

# W5YI

National Volunteer Examiner Coordinator

## 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.

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## AS THE QRM TURNS: Latest in Net & Broadcasting Brouhaha

The FCC's campaign to cite amateurs who abuse the spectrum continues. The agency issued yet another apparent \$1,000 fine to an HF operator and is looking at responses from other amateurs who have received *Notices of Apparent Liability (NAL)*.

The fines are "apparent" because the FCC has not decided about whether to demand the money. The person cited has a chance to respond first; then the FCC decides.

Many in the amateur community view the FCC's treatment of these cases as a test of whether the Commission is serious about rule enforcement and support of law-abiding licensees. (In years past, the FCC even issued 'Good Guy' messages to amateurs who were observed practicing courteous operating. The 'Good Guy' program seems to be one of many FCC activities scaled back for financial reasons.)

Adding an interesting wrinkle to the HF mess is the revelation that in letters written one year ago, the FCC seemed to have no problem with a couple of amateurs who now have \$1,000 NALs pending against them.

The newest recipient of a NAL for \$1,000 is *Frank*

*King/AA5LY* of Chalmette, La. He was recorded by FCC monitors in Vero Beach, Fla. on Sept. 29, 1990 in an on-air dispute involving *Herbert Schoenbohm/KV4FZ* of the Virgin Islands. King has 30 days to submit his reply to the FCC or face possible additional penalties.

### *Witch hunt*

The responses submitted by other recipients of the dreaded 'FCC QSL' make interesting reading. Decide for yourself if they will get the respondents off the hook!

The highest profile in this controversy probably belongs to KV4FZ, who responded to the notice of his apparent \$1,000 fine with a detailed *Denial of Liability*. He believes that if the fine is sustained, it could cause a "chilling precedent" on the common operating procedures of most ham stations.

Schoenbohm asked for assistance on a net frequency when he heard what he believed to be a call for him. The FCC apparently considered some of KV4FZ's transmissions to be intentional interference. (Portions of the transcript of the on-air interaction appeared in our Sept. 15 issue.) Schoenbohm said that the net control station here



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the world on many HF bands. He also received a *Notice of Violation* (no fine) for improper third-party traffic with the USSR and failure to ID.

Broadcasting, of course, is prohibited by §97.113(c). Rule §97.3(10) defines broadcasting as "Transmissions intended for reception by the general public, either direct or relayed." One-way transmission of information bulletins is allowed. Rule §97.3(23) defines "information bulletin" as "...a message directed only to amateur operators consisting solely of subject matter of direct interest to the amateur service."

In his request for cancellation of the NAL, Baxter told the FCC that he conducts "authorized broadcasts" and that his transmissions have been reviewed by the FCC and are within the law according to a letter he obtained.

The letter he referred to was indeed sent by the FCC's Robert McNamara to a British amateur, in November 1989. The UK ham wrote many letters complaining of K1MAN's broadcasts and celebrating BARF, the "Better Amateur Radio Federation" championed by KV4FZ.

McNamara replied, "We are familiar with the nature of the transmissions of K1MAN and find that they fall in the same category as the information bulletins transmitted by amateur station W1AW," and thus were authorized by Part 97.

"Additionally, you complain that station K1MAN transmits 'remarks of a political nature,'" McNamara said.

"The Commission has no rule restricting political remarks transmitted by amateur service stations. Such a rule would infringe on the right of free speech guaranteed by the First Amendment to the Constitution of the United States."

## *Past not prolog*

Commission staff readily admitted that they sent the letter that found K1MAN's transmissions to be acceptable in 1989. They cautioned, however, that the letter did not restrict them from citing Baxter later if monitoring revealed that his transmissions violated any rules. The letter was only a

response to an inquiry, they told us, not a declaratory ruling that K1MAN is forever free from any FCC enforcement.

The FCC's citation of Baxter included a transcript of his programs that appeared to address short-wave listeners. "Short wave listeners are the prime source of new hams and are the ones who primarily listen to W1AW code practice," K1MAN replied. "They do not constitute the general public as in §97.3(10) and are not a criteria here for any alleged rule violation."

