NVARC
Nashoba Valley
Amateur Radio Club

SIGNAL

SPECIAL SERVICE CLUB
ARRL

August 1999 Volume 8 Number 8

This Months Meeting

COOKOUT COOKOUT COOKOUT

This month's meeting is the cookout at the KD1LE QTH. We'll provide the grill, the condiments, the drinks and the pool. Bring what you want to cook and swim suits and towels if you like.

Last Month's Meeting

Last month we had no meeting as it was the beginning of our summer break.

NVARC Field Day?

Field Day went bust this year. Some of the regulars were out of town and some people expressed no interest the combination of which caused it not to happen. Too bad, the club had seven consecutive Field Days and some of the founders of the club had gotten together each year before that. Best I can tell the club or its founders had run XXXX consecutive Field Days. There had been discussions about running 1A since last year there were not enough operators to run a full 2A. But the fact is that it is not that much less work to run only 1A. Setting up tents, a canopy, and providing a power system with two generators are some basic overhead no matter what class you run. Also, if you are going to cover the same HF bands you still have to put up the same HF antennas and masts or towers to support them even though you are going to use them less. The way the classes are set up 1A only entitles you to one HF Station. The 2A class on the other hand entitles you to two HF stations, a VHF/UHF station, a Novice/Tech station, and a Satellite station. That gives you a lot more choices with the same basic overhead. The big problem is that it takes a dozen operators putting in eight or ten hours each and we don't seem to have them. I am going to participate in a Field Day next year and I'm not going to waiting till the last minute to make plans. The only question is where? Maybe we need one of these for next year?

NVARC FoxBox

The NVARC FoxBox will be out constantly for the Summer and on through the Fall. We have been putting it out on Thursday or Friday and usually pick it up to change batteries Tuesday or Wednesday. Generally only the possible towns are given as a hint. Some weekends we have set up for those who are more inclined to a walking hunt. On

these occasions we will announce the town or even the particular piece of property where it is located. There are many nice woodlands for walking in our area. So why not take a handheld and give it a try sometime? Recently it has been hidden at several sites in Lunenburg. The following adventurers have found it during July and August; W1HFN Barry, N1MGO Gordon, WN1E Charlie, KD1LE Stan, W1XP Bob, KA1JVU Karen, KA1JVU Wolf, KD1SM Ralph, and from the MMRA; WA1NLR Bill, N1NOM Eddie, N1ZCB Paul, N1VJE Shelley, N1QPR Bill. Many of the hunters have found the fox several times during this period.

The DTMF is functional so when you think you are close enough to want more frequent transmissions you transmit an asterisk immediately at the end of a fox transmission. You have to be quick since it only listens for 5 seconds at the end of each transmission (after the carrier drops). If you activate the quick cycle the fox will then transmit the next ten transmission at one half the pause time. So if it was on a five minute interval it will change to a two minute and thirty second intervals.

Happy Hunting.

NVARC FoxFinder

Representing months of hard work contributed by the dedicated engineering, test, manufacturing, and marketing team we are finally ready to make the FoxFinder™ available to the general fox hunting pubic. The original concept was just to 'kit' an existing design to make building it easier for the typical hunter. We built and tested several different circuits that had been published and evaluated the equipment in the field. Some of the existing designs performed poorly in terms of sensitivity and some failed based on ease of use in the field tests. One of the designs would not have been practical because of the cost of the components used. At first we considered 'fixing' one of the existing designs but after some study we decided it would be better to start from scratch. At this point we developed a list of requirements such as sensitivity, ease of use, user interface, and cost based on our field trials. In the design phase we acquired parts and designed sections of the circuit sometimes trying several options. This resulted in two alpha units which underwent much field testing; not that we needed an excuse to hunt. In fact both alpha units are still being used for hunting. The first model was built on a breadboard and the second used a prototype PC board with improved circuit designs. This development process resulted in a 'final' design that met all the initial requirements. Assembly instructions, troubleshooting procedures, and a theory of operation were written. We then had printed circuits boards commercially produced and kitted two beta units which we sold with a 'we'll make them work' guarantee. By this time the instructions were pretty solid but a few changes and additions based on user feedback from the beta units were made. A few more circuit board changes to improve the circuit layout and we are up to the current design. At this time we have a limited number of units ready to ship to interested hunters.

