



The

BACKSCATTER



Newsletter of The Lakeland (FL) Amateur Radio Club

Editor: [Joe Pirkle](#)

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Publisher: [Pat Pirkle](#)

The LARC MEMBERSHIP MEETING is held on the first Monday of each month at The Fellowship Hall of the Westminster Presbyterian Church on S. Florida Ave between Riggins Street and Mosswood, Lakeland FL. at 7:00 PM. Talk in on 146.685 MHz. PL Tone 127.3 Hz.

THE PREZ SEZ

Pat Pirkle – WD4BEK



Summer is here! Field Day will soon be done and all will settle down. What are your ideas for what we should do this summer? Picnic? Fox hunt? Swap meet? A class on antenna construction? Operating event such as "Bubbba" (August)? Show and Tell at a meeting? What are your ideas? Bring them to the meeting for discussion. The June meeting will be Show and Tell/Swap Meet. Come, discuss, enjoy. Bring your trinkets.

Note that the July meeting will occur on the Fourth. Be prepared to determine how we will handle this conflict.

I strongly encourage our members to contribute articles for publication in this newsletter. You may write something yourself or clip from another source, keeping in mind the author's copyrights. Most authors will grant re-print permission if you only ask.

See you at the meeting on June 6!

88 de Pat Pirkle - WD4BEK

Education Department

Joe Pirkle, AD4IH

Salvation Army Conference

The Salvation Army's national disaster training conference held at the Wyndham Palace Resort and Spa in Orlando, Florida on May 8-12, 2005, was quite an experience for Pat (WD4BEK) and Joe (AD4IH).

While manning the SATERN booth the pair recruited potential hams, passed out ARRL literature, demonstrated a Pat's portable VHF "Go Kit", and checked into the SATERN HF Net.

"Thanks!" to Dee Turner, N4GD, WCF Section Manager, for the use of the Icom 706, power supply and vertical antenna.

The West Central Florida Group, Inc. Board of Directors has unanimously passed a resolution authorizing the funding of the Education Initiative we have been speaking of. An order has been placed with the ARRL for the materials the Paul Knupke, Jr. Memorial Education Fund is underwriting for the Lakeland Amateur Radio Club. I will let you know when they arrive.

On another topic of interest...we are awaiting delivery of the equipment needed to put the Pebbledale repeaters on the air. We are currently striving to have the NI4CE repeaters on the air by the beginning of Hurricane season. I will keep you posted on our progress and the official "turn-on date" as we get closer to it. – *Paul Toth, NA4AR*



Happy Birthday

June

KC5TEN	Gillian Murray	June 2
KE4MG	Ken Kuzma	June 5
KF4TKY	Lenore Smith	June 12
KI4CDZ	Marvin Johnson	June 20

If your birthday was omitted, please contact the editor at ad4ih@arrl.net to correct your database profile.

. A race to the wire as old hand at Morse code beats txt msgrs

BY MARK HENDERSON

DOTTY and old-fashioned means of communication can still be the best: Morse code has seen off the challenge of the text message in a contest pitting the best in 19th-century technology against its 21st-century successor.

The race to transmit a simple message, staged by an Australian museum, was won — at a dash — by a 93-year-old telegraph operator who tapped it out using the simple system which was devised by Samuel Morse in 1832 and was the mainstay of maritime communication up until 1997.

Gordon Hill, who learnt to use the technique in 1927 when he joined the Australian Post Office, easily defeated his 13-year-old rival, Brittany Devlin, who was armed with a mobile phone and a rich vocabulary of text message shorthand. Mr. Hill, whose messages were transcribed by another telegraph veteran, Jack Gibson, 82, then repeated the feat against three other children and teenagers with mobile phones.

In the competition, at the Powerhouse Museum in Sydney, Mr. Hill and his rivals were asked to

transmit a line selected at random from an advertisement in a teenage magazine.

It read: “Hey, girlfriend, you can text all your best pals to tell them where you are going and what you are wearing.” While the telegraphist tapped out the line in full, to be deciphered by Mr Gibson, Miss Devlin employed text slang to save time. She keyed: “hey gf u can txt ur best pals 2 tel them wot u r doing, where ur going and wot u r wearing.”

Just 90 seconds after Mr. Hill began transmitting, Mr. Gibson announced that he had the message received and written down correctly. It took another 18 seconds for Miss Devlin’s message to reach the mobile phone belonging to her friend. Mr. Hill said that he was impressed by modern technology, even though his clunky telegraph machine emerged on top in three further contests. Text messaging, he said, had even been predicted by one of his colleagues in 1961. “An engineer told me the day would come when we would be able to send messages without wires,” he said. Miss Devlin said that she had two years of texting experience. “I send about three messages a day,” she said. “I used to send lots more but I ran out of credit.”

A .-	N -.	0 -----
B -..	O ---	1 .----
C -..	P .-..	2 ..---
D ..	Q -.-.	3 ...--
E .	R .-..	4-
F .-..	S ...	5
G --.	T -	6 -....
H	U ..-	7 --...
I ..	V ...-	8 ---..
J .---	W .--	9 ----.
K -.-	X -.-.	. .-. .-
L .-..	Y -.-.	, -.-.-
M --	Z -.-.	? ..--.



