W5YI

Nation's Oldest Ham Radio Newsletter

REPORT

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

Fred Maia, W5YI, Editor, P.O. Box 565101, Dallas, TX 75356-5101
Tel. 817-461-6443 Electronic mail: 351-1297@mcimail.com

★ *In This Issue* ★

Vol. 17, Issue #22 **$1.50** PUBLISHED TWICE A MONTH **November 15, 1995**

Astronauts to Speak With Students Via Amateur Radio!

Amateur Radio operators from around the world will point their antennas at the sky during the upcoming STS-74 shuttle mission. Many of them hope to make radio contact with the astronauts aboard the Space Shuttle Atlantis. And, some of these amateurs have volunteered to assist student groups that have prepared questions to ask the astronauts via the ham radio airwaves. The project is called the Shuttle Amateur Radio EXperiment, or SAREX.

The crew will use a radio aboard the shuttle on frequencies used by ham radio operators. They will talk directly with large groups of students, showing young people, teachers, parents and communities how Amateur Radio energizes students about science, technology, and learning.

Three of the crew members on this flight are licensed amateurs. Commander Ken Cameron, KB5AWP, previously used ham radio from the Space Shuttle Atlantis during STS-37 in April 1991 and from the Space Shuttle Discovery during STS-56 in April 1993. Mission Specialist Jerry Ross, N5SCW, was also member of STS-37 SAREX crew, and operated ham radio aboard the STS-55 Columbia mission in April/May 1993. Mission Specialist Bill McArthur, KC5ACR used ham radio aboard the Shuttle Columbia during STS-58 in October/November 1993. Mission Specialist Chris Hadfield is also trying to obtain his ham ticket before the mission ...his first shuttle flight.

Ham radio has been flying on the shuttles since 1983. Here is a rundown on STS-74:

VEHICLE: Space Shuttle Atlantis/OV-104

MISSION: Second MIR Docking. The STS-74 mission will be the 15th mission for Atlantis and the 73rd for the Space Shuttle system.

CREW: Kenneth D. Cameron, KB5AWP
James Donald Halsell, Jr.(Awaiting call sign)
Jerry L. Ross, N5SCW
William Surles McArthur, Jr., KC5ACR
Chris Hadfield, (Awaiting call sign)

LAUNCH: Launch is scheduled for November 11, 1995 at 7:56 a.m. EST from launch Pad 39A at the Kennedy Space Center, Cape Canaveral, Florida. Launch window: 6 minutes, 57 seconds.

WHERE: The launch will place the shuttle into Earth orbit at an altitude of 196-245 statute miles (315-394 km) and an inclination of 51.6 degrees.

TRACKING: Current Keplerian elements to track the shuttle are available from the World Wide Web: http://spacelink.msfc.nasa.gov and the NASA SAREX WWW Home Page: http://-www.nasa.gov/sarex/sarex_mainpage.html

PAYLOAD: Primary Payload - MIR Docking Module
The Space Shuttle Atlantis makes its second trip to the Russian Space Station Mir during this mission, this time to install a permanent docking module that will simplify future shuttle link ups to the Russian complex. Atlantis' crew also will return to Earth

THE W5YI REPORT [Pub. No. 009-311] is published twice monthly by The W5YI Group, 2000 E. Randol Mill Rd, #608A, Arlington, TX. 76011 **SUBSCRIPTION RATE:** (U.S., Canada and Mexico) One Year (24 issues) $24.50 · Two Years: $45.00 · Three Years: $64.00. Tel. 817/461-6443
Foreign Subscriptions via Air Mail: $39.50 per year. (Payment may be made by Check, Money Order, VISA or MasterCard payable in U.S. funds.)
Second Class Postage paid at Arlington, TX. **POSTMASTER:** Send address changes to THE W5YI REPORT, P.O. Box 565101, Dallas, TX. 75356

experiment samples, equipment for repair and analysis and products manufactured on the station. STS-74 is the second of seven shuttle flights to MIR. This effort, known as Phase 1, is the precursor to building the International Space Station.

DOCKING: Target MIR docking date is November 14.

SAREX: The STS-74 crew will take on the role of teacher as they educate students about mission objectives. Using the Shuttle Amateur Radio EXperiment (SAREX), astronauts aboard the Shuttle Atlantis will discuss with students what it is like to live and work in space. The crew has scheduled Amateur Radio contacts with student groups from California, Connecticut, Idaho, Illinois and Indiana. The astronauts will also make random radio contacts with the Amateur Radio community (hams) and personal radio contacts with their families. NASA's intent in making astronauts available for SAREX operations is to involve the largest possible numbers of people, particularly students, in technology and the US space program with the help of Amateur Radio.

EQUIPMENT: The SAREX hardware will be flown in configuration M. Configuration M uses the shuttle/Mir VHF radio for FM voice radio contacts. During final approaches to the Mir Space Station, the VHF radio is used by the shuttle Commander to radio the Mir crew by ship-to-ship communications, providing shuttle status and keeping them informed of major events from that point on, including confirmation of contact, capture and conclusion of damping. This same VHF radio is used by the crew for SAREX activities during shuttle/Mir docking missions.

SPONSORS: The Shuttle Amateur Radio EXperiment (SAREX) is sponsored by the American Radio Relay League (ARRL), The Radio Amateur Satellite Corporation (AMSAT) and the National Aeronautics and Space Administration (NASA). SAREX is supported by the Federal Communications Commission (FCC).

LANDING: An on-time launch and nominal mission duration would have Atlantis and her crew returning to Earth on Nov. 19 with a landing at Kennedy Space Center's Shuttle Landing Facility, FL, at approximately 1:28 p.m. EST.

