

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

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July 15, 1992

TEXT RELEASED ON PROPOSED "NO-BUSINESS" RULE

The FCC released their *Notice of Proposed Rule Making* to lessen restrictions on permissible communications that amateur stations may transmit. In a nutshell, the Commission proposed to permit greater flexibility for public service and personal communications.

This proposal strikes at the very heart of ham radio since it details new directions in amateur communications. It is the most important proceeding since the Codeless Technician matter. Here is a transcription: [Some of the footnotes were included in the text.]

Before the
Federal Communications Commission
Washington, DC 20554

PR Docket No. 92-136

Amendment of Part 97 of the
Commission's Rules to Relax
Restrictions on the Scope of
Permissible Communications
in the Amateur Service

RM-7849
RM-7895
RM-7896

NOTICE OF PROPOSED RULE MAKING

Adopted: June 18, 1992; Released July 2, 1992
Comment Date: October 1, 1992
Reply Comment Date: December 1, 1992

By the Commission:

I. INTRODUCTION

1. In this NPRM we propose to amend the Rules

for the Amateur Service by lessening restrictions on the scope of the permissible communications that Amateur stations may transmit. This proceeding was initiated by two petitions and a letter requesting rule making relating to this issue. Petitions were received from Michael R. Reynolds, W0KIE of Tulsa, Oklahoma [RM-7849] and Henry B. Ruh, KB9FO, of Des Plaines, Illinois [RM-7896] on behalf of *Amateur Television Quarterly Magazine*. The letter was received from the American Radio Relay League, Inc. Because of the detail it contains, it is treated as a petition: RM-7895.]

II. DISCUSSION:

2. The petitioners generally seek greater flexibility for amateur stations to transmit communications for public service projects and personal matters. They want to eliminate rules that bar amateur stations from transmitting occasionally messages that could indirectly facilitate the business or commercial affairs of some party and messages that could be transmitted in other radio services. They ask therefore for amendment of Section 97.113 of the Commission's rules. [47 C.F.R. §97.113]

The petitioners indicate this rule needs to be reviewed in light of contemporary communication demands and the operational capability of licensees in the amateur service. The petitioners argue that the prohibition against using the amateur service as an alternative to other authorized radio services except as necessary for emergency communications may unnecessarily restrict amateur operators from participating in many public service activities and from satisfying their personal communications requirements.

3. The current Section 97.113 is intended to help maintain the non-commercial character of the service by prohibiting certain types of transmissions by amateur stations. Section 97.113 prohibits amateur stations from transmitting any communications the purpose of which is to facilitate the business or commercial affairs of any party. It prohibits amateur stations from transmitting communications as an alternative to other authorized radio services. It also prohibits the transmission of music; communications in connection with any activity that is contrary to the law; encrypted messages; words, language or meaning that is obscene, indecent, or profane; and false or deceptive messages or signals. This rule provides, however, exceptions for providing emergency communications, facilitating the public's safe observation of public gatherings, selling amateur station apparatus, and conveying news information.

We do not, however, want to inhibit amateur operators from using the service frequencies in the manner they believe best suited to their purposes. The objective of this proceeding therefore is to determine that the prohibitions in Section 97.113 should be revised to accommodate the uses of the service frequencies that amateur operators desire.

4. The League contends that restrictions on the content of amateur station transmissions should be based on the principle that any amateur-to-amateur communications is permitted unless specifically prohibited. The League therefore seeks to allow amateur stations to transmit occasionally certain types of communications that are now prohibited so that the amateur service community can better meet public service communications needs. The League states that its suggested amendment would not subject the service to exploitation because the self-regulating character of the service would provide the proper checks and balances.

It also argues that each licensee can best determine for himself or herself other particular public service projects such as providing communications at spectator events is a reasonable use of the amateur service frequencies.

The League's proposed revision is based upon the principles that

- (a) Amateur operators should not conduct communications in exchange for compensation or for the benefit of their employers;
- (b) Amateur operators should not transmit communications in which the operator has a pecuniary interest and;
- (c) Amateur operators should not use amateur service frequencies regularly as a substitute for other

licensed radio services.

The yardstick the amateur operators would use for determining pecuniary interest would be the business implication of the licensee initiating the communication, not the recipient.

The League also seeks to allow an amateur station control operator to accept compensation when using the station as part of classroom instruction at an educational institution.

5. Reynolds and Ruh ask that amateur stations be authorized to fill communications voids in other radio services. They suggest eliminating the prohibition of amateur stations retransmitting the broadcast of stations in other radio services such as government, time and weather stations. [The League also proposes eliminating this prohibition.] They [Reynolds and Ruh] request that amateur stations be allowed to retransmit music included in space shuttle communications. Ruh further requests that amateur stations be allowed to retransmit video obtained from government and private radar stations.

6. Periodicals servicing the amateur service community have indicated that there is already widespread use of amateur service frequencies by amateur operators to bolster governmental functions. These periodicals routinely commend and laud amateur operators for providing communications for police and fire departments, and for reporting data to the National Weather Service. [National Amateur Radio Association "Communicator" Oct. & Nov. 1991, "World Radio" Jan. & March 1992 and American Radio Relay League "QST" May & July 1991, Feb. 1992 references are footnoted.]

