

CLASSIFIEDS

Tuner - \$40
Dentron Junior Monitor
300 Watt Antenna Tuner
Small, could be used mobile.
Butch, KB3MI 456-6310

HF Transceiver - \$1,000
Kenwood TS-440S Transceiver with
Astron Power Supply and MFJ Tuner.
Excellent Condition
Jerry Seidl, AA3II 454-5619

Scanner, \$145
Uniden BC100 XLT 100 Channel portable scanner
New with warranty
Mark Fagley, KA3WAL
774-4280 (days)
774-4918 (evenings)

XT-Clone, \$200
Packard-Bell 8088-XT Clone with 5 1/4" Floppy
30 Meg Hard Drive, Ad-Lib Compatible Sound Card
640k ram, CGA Monitor, switchable between mono (green)
and color.
Jerry Seidl AA3II 454-5691

2 Meter HT, \$75
Tempo S1 2 meter HT
Thumb wheel frequency selection
Touch tone pad, wall charger
Mark Fagley, KA3WAL
774-4280 (days)
774-4981 (evenings)

Now accepting your classified advertisement.
Free to RAE member, \$2.00 per month to non-members.
Drop a card with your classified to

Dave Ross N3PYH
639 East 29th Street
Erie, PA 16504-1208

Have your classified in by the 15th and let the **QVA-RAE**
do the work for you!

NETS

Conneaut Radio Club Net	147.390 FM	Sunday	7:30 PM
Radio Amateurs of Corry	147.090 FM	Thursday	8:00 PM
Tri-State RACES Emergency Net	146.610 FM	Sunday	6:30 PM
ARES/Skywarn Net	146.610 FM	Sunday	9:00 PM
International Simplex Net	146.550 FM	Saturday	8:00 PM
The Aluminum Net	146.550 FM	Saturday	Aft Sim Net
2 Meter AM	144.450 AM	Monday	7:00 PM
6 Meter AM	50.5300 AM	Wednesday	7:00 PM
6 Meter SSB Net	50.1500 SSB	Sunday	7:00 PM
Lake Erie Emergency Net	29.0000 SSB	Sunday	8:00 PM
Novice-Tech Net	28.4000 SSB	Wednesday	8:30 PM
Radio Amateurs of Corry (HF)	28.3300 SSB	Tuesday	8:00 PM
Flintstone RTTY Net	28.280 RTTY	Friday	8:30 PM
QCWA National Net	14.3470 SSB	Sunday	2000 UTC
Erie - Fort Pierce Connection	14.3400 SSB	Daily	8:00 PM
County Hunters Net	14.3360 SSB	Daily	Anytime
Mid CARS Net	7.2580 SSB	Daily	Anytime
East CARS Net	7.2550 SSB	Daily	Anytime
South CARS Net	7.2510 SSB	Daily	Anytime
Old Old Timers Club	7.2300 SSB	Thursday	2:00 PM
Rooster Net	3.9900 SSB	Daily	6:00 AM
QCWA Chapter 122 Net	3.9150 SSB	Sunday	9:30 AM
PA Emergency Management Net	3.9050 SSB	Sunday	9:00 AM
160 Meter Net	1.8930 SSB	Daily	7:00 PM



THE OFFICIAL JOURNAL OF THE RADIO ASSOCIATION OF ERIE

QVA-RAE

J U N E 1 9 9 5

IN THIS ISSUE...

The President's Corner
ARRL/VEC Report
Minutes from May Meeting
Feature Article
Public Service
Classifieds
and more....

Field Day Special Issue

NON-PROFIT ORGANIZATION

U.S. POSTAGE

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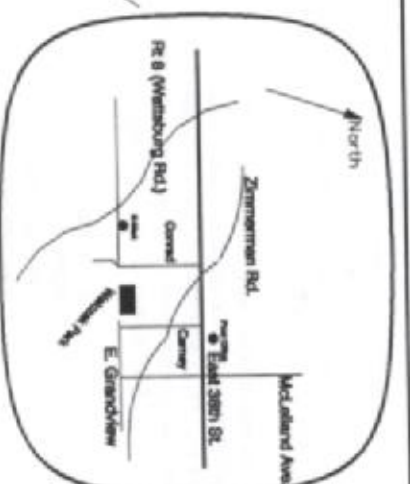
Erie, PA 16512

ADDRESS CORRECTION REQUESTED

RAE Field Day

June 24-25
Joseph Wilcock Park
(E. Grandview & Cherry)
6 blocks south
of Main Post Office, Erie

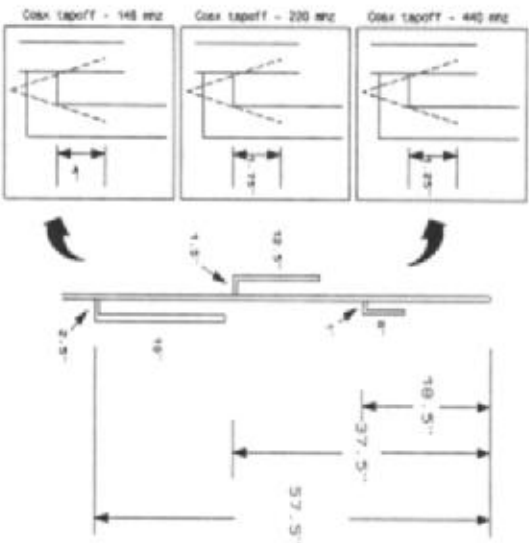
Field Day Chairman
Dick Ferguson
N0RLV



1995 RAE Field Day

This Design is by:
"Kuby", N6JSX Dale Kubichek Rowland Hts., CA

Note: All matching elements were placed 120 degrees from one another.