DURATION: 8 days, 5 hours, 4 minutes

INTERNET (INFO): Additional information is available from the NASA World Wide Web site at: http://spacelink.msfc.nasa.gov and NASA's Home Page at: http://shuttle.nasa.gov ARRL News bulletins at: http://www.arrl.org and (Goddard Amateur Radio Club) at: http://garc.gsfc.nasa.gov/www/garc-home-page.html

HAM BAND (INFO): ARRL's W1AW) transmits news bulletins (9:45 PM, 12:45 AM EST) on HF bands at 3.99, 7.29, 14.29, 18.16, 21.39, and 28.59. W1AW bulletins are also forwarded on packet. Members of the Goddard Amateur Radio Club (Greenbelt, MD) re-transmit live, shuttle air-to-ground audio over the amateur frequencies from their club station, WA3NAN. To listen-in, tune to Amateur Radio high frequency (HF) bands at 3.86, 7.185, 14.295, 21.395, and 28.65 MHz.

Participating Schools

A handful of schools are selected from around the world to make contact with the shuttle during most SAREX missions. These contacts are prearranged, giving the schools a greater chance at making a successful contact. Two or more students at each of the selected schools ask questions of the astronauts during the contact. The nature of these contacts embodies the primary goal of SAREX ...to excite students' interest in learning.

The following schools have been selected by the SAREX Working Group for a scheduled radio contact during this mission:

Franklin Junior High School, Pocatello, ID

Connecticut-area schools (combined-effort)
- Staples High School, Westport (contact site)
- Western Middle School, Greenwich
- Saxe Middle School, New Canaan
- Columbus Magnet School, Norwalk

Lake Street Elementary School, Crown Point, IN

Magee Middle School, Round Lake Hts., IL

Quimby Oak Junior High School, San Jose, CA

Additional information for amateur radio operators

During most SAREX missions, many of the crew members will make random contacts with earth-bound hams. They make these contacts during their breaks, before and after meal time, and during their pre-sleep time. In fact, over the past years the astronauts have contacted thousands of amateurs around the world.

Since this flight is a shuttle-Mir docking mission, and SAREX and Mir Amateur Radio stations usually share the same downlink frequency (145.55 MHz), the

SAREX Working Group has decided to use the following frequencies during this mission.

The crew will use separate receive and transmit frequencies. Please do not transmit on the shuttle's downlink frequency. (The downlink is your receiving frequency. The uplink is your transmitting frequency.)

FM Voice Downlink: 145.84 MHz
FM Voice Uplink: 144.45, 144.47 MHz
FM voice call signs: KB5AWP, N5SCW, KC5ACR

The crew will not favor either uplink frequency, so your ability to communicate with SAREX will be the "luck of the draw." Transmit only when the shuttle is within range of your station, and when the shuttle's station is on-the-air.

Send reports and QSLs to ARRL EAD, STS-74 QSL, 225 Main Street, Newington, CT 06111-1494, USA. Include the following information in your QSL or report: STS-74, date, time in UTC, frequency and mode (FM voice). In addition, you must also include a SASE using a large, business-sized envelope if you wish to receive a card. The Greater Norwalk Amateur Radio Club in Norwalk, CT has generously volunteered to manage the cards for this mission.

NEW AND UPGRADING AMATEUR STATISTICS

The FCC has not issued statistics on first time licensed and upgrading amateurs in some time. So we wrote our own program which accesses information contained in the FCC's amateur database.

May 1995	NEW	UPGRADED TO
Novice	112	0
Technician	3718	2
Technician Plus	462	576
General	122	596
Advanced	25	654
Extra	8	491
Total:	**4447**	2319

June 1995	NEW	UPGRADED TO
Novice	76	0
Technician	2828	4
Technician Plus	269	468
General	74	474
Advanced	15	581
Extra	8	390
Total:	**3270**	**1917**

July 1995	NEW	UPGRADED TO
Novice	51	0
Technician	2016	3
Technician Plus	213	379
General	53	394
Advanced	4	232
Extra	2	237
Total:	**2339**	**1245**

August 1995	NEW	UPGRADED TO
Novice	47	0
Technician	2512	22
Technician Plus	212	395
General	51	420
Advanced	6	24355
Extra	5	272
Total:	**2833**	**1361**

September 1995	NEW	UPGRADED TO
Novice	53	0
Technician	1836	5
Technician Plus	167	318
General	29	315
Advanced	3	232
Extra	1	215
Total:	**2089**	**1085**

October 1995	NEW	UPGRADED TO
Novice	73	0
Technician	1961	1
Technician Plus	179	364
General	26	407
Advanced	5	276
Extra	11	254
Total:	**2255**	**1302**

We can understand why the FCC has not issued licensing statistics for more than a year. Some of the information in the database from which the report is developed is not accurate. The VECs file all applications electronically over the phone lines "computer-to-computer" and incorrect keying does happen.

For example, an amateur can not upgrade to Technician since it is an entry level license. We believe the Technician "upgrades" were caused by VEC's showing an amateur who passes only Element 2 and later Element 3A as an upgrade. There were also several amateurs in the data base that had a "blank" license class which is confusing. We adjusted these as best we could.

Here is a comparison of new amateurs for the 6 month period (May to October) with prior years (since the beginning of the no-code license.)

First time Licensed Amateurs for Six Month Period

Months	1991	1992	1993	1994	1995
May-Oct:	19940	21748	25082	15190	17233
Average	3224	3625	4181	2532	2872

It is interesting to note that about 80% of all first time licensed amateurs are choosing the Technician path into ham radio. Another 9% begin their climb up the ham radio ladder at the Tech Plus level. Less than 3% of all first time licensed amateurs start at the Novice Class. Only 14.5% of all Technician Class amateurs upgrade to Tech Plus by passing 5 wpm code.

