



RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. XLII NO. 2

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

FEBRUARY 2001

The Prez Sez:

Calling All Amateurs...

Baker to Vegas

It's that time of year to get in gear for B2V 2001. Each year we have a lot of fun out in the desert providing communications for the Challenge Cup Race from just outside the Baker High School to Las Vegas via 20 different stops along the way. Any chance that this gets to someone who needs more information on this? I hope so and please do not hesitate to ask. This year the city of Orange will not be running, so I have had the pleasure of gathering the group of hams that normally support Orange and combine them with forces from the city of Garden Grove and Cypress. We still need more hams to fill in gaps and lets face it, the more the merrier all will be.

The next meeting on Baker to Vegas will be held on February 21, 2001 at the Cypress City Maintenance Yard. The address is 5295 Cypress Street. From Lincoln street turn north on Watson Street (a landmark is: Berwick Radiator Shop, at the corner.) Watson Street is between Moody and Walker. On Watson, the next street on the left is Cypress Street (going east). The Corporate Yard is about 100 yards down on the right. Come right in to the Multipurpose Room. They will be monitoring their RACES frequency at 145.590 MHz.

This will be such an important meeting that I would like to see as many of you as possible attend. This year the B2V will be held April 7th and 8th.

73, de Bob, kd6bwh
kd6bwh@aol.com

Board Meeting Minutes 02/03/2001

Call to order at 8:48 AM. All officers were present except Activities, Tom - WA6PFA and VP, Cory - KE6WIU (who had to leave early). Fourteen people attended the breakfast.

Old Business:

Mr. RF will be started up again. AF6C to talk to Activities to get it started.

A **Field Day** site was discussed. Bob Evans - WB6IXN is in contact with Santa Ana Parks Personnel.

(Continued on page 8)

Club Reminder:

2001 Dues are DUE!

You must renew before April Fool's Day to remain a member in good standing. Ken, W6HHC will collect your dues at the meeting or you can send them to the post office box. An application should be included. For your convenience there is one included on page 7, or you can fill one out interactively on our web site.

February's Program:

The February Guest speaker will be **Gus Bogard, WM6J**. He will be talking on the **Ten Point Amateur Radio Program and Pushing the New FCC**. Gus is being secretive about this program, so you'll have to be at the meeting to find out more about it.

Gus is an ARRL Official Observer, and gave a talk at our club last year on direction finding, hunting interference and what to do when you find the source. It was very informative and well presented.

You don't want to miss our next meeting to be held on:

Friday, Feb 16th
@ 7:30 PM

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

P.O. Box 3454, Tustin, CA 92781



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2001 Club Appointments:

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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
IHOP
1001 E. 17th Street
(west of Lincoln)
Santa Ana, CA

Club Nets (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 December & 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.

A Simple VHF Antenna Mount for Your Home

by Larry, K6VDP

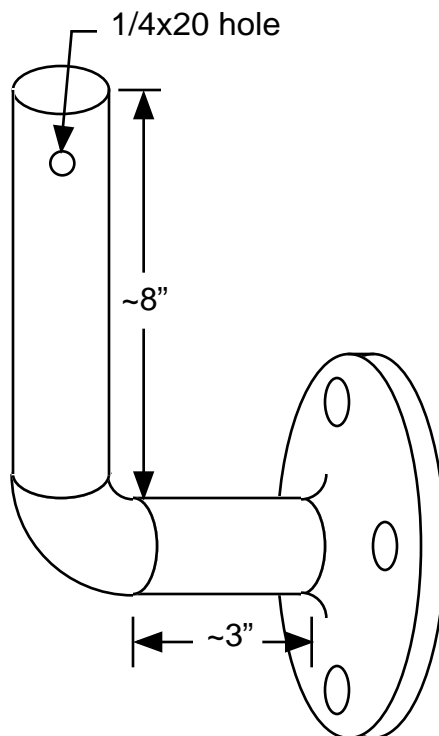
The easiest way to roof mount VHF vertical antennas is on a short mast attached to a roof vent pipe. However, two of the vent pipes here already hold antennas, and the other vent pipes are not convenient.

