



RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. XLIII NO. 10

P.O. BOX 3454, TUSTIN, CA 92861-3454

Oct. 2002

The Prez Sez:

by Cory - AE6GW

QST,QST,QST!!! It's that time of year again...time for the Club Auction! Clean out the shack and garage and bring your treasures on down to the meeting, make yourself a buck and a few for the Club too. All are welcome, members and non-members alike.

Also, don't forget that November is the month for the Election of Officers. Please consider running for an office if you have never done so before.

Finally, we have the famous Not-So-DXpedition ham radio campout the end of this month. If you are interested, see page 6, or the WEB, or Larry, K6LDC, for details.

If you are a club member, look for an updated OCARC Roster with your copy of RF.

See you all at the auction and 73's--**Cory-AE6GW**

Where do you get odds that are roughly ONE HUNDRED THOUSAND times better than the LOTTO?

At the OCARC Special Raffle!! If the LOTTO is at \$29,000,000. Your odds are less than one in 29,000,000 to win. BUT...at OCARC with our special raffle your odds are 1 in 285!!!! Although the amount is lower, the odds are Soooooooo much higher.

Won't you consider supporting our Club? The sooner we get to \$288 the sooner you will get to see if you are the winner of the \$250 gift certificate at HRO. See Phil-N7PA at the general meetings and breakfast meetings.

General Meeting Minutes

20-Sept-2002

The featured program started at 7:30 PM at the Red Cross building. The meeting was called to order at 8:49pm, with all officers present.

Meeting Program The speaker was Ken - W6HHC, who provided a technical overview on "The Fundamentals of Digital Communications".

Treasurer: Balance sheet passed out. Check for \$400 presented to OCARC from the Kei Yamachika W6NGO Trust Fund.

-- see **General Minutes** cont'd on page 4 --

October AUCTION:

The normal general meeting this month has been replaced by the yearly auction. So come to the:

"...OCARC AUCTION"

So clean out your garage and bring your old equipment to be sold. It is also an opportunity to buy radio gear at really low prices. See the auction details are on page five of this newsletter.

Don't miss it. All members and visitors are welcome.

The auction meeting will be:

Friday, Oct 18th
@ 7:30 PM

We will be meeting in Anaheim Room in the east **Red Cross** Bldg.

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**THE ORANGE COUNTY
AMATEUR RADIO CLUB,
INC.**

P.O. Box 3454, Tustin, CA 92781



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Art Dillon, KE6WOX
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OCCARO Delegate:

Bob Buss, KD6BWH
(714) 534-2995
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Monthly Events:

General Meeting:

Third Friday of the month
at 7:30 PM
American Red Cross
(near Tustin Ave & 4th St)
Santa Ana, CA

Club Breakfast:

First Saturday of the
month at 8:00 AM
CowGirl's Cafe, Too
2610 S. Harbor Blvd
(just south of Warner)
Santa Ana, CA

Club Nets (Listen for W6ZE):

Wednesday Evenings

28.375± MHz SSB
7:30 PM - 8:30 PM
Bob AF6C, Net Control

146.55 MHz Simplex FM
8:30 PM - 9:30 PM
Bob, WB6IXN, Net Control

VISIT OUR WEB SITE

<http://www.w6ze.org>

for up-to-the-minute club information, the latest membership rosters, special activities, back issues of RF, links to ham-related sites, vendors and manufacturers, pictures of club events and much much more.

Club Dues:

Regular Members ...\$20
Family Members* ...\$10
Teenage Members ..\$10
Club Badge**\$3

Dues run from January thru Dec and are prorated for new members.

*Additional members in the family of a regular member pay the family rate up to \$30 per family.

**There is a \$1 charge if you'd like to have your badge mailed to you.

Tech Talk #22

A Build-it-yourself High Gain 2 Meter Antenna

By Ken Konechy - W6HHC

This month, I describe a base station 2 Meter antenna that is easy-to-build, inexpensive, and has the same high gain as those expensive base station antennas from commercial companies like Comet and Diamond. It is simple enough to build and install as a week-end project.

When it comes to using antennas, there are two basic rules for success:

1. Make the antenna as large as possible (more capture area).
2. Put the antenna up as high as you can (better line-of-sight).