## *Who's on first*

K1MAN also denied violating §97.101(d) against malicious interference, in this case to amateurs already in QSO on the frequency. "The presence on KV4FZ, N5FX, and WD4GDP on 14.275 MHz just prior to a scheduled amateur broadcast or bulletin is clearly a malicious attempt on their part to disrupt those transmissions. It was not even an accident, they were there on purpose to be disruptive and interfere, themselves violating §97.101(d) rather than the Petitioner [K1MAN] violating any rule whatsoever," he replied.

Finally, at least one amateur who was cited appears to have conceded the point to the FCC. **William Terrill/K2BFI** of New Hartford, N.Y. allegedly caused QRM to KV4FZ according to a transcript we published in the Sept. 15 issue. Terrill replied to the FCC: "My age is 83 and [I am] legally blind. I have been hamming since 19, and never cited before as your records must show.

"None of the above are excuses for being stupid. ...The attempts of a few to discredit the work being done by nets has provoked many outbursts. ...I am very pleased to see that the FCC is taking action to clean it up...Keep up the good work and in turn I [will] keep my temper under control."

We do not yet know if the FCC will require K2BFI to pay the \$1,000. We wonder how many more amateurs will make themselves victims of their own microphones. At presstime the FCC had not sent its final "pay up" notices and none of the fines associated with these HF enforcement actions have been paid.

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The FCC keeps exhaustive statistics on the status of all of its licensees - including those of the Amateur Service. We thought you would be interested in some of the figures from the 1990 Fiscal Year. Keep in mind that the government operates on an October 1 to Sept. 30 fiscal year ...thus the 1990 figures are for the 12 months ending 9/30/90.

### Amateurs Entering Service For The First Time

	F.Y. 1987:	F.Y. 1988:	F.Y. 1989:	F.Y. 1990:
<b>1st License to:</b>				
Novice	22319	18550	20047	22979
Technician	1452	2117	2498	2617
General	411	307	355	363
Advanced	119	82	126	118
Extra Class	37	24	39	57
<b>New Licensees:</b>	<b>24338</b>	<b>21080</b>	<b>23065</b>	<b>26134</b>

### Existing Amateurs Upgrading their Licence Class

	F.Y. 1987:	F.Y. 1988:	F.Y. 1989:	F.Y. 1990:
<b>Upgrading:</b>				
<b>Novice to:</b>				
Technician	11168	13050	14024	15386
General	2035	1317	1054	929
Advanced	133	132	106	87
Extra Class	29	26	14	15
<b>Subtotal:</b>	<b>13365</b>	<b>14525</b>	<b>15198</b>	<b>16417</b>

### Technician to:

General	2926	3780	4070	5028
Advanced	730	938	921	1016
Extra Class	31	62	26	48
<b>Subtotal:</b>	<b>3687</b>	<b>4780</b>	<b>5017</b>	<b>6092</b>

### General to:

Advanced	3777	3750	3640	4107
Extra Class	230	269	195	236
<b>Subtotal:</b>	<b>4007</b>	<b>4019</b>	<b>3835</b>	<b>4343</b>

### Advanced to:

<b>Extra Class:</b>	<b>2755</b>	<b>3018</b>	<b>2739</b>	<b>2847</b>
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<b>UPGRADING:</b>	<b>23814</b>	<b>26342</b>	<b>26789</b>	<b>29699</b>
<b>NEW LICENCEES:</b>	<b>24338</b>	<b>21080</b>	<b>23065</b>	<b>26134</b>
<b>FCC LICENSES:</b>	<b>48152</b>	<b>47342</b>	<b>49854</b>	<b>55833</b>

-1.7% +5.3% +12.0%

Basically the above figures show that the Technician Class is, by far, the most popular Amateur license. Two-thirds of all Novices upgrade to that class ...and for many, it is their first license. Nearly 75% of all FCC licensing is at the Novice and Technician levels. Most newcomers appear satisfied to operate on the VHF/UHF bands.

### Licensing Trend by License Class:

(Year end amateur census by license class)

F.Y. 1985	F.Y. 1986	F.Y. 1987	F.Y. 1988	F.Y. 1989*	F.Y. 1990*
<b>Extra Class (+30.5% since 1985)</b>					
37968	40768	43214	46152	49545*	52847*
<b>Advanced (+6.7% since 1985)</b>					
97825	98195	98147	98354	101514*	105365*
<b>General (+1.6% since 1985)</b>					
117340	116864	114424	112989	116496*	119158*
<b>Technician (+50.7% since 1985)</b>					
83117	86148	91633	99603	112631*	125217*
<b>Novice (+20.1% since 1985)</b>					
76337	79107	82779	79667	84614*	91705*
412587	421082	430201	436828	464800*	495470*

(\* = Note: The 1989 and 1990 census figures are somewhat overstated due to the implementation of the ten year license term license in 1984. Actual 1989 census is approximately 434,800; 1990: 435,470.) The Extra and Technician Class shows the greatest increase. There are now 50% more Technicians than just five years ago!