I wanted a mount that could be attached to the house anywhere I wanted, and one that would not put holes in the roof.

My problem was solved by building two mounts for my two-meter and 220 MHz Ringo Ranger antennas using one-inch galvanized water pipe parts. Assemble a floor flange, 3 inch length of pipe, a 90 degree elbow, and an 8 inch length of pipe. Assemble them using a vise so that the joints are very tight. Drill and tap a 1/4x20 hole near the top of the 8 inch vertical pipe. Mount the assembly to the face board of your house with the 8 inch piece of pipe pointing straight up. Mount the antenna on an eight foot length of 1-3/8 inch OD aluminum tubing and slip the other end of the tubing over the 8 inch pipe, fastening it with a 1/4x20 bolt. This procedure was used to mount both Ringo Ranger antennas. Both antennas have survived some pretty high winds with no damage and no guys.

Note that the exposed pipe threads are not galvanized and must be coated with RTV or paint to prevent rust. Wipe the threads with solvent to remove any oil. I prefer Zynolyte brand spray paint in machine grey. The Ringo Antennas were also rty'd and painted. They have been up for over 20 years with no sign of corrosion.

Reminder:
March 3rd 2001
Club Breakfast



K6VDP Antenna Mount

CLUB SHIRTS:

The place to get club stuff monogrammed is:
i.initial,
 140 E. Main Street,
 Tustin,
 (On Main at El Camino Real,
 Behind the Ruffled Tulip.)
 Ph# (714).573-2552.

TRY THIS!

If you're reading this issue of RF using Adobe Acrobat Reader the Hyperlinks are active! Click on a web URL and Acrobat will take you to your browser and the site. Click on an email address and Acrobat will take you to your email program and open and address a new email document. If you have problems check the Acrobat documentation. You may have to locate the correct application for Acrobat the first time.

VIEW SPACE STATIONS...IT'S NEVER BEEN EASIER

by Bob, WB6IXN

Want to see the International Space Station, or Space Shuttle when one is aloft?...(Forget MIR!...It will soon be destroyed!) All one must do is enter the URL below to bring up JPASS to your computer screen. Enter your Zip Code, wait for the program to initialize, confirm your correct local time, and a 30-60-90 degree target will appear with date, satellite pass across the target face. The satellite pass will be yellow where it can be seen reflecting sunlight. It will be purple where it passes into the Earth's shadow (the terminator) and can no longer be seen. To get successive passes, simply click on the NEXT PASS rectangle. Rise and Set times, and terminator times will be listed. Be careful to watch AM or PM labels, or you may go out the wrong time of the day! The URL:

<http://liftoff.msfc.nasa.gov/RealTime/JPass/>

Below, are listed some satellite passes for Feb.:

<u>DATE</u>	<u>SATELLITE</u>	<u>RISES</u>	<u>SETS</u>	<u>ELEVATION</u>
Feb 7	IS Station	SW 6:03pm	NE 6:11pm	Overhead
Feb 9	IS Station	SW 5:24pm	NE 5:34pm	About 70 deg.
Feb 12	IS Station	NW 6:26am	SE 6:35am	About 58 deg. above NE horizon
Feb 22	MIR	SW 6:33pm	NE 6:38pm	Almost overhead pass! (into terminator)
Feb 25	IS Station	NW 6:22pm	SE 6:30pm	Almost overhead pass!

Tech Talk

by Bob, AF6C

Decibels (Part Two):

Last month we took a look at logarithms and how they allow us to express numbers of greatly differing magnitude in a simple manner. This month we'll look at the origin and theory behind the *decibel* and its base unit the *bel*.

