

Building field Strength Meters Was A Lot Of Fun

By Jeff Reinhardt, AA6JR

"It Works!" was heard several times on Saturday August 16 as CVARC members came together at the East County Sheriff's Station to build Field Strength Meters based on a project engineered and designed by Hugh Bosma, KF6HHS.

The meters cover a broad RF range but their "real" function was to familiarize the participants with a construction project that illustrated the principles of components and the techniques of blending the parts together into a useful device.

Hugh did the design work, pulled together the needed parts and even gave the constructors a "head start" by drilling and cutting holes in the project case, helping the builders get a nice "professional" look to their finished meters.

While older club members struggled with getting a handle on the smaller components, some of the younger members benefited from the construction experience passed on by those familiar with the smell of melting solder.

It was a day that was fun, informative, challenging and rewarding. Best of all, "it works!"

We Stunk The Place Up

By Hugh Bosma, KF6HHS

Hope all that attended the Field Strength meter workshop at the ECSS enjoyed. The room got real quiet once the soldering irons heated up. It was quite a sight, resin vapor rising from 15 irons, a towel or two smoldering, and burnt finger flesh; yes we stunk the place up. At least six of the 15 that came to the workshop left with working meters. From the chatter I hear on the local repeaters another three or four are up and running, congratulations to all.

We have extras on several of the components, if you have a need, bring your list to the meeting. I will also bring the RTV to secure the top of the meter to the case. Bring your meter as well if you have a construction question, or just to show it off.

Hugh, KF6HHS

IRLP Radio--Subject Of Next Meeting On September 11th, 2003

Eddie Pierce, WB6DFW, will present a program on the Internet Radio Link Project (IRLP) at our next club meeting on September 11 at 7:30 PM at the Elks Lodge. With IRLP it is possible to talk around the world using your VHF/UHF handheld radio with the internet, instead of the Ionosphere, serving as your transmission media. According to Eddie, this mode of communication is an enormous amount of fun. Eddie will explain how it all works, how you can become part of the fun, and if the access node is free

provide us with a demo.

FCC License Examinations - Next Exam October 12th

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.

CVARC Display At St. Maximilian Church

By Jeff Reinhardt, AA6JR

CVARC has been invited to set up an amateur radio display at the St. Maximilian Church Fall Festival on Sunday, Sept. 28. Some details still need to be ironed out but here are some of the items being considered.

1. Set-up will start around noon. The CVARC Comm Van must be in place by 1 pm.
2. Probably not possible to remove van before event is over at 7 pm. If people need to leave prior to that, we can come back later for the van.
3. We will probably be set up near the VCSD/VCFD units.
4. We must provide our own power (think of it as Field Day conditions). We can bring a generator and/or batteries. I have a battery and some solar panels if we want to display our versatility.
5. We can have an info table. It would help if we have our own table. I have one if necessary.
6. At least a few of the Fall Festival committee would be REAL impressed if we were on the air through some of the day. We might be prepared for QRP ops; it would not be a good thing to get into the sound system!

This is a nice opportunity to showcase ham radio to a new audience in the Oak Park/ Northeast T.O. area. The church is just inside the T.O. city line.

Jeff AA6JR

HAMCON

HAMCON 2003 IS ALMOST HERE - Mark your calendars now - Sept 5-7 at the Hilton Long Beach - HAMCON 2003, "The Best In The West" The Hilton is located at 701 W Ocean Blvd, at the corner of

Ocean Blvd and Golden Shore Ave. Some of the activities include:

- * Emergency Communications Workshop, Friday 1-5PM.
- * Legal Issues for Volunteers, Saturday PM: ARRL General Counsel Chris Imlay, W3KD.
- * All your favorite vendors showing their latest treats. The exhibit hall is full!
- * 2-Meter Band Plan: Learn about changes to the 2-M band plan in Southern California.
- * Dozens of Technical Forums on VHF, UHF, Microwaves, HF, Antennas, Digital, EmComm.
- * QRP Workshop and parts exchange - all day Saturday.
- * Small and Efficient Antennas: Conducted by antenna guru, Tom Schiller, N6BT
- * Transmitter Hunts, ARDF Antenna Workshop, Friday vehicular T-Hunt and Sunday Fox Hunt.

Detailed info on all events, driving and parking instructions are all located at: <http://www.hamcon.org>

Digital Modes

By Eddie Pierce, WB6DFW

The digital modes provide a wonderful opportunity for those of us who would like to work on the HF bands but find CW too difficult and SSB phone prohibitive because of interference problems. These modes require very little power to work the world. Generally 25 to 50 watts is plenty of power. The digital modes are comparable to CW in that their bandwidths are very narrow. Bandwidths generally range from about 30 to 200 Hz compared with SSB which is 2,100 Hz. This is a huge difference and one of the main reasons why the digital modes are so effective at low power. Because of their low power and modulation schemes, the digital modes do not interfere with telephones and answering machines in the neighborhood the way the SSB often does.

