NVARC
Nashoba Valley
Amateur Radio Club

SIGNAL

SPECIAL SERVICE CLUB

de N1NC

January 2002 Volume 11 Number 1

This Month's Meeting

This month's meeting program will be a presentation by Norm Jones on miniature engines he designs and builds.

We gather at Tiny's for breakfast Saturday mornings at 8:00 AM. We sit in the back dining area.

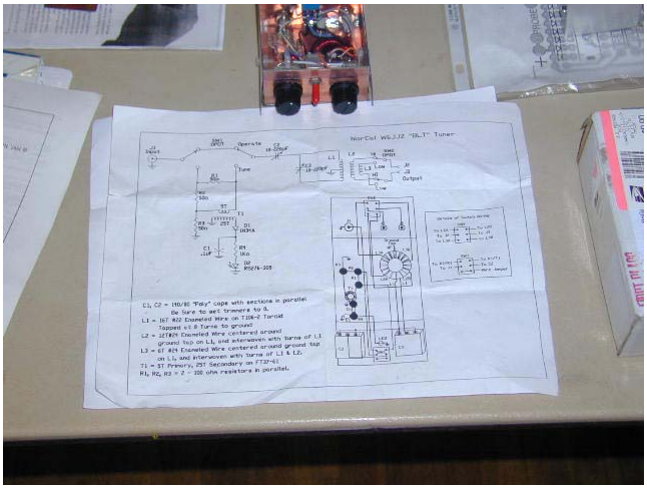
Bring your short Shows-and-Tell to the meetings. They are always welcome. Its always interesting to see the variety of things people are working on.

Last Month's Meeting

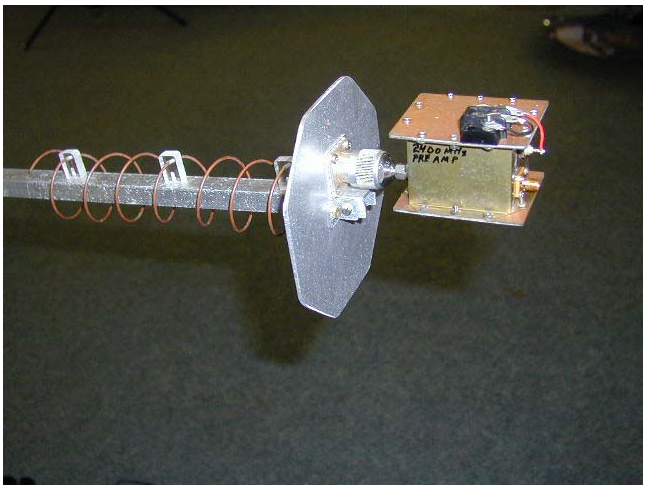
The December meeting Program was Homebrew. Many people brought their stuff to show off. First we had some regular business. Below Stan KD1LE is awarding a certificate to Bob W1PX for supporting the BayState Marathon which we supported.

The certificates were given to us by the marathon organizers.

Then we got into the Home Brew part of the meeting.

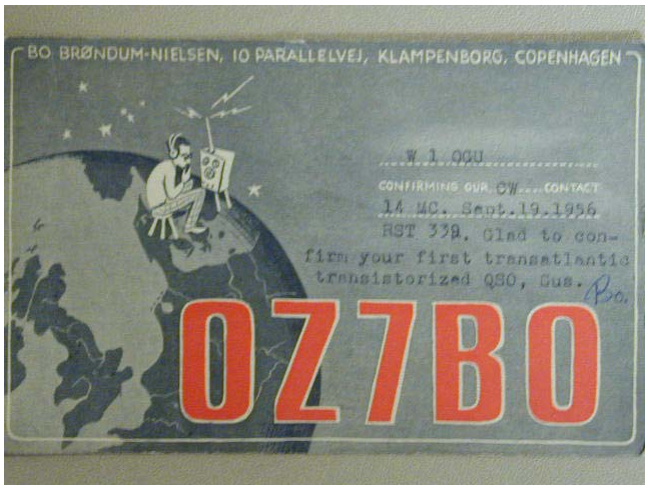


Dennis K1LGQ showed many QRP kit projects he has completed in the past year. Everything from transmitters to antenna tuners for the QRPer. One of the hallmarks of many of the devices is that they are built in an Altoids metal box.