The "J" antenna design goes back many-a-year, way before I became a HAM. What interested me about the "J" antenna design is:

- Very low - nearly straight-out angle of radiation
- NO ground plane required
- Possibility of multiple bands in one antenna with separate feedlines for each band
- Simplicity of construction
- Inexpensive to make

The "J" antenna low angle of radiation gives the user the most distance. This will prove to be a great antenna for the Midwest or the flat Central Plains of the USA. Conversely, the "J" is not the best for near mountain top repeater usage.

A "J" requires NO ground plane or special counterpoise. This makes the "J" ideal for mobile use. Doing some fact finding I found claims that the "J" has approximately 3db of gain over a 1/4 wave ground plane antenna and can be made from almost any material: copper pipe, steel whips, & even TV twin lead.

What is a "J"?

Technically, the "J" antenna is an end-fed 1/2 wave antenna that uses a 1/4 wave matching stub. To some of the old old timers it might be called an "end-fed ZEP" bent 90 degrees. In actuality, the conductor is 3/4 wave length long

and the match is 1/4 wave length long. The matching stub creates the 1/2 wave loading point. This makes the antenna effectively an omni 1/2 wave length. The "J" is in best terms a balanced 1/4 wave matching stub feeding an unbalanced 1/2 wave load.

A "J" can be fed by ladderline or coax. I found using coax cable RG-58u to be the best.

I have designed a Tri-band and Dual-band "J" antenna with 1/2" rigid copper pipe, copper "T"s, 90 degree elbows, and copper pipe caps. Using rigid copper pipe makes it a snap to assemble. Simple plumbers soldering techniques are used for solid construction. These materials will withstand a lot of abuse and weather. Each band has its own feedline and all three radios can be run simultaneously.

I have made a mobile 2 meter "J" from a Radio Shack 104" CB whip. The whip has a mounting bolt on the bottom for easy attachment to mounting clamps. I fabricated a plastic insulator and metal support bracket for the 1/4 wave matching section. The coax was connected by using electrical split bolt connectors. Also the split bolt connectors give mobility in adjusting the VSWR.

Below is a table of measurements on the "J" construction - these measurements are not absolute but a very close proximity to the antenna you might build.

	146 Mhz	223 Mhz	446 Mhz
Mathematical (Electrical) Computations			
1/4 wave	19.3	12.6	6.3
1/2 wave	38.5	25.2	12.6
Antenna Dimensions			
Radiating Element	57.5	37.5	18.5
Matching Element	19	12.5	6
Coax Tap-offs			
2m, 220	5	2.25	
2m,220,440	4	1.75	1.25
Spacing between elements	1.5-3	1-2	.75-1.5
These dimensions can be as small as 1/4" but the coax tap-offs are affected			
All dimensions in tenths of an inch, combo 2m & 220 dimensions are also good for mono band construction.			

Designer Construction Notes

- * On the 3 J antenna combo I took the matching elements and placed them 120 degrees from one another. This appears to help in eliminating the cross band RF desensitizing. It is advisable to tune the 440 section first and then the 220 section with the 440 coax disconnected from the radio and so on.
- * Insulators between the match stubs may be needed to keep the elements equidistant.
- * Mounting brackets can be obtained cheaply from Radio Shack
- * Silicon the antenna feed points and open coax for preservation.
- * Try to keep the coax feeders at electrical 1/4 wave length multiples - this seems to make a large difference in the matching.

Minutes

General Meeting of May 3, 1995

Program: Lee Richey WA3FIY of Radio Adventures Corp. presented information on a simple home built keyer/controller at a low cost and low power consumption for the amateur transceivers.

Board Members and Officers Present: N3LPO N3HPR W3GZO N3BZL

N3LPO Sue called the meeting to order at 8:30 p.m.

WA3FIY Lee Richey was welcomed as a visitor and received a warm applause for his excellent program presentation prior to the membership meeting.

N3LPO Sue announced a change of officers with KA3WYO Dennis Sharer on the Board of Directors; W3JQV Evelyn Baker as Secretary; and N3BZL Cliff Craft as Chairman of the Board of Directors.

KB3A Chris made the motion to accept the minutes of the April meeting as printed in the Qua-Rae. N3HPR Tom seconded and motion passed.