Correspondence from amateur operators also suggest that they want to communicate messages relating to their personal business such as ordering goods and services. Some commenters, however, oppose any change to Section 97.113. One group states that to relax the prohibited transmissions rule would undermine the basic principle of non-commercial communications upon which the amateur service is founded and for which the frequencies are allocated.

Other commenters expressed the view that allowing any business-related communications on amateur service frequencies would be disruptive and that any relaxation of the prohibited communications rule would mark the end of the amateur service.

III PROPOSAL:

7. It appears clear from the petitions and comments discussed above that much of the amateur community strongly supports relaxing a number of the

WOULD YOU LIKE TO BECOME A VOLUNTEER EXAMINER?
I am a currently licensed Advanced, Extra Class amateur radio operator. I wish to be a volunteer examiner for the following license classes: Novice, Technician, General, Amateur Extra Class. My name is _____, my address is _____, my phone number is _____, and my email address is _____.

existing restrictions on the scope of amateur services communications. Further, it appears that the amateur community appreciates both the benefits and the burdens of relaxing these existing restrictions.

The restrictions on permissible communications in the rules were designed to protect the essential character of the amateur service as a reservoir of volunteer communicators, technicians and electronics experts dedicated to advancing the radio art, to provide public service communications particularly in times of emergency and to enhance international goodwill.

While eliminating some of the existing restrictions would provide the flexibility to expand public service activities and satisfy the personal communications interests, the potential for commercial exploitation and abuse of the amateur services allocated frequencies could increase.

8. After careful consideration, we propose to relax the restrictions on the scope of permissible amateur communication. Specifically, we propose the revision suggested by the League. Our decision is based on the following factors. First, the League's suggested proposal appears to best consolidate the views of the amateur community. Second, relaxing the restrictions on permissible communications would permit the amateur community to increase its public service activities. Third, as noted by the League, the amateur community has a long tradition of self-regulation and a strong commitment to maintaining the unclouded distinction between the amateur service and other radio services.

9. The proposed rule amendments would expand the scope of public service communications and personal communications permitted in the amateur service. Specifically, we propose to relax the prohibition against amateur stations transmitting any communications that could be furnished by other radio services. Our intent is to allow other amateur operators who so desire to increase their public service activities in support of parades, races and other public gatherings.

We also propose to remove the outright bar on amateur stations transmitting communications that could facilitate the business affairs of any party. This change would allow amateur stations to transmit, for example, communications relating to amateur radio club business activities. Amateur stations could also transmit communications such as ordering food, lodging and transportation that incidentally facilitated the commercial activities of some party.

We further propose to permit control operators to accept compensation as an incident of a teaching position during periods of time when the station is used for classroom instruction. The general prohibition against amateur operators transmitting messages for

hire or for material compensation, direct or indirect, however, would remain in the rules.

10. These proposals are not intended to alter in any way the nature and purpose of the amateur service. Rather they are intended to give amateur operators more flexibility to serve the public as well enhance their personal communication capabilities.

These proposed changes, however, would also increase the amateur communities responsibilities for self-regulation and cooperation in the use of their allocated frequencies. We request comments, therefore, on the proposed amendments to the Amateur Radio Services Rules set forth in the attached Appendix.

We are not proposing to allow amateur stations to transmit music as suggest by Ruh. We believe this proposal could alter the nature and purpose of the service and is well beyond our goal of providing greater flexibility for amateur stations to transmit communications for public service gatherings and personal matters. Interested parties, however, may comment regarding whether transmission of music should be allowed.

IV. PROCEDURAL MATTERS

[Most of this section is not pertinent for comment purposes and is not reproduced here.] ...interested parties may file **comments on or before October 1, 1992, and reply comments on or before December 1, 1992.** To file formally in this proceeding you must file an original and five copies of all comments, and reply comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. To file informally, you must file an original and one copy of your comments, provided only that the Docket Number is specified in the heading.

You should send comments and reply comments to **Office of the Secretary, Federal Communications Commission, Washington, D.C. 20554.** Comments and reply comments will be available for public inspection during regular business hours in the Dockets Reference Room of the FCC, 1919 M St. NW, Washington, D.C. 20554.

APPENDIX:

Section 97.113 would be revised as follows:

§97.113 Prohibited Transmissions

(a) No amateur station shall transmit:

(1) Communications for hire or for material compensation, direct or indirect, paid or promised except as otherwise provided in these rules;

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(2) Communications in which the station licensee or control operator has a pecuniary interest including communications on behalf of an employer. Amateur operators may, however, notify other amateurs of the availability for sale or trade of apparatus normally used in an amateur station provided that such activity is not conducted on a regular basis;

(3) Music; Communications to facilitate a criminal act; Messages in codes or ciphers intended to obscure the meaning thereof, except as otherwise provided herein; Obscene, indecent, or profane words or language; or false or deceptive messages, signals or identification;

(4) Communication on a regular basis which could reasonably be furnished alternatively through other radio services.

(b) An amateur station shall not engage in any form of broadcasting. Nor may an amateur station transmit one way communications except as specifically provided in these rules; nor shall an amateur station engage in any activity related to program production or newsgathering for broadcasting purposes except that communications directly related to the immediate safety of human life or the protection of property may be provided by amateur stations to broadcasters for dissemination to the public where no other means of communication is reasonably available before or at the time of the event.

(c) A control operator may accept compensation as an incident of a teaching position during periods of time when an amateur station is used by that teacher as a part of classroom instruction at an educational institution.