Bob W1XP (two pictures above) showed a parabolic antenna with a helical wound feed he had built for working the A0-40 satellite.

Norm Jones W1OG showed off the black powder naval cannon he has machined. It is modeled after those used on the USS Constitution.



Norm also had this QSL card for the first transatlantic QSO on a transistorized rig which he worked.

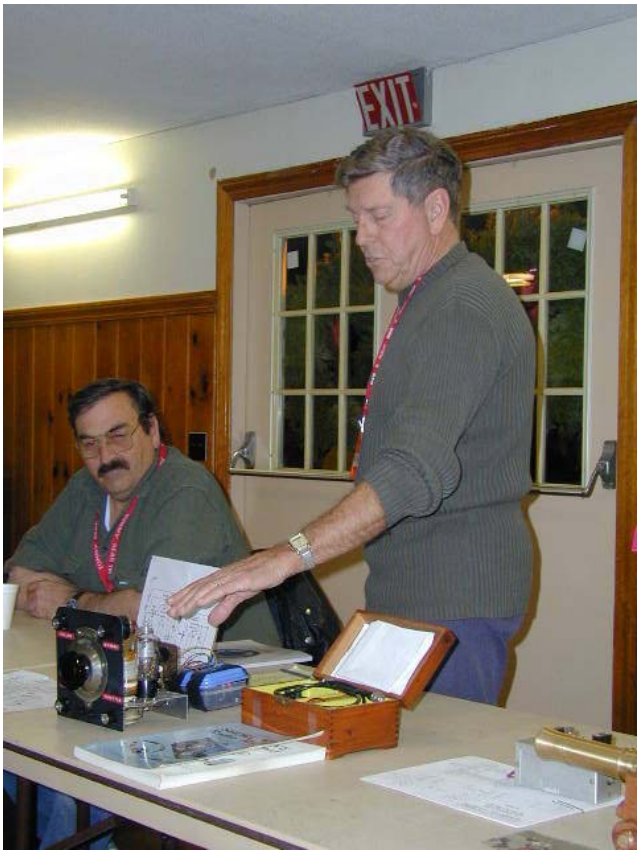
Stan KD1LE showed a lightweight handheld two meter antenna with a pistol grip designed for foxhunting that he built. The design was by Bob W1XP.

In the right column

The top picture is Rod WA1TAC and the AF-67 four band HF transmitter he is rebuilding.

The lower picture is Earl Wr1Y showing the regenerative receiver for 40 and 80 meters he built. Almost all the parts he used were parts that were available in 1927. This was a typical ham receiver of the day as store bought receivers were not common until the 1930's. It cost $10 to build back then which was close to a weeks pay.

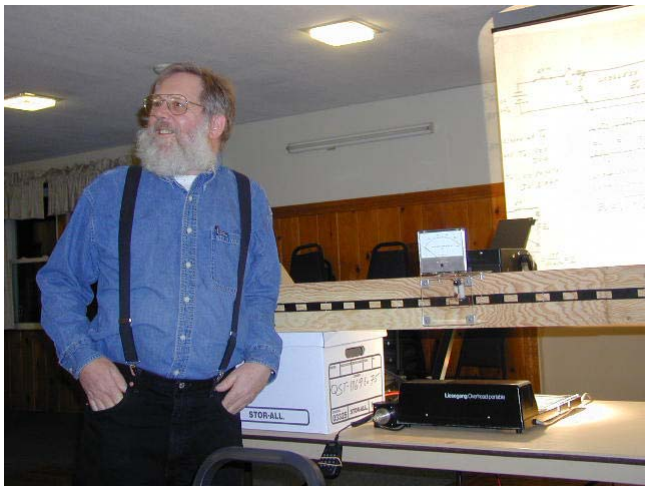
On the next page is a close up. Note the use of pill containers as forms for plug in coils.



Next Months Meeting

Next months program will be GHZ data systems by David Russell.