KB3ALT Karen Treasurer reported cash and bank accounts totaling \$15,744.50.

N3BZL Cliff highlighted the RAE Board of Directors meeting on April 25, 1995.

N3FAW Bob reported a total of 243 members which include the 26 life members.

N3NTJ Matt Public Service Chairman passed around a sign-up sheet for anyone interested in helping with special events including the Bicentennial Parade Saturday afternoon 1 p.m. - 4 p.m. on May 27th. More details regarding the Marathon will be announced later.

WB3KGT Tony reported 3 members attended the Repeater Council meeting on Sunday. The committee is working toward voter link frequency co-ordination. No satellite equipment has been received pending a downtown location for the satellite receiver. N3SRD Steve will research available locations.

W3PIX Dick clarified queries on the PA QSO party regarding HF vs VHF operation.

N3PYH Dave received a nice applause from the membership for his superb Qua-Rae publication. Dave stated he will receive input into the newsletter with open arms.

KA3MJN Tom reported that the interference problem with AA3II Jerry and the Erie Fire Dept. has been resolved.

W3GZO Dick Vice President and newly appointed Education Chairman is looking for someone to take over the Public Relations position. Dick will have information on the fall classes at the next RAE meeting.

N3HPR Tom reported on the Hamfest Committee held just prior to the regular membership meeting. Plans are moving into high gear with \$1,800 worth of prizes. 1st prize: Yaesu FT-840...2nd prize: FT-530 (2 and 440 HT)...3 HT's FT-13 RS for a 3rd, 4th, and mobile check-in prize.

KB3A Chris Associate Hamfest Chairman detailed the PA QSO Party Dinner and Symposium tied to (and following) our Hamfest. Chris cited two reasons: 1 - it will bring people from central and eastern PA to our Hamfest. 2- it brings those involved with the QSO Party together to meet the big guns, go over the rules and regs, and be better prepared for the 1995 PA QSO Party in early October. Being 4th in the state, we are willing and can do better. KB3A made the motion to pay \$50 to lock in a reservation at the Best Western Motel on Sterrettania Rd., Fairview. The event is scheduled for Saturday, September 9th with cocktail hour at 5 p.m., open bar, and dinner at 5:30 p.m. 60 - 100 people can be accommodated with discounts for out of state friends. The motion was seconded by N3HPR. Motion passed. Menu information later. W3HDH Doug Maddox, President of the Nittany Amateur Radio Club (long-time sponsors of the PA QSO party) is planning to attend the dinner/symposium.

N3HPR Tom reiterated that you do not have to be a member of the RAE to be a member of the Amateur Radio Emergency Service. There are about 130 members in Erie County with 110 having photo IDs. If there is an emergency in Erie County, all County Emergency Management officials have a blank copy of ARES ID cards. Presenting your ID allows passage for amateur radio communications. Sandy, N3LKW and Tom attended a Disaster Preparedness Seminar with 250 attending statewide. Erie County officials had high marks for ham radio communications. Russ Chido Emergency Coordinator for Beaver County credited ham radio with top performance during the 427 plane crash last September. Russ stated that fire frequencies lacked enough channels and cellular phone very quickly locked up.

N3EOY Dave had new Skywarn maps available at the meeting.

W3CG Norma announced exams will be held Saturday at 8 a.m. at Villa Maria on 12th Street.

NEW BUSINESS:

N3LPO Sue asked for a Picnic Chairperson and committee to be held at the home of WB3ITH June and WB3IET Verne Beard. No date has been set. If you can help, please let Sue know ASAP.

WA3HJC Lee Robinson and Sue have talked about a Bicentennial Special Events Station. Time is crucial and ideas are urgently needed for this worthwhile project.

N3FAW Bob urged that everyone read the amendment as published in the May Qua-Rae and take the time to understand what you will be voting on at the second reading during the June meeting. He read the first reading as required by the by-laws, the purpose being to properly coordinate and correct dates.

N3BZL Cliff clarified the amendment procedure citing the second paragraph of the by-laws and offered copies of the by-laws for anyone interested.

WB3DOM Ron also read and submitted a written amendment proposal regarding election procedures.

N3LKY Dave reported that the Field Day committee will try to have tents and antenna set-ups at Walczak Park and cited a need for antennas, posts, coaxial cable, CW operators, and six or seven all-night operators. At the June meeting, there will be a list of equipment donations. Contact Dick Ferguson N3LKV or Dave for more information regarding Field Day.

ARES/Skywarn

May is usually the busiest month for Skywarn, but this May also presented a man-made incident with a major train derailment in Erie's east side. A potentially dangerous situation resulted from the derailment of a car containing chlorine gas. With a northeast breeze, the prospects were even more severe in the case of a leak.

An ARES net was called early in the morning of May 8 with net operations held on KA3MJN's 146.640 repeater. KA3WJN Eric and others provided control operations from the RC and communications support was provided to the Red Cross until the net stood down in the afternoon. Many area hams took part in the net, with a special thank you all who devoted their time in a potentially dangerous situation.



