
WAVES

Volume 21, Issue 12

December 2008

SOUTHEAST TN HEALTHCARE NET HOLDS DRILL

Friday morning, November 14, the Southeast Tennessee Healthcare Net held a wide area drill between the area healthcare facilities as part of a State wide drill. This was done to test the operational capabilities of communicating between area facilities in case of emergency. The local area net normally meets once a month on the first Wednesday.

There are 22 healthcare entities represented by the Southeast Tennessee Healthcare net, which includes the Regional Medical Coordinating Center (RMCC or more commonly known as Chattanooga MedComm), the State Health Department Chattanooga district office (Regional Health Operations Center), and the Hamilton County Health department. Hamilton County, EMA was represented via the ACS group and the State Health Dept station acted as a relay between the Knoxville RHOC and the Nashville SHOC or State Health Operations Center. There were five additional stations participating who simulated medical aid stations that would be located at various locations throughout the area.

We passed traffic; mainly check ins, to establish the ability to communicate. There were two drill messages passed to multiple recipients, which resulted in about 50 individual messages being passed.

If you are interested in being a volunteer at a local healthcare facility, contact Dewayne Siddon, KE4IDH, at Erlanger Hospital.

END OF AN ERA

Charlie Curle, AD4F

Greetings fellow Amateurs. I have a short message of thanks for all of you. There comes a time in life when a person decides to change course and do other things, and that is what this letter is about.

INSIDE THIS ISSUE

- 2 Delta Division Elections
- 3 Amplifiers
- 4 Inserting and Editing Pictures

I have been printing the local radio clubs' newsletters at various times since the early 1960's or even the late 1950's. It has been a lot of fun, work and cost but still something I really enjoyed. However, this is the last issue that I will print.

I have other interests that take time to do so I won't miss the 3 or 4 days a month the newsletters took. I have gone from a no-name newsletter for the FM club to

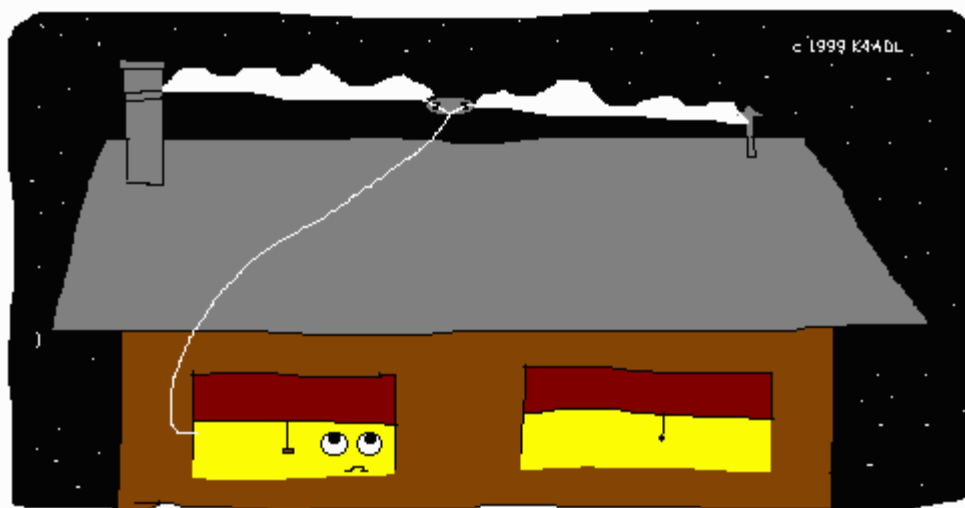
RADIATION and **WAVES**. During this time the newsletter layout has gone from the full sheet, like we have now, to magazine style and back to the full page.

There have been several editors during the time I have been printing the newsletter, from Bill Lawson, K4IOP, the longest I believe, through to Charlie Ann Curle, WG4G (SK) , who wrote a prize winning series of newsletters, through more editors to now Loyd Headrick, K4LCH. All have done a good job in their own ways, and the publication just keeps going on.

