

Help Save Our Frequencies!

By Jeff Reinhardt AA6JR

The Amateur Radio Spectrum Protection Act of 2003 has been introduced in the US House of Representatives. The measure is an ARRL legislative initiative. Florida Rep Michael Bilirakis filed the latest version of the bill, HR 713, on February 12. It has been referred to the House Committee on Energy and Commerce.

HR 713 is aimed at ensuring the availability of spectrum to Amateur Radio operators. It would protect existing Amateur Radio spectrum against reallocations to or sharing with other services unless the FCC provides "equivalent replacement spectrum" elsewhere.

The previous version of the Spectrum Protection Act attracted more than 50 cosponsors. An effort will be made to encourage additional House members to sign onto HR 713 as cosponsors. Additional details are on the ARRL Web site.

You can locate your Congressional Representative at www.house.gov. Send a QSL card or letter that identifies you as a ham and that you support HR 713.

CVARC area representatives include:

California 24th District-
Congressman Elton Gallegly
2427 Rayburn HOB
Washington, DC 20515-0523

California 30th District
Congressman Henry Waxman
2204 Rayburn HOB
Washington, DC 20515

Bring a QSL card to the NEXT CVARC Meeting and we'll fill them out together.

Conejo Valley Amateur Radio Club Speaker To Demonstrate Radio Direction-Finding Techniques

Will "RadioSport" be incorporated into the Olympics?

The Conejo Valley Amateur Radio Club's (CVARC) March 13 meeting will feature Marvin Johnston speaking on Radio Direction Finding and its many applications.

Mr. Johnston is an experienced Ham Radio operator and has participated in numerous direction finding ventures. The applications of the art are many, from locating the radio beacons of downed aircraft to a new activity called "RadioSport," where "hunters" seek a hidden transmitter, using their technical and athletic skills. Local ham radio operators often engage in competitive "Transmitter Hunts" that reward

achieving the shortest amount of time and distance to locate a creatively hidden beacon.

The meeting will be held at the Thousand Oaks Elks Club, 158 Conejo School Road. Doors open at 7:15 p.m., meeting begins at 7:30. There is no charge and all are welcome to attend, particularly those who may not be Amateur Radio operators.

FCC License Examinations

By Jeff Reinhardt AA6JR

CVARC hosts FCC License Examinations at 8:30 AM on the second Sunday of even numbered months at the Ventura East County Sheriff Station on Olsen Rd. (near the Reagan Library). CVARC conducts exams for all license classes. Exam candidates must bring a form of government issued photo I.D., the original AND a photocopy of any existing license or Certificate of Exam Element Completion, a Social Security (or government issued Taxpayer I.D.) number, and \$12 ARRL VE Exam fee (cash is preferred). No advance reservation is necessary, walk-ins are welcome. Advance notice is needed for special circumstances, such as reading the exam to sight-impaired candidates. If you have any questions, contact CVARC VE Coordinator Jeff Reinhardt at 818-706-3853.

Electronic Relief for DX Contact Confirmation Coming Soon

By Howard Elovitz W6EGZ

The ARRL announced that the Logbook of the World will be moving toward Beta Testing soon. This system is a secure electronic method of providing a means to qualify for DXCC or WAS without having a hardcopy of QSL cards.

The ARRL will maintain a secure log database that will be updated by DXers, contesters, DXexpeditions and individual amateurs. Uploading the logs will be free. There will be a charge for an applicant of an award.

For those of you that may be interested the 2003 International DX Convention will be held on May 2, 3, & 4 at the Holiday Inn Plaza Park in Visalia, Ca. The web page for further convention information is www.ncdxc.org.

73 W6EGZ Howard

CQ Field Day, CQ Field Day from Alpha Alpha Six Charlie Victor...

By Tom Stough, W0UFC

Yes, fellow radio ops--it's time again to get organized for Field Day, June 28-29. I need "band captains" for 80, 40, 20, 15 and 10 meters using phone, CW and data modes. I also need captains for VHF and UHF stations. This year, ARRL has added an additional category, a station operating from an Emergency Operations Center ("F" class). If we decide to do this, we'll need additional operators for that (separate) station as well.

