



RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LI NO. 7

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

July 2010

The Prez Sez.....

by Kristin K6PEQ



(Visalia infiltrators – still at large!)

I hope you were all able to go and visit a field day site! We had a great club field day with help from the Boy Scouts. I am sure there are some great pictures and information on the clubs activities in the following pages! It is hard to believe we are already half way through the year but we still have a lot of great activities and speakers lined up for the months ahead. I hope to see you at the next board meeting or General meeting. Have a great July!

73,
Kristin, K6PEQ

Note: Editor not responsible for typos! That's my story and I'm stickin' to it!!! -Ed



Identify this Ham and win a free admission to the next OCARC General Meeting!!

Email your winning guess to
W6GMU@W6ZE.org
Earliest Timestamp Wins!!

How to send a Newsletter Article To The Editor

Do you have an article or a picture you found that you think may be of interest to the OCARC members??

Just E-mail the article to:

EDITOR@W6ZE.org

Sending in JPEG files to the editor are best for pictures. Use WORD or .TXT files are best to send the articles to the "RF" editor.

--- OCARC --- July 16th Meeting

July's program will detail the triumphs and pratfalls of the 2010 WY7FD operation from high above Sundance, Wyoming. K7JA, KL7MF and a gang of locals from the Devil's Tower area join forces to battle rattlesnakes, snow and antelope in ARRL's popular end-of-June event. You won't want to miss an evening of great photography, backed by a lot of "Wait 'til next year!"

In This Issue: Page

The PREZ SEZ	1
July Program	1
CLUB INFORMATION	2
FD 2010 PIXs.....	3
Field Day Score	4
FD 2010 Report	5
Items of Interest	6
FD 2010 Class Photo	7
W7KW Remote Control Radio.....	8
TechTalk 87 DATV Testing.....	16
OCARC June Gen Meeting	21
OCARC June Board	24
ARRL Contest Schedule	25
OCARC Ham Cuisine.....	26

The next general meeting will be:

**Friday, July 16th
@ 7:00 PM**

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

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



2010 Board of Directors:

President:

Kristin Dankert, K6PEQ
(714) 544-9846
K6PEQ@w6ze.org

Vice President:

Paul Gussow, W6GMU
(714) 624-1717
W6GMU@w6ze.org

Secretary:

Kris Jacob, KC6TOD
(562) 619-8870
KC6TOD@w6ze.org

Treasurer:

Ken Konechy, W6HHC
(714) 744-0217
W6HHC@w6ze.org

Membership:

Loran Dargatz, AF6PS
(714) 777-9018
AF6PS@w6ze.org

Activities:

Dan Dankert, N6PEQ
(714) 544-9846
N6PEQ@w6ze.org

Publicity:

Robbie Robinson, KB6CJZ
(714) 978-8049
KB6CJZ@w6ze.org

Technical:

Bob Eckweiler, AF6C
(714) 639-5074
AF6C@w6ze.org

Directors-At-Large:

Nicholas Haban, AF6CF
(714) 693-9778
AF6CF@w6ze.org

Larry Mallek, K6YUI
(714) 396-8770
K6YUI@w6ze.org

2010 Club Appointments:

W6ZE Club License Trustee:

Bob Eckweiler, AF6C
(714) 639-5074
AF6C@w6ze.org

Club Historian:

Bob Evans, WB6IXN
(714) 543-9111
bobev@netzero.net

RF Editor (rotating):

Paul Gussow, W6GMU
(714) 624-1717
W6GMU@w6ze.org

WEB Master:

Ken Konechy, W6HHC
(714) 744-0217
W6HHC@w6ze.org

Assistant WEB Master:

Bob Eckweiler, AF6C
(714) 639-5074
AF6C@w6ze.org

ARRL Awards Appointee:

Arnie Shatz, N6HC
(714) 573-2965
N6HC@aol.com

Larry Beilin, K6VDP
(714) 557-7217
K6VDP@aol.com

OCCARO Delegate:

Steve Brody, N1AB
(714) 974-0338
stevebrody@sbcglobal.net

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:

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

Club Nets (Listen for W6ZE):

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

145.400 MHz (-) PL 103.5 Hz
Thur – 8:00 PM – 9 PM
Nicholas AF6CF, Net Control

7.086 ± MHz CW **OCWN**
Sun- 9:00 AM – 10 AM
John WA6RND, 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 Jan 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 \$1.50 charge if you'd
like to have your badge mailed to
you.

Field Day 2010 - The Orange County Amateur Radio Club



"RF"