The digital modes are easy to set up and get operating. What is needed is an HF rig, a computer running one of the many software programs that are available either for free (most are) or for a small purchase price, and a hardware interface between the computer and radio. Most computers come with a sound card and these modes work via the sound card input and output circuits. A fairly easy interface between the sound card and radio can be built for around \$7.00 or a very nice and very adequate interface can be purchased that will handle any chore you might throw at these modes.

Best of all, the digital modes are incredible easy to use. The major software programs utilize a waterfall display that shows all of the signals currently operating on the band. All you have to do is click on a signal with your mouse, and the QSO pops up on your computer screen. It doesn't get any easier than that.

The digital modes described in this article are mainly found on the High Frequency bands and will require a General class license or above (except on 10 meters where a Technician with morse code privileges can operate from 28.100 to 28.300 MHz).

There is a wide choice of digital modes to choose from. However, the most popular modes today are PSK31, BAUDOT (RTTY), MFSK-16, and PACTOR. PSK31 is the most popular of the digital modes because it is very effective at low power, is easy to set up (it requires only an HF radio and a computer with a sound card), and its waterfall display makes it extremely easy to use. Baudot RTTY is the second most popular, particularly for DX and contest work. RTTY is the oldest of the digital modes. However, new software with waterfall displays and using the computer's sound card as the HF radio interface has given the old standby a new look. MFSK-16 is one of the newest modes that shows considerable promise. It is a good weak signal performer, reportedly better than PSK31, particularly for DX contacts that involve signal paths that pass through the Earth's polar regions. It is a little more difficult to operate than PSK31 but does use a waterfall display and sound card radio interface. PACTOR is the most popular of the error correcting class of digital modes that includes AMTOR, Clover, and G-TOR. These modes utilize relatively complex protocols that automatically detect and recover from transmission errors through a combination of forward error correction and automatic retransmissions. They are excellent for message handling in that they deliver error free text to the computer screen. However, they are more than what is needed for most casual amateur radio QSOs. Because of their complex protocols, these modes require a multi-mode hardware controller box between the computer and HF radio. The multi-mode controller makes these modes more expensive to implement and a little more difficult to operate than the modes using waterfall displays and sound card interfaces. One point to mention about the sound card interface is that once you have it installed, you can switch between the various modes that use the interface (PSK31, RTTY, MFSK-16, and others) by simply activating the appropriate software package on your computer.

Where on the HF bands do you find hams using the digital modes? The following chart shows you were to look.

BAND	PSK31	RTTY	MFSK-16	PACTOR
80 Meters	3.580 - 3.584	3.580 - 3.620	3.610	3.580 - 3.620
40 Meters	7.070 - 7.074	7.080 - 7.100	7.080	7.080 - 7.100
30 Meters	10.130 - 10.140	10.130 - 10.140	10.130 - 10.140	10.130 - 10.140
20 Meters	14.070 - 14.074	14.070 - 14.095	14.080	14.070 - 14.095
18 Meters	18.100 - 18.105	18.100 - 18.105	18.100 - 18.105	18.100 - 18.105
15 Meters	21.070 - 21.074	21.070 - 21.100	21.080	21.070 - 21.100
12 Meters	24.920 - 24.925	24.920 - 24.925	24.920 - 24.925	24.920 - 24.925
10 Meters	28.120 - 28.124	28.070 - 28.120	28.130	28.070 - 28.120

Where do you find the interface hardware and software that you need? 90% of the digital mode hams are using RIGblaster as the hardware interface and either MixW or Digipan as the digital mode software.

RIGblaster is the easiest way to properly connect a radio to a computer's sound card. RIGblaster provides adjustable impedance and level matching between the sound card and the radio's audio input and outputs. Without proper impedance and level matching, a sound card can overdrive the radio's modulator resulting in a "dirty" wide bandwidth signal being transmitted that will annoy others on the band. RIGblaster also eliminates the need for a separate transmit/receive switch and permits easy switching between digital modes and SSB voice operation. RIGblaster is available in several models ranging in price from about \$60 to \$140. My choice is the RIGblaster PLUS at \$140. This interface handles all aspects of the digital modes from rig control to sending CW using your computer keyboard. RIGblaster is built by West Mountain Radio and can be purchased through AES Ham Radio catalog (telephone number 1-800-558-0411 or on the web at www.aesham.com).

The digital mode software packages include the following:

PSK31SBW - This is a bare bones program that will get you on the bands using PSK31 that has no frills (i.e. no logging capabilities or other mode selections). This is a very small software program. It could be run off a floppy.

