

# W5YI

## Nation's Oldest Ham Radio Newsletter REPORT

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March 15, 1994

## Cuban Exile Group Annoyed at ARRL Official

The trip that ARRL Oklahoma Manager Joe Lynch, N6CL made to Cuba last month has touched off a major furor within the South Florida Cuban ham radio community. Actually Lynch was travelling on Methodist Church business. He was part of a team that was helping to rebuild a church. Lynch is also the VHF editor for CQ magazine and is the editor-in-chief of the QCWA Journal.

While in Cuba, Joe said he met three ham radio operators in the town of Cifuentes. "One of the Cuban hams was a member of the Methodist Church and he worked along side of us to help reconstruct the building." The president of the local radio club who worked for the city of Cifuentes told Joe that there were about 20 hams in this town of 5,000. Most did not have equipment that worked."

"I went down there on February 4th and was there for a week. We took a charter out of Miami. There are four exemptions that allow people from the U.S. to go to Cuba. Journalists, diplomats, humanitarian workers and family members may freely visit Cuba. I was part of a 13 person team from the United Methodist Church. We went under the humanitarian exemption."

"It is not a dangerous trip. They want the U.S. dollar. The dollar is legal currency now. I found no restrictions. Discussions about American and Cuban politics went on freely." Joe said he was more or less unaware of the problems

between Cubans on the island and those who had fled their homeland to the U.S.

One of the "official" ARRL duties Lynch was to handle while in Cuba was to personally deliver certificates to CO2KK and CO2RP. CO2KK, Arne Coro of Havana, wrote an article that appeared in the December QST, the journal of the American Radio Relay League. (See page 58, *The First VHF Contest from Cuba.*)

### Exile group protests ARRL visit to Cuba

Rafael Estevez, WB4ZZG of Hialeah, Florida heads up the SIRA, the Sociedad Internacional de Radioaficionados - a U.S. ham group comprised primarily of ex-Cuban radio amateurs. SIRA holds the U.S. club call sign of WB4ESB. Estevez prepared and distributed a news article on March 1st addressed:

"TO: All Amateur Radio Operators  
RE: Operation Truth - about the suspended Cuban amateurs and their endless plight."

According to Rafael, the Cuban government has more or less taken over the Cuban national Amateur Radio organization, the Federacion de Radioaficionados Cubana (FRC). Estevez said a Colonel Pedro Rodriguez, CO2RP was transferred from their Army to act as its president. His title is now "Engineer Rodriguez" and he has been ordered "...to rule with an iron fist." Apparently the FRC presidency is an appointed position. "No

elections have been held in the FRC for several years" Rafael said.

Reportedly, the appointment of Rodriguez to the presidency is to prevent the defection of other FRC officials. A previous president, Domingo Garcia Valdes, CO2DV defected and asked for political asylum in Caracas (YV5) while enroute to the IARU Region 2 Convention in Curacao during a September 1992 refueling stop in Venezuela.

Joe Lynch said he met Pedro Rodriguez when he returned to Havana on Thursday night, February 10th. "I was carrying a couple of certificates from the League, and as an ARRL official, was there representing the League. I presented one of these certificates to Pedro to commemorate FRC participation in the June 1993 VHF QSO Party last year. The other for Arne was an author's certificate."

"We talked about a lot of things, but mainly about ham radio in Cuba and their future plans. Basically they see Amateur Radio as a way of educating people ...the same goals that we have here in the states."

SIRA says they have several recordings in which Arne Coro, CO2KK uses amateur radio as a political tool for government propaganda on behalf of the 2,500 members of the FRC. One recording staunchly opposes an anti-Cuban law by U.S. Rep. Robert Torricelli (D-NJ.)

Estevez believes CO2KK is "...the mastermind of the brutal repression among Cuban amateurs. He has several faces. One terrorizes Cuban amateurs, another criticizes the United States, and he puts on another face when he visits the U.S. A fourth face attempts to attract amateurs to visit Cuba."

Joe Lynch told us he had Arne here in Oklahoma for the Central States VHF Society last year. He was the banquet speaker. Arne never mentioned anything about license suspensions. Perhaps some of this stuff coming out about Arne is because of his being able to freely travel throughout the U.S. I never thought he was a political person. If he is, he keeps it to himself.

## Cuban amateur have licenses suspended

Rafael Estevez said the government clamp down is a campaign to suspend the licenses of certain Cuban amateurs who have "...requested medicines and vaccines including anti-rabies, insulin, eye drops for glaucoma and other products lacking in Cuba."

"Since November 1992, the Cuban government - through its station CO2CT - is suspending Cuban amateurs on the air without any chance of due process or appeal. Some have been beaten, some are still in jail for political and/or ideological reasons." SIRA says they have the CO2CT recordings.

SIRA's main complaint seems to be that since this was an ARRL official visit to Cuba, that Oklahoma Section Manager, Joe Lynch, N6CL, should have appealed for clemency on behalf of the more than 40 amateur radio operators who are suspended in Cuba and for an improvement in the ham operating conditions in Cuba.

According to Estevez, Cuban amateurs were surprised that Lynch did not question the FRC authorities about the suspensions since several reports and complaints had been sent to the IARU (International Amateur Radio Union) and the ARRL. Joe said he had not heard about the alleged suspensions or the complaints that followed.

"I only heard of one instance of a ham operator being put off the air by the Cuban government. And that was because several months after Hurricane Andrew hit Florida, he was handling messages into Florida for payment. I know nothing about licenses being suspended because the operator asked for medicines or vaccines."

Joe also told us that even though a third party agreement exists with Cuba, there is not much Cuba to U.S.A. traffic. "The restrictions are a little bit different on their side. Non-licensees can talk over our radios to another country that has a third party agreement. That is not the case in Cuba where ham operators may only relay messages. Non-licensees can not talk over Cuban ham stations. You certainly could not run a phone patch to a non-ham in Cuba."

Estevez, himself a Cuban exile, says that some of the suspensions were for political reasons or for refusing to participate in Army drills with their ham equipment.

SIRA also is concerned that Colonel Rodriguez "...is a recently manufactured amateur by the FRC to keep the Government's political views and Marxist ideas alive." Reportedly, Rodriguez was very active during the Angola war and in Libya and also worked for several years with the Sandinista government during the El Salvador (YS1) and Nicaragua (YN1) guerrilla wars as an intelligence communications officer.