(d) The control operator of a club station may accept compensation for the periods of time when the station is transmitting telegraphy practice or information bulletins provided that

- (1) The station transmits the telegraphy practice and information bulletins for at least 40 hours per week;
- (2) The station schedules operations on at least six amateur service MF and HF bands using reasonable measures to maximize coverage;
- (3) Where the schedule of normal operating times and frequencies is published at least 30 days in advance of the actual transmissions; and
- (4) Where the control operator does not accept any direct or indirect compensation for any other service as a control operator.

(e) No station shall retransmit programs or signals emanating from any type of radio station other than an amateur station, except propagation and weather forecast information originating from United States government stations, and communications originating on United States government frequencies between a space shuttle and its associated Earth stations. Prior approval for such retransmission must be obtained from the National Aeronautics and Space Administration. Such retransmissions must be for the exclusive use of amateur operators. Propagation, weather forecasts and shuttle retransmissions may not be conducted on a regular basis but only occasionally as an incident of normal amateur radio communications.

(f) No amateur station, except in auxiliary, repeater or space operation may automatically retransmit the radio signals of other amateur stations.

UPDATE ON NEW HIGH DEFINITION TELEVISION SYSTEM DEVELOPED BY ATV ENTHUSIAST

Leo Zucker, K2LZ, of White Plains, N.Y. says he is having his High Definition Television System tested separate from the others under consideration. Zucker, testing his theories on amateur radio spectrum, developed an HDTV system that simply interweaves a second standard 525-line resolution (NTSC) image onto another to arrive at 1050-line high resolution.

He is having his system analyzed independently because the FCC's "Advisory Committee" who are charged with supervising the Government's efforts to select a standard for broadcasting high-definition television requires a minimum \$200,000 testing fee.

That committee is chaired by Dick Wiley - a respected ex-FCC Chairman. Wiley is a partner in the prestigious Washington law firm of Wiley, Rein & Fielding. It is his group that will recommend one of the four rival HDTV systems to the FCC next year.

The June 28th *New York Times* called Wiley "...a premier lobbyist and a key behind-the-scenes confidant to top Government officials in the high stakes arena of telecommunications policy." Wiley founded his law firm in 1983 and started off with 37 attorneys. The firm now has 140 lawyers.

One of Wiley's partners, Jan W. Baran, led the American negotiating team without pay last February at the World Administrative Radio Conference while holding the title of Ambassador.

FCC Commissioner Sherrie P. Marshall previously was associated with the Wiley's law firm. Several other FCC officials also came from the firm. Even FCC General Counsel Robert Petit is a ex-Wiley partner.

AMATEUR RADIO CALL SIGNS

...issued as of the first of July 1992:

Radio District	Gp. "A" Extra	Gp. "B" Advan.	Gp. "C" Tech/Gen	Gp. "D" Novice
Ø (*)	AAØJI	KFØZO	NØTHY	KBØKNK
1 (*)	AA1CY	KD1JN	N1MZT	KB1AGR
2 (*)	AA2KC	KF2JJ	N2RSQ	KB2PCW
3 (*)	AA3BA	KE3DS	N3MZT	KB3AFP
4 (*)	AC4SG	KQ4BD	(***)	KD4QJJ
5 (*)	AB5GP	KJ5BY	(***)	KB5TQW
6 (*)	AB6NG	KM6XE	(***)	KD6LIX
7 (*)	AA7QD	KI7EL	N7ZNV	KB7PGB
8 (*)	AA8HX	KF8WB	N8UTT	KB8OEC
9 (*)	AA9EK	KF9KI	N9QEQ	KB9IAP
N.Mariana Is.	AHØO	AHØAJ	KHØAT	WHØAAT
Guam	NH2A	AH2CP	KH2GE	WH2ANA
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii	(**)	AH6LZ	WH6HB	WH6CPS
Kure Is.			KH7AA	
Amer. Samoa	AH8D	AH8AE	KH8AI	WH8ABA
Wake W.Peale	AH9B	AH9AD	KH9AE	WH9AAI
Alaska	(**)	AL7OJ	WL7FC	WL7CGA
Virgin Is.	NP2U	KP2CA	NP2FT	WP2AHS
Puerto Rico	(**)	KP4TZ	(***)	WP4LGR

CALL SIGN WATCH: *=All 2-by-1 "W" prefixed call signs have been assigned in all radio districts.

Group "A" 2-by-2 format call signs from the AA-AK block are next assigned to Extra Class amateurs when 2-by 1's are all allocated.

**=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 are assigned to Extra Class when Group "A" are depleted.

***=Group "C" (1-by-3) call signs have now run out in the 4th, 5th, 6th and Puerto Rico call districts. (Note that the 7th call area only has 316 1X3's left.) According to the rules (adopted by the Commission Feb. 8, 1978, Docket No. 21135), Technician/General class amateurs are next assigned Group "D" (2-by-3 format) call signs when all Group "C" have been assigned.

Upgrading Novices holding a 2-by-3 format call sign in the 4th, 5th, 6th and Puerto Rico call areas will no longer be able to request a Group "C" call and will be automatically assigned another more recent 2-by-3 format call sign if they do! The FCC will not be going back and reassigning unused "K" and "W" 1-by-3 format call signs.