To all Skywarn observers taking part, thank you for being the eyes of the National Weather Service. The service you provide as trained observers and skilled communicators is invaluable.

One Man's Junk...

Hamfest time is rapidly approaching!

Look around the shack, basement, attic for your unused items gathering dust. Donate salable items for the RAE table.

Call Bob Sherwin KB3ALY 866-2424
or Bob Schwimmer N3FAW 866-3027

DONATIONS ARE TAX DEDUCTIBLE. THE RAE IS IRS APPROVED
ASK FOR A LETTER FOR NEXT YEAR'S TAX RETURN!

RADIO ASSOCIATION OF ERIE



WOW!

FIELD DAY NOTES

Submitted by Patty McMurray, N3PBD

This month I've been thinking about Field Day and I'd like to relate some of my experiences from my first Field Day.

For the benefit of the new hams; the object of Field Day, according to the ARRL, is: "To work as many stations as possible on any or all amateur bands (except 10, 18, and 24MHz bands) and in doing so, to learn to operate in abnormal situations under less-than-optimum conditions. A premium is placed on skills and equipment developed to meet the challenge of emergency preparedness and to acquaint the public with the capabilities of Amateur Radio." Field Day dates are June 24-25. Operating times are from 2:00pm Saturday till 5:00pm on Sunday evening, continuously.

The area I grew up in did not have an active radio club, therefore my dad didn't participate in any Field Day activities. My very first Field Day was last year. For a few years I had listened to field day activities on HF and to the local club's preparations on 2m with my scanner. So last year, with my HT and a home made 2m 2 element quad and my raincoat, I set out for the C.A.R.S. Field Day site. "Little did I know" (as the old saying goes) just how much fun I was in for and what a learning experience it would be.

I arrived on site in a rain storm. For you new hams, Field Day weekend is notorious for wet, cool, windy weather, making for a true test of Ham operator and equipment. There was a large canvas tent, with a big table set up in the back and three separate HF stations set up on it. I wasn't in on the antenna installations for the HF stations so I'm not sure what was being used. There was also a 2m/440 station using a J-pole. I have heard that some other clubs have much more elaborate stations set up for Field Day, but this one looked pretty impressive to me. I also have to mention that near the operating table and off to one side was a gas burner with a pot of the best smelling and tasting chili I had ever eaten, bubbling away. (A C.A.R.S. tradition, I'm told - Thanks Hervey!)

After meeting many of the assembled club members and looking over the gear on the operating table, we decided to try setting up the little quad for the 2m station. It worked well enough to make contact with the Erie club on simplex, 35 miles to the north! At this point, I was really getting the "Field Day fever". I had built an antenna, taken it to Field Day and it actually worked!

(This was originally taken off Patty's packet BBS. If you're in the neighborhood, stop in to XYLBBBS on 145.010 packet and say hello! -ed.)

I was then introduced to the fascinating world of working Field Day on the HF bands. What fun!!! I sat and made contact after contact on Jim's little Kenwood TS-120. Just when I thought I had made my farthest contact I'd hear someone else come in from another part of the country even farther away. Most of the contacts I made were on 40 meters. The time really flew by and by about 5:00 am I had worked over 20 states and made close to 100 contacts. Not a record by any means and probably not even a very good average, but for me it was like working the world and a great introduction to Field Day operations on a first hand basis.

It was about this time I started wishing we had brought some camping gear. I just knew that with a 2 or 3 hour nap, I would be ready to work the world all over again. But with the fatigue came the reality that we had to drive 35 miles to get home. I vowed that the next year, I would stay until the end.

And so I will!

This year, Field Day for C.A.R.S is tentatively scheduled to be combined with the Balloon Festival at Allegheny College. This means that things will be a little different. We would not only be just the local hams pooling our efforts in the contest, but we will have to be Amateur Radio Ambassadors to the public as it is inevitable that we will have many non-ham guests at our site. This shouldn't be much of a problem because if there is one thing that hams like to talk about, it's ham radio! Another thing that will make this year special is all the new hams in the area. There were just four new hams at last year's site, including myself.

I am sure there are at least twice that many in our area this year. Field day is a fantastic opportunity for the new ham to really get her or his feet wet and get a good taste of HF and HF contesting. Not to mention that with the new hams come new interests and ideas within the hobby, for us to share.

If you had not guessed by now, I am pretty excited about this year's Field Day. I hope to see every one there, either at the site or helping with the balloon fest. I am especially looking forward to meeting all of you new hams too! (And yes, I am bring my tent, my sleeping bag, my raincoat, and lots of coffee.)

33 for now,

Patty * N3PBD



10) Condition of Entry: Each entrant agrees to be bound by the provisions, as well as the intent, of this announcement, the regulations of his or her licensing authority and the decisions of the ARRL Awards Committee.

11) Disqualifications: See January 1994 QST, page 124.