The unit is contained in a two and one-half by four and one-half by one inch box that will fit in a shirt pocket. It has only a power switch and a range switch for controls to make it easy to use. There are connectors for headphones and RF input from an antenna. The typical use is with a three or four element two meter Yagi. It has an LED to indicate that power is on. The signal strength indicator is an audio tone that varies with signal strength. This is monitored using headphones plugged into the headphone jack. From use testing we found that making adjustments and watching a meter or other indicator did not work well while you are navigating through the woods typical of where the fox boxes get placed. The unit runs approximately fifty hours on a nine-volt battery. The kit contains all of the parts; silk screened circuit board, wire, detailed instructions with layout pictures, annotated diagrams, and drilling and cutting templates to assemble the unit (battery not included). The cost of the kit is $59.95 plus $5.00 shipping and handling. The kit can be ordered by sending your order to NVARC, P.O. Box 900, Pepperell, MA., 01463. Allow 4 to 6 weeks for delivery.

Public Service (PSLIST)

Please contact the person listed to identify how you may serve and what equipment you may need to bring.

Sep
06 Gloucestr MA YMCA Run Eric KA1NCF 617-559-0466 ka1ncf@nsradio.org

17-Oct 3 Springfield Big E Traffic Booth
Tammy KB1CYN 860-953-4915
18 Marblehed MA Cycle 4 Life Keith N1HLK
781-631-2877 n1hlk@nsradio.org

Oct
1-3 NH Boy Scout Jamboree
David KE1IW 603-543-9590
3 Falmouth ME Maine Marathon
Bryce K1GAX 207-799-1116
k1gax@juno.com
3 S. Portland ME ADA Walktoberfest
Bryce K1GAX 207-799-1116
3 Falmouth ME Marathon
Bryce K1GAX 207-799-1116
9 Hartford CT Greater Hartford Marathon
Knut N1QKP 860-741-7248

People You Might Know

The last two shorts in the ARRL news are people you might know. Dave VE6DXX is a friend of Bob W1XP. He came to our meeting at Haystack and has hunted the NVARC Fox.

Jim WW1Y is from up over the border. The Nashua repeater sports his callsign. He is active in NARC, runs VE sessions and is a NARC field day organizer.

NVARC Public Service

July was a busy month for public service activities for NVARC. We coordinated communications for three local events and members helped by supporting several others.

The month started off with Fourth of July activities and we provided the communications for the Pepperell Fun Run on July 2nd and the Pepperell Fourth of July Parade on July 3rd. The Fun Run was supported by Dave N1MNX, Pat N1VAW, Stan KD1LE, Den KD2S, Herm KE1EC, Lynda N1PBL, Scott N1OMM, and Scott W1XJ. The parade, for which we provide staging support, was supported by Ralph KD1SM, Den KD2S bicycle mobile, and Stan KD1LE.

The same weekend some members supported the Longsjo Classic bike race. The race has a different location and format each of the four days it runs. Ralph KD1SM, Stan KD1LE and others from MARA supported the Sunday and Monday programs. Sunday was a road course in Princeton and Westminster on an eleven mile loop with each of the races ending by climbing to the top of Mt. Wachusett. Monday's circuit was an eight-tenths of a mile loop run in downtown Fitchburg.

July 18th we completed our monthly road cleanup. Thanks to the following members for their help: Scott W1XJ, Den KD2S, Ben KB1FJ, Ralph KD1SM, Joseph N1QDZ, Herm KE1EC, and Stan KD1LE.

On July 25th we provided communications for the Harvard Classic Road Race (bicycle) in Harvard, Ma. There were nine races (classes) starting at three different times. We got to show off a little here because with severe weather coming we were monitoring the SKYWARN nets. First we gave them advanced notice of the incoming weather and NWS warnings. There was obvious thunder and lightning approaching. Then we had some rain reports from the perimeter of the course and from towns to the north and west. Finally we got a report of hail from Ralph KD1SM at the King of the Mountain location. Within thirty seconds of the report, which the announcer had repeated to the crowd, we got hail at the start/finish line. That caused early termination of the ongoing heats via radio to the pace car. After a short break the weather cleared and the final heats were lined up. The race official gave each group its starting instructions which included watching for a last lap signal from the hams on the course should the weather again turn bad. You will notice some strange callsigns in the list of people who participated in the event. Several people from outside of our area noticed the event on the Public Service List (PSList) which we maintain and decided to help out. Thanks to the following: John N1SBS (and friend), Ken K1JKR, Ralph KD1SM, Ben KB1FJ, Keith KF4QXO, James KE1LQ, Pat N1VAW, Greg N1VAV, Dan N1LLG, Herm KE1EC (Who got to ride in the pace car), Den KD2S, Bill NZ1D, and Stan KD1LE (coordinator).

