



RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

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P.O. BOX 3454, TUSTIN, CA 92781-3454

May 2007

The Prez Sez.....

By Kristin K6PEQ



[Editor's note: I suspect these two hams have been visiting the Visalia DX Convention again??]

We are getting closer to field day and things are starting to fall into place. I hope that all of you will be able to participate in one way or another in field day!

I am looking forward to learning about Earth-Moon-Earth Communications at May's meeting. One of the reasons I love our club is all of the different parts of the hobby that are enjoyed in our club from DX'ing to 2 Meters. I would like to encourage all of you again to bring a show and tell to the next

meeting. We have had so many different items brought whether it is ham radio related or not.

I hope you all have a great May and I will see you at the meeting!
73,

Kristin, K6PEQ

May Meeting

The May OCARC General meeting speaker will be Dennis Kidder – W6DQ of The San Bernardino Microwave Society, who will give a presentation on:

“EME on 40 Meters and we're not talking 7 MHz”

In 2003 several members of The San Bernardino Microwave Society embarked on a path that would be unprecedented in Amateur Radio - the extended use of an institutional antenna system for amateur Moonbounce. For over two years the group has had exclusive use of the

huge 40 meter diameter dish at the Owens Valley Radio Observatory to operate on 1,296 MHz and 10,368 MHz. The program has garnered international amateur support and has produced an educational outreach program.

Dennis-W6DQ will present the history of the program, discuss the accomplishments and describe what may be in store for the future. Come and see what it is like to operate one of the ultimate "big gun" EME stations.

The next general meeting will be:

**Friday, May 18th
@ 7:00 PM**

We will be meeting in Room 208
In the east Red Cross Building

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**ORANGE COUNTY
AMATEUR RADIO CLUB**
www.W6ZE.org



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Monthly Events:

General Meeting:

Third Friday of the month
at 7:00 PM
American Red Cross
601 N. Golden Circle Dr.
(Near Tustin Ave. & 4th St.)
Santa Ana, CA

Club Breakfast:

First Saturday of the month
at 8:00 AM
Jagerhaus Restaurant
2525 E. Ball Road
(Ball exit off 57-Freeway)
Anaheim, CA

**Club Nets (Listen for
W6ZE):**

7.086 ± MHz CW **OCWN**
Sun- 9:00 AM – 10 AM
John WA6RND, Net Control

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

146.55 MHz Simplex FM
Wed- 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 mem-
bers.

*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.

TechTalk #55 - WinDRM DRM Digital Modulation Comes to Ham Radio

by Ken Konechy – W6HHC
(with excerpts from April 2007 ARRL QST)

In the November 2006 issue of the OCARC RF Newsletter, there was a TechTalk article on a new Short Wave broadcasting digital modulation technology, called DRM or Digital Radio Mondiale. **TechTalk #53** reported that DRM was being broadcast in many countries and could be heard on the SW bands and explained the basics of the DRM digital modulation scheme.

In the April 2007 issue of QST magazine there is an article titled "**Life Could Be a DRaM**" that is written by QST editor Steve Ford, WB8IMY. Steve Ford prepared the article to be a beginner's guide to the **free** WinDRM HF digital voice software for ham bands.

INEXPENSIVE DIGITAL VOICE

In the earlier TechTalk article, there was a brief description that some radio manufacturers were adding their product lines to receive DRM transmissions. But, hams are clever and as Steve Ford declared in his QST article: "**Inexpensive HF digital voice has arrived**". Clever hams have written freeware software that allows you to connect your HF rig (a normal rig with normal SSB bandpass) and connect to the soundcard in a notebook computer to allow you to transmit and receive in DRM mode

modulation on the ham bands. This software is called WinDRM and is available free for the WINDOWS operating system on a computer.

Early Work Towards WinDRM

Dream was the name that two members of Darmstadt University of Technology, in Germany, gave to an open-source software program. Volker Fisher and Alexander Kurpiers wrote the **Dream** code to decode DRM on the commercial shortwave bands. Typically, the DRM commercial shortwave broadcasts uses either 5KHz, 10KHz or 20KHz of bandwidth (monaural or stereo) and requires large bandwidths in receivers.

A little later Francesco Lanza, HB9TLK, modified the Dream software to use the DRM technology concepts in a program that only used 2.5 KHz of bandwidth for ham radio use. He originally called his software **HamDream**. Later, he named this program as **WinDRM** and made it free. By using Francesco's software, you don't even have to understand terms like **CODEC** or **COFDM** (see sidebar to the right - on this page).

BASIC CONCEPTS of WinDRM

Figure 1 (located on the next page) shows how to connect your HF SSB rig to a notebook

Quick Refresh of DRM Technical Concepts

Digital radio uses two modern techniques to fit moderate-fidelity to high-fidelity audio into a reasonably narrow radio spectrum bandwidth: a **CODEC** and also a digital modulation technology.