ORANGE COUNTY AMATEUR RADIO CLUB

JULY 2010

FIELD DAY SUMMARY
 FOR
THE ORANGE COUNTY AMATEUR RADIO CLUB - W6ZE

by: Ken / W6HHC & Bob / AF6C

YEAR	160M SSB	80M CW	75M SSB	40M CW	40M SSB	20M CW	20M SSB	15M CW	15M SSB	12M SSB	10M CW	10M SSB	6M CW	6M PHN	2M CW	2M PHN	220 PHN	440 PHN	UHF CW	UHF PHN	ATV	RTTY PKT	SAT- ELLITE	GOTA	---- TOTAL ---- QSO's / (POINTS)
2010	0	0	0	240	342	223	727	49	0	0	0	0	1	96	0	32	1	7	0	0	0	0	0	160	1,878 / 4,786
2009	0	277	126	838	807	974	970	495	368	0	5	450	11	375	0	125	18	20	1	0	0	0	2	130	5,992 / 17,446
2008	0	179	204	690	405	411	878	141	43	0	22	68	15	135	0	34	2	14	0	3	0	0	5	16	3,265 / 9,468
2007	1	356	310	910	830	988	1285	381	320	0	18	150	9	145	2	175	40	70	2	9	0	2	11	142	6,156 / 17,648
2006	0	28	20	89	512	156	664	16	10	0	0	0	0	38	1	85	0	7	0	0	0	114	0	113	1,853 / 4,514
2005	0	113	6	158	481	337	534	122	17	0	0	0	0	74	0	36	16	20	0	0	0	0	0	31	1,945 / 5,350
2004	0	166	239	37	412	131	477	31	105	0	1	114	0	0	0	46	12	20			0	0	1	0	1,792 / 4,316
2003	0	0	85	52	127	27	295	0	191	0	0	41	0	52	0	64	1	13			0	0	0	0	948 / 2,054
2002	0	26	69	192	279	76	229	0	485	0	0	18	0	62	0	68	6	10			3	2	0	3	1,528 / 3,648
2001	0	0	25	101	251	0	432	0	675	0	0	109	0	48	0	28	1	0			0	0	3	-	1,673 / 3,548
2000	0	19	20	88	91	0	625	0	794	0	0	121	0	36	0	72	7	15			0	0	1	-	1,889 / 3,992
1999	0	13	20	15	237	0	996	0	724	0	0	22		5	0	2	0	0			0	0	0	-	2,034 / 4,124
1998	0	24	75	65	136	100	250	0	624	0	0	82		0	0	46	17	12			0	7	1	-	1,439 / 3,270
1997	5	81	131	83	306	150	853	14	275	0	0	106		32	0	79	4	0			0	32	1	-	2,152 / 5,024
1996	-	146	228	104	125	283	673	40	605	0	0	217		121	0	32	0	40			0	13	1	-	2,628 / 6,428
1995	-	145	272	203	94	443	572	51	451	0	0	131		66	0	93	29	8			0	33	6	-	2,597 / 6,944
1994	-	114	114	208	45	486	748	85	761	0	13	312		58	0	94	33	0			0	31	0	-	3,102 / 8,078
1993	-	150	100	159	81	530	700	131	812	0	0	179		40	0	86	12	16			0	35	0	-	3,061 / 8,132
1992	-	0	294	200	110	541	555	0	840	0	0	232		13	0	74	0	1			2	41	80	-	2,983 / 7,530
1991	-	105	308	182	182	400	623	9	463	0	0	104		4	0	141	23	11			0	48	0	-	2,626 / 6,740
1990	-	0	0	70	144	0	370	0	747	0	0	131		39	0	114	14	26			0	2	-	-	1,657 / 3,454
1989	-	30	0	98	5	0	906	21	172	0	0	238		3	0	121	24	9			1	18	-	-	1,646 / 3,590
1988	-	127	0	93	75	2	359	0	570	0	144	81		0	0	32	0	-			-	14	-	-	1,497 / 3,726
1987	-	22	0	0	39	0	708	0	18	1	117	0		1	0	51	0	-			-	5	-	-	962 / 2,202
1986	-	0	46	219	78	0	488	0	45	10	0	0		0	0	82	0	-			-	0	-	-	968 / 2,374
1985	-	85	0	315	91	35	662	78	0	-	0	0		0	0	22	0	-			-	-	-	-	1,288 / 3,602
1984	-	18	0	313	0	32	196	32	350	-	0	0		0	0	0	0	-			-	-	-	-	941 / 2,672
1983	-	3	93	200	0	0	776	0	995	-	0	43		18	0	16	1	-			-	-	-	-	2,145 / 4,696
1982	-	0	105	59	238	40	352	19	515	-	0	72		0	0	155	27	-			-	-	-	-	1,582 / 3,400
1981	-	0	167	200	265	60	699	77	717	-	0	105		0	0	197	0	-			-	-	-	-	2,487 / 5,648
1980	-	20	149	205	235	471	318	52	1,025	-	0	226		12	0	100	36	-			-	-	-	-	2,849 / 7,194
1979	-	0	195	198	92	42	773	0	737	-	0	95		0	2	124	8	-			-	-	-	-	2,266 / 5,016
1978	-	16	196	246	170	30	981	57	558	-	13	145		0	1	164	23	-			-	-	-	-	2,600 / 5,926
1977	-	25	243	182	199	0	843	81	486	-	4	309		0	4	234	0	-			-	-	-	-	2,610 / 5,812
1976	-	99	254	152	487	21	600	64	210	-	2	54		0	0	2	0	-			-	-	-	-	1,945 / 4,566
1975	-	80	120	154	274	40	863	140	259	-	0	123		0	0	0	0	-			-	-	-	-	2,053 / 4,934
1974	-	6	161	6	333	0	630	12	342	-	0	110		0	0	0	0	-			-	-	-	-	1,600 / 3,248
1973	-	90	226	0	452	0	932	0	273	-	0	0		0	0	46	0	-			-	-	-	-	2,019 / 4,218
1972	-	0	50	0	350	0	521	0	530	-	0	0		0	0	94	0	-			-	-	-	-	1,545 / 3,090
1971	-	0	274	0	106	0	530	0	136	-	0	0		0	0	0	0	-			-	-	-	-	1,046 / 2,092
1970	-	0	272	0	0	0	531	0	426	-	0	0		0	0	0	0	-			-	-	-	-	1,229 / 2,458
1969	-	0	98	0	50	0	375	0	301	-	0	0		0	0	169	0	-			-	-	-	-	993 / 1,986
1968	-	10	224	62	396	93	328	24	430	-	0	68		0	0	145	0	-			-	-	-	-	1,780 / 3,938

Note: These are raw contacts taken directly from the log sheets. Adjustments have not been made for duplicate contacts, and bonus points have not been added yet. Final scores appear in QST.

OCARC Field Day Report

by FD-co-chairs Doug W6FKX and Ken W6HHC

We are pleased to report OCARC had a fun Field Day with tons on participation....good propagation...and terrific weather

First, we want to thank all the Team Captains for making everything happen so smoothly.

Next, a big thank you to George N6VNI for handling the school site paper work so efficiently. He was a terrific ambassador for our club when interfacing with the school.

And thanks to the Boy Scouts and to Brett W6BAC for a great job with the GOTA station and for operating 75M phone all night!

Finally, congratulations to Bob AF6C for really fixing up the club generator...it ran smoothly the entire FD.

The propagation on 20M-and-lower was much better than many of the recent Field Days....with a nice touch of sporadic-E on 6M.

Generated a total of 1,868 QSOs during FD...not bad for near-zero sunspots.

Had probably 55+ hams participate or visit.

Had plenty of help for set-up and tear-down.

Expenses stayed within the budget.

Our only "problem" was...we underestimated the appetite of Boy Scouts and ran out of pizza Saturday evening....those scouts can really eat!! Luckily we found enough food for everyone.

QUOTES - Everyone we talked to said they had fun:

- Jeff W6UX said that this, his first FD, "was a blast".
- VP Paul W6GMU reported that "This OCARC FD was my favorite kind - a fun, traditional emergency communications exercise that the participants enjoyed to the hilt. Kudos to Ken and Doug for doing a masterful job of organizing this and to our many enthusiastic operators!"
- Nicholas AF6C observed that "Field Day was a Magical Experience. Bands were open and people happy."
- Cam WV6V said "I've been an amateur operator since the mid 1980s and this was the second time I went to a Field Day. I enjoyed seeing so many young people (Scouts) at the GOTA tent. I appreciated the enthusiastic response of the people volunteering (both OCARC and Covenant ARC) and others. I want to say that those hams that were new at Field Day were treated with warmth and respect by all the "senior" hams. Thanks especially to Ken and Doug for helping put on a great experience."
- Robbie KB6CJZ reported "Field Day went very well for our group. Thanks to Larry, Jay, Dee and others who helped on VHF/UHF".
- Bob AF6C observed "Not as big as last year's, but definitely a lot of fun."
- Fried WA6WZO said "Another great OCARC effort during ARRL Field Day! Sandi and I enjoyed sharing ham radio with old friends and meeting new ones. It was good to see so many young Boy Scouts involved."
- Doug W6FKX's wife and girls said "truly a life experience that we will never equal or forget" ...or something kinda close to that.
- Bret W6BAC (Scout Master) explained that "Troop 788 has really enjoyed Field Day with OCARC over the last few years. We completed the Radio Merit Badge classroom training prior to Field Day. It really helped the boys understand the role that Ham Radio fills in our society as well as getting hands-on experience with radio, electronics, and electricity that few scouts experience today. I also want to give a big thanks to the OCARC radio club for their hospitality, kindness, and inclusiveness to our troop."

Items of Interest

ARDF on-foot Transmitter Hunting Session

PLEASE NOTE: RSVP REQUESTED IF YOU PLAN TO ATTEND

The next Southern California will be a two-day "training camp" at Mt. Pinos in the Los Padres National Forest on the **weekend of July 10-11, 2010**. It will be especially for members of ARDF Team USA who are in training for the ARDF World Championships in Croatia this September, but it is open to all other radio-orientees.