Our only other scheduled event left for the year is the soccer tournament in October.

On the Operation of Broadband Coaxial Directional Couplers

A method of obtaining a directional pickup device is to couple a circuit to the main line both magnetically and electrically. Such a device is shown schematically and pictorially in Fig 1.

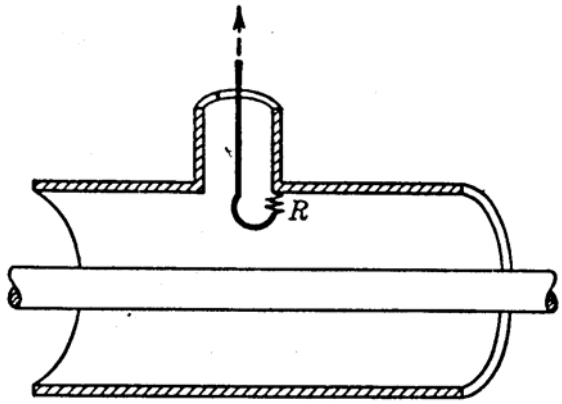


Figure 1

If the value of R in the schematic is made infinite, the coupling is electric (voltage) and the magnetic coupling (current) is zero. If on the other hand the value of R is made zero, no electric field coupling (voltage) exists and the coupling is magnetic (current). Within these boundary conditions there exists a value of R that allows the coupled arm to respond to both the electric and the magnetic fields about the coaxial main line. The mechanical design of the coupling section allows pickup of the current field to be varied by rotation of the probe. A proper choice of the value of R sets the initial ratio of current to voltage pickup.

The operation of these types of couplers relies on the fact that a backward traveling wave has the phase of its current reversed. This phase reversal of the backward traveling current wave results in its cancellation of the backward traveling voltage wave. The mathematical sequence is as follows.

1. $\mathbf{E_c=C_1E+C_2I}$

E_c is the out put voltage of the coupled arm.

C_1 is a constant based on the value of R and proximity of the coupling link to the main line.

C_2 is a constant based on the value of R and the magnetic allignment of the coupling link to the main line.

E and I are the voltage and current values sensed by the coupling link.

but;

2. $\mathbf{E=E^+ + E^-}$

The voltage pickup by the coupled arm is the sum of the forward voltage wave E^+ and the reverse voltage wave $E^-$and;

3. $\mathbf{I=E^+/Z_0 - E^-/Z_0}$

I is equal to the voltage value of the forward current (E^+/Z_0) minus the voltage value of the reverse current (E^-/Z_0). The negative sign between the terms results from the phase reversal in the reflected current wave.

Substituting the new values for E and I into equation 1.

4. $\mathbf{E_c=C_1(E^+ + E^-)+C_2(E^+/Z_0 - E^-/Z_0)}$

By proper selection of R and allignment of the coupling link, C_1 can be made equal to C_2/Z_0. Substituting this value of C_1 into equation 4.

5. $\mathbf{E_c=C_2(E^+ + E^-)/Z_0 + C_2(E^+/Z_0 - E^-/Z_0)}$

Multiplying and collecting terms

6.

$$\mathbf{E_C=C_2E^+/Z_0+C_2E^-/Z_0+C_2E^+/Z_0-C_2E^-/Z_0}$$

$$\mathbf{E_C=C_2(E^+ + E^+)/Z_0 + C_2(E^- - E^-)/Z_0}$$

The second term of the equation cancels out leaving only the term with the E^+ terms. As C_1 is equal to C_2/Z_0 the expression can be rewritten

7. $\mathbf{E_C=2C_1E^+}$ **From Reference 1.**

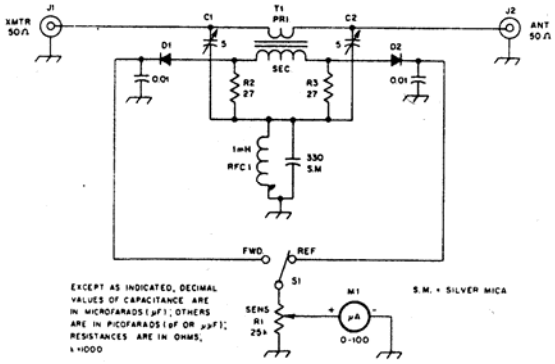
Equation 7. has no reverse or reflected terms and therefor responds only to the forward voltage wave. The final value of C_1 determines the ratio of the output voltage from the coupler to the actual forward voltage on the coaxial main line.

