	(**)	AL7QT	KLØBX	WL7CTY
Virgin Is.	WP2X	KP2CJ	NP2JO	WP2AIH
Puerto Rico	KP3X	KP3AN	NP3HY	WP4NMR

* = All 1-by-2 & 2-by-1 call signs have been assigned.
** = All 2-by-1 call signs have been assigned.
***= Group "C" (N-by-3) call signs have now run out in all but the 1st and 3rd call district.

Note: New prefix numerals now being assigned in Puerto Rico (KP3/NP3), Hawaii (AH7/KH7) & Alaska (KLØ)

[Source: FCC Amateur Service Database]

NEW AND UPGRADING AMATEUR STATISTICS FOR THE MONTH OF NOVEMBER 1996

Amateur License Class	New Amateurs 1996	Upgrading Amateurs 1996	Total Amateurs 1996
Novice	78	0	78
Technician	2350	0	2350
Tech Plus	244	403	647
General	37	392	429
Advanced	6	329	335
Extra Class	4	233	237
Club	75	0	75
Total:	**2794**	**1357**	**4151**

COMMERCIAL RADIO OPERATOR licensing to: 9/30/96

Examination Element:	Admin.	Passed	Rate:
1 - Radio Law	6072	5758	94.8%
3 - Electronics	4173	3397	81.4%
5 - Basic Radiotelegraph	57	56	98.2%
6 - Advanced Radiotelegraph	54	53	98.1%
7 - GMDSS Radio Operator	1098	1052	95.8%
9 - GMDSS Radio Maintainer	349	306	87.7%
1, 2, 3 & 4 - Telegraphy	47	40	85.1%
TOTAL EXAMINATIONS:	**11850**	**10662**	**90.0%**

EMERGING TECHNOLOGY

■ **In a couple of years you will be able to purchase digital high definition television (HDTV) sets** which can also double as a PC monitor. Many broadcasters are unhappy with the decision since they wanted a different "Grand Alliance" HDTV standard which would have insured you would be viewing over-the-air television - rather than tuned to a web site on the Internet.

You can thank Bill Gates and Company (Microsoft) and Apple and Compaq Computer Corp. for making the Government see the light. Due to the need for increased resolution, computers use a different transmission technology than TV broadcasters. The White House ended up agreeing that digital TV sets should be compatible with the strategies of computer companies, broadcasters , TV set manufacturers and film makers alike.

PC software and hardware firms either wanted no standard or one that does not require interlace image scanning. Film makers wanted TV screen sizes that more closely matched movie screens.

On November 27th, a number of parties representing a diverse range of industry interests finally struck a compromise. The parties (which included the Consumer Electronics Manufacturers Association, the Computer Industry Coalition on Advanced Television Service and Intel Corporation) stipulated that the new Digital TV Agreement must be adopted by the FCC by December 31, 1996.

The revised HDTV standard chosen is basically the same as previously agreed upon except that the video display format is not required to be interlaced. The video transmission format will be left for the marketplace to decide. Realistically, however, the new Digital TVS will have progressive scanning with interlace decoders available as an add-on.

The new digital TV pictures will be wider, have a 50% sharper image and easier on the eyes (less flicker.) The 800-line resolution will be refreshed 60 times a second with so-called progressive scanning. Current analog models have 525-line resolution with interlaced (odd and then even) lines redrawn 30 times a second.

There are already analog combination PC-TVs on the market - but they are very expensive. The plan is for television broadcasters to begin transmitting both analog (on their regular channel) and digital signals on alternative spectrum by 1998. Analog television is to be completely phased out in about 15 years.

Microsoft stands to make big bucks from interactive video. Their Microsoft Network (MSN) signed a long term alliance with NBC and launched MSNBC on the World Wide Web.

■ The good news is that **the new cartridge-based Nintendo-64 (64-bit) video game system is selling like crazy** at $200. The bad news is that there are very, very few game titles available. A total of 50 are in development, however.