AMATEUR RADIO CALL SIGNS

...issued as of the first of November 1, 1995:

Radio District	Gp."A" Extra	Gp."B" Advan.	Gp."C" Tech/Gen	Gp."D" Novice
Ø (*)	AAØZS	KGØZQ	(****)	KBØUJJ
1 (*)	AA1OV	KE1DJ	N1WBH	KB1BUW
2 (*)	AA2ZG	KG2ER	(****)	KB2WEE
3 (*)	AA3MX	KE3VD	N3WHT	KB3BLQ
4 (*)	AE4NK	KT4FO	(****)	KF4EKP
5 (*)	AC5FN	KK5UL	(****)	KC5RMU
6 (*)	AC6FN	KQ6BK	(****)	KE6ZIM
7 (*)	AB7NA	KJ7SG	(****)	KC7NPR
8 (*)	AA8UW	KG8UF	(****)	KC8BKJ
9 (*)	AA9QL	KG9EO	(****)	KB9LWZ
N.Mariana Is.	KHØU	AHØAW	KHØEN	WHØABD
Guam	WH2Q	AH2DA	KH2OV	WH2ANN
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii	(**)	AH6OH	(****)	WH6CYO
Kure Is.			KH7AA	
Amer. Samoa	AH8O	AH8AH	KH8CK	WH8ABE
Wake W.Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska	(**)	AL7QG	(****)	WL7CPJ
Virgin Is.	WP2U	KP2CH	NP2IL	WP2AIA
Puerto Rico	(**)	(***)	(****)	WP4NEA

*=All 2-by-1 "W" prefixed call signs have been assigned in all radio districts. 2-by-2 AA-AK call signs now being assigned.

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

***=Group B (2-by-2) format call signs have run out in Puerto Rico

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

[Source: FCC, Gettysburg, Pennsylvania]

NEW LAPD TELEVISION SERIES PRODUCED BY HAM!

Dave Bell, W6AQ is Executive Producer of a new television show which in the first few weeks of the new television season is one of the potential hits of the year! "LAPD" is the first real inside look at the world's most well known (and most maligned) police organizations in the country. Although battered in the media by the O. J. Simpson/Mark Fuhrman case and the Rodney King beating, Bell believes that the 8,000 member Los Angeles Police Department is one of the world's best.

Dave Bell has won virtually every major television award including the Emmy. In 1984, his film "Nadia," the story of Olympic gold medalist Nadia Comanecci, became the highest rated syndicated television movie ever broadcast in the United States.

His company also produced the "Missing: Have You Seen This Person?" specials for NBC which evolved into the hit series "Unsolved Mysteries." Dave has done dozens of specials for broadcast networks and HBO, and just delivered a special to CBS entitled "The World's Most Dangerous Animals" which will be aired sometime this fall.

W6AQ is best known to the ham community, however, as the producer of such films as "The Ham's Wide World", "The World of Amateur Radio" and "Amateur Radio's Newest Frontier."

Bell was first licensed in 1951 as W8GUE, Andover, Ohio. In 1960 he became W6BVN ...still later: W6AQ. In 1984, Dave was named "DXer of the Year" by the Southern California DX Club and "Amateur of the Year" by the Dayton HamVention. Dave and his wife Sam, N6FTW, live in the hills above Hollywood.

HAM AUDIO AVAILABLE ON THE INTERNET

TAPR has installed a new digital voice "Virtual Meeting Page" on the Internet. Greg Jones, WD5IVD, President of Tucson Amateur Packet Radio (TAPR) announced on Nov. 1 the creation of a virtual meeting, workshop, and seminar page on the www.tapr.org pages. "On our new pages, TAPR uses the RealAudio system to make presentations available for a few events that many amateurs were not able to attend."

TAPR is evaluating the RealAudio system, and its current implementation on the TAPR server is limited. RealAudio is audio transmitted over the Internet's World Wide Web. The TAPR system only allows 6 concurrent connections, so if you find that an audio channel is busy, try at another time.

TAPR wants to know what you think about this -- and your experience with these pages. Currently, the virtual meeting pages include:

1995 TAPR ANNUAL MEETING

Couldn't attend the March TAPR meeting in St. Louis? Listen in to the TAPR/AMSAT SP-93 Workshop by Bob Stricklin, N5BRG, and Tom McDermott, N5EG as well as the seminar on Error Control Coding by Phil Karn, KA9Q.

Using the Adobe Acrobat format (pdf) TAPR has provided the overheads and between the audio and the overheads you should be able to get a lot from the workshop you couldn't attend!

REPEATER FREQUENCY COORDINATORS MEETING

Hear the entire meeting of the nations repeater frequency coordinators who met with the ARRL and the FCC in St. Charles, Missouri, October 7th, 1995. Hear what was said by Rod Stafford, President of the ARRL and Ralph Haller, N4RH, Deputy Chief of the FCC's Wireless Telecommunications Bureau. Listen in on the eventual discussions, debates, and eventual outcomes. Read what Newsline published regarding the event.

HAM RADIO AND MORE RADIO SHOW

Hear the August 13th guest, Greg Jones, WD5IVD, President of TAPR discuss digital issues and what TAPR is doing.

EMERGING TECHNOLOGY

• **Cable, television and computers are merging!** Another new online service on the way! Look for **"@Home,"** a high speed Internet-access service to begin operation shortly. Pricing has yet to be established. Part owner is TCI Technology Ventures, a division of Colorado-based TCI Cable. "@Home" will be distributed via cable modem at speeds 500 times faster than current telephone modems. The path back to the service, however, is not nearly as fast!

• **Television sets to have a PC keyboard! Interactive television will shortly take on a new look, the marriage of TV video and computer data.** Intel Corp. has developed a technology that merges consumer television with the Internet. It is called "Intercasting," a coined word for Internet broadcasting.

