



# THE READOUT

The Stanislaus Amateur Radio News

20 YEARS OF SERVICE TO THE COMMUNITY

JULY/AUGUST 1996 OCT/NOV

The Official Newsletter of the Stanislaus Amateur Radio Association

## 1997 NOMINATIONS THIS COMING MONTH 1997 ELECTIONS COMING IN DEC 17

### MINUTES OF 9/17

STANISLAUS AMATEUR RADIO ASSOCIATION September 17, 1996

The regular meeting of Stanislaus Amateur Radio Association was called to order at 7:35 P.M. by President Mike AC6PQ. Introductions were performed and there were 19 people in attendance. Treasurers report-Bob KC6TVE gave the report. Total to date income \$3,453.86, Expenses \$2257.79, check book balance \$3439.03. Equipment fund \$628.20. Technicians report-Leroy NV6S was absent. Communications-none Secretary's report-none Old business-Club call sign. It was discovered that we are unable to apply for a vanity call sign without giving up a call sign. This would not be feasible. We can apply for a second call sign and then give that one up for a vanity or memorial call sign. Motion was made by Jim N6KMR to apply for a second call sign seconded by Duane KF6BPA. Passed. Bill KC6VWO reported on the Ham License plate project and signatures will be taken until January at which time a bill in the legislature can be presented. Octoberfest Walkathon is October 5th. Anyone interested in helping contact Ernie K6UVI. October 13th is the Riverbank Cheese and Wine Bike Ride. Interested parties contact Bob KC6TVE. New Business-VE Test is coming in January. QSO Party will be October 5/6/1996. Open Discussion- The floor was opened for any discussion. A question arose about the misuse of the auto patch by a member for personal gain, doing business via the auto patch. The matter will be looked into by President Mike AC6PQ.

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### MINUTES OF 10/15

STANISLAUS AMATEUR RADIO ASSOCIATION October 15, 1996

The regular meeting of Stanislaus Amateur Radio Association was called to order at 7:37 P.M. by President Mike AC6PQ. Introductions were performed and there were 14 members and 2 visitors in attendance. Treasurers report-Bob, KC6TVE, gave the report. Total to date income \$3,514.57, Expenses \$2527.21, check book balance \$3430.32.

Technicians report-Leroy NV6S was absent. Communications-none Secretary's report-Congratulations to all new hams Old business-Club call sign. The papers are here and all they need is Leroy's signature and then they can be mailed off. The auto patch misuse was discussed and it was determined that at this time there is no incidents of misuse or intent to fraud. Larry, WB6GJT, suggested that Mike, AC6PQ, remind people on the net night of the proper use of the auto patch. Bob, KC6TVE, reported on the Riverbank Wine and Cheese bike-a-thon. They had 10 hams that provided communications for the 478 riders in the event. The event was a big success. Bob thanked everyone for their help, it was greatly appreciated. Jim, N6UGH, reported that the 2 meter beam had been sold. Mike, AC6PQ, reported that the TNC was returned and Duane, KF6BPA, expressed his interest in purchasing it. New Business-Motion was made by Ed, KF6FIR, to treat Leroy, NV6S, and his helper Alex, K6LPG, to a dinner in appreciation for all their work in keeping the club equipment in good working order.

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### NEWSLINE

Newsline Report number 1000 with a release date of Friday, October 11, 1996 to follow.

(\*\*\*\*\* The following is a QST

The International Amateur Radio Union meets in Israel to discuss the future of ham radio worldwide and President Clinton proclaims Amateur Radio Week in the United States. These stories and more on Newsline report number 1000 coming your way right now.

(\*\*\*\*\* SPECIAL WELCOME

Hello and welcome. This newscast represents our 1000th week of delivering to radio amateurs worldwide news and information about our communications service. We had planned on bringing you a special retrospective on the stories that we have covered the past nineteen and a half years, but there is so much breaking news that we are preparing a separate program instead. That show will be aired for us by RAIN -- the Radio Amateur Information Network based in Chicago -- and by other services -- at a later date. Right now, here is the very latest news.

(\*\*\*\*\* IARU MEETS

The IARU Region 1 Conference, not the WRC 96 Conference as we reported last week, ended on October 6th. Representatives from 52 countries in Europe, Africa, the Middle East and the Commonwealth of Independent States met in Tel Aviv, Israel. The meeting considered one hundred and twenty papers which present proposals for the development of the next generation in Amateur Radio.

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## Designing a Yagi-Uda beam

The Yagi beam has become one of the most popular types of antenna used in ham radio today. The Yagi-Uda antenna -- commonly called the Yagi -- was first designed by H. Yagi and S. Uda of Tohoku University in 1926. The Yagi design allows for excellent forward gain while limiting the amount of signal received on the backside to be remarkably decreased. The design also allows for "stacking" many antennas for different bands on a single mast. There are many different ways to design a Yagi antenna, and in this series of articles several different ways will be discussed.