A **CODEC (COde/DECode)** is a digital compression scheme that takes digital representation of audio and compresses it. This concept is much in the same way that the JPEG compression scheme compresses the size of a digital photograph file. The CODEC chosen by DRM is MPEG-4.

The compressed DRM digital data is then modulated for transmitting by using the **COFDM** (Coded Orthogonal Frequency Division Multiplexing), where every carrier is modulated with **QAM** (Quadrature Amplitude Modulation) with a selectable error coding.

computer running WinDRM.

The audio from the SSB ham rig receiver (tuned to a WinDRM signal) is sent to the LINE IN (or MICROPHONE IN) connector on a PC or notebook computer. The computer is running WinDRM software that takes the digital-audio-stream being received by the ham rig and converts it

Cont'd on Page 4 - -

TechTalk – WinDRM from Pg 3 - -

to understandable analog audio inside the sound card of the computer. This analog audio is output from the SPEAKER connector on the computer and send to a normal external speaker for your rig.

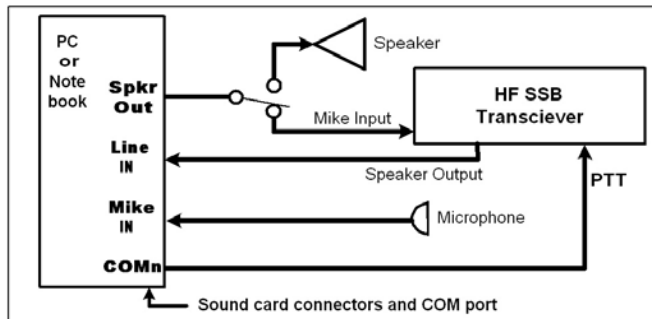


Fig 1 – Typical set-up for WinDRM installation

The block diagram in Figure 1 is a little simplified. It shows a mechanical switch to choose between connecting computer audio to either the external speaker or the microphone input on the rig. In practice, the station would probably choose to use an electronic switch (home brew or commercial products from MFJ or West mountain Radio, etc.) connected the PTT switch on the microphone shown in the diagram to perform this switching.

Figure 2 shows the “waterfall display” provided by WinDRM for tuning in the received digital signals. As you can see, this display is very similar to the concept provided by most PSK31 software.

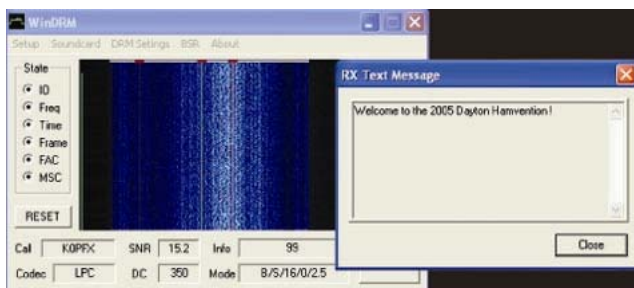


Fig 2 – WinDRM Waterfall display on Computer

GETTING STARTED WITH WinDRM

The WinDRM software for Windows can be downloaded free off the Internet at:

<http://N1SU.com/windrm/download.html>

The website provide by Jason-N1SU contains many WinDRM links and contains a world-class tutorial and manual on setting-up and using the WinDRM software. If you read through the tutorial and follow the instructions, you should have no problem using WinDRM software with your rig. One note: a 1 GHz or higher Intel processor is recommended.

WHERE TO LISTEN

Using the WinDRM software to just listen to digital voice ham stations is especially easy. It easy because, you do not have to worry about the electronic PTT switch and you can hook up the speaker directly to the soundcard SPEAKER-OUT connector.

Every Saturday and Sunday on the weekends, the **AOR Digital Voice Net** (using G4GUO protocol...NOT WinDRM protocol) operates at 18:00 GMT (11 AM PDT) on 14.236 MHz. Note that the WinDRM software is not capable of receiving AOR/G4GUO digital transmissions. The **WinDRM Digital Voice Net** follows at 19:00 GMT (12 Noon PDT) on the same frequency.

The difference between the AOR approach and WinDRM approach to digital voice communications is that AOR puts the DSP processing inside an external piece of equipment as FIRMWARE. The ARD9000 unit is an example of commercial AOR digital voice equipment for ham radio.

HOW WELL DOES IT WORK?

When digital voice has good signals at both ends, it sounds unexpectedly clear on the bands. But, it does not tolerate weak-signal conditions, fading or interference as well as SSB. Steve Ford – WB8IMY has used both digital flavors, AOR and WinDRM. As Steve-WB8IMY says in his QST article: “I’ve tried both AOR and WinDRM and in my experience they are nearly equivalent...[But] I don’t see digital voice becoming dominant on HF phone bands any time soon.” Still, it will improve over time. And in the meantime, Digital Voice is fun to experiment with.