[Source: FCC, Gettysburg, Pennsylvania]

NEWCOMERS TO AMATEUR RADIO

The following figures dramatically show the change that is taking place in the Amateur Service at the entry level. The total number of beginners is greatly increased and most newcomers choose to enter the hobby at the Codeless Technician level. Applicants choosing the Novice route is at an all time low.

LICENSE CLASS OF FIRST TIME LICENSEES

Month/Year	Novice	Tech	Other	Total
January 1988	989	165	35	1189
January 1989	1930	247	57	2234
January 1990	2434	191	46	2671
January 1991	1713	89	14	1816
January 1992	655	3318	57	4030
February 1988	1466	126	34	1626
February 1989	1041	200	33	1274
February 1990	1679	219	43	1941
February 1991	1819	307	36	2162
February 1992	1261	2765	66	4092
March 1988	2407	251	75	2733
March 1989	1933	181	33	2147
March 1990	2466	205	56	2727
March 1991	1734	*882	40	2656
March 1992	1364	3347	95	4806
April 1988	1996	168	31	2195
April 1989	2512	255	54	2821
April 1990	2368	239	51	2658
April 1991	2651	3025	73	5749
April 1992	1330	3810	75	5215
May 1988	2714	233	55	3002
May 1989	2867	356	79	3302
May 1990	3875	359	50	4284
May 1991	1801	2858	55	4714
May 1992	1066	3058	54	4178

[Source: FCC, Licensing Div., Gettysburg, PA]

● The IARU's Region II Monitoring System reports several complaints concerning interference from OTHB ("Over the Horizon Radar, Type B") or the "Woodpecker." The military reports that all facilities are randomly brought "on-line" for testing, exercise and training. Also many complaints of unlicensed Spanish language and "CB-type" activity on the low end of ten meters.

MAY VE PROGRAM STATISTICS

<u>May</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
<u>No. VEC's</u>	<u>18</u>	<u>18</u>	<u>18</u>
Testing Sessions			
<u>VEC</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
ARRL	42.5%	48.7%	48.8%
W5YI	37.9	35.7	36.6
CAVEC	5.6	4.8	3.0
DeVRY	3.7	3.6	2.7
Others (14)	10.3	7.2	8.9
Year-to-Date Sessions	2561	3144	4230
Elements Administ.			
<u>VEC</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
ARRL	48.9%	55.6%	55.4%
W5YI	31.3	29.3	28.5
CAVEC	5.3	4.8	3.0
DeVRY	2.6	2.5	2.4
Others (14)	11.9	7.8	10.7
Year-to-Date Elements	47846	70932	91699
Applicants Tested			
<u>VEC</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
ARRL	48.4%	55.4%	54.4%
W5YI	31.4	31.6	29.9
CAVEC	5.1	4.0	2.9
DeVRY	3.0	2.7	2.6
Others (14)	12.1	6.3	10.2
Year-to-Date Tested	28928	42412	54503
Pass Rate - All			
<u>May</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Pass Rate - All	60.5%	66.5%	64.8%
Applicants/Session	11.7	14.6	11.8
Elements/Applicant	1.6	1.7	1.6
Sessions Per VEC	31.8	52.5	48.1
Administrative Errors by VE's/VEC's			
<u>May</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Defect. Applications	0.7%	0.7%	0.3%
Late Filed Sessions	0.2%	1.5%	1.3%
Defective Reports	0.2%	0.5%	0.6%

(*) **Note:** The number of new Technician Class licenses continues to grow! Most of the exams administered are for the written Element 2 and 3A. Technician is now the entry level of choice by most newcomers. For the first five months of 1992 versus 1991:
 Number of Test Sessions: + 34.5% Increase
 Number of Tests Administered: + 29.3% Increase
 Number of Applicants Tested: + 28.5% Increase
 There are twice as many Techs as there were in 1987!
 [Source: Personal Radio Branch/FCC, Washington, D.C.]

MAY AMATEUR LICENSING STATISTICS

<u>May</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	
New Amateurs:					
New Novices	2869	3875	1801	1066	
New Tech's	356	359	2858	3058	
Total New:	3302	4284	4714	4178	
Upgrading:					
Novices	2068	2249	1419	636	
Technicians	661	791	642	*507	
Generals	481	595	414	319	
Advanced	356	322	288	227	
Total:	3566	3957	2763	1689	
Renewals:					
Total Renew:	311	138	72	70	
Novices	36	28	7	0	
Purged:					
Total Dropped:	1854	0	0	25	
Novices	902	0	0	14	
Census:					
Indiv. Oper.	456871	453928	517665	565350	
Change/Year +19959	-2943	+63737	+47685		
Individual Operators by Class: (and % of total)					
<u>Extra</u>	<u>Advan.</u>	<u>General</u>	<u>Technic.</u>	<u>Novice</u>	<u>Total:</u>
May 1989					
48471	100572	115404	108158	84266	456871
10.6%	22.0%	25.3%	23.7%	18.4%	100.0%
May 1990					
48840	99047	113650	111325	81066	453928
10.8%	21.8%	25.0%	24.5%	17.9%	100.0%
May 1991					
55212	106312	121053	138209	96879	517665
10.7%	20.5%	23.4%	26.7%	18.7%	100.0%
May 1992					
59169	108736	123730	174936	98779	565350
10.5%	19.2%	21.9%	30.9%	17.5%	100.0%
Club/					
RACES &	(1989)	(1990)	(1991)	(1992)	
Military:	2474	2447	2432	2431	
Total Active:	459345	456375	520097	567781	
% Increase	+4.6%	-.6%	+14.0%	+9.2%	