Joe Lynch acknowledged that he spoke to Rodriguez but only through an interpreter and nothing was said of a political nature at all. "We talked ham radio. We did not discuss politics. I know nothing about his background. He told me that they have about 3,000 ham operators in the country. There are about 150 different townships and that he wants to establish a club station in every township so that non-hams can operate them under an apprenticeship program like they did in the Soviet Union."

"Cuba also has a proposal to develop a no-code license on 160 meters similar to the Russian no-code

license. The reason why they are picking 160 meters is because it is simpler to build a radio for that frequency rather than 6 or 2 meters. You can junk the TV set and build a 160 meter radio whereas a VHF radio is more difficult to construct because of the lack of parts."

"Cuba is interested in developing VHF, however. Their VHF bands are modelled after the European allocations. They were influenced by the Russians when they were there. Their 2 meter band is 144 to 146 MHz. The Russians are totally gone now. VHF is growing in Cuba. Repeaters are developing."

"They have three license levels. The equivalent of a Novice, a General and an Extra. The Novice can operate on 160, 80 and 40 and fairly soon will have privileges on 10 meters; 50 watts on sideband. Their General Class has most of the HF privileges but with a power restriction. The highest class has all privileges at a KW."

Estevez told us that after Hurricane Andrew swept through South Florida in August 1992, AT&T communications with Cuba were demolished. Now AT&T is only allowed to provide 300 ten minute calls a day to Cuba because the Cuban government is restricting phone calls to and from the U.S. Many Cuban amateurs want to use their ham radio facilities to relay humanitarian messages since there are so many Cubans now in foreign lands. More than a million are in the United States alone.

"The FRC wants to use amateur radio as another tool of propaganda to lift the U.S.-Cuban Embargo and distort public opinion." Estevez says the invitation to the U.S. amateur radio fraternity to participate in Cuba is just another masquerade to make believe everything is normal on the island."

He charges that "...N6CL only heard one side, CO2KK's and did not bother to hear the other. There are many former Cuban amateurs living in South Florida and in other states; most of them now with U.S. call signs. They are willing to share their experiences and help N6CL and others to understand that the FRC is now an official department of the Cuban Minister of Communications headed by a small group of amateur radio hard-liners."

SIRA said they tried to arrange a meeting with the FRC last April but were turned down because they want to keep all their Marxist ideas inside the Cuban amateur radio fraternity.

I asked Joe if he foresaw a closer relationship between Cuban and U.S. hams. "I think that they are trying to do that," he said. "They wanted to participate at the IARU Conference in Florida in February, but they didn't have the money to go. I have spoken with officials of the IARU about the possibility of their considering funding officials of IARU member societies in Third

World countries who can not afford to travel. They do this now in Region 1 on a regular basis. They bring African national representatives in fully funded as a matter of policy."

Joe told us that the U.S. dollar is accepted everywhere in Cuba. "Everybody participates in the black market to some degree because they have to. The black market exchange rate between peso and dollars is 100 to 1. The official rate is one peso for one dollar. That means that a doctor who earns 250 pesos a month has a spending power of about \$2.50. Cubans will take their ration cards if they don't smoke and sell their allocation for dollars. It is worth 100 times more. Cuba is a poor country with a lot of problems."

Joe Lynch had the following to say about the SIRA news bulletin. "Frankly I am a bit surprised as to the character assassination mounted by the SIRA in the communique attacking my trip to Cuba. Ham radio is supposed to be apolitical and for the SIRA to involve politics is outside of the spirit of the hobby. I met with officials of the FRC as fellow hams. I will be glad to discuss ham radio with members of the SIRA as fellow hams. However, to date no one from the SIRA has contacted me. Incidentally, I went to Cuba in the name of religious freedom. Because I was able to so freely express my religious viewpoint while in Cuba even over national TV, I feel that I will be free to do on future trips. And should I go again, I will do so. It would seem to me that it would be counter productive to the SIRA's cause for members of their organization to oppose my travel to Cuba especially when I use my meeting with the FRC as a vehicle to tell the interviewer from the national TV network that I was there in Cuba from the United States in the name of religious freedom."

- At the IARU Region 1 Conference in Belgium last fall, the OVSF, the national Amateur Radio Society of Austria put forth a motion to reduce the frequency at which Morse Code is required in the Amateur Service from 30 MHz to 28 MHz. They also felt that 12 wpm should be maintained for the highest license class. The measure was soundly defeated.

The Conference finally approved a motion maintaining its present position; that is, a Morse code test should be part of the license requirements for radio operators under 30 MHz. The vote was 38 in favor, none against and 5 abstentions. One of the abstentions (France) declined to vote on the basis that they wanted code-free operation between 28.4 to 29.7 MHz.

The IARU Region 1 band plan now calls for digital segments (now designated as "Digimode" subbands) at: 1.838-1.842; 3.580-3.620; 7.035-7.045; 10.140-10.150; 14.070-14.112; 18.101-18.109; 21.080-21.120; 24.920-24.929 and 28.050-28.150 MHz.

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March 15, 1994

## DECEMBER VE PROGRAM STATISTICS

<u>December</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
<u>No. VEC's</u>	<u>18</u>	<u>18</u>	<u>18</u>

<u>Testing Sessions</u>	<u>861</u>	<u>936</u>	<u>934</u>
<u>VEC</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
ARRL	45.5%	55.3%	56.7%
W5YI	39.3	31.9	31.9%
CAVEC	3.7	3.1	3.0
WCARS	1.9	2.1	1.9
GtLakes	3.5	1.2	0.9
SunnyV	1.0	1.1	0.8
Others (12)	5.1	5.6	4.8
<u>Year-to-Date Sessions</u>	<u>8118</u>	<u>10016</u>	<u>10848</u>

<u>Elements Administ.</u>	<u>17596</u>	<u>17212</u>	<u>17052</u>
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<u>VEC</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
ARRL	48.8%	57.3%	64.3%
W5YI	32.9	27.8	22.9
CAVEC	5.1	3.6	2.7
SunnyV	1.9	1.8	1.4
WCARS	1.6	1.8	1.2
GtLakes	3.1	1.0	0.8
Others (12)	6.6	6.7	6.7
<u>Year-to-Date Elements</u>	<u>172061</u>	<u>193521</u>	<u>193911</u>

