

# 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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## Dilemmas and New Directions at the FCC

On Friday, (February 16th) FCC Commissioner Gloria Tristani made it unanimous. She too will be leaving the agency to seek some sort of elected office in her native state of New Mexico. In 1998 she was appointed to a five-year term that was not due to expire until July 1, 2003.

Republican Michael Powell, formerly chief of staff for the Antitrust Division of the Department of Justice and a telecommunications lawyer at the Washington, D.C. law firm O'Melveny & Meyers LLP was also appointed an FCC Commissioner in 1998 by President Clinton. President Bush elevated him to the chairman's post to replace William Kennard, a Democrat. Since Powell was already a sitting commissioner, he does not need Senate confirmation.

The other two new commissioners - Republican Harold Furchgott-Roth, former chief economist for the House Commerce Committee and Democrat Susan Ness - who began as a commissioner under former chairman Reed Hundt - said they would not be seeking reappointment. Both had been serving past their five year term limit.

That means all four incumbents (Furchgott-Roth, Kennard, Ness and Tristani) are leaving or have already left the Commission. New FCC Chairman Mike Powell gets a brand new crew ...and probably input as to who they will be. In unprecedented fashion, President Bush will have to appoint four new Commissioners almost simultaneously!

The Kennard regime focused on the down-

trodden "consumer" ... often to the dismay of Congress and Industry. The direction of the Powell FCC will be towards being "business-friendly," having better relations with Congress and an improved economy. Information and telecommunications are the fastest growing sectors of the economy ...and account for the most job growth.

The Dow Jones Newswire said Commissioner Gloria Tristani will leave the agency by year's end to pursue either a congressional spot or the governor's mansion. New names surfacing as potential Commissioner candidates include Michael Copps, chief of staff to Sen. Fritz Hollings (D-SC); Andy Levin, aide to Rep. John Dingell (D-Mich.); Kathleen Abernathy, a telecom attorney; and Intel Corp. lobbyist Peter Pitsch, a former FCC chief of staff.

### **What's behind the mass exodus?**

Here are some ideas. For one thing, its reported that the Clinton administration's high dollar spectrum auctions are not working. Private corporations have poured billions upon billions into federal coffers to the point of artificially inflating budget surpluses. While it may have made the administration look good, there is a general consensus that the private telecom sector has paid so much for their frequencies that it will be difficult for them to make a profit.

The "bid now and pay later" auction model has a tendency to do that. You end up paying more

than you should. Former FCC Chairman Reed Hundt called a recent auction of wireless telecommunications spectrum licenses "...a disaster" and a "...sin of policy."

As a group, the telecom sector is perhaps the worst performing financial sector of all. Ask any investor who has invested in telecom mutual funds.

There also is much controversy on how the Clinton administration obtained its money to finance Internet connections among the nation's schools and libraries at a time of immense budget surpluses.

The program, known as the education rate or e-rate, came under fire from many lawmakers who called the subsidy a tax that Congress never approved. It became known as the "Gore tax" -- an administration-mandated 3-percent federal surcharge levied by the FCC on U.S. telephone customers through their long distance bill.

The "Universal Service Charge" raised billions and there was much criticism of the creative way that lashing schools to the Internet was accomplished. Have you looked at all those charges on your phone bill? Do you understand them? Taxation without representation. Check out: <[www.goretax.com](http://www.goretax.com)>.

The 1996 telecom deregulation Act rewrote the rules for all five lanes of the information highway: telephony, wireless, satellite, cable and broadcasting. But it is not working. Some also call that: a disaster. The promise of increased competition -- especially in the local phone market -- and lower prices never materialized.

Five years later, the big telecom corporations only got bigger by merging among themselves. Cable TV bills, for example, increased double or triple that of inflation. Hardly lower prices and more competition.

And the low power FM broadcast radio debacle also widened the gap between the FCC, broadcasters and Congress. The FCC wanted to create hundreds of little community "voices" around the country. The big lobbyists -- like the *National Association of Broadcasters* -- turned to Congress to stop the encroachment into what they believed to be their sacred territory.

In a nutshell, they didn't want more competition and possible RF interference. A smaller listening audience translates into lower advertising revenue, the very life blood of the broadcast industry.

This certainly looks like a year of major changes at the FCC. Don't look for too much to happen this year as staffers for the Commissioners and various bureau and division chiefs start the shuffle to find new jobs. A year from now you may not recognize the agency. The previous FCC fought Congress. The new one will follow their directions.

### Streamlining the FCC

You can expect the organization to be more responsive than active as it allows the various telecom industries

to determine competition and their own destiny rather than through government intervention.

FCC Chairman Michael Powell also announced his intention to reorganize and streamline the agency along functional lines that would be more responsive to converging technologies. For example, cable, phone, satellite and wireless all offer the same Internet services which makes regulation cumbersome and repetitious if performed by separate bureaus. The need for agency streamlining was first identified during the Kennard regime, but went nowhere.

Congress apparently is not waiting for the reorganization to happen. They are forging ahead with plans to reform the FCC. On February 14<sup>th</sup> Rep. Paul Gillmor, R-Ohio, reintroduced H.R. 646, "A bill to establish the Commission to Study the Structure and Reauthorization of the Federal Communications Commission...". It was H.R. 5570 in the last Congress. The bill provides for a seven member panel to determine whether the FCC should be changed to reflect the current state of telecommunications, including the rise of the Internet, and whether there should be fewer commissioners. The study committee would report back to Congress in six months.

### Identifying spectrum for the wireless 3G Internet

One of Powell's first tasks will be figuring out a way to rearrange the radio spectrum to free up some 300 MHz of space for third-generation (3G) wireless technology. It is a massive undertaking. 3G promises to bring high-speed Internet access, audio and video via mobile and handheld (pedestrian traffic) gadgets. Proponents say that 3G will offer better quality at faster speeds ...between 144 kilobits and 2 megabits per second. Like DSL and cable modems, it will always be "on" thus avoiding the need to dial it up.