On the other hand, the (32-bit) CD-based Sony PlayStation (also $200) has over 150 game titles on-the-shelves. And CDs cost less to manufacture than cartridges giving Sony more room to promote their game titles at discount prices. A side benefit is that the Sony PlayStation can also play audio compact discs.

Consumers spent more than $5 billion on game titles last year! Parents should be aware that much of the popular video game software (cost about $50 each) is very bloody and violent!

■ **The price of 18-inch digital satellite dish TV systems is coming down as the DBS business grows.** Although the rate of growth is slowing, there are already more than 4-million small dish systems in the hands of the consumer. Two years ago, there were none. The large backyard C-band satellite dish is fast becoming a relic from the past.

Like video games, vendors are promoting the hardware at discount prices (as low as $199 plus installation ...or do it yourself!) One operator (EchoStar) even provides the hardware free if you purchase long term programming! There are several dish systems on the market, but the Digital Satellite System (DSS) is the big seller and (in my opinion) you should consider no other. At least at this point.

The sleeper could be Australian Rupert Murdock's planned 270-channel "ASkyB" (American Sky Broadcasting) service which begins operation next year.

The new DBS service was originally a $700 million joint venture between MCI and deep-pocketed News Corp. But MCI recently merged with British Telecom and reduced its DBS ownership to 20%.

Australia-based News Corp. is now looking to include the local Bell operating companies as partners since FCC rules require 25% U.S. ownership. ASkyB also plans to carry local TV broadcast signals - something the others do not.

Primestar is the No. 2, DBS provider. But their dish is twice as large - a necessity since they run lower power. The Digital Satellite System is distributed by several firms ...including RCA and Sony.

Expect to pay at least $35-$40 a month for basic DirecTV programming plus another $35-$40 a month for premium USSB channels. And it gets even more pricey if you buy a sports channel. (The out-of-market NFL games are $139 a season; NBA $149.)

■ Radio to compete with the Internet! **Simultaneous broadcast radio with a digital PC data stream spit out on a subcarrier** is an interesting combination. Los Angeles radio station KYSR-FM plans to begin broadcasting music and information data (such as local news, traffic and weather) to personal computers. Users will be able to access the data while a song is playing on their PC speakers. The technology is called IDVMedia (for Interactive Dynamic Virtual Media.) "PC listeners" simply add an inexpensive FM tuner to their computer and load special tuner software. Result: an interactive PC radio receiver.

■ **The microprocessor chip is exactly 25 years old!** It all began in November 1971. Now there are two silicon brains for every human brain on earth!

COMPUTER INFO

■ Getting a computer for Christmas? **This is what now constitutes an entry level machine!** 120-133 MHz microprocessor (200 MHz is better), 16 megabytes of memory (32 MB is better), 1.6-gigabyte hard drive (3 GB is better), 28.8 kbps V.34 Modem, 3.5-inch 1.4 MB floppy, 6X CD-ROM Drive (8X is better), 256-kb memory cache, a 15-inch Super VGA monitor (17" better) and Windows-95 operating system. Cost: $2000-$3500.

INTERNET NEWS

■ **Just what is the "Cookie Monster?"** You have probably heard of "cookies" but did not know what they were. "Cookies" is a code name for small files of data about users that is returned to a website's server. The technology was developed by Netscape. Some sites use the cookie file to allow users to store their user name and password. By far the most controversial use of cookies, however, is to track a person's movement through a website.

Some users simply don't want to be followed ...with their movements recorded and behavior sent back. Advertising agencies and Internet commerce sites use them as intelligent agents to target the preferences of consumer's as they move around. But cookies are not able to grab an e-mail address as some people believe. The newer Netscape 3.0 and Microsoft Explorer 3.0 browsers notify users when a server sends a cookie to a user.

A newer version is called a "cupcake." A user fills out an electronic demographic form on a cupcakes-enabled site. The information on the form is stored on the users' hard drive and when he or she visits a participating site, it serves information personalized to the user's interests. (Visit: http://www.cupcakes.com for more info.)

■ **The cable business model is coming to the Net!** Is premium web surfing on the horizon? Right now there is little reason (except price) to select one Internet Service Provider (ISP) over another. But that could change.

