



Official Publication of the  
West Allis Radio Amateur Club

# Hamtrix

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## FEBRUARY CLUB HAPPENINGS



**NUT NET**  
3.985mhz  
Monday-Saturday  
8:15am CT

**Milwaukee-Florida Net**  
Every Day on 14.290 Mhz  
7:00AM - 9:15AM ET  
6:00AM - 8:15AM CT



### Club Meeting

St. Peter's Episcopal Church,  
7929 W. Lincoln Avenue, West Allis  
February 15, 2017

Wisconsin QSO Party

Join us for a pre-meeting dinner  
at Johnny V's Classic Café  
1650 S 84th St at 5:00pm

**2017 Dues will be collected at the meeting.**

### Wisconsin QSO Party March 12, 2017

1:00PM CDT to 8:00PM CDT

[Click here to go to web page](#)

**New Repeater: N9BMH Repeater 146.820 (-)  
PL 127.3**

### WARAC 2-meter net

Every Wednesday at 8pm

SEWFARS K9ABC Repeater 146.820 standard (-)offset  
127.3 Hz CTCSS

if repeater down try 146.55 simplex

Club jackets and hats!  
Go to club Web site and click on  
The GOLD MEDAL IDEAS block  
[For more info or click here](#)



# *The President's Shack February 2017*

See you at the meeting! Bring a friend! Come to have fun!

Tom, K9BTQ

Our March club meeting is on March 14, two days after the Wisconsin QSO Party, so the upcoming February meeting will be our in-depth run-up to the big day - Sunday, March 12! This contest focuses the attention of hams all over the world on Wisconsin, and WARAC is privileged to be the sponsoring organization.

Don't think you need to be a big contester to play an important role - think of a contest where only the big gun contesters show up. I think they would find it awfully boring with just themselves, don't you? The little pistols are essential to having lots of fun activity. These smaller contests are called "Parties" for good reason - and the more the merrier! So please make plans to be on the air and enjoy the party. Seven hours - 1:00pm to 8:00pm. As you might expect, the main program at the upcoming meeting will be the QSO Party, and all aspects will be open for discussion. Bring your questions, ideas, plans and suggestions. Meanwhile, all you need to know about the 2017 edition of our Party is (or soon will be) on our website at <http://www.warac.org/wqp/wqp.htm>. Check it out!

A change in WIQP this year is that working our club call, W9FK, will get you a 100-point bonus for every band and mode where contact is made. The voice behind W9FK will be Chuck Dellis, W9WLX. Thanks, Chuck, for volunteering to do this. More at the meeting.

The upcoming meeting will also have a wrap-up of National Parks On The Air by Mike Johnson, WO9B. He will summarize all the adventures.

And, as always, don't forget our before-meeting dinner at **Johnny V's Classic Café, 1650 S. 84th St. at 5:00PM.**

## **From the Editor**

The February meeting will be our last meeting before the club sponsored QSO Party in March. Mike WO9B, Bill N9KPH and me are gathering bits and pieces for our mobile QSO party entry. We have most of the pieces, now to get them together and see how they work.

Rather than go the full mobile route we are going to set up and run on batteries. We hope to reduce the normal mobile problems of noise and car computer problems. We will have more info after the party.

Having spent last year trying different configurations during the NPOTA event we do have a little experience operating in this mode.

There is not a whole lot going on radio wise. If you look in the hamtrix I included an article on microwave ham operation. Just one of the many options for us hams. Since it is almost exclusively line of site, this area probably is not best for its use. The web page that I got it from has many resources if it gets your interest.

See you next week at the meeting

73

Frank

# **WARAC General Meeting Minutes**

## **January 10, 2017**

### **Introduction**

The meeting was called to order at 19:04 by President, Tom Macon (K9BTQ). Overall meeting attendance was 15 members, plus 1 visitor.

### **Tonight's Program:**

- January, 2017: How Ham Radio integrates with Emergency Management – Jim Burns (KD9CIV)
- Discussion of 2017 Swapfest results by Erwin von der Ehe (WI9EV) & Phil Gural (W9NAW) & Howard Smith (WA9AXQ)

### **Future Programs:**

- February, 2017: WI QSO Party discussion
- March, 2017: Open

### **Announcements**

- QSO Party has some rule changes for his year.
- New plaque designs are implemented
- WIQSO Certificates are now e-mailed

### **Business**

- Motion was made and accepted to approve the December general meeting minutes as published in Hamtrix.
- Consider a different venue for general meeting dinner – no suggestions.
- NPOTA discussion is short because Mike Johnson (WO9B) was absent.
- Wednesday night net is now on the K9ABC/R 146.82(-) PL 127.3, located at Lapham Peak
- NutNet breakfast is at 08:30 on 4th Tuesday of month.

The meeting was adjourned at 20:37.

Respectfully submitted,  
Erwin von der Ehe (WI9EV)  
Secretary, W.A.R.A.C.  
2017-01-10

# **W.A.R.A.C. Board Meeting**

## **January 24, 2017**

Howard Smith (WA9AXQ) called the meeting to order at 19:03.

Present: Tom Macon (K9BTQ), Howard Smith (WA9AXQ), Erwin von der Ehe (WI9EV), Steve Dryja (NO9B), Frank Humpal (KA9FZR), Mike Johnson (WO9B).

Howard Smith (WA9AXQ) presented the monthly Treasurer's report as well as the 2017 budget was reviewed.

The topic of amending our ARRL Foundation terms to specify a \$2000 scholarship was discussed. Will leave "as-is" and discuss it next year.

Erwin von der Ehe (WI9EV) gave a very preliminary status of the 2017 Swapfest.