So while a $\frac{1}{4}$ wave ground plane is easy to build, it has no gain over a dipole. I call it unity gain or 2.1 dBi over the mythical "isopole" concept antenna. A $\frac{5}{8}$ wave J-pole antenna (3.8 dBi) has more gain than a $\frac{1}{4}$ wave ground plane, but the gain is small compared to a Comet base station antenna for 2M (6.5 dBi for a 9.5 foot long Comet model CA-ABC22a...costing about \$70).

2 Meter Collinear Antenna

Figure 1 shows a simple-to-build omni-directional 2M antenna that is built with heavy/stiff wire, some stand-off insulators, and an inexpensive piece of 2 x 2 lumber 12 feet long. 12-foot lumber is best, but I got away with using just a 10-foot piece. This antenna design has been around for a long time (I have used one for 18 years) and I copied the diagram in Figure 1 from a very old ARRL V.H.F. Antenna Book.

Because the antenna is physically 116 inches in length (9.6 feet) it has the same gain as the commercial antenna (~ 6.5 dBi) we described above. This design is a great "large" antenna and will easily beat the signal reports from a J-pole antenna. This design uses three $\frac{1}{2}$ wave segments. In theory, an even larger five-segment antenna could be constructed in the same way; adding another $\frac{1}{2}$ -wave folded stub at each end...followed by another $\frac{1}{2}$ wave (38 inch) piece of straight wire at each end.

Make the main body of the antenna from two pieces of stiff aluminum or copper wire, two pieces each 97 inches long. You could even consider using thin 1/8-in or 5/32-in copper tubing (about \$0.59 per foot). The coaxial cable feed line and the balun described below are taped to the vertical lumber support.

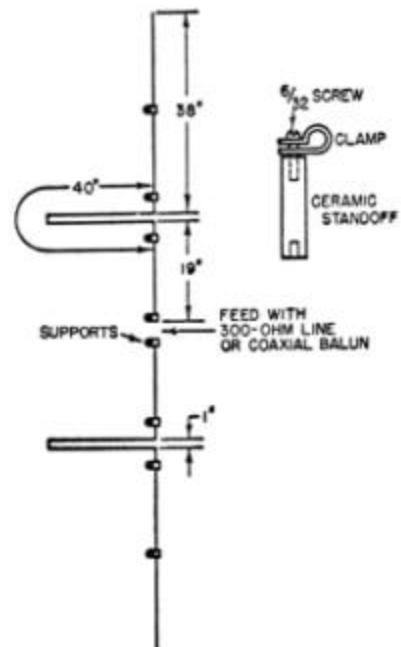


Figure 1 - Dimensions to Construct 2M Collinear Antenna requiring 8 standoff insulators

We Need a Balun

Notice that the impedance of the feed point of the collinear antenna in Fig 1 is 300 ohms. Because of the mismatch between the output impedance of the 2M transmitter (usually 50 ohms) and the antenna impedance (300 ohms)...the SWR would be about 6 :1. Therefore, I can NOT just hook up a piece of coax or twin-lead cable to the transmitter (unless the 2M rig has an antenna tuner).

Figure 2 shows a 4:1 balun made from a one-half-wavelength piece of coax. This simple-to-make balun functions as a 4:1 impedance transformer so the transmitter will see an antenna impedance of $300/4 = 75$ ohms, instead of 300 ohms.

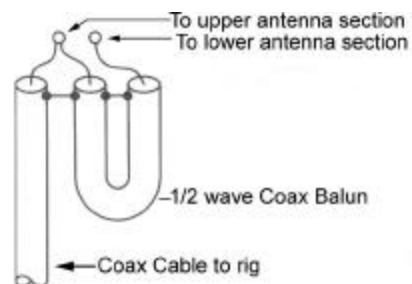


Figure 2 - A 4:1 Balun Made from 1/2 Wave in Length Piece of Coax.