These will be advanced courses. You must be capable of walking or running at high elevation for at least 5 kilometers. A ham radio license is not required.

Host and course-setter is Marvin Johnston KE6HTS. His plan is to provide a full 2-meter course Saturday morning, a sprint course Saturday afternoon (where the goal is to catch each transmitter on the next cycle) and a Santa Barbara style tri-tip BBQ supper Saturday evening. Sunday morning's schedule has a full 80-meter course followed by transmitter pickup and departure.

This training camp is being held in conjunction with an orienteering event of the Los Angeles Orienteering Club (LAOC). There will be a nominal charge of \$5/day to cover the LAOC maps and e-punch. The cost for the optional barbecue will be about \$8 per person.

If you plan to attend, please send e-mail to Marvin to help him make plans and to insure that you'll be expected at start time. (marvin@west.net)

Mount Pinos terrain is mostly runnable forest. The air is clear and there is no poison oak. O-maps will be provided. There will be a 3-hour time limit for both the 2m and 80m courses. Scoring will be electronic. If you have an "e-stick," be sure to bring it.

Please be on time for this event. The ARDF group will meet Saturday at the McGill Campground day-use parking lot, register with LAOC beginning at 9:30 AM and then go to the start location. The starts for all courses will only be open long enough to get everyone going (about 30 minutes). We will try to monitor 146.52 MHz simplex for incoming ham operators, but may not be able to hear you if you're not close by.

Directions: Take Frazier Park exit from Interstate 5 and go west on Frazier Mountain Park Road. Continue 8 miles, passing the town of Frazier Park and Lockwood Valley Road (which is your last chance for supplies and water). Four miles beyond the Lockwood Valley turnoff, stay left at the fork onto Mt Pinos Road. (If you reach Pine Mountain Club, you went the wrong way, so turn around.) Go another five climbing, winding, miles to McGill Camp on your right. As you enter the campground, the day parking lot is on your right just before the road goes out to the campsites. Forest Service Adventure Passes are not required for this area, but there is a day-use fee for vehicle parking at McGill Campground.

Lodging: Overnight camping is available on a first-come-first-served basis at McGill Campground. The campground is dry, so bring your own water. If you don't want to camp, you can stay at the BestRest Motel at the Frazier Park exit of I-5 or the Econolodge at the Gorman exit.

An area map and links to lodging are at www.homingin.com

Joe Moell KØOV

Items of Interest Cont'd...

[France Says D-Star Ham Radio Mode Is Illegal](#)

"Citing 'national security concerns,' the French Autorité de Régulation des Communications Électroniques et des Postes (ARCEP, France's equivalent of the US's FCC) has ruled that [D-Star](#), an amateur radio digital signal mode used world-wide, is [illegal because it could allow operators to connect to the Internet](#). The ARCEP also cites alleged concerns regarding cryptography and national security as well as the use of a proprietary codec. While it's true that the D-Star codec is proprietary, its owner has openly licensed it (for a fee, of course) to any manufacturer who wants to build it into their equipment. Any licensed amateur radio operator who lives within the EU can sign an [online petition](#) protesting this decision."

OCARC Field Day 2010 Walter Knott Elementary School



The W7KW Remote

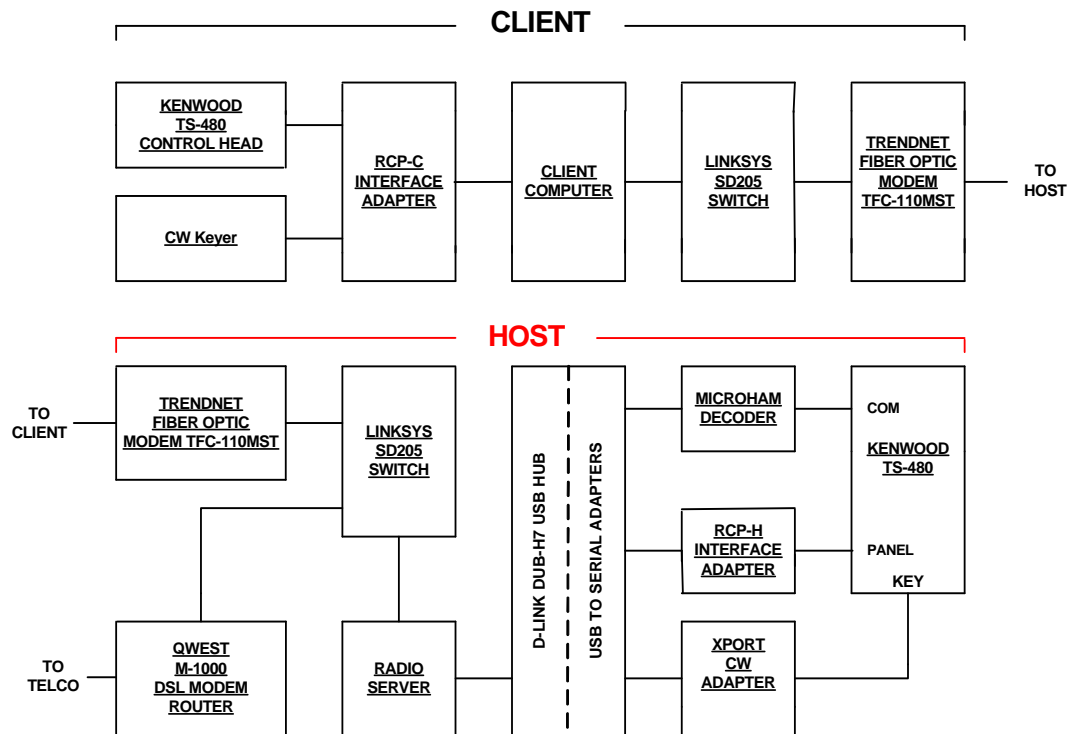
(Article used with author's permission)

The W7KW amateur radio station is located just North of the metro Phoenix area in Cave Creek, Arizona. The station has been supporting remote operations for over ten years. The idea for the station was originally conceived and engineered in a joint effort by W4MQ- Stan, W6PJ- Pete and W7KW- Terry. From an initial Kachina remote configuration using microwave links to its current configuration using a state-of-the-art Software Defined Radio remotely controlled via a high-speed broadband Internet connection. More information regarding the station setup and hardware can be obtained from Terry W7KW and Pete W6PJ. Information about the Internet Remoting Toolkit software, including the remote key-based CW and TS480 front panel can be obtained from Stan W4MQ or at <http://www.w4mq.com/toolkit>



1.0 OVERVIEW

An overview of the Client and Host nodes is shown below. More detailed discussions and diagrams are in succeeding sections. The interconnection between these uses the Internet. Communications latency has been an issue as more bandwidth sensitive or lower delay elements have been added to the station. Two of the most challenging have been the use of the TS-480 front panel for rapid tuning and the break-in key-based CW.



The Host station is connected to the Internet via a high speed DSL link provided by QWEST Communications. The Internet connection is also fed to a local fiber optic node to provide service to the adjacent house. The station operates from 160m through 6m using either a Kenwood TS480 or Flex Radio SDR 5000 Software Defined Radio, an Alpha 8700A amplifier, a MicroBand controller for antenna switching control, a K9AY receiving array for 160m, beams for 40m, 30m, and 20-6m (SteppIR) mounted on a 100ft tower which also acts as a shunt fed vertical radiator for 160m. Dipoles for 80m and 40m are also available.