<u>Applicants Tested</u>	<u>10375</u>	<u>10196</u>	<u>9566</u>
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<u>VEC</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
ARRL	48.4%	56.8%	63.7%
W5YI	34.0	28.1	23.4
CAVEC	4.4	3.6	2.8
SunnyV	1.9	1.6	1.4
WCARS	1.7	1.8	1.3
GtLakes	2.8	1.0	0.7
Others (12)	8.7	7.1	6.7
<u>Year-to-Date Tested</u>	<u>103251</u>	<u>115852</u>	<u>113028</u>

<u>December</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Pass Rate - All	66.3%	64.5%	64.5%
Applicants/Session	12.0	10.9	10.2
Elements/Applicant	1.7	1.7	1.8
Sessions Per VEC	47.8	52.0	51.9

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

<u>December</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
Defect. Applications	0.5%	0.2%	0.3%
Late Filed Sessions	1.0%	2.2%	1.2%
Defective Reports	0.0%	0.3%	0.0%

### VEC TESTING ACTIVITY BY FULL CALENDAR YEAR

<u>Year</u>	<u>Sessions</u>	<u>Persons</u>	<u>Pass Rate</u>	<u>Elements</u>	<u>Increase</u>
1985	3223	41439	58.2%	62589	--
1986	3784	42442	59.7%	61921	(-1.1%)
1987	4378	49728	60.6%	81042	+30.9%
1988	4903	53536	61.0%	89788	+10.8%
1989	5486	57417	61.5%	96092	+7.0%
1990	6250	64737	60.8%	105763	+10.1%
1991	8118	103251	66.2%	172061	+62.7%

<u>Year</u>	<u>Sessions</u>	<u>Persons</u>	<u>Pass Rate</u>	<u>Elements</u>	<u>Increase</u>
1992	10016	115852	65.6%	193521	+12.5%
1993	10848	113028	65.0%	193911	+0.2%

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

## DECEMBER AMATEUR LICENSING STATISTICS

<u>December</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
<u>New Amateurs:</u>				
New Novices	2957	1270	642	186
New Tech's	<u>260</u>	<u>2608</u>	<u>2633</u>	<u>2809</u>
<u>Total New:</u>	<u>3259</u>	<u>3940</u>	<u>3322</u>	<u>3037</u>
<u>Upgrading:</u>				
Novices	1326	614	524	328
Technicians	284	*512	*635	*551
Generals	214	362	336	401
Advanced	<u>119</u>	<u>273</u>	<u>305</u>	<u>228</u>
<u>Total:</u>	<u>1228</u>	<u>1761</u>	<u>1800</u>	<u>1508</u>

<u>Renewals:</u>				
Total Renew:	49	50	90	642
Novices	8	4	35	35

<u>Purged:</u>				
Total Dropped:	1431	23	15	11
Novices	639	13	3	1

<u>Census:</u>				
Indiv. Oper.	500243	543117	587657	631598
Change/Year	+29451	+42874	+44540	+43941

### 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>
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<u>December 1990</u>					
53836	105309	119796	127427	93875	<b>500243</b>
10.8%	21.0%	23.9%	25.5%	18.8%	100.0%

<u>December 1991</u>					
57488	107642	122592	158041	97354	<b>543117</b>
10.6%	19.8%	22.6%	29.1%	17.9%	100.0%

<u>December 1992</u>					
61319	109882	125207	192184	99065	<b>587657</b>
10.4%	18.7%	21.3%	32.7%	16.9%	100.0%

<u>December 1993</u>					
65277	112637	126898	227681	99105	<b>631598</b>
10.2%	17.9%	20.1%	36.1%	15.7%	100.0%

<u>Club/RACES &amp; Military:</u>	<u>(1990)</u>	<u>(1991)</u>	<u>(1992)</u>	<u>(1993)</u>
	2434	2431	2431	2419

<b>Total Active:</b>	<b>502677</b>	<b>545548</b>	<b>590088</b>	<b>634017</b>
% Increase	+6.2%	+8.5%	+8.2%	+7.9%

(\* = Does not include Technicians upgrading to Tech Plus)

### 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	36610	676	248	7	0	37541
B	4408	30160	54	6	1	34629
C	15006	44536	67591	98229	47	225409
D	9007	37149	58898	129378	99055	333487
Other	246	116	107	61	2	532
<b>Total</b>	<b>65277</b>	<b>112637</b>	<b>126898</b>	<b>227681</b>	<b>99105</b>	<b>631598</b>

[Group "A"=2X1 & 2X2; "B"=2X2; "C"=1X3 "D"=2X3 format.]

[Source: FCC Licensing Facility, Gettysburg, PA]