Upcoming OCARC Events!!!

(Check the club website for updates and additions
<http://www.w6ze.org>)



May 18th (Friday 7:00pm)
Dennis Kidder W6DQ discusses the exciting world of Moon Bounce (EME) communications!

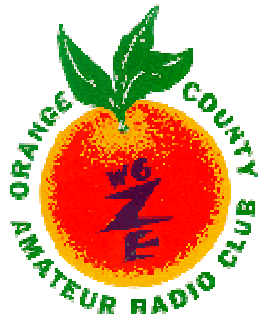
June 15th (Friday 7:00pm)
Chip Margelli K7JA will present a Field Day Pep Talk. Chip could write a book about Field Day with all of his experience. He is sure to get you in the mood for FD!!!



June 22nd, 23rd & 24th (Friday, Saturday & Sunday)
OCARC's annual ARRL Field Day effort from the Los Alamitos Air Station. Come join us for some fun and friendship!
Details on the OCARC website.

July 18th (Wednesday)
Aug 4th (Saturday)
The OCARC will staff the HAM RADIO Booth at the OC Fair

Come introduce OC Fair visitors to Ham Radio and to the OCARC



The Orange County Amateur Radio Club "OCARC"
P.O. Box 3454
Tustin, CA 92781
Web: <http://www.w6ze.org>



O.C. Fair

“CowAbunga”



Attention OCARC Club Members

THE ORANGE COUNTY FAIR IS COMING!!!

OCARC has Two Dates
to Staff the Ham Radio Booth
Wednesday July 18
Saturday August 4

We need sign up's starting

* * * **NOW** * * *

This is a great opportunity for you to introduce OC Fair Visitors to Ham Radio
and to the OCARC

Contact Loran - KD6LRD
(714) 777-9081 or DargatzLR@MSN.com
To help staff a work-shift for OCARC

City of Orange Communications for the Baker-to-Vegas Race 2007

by Ken W6HHC

Since 1985, law-enforcement running teams have entered in a competitive foot-relay-race through the desert. This race, known as "Baker-to-Vegas" (and aka B2V), is a 120 mile long race, that starts outside Baker (CA), runs through the desert to Shoshone and finishes in Las Vegas. The B2V race is broken into 20 "legs" or stages. This year over 220 different law enforcement teams participated. The runners of the Orange Police Department have been supported for many years with communications by hams belonging to COAR RACES, the OCARC members, and Communications Volunteers from Cypress. This year, ten OCARC members helped the OPD running team by providing communications over the entire race course.

COAR RACES activities for the 2007 races began 11 months before this years race began. The B2V communications set-up required the following five phases:

- Planning Sessions
- Equipment Testing Workshops
- Equipment Set-up for the Race
- Staffing and Operating the B2V event
- Post B2V Review Sessions



Fig 1 – One of Several COAR Planning Meetings

The City of Orange plan was to set up five communications centers along the B2V race course in order to provide a "communications backbone"

to support mobile units during the race..

- Ibex Pass, CA
- Shoshone, CA
- Pahrump, NV
- Sandy Valley Road, NV
- Las Vegas, NV

All newly purchased equipment was tested as it was purchased. Then, two weeks before the event, four of the communication station equipment groups were set-up in back yards (field day style) to see if equipment worked and all of the connectors and cables and software and settings were ready.



Fig 2 – The Equipment-Testing Session really began to look like "Field Day" when operators from the "Follow Vehicle" Showed Up. L-R – Mike-WA6OUE, Ken-W6HHC, Bob-AF6C, Bruce-KC6DLA, Elmer-WA6PFA, Nicholas-KI6AUL, and Steve-KI6DDE

The B2V race this year began on Saturday, April 21. However, to assure that the communications equipment was properly set-up in place and working well, some hams left home on Thursday or Friday for set-up. The most elaborate communications station for OPD is located at Sandy Valley Road. This is half-way between Pahrump and Las Vegas and near the top of the mountain pass.

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B2V Race Comm from Pg 7 - -

The Sandy Valley location (shown in **Fig 3**) is critical for connecting both sides of the mountain. A cross-band repeater is set-up for the use of COAR at this location. The station uses a 440 beam for communications on the East side of the mountain into Las Vegas and 2M high gain vertical for communications on the West side of the mountain as far as Shoshone.



Fig 3 – The Sandy Valley Road location is in the middle of “no where”. The trailer of George-KK6KN provided a wind-free location for operating and cooking.