Antenna Measurement-Analyzer Course



The Antenna Measurement Class met January 3rd and January 10th at the Pepperell Community Center. The class was developed and conducted by Bob W1XP. The course was intended to familiarize the user with the MFJ 259/269 series of antenna analyzers. The course covered basic (no math) antenna and feedline theory. It discussed the parameters we could measure and what they might mean. There was a lab period for each session where the class took actual measurements of a variety of 'antennas' and cables. Measurements were taken using the MFJ 259B and 269 Antenna Analyzers. The following attended the First class; Dave N1MNX, Bruce K1BG, Dennis K1LGQ, Stan KD1LE, Ben KB1FJ, Ralph KD1SM, Den KD2S, Jim N8VIM, Les N1SV, Erik W1ZBT, Jack KB1HRC. The second class was attended by Les N1SV, Erik W1ZBT, Stan KD1LE, Ben KB1FJ, Ralph KD1SM, Den KD2S, Jim N8VIM. See next months Signal for more pictures and write-up

Adopt-A-Highway

April will be our first road cleanup of 2002 hope to see a few new faces…Stan

April Elections

Elections are coming up in April. If you would like to try a position as a club officer or board member let one of the current officers know of your interest.

Board of Directors Meeting

The January Board of Directors meeting was held at the Pepperell Community Center January 10th prior to the second antenna class. The Treasurer reported the monthly NVARC financial status and that report is appears later in the newsletter. Den KD2S reported that the Emergency Communications Course would not happen till spring but that a class was happening in Peabody February 2nd. See below for a description and other info.

Emergency Communications Course

There will be an Emergency Communications Workshop on Saturday February 2nd, 2002 from 9 AM-4:00 PM at the Jordan Masonic Lodge on 71 Wallis Street in Peabody, Massachusetts. This session is being put on by the ARES Section Staff and Peabody Emergency Mangement through the efforts of Jeff Arnold, N1FWV, Peabody Emergency Management Communications Officer.

This Emergency Communications Workshop will provide the background and information to serve Amateur Radio Operators when they need to respond to a communications emergency. It will feature an Introduction and Conclusion to Emergency Communications, and five 1-hour training sessions on topics including: Introduction ,Net Operations I, (Tactical Message Handling for ARES/RACES/SKYWARN Nets) , Net Operations II, NTS Traffic Message Handling, Basic ICS, Go Kits

This training will also feature a 1hour lunch that will be provided at no coerced cost to any Amateur who attends the session.

Preregistration is requested but is not required in case anyone would like to attend at the last minute. If you preregister, please try to do so by Monday January 28th, 2002 so that we can get an approximate head count. We will, however, accept any preregistrations after that day or any walk-ins as long as space permits.

This training should be a worthwhile endeavor for anyone interested in learning more about emergency communications and amateur radio in general.

Den Connors(den@denconnors.org)

From The ARRL Letter

FCC DENIAL LEAVES LEAGUE EYEING CONGRESSIONAL ACTION ON DEED RESTRICTIONS

The ARRL got the proverbial lump of coal in its stocking in late December, but it wasn't from Santa. The FCC affirmed a November 2000 staff-level decision that declined to include privately imposed deed covenants, conditions and restrictions--CC&Rs--under the limited federal preemption known as PRB-1. That policy requires municipalities to "reasonably accommodate" amateur communication in antenna-related zoning and regulation.

The ARRL a year ago appealed to have the full FCC review the earlier denial. The Commission turned down the League's Application for Review December 18 in a Memorandum Opinion and Order released December 26.

"There has not been a sufficient showing that CC&Rs prevent Amateur Radio operators from pursuing the basis and purpose of the Amateur Service," the FCC said. The Commission said hams still can get on the air without installing residential antenna systems by operating away from home, while mobile or at club stations.

The FCC said it recognizes the importance of preserving the integrity of contractual relations that CC&Rs represent. It asserted that the ARRL had submitted no specific evidence that would persuade it to abandon its long-standing policy of excluding CC&Rs from PRB-1.

ARRL President Jim Haynie, W5JBP, expressed disappointment in the Commission's ruling. "The biggest problem Amateur Radio operators face today is being able to put up an antenna," Haynie said. "Our only approach now is to get a bill into Congress."

The FCC itself even hinted that Congressional action ought to be a next logical step. "However, should Congress see fit to enact a statutory directive mandating the expansion of our reasonable accommodation policy," the FCC declared in its MO&O, "the Commission would expeditiously act to fulfill its obligation thereunder."

Haynie conceded that extending PRB-1 protection to CC&Rs would be "a tough sell" to members of Congress. He noted, however, that it's getting more difficult all the time for amateurs to find desirable housing that does not come with deed covenants and restrictions. "It's extremely serious for the amateur community, because it restricts what hams will be able to do in the future," he said.