As reported earlier, the United States lags far behind Europe and Asia in 3G deployment because all of the spectrum has been allocated here. Once the spectrum is nailed down, the FCC will auction off the licenses. Many say the income will surely surpass \$100 billion for the U.S. Treasury. The auction is now scheduled for September 2002. The Italian, Dutch, German and British governments have already auctioned off their 3G spectrum. They have a two year head start.

Looming in the immediate future is the fate of the 700 megahertz band which is ideally suited for 3G services. The airwaves in question come from television stations switching from analog and moving to digital spectrum. Spectrum that telecasters have already been allocated and received free of charge. The problem is that the transition is going much slower than planned. Broadcasters now have their analog channel and a digital one to boot ...and not much incentive to move.

If digital television does not take hold, analog TV

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channels will remain with us and the spectrum can't be reused. Theoretically the transition is to be complete within five years. It probably is not possible since high definition television (HDTV) is seen as a flop. Its available, but hardly a replacement for traditional television.

Former FCC Chairman Reed Hundt characterizes high-definition television as "an idea whose time has never come. ...it's very clear now that it is a policy catastrophe and a political embarrassment," he said.

Current rules imposed by Congress say that if 85% of Americans are receiving digital signals by 2006, the broadcasters must vacate their analog channels and return the old frequencies to the FCC which will be used for new services. Practically no one believes it will happen.

So where does the 3G spectrum come from? The Department of Defense has a lot of spectrum that could be used. But they too do not want to part with it. Can wireless carriers coexist with analog television without causing adjacent channel interference? Probably not.

Rep. W. J. "Billy" Tauzin (R-La.), the new chairman of the powerful House Commerce Committee in the 107th Congress, vows to force broadcasters transition to HDTV, thus freeing current channels for commercial wireless use. He promised that legislation coming out of his subcommittee this session will be enacted.

If 3G does not get rolling in the U.S. then Europe and Asia with their head start will dictate the technology and the U.S. economy suffers. That's if it takes off. But no one knows how consumers are going to react to 3G wireless and it will be 4 or 5 years before anyone knows. Will they flock to the technology and its cost when they are used to getting Web content for free over their PC?

These are the huge dilemmas facing the Powell FCC.

## February 22<sup>nd</sup> FCC Agenda meeting

There was only one item on the schedule for Powell's first FCC Open Agenda meeting: a comprehensive review of FCC policies and procedures by the commissioners and bureau chiefs. He asked them to come up with ideas on how their departments could be run more efficiently, become more technology knowledgeable and better enforce current policy.

Eight bureau and office chiefs spent Thursday morning talking about their internal management procedures and current regulatory issues and answered questions. It was webcast on the Internet and we listened.

Speaking were the chiefs of the Wireless Bureau (Tom Sugrue), Common Carrier Bureau (Dorothy Attwood), Enforcement Bureau (David Solomon), Consumer Information Bureau (Rod Porter), Office of Engineering and Technology (Bruce Franca), International Bureau (Don Abelson), Mass Media Bureau (Roy Stewart) and the Cable Services Bureau (Deborah Lathen).

**Tom Sugrue (WTB)** talked about "keeping the backlog down" and highlighted WTB progress. Spectrum management is a serious issue facing the FCC with "demand outstripping supply." The WTB has 315 employees "less than a third are lawyers." Their constituents are 3.3 million licensees. WTB issues 546K licenses every year, their website gets some 65 million hits annually. "Having the right, talented, motivated people in the right place and keeping them is a challenge," he said.

**Dorothy Attwood, chief of the Common Carrier Bureau** agreed "We also need to improve our employee retention and development." She said the bureau often serves as a "training ground" for law firms and industry due to the disparity between FCC and private sector compensation. Cable modem and Internet telephony is a challenge. She said the mission of her bureau was promoting competition.

**David Solomon** said his **Enforcement Bureau** had 285 employees ...about half are located "out in the field" in 25 office locations. He said their greatest challenge is reducing the backlog of complaints. Budgetary constraints on field travel has had a negative impact on some technical enforcement. "A significant percentage of the staff are eligible to retire in the next few years..."

**Roderick Porter** said the **Consumer Information Bureau** has only been around a year "...a one stop shopping forum for consumers." They receive complaints and inquiries from the public over the telephone. "It is the face of the FCC," he said.

**Bruce Franca (Office of Engineering and Technology)** said their job is to manage the spectrum and to supply technical leadership. "We are mostly engineers and scientists." One of their challenges is "...to accommodate new technologies ...such as ultra wide band and software defined radios."

**Donald Abelson (International Bureau)** works on global spectrum issues. "Backlogs are a challenge." Our outreach extends to regulators and countries around the world. "We attempt to put the United States in a leadership position."

**Roy Stewart** said the **Mass Media Bureau** with its 210 people authorize radio and television broadcasting and is responsible for nearly 9000 television stations and over 16,000 radio broadcast stations. One of the challenges is a rising number of applications and a declining number of personnel. More than 80 percent of the bureau is engaged in Authorization of Services. He said the transition to digital radio and TV were bureau challenges.

**Deborah Latham (Cable Bureau Chief)** also mentioned the personnel problem. "What used to be 240 people is now a strong 86." There are now more than 10 million cable subscribers and 4 million cable modems. "As the cable industry has exploded, so has our responsibilities. Our capabilities are really strained," she said.

### HAM OPERATOR CHARGED WITH SPYING FOR RUSSIA

A long term FCC-licensed Amateur Radio operator has been arrested and charged with spying for the Soviet Union and then Russia for more than 15 years. Robert Philip Hanssen K9QVL of Vienna, Virginia had been licensed as a General Class ham operator for more than 40 years. He is 57 years old, a father of six children and described as a "loner." Shocked neighbors called him a dedicated father and citizen.

Hanssen has held a ham ticket since he was a teenager in Chicago and his license was current when arrested ...last renewed in 1997. He apparently was not an active radioamateur in recent years and was not a member of the local ham club, the Vienna Wireless Society.

Hanssen held an MBA in accounting and was a CPA, later a Chicago police officer before joining the FBI as a special agent on January 12, 1976.

At the time of his arrest on Sunday, Feb. 18, Hanssen had been an FBI agent for 25 years specializing in the area of counter-terrorism. He worked out of the FBI headquarters in Washington, DC. His previous assignments including performing surveillance on Russian government offices in the United States and advising the State Department on security issues.