The human ear is a very sensitive device. It can detect sound levels from as low as one ten-billionth of a microwatt per square centimeter up to a tenth of a milliwatt per square centimeter (where sound begins to become painful.) Alexander Graham Bell, the inventor of the telephone, spent many years working in the field of sound and hearing. He discovered that sound perception is logarithmic, and a listener perceives the same change in volume each time the sound level is doubled, no matter where in the range of volume the sound is occurring. The unit of *bel* is named after him, and was originally used to measure the difference between two audio power levels. The bel is defined as the logarithm (which we'll abbreviate as *log*) of a power level divided by a reference power level (P_0):

$$\text{bel} = \log (P_1 / P_0)$$

One bel represents a tenfold increase (or decrease) in power. This is rather coarse for many audio measurements so the decibel was defined. The decibel is one tenth of a bel. Thus, we get the equation seen in the *ARRL Handbook*:

$$\text{dB} = 10 \log (P_1 / P_0) \quad (\text{eq. 1})$$

Interestingly, the decibel is the smallest change in sound level that can barely be perceived by the human ear. See the side bar for more about audio sound.

There are two important points that need to be made about the decibel. First, it relates to power, not voltage or current. We'll talk more about voltage and current later in this article. Second, one of the two powers has to be a reference or known power. By itself, 12 dB doesn't mean squat unless the reference is implied (such as a signal to noise ratio)! Often, an extra letter following "dB" gives the reference. Here are some common examples:

<u>Name</u>	<u>Reference</u>
dBm	one milliwatt
dBw	one watt
dBa	noise floor (typically -90 dBm)

Name (cont.)

dBi
dBd

Reference (cont.)

gain of an isotropic radiator*
gain of a dipole antenna*

* in free space

Often, when measurements are taken at one point in a circuit, the reference is just the first of the measurements. For instance you measure the output of a circuit and then make changes to the circuit and measure the output again. The reference is the initial reading that either improved or didn't after the circuit change. Since decibels represent a ratio between two levels of power, they can represent gain or loss. A negative number is often used to represent a loss. The total gain or loss of a system can be calculated from the gain or loss of each stage by adding them together. If your transmitter output is 25 watts (+44 dBm), your feedline has 3.6 dB of loss and your antenna has 5.6 dBi of gain, the effective radiated power is 44 dB - 3.6 dB + 5.6 dB or 46 dBm (39.7 watts).

Voltage, Current and dB:

Earlier I empathized that dB relates to power, not voltage or current. However, if you are careful and understand an important concept, dB can be used to represent ratios of voltage and current. By using ohm's power law for voltage:

$$P = E^2 / R$$

and substituting it into the equation for decibels, (eq. 1) we get:

$$\begin{aligned} \text{dB} &= 10 \log (P_1 / P_0) \\ &= 10 \log \{ (E_1^2 / R) / (E_0^2 / R) \} \\ &= 10 \log \{ (E_1) / (E_0) \}^2 \end{aligned}$$

Since $\log (X^n) = n \log X$, we can rewrite the equation as:

$$\text{dB} = 20 \log (E_1 / E_0) \quad (\text{eq. 2})$$

In a similar manner, using $P = I^2 R$, we get the equation for current:

$$\text{dB} = 20 \log (I_1 / I_0) \quad (\text{eq. 3})$$

The important point in these derivations is that the resistance terms disappear because it is assumed that the two resistance values are the same. *If they are not the same then the equation is not correct.*