Calibration of the coupler is generally done by installing the unit in the transmission line in such a way as to measure the reverse voltage, the main line being terminated in its characteristic

impedance. The orientation of the coupling link is then varied until a sharp null is obtained. If a complete null cannot be obtained the value of R must be adjusted. The value of R in this type of coupler is about 100 ohms.

In practice, this type of coupler must be installed in the main line to measure the forward signal, and then reversed to measure the reflected signal. The ratio of the two signals will be the VSRW. Two coupled section installed to sense forward and reflected waves give the VSWR directly. The characteristics of these two couplers must be made exact or an erroneous VSWR reading will result.

The various couplers shown in the handbook using a toroid current pickup conform to the same mathematical analysis.



From Reference 2

In this type of directional coupler the transformer (T_1) consists of the main line running through the center of the toroid and creating a single turn primary. The secondary of the transformer is some number of turns wound on the toroid core. The transformer, through magnetic coupling, senses both the forward and reflected current. Forward and reverse voltage is resolved by the capacitive voltage divider. The two resistors provide a complete circuit for the detected output to the meter. As in the previous example, the coupler is adjusted for zero reflected signal this time by varying the electric (voltage) pickup instead of the magnetic (current) in the previous type of coupler. The electric field is adjusted using the variable capacitor in the voltage divider.

Because of the nature of standing waves on a mismatched transmission line, it seems intuitive that placement of the coupler in the main line will determine the level of output. Review of the mathematics shows that the output of the coupler is dependent only upon the value of the forward voltage wave. The forward voltage wave is constant except for a small variation due to heat loss, easily ignored in a practical circuit. In conclusion, the sense voltage in the coupled output is independent of its placement in the main line.

SUMMARY

By properly terminating a small pickup loop and aligning it correctly with the center conductor of the main transmission line it is possible to build a device that will sense energy only in one direction. To measure VSWR the device must be reversed alternately or two loops must be employed oriented in opposite directions. It makes no difference where the coupler is placed in the main line, as the output is independent of location. Its component's ability to accurately resolve the magnetic and electric fields limit the useful frequency range of these couplers**.** Devices of this type, known as station guardians, are used in high power broadcast stations where any problem with the antenna that would jeopardize the final amplifier initiates an immediate shutdown.

References.

1. "Transmission lines and networks" by Johnson, McGraw-Hill Page 190
2. "ARRL Handbook" issue 1987 Page 25-36

From the ARRL Newsletter

ARRL BOARD ADOPTS NEW LEAGUE IDENTITY

The ARRL Board of Directors unanimously has approved the use of a new identity for the League. Meeting July 16-17 in Rocky Hill, Connecticut, the Board accepted the recommendation of the ARRL Executive Committee to emphasize the initials "ARRL" in conjunction with the tag line "The national association for Amateur Radio." The new identity--which is not a legal name change--will appear on League correspondence and publications. The traditional--and legal--name will be retained but de-emphasized; a new ARRL letterhead design includes "American Radio Relay League" at the bottom.

Further discussion of any possible new name for the League has been deferred until the Board meets again in January.

STS-93 IS A SAREX SUCCESS!

Shuttle Columbia mission STS-93 was an Amateur Radio success story. During the short mission, crew members completed Space Amateur Radio Experiment contacts with five schools plus a contact with the cosmonauts aboard the Russian Mir space station. STS-93 returned to Earth July 27.

Launched July 23, STS-93 marked the 25th time the SAREX payload has flown on a shuttle mission. It also likely will be the last SAREX shuttle mission as future ham radio efforts in space will focus on the Amateur Radio on the International Space Station--or ARISS--project.

Lucky students at schools in Virginia, California, Texas and Florida had officially-scheduled QSOs with the STS-93 astronauts. All contacts eventually were successful, but not without a few glitches. The ham gear was deployed early in the mission, and during a pass over Houston, the SAREX Team--using the Johnson Space Center Amateur Radio Club's call sign, W5RRR--attempted a test pass that failed. Throughout the mission, John Nickel, WD5EEV; Karen Nickel, WD5EEU; and Gil Carman, WA5NOM, led the SAREX volunteers at the Johnson Space Center.