## AMATEUR SERVICE GROWTH REPORT - YEAR END 1988 VS. YEAR END 1993

STATE	EXTRA		ADVANCED		GENERAL		TECHNICIAN		NOVICE		TOTAL		INC. %
	1988	1993	1988	1993	1988	1993	1988	1993	1988	1993	1988	1993	
Alabama	706	985	1395	1638	1522	1733	1600	3872	937	1018	6160	9246	50%
Alaska	236	308	475	537	539	655	370	865	349	453	1969	2818	43%
Arizona	909	1288	2022	2408	2143	2501	2147	5142	1097	1240	8323	12579	51%
Arkansas	366	616	798	990	888	1014	811	2286	541	611	3404	5517	62%
California	5961	8007	14166	15875	14767	16511	16123	38221	11048	17359	62065	95973	55%
Colorado	858	1099	1721	2022	1901	2133	1620	3674	1109	1335	7209	10263	42%
Connecticut	818	1054	1417	1565	1793	1935	1147	2563	1383	1691	6558	8808	34%
Delaware	139	182	225	232	248	288	238	464	181	209	1031	1374	33%
Dist. of Col.	68	85	104	101	119	129	49	115	79	82	419	512	22%
Florida	2662	3896	6269	7506	7402	8830	5816	11866	5197	6862	27346	38960	42%
Georgia	950	1381	2031	2406	2139	2537	2113	4894	1272	1528	8555	12746	49%
Hawaii	230	300	470	521	532	572	509	985	541	688	2282	3066	34%
Idaho	219	290	447	565	616	692	426	1197	352	401	2060	3145	53%
Illinois	1874	2434	3769	4093	4580	4856	4135	7936	3200	3594	17558	22913	30%
Indiana	996	1393	2124	2372	2498	2758	2636	5413	1896	2075	10150	14011	38%
Iowa	512	672	1285	1429	1422	1504	928	1933	946	1064	5093	6602	30%
Kansas	506	699	1011	1114	1412	1551	877	2336	964	1033	4770	6733	41%
Kentucky	481	765	987	1167	1242	1406	1208	2917	947	1228	4865	7483	54%
Louisiana	563	774	1205	1337	1298	1425	1048	2447	781	919	4895	6902	41%
Maine	297	453	558	674	875	1009	444	1234	468	578	2642	3948	49%
Maryland	1059	1409	2055	2243	2024	2258	1602	3631	1323	1534	8063	11075	37%
Mass.	1418	1945	2468	2769	3058	3312	2554	4864	1832	2291	11330	15181	34%
Michigan	1512	2002	3227	3576	3903	4255	3190	7027	2535	2672	14367	19532	36%
Minnesota	801	1070	1751	1962	2090	2322	1388	3183	1215	1308	7245	9845	36%
Mississippi	289	438	645	799	758	840	630	1544	457	557	2782	4178	50%
Missouri	901	1250	1916	2192	2349	2598	1701	3868	1425	1541	8292	11449	38%
Montana	193	289	355	422	511	572	222	788	323	354	1604	2425	51%
Nebraska	250	359	722	782	950	988	544	1150	473	497	2939	3776	28%
Nevada	243	352	474	627	627	786	511	1279	327	358	2182	3402	56%
N.Hampshire	431	585	646	734	819	948	670	1498	478	583	3044	4348	43%
New Jersey	1600	2075	3007	3192	3203	3455	2876	5434	2208	2694	12894	16850	31%
New Mexico	420	537	763	904	754	874	634	1595	363	379	2934	4289	46%
New York	2697	3558	5343	5799	6326	6817	5367	11408	5908	7091	25641	34673	35%
N. Carolina	1012	1547	2299	2727	2515	2935	2136	5638	1465	1956	9427	14803	57%
North Dakota	99	149	221	245	359	368	181	472	262	260	1122	1494	33%
Ohio	2073	2884	4375	4918	5050	5527	5783	11490	3816	4169	21098	28988	37%
Oklahoma	551	837	1297	1462	1290	1467	1367	3187	966	1133	5471	8086	48%
Oregon	792	1126	1755	2073	2198	2593	1743	3847	1445	1624	7933	11263	42%
Penn.	1987	2802	3886	4419	4648	5078	3767	7800	3338	3659	17626	23758	35%
Rhode Island	204	298	305	351	480	531	439	823	317	424	1745	2427	39%
S. Carolina	424	605	896	1047	1161	1299	850	2012	594	685	3925	5648	44%
South Dakota	112	155	296	316	344	379	205	422	160	181	1117	1453	30%
Tennessee	867	1339	1930	2262	1901	2231	2220	4936	1276	1518	8194	12286	50%
Texas	3001	4248	6226	7214	6735	7609	6266	13765	4002	4376	26230	37212	42%
Utah	300	423	640	773	583	717	912	3006	626	781	3041	5700	87%
Vermont	154	224	263	312	357	411	223	695	189	226	1186	1868	58%
Virginia	1332	1879	2503	2939	2727	3059	2078	5155	1704	2074	10349	15106	46%
Washington	1436	2115	3045	3607	3738	4386	3260	7849	2700	3120	14179	21077	49%
West Virginia	292	490	588	705	757	929	705	2203	822	883	3164	5210	65%
Wisconsin	721	1043	1588	1788	2004	2162	1333	3261	1188	1283	6834	9537	40%
Wyoming	117	162	180	226	255	279	200	544	224	224	976	1435	47%
Guam	22	49	41	49	31	54	34	124	166	173	294	449	53%
Puerto Rico	186	241	438	543	535	679	1620	2466	2697	4435	5476	8364	53%
Virgin Islands	27	45	39	54	55	81	36	108	43	43	200	331	66%
Other	11	66	10	55	16	60	3	249	13	49	53	298	***
<b>Total:</b>	<b>46885</b>	<b>65277</b>	<b>98681</b>	<b>112637</b>	<b>113082</b>	<b>126898</b>	<b>101495</b>	<b>227681</b>	<b>80168</b>	<b>99105</b>	<b>440311</b>	<b>631598</b>	<b>43.4%</b>
% of Total	10.6%	10.2%	22.4%	17.9%	25.7%	20.1%	23.1%	36.1%	18.2%	15.7%	100%	100%	
% Increase	<b>+39.2%</b>		<b>+14.1%</b>		<b>+12.2%</b>		<b>+124.3%</b>		<b>+23.6%</b>		<b>+43.4%</b>		

(\*\*\* = Other includes U.S. possessions and in 1993, APO/FPO addresses. Figures not comparable.)

### AMATEUR SERVICE GROWTH - 5 YEAR PERIODS ENDING IN 1983, 1988 AND 1993

License Class:	15 YEARS AGO			10 YEARS AGO			5 YEARS AGO			TODAY		
	Dec. 1978	% of Total	% of Total	Dec. 1983	% of Total	% Inc.	Dec. 1988	% of Total	% Inc.	Dec. 1993	% of Total	% Inc.
Extra	22498	6%		34511	8%	40%	46885	11%	36%	65277	10%	39%
Advanced	83436	24%		95771	23%	15%	98681	22%	3%	112637	18%	14%
General	118808	33%		118223	29%	(.5%)	113082	26%	(4%)	126898	20%	12%
Technic.	68738	19%		77298	19%	12%	101495	23%	31%	227681	36%	124%
Novice	62856	18%		85823	21%	37%	80168	18%	(7%)	99105	16%	24%
<b>TOTAL</b>	<b>356336</b>	<b>100%</b>		<b>411626</b>	<b>100%</b>	<b>16%</b>	<b>440311</b>	<b>100%</b>	<b>7%</b>	<b>631598</b>	<b>100%</b>	<b>43%</b>