Send for Your Field Day Package

Send to HQ a 9 X 12-inch self-addressed envelope with 4 units of First Class US postage or 4 IRCs for the official Field Day Entry Package. This package includes 1 Publicity Kit, 1 Field Day Summary Sheet, 1 large dupe sheet with instructions and a check list to ensure that your entry is complete. If you require more dupe sheets, indicate so in your request and affix 1 unit of additional First Class postage to your SASE for each two additional dupe sheets requested.

W1AW Field Day Bulletin Schedule

In addition to the regular schedule detailed on page 00 of April QST, extra CW bulletins will be run at 1400 UTC (10 AM EDT), and extra phone bulletins at 1500 UTC (11 AM EDT) both Saturday and Sunday mornings.

GEARVAK! Seven Stage Sit-in

Special report from Foster Fonda, Director of GEARVAK! Protests and Demonstrations.

Beginning at 2:30 P.M. Wednesday, February 15, the notorious "GEARVAK! Seven" staged another of their protests outside the Southern Ohio IGA store to protest the loss of the bottom 2 MHz of the 220 MHz band. After fifteen minutes, they moved the demonstration to the Dairy Delite, which was closed for the winter anyway. Later, the demonstrators drank some beer and went home.



Field Day

1. Field Day Call Used _____

2. Club or group name _____

3. Field Day location _____

4. Check if you began set-up prior to 1800 UTC Saturday. _____

5. Number of people participating in this operation. _____

6. Number of transmitters in simultaneous operation. _____

7. ARRL/Canadian Section _____

8. Entry Class (check one only)

— A. Club or non-club _____

— B. Non-club portable _____

— C. Mobile _____

— D. Home Station (commercial power) _____

— E. Home Station (emergency power) _____

9. Power Source _____

— Generator _____ Battery _____

— Commercial Mains _____ Other _____

10. Call sign of Novice/Technician station (class 2A and above) _____

11. _____

	CW	PHONE
QSOs	PRR OUT	QSOs
160	160	160
80	80	80
40	40	40
20	20	20
15	15	15
10	10	10
6	6	6
2	2	2
OTHERS	OTHERS	OTHERS

12. Total _____

CW QSOs _____ X 2 = _____

Phone QSOs _____ X 1 = _____

Total QSO points _____

13. Total QSO points _____ X Power Multiplier (5W or less, X5; 15W or less, X2; over 150W, X1) _____ equals Claimed Score (less bonus points) _____

14. Bonus Points _____

— 100% Emergency Power _____ Messages handled (no.) _____

— Media Publicity _____ Satellite _____

— Location in a public place _____ Natural Power _____

— Information booth _____ Packet Radio _____

— Message to SM _____ VHF/UHF _____

— W1AW Field Day message _____ Other _____

15. This certifies that the station whose call appears above was operated in accordance with the current field day rules and that, to the best of my knowledge, the points and scores set forth in the above summary are correct and true. This station was operated in accordance with FCC rules and regulations. I agree to be bound by any decision of the ARRL Awards Committee. _____

Date _____ Signed _____ signature/call of club president _____

16. Full mailing address (please print) _____

Name _____

SAMPLE FIELD DAY SCORE SHEET

Proposed and Pending

A proposal for an amendment to the RAE by-laws was made by N3FAW at the May general meeting, and was published in the May issue of the QUA-RAE. A second proposal for an amendment to the by-laws was also made by WB3DOM at the May general membership meeting. **Both proposals will be read again at the June general membership meeting, with the membership voting to approve or reject the proposals.** As the proposals are amendments to the same section of the bylaws, only a single proposal can pass. The primary difference between the two proposals is the timing for nominations from the floor. The proposal as presented by N3FAW calls for floor nominations one month prior to the general election. The proposal submitted by WB3DOM calls for floor nominations on the night of the general election meeting. Both proposals are reprinted here for your consideration.

Proposal sponsored by N3FAW

PROPOSED AMENDMENT (Consolidate with Sections H and I of bylaws)

At the July General Meeting each year, the Nominating (Election?) Committee will announce that nominations should be submitted in writing for officers and Board of Directors members for the following year. The committee will publish a list of nominees who are eligible (according to the bylaws) and willing to serve. If a person is found to be ineligible that person will be notified of the reason for non-eligibility. At the October general club meeting, additional nominations will be taken from the floor.



Proposal sponsored by WB3DOM

PROPOSED AMENDMENT

At the July General meeting each year the Nominating Committee will announce that nominations should be submitted in writing for Officers and Board of Directors members for the following year. The committee will publish a list of nominees who are eligible (as per the by-laws) and willing to serve. If a person is found to be ineligible that person will be notified of the reason by the election committee.

After the October meeting is adjourned no additional nominations will be acceptable. At the November general meeting elections will be conducted by the Nominating (Election?) Committee. If a tie occurs, it will be settled immediately by a coin toss. The newly elected officers and board members shall assume office on the first day of January to coincide with the start of a new club fiscal year.