In the years to come, your ISP might be acting more like a cable-TV company. Or you might be paying an additional monthly fee for premium web programming to your local cable TV operator.

Some websites (such as Viacom's MTV Network at http://www.mtv.com) are telling ISPs and consumer online services that if they want their programming, they will have to pay for it. The service in turn, passes the cost on to the consumer.

We also understand that the Discovery Channel Online and CNN are planning to package their website content much like they do for video programming for cable operators. Even ESPNet SportsZone wants to change from a subscription service to a broader based content provider.

Apparently these cable programmers with websites are looking forward to the day when fast cable modems allow living room interactive-TV surfing.

■ **The Internet has been hailed as "CB for the '90s."** In November 1994, only 3 million households had access to the Internet. Now more than 15 million households (around 25 million people) are on the Net. Growth at Internet-access providers is now far outstripping commercial on-line services. Nearly 40 million people have tapped into the Internet at least once.

■ **We continue to hear a lot of negative news about consumer online services** ...such as America Online, Prodigy and CompuServe.

AOL recently switched all of its users to a new ($19.95 unlimited use) pricing scheme. But in making the switch, AOL inadvertently shut down their service for a period of time. And many subscribers (who were paying $9.95 for five hours a month and $2.95 for each additional hour) complained bitterly that they were charged higher rates that they had not asked for. Many state regulators felt AOL was guilty of "unfair and deceptive trade practices." Actually, AOL switched to flat rate pricing in order to compete with what most Internet services are charging.

AOL claims 7 million subscribers but their "churn rate" (subscriber turnover) is soaring. Many newbies don't stick around long after the free period. As a result, AOL's growth rate is down ...a real worry when you consider their accounting system. They "defer" their promotional costs as a capital asset until newcomers are paying customers two years later. (Most do not stick around that long.) AOL showed a paper profit because they didn't show what it costs to bring in new users.

The fact remains, however, that they are spending more cash than they are taking in and have a huge "subscriber acquisition liability" on the books that eventually must be reckoned with. The once high flying AOL $70 stock now trades at $25.

Both Prodigy (1 million subscribers) and the Microsoft Network (1.5 million) are abandoning their proprietary dial-in networks and have set up shop on the Internet's World Wide Web. And both GE's "GEnie and Apple's "eWorld" have disappeared completely.

■ Now comes word that **CompuServe is closing its new (only 8-months old) family-oriented WOW! online PC service.** It only attracted 102,000 subscribers, ...a $70 million dollar mistake. They will now target business and professional users who have more money to spend, are more predictable and less picky. "CompuServe for Business" debuts early next year. Unlike Prodigy and AOL, CompuServe has no plans to go to flat-rate unlimited access pricing. They tried WOW! at a flat price of $17.95 and it didn't work for them. CompuServe's stock has tumbled from $35 to $10 in six months!

Their regular (consumer online) CompuServe Information Service (with 3 million subscribers and now called "CSi") will refocus on the sophisticated computer user. In other words, CompuServe will try to avoid the low-margin high-turnover consumer rat-race. When you can't compete, you regroup into niche markets.

■ **Uniden has introduced new wireline and wireless telephones** that have a keyboard for sending e-mail messages across the Internet without a modem. ($299-$399)

■ **Buying music over the telephone does not seem to be working** for MCI, but Blockbuster is ready to try! MCI may soon give up on it's 1-800-MUSICNOW and http://www.1800musicnow.mci.com (website). The original idea was to allow consumers to sample music before purchasing CDS. Sales have been less than expected. And get ready for Blockbuster to enter the Internet provider business. They have formed a joint venture with Sprint Internet Passport. Watch for a big advertising push next year. (http://www.-blockbuster.com)

WASHINGTON WHISPERS

■ **"The Tax Man Cometh to Cyberspace"** is a feature article in the December 9th issue of *Business Week*. It tells about how Governments worldwide are trying to figure out a way to tax cybercommerce. If people are making money, then "Big Brother" wants his cut. But, "who should pay for a cybertransaction?"