Digipan 3 This is one of the most popular PSK31 programs. Digipan has a more than adequate logging program to help make your record keeping easier. This is one of the first programs that I operated with and it worked quite well. Very user friendly which is most important especially if you decide to operate during a contest (i.e. Field Day)

Logger 3 This was one of the first true PSK31 programs that has a more than adequate logging program that tracks most of the award possibilities that one could garner if you were trying for awards from the ARRL. The author of this program added another program (Zakanaka) that came with a user interface that had the appearance of the above-mentioned Digipan. Within the past year the author has changed the Logger/Zakanaka to one program called Logger32b. It includes all of the bells and whistles of Logger/Zakanaka and includes Baudot capability. Zakanaka adds the waterfall capability to Logger PSK31.

Hamscope 3 This program is a good all around program that will handle most of the modes that you would be interested in operating. It will operate PSK31, QPSK, RTTY, CW, ASCII, PACTOR (receive only) and has some minimal logging capabilities.

MixW 3 This is the software program that was recently written about in QST. This is probably the preeminent digital program available. There is very little in the digital mode arena that cannot be done with this program. The user interface is very good. It has an excellent logging program and you can even design and print QSL cards. It handles all the chores of contesting quite well. Once you download MixW, you are given a 15 day trial period and then it quits working. The author will send you a file, that you put in the MixW directory. It will unlock the program once you pay the registration fee (\$50). This program is well worth the \$50 cost. It is my favorite. You can obtain this program through their web site at www.mixw.net

WinPSK 3 This program handles many of the PSK and logging chores that a digital operator would require.

MMTTY 3 This is a software program written solely for use on Baudot (RTTY). It has a very good user interface and a so so logging program. This program can be linked (for logging) to the Logger program

listed above. MMTTY has a tuning scope for tuning in RTTY signals as part of the user interface. The tuning scope is really neat.

Stream ☺ This is another stand-alone program for operating MFSK-16. Stream does the job for this mode but has some short comings. Most of the other programs have a waterfall at the bottom of the screen to see the signals on the band. In contrast, Stream has a vertical display that shows the signals on the band coming from the right side of the screen. This can make tuning the signals a little more difficult. One other fault with this program is the process required to begin transmitting. You must put your cursor on the bottom windowpane and hit the enter key. The transmitter then comes up. This makes it difficult if you want to enter text in the type ahead buffer before you transmit. I like to put text in the buffer while the other station is sending text to me. Makes it easier to comment about what was said by the other operator.

W1QSL ☺ This program really puts on a show. How about copying 21 PSK31 QSO ✕s at one time. With this program you have a vertical display that has the signals on the band scrolling from the left to the right. Touch on a signal on the display and a box opens up with the text flowing. Touch another signal and another box opens up, and so on. Open as many as 21 PSK31 windows at once. I ✕ve told my wife that I can do two or three things at one time, but I will not confess to her that I have trouble reading all of the conversation and remembering what each QSO is about. Whew!

There are many other programs that I have not included. There are far to many to list in this article. Let me try and make it easier for you though, take your browser and point to one of the following URL ✕s to download most of the programs I listed above or to read more information about the various modes. Try this URL and you will get a chance to hear little snippets of what each of the listed modes above sound like (<http://www.wb8nut.com/digital.html>). Another URL that you will find interesting and informative is (<http://www.aintel.bi.edu.es/psk31.html>). One last website is (<http://home.wanadoo.nl/nl9222/digisoft.htm>). This website has a very extensive list of programs that can be download for free or might have a small fee it they are shareware.

If you have any questions about the above listed information, I am planning on being at the next club meeting and hope to see all of you there.

73 es DX

Eddie Pierce ☺ WB6DFW dit dit

New Reporting System For PSK31

Submitted by Alan Masson, K6PSP

Recently I printed a PSK31 station on 20 meters who was using a new reporting system for PSK31 called PSB (Print - Strength \exists Bandwidth), to replace the RST (Readability \exists Strength \exists Tone) reporting system. The RST system was originally developed for CW signals and is the reporting system which has been used to date for reporting the quality of received PSK31 signals. However, in the RST system, T = Tone which has no meaning for PSK31. On doing a Google search I found a website devoted to this topic: www.PSB-info.net. Below is the table of the PSB parameters, copied from the website. I think this is such a sensible approach I am now going to use PSB reporting for my PSK31 QSOs.