At the November General Meeting elections will be conducted by the Nominating Committee, **at this time Nominations will be taken from the floor. If a tie occurs it will be immediately settled by a coin toss.** The newly elected officers and board members shall assume office on the first day of January to coincide with the start of the new club fiscal year.

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CONGRATULATIONS TO MATT STAGER, N3NTJ, ON HIS RECENT GRADUATION FROM GANNON UNIVERSITY WITH A BACHELORS DEGREE IN ELECTRICAL ENGINEERING.

MATT IS ALSO CHAIRPERSON OF THE RAE's PUBLIC SERVICE COMMITTEE.

GOOD JOB, MATT!

Another great effort from club volunteers at the Team Fitness Walk/10k Run on Saturday, May 6, held at Presque Isle. Usually the club volunteers concentrate on keeping the participants from being run over by non-participants, but it sounds like the big challenge with this event was just keeping the walkers from being run over by the runners.

A big thank you to:

KB3AOL
KB3BAM
N3KEH
N3LKW
N3NTJ
N3PTA

Mike
Jeremy
Don
Sandy
Matt (Chairperson and Net Control)
Ott

To volunteer contact Matt, N3NTJ, at 864-3809, or after the Sunday 2 Meter Nets, or sign up at a RAE Club Meeting.



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Art Paavola, D.V.M.

Tom McClain, D.V.M.

Jeff Paavola, D.V.M.

voice communication contacts are e q u i v a l e n t , a n d Packet/RTTY/ASCII/AMTOR is counted as CW. A station may be worked once on each band. Crossband contacts are not allowed. The use of more than one transmitter at the same time on a single band is prohibited, except that a Novice/Technician position may operate on any Novice band segment at any time. No repeater contacts.

8) **Scoring:** Scores are based on the number of valid contact points times the multiplier corresponding to the highest power used at any time during the Field Day period, plus bonus points. Phone contacts count one point each, and CW contacts count two points each. Power multipliers: If all contacts are made using an output power of 5 W or less and if a power source other than commercial mains or motor-driven generator is used (eg, batteries, solar cells, water-driven generators), multiply by 5. If any or all contacts are made using an output power of 150 W or less, multiply by 2. Multiply by 1 if any or all contacts are made using an output power more than 150 watts. Batteries may be charged while in use for Class C entries only. For other classes, batteries charged during the Field Day period must be charged from a power source independent of the commercial mains.

A) **Bonus points:** The following bonus points will be added to the score (after the multiplier is applied) to determine the final score. Only Class A and B stations are eligible for bonuses. Just check the box on the Field Day summary sheet to indicate that you qualify for the bonus, and attach the necessary proof.

1) **100% emergency power:** 100 points per transmitter for 100% emergency power. All equipment and facilities at the Field Day site must be operated from a source independent of the commercial mains. Example: A club operating 3A, using 100% emergency power may claim 300 bonus points.

2) **Public relations:**

A) 100 points for media publicity. Publicity must be obtained or a bona fide attempt to obtain publicity must be made. Evidence must be submitted in

the form of a newspaper clipping, a memo from a BC/TV station stating that publicity was given or a copy of the material that was sent to the news media for publicity purposes.

B) 100 points for physically locating in a public place (eg shopping center, parks, etc) with significant access by the public. The intent here is for Amateur Radio to be on display to the public.

C) An additional 100 points can be earned by such display stations in public places actively conducting an information booth for the visiting public, and dispensing information handouts, maintaining visitor's log, etc, as an information/recruiting tool for Amateur Radio. Evidence submitted for both (B) and (C) may consist of copies of handouts, visitor's log, brief report on activities conducted, photos, etc.

3) **Message origination:** 100 points for origination of a message by the club president or other Field Day leader, addressed to the SM or SEC, stating the club name (or nonclub group), number of operators, field location and number of ARES members participating. The message must be transmitted during the Field Day period, and a fully serviced copy of it must be in standard ARRL message form or no credit will be given.

4) **Message relay:** 10 points for each message received and relayed during the Field Day period, up to a maximum of 100 points. Copies of each message, properly serviced, must be included with the Field Day report.

5) **Satellite QSO:** 100 points can be earned by completing at least one QSO via satellite during the Field Day period. The repeater provision of Rule 7C is waived for satellite QSOs. A satellite station (one) does not count as an additional transmitter. On the summary sheet, show satellite QSOs as a separate "band".

6) **Natural Power:** Field Day groups making a minimum of five QSOs without using power from commercial mains or petroleum derivatives can earn 100 points. Intuitively, this means an "alternate" energy source of power such as solar, wind, methane or grain alcohol.

This includes batteries charged by natural means (not dry cells). The natural-power station counts as an additional transmitter. If you do not wish to change your entry class, take one of your other transmitters off the air while making the natural-power QSOs. A separate list of natural-power QSOs should be enclosed with your entry.

7) **W1AW message:** A bonus of 100 points will be earned by copying a special ARRL Field Day bulletin sent over W1AW on its regularly announced frequencies just before and during Field Day. This message can be received directly from W1AW or by any relay method. An accurate copy of the received message should be included in your Field Day report.