The plan is to let broadcasters and advertisers distribute HTML text, graphics and pictures (but not full motion video) over the Internet's World Wide Web that complement broadcast television shows.

It works like this: A PC with a conventional TV set tuner, a special over-the-air television capture circuit board and Netscape software receives the Internet data over the vertical blanking interval. That is the space between the video frames that is now used to distribute closed captioning for the deaf and various other information. Instead of the data being directed to the television, it is directed to the PC portion. In actuality, you are watching television over your PC.

PC viewers will be able to dial up and save/print out sports scores, weather and advertising information while watching television. Users will even be able to print out price-off coupons and local dealer listings from their PC/TV.

Intel's Internet Technology Lab has formed an Intercast Industry Group which is developing standards which they hope will be adopted worldwide.

In any event, Intercasting PCs will be on the market by next summer. Both Packard-Bell and Gateway 2000 have already agreed to sell Intercast-equipped PCs and major TV programmers are developing innovative applications.

NBC Desktop Video and CNN-At-Work said they will deliver news and special programming to networked office PCs. At first, the intercast services will be offered free. The PC/TV will be priced about $300 higher than regular personal computers.

Intel is also working with cable operators to develop cable TV converter boxes equipped with high-speed computer modems that can deliver all sorts of computer online services.

• **Direct Broadcast Satellite telecasting is now a hot commodity.** Like Jimmy Durante used to say, "Everybody wants to get into the act!" Analysts say that half the estimated 12.5 million DBS subscribers by 1998 will be converts from cable.

The heavens are already getting saturated. By late next year, there will be five DBS companies beaming programming to the public from orbit. (The other three are PrimeStar, AlphaStar and EchoStar.)

TCI Cable, the nation's largest, wants to enter the high power DBS business! Right now they offer is a medium power DBS service which requires a larger dish. But they are not the only one seeking orbital slots which are an extremely limited property.

TCI was going to offer their high power DBS service on 27 (of the 51) channels at 100 degrees west above the equator which were acquired from Advanced Communications Corp. for $45 million.

But MCI also wants to get into DBS and told the Commission that they would be willing to pay far more. Much more! MCI would start the bidding for the 27 channels at 110 degrees at $175 million! That got the Commission's attention real fast! And Ameritech, Bell Atlantic, BellSouth, Nynex and SBC Communications have also expressed an interest in bidding.

Last week, following a Senate amendment to maximize income to the U.S. treasury, the FCC voted in a closed door session to reclaim and auction off all 51 channels. The action was taken because Advanced had not come close to offering DBS service

TCI is not happy with the FCC decision to sell its planned "Cable in the Sky" channels. Both Advanced and TCI said they will sue the FCC But Jan. 18, 1996 has been set as the DBS spectrum auction date.

Southwestern Bell is not waiting for the auction. They have already entered the DBS business by leasing (at $19.50 a month and up), installing and maintaining DBS equipment. They have an "800" number for potential DBS customers to call. (1-800-234-BELL.)

• **In an unrelated development, Lockheed Martin Corp. of Bethesda, MD plans to build a $4 billion satellite system** for two-way global computer networking ...sort of an satellite-based Internet. They want to orbit nine large satellites to form their new Astrolink system.

• **A research study by the *Cable and Telecommunications: A Marketing (CTAM) Society* entitled "Early Users of New Media"** finds that that expanded programming choices and better picture quality is the reason subscribers turn to Direct Broadcast Satellites. The study also found that few DBS customers were aware that they could not access local channels and that rain adversely affected reception quality until after they purchased the system. Even fewer DBS customers were told about the additional cost of hooking up multiple TVs. The DBS subscriber "buy rates" for Premium and pay-per-view services is twice as high as that of cable users. The report, prepared for wire/wireless cable and DBS operators, sells for $6000!

• **There isn't much difference between a FAX machine, a photocopier and a laser printer,** so Xerox has come out with a machine that is all three. Aimed at business, the Xerox Document Center starts at $20,000 but prices are expected to drop. Microsoft tried common software that could control faxes, copiers and printers from a PC, but the idea never caught on.

• **Will traditional telephone service become obsolete? There is reason to believe that it will! Motorola has been awarded a contract from cable giant, TCI of Denver** to build equipment that will offer telephone service over cable TV lines. TCI who will be working with long distance carrier, Sprint Corp., starts offering the new service in Chicago in January.

Time-Warner and other cable

operators are talking to AT&T about providing the "local loop." That will permit AT&T to bypass the "Baby Bells" and their high access charges. Nothing has actually been decided yet. Everyone is waiting to see whether telecommunications reform legislation is actually passed.

In London, telephone users will be trading in their wireline phones for wireless digital ones. Their national wireless service starts in March. The big advantage is cost! Wireless phones are cheaper to install than laying wireline cables ...especially in rural areas.

According to the license, the system must cover 75% of England and Wales within four years. The equipment was developed in the U.S. by Northern Telecom.

- **And you can now reach someone travelling on a plane!** Ground-to-air capability from GTE Airfone is possible by obtaining a 10-digit "aircall" number (available from 1-800-890-3939.) The cost is $2. for each leg of your flight.

People on the ground dial 1-800-AIR-FONE and your aircall number. The seat number of the airline passenger getting an inbound phone call flashes on the aircraft screen and is routed to the proper seatback.

Cost is $2.50 per connection plus $2.50 a minute. It increases to $5 connection/minute on international flights through satellites. AT&T has a similar system.

MCI/In-flight Phone Corp. offers airline passengers their own screen and keyboard to send outbound faxes, transmit e-mail, play games, review airport maps and stock quotations.