He was taken into custody at his home after he did a "dead drop" of classified documents containing information on U.S. electronic surveillance to a contact at a northern Virginia park. A "dead drop" is a pre-arranged location used for the secret exchange of packages, messages and payments which avoids the necessity of those involved being present at the same time. The FBI said Hanssen's identity was not even known to the Russians since he used aliases and never met with his contacts.

The FBI said Hanssen's motivation was "greed and money." Some payments were made in diamonds because he said he couldn't spend or invest the money without raising suspicion. He was arraigned in federal court on espionage charges in Alexandria, Virginia on Feb. 20.

A 112-page FBI affidavit - published on the Web at <<http://news.findlaw.com/cnn/docs/hanssen/hanssenaff022001.pdf>> - describes 33 packages that the KGB/SVR left for Hanssen and 22 packages containing over 6,000 documents and 26 computer disks left by Hanssen for the KGB/SVR at secret locations. One of the packages left on Feb. 12, 2001 for Hanssen contained \$50,000 in used \$100 bills. The KGB is the former Soviet intelligence service. It was replaced by the SVR, the Russian Foreign Intelligence Service. According to the affidavit, Hanssen's involvement began in 1985 when he offered to a Soviet agent to provide classified information for \$100,000.

FBI director Louis Freech acknowledged Hanssen had access to some of the most sensitive and highly classified information in the U.S. government. "There are only

a few people in counter-intelligence that had access to everything and he was one of them." The materials Hanssen sold to Russia primarily compromised U.S. intelligence, counter-intelligence and "double agent" activities, operations and techniques.

He also provided material that corroborated information previously given to the Russians by super spy, Aldrich Ames - a long term CIA operative who sold secrets to the former Soviet Union. Ames was arrested in 1994 and subsequently pled guilt to having committed espionage as an agent of the KGB. The plea bargain agreement saved Ames from facing the death penalty.

Hanssen was initially suspected of being a spy last fall after an internal investigation revealed the presence of a "mole" within the FBI. The U.S. began to suspect Hanssen due to certain "Russian documents" of unspecified origin. Allegedly, over time Hanssen's payments totaled some \$1.4 million. Much of it, in escrow in a Moscow bank, "...now worth at least \$800,000," the FBI said.

The FBI termed the damage done to the United States by Hanssen as "...exceptionally grave." He also faces the death sentence if convicted of "Transmitting National Defense Information" and "Conspiracy to Commit Espionage" on behalf of a foreign government. Hanssen has retained high profile lawyer, Plato Cacheris who represented CIA spy Aldrich Ames ...also Monica Lewinsky, Fawn Hall (Oliver North's paper-shredding secretary) and former Attorney General John Mitchell during the Watergate scandal.

### AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of March 2001

<u>Radio District</u>	<u>Group A Extra</u>	<u>Group B Advanced</u>	<u>Group C Tech/Gen.</u>	<u>Group D Novice</u>
0 (*)	AB0QE	KI0RX	(***)	KC0JXX
1 (*)	AA1XS	KE1LZ	(***)	KB1GIZ
2 (*)	AB2RE	KG2RN	(***)	KC2HOU
3 (*)	AA3WO	KF3EA	(***)	KB3GFL
4 (*)	AG4GN	KV4FK	(***)	KG4MDA
5 (*)	AD5CX	KM5XK	(***)	KD5NLH
6 (*)	AD6VP	KR6ER	(***)	KG6FIA
7 (*)	AC7LR	KK7WT	(***)	KD7MBU
8 (*)	AB8KB	KI8JZ	(***)	KC8QNZ
9 (*)	AB9BO	KG9RA	(***)	KB9YYS
N. Mariana	NH0Z	AH0BB	KH0MW	WH0ABP
Guam	(**)	AH2DN	KH2VG	WH2ANX
Hawaii	(**)	AH6QW	(***)	WH6DGN
Am. Samoa	AH8U	AH8AI	KH8DO	WH8ABF
Alaska	(**)	AL7RR	KL1BU	WL7CVG
Virgin Islands	(**)	KP2CP	NP2LS	WP2AIN
Puerto Rico	WP3K	KP3BM	WP3JN	WP4NOT

\* All 1-by-2 and 2-by-1 call signs, \*\* 2-by-1 and \*\*\* "N-by-3" call signs have been assigned.

[Source: FCC Amateur Service Database, Washington, DC]

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## CUTTING EDGE TECHNOLOGY

**F**ee-based satellite-delivered digital radio could become one of the fastest growing consumer electronics products ever. That's according to the Yankee Group's Report, "Satellite Radio: A New Star on Broadcasting's Horizon." The study said one million satellite radio receivers will be installed one year after product launch this year ...exploding to 21 million receivers after five years!

The research firm believes consumers will adopt the product even though there is an associated fee (\$9.95 a month) because of coast-to-coast coverage, fewer ads than traditional radio, static-free digital CD sound quality, and content variety.

The report draws upon the Yankee Group's recent Home Entertainment Survey that found that 25 percent of "public listeners" and 50 percent of "heavy listeners" expressed interest in radio with fewer commercials and more variety.

In 1992, the FCC allocated spectrum in the "S" band (2.3 GHz) for a nationwide satellite-based *Digital Audio Radio Service* (DARS) broadcasting. In 1997, the FCC awarded DARS licenses to CD Radio (now Sirius Satellite Radio) and American Mobile Radio (now XM Satellite Radio).

Each paid more than \$80 million for their licenses. Both will begin broadcasting music to the continental United States from space via satellites this year. See: <www.siriusradio.com> and <www.xmradio.com> for more information.

Both XM Radio and Sirius Satellite Radio will offer approximately 100 channels of content and plan to significantly reduce advertising time. The radio stations will broadcast its signal from geostationary satellites to your car radio with complete clarity. You could drive from San Francisco to New York without ever having to change the radio station!