"One critical issue will be whether cybertaxes should be imposed based on the residence of buyers or of sellers." The U.S. is concerned about the difficulty of identifying buyers and wants the right to tax the sellers of goods over the Information Superhighway.

"State governments, eyeing huge potential revenues, are scrambling for ways to impose their own levies on the Net. At least a dozen states from California to Florida, are actively considering new cybertaxes and special telecommunications taxes."

And where exactly is the Net located? An Internet Service Provider can have a local number, but no physical presence in a state. "California officials say that merely putting up a Web page on a server located in their state could make companies subject to state taxes."

And at least two countries (Italy and Belgium) "..are considering a 'bit tax' that would impose a levy on every scrap of data that crosses the Net in their countries."

The Clinton Administration, however, seems determined to keep the Internet free of tariffs, taxes, censorship and heavy-handed regulations. A policy statement is expected shortly that will recommend that governments worldwide adopt a strict hands off policy in dealing with the net.

To do otherwise would inhibit the development of technology on the Internet. The government also will recognize strong encryption as being vital to doing business on the Internet.

AMATEUR RADIO

■ **Ira Wexler, M.D. W3HEF - the president of MARCO (the Medical Amateur Radio Council, Ltd.)** wrote an interesting, thought provoking (and dismal) editorial in the November issue of the MARCO Newsletter.

Entitled "This is a Tough Time to be President of MARCO," Wexler says their "...membership is aging and, reflecting the state of amateur radio in general, our hobby is increasingly becoming one enjoyed by strictly older folks.

"Consider the amount of time and money we have invested in our rigs and shacks. Why would anyone new to electronic communication want to make such an investment when they can utilize their personal computer to similar advantage? If its special interest groups you want, there are thousands of them on the Internet."

"...broadcasting as a hobby has long been the exclusive domain of amateur radio but no longer; voice communications via the Internet is rapidly being perfected, and video is very close behind."

"It is far easier to boot up your computer than it is to struggle with antennas or feedlines. And no matter how avid a hacker you are you will never hear neighbors complain about telephone interference, RFI, TVI and the like."

"Is this scenario like to change in the future when band conditions improve? I don't think so. I just don't see any technological advance we, as radio amateurs can offer that will rival the seductiveness and ease of operation of far flung computer networks."

"I think our ranks will become fewer and fewer as the years go by. I think our UHF and higher bands will simply be sold by the FCC to commercial interests for cellular phones, pagers and the like. I think HF frequencies won't interest them; too unreliable for communication when satellites and fiberoptic cables are out there."

■ **Art Feller of Fairfax, VA is still fighting to keep his W4ART station call sign.** You will remember that he applied for the call and received it under Gate 1 as a former holder. He claims that W4ART was his previously held call sign. But the FCC did not agree.

The FCC canceled the call sign stating that he could not be considered a "former holder" since he obtained the call sign through "favoritism" and never legitimately held this call sign.

Feller's call sign reverted back to his old call and he was advised that he could obtain the W4ART call sign under Gate 3 if it is still available. Gate 3 is expected to open to Advanced Class licensees shortly.

Feller, an ex-FCC employee, has continued to use the W4ART call sign although he has been instructed not to do so. He contends that "As was common practice and widespread FCC policy in 1974, I made an informal request for the call sign W4ART, or a similar call sign, at the same time I notified the Commission of a change of address. The call sign was granted for my amateur radio station by the Commission in 1974."

Two years later, the FCC looked into the issuance of Amateur call signs to persons not qualified to receive them. The FCC eventually ruled that "Commission employees will not be permitted to retain call signs that were not assigned in accordance with existing Commission rules."

Feller has now appealed to FCC Chairman Reed Hundt, his Congressman, the ARRL and the FCC's Inspector General. He claims that (1) the FCC has not responded to his letters of August 21, 1996, leaving the matter open, (2) the Commission staff canceled his call sign while the matter was still open and (3) he was not notified about the cancellation.

The fact remains, however, that Feller was indeed notified by letter on July 23rd that the "...grant of vanity call sign W4ART on June 29, 1996, is hereby set aside... [and] ...your callsign returns to KB4ZJ."