-- See TechTalk cont'd on page 4 --

TechTalk -- cont'd from page 3

So how long is 1/2 wavelength of coax on 2M? Well, in free space one wavelength is

$$1 \text{ Wavelength} = \frac{300,000,000 \text{ meters}}{F_{(\text{Hz})}}$$

Converting the formula for MHz instead of Hz....and then converting it for 1/2 wavelength yields:

$$\frac{1}{2} \text{ Wavelength} = \frac{150 \text{ meters}}{F_{(\text{MHz})}} = \frac{5,905 \text{ inches}}{F_{(\text{MHz})}}$$

It turns out that electricity does not travel as fast inside coax cable as it does in free space. The ratio between the speed-in-coax compared to the speed-in-free-space is called the velocity-factor of coax, **V**. So the net result is that a 1/2 wavelength of coax is a little bit shorter than a 1/2 wavelength in free space. Incorporating the revised velocity-factor in the 1/2 Wavelength formula results in:

$$\frac{1}{2} \text{ Wavelength} = \frac{5,905 \text{ inches} \times V_{(\text{coax})}}{F_{(\text{MHz})}}$$

The velocity-factor, **V(coax)**, for several 50-ohm coax cables is shown below in Table 1:

Type	V(coax)	Loss @ 100 MHz (db/100 ft)
RG-8/9913	0.84	1.3
RG-8/9914	0.82	1.6
RG-8/8237	0.66	1.9
RG-8X	0.82	2.8
RG-9	0.66	2.1
RG-58A	0.78	4.5

Table 1 - Velocity-factor and Losses for Several Coax Cables

If you build this balun, look up the velocity factor from the manufacturers actual data sheet. Now, for this article I will recommend using low-loss RG-8 as feed line from the shack to your 2M antenna. But, the length of the balun coax is fairly short, and does not represent much loss even if you use flexible RG-58 coax. So for our calculations, I will choose RG-8X coax (**V(coax)** = 0.82) and a design center-frequency of 146.5 MHz....shown in the next column:

$$\begin{aligned} \frac{1}{2} \text{ Wavelength} &= \frac{5,905 \text{ inches} \times 0.82}{146.5 \text{ MHz}} \\ &= \frac{4,842 \text{ inches}}{146.5} = 33.0 \text{ in.} \end{aligned}$$

When you build your balun, the 1/2 wave loop of coax does not have to stretch out straight; you can fold it into a small bundle and tape the bundle together so that it is a neat package.

Mounting the Antenna

You can use 2 U-bolts to clamp the bottom end of the 12-foot 2x2 lumber to the end of a metal pole or mast. Another idea is that you could also use "TV antenna chimney straps" (available from Radio Shack) to clamp the bottom end of the 12-foot 2x2 lumber where the TV antenna mast is usually inserted.

General Meeting Minutes -- cont'd from page 1

Vice President: October meeting is the annual auction, November will be Art Goddard with presentation on DXpedition and the annual officer election. Dec 8th will be the Christmas Dinner at Mimi's Cafe in Fountain Valley.

Secretary: Board meeting minutes distributed to Board members and read aloud for general membership; because of insufficient space in this month's RF to print the minutes, they will be printed in October RF.

Board-Minutes correction: The PA system belongs to OCARC, not Cindy KC6OPI. Motion to approve minutes as amended by Frank WA6VKZ, 2nd by Paul WD6FMX.

Activities: \$30 more was raised for the special big gift certificate Raffle tonight. Motion by Phil N7PA to distribute regular check instead of gift certificate for the prize, but the motion was defeated 11-8. Prize stands as it was before, will be \$250 gift certificate for HRO, or another Ham Radio retail establishment.