Before starting we must decide what we want out of our antenna. How much gain are we looking for and how much front-to-back ratio do we want. We also must determine the band and bandwidth the antenna is going to cover. A 10 meter antenna will need more bandwidth than an antenna designed for 30 meters. Feed line is also another consideration. Are we going to feed the antenna with open wire feed or are we going to use coax cable. Where are we going to place the finished antenna is a very big consideration. If the antenna is going to be on a 100 foot tower in an area that routinely has very high winds then the antenna will need to be built differently than one that will be mounted on a 20 foot pole in an area with little wind. The last thing to consider is cost. How much do you have to spend? When I was building race cars the old saying of how fast do you want to go depends on how much money you have can be used here. How big of a Yagi do you want to build, well, how much money do you have? Each of these antenna characteristics will be mentioned as we go along in designing our Yagi.

A Yagi antenna is simply a dipole with a reflector and one or more directors. So the first thing we need to determine is the length of the basic dipole. Many studies have determined that the half-wavelength dipole must to be shortened to resonate and show zero reactance. To prove this a full half-wavelength dipole has an impedance of about  $73 + j40$  ohms, so you see some shorting is required. The reactance of a dipole can be determined by using the following formula:  $\text{Reactance} = 33.25 + 3.19 \log K - 0.35 (\log K)^2$  Where K is the ratio of the

length to the diameter. To determine the diameter we need to look at the intended bandwidth and the intended environment. If a large amount of ice or high winds are expected then a larger diameter is needed. Also if a large bandwidth is needed then a larger diameter is needed. Generally if you are building a 10 meter through 20 meter beam then 1 inch element diameter is sufficient. This will allow plenty of strength for winds and also allow enough bandwidth for 10 meters. With 1 inch tubing the K factor will be 0.96. To calculate the length of a wire dipole in free space the following formula is used:  $492/f(\text{MHz})$ . So to calculate a driven element with a diameter of 1 inch we simply:  $492 \times 0.96 = 472$  Then  $472/14.175$  (center of 20M band for example)  $472/14.175 = 33.2981$  feet

All of these dimensions will need final adjustments due to thickness of tubing, height above ground, ground conductivity, relationship to other metallic and non-metallic objects, and other antennas in the area.

So far we have a single element. We now must connect this element to our transceiver with something. The coax cable is the most common and 52 ohm cable is preferred by almost all transceivers. So to feed this element we can use a simple 1:1 balun.

At this point we now have a rotatable dipole. Next time we will look into adding a reflector and possibly one director.

CUL N6UGH JIM ...

## Designing a Yagi-Uda beam Part 2

Last time I gave a little background on the Yagi beam and figured out how to design a driven element dipole to be used in building a Yagi beam. Now we will go on to add a reflector element and properly space the reflector.

Remembering last time we calculated that the driven element (using 14.175 MHz for our example) is  $472/14.175 = 33.2981$  feet. Now we can take the 472 and through experimenting knowing that the reflector needs to be approximately 2% longer than the driven element we can calculate the reflector length.

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Newsline from page 1

Included were dissertations on HF, VHF and Microwaves, contesting, new communication techniques, spectrum monitoring systems and in aiding potential amateurs in emerging countries.

The Conference had held meetings of a number of Permanent Working Groups to discuss Amateur Radio Direction Finding, Common Licensing, EMC, High Frequency Contesting and the STARS - 'Support The Amateur Radio Service' program.

The future of the amateur service was a major topic and much of the discussion centered around bringing an active corps of radio amateurs to these nations. Also discussed was the future of Morse code testing as a requisite requirement for obtaining a ham radio license.

(\*\*\*\*) PRES. CLINTON DECLARES AMATEUR RADIO WEEK

Thanks to the perseverance of a New York ham, the week of October 7th to the 13th was Amateur Radio Week nationwide. Darlena Mayo, KB2EPU, says that she has been working with the White House for quite some time to get President Clinton to declare such an event. When she heard that it had been approved, she was ecstatic:

"I was just totally elated. I can not put words into how I felt when I received this. I just went to cloud twenty seven. Because a lot of work, a lot of effort went into this. It took me several months and it took a lot of calling. I won't even think about my phone bill." KB2EPU

Darlena Mayo only learned of the proclamation on Tuesday October the 8th. She faxed us a copy of the announcement and it reads like this:

"Warm greetings to everyone observing October 7 through 13, 1996, as Amateur Radio Week.

In the past century, the medium of radio has changed the way we live and the way we view our world, and amateur radio operators have played a vital role in this communications phenomenon. Sharing knowledge and technological expertise, connecting computers via radio equipment, and linking people all across the globe, ham radio operators have helped to

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## LETTERS FROM OUR READERS

This juicy tidbit is from KN6ZE

> > WILL WORK FOR FOOD > >  
> FRANCHISES STILL AVAILABLE >  
> YES!!! Make Big \$\$\$\$ (Tax Free) >  
> with your very own Tax Free Business >  
> WILL WORK FOR FOOD FRANCHISE >  
> We Supply ... The Cardboard Sign >  
> We Supply ... The Prime Location >  
> We Supply ... The Thrift Clothing >  
> We Supply ... A Special 90 minute  
Instructional Tape

NOW UNTILL THE END OF THE MONTH, AS A BONUS, WE WILL INCLUDE A WOODEN CRUTCH WITH EACH ORDER, JUST IN CASE SOME CITIZEN ACTUALLY ASKS YOU TO DO SOME REAL WORK. CHILDREN AVAILABLE TO RENT, FIRST COME FIRST SERVED SAY GOODBYE TO THAT DEAD-END-JOB, OPERATORS ARE STANDING BY, CALL 1-800-RIPP-OFF, NOW !!!