The topic is likely to be the focus of additional discussion at this month's meeting of the ARRL Board of Directors.

In its Application for Review in late 2000, the ARRL maintained that the FCC should have the same interest in the effective performance of an Amateur Radio station and in the promotion of amateur communications regardless of
whether the licensee's property is publicly regulated or privately governed by homeowners' associations and their architectural control committees.

A copy of the FCC's Memorandum Opinion & Order in RM-8763 is available on the FCC Web site <http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-01-372A1.doc>.

NEW HAMPSHIRE ANTENNA DECISION UPHOLDS PRB-1

A New Hampshire ham appears to have won a battle to erect an antenna support sructure on his property. It remains to be seen, however, whether Jerry Muller, K0TV, of Hudson will be allowed to erect the extensive system of towers that he'd originally planned. In a 4-0 vote, with one justice abstaining, the Supreme Court of New Hampshire reversed a lower court ruling that ordered Muller, an ARRL Life Member, to dismantle the three towers he had erected on part of his six-acre residential tract.

Writing for the court in Marchand v. Town of Hudson, New Hampshire Chief Justice David A. Brock concluded that the lower court's order requiring Muller to dismantle his towers violated the limited federal preemption known as PRB-1 as well as New Hampshire's statutory codification of PRB-1. "In light of the FCC's clear directive, we agree that the superior

court erred when it ordered the towers removed," Brock stated in a ruling issued December 31, 2001. The Supreme Court ruling vacates the dismantling order and sends the matter back to the town's zoning board of adjustment for consideration in light of PRB-1.

ARRL New England Division Vice Director and Volunteer Counsel Mike Raisbeck, K1TWF, represented Muller in written and oral arguments before the New Hampshire Supreme Court. ARRL General Counsel Chris Imlay, W3KD, also filed an amicus brief on ARRL's behalf.

Unlike many amateur antenna battles, this case did not pit Muller against the town. In December 1998, Muller applied for a permit to erect three 100-foot antenna structures on his property, and the Town of Hudson granted the permit. Three of Muller's neighbors appealed the grant of the permit, but the Hudson ZBA affirmed the grant. The neighbors then sued the town and won, resulting in the order for Muller to dismantle that's now been vacated.

While Muller has won the right to get on the air in some capacity, he will still have to make a case for his proposed three-tower installation. Brock agreed with the lower court that Muller's three-tower installation did not qualify as a "customary, incidental and subordinate" accessory use permitted by Hudson's ordinance. Another amateur in Hudson has a tower at the same height, but there are no instances of three such towers on the same property. Raisbeck explained that New Hampshire's accessory use statute relies on the prevailing local, not statewide, standard.

Nevertheless, Brock said that Muller's installation may be permitted within the framework of PRB-1, if Muller can demonstrate that his three towers are necessary to "reasonably accommodate" his communications needs.

Thirteen states have incorporated PRB-1 into their statutes. The full text of the New Hampshire Supreme Court decision is available on the Court's Website <http://www.state.nh.us/courts/supreme/opinions/0112/march221.htm>.

AO-40 "OFFICIALLY IN THE 'DEAD ZONE'"

AO-40 satellite ground controllers have begun adjusting the spacecraft's attitude as it enters a period of unfavorable sun angles. AO-40 command station team member Stacey Mills, W4SM, says that AO-40's operating schedule has been modified slightly to reflect the decreasing attitude longitude (ALON).

"As expected, the satellite has lost sun sensor lock, so we are now officially in the 'dead zone'," Mills reported. The satellite is currently in a long period during which Earth eclipses the sun near perigee--its point closest to Earth. These periods will continue well into next June.

The satellite relies on solar panels for its power. In late November, Mills said that necessary adjustments to AO-40's attitude to compensate for unfavorable sun angles over the next several months would lead to some down time for the spacecraft's transponders. The attitude shifting necessary to compensate for the unfavorable sun angle will leave AO-40's antennas pointing away from Earth for several weeks.

To save power, the transponder passbands were being turned off at various times, and the RUDAK digital transponder was scheduled to be off for up to five days.

Mills has said there will be periods of no transponder activity and a much longer period of limited--but progressively increasing—transponder activity. "AO-40 command stations will make every effort to activate AO-40's transponders, even if for only a short time each orbit, when conditions are appropriate," he said. Mills said he anticipated being able to keep the transponders active through the eclipse period for an hour or so right after perigee.