8) **Packet Radio:** 100 points can be earned by completing at least one QSO on packet radio during the Field Day period. The repeater provision of Rule 7C is waived for packet radio QSOs. A packet station (one) does not count as an additional transmitter. On the summary sheet, show packet radio QSOs as a separate "band".

9) **VHF/UHF:** 100 points can be earned by completing at least ten QSOs (excluding packet contacts) on any band or combination of bands above 50 MHz (VHF/UHF bands) during the Field Day period. A VHF/UHF station (one) does not count as an additional transmitter. This station is not limited to making just ten QSOs. It may be operated for the entire Field Day period, and all contacts (excluding packet contacts) count for QSO points credit, including the first ten.

9) **Reporting:** Entries must be postmarked by July 27, 1994. No late entries can be accepted. A complete entry consists of an official ARRL summary sheet (or reasonable facsimile) and a list of stations worked on each band/mode during Field Day, plus bonus proof. The list of stations worked on each band or mode may take the form of official ARRL dupe sheets or an alphanumeric listing of call signs worked per band and mode. This list may be computer-generated. Incomplete or illegible entries will be classified as checklogs. A copy of Field Day logs should be kept by your Field Day group, but should not be sent in unless specifically requested later by ARRL.

APRS - Modern Transmitter Hunting

Part 2, By Dave Ross, N3PYH

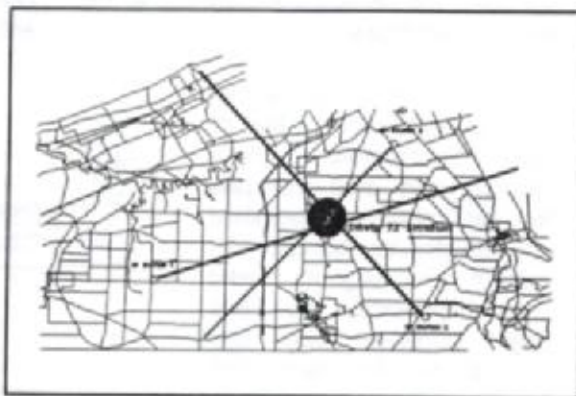
Although APRS can be used for a myriad of different practical amateur applications, one of the most intriguing to me is its use in DF-ing (direction finding). APRS lends itself to a variety of different transmitter locating methods, and even some that don't require any more than a receiver and omni-directional antenna.

The method that best combines ease of implementation with accuracy is highlighted in the sketch at the right (this is of south-western Erie County, with Girard at the upper-left corner and Waterford at the middle-right). This uses rotatable beams to identify the signal peak, along with relative signal quality. This can give good results with only two receiving stations, and improves with the addition of more "ears". Beam headings and signal strength are entered into your APRS packet, and are re-transmitted to all APRS stations in your local network. This is all "live" or "real-time", so even moving stations can be tracked.

A second method involves identifying signal strength of the transmitter at various APRS stations. This method does not provide clear intersections pinpointing the transmitter's location, but it does provide a general location when other DF methods are not available. By entering specifics about the "quality" of your location (height above average terrain and antenna gain) as well as the strength of the transmitted signal (even if the signal can't be heard at all) circles of varying size and color are drawn around each reporting station, providing an estimate of location based on who can hear the transmitter, and how well the signal is received. (The better your location and the greater the gain of your antenna, the larger the circle and the brighter the color around your station. If you are on a duck on an HT and you hear the transmitter full scale, a relatively small circle is drawn around your location. If you are on a hilltop and you have a high-gain omni-directional antenna, but the signal is weak, then a large circle is drawn around your location).

A method used by downed-aircraft search and rescue can be used in APRS. By linking a GPS (Global Positioning Satellite) receiver to a mobile APRS station, the spot where the signal is just breaking the squelch is entered with a

keystroke into APRS. With the GPS automatically updating your location, a rough perimeter is drawn around the transmitter, narrowing down the location as time goes on (admittedly, for most ground-based efforts involving transmitter hunting, this method is probably the most difficult to use successfully).



The final DF-ing method currently available, and the one I'm anxious to try, is Doppler DF-ing. APRS provides for automatic linking to both a GPS and a doppler directional finding unit. (Doppler is a DF-method that uses the principal of frequency-shift to pinpoint a transmitter location. If you have heard a train passing by at high speed blowing its horn, then you are familiar with the Doppler-effect. Doppler DF-ing simulates an antenna rotating at high speed through electronic switching to generate a frequency-shifted signal). By combining just a couple mobile doppler DF-units in an APRS network, APRS can automatically update the current mobile location and the bearing that the doppler unit is providing, plotting the bearings on the network maps, and guiding all the stations to the location of the transmitter - even mobile!

As you can see, APRS offers many options for quick transmitter-locating, even of moving targets. These methods can be high-tech (doppler) or tried-and-true beam heading methods, but APRS makes the process both quicker and more accurate.