## ANOTHER FROM KN6ZE

To: n6kmr@modesto.n6kmr.ampr.org  
Subject: gag..joke

FCC has announced a major fauxpau in that it has lost a major portion of its data base concerning the entered 610v forms. All 610vs are destroyed as they are entered into the data base. A major computer hardware failure has destroyed most of the first days entries. There is no way to recover the lost data. No more information is available at this time...  
<end joke> >

## REBUTTAL TO MAD MAN...

by kn6ze

It seems to me, Also..

In the last issue of the Readout, N6UGH was complaining about the clothing choices that today's kids display. I, for one, have no intention of wearing my underwear on the outside of my pants, I am not going to get my hair buzzed, and while I like most of the alternate music, I will probably never buy a record by Hootie and the Blowfish. I am sure that in the grand scheme of things, little of this matters. Besides that, I am a conservative by nature, and I don't think

what someone else wears, thinks, or eats is any of my business. But, there are a few things that bother me. Some of them may bother you as well. In my case, the list includes, not in any particular order:

Jammers, people who are too pressured to just admit they don't want to and make excuses about learning code, Socialist Democrat Liberals, (who want to take everything that is fun away, make the entire world a U.S. government approved, inspected, and controlled state, and possibly, put V chips in our brains so we are incapable of any thoughts that are not politically correct.), CC and Rs, Seat belt and helmet laws for adults, Code waivers and the people who have them and don't use them to listen to music, TCP/IP ports on frequencies set aside for AX25 systems which raises havoc with the automatic features of many of the AX25 programs, the 'dumbing down' of American society, loose guy wires, worn out rotators on the top of old towers, people who mean nothing to me but seem to think they have a right to decide who I choose to associate with, the new FCC RFI safety rules, and last but not least, people who worry about my underwear showing but think nothing about writing f\*rt in a letter to the editor of a family publication.

I am sure that most of you have your own list, and like me, just 'work around' the irritants that your list presents. It's just called life.

Best wishes, KN6ZE

Sorry Barry didn't know it really bothered you that much. Will try to really get under your skin more next year.. hi hi. the editor

## designing ant. #2 from pg 2

By taking the 472 and adding 2% we now have:  $472 \times .02 = 9.44$  now add  $472 + 9.44 = 481.44$ . Now we have our constant for calculating our reflector length. When calculating it is best to err on the long side than on the short. So when calculating the reflector round the 481.44 up to 482. Using the 482 in our formula we can calculate the reflector length:  $482/14.175 = 34.0035$  feet. This is the length of our reflector. When spacing the reflector a little thought needs to be done; do we want more gain

or do we want more front-to-back rejection? For now we will calculate a happy medium between gain and front-to-back. When the reflector is placed 0.1 wavelength behind the driven element the gain will be approximately 7dbi with the front-to-back being approximately 8db. But, when the distance is increased to 0.2 wavelength then the gain drops down to 6dbi and the f-t-b increases to 10db. With the 0.1 spacing the antenna becomes very limited on bandwidth. The VSWR climbs very rapidly on either side of the calculated center frequency, but, when the spacing is placed at 0.2 the VSWR only climbs to 1.4 at the band limits on either side of calculated center frequency. On our sample antenna the difference between 0.1 and 0.2 wavelength is 6.6 foot of boom. The 0.1 boom length is calculated to be 6.66 feet and the 0.2 boom will calculate out to be 13.319 feet. The builder might want to experiment with reflector placement to fit the individuals needs. To properly make adjustments a person needs to have a tower one wavelength tall and be located in the open for a distance of at least 5 wavelengths. As with any antenna the placement above ground will cause many changes in the E and H fields thus causing different patterns and gains. Another factor to consider when figuring element length is element taper. When the diameter of the element is stepped down as the element length is increased. For example if the element starts with a diameter of one inch then six foot out on the element the diameter steps down to 0.875 diameter the a taper factor comes into play. When the diameter of the larger element is divided by the diameter of the next smaller diameter, and for each answer of 2 then a correction factor of 1.021 should be applied to figuring element length. For those that are keeping up with this; yes the element is longer when a taper is added into the equation. Because of space restrictions in the Readout if anyone is building a Yagi and would like to have E and H field charts and gain/f-t-b charts of your antenna you can send me your calculated dimensions with an SASE and I will send you your charts. My address is in the club roster.

Next time we will start adding more parasitic elements as directors.



## TAPR'S STATEMENT

This will be published in the upcoming PSR. It was passed at the Board meeting held last Friday.

Cheers - Greg Jones WD5IVD  
(forwarded from TAPR-BB mailing list  
by Steve Stroh N8GNJ, NetSIG  
moderator)

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### TAPR's Statement on Spread Spectrum Technology Development

TAPR was founded in 1982 as a membership supported non-profit amateur radio research and development organization with specific interests in the areas of packet and digital communications. In the tradition of TAPR, the Board of Directors at their Fall 1995 meeting voted that the organization would begin to actively pursue the research and development of amateur radio spread spectrum digital communications. At the Spring 1996 board of directors meeting, the following statement of purpose was passed:

"TAPR believes that the technical facts support our conviction that conventional and spread spectrum systems can coexist without detriment to conventional systems on all frequencies from MF to EHF. To this end, TAPR will begin to research spread spectrum systems that will develop technology for future deployment."