Let's look at a phonograph amplifier that has an input impedance of 10K ohms. With the volume control at a given point, a 10 mV input signal produces a 4.5 volt signal into a 4 ohm speaker. If we use equation (2) we get the **incorrect answer**:

$$\text{dB} = 20 \log [4.5/0.01] = 53 \text{ dB}$$

If we convert the input and output to power first and then use equation (1) we get the **correct answer**:

$$P_{\text{IN}} = 0.01^2 / 10,000 = 0.01 \mu\text{W}$$

$$P_{\text{OUT}} = 4.5^2 / 4 = 5\text{W}$$

$$\text{dB} = 10 \log \{5 / (0.01 \times 10^{-6})\} = 87 \text{ dB}$$

The reason the first answer is incorrect is because at one point we're measuring the voltage at an impedance of 10K ohms, and at the second point at an impedance of only 4 ohms. Now let's look at a 2 meter amplifier that has an input and output impedance of 50 ohms. If you put in 22 volts of RF you get 47.5 volts of RF out. Since the impedance at each point is the same either equation should work:

$$\text{dB} = 20 \log (47.5/22) = 6.7 \text{ dB}$$

$$P_{\text{IN}} = 22^2 / 50 = 9.7\text{W}$$

$$P_{\text{OUT}} = 47.5^2 / 50 = 45.1\text{W}$$

$$\text{dB} = 10 \log (45.1/9.7) = 6.7 \text{ dB}$$

If you're working at one point in a circuit, for instance at the output of your transmitter, and measuring the change in voltage as you perform different modifications, then you can assume the resistance is fixed and either equations (1), (2) or (3) will work. If you're not sure then use equation (1) even though you may have to convert your data to power first.

When you express volts using dB you still need a reference. Here are a few more common references:

dBv one volt*
dBj 1000 μV (usually RF)

This month we may have gotten a bit heavier into the math than I intended. However, next month we'll look into a few simple tricks that allow you to convert dB into a power ratio and back in you head without over stressing your cranium muscle.

Audio Sound:

A few years back a salesman talked at a sports car club. He was selling 500W and 1000W car stereos. People were shelling out big bucks for the extra 500 watts. The difference in power is 3 dB or just three times the increase that the human ear can barely perceive. Since the human ear responds in a logarithmic fashion, that small increase appears the same as going from 250W to 500W or even 1W to 2W. Save your money and your hearing; be conservative if you plan to upgrade your car radio. Take a lesson from our ham manufacturers. The audio power on most amateur radio equipment rarely exceeds one or two watts.

HRO To Open New Anaheim Store

Ham Radio Outlet announces the Grand Opening of the Anaheim store at their old 933 N. Euclid address (same shopping center) on Saturday March 17th.

Since a 4-alarm fire destroyed the store January 23rd last year, HRO set up temporary shop a few doors away at 947 N. Euclid five weeks after the blaze. After a year in somewhat cramped quarters, employees and customers alike will relish the spaciousness of the new bigger and better-than-ever store location. Telephone and fax numbers will remain the same.

Come visit with manufacturer's reps, partake of refreshments, enter the drawing for hourly prizes, or just stop by to see the new store 10:00 AM to 5:30 PM Saturday March 17th. (no purchase necessary and you need not be present to win)

Current plans are to move into the new location and be open for business before February 1st, which should give customers plenty of time to refamiliarize themselves with the new store and employees time to prepare for the big Grand Opening on Saturday March 17th.

Thanks & 73

Ham Radio Outlet
933 N. Euclid Street
Anaheim, CA 92801
1-714-533-7373
1-800-854-6046



WHO'S JAMMING WHOM?

Getting The Story Straight

Extracted from *The ARRL Letter*
Vol 20 No. 2 Jan 12, 2001

It turns out that the 40-meter "wobble-and-buzz jammers" heard by many in the US over the past year or so are Iranian stations that are attempting to block Iraqi stations--not the other way around as recently reported (see "Mother of All Jammers Continues to Plague 40 Meters" in *The ARRL Letter*, Vol 20, No 1).

SWL reports indicated that the signals typically operate in the range from 7020 to 7090 kHz.

The ARRL's sources said this week that the object of the jamming is an Iraqi pirate station--which several SWLs identified as The Voice of the Mojahadin--broadcasting in Persian into Iran on various 40-meter frequencies as well as in the Aeronautical Band. The pirate station operates on a specific frequency--or frequencies--until it's spotted by the Iranians, who then attempt to jam the signal. The broadcaster then hops to another frequency to avoid the jamming, which explains why the jammer will suddenly pop up on a frequency for several minutes at a time and then disappear.