If you're a follower rather than a leader, fear not--we'll need plenty of operators for each station, as well as antenna "setter-uppers" and "taker-downers". If you like to meet and greet non-ham visitors, we'll put you to work publicizing our club and our hobby. With the recent emphasis on homeland security, interest in emergency communications is at an all-time high.

So...call me or email me and sign up! (Sorry, I don't have a packet address. Maybe I can learn about packet radio this time around, if one of you will teach me.) You can also sign up in person at the March meeting.

73, Tom Stough, W0UFC

Operations Chair

IWCE 2003

By Rob Hanson W6RH

IWCE 2003 is North America's largest wireless communications technologies show dedicated to mobile radio dealers and end users of wireless communications equipment including public safety, transportation and utilities. Pre-show Base Station Workshops are March 10-11 and the Exhibits and Conference are March 12-14 in Las Vegas. IWCE features more than 350 exhibitors and 6 conference tracks, including Homeland Security, Public Safety, Interoperability, Business, Transportation and Utility Applications and Regulatory Policy.

ARES/RACES Report

By Greg Lane K7SDW

The re-registration process at the Office of Emergency Services (OES) is proceeding. The re-registration is another aftermath of the 9/11 terrorist attacks and includes a more extensive background check of all Ventura County Disaster Workers, including RACES members. Because of the work involved, it may take OES longer to process your application than in the past. Please be patient with the process. In the meantime, if you have an expired Disaster Workers Identification badge, please let me know. Most of you are in my database and during the Tuesday night Area 2 check-in net I do make a note of your badge number. This however does not give me your expiration date. Some of the records I have received from County have been in slight error due to the fact that some of us did our last renewal at the Simi Valley Police Station. I have been working with Jackie, at OES in correcting those errors as they are identified, but I need your help.

During the Tuesday night Area 2 check-in nets, beginning with the March 11 net, I will be asking for expiration dates from members if my database indicates they are expired. I will need to know if you have submitted your paper work to OES and when. This way I can put a trace on the expected completion of your background check.

When the OES sends me your badge I will contact you to making arrangements for pick up.

I am tentatively scheduling an ARES/RACES Packet "Drill" workshop on April 19th at the East County Sheriffs Station. If I cannot get the Community Room for that date I will send out emails and make announcements as to the rescheduling.

I am still looking for "volunteers" for Area 2 Assistant Emergency Coordinators (AECs). I have several AEC positions that I need to fill. For example, I need one AEC to schedule net control operators for the Tuesday night Area 2 Check-in nets. We each need to serve as the net control operator from time to time so that we develop the skills to fill this position if necessary during an actual emergency. Also, serving as the net control operator is an excellent way to become familiar with the voices, call signs, and names of other ARES/RACES members.

Each Area 2 ARES/RACES member should have a 2003 version of the Ventura County ARES/RACES Operational Manual. Please read the manual since it contains the operating procedures that we must follow during an emergency. Contact me if you do not have the 2003 version of the manual. All ARES/RACES members must attend the ARES/RACES Basic Training Class. If you have not attended one of the basic training classes, let me know so I can schedule you for a class.

Thank you for volunteering as an ARES/RACES member.

73 de Greg,- K7SDW - Emergency Coordinator, Area 2

Solar Update

By Ken Larson KJ6RZ

Carl Luetzelschwab, K9LA, standing in for Tad Cook, K7VVV, reports in the ARRL web site that Solar Cycle 23 continues its descent. Cycle 23 peaked in April 2000 with a smoothed sunspot number of 121. A second peak occurred in November 2001 at a smoothed sunspot number of 116, which gave 6-meter enthusiasts worldwide F2 propagation. Cycle 23 is predicted to reach its minimum in the 2006-2007 time frame. The sunspot numbers for the last week of February had a mean of 54.9. The 10.7 cm solar flux mean was 108.8 and the estimated planetary A index mean was 11.1.

Transmitter Power, Antenna Gain, and Coax Loss Trade-offs

By Ken Larson KJ6RZ

In the 1950s and 60s many hams built their own transmitters for the simple reason that commercial transmitters were too expensive. For example, a Johnson Viking II transmitter cost \$300, which doesn't

sound too bad until you stop to consider that a new Ford or Chevy cost \$1,000. The alternative was to buy cheap war surplus radios and use the parts to build one of the transmitters shown in the Radio Amateur's Handbook. In a way, that was more fun. As far as power was concerned, you had control! You could push your transmitter as hard as you dared, to squeeze every bit of power out of it, even to the point where the plates of the transmitter's output vacuum tubes glowed cherry red.