PERSONAL COMPUTING

- **Microsoft's profits soared by 58% in its fiscal first quarter ...largely on the basis of strong sales of its Windows-95 computer operating system.** An estimated eight million copies of Windows 95 were sold in two months. By 1998, researcher Dataquest estimates that Microsoft will be shipping 125 million copies of Windows-95 annually ...mostly pre-installed on PCs.

- **Windows 95 has only been out two months and already Microsoft is distributing software fixes.** The flaws involve file and printer sharing on networks. Corrective software patches are available from Microsoft's Wide World Web page at: http://microsoft.com/windows

- **A 16-year old boy faces felony charges of computer tampering, falsifying business records and criminal impersonation.** Daniel Swerdloff of Merrick, NY was given a subscription to "2600: The Hacker Quarterly" for his birthday by his parents.

He is now charged with impersonating Nynex telephone technicians and using lingo learned from underground and Internet sources to invade private teleconferencing "bridges." The boy is believed to have headed up a group of 40 or 50 telephone hackers who stole thousands of dollars worth of long-distance service.

- **Be very careful if your Microsoft Word document file contains a macro!** The macro, a series of stored instructions, is the newest vehicle for computer viruses. What is so scary is that anyone can easily write them! Hundreds of thousands of people write them every day. One "Macro Virus" timebomb deletes your command.com file on April 5th." Microsoft is taking the threat seriously and has released a free upgrade to Word that warns users if a macro is contained in a document.

- **The new version of Intuit's popular "Quicken-96" comes with a built-in Internet connection!** Eight million people use Quicken! The idea is to have a way for Quicken users to be able to find helpful financial information on the Internet.

Users simply click a button to dial up a Quicken site on the Internet's World Wide Web. You can only go to the sites that Quicken has chosen. And you don't even need a browser! Netscape has provided a free built-in web browser.

Eventually, customers will be able to get stock quotes and other financial data. Users that want full Internet access can hit another button to purchase an account that costs $1.95 a month for 1 hour of access, the lowest of any Internet provider!

Quicken wants its users on-line so the company can quickly take advantage of on-line banking when it hits (and is accepted) in the marketplace.

- ***Business Week* did an exhaustive special report of Intel Corp. Here is a capsule version!**
  - 55 million Intel powered PCs will be sold this year, a 30% gain over 1994
  - Intel's sales are $11.5 billion. ($20 billion expected in the year 2000.)
  - 150 million PCs have Intel microprocessors.
  - Analysts predict that 80% of all computing in the year 2000 could use Intel technology.
  - It costs Intel $1 billion to develop a microprocessor and another $1 billion to upgrade plants to build it.
  - Intel now makes chip sets, motherboards and designs (but does not build) computers to speed up time getting to the marketplace.
  - Only a few major PC makers (such as IBM and Compaq) still make their own motherboards. Intel has put hundreds of Taiwanese motherboard makers out of business.
  - So far, all PCs using Intel components are assembled by other companies, such a Hewlett-Packard, Digital Equipment, Packard-Bell, AST Research ...and others.
  - Biggest fear among PC makers is that Intel "...will follow its massive Intel Inside" brand identity campaign with an "Intel Outside" offensive."

- **The Wall Street Journal reported that Intel took "extreme measures" on its new Pentium Pro (P6) chip** to guard against a repeat of the mathematical flaw found in its current Pentium microprocessor.

Intel sent out 500 "beta test" machines to sophisticated users, tried the chip on 300 machines and had 20 computer manufacturers conduct a "shake down" the chip.

Even still. there seems to be a flaw in the chip that causes problems in certain network situations. There are over a million transistors in the P6.

- **The good news is that Apple Computer increased their share of the PC market to 9%.** The bad news is that profits fell as Apple was unable to keep up with demand. Their stock price dropped from 50 in June to 35 in October. Reason: they underforecast demand and have a $1 billion backlog.

Their three top software, financial and marketing executives have now quit the company in a disagreement with Apple CEO Michael Spindler over

company direction. They wanted the company merged with a larger firm that has more marketing and financial clout. Apple turned down a $50 bid from IBM last year.

• **Do you rmember the flak about how Packard-Bell using refurbished parts and selling returned PCs as new?** Rival Compaq Computer sued Packard-Bell in federal court this spring alleging that it was misleading the public. After a federal investigation, Packard Bell agreed to settle several consumer lawsuits by paying $1 million into a reimbursement fund. Packard denied any wrongdoing, however.

Now Packard-Bell is accusing Compaq of defamation, unfair competition and deceptive advertising in a lawsuit filed October 10th in a Delaware federal court. They are seeking punitive damages and reimbursement of lost income.

• **Believe it or not department! For the home that has everything, NEC Corp. recently introduced their "Fish Club Virtual Aquarium."** This full size water-filled fish tank is really a high-definition TV that shows an incredibly realistic laser-disc video of gold fish! The NEC documentation says that the fish never need feeding, don't die and don't need their water changed. And if you get tired of goldfish, you can press a button and switch to any of ten other species. Over a thousand "fish machines" have been sold in Japan in the last six months. Price tag: $15,000.

WASHINGTON WHISPERS

• **The FCC is doing more business in private. Under the "Government in the Sunshine Act", all federal agencies are supposed to conduct the public's business in public.** But just the opposite is happening.

There are more closed door meetings and "circulation" issues. The "public" debate is conducted through legal assistants, e-mail and via memos. And it is all legal ...as long as three Commissioners don't meet secretly to hash out a deal.

Most rule making now is conducted through "circulation" which was once reserved for routine issues of little general interest. The FCC voted 433 items on circulation vs. 93 at open meetings during the last fiscal year.

• **Have you heard those "get rich" investment schemes on radio or television offering opportunities in the "...fast growing wireless telecommunications field?"** The FCC says there have been reports of thousands of individuals who have lost all of the money they invested in such ventures.