As stated above, the TAPR board feels strongly about TAPR's focus on spread spectrum technology and especially how it relates to the potential coexistence on frequencies that will have increased number of users occupying them. The amateur radio bands, like other spectrum will become more heavily utilized in the future. It is in the interest of amateur radio to develop systems that are interference-resistant while not interfering with other primary or secondary users on those frequencies.

TAPR understands the concerns many have with the new technology, and believes that efforts in both education and research is necessary in order to allay the fears about interference and to demonstrate the benefits of the technology.

TAPR believes that today's

communications technology is moving toward all digital transmitters and receivers. These advances in technology, combined with the swift evolution of cell based transmission and switching protocols, are opening up a new set of possibilities for unique new services utilizing intelligent networks. These will contain smart transmitters, receivers, and switches. Today's Internet is perhaps the best example of a self-regulating structure that embodies these new technological approaches to communications in the networking domain. However, to date, many of these innovations have not moved into the wireless networking arena. TAPR will work on moving these innovations into the amateur radio community.

TAPR feels that the VHF/UHF/SHF radio networks of the future will involve a mixture of links and switches of different ownership, which terminate at the end-user via relatively short-distance links. What will then be required is a built-in, distributed, self-governing set of protocols to cause the network's behavior to make more efficient use of a limited, common shared resource, the radio spectrum. Creating such a self-regulating structure for the optimal sharing of spectrum will require much effort.

One of the major problems which stands in the way of these new approaches today is the current FCC regulatory environment and the manner in which spectrum is managed and allocated under its rules.

Historically, the current regulatory approach to radio has been based upon the technology that was in use at the time that the Communications Act of 1934 was framed, basically what we would call today, 'dumb' transmitters speaking to 'dumb' receivers. The technology of that time required reserved bandwidths to be set aside for each licensed service so that spectrum would be available when needed. Given this regulatory approach, many new applications cannot be accommodated since there is no available unallocated spectrum to 'park' new services. However, given the new set of tools available to the entrepreneur with the advent of digital technology, what once were 'dumb' transmitters and receivers can now be smart devices which are capable of exercising greater

judgment in the effective use and sharing of spectrum. The more flexible the tools that we incorporate in these devices, the greater the number of uses that can be accommodated in a fixed, shared spectrum.

Therefore, TAPR will focus its spread spectrum effort in the following areas:

TAPR will work to promote rules and technologies to make the most efficient use of the spectrum through power control, forward error correction, and other means to minimize interference among spread spectrum users and existing communications systems.

TAPR will work on issues and efforts with other national organizations to change the regulatory environment and rules in order to promote the experimentation, development, and later deployment of spread spectrum technology.

TAPR will work to develop information on the topic to help educate members and the amateur community as a whole about spread spectrum technology, and to disseminate this information via printed publications, the World Wide Web, presentations at conferences and meetings, and other means.

TAPR will work to foster experimentation, development, and design of spread spectrum systems, and to facilitate the exchange of information between the researchers and other interested parties.

TAPR will work to develop a national intra-network to foster the deployment of future high-speed spread spectrum systems into regional and local communities, including the development of suitable protocols and guidelines for deployment of these systems.

TAPR will work with commercial companies who manufacture spread spectrum devices which operate in spectrum shared by the amateur radio service (ARS), in order to make them more aware of the nature of ARS operations on those bands with the goal to work towards the deployment of devices which will minimize interference between all spectrum sharing partners.

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## TAPR continued from page 4

TAPR will work with commercial companies who manufacture spread spectrum devices in order to identify equipments that can be either used or modified for use for Part 97 operation.

Adopted by the TAPR Board on September 20th, 1996 at Seatac, Washington Board Meeting.

Spread Spectrum Statement Committee:  
Greg Jones, WD5IVD Dwayne Hendricks, WA8DZP Barry McLarnon, VE3JF Steve Bible, N7HPR

(I'll be posting my impressions on SS based on the many SS related talks I attended at the Seattle DCC last weekend. Still catching up from playing host. - Steve N8GNJ)

## MINUTES OF 10/15 continued from page 1

Motion was seconded by Larry, WB6GJT and passed. Mike, AC6PQ, discussed the idea of more interaction between the club and it's members. He expressed the idea of an ince ntive program for members who upgrade their licenses. Other ideas were also expressed for a pizza party, a picnic was also discussed and Duane, KF6BPA, and Ed, KF6FIR, will co-chair the picnic idea. Someone to give Novice / Tech classes is needed and Barbara KE6SUM will try to find someone who will give a class. Mike, AC6PQ, reminded everyone that nominations will be in November for

## Minutes of 9/17 from page 1

Larry WB6GJT asked ab out a Public Relations person for the club, there will be more discussion on this at the next meeting. Jim N6KMR asked about changing the re-up date for the club to a month later in the year, possibly July. Bob KC6TVE, mentioned keeping it as is but inse rting a form letter and /or envelope. The PL was asked about by Ken WA6CSC and it was reported that a PL will be required by a ll repeaters in Jan. 1997. Kathy KE6QHC requested that the readout articles have a (turn to) at the end of the articles that are continued in another area of the paper. An informal straw vote was taken by

## Newsline from pg 2

make our world a true global village. But even more important, they have provided a crucial lifeline of relief in times of disaster and hardship, ensuring that hope and help are on the way to those in need.