-- see **General Minutes** cont'd on page 7 --

ORANGE COUNTY AMATEUR RADIO CLUB

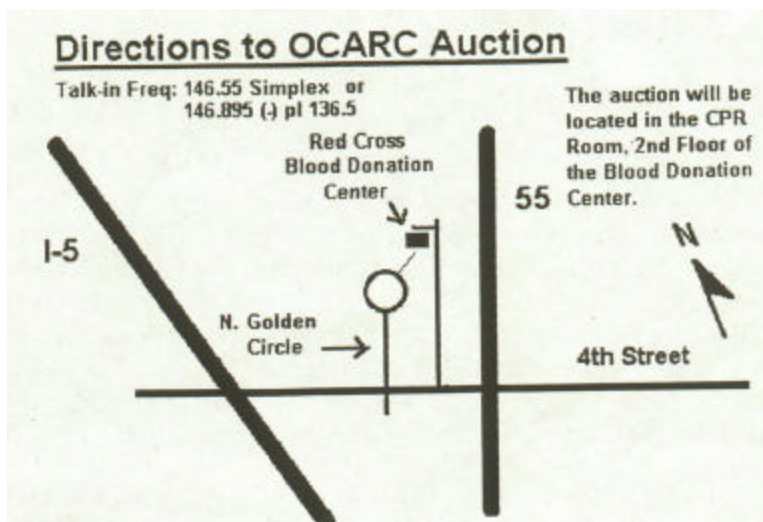
ANNUAL ACTION Friday, OCT 18, 2002

Auction rules

The OCARC Annual Auction will take place on Friday evening, October 18th, 2002, at 7:30 PM at the American Red Cross facility located at 601 N. Golden Circle Drive, Santa Ana (see map below). The room will open at 6:30 PM to allow registration, set-up and viewing. All buyers and sellers are welcome. The following rules for the auction will be in effect:

- 1) Only Ham Radio or electronic equipment/items will be auctioned (that is: no fishing equipment, etc)
- 2) Buyers and Sellers must register at the door with the OCARC treasurer. There is NO registration fee.
- 3) Only 3 items from a Sellers lot will be auctioned during each turn. After auction 3 items, the auctioneer will move on to the next lot. After the first 3 items from every lot have been offered for bidding, the auctioneer will start the second round of auctioning with the next 3 items in Lot #1.
- 4) Sellers should number each item in their lot. A tag should indicate the minimum bid they expect.
- 5) Auction bidding will take place as follows:
 - (a) \$0.00-to-\$5.00 bidding will take place in \$0.50 increments.
 - (b) Over-\$5.00-to-\$50.00 bidding will take place in \$1.00 increments.
 - (c) Over-\$50.00-to-\$100.00 bidding will take place in \$5.00 increments.
 - (d) Over-\$100.00 bidding will be in \$10.00 increments.
- 6) Payments for purchased items are due at the end of the auction and shall be by cash or check with the appropriate ID. No two-party checks or credit cards are allowed. Disbursements to the Sellers will be by OCARC check, only. Sellers will be charged 10% of the selling price for items sold by the OCARC.
- 7) A special table will be set up for donated items. The proceeds of donated items will go to the OCARC.

We welcome all Buyers and Sellers (members and visitors) and hope they have an enjoyable and profitable time.





NOTICE

**Hey You, You'll be Mighty ?!#©!!!#!@ Sorry If You
Don't Make It To This *Special***

Not So Dx-Pedition

The Date is **Oct. 25 through 27 (Friday the 25th for those who want to come early. We'll be there).**

The location is near Aguanga, CA (not far from Temecula). Maps will be available at the **October meeting**. This is a dry camp, so bring water.

The location is on private property and the site is located up on a level clearing, elevation about 4,000 feet msl. Easy to get to, with the only unpaved section being the driveway leading in (about 1,000 ft). Plenty of room for antennas, trailers, motorhomes and you name it.

A DX opportunity!!!

What to bring:

Tent, trailer, motorhome, truck or car to sleep in.

Food (no community cookout) and the utensils. (note: There is a cafe not too far away.)

Warm **clothing** in case of a chilly night. (motel close-by)

A Porta-Potty if you have or can get one. (LDC has a loaner if someone wants to borrow it and share with others)...(Call)

By Owner's request:

Maps are not to be put on the web.

Everyone coming must be listed in advance.

Do not drive-up at night.

These Poor OPs Missed the Last Not
So Dx-Pedition



Bring Firewood If You Can !!!!

Bring your **rigs, antennas or just yourself**, and have a great time trying field day stuff you wouldn't try at home. There will be lots of rigs (hopefully) to play with, regardless of license class.

For more info call Larry, K6LDC, 714.636.4345 or call Art, KE6WOX, at 714.997.2078 E-mail k6ldc@earthlink.net

General Mtg Minutes -- cont'd from page 4

Membership: 57 members on roster. Gordon West had a Ham Radio class going at same time as the meeting in the Red Cross Building. Cindy KC6OPI and Chris W6KFW were invited to describe OCARC in front of the class.

Publicity: Nothing to report.

Technical: Nothing to report.

Good of the Club: Nothing to report.

Members at Large: Not-so-DXpedition coming soon, intention to attend must be declared tonight, flyers available, maps will be given out at October meeting.