### Ham Census - Ten Most Populated States

F.Y. 1985	F.Y. 1986	F.Y. 1987	F.Y. 1988	F.Y. 1989*	F.Y. 1990*
<b>(1.) California</b>					
59960	58400	59944	61432	66130	71895
<b>(2.) Florida</b>					
24518	25476	26242	27094	28856	30755
<b>(3.) Texas</b>					
24408	24930	25495	25992	27750	29261
<b>(4.) New York</b>					
25833	26030	26001	25505	26878	28202
<b>(5.) Ohio</b>					
20276	20370	20783	21010	22179	23317
<b>(6.) Pennsylvania</b>					
17153	17309	17525	17531	18439	19391
<b>(7.) Illinois</b>					
17384	17446	17548	17509	18286	19070
<b>(8.) Washington</b>					
12600	12997	13436	14016	15034	16046
<b>(9.) Michigan</b>					
14212	14158	14259	14258	15052	15670
<b>(10.) New Jersey</b>					
12824	12910	12932	12823	13482	14068

The top ten states account for more than half of the U.S. amateur population (54%).

### The ten states with the fewest amateurs are:

Wyoming 1,076, Delaware 1,157, South Dakota 1,204, North Dakota 1,211, Vermont 1,346, Montana 1,859, Rhode Island 1,935, Alaska 2,200, Idaho 2,346 and Nevada 2,488.

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 bearing in all written examinations by license class and sub-element

■ The FCC fined three San Diego computer retailers \$2,000 each for offering uncertified computers for sale. The stores were Byte & Floppy Computers, Datel Systems Inc. and CCC Computers. The Commission said in a news release: "Consumers contemplating the purchase of a PC are cautioned to make sure they are buying a computer that has been certified by the FCC. One way of checking for certification is to check for a label that has an FCC identification number affixed on the computer's central processing unit. If the label is missing, there is a strong possibility the equipment may not be certified and the computer is being unlawfully offered for sale." Companies that display and offer for sale computing devices that don't comply with FCC rules are subject to penalties of up to \$10,000 per day for each day that an offense occurs, up to a total of \$75,000.

■ The FCC will man a booth at the COMDEX computer trade show in Las Vegas (Nov. 12-16) and will be participating in a conference session entitled "Computers and the FCC." They also will randomly check COMDEX exhibitors' booths to determine compliance with the certification rules.

■ U.S. Marshals and engineers from the FCC's San Francisco Facility seized \$2,000 worth of illegal equipment from CB operator Harvey Peters, Jr. in Oakland. The equipment included five modified transceivers capable of operating out-of-band, and two CB linears capable of up to 300 W. The FCC received over 30 complaints from residents about Peters' RFI and TVI. The CB'er had ignored letters, fines and requests to inspect his station from the FCC.

■ On October 11, the Siam Inter-

national DX Club was formed by a group of DX and contest-minded hams in HS-land. The club will assist with schedules for those needing Zone 26, assist people visiting Thailand with operating licenses, assist in obtaining missing HS QSLs, make schedules for upcoming contests and exchange information with other DX clubs worldwide. Thailand now has some 13,000 licensed amateurs - almost all of them no-code licensees operating on two meter FM only. About 30 HS's, however, have now passed the Intermediate Class examination which allows HF privileges. (*Siam International DX Club, GPO Box 155, Bangkok 10501, Thailand*)

■ The third quarter issue of *ATVQ (Amateur TV Quarterly)* will be mailed a little late by *Henry Ruh, KB9FO*. He had some major reconstructive knee surgery which laid him up for 11 weeks. *Radioscan* magazine has a new QTH. New address is: *8250 NW 27th Street, Suite 301; Miami, FL 33122-1904. (305/594-7734)*

■ The FCC's Detroit Office recently tracked down an unlicensed pirate FM station operating on 89.5 MHz in Adrian Michigan. Using direction finding equipment, the FCC located the station at 626 Finch Street at the residence of Joe and Connie Mattausch. CEBS (Citizen's Emergency Broadcasting System) has been shut down and the Mattausches fined \$1,000 for unlicensed operation.