Car manufacturers are already installing satellite radio receivers in some 2001 models. General Motors and Honda will use the XM system. Sirius has agreements with Ford, DaimlerChrysler, BMW, Mercedes, Mazda, Jaguar and Volvo to install three-band radios (AM/FM/Satellite). The \$200 to \$1000 receivers are being produced by Sanyo, Pioneer, Panasonic, Kenwood, Jensen, Clarion and Alpine.

"The value of satellite radio is easily identifiable," Yankee Group said. "Con-

sumers are offered more programming choice with clearer sound and nationwide coverage—all while operating like a standard car radio."

The Yankee Group said over 17 million new cars are sold each year, and the aftermarket mobile audio industry sells 11 million receivers each year, providing tremendous distribution potential to a market of over 180 million drivers.

**H**ow loud was it? Sound engineers can string up so much amplification, lighting, lasers and other special effects overhead in a concert venue that the excessive load can actually cause the building's roof to sag. Structural engineers are sometimes called in before a concert to see if the roof deflection is safe or not.

**A**nd you thought your coax cable loss was bad! Even though electricity travels with the least amount of loss at high voltages, the massive losses involved in high-voltage transmission lines are still staggering. If one were to build an isolated transmission line all the way across the United States and feed 500,000 volts into one end of it, the losses involved would eat up so much of the voltage that there would be nothing left at the other end of the line.

**S**oundproof your car with a spray Scan. Cascade Audio Engineering recently released Quiet Kote V Blok, a substance that will dampen metal vibrations upon application to a car's body panels and trims. This makes the inside of a car quieter and provides better enjoyment of the music. It comes in an ordinary spray can.

**W**hat is that white gravel inside the fuse? Just about every electronic device contains at least one fuse. Fuses are designed to open up when too much current flows through them. In some cases, very heavy loads can create electric arcs across the open ends of a burned-out fuse. To prevent such flashovers, some fuses come with quartz-based sand inside. The sand quickly, safely and cheaply extinguishes any sparks.

**A** flashlight you can't see. Some would say that a flashlight is just another name for a box of dead batteries. But LEDtronics offers solid-state replacements for ordinary filament bulbs in flashlights. The high-intensity light-emitting diodes come with a standard flange fitting and last far longer. They make the batteries live longer, too. They come in a variety of colors -- even invisible infrared!

And they stand up to far more rugged conditions.

## EMERGING COMMUNICATIONS

**E**liminating audio pollution in public places is getting to be very big business! Hong Kong's Office of Telecommunications is considering restoring silence to some public places by installing mobile-phone jamming systems. Movie theaters are especially vulnerable to the incessant rings of cell phones as are classrooms, concert halls, conference rooms, business meetings, restaurants, airliners, hospitals and churches.

Hong Kong has one of the highest densities of cell phones in the world. Hong Kong's 6.9 million citizens have more than 5.2 million mobile phones. The answer to not annoying others is to use phones with silent, vibrating ringers and caller ID so you can determine if the call is important.

But few people take that route since even if the cell phone has the capability, few people know how to access or use the fancy features on their phones. Some 100 million Americans now carry a cell phone.

**T**here are ways to eliminate or reduce cell phones from ringing in public places. Some legal ...some illegal. Legal passive measures include lining a movie theater with special metallic paint or wire mesh shield to lawfully create a quiet zone by stopping radio signals.

But then another legal issue is raised. What are the legal ramifications if an on-call doctor is denied an emergency call? Cell phone jammers do not affect radio pagers which operate on different bands.

NetLine an Israeli company markets a \$900 cell phone jammer called the *C-Guard Cellular Firewall* which is about the size of a paperback book. But it can't be used in the United States where intentional radio signal blocking is prohibited.

In fact, owning, manufacturing, marketing, offering for sale or operating a cell phone jammer is punishable by an \$11,000 fine and up to a year in prison. The only group that can legally use cell phone jammers are the military and other federal agencies who aren't subject to FCC oversight.

Netline also has a \$6,500 battery-operated portable version that fits into a black briefcase for "...keeping meetings and working lunches free from external

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distractions". I suspect that these are really intended to preclude surreptitious recordings or retransmission of private conversations.

Jammers simply emit a radio signal to cellphones preventing them from receiving or sending real phone calls. NetLine has sold thousands of them ...most over the Internet. <www.netline.co.il> and <www.cguard.com>.

But they won't say who is buying them. They operate by obtaining and marketing to your e-mail or fax address. NetLine also makes a legal cell phone sensor which notifies users of the presence of an activated cell phone.

**NetLine is far from the only company that sells cell phone jammers.** Taiwan's Hubgiant <www.hubgiant.com> has a \$169 gadget they call the "WAC1000 Wave Shield" which operates off of a 9-V battery and protects a single room or hall.

And Uptron (of Lucknow, India) offers a full range of jammers with coverage ranging from 20 feet to over one mile. <www.uptronindia.com> We also understand that there is at least one (California-based) firm that makes cell phone jammers "for export only."

**Cell phone jammers are not illegal everywhere.** Japan's Ministry of Posts and Telecommunications has relaxed their restrictions and makes legal mobile telephone blocking licenses available in limited cases to "...prevent public nuisance." The jammers may only be operated during performances, not intermissions. And the Italian government is considering legalizing them in opera houses.

**Redmond, Wash.-based Zetron has another solution.** Its radio-based detector can detect any activated cell phone within 100-feet. The device can then sound an alarm, broadcast a voice warning over speakers or send a signal to a security guard. Their biggest customers are hospitals where medical equipment can be impeded by radio signals. Movie houses are installing them at their front entrance. <www.zetron.com>.

**The newest wrinkle in cell phone control are software systems** that automatically turn off cell phones, silence ringers or switch them to vibration mode according to the user's preset instructions when they enter a protected area.

BlueLinx Inc. of Charlotte, N.C., has a patent-pending system called "Q-Zone"

which relies on the new "Bluetooth" wireless technology. Theater owners (or others) install cigarette pack-sized radio nodes on their walls which communicate with Bluetooth phones. When the mobile phone leaves the protected space, its previous settings automatically return to normal. <http://www.bluelinx.com>.