There are plans to switch to an e-mail delivery like most of the other publications have gone to, and only print copies for those who can't receive e-mail. Who knows how it will be delivered 20 years from now?

I want to thank all of you for not fussing when I made a mistake, was late or whatever. I will still be an active member of the CARC, I just won't print anymore.

73, Charlie



WILBUR ASSUMED HIS MAGNET-WIRE DIPOLE WAS INVISIBLE TO THE HOMEOWNERS' ASSOCIATION, BUT THE FIRST SNOWSTORM OF THE SEASON PROVED HIM WRONG.

ARRL DELTA DIVISION GETS NEW LEADERSHIP; GREAT LAKES DIVISION REMAINS UNCHANGED

On Friday, November 21, ARRL staff members started opening ballots for the Director and Vice Director races in the Delta Division and the Vice Director race in the Great Lakes Division. ARRL Chief Financial Officer Barry Shelley, N1VXY; Dakota Division Director Jay Bellows, W0QB; Southeastern Division Director Greg Sarratt, W4OZK, and a representative from an independent auditor looked on; Sarratt is also a member of the League's Ethics and Elections Committee. After all the ballots were counted, the Delta Division gained a new Director and Vice Director, while hams in the Great Lakes Division voted to keep their Vice Director. The leadership team in the Atlantic, Dakota and Midwest Divisions will remain the same. Terms for Directors and Vice Directors begin at noon on January 1, 2009 and run for three years.

The following ran unopposed and were declared the winner of their elections by the League's Ethics and Elections Committee: Atlantic Division Director Bill Edgar, N3LLR, and Vice Director Tom Abernethy, W3TOM; Dakota Division Director Jay Bellows, K0QB, and Vice Director Greg Widin, K0GW; Midwest Division Director Bruce Frahm, K0BJ, and Vice Director Cliff Ahrens, K0CA; and Great Lakes Division Director Jim Weaver, K8JE. The rules state that if a candidate is running unopposed, he or she shall be declared the winner without balloting.

Incumbent ARRL Delta Division Director -- Henry Leggette, WD4Q, of Memphis, Tennessee -- did not seek re-election this term. Two candidates, current Vice Director Karl Bullock, WA5TMC, of Ripley, Mississippi, and former Louisiana Section Manager Mickey Cox, K5MC, of West Monroe, were nominated for this seat. With 1148 votes, Cox was declared the new Delta Division Director; Bullock received 993 votes.

With Bullock seeking the Director position, this left the Vice Director position open, with Ariel Elam, K4AAL, of Antioch, Tennessee, and Arkansas Section Manager David Norris, K5UZ, of Batesville, in the hunt for this post. Norris won the seat with 1399 votes, Elam received 746 votes.

Three people were nominated for the position of Vice Director in the Great Lakes Division: Incumbent Gary Johnston, KI4LA, of Edgewood, Kentucky; former Kentucky Section Manager John Meyers, NB4K, of Butler, and Michigan Section Affiliated Club Coordinator Daniel Romanchik, KB6NU, of Ann Arbor. Johnston will keep his seat, as he garnered 1218 votes in a very close race. Myers received 1205 votes and Romanchik received 1155 votes.

"I'm happy to be a part of this election process," said Sarratt. "I would like to thank everyone for running and also thank the ARRL members in the Delta and Great Lakes Division who participated. The big turnout shows the high level of interest our members have in Amateur Radio."

"It is great to see such an interest on the part of members in this election," Bellows said. "These close races do indeed show that every vote counts and how very important it is to participate."

Amplifier Classes of Operation

Amplifier operation is distinctly different depending on the class of operation.

RF amplifiers are classified A, AB, B or C according to the phase-angle (*number of degrees of current flow during each 360-degree RF cycle*) over which plate- or collector-current flows.

