



QSP



June 2007

- The June CKARC Meeting is on June 29, 2007 at 7:30 PM in Room 211, Peters Science Hall at KWU.

August Meeting (Watermelon Feed)

The August 2007 Watermelon Feed will be in a slightly different location this year, instead of being in Jerry Ivey Park, this year's meeting will be in Kenwood Park (somehow fitting for a Radio club—huh?) Shelter #1 (The one by the Train) August 31, 2007 We have the Shelter booked for 6 PM to 9 PM.

Be sure and bring your appetite for Watermelon!

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Thanks Alvin, WØME, for making the reservation!

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June VE Report

The June 13 test session was led by Marty, KGØMT in DeWite's (WØOK) absence. 7 folks tested for the following:

- 1 Upgrade from Novice to Technician
- 2 NEW Technicians
- 3 Upgraded to General Class
- 1 did not pass

DeWite, WØOK, has asked to step down as VE Team leader due to health problems, hopefully only on a temporary basis. Dan Cook, AAØTT has volunteered to take over the job on an interim basis. Thanks Dan!

Your LAST chance to upgrade to General with the "Current" Question Pool will be during Field Day. On July 1, 2007 the new Question Pool goes into effect. Still 35 questions on the test, but more questions to choose from.

Minutes of the May Meeting

Pot luck at 6:30 pm, 38 in attendance.

John Burchill, KCØJNK, played Amazing Grace on the bagpipes.

A round of introductions were made.

7:31 pm – Mark, KBØMQX, opened the meeting. Ron, WAØPSF, read the list of silent keys.

Secretary Report – Alvin, WØME was out of town, the minutes for April meeting were approved as printed in QSP.

Marty, KGØMT, gave treasurer's report. Approved as printed in QSP. Marty made mention that deposits now are going into savings rather than checking, this is due to the current Checking Account's balance.

Also mentioned was that currently there are 47 out of 53 members of the club who are hams that are ARRL members. That puts us at 89% ARRL membership for the club.

EC Report

Sid, NØOBM, says it's been a busy month. Storm spotters have been out more this year than in the previous three years. Upcoming events: June 4 – Siren test 4:30 pm weather permitting. Thursday evening June 7th is the Smoky Hill River Festival Jam, and that the June ARES Net would likely **NOT** be held.

Friday, Saturday & Sunday, June 8 through 10 is the Smoky Hill River Festival. Anyone that wants to work the Festival and not having a Button, please contact Sid.

June 13 VE test session followed by Board Meeting.

June 21st ARES meeting.

June 23 & 24 is ARRL Field Day 2007, and the CKARC location will be in Oakdale Park near the Tennis Courts.

VE report

Marty reported 4 people testing. 1 upgraded to General and 1 to Extra class.

Repeater Report

Eric, NØYET, reported both machines working well.

Hamfest Report

Ron, WAØPSF, said there are the usual exhibitors coming this year. Volunteers needed for setup. Setup starts at 0600 August 19th, and the doors open to the Public at 0800. He is also looking for a Replacement for the Hamfest Chairman for next year.

Activities Report

Mark mentioned that Pete, NØOY, will have a workshop on direction finding Monday the 28th for anyone interested. Further details will be announced on the WØCY Repeater.

Mark announced the club now has a 10/10 International number – **74608**.

3 new applications for membership. All 3 were voted in.

Michael Draggett, KCØUBM, Mike Herrera, WØMDH, and Bert Voth, WØUTS

Business

Mark asked for approval to pay one year rental at the new storage shed and save 5% on rental fees. Motion made and Seconded. Motion Passed.

Field Day

Motion made and Seconded, to authorize the expenditure of up to \$100 on food for this year's Field Day Picnic Dinner. There was discussion to possibly purchase small steaks or chicken for the operators. Motion Passed.

Mark gave a brief description of Field Day and when / where it will be this year. Setup starts at 8am.

Meeting closed at 8:13 pm.

No additional program this evening beyond the Pot Luck Dinner.

