



Official Publication of the
West Allis Radio Amateur Club

Hamtrix

Volume 58, Issue 8 August, 2011

AUGUST CLUB HAPPENINGS

August Club meeting

August 9, 2011

Program: Elmer Night and Auction

Start thinking of questions for our Elmers
and

Bring items for the auction!

WARAC 2-meter net

Aug 16 & 30 & Sept 6, 2011 7:00pm

MATC repeater 147.045 standard offset

127.3 Hz CTCSS

Club Happenings

Reminder

The snack kitty provides funds for our after meeting
refreshments.

Help us keep the fund going for all our enjoyment!

August Auction

[It's Auction time! Here's how it's going to work.](#)

There will be two modes. You may donate your items to the club, or you may have your item auctioned with 10% of the selling price going to the club. All club proceeds will go to our scholarship fund.

If you want to donate your items, simply put them on the tables indicated for that when you bring them in. If you want your item auctioned, please mark the items with your name, starting price and minimum selling price and put them on the indicated table.

Bring your auction items, a few bucks to spend and have a good time! CU there!



The President's Shack August 2011

For the upcoming meeting, you need to bring three things. The first two things are stuff to sell at our Auction and money to buy the treasures that will be auctioned off. See elsewhere in this issue of Hamtrix for details on how the Auction will be conducted. The third thing you need to bring is your questions and problems for the Elmer team to answer.

Actually, there's one more thing you should bring – a friend! Everyone's welcome and the more, the merrier! Pass the word to anyone that may be interested.

If you haven't heard, the 2011 Wisconsin QSO Party results are now on our website. Check it out! Lynn's write-up provides some very good insights into what makes our contest work, especially the role that mobiles play. Thanks, Lynn, for all your hard work to organize and promote our QSO Party and also for compiling the results. Next year's Party will be on March 11, 2012.

Jackets and hats sporting our club logo are now available on-line, thanks to a deal worked out by Howard, WA9AXQ, with Gold Medal Industries. Go to the main page on our WARAC website and click on the Gold Medal logo. This will take you directly to the WARAC items. Thanks to Howard for setting this up.

Last but not least, please put this date on your calendar. Our WARAC Awards Dinner will be held on Sunday, October 30. Stay tuned for details.

And don't forget about our club's Antenna

Challenge. Just one more month until the September wrap-up meeting! If you need help preparing a presentation on your project, please contact me. See you at the meeting!
- Tom, K9BTQ

Letter From the Editor

Next meeting the program is Elmer night and auction. For the auction bring stuff you are keeping but know you will really not use. Have fun. Bring some money and at least change the view in your ham shack.

For those not familiar with the term Elmer it is the Ham equivalent to the martial arts Sensei (the wise teacher who shows you the path). Most hams have at least one in their life and most hams hope to become one for the next generation.

My Elmer is Ray W9ONN who moved into my neighborhood when I was in high school. He had a tower with a beam on it and a dipole strung from it. After circling his house a few times. I introduced myself and ask if he was a ham. He was! Ray was not only a Elmer for Ham radio but also a good friend. Took me a long time to get my license but I finally got it after my navy service and getting married.

So bring your questions for our Elmers!

As was mentioned all Lynns hard work on the QSO party is on our web page . If you see Lynn be sure to tell him thanks.

73

Frank KA9FZR

WARAC General Meeting Minutes

July 12, 2011

Introduction

The meeting was called to order at 7:03 PM by President, Tom Macon, K9BTQ. There was 1 visitor. Overall meeting attendance was 19.

Program

Vector Network Analyzers was given by Dave Garnier, WB9OWN. The program covered history, theory, applications, software and a live demonstration.

Announcements

Swapfest flyers are available for distribution. Observe the dates carefully for pricing changes based on date and quantity. Everyone is encouraged to sell tickets in advance.

The Antenna Challenge program is two months away. If you need help, be sure to contact Tom Macon or Chuck Craven.

The new Field Day site was an improvement. We fell short on operators and are encouraging more operators from the club membership. More CW interest would be highly welcomed.

Discussion

Motion was made and accepted to approve the June meetings minutes as published in Hamtrix.

August meeting is Elmer and Auction night. Bring items for auction and money!

Club hats and jackets are available for purchase through club website. The large logo patches previously discussed were cost prohibitive. The club hats will include call sign and small logo patch. Jackets will be royal blue and hats gray. The only investment on the club's part was the logo patches. There is a size table on the website to assist in determining the size needed.

WI QSO party results will be published on the website in the next week or two.

Motion was made and accepted to adjourn the meeting at 9:11 PM.

Correction from June 28th Board Meeting Minutes

The Board's decision should have been more precisely described as, "The Board's decision is to offer the jacket without the club logo on the back of the club jacket. Club hats will be gray and have the logo patch and call sign."

Respectfully submitted,
Chuck Dellis, W9WLX
Secretary WARAC

WARAC Board Meeting July 26th 2011

Howard Smith called the meeting to order at 7:02 pm.