Class A Amplifiers

Class A amplifiers operate over a relatively small portion of a tube's plate-current or a transistor's collector-current range and have continuous plate- or collector-current flow throughout each RF cycle. Their efficiency in converting DC-source-power to RF-output-power is poor. DC source power that is not converted to radio frequency output power is dissipated as heat. However, in compensation, Class A amplifiers have greater input-to-output waveform linearity (*lower output-signal distortion*) than any other amplifier class. They are most commonly used in small-signal applications where linearity is more important than power efficiency, but also are sometimes used in large-signal applications where the need for extraordinarily high linearity outweighs cost and heat disadvantages associated with poor power efficiency.

Class B Amplifiers

Class B amplifiers have their tube control-grids or transistor bases biased near plate- or collector-current cutoff, causing plate- or collector-current to flow only during approximately 180 degrees of each RF cycle. That causes the DC-source-power to RF-output-power efficiency to be much higher than with Class A amplifiers, but at the cost of severe output cycle waveform distortion. That waveform distortion is greatly reduced in practical designs by using relatively high-Q resonant output "tank" circuits to reconstruct full RF cycles.

The effect is the same in principle as pushing a child in a swing through half-swing-cycles and letting the natural oscillatory characteristics of the swing move the child through the other half-cycles. However, low sine-wave distortion results in either case only if the Q of the oscillatory circuit (*the tank circuit or the swing*) is sufficiently high. Unless the Q is infinite, which it never can be, the amplitude of one-half cycle will be larger than the other, which is another way of saying there always will be some amount of harmonic energy. (*Coupling an antenna system too tightly to the resonant output tank circuit of an amplifier will lower its Q , increasing the percentage of harmonic content in the output.*)

Another effective method commonly used to greatly reduce Class B RF amplifier output waveform distortion (*harmonic content*) is to employ two amplifiers operating in “push-pull” such that one conducts on half-cycles where the other is in plate- or collector-current cutoff. Oscillatory tank circuits are still used in the outputs of Class B push-pull amplifiers to smooth switching transitions from the conduction of one amplifier to the other, and to correct other nonlinearities, but lower- Q tank circuits can be used for given percentages of harmonic content in the output. (*Tank circuits can be loaded more-heavily for given percentages of harmonic output where two amplifiers operate in push-pull.*)

Class AB Amplifiers

As the designation suggests, Class AB amplifiers are compromises between Class A and Class B operation. They are biased so plate- or collector-current flows less than 360 degrees, but more than 180 degrees, of each RF cycle. Any bias-point between those limits can be used, which provides a continuous selection-range extending from low-distortion, low-efficiency on one end to higher-distortion, higher-efficiency on the other.

Class AB amplifiers are widely used in SSB linear amplifier applications where low-distortion and high power-efficiency tend to both be very important. Push-pull Class AB amplifiers are especially attractive in SSB linear amplifier applications, because the greater linearity resulting from having one amplifier or the other always conducting makes it possible to bias push-pull Class AB amplifiers closer to the Class B end of the AB scale where the power-efficiency is higher. Alternatively, push-pull Class AB amplifiers can be biased far enough toward the highly-linear Class A end of the scale to make broadband operation without resonant tank circuits possible in applications where broadband operation or freedom from tuning is more important than power-efficiency.

Class C Amplifiers

Class C amplifiers are biased well beyond cutoff, so that plate- or collector-current flows less than 180 degrees of each RF cycle. That provides even higher power-efficiency than Class B operation, but with the penalty of even higher input-to-output nonlinearity, making use of relatively high- Q resonant output tank circuits to restore complete RF sine-wave cycles essential. High amplifying-nonlinearity makes them unsuitable to amplify AM, DSB, or SSB signals.

However, most Class C amplifiers can be amplitude-modulated with acceptably low distortion by varying plate- or collector-voltage, because they generally are operated in the region of plate- or collector-saturation so that the RF output voltage is very closely dependent upon instantaneous DC plate- or collector-voltage. They also are commonly used in CW and frequency-shift-keyed radiotelegraph applications and in phase- and frequency-modulated transmitter applications where signal amplitudes remain constant.