Coming up...more about APRS...

ATTENTION ERIE COUNTY ARES AND SKYWARN MEMBERS

EFFECTIVE JUNE 4, THE SUNDAY NIGHT
ARES/SKYWARN TRAINING AND INFORMATION
NIGHT WILL MOVE TO 9:00.

THE NET IS HELD WEEKLY ON 146.610.

FIELD DAY RULES

1) Eligibility: Field Day is opened competitively to all amateurs in the ARRL/Canadian Field Organization (plus Yukon and NWT). Foreign stations may be contacted for credit, but are not eligible to compete.

2) Object: To work as many stations as possible on any or all amateur bands (except 10, 18 and 24-MHz bands) and, in doing so, to learn to operate in abnormal situations under less-than-optimum conditions. A premium is placed on skills and equipment developed to meet the challenge of emergency preparedness and to acquaint the public with the capabilities of Amateur Radio.

3) Dates: June 24-25, 1995.

4) Field Day Period: From 1800 UTC Saturday until 2100 UTC Sunday. Class A and Class B (see below) stations who do not begin setting up until 1800 UTC Saturday may operate the entire Field Day period of 27 hours. Others must begin their setup no earlier than 1800 UTC Friday, and may operate no more than 24 consecutive hours; ie, once on-the-air Field Day operation has started, it must end 24 hours from that point.

5) Entry Categories: Field Day entries are classified according to the maximum number of simultaneous transmitted signals, followed by the designation of the nature of the individual or group participation. Below 30 MHz, once a transmitter is used for a contact on a band, it must remain on that band for at least 15 minutes. During this 15-minute period, the transmitter is considered to be transmitting a signal, whether it is or not, for purpose of determining transmitter class. Switching devices prohibited.

(Class A) Club/nonclub portable: Club groups (or nonclub groups with three or more licensed amateurs) set up specifically for Field Day. Such stations must be located in places that are not regular station locations, and must use no facilities installed for permanent station use, nor any structures installed permanently for Field Day use. Stations must be operated under one call sign (except when the Novice/Technician position is used) and under the control of a single licensee or trustee for each

entry. All equipment (including antennas) must lie within a circle whose diameter does not exceed 300 meters (1000 feet). All contacts must be made with transmitter(s) and receiver(s) operating independent of commercial mains. Entrants who, for one reason or another, operate a transmitter or receiver from commercial mains for one or more contacts will be listed separately at the end of their class.

Any Class A group whose entry classification is two or more transmitters (non-Novice) may also use one Novice/Technician operating position (Novice bands only) without changing its basic entry classification. For Field Day purposes only, any Canadian Amateur HF licensee, who has been licensed for less than six months prior to Field Day, shall be considered a "Novice" to provide a means for Canadian Field Day Class A stations with two or more transmitters to participate with a "Novice/Technician" operating position. This "Canadian Novice station" is restricted to the US Novice sub-bands and power/mode restrictions. The Novice/Technician station (including antennas) should be set up and operated by Novice and Technician licensees and should use the call sign of one of the Novice/Technician operators.

(Class A--Battery) Club/nonclub portable: Club groups (or non club groups with three or more licensed amateurs) set up specifically for Field Day and all contacts are made using an output power of 5 W or less and the power source is other than commercial mains or motor-driven generator (eg, batteries, solar cells, water-driven generators). Other provisions are the same as for class A.

(Class B) One- or two-person portable: Nonclub stations set up and operated by not more than two licensed amateurs will be placed in Class B. Other provisions are the same as for Class A. One- and two-person Class B entries will be listed separately in the results.

(Class B--Battery) One- or two-person

portable: Nonclub stations set up and operated by not more than two licensed amateurs and all contacts are made using an output power of 5 W or less and the power source is other than commercial mains or motor-driven generator (eg, batteries, solar cells, water-driven generators). Other provisions are the same as for Class A. One- and two-person Class B--Battery entries will be listed separately in the results.

(Class C) Mobile: Stations in vehicles capable of operating while in motion and normally operated in this manner, including antenna. This includes maritime and aeronautical mobiles.

(Class D) Home stations: Stations operating from permanent or licensed station locations using commercial power. Class D stations may count contacts only with Class A, B, C and E Field Day groups for points.

(Class E) Home stations--emergency power: Same as Class D, but using emergency power for transmitters and receivers. Work stations in Class A, B, C, D and E.

6) Exchange: Stations in any ARRL/Canadian Section will exchange their Field Day operating class and ARRL/Canadian Section (see page 8 in any QST). For example, if your club group was planning to operate in the three-transmitter, Class A category from Missouri, you would send "3 A Missouri". Foreign stations send RS(T) and QTH.

7) Miscellaneous Rules:

A) Operators participating in Field Day may not, from any other station, contact for point credit the Field Day portable station of a group with which they participated.

B) A station used to contact one or more Field Day stations may not subsequently be used under any other call during the Field Day period. Family stations are exempted.

C) Each phone and each CW segment is considered as a separate band. All