I was convinced in those days that if I could just get another 20 watts of output from my transmitter that it would make all the difference in the world at the receiving end. If I could just get those extra 20 watts that rare DX operator in a distance land would see my signal jump from a pitifully weak whisper to a loud boom that he could not ignore, and I would get that contact. Today I know that little extra power would not have made any difference at all. However, I still have an intense desire to push my transceiver to its maximum power output to get a DX contact. But it doesn't stop there. I want every db of gain that I can possibly get out of my antenna. As far as coax is concerned, I want that big, heavy, hard to handle, expensive coax because I don't want to lose any of my valuable watts getting from my transmitter to the antenna. Does all of this pushing, shoving, and optimization really make a difference? Probably not!

It turns out that you must increase the output power of your transceiver by at least 3 db in order for the person you are talking with to notice any change in your signal strength. For your signal to sound twice as loud, you must increase your power out by about 9 db.

How much is a 3 db increase in power? A 3 db power gain is equal to a times 2 increase in power (3 db = x2). So, if your transceiver is running 100 watts, you must increase your transceiver's output to 200 watts in order for the person you are talking with to notice any increase in your power. If you wanted your signal to sound twice as loud, you must increase your power to 800 watts (9 db = 3 db + 3 db + 3 db = x2 x2 x2 = x8)!. Clearly, increasing power by 20 watts, say from 100 to 120 watts, is not going to make any difference at all to the person receiving your signal. On the other hand, if you cut your power in half from 100 watts to 50 (a 3 db decrease in power), the other operator will hardly notice any drop at all in your signal strength. So why beat your transceiver into the ground by running it at full power? If you run at 75 watts instead of 100, your transceiver will run cooler and no one that you talk to will know the difference. There is someone who may notice the difference however, your neighbors. If you are having interference problems, cutting your power level in half could solve those problems without having any noticeable affect on your ability to make contacts. For example, when I operated on 10 meters at 100 watts, my lawn sprinklers would turn on whenever I keyed my transceiver. When I dropped to 50 watts, the problem went away. Running at 50 watts turned out to be a great water conservation technique.

What about antennas? The same 3 db rule applies. You can go to a lot of trouble and expense on 40 and 80 meters putting up phased vertical arrays to achieve 2 or 3 db of gain. But 3 db of gain will hardly be noticeable to anyone listening to your signal, so why bother? The threshold in antenna cost verses performance gain is around 6 db. If your antenna provides 6 db of gain, operators listening to your signal will notice a difference. Your signal will not be twice as loud, remember you have to get 9 db of gain for that to happen, but at 6 db the gain will be noticeable. The table below puts antenna cost verses performance gain somewhat into perspective. This table compares various yagi beam configurations to the performance of a dipole. The table shows the db gain, relative to a dipole, achieved by each of the antennas. The antennas get more expensive as you go down the table. The table also indicates the increase in signal strength observed by the S-meter on a distant transceiver that is receiving your signal.

Antenna	db Gain	S-unit Increase	Comment
Dipole	0	0	Baseline

2-element Yagi Beam	4	0.6	Marginal performance increase
3-element Yagi Beam	6	1.0	Good performance increase
10-element Yagi Beam	12	2.0	Excellent performance increase