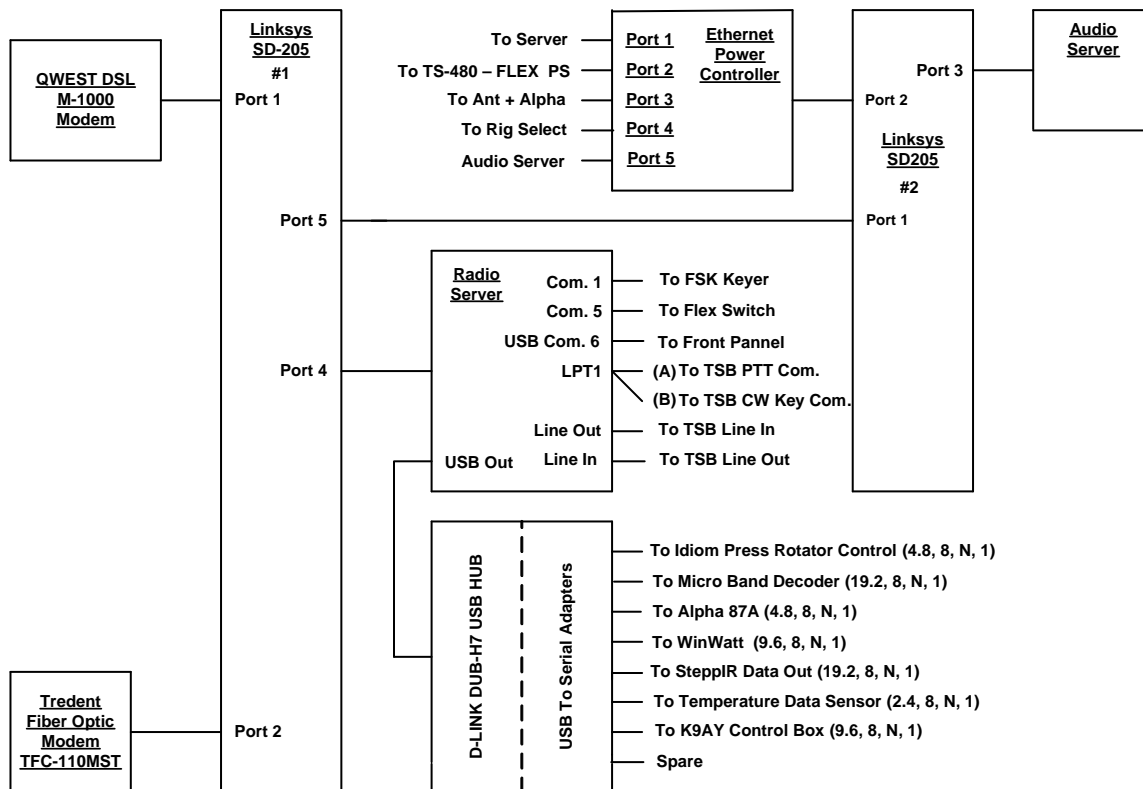
The Client-side remote provides for control of radios and the other station equipment, e.g. amplifier, rotator, antenna switch, SteppIR antenna controller, Voice-over-IP, etc located at the remote site. Two hardware elements are connected to the client-side computer: the TS480 front panel and the CW keyer. Both of these interface to the computer via a single serial connection.



2.0 COMPUTERS AND NETWORK EQUIPMENT

A detailed view of the station network configuration is illustrated below. The major elements of the station network are:

- The combined Internet connection and network router supplied by Quest DSL
- Two Linksys network switches interconnecting the networked equipments
- An Ethernet Power Controller to provide PC-independent control of all the AC and reset PC reset capabilities



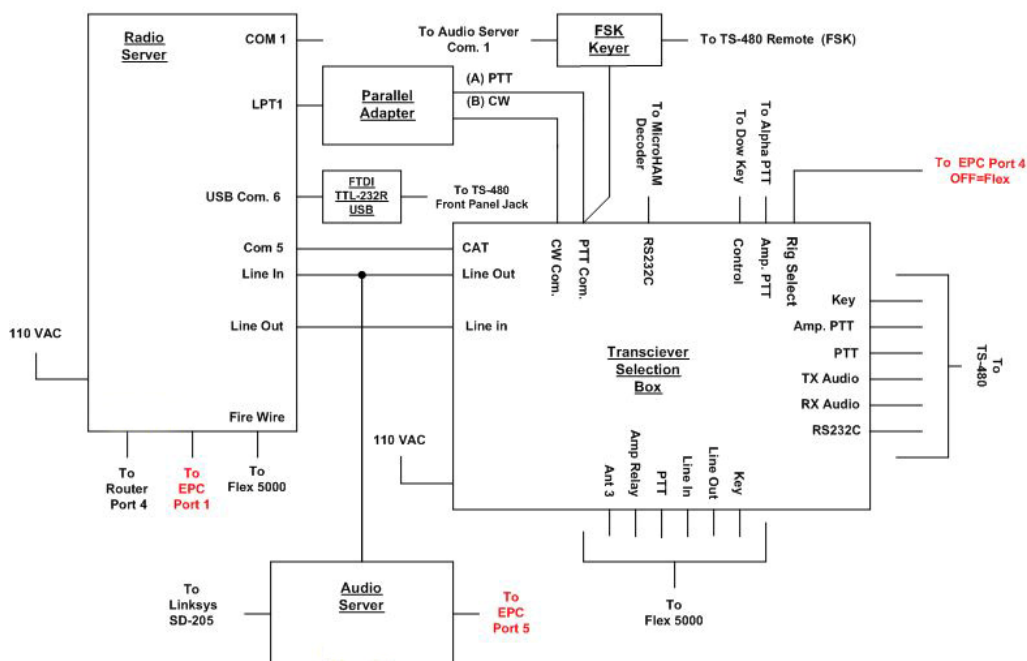
- Two PC servers: one for the Flex 5000 radio, CW keying, and main VoIP and the second to support a secondary VOIP.
- Fiber optic modem providing LAN connection to the adjacent house.

As illustrated all the ham equipment interfaces via the USB to Serial adapter cables. Thus the actual control for all the equipments does not go through a computer in the host station. This changed when the Flex-5000 software-defined radio was installed, since it requires a computer to operate. Note that the CW-Key, PTT, and FSK control for the radios also use the radio server computer. A second audio server was added to support joint operations by two operators, e.g. sequential working of DX, etc.