■ The standoff between amateur DX and satellite buffs continues. Packet cluster users are very upset that "their frequency" (144.95 MHz) will be used to uplink communications to WA4SIR and the Shuttle Amateur Radio Experiment, SAREX when and if it flies. They say it will interfere with their DX spotting

activities. The AMSAT (and ARRL) view is that all frequencies are shared and for the short time the space shuttle Columbia will be aloft, amateurs should cooperate with one another. The SAREX handheld radio predates the arrival of packetcluster DX spotting and its built-in frequencies are limited. STS ham astronauts are scheduled to talk to students and send/receive packet messages while in orbit.

■ Amateurs in Canada are concerned about a recent Dept. of Communications position on antennas and towers. The new "Municipal Consultation on Non-Broadcasting Antennas and Antenna Supporting Structures" policy requires radio amateurs to consult with their city or other land-use authority before erecting an antenna or tower. If they object and the DOC agrees its public impact is "significant", the antenna may not be installed.

■ It appears that the recent Canadian deregulation of the ham bands is not posing any problems to the U.S. The chaos (anticipated by some) has not broken out. While amateurs now may use any mode on any band (including voice on historically CW spectrum) Canadian amateurs are universally observing the traditional mode subbands as requested by their amateur organizations.

Canadian amateurs are now subject only to a maximum emission bandwidth. These are: 1.8-2.0, 3.5-4.0, 7.0-7.3, 14.0-14.35, 18.068-18.168, 21.0-21.45 and 24.89-24.99 MHz: 6 kHz. 10.1-10.15 MHz: 1 kHz. 28.0-29.7 MHz: 20 kHz. 50-54 and 144-148 MHz: 30 kHz. 220-225 MHz: 100 kHz. 430-450 MHz and 902-928 MHz: 12 MHz. All other bands: bandwidth "not specified."

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## SEPTEMBER VE PROGRAM STATISTICS

<u>September</u> <u>No. VEC's</u>	<u>1988</u> <u>*18</u>	<u>1989</u> <u>*18</u>	<u>1990</u> <u>*18</u>
<b>Testing Sessions</b>	<b>364</b>	<b>456</b>	<b>459</b>
<u>VEC</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
ARRL	38.2%	48.9%	39.7%
W5YI	33.5	30.7	35.3
CAVEC	6.9	5.0	4.1
DeVRY	5.5	3.5	5.4
Others	15.9	11.9	15.5
<b>Year-to-Date Sessions</b>	<b>3589</b>	<b>4028</b>	<b>4478</b>
<b>Elements Administ.</b>	<b>5858</b>	<b>7503</b>	<b>6875</b>
<u>VEC</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
ARRL	45.2%	57.4%	48.4%
W5YI	22.8	22.6	26.9
CAVEC	8.4	5.2	4.5
DeVRY	3.9	2.9	4.6
Others	19.7	11.9	15.6
<b>Year-to-Date Elements</b>	<b>69181</b>	<b>73144</b>	<b>78552</b>
<b>Applicants Tested</b>	<b>3782</b>	<b>4570</b>	<b>4236</b>
<u>VEC</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
ARRL	45.5%	49.5%	46.7%
W5YI	22.5	24.4	27.7
CAVEC	7.5	5.0	3.7
DeVRY	3.9	2.8	5.7
Others	20.6	18.3	16.2
<b>Year-to-Date Tested</b>	<b>41335</b>	<b>43652</b>	<b>47916</b>
<b>September</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>
Pass Rate - All	59.2%	61.9%	60.7%
Upgrade Rate - W5YI	55.9	53.8	57.1
Applicants/Session	10.4	10.2	9.2
Appl./Session W5YI	7.5	7.5	8.3
Elements/Applicant	1.7	1.6	1.6
Sessions Per VEC	20.2	25.3	25.5

### Administrative Errors by VE's/VEC's

<u>September</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Defect. Applications	0.5%	0.4%	0.4%
Late Filed Sessions	1.7%	0.4%	0.7%
Defective Reports	1.7%	0.7%	0.0%

(\* Note: The FCC previously considered ARRL, W5YI and DeVry to be 13 VEC's each since VEC's initially were appointed on a regional basis. Since any VEC may now coordinate examinations in any region, the FCC reduced the number of VEC Regions (62) to VEC Organizations (18.) We have adjusted the 1988 figures to reflect this change.