#### The changing face of ham radio!

1. Fifteen years ago, two thirds of all amateurs were basically HF operators. Today, most amateurs operate VHF and UHF.
2. Fifteen years ago, the General Class was the most popular license with one third of all amateurs holding that class. Today, 36% of all amateurs hold the Technician Class license.
3. Fifteen years ago, nearly twice as many amateurs held the General Class as the Technician Class. Today, that is reversed.
4. The number of Technician Class operators has more than doubled in the past five years.
5. There were nearly 6,000 less General Class amateurs in 1988 as in 1978. Due to a larger pool of radio oriented hobbyists, however, that trend has been reversed. There are now nearly 14,000 more General Class amateurs than five years ago.
6. During the ten years ending in 1988, the number of ham radio operators expanded by 23% - a little over 2% a year. During the next 5 years (1988 to 1993), the growth rate more than tripled to nearly 8% annually.
7. The growth rate of the Novice Class during the last ten years has been about 1½% a year. The Technician Class has been growing at nearly ten times that of the Novice Class. The number of Novices and Technicians were about the same fifteen years ago. There are now more than twice as many Technicians as Novices.

#### NEWCOMERS GROW BY ANOTHER 3% IN 1993

The final licensing statistics for 1993 are in! More than 82% of all first time ham operators choose the Code-free Technician path into Amateur radio during 1993. The Novice Class continues to decline with 14% less beginners choosing this route than a year ago. Here is the final statistics on first time licensees over the last 4 years.

#### 1990

Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent of Total:
Novice	2434	1679	2466	2368	3875	1724	1665	893	1382	1457	1498	2957	24398	88.0%
Technician	191	219	205	239	359	214	269	158	128	283	182	260	2707	9.8%
Other	46	43	56	51	50	46	69	38	42	86	66	423	635	2.2%
<b>Total</b>	<b>2671</b>	<b>1941</b>	<b>2727</b>	<b>2658</b>	<b>4284</b>	<b>1984</b>	<b>2003</b>	<b>1089</b>	<b>1552</b>	<b>1826</b>	<b>1746</b>	<b>3259</b>	<b>27740</b>	<b>100.0%</b>

Average Newcomers: 2312/Month

#### 1991

Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent of Total:
Novice	1713	1819	1734	2651	1801	1088	1662	872	679	1070	813	1270	17172	40.4%
Technician	89	307	* 882	3025	2858	2112	2932	3180	1680	3354	1815	2608	24842	58.2%
Other	14	36	40	73	55	31	82	69	48	77	59	62	646	1.5%
<b>Total</b>	<b>1816</b>	<b>2162</b>	<b>2656</b>	<b>5749</b>	<b>4714</b>	<b>3231</b>	<b>4676</b>	<b>4121</b>	<b>2407</b>	<b>4501</b>	<b>2687</b>	<b>3940</b>	<b>42660</b>	<b>100.0%</b>

(\* = First Codeless Technician license issued: 3/12/91) Average Newcomers: 3555/Month Increase: +53.8%

#### 1992

Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent of Total:
Novice	655	1260	1364	1330	1066	1371	1024	465	617	456	454	642	10704	23.9%
Technician	3318	2764	3347	3810	3058	4525	2752	2494	2069	1548	1054	2633	33372	74.6%
Other	57	68	95	75	54	61	67	44	46	31	17	57	672	1.5%
<b>Total</b>	<b>4030</b>	<b>4092</b>	<b>4806</b>	<b>5215</b>	<b>4178</b>	<b>5957</b>	<b>3843</b>	<b>3003</b>	<b>2732</b>	<b>2035</b>	<b>1525</b>	<b>3332</b>	<b>44748</b>	<b>100.0%</b>

Average Newcomers: 3729/Month Increase: + 4.9%

#### 1993

Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Percent of Total:
Novice	1288	764	580	944	868	1188	707	446	279	154	136	186	7540	16.3%
Technician	3381	3042	3610	2296	4105	4726	1399	3296	5031	2550	1762	2809	38007	82.3%
Other	59	74	49	50	62	64	19	45	93	50	32	42	639	1.4%
<b>Total</b>	<b>4728</b>	<b>3880</b>	<b>4239</b>	<b>3290</b>	<b>5035</b>	<b>5978</b>	<b>2125</b>	<b>3787</b>	<b>5403</b>	<b>2754</b>	<b>1930</b>	<b>3037</b>	<b>46186</b>	<b>100.0%</b>

Average Newcomers: 3849/Month Increase: + 3.2%

(Source: FCC Licensing Facility, Gettysburg, PA)

• **The world's two wealthiest nations are at odds and the seeds of a trade war are being sown!** The cause is the February 11th collapse of a White House trade summit between the Clinton administration and Japan's Prime Minister, Morihiro Hosokawa. It could easily impact Amateur Radio since 90% of all U.S. ham transmitting gear comes out of Japan.

Clinton wanted Japan to accept a system of "managed trade" which involves the setting and reaching of specific numerical import targets. This was firmly rejected by Japan as being unworkable. They fear that failure to reach these levels will still result in U.S. trade sanctions.

Clinton now has signed an executive order reinstating the so-called "Super 301" provision ...Section 301 of the U.S. trade law. That plan identifies nations that raise the greatest barriers to open trade and results in the publication of a list of exports on which sanctions will be applied.

Telecommunications is one of the four areas that the Clinton administration has targeted for punitive tariffs. The others on the trade hit list are financial services (insurance), automobiles and medical equipment. A tariff is simply a tax on imports. Consumers can expect a \$2 or more higher retail price for every tariff dollar. The amount of the tariff that would be imposed would be equal to the amount of sales lost by American companies.

The administration is seeking retaliation against the telecommunications sector because of a perception that Japan has closed its cellular phone markets to U.S. firms. Motorola, for one, complained bitterly that it is unable to make progress in Japan.

There can be no doubt that Japan more or less lives off of their trade balance. They export \$131 billion more than they import. The trade surplus with the United States alone is \$60 billion, with Europe, another \$30 billion. Japan has said that if "punitive steps" are taken, it will complain to the General Agreement on Tariffs and Trade. GATT is the Geneva-based body that governs world trade.