Yoshi Takeyasu, JA6XKQ, of the JAMSAT SCOPE team, recently announced the release of several new photos taken by the SCOPE cameras aboard AO-40. The photos are available on the JAMSAT Web site <http://www.jamsat.or.jp/scope/011215/>.

For more information on AO-40, visit the AMSAT-NA Web site <http://www.amsat.org/>.

New Zealand amateur LF signal heard in Nova Scotia!

Another new low-frequency distance record is being claimed. New Zealand DX tests coordinator Bob Vernall, ZL2CA, reports that on December 15, John Currie, VE1ZJ, in Canada, managed to receive and positively identify 136-kHz signals from ZL6QH, in New Zealand. ZL6QH, the Quartz Hill club station, is run by the Wellington Amateur Radio Club. The path from ZL6QH near Wellington to VE1ZJ in Sydney, Nova Scotia, has been calculated at 15,645 km--around 9700 miles. VE1ZJ detected the ZL6QH transmission using a PC and ARGO DSP software.

An Amateur Radio LF signal spanned the Pacific for the first time on June 30, 2001, when Steve McDonald, VE7SL, of British Columbia, Canada, detected a 184-kHz signal from ZL6QH. The feat was repeated in September. Vernall said the next test from ZL6QH in the 136-kHz band likely would occur in mid-January. The ARRL has petitioned the FCC to authorize Amateur Radio allocations at 136 kHz and in the 160-190 kHz band. The petition is pending.

ARRL STUDY PANEL RECOMMENDS ELIMINATING NOVICE BANDS

On the basis of nearly 5000 survey responses, the ARRL Novice Spectrum Study Committee has recommended that the ARRL petition the FCC to eliminate the Novice CW subbands and allow Novice and Technician with Element 1 credit licensees to operate CW on the General 80, 40, 15 and 10-meter CW allocations at up to 200 W output. The panel suggested setting aside portions of those bands for "slow CW operation" to aid new CW operators in enhancing their skills. The committee recommended refarming the current Novice/Tech Plus subbands in part to allow expansion of the phone allocations on 80, 40 and 15 meters.

The committee's complete report will be presented to the ARRL Board of Directors for consideration during its annual meeting in January. The committee's determinations were based on opinions expressed by 4744 respondents to an ARRL Novice Spectrum Study survey launched in June. Those expressing their opinions included ARRL members and nonmembers. Nearly 61% of those responding were Extra class licensees.

The committee, chaired by ARRL International Affairs Vice President Rod Stafford, W6ROD, has been studying the status and usage of the Novice/Technician Plus HF bands with an eye toward determining what changes to usage of that spectrum might be needed now that the FCC no longer issues new Novice licenses.

The survey offered possible refarming options for each of the bands involved--including no change at all. Generally speaking, the predefined options proposed retaining Extra class CW subbands on the affected bands, setting aside expanded CW reserves for all license classes except Technicians lacking Element 1 credit, and dividing the remaining spectrum into expanded phone segments for General, Advanced and Extra class operators. A guiding principle was that no class of licensees would lose any privileges as a result of refarming.

The committee recommended expanding the phone bands in accordance with the most popular of the survey choices offered--three for 80, 40 and 15 meters and two for 10 meters. Here's a summary:

* On 80 meters, nearly 40% of those responding opted for a plan that would extend the US phone allocation to 3700 kHz, with Extras permitted on the entire subband, and with Advanced and General class subbands starting at 3725 and 3800 kHz respectively.

* On 40 meters, nearly half of the respondents picked the plan to extend the primary US phone allocation to 7125 kHz, with Extra and Advanced licensees allowed on the entire segment and Generals from 7175 kHz and up. (The committee's report suggested no changes to the special allocations for amateurs on certain Pacific or Caribbean islands and in Alaska.)

* On 15 meters, again, nearly half of those responding wanted the US phone allocation extended to 21,175 kHz, with Extras permitted on the entire allocation, and Advanced and General subbands beginning at 21,200 and 21,250 kHz respectively.