After troubleshooting during several Houston passes with STS-93 Commander Eileen Collins, KD5EDS, an orbiter power receptacle was found to be faulty. Meanwhile, the first scheduled school QSO with Buzz Aldrin Elementary School in Reston, Virginia, had audio on only one end of the contact, so the SAREX Team negotiated a new time slot for the school sked.

The next scheduled school QSO, with Harbor View Elementary in Corona Del Mar, California, was much more successful. Eight students interviewed the astronauts. One thing the kids wanted to know about was the food aboard the shuttle. "The food is quite good--really!," Collins replied. "Today I had rice and there are plenty of food items to choose from, including snacks."

The orbiter then maneuvered its attitude to accommodate another payload, the Southwest Ultraviolet Imaging System. The resulting tail-down, nose-up attitude is not conducive to QSOs, as the SAREX window antenna can't radiate the signal toward Earth. A scheduled QSO with Awty International School in Houston, Texas, failed, but a new schedule was negotiated. Prior to the next two schools QSOs, the SAREX Team worked with NASA to get the orbiter returned to a favorable attitude just for the SAREX activities.

Students were rewarded with excellent results. "I would like to take this opportunity to publicly thank all of the individuals that made it possible for PSJA-Memorial Middle School to have a successful SAREX contact with STS-93," said Joe Kertesz, KC5RFW, of Memorial Middle School in Pharr, Texas. "Hats off to everyone, and a heartfelt thank you from me and my school. It was truly a memorable occasion." Then, Kertesz added, "Now, when does ARISS go on line?!"

Murphy almost took his toll on yet another school. Not long before the Osceola (Florida) Elementary School's QSO, SAREX relay station operator Gordon Williams, VK6IU, in Australia, discovered he had a problem with his gear. "Unbelievably, some Australia birds had pecked through Gordon's coax!" John Nickel related after speaking with Williams via telephone. VK6IU wound up climbing his tower in the rain early Monday, changing out the cable just in time to handle the SAREX relay.

On Monday evening, the Buzz Aldrin and Awty schools were rewarded for their patience with completed QSOs, and the students were thrilled. For more information about the school contacts, visit the STS-93 information page at http://garc.gsfc.nasa.gov/~kc6rol/sts93.html.

The mission garnered some good PR for Amateur Radio. The Los Angeles Times ran an article about the Harbor View Elementary School contact. The official July 24 STS-93 Status Report released by NASA included two references to SAREX activities by astronauts. Two on-line newspapers carried .wav files and details on the schools' SAREX educational events.

The Columbia-Mir QSO also was a huge success and in three languages--English, Russian and French, and the parties on both sides enjoyed their time on the air. "You could hear it in their

voices—they were smiling ear-to-ear," John Nickel said.

AMSAT's Pat Kilroy, WD8LAQ, reported that the Columbia-Mir QSO was "tricky" to complete, because of the timing. "Both crews had to be awake, and Mir had to pass over the horizon in Houston, where SAREX team member Brian Zemba, N1WSO, was waiting at Johnson Space Center Amateur Radio Club's station, W5RRR," he said. "Shuttle Columbia was almost half a world away, traveling over Indonesia."

Zemba successfully linked with French cosmonaut Jean-Pierre Haignere, FX0STB, who radioed, "This is Mir space station speaking, this is Jean-Pierre." Columbia astronaut Michel Tognini, KD5EJZ, then spoke with Jean-Pierre in their native French. Next they turned over their mikes to the two space commanders. Mir's Viktor Afanasyev, then congratulated Eileen Collins on being the first woman commander of a shuttle crew.

To listen to the exchange, click on NASA's .wav file at http://shuttle.nasa.gov/gallery/audio/shuttle/sts-93/wave/congrats.wav.

Tognini also exchanged greetings in Russian with cosmonaut Sergei Avdeyev. Tognini and Avdeyev flew to Mir together in 1992.--Rosalie White, WA1STO

ULS HAM RADIO PHASE-IN PERIOD BEGINS AUGUST 8

The FCC begins phasing in the Universal Licensing System for the Amateur Service August 8 at 4 PM Eastern Time. That's when the FCC stops accepting new or upgraded licensee data from Volunteer Examiner Coordinators under the current amateur licensing system.