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

## SEPTEMBER AMATEUR LICENSING STATISTICS

<u>September</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	
New					
Amateurs:	1917	1059	1408	1632	
<b>Upgrading:</b>					
Novices	1665	1075	1171	611	
Technicians	479	396	416	284	
Generals	467	343	314	214	
Advanced	<u>331</u>	<u>244</u>	<u>233</u>	<u>119</u>	
<b>Total:</b>	<b>2942</b>	<b>2058</b>	<b>2134</b>	<b>1228</b>	
<b>Renewals: (*)</b>					
Total Renew:	3568	2437	* 167	* 65	
Novices	207	209	* 21	* 8	
<b>Purged: (*)</b>					
Total Dropped:	1460	974	1162	1495	
Novices	896	497	512	771	
<b>Census:</b>					
<b>Indiv. Oper.</b>	<b>430201</b>	<b>436828</b>	<b>464800</b>	<b>493292</b>	
Change/Year	+17614	+6627	+27972*	+28492*	
<b>Individual Operators by Class: (and % of total)</b>					
<b>Extra</b>	<b>Advan.</b>	<b>General</b>	<b>Technic.</b>	<b>Novice</b>	<b>Total:</b>
<b>September 1987</b>					
43214	98147	114424	91633	82779	<b>430201</b>
10.1%	22.8%	26.6%	21.3%	19.2%	100.0%
<b>September 1988</b>					
46152	98354	112989	99603	79730	<b>436828</b>
10.5%	22.5%	25.9%	22.8%	18.3%	100.0%
<b>September 1989 (*)</b>					
49545	101514	116496	112631	84614	<b>464800</b>
10.7%	21.8%	25.1%	24.2%	18.2%	100.0%
<b>September 1990 (*)</b>					
52847	104365	119158	125217	91705	<b>493292</b>
10.7%	21.2%	24.2%	25.4%	20.9%	100.0%
Club/					
RACES &	(1987)	(1988)	(1989)	(1990)	
Military:	<u>2430</u>	<u>2301</u>	<u>2505</u>	<u>2438</u>	
<b>Total Active:</b>	<b>432631</b>	<b>439129</b>	<b>467305</b>	<b>495470</b>	
% Increase	+2.1%	+1.5%	+6.4%*	+6.00%*	

**\*Adjusted Growth is actually a decrease!\***

(\* NOTE: The number of amateurs in 1989 and 1990 is not comparable with prior years. Due to the implementation of the 10-year term license in 1984, amateurs who would ordinarily be dropping out of the Amateur Service between 1989 and 1993 by not renewing will be carried on the amateur roles for another five years before being purged from the FCC's data base. This has the effect of greatly overstating the amateur census for 1989 and 1990 since the records of silent keys and non-renewals will not be deleted. The alarming trend of negative growth in the number of U.S. ham radio operators continues!

[Source: FCC Licensing Facility, Gettysburg, PA]



## W5YI Packet Monitor

We recently had the pleasure to speak with *Lyle Johnson/WA7GXD*, president and one of the founders of the *Tucson Amateur Packet Radio Corporation (TAPR)*. Johnson directs engineering projects at Modular Mining Systems, a company that applies packet radio technology to automation of mines around the world.

Ten years ago, TAPR proclaimed a new "packet radio revolution" based on inexpensive amateur data communications. Since that time, when the founders were all residents of Tucson, Arizona, the organization has grown to represent a membership throughout the U.S. and 32 foreign countries.

TAPR's TNC-1 and TNC-2 designs have found their way into hundreds of thousands of Terminal Node Controllers built from TAPR kits or purchased from TAPR-licensed manufacturers. The popularity of the TNC-2 in 1985 put TAPR "on the map" for many -- when an avalanche of orders for the kit overloaded the state's telephone network and even cut off communications to an Air Force base!

TAPR no longer sells TNC-2 kits. But it sells packet add-ons, a PSK modem for satellite use, lots of software, and is developing packetRADIO transceiver and DSP (Digital Signal Processing) kits.