■ **The Japan Amateur Radio League, Inc. is observing its 70th Anniversary this year.** The JARL was established in 1926. They now report that there are now 1,370,000 amateur radio stations in Japan "...almost half of the total amateur stations in the world!" The JARL is offering its 70th Anniversary Award to stations who contact at least seven Japanese prefixes between June 1, 1996 and May 31, 1997. Logs and 6 IRCs go to: JARL Award desk, 14-5, Sugamo 1-chrome, Toshima-ku, Tokyo 170-73, Japan.

■ **The Foundation for Amateur Radio, Inc., a non-profit organization with headquarters in Washington, DC** will once again administer sixty scholarships for the 1997-1998 academic year.

Licensed Radio Amateurs may compete for these awards if they plan to pursue a full-time course of studies beyond high school and are enrolled - or have been accepted - at an accredited university, college or technical school.

The scholarships range from $500 to $2500 with preference given in some cases to residents of specified areas or the pursuit of certain study programs.

Additional information and an application may be obtained from: FAR Scholarships, 6903 Rhode Island Avenue, College Park, MD 20740.

■ **And the Dayton Amateur Radio Association is also offering $2,000 scholarships** once again to hams graduating from high school in 1996. For an application, send an SASE to Stan Kuck NY8F, Scholarship Chairman. (45 Cinnamon Ct. Springboro, OH 45066 - Tel. 513/748-0268 - or send an E-mail to: Kuck@aol.com)

■ **The FCC has begun again granting "Vanity" call signs** after dismissing several *Petitions for Reconsideration* that temporarily held up the program.

It seems that an overnight courier delivered some Form 610-V "Vanity" call sign application forms early to the FCC in Pittsburgh which were returned to the applicants as being untimely filed. In turning down the reconsideration request, the FCC said it was not the fault of the FCC or the Mellon Bank in Pittsburgh, PA that the applications were delivered early.

The FCC has now granted over 5,000 Vanity call signs. All applications received through October 15th have been processed. Also any application that hit the error ("WIPs") list with a filing date of September 28th or before has also been handled.

Vanity call sign applications continue to pour into the FCC. About two to four hundred new Form 610-Vs are being received weekly ...about half through the FCC's electronic filing system located on their website.

An FCC spokesman said that many of the "Vanity" call sign application contain errors which must be handled later. This delays handling of the application ...and greatly reduces the chance that a wanted call sign will be granted.

We asked the FCC last week, when it plans to open Gate 3 of the "Vanity" call sign system to Advanced Class licensees. We were told that no specific date has been set, but that it would be after the first of the year.

PART 15 SPREAD SPECTRUM EQUIPMENT MANUFACTURER OBJECTS TO ARRL PETITION, RM-8737

Symbol Technologies, Inc., a manufacturer of unlicensed low-power Part 15 spread-spectrum data communications equipment has filed an objection to the ARRL's Petition for Rule Making.

The League's petition (assigned RM-8737) seeks to remove certain technical restrictions (such as the number of spreading codes) on the use of spread spectrum communications by Amateur Radio Service licensees. It seems that Symbol Technologies feels that relaxing the Amateur Service spread spectrum restrictions will adversely impact the "multi-hundred-million dollar investment [by manufacturers] in unlicensed Part 15 spread spectrum devices [operating on the ISM bands] at 902-928 and 2400-2483.5 MHz."

These bands are also shared by the Amateur Service. Symbol either wants the FCC to either deny the petition or to limit Amateur spread spectrum operators to Part 15 standards for output power (1 watt) and antenna gain (6 dBi) when operating in the bands shared with Part 15 devices.

If it goes ahead with a *Notice of Proposed Rule Making* (which is anticipated) Symbol Technologies wants the FCC to "seek comments in general terms on appropriate maximum power levels and antenna gains for amateur spread spectrum operations in Part 15 bands."