During the B2V race, COAR Follow-Vehicle drove alongside or near the OPD runner.



Fig 4 – The OPD Follow Vehicle with three ham antennas. Two dual-band 144/440 mag-mounts for voice and 2M antenna for APRS Beacon

This vehicle (shown in **Figure 4**) was equipped with two rigs for 144 MHz and 440 MHz voice communications (using Kenwood G707 dual band rigs that provided redundancy). It was also equipped with an APRS beacon to allow the location to be tracked by the COAR comm centers.



Fig 5 – OPD Team #45 runner, Officer Hank Echandi, is running through Pahrump near midnight. OPD team finished 2nd in their class.



Fig 6 – View of the APRS Tracking Program set-up by Steve-KB6ROL in Shoshone, CA.

OCARC FIELD DAY INFORMATION

**Mark June 22nd, 23rd & 24th on Your Calendar
(Friday, Saturday & Sunday)**

The Orange County Amateur Radio Club, OCARC, will once again host Field Day at the Joint Forces Training Base (JFTB) in Los Alamitos, CA. Everyone is welcome to attend. Amateur radio operators are encouraged to bring their families. If you're a ham just visiting the area on business or vacation, you're welcome to join us.

Please bring a copy of your ham license to FD to allow you your full license privileges.

Field day Chairman – Willie, N8WP

STATIONS – 6 ALPHA

20-Phone Station – Captain – Dan, N6PEQ

20/40 CW Stations – Captain – Bob, AA6PW

40 Phone Station – Captain – Larry, K6YUI

15/80 CW Station – Captain – Bob, AA6PW & Chip, K7JA

15/80 Phone YL Station – Captain – Kristin, K6PEQ

GOTA Station – Captain – Steve, N1AB

VHF/UHF Station – Captain – Chip, K7JA

Food – Cheryl, KG6KTT and Kristin, K6PEQ

Field Day setup will begin Friday at Noon.

Field Day contest will run from 11 AM on Saturday through 11 AM on Sunday

**OCARC
General Meeting Notes
2007-04-20**

The OCARC General meeting was held at the Red Cross complex in Santa Ana at 7PM on Friday evening, April 20th. There were only four of the club directors (Kristin-K6PEQ, Cheryl-KG6KTT, Dan-N6PEQ, and Willie-N8WP) present....mainly because of a conflict with the huge Baker-2-Vegas Race efforts. Therefore, there was not a quorum of OCARC Directors present at the meeting.

PROGRAM:

The OCARC April program was presented by April Moell WA6OPS who spoke about HDCCS and their organizational structure. Including how they respond to emergencies, and their drills and coordination.

GOOD OF CLUB:

Dave-KB2VSL (one of the newer OCARC Members) attended his first OCARC meeting

Submitted by Dan N6PEQ - Acting Secretary

**OCARC
Board Meeting Minutes
2007-05-05**

The OCARC Board meeting was held at the JagerHaus Restaurant at 8AM on Saturday, 2007-05-05. There were a total of 10 members and visitors attending. There was a quorum of directors present, with only Kristin-K6PEQ, Dan-N6PEQ, Steve-N1AB, and Loren-KD6LRD absent.

DIRECTOR REPORTS:

- **Treasurer** – Bob-AF6C reported the club had \$4,492 in the treasury.
- **Secretary** – Ken-W6HHC reported that both he and the “back-up” secretary missed the April General meeting. Willie reported that Dan-N6PEQ took minutes.

OLD BIZ:

- **RF NewsLetter Editors**
 - May is Ken W6HHC
 - June is Paul W6GMU
- **Field Day Plans by Willie-N8WP**
 - Still need some computers and folding tables. Nicholas-KI6AUL offered some computers.
 - Steaks on menu for Friday evening (set-up day)
 - Fresh Tacos on menu for Saturday evening

GOOD-OF-CLUB:

- **BIG CONGRATULATIONS** to Nicholas – KI6AUL who just passed his Extra test.
- Larry K6YUI gave a **Visalia** DX Convention Report
- **Baker-2-Vegas** – Rich KE6WWK provided a report on the B2V results for OPD.
- There was discussion of an OCARC picnic with a “Fox Hunt” thrown in.

Submitted by Ken W6HHC - - Secretary

- - For Sale - -

15 MTR 7-element monoband Beam

Bottom Beam is 15M

From estate of Kei W6NGO - \$90

The beam is already laying on the shack-roof, ready for you to disassemble and haul away. This beam is commercially made in Japan.

Contact Bob AF6C (AF6C@W6ZE.org) or Ken W6HHC (W6HHC@W6ZE.org)

Please support the companies who support OCARC!

Make sure to thank them for their support of the OCARC when you order from them, or when you see them at a convention!



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Amateur Radio Equipment for DXers!

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