**Cellular telephone engineers design their equipment with a short service life.** Because mobile phones are practically obsolete as soon as they are sold, the expected life of a typical phone is only a year and a half. At least one telecommunications study suggests that by the year 2010, the number of wireless telephone users worldwide will shoot up from 426 million today to over 1.7 billion.

**New types of GPS receivers available.** As Global Positioning System applications become more common and costs continue to drop, we see more features packed into GPS receivers. Campers can not only keep from getting lost, but they can also see what time it is (Casio's Pathfinder GPS2 is a GPS receiver built into a wristwatch). Altitude is not something that GPS is very precise at, but a built-in altimeter within Garmin's eTrex Summit helps nail down precise altitude and also provides an electronic compass.

## COMPUTER INFO

**Problems with old computer power supplies?** With obsolete PCs scattered across the land, it makes sense to try to recycle some of their components. Power supplies can be used again and their cost is practically nothing these days. But as hams and electronic hobbyists try to run a switch-mode power supply from an old XT computer (as an example), some of them scratch their heads when their radios or circuitry don't work as well as intended. That may be because these old computer power supplies were designed to drive rather heavy loads (motherboards, disk drives, hard drives, etc.), and lighter-than-usual loads may cause them to act strangely. Adding some extra power resistors across the power supply output makes it work harder and may cause better voltage regulation.

**A computer designed for the freezer.** Certain applications call for computers to be used in sub-freezing weather or ambient conditions. Factories or warehouses that store ice, dairy or meat

products are often controlled by computers. Some models of microcontrollers are designed to work in low-temperature environments; they even have sealed displays to prevent condensation from collecting inside. Touch-screen applications can be used, even by a person wearing heavy gloves.

**What are "earcons"?** An earcon is the sound you hear when you push a particular button on a computer keypad in an information kiosk. It could be a keyclick, a verbal "thank you," or a series of musical notes. An earcon could direct you to push other buttons, each with its own earcon.

**Java-based computer on your keyring.** Dallas Semiconductor's DS1957B "ibutton" fits on an average keyring but does more than just open doors. The Java-based computer contains several kilobytes of RAM and ROM. It can store digital images, passwords, and other software. Just touch the ibutton to a reader for instant, secure access to a computer network. The ibutton is actually a steel button about the size of your fingernail. Since you can take it anywhere, it can act as a means of accessing remote locations.

**Built-in UPS system in your PC.** Guardian's On Board uninterruptible power supply (UPS) actually fits inside a computer's peripheral slot. It can provide as much as 25 minutes of backup power, should the main computer's power supply fail. The On Board UPS springs into action in as little as two milliseconds upon loss of power.

**It's yesterday's supercomputer.** You can probably find and purchase locally within a day a desktop computer system that outperforms a Cray supercomputer of just 10 years ago. That's how fast the microprocessor speeds and performances are advancing and how fast the costs are dropping.

**Using psychology to design computer terminals.** With computers being used to do everything from pump gas to check out groceries, it makes sense to design the keypads and other input/output interfaces so that they are as easy to use as possible. But if the options are too complicated for human beings to use, people won't accept them. Psychologists say that the average person can remember only as many as seven different options in his short-term memory; anything more than that and some options will be forgotten. It's better for menus to be

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sorted out in small groups, with each group containing a deeper menu all its own.

**Computer-controlled resistance boxes are here.** Remember those decade resistor boxes we played with in electronics lab? Those boxes of rotary switches let us select how much resistance we wanted in a particular circuit. Selecting hundreds, tens or even decimals of ohms was easy to do by hand. But now resistance boxes can also be controlled by a computer through an RS-232 serial data link. They're ideal for remote operation or high-speed, repetitive tests in the lab.

## INTERNET NEWS

**Just when you thought you had seen everything on the Internet along comes something different.** The Naked News (TNN) bills itself "...as the program with nothing to hide ...nothing but the bare facts." It is a fairly well done daily traditional news format broadcast in streaming video over the Internet.

TNN covers pretty much what you see on ABC, CBS, CNN, and NBC newscasts ...that is, updated national and world news, sports, business, weather, technology and such. Based in Toronto, the Naked News Network just completed its first year of telecasting the news over the Web.

The term "streaming" refers to video that are designed to play as they download without the need to complete the download before you begin playing it. They take the digitized video files and compress them using custom software.

Using new technology, the video file is processed so that only the pixel changes in the video are refreshed, rather than the entire video frame. This drastically reduces the file size and allows you to watch the news as its downloading rather than having to wait.

To watch the TNN telecasts, you need a Pentium class PC (complete with sound card and Netscape or Microsoft browser version 4 or higher) and either a slow (28.8k, 33.6k, 56k) dialup or fast (ASDL or cable) connection. You also need a video software player ...either Windows Media, Apple Quicktime or Real-Player G2.

The free advertising-supported Naked News is produced weekday mornings, digitized for the Web, and posted for viewing late afternoons, Monday through Friday.

A team of four women report on the usual mix of news program topics. The lead anchor is Victoria Sinclair, Carmen Russo covers business and sports, Diane Foster (weather and general news), and Holly Weston has the entertainment and sports beat.

The Webcasts start off like any other news telecast with well-groomed, well-dressed news anchor women. But by the time their news is over, well ...you guessed it. Despite the distraction of disrobing during the newscast, Sinclair and her three equally attractive female colleagues seriously and straight-faced present the news, much like their more conventional - and fully clothed - mainstream broadcast counterparts.

There is a \$9.95 monthly charge for a larger (full) screen, no commercials and "TV quality" resolution. TNN -- which claims 4 million viewers monthly around the world -- is now looking for a home on standard cable television. Its located at: <[www.NakedNews.com](http://www.NakedNews.com)>.

**According to Forrester Research, online travel sales will quadruple to \$29 billion in 2003.** Seventy percent of the market is now controlled by two firms: Microsoft's Expedia and Travelocity. That could change.

Web-based travel agency Travelocity.com's 2000 revenues were \$201 million ...a whopping 122% growth over 1999. The company has 25 million members, a market capitalization of \$950 billion and is expected to become profitable this year. Travelocity's parent is giant Sabre Holdings -- which owns the reservations company used by most travel agents. The firm has just completed merging with Preview Travel and has integrated it into its system.