Old Business: Funeral flowers never arrived for Al Watts W6IBR, SK. Suggestion to donate to a research organization in the name of Al. Discussion tabled for next board meeting. E-mail should be sent to Chris Breller KJ6ZH.

New Business: Our website has been having technical difficulties, been on and off for several weeks, the payment was \$9.95/mo originally, now \$14.94/mo on older equipment. There is a new plan (using newer equipment) which would be \$19.95/mo, Ken W6HHC recommends moving to the better service plan. Motion by Lowell KQ6JD to move to \$19.95 web service plan at XO, 2nd by Frank WA6VKZ, passed unanimously.

Motion to adjourn by Jim AE6UC, 2nd by Paul WD6FMX.

Respectfully submitted,
Matt K6LNX

WHOis the Technical Chairman ?
by
Ken W6HHC

(This is the eighth in a series of articles to inform you about the background of the officers and leaders of the OCARC.)

The Technical Chairman on the OCARC Board of Directors is Larry Beilin – K6VDP. Larry got his HAM Novice license as KN6VDP in 1956 while attending an Electronics Class and Ham Club at Hamilton High School in Los Angeles. Larry soon moved to Orange County and became involved with the Newport Amateur Radio Society (NARS...no longer around) from 1959 to the 1970's. During the mid-1980's, Larry was an active member of the West Coast Amateur Radio Club. Finally, Larry joined the OCARC in 1989 and has served many years as an OCARC club officer.

At Larry's shack in Costa Mesa, the low band station consists of an Alinco DX70th rig for HF and 6M with both a Harvey-Wells Bandmaster antenna tuner and a Johnson Matchbox antenna tuner. The antenna's are a 40M delta-loop for 80-thru-10M and a Ringo Ranger on 6M. For VHF/UHF, Larry uses Kenwood a TM-221 base station for 144 MHz and a 2M Ringo Ranger antenna. He uses a Kenwood TM-321 rig for 220 MHz with 220 MHz Ringo Ranger.

Larry's favorite HAM activities are Field Day, 6M (he has WAS on 6M), chasing DX, and playing with antennas.

Larry was born and raised in Los Angeles and then moved to Orange County. He has an AA in Electronics from Orange Coast College and a BS in Industrial Technology from a combination of Cal Poly and CSLB. Larry had a lot of fun working as a test engineer for an antenna company for military helicopter antennas. His non-HAM interests include travel and surfing the Internet.

If you get chance, ask Larry about skip conditions on 6M.



**Larry Beilin - K6VDP at his
HAM shack in Costa Mesa**

Board Meeting Minutes

September 07, 2002

The meeting was called to order at 8:34am, with Vice President Lowell KQ6JD presiding. President Cory AE6GW was absent due to increased workload, and Treasurer Steve KB1GZ was also absent. All other officers were present.

Vice President: Ken W6HHC will be speaker for Sept meeting presenting a program on Digital Communications. Oct meeting will be annual club Auction.

Secretary: Several emails have been received by the club lately, and they were presented to the board. The emails involved issues such as an antenna tower that someone doesn't want, a junior high school teacher who wants to form a Ham Radio club at their school and needs help, and asking for mutual website links with the Ham Radio Race Around the World website.

Treasurer: Absent.

Activities, Membership, Publicity, Technical, Members At Large: Nothing to report.

Old Business: The Ham Radio class at OCC will most likely not happen this semester, as only 5 students showed up for the first class meeting, and OCC requires at least 15 students for a class to run.

New Business: Auction coming up in October. Publicity should be spread around about it ASAP, and suggestions included flyers at HRO, email messages to be sent out, including through Bob KD6BWH connections with OCCARO, our website, and the RF newsletter.

It was also suggested that sellers can send description of the items they want to auction to Ken W6HHC, and he will create a section on our website so people can get a preview of some of the items that will be up for auction.

Ken W6HHC volunteered to handle the buyer and seller registration at the auction by computer, with help from Bob KD6BWH and Steve KB1GZ. Cindy KC6OPI will bring the OCARC PA system. Larry K6LDC and Larry K6VDP volunteered to be the auctioneers.

Respectfully submitted, Matt K6LNX

ORANGE COUNTY AMATEUR RADIO CLUB, INC
P.O. BOX 3454
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First Class Mail

***Time Dated Material.
Please Expedite!!***