The ULS ushers in an era of electronic, interactive filing and handling of Amateur Radio applications. Being phased out under ULS is the familiar paper FCC Form 610 series. A "universal" Form 605--primarily designed for electronic use but also available on paper--will take its place.

A July 23 FCC Public Notice says the Wireless Telecommunications Bureau will begin using the ULS for the Amateur Service on August 16. Existing Amateur Radio licensing data will be transferred into the ULS database during a weeklong phase-in period. During the phase-in period, the FCC will not process new or upgraded licenses.

Electronic filing of Amateur Radio license renewals using FCC Form 900 ends August 9 at 9 AM Eastern Time. Electronic filing of vanity call sign application Form 610V terminates August 13 at 5:30 PM Eastern Time. Hams should not attempt to file renewal or vanity applications until the ULS comes up August 16.

Starting August 16, hams registered in the ULS may file the new FCC Form 605 electronically at any time of day, seven days a week. FCC Form 605 will be used for license renewals, modifications, cancellations, vanity call sign application, application withdrawals and amendments, as well as requests for duplicate licenses and administrative updates (ie, a change of address or other clerical license modification). Applications for new or upgraded licenses will continue to be filed through a Volunteer Examiner Coordinator.

Automated processing of electronically filed applications will occur nightly each business day, but five days a week instead of seven. There will be no weekend processing under the ULS. The FCC has warned that applicants should anticipate processing delays during the first couple of weeks the ULS is in effect.

The FCC will stop accepting most Form 610 applications next February 16, but club station Form 610B will continue to be valid beyond the six-month transition window to allow time for the FCC to implement new handling procedures.

Among the advantages of the ULS, the FCC says, are fast and easy electronic filing, improved data accuracy through automated checking of applications, and better electronic access to licensing information. One feature of the new ULS is a renewal reminder sent 90 days prior to a license's expiration date. ULS also will simplify the process of submitting fees to the FCC, and the FCC said it anticipates that the ULS will be capable of accepting credit card payments on-line in the near future.

Registration in the ULS is required. Applicants should use FCC Form 606 for both electronic or manual filing. To register online, visit http://www.fcc.gov/wtb/uls/ and click on "TIN/Call Sign Registration." A paper FCC Form 606 is available at http://www.fcc.gov/formpage.html or from the FCC's Forms Distribution Center, 800-418-3676.

The FCC will not process future license grants, upgrades, modifications or renewals for any applicant not registered in the ULS. Individuals eligible to hold a Social Security Number must provide this number to the FCC in order to be registered in the ULS.

A copy of the July 23, 1999 Public Notice is available at http://www.fcc.gov/wtb/uls. Additional information on ULS will appear in the Washington Mailbox column in the September issue of QST.

FCC AUDITS NEW YORK EXAMINATION SESSION

The FCC is auditing an Amateur Radio examination session held May 2, 1999, in Yonkers, New York, and has written four applicants to ask some very specific questions.

Those questioned about the ARRL-VEC examination session included an individual applying to upgrade to Amateur Extra, one upgrading to Advanced, one to Tech Plus, and one seeking a new Technician license. The letters, all from the FCC's Riley Hollingsworth, K4ZDH, of the FCC's Compliance and Information Bureau note that the FCC has "not made a finding that you engaged in misconduct."

Hollingsworth invoked the FCC's authority "to request information from licensees and applications that the Commission needs in order to determine whether a licensee is qualified to retain a license, or whether an applicant should be granted a license."

In the case of the Extra, Advanced and Technician class applicants, the FCC enclosed a color copy of the answer sheets for the written exam, signed by the applicant, and questioned the appearance of blue markings on the answer sheets. Among other specific questions, the FCC asked which marks the applicants had placed on the answer sheets and if any marks already were on the sheet when it was handed out.

The FCC similarly queried the Tech Plus upgrade candidate about his Morse code answer sheet, asking if it was the only one he'd filled out on May 2 and if any of the answers were modified after he'd turned in the sheet; others who took code tests were asked if they had written down any of their copy, and, if so, what they did with those notes.

An applicant who supplied a Michigan mailing address was asked if he was present at the session, and if he'd had access to an answer template before or during the test session.

All four applicants also were asked to name the Volunteer Examiners who handed out their paperwork and to whom they gave their completed answer sheets, as well as any discussions they might have had with the examiners.