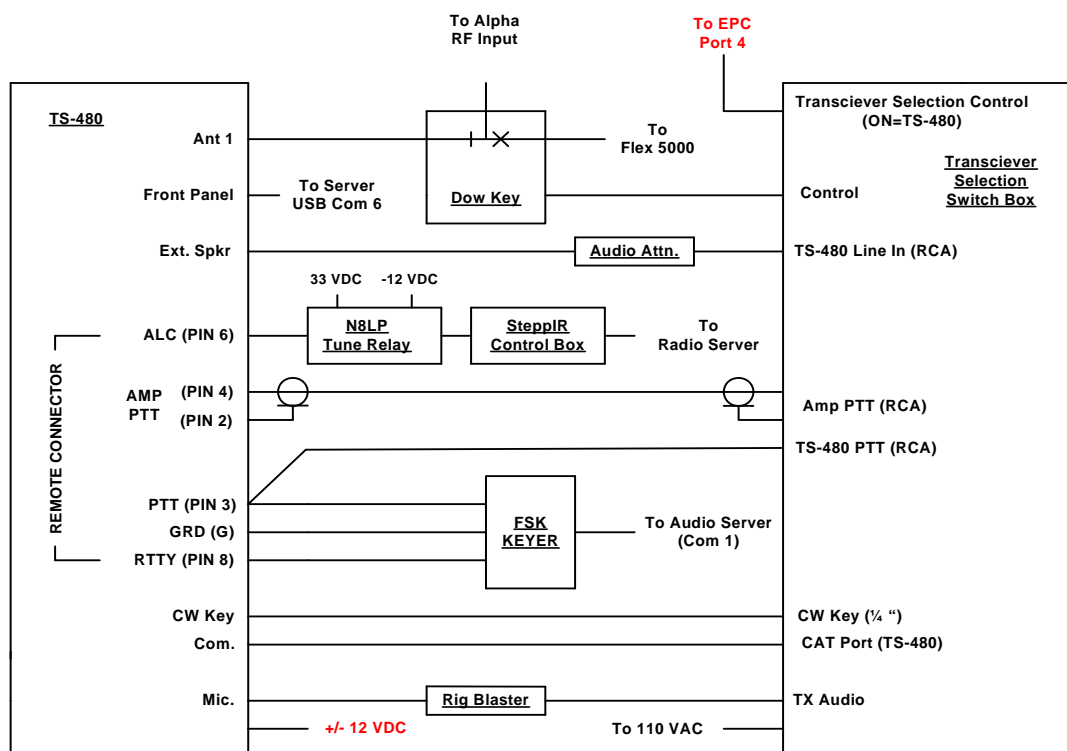
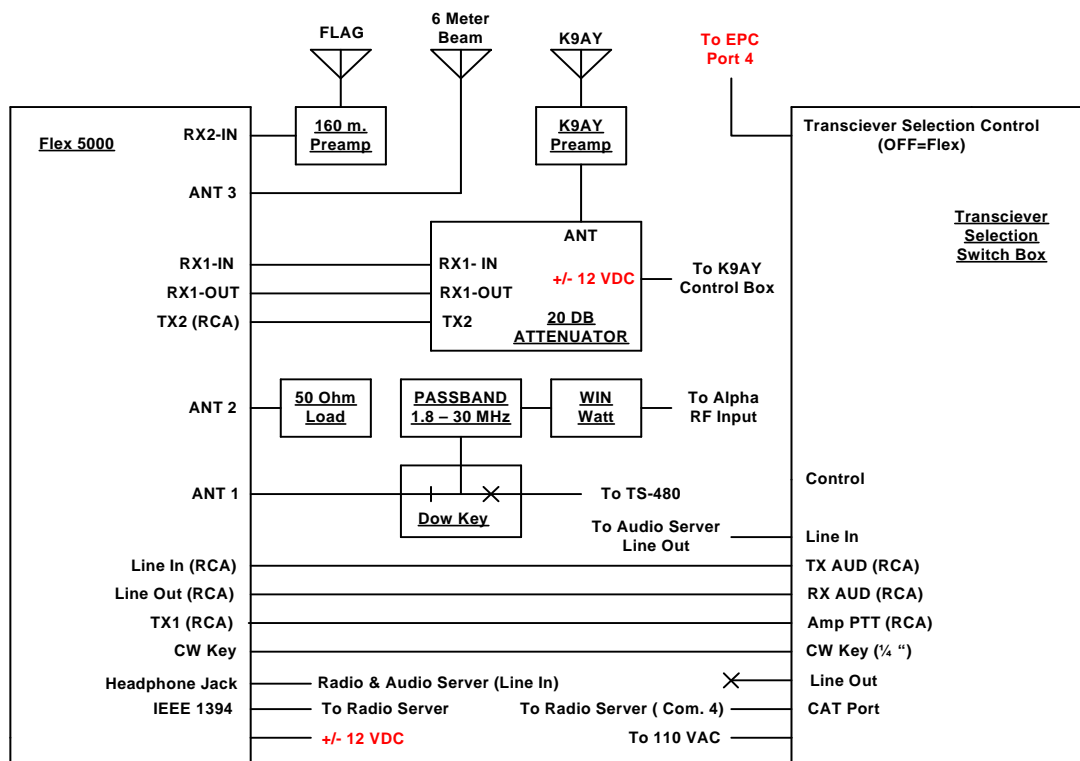
3.0 AMATEUR EQUIPMENT

3.1 Station Host

Use of two different radios- one at a time –is currently supported at W7KW. The switching configuration is illustrated in the figure below. The switching is accomplished via the Ethernet Power Controller, and handles all keying, PTT, audio and control connections for the radios.



More detailed connections for the Flex-5000 and TS480 radios are illustrated below:

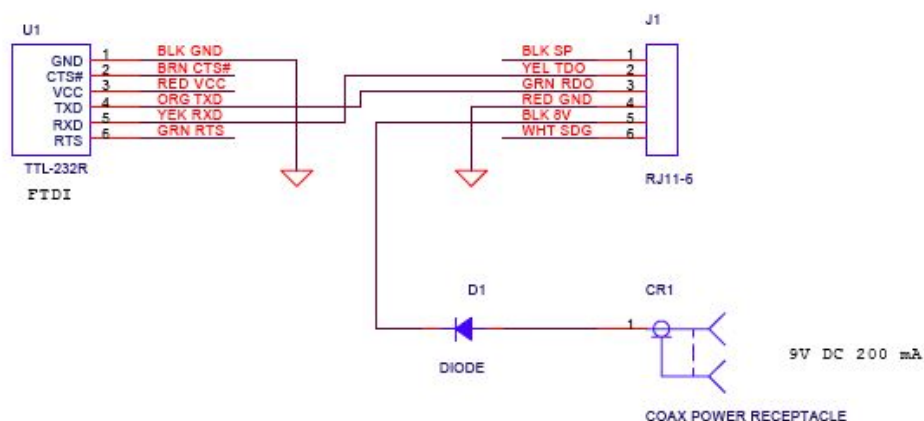


3.2 Client (Operator) Side



The FTDI device provides a USB to TTL (TS480 panel levels) interface. The RJ-11 cable that connects to the TS480 is connected to J1. The CW keyer output is directly connected to pin 2 or U1 (CTS line). The IRT software responds to these serial signals for both CW keyer and panel responses and it sends back the appropriate data to the panel. When the TS480 is connected the data generated by the panel is sent directly to the remote radio and the data generated by the remote radio is sent back to the panel. When the Flex 5000 is connected, the panel data is interpreted and the appropriate radio control command sent to the radio and a locally generated response is sent back to the panel. Since the panel is sensitive to status response timing, it is important to send the correct local responses to maintain panel connectivity when there is no TS480 radio actually present.

The details of the interface box designed by Pete W6PJ are illustrated below.



4.0 SOFTWARE

Illustrated below is the operations screen used by Stan W4MQ to remotely access the W7KW station. The upper left window is a direct access via VNC to the radio server computer to access the local FlexRadio display, including its controls and spectra view. The IP-Sound VoIP interface is shown in the lower left of the display. The right side of the display shows the various controls provided by the W4MQ Internet Remote Toolbox <http://www.w4mq.com/toolkit> software. The main window is in the lower right, with the other tools (top to bottom) being the radio control, rotator control, amplifier control and SteppIR control.