* On 10 meters--where Novice and Tech Plus licensees already may operate CW, RTTY and data from 28,100 to 28,300 kHz, nearly 55% of the respondents favored a plan to retain the US phone allocation from 28,300 to 29,700 kHz and to extend CW access to Novice/Tech Plus operators to 28,000 kHz—an additional 100 kHz. The current Tech Plus 28,300 to 28,500 kHz phone segment would be retained.

The committee's report says that if the ARRL Board adopts the plan, the League should include any request to the FCC to implement the changes within an omnibus filing encompassing other issues, rather than as a separate petition. Consideration of any necessary ARRL Band Plan changes would follow ultimate FCC approval.

ANTENNA MODELING IS NEXT ARRL CERTIFICATION PROGRAM OFFERING

Building upon the success of its emergency communication courses, the ARRL Certification and Continuing Education (C-CE) Program will offer an on-line course in computerized antenna modeling. Program Coordinator Dan Miller, K3UFG, said the new course will open for registration soon.

"This course is designed to assist students in mastering the art and science of antenna modeling using computer software," Miller said. The course was developed by L.B. Cebik, W4RNL, and course content

was edited by ARRL Senior Assistant Technical Editor (and antenna guru) Dean Straw, N6BV. At least initially, the antenna modeling course will be offered once per month for up to 50 registrants. The course is scheduled to take 12 weeks to complete. The fee will be $80 for ARRL members and $120 for non-members.

While Miller doesn't expect demand for the antenna modeling course to come anywhere near that for the emergency communications series, he's hoping it will be popular enough to eventually spin off a "live" classroom course.

Since the introductory Level I emergency communication course was offered for the first time one year ago this month, the popular series has expanded to three levels, with the addition of the intermediate and advanced courses. Miller reports that more than 1600 students have signed up for seats in one or more of the series, and registrations for both on-line and live classes spiked in the wake of the September 11 terrorist attacks.

"It exceeded my expectations of one year ago," Miller said. He said he also was pleased to be able to offer the Level II and Level III classes this year.

Next on tap for the ARRL C-CE Program is a course on HF digital communications, which will become available early next year. The Certification and Continuing Education Program is seeking HF digital mode aficionados to beta test the course and to serve as mentors to students taking the initial classes.

To learn more, visit the ARRL Certification and Continuing Education Web page <http://www.arrl.org/cce> and the C-CE Links found there. For more information, contact C-CE Coordinator Dan Miller, K3UFG, cce@arrl.org.

FCC AMENDS PART 15 RULES TO ALLOW HIGHER-POWER DEVICES AT 24 GHZ

Despite objections from the ARRL, the FCC has announced plans to amend its Part 15 rules to allow fixed point-to-point transmitters in the 24.05 to 24.25 GHz band to operate at field strengths of up to 2500 mV per meter. That's 10 times the level currently permitted. Among other interference safeguards, the FCC will require devices operating at these higher field strengths to use highly directional antennas. Amateur Radio is primary at 24.0 to 24.05 GHz and secondary on the rest of the band. The AO-40 satellite includes beacon, digital and analog transmitters in the vicinity of 24.048 GHz.

"This band has accommodated unlicensed transmissions, government radar and amateur facilities with no major conflicts," the FCC said. "By allowing a greater variety of systems to occupy the band, we will provide the opportunity for innovative products and services to be made available to the American public as quickly as demand dictates."

The FCC first proposed permitting the Part 15 devices at the elevated field strengths in 1998, in response to a Petition for Rule Making from Sierra Digital Communications Inc. Sierra had requested that its proposal be authorized to include a portion of the 24.0 to 24.05 MHz segment, but ARRL had argued that such a move would adversely affect amateur operations there, and the FCC agreed. The FCC finally acted in the three-year-old proceeding, ET Docket 98-156, on December 11 in a Report and Order that closely mimics its earlier Notice of Proposed Rule Making.

Noting that Part 15 devices operate in a non-interference basis to licensed services and must accept interference from licensed services, the FCC said it was requiring directional antennas with gains of at least 33 dBi to minimize interference potential. For the same reason, the FCC also imposed more stringent frequency stability and spurious emissions requirements than initially proposed.

The FCC said it disagreed with ARRL that permitting Part 15 devices at the higher field strengths would increase the risk of interference to amateur operations in the 24.05 to 24.25 GHz segment. The Commission said that Part 15 field disturbance sensors have been operating for years in the band at 2500 mV/m field strengths with no adverse affects to other users.