In cooperation with other associations -- such as AMRAD, AMSAT and ARRL -- TAPR programs have truly had a "revolutionary" impact on the amateur service. We asked WA7GXD to tell us about some of the hot topics in packet today and to reflect on where we stand with this interesting mode of communication.

**WA7GXD:** "Certainly TAPR did not invent packet radio. Certainly TAPR did not introduce packet to Amateur Radio. Our goal was to make it affordable and available to anyone who wanted to use it. I think we've succeeded in that. Just to see the grassroots enthusiasm was very gratifying.

"It wasn't that TAPR was so great in promoting packet. It was because there was a vacuum within Amateur Radio that needed to be filled, and

packet radio came along to fill it and to capture people's imagination. Only now we're beginning to see the applications, the BBSs, the packet clusters, the satellites to make use of the mode.

"An emergency happens. A flood, an earthquake, a forest fire. Packet radio is used to transfer messages. Then a complaint comes: packet didn't work well. It took too long to get messages through, or there were too many retries on the channel, for instance.

"Now, packet radio is just a pipe. A lot of work needs to be done on the interface between the pipe and the human being. And the congestion on the limited spectrum that packet occupies will be the driver for getting more efficient communications, more bits per second per Hertz. The Microsats really excite me because they will drive the technologies we need for terrestrial applications.

**W5YI:** "Could you give us an example of that?"

**WA7GXD:** "The satellite can see large portions of the Earth's surface. One of the ways to help reduce congestion is to reduce the need to transmit to the satellite. You could receive, with packet's error-free quality, the information you want without having to ask the satellite for it. This is made possible by the broadcast protocol that AMSAT and TAPR volunteers [especially NK6K and G0/K8KA - Ed.] have developed. The protocol software is loaded on UOSAT OSCAR-14 and is being software-loaded into PACSAT at this time (see following "Q&A").

"The satellite is really like a disk drive in space. In addition to the regular private messages from one ham to another, it might be loaded with AMSAT bulletins. It can broadcast, over and over, those files and bulletins that are of general interest. Each packet that comes down is identified as being a part of a certain file and identified where it fits within the file. You will also receive file length information. Let's say you're at work but you've left your computer and your 70cm radio on and it's receiving these transmissions.

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AMSAT bulletins and other files of a particular type. You will get, for free or nearly free, software that looks at these transmissions and assembles the information you want out of the pieces it copies from the satellite. The way you use the software is the same way you use your local packet BBS today -- but without the need to transmit.

"If your computer was missing pieces or lines of the files you needed, it could connect to the satellite during the next pass and request only the lines you needed. Others in the area who needed that same information would copy it and they would not have to connect to the satellite."

**W5YI:** "Does this not create a top-down system in which the content of the satellite is controlled by AMSAT and ARRL?"

**WA7GXD:** "The assumption is that a lot of people will want to read these bulletins, so rather than just send telemetry all the time the satellite will send bulletins of general interest. That in no way precludes you from connecting to the satellite to send me a message for my station three orbits later.

"The satellite is even more available for that because the other ten hams in your area who wanted to get bulletins don't have to connect to the satellite to get what they wanted. The purpose is to free uplink time so that it is more available for sending private messages."

**W5YI:** "What difference will this make on the ground?"

**WA7GXD:** "If the HF BBS users adopt this broadcast protocol, there will be a significant reduction in the number of connects and the length of time that they have to be connected. It's a point-to-multipoint system, whereas today it's only a point-to-point system. This will of course work with your local system and local PBBS too and reduce congestion there."

**W5YI:** "Are there areas of packet that haven't met your expectations?"

**WA7GXD:** "User education is a major one. In the

early days, we were acting as the missionaries of packet. We were running around trying to get people to see the light, the potential of this technology. In some ways we probably oversold it, because nearly ten years later it still doesn't do a lot of the things we said it could do.

"While we have some pieces of a packet radio 'pipe', we still don't have homogeneous computer networking. Now the TCP/IP people may say, 'Sure we do.' But the area where they have fallen down is that in order to use that package you have to know someone else who is already using it so they can set all the switches and get things running for you. A mere mortal couldn't figure it out in a typical lifespan.

"The first TNC manuals were in big binders and ran hundreds of pages. We rebelled against CB-style manuals that have nothing of substance. We wanted people to understand what was going on, but maybe we pushed it too hard.