PSB	Report	Condition
PRINT	5	95% to 100% error free
	4	75% to 95% error free
	3	50% to 75% error free
	2	25% to 50% error free
	1	05% to 25% error free
STRENGTH	9	Very strong trace
	7	Strong trace
	5	Moderate trace
	3	Weak trace
	1	Barely perceptible trace
BANDWIDTH	9	Clean narrow signal Approx 60Hz

	7	Perceptible broadening Up to 100Hz
	5	Moderate broadening 100 to 300Hz
	3	Heavy broadening >300Hz
	1	Filling entire waterfall

73

Alan, K6PSP

Digital Workshop September 13

By Greg Lane, K7SDW

A Digital Workshop will be presented on September 13, 2003 in East County Sheriff's Station (ECSS) Community Room from 8 am until 5 pm. The ECSS is just off of Olson Road, East bound toward Simi Valley, and is located on your left at the stop light just after you drive under the 23 freeway. This workshop is for all Hams, ARES/RACES Members, and anyone interested in helping out with digital operations during an Emergency Drill or REAL incident.

Well as promised, another digital workshop! Last time we worked on the programs and some of the beginning steps so this workshop is another hands on. Bring your laptops, portable packet, dummy loads, and APRS/GPS "toys". Be sure to bring a lunch if you are "really hooked." There will be an hour break from 12 until 1pm. We will be doing low power connections through dummy loads. Since the radios will be very close, please respect the fact that if you are not running through a dummy loads you will be affecting the receivers of others as well as you own. If you have a Terminal Node Controller (TNC), be sure to bring it and your software.

Last session we tried getting to the ARES Pak program to allow some of you to sent and receive messages. I hope we can do a bit more of this type of demonstration as it was very helpful for the new operators. If there are any "really experience operators" I welcome them to the workshop so you can answer the multitude of questions which may be asked.

This session we will introduce the TinyTrak APRS (www.byonics.com/tinytrak) as well as HF PSK 31 programs. If we are lucky we might even make an HF contact? As there are many different programs as well as interfaces that can be used it is important to first determine how much money (\$\$) your are willing to part with for the toys that go along with this part of the hobby. Some are semi-free and others take a bit of work to get you going, but the end results are well worth it. Digital communications can be extremely fun. Learning how to interface, buying interfaces, and operating the mode all go hand in hand with "all the new stuff." It will be hard to cover all the aspects at this workshop; therefore, the workshop agenda is planned so we can all come together, learn from one another, have fun, and experience the frustration that can result in a real live emergency!

The agenda planned is as follows: Subject to many obstacles.

- Intro to APRS/GPS & PSK31
- Programs available on the web
- Interfacing Problems
- Passing messages in an Emergency
- Lunch
- Preparation for SET & Emergency Traffic ∃ Group Participation
- Q&A
- Group Lessons Learned & Pointers.

Hope to see a lot of you there, even if you do not have a set up, this is a good workshop to attend as many assistants are required in an emergency operation to pick up and route traffic in an Emergency Operation Center.

Please send an email to k7sdw@juno.com to register, help, and/or participate/observe.

73 de Greg, EC Area 2

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 sherri's station
Mar. 9	CLU MS Walk	CROP Walk
Mar 12-14	IWCE	North America's largest wireless technology show

Mar. 13	CVARC Meeting	Radio Direction Finding
Mar. 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	Volunteers Welcome
April 10	CVARC Meeting	General Meeting
Apr 12-13	Baker to Vegas Run	Supporting Ventura County Sheriff Dept.
April 13	CVARC VE Session	License exams given at sheriff station
May 3	ARES/RACES Packet	Packet workshop at East County Sheriff Station
May 8	CVARC Meeting	Evolution of Radio and Electronics
May 10	Cruisin 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 3	CVARC Class	Amateur Radio Technican License class begins
June 8	FCC License Exam	License exams given at sheriff station
June 12	CVARC Meeting	General Meeting
June 21	Goleta Foxhunt	International-style on-footFoxhunt
June 28	Field Day	CVARC annual field day event, don't miss it!
July 3	Moorpark Fireworks	Comm. support for Moorpark's 4th of July Fireworks
Aug. 10	CVARC VE Session	License exams CANCELED due to an unexpected event
Aug. 14	CVARC Club Meeting	Program on Field Strength Meters
Aug. 16	FS Meter Workshop	Field Strength Meter Workshop at ECSS
Aug. 19	Technician Class	New Classes begin Tuesday Night
Sept. 5-7	HAMCON	Southwest District Ham Convention in Long Beach

Sept. 11	CVARC Club Meeting	September CVARC club meeting
Sept. 13	Digital Workshop	Digital Workshop 9 AM to 5 PM Saturday at ECSS
Sept. 27	Country Days	Fun event supporting Moorpark Country Days Parade
Sept. 28	Ham Radio Demo	CVARC demo At St. Maximillian Church Fall Festival
Oct.	SET	Simulated Emergency Test
Oct. 9	CVARC Club Meeting	CVARC Club Meeting
Oct. 12	CVARC VE Session	License exams given at sheriff station
Nov. 13	State Hospital Drill	A very important annual emergency communications drill
Nov. 13	CVARC Club Meeting	CVARC Club Meeting
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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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.

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Editors: Ken and Paula Larson