Because of the number of auctions for licenses to provide wireless services in the coming months, the FCC, along with the Securities and Exchange Commission and the Federal Trade Commission is embarking on an aggressive anti-fraud campaign.

Gordon Coffman of the FCC's Wireless Telecommunications Bureau has been named co-chairman of the FCC's new Anti-Fraud Task Force.

"I recent years, unscrupulous promoters have paraded examples of people who purportedly made 'millions' in early cellular radio investments as proof positive that the same opportunity exists now in wireless cable, Interactive Video and Data Services, or Personal Communications Services. Although one can hope that is true, it does not follow that any particular promoter has the business plan that will bring about the desired result," said Coffman.

Fraudulent investment companies generally target senior citizens and those least able to properly evaluate investment options. They make initial contact with potential investors through cold calls, television or radio advertisements or infomercials. The caller or the ads encourage interested investors to respond by calling a toll-free telephone number. After responding, they are then subjected to a high-pressure sales pitch. The sales pitch is often accompanied by slick promotional packets that lend an air of legitimacy to the investment scheme.

After convincing investors, the fraud perpetrators set up general partnerships, limited partnerships, or limited liability corporations made up sole of their victims - investors who are told they'll be bidding in an FCC auction for licenses to provide wireless telecommunications services. Because the perpetrators are not partners in the applicant company, they avoid FCC jurisdiction. The perpetrators are also careful not to emphasize that most of the money invested - sometimes up to 80% - goes to "administrative costs," leaving as little as 20% left to bid in the auction.

Coffman says that even if the partnership does win the license, it may not have sufficient capital to construct or operate the wireless service.

Inquiries or complaints about specific deceptive telemarketing investment schemes should be directed to your local state Commission on Corporations or to the National Fraud Information Center at 1-800-876-7060.

• **House and Senate conferees are hammering out differences on a Telecommunications Reform bill** that they hope President Clinton will sign. Calling the legislation "the biggest jobs bill in modern times," House Speaker Newt Gingrich said President Clinton would be "remarkedly ill advised" to veto the measure. A consensus could be reached by Thanksgiving.

• **The nation's leading telecommunications and computer industry executives met with President Clinton during early October to discuss ways to bring the nation's public schools online by the year 2000.**

AT&T Corp. has stepped forward and said that they will offer free Internet access to 110,000 public and private schools ...virtually every elementary and secondary school in the nation beginning in the fall of 1996. AT&T will offer free dial-up Internet access, browser software and 100 free hours of use with a 30% discount on service thereafter.

The program dubbed the "AT&T Learning Network" is expected to cost AT&T some $150 million over five years. Besides being a good gesture, the move will create a pool of future buyers for AT&T services.

Vice President Gore commended AT&T's initiative "...which will help move the nation one step forward toward meeting Pres. Clinton's challenge to bring our classrooms and schools into the Information Age."

• **AT&T wants to become "just another carrier" and requested the FCC to declare them a "non-dominant" carrier.** As a dominant carrier, AT&T must file rate changes months in advance. This gives "non-dominant" carriers time to adjust their rates which they can do on one days notice. As a "dominant carrier", AT&T also must file applications to build, buy or acquire lines

...and are burdened with an abundance of red tape.

AT&T petitioned for reclassification two years ago ...saying that the long distance market was now "fully competitive.". On October 12th they got their wish. Recognizing a decade of enormous change in the long distance market, the FCC voted to reclassify AT&T as a non-dorminant carrier.

AMATEUR RADIO BRIEFS

- **Twenty-nine ITU-Region 2 countries met at Niagara Falls, Ontario Canada between September 25 and 29.** The *International Amateur Radio Permit* (IARP) was a topic of discussion. The Region 2 General Assembly unanimously approved the *Organization of American States* (OAS) action last June 1995 which approved the Inter-American Convention on an International Amateur Radio Permit. But so far only five countries have ratified the convention, Canada, the United States, Uruguay and Argentina. The long term goal is to have the IARP globally accepted.

Other issues discussed at Niagara-95 were new modes of communication, band planning, EMC, regulatory matters impacting the spectrum and the establishment of priorities for the next three years. The next conference will be held in Venezuela in 1998. *(Thanks, RAC)*

- **The Quarter Century Wireless Association held its 1995 Convention and Board Meeting** in Manchester, NH between October 11 and 14.

Besides the Board meeting, there were several very interesting Forums ...including those presented by the FCC, ARRL and IARU.

The big Saturday night banquet featured several interesting speakers plus the presentation of several awards. Of particular interest was the Hall of Fame Award presented to John Johnston, W3BE, of the FCC for his many years of support to the amateur community in his capacity as overseer of Part 97 of the FCC Rules and Regulations.

- **The FCC announced on Oct. 31st that, effective January 1, 1996, the maximum allowable reimbursement fee for an Amateur operator license examination will be $6.07.** This amount is based upon a 2.544% increase in the Dept. of Labor Consumer Price Index between September 1994 and September 1995.

Volunteer examiners (VEs) and volunteer-examiner coordinators (VECs) may charge examinees for out-of-pocket expenses incurred in preparing, processing, administering or coordinating examinations for amateur operator licenses.

Both the ARRL/VEC and the W5YI-VEC said that their VE teams would be charging $6.05 for Amateur Radio operator examinations administered during calendar year 1996.

- **We understand that the World Radio Conference-95 (being held right now in Geneva) took up the RR2735 issue on October 30.** That is the international regulation that requires amateur radio operators to be Morse Code proficient when operating on the HF ham bands. New Zealand has proposed to abolish the international requirement.

The delegate voting won't be known until November 17th, however. It appears that we will have something to report on this matter in our next issue. By that time, all delegates will have returned to their home countries.