Present: Tom Macon, K9BTQ, Howard Smith, WA9AXQ, Chuck Dellis, W9WLX, Chuck Craven, WB9PUB, Frank Humpal, KA9FZR, Dave Schank KA9WXN, Jim Wilkins, KC9KEQ.

Budget

Discussed the form to be used for the receipt of donated funds/goods. This form and tagging process to be discussed with club members involved in transactions. Club items sold at the South Milwaukee Swapfest were 2 generators and a National Receiver.

Club Hats & Jackets

Logo patches have been purchased and club hats and jackets are available for purchase through the club website.

Scholarship

Discussed details of ARRL/WARAC Dave Knaus Memorial Scholarship. Recipient must be in an Associates or Bachelors degree program, any area of study, and preference given to Wisconsin resident. Funds will be moved to ARRL scholarship administration.

Website

Tom Macon will submit form to change ownership of website. Currently is it still in Dave Knaus' name.

Programs

August – Elmer Night & Auction

Members may donate 100% or 10% of proceeds to club on any items auctioned.

September – Antenna Challenge

October: Tom to contact Gary Sutcliff to determine availability for Moonbounce program.

Future: Prototyping

The meeting was adjourned at 9:10 pm.

Respectfully submitted,
Chuck Dellis, W9WLX
Secretary WARAC

Tidbits

Here's an item from our Wisconsin ARRL Section Manager:

Judging from the Field Day reports in the newsletters and traffic messages I received, it appears that Field Day was a big success! We hope that you had a great time and had a chance to demonstrate your station to the general public. It is important to keep ourselves visible in our community!

73,
Don, W9IXG

FUN

The Antenna

Bert Thompson, KG6SL

Dear Bert,

I received this letter from an old friend, Joe Speroni AH0A/7J1AAA, who has been living and working in Japan for many years. He is also the author of the well-known MORSE ACADEMY software for teaching Morse code. Anyway, it was such an exciting letter that I thought it would be of interest to others here on "the Web".

Best 73 de Sandy, W7BX

Dear Sandy, W7BX

Greetings from Tokyo and all the members of TIARA (Tokyo International Amateur Radio Association). I know I promised you a series of articles on Japanese amateur radio, but there is something so exciting I just have to take a break and tell you about it.

It all started with the work that Ed Coan (AH7L/7J1AAE) did on antenna pattern plotting using his personal computer and the A-to-D converter in his FT-1000. The circular, and even backward antenna patterns of some of our local TIARA club members brought home the point that what a good station needs is a good antenna. Ed's antenna looks great and the results verify it. He works regular schedules into Colorado and Maine, just like sunspots don't mean anything. My mini-beam just could not compare.

Well, I got to thinking about what we Tokyo apartment dwellers could do and realized that space is THE problem. How do you fit a full-sized beam on a balcony? Loading coils are the answer and the problem at the same time -- the antenna radiation resistance drops as reactance is substituted for length. High current loops develop and the power is dissipated in the antenna instead of being radiated. If only the antenna didn't dissipate the power. Hmm...let's see, $P=E^2/R$; now if R were 0 then...

From my work, I have some contacts in research groups over at Tokyo University. Better yet, I knew a Japanese ham that is a graduate student there. The thought running through my head was to build a super-conducting antenna. This requires cryogenics, i.e. temperatures around minus 279 degrees Centigrade. I was able get the university folks interested in the project and we built a 10-meter dipole test silicon wafer. They put together a lot of serial coils by "re-work" on the wafer; they were able to connect them so we had a super-conducting yagi. I took my TS-930 transceiver down to the lab for the first tests, but before we

could test it, actual measurements showed it was resonant on 3.126 MHz. It seems that the normal equations for inductance don't work with super-conducting materials -- you need a lot fewer turns to get the same results compared to room temperature. Many measurements and trials later, we had a ten-meter resonant wafer. This time we put a 40-element beam on each wafer and stacked 4 wafers in the same assembly. That made a 160-element array on 10-meters in less than a half-foot cube (15 cm³).

The first test didn't go too well. I connected my TS-930 to the super-conducting wafer antenna and tuned it for 10 meters. At room temperature, we couldn't hear anything. Using a heat pump, the lab technicians started lowering the antenna's temperature toward the super-conducting region. I was really impressed by how small the equipment is, and started thinking it might all fit in the shack. Just then, the TS-930 froze solid, which had a negative effect on its operating characteristics. This wouldn't be so easy after all; the coax connection would need some study!

We reworked the wafers to put inductive coupling on them, but I could find no way to efficiently couple to it from the conducting array. Fortunately the lab technicians came up with a new ceramic material that passed RF but not heat. Probably, something that Kyocera invented just for this use. I sent the TS-930 to the ham shop in Akihabara and asked them to touch it up for me. My friend Suzuki-San, JH1WWC (store manager at the ham shop), asked exactly how the paint had been peeled off around the coax connector -- lightning maybe? No, I assured him -- just low temperature exposure, without saying how low the temperatures were. The project had to stay secret and besides, Suzuki-San can repair anything!