Amateur Radio Week offers us a welcome opportunity to thank our nation's amateur radio operators for their commitment to excellence and their willingness to work for the well-being of others.

Best wishes for a wonderful week.

(signed)

Bill Clinton\*\*

Our congratulations to Darlena Mayo, KB2EPU, on a job well done and to President Bill Clinton for taking the time out of his busy campaign schedule to issue the declaration honoring the Amateur Radio service.

(\*\*\*\*\* FEMA TO FCC: NO SHARING OF 2 METERS AND 70 CM

The Federal Emergency Management Agency better known as FEMA is saying no to sharing or reallocating the 2 meters and 70 centimeter ham bands to Low Earth Orbiting Satellites. In a letter to the

club officers, Time is now to vote on the future of you club. Respectively submitted Barbara KE6SUM.

Mike AC6PQ on if the Code requirements should b --e required whatsoever for any class of license. Motion was made by Jim N6KMR to adjourn seconded by Duane KF6BPA. Meeting adjourned at 8:30 PM. Respectfully Submitted by Barbara

FCC task force currently evaluating new spectrum for use by LEO satellites, FEMA Manager Paul Reed, tells the committee that his agency opposes any such change.

Reed says that Amateur Radio operators have a history of supporting state and local government emergency operations by providing needed communications. He says that many local communities served by ham radio have extremely limited resources and would be without any form of back-up communications without Amateur Radio.

Reed says that FEMA has been in contact with its state and local emergency management partners across the nation. That it is their belief that authorizing access to the mobile satellite service in the 2 meter and 70 centimeter bands will seriously degrade the ability of these groups to support their public service requirements.

The FEMA Manager ends his letter by strongly urging the FCC task force to remove both of these ham bands from any further consideration as a new home for Low Earth Orbiting Satellites. He says to leave them for use by ham radio and its emergency service partners, nationwide. continued pg 6

## SARA Membership Application

Call : \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City & State: \_\_\_\_\_

Zip Code: \_\_\_\_\_ ARRL Member?: ( yes ) ( no )

Home Phone: \_\_\_\_\_ Alt Phone: \_\_\_\_\_

Occupation: \_\_\_\_\_

Date Of Birth: \_\_\_\_\_ Clas Of Lic: \_\_\_\_\_

Year First Licensed: \_\_\_\_\_

Dues: Renewal \$23.00 per year. Out of area more than 150 miles from Modesto is \$11.00. New first time applicants dues are pro-rated from the month you join the club. Use \$1.91 times the number of months remaining in the year. I.E- You join in July = 6 x \$1.91 = 11.46

SARA, repeaters are, on MT.OSO/ 2mtr = 145.390- pl 136.5

220band= 224.14, / 440 band = 440.225- pl 136.5 / SARA Ka-node =WD6EJF/ SARA= 144.91



Newsline from pg 5

#### (\*\*\*\*\* MITNICK PLEADS NOT GUILTY

An update on convicted computer hacker Kevin David Mitnick, N6NHG. In a court appearance a few days after he was indicted, Mitnick entered a not guilty plea to new charges that he illegally gained entry to computer systems, pilfered millions of dollars worth of software and caused damage to the systems.

Mitnick appeared before Judge Marianna Pfaelzer and entered a not guilty plea on all twenty five counts of computer and wire fraud, possessing unlawful access devices and intercepting electronic messages. According to court documents, the companies affected by Mitnick's alleged activities included Novell, Nokia, NEC, Motorola, Fujitsu and the University of Southern California.

The thirty three year old ham is being held without bail at a federal detention facility in Los Angeles. He also has a new lawyer.

According to news reports, Mitnick is now represented by Donald C. Randolph. Randolph represented one of Charles Keating's top aides in the Lincoln Savings and Loan rip-off several years ago. Ironically, Marianna Pfaelzer is the same judge that sentenced Keating to twelve and a half years in federal prison after he was convicted.

#### (\*\*\*\*\* WINDTRACKS 10

Another in a series of ham radio high altitude balloon flights is taking place as we go to air and this one will be on 6 meters.

Windtracks 10 is set and ready for launch on Saturday, October 12th. The balloon will be launched about 7:00 AM EST from the New Augusta Public Academy northwest of downtown Indianapolis.

Students from the middle school will handle the radio communications and tracking of the balloon as it ascends into suborbit before it parachutes back to earth.

The project will carry a crossband repeater with output on 444.85 MHz and also on 6m on 52.525 MHz. Amateur tv

cameras will send live pictures back to earth while an onboard GPS packet unit transmits APRS data.

The launch scheduled for September was scrubbed due to rain.

We will let you know the results of Windtracks 10 in a future Newsline report.