The IRT software is designed to be installed on both the Host and Client computers to provide the remote control interface. Various controls are built in for Kenwood radios, Alpha amps, etc, but ANY amateur radio software that is used to control a serial interface device and be used through the IRT connection. For instance, while W4MQ uses the built-in IRT controls as is illustrated above, W6PJ and W7KW prefer TRX Manager for radio and rotator control and the vendor supplied Alpha and SteppIR control software.

TechTalk 87

DATV Testing Report - Part 4 (Field Testing)

by **Ken Konechy W6HHC**
&
Robbie Robinson KB6CJZ

This is the fourth OCARC TechTalk article describing the testing of the Digital-ATV station that we had planned.

TechTalk77 describes the initial exciter bench tests.

TechTalk78 describes 1 mW field test in a RACES drill.

TechTalk83 describes bench testing the entire station.

This month we report on the results we obtained in field testing of a Digital-ATV portable unit in the City of Orange, here in Southern California.

Some Background

The authors are both members of the OCARC, but they are also members of the RACES emergency communications group for the City of Orange, called COAR (City of Orange Amateur Radio). For years, the COAR group had equipped itself with analog-ATV equipment intended to send field pictures to the city Emergency Operation Center (EOC) located inside the Orange Police Department building. But for years, COAR has been frustrated by the quality of the ATV pictures being received by the EOC. The 440 MHz analog-ATV quality was degraded because the signal path typically included elevated-freeways, 2-story residential homes, 1-to-3-story commercial buildings and a "forest" of backyard trees and tree-lined streets. The only good transmissions occurred if we parked the portable ATV transmitter on a hilltop with a clear signal path back to the Orange PD building.

Members of the COAR team had speculated that perhaps Digital-ATV might provide the solution to improving the quality of our field video transmissions.

The DATV Equipment

Fig 1 is a block diagram of the set-up used during the recently completed field tests of DATV. The transmitter, and power amplifiers and SetTopBox (STB) receiver have all been described in more detail in the early TechTalk testing reports.

Another ViewSat VS2000 DVB-S STB was purchased on eBay for installation inside the EOC Radio Room for the purpose of conducting these DATV field Tests. The eBay cost of this FTA STB unit was less than \$60 including shipping. **Fig 2** shows the new STB (bottom unit) being tested side-by-side to Ken W6HHC personal STB receiver before the field tests began.

The frequency used for the field tests was 1.292 GHz. Ken W6HHC had planned to set up the test frequency on 1.2915 GHz, but discovered that the STB menu would NOT allow him to enter 0.5 MHz digits. The Symbol-Rate was set to 2.2 MS/sec...producing an DVB-S RF BW_{allocated} of 3 MHz. The Forward Error Correction (FEC) was configured to 1/2.



Figure 2 – Bench testing the ViewSat STB for OPD

The receiving 1.2 GHz antenna (**Fig 3**) was a 24-element loop-Yagi antenna mounted 3-stories high on top of the Orange PD building. The loop-Yagi antenna is made by Directive Systems (in Maine US). A Down East Microwave LNA for 1.2 GHz was installed for the field tests to drive the received DATV signal down 250+ feet of coax to the EOC Radio Room receiver.

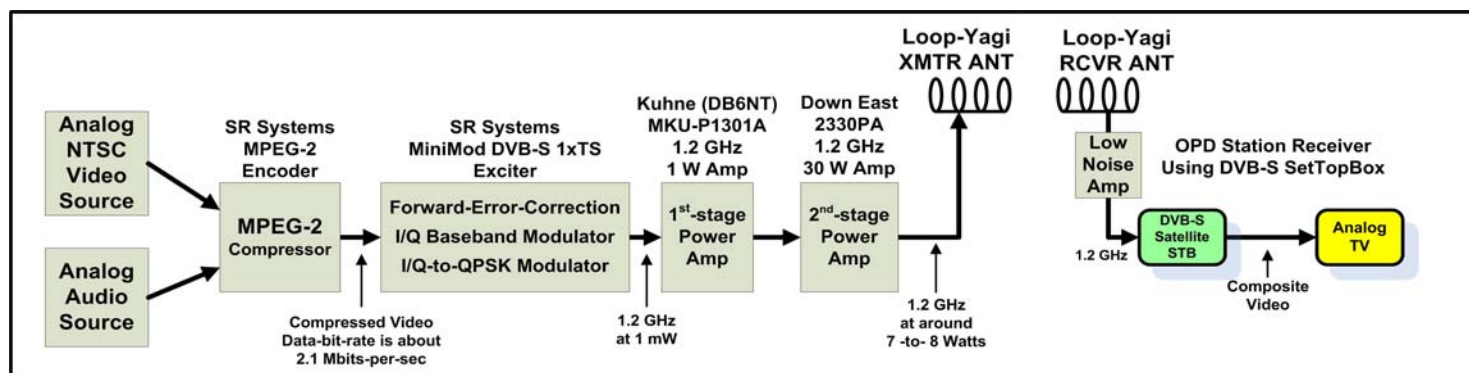


Figure 1 – Block Diagram of DVB-S Transmitter and Receiver for DATV Field Tests



Figure 3 – 1.2 GHz Loop-Yagi on roof of OPD

The field transmitting antenna is also a 24-ele loop-Yagi from Directive Systems that Robbie KB6CJZ keeps in his closet of spare antennas. **Fig 4** shows a typical set up of the portable antenna during the field tests. The loop-Yagi is mounted on 25-feet of Radio Shack stacking masts.



Figure 4 – Bruce KC6DLA adjusts direction for the Field set-up of the 1.2 GHz Loop-Yagi

COAR member, Bruce KC6DLA, provided the field masts and a clever mast-support system that mounts to the roof-rack of a station wagon or mini-van....see the mast support details in **Fig 5** and **Fig 6**.



Figure 5 – Mast-brace attaches to roof-rack



Figure 6 – The car tire secures the support base and prevents mast from slipping.

First Field Test – El Modena High School

The first DATV test site we chose, the parking lot of the El Modena High School, was picked because COAR RACES had tried analog-ATV tests on 440 MHz from this location two years earlier with extremely poor video quality...P1 or P2 at best. But P1 or P2 was not the video quality that COAR RACES wanted to show to the Police or Fire Chiefs or to the Mayor of the city in the EOC room. The test distance is only 3.2 miles, but includes one elevated freeway, three-story apartment buildings, homes, 2-and-3-story commercial buildings, and plenty of trees.

While Robbie KB6CJZ and Steve KI6DDE manned the OPD receiving station, Ken W6HHC set up the DATV transmitting station in the back of his mini-van...see **Fig 7**. Just to be prepared, Ken also set up a STB receiver with a “sniffer” antenna and a notebook computer display to confirm that a video picture was actually being transmitted...if there was a lack of picture at the OPD. You can see the Notebook display in the center of the **Fig 7**.



Figure 7 – Field DATV transmitting station in back of MiniVan (sniffer receiver display in center)

Steve KI6DDE reported seeing a picture at the Police station from El Modena High School, even before Ken could finish setting up his “sniffer” receiver. The picture was perfect! Robbie KB6CJZ reported that the QUALITY monitor on the STB menu displayed 100%.

Fig 8 and **Fig 9** show the quality of the DATV signal that was received in the EOC Radio Room.