In June, a consortium of airlines launches a competing Web-based travel site. American Airlines, Continental Airlines, Delta Air lines, Northwest Airlines and United Airlines have poured \$100 million in funding to get Chicago-based Orbitz off the ground. Together these five airlines already control 80 percent of all air travel. Still, Orbitz future is in doubt.

Twenty state attorneys general have written the Justice Department with price-fixing and "collusion" concerns. Their interest focuses on Orbitz's ability to create, control and exclusively sell low fares through one distributor, which is owned by the airlines. Anti-trust regulators, Internet travel competitors and consumer groups say their scheme may be illegal ...the lack of competition would not be

beneficial to customers.

But Orbitz says it will offer an "unbiased" menu of flight choices from 30 carriers -- not just those of their five owners -- and plans to ultimately represent 450 carriers around the world. Tests of its non-Sabre-based reservation system indeed does pull up lower fares from more airlines. We tried a beta version of the new ITA system that powers Orbitz and was impressed. You can too at: <[www.itssoftware.com/](http://www.itssoftware.com/)>. In effect, Orbitz will compete with its owners. Observers say its possible but unlikely.

Hotwire.com is another price-comparison travel ticket firm that recently opened. They specialize in selling last minute "excess inventory" hotel rooms, airline seats and rental cars. They too have partnered with many domestic and international airlines.

Online travel has received such widespread acceptance, that they now have their own convention which will be attended by traditional travel agents. eTravel-World will be held April 2-4 at the Marriott Marquis hotel in New York City.

## WASHINGTON WHISPERS

**Speaking before 10,000 software developers at Oracle Corp's first AppsWorld Convention** held in New Orleans, held former president Bill Clinton complimented those in attendance for taking a leading role in America's prosperity during most of the past decade, and said, despite the recent downturn in technology stocks, the Internet would remain central to economic growth.

"I know there have been a few dot-COMs falling on the NASDAQ for the last several months, but don't kid yourselves, the Internet is still our future," Clinton said.

Larry Ellison, Oracle Corp. CEO, asked Clinton four months ago to speak at the February 19-23, 2001 convention for which Clinton was paid a fee.

**Citizens Against Government Waste (CAGW), America's largest non-profit taxpayer advocacy group** with over a million members, denounced Bill Clinton's "highly-paid" speech. "Former President Clinton and Oracle are a perfect couple. Both have advanced degrees in questionable judgment," CAGW said. The organization added the speech raises questions about the integrity of

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Oracle itself.

Reportedly former Clinton press secretary Joe Lockhart works for Oracle Corp. And there has also been talk about the possibility of Clinton joining Oracle's board of directors.

According to CAGW, Oracle was an instigator and one of the main beneficiaries of the Clinton Justice Department's anti-trust lawsuit against the Microsoft Corporation. "It is hard to see what the suit has accomplished besides wasting \$40 million of taxpayer money at the federal and state levels," said CAGW which is dedicated to eliminating waste, fraud, and abuse in government.

## Microsoft has stayed away from Washington politics for years.

But regulatory setbacks and the Clinton administration's antitrust case that caused a federal judge to order the breakup of the company has caused Microsoft to change its direction in the nation's capital.

It is now a huge political donor and a frequent sponsor of Washington events. The Associated Press reported that Microsoft donated \$1.3 million to Republicans and, hedging its bet, \$950,000 to Democrats during the last two years.

Microsoft has also loaded up an arsenal of Bush administration supporters. The AP said Paul Clement, a former adviser to Attorney General John Ashcroft when he was a senator; C. Boyden Gray, White House counsel to former President Bush; and Ed Gillespie, an adviser to George W. Bush's presidential campaign, are in Microsoft's camp.

**B**ridging the Gap. It used to be Internet access "yes" or "no". Now it is "fast" or "slow." A report released February 22<sup>nd</sup> by the *Government Accounting Office* (the GAO is the government watchdog that answers to Congress) says the "digital divide" -- the gap between the technological 'haves' and 'have-nots' -- is narrowing as more minorities, women, and rural residents go online.

Minorities are gaining Internet access at a faster pace but still lag behind the national average. The number of online black households has more than doubled over the past two years.

And there are now about as many women on the Net as men. Three years ago, there were twice as many male Netizens. The "geographic divide" has just about been eliminated as rural areas gain Internet access.

But now a new "digital divide" has opened up. The new gap is the ratio of users with high-speed "broadband" connections versus those with relatively slow conventional, dial-up services. The deterrent is "price." The cost of broadband access normally is normally double or triple that of dial-up access. And less affluent Americans are not paying it.

While more than half of those surveyed said high speed Internet DSL (phone-based Digital Subscriber Line), wireless, satellite or cable access was available to them, only one household in eight (12 percent of all users) had the service. Households with high speed Net access normally have higher incomes and are better educated.

The GAO survey was requested by Rep. Edward Markey (D-Mass.), who said more competition is needed among broadband providers to drive down costs and bridge what he called the "cost chasm." Markey is the senior minority member of the House Subcommittee on Telecommunications.

According to the GAO, Cable modem broadband services is three times more popular than DSL with 9 percent of all Netizens having it. (DSL penetration is 3 percent.) Fewer than one half of one percent of those on the Net have wireless or satellite-based Internet service. More than half of all adults in the U.S. now have access to the Internet.

Research firm, The Yankee Group's figures are a little different. They say about 2.5 million people have a cable modem, about 1.5 million have DSL and about 30,000 use satellites. Satellite services are expected to grow to about 1 million subscribers by year end. Supposedly, by 2005, 14.7 million people are expected to have cable modem service vs. 10.5 million with DSL.

Another researcher, IDC Corp., has still different projections. The believe there will be more DSL subscribers (9.3 million) than cable modem users (9 million) within two years.

While closing the digital divide gap was a high priority project of the Clinton administration, it's not at the top of President Bush's agenda. And Bush has proposed to slash the funding of the Technology Opportunities Program.

FCC Chairman Mike Powell, recently remarked that the digital divide is like a "Mercedes divide - I'd like to have one but can't afford one."