NUMBER OF AMATEURS BY CALL SIGN GROUP:

<u>Group</u>	<u>Extra</u>	<u>Advan.</u>	<u>General</u>	<u>Technic.</u>	<u>Novice</u>	<u>Total</u>
A	34123	687	249	7	0	35066
B	3426	27835	54	6	1	31322
C	13589	43555	66699	79573	50	203466
D	7786	36539	56621	95287	98726	294959
Other	245	120	107	63	2	537
Total	58169	108736	123730	174936	98779	565350
<i>[Group "A"=2X1 & 2X2; "B"=2X2; "C"=1X3 "D"=2X3 format.]</i>						
<i>[Source: FCC Licensing Facility, Gettysburg, PA]</i>						

W5YI REPORT

Nation's Oldest Ham Radio Newsletter

Page #7
July 1, 1992

AMATEUR RADIO OPERATOR CENSUS - 6/1/91 VERSUS 6/1/92

[What has happened in your state during the past year?]

State	1991		1992		1991		1992		1991		1992		1991	1992	Total:	Total:	%
	Extra	Adv.	Gen.	Tech.	Nov.	Total:	Extra	Adv.	Gen.	Tech.	Nov.	Total:					
AL	838	1519	1663	1700	2228	2955	1063	1060	731	8172	8172	11.8%					
AK	270	503	593	617	510	624	446	477	2322	2516	2516	8.4%					
AZ	1034	2234	2324	2418	2837	3767	1283	1257	9712	10892	10892	12.2%					
AR	454	882	941	968	1211	1663	609	627	4097	4689	4689	14.5%					
CA	6657	15242	15536	15989	22871	28922	15468	16425	76427	84497	84497	10.5%					
CO	971	1872	1920	2047	2189	2742	1325	1322	8404	9067	9067	7.9%					
CT	932	1510	1517	1875	1610	2018	1727	1731	7654	8167	8167	6.6%					
DE	172	227	270	277	318	393	206	210	1193	1291	1291	8.2%					
DC	75	100	127	125	69	89	82	85	453	477	477	5.3%					
FL	3205	6935	8132	8439	7662	9624	6339	6724	32273	35190	35190	9.0%					
GA	1132	2215	2302	2434	3032	3816	1502	1533	10268	11304	11304	10.1%					
HI	274	500	569	571	644	782	662	684	2649	2833	2833	6.9%					
ID	238	498	665	677	649	846	409	412	2459	2716	2716	10.5%					
IL	2153	3989	4014	4770	5198	6383	3705	3682	19815	21183	21183	6.9%					
IN	1181	2265	2290	2622	2692	3418	4199	2159	11685	12604	12604	7.9%					
IA	604	1367	1398	1486	1196	1500	1063	1067	5716	6084	6084	6.4%					
KS	566	607	1083	1119	1498	1526	1049	1046	5472	5973	5973	9.2%					
KY	594	645	1075	1105	1276	1675	1049	1046	5472	5973	5973	11.5%					
LA	679	713	1280	1382	1382	1640	1191	1202	5834	6502	6502	11.5%					
ME	363	402	623	640	637	987	666	942	5689	6258	6258	10.0%					
MD	1242	1329	2151	2177	2202	2818	573	631	3155	3561	3561	12.9%					
MA	1654	1774	2650	2703	3281	4027	1540	1596	9254	10083	10083	9.0%					
MI	1750	1837	3408	3459	4278	5417	2817	2788	13117	14094	14094	7.4%					
MN	931	956	1862	1887	1891	2459	1403	1377	16351	17674	17674	8.1%					
MO	359	389	724	752	873	1183	540	559	8320	9012	9012	8.3%					
MS	1073	1147	2070	2111	2282	2913	1547	1529	3309	3709	3709	12.1%					
MT	2322	260	395	390	564	564	377	368	9454	10226	10226	8.2%					
NE	303	324	761	757	986	994	531	509	1939	2138	2138	10.3%					
NV	292	317	540	558	701	892	362	362	3282	3476	3476	5.9%					
NH	521	553	663	696	692	949	531	509	2595	2934	2934	13.1%					
NJ	1837	1925	3103	3138	3625	4360	362	362	2595	2934	2934	8.6%					
NM	451	482	828	838	921	1154	593	581	3585	3894	3894	6.7%					
NY	3103	3282	5629	5691	6603	845	1138	394	2677	3701	3701	11.5%					
NC	1242	1330	2511	2603	7120	8859	6903	7068	3318	3701	3701	11.5%					
ND	119	123	234	232	3142	4112	1837	1870	29358	31636	31636	7.8%					
OH	2455	2628	4697	4797	274	359	272	266	11461	12717	12717	11.0%					
OK	681	733	1391	1430	7488	9126	4415	4332	1254	1347	1347	7.4%					
OR	914	1006	1912	1995	1868	2425	1154	1138	24365	26340	26340	8.1%					
PA	2349	2551	4164	4260	1868	2425	1154	1138	6479	7147	7147	10.3%					
RI	243	264	324	338	2383	3006	1655	1656	9304	10158	10158	9.2%					
SC	500	547	979	1004	5002	6074	3782	3772	20184	21625	21625	7.1%					
SD	140	141	307	316	559	670	404	409	2039	2195	2195	7.7%					
TN	1037	1152	2096	2164	1225	1583	693	675	4628	5063	5063	9.4%					
TX	3607	3849	6792	6953	3069	3811	1545	1538	4628	5063	5063	9.4%					
UT	356	389	697	717	185	184	829	791	1238	1334	1334	7.8%					
VT	185	204	294	295	333	462	241	237	9816	10801	10801	10.0%					
VA	1587	1693	2750	2825	3028	3966	2062	2082	12328	13539	13539	9.8%					
WA	1760	1898	3337	3457	4598	5940	3215	3197	17011	18719	18719	10.0%					
WV	392	426	635	671	1106	1498	937	924	3919	4395	4395	12.1%					
WI	888	936	1689	1737	1850	2421	1367	1349	7895	8567	8567	8.5%					
WY	133	146	203	218	272	339	239	233	1119	1268	1268	10.3%					
PR	207	224	487	505	1969	2138	3547	4010	6828	7523	7523	10.2%					
VI	35	38	55	50	56	85	46	43	260	288	288	10.8%					
Other	42	68	55	71	71	154	195	219	423	584	584	37.4%					
Total:	55212	59169	106312	108736	121053	123730	138209	174936	96879	98779	517665	565350	+9.2%				
Percent Increase:	+7.2%		+2.3%		+2.2%		+26.6%		+2.0%		+9.2%						