ARRL General Counsel, Chris Imlay, N3AKD, responded sharply to the objection by stating that Symbol appears to object to the portion of the petition which would permit greater flexibility in the use of and experimentation with spreading codes by amateurs in the amateur allocations in which spread-spectrum communications are currently authorized. Symbol also seeks to limit amateur power in those bands, all out of an expressed fear of interference to the use of Part 15 devices. Even though the current amateur rules permit spread-spectrum operation at 100 watts, Symbol notes that it would be content if amateur power and antenna gain for spread-spectrum operation were limited to the same levels (1 watt/6 dBi) as they are for Part 15 devices."

ARRL points out that the Symbol objection is very late in coming and there was no showing as to why it could not have been submitted sooner. "The petition was filed a year ago, and the comment dates closed February 19, 1996. Now, when the Commission is prepared to release a *Notice of Proposed Rule Making* on the matter, Symbol attempts to block it," Imlay said.

"More fundamentally, however, Symbol simply has no basis for objecting to any of the Amateur Service rules changes that the League proposes, as it has no allocation status in the subject bands at all. The League objects in the strongest possible terms to the placing of restrictions, or the refusal to eliminate unnecessary regulatory barriers, on amateur radio experimentation based on some inchoate [theoretical], unquantified fear of future interference of its intended operations in authorized allocations, in order to protect Part 15 devices from anticipated interference. These devices have no allocation status whatsoever in the bands in which they are allowed to operate at sufferance. ...they must not cause interference to licensed radio services, and they must tolerate interference received from licensed radio services in the same bands. Furthermore, the Symbol letters contain no basis whatsoever for any proposed restriction on amateur communications, using spread-spectrum or narrowband modes. Amateur spread-spectrum communications are permitted under existing rules in amateur allocations, including 902-928 MHz and 2400-2450 MHz, at power levels up to 100 watts PEP, and have been authorized for more than ten years. During that time, the League has not heard of one instance, not one, of interference from spread-spectrum communications to Part 15 devices."

"The petition proposes, in fact, to limit amateur power output by imposing automatic transmitter power control requirements, limiting the communications to those levels necessary to maintain communications. That is a limitation that does not exist now, but one which fits conceptually within the general scheme of amateur regulation."

"Symbol, like other Part 15 manufacturers, fail to recognize that the Amateur Service is a licensed service, which is intended to encourage experimentation."

"The real fear of Symbol, ...is that amateurs will simply take Symbol's Part 15 products, attach amplifiers to them, and use them in the same bands. In some instances, amateurs might do exactly that, though it certainly is not the intention of the proposed rule change. Even if amateurs do use those devices, however, there can be no interference to users of Symbol Part 15 devices, unless each of Symbol's devices uses the exact same spreading codes and sequences."

"If that were the case, it would be impossible for multiple Part 15 devices to operate in the same geographic areas, without taking into account amateur operation in the same bands using the same basic devices. If the devices use different spreading sequences, then they will not interact with each other, whether the amateur station is operating at maximum amateur power or not. Thus, Symbol's assertion that amateur spread-spectrum operation will 'obliterate any part 15 operation in its path' is technically flawed rhetoric, as is the entire premise of its concern."

"Finally, since amateurs can operate under existing rules in the subject bands using up to 1500 watts PEP output with narrowband emissions, it is difficult to understand Symbol's concern about amateur spread-spectrum operation in the subject bands.

Of far more concern to Symbol should be the operation of multilateration AVM (automatic vehicle monitoring) in the 902-928 MHz band.

AMERICAN RADIO RELAY LEAGUE REQUESTS PRIMARY ALLOCATION AT 2300-2305 MHz

On November 19th, the American Radio Relay League petitioned the Federal Communications Commission asking that it issue a *Third Notice of Proposed Rule Making* in ET Docket No. 94.32. The ARRL wants the 2300-2305 MHz segment reallocated as a primary domestic allocation for the Amateur Radio Service.

Until approximately ten years ago, the Amateur Service had secondary access domestically to the entire 2300-2450 MHz band. The primary user was the U.S. Government. The band is internationally allocated to the Fixed, Mobile and Radiolocation services on a primary basis. In the U.S. the 2400-2483.5 MHz segment is also available to Industrial, Scientific and Medical (ISM) devices.