- **Regina M. Keeney, has been named Chief of the FCC's Common Carrier Bureau.** She succeeds Kathleen M.H. Wallman, who is leaving the Commission to serve as Deputy Counsel to the President of the United States. Keeney, who previously worked in the Common Carrier Bureau some ten years ago, begins her new duties on Nov. 9th.

Keeney, a graduate of Georgetown University and Harvard Law School, came to the FCC from the Senate Commerce Committee. She replaced Ralph Haller, N4RH as the Private Radio Bureau Chief, later renamed the Wireless Telecommunications Bureau (WTB.) Haller became the Deputy Bureau Chief.

Amateur Service regulatory jurisdiction falls under the FCC's Private Radio Division which is part of WTB. On Wednesday, November 1, FCC Chairman Reed Hundt named Michele Farquhar to be the new Wireless Telecommunications Bureau Chief.

Farquhar previously worked at the FCC before joining the National Telecommunications and Information Administration. Michele is currently the Deputy Assistant Secretary at NTIA. The NTIA is the White House advisor on telecommunications matters.

- **It looks like the Vanity Call Sign matter could be delayed a while longer.** The FCC has (again!) received two *Petitions for Reconsideration* of the provision that prohibits a close family member from obtaining the call sign of a deceased amateur unless they have at least the same license class.

Originally the FCC did not include this provision in the Vanity Call Sign rules, but David B. Popkin, W2CC (Englewood, NJ) wanted the rule revised to prohibit an applicant from obtaining a call sign for a higher operator class simply because the call sign was once held by a relative now deceased. He wanted to be able to determine the license class held by the station's licensee from the call sign alone.

The FCC was persuaded that allowing a lower class amateur to obtain the higher class call sign could result in unfair assignments. "For this reason, we conclude that the close relative exception should be limited to persons who hold the requisite or higher class of operator license," FCC said. Now, this is being challenged.

It is possible that the FCC could say that this matter has been considered ...and reconsidered and since no new issues have been raised, dismiss the matter. If this happens, then the Vanity Call Sign program could move ahead fairly fast. Stay tuned.

- **Do you remember the write up that we did on "K1MAN Alleges 'Criminal Conspiracy'" in our last issue?** Some amateurs have reported to us that they heard me (Fred Maia) reading this story over the airwaves on one of K1MAN's HF broadcasts. Here is how that happened.

After we received the press release from Glenn Baxter, K1MAN we edited and wrote up the story as best we could. We then called him and read it back to him to be sure that what we wrote, is what he meant. He asked for, and received, several changes.

K1MAN recorded the telephone conversation. Even though **we specifically told him that our conversation was private and not to be broadcast**, he did so anyway!

NEW UNLICENSED HF SERVICE PROPOSED!
Devices Would Select Channels Throughout HF Band

In the rush to market unlicensed radiofrequency (RF) devices, manufacturers are pelting the FCC with requests for new services such as the Family Radio Service (see story, last issue). Those petitions have been limited to the spectrum at VHF or above. Until now, that is!

The FCC has received an unusual petition that proposes a "Messaging and Location Tracking Service" (MLTS) with 10 W unlicensed mobile transmitters. These radios could choose any channel in the entire 3-30 MHz range: the high frequency (HF) spectrum containing Amateur Radio, international broadcasters, maritime, fixed services and many other users worldwide.

The petition was filed by Flash Comm Inc., a joint venture of Harris Corp. and Lexmark. Harris is the well known manufacturer of electronics, broadcast and printing equipment. Lexmark was formerly the IBM typewriter and printer division.

Long haul truckers and other transportation users are key markets for MLTS. "Advanced HF communications is the solution" to their needs, the company told the FCC. The vehicle radios would receive "outbound" messages from non-HF stations such as paging transmitters. They would then use the HF bands on a "secondary, non-interference basis" to communicate "inbound" with large regional base stations. Those base stations would then relay the messages to customers.

Transmission safeguards

"There will be no interference to primary, licensed HF radio users from the inbound system's operation in the 3-30 MHz band," Flash Comm said. The unlicensed units will include these safeguards:

1. Examination of potential transmit frequencies in use by others before transmission. The device may transmit on any one of 9000 channels in the 3-30 MHz band that it finds to be clear.
2. Transmission time of five seconds maximum, two seconds average, with "noise like" emission. "The worst case interference is perceived to a voice user as a short burst of low level noise, much like a common channel fade," the company said. "Interference to data users would also be minimal, as existing data systems must also contain an effective means of dealing with channel fades."
3. Long and random time intervals between consecutive transmissions on the same frequency.
4. A "very low" transmit power (10 W out of the final amplifier into a 50 ohm load, using a maximum 3 kHz wide signal).

"The effective radiated power out of the MLTS user device antenna is typically less than 10 watts -- more on the order of 2 watts at the peak of the antenna pattern, due to the use of manageable antenna lengths on mobile platforms.

"Accordingly, in the unlikely event that an MLTS transmission occurs in an interference mode and arrives at an unintended receive station above the noise floor at that station, it will often be sufficiently below the intended signal level so as to be imperceptible."

"Since the MLTS system will be required to choose clear frequencies on a near real-time basis, the likelihood of hitting a co-channel primary user multiple times in a short period of time is highly unlikely. First, the next time a frequency is being selected, the system will most likely determine correctly that the frequency is used and not choose that particular frequency again.

"Also, since the initial frequency choice was made, another frequency may be predicted to have a better propagation effectiveness. Therefore, the system would not choose the same frequency again, thus further minimizing the probability of revisiting occupied frequencies."

Unlicensed operation desired

"Mature MLTS systems may result in hundreds of thousands of remote user devices implemented across the United States," the company said. "The requirement to license such a large universe of user devices would severely tax the Commission's resources while adding substantial delay to the implementation of any MLTS service for no real benefit. Therefore, Flash Comm believes that MLTS should be authorized on an unlicensed basis.