Other Includes: Guam, American Samoa, N. Mariana Island, APO/FPO addresses ... and other small U.S. islands.
 (Source: Federal Communications Commission, Licensing Division, Gettysburg, Pennsylvania)

NEW TECHNOLOGY:

Latest Advances in Communications, Electronics and Computers

- You may have noticed commercials on TV calling attention to **empty sockets inside '486 computers**. Now Intel has released hardware to fill that niche. Their new **OverDrive processors combine math-coprocessor capability with speed-doubling circuitry**. Internally, OverDrive processors run twice as fast as the system bus; installing such a chip doubles system speed. Improved operations are not limited to programs that specifically call for math co-processors, either. Even word processors work at least 50% faster. Three different speeds of OverDrive processors are available, from 16 MHz to 25 MHz.
- **"The darn old J" is now being adapted for trackball use**. Companies building computer keyboards are modifying the "J" key for use as a trackball by installing sensors that track the force subjected to it by the typist's finger. On QWERTY keyboards, the J key resides on the home row. That means keyboardists can move the pointer on the computer screen without having to remove their hands from the home row keys.
- **Full-motion video on PCs is here!** AT&T just announced video codec, which stands for compression/decompression. Three chips interact to control 30 frames per second. Prices are currently exorbitant, but should drop considerably by next year.
- The fact that computers do only what they are told — and nothing more — often leads to aggravating roadblocks on the road to progress. But **"fuzzy logic" attempts to condition computers to adapt** to small nuances in operating environments. Mitsubishi Motors Corporation is working on an automobile that uses fuzzy-logic computers to automatically adjust transmission, air conditioning, and suspension systems to changing road conditions.
- **AT&T's VideoPhone arrives this month**. It allows users to see each other in full color, but not with full-motion video; delays up to 10 seconds

exist between pictures. Still, thousands of buyers have been waiting for the phones to arrive after placing advance orders months ago. Although available only through AT&T stores, the VideoPhone should reach other consumer electronics stores by the fall. Public VideoPhones are in the works.

- **The Apple-IBM partnership is now a full year old**, but little has come from it. The ultimate goal is complete compatibility between the two computer systems, but it looks like that could be years away. Even the Big Two are farming out certain pieces of the giant project to other companies. Next year should see first releases from the signed-on companies. Networking is the largest obstacle.
- Tired of waiting for your check to clear while standing in line at the supermarket? That time could drop from 30 seconds to three. **A&P is hooking up a \$10 million Very Small Aperature Terminal (VSAT) satellite network** to link its stores to a central mainframe computer. The VSAT network will also handle background music and video advertising, and also run a database on what shoppers are buying.
- **The High-Definition Television (HDTV) story progresses day by day**. Three different broadcasting standards have been tested, with a fourth under examination. Advanced Digital HDTV missed its submission deadline, causing delays that will force the FCC to work overtime in examining it because the Commission refused to extend the testing period.
NHK, the Tokyo-based broadcasting network, helped create HDTV but their engineers realized long ago that their analog system has practically no chance of being adopted. Rather than give up, NHK is proposing Ultra-Definition Television, or UDTV. UDTV promises higher resolution, up to 70mm motion picture quality. Research is under way, with broadcasting possibly beginning by the year 2000.
UDTV boasts a compressed 150-Mbit-per-second format. NHK has already demonstrated their capability to shrink 1.2 Gbytes to 135 Mbytes. UDTV could be available on satellite by

2007, when the WARC's new 22 GHz band becomes available.