**T**he Voice of America (VOA) quotes a United Nations report saying **huge population increases are expected in many developing countries during the next 50 years** while declining and aging populations are forecast for most developed nations. The report says total world population is expected to grow from 6.1 billion people today to 9.3 billion in 2050. One-half of the population growth will occur in just six nations; India, China, Pakistan, Nigeria, Bangladesh, and Indonesia. In most developed nations, overall population levels are actually expected to drop. The major exception, he said, will be the United States, which has a higher fertility rate than other developed countries and also receives about one million legal immigrants each year.

**T**he Council for Excellence in Government, a nonprofit organization of senior public officials with a mission to improve the performance of government, recommended that Pres. Bush add an E-government czar to his Cabinet.

Their plan "*E-Government: The Next American Revolution*." says the Internet has the potential to "revolutionize the relationship between Americans and their government." The council blueprint is the cumulative work of 350 people over 14 months.

The creation of an electronic government will not be free of obstacles. Agencies continue to have trouble attracting workers with the necessary technical skills.

"We don't pay or [provide incentives to] our technology workers enough," said Rep. Tom Davis, R-Va., chairman of the House Government Reform Subcommittee on Technology and Procurement Policy. "We have a digital economy with an analog government."

## AMATEUR RADIO

**T**wo Texas bills designed to regulate cellular towers that are sprouting up everywhere could have unintentionally impacted ham radio!

**On February 7<sup>th</sup>, Texas State Representative Robert Cook introduced HB 1148** which seeks to grant authority to Texas counties to regulate wireless communication facilities. The legislation requires that anyone wishing to construct a wireless communication tower must notify the county six months before the planned construction. A public hearing and all residents within one mile of the



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planned tower must also be notified before a permit is issued. The objective is to preclude unwanted towers from "appearing" in residential neighborhoods.

**On February 14<sup>th</sup>, State Representative Rick Hardcastle introduced HR1492**, that would subject all antenna structures between 50 and 200 feet to the same stringent FCC Part 17, Subpart "C" painting, marking and lighting requirements as antennas over 200 feet. The intent of the aviation safety legislation is to regulate new communications towers that, according to Hardcastle, "...have caused seven accidents and at least two fatalities" involving air ambulances. Both bills propose to be effective September 1, 2001.

Thanks to concerted efforts by the American Radio Relay League, both bills now contain the following exclusion:

"Nothing herein shall be construed to regulate, nor shall it regulate, antennas, antenna support structures, devices or facilities, installed, maintained and used exclusively for Amateur Radio communications by Amateur Radio operators licensed by the Federal Communications Commission."

**Students at the Merivale Public School in Ottawa, Ontario, became the first Canadian students to speak with the International Space Station Alpha.** The Contact was with ISS Commander William Shepherd, KD5GSL, who used the NA1SS callsign.

The youngsters asked Shepherd about trash disposal and recycling aboard the ISS, procedures for dealing with a sick crew member and what the crew does for exercise. Near the conclusion of the contact, the students on hand hollered "73, Commander Shepherd!" in unison.

The ARISS (Amateur Radio on the International Space Station) team may try to do one more school contact before the Expedition-1 crew leaves for earth. After that, it will be sometime in late March before ARISS school contacts can resume, which will be after the Expedition-2 crew arrives. (AMSAT News Service.)

**CB radio is decreasing in popularity in the United Kingdom by 10 percent a year.** The main reason is the widespread acceptance of other methods of communications, especially mobile telephones

At a recent *Citizens Band Radio Forum* held in Edinburgh, Great Britain's Regulatory Agency (RA) said "There will be a point when we will have to deregulate the CB service if license numbers continue

to decline at the current rate. We are looking at introducing an *Amateur Radio Foundation* license to encourage people into the hobby, and this may provide an alternative for some CB users, who may be put off by the *Radio Amateurs Examination* (RAE) currently in place to become Radio Amateurs."

This caught some UK radioamateurs off guard who wondered if a fee only, but no (or a minimal) examination Amateur Radio license class may be in the works! The RA also confirmed that they are trying to bring the Amateur and CB radio sectors together.

The meeting was chaired by Martin Caine, Head of the RA's Specialist Sectors Unit which has responsibility for the licensing of Amateur and Citizens' Band Radio in the United Kingdom. Also on the CB forum panel was Don Beattie G3OZF, President of the *Radio Society of Great Britain*, the UK's national ham society.

**Electronic Licensing -- or "EL" as it is being called -- is being introduced in Great Britain.** It will supplement, but not replace, the existing paper-based system. EL allows applying for new Citizens' Band and Ship Radio Licences but not new Amateur Radio license applications which require hard copies of certificates that must be submitted with the application. British ham licenses can be renewed, modified or canceled online, however. This system is being introduced following the Government's commitment to making all transactions electronically available by 2004.

## FCC Amateur Radio Enforcement

**Kathryn Tucker, AA6TK (LaMirada, CA)** has been contacted by the FCC concerning numerous complaints relative to the W6NUT 147.435 repeater system. She is listed as the trustee.

These complaints concern long periods of jamming, broadcasting, playing music "...as well as a plethora of other violations" which are not addressed by either the control operators or licensee. There is also evidence that control operators may not be present on the system.

The FCC has requested information concerning W6NUT's frequency coordination, received complaints and action taken ...and the identities, instructions and schedules of the control operators on duty.

**Gregory Cook KC6USO (Chico, CA)** and **Ted Sorensen KC6PQW (Agoura Hills, CA)** have both been

asked to respond within 20 days to monitoring information indicating that they transmitted a lengthy broadcast on the W6NUT repeater which timed out the system several times preventing the repeater from being used by others.

"Our evidence shows that you also played music and transmitted one-way utilizing a phone patch to another user," FCC said. Their responses "...will be used to determine what, if any, enforcement action will be taken...."

Cook's license expires on May 7, 2001 and "it will not be routinely granted unless these issues are resolved."

**Stephen H. Anderson, AA8DP (Somerset, KY)** sent a letter to the FCC stating that:

"At this time, be advised that as of midnight E.S.T. on February 6 2001 the contract with the agency Federal Communications Commission, an agent of a foreign corporation, under the auspices of Amateur Radio license AA8DP, is hereby rescinded. All authority assumed by the FCC is null and void."