2007 River Festival Lost & Found Stats

I'd like to say **THANK YOU** to everyone that helped with the Lost & Found this year at the Smoky Hill River Festival. It was another successful Festival with no "left over" Lost Children!

The number of Lost Children & Parents was up this year slightly from the previous year (29 vs. 24), but the "recovery" time was down substantially thanks to the First Bank's "Ident-a-Kid" bracelets. Most kids were back with their parents in 3 to 4 minutes.

The number of Lost items was down to 114 this year compared with last year's 143. Among the usual lost items were 8 Cellular Phones (last year's count was 13), 6 sets of keys to either Cars or Houses (down 1 from last year), 2 Cameras—one of which was unfortunately recovered in a bag **in** the River. One Driver's License, 1 Check Book, and a Walker. By the end of the Festival, all the cellular phones had been claimed as had the Walker and the wet camera.

Nineteen Volunteers put in 353.5 Hours. Five were from the Great Bend area. The "average" volunteer put in over 18 and a half hours.

Sid NØOBM



Let's Go T-Hunting

by Joe Moell KØOV

Here's an introduction to RDF contesting in southern California, updated from a paper originally submitted for Proceedings of the West Coast VHF/UHF Conference.

VHF/UHF enthusiasts often install yagis and quads at their home stations. Many take them out on camping trips and use them on public service events. But did you know that some enjoy flying the freeways and beating the back roads with one hand on the steering wheel and the other on a rotating antenna mast?

Perhaps you have seen these hams on weekends, intently driving and turning their beams. What are they doing? They are competing in hidden transmitter hunts.

If you've never experienced one of these mobile radio direction finding (RDF) contests, you have missed some of the greatest excitement a ham can have. While there are several names for it such as "fox-hunting" and "bunny chasing," in southern California this sport is almost always referred to as "T-hunting."

Transmitter hunting seems to be one of the best kept secrets in ham radio, even though dozens of hams here consider themselves to be regular hunters. They range in age from the teens to the eighties. Besides keeping the coordinated two-meter hunt frequency (146.565 MHz FM) hopping, hunters love to hash over their exploits by the hour on their favorite repeaters.

The idea is simple: One or two hams take a transmitter, antenna, and some sort of distinctive audio source to an carefully selected spot, then make continuous or intermittent transmissions. Usually they remain stationary, though mobile "bunnies" are popular with some groups. Sometimes there are more than one "T" to be found. Surplus ammunition cans are often used as hidden transmitter enclosures. The hunters, as individuals or in teams, do their best to home in on the hidden station(s) with their mobile and portable RDF gear.

Fun, But Beneficial

T-hunters think their events are more fun than any other ham contest. You get to meet and socialize with your competitors both before and after the event. Usually, you'll find out your score and how well you placed before you go home. You may encounter your competitors along the way, with opportunities to try to "psych them out" or misdirect them. (Hence the southern California maxim: "Never trust anything said by a T-hunter or hider.")

"Techies" like the thrill of finding the hidden T with gear they made themselves. They relentlessly work to improve their setups. Mystery lovers and dyed-in-the-wool testers love the challenge, because every hunt is a fresh start to a new adventure. Your past performances are forgotten. It's just your team and your equipment against today's hider and the other hunters.

At some point, every ham will find knowledge of RDF techniques useful, because it simplifies such chores as finding a neighborhood source of power line interference or TV cable leakage. T-hunters here frequently are called upon to track down sources of "spurs," intermodulation and noise that can plague amateur (and sometimes commercial) repeaters.

RDF plays an important part in Amateur Radio self-policing. In many areas of the country, including southern California, there are standing agreements between Local Interference Committees and district FCC offices, permitting volunteer ham RDFers to gather evidence leading to prosecution in serious cases of malicious interference.

You have up to a dozen competitive hunt opportunities to choose from every month in Los Angeles, Orange, Riverside and Santa Barbara Counties. They are all different in some way, such as time or mileage scoring, day or night start, single or multiple transmitters, intermittent or continuous signal, wide or narrow boundaries. (Or perhaps there are no boundaries at all!)