"When a person buys a TNC now, they get a beautiful manual, yet it documents the TNC in ways that many do not understand. Our TNCs have 100 to 150 commands. Most people don't need to know all of those.

"The software in the TNC ought to be intelligent enough to know the optimum setting for the use I'm making of it, for the network I'm attached to. It should ask you, 'What's your callsign? Will this be for VHF or UHF FM or HF SSB type operation?' and it automatically sets the parameters. If you aren't a mechanic you shouldn't be required to open the hood and tinker."

**W5YI:** "What about those who say that you're 'dumbing down' the technology, that we're supposed to be a technical community so we shouldn't greatly simplify things?"

**WA7GXD:** "We are a technical community. But there's a segment of the amateur community that are communicators. They want to transfer information for public service, for DX updates, or just because they want to. There are a lot of segments in the hobby and packet should be useful to more than just the techies.

interest in not an employee of any company or entity engaged in marketing, preparing or distributing amateur radio equipment or license preparation materials. My age is at least 18 years old."

W5YI-VEC, P.O. Box #363101, Dallas, Texas 75206-3101. A complete catalog is available for \$4.90. Details and accreditation materials will be sent to you in about two weeks.

"We addressed it to the techies because they were the initial market. But we're through that phase. We're now in the phase that every ham can have a legitimate use for packet.

"Also, we are seeing companies that used to be big in kit manufacturing now importing assembled products from Japan. That's OK and it may make them a lot of money. But TAPR needs to continue to make kits available just to keep that part of the hobby alive, for the folks who want to say, 'I built this with my own hands.'"

(We highly recommend membership in TAPR, which gets you the Packet Status Register newsletter and other benefits. Dues are \$15 U.S., \$18 Canada/Mexico, \$25 outside North America. Call 602-749-9479 or write to TAPR, PO Box 12925, Tucson AZ 85732.)

## *Satellite Broadcast Protocol and BBS Q&A*

AMSAT software engineer *Harold Price/NK6K* has provided answers to questions about BBS operations onboard the PACSATs. (Tnx *Jim White, WDOE* for the original material from which this is excerpted.)

Q: "Which PACSAT will commence BBS operations first?"

A: "UO-14 is now about 80% functional with the BBS software. AO-16 [PACSAT] will be brought to that level, then LO-19 [LUSAT]."

Q: "Will people still be able to just digipeat through the PACSATs?"

A: "This has not yet decided. Digipeating is a good way to check out your station. I don't think there is much other demand for it in the long run, The MICROSATs are available now for digipeating, but you don't see much of this type of activity. I would not want to see digipeating supplant the intended use of store-and-forward data, but if there is a big demand I suspect it would be addressed."

Q: "How will the user ground software be distributed and tested?"

A: "*Jeff Ward, GO/K8KA* and I have discussed two approaches. However, nothing has been finalized. The first approach is to make a minimum implementation of the user ground-based software available, including C language source code, as shareware. We want to get something out soon, and, since Jeff and I are IBM PC-based, availability of code will hopefully encourage others to write for MAC, Amiga, C-64, Unix, and others. The only downside is we don't want to leave the impression that all AMSAT offerings are shareware.

"The minimum implementation will not be automated, and will not be pretty (colors, windows, pulldown menus, etc.) but will be more portable. The second approach is for AMSAT-NA and AMSATUK to make available an "all-singing-all-dancing" PACSAT groundstation program. This will be automated, easily interfaced to terrestrial BBSs, and will have a fancy menu driven format. No source."

Q: "How will people know the BBS is running and available? Will they be able to tell by looking with an ASCII terminal program, with TLMDC or similar or will they have to have the ground software to tell?"

A: "Much ado will be made. Also, you'll see frames sent to QST-1 with a PID of BBS."

Q: "Will the user ground software be available before the BBS in the bird is turned on?"

A: "Available, yes. Widely distributed? No. We have to have it running on the air to give it a good test, but don't want to subject it to simultaneous connects on the first day. Once a week's worth of testing by users has been done successfully, the shareware will be placed on Compu-Serve and elsewhere."

Q: "Will you be testing BBS and ground software together for a time prior to making ground software available? How will people know that is happening?"

A: "Yes, we will. This is happening as we speak on UO-14. People will learn the same way as always, via official AMSAT Nets and publications."