The FCC took issue with ARRL's assertion that the FCC should acknowledge that Part 15 devices are only allowed under the Communications Act when they pose no interference potential to licensed services. The FCC called ARRL's interpretation "overly conservative." The FCC Order in ET Docket 98-156 is available on the FCC Web site <http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-01-357A1.doc>.

K3RXK APPOINTED AS A SOLAR SYSTEM AMBASSADOR

ARRL Life Member and ARRLWeb Contributing Editor Tony Curtis, K3RXK, has been honored with the appointment as a NASA Solar System Ambassador

for 2002. "The Ambassadorsprogram is a NASA public-outreach effort designed to honor dedicated supporters of space research and exploration," said Curtis, who pens the Space&Beyond column that appears on the ARRL Web site<http://www.arrl.org/news/features/2001/12/16/1/>. He also is editor of Space Today Online <http://www.spacetoday.org/>. Space enthusiasts who have demonstrated deep commitment to the subject, the Ambassadors are selected from among the ranks of educators and others. The appointment is for one year and is renewable. Curtis says that last year, the various Ambassadors took part in some 600 events and were seen by more than one-half million people. An Extra class operator, Curtis holds a doctorate in mass communication and has authored 72 books about space, astronomy, computers and electronics. He's associate dean for academic information services at the Union Institute & University in Cincinnati, Ohio. The Solar System Ambassadors Program is sponsored by NASA's Jet Propulsion Laboratory at
Pasadena, California.

December Treasurer Report$

December Treasurer's Report

Income for December was $30 from membership renewals, $40.08 net from FoxFinder sales and $8 from club patch purchases.

Expenses were $20.40 for newsletter postage, leaving a net income of $57.68.

Fund balances as of January 10 are:

General Fund:	$5132.09
Community Fund:	$1717.55

If you are thinking of joining the ARRL, or we can convince you to join the ARRL, the Club receives a commission for sending in your application.

73, -Ralph KD1SM

NVARC

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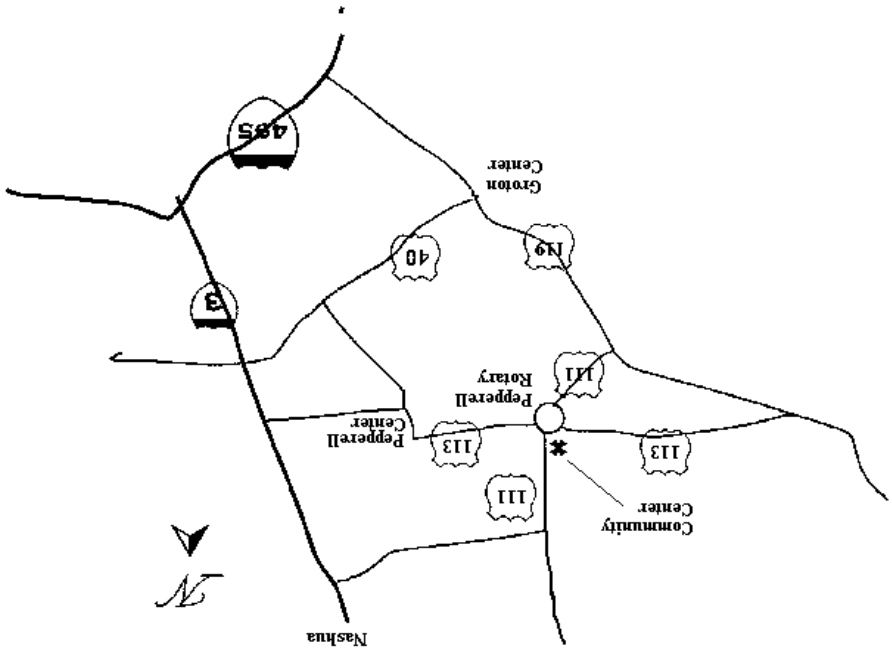
Meetings are held on the 3rd Thursday of the month - 7:30 p.m. - Pepperell Community Ctr. Talk-in 146.490 simplex
442.90 + 100Hz Repeater
53.890 – 100Hz Repeater
This newsletter is published monthly. Submissions, corrections and inquiries should be directed to the newsletter editor. Articles and graphics in most IBM-PC formats are OK. You can send items to pozerski@net1plus.com



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