Since it looked like it might be a while before the TS-930 would be repaired, I brought out my TS-940. I had already placed an order for a Yaesu FT-1000 anyway. After verifying that in the super-conducting range the antenna was resonant on 10-meters, we connected the TS-940. The ceramic material worked and the rig operated well as we began the cooling cycle. The band seemed dead even with the antenna at -150 degrees C. It took another 10 minutes to get to the super-conducting range -- then the TS-940 blew up. It seems our antenna had a bit more gain than the TS-940 front-end could take. Later measurements showed 500 volts coming out of the coax. A little hard to believe, but then what do I know about cryogenic LSI antenna technology? The TS-940 was also returned to Suzuki-San, but this time he frowned a bit -- the front-end board did look like it had been hit by lightning. Not to worry, Suzuki-San can repair anything!

The FT-1000 arrived just in time to be able to continue experiments. We built a QSK attenuator to protect the receiver. With the LSI wafer antenna still inside the lab, we decided to try to make a contact on 10-meters. What a shock when we got it working! The first thing we heard was a couple of W2's talking locally on 10 meters and that was with 80 dB of attenuation. We had the antenna array on a rotatable mount; I moved it about a half-degree and the W2's disappeared. What beam width! We tuned them in again, and they were just about to sign off, so we thought we would try to work them. The rig was tuned up at 50 watts on a dummy load; we switched in the wafer antenna and gave N2BA a call. The noise was unbelievable -- an ionized ray shot out from the antenna and hit the wall of the building. Before we knocked a hole in the band, we took a piece out of the lab wall! Ever wonder what an antenna pattern looks like in three dimensions? There was a oval hole in the wall of the lab -- about 1-cm high by 2-cm wide. We cut power quickly. N2BA came back on frequency a few minutes later and said he was using his back-up rig; something had taken his main rig off the air. For some reason, the station he was talking to never came back, so we decided not to transmit again until we knew for sure what was going on.

As near as we can tell, the antenna array has 620-dB gain over a dipole, but with a beamwidth of 0.75 degrees using the 60-dB points. With 50 watts output, the effective radiated power is 55 quadrillion watts at the center of the beam (5.5 with 13 zeroes). As soon as the University realized what we had built, the entire

project was taken away from us and turned over to the Japanese Self-Defense Force. Amateur radio "tinkering" has contributed to something, but I am not exactly sure what. I haven't the slightest idea what was in those wafers or how to build another set. Do you think someone may be interested in this idea for Star Wars/SDI?? What I'd give to use a much smaller set in the next CQ World Wide Contest!

A few months later, the University contacted all of us and asked just how close we had been to the antenna when operating. As best as I can figure, we were in the null behind the array. From what has been said so far, it looks like a secondary use for our antenna may be as a mass sterilizer, but confirmation will have to await the results of our medical tests. If our antenna ever hits the market, it looks like remote operation may be desirable.

As I am writing this, I have been informed that my friend Suzuki-San can't fix everything after all. He's written off the TS-930 and TS-940, and I just found out that before the university terminated the project, they tried one more time with my FT-1000, but without the 100-dB attenuator to protect the receiver. Its front-end now matches the 940's and it looks like it will be a while before I am on the air again.

Best 73,

Joe Speroni, AH0A/7J1AAA

Ex-Technical Adviser TIARA

1 April 1997 Last modified 06/13/2007 12:15:21

By Joe Speroni

Email:

This story has been edited and reprinted from the April 1985 issue of the Tokyo International Amateur Radio Association's (TIARA) newsletter. Permission is hereby granted to reprint all or any portion of the material, provided credit is given to both TIARA NEWS and the author - Joe Speroni, AH0A/7J1AAA.

Officers and Board

President

Tom Macon, K9BTQ

Vice President

Howard Smith, WA9AXQ

Secretary

Chuck Dellis, W9WLX

Treasurer

Chuck Craven, WB9PUB

Directors

Frank Humpal, KA9FZR

Dave Schank, KA9WXN

Jim Wilkins, KC9KEQ

Newsletter Editor

Frank Humpal, KA9FZR

fhump@milwpc.com

Webmaster

Tom Macon, K9BTQ

West Allis Radio Amateur Club, Inc.
Tom Macon, K9BTQ
3547 S. 95 St
Milwaukee, WI 53228



WEST ALLIS RADIO AMATEUR CLUB, INC.

PO Box 1072
Milwaukee, WI 53201
W9FK
<http://www.warac.org>

***See our Web Page or contact us
for more information on***

- WARAC Memorial Scholarships
- Wisconsin QSO Party
- Midwinter Swapfest
- Worked all Wisconsin Counties Award
- Amateur Radio Classes

WARAC holds meetings on the second Tuesday of each month and board meetings on the fourth Tuesday of each month. Meetings are held at 7:00 PM at:

**St Peter's Episcopal Church
7929 W. Lincoln Avenue
West Allis, WI**

Entry is off the alley at the rear of the church.
A wheel chair ramp and chair-lift are available.