Japan seems to have support from many other nations - including several in Europe. They feel that if the U.S. believes that Japan has closed its markets, then it too should be filing a

GATT grievance rather than setting itself up as a "...judge, jury, prosecutor and executioner."

And there are those who believe that that the U.S. is focusing its attention on markets where Americans stand most to benefit. Maybe so, but who will provide the competition in the Amateur Radio equipment market now controlled by Japan? If U.S. firms are capable of putting out a comparable or better product at the same or less cost, then why aren't they doing it?

• **Spectrum-hungry industry gets 50-MHz of federal frequencies!** That's the headline of a feature article in the February 28, 1994, *Radio Communications Report*, a weekly trade publication to the commercial wireless communications marketplace. It thus appears that industry is expecting to be able to buy (and that is the correct word) in to the spectrum. Amateurs, who are basically "hitchhikers" (they have been getting a free ride) on 2.4 gigs will be ordered off at least part of the band.

The article goes on to say that "By this time next year, the 50 megahertz (2390-2400 MHz, 2402-2417 MHz and 4660-4685 MHz) identified by the Commerce Department's *National Telecommunications and Information Administration* for immediate reallocation from the federal government to the private sector should be in the hands of the Federal Communications Commission."

"The FCC, then, must decide who gets to use the scarce resource before likely putting it on the auction block to raise millions, perhaps billions, of dollars for the U.S. treasury."

"The spectrum is the first installment of a total 200 megahertz that NTIA, which oversees federal government spectrum, will surrender to the FCC over the next 15 years for emerging technologies."

"The 50 megahertz reallocation announced by the Commerce Department February 10 is non-negotiable and the frequencies, mainly used by the military, must be relinquished by the federal government by August."

As mentioned in our last newsletter, it looks almost certain that you can kiss amateur access to the 2402 to 2417 MHz portion of the 2390 to 2450 MHz ham band good-bye! Amateur access to that 60 megahertz segment

will be reduced to 45 megahertz very shortly.

Actually 2390 to 2450 MHz is not really a ham band! Amateurs get to use the spectrum on a secondary basis. Government military radiolocation is the primary user. Much of the spectrum near 2450 MHz may also be unusable by the Amateur Service since 2400 to 2500 MHz (centered on 2450 MHz) is designated for ISM (Industrial, Scientific and Medical) applications. Anyone operating in this band must accept ISM interference.

But that's not the end of the story. The 3300-3500 MHz band is also primarily allocated to Government (military) Radiolocation with the Amateur Service being secondary. Is this band also in jeopardy? We think it is. Here is what *Radio Communications Report* has to say...

"The makeup of the remaining 150 megahertz, however could be more of a challenge as the costs and consequences associated with relocating federal government users on other bands are assessed."

"This impact is expected to be much better defined in the final report," said Norbert Schroeder, private sector coordinator of NTIA's Radio Frequency Spectrum Management office."

"The process of identifying the 150 megahertz will be subject to public comment and review by the Commerce Department, federal regulators and Congress and the president."

"We have to go out with a rule-making to make those frequencies available," said Bruce Franca, deputy chief engineer at the FCC.

"Congress authorized the 200 megahertz (below 5 GHz) spectrum reallocation in the same 1993 budget bill that created spectrum auctions and regulatory parity for mobile communications services. Industry lobbying for the spectrum is expected to be intense."

• **The Feb. 28th Broadcasting & Cable weekly trade magazine agrees that "...the future is wireless"** and broadcasters do not want to be forgotten on the information superhighway. The Fox network plans to offer multiple over-the-air channels through digital compression that will allow FBC affiliates to broadcast several services on one 6 MHz wide channel.

**CONTINUING SAGA OF:  
STONER VERSUS 440 WEST, INC.**

Is a community antenna the answer to deed restrictions that preclude Amateur Radio antennas? It just might be.

In our January 15th issue (page 8) we discussed the lawsuit that **Don Stoner, W6TNS** of Clearwater, Florida, filed against his condominium association. The suit is against "440 West, Inc." due to the restrictive covenants they have against antennas. Stoner maintains in the lawsuit that the Association has installed community television antennas, and a radio system for condominium security, in direct violation of their own rules.

He further said the action of 440 West, Inc., has violated his civil rights and freedom of speech. In an unusual approach to resolving Association concerns about multiple antennas, Stoner offered to install a community ham radio antenna, incorporating AEA's "HAMLINK and RADIOLINK," stating that any licensed resident could use the system without adding any wiring or other antenna. One of the reasons he made this offer was to defeat their argument that "...if we let Stoner put up an antenna, we have to let everyone do it." The Association refused this reasonable offer and the lawsuit was initiated.

It now appears that the association could well go along with Stoner's offer. On February 18th, the following letter was circulated to all condo owners:

Dear 440 West Homeowner:

This letter will serve as official notice of the Special Members' Meeting that has been called by the Board of Directors of 440 WEST, Inc., A Condominium.

**SPECIAL MEMBERS' MEETING**

DATE: Wednesday, March 16, 1994

TIME: 6:30 P.M.

PLACE: 440 WEST, Inc.

450 Building Main Lobby

450 S. Gulfview Blvd.

Clearwater Beach, FL

**PURPOSE: VOTE ON INSTALLATION  
OF COMMUNITY HAM RADIO  
ANTENNA**

Due to the recent presentation by a unit owner, this 1994 Board is

requesting that we consider a change to the common elements to allow the installation of a community ham radio antenna on the roof of the 440 Building.

A change to the common elements requires the consent of our membership. This unit owner has filed a lawsuit against our Association.

Here are some points for you to consider prior to your vote:

- 1) The antenna will be able to be used by any owner who is a licensed ham radio operator.
- 2) Any interference with TV reception can be monitored to determine if the antenna is responsible and the FCC can control this if it were to occur.
- 3) The lawsuit will continue if this request is denied. The petitioners are quite serious and intend to take this suit to higher courts if they fail in their present jurisdiction.

This situation has already been through arbitration and 440 West was successful on all counts.

We cannot tell you how long this lawsuit will continue nor can we give you an estimate of the costs that could be incurred by our Association if we were unsuccessful in our defense.

We cannot assure that the Association will win or lose this lawsuit.