CHRISTMAS DINNER

The Chattanooga Amateur Radio Club's Christmas dinner is scheduled for Thursday, December 18 at the Golden Corral on Hixson Pike. We have an area reserved just for us and we will begin eating at approximately 6:00 pm. Family and visitors are welcome. This is a "dutch treat" event. If you have a ham name tag, please wear it.

CALENDAR OF EVENTS

**ARRL 10 Meter Contest
RS(T), and State/Prov or serial
13 DEC 0000Z - 14 DEC 2400Z**

Jan 1-Jan 31, 0000Z-2359Z, All US call areas. Straight Key Century Club, K3Y. Celebrating 3 years of steady growth, to over 4,600 members on CW. 14.050 10.120 7.055 3.550. QSL. Dan Rhodes, KA3CTQ, 5408 Chillingham Pl, Frederick, MD 21703. www.skccgroup.com

Chattanooga Amateur Radio Club, Inc.

Minutes of the November 6,2008 Board Meeting

Officers present were: Charlie Curle, AD4F, Bill Dobbs, K4TSF, Jim Knight, KD4EHN.
Officers absent: Lowell Bennington, WD4DJW.

President Bill Dobbs, K4TSF, opened the meeting with the Pledge of Allegiance.

A report of the financial status of the Swapfest, tickets sold 936, total \$755, food sales, \$80, total \$835. Expenses, Pavilion \$75, coffee \$35.

Mark Rose, KA0YDC, asked if a report had been sent to Nashville. No, Copy of the report unavailable.

Tom Cash, K4ZQX, asked if application had been sent. No. A discussion follow as to whether or not we wanted to have father lotteries. Tom said that while the lottery is a lot of trouble, it did replace having to buy prizes.

No Treasurer's Report as Lowell Bennington, WD4DJW, was absent.

President Dobbs took an informal survey about which day was better for the meeting. Thursday or Friday. Results were Thursday 6, Friday 5. A brief discussion followed.

Rick Curtis, W4ATX, General class, was approved as a new member.

Lou Carter, KE4DGW, asked about the status of the club making a donation to the local chapter of the American Red Cross. The financial committee had suggested a donation of \$500. A short discussion followed concerning the status of the CARC money situation and how much can we afford to donate. Tom Cash, K4ZQX, suggested a donation of \$300, which was approved by the membership.

Jack Green, AD4LP, announced he is the net control of the Tennessee Phone Net on Thursday mornings, net meets at 7:45 AM, and to join in.

The death of Roy Kennedy, KA4ASF, was reported. No details of a visitation and funeral were available at the time. Roy was very active for many years and was an engineer with TVA.

President Bill turned the floor over to Robert Berman, KJ4HBA (now W4SET c.c.) who explained about a civilian program sponsored by the FBI. Those interested should contact Robert. He also told about how the Special Events in Chattanooga had grown over the years to well over 300 each year, and causes a lot of problems for the City of Chattanooga and Hamilton County. There is an organization being formed to help assist these events. The CARC has the opportunity to help with some of these events if we so desire.

At 7:54 PM President Bill turned the floor over to Mark Rose, KA0YDC, to list the candidates from the Election Committee and to accept nominations from the floor.

The Election Committee slate of officers is:

President, Mark Rose, KA0YDC.
Vice President, Bill Dobbs, K4TSF
Secretary, Randy Shiemke, KA8VSR
Treasurer, Jim Knight, KD4EHN

Board

Fred Carr, NC4EC
Tom Wolfe, K4CMY

Nominated from the floor:

Secretary, Susan Miller, KI4RZJ
Board, Tom Cash, K4ZQX

There being on additional nominations were closed

Mr. Bennington, WD4DJW, having arrived, gave the Treasurer's report.