The cost versus performance trade-off for the transmission line connecting a transceiver to an antenna is similar to the antenna cost trade-off. However, this time the trade-off relates to the difference in loss between two types of transmission lines, for example, between two different grades of coax cable. As an illustration, 100 feet of LMR 400 coax used to connect a transceiver with a 10 meter antenna will produce a loss of 0.7 db. If standard RG-8/X coax is used instead, the loss will be 2.0 db. The difference in loss between the two types of coax is 1.3 db. Is it worth buying the more expensive LMR 400 coax to reduce loss by 1.3 db? Probably not. The strength of your signal in this example will sound the same to other hams regardless of which type of coax you use. Notice in making a comparison between two types of coax (or two types of antennas, etc.) it is the difference in loss (or gain) that is important, not the actual loss (or gain). At UHF frequencies, the differences in loss will be greater. 100 feet of LMR 400 coax at 440 MHz has a loss of 2.7 db. In comparison, RG-8/X has a loss of 8.1 db. The difference in loss is 5.4 db. In this case the more expensive LMR 400 coax may be worth the money. LMR 400 coax is relatively thick, stiff, and difficult to work with compared to RG-8/X, particularly inside the radio shack. Suppose that you use 75 feet of LMR 400 to get from your 440 MHz antenna to the wall outside your radio shack. Then you use a 25 foot length of RG-8/X to come through the wall and into the radio shack because RG-8/X is smaller and easier to handle in the shack. What performance penalty will you pay for doing this? The loss of 25 feet of RG-8/X is about 2.03 db. If you brought the LMR 400 all the way into the shack, the loss associated with the additional 25 feet of LMR 400 would be 0.68 db. The difference in loss is approximately 1.36 db, a negligible amount. Using RG-8/X within the radio shack is thus a good choice since it simplifies cable management within the shack and provides negligible additional loss.

In making trade-off comparisons, you have to look at the total system as well as the individual components. For example, a 2-element 10 meter yagi antenna (4 db gain over a dipole) feed by LMR 400 coax (1.3 db gain over RG-8/X coax) produces a total system gain of 5.3 db compared to a 10 meter dipole feed with RG-8/X coax. The total system gain of 5.3 db probably is worth the effort, even though the gains between the individual components was not that attractive. The system trade-off can easily go the other way as well. At 440 MHz, 100 feet of LMR 400 coax has a 5.4 db performance gain over RG-8/X coax and is clearly better. However, if your transceiver has power settings of 5, 10, and 50 watts, and you can hit all of the area repeaters at 10 watts using RG-8/X coax, why upgrade to LMR 400? Unless you are running off of batteries, using LMR 400 coax so that you can drop your transmit power to 5 watts probably is not worth the trouble or cost.

In conclusion, when making trade-offs between transmitter power, antenna gain, coax loss, and total system performance, it is the db difference between the options available to you that is important. A difference of 3 db will not be apparent to the hams that you are communicating with. They will hardly notice the difference if you run your transmitter at 50 watts instead of its maximum 100 watt output power. A difference of 3 db or less between two antennas, two types of coax, or two system implementations is usually not sufficient to justify higher costs. However, a difference of 6 db may justify the more expensive approach.

USED EQUIPMENT

Harvey Seiple, K6GNG, has a 4 element beam, rotor and controller for the beam, a 42 foot tower, and a 20 through 10 meter vertical antenna that he no longer needs. If you are interested in any of these items call Harvey at 805-484-3412. David Mac Farlane, KA6BNL, has a 6 band (40 through 10 meters) Butternut HF6V vertical antenna that he no longer needs. If you are interested in this antenna, call David at 805-446-1485. CVARC has a Kenwood 520 HF Transceiver that was donated to the club. The club does not have a use for the radio and would like to sell it for \$200 (its current market price) to raise money for club activities. The radio was thoroughly checked out by our Technical Director Rob Hanson W6RH and is fully operational and in excellent condition. Rob also obtained a manual for the radio. If you are interested in this radio call Rob at 805- 376-9350.

Event Calendar

Date	Event	Comments
Jan. 9	CVARC Meeting	Care and feeding of batteries
Feb. 4	CVARC Radio Class	CVARC amatuer radio class begins
Feb. 8	On foot fox hunt	On foot transmitter hunt in Santa Barbara
Feb. 9	CVARC VE Session	License exams given at sheriff station
Feb. 13	Student Radio Class	Technician class for students
Feb. 13	CVARC Meeting	Old Time Ham Radio
Feb. 20-23	Coyote 4 Play	Communications Support
Feb. 24	ARES/RACES Training	ARES/RACES Training class at sherrif's station
March 9	CLU MS Walk	CROP Walk
March 12-14	IWCE	North America's largest wireless technology show
March 13	CVARC Meeting	Radio Direction Finding
March 22	Arbor Earth Day	Civic Arts Plaza from 11 AM to 4 PM