#### (\*\*\*\*\* GATE 2 VANITY UPDATE

Just how many Gate 2 Vanity Call Sign applications the FCC ultimately will receive is still a matter of speculation. Original FCC plans called for running off 25,000 Form 610V copies for the entire vanity program. Later, the Commission upped the tally by nearly a factor of 10.

The ARRL says that it alone has distributed up to 20,000 vanity call sign application packages. This includes direct replies to SASEs, electronic requests and distributions at hamfests and conventions.

#### (\*\*\*\*\* HAM RADIO AND MORE vs WWCR

Ham Radio and More -- the weekly ham radio talk show out of Phoenix, Arizona is no longer live on WWCR shortwave. According to show producer Len Winkler, KB7LPW, he has received a letter from Adam Locke, the operations manager of WWCR. In it, Locke says that the time formerly allotted to Ham Radio and More has been taken over by the religious broadcaster.

Lock tells Winkler that WWCR will continue to carry Ham Radio and More on tape delay on Mondays, at 09:00 UTC on 3.210 MHz and on Sundays, at 03:00 UTC on 3.215 mhz. Locke also says that if other time frees up, he will return Ham Radio and More to live broadcast. Meantime, you can hear the program live over broadcast radio stations across the United States and in Real Audio on the World Wide Web.

#### (\*\*\*\*\* ARRL MEMBERSHIP GROWS

The ARRL says that its membership hit an all time record of 173,491 members in August. The previous all time high of 172,752 was reached in March 1995, just before a small dues increase took effect that caused a slight decline.

#### (\*\*\*\*\* NEW INFO BRANCH MANAGER

The new ARRL Regulatory Information Branch supervisor is Tom Hogarty, KC1J. Hogarty was formerly the assistant contest manager. He replaces Norman Bliss, WA1CCQ, who recently completed his masters degree and accepted a position as a school librarian. Al Gordienko, KF2FB, has been named as the new assistant contest manager. He'd worked previously in the ARRL-VEC.

#### (\*\*\*\*\* NWS AND HAM RADIO

If you're a ham interested in using your skills and equipment during emergencies, you may get a request for help from the federal government. The National Weather Service wants to make more use of hams.

Amateur radio communications was one of the topics at a mid-September Weather Service Conference in Salt Lake City, Utah. Among those invited to speak was Newsline's David Black, KB4KCH.

These are times of big changes for the National Weather Service. The agency is undergoing what's called modernization. Some offices are closing, while others assume more responsibility. Offices which used to issue weather warnings for roughly a dozen counties may have to cover more than twice that number under the new plans.

At Salt Lake City, meteorologists from eight western states discuss establishing and strengthening amateur radio communications networks. Paul Flatt, KC7OVO, is a Weather Service warning coordination meteorologist.

"In Tucson, Arizona, we started the year with about 40 ham radio operators as Skywarn spotters. I think we are up to 75 or 80 at this point in time. I would like to see that grow higher, to put an upper number on it, I couldn't really do that. To cover the area so the entire portion of where I'm at, southeastern Arizona, has some ham radio operators somewhere nearby." KC7OVO

The Conference addresses issues including how to establish spotter groups, frequencies and resources available, and the various types of emergency communications groups including RACES and the Amateur Radio Emergency Service. Rich Douglas is the Conference organizer. continued pg 7



"We could do a lot more and hope to do a lot more and are trying to plan to do a lot more with amateur radio. I would say three or four years ago we did not take advantage of this wonderful opportunity. Now we are trying to organize ham radio networks. Working with our offices, each of the 24 offices, for about two or three years most of our offices have installed radio equipment. Our Regional Director, Dr Tom Byer supports this program. Ans he not only says he does, he does with his budget. He makes sacrifices in his budget to make sure we start gettin' some equipment." Douglas

Concern is expressed over the ability of hams to provide emergency communications services if their frequencies are invaded by commercial users. Several meteorologists say they will write letters opposing possible allocations to a commercial satellite service said to be considering the 2 meter and 440 MHZ amateur bands.

Conference attendees learn about amateur equipment and radio systems, packet and amateur television. Even with Doppler radar and other high tech equipment, hams are needed to help confirm conditions forecasters often suspect but have no proof exist. Again, Rich Douglas:

"First of all, they're very dedicated people. We have found they are among the most reliable group that we can count on. And of course the advantage of instant communications by way of a radio." Douglas

The Weather Service continues to install amateur radio equipment in various offices, as the agency moves ahead with plans to make more use of ham radio in serving the public.

Skywarn storm spotting isn't the only amateur service that forecasters learned about during the Conference. Attention also focused on using ham radio for backup communications when normal circuits fail. That's exactly what happened in early September when Hurricane Fran knocked out phone lines to Weather Service offices in North Carolina.

(\*\*\*\*\* HAM-ASTRONOMER HONORED

Some names in the news. First is Dr

James M. Moran, K1AKE, who has been awarded the 1996 Karl G. Jansky Lectureship by Associated Universities Inc and the National Radio Astronomy Observatory. The Jansky Lectureship is awarded for outstanding contributions to the advancement of astronomy. Moran, a professor of astronomy at Harvard University, is best known for his application of the techniques of very long baseline interferometry to the study of astronomical masers.