Most hunts are on two meters with FM signals, but there are occasional FM hunts on the 50, 223, 440 and 1200 MHz bands. There have even been hunts for Amateur Television transmissions on 434 MHz.

Winning Isn't Easy

There are many ways to score mobile T-hunts. Due to traffic problems, "First-In-Wins" hunts are less common than "Low-Mileage-Wins" hunts in southern California. Odometer calibration differences are resolved by requesting hunters to obtain an odometer correction factor by driving a standardized course in advance of the hunt. This correction factor is called the Crenshaw Factor because the course runs along Crenshaw Boulevard for approximately 9 miles.

T-hunters have become very sophisticated at finding dastardly hiding places. With the right combination of location and antenna, they make it difficult for hunters to get reliable bearings. Like a ventriloquist, a good hider can make the signal appear to be coming from some other location. With careful planning (and a little luck), the signal's characteristics can cause the hunters to approach the transmitter from the most difficult direction, with impassable roads or other obstructions, even though the T may be easily accessible via other routes. Perhaps the hider will camouflage the setup so well that the hunters won't find the transmitter unless they literally trip over it.

The most challenging of all southern California 2-meter RDF events are the All Day Hunts. Despite their difficulty, many enthusiasts like them best of all. The name is a misnomer, because these marathons often last the entire weekend. The transmitter(s) can be anywhere in the continental USA. The hunt starts in Rancho Palos Verdes. Hiding spots have included locations near Yosemite National Park (California), Las Vegas (Nevada), Yuma (Arizona), and St. George (Utah). The record path distance for a two-meter hidden transmitter signal to be heard at the starting point was set on the St. George hunt, well over 300 miles!

Not every T-hunt is this arduous, of course. Several clubs have sponsored hunts just for Beginners, to get things started. Hiders make brief transmissions on a repeater, encouraging hunters to come out and find them. After a while, they give clues to narrow the search area. The idea is to give every participant a good first-time experience, including a story-telling session at a restaurant after the hunt.

While some hunters prefer to go it alone, most have more success by teaming up. The driver concentrates on handling the vehicle, while the Dfer turns the beam and reads the meters. The Dfer also handles maps and plotting, unless there is a third team member for that task.

Inexpensive Beams Work Fine

In the Los Angeles basin, most hunters use some sort of beam antenna. Three to five element quads are most popular. Usually they are built in "diamond" form with a PVC pipe or wood boom and elements made of thin wire strung on fiberglass spreaders. Variations include the "stiff wire" version, which is much

more tree-resistant. (It can get mashed, but is easily re-shaped and returned to service, as compared to "strung-wire" quads which more readily suffer wire breakage.)

Yagis are second to quads in popularity. Commercial models work fine, provided that the mast is attached at a good balance point. Occasionally you will see some other kind of gain antenna, such as a "ZL special." Small-diameter loops are seldom used for RDF above 54 MHz because of their bidirectional pattern and low sensitivity.

No matter which gain antenna is used, it is important that the mounting system allow for quickly changing polarization. Hiders can use any wave polarization on most hunts, so hunters must attempt to determine the correct polarization and hunt with it. Hunting a horizontal signal with a vertically polarized beam, for example, causes the direct signal to be attenuated. Reflections and scattered signals (multipath) from buildings and terrain features are enhanced relative to the direct signal when the wrong polarization is chosen.

Hunters need sensitive mobile RDF setups for events like the All-Day hunts. They achieve it with their long beams, plus GaAsFET preamps, noise-quieting meters, and SSB receivers (even though the hider is transmitting FM).

Homing Sets Sniff Well

Another type of RDF instrument, called the homing or dual-antenna RDF, has its place in the arsenal of the well-equipped hunter. These units have a pair of vertical antennas, a switching circuit, and a direction sensor with some sort of left-right indicator, such as a meter or a pair of LEDs. They are easy to use: When the indicator says LEFT, turn the unit left; when it indicates RIGHT, turn right. There is a sharply defined crossover at which the unit points toward the signal source direction.