April 6	Westlake Street Fair	Fair is open from 10 AM to 5 PM
April 6	Simi Valley MS Walk	Tentative date
April 10	CVARC Meeting	General Meeting
April 12-13	Baker to Vegas Run	Supporting Ventura County Sheriff Dept.
April 13	CVARC VE Session	License exams given at sheriff station
April 19	ARES/RACES Packet	Packet workshop at East County Sheriff Station
May 10	Crusin Conejo Bike Ride	A major CVARC event supporting Conejo Valley Cyclist
May 17	Sea To Summit Bike Ride	Major Ventura County ARES/RACES event
June 8	CVARC VE Session	License exams given at sheriff station
June 28-29	Field Day	CVARC annual field day event, you don't want to miss it!
July 3	Moorpark Fireworks	Comm. support for Moorpark's 4th of July Fireworks
Aug 10	CVARC VE Session	License exams given at sheriff station
Sept	Country Days	Fun event supporting Moorpark Country Days Parade
Oct	SET	Simulated Emergency Test
Oct 12	CVARC VE Session	License exams given at sheriff station
Nov	State Hospital Drill	A very important annual emergency communications drill
Dec 13	Camarillo Parade	Big annual event for Ventura County ARES
Dec 14	CVARC VE Session	License exams given at sheriff station

Radio Amateur Civil Emergency Service

Ventura County Area 2 R.A.C.E.S. members are encouraged to check in every Tuesday night at 7:00 pm on the Area 2 Check-in Net. Specific ARES/RACES times and frequencies are as follows:

ARES/RACES Times And Frequencies

Area	Time	Mode	Frequency	PI	Repeater
County	7:30-8 pm	Voice	146.880 -	127.3	WA6ZTT
County	7:30-8 pm	Voice	224.020 -	127.3	WB6ZTR
County	Before 6:30 pm	Packet	145.710	No pl	Hospital Net
County	RACES Simplex	Voice	147.570	No pl	_____
Area 1	7:00-7:30 pm	Voice	147.930 -	127.3	WB6WEY
Area 2	7:00-7:30 pm	Voice	147.885 -	127.3	N6JMI
Area 2	Simplex	Voice	147.555	No pl	_____
Area 2	Backup Repeater	Voice	146.850 -	94.8	K6AER
Area 2	Amgen Repeater	Voice	449.440 -	131.8	KE6SWS
Area 3	7:15-7:30 pm	Voice	147.150 +	127.3	WB6ZTQ
Area 4	7:15-7:30 pm	Voice	146.970 -	127.3	WB6YQN
Area 5	7:00-7:30 pm	Voice	145.400 -	No pl	N6FL
Area 6	7:00-7:30 pm	Voice	147.975 -	127.3	N6AHI
Area 7	7:00-7:30 pm	Voice	146.985 -	127.3	WB6ZTX
Area 8	7:00-7:30 pm	Voice	145.280 -	100	WB2WIK
6 Meter	6:45-7:00 pm	Voice	052.980 -	082.5	K6SMR

The Net Controller's script for the Area 2 weekly RACES check-in net is on the CVARC website, in printable form. Every member is encouraged to periodically serve as net controller. RACES members

should remember that their RACES card is issued for only two years. When your card is due to expire call Jackie at the Office of Emergency Services in Ventura for an appointment to renew your card. Call (805) 654-2551 or toll free from the east half of the county at (800) 660-5474. For packet, call coordinator Dan Dicke KE6NYT (805) 983-1401. To register for Red Cross Disaster Services Classes, call (805) 339-2234 ext 0 Ventura County ARES/RACES web site: <http://home1.gte.net/res19999/>

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Races (Area8)	Richard Tate	KQ6NO	(805)529-3934	kq6no@arrl.net

DCS	Brad Ormsby	WA6GLE	(805)495-2298	_____
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ARRL VUCC (VHF/UHF Century Club) Certification:	Peter Heins, N6ZE	(805)496-1315 n6ze@aol.com

The Conejo Valley Amateur Radio Club is an ARRL affiliated Special Service Club. Meetings are held on the second Thursday of each month, unless otherwise noted. Meeting location is at the Elks Lodge, 158 Conejo School Rd., Thousand Oaks, CA. Meetings start at 7:30 pm. with a pre-meeting social and technical assistance session, for those who are interested at 7:15 pm. Meetings are open to the public, and members are encouraged to bring their friends.

[Return to CVARC](#)

Editors: Ken and Paula Larson