IARU Region 2 Monitoring System Coordinator Martin Potter, VE3OAT, says the jammer often puts "a thundering great signal into my antenna."

The jamming signals are broad and noisy. They typically land on multiples of 10 kHz and occupy some 10 kHz of bandwidth.

The Iranian and the Iraqi governments are reported to have ignored complaints by the US and the United Kingdom. Price says that in light of the strained relations between the US and both Iran and Iraq, there's not much hope that the problem will be resolved anytime soon.

AMATEUR RADIO GIANT

BILL ORR, W6SAI, SK

The ARRL Letter Vol 20 No. 4

Another Amateur Radio legend is gone. William I. "Bill" Orr, W6SAI, of Menlo Park, California, died in his sleep January 24. He was 81.

An ARRL member, Orr was best known for his numerous amateur radio books and reference works, many aimed at beginners. His titles include *The Radio Handbook*, *The Beam Antenna Handbook*, *The Quad Antenna Handbook*, *The VHF-UHF Manual* and *The W6SAI HF Antenna Handbook*, some written in collaboration with Stu Cowan, W2LX. Ironically, friends say, the lack of an antenna in recent days had kept Orr off the air.

Licensed in 1934 at age 15 as W2HCE in New York, Orr graduated in electrical engineering from the University of California in the early 1940s.

In his younger years, Orr was a well-known DXer and DXCC Honor Roll member. He also was involved in DXpeditions to various exotic locations, including St Pierre and Miquelon and Monaco, among other locales.

From the 1940s through the 1980s, Orr was a frequent contributor to QST, writing about tube-type amplifiers, Project OSCAR, and other topics. Orr constructed some of the amplifiers once used at ARRL Maxim Memorial Station W1AW.

For many years Orr worked with tube manufacturer EIMAC. Orr's application notes for EIMAC products were favorite reading within the amateur community. In later years, Orr penned columns for Ham Radio magazine and, more recently, for CQ, where he edited "Radio Fundamentals."

In 1996, Orr was named the Dayton Hamvention Technical Excellence award winner.

Chip Margelli, K7JA, of Yaesu, called Orr "one of the technical

giants in Amateur Radio." Margelli said a hallmark of Orr's talent was that he always published information for designs that had actually been proven in the field. "He also was a true gentleman, and I shall miss him greatly," Margelli said.

Long-time friend Willard "Tiff" Tiffany, W6GNX, said Orr had a knack for making technical topics easy to follow and understand. He remembered Orr as "a friendly, helpful guy who wrote from the heart because he enjoyed doing it."

Another friend, Marv Gonsior, W6FR, says Orr "had a great sense of humor, a lot of wit about him."

Orr owned a condominium in Maui, Hawaii, and operated from there two or three times a year as KH6ADR.

Orr's wife, Sunny, died about five years ago, and he lived alone. He is survived by four daughters and a son.

ARRL BOARD APPROVES DUES INCREASE

The ARRL Letter Vol 20 No. 4

Meeting in Irving, Texas, January 19 and 20, the ARRL Board of Directors voted to increase membership dues from \$34 to \$39 annually for full members younger than 65, and from \$28 to \$34 for full members 65 and older. The dues hike goes into effect July 1, 2001. The last ARRL dues increase was in July 1997.

[Editor's Note: Be sure to read the March QST Editorial by Dave Sumner, K1ZZ that will appear in "IT SEEMS TO US..." column.]