Bank Accounts

Checking	8,576.93
Hamfest	<u>9,679.76</u>
	18,256.69

Cash Accounts

Post Office Bulk Mail	<u>184.23</u>
Total cash Accounts	184.23

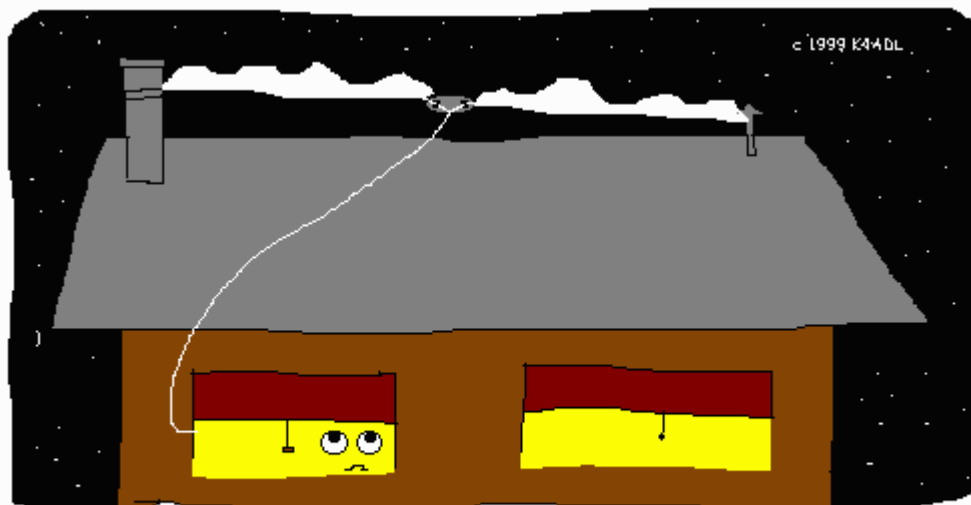
OVERALL TOTAL 18,440.92

A break was taken at this point.

At 8:30 PM Tom Morgan, K4VCM, introduced Ted Bryant, W4NZ, who told about his experiences doing mobile contesting in the Tennessee and Georgia QSO parties.

The meeting adjourned at 8:51 PM.

Respectfully submitted, Charlie Curle, AD4f, Secretary



WILBUR ASSUMED HIS MAGNET-WIRE DIPOLE WAS INVISIBLE TO THE HOMEOWNER'S ASSOCIATION, BUT THE FIRST SNOWSTORM OF THE SEASON PROVED HIM WRONG.

Membership Application
Chattanooga Amateur Radio Club
P.O. Box 23121
Chattanooga, TN 37422-3121

Name: _____ Call Sign: _____ Class: _____

Street or PO Box: _____

City: _____ State: _____ Zip+4: _____

Phone No: _____ Email: _____

Are you and ARRL Member? Yes or No Circle choice.

Spouse: _____ Call Sign: _____ Class: _____

Circle All Applicable:

New member Renewal Associate* Family**

New or Renewal Member \$ 18:00 _____

Associate Member* \$12:00 _____

Family Member**\$9:00 _____

ARRL Membership (New or Renewal)*** _____

TOTAL _____

NOTES:

* **Associate Membership** is available for unlicensed persons or licensed operators living 25 miles or more from meeting location.

****Family Membership** is available for licensed operators living at the same address as Member.

*****ARRL** membership is available through the club as new member or membership renewal. Simply send your application or renewal notice along with this application and your check. Your check should be made payable to the **Chattanooga Amateur Radio Club**. We will send it to the ARRL. (The club gets a handling fee from the ARRL.)

I / we agree to abide by the club's Rules and Regulations.

Signature / s _____ Date: _____

_____ Date: _____

Chattanooga Amateur Radio Club
P.O.Box 23121
Chattanooga TN 37421

NON PROFIT
RATE
US POSTAGE
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PERMIT NO.
804

ADDRESS SERVICE REQUESTED

CHRISTMAS PARTY

THURSDAY DECEMBER 18

6 PM

GOLDEN CORRAL

4506 HIXSON PIKE

HIXSON, TN

DUTCH TREAT

BRING THE FAMILY, BRING A FRIEND

ENJOY THE SEASON WITH YOUR FRIENDS