- 4) The Board's ultimate responsibility is to uphold the condo documents and in doing so defend our Association from lawsuits if necessary.
- 5) Can this be a precedent for future owner requests of change to common elements? The answer could be "yes" but as owners we have the right to make requests and ask for consideration at any time and the outcome of this lawsuit does not change our given rights as owners.
- 6) If you vote "for", an antenna will be installed.
- 7) If you vote "against", this directs your Board to spend the funds necessary to defend your Association if we are unsuccessful in our defense.

These points are not being made to you in an attempt to produce a "for" or an "against" vote. They are simply

facts as they relate to this request and the Board wants you to know all the possible ramifications of your vote.

These points are not being made as a scare tactic by your Board or to provoke a vote one way or another. This is clearly the only avenue your Board has available to them in an attempt to resolve the issue at hand short of litigation that could be lengthy. Your Board can only do what you tell them to do by casting your vote. If you choose to not cast a vote at all you will be bound to the results of those who do cast a vote.

The following is the proposal that we are requesting:

"Pursuant to the Declaration of Condominium of 440 West, Inc., Article XXIII, Section (B) and Section 718.113(2) of the Florida Statutes (1993), the common elements of the 440 West Condominium shall be materially altered as may be necessary to install a community ham radio antenna on the roof of the 440 Building. The cost of the installation, maintenance, operation and insurance shall be a common expense, however, the Association may charge a user fee for access and use of the community antenna. The user fee will be used to reimburse the Condominium Association for the expense of the installation, maintenance, operation and insurance for the community ham radio antenna."

Enclosed, you find the Limited Proxy Form for voting this issue. Please return the proxy in stamped, self-addressed envelope. The "designated voter" of your unit MUST sign the LIMITED PROXY, otherwise the vote will be invalid.

Further, please remember that the person you appoint to vote your proxy MUST attend the meeting, otherwise your proxy will be invalid.

A quorum of 119 is necessary to hold the meeting. We are asking that the proxies be returned as soon as possible. If you prefer to vote at the meeting, you may do so, however there will be no advantage to this as no other business will be discussed.

You are encouraged to take the time and cast your vote on this important issue.  
Sincerely yours,  
Geraldine S. Reichert, President  
440 West, Inc., Board of Directors



# W5YI REPORT

Nation's Oldest Ham Radio Newsletter

Page #9

March 15, 1994

• The FCC has released the results of the first three months of privatized commercial radio operator testing. The report covers the months of October, November and December 1993. A COLEM (Commercial Operator License Examination Manager) is the Commercial equivalent of a VEC. There are nine of them. NRE (National Radio Examiners) is the Commercial Radio testing division of the W5YI Group, Inc.

COLEM	Sessions	Examinees
Elkins	223	1341
NRE	135	394
ETAI	23	241
ISCET	56	199
Sea Sch.	116	172
NARTE	1	141
Drake	112	112
NABER	0	0
Sylvan	0	0
<b>TOTAL</b>	<b>666</b>	<b>2,600</b>

### Element 1 Radio Law

COLEM	Adm.	Passed	Percent
Sea Sch.	166	161	97%
Elkins	1117	1030	92%
NRE	391	327	84%
ISCET	205	171	83%
Drake	73	52	71%
ETAI	123	52	42%
NARTE	141	24	17%
NABER	0	0	0%
Sylvan	0	0	0%
<b>TOTAL</b>	<b>2216</b>	<b>1817</b>	<b>82%</b>

### Element 3 Electronics

COLEM	Adm.	Passed	Percent
Sea Sch.	46	42	91%
Elkins	1103	891	81%
NRE	346	262	76%
ISCET	191	133	70%
Drake	39	26	67%
ETAI	118	47	40%
NARTE	139	33	24%
NABER	0	0	0%
Sylvan	0	0	0%
<b>TOTAL</b>	<b>1982</b>	<b>1434</b>	<b>72%</b>

Elkins=Elkins Institute/Dallas

NRE=National Radio Examiners/Dallas

ETAI=Electronic Technicians Association, International

ISCET=International Society of Certified Electronic Technicians

Sea Sch.=Sea School (Maritime)

NARTE=National Association of Radio Telecommunications Engineers

Drake=Drake Training & Technologies

NABER=National Association of Business and Educational Radio

Sylvan=Sylvan Kee Systems

• So far, the FCC has released three of the seven commercial radio operator question pools. These are: **Element No. and Description**

- 1: Radio Law & Operating Practices
- 3: Electronic fundamentals & Techniques
- 9: GMDSS/Radio Maintainer (Global Maritime Distress & Safety System)

These questions pools are available for purchase: Element 1 (170 questions) and Element 3 (726 questions) are in a single book complete with the new Part 13 Commercial Radio Operator Rules: (\$12.95). Passing Element 1 is required for the Marine Radio Operator Permit (MROP) ...both Elements 1 and 3 for the General Radiotelephone Operator License (GROL.) Element 9 (256 questions) is \$7.95. Both prices includes 4th class postage. Credit card orders: NRE (toll free) 1-800-669-9594 (or send check/money order: NRE, PO Box 564206, Dallas, TX 75356.) The question pools also contain all multiple choices, diagrams and answers.

The next commercial radio operator question pool to be released will be Element 7, the **GMDSS/Radio Operator's License**. It is in the draft stage now. The Global Maritime Distress and Safety System is a new automatic satellite-based distress alerting system which is in the process of being phased in during the next five years. The GMDSS licenses will eventually replace the Commercial Radiotelegraph Operator Certificates.

National Radio Examiners has approximately 300 commercial radio operator testing sites coast-to-coast. Telephone 817/274-0400 to determine the nearest test center location.

There is no word yet from the Commission as to when they will release the questions for the radiotelegraph (Elements 5 and 6) or Element 8 required for the radar endorsement.

• At the request of the American Radio Relay League, the **FCC has extended the comment dates on Docket 93-305, Vanity Station Call Signs** in the Amateur Service to April 21st. The previous cut-off date was March 7th.

• The FCC sent out Public Notice No. 41536 on February 3, 1994, stating that effective April 1, 1994, that **only the November 1993 edition of the FCC Form 610 (Application for Amateur Radio Station and/or Operator License)**

and the October 1993 edition of the FCC Form 756 (Application for Commercial Radio Operator License) are acceptable. "Any filed after April 1, 1994, will be returned without action, along with a request to refile the current edition." VE teams began using the new FCC Form 610 on March 1st.