The domestic allocation for amateurs at 2300-2450 MHz provided essentially unlimited use of the 2300-2400 MHz band due to light use by Government Radiolocation. Most amateur operation below 2400 MHz, however, was concentrated around 2304 MHz. The portion of the band above 2400 MHz has been used for amateur television and satellite operation.

The Amateur Service was excluded from the 2310-2390 MHz band in 1984 to accommodate aeronautical flight test telemetry. An amateur primary allocation was recently created at 2390-2400 MHz, a segment in which data-PCS will also be able to operate.

The 1993 Budget Bill ordered the Government to identify 200 MHz of its spectrum for reallocation to the private sector. Among the spectrum identified was the 2300-2310 MHz band. In identifying the spectrum for reallocation, the Secretary of Commerce was directed to consider "...the extent to which, in general, commercial users could share the frequency with amateur radio licensees." There was, however, significant doubt that commercial services could successfully share spectrum with Amateur weak signal operations. The ARRL attached a copy of a U.S. Dept of Commerce report which stated:

"Sharing between Federal Government users and the amateur service has been successful largely because Federal operations are generally located outside of highly populated areas. It is very unlikely that the Amateur Service will enjoy an analogous situation with a commercial or other private sector service. If commercial services are to share with the weak signal operations located at 2303.75-2304.75 MHz, they must be able to withstand potential interference from the high powered transmitters used for those operations, but not create interference to the sensitive receivers used. This is something of a contradiction..."

On October 4, 1996, Congress ordered the Commission to auction the 2305-2320 MHz and 2345-2360 MHz bands to new Wireless Communications Services (WCS). The spectrum sale is to be completed by April 1997. The FCC envisions that the new WCS will contain "a broad range of fixed, mobile, radiolocation and broadcasting-satellite services."

The ARRL maintains that "...the auction of commercial licenses in the 2305-2310 MHz band most certainly will, in effect, diminish the utility of amateur secondary use thereof." The League points out that neither the recent legislation, nor the FCC's Wireless Communications Service plan for 2300 MHz addresses the 2300-2305 MHz band.

"Since the disposition of the 2305-2310 MHz band has been dictated by Congress in an unprecedented manner..." the ARRL feels that the 2300-2305 segment should be allocated to the Amateur Service on a primary basis. "Amateurs make significant use of the 2300-2305 MHz segment, for numerous types of communications. The League's band plan reveals the wealth of uses that are made of that segment, some of which will no longer be able to be conducted in the 2305-2310 MHz segment following the 1997 auctions for commercial licenses in that band. Those displaced types of communications will require the interference protection and stability afforded by a primary allocation at 2300-2305 MHz."

"It is not sufficient to continue the secondary amateur allocation at 2300-2305 MHz," the League contends. "It is also requested that the Commission not introduce any other use in the band, in view of the necessity to protect the existing and expanding amateur uses in the band which involve sensitive receivers. It is also necessary to maintain flexibility in the amateur uses of the 2300-2305 MHz band so that some paired, point-to-point operation can be conducted, together with frequencies in the 2390-2400 MHz band."

The ARRL asked that the Table of Frequency Allocations be amended at an early date to elevate the Amateur Service allocation at 2300-2305 MHz to primary status domestically and to amend the Amateur Service rules to accommodate the revised allocation.

ARRL requests that Section §97.303(j)(2) be amended to read:

§ 97.303 Frequency sharing requirements.

(j) In the 13 cm band:

(2) In the United States, the 2300-2305 MHz segment is allocated to the amateur service on a primary basis. The 2300-2310 MHz band is allocated on a secondary basis to the Wireless Communications Service (WCS); in this segment, the fixed, mobile, radiolocation and broadcasting-satellite services are primary. However, the fixed and mobile services must not cause harmful interference to the amateur service. No amateur station transmitting in the 2400-2450 MHz segment is protected from interference due to the operation of industrial, scientific and medical devices on 2450 MHz.