- A by-product of the cold war can help prevent you from getting lost anywhere in the world. **Global Positioning Systems (GPS) use satellites to lock in on a signal broadcast from a handheld radio**. Over 50 companies are getting into the technology, using the 17 GPS satellites currently in operation. Four more satellites come on-line next year, with three backups.
Three satellites determine a radio's position on the ground, and a fourth determines altitude. Although the precision can be as high as 50 feet, for now the Pentagon is restricting it to 325 feet. GPS promises to help campers, drivers, fishermen, and anyone else willing to spend the money to prevent losing one's way.
- If you are in the market for a new computer, you may be surprised at the new options available. **Computer superstores have bypassed mail-order outlets as the fastest-growing means for buying PCs**. Stores are more than willing to haggle with you, because prices are dropping every week. But mail-order houses are still pretty good buys. Both offer excellent guarantees, and major credit cards are still accepted. It still pays to shop around a little more, however.
IBM is currently trying to regain its prominence in the PC market by selling its equipment through mail-order. Compaq, though, decided in February of this year to drop mail-order and sell through outlets. They now have a low end line.
- Placing extra **audio services on radio broadcast subcarriers** isn't new. Background music has been played in elevators and department stores for decades because of it. More recently, televisions have been equipped with SAP (Secondary Audio Program), allowing reception of an extra audio channel if the station chooses to broadcast it. Now the FCC has just dropped restrictions on subcarriers, allowing a new service called RDS. Radio Data System is a phase-modulated, 57-kHz digital subcarrier that rides on a normal FM radio signal. Special receivers can

use the subcarrier to grab any kind of digital data. Exactly what will be sent through it is up to the transmitter.

One benefit could be eradication of that irritating tone, followed by "This is a test of the Emergency Broadcast System." The FCC has been looking for ways to get rid of this, and RDS seems an excellent method because the emergency broadcast data need not be heard directly.

The heart of RDS is visual data, included with FM sound. New radios can be told by the user to look for a station that has a certain musical format. But difficulties lie with its AM station lockout. The National Association of Broadcasters won't support RDS unless AM stations are included.

■ The FCC is preparing to accept the first applications for licenses to broadcast in the new extension of the AM radio band by the end of 1992. Presently, only broadcasters who presently transmit in the 540-1600 kHz band are eligible for licenses in the new 1600-1700 kHz extension. Those who are accepted will be allowed for five years to simulcast on both channels, using the same call letters. Additional preference goes to those stations who wish to broadcast AM-stereo. Power restrictions are 10 kW daytime, omni-directional; and 1 kW nighttime, omni-directional. The process should take at least five years.

■ **Magnetic Light** — Intersource Technologies, based in Silicon Valley, California, has announced its new RF light bulb, the E-Lamp, due for release in 1993. Pierre G. Villere, president of the company, says the E-Lamp will last up to 20,000 hours. Normal incandescent bulbs blow out after about 1,000 hours.

The new bulb also runs much cooler than incandescent bulbs, due to its resemblance to fluorescent lamp technology. The E-Lamp's interior "filament" consists of a high-frequency radio signal, sent out by a wire coil. The radio waves excite a mercury gas inside the bulb, thereby creating ultraviolet light. The UV light then strikes phosphors coating the inside of the bulb, which emit visible light.

The E-Lamp is said to last even longer than normal fluorescent lights,

and can be used in standard threaded sockets normally occupied by incandescent bulbs.

What obstacles are there? First is price. A new E-Lamp will cost \$12 to \$15. The second is RF interference. Manufacturing an RF-producing light bulb has always been tricky because it is usually guaranteed to knock out other nearby radio waves on the same frequency. Intersource Technologies claims to have solved that problem.

A bulb with the same brightness as a 100 watt bulb requires only 25 watts of RF power. Amateurs are understandably concerned since its operating frequency is 13.56 MHz - near the 20 meter ham band. Financial backing for the project came from American Electric Power, based in Columbus, Ohio.

According to the company, a 100-watt incandescent bulb costs about 30 cents to operate for four hours a day, for a full week. The E-Lamp, operating at only 25 watts, will provide the same amount of light for only nine cents. If this new lamp works, filament-based lamps in the home might someday wind up in museums.

■ **Cellular HDTV** — How do you painlessly introduce a new TV broadcasting standard? Station managers are asking this question a lot these days, because although high-definition television (HDTV) promises much higher resolution and digital audio, it also promises much larger transmitting antennas and transmission lines.

An idea to counter that is in the works: use the cellular phone method. Cellular telephone broadcasting does not use one central transmitter; instead, it breaks geographical areas into smaller pieces (cells), each with its own low-power transmitter.

A TV station can start broadcasting to just a few cells at first, and expand its receiving market to more distant cells as it can afford transmitters for them. This would be a boon to stations that cannot find suitable sites for gigantic transmitting towers.

■ **White (Tower) Lightning** — Broadcasting tower owners are slowly changing red light beacons to white strobe lights. There are many reasons for this, including:

Optical power. The red Fresnel lenses covering incandescent lamps disperse the light during the day so it cannot be seen. Strobe lamps can be seen clearly at all hours.

Longer life. Red beacons need to be replaced as often as twice a year. Climbing a tower to replace light bulbs costs about \$1,000.

Paint. Curiously, sometimes the Federal Aviation Administration will allow a tower owner to install a white strobe beacon in place of painting the tower orange and white. Towers built today don't like paint and shed it almost as soon as it is applied.

■ **Self-healing Chips** — Satellite users groan silently to themselves whenever another favorite "bird" falls victim to hardware failure, because little can be done to repair the problem from the ground. Cosmic rays may inundate RAM, for example. But researchers at General Electric Research and Development are working on producing chips that can examine themselves and correct any errors that appear. Interior circuits consistently examine the outputs and "fill in" any data holes.