(\*\*\*\*\* KD4WUJ WINS COUNTRY MUSIC AWARD

And congratulations to entertainer Patty Loveless, KD4WUJ on her first Country Music Association Female Vocalist of the Year award. According to news reports, Patty received a standing ovation at last weeks 30th Annual Country Music Awards presentation held at the famed Grand Ole Opry in Nashville, Tennessee.

Last year, Patty Loveless made history when she became only the second woman to win the Country Music Associations' prestigious Album of the Year award for her album When Fallen Angels Fly.

Both Patty and her husband / manager Emory Gordy, W4WRO, are active hams.

(\*\*\*\*\* HUDSON DIVISION CONVENTION

On the convention scene, the semi-annual ARRL Hudson Division Convention takes place on Sunday October 20th at the Huntington Hilton Convention Center in Melville, New York. Melville is out on Long Island and the convention will feature commercial exhibits, seminar sessions, VE testing and guest speakers including ARRL First Vice President Steve Mendelsohn, WA2DHF.

This one day convention happens only every other year. With Vice President Mendelsohn serving on the League's WRC 99 committee, this is not a show to miss.

For more information please contact the Radio Central Amateur Radio Club in care of Neil Heft, KC2KY at his callbook address.

(\*\*\*\*\* DXCC UPDATE

In DX, the ARRL's DXCC Desk reports the number of unprocessed applications

at the end of August was down to 464 representing 27,814 QSL cards. The desk received 376 applications for endorsements and new awards during July, and 655 applications during August.

Also in August, DXCC Manager Bill Kennamer, K5FUV, traveled to Tokyo, Japan. There he checked DXCC cards at Ham Fair. Kennamer returned with over 200 DXCC applications, representing over 14,000 QSLs.

(\*\*\*\*\* AMATEUR RADIO-LO-JACK

And finally, most people are familiar with the Lo-Jack system for recovering stolen vehicles. Amateur radio operators have been experimenting with a similar system called APRS which really isn't designed to recover stolen cars, but certainly could be used in that mode.

Now, the San Diego California Responder newsletter reports that recently, as Scotty Leikett, W8KXX, was going to bed, he looked out his window and noticed that his APRS-equipped car was missing. One glance at his computer terminal showed that the vehicle was across town and moving! He notified the San Diego Police Department, but the dispatcher would not believe that an owner had the ability to track his stolen car by radio.

When the policeman arrived, Scotty explained the ARPS system and showed him the car's symbol with the unique amateur call on an APRS city map. The officer relayed the precise location to the police cruisers.

As it happened, the stolen car and a police cruiser were stopped at the same red light with the thieves were still in the car. Surprised at the officers' sudden attention, the culprits made an illegal left turn and the chase was on. Soon after the crooks abandoned the car and escaped, leaving a hand gun behind.

The car was recovered without major damage thanks to ARPS and ham radio.

(\*\*\*\*\* THANK YOU ALL

MORE →

This the end of the year, and we will not be able to tell you who is nominated for officers of SARA. Due to the publication time so show up at the next club meeting to find out. Nov. 19 and elections are Dec 17.



## newsline cont.

Before we go we want to pause for a moment to thank the worldwide ham radio community for its support of Newsline for the past nineteen and a quarter years. For almost two decades we have had the honor of bringing you news and information that we hope has helped you to understand the service a bit better and to enjoy it even more.

No, not every story we report is good news. Sometimes what we detail brings the same tears to our eyes as it does to yours.

Unfortunately, not all news is good news and as the messenger it is our job to present it in as objective a way as we can. We do not succeed every time, but we can assure you that we do try.

So as we close Newscast number 1000 and head to number 1001, we again say thank you -- thank you for supporting us and giving us the drive to continue. Your messages and letters and ongoing financial support tell us that what we do is appreciated.

(\*\*\*\*\* And for this week, and for the first 1000 weeks, that's all from the Amateur Radio Newsline. You can write to us at:

NEWSLINE P.O.Box 660937 Arcadia, California 91066

For now, with Bill Pasternak, WA6ITF at our editors desk, and reporters worldwide, we at Newsline say 73 and we thank you for listening.

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VOTE

## FROM THE EDITOR

From The Editor by n6kmr

Well its that time of the year again, What time you say? Well my friend its not Howdy Doody Time. Its Vote your Favorite person in as a club president and the rest of his or hers officers. Since I have already have a Job I will not be bringing my name in as a nominee. But its time to pass the baton off to the next person. Who will direct the club in a direction of the consensus of the group. You can be a leader of many, in this prestigious position. Like the many that have gone before you, held the gavel of authority. Would You believe ever I was a club president also!! If you have never ran for a club position or never been in the line of light, now is the time to step up to the mic. Become that wild thing, be that one and only, for the next 12 meetings that you will conduct. If you have any ideas of how to bring this club up and running, were all ears, but its you that has to make the first move. Look at the accomplishments of just this year. Field day was the biggest we have ever had, maybe next year we will have the barbeque with big juicy steaks. With raffles and such. This is the first year we did not have to raffle off a TV or a hand gun ( I always thought it was rather low of the club but it did work) to balance the books or pay for that next expensive item the repeater needed very soon. Wow we are making head way! So its your turn to jump in there.