There are two types of dual antenna sets. One type is called a switched-pattern set and requires a receiver with AM detection. It is used mostly on the aircraft band. More popular with hams is the phase-front detector or Time-Difference-of-Arrival (TDOA) set. It is designed to work with any narrowband FM receiver that covers the frequency of interest. While they could be used in vehicles, these dual-antenna sets are used mostly for on-foot RDF. They are excellent for closing in at the end of a hunt ("sniffing") and for wilderness search/rescue work. Be sure to build or buy one with left-right indicators.

Dopplers Have Their Place

An ideal RDF system would not require constant manual antenna turning. It would take directional readings hundreds of times per second, and continue to indicate the bearing after the signal leaves the air. Doppler type RDF sets, though far from ideal, fulfill all these wishes. The typical four-whip antenna system can be mounted without drilling holes in the vehicle.

Doppler readouts usually feature a ring of at least 16 LEDs, and may also include a three-digit display in degrees relative to the vehicle. In the clear, a well-installed Doppler has about +/-5 degree bearing accuracy. Accuracy is degraded by multipath, just like it is with the homing RDF, but "eyeball averaging" while the vehicle is moving helps counteract this problem.

While popular in places such as Cincinnati and the San Francisco Bay area, Doppler RDF installations have not caught on among most southern California competitive T-hunters due to their lower sensitivity compared to beam setups. Vertically polarized Doppler antennas are at an extreme disadvantage if the hider transmits horizontal polarization, especially if the signal is weak and non-direct.

On the other hand, Doppler's are a popular choice of jammer hunters, who are usually tracking strong vertically polarized signals. They like the rapid indication update rate and the ability to quickly get bearings on short-duration signals. Occasionally, you may see RDFers using both a beam and a Doppler set on the same vehicle.

How To Learn More

While commercial RDF equipment is available, the majority of southern California T-hunters prefer to build their own gear. All you need to get started is a directional antenna, an attenuator to knock down strong nearby signals, and a receiver with S-meter. You may have it all right now! If so, it will only take a bit of installation work on the family car to get you going.

For equipment information, installation ideas, and hunting techniques, read *TRANSMITTER HUNTING---Radio Direction Finding Simplified* by KØOV and WB6UZZ, published by Tab Books (#2701). This book is available at many electronics and ham radio stores. It is also available by mail from ARRL Bookstore and from the authors.

For a new ham radio adventure, try going out on a hidden transmitter hunt. Be prepared for some pleasant surprises. Remember, every time you set out on a hunt, you never know where you'll end up, and you never know what you will find.

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WAS Gets a New Look (Jun 14, 2007) -- Radio operators applying for the ARRL Worked All States (WAS) award will now receive a handsome, newly-designed certificate, sure to be a nice attraction to the ham who enjoys chasing awards and displaying prizes in the shack. The WAS Award is available to all amateurs worldwide who submit proof with written confirmation of having contacted each of the 50 states of the United States of America. The WAS Awards program includes 10 different awards and endorsements. Complete details, rules and applications for WAS can be found here on the ARRL

Web site. Those who already hold a WAS award can get the new style certificate issued to them at a cost of \$10. Contact ARRL Awards Manager, Eileen Sapko at esapko@arrl.org or 860-594-0288.

Central Kansas Amateur Radio Club
P. O. Box 2493
Salina, Ks. 67402-2493

Phone: 785-823-6560
Fax: 785-823-6560
Email: N0OBM@centralksarc.org



[Http://www.centralksarc.com](http://www.centralksarc.com)

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**SUBMISSION DEADLINE FOR THE JULY
QSP IS JULY 18, 2007**

CKARC July Birthdays

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|--------|----------|----------|------|
| KBØRNC | Charlie | Stephens | 7/10 |
| NØUU | Lawrence | Stoskopf | 7/17 |
| | Jo Ann | Stoskopf | 7/17 |
| | Kathleen | Tremblay | 7/17 |
| KCØNZM | Dale | Wilson | 7/20 |
| KAØSLC | Charles | Matthews | 7/28 |

Looks like the 17th was a very popular date!