All applicants were given 30 days to respond to the questions or risk having the FCC dismiss their pending applications.

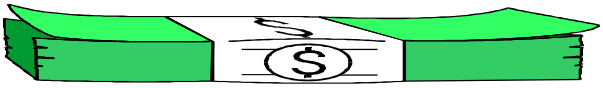
* South Africa added to third-party traffic list: South Africa (ZS) has been added to the list of countries with which the US has a third-party traffic agreement. The FCC updated its Amateur Service International Arrangements in a Public Notice July 21, listing all countries that have made necessary arrangements with the US to permit an Amateur Radio station regulated by the FCC to exchange messages for a third party. The updated list also is available on ARRLWeb at http://www.arrl.org/field/regulations/io/3rdparty.html.

* Ham radio in The Americas info: A new, bilingual source of information about Amateur Radio in The Americas now is available via the IARU Region 2 Web site, http://www.iaru-r2.org. Visitors to the site will find news and information in both English and Spanish. Of particular interest is the Electronic Region 2 News, edited by David Evans, VE6DXX.--IARU

* WW1Y is New England Division Volunteer of the Year: The New England Division Volunteer of the Year award has been presented to Jim Heedles, WW1Y, of Amherst, New Hampshire. The Volunteer of the Year award is awarded each year to the New England Amateur Radio operator who demonstrates excellence in a combination of categories, including teamwork, service to the public and fellow amateurs, recruitment and training of volunteers, and community relations. WW1Y was nominated by the incoming New Hampshire Section Manager Mike Graham, K7CTW, and previous SM Al Shuman, N1FIK, for a lengthy list of volunteer efforts within the Nashua Area Radio Club, and the general Amateur Radio community in New England. He is one of the primary movers behind the N1FD Field Day efforts, continually works on new ham and new member recruitment, gives exams under the Volunteer Exam program, and par-

ticipates on related volunteer efforts in the local community. Congratulations, Jim!

$The August Treasurer's Report $



Hello fellow NVARCites. Hope your summer has been going well. There's not much of it left by the time you read this, so better get moving on those projects.

Expenses for June and July were $13.20 for postage and $20.23 for Signal copying and refreshments for two road cleanup crews. We received $5.47 in bank interest and $50 in dues income.

The great news over the summer is that the FoxFinder Project Team has shipped its first kits and the project is starting to also show some receipts on the income side of the ledger. Three FoxFinder kits were sold for an income of $179.85.
Expenses for these three kits, including buy-back of commented instructions from two beta testers, was $117.88 for a net FoxFinder income of $61.97. The net income to the General Fund since the June report was $84.01.

Current balances:

General Fund	$641.57
Community Fund	$1434.43

We have a parts supplier for the FoxFinder kits who is willing to assume most of the inventory costs (excepting the PC boards) and provide parts at volume pricing to us as we receive orders for the kits. So with a little pick-up in the marketing of the FoxFinder we expect to quickly reimburse all the development costs that the development team has contributed. 73, -Ralph KD1SM

Flea Markets

August
28 Mohawk Hamfest Gardner MA
29 Enfield CT East V-UHF Conference
September
1 AARA Windsor ME
12 MassARA S. Dartmouth MA
18 Genesis ARS, Marshfield MA
18 RIFMRS Forestdale RI
18 Bagley ARC Lincoln ME
19 Candlewood ARA, Newtown CT
19 MIT
25,26 Lancaster NH
26 FARA Framingham MA
October
8,9 HossTraders Rochester NH
10 Nutmeg Hamfest Conn State Convention
17 MIT
23 NE Antique RC Nashua NH
November
6 IRS Manchester NH
20 WARA Newton MA

NVARC
Nashoba Valley
Amateur Radio Club
PO Box # 900
Pepperell Mass 01463-0900

Pres.: Erik Piip KA1RV
V Pres.: Den Connors KD2S
Secretary: Ian Norrish NZ1B
Treasurer: Ralph Swick KD1SM
Editor: Stan Pozerski KD1LE
PIO: Jon Kinney N1JGA
Board Members
Wolfgang Seidlich KA1VOU 1997
Earl Russell 1998
Bob Reif 1999
Meetings are held on the 3rd Thursday of the month - 7:30 p.m. - Pepperell Community Ctr.
Talk-in 146.490 simplex
442.90 + 100Hz Repeater
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