Anderson further stated "I do not reside in any territory or possession of the Federal Government of the United States of America and am not subject to any regulation by this fictitious entity."

As requested, the FCC canceled Anderson's operator and AA8DP station license effective February 12, 2001.

**Jonathan Romero KC2AGX (Bronx, New York)** has been ordered to retake the Technician Class license examination under the supervision of the New York City FCC field office.

The FCC has written the attorney of **Lorenzo Eady KG4IHK (Myrtle Beach, SC)** concerning an altered *Certificate of Successful Completion of Examination* (CSCE) indicating that he passed the Element 1 Morse code test on September 18, 2000. Eady contends he did not alter the CSCE which could have been done by anyone who had access to the form. The FCC restored Eady's license to Technician without code credit.

"In view of the physical threats apparently made to members of the volunteer examination group, and in view of the half dozen physical threats Mr. Eady left on the telephone answering machine at this (FCC) office, we will not require volunteer examiners to test him. He may go to the nearest Commission Field Office...." The FCC said they "will do our very best" to accommodate his hearing problem.

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## HAARP: IONOSPHERIC RESEARCH FACILITY (OR IS IT?)

*"Understanding and predicting ionospheric variability and its influence on the transmission and reflection of electromagnetic radiation has been a much studied field of scientific inquiry. Improving our ability to observe, model, and forecast space weather will substantially improve our communication systems, both ground and space-based." [excerpt from Air Force study.]*

The High-frequency Active Auroral Research Program (HAARP) is a congressionally-initiated program jointly managed by the U.S. Air Force and Navy. The project features a powerful HF radio transmitter 200 miles southeast of Fairbanks, Alaska which directs a narrowly focused radio beam up into the ionosphere.

The program's goal is to provide a state-of-the-art ionospheric research facility readily accessible to U.S. scientists from universities, the private sector and government ...thereby allowing them to study the properties and behavior of the upper atmosphere including global warming and ozone depletion.

HAARP was built by the military on a DoD-owned site 8 miles north of Gakona, Alaska. Prior to the beginning of the HAARP program, the Gakona site was planned by the Air Force, to be an Over The Horizon Backscatter (OTH-B) radar installation.

Civilian applications from the program's research could lead to improved local and world-wide communications ...even satellite communications using HF spectrum. Driving this research is the fact that all of the radio spectrum used for communications has been allocated and more frequencies are badly needed. Researchers are now looking at using lower frequencies. A potential DOD application of the research is to provide communications to submerged submarines.

HAARP's high power 2.8 to 10 MHz HF transmitter (known as the *Ionospheric Research Instrument*, or IRI) is actually a bank of many transmitters. Together they temporarily excite (heat) well defined volumes of the ionosphere for scientific study. When construction is completed, the IRI will consist of 360 ten kilowatt transmitters ...a total of 3600 kW with an effective radiated power (ERP) above one gigawatt. A massive electron gun indeed!

HAARP's huge phased antenna system will contain 180 towers, each 72-feet in height spaced over 33 acres. Its crossed dipole antennas are arranged as a rectangular planar array. At present, 48 antenna elements are functional and the HF transmitter at HAARP is now capable of operating at the 960 kW level.

It will take some ten million watts of electrical power -- obtained from on-site diesel generators -- to operate the facility. Aircraft alert radar automatically turns off HAARP's transmissions when aircraft are detected nearby.

While the HF transmitter at the HAARP facility is used infrequently, the Air Force admits that HAARP's transmissions have the potential to interfere with ham radio and other spectrum users. A typical research period may last two or three weeks and up to four such campaigns may occur in a

given year.

HAARP is required by the NTIA to operate on a "Not-to-Interfere-Basis" (NIB). This means that the operating frequency must be selected carefully so as not to disrupt on-going communications. HAARP is not authorized to operate in the ham bands at all and the transmitter has been "locked out" of those frequencies.

All undesired signals above 45 MHz are attenuated by at least 120 dB (one million, million times) and all harmonics and spurious signals in the frequency range 88 - 200 MHz, are attenuated by 150 dB or more (one thousand, million, million times).

The program has a radio frequency interference (RFI) resolution advisory committee and the ARRL is listed as the Amateur Radio Service representative. A local "RFI Reporting Hot Line" phone number (907) 822-5497 has been set up to permit anyone believing they have interference from HAARP to contact the Gakona site operations center.

### Science fact or science fiction....

But there has been much speculation that the real purpose of HAARP may not be ionospheric research at all. Some have expressed fears that the site may be controlling or modifying the weather ...somehow "amplifying" energy, and possibly injuring the ionosphere, causing earthquakes or volcanos. The most outlandish charges say HAARP will interfere with wildlife migration, disrupt the human brain and harm people's health.

Some of the worries seem to be based on "Star Wars" defense theories and that the program may somehow be "a decoy" or a "secret weapons project." HAARP has also been featured about on Art Bell's (W6OBB) nationally syndicated radio show, where the discussion often turns to flying saucers and human abductions by aliens.

The Sept. 1995 issue of Popular Science magazine carried a front-page headline about HAARP entitled: "Exclusive: The Secret Agenda of a Military Project in Alaska." The author asserts "HAARP will dump enormous amounts of energy into the upper atmosphere. We don't know what will happen. My concern is its effect on a global scale - you can't localize the effects. With experiments on this scale, irreparable damage could be done in a short time."

And another published report says HAARP is a "particle injector" that protects the United States from invasion over the North Pole. Supposedly, its beam can produce a blanket of fast particles that can knock out electronic controls, or completely destroy, any ICBM missile flying through it. The US government built HAARP in 1990 at a time when the main nuclear threat was the USSR. And any missile from Russia aimed at the U.S. would pass over this region. The U.S. can turn on and off the HAARP shield at will. And by changing the polarization, HAARP could also provide defense against Chinese nuclear weapons....

All of these theories have been emphatically denied. In fact, the project is listed as totally unclassified by the Department of Defense. Check the HAARP website at: <<http://server5550.itd.navy.mil/projects/haarp/>>