Figure 8 – First received DATV Video at OPD

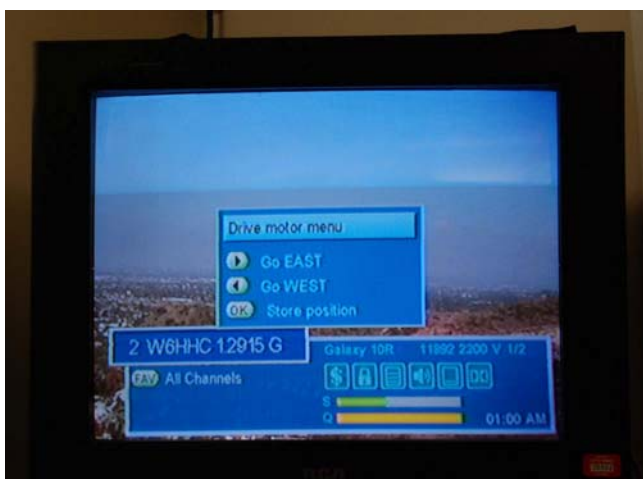


Figure 9 – The SetTopBox QUALITY meter said 100%

The only testing problem we had was that we could not get any of three video cameras working correctly. Later we discovered one camera had the power unit set to CHARGE instead of VIDEO, a second camera that was producing out-of-focus pictures had been set to manual focus, and a third camera could deliver tape video, but not camera video. The field team was amazed at their diminished trouble-shooting skills under the pressures of field testing!

Luckily we had a previously-recorded ATV tape in the one camera...and played back the tape into the DATV transmitter. We felt we had accomplished “proof of concept” for DATV quality by evaluating the tape transmission.

Second Field Test – AMTRAK Train Station

The second DATV test site we chose, the parking lot of the AMTRAK train station, was picked for two reasons. First, COAR RACES had also tried analog-ATV tests on 440 MHz from this location two years earlier with extremely poor video quality...just P1. Second, COAR had been asked to test DATV at an upcoming RACES drill for the city. We knew that we would be asked once again to supply video from the AMTRAK station during the RACES drill. The test distance is only 1.8 miles, but includes, 2-story commercial buildings, 3-story University buildings, homes, and plenty of trees. We had to aim the 1.2 GHz antenna right into a pair of large leafy trees, about 75 feet away.

A picture was reported at the EOC Radio Room as soon as the transmitter switch was turned on. Again Robbie reported the DATV picture was perfect and the SetTopBox QUALITY meter read 100%.



Figure 11 – Robbie KB6CJZ views received DATV Video inside EOC Radio Room



Figure 12 – First live Camera video from AMTRAK Train Station is received as DATV at OPD.



Figure 13 – Ken W6HHC keeps an eye on the DATV transmitter at the AMTRAK Field Testing Site

Third Field Test – City “Mock EOC Drill”

The Police Department conducted the planned “mock EOC” drill for the City of Orange in order to test the abilities and training of Police Department volunteers, including COAR RACES communications volunteers to provide support for city EOC officials and staff and to provide communications from the field in a simulated train wreck incident. As expected, COAR was directed to provide DATV video from the simulated medical triage area in the parking lot of the Amtrak train station. A perfect DATV picture was being received at the EOC with only 10 minutes of travel time and 10 minutes to set-up the portable DATV equipment.



Figure 14 – Live video as received in EOC Radio Room during the RACES Drill (analog TV display)



Fig 15 – At DATV Field Site during Drill are (L-R): COAR Members Dave KG6RWU, Bruce KC6DLA, and OPD Volunteer Dan Claypool (Antenna is aimed straight into two trees on left)

The received DATV signal was first displayed in the EOC Radio Room. The video was then distributed to large-screen LCD many displays inside the EOC room itself, as shown in **Fig 16**.



Figure 16 – Live video as received in EOC RACES Drill is distributed to large-screen displays

Fig 14 shows the quality of the received video as seen on an analog CRT TV display. **Fig 17** shows the crisp clarity and quality of the DATV video distributed onto a large-screen digital display. Robbie KB6CJZ has commented that sweep-speeds and camera shutter speeds prevent these JPEG photos from really capturing the great quality he was actually seeing with his eyes on the CRT TV display.



Figure 17 – This close-up of a large-screen display in EOC Room show the clarity of received DATV.

Robbie did notice that some pixilation occurred on the DATV video when a fast moving bus passed quickly down the street within our field of vision.

Conclusions and Plans

In overview, the authors and other COAR members were very pleased with the DATV video they had obtained from our initial set of field tests. It was very encouraging to see DATV overcome the analog-ATV problems of multi-path reflections and weak signals. From the same locations that had been previously tried with 440 MHz analog-ATV with extremely poor results, COAR was now receiving 1.2 GHz Digital-ATV with really great video quality.



Figure 18 – Members of COAR RACES and other OPD Volunteers gathered in the EOC room after the drill to begin a debrief session

Digital-ATV really does produce higher-quality video than analog-ATV under adverse conditions!!

The authors have plans to do more field testing to eliminate the slight pixilation situations seen in these first field tests. Perhaps a slightly higher Symbol-Rate...or an FEC setting with slightly less-redundancy might make a difference to reduce the observed pixilation. We used D1 video resolution in these tests. It will be interesting to compare the quality of HD1 video resolution with D1 in an attempt to reduce the NDBR (payload) we need to support for a chosen Symbol-Rate.

It has been a really fascinating journey for the authors to see DATV progress from a study...to planning a station...to testing the station. Our DATV field testing has really confirmed the robustness of the DVB-S Digital-ATV signals.

Interesting DATV Links

- ARRL-TAPR DCC 2009 paper on "Planning a DATV Station on DVB-S" – www.TAPR.org/pub_dcc28.html
- TAPR PSR Quarterly Journal Issue 111 on DVB-S Modulation Overview – see www.TAPR.org/psr.html
- Amateur Television of Central Ohio WR8ATV (First US DATV Repeater) – see www.ATCO.TV
- British ATV Club - Digital Forum – see www.BATC.org.UK/forum/
- British ATV Club - select from about 25 streaming repeaters – see www.BATC.TV/
- German portal for DATV streaming repeaters and downloads – see www.D-ATV.net (in German)
- AGAF D-ATV components (Boards) – see www.datv-agaf.de and www.AGAF.de
- Lechner DATV Boards - <http://lechner-cctv.de/d-atv-dvb.151.de.html?mwdSID=9agn7phu46fvm2ok3aueltf3>
- Complete ready-to-go DATV transmitters – see www.d-atv.org/D-ATV-Modulator.pdf
- SR-Systems D-ATV components (Boards) – see www.SR-systems.de
- DG0VE microwave amps, up-converters, down-converters – see www.DG0VE.de
- Kuhne Electronics (DB6NT) RF Amplifiers – see www.Kuhne-Electronic.de
- MiniKits (SMT kits for RF amplifiers) – see www.MiniKits.com.au
- Melbourne DATV Repeater VK3RTV – see www.VK3RTV.com/latest.html
- Orange County ARC newsletter entire series of DATV articles – see www.W6ZE.org/DATV/

OCARC General Meeting Minutes**June 18, 2010**

The OCARC February General Meeting was held at the Red Cross complex in Santa Ana at 7:00 pm on Friday evening, June 18, 2010. There were a total of 37 members and visitors present. Eight club officers were present for a quorum.