• After many delays, **we understand that electronic filing of Amateur Radio applications will begin about June 1st**. At that time, VECs will have the option of making modem-to-modem ham operator license filings. It should greatly speed up license issuance. Both the ARRL-VEC and W5YI-VEC (who account for 85% of all amateur testing) will be participating.

• There has been much said about the **bus situation at the 1994 Dayton HamVention**. Much of it, simply is not true! For years, the *Dayton Amateur Radio Association* has rented buses that pick up HamVentioner's periodically at the various hotels. To get the straight story, I called **HamVention Chairman, Dave Grubb, KC8CF**.

(1.) "There is no more door-to-door service from surrounding hotels." The decision to discontinue this service was purely financial, Dave told us. "We spent \$93,000 last year on free buses. We just can't do it any more."

(2.) There is increased parking in the vicinity of Hara Arena, site of HamVention. "We will continue to serve all remote parking areas with free bus service."

(3.) "Some, but not all, surrounding hotels will be providing bus service to Hara Arena," Dave said. "Others are looking into it."

(4.) "The only thing that even closely resembles a hotel that we are going to serve with free buses this year will be the two camping areas because the majority of the people who go there tend to put their wheels down." (Montgomery County JVS and the KOA Campground in northwest Dayton.)

(5.) "There will be five remote parking areas this year. These are Salem Mall, Forest Park Plaza, Dayton Mall, the Meijer Store at 48 & 70, and Mendelson's in downtown Dayton."

(6.) "Handicapped parking will be handled the same as in prior years."

(7.) "Shuttle transportation will be provided as usual to Meadowdale School for the VE (ham radio license) testing."

## RF SAFETY COMMENT DATE EXTENDED BY FCC

The Environmental Protection Agency (EPA) says the FCC's new proposed RF guidelines have "...serious flaws that call into question whether its proposed use is sufficiently protective of public health and safety." As a general rule, however, members of industry are backing the FCC's plan to tighten up the RF safety regulations based on 1992 guidelines developed by the Institute of Electrical and Electronic Engineers (IEEE) and adopted by the American National Standards Institute (ANSI). The Comment date on ET Docket 93-62 has just been extended to April 25th.

The 1992 standard lowers from 7 watts to 0.7 watts the operating threshold for determining which low-power transmitters are subject to the new rules and broadens the FCC's jurisdiction of environmental RF radiation in controlled and uncontrolled environments from 3 kHz to 300 GHz.

A new study on electromagnetic radiation absorption from handheld cellular telephones conducted at the University of Utah concludes that they are safe. There are now more than 16 million cellular telephone users. The number of pocket phones is expected to skyrocket as PCS is mass marketed to consumers.

## BOAT ANCHOR - NOT! FEDS RECLAIM EXOTIC AMP; A LOOK AT THE TOP GUN OF MILITARY SATELLITES!

Isabelle Ledford of Cooleemee N.C., didn't know what to make of the strange device her longtime friend Roger Spillman bought for \$75 at auction from a salvage dealer.

Spillman thought it might be an amplifier he could use with his company's business band radio system. He brought the 85-pounder to Ledford, who is radio amateur AB4UX and is active in the W5YI Volunteer Examiner program.

She noted the device's unusual connectors, rugged construction and internal cooling system and surmised that it wasn't intended for ordinary communications. "Looks like we have a boat anchor here," she told Spillman. The two believed they might be able to resell the unit and share in the proceeds - if they could find out exactly what it was. AB4UX called Raytheon, the device's manufacturer, with the serial number. They received no response for several weeks.

It wasn't until after Air Force agents and sheriff's deputies - armed with a search warrant - arrived at Isabelle Ledford's home that the pair learned the mission of the mysterious product.

## EHF secret satellite system

It was an amplifier, not for business or amateur use, but for the Extremely High Frequency spectrum. The unit was part of MILSTAR, the secret Military, Strategic and Tactical Relay Satellite designed to convey

launch codes to U.S. missile forces for up to six months after Washington is destroyed by nuclear attack.

The officers explained the purpose of the amplifier - "They always treated me fine," Isabelle told us - and took it with them. Spillman's \$75 bargain turned out to have cost the Pentagon a cool \$363,735.

The \$35 billion MILSTAR is the most sophisticated satellite system ever built, costing \$100 million a year to operate. Controlled from Colorado Springs, MILSTAR communicates with user terminals in missile silos, submarines, bombers and convoys of hardened trailer trucks traveling the nation's highways during periods of high military alert. Operating in the EHF band keeps communications unaffected by propagation disturbances that would follow nuclear detonations on Earth. A lower-frequency UHF link is incorporated into MILSTAR, however, for compatibility with older systems.

Details of the classified program have been difficult to come by, but huge cost overruns, technical setbacks and whistleblowers' charges recently brought it into the public eye. According to investigative journalist Tim Weiner, author of *Blank Check: The Pentagon's Black Budget*, the MILSTAR network of frequency-hopping satellites and ground stations "will be the most complicated system the human mind ever has created."

## Unit fell off of pallet

It was not a nuclear command truck that started the amp on its erroneous way to Cooleemee - it was a delivery truck headed in December 1992 from a Massachusetts factory to McClellan Air Force Base in Sacramento, California. The unit fell off a shipping pallet and was lost for a year, until it turned up on the unclaimed freight market. Roger Spillman is still out his \$75, but has been sent government forms that might help him get his money back.

The first of six MILSTAR satellites took off from Cape Canaveral aboard a Titan 4 booster on February 7. Brig. Gen. Leonard Kwiatkowski, MILSTAR program director, praised the program in comments to the Washington Post. "Future conflicts will require a coordinated team effort by joint forces over long distance worldwide," he said. "MILSTAR's design is ideally suited to do just that." But Col. Sandy Mangold, who said his views cost him his Air Force job evaluating the space budget, described MILSTAR as a costly monument to Cold War technology that should be terminated.

## MILSTAR BANDS

	<u>EHF</u>	<u>UHF</u>
Uplink	44 GHz	350 MHz
Downlink	20 GHz	250 MHz