Heard of a new 6 meter repeater, Allen the man who's helped the clubs own 6 mtr machine, has a machine up on 51.900 - w/PL 114.8 ( sorry I do not have Allen's call so please use his machine)

Hey how many hams have internet E-mail? How many are currently surfing on the internet? What's your address ? you can send e-mail to the club too. send it to: sara@modesto.n6kmr.ampr.org

Please send me your address, mine is, n6kmr@modesto.n6kmr.ampr.org this is the ham radio connection tcp-ip, or n6kmr@juno.com . Also do you have a Web Page? Do you want to have Internet mail ?

I have a program for juno.com for internet E-mail FREE and they have 800

# for you to call.

Well as of this time we have no newsline to provide for you also ARRL is a little short this month too, Wonder why, must be of all the activity of the vanity plates.

We have some shuttle flights coming this next month I believe, and those who follow it, I will have the up to date kep files either in ARRL or in keps file on IPMOD on 145.65 look for them in the areas.

Recently I had a port on 144.910 low power, those who enjoyed the port and encouraged the usage of that port for there local mail and internet conference key board to keyboard communications. Well have to tell you that I was knocked down on that idea becuase of one of the landlords of the CVDRA was upset of this port. So if you want it back please send mail to KI6AG@stockton.ke6fse.ampr.org on 145.650 via IPMOD, and tell him of your vote. I would like to make all persons happy but as you all know its hard to please every one. Time to put this thing to bed... ltr... the editor.

hey its time to >>>>>>

VOTE  
NOV  
AND  
DEC



16



# BOB SIMPLETON'S GUIDE TO QUAD ANTENNAS

brought to you by  
**Amateur  
Radio  
Trader**

The first VHF antenna I ever built was this 2-meter quad. I was scanning the 2-meter band one night and heard a fellow amateur; his signal was weak but I gave him a call. He came back to me and we had a very interesting conversation. We got onto the discussion of antennas and he said I should build a quad antenna to improve my reception. He described it to me over the air and I wrote down all the figures and measurements.

I went out to the local hardware store and bought some wood: a 4-foot length of 2"x2" for the boom and 8 pieces of 1"x1"x36" for the quad elements. I had some extra copper wire from my HF dipole creations to use on the four elements. If you follow my construction steps, you'll have a really great antenna and learn something too.

First, I center-notched the 1"x1" wood pieces. This would allow them to fit together in four crosses. I then measured and drilled holes in the ends of the cross arms to hold the wires in place. The holes must be spaced perfectly to hold the wire elements to the proper lengths. Refer to the table below for the proper hole spacing.

## 147 MHz 4 Element Quad

**Best Method**  
All radials are center-notched to fit together at the center.

**Driven Element**  
Solder Coax leads to wire elements  
Caution: do not allow coax to short

**Hole Spacing**  
**Element Spacing**

	Wire Length	Hole Spacing	Element Spacing
Reflector	86-1/8"	30-1/8"	20-1/4"
Driven Element	81"	28-5/16"	
Director 1	77-13/16"	27-1/4"	12-5/16"
Director 2	74"	25-7/8"	

**Hints:** After beam is assembled, find the balance point and drill holes for U bracket.

Horizontal or Vertical polarization is changed by feeding the driven element from side or bottom.  
Use side feed for Vertical polarization!

The center conductor of the coax will travel around the driven element wire and short to the coax shield!! All Quads do this.

**10 db gain less than 4 feet!**

### Parts List

- 1 - 2" X 2" X 48" wood
- 8 - 1" X 1" X 36" wood
- 1 - 2" U clamp with nuts and washers
- 8 - 1.5" wood screws
- 30 feet of 14 gauge wire
- Coax cable

Cut four pieces of wire about 6 inches longer than the measurements shown. Feed each wire through the four holes in the cross elements. Twist together the ends and solder the joint.

The driven element will require special care. An additional hole will be needed for the coax. The shield of the coax is solder connected to one end of the element wire and the center conductor is soldered connected to the other end of the element.

When I first built this antenna I knew something was wrong. This would short the center conductor to the shield. After discussing it with fellow amateurs I was assured that the design was correct!! The length of element wire creates the proper impedance for the frequency.

Now that all the elements are constructed, it is time to attach them to the 4' boom. They must be spaced properly. The proper spacing creates the gain for the antenna. Use two screws to attach each elements to the boom.

Pick up the antenna and find the balance point. This is the position you should use to mount it to the vertical mast.

If you want vertical polarization, the coax should feed from the side of the quad; for horizontal polarization feed it from the bottom or top.

This quad worked great and I learned quite a bit. I'm sure you will also.

Thank you to that amateur who shared this antenna with me over the air.





# THE READOUT

## READ ME ... IMPORTANT INFORMATION HERE

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ARRL membership may be paid through SARA with the club recieving a \$2.00 commission. Please send your ARRL membership form along with your check to SARA, we will deduct the commission and place your membership with theARRL.

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Next Meeting Is November 19, and also December 17, 1996 At  
7:30 pm & You're Invited to come to the Stanislaus County Ad.  
Biulding downstairs in the conference room....

**SEE YOU THERE..... ELECTIONS COMING SOON.....**