"Because of the extremely large number of MLTS units envisioned for field operation, effective regulation by policing individual users would be administratively impossible. Compliance may be assured by treating persons violating the MLTS rules by using modified or non-type accepted equipment as operating without proper authorization in violation of Sections 301 and 302 of the [Communications] Act. Enforcement under Section 401 of the Act would provide civil and criminal penalties."

Issues to consider

We think that MLTS will be an intriguing test of the FCC's pro-marketplace philosophy. Perhaps it is time to permit the HF spectrum to be further exploited by the public. HF users on the other hand, including the Amateur Radio Service, may demand experimental data and modifications to the rules before they will agree not to protest against MLTS.

Although the international Radio Regulations certainly provide for mobile HF operation, they may not have contemplated a service that could allow very large numbers of transmitters to land on any channel in the entire HF spectrum.

At presstime the FCC had not yet issued a rule-making (RM) number to the Flash Comm petition.

HAM PATENTS NEW WEATHER RADIO RECEIVER

Designed for Failure Situations, Stores Weather Warnings

Years of participating in Amateur Radio public service, and puzzling over gaps in the national weather warning system, have led Dan Gropper KC4OCG of Vienna, Va. to a new invention and a new business focused on NOAA Weather Radio.

Virginia emergency authorities convened a meeting in 1993 after devastating tornadoes swept through several communities in the state. Local emergency managers had not known about tornado warnings sent by the National Weather Service (NWS) until after they had started to respond to damage caused by the storms. They were desperate for a better link between the NWS and local authorities.

In the audience was Gropper, volunteer manager of the NWS SKYWARN weather spotter program and a former volunteer fireman. He was spurred on by news of a similar disaster, in March 1994. A tornado swept across Alabama and adjacent states, causing deaths and millions of dollars in damage. Some of the areas hardest-hit had no tornado sirens. A church was destroyed during Palm Sunday services, killing 20 people.

After two years of experimenting in his garage, Gropper has received a patent for the technology used in Weather Eagle 100, a NOAA Weather Radio scanner with sophisticated capabilities. The receiver is designed for use by emergency managers, police and fire departments as well as for use in public buildings such as churches, schools, shopping malls and theaters.

KC4OCG studied the NWS NOAA Weather Radio system, which broadcasts tone-alert warnings and forecasts in the 162.4-162.55 MHz band from more than 400 transmitters across the country. Canada is protected by a similar system on the same channels. Though usually effective, NOAA Weather Radio is prone to breakdowns and "dead" carriers with no audio, he discovered.

A method had to be invented to switch a receiver to another Weather Radio channel if the carrier drops or if the carrier stays on with no sound. From analysis of 60 hours of transmissions, he designed signal processing technology optimized for Weather Radio. The receiver seeks the best of the seven possible channels, rescanning for the strongest signal once per minute. If the best frequency loses audio, it switches to the next best channel if one is available. Another problem was that existing receivers and scanners had no way of storing warnings for later playback or broadcast. Gropper found that in many cases, warnings were broadcast, but officials were not present to hear them - sometimes with tragic consequences.

His receiver detects the weather alert tone, records the official alert broadcast in solid-state memory, time-and-date stamps the recording, and keys audible and/or visual alarms. It can retransmit the warning over public address loudspeakers, mobile radio systems and repeaters. "If the firemen want to replay the warning or hear one minute of live weather they press a DTMF speed dial key on their radio in the fire truck," Gropper told us. "That sends a signal back to our radio in the firehouse, which responds back over the fire channel with either message. They love it. It worked 10 times during tornadoes we had on October 5 in the Virginia Tidewater area."

"We had to add helical filters and a Gasfet preamp to allow the radio to survive reasonably high RF environments. It includes all of the controls to interface with a repeater, including a busy input to shut up the weather radio when there is an input on the repeater, and tone-detect logic to trip other alarms and macros when the warning comes in." If the repeater is busy, and a warning is received, the Weather Eagle will transmit eight beeps over the air to alert repeater users that a warning has been issued.

Gropper's small company is completing beta testing and entering production. "We have our patent, Part 15 FCC certification, being UL tested, can take MasterCard/Visa, have beta test sites at the Williamsburg, VA Fire Department and the Loudoun County, VA 911 center.

"I can envision this radio being in the studios of many radio stations in the midwest and southeast. It has the built-in ability to play (and replay) the digitally-recorded warning into an audio output as needed, so the DJ can make the announcement of a weather warning and the engineer can press the button instead of messing around with rereading the text or trying to tape the warning for replay."

Federal officials have announced plans to expand the use and coverage of NOAA Weather Radio. "Special emphasis will be placed on getting these radios installed in public gathering places so they will be as common as smoke detectors," Vice President Al Gore stated.

"Together with the Federal Emergency Management Agency, the Department of Agriculture, and the U.S. Geological Survey, NOAA Weather Radio will soon be transformed into an 'all hazards' radio network, making it the single source for the most comprehensive weather and emergency information available for all citizens," according to the NWS.

For his support of SKYWARN, KC4OCG and his fellow ham volunteers received awards from Dr. "Joe" Friday, NWS Director (May 1994 QST, pg. 95). Dan looks forward to another achievement, he says: saving lives by getting severe weather warnings to public safety officials and citizens.

In fact, the awards ceremony in Washington was cut short - by a real SKYWARN activation for severe thunderstorms!

The Weather Eagle 100 Weather Radio Scanner, Recorder and Communications Interface lists for $595.00 from: Thunder Eagle, Inc., PO Box 625, Vienna VA 22183, (703) 242 0122, thuneagle@aol.com.