Paul W6GMU brought the meeting to order in Kristin's absence. Kristin lost her grandmother this week; she and Dan were spending the weekend with family. Our thoughts are with Kristin and her family.

Paul introduced our guest speaker (who really needed no introduction) Clint Bradford – K6LCS. Clint's presentation "Working Ham Satellites with your HT" started in the parking lot at 5:37 pm prior to the meeting so everyone was excited and raring to go! Clint introduced the group who met outside to the pass of the AO-51 satellite.



Fig 1 – Clint K6LCS reviewed the history of Ham satellites and techniques for a low-cost Ham QSO via OSCAR.

Clint has this magnetism... you never know what to expect. He started out with interesting trivia and gave prizes to the lucky winners. He is a very moving speaker!

Clint gave examples and diagrams of the various methods, radios, and antennas for tracking satellites. Information for working satellites can be found on his website – www.clintbradford.com or by visiting the AMSAT website – www.amsat.org. He also included these two websites as well: www.work-sat.com and www.k6lcs.com.

Thank you Clint for a great presentation!

AND NOW, FOR SOMETHING COMPLETELY DIFFERENT!!

Nicholas AF6CF had a very clever show and tell. He created a seismometer from an old Geiger counter case to use at home or work to detect earthquakes and monitor their size. It is an interesting concept.



Fig 2 – Nicholas AF6C does show-n-tell of a seismometer housed in old Geiger-counter case.

OCARC General Meeting Minutes**June 18, 2010
CONT'D...**

Field Day plans have come together. OCARC is fortunate to have the dedication of the two co-chairmen – Ken W6HHC and Doug W6FKX. Together with many members participating they have put together what looks like a great Field Day. OCARC Field Day will be held at the Walter Knott School starting at 1:00 pm on Friday, June 25th through 1:00 pm on Sunday, June 27th. All volunteers are gladly welcome.



Fig 3 – Field Day co-chairs Ken W6HHC and Doug W6FKX explain details about FD plans

Remember: If you have something for the Show and Tell bring it to the next meeting on July 16th, 2010.

Just a reminder that the OCARC Board Meetings will now be held on the second Saturday of each month at 8:15 AM at the Jagerhaus Restaurant, 2525 East Ball Road Anaheim. Visitors are welcome.

W6ZE will have an additional net on Thursday evenings on the WARA 2 meter repeater 145.400 at 8:00 PM. Nicolas AF6CF will be the net coordinator. Please check in and say hello.

Motion to adjourn at 9:15 pm by Paul W6GMU, seconded by Larry K6YUI.

Submitted by: Kristine Jacob KC6TOD, OCARC Secretary

OCARC Board Meeting Minutes for:**June 12, 2010**

The OCARC Board meeting was held at the JagerHaus Restaurant, 2525 East Ball Road, Anaheim, at 8:15AM Saturday, June 12, 2010. There were a total of 7 directors and visitors George N6VNI, Diane Konechy and Hank Welsh W6HTW. There was a quorum with the directors present.

DIRECTOR REPORTS:

Vice President Paul W6GMU is out of the country but Kristin has confirmed speakers for the remainder of the year for Paul

Treasurer Ken W6HHC –Balance on hand \$5,726.

Kristine KC6TOD – asked if OCARC was interested in participating in HAMCOM 2011, no interest from the board.

Loran AF6PS – Membership is growing, six new members including renewal average a couple a month. Very Good.

Robbie KB6CJZ – Confirmed publicity for Field Day, newspapers, information table at Field Day and notifying the Orange County Register.

Nicholas AF6CF noted the lack of interest in the net on Thursday nights, but he will continue with the net.

Larry K6YUI noted the 6 meter contest this weekend.

OLD BUSINESS:

RF Newsletter “Rotating” Editors – thank you to all who volunteer!

July - Paul W6GMU

August – Kristin K6PEQ

September – Bob AF6C

October – Kristine KC6TOD

November- Doug W6FKX

December – Nicolas AF6CF

2010 Field Day Plans –

Planning meeting was held on June 9, 2010

Motion was made by Ken W6HHC for \$1,200 for Field Day and seconded by Larry K6YUI.

Food arrangements are all set (catered or fast food), working to stay within budget.

Eyeball Cards – Nicolas AF6CF prepared samples of the eyeball cards for each of the board members. Great job. Kris KC6TOD made the motion to print 200 cards and motion was seconded by Larry K6YUI.

FOR SALE Items – the items listed will have the descriptions updated for clarity. All the equipment is at the home of the PEQs.

OCARC Board Meeting Minutes for:

June 12, 2010

CONT'D...

NEW Business

Orange County Fair

Kristin K6PEQ to send out email list of the volunteers.

Contact Kristin K6PEQ if you would like to work the booth at the OC Fair

Raffle/Opportunity Drawing

The title now to be used for the raffle will be OPPORTUNITY drawing, it needs to be changed due to tax laws.

Motion was made to adjourn meeting by Dan N6PEQ and seconded by Paul W6GMU.

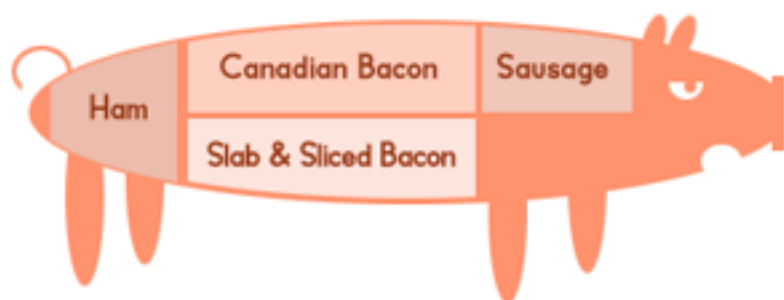
Meeting adjourned 8:40 AM

Respectfully submitted by:

Kristine Jacob KC6TOD, Secretary

2010 ARRL CONTEST SCHEDULE

July	10- 12	IARU HF World Championships
August	07 - 09	ARRL UHF Contest
	21 - 23	ARRL 10 GHz and Up Contest
September	11 - 14	ARRL September VHF QSO Party
	18 - 20	ARRL 10 GHz and Up Contest
November	06 - 09	ARRL November Sweepstakes (CW)
	20 - 23	ARRL November Sweepstakes (Phone)
December	03 - 06	ARRL 160 Meter Contest
	11 - 13	ARRL 10 Meter Contest



Ham Cuisine

by Kristin Dankert
k6peq@w6ze.org

Aegean Island Ham Sandwich

While you're enjoying this yummy sandwich, imagine that you are relaxing on a beach somewhere with your favorite QRP rig and a vertical in the water. Ah, life is good!

Ingredients:

1/2 cup shredded ham
1 tablespoon olive oil
2 teaspoons fresh lemon juice
1 cup spinach leaves
1 teaspoon dried oregano
2 pita bread halves

Cooking Directions:

In a small bowl, toss together ham, olive oil, lemon juice, spinach and oregano. Divide ingredients evenly between pita halves.

Serves 2.

Serving Suggestions:

Ham paired with Mediterranean flavor offers a surprising combination in this pita sandwich. Serve with marinated olives.

Ham Cuisine Tip: This Aegean island ham sandwich goes well with a Pina Colada. Then again, what doesn't go well with a Pina Colada?