Want to brush up your Morse code skills? This site claims to be able to teach you in just a minute! www.learnmorsecode.com

Links I Like

Compiled by the Editor

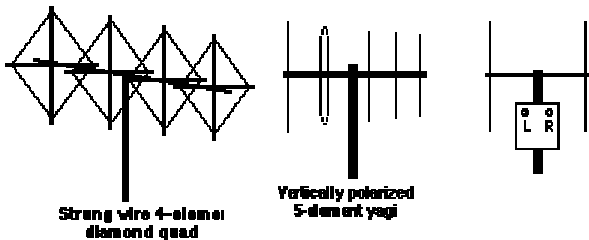
The following is a list of Web sites I have recently visited or re-visited. Visiting these sites is fun and might even be educational!

<http://www.arrlwf.org> - Your section news!

<http://www.srh.weather.gov/tbw/TampaBaySkywarn> - Lots of good SkyWarn news...

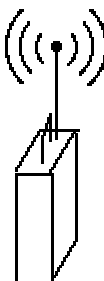
Let's Go T-Hunting

by Joe Moell K0OV



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 contesters love the challenge, because very 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 storytelling 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 bi-directional 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,

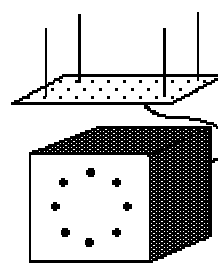
noise-quieting meters, and SSB receivers (even though the hider is transmitting FM).

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, dopplers 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 K0OV 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.

Readers are encouraged to visit this Homing In Web site: <http://www.homingin.com>

TWO WCF HAMS HONORED

Two members of the West Central Florida Group, Inc. Board of Directors have been cited by the National Oceanic and Atmospheric Administration (NOAA) as "2005 Environmental Heroes".

Paul Toth - NA4AR, President of the non-profit Amateur Radio organization, and Sean Fleeman - N4SCF received the prestigious international award for their volunteer efforts on behalf of the National Weather Service during the 2004 Hurricane Season. Toth, Fleeman and Robert Stanhope-W3RMS manned the WX4TBW Amateur Radio station at the NWS TampaBay Forecast Office during Hurricanes Charley, Frances and Jeanne, taking severe weather reports from SKYWARN spotters and issuing weather warnings and alerts via Amateur Radio.

The three West Central Floridians are among thirty-seven "Environmental Heroes" worldwide cited by NOAA for various efforts supporting the environment.

"This award belongs to the entire West Central Florida SKYWARN spotter corps," said Toth. "Without their continued commitment to the SKYWARN program, our efforts last year would not have had the substantial positive impact that was realized."



WX4TBW operations during the hurricanes were conducted on the NI4CE regional repeater system, which is owned and operated by the West Central Florida Group, Inc. The NI4CE system links SKYWARN-certified Amateur Radio operators in twelve West Florida counties to the National Weather Service station. Two new NI4CE repeater sites in Polk and Hillsborough Counties are currently under development and expected to join existing repeaters in Manatee, Pasco and Pinellas County in time for the 2005 Hurricane Season.

For more information about the NOAA Environmental Heroes award, go to <http://www.noaa.gov/earthday/>. For more information about the West Central Florida Group, Inc., go to <http://www.ni4ce.org>.

FLORIDA HAMFESTS

June/July

For more detailed information consult the ARRL Web Site at www.arrl.org or your current QST.

There are no Florida Hamfests on the calendar for June and July.

FIELD DAY 2005

Field Day is getting closer and plans are progressing. We are going to attempt to run a wireless LAN to keep track of field day contacts.

Hopefully all interested operators will be able to have a meeting the first part of June to test software and get our act together. So far the following members have stepped forward for the following tasks.

K4BYF, Jack Falkenhof, is looking for more Morse code operators. At present the Field Day CW team is as follows: Jack Falkenhof, K4BYF, Bert Onachila, KG2G, Walt Farley, K4QG,

Robert "Rip" Van Winkle, AA4HT, Chet Carruth, AB4XK, and Max Norman, W2IQE

Contact Jack if you have any desire to help out in Morse.

KG4YNI, Ernie Haynes, K1EC, Conrad Sheldon and KI4EFN Kevin Smith will be setting up and running a SSB station. They are looking for help, please contact anyone on that team to see what you can do.

AD4IH, Joe Pirkle, will be the GOTA station control operator. Contact Joe to reserve a time slot.

K4BHE, Phil Dentler, has contacted the city of Lakeland and has made plans to borrow one of their generators.

KI4CDY, Patrick O'Neil, is handling field day publicity and will be contacting the media. **KC5QWG Jim Murray** will have a 6-meter station set up and could use a few more operators.

Pat Pirkle, WD4BEK, and Gill Murray, KC5TEN, are planning food. So far....

Saturday evening: Sloppy Joes, beans, salad, and a few steamed hotdogs for those who want them. Please bring a dish with you to add to the variety. Sunday Morning: Early will be Pat Pirkles's famous breakfast. Later Gill will probably bring a couple of dozen doughnuts. Sunday Lunch: Leftovers (if all else fails, fried chicken from Publix). Please bring a dish with you to add to the variety.

We will still need lots of operators, people to help rig and disassemble antennas, run cable etc, etc.

Finally, if anyone wants a Field day pin, I must know and have in hand your \$5 bill by the club meeting in June. The order will go in the next day. - **Jim Murray KC5QWG**



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Newsletter of The Lakeland (FL) Amateur Radio Club



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