ORANGE COUNTY AMATEUR RADIO CLUB
P.O.BOX 3454
TUSTIN, CA 92781

02/03/2001

2001 Application For Membership

ocarc_app_2001a

New Member Renewal DATE: _____

Name: _____ Call: _____

License Class: Novice Tech. Tech Plus General Advanced Extra
(Circle one)

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ OK to Publish Phone in Roster? Yes No

E-Mail Address: _____

Are You an A.R.R.L. Member? Yes No Badge Name: _____

Dues: Full Member: (\$20.00/Yr.)* \$ _____

 First Family Member: (\$10.00/Yr.)** \$ _____

 Club Badge: (\$3.00 each) Qty: _____ \$ _____

 ARRL Dues or Renewal: (Optional)*** \$ _____ (Attach Application)

Total Amount Paid: \$ _____

How do you prefer to receive the RF Newsletter? Off our Web Site U.S. Mail

Family Members:

#1 Name: _____ Call: _____ Class: _____ Badge Name: _____

#2 Name: _____ Call: _____ Class: _____ Badge Name: _____

#3 Name: _____ Call: _____ Class: _____ Badge Name: _____

#4 Name: _____ Call: _____ Class: _____ Badge Name: _____

How did you hear about our club?: _____

* New member dues only are pro-rated quarterly from January First.
** Family members must reside at the same address. Only one RF will be mailed per family. \$30 maximum dues per year per family.
*** A.R.R.L. Membership can be renewed for your convenience.

<p>Processed: Treasurer: _____ Membership: _____ (Do not Write in this Box)</p>
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**Minutes of the January 2001
General Meeting:**

The January 2001 meeting was held Friday, Jan 19th @ 7:30 PM. Allan Avnet AB8AA was the guest speaker. He talked on stealth antennas and how to enjoy your hobby even with those CC&Rs and local antenna restrictions. The program was well received by our members and guests.

A short business meeting was held after the break. All board members were present except Dick - W6RWY, Chris - KJ6ZH and Bob - KD6XO.

The January Board minutes were accepted as published.

Ken W6HHC reported on the audit. Our current balance of \$1595.44.

Lowell, KQ6JD has a source for club coffee cups. Cost to be \$11 with \$1 going to treasury. See Lowell or RF for further details. Larry K6LDC brought up the club shirts that are still available. Details to appear in RF.

Bob, KD6BWH, reported on the upcoming Baker to Vegas race. The

city of Cypress RACES will be assisting OCARC and Garden Grove hams in setting up the communications backbone.

The Orange County Fair is coming in July. Dave Moford - W7KTH is planning the OCARRO radio booth. OCARC members will be asked again to help man the booth.

Our VP, Cory is now a general Class!

Garden Grove park is not available for FD this year. Ken - W6HHC continues to pursue the Los Alamitos Reserve Base as a possible site.

Guests are Tom - K6CCD and Doc - WA6OGO. Both are recent 10 meter net check-ins.

Tom - WA6PFA presented information on an APRS tracking web site:
<http://maps.findu.com/> (call)

The meeting adjourned at 8:55 PM.

Submitted by: Bob - AF6C

**Board Meeting Minutes
02/03/2001 (cont. from page 1)**

Possible site recommend by Ken - W6HHC is Portola Park in N. Santa Ana. Al - N6TEZ to check further with the city. A group will tour park after meeting. The club is looking for a FD chairman.

Baker to Vegas: Bob - KD6BWH reports that there will be a meeting for those who want to participate in the comm backbone with RACES on Wed. 02/21/2001 in Cypress. Email Bob at: kd6bwh@aol.com for details.

New Business:

Bob - AF6C suggested we should have more easy group events such as the Pizza party held last year, a park picnic, etc. We should try for three or four events a year.

Bob - KD6BWH recommends presenting the president each year with a gavel instead of the customary plaque.

Good of the Club: (No Reports)

The meeting adjourned at 9:10 AM

Submitted by: Bob - AF6C

**ORANGE COUNTY AMATEUR RADIO CLUB, INC
P.O. BOX 3454
TUSTIN, CA 92781-3454**

First Class Mail

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