★ The JARL (Japan Amateur Radio League) reports that Tohoku Electric Power Corp. has developed new radio technology that permits single frequency, two-way simultaneous radio communications. The end result is telephone-like audio because both sides of a voice conversation can be heard at the same time on a single frequency.

Most business radio stations use only one frequency; therefore a dispatcher and the receiver can not talk simultaneously. Each party must press the "push-to-talk" button whenever he or she wishes to speak and release the button to hear the other party.

The newly-developed radio system divides the operator's voice signals into 0.2 second sound segments and compresses them into half the time before transmission. The other half of the time is allocated to receiving similar messages from the other party. This allows both voices to be effectively transmitted at the same time on a single frequency.

JARL says the new technology can be utilized in other radio services - including amateur radio.

gained in making, preparing or distributing amateur radio equipment or materials will be sent to you in about two weeks. My age is at least 10 years old. Details and accreditation are also available for \$1.00. Details and accreditation are also available for \$1.00. Details and accreditation are also available for \$1.00.

● The Dayton Amateur Radio Association recently announced the winners of their 1992 scholarships. They are **Shawn E. Allen KB8IYA**, Stumptown, WV; **Thomas M. Turk KM4VI** Brownsboro, AL; **Kevin D. Creech N7VYU** Tillamook, OR; **Martin H. Gruen KA2LYD** Margate, FL; **Dwight A. Harris, Jr. NØNTM** Fairfield, IA; **Jerry A. Hensley, Jr. N8HUT** New Paris, OH; **David C. May KA7STL** St. George, UT and **Michael A. Shelley KFØSV** of Macon, MO. Each will receive \$2,000.

● **Mike Lamb, N7ML**, has turned the presidency of Advanced Electronic Applications, Inc. over to **Rod Proctor, N7UDD**, a degreed electrical engineer. Lamb, who recently moved to Bozeman, Montana, moves up to Chairman of the Board. Lamb and Proctor will share ownership of the company. Before acquiring an interest in AEA, Proctor served as president and CEO for Teltone Corp., a Washington-based manufacturer of electronic equipment for the telephone industry. AEA is a leading manufacturer of packet controllers, modems, antennas and other peripherals for the ham radio operator.

● **Whatever happened to the 220-222 MHz band** that was reallocated from amateur to narrow-band business radio? Actually nothing. More than a year later no licenses have been issued and no equipment has been authorized for marketing by the FCC. That does not mean that there is no interest. More than 60,000 applicants for licenses are waiting for the FCC lottery that will decide who will get a license.

The Commission has now gone high tech. They will award licenses based on a computerized random selection procedure, rather than a choose capsules from a raffle drum or blown ping-pong balls. The FCC has taken steps designed to prevent spectrum speculators from participating. Narrow-band business licenses must demonstrate ties to the communities in which they are to be licensed and are prohibited from selling their systems for 10 years which must be constructed within 5 years.

● The FCC will propose that computer subassemblies, which it has already approved, will not have to be re-approved when they are combined with other approved sub-assemblies in computers intended for home use. Speaking of home use, the FCC recognizes that today there is little difference between computers intended for home and business use. The home use computers must meet stricter emission limitations, however. Accordingly, the FCC will be considering a unified emission standard for both classes of computers. (Thanks: Raymond A. Kowalski for the above two items.)

SPACE OPERATION EXTENDED TO ALL CLASSES

On July 1, 1992, in response to an amateur submitted petition, the FCC revised Section 97.207(a) of the Amateur Radio Service rules to authorize any amateur radio licensee to be the control operator of a space station subject to the privileges of the operator's class of license. Commission rules currently provide that only Amateur Extra Class operators may operate from space.

A space station is defined (§97.3:a:36) as an amateur station located more than 50 kilometers above the Earth's surface that transmits on frequencies allocated to the Amateur-Satellite Service. (§97.207:c:1 & 2)

The petition was submitted this past February by Ex-ARRL Director and Vice President **James D. Haynie, WB5JBP**, of Dallas, Texas. Haynie noted that since the beginning of the space shuttle program, several astronauts have obtained amateur radio licenses "...to further interest in the space program, to work with the educational community and to some extent allow a degree of recreational value to the shuttle crew. These operations are commendable and are of a value to the amateur radio community and to the educational system of the United States," Haynie argued.

"With a limited number of exceptions, the crew of the shuttle have, on their own, obtained either Technician or No-code Technician licenses and thus required a waiver from the Commission, even though the operations were, and are at VHF or higher and within the privileges granted such a license holder."

Haynie believed rule §97.7 is sufficient and obtaining a waiver before each space flight is "...an unnecessary administrative burden to the amateur community and the Federal government."

In a July 8th press release, the FCC said they agreed that permitting any amateur station to transmit from space would benefit both the amateur community and the public. "Amateur operators would have greater access to space telecommunications technology, and the public would have a more highly-trained pool of operators and electronics experts available in emergencies. Additionally, the Commission would benefit because rule waivers to astronauts who wish to operate their amateur stations in space would not have to be issued."

The Commission declined, however, to define a spacecraft as a "ship." The FCC said they would continue to follow the definition of a space station as contained in the international Radio Regulations. The FCC also notified the volunteer-examiner coordinator's "Question Pool Committee" that they could relocate their questions concerning proper operation of a space station to reflect the new rule amendment.