Mike Johnson (WO9B) presented an e-mail dated January 24, 2017 from SEWFARS giving usage guidelines for their VHF repeater for the W.A.R.A.C. Wednesday night Net. The guidelines were voted on and approved.

Club operation manual was discussed. Tom will update the status document.

Common club document repository was discussed. Steve will investigate a service or two and report back.

Sunshine Committee: Tom will contact a potential chair.

### **Programs**

February, 2017: NPOTA wrap-up, WIQP

March, 2017: WIQP wrap-up

April, 2017: ARRL topics?

### **Future Program Ideas**

Logger 32 logging software

SO2R Contest operating

WE Energies or Time-Warner Cable noise tracking

FM38 Repeater System

Youtube downloads

ARES

Solar weather

### **Other Items**

2-meter net is meeting on the Delafield K9ABC Repeater 146.82 (-) PL 127.3 on Wednesday evenings at 20:00.

Club equipment storage needs to be addressed due to losing use of existing garage. Steve will investigate a 15-FT trailer and notify the board for approval.

W.A.R.A.C. constitution update: Howard will send previous e-mails to board members, who should return comments by the next board meeting.

Meeting was adjourned at 21:25.

Respectfully submitted,  
Erwin von der Ehe (WI9EV)  
Secretary, W.A.R.A.C.  
2017-01-24

## Swap fest pictures.







# Getting Started in Amateur Microwave Radio

Posted on August 5, 2012

Found on web at <http://reactancelabs.com/?p=111>

You might be interested in Amateur Microwave Radio if you:

- Are interested in experimenting with RF and microwave technologies
- Are interested in learning about microwave signal propagation
- Want more points in UHF/VHF microwave contests
- Want to build cutting edge equipment using exotic technologies
- Like the idea of taking your home built radios to mountain-tops for microwave contesting
- Are interested in setting new records or trying new techniques in the field of microwaves
- Want to bounce signals off the moon!

Microwave Amateur Radio is a hobby within a hobby, namely Amateur of “Ham” radio. Amateur Radio operators are licensed by the government to transmit signals in selected bands across a broad spectrum from as low as 1.8 MHz all the way up to 250 GHz!

In the United States, the majority of amateur microwave radio activity occurs during annual contests, including the ARRL 10 GHz and Up Cumulative Contest. During this annual two-weekend contest, microwave enthusiasts take their radios outside to make contacts with one another, frequently from the tops of mountains due to the line-of-sight nature of microwaves. These contacts are usually voice (single-sideband suppressed carrier) or CW (Morse Code). Points are awarded for a combination of distance between contacts and number of unique call signs collected. Most activity occurs in the 10 GHz band, but extra points are awarded for any higher bands used including lightwave communications!

Microwave Amateur Radio enthusiasts being enthusiastic about microwave radio

Nearly all Microwave Amateur Radio enthusiasts build radios at some point, but many start off by borrowing someone’s spare radio to get started. This enables the first-timer to get on the air and experience microwave radio first hand. There are a number of clubs around the world whose members are more than willing to help out newcomers to the hobby. In addition to technical mentoring, the clubs often have access to or ownership of sophisticated, costly test equipment that a newcomer will be hard pressed to find elsewhere. Finally, many clubs hold regular meetings where items of technical interest are presented.

Clubs in the United States:

- San Diego Microwave Group (San Diego, California) – Where I got my start!
- San Bernardino Microwave Society (LA and Southern California) – Monthly meetings broadcast online
- 50 MHz and Up Group of Northern California (Monthly meetings in Sunnyvale, California)

Pacific Northwest VHF Society  
North Texas Microwave Society  
North East Weak Signal Group (Massachusetts)  
Southeastern VHF Society (Georgia)  
Road Runners Microwave Group (Southern Texas, Austin)  
Florida Weak Signal Society

There are many clubs and individuals around the world focused on Microwave Amateur Radio including:

VKFAQ (Microwave Radio in Australia)  
Radio Society of Great Britain Microwave  
Greek Microwave Group  
Netherlands  
Russia  
France

Modified 10 Ghz power amplifier

Modified 10 Ghz power amplifier

If you can't find a club near you, there are other ways to get on the air. A number of manufacturers sell kits and parts for building your own microwave radios with only minimal test equipment required. These include:

Reactance Labs of course  
Kuhne Electronic (wide range of kits and pre-built)  
Down East Microwave (wide range of kits and pre-built)

An important aspect of Microwave Amateur Radio is the re-use of surplus electronics. Some of the technologies and equipment used in microwave radio are prohibitively expensive when purchased new. Microwave Amateur Radio enthusiasts pride themselves on taking old surplus electronics and modifying (or hacking) it for their own use. Some examples of this include Rubidium frequency standards, YIG synthesizers, Travelling Wave Tube Amplifiers, dish antennas, point-point microwave and millimeter-wave data link radios, satellite communications equipment, etc. Lots of this can be found on eBay and at local surplus electronics stores.

Lots of documentation exists for hardware modifications:

Technical Papers from the San Diego Microwave group  
KE5FX John Miles – Lots of interesting info here!



So if you want to get started in Microwave Amateur Radio, take a look at the links above, read about what others are doing, and get in touch with a Microwave Ham and get building!  
KC6QHP doing microwaves

Tony, KC6QHP on Frazier Mountain copying a signal on the 47 Ghz band

Good Luck and I hope to see you on the microwave and millimeter wave bands soon!

#### Officers and Board

##### President

Tom Macon, K9BTQ

##### Vice President

Steve Dryja, NO9B

##### Secretary

Erwin von der Ehe, WI9EV

##### Treasurer

Howard Smith WA9AXO

##### Directors

Frank Humpal, KA9FZR

Dave Garnier WB9OWN

Mike Johnson WO9B

##### 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.